



**USC®**  
Seed Treating Solutions®



# **LPV WEIGH BELT** **SEED TREATER**

## **Operators Manual**



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**Document: TD-09-06-1051**

**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 LPV Seed Treater. 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.

## LPV WEIGH BELT SEED TREATER

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 serial number is located on the frame to the left of the I/O Control Panel.



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.

If any of the required regularly scheduled maintenance is located above the reach of the operator, they should follow the companies normal safe practices of reaching that particular height, utilizing the companies specified equipment and following normal safety precautions.

When working with treatment chemicals, operators should always wear protective gloves, safety glasses, and follow the companies safety precautions in the case of any spillage or operator contamination.

## 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.

## MOTS ET SYMBOLES SÉCURITÉ

Il est très important que les opérateurs et le personnel d'entretien à comprendre les mots et les symboles qui sont utilisés pour communiquer des informations de sécurité. Mots de sécurité, de leur signification et le format, ont été normalisés pour les fabricants américains et publié par l' American National Standards Institute ( ANSI ). La Communauté européenne (CE ) a adopté un format différent sur la base de l'Organisation internationale de normalisation ( ISO ) et des directives de machines applicables. Les deux formats sont présentés ci-dessous. Les symboles graphiques ne sont pas standardisés, mais la plupart des fabricants utilisent une variante de ceux observés dans ce manuel.



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



Indique une situation extrêmement dangereuse qui, si pas évitée, entraînera la mort ou des blessures graves.



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



Indique une situation potentiellement dangereuse qui, si pas évitée, pourrait entraîner la mort ou des blessures graves.



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



Indique une situation potentiellement dangereuse qui, si pas évitée, peut entraîner des blessures mineures ou modérées et / ou des dommages.



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



Fournit des informations supplémentaires que l'opérateur doit être conscient de d'éviter une situation potentiellement dangereuse.



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



Avis est utilisé pour informer les gens des informations de maintenance qui ne est pas danger lié importante installation, l'exploitation ou.



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

**Symbol de puissance verrouillage obligatoire.** Débranchez, de verrouillage et de déconsignation énergie électrique et d'autres sources avant d'inspecter, de nettoyage ou de la maintenance de ce panneau.



**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.

**Sécurité Symbole International Alert .** Le point d'exclamation ( ! ) Entouré par un triangle jaune indique que un risque de blessure existe . Cependant, il ne indique pas la gravité des blessures potentielles. Le point d'exclamation ( ! ) Est également utilisé avec les symboles DANGER, AVERTISSEMENT et ATTENTION de sorte que le risque de blessure est indiqué.



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

**Symbole de danger d'électrocution .** Ce symbole indique qu'un danger d'électrocution existe. Des blessures graves ou la mort pourraient résulter de contact haute tension.



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

**Danger d'électrocution international.** Ce symbole indique qu'un danger d'électrocution existe. Des blessures graves ou la mort pourraient résulter de contact haute tension.



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

**Obligatoire Lire Symbole d'action Manuel.** ( Format ISO ) Ce symbole indique le personnel de lire le manuel de l'opérateur avant de réparer ou d'utiliser l'équipement.



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

**Obligatoire Lire Symbole d'action Manuel .** Ce symbole indique le personnel de lire le manuel de l'opérateur avant de réparer ou d'utiliser l'équipement.

## **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."

## **LES PROCEDURES DE VERROUILLAGE / ETIQUETAGE**

Verrouillage / étiquetage est le placement d'un verrouillage / tag sur un dispositif d'isolement de l'énergie conformément à une procédure établie. Lors de la prise hors service des équipements pour effectuer la maintenance ou de réparation, toujours suivre les procédures de verrouillage / débranchement comme indiqué dans la norme ANSI Z344.1 et / ou la norme OSHA 1910.147. Cette norme "oblige les employeurs à établir un programme et appliquer des procédures pour la fixation des dispositifs de verrouillage appropriés ou des dispositifs déconsignation à l'énergie dispositifs d'isolement et d' autre machines ou équipements désactiver pour éviter énergisant inattendu, start-up, ou la libération de l'énergie stockée dans le but de prévenir les blessures aux employés."

## **EMERGENCY STOP**



There is an Emergency Stop push button on all LPV Seed Treaters which is located on the Treater Control Panel. The LPV Automated Treater has an additional Emergency Stop pushbutton on the Main Control Panel. Actuators of emergency stop shall be colored RED. The background immediately around the device actuator shall be colored YELLOW. The actuator pushbutton operated device shall be of the palm or mushroom head type.

## **ARRET D'URGENCE**

Il ya un bouton-poussoir d'arrêt d'urgence sur tous les traiteurs de semences LPV qui est situé sur le Panneau de configuration Traiteur. Le LPV automatisé Traiteur dispose d'une autre arrêt d'urgence bouton poussoir sur le panneau de commande principal. Actionneurs de freinage d'urgence doivent être de couleur rouge. Le fond immédiatement autour de l'actionneur de l'appareil doit être de couleur JAUNE. Le dispositif actionné actionneur de bouton-poussoir doit être de la paume ou champignons type de tête.

### **CONTROLLED STOP**

This is the stopping of machine motion by reducing the electrical command signal to 0 (zero) once the stop signal has been recognized.

### **ARRET CONTROLE**

Ce est l' arrêt du mouvement de la machine en réduisant le signal de commande électrique à 0 (zéro ) dès que le signal d'arrêt a été reconnue.

### **HAZARD REVIEW**

### **RISQUE EXAMEN**



#### **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.

#### **Risque d'électrocution**

Les accidents d'électrocution sont les plus susceptibles de se produire lors de la maintenance du système électrique ou pour travailler sur ou à proximité du câblage haute tension exposé. Ne existe pas ce danger lorsque l'alimentation électrique a été déconnecté, bien verrouillé et étiquetés sur.



#### **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.

#### **Démarrer danger automatique**

#### **! AVERTISSEMENT**

Cet équipement peut être contrôlé par un système automatisé et peut démarrer sans avertissement. Sources de l'équipement contrôlé à distance non débranché correctement, lock-out, et tous déconsignation énergie crée une situation très dangereuse et pourrait causer des blessures ou même la mort. Se IL VOUS PLAÎT rester à l'écart et d'être vigilant.

**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.



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4. Provide a fire extinguisher for use in case of an accident. Store in a highly visible place.
5. Do not allow children, spectators or bystanders within hazard area of machine.
6. Wear appropriate protective gear. This includes but is not limited to:

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



7. Place all controls in neutral or off, stop motor, and wait for all moving parts to stop. Then disable power source before servicing, adjusting, repairing, or unplugging.
8. Review safety related items annually with all personnel who will be operating or maintaining the equipment.



**OPERATING SAFETY:**

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

### **PLACEMENT SAFETY**

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



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.



Avant de placement de l'équipement, assurez-vous que sol est relativement plat. L'équipement peut tomber ou mal fonctionner si le sol est trop inégale, endommager l'équipement et / ou causer des blessures.

### **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.



Situé sur l'équipement USC vous trouverez des étiquettes de sécurité. Veillez à toujours lire et suivre toutes les instructions sur les étiquettes.



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



Gardes fournis avec des équipements USC doivent rester en place pendant le fonctionnement.

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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 # 09-02-0001



Part # 09-02-0003

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Part # 09-02-0002



Part # 09-02-0001



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# INSTALLATION

SECTION  
B

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



**HAUTE TENSION** ~ Toujours débrancher la source d'alimentation avant de travailler sur ou près du panneau de commande ou les câbles.



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



**HAUTE TENSION** ~ Utilisez des outils isolés lors des réglages, tandis que les commandes sont sous tension.



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



Installation permanente peut exiger cordons électriques, des tubes supplémentaires chimique, et les conduites d'air, puisque chaque installation est.

USC equipment may operate within a Group II, Division 2, Class G hazardous area which contains seed dust. If so, the equipment must be certified for use in this area. To avoid the possibility of an explosion ignited by static electricity, all USC equipment should be grounded by attaching a bonding strip to the metal frame and securing that strip to the factory ground point.

If labeled accordingly, USC products are designed to comply with CSA 22.1 for use in a Class II, Division 2, Group G environment. When connecting the USC system power cord into a power supply, first determine if the supply is also within the hazardous area where the USC system is located. If so, we recommend that the power be hard wired into the source. Do not use a standard electrical plug for this purpose. For other acceptable methods of connecting to a power source, or any other additional miscellaneous equipment to the USC system within a hazardous location, please consult CSA 22.1, Section 18-200 and 18-274. Review the appropriate section and ensure compliance with one of the options given.

When connecting to USC equipment from a remote location, and the USC equipment is in a hazardous Class II, Group G environment, customers are advised to follow the requirements within CSA 22.2 no. 25. More details may also be found in CSA 22.1 18-252 (wiring methods). There are various options covered within this section for wiring in a Class II, Group G (dust) environment. Select the best method suited for your specific location.

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équipements USC peut fonctionner dans un Groupe II, Division 2, Classe G zone dangereuse qui contient la poussière des semences. Si oui, l'équipement doit être certifié pour une utilisation dans ce domaine. Pour éviter la possibilité d'une explosion enflammé par l'électricité statique, tous les équipements USC doit être mis à la terre en attachant une bande de liaison à la structure métallique et la sécurisation cette bande au point de masse du fabricant.

Si étiquetés en conséquence, les produits USC sont conçus pour être conformes à la norme CSA 22.1 pour une utilisation dans une Classe II, Division 2, Groupe G environnement. Lors du raccordement du USC alimentation du système cordon dans une alimentation, d'abord déterminer si l'offre est également dans la zone dangereuse où se trouve le système USC. Si oui, nous recommandons que le pouvoir soit câblé dans la source. Ne pas utiliser une prise électrique standard à cet effet. Pour les autres méthodes acceptables de se connecter à une source d'alimentation, ou tout autre matériel divers supplémentaire au système USC dans un endroit dangereux, se il vous plaît consulter la norme CSA 22.1, Section 18-200 et 18-274. Consultez la section appropriée et assurer la conformité avec l'une des options proposées.

Lors de la connexion à l'équipement USC depuis un emplacement distant et l'équipement USC est dans une classe dangereuse II, Groupe G environnement, les clients sont invités à suivre les exigences dans CSA 22.2 no. 25. Plus de détails peuvent également être trouvés dans 22,1 CSA 18-252 ( Les méthodes de câblage). Il existe diverses options couvertes dans cette section pour le câblage dans une Classe II, Groupe G (poussière ) environnement. Sélectionnez la meilleure méthode adaptée pour votre emplacement spécifique.

### **LPV TREATER SET - UP**

The following steps outline the initial set-up of your USC Seed Treating system:

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 treater in the desired position on a level surface.

### **NOTICE**

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

### **AVIS**

USC recommande fortement que le traitement de semences être mis en place à l'intérieur d'un bâtiment ou d'une structure couverte pour protéger la machine des intempéries.

4. Remove any boxes and cords from the drum of the treater.

### LPV TREATER SET - UP



#### **! AVERTISSEMENT**

The LPV Treater **CAN NOT** be lifted using the forklift pockets and or transported without all four of the shipping brackets re-installed. Failure to do so may cause damage to the tilting frame.

Le LPV Traiteur NE PEUT PAS être soulevée à l'aide des passages de fourches et ou transporté sans les quatre supports de transport ré-installé. Ne pas le faire peut causer des dommages au châssis basculant.

5. Install the drum lift actuator kit (03-17-0111) that is shipped separately using steps one through six..

**STEP 1:** Support the discharge end of the treater drum using the lift ring at the top of the discharge assembly.



**STEP 2:** Remove all four of the shipping support brackets



**LPV TREATER SET - UP**

**STEP 3:** Lower the drum slowly until the drum frame is resting on the dead stop pins on both sides of the treater frame.



**STEP 4:** Insert a clevis pin (06-09-0058) attaching the bottom of the actuator to the bracket on the treater frame cross member.

**STEP 5:** Insert the second clevis pin (06-09-0058) and the two flat washers (06-05-0005) attaching the end of the actuator piston to the bracket on the drum frame. The washers should be on the outside of the frame bracket.



**LPV TREATER SET - UP**

**STEP 6:** Insert a cotter pin (06-09-0087) in the clevis pins at both ends of the actuator. Then, attach the yellow cable to the motor connector



**NOTICE**

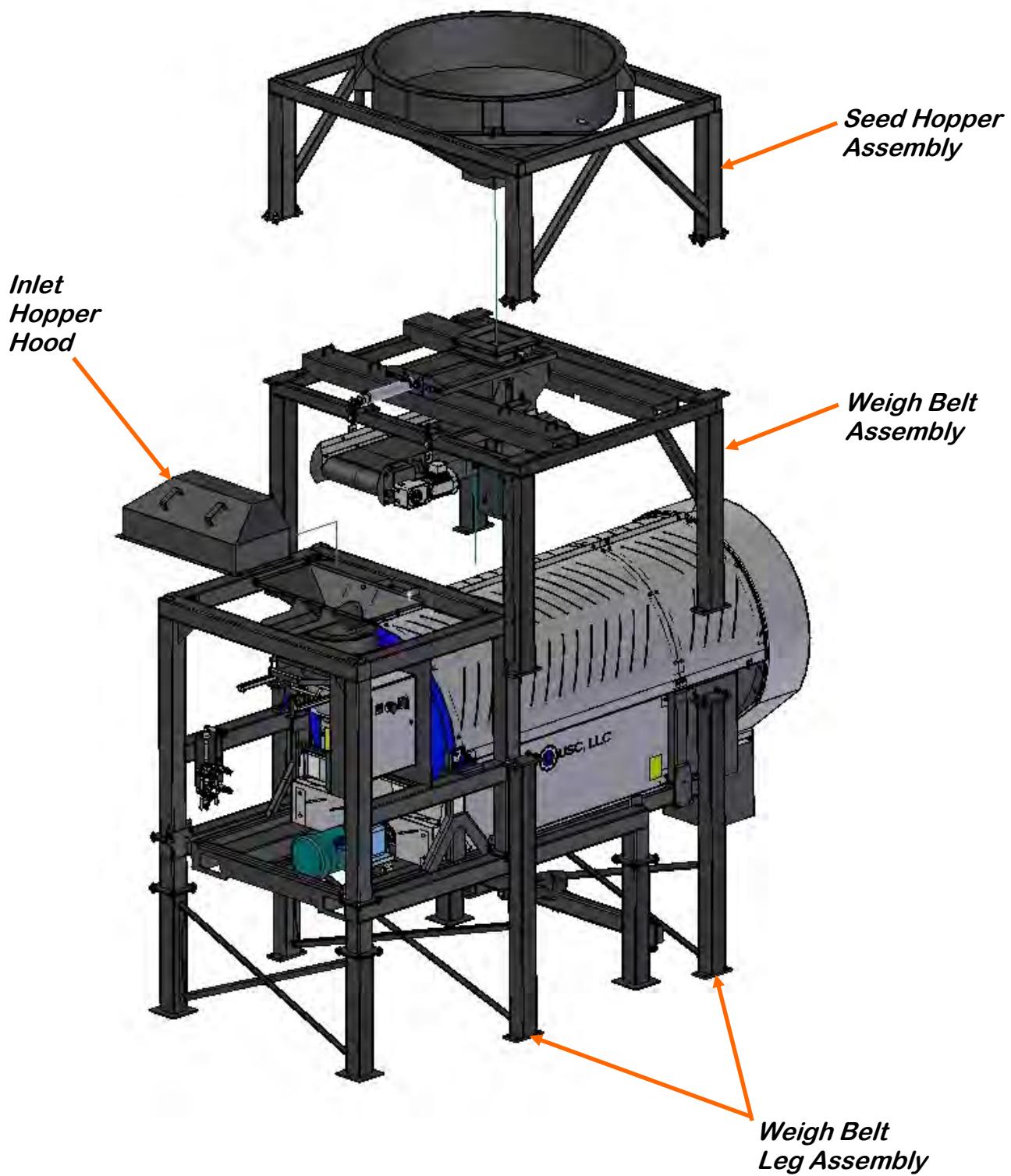
After the actuator is installed it should move freely by hand. If something is binding, damage to the actuator or the mounting brackets could occur.

**AVIS**

Après l'actionneur est installé, il doit se déplacer librement à la main. Si quelque chose est obligatoire, les dommages à l'actionneur ou les supports de montage pourraient se produire.

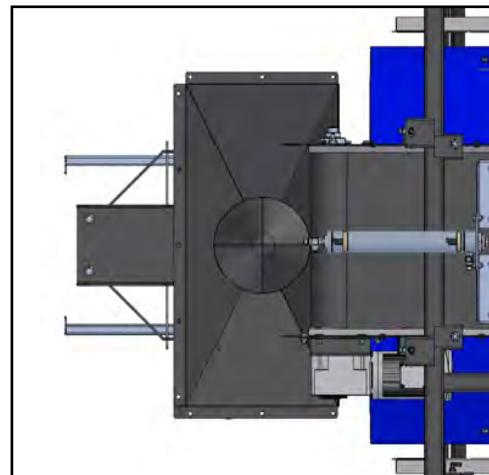
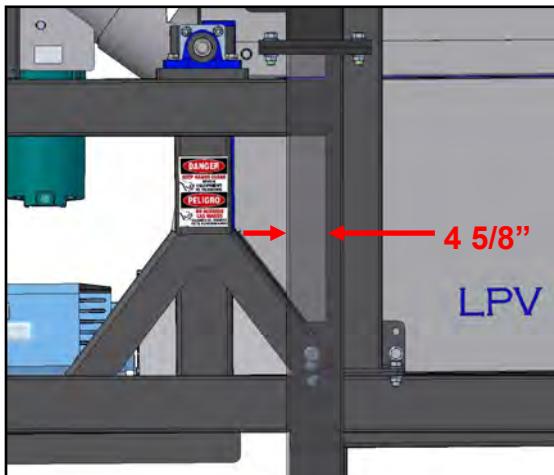
LPV WEIGH BELT SEED TREATER

**WEIGH BELT SET - UP**



**WEIGH BELT SET - UP**

6. Remove the inlet hopper hood from the inlet assembly and set it and all of the fasteners aside.
7. Using a forklift, raise the weigh belt assembly so it is centered left to right and the front leg of the weigh belt assembly is 4 5/8" from the middle leg of the treater (below, left). This should place the weigh belt centered along the length of the treater and the end of the front end of the belt at the edge of the inlet (below, right).



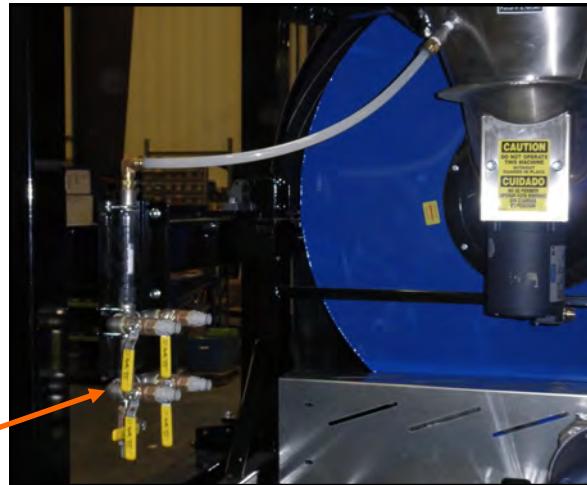
8. Reassemble the inlet hopper hood.
9. Anchor the seed treater and weigh belt in position to prevent the machine from moving during operation.
10. Inspect machine thoroughly for screws, bolts, fittings, etc. which may have come loose during shipping.
11. The pump stand(s) should be placed on level ground close to the seed treater.

12. Disconnect the four shipping brackets from the weigh belt allowing it to hang from the load cells. Reattach them to the frame mounting brackets for future use (right).



**LPV WEIGH BELT TREATER SET - UP**

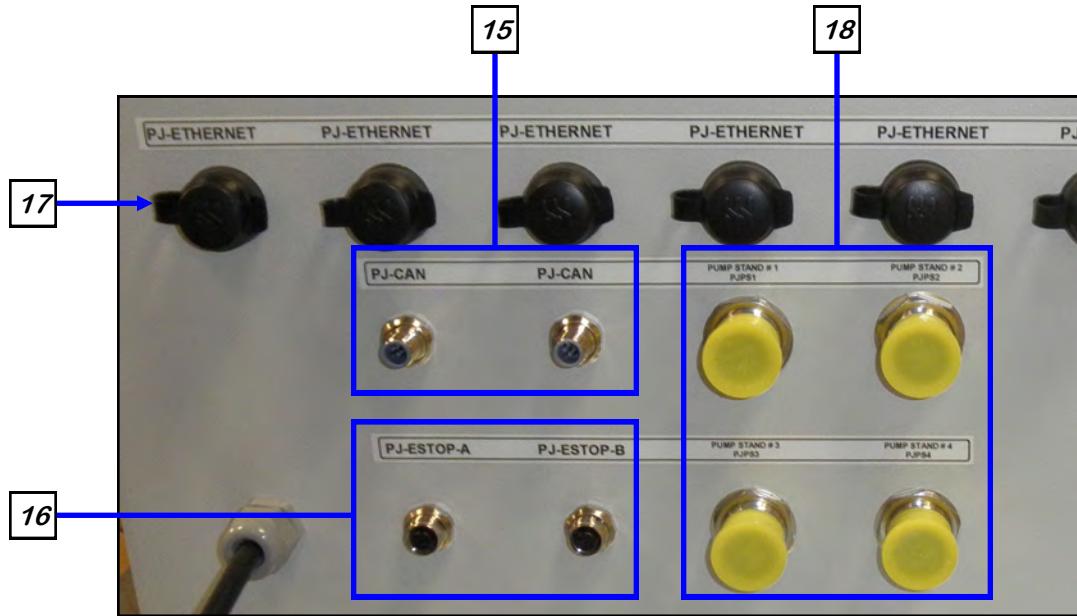
*Static Mixer Assembly*



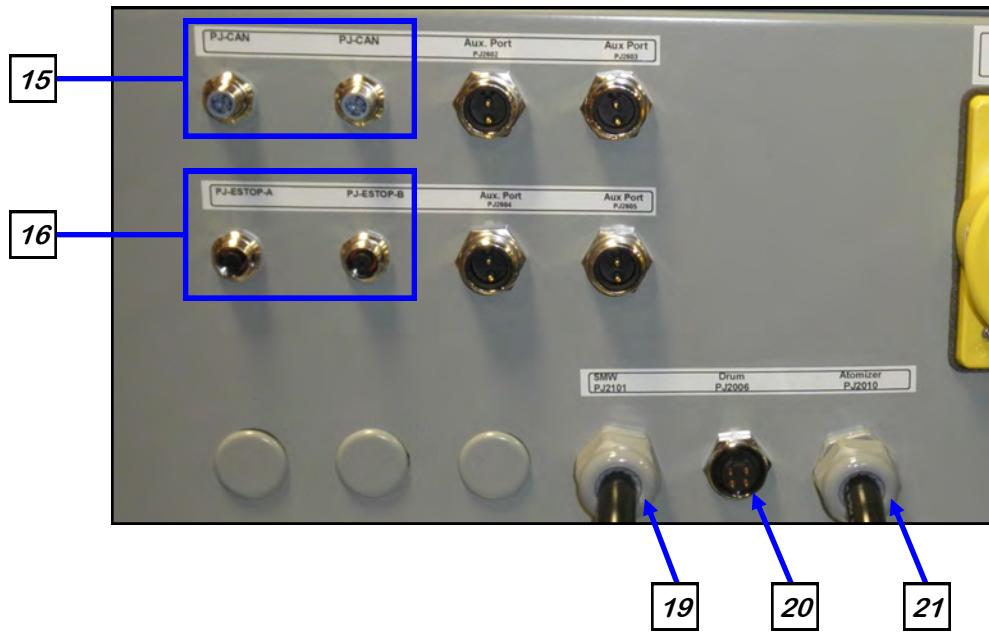
13. Attach the chemical tubing from the pump stand(s) to the static mixer on the seed treater (above). Additional tubing may be added or removed to accommodate your installation.
14. Setup the Automated Main Control panel at a place that is convenient to the operator. This may include attaching the automated main control panel to the seed treater, to the wall, or to the supplied control panel stand that will require anchoring.
15. Connect the gray cable with light blue ends to one of PJCAN connections on the bottoms of both the main control panel and the treater panel.
16. Connect the red cable to the PJESTOPA on the main control panel and then to the PJESTOPB on the treater control panel. This cable must run from an A connection to a B connection (never A to A or B to B). Connect the other red cable to the PJESTOPA on the treater control panel and then to the PJESTOPB on the I/O control panel. Connect the two red plugs into each of the remaining open PJESTOP connections.
17. Connect the Ethernet cable from the main control panel to the I/O control panel.
18. Connect the cables from Pump Stand(s) to applicable port on the Main Control Panel.
19. Connect the PJ2101 cable to the 4 pin connector on the weigh belt motor.
20. Connect the cable from the drum motor to PJ2006 on the treater control panel.
21. Connect the PJ2010 cable from treater panel to the atomizer motor.

LPV WEIGH BELT SEED TREATER

**MAIN CONTROL PANEL**

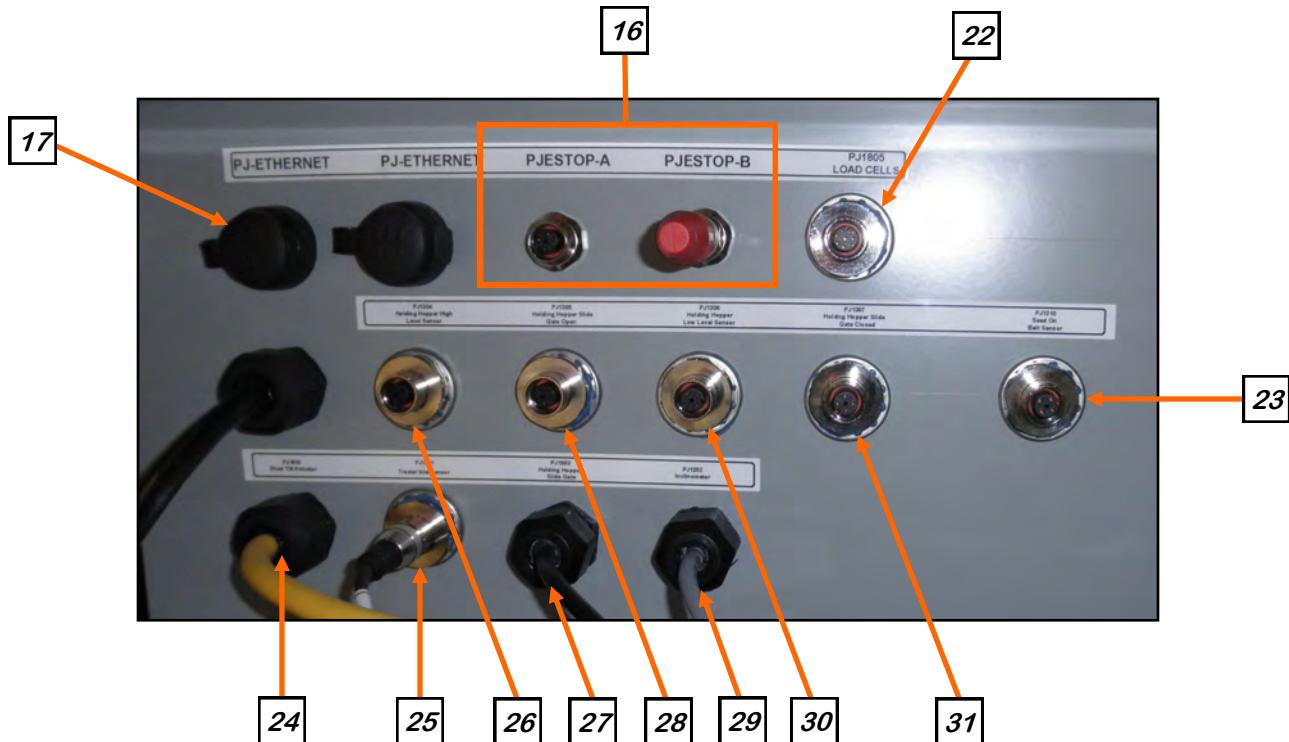


**TREATER CONTROL PANEL**



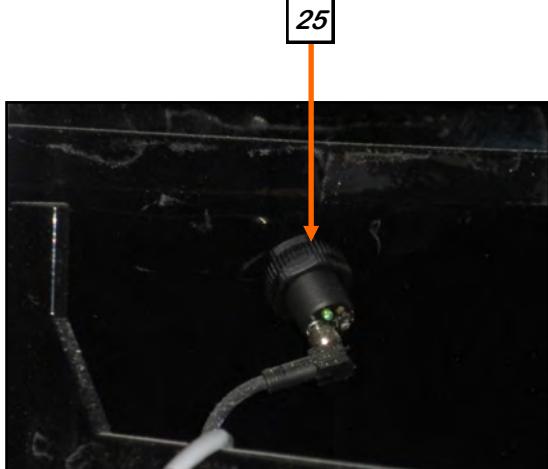
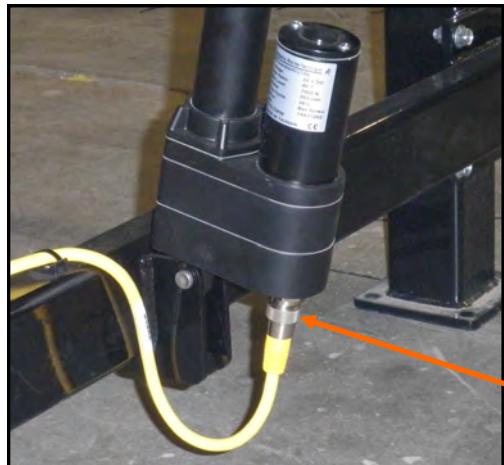
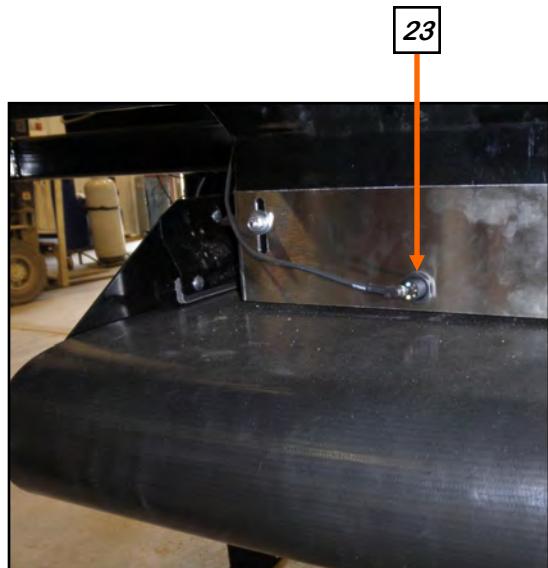
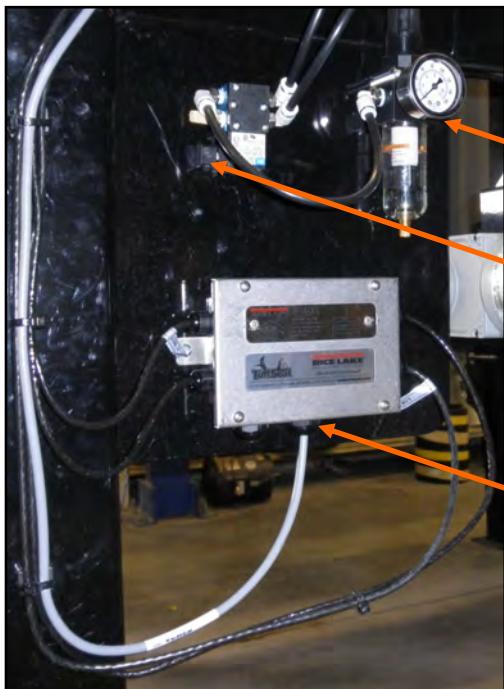
**WEIGH BELT I / O CONTROL PANEL**

22. Connect the cable from the bottom of the load cell junction box to PJ1805 (see page 27).
23. Connect the cable from the proximity switch above the belt to PJ1310 (see page 27).
24. Connect the cable from PJ1610 to the drum tilt actuator under the drum (see page 27).
25. Connect the cable from the proximity switch in the inlet hopper to PJ1311 (see page 27).
26. Connect the cable from the proximity switch in the holding hopper to PJ1304 (see page 28).
27. Connect the cable from SOL1503 to the slide gate solenoid (see page 27).
28. Connect the cable from the slide gate open sensor to PJ1305 (see page 28).
29. Connect the cable from PJ1202 to the drum leveling sensor mounted next to the drum motor (see page 28).



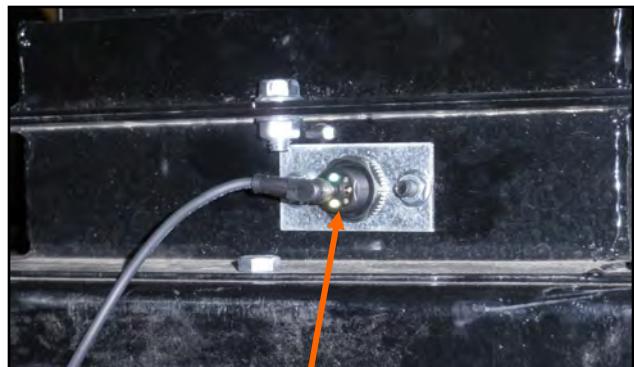
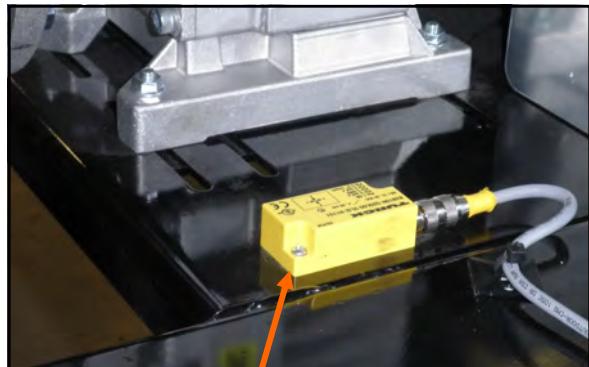
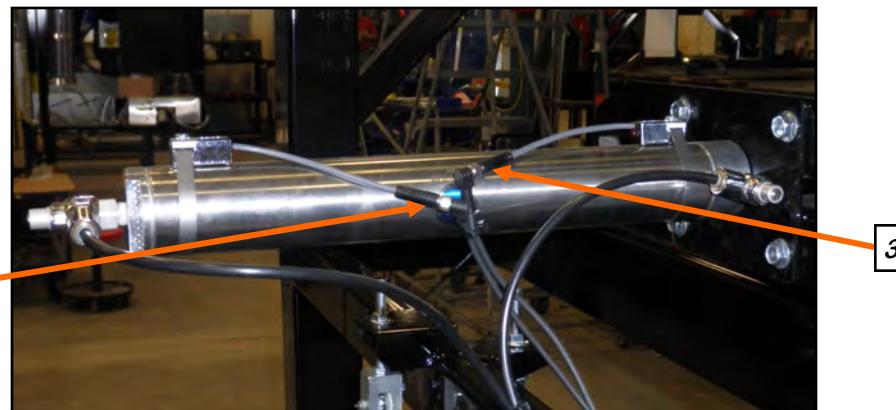
**WEIGH BELT I / O CONTROL PANEL**

30. Connect the cable from the proximity switch above the slide gate to PJ1306 (see page 28).
31. Connect the cable from the slide gate closed sensor to PJ1307 (see page 28).
32. The customer must provide a compressed air supply to the right side of the slide gate air pressure regulator. It is required that the air supply have an in-line customer supplied air dryer to protect the air system from contamination. Supply approximately 100 - 110 pounds of air pressure from the dryer to the regulator (top, left).



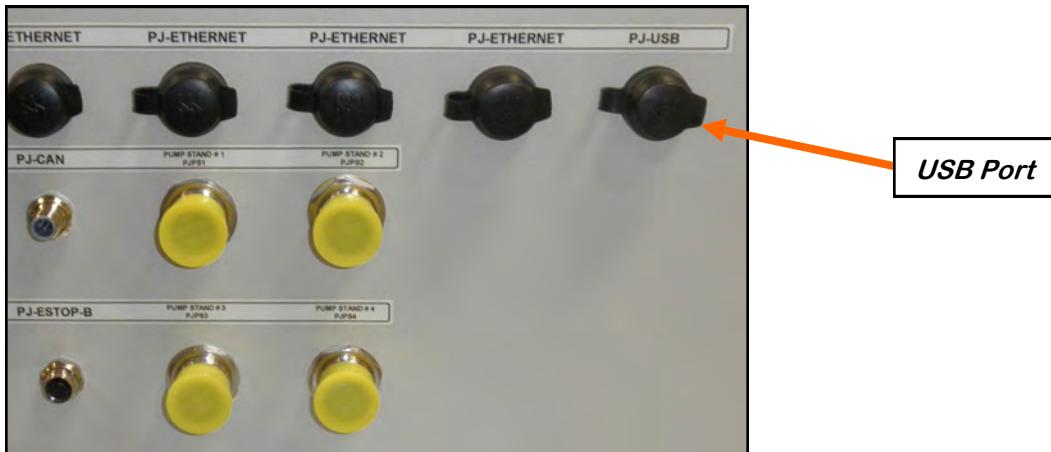
LPV WEIGH BELT SEED TREATER

WEIGH BELT I / O CONTROL PANEL



LPV WEIGH BELT SEED TREATER

33. There is a USB port located on the bottom of the main control panel that can be used to download reports to a compact flash device. The flash device must be in FAT 32 format.



34. Connect any conveyors that need to be controlled through the touch screen control panel to the bottom of the treater control panel.



35. Two 110V (3 Amp) plugs are located on the left side of the Main Control Panel to allow the operator to plug in a printer to print reports directly from the HMI screen. The second plug can be used to power a laptop computer.



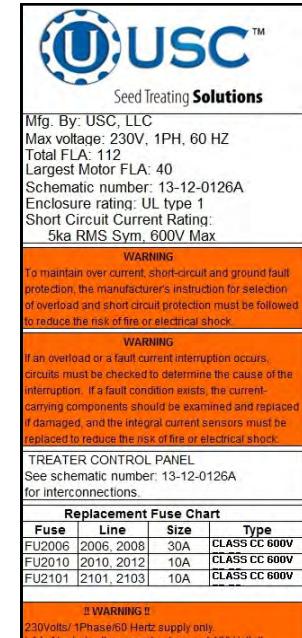
## LPV WEIGH BELT SEED TREATER

36. Using the green 10 gauge wire, two 1/4-20 nuts and flange bolts provided to establish a ground between the treater and the weigh belt. Attach one end of the wire to the existing hole in the lower right hand corner of the panel bracket. Bolt the other end to the front leg of the weigh belt assembly where slots are provided for cable ties to run the control panel cables.



*Treater I/O panel  
Mounting Bracket*

37. Have a certified electrician provide power to the seed treating system. Provide convenient shutdown switches, comply with local electrical codes and ensure that the system is properly grounded and bonded. The USC system must be connected to the same electrical requirements as specified in the main control panel on the power requirement tag, or the electrical schematic shipped with the piece of equipment. This will power the USC LPV seed treater and any attached conveyors.



### NOTICE

Flexible conduit is recommended for main power supply.

### AVIS

Conduit flexible est recommandé pour l'alimentation principale.

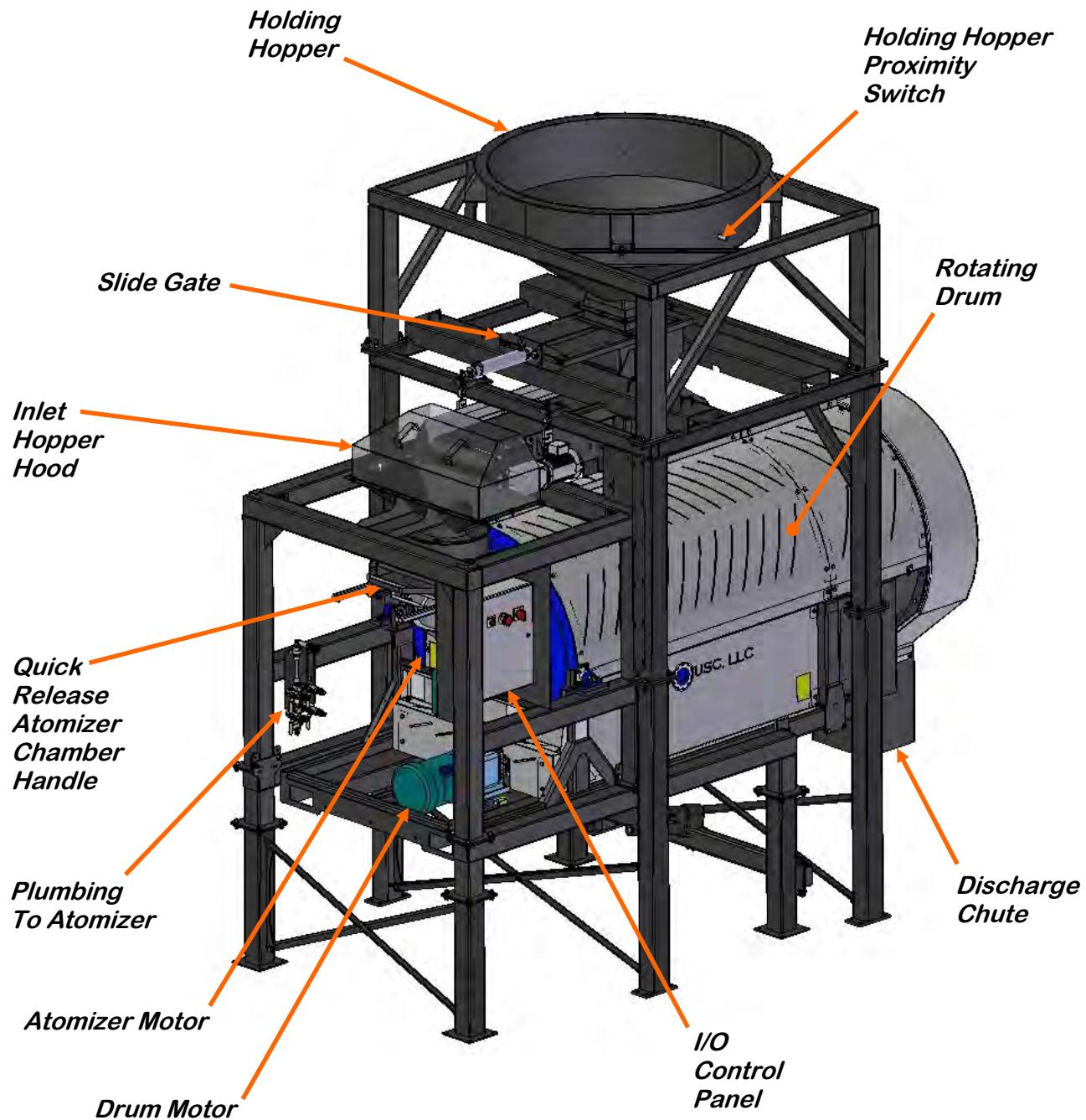
38. Provide 110V single phase power to the main control panel, I/O control panel and the pump stand(s).

