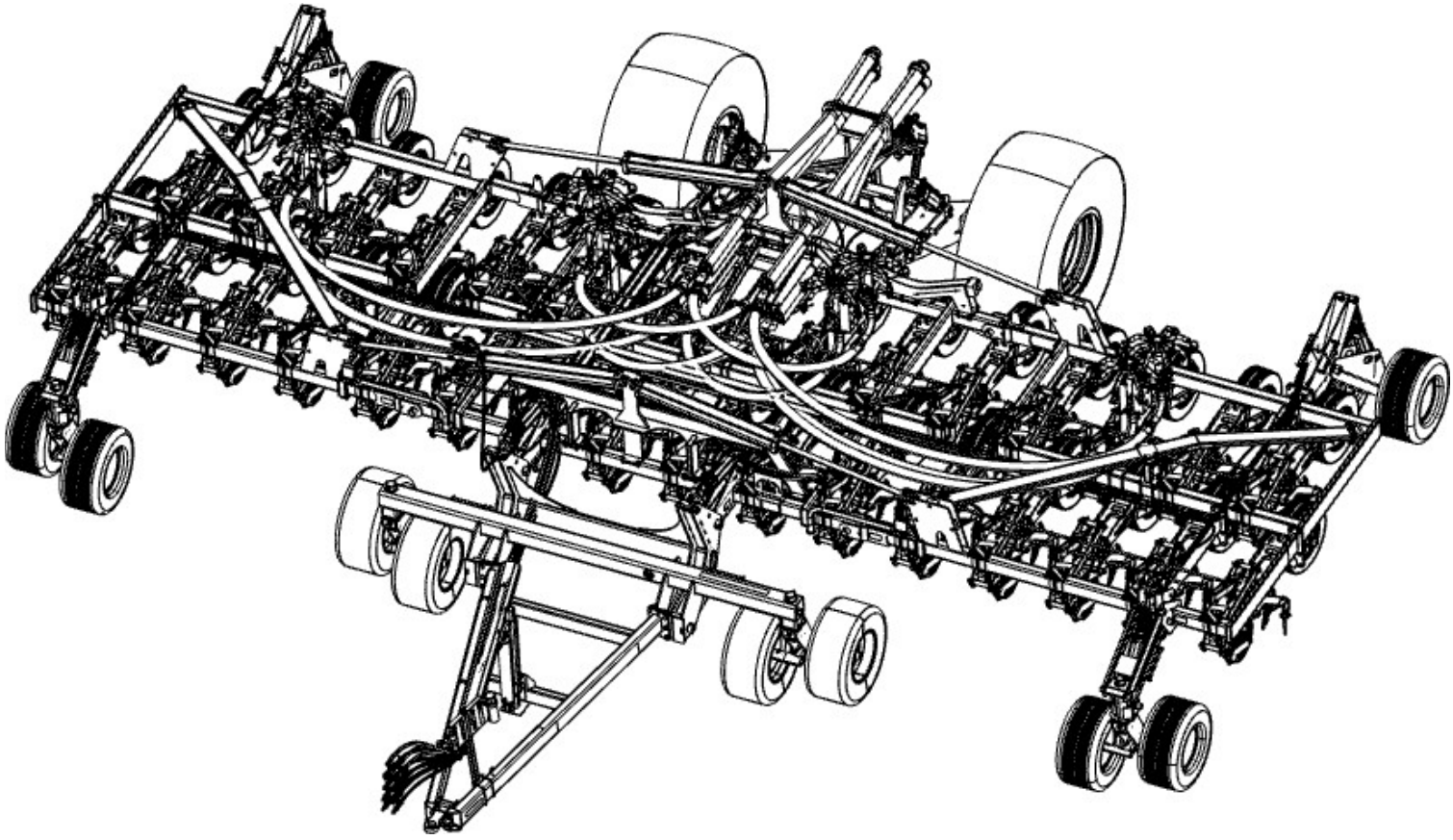
concord®

OPERATORS MANUAL



Precision Shank Drill

Printed in USA (74356-02) 8/20

AGCO-Amity JV LLC LIMITED WARRANTY TERMS AND CONDITIONS – UNITED STATES AND CANADA

EFFECTIVE FOR EQUIPMENT RETAILED AND DELIVERED AFTER JANUARY 1, 2020

WHAT IS WARRANTED AGCO Amity JV warrants its new equipment to be free of defects in material and workmanship at time of delivery to the first retail purchaser, renter, or lessee. These terms apply to all 10K, Amity, Concord, Wil-Rich and Wishek brands of new equipment originally marketed in the United States and Canada.

WARRANTY PERIOD

- 12 Months from the date of delivery to the first retail purchaser, renter or lessee.
- 483 Disk Chisel, Field Cultivator and Disk Cultivators: 3 years on main frames, wing frames, and shank assemblies
- Precision Shank Drill: 3 years on main frame, wing frame, and rockshafts.

EXCEPTIONS FROM THIS WARRANTY

- Freight Charges - This warranty does not cover freight charges.
- Improvements, Changes, or Discontinuance AGCO Amity JV reserves the right to make changes and improvements in design or changes in specifications at any time to any product without incurring any obligations to owners of products previously sold.
- Repairs and Maintenance Not Covered Under Warranty - This warranty does not cover conditions resulting from misuse, natural calamities, use of non-AGCO-Amity JV parts, negligence, alteration, accident, use of unapproved attachments, usage which is contrary to the intended purposes, or conditions caused by failure to perform required maintenance. Replacement of Wear or Maintenance items (unless defective) such as but not limited to, filters, hoses, belts, lubricants, light bulbs, wheel alignment, tightening of nuts, belts, bolts, and fittings, service tune-up, computer parameter adjustments and general adjustments which may from time to time be required are not covered.
- Rubber Tire Warranty - Rubber tires are warranted directly by the respective manufacturer only and not by AGCO Amity JV.
- Satellite Outages - Interruptions in satellite interfaces and satellite communications are outside the control of this product and are not covered by this warranty. The company is not responsible for issues or degradation of system performance resulting from such interruptions in satellite interfaces and satellite communications where the issues are not related to defects in this product.

OWNER'S OBLIGATION

It is the responsibility of the Owner to transport the equipment or parts to the service shop of an authorized AGCO Amity JV Dealer or alternatively to reimburse the Dealer for any travel or transportation expense involved in fulfilling this warranty. This Warranty does NOT cover rental of replacement equipment during the repair period, damage to products which have been declared a total loss and subsequently salvaged, overtime labor charges, freight charges for replacement parts, or special handling requirements (such as, but not limited to, the use of cranes).

EXCLUSIVE EFFECT OF WARRANTY AND LIMITATION OF LIABILITY

THIS WARRANTY IS IN LIEU OF ALL WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PURPOSE OR OTHER REPRESENTATIONS, WARRANTIES OR CONDITIONS, EXPRESSED OR IMPLIED. The remedies of the Owner set forth herein are exclusive. The Company neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the sale of covered machines. Correction of defects, in the manner and for applicable period of time provided above, shall constitute fulfillment of all responsibilities of AGCO Amity JV to the Owner, and AGCO Amity JV shall not be liable for negligence under contract or in any manner with respect to such machines. IN NO EVENT SHALL THE OWNER BE ENTITLED TO RECOVER FOR INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES SUCH AS BUT NOT LIMITED TO, LOSS OF CROPS, LOSS OF PROFITS OR REVENUE, OTHER COMMERCIAL LOSSES, INCONVENIENCE OR COST OF RENTAL OR REPLACEMENT EQUIPMENT.

Some States or Provinces do not permit limitations or exclusions of implied warranties or incidental or consequential damages, so the limitations or exclusions in this warranty may not apply.

"AGCO Amity JV" AS REFERRED TO HEREIN WITH RESPECT TO SALES IN: UNITED STATES and CANADA: AGCO Amity JV LLC
PO Box 1030
Wahpeton, ND 58074

Additional Warranty Information

New Equipment Warranty - Equipment is eligible for warranty service only if it qualifies under the provisions of the New Equipment Warranty. The selling dealer will deliver this Warranty to the original retail purchaser at the time of sale, and the dealer will register the sale and Warranty with AGCO Amity JV LLC.

Subsequent Owners - This Warranty covers the first retail purchaser and all subsequent owners of the equipment during the specified warranty period. Should the AGCO Amity JV Dealer sell this equipment to a subsequent owner, the Dealer must deliver the warranty document to the subsequent owner so the subsequent owner can register ownership with AGCO Amity JV and obtain the remaining warranty benefits, if available, with no intermission in the Warranty Period. Subsequent Owner Procedure will apply. It is the responsibility of the subsequent owner to transport the equipment to the service shop of an authorized AGCO Amity JV Dealer or alternatively to reimburse the Dealer for any travel or transportation expense involved in fulfilling this warranty. This Warranty does NOT cover charges for rental or replacement equipment during the repair period, products which have been declared a total loss and subsequently salvaged, overtime labor charges, freight charges for replacement parts, or units sold at auction.

Warranty Service - To be covered by Warranty, service must be performed by an authorized AGCO Amity JV Dealer. It is recommended that you obtain warranty service from the Dealer who sold you the equipment because of that Dealer's continued interest in you as a valued customer. In the event this is not possible, warranty service may be performed by any other authorized AGCO Amity JV Dealers in the United States or Canada. It is the responsibility of the Owner to transport the equipment to the service shop of an authorized AGCO Amity JV Dealer or alternatively to reimburse the Dealer for any travel or transportation expense involved in fulfilling this warranty.

Maintenance Service - The Owner's Manual furnished to you with the equipment at the time of delivery contains important maintenance and service information. You must read the manual carefully and follow all the maintenance and service recommendations. Doing so will result in greater satisfaction with your equipment and help avoid service and warranty problems. Please remember that failures due to improper maintenance of your equipment are not covered by warranty.

Maintenance Inspections - To insure the continued best performance from your agricultural equipment, we recommend that you arrange to make your equipment available to your selling Dealer for a maintenance inspection 30 days prior to warranty expiration.

Precision Shank Drill

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To the Owner

It is the responsibility of the user to read the operators manuals and comply with the correct operating procedures as pertains to the operation, lubrication and maintenance of the product according to the information outlined in the Operator's Manual.

