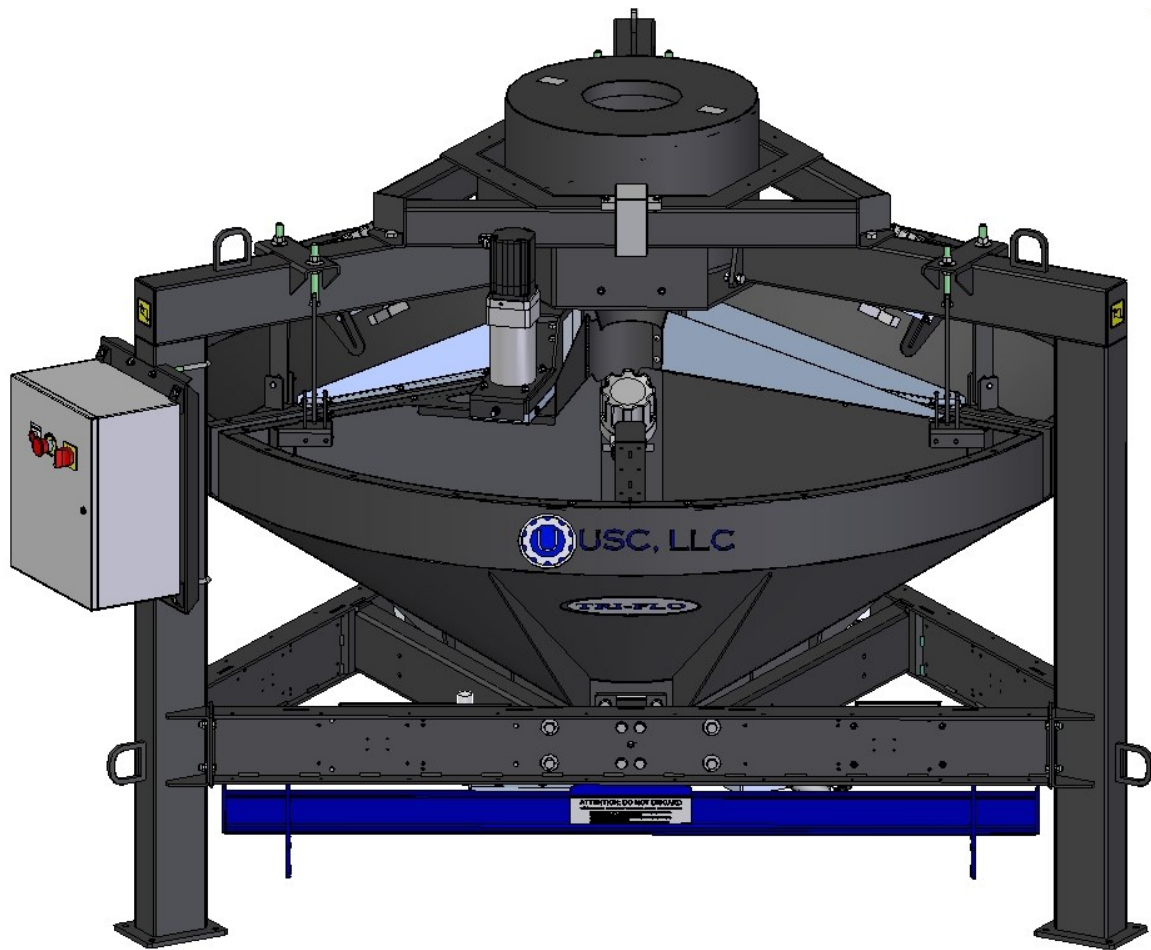




TRI-FLO® **with Servo** **(Standard and High Capacity)** **Operators Manual**



Document: TD-09-06-1039

Revision: C



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 Tri - Flo® System. It does not hold USC, LLC liable for any accidents or injuries that may occur.

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

RECEIVING YOUR EQUIPMENT

As soon as the equipment is received, it should be carefully inspected to make certain that it has sustained no damage during shipment and that all items listed on the packing list are accounted for. If there is any damage or shortages, the purchaser must immediately notify USC, LLC. Ownership passes to purchaser when the unit leaves the USC, LLC. premises. The purchaser is responsible for unloading and mounting all components of the equipment.

Document the serial number of the machine for future reference. The serialization label is located on the left side of the frame cross member under the number one hopper.



**Tri - Flo®
Serial Number**

SERIAL NUMBER: _____

TABLE OF CONTENTS

<u>Section</u>	<u>Contents</u>	<u>Page #</u>
Section A	Safety Instructions	5
	C2D2 Specifications and Labels	18
Section B	Installation	19
	Conveyor Inlet Installation	20
	3 Leg Basic Installation.....	21
	3 Leg with Diverter installation	22
	4 Leg Installation	23
	4 Leg Installation with Braces	25
	Splash Guard Installation	28
	Floor Mounted Outlet Installation	29
	LIW Adapter Installation.....	30
	Releasing the Hoppers	31
	Treater Connections	32
	Tri-Flo® Connections.....	33
Section C	Mechanical Operation	37
	Tri - Flo® System Overview	37
Section D	Electrical Operation.....	40
Section E	Troubleshooting	42
Section F	Maintenance.....	44
Section G	Storage.....	46
Section H	Limited Warranty	48

SECTION A **SAFETY INSTRUCTIONS**

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

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 (ETC.) has adopted a different format based on the International Standards Organization (I.E.) 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 SYMBOLS SECURITY

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 tag-out electrical and other energy sources before inspecting, cleaning or performing maintenance on this panel.

Symbole de puissance verrouillage obligatoire. Débranchez, de verrouillage et de désignation 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.E. 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 CONTROLÉ

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.



⚠ WARNING

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.

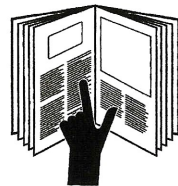
YOU are responsible for the **SAFE** operation and maintenance of your USC, LLC equipment . **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the equipment be familiar with the operating and maintenance procedures and related **SAFETY** information contained 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.

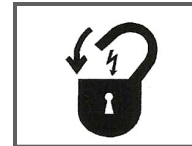
- Equipment owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually thereafter per OSHA (Occupational Safety and Health Administration) regulation 1928.57.
- The most important safety device on this equipment is a **SAFE** operator. 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.



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.

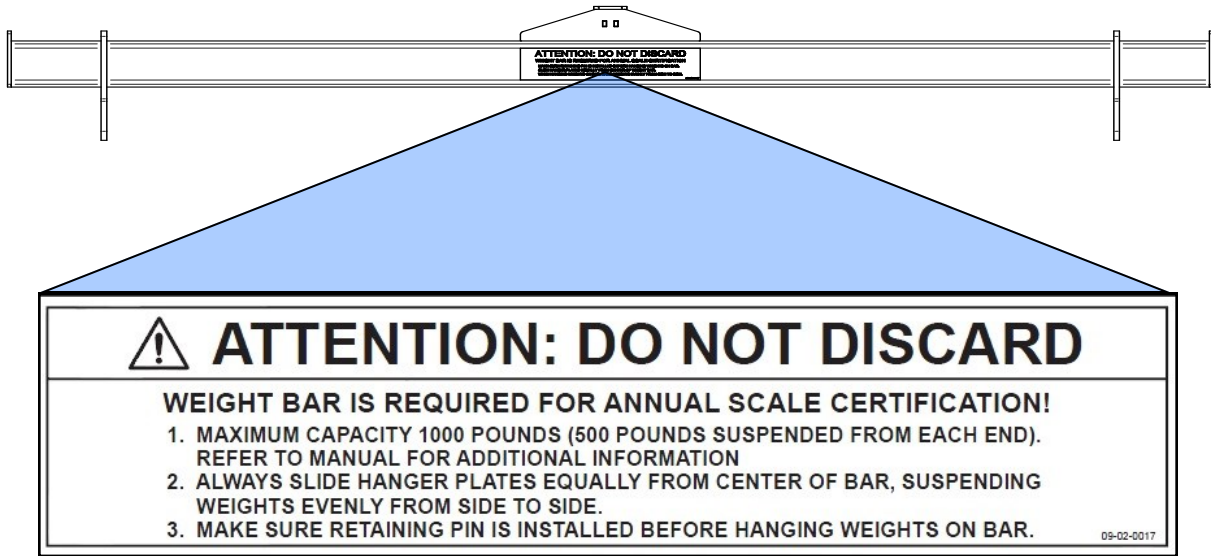


OPERATING SAFETY:

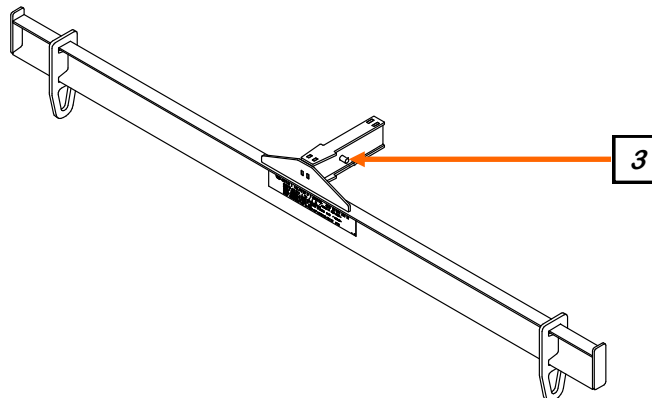
1. Read and understand the Operator's Manual and all safety labels before using.
2. Disconnect and disable electrical supply completely and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Clear the area of bystanders, especially children, before starting.
4. 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.

SCALE CERTIFICATION WEIGHT BAR SAFETY:

1. The scale certification bar has a maximum capacity of 1000 pounds (500 pounds hung from each end).
2. An additional 500 pounds may be added for a total of 1500 pounds but must be suspended from the center of the weight bar. Any additional weight required for certification must be placed inside the hopper.
3. Make sure retaining pin is installed before hanging weights on bar.
4. Slide hanger plates equally from center of bar before adding any weights.
5. When hanging weights on bar, hang weights evenly from side to side.



