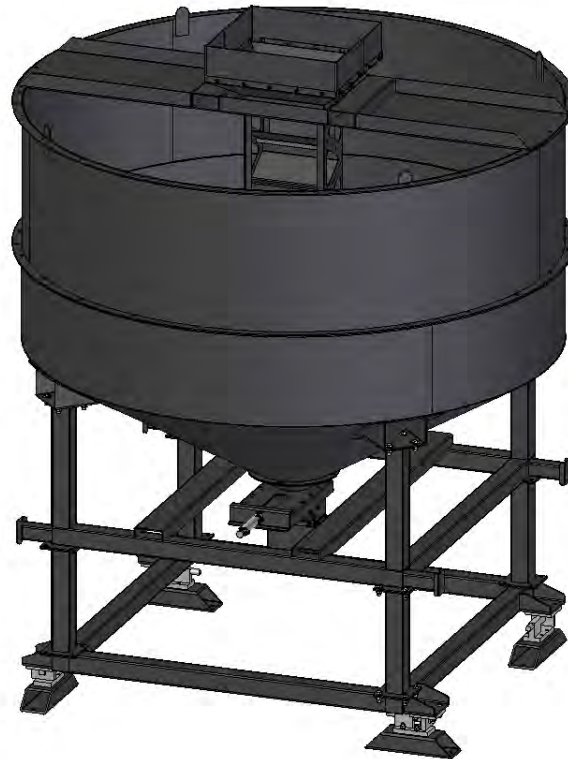# HMI UPGRADE
BATCH WEIGH HOPPER SYSTEM
WITH BIN SITE AUTOMATION
Operators Manual

Software Release U-TREAT v1.4.0

Document: TD-09-06-3017   **Revision: A**

INTRODUCTION

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

OVERVIEW

The purpose of this manual is to provide you with the basic information needed to operate and maintain the USC Batch Weigh Hopper System. 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 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.**

Table of Contents

| Section	Contents	Page #

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INSTALLATION

ITEMS NEEDED

1. 2 - Customer supplied USB memory sticks (64 MB minimum).
2. Email from USC with new program and firmware links attached
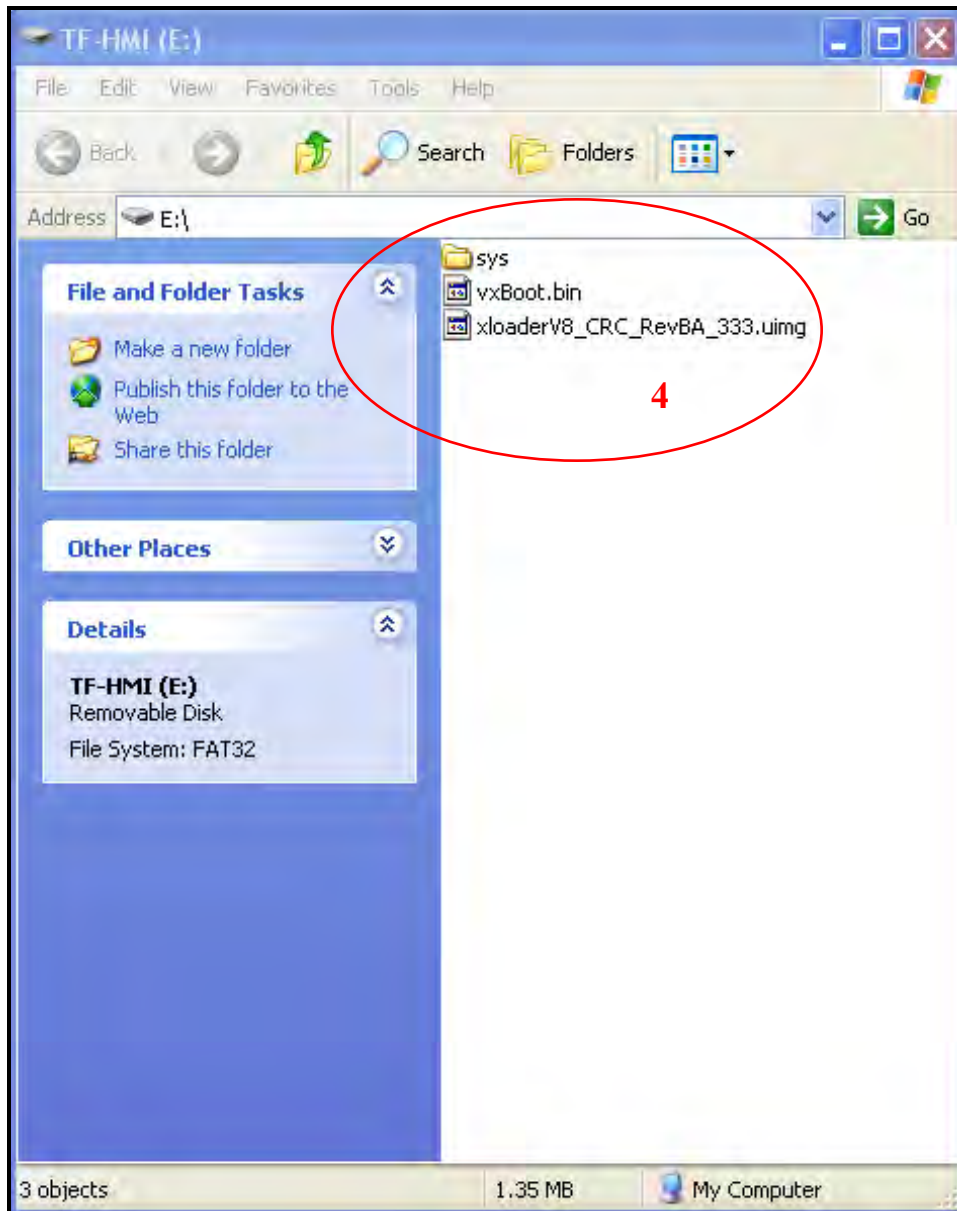
FORMATTING USB DRIVE

Format one of the USB memory stick in FAT32 format:

1. Go to My Computer
2. Right click on USB drive and select FORMAT (Be sure that you have the drive you want to format selected. Formatting the wrong drive could erase files not intended to be erased!!!)
3. Make sure File System is set for FAT32
4. Click on start
5. Click on OK

Volume label, and drive name may differ from what is

USC
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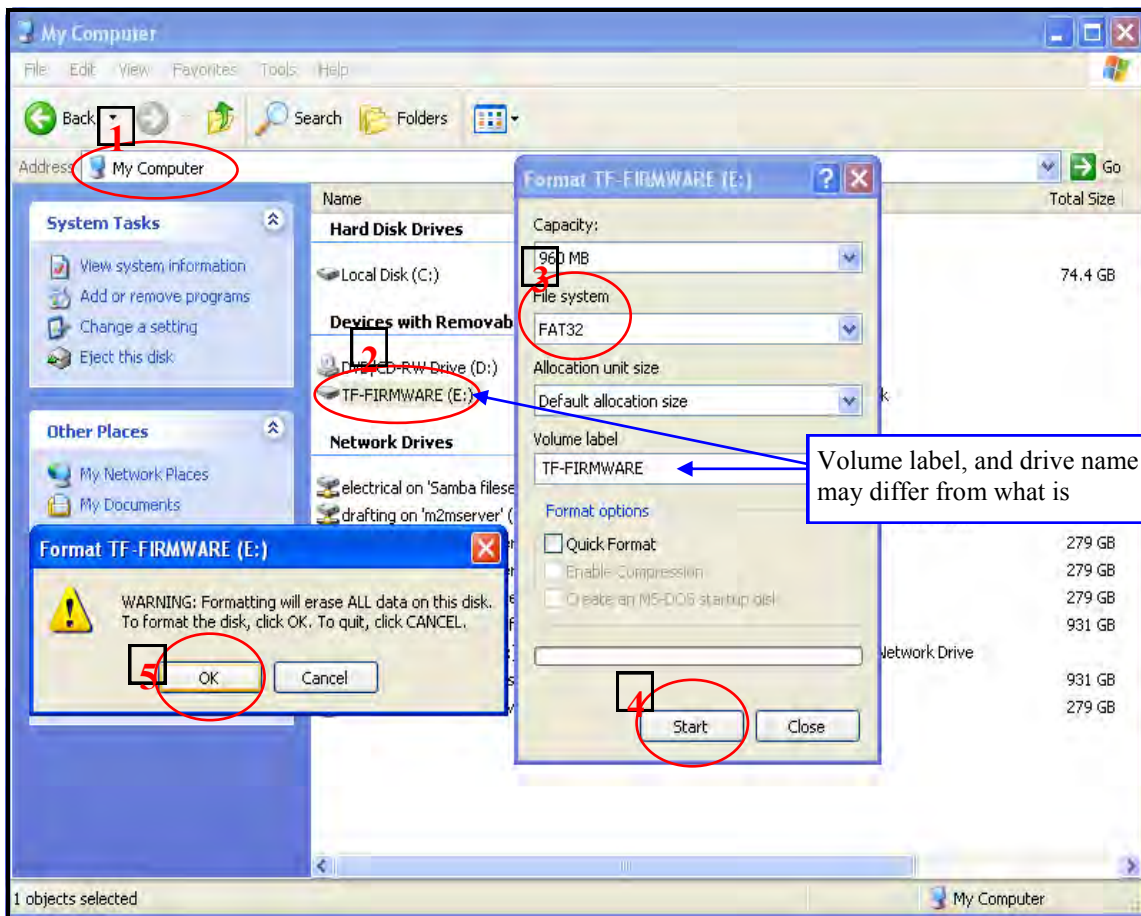
SAVING FIRMWARE FILES ON USB DRIVE

1. Double click on link supplied in email (M258-Firmware-V2.0.31.15.zip) to download.
2. Open download.
3. Double click to open the folder M258 Firmware V2.0.31.15.
4. Drag and drop the folder contents into USB drive as shown.
5. Remove USB drive from computer

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SAVING PROGRAM TO HARD DRIVE

1. Repeat the first step of formatting the other USB memory stick in FAT32 format. (Firmware and program files must be on separate USB sticks)

2. Double click on link supplied in the email (USB-Download-UTREAT_V1_4_00_ (140105).zip) to download.

3. Open download.

4. Double click to open the folder USB Download - UTREAT_V1_4_00_(140105).

5. Drag and drop the folder contents into USB drive as shown.

6. Remove USB drive from computer.
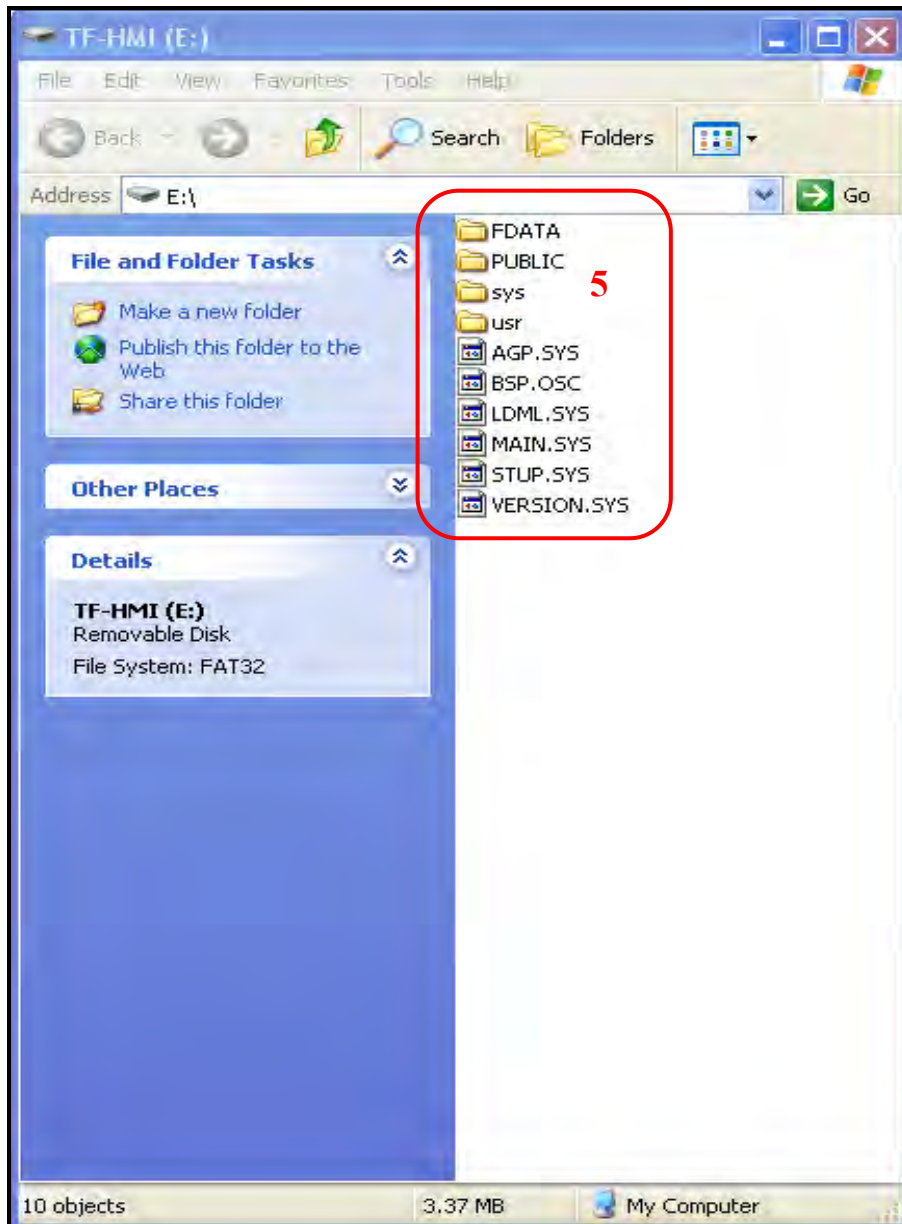
UPGRADING TRI - FLO ® PLC AND HMI

NOTE: UPDATING THE PROGRAMMING WILL ERASE ALL SETTINGS AND
SAVED DATA, INCLUDING THE TREATER REPORTS. TO RETAIN ANY SAVED
TREATER REPORTS, YOU MUST DOWN LOAD THEM TO YOUR COMPUTER
BEFORE PERFORMING THIS UPDATE. THE DOWNLOAD PROCESS CAN BE
FOUND IN THE "PRINTING AND UPLOADING REPORTS" SECTION OF YOUR
MANUAL.

1. Go to Security screen on the HMI and
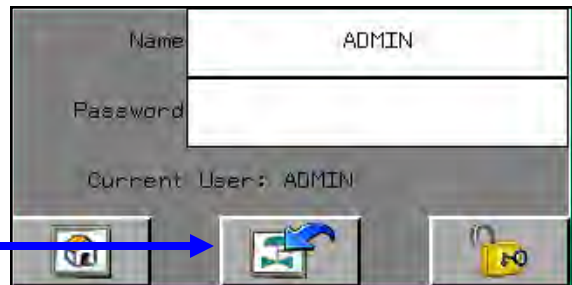press the USER NAME button.
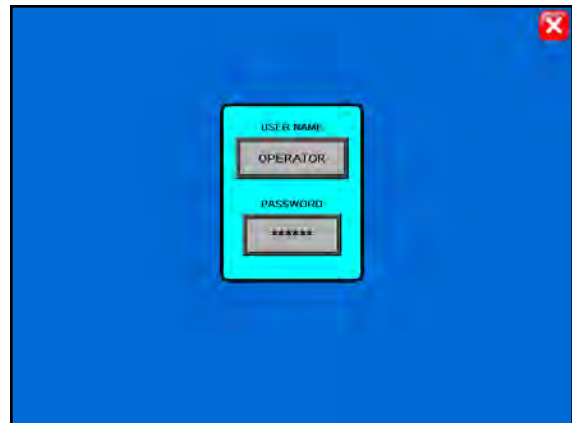
2. Press on the Name space, type in **ADMIN**
and press enter. Then press on Password,
type in **SERVICE** and press enter. Press the
unlock button.
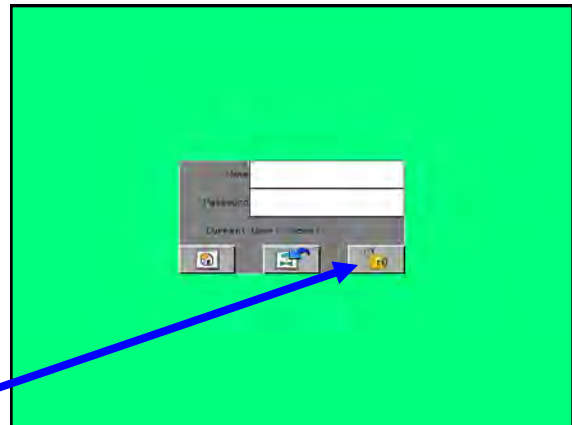
Unlock Button

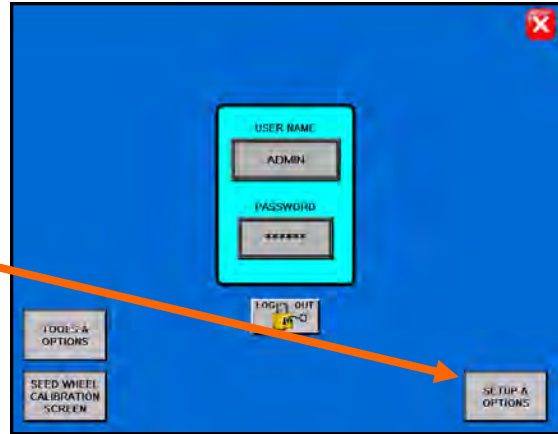3. Verify "Current User: ADMIN". Then, press
the return button.

