



Operator's Manual

Summers Manufacturing
103 Summers St. NW
Devils Lake, ND 58301

WARNING

Read and understand this operator's manual prior to operating this equipment. Failure to follow these instructions could result in personal injury or damage to the equipment.

Machine Identification

Model Designations

This manual covers Summers Manufacturing Strip-till systems

Serial Number Location:

Right front side of the fertilizer box engraved into the plate that holds the fertilizer system air pressure gauge.

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Introduction

Thank you for purchasing your new Summers Manufacturing strip till system. We welcome you to our growing family of new product owners. Proper assembly, maintenance, and safe operating practices will help you get years of satisfactory use from this machine.

Intended Use

The Summers Manufacturing system is designed and built by Summers Manufacturing and is intended to be used as a fertilizer application tool. The Summers Manufacturing system is designed to be pulled by an ISO equipped tractor of proper size. It is not designed to be used for any other purpose other than its intended use.

Using this Manual

This manual is designed to help familiarize the operator with the safety, assembly, operation, adjustments, troubleshooting, and maintenance expectations of this machine and create awareness of the hazards that may be encountered because of its use. The intent of this manual is to provide specific machine guidelines and help owners and operators obtain the best results and safe operation from their investment with a focus on accident and injury prevention.

All users must read and understand the information in this manual prior to operation. Do not allow anyone to operate or maintain this equipment who has not fully read and understood this manual. Failure to follow the procedures described in this manual could result in equipment damage or physical injury or death to you or bystanders.

Keep this manual with the machine for future reference as it is considered part of your machine. There is a designated manual canister affixed to the machine where the manual must be stored. The life of any machine depends largely on the care it is given, and Summers Manufacturing suggests that you refer to and review the manual often for preventative maintenance.

The information contained within this manual was current at the time of printing. Some parts or information are subject to change to ensure the best performance of the machine. Summers Manufacturing reserves the right to make changes in materials or design of the product and its manual at any time without notice.

Owner Assistance

The parts on your machine have been specifically designed by Summers Manufacturing and should only be replaced with genuine Summers Manufacturing parts. Do not modify the machine or use with attachments other than Summers Manufacturing options and accessories specified for use with this product.

Contact your dealer if service or repair parts are needed. Your authorized dealer has trained personnel, repair parts, and equipment needed to service this implement.

For quick reference and prompt service, record the model and serial number on the inside cover page and again on the warranty page of this manual. You will need these numbers when ordering parts from your dealer.

There may be times when circumstances occur that are not covered in the manual. At those times, or if for any reason you do not understand the instructions or safety requirements in this manual, first contact your dealer. If they are unable to assist, then contact our service department.

Dealer Contact Information

Name: _____

Address: _____

Phone #: _____

Email: _____

Safety Information

When operating this equipment, you are responsible for your own safety and the safety of those around you. This machine is designed and equipped with proper safety features, including machine guards and safety labels, to protect you and bystanders from hazards that could cause serious injury. Guards and safety labels serve a critical purpose and must not be altered. Guards should only be removed for maintenance purposes and must be reinstalled prior to operation. Some of the illustrations in this manual may show the equipment with machine guards removed for clarity. Never operate this machine unless all machine guards are in place.

Safety Alert Symbol



This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

Safety Signal Words

The safety labels on the machine and safety messages in this manual use a combination of symbols, signal words, and color-coding to identify the following hazardous situations or safety practices:

	DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	NOTICE is used to address practices not related to physical injury.
	SAFETY INSTRUCTIONS (or equivalent) is used to indicate specific safety-related instructions or procedures.

Additional Definitions

Note indicates a special point of information that the operator should be aware of before continuing.

Important indicates a point of information related to the following topic. This information must be read and understood before continuing.

Safety Messages

DANGER

A crushing hazard exists while hooking-up and/or unhooking the attachment. Do not allow anyone to stand between attachment and power machine while approaching or backing away from the attachment.

