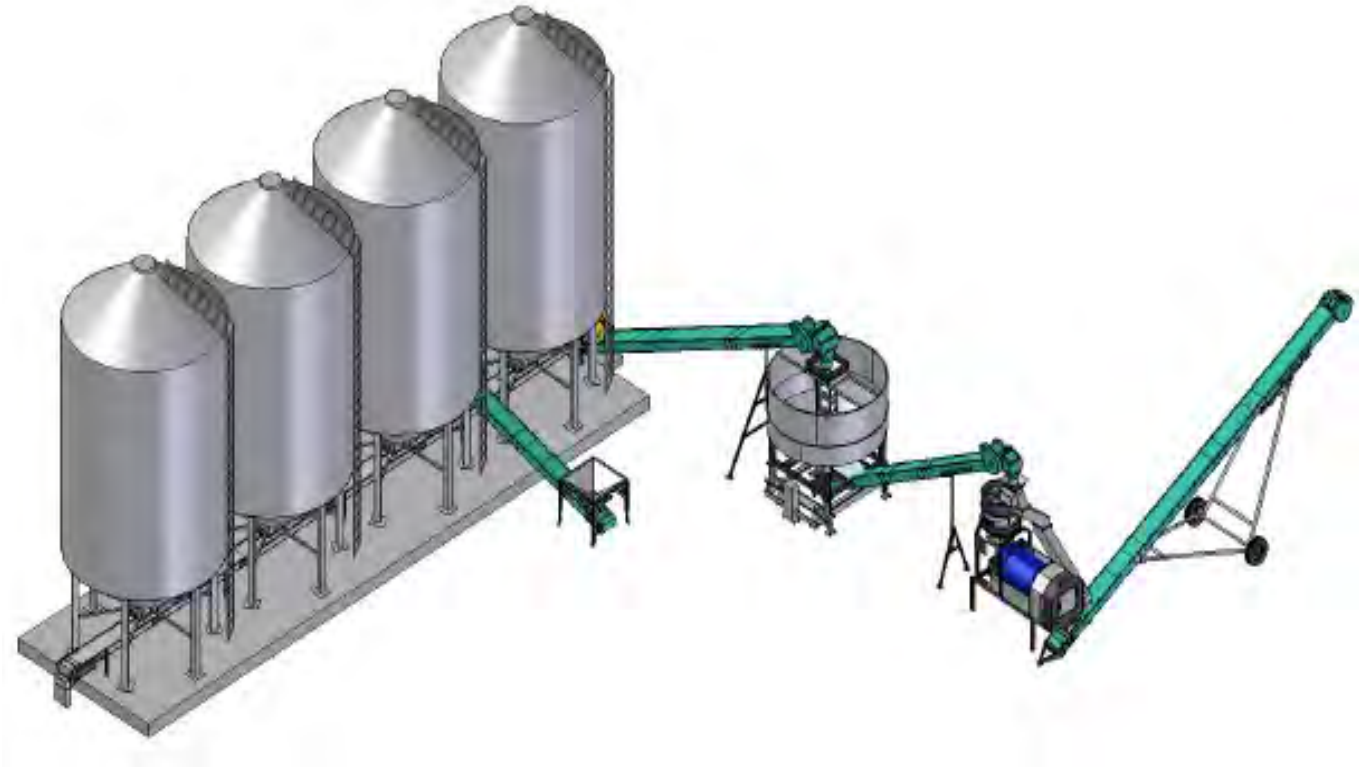
HMI UPGRADE
BIN SITE WITH LX / MX TREATER

Operators Manual



Software Release: v4.00

Document: TD-09-06-3009 **Revision: A**

2320 124th Road Sabetha, Kansas 66534 PH: (785) 431-7900 FAX: (785) 431-7950 www.uscllc.com

Revision Effective 22 NOV 2013

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 the Bin Site HMI Upgrade. It does not hold USC, LLC liable for any accidents or injuries that may occur.

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.

As the person with the most to gain or loose 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 your local USC dealer 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 upgrade kit 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 following items should be in your shipment:

1. 64K PLC memory device.
2. Compact flash drive
3. Installation instructions.

TABLE OF CONTENTS

Section	Contents	Page #
Section A	**Electrical Operation**	**5**
	Main Screen	7
	H-O-A Screen	11
	Utilities Screen	14
	Security Screen	16
	Tools & Options Screen	18
Section B	**Operation & Calibration**	**26**
	Loading Seed Into Bins	26
	Setting The Seed Flow Rate	27
	Scale Fill Only	28
	Auto Treat	30
	Auto Bypass	33
	Treating Seed From Pro Boxes	35
	Scale Fill Calibration	36
	Underbin Operation In Reverse Mode	37
	Editing and Printing Reports	38
	Downloading Reports	40
Section C	**Troubleshooting & Alarms**	**44**
	Troubleshooting	44
	System Alarms - Faults	46
	Paused Controlled Warning	48
	System Messages	49
Section D	**Limited Warranty**	**51**

ELECTRICAL OPERATION

SECTION A

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 Bin Site System.

General Panel Descriptions

This system consists of one panel:

- The Main Control Panel (MCP) is a 36 x 30 x 10 inch enclosure that contains all of the electrical control components as well as the HMI (Human/Machine Interface) touch screen. The air solenoid bank that controls all of the bin site system's air valves is located on the side of and hardwired to the MCP. The operator is able to control the entire system through the HMI. The MCP is connected to the scale head via an Ethernet cable. The MCP may be connected to the Treater MCP via an Ethernet cable, as well.

Main Control Panel

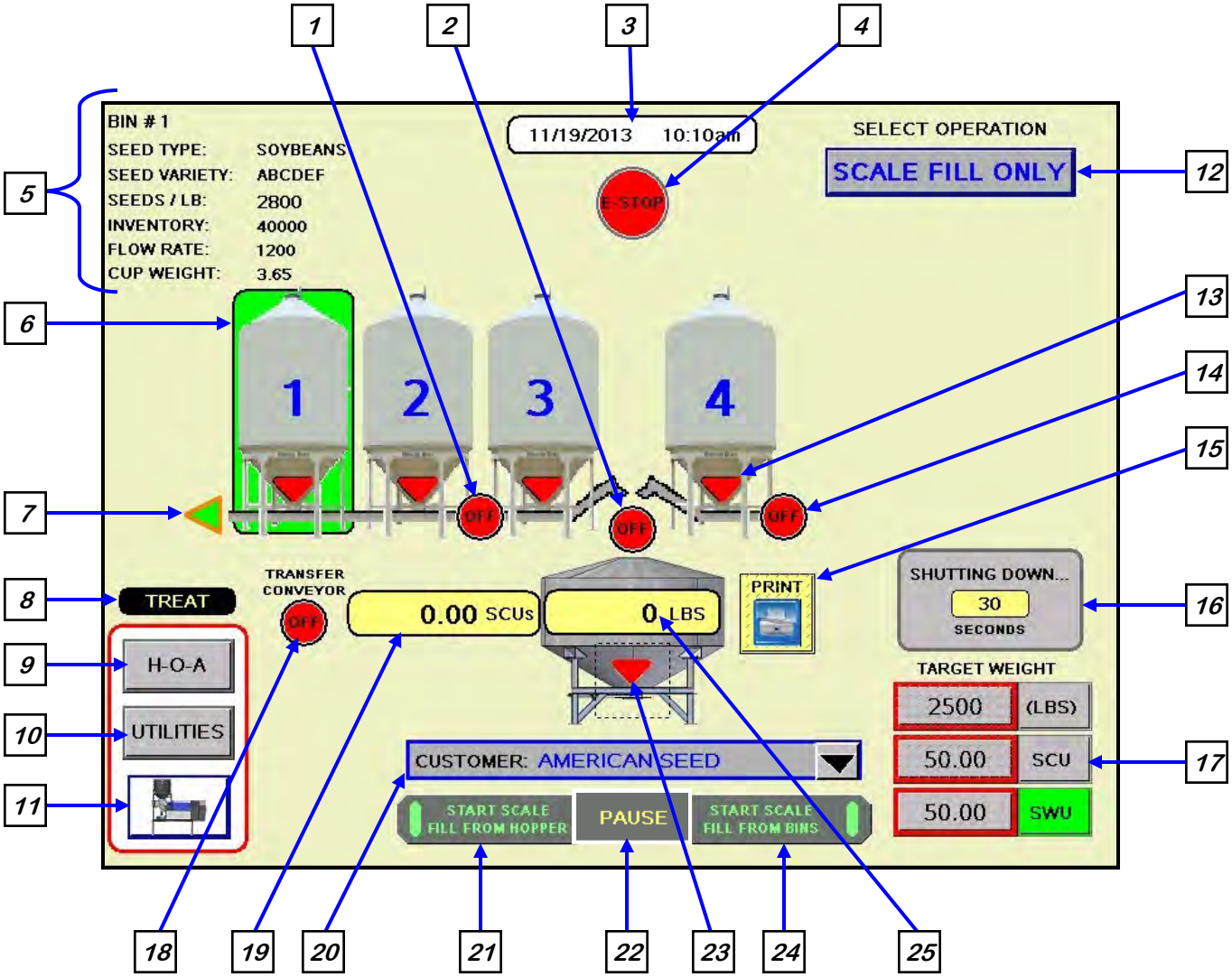
The following pages explain the function of the touch screen controls.

USC STARTUP SCREEN

This screen is the first screen the operator will see after the system receives power. Touch this screen to allow the operator to advance to the Main screen.

MAIN SCREEN

This screen informs the operator of the status of all system motors and electrical devices and allows for control / adjustment of system operations.



Main Screen Button Descriptions

1. Underbin #1 Conveyor Motor Status Indicator: Informs the operator if the underbin conveyor motor is ON or OFF.

2. Scale Fill Conveyor Motor Status Indicator: Informs the operator if the scale fill conveyor motor is ON or OFF.

3. Current Date and Time Display.

4. Emergency Stop Indicator: This blinking display is activated when the system E-Stop button is activated.

5. Current Bin Info: Displays the bin information that has been entered into the currently selected bin. Includes seed type, seed variety, seeds/lb, inventory, flow rate and cup weight.

6. Bin Selection Indicator: Informs the operator of the currently selected bin.

7. Underbin Conveyor Reverse Indicator: (optional) Informs the operator that the underbin conveyor is currently running in reverse. This indicator will only be present if the bin site system has a reversible underbin conveyor.

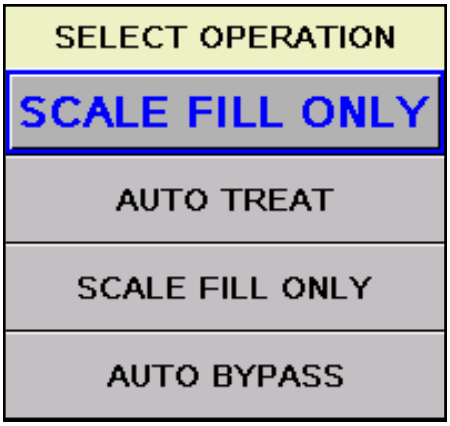
8. Diverter Indicator (optional): Informs the operator if the diverter is currently in the TREAT or BYPASS position. This indicator will only be present if the bin site system has a diverter.

9. H-O-A (Hand-Off-Auto) Button: This button advances the operator to the H-O-A screen.

10. UTILITIES Button: This button advances the operator to the UTILITIES screen.

11. Treater Button (optional): This button advances the operator to the treater Main screen. This button is only available if the bin site system is being operated in conjunction with a PLC controlled seed treater.

12. SELECT OPERATION Button: Pressing this button will bring up a drop down list of possible system operation modes for the operator to choose from (right).



13. Bin Slide Gate Indicator: Informs the operator if the bin slide gate is in the OPEN or CLOSED position.

14. Underbin #2 Conveyor Motor Status Indicator: (optional) Informs the operator if the underbin conveyor motor is ON or OFF.

15. PRINT Button: Allows the operator to print the current weight in the weigh hopper.

16. System Shutdown Indicator: Informs the operator that the system is in the process of shutting down. The timer in the middle counts down how many seconds are left before shutdown is complete.

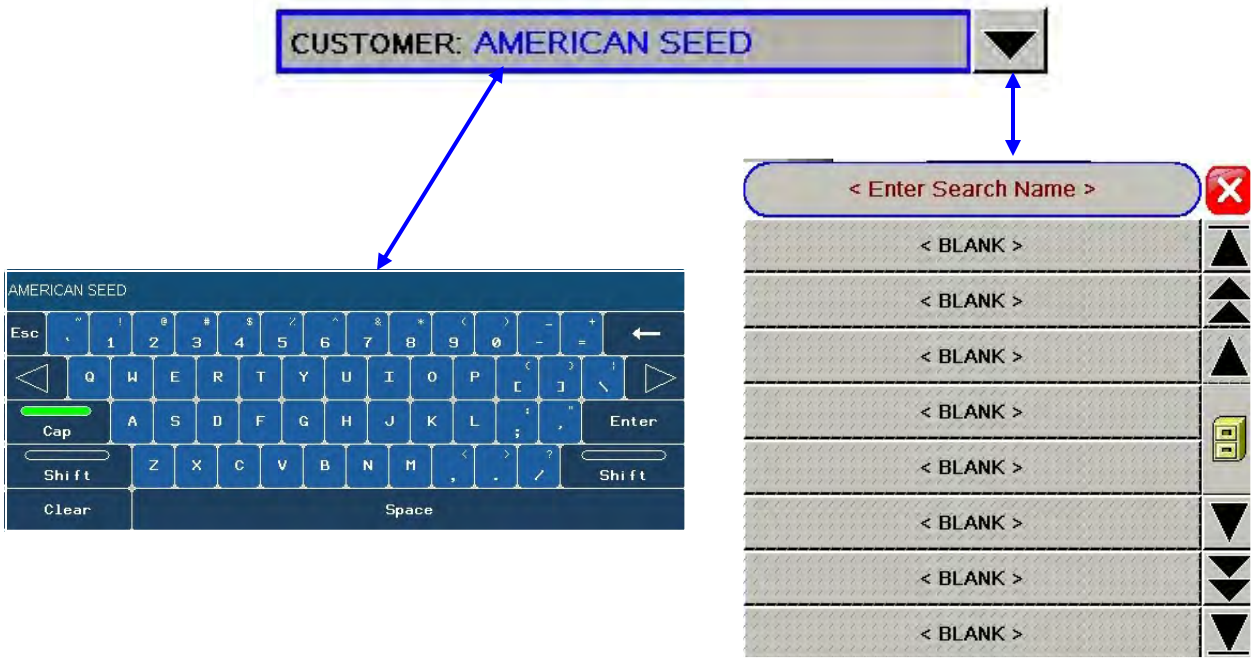
Main Screen Button Descriptions

17. TARGET WEIGHT Module: Pressing this button brings up a numerical key pad (right). This allows the operator to enter the amount of seed that is to be pulled in from the selected bin. The operator can also select to call in seed via seed count units (SCU) or seed weigh units (SWU). If SCU is selected, the system will base the units upon the settings in the Edit Product screen that are attached to specific seed types and the seed count of the currently selected bin. If SWU is selected, the system will base the units upon 50 lbs/unit.

18. Transfer Conveyor Motor Status Indicator (optional): Informs the operator if the transfer conveyor motor is ON or OFF. This indicator will only be present if the bin site system has an included transfer conveyor.

19. SCU Total Count Display: Displays the total weight in the hopper in seed count units.

20. CUSTOMER BUTTON: There are two ways to use this button. First, select the main field and a pop-up keyboard allows you to type a customers name. Second, you may select the down arrow to the right of the main field and bring up the Rolodex pop-up window. If you select Enter Search Name at the top, the same keyboard appears. You may use the up or down arrows to scroll through the customer names already entered in the system or, select the file cabinet icon that takes you to the Customer Info page so you may create a new entry. (See page 22)

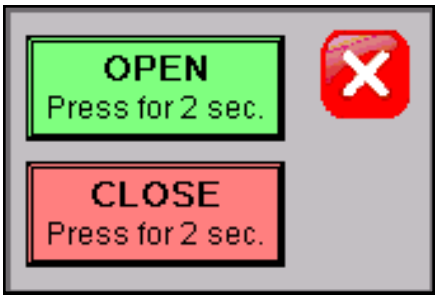


Main Screen Button Descriptions

21. START SCALE FILL FROM HOPPER BUTTON:
Allows the operator to run seed in the auto mode from a Pro Box hopper.

22. PAUSE BUTTON: Allows the operator to pause the ongoing process in the event of a set-up error or an alarm situation. Pushing this button will stop the run. Once the issue is resolved push continue to re-start the process.

23. Weigh Hopper Slide Gate Button & Indicator:
Pressing this button will bring up a slide gate control window (right). This allows the operator to manually open and close the slide gate that is located directly below the weigh hopper. Also, the indicator informs the operator if the weigh hopper slide gate is in the OPEN or CLOSED position.



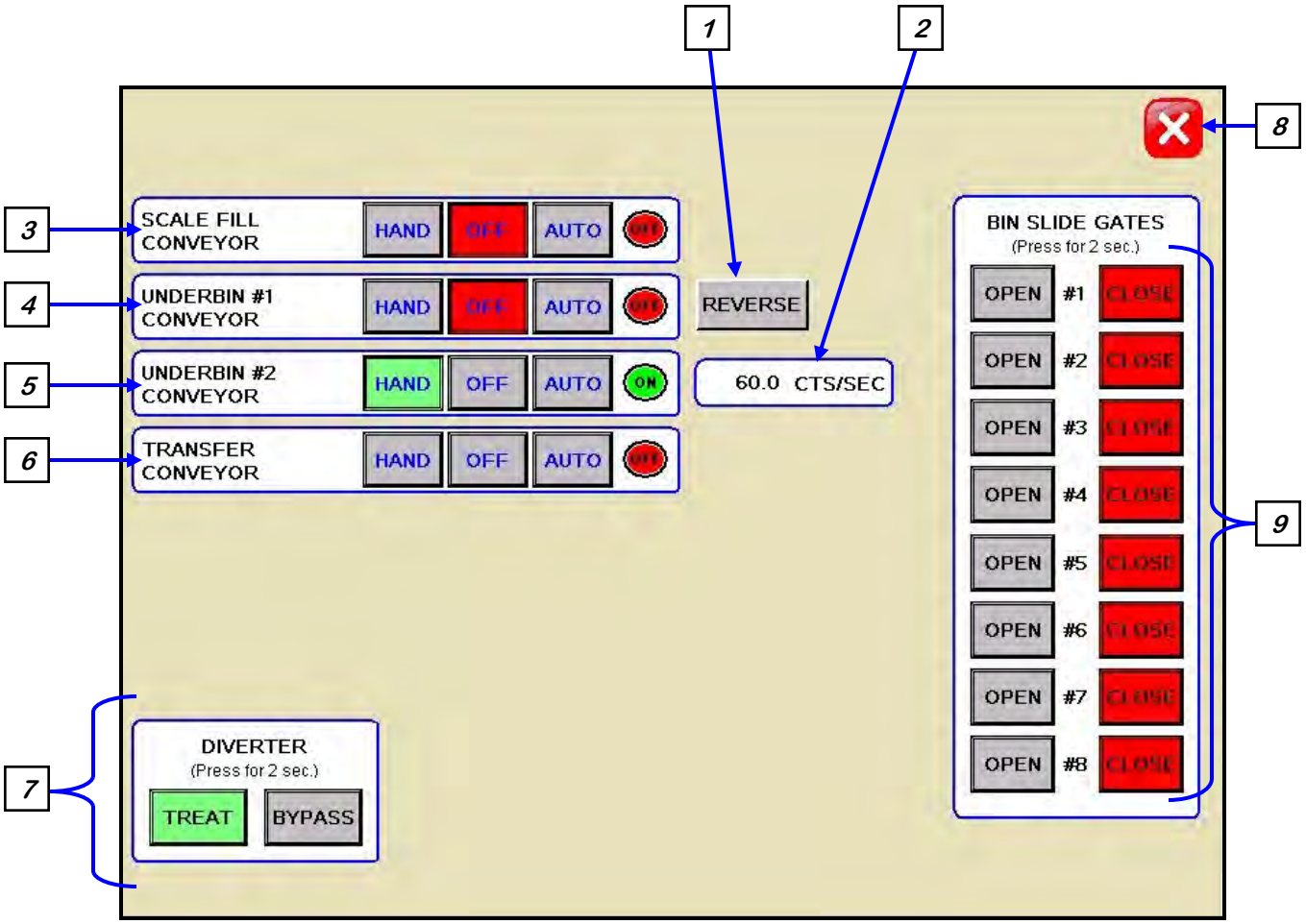
24. START SCALE FILL FROM BINS Button: Allows the operator to call seed into the weigh hopper from the selected bin in AUTO mode.

