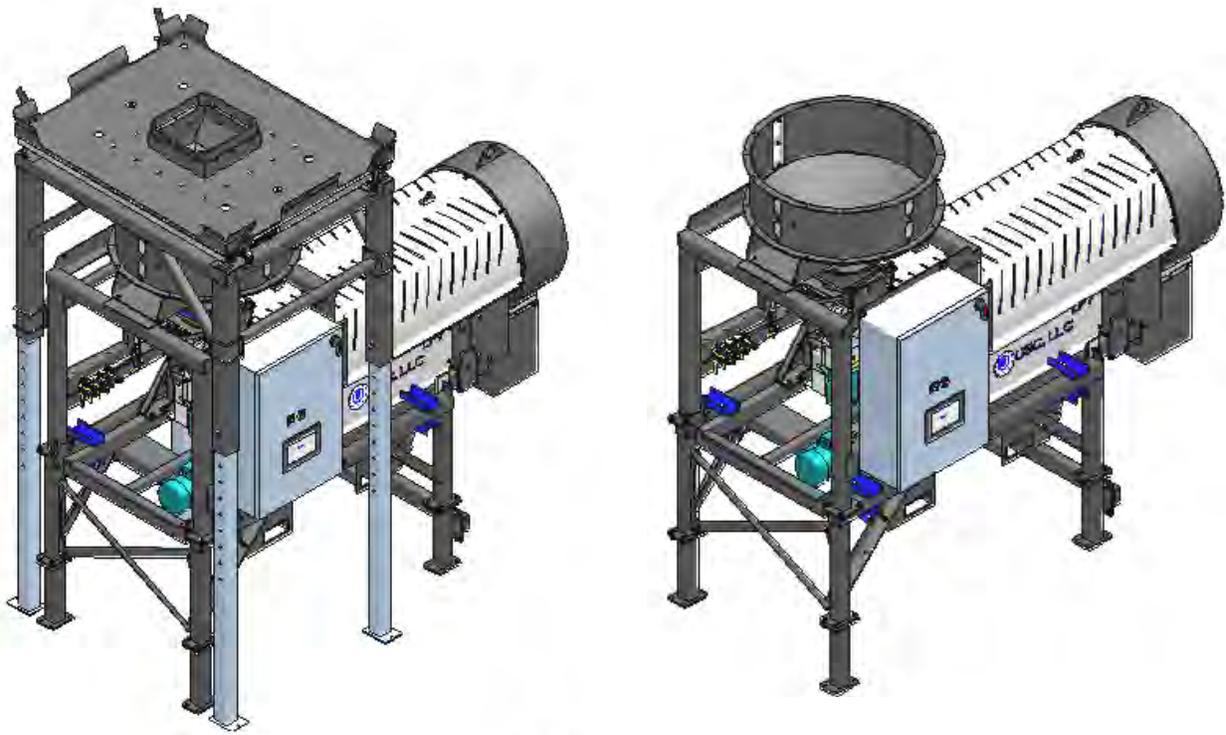


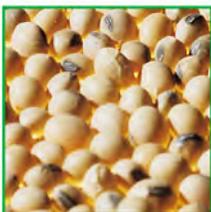
LPV100 SEED TREATER FOR LOSS-IN-WEIGHT TREATERS.

Operators Manual



Document: TD-09-06-1064

Revision: A



INTRODUCTION

Thank you for choosing USC, LLC for your equipment needs. We appreciate your business and will work diligently to ensure that you are satisfied with your choice.

OVERVIEW

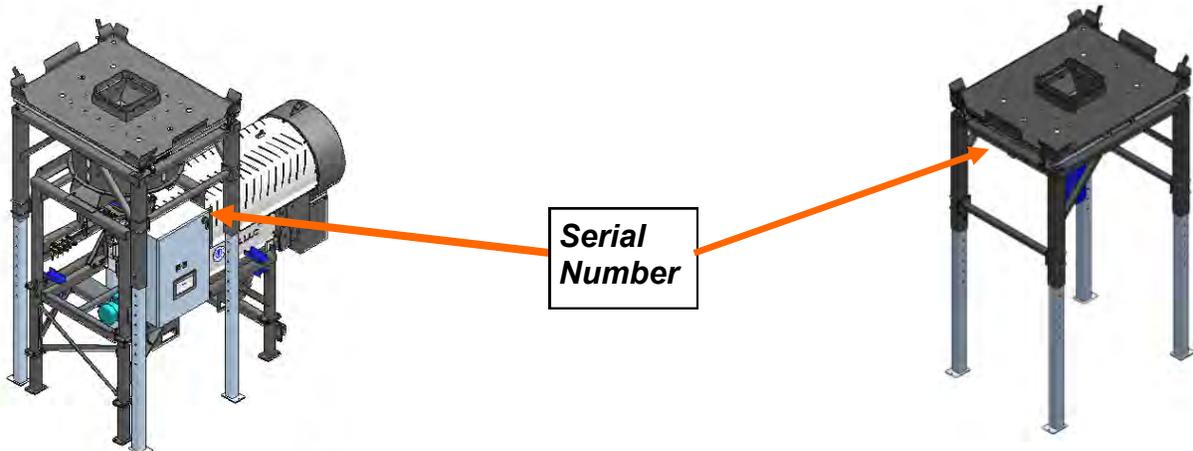
The purpose of this manual is to provide you with the basic information needed to operate and maintain the LPV Seed Treater. It does not hold USC, LLC liable for any accidents or injuries that may occur.

The technical information provided in this document is based on extensive testing under controlled conditions at the USC research and development facility. This information is given without guarantee as the conditions of operation and storage of the equipment are beyond our control. Variables such as temperature, humidity, viscosity of chemical products and changes in seed size or variety may all effect the accuracy of application and seed coverage. Periodically check the equipment calibration while treating and make adjustments as required. This will insure the optimum seed coverage.

RECEIVING YOUR EQUIPMENT

As soon as the equipment is received, it should be carefully inspected to make certain that it has sustained no damage during shipment and that all items listed on the packing list are accounted for. If there is any damage or shortages, the purchaser must immediately notify USC, LLC. Ownership passes to purchaser when the unit leaves the USC, LLC. premises. The purchaser is responsible for unloading and mounting all components of the equipment.

Document the serial number of the machine for future reference. The serial number is located on the right side of the control panel mounting bracket on the treater.



SERIAL NUMBERS: _____ **(TREATER)** _____ **(BOX STAND)**

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SECTION A SAFETY INSTRUCTIONS

Every year accidents in the work place maim, kill and injure people. Although it may be impossible to prevent all accidents, with the right combination of training, operating practices, safety devices, and operator vigilance, the number of accidents can be significantly reduced. The purpose of this section is to educate equipment users about hazards, unsafe practices, and recommended hazard avoidance techniques.

If any of the required regularly scheduled maintenance is located above the reach of the operator, they should follow the companies normal safe practices of reaching that particular height, utilizing the companies specified equipment and following normal safety precautions.

When working with treatment chemicals, operators should always wear protective gloves, safety glasses, and follow the companies safety precautions in the case of any spillage or operator contamination.

SAFETY WORDS AND SYMBOLS

It is very important that operators and maintenance personnel understand the words and symbols that are used to communicate safety information. Safety words, their meaning and format, have been standardized for U.S. manufacturers and published by the American National Standards Institute (ANSI). The European Community (E.C.) has adopted a different format based on the International Standards Organization (I.S.O.) and applicable machinery directives. Both formats are presented below. Graphic symbols are not standardized, but most manufacturers will use some variation of the ones seen in this manual.



Indicates an imminently hazardous situation which, if not avoided, **will** result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, **may** result in minor or moderate injury and/or property damage.

NOTICE



Notice is used to notify people of important installation, operation or maintenance information which is not hazard related.

Mandatory Lockout Power Symbol. Disconnect, lockout and tagout electrical and other energy sources before inspecting, cleaning or performing maintenance on this equipment.



International Safety Alert Symbol. The exclamation point (!) surrounded by a yellow triangle indicates that an injury hazard exists. However, it does not indicate the seriousness of potential injury. The exclamation point (!) is also used with the DANGER, WARNING and CAUTION symbols so the potential injury is indicated.



Electrocution Hazard Symbol. This symbol indicates that an electrocution hazard exists. Serious injury or death could result from contacting high voltage.



International Electrocution Hazard. This symbol indicates that an electrocution hazard exists. Serious injury or death could result from contacting high voltage.

