
Operator Manual

Turbo Seeder

Turbo Max 2400TM - 4000TM

Terra Max HT1100-20 - HT1100-40



Read the Operator's manual entirely. When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!



Cover illustration may show optional equipment not supplied with standard unit.

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INTRODUCTION

this applicator is designed to provide you with years of accurate and dependable performance when used for the purpose for which it was intended.

To make sure your applicator provides you with safe, efficient, and trouble-free operation, all personnel that operate this applicator must read and understand all the information included in this operator's manual. It is the responsibility of the owner(s) of this equipment to ensure that the operator is fully instructed and understands the contents of this manual. If you have any questions about this manual or the equipment, contact your Gandy dealer, or the factory.

ALWAYS use original Gandy service parts as substitute parts could adversely affect equipment performance and warranty.

DEALER

Your authorized dealer is your primary source for parts and service. If you need assistance with the operation or maintenance of this applicator, contact your dealer, or the factory. For future reference, write the dealer's name and phone number below:

Purchase Date:

Dealership:

Salesperson:

Address:

City/State/Zip:

Phone:

Email:

Web:

Further Assistance

For additional help with understanding these assembly instructions or for any other assembly or setup related questions, please contact our service department at the following address:

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

**Or call us at (800) 270-9302 to speak over the phone with a service representative.
Copies of this machine's operator manual are available by mail or online. Please visit
www.greatplainsag.com and follow the product link for information on your machine.**



WARRANTY

Great Plains (a division of Great Plains Manufacturing, Inc.) warrants to the original purchaser that this Great Plains machine will be free from defects in material and workmanship for a period of one year (Parts & Labor) from the first use date when used as intended for personal use; ninety days for custom/commercial or rental use.

Second year limited warranty covers Parts ONLY (personal usage only, excluding labor and wear items). This warranty is limited to the replacement of any defective part by Great Plains. Great Plains reserves the right to inspect any equipment or part which are claimed to have been defective in material or workmanship.

The following items and/or conditions are **NOT COVERED UNDER WARRANTY**: Failures resulting from the abuse or misuse of the equipment, failures occurring as a result of accidental damage or Force Majeure, failures resulting from alterations or modifications, failures caused by lack of normal maintenance as outlined in the operator's manual, repairs made by non-authorized personnel, items replaced or repaired due to normal wear (such as wear items and ground-engaging components including, but not limited to, disc blades, chisel points, tires, bushings, and scrapers), repeat repair due to improper diagnosis or improper repair by the dealer, temporary repairs, service calls and/or mileage to and from customer location, overtime premium, or unit hauling expenses. The warranty may be voided if the unit is towed at speeds in excess of 20 miles per hour (32 kilometers per hour), or failures occurring from soils with rocks, stumps, or other obstructions.

Great Plains reserves the right to make changes in materials or design of the product at any time without notice. The warranty shall not be interpreted to render Great Plains liable for damages of any kind, direct or consequential or contingent to property. Furthermore, Great Plains shall not be liable for damages resulting from any cause beyond its control. This warranty does not extend to crop loss, losses caused by planting or harvest delays or any expense or loss of labor, supplies, rental machinery, or for any other reason.

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

This warranty is not valid unless registered by a certified Great Plains dealer.

Effective August 1, 2020

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ORBIT-AIR / ZERO-MAX IDENTIFICATION

Orbit-Air Serial Number / Model Number

The Company places a serial / model number nameplate on the front of the Turbo-Seeder (above Zero-Max) for easy identification. For parts, service, or technical information, always provide your dealer with the model and serial number.

Model:

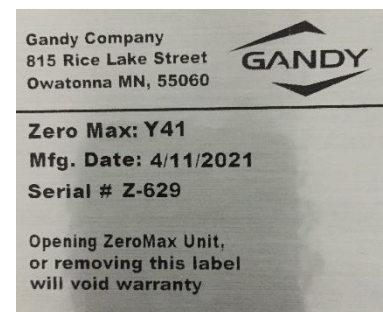
Serial No.:

Zero-Max Serial Number / Model Number

The Company places a serial number / model number nameplate on the side of the Zero-Max rate controller for easy identification.

Model:

Serial No.:



SAFETY INFORMATION

This Operator's Manual provides important safety messages that are posted on Orbit-Air applicators. **ALWAYS** read and obey all safety messages.



Safety Alert Symbol

Not all decals on the Orbit-Air Applicator have the safety alert symbol. This symbol alerts you to hazards that have the potential to kill or hurt you and/or others, or cause damage to equipment or property. Safety messages will be preceded by the safety alert symbol and the word **WARNING**, **CAUTION**, or **IMPORTANT**.

These words mean:

WARNING

Hazards or unsafe practices that COULD result in severe personal injury or death.

CAUTION

Hazards or unsafe practices that COULD result in personal injury, product damage, or property damage.