DANGER

A crushing hazard exists while lifting and/or lowering the attachment. Do not operate lift and/or lower controls while someone is near the power machine and/or the toolbar.

DANGER

A crushing hazard exists while operating the machine in field position. Do not allow anyone to stand between attachment and power machine while operating the machine.

 **WARNING:** Allow only persons to operate this equipment who have fully read and understand this manual, who have been properly trained in the safe operation of this equipment, and who are age 16 or older. Serious injury or death can result from failure to read, understand, and follow instructions provided in this manual.

CAUTION

Hydraulic fluid under high pressure can penetrate skin and/or eyes causing serious injury or death.

- Wear proper hand and eye protection.
- Relieve pressure on hydraulic system before servicing or disconnecting hoses.
- Use a piece of cardboard or wood rather than hands when searching for leaks.
- Consult a doctor familiar with this type of injury within a few hours or gangrene may result. DO NOT DELAY.



General Safety Requirements

These general safety requirements apply to the overall use and maintenance of this machine. In addition to this safety section, you must also refer to the safety messages and instructions in each of the appropriate sections of this manual. Each section provides further details on section- or task-specific safety messages that alert you about hazards associated with normal use and foreseeable misuse of the machine.

Transport Safety

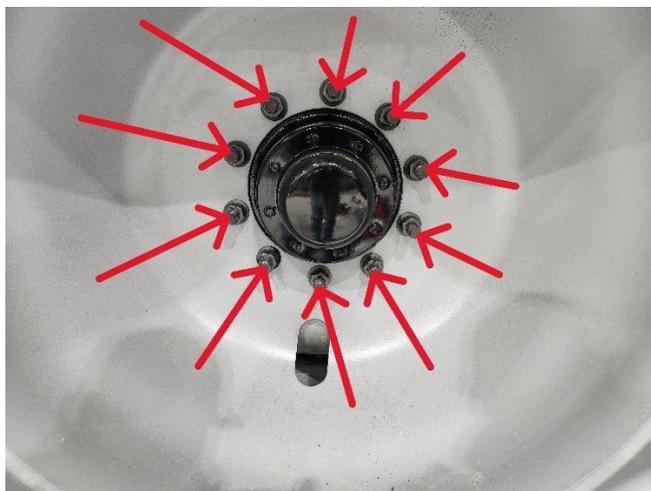
Be sure that wings are locked in place, hitch pin is secure, jack is stowed in transport location, and machine is empty of product before transporting on roadways.

Tire Safety

Be sure tires are properly inflated within tire manufacturers approved specifications prior to operating machine.

Wheel Safety

Be sure wheel lug nuts are torqued to 450' ft/lbs prior to operating machine. After receiving your new machine, lug nut torque should be checked at the following operation intervals, 1 hour, 5 hours, 10 hours, and 50 hours. The seating of the wheels and wearing down of the finish coat between the wheels, hub, and lug nuts can cause the lug nuts to loosen during initial operation period.

