

# SURGE AND WEIGH HOPPERS



## OPERATOR'S MANUAL

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## 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

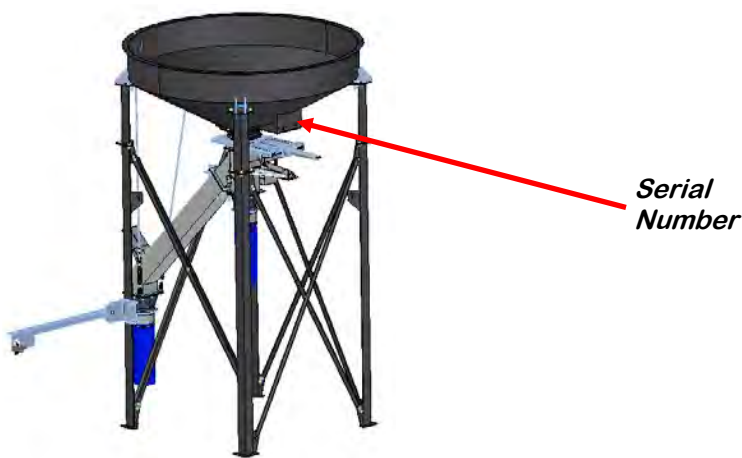
The purpose of this manual is to provide you with the basic information needed to operate and maintain the Weigh Hopper and Surge Hopper. It does not hold USC LLC liable for any accidents or injuries that may occur.

The technical information provided in this document is based on extensive testing under controlled conditions at the USC research and development facility. This information is given without guarantee as the conditions of operation and storage of the equipment are beyond our control. Variables such as temperature, humidity, viscosity of chemical products and changes in seed size or variety may all effect the accuracy of application and seed coverage. Periodically check the equipment calibration while treating and make adjustments as required. This will insure the optimum seed coverage.

### 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 serialization label is located on the angle bracket welded to the hopper cone



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

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## SECTION A SAFETY INSTRUCTIONS

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

### SAFETY WORDS AND SYMBOLS

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



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



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



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



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



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



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



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



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



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



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

**NOTICE**

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

## **LOCKOUT / TAGOUT PROCEDURES**

Lockout/Tagout is the placement of a lock/tag on an energy isolating device in accordance with an established procedure. When taking equipment out of service to perform maintenance or repair work, always follow the lockout/tagout procedures as outlined in 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.



## WEIGH HOPPERS & SURGE HOPPERS

**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.



## WEIGH HOPPERS & SURGE HOPPERS

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



### **OPERATING SAFETY:**

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



### **PLACEMENT SAFETY**

1. Move only with the appropriate equipment
2. Stay away from overhead power lines when moving equipment. 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



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



Never attempt to move the weigh hopper while the load cells are in contact with the floor and do not drop. This will damage the load cells

### **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.



SECTION **INSTALLATION**  
B



**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.

**NOTICE**

Permanent installation may require additional electrical cables and air lines, since each installation is unique.

**SURGE HOPPER SET-UP**

The following steps outline the initial set-up of your USC seed hopper :

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 seed hopper in the desired position on a level surface.

**NOTICE**

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

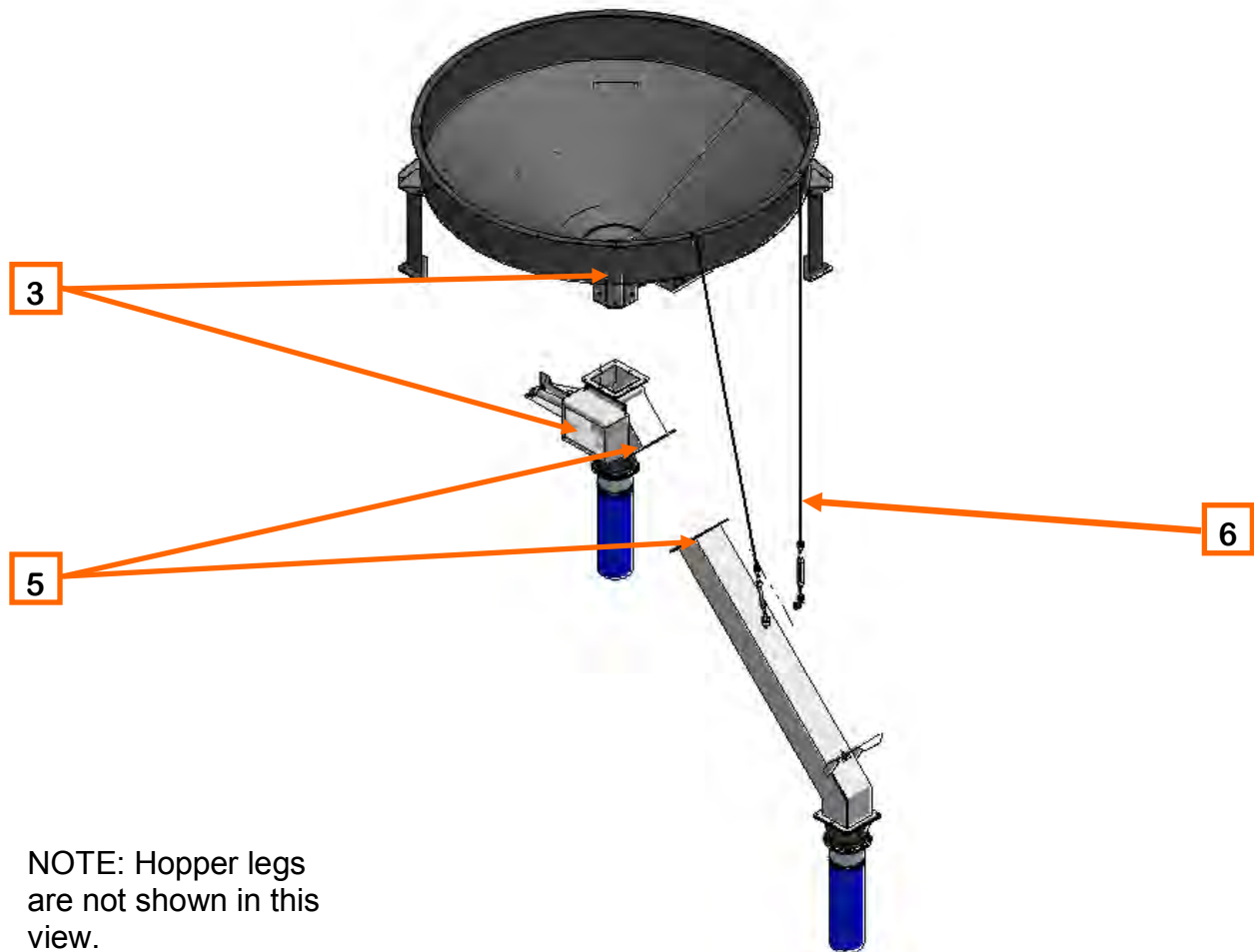
4. Inspect seed hopper thoroughly for screws, bolts, fittings, etc. which may have come loose during shipping.
5. The seed hopper should be placed on level ground.
6. After you are sure the hopper is located in the correct position, anchor the hopper to the floor to prevent the machine from moving during operation.
7. If the hopper is equipped with a vibrator. Refer to pages 12—14 for instructions.
8. If the hopper is equipped with an air gate or discharge diverter. Refer to pages 120—14 for instructions.
9. If there is a K-valve below the air gate, refer to next page for installation instructions.

**K-VALVE SET-UP**

The following steps outline the initial set-up of your USC K-Valve.