IMPORTANT

Provides practical information and potential consequences.

NOTE

Provides additional information about a component or process.

Notes will call attention to issues to be kept in mind regarding the applicable situation.

SAFETY DECALS

Keep safety decals clean and legible at all times. Replace decals that are missing or have become illegible. Safety decals are available from the factory.

Safety Decal Installation

- Be sure the installation area is clean and dry.
- Decide on the exact position before removing the backing paper.
- Remove the smallest portion of the backing paper.
- Align the decal over the desired area and press the small portion of the decal into place.
- Remove the remainder of the backing paper and press the entire decal in place.
- Pierce any air pockets and smooth them out.

Familiarize yourself with the location and message of all safety decals.

OPERATOR'S MANUAL REVIEW

ALL OPERATORS must read and understand the Operator's Manual before working with the applicator. Review the Operator's Manual and safety decals of this machine before each season of use. The Safety Alert Symbol is on all pertinent safety decals. When you see the symbol, follow the instructions to avoid injury or death.



gy0003

Figure 1. Safety Decal Locations

OPERATOR SAFETY

Applicator owners must give operation instructions to employees or operators before allowing them to operate the applicator, and at least annually thereafter, according to OSHA (Occupational Safety and Health Administration) Regulation 1928.57.

SAFETY GUIDELINES

1. Store a first aid kit in a visible, accessible location, and know how to use it.
2. Keep safety decals clean and legible at all times. Replace missing or damaged decals.
3. Before servicing, adjusting, repairing, or unplugging the applicator, stop the machine, set the parking brake, and wait for all moving parts to come to a complete stop.

4. Ensure that all guards and shields are in place. Replace any that are damaged.
5. Do not allow riders on the applicator.

GRANULAR CHEMICAL SAFETY

1. Read and strictly follow the manufacturer's instructions found on the product container.
2. Wear chemically resistant clothing, gloves, and safety goggles.
3. Avoid contact with skin and eyes.
4. Wear a respirator as directed by the chemical manufacturer.
5. Wash thoroughly after working with chemicals, especially before eating.
6. Wash all clothing contaminated by chemicals.
7. Wash down the applicator prior to any maintenance. Dispose of wash water in accordance with local standards and laws.
8. Know the poison control emergency telephone numbers in your area.

HYDRAULIC SAFETY

1. Keep hydraulic components clean so that leaks can be easily identified.
2. Replace damaged hoses and fittings.
3. Use a piece of cardboard when trying to pinpoint leaks. Wear heavy gloves and a face shield.
4. Have hydraulic components repaired by a qualified repair facility. Makeshift repairs may fail suddenly creating a hazardous condition.
5. If injured by a high pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection can result.

TRANSPORT SAFETY

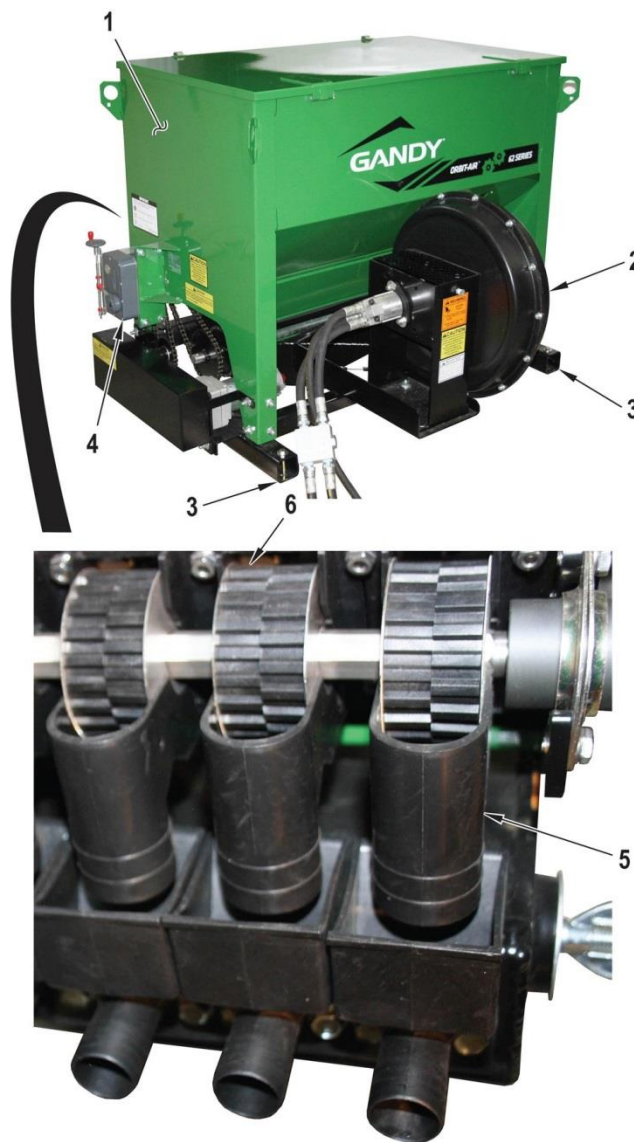
1. Be sure that a Slow Moving Vehicle (SMV) sign and all reflectors and lights required by local authorities are clean, functional, and in their proper place.
2. Do not exceed the maximum speed rating for the machine being operated.
3. Ensure that the booms and implement wings are folded and latched in place.
4. Disengage the metering drive. Failure to do so may result in the metering of seed or chemicals onto roadways.