Return Button

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UPGRADING TRI - FLO ® PLC AND HMI

4. Press SETUP & OPTIONS button.

5. Press TREATER SETTINGS button.
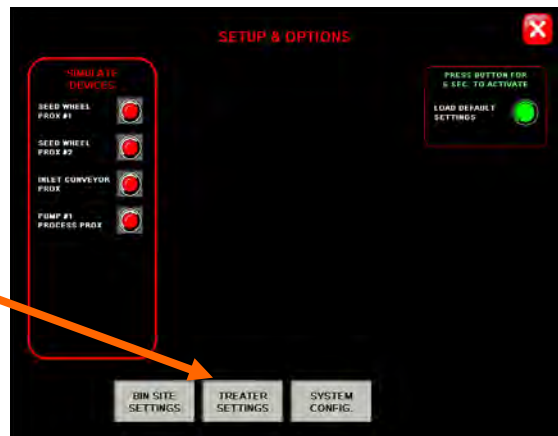
6. Record all treater data such as target rates, timer settings, product names, customer info and chemical names. Installing the new software will reset the treater back to factory defaults. Make sure to go through all treater screens and record settings, product names, rates, etc. If the site is a bin site system, then the bin site configuration data will also need to be recorded from the tools and options bin site setup screens as well. Please contact your USC service provider for more instructions on this process.
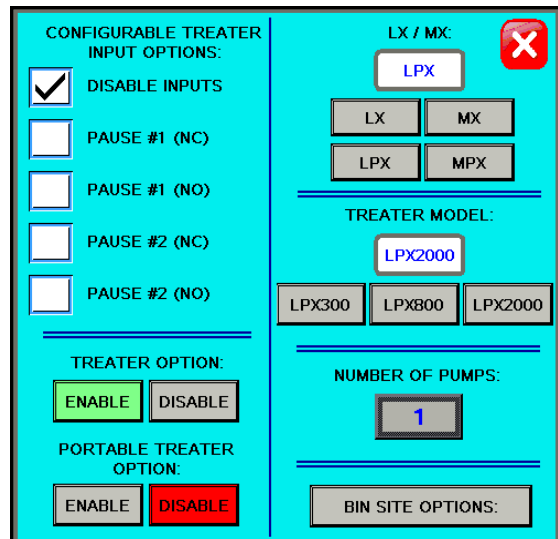
LOADING FIRMWARE TO PLC

NOTE: Loading the M258 firmware is IMPORTANT to ensure proper program loading. Ignore any alarms or errors that may appear on the HMI while loading the PLC.

1. Turn off power and open door of Main Control panel.
2. Insert USB memory stick, that contains the **firmware** files, into USB port on M258 PLC.
3. Turn power on, **wait until USB Host light turns solid green** and then turn power back off and remove memory stick.
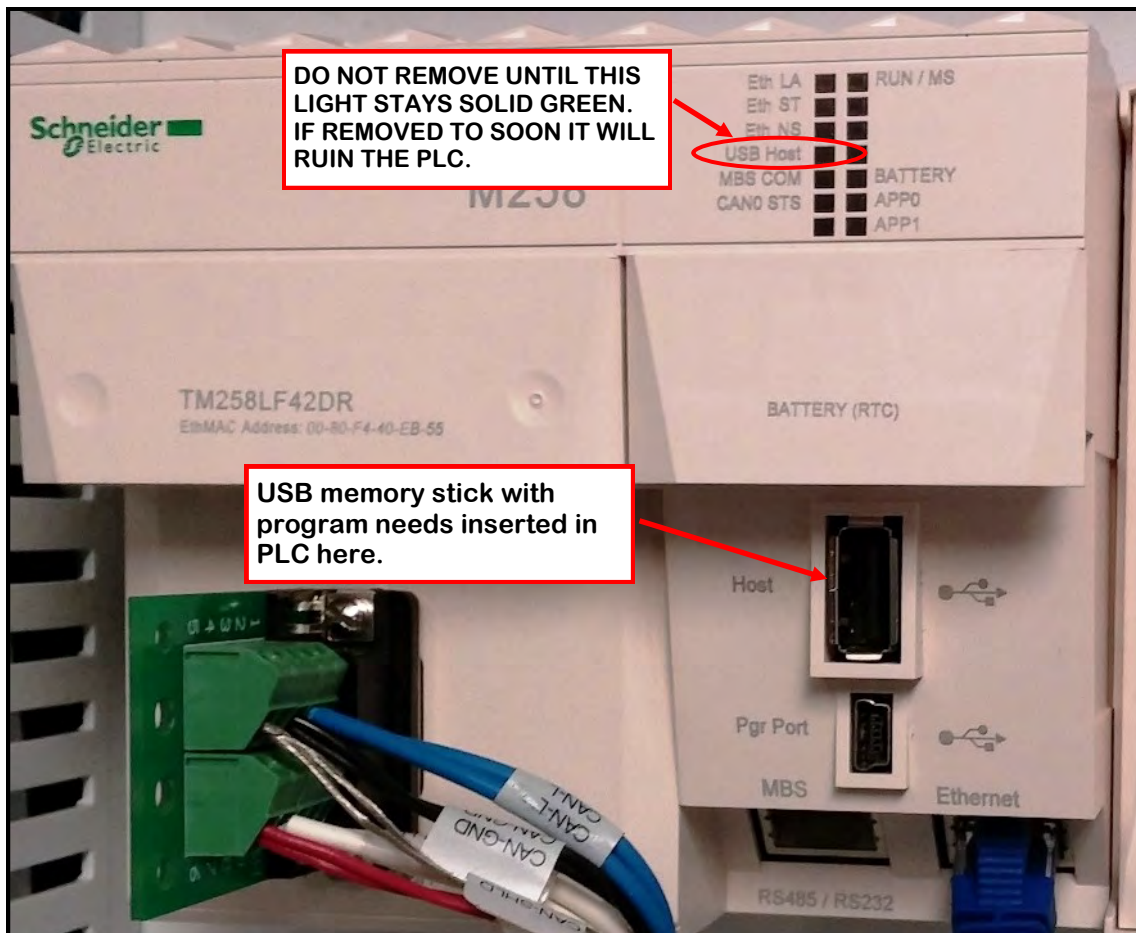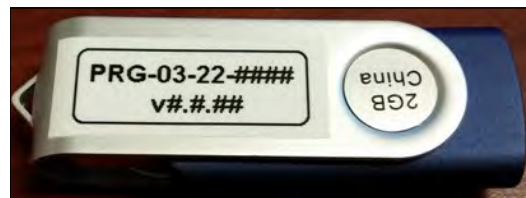4. Turn power back on for 1 minute then turn off.
5. Turn power back on for another minute then turn back off.
6. Proceed to next page.
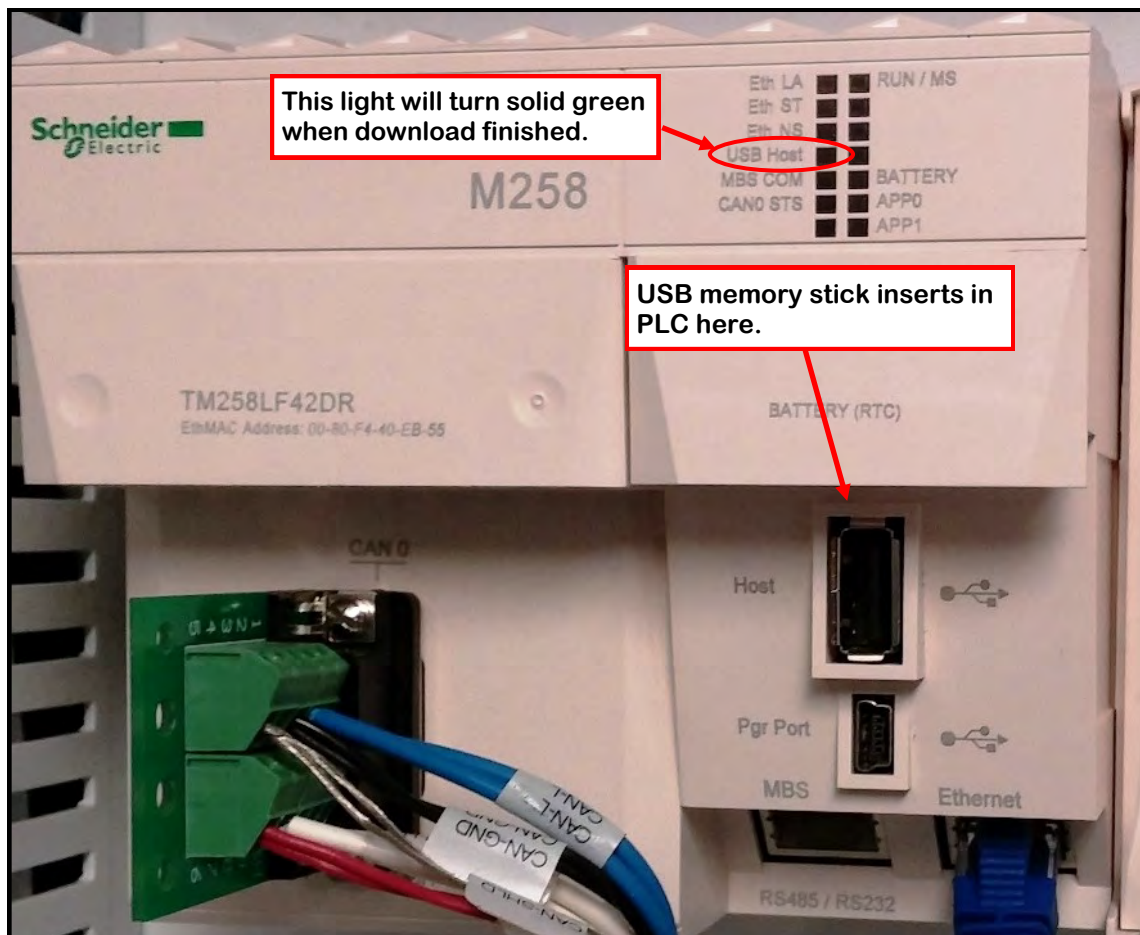
LOADING PROGRAM TO PLC

NOTE: Ignore any alarms or errors that may appear on the HMI while loading the PLC.

1. Turn off power and open door of Main Control panel.

2. Insert USB memory stick, that contains the **Program** files U-Treat v3.x.xx, into USB port on M258 PLC.

3. Turn power on, **wait until USB Host light turns solid green** and then turn power back off and remove memory stick.

4. Turn power back on for 1 minute then turn off.

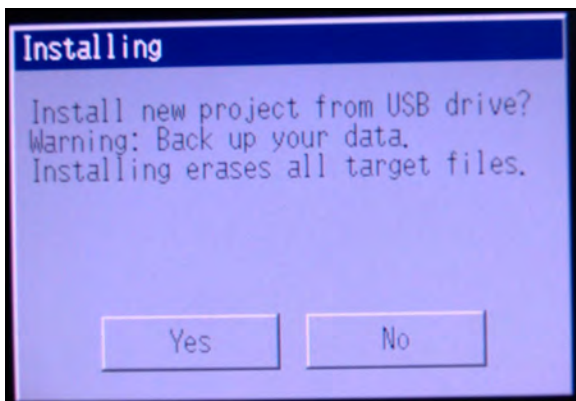5. Turn power back on for another minute then turn back off.

6. Proceed to next page.

DO NOT REMOVE UNTIL THIS LIGHT STAYS SOLID GREEN. IF REMOVED TO SOON IT WILL RUIN THE PLC.

USB memory stick with program needs inserted in PLC here.
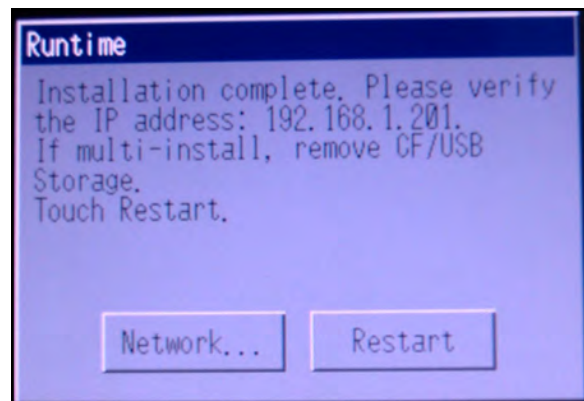
LOADING PROGRAM FILES TO HMI

1. Turn power on.

2. Insert USB memory stick that contains the program files into USB port on the side of HMI inside of the control panel.

3. After a moment the HMI will display a window asking if you want to install a new program from the USB drive. Press YES.

4. After a few minutes, the HMI screen will inform you that the installation is complete.

5. Remove the USB drive.
   VERY IMPORTANT TO DO THIS BEFORE PRESSING RESTART!!!!

Step # 3	Step # 4 & 6

Installing

Install new project from USB drive?
Warning: Back up your data.
Installing erases all target files.

Yes   No

Runtime

Installation complete. Please verify the IP address: 192.168.1.201.
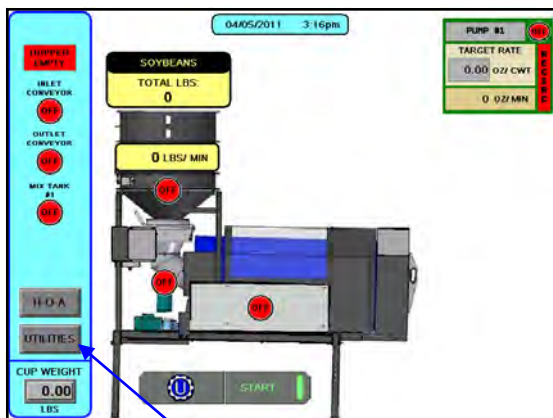If multi-install, remove CF/USB Storage.
Touch Restart.

Network...   Restart

6. Press restart.

7. Once the HMI has restarted turn power off, then turn back on again.

8. Navigate to the help screen: Press Utilities button on the treater screen, then press the Help button on the Utilities screen.
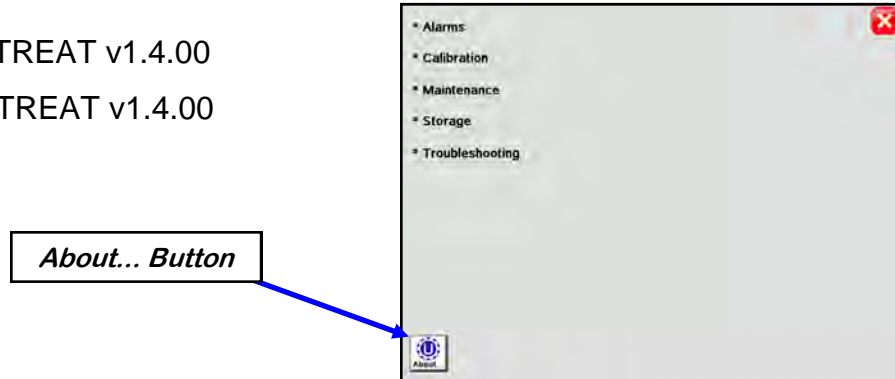
Utilities Button

Help Button

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LOADING PROGRAM FILES TO HMI

9. In the Help menu, press the ABOUT button. The Program versions should

    A.) HMI: UTREAT v1.4.00

    B.) PLC: UTREAT v1.4.00

About... Button

10. Go back to the Security Screen and log back in as ADMIN and press TREATER SETTINGS button (See page 8). Input treater settings that were recorded. Ensure that the Bin Site Options are set correctly. If no bin site is being controlled then ensure the BIN SITE OPTION is disabled.

11. Input all treater data as recorded in step #6.

12. Set date and time. From the SECURITY screen select **TOOL & OPTIONS,** then select DATE & TIME.

TOOLS & OPTIONS Button

DATE & TIME Button
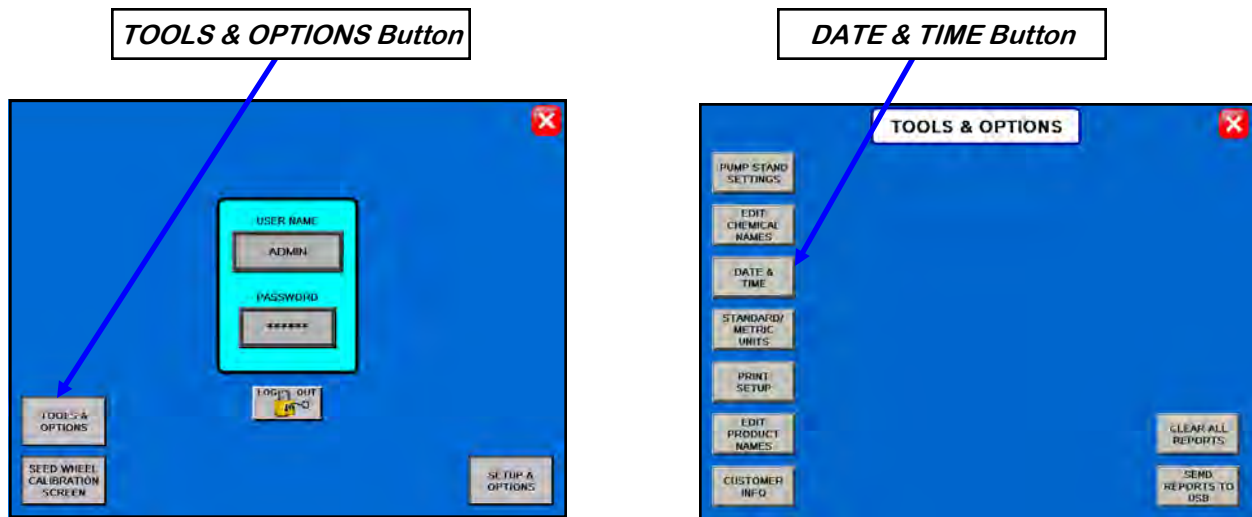
13. Input new time and date and press the SET button. Verify time and date changes at the top of the Treater main screen.