39. Reverse the previous steps when removing the machine from its working position.

# MECHANICAL OPERATION

SECTION  
C

## LPV TREATER WITH WEIGH BELT OVERVIEW



## WEIGH BELT

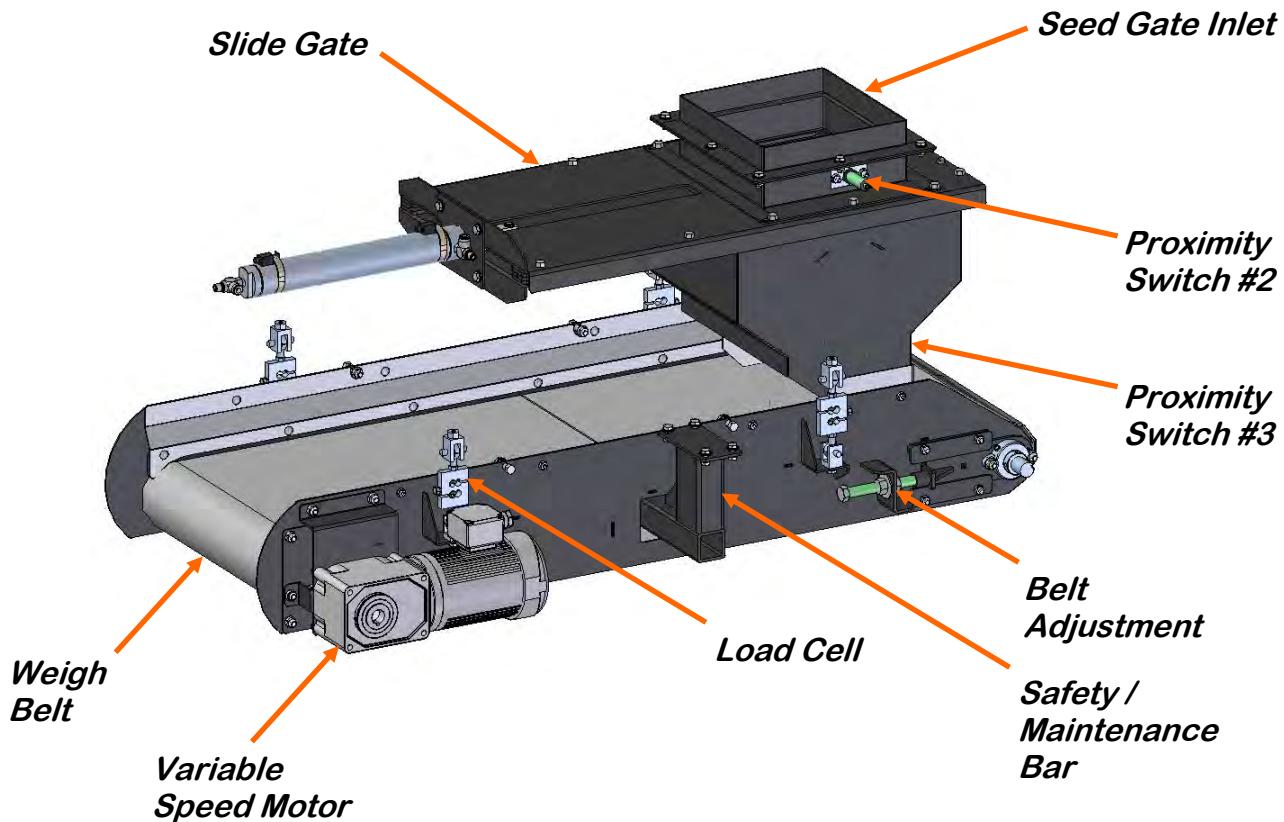
The weigh belt is equipped with four proximity switches. The first switch is located in the holding hopper and controls the inlet conveyor. The second is located above the slide gate. When this switch no longer detects seed it automatically closes the slide gate. The third is located just above the weigh belt. This is active when seed is present on the belt. This and other flow rate variables indicate when seed is exiting from the end of the belt into the inlet hopper. This activates the flow indicator. The flow indicator controls the pump(s) supplying treatment into the atomizer.

The fourth is located in the inlet hopper. When this switch detects seed, it stops the weigh belt to prevent seed from overflowing the hopper. The pumps and treater continue to operate for a pre-determined amount of time, then place the entire system in the pause state to prevent the drum from being flooded with untreated seed.

The flow rate may then be adjusted and the system may be started again to complete the run. See the Proximity Switch Adjustment Guide in Section F for more information on these switches (see page 79).

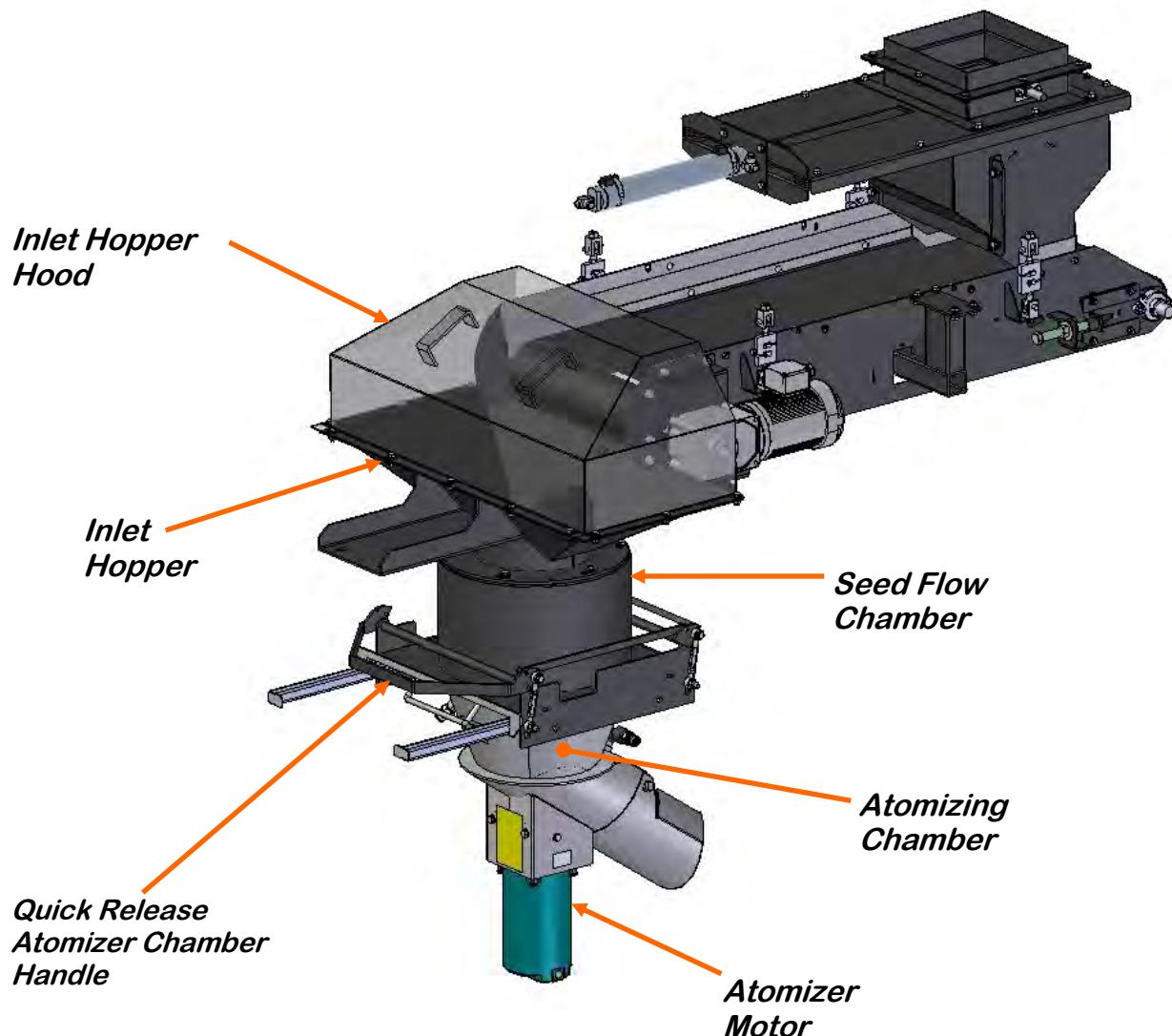
The weigh belt is designed to simplify and increase seed flow calibration accuracy. A belt is driven by a variable speed motor, which is set prior to treating the seed. This is hanging by load cells above the atomizer. The weigh belt rotates and dispenses the seed into the atomizer chamber. With the constant turn of the belt, there is a consistent amount of seed always sent through the atomizer.

The weigh belt saves time when switching to different seed sizes and seed types.



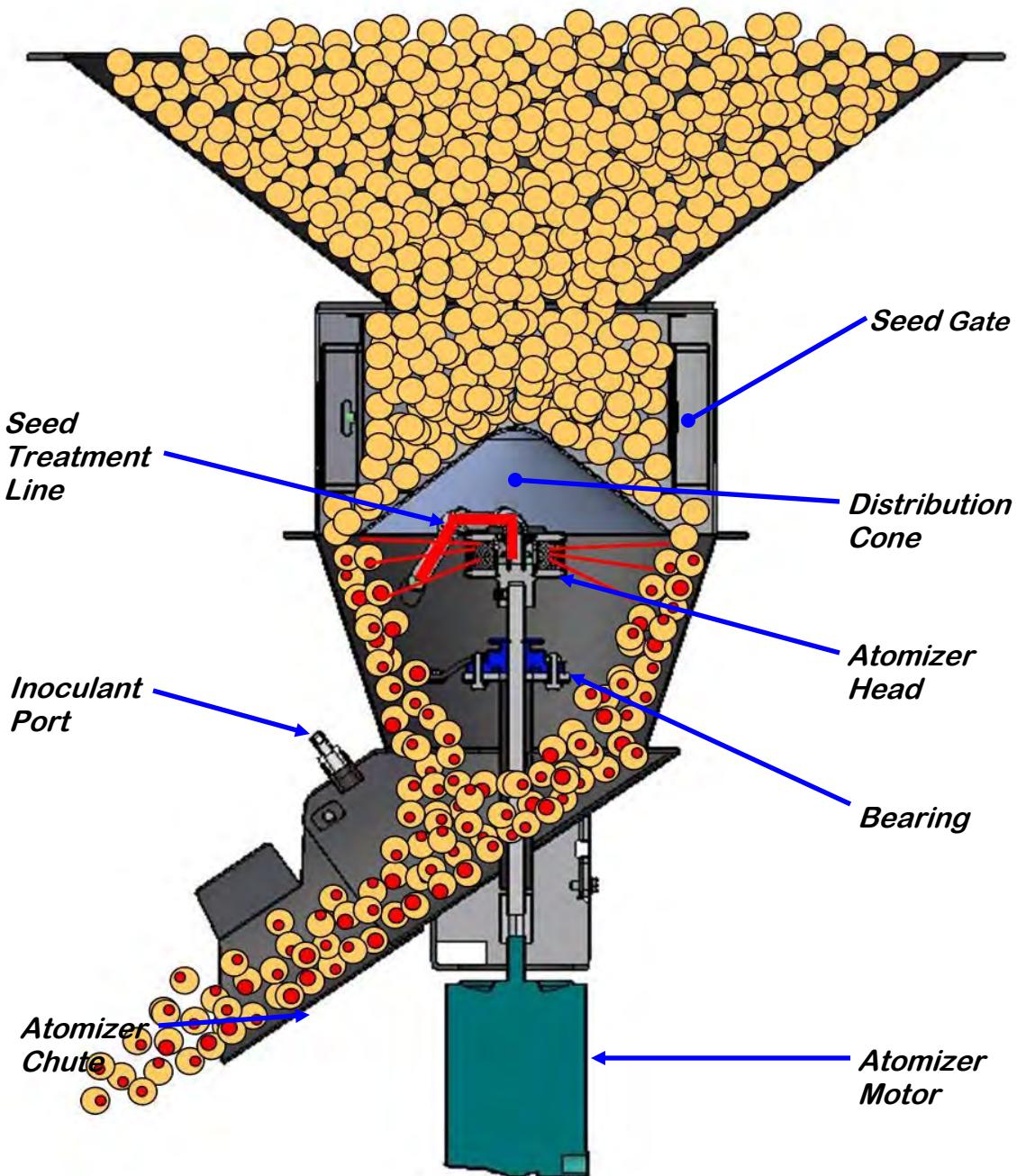
**WEIGH BELT ATOMIZER CHAMBER OVERVIEW**

The atomizer chamber consists of a patented design which disperses treatment evenly to each seed. A motor drives the atomizer head at approximately 1725 RPM's. As treatment is being pumped into the atomizer chamber, it drops into the atomizer head. The centrifugal force of the spinning head forces the treatment to be sprayed out through a screen covering in all 360 degrees. Meanwhile, seed flows down from the weigh belt and on top of the distribution cone in the seed flow chamber which disperses the seed down around the atomizer head. The weigh belt determines the seed flow rate based on the speed it is running at and how much weight is on it. The atomizer may be easily accessed for cleaning and maintenance by pulling down on the quick release handle and sliding the atomizer away from the treater body (see page 83).



## LPV WEIGH BELT SEED TREATER

The illustration below shows how seed passes through the atomizing chamber. The red represents treatment being dispensed to the seed as it passes through the chamber. After the seed passes through the atomizer, it goes into the drum where the coating process is completed.



**ROTATING DRUM**

The rotating drum is 8 feet long and accepts treated seed through the opening on the hopper end. As seed passes through the length of the drum it is tumbled, producing accurate and uniform seed coating. The seed then exits the seed treater out the discharge end of the machine.



Never allow exposure of persons or clothing to the drive shaft, idler wheels, or the drum during operation. Always have the safety shields in place during operation.



Ne jamais laisser l'exposition des personnes ou des vêtements à l'arbre d'entraînement, roues libres, ou le tambour pendant le fonctionnement. Toujours avoir les boucliers de sécurité en place pendant le.

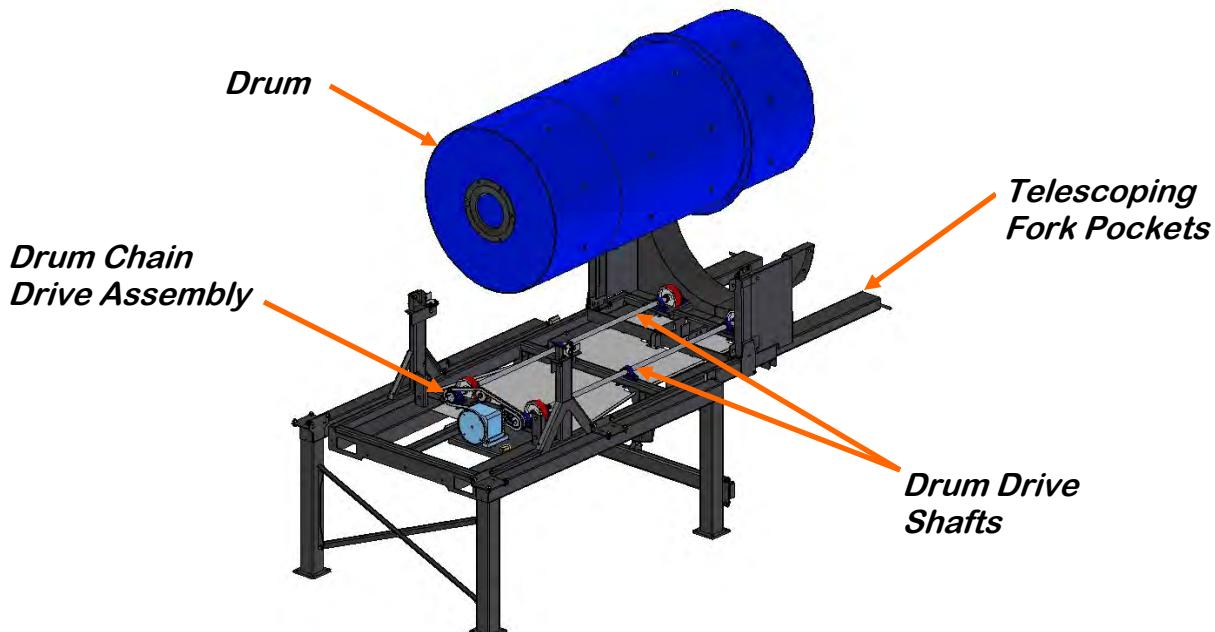
The LPV Treater also comes standard with telescoping fork lift pockets. These pockets may be slid out from underneath the treater to allow a fork lift to pick up the treater from its discharge end.



The rotating drum is grounded to the equipment structure at the factory, to avoid the possibility of generating static electricity, this bonding mechanism should not be tampered with or removed.



Le tambour rotatif est ancré à la structure de l'équipement en usine, afin d'éviter la possibilité de générer de l'électricité statique, ce mécanisme de liaison ne doit pas être altéré ou



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

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



**HAUTE TENSION** ~ Toujours débrancher la source d'alimentation avant de travailler sur ou près du panneau de commande ou les câbles.



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



**HAUTE TENSION** ~ Utilisez des outils isolés lors des réglages, tandis que les commandes sont sous tension.



**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.



**! ATTENTION** Seules personnes autorisées doivent travailler sur le panneau de commande. Ne jamais laisser quelqu'un qui n'a pas lu et se sont familiarisés avec le manuel d'ouvrir ou de travail du propriétaire

This section provides a general overview and description of the operator control panels for the LPV Weigh Belt Seed Treater. If any of the panels are located in the hazardous area described in the installation section (see page 17), all 110VAC connections must be hard wired to a listed type 4 rated enclosure.



**USC recommends the use of a surge protection device with a minimum rating of 400 Joules for all automated main control panels.**



**USC recommande l'utilisation d'un dispositif de protection contre les surtensions avec une cote minimale de 400 joules pour tous les principaux panneaux de contrôle automatisés.**

## NOTICE

**USC strongly recommends that you implement a routine data export strategy. This will give your company a regularly updated back-up file containing all of the important information in your seed treating system. Customer, seed, bin and chemical profiles, as well as chemical recipes may easily be restored in the event of a catastrophic system failure, such as a lightening strike or PLC failure. Reports may not be imported back into the system, but you will still have an electronic copy for your records. USC recommends daily back-ups (see page 66).**

## AVIS

**USC vous recommande fortement de mettre en œuvre une stratégie de routine d'exportation de données. Cela donnera à votre entreprise un fichier de sauvegarde régulièrement mise à jour contenant toutes les informations importantes dans votre système de traitement des semences. Clients, semences, bin et chimiques profils, ainsi que des recettes chimiques peuvent être facilement restaurées en cas de défaillance catastrophique du système, comme une grève de la foudre ou l'échec PLC. Rapports ne peuvent pas être importés dans le système, mais vous aurez toujours une copie électronique pour vos dossiers. USC recommande sauvegardes quotidiennes (voir page 66).**

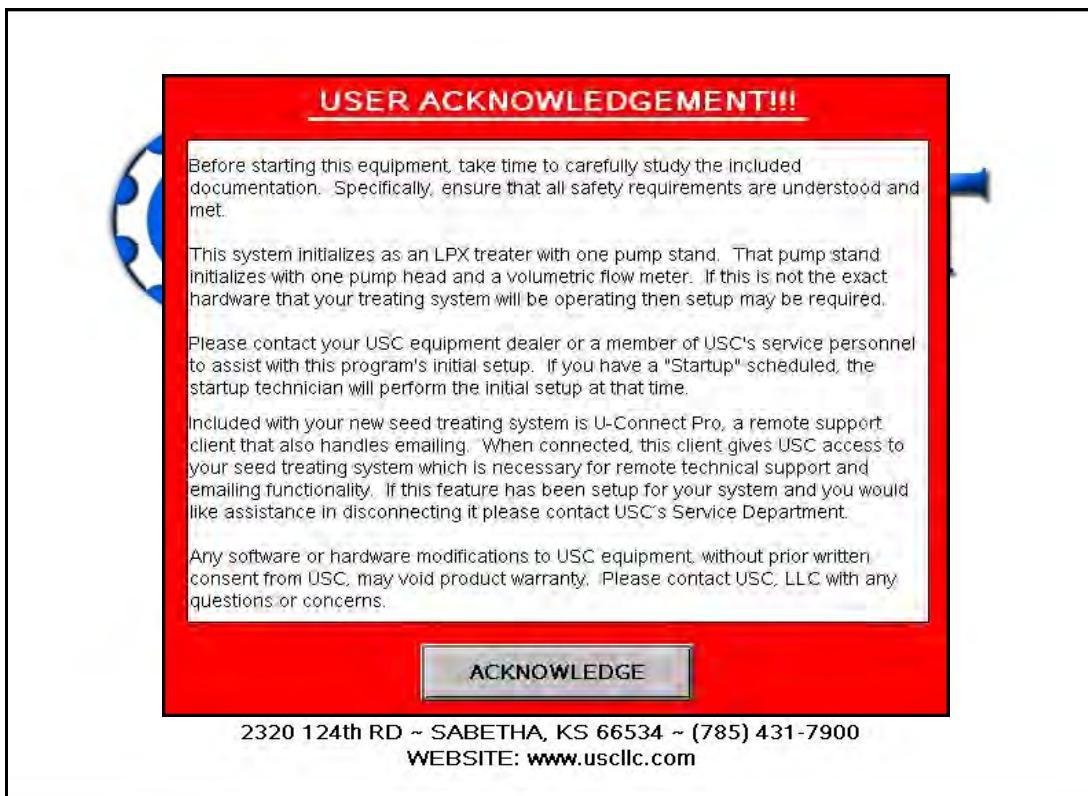
### GENERAL PANEL DESCRIPTIONS

- The Automated Main Control Panel is a plug connected enclosure that contains the PLC (Programmable Logic Controller) as well as the HMI (Human Machine Interface) touch screen. The operator is able to control the entire system through the HMI. Power to this panel is supplied by a standard 110V plug.
- The LPV Automated Treater Panel is an enclosure that contains the electrical components required to actuate the seed treater. This includes the VFDs for the atomizer and seed wheel. Power for the treater is supplied here. Power to this panel is hard wired.
- The LPV Weigh Belt I/O Control Panel is an enclosure that contains the electrical components required to actuate the drum tilt actuator. This includes the proximity sensors for the seed hopper. Power to this panel is supplied by a standard 110V plug.

**LPX WEIGH BELT TREATER HMI TOUCH SCREENS**

**USC STARTUP SCREEN**

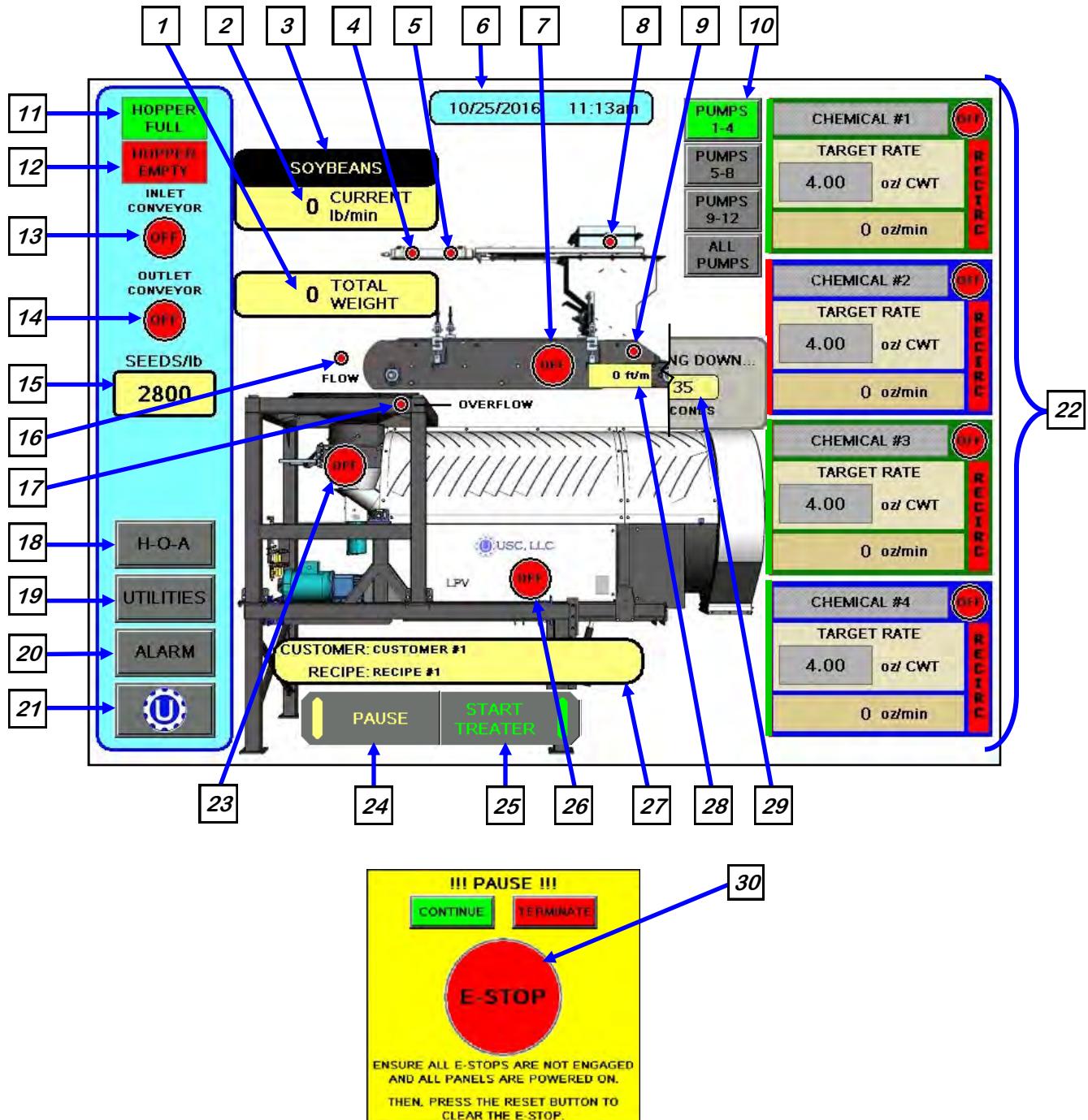
This is the first screen the operator will see after the system receives power at the initial startup. After reading the User Acknowledgement statement, push the acknowledge button at the bottom of the popup window to close the screen. Then press anywhere on the Startup screen to advance to the Main screen. If you wish to review the acknowledgement information at a later time, press the About button in the lower right corner of the Utilities screen (see page 51). Press the Acknowledgement button on the bottom of the popup.



## LPV WEIGH BELT SEED TREATER

### MAIN SCREEN

This screen informs the operator of the status of all system motors and electrical devices. It also allows control / adjustment of system operations with a seed wheel.



## **MAIN SCREEN**

**1. TOTAL WEIGHT:** Displays the total amount of seed in pounds or kilograms for the current run in real time.

**2. SEED FLOW RATE:** Displays the seed flow rate in pounds or kilograms per minute.

**3. SEED TYPE:** Displays seed type selected last.

**4. SLIDE GATE OPEN SENSOR:** When this display is green, the slide gate is open. When it is red, the slide gate is closed.

**5. SLIDE GATE CLOSED SENSOR:** When this display is green, the slide gate is closed. When it is red, the slide gate is open.

### **6. CURRENT DATE AND TIME DISPLAY.**

**7. WEIGH BELT MOTOR STATUS:** Informs the operator if the seed wheel is ON (green) or OFF (red).

**8. SEED GATE PROXIMITY SWITCH:** When the indicator is active (green), seed is detected. When it is inactive (red), seed is not detected. During an automated run, the slide gate will open and close automatically

**9. SEED ON BELT PROXIMITY SWITCH:** When the indicator is active (green), seed is present on the belt. When it is inactive (red), seed is not present or is emptying out.

**10. PUMPS BUTTONS:** These buttons appear when more than 4 pumps are enabled. Use these buttons to rotate between each of the 3 groups of 4 pumps. Pressing the ALL PUMPS button will display all of the pump stand modules simultaneously.

**11. HOPPER FULL:** Informs the operator when the proximity switch located in the top of the supply hopper above the weigh belt is detecting seed. When the indicator is active any equipment plugged into the Inlet Conveyor plug will be automatically turned off.

**12. HOPPER EMPTY:** Informs the operator when the proximity switch located above the slide gate is not detecting seed.

**13. INLET CONVEYOR MOTOR STATUS INDICATOR:** Informs the operator if the inlet conveyor is ON or OFF.

**14. OUTLET CONVEYOR MOTOR STATUS INDICATOR:** Informs the operator if the outlet conveyor is ON or OFF.

## MAIN SCREEN

**14. OUTLET CONVEYOR MOTOR STATUS INDICATOR:** Informs the operator if the outlet conveyor is ON or OFF.

**15. SEEDS / LB:** This shows the seeds per pound the operator entered for the selected seed profile used to calculate the seed flow rate. It will only appear if at least one of the pump stands has been set to run in the SCU mode or the SCU option is selected on the UTILITIES screen.

**16. FLOW INDICATOR** When the indicator is active (green), seed is flowing off the end of the belt into the inlet hopper. When it is inactive (red), seed is not flowing off the end of the belt.

**17. OVERFLOW PROXIMITY SWITCH:** When the indicator is active (green), seed is backing up in the inlet hopper. This will stop the weigh belt and continue to run the treater and pump(s) for a pre-determined amount of time and then pause the entire system. This allows the operator to adjust to a lower flow rate on the Utilities screen, go to the HOA screen and place the weigh belt module back in auto, then press the continue button on the bottom of the main screen to continue the run. This is to prevent seed from overflowing from the inlet hopper.

**18. H-O-A (Hand-Off-Auto):** This button advances the operator to the H-O-A screen (see page 44).

**19. UTILITIES:** This button advances the operator to the UTILITIES screen (see page 51).

**20. ALARM:** This button advances the operator to the ALARM screen to review, reset and delete alarms. The operator can also mute the alarm horn from this screen.

**21. USC LOGO BUTTON:** Pressing this button returns the operator to the start-up screen (see page 38).

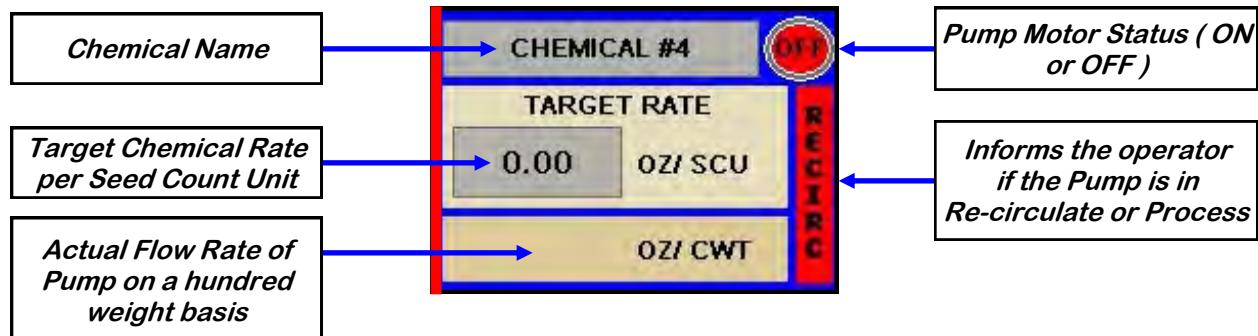
**22. PUMP STATUS MODULES:** This block of information informs the operator of the pump motor status ON or OFF, air actuated 3-way valve status, currently selected chemical, target flow rate and actual flow rate from flow meter. A vertical line on the left side of the pump module will indicate the tolerance status. If it is green, the pump flow rate is within tolerance. If it is red, it is out of tolerance.

### **NOTICE**

Actual flow rate of pump may be defined as either oz/min or oz/cwt regardless of the target rate setting (oz/cwt or oz/scu).

### **AVIS**

Débit réel de la pompe peut être définie comme étant soit oz / min ou oz / quintal indépendamment du réglage de taux cible (oz / ou de quintaux oz / SCU).

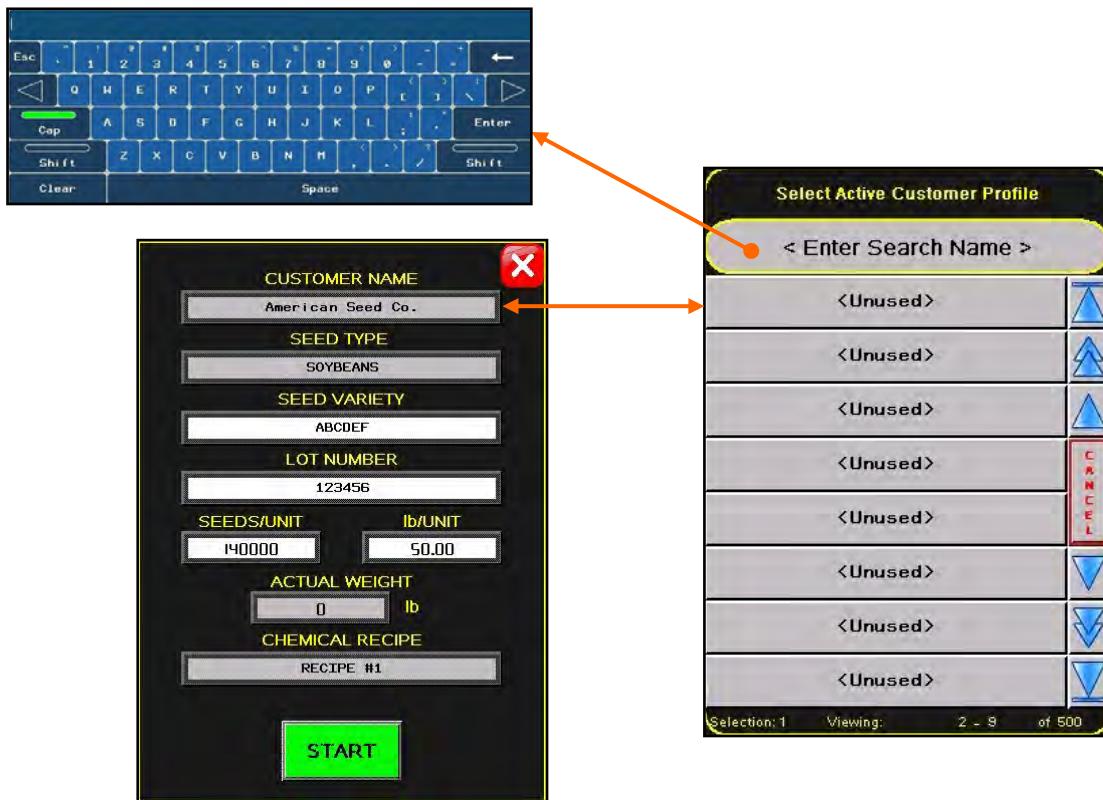
**MAIN SCREEN****CWT / OUNCES PER MINUTE****SEED COUNT UNITS / OUNCES PER CUT WEIGHT**

**23. ATOMIZER MOTOR STATUS INDICATOR:** Informs the operator if the atomizer motor is ON or OFF.

**24. PAUSE BUTTON:** Once the START button has been pushed and the system begins to operate, this becomes the PAUSE button.

**MAIN SCREEN**

**25. START BUTTON:** This is used to start the machine after all motors have been placed into the AUTO position. Once the button is pushed a pop-up window appears. You may select the customer by selecting the customer name box to search the rolodex for an existing entry by typing their name in the search field or using the navigation arrows. When all the information has been added press START to begin the run. Once the system begins to operate it becomes the SHUTDOWN button.



**26. DRUM MOTOR STATUS:** Informs the operator if the drum drive motor is ON (green) or OFF (red).

**27. CUSTOMER NAME:** Displays the last customer selected and the current recipe in use.

**28. BELT SPEED:** Displays the travel speed of the weigh belt in feet per minute.

**29. SYSTEM SHUTDOWN INDICATOR:** Informs the operator that the system is in the process of shutting down. The timer in the middle counts down how many seconds are left before shutdown is complete (Only the right side of the button is shown for clarity).

**30. EMERGENCY STOP INDICATOR:** This blinking display is activated when the system's E-Stop button is activated.

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

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

These H-O-A buttons force the selected component to be energized (HAND), de-energized (OFF), or automatically energized by the normal logic sequence (AUTO).

The HAND function will cause the component to operate independent of whatever else the system is trying to do automatically. These functions should not normally be used if the automated sequencing is active. **Be sure to understand the impact of energizing or de-energizing a component with the HAND/Off settings before using them. These commands are not a substitute for Lockout/Tagout procedures when working on or near this machine. Use proper lockout/tagout procedures to disable the equipment before servicing it.**

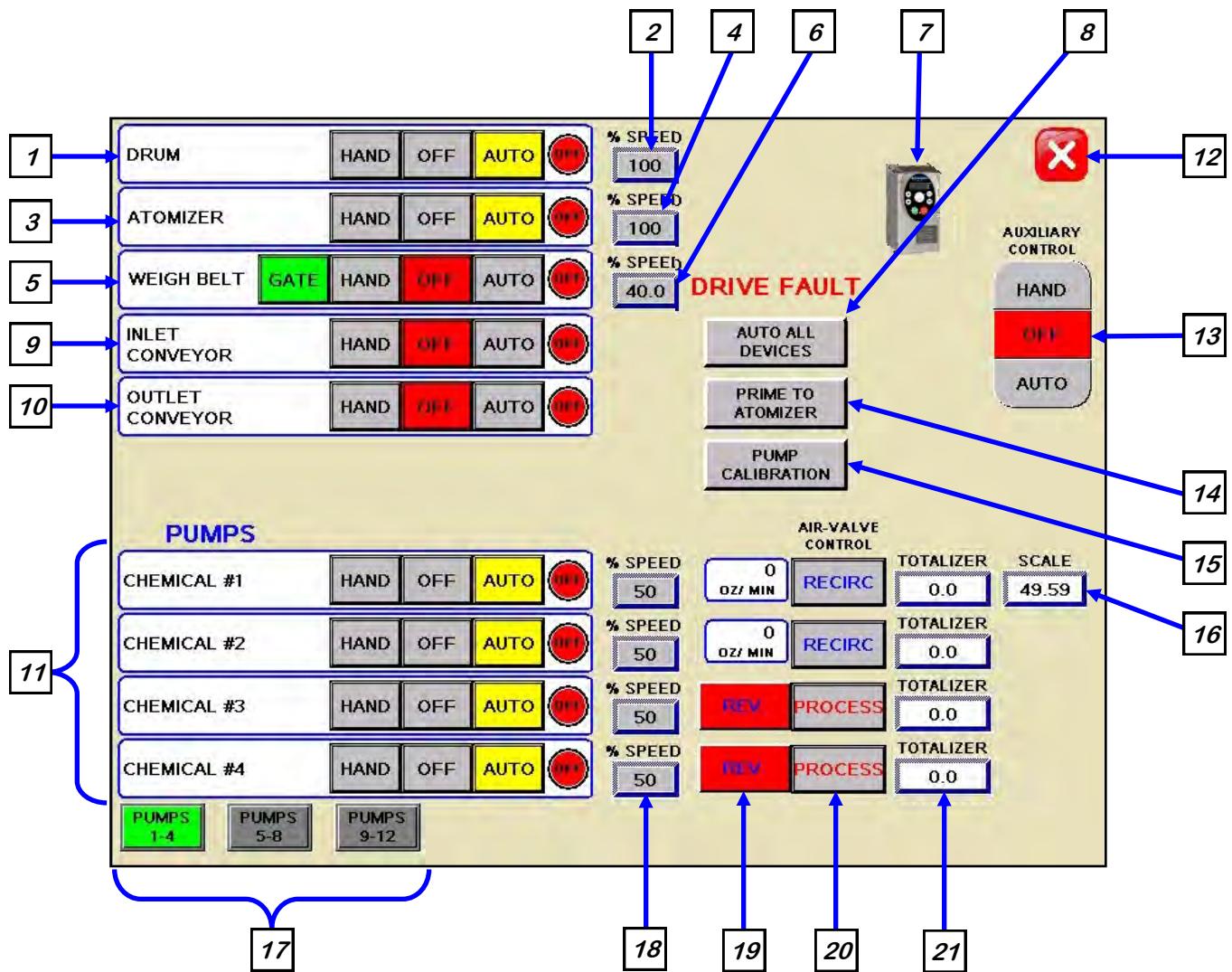
**! AVERTISSEMENT**

Ces boutons HOA forcent le composant sélectionné pour être excité (HAND), hors tension (OFF), ou automatiquement alimentés par la séquence logique normale (AUTO). La fonction de la main provoquera la composante de fonctionner indépendamment de tout ce que le système essaie de faire automatiquement. Ces fonctions ne devraient normalement pas être utilisées si le séquençage automatisé est actif. Assurez-vous de comprendre l'impact de énergisant ou désexciter un composant avec la main / Off paramètres avant de les utiliser. Ces commandes ne sont pas un substitut pour les procédures de verrouillage / étiquetage lorsque vous travaillez sur ou près de cette machine. Utilisez les procédures appropriées de verrouillage / débranchement pour désactiver l'équipement avant de l'entretenir.

