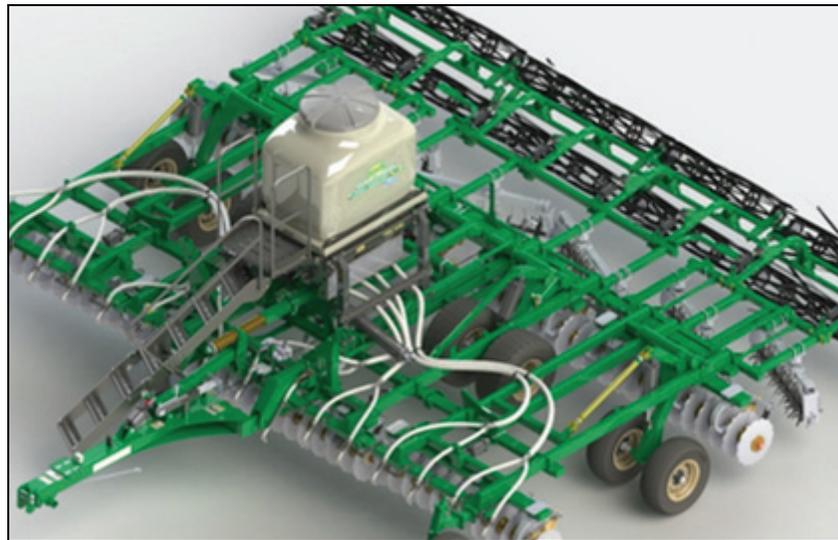


Operator Manual

TS9105 Mounted & TS9110 Cart
Turbo-Seeder Plus



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!



Illustrations may show optional equipment not supplied with standard unit.

ORIGINAL INSTRUCTIONS



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INTRODUCTION

The Turbo Seeder Plus is a pneumatic delivery system designed to work with an HT1100 or VT1100 tillage tool. This combination allows you to till the soil, manage residue, and apply fertilizer or cover crops all in one pass. This operations manual provides an overview of the procedures and steps for setting up and operating the equipment.

To ensure safe, efficient, and trouble-free operation, all personnel who operate the equipment must read and understand the entire manual. It is the responsibility of the equipment owner to ensure that the operator is fully instructed and comprehends the contents of the manual.

For more detailed information on specific aspects of the Turbo Seeder Plus, refer to the respective manuals for each optional piece of equipment. Below, you will find a list of reference manuals for the optional equipment used with the Turbo Seeder Plus.

REFERENCE MANUALS

- HT1100 TOOLBAR MANUAL
 - [HT1100-TERRA-MAX® | GREAT PLAINS AG](#)
- VT1100 TOOLBAR MANUAL
 - [VT1100-TURBO-MAX® | GREAT PLAINS AG](#)
- TS9105 TURBO SEEDER PLUS 2108 INSTALLATION INSTRUCTIONS
 - [TS9105 TURBO SEEDER PLUS INSTALLATION INSTRUCTIONS](#)
- TS9110 TURBO SEEDER PLUS GEN 1 WITH CART INSTALLATION INSTRUCTIONS
 - [TS9110 TURBO SEEDER PLUS INSTALLATION INSTRUCTIONS](#)
- 2108 GEN 2 METERING SYSTEMS OPERATIONS MANUAL
 - [P003162_GEN_II_SERIES_OPERATIONS_MANUAL.PDF \(MONTAGMFG.COM\)](#)
- GEN 1 METERING SYSTEM OPERATIONS MANUAL
 - [GEN_1_OPERATIONS_MANUAL_P003284_REV_A_7_7_202.PDF \(MONTAGMFG.COM\)](#)
- STEERABLE CART OPERATIONS MANUAL
 - [STEERABLE-CART-OPERATORS-MANUAL-2022-P003887.PDF \(MONTAGMFG.COM\)](#)
- MDRC (MONTAG DRY RATE CONTROLLER)
 - [MONTAG_DRY_RATE_CONTROLLER_OPERATION_MANUAL_02.02.05.00.PDF \(MONTAGMFG.COM\)](#)
- GSC-1000 (MICRO TRACK CONTROLLER)
 - [GSC-1000-100623.INDD \(MICRO-TRAK.COM\)](#)
- POINT SCALE (ISO)
 - [POINT 1 PRODUCT ISO MOUNT INSTRUCTIONS](#)
- POINT CAB MOUNT SCALE (NON-ISO)
 - [POINT 1 PRODUCT CAB MOUNT INSTRUCTIONS \(NON-ISO\)](#)
- GENERAL MONTAG SUPPORT INFORMATION
 - [SUPPORT - MONTAG MANUFACTURING, INC. \(MONTAGMFG.COM\)](#)

TURBO SEEDER PLUS CONFIGURATION

Identify the optional equipment included with the Turbo Seeder Plus. Knowing which optional equipment you have will help you determine the applicable reference manuals for your specific setup.

MOUNTED - TURBO SEEDER PLUS 2108 (TS9105)

- CONTROLLER TYPE
 - MDRC (MONTAG DRY RATE CONTROLLER)
 - GSC-1000 (MICRO TRACK CONTROLLER)
- SCALE TYPE
 - NO SCALE
 - POINT SCALE (ISO)
 - POINT CAB MOUNT (NON-ISO)
- HYDRAULIC OPTION
 - DIRECT TO TRACTOR SCV (10'-15')
 - FLOAT SWITCH INTEGRATION (20'-30')
 - 1/2" CASE DRAIN HYDRAULIC HOSE FOR TILLAGE MODELS OLDER THAN 2024
 - ICS (20'-30')

TOWED - TURBO SEEDER PLUS GEN 1 WITH CART (TS9110)

- CONTROLLER TYPE
 - MDRC (MONTAG DRY RATE CONTROLLER)
 - GSC-1000 (MICRO TRACK CONTROLLER)
- SCALE TYPE
 - NO SCALE
 - POINT SCALE (ISO)
 - POINT CAB MOUNT (NON-ISO)
- HYDRAULIC OPTION
 - QUICK COUPLERS WITH HITCH
- ELECTRICAL OPTION
 - ISO WITH IMPLEMENT SWITCH
 - NON-ISO WITH IMPLEMENT SWITCH AND CASE DRAIN ALARM
 - LIGHT HARNESS

DEALER INFORMATION

Your authorized dealer is your primary source for parts and service. If you need assistance with the operation or maintenance of the equipment, contact your dealer or the factory. For future reference, write the contact information for your dealer below.

PURCHASE DATE:

SERIAL NUMBER:

DEALERSHIP NAME:

SALESPERSON:

ADDRESS:

CITY/STATE/ZIP:

PHONE:

EMAIL:

WEB:

FURTHER ASSISTANCE

For additional help with understanding these instructions or for any other assembly or setup related questions, please contact the service department at the following address or call (800) 270-9302 to speak over the phone with a service representative.

Great Plains Service Department
1525 E. North St.
P.O. Box 5060
Salina, KS 67402-5060

Copies of this operators manual are available by mail or online. Please visit www.greatplainsag.com and follow the product link for information on your machine.

SERIAL NUMBER INFORMATION

The serial tag contains the model and serial number of the equipment. Below is an example of the serial tag.



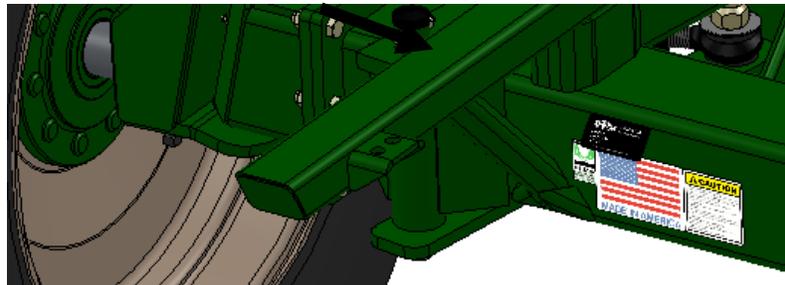
2108 METERING SYSTEM

The serial tag is located on the fan support brackets on the 2108 metering system.



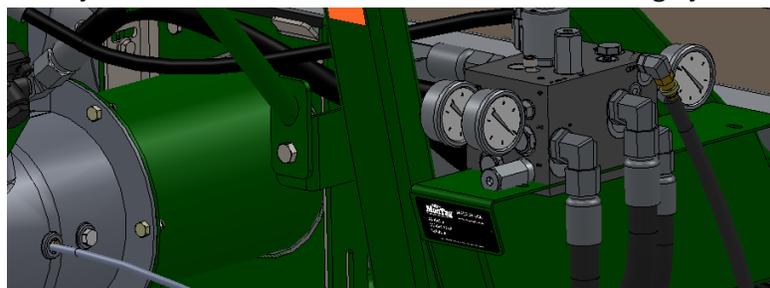
STEERABLE CART

The serial tag is located on the back side of the main axle on the steerable cart.



GEN 1 METERING SYSTEM

The serial tag is located on the hydraulic manifold mount on the Gen 1 Metering System.



SAFETY INFORMATION

The operator is responsible for their own safety as well as the safety of those around them when operating this equipment. This machine is designed and equipped with proper safety features, including machine guards and safety labels. Guards and safety labels must not be altered to protect the operator and bystanders from hazards that could cause serious injury.

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.

Do not attempt to operate this equipment under the influence of drugs or alcohol. Do not use the equipment if alertness or coordination is impaired.

This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in the operation of this equipment. Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and how the equipment works.

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. This symbol means **ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!**

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.

OPERATOR MANUAL REVIEW

ALL OPERATORS must thoroughly read and understand all safety messages in this manual and on the machine's safety labels. It is crucial to follow all safety label directions. Note that additional safety information may be present on parts and components from suppliers, which is not included in this manual.

Operators should learn how to properly operate the machine and use its controls. Ensure the machine is kept in proper working condition and does not allow anyone to operate it without proper instruction.

During hitching, do not allow bystanders to stand between the tractor and implement, or between the implement and cart. Ensure all persons are clear of the working area.

Unauthorized modifications to the machine can impair its function and safety and may affect its lifespan. If you do not understand any part of this manual and need assistance, contact your dealer. Review the manual and safety labels before each season of use to ensure safe operation.

SAFETY GUIDELINES

PREPARE FOR EMERGENCIES

NOTICE

- Be prepared if a fire starts.
- Keep a first aid kit and fire extinguisher readily accessible.
- Keep emergency numbers for doctor, ambulance, hospital, and fire department readily available.

BE FAMILIAR WITH SAFETY LABELS

NOTICE

- Carefully read and understand all safety messages in this manual and on the machine safety labels.
- Always keep safety labels clean and legible. Replace safety labels that are missing or have become illegible, faded, or damaged.

WEAR PERSONAL PROTECTIVE EQUIPMENT

CAUTION

ABRAISION / NOISE HAZARD

- Wear snug-fitting clothing and personal safety equipment appropriate for the job.
- Operating equipment safely requires the full attention of the operator. Do not wear radio or music headphones while operating machine.
- Prolonged exposure to loud noise can cause impairment or loss of hearing.
- Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.
- Wear gloves to protect hands from cuts, scrapes, and abrasions when working on the equipment.

PRACTICE MAINTENANCE SAFETY



WARNING

CRUSHING / FALLING HAZARD

- Understand service procedures before performing work. Use proper tools and equipment and refer to this manual for additional information.
- Work in a clean, dry area.
- Keep hands, feet, and clothing away from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground, stop the engine, remove the key, allow machine to cool. Never lubricate, service, or adjust machine while it is moving.
- Securely support any machine elements that must be raised for service work.
- Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.
- On self-propelled equipment, disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.
- On towed implements, disconnect wiring harnesses from tractor before servicing electrical system components or welding on machine.
- Falling while cleaning or working at height can cause serious injury. Use a ladder or platform to easily reach each location. Use sturdy and secure footholds and handholds.
- Always use lifting equipment that is adequately rated to do the job. Never lift equipment over people.
- Before attempting to unfasten any part or assembly, arrange to support it by means of a hoist, by blocking, or by use of an adequate arrangement to keep it from falling, tipping, swinging, or moving in any manner which may hurt somebody or damage the equipment.
- Remove all tools and unused parts from machine before operation.



SUPPORT RAISED EQUIPMENT



WARNING

CRUSHING HAZARD

- Always use a safety support when working on, under, or around machine. Transport/Service locks can be used for this purpose.
- Shut of tractor engine and remove key when working on machine.
- If air has entered hydraulic hoses or cylinders, bleed hydraulic system before use. If there is a failure in the hydraulic system, unsupported raised equipment could suddenly lower, causing serious personal injury or death.
- If support is not available, lower wings and frame, relieve hydraulic pressure and disconnect hoses from tractor.



REMOVE PAINT BEFORE WELDING OR HEATING

CAUTION

INHALATION HAZARD

- Avoid potentially toxic fumes and dust.
- Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.
- Remove paint before heating. If sanding or grinding paint, avoid breathing the dust.
- Wear an approved respirator when sanding, grinding, or before heating or welding if paint cannot be removed.
- If solvent or paint stripper is used, remove stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from area. Allow fumes to dissipate at least 15 minutes before welding or heating.
- Do not use a chlorinated solvent in areas where welding will take place.
- Do all work in an area that is well ventilated to carry toxic fumes and dust away.
- Dispose of paint and solvent properly.



HANDLE ELECTRONIC COMPONENTS SAFELY

CAUTION

STATIC ELECTRICITY HAZARD

- Falling while installing or removing electronic components mounted on equipment can cause serious injury. Use a ladder or platform to easily reach each mounting location. Use sturdy and secure footholds and handholds. Do not install or remove components in wet or icy conditions.
- Take measures to dissipate static electricity when handling electronic components. Handle sensitive electronic components and materials with care. Use antistatic bags and containers for storage and transport of sensitive components. Regularly inspect and maintain grounding systems to ensure they are functioning correctly.

AVOID HOT PARTS

WARNING BURN HAZARD

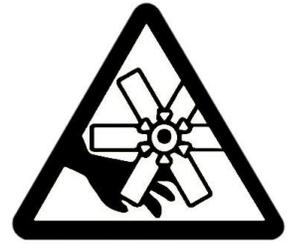
- After several minutes of equipment operation, surfaces containing hydraulic fluid can become very hot.
- Avoid touching hot hydraulic surfaces to prevent burns.
- Do not work on the hydraulic system while it is hot. Allow it to cool down before performing any maintenance or adjustments.



KEEP ALL GUARDS IN PLACE

WARNING SEVERING HAZARD

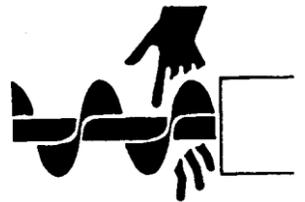
- Only remove guards for adjustment and maintenance. Reinstall them immediately after completing the task.
- Do not operate the meter or fan with covers removed.
- Avoid wearing loose-fitting clothing that can get caught in rotating equipment.
- Do not operate the meter or fan with covers removed. Rotating fans and shafts can sever digits.



