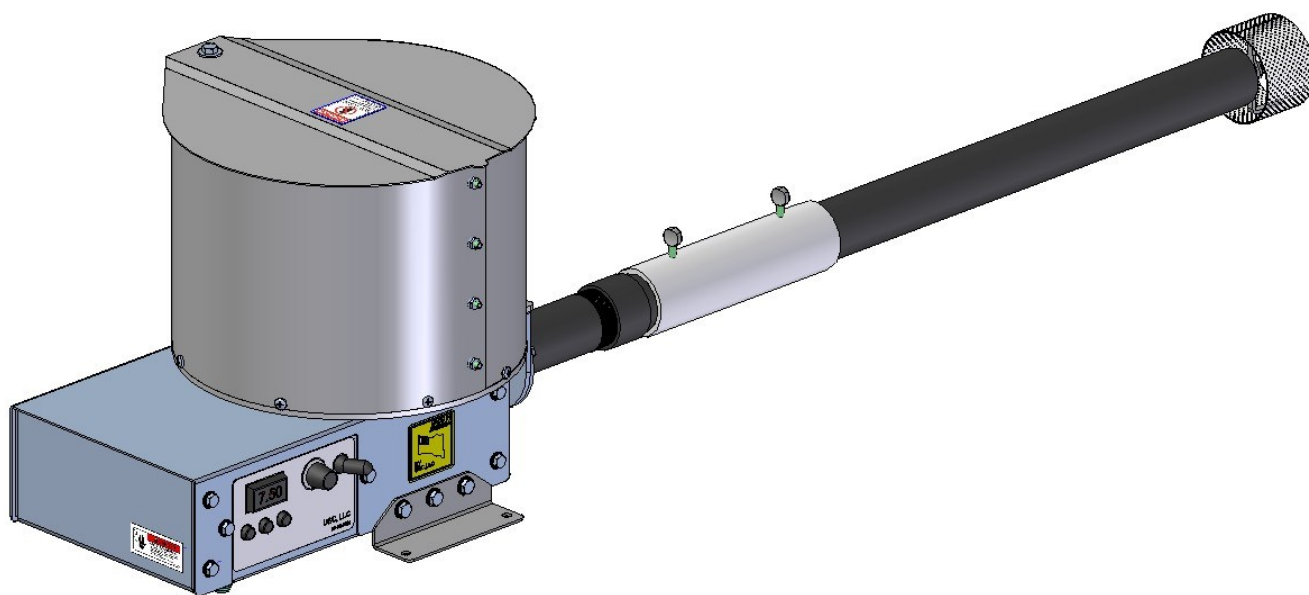


# MANUAL DRY ADDITIVE FEEDER

## **Operators Manual**



**Document: TD-09-06-1057**

**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 Dry Additive Feeder. 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.

### **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.

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

### 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 back side of the unit.



*Serial  
Number*

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

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# 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 tag-out 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.”

## **HAZARD REVIEW**



### **Electrocution Hazard**

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



### **Automatic Start Hazard**

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

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

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

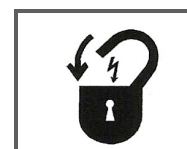
- Equipment owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually thereafter per OSHA (Occupational Safety and Health Administration) regulation 1928.57.
- The most important safety device on this equipment is a **SAFE** operator.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

### **GENERAL SAFETY**

1. Read and understand the operator's manual and all safety labels before operating, maintaining, adjusting or unplugging the equipment .
2. Only trained persons shall operate the equipment . An untrained operator is not qualified to operate the machine.
3. Have a first-aid kit available for use should the need arise, and know how to use it.



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



### **OPERATING SAFETY:**

1. Read and understand the operator's manual and all safety labels before using.
2. Disconnect and disable electrical supply completely and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Clear the area of bystanders, especially children, before starting.
4. Be familiar with the machine hazard area. If anyone enters hazard area, shut down machine immediately. Clear the area before restarting.
5. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
6. Stay away from overhead obstructions and power lines during operation and transporting. 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. 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 label should also display the current label.
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.



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

Think **SAFETY!** Work **SAFELY!**

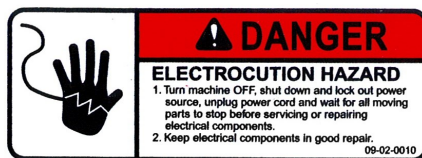
REMEMBER—If Safety Labels have been damaged, removed, become illegible, or parts replaced without safety labels, new labels must be applied. New safety labels are available from USC at (785) 431-7900.



Part # 09-02-0009



Part # 09-02-0022



Part # 09-02-0010

# INSTALLATION

## SECTION 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.



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



**DO NOT** modify any part of the Dry Additive Feeder, including the auger tube or add any mechanical device to attempt to change the way the product discharges from the end of the tube. This could pack the product tighter and change the flow rate of the product being added. It could also increase the pressure on the mechanical components of the drive assembly causing it to fail.

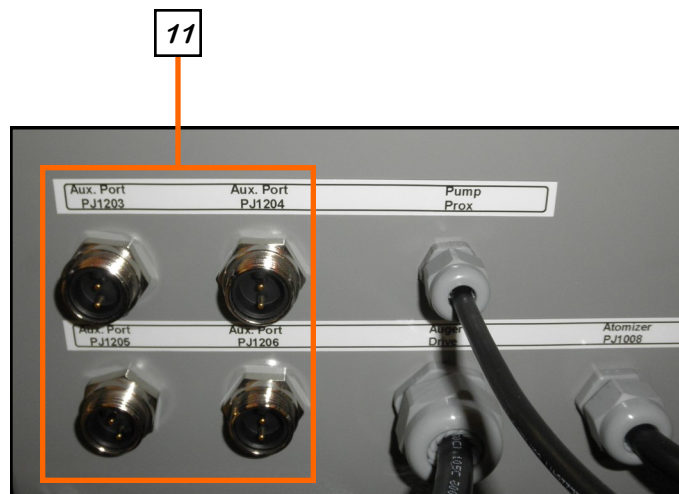
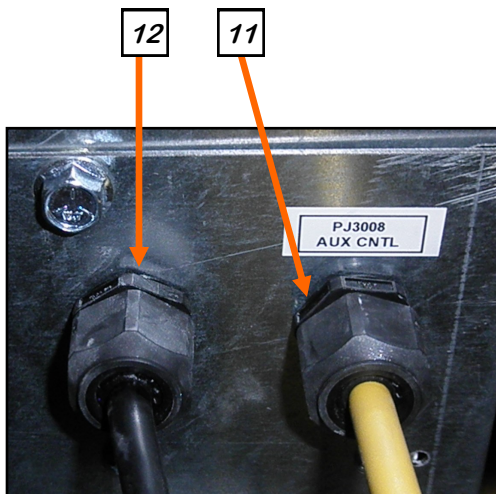
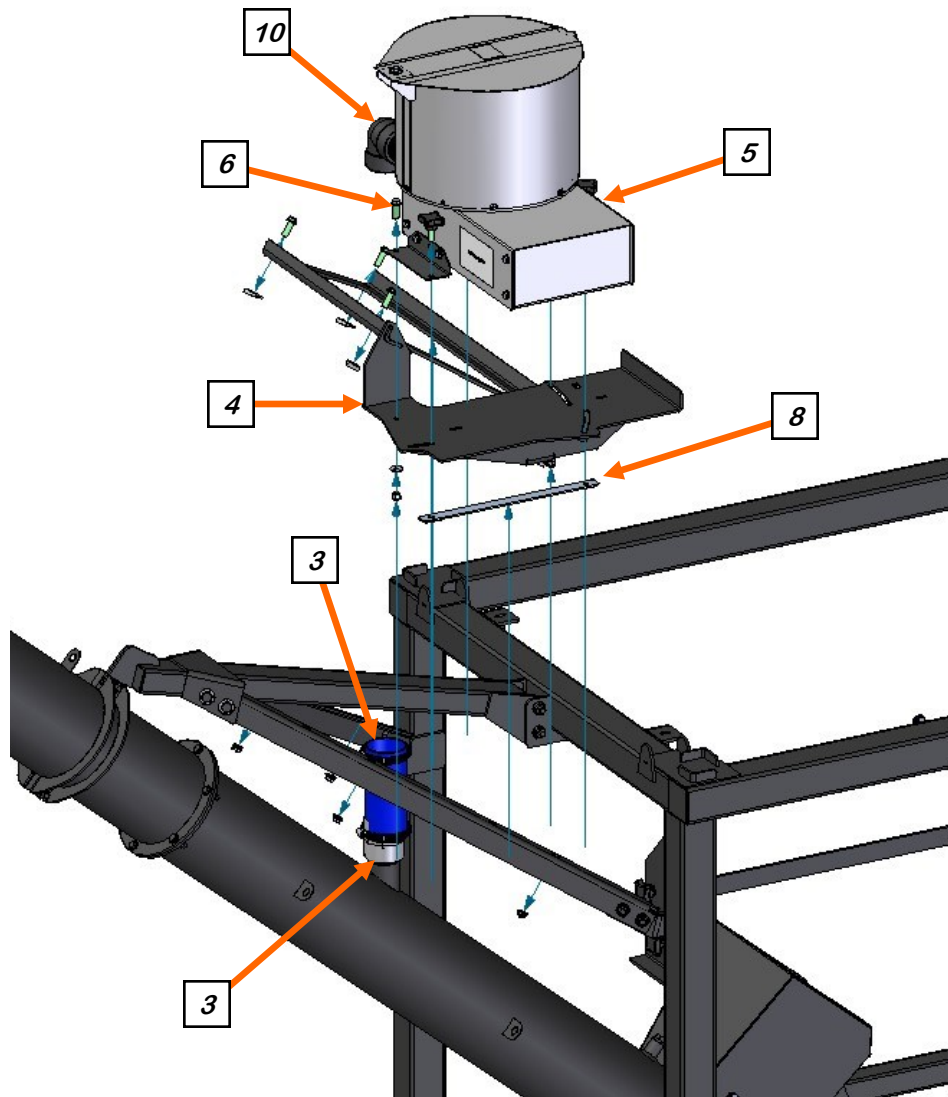
**DO NOT** leave product in the Dry Additive Feeder for extended periods of time as moisture could be absorbed causing the product to solidify. When the machine is started and the drive assembly is bound and unable to move, it will fail.

Failures caused by these actions will not be covered under the factory warranty (see page 49).

**INSTALL ON AT500H TREATER**

1. Remove the main assembly and mounting parts from the pallet.
2. Remove the cap from the dry additive feeder access on the auger and replace it with the PVC coupler (02-06-0130).
3. Slide the PVC hose (05-10-4870) over the coupler and secure it with a hose clamp (06-07-0055). Slide the other hose clamp over the hose but do not tighten it.
4. Install the mounting bracket (05-09-0064) to the auger support braces. Slide the bracket down so that the up turned flange on mounting bracket seats firmly against the treater frame. Mount the bracket in the second row of slots from the end. (NOTE: On older model treaters, these holes may need to be drilled.) The bevel washers (06-05-0016) must be between the braces and the bracket with the high side of the washers facing out. Fasten the four .375-16 bolts (06-01-0189) and nuts (06-03-0014).
5. Hold the main assembly in one hand and use the other to guide the 90 degree fitting at the end of the auger into the PVC hose. Set the assembly on the mounting plate so that the inside hole on the left mounting bracket on the assembly lines up with the hole in the plate.
6. Install one .375-16 bolt from the top side, a flat washer (06-05-0004) and lock nut (06-03-0003) from the under side. Tighten the lock nut loose so the assembly can move.
7. Use the same bolt, washer and nut on the opposite side through the inside slot.
8. Hold the nut plate on the underside so the holes are lined up somewhere in both of the outside slots. Attach it with the hand knobs from the top.
9. Move the assembly to a position you are comfortable with and torque down all of the mounting hardware.
10. Slide the hose clamp up the PVC hose and tighten it around the 90 degree fitting.
11. Connect the yellow PJ3008 AUX CNTL cable from the bottom of the assembly to one of the auxiliary connections on the treater control panel.
12. Plug the power cable into any properly grounded 110V outlet.

