



REFUGE IN BAG SEED WHEEL

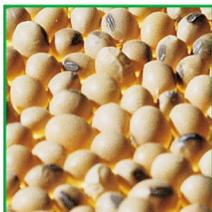
Operators Manual



Software Release: SMW - RIB 1.1.11

Document: TD-09-06-1005

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 Seed Wheel. 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 SEED WHEEL

- 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.

SERIAL NUMBER: _____

TABLE OF CONTENTS

<u>Section</u>	<u>Contents</u>	<u>Page #</u>
Section A	Safety Instructions.....	5
Section B	Installation	12
Section C	Mechanical Operation.....	13
	System Overview	13
	RIB Seed Wheel Overview	14
Section D	Electrical Operation	15
	Start Up Screen	16
	Main Screen	17
	Menu Screen.....	18
Section E	Calibration	19
	Setting Seed Wheel	20
	Seed Wheel Factor	21
Section F	Troubleshooting.....	22
	Proximity Switch Adjustment Guide	23
Section G	Maintenance	24
Section H	Storage.....	25
Section I	Mechanical Drawings	27
Section J	Limited Warranty.....	35

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

LOCKOUT / TAGOUT PROCEDURES

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

HAZARD REVIEW



Electrocution Hazard

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



Automatic Start Hazard

This 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 signs 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 SEED WHEEL

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

PLACEMENT SAFETY

1. Move only with the appropriate equipment
2. Stay away from overhead power lines when moving equipment. Electrocutation 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 signs clean. Replace any sign that is damaged or not clearly visible.



SAFETY SIGNS

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

How to Install Safety Signs:

- 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.

SET-UP

The following steps outline the initial set-up of your USC RIB Seed Wheel :

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 Seed Wheel in the desired position on a level surface.

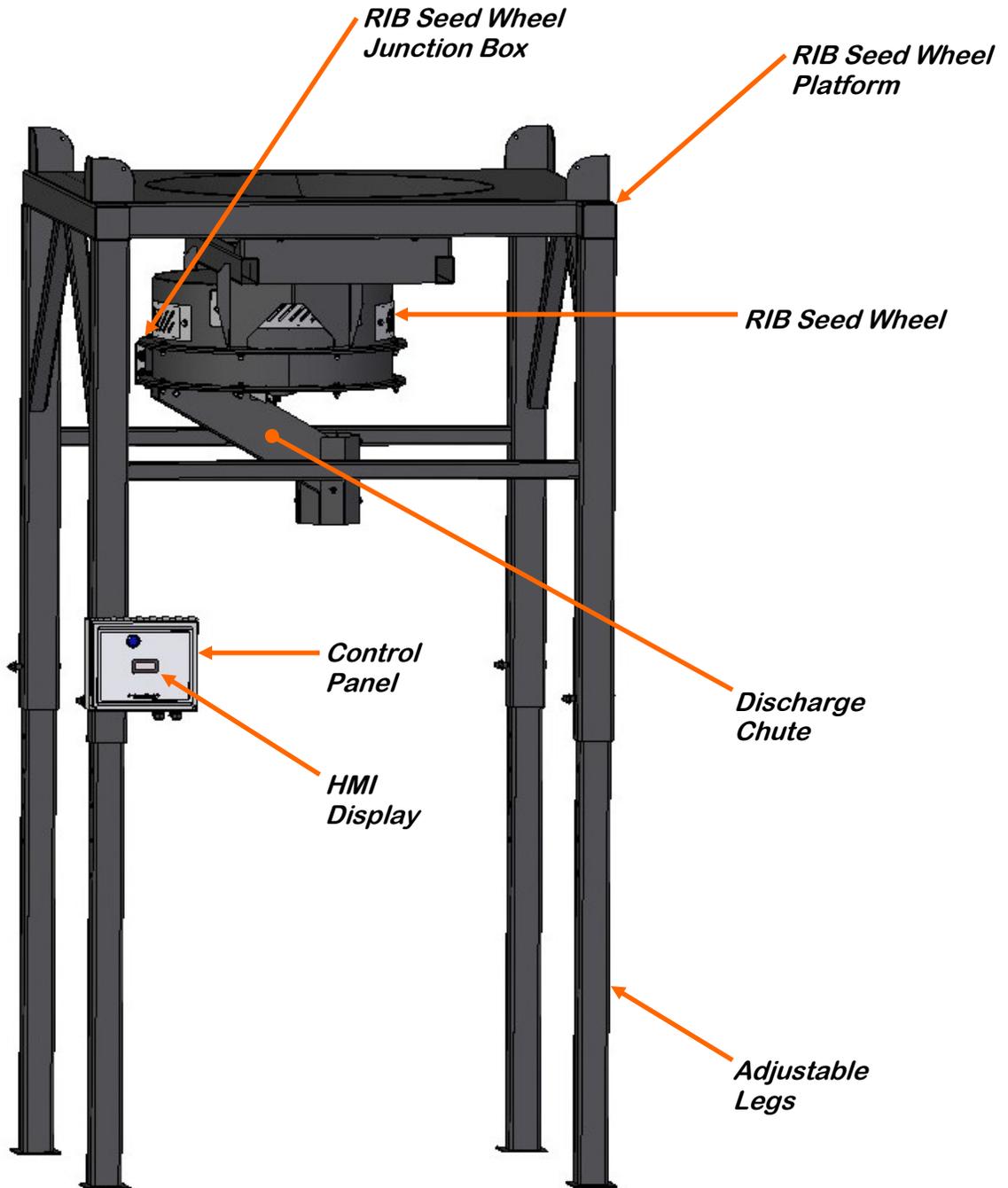


USC highly recommends that the RIB Seed Wheel be set up inside a building or any covered structure to protect the machine from weathering.

