



# **RIB BLENDING STATION**

## **Operators Manual**



**Software Release: Box to Box RIB Blending System v2.0**

**Document: TD-09-06-1006**

**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 RIB Blending Station . 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.

## RIB BLENDING STATION

- 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 left side of the frame horizontal cross member.



*Serial  
Number*

**SERIAL NUMBER:** \_\_\_\_\_

# **TABLE OF CONTENTS**

<b><u>Section</u></b>	<b><u>Contents</u></b>	<b><u>Page #</u></b>
<b>Section A</b>	<b>Safety Instructions</b> .....	<b>5</b>
<b>Section B</b>	<b>Installation</b> .....	<b>12</b>
<b>Section C</b>	<b>Mechanical Operation</b> .....	<b>16</b>
	RIB Blending Station Overview .....	16
	Standard Seed Wheel Overview .....	17
	RIB Seed Wheel Overview .....	18
<b>Section D</b>	<b>Electrical Operation</b> .....	<b>19</b>
	Main Screen .....	21
	Hand-Off-Auto Screen .....	23
	Utilities Screen .....	24
	Reports Screen .....	26
	Customer Editing Screen .....	28
	Seed Profile Editing Screen .....	29
	Recipe Editing Screen.....	30
	Security Screen .....	31
	Tools & Options Screen .....	32
<b>Section E</b>	<b>Calibration</b> .....	<b>35</b>
	Determining Cup weight.....	35
	Manual Method for Seed Flow Calculations.....	36
<b>Section F</b>	<b>Troubleshooting</b> .....	<b>37</b>
	Proximity Switch Adjustment Guide .....	38
<b>Section G</b>	<b>Maintenance</b> .....	<b>39</b>
<b>Section H</b>	<b>Storage</b> .....	<b>41</b>
<b>Section I</b>	<b>Mechanical Drawings</b> .....	<b>42</b>
<b>Section J</b>	<b>Limited Warranty</b> .....	<b>61</b>

# 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.

## RIB BLENDING STATION



**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 located on the Main Control Panel. Actuators of emergency stop shall be colored RED. The background immediately around the device actuator shall be colored YELLOW. The actuator pushbutton operated device shall be of the palm or mushroom head type.

### **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.

## RIB BLENDING STATION

**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.



## RIB BLENDING STATION

4. Provide a fire extinguisher for use in case of an accident. Store in a highly visible place.
5. Do not allow children, spectators or bystanders within hazard area of machine.
6. Wear appropriate protective gear. This includes but is not limited to:
  - A hard hat
  - Protective shoes with slip resistant soles
  - Protective goggles
  - Heavy gloves
  - Hearing protection
  - Respirator or filter mask
7. Place all controls in neutral or off, stop motor, and wait for all moving parts to stop. Then disable power source before servicing, adjusting, repairing, or unplugging.
8. Review safety related items annually with all personnel who will be operating or maintaining the equipment.



### **OPERATING SAFETY:**

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

## RIB BLENDING STATION

### **PLACEMENT SAFETY**

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



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

### **MAINTENANCE SAFETY**

1. Review the operator's manual and all safety items before working with, maintaining or operating the equipment .
2. Place all controls in neutral or off, stop motors, disable power source, and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Follow good shop practices:  
Keep service area clean and dry.  
Be sure electrical outlets and tools are properly grounded.  
Use adequate light for the job at hand.
4. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
5. Clear the area of bystanders, especially children, when carrying out any maintenance and repairs or making any adjustments.
6. Before resuming work, install and secure all guards when maintenance work is completed.
7. Keep safety labels clean. Replace any sign that is damaged or not clearly visible.



## SAFETY LABELS

1. Keep safety labels clean and legible at all times.
2. Replace safety labels that are missing or have become illegible.
3. Replaced parts that displayed a safety 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**



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



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



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

**RIB BLENDING STATION SET-UP**

The following steps outline the initial set-up of your USC RIB Blending Station :

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



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

4. Inspect RIB Blending Station thoroughly for screws, bolts, fittings, etc. which may have come loose during shipping.
5. The RIB Blending Station should be placed on level ground.
6. Setup the RIB Blending Station control panel assembly on the left or right lower frame cross member.

RIB BLENDING STATION

**RIB BLENDING STATION SET - UP**

- 7. Have a certified electrician provide 110V power to the seed blending system. Provide convenient shutdown switches, comply with local electrical codes and ensure that the system is properly grounded and bonded. All USC control panels must be connected adhering to the same electrical requirements as specified in the main control panel on the power requirement tag (right), or the electrical schematic shipped with the piece of equipment. This will power the USC RIB Seed Wheel Blending system.

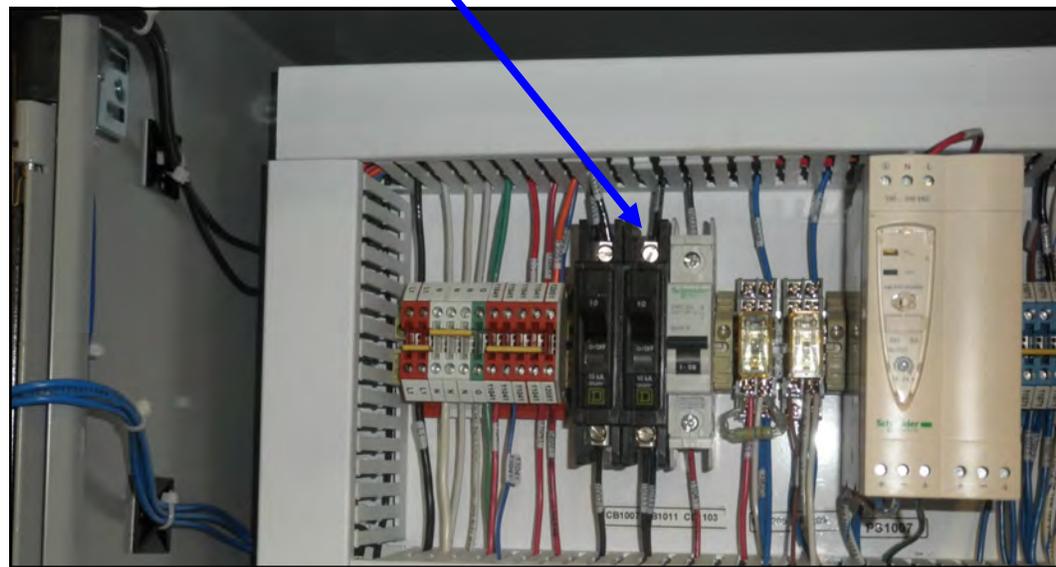


Mfg. By: USC, LLC  
Max voltage: 115V, 1PH, 60 HZ  
Total FLA: 20 Amps  
Schematic number: 03-12-0377A  
Enclosure rating: UL type 1

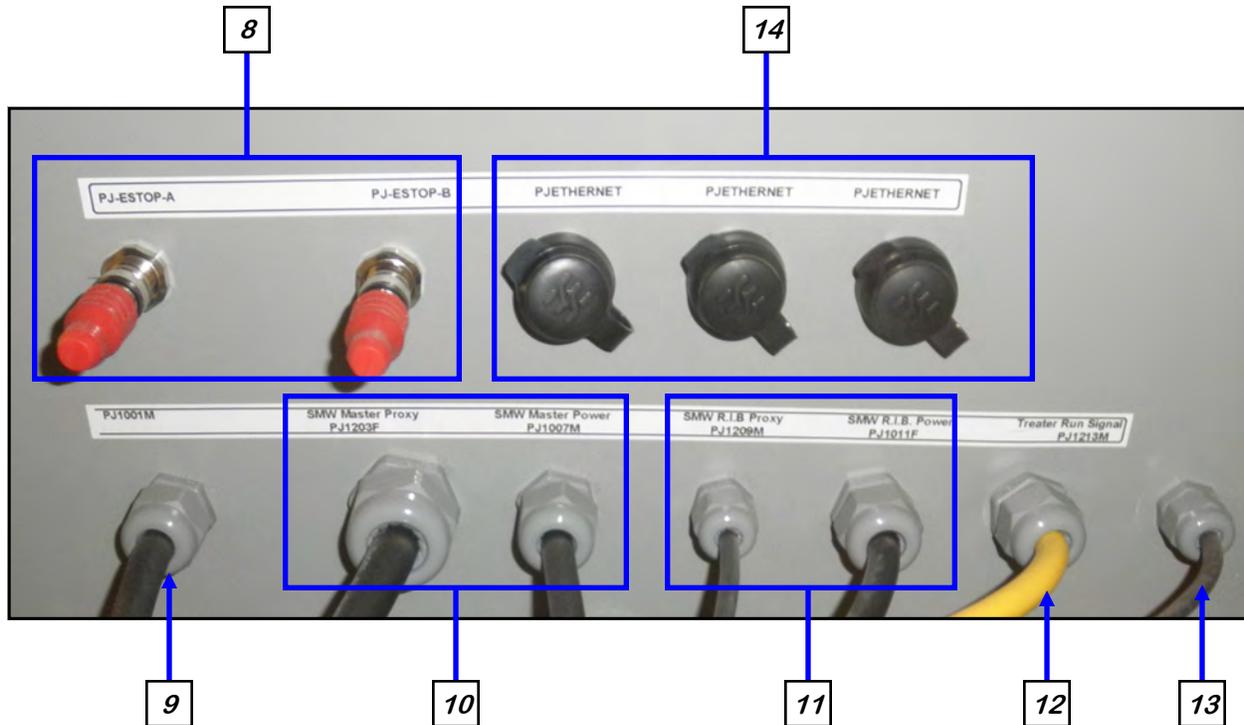
Replacement Fuse Chart			
Fuse	Line	Size	Type
FU1107	1107	4A	SB TL 150VDC CERM
FU1309	1309	3A	T SB/TD GMD-3-R
FU1311	1311	1A	T SB/TD GMD-1-R

**NOTICE** Flexible conduit is recommended for main power supply.

*Incoming power connected to these terminals in the RIB Blending Station Control Panel*



RIB BLENDING STATION  
**RIB BLENDING STATION SET - UP**  
**CONTROL PANEL**



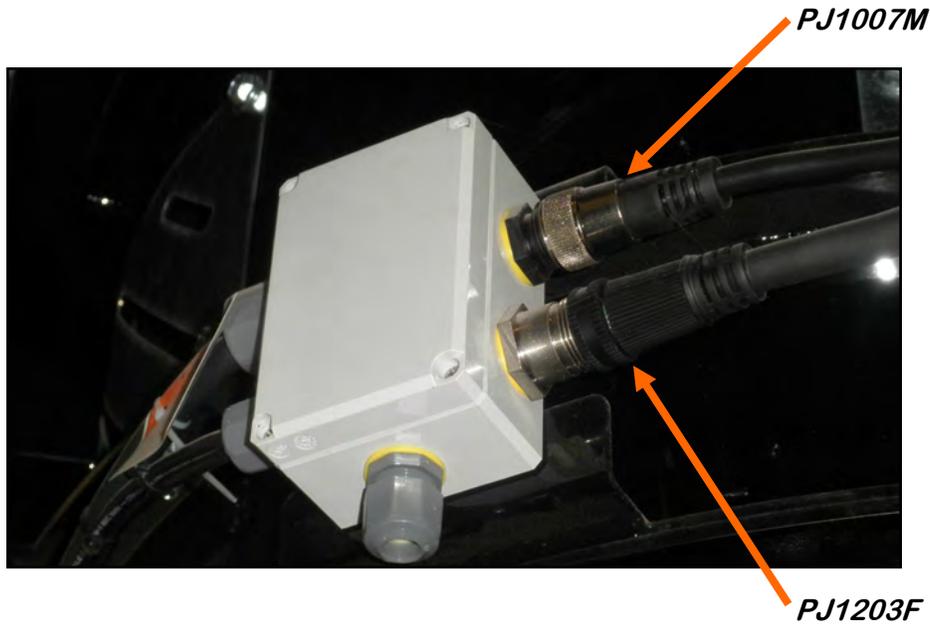
8. If using with a seed treater, connect the red cable to the PJESTOPA on the treater control panel or automated main control panel and then to the PJESTOPB on the RIB Blending Station automated control panel. This cable must run from an A connection to a B connection (never A to A or B to B). If not using with any other equipment, connect the two red plugs into each of the connections.
9. Connect 110V power through PJ1001M.
10. Connect the PJ1203F power cable to the top connector and connect the PJ1007M proxy cable to the bottom connector of the Standard seed wheel junction box.
11. Connect the PJ1011F power cable to the top connector and connect the PJ1209M proxy cable to the bottom connector of the RIB seed wheel junction box.
12. If using with a treater, connect the PJ1213M yellow run signal cable to one of the auxiliary ports on the treater control panel.
13. This port is provided to hardwire the cable from the scale on top of the station to the Cardinal scale module inside the control panel.

RIB BLENDING STATION

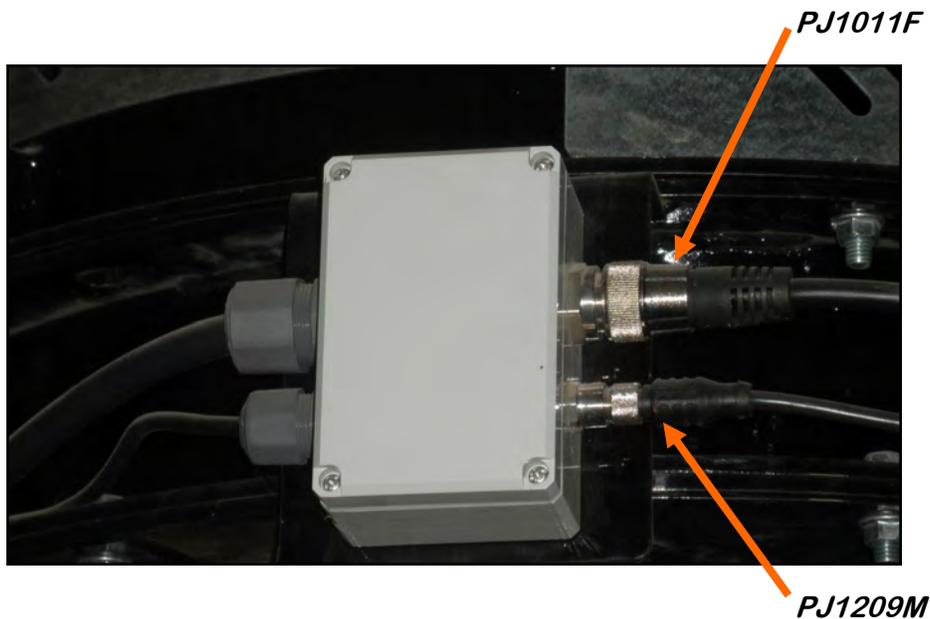
**RIB BLENDING STATION SET - UP**

14. Mount the Weigh-Tronix 301 scale head using the .250-20 hardware provided. Place the printer on the bracket below the scale head. Connect an E-Thernet cable from the scale head and printer to two of the E-Thernet ports on the panel. Plug the power cord for both devices into the 3-Amp plug provided on the left side of the control panel.