STAY AWAY FROM ROTATING AUGERS

WARNING SEVERING HAZARD

- Keep hands and fingers away from metering augers unless the chain has been removed from the auger drive sprocket.
- Always ensure the chain is removed before performing any maintenance or adjustments.
- Rotating augers can sever digits.



AVOID FLYING OBJECT INJURIES

WARNING PROJECTILE HAZARD

- When the fan is running, debris can be ejected from the air outlet, posing a risk of injury or potential loss of sight.
- Always ensure the area around the fan is clear of bystanders and wear appropriate eye protection to prevent injuries.
- Do not stand in front of meter air outlet while fan is operating.



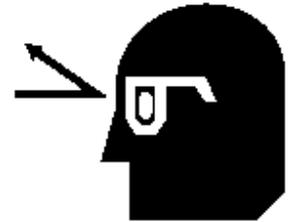
AVOID HIGH-PRESSURE FLUIDS



WARNING

BURSTING HAZARD

- Keep hydraulic components clean to easily identify leaks.
- Inspect hydraulic hoses at least once per year for signs of leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid, or any other wear or damage. Replace hoses as needed.
- To prevent serious injury or death while working under a raised implement, regularly inspect hydraulic hoses between the lift cylinders and hydraulic lockup valves. Replace worn or damaged hose assemblies immediately, as they can fail during use.
- Escaping fluid under pressure can penetrate the skin, causing serious injury. To avoid this hazard, relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Use a piece of cardboard to search for leaks and protect your hands and body from high-pressure fluids.
- Heating near pressurized fluid lines can create flammable spray, posing a risk of severe burns to you and nearby individuals.
- Avoid using welding, soldering, or torches near these lines or other flammable materials. Pressurized lines may unexpectedly burst if heat extends beyond the immediate flame area.
- If an accident occurs, seek medical attention immediately from a physician familiar with this type of injury. Fluid injected into the skin must be surgically removed within a few hours to prevent gangrene.



TIRE SAFETY



WARNING

BURSTING HAZARD

- Always maintain the correct tire pressure. Do not inflate tires above the recommended pressure.
- Tire changing can be dangerous. Employ 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.
- Never weld or heat a wheel or tire assembly. Heat can cause the air to expand and increase tire pressure resulting in an explosion. Welding can structurally weaken or deform the wheel.
- Inspect tires for low pressure, cuts, bubbles, damaged rims or missing lug bolts and nuts.



GRANULAR CHEMICAL SAFETY

Agricultural chemicals, including fungicides, herbicides, insecticides, pesticides, rodenticides, and fertilizers, can pose significant health and environmental risks if not handled properly. Always adhere to label directions for effective, safe, and legal use. To minimize exposure and injury, follow these guidelines:

- Wear the recommended PPE. If manufacturer instructions are unavailable, use these general guidelines:
 - 'Danger' Label: Most toxic. Requires goggles, respirators, gloves, and full skin protection.
 - 'Warning' Label: Less toxic. Requires goggles, gloves, and skin protection.
 - 'Caution' Label: Least toxic. Requires gloves and skin protection.

CAUTION

INHALATION HAZARD

- Read and strictly follow the manufacturer's instructions found on the product container.
- Keep chemicals in their original containers. Do not transfer to unmarked containers or those used for food or drink. Store in a secure, locked area away from food for humans or livestock. Keep out of reach of children.
- Wear chemically resistant clothing, gloves, and safety goggles. Avoid contact with skin and eyes.
- Wear a respirator as directed by the chemical manufacturer. Do not inhale vapors, aerosols, or dust from chemicals.
- Wash skin thoroughly after working with chemicals, especially before eating.
- Bathe or shower and change clothes after handling chemicals. Wash contaminated clothing before reuse.
- Wash down the machine prior to any maintenance. Dispose of wash water in accordance with local standards and laws.
- Know the local poison control emergency contact information and keep readily available.
- Seek immediate medical attention if illness occurs during or shortly after chemical use.



AVOID LOSS OF CONTROL

WARNING

CRASHING HAZARD

- Transporting the cart at excessive speeds can lead to loss of control, resulting in death or serious injury.
- Always remove all product from the tank before transporting on roads.
- The maximum speed for the cart on roads is 20 mph with empty tanks.

AVOID TIPPING CART

WARNING

CRUSHING HAZARD

- If stairs and a platform are installed on the rear of the dry tank, the cart can tip over if people climb on the stairs while the cart is disconnected from the implement, leading to death or serious injury.
- Do not climb on tank stairs or platform when the cart is disconnected from the implement to avoid the risk of tipping and crushing injuries.



USE A SIGNAL PERSON

WARNING CRUSHING HAZARD

- Use a signal person to guide the movement of the tractor/implement combination, whenever the view of the tractor operator is obstructed.
- Assign one individual as the sole signal person. Ensure the signal person remains in clear view and maintains a safe distance from the machine while it is moving.
- Before starting the tractor, review hand signals and their meanings to prevent misunderstandings and confusion, which could lead to serious injury or a fatal accident.
- Keep all bystanders at a safe distance whenever the machine is in motion.

USE A SAFETY CHAIN

WARNING CRUSHING HAZARD

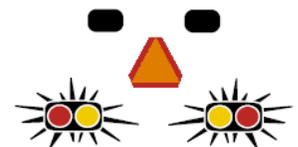
- Use safety chains to help control drawn machinery should it separate from tractor drawbar or trailing cart hitch.
- Use a chain with a strength rating equal to or greater than the gross weight of towed machinery.
- Attach implement chain to tractor draw-bar support or specified anchor location using appropriate adapter parts. Allow only enough slack in the chain for turns.
- Replace chain if any links or end fittings are broken, stretched or damaged.
- Do not use safety chain for towing.



USE SAFETY LIGHTS AND DEVICES

CAUTION CRASHING HAZARD

- Slow-moving tractors and towed implements can create a hazard when driven on public roads. They are difficult to see, especially at night.
- Prevent collisions between other road users, slow moving tractors with attachments or towed equipment and self-propelled machines on public roads. Frequently check for traffic from the rear, especially in turns, and use turn signal lights.
- The use of headlights, flashing warning lights, turn signals, and a slow-moving vehicle (SMV) identification emblem day and night is acceptable in most localities. Follow local regulations for equipment lighting and marking as some localities may prohibit their use.
- Keep lighting and marking visible, clean, and in good working order. Replace or repair lighting and marking that has been damaged or lost.
- Use approved accessory lighting flags and necessary warning devices to protect operators of other vehicles on the highway during daylight and nighttime transport. Various safety lights and devices are available from the dealer. Use lights and devices provided with implement.



MACHINERY TRANSPORT SAFETY



CRASHING HAZARD

- Maximum transport speed for implement is 20 mph (32 kph), 13 mph (22 kph) in turns. Some rough terrains require a slower speed. Sudden braking can cause a towed load to swerve and upset.
- Some tractors are capable of operating at speeds that exceed the maximum transport speed of this implement. Regardless of the maximum speed capability of the tractor being used to tow this implement, do not exceed the implement's maximum transport speed.
- Exceeding the maximum transport speed of the implement can result in loss of control of the tractor/implement combination, reduced or no ability to stop during braking, implement tire failure, or damage to the implement structure or components.
- Do not tow an implement or cart that weighs more than 1.5 times the weight of towing vehicle.
- Adopt safe driving practices: Keep the brake pedals latched together at all times. Never use independent braking with machine in tow as loss of control and/or upset of unit can result.
 - Always drive at a safe speed relative to local conditions and ensure that your speed is low enough for an emergency stop to be safe and secure. Keep speed to a minimum.
 - Reduce speed prior to turns to avoid overturning risk. Avoid sudden uphill turns on steep slopes.
 - Always keep the tractor or towing vehicle in gear to provide engine braking when going downhill. Do not coast.
 - Do not drink and drive!
- Comply with state and local laws governing highway safety when moving farm machinery on public roads.
- Carry reflectors or flags to mark equipment in case of breakdown on the road.
- Plan your route to avoid heavy traffic.
- Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, and driveways.
- Observe bridge loading ratings. Do not cross bridges rated lower than the gross weight at which you are operating.
- Keep clear of overhead power lines and other obstructions overhead or to the side when transporting. Contact with overhead lines could cause serious injury or death.
- Operate the towing vehicle from the operator's seat only and in a position to provide maximum visibility at all times. Allow for the increased length and weight of the equipment when maneuvering, making turns, or stopping the unit. Know extreme dimensions of equipment in transport mode before taking off.
- Choose a level route that avoids the edges of ditches or gullies and steep hillsides when transporting across fields.
- Use additional caution and reduce speed when towing under adverse surface conditions, when turning, and when on inclines. Avoid loose fill, rocks, and holes as they could cause sudden jolts and be dangerous for equipment operation or movement.
- Reduce speed if towed load is not equipped with brakes. Reduce speed on rough roads.
- Never stand alongside of unit with engine running or attempt to start engine and/or operate machine while standing alongside of unit.
- Never leave equipment or attachments unattended when running.
- As a precaution, always recheck the hardware on equipment following every 100 hours of operation. Correct all problems. Follow the maintenance safety procedures.
- Do not fold or unfold the implement while the tractor is moving.

KEEP RIDERS OFF MACHINERY



WARNING

CRUSHING HAZARD

- Only allow the operator on the machine. Keep riders off.
- Riders obstruct the view of the operator and could be struck by foreign objects or thrown from the machine.
- Riders can be thrown off or under the equipment, which may result in death or serious injury.
- Never allow children to operate equipment.
- Keep all bystanders and children away from machine during operation.
- Never climb on equipment while equipment is moving.
- Never climb onto cart when it is disconnected from an implement. Cart could tip which may result in death or serious injury.



DECOMMISSIONING – RECYCLING AND DISPOSAL



CAUTION

ENVIRONMENTAL HAZARD

- **Personal Protective Equipment (PPE):** Use appropriate tools and PPE, such as clothing, gloves, face shields, or glasses, during the removal or handling of objects and materials. Follow specific instructions for specialized components. Release stored energy by lowering suspended machine elements, relaxing springs, disconnecting the battery or other electrical power, and releasing pressure in hydraulic components, accumulators, and similar systems.
- **Minimize Exposure:** Reduce exposure to components that may have residue from agricultural chemicals, such as fertilizers and pesticides. Handle and dispose of these components appropriately.
- **Fluid Drainage:** Carefully drain engines, fuel tanks, radiators, hydraulic cylinders, reservoirs, and lines before recycling components. Use leak-proof containers for draining fluids and avoid using food or beverage containers.
- **Proper Disposal:** Do not pour waste fluids onto the ground, down a drain, or into any water source. Observe all national, state, and local laws, regulations, or ordinances governing the handling or disposal of waste fluids (e.g., oil, fuel, coolant, brake fluid), filters, batteries, and other substances or parts. Burning flammable fluids or components in anything other than specially designed incinerators may be prohibited by law and could result in exposure to harmful fumes or ashes.
- **Air Conditioning Systems:** Service and dispose of air conditioning systems appropriately. Government regulations may require a certified service center to recover and recycle air conditioning refrigerants, which could damage the atmosphere if allowed to escape.
- **Recycling Options:** Evaluate recycling options for tires, metal, plastic, glass, rubber, and electronic components, which may be recyclable in whole or in part.
- **Local Resources:** Contact your local environmental or recycling center, or your dealer, for information on the proper way to recycle or dispose of waste.

SHUTDOWN AND STORAGE SAFETY



CRUSHING HAZARD

- Thoroughly clean the equipment before storing it to avoid contaminating the surrounding area with chemical or seed residue. Dispose of the wash water in accordance with local standards and laws. Coat exposed metal with a rust inhibitor to extend implement life.
- Lower implement, put tractor in park, turn off engine, and remove the key.
- Secure implement using parking jack if provided.
- Detach and store implement in an area where children normally do not play.
- Stored attachments such as dual wheels and carts can fall and cause serious injury or death.
- Securely store attachments and implements to prevent falling. Keep playing children and bystanders away from storage area.



SAFETY LABELS

The machine comes with all necessary safety labels already attached. These labels are crucial for safe operation, as they provide information about potential hazards during normal use or possible misuse of the machine, and instructions on how to avoid these hazards to prevent injury or death. It is important to become familiar with the location of all safety labels on the machine.

SAFETY LABEL CARE

- Ensure that all safety labels are kept clean and easy to read.
- Replace safety labels that are missing, unreadable, faded, or damaged.
- When installing new equipment during repairs, make sure to place new safety labels on the replaced parts.
- Safety labels can be obtained from your dealer or directly from the factory.

SAFETY LABEL INSTALLATION

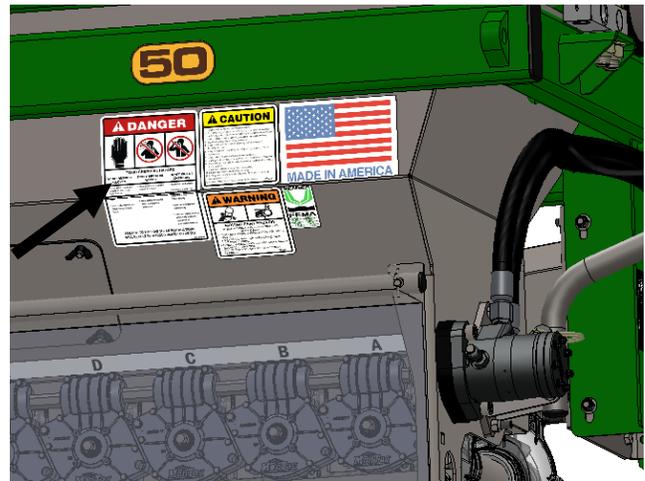
- Ensure the surface where the label will be applied is both clean and dry to help the label stick properly.
- Decide exactly where the label will be placed before removing any backing paper.
- Peel off a small section of the split backing paper to begin.
- Align the label over the chosen area and press down the small exposed sticky part to secure it.
- Gradually peel the backing paper while smoothing the label onto the surface to avoid wrinkles or bubbles.
- If any small air bubbles form, pierce them with a pin and smooth them out using a piece of backing paper.