4. Inspect RIB Seed Wheel thoroughly for screws, bolts, fittings, etc. which may have come loose during shipping.
5. Mount the Control box in a location convenient for the operator.
6. Make the following connections from the control panel to the junction box on the Seed Wheel. The 2 pin black cable (PJ1026) to the bottom connector on the junction box. The 4 pin black cable (PJ1003) to the top connector on the junction box.
7. Connect the yellow 2 pin cable on the control panel to the auxiliary connection on the bottom of the treater control panel

MECHANICAL OPERATION

SYSTEM OVERVIEW

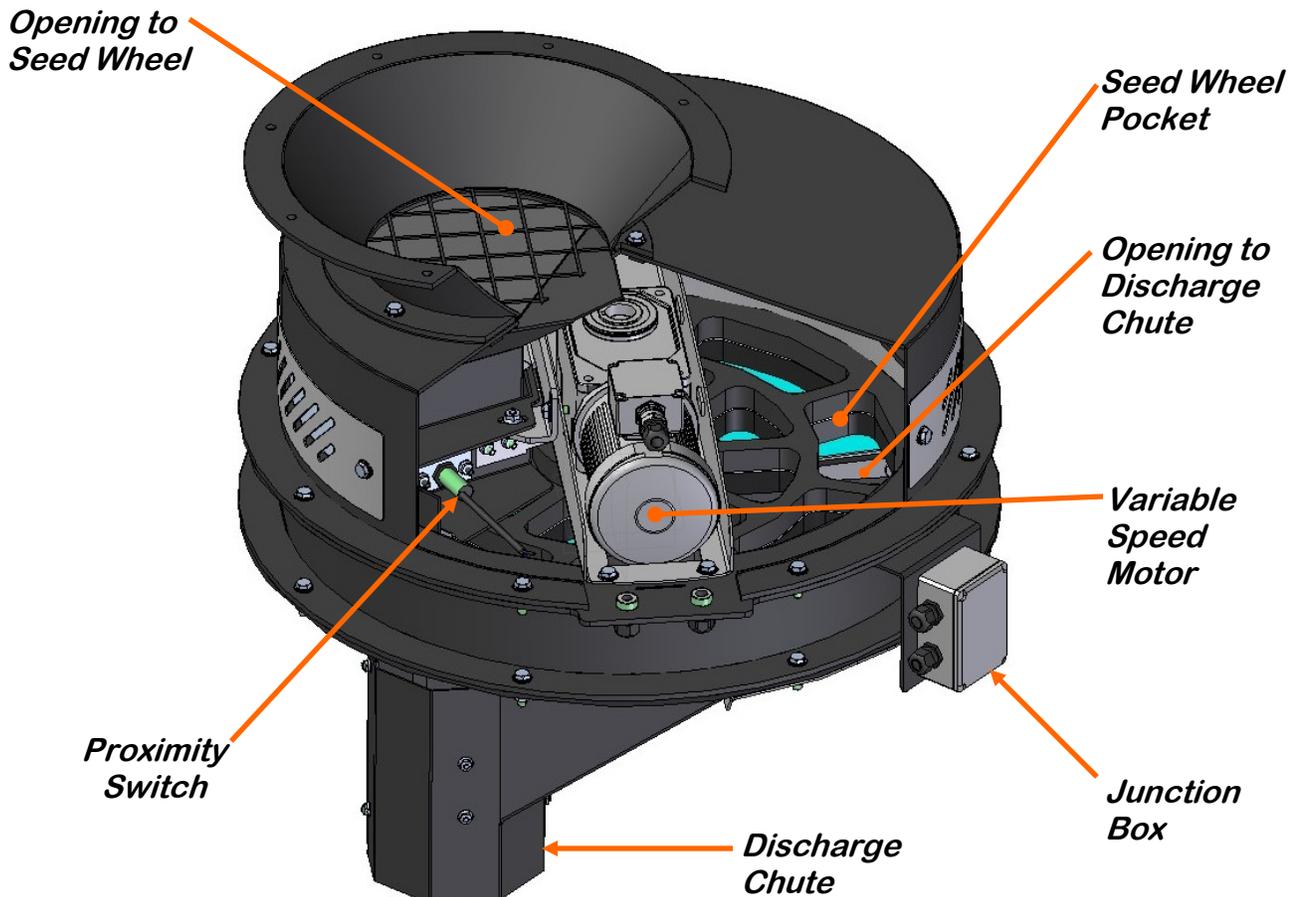


RIB SEED WHEEL OVERVIEW

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 above the discharge end of the treater. 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 rotation and dispenses the refuge seed into the discharge end of the treater, blending it with the regular seed currently being treated. With the constant turn of the wheel, there is a consistent amount of refuge seed always sent to mix with the regular seed being treated.

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 19). 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 end of the treater. 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



**SECTION
D**

ELECTRICAL OPERATION



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



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



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

This section provides a general overview and description of the operator controls for the RIB Seed Wheel.

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 Control Panel contains the PLC (Programmable Logic Controller) as well as HMI (Human Machine Interface) touch screen. The operator is able to control the entire system through the HMI. Power to this panel is supplied from a standard 110V plug.

RIB SEED WHEEL CONTROL PANEL



RIB SEED WHEEL

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

USC START UP SCREEN

When the control panel is powered up the first HMI screen the operator will see is the startup screen (top). This screen has a time indicator bar at the bottom of the screen which takes approximately 5 seconds to load. This screen also displays the version of the software currently installed (SMW-RIB v1.1.11). While the software is loading, the operator may press the upper right hand corner of the screen to press a hidden button that takes them to the System Setup screen (bottom).



This is where you define which model of treater is being used. This only needs to be set if the treater indicated in the upper right hand corner of the start up screen is different from the one you are using. If you do change it, you only need to change it once, from that point on it is the default at startup. Once the treater model is defined, press the Restart button to re-boot the system. It will then take you to the Main Screen.



MAIN SCREEN

1. HAND BUTTON: Pushing this button will start the system in the manual mode of operation.

2. OFF BUTTON: Pushing this button stops the system whether you are running in HAND or AUTO mode of operation.

3. AUTO BUTTON: Pushing this button will place the system in the automatic mode of operation. It will start and stop the system based on an output signal generated from the treater when it turns on and off. Once the control panel receives the signal from the treater, it will stop or start after the delay times specified on MENU screen have elapsed. To operate in AUTO mode, the yellow cable with the two pin connector must be connected to the auxiliary connector on the treater control panel.

4. MENU BUTTON: This button advances the operator to the MENU screen (see page 18).

5. TARGET SMW RPM: This display indicates the desired RPM entered from the MENU screen.

6. ACTUAL SMW RPM: This display indicates the actual RPM the Seed Wheel is turning in real time.

7. SEED INDICATOR: This displays the output of the proximity sensor. When the sensor detects seed, it will constantly display SEED PRESENT. When it does not detect seed it will flash NO SEED on and off.