25. Totalizer Weight Display: Displays the total weight in the hopper in pounds.

H-O-A (HAND-OFF-AUTO) SCREEN

Hand-Off-Auto controls are provided for most of the automated devices in the system, and are accessed on this screen.

These H-O-A buttons force the selected component to be energized (HAND), de-energized (OFF), or automatically energized by the normal logic sequence (AUTO). The HAND function will cause the component to operate independent of whatever else the system is trying to do automatically. These functions should not normally be used if the automated sequencing is active. **Be sure to understand the impact of energizing or de-energizing a component with the HAND/OFF settings before using them. These commands are not a substitute for lockout/tagout procedures when working on or near this machine. Use proper lockout/tagout procedures to disable the equipment before servicing it.**



H-O-A Button Descriptions

1. REVERSE Button (optional): This button is only present when the underbin conveyor is in the OFF mode. Pressing it allows the operator to run the underbin conveyor in reverse. Once this button is pressed, the operator will also need to place the underbin conveyor to the HAND mode for the motor to run. **ALWAYS ENSURE THE BELT IS IMMEDIATELY AND PROPERLY ALIGNED WHEN RUNNING IN REVERSE! BELTS WILL OFTEN SHIFT ALIGNMENT WHEN THEIR DIRECTION OF TRAVEL IS REVERSED.** This button will only be present if the bin site system has the reversing option for the underbin conveyor.

2. Counts per Second Display (optional): This display shows the current counts per second that the underbin counter is reading. This allows the bin site system to be sure that the underbin conveyor is running properly and that the belt is not slipping. This display will only be present if the bin site system has an underbin counter on the underbin conveyor.

3. SCALE FILL CONVEYOR Control Module: This module controls the function of the scale fill conveyor. The HAND button will place the scale fill conveyor in the manual mode of operation. The OFF button will turn the associated device in the OFF mode of operation. The AUTO button will place the device in the automatic mode of operation. The motor will not operate in this function unless all other devices are in the AUTO mode and the START SCALE FILL FROM BINS button is pressed on the Main screen.

4. UNDERBIN #1 CONVEYOR Control Module: This module controls the function of the underbin #1 conveyor. The HAND button will place the underbin #1 conveyor in the manual mode of operation. The OFF button will turn the associated device in the OFF mode of operation. The AUTO button will place the device in the automatic mode of operation. The motor will not operate in this function unless all other devices are in the AUTO mode and the START SCALE FILL FROM BINS button is pressed on the Main screen.

5. UNDERBIN #2 CONVEYOR Control Module (optional): This module controls the function of the underbin #2 conveyor. The HAND button will place the underbin #2 conveyor in the manual mode of operation. The OFF button will turn the associated device in the OFF mode of operation. The AUTO button will place the device in the automatic mode of operation. The motor will not operate in this function unless all other devices are in the AUTO mode and the START SCALE FILL FROM BINS button is pressed on the Main screen. This button will only be present if the bin site system has a second underbin conveyor.

H-O-A Button Descriptions

6. TRANSFER CONVEYOR Control Module (optional): This module controls the function of the transfer conveyor. The HAND button will place the transfer conveyor in the manual mode of operation. The OFF button will turn the associated device in the OFF mode of operation. The AUTO button will place the device in the automatic mode of operation. The motor will not operate in this function unless all other devices are in the AUTO mode and the START SCALE FILL FROM BINS button is pressed on the Main screen. This button will only be present if the bin site system has a transfer conveyor.

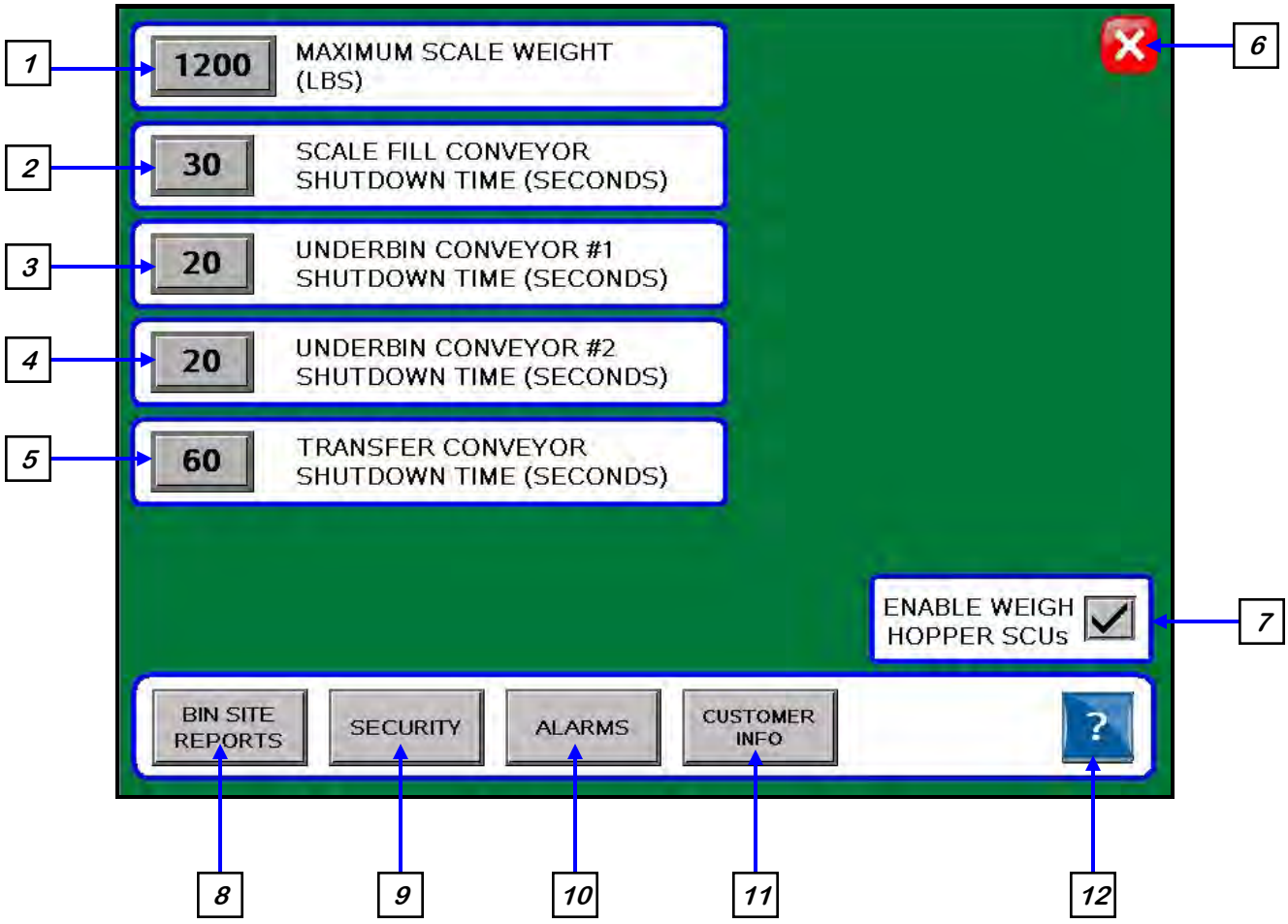
7. DIVERTER Control Module (optional): This module controls the function of the diverter. The module allows the operator to choose if the diverter is in the TREAT or BYPASS mode. In TREAT mode seed will be run through the treater and in BYPASS mode seed will be diverted so that it does not pass through the treater. This module will only be present if the bin site system has a diverter.

8. Screen EXIT Button: This button is used to exit back to the previous screen. Its functionality is the same throughout the HMI display.

9. BIN SLIDE GATES Control Module: This module allows the operator to manually control the operation of the slide gates that are located underneath each bin. The bin slide gates will be opened and closed automatically when the operator presses the START SCALE FILL FROM BINS button on the main screen.

UTILITIES SCREEN

This screen allows the operator to set various system parameters and gives access to the Reports, Security and Alarms screens.



NOTICE

When buttons 1-5 are pressed, a numeric touch pad (right) will appear allowing the operator to enter in a number for that particular parameter.

Utilities Screen Button Descriptions

1. MAXIMUM SCALE WEIGHT: Pressing this button allows the operator to adjust the maximum amount of seed that the scale can hold.

2. SCALE FILL CONVEYOR SHUTDOWN TIME: Pressing this button allows the operator to adjust the shutdown time of the scale fill conveyor. This timer will begin once the underbin conveyor has shutdown and will allow the scale fill conveyor to clean itself out.

3. UNDERBIN #1 CONVEYOR SHUTDOWN TIME: Pressing this button allows the operator to adjust the shutdown time of the underbin #1 conveyor. This timer will begin once the bin slide gate has closed and will allow the underbin conveyor to clean itself out.

4. UNDERBIN #2 CONVEYOR SHUTDOWN TIME (optional): Pressing this button allows the operator to adjust the shutdown time of the underbin #2 conveyor. This timer will begin once the bin slide gate has closed and will allow the underbin conveyor to clean itself out. This button will only be present if the bin site system has a second underbin conveyor.

5. TRANSFER CONVEYOR SHUTDOWN TIME (optional): Pressing this button allows the operator to adjust the shutdown time of the transfer conveyor. This timer will allow the Pro Box hopper to clean itself out. This button will only be present if the Pro Box hopper is being used.

6. Screen EXIT Button: This button is used to exit back to the previous screen. Its functionality is the same throughout the HMI display.

7. ENABLE WEIGH HOPPER SCU's: Checking the box changes the weigh hopper units of measurement to Seed Count Units.

8. BIN SITE REPORTS Button: This button advances the operator to the Bin Site Reports screen.

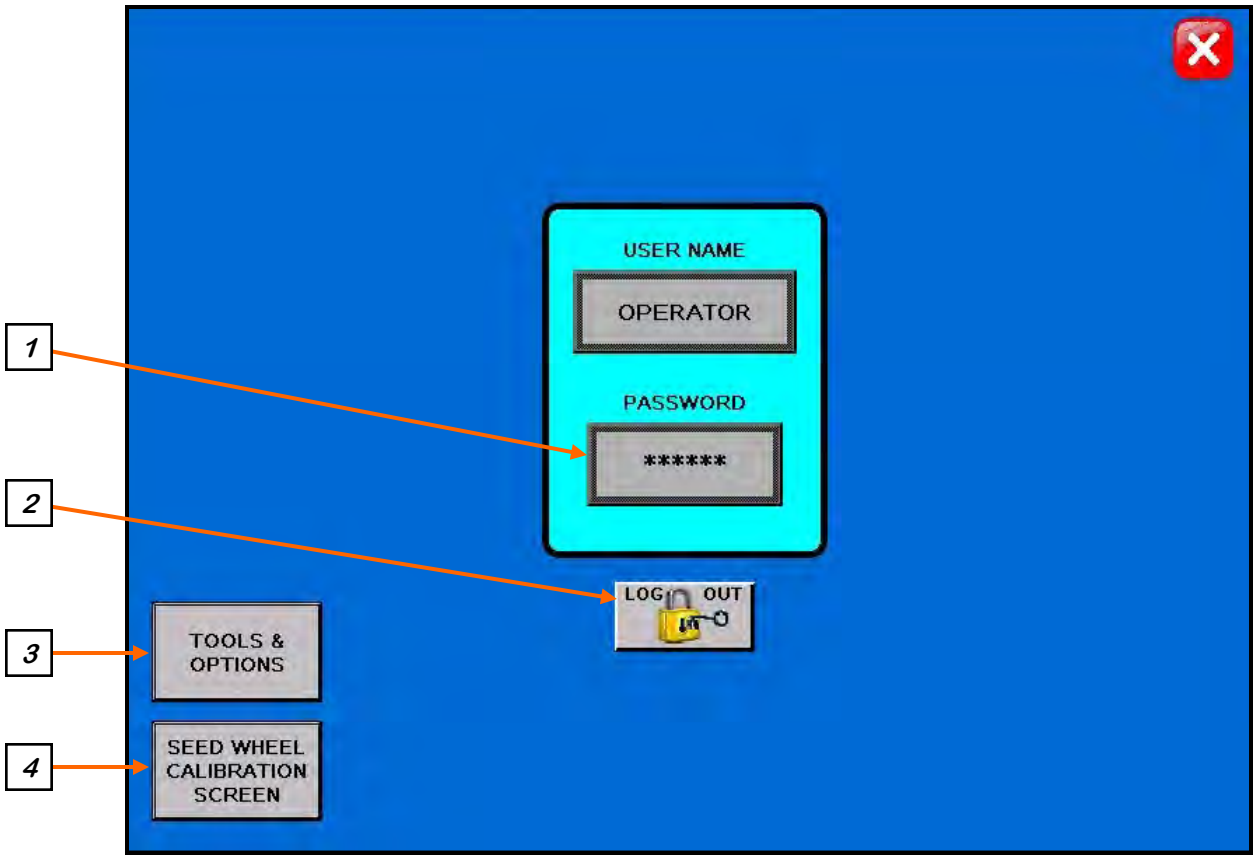
9. SECURITY Button: This button advances the operator to the Security screen.

10. ALARMS Button: This button advances the operator to the Alarms screen.

11. CUSTOMER INFO Button: This button advances the operator to the customer information screen.

12. HELP SCREEN Button: This button advances the operator to the help screen where they can choose from a variety of help topics. Alarms, Troubleshooting etc.

SECURITY SCREEN



Security Screen Button Descriptions

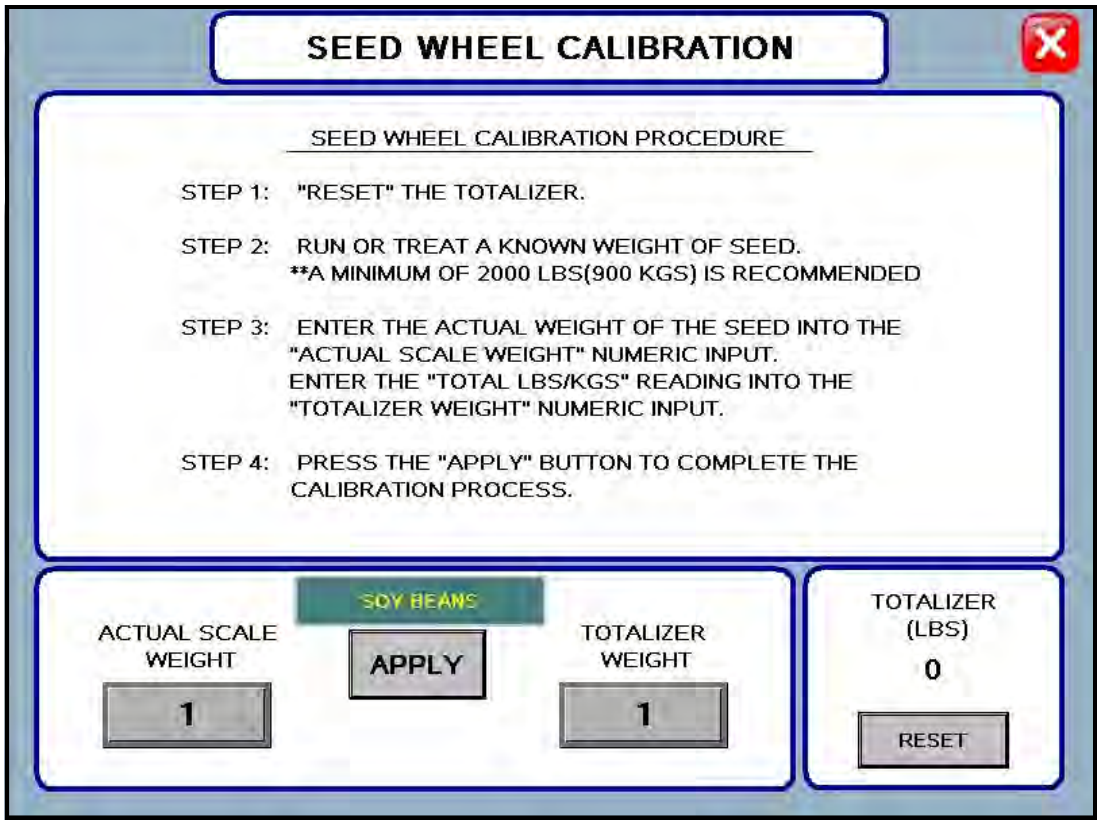
1. PASSWORD Entry: The operator uses this input to obtain access to ALL options on this screen. When this button is pressed a keypad (right) will appear on the screen The pass-code is ***USC*** and should only be made accessible to personnel qualified to operate the bin site system. The User Name will stay OPERATOR.