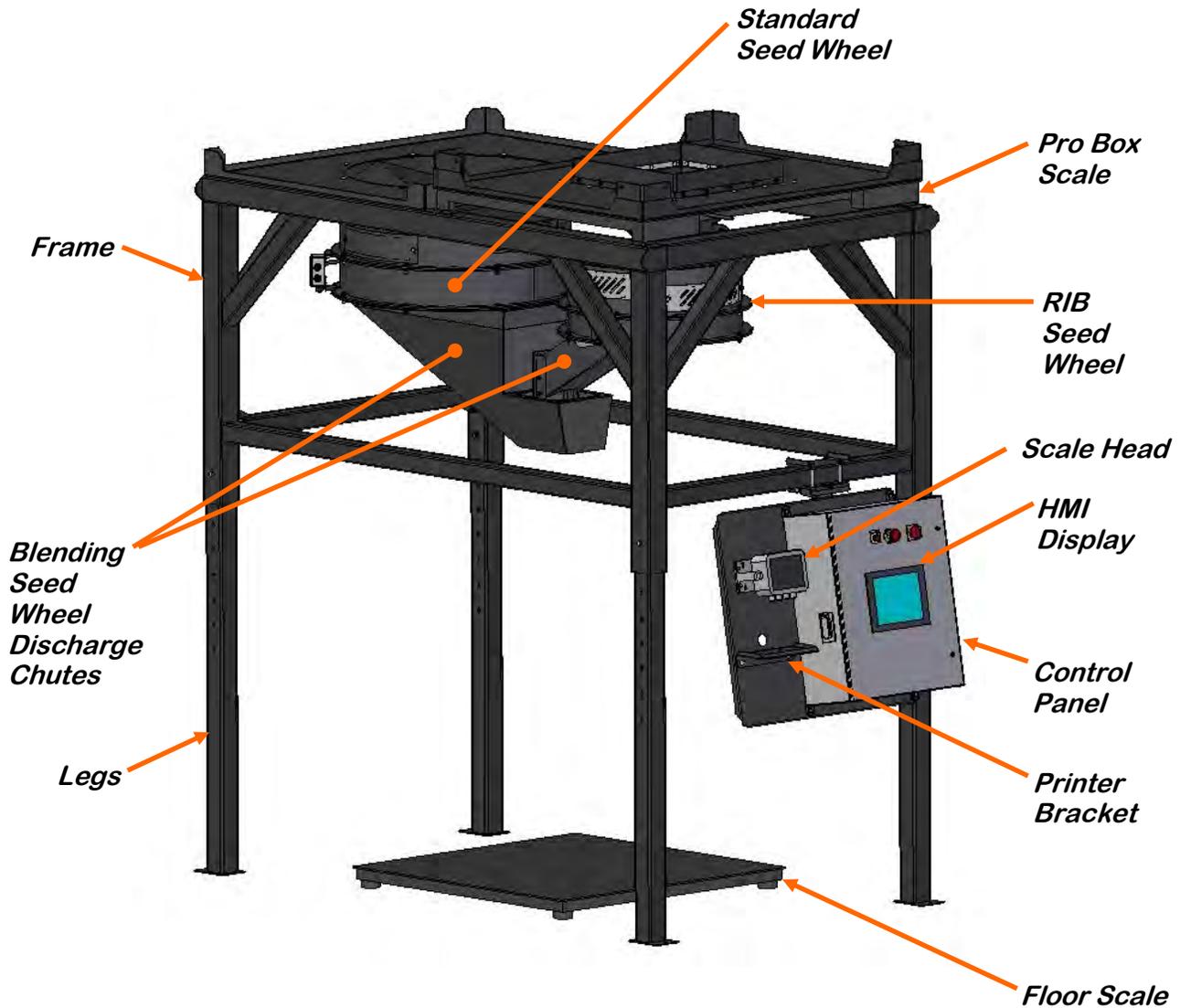
**STANDARD SEED WHEEL**



**RIB SEED WHEEL**



**RIB BLENDING STATION OVERVIEW**



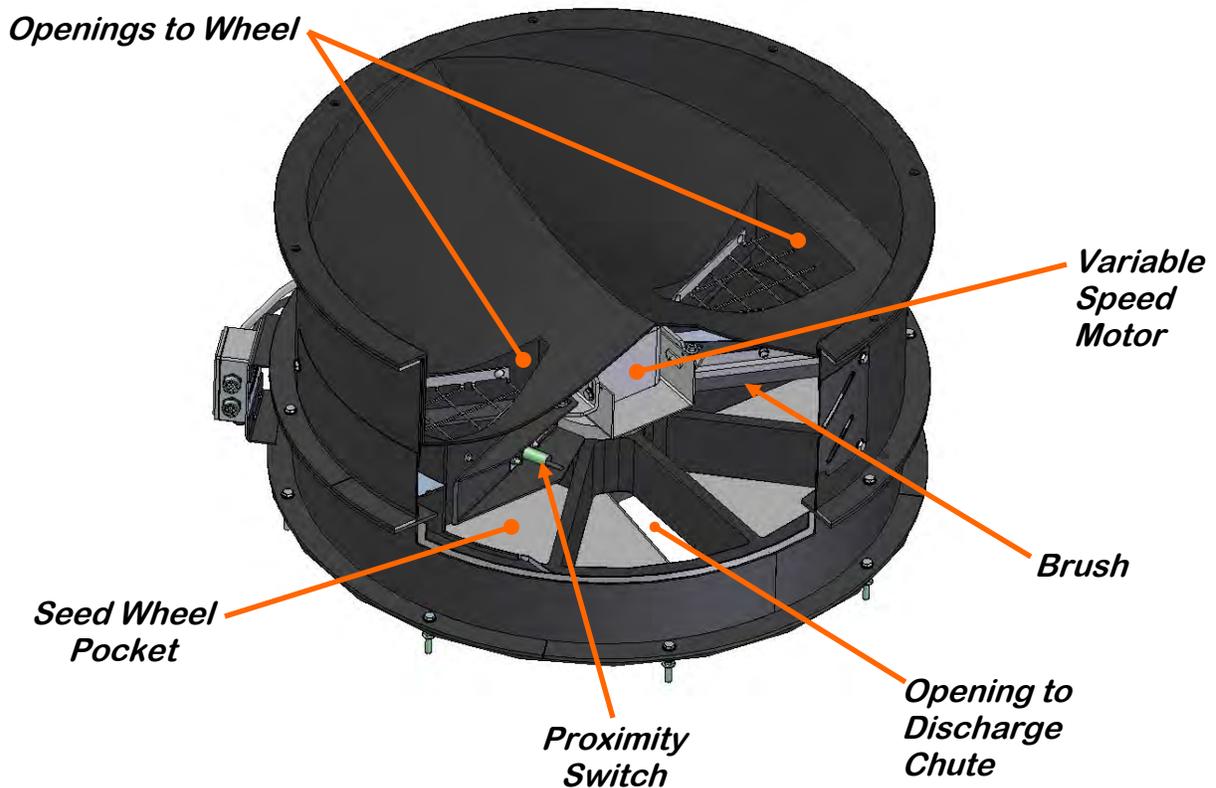
### **STANDARD SEED WHEEL OVERVIEW**

The standard seed wheel is designed to simplify and increase seed flow calibration accuracy. A rotating wheel is driven by a variable speed motor, which is set prior to treating the seed. The standard seed wheel is mounted under the left side of the station. The wheel consists of 8 identical pockets approximately 4 inches deep. As it rotates, the wheel captures a certain amount of seed in each pocket. After the seed is caught, the wheel continues rotation and dispenses the seed into the discharge chute mixing it with the seed from the RIB seed wheel. With the constant turn of the wheel, there is a consistent seed flow.

A cup is used to represent a certain percentage of one of the wheels pockets. To calibrate the seed flow, take a sample of the seed to be treated using the cup and weigh it (see page 35). By entering the cup weight of the seed sample on the Seed Profile screen, the system will automatically adjust the RPM of the Seed Wheel according to the entered target weight.

The purpose of the seed wheel is to simplify calibration and make seed flow calibration more accurate. The seed wheel saves time when switching to different seed sizes.

### **STANDARD WHEEL**

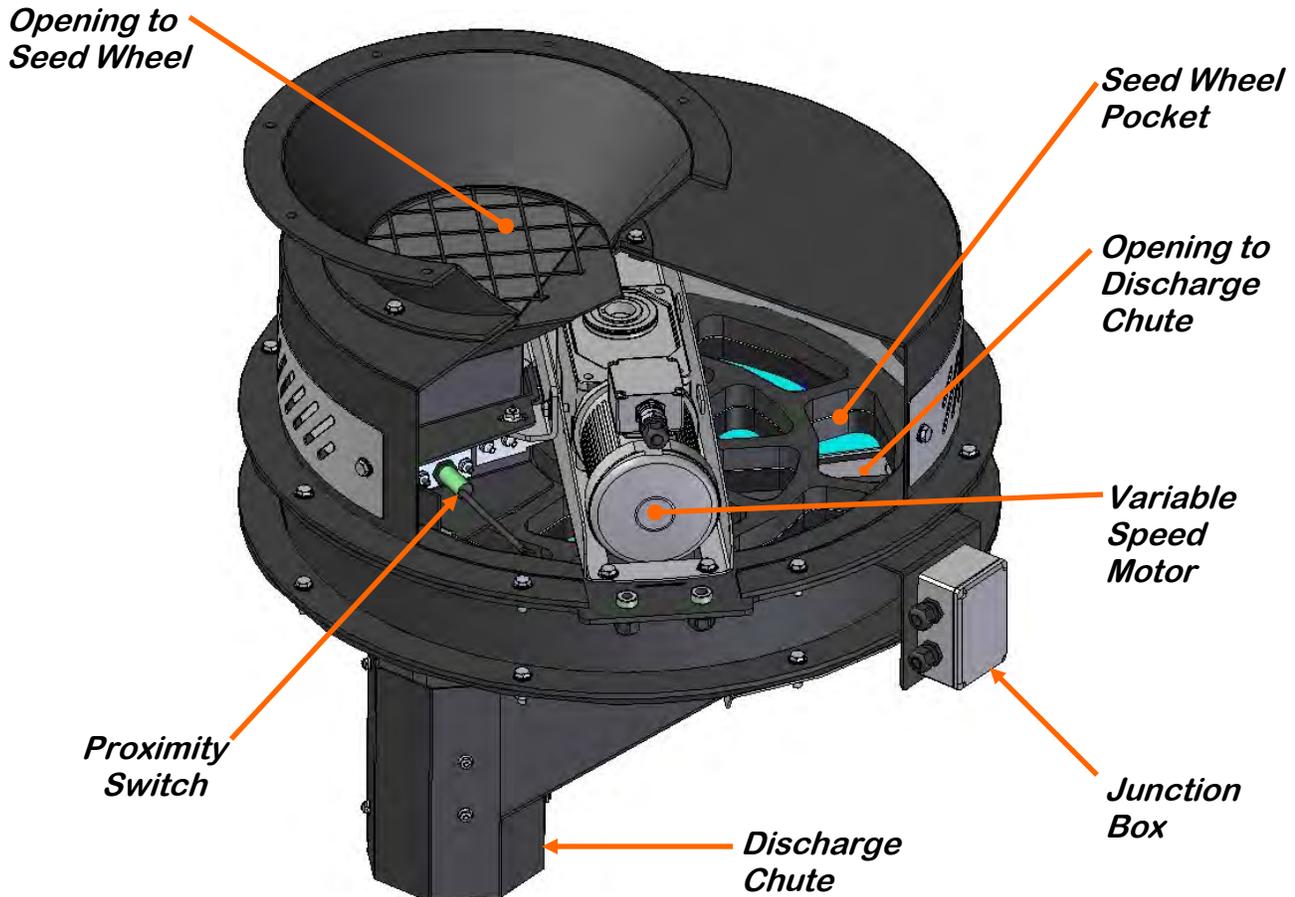


**RIB SEED WHEEL OVERVIEW**

The RIB seed wheel is designed to simplify and increase seed blending accuracy. A rotating wheel is driven by a variable speed motor, which is set prior to blending the seed. This is mounted under the right side of the station, under the Pro Box scale. The wheel consists of 16 pockets (8 small and 8 large) approximately 2 inches deep. As it rotates, the wheel captures a certain amount of seed in each pocket. After the seed is caught, the wheel continues rotating and dispenses the refuge seed into the discharge chute, blending it with the seed currently flowing from the standard seed wheel. With the constant turn of the wheel, there is a consistent amount of refuge seed always sent to mix with the regular seed.

A cup is used to represent a certain percentage of the wheels pockets. To calibrate the seed flow, take a sample of the seed to be treated using the cup and weigh it (see page 35 ). From the weight of the seed sample and by also knowing the RPM of the wheel, you can determine how fast the refuge seed will pass through the discharge chute to mix with the other seed. The purpose of the seed wheel is to simplify calibration and make refuge seed flow calibration more accurate. The seed wheel saves time when switching to different kernel sizes.

**RIB SEED WHEEL**



**ELECTRICAL OPERATION****SECTION  
D**

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



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



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

This section provides a general overview and description of the operator controls for the RIB Blending Station.

**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 RIB Blending Station main control panel is a 30 x 24 x10 inch enclosure that contains all of the electrical control components as well as the HMI (Human/Machine Interface) touch screen. The operator is able to control the entire system through the HMI. The panel is connected to the scale head and printer via Ethernet cables. These devices will be powered by the 3 Amp plug on the left side of the panel.

**Box to Box RIB Blending System**

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

**USC START UP SCREEN**

While the system is booting up the controller touch screen will display this screen which will also tell you which version of the program you are running (v2.0.00).

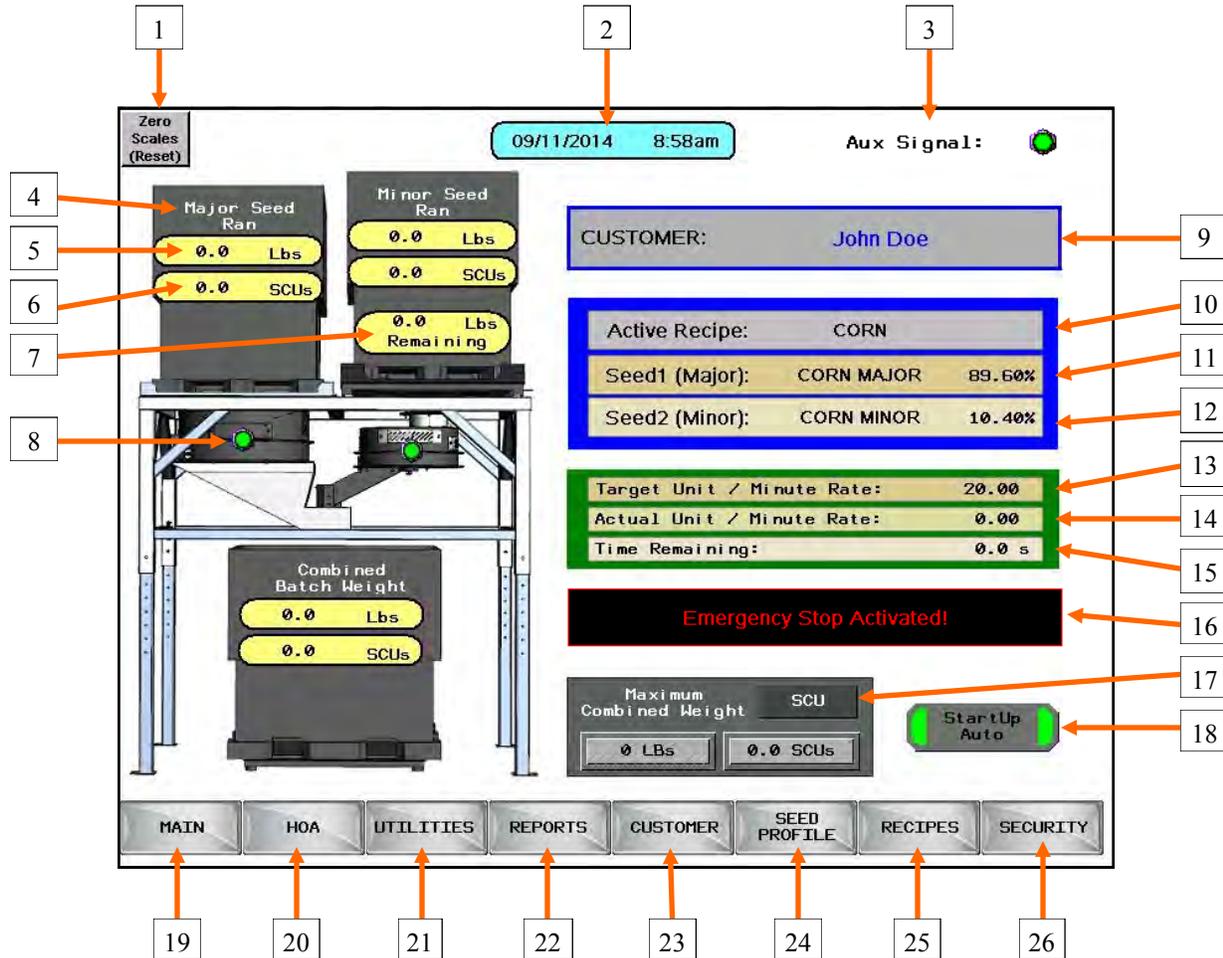
**NOTICE**

The E-Stop Reset push button must be pressed after every power cycle and every time the E-Stop is activated or the system will not operate.



## 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.



**1. ZERO SCALES BUTTON:** Resets the scales to zero.

**2. DATE AND TIME DISPLAY:** Displays the current date and time.

**3. AUXILIARY SIGNAL INDICATOR:** Indicates if the auxiliary signal is active when in TREAT MODE and connected with a treater.