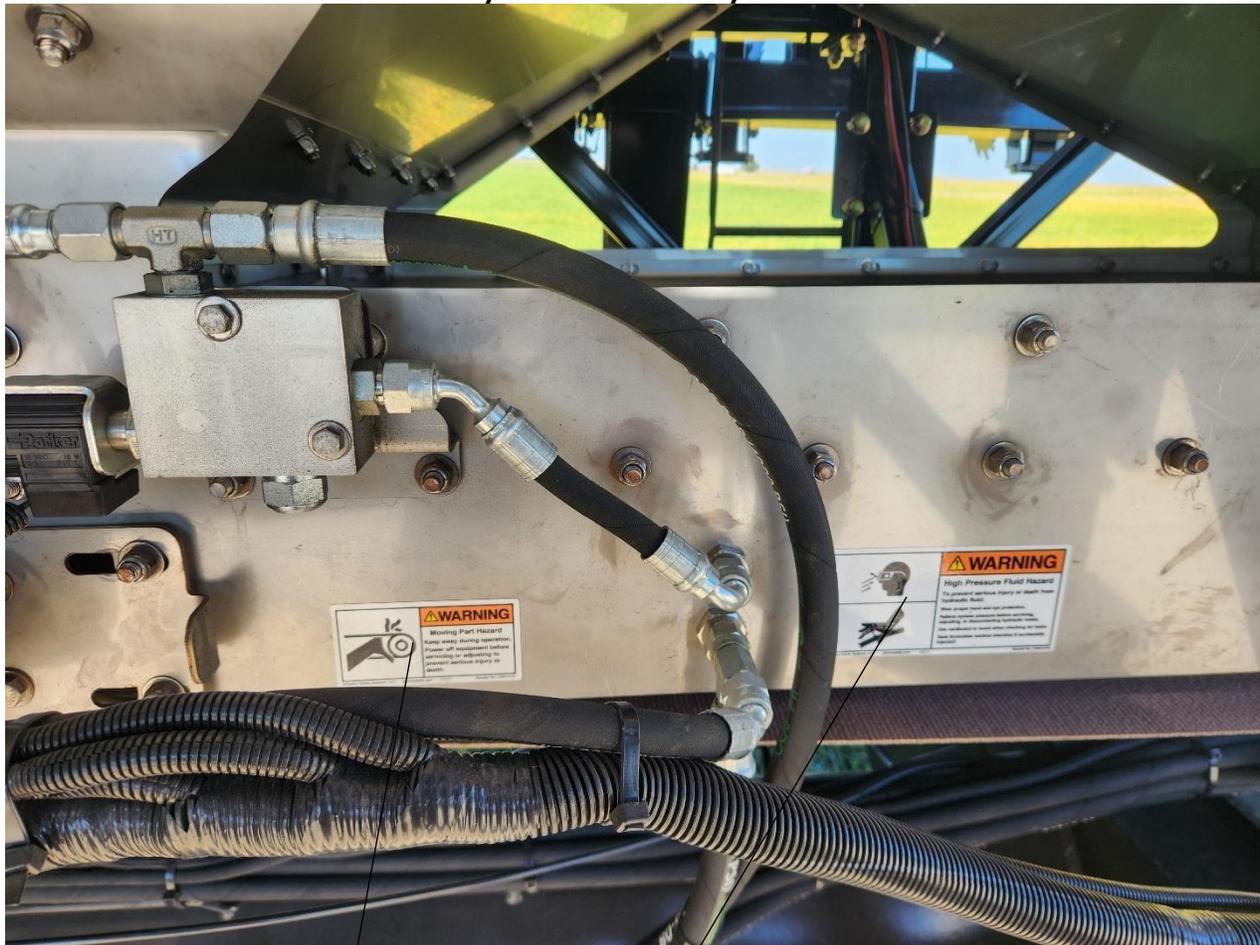


Safety Labels

Your Summers Manufacturing strip till system comes equipped with all safety labels in place. These safety labels are designed to help you safely operate your equipment. They inform you about possible hazards associated with the normal operation or foreseeable misuse of the product and how to properly avoid those hazards to prevent physical injury or death. You are required to read and follow their directions.

1. Keep all safety labels clean and legible.
2. Replace all damaged or missing labels.
3. New equipment installed during repairs may require replacement safety labels to be affixed to the replaced part, if missing, as specified by Summers Manufacturing.
4. Contact your local Summers Manufacturing strip till dealer to order replacement labels
5. Refer to this section for proper label placement. When installing new labels:
 - a. Clean placement surface with soapy water or surface cleaning solution and allow to dry.
 - b. Peel backing from label, carefully center and place label in proper location ensuring no creases or air pockets.
 - c. Press label firmly onto the surface and use a straight edge to smooth the label on the machine for a secure adhesion.