If this machine is used by an employee or is loaned or rented, make certain that the operator(s), prior to operating, is instructed in the proper use and reviews and understands the Operator's Manual. This machine should only be operated by a trained operator that has been qualified to operate this machine.

The user is responsible for inspecting the machine and for having parts repaired or replaced when continued use of this product would cause damage or excessive wear to the other parts.

The word NOTE is used for information that is special such as specifications, techniques, or reference information of supplementary nature.

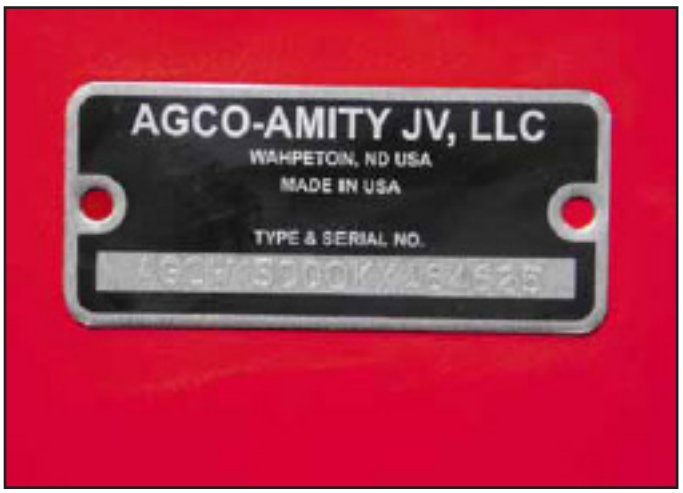
The word IMPORTANT is used for information that must be read and procedures followed for the safe and proper operation of the machine.

References to the right (RH) or left (LH) on the machine are from the view of the operator sitting in the cab of the tractor.

Disclaimer

It is company policy to improve its products whenever possible and practical to do so. We reserve the right to make changes, improvements and modifications at any time without incurring obligation to make such changes, improvement on any equipment sold previously.

Serial Number



When in need of parts, always specify the model and serial number. The serial number plate is located on the front rank of the mainframe on the left hand side.

1.1 Safety Symbol

The safety symbol tells you about a potentially hazardous area!

Look for the safety symbol in this manual and on the machine. The safety symbols tell you that there is important safety instructions in the manual.

1.2 Safety Messages

The words DANGER, WARNING, or CAUTION are used with the safety symbol. Learn these safety messages and obey the recommended precautions and safety instructions.

DANGER:
If you do not obey the recommended precautions and safety instructions, DEATH or INJURY will occur.

WARNING:
If you do not obey the recommended precautions and safety instructions, DEATH or INJURY will occur.

CAUTION:
If you do not obey the recomended precautions and safety instructions, INJURY can possibly occur.

1.3 Information Messages

The words important and note are not related to personal safety, and are used to give information about the operation and servicing of the machine.

IMPORTANT: Identifies special instruction or procedures which, if not followed, can cause damage to the machine, the process, or the area around the machine.

NOTE: Information to make procedures easier.

1.4 Safety signs

WARNING:
Do not remove the safety signs. Replace safety signs that you cannot read, are damaged, or are missing.

Clean the machine surface with a weak soap and water solution before you replace the safety signs. Replacement safety signs are available from your dealer.

Always make sure that safety signs are in the correct locatioins and that you can read the safety signs. Illustrations of the safety signs are in this section.

1.5 This Manual

This manual covers general safety instructions for this machine. Keep this manual with the machine.

Right and Left, as used in this manual, are given as if you are in the operator seat.

The photos and illustrations used in this manual were up to date when published, but in-line production changes can make your machine have small differences. The manufacturer reserves the right to redesign and change the machine as necessary without notification.

1.6 Prepare for Operation

Read and understand all operation instructions and pre cautions in this manual before you operate the machine or do the servicing.

Make sure that you know and understand the positions and operations of all controls. Make sure that all controls are in neutral and that the parking brake is applied before you start the machine.

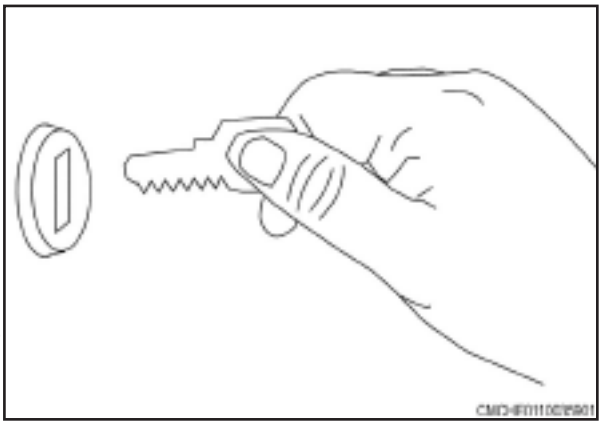
Make sure that all persons are away from your area of work before you start and operate the machine. Examine and learn the controls in an area that is clear of persons and obstacles before you start work. Know the machine dimensions and make sure that you have sufficient space available to operate the machine. Do not operate the machine at high speeds in crowded areas.

It is important to know and use the correct procedures when you do work around and operate the machine. Do not let children or unqualified persons operate the machine. Keep others, especially children, away from your area of work. Do not let others ride on the machine.

Make sure that the machine is in good condition for operation. Refer to the operator manual. Make sure that the machine has the correct equipment required by local regulations.

All equipment has a limit. Make sure you understand the speed, brakes, steering, stability and load characteristics of this machine and the tractor before you start.

1.7 General Information



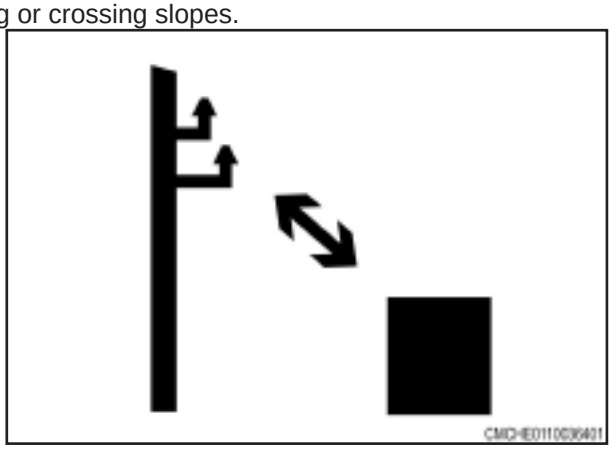
When parking, park the machine and the tractor on a solid level surface. Put all controls in neutral and apply the tractor park brake. Stop the tractor engine and take the key with you.

Make sure the tractor and implement are in the proper operating condition according to the operator manuals. Make sure the tractor brakes and the machine brakes are adjusted correctly.

The tractor must have enough weight and braking capacity, especially when operating on roads and terrain that is not even. Use a tractor of recommended size and weight to tow the machine.

Tractor must be equipped with rollover protective structure (ROPS) and a seat belt. Use seat belt during operation. Do not dismount from moving machinery. Always operate the machine with the terminal turned on. Never start the tractor with the PTO engaged or terminal turned on.

Stay off slopes too steep for operation.
Where possible avoid operating the machine near ditches, embankments, and holes. Reduce ground speed when operating on rough, slippery, or muddy surfaces and when turning or crossing slopes.



Be aware of the size of the machine and have enough space available to allow for operation.

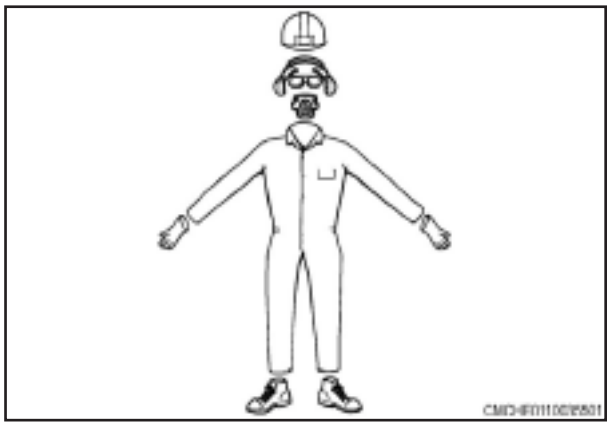
Always lower the machine when not in use and relieve the pressure in the hoses and cylinders.

Do not stand between the tractor and the implement to install the hitch pin when the tractor engine is running.

Avoid contact with electrical power lines. Contact with electrical power lines can cause electrical shock, resulting in very serious injury or death.

1.8 Personal Protective Equipment

Put on all personal protective equipment (PPE) and protective clothes that are supplied to you or that are necessary for the conditions and by applicable laws. PPE includes equipment to prevent injury to your eyes, lungs, ears, head, hands and feet.



1.9 Shields and Guards

WARNING:
Entanglement hazard. Belts and components that rotate.

Severe personal injury or death can occur.

Do not open, remove, or put your hand behind shields if the engine is running. Stop the machine before doing service.

All shields and guards must be in the correct position and in good condition. Keep away from the components that rotate.

DANGER:
Entanglement hazard. Rotating components

Severe personal injury or death can occur.

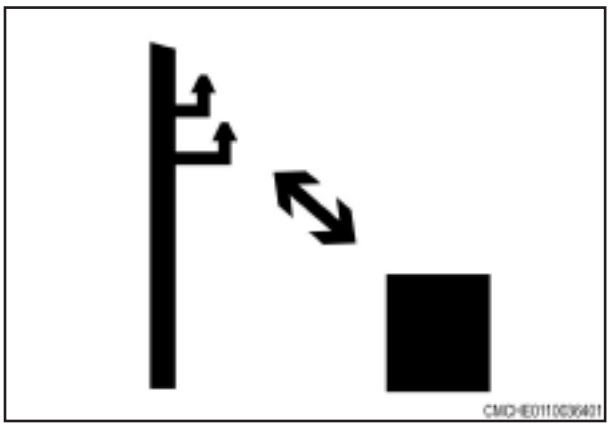
Do not make adjustments or repairs to componenets while they are moving. Stop the machine before doing service to the machine.