LPV WEIGH BELT SEED TREATER

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

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



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

**1. DRUM CONTROL MODULE:** This module controls the function of the drum. The HAND button will place the drum in the manual mode of operation. The OFF button will turn the associated device in the OFF mode of operation. The AUTO button will place the device in the automatic mode of operation. The motor will not operate in this function unless all other needed devices are in the AUTO mode and the START button is pressed on the start treater popup screen. The reverse button will only be present when running a Bayer RH series treater.

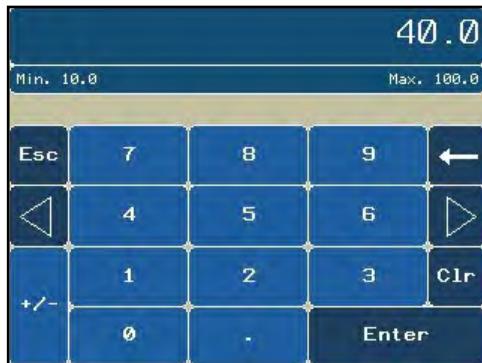
**2. DRUM PERCENT SPEED:** When this button is pressed, a numeric touch pad (bottom) will appear to allow the operator to manually adjust the speed of the drum.

**3. ATOMIZER CONTROL MODULE:** This module controls the function of the atomizer. The HAND button will place the atomizer in the manual mode of operation. The OFF button will turn the associated device in the OFF mode of operation. The AUTO button will place the device in the automatic mode of operation. The motor will not operate in this function unless all other needed devices are in the AUTO mode and either the PRIME TO ATOMIZER or the START button is pressed on the main screen.

**4. ATOMIZER PERCENT SPEED:** When this button is pressed, a numeric touch pad (bottom) will appear to allow the operator to manually adjust the speed of the atomizer.

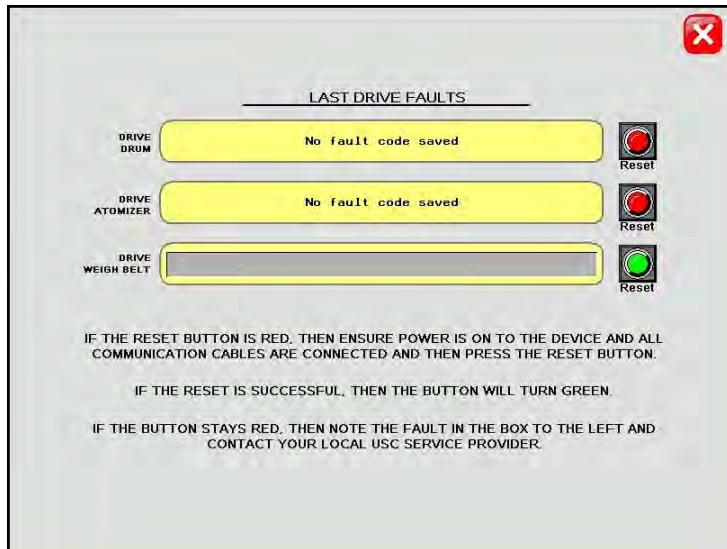
**5. WEIGH BELT CONTROL MODULE:** This module controls the function of the weigh belt. The HAND button will place the weigh belt in the manual mode of operation. The OFF button will turn the associated device in the OFF mode of operation. The AUTO button will place the device in the automatic mode of operation. The motor will not operate in this function unless all other needed devices are in the AUTO mode and the START button is pressed on the start setup screen. The Gate button will only be present when running in manual mode. Pressing it will manually open and close the seed gate. When it is green, the gate is open. When it is grey, the gate is closed.

**6. WEIGH BELT PERCENT SPEED:** When this button is pressed, a numeric touch pad (below) will appear to allow the operator to manually adjust the speed of the weigh belt. When running in the AUTO mode the program will override this setting.



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

**7. VFD FAULT RESET BUTTON:** When a VFD fault occurs, a popup screen will display indicating which drive failed along with a message indicating the problem. After the problem has been resolved, press the reset button to resume operation.



**8. AUTO ALL DEVICES BUTTON:** When this button is pushed, it globally changes all treater HOA settings to the AUTO mode of operation.

**9. INLET CONVEYOR CONTROL MODULE:** This module controls the function of the inlet conveyor. The HAND button will place the inlet conveyor in the manual mode of operation. The OFF button will turn the associated device in the OFF mode of operation. The AUTO button will place the device in the automatic mode of operation. The motor will not operate in this function unless all other needed devices are in the AUTO mode and the START button is pressed on the main screen. When the proximity switch located in the supply hopper above the weigh belt is detecting seed and the indicator is active, any equipment plugged into the Inlet Conveyor plug will be turned off.

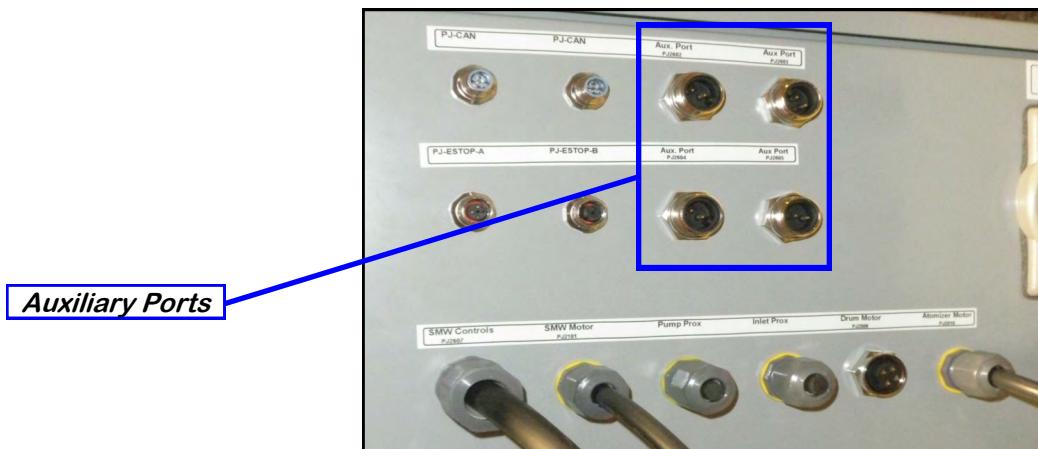
**10. OUTLET CONVEYOR CONTROL MODULE:** This module controls the function of the outlet conveyor. The HAND button will place the outlet conveyor in the manual mode of operation. The OFF button will turn the associated device in the OFF mode of operation. The AUTO button will place the device in the automatic mode of operation. The motor will not operate in this function unless all other needed devices are in the AUTO mode and the START button is pressed on the main screen.

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

**11. PUMP CONTROL MODULES:** These modules control the function of the Pump Stands. The HAND button will place the desired pump in the manual mode of operation. The OFF button will turn the associated device in the OFF mode of operation. The AUTO button will place the device in the automatic mode of operation. The pump will not operate in this function until the START button is pressed on the start setup screen. This module also monitors the flow indicator. If it is active, seed is flowing off the end of the belt and the pump(s) will turn on and the 3-way valve on the pump will switch to Process. When the indicator is inactive and the pump off delay time has elapsed, the 3-way valve will switch to Recirculation mode.

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

**13. AUXILIARY CONTROL:** This module allows the operator to control any unit which is plugged into the auxiliary port located on the bottom of the treater control panel. The HAND button will allow the user to operate the unit in the manual mode of operation. The OFF button will disconnect control to the auxiliary port. The AUTO button will place the unit in the automatic mode of operation. Any unit plugged into the auxiliary port will not operate in this function until the START button is pressed on the main screen. It will also turn off using the same logic as the pump stands.



**14. PRIME TO ATOMIZER BUTTON:** Used before a controlled startup to preload chemical in the tubing leading to the atomizer. To operate this button, place the atomizer and any pump that will be used in the AUTO mode. Next press and hold the PRIME TO ATOMIZER button. The atomizer and pumps will turn on and the liquid will be directed to the atomizer. The atomizer and pumps will run as long as the button is being pressed. When the button is released the atomizer and pumps will shut-off.

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

**15. PUMP CALIBRATION BUTTON:** Pressing this button brings up the screen below. This screen is used to calibrate the pump stand. Enter the number of the pump you wish to calibrate and a target run time for the calibration. The longer the run time the more accurate the calibration. USC recommends a minimum of 60 seconds. Pressing the JOG PUMP MOTOR button will turn the pumps on and off for short periods of time to fill the process lines attached to the top of the calibration tube. Press the button again to stop the flow. Press the START button to begin the calibration. When the target run time has elapsed, the pump will shutoff automatically. If for any reason you need to stop the process, press the STOP button. If the calibration is stopped before the target time has elapsed, the operator must start the process over again. If you press start and continue from your stopping point, the calibration will not be accurate. Enter the totalizer reading and the calibration tube reading in the TOTALS section. Press the UPDATE RATIO button to correct the calibration ratio. For Loss-in-Weight pump stands, this section would be updating the Density. Closing this popup will stop the calibration process if it has not been completed.

**16. SCALE INDICATOR:** This indicates the weight of the chemical detected from the scale head on pump stands that are equipped with a scale.

**17. PUMPS BUTTONS:** These buttons appear when more than 4 pumps are enabled. Use these buttons to rotate between each of the 3 groups of 4 pumps.

The screenshot shows a software window titled "PUMP CALIBRATION CALCULATOR". The interface is divided into several sections:

- Top Left:** A "HELP!" button with a lightbulb icon.
- Top Right:** A red "X" button to close the window.
- Pump Selection:** "Pump # to Adjust: 2" and "Selected Pump's Chemical Name: WATER LOW".
- Run Time Input:** "Target Run Time (Seconds): 60" and "Actual Rate (mL / min): 0.0".
- Rate Input:** "Target Rate (mL / min): 383.9" and a "JOG PUMP MOTOR" button.
- Estimate Output:** "Rough Est. Total (mL): 383.81" and "START" and "STOP" buttons.
- TOTALS Section:** "Cal. Tube Total: 1.05 mL" and "Calculated Totalizer: 1.00 mL". Below these is "Elapsed Run Time (Seconds): 0.0 seconds".
- CALIBRATION RATIO Section:** "Current Ratio: 0.91" and "Calculated Ratio: 0.96". Below these is "UPDATE RATIO" button.

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

**18. PUMP PERCENT SPEED:** When this button is pressed, a numeric touch pad will appear to allow the operator to manually adjust the speed of the pump(s). When running in the AUTO mode the program will override this setting.

**19. REVERSE BUTTON:** Allows the operator to reverse the pump direction and pump the product back into the mix tank. When the pump is in Hand or Auto mode, this button will become a display for the actual pump flow rate. When running in the AUTO mode the program will override this setting.

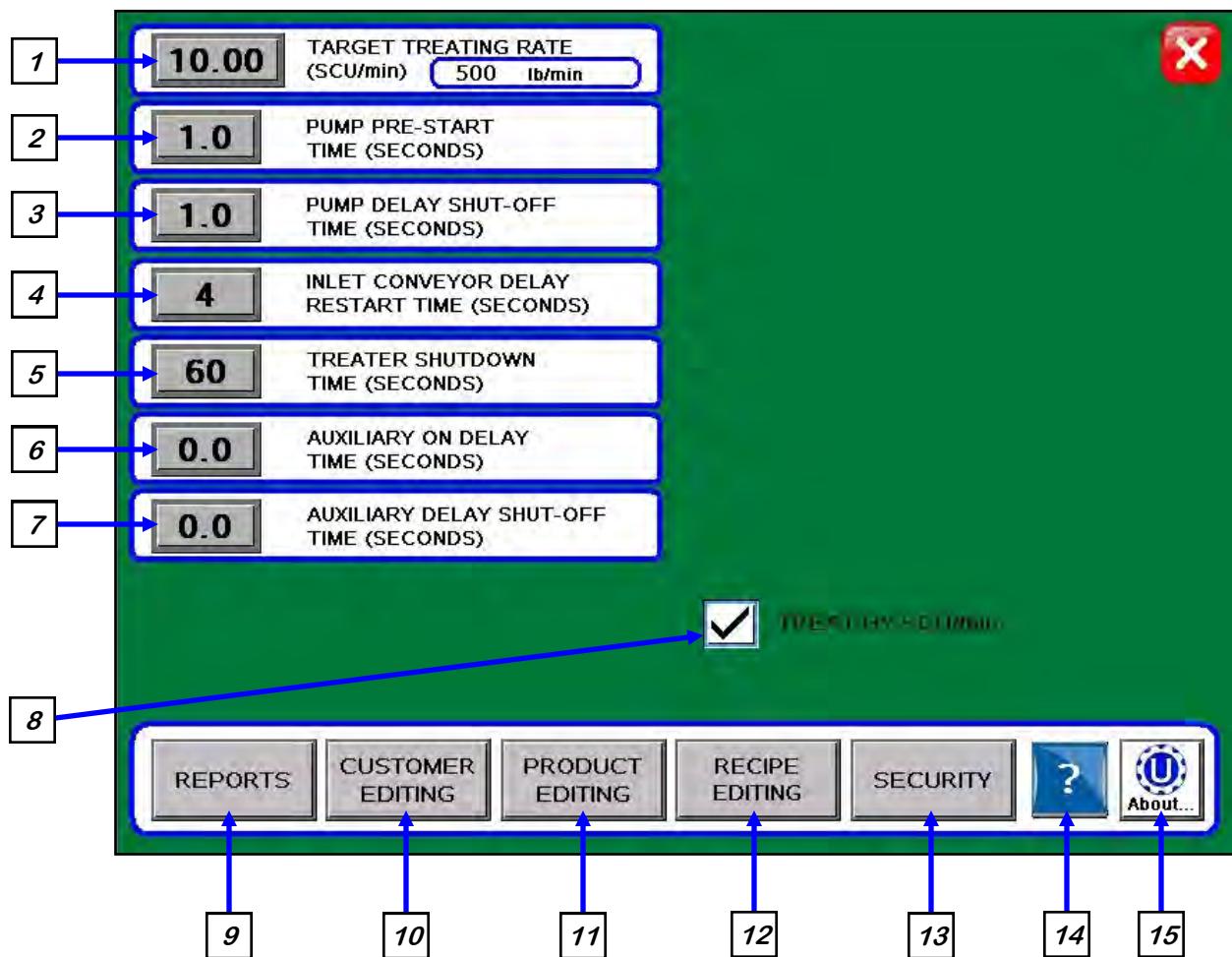
**20. AIR VALVE CONTROL MODULE:** This module controls where liquid is diverted for each pump. When a desired pump is placed in the HAND mode, the RECIRC button will appear next to that pump control module. In this mode, liquid is pumped out of its desired tank, through the air actuated 3-way valve manifold and back into the mix tank. When the RECIRC. button is pressed, the icon will change to PROCESS. In this mode, liquid is diverted from the air actuated 3-way valve, to the atomizer. When the OFF button is pressed the pump will go back to RECIRC. When the pump is placed in the AUTO mode the Air Valve Control cannot be accessed. (Optional feature)

**21. TOTALIZER INDICATOR:** Displays in real time the amount of chemical that has been applied. If the pump is set in the HAND mode, pushing the button will reset it to zero.

## LPV WEIGH BELT SEED TREATER

### UTILITIES SCREEN

This screen allows the operator to set various system parameters and gives access to the Reports, Product Selection, Security, Alarms, Customer Information and General Information screens.



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



## **UTILITIES SCREEN**

**1. TARGET TREATING RATE:** Pressing this button allows the operator to adjust the estimated treating rate in pounds per minute. This number is used by the system to control the rate of the seed wheel and pumps.

**2. PUMP PRE-START TIME:** This setting is used for treaters that use a seed wheel as a flow metering device. It has no function when using a weigh belt flow metering device.

**3. PUMP DELAY SHUT-OFF TIME:** Pressing this button allows the operator to adjust the delay shut-off time of the pump(s). After the system no longer detects seed coming off of the end of the weigh belt, it will wait the number of seconds specified here and place the 3-way valve in the recirculation mode stopping the treatment flow to the atomizer.

**4. INLET CONVEYOR DELAY RESTART TIME:** Pressing this button allows the operator to adjust the restart time of the inlet conveyor after the proximity switch located at the top of the inlet hopper above the seed wheel no longer detects seed.

**5. TREATER SHUTDOWN TIME:** Pressing this button allows the operator to adjust the delay shutdown time of the seed treater after the SHUTDOWN button has been pressed after a run. This time will allow the seed treater and any conveyors to completely clean out.

**6. AUXILIARY ON DELAY TIME:** Pressing this button allows the operator to adjust the delay from the time the proximity sensor in the seed wheel detects seed to the time a signal is sent to an auxiliary device connected to the system to start it.

**7. AUXILIARY DELAY SHUTOFF TIME:** Pressing this button allows the operator to adjust the delay from the time the proximity sensor in the seed wheel no longer detects seed to the time a signal is sent to an auxiliary device connected to the system to stop it.

**8. TREAT BY SCU / MIN:** When this box is checked, the primary Target Treating Rate will be calculated in Seed Count Units per minute. Unchecked, it will be calculated in pounds per minute.

**9. REPORTS:** This button advances the operator to the Reports screen (see page 54).

**10. CUSTOMER EDITING:** This button advances the operator to the Customer Editing screen (see page 64).

## **UTILITIES SCREEN**

**11. PRODUCT EDITING:** This button advances the operator to the Product Editing screen (see page 63).

**12. RECIPE EDITING:** This button advances the operator to the Recipe Editing screen (see page 62).

**13. SECURITY:** This button advances the operator to the Security screen (see page 58).

**14. INFORMATION:** This button advances the operator to the information screen where the operator can find vital information on storage and troubleshooting.

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

**UTILITIES SCREEN - REPORTS**

The following steps explain how reports are accessed and can be managed after a run has been completed.

1. After the SHUTDOWN button has been pressed a window will pop-up notifying the operator that the system will shut down after a specified amount of time. (right)



2. Once a run is finished the data is saved automatically in the reports file.

The operator may access these records from the UTILITIES screen by pressing the REPORTS button that will bring up the screen below. On the left side of the screen is a list of report records. Use the arrows to scroll up or down the list. If you know the record number for the report, select the jump to record box and key it in. The record will appear at the top of the list. To see the report details, select the record you want and the information will appear to the right. To view more details, press the View Full Details button in the lower right corner. This screen will display customer, seed profile and chemical treatment information (see page 55, top). If emailing is enabled you will see an EMAIL buttons that allow you to email an individual record or all records in the file. You may also choose to print a record from this screen (see page 55, bottom) .

**Job Report Records**

|                               |   |
|-------------------------------|---|
| 2015/12/03, 14:08:00-Treater  | ▲ |
| 2015/12/03, 14:08:53-Bin Site | ▲ |
| 2015/12/03, 14:17:42-Treater  | ▲ |
| 2015/12/03, 14:18:35-Bin Site | ▲ |
| 2015/12/03, 14:35:25-Treater  | ▲ |
| 2015/12/03, 14:36:18-Bin Site | ▼ |
| 2015/12/03, 14:46:06-Treater  | ▼ |
| 2015/12/03, 14:46:59-Bin Site | ▼ |

Selection: 31 Viewing: 25 - 32 of 10000  
Total Used Records: 83  
DB Status:  
Jump To Record #: 25

**REPORTS**

Record Details: Job Report #31

Record Type: Treater  
Date: 2015/12/03 14:46:06  
System Paused: FALSE  
Measurement Mode: U.S.  
Customer Name: CUSTOMER 1  
Seed Profile: SOYBEANS 1  
Avg. Weight/min.: 498  
Avg. SCU/min.: 9.79  
Auxiliary Used: FALSE  
Run Timer (Sec.): 35

| Chemical Name       | Total oz. |
|---------------------|-----------|
| Pump #1: CHEMICAL 1 | 34.2      |
| Pump #2: CHEMICAL 4 | 0.0       |
| Pump #3: CHEMICAL 7 | 0.0       |
| Pump #4:            | 0.0       |
| Pump #5:            | 0.0       |
| Pump #6:            | 0.0       |
| Pump #7:            | 0.0       |
| Pump #8:            | 0.0       |

**Buttons:** EMAIL ALL, EMAIL, PRINT, VIEW FULL DETAILS, NOTES, SAVE

LPV WEIGH BELT SEED TREATER  
**UTILITIES SCREEN - REPORTS**

**Record Details: Job Report #31**

| <b>Customer Name:</b> CUSTOMER 1<br><b>Address #1:</b> 1234 SABETHA KS<br><b>Address #2:</b><br><b>Phone Number:</b><br><br><b>Record Type:</b> Treater<br><b>Start Time:</b> 2015/12/03 14:43:46<br><b>End Time:</b> 2015/12/03 14:46:06<br><b>System Paused:</b> FALSE<br><b>Measurement Mode:</b> U.S.<br><b>Recipe:</b> N/A<br><b>Auxiliary Used:</b> FALSE   | <b>Seed Profile:</b> SOYBEANS 1<br><b>Variety:</b><br><b>Lot Number:</b><br><b>Seeds/Unit:</b> 140000<br><b>Seeds/Weight:</b> 2800<br><b>Weight/SCU:</b> 50.00<br><b>Calibration Ratio:</b> 2.49<br><b>Run Timer (Sec.):</b> 3.6<br><b>Target Weight:</b> 502<br><b>Target SCUs:</b> 1004<br><b>Avg. Weight/min.:</b> 490<br><b>Avg. SCU/min.:</b> 979 |               |           |       |                     |      |      |                     |     |  |                     |     |  |          |     |  |          |     |  |          |     |  |          |     |  |          |     |  |
|---|--|---------------|-----------|-------|---------------------|------|------|---------------------|-----|--|---------------------|-----|--|----------|-----|--|----------|-----|--|----------|-----|--|----------|-----|--|----------|-----|--|
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Chemical Name</th> <th style="text-align: right;">Total oz.</th> <th style="text-align: right;">% ACC</th> </tr> </thead> <tbody> <tr><td>Pump #1: CHEMICAL 1</td><td style="text-align: right;">34.2</td><td style="text-align: right;">81.2</td></tr> <tr><td>Pump #2: CHEMICAL 4</td><td style="text-align: right;">0.0</td><td style="text-align: right;"></td></tr> <tr><td>Pump #3: CHEMICAL 2</td><td style="text-align: right;">0.0</td><td style="text-align: right;"></td></tr> <tr><td>Pump #4:</td><td style="text-align: right;">0.0</td><td style="text-align: right;"></td></tr> <tr><td>Pump #5:</td><td style="text-align: right;">0.0</td><td style="text-align: right;"></td></tr> <tr><td>Pump #6:</td><td style="text-align: right;">0.0</td><td style="text-align: right;"></td></tr> <tr><td>Pump #7:</td><td style="text-align: right;">0.0</td><td style="text-align: right;"></td></tr> <tr><td>Pump #8:</td><td style="text-align: right;">0.0</td><td style="text-align: right;"></td></tr> </tbody> </table> |  | Chemical Name | Total oz. | % ACC | Pump #1: CHEMICAL 1 | 34.2 | 81.2 | Pump #2: CHEMICAL 4 | 0.0 |  | Pump #3: CHEMICAL 2 | 0.0 |  | Pump #4: | 0.0 |  | Pump #5: | 0.0 |  | Pump #6: | 0.0 |  | Pump #7: | 0.0 |  | Pump #8: | 0.0 |  |
| Chemical Name   | Total oz.  | % ACC         |           |       |                     |      |      |                     |     |  |                     |     |  |          |     |  |          |     |  |          |     |  |          |     |  |          |     |  |
| Pump #1: CHEMICAL 1   | 34.2   | 81.2          |           |       |                     |      |      |                     |     |  |                     |     |  |          |     |  |          |     |  |          |     |  |          |     |  |          |     |  |
| Pump #2: CHEMICAL 4   | 0.0  |               |           |       |                     |      |      |                     |     |  |                     |     |  |          |     |  |          |     |  |          |     |  |          |     |  |          |     |  |
| Pump #3: CHEMICAL 2   | 0.0  |               |           |       |                     |      |      |                     |     |  |                     |     |  |          |     |  |          |     |  |          |     |  |          |     |  |          |     |  |
| Pump #4:  | 0.0  |               |           |       |                     |      |      |                     |     |  |                     |     |  |          |     |  |          |     |  |          |     |  |          |     |  |          |     |  |
| Pump #5:  | 0.0  |               |           |       |                     |      |      |                     |     |  |                     |     |  |          |     |  |          |     |  |          |     |  |          |     |  |          |     |  |
| Pump #6:  | 0.0  |               |           |       |                     |      |      |                     |     |  |                     |     |  |          |     |  |          |     |  |          |     |  |          |     |  |          |     |  |
| Pump #7:  | 0.0  |               |           |       |                     |      |      |                     |     |  |                     |     |  |          |     |  |          |     |  |          |     |  |          |     |  |          |     |  |
| Pump #8:  | 0.0  |               |           |       |                     |      |      |                     |     |  |                     |     |  |          |     |  |          |     |  |          |     |  |          |     |  |          |     |  |

3. Press the PRINT button and a popup window appears. From this screen you may enter the number of reports to print for the customers records. Then press the X in the top right corner of the screen to exit back to the reports screen. If the Auto Print Report has been activated on the Print Set-up screen (see page 65) , this step will not be required. The print verification screen will appear and automatically print the number of reports specified.

**NUMBER OF TREATER REPORTS TO PRINT**

**1**

**NUMBER OF TREATER REPORTS PRINTED**

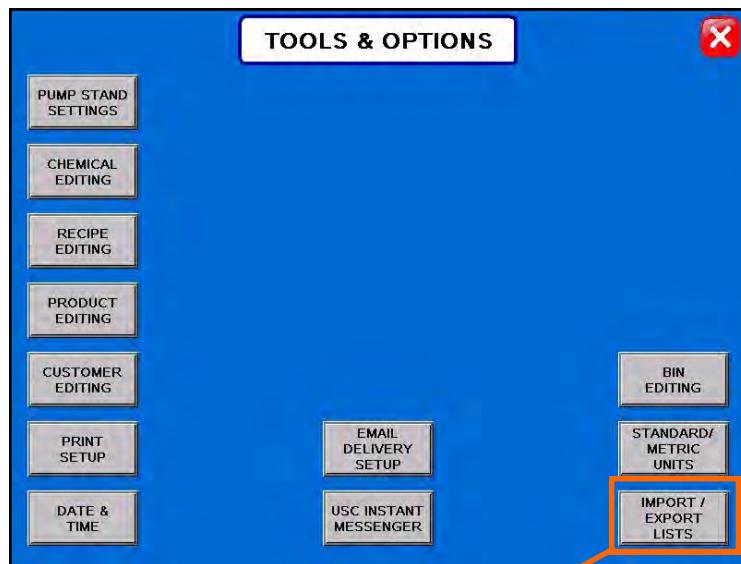
**0**

**PRINT**

Pressing "X" or moving off of the current screen will cancel future print operations.

LPV WEIGH BELT SEED TREATER  
**UTILITIES SCREEN - REPORTS**

4. If you would like to erase the reports, press the SECURITY button under the UTILITIES screen. Enter the password **USC**, then press the TOOLS & OPTIONS button. From this screen press the IMPORT / EXPORT LISTS button. On this screen you will find the Job Reports List with the option to Export or Delete the records. If you intend to deleted the reports, USC strongly recommends you first export them to a flash drive to preserve for your records.



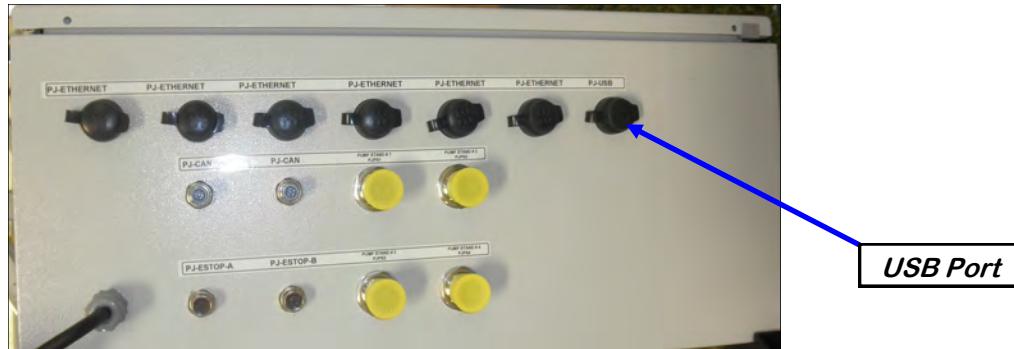
The screenshot shows the 'IMPORT / EXPORT' screen. At the top, it says 'USB Status: Connected.' and 'Import/Export Status:'. Below that is a table with the following data:

| List                 | Total Used Records | Status | Actions       |
|----------------------|--------------------|--------|---------------|
| Alarm Log            | 141                |        | Export Delete |
| Job Reports          | 57                 |        | Export Delete |
| Customer Profiles    | 8                  |        | Export Import |
| Seed Profiles        | 8                  |        | Export Import |
| Chemical Profiles    | 8                  |        | Export Import |
| Chemical Recipes     | 13                 |        | Export Import |
| Pump Profiles        | 9                  |        | Export Import |
| Bin Profiles         | 2                  |        | Export Import |
| Conveyors Profile    | 0                  |        | Export Import |
| Outlet Paths Profile | 2                  |        | Export Import |

An orange arrow points from the 'IMPORT / EXPORT LISTS' button in the previous menu to the 'Job Reports' row in this table.

**UTILITIES SCREEN - REPORTS****DOWNLOADING REPORTS**

The USB port located on the bottom of the Main Control Panel allows the operator to download reports to a compact flash device.

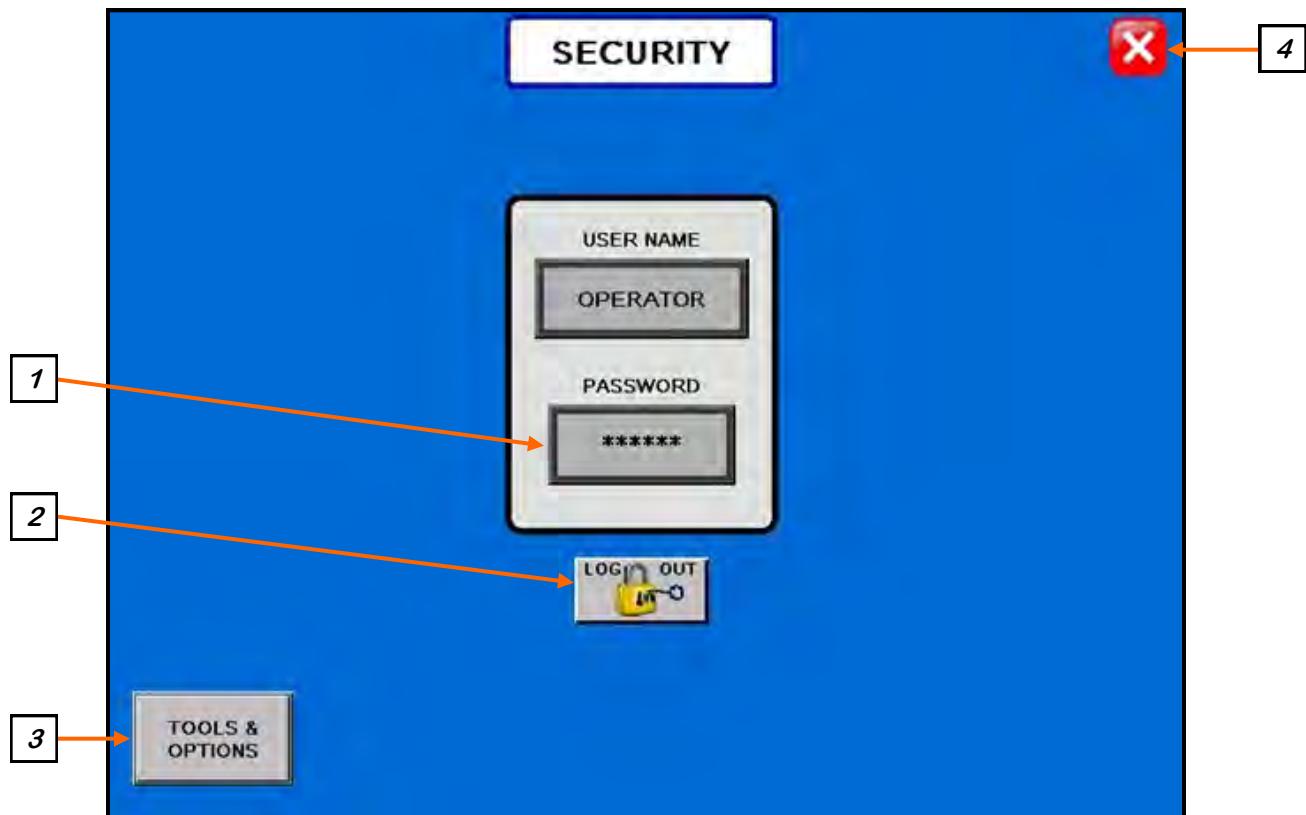


Use the following steps to download reports to a computer.

1. Insert a Compact Flash device into the USB port. The Flash device must be in Fat 32 format.
2. From the main screen press, UTILITIES, SECURITY then Tools & Options.
3. Press the IMPORT / EXPORT LISTS button. Find the Job Reports List section and press Export. The data transfer status will appear above the export button until it is finished and the do not exit screen warning will appear above the module. When it has disappeared the reports have been copied.
4. Remove the compact flash device from the control panel and insert into your computer. Double click on the file name and the reports will be displayed in EXCEL format.



LPV WEIGH BELT SEED TREATER  
**UTILITIES SCREEN - SECURITY**



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

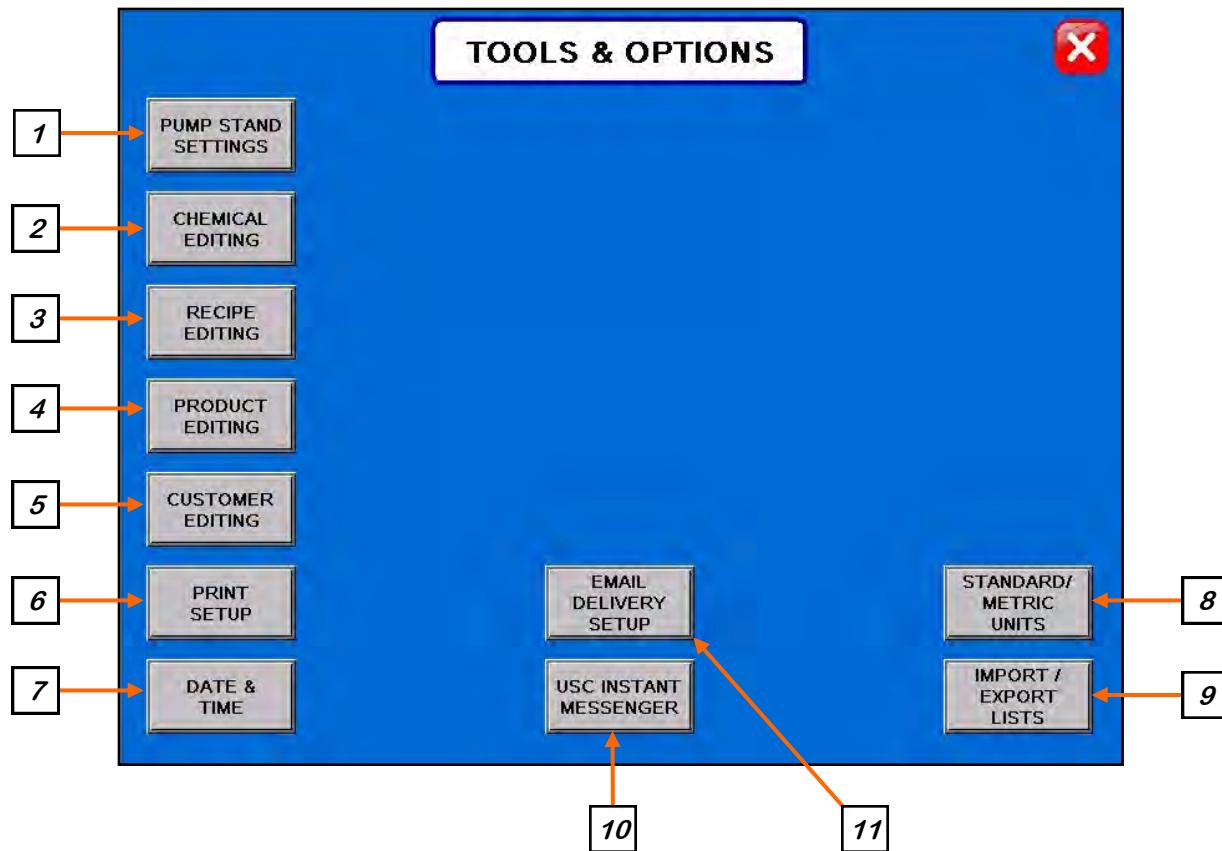


**UTILITIES SCREEN - SECURITY**

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

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

**4. SCREEN EXIT BUTTON:** Pressing this button is used to exit back to the previous screen. Its functionality is the same throughout the HMI display.

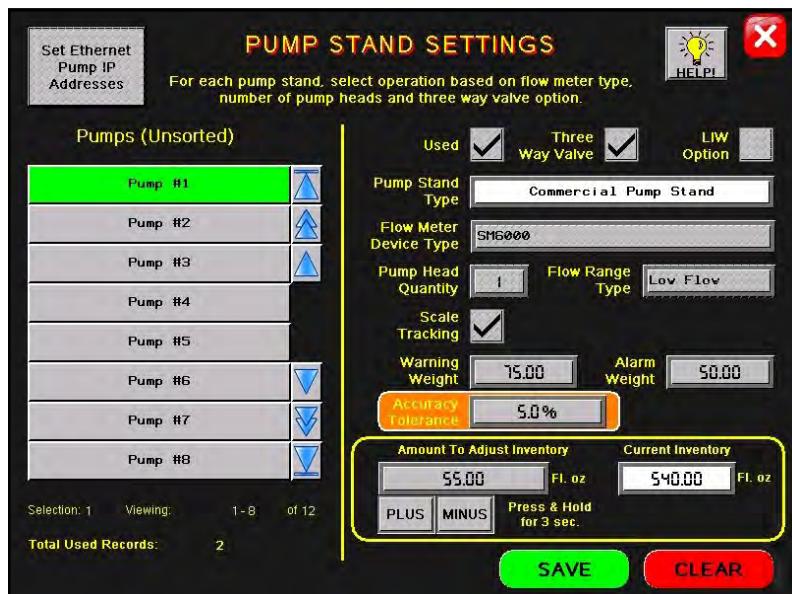
**TOOLS & OPTIONS SCREEN**

## TOOLS & OPTIONS SCREEN

**1. PUMP STAND SETTINGS:** Pressing this button will advance to the pump stand settings screen. The majority of the settings will be defined at system startup and may only be modified by someone with Admin Level 2 login privileges. From here the operator may select a pump stand from the list on the left. This brings up the current parameters for it on the right. From the editing section on the right, the operator may change the warning and alarm weight. Press the SAVE button, the button will stop blinking and the information will be saved. When the amount of chemical left reaches the pre-defined weight defined in the Warning Weight box, the message bar will appear at the top of the screen informing the operator that they will run out of treatment soon. When the amount of chemical left reaches the pre-defined weight defined in the Alarm Weight box, an alarm will sound and the run will be stopped automatically.

Pressing the Accuracy Tolerance button allows the operator enter a plus or minus tolerance by percentage for the pump to run in. A vertical line on the left side of the pump module on the main screen will indicate the tolerance status. If it is green, the pump flow rate is within tolerance. If it is red, it is out of tolerance.

The items in the yellow border in the lower right corner of the screen are for tracking the existing inventory in the mix tank, or tote container. To account for more liquid added to the mix tank or replacing a tote, press the Amount To Adjust Inventory button and a numeric keypad appears. Key in that amount of chemical to be added and press and hold the Plus button for 3 seconds. The Current Inventory indicator will update to show the amount added. After the inventory has been adjusted, the SAVE button will begin to flash. If you leave the screen without pressing it, the changes will not be saved. After a treating run has ended, the amount of chemical will automatically update the current inventory.



## TOOLS & OPTIONS SCREEN

**2. CHEMICAL EDITING:** Pressing this button will advance to the Chemical Editing screen where the operator may define the parameters for each individual chemical. Selecting a chemical from the list on the left brings up the current parameters for it on the right. To create a new chemical profile, select a used or unused box from the list, select the name box and key in a new name, then press the save button. If the operator wants the name to be the same as the barcode, press the name box and scan in the barcode. Press the barcode box and scan the barcode or enter it manually using the keypad. Next, enter the Target Rate, Chemical Calibration Factor and Measurement type. This screen also includes the Chemical Calibration Calculator button that will bring up a popup window (bottom). From this screen the operator may press the H-O-A SCREEN button at the bottom that brings up the treater H-O-A screen. From that screen, press the PUMP CALIBRATION button, this screen is where all chemical calculation rates are defined (see page 49). The operator must press SAVE or any changes made to the selected profile will be lost when leaving the screen.

The Density lb / gal and Chem Calb Factor Adj. buttons are only present when using a Loss-in-Weight pump stand. Density is required to properly define how much chemical is leaving the mix tank or tote. When the Chem Calib Factor Adj. is set to AUTO L-I-W it will automatically calibrate the pumps mid-run.

