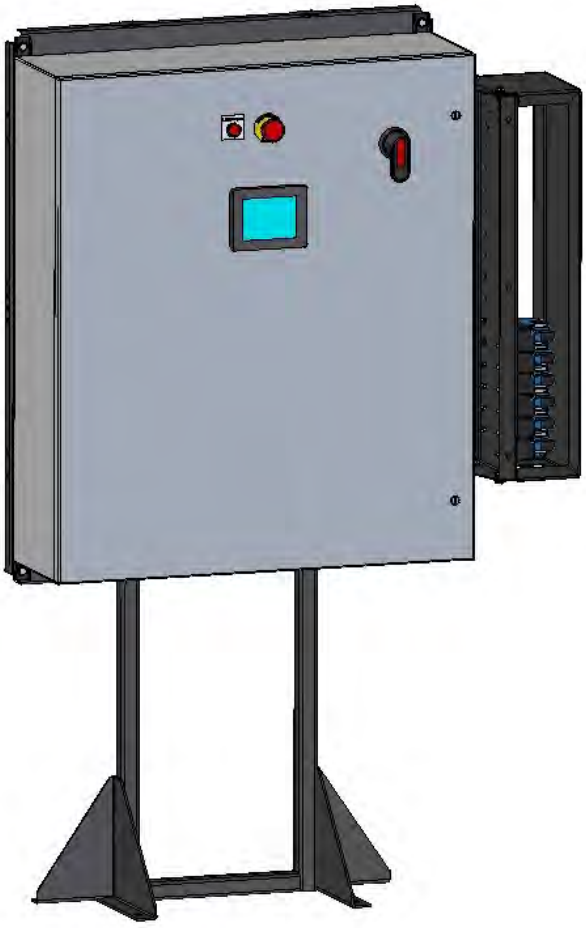
SIMPLE BIN SITE

Operators Manual



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

Revision Effective 12 SEP 2014

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 Simple Bin Site . 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 lose from working safely, it is important that you work responsibly and stay alert. By following a few simple rules, you can prevent an accident that could injure or kill you or a co-worker.

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

RECEIVING YOUR EQUIPMENT

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

Document the serial number of the machine for future reference. The serial number is located on the in the upper left hand corner of the control panel.

SERIAL NUMBER:_____

Table of Contents

SAFETY INSTRUCTIONS

SECTION A

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

SAFETY WORDS AND SYMBOLS

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

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

Indicates a potentially hazardous situation which, if not avoided, **could** result in death or serious injury.

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

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

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

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

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

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

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

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

NOTICE

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

LOCKOUT / TAGOUT PROCEDURES

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

EMERGENCY STOP

There is an Emergency Stop push button on the Simple Bin Site control panel. Actuators of emergency stop shall be colored RED.
The background immediately around the device actuator shall be colored YELLOW. The actuator pushbutton operated device shall be of the palm or mushroom head type.

CONTROLLED STOP

This is the stopping of machine motion by reducing the electrical command signal to 0 (zero) once the stop signal has been recognized. The operator initiates this stop by pressing the PAUSE button at he bottom of the main screen.

HAZARD REVIEW

Electrocution Hazard

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

Automatic Start Hazard

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

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

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

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

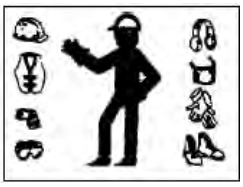
GENERAL SAFETY

1. Read and understand the operator's manual and all safety labels before operating, maintaining, adjusting or unplugging the equipment .

2. Only trained persons shall operate the equipment . An untrained operator is not qualified to operate the machine.
3. Have a first-aid kit available for use should the need arise, and know how to use it.

4. Provide a fire extinguisher for use in case of an accident. Store in a highly visible place.

5. Do not allow children, spectators or bystanders within hazard area of machine.
6. Wear appropriate protective gear. This includes but is not limited to:



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

7. Place all controls in neutral or off, stop motor, and wait for all moving parts to stop. Then disable power source before servicing, adjusting, repairing, or unplugging.

8. Review safety related items annually with all personnel who will be operating or maintaining the equipment.

OPERATING SAFETY:

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

PLACEMENT SAFETY

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

⚠ WARNING

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

MAINTENANCE SAFETY

1. Review the operator's manual and all safety items before working with, maintaining or operating the equipment .
2. Place all controls in neutral or off, stop motors, disable power source, and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Follow good shop practices:

   Keep service area clean and dry.
   Be sure electrical outlets and tools are properly grounded.
   Use adequate light for the job at hand.
4. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
5. Clear the area of bystanders, especially children, when carrying out any maintenance and repairs or making any adjustments.
6. Before resuming work, install and secure all guards when maintenance work is completed.
7. Keep safety labels clean. Replace any sign that is damaged or not clearly visible.

SAFETY LABELS

1. Keep safety labels clean and legible at all times.
2. Replace safety labels that are missing or have become illegible.
3. Replaced parts that displayed a safety sign should also display the current sign.
4. Replacement safety labels are available. Contact USC at (785) 431-7900 .

How to Install Safety Labels:

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

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

Part # 09-02-0001

Part # 09-02-0002

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

SECTION B INSTALLATION

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.

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

SET-UP

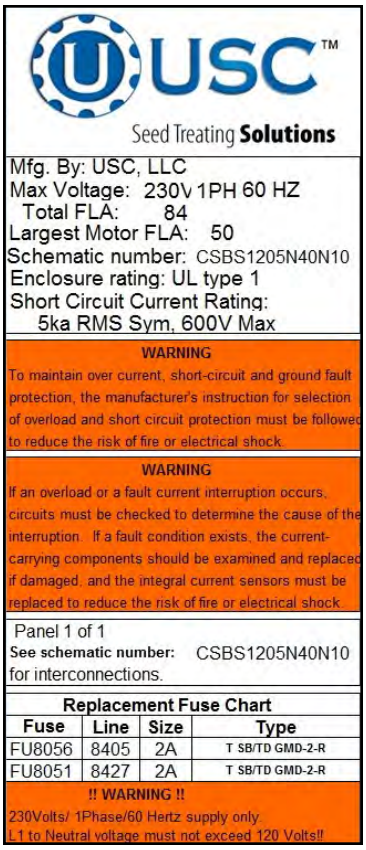
The following steps outline the initial set-up of your USC Simple Bin Site :

1. Clear the area of bystanders, especially small children, before moving.
2. Inspect Simple Bin Site control panel thoroughly for screws, bolts, fittings, etc. which may have come loose during shipping.
3. The Simple Bin Site control panel should be placed on level ground.
4. Setup the Simple Bin Site control panel at a place that is convenient to the operator. After locating the panel, anchor the panel stand to the floor using the four concrete anchor bolts provided.

NOTICE USC requires that all touch screen control panels be set up inside a building or in a covered structure to protect the machine from weathering.

SET-UP

5. Have a certified electrician provide power to the Simple Bin Site system and wire in all necessary customer supplied wiring, including Ethernet cables as listed in your provided Simple Bin Site schematics. Provide convenient shutdown switches and comply with local electrical codes. USC recommends that flexible conduit be used wherever possible. Provide 110V single phase power to the Simple Bin Site control panel.


USC™
Seed Treating Solutions

Mfg. By: USC, LLC
Max Voltage: 230V 1PH 60 HZ
Total FLA: 84
Largest Motor FLA: 50
Schematic number: CSBS1205N40N10
Enclosure rating: UL type 1
Short Circuit Current Rating:
5ka RMS Sym, 600V Max

WARNING
To maintain over current, short-circuit and ground fault protection, the manufacturer's instruction for selection of overload and short circuit protection must be followed to reduce the risk of fire or electrical shock.

WARNING
If an overload or a fault current interruption occurs, circuits must be checked to determine the cause of the interruption. If a fault condition exists, the current-carrying components should be examined and replaced if damaged, and the integral current sensors must be replaced to reduce the risk of fire or electrical shock.

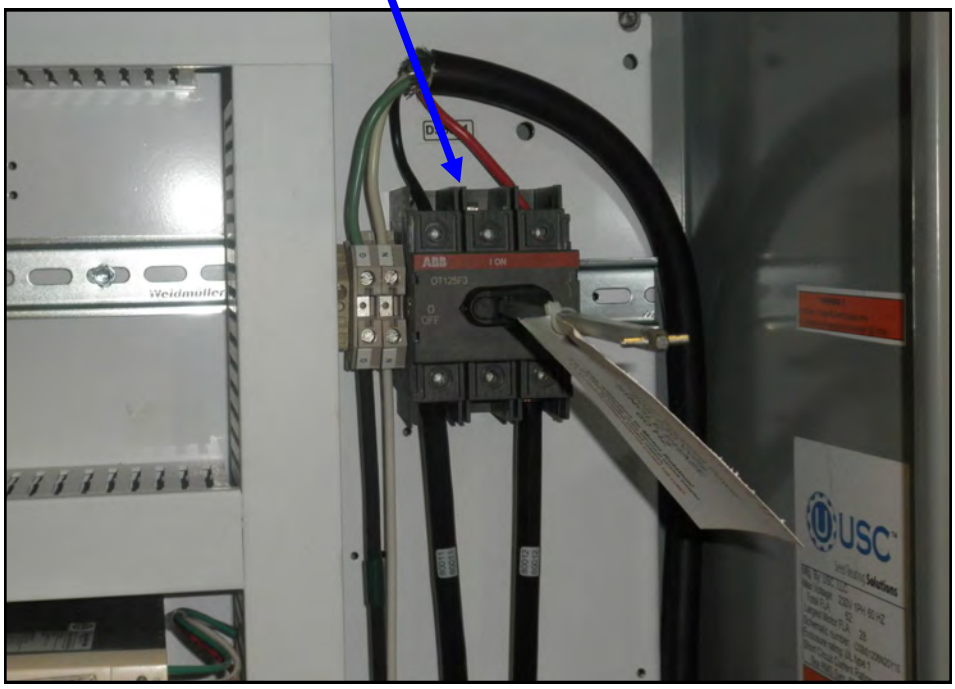
Panel 1 of 1
See schematic number: CSBS1205N40N10
for interconnections.