After completing steps on prior page for set-up of the surge hopper:

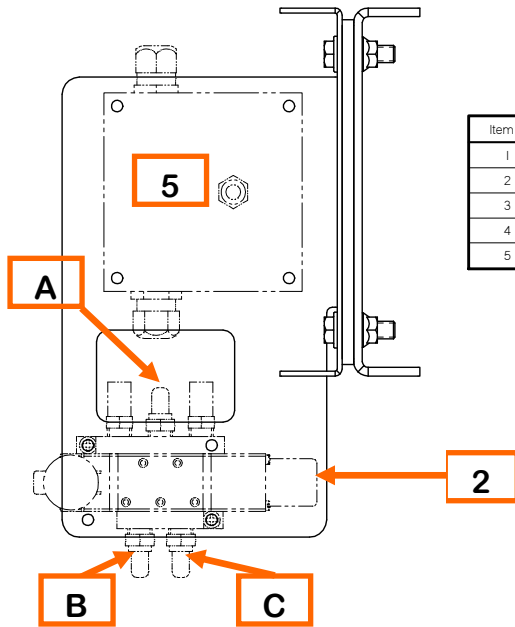
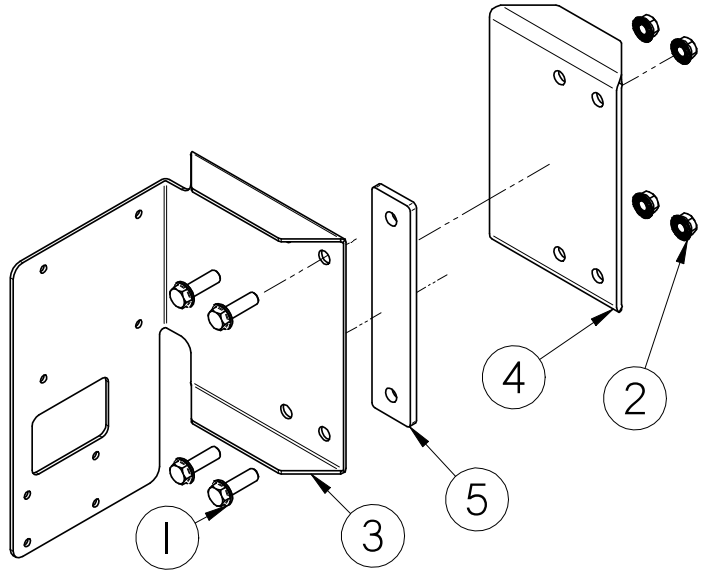
1. Unpack K-Valve and associated equipment.
2. There are two main assemblies to the K-valve (K-valve, & discharge chute) and associated nuts bolts, etc.
3. Attach the K-valve to the flange on the bottom of the air gate (shipped on the hopper). Use 3/8—16 X 1 1/4" grade 8 bolts with flange nuts
4. Adjust the output side of the K-valve such that it faces out the side desired by loosening and re-tightening the clamp ring.
5. Attach the flange on the discharge chute to the flange on the K-valve. Use 3/8-16 X 1 1/4" grade 8 bolts and flange nuts.
6. Attach two support cables from the spout to the rim of the hopper. Use 3/8-16 X 1 1/4" grade 8 flange bolts and flange nuts.



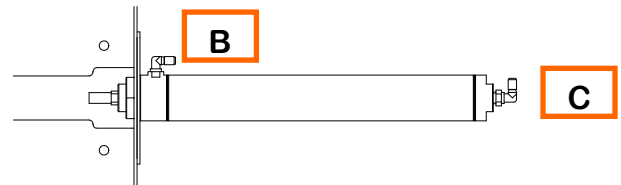
NOTE: Hopper legs are not shown in this view.

**AIR GATE AND VIBRATOR  
CONTROLLER INSTALLATION  
ON SHORT HOPPERS**

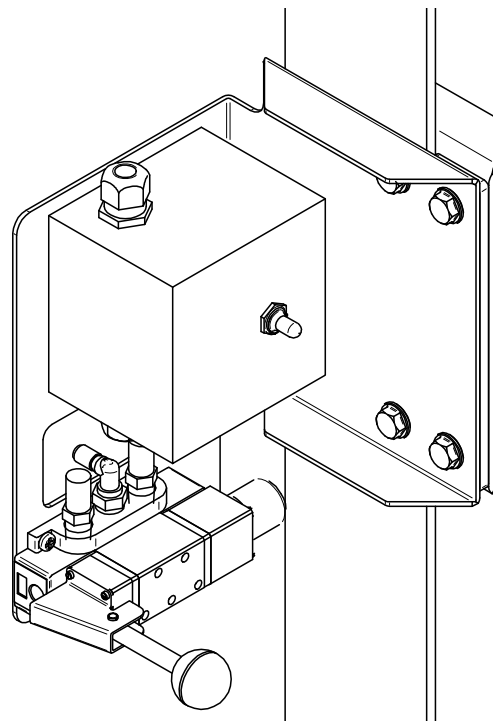
1. Clamp the controller bracket to the desired leg of the hopper.
2. Install air valve for the air gate on the panel .
3. Connect air lines from the air valve to the cylinder on the air gate and secure air lines with zip ties. Connect to valve points "B" and "C".



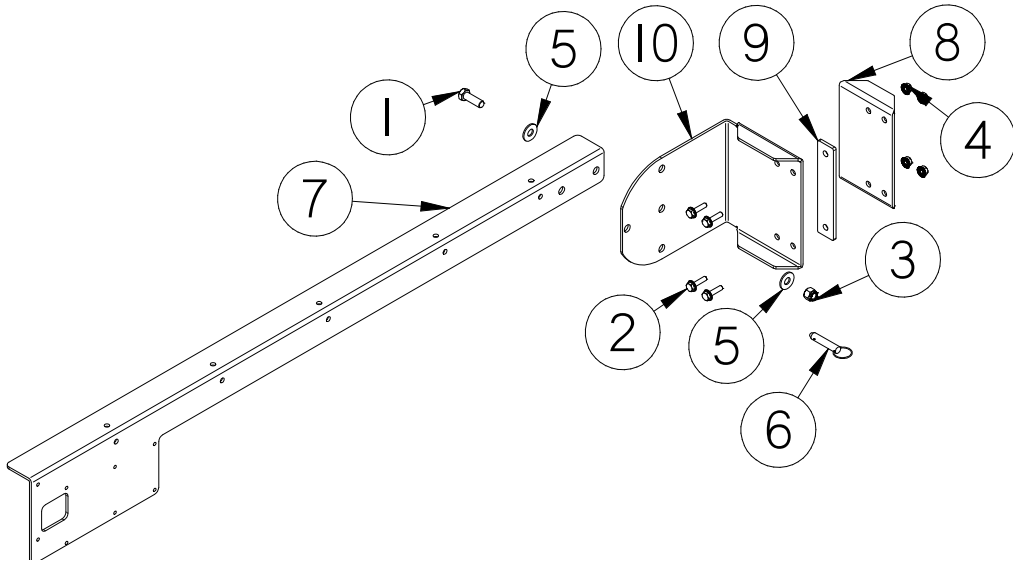
Item #	Part #	Rev	Title	Material	Qty
1	06-01-0189	A	BOLT FLG .375-16 X 1.250 ZP GR5	06-01-0189 13103 FASTENAL	4
2	06-03-0014	A	NUT LOCK FLG .375-16 ZP GR5	06-03-0014 1137341 FASTENAL	4
3	103794	A	AIR CNTRL ARM MNT 80U VIB	11-03-0004 SHEET, 12GA CS	1
4	103795	A	AIR CNTRL ARM MNT 80U VIB	11-03-0008 PLATE 3/16" CS	1
5	103796	A	SPACER	11-03-0010 plate .25 cs	1