8. AUTO MODE INDICATOR: This display indicates whether the Auto mode is active (AUTO ON) or inactive (AUTO OFF).

MENU SCREEN

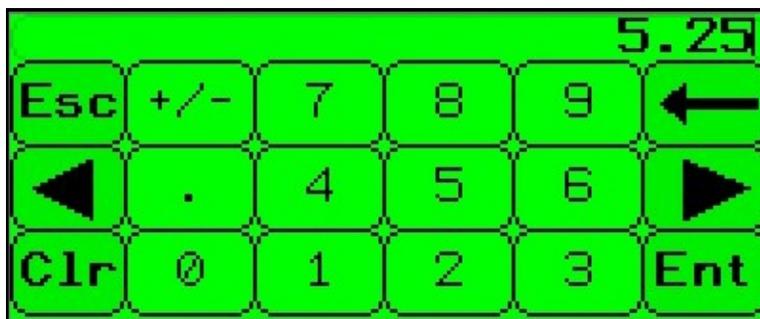


1. START DELAY BUTTON: Pushing this button brings up the numeric keypad (below). The operator uses this to enter the number of seconds after the system has received a start signal from the treater to start the RIB Seed Wheel. For optimum blending accuracy, the seed should begin to leave the treater drum at the same time the RIB Seed Wheel starts dumping seed into the top of the discharge chute. Using a stopwatch to measure the time it takes from starting the treater until seed begins to exit the drum will help the operator determine the correct number of seconds to set the delay. This setting is only relevant when operating in AUTO mode.

2. STOP DELAY BUTTON: Pushing this button brings up the numeric keypad (below). The operator uses this to enter the number of seconds after the system has received a stop signal from the treater to stop the RIB Seed Wheel. For optimum blending accuracy, the seed should finish discharging from the treater drum at the same time the RIB Seed Wheel stops dumping seed into the top of the discharge chute. Using a stopwatch to measure the time it takes from stopping the treater until seed finishes exiting the drum will help the operator determine the correct number of seconds to set the delay. This setting is only relevant when operating in AUTO mode.

3. SET RPM BUTTON: Pushing this button brings up the numeric keypad (below). This operator uses this to enter the desired RPM setting for the RIB Seed Wheel based on the numbers generated from the Excel spreadsheet (see pages 20 and 21) .

4. EXIT BUTTON: This button returns the operator to the main screen.



CALIBRATION

SECTION E

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.

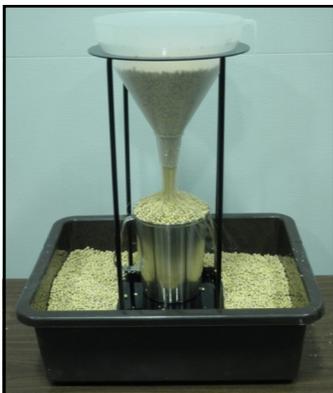


Figure 1



Figure 2



Figure 3

RIB SEED WHEEL

SETTING SEED WHEEL

1. Select the drop down option under the SMW column. Choose Double Stack to mix at a 5% ratio. Choose Triple Stack to mix at a 10% ratio.
2. Enter the number of **80k Units per Minute** to establish the flow rate.
3. Enter the **Seed Count** (Kernels/Lbs).
4. Enter the **Cup Weight** (Lbs) following the steps on page 19.
5. Enter in the **Batch Weight** in Seed Count Units (50 pounds) for the run.
6. Enter in the ounces to be applied per Cut Weight (100 pounds) for up to four separate pumps.
7. Use the numbers from the Seed Wheel RPM results to set both of the Seed Wheels.
8. Using a stopwatch, start the run and time from the start until all the seed is out of the drum, and all of the seed has discharged from the RIB Seed Wheel. Note both times.

Setting Seed Wheel
* Based on 80,000 kernels per unit

	SMW	RIB SMW	SMW Results	RIB Results
80k Units per Minute	25.00	2.78	Seed Wheel RPM	9.54
Seed Count (Kernels/Lbs)	1600	1600	Seed Flow Rate (Lbs/Min)	1,250
Cup Weight (Lbs)	3.25	3.25		139
Batch Weight (units)	100		Weight Needed this Batch (Lbs)	4500
			Time needed to Batch this Weight (sec)	216
Pump 1 Target Rate (Oz per cwt)	4.250		Pump 1 Chemical Flow Rate (Fl oz/Min)	53
Pump 2 Target Rate	5.100		Pump 2 Chemical Flow Rate (Fl oz/Min)	64
Pump 3 Target Rate	6.400		Pump 3 Chemical Flow Rate (Fl oz/Min)	80
Pump 4 Target Rate	7.450		Pump 4 Chemical Flow Rate (Fl oz/Min)	93

USC™
Seed Treating Solutions

SEED WHEEL FACTOR

Using the numbers from the Setting Seed Wheel page:

1. Enter the **Total Pounds Treated** from the SMW Results and the RIB Results
2. Enter the **Actual Time** (Seconds) recorded with the stopwatch for both the Treater and RIB Seed Wheel from the previous seed run.
3. Enter the **Adjusted Percentage** from the SMW Results in the yellow **Seed Wheel Factor** box for the SMW.
4. Enter the **Adjusted Percentage** from the RIB Results in the yellow **Seed Wheel Factor** box for the RIB.
5. If you check the boxes for **SMW** and **RIB SMW**, this will automatically take the results from the **Adjusted Seed Wheel RPM** and update the **Seed Wheel RPM** on the previous worksheet.
6. Update both the treater Seed Wheel and the RIB Seed Wheel RPM entries accordingly.