2108 SAFETY LABEL LOCATIONS

P000195 - DANGER - CHEMICAL HAZARD



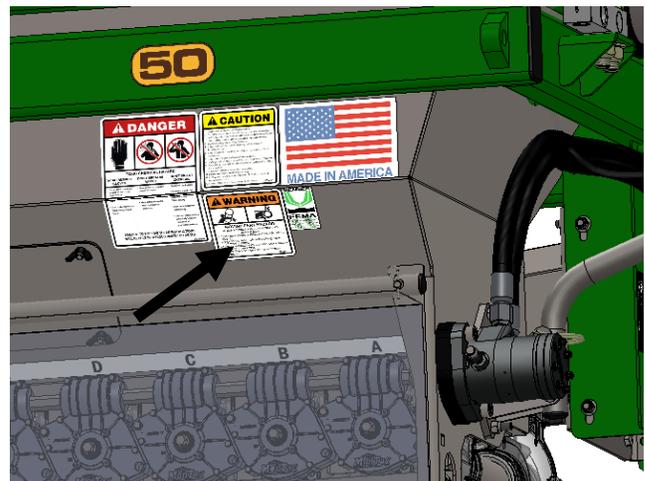
On side of meter
QTY 1 total



P000191 - WARNING - MOVING PARTS DANGER



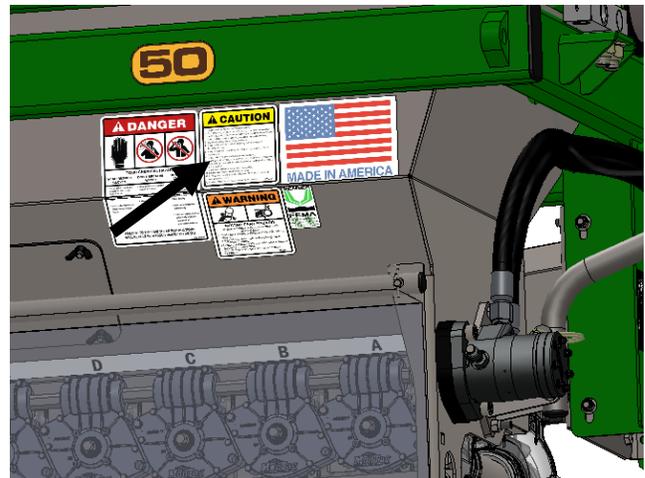
On side of meter
QTY 1 total



P000190 - CAUTION - READ MANUAL



On side of meter
QTY 1 total

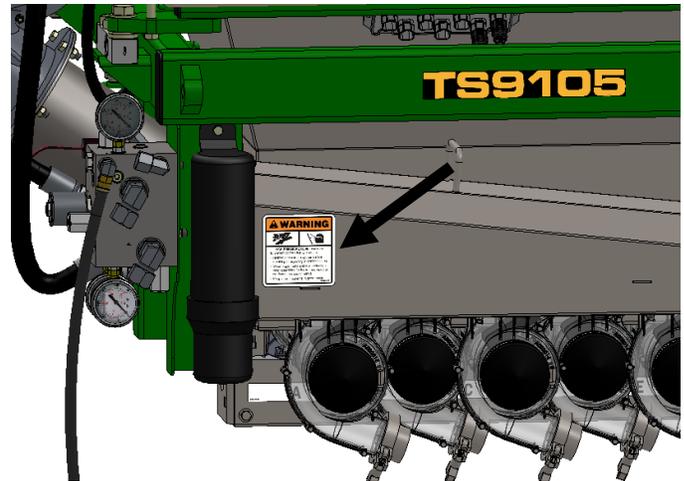


P000192 - WARNING – HIGH PRESSURE FLUID



On side of meter

QTY 1 total

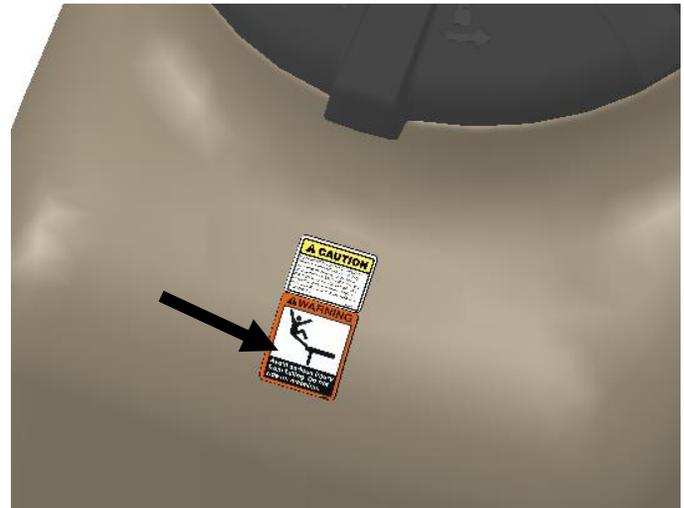


P001995 - WARNING – DO NOT RIDE

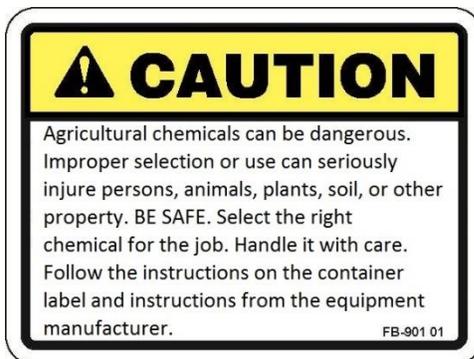


On tank

QTY 1 total



P000193 – CAUTION – AG CHEMICAL DANGER



On tank

QTY 1 total

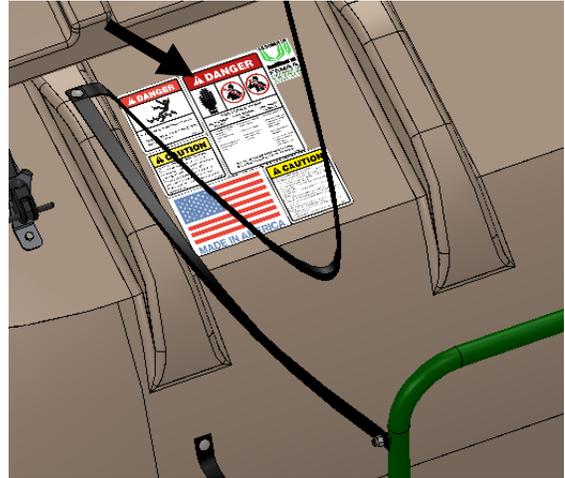


GEN 1 SAFETY LABEL LOCATIONS

P000195 - DANGER - CHEMICAL HAZARD



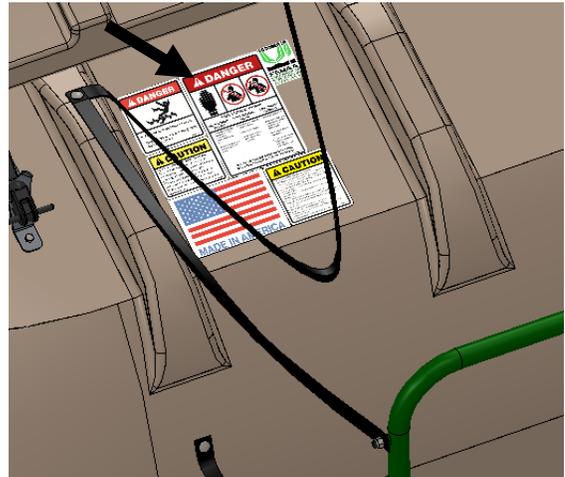
On tank
QTY 1 total



P000188 - DANGER – AUGER HAZARD



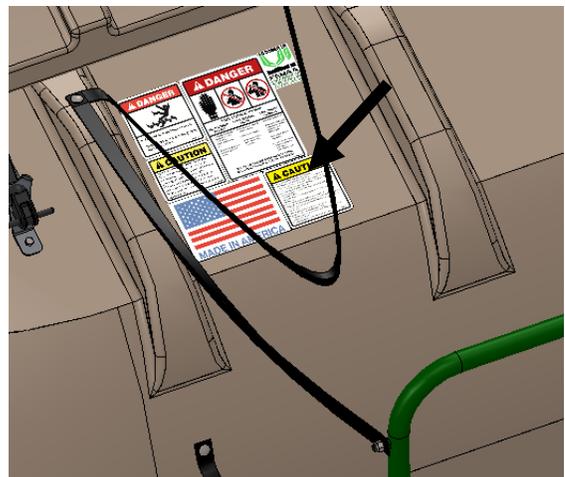
On tank
QTY 1 total



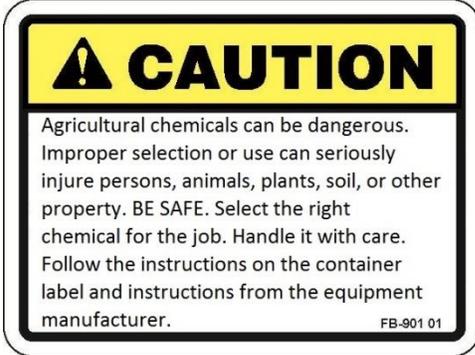
P000190 - CAUTION – READ MANUAL



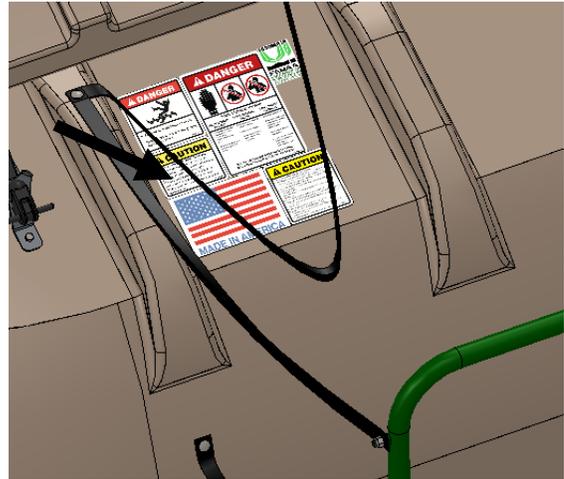
On tank
QTY 1 total



P000193 – CAUTION – AG CHEMICAL DANGER



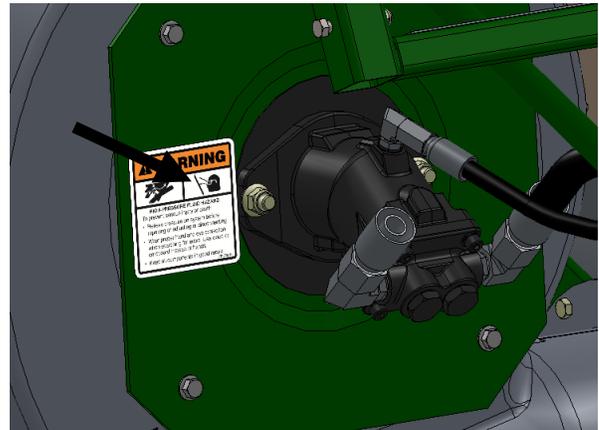
On tank
QTY 1 total



P000192 - WARNING – HIGH PRESSURE FLUID



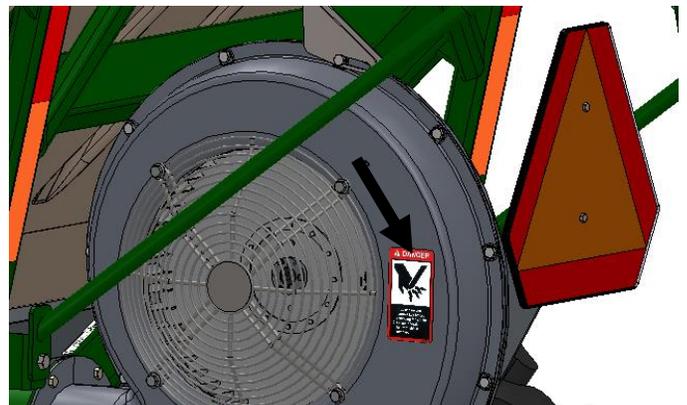
On fan
QTY 1 total



P001994 - DANGER – FAN HAZARD



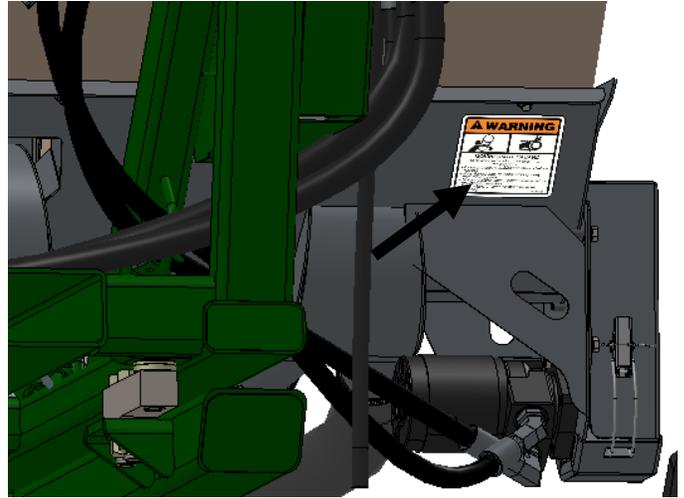
On fan
QTY 1 total



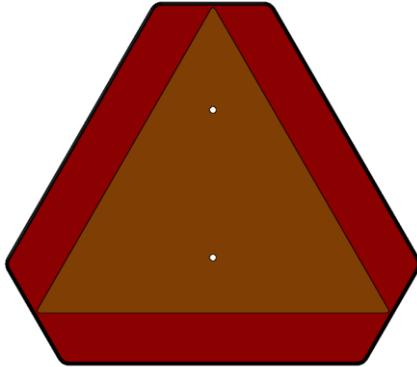
P000191 - WARNING - MOVING PARTS DANGER



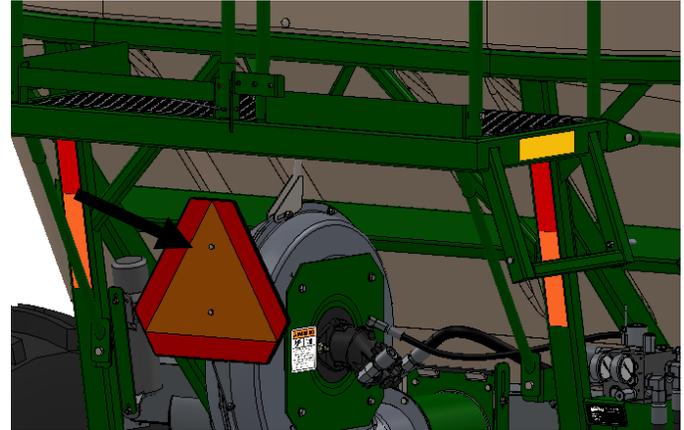
On side of meter
QTY 1 total



P000023 - SLOW MOVING VEHICLE REFLECTOR



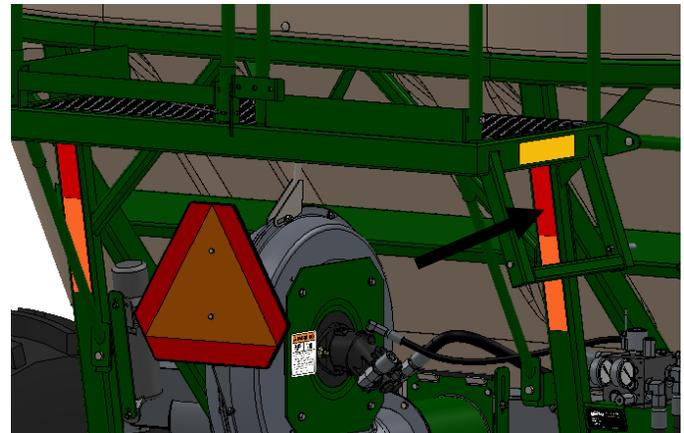
On fan
QTY 1 total



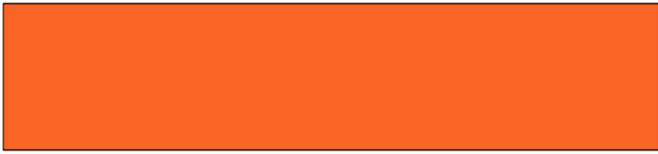
P000198 - RED REFLECTIVE TAPE



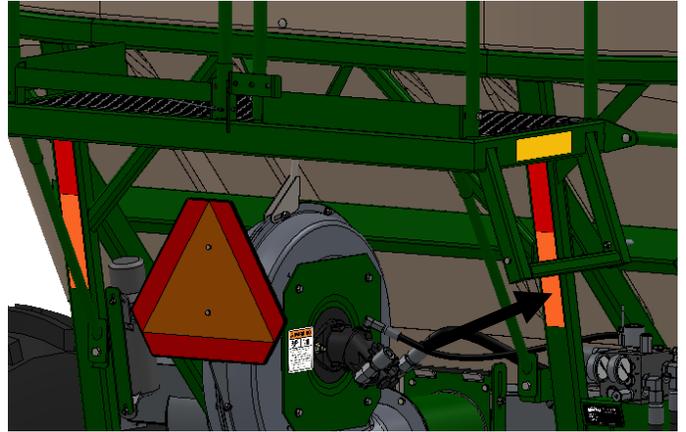
On either side of meter frame
QTY 2 total



