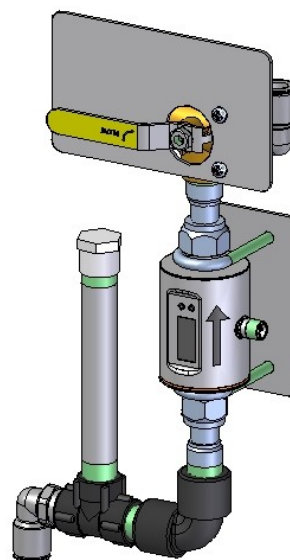
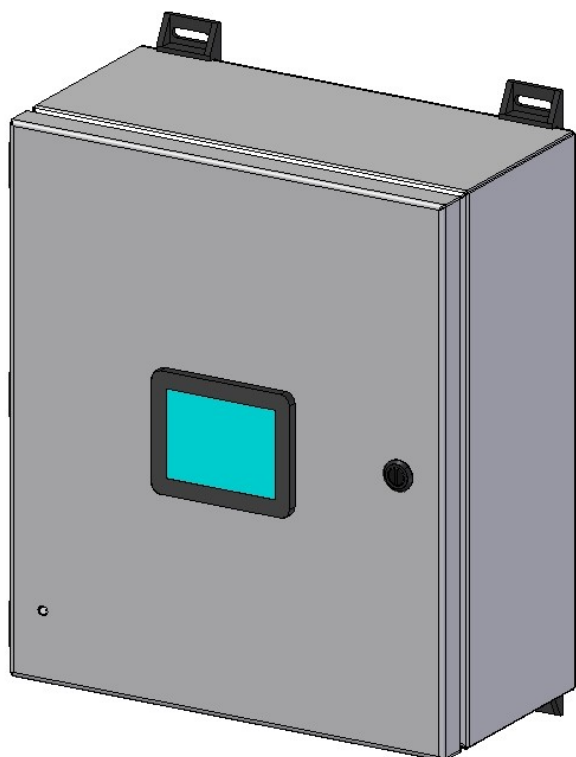


BAYER PUMP STAND USC SEMI - AUTOMATED CONTROL PANEL WITH VOLUMETRIC FLOW METER KIT

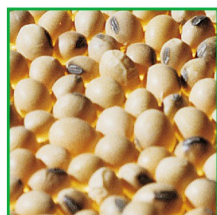
Operators Manual



Software Release: CPS v1.0.3

Document: TD-09-06-3040

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 install, operate and maintain the Semi - Automated Pump Stand and Volumetric Flow Meter. 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.

OPERATOR RESPONSIBILITIES

As the purchaser/owner/operator of this equipment and control system, you have an obligation to install, operate, and maintain the equipment in a manner that minimizes the exposure of people in your care to any potential hazards inherent in using this equipment. It is critical that the owner of this equipment:

- Has a clear and documented understanding of the process this machine is being used in and of any resulting hazards or special requirements arising from this specific application.
- Allow only properly trained and instructed personnel to install, operate or service this equipment.
- Maintain a comprehensive safety program involving all who work with this machine and other associated process equipment.
- Establish clear areas of staff responsibility (e.g. operation, setup, sanitation, maintenance, and repairs).
- Provide all personnel with necessary safety equipment.
- Periodically inspect the equipment to insure that the doors, covers, guards, and safety devices are in place and functioning, that all safety instructions and warning labels are intact and legible, and that the equipment is in good working order.
- In addition to the operating instructions, observe and enforce the applicable legal and other binding regulations, national and local codes.

SEMI - AUTOMATED PUMP STAND UPGRADE KIT

As the person with the most to gain or lose from working safely, it is important that you work responsibly and stay alert. By following a few simple rules, you can prevent an accident that could injure or kill you or a co-worker.

- Disconnect, lockout, and tagout electrical and all other energy sources before inspecting, cleaning, servicing, repairing, or any other activity that would expose you to the hazards of electrical shock.
- Do not operate, clean, or service this equipment until you have read and understood the contents of this manual. If you do not understand the information in this manual, bring it to the attention of your supervisor, or call USC at (785) 431-7900 for assistance.
- Any operator who is known or suspected to be under the influence of alcohol or drugs should not be allowed to operate the equipment.
- Understand and follow the safety practices required by your employer and this manual.
- **PAY ATTENTION** to what you and other personnel are doing and how these activities may affect your safety.
- **Failure to follow these instructions may result in serious personal injury or death.**

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.

Your 13-04-0138 Volumetric Flow Meter and Control Panel kit should contain the following items:

- Pre-Assembled SM6000 Flow Meter with process valve (Qty = 1).
- 03-12-0363 = Semi-Automated 1 Pump Control Panel (Qty = 1).
- 05-10-4246 = Flow Meter Mounting Plate (Qty = 1).
- 06-01-0275 = BOLT U .250-20 X 1.00 X 2.75 ZP (Qty = 2).
- 06-03-0013 = NUT LOCK FLG .250-20 ZP GR5 (Qty = 4).

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SAFETY INSTRUCTIONS

SECTION A

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.

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, **could** 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.



Provides additional information that the operator needs to be aware of to avoid a potentially hazardous situation.



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



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.



Mandatory Read Manual Action Symbol. (I.S.O. format) This symbol instructs personnel to read the Operators Manual before servicing or operating the equipment.



Mandatory Read Manual Action Symbol. This symbol instructs personnel to read the Operators Manual before servicing or operating the equipment.

NOTICE

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

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.”

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 Semi - Automated Pump Stand 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.

SEMI - AUTOMATED PUMP STAND UPGRADE KIT

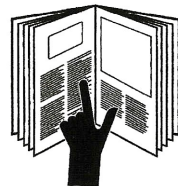
YOU are responsible for the **SAFE** operation and maintenance of your USC, LLC equipment . **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the equipment be familiar with the operating and maintenance procedures and related **SAFETY** information contained 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.
- 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.



SEMI - AUTOMATED PUMP STAND UPGRADE KIT

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. Electrocutation 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. Electrocution 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. Contact USC at (785) 431-7900 .

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.



Part # 09-02-0001



Part # 09-02-0002



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

SECTION
B**INSTALLATION**

Under no circumstance attempt to install this conversion kit while the power cord is plugged into the power source. **DO NOT** rely on the main power switch alone to ensure that the control panel is de-energized.