LOCKOUT / TAGOUT PROCEDURES

Lockout/Tagout is the placement of a lock/tag on an energy isolating device in accordance with an established procedure. When taking equipment out of service to perform maintenance or repair work, always follow the lockout / tagout procedures as outlined in ANSI Z344.1 and/or OSHA Standard 1910.147. This standard “requires employers to establish a program and utilize procedures for affixing appropriate lockout devices or tagout devices to energy isolating devices and to otherwise disable machines or equipment to prevent unexpected energizing, start-up, or release of stored energy in order to prevent injury to employees.”

EMERGENCY STOP



There is an Emergency Stop push button on all LPV Seed Treaters which is located on the Treater Control Panel. The LPV Automated Treater has an additional Emergency Stop pushbutton on the Main Control Panel. Actuators of emergency stop shall be colored RED. The background immediately around the device actuator shall be colored YELLOW. The actuator pushbutton operated device shall be of the palm or mushroom head type.

CONTROLLED STOP

This is the stopping of machine motion by reducing the electrical command signal to 0 (zero) once the stop signal has been recognized.

HAZARD REVIEW

Electrocution Hazard



Electrocution accidents are most likely to occur during maintenance of the electrical system or when working on or near exposed high voltage wiring. This hazard does not exist when the electrical power has been disconnected, properly locked, and tagged out.

Automatic Start Hazard



This equipment may be controlled by an automated system and may start without warning. Failure to properly disconnect, lockout, and tagout all energy sources of remotely controlled equipment creates a very hazardous situation and could cause injury or even death. PLEASE STAY CLEAR AND BE ALERT.

YOU are responsible for the **SAFE** operation and maintenance of your USC, LLC equipment . **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the equipment be familiar with the operating and maintenance procedures and related **SAFETY** information contained in this manual. This manual will take you step-by-step through your working day and alert you to good safety practices that should be adhered to while operating the equipment

Remember, **YOU** are the key to safety. Good safety practices not only protect you, but also the people around you. Make these practices a working part of your safety program. Be certain that **EVERYONE** operating this equipment is familiar with the recommended operating and maintenance procedures and follows all the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- Equipment owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually thereafter per OSHA (Occupational Safety and Health Administration) regulation 1928.57 and 1910-147.
- The most important safety device on this equipment is a **SAFE** operator. It is the operator's responsibility to read and understand **ALL** Safety and Operating instructions in the manual and to follow them. All accidents can be avoided.
- A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- Think **SAFETY!** Work **SAFELY!**

GENERAL SAFETY

1. Read and understand the operator's manual and all safety labels before operating, maintaining, adjusting or unplugging the equipment .
2. Only trained persons shall operate the equipment . An untrained operator is not qualified to operate the machine.
3. Have a first-aid kit available for use should the need arise, and know how to use it.



4. Provide a fire extinguisher for use in case of an accident. Store in a highly visible place.
5. Do not allow children, spectators or bystanders within hazard area of machine.
6. Wear appropriate protective gear. This includes but is not limited to:



- A hard hat
- Protective shoes with slip resistant soles
- Protective goggles
- Heavy gloves
- Hearing protection
- Respirator or filter mask



7. Place all controls in neutral or off, stop motor, and wait for all moving parts to stop. Then disable power source before servicing, adjusting, repairing, or unplugging.
8. Review safety related items annually with all personnel who will be operating or maintaining the equipment.



OPERATING SAFETY:

1. Read and understand the Operator's Manual and all safety labels before using.
2. Disconnect and disable electrical supply completely and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Clear the area of bystanders, especially children, before starting.
4. Be familiar with the machine hazard area. If anyone enters hazard area, shut down machine immediately. Clear the area before restarting.
5. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
6. Stay away from overhead obstructions and power lines during operation and transporting. Electrocution can occur without direct contact.
7. Do not operate machine when any guards are removed.
8. Inspect welds and repair if needed.

PLACEMENT SAFETY

1. Move only with the appropriate equipment



2. Stay away from overhead power lines when moving equipment. Electrocutation can occur without direct contact.
3. Be familiar with machine hazard area. If anyone enters hazard areas, shut down machine immediately. Clear the area before restarting.
4. Operate the equipment on level ground free of debris. Anchor the equipment to prevent tipping or upending.



Before placement of the equipment, be sure that ground is reasonably level. The equipment may topple or work improperly if the ground is too uneven, damaging the equipment and / or causing personal injury.

MAINTENANCE SAFETY

1. Review the operator's manual and all safety items before working with, maintaining or operating the equipment .
2. Place all controls in neutral or off, stop motors, disable power source, and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Follow good shop practices:
Keep service area clean and dry.
Be sure electrical outlets and tools are properly grounded.
Use adequate light for the job at hand.



4. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
5. Clear the area of bystanders, especially children, when carrying out any maintenance and repairs or making any adjustments.
6. Before resuming work, install and secure all guards when maintenance work is completed.
7. Keep safety labels clean. Replace any sign that is damaged or not clearly visible.

SAFETY LABELS

1. Keep safety labels clean and legible at all times.
2. Replace safety labels that are missing or have become illegible.
3. Replaced parts that displayed a safety label should also display the current label.
4. Replacement safety labels are available from your authorized dealer.

How to Install Safety Labels:

- Be sure that the installation area is clean and dry.
- Be sure temperature is above 50°F (10°C).
- Decide on the exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the sign over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the sign in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.



Located on the USC equipment you will find safety labels. Always be sure to read and follow all directions on the labels.



Guards provided with USC equipment are to remain in place during operation.

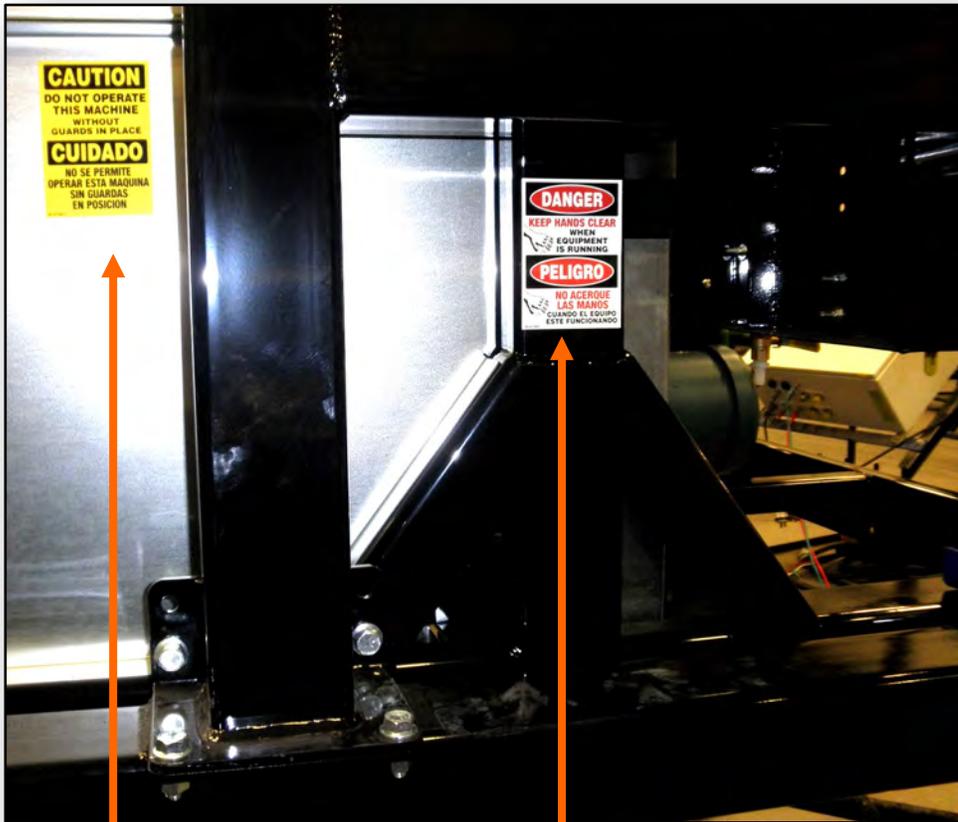
Think **SAFETY!** Work **SAFELY!**

REMEMBER—If Safety Labels have been damaged, removed, become illegible, or parts replaced without safety labels, new labels must be applied. New safety labels are available through your authorized dealer.