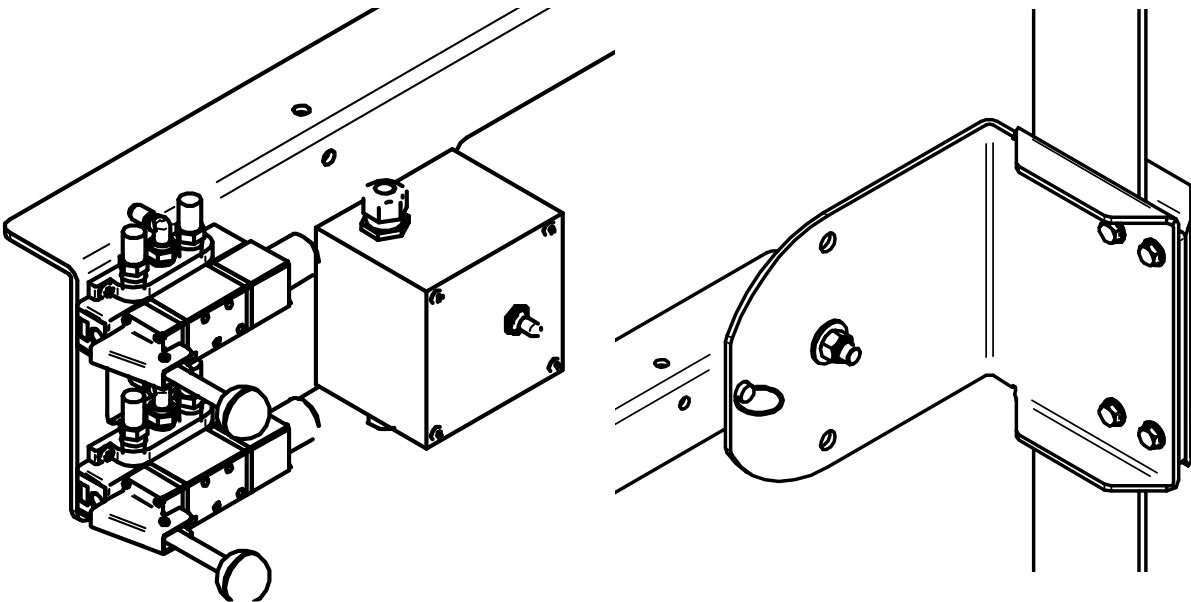
4. Supply air to port "A" at approximately 80-120 psi. A dryer is recommended in line.
5. If hopper is supplied with vibrator, mount the switch to the controller bracket
6. Have a licensed electrician run 120v to the switch.



**AIR GATE AND K-VALVE CONTROLLER INSTALLATION ON TALL HOPPERS**

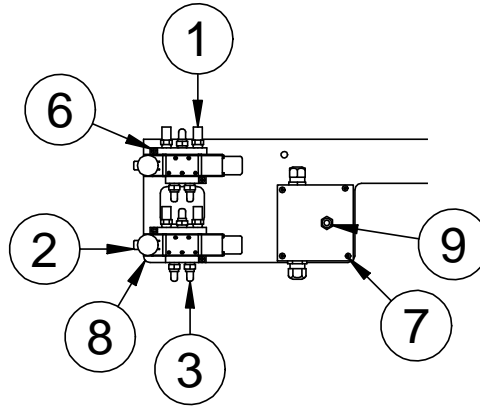


Item #	Part #	Rev	Title	Qty
1	06-01-0025	A	BOLT .500-13 X 1.50 ZP GR5	1
2	06-01-0189	A	BOLT, FLG .375-16 UNC ZP GRADE 5, 1-1/4" LG	4
3	06-03-0004	A	NUT NYL LOCK .500-13 ZP GR5	1
4	06-03-0014	A	NUT LOCK FLG .375-16 ZP GR5	4
5	06-05-0005	A	WSHR FLAT .500 ZP	2
6	06-09-0070	A	PIN SPGLD QCK REL RING GRIP 0.5DIA	1
7	I02AC8	A	AIR CNTRL MNT 80U VIB	1
8	I03795	A	AIR CNTRL ARM MNT 80U VIB	1
9	I03796	A	SPACER	1
10	I03AAA	A	AIR CNTRL ARM MNT 80U VIB	1



## WEIGH HOPPERS & SURGE HOPPERS

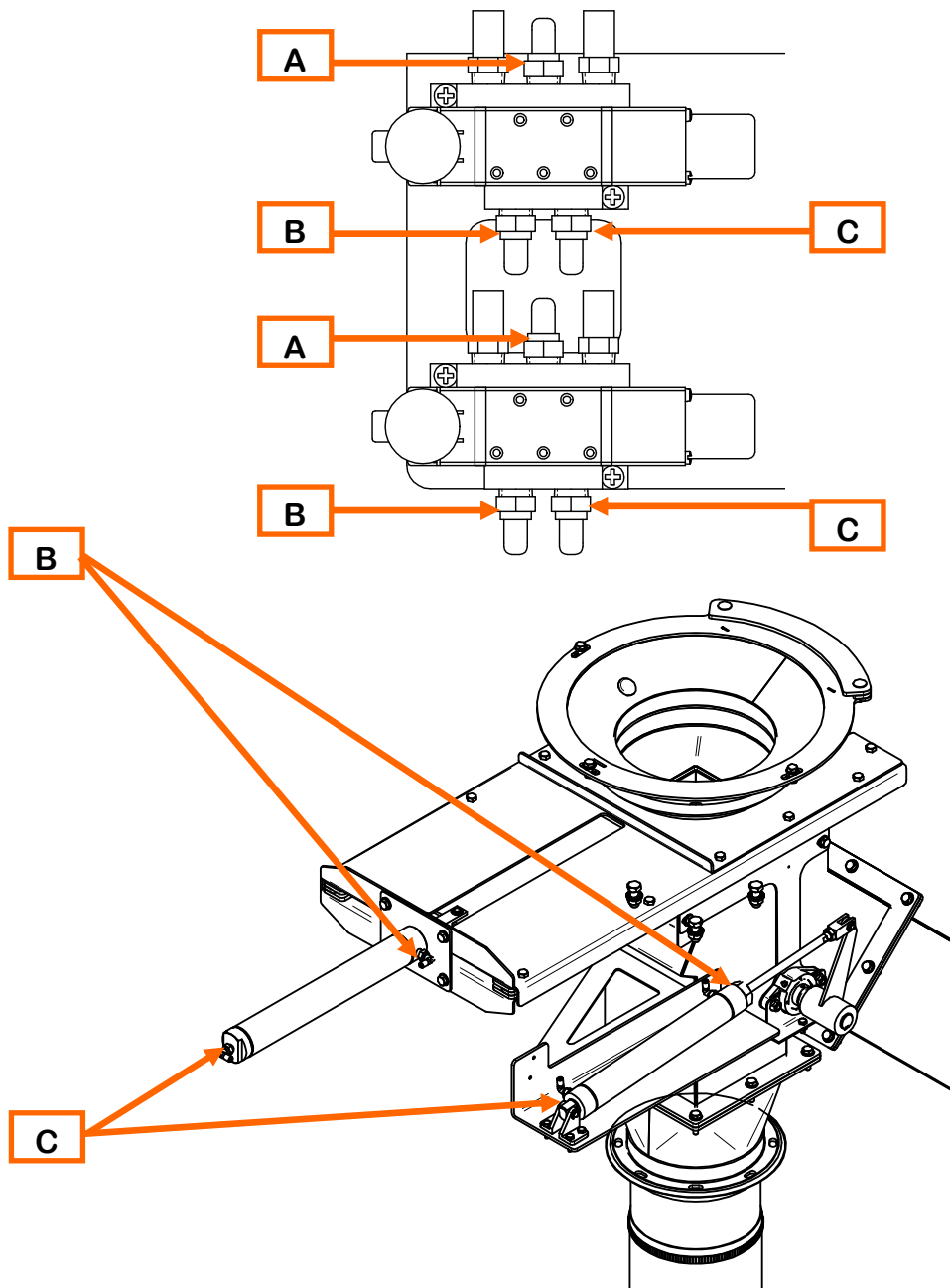
1. Clamp the controller bracket to the desired leg of the hopper.
2. Install air valve for the air gate and K-Valve controllers on the arm.