Label Part # 09-02-0017



PLACEMENT SAFETY

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



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



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 your authorized dealer.

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. Veuillez 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.

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 your authorized dealer.



Part # 09-02-0001



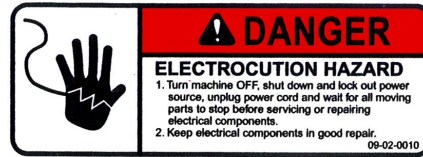
Part # 09-02-0009



Part # 09-02-0002

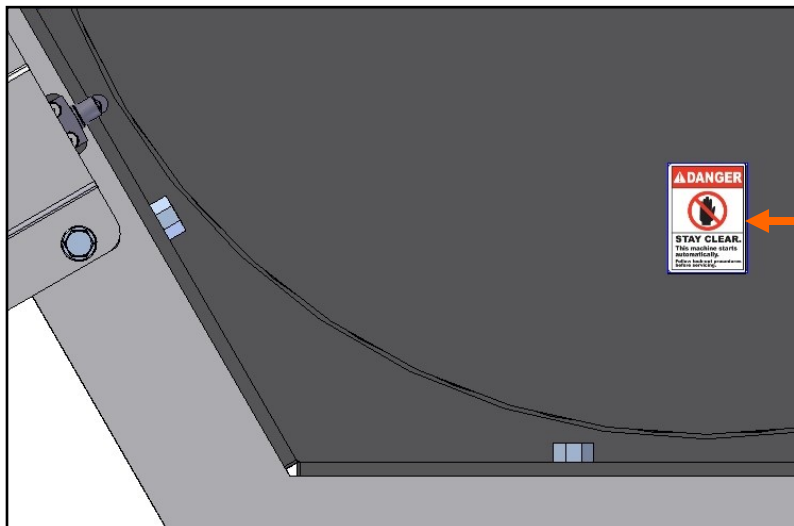


Part # 09-02-0003



Part # 09-02-0010

(TOP OF DISTRIBUTION ASSEMBLY - 2 PLACES)




Part # 09-02-0022

C2D2 SPECIFICATIONS AND LABELS

If any of the panels are located in the hazardous area described in the installation section (see page 18), the following criteria must be met.

1. All 120VAC connections must be hard wired to a listed IP65 rated enclosure in accordance with local electrical codes.
2. The C2D2 certifications are only valid for equipment operating at 60 HZ.
3. The approved operating temperature for this equipment is between 0°C (32°F) and 40°C (104°F).
4. All RJ45 and USB pass-through connector caps must remain closed to achieve a C2D2 rating. Hard wire these connections in accordance with local electrical codes.

The following labels and certification plates must be mounted to the outside of the control panel so that they are in plain view.

MFG. By:  USC
Max Voltage: 120V, 1PH, 60Hz
Total FLA: 14
Largest Motor: 7.2 Amps
Equipment Model: 05-07-0763
Suitable to be used in Class II, Div 2, Group G, T4A Hazardous Locations

!!WARNING!!
DISCONNECT POWER BEFORE REMOVING COVERS. KEEP COVERS/
CONNECTIONS CLOSED WHILE CIRCUITS ARE LIVE. SEE INSTRUCTION MANUAL
!!AVERTISSEMENT!!
DÉBRANCHER L'ALIMENTATION AVANT DE RETIRER LES COUVERCLES. GARDEZ
LES COUVERCLES / CONNEXIONS FERMÉS PENDANT QUE LES CIRCUITS SONT EN
CIRCUIT. VOIR LE MANUEL D'INSTRUCTIONS

!!WARNING!!
EXPLOSION HAZARD. DO NOT REMOVE OR REPLACE CONNECT OR DISCONNECT
WHILE CIRCUIT IS LIVE UNLESS THE AREA IS FREE OF IGNITIBLE
CONCENTRATIONS.
!!AVERTISSEMENT!!
RISQUE D'EXPLOSION. NE PAS ENLEVER OU REMPLACER LA CONNEXION OU LA
DÉCONNEXION TANT QUE LE CIRCUIT EST EN CIRCUIT SAUF SI LA ZONE EST
EXEMPTÉ DE CONCENTRATIONS IGNITIABLES.


Certified to
CSA Std C22.2
No. 213 & 68
Intertek
4010806
INDUSTRIAL CONTROL PANEL
Seed Treating Systems For Use In
Class II Div 2 Group G,
T4A Location


Intertek
4010806
INDUSTRIAL CONTROL PANEL

SECTION B INSTALLATION



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.

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 lune des options proposes.

Lors de la connexion à l'équipement USC depuis un emplacement distant et l'équipement USC Est dans une classed dangereuse II, Groupe G environnement, les clients sont invites à suivre les exigences dans CSA 22.2 no. 25. Plus de détails peuvent également être troves dans 22,1 CSA 18-252 (Les méthodes de câblage). Il existe diverse 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.

TRI-FLO® SET-UP

The following steps outline the initial set-up of your USC Tri - Flo® System:

1. The Tri-Flo must be installed in an area that is protected from wind.
2. Confirm all equipment has been received,

NOTICE

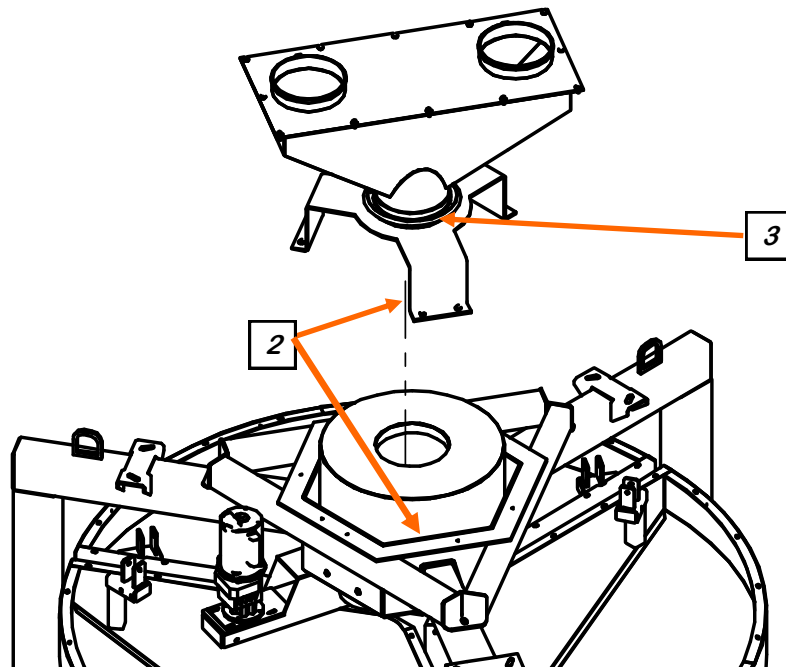
Based on your particular Tri - Flo® System, some additional equipment may be required for installation (i.e. fork lift(s), crane, etc.

AVIS

Basé sur votre particulier Tri - Flo System®, certains équipements supplémentaires peuvent être requis pour l'installation (c.-à-chariot élévateur (s), grue, etc.

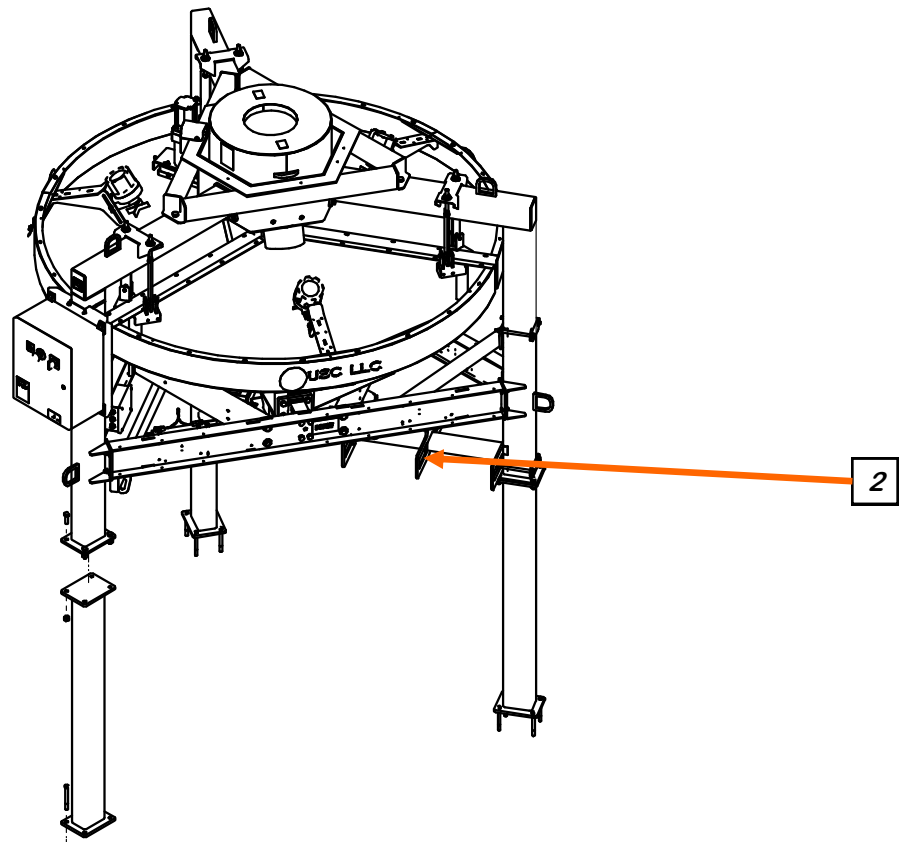
CONVEYOR INLET INSTALLATION

1. There are 5 different conveyor inlets in the Tri-Flo inlet system. All install the same way. Shown below is one of the dual inlet adapters. The single inlet adapters use the same 3 leg base without the top part.
2. Bolt the flange at the bottom of the adapter to the top flange on the Tri-Flo.
3. On the dual inlet adapters, the head may be rotated to the desired position by use of the clamp ring.