Security Screen Button Descriptions

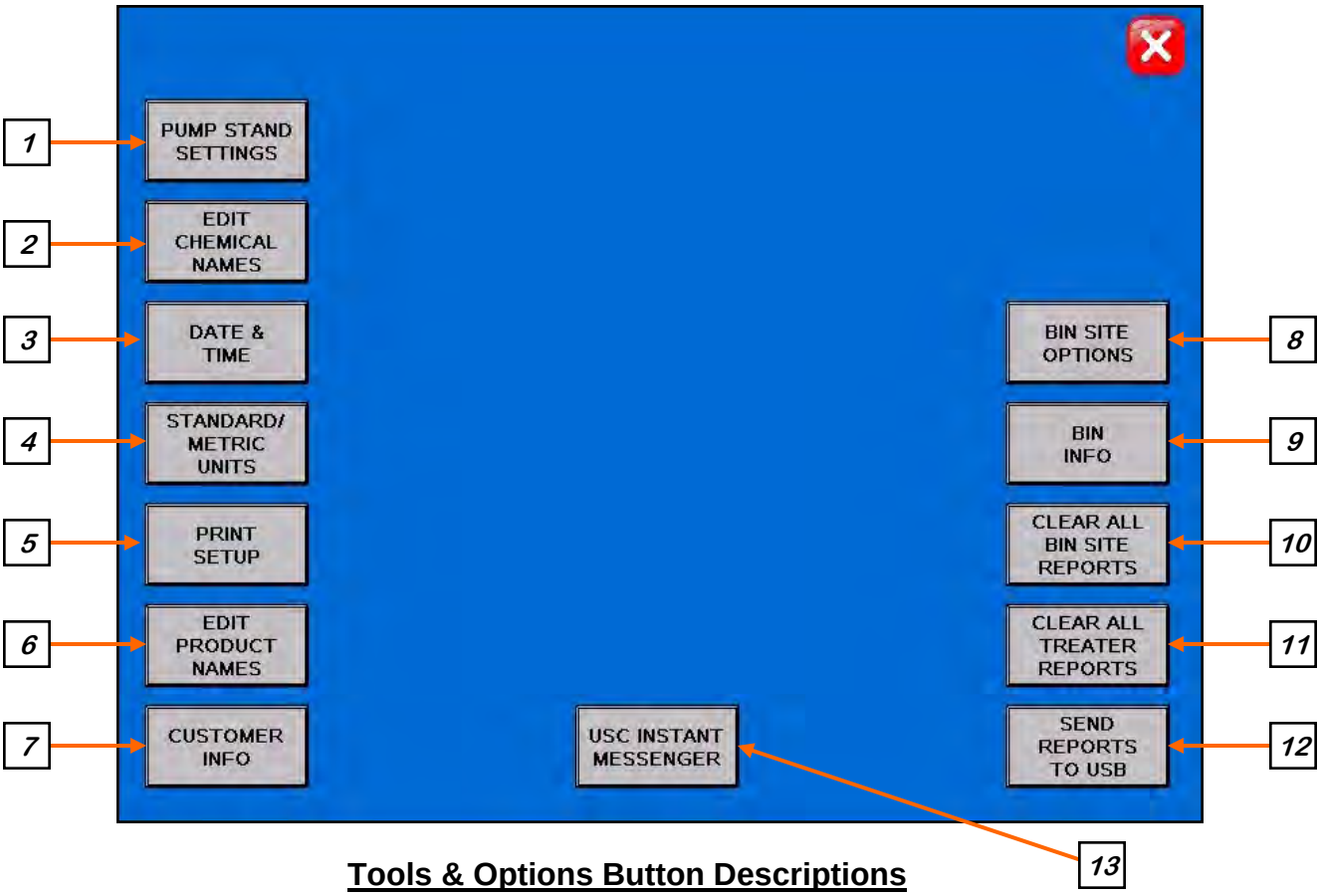
2. LOGOUT Button: Pressing this button will log the operator out of the Security screen. However, the operator will be automatically logged out after 1 minute of no activity on the touch screen.

3. TOOLS & OPTIONS: Pressing this button will advance the operator to the Tools & Options screen if the password has been entered.

4. SEED WHEEL CALIBRATION SCREEN (OPTIONAL): Pressing this button will advance the operator to the Seed Wheel Calibration screen (below) if the password has been entered. This option only appears if the bin site system is working in conjunction with a USC PLC based seed treater.

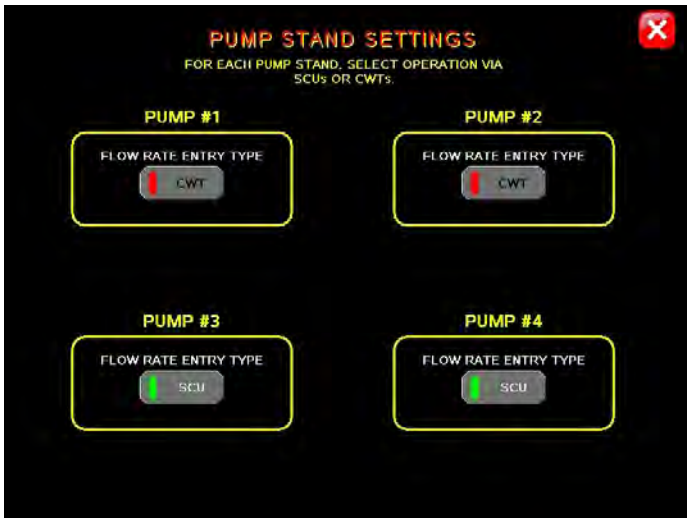


TOOLS & OPTIONS SCREEN



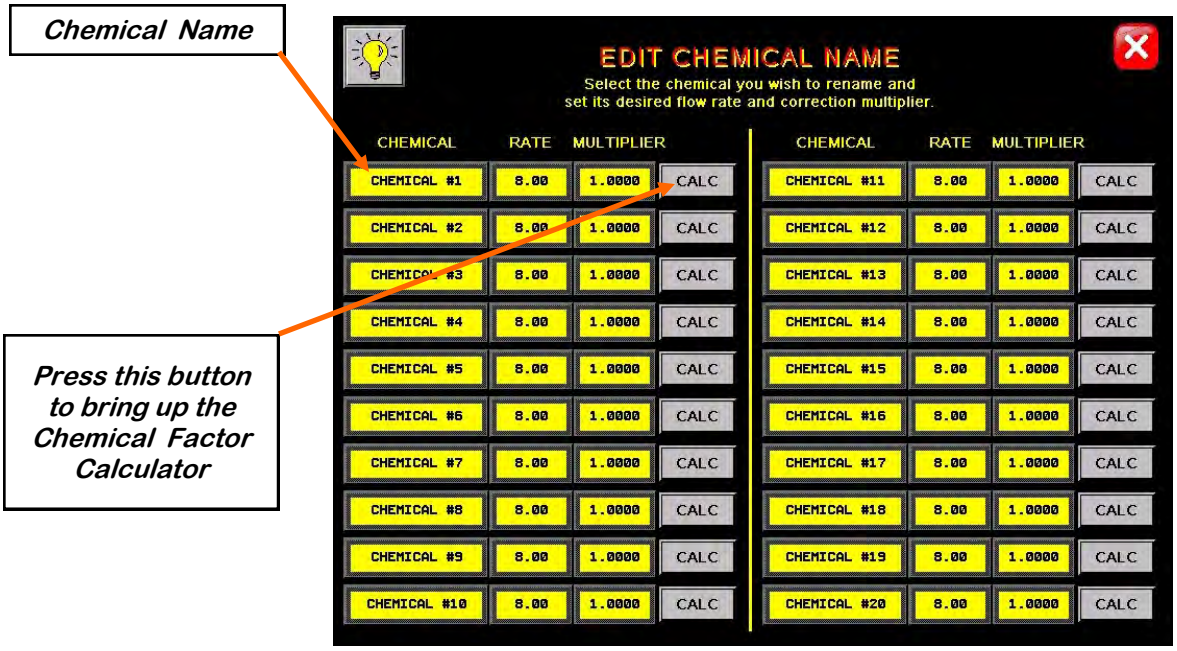
Tools & Options Button Descriptions

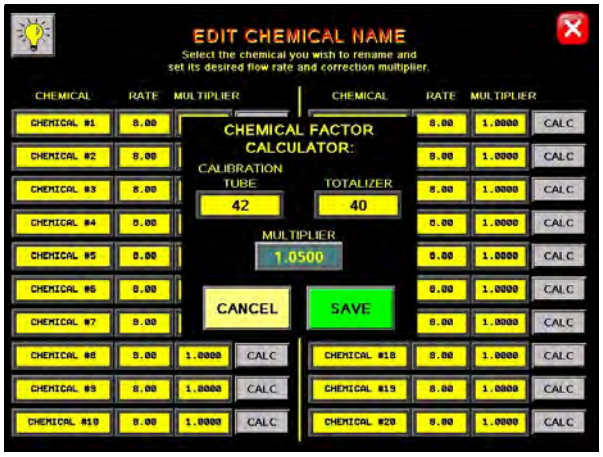
1. PUMP STAND SETTINGS: This button advances the operator to the Pump Stand Settings screen where the Flow Rate Entry Type can be set for cut weight or seed count units and the Flow Rate Display can be set for ounces per minute or ounces per cut weight for each individual Pump Stand.

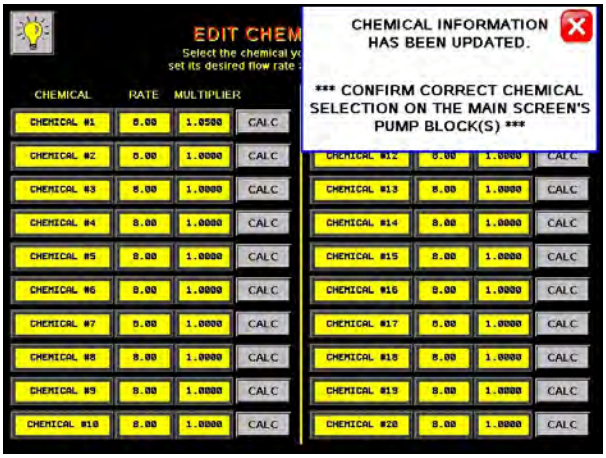


Tools & Options Screen Button Descriptions

2. EDIT CHEMICAL NAMES: Allows the operator to change the chemical names to better fit their needs. Pressing this button will advance the operator to the Edit Chemical Name screen (top) . Selecting one of the Chemical buttons brings up an alpha numeric screen to enter the desired name. Pressing the CALC button for that chemical name brings up the Chemical Factor Calculator window (bottom left). From this screen the operator can determine the chemical multiplier by entering the Calibration Tube amount and the Totalizer amount. Press save and the multiplier is automatically calculated and entered. Another window will prompt the operator to verify this information on the main screen Pump Stand module (bottom right).

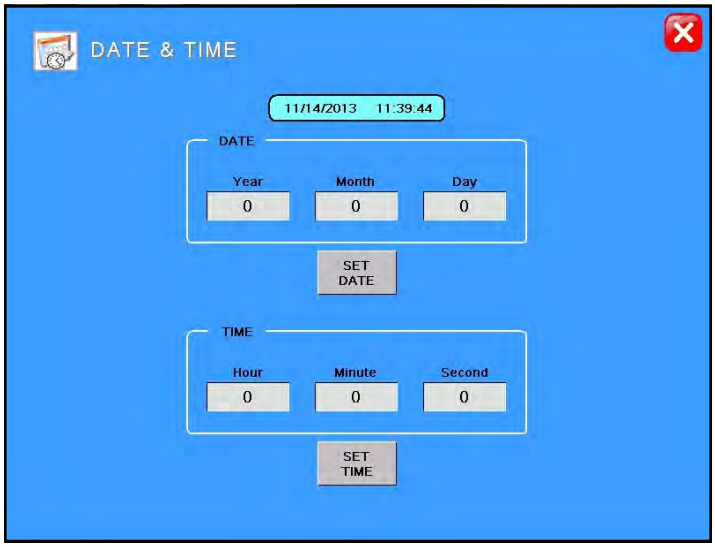




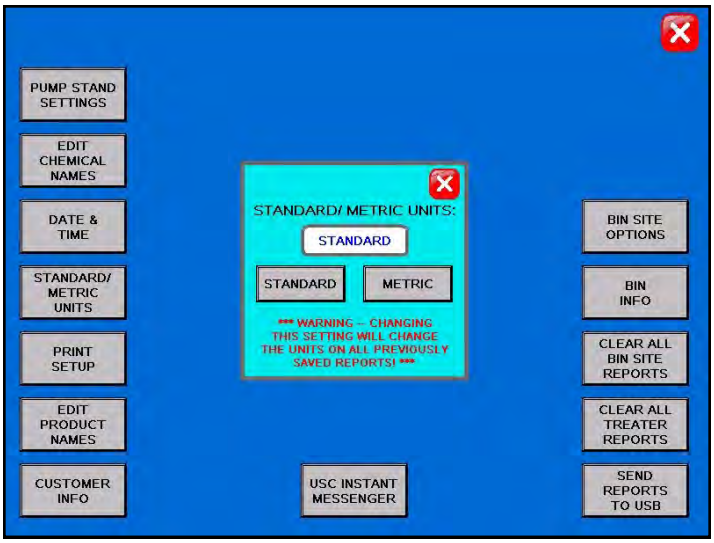


Tools & Options Screen Button Descriptions

3. DATE & TIME: Allows the operator to set the date and time.

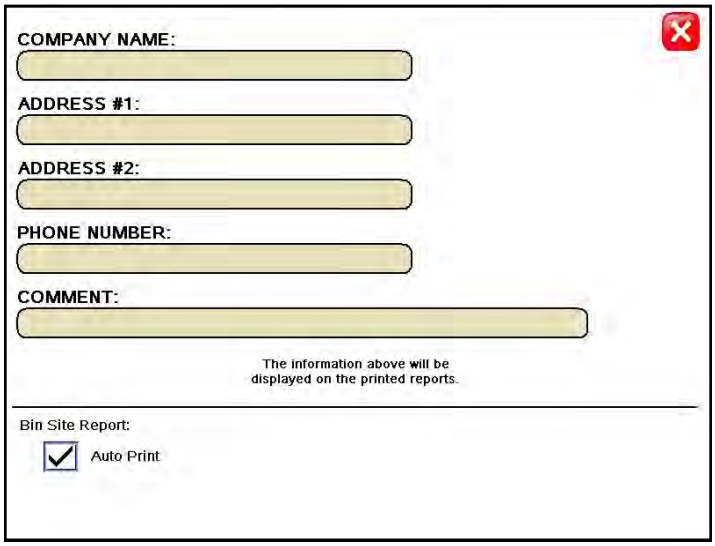


4. STANDARD/METRIC UNITS: Allows the operator to switch between Standard or Metric units of measurement. When this button is pressed a window will appear (below) which will allow the operator to the select the desired units of measurement.



Tools & Options Screen Button Descriptions

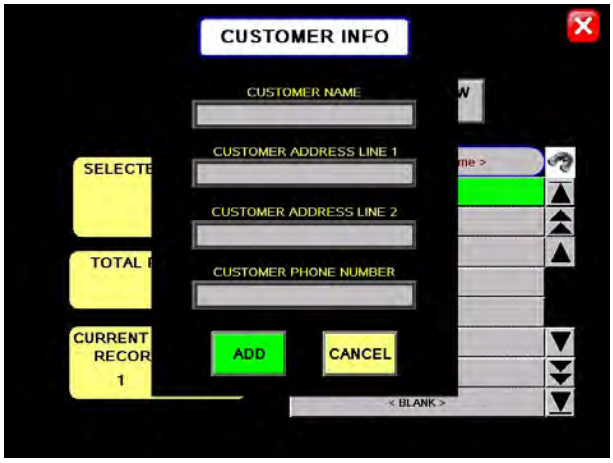
5. PRINT SETUP: Allows the operator to set up their personal company information which will be printed at the top of each report. Pressing the button will advance the operator to the screen below. The company information can be entered by selecting the blank space under each heading. The operator may also check the Auto Print box to print a report for a customer every time a report is generated as well as how many copies the customer requires.



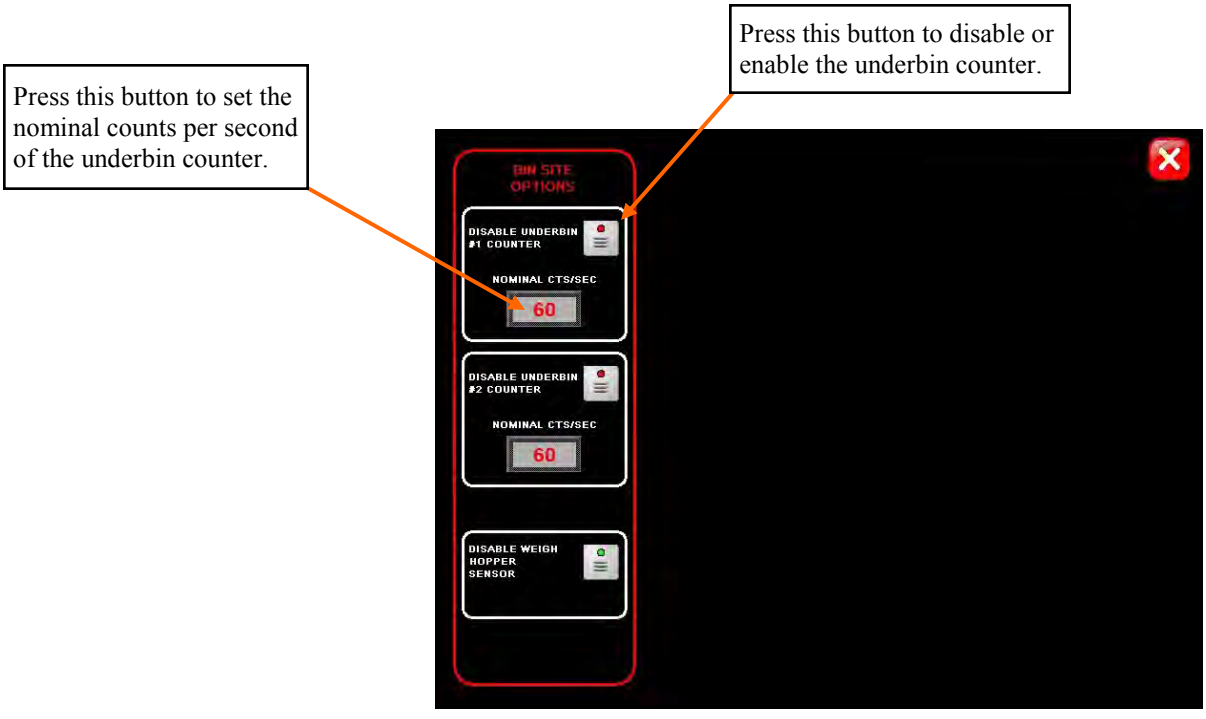
6. EDIT PRODUCT NAMES: Pressing the button will advance the operator to the Edit Product screen (top). Select one of the product name buttons and an alpha numeric popup will appear allowing the operator to change the name. Also, you may enter a value if you are using the Seed Count Unit of measurement.