STORAGE SAFETY

1. Store the applicator on a firm, level surface.
2. Thoroughly clean the applicator before storing to avoid contaminating the surrounding area with chemical or seed residue. Dispose of the wash water in accordance with local standards and laws.

ORBIT-AIR APPLICATOR

The Orbit-Air applicator is designed to efficiently broadcast seeds and granular chemicals. This machine operates by using a hydraulically powered fan to blow product through an air delivery system.



gy0008

Figure 2. Orbit-Air Applicator

1. Hopper	4. Zero-Max Controller
2. Hydraulic Fan	5. Metering Chambers
3. Mounting Base	6. Metering Wheels

The Orbit-Air applicator is designed to save time and operating costs by efficiently handling the following three different field jobs:

- Economically band, broadcast, or place in-furrow dry materials
- Apply material across the full tillage width
- Meter seed, grains, cover crops, and granular chemicals

The Orbit-Air applicator can be anchored by the mounting base to combines, high-clearance units, vertical tillage tools, field cultivators, chisel plows, planters, row cultivators, and much more.

NOTE

When mounting on vertical tillage equipment or any other implement, be sure to mount and place unit as close to center on parent implement for even weight distribution.

Product is fed from the hopper via metering wheels into individual mixing chambers where the air stream moves it through hoses to all delivery attachments. Precise rate control is achieved by maintaining a steady field speed and through the Zero-Max controller that sets the rotating speed of the metering wheels. The available color-coded metering wheels are:

Black - Granular Chemicals & Small Seeds, such as Alfalfa, Canola, Clover, Tillage Radish etc.

Red - Fertilizer and Medium to Large Seeds such as Annual Rye, Cereal Rye, Wheat, Oats, Barely, rice, etc.