These labels are to be located as seen on both sides of the dry fertilizer system



Warning
High Pressure Fluid Hazard
Reorder No. C42412-06



Warning
Moving Part Hazard
Reorder No. C42412-07

These labels are to be located as seen on the dry fertilizer system



Warning
Pinch Point
Reorder No. C42412-10

This label is to be located as seen above the ladder on the dry fertilizer system



Danger
Do NOT enter bin
Reorder No. C42412-09

These labels are to be located in a visible location near the base of the ladder as pictured on or near the dry fertilizer system



Notice
Fold ladder before field operation
Reorder No. C42412-14



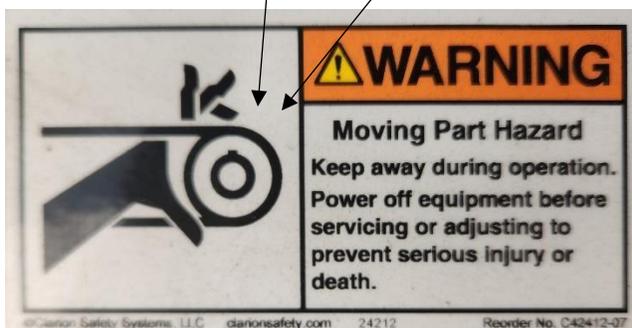
Notice
Failure to do so could cause damage
Reorder No. C42412-15

This label is to be located as seen near the most accessible tarp tensioner on the dry fertilizer system



Important
Do not adjust ratchets during operation of tarping system! Refer to operator's manual for proper cable tensioning procedure.
Reorder No. P/N 1704414

These labels are to be located as seen on the dry fertilizer system



Warning
Moving Part Hazard
Reorder No. C42412-07

These labels are to be located as seen on the top of the front hitch of the toolbar



Warning
High Pressure Fluid Hazard
Reorder No. C42412-06



Danger
Crush Hazard
Reorder No. C42412-04



Warning
Agricultural chemicals can be dangerous
Reorder No. C42412-05

This label is to be located as seen on both of the hydraulic reels of the toolbar



Warning
Pinch Point
Reorder No. C42412-10

This label is to be located as seen on both of the lift arm latch points of the toolbar



Warning
Pinch Point
Reorder No. C42412-10

This label is to be located as seen on the bottom rear center section of the toolbar



Danger
Crush Hazard
Reorder No. C42412-08

This label is to be located as seen on the canister of the auto lube system



Notice

Running empty will cause system malfunction

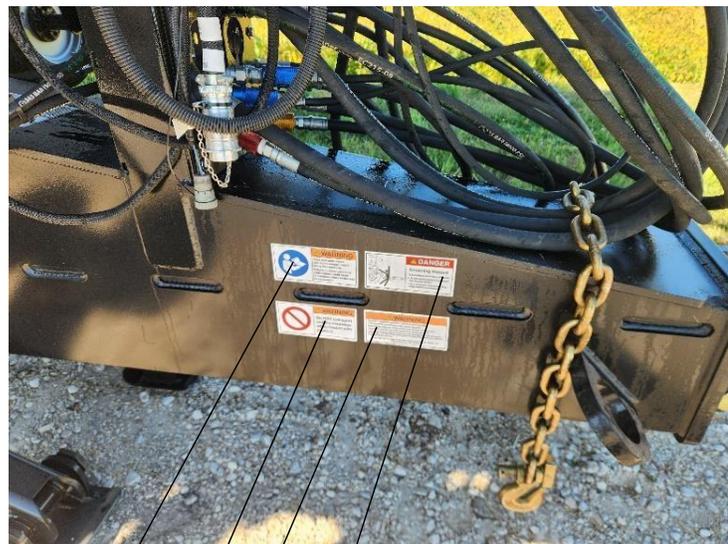
Reorder No. C42412-13



Notice

Keep grease canister full.

Reorder No. C42412-12



Warning
 Read and understand operator's manual prior to operation.
 Reorder No. C42412-03



Danger
 Crushing Hazard
 Reorder No. C42412-02



Warning
 Read and understand operator's manual proper before using this machine
 Reorder No. H6126-202WHBJ



Warning
 Do not transport unit on roadways when loaded with product.
 Reorder No. C42412-01

Controls and Displays

The Summers Manufacturing digital controller is 8" wide, 4" tall, and 5" deep. It is recommended that the controller be installed in a location near the operator station that is clearly visible to the operator and within reach but that does not obstruct the operator's line of vision to outside obstacles. Do not install the controller in a location that may negatively impact the safe operation of the motor vehicle.