3 LEG INSTALLATION

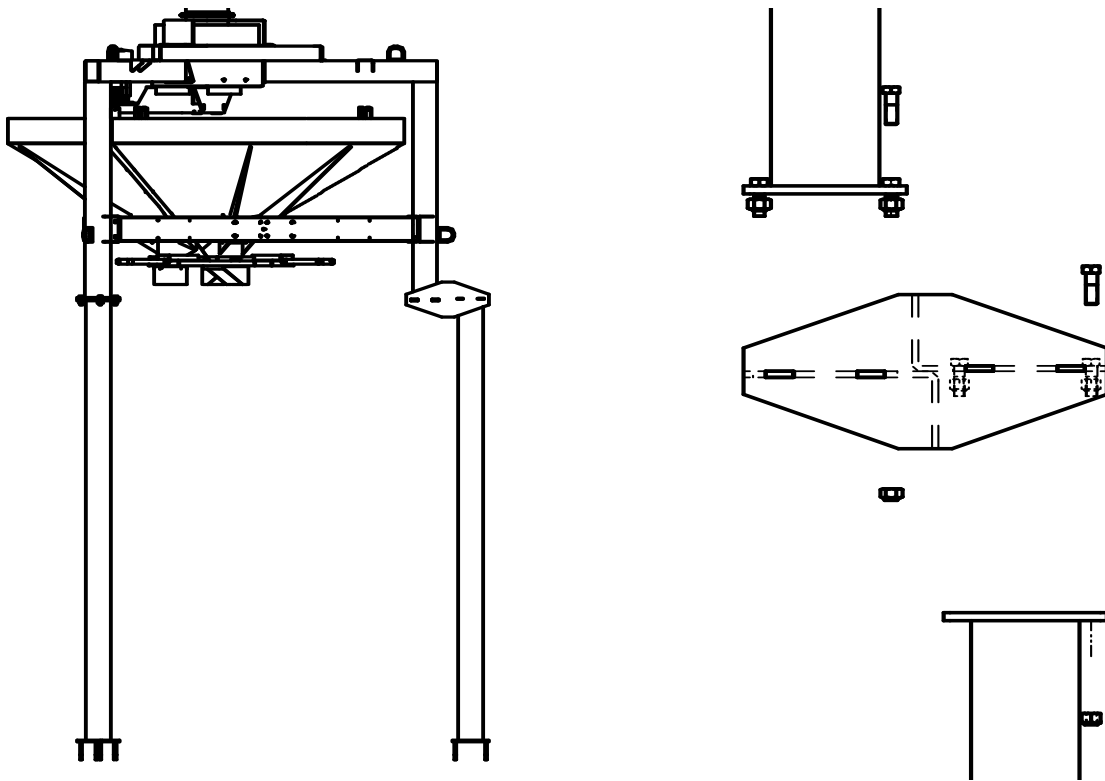
SC & HC



1. Unpack equipment in a protected location.
2. Insert forks on fork lift into the fork lift pockets on the main body.
3. Check for overhead clearance.
4. Lift the main body high enough to get the leg weldments under the body.
5. Using the 5/8" bolts and lock nuts provided install the three legs to the Tri-Flo®.
6. Set the unit on the floor where it will be installed. NOTE: The conveyor or treader must be centered between two of the legs.
7. Anchor to floor with concrete anchors provided.
8. Remove and store the fork lift pocket assembly for future use . (2 above)

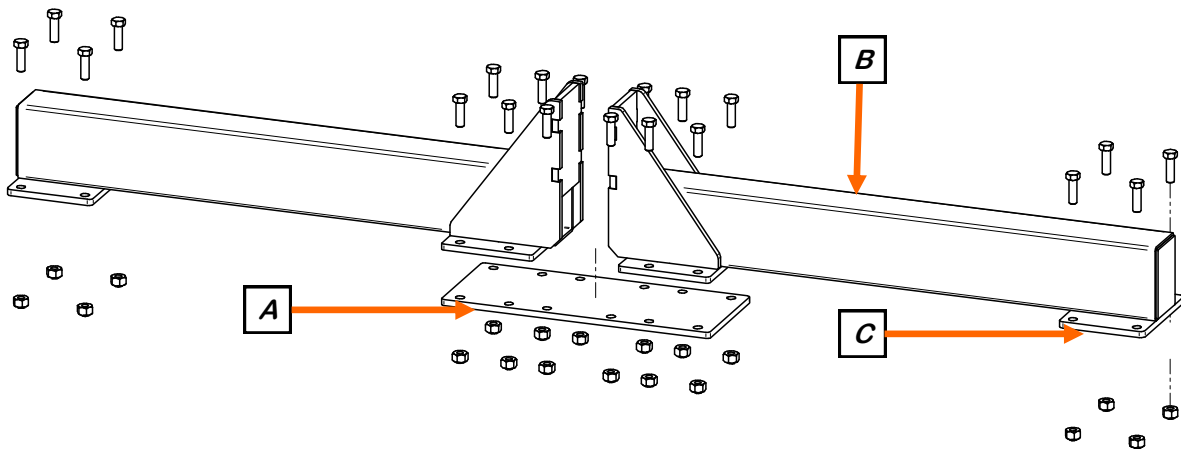
3 LEG INSTALLATION WITH DIVERTER

SC & HC



1. Unpack equipment in a protected location.
2. Insert forks on fork lift into the fork lift pockets on the main body.
3. Check for overhead clearance.
4. Lift the main body high enough to get the leg weldments under the body.
5. Using the 5/8" bolts and lock nuts provided install the three legs to the Tri-Flo®.
6. Install the diverter adapter between the leg which will be the one in front of the treater and the main unit. It bolts to the flange on the main unit and the flange on the top of the leg. NOTE direction of the diverter adapter as shown above right.
7. Set the unit on the floor where it will be installed. Note: leg with diverter adapter must be to the front of the treater (inlet end). With the treater centered between the other 2 legs.
8. Anchor to floor with concrete anchors provided.
9. Remove and store the fork lift pocket assembly for future use .

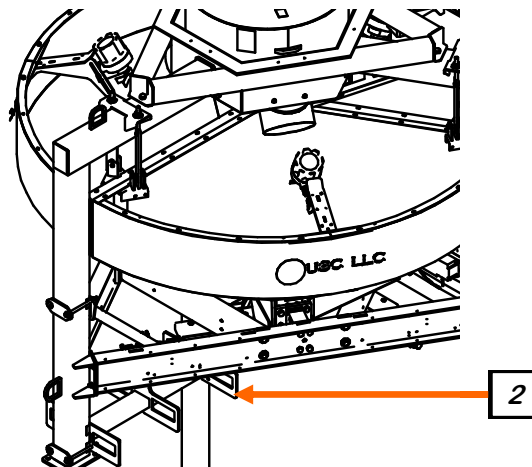
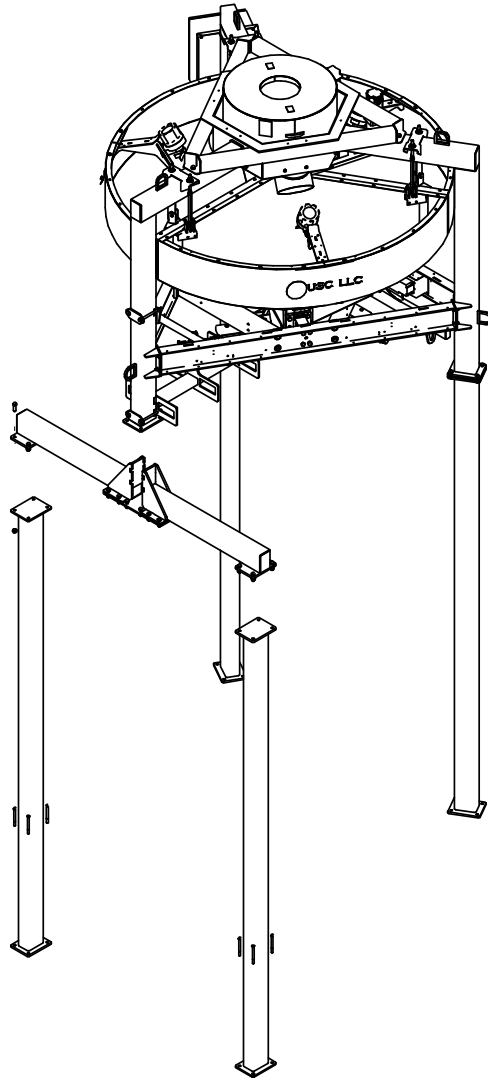
4 LEG INSTALLATION
OVER TREATER SC & HC



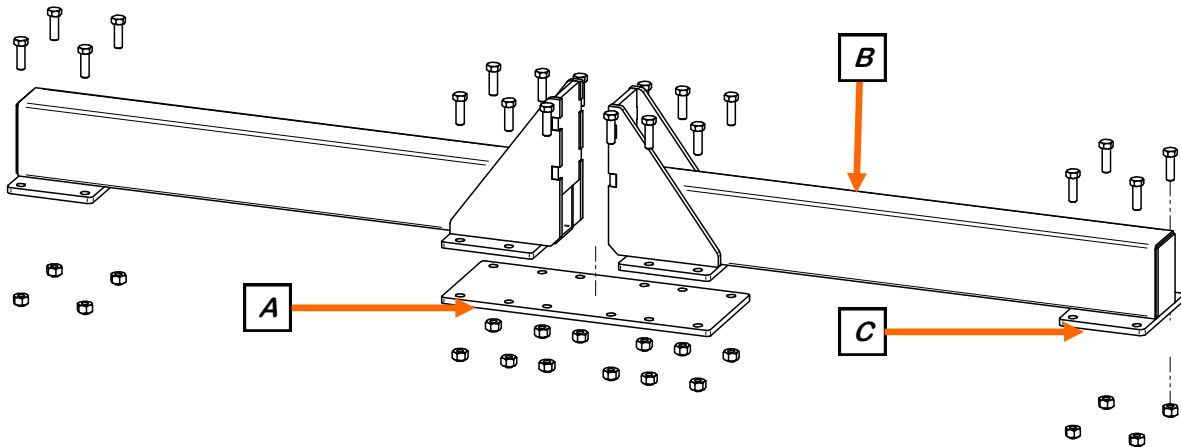
1. Unpack equipment in a protected location.
2. Insert forks on fork lift into the fork lift pockets on the main body.
3. Check for overhead clearance.
4. Lift the main body high enough for step 5.
5. Install plate (A) to the bottom flange on the remaining leg flange on the main unit.
6. Install 2 extension arms (B) to the plate (A). See sketch on next page for orientation.
7. Lift the main body high enough to get the leg weldments under the body.
8. Using the 5/8" bolts and lock nuts provided install the four legs to the Tri-Flo®.
9. Set the unit on the floor where it will be installed such that the treater, when installed, will be centered between two legs with extension arms to the rear of the treater (outlet end).
10. Anchor to floor with concrete anchors provided.
11. Remove and store the fork lift pocket assembly for future use (item 2 on next page).