Replacement Fuse Chart

Fuse	Line	Size	Type
FU8056	8405	2A	T SB/TD GMD-2-R
FU8051	8427	2A	T SB/TD GMD-2-R

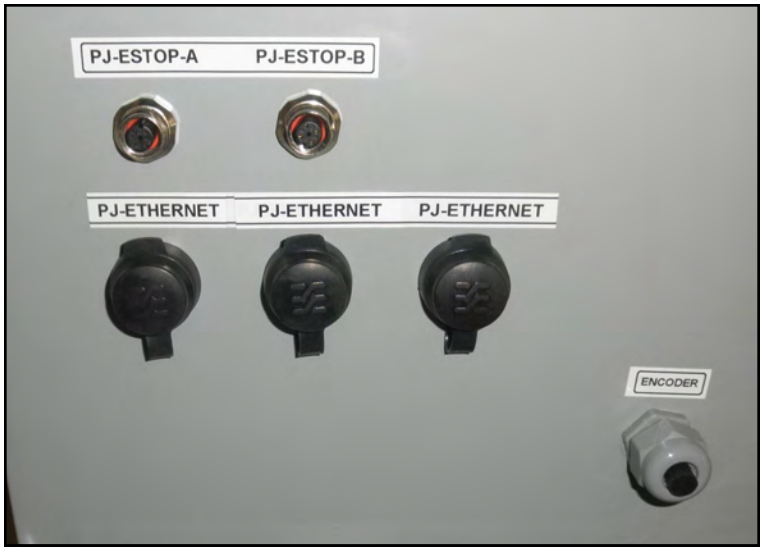
!! WARNING !!
230Volts/ 1Phase/60 Hertz supply only
L1 to Neutral voltage must not exceed 120 Volts!!

Incoming power connected to these terminals in the Treater Control Panel

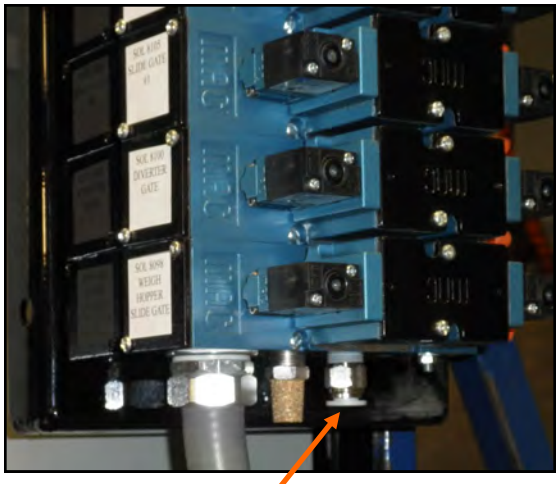


SET-UP

6. If using this product with a USC treater, connect the red cable to the PJ-ESTOP-A on the treater control panel and then to the PJ-ESTOP-B on the Simple Bin Site control panel. This cable must run from an A connection to a B connection (never A to A or B to B). If you are not using this product with a USC treater, connect the two red plugs provided into the PJ-ESTOP-A and PJ-ESTOP-B connections.
7. Connect one Ethernet cable to the scale head and the other Ethernet cable to printer. There is an additional Ethernet port available for attaching an additional device like a U-Connect-Pro kit update. If the underbin conveyor has the optional encoder, the device is hard wired to the control panel.



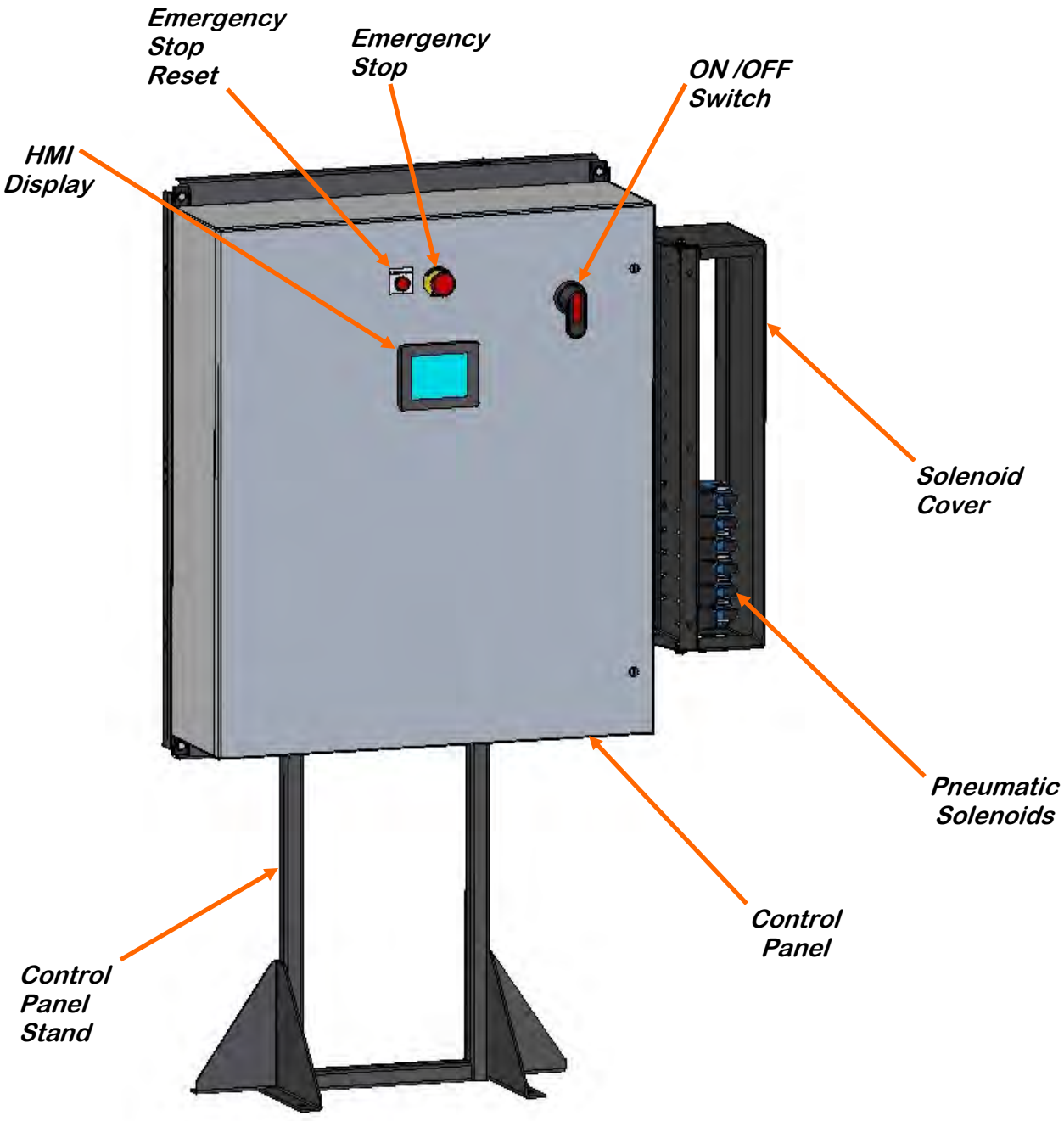
8. Supply approximately 100-110 psi of air pressure. It is required that this air supply have an in-line customer supplied air dryer to protect the air system from contamination. From the dryer, a line goes to the bottom of the solenoid group on the side of the Bin Site Control Panel. (right)
9. Contact USC, LLC to setup a startup and training session(s) before using your Batch Weigh Hopper system.
10. Have the scales calibrated by a state certified professional scale technician after the USC, LLC trained technician has performed a startup session on your site.



MECHANICAL OPERATION

SECTION C

SIMPLE BIN SITE CONTROL PANELOVERVIEW



BIN SLIDE GATES

An air-actuated slide gate attaches to the bottom of each bin. The slide gate sits below the manual crank gate on the bin. The flow rate of seed passing through the gate is adjusted by moving the collar on the rod that exits out of the back of the bin slide gate. Moving the collar further away from the bin slide gate will allow the gate to open more and increase seed flow. It is recommended that the manual gate be opened all the way. The system calibrates seed flow through a timing mechanism that tells the air gate to close after a given amount of time. During each run of seed, the system will constantly perform an automatic calibration that is flow rate specific. If the manual gate or the collar is adjusted, recalibration of the seed flow will need to be done (see page 29).

PRO BOX HOPPER (optional)

The pro box hopper is an inverted pyramid shaped hopper that is used as a means of running seed straight from a pro box into the weigh hopper system. This hopper includes an adjustable slide gate for metering the flow of seed and adjustable legs for changing the height of the hopper.

UNDERBIN CONVEYOR

The underbin conveyor sits directly below each of the air-actuated slide gates that are in turn positioned directly under the manual slide gates of the bulk bins. The conveyor transports seed forward to the scale fill conveyor. The underbin conveyor may also include an option so that it can run in reverse for clean out purposes. Seed is moved inside the underbin conveyor via a crescent belt. An adjustment for the tracking of this belt is located at both the head and tail section of the conveyor. The head section also includes a viewing window and the tail section has a removable cover to help with proper alignment of the underbin conveyor belt. An encoder is located in the tail section of the underbin conveyor. The encoder is used to verify that the conveyor is running without any slippage at the belt.

UNDERBIN CONVEYOR ENCODER (Optional)

The underbin conveyor encoder is an electronic device that is connected to a non-drive shaft on the underbin conveyor. This is usually the rear conveyor shaft. The encoder sends an electrical signal to the weigh hopper system whenever the shaft is spinning. That signal allows the weigh hopper system to know that the belt on the underbin conveyor is traveling at the correct speed and that no slippage is occurring. This process allows the weigh hopper system to perform correct auto-calibrations during each run of seed.

SCALE FILL CONVEYOR

The scale fill conveyor is a fixed conveyor that is used to transport seed from the discharge end of the underbin conveyor to the top of the weigh hopper. This conveyor's intake hopper will sit directly under the discharge portion of the underbin conveyor and the discharge end of the scale fill conveyor will be directly above the center of the weigh hopper. The scale fill conveyor is commonly used as the device that brings seed from outside of the treater building to the inside.

WEIGH HOPPER, SLIDE GATE & SCALE HEAD

Once seed exits the discharge end of the scale fill conveyor, it will fall down into a fixed seed ladder that is located in the center of the weigh hopper (There is no seed ladder on the 100 unit hopper). Seed will then come to rest above the slide gate as it waits to be weighed. The weigh hopper sits atop a scale assembly. The system uses a Avery Weigh-Tronix ZM301 scale head to display the current weight of the seed in the weigh hopper. The scale head communicates with the system via an Ethernet cable. When the system finishes shutting down each of the conveyors, it will then look to the scale head to get the current weight of the seed in the weigh hopper for calibration purposes.

NOTICE The Avery Weigh-Tronix ZM301 scale head will require calibration by a state certified calibration specialist in order for it to be legal for trade.