Once power is supplied to the SUMMERS MANUFACTURING controller, use the switch located on the back side of the controller to power it on.



The Summers Manufacturing controller offers the operator 6 adjustments from the operator's station:

1. **Units** control the overall down pressure of the row unit and containment coulters.
2. **Wings** control the wing down pressure.
3. **Lift function** controls the back pressure on all functions except for the wings. (to set this function: dial row cleaners up until they are in the fully down position, reduce all functions to zero, and then turn lift function up until row cleaners begin to lift off the ground)
4. **Baskets** control the rear basket/berm builder function.
5. **Cleaners** control the row cleaner down pressure.
6. **Shanks** control the shank trip pressure.



To adjust any one of these functions, simply select the desired function to adjust from the home screen and turn the dial located in the top right corner of the controller clockwise to increase the number and counterclockwise to decrease it.

The SUMMERS MANUFACTURING controller offers up to 10 preset combinations of down force settings. Simply press the preset selection from the home screen and you will enter the preset screen to either save or select a preset selection.



Assembly and Initial Set-up Instructions

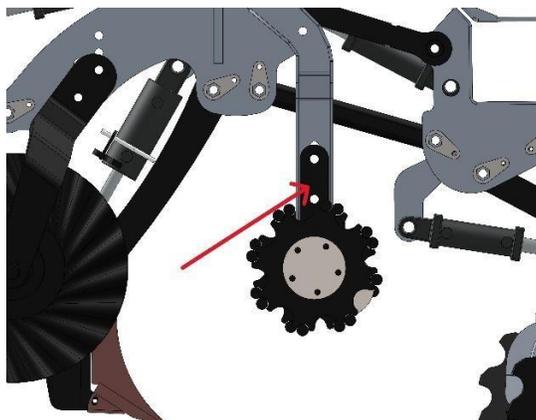
One of the catalysts of the Summers Manufacturing strip till product line is that our product is delivered to your farm turn-key unless otherwise negotiated. No assembly is typically necessary.

Safety Information

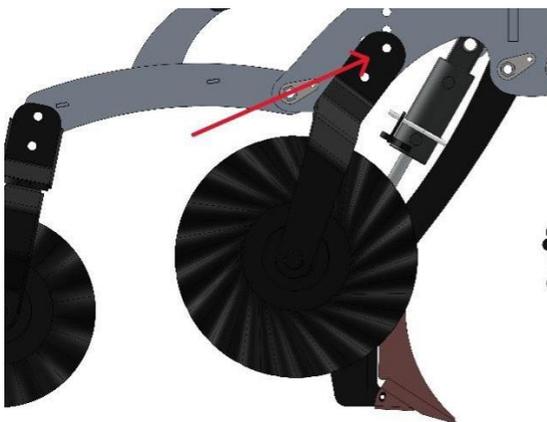
If a product is delivered to your farm requiring assembly, please contact your dealer or a Summers Manufacturing representative prior to assembling the product for further instructions to ensure your safety.

Adjustments

- Shank/tillage couler depth is adjusted by moving the pictured arms on both sides up to increase shank/tillage couler depth and down to decrease shank/tillage couler depth. Each hole represents a 1.16" shank depth adjustment.