MANUAL DRY ADDITIVE FEEDER  
**INSTALL ON AT500H TREATER**

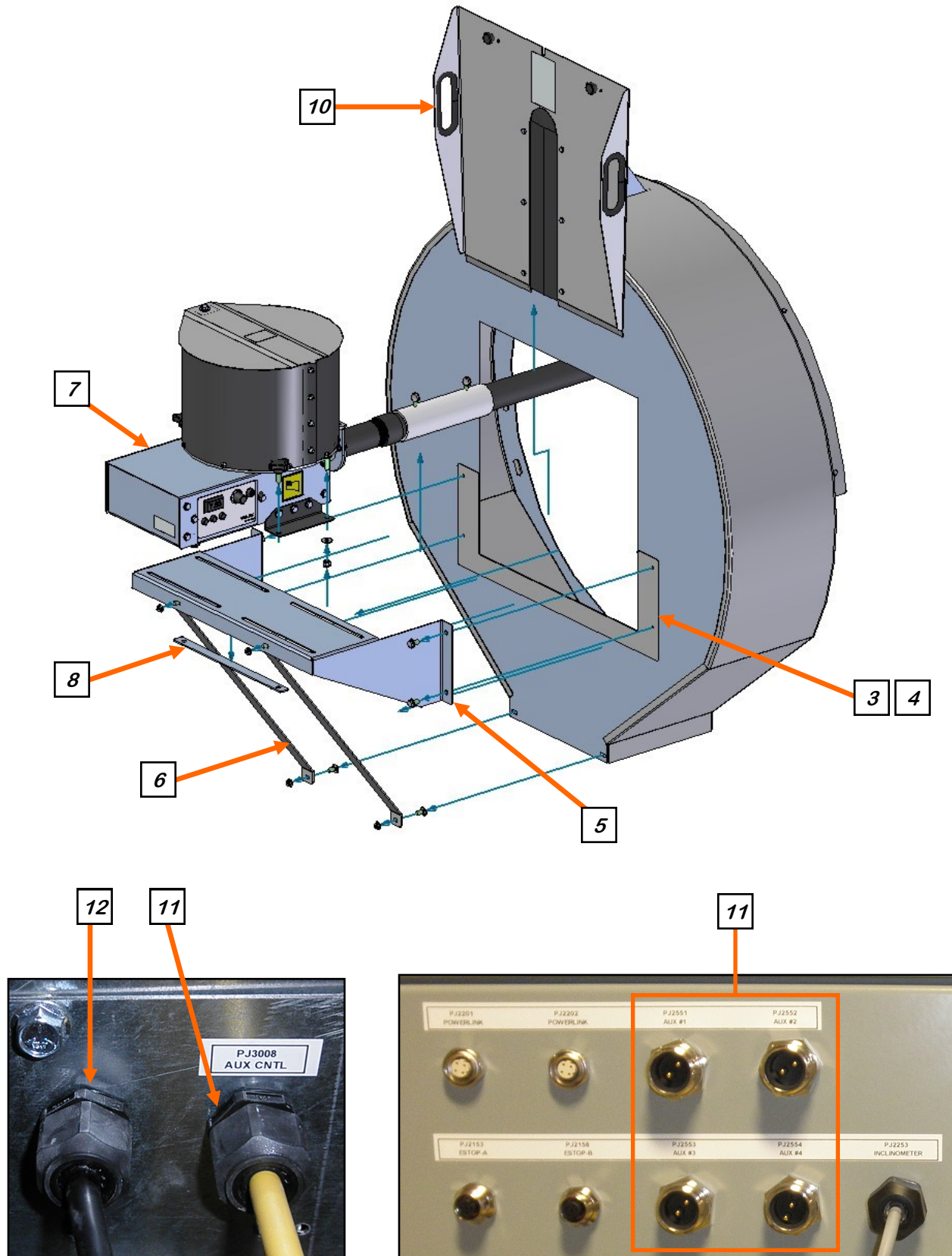


## **INSTALL ON DRUM TREATER**

1. Remove the main assembly and mounting parts from the pallet.
2. Remove the old door from the endcap of the treater.
3. Place the drill template on the endcap opening so it is even with the left, right and bottom edge of the door opening. Clamp in place. Match drill the four .250 diameter holes.
4. Remove the template and drill the four holes out to .437 diameter. Deburr holes.
5. Install the mounting bracket (106E00) onto the end cap using four .375-16 X .75 bolts (06-01-0124) and lock nuts (06-03-0014).
6. **LPV treaters only:** Install the two support braces (106EA2) from the back of the mounting bracket to the bottom of the endcap using four .312-18 Carriage bolts (06-01-0171) on the inside and .312-18 lock nuts (06-03-0019) on the outside.
7. Place the main assembly on the mounting bracket so that the holes on the angle brackets line up with the slots on the mounting bracket. On the holes closest to the treater, install two .375-16 X 1.25 bolts (06-0-0189) from the top side, a .375 flat washers (06-05-0004) and lock nuts (06-03-0003) from the under side. Tighten the lock nuts loose enough to allow the assembly to move.
8. Hold the nut plate (05-09-0063) on the underside so the holes are lined up with the outside holes of the main assembly bracket. Attach it with the hand knobs (06-09-0066) from the top.
9. Move the assembly to a position that has the auger centered in the endcap opening and torque down all of the mounting hardware.
10. Install the new end cap door moving the main assembly if necessary to fit in the middle slot on the door.
11. Connect the yellow PJ3008 AUX CNTL cable from the bottom of the assembly to one of the auxiliary connections on the treater control panel.
12. Plug the power cable into any properly grounded 120V outlet.



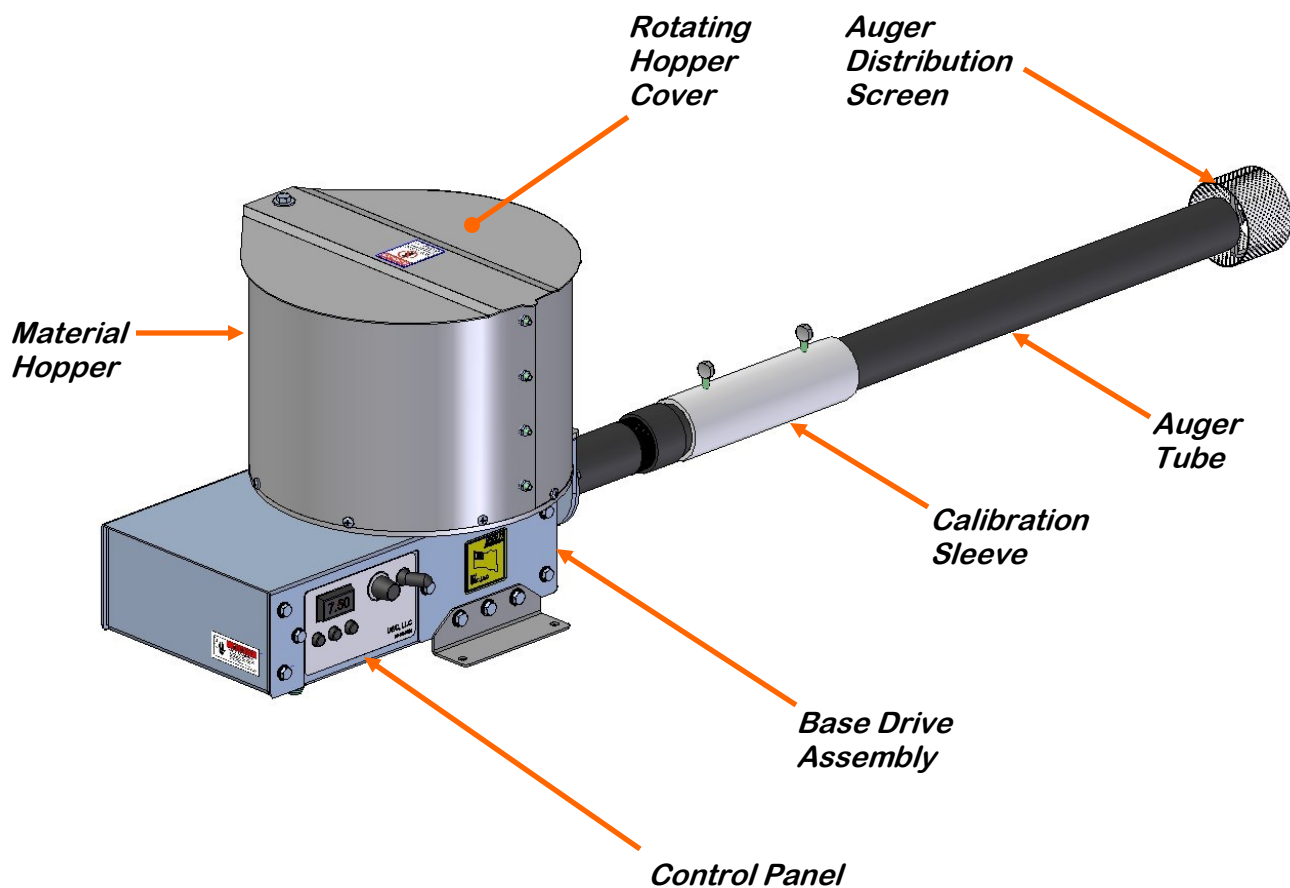
MANUAL DRY ADDITIVE FEEDER  
**INSTALL ON DRUM TREATER**



SECTION  
C

# MECHANICAL OPERATION

## MANUAL DRY ADDITIVE FEEDER OVERVIEW



# ELECTRICAL OPERATION

## SECTION D



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



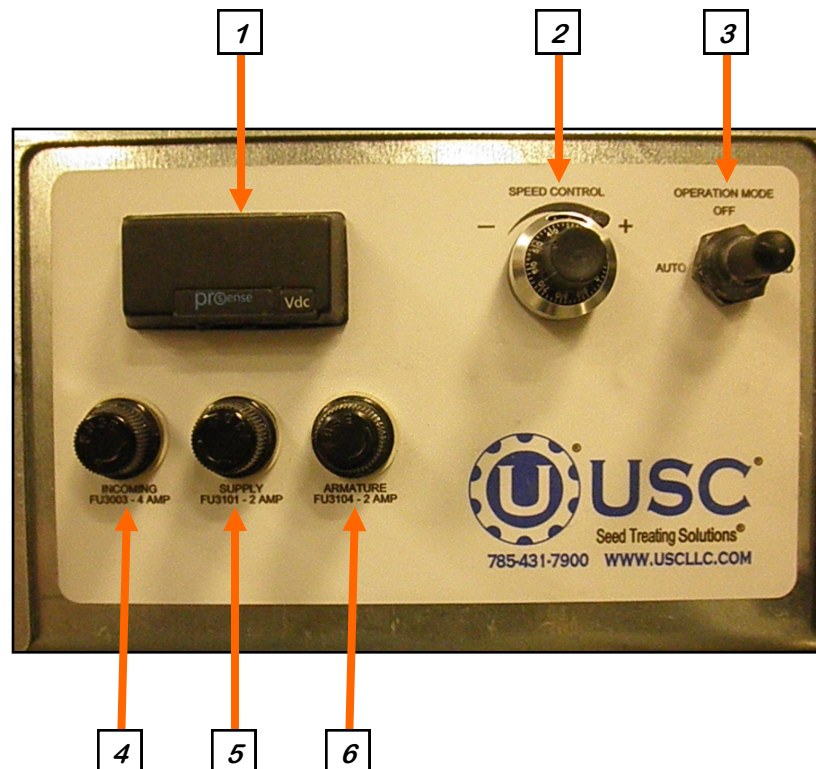
**HIGH VOLTAGE ~** Use insulated tools when making adjustments while the controls are under power.