Located below the weigh hopper is an air-actuated slide gate. This slide gate has two magnetic sensors that are positioned to read whether or not the slide gate is currently in the open or closed position. This is done to ensure an accurate scale reading will always be achieved. Directly below the air actuated slide gate is a manual gate that can be positioned to control the flow of seed from the weigh hopper.

DIVERTER (optional)

The diverter is an air actuated gate that is located above the seed wheel and below the weigh hopper. The diverter gate will sit in one of two positions; Treat or Bypass. When the gate is in the treat position, seed will flow into the treater to have chemical applied to it. When the gate is in the bypass position, seed will not enter the treater but instead will be carried away through a separate chute to a conveyor or holding device. The diverter can be manually actuated by pressing and holding the Treat or Bypass button at the bottom of the weigh hopper H.O.A. screen.

SECTION D ELECTRICAL OPERATION

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

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

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

This section provides a general overview and description of the operator controls for the Simple Bin Site.

NOTICE USC recommends the use of surge protection device with a minimum rating of 700VA for all Automated Main Control Panels.

General Panel Descriptions

- The Simple Bin Site Panel is a 42 x36 x10 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 the panel. The operator is able to control the entire system through the HMI. The panel is connected to the scale head via an Ethernet cable.

Simple Bin Site Panel

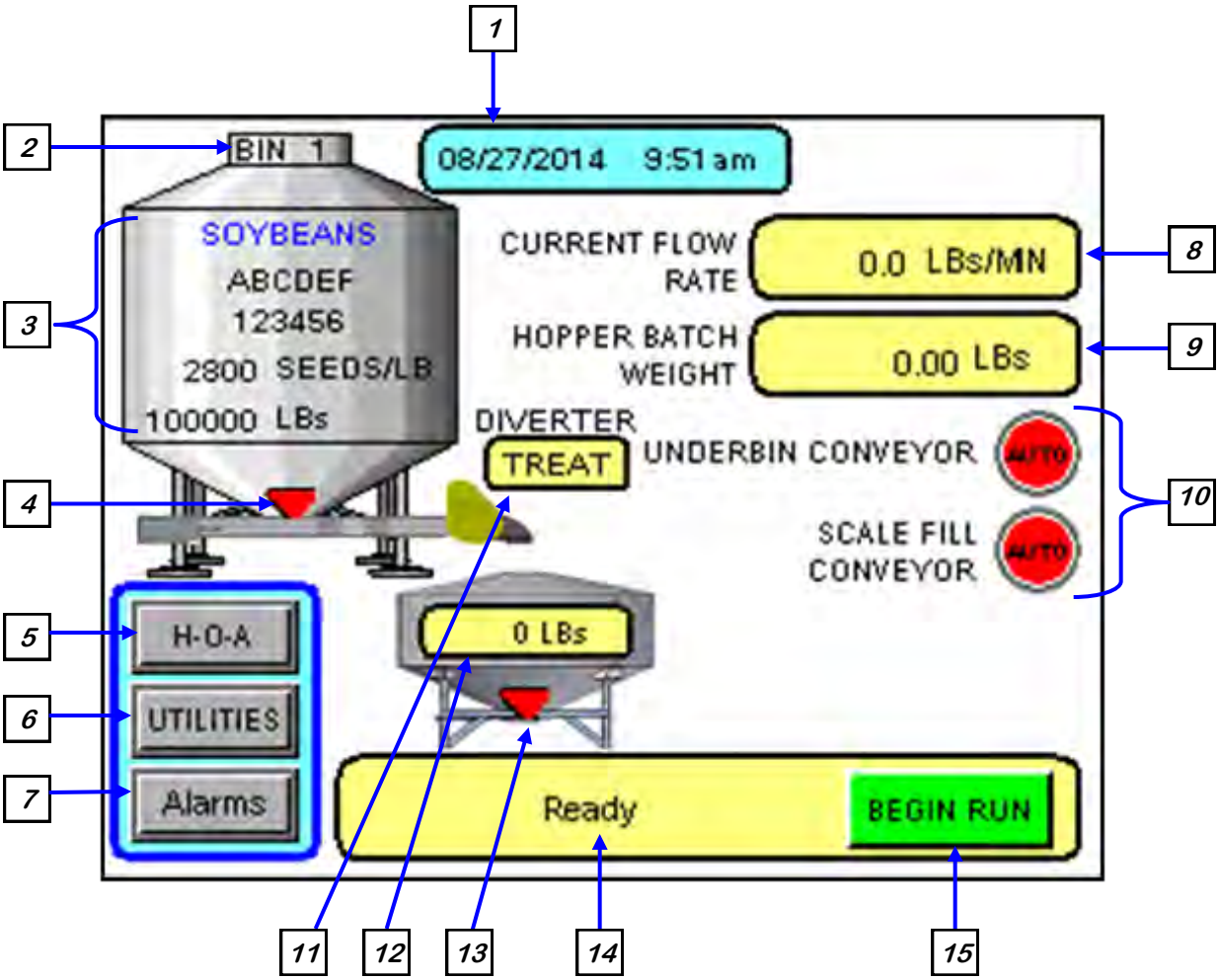
The following pages explain the function of the touch screen controls.

USC STARTUP SCREEN

This screen is the first screen the operator will see after the system receives power. After 30 seconds the system will automatically 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. CURRENT DATE AND TIME DISPLAY.

2. CURRENT BIN SELECTED: Indicates the currently selected bin.

3. CURRENT BIN INFO: Displays the bin information that has been entered into the currently selected bin. These are shown from top to bottom, Seed Type, Seed Variety, Lot Number, Seeds / LB and Amount in Inventory.

4. 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.

5. H-O-A (Hand-Off-Auto) BUTTON: This button advances the operator to the H-O-A screen (page 23).

6. UTILITIES BUTTON: This button advances the operator to the UTILITIES screen (page 25).

7. ALARM BUTTON: This button advances the operator to the ALARMS screen (page 34).

8. FLOW RATE DISPLAY: Informs the operator of the flow rate of seed from the currently selected bin. This will only update during a batch run.

9. HOPPER BATCH WEIGHT DISPLAY: Informs the operator of the current running total of seed that has entered the batch hopper at any given time.

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

11. 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.

12. HOPPER WEIGHT DISPLAY: Informs the operator of the current weight of seed in the hopper.

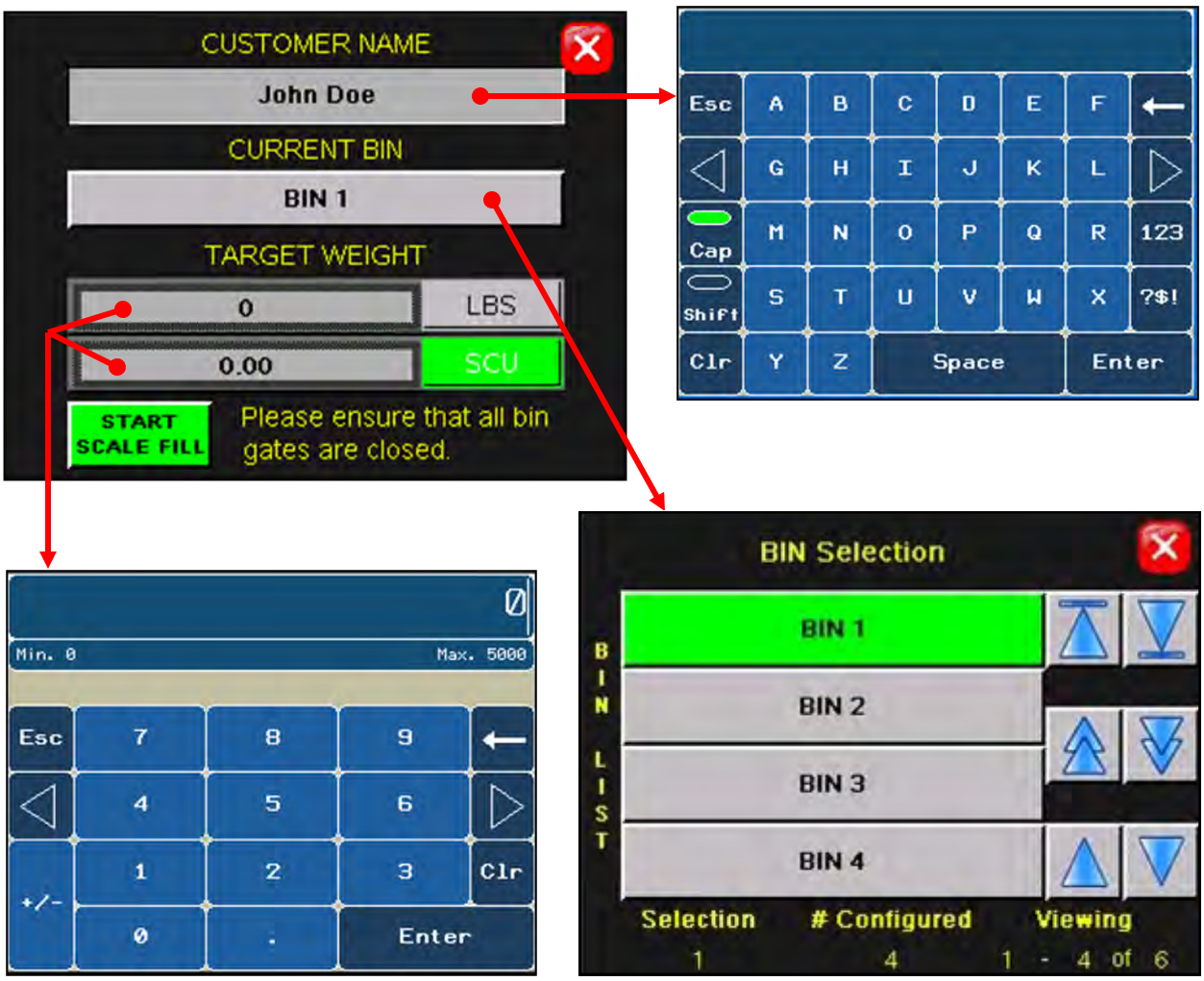
13. WEIGH HOPPER SLIDE GATE INDICATOR: Informs the operator of the weigh hopper slide gate position. If it is green the gate is OPEN. If it is red the gate is CLOSED.