**4. BOX LABEL:** Displays the box type.

**5. BOX WEIGHT DISPLAY:** Displays the weight in the box in either standard or metric.

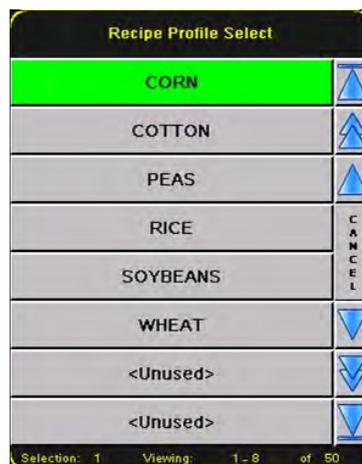
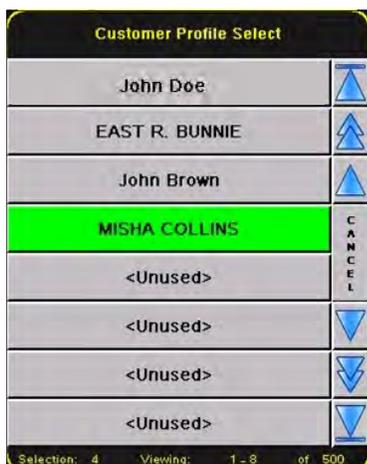
**6. BOX UNIT DISPLAY:** Displays the number of units run from that box based on seed type.

**7. MINOR BOX REMAINING DISPLAY:** Displays the weight remaining in the minor box.

**Main Screen Button Descriptions**

**8. SEED SENSOR INDICATOR:** This Indicates when the proximity sensor in the seed wheel detects seed. The indicator is green when active.

**9. CUSTOMER DISPLAY BUTTON:** This displays the current customer selected. When pressed, it will display the customer selection list to choose another customer.



**10. RECIPE DISPLAY BUTTON:** This displays the current recipe selected. When pressed, it will display a recipe selection list to choose another recipe.

**11. MAJOR SEED DISPLAY:** This displays the major seed selected and the target percentage of that seed to be in the combined batch.

**12. MINOR SEED DISPLAY:** This displays the minor seed selected and the target percentage of that seed to be in the combined batch.

**13. TARGET RATE DISPLAY:** This displays the seed flow target rate in SCU's per minute requested.

**14. ACTUAL RATE DISPLAY:** This displays the actual flow rate in SCU's per minute.

**15. TIME REMAINING DISPLAY:** This displays the time remaining to finish the current run.

**16. ALARM DISPLAY:** This displays any active alarms.

**17. MAX COMBINED WEIGHT:** Pressing this button allows the operator to toggle back and forth between SCU's and pounds. Then, press the appropriate button below it to set the maximum combined batch weight to load into the receiving pro box.

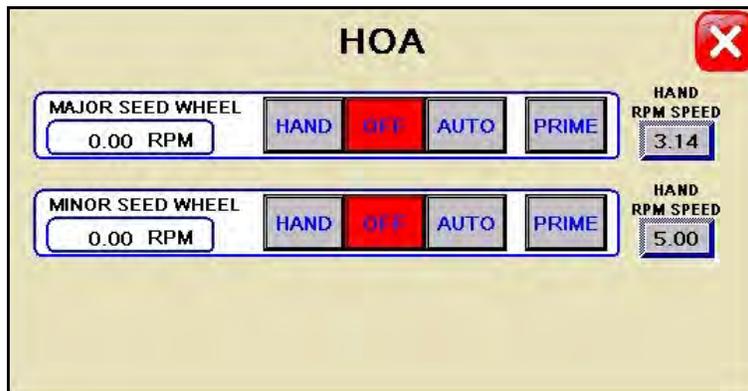
**18. START BUTTON:** Pressing this button will bring up the START popup window (right). The operator may verify all the details for the run and either cancel to modify the parameters or start the run.



**Main Screen Button Descriptions**

**19. MAIN BUTTON:** Pressing this button will bring the operator back to the main screen from any other screens that are not popup screens.

**20. HOA BUTTON:** Pressing this button will display the Hand-Off-Auto popup window (below) to control the motors for the major and minor seed wheels. The HAND button will place the seed wheel motor in the manual mode of operation. When it is active it will turn green. The OFF button will turn the associated device OFF. The AUTO button will place the motor in the automatic mode of operation. This button is used when the Box to Box RIB Blending System is attached to a seed treater. The connection is made using a two pin cable from the port on the bottom pump control panel (PJ2117 Treater AUX) to an auxiliary port on the treater control panel. This allows the treater to turn the seed wheels that are set in the AUTO mode on and off at the appropriate time. When the signal is sent from the treater, the On delay timer will begin to count down. When the signal stops, the OFF delay timer will begin to count down.



**21. UTILITIES BUTTON:** Pressing this button displays the Utilities screen.  
(see page 24)

**22. REPORTS BUTTON:** Pressing this button displays the Reports screen.  
(see page 26)

**23. CUSTOMER BUTTON:** Pressing this button displays the Customer Editing screen.  
(see page 28)

**24. SEED PROFILE BUTTON:** Pressing this button displays the Seed Profile Editing screen. (see page 29)

**25. RECIPES BUTTON:** Pressing this button displays the Recipe Editing screen.  
(see page 30)

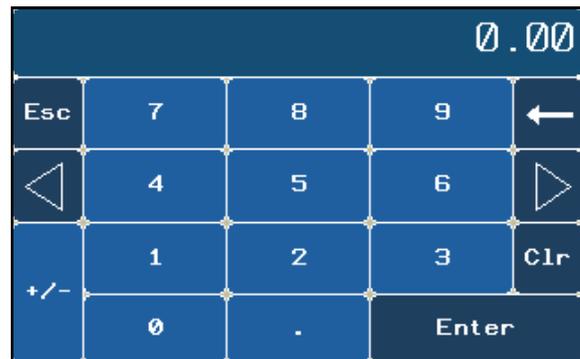
**26. SECURITY BUTTON:** Pressing this button displays the Security screen.  
(see page 31)

## UTILITIES SCREEN

This screen allows the operator to set various system parameters within the Box to Box RIB Blending System.



**NOTICE** When buttons 1 - 4, 6 and 7 are pressed, a numeric touch pad (right) will appear allowing the operator to enter in a number for that particular parameter.



### Utilities Screen Button Descriptions

**1. MAJOR SMW AUTO SHUTDOWN DELAY TIME:** Pressing this button allows the operator to adjust the shutdown timer on the Major Box seed wheel. This timer begins when the proximity sensor no longer detects seed in the seed wheel.

**2. MINOR SMW AUTO SHUTDOWN DELAY TIME:** Pressing this button allows the operator to adjust the shutdown timer on the Minor Box seed wheel. This timer begins when the proximity sensor no longer detects seed in the seed wheel.

**3. PROX SENSOR BUFFER TIME:** Pressing this button determines the sensitivity of the proximity sensor. This setting determines how long it must wait to change from one state to another. As an example, if we have a setting of 1.0 seconds, it needs to detect seed for one second before turning on. If it is on, it needs to not detect seed for one second before turning off.

**4. TRAVEL TIME:** Pressing this button allows the operator to set a travel time variable to help with obtain the Combined Batch Target Weight. This travel time represents the time it takes the seed to travel from the seed wheel to the receiving Pro Box.

**5. TREAT MODE:** Checking this box activates the Treat Mode. When active, the Minor SMW on and off delay buttons will appear in the upper right hand corner of the screen. Treat mode is used when the Minor Pro Box is being fed from a treater. The ON / OFF signal and the delay timers determine when the seed wheel turns on and off.

**6. MINOR SMW ON DELAY:** Pressing this button allows the operator to set an ON delay time that begins to count down when it receives a signal from the treater. This button is only present when treat mode is active.

**7. MINOR SMW OFF DELAY:** Pressing this button allows the operator to set an OFF delay time that begins to count down when it stops receiving a signal from the treater. This button is only present when treat mode is active.

**8. USC STARTUP:** Pressing this button returns the operator to the startup screen, which has the program version information.

RIB BLENDING STATION  
**REPORTS SCREEN**



**1. REPORT LIST:** This displays a selectable list of all reports saved in the system. Selecting one will display the report information on the right side of the screen.

**2. JUMP TO RECORD #:** Pressing this button will bring up a touch pad allowing the operator to enter a specific report number rather than scrolling through the entire list. Once entered, the report will appear at the top of the list. Select the report from the list and the record details will display to for that number.

**3. RECORD DETAILS:** This area displays the general record details such as the type, end time, customer name etc.

**4. VIEW CUSTOMER DETAILS:** Pressing this button allows the operator to view the customers address HOA and phone number.



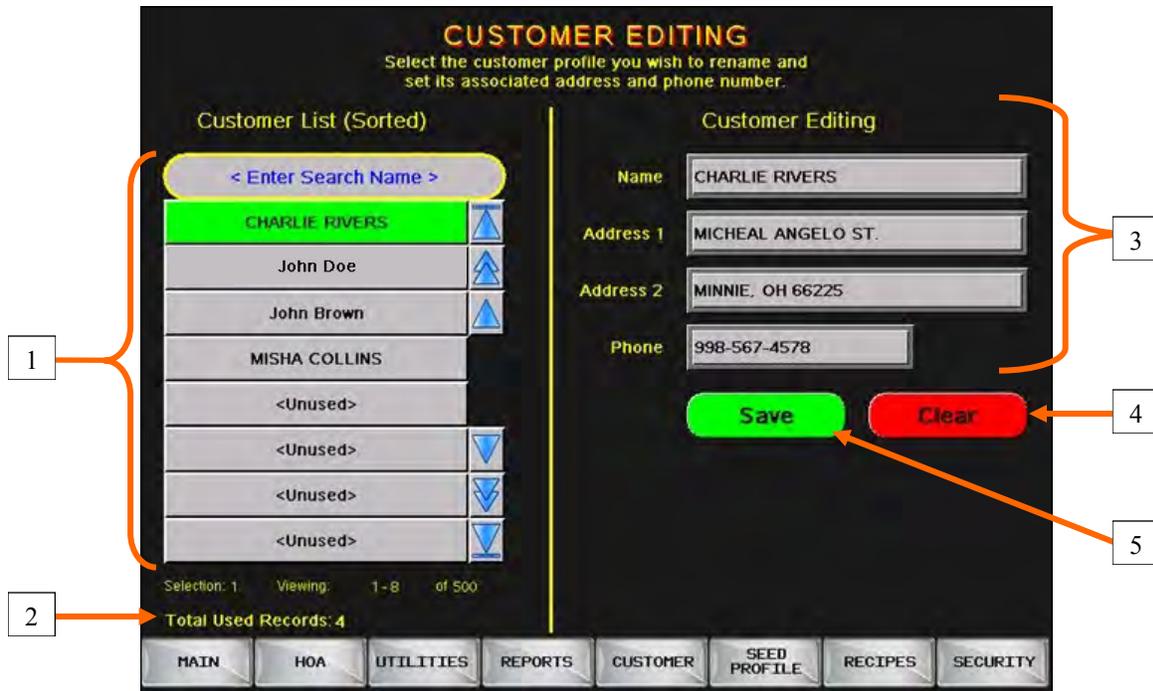
**5. SEED DETAILS:** Pressing this button will display a pop up of the seed profile. Pressing the button in the upper right corner of the screen allows the operator to toggle between the Minor and Major seed profile screens shown below.



**6. PRINT:** Pressing this button allows the operator to print the selected report.

RIB BLENDING STATION

## CUSTOMER EDITING SCREEN



**1. CUSTOMER LIST:** This displays a sorted list of all customers. Selecting one will display the customers information on the right side of the screen to be edited.

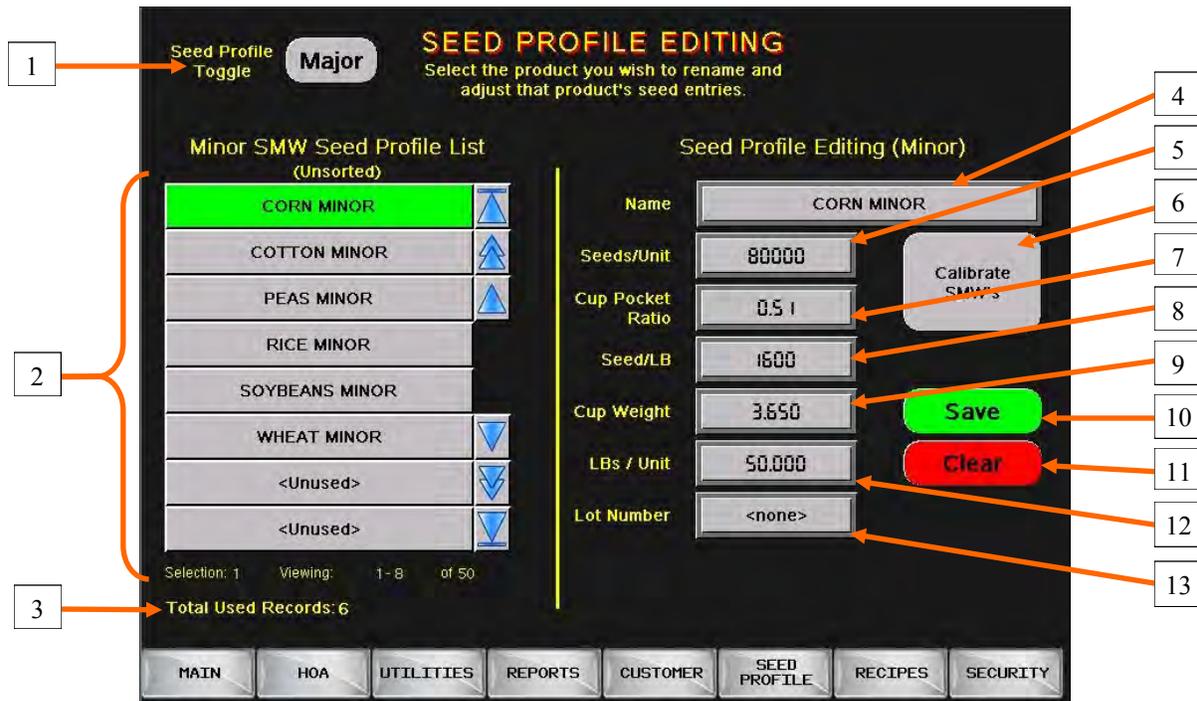
**2. TOTAL USED RECORDS:** This displays the number of records that have been entered and saved in the system.

**3. CUSTOMER EDITING:** This section allows the operator to modify the customer information. Select one of the grey fields and an alpha numeric keypad popup screen appears, make the changes to that field and enter. Once changes are complete, press the SAVE button.

**4. CLEAR:** Pressing this button will clear all fields to enter information for a new customer.

**5. SAVE:** Pressing this button saves the updated information to the file memory for that customer.

## SEED PROFILE EDITING SCREEN



**1. SEED PROFILE TOGGLE:** Pressing this button allows the operator to toggle between viewing the Major and Minor seed profiles for editing.

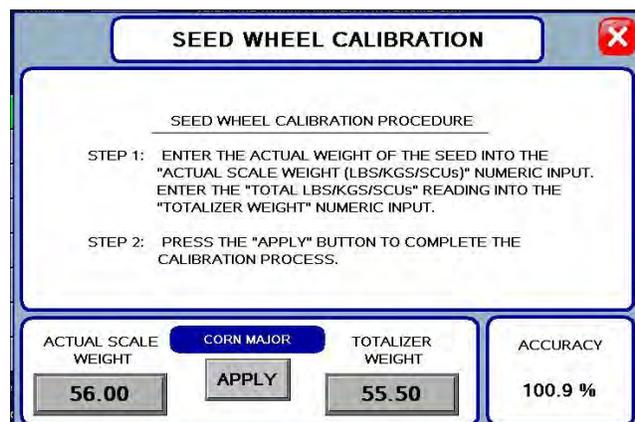
**2. SEED PROFILE LIST:** This displays a selectable list of all seed profiles. Selecting one will display the profile information on the right side of the screen.

**3. TOTAL USED RECORDS:** This displays the number of records that have been saved in the system.

**4. SEED NAME:** Pressing this allows the operator edit the seed type name.

**5. SEEDS / UNIT:** Pressing this button allows the operator to edit the number of seeds per unit.

**6. CALIBRATE SMW's:** Pressing this button brings up the Seed Wheel Calibration screen (right). Enters the actual scale weight and the totalizer weight. Pressing the APPLY button will re-calibrate the system. The system will update the cup pocket ratio based on this calculation.



**7. CUP POCKET RATIO:** This is a ratio of the number of cups that will fit in one of the seed wheel pockets used for seed flow calculation.