White - Large Seeds, such as Soybeans & Field Peas

Yellow – High Volume

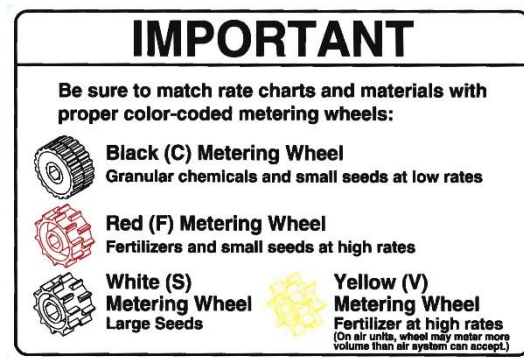


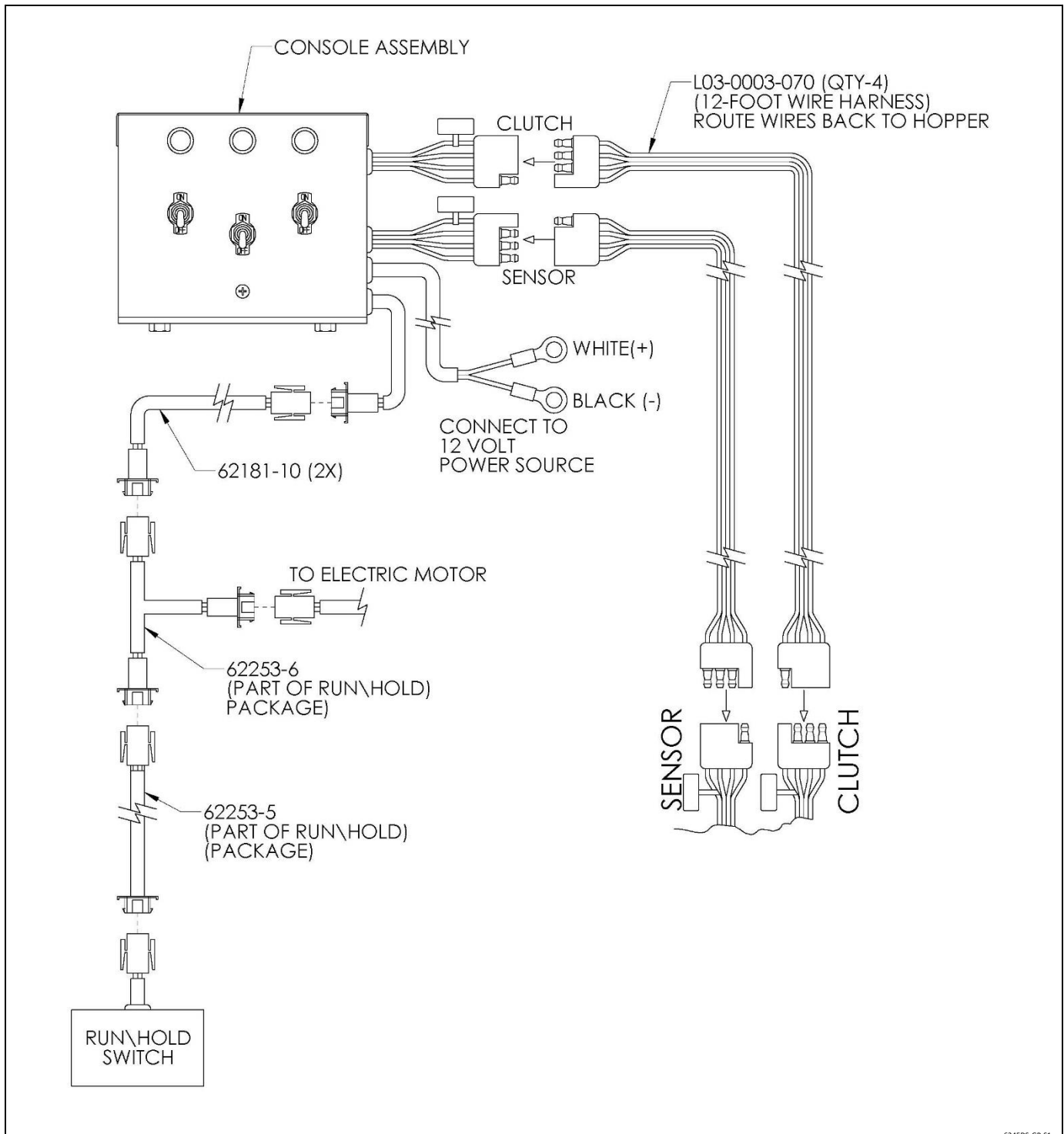
Figure 3. Metering Wheel Decal

An **IMPORTANT** metering wheel decal is located on the side of the Orbit-Air applicator for quick reference.

Wiring Instructions:

- 1) After mounting hopper convergent location for operator.
- 2) Locate wire components from parts carton and hardware bags.
- 3) Connect the ring terminals to a 12-volt power source. White Wire (+) Black Wire (-)
- 4) Connect the two 12 foot wire harness (L03-0003-010) to connectors on console and rout to connectors located on hopper. Install one piece of black flex guard to each wire harness.
- 5) Mounting the Run/Hold Switch. The Run/Hold switch is wired from the factory to be nominally closed. The chain has to be pulled to release the switch to stop the electric motor. Note: The Run/Hold switch only turns on or off the electric motor. For stopping for long periods of time shut-off the center master switch to cut all power to motor and clutches. Mount run/Hold switch per instructions.
- 7) Connect wire (62181-10) from console back to hopper and connect to run\hold adaptor wire (62253-6). Connect wire (62253-5) to wire adaptor and rout back and connect to Run/Hold switch. Connect run\hold adaptor wire to wire from electric motor.
- 8) If Run/Hold switch is not needed connect wire 62181-10 to wire from electric motor. This will by-pass the Run\Hold switch.

WIRING CONNECTIONS



HYDRAULICS

The supplied hydraulic hoses require male adaptors of the same brand as the female connectors found on the tractor, combine, etc. To obtain optimum hydraulic function, some additional adjustments or equipment may be necessary. Consult your owner's manual for operation of hydraulic system. In some instances, especially on high-gallonage tractors, installation of a hydraulic motor return line that bypasses the valve bank will eliminate heating and excessive back-pressure. Use of adaptors or other than like-brand connectors may cause excessive back-pressure, resulting in seal failure on the hydraulic motor. If your tractor, combine, etc., has a remote outlet that is piped directly to the oil cooler, use it for the return hose. If the blower's hydraulic motor is equipped with a case drain return, it is highly recommended that this be used to reduce back-pressure and heating. If more than one hydraulic motor is used in the operating system, they must be connected in parallel, not series, or back-pressure may damage the seals. Check the operator's manual of your machine to determine if you have an open or closed hydraulic system.

SAFE OPERATION

Efficient and safe operation of the Orbit-Air applicator requires that each operator read and understand the operating procedures and all related safety precautions outlined in this section. A Pre-Operation Checklist is provided. It is important, for both personal safety and to maintain the good mechanical condition of the applicator, that the Pre-Operation Checklist is followed.