14. STATUS INDICATOR: Informs the operator of the system status.

Main Screen Button Descriptions

15. BEGIN RUN BUTTON; Pressing this button brings up the BEGIN RUN screen, where the operator will enter the desired CUSTOMER NAME, CURRENT BIN, TARGET WEIGHT in pounds or Seed Count Units. Pressing the gray button for customer name brings up an alpha numeric keyboard for entering a name. Pressing the gray button for CURRENT BIN current bin activates the BIN SELECTION screen. Press the bin number you wish to pull seed from. Press either the LBS or SCU button to choose the unit of measurement, it will highlight in green. Press gray button to the left to bring up a numeric keyboard to enter the TARGET WEIGHT for the run. Now that all of the parameters have been defined, press the green START SCALE FILL button to start the run. The operator is returned to the main screen. Notice that the BEGIN RUN button has changed to EARLY SHUTDOWN. You may stop the run manually at any time by pressing this button.

NOTE: The target weight max is based on the Maximum Hopper Weight and Current Hopper Weight to avoid overflowing the hopper.

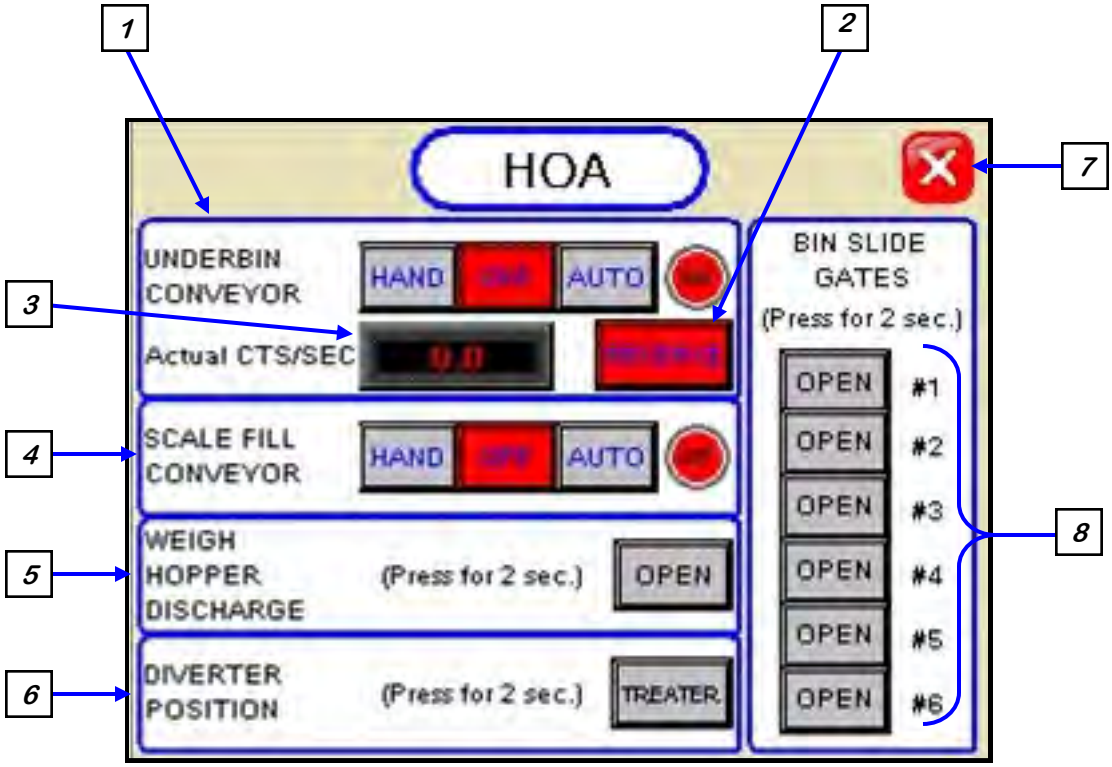


"H-O-A" (HAND-OFF-AUTO) SCREEN

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

⚠ WARNING

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.**



1. UNDERBIN CONVEYOR CONTROL MODULE: This module controls the function of the underbin conveyor. The HAND button will place the underbin 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 BEGIN RUN popup screen.

H-O-A Button Descriptions

2. 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.

3. 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.

4. 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 BEGIN RUN popup screen.

5. WEIGH HOPPER DISCHARGE CONTROL MODULE: This module allows the operator to manually control the operation of the slide gate that is located underneath the weigh hopper.

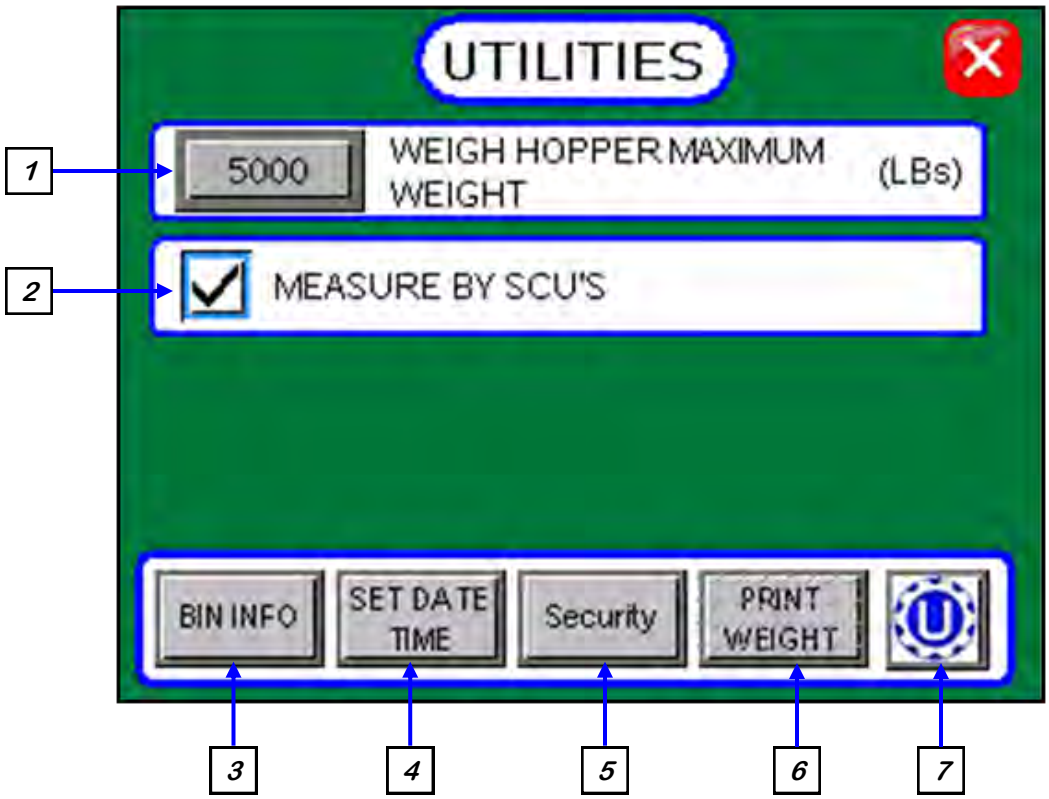
6. DIVERTER POSITION MODULE (optional): This module controls the function of the diverter. The module allows the operator to choose if the diverter is in the TREAT or BYPASS mode. In TREAT mode seed will be run through the treater and in BYPASS mode seed will be diverted so that it does not pass through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

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

8. 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 system will operate with a maximum of six bins. The bin slide gates will be opened and closed automatically when the operator presses the START SCALE FILL button on the BEGIN RUN popup screen.

UTILITIES SCREEN

This screen allows the operator to set various system parameters and gives access to the BIN INFO, SET DATE TIME, SECURITY and PRINT WEIGHT screens.



NOTICE

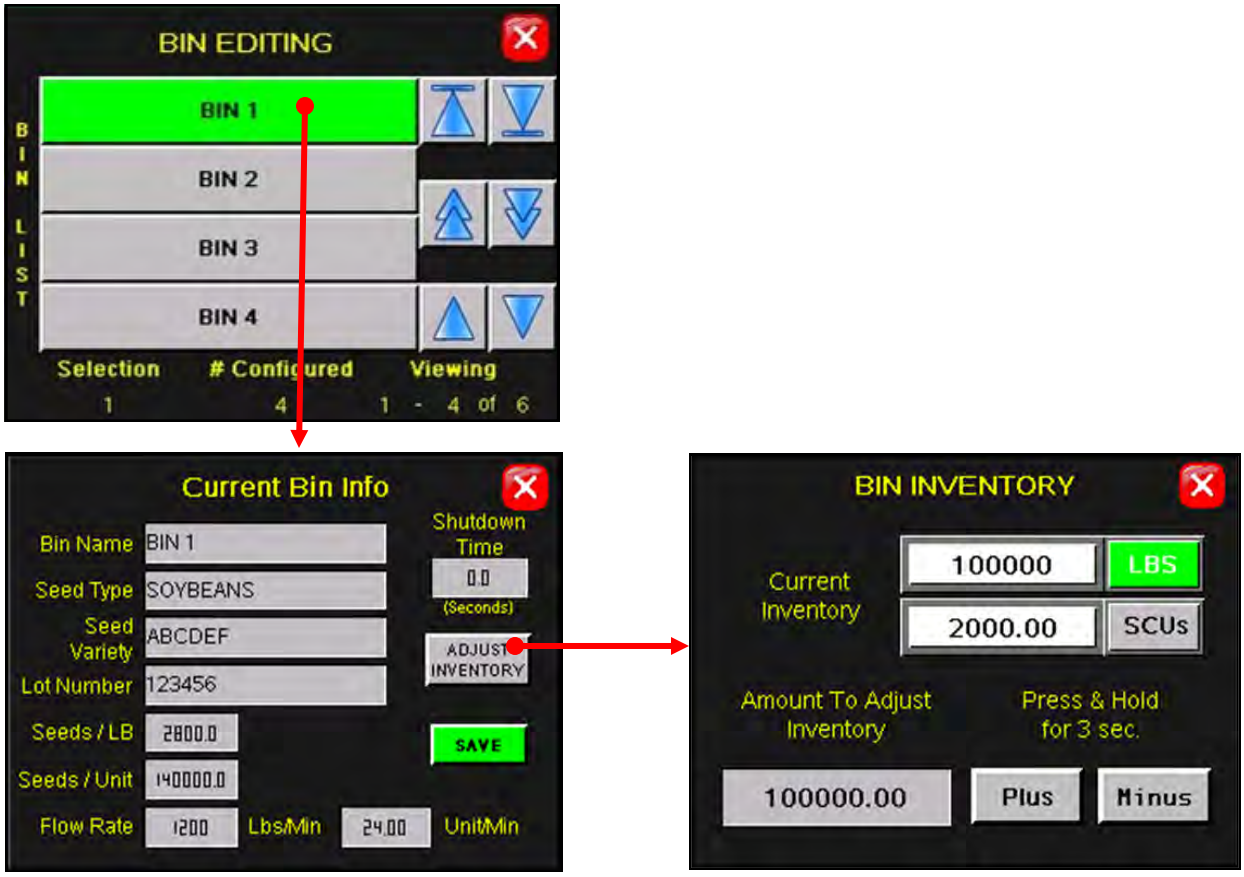
When button 1 is pressed, a numeric touch pad (right) will appear allowing the operator to enter in a number for that particular parameter.