Tools & Options Screen Button Descriptions

7. CUSTOMER INFO: Pressing the button will advance the operator to the Customer Info screen (bottom left). If you are looking for a specific customer you may press the < ENTER SEARCH NAME> button and key in the name or use the arrows to scroll through the listing. Selecting the CREATE NEW ENTRY button allows the operator to create a new customer listing. (top, right)

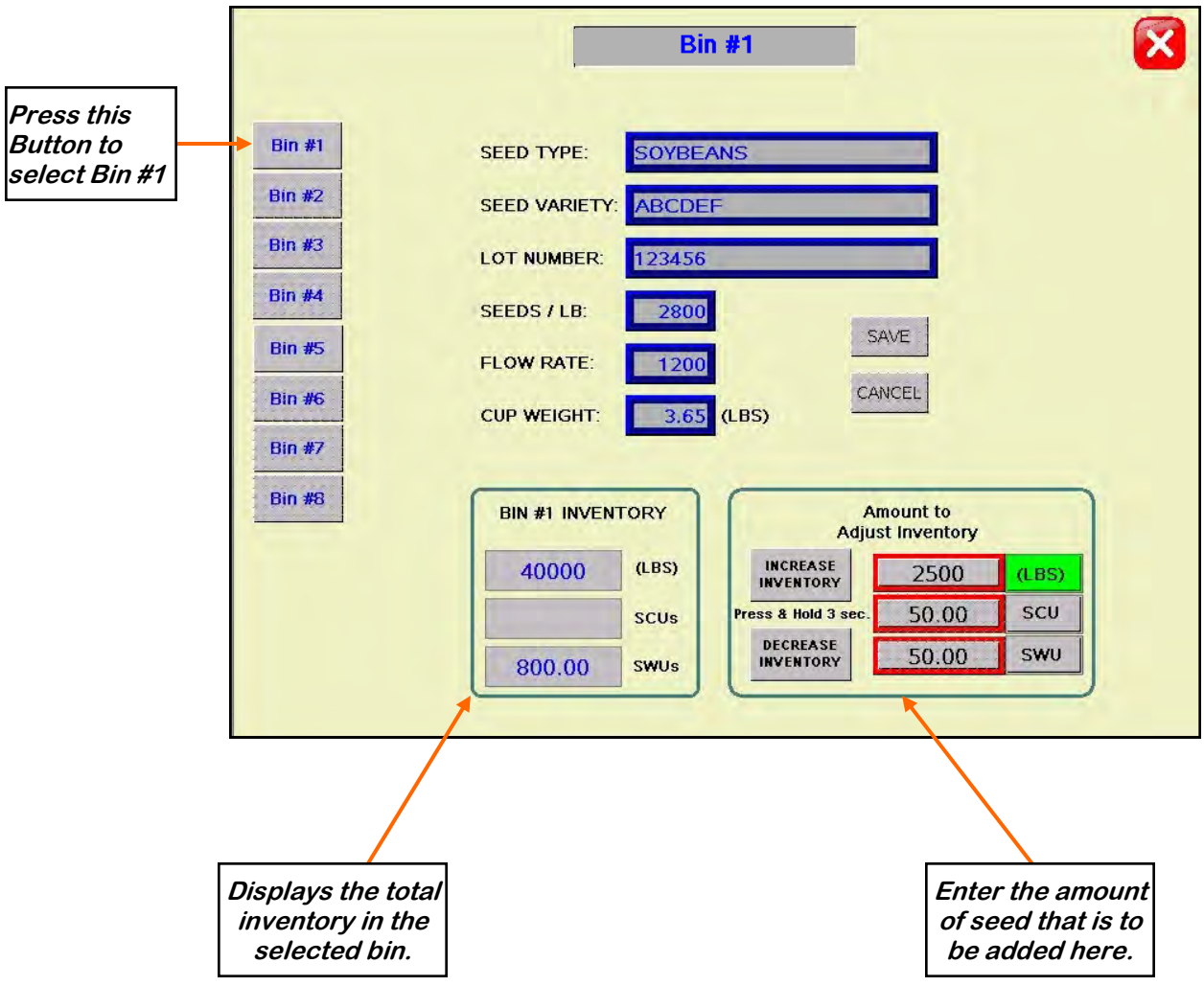


8. BIN SITE OPTIONS SCREEN: Allows the operator to disable or enable the underbin conveyor counter and set the expected counts per second for this counter. This allows the system to know when the underbin conveyor belt is slipping. When the button light is green the component is disabled.



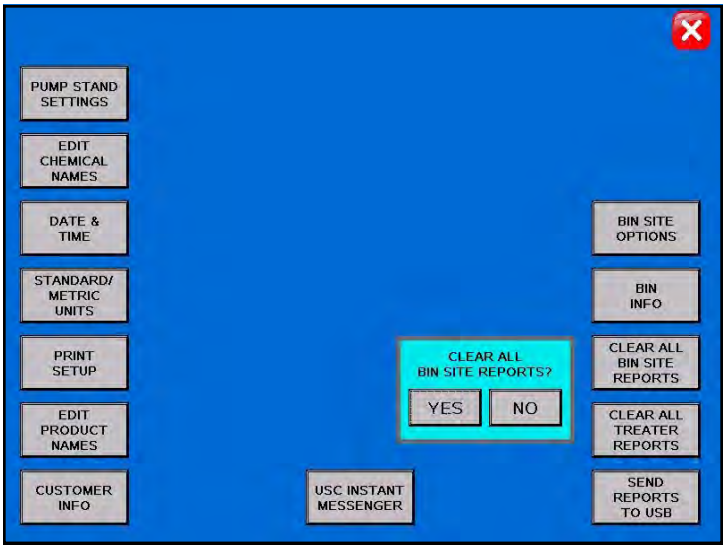
Tools & Options Screen Button Descriptions

9. BIN INFO: Pressing this button will advance the operator to the Bin Info screen. This screen allows the operator to select the bin that the information is to be entered into. Once the bin is selected, several more buttons will appear on the screen (below). The operator will then be able to enter in the seed type, seed variety, lot number, seeds per pound, flow rate and cup weight of the seed in the selected bin. A keypad will appear when the button next to any of these options is pressed. After entering this information the SAVE button must be pressed for the bin site system to retain the information. The inventory of the bin may also be entered on this screen. Enter the amount of inventory that is to be added/subtracted into the AMOUNT TO ADJUST INVENTORY BOX and then press and hold the INCREASE INVENTORY or the DECREASE INVENTORY box for 3 seconds. The total amount of inventory in the bin will be displayed in the box below the words BIN #1 INVENTORY.

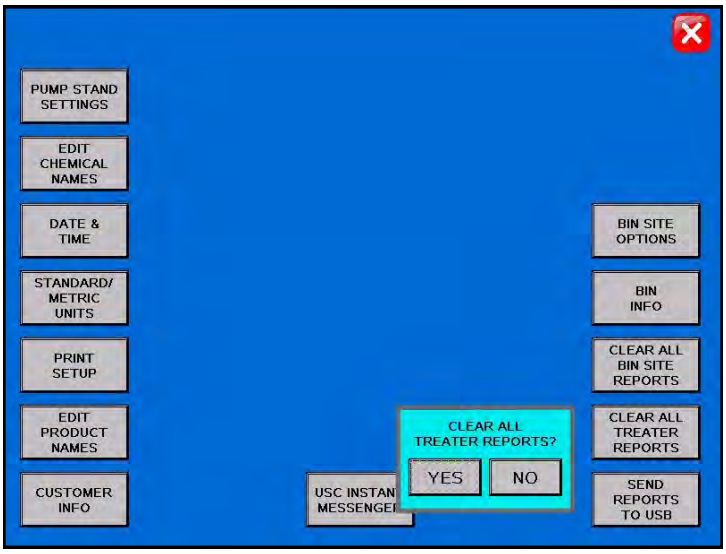


Tools & Options Screen Button Descriptions

10. CLEAR ALL BIN SITE REPORTS: Pressing this button will open a window which will ask the operator if he or she wants to clear all the saved bin site reports. If YES is pressed then the reports will be permanently erased. The operator MUST NOT leave the screen until all files have been cleared out.

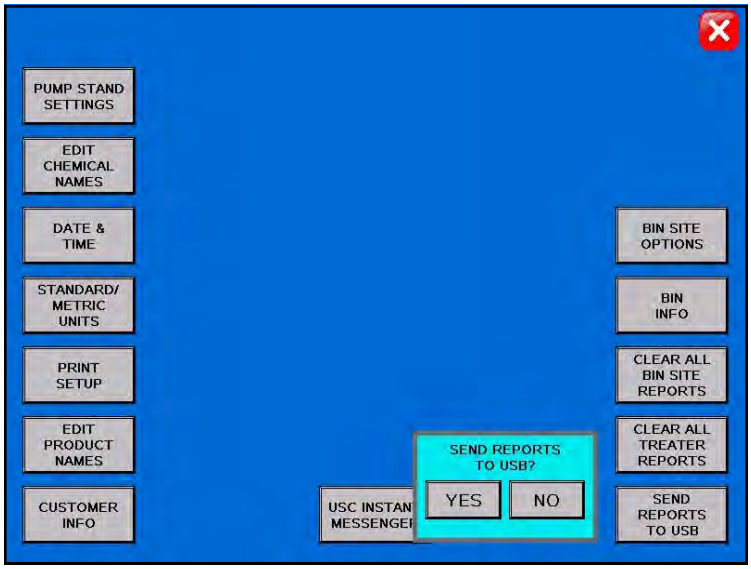


11. CLEAR ALL TREATER REPORTS (optional): Pressing this button will open a window which will ask the operator if he or she wants to clear all saved treater reports. If "YES" is pressed then the reports will be permanently erased. This option only appears if the bin site system is working in conjunction with a USC PLC based seed treater. The operator MUST NOT leave the screen until all files have been cleared out.

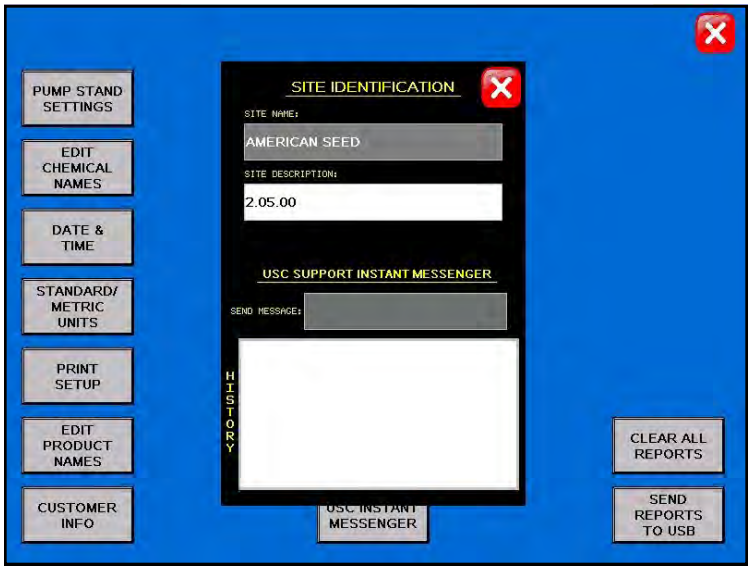


Tools & Options Screen Button Descriptions

12. SEND REPORTS TO USB: If a memory stick is present in the USB port, this button can be pressed and all the saved reports will be downloaded to the memory stick.



13. USC INSTANT MESSENGER: Pressing the button will advance the operator to the Instant Messenger screen. This feature uses U-Connect to allow the customer to communicate with the USC Technical Support staff.

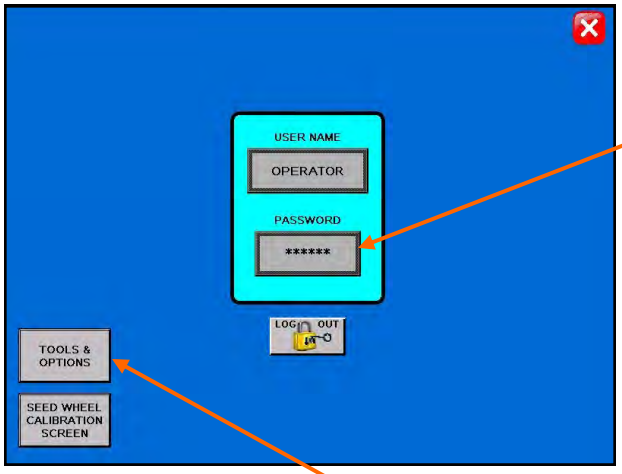


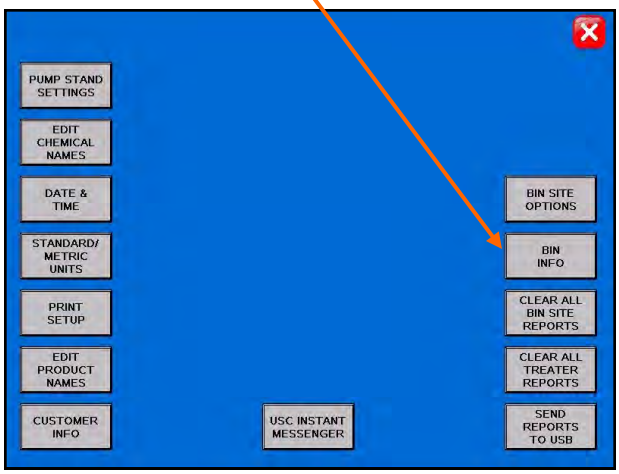
SECTION B OPERATION & CALIBRATION

LOADING SEED INTO BINS

Before seed is pulled out of the bins and run through the bin site system, information on each of the bins must first be entered into the bin site system. The following is a list of steps to perform to enter the bin information for each bin once seed has been loaded into that bin.

1. Load the seed into the bin. Take a seed sample for the cup weight of each bin at this time. Note the seed type, seed variety, lot number, seeds/lb, total inventory in pounds and cup weight of the seed that is loaded into the bin.
2. Press the UTILITIES button on the main screen of the bin site system.
3. Press the SECURITY button on the Utilities screen.
4. Enter the letters **USC** into the PASSWORD box then press the enter button.
5. Press the TOOLS & OPTIONS button on the Security screen.
6. Press the BIN INFO button.
7. Select the desired bin to enter the information into. (page 23)
8. Enter the recorded seed type, seed variety, lot number, seeds/lb, and cup weight of the seed in the bin into their respective box. Press the save button when all the information has been entered. (page 23)





9. Enter in the total weight of seed that was added to the bin into the bin inventory section on the lower portion of the screen. (page 23) The system will automatically subtract inventory after each run.
10. When finished, exit back to the Main screen.

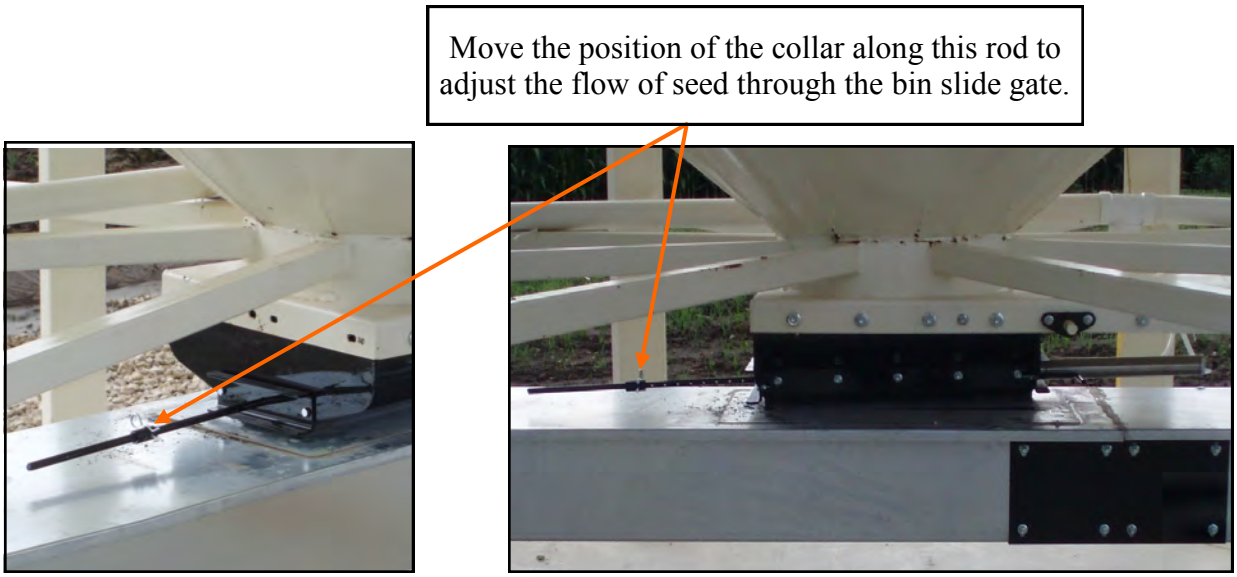
SETTING THE SEED FLOW RATE

The following is a list of steps for setting the seed flow rate. This must be completed before running the bin site system. Repeat steps 1 & 2 for each bin.

1. Set the manual gate on the bin to at least the half open position. Once opened, this gate should be set in place and not moved through out the entire season. If this gate is adjusted during a run or between runs then it will effect the calibration of the system and the system will need to be re-calibrated. (page 36)
2. Then, set the stop for the air actuated slide gate on the bin. This stop controls how far the slide gate will open and the speed at which seed can exit the bin. To set the stop, adjust the position of the collar on the rod that exits the slide gate opposite of the air valve (below). Placing the collar closer to the slide gate will restrict flow and farther away from the slide gate will increase seed flow for the system. Once a collar location has been selected, use the hitch pin to lock the collar in place. If the stop is adjusted between runs then it will effect the calibration of the system and the system will need to be re-calibrated. (page 36)

NOTICE It is recommended to initially place the collar closer to the slide gate and then move it farther away from the slide gate one hole at a time to increase the speed of the system. This will protect against overloading the underbin conveyor with seed.

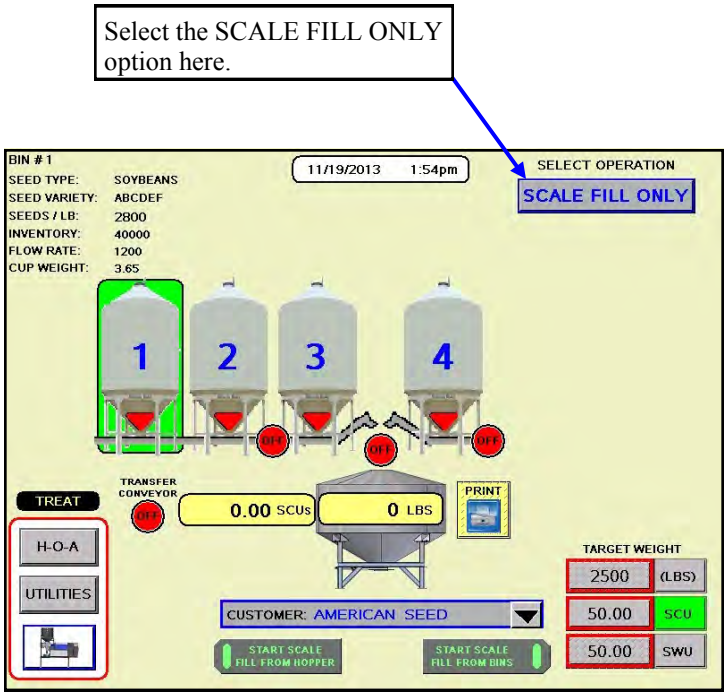
3. Finally, set the position of the manual slide gate that is located under the weigh hopper. This gate will control the flow of seed out of the weigh hopper by restricting the size of the opening from the weigh hopper. The more open the gate is, the faster seed will exit the weigh hopper. To set this gate, simply loosen the three nuts on the gate. Then adjust the gate to the desired position, and retighten the nuts.