Pre-Operation Checklist

Before operating the applicator, and each time thereafter, check off the following areas:

1. Check the implement and applicator hydraulic system. Ensure that the hydraulic reservoir in the tractor is filled to the required specifications.
2. Inspect all hydraulic lines, hoses, fittings, and couplers. Use a clean cloth to wipe any accumulating dirt from the couplers before connection to the tractor's hydraulic system.
3. Inspect all delivery hoses for any wear and restrictions. Repair or replace if necessary.
4. Inspect the hopper for accumulation of any foreign material that could plug the venturi system.
5. Check all the chains and sprockets for proper adjustment and tension. Adjust as required.
6. Check the fan and manifold for any accumulation of debris or dirt. Clean as required. Run the fan at field speed to clear hoses and outlets of foreign material.
7. Check the metering wheels. They must turn easily. Worn metering wheels will alter rates.
8. Ensure all bearings turn freely.
9. Operate the electrical clutches for proper engagement. Refer to Adjustment and Service if clutches do not work properly.
10. Make sure that all guards and shields are in place.
11. Check mounting hardware for hopper to implement. Tighten where necessary.

CONTROL UNIT

This applicator is equipped with an electrically operated control unit allowing operation of just the left or right metering sections and a master switch to turn off both metering sections.

It also monitors manifold air pressure and metering shaft operation.

The **Green** lights flash as shafts rotate.

If shafts stop rotating, the **Green** light(s) will stop flashing and could stay continuously on or off depending on where the sensor is located.

Left and Right switches for operation of half (Left or Right) or full width application.

Green lights above indicate which option is selected.

Half width is useful when finishing a field or where overlapping may occur.

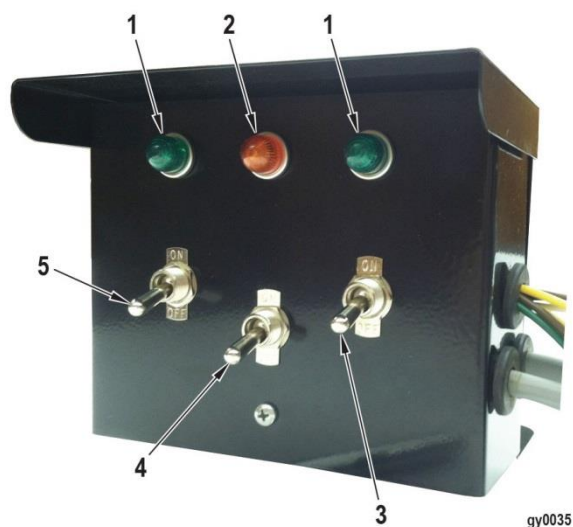


Figure 8. Control Unit

1. Green Light	Left and right shaft monitoring indicators flash when working properly.
2. Amber Light	Air pressure indicator light is always ON when applicator is functioning normally. The light will turn OFF if air pressure falls below 6 oz.
3. Right Side Selector Switch	Used alone when only the right half of application width is desired.
4. Master Power Switch (Center Switch)	Master Power Switch in the ON position for operation of applicator. The Amber light above the switch indicates power is ON.
5. Left Side Selector Switch	Used alone when only the left half of application width is desired.

AIR PRESSURE GAUGE



gy0007

Figure 9. Air Pressure Gauge

The manifold air pressure gauge indicates proper fan speed by measuring air pressure in the manifold in ounces/in.2. The gauge is wired to the pressure indicator light on the control unit.

NOTE

The **Amber** air pressure indicator on the Control Unit will go OFF if there is a problem.

For granular chemicals and light seed, the recommended air pressure is between 8-12 oz./in.2.

CLOSURE SLIDES

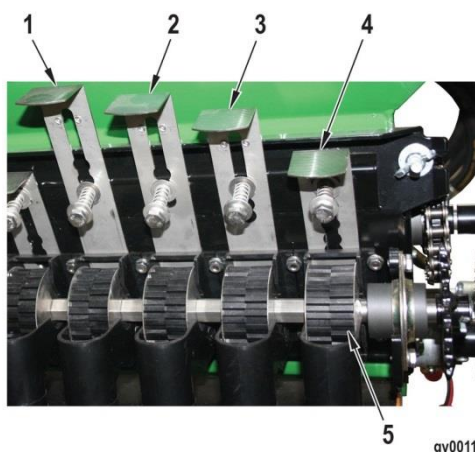


Figure 10. Closure Slides

1. Top Position	4. Closed Position
2. Mid Position	5. Metering Wheels
3. Low Position	

The closure slides are located behind each metering wheel. They should be in the low position for small seed, mid position for granular chemicals, and in the top position for large seeds (refer to rate chart). Do not use the closure slides to regulate product flow. The closure slides can be pushed down to the closed position when removing the metering wheels if product is still in the hopper.