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. The system will only allow the user to call in the max weigh of hopper minus the current weight in the hopper.

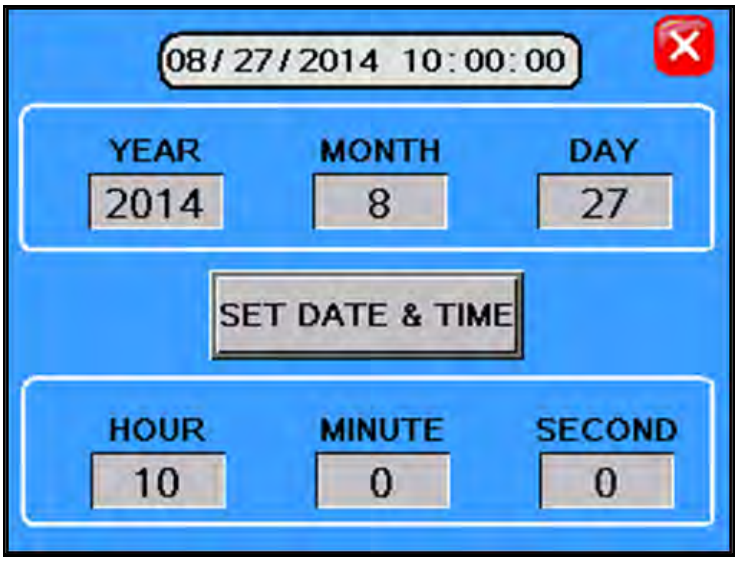
2. MEASURE BY SCU OPTION: Selecting this option sets the system to measure in seed count units rather than by pounds.

3. BIN INFO BUTTON; Advances the operator to the BIN EDITING rolodex screen. The operator can scroll through the list of bins. Pushing the button with the name of the bin the operator wishes to pull seed from. Brings up the Current Bin Info screen for that particular bin. Once any details have been changed the operator must press the SAVE button before exiting or the information will revert back to what was originally there. From the details screen the operator can select the ADJUST INVENTORY button which will take you to the panel to adjust the bin inventory either by weight or SCUs. The operator will press the LBS or SCU button to activate the measurement to be entered the active type will be green. You will then enter the amount in the box and press and hold Plus or Minus to adjust accordingly.

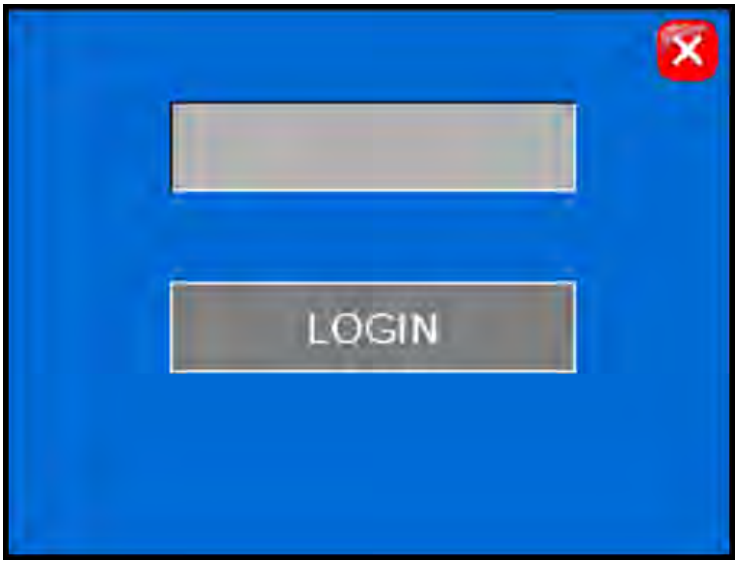


Utilities Screen Button Descriptions

4. SET DATE TIME BUTON: Allows the operator to set the date and time.

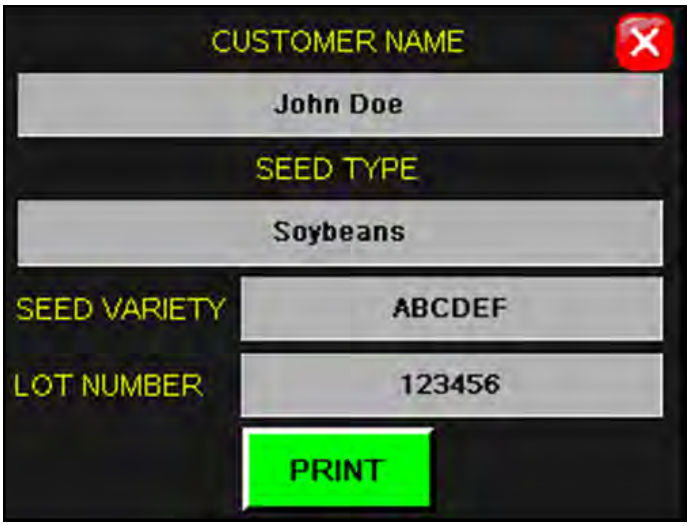


5. SECURITY BUTTON This button advances the operator to the Security screen.

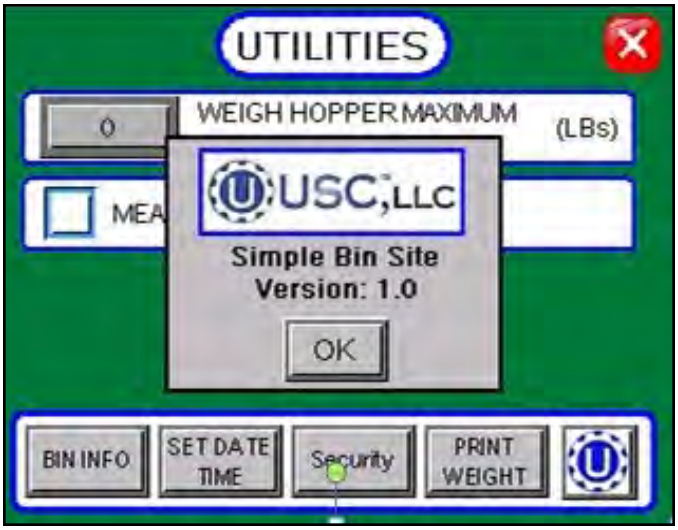


Utilities Screen Button Descriptions

6. PRINT WEIGHT BUTTON: Advances the operator to the Print Screen where you can enter the customer name, seed type, variety and lot number. When you press print these details will print with the weight of the seed that is currently in the hopper.



7. ABOUT USC: Pressing this button brings up a popup screen showing the operator what software release is installed.

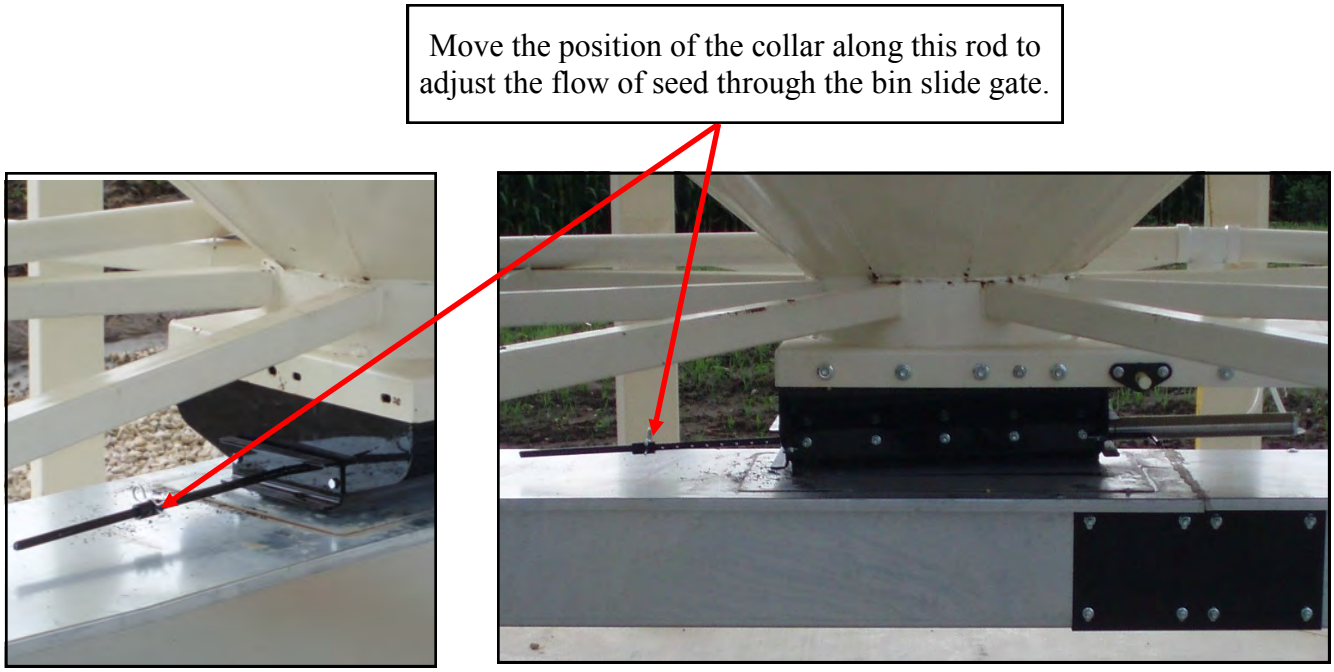


SETTING THE SEED FLOW RATE

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 30)
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 30)

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.