14. The upload process is now complete!

SECTION B ELECTRICAL OPERATION

DANGER

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

DANGER

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

CAUTION

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

This section provides a general overview and description of the operator controls for the Batch Weigh Hopper System.

General Panel Descriptions

This system consists of two panels:

- The Bin Site Control Panel (BSCP) is a 36 x 30 x 10 inch enclosure that contains the bulk of the electrical control components. The air solenoid bank that controls the Batch Hopper slide gate valve and the bin slide gate valves is located on the side of this panel and hardwired to the BSCP.

- The Main Control Panel (MCP) is the moveable enclosure that contains the PLC and touch screen HMI. This is where the operator will control all the functions of the Batch Weigh Hopper System. The MCP is connected to the BSCP with two sets of cables. The MCP may also be connected to a Treater panel using these same types of cables.

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HMI - 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.
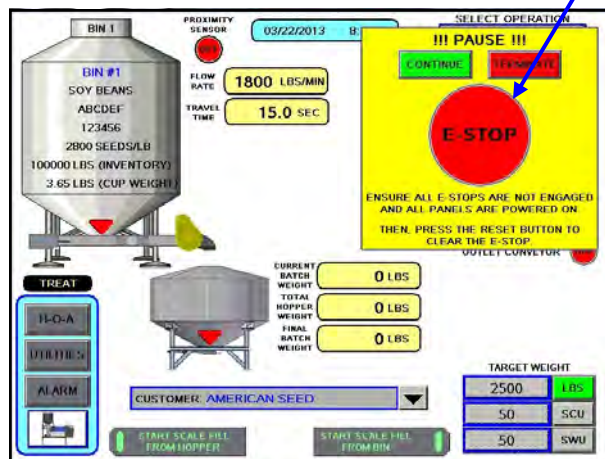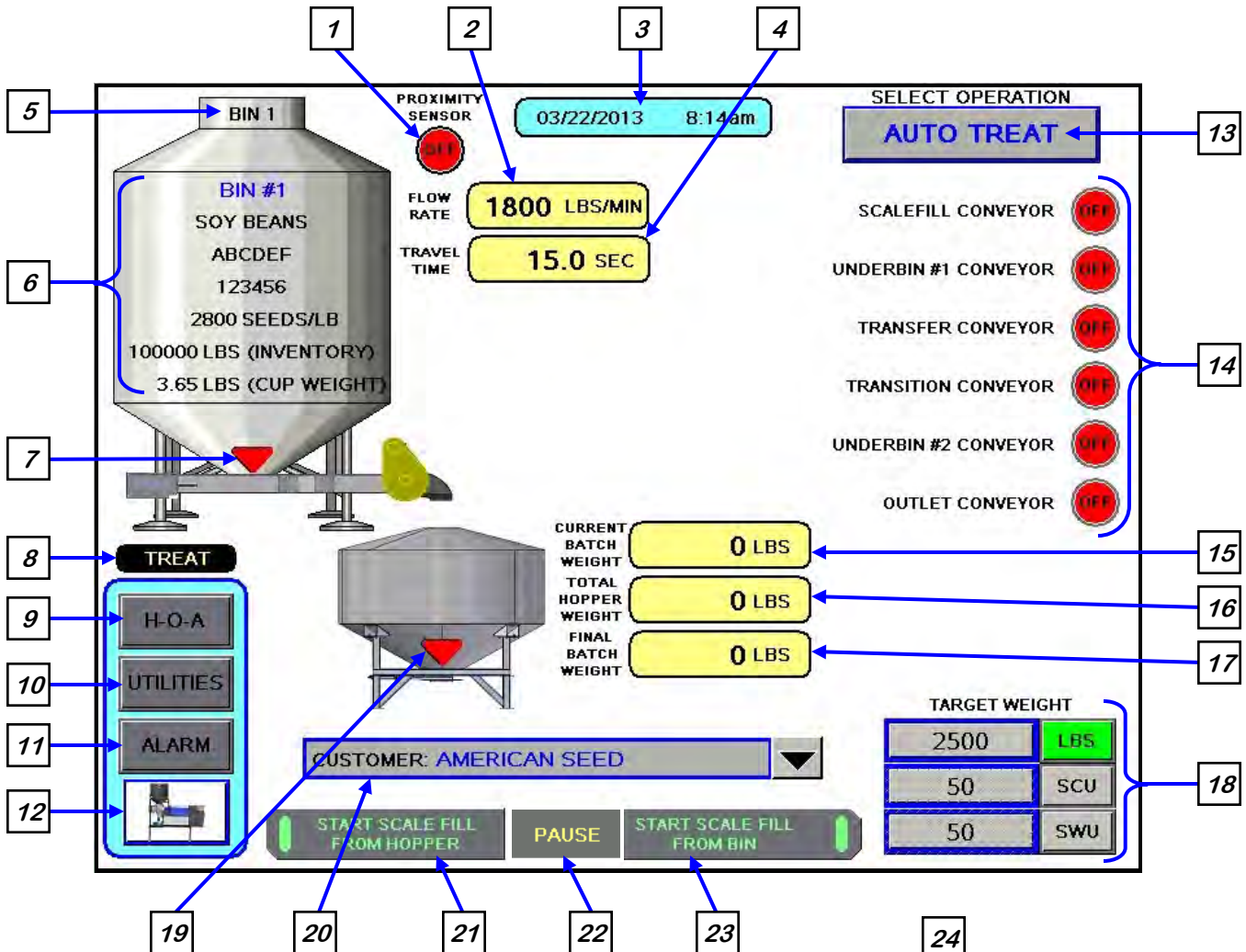
Main Screen Button Descriptions

1. _INLET HOPPER PROXIMITY SWITCH INDICATOR (optional):_ Informs the operator of the status of the proximity switch if one is located in the supply hopper on the treater. If the switch is ON (green) it is detecting seed. If it is OFF (red) it is not detecting seed. This is only used with non-PLC based treaters.

2. _FLOW RATE DISPLAY:_ Informs the operator of the flow rate of seed from the currently selected bin.

3. _CURRENT DATE and TIME DISPLAY._

4. _TRAVEL TIME DISPLAY:_ Informs the operator of the amount of time seed takes to flow from the currently selected bin to the batch hopper.

5. _CURRENT BIN SELECTED:_ Indicates the currently selected bin.

6. _CURRENT BIN INFO:_   Displays the bin information that has been entered into the currently selected bin. Includes seed type, seed variety, lot number, seeds/lb, amount in inventory and cup weight.

7. _BIN SLIDE GATE INDICATOR:_ Informs the operator of the slide gate position. If it is green the gate is OPEN. If it is red the gate is CLOSED.

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 batch hopper system has a diverter.

9. _H-O-A (Hand-Off-Auto) BUTTON:_ This button advances the operator to the H-O-A screen (page 21).

10. _UTILITIES BUTTON:_ This button advances the operator to the UTILITIES screen (page 25).

11. _ALARM BUTTON:_ This button advances the operator to the ALARMS screen (page 55).

12. _TREATER BUTTON (optional):_ This button advances the operator to the treater main screen. This button is only available if the batch hopper system is being operated in conjunction with a PLC controlled seed treater.

13. _SELECT OPERATION BUTTON:_ Pressing this button allows the operator to choose between the auto treat and the manual treat / bypass modes of operation (right). This option is only available if the batch hopper is operating in conjunction with a USC, PLC controlled seed treater. If you are not, this button will not be present on the Main screen. In auto treat mode the operator would select the bin they want to pull seed from and enter a target weight for the run.
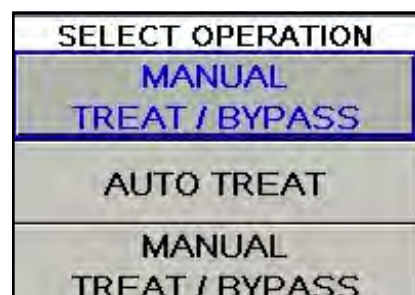
Main Screen Button Descriptions

13. (Continued): Then press the start scale fill from bin if a standard bin was chosen or start scale fill from hopper if pulling seed from a manual hopper. This starts the conveyors in the pre-determined order defined on the H.O.A. screen, opens the bin slide gate and begins to fill the batch hopper. When the batch hopper is filled and weighed it will begin to empty. Once the proximity switch on the treater detects the presence of seed it will start the treating process. In manual treat / bypass mode the operator has two options. Manual treat works the same as auto treat except the treater must be manually started on the main treater screen.   Bypass mode is used when you do not want to treat the seed but still use the batch hopper system to weigh and record the amount of seed retrieved (This is only possible if the treater is equipped with the treater diverter option). To bypass the treater the operator must go to the H.O.A. screen and press the bypass button in the lower right corner. This switches the diverter to bypass mode allowing the seed emptying from the batch hopper to go directly to the outlet conveyor instead of the treater.

14. CURRENT CONVEYOR MOTOR STATUS INDICATOR: Informs the operator if a particular conveyor motor is on or off.

15. CURRENT BATCH WEIGHT DISPLAY: Informs the operator of the current running total of seed that has entered the batch hopper system for this particular run of seed.

16. TOTAL HOPPER WEIGHT DISPLAY: Informs the operator of the current running total of seed that has entered the batch hopper when the operator is using multiple runs to achieve the total target weight.

17. FINAL BATCH WEIGHT DISPLAY: Informs the operator of the weight of seed that has been recorded by the scale printer and has exited the batch hopper system.

**_18. 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 seed count defined for each product on the Edit Product Names screen. That number will vary depending on the type of seed. If SWU is selected, the system will base the units upon 50 lbs/unit.

19. BATCH WEIGH HOPPER SLIDE GATE INDICATOR: Informs the operator of the status of the air-actuated slide gate located at the bottom of the batch hopper. Green indicating the open position and red for the closed position

Main Screen Button Descriptions

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 button and bring up a pop-up window that gives you multiple options. Option one is to select Enter Search Name at the top and the same pop-up keyboard appears. Option two is to use the up or down arrows to scroll to the customers name and option three is to select the file cabinet icon that takes you to the Customer Info page so you may create a new entry. (See page 33)
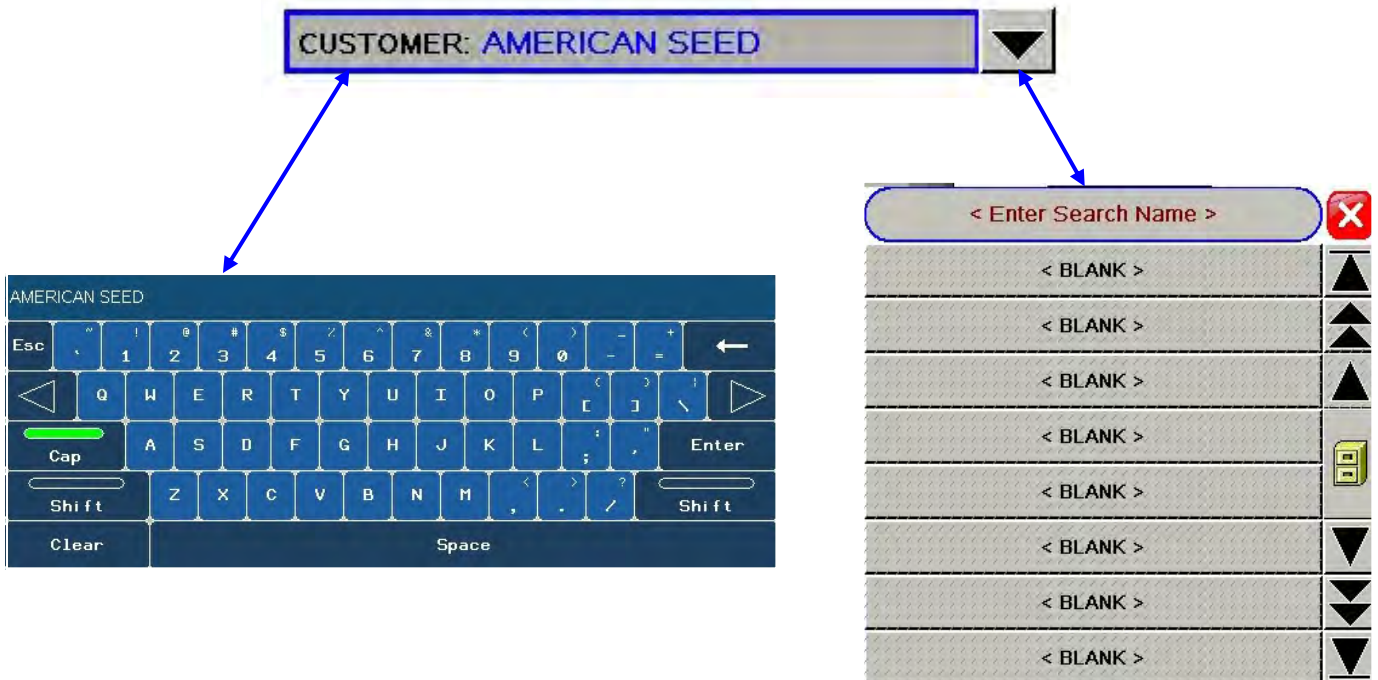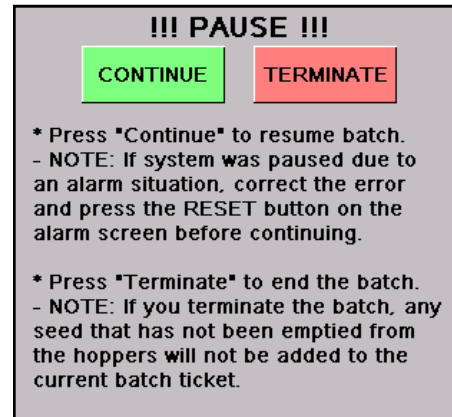
21. _START SCALE FILL FROM HOPPER BUTTON:_ Allows the operator to run seed in the auto mode from a Pro Box hopper. When the operator presses the Start Scale Fill from Manual Hopper button a verification screen (right) appears to allow them to modify any of the Pro Box information for that particular run.

Main Screen Button Descriptions

!!! PAUSE !!!

CONTINUE   TERMINATE

* Press "Continue" to resume batch.
- NOTE: If system was paused due to
an alarm situation, correct the error
and press the RESET button on the
alarm screen before continuing.

* Press "Terminate" to end the batch.
- NOTE: If you terminate the batch, any
seed that has not been emptied from
the hoppers will not be added to the
current batch ticket.

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 activate the pause screen (top). Once the issue is resolved push continue to re-start the process. Or use the terminate button.

Verify that a receiving container is in place!!!

START

*Press "START" to continue startup.

23. START SCALE FILL FROM BIN BUTTON: Allows the operator to run seed in the auto mode from a bin. A verification screen (bottom) appears to verify the operator has a truck or trailer in place to receive the seed before they press START to continue the process.

24. EMERGENCY STOP INDICATOR: This blinking display is activated when the system's E-Stop button is activated.

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"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.**
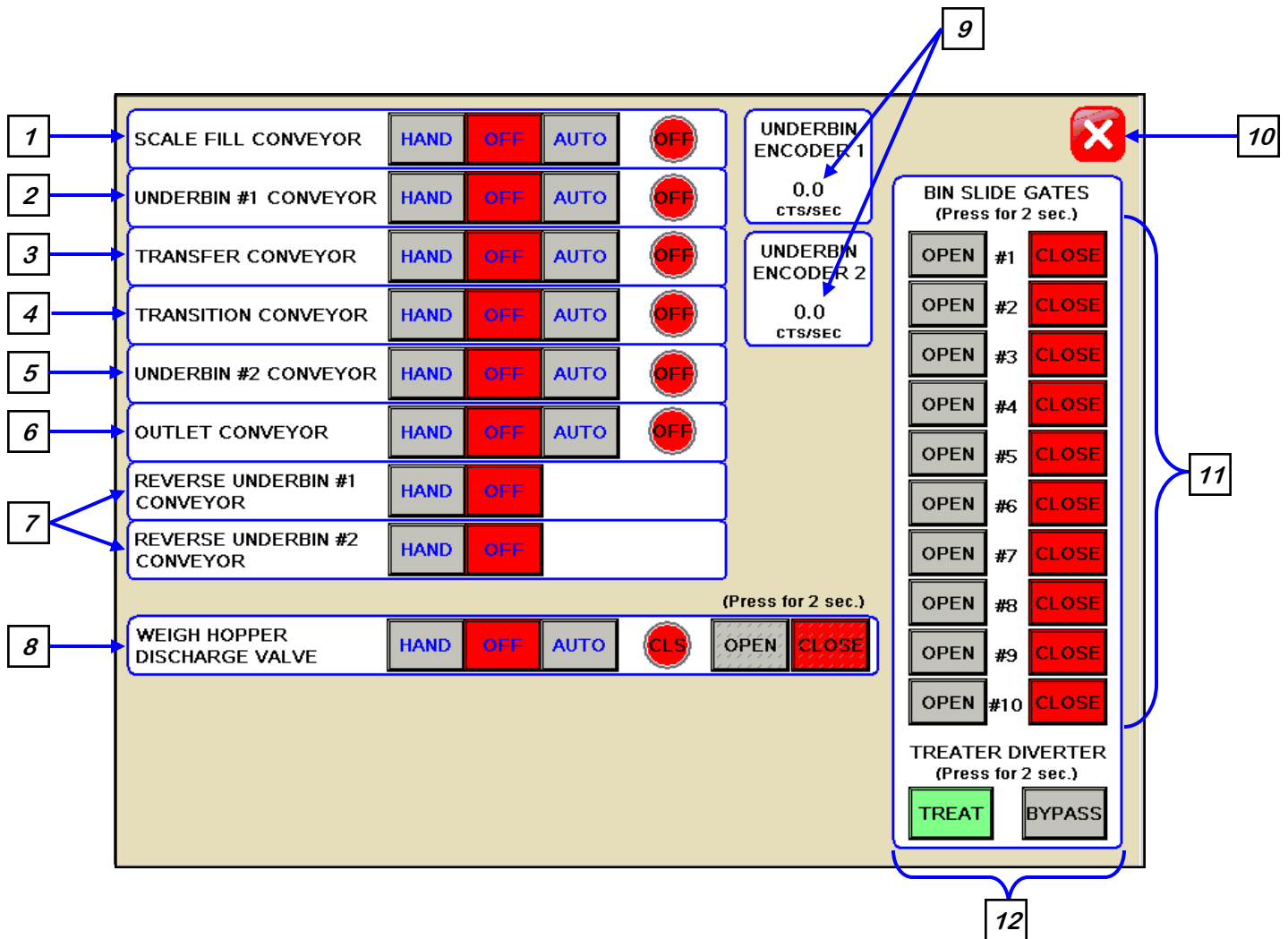
H-O-A Button Descriptions

1. 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 mode unless all other needed devices are in the AUTO mode and the START SCALE FILL button is pressed on the Main screen.