TRI-FLO® WITH SERVO

4 LEG INSTALLATION
OVER TREATER SC & HC

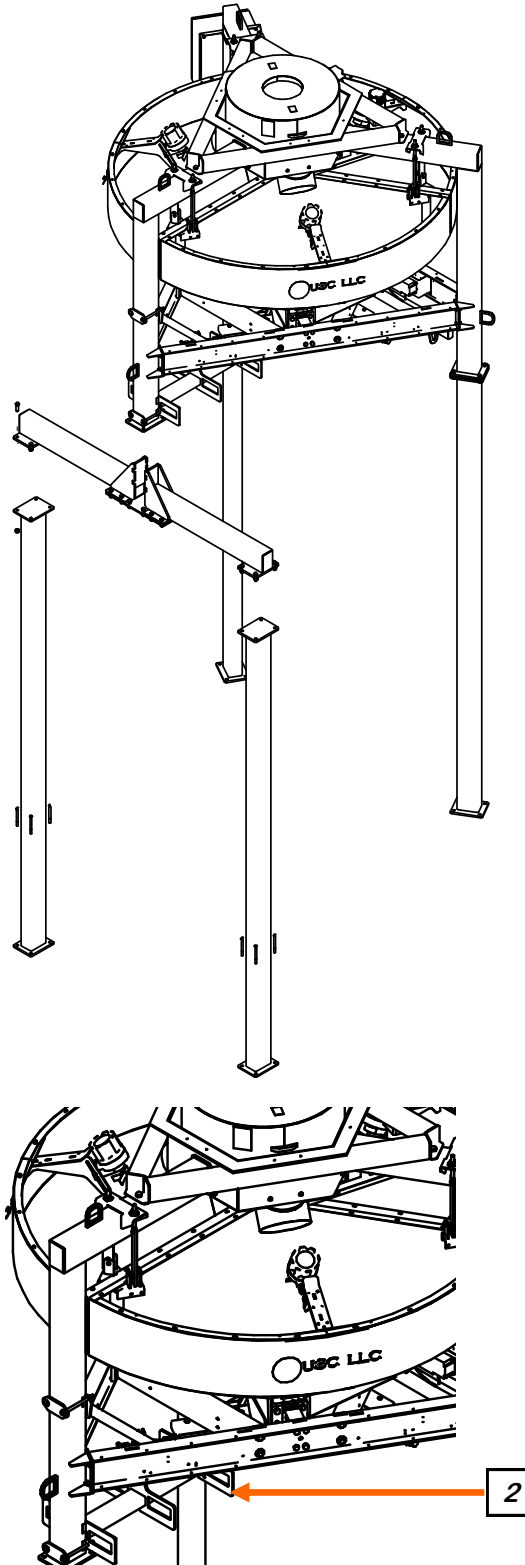


4 LEG INSTALLATION WITH BRACES
OVER TREATER SC & HC

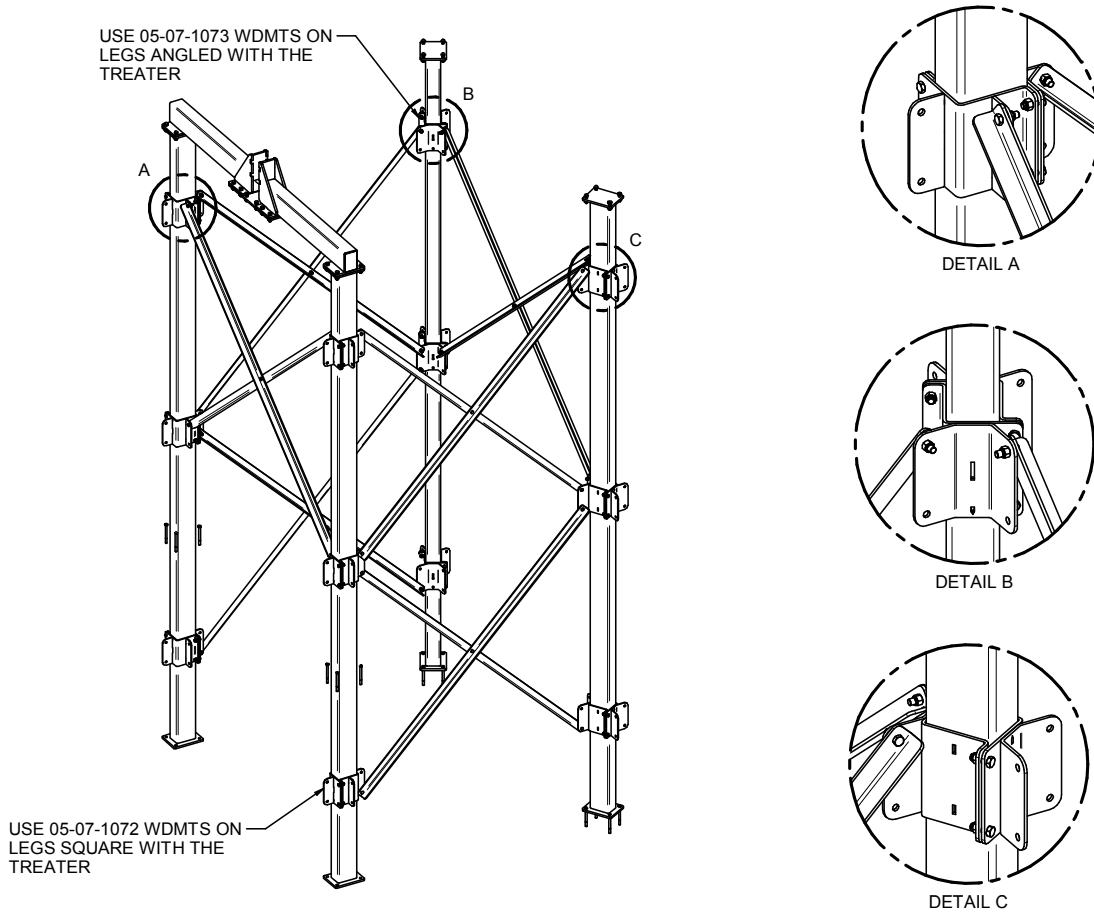


1. Unpack equipment in a protected location.
2. Insert forks on fork lift into the fork lift pockets on the main body.
3. Check for overhead clearance.
4. Lift the main body high enough for step 5.
5. Install plate (A) to the bottom flange on the remaining leg flange on the main unit.
6. Install 2 extension arms (B) to the plate (A). See sketch on next page for orientation.
7. Lift the main body high enough to get the leg weldments under the body.
8. Using the 5/8" bolts and lock nuts provided install the four legs to the Tri-Flo®.
9. Set the unit on the floor where it will be installed such that the treater, when installed, will be centered between two legs with extension arms to the rear of the treater (outlet end).
10. Locate parts for the braces shown on next page .