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 panels.

### DRY ADDITIVE FEEDER CONTROL PANEL

This section provides a general overview and description of the operator control panel for the Dry Additive Feeder. The Dry Additive Feeder panel is attached to the side of the feeder and contains the electrical components required to actuate the feeder. This includes the VFD for the motor that runs the auger. Power to this panel is supplied from a standard 120V plug.



**DRY ADDITIVE FEEDER CONTROL PANEL**

**1. SPEED CONTROL VOLTAGE DISPLAY:** This displays the RPM of the feeder auger.

**2. SPEED CONTROL POTENTIOMETER:** This dial controls the speed of the feeder auger and agitation paddles. As you turn the dial clockwise, the drive motor speed increases and the feeder screen rpm display increases as well.

**3. HAND / OFF / AUTO SWITCH:** When this switch is turned to HAND, the feeder will operate in the manual mode of operation. This will run continuously until the switch is returned to the OFF position. When the switch is turned to AUTO, the feeder will operate in the automated mode of operation. The feeder will only work in AUTO mode when the two wire cable from the feeder control panel (PJ3008) is connected to an auxiliary port connector on the treater control panel.

**4. INCOMING 120V POWER FUSE:** This is a 4 Amp fuse for the incoming 120 volt power.

**5. DC CONTROLLER POWER FUSE:** This 2 Amp fuse for the DC controller board.

**6. AUGER MOTOR POWER FUSE:** This is a 2 Amp fuse for the auger motor.

# CALIBRATION

## SECTION E

Calibration of both the seed flow and dry portions of the equipment is necessary for accurate treatment of seed.

### NOTICE

If you prefer metric measurements, please refer to the conversion chart on page 24.

### DRY PRODUCT CALIBRATION

When calibrating the dry product, a small scale, a stop watch, and a measuring cup or bucket will be needed.

1. Calibrate the seed flow of the seed treater before calibrating the Dry Additive Feeder. Seed flow calibrations should be done with at least 40 units or 2000 lbs of seed.
2. Fill the supply hopper with the dry product being applied.
3. Position the auger:

**AT500 version:** Loosen the hose clamp on the 90 degree fitting at the end of the auger and let it slide down. Loosen the mounting hardware and knobs of the main assembly. Push the auger fitting toward the treater and pull the back of the feeder so the auger rotates as far as the slots will allow. Snug down knobs.

**Drum Treater version:** Remove the end cap door. Loosen the mounting hardware and knobs of the main assembly. Push the assembly to one side or the other to gain better access to the auger tube inside the treater. Snug down knobs. Loosen the thumb screws and slide the calibration sleeve forward far enough so the entire slot on the underside of the tube is clear of the sleeve.

4. Place a measuring cup where the product will be flowing out of the tube.
5. Move the locking mechanism on the speed control dial to the left allowing you to change the setting. Once a setting has been selected, move it to the right to lock it down. Set the Speed Control dial to approximately 3/4 speed or 875 on the speed control dial and place the HAND / OFF / AUTO switch in the HAND position.
6. Use the measuring cup to catch the product as it empties out the tube. Continue running the auger until there is a consistent stream of product coming out. Then turn the HAND / OFF / AUTO switch to OFF.
7. Empty the product back into the hopper.

MANUAL DRY ADDITIVE FEEDER

**DRY PRODUCT CALIBRATION**

8. Determine the number of ounces needed in one minute.

**EXAMPLE:**

The product rate is 4 ounces per cwt. The Seed Flow Rate = 1250 lbs per minute or 12.50 cwt./min.  $12.50 \text{ cwt./min} \times 4 \text{ oz. product/cwt.} = 50 \text{ oz./min.}$  50 oz. is the rate the auger should be applying in one minute.

9. Set the Auger speed. The potentiometer has 1000 increments of adjustment. When the dial is set at 0, the motor is running at 10 volts. When the dial is set at 1000, the motor is running at 90 volts. This means one volt is approximately 12.5 increments on the dial. Use the table on page 23 to determine a good starting point for the calibration

**EXAMPLE:**

The ounces needed in one minute = 50 oz/min. Assuming the density of the product being used is 40 pounds per cubic foot. A good starting point would be approximately 42 volts or 525 on the dial. The display on the control panel will indicate the motor voltage.

10. Place the measuring cup on the scale and zero the weight of the cup.
11. Place the measuring cup to catch the product. For the AT500 version, that will be at the end of the 12 inch auger. For the drum treater version, that will be under the calibration opening under the 48 inch tube. Place the HAND / OFF / AUTO switch in the HAND position. As soon as product begins flowing into the cup, use the stop watch to begin timing for one minute. As soon as one minute is reached, turn the HAND / OFF / AUTO switch in the OFF position.
12. Place the cup of product on the scale to measure the amount of product that was dispensed in one minute. If the rate different than what is desired, adjust the Speed Control potentiometer accordingly until the desired application rate is achieved.

**NOTICE**

The instructions for setting the auger speed in step nine are an approximation. The density of the products you are applying will vary and the example is intended to find a good starting point for calibration. Write down all of the results from each calibration attempt with each product and you will quickly develop a specific voltage setting for each of the products and their desired flow rates.



MANUAL DRY ADDITIVE FEEDER  
**DRY PRODUCT CALIBRATION**

Ounces per Minute																	
Pounds per Cu- bic Foot	Volts																
	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
10	0	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32
15	0	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48
20	1	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60	63
25	1	5	10	15	20	25	30	35	40	45	50	55	59	64	69	74	79
30	1	6	12	18	24	30	36	42	48	54	59	65	71	77	83	89	95
35	1	7	14	21	28	35	42	49	56	63	69	76	83	90	97	104	111
40	1	8	16	24	32	40	48	56	63	71	79	87	95	103	111	119	127
45	1	9	18	27	36	45	54	63	71	80	89	98	107	116	125	134	143
50	2	10	20	30	40	50	59	69	79	89	99	109	119	129	139	149	159
55	2	11	22	33	44	55	65	76	87	98	109	120	131	142	153	164	174
60	2	12	24	36	48	60	71	83	95	107	119	131	143	155	167	179	190
65	2	13	26	39	52	65	77	90	103	116	129	142	155	168	180	193	206
70	2	14	28	42	56	69	83	97	111	125	139	153	167	181	194	208	222
75	2	15	30	45	59	74	89	104	119	134	149	164	178	193	208	223	238
80	3	16	32	48	63	79	95	111	127	143	159	175	190	206	222	238	254
85	3	17	34	51	67	84	101	118	135	152	169	185	202	219	236	253	270
90	3	18	36	54	71	89	107	125	143	161	178	196	214	232	250	268	285
95	3	19	38	57	75	94	113	132	151	170	188	207	226	245	264	283	301
100	3	20	40	60	79	99	119	139	159	179	198	218	238	258	278	298	317

## **DRY PRODUCT APPLICATION**

1. Calibrate the Dry Additive Feeder for the product you intent to apply.
2. Set the HAND / OFF / AUTO switch to AUTO.
3. Begin feeding seed into the seed treater. If you are using the AUTO function, the proximity switch in the seed treater will start the Dry Additive Feeder automatically once it detects seed. If you are not using the AUTO function, place the HAND / OFF / AUTO switch in the HAND position as soon as seed begins to land in the seed treating drum.
4. If you are using the AUTO function, when all seed has passed by the proximity switch in the treater and it no longer detects seed, the Dry Additive Feeder will automatically shut off. If you are not using the AUTO function, you will need to turn the HAND / OFF / AUTO switch in the OFF position.

### **Conversion Chart**

**1 ounce = 29.58 milliliters**

**1 gallon = 3.79 liters**

**1 kilogram = 2.2 pounds**

**1 unit = 50 lbs or 22.73 kg**

**1 bushel = approx. 60 lbs or 27.27 kg**

**1 cwt = 100 lbs or 45.45 kg**

# TROUBLESHOOTING

## SECTION F

Below is a table describing the most frequent mechanical problems and solutions with the USC Dry Additive Feeder. For further assistance, contact USC at (785) 431-7900.

Problem	Possible Cause	Solution
Dry Additive Feeder will not turn on in AUTO	<ol style="list-style-type: none"> <li>1. Proximity Switch in treater is not detecting seed.</li> <li>2. Proximity switch in treater is not sensitive enough.</li> <li>3. Atomizer is not running.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean proximity switch.</li> <li>2. Adjust proximity switch clockwise to make more Sensitive (see page 26).</li> <li>3. Turn on atomizer.</li> </ol>
Dry Additive Feeder will not turn off in AUTO when seed runs out.	<ol style="list-style-type: none"> <li>1. Proximity Switch in treater is still detecting seed after run. Switch is dirty.</li> <li>2. Proximity Switch is too sensitive.</li> </ol>	<ol style="list-style-type: none"> <li>1. Clean proximity Switch</li> <li>2. Adjust proximity switch counter-clockwise to make less Sensitive (see page 26).</li> </ol>
Feeder Rate is Fluctuating.	<ol style="list-style-type: none"> <li>1. Product is not feeding into auger.</li> <li>2. Stir arm is not rotating properly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check to see if product is feeding into the auger.</li> <li>2. Check tightness on fastener.</li> </ol>
48 Inch Auger will not turn.	<ol style="list-style-type: none"> <li>1. Product is binding in the tube.</li> </ol>	<ol style="list-style-type: none"> <li>1. Slide the calibration sleeve to expose the opening on the bottom of the tube. Dislodge any bound material and run to clear tube. If this does not remove the clog, disassemble auger and remove material.</li> </ol>
12 Inch Auger will not turn.	<ol style="list-style-type: none"> <li>1. Product is binding in the tube.</li> </ol>	<ol style="list-style-type: none"> <li>1. Disassemble auger and remove material.</li> </ol>

## **PROXIMITY SWITCH ADJUSTMENT GUIDE**

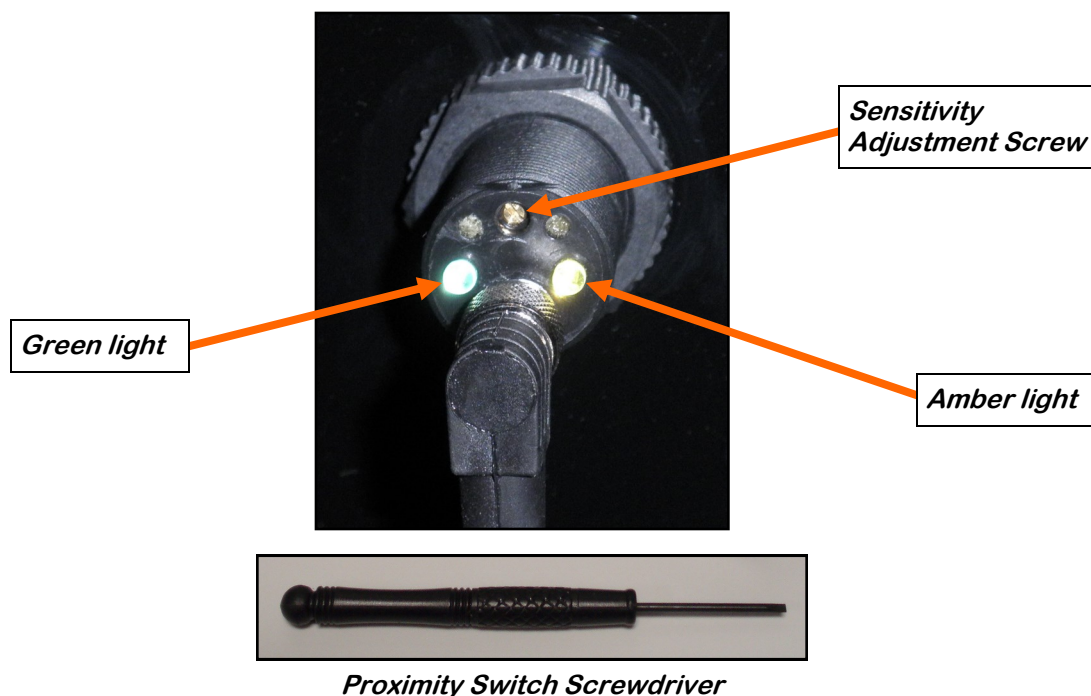
If the proximity switch is not working properly, this can be caused by wear, dust, or even moisture. The first step is to clean the lens of the proximity switch. If this does not solve the problem, the next step would be to adjust the sensitivity of the proximity switch.