2. 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 mode unless all other needed devices are in the AUTO mode and the START SCALE FILL button is pressed on the Main screen.

3. 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 mode unless all other needed devices are in the AUTO mode and the START SCALE FILL button is pressed on the Main screen. This button will only be present if the batch hopper system has a transfer conveyor.

4. TRANSITION CONVEYOR CONTROL MODULE (optional): This module controls the function of the transition conveyor. The HAND button will place the transition 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 mode unless all other needed devices are in the AUTO mode and the START SCALE FILL button is pressed on the Main screen. This button will only be present if the batch hopper system has a transition conveyor.

H-O-A Button Descriptions

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 mode unless all other needed devices are in the AUTO mode and the START SCALE FILL button is pressed on the Main screen. This button will only be present if the batch hopper system has a second underbin conveyor.

6. OUTLET CONVEYOR CONTROL MODULE: This module controls the function of the outlet conveyor. The HAND button will place the outlet 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 mode unless all other needed devices are in the AUTO mode and the START SCALE FILL button is pressed on the Main screen.

7. REVERSE UNDERBIN CONVEYOR CONTROL MODULE (optional): This module operates in the manual mode only. Pressing the HAND button allows the operator to run the underbin conveyor in reverse. **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. BE SURE TO RE-CHECK THE ALIGNMENT AFTER IT IS RETURNED TO THE FORWARD DIRECTION.** This module will only be present if the bin site system has the reversing option for the underbin conveyor.

8. WEIGH HOPPER DISCHARGE VALVE CONTROL MODULE: This module controls the function of the hopper discharge valve located at the bottom of the batch hopper. The HAND button will place the discharge valve in the manual mode of operation. By pressing and holding for two seconds the OPEN or CLOSED button the operator can manually open or close the hopper discharge gate. The round indicator displays the valve status. CLS in red for closed and OPN in green for open. 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 and would then be controlled by the batch hopper PLC program.

H-O-A Button Descriptions

9. COUNTS PER SECOND DISPLAY (optional): This display shows the current counts per second that the underbin encoder 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 encoder on the underbin conveyor. If not working correctly, calibration of the seed flow will be effected.

10. SCREEN EXIT BUTTON: This button is used to exit back to the previous screen. Its functionality is the same throughout the HMI display.

11. 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 button on the Main screen.

12. 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 batch hopper system has a diverter.

UTILITIES SCREEN

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

1	**12000** WEIGH HOPPER MAXIMUM WEIGHT
	SHUTDOWN TIMERS (SECONDS)
2	**10** SCALE FILL CONVEYOR
3	**9** UNDERBIN #1 CONVEYOR
4	**8** TRANSFER CONVEYOR
5	**7** TRANSITION CONVEYOR
6	**6** UNDERBIN #2 CONVEYOR
7	**5** OUTLET CONVEYOR

8 ✖

9 BIN SITE REPORTS
10 ALARMS
11 SECURITY
12 CUSTOMER INFO
13 About...
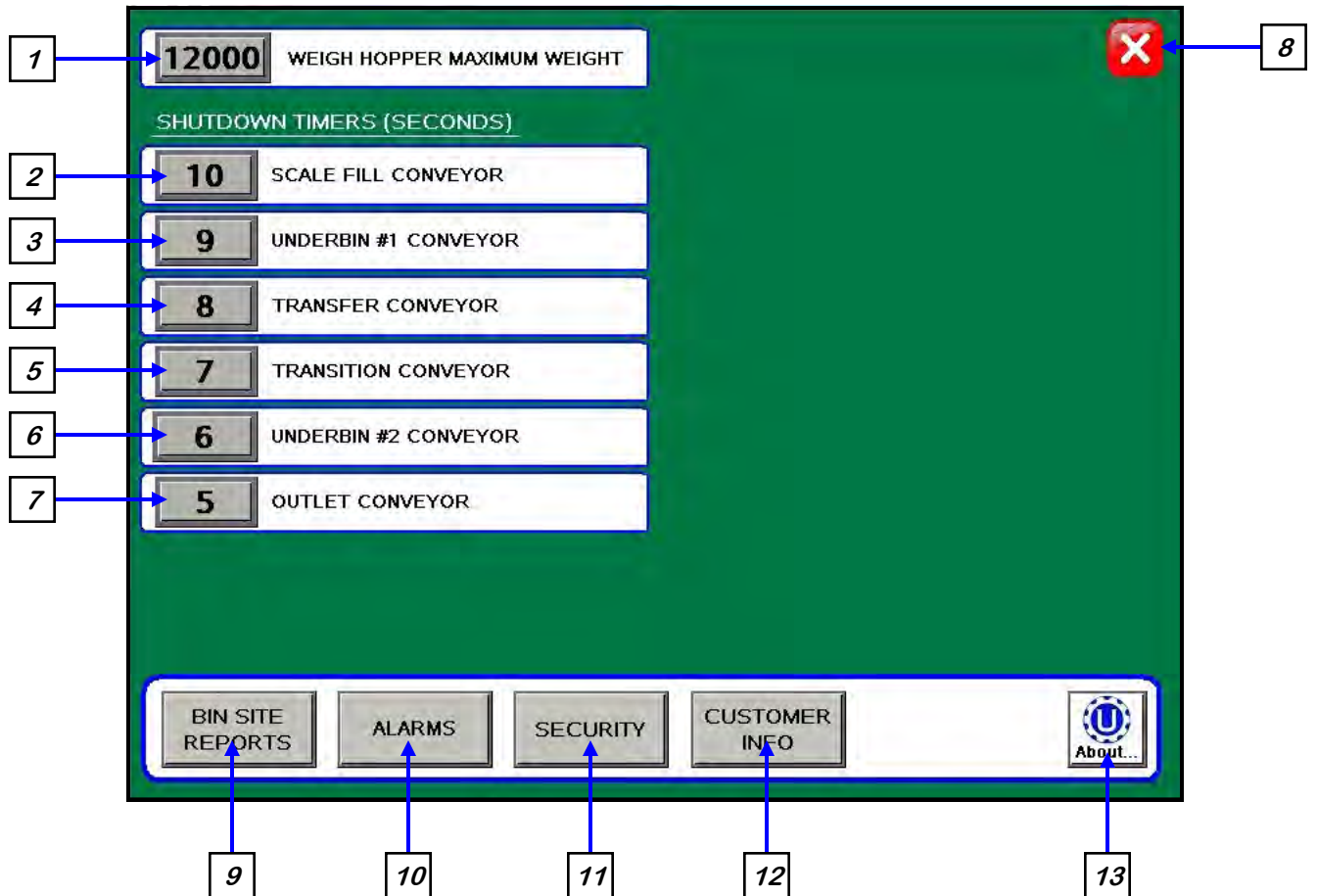
NOTICE When buttons 1-7 are pressed, a numeric touch pad (right) will appear allowing the operator to enter in a number for that particular parameter.

```
                                    0.00
Esc     7      8      9       ←
◁       4      5      6       ▷
        1      2      3      Clr
+/-     0      .        Enter
```
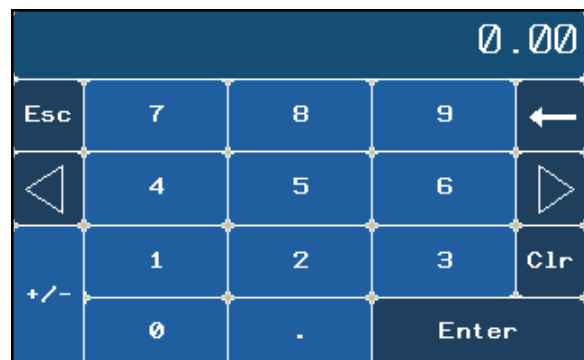
Utilities Screen Button Descriptions

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.

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. 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.

5. TRANSITION CONVEYOR SHUTDOWN TIME (optional): Pressing this button allows the operator to adjust the shutdown time of the transition conveyor. This timer will allow the transition conveyor to clean itself out.

6. 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 batch is finished and will allow the underbin conveyor to clean itself out. This button will only be present if the batch hopper system has a second underbin conveyor.

7. OUTLET CONVEYOR SHUTDOWN TIME: Pressing this button allows the operator to adjust the shutdown time of the outlet conveyor. This timer will always be set to the longest shutdown time to be sure all other conveyors and the treater have cleared themselves of seed and shutdown down.

8. SCREEN EXIT BUTTON: Pressing this button is used to exit back to the previous screen. Its functionality is the same throughout the HMI display.

9. BIN SITE REPORTS BUTTON: Pressing this button advances the operator to the Bin Site Reports screen.

10. ALARMS BUTTON: Pressing this button advances the operator to the Alarms screen. (page 55)

11. SECURITY BUTTON: Pressing this button advances the operator to the Security screen. (page 27)

12. CUSTOMER INFO BUTTON: Pressing this button advances the operator to the Customer Information Screen. (page 33)

13. ABOUT USC BUTTON: Pressing this button allows the operator see what software release is installed in the system.

BATCH WEIGH HOPPER SYSTEM
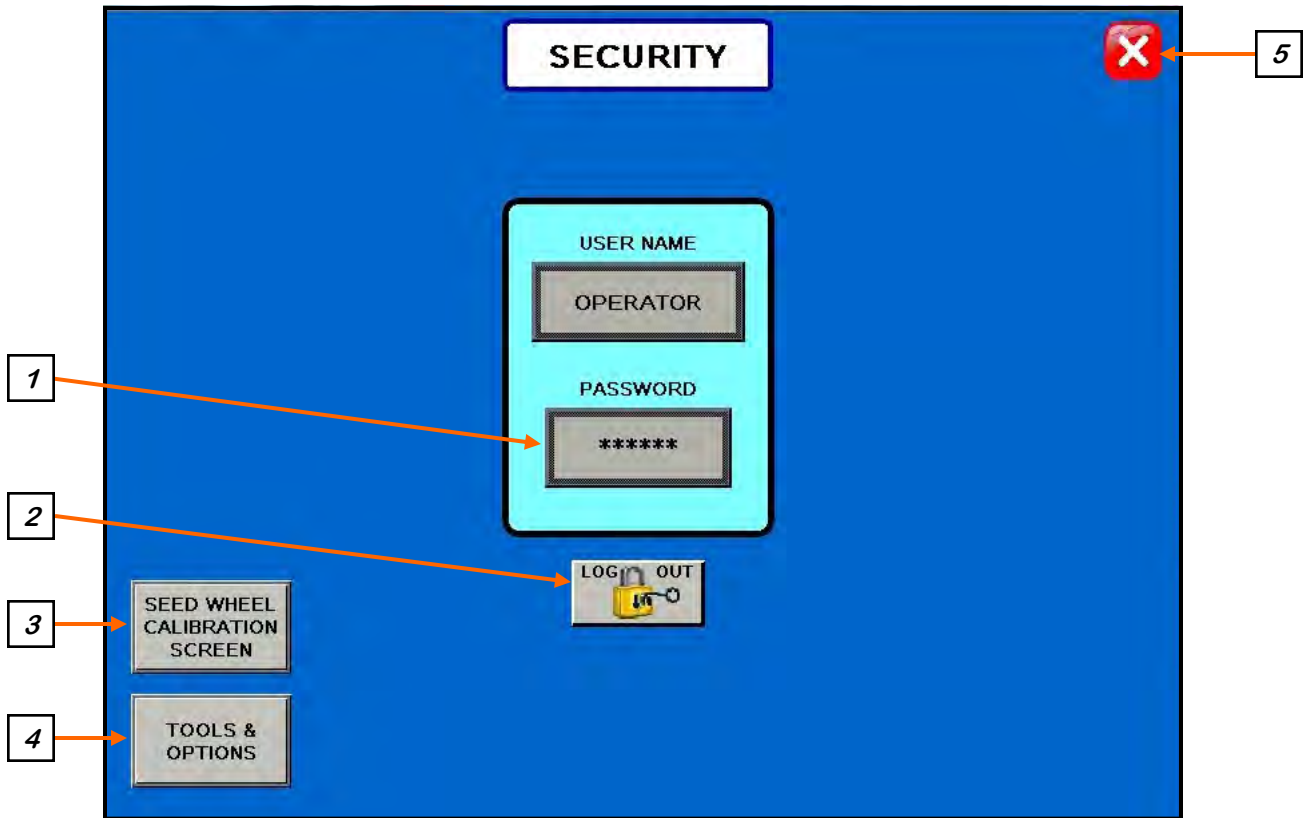
## SECURITY SCREEN

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 (below) will appear on the screen The password is **USC** and should only be made accessible to personnel qualified to operate the batch hopper system. The User Name will stay OPERATOR.

<u>**Security Screen Button Descriptions**</u>

<u>*2. LOGOUT BUTTON:*</u> Pressing this button will log the operator out of the Security screen. However, the operator will be automatically logged out after 5 minutes of inactivity on the touch screen.

<u>*3. SEED WHEEL CALIBRATION SCREEN (Optional):*</u> Pressing this button will advance the operator to the Seed Wheel Calibration screen (below). This option only appears if the batch hopper system is working in conjunction with a USC PLC based seed treater.
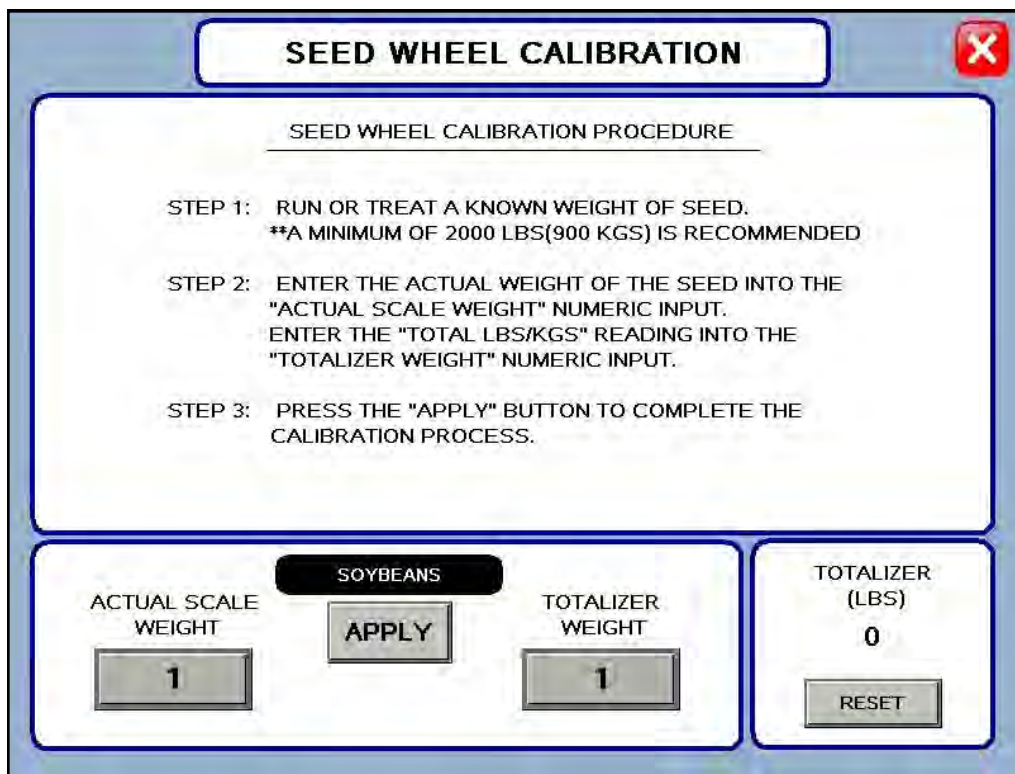
<u>*4. TOOLS & OPTIONS:*</u> Pressing this button will advance the operator to the Tools & Options screen.

<u>*5. SCREEN EXIT BUTTON:*</u> Pressing this button is used to exit back to the previous screen. Its functionality is the same throughout the HMI display.