TD-09-06-1064 LPV 100 SEED TREATER





SECTION INSTALLATION B



HIGH VOLTAGE ~ Always disconnect the power source before working on or near the control panel or lead wires.



HIGH VOLTAGE ~ Use insulated tools when making adjustments while the controls are under power.



Permanent installation may require additional electrical cords, chemical tubing, and air lines, since each installation is unique.

LPV AUTOMATED TREATER SET-UP

The following steps outline the initial set-up of your USC Seed Treating system:

1. Clear the area of bystanders, especially small children, before moving.
2. Be sure there is enough clearance from overhead obstructions and power lines or other equipment to move the machine into its working position.
3. Using a forklift, place the seed treater in the desired position on a level surface.



USC highly recommends that the seed treater be set up inside a building or any covered structure to protect the machine from weathering.

4. Remove any boxes and cords from the drum of the treater.



The LPV Treater **CAN NOT** be lifted using the forklift pockets and or transported without all four of the shipping brackets re-installed. Failure to do so will cause damage to the tilting frame.

5. Install the drum lift actuator kit (03-17-0111) that is shipped separately using the 6 steps below. (A through F)

LPV AUTOMATED TREATER SET - UP

STEP A: Support the discharge end of the treater drum using the lift ring at the top of the discharge assembly.



STEP B: Remove all four of the shipping support brackets. Save for reuse if treater is moved.

STEP C: Lower the drum slowly until the drum frame is resting on the dead stop pins on both sides of the treater frame.



LPV AUTOMATED TREATER SET - UP



When removing the actuator (03-17-0104) from the box, ensure that you do not allow the shaft to rotate. The actuator was installed and tested at the factory so the shaft is in the correct position before it was disassembled prior to shipping.

STEP D: Insert a clevis pin (06-09-0058) attaching the bottom of the actuator to the bracket on the treat-er frame cross member.



STEP E: Insert the second clevis pin (06-09-0058) and the two flat washers (06-05-0005) attaching the end of the actuator piston to the bracket on the drum frame. The washers should be on the outside of the frame bracket.

NOTICE

If the treater drum is setting on the dead stop pins and the shaft mounting hole on the actuator is short of lining up to insert the clevis pin, you may rotate the shaft one half rotation only to lengthen it. **Any more rotation could affect the proper travel length.**



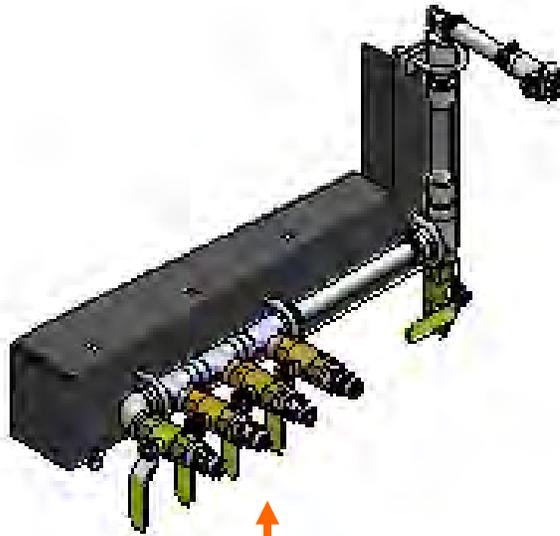
STEP F: Insert a cotter pin (06-09-0087) in the clevis pins at both ends of the actuator. Then, attach the yellow cable to the motor connector

LPV AUTOMATED TREATER SET - UP (ALL TREATERS)

NOTICE

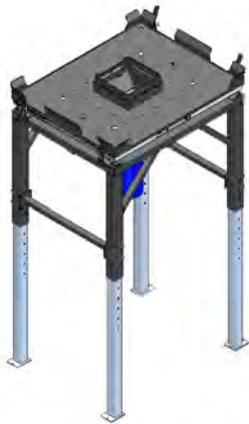
After the actuator is installed it should move freely by hand. If something is binding, damage to the actuator or the mounting brackets could occur.

6. Anchor the seed treater in position to prevent the machine from moving during operation.
7. Inspect machine thoroughly for screws, bolts, fittings, etc. which may have come loose during shipping.
8. The pump stand(s) should be placed on level ground close to the seed treater.
9. Attach the chemical tubing from the pump stand(s) to the static mixer on the seed treater (below). Additional tubing may be added or removed to accommodate your installation.

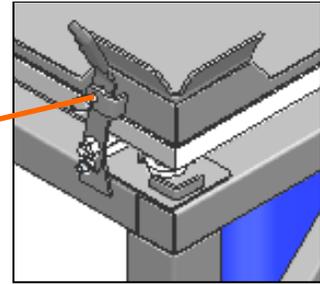


*Static Mixer
Assembly*

LPV AUTOMATED TREATER SET - UP (BOX-2-BOX TREATERS ONLY)



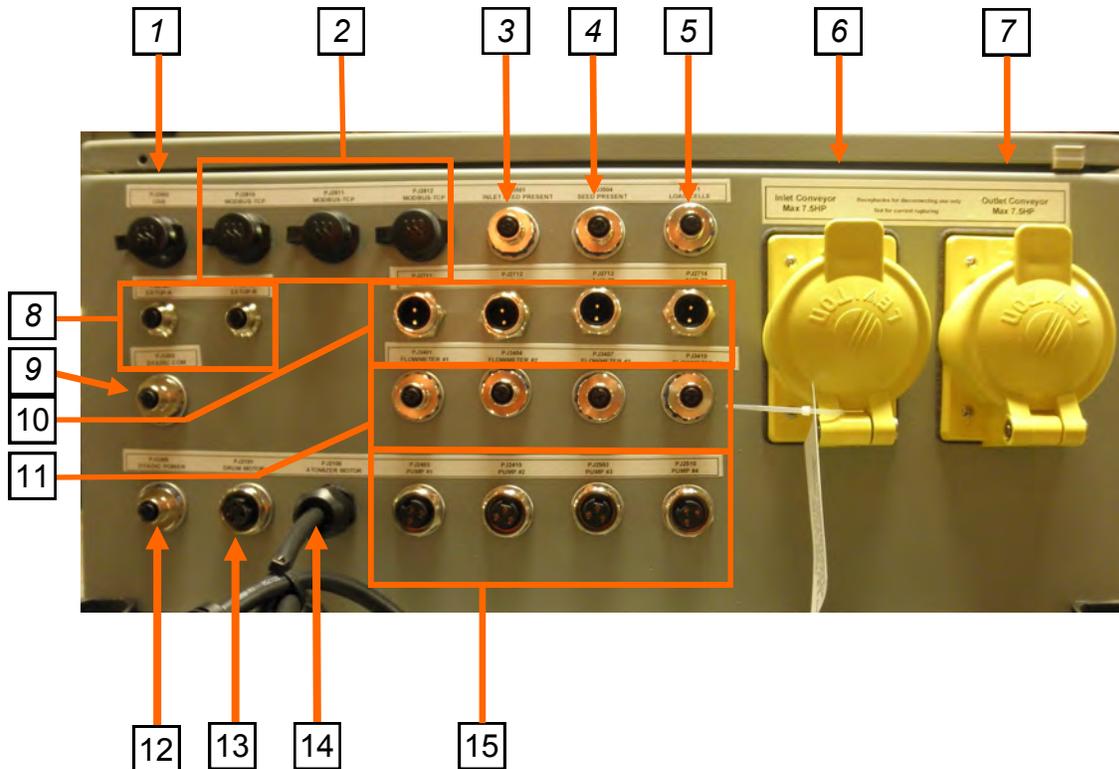
*Scale Lock
Levers*



SET-UP FOR BOX STAND

1. Raise the top assembly with a forklift. Being careful not to hit the LIW gate with the forks.
2. Remove the bolts (4) from the leg extensions. This will allow the leg extensions to slide within the tubes on each corner. Each leg extension weigh about 55 lbs. it is recommended that the leg be supported when the bolt is removed. Use proper safety precautions.
3. Extend legs so that the distance from the bottom of the leg plate to the bottom of the metal ring on the bottom of the LIW gate is about 8 feet 2 1/8 inches (98.103 inches). This will put the bolt on the top assembly leg in the top hole on the leg extension. The hole alignment controls the height.
4. Replace the bolt in each leg and tighten the nut.
5. Place the adjusted unit over the treater such that the center of the discharge tube on the bottom is centered above the inlet hopper of the treater and adjustable cross braces are parallel with the long side of the frame of the treater.
6. Adjust the movable cross braces so that the one on the control panel side is above the door on the treater control panel. This is a code requirement and allows the control panel to be opened. The one on the other side should be placed just above the bottom of the top section legs but not contacting the bolts.
7. Connect cables to the treater control panel as outlined on the next page.
8. Release the 4 scale lock levers. See above. These levers must be relocked any time this stand is moved.