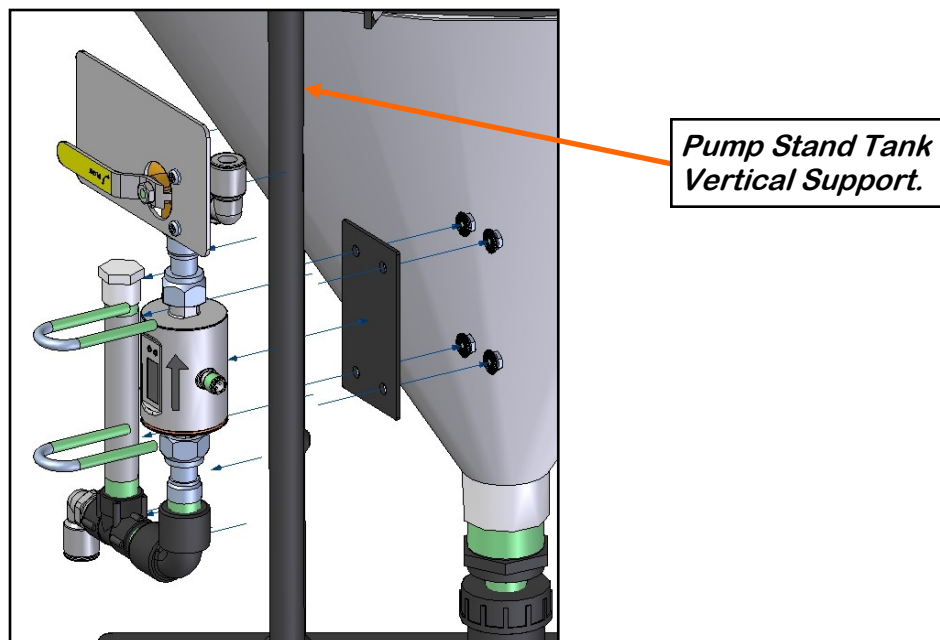


AUTHORIZED PERSONNEL only shall work on the control panel. Never allow anyone who has not read and familiarized themselves with the owner's manual to open or work on the control panel.

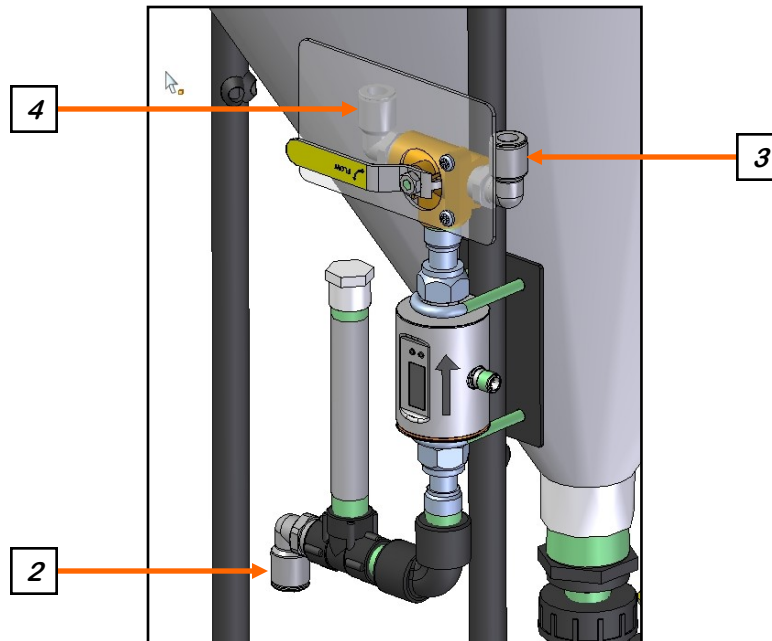
NOTICE

The USC Auxiliary Port Conversion kit (13-05-0326) must be installed on the Semi-Automated control panel (03-12-0363) before this kit can be installed. It replaces the USC auxiliary cable with a cable and plug that is compatible with the connector on the Bayer RH control panel.

STEP 1: Mount the flow meter assembly to the vertical mix tank support that will be closest to the treater. Place the mounting plate (05-10-4246) on one side of the vertical poly tank support and the flow meter on the other side. Slide the U-bolts (06-01-0275) around the flow meter and through the mounting holes of the mounting plate. Secure the U-bolts with four locknuts (06-03-0013).



INSTALLATION INSTRUCTIONS



STEP 2: Disconnect the tube from the T push fitting underneath the calibration tube leaving the other end connected to the filter underneath the tank. Bring the line over to the bottom fitting on the flow meter assembly. Mark the tube ensuring it will fully engage the connector and leave enough slack so it will not pinch the line reducing maximum flow of treatment. Cut and insert the tube connecting the filter to the flow meter.

STEP 3: Re-insert the other piece of tubing back into the T connection. Bring the other end of the line over to the right side or RECIRCULATE connector on the flow meter valve. Mark, cut and re-attach the line to the new location again making sure that there is enough slack so there is no reduction in flow.

STEP 4: Connect a new line from the left side or PROCESS connector on the flow meter valve and run it to the treatment port on the treater.

INSTALLATION INSTRUCTIONS

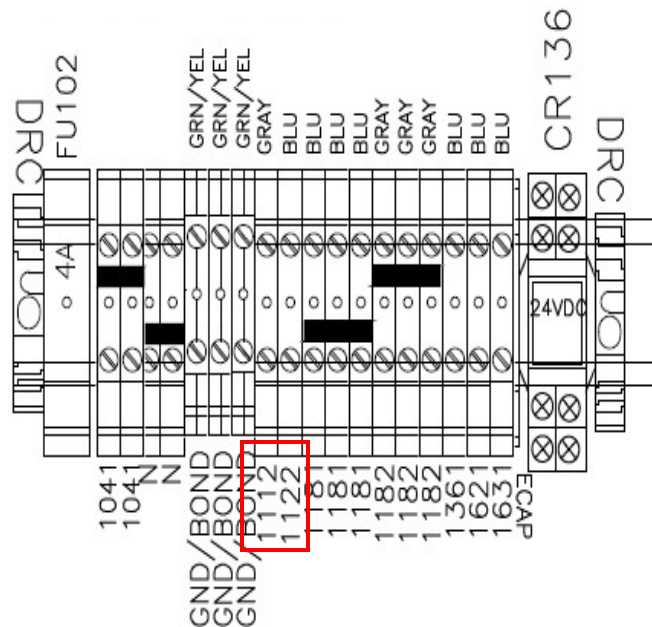
STEP 5: Choose a location to mount the control panel (03-12-0363) that is convenient for the operator. Before you permanently mount the box, ensure that the four electrical connections can be made:

- A. The pump motor cable will be able to be re-wired to the bottom of the panel.
- B. The flow meter communication cable (PJ160F) will be able to reach the flow meter assembly.
- C. The new auxiliary connector that was installed with kit number (13-05-0326) will reach the auxiliary plugs on the side of the treater control panel.
- D. The 115V power connection can be plugged into a properly grounded power source.