TOOLS & OPTIONS SCREEN
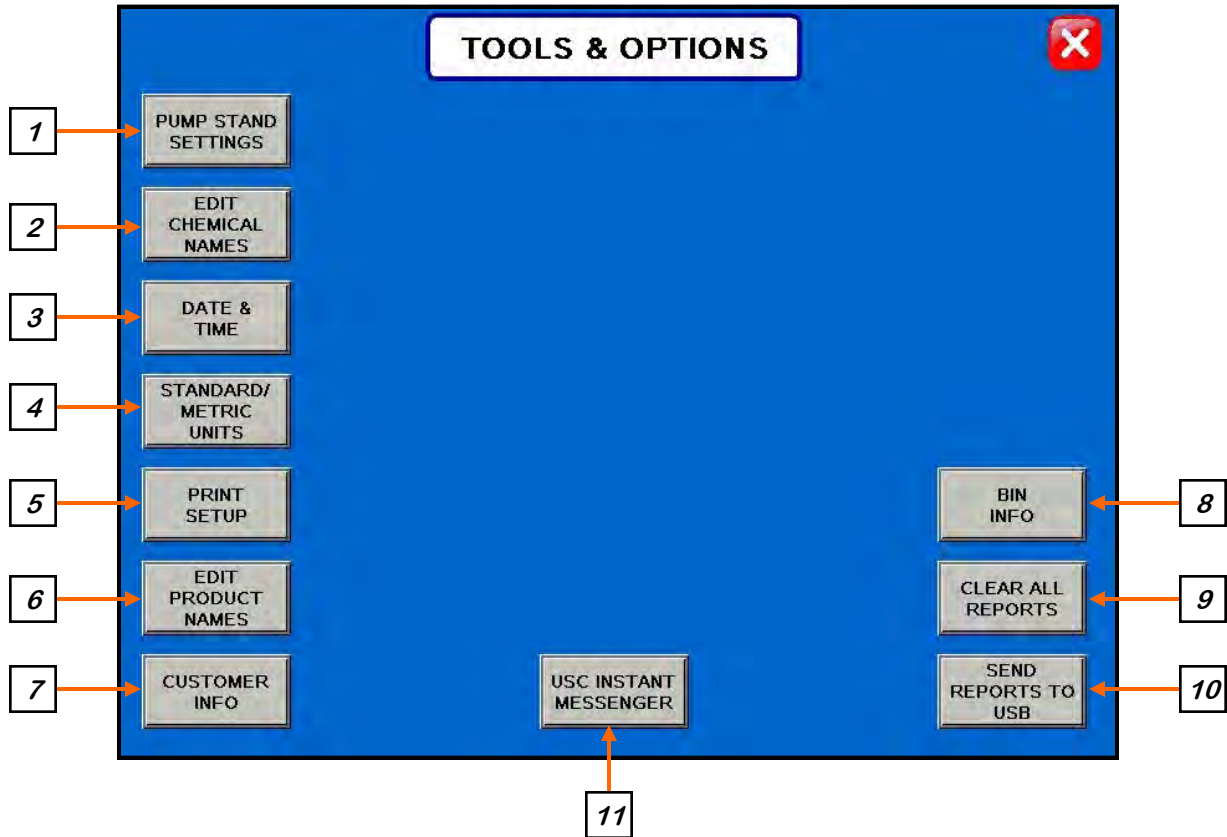
Tools & Options Screen Button Descriptions

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.
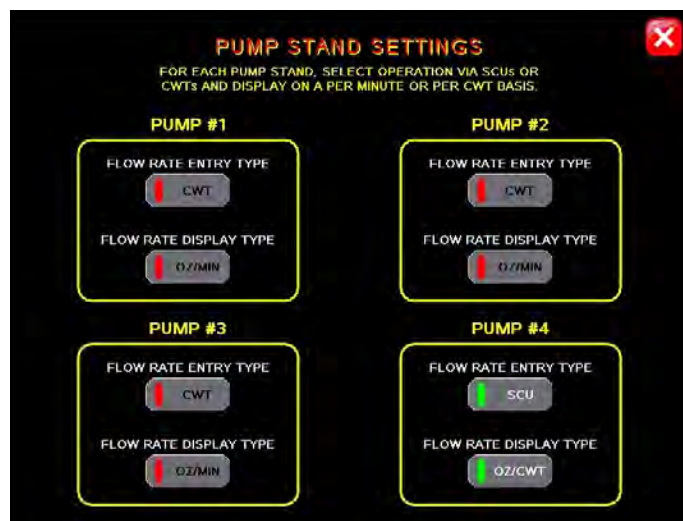
Tools & Options Screen Button Descriptions

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).

Chemical Name

Press this button to bring up the Chemical Factor Calculator

Tools & Options Screen Button Descriptions

2. *EDIT CHEMICAL NAMES (continued):* Selecting the light bulb help button in the upper left corner brings up the Flow Meter Calibration instructions.
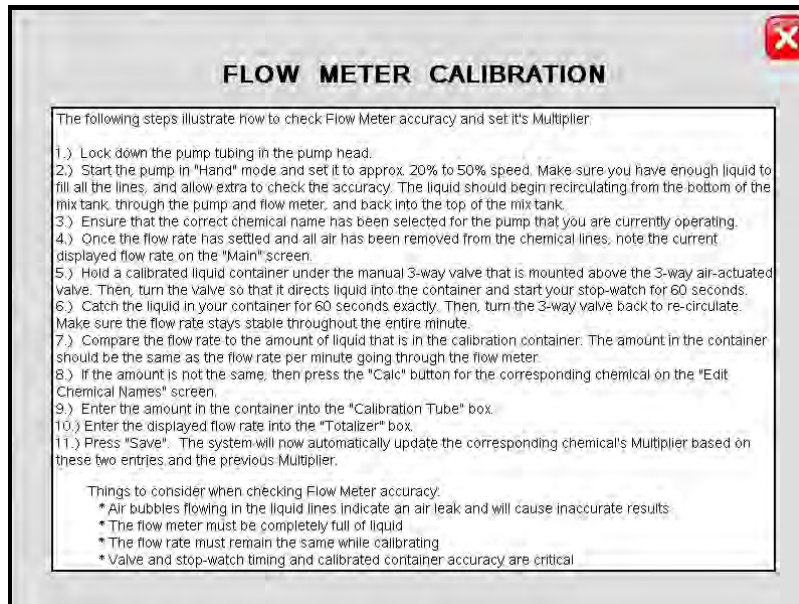
3. *DATE & TIME:* Allows the operator to set the date and time.
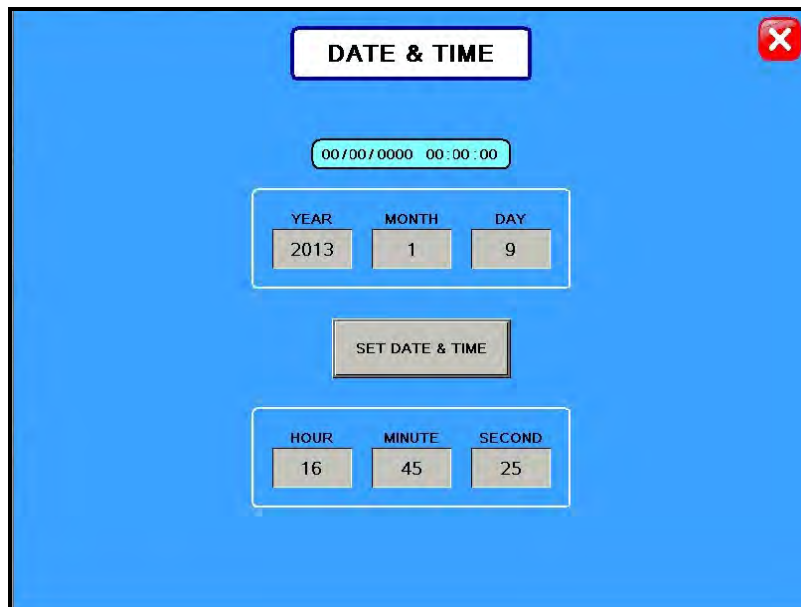
Tools & Options Screen Button Descriptions

<u>4. *STANDARD/METRIC UNITS:*</u> Allows the operator to switch between Standard or Metric units of measurement. When this button is pressed a window will appear which will allow the operator to the select the desired units of measurement.
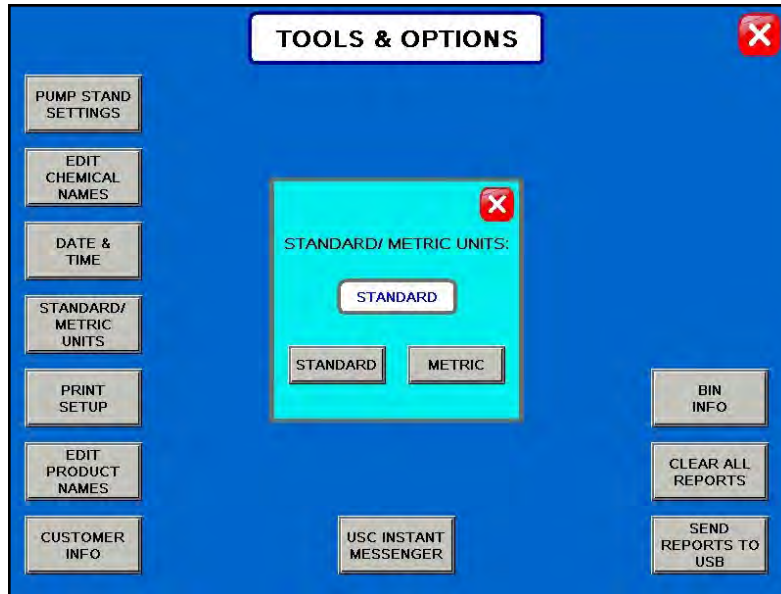
<u>5. *PRINT SETUP:*</u> Allows the operator to set up their personal company information which will be printed at the top of each report. Pressing the button will advance the operator to the screen below. The company information can be entered by selecting the blank space under each heading. The operator 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.
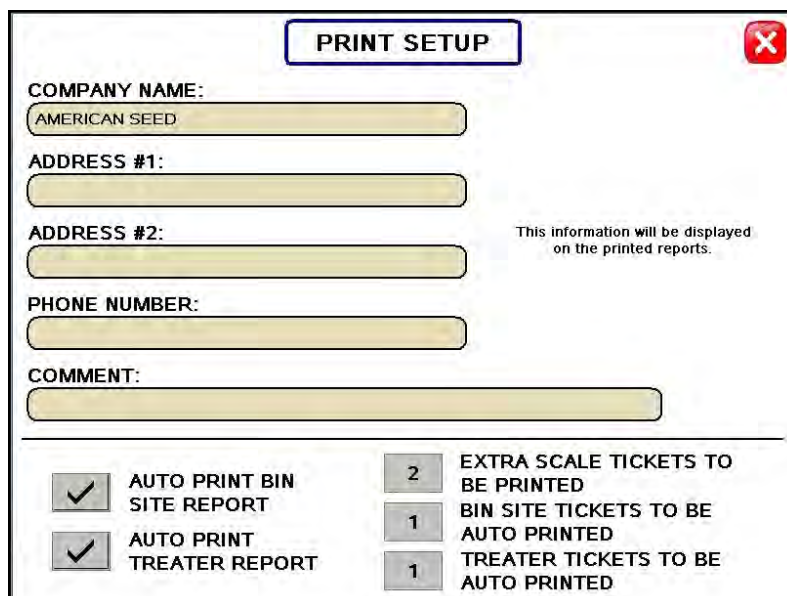
Tools & Options Screen Button Descriptions

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.
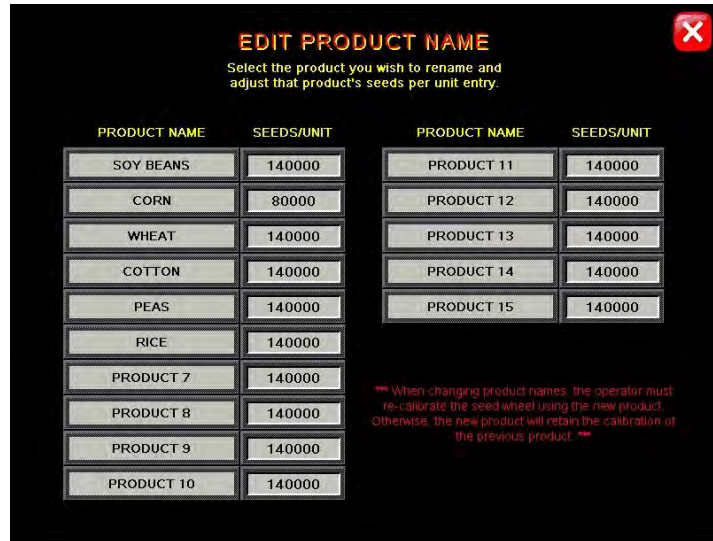
7. CUSTOMER INFO: Pressing the button will advance the operator to the Customer Info screen (bottom left). If you are looking for a specific customer you may press the < ENTER SEARCH NAME> button and key in the name or use the arrows to scroll through the listing. Selecting the CREATE NEW ENTRY button (bottom, right) allows the operator to create a new customer listing. After the new customers information has been entered press the SAVE button. This will turn the CONFIRM button red. Press CONFIRM and it turns green verifying the data has been saved. The operator may copy all reports to or from a flash drive. Insert the drive in the USB port located on the bottom of the panel (see page 49). Press the Copy to USB or the Copy from USB button to save your data.
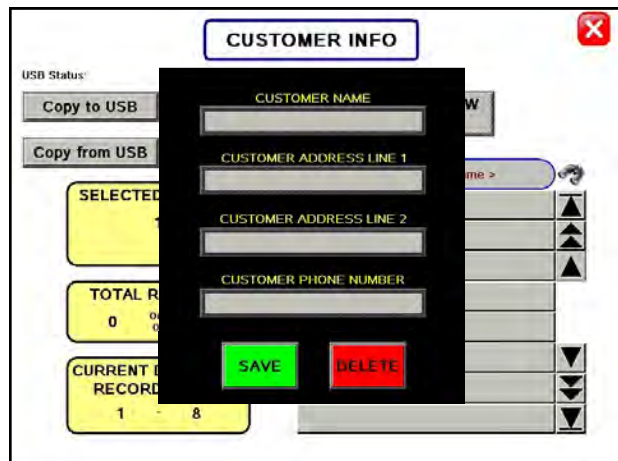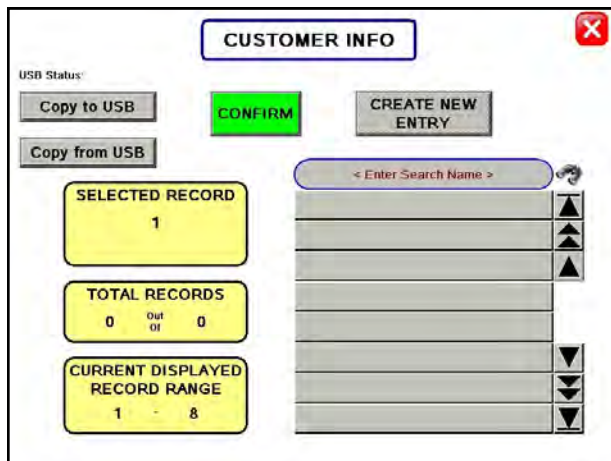
Tools & Options Screen Button Descriptions

8. BIN INFO: Pressing this button will advance the operator to the Bin Info screen. This screen allows the operator to select a particular bin and enter the information for the seed that will be loaded into it. Select the bin from the Select Bin list on the let side of the scceen. Select the Seed Type field and a drop down menu displays the seed types entered in the Product Name screen. Select Seed Variety, Lot Number, Seeds / Pound or Cup Weight and a numeric keypad appears to allow you to enter their values. After entering all the information the SAVE button must be pressed for the bin site system to retain the information.

Below the Cup Weight button are Flow Rate and Travel Time. These indicators show the flow rate and travel time but unlike the indicators on the main screen these are also active buttons allowing the operator to make a temporary adjustment to bring the run totals to the desired amount. Push the FLOW RATE button and increase or decrease the pounds per minute, then select the CALC ADJ. button and the system automatically adjusts the duration the bin slide gate stays open. The number of seconds needed to compensate is then displayed in the Gate Time Adj. field. The operator may also manually change these parameters.

The inventory of the bin may also be entered on this screen. Enter the amount of inventory that is to be added or subtracted into the Amount to Adjust Inventory box and then press and hold the "+" or the "-" box for 3 seconds. The total amount of inventory in the bin will be displayed in the white box above the amount to be adjusted.