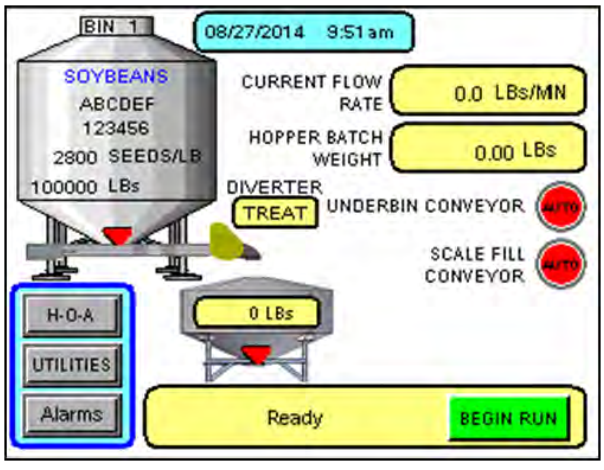
BATCH HOPPER CALIBRATION

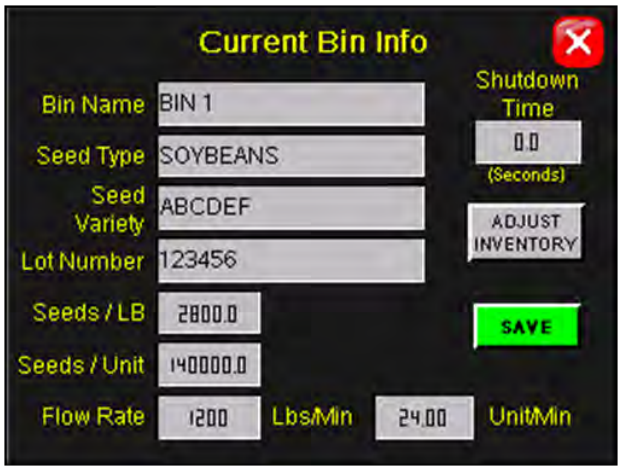
Once the initial calibration is established, the system continuously updates the seed flow rate. The calibration is based on weight. Once a new product has been loaded and the information has been entered in the Current Bin Info page, set the flow rate to 1800 lbs / min. After the first run, the system will compare the scale weigh to the target weight requested and adjust the flow rate for the next run accordingly. The system makes an adjustment after each run increasing accuracy.

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 Current Bin Info screen check the Flow Rate to verify it is at the default setting of 1800 lbs / min. 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 has changed from the default settings. If it has, the system has been successfully calibrated. Each bin must be individually calibrated. As long as there have been no alarms the system will re-calculate and update the flow rate display after the run is complete.

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.

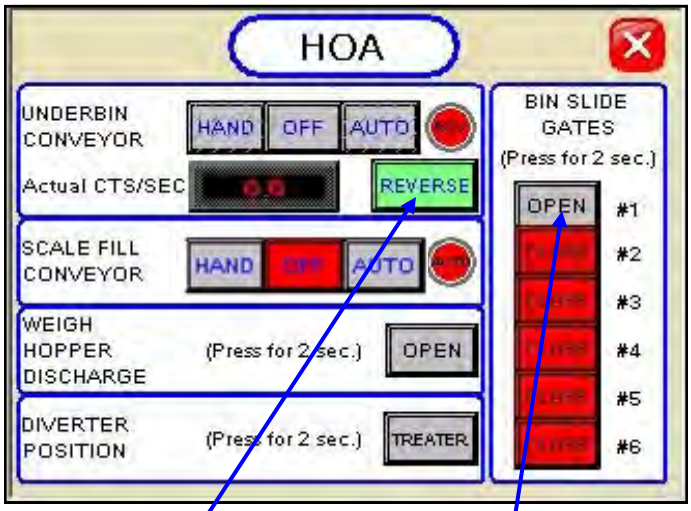




UNDERBIN OPERATION IN REVERSE

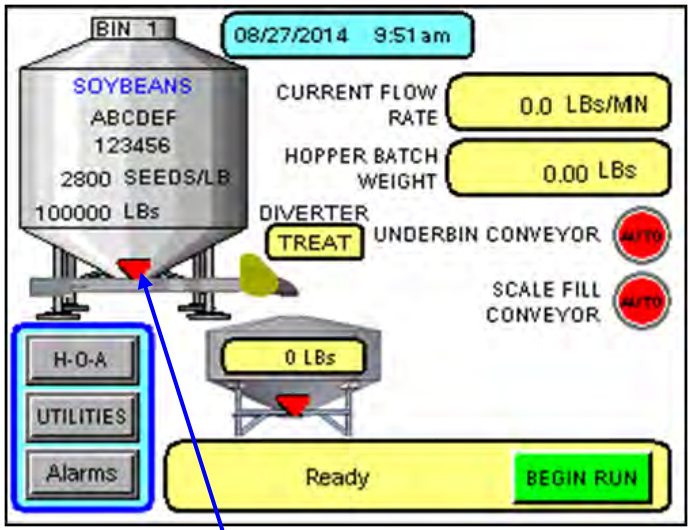
The following is a list of steps to use when running the batch hopper system using the REVERSE mode. This mode of operation will allow the operator to clean out the underbin conveyor and to remove any excess seed from the bins at the end of the treating season. **ALWAYS ENSURE THE BELT IS IMMEDIATELY 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. Ensure that the belt on the underbin conveyor is correctly aligned. Under the H-O-A screen, press the REVERSE button. When a active the button will turn green.
3. Press and hold for 2 seconds the button on the bin slide gate you wish to OPEN. (top)
4. The Simple Bin Site main screen will show bin slide gate in the open position. The indicator will turn green.
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. The indicator will turn red.
6. Allow the underbin conveyor to run for at least 15 seconds. This will allow the underbin conveyor to clean itself out. Then press the OFF button on the Underbin Conveyor Module to stop the conveyor.



Press button to start the conveyor in reverse

Press and hold the gate button for 2 seconds to OPEN



Slide Gate Indicator.

SECTION F TROUBLESHOOTING

TROUBLESHOOTING

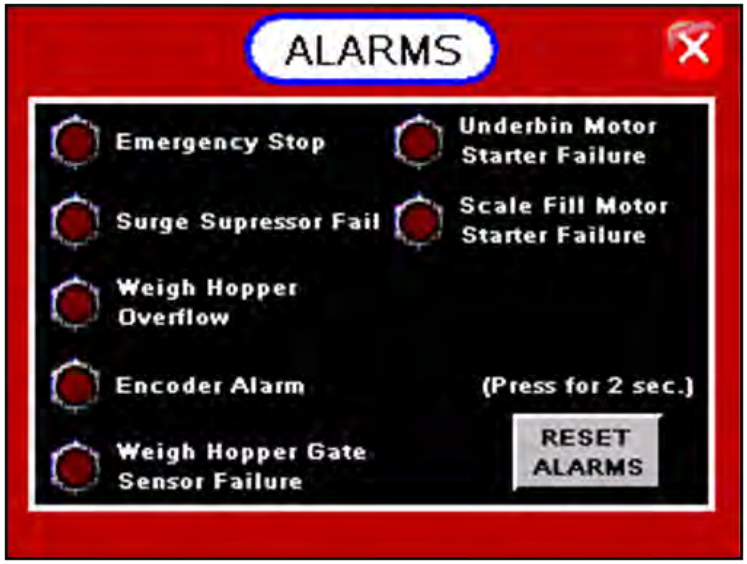
Below is a table describing the most frequent problems and solutions with the USC Simple Bin Site system. For further assistance, contact USC at (785) 431-7900.

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 operator is pressing the EARLY SHUTDOWN 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 30)
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.
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 of the Simple Bin Site system. When a warning condition is detected by the system, the ALARMS screen will pop-up and the particular alarm will be flashing back and forth from white to red indicating which condition needs correction.
If running, the system will then progress to the Pause state. The alarms are reset when the fault condition is cleared and the Reset Alarm button is pressed. For further assistance, contact USC at (785) 431-7900.



Alarm - Fault	Possible Cause	Solution
Emergency Stop	The Emergency Stop button on the front of the control panel has been pressed.	Pull the Emergency button back out and push the Emergency Stop Reset button.
SURGE SUPRESSOR FAIL	L1 of the Surge protector will no longer protect the electrical panel against voltage surges.	Replace the Surge Protector.
Weigh Hopper Overflow	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
Encoder Alarm	1. Belt is out of alignment. 2. Belt is clogged and not moving freely. 3. Encoder cable is not communicating with the control panel.	1. Alignment the belt. 2. Turn off the system and disconnect power. Locate clog and remove. 3. Check to see that the cable is connected and there is no damage to it.
Weigh Hopper Gate Sensor Failure	1. Slide gate sensor is not positioned properly. 2. Slide gate solenoid failed to actuate.	1. Verify that the slide gate sensor is properly positioned. 2. Check air supply and signal to solenoid.
Underbin Motor Starter Fault	1. Underbin motor auxiliary contact was not sensed after being energized to run. 2. Underbin 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 was not turned OFF while the system was in Auto mode of operation.
Scale Fill Motor Starter Fault	1. Scale Fill motor auxiliary contact was not sensed after being energized to run. 2. Scale Fill 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 was not turned OFF while the system was in Auto mode of operation.

SECTION G MAINTENANCE

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

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

BIN SLIDE GATES

- Inspect all welds and structural components for bends, cracks and damage.
- Test slide gates for proper actuation with control panel.
- Remove air to gates and manually open and close gates. Check for any friction while gate is sliding.

UNDERBIN CONVEYOR

- Inspect all welds and structural components for bends, cracks and damage.
- Clean out any build up of debris from the clean out door.
- Check the conveyor belt tension and alignment. (page 40)
- Check the drive belt tension and alignment. (page 42)
- Grease all necessary bearings. (page 38)
- Remove yellow guard and check chain tension.
- Check for proper operation of conveyor while in reverse mode. Align if necessary.
- Check encoder for tightness to shaft and proper signal to control panel.

SCALE FILL CONVEYOR

- Inspect all welds and structural components for bends, cracks and damage.
- Clean out any build up of debris from the clean out door.
- Check the conveyor belt tension and alignment. (page 40)
- Check the drive belt tension and alignment. (page 42)
- Grease all necessary bearings. (page 38)
- Remove yellow guard and check chain tension.

WEIGH HOPPER, SLIDE GATE & SCALE HEAD

- Inspect all welds and structural components for bends, cracks and damage.
- Check for binding on scale components.
- Check wiring from scale to scale head for any damage or kinks.
- Test slide gate for proper actuation with control panel.
- Check slide gate sensors for correct positioning and signal.
- Have scale professionally re-calibrated as necessary.

CONTROL PANEL & AIR SYSTEM

- Drain water from compressor daily.
- Drain air dryer every 40 hours of operation.
- Test all air solenoids for correct actuation.
- Inspect all exterior wiring for any kinks or damage.

CONVEYOR MAINTENANCE

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

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

FLUIDS AND LUBRICANTS

Grease

Use an SAE multipurpose high temperature grease with extreme pressure (EP) performance. Also acceptable is an SAE multipurpose lithium-based grease.

Storing Lubricants

Your machine can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants.

GREASING

Use a Maintenance Checklist to keep record of all scheduled maintenance.