1.10 Flying Debris

WARNING:
Be careful when you operate along the side of a road or structures. Rocks and other materials can be thrown from the machine during operation and can cause injury.

Stay away from the machine during operation. Some materials can be thrown from the machine during operation and cause injury.

1.11 Travel on Public Roads



Make sure you understand the speed, brakes, steering, stability, and load characteristics of this machine before you travel on public roads.

Use good judgment when traveling on public roads. Maintain complete control of the machine at all times. Never coast down hills.

The maximum speed of farm equipment is governed by local regulations. Adjust travel speed to maintain control at all times.

Familiarize yourself with and obey all road regulations that apply to your machine. Consult your local law enforcement agency for local regulations regarding movement of farm equipment on public roads. Use head lamps, flashing warning lamps, tail lamps and turn signals, day and night, unless prohibited by local law.

Make sure all the flashers are operating prior to driving on the road. Make sure reflectors are correctly installed, in good condition, and wiped clean. Make sure the Slow Moving Vehicle (SMV) emblem is clean, visible, and correctly mounted on the rear of the machine.

Lock brake pedals together (if equipped with dual brake pedals) so both wheel brakes will be applied at the same time.

Raise implements to transport position and lock in place. Place all implements into narrowest transport configuration. Disengage the power take-off and differential lock.

With towed implements, use a proper hitch pin with a clip retainer and safety transport chain
.
Use a safety transport chain with a strength rating equal to or more than the gross weight of the towed machine.

Connect the safety transport chain to the tractor drawbar and use a retainer on the hitch pin.

Supply only enough slack in the safety transport chain to permit turning.

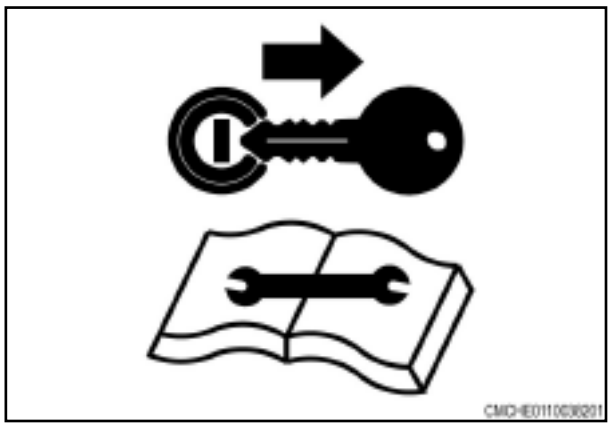
Do not use the safety transport chain as a tow chain for towing.

Be aware of other traffic on the road. Keep well over to your own side of the road and pull over, whenever possible, to let faster traffic pass.

Be aware of the overall width, length, height, and weight of the machine. Be careful when transporting the machine on narrow roads and across narrow bridges.

Watch for overhead wires and other obstructions. Avoid contact with electrical power lines. Contact with electrical power lines can cause electrical shock, resulting in very serious injury or death.

1.12 General Maintenance Information



Before you do maintenance, lubricate, do servicing, clean, or make adjustments:

- Park the machine on a solid, level surface.
- Make sure that all the controls are in the neutral position and apply the parking break.
- Make sure that the machine and the attachments are lowered to the ground.
- Stop the engine and take the key with you.
- Look and Listen! Make sure that all parts have stopped moving.
- Put chocks in front of and behind the wheels of the machine before you do work on or below the machine.

Stay near the machine when the tractor is in operation.

Know the dimensions and weights of parts when you do the servicing. Do not stand below or near a part while it is moved with a hoist or other lift equipment.

After you do work on the machine, remove all tools from the machine.

Make sure that electrical connector are clean before you connect them.

Do a check for loose, broken, missing, or damaged parts. Make sure that the machine is in good repair. Make sure that all guards and shields are in position.

Always lift the machine, stop the tractor engine, apply the parking brake, move to the park position (or neutral) remove the key and install the cylinder channel stops before you do work around the machine.

Do not go below the machine. If you must go below the machine, make sure that the machine is blocked and the cylinder lockup channels are in position.

Do not do the servicing, examine or adjust chains or belts while the engine is in operation.

Do not operate the machine with the drive shaft shields open or removed. Entanglement in drive shafts that rotate can cause injury or death.

Stay clear of components that rotate

Make sure that guards that rotate can rotate freely.

A loose yoke can come off a shaft and result in injury to persons or damage to the machine.

When you install a quick disconnect yoke, the spring activated locking pins must move freely and be in the groove on the shaft. Pull on the driveline to make sure that the quick disconnect yoke cannot be pulled off of the shaft.

Remove all spilled oil, antifreeze or fuel immediately from the steps, platforms and other access areas.

Keep all access areas clean of unwanted materials.

1.13 Tire Safety

Examine tires for cuts, bulges, and correct pressure. Replace worn or damaged tires. When tire service is needed, have a qualified tire mechanic service the tire. Tire changing can be very hazardous and must be done by qualified tire mechanic using proper tools and equipment.

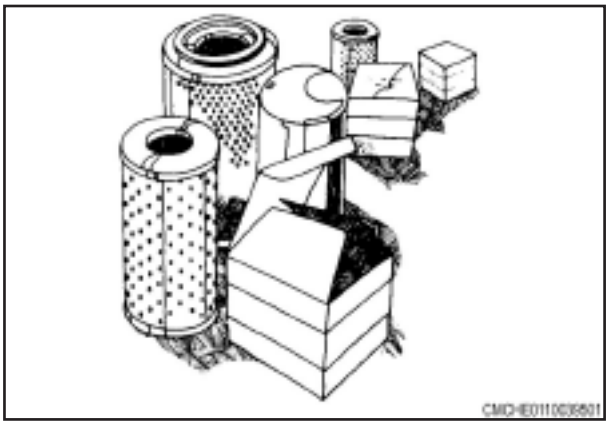
Tire explosion and/or serious injury can result from over inflation. Do not exceed the tire inflation pressures.

Do not inflate a tire that is seriously under inflated or has been run flat. Have the tire examined by qualified tire mechanic.

Do not weld on the rim when a tire is installed. Welding will make an air/gas mixture that can cause an explosion and burn with high temperatures. This hazard applies to all tires, inflated or deflated. Removing air or breaking the bead is not enough. The tire must be completely removed from the rim prior to welding.

When seating tire beads onto rims, never exceed 35 psi (2.4 bar) or the maximum inflation pressure specified on the tire. Inflation beyond this maximum pressure may break the bead, or even the rim, with explosive force.

1.14 Replacement parts

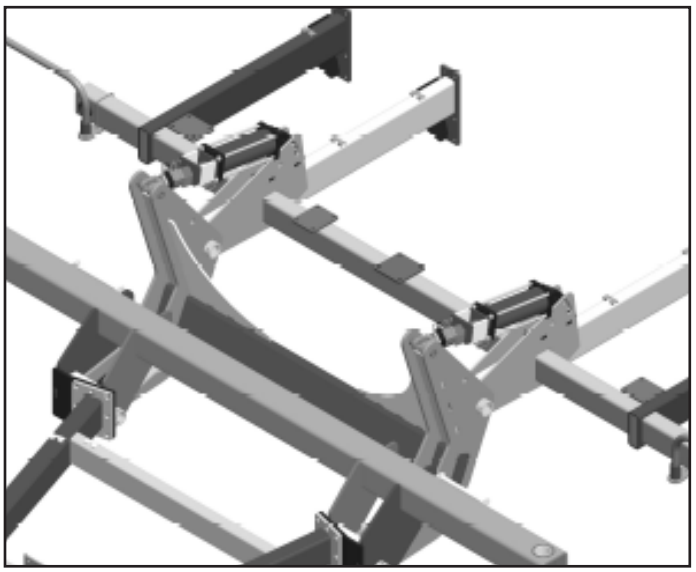


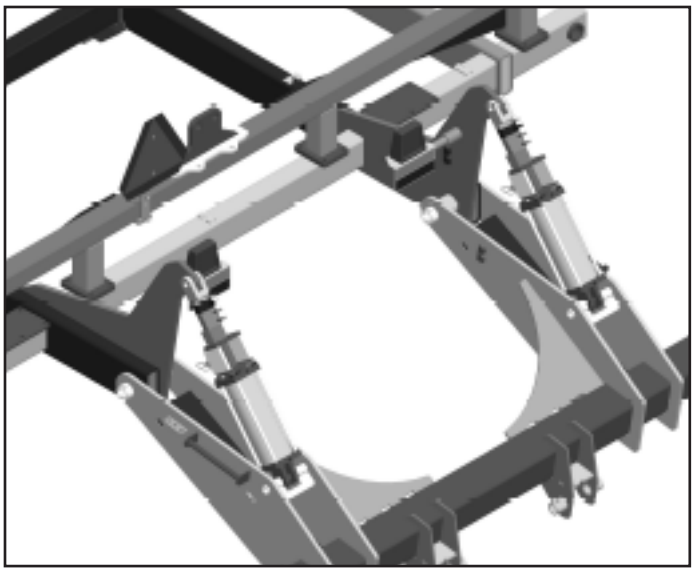
Where replacement parts are necessary for machine maintenance and servicing, you must use original equipment replacement parts.

The manufacturer will not accept responsibility for installation of unapproved parts and/or accessories and damages as a result of their usage.

1.15 Transport Locks

The machine is equipped with transport locks and depth stop collars. Use the transport locks and depth stop collars in the operating position (1) when moving the machine on roads. When not in use, keep the transport locks and depth stop collars in the storage postion.