AUTO Cal. button

Displays the total inventory in the selected bin

Enter the amount of seed that is to be added here.
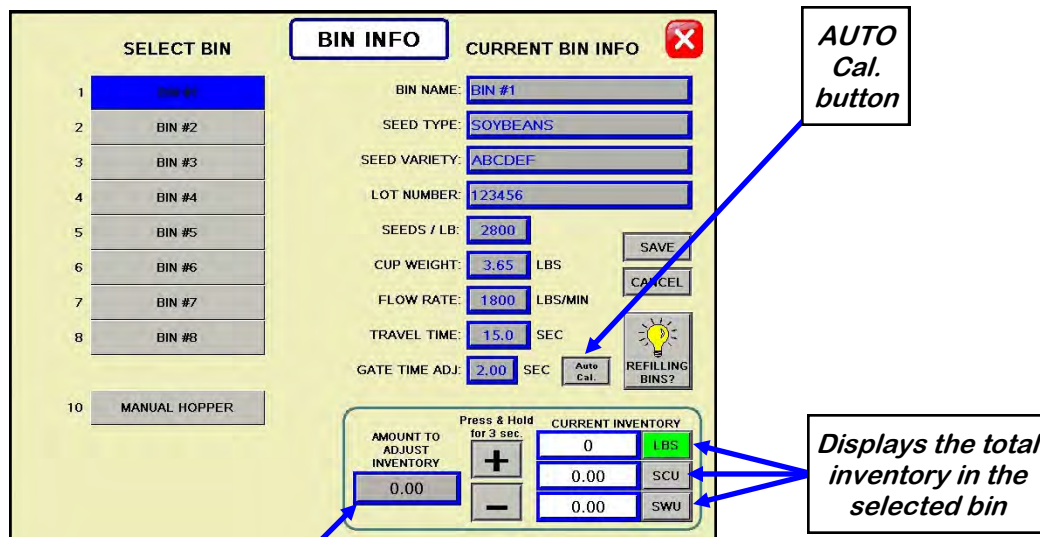
Tools & Options Screen Button Descriptions

8. BIN INFO (continued) : Help button.



Select for helpful Information Regarding Bin Refill
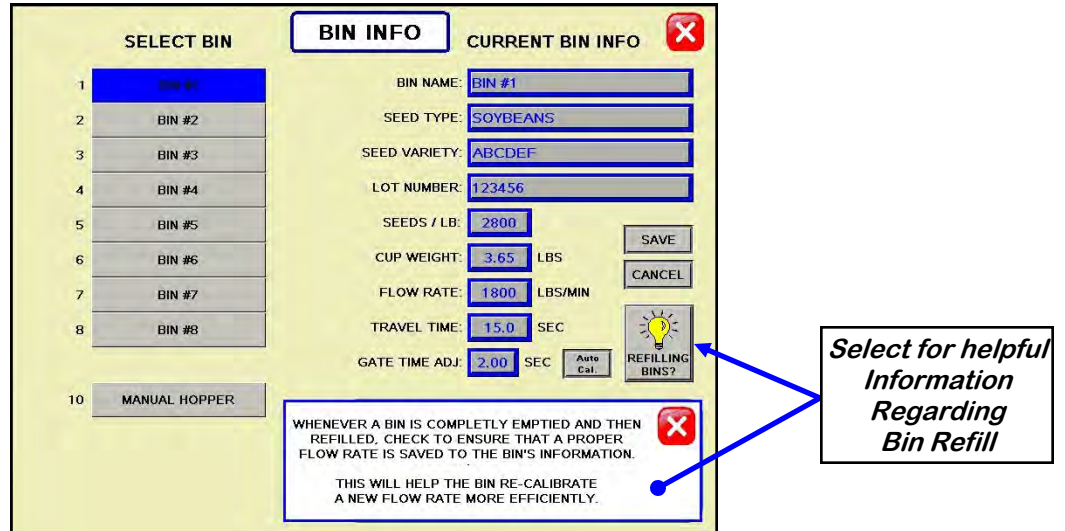
9. CLEAR ALL REPORTS: Pressing this button will open a window which will ask the operator if they want to clear all the saved reports. If YES is pressed then the reports will be permanently erased. The operator MUST NOT leave the screen until all files have been cleared out.
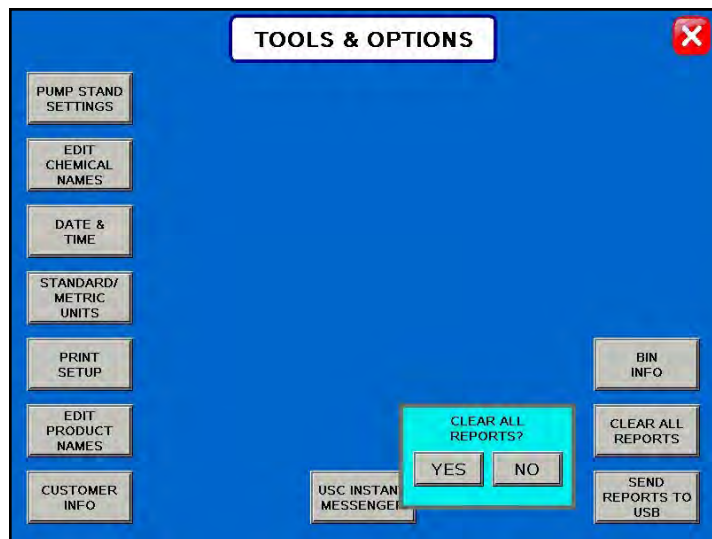
Tools & Options Screen Button Descriptions

10. SEND REPORTS TO USB: Pressing this button will open a window which will ask the operator if they want to send reports to a USB device. Insert a compact flash device into the USB port on the left side of the control panel. The device must be in the FAT32 format. Press YES and the reports will be downloaded.
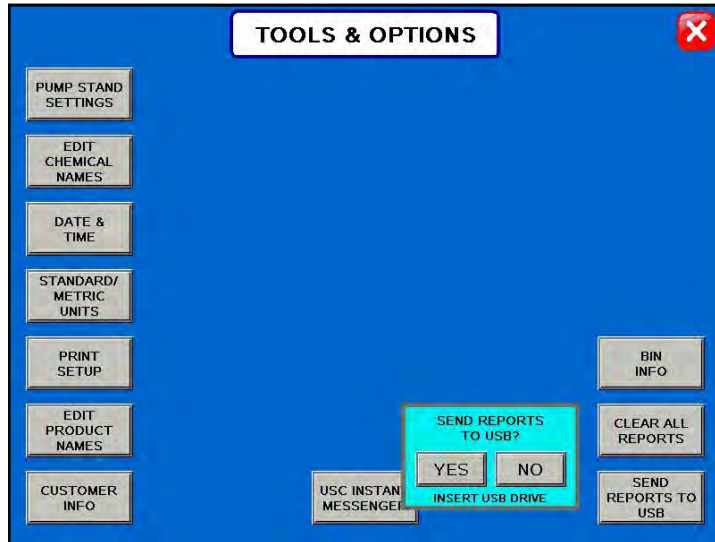
11. USC INSTANT MESSENGER: Pressing the button will advance the operator to the Instant Messenger screen. This allows the operator to communicate with the technical support staff. This option only functions if the operator has U-Connect light installed on their laptop or U-Connect Pro is connected to the control panel using a thin client to make the connection.
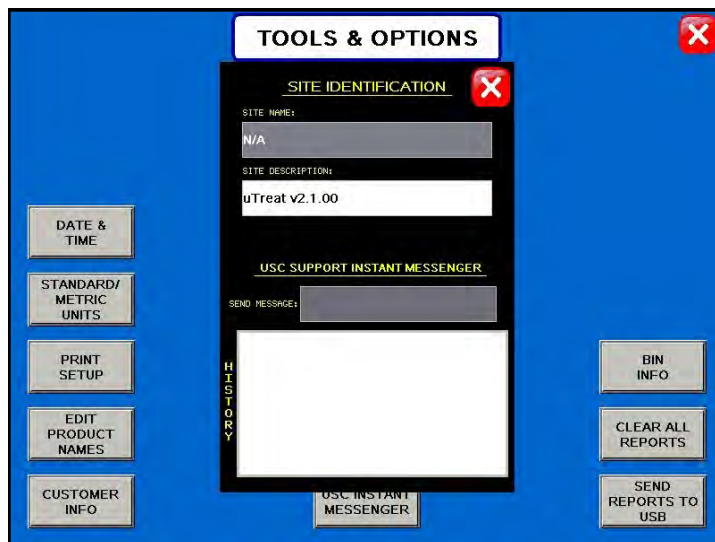
Calibration & Operation

DETERMINING SEED CUP WEIGHT

The following is a list of steps to use when determining seed cup weight. A seed calibration cup, funnel, stand and scale are required.

1. Set the empty seed calibration cup on the scale and zero out the weight of the cup.

2. Place the funnel and stand in the seed to be treated or a separate container (figure 1). This will help to avoid any unnecessary clean-up while filling and leveling the top of the seed calibration cup.

3. Place your hand under the bottom of the funnel and fill the funnel up with seed.

Seed Calibration Cup

4. Place the calibration cup under the funnel stand and remove your hand from the bottom of the funnel, and allow the cup to be filled. (figure 1)

5. After the cup has been filled, strike off the top of the seed calibration cup with a straight edge. (figure 2)

NOTICE Do NOT shake the cup.

6. Weigh the sample of seed. (figure 3)

NOTICE A typical weight of the sample of seed will be anywhere between 2.8 to 4.0 lbs. Anything over or under this range could be caused by not zeroing out the weight of the cup, or the scale may be set on the wrong units.
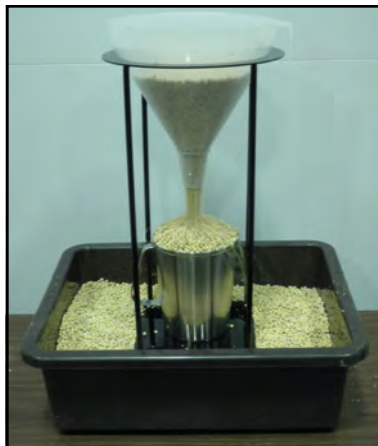
Figure 1

Figure 2

Figure 3

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LOADING SEED INTO BINS

Before seed is pulled out of the bins and run through the batch hopper system, all the applicable information about the seed that was loaded into each individual bin must first be entered into the batch hopper system. If the same seed was loaded into multiple bins the same information still needs to be loaded into each bin separately.

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. Also, note the seed type, seed variety, lot number, seed weight and total inventory weight of the seed that is loaded into the bin. The seed weight can be defined in either pounds, seed count units or seed weight units.

2. Press the UTILITIES button in the lower left corner of the Bin Site main screen.

3. Press the SECURITY button on the bottom of the Utilities screen.

4. Press the PASSWORD box, then from the popup keyboard enter the letters USC and press enter.

5. Press the TOOLS & OPTIONS button in the lower left hand corner of the Security screen.

6. Press the BIN INFO button on the Tools & Options screen.

Enter the letters **USC** here.
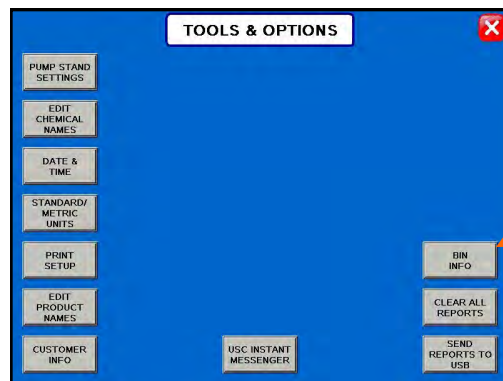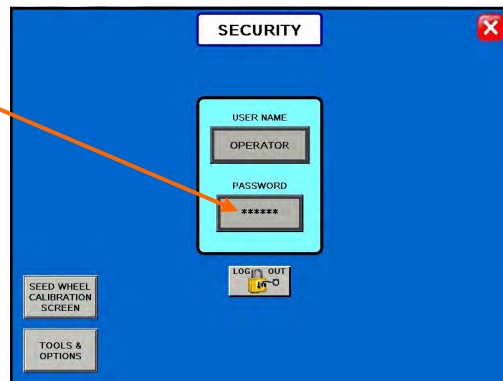
Press this button to enter the Bin Info screen.

LOADING SEED INTO BINS

7. Select the desired bin to enter information into from the select bin list..

8. Enter the seed type, seed variety, lot number, seeds per pound and cup weight of the seed in the bin into their respective box under the Current Bin Info.

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. The system will automatically subtract inventory after each run. Press the save button when all the information has been entered.

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 batch hopper system. Repeat steps 1 & 2 for each bin.

1. Set the manual gate on the bin to the fully 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 45)

2. Set the stop for the air actuated slide gate on the bin. This stop controls how far the slide gate will open and the flow rate 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 45)

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 flow rate 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.

Move the position of the collar along this rod to adjust the flow of seed through the bin slide gate.

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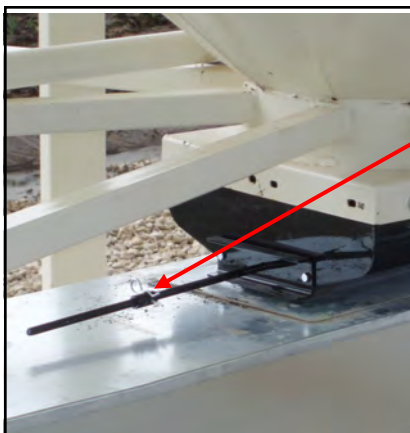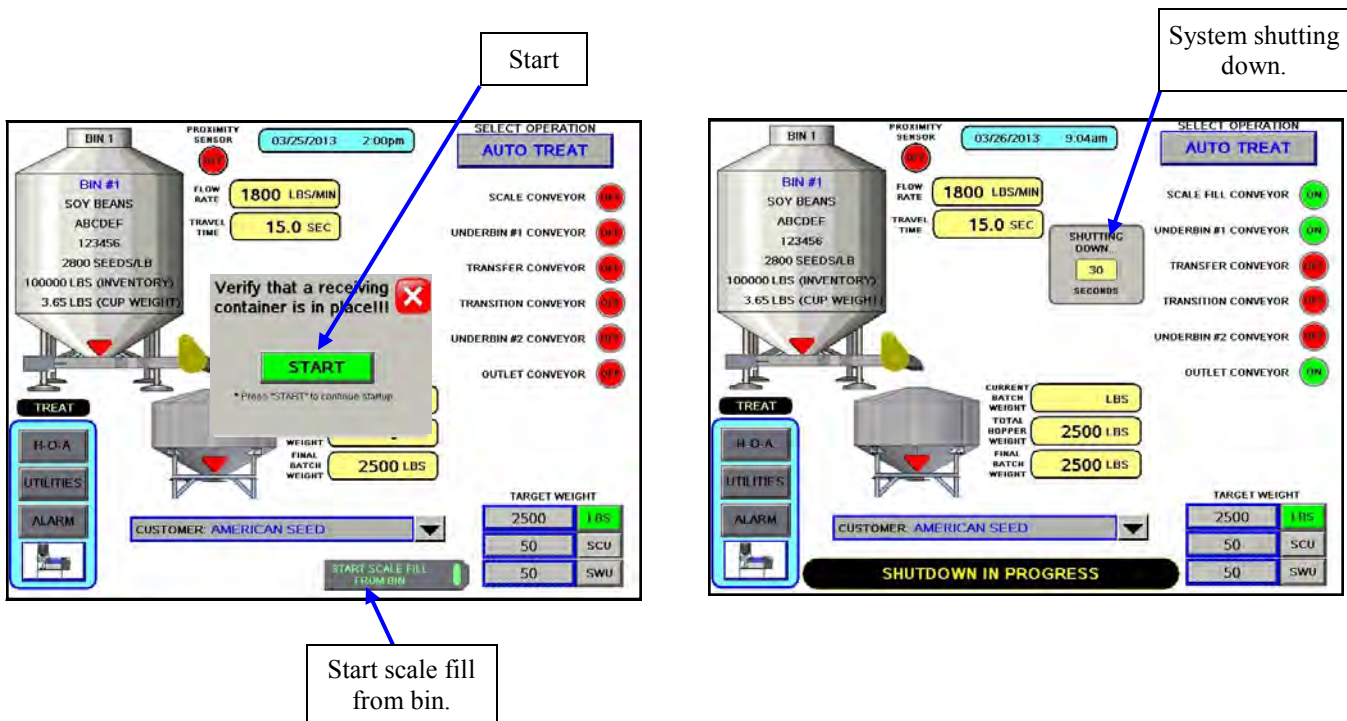
<u>SCALE FILL FROM BIN</u>

The following is a list of steps to use when running the batch hopper system in the Scale Fill From Bin mode of operation. This allows the operator to automatically fill the scale from the bin.

1. Select the bin that you wish to call seed from by pressing the image of the bin on the Main screen and then select the bin from the pop-up menu . (right)

2. Press SELECT PROCESS and then select either AUTO TREAT or MANUAL TREAT / BYPASS mode of operation depending upon what you plan to do with the seed once it has been pulled from the bin and weighed by the batch hopper system.

3. On the Main screen, in the box labeled TARGET WEIGHT enter the amount of weight that is to be brought into the batch hopper on this run. (right)

4. Press the box labeled CUSTOMER at the bottom of the Main screen and enter in the current customer's name and any other applicable information.