LPV TREATER CONNECTIONS



1. USB Port.
2. Connect any MODBUS equipment to one of these three.
3. Connected to the proximity switch located in the inlet hopper. This is only used when an inlet conveyor is feeding the treater.
4. Connect cable from proximity switch located above the slide gate on the LIW gate.
5. Connect cable from load cell summing box, located on either the box stand above the treater, or batch hopper with LIW gate.
6. Connect inlet conveyor.
7. Connect outlet conveyor.
8. Connect the red cable to the PJESTOPA on the Main Control Panel (MCP) and then to the PJESTOPB on the next panel that is closest to the MCP. Repeat this process until all control panels are connected in a daisy chain configuration. It may be other items of equipment with similar connections. The order or number of devices is not important. It is important that each cable is ran from an A connection to a B connection (never A to A or B to B), and that no control panel is left out of the

LPV TREATER CONNECTIONS

chain. Connect the two red plugs onto each of the remaining open PJESTOP connectors on the first and last panel.

9. Connect cable from actuator communications on LIW gate located on either the box dump hopper, or batch hopper with LIW gate.
10. Connect up to 4 auxiliary devices such as Dry Additive Feeder, manual pump stands, etc.
11. Connect the flow meters from up to 4 pump stands.
12. Connect cable from actuator power on LIW gate located on either the box dump hopper, or batch hopper with LIW gate.
13. Connected to drum motor. Prewired at the manufacturing plant
14. Connected to atomizer motor. Prewired at the manufacturing plant.
15. Connect pump motors.
16. Connect yellow cable from to the drum tilt actuator box to the drum tilt actuator under the treater. Note: the yellow cable is attached to the actuator box at the manufacturing plant.

DRUM TILT ACTUATOR



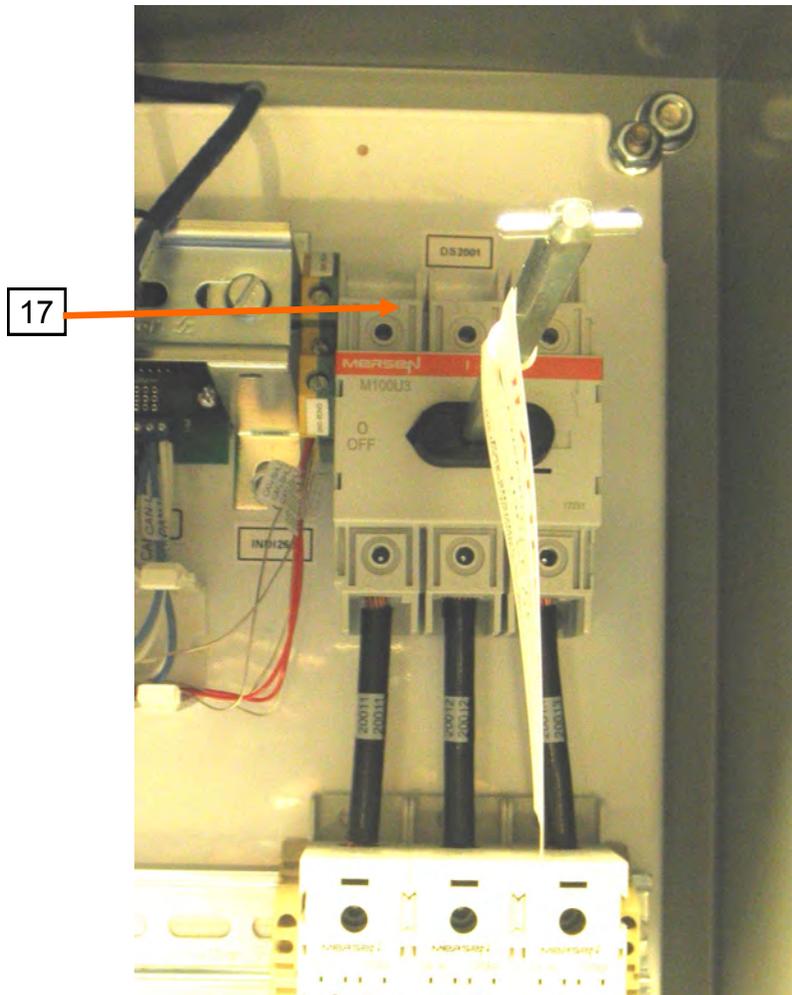
16



17

16

17. Have a certified electrician provide power to the seed treating system. Provide convenient shutdown switches, comply with local electrical codes and ensure that the system is properly grounded and bonded. The USC system must be connected to the same electrical requirements as specified in the main control panel on the power requirement tag, or the electrical schematic shipped with the piece of equipment. This will power the USC LPV seed treater and any attached conveyors. This includes treater, weighing equipment, pump stands, conveyors, control panels, etc.