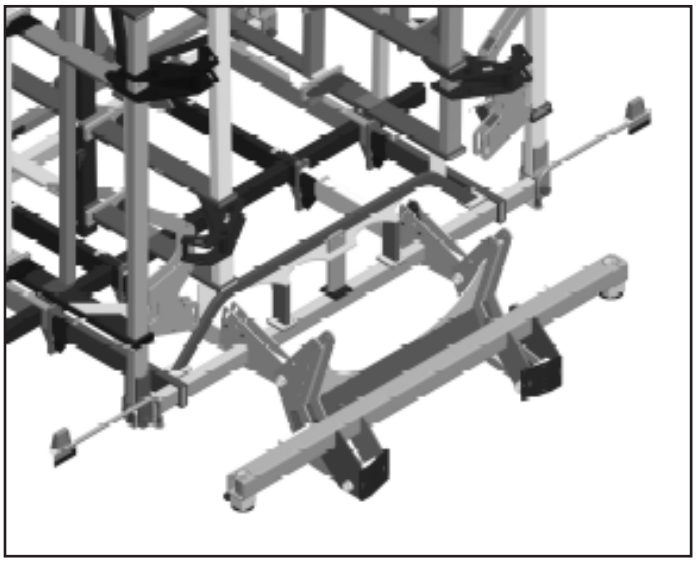


1.16 Marker Lamps

The machine has marker lamps that must be used when moving the machine on roads

The machine is equipped with two amber lamps (1) located at the outside edges of the machine.

The machine is equipped with two red lamps (2) located toward the center of the machine.



1.17 Safety Decal Location

The types of safety decals and locations on the equipment are shown below. Safety requires that you familiarize yourself with the various safety decals, the type of WARNING and the area or particular function related to that area, that requires your SAFETY AWARENESS

1.**CAUTION** - Fasten Safety Chain - P/N 997857

Left front A-frame.

2. **WARNING** - Unhitching Hazard - P/N 997853

3. **WARNING** - Engine Off - P/N 997859

4. **WARNING** - Read Manual - P/N 997861

Left front A-frame.

5. **DANGER** - High Voltage - P/N 997863

6. **WARNING** - Fluid Under Pressure - P/N 997867

7. Speed Sign 20 mph - P/N 9971018

Left-hand Side Front Caster Mount

8. **WARNING** - Read Manual - P/N 997861

9. **DANGER** - High Voltage - P/N 997863

10. Decal Remote Color Scheme - P/N 322364

12. **WARNING** - Lockout - P/N 997855

12. **WARNING** - Lockout - P/N 997865

Left and Right Side of Front Mainframe hitch pivot ears.

12. **WARNING** - Lockout - P/N 997865

Outer edge of each wing near the Wing Lift Wheel Assembly

Outer edge of each wing near the rear wing lift wheel assembly

Outer edge of each wing near the rear wing lift wheel assembly

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1.18 Operation Safety

Use extreme care when making adjustments

When working under or around the machine always install transport cylinder locks and lower the machine.

After servicing, be sure all tools, parts or servicing equipment is removed from the machine.

Before and during operation be sure no one is on or around the implement. Serious injury can result from improper use.

Reduce speed when cornering on field ends and when operating on or across dead furrows.

Do not attempt to remove any obstruction while the machine is in motion.

Use extreme care when operating close to ditches, fences or on hillsides.

No one other than the operator should ride on the tractor.

1.19 Transporting Safety

Always place the machine in the transport position with the wings folded up.

Install transport cylinder locks.

Comply with your state and local laws governing highway safety when moving machinery on a highway.

Reduce road speed on corners.

Drive at a reasonable speed to maintain complete control of the machine at all times. Maximum transport speed is 20 MPH (32.19 Km/H)

A S.M.V emblem must be used at all times while traveling on public roads.

Be sure the safety lights are working.

Obey all local, state and federal lighting requirements.

1.20 General Maintenance Safety Practices

NOTE: Read the entire section before beginning work.

Before you begin

YOU ARE RESPONSIBLE for the safe maintenance of the implement.

DO NOT ALLOW CHILDREN or other unauthorized persons within the implement operational area

WEAR PERSONAL PROTECTIVE EQUIPMENT which includes eye protection, work gloves and steel toed boots with slip resistant soles.

DO NOT MODIFY the equipment or substitute parts in any way. Unauthorized modification may impair the function and/or the safety of the machine.

USE SUITABLE LIFITING DEVICE for components which could cause personal injury by pinching, crushing or weight. **BE SURE** lifting device is rated to handle the weight.

BLOCK UP ANY RAISED PART of the machine. Be sure machine is stable after blocking.

ALWAYS INSPECT LIFTING CHAINS AND SLINGS for damage or wear.

STOP ENGINE, place all controls in neutral, set parking brakes, remove ignition key before servicing or adjusting.

BE SURE PRESSURE IS RELIEVED from hydraulic circuits before servicing or disconnecting from tractor.

USE EXTREME CARE when assembling, servicing or adjusting.

1.21 Hydraulic Safety

Inspect all hydraulic hoses and fittings for cracks and abrasions at least once a year. Tighten or replace as needed.

Do not over-tighten hydraulic fittings, excessive torque may cause them to crack.

Care must be taken to prevent twisting when tightening hose connections. Straighten any hose that appears twisted immediately. A twisted hose can burst under pressure.

When connecting the hoses to the cylinders, tubing or fittings; always use one wrench to prevent the hose from twisting and another wrench to tighten the union. Excessive twisting will shorten hose life and loosen hose fittings.

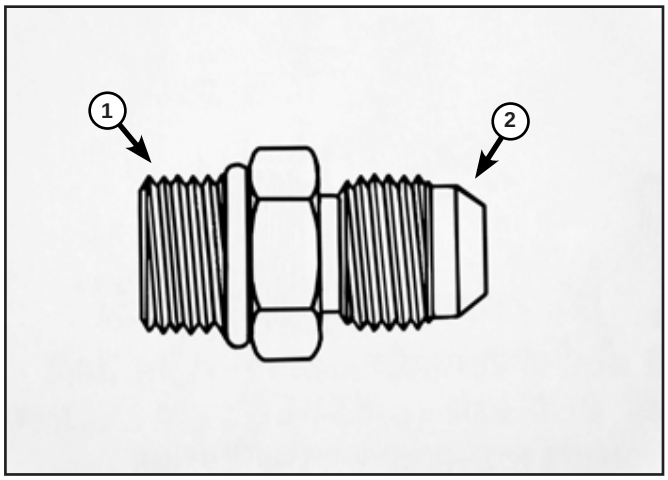
CAUTION: Hydraulic fluid escaping under pressure can have enough force to penetrate the skin. Hydraulic fluid may also infect a minor cut or opening in the skin. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can result if medical treatment is not given immediately. Make sure all connections are tight and that hoses and lines are in good condition before applying pressure to the system.

To find a leak under pressure, **NEVER USE YOUR HAND**, use a small piece of cardboard or wood.

Hydraulic Connection Torques

Straight Thread O-ring Boss (ORB) (1) (example: 12MB - 12MJ is a -12 male ORB to -12 male JIC)

	Jam Nut or Straight Fitting Torque	
Dash Size	Ft / Lbs	Newton Meters
-04	13-15	18-20
-05	14-15	19-21
-06	23-24	32-33
-08	40-43	55-57
-10	43-48	59-64
-12	68-75	93-101



SAE 37°C (JIC) (2)
(example: 8FJ - 8FJ is -08 female JIC)

	Jam Nut or Straight Fitting Torque	
Dash Size	Ft / Lbs	Newton Meters
-04	11-12	15-16
-05	15-16	20-22
-06	18-20	24-28
-08	38-42	52-58
-10	57-62	77-85
-12	79-87	108-119

IMPORTANT: SAE 37° fittings can be damaged if over torqued.

2. Preparation

Before using the implement a careful inspection must become routine.

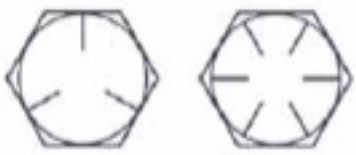
Check to be sure that all hardware is securely tightened and moving parts properly lubricated.

Tighten all loose nuts and bolts and replace any bent or broken parts.

When tightening bolts, they must be torques to the proper number of foot-pounds as indicated in the table unless specified. It is important that all bolts be kept tight.

On new machines, all nuts and bolts must be rechecked after a few hours of operation.

When replacing a bolt, use only a bolt of the same grade or higher. Except in shear bolt applications where you must use the same grade bolt.



SAE Grade 5 SAE Grade 8

Bolts with no marking are grade 2.

Grade 5 bolts furnished with the machine are identified by three radial lines on the head.

Grad 8 bolts furnished with the machine are identified by six radial lines on the head.

All U-bolts are grade 5.

BOLT SIZE	WRENCH SIZE	GRADE 5		GRADE 8	
		lb-ft	N•m	lb-ft	N•m
1/4 in.	7/16 in. or 3/8 in.	7	9.5	12	17
5/16 in.	1/2 in.	15	20	25	34
3/8 in.	9/16 in.	30	41	45	61
7/16 in.	5/8 in. or 11/16 in.	45	61	70	95
1/2 in.	3/4 in.	70	95	105	142
9/16 in. wheel bolts	7/8 in.	170	231	-	-
5/8 in.	15/16 in.	170	231	210	285
5/8 in. wheel nuts	1-1/16 in.	240	325	-	-
3/4 in.	1-1/16 in.* or 1-1/8 in.*	250	339	375	509
7/8 in.	1-5/16 in.	350	475	600	814
1 in.	1-1/2 in.	450	610	880	1193
1-1/4 in.	1-7/8 in.	500	678	-	-
1-1/2 in.	2-3/4 in.	570	773	-	-
2 in.	3-1/8 in.	1200	1627	-	-

Wheel Nuts			
Part No.	Description	Grade	Torque
WB25	1/2"-20UNF x 60°	5	93 ft/lbs
WB135	1/2"-20UNF x 60°	5	93 ft/lbs
WB11	1/2"-20UNF x 90°	5	93 ft/lbs
WB40	9/16"-18UNF x 90°	5	133 ft/lbs
WB18	5/8"-18UNF x 90°	5	187 ft/lbs
WB118	5/8"-18UNF x 90° (Heavy Hex)	5	187 ft/lbs
WB58	3/4"-16UNF (Bud Nut)	8	462 ft/lbs
WB52	3/4"-16UNF (Flange Nut)	8	462 ft/lbs
WB137	7/8"-14UNF (Flange Nut)	8	735 ft/lbs