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. (below right)
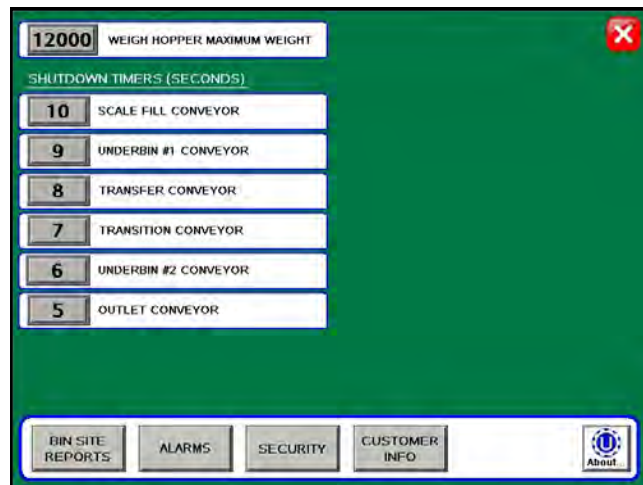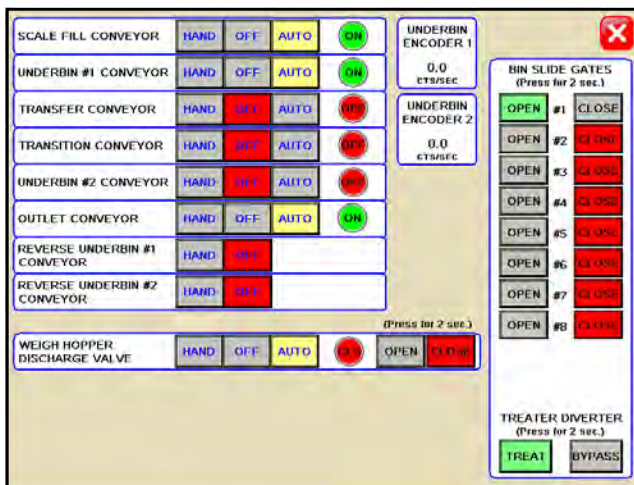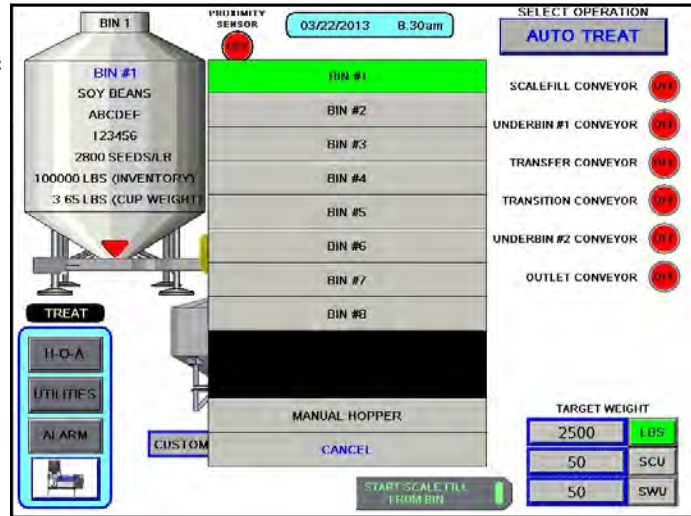
SCALE FILL FROM BIN

7. Return to the Main screen and press the START SCALE FILL FROM BIN button at the bottom of the screen. Then press START from the pop-up screen. This toggles the button to CANCEL SCALE FILL FROM BIN and activates the PAUSE 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 batch hopper. (left)

8. As the batch hopper system is running, the main screen will display the total pounds of seed in the weigh hopper, and the status of the conveyor motors.

9. 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 batch is finishing. It will then be replaced with another window indicating amount of time before the system shuts down. If operating in the Manual Treat mode the treater will have to be turned on and off separately. 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. (right)

10. There are two ways the seed will be removed from the hopper. If the system is running in the AUTO TREAT mode the hopper gate will open automatically at the appropriate time. In the MANUAL TREAT / BYPASS mode the operator must go to the H.O.A. screen, place the Weigh Hopper Discharge Valve in the HAND mode and press and hold the OPEN button.
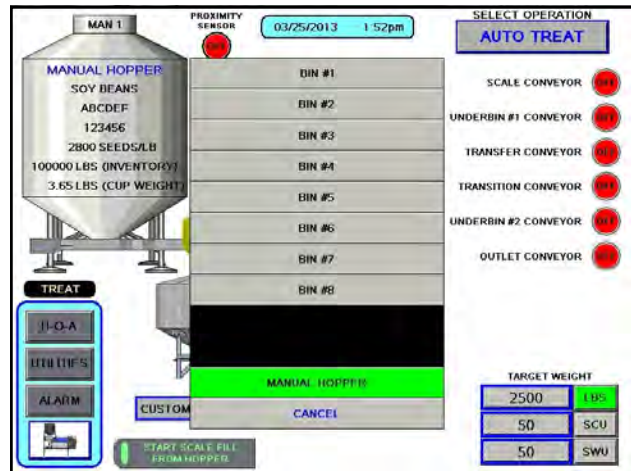

Start

Start scale fill from bin.

System shutting down.
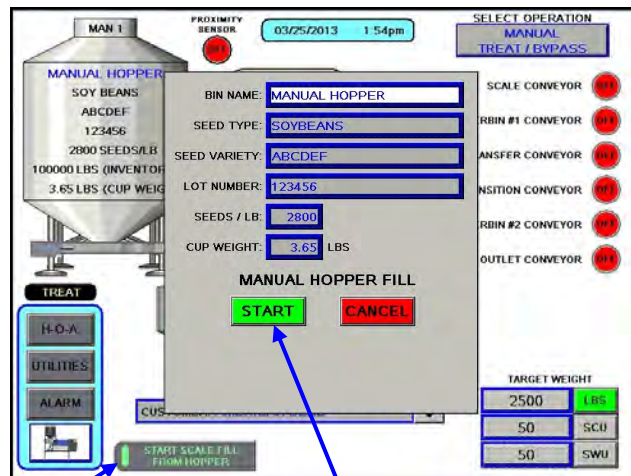
CALLING IN SEED FROM PRO BOXES

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

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.

3. Press the image of the bin and select MANUAL HOPPER from the pop-up screen. (top)

4. Press SELECT PROCESS and then select either AUTO TREAT or MANUAL TREAT / BYPASS mode of operation depending upon what you plan to do with the seed once it has been pulled from the Pro Box and weighed by the batch hopper system.

5. Press START SCALE FILL FROM HOPPER button at the bottom of the screen. Then press START from the pop-up screen. This toggles the button to FINISH SCALE FILL FROM HOPPER and activates the PAUSE button. (page 45) The system will first turn on the scale fill conveyor, the underbin conveyor, then the transfer conveyor (If applicable) and the outlet conveyor (If applicable). (bottom)

Start scale fill from hopper

Start

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CALLING IN SEED FROM PRO BOXES

6. As the batch hopper system is running, the Main screen will display the total pounds of seed in the batch hopper. If the system needs to be stopped for a moment because of a problem, the PAUSE button can be pressed to halt the process. When ready to begin again, the CONTINUE button is pressed.

7. Once all of the seed has passed from the manual hopper, through the conveyors and through the weigh hopper, press the FINISH SCALE FILL FROM HOPPER button. At this point, the conveyors will shutdown in reverse order of startup.

8. The system will automatically print the report for the run from the scale head printer.
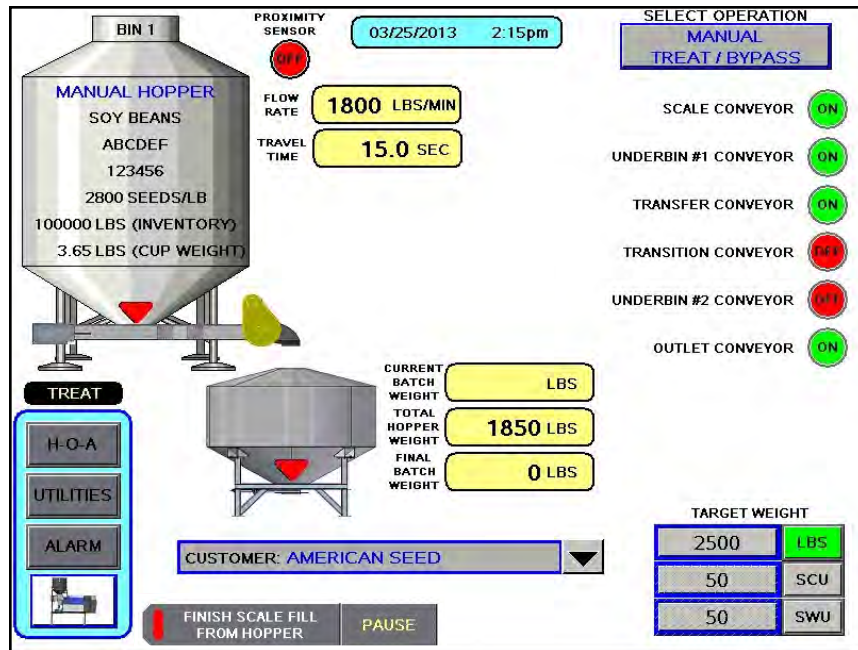
BATCH HOPPER CALIBRATION

Once the initial calibration is established, the system continuously updates the seed flow rate. The calibration is based upon time and weight. The system first calculates the amount of time it takes for the seed to travel from the bin slide gate to the weigh hopper. This is called the travel time. Then the system calculates how long it takes to fill the weigh hopper. This allows the system to calculate the seed flow rate of pounds per minute. Finally, the system uses the travel time and seed flow rate to calculate the amount of seed in the conveyors at any given time. Once this weight is known, it will automatically close the bin gate at the appropriate time to reach the target weight of seed that the operator has entered.

Initial calibration procedure:

1. Set the bin collar in the fourth hole from the end of the rod in. This sets the Flow Rate at approximately 1200 pounds. Adjust as needed (each hole adjusts up or down by approximately 200 pounds). These figures are based on Soybeans.

2. From the main screen check the Flow Rate to verify it is at the default setting of 1800 lbs/min and the Travel Time is at it's default of 15.0 sec. Then set your Target Weight at 2000 pounds. This Target Weight is recommended but not necessary depending on the setup. After the run, check to see if the Flow Rate and Travel Time have changed from the default settings. If they have the system has been successfully calibrated. Each bin must be individually calibrated. As long as there have been no pauses or alarms the system will re-calculate and update the flow rate display after the run is complete. For the Travel Time to update, there must be seed in the hopper before the bin slide gate closes

NOTE: If you change the location of the bin collar or the bin runs out of seed before the Target Weight is reached the system will need to be re-calibrated.
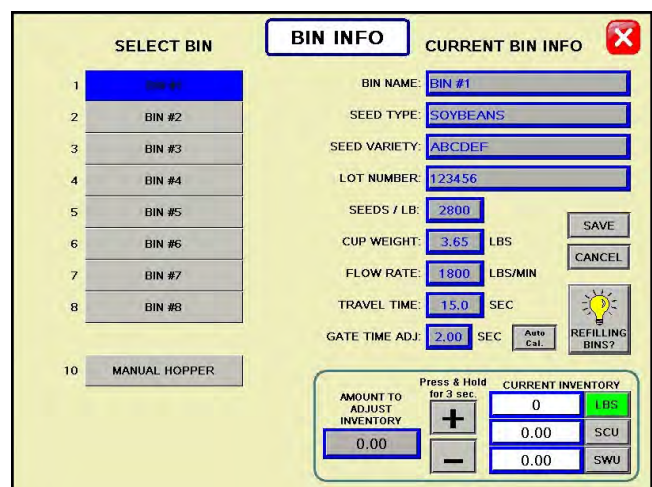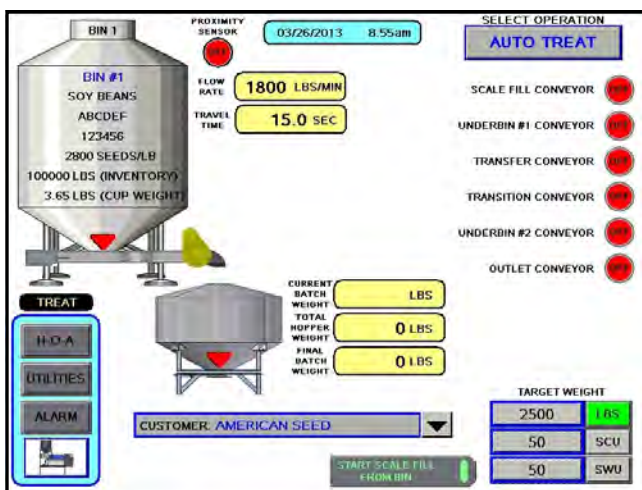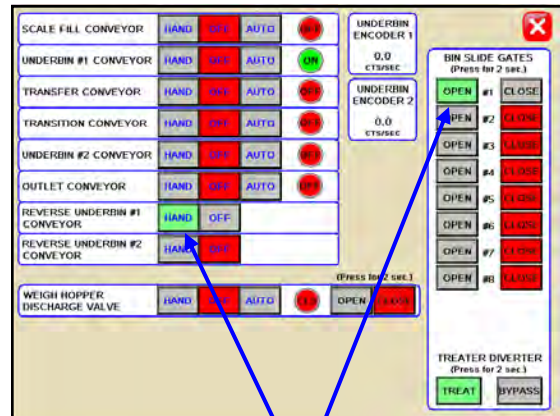
UNDERBIN OPERATION IN REVERSE MODE

The following is a list of steps to use when running the batch hopper 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 UNDERBIN CONVEYOR for the underbin conveyor will only be present if the batch hopper 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 REVERSE UNDERBIN CONVEYOR operation in the HAND mode. (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 batch hopper main screen will show the underbin conveyor on and the 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.

Press the "HAND" button and then place the bin slide gate to the "OPEN" position.

Slide Gate Indicator.

USC
Seed Treating Solutions®
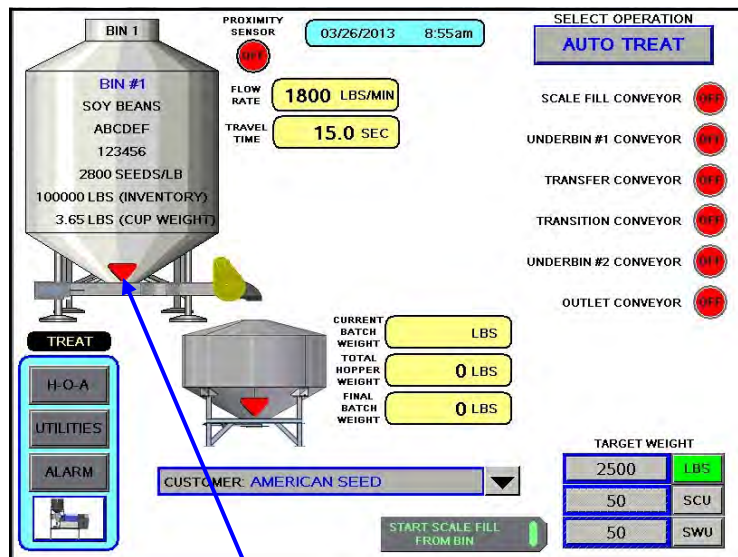
EDITING & PRINTING REPORTS

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

1. After the SHUTDOWN button has been pressed a window will pop-up notifying the operator that the system will shut down after a specified amount of time. (right)


2. Once the data has been saved, the operator may access it from the BIN SITE 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 BIN SITE REPORTS screen (bottom). From this screen you may change the customer name. Pressing the customer name will bring up a keypad to enter the name with. Or you may select the arrow to the right of the name to scroll to the customers name. When finished the operator can press the OK button to save the data.

Edit Button

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.

Print Button
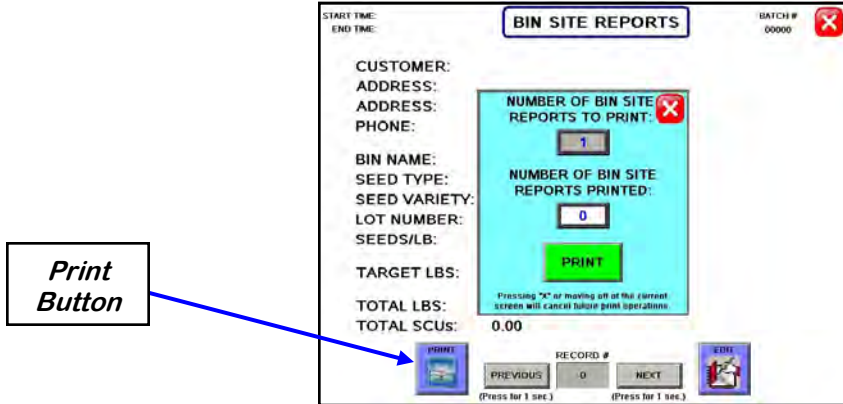
4. If the Auto Print Bin Site Report has been activated on the Print Set-up screen (see page 32) steps 2 and 3 will not be required. The print verification screen will appear and automatically print the number of reports specified.

5. 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.

BATCH WEIGH HOPPER SYSTEM
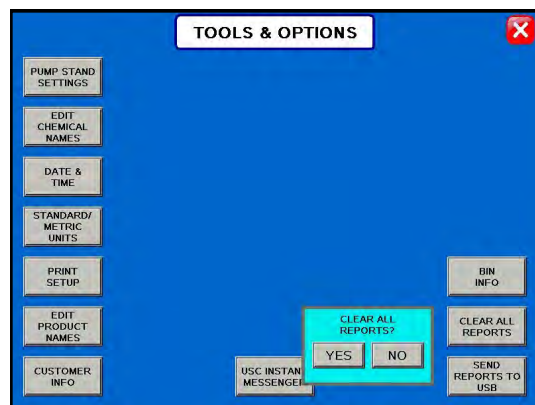
DOWNLOADING REPORTS

The USB port located on the bottom of the Main Control Panel allows the operator to download reports to a compact flash device.

USB Port

Use the following steps to download 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 BIN SITE REPORT 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.