Item #	Part #	Title	Qty
1	02-02-0050	FLTR EXHAUST BRZ .250 NPT ML	4
2	02-02-0064	3-WAY AIR VALVE 1-4NPT BIMBA	2
3	02-16-0044	FTTG PUSH 90 DEG .250OD X .250 NPT	6
4*	06-02-0034	NUT 8-32 K-LOCK ZP	4
5*	06-02-0043	NUT,LOCK, #10-24 ZP NYLON INSERT	4
6	06-06-0009	SCRW MACH 10-24 X .750 ZP PHLP RND	4
7	06-06-0012	SCRW MACH 8-32 X .750 PHLP RDHD ZP	4
8	102AC8	AIR CNTRL MNT 80U VIB	1
9	N/A	SWITCH BOX FOR VIBRATOR	1

## WEIGH HOPPERS & SURGE HOPPERS

3. For the air gate connect air line from point “B” on one of the control valves to point “B” on the air gate cylinder. Connect another air line from point “C” on the valve to point “C” on the air gate cylinder.
4. If hopper utilizes a K-Valve repeat step 3 to connect air lines from valve to K-Valve cylinder.
5. Supply air to port “A” at approximately 80-120 psi. a dryer is recommended in line.
6. If the hopper is supplied with a vibrator, mount the switch to the controller bracket.
7. Have a licensed electrician run 120v to the switch.



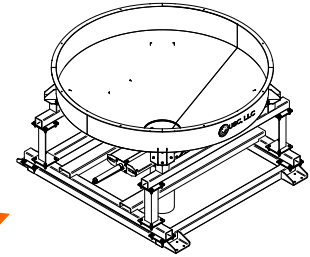
**WEIGH HOPPER SET-UP**

**NOTICE**

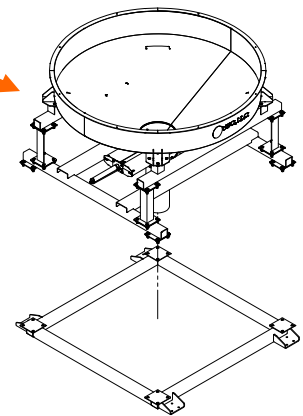
USC highly recommends that the weigh hopper be set-up inside a building or other covered structure to protect the machine from weathering and wind.

The following steps outline the initial set-up of your USC weigh hopper :

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. The hopper and scale frame will arrive bolted together. (Drawing A-1)
4. Separate the scale frame from the hopper assembly. (Drawing A-2).
5. Assemble the load cells (according to manual shipped with load cells) and floor mount pads (B1) using 1/2-13 X 2 1/2" grade 5 bolts with a lock washer and nut. (Drawing A-4) Note: arrow on load cell must point down as shown in Drawing A-3.