Wheel Bolts			
Part No.	Description	Grade	Torque
WB54	1/2"-20UNF x 1 7/16" Lg x 60°	5	72 ft/lbs
WB96	1/2"-20UNF x 1 1/4" Lg x 90°	5	72 ft/lbs
WB55	1/2"-20UNF x 1 1/2" Lg x 90°	5	72 ft/lbs
WB10	1/2"-20UNF x 1 3/4" Lg x 90°	5	72 ft/lbs
WB122	1/2"-20UNF x 1" Lg (Hex)	5	72 ft/lbs
WB12	9/16"-18UNF x 1 3/4" Lg x 90°	5	103 ft/lbs
WB17	9/16"-18UNF x 2 1/4" Lg x 90°	5	103 ft/lbs

2.1 Initial/Pre-Field Settings

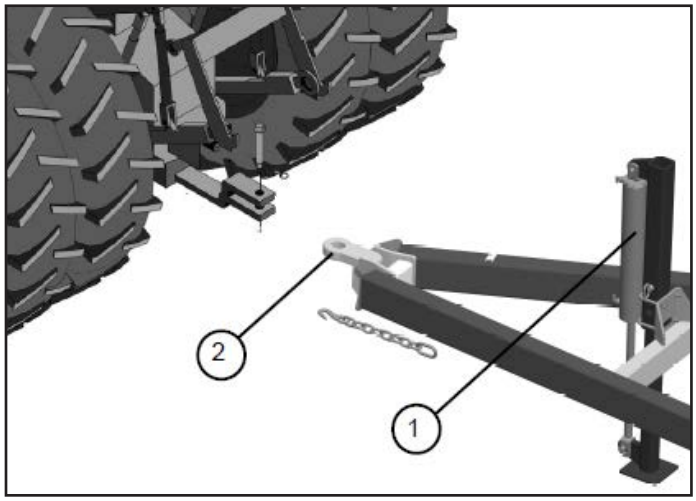
Once the machine has been fully assembled and before the machine is folded for transport check to ensure that all hardware has been properly tightened to specifications noted. Check to ensure that there are no loose parts or tools anywhere on the machine.

2.2 Connecting the Implement

WARNING: Never allow anyone between the tractor and implement when connecting or disconnecting the implement until the implement is completely supported by the tractor, the engine is stopped and the park brake is applied.

Attach the machine to the tractor that will be used with the machine. See specifications section for tractor requirements.

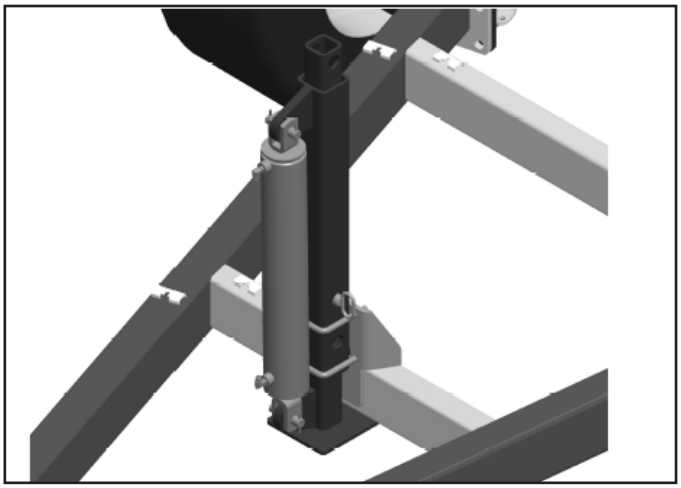
STEP 1.



Use the hitch jack (1) on the front hitch of the machine to adjust the height of the hitch (2). Align the hitch on the tractor with the hitch on the machine. Install the hitch pin through the holes in the tractor draw bar and the machine hitch.

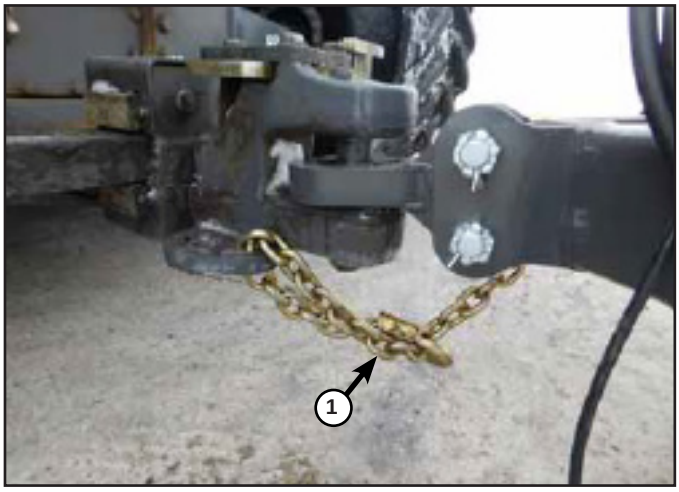
IMPORTANT: Be sure the pin mechanical lock device is in place. The device may be a pin lock plate as shown or a cross pin on the drop pin.

STEP 2.



Retract the hitch jack. Move the hitch jack to the storage position and fasten with a pin.

STEP 3.



Install the safety chain (1) as shown.

IMPORTANT: Be sure the safety chain lock (2) is secured.

STEP 4.

Install the main lift, transport lift, and wing fold cylinder hoses on the tractor. Be sure the hose couplets are secured in the tractor couplers.

STEP 5.

Install the safety light connector (1) on the tractor.

2.3 Bleeding Air from the Hydraulic Lift System

Before starting the procedure.

WARNING:
Leaking fluid under pressure can enter the skin causing serious injury. Release pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Wear correct hand and eye protection when looking for leaks. Use a piece of card board or paper instead of your hand. Any fluid injected into the skin can cause gangrene. The fluid must be removed by a doctor famil iar with this type of injury.

WARNING:
Be careful of sweeps or blades when folded to prevent serious injury. Never keep the machine with the wings in the folded pos tion.

To bleed the air from the hydraulic system, connect the machine to a tractor that is the correct size to operate the machine. See the information for minimum tow vehicle weight.

Total volume of oil required to fill the lift system is 16 gallons (estimated).

Completely bleed the hydraulic system of air when:

The lift system of filled with hydraulic oil for the first time.

Air had entered the hydraulic system through a leak or through repair of the hydraulic system.

Procedure
1. Park the machine on a flat, level surface that is large enough for the machine when unfolded.

2. Set the tractor hydraulic flow to less then 20gal/min (75.7 L/min).
IMPORTANT: If the hydraulic flow is set to more then 20gal/min (75.7 L/min) the hydraulics will not operate correctly.

3. Connect the lift system hoses to the tractor.

4. Make sure the tractor reservoir is full of the hydraulic oil required by the manufacturer.
IMPORTANT: Do not loosen any hydraulic fitting to bleed air from the system.

5. Raise the machine. Continue to hold the tractor lever to let oil bypass and fill each wing lift cylinder.

6. Engage the hydraulic to remove any hydraulic transport locks if equipped.

7. Stop the engine, apply the park brake and take the key with you.

8 Remove the transport locks when all lift cylinders are fully extended.

9. Lower the unit. Make sure the cylinders move at the same time through the cycle.

10. Hold the hydraulic lever with the cylinders fully extended.

11. If the cylinders are not operating together,cycle the cylinders to remove the remaining air.
IMPORTANT: Do not loosen any hydraulic fittings to bleed air from the system.

12. Stop the engine, apply the park break, and take the key with you.

13. Check the tractor hydraulic oil reservoir to make sure the hydraulic oil is still within operating limits.

14. Make sure all lift cylinders are operating together before starting any field operation.

15. Fully raise the machine when making turns during field operation.
This will make sure that the cylinders are operating together and keep the machine level during operation.

2.4 Bleeding Air from the Hydraulic Fold System

Before starting the procedure.

WARNING:
Leaking fluid under pressure can enter the skin causing serious injury. Release pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Keep hands and body away from pinholes and nozzles which eject fluids under high pressure. Wear correct hand and eye protection when looking for leaks. Use a piece of card board or paper instead of your hand. Any fluid injected into the skin can cause gangrene. The fluid must be removed by a doctor familiar with this type of injury.

WARNING:
Be careful of sweeps or blades when folded to prevent serious injury. Never keep the machine with the wings in the folded position.

IMPORTANT: Do not fold or unfold the fold system before bleeding air from the fold system.

To bleed the air from the hydraulic fold system, connect the machine to a tractor that is the correct size to operate the machine. See the information for minimum tow vehicle weight.

Total volume of oil required to fill the fold system is 24 gallons (estimated).

Completely bleed the hydraulic system of air when:

The lift system of filled with hydraulic oil for the first time.

Air had entered the hydraulic system through a leak or through repair of the hydraulic system.

Procedure
1. Set the tractor hydraulic flow to less then 20gal/min (75.7 L/min).
IMPORTANT: If the hydraulic flow is set to more then 20gal/min (75.7 L/min) the hydraulics will not operate correctly.
NOTE: Restrictors are installed in the fold cylinders to prevent falling of the wings. Never remove the restrictors, or the machine will not fold properly.

2. Connect the fold system hoses to the tractor.

3. Make sure the tractor reservoir is full of hydraulic oil required by the manufacturer.
IMPORTANT: Do not loosen any hydraulic fittings to bleed air from the system.

4. Remove the pins from the rod ends of the fold cylinders.

5. Make sure the rod ends of the fold cylinders will not come in contact with any obstructions. If a blockage is present, lift the rod ends of the fold cylinders.

6. Us the remote leveler in the tractor to fully extend and retract the fold cylinders. Extend and retract multiple times.

7. If the field cylinders are not operating together, cycle the fold cylinders to remove the remaining air.
IMPORTANT: Do not loosen any hydraulic fittings to bleed air from the system.

8. Stop the engine, apply the park brake, take the key with you.

9. Check the tractor hydraulic oil reservoir to make sure the hydraulic oil reservoir is still within operating limits.

10.Connect the rod ends of the fold cylinders to the machine.

11. Find an area large enough for the machine when unfolded.

12. With the tractor at a low idle, slowly engage the hydraulics to fold and unfold the machine.

13. Fully extend the fold cylinders to let the wings flex freely.

2.5 Preparing the Machine for Field Operation

Adjust the machine according to field conditions, before taking the machine to the field.