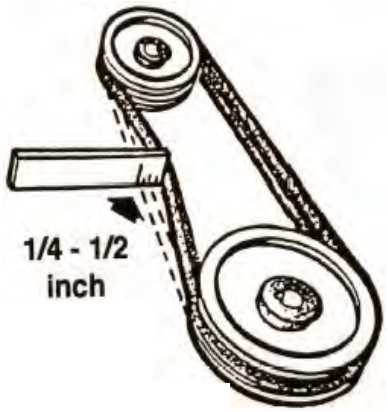
1. Use a hand-held grease gun for all greasing.
2. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
3. Replace and repair broken fittings immediately.

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

CONVEYOR SERVICING INTERVALS

Every 40 hours or Weekly

1. Check the conveyor belt tension and alignment.
2. Grease conveyor bearings.
   - Two bolt flanged bearings, tail roller bearings right and left (2 locations).
   - Two bolt flanged bearings, drive roller bearings right and left (2 locations).
   - Two bolt flanged bearings, jackshaft bearings right and left (2 locations).



3. Remove guard and check the drive belt tension and alignment. The belts will deflect approximately 1/4 to 1/2 inch when properly tensioned. (right)

Every 200 hours or Annually

1. Repack wheel bearings.
2. Wash machine.
3. Check pulley bushing for wear. To inspect pulley:
   - Lower the conveyor to its lowest position.
   - When the conveyor has reached the lowest position, it will stop on the hinge support.
   - Loosen and remove the bolt.
   - Inspect the bushing on the pulley for wear.
   - Reverse steps 1-4 for re-assembly.

CONVEYING BELT TENSION AND ALIGNMENT - TAIL END

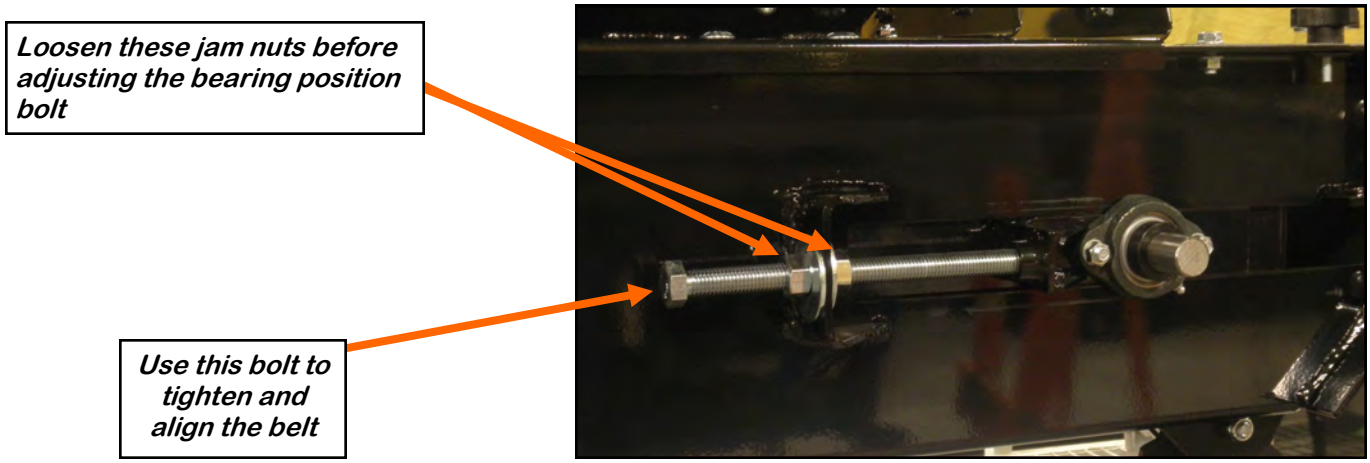
A contoured belt with molded flights is used to convey material along the frame. The tension and alignment of the belt should be checked weekly, or more often if required, to be sure that it does not slip or run to one side. A properly tensioned belt will not slip when it is operating. Operating the belt with less slippage will increase the belt life and causes less stress on bearings, pulleys and shafts.

⚠ WARNING Although it is acceptable to align the belt from either the Head or the Tail (Intake) end. Tightening the belt may only be done from the Tail end of the conveyor

To maintain the belt, follow this procedure:

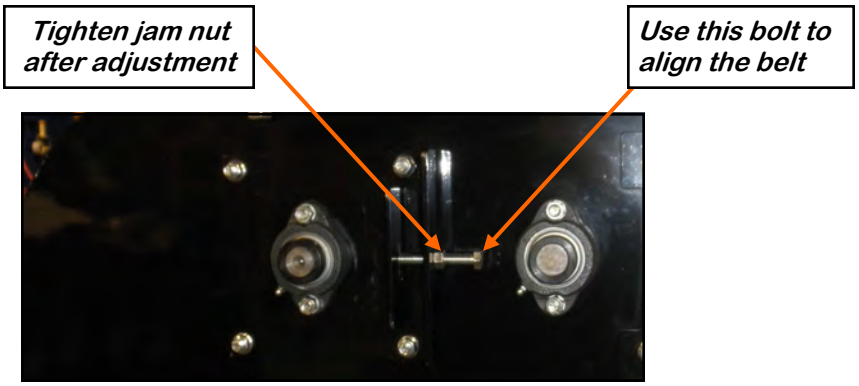
NOTICE Place all controls in neutral or off, stop motor and disable power source before working on belt.

1. Use the take-up bolt located at the tail to set the tension of the belting.
2. If the belt needs to be tightened to prevent slippage, use the take-up adjustments on the tail end.
3. The belt is tightened by turning both take-up adjustments an **equal** number of turns.
4. Use the drive roller to check the alignment. The belt should be centered.
5. Turn the belt 1/2 revolution when the belt is new and check the drive and tail roller. If out of alignment, the belt will move to the loose side. Loosen the jam nut and use the bearing position bolts to set the position. Tighten jam nut.
6. Run and check again. Check frequently during the first few minutes of operation and then several times during the first 10 hours. The belt normally seats itself during the first 10 hours of operation and can be checked weekly after that.
7. The belt is properly aligned when the belt runs in the center of the head and tail rollers.



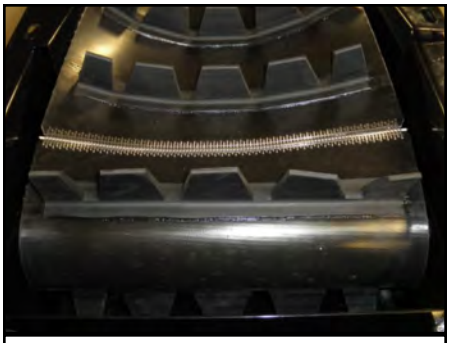
CONVEYING BELT ALIGNMENT - HEAD END

1. A misaligned belt will track toward the loose side. Set the tracking by loosening the bearing mounts on the tight side and using the bearing position bolt to move the end of the head roller toward the tail. Tighten the bearing mount when the belt is centered on the head roller.
2. Run the belt and check the tracking again. Loosen the tight side slightly again if required. Repeat the adjusting and checking procedure until the belt centers on the input end roller and remains centered when running.
3. Always repeat this aligning procedure when installing a new belt. Check frequently during the first 10 hours of operation. After 10 hours, the belt is normally seated and checking the alignment can be done less frequently.



BELT REPLACEMENT

1. Rotate the belt until the seam is visible.
2. Move the tail roller to its loosest position.
3. Pull all the slack to the seam area.
4. Remove the wire connector and open the belt.
5. Attach one end of the replacement belt to the belt end being removed.
6. Pull the old belt out and the new belt will be threaded into place.
7. Disconnect the old belt.
8. Connect the ends of the new belt together and secure.
9. Set the belt tension.
10. Check and set the belt alignment



Belt Seam

Check Alignment

DRIVE BELT TENSION & ALIGNMENT

Power to the conveying belt is transmitted through a V-belt. The V-belt drive system must be maintained at the proper belt tension and pulley alignment to obtain the desired performance and life. When maintaining the belt drive system follow this procedure:

NOTICE Turn motor off and unplug power cord or turn off power and lock out the master panel before starting maintenance on drive belt system.

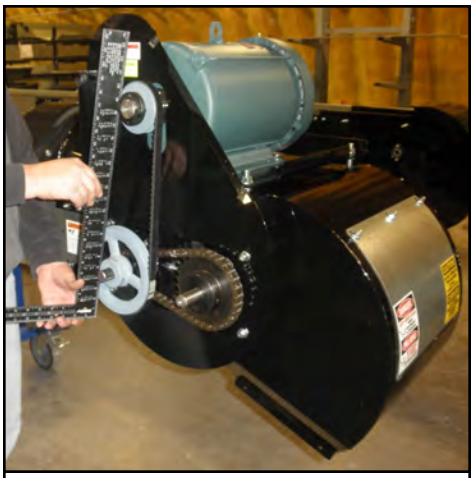
Drive Belt Tension

1. Push on the center of the belt span with a force of approximately 5 to 10 lbs.
2. Follow the belt tensioning specification on page 47 to determine proper belt deflection.
3. Move the motor up, using the adjustment bolts, to set drive belt tension (top, right).
4. Close and secure guards.

Motor base adjustment

Drive Belt Alignment

1. Lay a straightedge across the pulley faces to check the alignment (bottom, right).
2. Use the pulley hub or the motor mounting plate slots to move the pulley to the required position for alignment.
3. Tighten hub bolts to secure pulley on shaft.
4. Check belt tension
5. Close and secure guards.



Lay a straightedge across

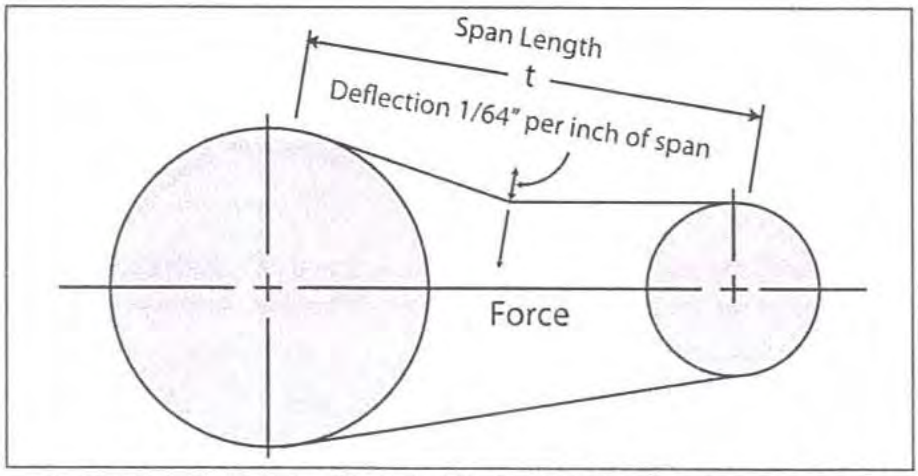
Drive Belt Replacement

1. Lower motor to its loosest position.
2. Remove old belt and replace with a new one.
3. Raise motor to set the belt tension.
4. Check pulley alignment. Adjust if required.
5. Close and secure guards.