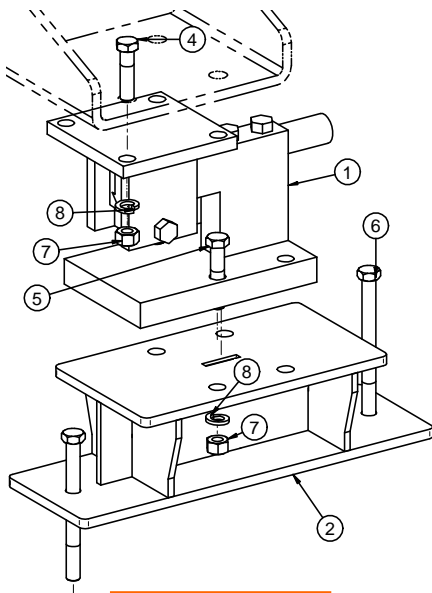
**Drawing A-1**



**Drawing A-2**



**Drawing A-3**



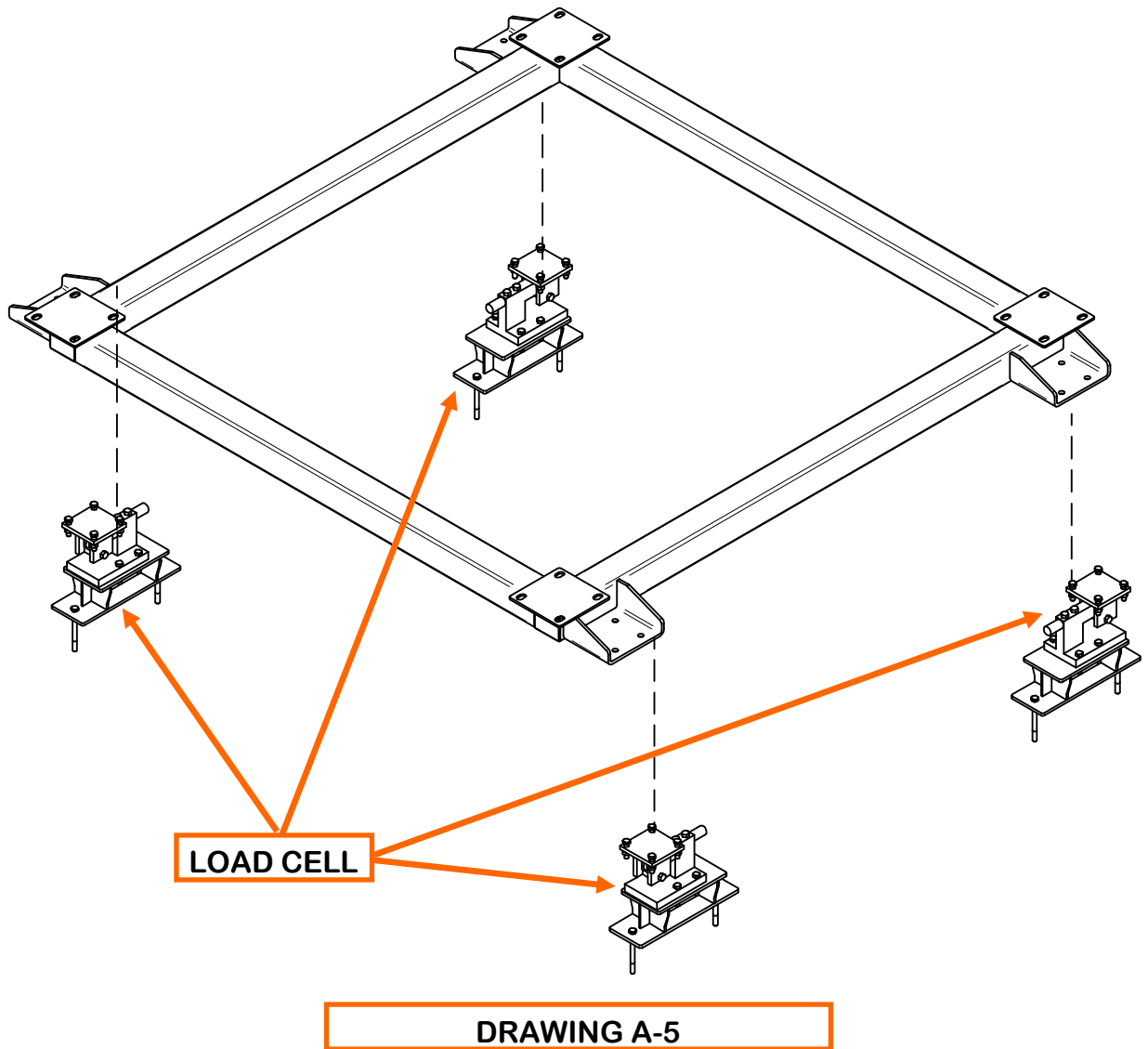
**Drawing A-4**

Item #	Part #	Rev	Title
1	03-19-0107	A	LDCL 5000LB X4 KIT
2	05-03-1954	A	WDMT LDCL SUPP RL
3*	05-08-0865	A	SHIM KIT WEIGH HOPPER LDCL RL
4	06-01-0027	A	BOLT .500-13 X 2.00 ZP GR5
5	06-01-0028	A	BOLT .500-13 X 2.50 ZP GR5
6	06-01-0179	A	BOLT,.500-13 CONC ANCHOR ZP 5.5 LONG
7	06-02-0004	A	NUT FULL .500-13 ZP GR5
8	06-04-0004	A	WSHR LOCK SPLT .500 ZP



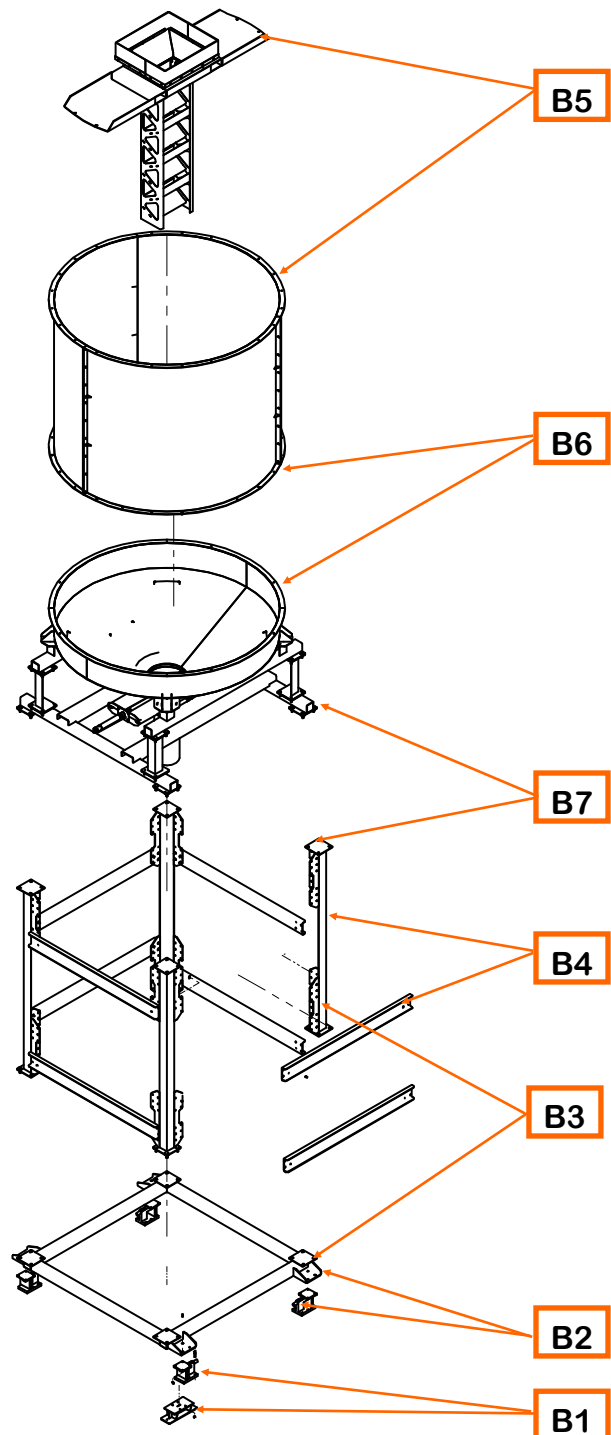
WEIGH HOPPERS & SURGE HOPPERS

6. Attach the assembled load cells to the bottom of the scale frame (B2) using 1/2-13 X 2.0" grade 5 bolts with a lock washer and nut. (Drawing A-4). Orient load cells as shown in drawing A-5.



**WEIGH HOPPER SET-UP**

7. Attach 4 leg assemblies to the scale frame using 5/8-11 X 2.0" grade 5 bolts with a washer under the head of the bolt, and washer, lock washer, and nut under the scale frame. (B3)
8. Attach cross braces to the legs using 1/2—13 X 1 1/4" grade 8 bolts and flange nuts. (B4) NOTE: THEY MAY BE PLACED IN ANY OF THE AVAILABLE POSITIONS TO MISS ASSOCIATED EQUIPMENT.
9. Assemble extension ring or rings using 3/8 X 1 1/4" grade 5 bolts with flange nuts. (B6)
10. Assemble seed ladder to extension rings if one was ordered using 3/8 X 1 1/4" grade 5 bolts and flange nuts. (B5)
11. Inspect seed hopper thoroughly for screws, bolts, fittings, etc. which may have come loose in shipping.
12. Using a fork lift and the forklift pockets on the weigh hopper raise it and CAREFULLY set it on the legs and bolt together with 5/8 X 11 X 2.0" grade 5 bolts with a washer under the head of the bolt, and washer, lock washer and nut under the leg flange.
13. When the hopper is in it's final position, anchor the floor mounts to the floor with 1/2 - 13 X 7 1/2" concrete anchor bolts.
14. After bolting to the floor, run load cell cables to the summing box (field located). **DO NOT SHORTEN THE CABLES. ALL CABLES MUST STAY THE SAME LENGTH.**