4 LEG INSTALLATION WITH BRACES
OVER TREATER SC & HC



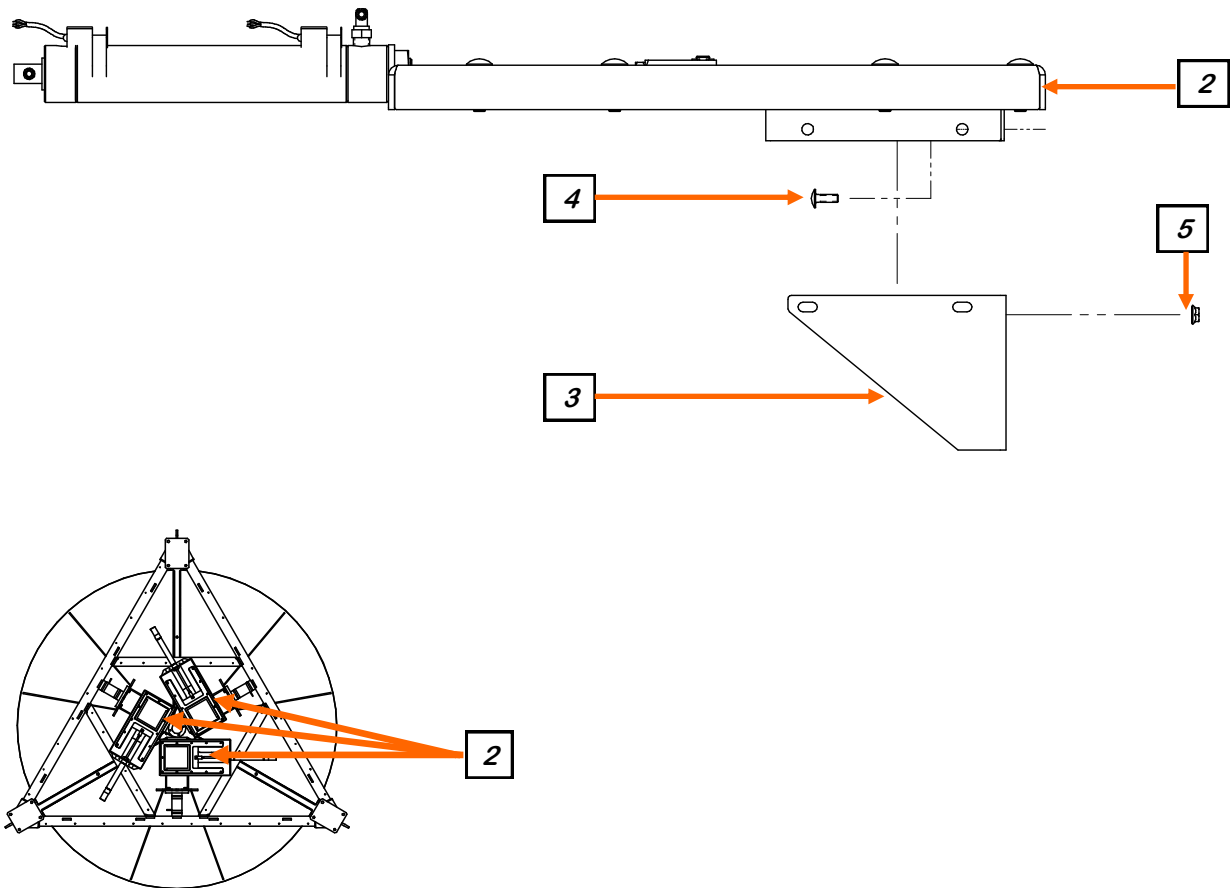
4 LEG INSTALLATION WITH BRACES
OVER TREATER SC



11. Attach braces as shown above. NOTE: allow space for the treater drum to move up and down without hitting the braces.
12. Anchor to floor with concrete anchors provided.
13. Remove and store the fork lift pocket assembly for future use (item 2 on previous page)

SPLASH GUARD INSTALLATION

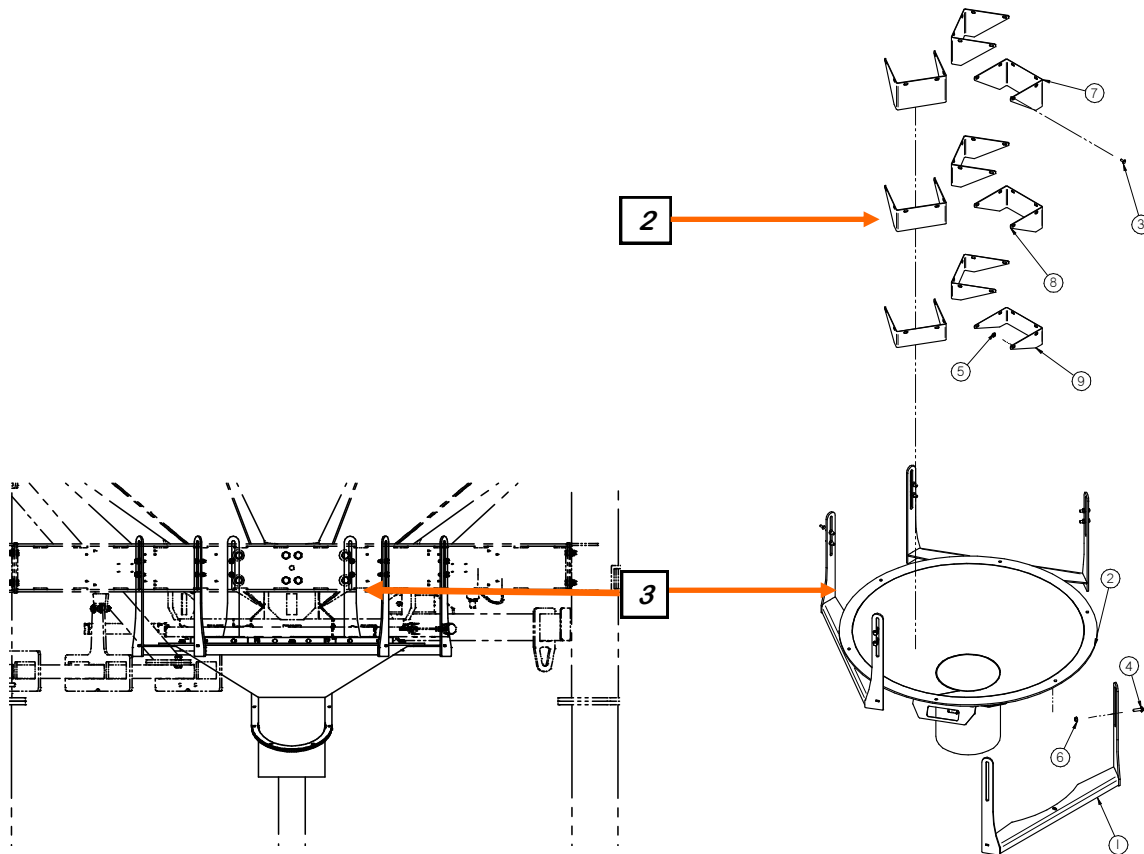
1. There are 3 different splash guards in the Tri-Flo® system. All install the same way. Shown below is the longest of the three lengths in the kit. Which one to use is up to the customer.
2. On the bottom of the main unit are three slide gates. On of which is shown below.
3. Attach the splash guard as shown below.
4. Insert the bolts from the inside of the slide gate opening through the splash guard.
5. Attach nut to outside of splash guard.
6. Repeat for each of the three slide gates.
7. Save the remaining 6 splash guards for future use.



OUTLET INSTALLATION

FLOOR MOUNTED CONVEYOR ADAPTER

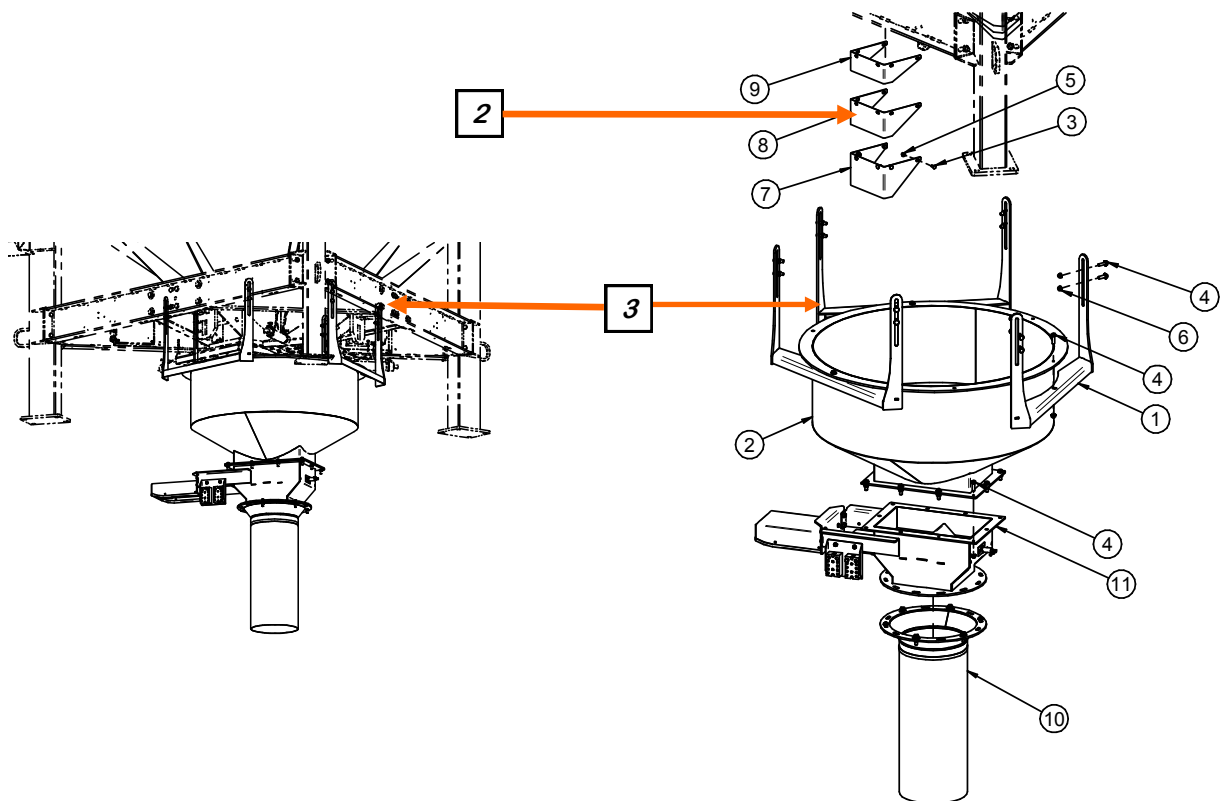
1. There are 2 different conveyor outlets in the Tri-Flo inlet system. Both install the same way.
2. Install the splash guards as shown on page 28.
3. After installing the splash guards, attach the 6 vertical arms on the adapter to the frame of the main unit over the splash guards.
4. Adjust the adapter so that it does not contact the splash guards.