**CHEMICAL EDITING**

Select the chemical you wish to rename and set its desired flow rate and correction multiplier.

|   |                 |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
|---|-----------------|---|------------|---|------------|---|------------|---|------------|---|------------|---|------------|---|------------|---|--|---------|-----------------|------|------------|-------------------------|------|---------------------|------|---------------------|---------|---------------------|------|--------------------------|------------|
| <b>Chemical Profile List (Unsorted)</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>CHEMICAL 1</td><td style="text-align: right;">▲</td></tr> <tr><td>CHEMICAL 2</td><td style="text-align: right;">▲</td></tr> <tr><td>CHEMICAL 3</td><td style="text-align: right;">▲</td></tr> <tr><td>CHEMICAL 4</td><td style="text-align: right;">▼</td></tr> <tr><td>CHEMICAL 5</td><td style="text-align: right;">▼</td></tr> <tr><td>CHEMICAL 6</td><td style="text-align: right;">▼</td></tr> <tr><td>CHEMICAL 7</td><td style="text-align: right;">▼</td></tr> <tr><td>CHEMICAL 8</td><td style="text-align: right;">▼</td></tr> </table> | CHEMICAL 1      | ▲ | CHEMICAL 2 | ▲ | CHEMICAL 3 | ▲ | CHEMICAL 4 | ▼ | CHEMICAL 5 | ▼ | CHEMICAL 6 | ▼ | CHEMICAL 7 | ▼ | CHEMICAL 8 | ▼ | <b>Profile Editing</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Barcode</td><td>Test Chemical 1</td></tr> <tr><td>Name</td><td>CHEMICAL 1</td></tr> <tr><td>Target Rate<br/>oz / SCU</td><td>4.00</td></tr> <tr><td>Chem Calb<br/>Factor</td><td>1.00</td></tr> <tr><td>Measurement<br/>Type</td><td>ozf SCU</td></tr> <tr><td>Density<br/>lb / gal</td><td>8.33</td></tr> <tr><td>Chem Calb<br/>Factor Adj.</td><td>AUTO L-I-W</td></tr> </table> | Barcode | Test Chemical 1 | Name | CHEMICAL 1 | Target Rate<br>oz / SCU | 4.00 | Chem Calb<br>Factor | 1.00 | Measurement<br>Type | ozf SCU | Density<br>lb / gal | 8.33 | Chem Calb<br>Factor Adj. | AUTO L-I-W |
| CHEMICAL 1  | ▲               |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
| CHEMICAL 2  | ▲               |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
| CHEMICAL 3  | ▲               |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
| CHEMICAL 4  | ▼               |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
| CHEMICAL 5  | ▼               |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
| CHEMICAL 6  | ▼               |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
| CHEMICAL 7  | ▼               |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
| CHEMICAL 8  | ▼               |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
| Barcode   | Test Chemical 1 |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
| Name  | CHEMICAL 1      |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
| Target Rate<br>oz / SCU   | 4.00            |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
| Chem Calb<br>Factor   | 1.00            |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
| Measurement<br>Type   | ozf SCU         |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
| Density<br>lb / gal   | 8.33            |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |
| Chem Calb<br>Factor Adj.  | AUTO L-I-W      |   |            |   |            |   |            |   |            |   |            |   |            |   |            |   |  |         |                 |      |            |                         |      |                     |      |                     |         |                     |      |                          |            |

Selection: 1   Viewing: 1 - 8 of 50  
Total Used Records: 8

**SAVE**   **CLEAR**

**CHEMICAL FACTOR CALCULATOR:**

All Chemical Calibration factors are now set specifically at the pumps on the H-O-A screen.

Advance to the H-O-A screen?

**H-O-A SCREEN**



## TOOLS & OPTIONS SCREEN

**3. RECIPE EDITING:** Pressing this button will advance to the Recipe Editing screen where the operator defines the parameters for each Recipe. Selecting a Name from the list on the left brings up the current parameters for it on the right. To create a new recipe profile, select a used or unused box from the list, select the name box and key in a new name, then press the save button. If the operator wants the name to be the same as the barcode, press the name box and scan in the barcode. Press the barcode box and scan the barcode or enter it manually using the keypad. Activate the Auxiliary Control button if an auxiliary device is connected to the system. Also, what pumps will be active and the chemical for each pump. When the chemical box for each pump is selected, a drop down list will appear with all the chemicals already entered in the system. Choose a chemical from the list or scan in a barcode to select the chemical. If the bar code scanned in does not find a match, a popup will appear that reads NO MATCH FOUND. This indicates that it does not already exist in the system. It will need to be entered for the first time from the Chemical Editing screen. The Enable Recipe Control button in the upper left corner allows the operator to turn the recipe option ON or OFF. Press the SAVE button to file any changes made to the screen.

**NOTE: When the Enable Recipe Controls button is in the ON position, the operator will be able to select a recipe from the startup screen before beginning a run. It may be selected but not modified from the startup screen. All changes must be made from the Recipe Editing screen.**

**RECIPE EDITING**
X

Enable Recipe Controls: ON

Select the recipe you wish to rename and adjust the pump setting associated with it.

| Recipe Profile List (Unsorted) |   |
|--------------------------------|---|
| RECIPE 6                       | ▲ |
| RECIPE 7                       | ▲ |
| RECIPE 8                       | ▲ |
| RECIPE 9                       | ▲ |
| RECIPE 10                      | ▲ |
| RECIPE 11                      | ▼ |
| RECIPE 12                      | ▼ |
| RECIPE 13                      | ▼ |

Selection: 6   Viewing: 6 - 13 of 20  
Total Used Records: 13

**Profile Editing**

|                                    |               |       |
|------------------------------------|---------------|-------|
| Barcode                            | Test Recipe 6 |       |
| Name                               | RECIPE 6      |       |
| Aux Control                        | OFF           |       |
| Pump #1                            | CHEMICAL 3    | AUTO  |
| Pump #2                            | CHEMICAL 4    | AUTO  |
| Pump #3                            | CHEMICAL 5    | AUTO  |
| Pump #4                            | CHEMICAL 6    | AUTO  |
| PUMPS 1-4   PUMPS 5-8   PUMPS 9-12 |               | PUMPS |

SAVE CLEAR

## LPV WEIGH BELT SEED TREATER

### TOOLS & OPTIONS SCREEN

**4. PRODUCT EDITING:** Pressing this button will advance the operator to the Product Editing screen. If you are looking for a specific product you may press the < ENTER SEARCH NAME> button and key in the name or use the arrows to scroll through the list. To create a new product profile, select a used or unused box from the list, select the name box and key in a new name, then press the save button. If the operator wants the name to be the same as the barcode, press the name box and scan in the barcode. Press the barcode box and scan the barcode or enter it manually using the keypad. Next, enter the Variety, Lot Number and Seeds per Unit of measurement. The Belt Length (3.80) and Belt Speed Adapt Range (1.00) buttons will display the default for each new entry until a calibration has been performed for the new product.

To run a calibration press the Product Calibration button to advance to the calibration screen (bottom, left). Follow the six steps on the top half of the screen. After the apply button has been pressed notice that both New values have automatically updated. The values on the product editing screen will also be updated. Press the blinking Save button to complete the process.

The Calibrating Seed? button on the top left of the Product Editing screen contains examples that will require a new calibration for an existing product profile (bottom, right).

## TOOLS & OPTIONS SCREEN

**5. CUSTOMER EDITING:** Pressing this button will advance to the Customer Editing screen. If you are looking for a specific customer you may press the < ENTER SEARCH NAME> button and key in the name or use the arrows to scroll through the list. To create a new customer profile, select a used or unused box from the list, select the name box and key in a new name, then press the save button. If the operator wants the name to be the same as the barcode, press the name box and scan in the barcode. Press the barcode box and scan the barcode or enter it manually using the keypad. After the new customers information has been entered press the SAVE button. If there is already a customer in the list that has the same name entered the SAVE button will be locked and you will be unable to save the entry. You must provide a unique name for each entry. If you enter a new customer and navigate away from that profile without hitting the SAVE button it will not be saved.

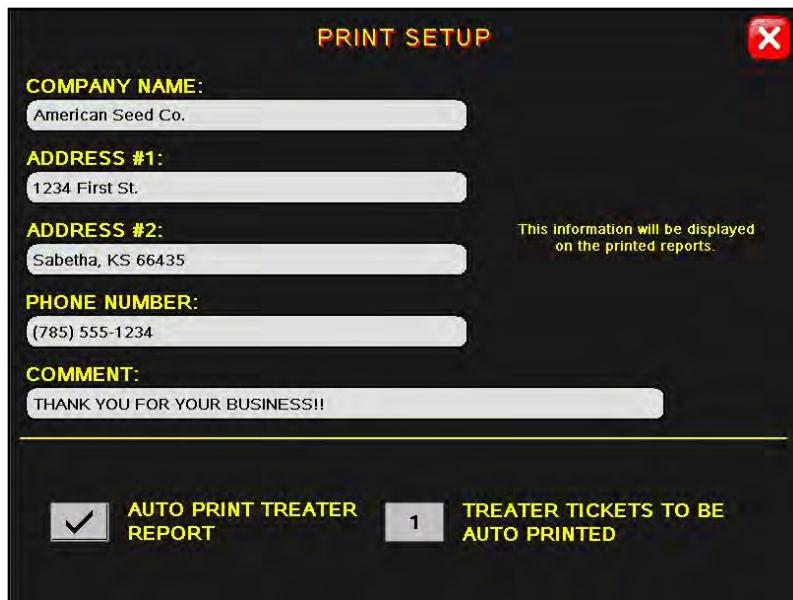
The screenshot displays the 'CUSTOMER EDITING' screen. On the left, a 'Customer List (Sorted)' shows eight entries: CUSTOMER 1 through CUSTOMER 8. An input field labeled '< Enter Search Name >' is highlighted with a yellow border. On the right, the 'Customer Editing' section contains the following fields:

|           |                   |
|-----------|-------------------|
| Barcode   | CUSTOMER 1        |
| Name      | CUSTOMER 1        |
| Address 1 | 1234 Main St.     |
| Address 2 | Sabetha, KS 66534 |
| Phone     | (785) 431-7900    |

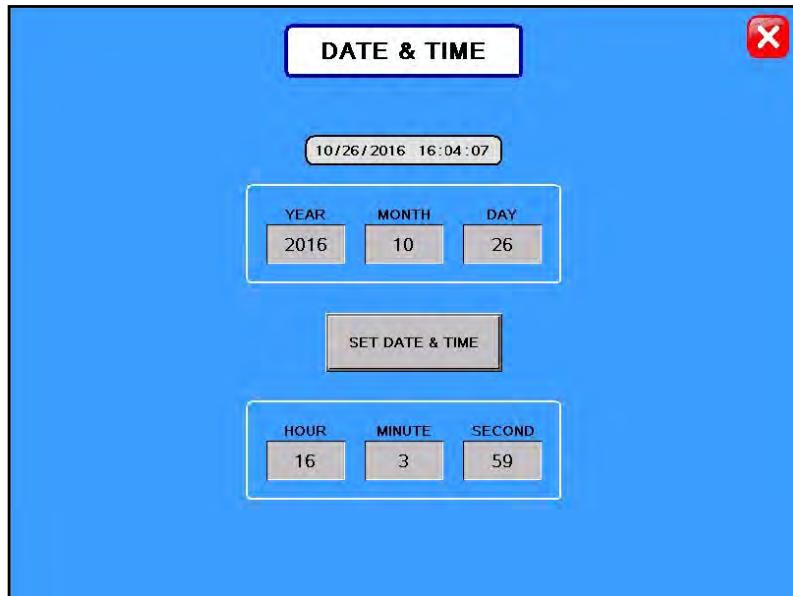
At the bottom, there are two buttons: a green 'SAVE' button and a red 'CLEAR' button. The status bar at the bottom shows 'Selection: 1 Viewing: 1-8 of 500' and 'Total Used Records: 8'.

**TOOLS & OPTIONS SCREEN**

**6. PRINT SETUP:** Pressing this button will advance to the print setup screen (top). This allows the operator to set up the company information which will be printed at the top of each report. The company information may be entered by selecting the blank space under each heading. The operator may also check the Auto Print boxes to print a report for a customer every time a report is generated as well as how many copies the customer requires.



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



## TOOLS & OPTIONS SCREEN

**8. STANDARD/METRIC UNITS:** Allows the operator to switch between Standard or Metric units of measurement. When this button is pressed a window will appear which will allow the operator to select the desired units of measurement.



**9. IMPORT / EXPORT LISTS:** Pressing this button will advance to the Import / Export screen. From here you may choose from a variety of profiles and recipes that may be either imported from a flash drive, exported to a flash drive via the USB port located on the bottom of the main control panel. The flash drive must be in FAT32 format. Job Reports may be exported but not imported. After they are exported you may delete them from the system. After pushing the Export button, the message above it will be **Copying to USB...**, then it will change to indicate the number of files it is in the process of exporting. There will also be a warning above the module, **Please do not “Exit” or cycle power.** Exiting or shutting off the power will stop the process before it is complete. None of the buttons will function if you have not inserted a flash drive into the USB port.

| <b>IMPORT / EXPORT</b>    |                    |   |                  |
|---------------------------|--------------------|---|------------------|
| USB Status:<br>Connected. |                    | Import/Export Status:<br>Please do not "Exit" or cycle power. |                  |
| List                      | Total Used Records | Status  | Actions          |
| Alarm Log                 | 141                |   | Export    Delete |
| Job Reports               | 57                 |   | Export    Delete |
| Customer Profiles         | 8                  |   | Export    Import |
| Seed Profiles             | 8                  |   | Export    Import |
| Chemical Profiles         | 8                  |   | Export    Import |
| Chemical Recipes          | 13                 |   | Export    Import |
| Pump Profiles             | 9                  |   | Export    Import |

**TOOLS & OPTIONS SCREEN**

**10. USC INSTANT MESSENGER:** Pressing this button will advance to the Instant Messenger screen. This allows the operator to communicate with the technical support staff. This option only functions if the operator has U-Connect Pro connected to the control panel using a thin client to make the connection. U-Connect Pro comes standard with U-Treat v3.4.

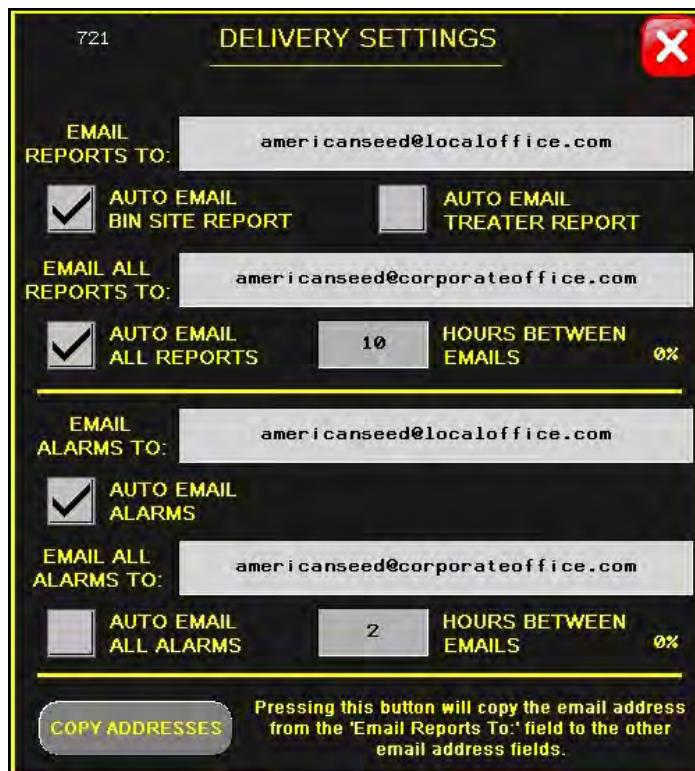


**TOOLS & OPTIONS SCREEN**

**11. EMAIL DELIVERY SETUP:** Pressing this button will advance to the Email setup screen. This allows the operator to email reports and alarms through the U-Connect Pro if enabled. The individual reports will be sent in standard email format as text at the end of each run. When sending all reports, the email will be sent in a .CSV file for viewing in Excel format.

**NOTICE**

Before you can begin to set your e-mail parameters, you must first verify that the U-Connect-Pro thin client is attached to the system. Also, an individual with level 2 administrative login privileges has enabled the e-mailing option in the program and has entered the server settings.



The following is a basic description of the information that needs to be entered in the DELIVERY SETTINGS screen .

**EMAIL REPORTS TO:** Enter the e-mail address to send the individual bin site and or treater reports at the end of each run.

**AUTO EMAIL BIN SITE REPORT:** Check this box to automatically send the bin site report at the end of each run.

**TOOLS & OPTIONS SCREEN**

**12. EMAIL DELIVERY SETUP (Continued):**

**AUTO EMAIL TREATER REPORT:** Check this box to automatically send the treater report at the end of each run.

**EMAIL ALL REPORTS TO:** This is the address that the entire job reports CSV file will be sent to if the auto email all reports box has been checked.

**AUTO EMAIL ALL REPORTS:** Check this box to have all emails sent on a timed schedule.

**HOURS BETWEEN EMAILS:** Set the time interval in hours between the e-mailing of all reports.

**EMAIL ALARMS TO:** Enter the e-mail address to send the individual alarms to when they are requested.

**AUTO EMAIL ALARMS:** Check this box to automatically send an alarm to each time one occurs.

**EMAIL ALL ALARMS TO:** This is the address that the entire alarms CSV file will be sent to.

**AUTO EMAIL ALL ALARMS:** Check this box to have all emails sent on a timed schedule.

**HOURS BETWEEN EMAILS:** Set the time interval in hours between the e-mailing of all alarms.

SECTION  
E

# CALIBRATION & OPERATION

## SEED FLOW CALIBRATION

1. Press the UTILITIES button and enter in a TARGET TREATING RATE at the top of the screen.



## LPV WEIGH BELT SEED TREATER

### SEED FLOW CALIBRATION

2. Press the PRODUCT EDITING button. Select the product profile you want to calibrate on the left side of the screen from the list. The belt length and belt speed adapt range need to be updated.

Press the Product Calibration button to advance to the Weigh Belt Calibration screen. Follow the six steps on the top half of the screen. After the Apply button has been pressed, both New Values will automatically update. Press the exit button to return to the product editing screen. Notice the new values on the product editing screen will also be updated. Press the blinking Save button to complete the process.

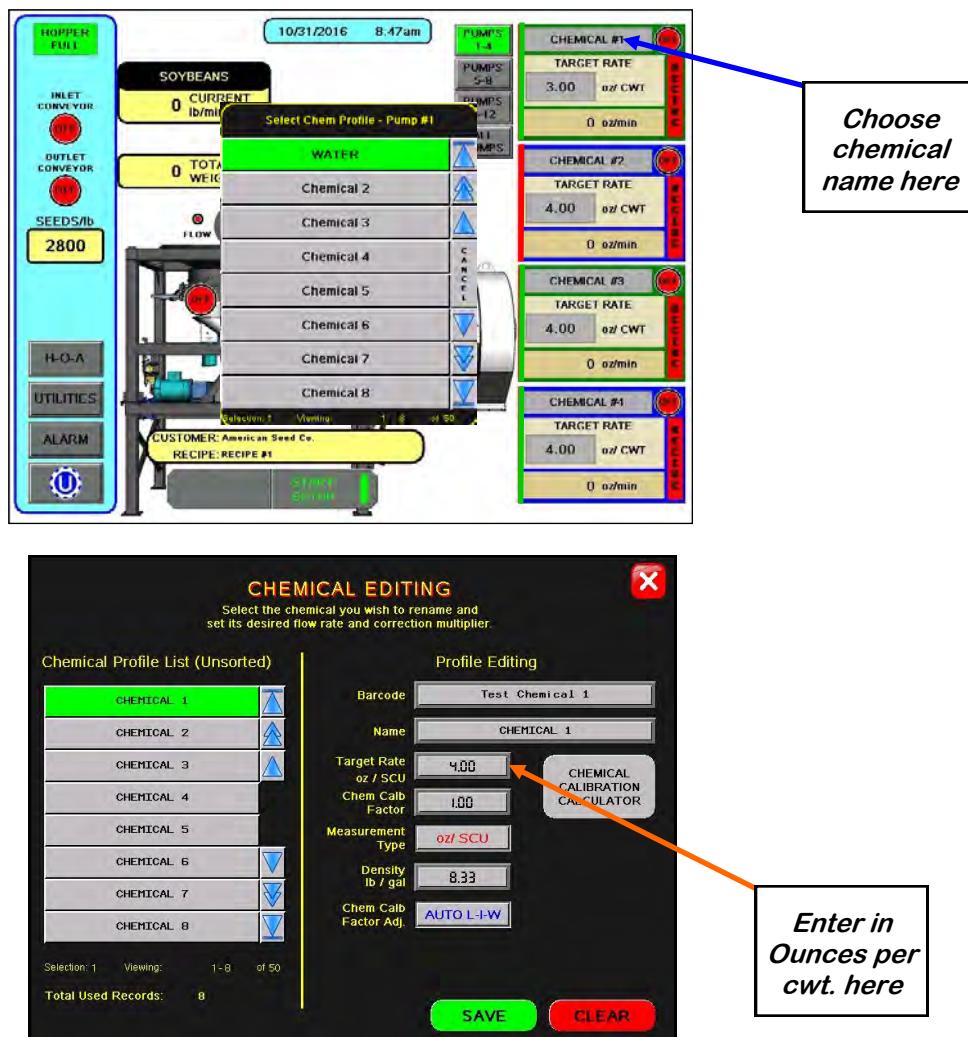
| Product Profile List (Sorted)      |  | Profile Editing                   |  |
|------------------------------------|--|-----------------------------------|--|
| < Enter Search Name >              |  | Barcode<br>987654321              |  |
| CORN                               |  | Name<br>CORN                      |  |
| COTTON                             |  | Variety<br>ABCDEF                 |  |
| PEAS                               |  | Lot Number<br>123456              |  |
| RICE                               |  | SEEDS/lb<br>2800                  |  |
| SOYBEANS                           |  | Seeds/Unit<br>140000              |  |
| SOYBEANS - 2100                    |  | Belt Length<br>5.00               |  |
| SOYBEANS - 2200                    |  | Belt Speed<br>Adapt Range<br>1.00 |  |
| SOYBEANS - 2300                    |  | PRODUCT<br>CALIBRATION            |  |
| Selection: 1   Viewing: 1-8 of 300 |  | SAVE   CLEAR                      |  |
| Total Used Records: 21             |  |                                   |  |

| WEIGH BELT PRODUCT CALIBRATION PROCEDURE  |         |               |                  |                  |                 |
|---|---------|---------------|------------------|------------------|-----------------|
| <p>STEP 1: Allocate 1000 lbs of seed.</p> <p>STEP 2: Clear Totalizer then run half of seed through at 25% belt speed.</p> <p>STEP 3: Enter actual weight for Run 1.<br/>Enter totalized weight for Run 1.</p> <p>STEP 4: Clear Totalizer again then run the other half of seed through at 50% belt speed.</p> <p>STEP 5: Enter actual weight for Run 2.<br/>Enter totalized weight for Run 2.</p> <p>STEP 6: Press Apply to save results.</p> |         |               |                  |                  |                 |
| CORN  |         |               | DEFAULT   APPLY  |                  |                 |
| Run 1:  | Speed % | Actual Weight | Totalizer Weight | Original values: | Belt ft   Range |
| Run 1:  | 25 %    | 498.0         | 500.0            | Original values: | 4.89   0.82     |
| Run 2:  | 50 %    | 503.0         | 500.0            | New values:      | 4.77   0.65     |
|   |         |               |                  | Default values:  | 4.19   0.20     |

## LPV WEIGH BELT SEED TREATER

### PUMP CALIBRATION

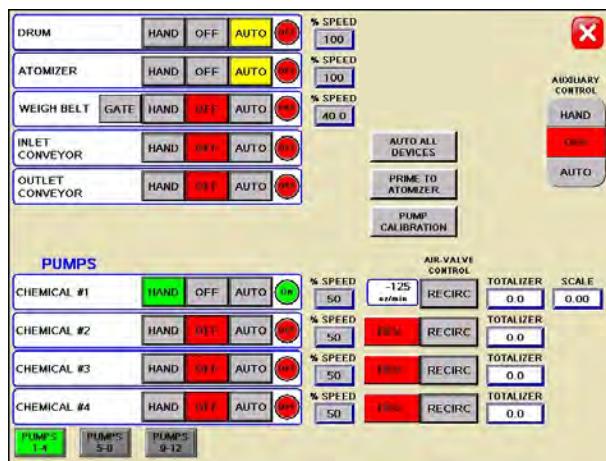
1. Lock down the pump tubing in the pump head.
2. Premix enough liquid for the amount of seed you are treating and pour into the chemical mix tank. It's always a good practice to mix an extra half gallon of slurry to help fill all the lines.
3. Press the manual start mix tank motor button on top of the pump stand. This will ensure that the chemical mixture within the mix tank is blended appropriately.
4. From the MAIN screen, select the chemical name box from the desired pump module and a selection window appears. Choose the type of chemical you will be applying. Press the TARGET RATE box below the chemical name on the main screen and you will be taken to the CHEMICAL EDITING screen. Select the RATE box next to the applicable chemical name and use the keypad to enter the value. Press the Save button. See CHEMICAL EDITING on page 61 for more detail.



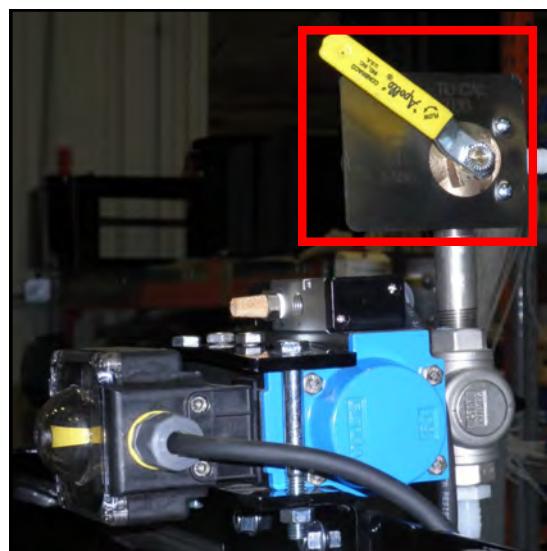
## FLOW METER CALIBRATION

Due to the composition of some types of chemicals, additional flow meter calibration may be required. It is recommended that, like other calibration devices, the flow meter(s) is checked regularly and calibrated when needed. When calibrating the flow meter(s), each chemical slurry must be checked and adjusted for.

1. To begin the calibration process, fill the appropriate mix tank with the slurry that is going to be used for this calibration.
2. Turn the corresponding pump to the hand position and adjust the flow rate until it reads about 20 percent on the pump control module (top). Let the system run in recirculation mode for 15 minutes. This will remove any air from the system. Now place the pump in AUTO mode.



3. Place the MIX TANK/ CALIBRATION TUBE valve that is located on top of the pump stand the calibration tube position.



## LPV WEIGH BELT SEED TREATER

**FLOW METER CALIBRATION**

4. From the HOA screen, press the Pump Calibration button. Enter the number of the pump you wish to calibrate and a target run time for the calibration. The longer the run time the more accurate the calibration. USC recommends a minimum of 60 seconds. Press the jog pump motor, this will turn the pumps on and off for short periods of time. When the chemical lines are full and the level in the tube is at zero, press the button again to stop the pump. Press the START button to begin the calibration. When the target run time has elapsed, the pump will shutoff automatically. If for any reason you need to stop the process, press the STOP button. If the calibration is stopped before the target time has elapsed, the operator must start the process over again. Enter the calibration tube ounces into the Cal. Tube Total box. Enter the flow meter reading into the Calculated Totalizer box. Press the UPDATE RATIO button and it will automatically update. Closing this screen will stop the calibration process if it has not been completed.
5. Repeat the process as necessary and for each different chemical slurry used.

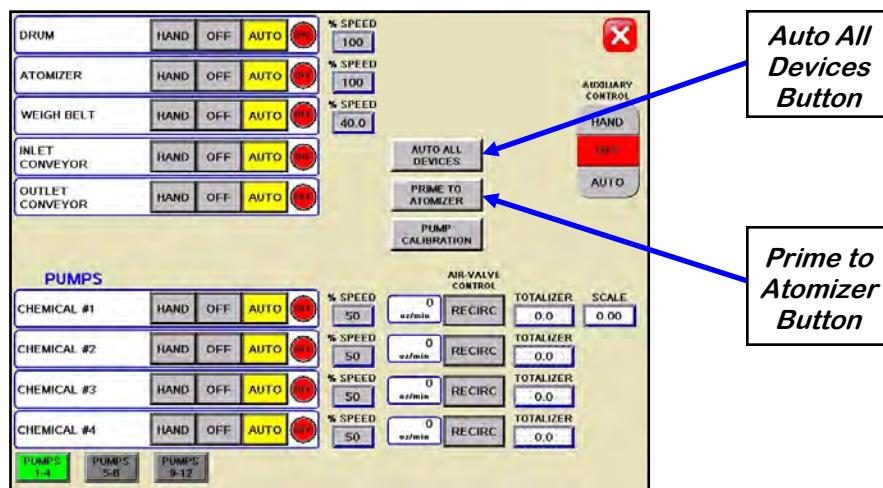
**PUMP CALIBRATION CALCULATOR**

|  |                    |                                       |                  |
|--|--------------------|---------------------------------------|------------------|
|  <b>HELP!</b> | <b>X</b>           |                                       |                  |
| <b>Pump # to Adjust:</b>   | <b>2</b>           | <b>Selected Pump's Chemical Name:</b> | <b>WATER LOW</b> |
| <b>Target Run Time (Seconds):</b>  | <b>60</b>          | <b>Actual Rate (mL / min):</b>        | <b>0.0</b>       |
| <b>Target Rate (mL / min):</b>   | <b>383.9</b>       | <b>JOG PUMP MOTOR</b>                 |                  |
| <b>Rough Est. Total (mL):</b>  | <b>383.87</b>      | <b>START</b>                          | <b>STOP</b>      |
| <b>TOTALS:</b>   |                    | <b>CALIBRATION RATIO:</b>             |                  |
| <b>Cal. Tube Total</b>   | <b>1.05</b> mL     | <b>Current Ratio:</b>                 | <b>0.91</b>      |
| <b>Calculated Totalizer</b>  | <b>1.00</b> mL     | <b>Calculated Ratio:</b>              | <b>0.95</b>      |
| <b>Elapsed Run Time (Seconds):</b>   | <b>0.0</b> seconds | <b>UPDATE RATIO</b>                   |                  |

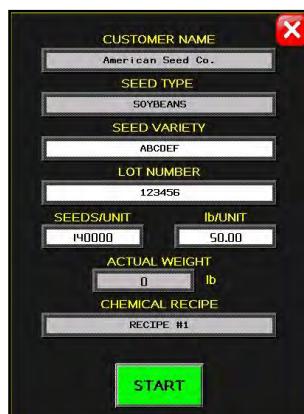
## LPV WEIGH BELT SEED TREATER

### TREATING SEED WITH WEIGH BELT

1. From the treater H-O-A screen, press the AUTO ALL DEVICES button to place the Drum, Atomizer, Weigh Belt, Inlet Conveyor and Outlet Conveyor and the desired pumps in AUTO.
2. Next, prime the chemical line to the atomizer. Ensure that the valve on each of the chemical attachment ports on the treater are in the correct position. Then, press and hold the PRIME TO ATOMIZER button. The atomizer will turn on and liquid will begin pumping up to the atomizer. When liquid reaches the atomizer release the PRIME TO ATOMIZER button.

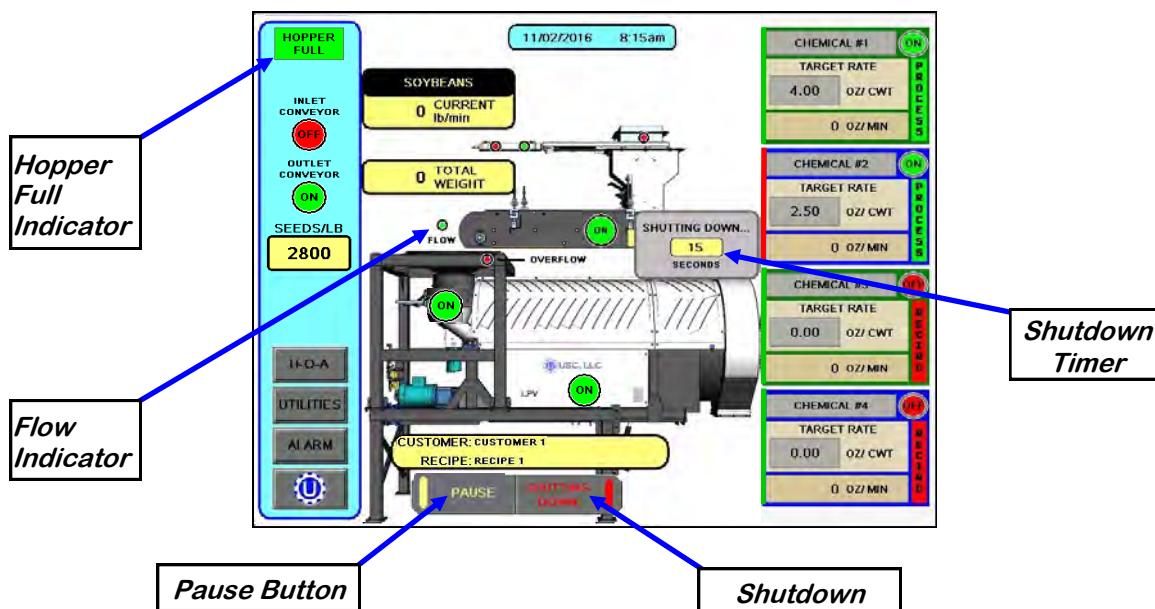


3. Return to the main screen and press the Start button. The Start Setup screen appears. Press the gray buttons to change any fields such as customer, seed type and actual weight for this run. Press Start to begin the run. The drum, atomizer, inlet conveyor and outlet conveyor will activate. The pump will turn on and re-circulate until it reaches the desired flow rate needed to match the target treating rate that was entered. The inlet conveyor will then begin dumping seed into the holding hopper for a few seconds before opening the slide gate. It is important to keep the seed gate and weigh belt completely full of seed to provide a full and continuous flow of seed to the inlet hopper when the slide gate is open .



**TREATING SEED WITH WEIGH BELT**

4. When the pump's flow rate has been reached and seed is covering the proximity switch in the bottom of the seed holding hopper, the weigh belt will turn on and ramp up to full speed. Then the seed gate will open. As the belt detects weight and seed travels toward the end of the belt, the flow rate is detected and the target belt speed is adjusted to achieve the desired flow rate. When seed begins to flow off the belt the flow indicator becomes active. Then the air actuated 3-way valve will switch to process allowing treatment to begin pumping to the atomizer.
5. As the seed is being treated, the main screen will display the pounds per minute, the total pounds, and the liquid flow rate. If the system needs to be stopped for a moment because of a problem. The PAUSE button may be pressed to halt the process. When ready to begin again, press the CONTINUE button.
6. When the surge hopper is full the HOPPER FULL indicator light will come on and the inlet conveyor will shut off. The flow of seed into the surge hopper will begin again once seed is no longer present at the top proximity sensor in the hopper and the Inlet Conveyor Delay Restart time defined on the utilities has expired. This is done to ensure that seed will not overfill the hopper and onto the ground.
7. When all seed passes over the weigh belt, it will turn off and the pump will switch to re-circulate. When more seed is fed into the treater, the treating process will continue.
8. After all seed has been treated the weigh belt will shutdown automatically. The 3-way valve on the pump stand will switch to re-circulate. However, the atomizer, drum and outlet conveyor will still be running. Press the SHUTDOWN button at the bottom of the screen and the shutdown timer appears and begins to count down the seconds left before complete shutdown. The operator decides how much time is adequate for all product to clear the drum and outlet conveyor. The time is entered on the utilities screen and may be adjusted whenever necessary.



**TROUBLESHOOTING****SECTION  
F**

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

| Problem   | Possible Cause   | Solution  |
|---|--|---|
| Inlet Conveyor will not turn on.                      | <ol style="list-style-type: none"> <li>1. Inlet conveyor proximity switch is activated.</li> <li>2. Inlet conveyor proximity switch is too sensitive.</li> <li>3. Overload is tripped.</li> <li>4. Conveyor is plugged into wrong outlet on seed treater panel.</li> </ol>   | <ol style="list-style-type: none"> <li>1. Clean proximity switch</li> <li>2. Adjust the inlet conveyor proximity switch sensitivity by turning the adjustment screw counter-clockwise (page 79).</li> <li>3. Reset inlet conveyor overload.</li> <li>4. Check to make sure the inlet conveyor is plugged into the inlet conveyor receptacle.</li> </ol>   |
| Inlet conveyor will not shut off when hopper is full. | <ol style="list-style-type: none"> <li>1. Seed is not hitting proximity switch.</li> <li>2. Proximity switch is not set sensitive enough.</li> <li>3. Inlet conveyor is plugged into wrong receptacle.</li> <li>4. Hopper proximity switch is not connected</li> </ol>   | <ol style="list-style-type: none"> <li>1. Make sure seed is hitting proximity switch.</li> <li>2. Adjust the inlet conveyor proximity switch by turning the adjustment screw clockwise (page 79).</li> <li>3. Make sure inlet conveyor is plugged into inlet conveyor receptacle.</li> <li>4. Connect hopper proximity switch.</li> </ol>   |
| Pump will not turn on in AUTO                         | <ol style="list-style-type: none"> <li>1. Proximity switch is not staying covered.</li> <li>2. Atomizer is not on.</li> <li>3. Proximity switch is not sensitive enough.</li> <li>4. Pump stand two-wire cord is not plugged into to treater main panel.</li> <li>5. Both the Chemical Pump switch on the Pump Stand and the Pump/Aux Control on the HMI screen need to be set to AUTO.</li> </ol> | <ol style="list-style-type: none"> <li>1. Make sure proximity switch is staying covered with seed</li> <li>2. Turn on atomizer. Atomizer must be on to run the pump in Auto.</li> <li>3. Adjust pump proximity switch sensitivity by turning the adjustment screw clockwise (page 79).</li> <li>4. Plug the pump stand two-wire cord into the main treater panel.</li> <li>5. Set both the Pump Stand switch and Pump/Aux on the HOA screen to AUTO.</li> </ol> |
| Pump is fluctuating.                                  | <ol style="list-style-type: none"> <li>1. Restriction in tubing</li> <li>2. Filter is plugged or missing gasket.</li> </ol>  | <ol style="list-style-type: none"> <li>1. Flush tubing and check filter for any restrictions.</li> <li>2. Clean filter and check for gasket.</li> </ol>   |

LPV WEIGH BELT SEED TREATER

| Problem   | Possible Cause   | Solution   |
|---|--|--|
| Pump will not turn off in AUTO when seed runs out.                  | 1. Proximity switch is dirty.<br>2. Proximity switch is set too sensitive.   | 1. Clean proximity switch.<br>2. Adjust the pump proximity switch sensitivity by turning adjustment screw counter-clockwise (page 79).   |
| Seed calibration is fluctuating.                                    | 1. Seed treater supply hopper is not staying full.<br>2. Restriction in the supply hopper or weigh belt.<br>3. Build-up in the atomizing chamber.                                  | 1. Make sure the supply hopper and weigh belt are staying full. May have to lower seed flow rate in order to have a consistent flow of seed.<br>2. Check supply hopper and seed wheel for any debris, and remove.<br>3. Remove atomizing housing and clean out any build-up of material. |
| Drum is slipping and seed is coming out the inlet side of the drum. | 1. Drum is wet.<br>2. The seed treater is set too level.<br>3. Chains are too loose.   | 1. Dry off any moisture that may have collected on the outside of the drum.<br>2. Adjust the slope of the seed treater to at least a 3" drop from front to back. If desired, more slope can be applied.<br>3. Check and tighten the drive chains. Also check the chain alignment.        |
| None of the motors will turn to ON in HAND mode.                    | 1. Processor is faulted.<br>2. Emergency Stop button is activated.<br>3. The Emergency Stop RESET button has not been pressed after the Emergency Stop button has been pulled out. | 1. Disconnect power and wait 30 seconds before reconnecting power.<br>2. Pull out the Emergency Stop button.<br>3. After the Emergency Stop button has been pulled out, press the Emergency Stop RESET button.   |
| E-stop is flashing.   | 1. An E-stop may be depressed.<br>2. Power may not be on to the control panels.<br>3. One of the control panels may not be connected to all of the others.                         | 1. Ensure all E-stops are not depressed.<br>2. Check incoming power to each control panel.<br>3. Check the wiring and connections to each control panel.   |

## **PROXIMITY SWITCH ADJUSTMENT GUIDE**

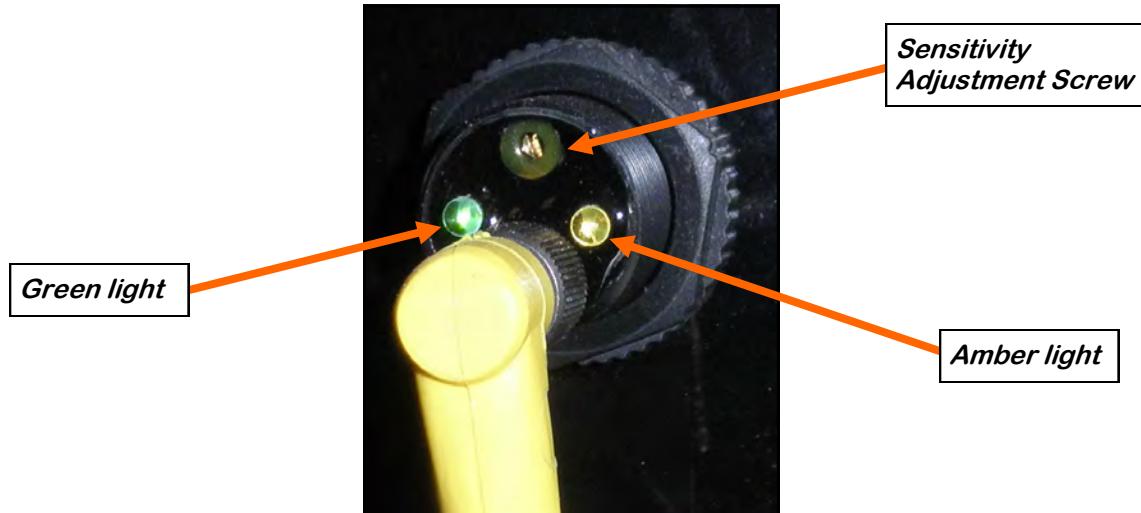
If a proximity switch is not working properly, this can be caused by wear, dust, or even moisture. The first step is to clean the lens of the proximity switch. If this does not solve the problem, the next step would be to adjust the sensitivity of the proximity switch.