PAGE 49
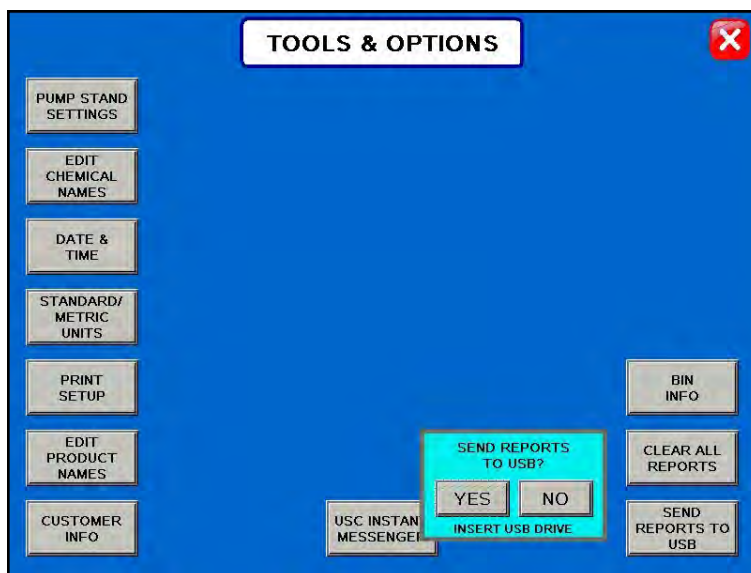
DOWNLOADING REPORTS

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.

FROM TEXT

DATA

EXTERNAL DRIVE

FILE TYPE

USC
Seed Treating Solutions®
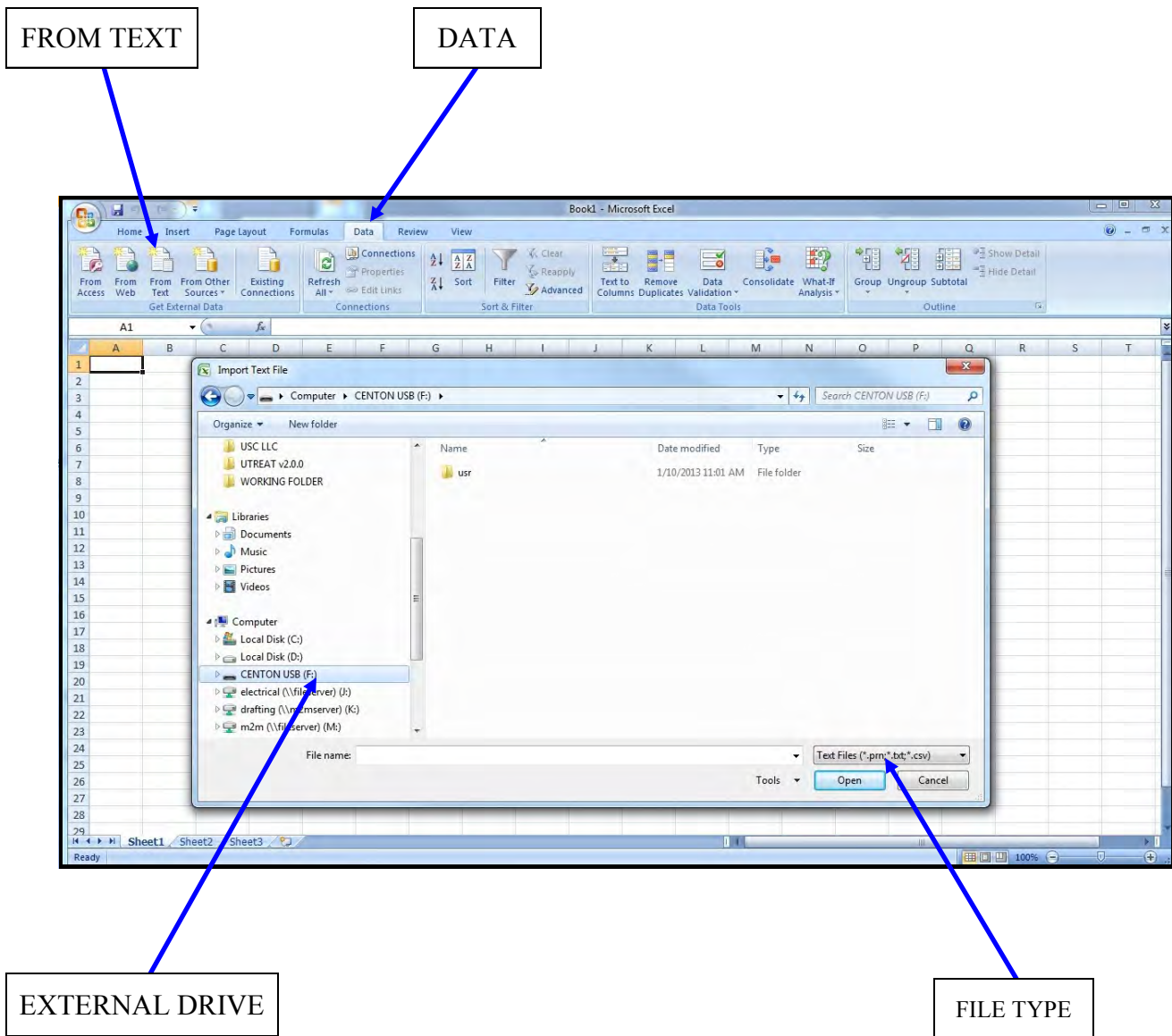
DOWNLOADING REPORTS

7.   Under Original data type select Delimited. Change Start import row to 3, then click Next.
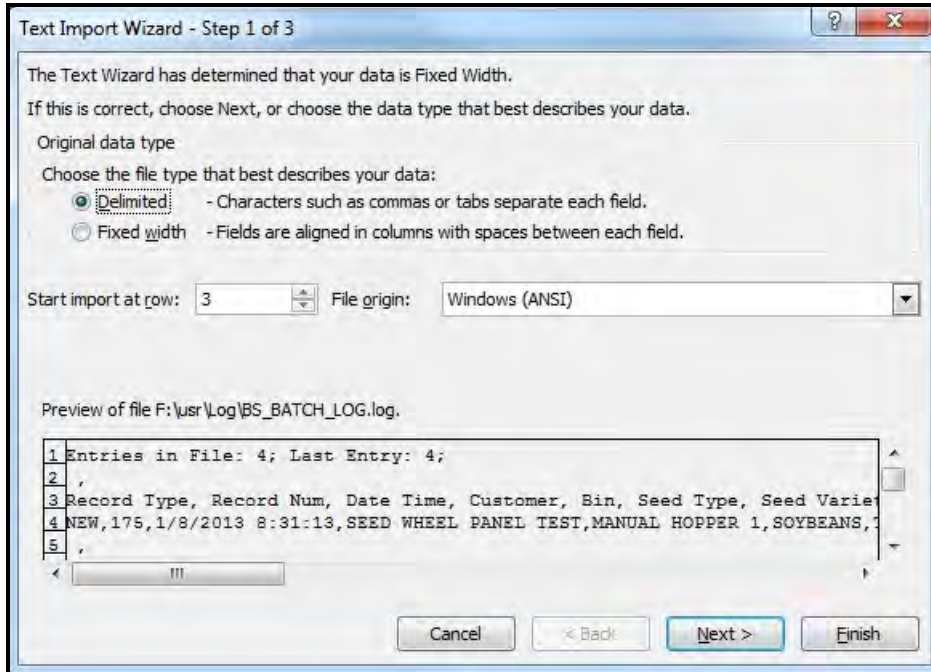
8.   Under Delimiters deselect Tab and select Comma. Then click Next.
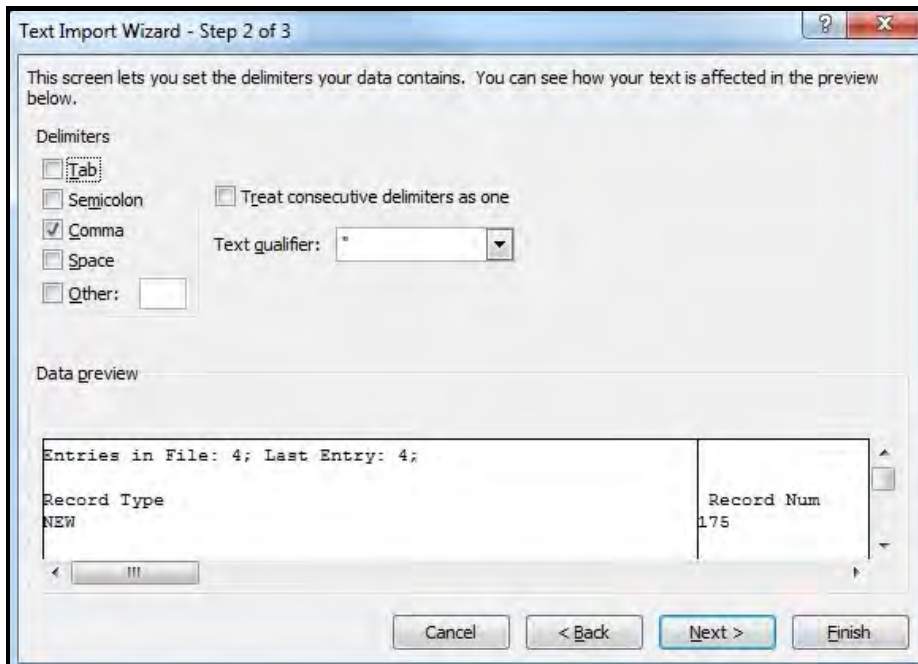
DOWNLOADING REPORTS

9. Click Finish and the Import Data window appears. Click OK.
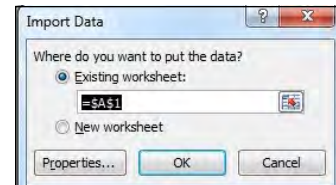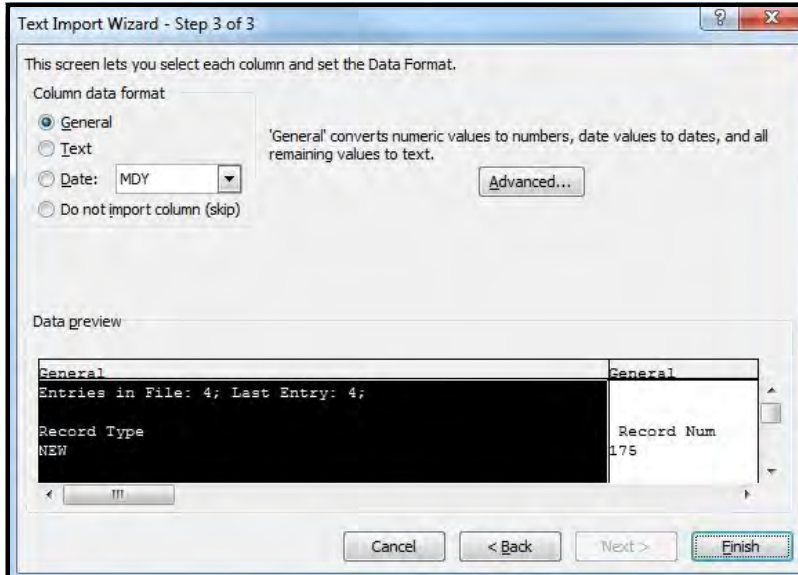
10. The Report conversion process is complete. In the File menu, click Save As and file the report.

TROUBLESHOOTING & ALARMS SECTION D

TROUBLESHOOTING

Below is a table describing the most frequent problems and solutions with the USC Batch Weigh Hopper system. For further assistance, contact USC at (785) 431-7900.
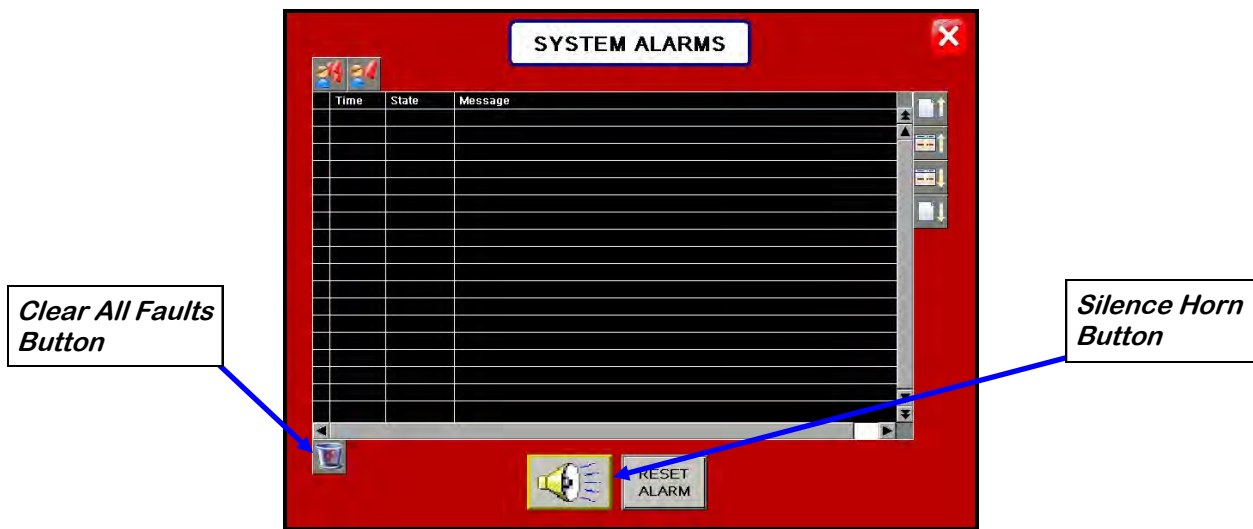
Problem	Possible cause	Solution
System is not consistently calibrating correctly.	1. Bin slides gates or manual gates have been moved. 2. Underbin conveyor belt is slipping. 3. Bin slide gate is not consistently opening to the same point. 4. The operator is pressing the CANCEL SCALE FILL button before the run ends. 5. System is being paused during the run.	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. Allow the system to shutdown on its own. 5. Make another run without pausing system.
System calibration for currently selected bin is incorrect.	1. System is too far out of calibration to recalibrate automatically.	1. Recalibrate the system. (see page 45)
Weight display not reading steady (Bouncing)	1. Bad load cell. 2. Wind Drafts.	1. Replace load cell. 2. Close doors.
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.
Scale is reading incorrect weight.	1. Something is touching the scale. 2. Scale needs recalibrated. 3. Ethernet cable may be damaged or receiving electrical interference	1. Ensure that the area around the scale is clean and that nothing is leaning on or resting on the hopper. 2. Zero scale. If still incorrect, have a professional scale technician recalibrate the scale. 3. Ensure that Ethernet cable is not located directly next to any electrical lines.

Problem	Possible Cause	Solution
No bin slide 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 bin site 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.
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 bin slide gate has at least 100 psi of air being supplied to it.
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.
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.
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.
The touch screen has warning triangles on each button.	1. The bin site PLC may be off.	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.
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.

SYSTEM ALARMS - FAULTS

The table below and on the following pages provides a general description of all the system alarms (faults & warnings) of the Batch Weigh Hopper 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 Pause 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 and the Reset Alarm button is pressed. The horn is silenced by pressing the Silence Alarm button on the Alarms screen. For further assistance, contact USC at (785) 431-7900.

Clear All Faults Button

Silence Horn Button

| Alarm - Fault	Possible Cause	Solution
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.
Bin Site SURGE SUPRESSOR-FAILED!!!	1. L1 of the Surge protector will no longer protect the electrical panel against voltage surges.	1. Replace the Surge Protector.
Underbin Conveyor - check for belt slippage/check speed sensor	1. Underbin Conveyor belt is slipping. 2. Underbin Conveyor Speed encoder 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.

Alarm - Fault	Possible Cause	Solution
Conveyor #1 Motor Fault	1. Conveyor #1 motor auxiliary contact was not sensed after being energized to run. 2. Conveyor #1motor 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 Conveyor #1 was not turned OFF while the system was in Auto mode of operation.
Conveyor #2 Motor Fault	1. Conveyor #2 motor auxiliary contact was not sensed after being energized to run. 2. Conveyor #2 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 Conveyor #2 was not turned OFF while the system was in Auto mode of operation.
Conveyor #3 Motor Fault	1. Conveyor #3 motor auxiliary contact was not sensed after being energized to run. 2. Conveyor #3 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 Conveyor #3 was not turned OFF while the system was in Auto mode of operation.
Conveyor #4 Motor Fault	1. Conveyor #4 motor auxiliary contact was not sensed after being energized to run.	1. Verify that the motor starter has power and is turned on.
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.

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 FROM BIN button can be pressed to start the system.
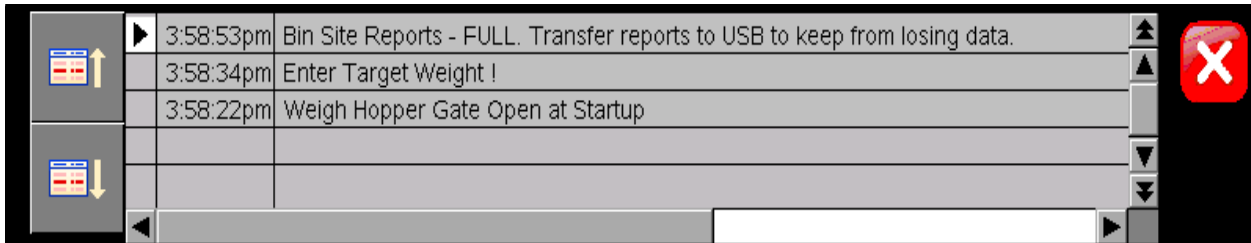
Message
Scale Fill Conveyor Not In Auto For Startup
Transition Conveyor Not In Auto For Startup:
Underbin Conveyor Not In Auto For Startup
Diverter in Treat position at Startup
Weigh Hopper Gate Open at Startup
Enter Target Weight!
Scale Unstable - Stabilize scale to continue operation.
Diverter in Bypass 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 J

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, EX-PRESSED 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.

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