OUTLET INSTALLATION

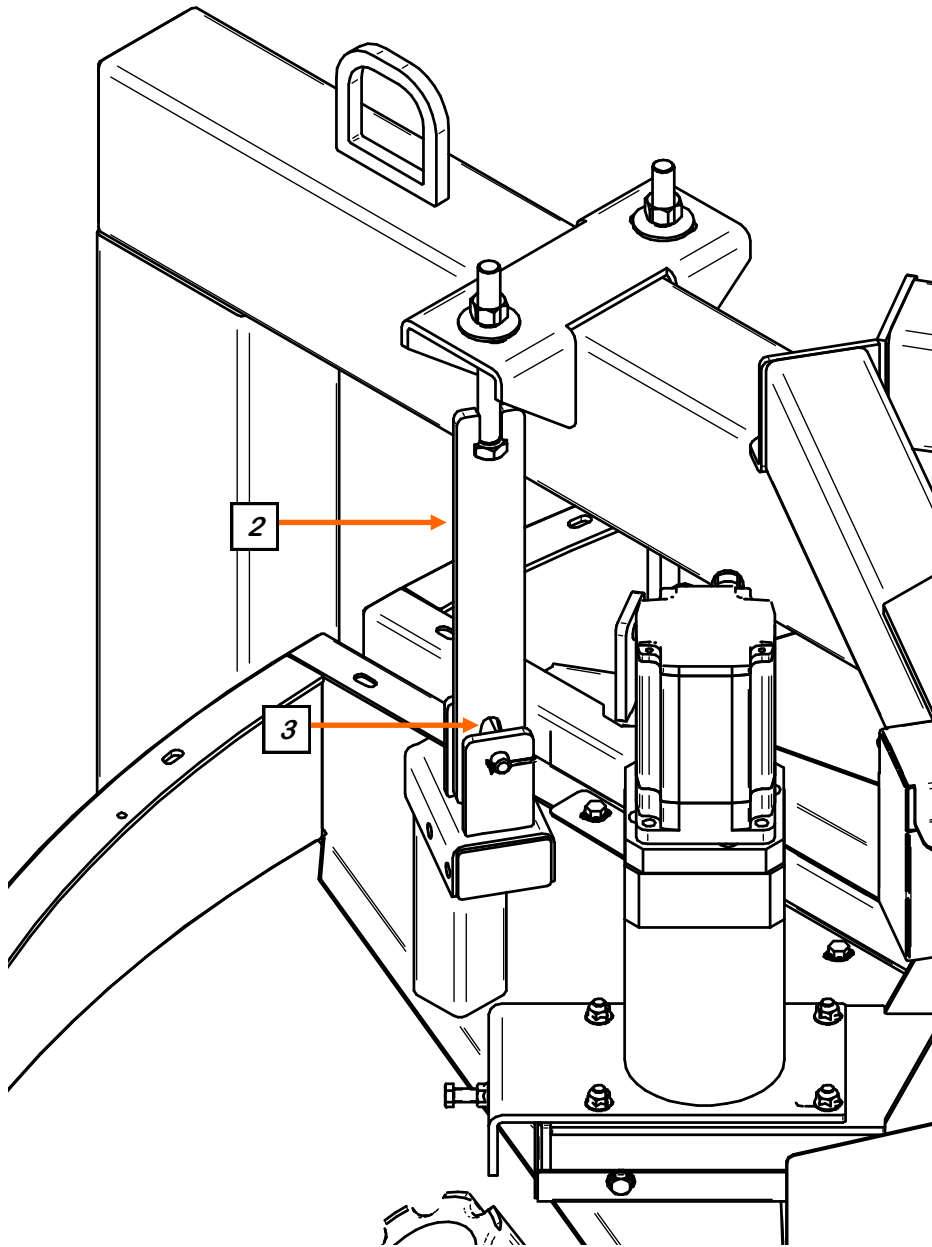
FLOOR MOUNTED LIW ADAPTER (SC ONLY)

1. The LIW gate adapter is only available for the Standard Capacity floor mounted Tri-Flo.
2. Install the splash guards as shown on page 28.
3. After installing the splash guards, attach the 6 vertical arms on the adapter to the frame of the main unit over the splash guards.
4. Adjust the adapter so that it does not contact the splash guards.

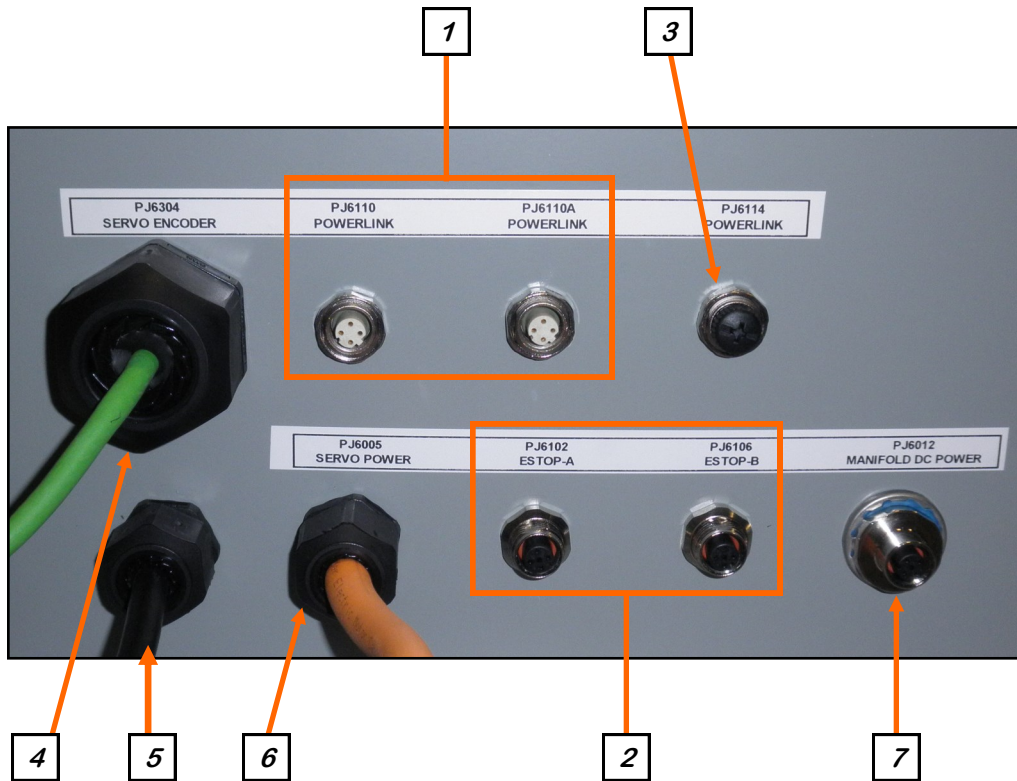


RELEASING THE HOPPERS.

1. The final step before activation is to release the weigh hoppers so the load cells carry the load.
2. There are 6 support straps on the top of the unit. Shown below is one pair.
3. Adjust the bolts on top so that the hoppers are free to move and the pin is near the top of the slot in the straps.



TRI-FLO® PANEL CONNECTIONS



1. Connect a cable with four pin connector to one of the Powerlink connectors on the nearest control panel. Connect the other Powerlink connector on another closest control panel. Repeat this process until all control panels are connected. It may be MCP to Treater to Tri-Flo® to Bin Site panel. The order or number of devices is not important. It is important that all panel are connected. All control panels will need to connected in a similar configuration.
2. Connect the red cable to the PJESTOPA on the nearest control panel and then to the PJESTOPB on the next panel that is closest. Repeat this process until all control panels are connected in a daisy chain configuration. It may be MCP to Treater to Tri-Flo® to Bin Site panel. The order or number of devices is not important. It is important that each cable is ran from an A connection to a B connection (never A to A or B to B), and that no control panel is left out of the chain. Connect the two red plugs onto each of the remaining open PJESTOP connectors on the first and last

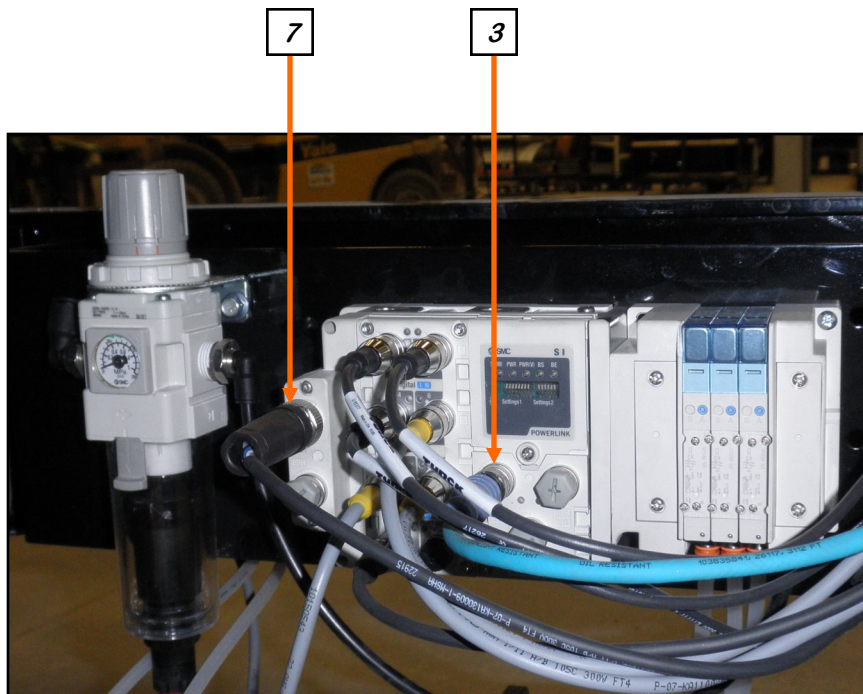
VERSION 4 TRI-FLO® CONTROL PANEL

3. One end of the blue communications cable to PJ6114 on the Tri-Flo® control panel is connected to the powerlink connection on the SMC pneumatic distribution assembly.
4. One end of the green communications cable from PJ6304 on the Tri-Flo® control panel is connected to the front connection on the servo motor.
5. Connect to 120V / 1PH power.
6. One end of the orange power cable from PJ6005 on the Tri-Flo® control panel is connected to the back connection on the servo motor .
7. One end of the black power cable from PJ6012 on the Tri-Flo® control panel is connected to the power connection on the on the SMC pneumatic distribution assembly.