**8. SEEDS / LB:** Pressing this button allows the operator to enter the number of seeds per pound.

**9. CUP WEIGHT:** Pressing this button allows the operator to enter the cup weight for the seed. (see page 35)

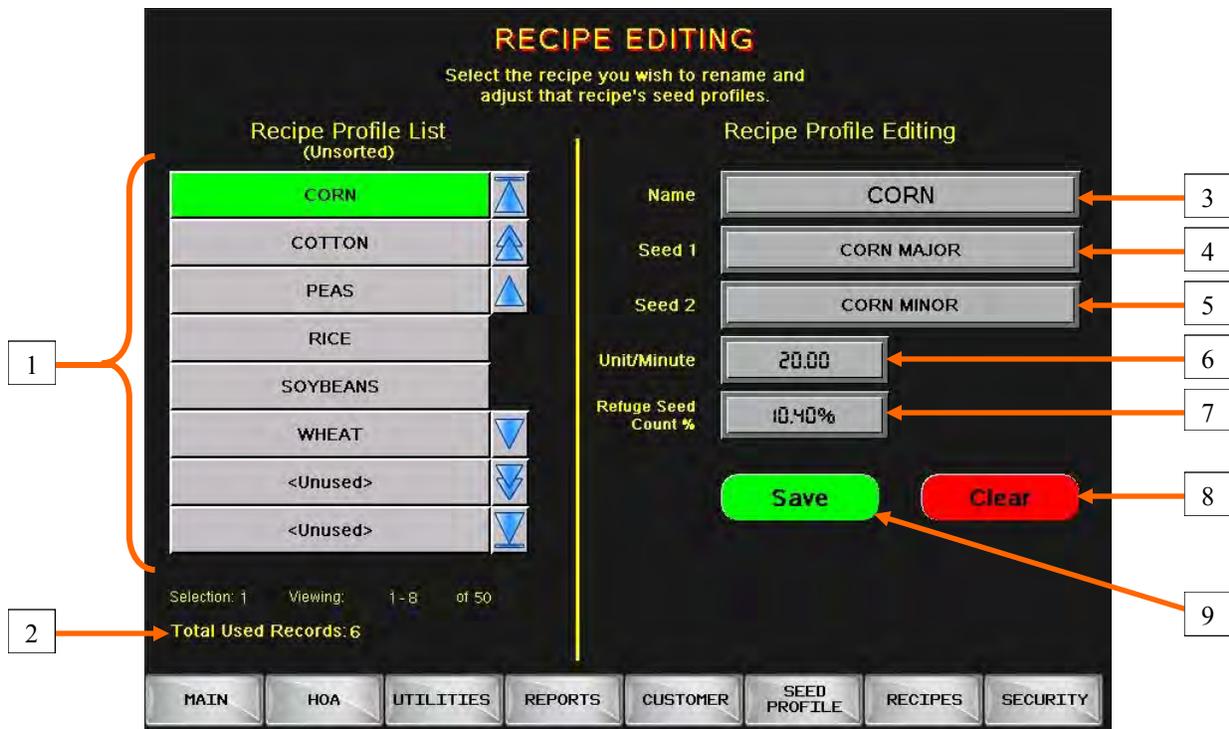
**10. SAVE:** Pressing this button saves the updated information for that particular seed profile.

**11. CLEAR:** Pressing this button will clear all fields to enter a new seed profile.

**12. LBS / UNIT:** This is where the operator will enter the pounds per unit for the seed.

**13. LOT NUMBER:** This is where the operator will enter the lot number for the seed.

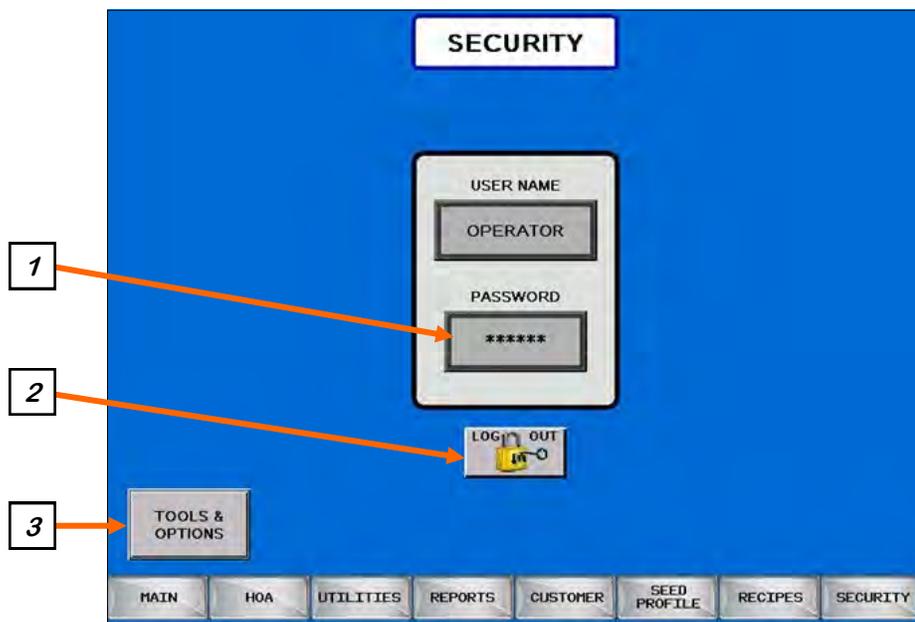
## RECIPE EDITING SCREEN



## RIB BLENDING STATION

- 1. RECIPE PROFILE LIST:** This displays a selectable list of all recipes. Selecting one will display the recipe information on the right side of the screen.
- 2. TOTAL USED RECORDS:** This displays the number of recipes saved in the system.
- 3. NAME:** Pressing this button allows the operator to enter a name for the currently selected recipe.
- 4. SEED 1:** Pressing this button allows the operator to enter the Major seed type for the selected recipe.
- 5. SEED 2:** Pressing this button allows the operator to enter the Minor seed type for the selected recipe.
- 6. UNITS / MINUTE:** Pressing this button allows the operator to enter the target number of units per minute for this recipe.
- 7. REFUGE SEED COUNT %:** Pressing this button allows the operator to enter the ratio percentage of minor seed they want in the selected recipe.
- 8. CLEAR:** Pressing this button will clear all fields to enter new information for the recipe.
- 9. SAVE:** Pressing this button saves the updated information for the recipe.

## SECURITY SCREEN



## RIB BLENDING STATION

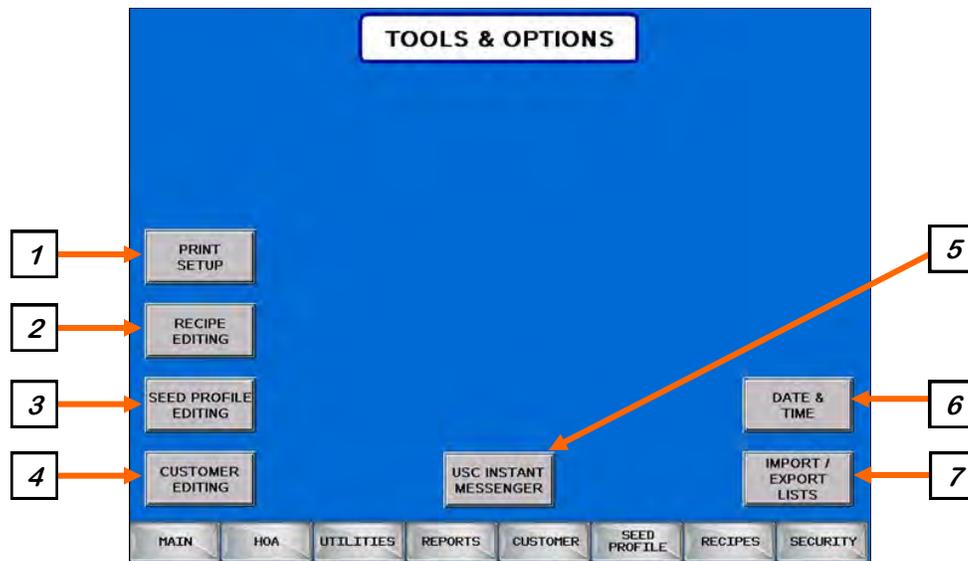
**1. PASSWORD ENTRY:** The operator uses this input to obtain access to all options on this screen. When this button is pressed a keypad (below) will appear on the screen. The password is **USC** and should only be made accessible to personnel qualified to operate the RIB Blending Station . The User Name will stay OPERATOR.



**2. LOGOUT BUTTON:** Pressing this button will log the operator out of the Security screen.

**3. TOOLS & OPTIONS:** Pressing this button will advance the operator to the Tools & Options screen.

## TOOLS & OPTIONS SCREEN



## RIB BLENDING STATION

**1. PRINT SETUP:** Pressing this button allows the operator to set up their company information which will be printed at the top of each report. Pressing this button will advance the operator to the screen below. The company information may be entered by selecting the blank space under each heading.

**PRINT SETUP**

**COMPANY NAME:**  
ABC Seed Co.

**ADDRESS #1:**  
1234 County Rd

**ADDRESS #2:**  
Somewhere, USA

**PHONE NUMBER:**  
123-456-7890

**COMMENT:**  
Thank you for your business!

This information will be displayed on the printed reports.

MAIN HOA UTILITIES REPORTS CUSTOMER SEED PROFILE RECIPES SECURITY

**2. RECIPE EDITING:** Pressing this button advances the operator to the Recipe Editing screen. (see page 30)

**3. SEED PROFILE EDITING:** Pressing this button advances the operator to the Seed Profile Editing screen. (see page 29)

**4. CUSTOMER EDITING:** Pressing this button advances the operator to the Customer Editing screen. (see page 28)

**5. USC INSTANT MESSENGER:** Pressing this button will bring up the Instant Messenger popup screen. This allows the operator to communicate with the technical support staff. This option only functions if the operator has U-Connect Lite installed on their laptop or U-Connect Pro is connected to the control panel using a thin client to make the connection.

**SITE IDENTIFICATION**

**SITE NAME:**  
N/A

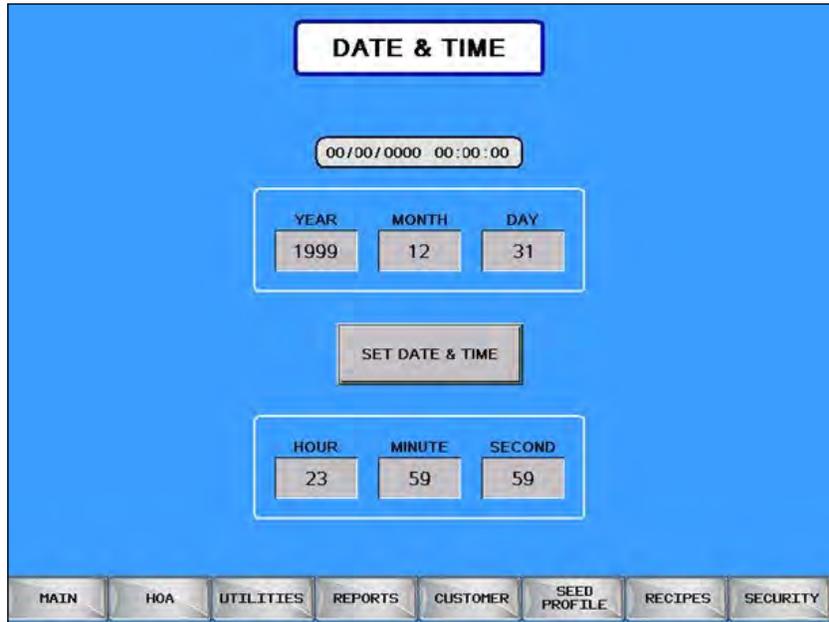
**SITE DESCRIPTION:**  
RIB\_Blending\_Station\_02\_00\_01

**USC SUPPORT INSTANT MESSENGER**

**SEND MESSAGE:**

HISTORY

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



**7. IMPORT / EXPORT LISTS:** Pressing this button will advance the operator to the Import / Export screen. From here you may choose from a variety of lists that may be either imported from a USB compatible Compact Flash device, exported to a USB compatible Compact Flash device. The Flash device must be in Fat 32 format. A list may also be deleted from this screen.



# CALIBRATION

## SECTION E

### DETERMINING SEED CUP WEIGHT

The following is a list of steps to use when calibrating the seed wheel. A seed calibration cup, funnel, stand, and scale are used to calibrate the seed wheel.

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.
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 calibration cup with a straight edge. (figure 2)

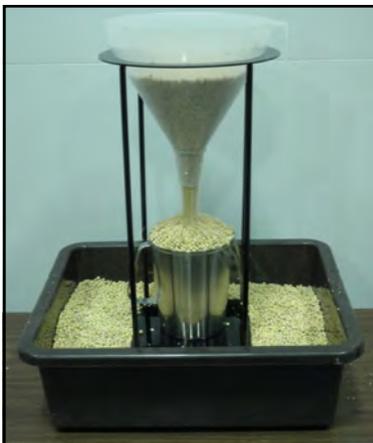


*Seed Calibration Cup*

**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*

**MANUAL METHOD FOR SEED FLOW CALCULATIONS**

The following steps illustrate how to determine the RPM for your desired seed flow rate. Different seed types will fill the pocket differently. When figuring your seed flow rate, be sure to use the chart below for the type of seed.

1. Determine a seed flow rate.

**EXAMPLE:** *Desired Seed Flow Rate = 700 lbs./min.*

2. Determine the number of pounds per wheel revolution which will be dispensed through the seed wheel. This can be found by dividing the desired seed flow rate by the number of pockets dispensed per revolution.

**EXAMPLE:** Seed Flow Rate = 700 lbs./min.  
 $700 / 16 = 43.75$  lbs.  
***43.75 lbs. per wheel revolution.***

3. Find the weight of seed in each pocket. This can be done by taking a sample of the seed to be treated (follow the steps on page 30). Divide the weight of the sample by the Cup Percentage for the type of seed you are treating.

**EXAMPLE:** Weight of seed in cup = 3.58  
 Cup Percentage for Soybeans = 0.38501  
 $3.58 / 0.38501 = 9.298$   
***9.298 lbs. per wheel pocket.***

4. Determine the RPM of the Seed Wheel to match your desired seed flow rate. Take the lbs per wheel revolution and divide it by the lbs per wheel pocket. Then add in a 0.04 factor to compensate for the drop in wheel RPM under a load of seed.

**EXAMPLE:** Pounds per wheel revolution = 43.75  
 Pounds per wheel pocket = 9.298  
 $43.75 / 9.298 = 4.71$   
 $4.71 + 0.04 = 4.75$   
***4.75 RPM is the number the seed wheel needs to be set at to match your desired seed flow rate.***

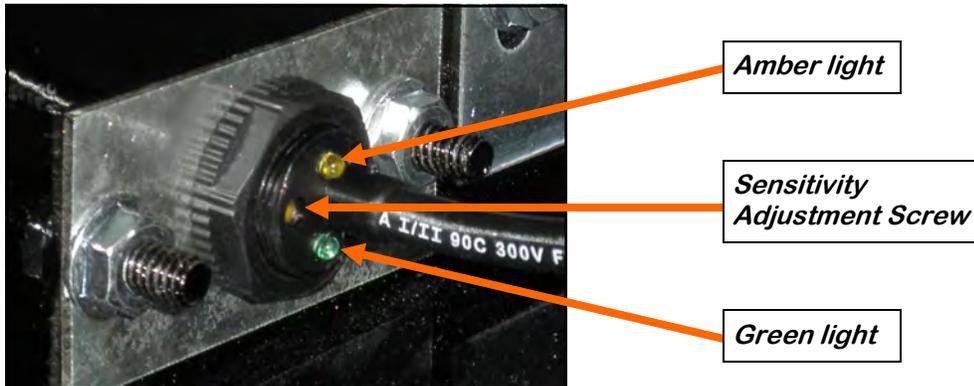
Seed Type	Cup Percentage
CORN	0.38080
COTTON	0.38153
PEAS	0.38979
RICE	0.37936
SOYBEANS	0.38501
WHEAT	0.36527
OTHER	0.38029

**TROUBLESHOOTING****SECTION  
F****TROUBLESHOOTING**

Below is a table describing the most frequent problems and solutions with the USC RIB Blending Station . For further assistance, contact the USC Service department at (785) 431-7900.