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.



*Proximity Switch Screwdriver*

**SECTION  
G****MAINTENANCE**

Proper maintenance of the LPV Weigh Belt Seed Treater 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.



Ne pas mettre cet appareil en service avec des pièces douteuse entretenus. La mauvaise performance ou un danger peut survenir.



Do not use compressed air or water under pressure to clean any of the components of the USC equipment.



Ne pas utiliser d'air comprimé ou de l'eau sous pression pour nettoyer l'un des composants de l'équipement USC.



Failure to maintain the proper belt tension will cause the belt to slip. This will damage the belt and head drive pulley. If the belt is not tracking correctly, it can ride along one edge causing the belt to fray on the sides. Either problem will cause the belt to burn or wear out prematurely.



Défaut de maintenir la tension de la courroie provoquera la courroie de glisser. Cela pourrait endommager la courroie et la tête d'entraînement pulley. Si la courroie ne suit pas correctement, il peut rouler le long d'un bord causant la courroie effilocher sur les côtés. Soit problème provoquera la ceinture de brûler ou d'usure prématuée.

### **GREASING**

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.

### **NOTICE**

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

### **AVIS**

Si les raccords ne prendront pas la graisse, enlever et nettoyer.  
Aussi propre passage de lubrifiant. Remplacer approprié si nécessaire .

---

### **WEIGH BELT SERVICING INTERVALS**

#### **Every 40 hours or Weekly**

1. Check the conveyor belt tension and alignment.
  2. Grease conveyor bearings.
    - A. Two bolt flanged bearings, tail roller bearings right and left (2 locations).
    - B. Two bolt flanged bearings, drive roller bearings right and left (2 locations).
  3. Wipe down the motor casing with a damp cloth making sure to remove all dust that may have collected since the last maintenance date. Record the cleaning on the company required documents. If operating in a CSA 22.1, Class II, Division 2, Group G hazardous area, USC recommends this step be performed on a daily basis.
- Essuyez le carter moteur avec un chiffon humide en veillant à éliminer toutes les poussières qui peuvent avoir perçu depuis la dernière date de maintenance. Enregistrez le nettoyage sur la société les documents requis. Si opérant dans un CSA 22.1, Classe II, Division 2, Groupe G zone dangereuse, USC recommande cette étape être effectuée sur une base quotidienne.

## WEIGH BELT TENSION AND ALIGNMENT - TAIL END

To maintain the belt, follow this procedure:

### NOTICE

Place all controls in neutral or off, stop motor and disable power source following Lockout Tagout procedures before working on belt.

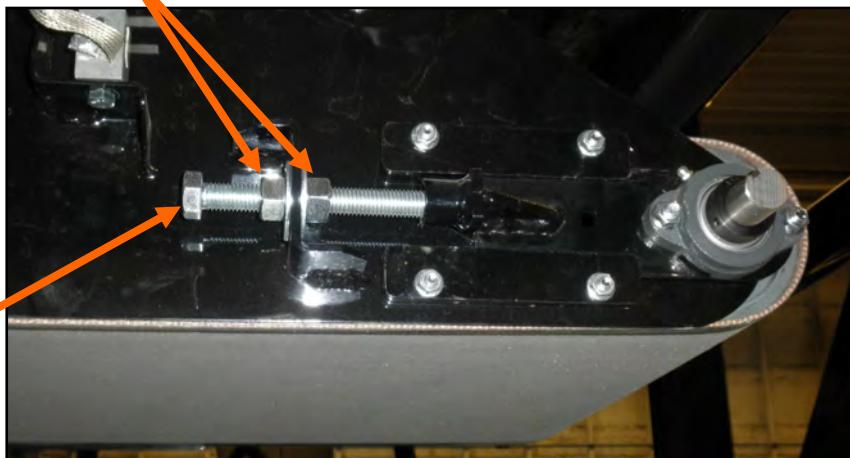
### AVIS

Placez toutes les commandes au point mort ou hors tension, arrêter le moteur et désactiver la source d'alimentation en suivant les procédures de verrouillage Tagout avant de travailler sur la ceinture.

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

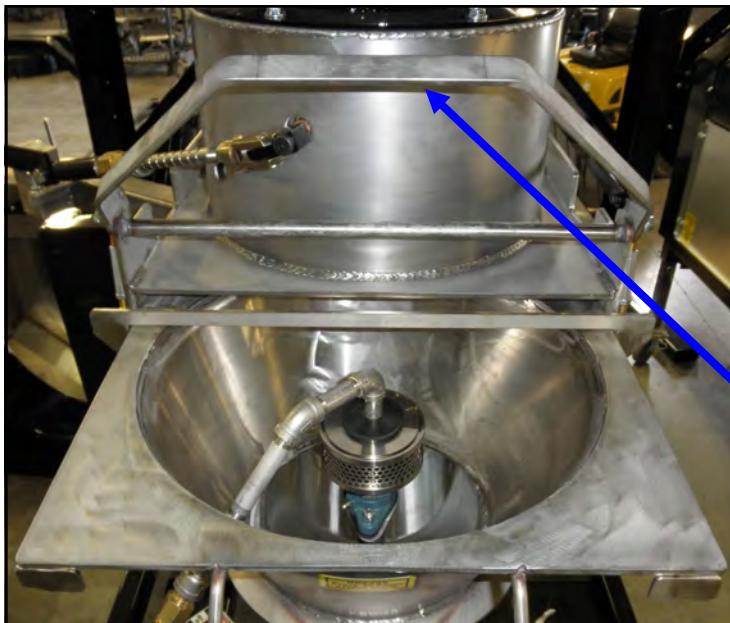
*Loosen these jam nuts before adjusting the bearing position bolt*

*Use this bolt to tighten and align the belt*



## ATOMIZER

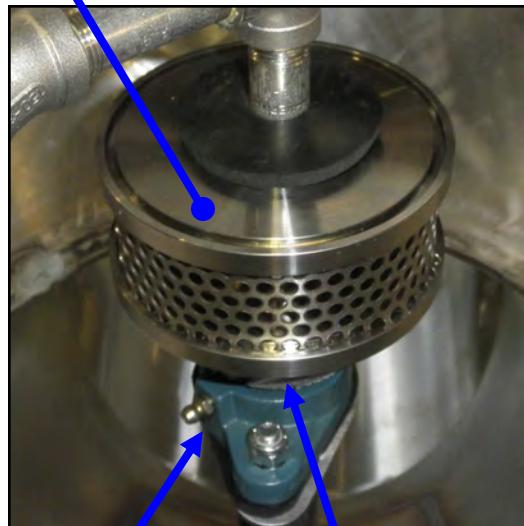
To access the inside of the atomizer housing, disconnect the motor power cable from the atomizer motor, push up on the quick release handle and slide out the atomizer. After completing maintenance, slide the atomizer back into the operating position, pull down quick release handle to lock it in place and reconnect the motor power cord.



**Quick-Release Handle**

**Atomizer Head**

1. Slide out atomizer housing and grease bearing inside. Bearing needs just one pump of grease every 40 hours of operation (right).
2. Clean any build up inside the housing and the atomizer head. To remove the atomizer head, loosen the set screw located on the bottom of the head.
3. Check for any play in the atomizer shaft.
4. Make sure the atomizer spins smoothly.
5. Ensure the adjustable chute is fitting completely into the drum opening. Adjust if necessary.



**Bearing**

**Set Screw**

### **ATOMIZER MOTOR**

- Wipe down the motor casing with a damp cloth making sure to remove all dust that may have collected since the last maintenance date. Record the cleaning on the company required documents. If operating in a CSA 22.1, Class II, Division 2, Group G hazardous area, USC recommends this step be performed on a daily basis.
  - Essuyez le carter moteur avec un chiffon humide en veillant à éliminer toutes les poussières qui peuvent avoir perçu depuis la dernière date de maintenance. Enregistrez le nettoyage sur la société les documents requis. Si opérant dans un CSA 22.1, Classe II, Division 2, Groupe G zone dangereuse, USC recommande cette étape être effectuée sur une base quotidienne.
- 

### **DRIVE AND DRUM**

- Remove drum guards and inspect all welds and structural components on the frame and drum for bends, cracks and damage.
- Inspect pillow block bearings and grease every 40 hours of operation.
- Inspect drive wheels for unordinary wear and set screws for tightness.
- Inspect the Neoprene idler wheels for unordinary wear and adjust if necessary.
- Remove drive guards, tighten and lubricate chain every 40 hours of operation.
- Wipe down the motor casing with a damp cloth making sure to remove all dust that may have collected since the last maintenance date. Record the cleaning on the company required documents. If operating in a CSA 22.1, Class II, Division 2, Group G hazardous area, USC recommends this step be performed on a daily basis.
- Essuyez le carter moteur avec un chiffon humide en veillant à éliminer toutes les poussières qui peuvent avoir perçu depuis la dernière date de maintenance. Enregistrez le nettoyage sur la société les documents requis. Si opérant dans un CSA 22.1, Classe II, Division 2, Groupe G zone dangereuse, USC recommande cette étape être effectuée sur une base quotidienne.

### **PUMP STAND MIX TANK**

- Check motor.
  - Check motor for any play in the mix tank shaft.
  - Check valves, fittings, and plug on bottom of tank for leaks.
  - Check chemical line tubing for abnormal wear.
  - Wipe down the motor casing with a damp cloth making sure to remove all dust that may have collected since the last maintenance date. Record the cleaning on the company required documents. If operating in a CSA 22.1, Class II, Division 2, Group G hazardous area, USC recommends this step be performed on a daily basis.
  - Essuyez le carter moteur avec un chiffon humide en veillant à éliminer toutes les poussières qui peuvent avoir perçu depuis la dernière date de maintenance. Enregistrez le nettoyage sur la société les documents requis. Si opérant dans un CSA 22.1, Classe II, Division 2, Groupe G zone dangereuse, USC recommande cette étape être effectuée sur une base quotidienne.
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### **PUMPS AND PLUMBING**

- Check pump in forward and reverse.
- Make sure pump heads open and close smoothly.
- Inspect tubing and for uneven wear. Replace pump tubing often to ensure high flow rates can be met.
- Tighten hose clamps and check filter. Clean filter frequently to avoid blockages.
- Flush flow meter with clean water frequently to avoid chemical buildup.
- Wipe down the motor casing with a damp cloth making sure to remove all dust that may have collected since the last maintenance date. Record the cleaning on the company required documents. If operating in a CSA 22.1, Class II, Division 2, Group G hazardous area, USC recommends this step be performed on a daily basis.
- Essuyez le carter moteur avec un chiffon humide en veillant à éliminer toutes les poussières qui peuvent avoir perçu depuis la dernière date de maintenance. Enregistrez le nettoyage sur la société les documents requis. Si opérant dans un CSA 22.1, Classe II, Division 2, Groupe G zone dangereuse, USC recommande cette étape être effectuée sur une base quotidienne.

### **ELECTRICAL PANEL**

- Check and tighten wire connections.
- Check quick connects on bottom of control panel.
- Check to see if starters and/or overloads are tripped.
- Check to see if relays, timers and/or breakers are tripped.
- Check and set the proximity switches. (page 79).
- Check quick connects on end of Auxiliary cord.
- Check relay and fuse holder.
- Check power cords for cuts or frays and ensure ground is present.

**STORAGE****SECTION  
H**

When storing the LPV Weigh Belt Seed Treater for long periods of time, the following procedure must be followed to reduce the chance of rust, corrosion and fatigue of the treater. 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.

**WEIGH BELT**

1. Turn power off to the treater and treater components.
2. Inspect all welds and structural components for bends, cracks and damage.
3. Remove the inlet hopper cover and bottom seed gate cover that has the seed on belt proximity switch mounted to it. Inspect belt , pulleys and proximity switch.
4. Use a vacuum to clean out any seeds and excess build-up that may have occurred during operation.
5. Turn power back on to the treater and run weigh belt to help remove any additional debris.
6. Use a vacuum to clean out any seeds and excess build-up that may have occurred during operation.
7. Wipe down the motor casing with a damp cloth making sure to remove all dust that may have collected since the last maintenance date.
8. Wipe off and clean the lens of the proximity switches (below).
9. Disconnect power and mount all guards back in place.
10. Tarp or cover the supply hopper and weigh belt to keep out any dirt or unwanted pests.

### **ATOMIZER CHAMBER**

1. Remove and clean the atomizer housing.
2. Remove the atomizer head and stainless steel plumbing. The atomizer head may be disassembled (right), for easier cleaning. It is threaded together and can simply be unscrewed.
3. Reinstall the atomizer head and plumbing. Grease the bearing and spin the atomizer head a few times to ensure all grease has been worked into the bearings.



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### **ROTATING DRUM**

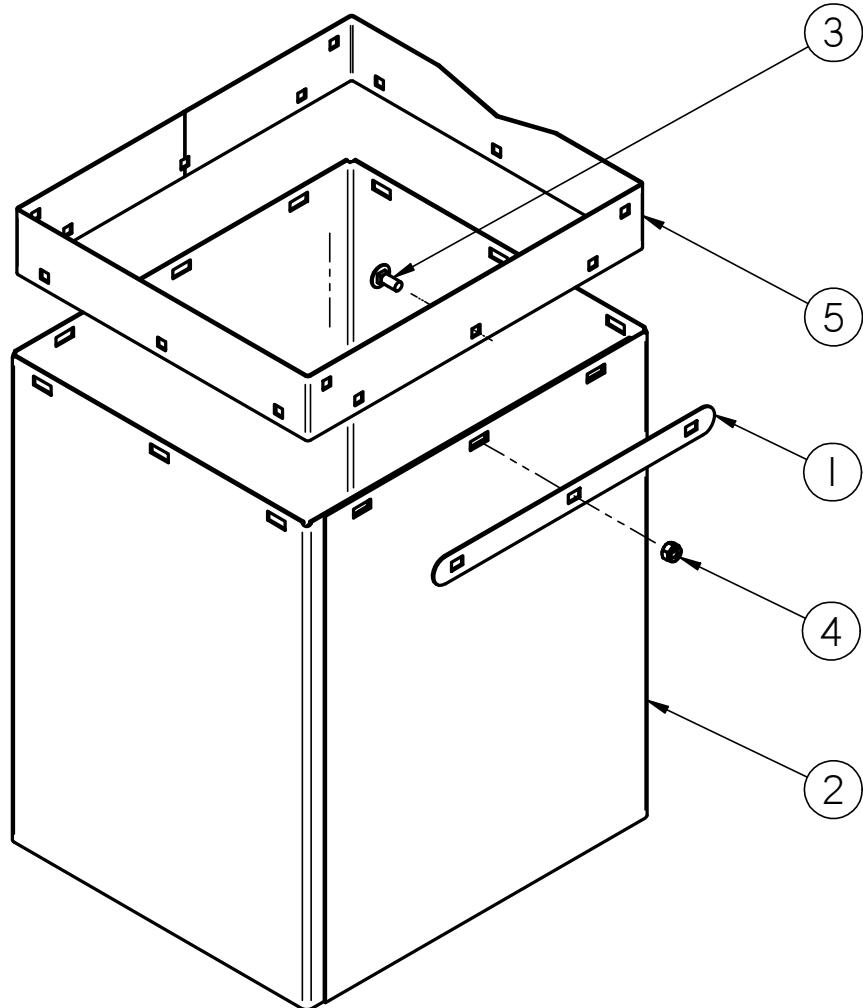
1. Remove the shields and clean out any seed that may have fallen underneath the drum.
  2. Clean out any residue left on the inside of the drum and around the seed lifters.
  3. Lubricate the chain to keep from corroding in storage.
- 

### **FINAL**

1. Disconnect power to the machine.
2. Store the machine inside a protective building to keep it from being exposed to the weather.
3. Ensure all guards and safety labels are in place.

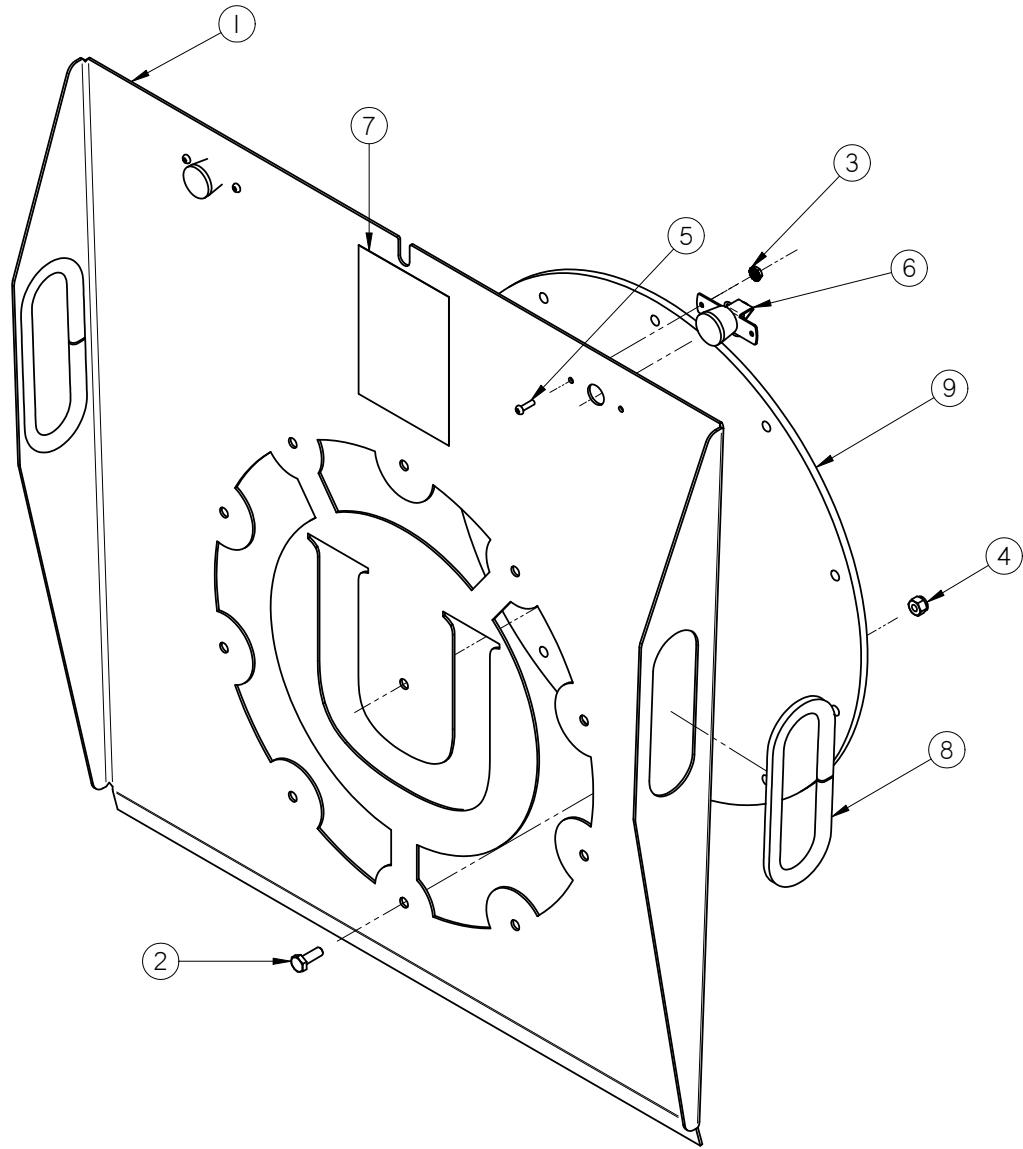
**MECHANICAL DRAWINGS****SECTION  
I**

The following pages show the parts of the LPV Weigh Belt Seed Treater. Please have the part number ready when ordering parts.

**DISCHARGE CHUTE ASSEMBLY(18-01-0072)**

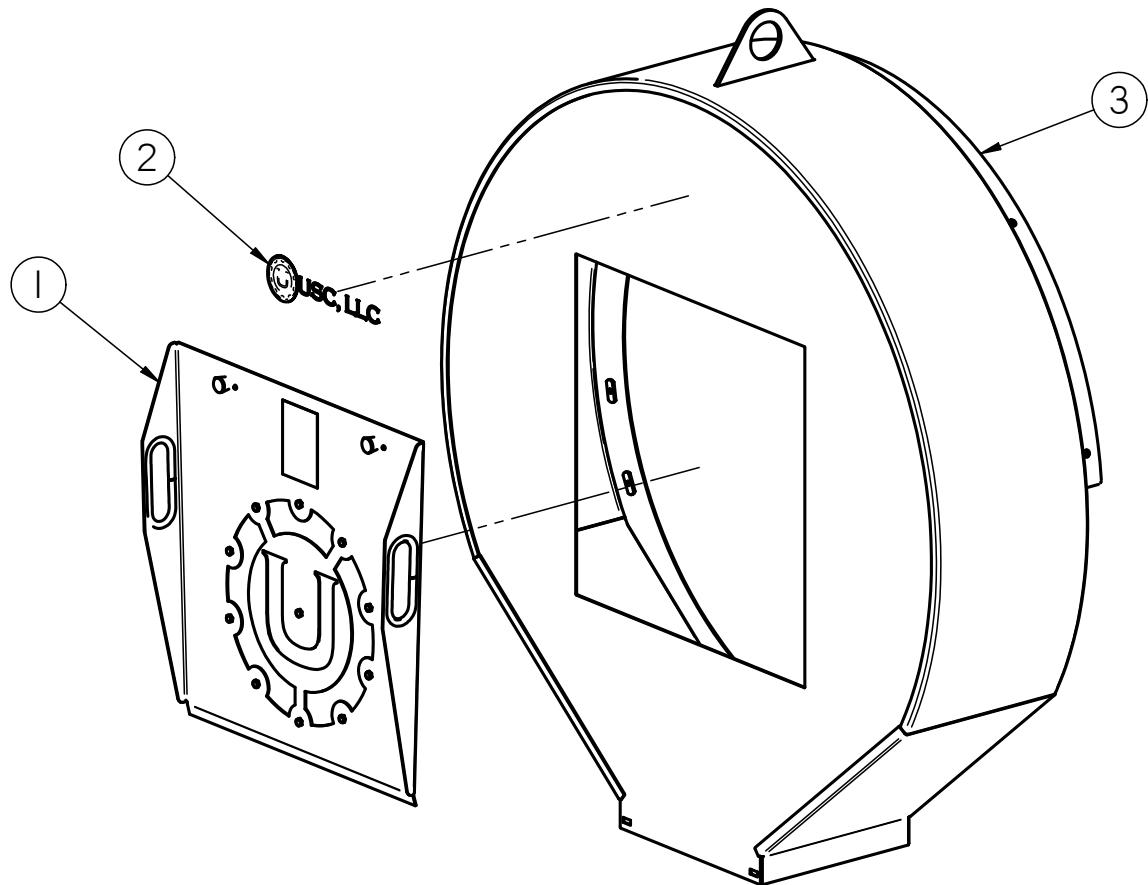
| Item # | Part #     | Description                          | Qty |
|--------|------------|--------------------------------------|-----|
| 1      | 05-10-3400 | PLT DSCHG TRTR                       | 4   |
| 2      | 05-10-3886 | SKIRT DSCHG TRTR LPV2000             | 1   |
| 3      | 06-01-0171 | BOLT CRG .3125-18X.750 ZP SHORT NECK | 12  |
| 4      | 06-03-0002 | NUT NYL LOCK .313-18 ZP GR5          | 12  |
| 5      | 101FB5     | ADPT END CHUTE EXT LPV2000           | 1   |

## LPV WEIGH BELT SEED TREATER

END CHUTE DOOR ASSEMBLY (05-07-0198)

| Item # | Part #     | Description                          | Qty |
|--------|------------|--------------------------------------|-----|
| 1      | 05-10-3919 | PLT DSCHG CHUTE DOOR GALV W LOGO     | 1   |
| 2      | 06-01-0006 | BOLT, .250-20 X .75 UNC ZP GRADE 5   | 11  |
| 3      | 06-02-0033 | NUT 6-32 K-LOCK ZP                   | 4   |
| 4      | 06-03-0001 | NUT,LOCK, .250-20 ZP G5 NYLON INSERT | 11  |
| 5      | 06-06-0032 | SCRW MACH 6-32 X .500 PHLP RDHD ZP   | 4   |
| 6      | 06-09-0028 | LATCH SPRING SOUTHCO 57-10-401-10    | 2   |
| 7      | 09-02-0002 | ATWK LBL DANGER GUARDS               | 1   |
| 8      | 1008C4     | EDGING                               | 2   |
| 9      | 102098     | COVER                                | 1   |

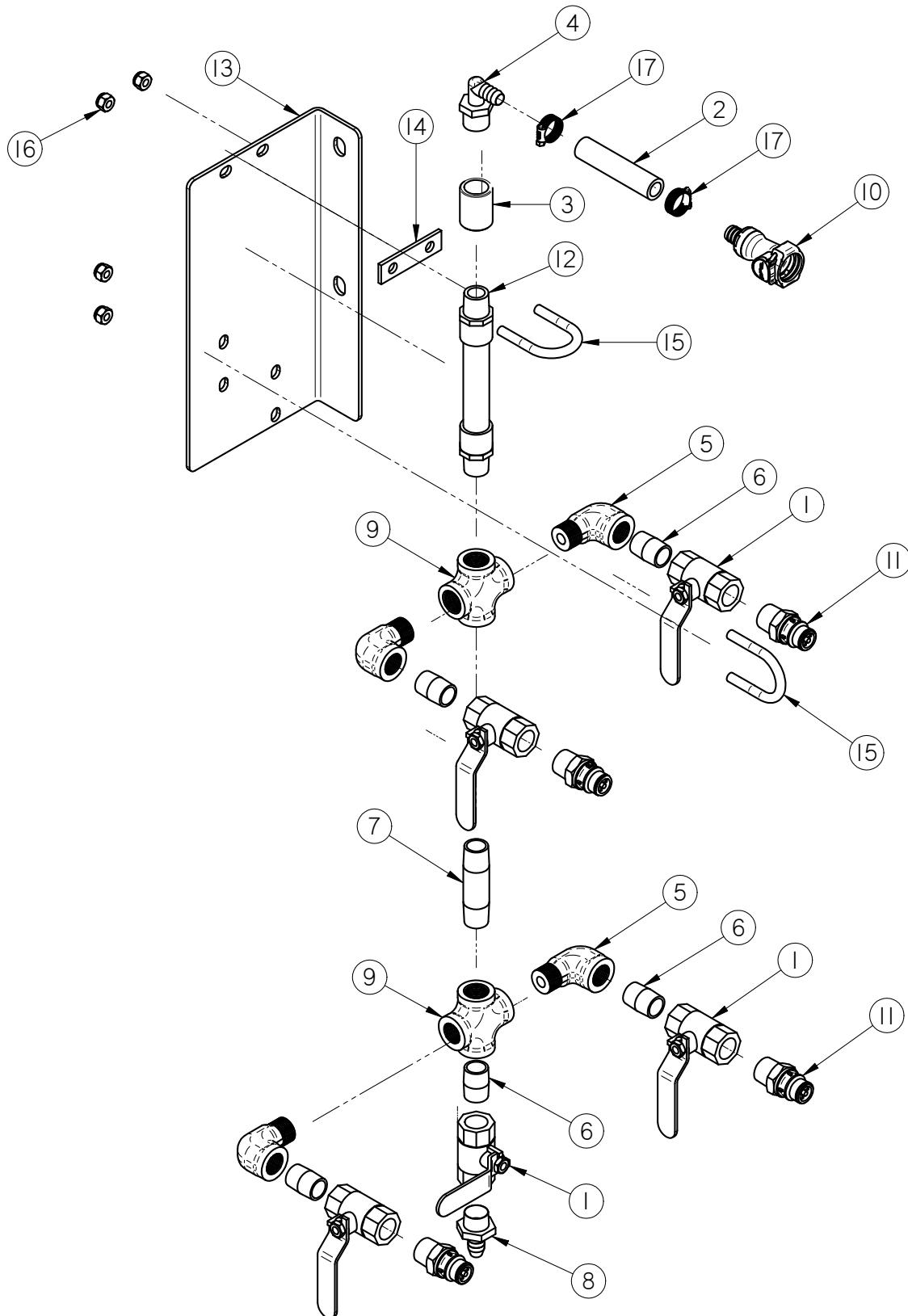
LPV WEIGH BELT SEED TREATER  
**END CHUTE ASSEMBLY (18-01-0270)**



| Item # | Part #     | Description                        | Qty |
|--------|------------|------------------------------------|-----|
| 1      | 05-07-0198 | ASSY END CHUTE DOOR GALV           | 1   |
| 2      | 09-01-0042 | ATWL LBL USC, LLC 3" X 15" PRO-CUT | 1   |
| 3      | 18-01-0268 | WDMT END CHUTE                     | 1   |

LPV WEIGH BELT SEED TREATER

**LPX STATIC MIXER (04-03-0255)**

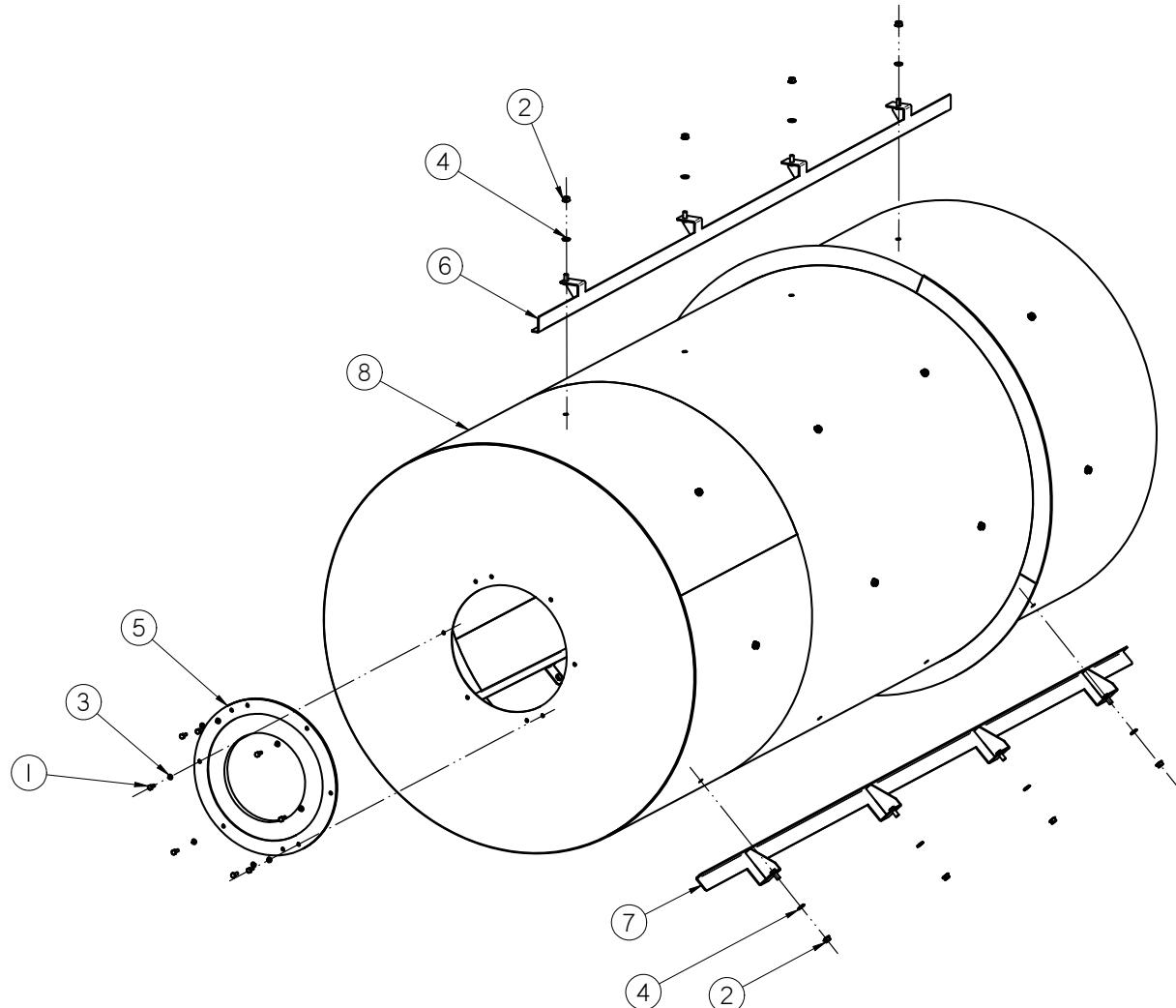


## LPV WEIGH BELT SEED TREATER

**LPX STATIC MIXER (04-03-0255)**

| Item # | Part #     | Description                         | Qty |
|--------|------------|-------------------------------------|-----|
| 1      | 02-02-0006 | .500-14 NPT X 2-WAY VALVE           | 5   |
| 2      | 02-03-0005 | STTC MIXER TO ATMZR HOSE            | 1   |
| 3      | 02-05-0005 | FTTG CPLG .500 NPT FM SS            | 1   |
| 4      | 02-06-0010 | FTTG 90 DEG .500HB X .500NPT ML NYL | 1   |
| 5      | 02-06-0020 | FTTG 90 DEG STRT.500NPTX .500NPT SS | 4   |
| 6      | 02-07-0007 | FTTG NIP .500NPTX1.125 TBE SS CLOSE | 5   |
| 7      | 02-07-0019 | FTTG NIP .500 NPT X 3.00 TBE SS     | 1   |
| 8      | 02-08-0007 | FTTG STGHT .500HB X .500NPT ML NYL  | 1   |
| 9      | 02-11-0001 | FTTG CROSS .500 NPT FM SS           | 2   |
| 10     | 02-15-0013 | FTTG CPLG .500 HB QCK DISC BODY     | 1   |
| 11     | 02-15-0014 | FTTG CPLG .500 NPT QCK DISC INSERT  | 4   |
| 12     | 04-03-0030 | MXR IL PVC 6ELEMENT .500PIPE X 7.00 | 1   |
| 13     | 05-10-2891 | STATIC MIXER & MNFLD MNT BRKT       | 1   |
| 14     | 05-10-4277 | SPCR STTC MXR MNT                   | 1   |
| 15     | 06-01-0037 | BOLT U .313-18 X 1.38 X 2.188 ZP    | 2   |
| 16     | 06-03-0002 | NUT NYL LOCK .313-18 ZP GR5         | 4   |
| 17     | 06-07-0006 | CLMP HOSE .500 TO .906 X .313W ZP   | 2   |

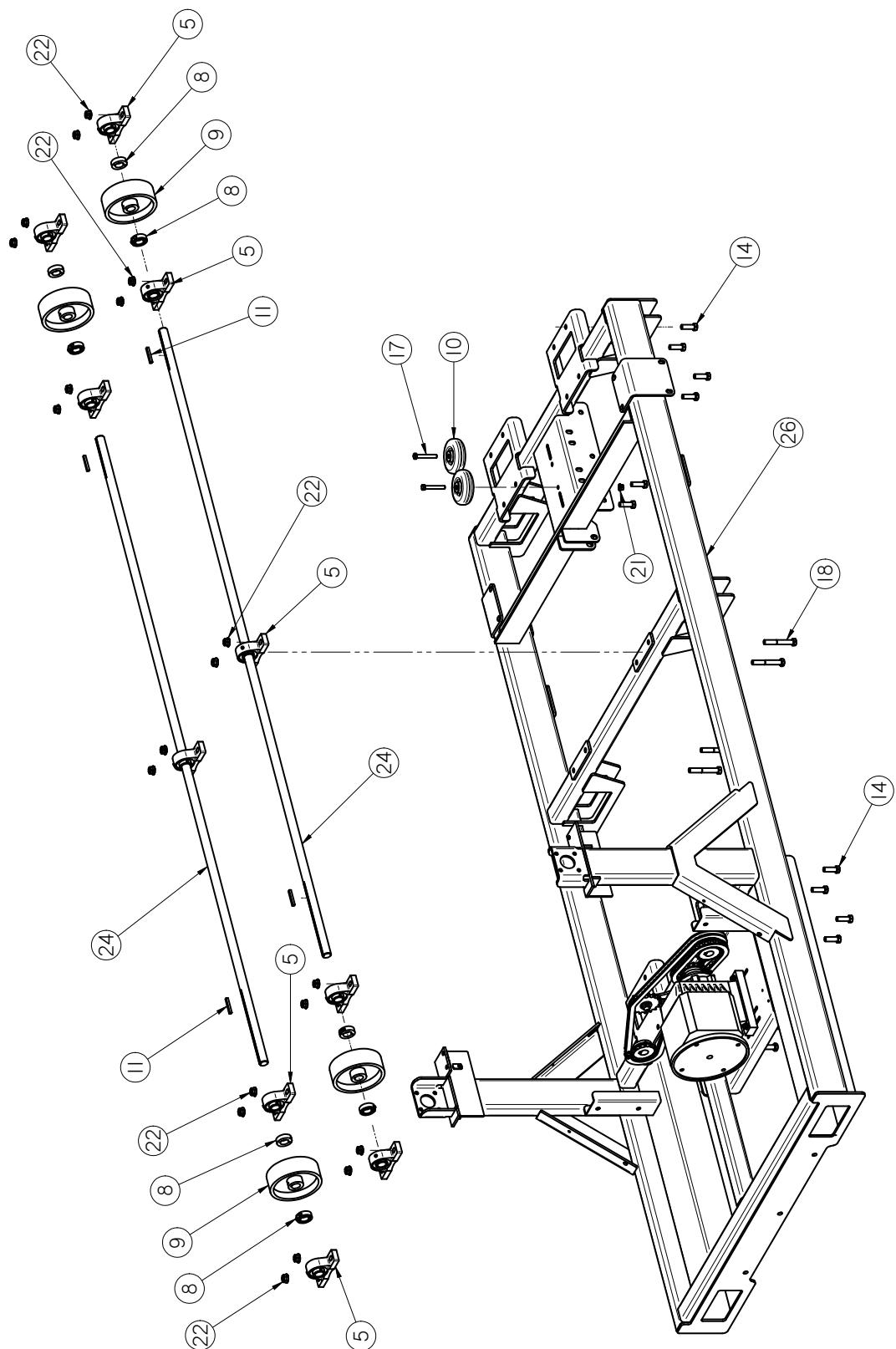
## LPV WEIGH BELT SEED TREATER

**DRUM ASSEMBLY**

| LPV DRUM ASSEMBLY |                                     | LPV 8FT CS |     | LPV 8FT SS |     |
|-------------------|-------------------------------------|------------|-----|------------|-----|
|                   |                                     | 18-01-0257 |     | 18-01-0335 |     |
| Item #            | Description                         | Part #     | Qty | Part #     | Qty |
| 1                 | BOLT .250-20                        | 06-01-0006 | 8   | 06-01-0051 | 8   |
| 2                 | NUT LOCK FLG .375-16 ZP GR5         | 06-03-0014 | 32  | 06-03-0014 | 32  |
| 3                 | WASHER, LOCK, SPLIT .250            | 06-04-0001 | 8   | 06-04-0009 | 8   |
| 4                 | WASHER, SS, BONDED, SEALING .375 ID | 06-04-0013 | 32  | 06-04-0013 | 32  |
| 5                 | ASSY DRUM INLET BRUSH               | 13-08-0534 | 1   | 13-08-0534 | 1   |
| 6                 | WELDMENT, DRUM PADDLE, SHORT        | 18-01-0192 | 4   | 18-01-0193 | 4   |
| 7                 | WELDMENT, DRUM PADDLE, TALL         | 18-01-0194 | 4   | 18-01-0195 | 4   |
| 8                 | WELDMENT, DRUM LPV 8FT              | 18-01-0246 | 1   | 18-01-0336 | 1   |