TRI-FLO® WITH SERVO
VERSION 4 SERVO MOTOR



VERSION 4 SMC PNEUMATIC CONTROL



VERSION 4 TRI-FLO®

8. Supply approximately 100-110 psi of air pressure. The line goes to the dryer / pressure regulator on the Tri - Flo® System to operate the slide gates under the Tri - Flo® weigh hoppers.
9. Have the scales calibrated by a state certified professional scale technician.



8


CONTROL PANEL NAMEPLATES

10. 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.

**VERSION 4 TRI-FLO®
CONTROL PANEL**

SAMPLE TAG →

(I) WARNING II
 120V-240V / 1-PHASE / 50/60 HZ SUPPLY ONLY
 (II) AVERTISSEMENT II
 120V-240V / 1-PHASE / 50/60HZ ALIMENTATION SEULEMENT



USC
Seed Treating Solutions®

Mfg. By: USC, LLC
 Max Voltage: 120/240V, 1PH, 50/60Hz
 Total FLA: 14
 Largest Motor FLA: 7.2
 Schematic Number: 03-12-0552A
 Enclosure Rating: UL Type 1
 SCCR: 5kA RMS Sym, 600V Max

WARNING

To maintain over current, short-circuit and ground fault protection, the manufacturer's instruction for selection of overload and short circuit protection must be followed to reduce the risk of fire or electrical shock.

WARNING

If an overload or a fault current interruption occurs, circuits must be checked to determine the cause of the interruption. If a fault condition exists, the current-carrying components should be examined and replaced if damaged, and the integral current sensors must be replaced to reduce the risk of fire or electrical shock.

AVERTISSEMENT

Suivre les directives du fabricant pour protéger le système contre les surtensions, les courts-circuits et les défauts à la terre lors du choix des dispositifs de protection correspondants afin de réduire le risque d'incendie et de décharge électrique.

AVERTISSEMENT

En cas d'une interruption liée à une surtension ou à un courant de défaut, il convient d'inspecter les circuits afin d'identifier la cause de la panne. En cas de défaillance, les composants qui transportent le courant doivent être examinés, puis remplacés si elles ont été endommagées, de même que remplacer les capteurs de courant intégral, afin de réduire le risque d'incendie et de décharge électrique.

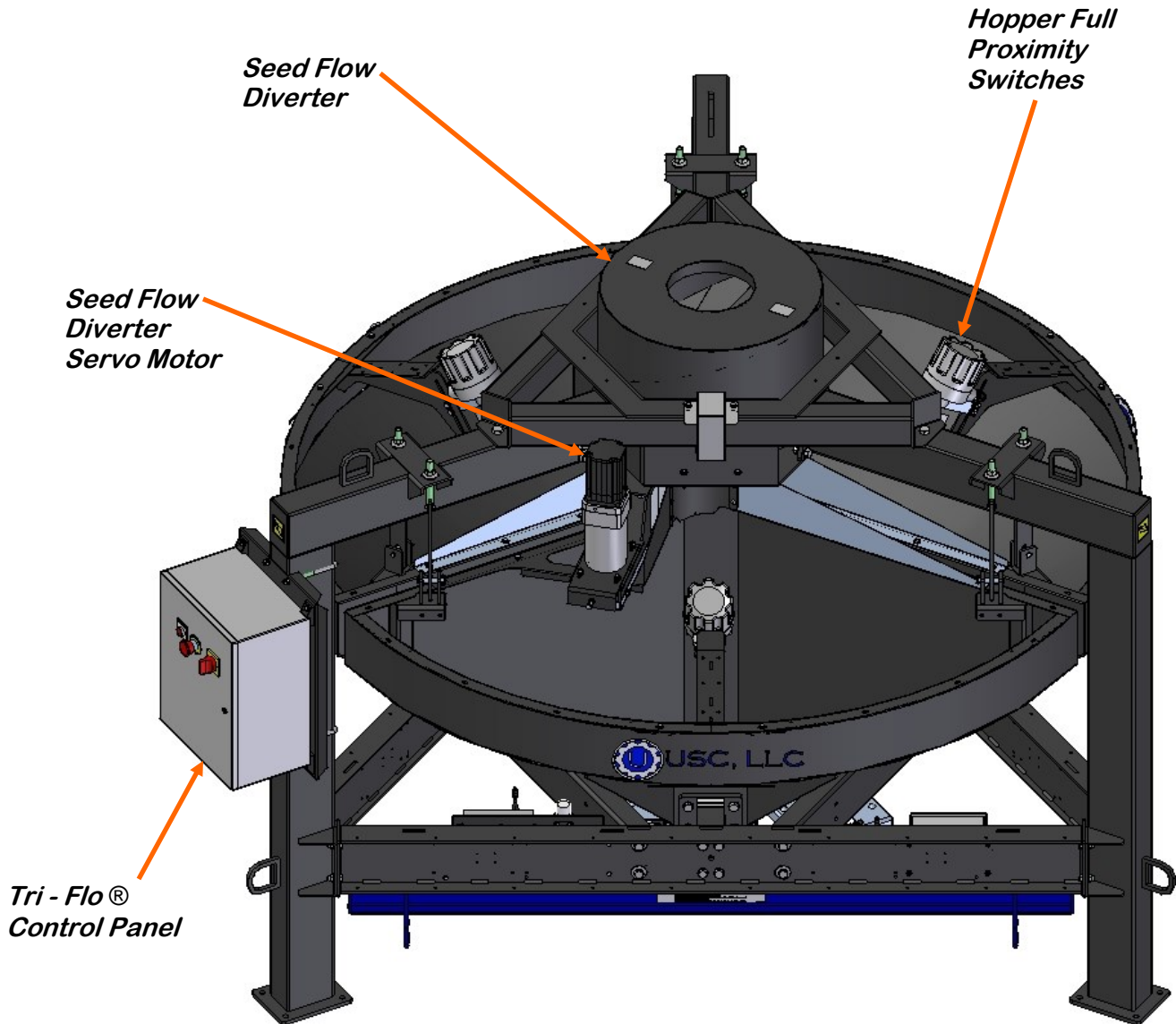
Fuses Replacement Chart			
File	1A	15A	File
FL4005	6005	15A	CC LP-CC-15 600V
FL4007	6007	15A	CC LP-CC-15 600V

Quality Assurance
 Approved by: _____
 Mfg Date: _____

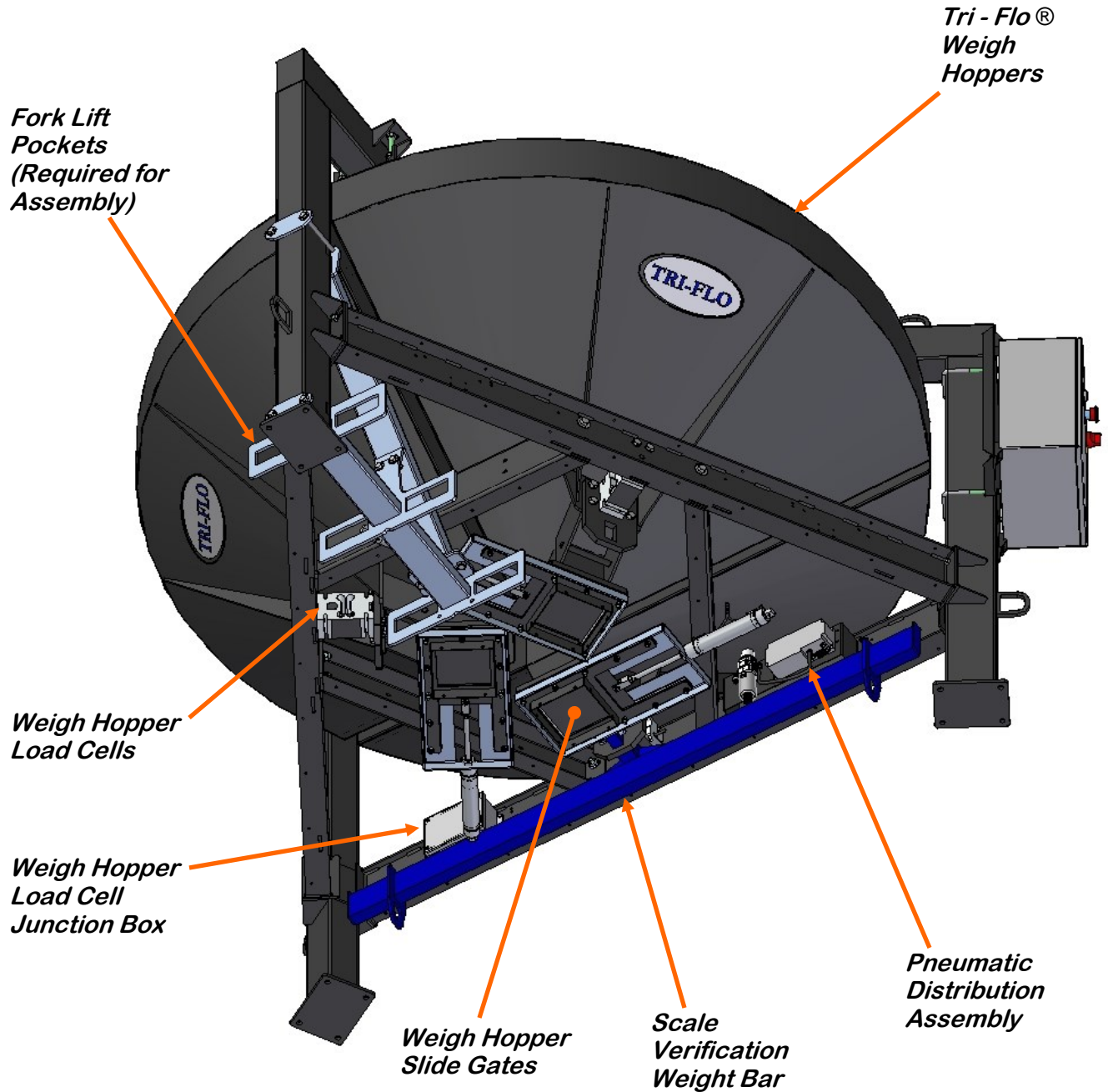
11. Provide 120V single phase power to the Tri-Flo control panel, If any of the panels are located in the hazardous area described in the installation section (see page 18), all 120VAC connections must be hard wired to a listed type 4 rated enclosure.
12. Reverse the previous steps when removing the machine from its working position.