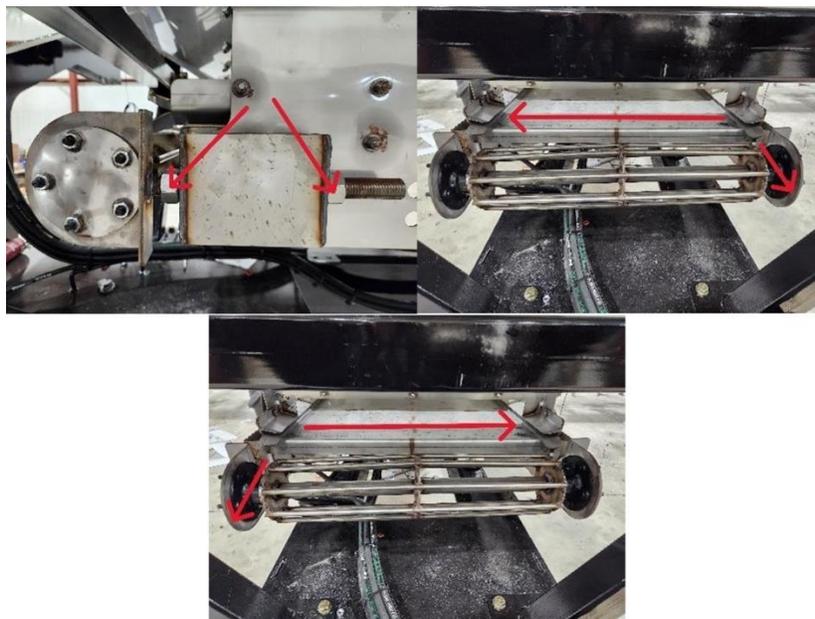
- Containment couler depth is adjusted by moving the pictured arms on both sides up to decrease containment couler depth and down to increase containment couler depth. Each hole represents a 1.5" containment couler depth adjustment.



- Hitch height can be adjusted by removing the bolts holding the hitch and moving the hitch to a lower or higher set of bolt holes. (Lowering the hitch position will raise the implement tongue height and lower the operating toolbar height. Raising the hitch position will lower the implement tongue height and raise the operating toolbar height.)



- Tracking the belt on your Summers Manufacturing dry fertilizer system is accomplished by adjusting the jam nuts on the tensioner assembly. To track the belt to the left the right tensioner must be extended or the left tensioner must be retracted. To track the belt to the right, the left tensioner must be extended or the right tensioner must be retracted. Over tension of belt may result in a torn belt or a broken seam.



- The drive chain should be tensioned every 100 hours of operation. It can be tensioned by loosening the 4 nuts securing the belt drive motor mount assembly, sliding the assembly away from the drive roller and re-torquing the nuts securing the belt drive motor mount assembly.



- The Summers Manufacturing adjustable Y dividers are located on the boom of your Summers Manufacturing Apex. It is recommended that you calibrate them prior to initial use each season and following the changing or adjustment of any hoses. The Y dividers should also be checked daily for buildup of fertilizer that can be caused by humidity or sticky product. Calibration of Y dividers is performed by following these steps:
 1. Place a 5 gallon catch bucket under each row.
 2. Run at least 5 pounds of product through all rows.
 3. Starting at the end row on either side, weigh the product in the 1st 2 buckets individually.
 4. If one bucket is heavier than the other then adjust the Y divider to divert more product to the row that was lighter.
 5. Repeat steps 3-4 across the bar until all rows have been measured and calibrated.
 6. Repeat steps 1-5 until all rows measure within 10% of each other.



Operating Instructions

Pre-Operation Checklist

✓	Step	Page or Reference
	Daily maintenance completed	Pg. #28
	Machine is calibrated	Pg. #26
	Machine is properly adjusted	Pg. #24
	All safety labels are in place	Pg. #9

General operating instructions

- Unfolding the machine
 1. Lower the wing Locks.
 2. Engage in constant flow the SCV that controls the Summers Manufacturing row unit down force controller.
 3. Power on your Summers Manufacturing down force controller.
 4. Turn up your wing down pressure until machine folds out at the desired speed.
- Lowering the machine
 1. Engage in constant flow the SCV that controls the lift/lower function of your machine.
- Engaging the fertilizer delivery belts
 1. Engage in constant flow the SCV that controls the fertilizer delivery system.
 2. Turn on your rate controller and ensure that all rates and parameters are entered properly.
 3. Engage in constant flow the SCV that controls the fan and ensure that your air pressure gauge reads 60 inches of water column or above for optimal performance.
 4. Turn your product switch on.