CALIBRATION

Calibration determines the actual product flow rate of your applicator. Generally, the metering rate of granular products and seed is predictable as long as its properties are consistent. However, metering rate variations are possible and may be caused by:

- Manufacturer's quality control
- A change in product density due to settling during transport
- Damaged or worn metering components
- Variations in seed size and density due to changes in growing conditions
- Atmospheric conditions

For these reasons, product rate charts are only a guide. Calibration is essential for accurate application. The applicator should be calibrated the first time a new granular product is used and periodically thereafter. For seed, the applicator should be calibrated each time a particular lot of seed is used.

Steps:

1. After filling the hopper, set up a test course using two stakes placed 436 ft apart.
2. Read the label and cautionary statements of the granular chemical or recommended rates for the seed you are using. Determine the rate you need to apply in pounds per acre.

NOTE

Make sure the correct rate chart and the correct metering wheels are used for your application.



Figure 11. Zero-Max

1. Gauge	2. Arrow
----------	----------

3. Look up the rate chart for the material and deflector/tube spacing. Set the speed control on the applicator for your rate according to the chart. Make sure you align the arrow by viewing the gauge at eye level on the Zero-Max. (If no chart is available for your material, estimate a rate control setting based on a similar product in the rate chart.)
4. Place a plastic bag around each deflector tube end, securing it around the plastic tube, leaving one-half of the top open to allow air to escape.

3) Place a plastic bag around each deflector or tube end, securing it around the plastic tube, but leaving one-half of the top open to allow air to escape.

4) Start the blower.

Adjust blower speed so air stream is adequate to carry product through delivery tubes.

Low rates, small seeds start at 8 to 12 oz. for large seeds and higher rates start at 15 oz and increase as needed to achieve flow on longest tubes.

5) Checking the Rate:

A. Pounds per Acre

1. Start the 12-volt motor and run for one (1) minute.

(Note: you travel 88-ft in one minute which = 1 mph)

2. Weigh the total contents of all bags in pounds.

Example: 47 ounces = 2.9 pounds

3. To calculate acres covered: (Collected width in feet) times 88 (number of feet covered at one mph in one minute) divided by 43,560 (sq. ft. in one acre) equals portion of acre covered.

Example: 30-foot width x 88 feet = 2,640 sq. ft.

2,640 sq. ft. ÷ 43,560 = .0606 of an acre

4. Divide the pounds collected in step #2 by the portion of an acre calculated in step #3.

This would be the number of pounds per acre you are applying at one mile per hour.

Divide this amount by your speed.

Example: 2.9 pounds of product ÷ .0606 of an acre = 47.8 pounds per acre @ 1 mph.

47.8 pounds ÷ 5 mph. = 9.6 pounds per acre

5. Adjust speed control, if needed, and repeat Steps #1 through #4 to achieve desired rate.

Example for 30-ft model

Pick a setting on the Zero-Max

Collecting from 12-outlets (at 30" spacing) on a 30-ft. wide implement, a total of 2 pounds is collected.

Calculate acres covered:

30 ft. width multiplied by 88 (ft. traveled in 1 min. at 1 mph) = 2,640 sq. ft.

2,640 sq. ft. divided by 43,560 (sq. ft. in acre) = 0.0606 of an acre

2 lbs. (collected) divided by .0606 of an acre = 33.00 lbs. per acre at 1 mph.

Anticipated field speed is 6 mph: 33.00 lbs./acre divided by 6 mph = 5.5 pounds per acre

If needed, adjust speed control and repeat calibration steps

MINTENANCE

This section provides information on daily and periodical maintenance of your applicator. Make sure to service all of these components after any lengthy period of non-use. You are responsible for the safe operation and maintenance of your applicator. Ensure that you and anyone else who is going to operate, maintain, or work on or around the applicator are familiar with the operating and maintenance procedures and related safety information contained in this manual.

ROUTINE MAINTENANCE / INSPECTION

Stop engine before performing any maintenance. Disconnect power source, and wait for all machine movement to stop before servicing, adjusting, cleaning, or unclogging the equipment. If the machine must be running to be properly serviced or maintained, the employer shall instruct employees as to all steps and procedures that are necessary to safely service or maintain equipment. Lock out electrical power before performing maintenance or service. Make sure everyone is clear of machinery before starting engine, engaging power, or operating machine.

HYDRAULIC BLOWER

CAUTION

Failure to provide regular inspection and maintenance may cause equipment failure and unsafe operation.

Inspect blower shaft bearings frequently for loose fasteners and misalignment. Replace and tighten fasteners as needed. After operation in dusty conditions, the air intake screen should be removed and the impeller blades cleaned to prevent accumulation of foreign matter that could interfere with fan operation.

Periodically inspect for excessive wear or cracks and check alignment of impeller shaft with the drive shaft. If the blower must be disassembled for any reason, refer to the Hydraulic Blower Assembly diagram in the Illustrated Parts List & Instructions that came with your unit.

The impeller is balanced at the factory. If imbalance occurs, replace impeller to prevent unsafe operation.

BEARINGS

Check and clean bearings frequently for accumulation of dust or fine particles.
Failure to do so may cause damage to shaft or sprockets.
Binding of the shaft could cause a change in application rates.