STEP 6: Unplug the power cord from the Masterflex pump motor control, then cut the cable from the pump motor as close to the controller as possible.

STEP 7: Open the new control panel and insert the pump motor cable in the empty cable grip. Land the black wire on position 1112, the white wire on 1122 and the green wire on any available ground (below). Tighten the cable grip.

03-12-0363



INSTALLATION INSTRUCTIONS

STEP 8: Connect the flow meter communication cable (PJ160F) to the side of the flow meter.

STEP 9: Connect the auxiliary connector that was installed with the 13-05-0326 kit into one of the auxiliary plugs on the side of the treater control panel..

STEP 10: Plug the 115V power cable (PJ100M) into the power source.

SECTION
C

ELECTRICAL OPERATION



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.



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 panel.

This section provides a general overview and description of the operator controls for the Semi - Automated Pump Stand.

General Panel Descriptions

- The Semi - Automated Pump Stand Panel is a plug connected enclosure that is located on each pump stand frame. This panel connects the pump stand electrical components to the Treater Control Panel.

SEMI - AUTOMATED PUMP STAND CONTROL PANEL

The following pages explain the function of the touch screen controls.

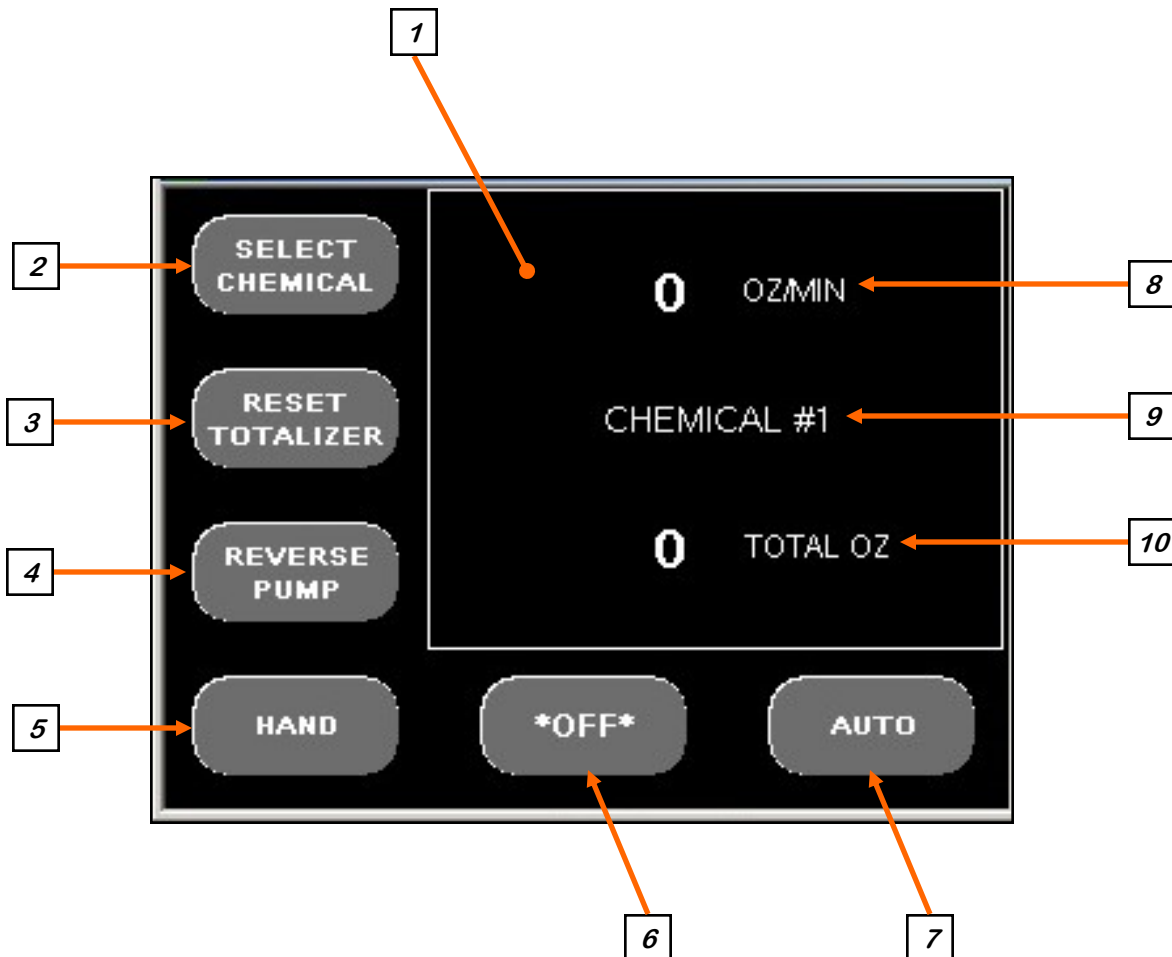
USC START UP SCREEN

While the system is booting up, the pump stand touch screen will display a timer bar at the bottom of the Start Up Screen. Once the timer bar reaches the end it will advance the user to the Main Screen.



MAIN SCREEN

This screen informs the operator which chemical is currently selected, ounces of the chemical being applied per minute and total ounces used. It can also be displayed in metric (see page 21). The buttons on the left side and bottom of the screen allows for control / adjustment of system operations.



MAIN SCREEN BUTTON DESCRIPTIONS

1. CHEMICAL STATUS BOX: Displays the chemical currently selected, flow rate in ounces per minute and total ounces used. The entire box is also a button. When pushed it advances the operator to the Settings screen.