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 Dry Additive Feeder 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.

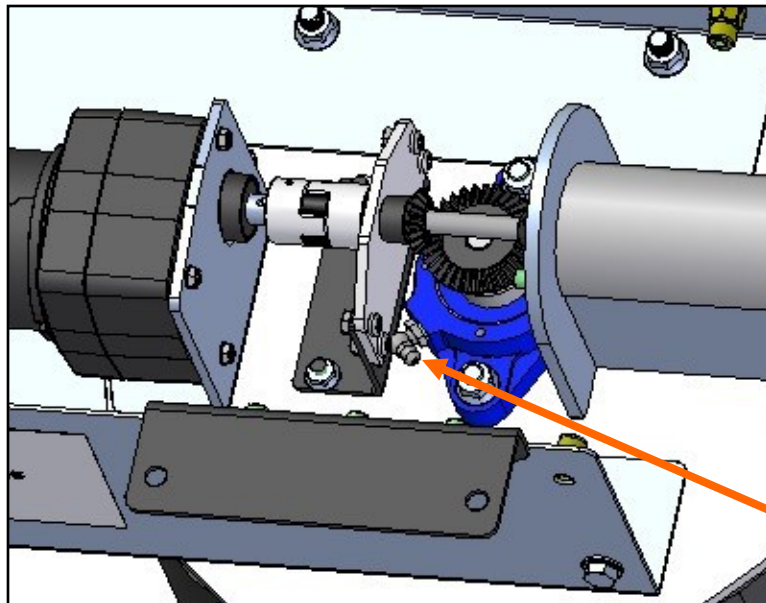
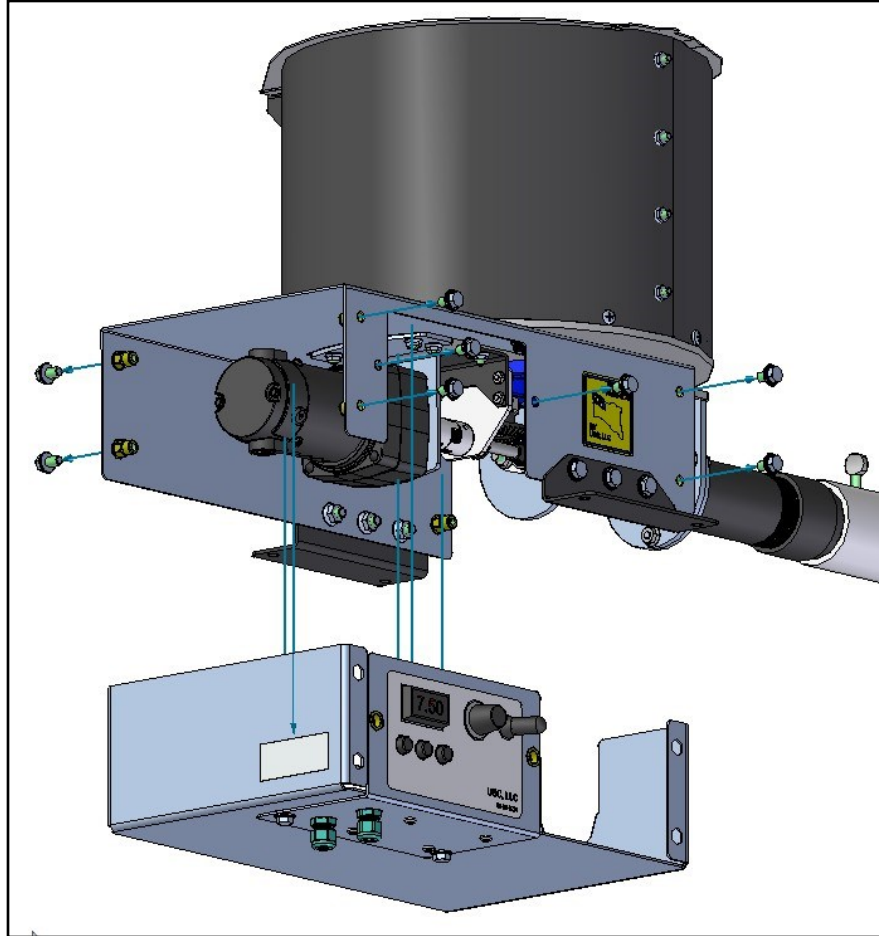
### **NOTICE**

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

### BEARING

1. Support the bottom half of the assembly. Remove the ten .312 X 18 bolts holding it together and slowly lower it until you can reach in to the back of the control panel. Remove the three motor wires from the quick disconnect connections on the panel and set it aside (see page 28, top).
2. Inspect the pillow block bearing and grease once a year at the end of the treating season or when storing the machine after cleaning (see page 28, bottom).

**BEARING**



*90 Degree  
Grease Fitting*



### **SUPPLY HOPPER**

1. Periodically clean out any build up of dry material in the hopper.
  2. Check the stir arm for wear, breaks or loose fastener.
  3. Check auger for wear or breaks.
- 

### **ELECTRICAL PANEL**

1. Check quick connects on end of Auxiliary cord.
2. Check and tighten wire connections.
3. Check the fuses.
4. Check power cords for cuts or frays and ensure ground is present.

**SECTION  
H****STORAGE**

When storing the Dry Additive Feeder for long periods of time, the following procedure must be followed to reduce the chance of rust, corrosion and fatigue of the equipment. 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.

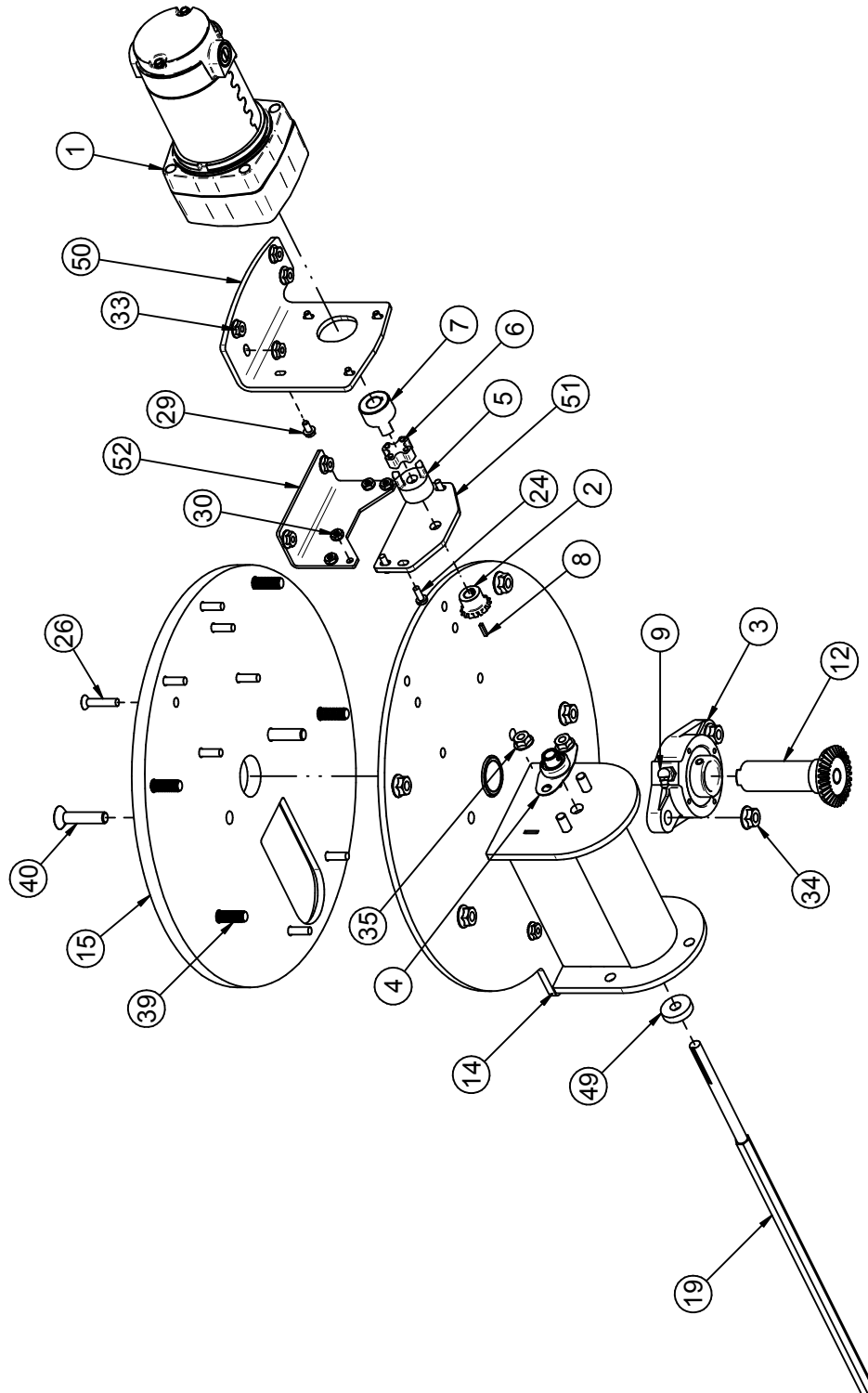
1. Disconnect power to the machine.
2. Remove auger tube and clean the auger (compressed air may be used). Then reinstall the auger tube.
3. Clean out the supply hopper of any debris (compressed air may be used).
4. After the machine is thoroughly cleaned, grease the bearing as directed in the maintenance section.
5. Store the machine inside a protective building to keep it from being exposed to the weather.
6. Cover the Dry Additive Feeder with a tarpaulin to keep dust and dirt out of the machine.