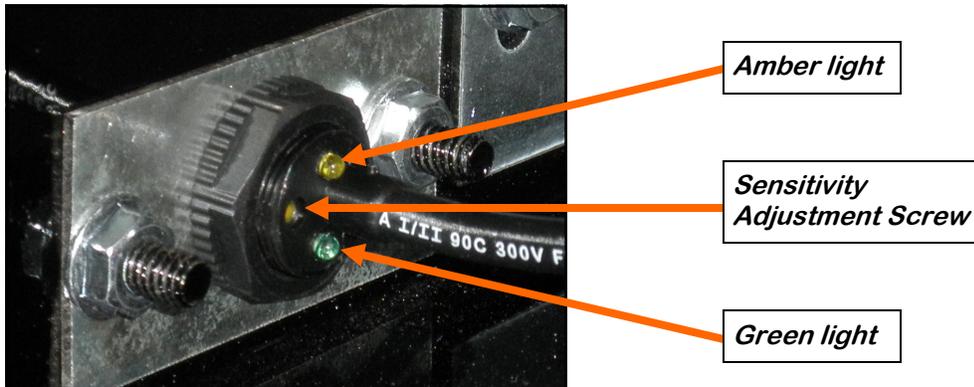
	SMW	RIB SMW	SMW Results	RIB Results	
Total Pounds Treated	4500	500	1250	139	Seed Flow Rate (Lbs/Min)
Actual Time (Seconds)	219	221	216	216	Estimated Time (Seconds)
Seed Wheel Factor	101.4%	102.3%	101.4%	102.3%	Adjusted Percentage
Check Each Box to Use The Adjusted Seed Wheel RPM			9.54	10.70	Adjusted Seed Wheel RPM
	<input checked="" type="checkbox"/> SMW	<input checked="" type="checkbox"/> RIB SMW			

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

Below is a table describing the most frequent problems and solutions with the USC RIB Seed Wheel . 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"> 1. VFD inside of control panel has a fault. 2. Loose wire connection. 3. Incorrect incoming power. 	<ol style="list-style-type: none"> 1. Check VFD for faults. Shut off power until the VFD turns off completely, then restore power to seed wheel. 2. Check all wire connections. 3. Check incoming power. Should be 120 volts.
Seed Wheel keeps shutting off	<ol style="list-style-type: none"> 1. Seed Wheel drawing too many amps. 2. Seed Wheel is binding. 	<ol style="list-style-type: none"> 1. Check motor amperage. 2. Check to make sure nothing is pressing down on the seed wheel.
Seed is backing up into the seed wheel	<ol style="list-style-type: none"> 1. Seed gate on treater is closed down. 2. Seed wheel is turning too fast. 3. Restriction above seed gate. 	<ol style="list-style-type: none"> 1. Open seed gate wide open. 2. Slow down the seed wheel to accommodate your seed treater. 3. Remove restriction.
Seed Wheel will not turn on in AUTO mode.	<ol style="list-style-type: none"> 1. VFD inside of control panel has a fault. 2. Loose wire connection. 3. Incorrect incoming power. 4. HMI Main screen is not set to AUTO mode. 5. Yellow cable not connected to the auxiliary connector on the seed treater control panel. 	<ol style="list-style-type: none"> 1. Check VFD for faults. Shut off power until the VFD turns off completely, then restore power to seed wheel. 2. Check all wire connections. 3. Check incoming power. Should be 120 volts. 4. Set HMI to AUTO mode. 5. Connect cable.
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"> 1. Start and or Stop delay times are not set correctly on the Menu screen. 	<ol style="list-style-type: none"> 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)

PROXIMITY SWITCH ADJUSTMENT GUIDE



The proximity switches mounted in the extension ring and the seed wheel detect when seed is present.

The proximity switch located in the extension ring is used to automatically shut off the inlet conveyor when the surge hopper is full. This proximity switch is not present on tower systems.

The proximity switches located in the seed wheel automatically shut off the pump when all seed has left the hopper.

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.

**SECTION
G****MAINTENANCE**

Proper maintenance of the RIB Seed Wheel 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.

SEED WHEEL

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

CONTROL PANEL

- Check and tighten wire connections.
- Check starters and overloads.
- Check timers and relays.
- Inspect breakers.
- Check and set the proximity switches.
- Check the VFD .

When storing the RIB Seed Wheel 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. Wipe off and clean the lens of the proximity switches (see page 23).
5. Disconnect Power and mount all guards back in place.
6. Tarp or cover the seed wheel to keep out any dirt or unwanted pests.

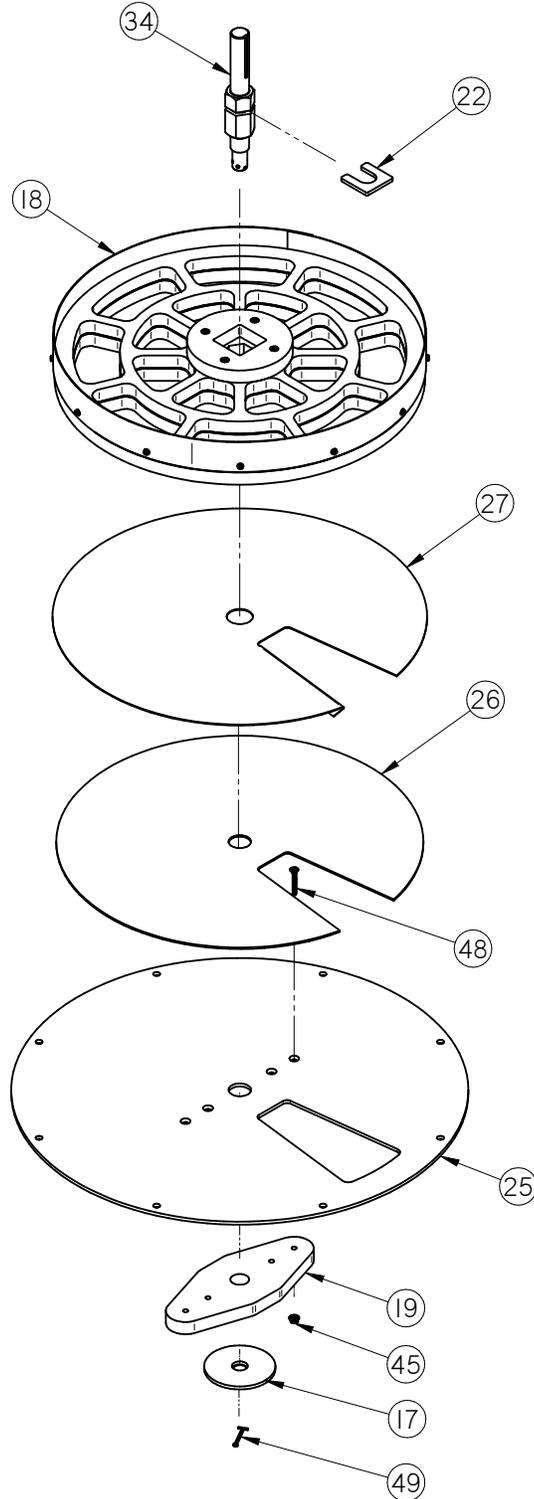
RIB SEED WHEEL

NOTES:

MECHANICAL DRAWINGS

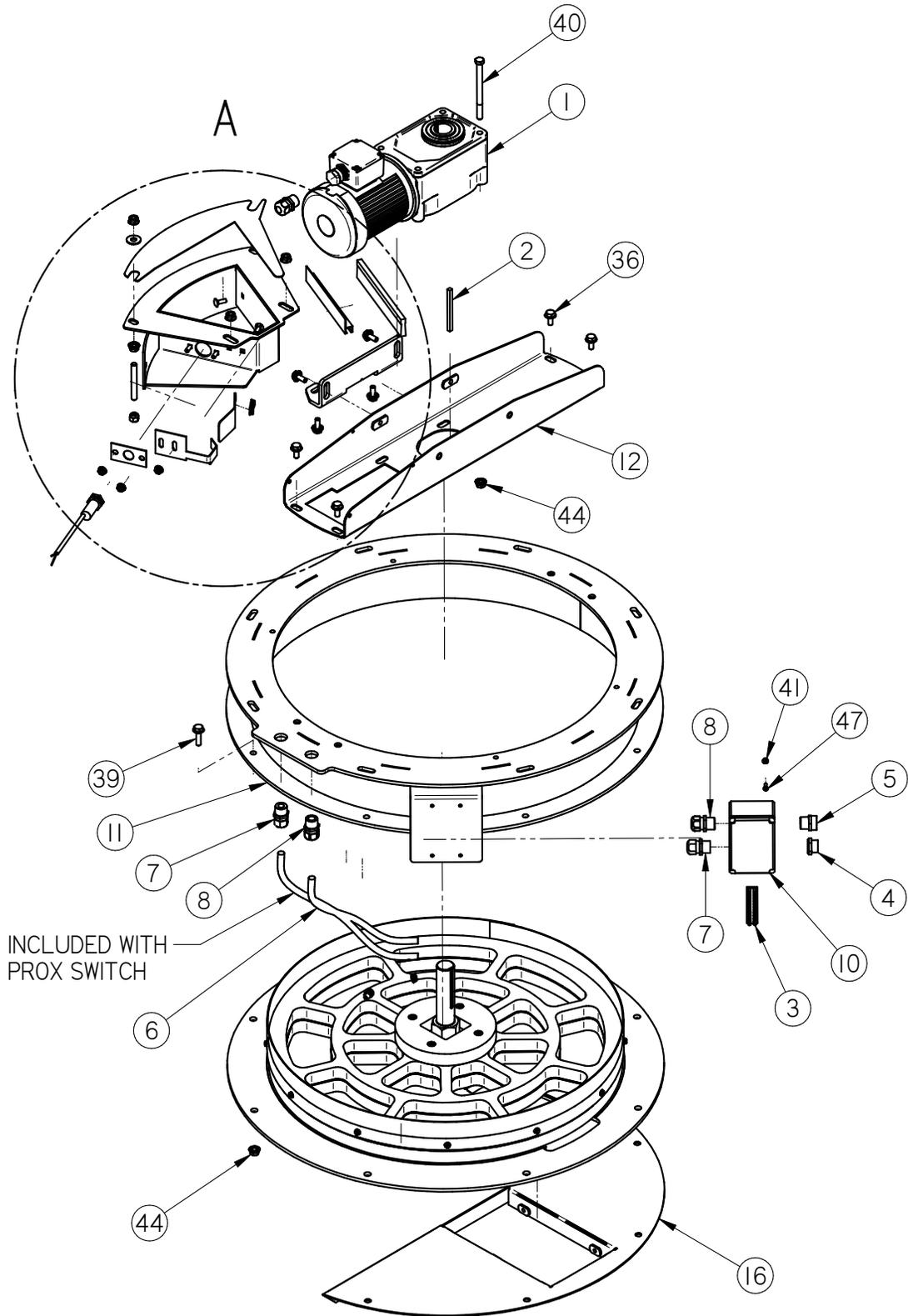
SECTION I

LOW VOLUMN SEED WHEEL (13-04-0137)