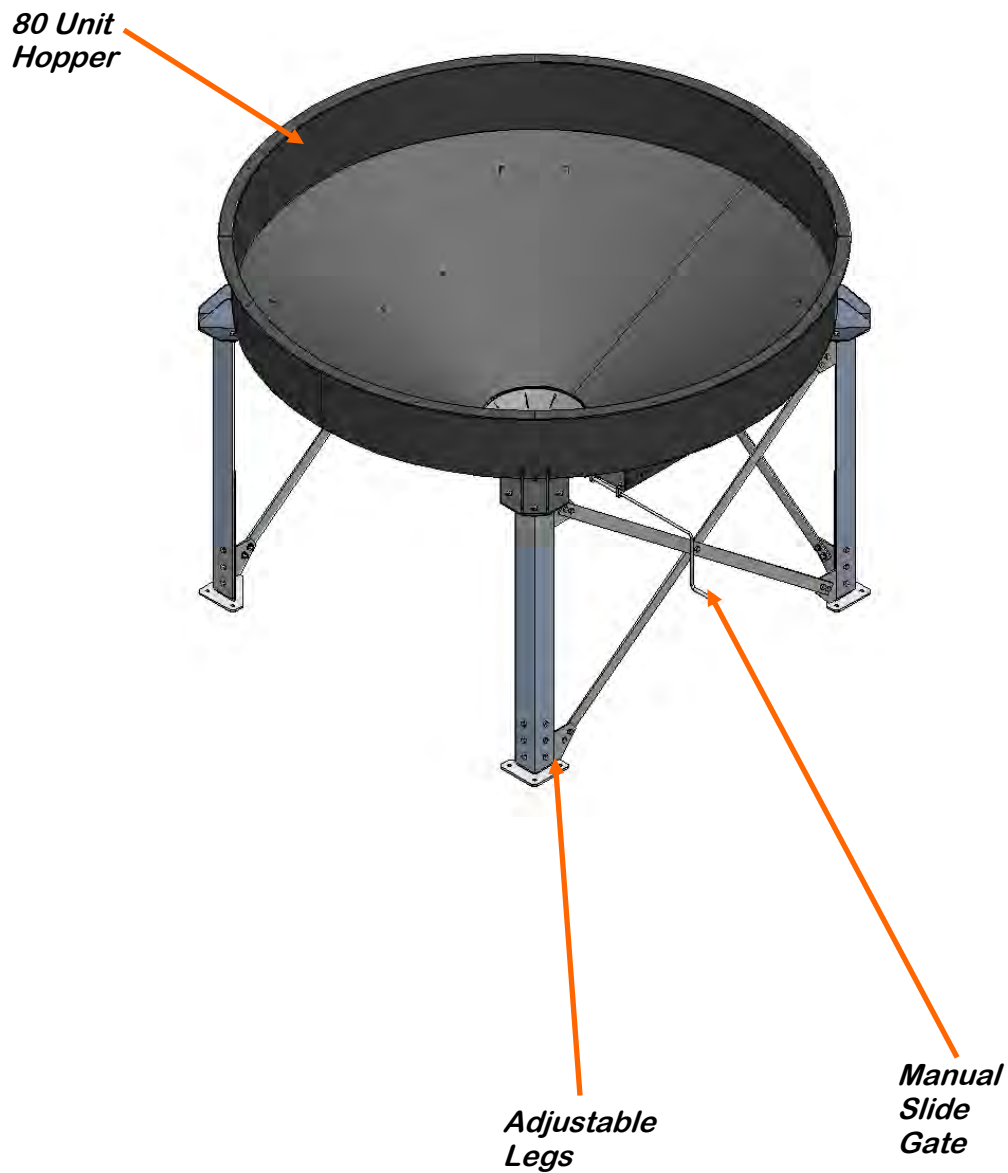


Drawing A-6

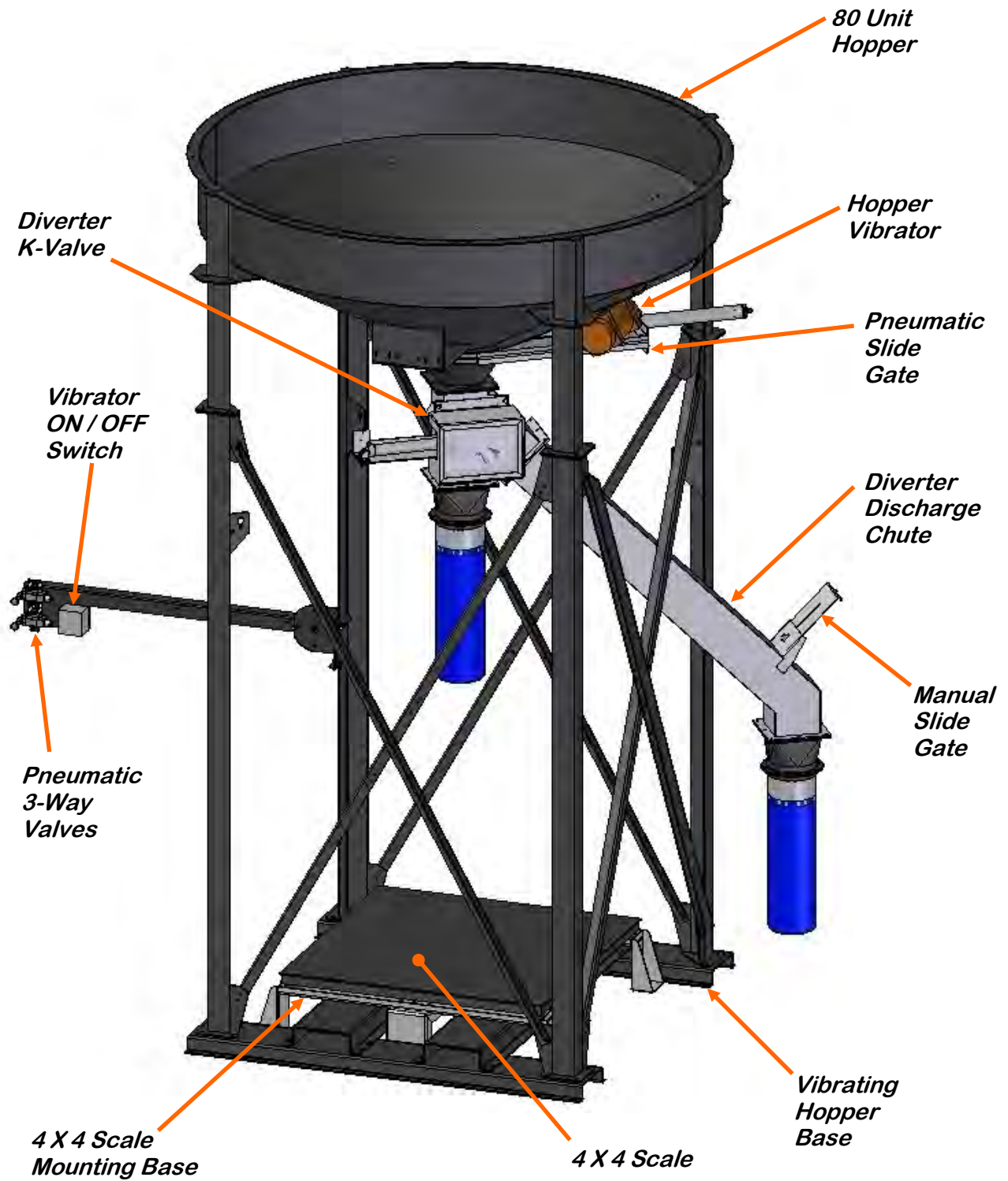
# MECHANICAL OPERATION

## SECTION C

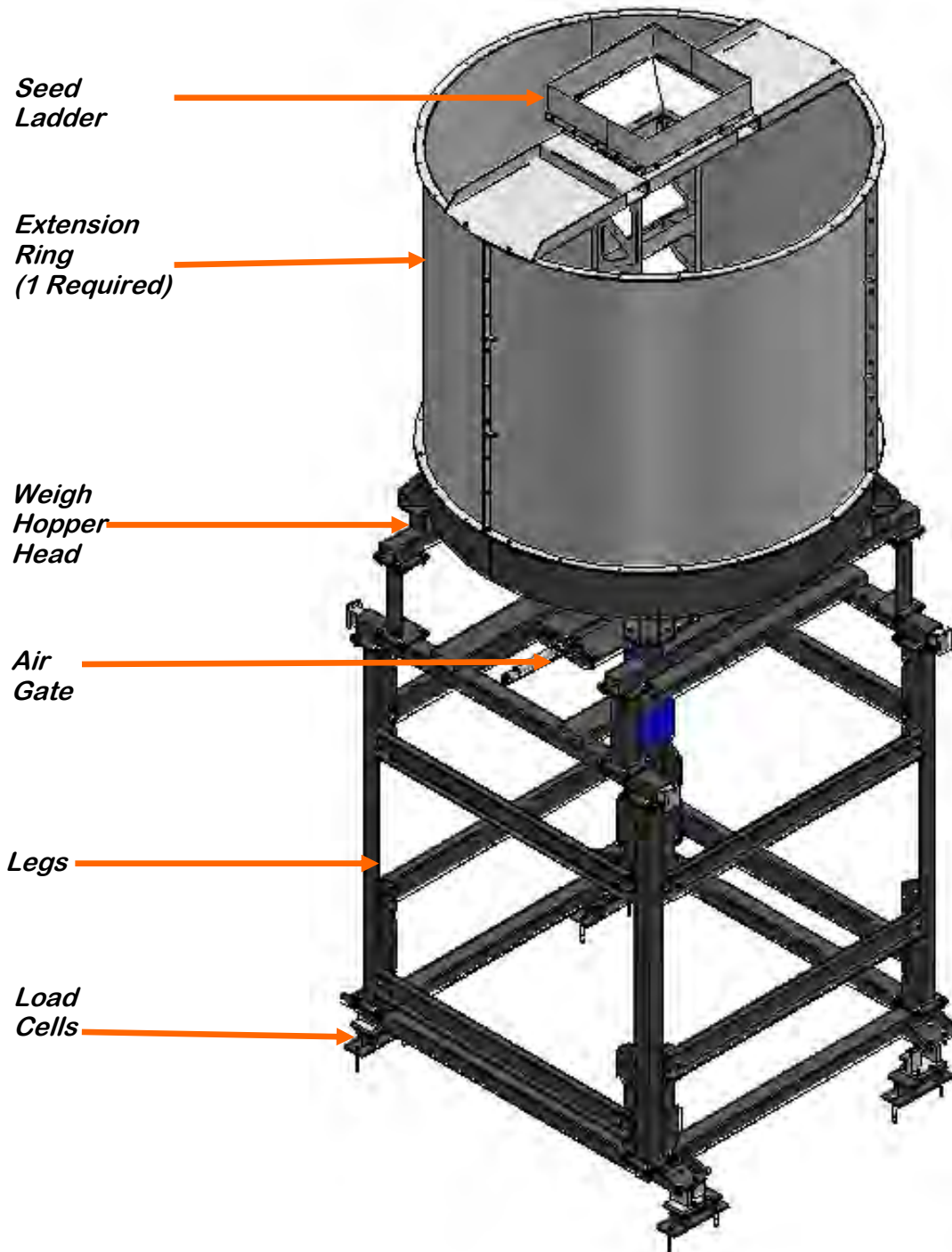
### FLOOR MOUNTED SURGE HOPPER OVERVIEW



**SURGE HOPPER WITH K-VALVE AND TALL HOPPERS OVERVIEW**



**WEIGH HOPPER OVERVIEW**



**NOTICE**

Never attempt to move the weigh hopper while the load cells are in contact with the floor and do not drop. This will damage the load cells

**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.

**CHANGING VIBRATOR OUTPUT SETTINGS**

**11 CHANGING OUTPUT SETTINGS**

MODELS: 2P-75, 100, 150, 200; 4P-350

**To change the force:**

1. Disconnect from power.
2. Remove both end covers.
3. Remove the cap screw that holds the outer eccentric to the inner eccentric and turn the outer eccentric so that the numbered hole aligns with the threaded hole in the inner eccentric. **NOTE: You must set both ends of the vibrator to the same setting.**
4. Replace the cap screw.
5. Replace both end covers.

**NOTE:** If you INCREASE force of vibrator, you MUST take a new amperage draw reading to ensure vibrator is still operating within specified limits.

**NOTE:** ONLY RUN INTERMITTENTLY when set to higher than factory set output forces (maximum running time of 30 min in any one hour period).

MODELS: 2P-450, 800, 1700, 2500; 4P-600, 700, 1000, 1400, 2000, 3000, 5000, 10000  
6P - ALL MODELS; 8P - ALL MODELS

**To adjust eccentric settings:**

1. Remove both end covers from vibrator.
2. Loosen the bolt that holds the outer, labeled eccentric to the shaft. **NOTE: some models have only one eccentric per side.**
3. Turn the eccentric on the shaft to adjust force output. Align the arrow on the shaft to the desired setting. The higher the number, the greater the force. **NOTE: You must set both ends of the vibrator to the same setting.**
4. Tighten eccentric bolts and reinstall end covers.

**NOTE: These vibrators are set to Setting #3 (Factory Setting).**

**LEFT**      **RIGHT**

Settings 1 - 3 are continuous duty rated  
Settings 4 - 6 are intermittent duty rated only

**For vibrators mounted in tandem (side to side, not end-to-end) to produce linear motion on table & feeder applications:**

To produce linear motion you must make sure vibrators rotate opposite from one another. Force output labels should be opposite to one another when viewed from the same side (one increases clockwise, the other counter-clockwise as in picture above). Follow instructions as above, & be sure you set both vibrators & both ends to the same setting. Consult VIBCO for more details.

**NOTE:** If you INCREASE force of vibrator, you MUST take a new amperage draw reading to ensure vibrator is still operating within specified limits.

**NOTE:** Only run intermittently when set to higher than factory set output forces (maximum running time of 30 min in any one hour period).

**TROUBLESHOOTING****SECTION  
E****TROUBLESHOOTING**