**NOTES:**

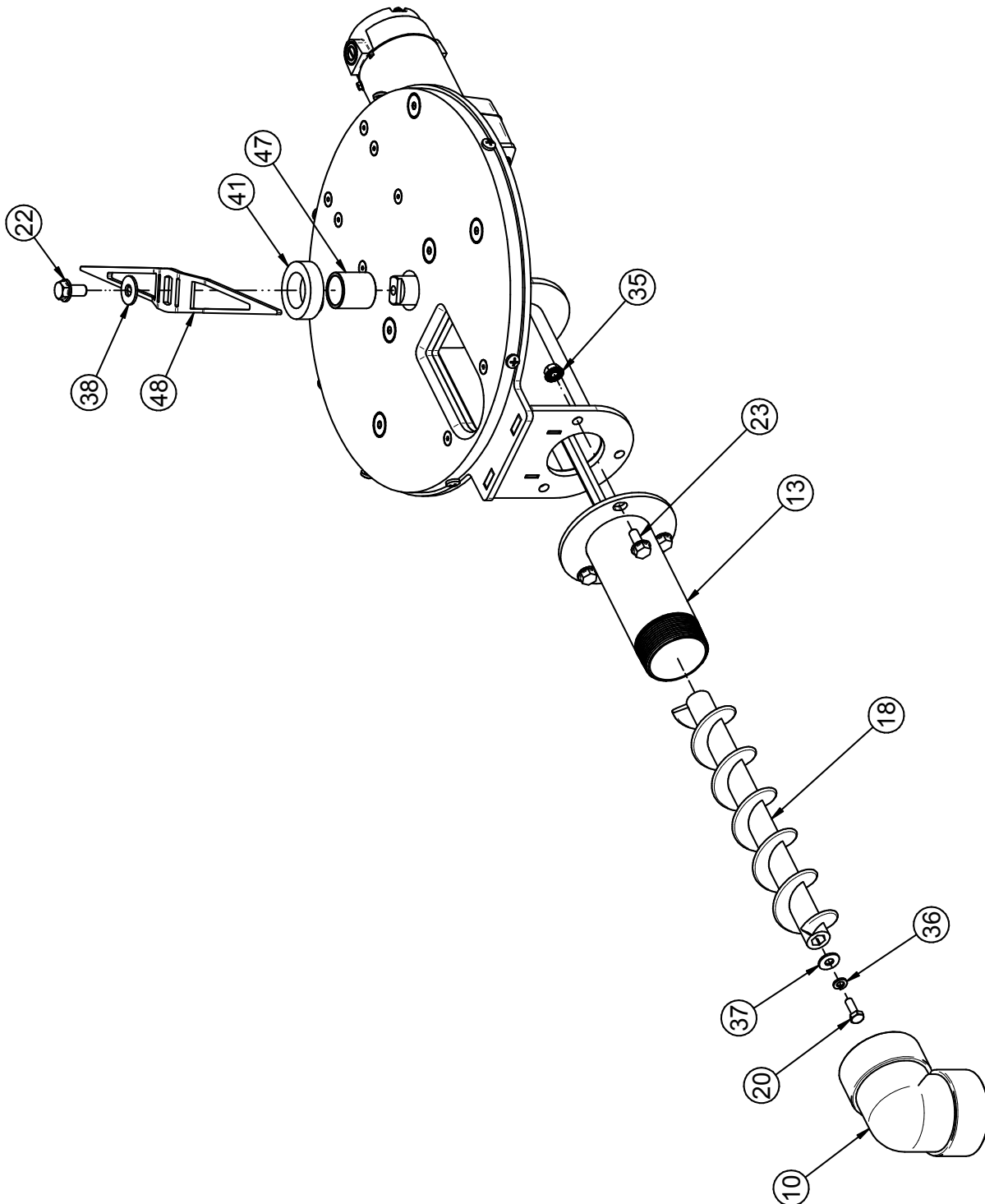
SECTION  
I

# MECHANICAL DRAWINGS

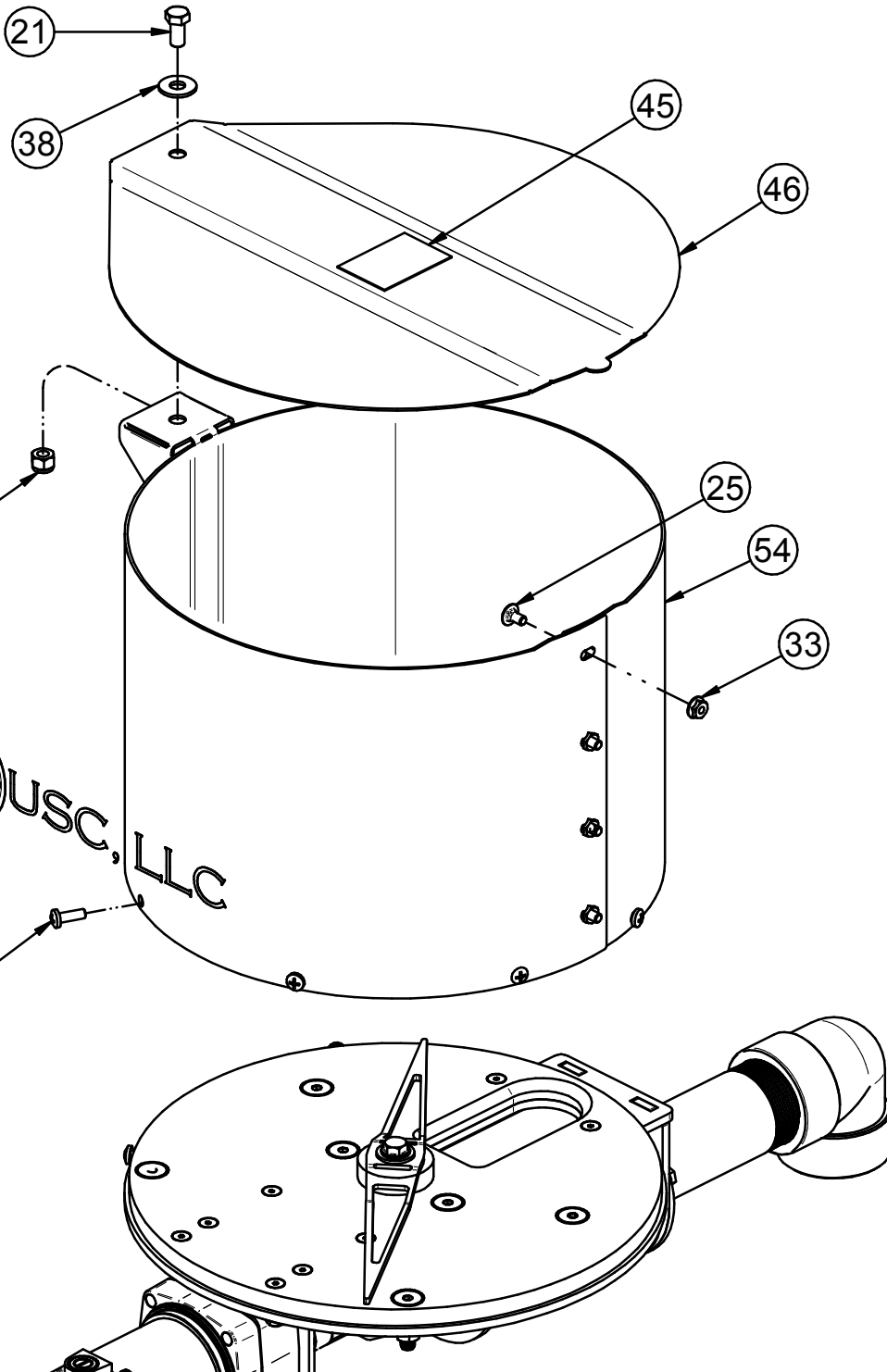
## 12 INCH AUGER ASSEMBLY (13-05-0855)



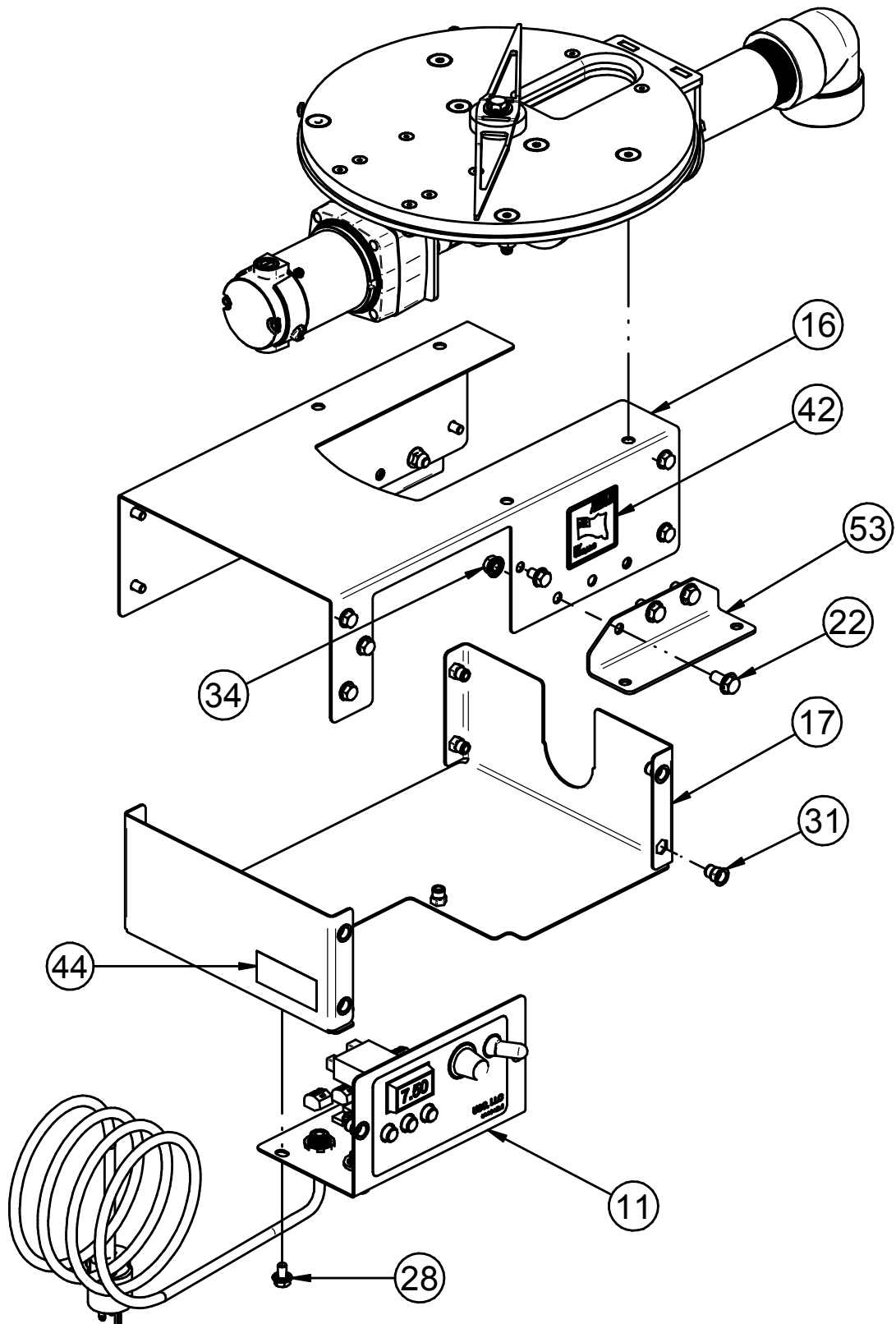
MANUAL DRY ADDITIVE FEEDER  
**12 INCH AUGER ASSEMBLY (13-05-0855)**