MANIFOLD

CAUTION

Failure to clear accumulation of debris may interfere with air passage and delivery of material.

Make sure to clear manifold of collected dust or debris by daily removing expansion plugs in the manifold and blow out/remove dust and debris.

LUBRICATION

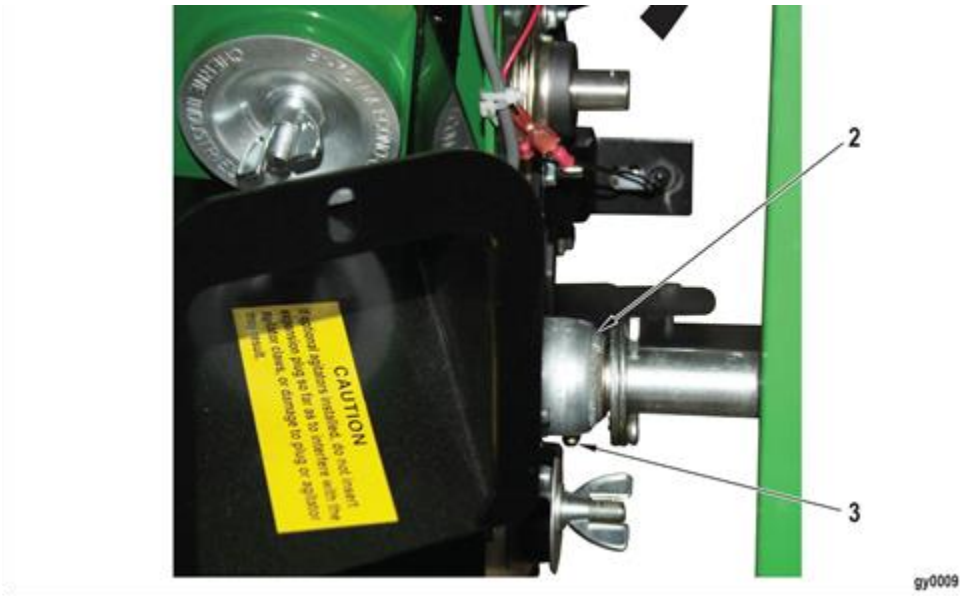


Figure 12. Grease Points

2. Bearing	3. Grease Fitting
NOTE	
There are only 2 grease fittings on the Turbo-seeder.	

Grease all fittings daily during use to assure best operation and prevent undue wear of moving parts and drive shafts.

SAFETY

1. Refer to the Operator's Manual for your machine. Follow all operating, maintenance, and safety information in the manual.
2. Place the implement on a firm, level surface. Lower all sections of the implement.
3. Exercise extreme caution when working around or with hydraulic systems. Depressurize the system when connecting or disconnecting the hose couplings.
4. Wear heavy gloves and a face shield for eye protection when searching for suspected hydraulic leaks. A high-pressure concentrated stream of hydraulic fluid can pierce the skin. If such happens, seek immediate medical attention, as infection and toxic reaction could develop.
5. Do not attempt any adjustments or maintenance to any system of the applicator when the implement is in motion.
6. Make sure all guards and shields are in place when the applicator is being operated.
7. Never wear ill-fitting, baggy or frayed clothing when working on any drive system components.
8. Store and transfer gasoline, solvents, cleaners, or any flammable liquids only in Safety Standard-approved containers.

For Clutched Models

Components

An electric clutch consists of three primary components:

1.	Coil Assembly	The clutch's "power" source contains the coil which generates magnetic force and requires a 12-volt DC coil.
2.	Rotor Assembly	Generally, the input of the clutch includes a keyed hub that mates with the keyway in the drive shaft. The rotor transmits torque from the drive shaft to the output or armature assembly.
3.	Armature Assembly	The output of the clutch also contains the mechanical brake in a clutch/brake assembly. The armature transmits torque from the rotor to the driven load. The sleeve is a secondary component serving as a spacer between the rotor and field assembly and also as a support for the field assembly bearing.

Troubleshooting

1. Clutch Symptom: Clutch will not engage

Problem	Possible Causes
Low voltage supply	Defective battery
	Faulty charging system
	Bad wiring or connectors
Zero voltage	Broken lead wire
	Open clutch coil, check coil resistance
	Faulty switch
	Blown fuse

2. Clutch Symptom: Clutch slippage

Problem	Possible Causes
Low voltage supply	Defective battery
	Faulty charging system
	Bad wiring or connectors
Overloaded clutch	*Contamination on clutch
Contaminated friction surfaces	Loose mounting bolts

**Clean clutch surfaces with emery cloth, steel wool or a wire brush to clean surfaces.*

NOTE

Clutches should release when electrical power is shut off. If the metering shaft continues to turn, inspect clutches for improper assembly, corrosion, damage, or failure.