2. SELECT CHEMICAL BUTTON: Advances the operator to the Select Chemical Screen.

3. RESET TOTALIZER BUTTON: Resets the totalizer to zero.

4. REVERSE PUMP BUTTON: Reverses the pump motor.

NOTICE

Anytime the pump is run in reverse or after the Atomizer is primed the operator must reset the totalizer on the screen before start up. This step is necessary to insure the totalizers accuracy for the run.

5. HAND BUTTON: Turns the pump motor ON and OFF. When this button is active the text increases in size and there is an asterisk before and after the text.

6. OFF BUTTON: Turns the pump motor off. When this button is active the text increases in size and there is an asterisk before and after the text.

7. AUTO BUTTON: This button is used when the pump stand is attached to an auxiliary contact on the treater. This allows the treater to turn the pump on and off at the appropriate time. When this button is active the text increases in size and there is an asterisk before and after the text.

8. OUNCES PER MINUTE: Displays the ounces of chemical per minute being applied. It also may be displayed in milliliters.

9. CHEMICAL NAME: Displays the name of the chemical that is selected.

10. TOTAL OUNCES: Displays in real time the amount of chemical that has been applied.

SETTINGS SCREEN

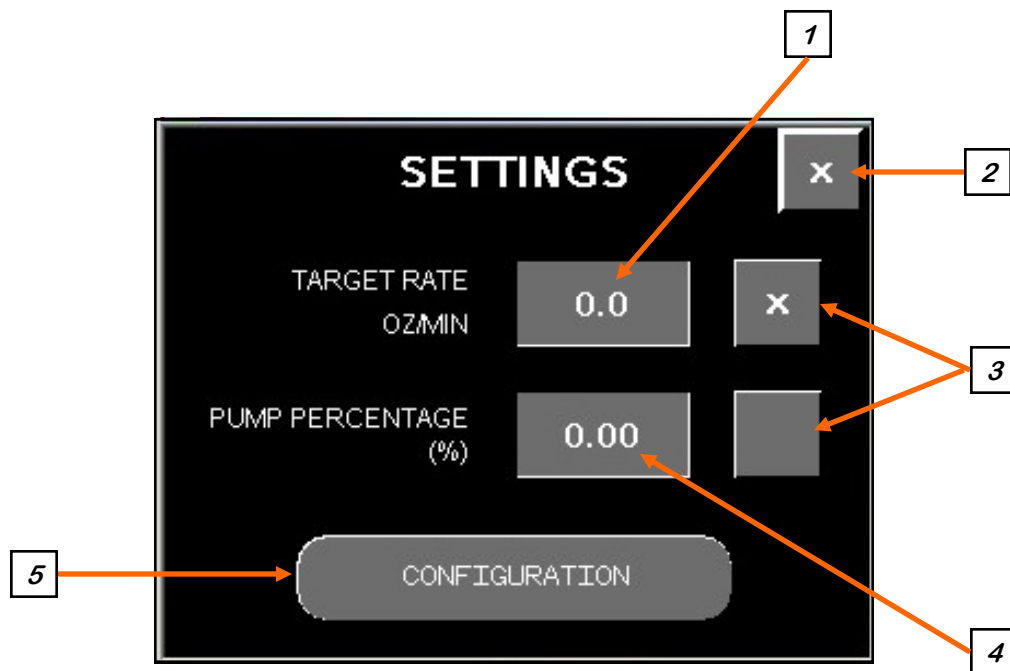
1. TARGET RATE: When this button is pushed a keypad (bottom) will appear on the screen. This allows the operator to set an application target rate in ounces or milliliters per minute.

2. SCREEN EXIT: This button is used to exit back to the previous screen. It's functionality is the same throughout the HMI display.

3. APPLICATION METHOD: Pressing one of these two buttons determines what method the operator will use for an application rate. Ounces per minute or pump speed.

4. PUMP PERCENTAGE RATE: When this button is pushed a keypad (bottom) will appear on the screen. This allows the operator to set an application target rate based on pump speed.

5. CONFIGURATION: This button takes the operator to the Configuration screen.

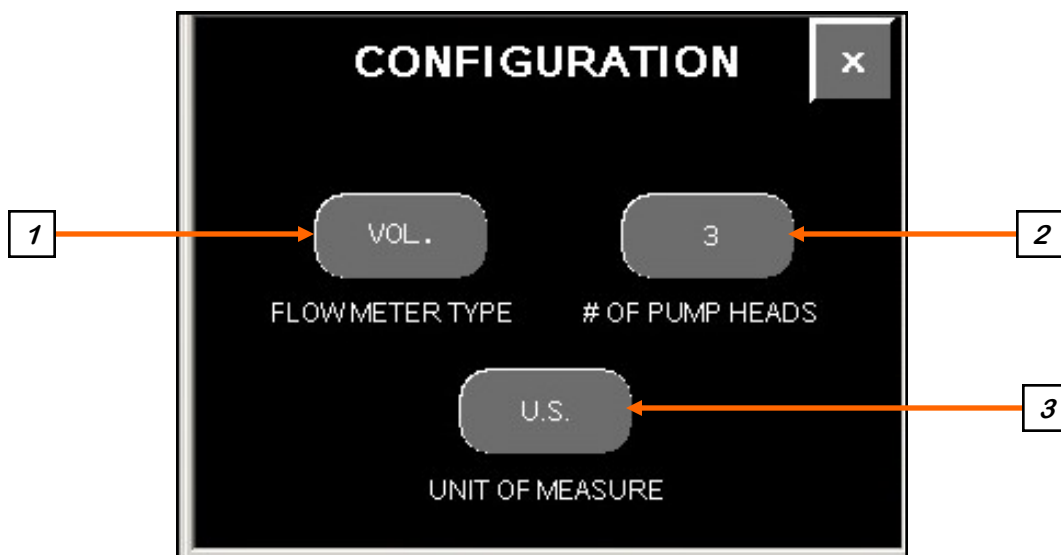


CONFIGURATION SCREEN

1. FLOW METER TYPE: Pressing this button allows the operator to select the type of flow meter being used. Mass flow meter or Volumetric.