Problem	Possible Cause	Solution
Seed Wheel will not turn on in HAND mode.	<ol style="list-style-type: none"> <li>1. VFD inside of control panel has a fault.</li> <li>2. Loose wire connection.</li> <li>3. Incorrect incoming power.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check VFD for faults. Shut off power until the VFD turns off completely, then restore power to seed wheel.</li> <li>2. Check all wire connections.</li> <li>3. Check incoming power. Should be 120 volts.</li> </ol>
Seed Wheel keeps shutting off	<ol style="list-style-type: none"> <li>1. Seed Wheel drawing too many amps.</li> <li>2. Seed Wheel is binding.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check motor amperage.</li> <li>2. Check to make sure nothing is pressing down on the seed wheel.</li> </ol>
Seed is backing up into the seed wheel	<ol style="list-style-type: none"> <li>1. Seed gate on treater is closed down.</li> <li>2. Seed wheel is turning too fast.</li> <li>3. Restriction above seed gate.</li> </ol>	<ol style="list-style-type: none"> <li>1. Open seed gate wide open.</li> <li>2. Slow down the seed wheel to accommodate your seed treater.</li> <li>3. Remove restriction.</li> </ol>
Seed Wheel will not turn on in AUTO mode.	<ol style="list-style-type: none"> <li>1. VFD inside of control panel has a fault.</li> <li>2. Loose wire connection.</li> <li>3. Incorrect incoming power.</li> <li>4. HMI Main screen is not set to AUTO mode.</li> <li>5. Yellow cable not connected to the auxiliary connector on the seed treater control panel.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check VFD for faults. Shut off power until the VFD turns off completely, then restore power to seed wheel.</li> <li>2. Check all wire connections.</li> <li>3. Check incoming power. Should be 120 volts.</li> <li>4. Set HMI to AUTO mode.</li> <li>5. Connect cable.</li> </ol>
Seed is not starting or stopping to exit the treater drum at the same time seed begins to dump or has completed dumping from the RIB Seed Wheel.	<ol style="list-style-type: none"> <li>1. Start and or Stop delay times are not set correctly on the Menu screen.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use a stop watch to record the time it takes for seed to travel through the treater to the end of the drum and adjust delay times. (see page 18)</li> </ol>

## PROXIMITY SWITCH ADJUSTMENT GUIDE



The proximity switches mounted in the seed wheels detect when seed is present.

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

The green light indicates the power status. If it is active the device is powered.

The amber light indicates when seed is being detected. If it is active it detects seed, if inactive it does not detect seed.

Using the small screwdriver provided inside the control panel, you can adjust the proximity switch by turning the adjusting screw on the back of the proximity switch.

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

**MAINTENANCE****SECTION  
G**

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



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

**GREASING**

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

1. Use a Maintenance Checklist to keep record of all scheduled maintenance.
2. Use a hand-held grease gun for all greasing.
3. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
4. Replace and repair broken fittings immediately.



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

**SEED WHEEL**

1. Inspect all welds and structural components for bends, cracks and damage.
2. Remove shields to inspect wheel, brushes and proximity switches.
3. Use compressed air to blow out any seeds and excess build-up that may have occurred during operation.

## RIB BLENDING STATION

### **ELECTRICAL PANEL**

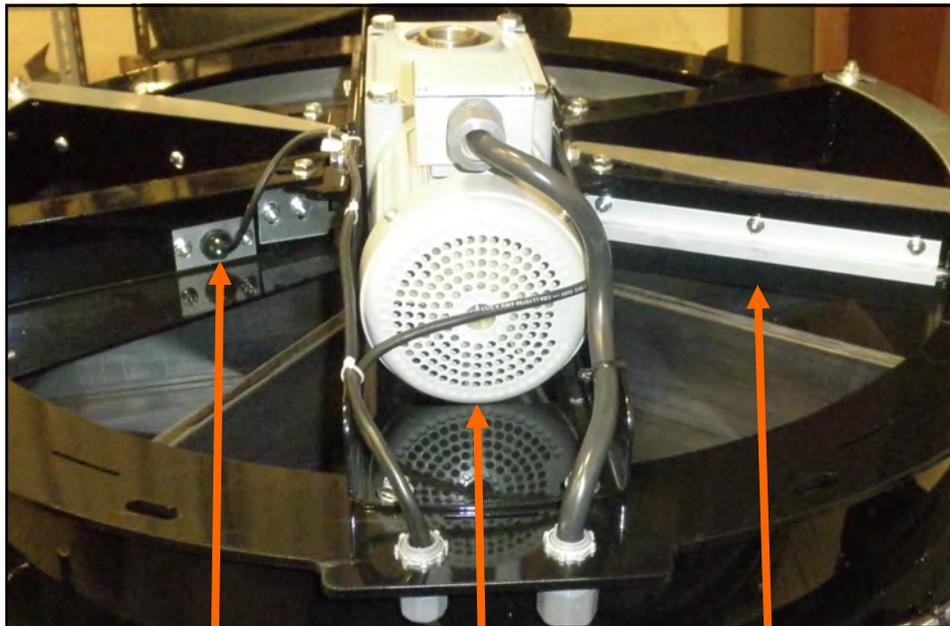
- Check and tighten wire connections.
- Check quick connects on bottom of control panel.
- Check to see if starters and/or overloads are tripped.
- Check to see if relays, timers and/or breakers are tripped.
- Check and set the proximity switches. (page 38).
- Check quick connects on end of Auxiliary cord.
- Check and tighten wire connections.
- Check relay and fuse holder.

When storing the RIB Blending Station for long periods of time, the following procedure must be followed to reduce the chance of rust, corrosion and fatigue of the pump stand. 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.

1. Disconnect Power
2. Remove shields from the seed wheel and remove any debris or build-up. Compressed air can be used to blow out any foreign material.
3. Re-connect power and run seed wheel to help remove any additional debris. Compressed air can be used to blow out any foreign material.
4. Check brushes (below).
5. Wipe off and clean the lens of the proximity switches (below).
6. Disconnect Power and mount all guards back in place.
7. Tarp or cover the seed wheel to keep out any dirt or unwanted pests.

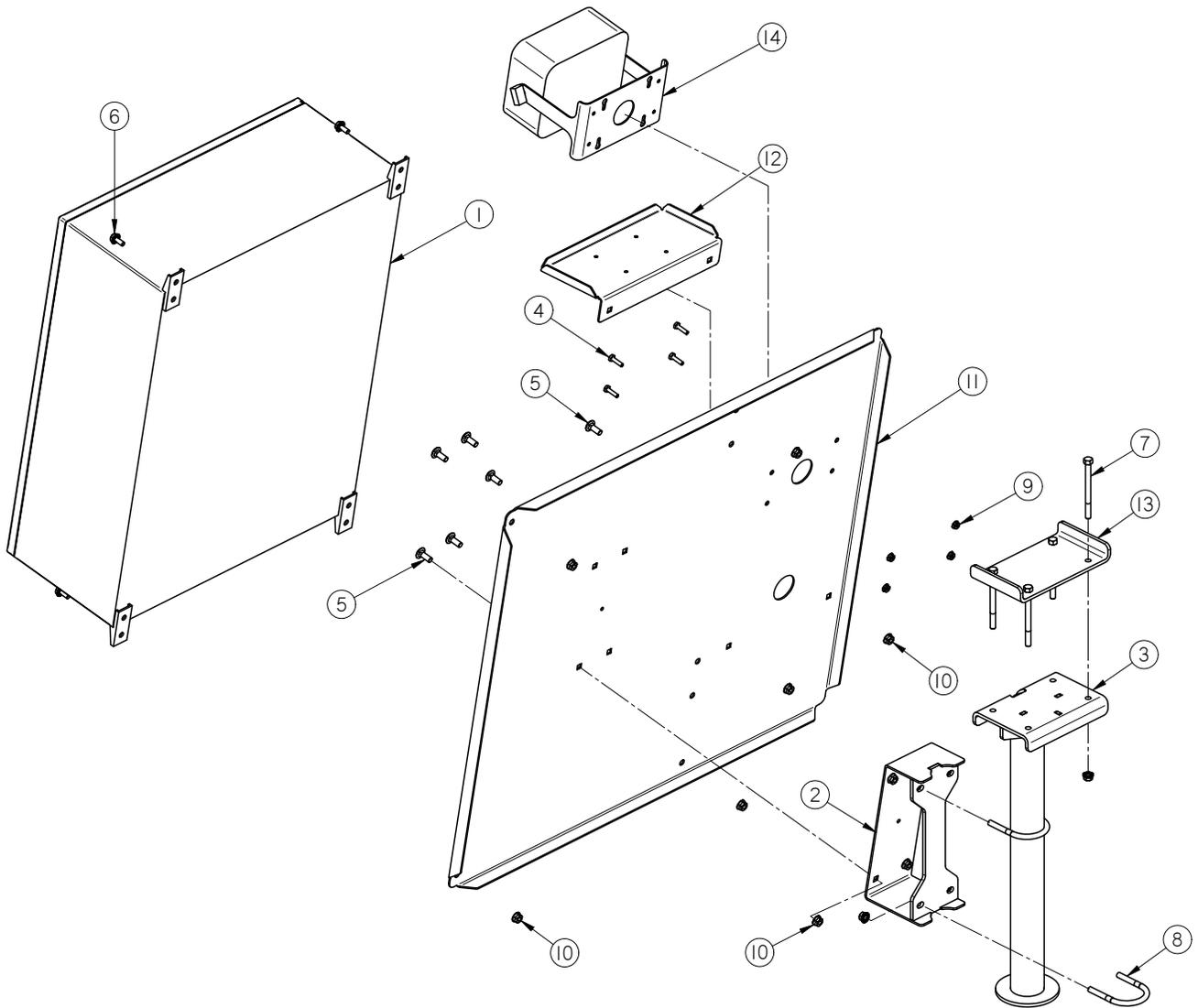


*Proximity Switch*

*Motor*

*Brush*

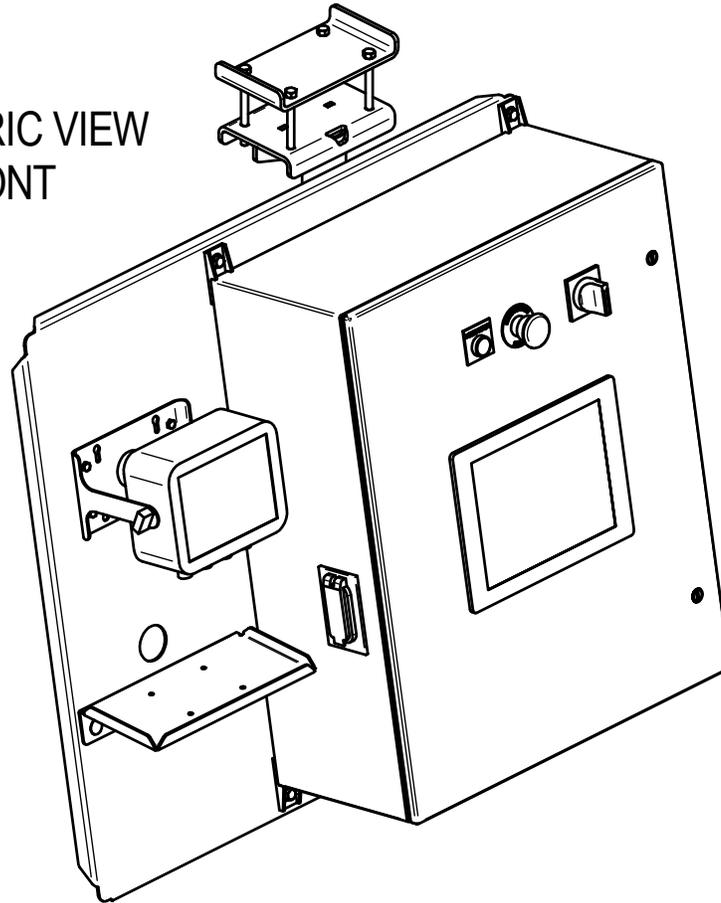
**PANEL MOUNTING STAND ASSEMBLY (13-04-0184)**



RIB BLENDING STATION

**PANEL MOUNTING STAND ASSEMBLY (13-04-0184)**

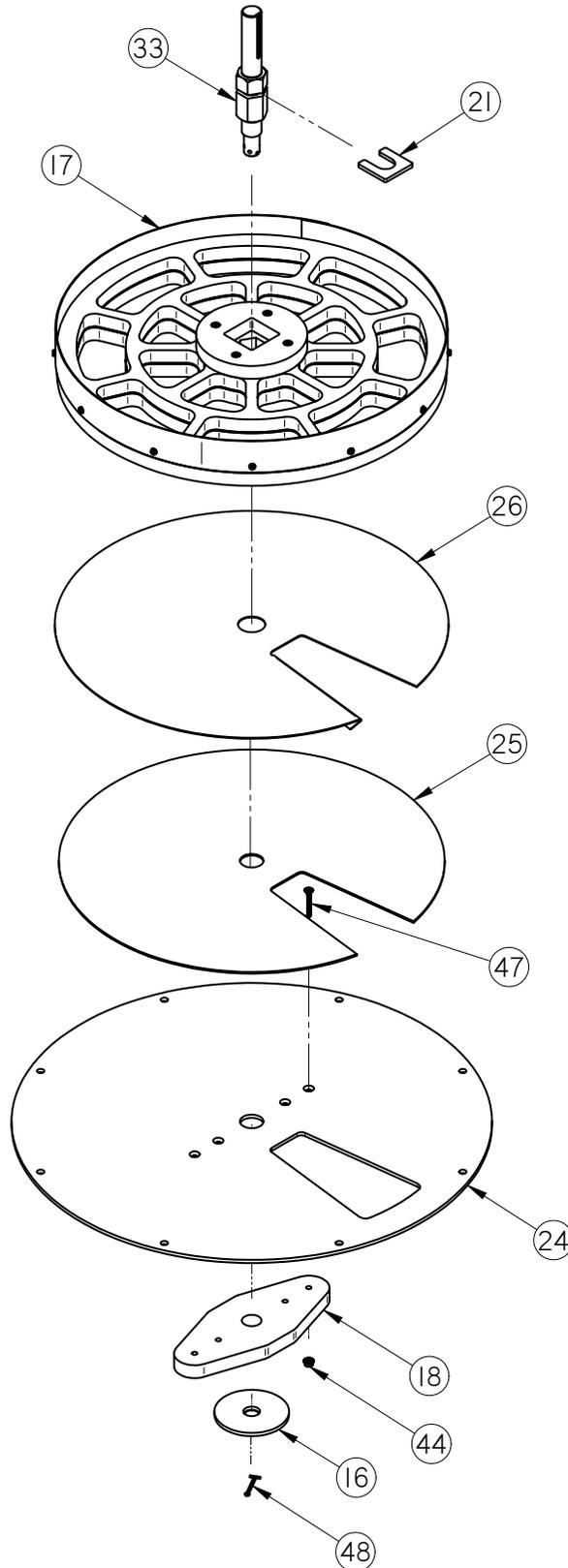
ISOMETRIC VIEW  
FRONT



Item #	Part #	Description	Qty
1	03-12-0366	MAIN CONTROL PANEL U-TREAT	1
2	05-03-1479	WDMT PNL ADJ	1
3	05-07-0754	WDMT ADJ PANEL MT RIB	1
4	06-01-0007	BOLT, .250-20 X 1 UNC ZP GRADE 5	4
5	06-01-0115	BOLT CRG .375-16 X 1.00 ZP GR5	6
6	06-01-0124	BOLT, FLG .375-16 UNC ZP GRADE 5; 3/4" LG	4
7	06-01-0131	BOLT .375-16 X 4.50 ZP GR5	4
8	06-01-0287	BOLT U .375-16 X 2.50 X 3.125 ZP	2
9	06-03-0013	NUT,LOCK, FLG .250-20 ZP SERRATED	4
10	06-03-0014	NUT LOCK FLG .375-16 ZP GR5	18
11	10399B	PLT PNL RIB	1
12	1039A1	PLT PRINTER MT	1
13	1039A5	PLT PNL MT CLAMP	1
14	13-05-0357	ASSY AVERY ZM301 INDI PREWIRED	1