P000197 – ORANGE REFLECTIVE TAPE



On either side of meter frame
QTY 2 total



P000199 – YELLOW REFLECTIVE TAPE



On either side of meter frame
QTY 6 total



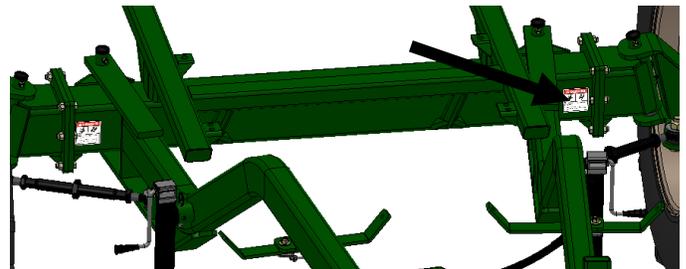
STEERABLE CART SAFETY LABEL LOCATIONS

P000190 - CAUTION – READ MANUAL



On rear of axle
QTY 1 total

P000189 - DANGER – PINCH HAZARD



On front of axle one on each side
QTY 2 total

P000194 - WARNING – CRUSH HAZARD



On side of cart arm each side
QTY 2 total

TURBO SEEDER PLUS 2108 (TS9105) OVERVIEW

The Turbo Seeder Plus 2108 is a variable rate granular metering system with pneumatic delivery, designed for efficient and even distribution of granular seed or fertilizer products, available with either a 30 cubic foot or 50 cubic foot tank capacity. It features broadcasters for even product distribution, folding steps, and a fill platform for easy tank access. Additionally, the system can be configured with rate controller and scale options to suit various applications.



TURBO SEEDER PLUS GEN 1 WITH CART (TS9110) OVERVIEW

The Turbo Seeder Plus Gen 1 with cart is a variable rate granular metering system with pneumatic delivery, designed for efficient and even distribution of granular seed or fertilizer products. It features a tank with a capacity of 185 cubic feet, capable of holding up to 6 tons of material. The system includes broadcasters to ensure even distribution.

For ease of use, the Turbo Seeder Plus Gen 1 with cart is equipped with folding steps and a fill platform, providing easy access to the tank. It also has a quick connect hitch, quick disconnect pneumatic hoses, and quick couplers on the hydraulic lines, allowing for fast and easy attachment to tillage implements. Additionally, the system can be configured with rate controller and scale options to suit various applications.

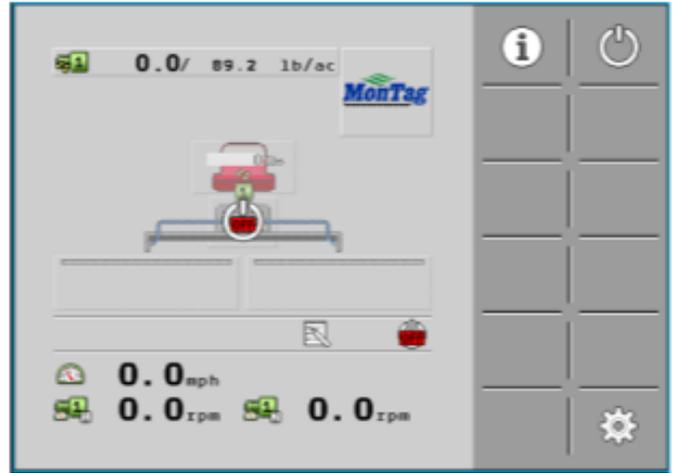


CONTROLS AND DISPLAYS

The Turbo Seeder Plus can be configured with different rate controllers, scale options, and a float switch option. Below are pictures that help identify each option.

MDRC (MONTAG DRY RATE CONTROLLER)

The MDRC is an ISO rate controller and requires a tractor display to show the controller interface on a virtual terminal.



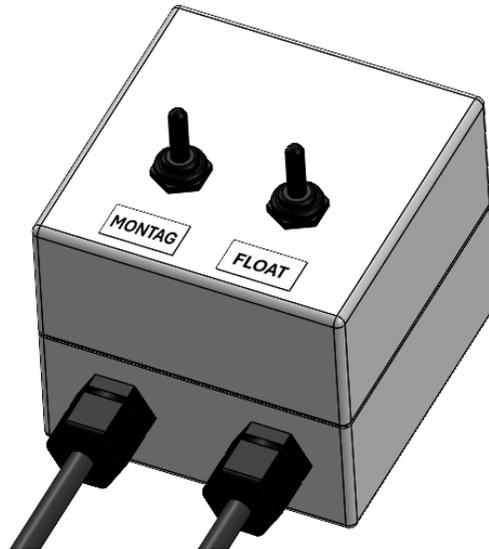
GSC-1000 (MICRO TRACK CONTROLLER)

The GSC-1000 is an electronic control system with a self-contained user interface and allows speed compensated rate control.



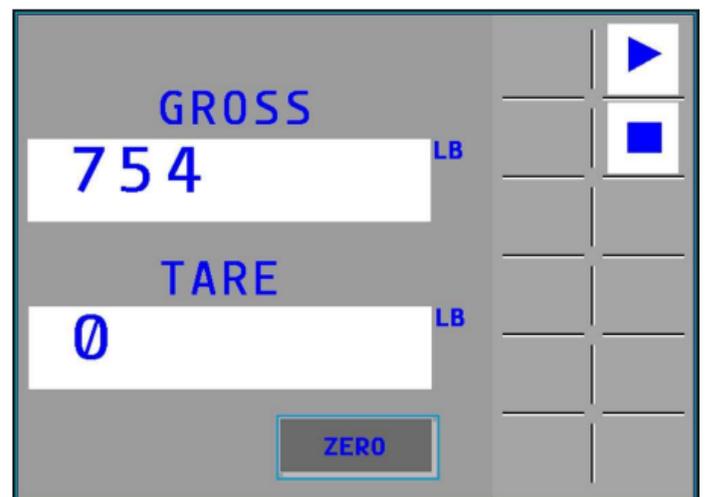
FLOAT SWITCH CONTROL

The float switch control is a switch box that goes in the tractor cab and allows the operator to turn the metering system on and activate the float control on the tillage tool reels. It is used on 20' and larger tillage tools where the hydraulic supply for the metering system is integrated into the tillage tool hydraulic system instead of operating on a separate tractor SCV.



POINT SCALE SYSTEM

The Point Scale System provides the operator with the weight of the product in the tank. The ISO version allows the operator to pull up the scale information on a virtual terminal on the tractor display and will integrate with the MDRC control system; a numeric display is attached to the metering system and can be seen from the tractor cab. The cab mount (NON-ISO) display is mounted in the cab and displays the product weight in the cab.



METERING SYSTEM GAUGES

The metering system contains hydraulic gauges to read the hydraulic inlet and return pressures in pounds per square inch. The pneumatic gauge displays the air pressure in inches of water column to read the air pressure supplied by the fan.

AIR GAUGE

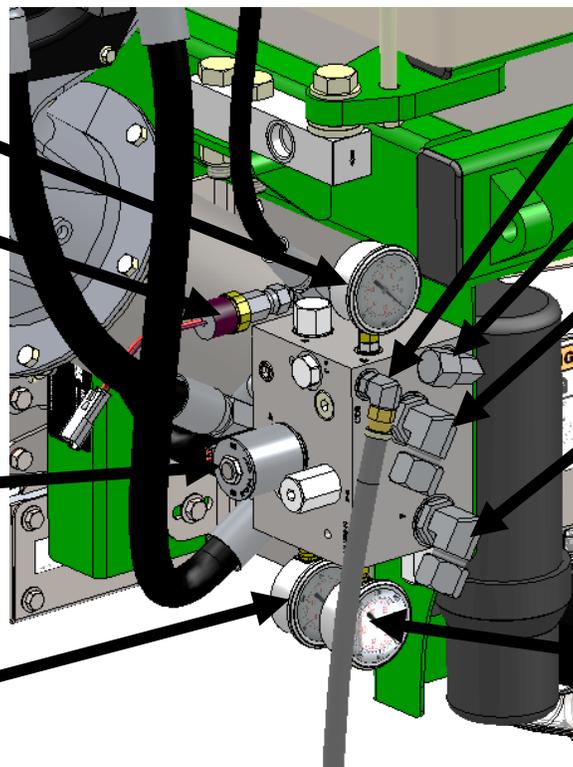


OUTLET LINE PRESSURE

CASE DRAIN PRESSURE SWITCH

AUGER MOTOR PWM CONTROL VALVE

FAN RETURN PRESSURE (PRESSURE TO AUGER MOTORS)



CASE DRAIN RELIEF

CASE DRAIN

RETURN TO TRACTOR

PRESSURE FROM TRACTOR

INLET LINE PRESSURE

START UP PROCEDURE – 2108 ON TOOLBAR (TS9105)

MOUNT 2108 AND CONNECT SYSTEMS

- Refer to [TS9105 TURBO SEEDER PLUS 2108 INSTALLATION INSTRUCTIONS](#) to mount the Turbo Seeder Plus 2108 and broadcasters onto the toolbar and connect the hydraulic, electrical and pneumatic systems.
- Hitch the toolbar to the tractor, refer to toolbar manuals for proper setup and hitching methods.



CRUSHING HAZARD

When backing into position do not allow any person to stand between the tractor and implement.

- Connect hydraulics to the tractor. The Turbo Seeder Plus mounted on the toolbar integrates with the hydraulic system on the toolbar for 20' and larger models. There are separate hydraulic hoses for the Turbo Seeder Plus and the toolbar on 15' and smaller units, requiring a separate SCV for the metering system.
 - Refer to [TS9105 TURBO SEEDER PLUS 2108 INSTALLATION INSTRUCTIONS](#) for hydraulic connections between the Turbo Seeder Plus and the diverter block or ICS hydraulic system on the toolbar.
 - Ensure that Pressure, Return, and Case Drain hoses are 1/2" hoses or larger.
- Connect electrical systems included with the Turbo Seeder Plus. Some electrical systems require power from the tractor; obtain the proper connectors to adapt to tractor plug.
 - Float Switch
 - Requires power from the tractor.
 - Controller
 - MDRC connects to ISO plug on tractor.
 - GSC-1000 requires power from the tractor.
 - Scales
 - Cab Mount (NON-ISO) scale requires power from the tractor.

SYSTEM TEST – NO PRODUCT IN TANK

- Power on the tractor, ensure hydraulic reservoir is filled to the required specification.
- Confirm electrical system connectivity and power on status.
 - If equipped with a float switch, ensure the toggle switches for “FLOAT” and “MONTAG” are in the down position.
 - Ensure rate controller is operational.
 - Ensure scale is operational.
- Prepare toolbar to be unfolded and lowered.



WARNING CRUSHING HAZARD

Ensure bystanders are clear of machine before activating any functions.

- Unfold the toolbar and lower to field position.
- Verify the operation of the implement switch. The switch should be mechanically disengaged to put the system in the operational state. There is no signal on the switch when in the operational state.

Meter System Operational



Meter System Disengaged

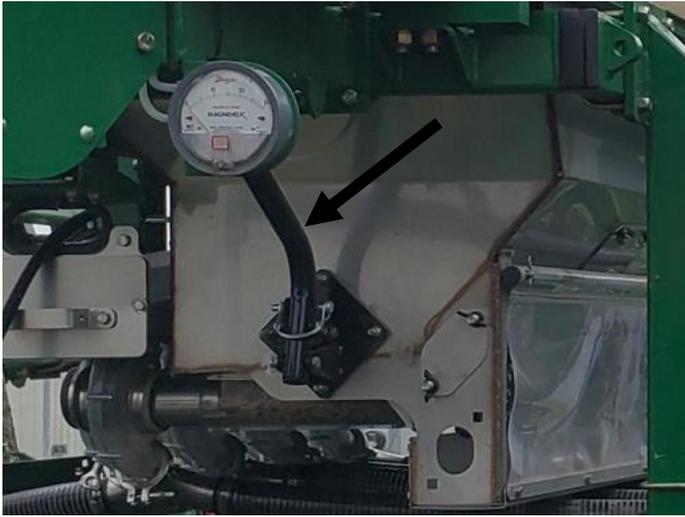


- Operate the tractor SCV to provide continuous hydraulic flow to the metering system. If equipped with the float switch box, toggle the “MONTAG” switch on. The fan on the metering system should run and air pressure should show on the air gauge. Evaluate hydraulic pressure gauge readings. Adjust the SCV flow to tune the air pressure.
 - Hydraulic return pressure should read 0-200 PSI.
 - Air pressure gauge should read 6-14 inH₂O.
 - Set the rate controller to a target rate and simulated speed and start metering system. Ensure the metering augers are running.
 - Refer to rate controller documentation to set up, calibrate, and simulate speed.
 - Confirm the metering auger RPM is correct. The MDRC auger RPM is shown on the screen. The auger revolutions need to be counted per minute when using the GSC-1000.
 - The Montag Toolbox App can be used to calculate theoretical auger RPM.
- [Montag Toolbox On The App Store](#) [Montag Toolbox - Apps On Google Play](#)
- Raise the toolbar and confirm the metering augers turn off.
 - The implement switch location can be adjusted to set when the metering system starts and stops.
 - Read the system weight on the scale display if equipped. Zero the scale with an empty tank.
 - Refer to the scale documentation of scale operation and Bluetooth connectivity.
 - Turn off the meter system by deactivating the SCV or toggling the “MONTAG” switch.

SYSTEM TEST – PRODUCT IN TANK

- Confirm operation of the slide gate lever. Close the slide gate before adding product to the tank.