## MANUAL DRY ADDITIVE FEEDER



MANUAL DRY ADDITIVE FEEDER  
**12 INCH AUGER ASSEMBLY (13-05-0855)**





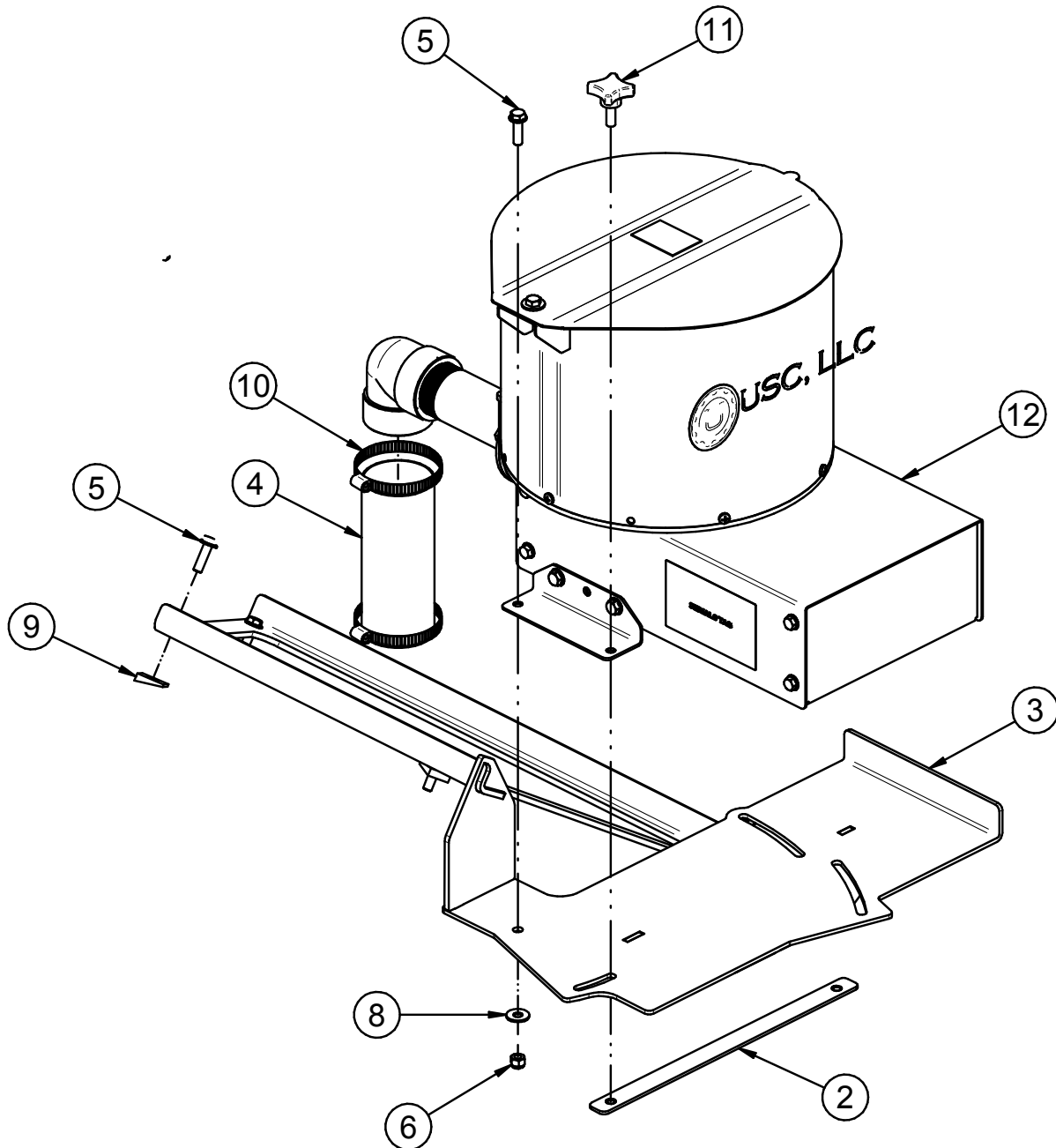
**12 INCH AUGER ASSEMBLY (13-05-0855)**

Item #	Part #	Description	Qty
1	01-01-0294	GMTR .06HP 90V 100 RPM	1
2	01-02-0159	GEAR MITER 16T .375 BORE	1
3	01-03-0003	BRG FLG MNT 1.000ID 2BOLT	1
4	01-03-0089	BRG FLG LOW PRO .375	1
5	01-07-0054	COUPLER LOVEJOY FLEX .375 BORE	1
6	01-07-0056	CPLG SPDR NBR L050	1
7	01-07-0057	COUPLER LOVEJOY FLEX .50 BORE	1
8	01-10-0020	KEY 3/32 X .50 CS	2
9	01-11-0004	FTTG GRS 90 DEG .125 PTF ML	1
10	02-06-0127	FTTG 90 DEG 2.0 FNPT BLK PLASTIC	1
11	03-12-0604	ASSY PNL DAF AT500/DRUM MOUNT 120V	1
12	05-09-0058	WDMT GEAR DAF	1
13	05-09-0059	WDMT TUBE DISCHARGE	1
14	05-09-0060	WDMT DAF BASE	1
15	05-10-4848	PLT DAF BASE	1
16	05-10-4849	DAF MTR BOX	1
17	05-10-4850	CVR BOTTOM	1
18	05-11-0566	AUGER SGMT END 2.0 OD HDPE	1
19	05-11-0567	SHAFT DAF 12IN SGMT	1
20	06-01-0006	BOLT, .250-20 X .75 UNC ZP GRADE 5	1
21	06-01-0015	BOLT .375-16 X 0.75 ZP GR5	1
22	06-01-0124	BOLT FLG .375-16 X .750 ZP GR5	7
23	06-01-0138	BOLT FLG .3125-18 X .750 ZP GR5	3
24	06-01-0140	SCRW MACH 10-32 X .500 ZP PHLP RND	4
25	06-01-0150	BOLT, CARRIAGE, .250-20x.50 G5 ZP	4
26	06-01-0155	SCRW MACH .250-20 X 1.25 SH FLHD	8
27	06-01-0215	SCRW MACH #14 X .750 SS PLASTITE	9
28	06-01-0261	BOLT FLG .3125-18 X .500 ZP GR5	12
29	06-01-0386	SCRW MACH 10-32 X .375 HEX HD	4
30	06-02-0030	NUT KLOCK 10-32 ZP	4
31	06-02-0092	RIVETNUT .312-18 ZP	10
32	06-03-0003	NUT NYL LOCK .375-16 ZP GR5	1
33	06-03-0013	NUT,LOCK, FLG .250-20 ZP SERRATTED	12
34	06-03-0014	NUT LOCK FLG .375-16 ZP GR5	12
35	06-03-0019	NUT LOCK FLG .3125-18 ZP GR5	5

**12 INCH AUGER ASSEMBLY (13-05-0855)**

Item #	Part #	Description	Qty
36	06-04-0001	WSHR LOCK SPLT .250 ZP	1
37	06-05-0001	WASHER, FLAT .250	1
38	06-05-0004	WSHR FLAT .375 ZP	2
39	06-06-0070	SCRW MACH .375-16 X 1.50 SH FLHD BO	4
40	06-06-0071	SCRW MACH .375-16 X 1.750 SH FLHD BO	2
41	06-10-0081	WASHER FELT 1.0ID X 2.0OD X .50 THICK	1
42	09-01-0003	ATWK LBL MADE IN USA YEL 2.50X2.50	1
43	09-01-0042	ATWL LBL USC, LLC 3" X 15" PRO-CUT	1
44	09-02-0010	ATWK LBL DANGER ELECTROCUTION	1
45	09-02-0022	ATWK LBL DANGER AUTO START	1
46	106A79	HOPPER LID	1
47	106D93	SPACER SHAFT STACK	1
48	106D94	STIR ARM	1
49	106D9D	WASHER AUGER UHMW	1
50	106D9E	PLT MTR MNT	1
51	106E0A	BRG MNT UHMW	1
52	106E0C	PLT BRG MNT	1
53	106E63	DAF MNT PLT	2
54	106E64	HOPPER ROLLED DAF	1

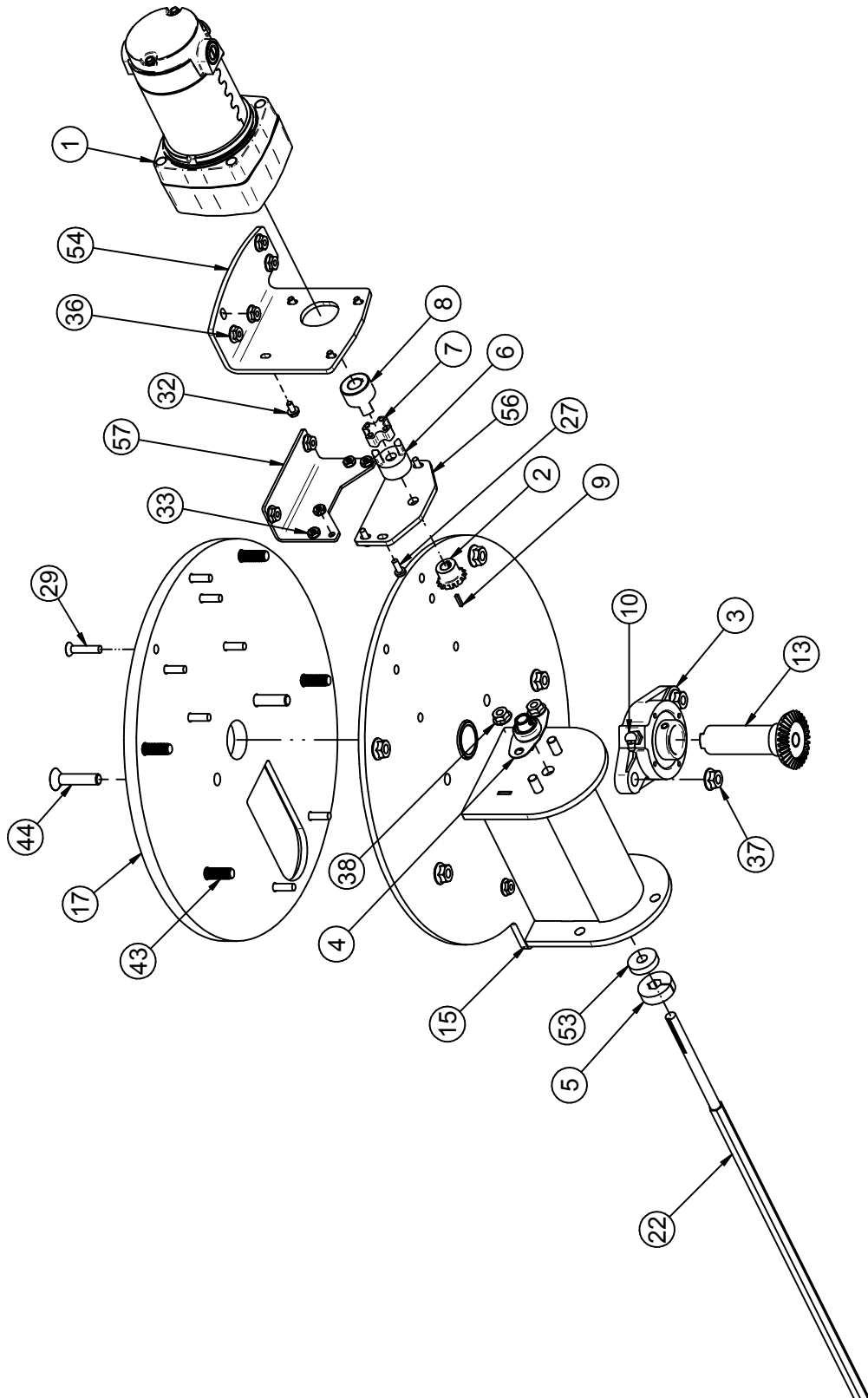
**AT500H AUGER MOUNTED 12 INCH AUGER ASSEMBLY (13-05-0858)**