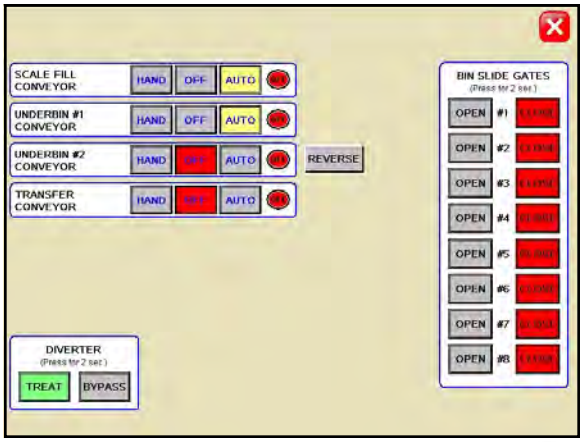
SCALE FILL ONLY

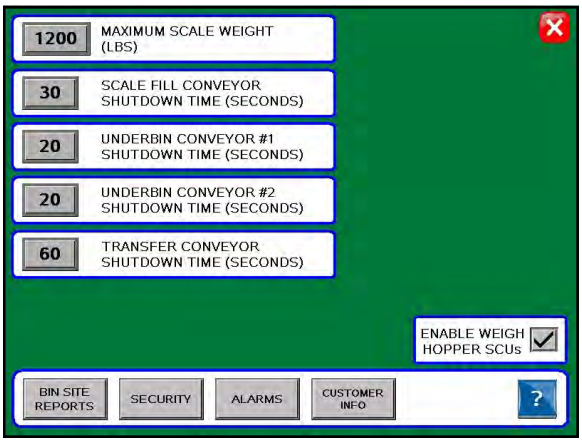
The following is a list of steps to use when running the bin site system in the SCALE FILL ONLY mode of operation. This mode of operation will automatically fill the scale.

1. In the upper right corner of the Main screen select the SCALE FILL ONLY option from the SELECT OPERATION menu. (right)
2. Select the bin that you wish to call seed from by pressing the image of the corresponding bin on the Main screen. (right)
3. On the Main screen, in the box labeled TARGET WEIGHT, enter the amount of weight in pounds, SCU's or SWU's that is to be brought into the weigh hopper on this run. (right)
4. Press the box labeled CUSTOMER in the center of the Main screen and enter in the current customer's name. (right)



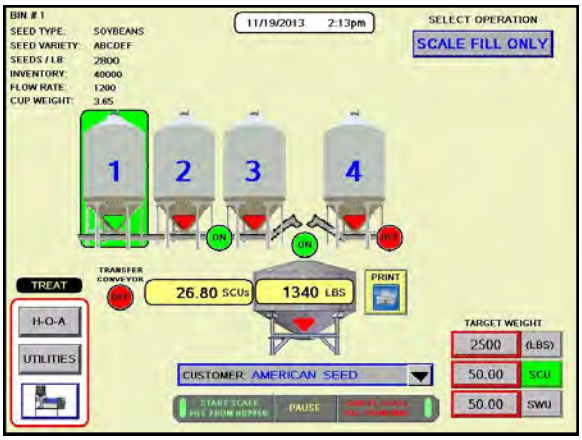
5. Under the H-O-A screen place all necessary conveyors into the AUTO mode of operation. (below, left) Ensure that the diverter is in the appropriate position as well.
6. Under the Utilities screen, ensure that all settings are appropriate. USC recommends that the conveyor shutdown time is not less than 15 seconds for any given conveyor. (below, right) This will ensure that the conveyors have time to clean themselves after the run.





SCALE FILL ONLY

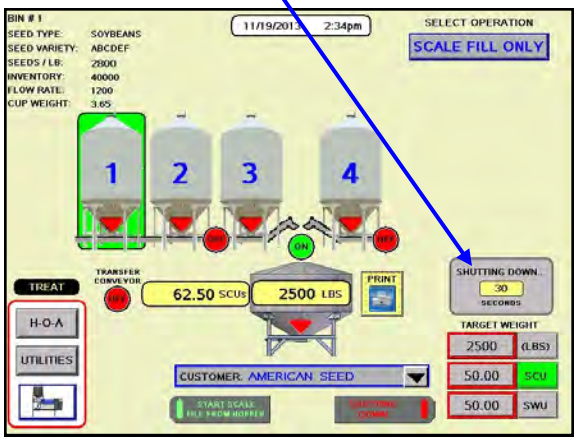
7. Return to the Main screen and press the START SCALE FILL FROM BINS button. The system will first turn on the scale fill conveyor and then the underbin conveyor. Once all needed conveyors are running, the slide gate for the selected bin will open and seed will flow through the conveyors to the scale hopper. (top)



8. As the bin site system is running, the Main screen will display the total pounds or SCU's of seed in the weigh hopper, the current position of the bin slide gates and the status of the conveyor motors. (top)

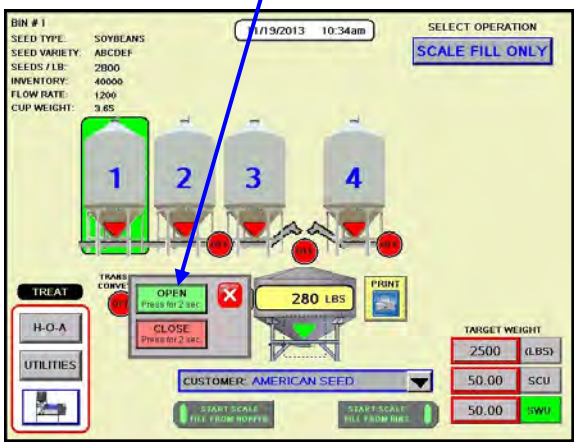
9. The slide gate on the bin will automatically close once the target weight in seed passes through the slide gate. (middle) Once the gate closes, a window will appear notifying the operator that the system will shut down after a specified amount of time. The system will then shutdown the conveyors in reverse order of startup. This will ensure the conveyors have an opportunity to clean out any product from them. Once the timer reaches zero the system will automatically calibrate itself based upon the weight of seed in the weigh hopper versus the target weight of seed for this run.

This timer displays the remaining time until shutdown.



10. To remove the seed from the weigh hopper, the operator will need to manually open the weigh hopper slide gate and convey the seed away from the hopper. (bottom)

Press the OPEN button to empty

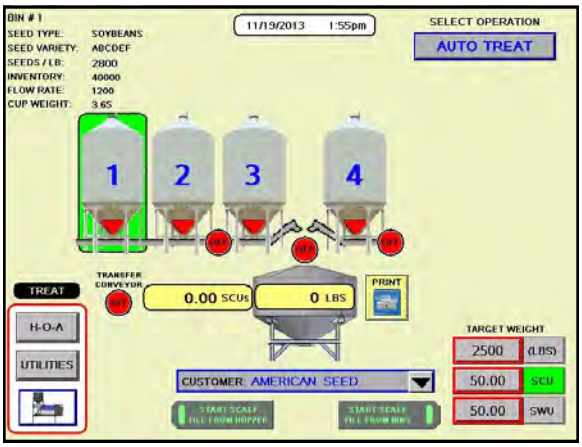


11. If the operator chose a target weight that is greater than the maximum scale weight setting, then the system will start the entire process back over until the target weight is met. Two conditions must be met before this process will re-start: the scale has to be empty and remain empty for at least five seconds and the weigh hopper slide gate must be in the CLOSED position.

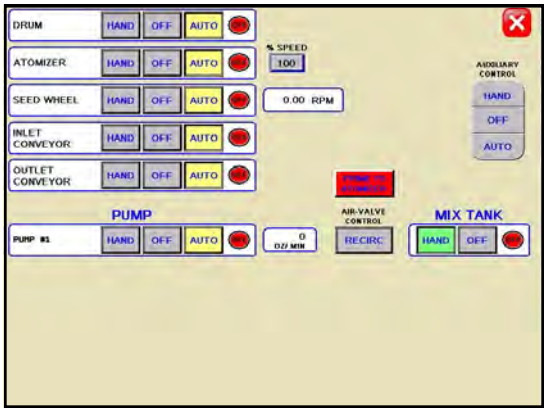
AUTO TREAT

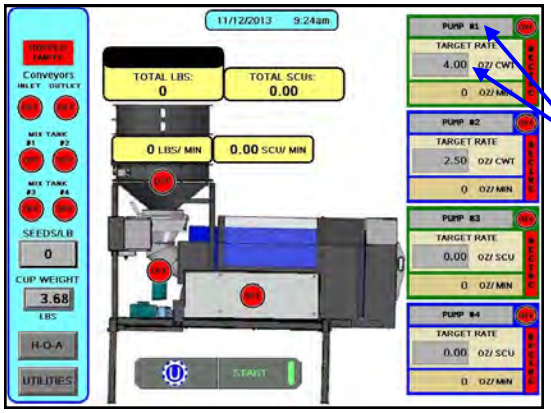
The following is a list of steps to use when running the bin site system in the AUTO TREAT mode of operation. This mode of operation will automatically fill the scale and run the seed through the treater. AUTO TREAT mode is only available if the bin site system is being run in conjunction with a PLC based USC treater.

1. In the upper right corner of the Main screen select the AUTO TREAT option from the SELECT OPERATION menu.



2. Select the bin that you wish to call seed from by pressing the image of the corresponding bin on the Main screen.
3. On the Main screen, in the box labeled TARGET WEIGHT, enter the amount of weight in pounds, SCU's or SWU's that is to be brought into the weigh hopper on this run.
4. Press the box labeled CUSTOMER in the center of the main screen and enter in the current customer's name.
5. Under the H-O-A screen place all necessary conveyors into the AUTO mode of operation. Ensure that the diverter is in the TREAT position as well. (bottom left)
6. Under the UTILITIES screen, ensure that all settings are appropriate. It is recommended that the conveyor shutdown time is not less than 15 seconds for any given conveyor. This will ensure that the conveyors have time to clean themselves after the run.
7. Press the TREATER button on the Main screen. Press the H-O-A button on the Main Treater screen. Then, enter in all needed information and place all needed motors on the treater to the AUTO position. (below, left) The seed type and cup weight information will be automatically inputted based on the bin info for the selected bin. The operator must manually enter the chemical name and rate into the appropriate boxes. (bottom, right) For more information on this step, refer to the treater manual.

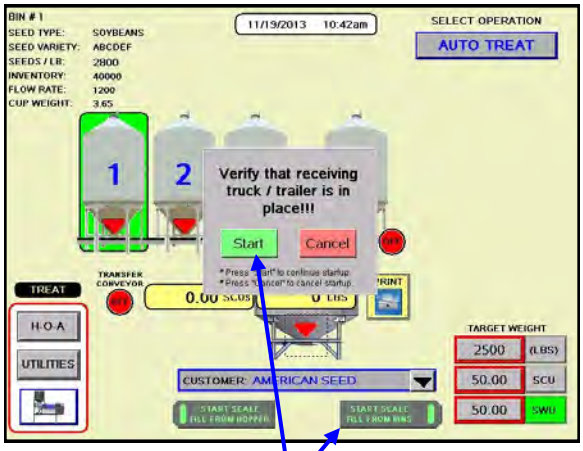




Press to enter the chemical name and rate when running the system in AUTO TREAT mode.

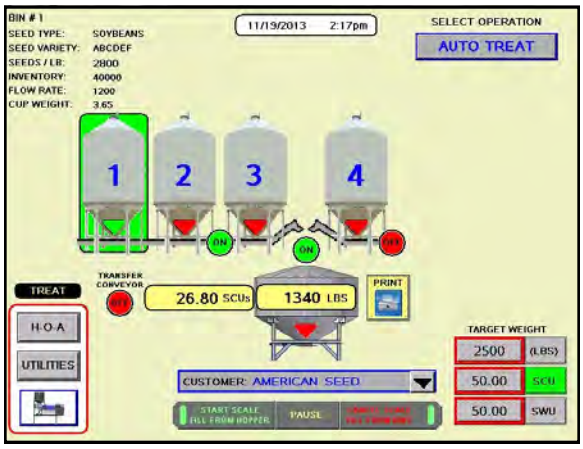
AUTO TREAT

8. Return to the Main screen and press the START SCALE FILL FROM BINS button. Then press the START button on the pop-up window, once it is verified that a truck or container is in place to catch the seed. (top) The system will first turn on the scale fill conveyor, then the underbin conveyor and then the underbin #2 conveyor (if applicable). Once all needed conveyors are running the slide gate for the selected bin will open and seed will flow through the conveyors to the scale hopper. (middle)



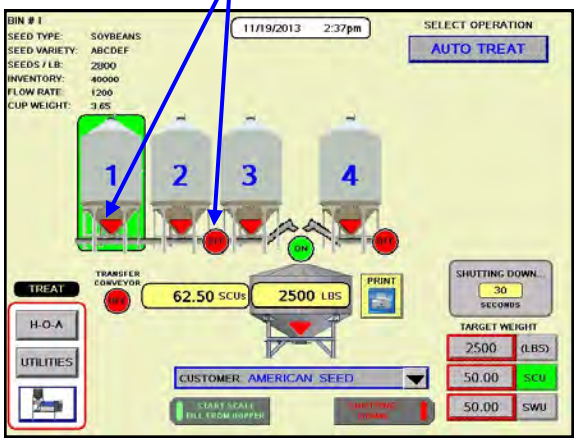
Press the START SCALE FILL FROM BINS and START button to begin the run.

9. As the bin site system is running, the Main screen will display the total pounds, SCU's or SWU's of seed in the weigh hopper, the current position of the bin slide gates and the status of the conveyor motors. (middle)



10. The slide gate on the bin will automatically close once the target amount in seed passes through the slide gate. Once the gate closes, a window will appear notifying the operator that the system will shut down after a specified amount of time. The system will then shutdown the conveyors in reverse order of startup. (bottom) This will ensure the conveyors have an opportunity to clean out any product from within them. Once the timer reaches zero the system will automatically calibrate itself based upon the weight of seed in the weigh hopper versus the target weight of seed for this run.

The system will automatically shutdown the bin slide gate and conveyors.

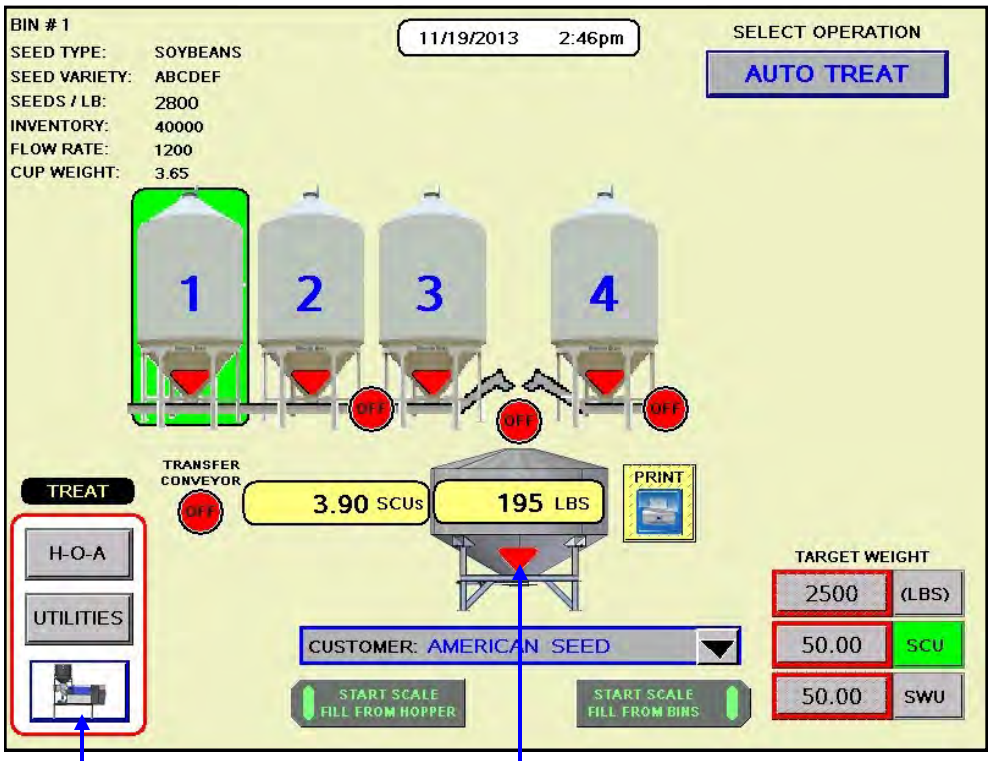


USC Seed Treating Solutions®

AUTO TREAT

11. The system will then automatically open the weigh hopper slide gate and start the treater.

12. As seed is running through the treater, the operator can view the treater Main screen by pressing the TREATER button on the bin site Main screen.



Press this button to advance to the treater Main screen.

The system will automatically open the slide gate and startup the treater.

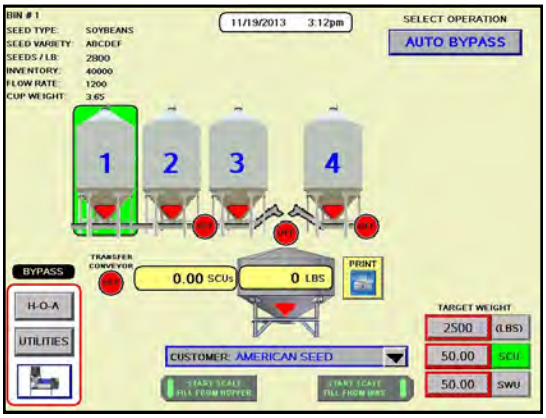
13. Once the scale has emptied and remains empty for five seconds and the seed wheel proximity sensors are no longer sensing seed, the bin site system will automatically close the weigh hopper slide gate and enter the treater into Shutdown mode.

14. If the operator chose a target weight that is greater than the maximum scale weight setting, then the system will start the entire process back over until the target weight is met.