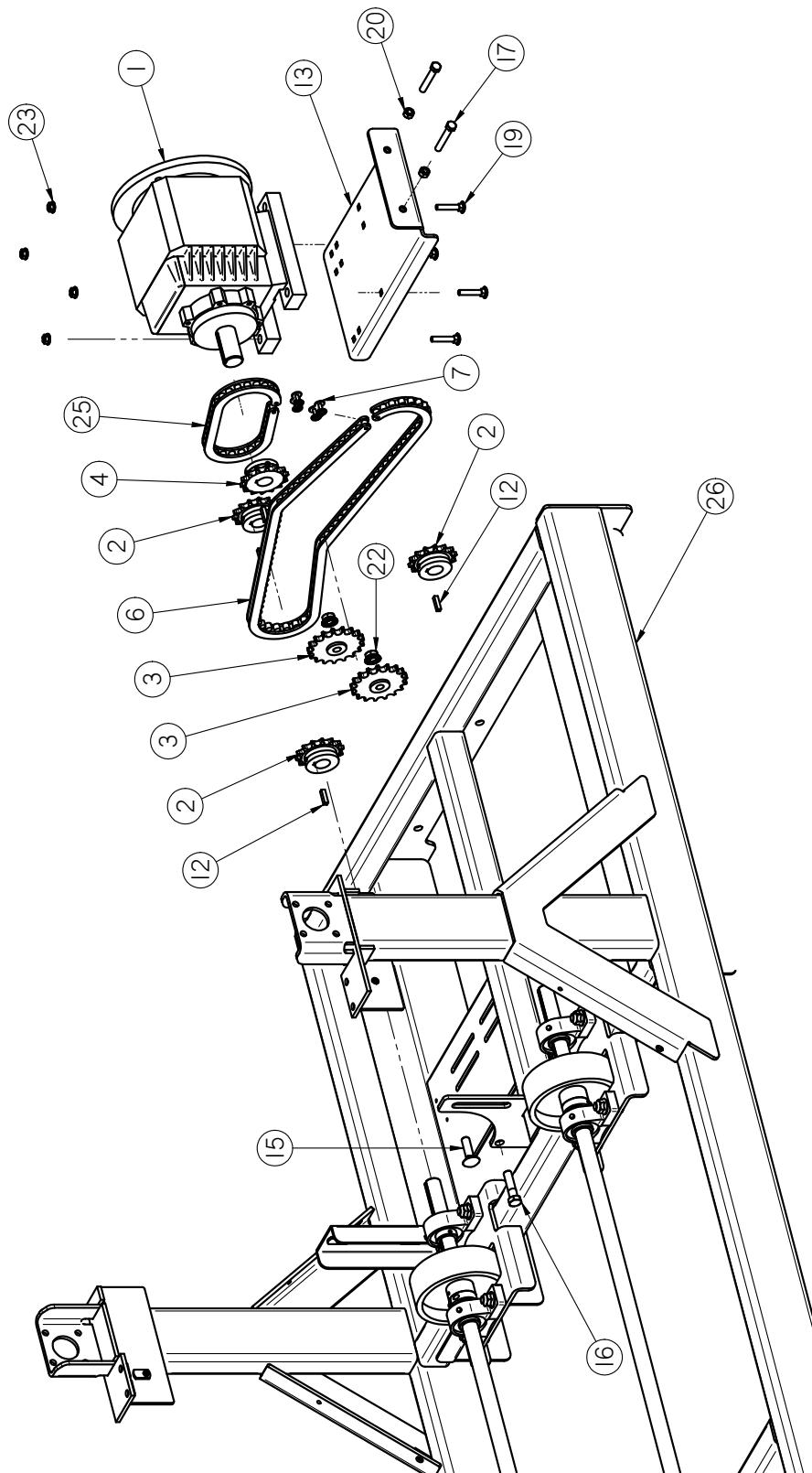
LPV WEIGH BELT SEED TREATER

**8 FT BASE FRAME ASSEMBLY (18-01-0250)**



LPV WEIGH BELT SEED TREATER

**8 FT BASE FRAME ASSEMBLY (18-01-0250)**

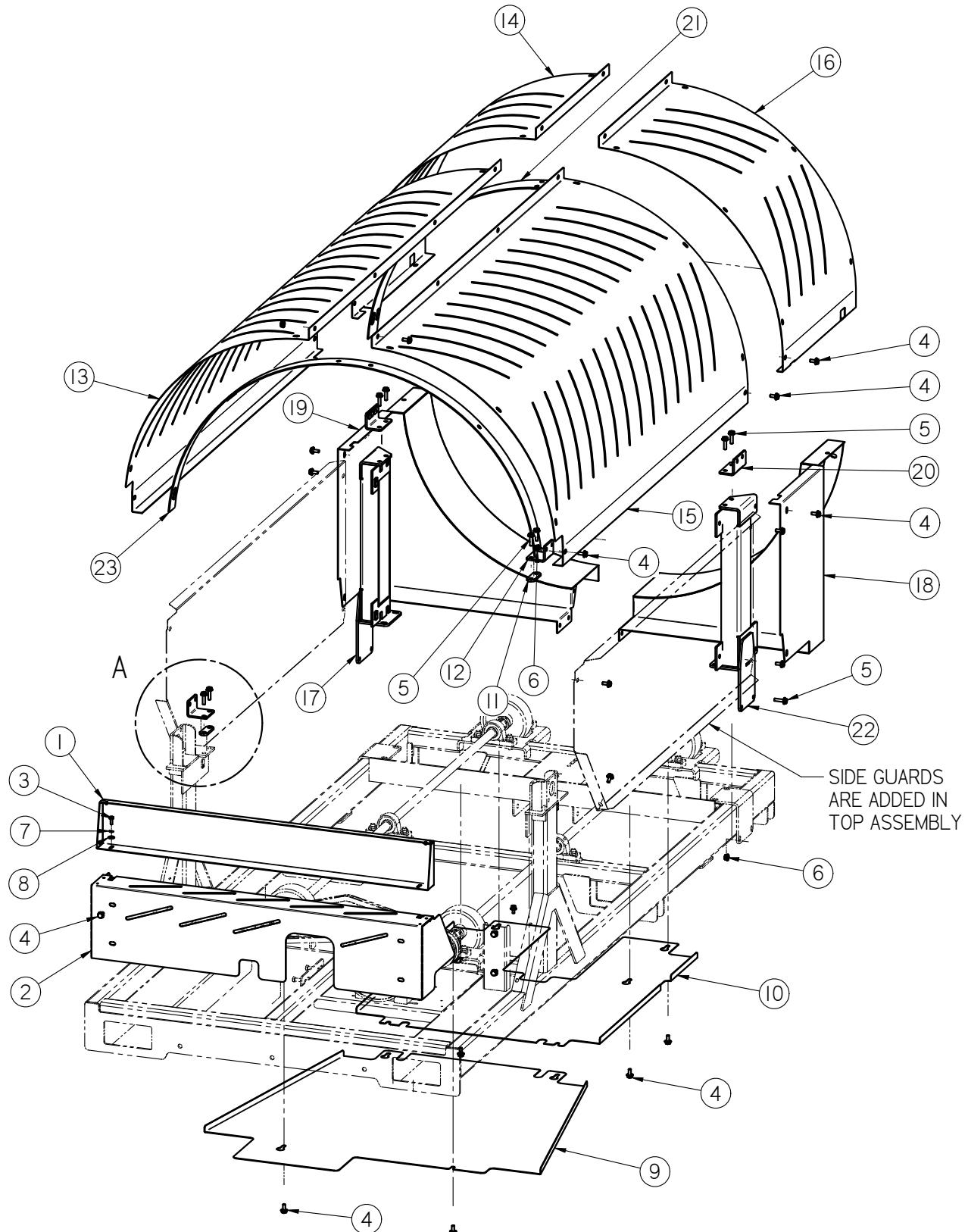


## LPV WEIGH BELT SEED TREATER

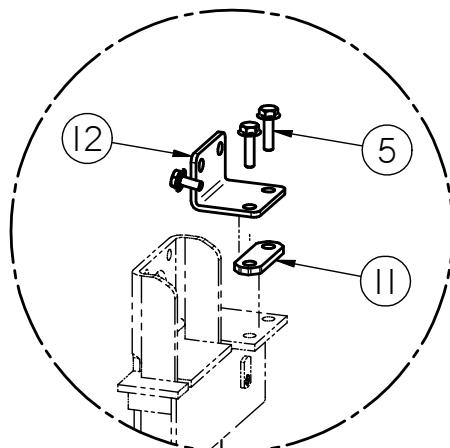
**8 FT BASE FRAME ASSEMBLY (18-01-0250)**

| Item # | Part #     | Description                           | Qty |
|--------|------------|---------------------------------------|-----|
| 1      | 01-01-0167 | GBOX IL 182-4TC 16.6:1 GR B1 FT MNT   | 1   |
| 2      | 01-02-0093 | SPROCKET # 50 14T 1.00 IN BORE TYPE B | 3   |
| 3      | 01-02-0095 | SPKT 17T 50P .500 ID IDLER            | 2   |
| 4      | 01-02-0117 | SPROCKET # 50 14T 1.25 IN BORE TYPE B | 1   |
| 5      | 01-03-0036 | BRG PLW 1.00ID STSC SEALED            | 10  |
| 6      | 01-04-0002 | #50 CHAIN 53.5" LG                    | 1   |
| 7      | 01-04-0005 | CHAIN CTNG LINK 50P                   | 2   |
| 8      | 01-05-0008 | SHAFT CLR 1.00ID SPLIT                | 8   |
| 9      | 01-06-0002 | WHL DRV 6 X 2 X 1.00ID .250KWWY       | 4   |
| 10     | 01-06-0152 | WHL GUIDE .375ID X 4.00 X .1.50 NPPRN | 2   |
| 11     | 01-10-0003 | KEY .250 X 2.00 CS                    | 4   |
| 12     | 01-10-0004 | KEY .250 X 1.00 CS                    | 4   |
| 13     | 05-04-0067 | WDMT DRUM DRV ADJ PLT                 | 1   |
| 14     | 06-01-0025 | BOLT .500-13 X 1.50 ZP GR5            | 16  |
| 15     | 06-01-0026 | BOLT CRG .500-13 X 1.75 ZP GR5        | 1   |
| 16     | 06-01-0027 | BOLT .500-13 X 2.00 ZP GR5            | 1   |
| 17     | 06-01-0071 | BOLT .375-16 X 2.50 ZP GR5            | 4   |
| 18     | 06-01-0147 | BOLT .500-13 X 3.50 ZP GR5            | 4   |
| 19     | 06-01-0172 | BOLT CRG .313-18 X 1.75 ZP GR5        | 4   |
| 20     | 06-02-0003 | NUT FULL .375-16 ZP GR5               | 2   |
| 21     | 06-03-0014 | NUT LOCK FLG .375-16 ZP GR5           | 2   |
| 22     | 06-03-0015 | NUT LOCK FLG .500-13 ZP GR5           | 22  |
| 23     | 06-03-0019 | NUT, FLG .3125-18 UNC ZP GRADE 5      | 4   |
| 24     | 10361A     | DRUM DRV SHAFT LPV 8 FT               | 2   |
| 25     | 13-05-0157 | #50 CHAIN -- 32 LINKS                 | 1   |
| 26     | 18-01-0248 | WDMT BASE FR 8 FT                     | 1   |

LPV WEIGH BELT SEED TREATER  
**DRUM GUARDS ASSEMBLY (18-01-0313)**



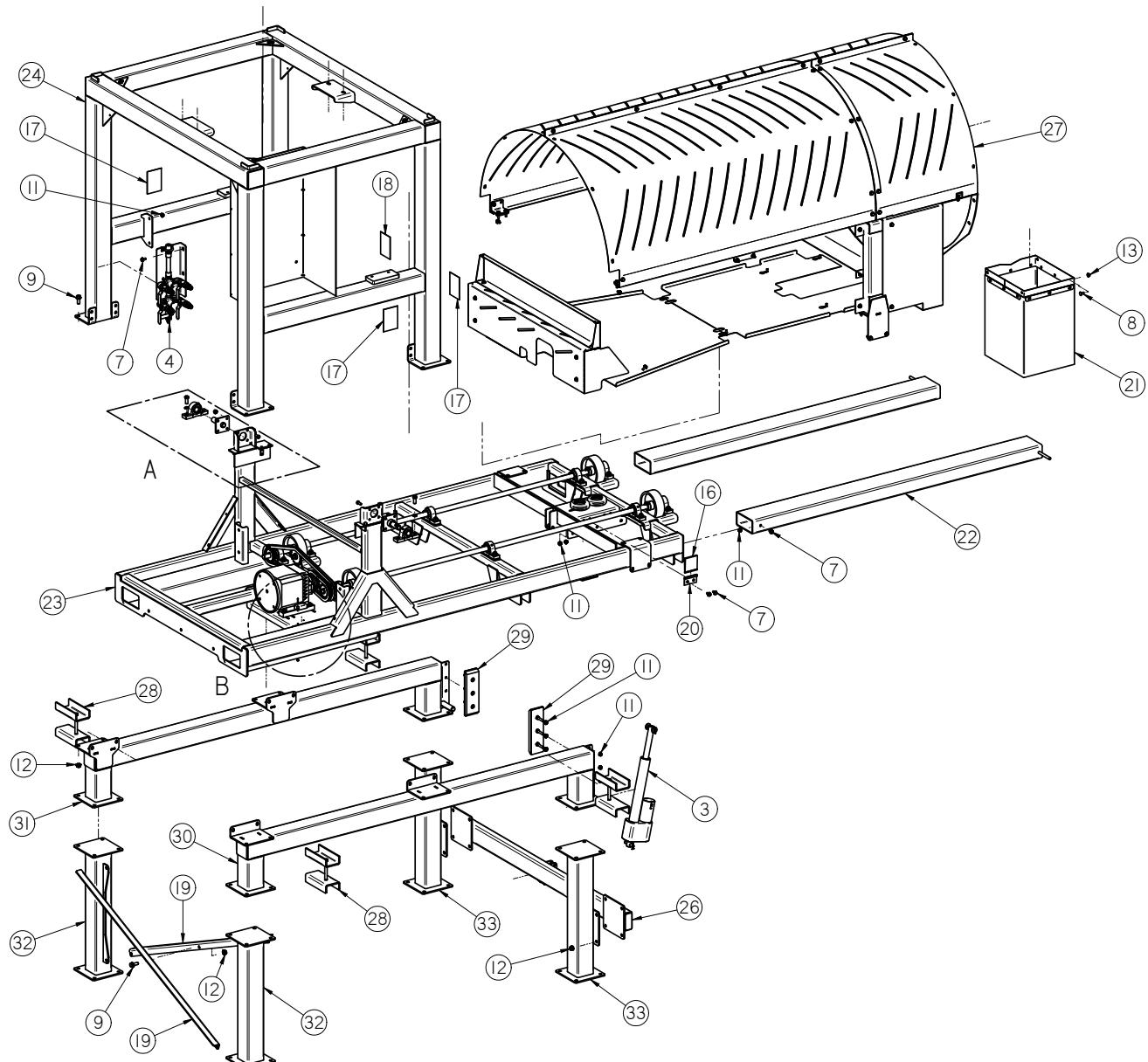
## LPV WEIGH BELT SEED TREATER

**DRUM GUARDS ASSEMBLY (18-01-0313)**

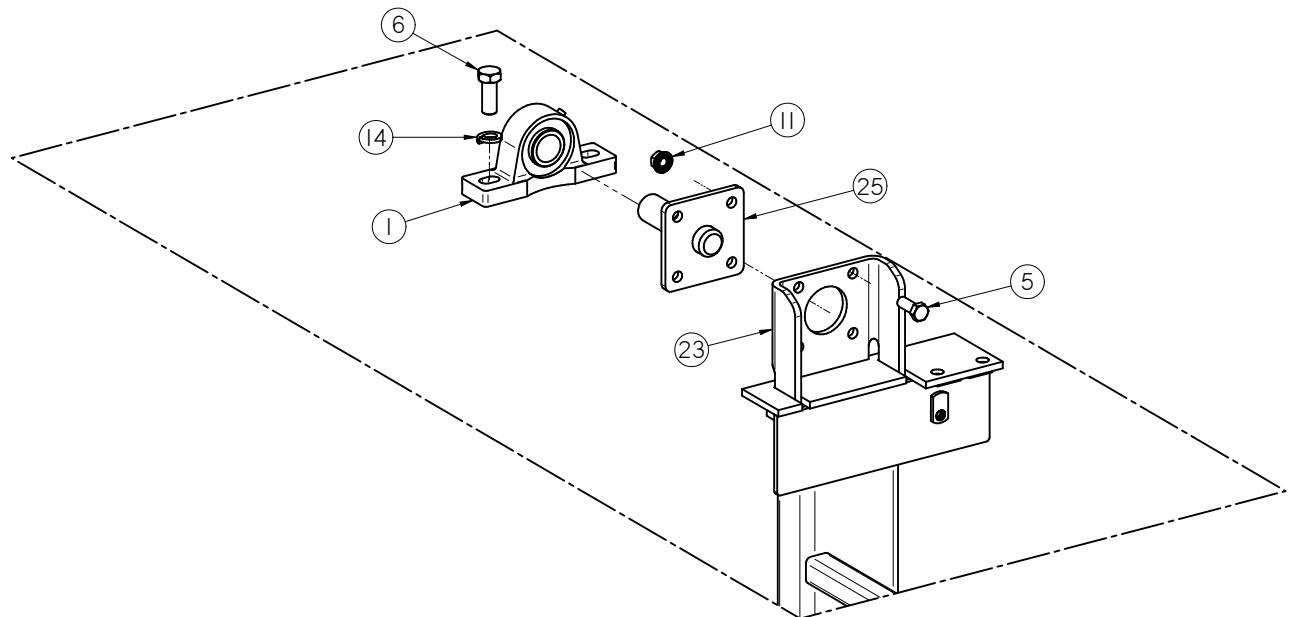
DETAIL A

| Item # | Part #     | Description                      | Qty |
|--------|------------|----------------------------------|-----|
| 1      | 05-06-0093 | TOP SHD CHAIN GRD GALV           | 1   |
| 2      | 05-06-0105 | FRNT SHD, CHAIN GRD GALV         | 1   |
| 3      | 06-01-0003 | BOLT, .250-20 X .750 UNC 18-8 SS | 2   |
| 4      | 06-01-0124 | BOLT FLG .375-16 X .750 ZP GR5   | 59  |
| 5      | 06-01-0189 | BOLT FLG .375-16 X 1.250 ZP GR5  | 16  |
| 6      | 06-03-0014 | NUT LOCK FLG .375-16 ZP GR5      | 21  |
| 7      | 06-04-0001 | WSHR LOCK SPLT .250 ZP           | 2   |
| 8      | 06-05-0001 | WASHER, FLAT .250                | 2   |
| 9      | 103615     | GRD DRUM BTM FRNT HALF LPV 8FT   | 1   |
| 10     | 103616     | GRD DRUM BTM REAR HALF LPV 8FT   | 1   |
| 11     | 103BD4     | SPACER                           | 2   |
| 12     | 103BD7     | BRKT                             | 2   |
| 13     | 103BED     | GRD                              | 1   |
| 14     | 103BEE     | GRD                              | 1   |
| 15     | 103BF1     | GRD                              | 1   |
| 16     | 103BF2     | GRD                              | 1   |
| 17     | 18-01-0306 | WDMT GRD SUPP                    | 1   |
| 18     | 18-01-0307 | WDMT GRD                         | 1   |
| 19     | 18-01-0308 | WDMT GRD                         | 1   |
| 20     | 18-01-0310 | WDMT BRKT                        | 2   |
| 21     | 18-01-0311 | WDMT GRD CONNECTOR               | 1   |
| 22     | 18-01-0312 | WDMT GRD SUPP                    | 1   |
| 23     | 18-01-0317 | WDMT GRD STIFFENER               | 1   |

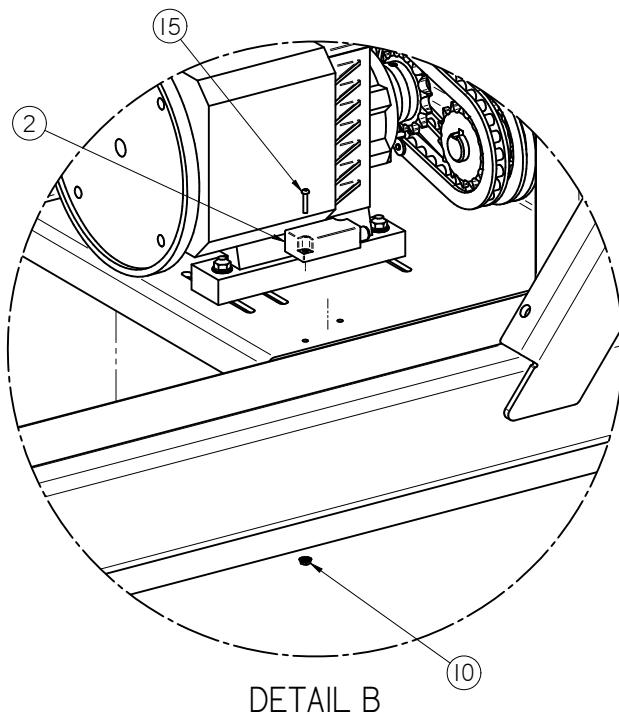
LPV WEIGH BELT SEED TREATER  
**LPV TREATER BASE ASSEMBLY (18-01-0392)**



LPV WEIGH BELT SEED TREATER  
**LPV TREATER BASE ASSEMBLY (18-01-0392)**



DETAIL A



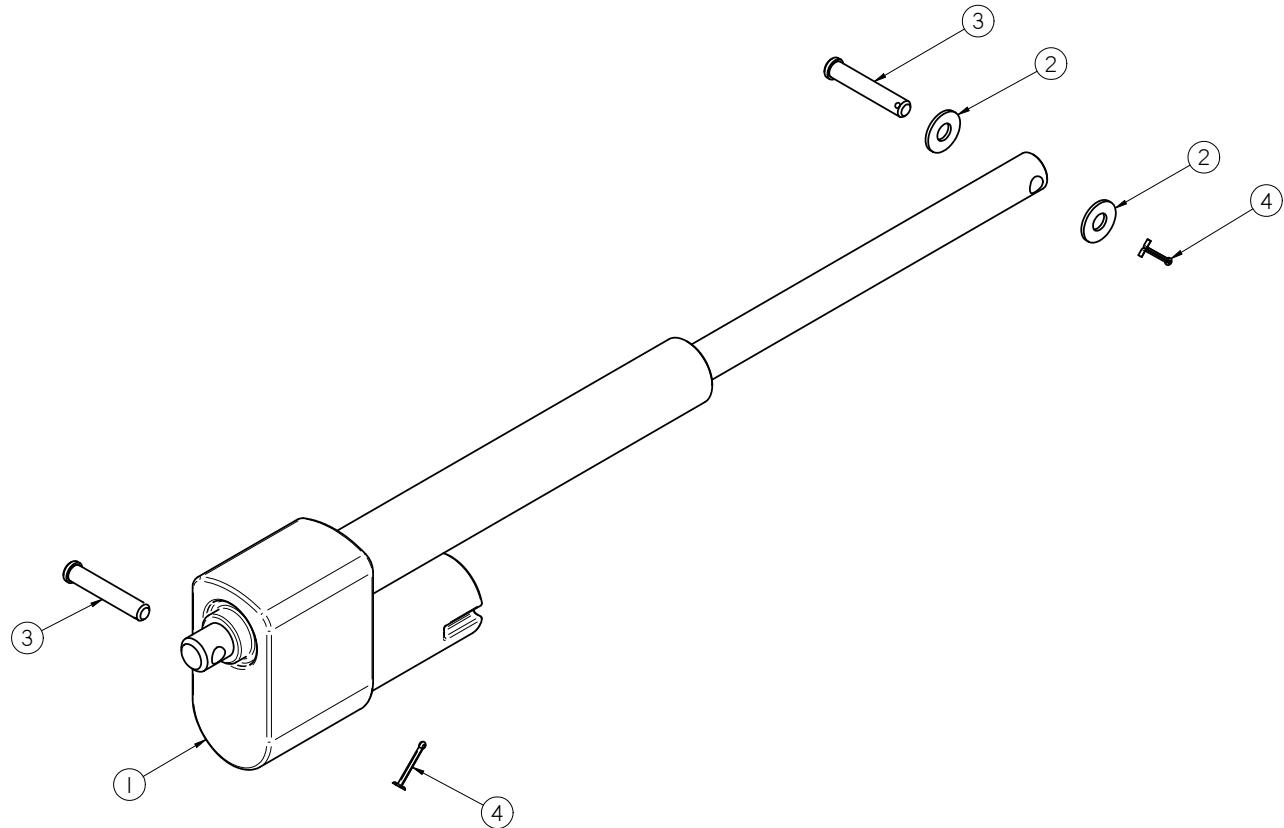
DETAIL B

## LPV WEIGH BELT SEED TREATER

**LPV TREATER BASE ASSEMBLY (18-01-0392)**

| Item # | Part #     | Description                          | Qty |
|--------|------------|--------------------------------------|-----|
| 1      | 01-03-0060 | BRG PLW SEALED 1.00ID STSC           | 2   |
| 2      | 03-17-0105 | TRCK INCLOMTR B2N-10H-Q20L60-2L12-   | 1   |
| 3      | 03-17-0111 | ACTR 8"STRK 24VDC LPV TRTR DRUM KIT  | 1   |
| 4      | 04-03-0255 | ASSY STTC MXR & VLVS LPV TRTR QD     | 1   |
| 5      | 06-01-0016 | BOLT .375-16 X 1.00 ZP GR5           | 8   |
| 6      | 06-01-0080 | BOLT .500-13 X 1.25 ZP GR5           | 4   |
| 7      | 06-01-0124 | BOLT FLG .375-16 X .750 ZP GR5       | 20  |
| 8      | 06-01-0171 | BOLT CRG .3125-18X.750 ZP SHORT NECK | 4   |
| 9      | 06-01-0232 | BOLT FLG .500-13 X 1.250 ZP GR5      | 45  |
| 10     | 06-02-0033 | NUT 6-32 K-LOCK ZP                   | 2   |
| 11     | 06-03-0014 | NUT LOCK FLG .375-16 ZP GR5          | 26  |
| 12     | 06-03-0015 | NUT LOCK FLG .500-13 ZP GR5          | 45  |
| 13     | 06-03-0019 | NUT LOCK FLG .3125-18 ZP GR5         | 4   |
| 14     | 06-04-0004 | WSHR LOCK SPLT .500 ZP               | 4   |
| 15     | 06-06-0088 | SCRW MACH 6-32 X .750 PHLP RDHD ZP   | 2   |
| 16     | 06-10-0059 | STATIC DISSIPATIVE BRUSH             | 1   |
| 17     | 09-02-0001 | ATWK LBL DANGER FINGERS              | 3   |
| 18     | 09-02-0002 | ATWK LBL DANGER GUARDS               | 1   |
| 19     | 103614     | ANGLE CROSS BRACE                    | 2   |
| 20     | 103D7E     | BRUSH HOLDER                         | 1   |
| 21     | 18-01-0072 | ASSY END CHUTE EXT LPX               | 1   |
| 22     | 18-01-0107 | WDMT FORKLIFT PCKT EXT 8FT           | 2   |
| 23     | 18-01-0250 | ASSY BASE FR LPV 8FT                 | 1   |
| 24     | 18-01-0251 | WDMT FR STAND LPV                    | 1   |
| 25     | 18-01-0254 | WDMT PIVOT PIN AVR                   | 2   |
| 26     | 18-01-0304 | WDMT ACTUATOR MNT                    | 1   |
| 27     | 18-01-0313 | KIT LPV DRUM GUARDS                  | 1   |
| 28     | 18-01-0315 | ASSY LPV DRM SHIPPING BRKT           | 4   |
| 29     | 18-01-0316 | ASSY DRUM STABILIZER PAD             | 2   |
| 30     | 18-01-0339 | WDMT LOWER LEG RH                    | 1   |
| 31     | 18-01-0340 | WDMT LOWER LEG LH                    | 1   |
| 32     | 18-01-0341 | WDMT LOWER LEG EXT X-BRACE MNT       | 2   |
| 33     | 18-01-0342 | WDMT LOWER LEG EXT ACTR MNT          | 2   |

LPV WEIGH BELT SEED TREATER  
**DRUM ACTUATOR KIT ASSEMBLY (03-17-0111)**



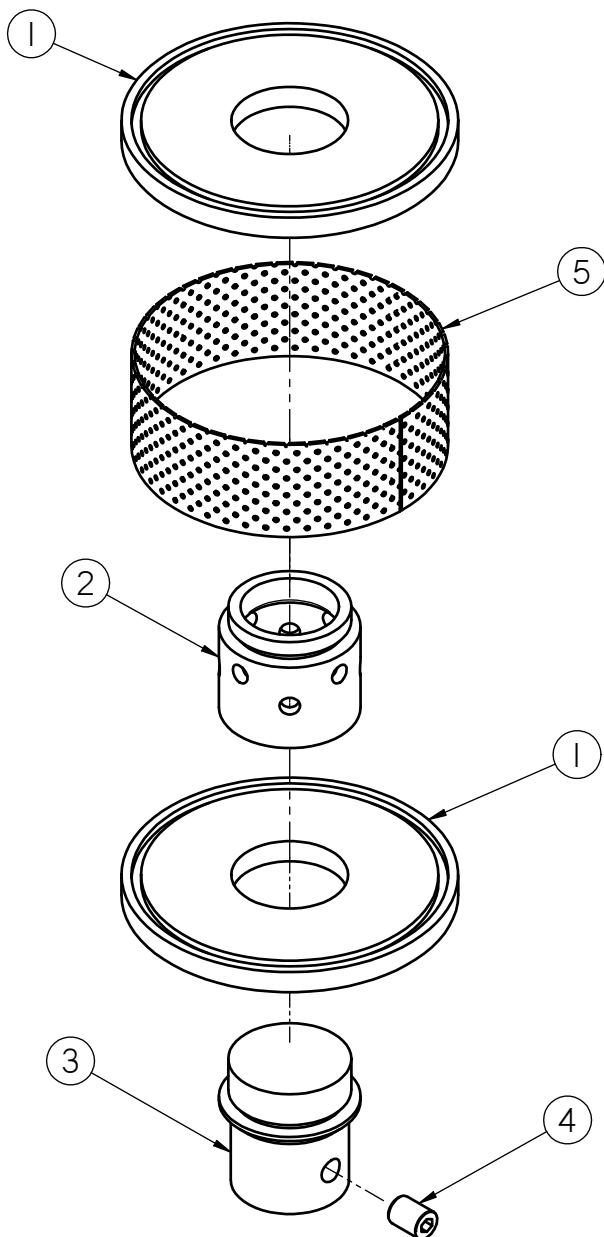
| Item # | Part #     | Description                          | Qty |
|--------|------------|--------------------------------------|-----|
| 1      | 03-17-0104 | ACTR 8" STRK 24VDC MDC10-24-40-203-3 | 1   |
| 2      | 06-05-0005 | WSHR FLAT .500 ZP                    | 1   |
| 3      | 06-09-0058 | WSHR FLAT .500 ZP                    | 2   |
| 4      | 06-09-0087 | PIN CLVS .500 X 2.75 PLN             | 2   |

**NOTICE**

The following parts are in the motor kit but do not appear in the drawing view

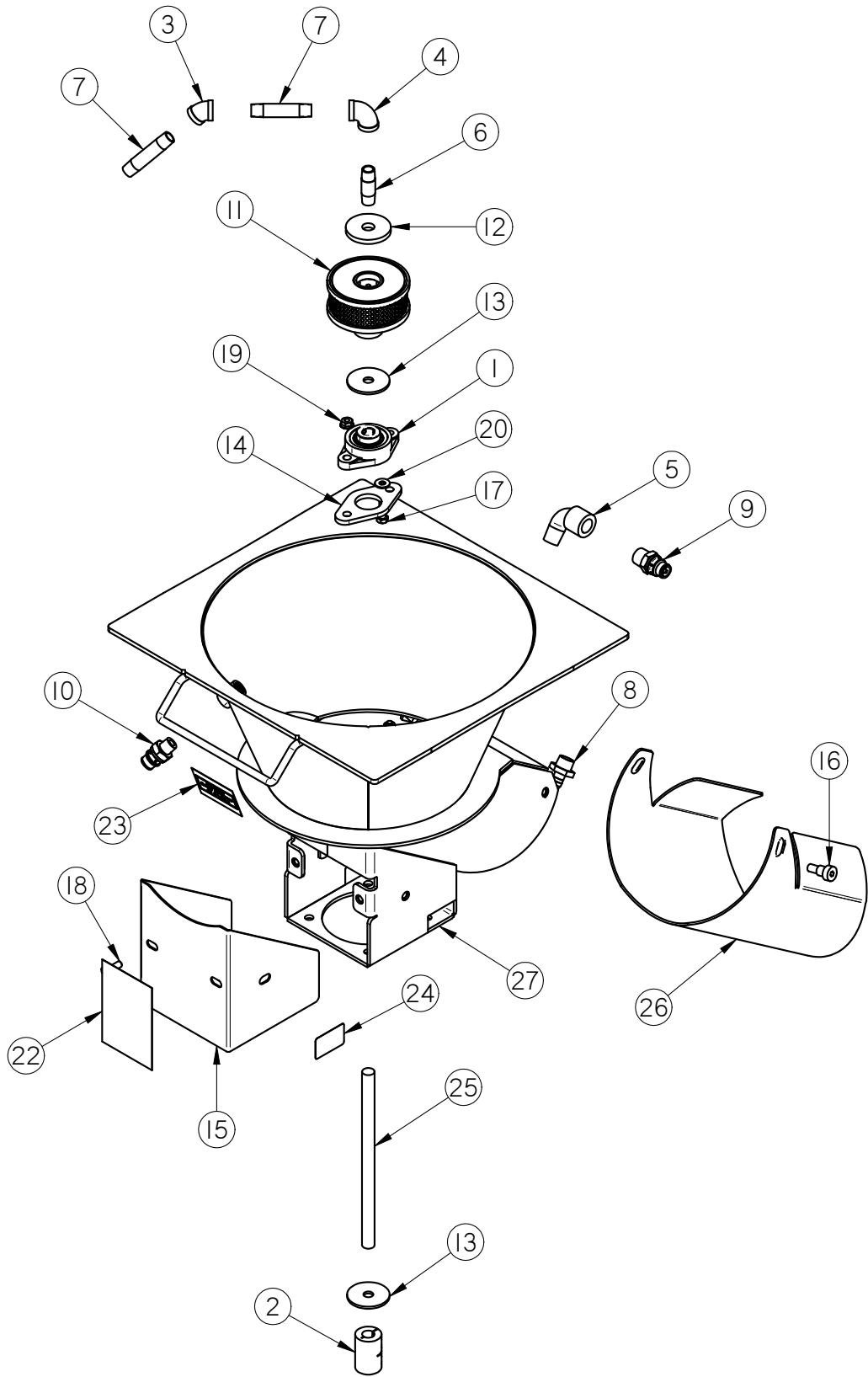
| Item # | Part #     | Description                         | Qty |
|--------|------------|-------------------------------------|-----|
| 5      | 03-08-0246 | CONN TURCK RSF-26-2M                | 1   |
| 6      | 03-08-0268 | CONN COMPACT TNML BLK 2-CON 222-412 | 1   |
| 7      | 03-08-0269 | CONN COMPACT TNML BLK 3-CON 222-413 | 1   |
| 8      | 06-03-0024 | NUT LOCK 0.5 NPT FITTING            | 1   |

LPV WEIGH BELT SEED TREATER  
**ATOMIZER HEAD ASSEMBLY (04-02-0004)**

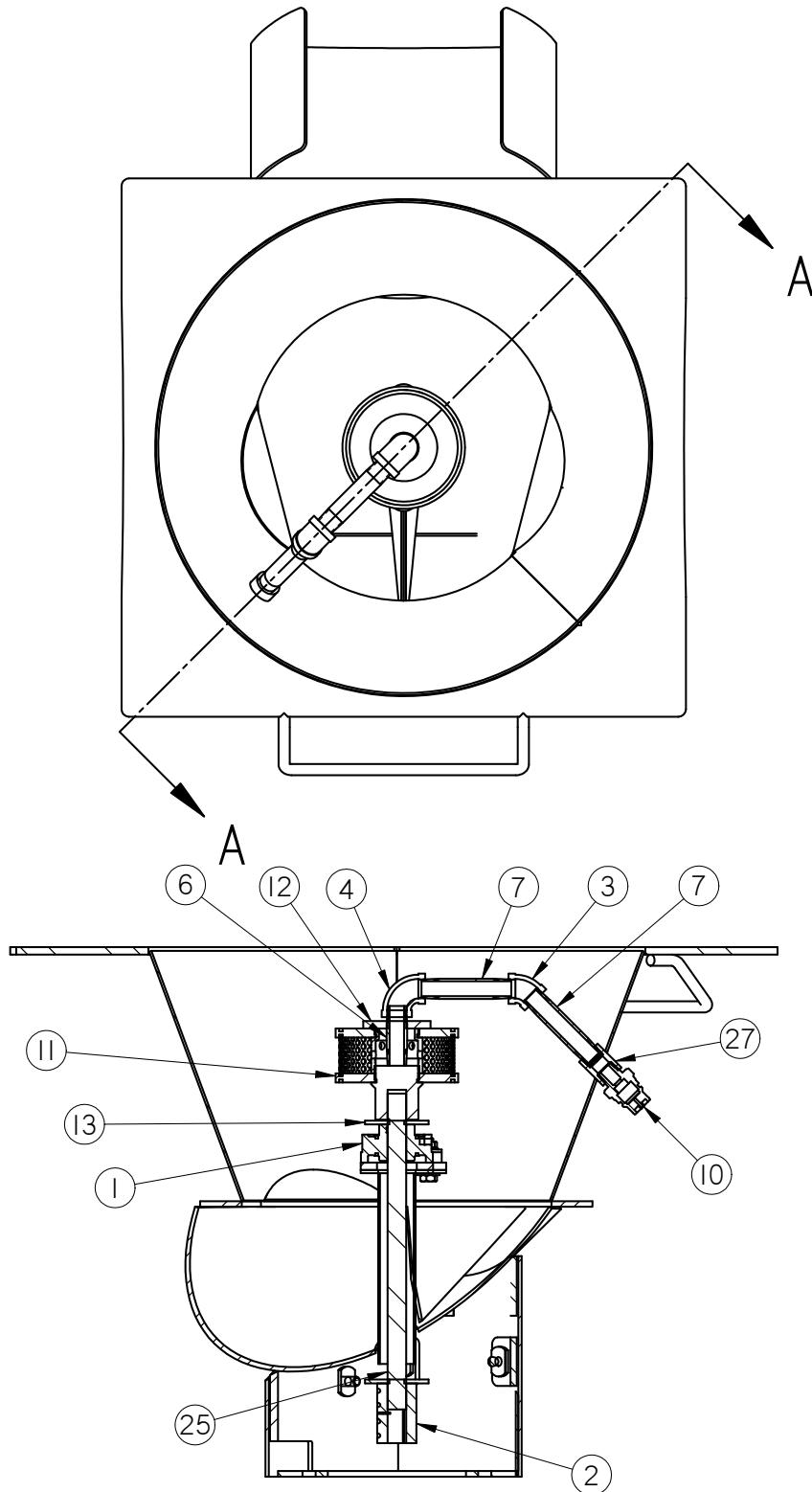


| Item # | Part #     | Description                      | Qty |
|--------|------------|----------------------------------|-----|
| 1      | 05-11-0014 | PLT ATMZR CAP                    | 2   |
| 2      | 05-11-0015 | ATOMIZER SPACER                  | 1   |
| 3      | 05-11-0016 | DRIVE SPUD, BOTTOM               | 1   |
| 4      | 06-06-0003 | SET SCRW, CP,.375-16 18-8 SS .50 | 1   |
| 5      | 13-05-0032 | PERFORATED SCREEN,STD.           | 1   |

LPV WEIGH BELT SEED TREATER  
**STAINLESS STEEL ATOMIZER ASSEMBLY (18-01-0359)**



LPV WEIGH BELT SEED TREATER  
**STAINLESS STEEL ATOMIZER ASSEMBLY (18-01-0359)**

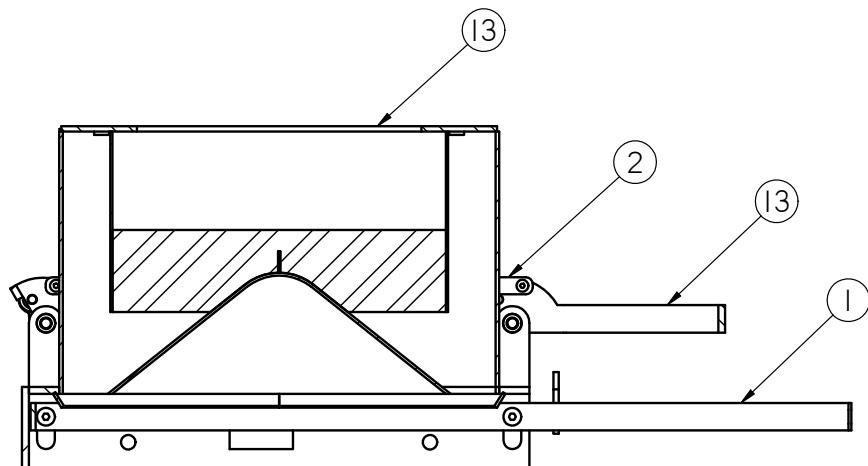
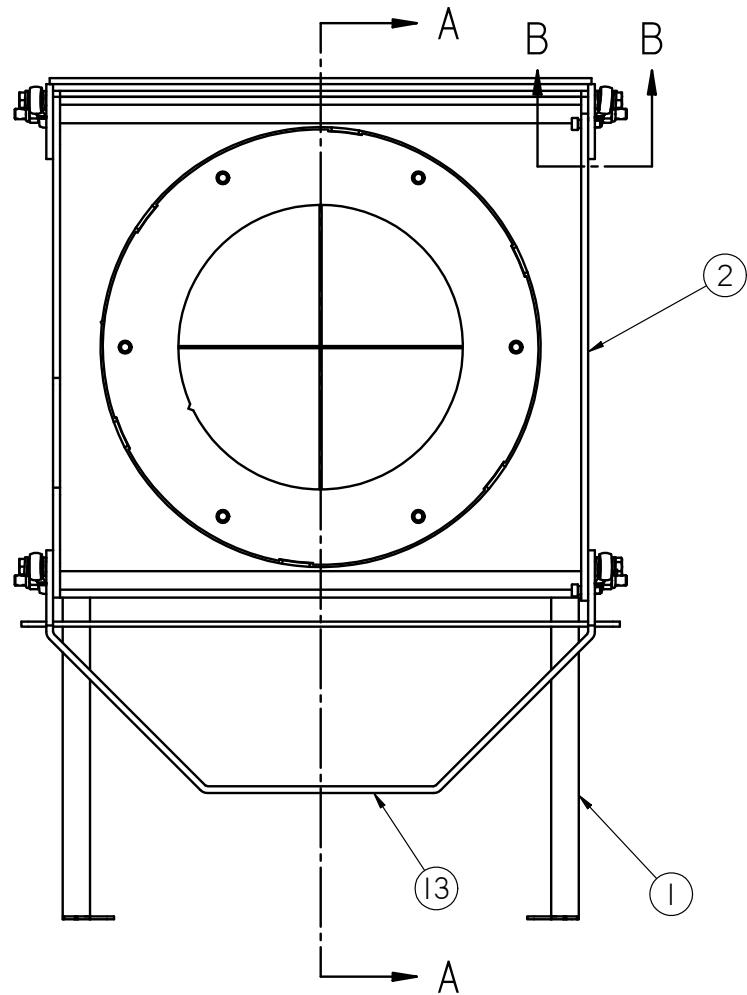