RIB BLENDING STATION

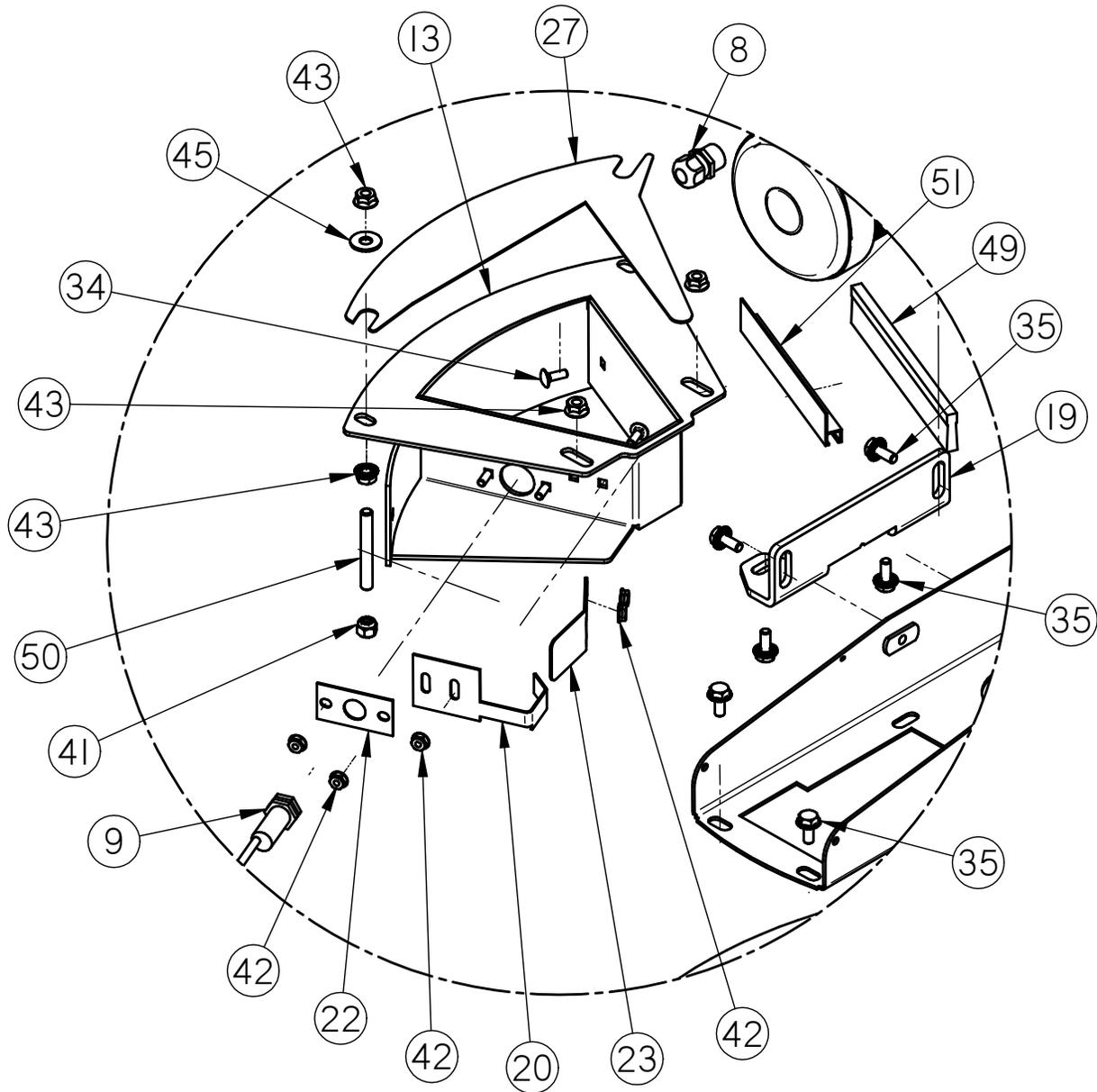
**RIB SEED METERING WHEEL ASSEMBLY (13-04-0151)**





RIB BLENDING STATION

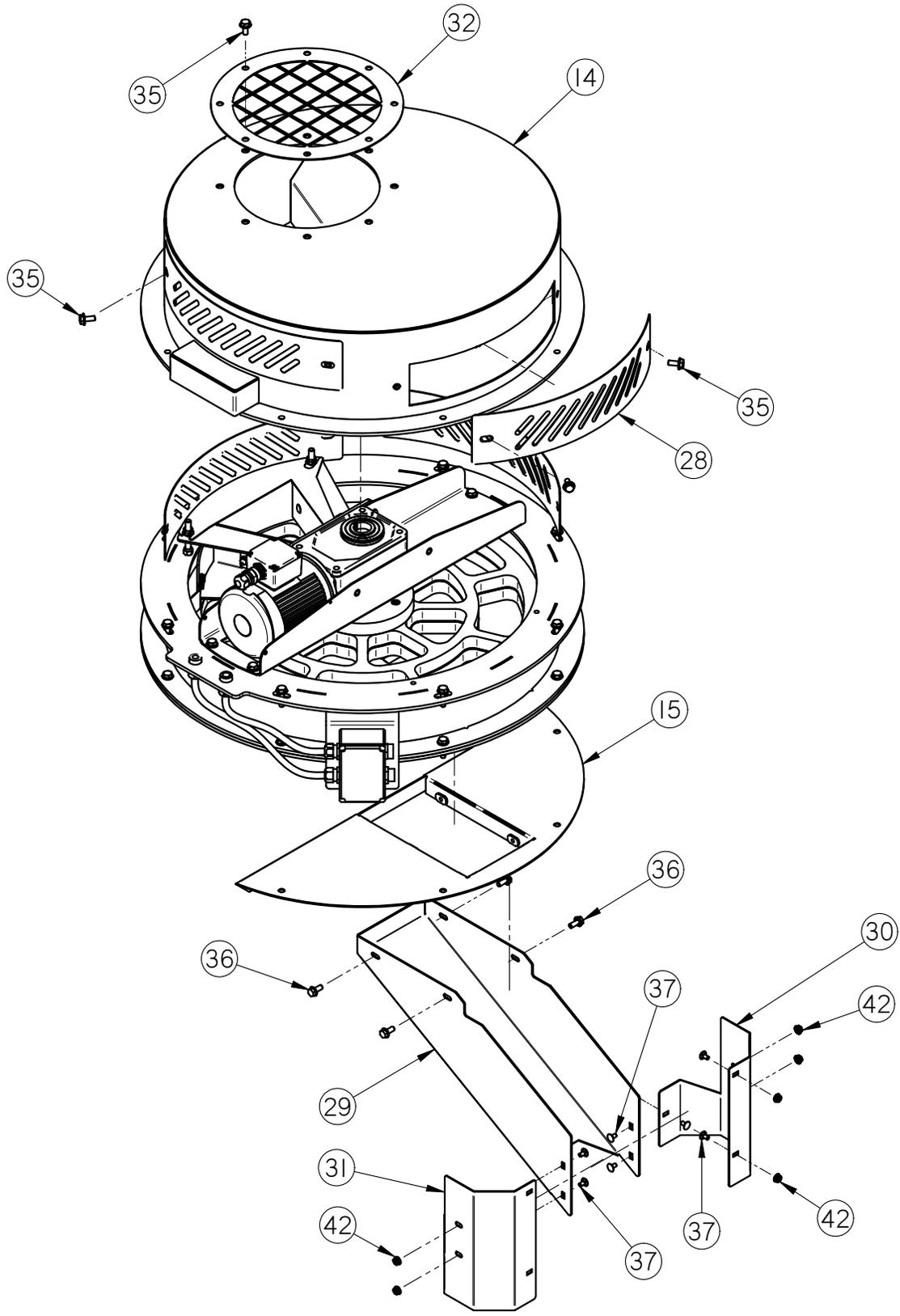
**RIB SEED METERING WHEEL ASSEMBLY (13-04-0151)**



DETAIL A

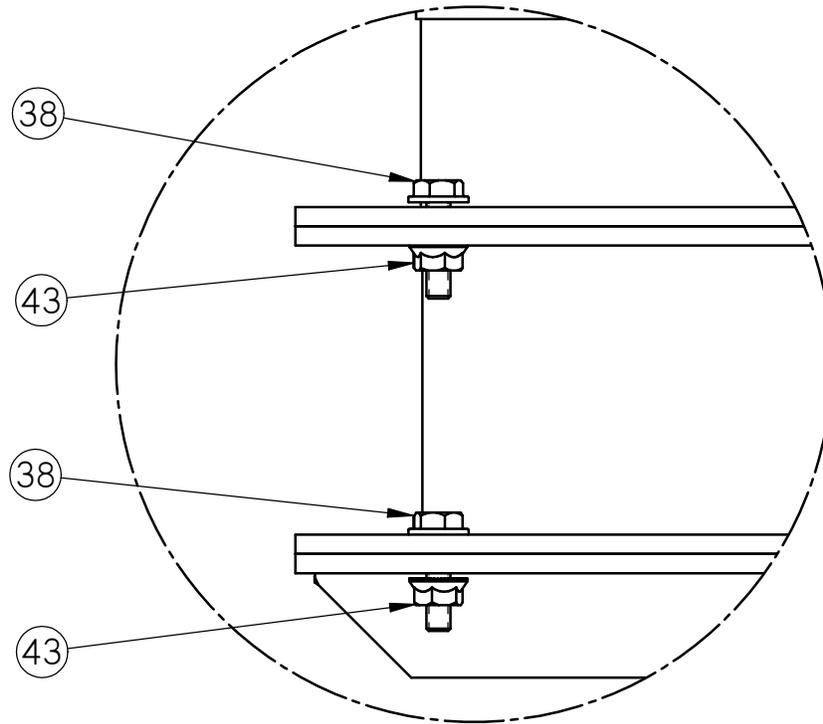
RIB BLENDING STATION

**RIB SEED METERING WHEEL ASSEMBLY (13-04-0151)**

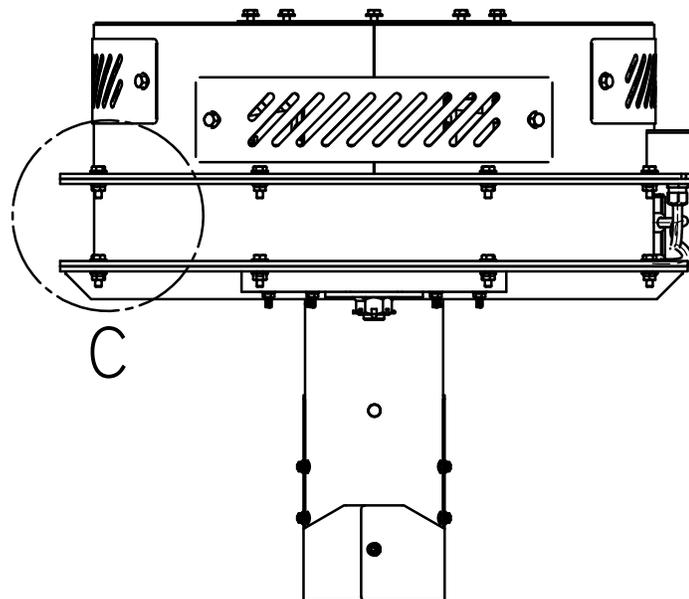


RIB BLENDING STATION

**RIB SEED METERING WHEEL ASSEMBLY (13-04-0151)**



DETAIL C



RIB BLENDING STATION

**RIB SEED METERING WHEEL ASSEMBLY (13-04-0151)**

Item #	Part #	Description	Qty
1	01-01-0168	GMTR RA .25 HP 11RPM 3PH HLLW SHAFT	1
2	01-10-0007	KEY .25 X 3.50 UNDERSIZE	1
3	03-05-0042	TMNL BARRIER STRIP IDEAL 89-608	1
4	03-06-0015	RECP 2PL 2WIRE PIN 600V 15AMP	1
5	03-06-0039	RECP 4PL ML PIN HBMS04501	1
6	03-07-0063	CORD 4COND 16AWG SHLD V16016 ALPHA	1
7	03-08-0134	CONN CG PLAS 0.5NPT .100-.300	2
8	03-08-0138	CONN CG PLAS 0.5NPT .375-.750	3
9	03-10-0051	SENS PROX 24-240 AC AB 875CPG8N18A2	1
10	03-11-0081	ENCL 4.5X3X2 POLY HOF Q1286PCD	1
11	05-03-1335	WDMT HSG LV SMW	1
12	05-03-1336	WDMT LV SMW UPPER BRG BRKT	1
13	05-03-1337	WDMT PCKT BRSH LV SMW	1
14	05-03-1338	WDMT HSG INLET LV SMW	1
15	05-03-1340	WDMT MNT CHUTE LV SMW	1
16	05-04-0049	WDMT SEED WHEEL SHAFT NUT	1
17	05-07-0622	ASSY LV SMW 1.75 HEX DRV	1
18	05-10-1213	SUPP BTM BRG UHMW SEED METER	1
19	05-10-1392	BRKT SMW BRSH PCKT HLDR	1
20	05-10-1449	PLT SMW CTR HUB WIPER	1
21	05-10-1588	PLT SHAFT CLIP SMW	1
22	05-10-3316	SMW PROX SW HOLDER	1
23	05-10-4192	PLT SMW POCKET SCRAPER	1
24	05-10-4228	PLT SUPP LV SMW CS	1
25	05-10-4229	PAD LV SMW FOAM RBBR	1
26	05-10-4230	PLT WEAR LV SMW	1
27	05-10-4231	PLT CVR PCKT FIT	1
28	05-10-4232	CVR ACCESS LV SMW	4
29	05-10-4233	PLT CHUTE DSCHG LV SMW	1
30	05-10-4234	PLT HALF DOWN SPOUT LV SMW	1
31	05-10-4235	PLT HALF DOWN SPOUT LV SMW MIRROR	1
32	05-10-4238	PLT GRD INLET CONE LV SMW	1
33	05-11-0389	DRV SHAFT SEED METER LV	1
34	06-01-0122	BOLT, CARRIAGE, .250-20x.75 G5 ZP	4
35	06-01-0124	BOLT, FLG .375-16 UNC ZP GRADE 5; 3/4" LG	24

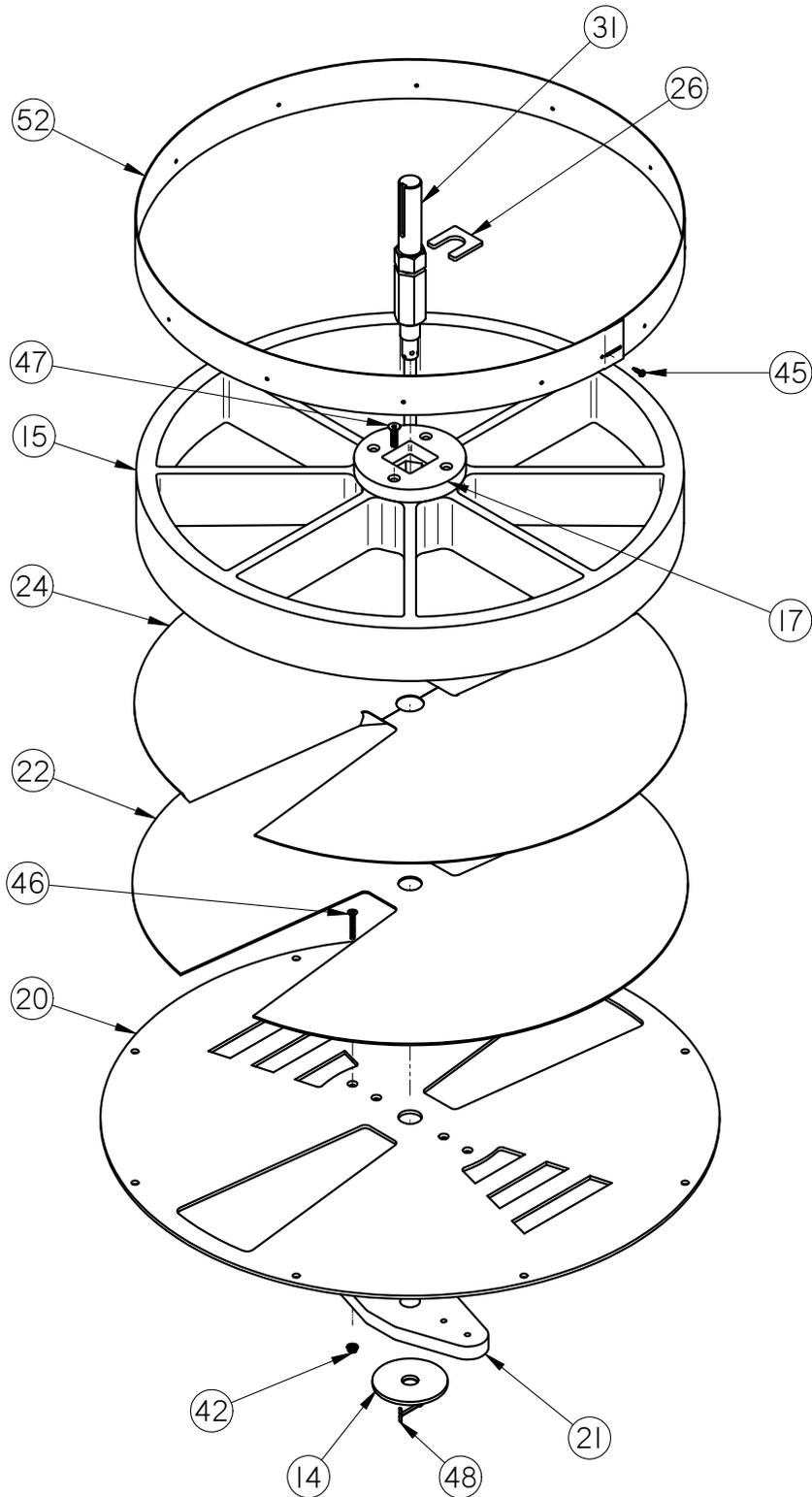
RIB BLENDING STATION

**RIB SEED METERING WHEEL ASSEMBLY (13-04-0151)**

Item #	Part #	Description	Qty
36	06-01-0138	BOLT, FLG .3125-18 UNC ZP GRADE 5; 3/4" LG	4
37	06-01-0150	BOLT, CARRIAGE, .250-20x.50 G5 ZP	7
38	06-01-0189	BOLT, FLG .375-16 UNC ZP GRADE 5; 1-1/4" LG	16
39	06-01-0276	BOLT .375-16 X 4.75 YZ GR5	4
40	06-02-0034	NUT 8-32 K-LOCK ZP	4
41	06-03-0003	NUT NYL LOCK .375-16 ZP GR5	2
42	06-03-0013	NUT,LOCK, FLG .250-20 ZP SERRATTED	15
43	06-03-0014	NUT LOCK FLG .375-16 ZP GR5	26
44	06-03-0019	NUT LOCK FLG .3125-18 ZP GR5	4
45	06-05-0004	WSHR FLAT .375 ZP	2
46	06-06-0004	SCRW MACH 8-32 X .500 PHLP RDHD ZP	4
47	06-06-0046	SCRW .313-18 X 2.0 ZP FLAT HD PHLP	4
48	06-09-0023	.188 X 2.00 ZP COTTER PIN	1
49	06-10-0045	SEAL BRSH 7.625 OAL 1IN EXP LG	1
50	06-14-0013	STUD .375-16 ZP X 3 IN LG ZP	2
51	102D10	HOLDER BRUSH LV SMW	1