Below is a table describing the most frequent problems and solutions with the USC seed hoppers . For further assistance, contact your authorized dealer.

Problem	Possible Cause	Solution
Weight display not reading steady (Bouncing)	<ol style="list-style-type: none"> <li>1. Bad load cell.</li> <li>2. Wind Drafts.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace load cell.</li> <li>2. Close doors.</li> </ol>
No scale reading on the weigh hopper indicator on the touch screen.	<ol style="list-style-type: none"> <li>1. Serial cable is disconnected.</li> <li>2. Scale head is unplugged.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check cables for connectivity and damage.</li> <li>2. Ensure that the scale head has power and is turned on.</li> </ol>
Scale is reading incorrect weight.	<ol style="list-style-type: none"> <li>1. Something is touching the scale.</li> <li>2. Scale needs recalibrated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Ensure that nothing is leaning on or resting on the scale.</li> <li>2. Zero scale. If still incorrect, have a professional scale technician recalibrate the scale.</li> </ol>
Air gate will not close fully.	<ol style="list-style-type: none"> <li>1. Something is obstructing the air gate from closing.</li> <li>2. Air pressure to the gate is not strong enough.</li> </ol>	<ol style="list-style-type: none"> <li>1. Remove obstruction.</li> <li>2. Ensure that the bin slide gate has at least 100 psi of air being supplied to it.</li> </ol>
Air gate is opening when it should be closing and vice versa.	<ol style="list-style-type: none"> <li>1. Air lines to the air gate are reversed.</li> </ol>	<ol style="list-style-type: none"> <li>1. Switch the hoses to the front and the back of the air cylinder.</li> </ol>
Diverter is leaking seed through bypass side while in TREAT mode of operation.	<ol style="list-style-type: none"> <li>1. Insufficient air pressure to actuate the diverter K-Valve.</li> <li>2. An obstruction in the diverter is stopping correct placement of the diverter plate.</li> </ol>	<ol style="list-style-type: none"> <li>1. Ensure that at least 100 psi of air pressure is present at the diverter.</li> <li>2. Remove obstruction.</li> </ol>
Vibrator will not start.	<ol style="list-style-type: none"> <li>1. Not getting proper voltage.</li> <li>2. Thermal overload protection has tripped.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check power supply to unit.</li> <li>2. Wait at least two minutes, then reset by switching firmly off then on again.</li> </ol>
Vibrator stops running.	<ol style="list-style-type: none"> <li>1. Power is disconnected.</li> <li>2. Thermal overload protection has tripped.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check power supply to unit.</li> <li>2. Wait at least two minutes, then reset by switching firmly off then on again.</li> </ol>

## SECTION **F** MAINTENANCE

Proper maintenance of the seed hopper 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.