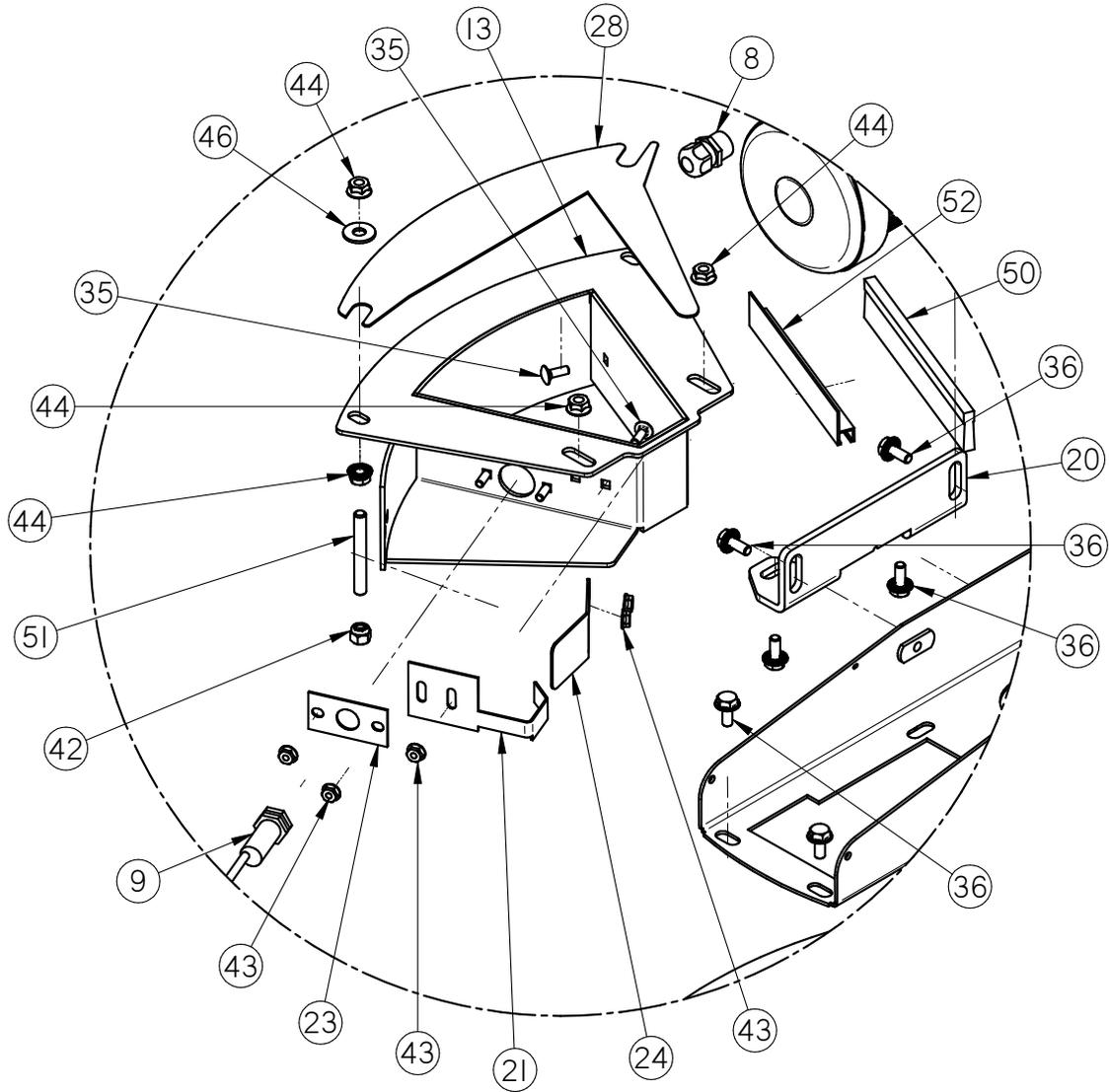
RIB SEED WHEEL

LOW VOLUMN SEED WHEEL (13-04-0137)



RIB SEED WHEEL

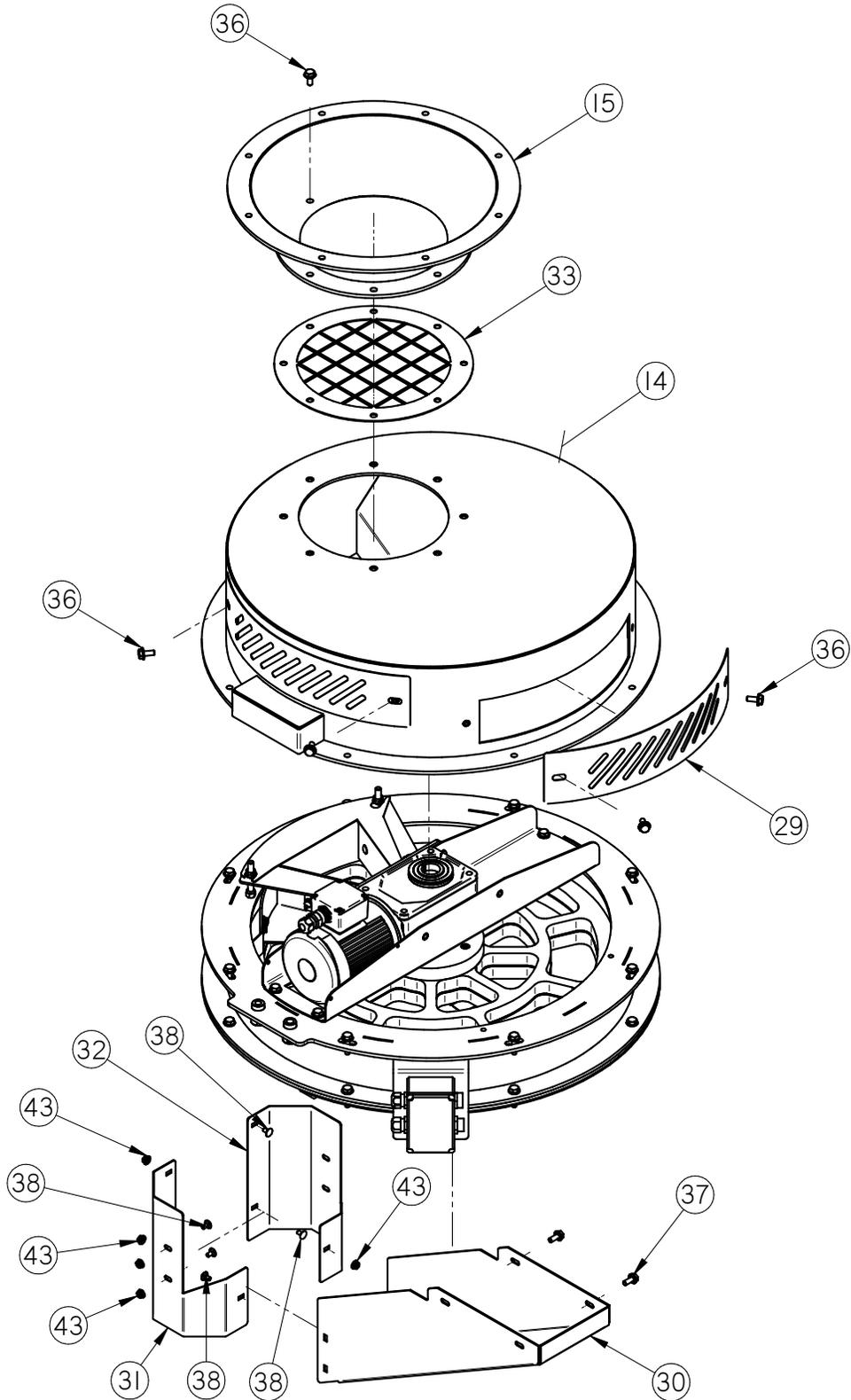
LOW VOLUMN SEED WHEEL (13-04-0137)