Belt Tensioning Specification

Section H

V-Belt tensioning adjustment can be made using a tension meter or other type spring scale using the following procedure. After seating the belts in the groove and adjusting center distance so as to take up the slack in the belts, further increase the tension until only a slight bow on the slack side is apparent while the drive is operating under load. Stop the drive and using the meter, measure the force necessary to depress one of the center belts 1/64 inch for every inch of belt span (see sketch below). For example, a deflection for a 50 inch belt span is 50/64 or 25/32 inch. The amount of force required to deflect the belt should compare with the deflection forces noted in the table below. Also notice for V- Belts that deflection forces vary from the initial RUN - IN values which are greater (reflecting higher run-in tensioning) to the NORMAL values for after the run-in period.

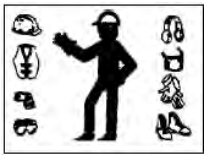


MEASURE THE SPAN LENGTH "T"
AS SHOWN IN THE SKETCH ABOVE.

BELT CROSS SECTION	SMALLER PULLEY DIAMETER RANGE (inches)	DEFLECTION FORCE	
		RUN - IN (lbs)	NORMAL (lbs)
AX	3.0 - 3.6 3.8 - 4.8 5.0 - 7.0	4 - 1/8 5 6	2 - 3/4 3 - 1/4 4
BX	3.4 - 4.2 4.4 - 5.2 5.4 - 9.4	5 - 1/4 7 - 1/8 9	3 - 1/2 4 - 3/4 6

SECTION I STORAGE

When storing the Simple Bin Site System for long periods of time, the following procedures must be followed to reduce the chance of rust, corrosion and fatigue of the Simple Bin Site System. You can also use these steps when storing the machine for the winter.



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

UNDERBIN CONVEYOR

1. Disconnect power.
2. Thoroughly wash the entire machine to remove all dirt, mud, debris or residue.
3. Remove yellow covers and remove any debris or build-up.
4. Remove clean out doors and thoroughly remove any debris or build-up inside of the conveyor. Ensure that the bottom pan of the underbin conveyor is free of seed.
5. Lubricate all grease fittings and chain. Make sure that all grease cavities have been filled with grease to remove any water residue from the washing. This also protects the bearing seals.
6. Re-connect power and run the underbin conveyor to help remove any additional debris. Compressed air can be used to blow out any foreign material.

WEIGH HOPPER & SLIDE GATE

1. Thoroughly clean the weigh hopper to remove all residue from the equipment.
2. Clean the slide gate of any seed or residue that may have built up.

SCALE FILL CONVEYOR

1. Disconnect power.
2. Thoroughly wash the entire machine to remove all dirt, mud, debris or residue.
3. Remove yellow covers and remove any debris or build-up.
4. Remove clean out doors and thoroughly remove any debris or build-up inside of the conveyor.

SCALE FILL CONVEYOR

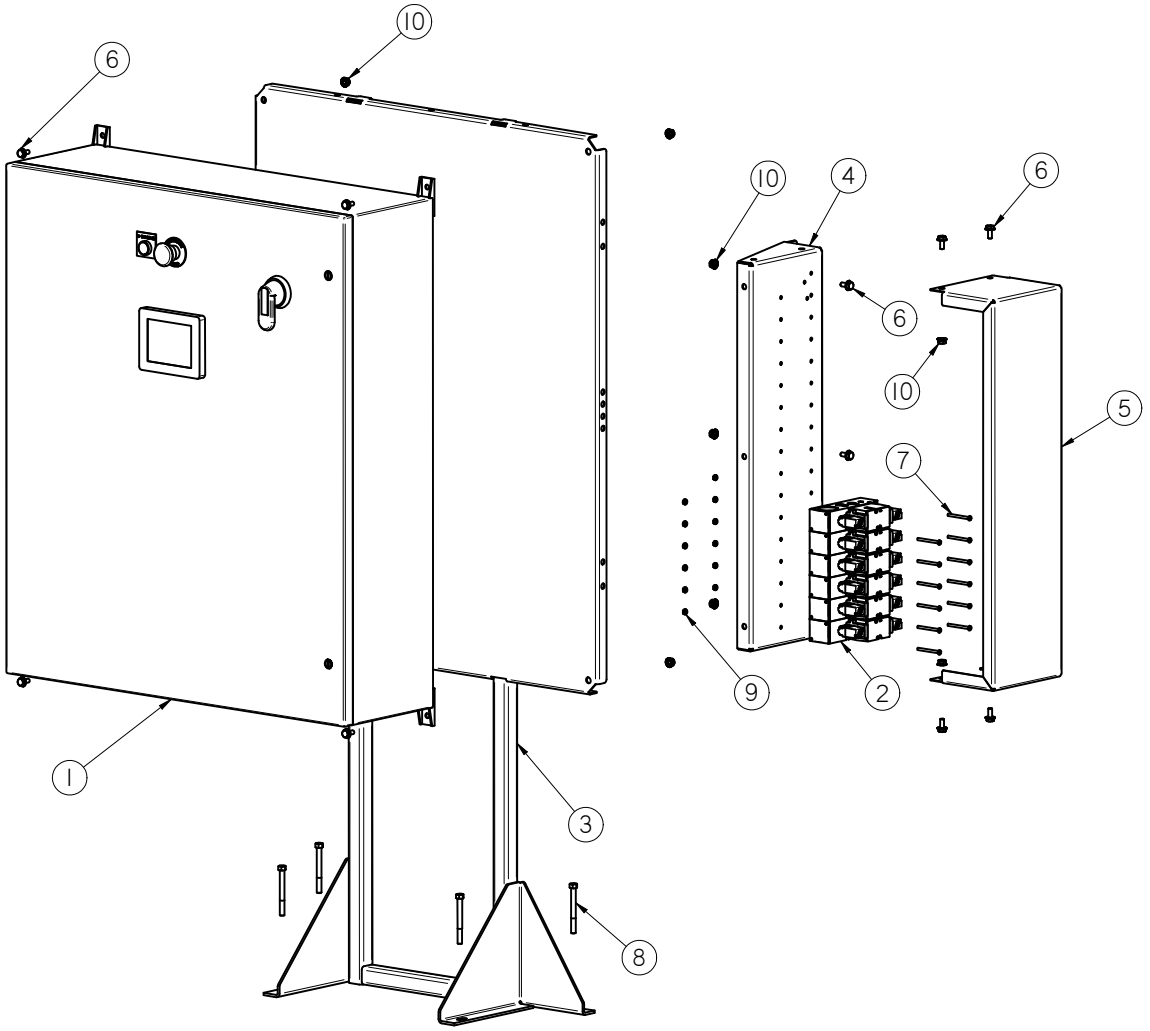
5. Lubricate all grease fittings and chain. Make sure that all grease cavities have been filled with grease to remove any water residue from the washing. This also protects the bearing seals.
6. Re-connect power and run the scale fill conveyor to help remove any additional debris. Compressed air can be used to blow out any foreign material.
7. Cover the electric motor with a water proof tarpaulin and tie securely in place.

FINAL

1. Store all portable components of the Simple Bin Site System inside a protective building to keep them from being exposed to the weather.
2. Disconnect power to the machine and all of the components.
3. Ensure all moisture has been removed from the airlines.
4. Disconnect the supply air line to the bottom of the solenoid bank and place a plug in the fitting to keep moisture out of the system.

SECTION J MECHANICAL DRAWINGS

SIMPLE BIN SITE CONTROL PANEL



Item #	Part #	Description	Qty
1	SEE SALES ORDER	SIMPLE BIN SITE CONTROL PANEL	1
2	03-17-0049	VLV SOL MAC VLV 82A-BA-BKA-TM-DAAP-1DA	6
3	05-03-1342	WDMT MAIN CNTL PNL FR 36X42 ENCL	1
4	05-06-0097	WDMT SOL VLV MANIFOLD MNT BRKT	1
5	05-10-3356	CVR SOL VLV	1
6	06-01-0124	BOLT, FLG .375-16 UNC ZP GRADE 5; 3/4" LG	11
7	06-01-0203	SCRW MACH 10-32 X 2.25 ZP SLTD RD	12
8	06-01-0220	BOLT .375-16 X 3.75 CONCRETE ZP	4
9	06-02-0030	NUT KLOCK 10-32 ZP	12
10	06-03-0014	NUT LOCK FLG .375-16 ZP GR5	11

USC LIMITED WARRANTY

SECTION K

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.

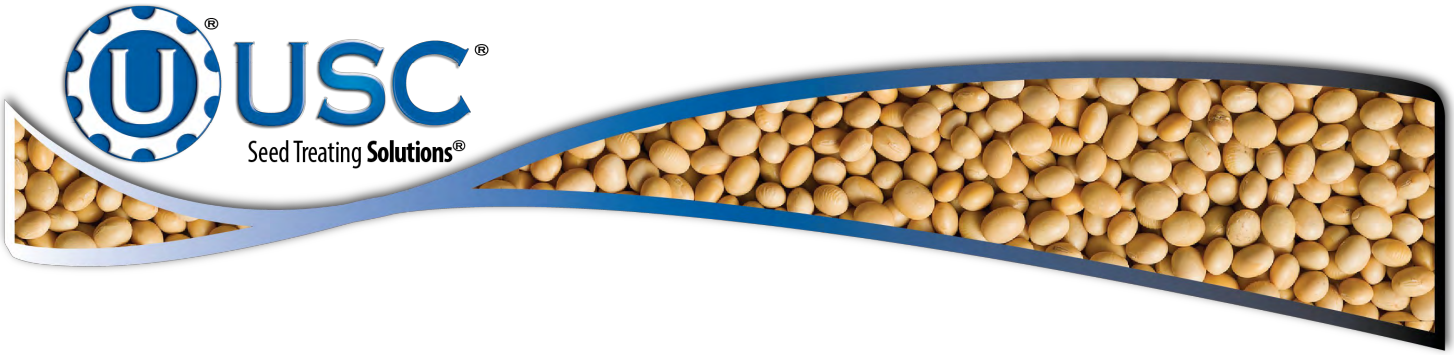
2. **Other Limits:** THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Manufacturer does not warrant against damages or defects arising from improper installation (where 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