Slide Gate Open



Slide Gate Closed



- Open the lid and add product to the tank. Close the lid when finished.
- Open the slide gate to allow product into metering augers.
- Configure the rate controller with the product parameters and target rate.
 - Refer to rate controller documentation to set up.
- Engage the tractor hydraulics and rate controller to operate the metering system with the toolbar lowered.
- Set a simulated speed in the controller.
- Observe product distribution on ground.
- The amount of product going through each broadcaster is affected by the splitter orientation on each primary line. Conduct splitter tuning if uneven distribution is observed.
 - Catch product from each broadcaster and compare the amount of product delivered from each side of the splitter.
 - Rotate the splitter to balance the flow. When distribution is almost balanced a little adjustment can have a large effect.
- Turn off the meter system by deactivating the SCV or toggling the “MONTAG” switch on the float switch control.

FIELD CALIBRATION

- Begin with starting calibration number from System Test
- Park the toolbar in the raised position on level ground with the fan running to establish a starting point with a known amount of product.
- Document the product weight if equipped with scales or tank level without scales.
- Run the machine over multiple acres while applying product.
 - The more product applied the better the calibration result, if possible 1,000 pounds of product should be applied.
 - Don't empty the tank when doing the test, keep at least 3" of product above the metering augers or the test may be inaccurate.
- Park the toolbar in the raised position on level ground with the fan running to compare the amount of product applied to the amount documented at the beginning.
- Record the product weight if equipped with scales or tank level without scales.
- Record the target rate of application and the number of acres covered.
- Compare the amount of product applied to the target amount to see if the applied amount is within acceptable range of the target rate.
- Calculate a new calibration number and enter into the rate controller.
- Re-run field calibration to evaluate the new calibration number.
- Example calibration calculation:

A 30 ft wide toolbar is used with 8 meter augers and 16 broadcasters on 22.5 in spacing. The starting weight of product in the tank is 1,900 lb. and the product density is 50 lb./cuft. The target rate is 100 lb./ acre and application speed is 8 MPH.

From the Montag Toolbox the auger speed is 46.6 RPM with a CFR/ row of .0026 cuft/rev/row (0.0013 cuft/rev/outlet) and a total CFR of 0.0208 cuft/rev (0.0026 cuft/rev/row * 8 rows).

The field calibration test is run over 10 acres and the amount of product remaining in the tank is 1,000 lb. The amount of product applied is 900 lb. and the target amount of product was 1,000 lb. Calculate the new calibration number based on the test.

$$NEW\ CFR = ACTUAL\ WEIGHT * \frac{CURRENT\ CFR}{TARGET\ RATE * ACRES}$$

$$.01872 = 900 * \frac{0.0208}{100 * 10}$$

If the amount of product applied is less than the target amount, the new CFR should be less than the current CFR. Refer to the calibration documents below for additional information under the support/controller tab on the Montag website.

<https://www.montagmfg.com/>

[Gen_1_Rate_Calibration_091421.pdf \(montagmfg.com\)](#)

[Gen_2_Rate_Calibration_091421.pdf \(montagmfg.com\)](#)

FIELD AUTO CALIBRATION WITH THE MDRC

The MDRC has an auto-calibration feature if equipped with ISO scales. The setup for the calibration is similar to the field calibration above.

- Park the toolbar in the raised position on level ground with the fan running to establish a starting point with a known amount of product. Enable the auto-calibration feature on the MDRC.
- Run the machine over multiple acres while applying product.
- Park the toolbar in the raised position on level ground with the fan running to compare the amount of product applied to the amount documented at the beginning.
- The MDRC will suggest a new calibration factor that can be accepted or rejected.

When using ISO scales and the MDRC it can be helpful to set the scale weight for the tank when the tank is filled. This will allow the operator to see the weight in the tank when viewing the MDRC run screen.

START UP PROCEDURE – GEN 1 WITH CART (TS9110)

HITCH UP CART AND CONNECT SYSTEMS

- Refer to [TS9110 TURBO SEEDER PLUS INSTALLATION INSTRUCTIONS](#) to mount the cart hitch and broadcasters onto the toolbar and connect the hydraulic, electrical and pneumatic systems.
- Hitch the toolbar to the tractor, refer to toolbar manuals for proper setup and hitching methods.

⚠ WARNING CRUSHING HAZARD

When backing into position do not allow any person to stand between the tractor and implement.

- Connect hydraulic hoses to the tractor.
 - Refer to [TS9110 TURBO SEEDER PLUS INSTALLATION INSTRUCTIONS](#) for hydraulic connections between the Turbo Seeder Plus and the tractor.
 - Ensure that Pressure, Return, and Case Drain hoses are 1/2” hoses or larger.
- Connect electrical systems included with the Turbo Seeder Plus. Some electrical systems require power from the tractor; obtain the proper connectors to adapt to tractor plug.
 - Controller
 - MDRC connects to ISO plug on tractor.
 - GSC-1000 requires power from the tractor.
 - Scales
 - Cab Mount (NON-ISO) scale requires power from the tractor.
- Ensure all systems are connected and the toolbar is fully functional; couple the Turbo Seeder Plus Gen 1 with cart to the hitch that is installed on the toolbar.

⚠ WARNING CRUSHING HAZARD

When backing into position do not allow any person to stand between the implement and cart.

- Position the toolbar hitch directly under the mating attachment on the cart.
- Use the jack stands on the cart to lower the hitch attachment into place and install hitch pin to connect.

⚠ WARNING SEVERING HAZARD

Keep hands and fingers away from hitch attachment when lowering into place to connect.

- Connect the hydraulic quick couplers, electrical connectors, and pneumatic quick disconnects between the cart and the tool bar.
- Perform system test and field calibration.
 - The Turbo Seeder Plus Gen 1 with cart doesn't have a slide gate. Perform the pre-operational tests noted below while omitting the instructions related to the slide gate.
 - [SYSTEM TEST – NO PRODUCT IN TANK](#)page 29
 - [SYSTEM TEST – PRODUCT IN TANK](#)page 30
 - [FIELD CALIBRATION](#)page 31
 - [FIELD AUTO CALIBRATION WITH THE MDRC](#)page 32

OPERATION

The intended use of the Turbo Seeder Plus is to simultaneously till the soil, size residue, and apply fertilizer or cover crops in a single pass. The Turbo Seeder Plus is not intended to transport people or goods. Below is information relating to the operation of the Turbo Seeder Plus.

PRE-OPERATION CHECKLIST

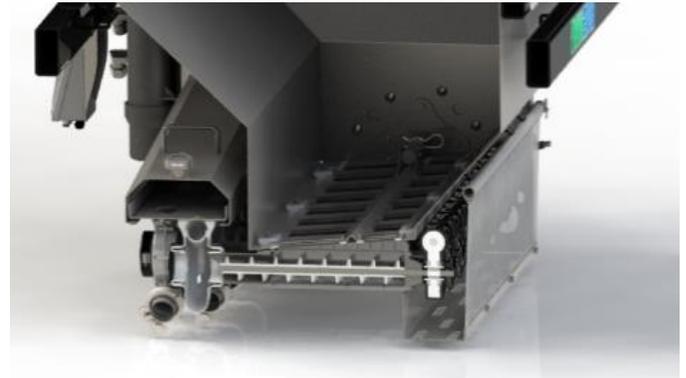
Before operation, evaluate the items below.

- Evaluate the metering system and toolbar hydraulic systems. Ensure hydraulic reservoir is filled to the required specification.
- Inspect all hydraulic lines, hoses, fittings, and couplers. Use a clean cloth to wipe any accumulating dirt from the couplers before connecting to the hydraulic system of the tractor.
- Inspect all delivery hoses for any wear and restrictions. Repair or replace if necessary.
- Inspect the metering system tank for accumulation of any foreign material that could plug the metering system. Cycle the slide gate to confirm operation and ensure there is no material packed between the slide gate and the side of the tank.
- Evaluate the metering system drive train. Confirm auger motor couplers are attached to the large hex shaft on the input side of the gearboxes. Operate the meter augers and ensure all row meter augers are turning and no shear couplers are broken. Replace couplers as needed. Evaluate all the chains and sprockets for proper adjustment and tension. Adjust as required.
- Check the fan and plenum for any accumulation of debris or dirt. Clean as required. Run the fan to clear hoses and broadcasters of foreign material. Check air flow at each broadcaster.
- Ensure all guards and shields are in place. Check that all safety labels are legible.
- Check mounting hardware of metering system and broadcasters. Tighten where necessary.

THEORY OF OPERATION

The Turbo Seeder Plus metering system operates by accurately metering granular product into an airstream, which transports the product to the delivery point, known as the broadcaster. The ability to apply an accurate rate of product per acre that is compensated for the speed of application and even distribution of the product and are key qualities of the Turbo Seeder Plus.

Below are cutaway views that show how the product flows from the tank into the metering auger and into the airstream.

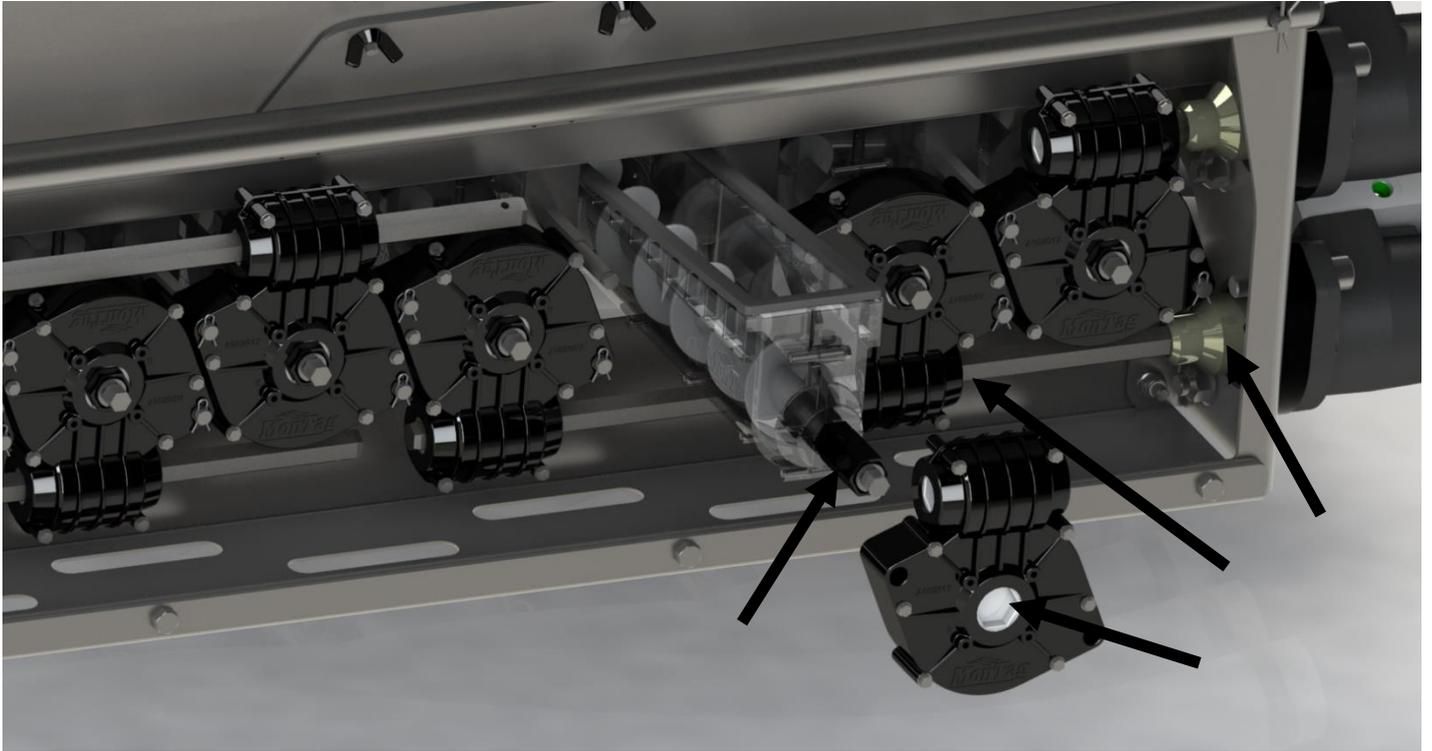


The metering system fan is hydraulically driven, and the fan speed is determined by the SCV flow from the tractor. The fan speed corresponds to the air pressure developed in the air plenum and the product delivery tubes. The hydraulic fluid used by the fan is also used to drive the metering augers. A pulse width modulating (PWM) hydraulic valve is controlled by a variable voltage signal sent from the rate controller to adjust the speed of the metering auger drive train to turn the metering augers at the speed necessary to output the desired rate of product.

The 2108 metering auger drive train begins with the auger motor connected to a large hex shaft. This shaft passes through the input side of a gearbox for each meter row. The output side of the gearbox features another female hex, which connects to the individual row auger, also known as the auger cartridge. A shear coupler, with an inner and outer hex, is installed between the gearbox and the row meter auger shaft to protect the gearbox from overload if the row meter auger gets stuck. The inner hex of the shear coupler drives the hex shaft of the row meter auger, moving the product via the auger flights into the air chamber.

An air chamber is connected to the pneumatic plenum, which is pressurized by the fan. Air flows from the plenum through the air chamber, where the product is introduced into the air stream. This air stream carries the product out of the primary meter tube to a splitter. The splitter directs the product into two secondary tubes, each leading to a broadcaster that deflects the product onto the ground while exhausting the air.

Below are pictures of the meter drive train and splitter arrangement.

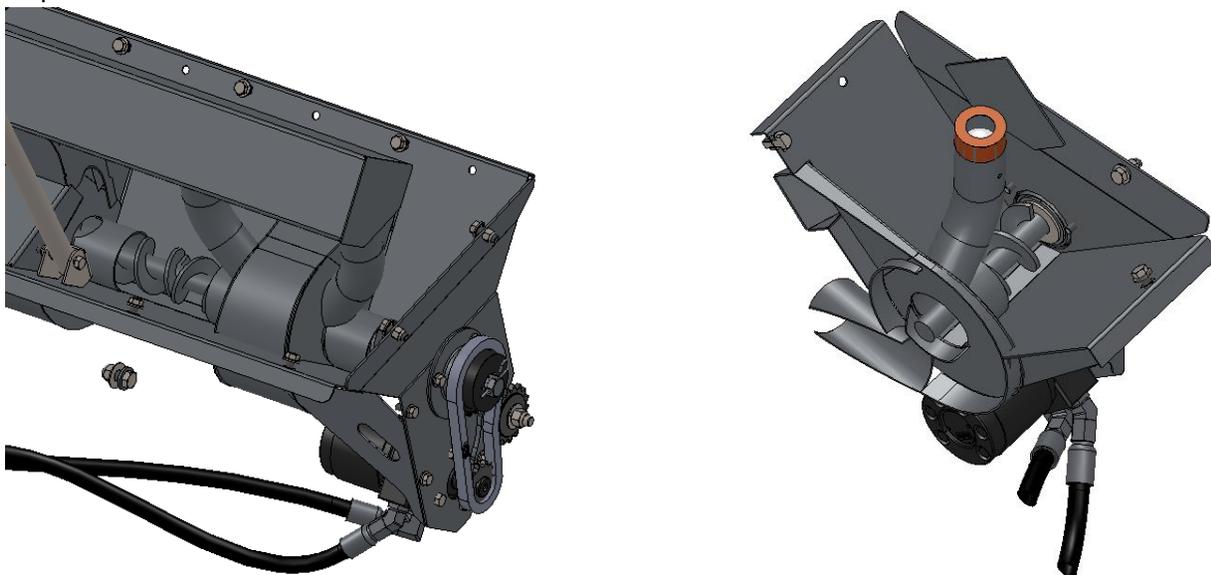


The Turbo Seeder Plus Gen 1 with cart metering auger drive train begins with the auger motor with a chain sprocket that drives the meter auger through the chain and sprocket attached to it. The meter auger has auger flights that translate the product via the auger flights into the air chamber. There is a hydraulic relief valve on the auger motor that will stop the auger from turning if something gets caught in the auger.