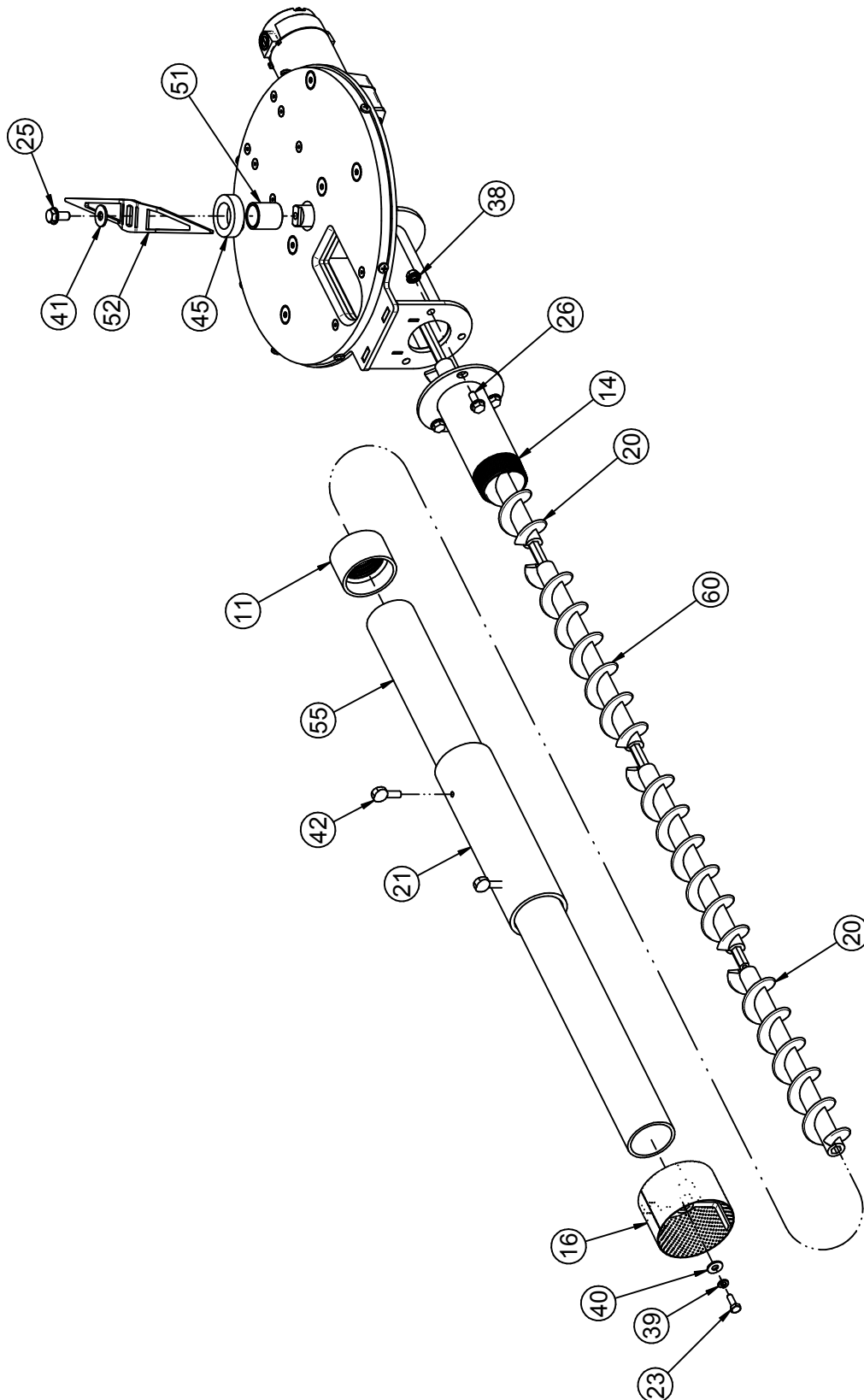
**AT500H AUGER MOUNTED 12 INCH AUGER ASSEMBLY (13-05-0858)**

Item #	Part #	Description	Qty
1	02-06-0130	FTTG COUPLING PVC 2IN NPT	1
2	05-09-0063	WDMT NUT PLT	1
3	05-09-0064	WDMT DAF MNT AT500	1
4	05-10-4870	HOSE PVC 3.00ID X 7.50L DSCHG	1
5	06-01-0189	BOLT FLG .375-16 X 1.250 ZP GR5	6
6	06-03-0003	NUT NYL LOCK .375-16 ZP GR5	2
7	06-03-0014	NUT LOCK FLG .375-16 ZP GR5	4
8	06-05-0004	WSHR FLAT .375 ZP	2
9	06-05-0016	WSHR BEVEL .500	4
10	06-07-0055	CLMP HOSE 3.312 TO 4.250 X .500W ZP	2
11	06-09-0066	KNOB .375 -16 X 1. 4 LUG PLASTIC	2
12	13-05-0855	ASSY DAF W/12IN AUGER	1