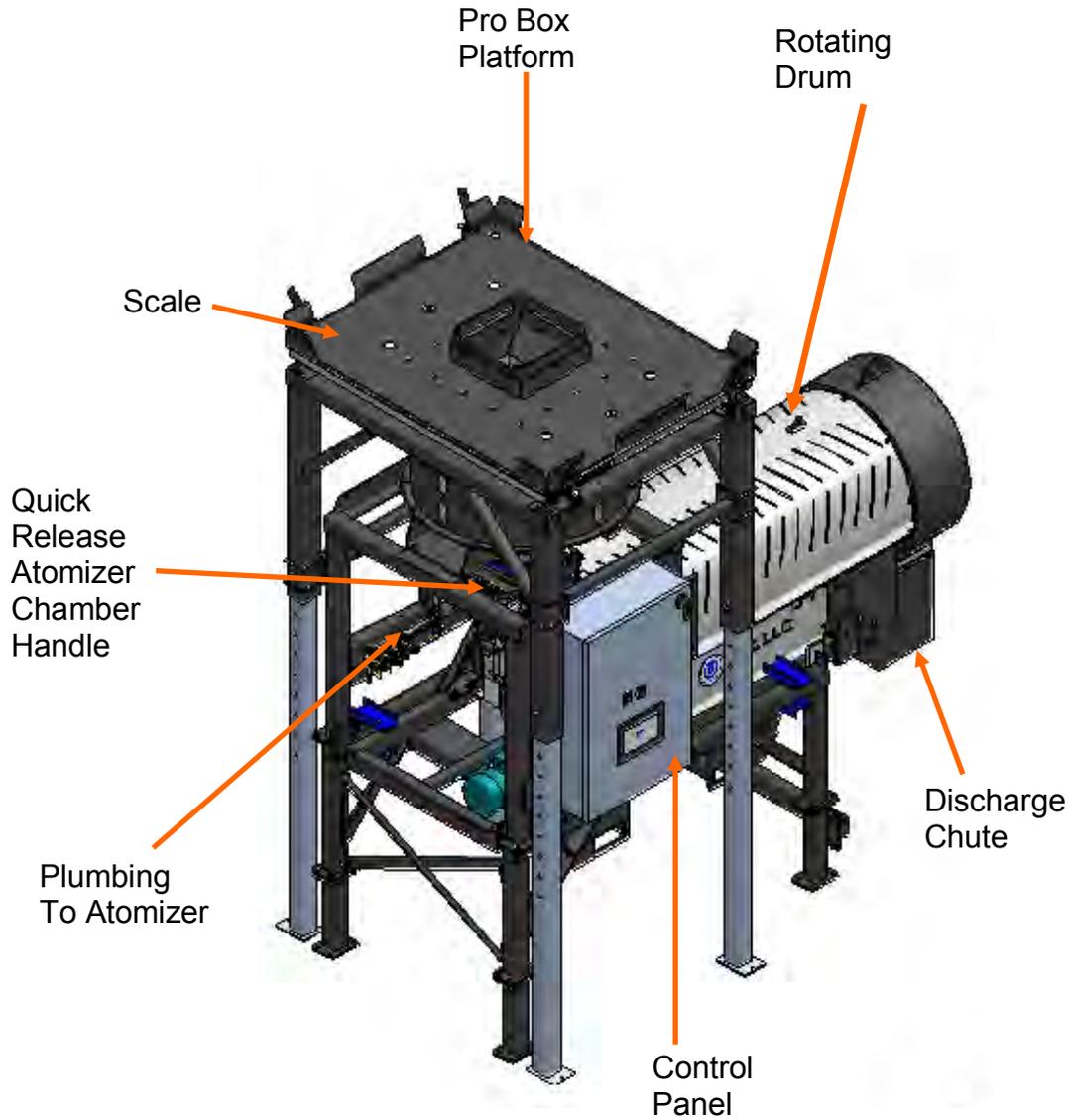


18. Flexible conduit is recommended for electrical connections.

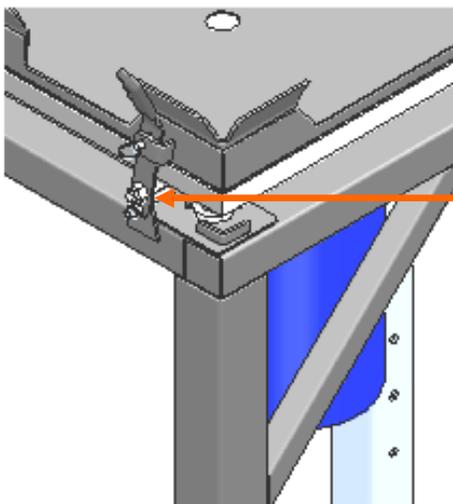
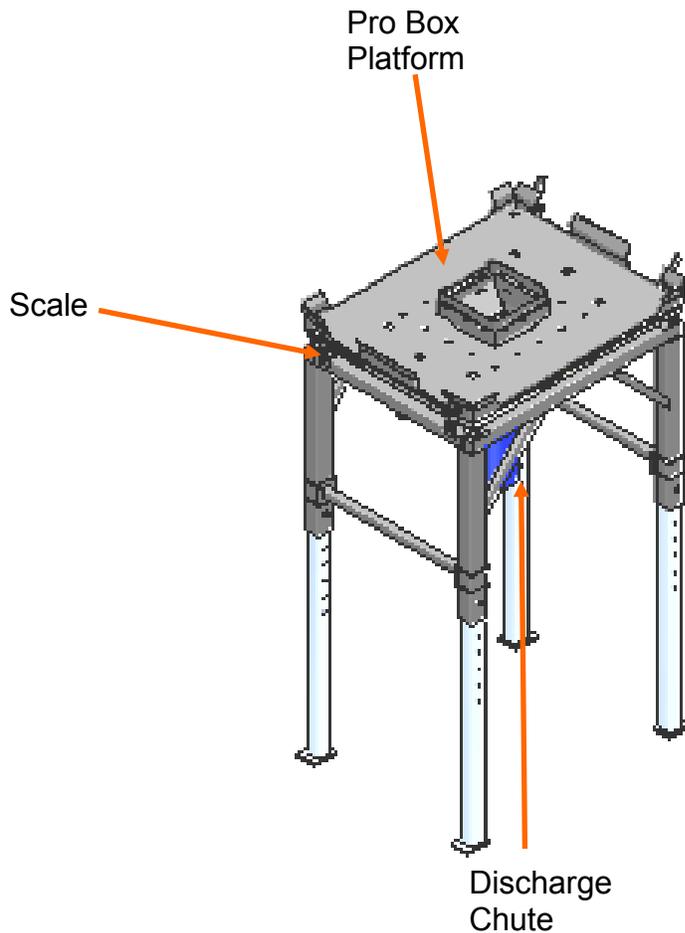
SECTION
C

MECHANICAL OPERATION

LPV TREATER WITH LOSS-IN-WEIGHT BOX 2 BOX OVERVIEW



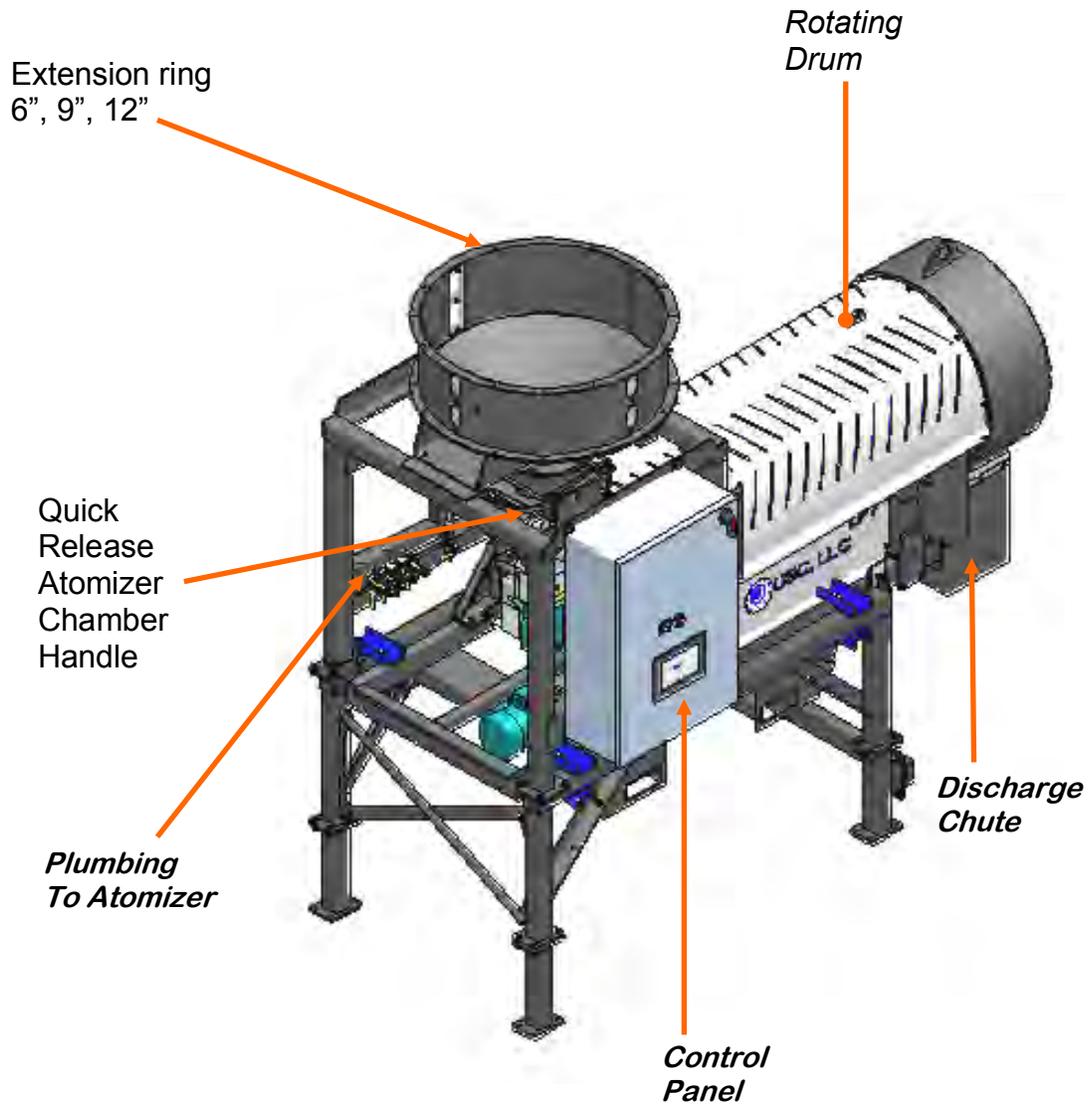
LOSS-IN-WEIGHT BOX 2 BOX OVERVIEW



Scale Lock Lever (4). Prior to running the system to treat seed ensure that all 4 of these (1 at each corner) are in the unlocked position. Failure to do this will cause inaccurate readings from the scale.