2. # OF PUMP HEADS: Pressing this button allows the operator to select between a one, two or three head pump.

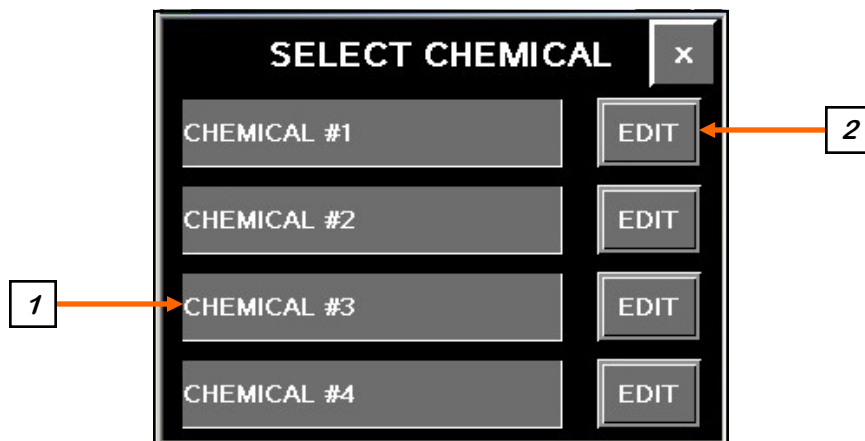
3. UNIT OF MEASUREMENT: Allows the operator to switch between Standard or Metric units of measurement.



SELECT CHEMICAL SCREEN

1. SELECT CHEMICAL: Allows the operator to select which chemical to apply.

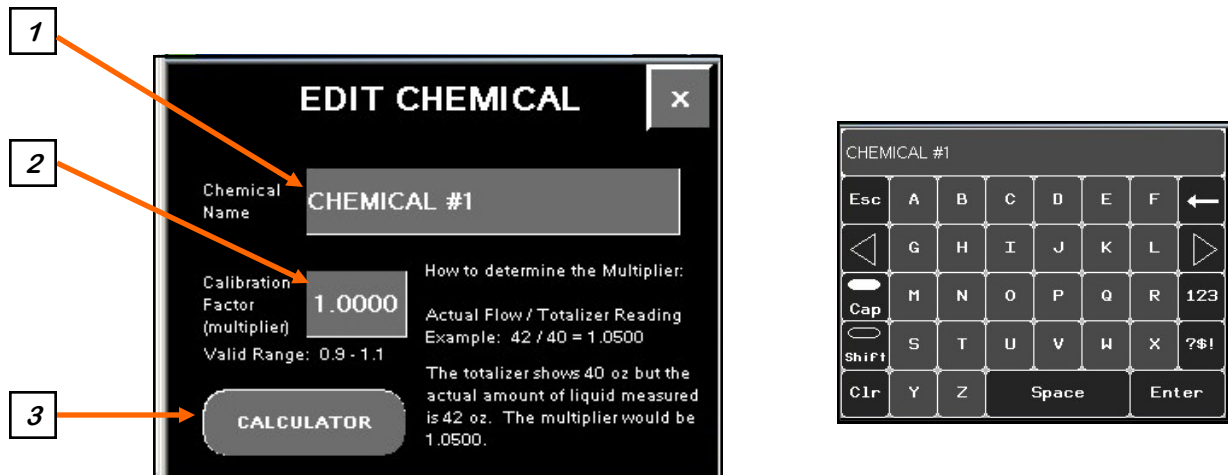
2. EDIT Button: This button takes the operator to the Edit Chemical screen.

**EDIT CHEMICAL SCREEN**

1. CHEMICAL NAME: When this button is pushed a keypad appears (right) allowing the operator to enter or change a chemical name.

2. CALIBRATION FACTOR: When this button is pushed a numeric keypad appears allowing the operator to enter the (Multiplier) used for Flow Meter Calibration (see page 25).

3. CALCULATOR Button: This button takes the operator to the Multiplier Calculation screen. (see page 23)



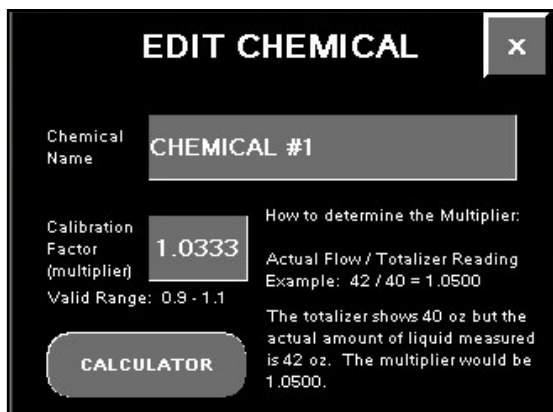
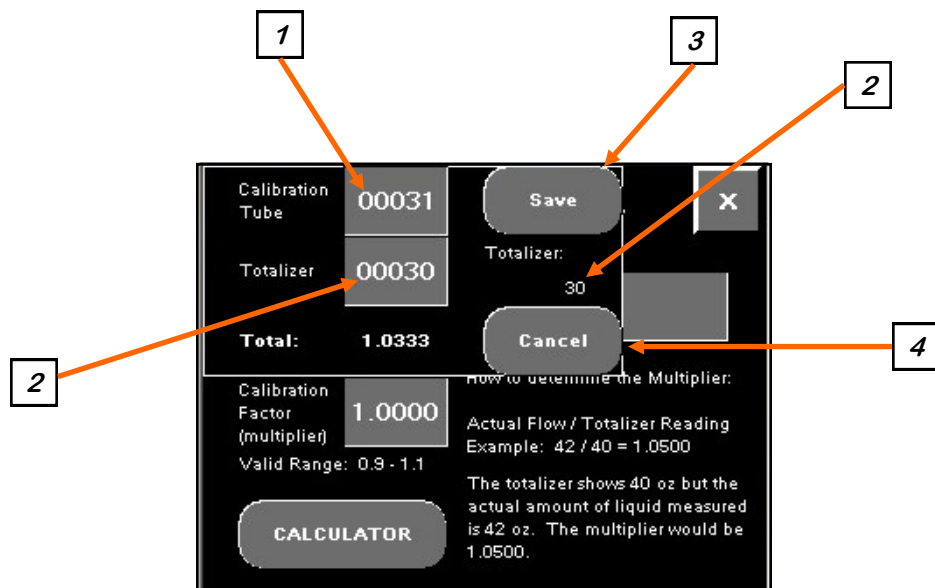
CALCULATOR SCREEN

1. CALIBRATION TUBE: When this button is pushed a numeric keypad appears (below right) allowing the operator to enter the calibration tube reading while performing a flow meter calibration (see page 25).