Before starting the procedure

WARNING:
Avoidance hazard. Clearance. Serious personal injury can occur. Make sure all persons are clear of the area before operating the machine.

IMPORTANT: Remove and put the transport locks and pins in the storage position before operating the machine in the field.

The machine must be connected to a tractor that is the correct size for operation. Make sure there is enough area around the machine to completely lower the wings.

Procedure
1. Follow all safety instructions.

2. Set the tractor hydraulic flow to less then 20gal/min (75.7 L/min).
IMPORTANT: If the hydraulic flow is set to more then 20gal/min (75.7 L/min) the hydraulics will not operate correctly.

3. Make sure the area below the machine is clear of persons and obstructions.

4. With the machine on the transport locks, use the tractor hydraulics to completely unfold the machine.

5. Unlock the row unit valves.
NOTE: 51 ft. units - Hydraulic manifold towers will sequence up after wings are completely unfolded and down before wings will start to fold up.
NOTE: 61 ft. units - Hydraulic manifold towers are sequenced with he row unit hydraulics. Towers will raise up as the row units are lowered. Towers will lower as the row units raise. Towers must be in the lowered position for all folding operations or damage will occur.

6. Use the tractor hydraulics to lift the frame of the machine to the highest position.

7. Stop the engine, apply the park brake, and take the key with you.

8. Remove the transport locks and pins from the center frame cylinders.

9. Put the transport locks in the storage location and fasten with pins.

10. Bleed any air from the lift and fold circuits.

11. Lubricate the machine at all points shown in the maintenance section.

12. Check the tires for correct air pressure.

13. Make adjustments and service the machine according to the operation section of this manual.

14. Adjust the finishing attachment if necessary.

15. Level the machine front to rear. Level at or near ground height.

16. Lower the machine to the desired operating depth.

17. Adjust the stroke control for machine depth.

18. Level the wings to the center frame.

2.6 Leveling the machine

Before starting the procedure:

The machine must be connected to a tractor that is the correct size for operation. See the information for the minimum tow vehicle weight.

Procedure

1. Find a solid, level surface large enough for the machine when unfolded.

2. Unfold the machine and fully raise the machine. Continue holding the hydraulic lever to let the oil cycle through the lift system.

3. Hold the lift cylinder in the raised position for one to five minutes to make sure all cylinder are bled of air and fully extended.

4. Stop the tractor engine, apply the park brake, and take the key with you.

5. Remove the transport locks and pins from the center frame cylinders.

6. Put the transport locks in the storage location and fasten with pins.

7. Remove the stop collars from all of the main lift cylinders.

8. Use the tractor hydraulics to lower the machine so the front shovels or spike are 1 to 2 inches above the ground.

9. Measure and record the frame height at the front corners from the ground to the bottom of the frame tube.

10. Measure and record the frame height at the rear corners from the ground to the top of the frame tube.

11. Compare the front and rear measurements.

12. Set front frame height to the same as the rear frame height. If the fron of the machine is higher than the rear, remove the shims shown in figure 8. If the front of the machine is lower than the rear, add shims shown in figure 8. Make sure both front adjustable cylinder anchors have the same number and thickness of shims. The gauge wheels will carry the weight of the machine.

13. Check the measurements again and adjust as necessary.

14. Tighten the nut and bolt holding the shims.

15. Check the machine level in the operating position and adjusted as necessary.

2.6 Leveling the Wings to the Center Frame

Before starting the procedure:

The machine must be connected to a tractor that is the correct size for operation. See the information for the minimum tow vehicle weight.

1. Find a solid, level surface large enough for the machine when unfolded.

2. Unfold the machine and fully raise the machine.

3. Hold the cylinder hydraulic lever in the raised position for one to five minutes to make sure all cylinders are bled of air and fully extended.

4. Stop the tractor engine, apply the park brake, and take the key with you.

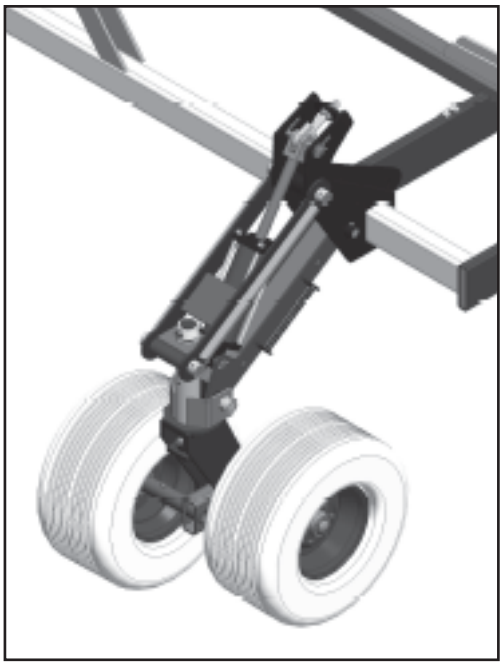
5. Remove the transport locks.

6. Measure and record the height from the ground to the bottom of the wing frame tubes on the front and rear of the wings.

7. Compare the measurements of wing to the main frame. If the measurement for the wing is more then the main frame measurement, lower the wing. If the measurement of the wing is less then the main frame measurement, raise the wing.

8. Adjust the adjusting screw (1) to raise or lower the wing. To raise the wing, loosen the jam nut (2) and tighten jam nut (3). To lower the wing, loosen the jam nut (3) and tighten the jam nut (2)

9. Follow the same procedure for the wing on the other side.



3.1 Beginning field operation

Following the completion of the assembly and pre-field settings the machine can be attached to the rear seed supply system. Refer to the provided information on the supply system for setup and operational information on that portion of the seeding system.

Enter the field and unfold the main/outer wings of the machine. Pressurize the main lift hydraulic circuit to sequence the main lift cylinders. Activate the transport lift circuit, remove and store the channel locks. Fully retract the transport cylinders. Pull forward with the air system engaged and lower the machine into the ground.

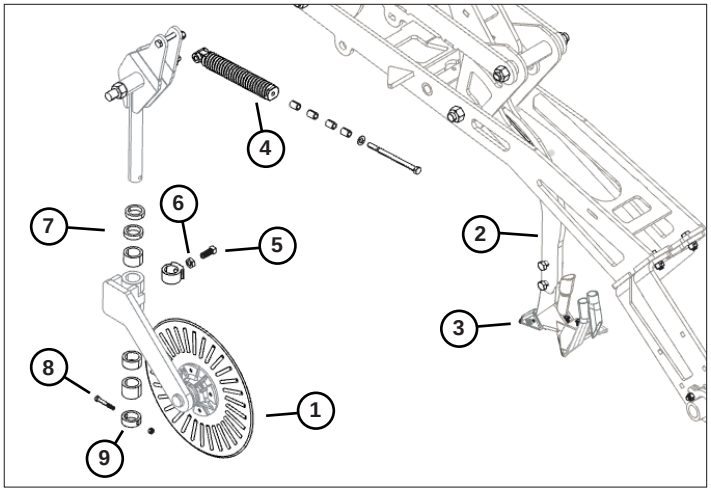
3.2 Row Unit Operation

The Precision Shank Drill row unit follows the contour of the ground with the parallel arm linkage system. Once the frame height is set the rear packer tire controls the depth of the seed boot. The hydraulic cylinder puts constant down pressure on the packer tire and allows the shank to pivot to the rear in event of an obstruction.

3.2.1 Adjusting Coulter Pressure

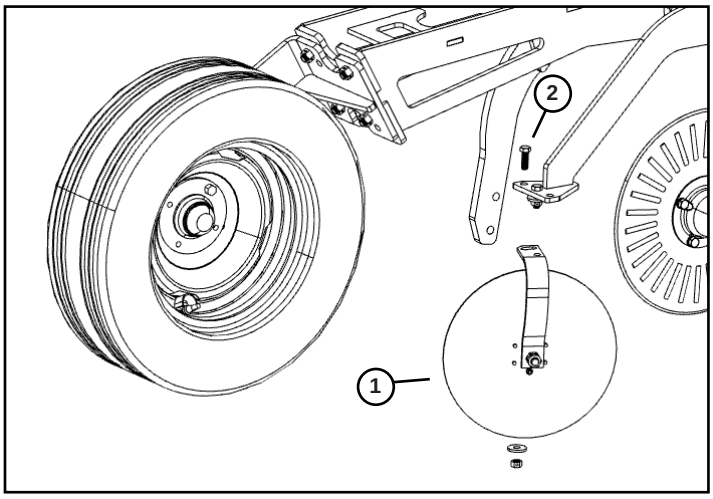
The coulter (1) cuts material and allows it to flow around the shank (2) and boot (3) assembly. The spring assembly applies constant pressure to the coulter blade.

The coulter depth can be adjusted by following the listed steps:
1. Remove the 3/8” x 2-1/2” hex bolt (8)
2. Loosen the 5/8” jam nut (6)
3. Support coulter arm and blade from falling.
4. Loosen the 5/8” x 1-1/2” set screw. (5)
5. Arrange the spacers (7) on top & bottom of the coulter arm to set the coulter to the proper height.
6. Install the busing with the thru hole (9) last on the bottom.
7. Insert 3/8” x 2-1/2” hex bolt (8) and tighten the nut.
8. Tighten the 5/8” x 1-1/2” set screw (5) and jam nut.



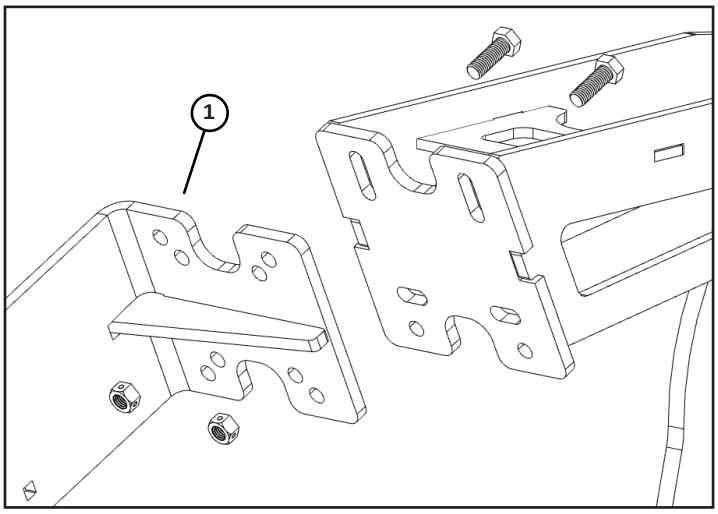
3.2.2 Adjusting Closing Coulters.