Transporting on Public Roadways and Highways

- Be sure wings are secured.
- Check wheel lug nuts for proper tension.
- Empty machine of all product.
- Do not exceed 25mph.
- Adhere to all state, and local government regulations.

Troubleshooting

Problem	Cause	Solution
Rate was holding, but is now sporadic/surging	Mechanical friction	<ol style="list-style-type: none"> 1. Oil wood bearings 2. Ensure belt is aligned and tensioned properly
One side of the machine is not delivering product	Section control actuator is faulty	Replace linear actuator for the affected section.
Hydraulic oil in the air system	Blown fan motor seal	Replace fan assembly
Delivery belts are moving but monitor is not reading rate output	Electronic encoder is faulty	Replace electronic encoder
Belt is moving when rate is turned off	PWM valve is plugged/malfunctioning	Replace PWM valve
Rate is not consistent row to row	Y divider is out of adjustment or fertilizer air system has obstructions	<ol style="list-style-type: none"> 1. Refer to page 26 to adjust Y dividers 2. Refer to page 29 for instruction on cleaning the air system
Machine is not building enough air pressure	Low tractor hydraulic output	Contact technical support team

Maintenance Instructions

Maintenance Schedules

Daily maintenance

1. Ensure level of automatic greasing system is sufficient for the day's usage. allow this system to run dry.
2. Torque wheel lug nuts to ensure safe operation.
3. Be sure the air system is clean of all obstruction and buildup to ensure accurate fertilizer placement.
4. Check that all tire pressures are within the labeled tire manufacturer's specifications.
5. Walk around machine and visually check that all bolts are properly tightened.

End of the season maintenance

1. Pressure wash the machine inside and out while air system and belts are running.
2. Apply fluid film or a like product to the entire machine inside and out.
3. Store the machine in a location protected from UV rays to protect the paint, tarp, tires and hoses from decay.

Specific Maintenance Procedures

Cleaning the air system

1. Turn on the fan and set the pressure to at least 40" of water column.
2. Using a lift basket or other safe lifting device hold a garden hose for five minutes at full stream above the top of the fan intake ring in the location pictured below.



3. Run the garden hose at full stream for one minute through each fertilizer delivery hose using the access area above the plastic delivery cartridge as picture below.



Specifications

Specifications, Capacities, and Power Unit Requirements	
Air system capacity	1,000 pounds per acre at 5 mph at 60" of water column pressure
Hydraulic requirements	Minimum of 50 gallons per minute at 3,000 psi
Coulter unit Horse Power Requirement	15 per row
Shank Unit Horse Power Requirement	25 per row

Warranty

Summers Manufacturing (the "Manufacturer") warrants to the original purchaser that this equipment will be free from defects in material and workmanship beginning on the date of purchase by the end user according to the following schedule when used as intended and under normal service and conditions for individual use only.

- Overall unit: One-year parts and labor
- Hose: Considered wear items
- Disc blades: Considered wear items
- Shank Points: Considered wear items

This warranty is limited to the repair or replacement of any defective part by the Manufacturer and the installation by the dealer of any such replacement part and does not cover common wear items. The Manufacturer reserves the right to inspect any equipment or parts which are claimed to have been defective in material or workmanship.

This Warranty does not apply to any part or product which in the Manufacturer's judgment shall have been misused or damaged by accident or lack of normal maintenance or care, or which has been repaired or altered in a way which adversely affects its performance or reliability, or which has been used for a purpose for which the product is not designed. Misuse also specifically includes failure to properly maintain oil levels, grease points, and driveline shafts.

Claims under this Warranty should be made to the dealer which originally sold the product and all warranty adjustments must be made through an authorized SUMMERS MANUFACTURING AG, LLC dealer. The Manufacturer reserves the right to make changes in materials or design of the product at any time without notice.

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

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

This Warranty is not valid unless registered with Summers Manufacturing within 30 days from the date of purchase