### DIVERTER K-VALVE BEARING GREASE

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

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

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



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

### HOPPER VIBRATOR GREASE

Use Lubrizol M21 general purpose grease or equivalent Sodium Calcium based NLGI grade 2 grease. Minimum temperature range 0 - 225 degrees Fahrenheit. Minimum viscosity 70 - 80 SUS at 212 degrees Fahrenheit. Apply 2.2 - 3.0 grams (two pumps with standard manual grease gun). Do not over grease!

- INTERMITTENT DUTY = Every 400-500 hours.
- CONTINUOUS DUTY = Every 2 weeks.



### **HOPPER**

- Inspect all welds and structural components for bends, cracks, and damage.
  - Clean out any build up of debris.
- 

### **SLIDE GATE & AIR SYSTEM**

- Test slide gate for proper actuation with 3-Way valve.
  - Drain water from compressor daily.
  - Drain air dryer every 40 hours of operation.
- 

### **DIVERTER**

- Inspect all welds and structural components for bends, cracks, and damage.
  - Test diverter K-Valve for proper actuation with 3-Way valve.
  - Clean diverter of any obstructions.
  - Grease both K-Valve bearings.
- 

### **SCALE & SCALE HEAD**

- Inspect all welds and structural components for bends, cracks and damage.
- Check for binding on scale components.
- Check wiring from scale to scale head for any damage or kinks.
- Have scale professionally re-calibrated as necessary.

SECTION  
G**STORAGE**

When storing the seed hopper for long periods of time, the following procedure must be followed to reduce the chance of rust, corrosion and fatigue of the conveyor. 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. Clear the area of bystanders, especially small children.
2. Disconnect power to the machine.
3. Thoroughly wash the entire machine to remove all dirt, mud, debris or residue.
4. Lubricate all grease fittings. Make sure that all grease cavities have been filled with grease to remove any water residue from the washing. This also protects the bearing seals.
5. Lubricate the hopper vibrator as defined in the Maintenance Section.
6. Touch up all paint nicks and scratches to prevent rusting.
7. Store the machine inside a protective building to keep it from being exposed to the weather. Select an area that is dry, level and free of debris. If storing outside, cover with a waterproof tarpaulin.

WEIGH HOPPERS & SURGE HOPPERS

**NOTES:**

Rev II 01AUG20

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. Manufacturer further provides a 12 month warranty on specific equipment supplied with a warranty card. The 12 month warranty begins upon USC receipt of warranty card from Wholesaler and must be submitted to USC within 18 months of stock equipment purchase by wholesaler to be valid. If the Products do not conform to this Limited Warranty during the warranty period, consumer shall notify Manufacturer in writing (on the approved USC warranty claim form) of the claimed defects and demonstrate to Manufacturer satisfaction that said defects are covered by this Limited Warranty (through pictures, video or other objective data). 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 Consumer's expense. All replacement parts orders through USC will carry their specific manufacturer's standard warranty including serialized parts manufactured by USC. USC will not warrant parts outside of the standard USC warranty period. USC will not extend any warranty due to replaced parts. The end user is responsible for all shipping and handling expenses for parts returned to USC under this section which may or may not be included in that specific warranty. USC will pay shipping expense between USC's vendor and USC.

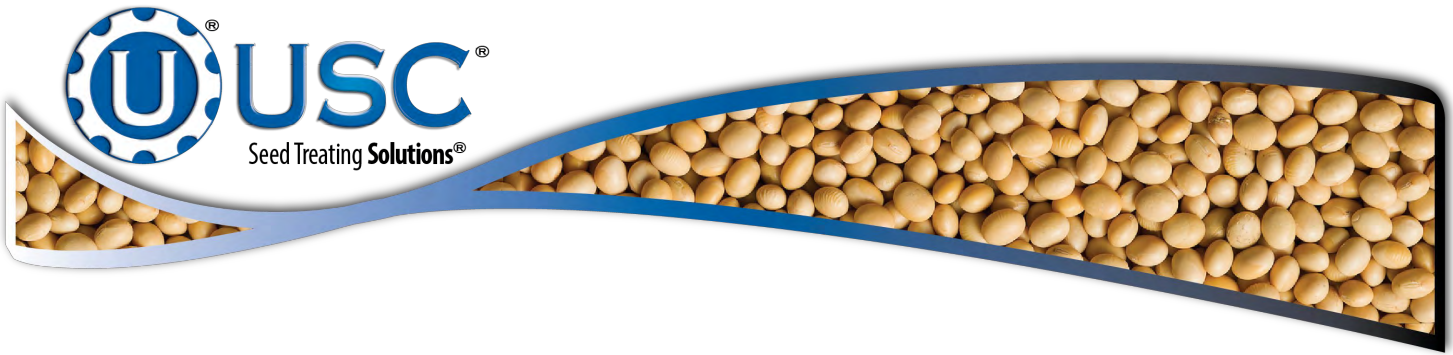
2. Other Limits: THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Manufacturer does not warrant against damages or defects arising from improper installation (where installation 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 consumer 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 affected or attempted by persons other than pursuant to written authorization by Manufacturer. This includes any welding on equipment which could damage electrical components. Manufacturer does not warrant against casualties or damages resulting from misuse and / or abuse of Products, improper storage or handling, acts of nature, effects of weather, including effects of weather due to outside storage, accidents, or damages incurred during transportation by common carrier or Dealer/customer arranged freight. Any replacement or repair covered under this warranty will **not** extend the warranty period. The remainder of the manufacturer's warranty will remain in force until stated expiration from point of sale.

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 lost profits, lost revenue, lost sales (whether direct or indirect damages), incidental, special, punitive, indirect or consequential damages. Consumer shall make no claims for remuneration for any loss as a result of USC equipment and USC shall reject any and all claims that may arise as stated herein.

4. Other Statements: Manufacturer's employees or representatives' oral or other written statements do not constitute warranties, shall not be relied upon by consumer, and are not a part of the contract for sale or this limited warranty. The USC Warranty Manager is the final decision point for all warranty claims.

5. Return Policy: Approval is required prior to returning goods to Manufacturer irrespective of warranty claim. A restocking fee will apply to all goods that are returned in new, sellable condition. Items returned for warranty that are found to be in new, sellable condition (not failing) will remain the property of the consumer and warranty claim for such items will be denied. The consumer will have the ability to have part returned at the consumer's expense or restocked at 15% restocking fee less any USC paid freight for its return.

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.



DOCUMENT REVIEW RECORD	
DATE	BY
04-20	BT
01-21	BT

**USC LLC**

2320 124th Road

Sabetha, KS 66534

PHONE: (785) 431-7900

FAX: (785) 431-7950

EMAIL: sales-team@uscllc.com

WEB: www.uscllc.com