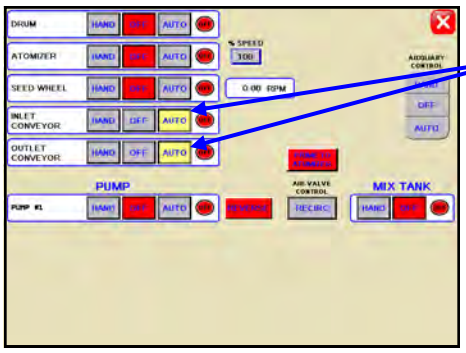
AUTO BYPASS

The following is a list of steps to use when running the bin site system in the AUTO BYPASS mode of operation. This mode of operation will automatically fill the scale and bypass seed through the diverter. AUTO BYPASS mode is only available if the bin site system has a diverter.

1. In the upper right corner of the Main screen select the AUTO BYPASS option from the SELECT OPTION menu. (top)
2. Select the bin that you wish to call seed from by pressing the image of the corresponding bin on the Main screen. (top)
3. On the Main screen, in the box labeled TARGET WEIGHT, enter the amount of weight in pounds, SCU's or SWU's that is to be brought into the weigh hopper on this run. (top)
4. Press the box labeled CUSTOMER in the center of the main screen and enter in the current customer's name. (top)

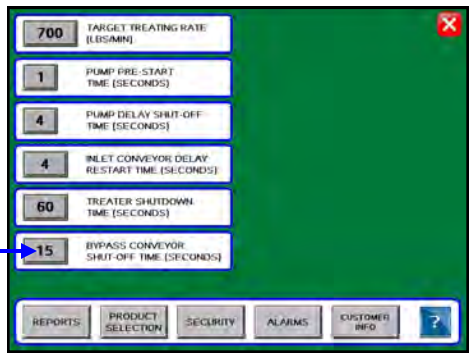


5. Under the Treater H-O-A screen place all necessary conveyors into the AUTO mode of operation. (top) Ensure that the diverter is in the BYPASS position as well.
6. Under the Utilities screen, ensure that all settings are appropriate. It is recommended that the conveyor shutdown time is not less than 15 seconds for any given conveyor. This will ensure that the conveyors have time to clean themselves after the run.
7. Select the TREATER button on the Main screen and place the inlet conveyor motor to the AUTO position mode. If the outlet conveyor is to be used to move seed after the seed travels through the diverter then place the outlet conveyor motor to the AUTO position as well. (bottom, left)
8. Under the treater Utilities screen, set the BYPASS CONVEYOR SHUT-OFF TIME (SECONDS) timer to an appropriate setting. (bottom, right) It is recommended that the shutdown time is not less than 15 seconds. This will ensure the conveyor has time to clean itself after the run.



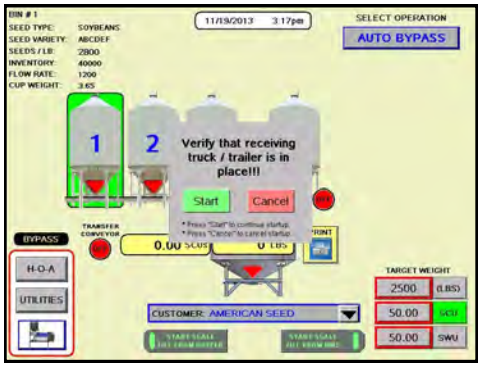
Place the conveyor motors in the AUTO mode.

Set the conveyor auto shutdown time here.



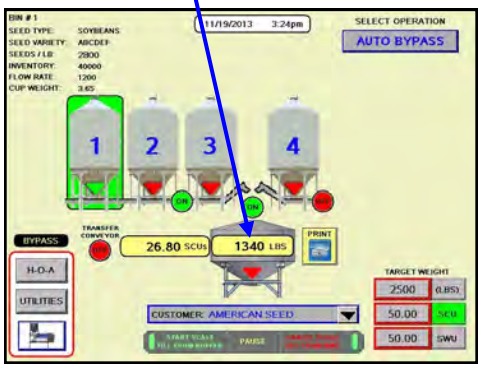
AUTO BYPASS

9. Return to the bin site Main screen and press the START SCALE FILL FROM BINS button. Then press the START button on the pop-up window once it is verified that a truck or container is in place to catch the seed. (right) The system will first turn on the scale fill conveyor, then the underbin conveyor and then the underbin #2 conveyor (if applicable). Once all needed conveyors are running the slide gate for the selected bin will open and seed will flow through the conveyors to the scale hopper.

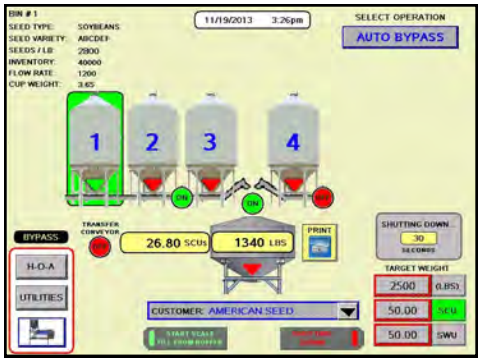


10. As the bin site system is running, the Main screen will display the total weight of seed in the weigh hopper in pounds, SCU's or SWU's. Also the current position of the bin slide gates and the status of the conveyor motors. (right)

The system displays the current weight of seed in the weigh hopper.

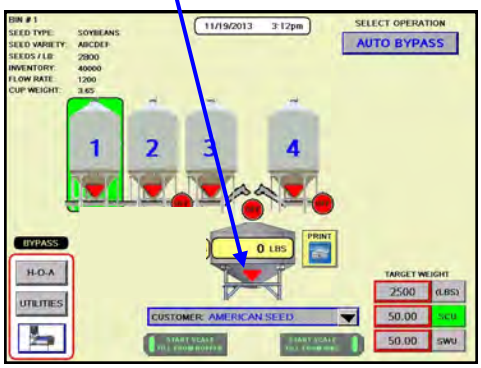


11. The slide gate on the bin will automatically close once the target weight in seed passes through the slide gate. Once the gate closes, a window will appear notifying the operator that the system will shut down after a specified amount of time. The system will then shutdown the conveyors in reverse order of startup. (right) This will ensure the conveyors have an opportunity to clean out any product from within them. Once the timer reaches zero the system will automatically calibrate itself based upon the weight of seed in the weigh hopper versus the target weight of seed for this run.



12. The system will then automatically open the scale hopper slide gate and start any conveyors that are in the AUTO mode. (right, bottom)

The system will automatically open the weigh hopper slide



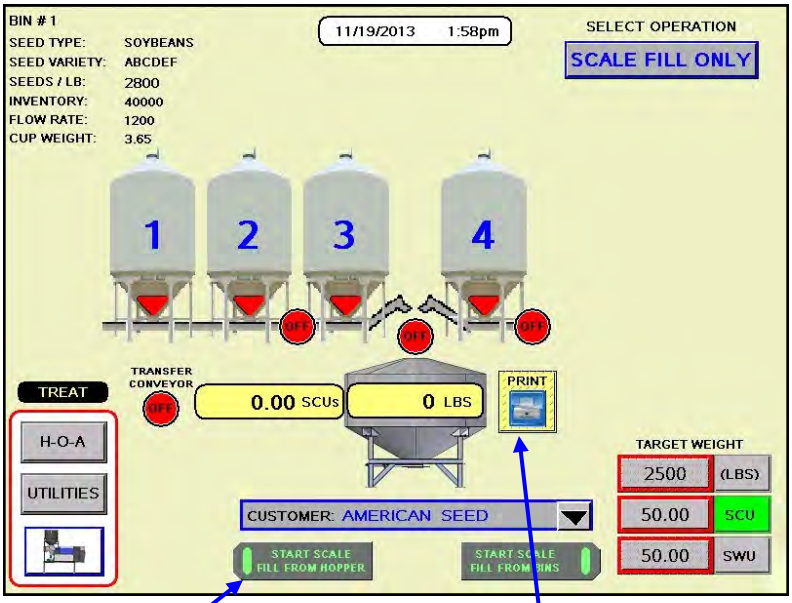
13. Once the scale has emptied and remains empty for five seconds the system will automatically close the weigh hopper slide gate and enter the conveyor(s) into the SHUTDOWN mode.

14. If the operator chose a target weight that is greater than the maximum scale weight setting, then the system will start the entire process back over till the target weight is met.

TREATING SEED FROM PRO BOXES

The following is a list of steps to use when running the bin site system using the START SCALE FILL FROM HOPPER button. This button will automatically move seed from the pro box hopper, via the transfer conveyor to the scale. The START SCALE FILL FROM HOPPER button is only available if the bin site system has a pro box hopper and transfer conveyor.

1. Under the H-O-A screen place all necessary conveyors into the AUTO mode of operation. Depending upon the setup of the equipment, some bin sites will require only the transfer conveyor or the scale fill conveyor to be in AUTO mode and some sites will require the transfer, underbin and scale fill conveyors to all be in the AUTO mode. Ensure that the diverter is in the appropriate position as well.
2. Under the Utilities screen, ensure that all settings are appropriate. It is recommended that the conveyor shutdown time is not less than 15 seconds for any given conveyor. This will ensure the conveyors have time to clean themselves after the run.
3. Return to the Main screen and press the START SCALE FILL FROM HOPPER button. (below) The system will first turn on the scale fill conveyor, then the underbin conveyor and then the transfer conveyor.
4. As the bin site system is running, the Main screen will display the total pounds of seed in the weigh hopper in pounds or SCU's. If the system needs to be stopped for a moment because of a problem. The PAUSE button may be pressed to halt the process. When ready to begin again, the CONTINUE button is pressed.
5. Once all of the seed has passed from the pro box hopper, through the conveyors and into the weigh hopper, press the STOP SCALE FILL FROM HOPPER button. At this point, the conveyors will shutdown in reverse order of startup.
6. After all of the conveyors have shutdown, press the PRINT button that is located next to the weigh hopper icon on the Main screen. (right) This will print the current weight of the seed in the weigh hopper.



Press the START SCALE FILL FROM HOPPER button to pull seed from the pro box hopper to the weigh hopper.

Press the PRINT button at any time to print the current weight in the scale.

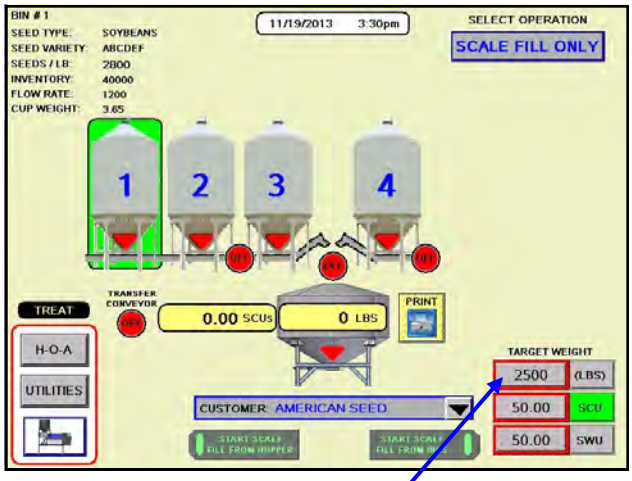
SCALE FILL CALIBRATION

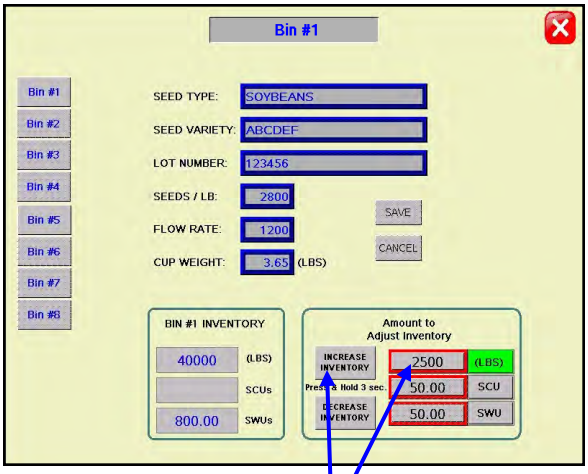
Every time the bin site system runs a batch of seed in AUTO mode, the system will perform a calibration. The calibration of the system is based upon a timing mechanism. The system compares the amount of time that the bin slide gate was in the OPEN position to the weight of seed that arrived in the weigh hopper for this batch. The system will automatically subtract any weight that was previously in the weigh hopper before the batch was run. This allows the system to know how many pounds of seed per second is traveling out through the conveyors. Once this number is known, the system can then figure out how long the bin slide gate should stay in the OPEN position in order to match the TARGET WEIGHT of seed that the operator has selected. Each bin has its own specific calibration that is performed and saved after every alarm free run that is run in the SCALE FILL ONLY, AUTO TREAT or AUTO BYPASS modes.

There are two ways to re-calibrate the system for a specific bin:

1. Run a small batch of seed. This will allow the system to automatically calibrate itself. The system will calibrate after every run of at least 201 pounds or kilograms for the TARGET WEIGHT and will only remember the most recent calibration. (below, left)
2. Increase the bin inventory by 1 or more units of weight (lbs/kgs). This will reset the system back to the factory setting for this particular bin's calibration. Then perform step #1 to achieve the correct calibration. This step should be used when the operator feels that the current calibration is incorrect by a large amount. (below right)

Additionally, you now have the ability to view and modify the seed flow rate directly from the Bin Info page for each individual bin by pressing the flow rate button at the center of the screen and changing the value.





The operator must enter a TARGET WEIGHT of at least 201 pounds or kilograms for the system to perform an auto calibration.

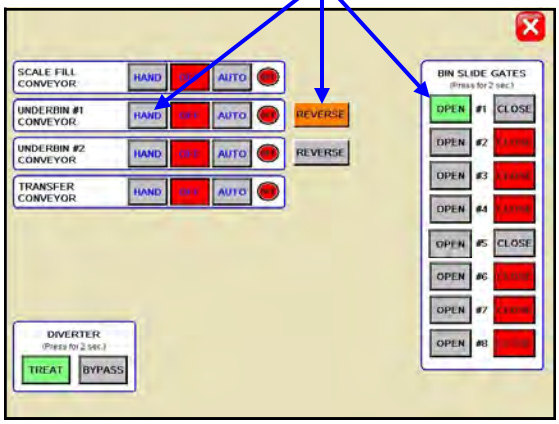
Increasing the inventory by at least 1 pound or kilogram for any given bin will reset the current calibration for that bin to the factory calibration setting.

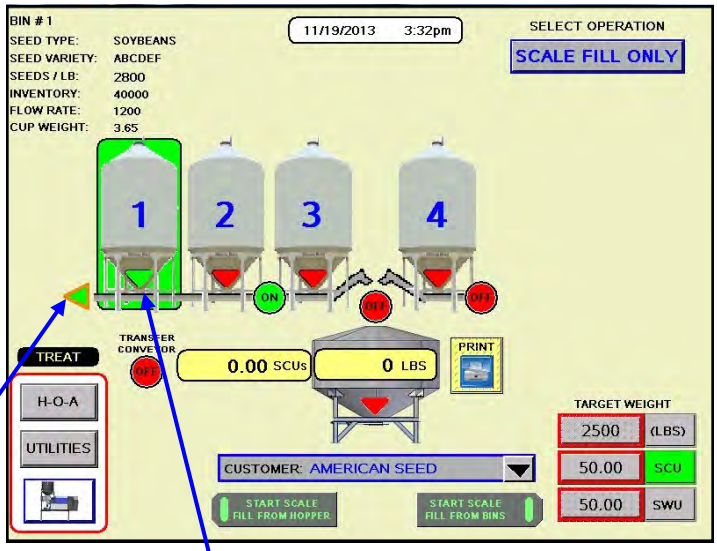
UNDERBIN OPERATION IN REVERSE MODE

The following is a list of steps to use when running the bin site system using the REVERSE mode. This mode of operation will allow the operator to clean out the underbin conveyor and to remove any excess seed from the bins at the end of the treating season. **ALWAYS ENSURE THE BELT IS IMMEDIATELY AND PROPERLY ALIGNED WHEN RUNNING IN REVERSE! BELTS WILL OFTEN SHIFT ALIGNMENT WHEN THEIR DIRECTION OF TRAVEL IS REVERSED.** The REVERSE button for the underbin conveyor will only be present if the bin site system has the reversing option for the underbin conveyor.

1. Place a conveyor and seed storage container under the reversing end of the underbin conveyor to catch seed as it exits the underbin conveyor. Turn that conveyor motor on.
2. Under the H-O-A screen place the underbin conveyor into the REVERSE mode of operation and press the HAND button. (top) Ensure that the belt on the underbin conveyor is correctly aligned.
3. Then, manually place the desired bin slide gate to the OPEN position. (top)
4. The Main screen will show the underbin conveyor running in reverse and the selected bin slide gate in the open position. (bottom)
5. Once all seed has passed through the underbin conveyor and into the seed container, place the open bin slide gate back to the CLOSED position.
6. Allow the underbin conveyor to run for at least 15 seconds. This will allow the underbin conveyor to clean itself out. Then place the underbin conveyor motor back to the OFF position.

Place the underbin conveyor in REVERSE, press the HAND button and place the bin slide gate to the OPEN position.





Reverse Indicator.

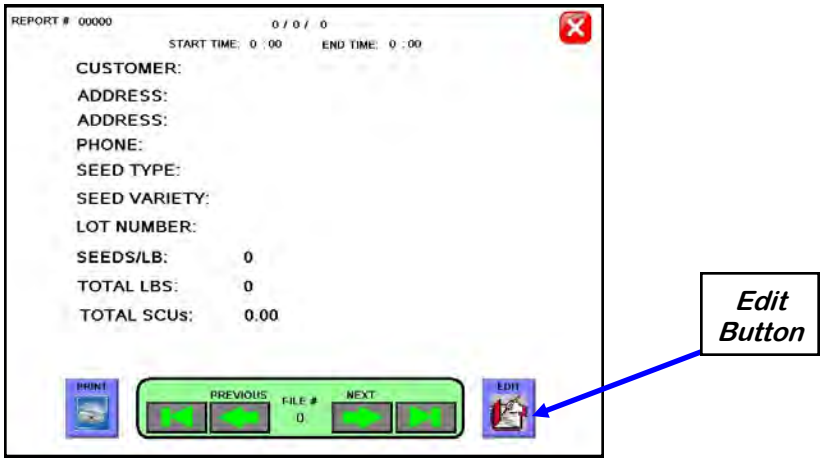
Slide Gate Indicator.