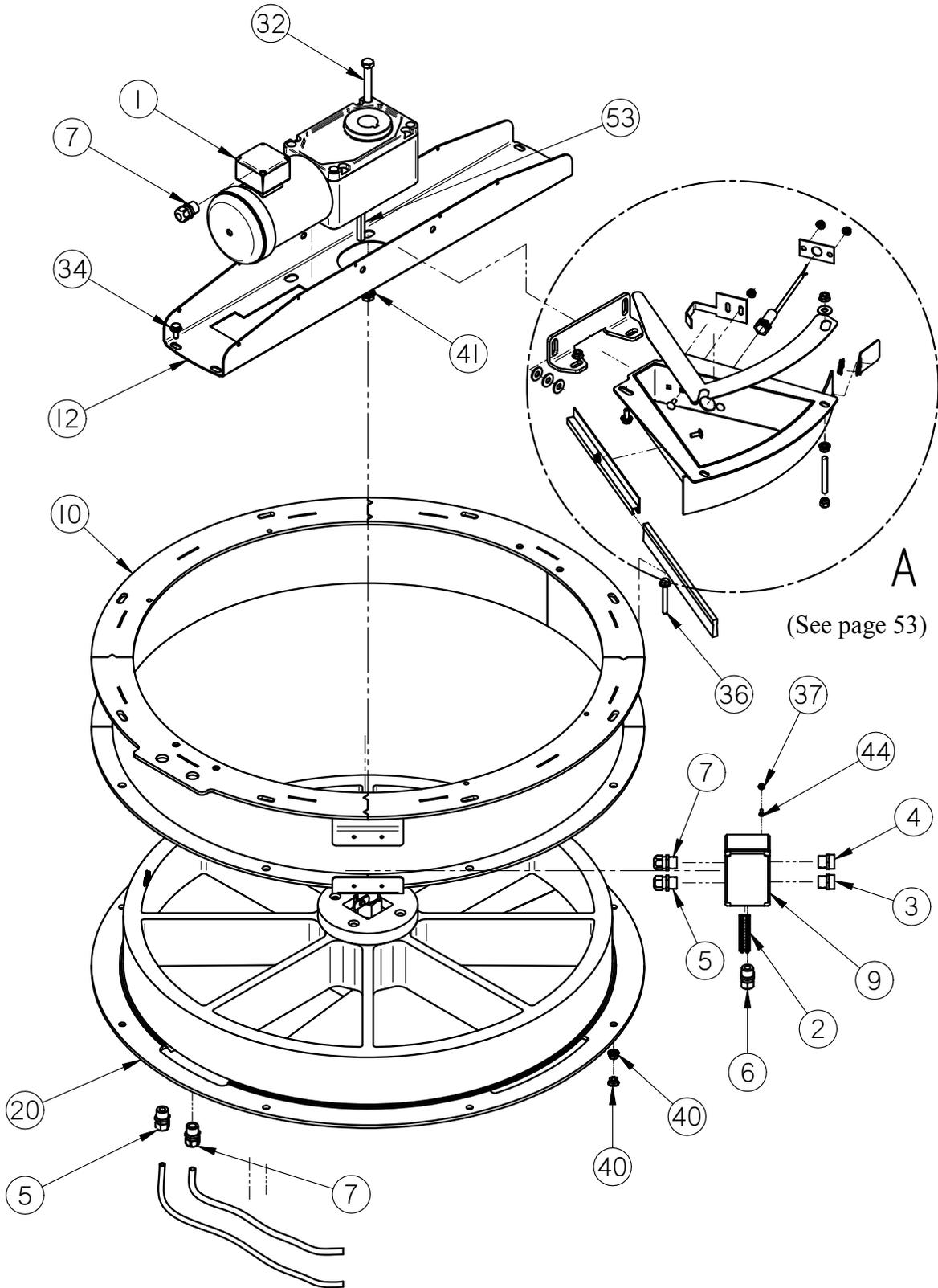
RIB BLENDING STATION

**STANDARD SEED METERING WHEEL ASSEMBLY (13-04-0161)**



RIB BLENDING STATION

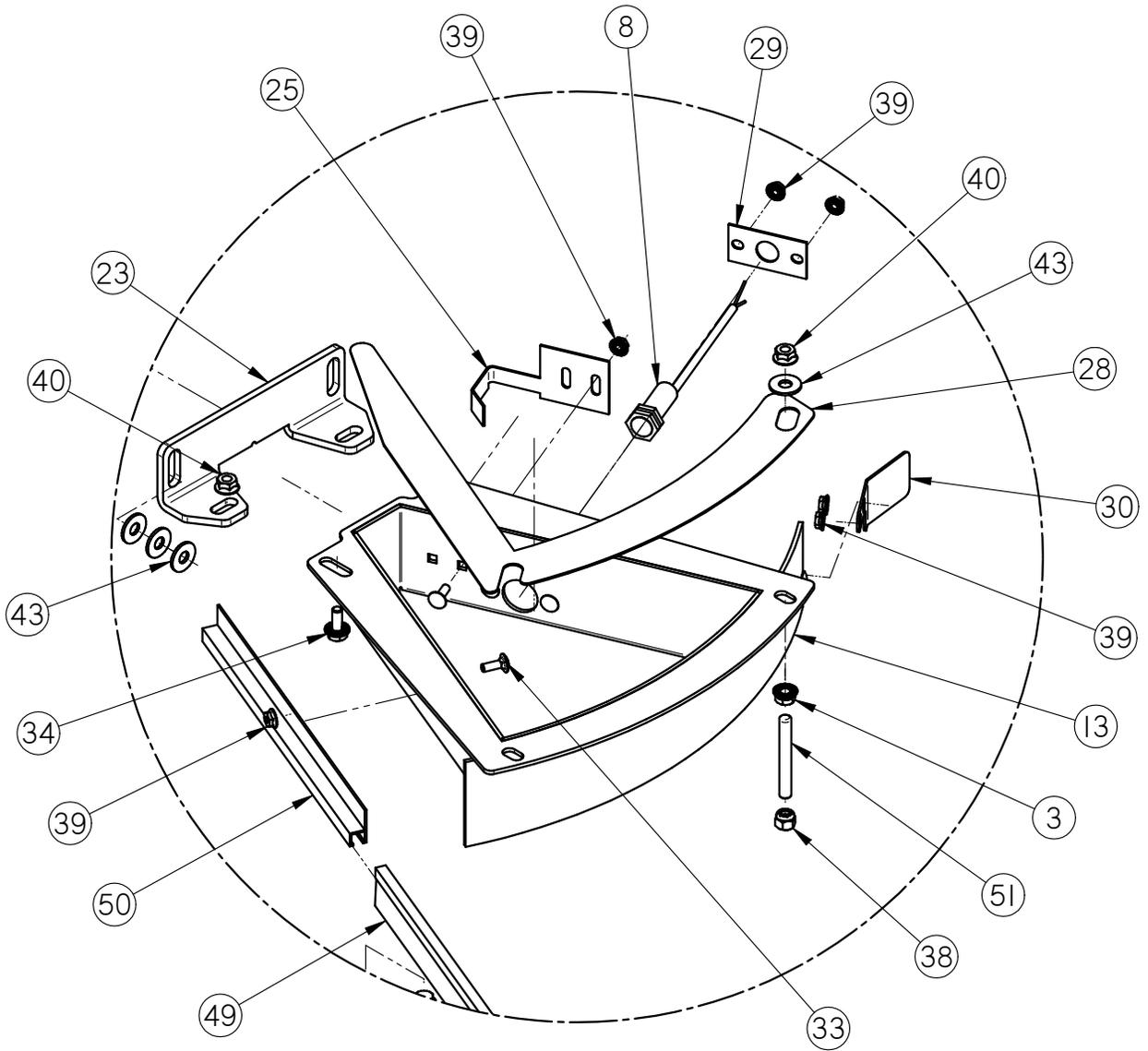
**STANDARD SEED METERING WHEEL ASSEMBLY (13-04-0161)**



(See page 53)

RIB BLENDING STATION

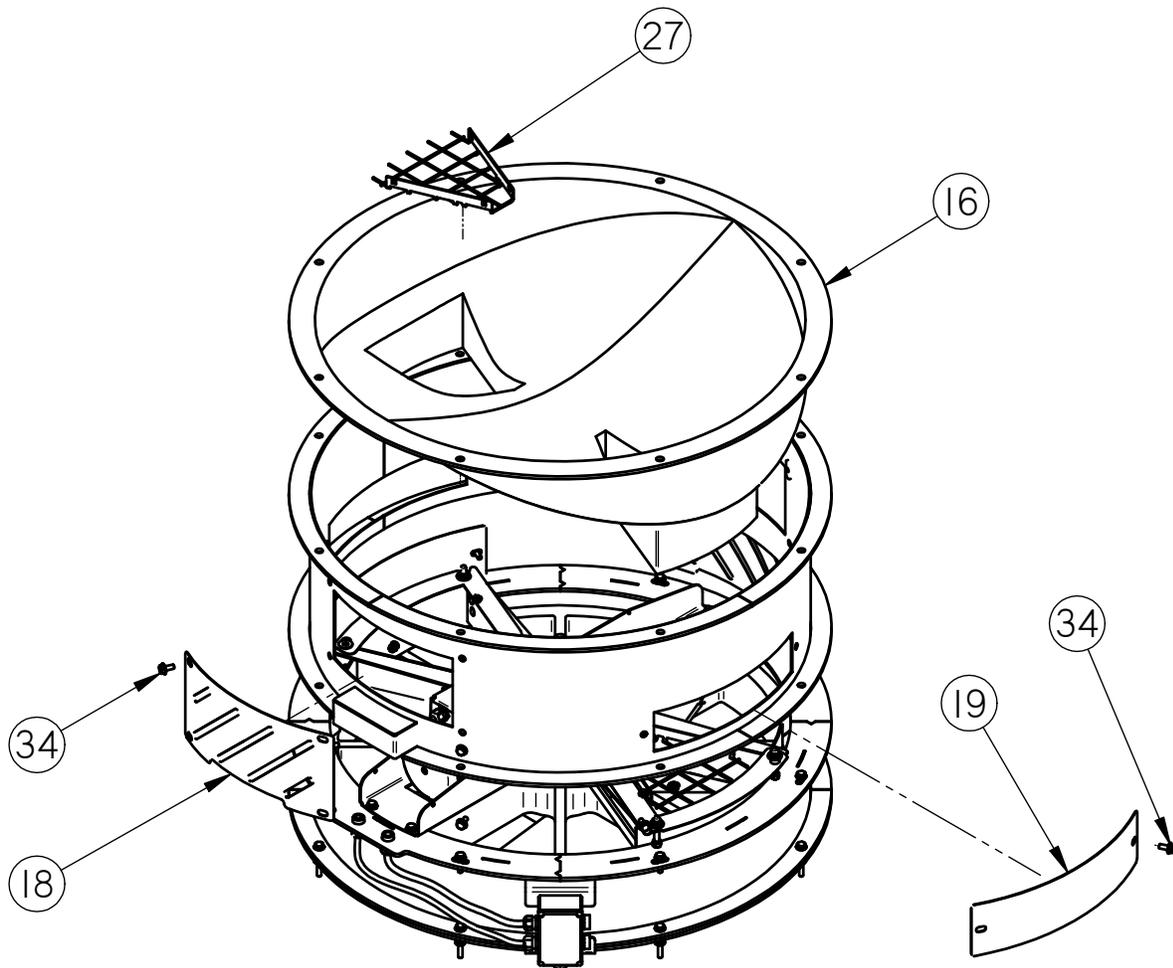
**STANDARD SEED METERING WHEEL ASSEMBLY (13-04-0161)**