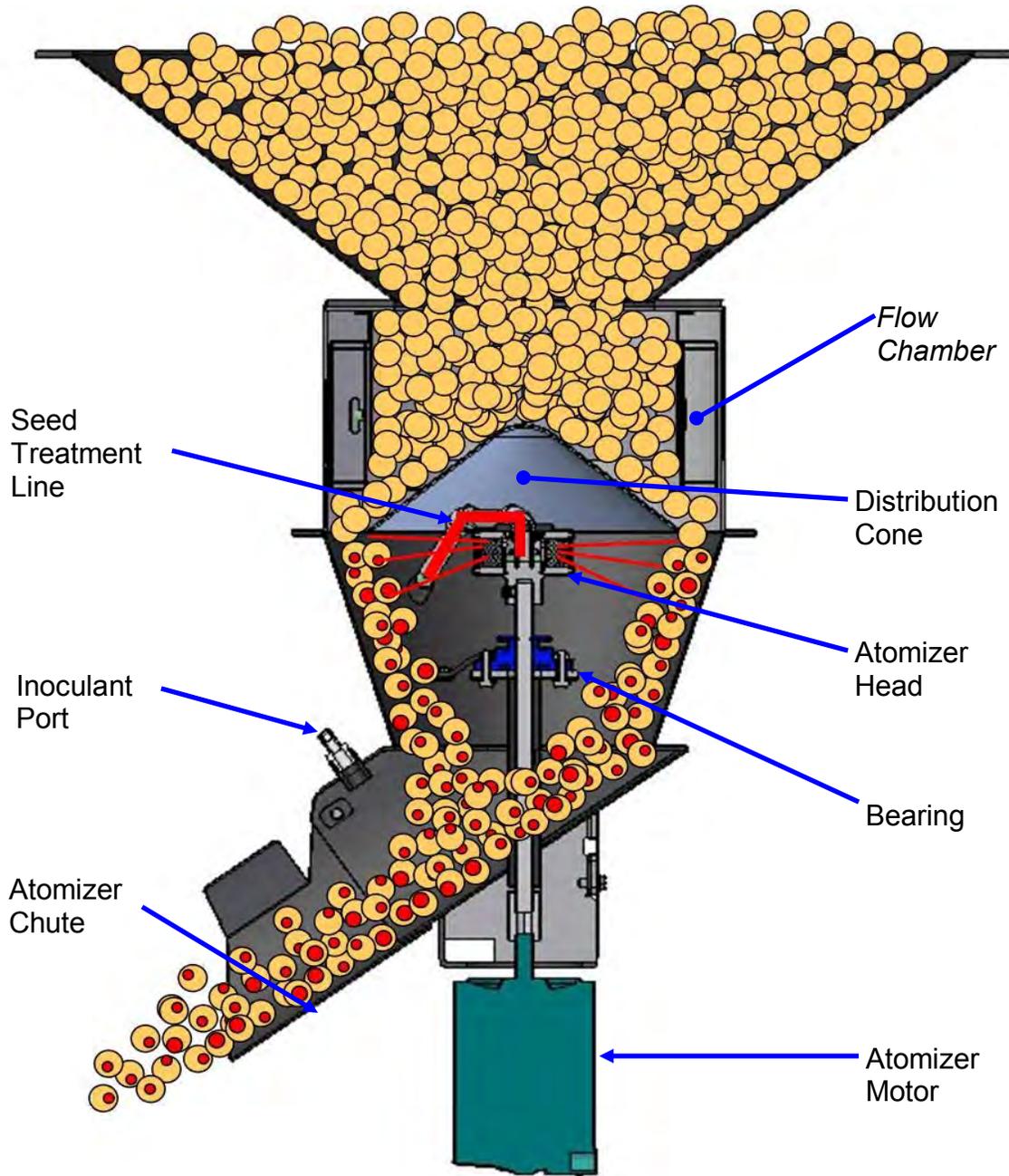
If this equipment is moved, these must be moved to the locked position to prevent damage to the scale.

LPV TREATER OVERVIEW



NOTE: Scale and LIW gate are located on Batch Weigh Hopper (either Floor Mounted, or Stacked Over Treater)

The illustration below shows how seed passes through the atomizing chamber. The red represents treatment being dispensed to the seed as it passes through the chamber. After the seed passes through the atomizer, it goes into the drum where the coating process is completed.



LOSS-IN-WEIGHT WITH ATOMIZER CHAMBERS

The adjustable gate on the LIW version is automatically controlled by an actuator that is constantly adjusting the seed flow gate. The actuator is controlled by the U-Treat Lite automation software to determine the flow rate of the seed flowing down on top of the distribution cone which disperses the seed down around the atomizer head. The atomizer can be easily accessed for cleaning and maintenance by pulling down on the quick release handle and sliding the atomizer away from the treater body (see page 35).

The gate may also be located on a Batch Hopper either above the treater or on the floor.

ROTATING DRUM

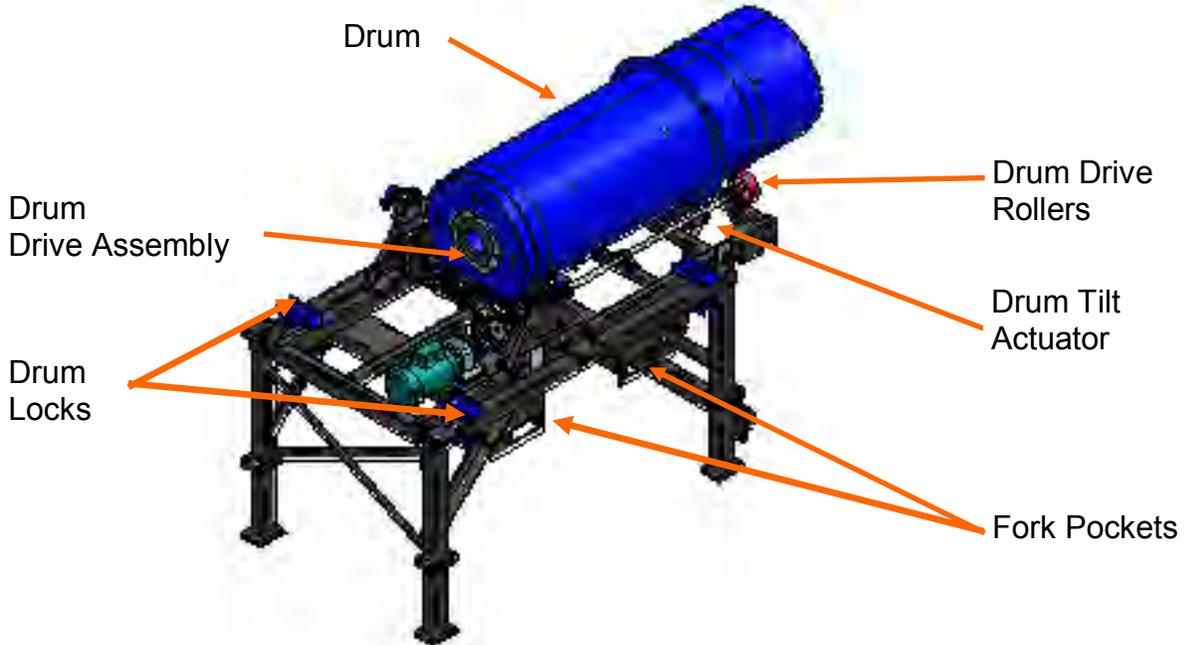
The rotating drum is 6 feet long and accepts treated seed through the opening on the hopper end. As seed passes through the length of the drum it is tumbled, producing accurate and uniform seed coating. The seed then exits the seed treater out the discharge end of the machine.



Never allow exposure of persons or clothing to the drive shaft, idler wheels, or the drum during operation. Always have the safety shields in place during operation.



The rotating drum is grounded to the equipment structure at the factory, to avoid the possibility of generating static electricity, this bonding mechanism should not be tampered with or removed.



SECTION
D

ELECTRICAL OPERATION



DANGER **HIGH VOLTAGE** ~ Always disconnect the power source before working on or near the control panel or lead wires.



DANGER **HIGH VOLTAGE** ~ Use insulated tools when making adjustments while the controls are under power.



CAUTION AUTHORIZED PERSONNEL only shall work on the control panel. Never allow anyone who has not read and familiarized themselves with the owner's manual to open or work on the control panels.

For the LPV Automated Treater HMI instructions, see the appropriate U-Treat Lite Automation manual.

This section provides a general overview and description of the operator control panels for the LPV Seed Treater.



NOTICE USC recommends the use of a surge protection device with a minimum rating of 400 Joules for all automated main control panels.

DRUM TILT OPERATING INSTRUCTIONS

STEP 1: Verify power is supplied to the LPV manual drum tilt panel. The panel is rated for 120/240V 1PH Power. The panel under normal operation has a full load amp draw of 2.5 amps at 120 volts and 1.3 amps at 240 volts.