2. TOTALIZER: When this button is pushed a numeric keypad appears (below). Enter the amount that appears for the Totalizer (to the right) after calibration check enter number from the right.

3. SAVE: Saves the information entered and calculates the multiplier and enters the data into the Calibration Factor Multiplier box (below left).

4. CANCEL: Returns the operator to the Edit Chemical screen. Pressing the Cancel button before the Save button will not enter the Multiplier into the Factor Box.



SECTION
D**CALIBRATION****PUMP CALIBRATION**

1. Lock down the pump tubing in the pump head.
2. Premix enough liquid for the amount of seed you are treating and pour into the chemical mix tank. It's always a good practice to mix up 20% extra slurry to help fill all the lines.
3. From the Main screen press the Chemical Status Box. From the Settings screen enter the number of ounces needed per minute per hundred pounds of seed as the Target Rate. Then, press the EDIT button and verify that the Calibration Factor is set to one. Return to the Main screen and select the Select Chemical button. From the Select Chemical screen choose the type of chemical.
4. Open the in-line valve between the calibration tube and the tank inlet connection. Set the flow meter valve to RECIRCULATE. Turn the ON / OFF switch for the mix tank motor to the ON position. Run the peristaltic pump for 10 minutes to ensure that the chemical mixture within the mix tank is blended completely and any air is removed from the system.

*Select
Chemical*

5 OZMIN
CHEMICAL #3
0 TOTAL OZ

*Chemical
Status Box*

SETTINGS

TARGET RATE OZMIN 5.0

PUMP PERCENTAGE (%) 0.00

CONFIGURATION

*Enter in
Ounces per
cwt. here**Choose
chemical
name here*

SELECT CHEMICAL

CHEMICAL #1 EDIT

CHEMICAL #2 EDIT

CHEMICAL #3 EDIT

CHEMICAL #4 EDIT

FLOW METER CALIBRATION

Due to the composition of some types of chemicals, additional flow meter calibration may be required. It is recommended that, like other calibration devices, the flow meter is checked regularly and calibrated when needed. When calibrating the flow meter, each chemical slurry must be checked and adjusted for.

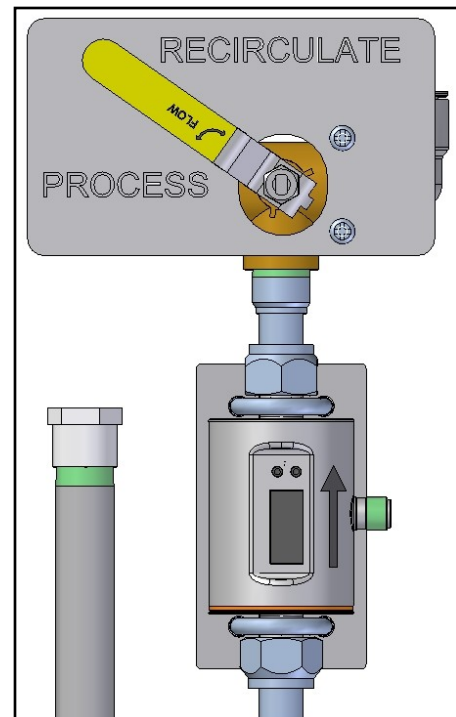
A stop watch or other timing device will be required for the calibration.

1. To begin the calibration process, fill the appropriate mix tank with the slurry that is going to be used for this calibration.

2. Turn on the mix tank motor. From the Main screen select the Chemical Status Box. Enter a value for the Pump Percentage speed (Example 20) and check the box to the right. Open the in-line valve between the calibration tube and the tank inlet connection. Set the flow meter valve to RECIRCULATE. Return to the Main screen, press the HAND button and Let the system run in recirculation mode for 10 minutes. This will remove any air from the system.



3. Ensure that the correct chemical has been chosen.
4. Close the in-line valve between the calibration tube and the tank inlet connection. Once the liquid in the Calibration Tube reaches zero press HAND or OFF to stop the pump. Press the TOTALIZER button to zero out the Totalizer. Press the HAND button and start the stopwatch simultaneously. Stop the pump when the stopwatch reaches one minute. Note the total ounces of chemical that is in the calibration tube.



FLOW METER CALIBRATION

5. Push the Calculator button. It is located in the bottom left corner of the Edit Chemical screen. Enter the number of the ounces in the calibration tube box. Between the Save and Cancel button is the number of ounces read by the flow meter. Enter that amount in the Totalizer box and press SAVE. The system automatically calculates and places the amount in the Calibration Factor (Multiplier) box.
6. Repeat the process as necessary and for each different chemical slurry used.

The screenshot shows a software interface for flow meter calibration. It features several input fields and buttons. The 'Calibration Tube' field contains '00031'. The 'Totalizer' field contains '00030'. The 'Total:' field shows '1.0333'. The 'Calibration Factor (multiplier)' field contains '1.0000'. The 'Valid Range:' is '0.9 - 1.1'. There are 'Save' and 'Cancel' buttons. A 'CALCULATOR' button is at the bottom left. On the right, there is a section titled 'How to determine the Multiplier:' with an example calculation: 'Actual Flow / Totalizer Reading Example: 42 / 40 = 1.0500'. Below this, it states: 'The totalizer shows 40 oz but the actual amount of liquid measured is 42 oz. The multiplier would be 1.0500.'

Calibration Tube	00031	Save	X
Totalizer	00030	Totalizer:	30
Total:	1.0333	Cancel	
Calibration Factor (multiplier)	1.0000	How to determine the Multiplier:	
Valid Range:	0.9 - 1.1	Actual Flow / Totalizer Reading Example: 42 / 40 = 1.0500	
CALCULATOR		The totalizer shows 40 oz but the actual amount of liquid measured is 42 oz. The multiplier would be 1.0500.	

TROUBLESHOOTING**SECTION
E**

Below is a table describing the most frequent problems and solutions with the LPX Volumetric Flow Meter. For further assistance, contact USC at (785) 431-7900.