DETAIL A

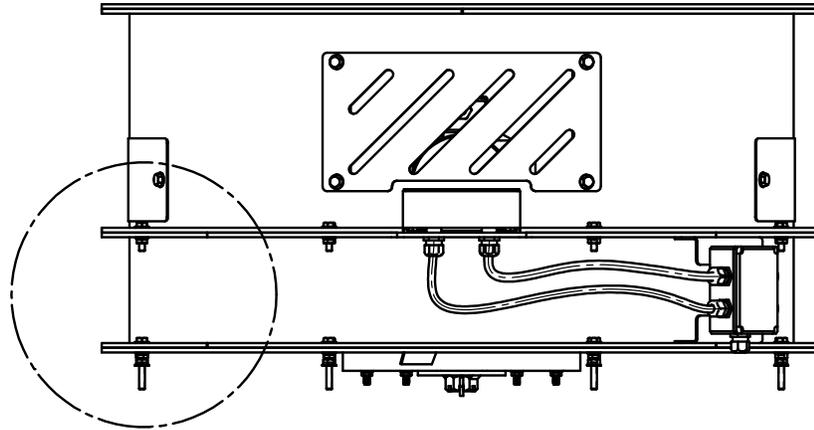
RIB BLENDING STATION

**STANDARD SEED METERING WHEEL ASSEMBLY (13-04-0161)**

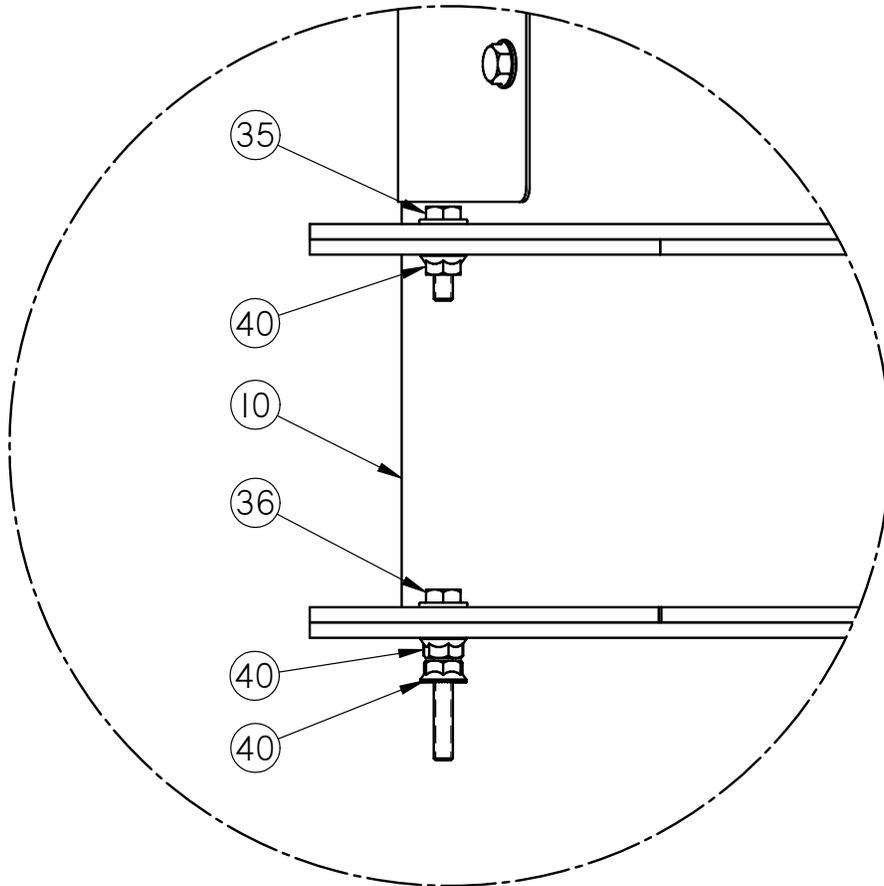


RIB BLENDING STATION

**STANDARD SEED METERING WHEEL ASSEMBLY (13-04-0161)**



B



DETAIL B

RIB BLENDING STATION

**STANDARD SEED METERING WHEEL ASSEMBLY (13-04-0161)**

Item #	Part #	Description	Qty
1	01-01-0096	GMTR RA .50 HP 11RPM 3PH HLLW SHAFT	1
2	03-05-0042	TMNL BARRIER STRIP IDEAL 89-608	1
3	03-06-0059	RECP 8PL ML PIN HBMS08501	1
4	03-06-0101	RECP 4PL ML PIN HBMS04501	1
5	03-08-0064	CONN CG PLASTIC 0.5NPT .200-.472	2
6	03-08-0134	CONN CG PLAS 0.5NPT .100-.300	1
7	03-08-0138	CONN CG PLAS 0.5NPT .375-.750	3
8	03-10-0051	SENS PROX 24-240 AC AB 875CPG8N18A2	2
9	03-11-0081	ENCL 4.5X3X2 POLY HOF Q1286PCD	1
10	05-03-0164	WDMT SEED METER BODY EXTEN	1
11	05-03-0169	WDMT SEED METER EXTENSION	1
12	05-03-0232	WDMT SMW UPPER BRG BRKT	1
13	05-03-0240	WDMT SMW BRSH PCKT	2
14	05-04-0049	WDMT SEED WHEEL SHAFT NUT	1
15	05-07-0196	MOLDED SEED WHEEL INSERT	1
16	05-07-0197	HPPR SMW DUAL DSCHG ROTO-MLDD	1
17	05-07-0203	MOLDED SEED WHEEL INSERT TOP	1
18	05-10-0890	CVR #1 SEED METER	2
19	05-10-0891	CVR #2 SEED METER	2
20	05-10-0893	PLATE SUPPORT SEED METER STEEL	1
21	05-10-1213	SUPP BTM BRG UHMW SEED METER	1
22	05-10-1306	PAD SEED WHL FOAM RBBR FLOATING	1
23	05-10-1392	BRKT SMW BRSH PCKT HLDR	2
24	05-10-1426	14GA WEAR SPLATE HALF	2
25	05-10-1449	PLT SMW CTR HUB WIPER	2
26	05-10-1588	PLT SHAFT CLIP SMW	1
27	05-10-1872	GRD SMW INLET HOPP PCKT	2
28	05-10-2166	CVR TEST	2
29	05-10-3316	SMW PROX SW HOLDER	2
30	05-10-4192	PLT SMW POCKET SCRAPER	2
31	05-11-0075	DRIVE SHAFT 1.4375 SHAFT	1
32	06-01-0106	BOLT .500-13 X 5.50 ZP GR5	1
33	06-01-0122	BOLT, CARRIAGE, .250-20x.75 G5 ZP	18
34	06-01-0124	BOLT, FLG .375-16 UNC ZP GRADE 5; 3/4" LG	18
35	06-01-0189	BOLT, FLG .375-16 UNC ZP GRADE 5; 1-1/4" LG	1

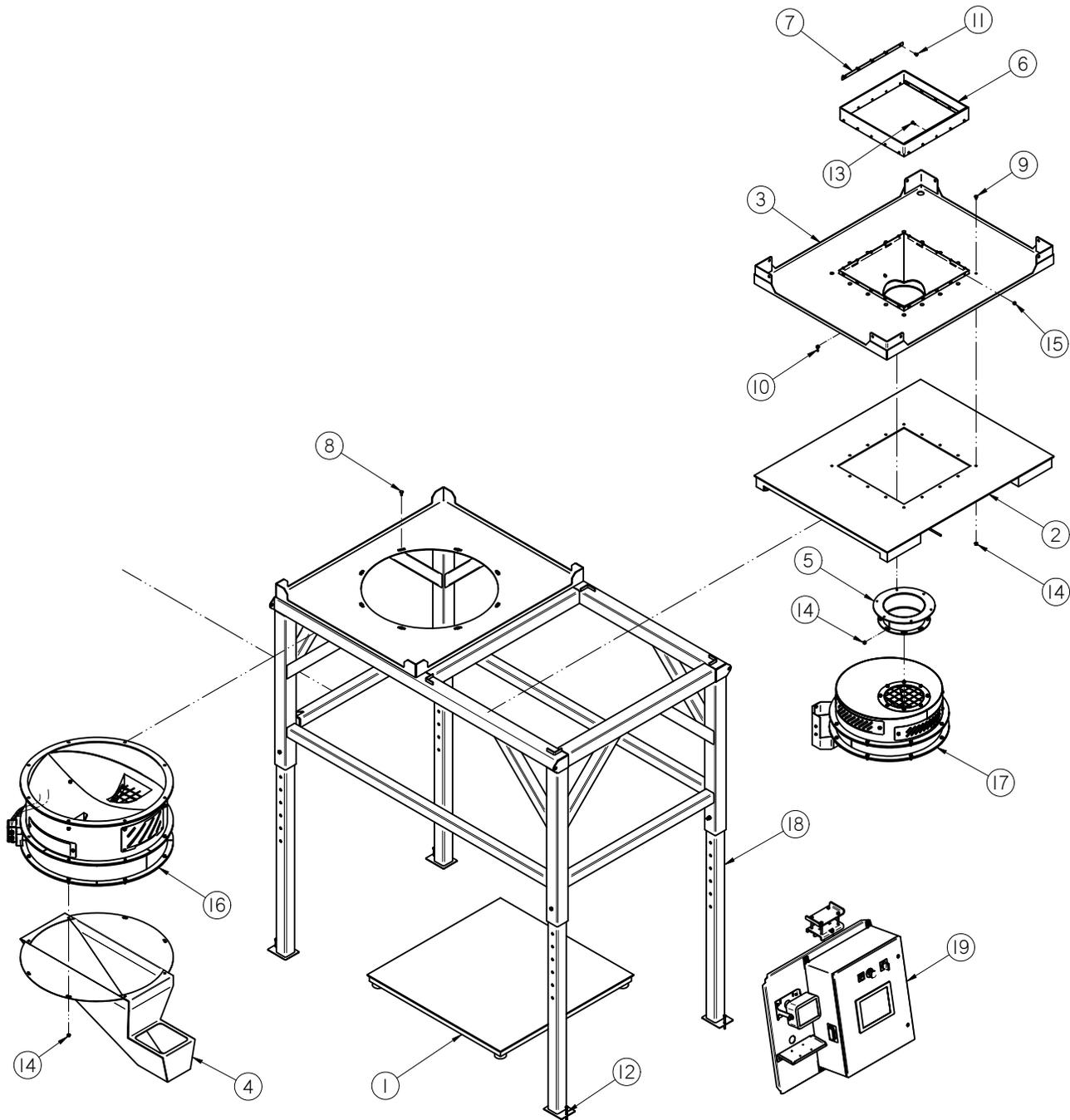
## RIB BLENDING STATION

**STANDARD SEED METERING WHEEL ASSEMBLY (13-04-0161)**

Item #	Part #	Description	Qty
36	06-01-0204	BOLT FLG .375-16 X 2.50 ZP GR5 FTH	8
37	06-02-0034	NUT 8-32 K-LOCK ZP	1
38	06-03-0003	NUT NYL LOCK .375-16 ZP GR5	3
39	06-03-0013	NUT,LOCK, FLG .250-20 ZP SERRATTED	26
40	06-03-0014	NUT LOCK FLG .375-16 ZP GR5	13
41	06-03-0015	NUT LOCK FLG .500-13 ZP GR5	1
42	06-03-0019	NUT LOCK FLG .3125-18 ZP GR5	1
43	06-05-0004	WSHR FLAT .375 ZP	10
44	06-06-0004	SCRW MACH 8-32 X .500 PHLP RDHD ZP	1
45	06-06-0023	SCRW, SELF TAPPING, 10-16 ZP X .750	14
46	06-06-0046	SCRW .313-18 X 2.0 ZP FLAT HD PHLP	1
47	06-06-0070	SCRW MACH .375-16 X 1.50 SH FLHD BO	1
48	06-09-0023	PIN CTTR .188 X 2.00 ZP	1
49	06-10-0019	SEAL BRSH 12.75 OAL 1IN EXP LG	2
50	06-10-0020	12 IN LG BRUSH HOLDER	2
51	06-14-0013	.375-16 THD RD CS	3
52	101BC9	PSM SMW GALV RING	1
53	11-13-0004	KEYSTOCK 3/8 X 3/8 CS	1

RIB BLENDING STATION

**RIB BLENDING STATION TOP ASSEMBLY (13-01-0301)**

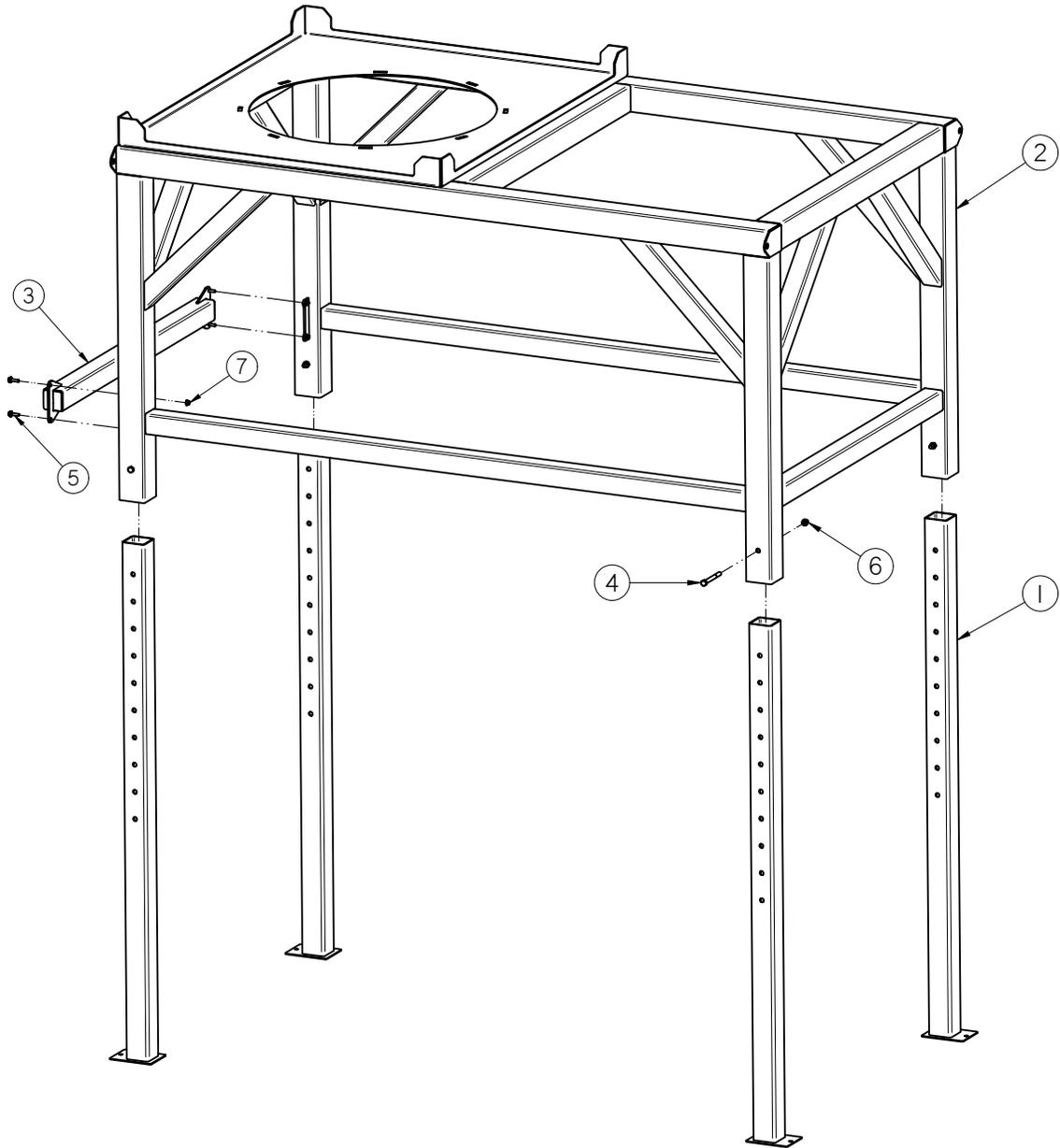


RIB BLENDING STATION

**RIB BLENDING STATION TOP ASSEMBLY (13-01-0301)**

Item #	Part #	Description	Qty
1	03-19-0059	SCL 4X4FT 5KLBS FLOOR SCALE	1
2	03-19-0066	SCL 5X4FT 5K 2FT CTR CUTOUT*	1
3	05-07-0698	WDMT HOPP SCALE GUIDE	1
4	05-07-0733	WDMT DSCHG CHUTE	1
5	05-07-0752	WDMT RIM WHL ADPT	1
6	05-10-4270	GUIDE RBBR LIW SCALE HOPP	1
7	05-10-4271	PLT CLAMP HOPP FLEX INLET	4
8	06-01-0115	BOLT CRG .375-16 X 1.00 ZP GR5	8
9	06-01-0153	BOLT CRG .375-16X.750 ZP SHORT NECK	16
10	06-01-0189	BOLT, FLG .375-16 UNC ZP GRADE 5; 1-1/4" LG	14
11	06-01-0198	BOLT, CARRIAGE, 5/16-18 X 3/4 UNC ZP GRADE 5	15
12	06-01-0220	BOLT .375-16 X 3.75 CONCRETE ZP	4
13	06-01-0223	BOLT CRG .313-18 X 1.00 ZP GR5	5
14	06-03-0014	NUT LOCK FLG .375-16 ZP GR5	34
15	06-03-0019	NUT, FLG .3125-18 UNC ZP GRADE 5	20
16	13-04-0151	SEED WHEEL LV 172 BPH	1
17	13-04-0161	ASSY SEED METER WHL LX2000 UL	1
18	13-04-0168	ASSY RIB STAND	1
19	13-04-0184	ASSY PNL MT RIB STAND	1

RIB BLENDING STATION  
**FRAME ASSEMBLY (13-04-0168)**



Item #	Part #	Description	Qty
1	05-03-0316	WDMT ADJ LEG	4
2	05-03-1441	WDMT RIB FRAME	1
3	05-07-0753	WDMT BRACE RIB STAND	1
4	06-01-0119	BOLT, .500-13 X 5.00" UNC ZP GRADE 5	4
5	06-01-0189	BOLT, FLG .375-16 UNC ZP GRADE 5; 1-1/4" LG	4
6	06-03-0004	NUT NYL LOCK .500-13 ZP GR5	4
7	06-03-0014	NUT LOCK FLG .375-16 ZP GR5	4

# 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, 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.

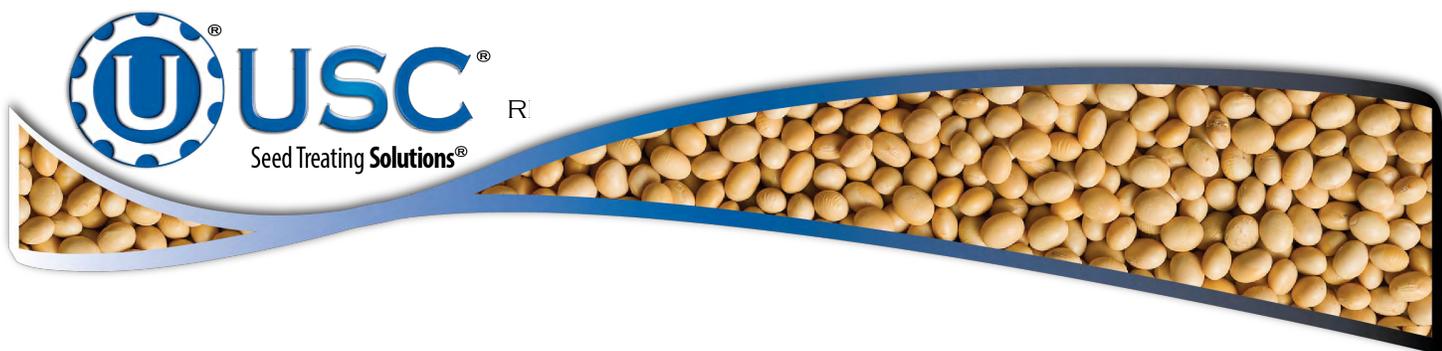
3. **Exclusive Obligation:** THIS WARRANTY IS EXCLUSIVE. The sole and exclusive obligation of Manufacturer shall be to repair or replace the defective Products in the manner and for the period provided above. Manufacturer shall not have any other obligation with respect to the Products or any part thereof, 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.





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