STEP 2: Verify the drum tilt cable is connected to the drum tilt actuator. The actuator is located underneath the treaters drum near the discharge end. Before operating the drum tilt, verify the treaters drum path is clear of all obstructions and that the actuator moves freely.

STEP 3: Turn the UP / OFF / DOWN switch to the indicated position to change the treater drum tilt elevation. The switch is a spring return to center, and when released the switch will return to the OFF position. UP (turn switch to the left position) will raise the treaters drum at the discharge end. DOWN (turn switch to the right position) will lower the treaters drum at the discharge end. OFF (center position) will stop any further elevation changes.



SECTION E TROUBLESHOOTING

Below is a table describing the most frequent mechanical problems and solutions with the USC LPV Seed Treater. For further assistance, contact your authorized dealer.

Problem	Possible Cause	Solution
Inlet Conveyor will not turn on.	<ol style="list-style-type: none"> 1. Inlet conveyor proximity switch is activated. 2. Inlet conveyor proximity switch is too sensitive. 3. Overload is tripped. 4. Conveyor is plugged into wrong outlet on seed treater panel. 	<ol style="list-style-type: none"> 1. Clean proximity switch 2. Adjust the inlet conveyor proximity switch sensitivity by turning the adjustment (page 31). 3. Reset inlet conveyor overload. 4. Check to make sure the inlet conveyor is plugged into the inlet conveyor receptacle.
Inlet conveyor will not shut off when hopper is full.	<ol style="list-style-type: none"> 1. Seed is not hitting proximity switch. 2. Proximity switch is not set sensitive enough. 3. Inlet conveyor is plugged into wrong receptacle. 4. Hopper proximity switch is not connected 	<ol style="list-style-type: none"> 1. Make sure seed is hitting proximity switch. 2. Adjust the inlet conveyor proximity switch by turning the adjustment screw (page 31). 3. Make sure inlet conveyor is plugged inlet conveyor receptacle. 4. Connect hopper proximity switch.
Pump will not turn on in AUTO	<ol style="list-style-type: none"> 1. Proximity switch is not staying covered. 2. Atomizer is not on. 3. Proximity switch is not sensitive enough. 4. Pump stand two-wire cord is not plugged into to treater main panel. 5. Both the Chemical Pump switch on the Pump Stand and the Pump/Aux Control on the HMI screen need to be set to AUTO. 	<ol style="list-style-type: none"> 1. Make sure proximity switch is staying covered with seed 2. Turn on atomizer. Atomizer must be on to run the pump in Auto. 3. Adjust pump proximity switch sensitivity by turning the adjustment screw (page 31). 4. Plug the pump stand two-wire cord into the main treater panel. 5. Set both the Pump Stand switch and Pump/Aux on the HOA screen to AUTO.
Pump is fluctuating.	<ol style="list-style-type: none"> 1. Restriction in tubing 2. Filter is plugged or missing gasket. 	<ol style="list-style-type: none"> 1. Flush tubing and check filter for any restrictions. 2. Clean filter and check for gasket.

Problem	Possible Cause	Solution
Pump will not turn off in AUTO when seed runs out.	<ol style="list-style-type: none"> 1. Proximity switch is dirty. 2. Proximity switch is set too sensitive. 	<ol style="list-style-type: none"> 1. Clean proximity switch. 2. Adjust the pump proximity switch sensitivity by turning adjustment screw (page 31).
Seed calibration is fluctuating.	<ol style="list-style-type: none"> 1. Seed treater supply hopper is not staying full. 2. Restriction in the supply hopper or seed wheel. 3. Build-up in the atomizing chamber. 	<ol style="list-style-type: none"> 1. Make sure the supply hopper and seed wheel are staying full. May have to lower seed flow rate in order to have a consistent flow of seed. 2. Check supply hopper and seed wheel for any debris, and remove. 3. Remove atomizing housing and clean out any build-up of material.
Drum is slipping and seed is coming out the inlet side of the drum.	<ol style="list-style-type: none"> 1. Drum is wet. 2. The seed treater is set too level. 3. Chains are too loose. 	<ol style="list-style-type: none"> 1. Dry off any moisture that may have collected on the outside of the drum. 2. Adjust the slope of the seed treater to at least a 3" drop from front to back. If desired, more slope can be applied. 3. Check and tighten the drive chains. Also check the chain alignment.
None of the motors will turn to ON in HAND mode.	<ol style="list-style-type: none"> 1. Processor is faulted. 2. Emergency Stop button is activated. 3. The Emergency Stop RESET button has not been pressed after the Emergency Stop button has been pulled out. 	<ol style="list-style-type: none"> 1. Disconnect power and wait 30 seconds before reconnecting power. 2. Pull out the Emergency Stop button. 3. After the Emergency Stop button has been pulled out, press the Emergency Stop RESET button.
E-stop is flashing.	<ol style="list-style-type: none"> 1. An E-stop may be depressed. 2. Power may not be on to the control panels. 3. One of the control panels may not be connected to all of the others. 	<ol style="list-style-type: none"> 1. Ensure all E-stops are not depressed. 2. Check incoming power to each control panel. 3. Check the wiring and connections to each control panel.

**SECTION
F****MAINTENANCE**

Proper maintenance of the LPV Seed Treater is critical for peak performance, reliability and accuracy of this system. The following is a guideline for the type of maintenance and servicing that should be performed on this unit. Your environment and uses may require additional maintenance and service beyond this list to assure a reliable and safe unit. The operator of this unit has ultimate responsibility to identify areas of concern and rectify them before they become a hazard or safety issue. There is no substitute for a trained, alert operator.



Do not put this unit into operation with any questionably maintained parts. Poor performance or a hazard may occur.



Do not use compressed air or water under pressure to clean any of the components of the USC equipment.

**GREASING**

- Use an SAE multipurpose high temperature grease with extreme pressure (EP) performance. Also acceptable is an SAE multipurpose lithium-based grease.
- Use a Maintenance Checklist to keep record of all scheduled maintenance.
- Use a hand-held grease gun for all greasing.
- Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
- Replace and repair broken fittings immediately.

NOTICE

If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

ELECTRICAL PANEL

- Check and tighten wire connections.
- Check quick connects on bottom of control panel.
- Check to see if starters and/or overloads are tripped.
- Check to see if relays, timers and/or breakers are tripped.
- Check and set the proximity switches. (page 31).
- Check quick connects on end of Auxiliary cord.
- Check relay and fuse holder.
- Check power cords for cuts or frays and ensure ground is present.



DRIVE AND DRUM

- Remove drum guards and inspect all welds and structural components on the frame and drum for bends, cracks and damage.
- Inspect pillow block bearings and grease every 40 hours of operation.
- Inspect drive wheels for unordinary wear and set screws for tightness.
- Inspect the Neoprene idler wheels for unordinary wear and adjust if necessary.
- Remove drive guards, check tension and lubricate chain every 40 hours of operation. Adjust tension as required.
- Wipe down the motor casing with a damp cloth making sure to remove all dust that may have collected since the last maintenance date. Record the cleaning on the company required documents



PROXIMITY SWITCH ADJUSTMENT GUIDE

If a proximity switch is not working properly, this can be caused by wear, dust, or even moisture. The first step is to clean the lens of the proximity switch. If this does not solve the problem, the next step would be to adjust the sensitivity of the proximity switch.

The LED lights indicates the power status. If they are active the device is powered.

The center LED is when the switch closes.

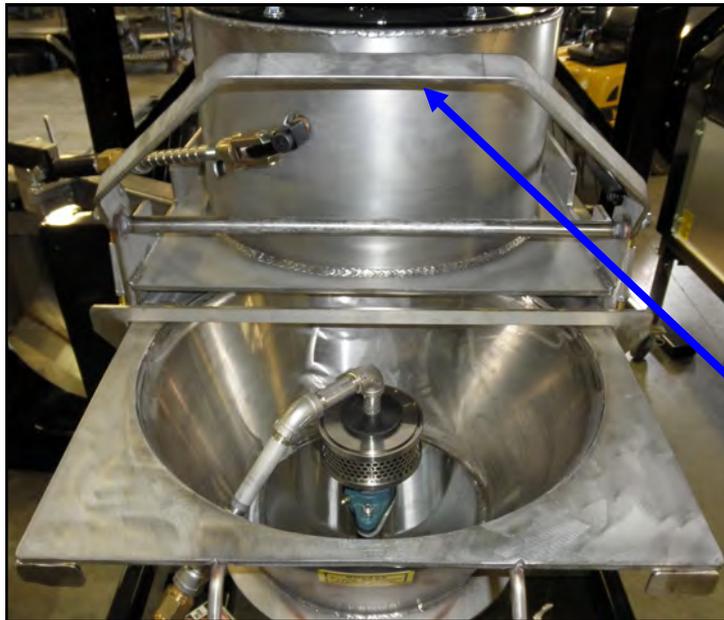
Using the small screwdriver, you can adjust the proximity switch by turning the sensitivity dial of the proximity switch.