The closing coulter (1) take material (blow out) form the boot and moves it back over the seed for the packer tire to firm up. The angle of the closing disc can be adjusted by loosening the 1/2” x 1-1/2” hex bolts (2) and rotating the closing discs on each pivot bolt to obtain the desired angle. Tighten the 1/2” x 1-1/2” hex bolts (2) when finished.



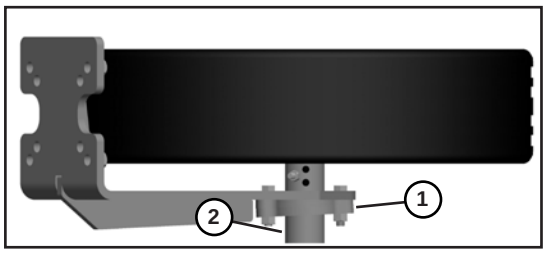
3.2.3 Adjusting the Packer Mount

The rear packer mount (1) can be set in one of three positions to either increase or decrease seeding depth. The factory setting is the middle position. The upper and lower settings are 3/4” above and below the factory setting shown with the mounting bolts.

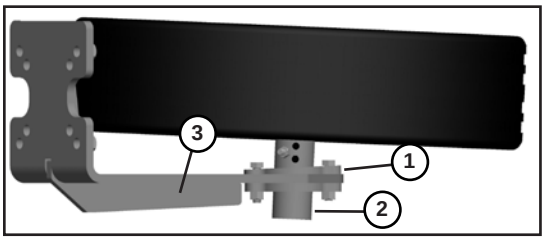


3.2.4 Setting the Packer Tire Position

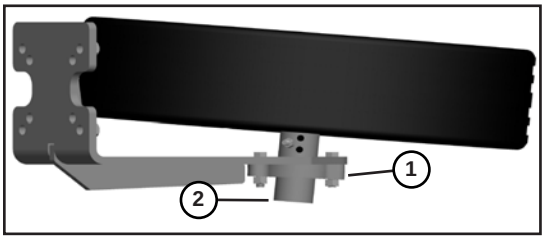
Position 1 is shown to the right.
In this position the packer tire will run completely straight when no scrubbing is required (dry conditions). In this position the spacer plate (1) is placed with the narrow end facing the rear. The spindle tube assembly (2) is placed so the 2.5 degree angles cancel each other so the angle ends up at zero degree (tire runs straighter).



Position 2 is shown to the right.
In this position the tire angle is set at 2.5 degrees. This position setting does not require the spacer plate (1) to be used and is placed on the opposite side of the packer mount plate (3). The spindle tube assembly (2) is bolted to the outside surface of the packer mount plate (3).



Position 3 is shown to the right.
In this position the spacer plate (1) is placed with the wide end facing the rear. The spindle tube assembly (2) is placed so the 2.5 degree angles work together to place the tire at 5 degrees.



Note: The front of the tire should always be facing away from the packer tire mounting plate weather its is a right hand or left hand assembly.

3.2.5 Row Unit Down Pressure

A hydraulic cylinder (1) applies row unit down pressure on each row unit (2). The cylinders apply a constant down pressure through the full range of movement of the row unit. An active hydraulic circuit maintains uniform pressure to each hydraulic cylinder.

Use the row unit down pressure control box to set the row unit down pressure. The row unit down pressure can be adjusted from 1034 to 17237 kPa (150 to 2500 psi). Set the row unit down pressure high enough for correct cutting coulter and shank opener penetration and correct soil compaction. The row unit down pressure adjustment will change with field conditions, speed depth, soil type, and ground speed.

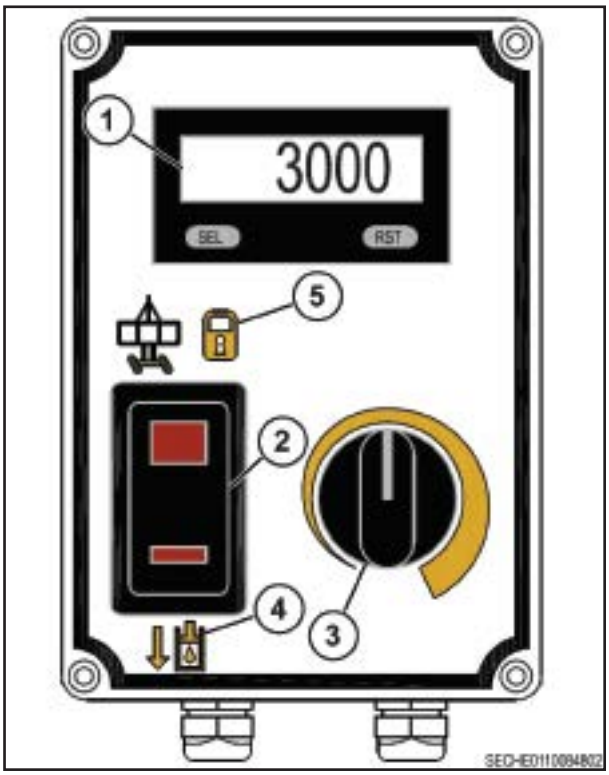
Operate the tractor hydraulic remote that the row unit down pressure is connected to at full output or fully open. Operating the hydraulic remote at full output reduces the back pressure on the row unit down pressure return lines.

3.2.6 Down Pressure Control Box

Use the down pressure control box to adjust the down pressure on each of the row units

Find the following components on the down pressure control box.

- LCD read out (1) the LCD readout displays the row unit down pressure in pounds per square inch (psi) system hydraulic pressure.
- Mode switch (2) The mode switch is a three position switch. The mode switch is used as a power switch and to switch between setting down pressure on (4) and off (2 and 5).
- Adjustment knob (3) The adjustment knob is used to set the row unit down pressure.



3.2.7 Setting the row unit down pressure

The row unit down pressure is set in the field. Before the row unit down pressure can be set, transport the drill to the field and prepare the drill to plant

1.Operate the drill in the field.

2. Stop the tractor. Stop the engine, apply the tractor parking brake, and take the ignition key with you.

3. At the rear of the drill, inspect the tracks made by the packing tires.

If the track is very light or not present, increase the row unit down pressure.

If the track is too deep and the soil is too compacted, decrease the row unit down pressure.

4. Operate the drill in the field and check the results of the adjustment. Continue to adjust the row unit down pressure until the packing tire compacts the soil correctly.

3.3 Hydraulic Lock-Out Valves

The hydraulic lock-out valve is on the front of the frame, on the left-hand side of the front hitch.

The row unit lock-out valve (1) is installed on all drills. The row unit lock-out valve is used to hydraulically lock the toolbars in the transport or raised position.

WARNING: The row units can drop to the ground when the toolbar lock-out valve is opened. Make sure the area below the row units is clear of people and obstructions before opening the row unit lock-out valve.

Move the valve handle so the handle is vertical to the frame to put the lock-out valve in the open position (2). In the open position hydraulic pressure can flow through the valve.

Move the valve handle down to put the lock-out valve in the closed position (1). In the closed position the hydraulic pressure will not flow through the valve.

IMPORTANT: Open the valve when seeding and close the valve when transporting the drill.

3.4 Lift Switch System

The machine is equipped with an automatic lift switch sensor, located on the rear right lift cylinder on the rear hitch. When the system is configured for automatic work switch operation, lifting the machine automatically turns off the meters and NH3 system. Lowering the machine automatically turns on the meters and the NH3 system.

3.5 ISOBUS Harness Connector

The front ISOBUS connector is located on the front hitch of the machine and is used to connect the machine ISOBUS to the tractor. The front ISOBUS is a standard nine pin connector.

Rear ISOBUS connector is located in the rear connection bulkhead and is used to connect the machine ISOBUS to a pull behind implement. The rear ISOBUS is a standard nine pin connector.

3.6 Operating Seed Depth

Set the initial depth of operation without using any stop collars. Stop and check the depth of operation of the main frame. Adjust the seed depth as needed by installing depth collars on the shafts of the fame height cylinders. Install the same sequence of depth collars on each frame height cylinder.

- Blue = 3.0 in (7.62 cm)
- Silver = 1.5 in (3.81 cm)
- Green = 0.75 in (1.91 cm)
- Red = 0.50 in (1.27 cm)

3.7 Turning at the edge of a field

When turning at the edge of a field, or headland, complete the following steps.

When approaching the turn, slow the tractor and machine to an acceptable rate of speed to complete the turn.

Begin to raise the frame of the machine and start the turn at a point where the machine will clear any obstacles to the outside of the turn.

Complete the turn. Watch and make sure the edge of the machine clears any obstacles.

After completing the turn, align the machine with the last pass, permitting for the correct amount of spacing overlap.

Lower the frame of the machine to start the next pass.

Increase the speed of the tractor and machine to the operating speed.

3.8 Wireless Blockage Monitor

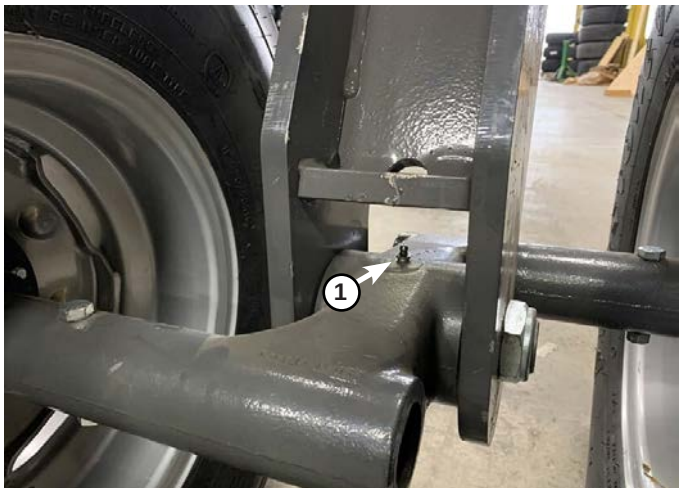
The wireless blockage monitor system uses inline sensors on each seed run to sense blockage or plugs. The ECU connects wireless with and iPad in the cab.