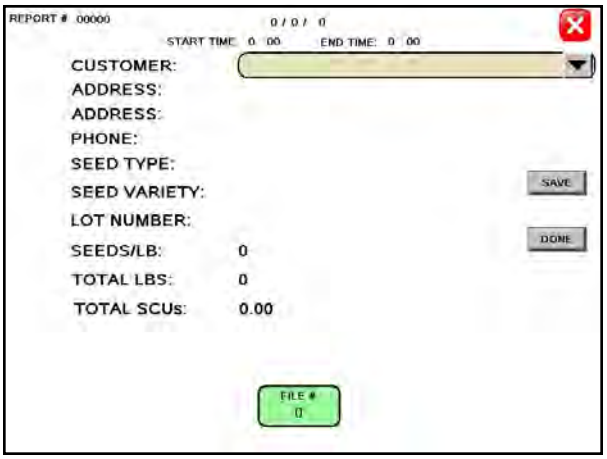
EDITING & PRINTING REPORTS

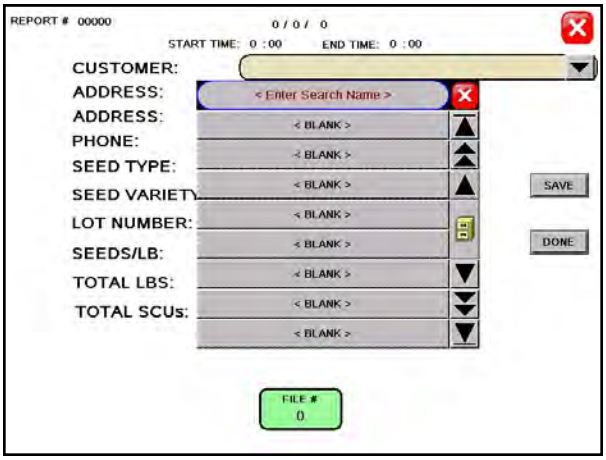
The following steps explain how reports are entered after a run has been completed.

1. After the SHUTDOWN button has been pressed a dialog box will appear (right), notifying the operator that the data from the run is being saved.

2. Once the data has been saved, the operator will be brought to a TREATER REPORTS screen (top). Under the reports screen, the customers information and seed information can be recorded and saved for later use. Press the EDIT button and go to the EDIT TREATER REPORTS screen (bottom left). From this screen you can change the customer name, seed variety, and lot number. Pressing the cells next to each piece of information will bring up a keypad which will allow the operator to enter in the information. Pressing the down arrow in the Customer cell brings up a rolodex to scroll through existing customer names. The operator can press the OK button to save the data.

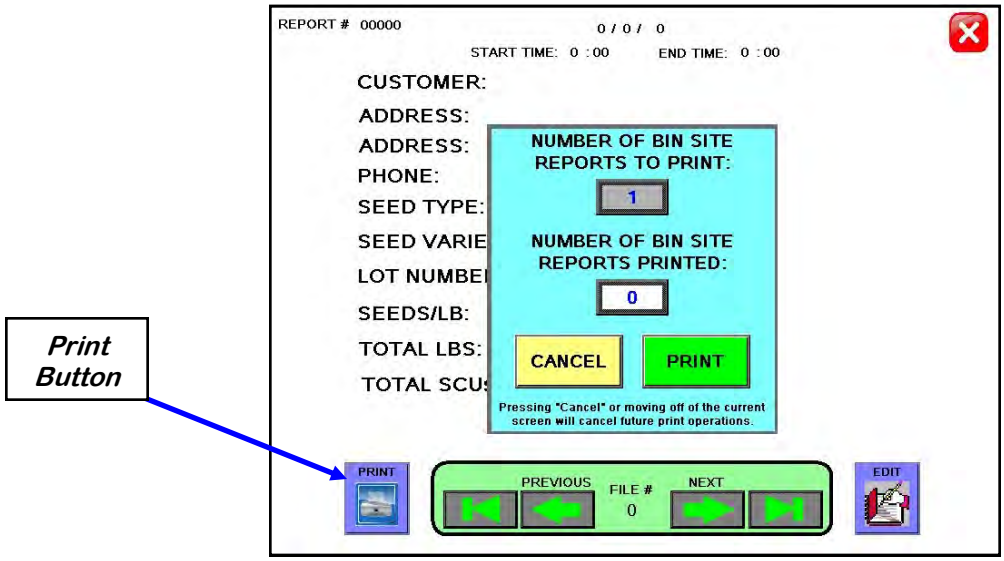




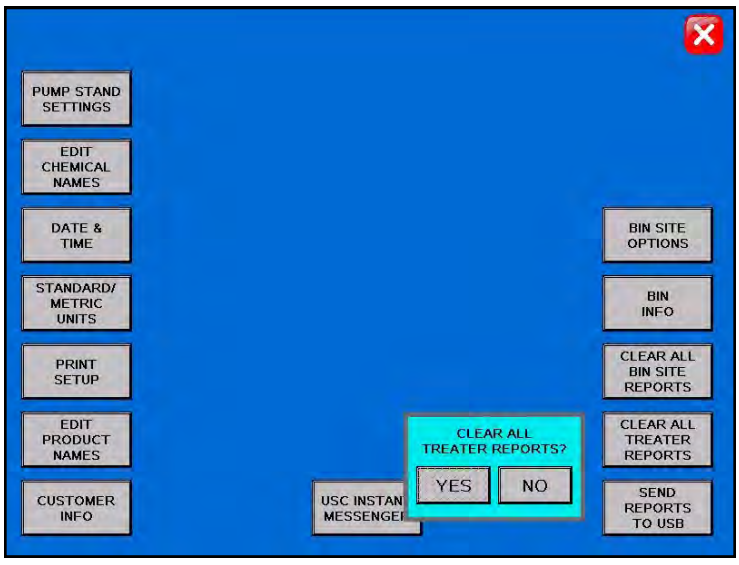


EDITING & PRINTING REPORTS

3. Press the PRINT button and a popup window appears. From this screen you can enter the number of reports to print for the customers records. Then press the X in the top right corner of the screen to exit back to the main screen.

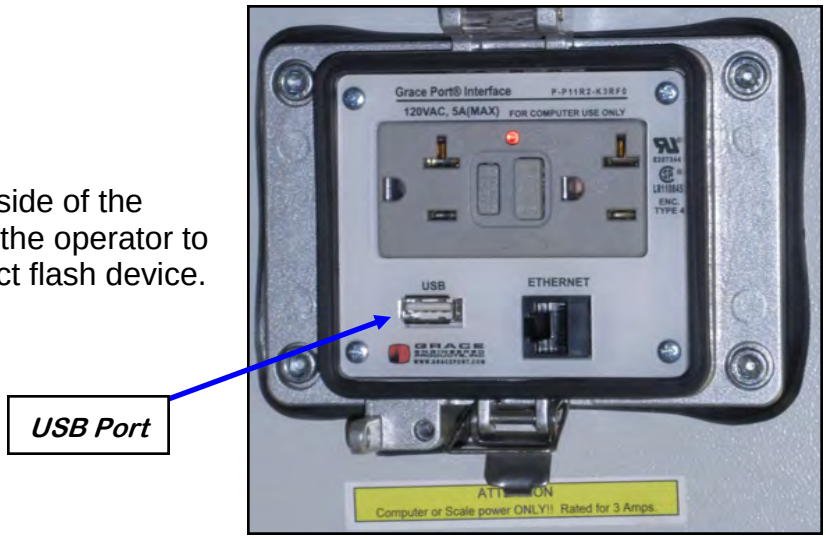


4. Once the data has been saved, the reports can be accessed later by pressing the REPORTS button on the UTILITIES screen. If you would like to erase the reports, press the SECURITY button under the UTILITIES screen to advance to the security screen. Enter the password **USC** and then press the TOOLS & OPTIONS button. From this screen press the CLEAR ALL REPORTS button. A confirmation window will appear allowing the operator to erase all saved reports.



DOWNLOADING REPORTS

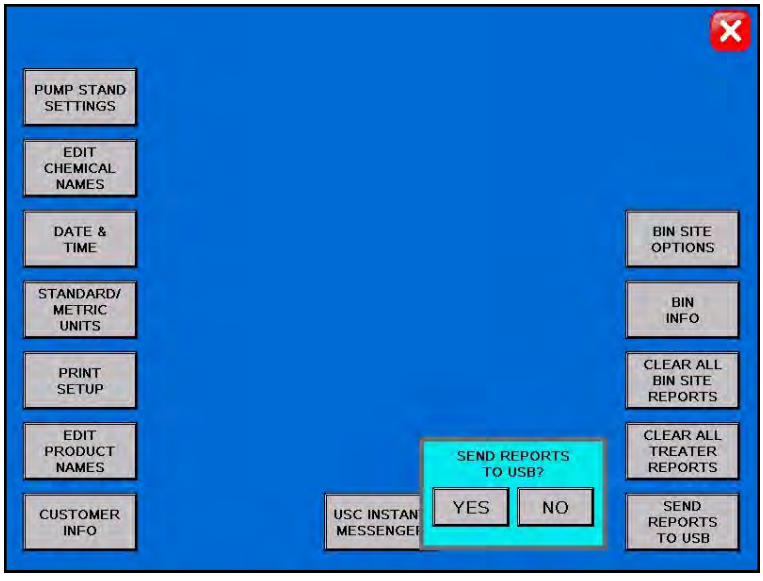
The USB port located on the side of the operator control panel allows the operator to download reports to a compact flash device.



USB Port

Use the following steps to upload reports to a computer.

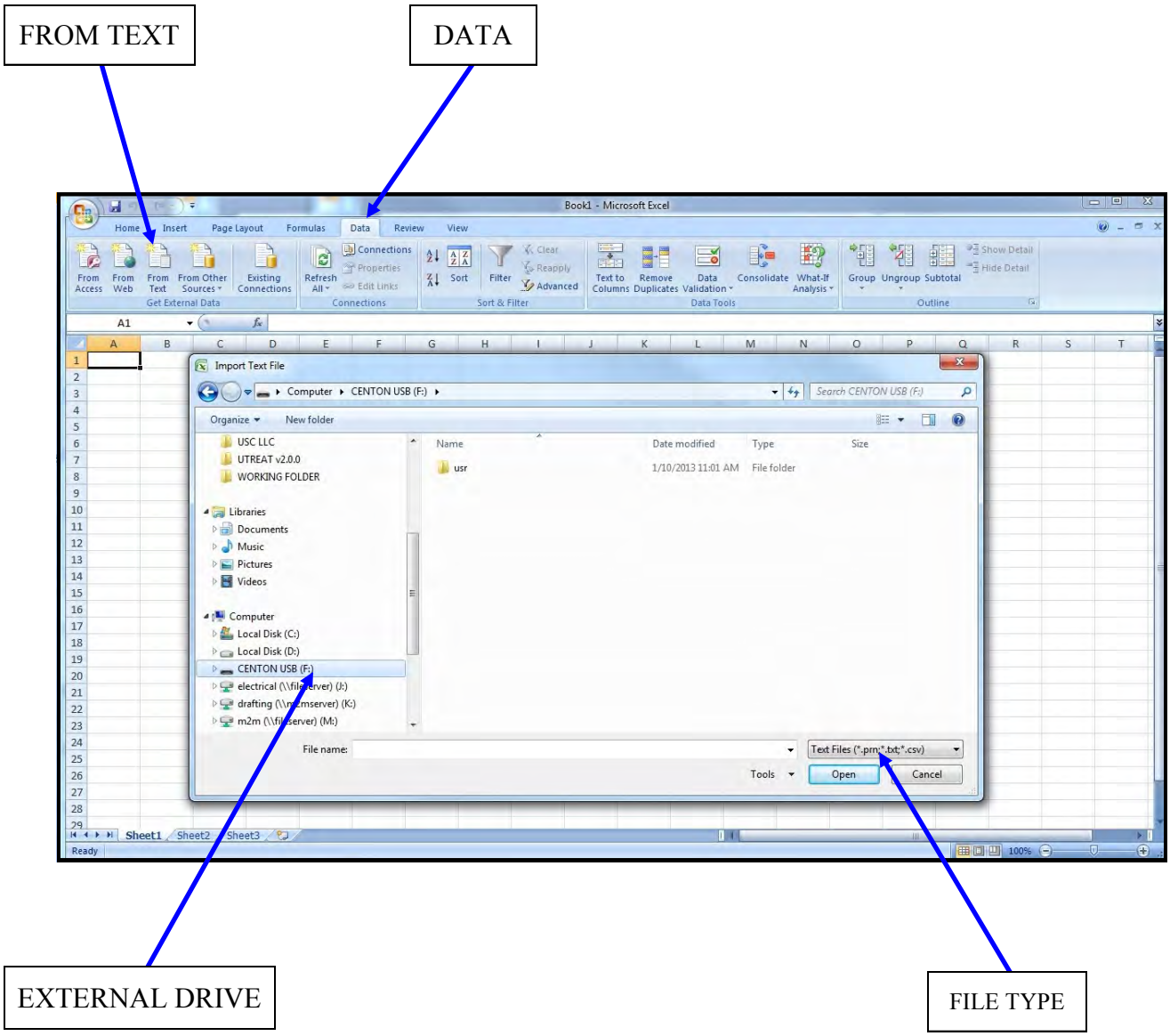
1. Insert a Compact Flash device into the USB port. The Flash device must be in Fat 32 format.
2. Advance to the Tools & Options screen
3. Press the SEND REPORTS TO USB button. A confirmation window will appear. Press the YES button and all the reports will automatically copy to the compact flash device.
4. Remove the compact flash device from the control panel and insert into your computer.



DOWNLOADING REPORTS

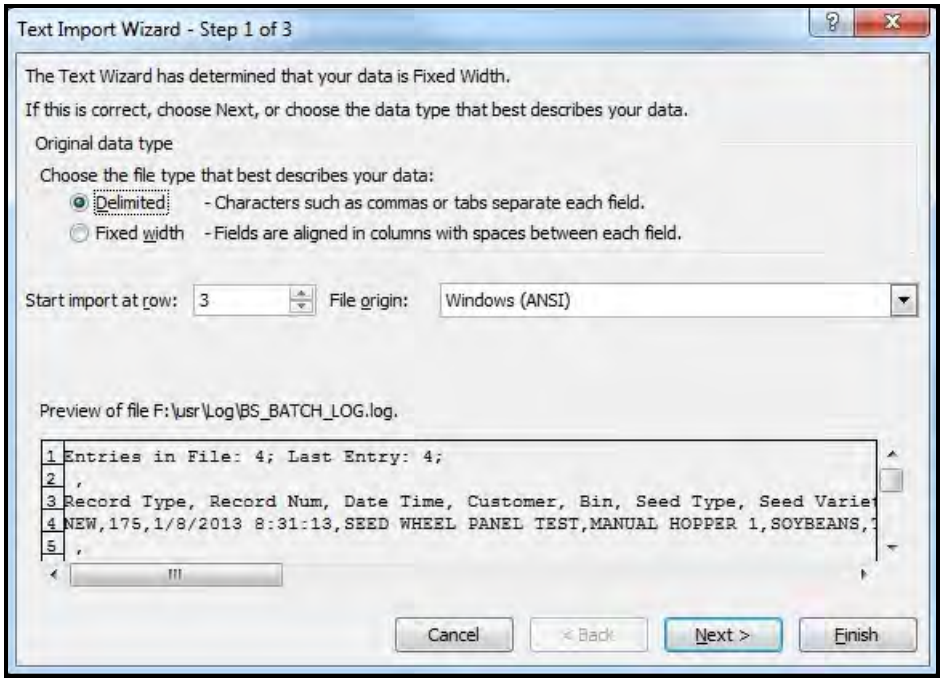
5. Start Microsoft Office Excel. From the top menu select DATA then FROM TEXT.

6. From the Input Text File screen select the appropriate external drive. Then select the folders USR / LOG. Change the file type to ALL FILES. Select the file you want to work with and the Text Import Wizard window will open.