Air from the fan flows through the air chamber and carries the product out of the primary meter tube to a splitter. The splitter directs the product into two secondary tubes, each leading to a broadcaster that deflects the product onto the ground while exhausting the air.

The air chamber has a ball check tube connected to it, that allows air from outside the tank to be drawn into the air chamber if product is not being transported, to counteract a vacuum that can be created. When product flows through the air chamber the ball shuts off the outside air and allows the air from the fan to transport the product.

Below are pictures of the meter drive for the Turbo Seeder Plus Gen 1 with cart.



HYDRAULIC CASE DRAIN

The hydraulic motors require a low-pressure case drain line to drain hydraulic fluid back to the tractor reservoir when they are running. An in-line check valve is installed between the metering system hydraulic manifold and the case drain hose on the toolbar to prevent spikes of pressure on the toolbar from going back through the metering system case drain. There is a relief valve on the case drain line that will allow excess pressure to relieve through a short hose on the metering system hydraulic manifold if the case drain pressure exceeds the relief valve setting. An electronic pressure switch monitors the case drain pressure and will activate the case drain alarm buzzer if the case drain pressure exceeds the set value when using the GSC-1000. The case drain buzzer is attached to the harnessing for the GSC-1000 and is located in the tractor cab. If the MDRC is used, an error message will be displayed in the cab when the electronic pressure switch signals the case drain pressure setting has been exceeded and the metering augers will be stopped.

SYSTEM TUNING

The Turbo Max Plus metering system will need to be tuned based on the products and application rates being used. Below are some guidelines for tuning the metering system.

FAN TUNING

The pneumatic delivery system is powered by the fan and the air gauge displays the pneumatic system pressure. The fan speed is controlled by the hydraulic flow from the tractor SCV. The air pressure needed for each application may be different and should be tuned as needed. The air pressure should be as low as possible to transport the product without the transport tubes plugging, if “slugs” of product are observed in the delivery tubes the fan pressure should be increased as product slugs usually precede plugging. If the air pressure is too high a vacuum effect may occur on the delivery tube and product can be sucked out of the metering augers into the delivery tube. This may be observed as “spitting” of product out of the broadcasters when the meter is turned off. Some product will spit out of the broadcasters when turning on the end or when the meter is turned off until the delivery lines have been cleared of product. Air pressure that is too high can also cause product to “bridge” above the row meter auger and no flow down into the auger. This may be observed when there is a high percentage of dust in the product, or the product is very light.

METER DRIVE TRAIN

It is important to periodically check the metering system drive train for sheared couplers on the row meter augers. If the coupler is sheared the row meter will not drive the auger and not allow product to be introduced into the air stream. Shear couplers can break if the auger cartridge becomes packed with product. This can occur while roading the equipment and it is recommended that the slide gate be closed to prevent product from falling into the augers while roading. After the slide gate has been closed the meter augers should be run to clear the product out of the cartridge if the product is susceptible to packing. Another cause of shear coupler breakage could occur if the rate controller calibration is incorrect and a much higher than expected rate is signaled from the controller. This will cause the meter augers to try to speed up very quickly and cause a high torque on the shear coupler.

IMPLEMENT SWITCH ADJUSTMENT

The implement switch engages and disengages the metering system when raising and lowering the toolbar. The location of the switch and flag should be adjusted to turn the metering system on or off at the desired time while raising and lowering the toolbar. If the MDRC is used, the delay times for on and off should first be configured in the task controller in the tractor monitor, the delay times can be configured in the MDRC if more adjustment is needed.

Meter System Operational



Meter System Disengaged



BROADCASTER AND SPLITTER TUNING AND HOSE ROUTING

Proper hose routing, broadcaster adjustment, and splitter turning are important for achieving an even distribution of product. Even product distribution should be monitored periodically and adjustments made as necessary. See [SYSTEM TEST – PRODUCT IN TANK](#) section on page 30 for splitter adjustments. Evaluate hose routing when folding and unfolding the toolbar. Hoses should not be pinched during the process. Remove unnecessary dips in hose routing to reduce the likelihood of plugging. Broadcasters should be oriented so the distribution pattern is evenly hitting the ground and may need to be rotated by loosening the hose clamp on the tube, setting the broadcaster angle, and retightening the hose clamp.

LUBRICATION, MAINTENANCE, AND STORAGE

Refer to [PRACTICE MAINTENANCE SAFETY](#) section on page 7 for safety information related to maintenance activities.

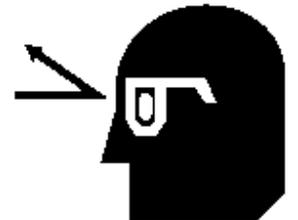
WARNING CRUSHING HAZARD

- To prevent serious injury or death from unexpected movement, always service the machine on a level surface. If the machine is connected to a tractor, engage the park brake, place the transmission in park, shut off the engine, and remove the key. If the machine is detached from the tractor, block the wheels and use safety stands to ensure it remains stationary. Ensure frame is sufficiently blocked up when working on machine.
- If stairs and a platform are installed on the rear of the dry tank, the cart can tip over if people climb on the stairs while the cart is disconnected from the implement, leading to death or serious injury.
- Do not climb on tank stairs or platform when the cart is disconnected from the implement to avoid the risk of tipping and crushing injuries.



WARNING HIGH PRESSURE FLUID BURSTING HAZARD

- Escaping fluid under pressure can penetrate the skin, causing serious injury. To avoid this hazard, relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Use a piece of cardboard to search for leaks and protect your hands and body from high-pressure fluids.
- Heating near pressurized fluid lines can create flammable spray, posing a risk of severe burns to you and nearby individuals.
- Avoid using welding, soldering, or torches near these lines or other flammable materials. Pressurized lines may unexpectedly burst if heat extends beyond the immediate flame area.
- If an accident occurs, seek medical attention immediately from a physician familiar with this type of injury. Fluid injected into the skin must be surgically removed within a few hours to prevent gangrene.



LUBRICATION

The Turbo Seeder Plus 2108 metering system mounted on the toolbar uses permanently lubricated components.

See the lubrication schedule below for the Turbo Seeder Plus Gen 1 with cart. t

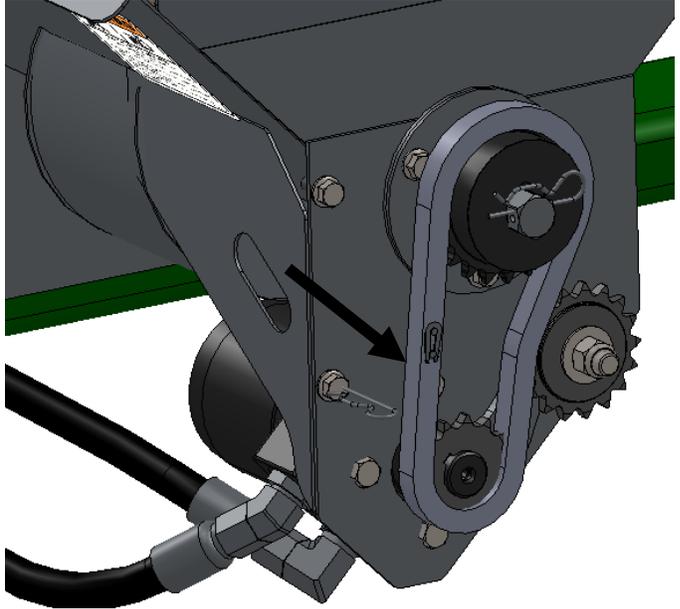
GEN 1 METER CHAINS

INTERVAL: DAILY

PRODUCT: CHAIN SPRAY LUBRICANT
JOHN DEERE TY6350 OR EQUIVALENT

- Place tractor transmission in park, stop engine and remove key.
- Spray auger chain with a quality chain spray lubricant.

Do not use motor oil or other petroleum-based lubricants that can cause a buildup of dirt in the chains and sprockets.

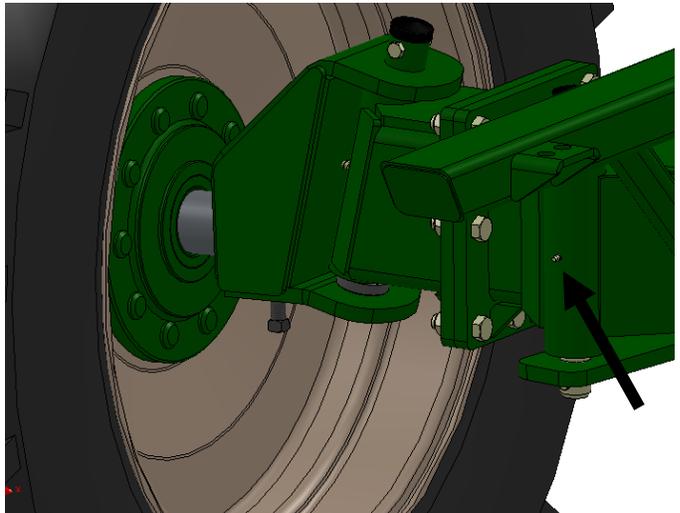


CART KINGPIN ZERKS

INTERVAL: SEASONALLY / EVERY 1,000 ACRES

PRODUCT: NLGI #2 MOLY EP SYNTHETIC GREASE
SHAEFFERS 274 MOLY EP SYNTHETIC
PLUS OR EQUIVALENT

- Place tractor transmission in park, stop engine and remove key.
- Use grease zerk to lubricate

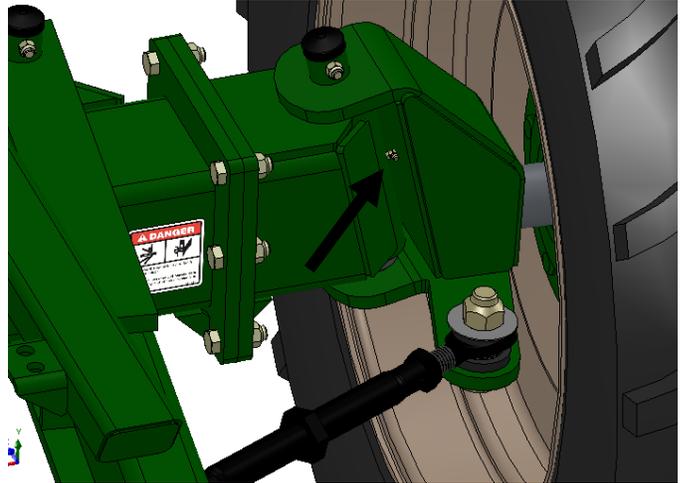


CART SPINDLE PIN ZERKS

INTERVAL: SEASONALLY / EVERY 1,000 ACRES

PRODUCT: NLGI #2 MOLY EP SYNTHETIC GREASE
SHAEFFERS 274 MOLY EP SYNTHETIC
PLUS OR EQUIVALENT

- Place tractor transmission in park, stop engine and remove key.
- Use grease zerk to lubricate

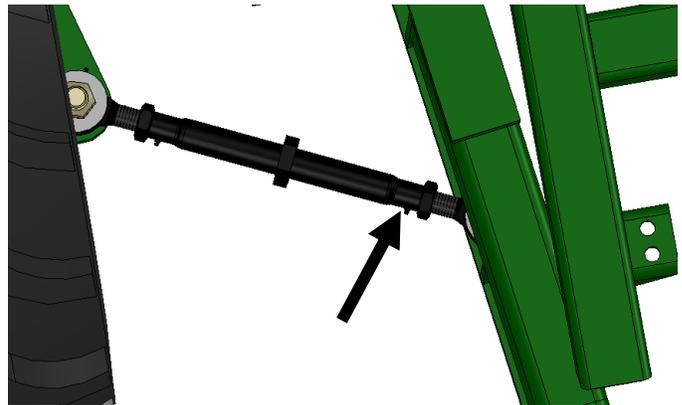


CART TIE ROD ZERKS

INTERVAL: SEASONALLY / EVERY 1,000 ACRES

PRODUCT: NLGI #2 MOLY EP SYNTHETIC GREASE
SHAEFFERS 274 MOLY EP SYNTHETIC
PLUS OR EQUIVALENT

- Place tractor transmission in park, stop engine and remove key.
- Use grease zerk to lubricate

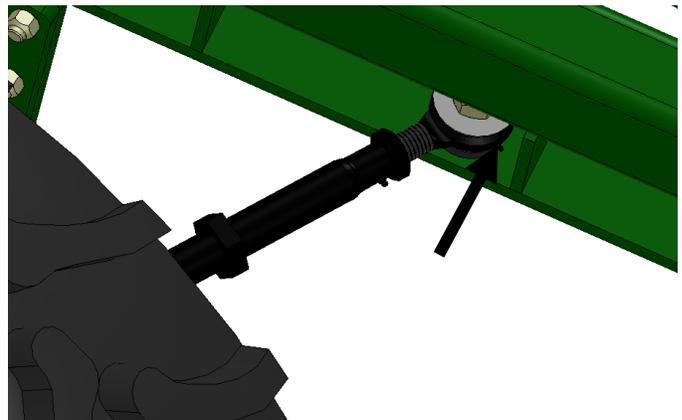


CART TIE ROD END ZERKS

INTERVAL: SEASONALLY / EVERY 1,000 ACRES

PRODUCT: NLGI #2 MOLY EP SYNTHETIC GREASE
SHAEFFERS 274 MOLY EP SYNTHETIC
PLUS OR EQUIVALENT

- Place tractor transmission in park, stop engine and remove key.
- Use grease zerk to lubricate



MAINTENANCE

Regular maintenance is essential for ensuring the Turbo Seeder Plus operates smoothly and has a long lifespan. Some components of the Turbo Seeder Plus are provided by other manufacturers, refer to the original equipment manufacturer's instructions for maintaining those parts. If you need more detailed maintenance information for these components, please contact your dealer.

See [REFERENCE MANUALS](#) (page 1) and [TURBO SEEDER PLUS CONFIGURATION](#) (page 2) sections for detailed information about the maintenance of optional equipment associated with the Turbo Seeder Plus.

Regular inspections, maintenance, and servicing are crucial for the safe and reliable operation of your machine. While inspections can be carried out by someone trained to identify potential issues, any service or repairs should be conducted by a trained and qualified technician.