**SECTION A-A**

**STAINLESS STEEL ATOMIZER ASSEMBLY (18-01-0359)**

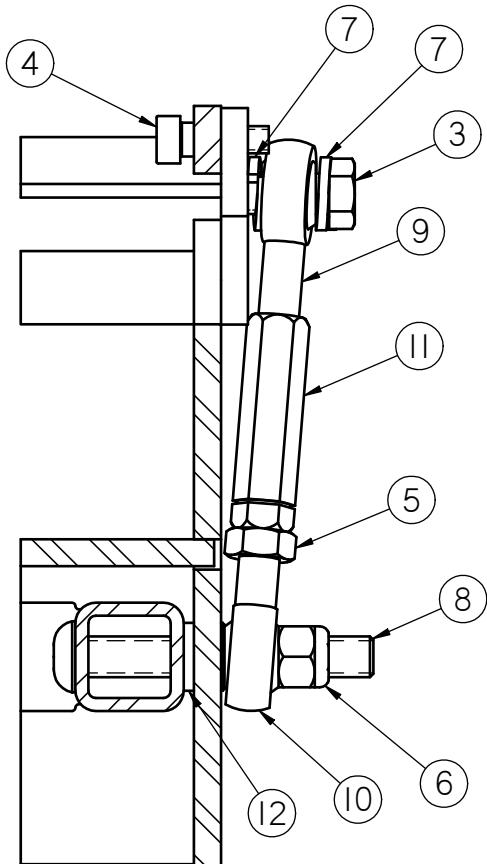
| Item # | Part #     | Description                        | Qty |
|--------|------------|------------------------------------|-----|
| 1      | 01-03-0002 | BRG FLG MNT .625ID 3.875 BASE      | 1   |
| 2      | 01-07-0027 | CPLG CLPN .625 X .625 SPLT CS      | 1   |
| 3      | 02-06-0007 | FTTG 45 DEG .375NPT SS             | 1   |
| 4      | 02-06-0008 | FTTG 90 DEG .375NPT FM SS          | 1   |
| 5      | 02-06-0017 | FTTG 90 DEG STRT .500NPT PPE BLK   | 1   |
| 6      | 02-07-0003 | FTTG NIP .375 NPT X 2.00 TBE SS    | 1   |
| 7      | 02-07-0020 | FTTG NIP .375 NPT X 3.00 TBE SS    | 2   |
| 8      | 02-08-0007 | FTTG STGHT .500HB X .500NPT ML NYL | 1   |
| 9      | 02-15-0014 | FTTG CPLG .500 NPT QCK DISC INSERT | 1   |
| 10     | 02-15-0037 | FTTG CPLG .375 NPT QCK DISC INSERT | 1   |
| 11     | 04-02-0004 | ASSY,ATOMIZER HEAD,4" COTTON       | 1   |
| 12     | 05-10-0360 | DISC STD ATMZR HEAD CVR            | 1   |
| 13     | 05-10-0805 | DISK ATOMIZER MOTOR                | 2   |
| 14     | 5/10/2462  | SEAL RBBR .625 FLG BRG             | 1   |
| 15     | 5/10/4029  | GRD ATMZR MTR LPX SS               | 1   |
| 16     | 06-01-0056 | BOLT SHLD .500SHX.375-16X.500 GR5  | 2   |
| 17     | 06-01-0102 | BOLT .313-18 X 1.25 ZP GR5         | 2   |
| 18     | 06-01-0124 | BOLT FLG .375-16 X .750 ZP GR5     | 4   |
| 19     | 06-03-0019 | NUT LOCK FLG .3125-18 ZP GR5       | 2   |
| 20     | 06-05-0001 | WASHER, FLAT .250                  | 2   |
| 21     | 09-01-0107 | LBL ATWK PATENT DECAL-ATMZR        | 1   |
| 22     | 09-02-0002 | ATWK LBL DANGER GUARDS             | 1   |
| 23     | 09-02-0004 | ATWK LBL GRS 40HRS                 | 1   |
| 24     | 09-02-0013 | ATWK LBL ROTATION ARROW            | 1   |
| 25     | 101FAF     | SHAFT DRV ATMZR LPX2000            | 1   |
| 26     | 103D73     | LPV2000 ATMZR EXT CHUTE for Brush  | 1   |
| 27     | 18-01-0066 | WDMT ATMZR LPX2000 SS              | 1   |

LPV WEIGH BELT SEED TREATER  
**FLOW CHAMBER ASSEMBLY (18-01-0350)**



SECTION A-A

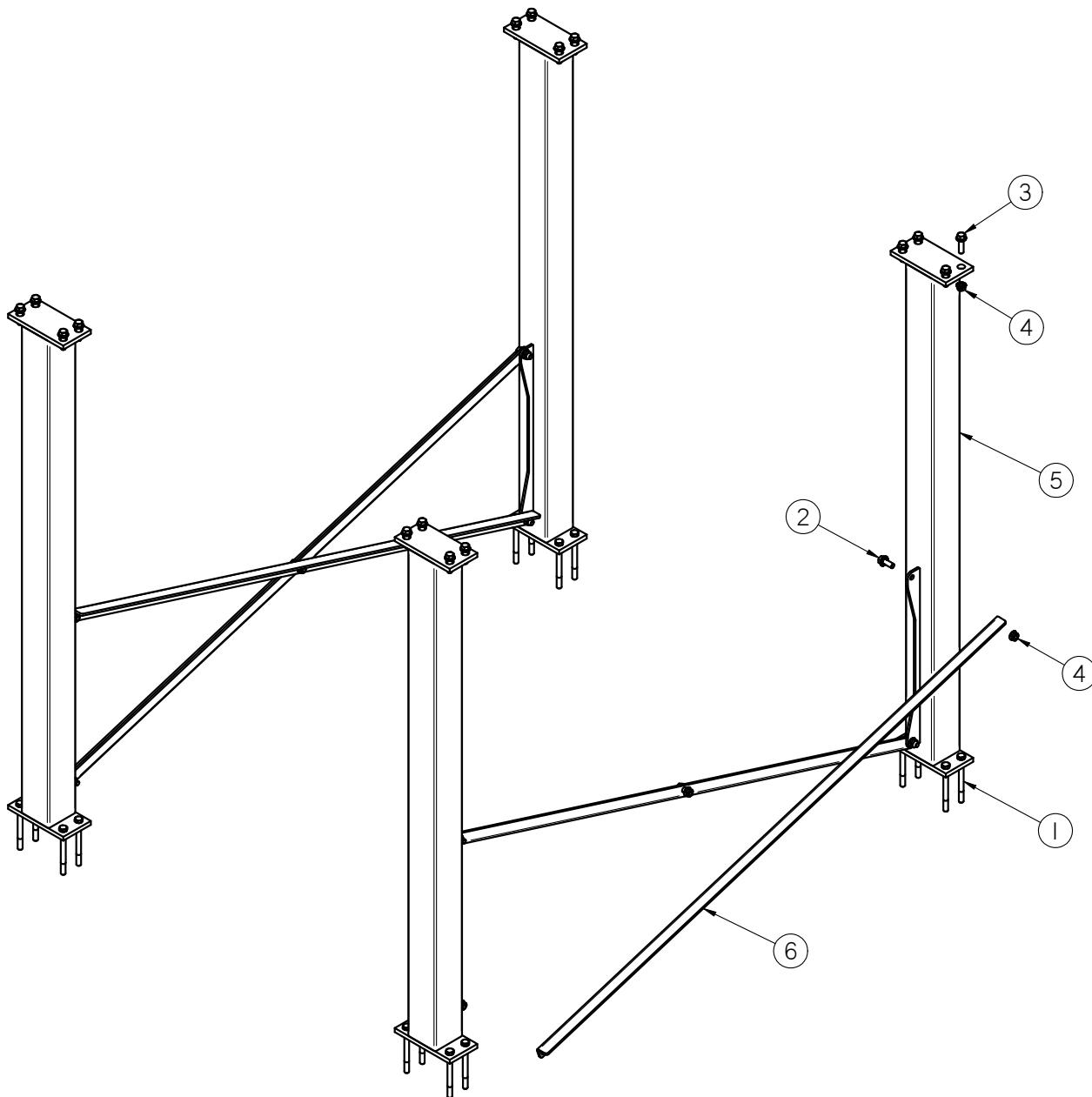
## LPV WEIGH BELT SEED TREATER

**FLOW CHAMBER ASSEMBLY (18-01-0350)**

SECTION B-B

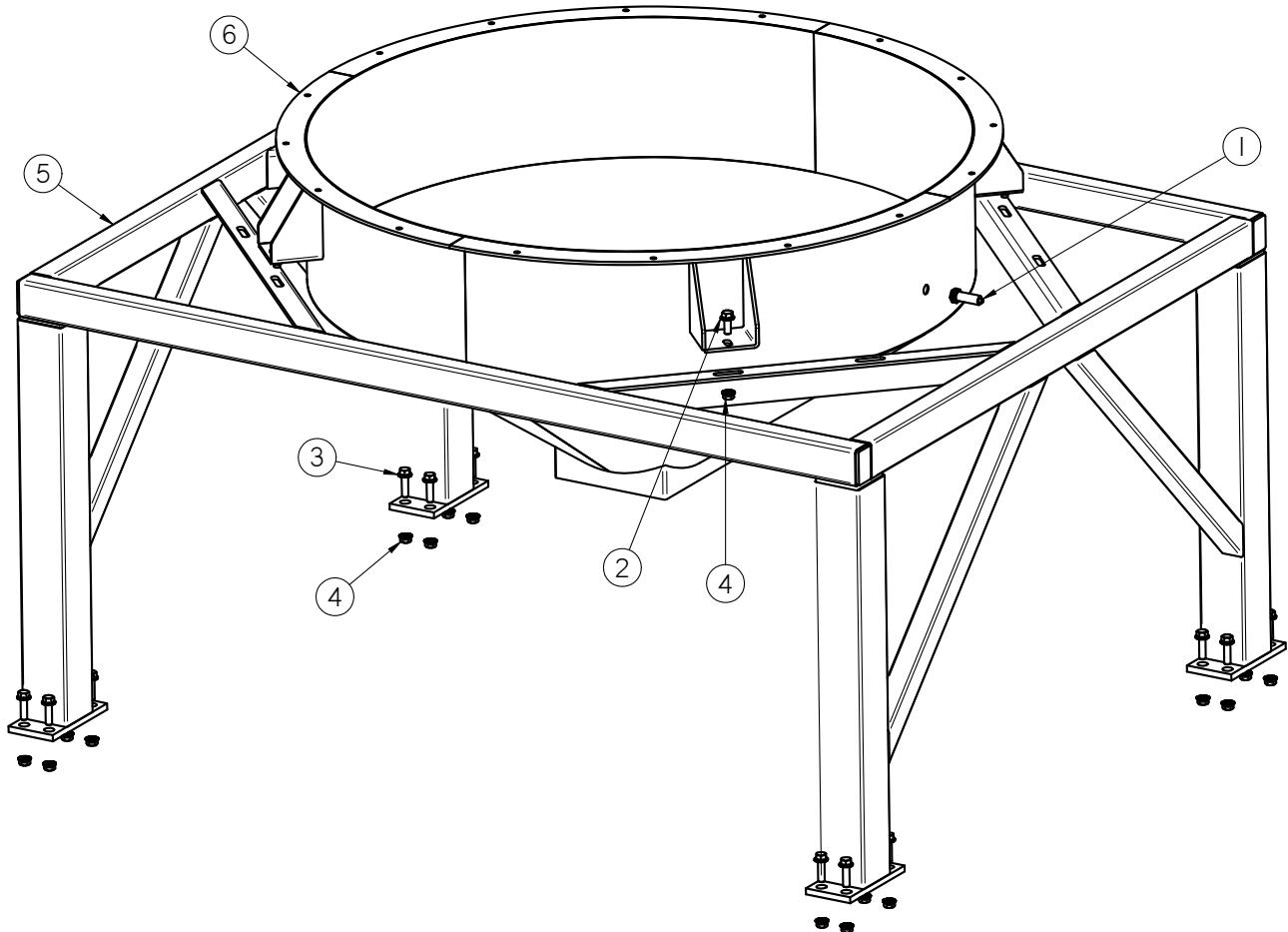
| Item # | Part #     | Description                       | Qty |
|--------|------------|-----------------------------------|-----|
| 1      | 05-03-0336 | WDMT,CHAMBER SUPPORT BRK SS       | 1   |
| 2      | 05-10-2062 | BAR ECNTRC CONNECTING CS          | 1   |
| 3      | 06-01-0016 | BOLT .375-16 X 1.00 ZP GR5        | 4   |
| 4      | 06-01-0081 | BOLT SHLD .313SHX.250-20X.375 GR5 | 2   |
| 5      | 06-02-0035 | NUT JAM .375-24 ZP GR5            | 4   |
| 6      | 06-03-0003 | NUT NYL LOCK .375-16 ZP GR5       | 4   |
| 7      | 06-04-0003 | WSHR LOCK SPLT .375 ZP            | 8   |
| 8      | 06-06-0087 | SCRW BTN SCKT HD .375-16X2.75 ZP  | 4   |
| 9      | 06-12-0002 | REND .375-24 BALL RH              | 4   |
| 10     | 06-12-0003 | REND .375-24 BALL RH              | 4   |
| 11     | 06-12-0006 | ROD CTNG .375-24 X 2.00 LH RH FM  | 4   |
| 12     | 06-12-0007 | BUSH DRILL.375ID X .625OD X .375  | 4   |
| 13     | 18-01-0351 | WDMT FLOW CHMBR LPX2000 CS        | 1   |

## LPV WEIGH BELT SEED TREATER

**WEIGH BELT LEG ASSEMBLY (13-05-0520)**

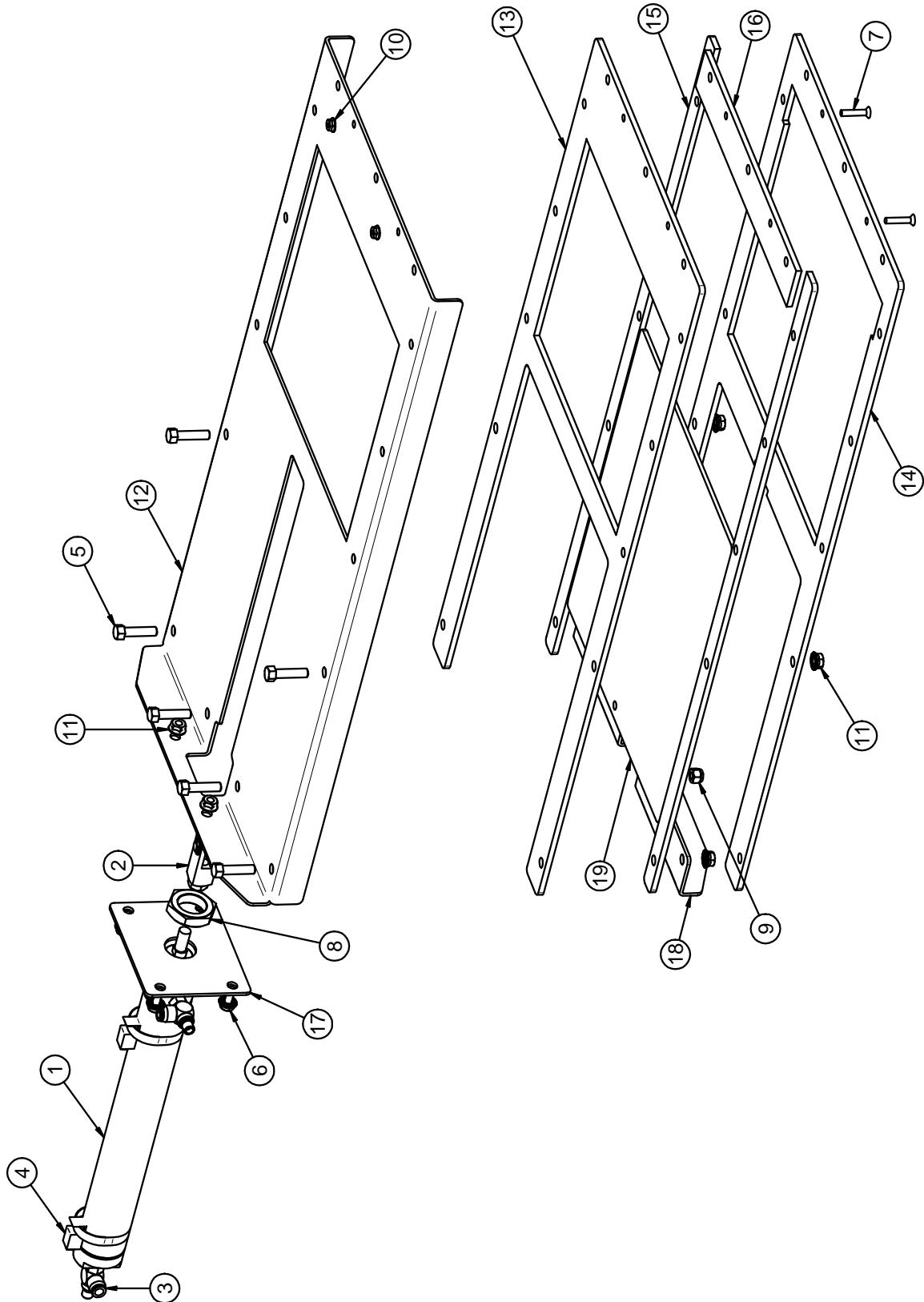
| Item # | Part #     | Description                          | Qty |
|--------|------------|--------------------------------------|-----|
| 1      | 06-01-0179 | BOLT,.500-13 CONC ANCHOR ZP 5.5 LONG | 16  |
| 2      | 06-01-0232 | BOLT FLG .500-13 X 1.250 ZP GR5      | 10  |
| 3      | 06-01-0271 | BOLT FLG .500-13 X 1.750 ZP          | 16  |
| 4      | 06-03-0015 | NUT LOCK FLG .500-13 ZP GR5          | 26  |
| 5      | 104C43     | WDMT WB LEG                          | 4   |
| 6      | 104C44     | WB LEG X BRACE                       | 4   |

LPV WEIGH BELT SEED TREATER  
**HOLDING HOPPER ASSEMBLY (13-05-0516)**



| Item # | Part #     | Description                         | Qty |
|--------|------------|-------------------------------------|-----|
| 1      | 03-10-0147 | SENS PROX 24VDC AB QC 875CPN8NP18P3 | 1   |
| 2      | 06-01-0232 | BOLT FLG .500-13 X 1.250 ZP GR5     | 4   |
| 3      | 06-01-0271 | BOLT FLG .500-13 X 1.750 ZP         | 16  |
| 4      | 06-03-0015 | NUT LOCK FLG .500-13 ZP GR5         | 20  |
| 5      | 104C32     | WDMT WB TOP FRM                     | 1   |
| 6      | 104C91     | WDMT USE HOPP                       | 1   |

LPV WEIGH BELT SEED TREATER  
**SLIDE GATE ASSEMBLY (12-04-0041)**



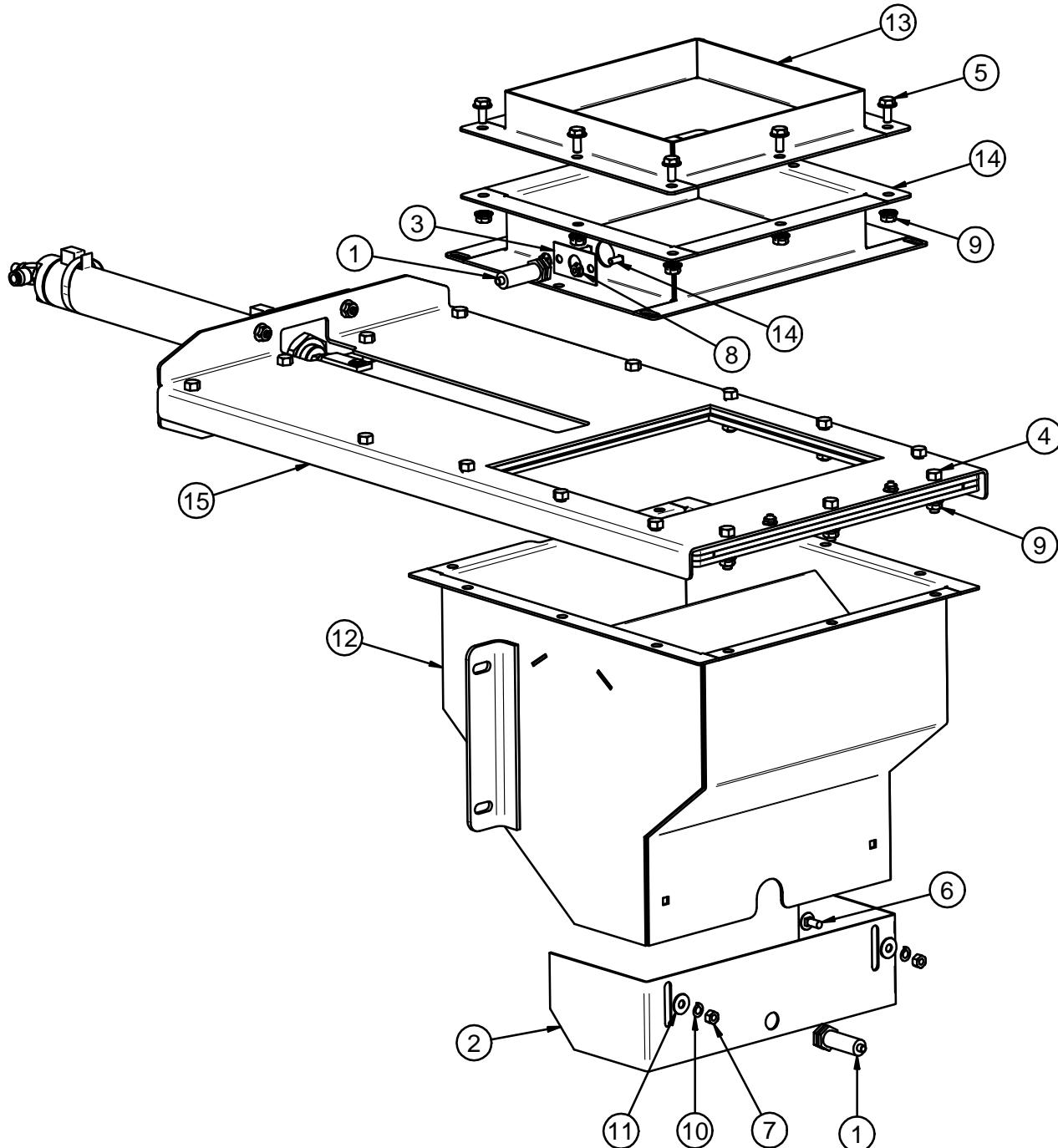
## LPV WEIGH BELT SEED TREATER

**SLIDE GATE ASSEMBLY (12-04-0041)**

| Item # | Part #     | Description                        | Qty |
|--------|------------|------------------------------------|-----|
| 1      | 03-17-0040 | CYLINDER AIR 12" STROKE 2" BORE    | 1   |
| 2      | 03-17-0041 | CLEVIS ASSY BIMBA D-8313-A         | 1   |
| 3      | 03-17-0068 | VLV NEDL .250OD X .250NPT FQP44    | 2   |
| 4      | 03-17-0121 | SW MAG REED MRS-.087-BLQ-31        | 2   |
| 5      | 06-01-0018 | BOLT .375-16 X 1.50 ZP GR5         | 6   |
| 6      | 06-01-0124 | BOLT FLG .375-16 X .750 ZP GR5     | 4   |
| 7      | 06-01-0155 | SCRW MACH .250-20 X 1.25 SH FLHD   | 2   |
| 8      | 06-02-0064 | 06-02-0064 BINBA D-508 NUT         | 1   |
| 9      | 06-03-0003 | NUT NYL LOCK .375-16 ZP GR5        | 2   |
| 10     | 06-03-0013 | NUT,LOCK, FLG .250-20 ZP SERRATTED | 2   |
| 11     | 06-03-0014 | NUT LOCK FLG .375-16 ZP GR5        | 8   |
| 12     | 105218     | GATE FRAME                         | 1   |
| 13     | 105219     | GATE TOP SLIDE                     | 1   |
| 14     | 10521A     | GATE BTM SLIDE                     | 1   |
| 15     | 10521B     | GATE SIDE SPCR                     | 2   |
| 16     | 10521C     | GATE END SPCR                      | 1   |
| 17     | 10521D     | POWER PLATE                        | 1   |
| 18     | 10521E     | CYL MNT PLT                        | 1   |
| 19     | 10521F     | GATE SLIDE WB                      | 1   |

LPV WEIGH BELT SEED TREATER

**WEIGH BELT SEED GATE ASSEMBLY (13-05-0515)**

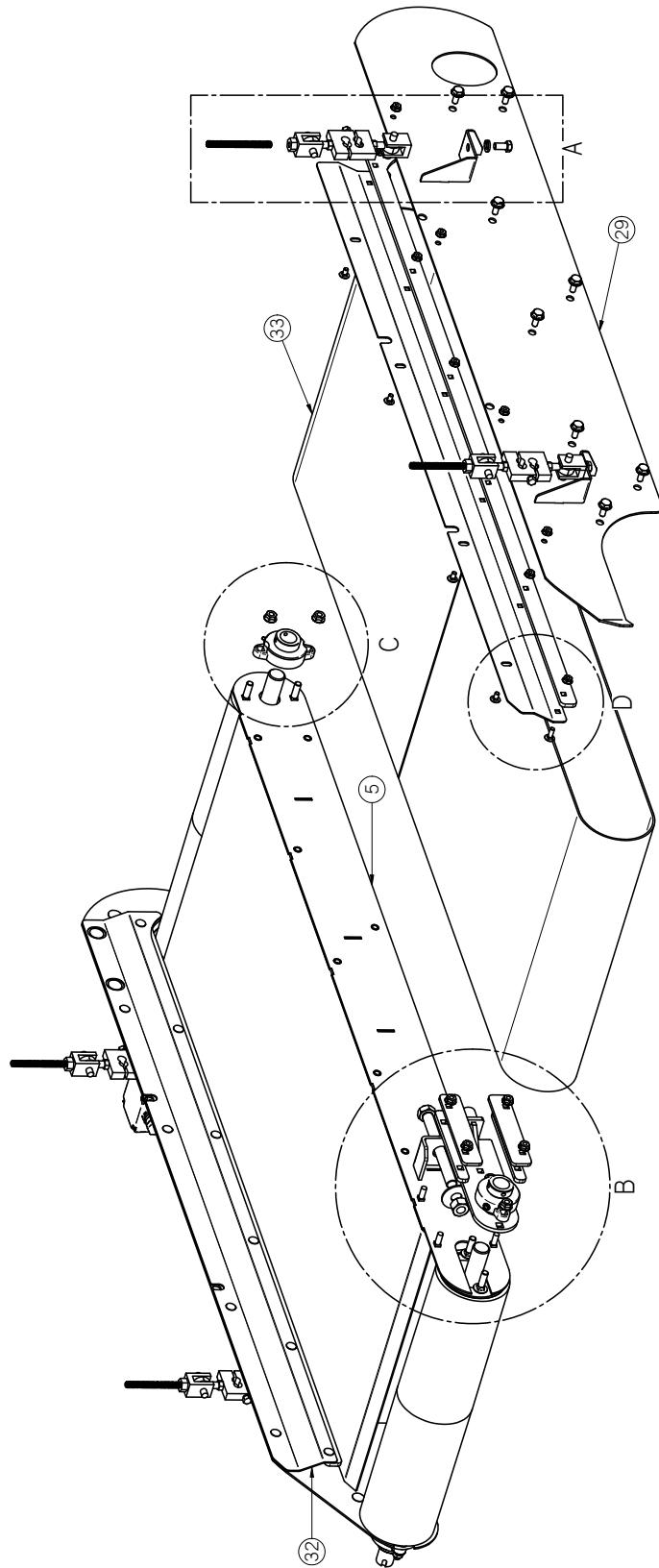


## LPV WEIGH BELT SEED TREATER

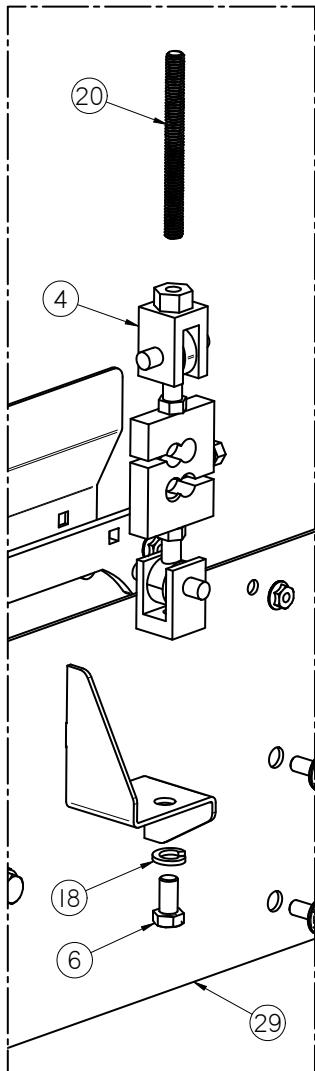
**WEIGH BELT SEED GATE ASSEMBLY (13-05-0515)**

| Item # | Part #     | Description                          | Qty |
|--------|------------|--------------------------------------|-----|
| 1      | 03-10-0147 | SENS PROX 24VDC AB QC 875CPN8NP18P3  | 2   |
| 2      | 05-10-1977 | PLT SEED LDDR ADJ OTLT               | 1   |
| 3      | 05-10-3316 | SMW PROX SW HOLDER                   | 1   |
| 4      | 06-01-0018 | BOLT .375-16 X 1.50 ZP GR5           | 10  |
| 5      | 06-01-0124 | BOLT FLG .375-16 X .750 ZP GR5       | 8   |
| 6      | 06-01-0171 | BOLT CRG .3125-18X.750 ZP SHORT NECK | 2   |
| 7      | 06-02-0002 | NUT FULL .313-18 ZP GR5              | 2   |
| 8      | 06-03-0013 | NUT,LOCK, FLG .250-20 ZP SERRATTED   | 2   |
| 9      | 06-03-0014 | NUT LOCK FLG .375-16 ZP GR5          | 17  |
| 10     | 06-04-0002 | WSHR LOCK SPLT .313 ZP               | 2   |
| 11     | 06-05-0003 | WSHR FLAT .313 ZP                    | 2   |
| 12     | 104C27     | WDMT SD LAD CS                       | 1   |
| 13     | 104C8D     | WDMT HOPP ADPT                       | 1   |
| 14     | 105222     | WDMT SLD GATE TRAN WB                | 1   |
| 15     | 12-04-0041 | SLIDE GATE                           | 1   |