Problem	Possible Cause	Solution
Flow Meter is fluctuating	<ol style="list-style-type: none"> 1. Pump is sucking air. 2. Restriction in the line. 3. Flow meter is not full of liquid 	<ol style="list-style-type: none"> 1. Check and tighten all hose connections. 1. Check filter to see if gasket is missing or cracked. 2. Clean out filter and lines to check for any debris. 3. The meter will fluctuate if there is nothing pumping and there is some liquid left in the meter. Drain out liquid.
Flow meter won't turn on	<ol style="list-style-type: none"> 1. Improper power going to flow meter. 2. Loose connection. 	<ol style="list-style-type: none"> 1. Check incoming power to flow meter. 2. Check connections inside the control panel and inside the flow meter.
Flow Meter is reading too low or too high.	<ol style="list-style-type: none"> 1. Restriction in Flow Meter or in line. 2. Air in treatment. This can cause the flow meter to read lower than calibrating it using a measuring cup. 3. Seed flow has changed. 	<ol style="list-style-type: none"> 1. Flush the flow meter with water or use compressed air and blow air backwards through the meter. 2. Check and tighten all hose connections. 2. Check filter to see if gasket is missing or cracked. 3. Recheck seed flow rate.
Flow meter will not zero	<ol style="list-style-type: none"> 1. Improper wiring 2. Wrong parameter programmed into flow meter 	<ol style="list-style-type: none"> 1. Check wiring schematic. 2. Check flow meter parameters. Call local dealer.

**SECTION
F****MAINTENANCE & STORAGE**

Proper maintenance and storage of the flow meter is critical for peak performance, reliability and accuracy of this system. The following is a guideline for the type of maintenance and storage procedure that should be followed. 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.

CLEANING

1. Make certain the inside of the mix tank is completely drained of chemical residue and thoroughly flush the inside of the tank with clean water.
2. Remove and clean the filter.
3. Pump clean water through all areas of the plumbing including the mix tank, valves, and flow meter.
4. Open all drain points, valves, and filter to let as much of the liquid drain as possible.
5. Disconnect power to the flow meter.
6. Remove the flow meter from the machine for additional cleaning.
 - Pre - Mix a solution of 90% water and 10% distilled white vinegar.

NOTICE

Only use the vinegar and water solution mixed in these proportions to clean the flow meter. Use of any other cleaners, especially cleaners containing harsh chemicals may cause permanent damage the sensors and seals inside the flow meter.

- Use a size - matched circular brush with soft plastic bristles. Dip the brush in the solution and gently move it up and down in the measuring pipe to avoid damaging the measuring pipe and sensor electrodes.
- Re-peat brushing with fresh fluid until measuring pipe is visually clean.
- Flush the flow meter inside and out with clean water to remove any of the cleaning solution residue.



STORAGE

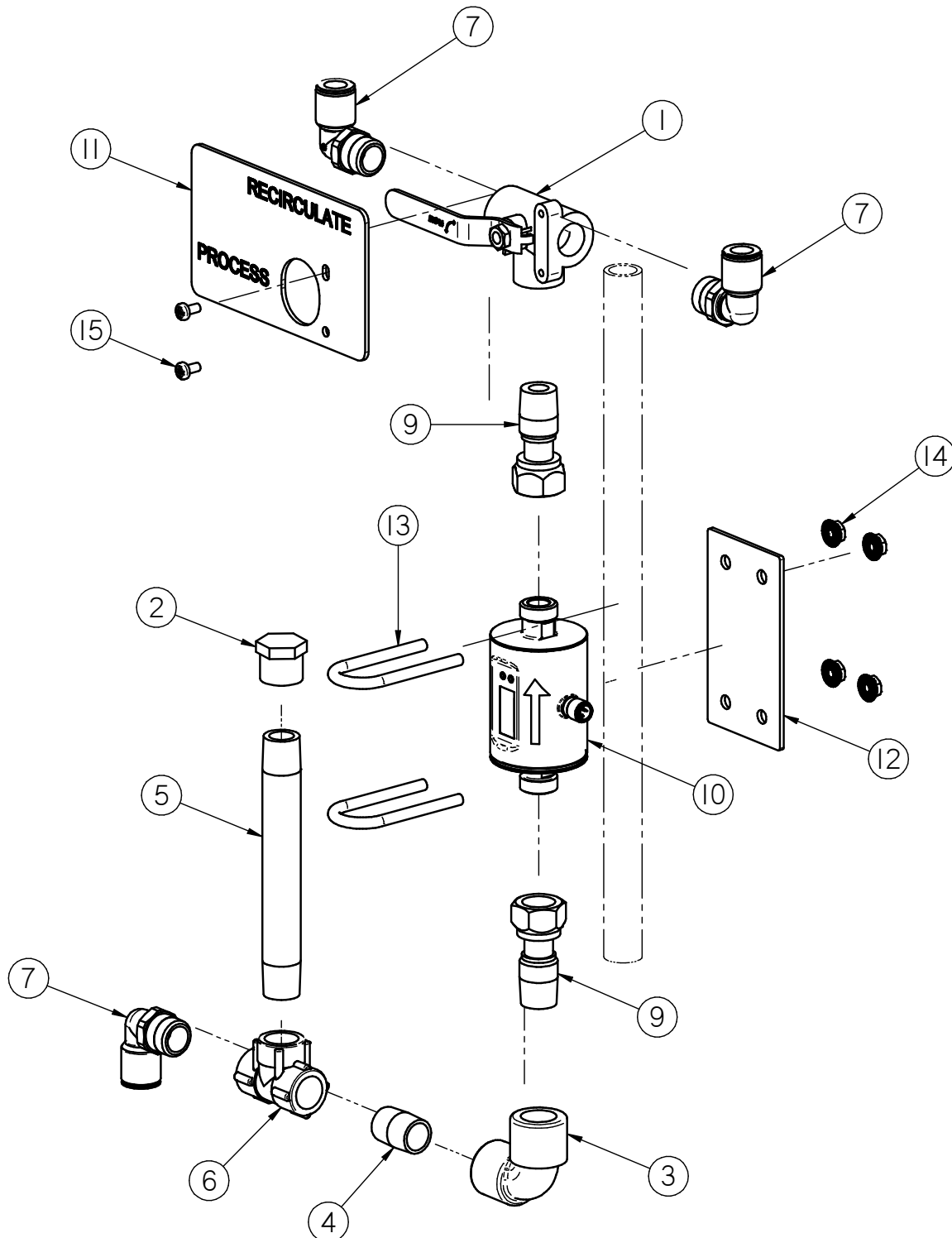
Store the flow meter in an area with the following conditions.