DETAIL A

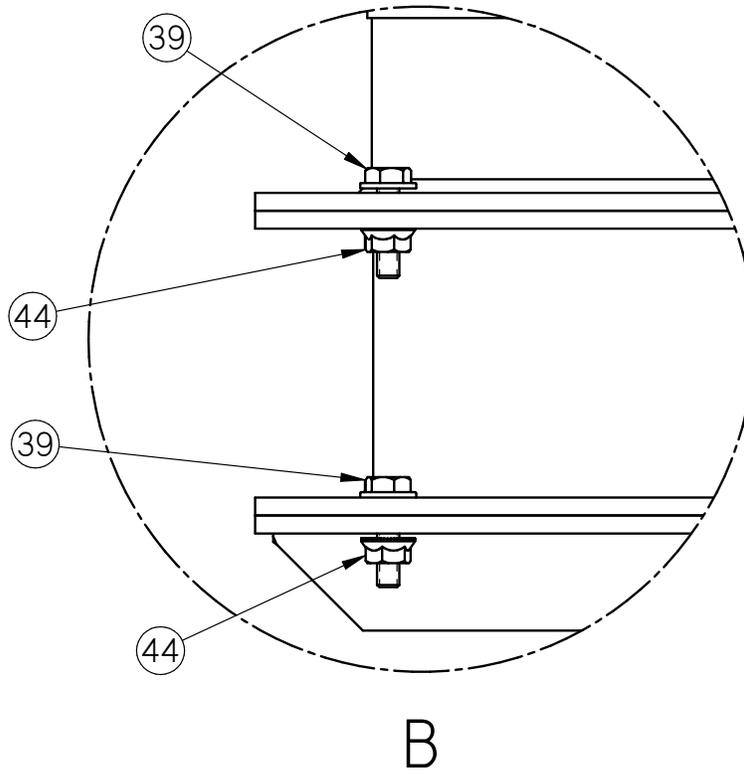
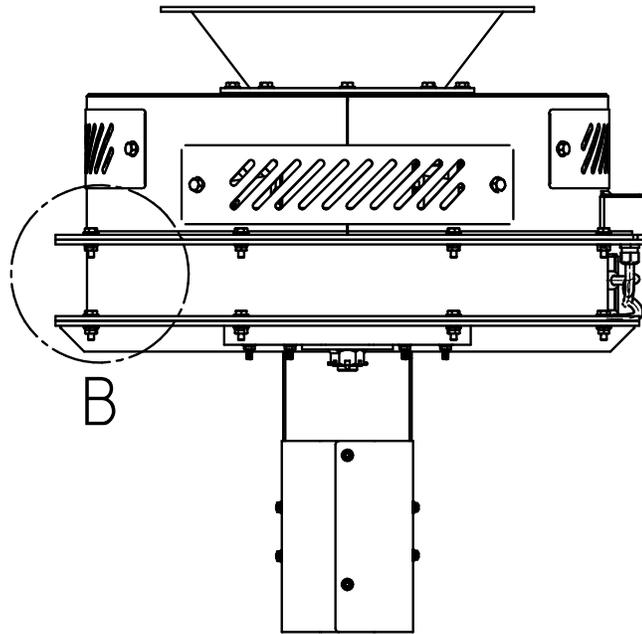
RIB SEED WHEEL

LOW VOLUMN SEED WHEEL (13-04-0137)



RIB SEED WHEEL

LOW VOLUMN SEED WHEEL (13-04-0137)



RIB SEED WHEEL

LOW VOLUMN SEED WHEEL (13-04-0137)

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	05-03-1339	WDMT CONE INLET LV SMW	1
16	05-03-1340	WDMT MNT CHUTE LV SMW	1
17	05-04-0049	WDMT SEED WHEEL SHAFT NUT	1
18	05-07-0622	ASSY LV SMW 1.75 HEX DRV	1
19	05-10-1213	SUPP BTM BRG UHMW SEED METER	1
20	05-10-1392	BRKT SMW BRSH PCKT HLDR	1
21	05-10-1449	PLT SMW CTR HUB WIPER	1
22	05-10-1588	PLT SHAFT CLIP SMW	1
23	05-10-3316	SMW PROX SW HOLDER	1
24	05-10-4192	PLT SMW POCKET SCRAPER	1
25	05-10-4228	PLT SUPP LV SMW CS	1
26	05-10-4229	PAD LV SMW FOAM RBBR	1
27	05-10-4230	PLT WEAR LV SMW	1
28	05-10-4231	PLT CVR PCKT FIT	1
29	05-10-4232	CVR ACCESS LV SMW	4
30	05-10-4233	PLT CHUTE DSCHG LV SMW	1
31	05-10-4234	PLT HALF DOWN SPOUT LV SMW	1
32	05-10-4235	PLT HALF DOWN SPOUT LV SMW MIRROR	1
33	05-10-4238	PLT GRD INLET CONE LV SMW	1
34	05-11-0389	DRV SHAFT SEED METER LV	1
35	06-01-0122	BOLT, CARRIAGE, .250-20x.75 G5 ZP	4