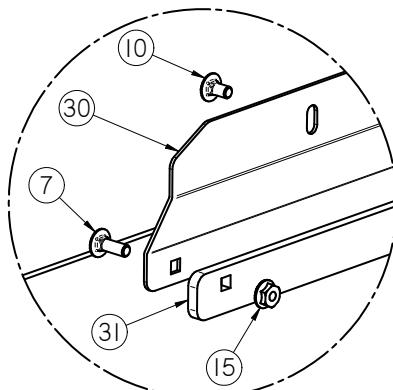
LPV WEIGH BELT SEED TREATER  
**WEIGH BELT BASE ASSEMBLY (13-05-0514)**



LPV WEIGH BELT SEED TREATER  
**WEIGH BELT BASE ASSEMBLY (13-05-0514)**

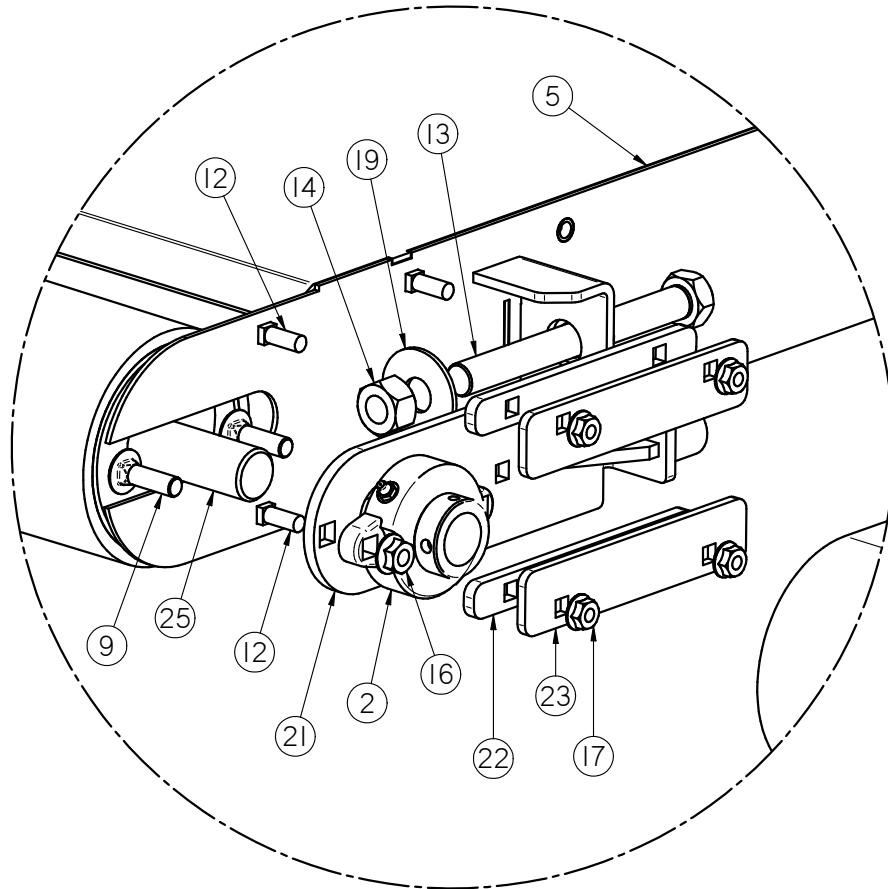


DETAIL A

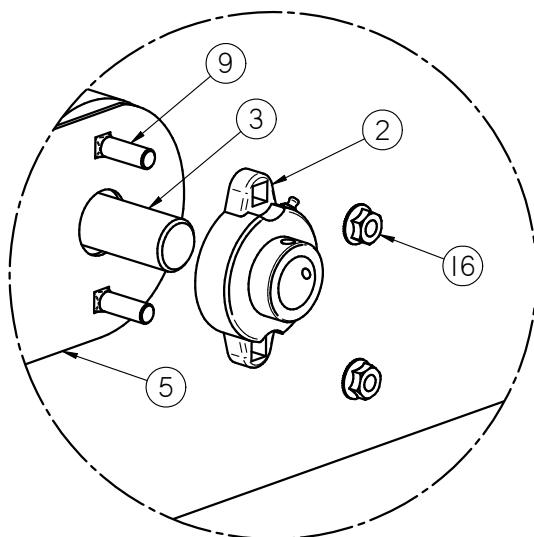


DETAIL D

LPV WEIGH BELT SEED TREATER  
**WEIGH BELT BASE ASSEMBLY (13-05-0514)**

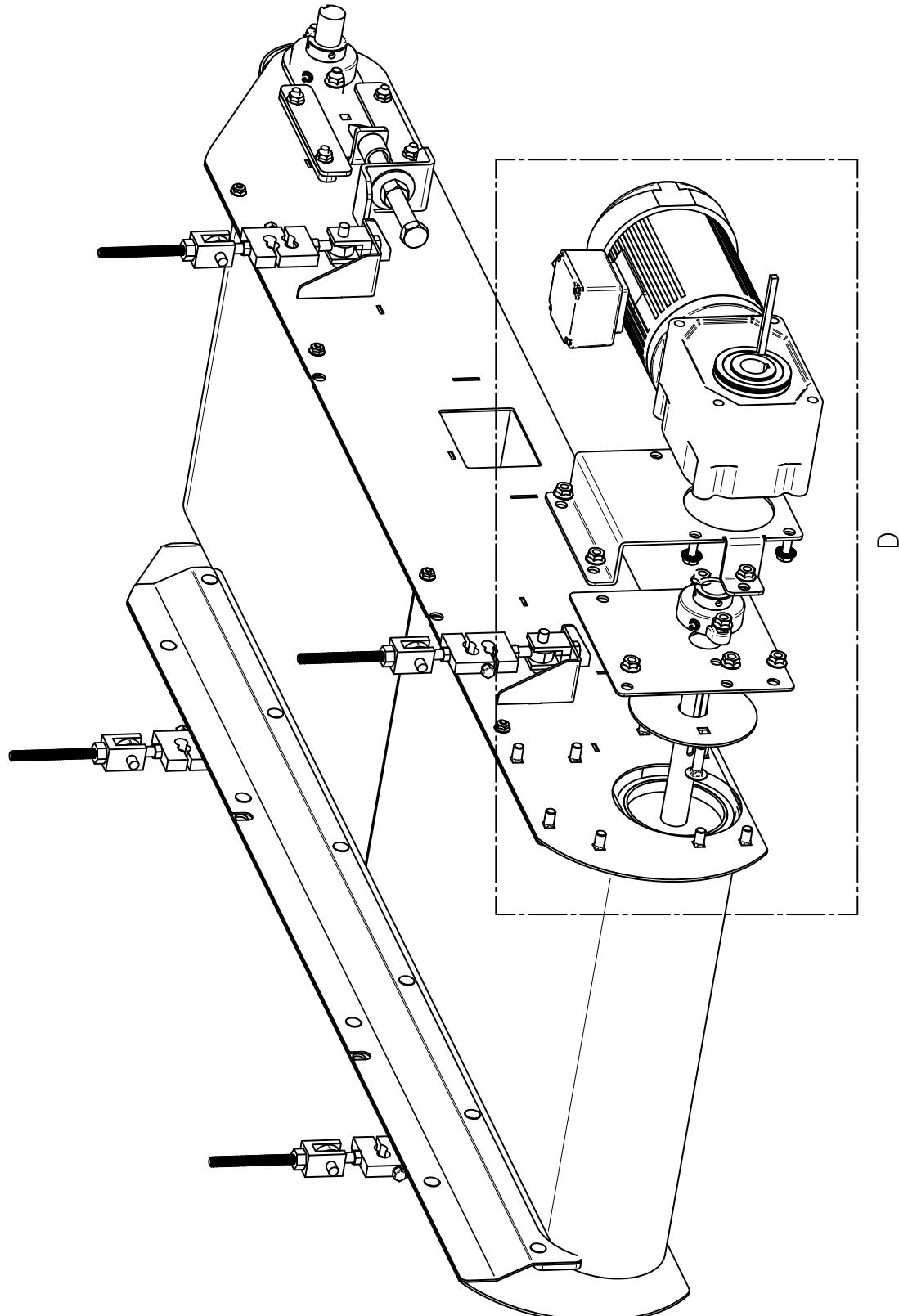


DETAIL B

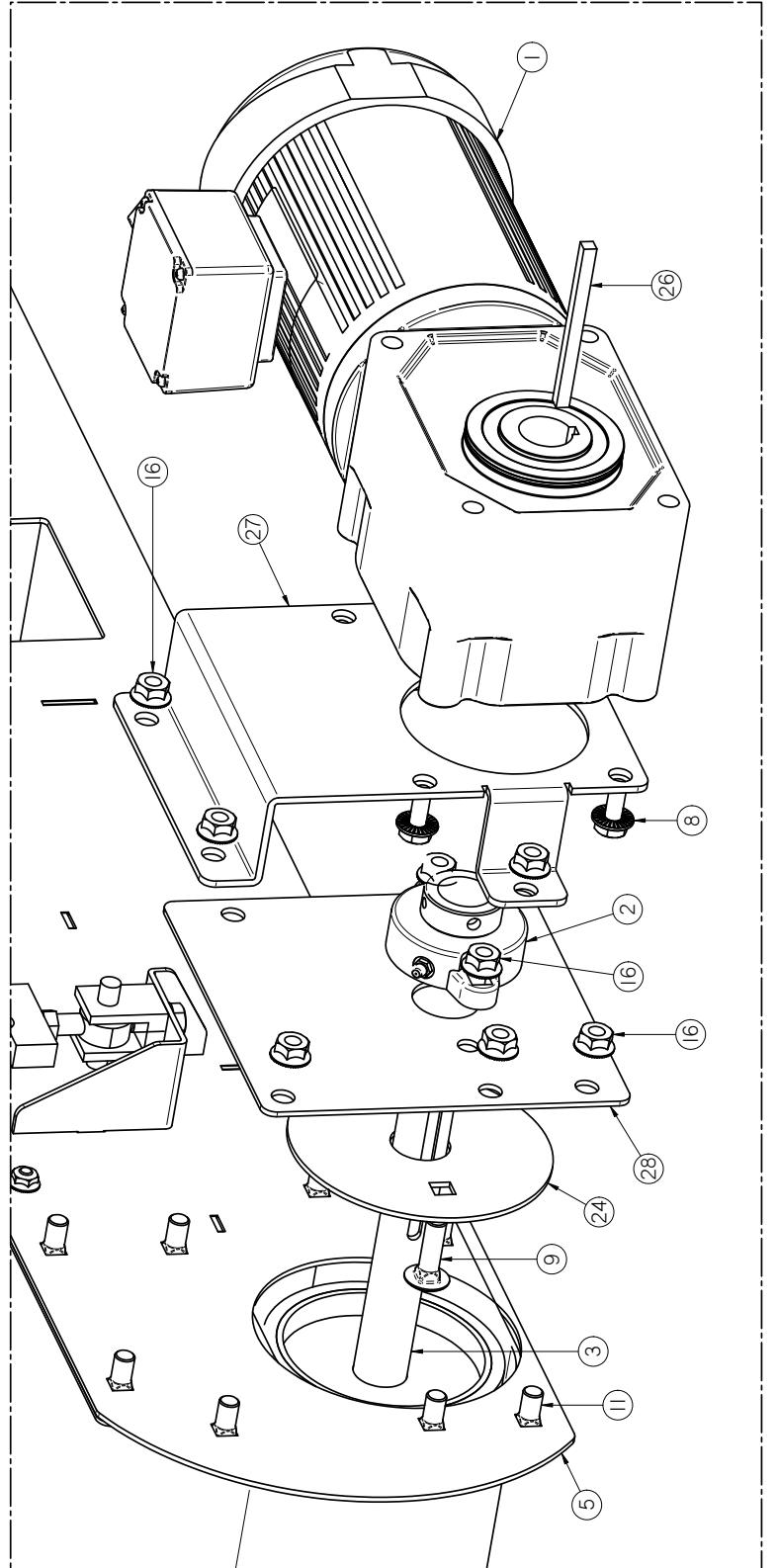


DETAIL C

LPV WEIGH BELT SEED TREATER  
**WEIGH BELT BASE ASSEMBLY (13-05-0514)**



LPV WEIGH BELT SEED TREATER  
**WEIGH BELT BASE ASSEMBLY (13-05-0514)**



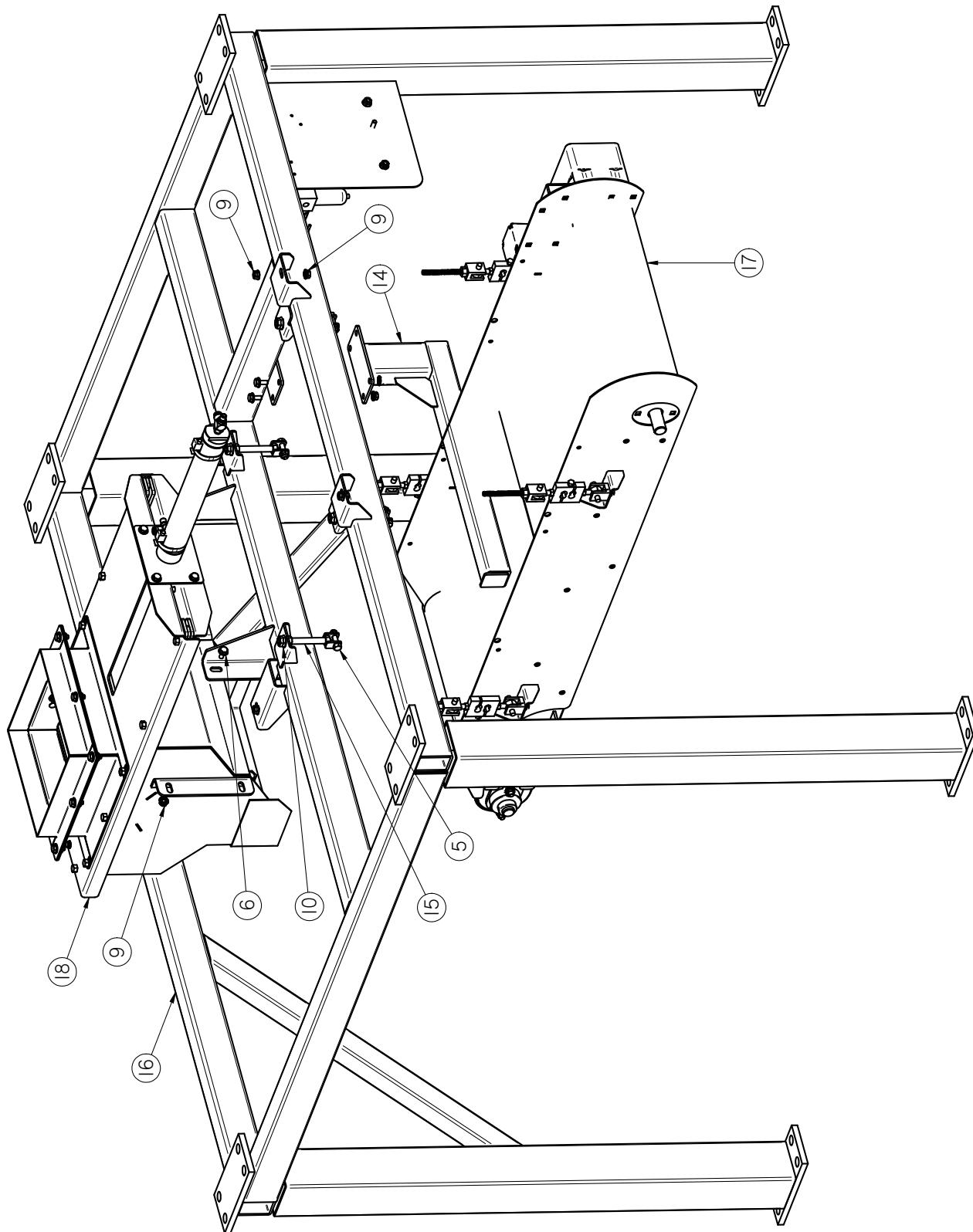
DETAIL D

**WEIGH BELT BASE ASSEMBLY (13-05-0514)**

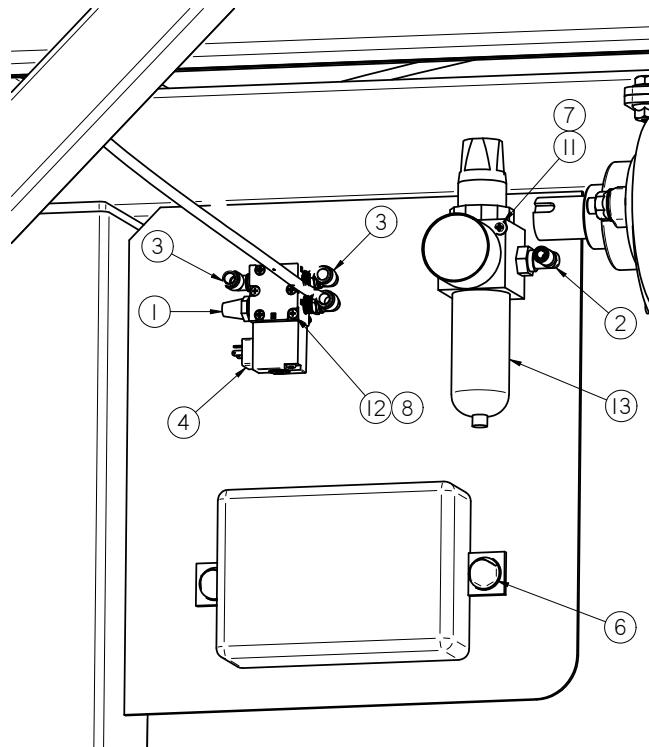
| Item # | Part #     | Description                             | Qty |
|--------|------------|---|-----|
| 1      | 01-01-0225 | GMTR RA .50 HP 72RPM 3PH HLLW 1.0 SHAFT | 1   |
| 2      | 01-03-0042 | BRG FLG MNT 1.000ID 2BOLT ECNTRC        | 4   |
| 3      | 01-08-0098 | PULLEY HEAD VULC S3000                  | 1   |
| 4      | 03-19-0093 | ITCM 4 CELL KIT 1000LB                  | 1   |
| 5      | 05-03-1656 | WDMT WEIGH BELT FRAME                   | 1   |
| 6      | 06-01-0015 | BOLT .375-16 X 0.75 ZP GR5              | 4   |
| 7      | 06-01-0122 | BOLT, CARRIAGE, .250-20x.75 G5 ZP       | 12  |
| 8      | 06-01-0124 | BOLT FLG .375-16 X .750 ZP GR5          | 12  |
| 9      | 06-01-0127 | BOLT CRG .375-16 X 1.25 ZP GR5          | 8   |
| 10     | 06-01-0150 | BOLT, CARRIAGE, .250-20x.50 G5 ZP       | 8   |
| 11     | 06-01-0153 | BOLT CRG .375-16X.750 ZP SHORT NECK     | 8   |
| 12     | 06-01-0223 | BOLT CRG .313-18 X 1.00 ZP GR5          | 8   |
| 13     | 06-01-0269 | BOLT .625-11 X 6.00 ZP GR5 FTH          | 2   |
| 14     | 06-02-0005 | NUT, .625-11 UNC ZP GRADE 5             | 4   |
| 15     | 06-03-0013 | NUT,LOCK, FLG .250-20 ZP SERRATTED      | 20  |
| 16     | 06-03-0014 | NUT LOCK FLG .375-16 ZP GR5             | 16  |
| 17     | 06-03-0019 | NUT LOCK FLG .3125-18 ZP GR5            | 8   |
| 18     | 06-04-0003 | WSHR LOCK SPLT .375 ZP                  | 4   |
| 19     | 06-05-0006 | WASHER, .625 FLAT ZP                    | 4   |
| 20     | 06-14-0023 | STUD .375-16 ZP X 4 IN LG ZP            | 4   |
| 21     | 10418D     | WDMT TAKE UP WEIGH BELT                 | 2   |
| 22     | 10418E     | PLT TAKE UP PLT SPCR                    | 4   |
| 23     | 10418F     | PLT TAKE UP CLMP                        | 4   |
| 24     | 104195     | PLT PLLY SPCR                           | 1   |
| 25     | 104245     | TAIL PULLEY WEIGH BELT                  | 1   |
| 26     | 10425D     | KEY                                     | 1   |
| 27     | 104C02     | PLT MTR MNT WEIGH BELT                  | 1   |
| 28     | 104C03     | PLT BRG MNT                             | 1   |
| 29     | 104C06     | WDMT WEIGH BELT SIDE                    | 1   |
| 30     | 105124     | WEIGH BELT SKIRT RH                     | 1   |
| 31     | 105125     | WEIGH BELT SEAL                         | 2   |
| 32     | 105126     | WEIGH BELT SKIRT LH                     | 1   |
| 33     | 11-02-0163 | BELT CNVR WEIGH BELT                    | 1   |

LPV WEIGH BELT SEED TREATER

**WEIGH BELT TOP ASSEMBLY (13-05-0518)**

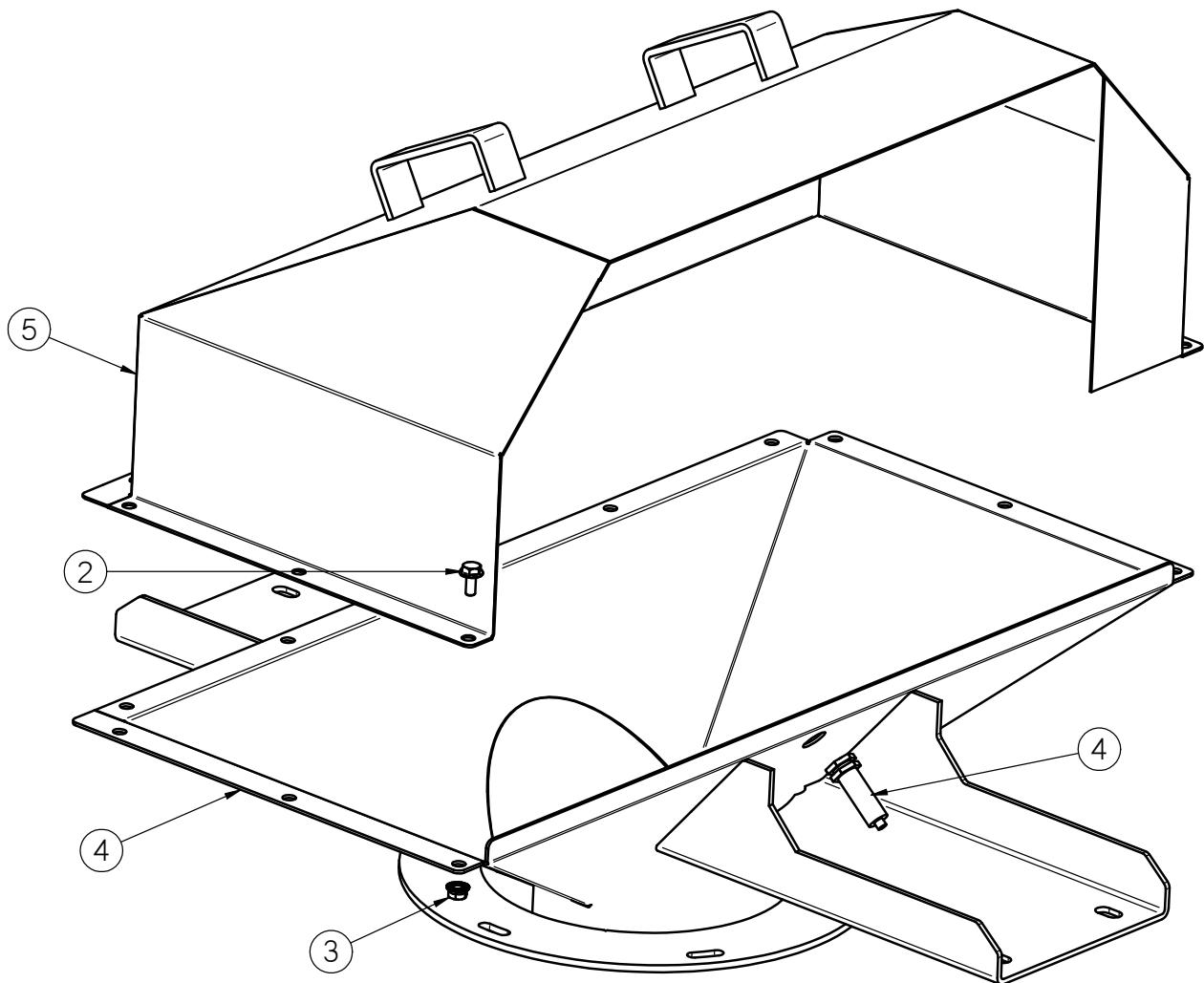


## LPV WEIGH BELT SEED TREATER

**WEIGH BELT TOP ASSEMBLY (13-05-0518)**

| Item # | Part #     | Description                         | Qty |
|--------|------------|-------------------------------------|-----|
| 1      | 02-02-0049 | FLTR EXHAUST BRZ .125 NPT           | 1   |
| 2      | 02-16-0044 | FTTG PUSH 90 DEG .250OD X .250 NPT  | 1   |
| 3      | 02-16-0046 | FTTG PUSH 90 DEG .250 OD X .125 NPT | 3   |
| 4      | 03-17-0080 | VLV SOL MAC 45A-AA1-DDAJ-1KJ        | 1   |
| 5      | 06-01-0018 | BOLT .375-16 X 1.50 ZP GR5          | 4   |
| 6      | 06-01-0124 | BOLT FLG .375-16 X .750 ZP GR5      | 10  |
| 7      | 06-02-0034 | NUT 8-32 K-LOCK ZP                  | 2   |
| 8      | 06-02-0052 | NUT LOCK 4-40 CS MMC# 90675A005     | 2   |
| 9      | 06-03-0014 | NUT LOCK FLG .375-16 ZP GR5         | 22  |
| 10     | 06-03-0015 | NUT LOCK FLG .500-13 ZP GR5         | 8   |
| 11     | 06-06-0047 | SCRW MACH 8-32 X 1.750 PHLP RDHD ZP | 2   |
| 12     | 06-06-0079 | SCRW MACH 4-40 X1.25 PHLP PHD       | 2   |
| 13     | 07-03-0011 | VALVE,REGULATOR                     | 1   |
| 14     | 104C19     | WDMT WB SUPP                        | 1   |
| 15     | 104C24     | WDMT SHIPPING BRKT TAKE UP          | 4   |
| 16     | 104C39     | WDMT WB MNT FRAME                   | 1   |
| 17     | 13-05-0514 | ASSY WEIGH BELT BASE                | 1   |
| 18     | 13-05-0515 | ASSY WB METER GATE                  | 1   |

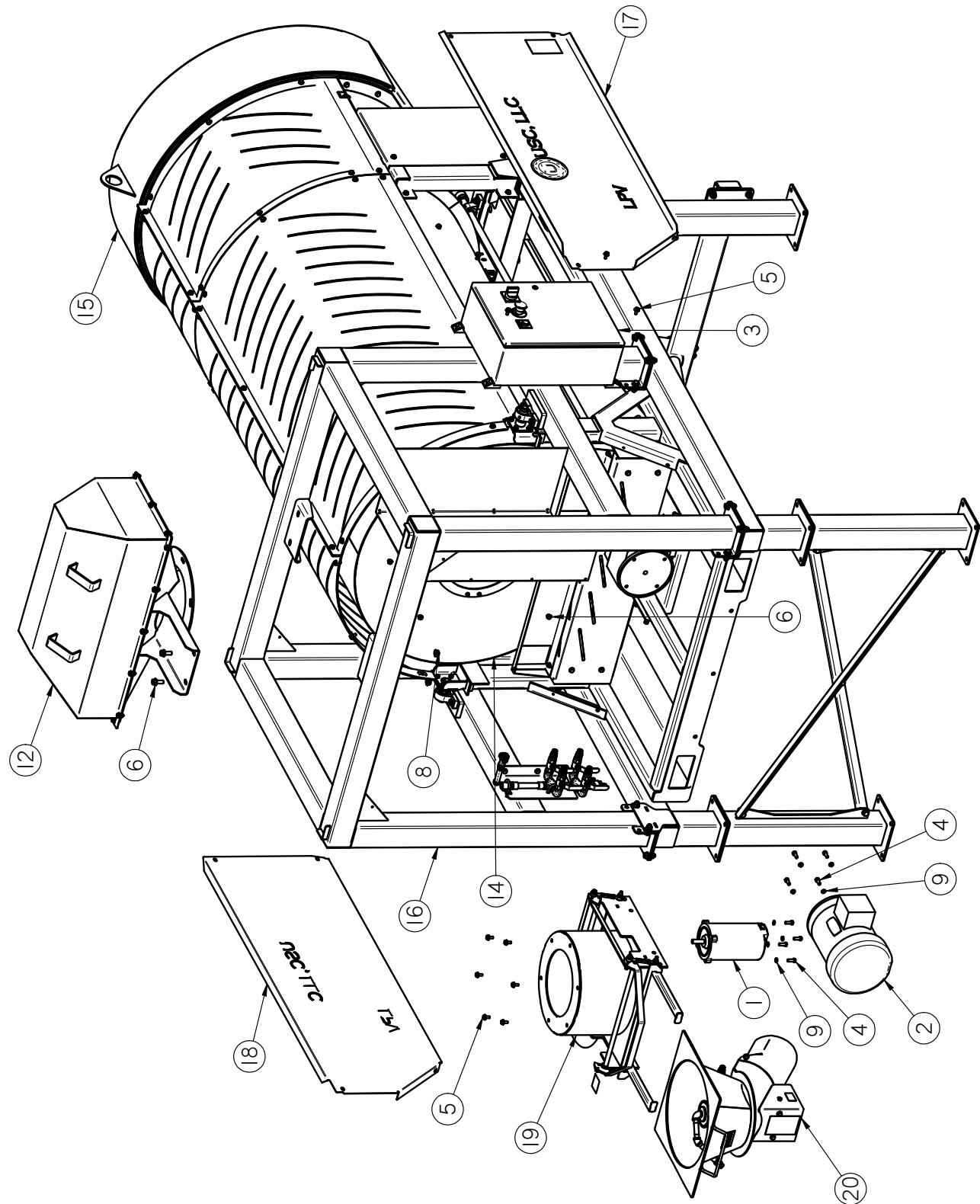
LPV WEIGH BELT SEED TREATER  
**TREATER INLET ASSEMBLY (13-05-0519)**



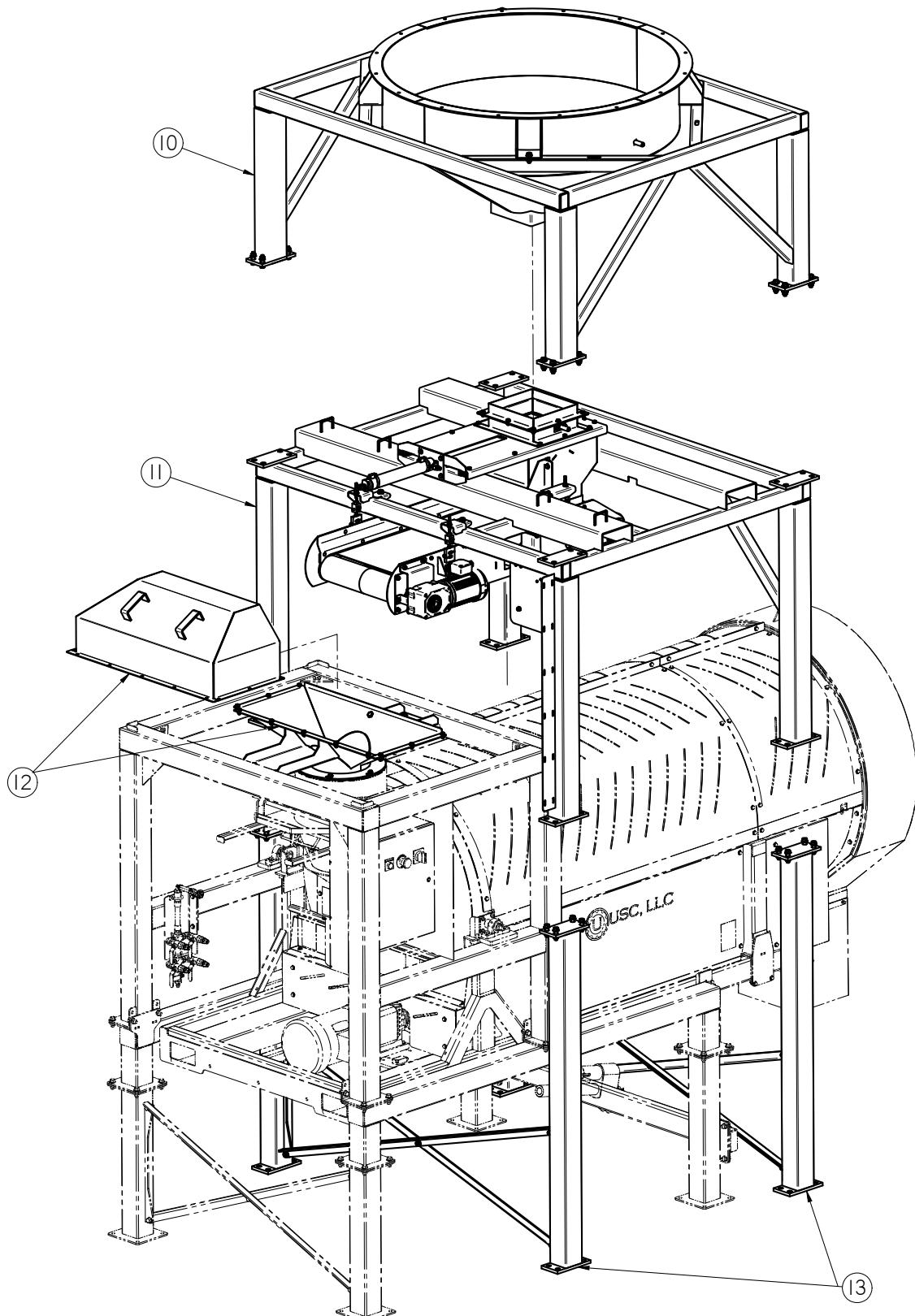
| Item # | Part #     | Description                         | Qty |
|--------|------------|-------------------------------------|-----|
| 1      | 03-10-0147 | SENS PROX 24VDC AB QC 875CPN8NP18P3 | 1   |
| 2      | 06-01-0124 | BOLT FLG .375-16 X .750 ZP GR5      | 11  |
| 3      | 06-03-0014 | NUT LOCK FLG .375-16 ZP GR5         | 11  |
| 4      | 104C53     | WDMT WD TRTR CONE                   | 1   |
| 5      | 104C58     | WDMT WB TRTR HOOD                   | 1   |

## LPV WEIGH BELT SEED TREATER

## LPV TREATER WITH WEIGH BELT TOP ASSEMBLY



LPV WEIGH BELT SEED TREATER  
**LPV TREATER WITH WEIGH BELT TOP ASSEMBLY**

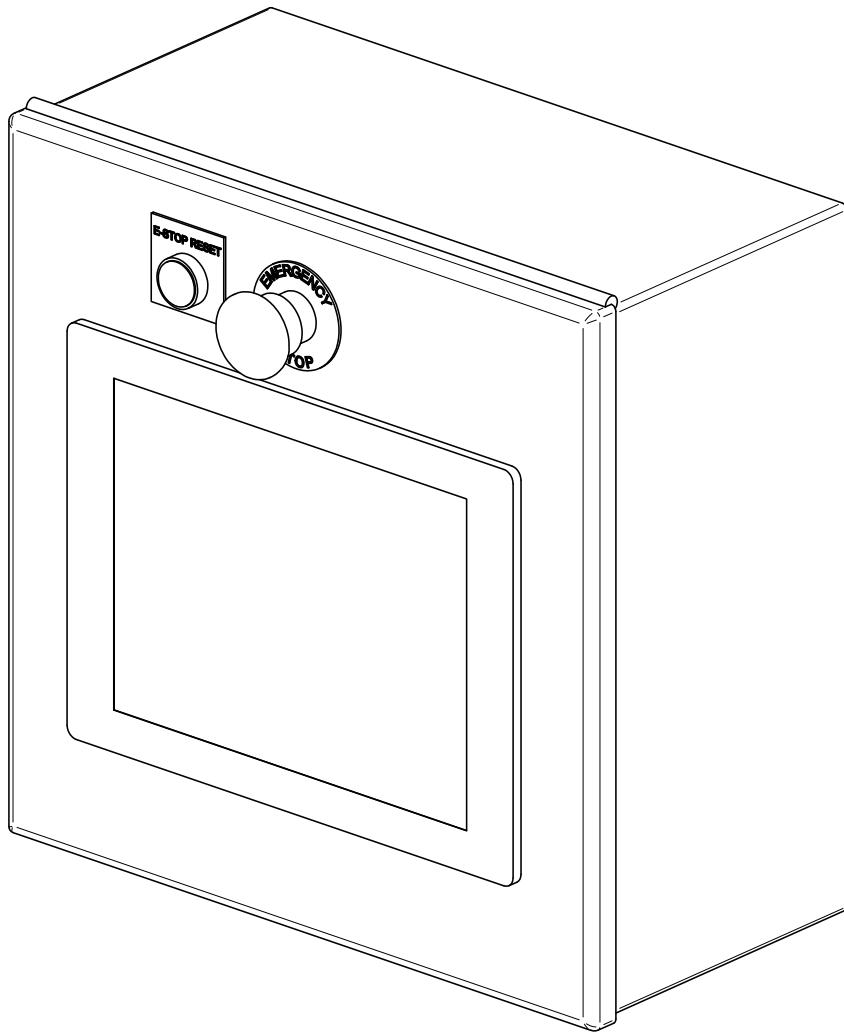


## LPV WEIGH BELT SEED TREATER

**LPV TREATER WITH WEIGH BELT TOP ASSEMBLY**

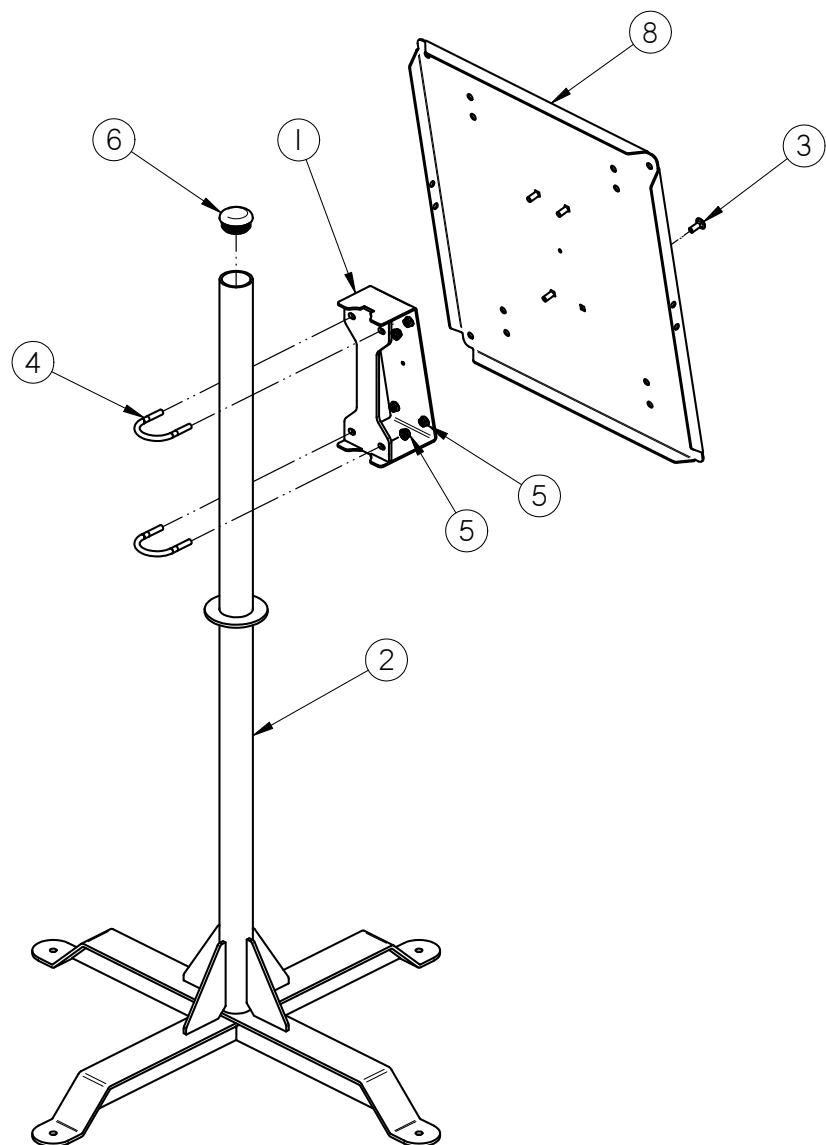
| Item # | Part #     | Description                     | Qty |
|--------|------------|---------------------------------|-----|
| 1      | 01-01-0105 | MTR .33HP 1725RPM 56C 3PH TENV  | 1   |
| 2      | 01-01-0166 | MTR 3HP 1740RPM 182TC TEFC 3PH  | 1   |
| 3      | 03-12-0484 | LPV WB I/O Panel                | 1   |
| 4      | 06-01-0016 | BOLT .375-16 X 1.00 ZP GR5      | 8   |
| 5      | 06-01-0124 | BOLT FLG .375-16 X .750 ZP GR5  | 10  |
| 6      | 06-01-0232 | BOLT FLG .500-13 X 1.250 ZP GR5 | 4   |
| 7      | 06-03-0014 | NUT LOCK FLG .375-16 ZP GR5     | 4   |
| 8      | 06-03-0032 | NUT LOCK FLG .500-13 GR8        | 4   |
| 9      | 06-04-0003 | WSHR LOCK SPLT .375 ZP          | 8   |
| 10     | 13-05-0516 | ASSY WB USE HOPP                | 1   |
| 11     | 13-05-0518 | ASSY WB 20IN CS                 | 1   |
| 12     | 13-05-0519 | ASSY WB TRTR HOOD               | 1   |
| 13     | 13-05-0520 | LEG KIT WB OVER LPV             | 1   |
| 14     | 18-01-0257 | ASSY DRUM LPV 8FT CS            | 1   |
| 15     | 18-01-0270 | ASSY END CHUTE LPV2000          | 1   |
| 16     | 18-01-0314 | ASSY LPV COMMON BASE            | 1   |
| 17     | 18-01-0322 | ASSY GRD DRUM LPV RT 8FT GALV   | 1   |
| 18     | 18-01-0325 | ASSY GRD DRUM LPV LT 8FT GALV   | 1   |
| 19     | 18-01-0350 | ASSY FLOW CHMBR LPX2000 CS      | 1   |
| 20     | 18-01-0359 | ASSY ATMZR LPV SS QD            | 1   |

**OPTIONAL REMOTE HMI PANEL ASSEMBLY (03-12-0340)**



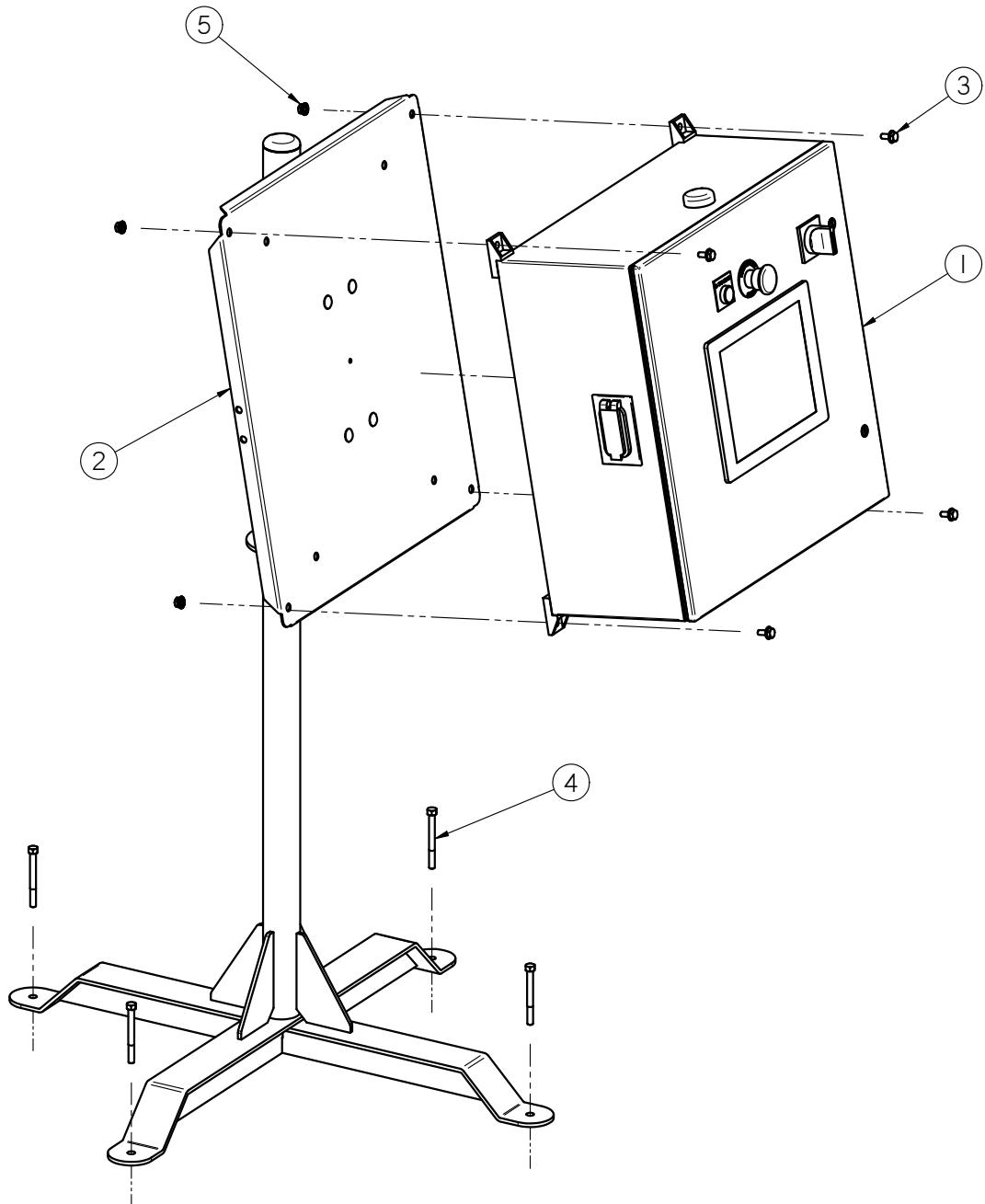
There is an optional remote LPV Automated Treater Control Panel. It allows the operator to run the treater from up to 25 feet away. If it is ordered with the treater, it will come with the HMI operation screen already installed. If it is added later as an upgrade, the HMI will be removed from the original Control Panel and installed in the remote panel. A plug is included in the kit to plug the hole in the main panel after the HMI is removed. The remote panel comes with a 10 foot power cord.

## LPV WEIGH BELT SEED TREATER

**ADJUSTABLE STAND - MAIN CONTROL PANEL ASSEEMBLY (05-03-1471)**

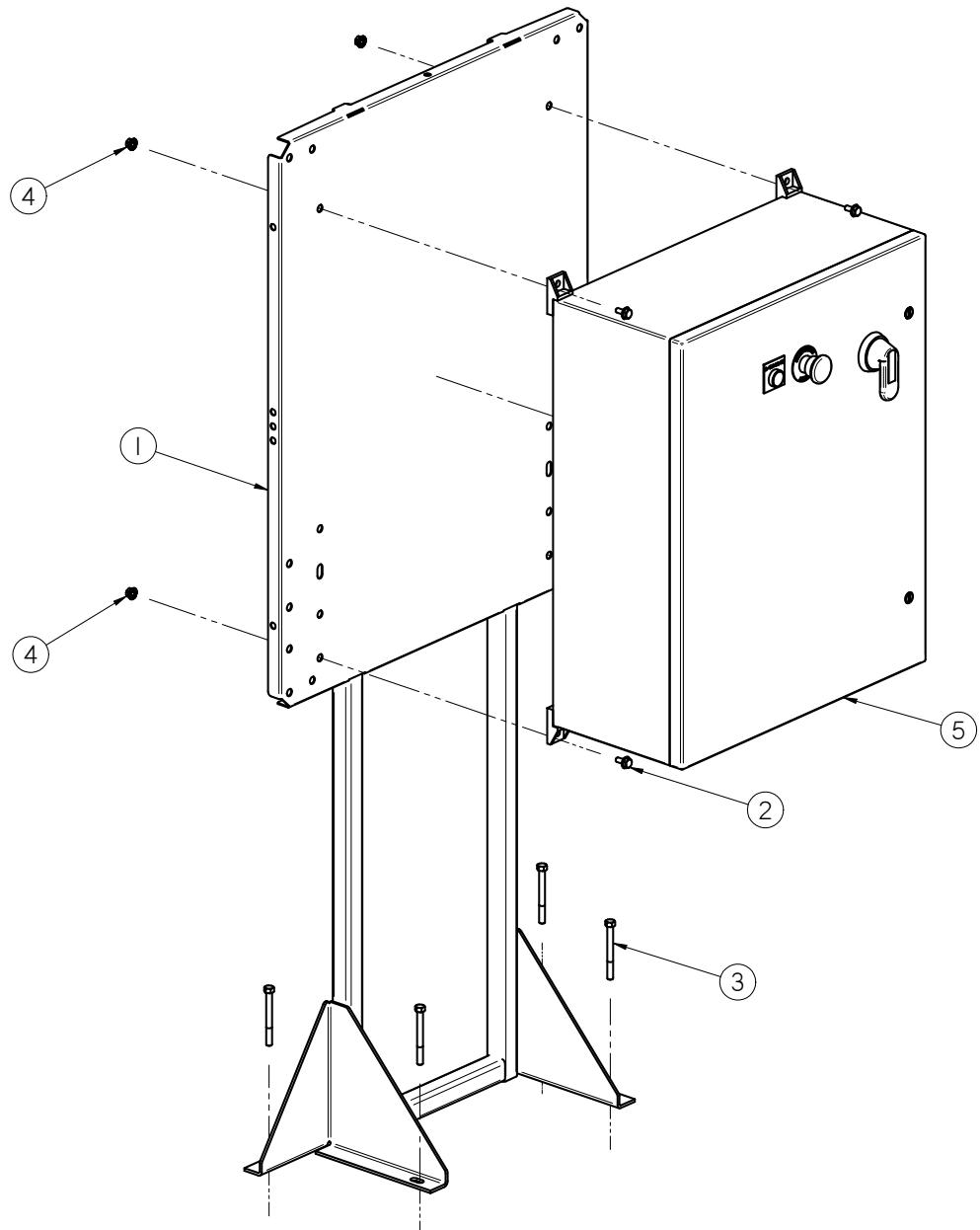
| Item # | Part #     | Description                         | Qty |
|--------|------------|-------------------------------------|-----|
| 1      | 05-03-1479 | WDMT PNL ADJ                        | 1   |
| 2      | 05-03-1545 | WDMT PANEL STAND                    | 1   |
| 3      | 06-01-0153 | BOLT CRG .375-16X.750 ZP SHORT NECK | 4   |
| 4      | 06-01-0287 | BOLT U .375-16 X 2.50 X 3.125 ZP    | 2   |
| 5      | 06-03-0014 | NUT LOCK FLG .375-16 ZP GR5         | 7   |
| 6      | 06-10-0056 | PLUG TBG RD RIB POLY 2.38 X .156W   | 1   |
| 7      | 103651     | PLT PNL MT                          | 1   |

## LPV WEIGH BELT SEED TREATER

**MAIN CONTROL PANEL ASSEMBLY (13-12-0118)**

| Item # | Part #     | Description                               | Qty |
|--------|------------|---|-----|
| 1      | 03-12-0366 | MAIN CONTROL PANEL U-TREAT                | 1   |
| 2      | 05-03-1471 | ASSY PNL FRM 4PUMP SAP                    | 1   |
| 3      | 06-01-0124 | BOLT, FLG .375-16 UNC ZP GRADE 5; 3/4" LG | 4   |
| 4      | 06-01-0220 | BOLT .375-16 X 3.75 CONCRETE ZP           | 4   |
| 5      | 06-03-0033 | NUT LOCK FLG .375-16 GR8                  | 4   |

LPV WEIGH BELT SEED TREATER  
**TREATER CONTROL PANEL ASSEMBLY (13-12-0126)**



| Item # | Part #     | Description                          | Qty |
|--------|------------|--------------------------------------|-----|
| 1      | 05-03-0580 | BIN SITE MAIN CNTL PNL STAND         | 1   |
| 2      | 06-01-0124 | BOLT FLG .375-16 X .750 ZP GR5       | 4   |
| 3      | 06-01-0220 | BOLT 3/8-16 CONC ANCHOR ZP 3.75      | 4   |
| 4      | 06-03-0014 | NUT LOCK FLG .375-16 ZP GR5          | 4   |
| 5      | 03-12-0499 | PANEL CONTROL LPV WEIGH BELT TREATER | 1   |

LPV WEIGH BELT SEED TREATER

**NOTES:**

**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. 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.

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