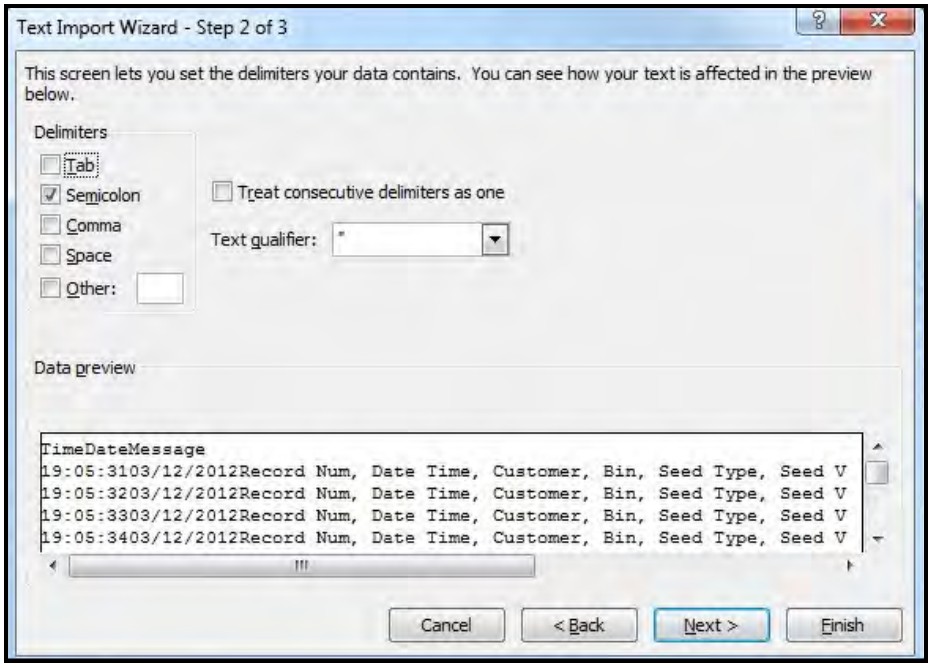


DOWNLOADING REPORTS

7. Under Original data type select Delimited. Change Start import row to 3, then click Next.

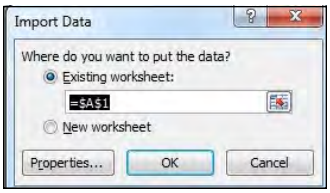


8. Under Delimiters deselect Tab and select Semicolon. Then click Next.

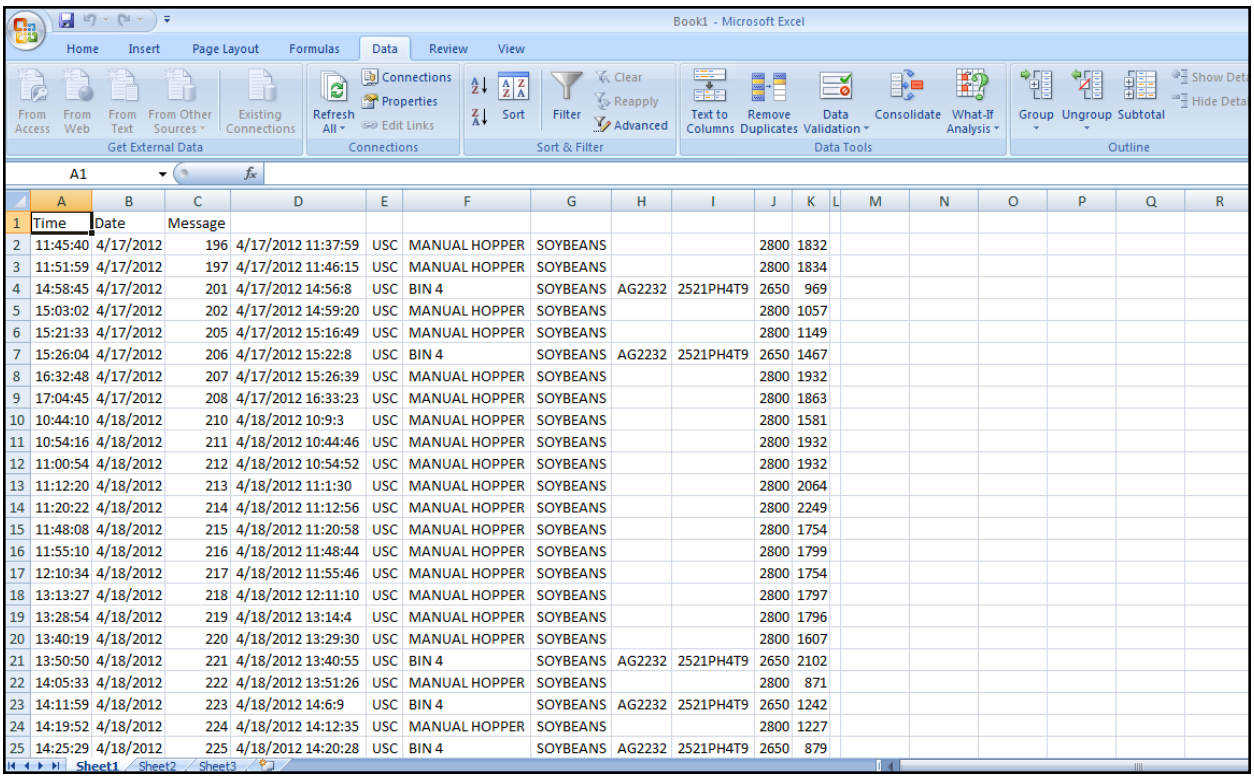


DOWNLOADING REPORTS

9. Click Finish and the Import Data window appears. Click OK.



10. The Report conversion process is complete. In the File menu, click Save As and file the report.



	A	B	C	D	E	F	G	H	I	J	K
1	Time	Date	Message								
2	11:45:40	4/17/2012	196	4/17/2012 11:37:59	USC	MANUAL HOPPER	SOYBEANS			2800	1832
3	11:51:59	4/17/2012	197	4/17/2012 11:46:15	USC	MANUAL HOPPER	SOYBEANS			2800	1834
4	14:58:45	4/17/2012	201	4/17/2012 14:56:8	USC	BIN 4	SOYBEANS	AG2232	2521PH4T9	2650	969
5	15:03:02	4/17/2012	202	4/17/2012 14:59:20	USC	MANUAL HOPPER	SOYBEANS			2800	1057
6	15:21:33	4/17/2012	205	4/17/2012 15:16:49	USC	MANUAL HOPPER	SOYBEANS			2800	1149
7	15:26:04	4/17/2012	206	4/17/2012 15:22:8	USC	BIN 4	SOYBEANS	AG2232	2521PH4T9	2650	1467
8	16:32:48	4/17/2012	207	4/17/2012 15:26:39	USC	MANUAL HOPPER	SOYBEANS			2800	1932
9	17:04:45	4/17/2012	208	4/17/2012 16:33:23	USC	MANUAL HOPPER	SOYBEANS			2800	1863
10	10:44:10	4/18/2012	210	4/18/2012 10:9:3	USC	MANUAL HOPPER	SOYBEANS			2800	1581
11	10:54:16	4/18/2012	211	4/18/2012 10:44:46	USC	MANUAL HOPPER	SOYBEANS			2800	1932
12	11:00:54	4/18/2012	212	4/18/2012 10:54:52	USC	MANUAL HOPPER	SOYBEANS			2800	1932
13	11:12:20	4/18/2012	213	4/18/2012 11:1:30	USC	MANUAL HOPPER	SOYBEANS			2800	2064
14	11:20:22	4/18/2012	214	4/18/2012 11:12:56	USC	MANUAL HOPPER	SOYBEANS			2800	2249
15	11:48:08	4/18/2012	215	4/18/2012 11:20:58	USC	MANUAL HOPPER	SOYBEANS			2800	1754
16	11:55:10	4/18/2012	216	4/18/2012 11:48:44	USC	MANUAL HOPPER	SOYBEANS			2800	1799
17	12:10:34	4/18/2012	217	4/18/2012 11:55:46	USC	MANUAL HOPPER	SOYBEANS			2800	1754
18	13:13:27	4/18/2012	218	4/18/2012 12:11:10	USC	MANUAL HOPPER	SOYBEANS			2800	1797
19	13:28:54	4/18/2012	219	4/18/2012 13:14:4	USC	MANUAL HOPPER	SOYBEANS			2800	1796
20	13:40:19	4/18/2012	220	4/18/2012 13:29:30	USC	MANUAL HOPPER	SOYBEANS			2800	1607
21	13:50:50	4/18/2012	221	4/18/2012 13:40:55	USC	BIN 4	SOYBEANS	AG2232	2521PH4T9	2650	2102
22	14:05:33	4/18/2012	222	4/18/2012 13:51:26	USC	MANUAL HOPPER	SOYBEANS			2800	871
23	14:11:59	4/18/2012	223	4/18/2012 14:6:9	USC	BIN 4	SOYBEANS	AG2232	2521PH4T9	2650	1242
24	14:19:52	4/18/2012	224	4/18/2012 14:12:35	USC	MANUAL HOPPER	SOYBEANS			2800	1227
25	14:25:29	4/18/2012	225	4/18/2012 14:20:28	USC	BIN 4	SOYBEANS	AG2232	2521PH4T9	2650	879

SECTION C TROUBLESHOOTING & ALARMS

TROUBLESHOOTING

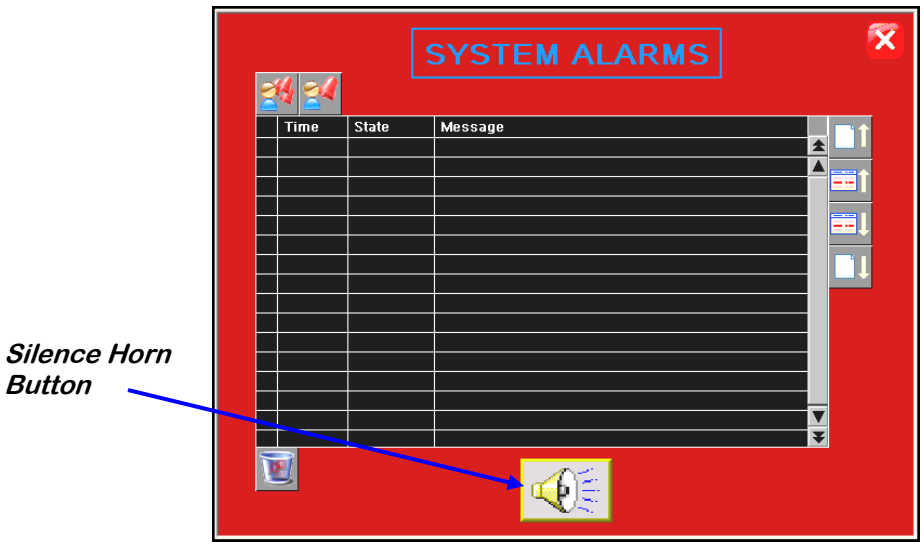
Below is a table describing the most frequent problems and solutions with the USC Bin Site System. For further assistance, contact USC at (785) 431-7900.

Problem	Possible Cause	Solution
System is not consistently calibrating correctly.	1. Bin slides gates or manual gates have been moved. 2. Underbin conveyor belt is slipping. 3. Bin slide gate is not consistently opening to the same point. 4. The Ethernet cable is damaged or picking up electrical interference. 5. The operator is pressing the "Cancel Scale Fill" button before the run ends.	1. Ensure that the slide gate collar and manual gate is locked into place. Then recalibrate. 2. Tighten the underbin conveyor belt . 3. Check for any obstruction that may be restricting the movement of the slide gate. 4. Ensure that Ethernet cable is no located directly next to any electrical lines. 5. Allow the system to shutdown on its own.
System calibration for currently selected bin is incorrect.	1. System needs recalibrated. 2. System is too far out of calibration to recalibrate automatically.	1. Run a small batch of seed to automatically recalibrate the currently selected bin. 2. Add at least 1 pound of inventory to the bin that is miscalibrated. This will reset the calibration back to the factory setting.
Solenoids are making a buzzing sound when air gates are actuated.	1. Moisture in the air system. 2. Electric actuator on solenoid bank may be faulty.	1. Remove moisture from the air lines. 2. Replace the electronic actuator on the solenoid.
Conveyor will not start in "HAND" or "AUTO" mode.	1. Conveyor motor starter is tripped. 2. Conveyor is clogged.	1. Reset motor starter. 2. Remove obstruction or debris.
No scale reading on the weigh hopper indicator on the touch screen.	1. Ethernet cable is disconnected. 2. Scale head is unplugged.	1. Check all Ethernet cables for connectivity and damage. 2. Ensure that the scale head has power and is turned on.
Air gate will not close fully.	1. Something is obstructing the air gate from closing. 2. Air pressure to the gate is not strong enough.	1. Remove obstruction. 2. Ensure that the air gate has at least 100 psi of air being supplied to it.

Problem	Possible Cause	Solution
No air gates will open or close when their corresponding button is pressed on the touch screen.	1. No air or not enough air is being supplied to the solenoid bank on the side of the control panel. 2. The bin site PLC may be off.	1. Ensure that at least 100 psi of air is being supplied to the solenoid bank. 2. Ensure that the bin site control panel has power to it, is "on" and that all of the breakers inside the panel are "on" as well.
Diverter is leaking seed through bypass side while in "treat" mode of operation.	1. Too low of air pressure to actuate the diverter. 2. An obstruction in the diverter is stopping correct placement of the diverter plate.	1. Ensure that at least 100 psi of air pressure is present at the diverter. 2. Remove obstruction.
Scale is reading incorrect weight.	1. Scale is binding. 2. Something is touching the scale. 3. Scale needs recalibrated. 4. Ethernet cable may be damaged or receiving electrical interference.	1. Check scale arms for any binding. 2. Ensure that the area around the scale is clean and that nothing is leaning on or resting on the scale and hopper. 3. Zero scale. If still incorrect, then have a professional scale technician recalibrate the scale. 4. Ensure that Ethernet cable is not located directly next to any electrical lines.
Inlet conveyor to treater is overfilling with seed.	1. The proximity sensor at the top of the inlet hopper is not properly located so that seed is contacting it when the inlet hopper is full. 2. There is obstruction to the seed flow at the discharge end of the inlet conveyor.	1. Move the proximity sensor so that it is in a location for seed to come in contact with it once the inlet hopper is full. 2. Remove the obstruction.
Air gate is opening when it should be closing and vice versa.	1. Air lines to the air gate are reversed.	1. Exchange air line for the proper solenoid on the back of the solenoid bank.
The touch screen has warning triangles on each button.	1. The bin site PLC may be off. 2. The Ethernet cable between the treater control panel and the bin site control panel may be unhooked or damaged.	1. Ensure that the bin site control panel has power to it, is "on" and that all of the breakers inside the panel are "on" as well. 2. Check the Ethernet cable for damage and ensure that it is plugged in correctly.

SYSTEM ALARMS - FAULTS

The table below and on the following pages provides a general description of all the system alarms (faults & warnings) of the Bin Site System. When a fault or warning condition is detected by the system, the Alarms screen will pop-up describing the cause of the Alarm or Fault. Any motor fault will activate the alarm screen on the operator control panel. If running, the system will then progress to the controlled shutdown state. A warning will alert the operator of a system condition which needs attention or correction. The alarms are reset when the fault condition is cleared. The horn is silenced by pressing the Silence Alarm button on the Alarms screen. For further assistance, contact USC at (785) 431-7900.

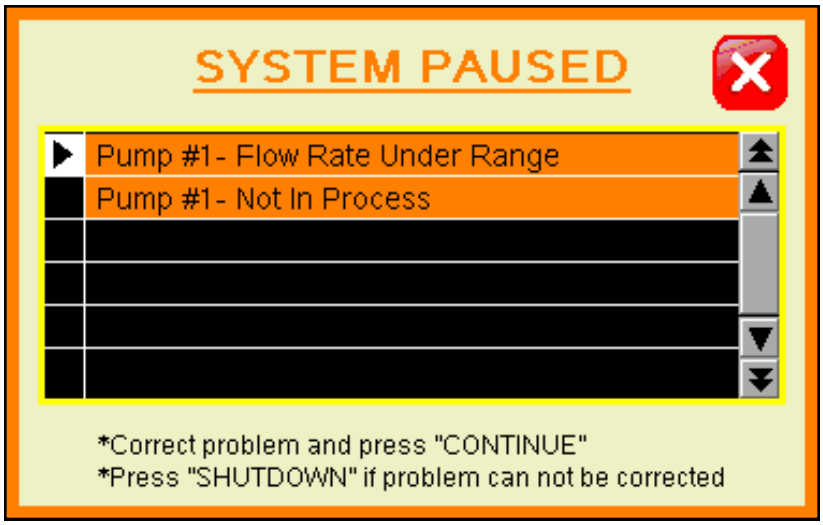


Alarm - Fault	Possible Cause	Solution
Underbin Conveyor Motor Fault	1. Underbin Conveyor motor auxiliary contact was not sensed after being energized to run. 2. Underbin Conveyor motor has been shutdown while in Auto mode of operation.	1. Verify that the motor starter has power, is turned on and that the overload is not tripped. 2. Verify that the Underbin Conveyor was not turned "Off" while the system was in Auto mode of operation.
Weigh Hopper Reached Max Capacity	The current weight in the Weigh Hopper is above the number entered into the maximum scale weight in the "Utilities" screen.	Verify the number entered into the maximum scale weight box is correct. If yes, then recalibrate and rerun system.

Alarm - Fault	Possible Cause	Solution
Scale Fill Conveyor Motor Fault	1. Scale Fill Conveyor motor auxiliary contact was not sensed after being energized to run. 2. Scale Fill Conveyor motor has been shutdown while in Auto mode of operation.	1. Verify that the motor starter has power, is turned on and that the overload is not tripped. 2. Verify that the Scale Fill Conveyor was not turned "Off" while the system was in Auto mode of operation.
Transition Conveyor Motor Fault	1. Transition Conveyor motor auxiliary contact was not sensed after being energized to run. 2. Transition Conveyor motor has been shutdown while in Auto mode of operation.	1. Verify that the motor starter has power, is turned on and that the overload is not tripped. 2. Verify that the Transition Conveyor was not turned "Off" while the system was in Auto mode of operation.
Transfer Conveyor Motor Fault	Transfer Conveyor motor auxiliary contact was not sensed after being energized to run.	Verify that the motor starter has power and is turned on.
Bin Site SURGE SUPRESSOR-FAILED!!!	L1 of the Surge protector will no longer protect the electrical panel against voltage surges.	Replace the Surge Protector.
Underbin Conveyor - check for belt slippage/check speed sensor	1. Underbin Conveyor belt is slipping. 2. Underbin Conveyor Speed is sensor is not working correctly.	1. Tighten and adjust the Underbin Conveyor belt as necessary. 2. Verify that sensor is tight to shaft and wiring is correct. If yes to both, then replace sensor.
Weigh Hopper Gate - Not Open	1. "Open" slide gate sensor is not positioned properly. 2. "Open" slide gate solenoid failed to actuate.	1. Verify that the "open" slide gate sensor is properly positioned. 2. Check air supply and signal to solenoid.
Weigh Hopper Gate - Not Closed	1. "Closed" slide gate sensor is not positioned properly. 2. "Closed" slide gate solenoid failed to actuate.	1. Verify that the "Closed" slide gate sensor is properly positioned. 2. Check air supply and signal to solenoid.

PAUSED CONTROLLED WARNING

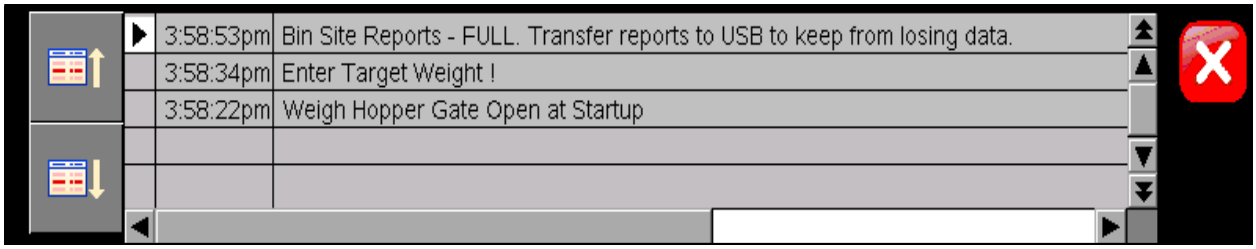
The table below provides a general description of all the system warnings that could occur which would cause the system to pause. When a warning condition is detected, a window will pop-up notifying the operator that the system is PAUSED because of a certain condition (below). When the condition has been corrected, the CONTINUE button can be pressed to restart the system. If the problem cannot be corrected, the SHUTDOWN button can be pressed. These messages will only appear if the Bin Site System is connected to a PLC controlled seed treater.



Warning	Possible Cause	Solution
Pump Flow Rate Under Range.	Actual flow rate is under 80% of target flow rate.	Check for empty supply tanks, worn or obstructed hoses, etc. that would cause a loss of liquid flow.
Pump Not In Process	Valve of the liquid displayed failed to divert to process when requested	Verify valve has diverted, if so troubleshoot sensor, if not, check air supply and signal to valve.

SYSTEM MESSAGES

The table below provides a general description of all the system messages that could occur. When a warning condition is detected, a window will appear (below) notifying the operator that the system will not start because of a certain condition. When the condition has been corrected, the START SCALE FILL button can be pressed to start the system.



Message
Scale Fill Conveyor Not In Auto For Startup
Transition Conveyor Not In Auto For Startup:
Underbin Conveyor Not In Auto For Startup
Diverter in Treat position at Startup
Weigh Hopper Gate Open at Startup
Enter Target Weight!
Scale Unstable - Stabilize scale to continue operation.
Diverter in Bypass Position at Startup
Bin Site Reports - FULL. Transfer Reports to USB to keep from losing data.
Treater Auto Start Failed - Correct problem and press the Treater Startup button.
BIN SITE SYSTEM CONFIGURATION ERROR. Please contact USC tech support.
Transfer Conveyor Not in Auto For Startup.
Please select desired Bin for Startup.
Scale Fill Manual in Operation.

NOTES:

USC LIMITED WARRANTY

SECTION D

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. Manufacturer does not warrant against casualties or damages resulting from misuse and/or abuse of product(s), 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 incidental, special, 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 USC, LLC. 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.

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