Evaluating Clutch (Bearing mounted field clutches)

NOTE

Clutch to be at room temperature 70°F (21°C) to complete the following test.

1. Turn engine and all other components off.
2. Disconnect clutch wire connection.
3. Select meter to check ohms.
4. Connect meter lead wires to the wires in the clutch connector.
5. If meter reads below 2.40 ohms or above 2.90 ohms, then the clutch has failed and needs to be replaced. If the meter reads between 2.40 ohms and 2.90 ohms, the problem is in the electrical system leading to the clutch (battery, relay, switch, wiring, etc.).

Changing Metering Wheels

Each unit is furnished with different sets of metering wheels (Red in place and Black, Yellow & White as extra).

They may be interchanged following this procedure:

1. Remove the 21-tooth sprocket from end of metering shaft.
2. Remove the two hex bolts holding the flangettes and the black bearings in place.
3. Pull the metering (hex) shaft out of the metering wheels and stainless wear plates.
4. Remove metering wheels from metering cups.
5. Insert the new metering wheels in between the stainless wear plates in the metering cup.
6. Slide the metering (hex) shaft through all the metering wheels and wear plates.
7. Replace the black bearings and flangettes.
8. Tighten hex bolts on each flangette to secure bearing in place.
9. Reinstall the 21-tooth sprocket on end of metering shaft.

DEFLECTOR PACKAGES

Instructions for mounting deflectors are shipped with each hopper / deflector package for the size & type of unit the Turbo-Seeder will be mounting on.

POST-SEASON MAINTENANCE

Before storing the applicator, check the following areas:

1. Remove the metering wheels and clean them.
2. Clean the inside of the hopper, especially the bottom corners.
3. Purge the delivery system by running the fan at operating speed.
4. Lubricate all roller chains and bearings.
5. Remove the manifold pressure gauge. Store it in a clean, dry place. Plug the port.
6. Touch up any paint scratches.
7. Store in a shed or cover with a waterproof tarp.

PRE-SEASON MAINTENANCE

Before starting the season's work, check the following areas:

Bearings

- Inspect the fan bearing and couplers for signs of damage caused by heat.
- Turn the metering system by hand. If there is any binding or dragging, replace the worn bearing(s).

Delivery System

- Inspect the applicator for accumulation of debris. Clean if necessary.
- Install the manifold pressure gauge. Run the fan to ensure it is working properly.
- Run the fan at operating speed and check the air flow in each outlet.

Metering System

- If needed disassemble the electric clutches and buff the internal surfaces with emery cloth, steel wool, or a wire brush.
- Inspect individual metering wheels for wear.
- Check sprockets for any damage to teeth.
- Examine chains for tension and alignment.
- Inspect Zero-Max Controller for signs of leakage.

TROUBLESHOOTING

Application Rates

Condition	Solution
Individual shutoff slides in incorrect position	Position properly (open, closed, and two intermediate positions)
Mathematical error made during field calibration	Recheck calculations
Catch sample not weighed accurately	Weigh sample again
Actual acreage less or more than calculated	Check area covered
Incorrect setting	Check control setting or meter calibration
Sprockets or chains slipping	Check tightness
Sprockets are incorrect size or ratio	Check sprocket assembly
Density of material differs from rate chart	Field calibrate
Binding of metering shaft	Check and clean bearings
Zero-Max turning in non-preferred direction	Since Zero-Max turns faster in non-preferred direction (marked by an arrow), compensate and lower the setting by checking application rate through calibration

Stripping of Sprocket Teeth

Condition	Solution
Binding of metering shaft	Check and clean bearings Do Not oil or grease the black bearing

Product not Metering

Condition	Solution
Individual shutoff slides closed	Open to correct position
Tube is kinked	Check tube routing
Blockage at metering wheel	Check and clean
Material has bridged in hopper or mixing chamber	Loosen and agitate
Tube end is blocked and material is blowing back out of mixing chamber	Clear blockage. Check for tube kinking
Manifold opening is blocked	Check and clean manifold by removing expansion plugs
Air pressure too low	Check blower, increase rpm if gauge indicates

Condition	Solution
Metering wheels not turning	Check electric drive motor, wiring, electric clutches, chains

Product Caking in Hopper, Tubes, Metering Wheels or on Deflectors

Condition	Solution
High humidity	Clean and check periodically
Water in hopper bottom	Drain. Remove plug and thoroughly dry hopper
Water in manifold	Clear mixing chambers, remove plug from manifold; run blower until system dries

Chattering Noise Coming from Fan

Condition	Solution
Bearing dry or worn	Replace
Impeller out of balance	Check and replace
Impeller blades striking housing	Shut down blower. Readjust or replace

Hydraulic Motor

Condition	Solution
Leaking	Replace seal. Check for oil contaminants
Hydraulic fan surges	Oil flow from machine is too low or too high

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