- Turn Clockwise to make the proximity switch more sensitive.
- Turn Counterclockwise to make the proximity switch less sensitive.



ATOMIZER

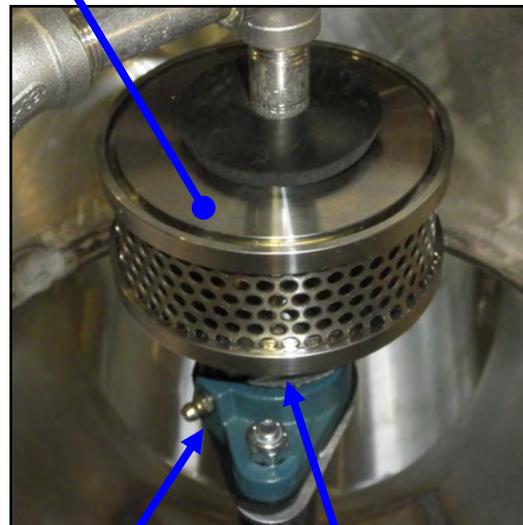
To access the inside of the atomizer housing, disconnect the motor power cable from the atomizer motor, push up on the quick release handle and slide out the atomizer. After completing maintenance, slide the atomizer back into the operating position, pull down quick release handle to lock it in place and reconnect the motor power cord.



*Quick-Release
Handle*

Atomizer Head

1. Slide out atomizer housing and grease bearing inside. Bearing needs just one pump of grease every 40 hours of operation (right).
2. Clean any build up inside the housing and the atomizer head. To remove the atomizer head, loosen the set screw located on the bottom of the head.
3. Check for any play in the atomizer shaft.
4. Make sure the atomizer spins smoothly.
5. Ensure the adjustable chute is fitting completely into the drum opening. Adjust if necessary.



Bearing

Set Screw

ATOMIZER MOTOR

- Wipe down the motor casing with a damp cloth making sure to remove all dust that may have collected since the last maintenance date. Record the cleaning on the company required documents.
-

LOSS-IN-WEIGHT GATE

- Use a vacuum cleaner to remove any excess seeds or build-up that may have accumulated during operation.

STORAGE SECTION G

When storing the LPV Seed Treater for long periods of time, the following procedure must be followed to reduce the chance of rust, corrosion and fatigue of the treater. You can also use these steps when storing the machine for the winter.



A dust mask and protective rubber gloves shall be used when cleaning the machine.

TREATER

1. Turn power off to the treater and treater components and lockout.
2. Inspect all welds and structural components for bends, cracks and damage.
3. Use a vacuum to clean out any seeds and excess build-up that may have occurred during operation.
4. Wipe down the motor casings with a damp cloth making sure to remove all dust that may have collected since the last maintenance date.
5. Wipe off and clean the lens of the proximity switches.
6. Disconnect power and mount all guards back in place.



ATOMIZER CHAMBER

1. Remove and clean the atomizer housing.
2. Remove the atomizer head and stainless steel plumbing. The atomizer head may be disassembled (right), for easier cleaning. It is threaded together and can simply be unscrewed.
3. Reinstall the atomizer head and plumbing. Grease the bearing and spin the atomizer head a few times to ensure all grease has been worked into the bearings.



ROTATING DRUM

1. Remove the shields and clean out any seed that may have fallen underneath the drum.
2. Clean out any residue left on the inside of the drum and around the seed lifters.
3. Lubricate the chain to keep from corroding in storage.



REFER
TO
PAGE 5

FINAL

1. Disconnect power to the machine.
2. Store the machine inside a protective building to keep it from being exposed to the weather.
3. Ensure all guards and safety labels are in place.



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TO
PAGE 5

TD-09-06-1064 LPV 100 SEED TREATER

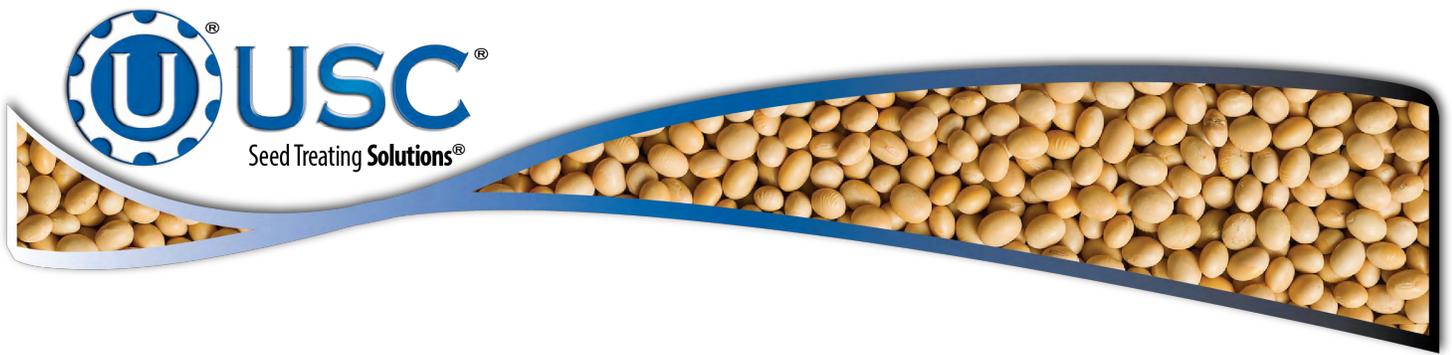
NOTES:

SECTION H USC LIMITED WARRANTY

USC, LLC, (Manufacturer) warrants its seed treating equipment as follows:

1. **Limited Warranty:** Manufacturer warrants that the Products sold hereunder will be free from defects in material and workmanship for a period of 18 months from date of shipment. If the Products do not conform to this Limited Warranty during the warranty period, Buyer shall notify Manufacturer in writing of the claimed defects and demonstrate to Manufacturer satisfaction that said defects are covered by this Limited Warranty. If the defects are properly reported to Manufacturer within the warranty period, and the defects are of such type and nature as to be covered by this warranty, Manufacturer shall, at its expense, furnish replacement Products or, at Manufacturer's option, replacement parts for the defective products. Shipping and installation of the replacement Products or replacement parts shall be at the Buyer's expense.
2. **Other Limits:** THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Manufacturer does not warrant against damages or defects arising from improper installation (where installation is by persons other than Manufacturer), against defects in products or components not manufactured by Manufacturer, or against damages resulting from such non-Manufacturer made products or components. Manufacturer passes on to the Buyer the warranty it received (if any) from the maker of such non-Manufacturer made products or components. This warranty also does not apply to Products upon which repairs and / or modifications have been effected or attempted by persons other than pursuant to written authorization by Manufacturer. This includes any welding on equipment which could damage electrical components. Manufacturer does not warrant against casualties or damages resulting from misuse and / or abuse of Products, improper storage or handling, acts of nature, effects of weather, including effects of weather due to outside storage, accidents, or damages incurred during transportation by common carrier.
3. **Exclusive Obligation:** THIS WARRANTY IS EXCLUSIVE. The sole and exclusive obligation of Manufacturer shall be to repair or replace the defective Products in the manner and for the period provided above. Manufacturer shall not have any other obligation with respect to the Products or any part thereof, whether based on contract, tort, strict liability or otherwise. Under no circumstances, whether based on this Limited Warranty or otherwise, shall Manufacturer be liable for lost profits, lost revenue, lost sales (whether direct or indirect damages), incidental, special, punitive, indirect or consequential damages.
4. **Other Statements:** Manufacturer's employees or representatives' oral or other written statements do not constitute warranties, shall not be relied upon by Buyer, and are not a part of the contract for sale or this limited warranty.
5. **Return Policy:** Approval is required prior to returning goods to Manufacturer. A restocking fee will apply.
6. **Entire Obligation:** This Limited Warranty states the entire obligation of Manufacturer with respect to the Products. If any part of this Limited Warranty is determined to be void or illegal, the remainder shall remain in full force and effect.

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