The app must be downloaded onto the iPad, which can be found on the iPad App Store. Search the app store for “wireless blockage monitor”. Download the Recon App. Follow the instructions for setting up the “blockage configuration”. From this app, the user can see the newest blockage monitor manual. I can also be found online at www.intelligantag.com/suppoprt

4.1 Lubrication Points

Daily

- Inspect all bolts and fasteners for tightness and damage. Replace any damaged fasteners immediately.
- Check hydraulic hoses and fittings for leaks or damage. Tighten or replace immediately.
- Check the wing hinges for excessive wear, damaged or bent parts or links.
- Check the openers for excessive wear, damage or broken parts.
- Lubricate pivots on the front of the main caster wheel (1).



- Lubricate the Front Inner and Outer Wing Caster Wheels

50 Hours

- Lubricate the wheel hubs. (1)

- Lubricate the Walker Axle bearings, one lubrication fitting per walker axle.
- Lubricate the coulter hub. One lubrication fitting is standard on each coulter hub.

50 Hours Cont'd

- Lubricate the packer wheel hub. One lubrication fitting is standard on each packer hub

100 Hours or Yearly

- Remove all dirt and debris from the implement that could hold moisture and cause rusting.
- Repaint any chipped areas or clean and paint rusted areas.
- Inspect the machine for any work or damaged parts and replace immediately.

Grease

Use Wil-Rich 460 ep lubricant as listed in all the applications. Wil-Rich 460 ep lubricant is not an all purpose grease. Because of the heavy weight of the grease, it should not be used at high-speeds or in small bearings.

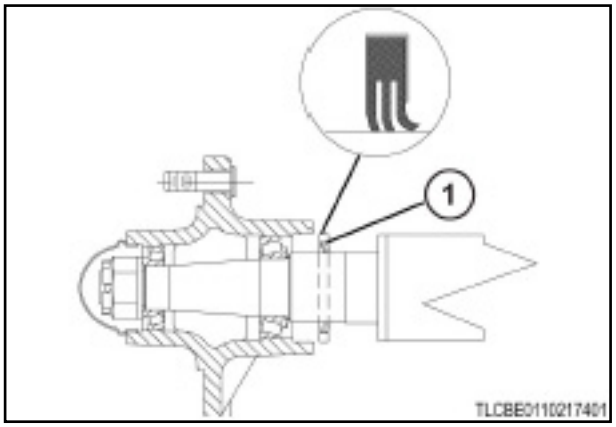
4.2 Servicing the Wheel Bearings

Each wheel hub is equipped with a grease fitting and must be lubricated every 50 hours of use. Apply grease to the hubs until grease pushes out through the seal. The triple lip seal lets the grease through without damaging the seal.

Clean and fill the wheel hubs yearly. Cleaning and filling the hubs removes all the dirt and supplies fresh grease. The following procedure is necessary to correctly install the triple lip seal. The seal lips must be showing away from the hub if dirt is to be kept out.

Procedure.

1. Remove the dust cap, cotter pin, nut and washer
2. Remove the hub and clean the bearing and bearing cavity.
3. Replace any damaged or worn parts.
4. Fill the hubs with grease.
5. Install the seal on the spindle shaft.
6. Replace the hubs with inner bearings in position.
7. Replace the outer bearing, washer and nut on the wheel spindle.
8. Adjust the bearings by tightening the nut until their is resistance to turning.
9. Loosen the nut until the hub can turn freely by hand with out end play.
10. Put the cotter pin through the spindle and nut and replace the dust cap.
11. Slide the seal (1) down the spindle turn the seal on the spindle so the seal lips will point away from the hub.
12. Install the seal in the hub.



4.3 Servicing the tandem pivot bearings.

Clean and fill pivot bearings yearly. Cleaning and filling the bearings removes all dirt and supplies fresh grease. The following procedure is necessary to correctly fill the bearings.

Procedure:

1. Remove the wheels and tandem axle spindles.
2. Remove th seals and bearing from the pivot hub.
3. Clean the parts and hub cavity to remove the debris.
4. Fill the bearings in the hubs in the correct sequence.
5. Replace the bearings in the hub in the correct sequence.
6. Apply grease around the outside of the inner bearing. Applying enough quantity to fill the space between the inner bearings and grease seals after assembly.
7. Install seals into the hubs. The metal side must be on the outside of the hub.
8. Install the tandem axle spindle and replace the pivot.
9. Tighten the nuts until there is medium to heavy drag to still rotate under the load. Loosen the nuts until the cotter pin can be installed.
10. Replace the wheels.

4.4 Storage

The machine should be stored inside and unfolded if possible, park the machine in a flat level area. Unfold the wings to remove the load of the main frame carrying wheels.

If the machine is parked on a soft surface place support under the lift wheels to prevent sinking into the ground. When storing the machine at any time if hitched to a tractor or not, always relieve pressure to the wing fold circuit. This can be accomplished by using the float circuit of the tractor. Move the hydraulic lever tot the float position to relieve pressure in the wing fold circuit before unhitching the tractor.

4.5 Preventing Corrosion of Extended Hydraulic Cylinders.

Store the machine with the cylinders in the retracted position. If the machine is stored with the cylinders in the extended position, periodically cycle the cylinder. If a cylinder must be stored in the extended position without being cycled the following corrosion prevention must be done.

Procedure:

1. Use a dry cloth or cloth with solvent to clean any dirt from the cylinder shaft.
2. Prepare a mixture of 60 percent oil based rust inhibitor and 40 percent kerosene.
3. Use a cloth to apply a thin layer of this mixture to the surface of the chrome plated shaft. Number one fuel oil can be replaced with Kerosene. A good grade purpose made product can be used for this procedure.
4. Follow manufacturer instructions fro applying purpose made products.
5. Inspect and apply the mixture again at three to six month intervals.

5. Trouble Shooting

The lift cylinders are not in phase.	
Cause(s)	**Solution(s)**
The system is not bled of air	Bleed the system of air
The cylinders are not installed correctly	The wing cylinders must be smaller than the center frame cylinders. The cylinders must be connected in series. Start with the largest and reduce in diameter. The cylinders must point up so the air can release through the ports.
Hydraulic hoses are not installed correctly	Correctly install the hydraulic hoses

The wing lift cylinders are losing pressure and permitting the wings to lower.	
Cause(s)	**Solution(s)**
Pressure is flowing past the pistons in the cylinders	Install a new seal kit in the leaking cylinder

The lift cylinders are losing pressure and permitting the wings to lower.	
Cause(s)	**Solution(s)**
Pressure is flowing past the pistons in the cylinders	Install a new seal kit in the leaking cylinder

The machine is not pulling evenly.	
Cause(s)	**Solution(s)**
The depth is not even	Level the wings to the center frame
Shank location is not correct	Check the shanks for correct location

The depth is not even.	
Cause(s)	**Solution(s)**
The machine is not level when under power in the field	Level the machine from front to rear

The wing(s) are bouncing.	
Cause(s)	**Solution(s)**
The machine is operating too fast	Reduce speed
The outer end of the wing is operating too deep	Adjust the wing wheels to reduce depth
The gauge wheel is not supporting the wing	Lower the gauge wheel

The machine is not cutting into the soil.	
Cause(s)	**Solution(s)**
The machine is not level	Level the machine front to rear and side to side
The wheels are not in contact with the ground	Level the disc and/or set the depth adjustment
The gauge wheels are adjusted too deep	Adjust the gauge wheels
Shovel points are worn	Adjust stop collar of the main lift cylinder(s) for wear. Replace shovels if wear is severe
Sweep stem angle is not correct	Use 50 degree sweeps
Leveling adjustments are not correct on the main frame or the wings	See the information for leveling the implement
	Make sure the wing fold cylinders are fully extended
Hydraulic malfunction - air in the lines, cylinder or hoses leaking or not installed correctly.	Check for leaks in the cylinders, hoses, and fittings. Make sure all cylinders and hoses are correctly installed.

6. Specifications

Size	Sections	Power requirements**	Base weight*
39' (11.8 m)	3	425-525 HP (316-391 kW)	38,640 lbs (17,526 kg)
51' (15.6 m)	5	500-600 HP (372-447 kW)	50,600 lbs (22,951 kg)
61' (18.7 m)	5	600+ HP (447+ kW)	60,180 lbs (27,297kg)

*Weight may change depending on configuration. **Dependant on soil type and conditions.

Size	Seed openers	Shank Spacing	Shank Degree	Packer Scuff Angle
39' (11.8 m)	31	15" (38 cm)	85° Edge-On	0-5°
51' (15.6 m)	41	15" (38 cm)	85° Edge-On	0-5°
61' (18.7 m)	49	15" (38 cm)	85° Edge-On	0-5°

Size	Transport width	Transport Height	Transport clearance
39' (11.8 m)	19' 6" (5.9 m)	16' 5" (5 m)	18" (45.7 cm)
51' (15.6 m)	21' (6.4 m)	15' (4.6 m)	18" (45.7 cm)
61' (18.7 m)	21' (6.4 m)	16' 5" (5 m)	18" (45.7 cm)

Tire sizes and psi	
Main Frame Front	440/55R18 IMP (73 psi)
Main Frame Rear	900/60R-32 (35 psi)
Wing Tires	320/70R-15 (70 psi)
Packer Tires	26/7.75-15 (10 to 15 psi in dry conditions, as low as 8 psi in wet conditions.)

Size	Weight	Minimum Tow Vehicle Weight
39' (11.8 m)	38,640 lbs (17,526 kg)	37,000 lbs. (16,782 kg.)*
51' (15.6 m)	50,600 lbs (22,951 kg)	45,000 lbs. (20,411 kg.)*
61' (18.7 m)	60,180 lbs (27,297kg)	51,000 lbs. (23,133 kg.)*

*Minimum tow vehicle weight for breaking calculated while towing a Concord 5250 Air Cart.

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