At the end of each season, make sure to perform the following inspections on your machine. Check for any worn or damaged parts and repair or replace them as necessary to ensure the machine remains in good working condition. This helps maintain the safety and reliability of your equipment.

INSPECT DELIVERY HOSES



CRUSHING HAZARD

- To prevent serious injury or death from unexpected movement, always service the machine on a level surface. If the machine is connected to a tractor, engage the park brake, place the transmission in park, shut off the engine, and remove the key. If the machine is detached from the tractor, block the wheels and use safety stands to ensure it remains stationary. Ensure frame is sufficiently blocked up when working on machine.
- If stairs and a platform are installed on the rear of the dry tank, the cart can tip over if people climb on the stairs while the cart is disconnected from the implement, leading to death or serious injury.
- Do not climb on tank stairs or platform when the cart is disconnected from the implement to avoid the risk of tipping and crushing injuries.
- Inspect hoses for any signs of damage, kinks, brittleness, or wear, especially in curved areas where extra wear is common.
- Make sure all hose clamps are securely tightened.
- Ensure that hoses are properly fastened to the toolbar and do not flop around when the toolbar is folded. Inspect any cable ties for signs of wear or damage and replace them if necessary.



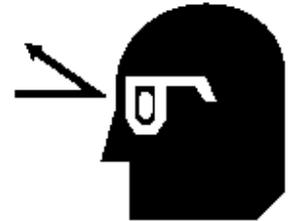
INSPECT HYDRAULIC HOSES



WARNING

HIGH PRESSURE FLUID BURSTING HAZARD

- Escaping fluid under pressure can penetrate the skin, causing serious injury. To avoid this hazard, relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Use a piece of cardboard to search for leaks and protect your hands and body from high-pressure fluids.
- Heating near pressurized fluid lines can create flammable spray, posing a risk of severe burns to you and nearby individuals.
- Avoid using welding, soldering, or torches near these lines or other flammable materials. Pressurized lines may unexpectedly burst if heat extends beyond the immediate flame area.
- If an accident occurs, seek medical attention immediately from a physician familiar with this type of injury. Fluid injected into the skin must be surgically removed within a few hours to prevent gangrene.
- Keep hydraulic components clean to easily identify leaks.
- Inspect hydraulic hoses at least once per year for signs of leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid, or any other wear or damage. Replace hoses as needed.



INSPECT SCALES, CONTROLLER, HARNESSES, AND CONNECTIONS



CAUTION

HANDLE ELECTRONIC COMPONENTS SAFELY

- Falling while installing or removing electronic components mounted on equipment can cause serious injury. Use a ladder or platform to easily reach each mounting location. Use sturdy and secure footholds and handholds. Do not install or remove components in wet or icy conditions.
- Take measures to dissipate static electricity when handling electronic components. Handle sensitive electronic components and materials with care. Use antistatic bags and containers for storage and transport of sensitive components. Regularly inspect and maintain grounding systems to ensure they are functioning correctly.
- Inspect harness connections for damage. Clean excess debris from connections.
- Check connections and plugs on scale junction block for moisture or debris. Clean only with **100% Isopropyl alcohol**.

DO NOT USE ELECTRICAL CLEANER AS DUST STICKS TO THE RESIDUE.

DO NOT USE DI-ELECTRIC GREASE

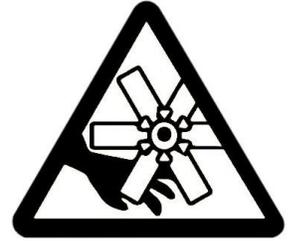


INSPECT FAN

WARNING

SEVERING HAZARD

- Only remove guards for adjustment and maintenance. Reinstall them immediately after completing the task.
- Do not operate the meter or fan with covers removed.
- Avoid wearing loose-fitting clothing that can get caught in rotating equipment.
- Do not operate meter or fan with covers removed. Rotating fans and shafts can sever digits.



WARNING

CRUSHING HAZARD

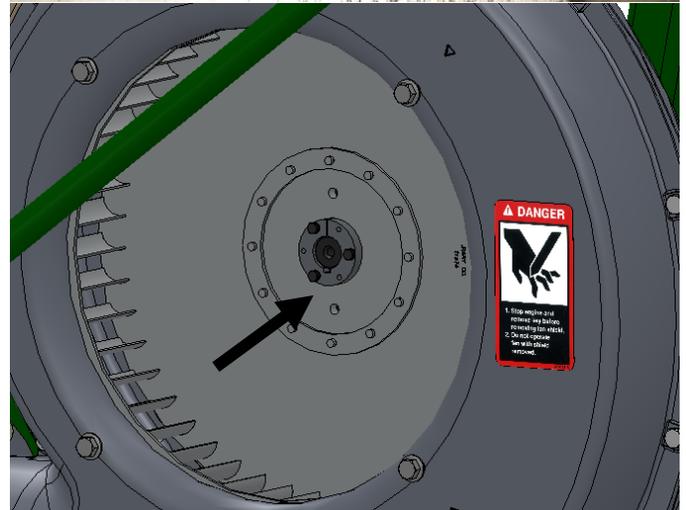
- To prevent serious injury or death from unexpected movement, always service the machine on a level surface. If the machine is connected to a tractor, engage the park brake, place the transmission in park, shut off the engine, and remove the key. If the machine is detached from the tractor, block the wheels and use safety stands to ensure it remains stationary. Ensure frame is sufficiently blocked up when working on machine.



- Remove the fan guarding and inspect the fan blades.
- If there is debris build-up, thoroughly power wash the fan blades.
- Be careful not to remove or move the fan weights during cleaning.
- Ensure all fan fins are thoroughly cleaned to avoid fan imbalance.



- Check fan motor mount hardware. Tighten as needed.
- Check fan bushing hardware. Tighten #10-24 hardware to 60 inlb.
- Reattach the fan guarding.
- Start the fan to remove any remaining water and debris.

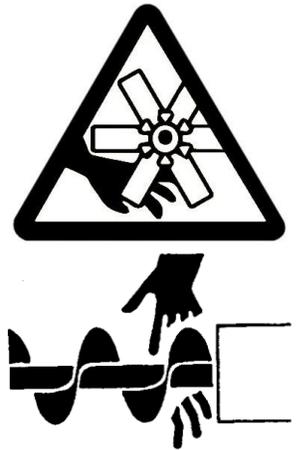


INSPECT AUGERS

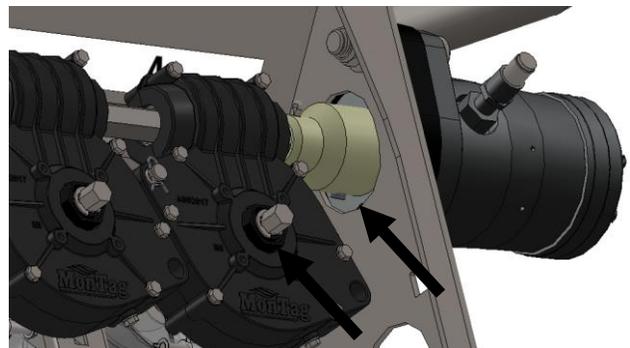


SEVERING HAZARD

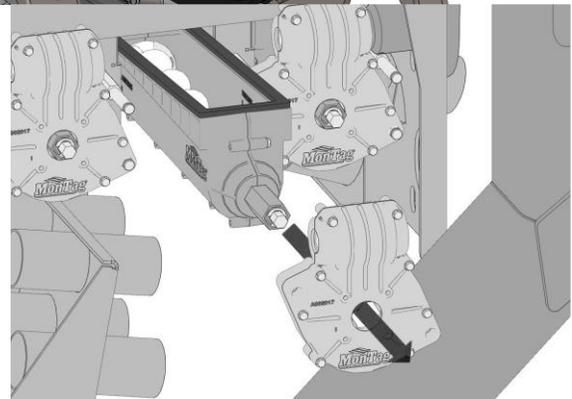
- Only remove guards for adjustment and maintenance. Reinstall them immediately after completing the task.
- Do not operate the meter or fan with covers removed.
- Avoid wearing loose-fitting clothing that can get caught in rotating equipment.
- Do not operate meter or fan with covers removed. Rotating fans and shafts can sever digits.
- Keep hands and fingers away from metering augers unless the chain has been removed from the auger drive sprocket.
- Always ensure the chain is removed before performing any maintenance or adjustments.
- Rotating augers can sever digits.



- Lower vinyl screen for access to gearboxes.
- Inspect shear couplers - run augers and visually inspect all augers are turning.
- Tighten set screw on auger motor coupling.

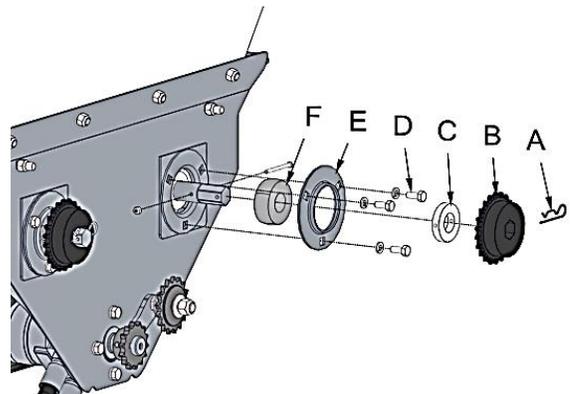


- Remove auger cartridge and inspect cartridge and auger for wear. Clean buildup or debris from row auger and cartridge.



- Replace vinyl screen.

- Remove all product from the tank.
- Remove the auger drive chain cover and drive chain.
- Remove pin (A), sprocket (B), collar and hardware (C), retainer bolts (D), lock washers, outer bearing flange (E) and bearing (F).
- Clean and inspect shaft and remove parts. Replace worn or damaged parts.
- Install bearing, flange, lock washers, bolts and sprocket.
- Install chain and chain cover.

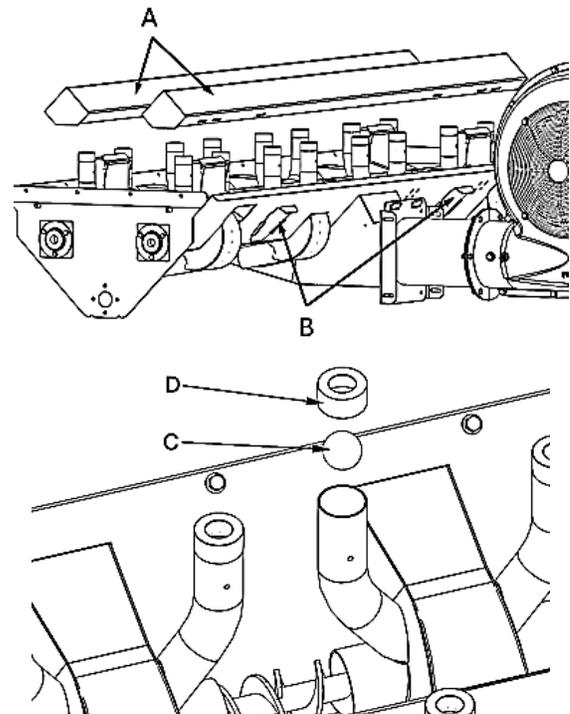
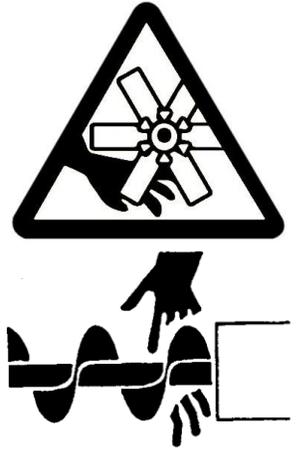


INSPECT CHECK BALLS



SEVERING HAZARD

- Only remove guards for adjustment and maintenance. Reinstall them immediately after completing the task.
- Do not operate the meter or fan with covers removed.
- Avoid wearing loose-fitting clothing that can get caught in rotating equipment.
- Do not operate meter or fan with covers removed. Rotating fans and shafts can sever digits.
- Keep hands and fingers away from metering augers unless the chain has been removed from the auger drive sprocket.
- Always ensure the chain is removed before performing any maintenance or adjustments.
- Rotating augers can sever digits.
- Thoroughly power wash the cart, unit, and fertilizer tank (inside and out).
 - Avoid areas where grease could be removed, decals could be damaged, or electrical connections.
- Remove the clean-out doors (B), tents (A), plastic caps (D), and balls (C) inside the air chambers.
- Remove row reducers (if equipped).
- Thoroughly power wash the auger assembly and auger covers.
 - Clean the air chamber covers and balls.
 - Inspect and replace any damaged parts.
- Reassemble and install all guards and shields.
- Run the fan to blow water out of the system.
- Store tanks with the top lids closed.
 - Store in a location and manner where the unit is not subject to damage.



INSPECT SLIDE GATE

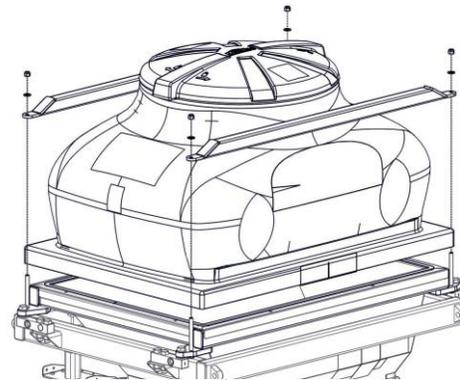


CRUSHING HAZARD

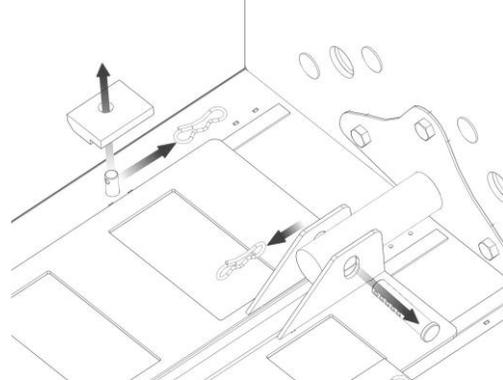
- To prevent serious injury or death from unexpected movement, always service the machine on a level surface. If the machine is connected to a tractor, engage the park brake, place the transmission in park, shut off the engine, and remove the key. If the machine is detached from the tractor, block the wheels and use safety stands to ensure it remains stationary. Ensure frame is sufficiently blocked up when working on machine.
- Falling while installing or removing components mounted on equipment can cause serious injury. Use a ladder or platform to easily reach each mounting location. Use sturdy and secure footholds and handholds. Do not install or remove components in wet or icy conditions.



- Remove key from tractor before entering tank.
- Remove hardware from (2) tank clamp brackets.
- Remove brackets.
- Remove poly tank.



- Remove pins on white slide gate fasteners and pin connecting slide gate to cylinder.
- Thoroughly power wash any build-up or debris under the slide gate.
- Inspect plastic bearing strips under slide gate and replace as needed.
- Reverse order to reinstall.
- Cycle slide gate open and closed to confirm smooth operation.