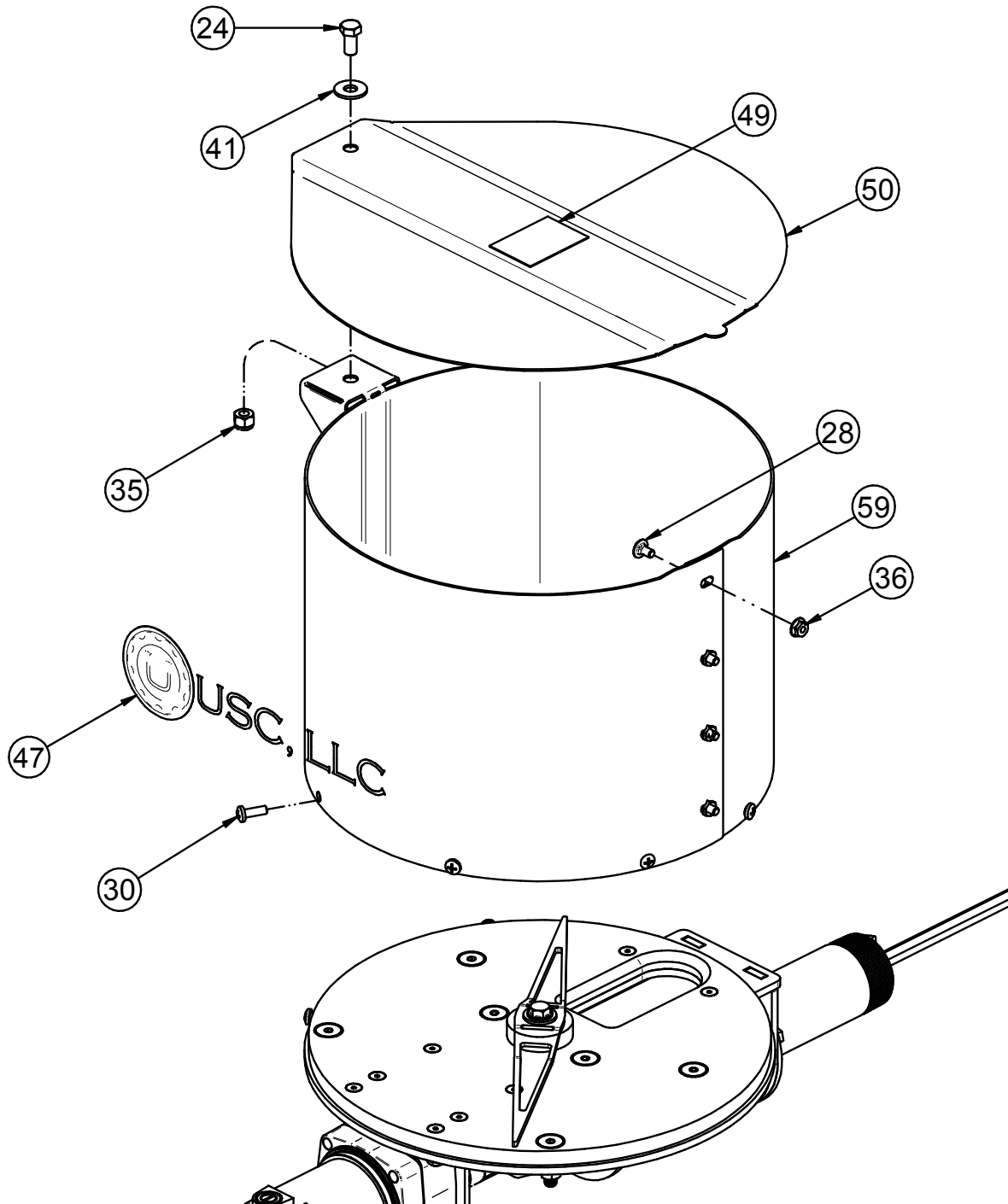
**48 INCH AUGER ASSEMBLY (13-05-0856)**



MANUAL DRY ADDITIVE FEEDER  
**48 INCH AUGER ASSEMBLY (13-05-0856)**

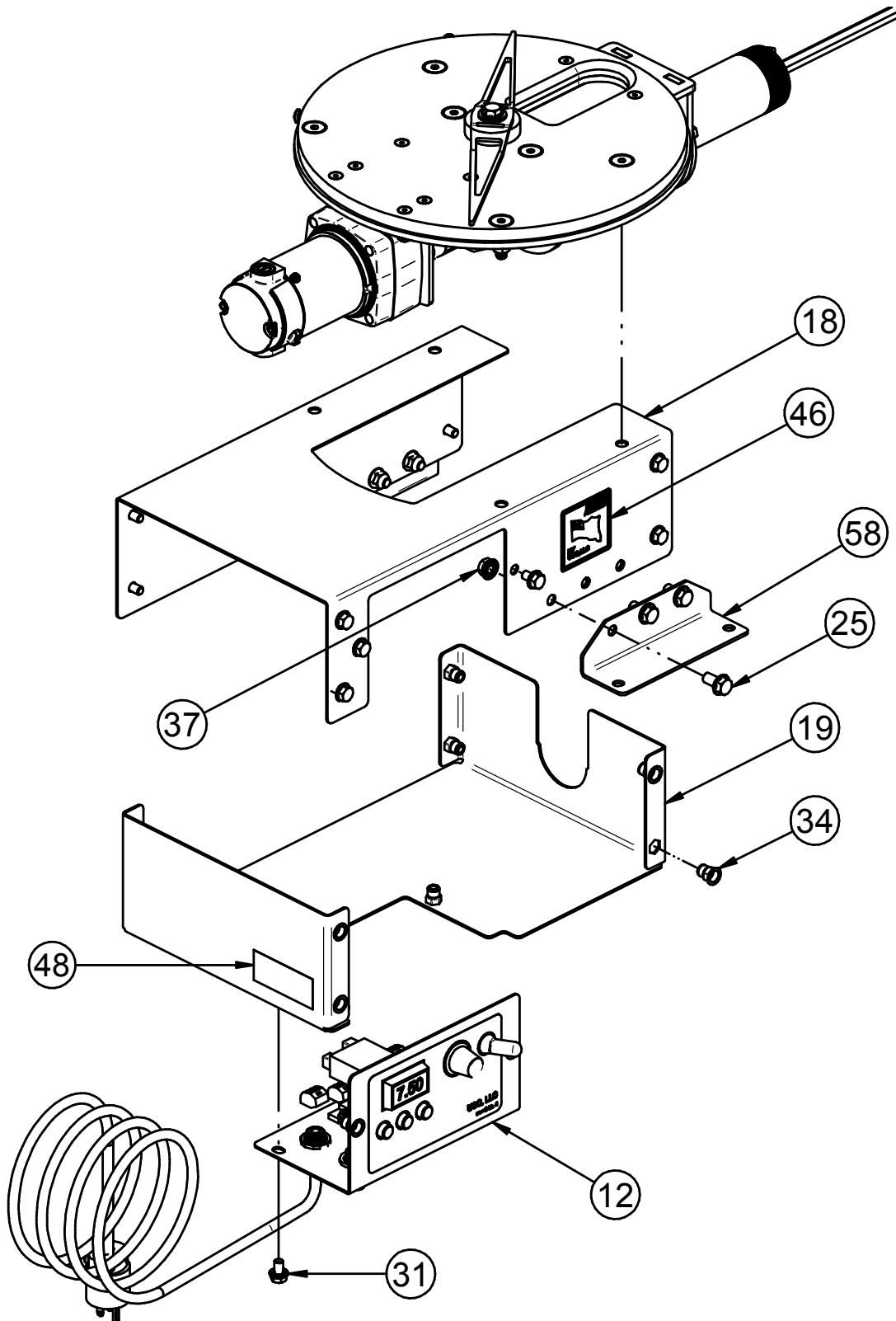


MANUAL DRY ADDITIVE FEEDER  
**48 INCH AUGER ASSEMBLY (13-05-0856)**





MANUAL DRY ADDITIVE FEEDER  
**48 INCH AUGER ASSEMBLY (13-05-0856)**



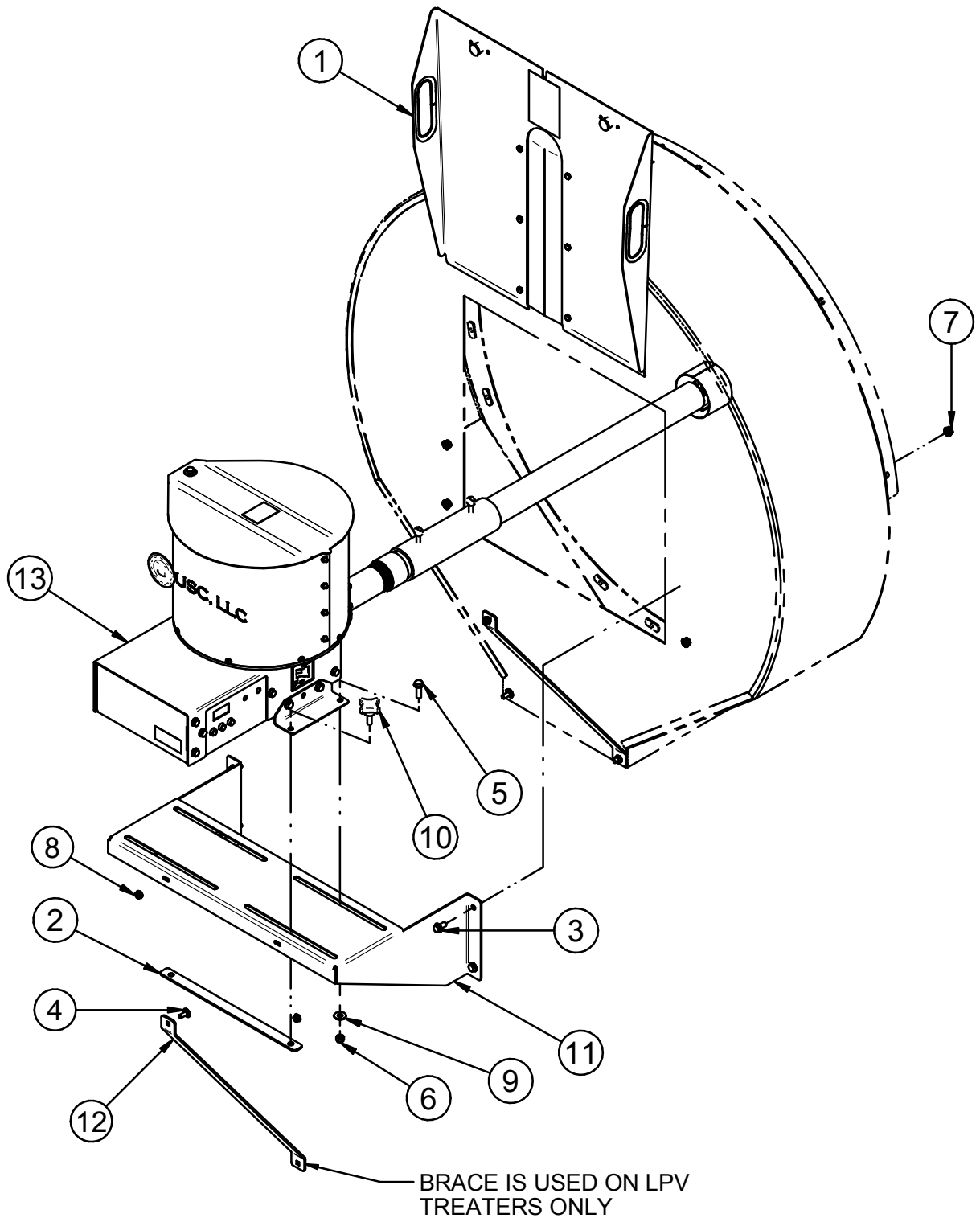
**48 INCH AUGER ASSEMBLY (13-05-0856)**

Item #	Part #	Description	Qty
1	01-01-0294	GMTR .06HP 90V 100 RPM	1
2	01-02-0159	GEAR MITER 16T .375 BORE	1
3	01-03-0003	BRG FLG MNT 1.000ID 2BOLT	1
4	01-03-0089	BRG FLG LOW PRO .375	1
5	01-05-0029	SHAFT CLR .4375 HEX SPLIT	1
6	01-07-0054	COUPLER LOVEJOY FLEX .375 BORE	1
7	01-07-0056	CPLG SPDR NBR L050	1
8	01-07-0057	COUPLER LOVEJOY FLEX .50 BORE	1
9	01-10-0020	KEY 3/32 X .50 CS	2
10	01-11-0004	FTTG GRS 90 DEG .125 PTF ML	1
11	02-05-0180	CPLG 2.0 FNPT X 2.0 SCKT BLACK ABS	1
12	03-12-0604	ASSY PNL DAF AT500/DRUM MOUNT 120V	1
13	05-09-0058	WDMT GEAR DAF	1
14	05-09-0059	WDMT TUBE DISCHARGE	1
15	05-09-0060	WDMT DAF BASE	1
16	05-09-0062	WDMT DAF AUGER SCRIN	1
17	05-10-4848	PLT DAF BASE	1
18	05-10-4849	DAF MTR BOX	1
19	05-10-4850	CVR BOTTOM	1
20	05-11-0131	AUGER SGMT END 2.0 OD HDPE	2
21	05-11-0549	SLV DAF LPV CALB	1
22	05-11-0568	SHAFT DAF 48IN SGMT	1
23	06-01-0006	BOLT, .250-20 X .75 UNC ZP GRADE 5	1
24	06-01-0015	BOLT .375-16 X 0.75 ZP GR5	1
25	06-01-0124	BOLT FLG .375-16 X .750 ZP GR5	7
26	06-01-0138	BOLT FLG .3125-18 X .750 ZP GR5	3
27	06-01-0140	SCRW MACH 10-32 X .500 ZP PHLP RND	4
28	06-01-0150	BOLT, CARRIAGE, .250-20x.50 G5 ZP	4
29	06-01-0155	SCRW MACH .250-20 X 1.25 SH FLHD	8
30	06-01-0215	SCRW MACH #14 X .750 SS PLASTITE	9
31	06-01-0261	BOLT FLG .3125-18 X .500 ZP GR5	12
32	06-01-0386	SCRW MACH 10-32 X .375 HEX HD	4
33	06-02-0030	NUT KLOCK 10-32 ZP	4
34	06-02-0092	RIVETNUT .312-18 ZP	10
35	06-03-0003	NUT NYL LOCK .375-16 ZP GR5	1

**48 INCH AUGER ASSEMBLY (13-05-0856)**

Item #	Part #	Description	Qty
36	06-03-0013	NUT,LOCK, FLG .250-20 ZP SERRATTED	12
37	06-03-0014	NUT LOCK FLG .375-16 ZP GR5	12
38	06-03-0019	NUT LOCK FLG .3125-18 ZP GR5	5
39	06-04-0001	WSHR LOCK SPLT .250 ZP	1
40	06-05-0001	WASHER, FLAT .250	1
41	06-05-0004	WSHR FLAT .375 ZP	2
42	06-06-0042	SCRW THMB .313-18X0.75 ZP	2
43	06-06-0070	SCRW MACH .375-16 X 1.50 SH FLHD BO	4
44	06-06-0071	SCRW MACH .375-16 X 1.750 SH FLHD BO	2
45	06-10-0081	WASHER FELT 1.0ID X 2.0OD X .50 THICK	1
46	09-01-0003	ATWK LBL MADE IN USA YEL 2.50X2.50	1
47	09-01-0042	ATWL LBL USC, LLC 3" X 15" PRO-CUT	1
48	09-02-0010	ATWK LBL DANGER ELECTROCUTION	1
49	09-02-0022	ATWK LBL DANGER AUTO START	1
50	106A79	HOPPER LID	1
51	106D93	SPACER SHAFT STACK	1
52	106D94	STIR ARM	1
53	106D9D	WASHER AUGER UHMW	1
54	106D9E	PLT MTR MNT	1
55	106DE5	TUBE AUGER DAF	1
56	106E0A	BRG MNT UHMW	1
57	106E0C	PLT BRG MNT	1
58	1.06E+65	DAF MNT PLT	2
59	1.06E+66	HOPPER ROLLED DAF	1
60	11-05-0008	AUGER SGMT HDPE 2.0OD 2.0P 12.0LG	2

**DRUM MOUNTED 48 INCH AUGER ASSEMBLY (13-05-0857)**



**DRUM MOUNTED 48 INCH AUGER ASSEMBLY (13-05-0857)**

Item #	Part #	Description	Qty
1	05-07-0924	ASSY END CHUTE DOOR DAF GALV	1
2	05-09-0063	WDMT NUT PLT	1
3	06-01-0124	BOLT FLG .375-16 X .750 ZP GR5	4
4	06-01-0171	BOLT CRG .3125-18X.750 ZP SHORT NECK	4
5	06-01-0189	BOLT FLG .375-16 X 1.250 ZP GR5	2
6	06-03-0003	NUT NYL LOCK .375-16 ZP GR5	2
7	06-03-0014	NUT LOCK FLG .375-16 ZP GR5	4
8	06-03-0019	NUT LOCK FLG .3125-18 ZP GR5	4
9	06-05-0004	WSHR FLAT .375 ZP	2
10	06-09-0066	KNOB .375 -16 X 1. 4 LUG PLASTIC	2
11	106E00	BRKT DAF MNT	1
12	106EA2	BRACE DAF MNT	2
13	13-05-0856	ASSY DAF W/48IN AUGER	1

## MANUAL DRY ADDITIVE FEEDER

### **NOTES:**

# 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. 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.

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.

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.

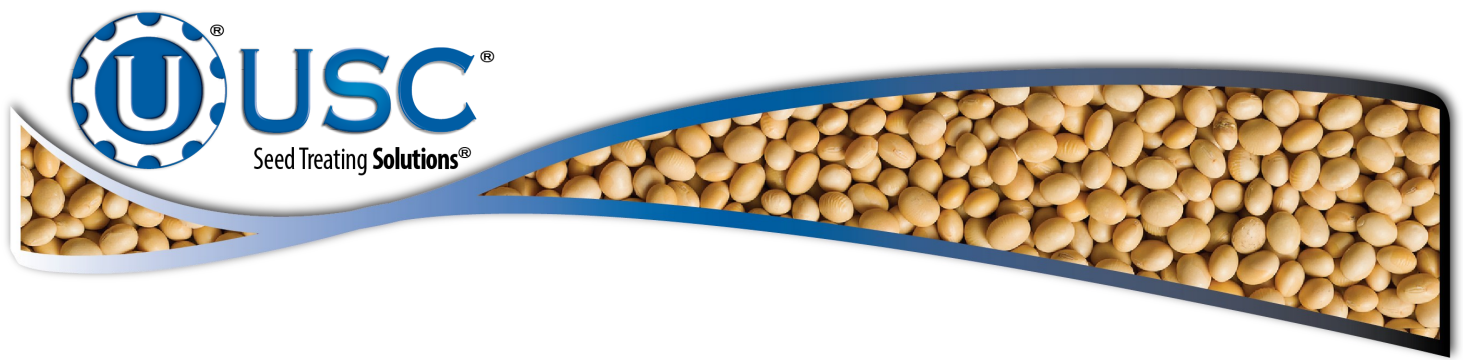
5. **Return Policy:** Approval is required prior to returning goods to Manufacturer. A restocking fee will apply.

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.

US / Canada Non-Exclusive 2016







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