1. Ambient temperature of 50 to 80 degrees Fahrenheit.
2. Protection from direct sunlight to avoid unacceptable high surface temperatures.
3. Where moisture does not collect in and/or on the flow meter. This will help prevent fungus and bacteria infestation which can damage the liner.
4. Cover all openings
5. Store in a manner so that the inlet and outlet are as much in an up and down position as possible.

SECTION
G

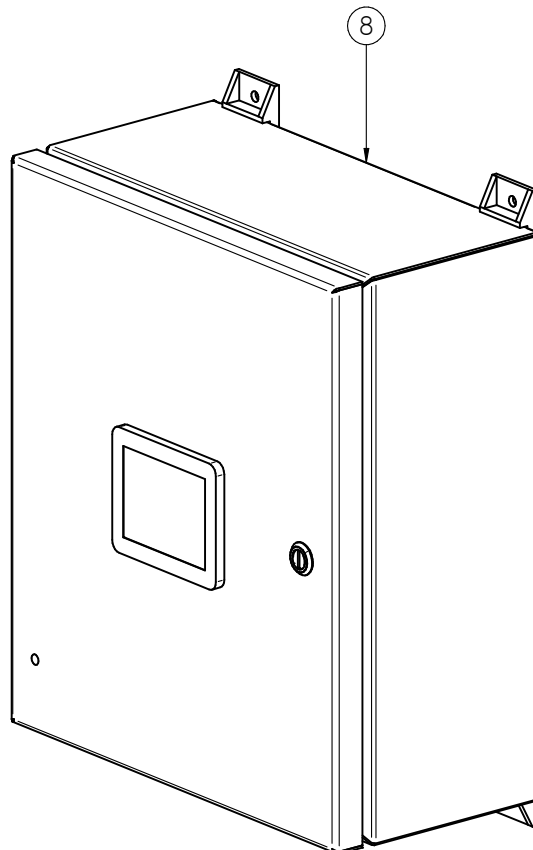
MECHANICAL DRAWINGS

VOLUMETRIC FLOW METER KIT (13-04-0138)



SEMI - AUTOMATED PUMP STAND UPGRADE KIT
VOLUMETRIC FLOW METER KIT (13-04-0138)

Item #	Part #	Description	Qty
1	02-02-0007	VLV BALL .500 NPT 3WAY BRSS	1
2	02-05-0086	FTTG END CAP .500 NPT BP	1
3	02-06-0016	FTTG 90 DEG .500NPT FM PPE BLK	1
4	02-07-0007	FTTG NIP .500NPTX1.125 TBE SS CLOSE	1
5	02-07-0060	FTTG NIP .500 NPT X 6.00 TBE PVC	1
6	02-09-0005	FTTG TEE .500 NPT PPE	1
7	02-16-0009	FTTG PUSH 90 DEG .500 OD X .500 NPT	3
8	03-12-0363	SEMI-AUTO 1 PUMP CONTROL PANEL	1
9	03-18-0020	FTTG ADPTR G1/2 TO 1/2NPT ML IFM	2
10	03-18-0025	FLMT IFM EFECTOR SM6000 NO NEG FLO	1
11	05-10-4245	LBL RECIRC PROC	1
12	05-10-4246	BRKT ADD ON FLMT MNT	1
13	06-01-0275	BOLT U .250-20 X 1.00 X 2.75 ZP	2
14	06-03-0013	NUT,LOCK, FLG .250-20 ZP SERRATED	4
15	06-06-0029	SCRW MACH 10-24 X .375 PHLP PHD ZP	2



SEMI - AUTOMATED PUMP STAND UPGRADE KIT

NOTES:

USC LIMITED WARRANTY

SECTION H

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.

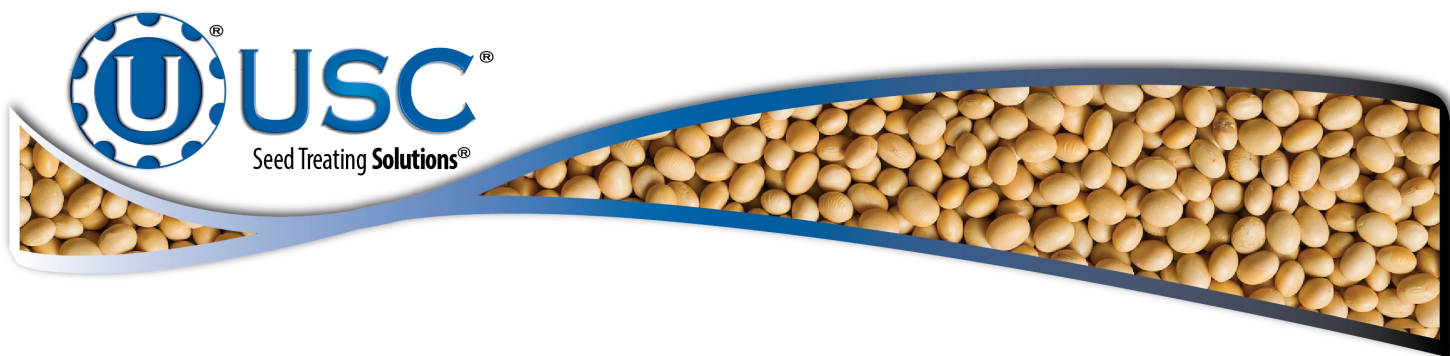
4. **Other Statements:** Manufacturer's employees or representatives' oral or other written statements do not constitute warranties, shall not be relied upon by Buyer, and are not a part of the contract for sale or this limited warranty.

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.

US / Canada Non-Exclusive 2016





USC, LLC

2320 124th road

Sabetha, KS 66534

PHONE: (785) 431-7900

FAX: (785) 431-7950

EMAIL: sales-team@uscllc.com

WEB: www.uscllc.com