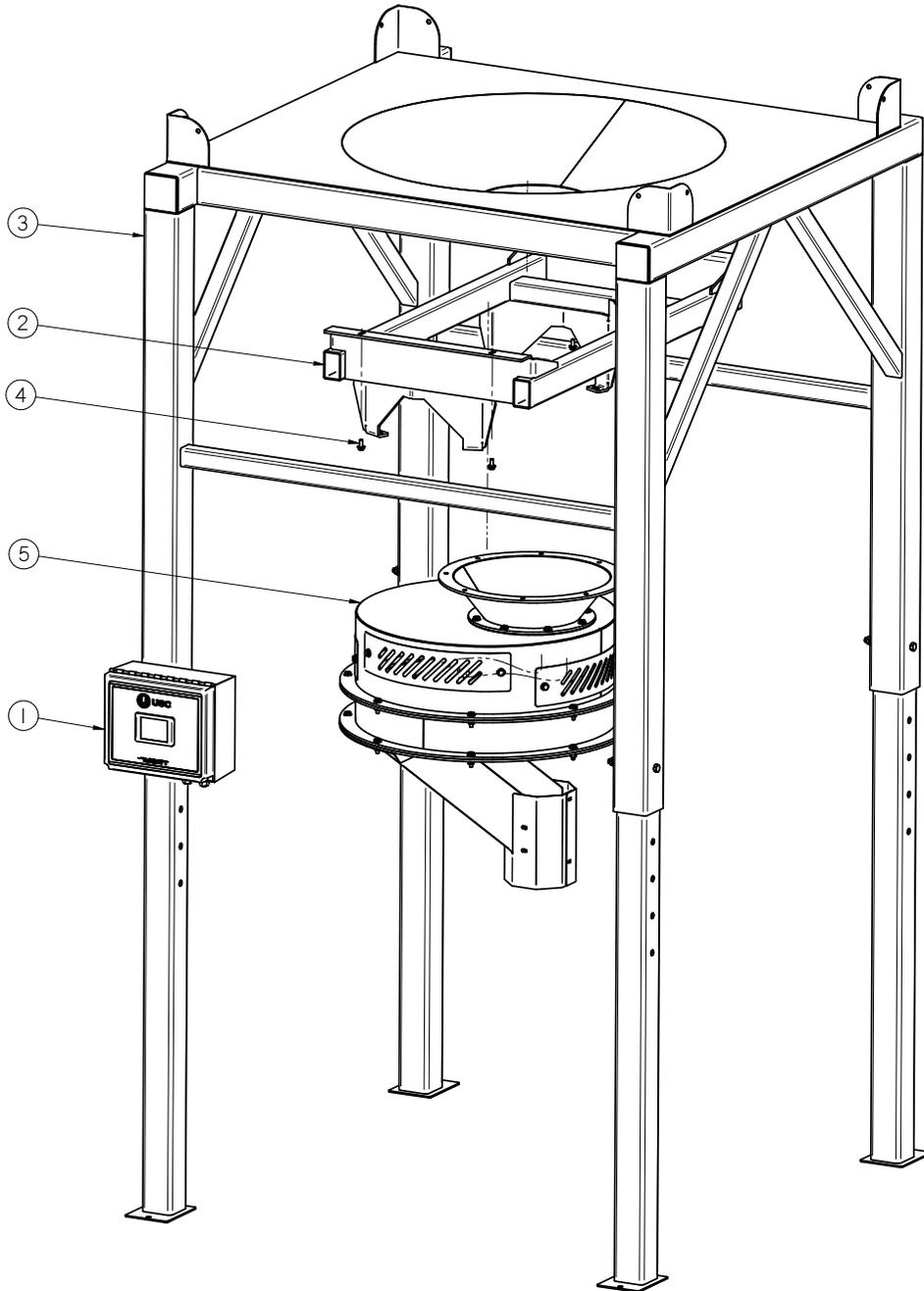
RIB SEED WHEEL

LOW VOLUMN SEED WHEEL (13-04-0137)

Item #	Part #	Description	Qty
36	06-01-0124	BOLT, FLG .375-16 UNC ZP GRADE 5; 3/4" LG	24
37	06-01-0138	BOLT, FLG .3125-18 UNC ZP GRADE 5; 3/4" LG	4
38	06-01-0150	BOLT, CARRIAGE, .250-20x.50 G5 ZP	7
39	06-01-0189	BOLT, FLG .375-16 UNC ZP GRADE 5; 1-1/4" LG	16
40	06-01-0276	BOLT .375-16 X 4.75 YZ GR5	4
41	06-02-0034	NUT 8-32 K-LOCK ZP	4
42	06-03-0003	NUT NYL LOCK .375-16 ZP GR5	2
43	06-03-0013	NUT,LOCK, FLG .250-20 ZP SERRATTED	15
44	06-03-0014	NUT LOCK FLG .375-16 ZP GR5	26
45	06-03-0019	NUT LOCK FLG .3125-18 ZP GR5	4
46	06-05-0004	WSHR FLAT .375 ZP	2
47	06-06-0004	SCRW MACH 8-32 X .500 PHLP RDHD ZP	4
48	06-06-0046	SCRW .313-18 X 2.0 ZP FLAT HD PHLP	4
49	06-09-0023	.188 X 2.00 ZP COTTER PIN	1
50	06-10-0045	SEAL BRSH 7.625 OAL 1IN EXP LG	1
51	06-14-0013	STUD .375-16 ZP X 3 IN LG ZP	2
52	102D10	HOLDER BRUSH LV SMW	1

RIB SEED WHEEL

REFUGE IN A BAG TOWER (13-04-0137)



Item #	Part #	Description	Qty
1	03-12-0015	SC MIX TANK CONTROL PANEL	1
2	05-03-1341	WDMT FR MNT LV SMW	2
3	05-09-0020	ASSY SL BOX2BOX STAND ADJ HT	2
4	06-01-0124	BOLT, FLG .375-16 UNC ZP GRADE 5; 3/4" LG	4
5	13-04-0137	SEED WHEEL LV 172 BPH	2

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.

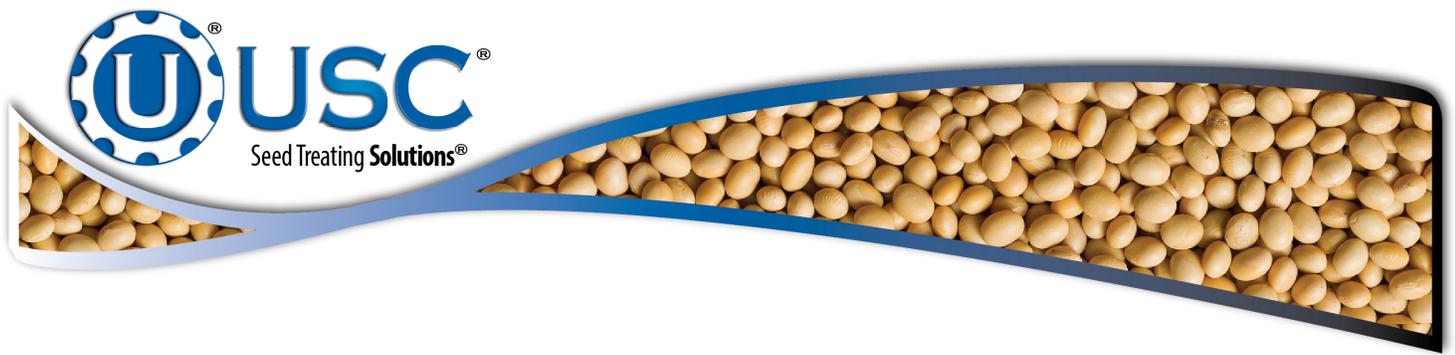
2. **Other Limits:** THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Manufacturer does not warrant against damages or defects arising from improper installation (where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