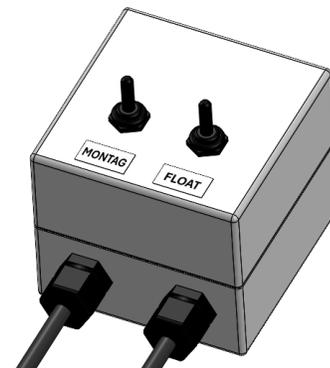
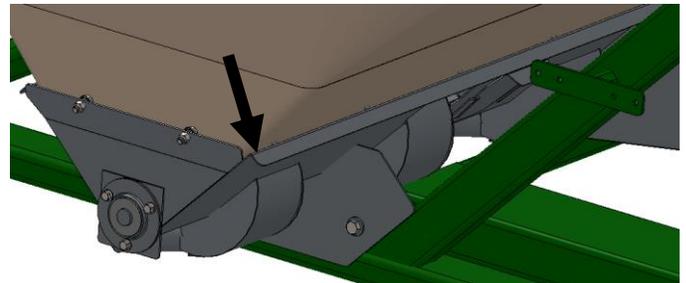


STORAGE

WARNING

CRUSHING HAZARD

- To prevent serious injury or death from unexpected movement, always service the machine on a level surface. If the machine is connected to a tractor, engage the park brake, place the transmission in park, shut off the engine, and remove the key. If the machine is detached from the tractor, block the wheels and use safety stands to ensure it remains stationary. Ensure frame is sufficiently blocked up when working on machine.
- If stairs and a platform are installed on the rear of the dry tank, the cart can tip over if people climb on the stairs while the cart is disconnected from the implement, leading to death or serious injury.
- Do not climb on tank stairs or platform when the cart is disconnected from the implement to avoid the risk of tipping and crushing injuries.
- Thoroughly clean the equipment before storing it to avoid contaminating the surrounding area with chemical or seed residue. Dispose of the wash water in accordance with local standards and laws. Coat exposed metal with a rust inhibitor to extend implement life.
- Lower implement, put tractor in park, turn off engine, and remove the key.
- Secure implement using parking jack if provided.
- Detach and store implement in an area where children normally do not play.
- Stored attachments such as dual wheels and carts can fall and cause serious injury or death.
- Securely store attachments and implements to prevent falling. Keep playing children and bystanders away from storage area.
- Check the caulk seal between the meter and the tank, ensuring the caulk is in good condition and properly adhered.
- Replace the caulk with high-grade silicon if it is deteriorated or has come loose from the joint.
- Thoroughly coat all the metal parts, inside and outside, of the meter, frame, and toolbar with a fluid film rust inhibitor to extend the life of the equipment, especially when after dry fertilizer has been run through the system.
- Store float switch control box or other electronics in a manner where moisture build-up is prevented. Store inside if possible.



TROUBLESHOOTING

The troubleshooting section contains solutions to common issues that could be encountered while using the Turbo Seeder Plus. Additional troubleshooting information can be found in the manuals for the optional equipment found in for your configuration, see [REFERENCE MANUALS](#) section on page 1 for optional equipment manuals. The support tab on the Montag website is another resource for helpful troubleshooting information.

<https://www.montagmfg.com/support/>

CAUTION

INHALATION HAZARD

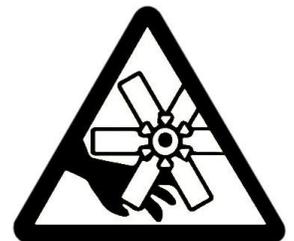
- Read and strictly follow the manufacturer's instructions found on the product container.
- Keep chemicals in their original containers. Do not transfer to unmarked containers or those used for food or drink. Store in a secure, locked area away from food for humans or livestock. Keep out of reach of children.
- Wear chemically resistant clothing, gloves, and safety goggles. Avoid contact with skin and eyes.
- Wear a respirator as directed by the chemical manufacturer. Do not inhale vapors, aerosols, or dust from chemicals.
- Wash skin thoroughly after working with chemicals, especially before eating.
- Bathe or shower and change clothes after handling chemicals. Wash contaminated clothing before reuse.
- Wash down the machine prior to any maintenance. Dispose of wash water in accordance with local standards and laws.
- Know the local poison control emergency contact information and keep readily available.
- Seek immediate medical attention if illness occurs during or shortly after chemical use.



WARNING

SEVERING HAZARD

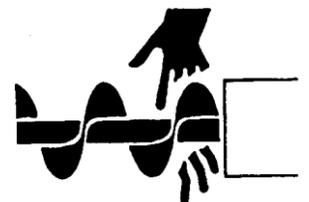
- Only remove guards for adjustment and maintenance. Reinstall them immediately after completing the task.
- Do not operate the meter or fan with covers removed.
- Avoid wearing loose-fitting clothing that can get caught in rotating equipment.
- Do not operate meter or fan with covers removed. Rotating fans and shafts can sever digits.



WARNING

SEVERING HAZARD

- Keep hands and fingers away from metering augers unless the chain has been removed from the auger drive sprocket.
- Always ensure the chain is removed before performing any maintenance or adjustments.
- Rotating augers can sever digits.

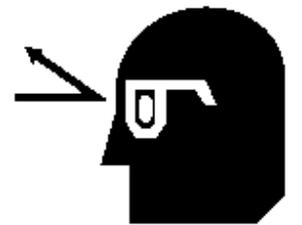


⚠️ WARNING**PROJECTILE HAZARD**

- When the fan is running, debris can be ejected from the air outlet, posing a risk of injury or potential loss of sight.
- Always ensure the area around the fan is clear of bystanders and wear appropriate eye protection to prevent injuries.
- Do not stand in front of meter air outlet while fan is operating.

**⚠️ WARNING****BURSTING HAZARD**

- Keep hydraulic components clean to easily identify leaks.
- Inspect hydraulic hoses at least once per year for signs of leakage, kinking, cuts, cracks, abrasion, blisters, corrosion, exposed wire braid, or any other wear or damage. Replace hoses as needed.
- To prevent serious injury or death while working under a raised implement, regularly inspect hydraulic hoses between the lift cylinders and hydraulic lockup valves. Replace worn or damaged hose assemblies immediately, as they can fail during use.
- Escaping fluid under pressure can penetrate the skin, causing serious injury. To avoid this hazard, relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure. Use a piece of cardboard to search for leaks and protect your hands and body from high-pressure fluids.
- Heating near pressurized fluid lines can create flammable spray, posing a risk of severe burns to you and nearby individuals.
- Avoid using welding, soldering, or torches near these lines or other flammable materials. Pressurized lines may unexpectedly burst if heat extends beyond the immediate flame area.
- If an accident occurs, seek medical attention immediately from a physician familiar with this type of injury. Fluid injected into the skin must be surgically removed within a few hours to prevent gangrene.

**⚠️ WARNING****BURN HAZARD**

- After several minutes of equipment operation, surfaces containing hydraulic fluid can become very hot.
- Avoid touching hot hydraulic surfaces to prevent burns.
- Do not work on the hydraulic system while it is hot. Allow it to cool down before performing any maintenance or adjustments.



PRODUCT NOT BEING DELIVERED

FAN AND AUGER NOT TURNING

PROBLEM: | PRODUCT NOT BEING DELIVERED

- Ensure the tractor is running, the hydraulic SCV to operate the fan is on, and the meter fan is running. Confirm proper SCV flow direction and correct SCV for priority flow are being used in tractor.
- Ensure the hydraulic hoses are properly connected to pressure, return, and case drain lines on tractor. Verify case drain relief hose is not leaking oil. Reinsert into tractor coupler with compatible couplers.
- Verify proper hydraulic hose sizing and no restrictions in line.
- Verify hydraulic return line is installed in correct tractor motor return port. (see tractor manual or implement dealer)
- Verify hydraulic pressure from tractor is being read on meter inlet gauge at the flow stated in tractor manual simultaneously.
- With tractor turned off and key removed, rotate the fan by hand, verify fan inlet screen is not contacting fan wheel and preventing it from spinning. Set gap between fan and shroud to 1/4 inch (6MM).
- If there is a float switch control box, ensure the toggle switch for “MONTAG” is on. See [FLOAT SWITCH CONTROL](#) on page 26.

FAN RUNNING AND METER NOT TURNING

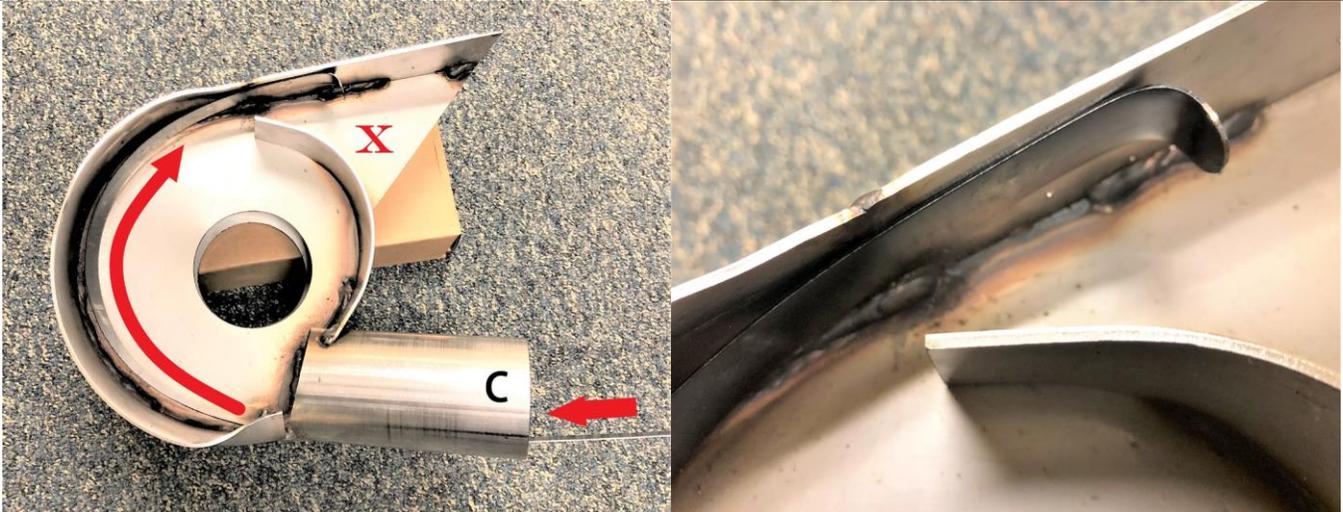
PROBLEM: | PRODUCT NOT BEING DELIVERED

- Is the implement switch in the operational state? See [IMPLEMENT SWITCH ADJUSTMENT](#) on page 39.
- Make sure the rate controller is sending out a rate signal. Verify that the master switch is turned on and that the tractor is moving at a speed greater than zero or a simulated speed is running on the controller.
- Ensure that the case drain pressure does not exceed the electronic pressure sensor setting. If you are using the MDRC, the meters will stop if the pressure sensor setting is exceeded.
- If there is a float switch control box, ensure the toggle switch for “MONTAG” is on. See [FLOAT SWITCH CONTROL](#) on page 26.
- Inspect all auger cartridges and confirm no shear couplers are broken. Replace as needed.
- Inspect auger motor to hex shaft coupling, tighten set screw. See [INSPECT AUGERS](#) on page 46.
- With tractor turned off and key removed, clean out any plugged rows and check for auger obstructions.
- With tractor turned off and key removed, check condition and routing of auger motor chain, apply proper chain tension.
- Manually operate PWM valve to see if auger motor turns. Troubleshoot electrical connections and PWM signal from controller.
- Check controller set-up is complete with correct product information (density, calibration factor, rate, and ground speed is registering.)
- If using prescriptions, verify mapping is in correct format and entered correctly. Verify prescription icon is by rate on home screen, and a non-zero target rate is on display side.
- Turn off section control on your monitor. If the augers start turning, it indicates that your monitor or prescription settings are shutting them off. Ensure that you are operating within your boundary and not in an area that has already been applied.
- Shut the slide gate and run the meters in the diagnostic screen. If the meters still do not run, set them to 100% and check for 12 VDC at the PWM valve. If 12 VDC is present, inspect the hydraulic motor to see if it is turning but the coupler has slipped off. If there is no voltage, examine the harness for any damage. If the augers turn but there is no RPM reading, check the encoder harness for the specific tank and test for 12 VDC on pins 1 and 3 of the encoder harness.

DELIVERY HOSES PLUGGED OR DISCONNECTED

PROBLEM: | PRODUCT NOT BEING DELIVERED

- Feel for air flow at each broadcaster. Inspect all primary and secondary hoses for plugging or kinking and dislodge.
- Connected any hoses that have been disconnected.
- Disconnect hose from air chamber and confirm air is flowing from air chamber.
- If a Gen 1 meter is being used, clean out air chamber with a piece of metal banding with a hook bent onto the end.



PRODUCT BRIDGING IN AUGER CARTRIDGE

PROBLEM: | PRODUCT NOT BEING DELIVERED

- Inspect auger cartridge to see if product is held above auger flighting and not feeding into auger.
- Check fan air pressure and reduce to lowest pressure while avoiding plugging in hoses.
- Check tank lid seal and confirm lid is latched and not leaking.
- Inspect product for excessive fines and remove fines from product if possible. Use the best quality product to alleviate product flow problems.

FAN RUNNING AND METER AUGER TURNING

PROBLEM: | PRODUCT NOT BEING DELIVERED

- Make sure the slide gate is open and product is flowing to auger cartridges.
- Check rotation direction of fan, it should rotate clockwise when viewed from the fan screen side.
- Check rotation direction of auger meter, chain idler should be on the slack side of chain.
- Check for buildup on auger flights. Keep product dry to avoid caking not only in tank and on augers but also build up in hoses.

APPLICATION RATE NOT HOLDING STEADY

CONTROLLER SETUP OR SPEED SENSOR BAD

PROBLEM: APPLICATION RATE NOT HOLDING STEADY

- Is “Metering drive cannot maintain target rate” alarm message displayed?
- Check controller set-up is complete with correct product information (density, calibration factor, rate, and ground speed is registering.)
- Power cycle controller. Adjust meter amplification factor. Clear object pool in tractor task controller per the instructions of the manufacturer.
- Augers RPM should be between 5- 105 range. Verify calibration factor is correct for the specific meter.
- Verify ground speed is correct. May need to increase ground speed if running too low of an auger speed (under 10 RPM).
- Check all harnesses and harness connections to motor encoders and PWM valves.
- Check controller high and low limit PWM calibration settings.
- See [FIELD CALIBRATION](#) on page 31 or [FIELD AUTO CALIBRATION WITH THE MDRC](#) on page 32 for additional information.

APPLICATION OF PRODUCT IS UNEVEN

BROADCASTERS OR SPLITTERS NEED TUNED

PROBLEM: APPLICATION OF PRODUCT IS UNEVEN

- Ensure product is being delivered to all broadcasters.
- See [BROADCASTER AND SPLITTER TUNING AND HOSE ROUTING](#) on page 39 and [SYSTEM TEST – PRODUCT IN TANK](#) on page 30 for instructions.



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