MECHANICAL OPERATION SECTION C

TRI - FLO® OVERVIEW



TRI - FLO® OVERVIEW



TRI - FLO ® WEIGH HOPPER, SLIDE GATES & SCALE HEAD

Once seed exits the discharge end of the scale fill conveyor, it will fall down into an inlet diverter that is located in the center of the Tri - Flo ®. Seed will then come to rest above the slide gate in one of the three weigh hoppers as it waits to be weighed. The weigh hoppers sit atop load cells. The system uses a Rice Lake 1280 scale head to display the current weight of the seed in the weigh hoppers. The scale head communicates with the system via an Ethernet cable. Once the first hopper has been filled, seed will be diverted to the second hopper. While the second hopper is filling the first hopper will then weigh the seed and begin dumping out of its discharge gate. This process runs in a continuous flow until the system determines the total weight has left the bin. At this point the bin slide gate is closed and the program runs in the finish batch mode. Once the run is finished the system begins to shutdown the conveyers in the order specified by the time entered on the Utilities screen to assure that all seed has been cleaned out of the conveyors. The system looks to the scale head for the total weight of seed and prints a scale ticket based on that weight.

NOTICE

The Rice Lake 1280 scale head will require calibration by a state certified calibration specialist in order for it to be legal for trade.

AVIS

Le Rice Lake 1280 la tête de l'échelle, il faudra calibration par un spécialiste de l'étalonnage diplômé d'état pour qu'il soit légal pour le commerce.

Located below each weigh hopper is an air-actuated slide gate. The slide gates each have a sensor that is positioned to read whether or not the slide gate is currently in the open or close position. This is done to ensure an accurate scale reading will always be achieved.

SECTION
D

ELECTRICAL OPERATION



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

! DANGER

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.

! DANGER

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 sur les panneaux de contrôle.

For the TRI - FLO® Bin Site HMI instructions, see the appropriate U-Treat Automation manual.

NOTICE

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

AVIS

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.

The Tri - Flo® Control Panel (TFCP) is a plug connected enclosure that is located on the Tri - Flo®. This enclosure contains the PLC components required for the Tri - Flo® weighing system.

TROUBLESHOOTING SECTION E

TROUBLESHOOTING

Below is a table describing the most frequent problems and solutions with the USC Tri - Flo® bin site system. For further assistance, contact your authorized dealer.

Problem	Possible cause	Solution
Tri - Flo® : Minimum flow rate alarm.	1. Running too low capacity.	1. Adjust your air gates or manual gates.
Tri - Flo® : Indicator weight shows two pounds in bin after run.	1. Tri - Flo® did not empty completely.	1. Open gates on the Tri - Flo® and zero scales.
Tri - Flo® : Scale will not zero out.	1. Scale is in filing mode. 2. Scale is to far out of range.	1. Exit filling mode then end run. Needs to be in shipping mode. 2. Recalibrate scale
Tri - Flo® : Even when all three scales are zeroed on Batch, the next batch gives a negative number on one of the hoppers with an overweight Alarm.	1. Tri - Flo® was not emptied before zeroed. 2. Wind drafts. 3. Hoppers are touching.	1. Open gates and zero scale. 2. Close doors. 3. Loosen the four mounting bolts enough to be able to move the hopper. Make the gap on both sides of the hopper as even as possible.
Tri - Flo® : If there are five pounds or less in the hopper, the system will not empty hopper.	1. Scale heel weight has not been reached.	1. Open and close the gate hopper.
System is not consistently calibrating correctly.	1. Bin slides gates or manual gates have been moved. 2. Underbin conveyor belt is slipping. 3. Bin slide gate is not consistently opening to the same point. 4. The operator is pressing the "Cancel Scale Fill" button before the run ends. 5. System is being paused during the run.	1. Ensure that the slide gate collar and manual gate is locked into place. Then recalibrate. 2. Tighten the underbin conveyor belt. 3. Check for any obstruction that may be restricting the movement of the slide gate. 4. Allow the system to shutdown on its own. 5. Make another run without pausing system.

TRI - FLO ® WITH SERVO

Problem	Possible Cause	Solution
System calibration for currently selected bin is incorrect.	1. System is too far out of calibration to recalibrate automatically.	1. Recalibrate the system.
Weight display not reading steady (Bouncing)	1. Wind drafts. 2. Bad load cell.	1. Close doors. 2. Replace load cell.
Scale is reading incorrect weight.	1. Something is touching the scale. 2. Scale needs recalibrated.	1. Ensure that the area around the scale is clean and that nothing is leaning on or resting on the hopper. 2. Zero scale. If still incorrect, have a professional scale technician recalibrate the scale.
No Tri - Flo ® slide gates will open or close when their corresponding button is pressed on the touch screen.	1. No air or not enough air is being supplied to the air regulator / filter on the frame cross member. 2. The Tri - Flo ® PLC may be off.	1. Ensure that at least 100 psi of air is being supplied to the regulator and it is adjusted for a minimum output of 45 PSI. Also, check to see that the filter is clean and no water has built up above the maximum allowed line. 2. Ensure that the Tri - Flo ® control panel has power to it, is ON and that all of the breakers inside the panel are ON as well.
No bin slide gates will open or close when their corresponding button is pressed on the touch screen.	1. No air or not enough air is being supplied to the solenoid bank on the side of the bin site control panel. 2. The bin site PLC may be off.	1. Ensure that at least 100 psi of air is being supplied to the solenoid bank. 2. Ensure that the bin site control panel has power to it, is ON and that all of the breakers inside the panel are ON as well.
Air gate will not close fully.	1. Something is obstructing the air gate from closing. 2. Air pressure to the gate is not strong enough.	1. Remove obstruction. 2. Ensure that the bin slide gate has at least 100 psi of air being supplied to it. If it is a Tri - Flo ® slide gate it needs at least 45 PSI.
Air gate is opening when it should be closing and vice versa.	1. Air lines to the air gate are reversed.	1. Exchange air line for the proper solenoid on the back of the solenoid bank.

Problem	Possible Cause	Solution
Diverter is leaking seed through bypass side while in TREAT mode of operation.	<ol style="list-style-type: none"> 1. Too low of air pressure to actuate the diverter. 2. An obstruction in the diverter is stopping correct placement of the diverter plate. 	<ol style="list-style-type: none"> 1. Ensure that at least 100 psi of air pressure is present at the diverter. 2. Remove obstruction.
Solenoids are making a buzzing sound when air gates are actuated.	<ol style="list-style-type: none"> 1. Moisture in the air system. 2. Electric actuator on solenoid bank may be faulty. 	<ol style="list-style-type: none"> 1. Remove moisture from the air lines. 2. Replace the electronic actuator on the solenoid.
The touch screen has warning triangles on each button.	<ol style="list-style-type: none"> 1. The bin site PLC may be off. 2. The Tri - Flo ® panel may be off. 	<ol style="list-style-type: none"> 1. Ensure that the bin site control panel has power to it, is ON and that all of the breakers inside the panel are ON as well. 2. Ensure that the Tri - Flo ® control panel has power to it, is ON and that all of the breakers inside the panel are ON as well.
Conveyor will not start in HAND or AUTO mode.	<ol style="list-style-type: none"> 1. Conveyor motor starter is tripped. 2. Conveyor is clogged. 	<ol style="list-style-type: none"> 1. Reset motor starter. 2. Remove obstruction or debris.

SECTION
F**MAINTENANCE**

Proper maintenance of the Tri-Flo ® System 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.

CONTROL PANEL & AIR SYSTEM

- Drain water from compressor daily.
- Drain air dryer every 40 hours of operation.
- Test all air solenoids for correct actuation.
- Inspect all exterior wiring for any kinks or damage.

TRI-FLO ® WEIGH HOPPER, AIR REGULATOR - FILTER - DRYER

- **DEPRESSURIZE UNIT BEFORE REMOVING BOWL.**
- Periodically check bowl unit for cracking, damage or other deterioration. Immediately replace any bowl unit that is cracked, damaged or deteriorated.
- Remove micron filter and clean by tapping on surface and blowing off with compressed air.
- Exercise and flush the automatic drain valve.

TRI-FLO ® WEIGH HOPPER, SLIDE GATE & SCALE HEAD

- Inspect all welds and structural components for bends, cracks and damage.
- Check for binding on scale components.
- Check wiring from scale to scale head for any damage or kinks.
- Test slide gate for proper actuation with control panel.
- Check slide gate sensors for correct positioning and signal.
- Have scale professionally re-calibrated as necessary.
- 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.

SECTION H STORAGE

When storing the Tri - Flo® System for long periods of time, the following procedures must be followed to reduce the chance of rust, corrosion and fatigue of the Tri - Flo® System. 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.

TRI-FLO® WEIGH HOPPER & SLIDE GATE

1. Perform maintenance as outlined in the Maintenance section.
2. Thoroughly clean the weigh hoppers to remove all residue from the equipment.
3. Clean the slide gates of any seed or residue that may have built up.
4. Store all portable components of the Tri - Flo® System inside a protective building to keep them from being exposed to the weather. This includes: the fork lift pocket adapter, manual, and extra splash guards.
5. Disconnect power to the machine and all of the components.
6. Ensure all moisture has been removed from the airlines.
7. Disconnect the supply air line to the bottom of the solenoid bank and place a plug in the fitting to keep moisture out of the system.

TRI-FLO® WITH SERVO

NOTES:

SECTION J USC LIMITED WARRANTY

USC, LLC, (Manufacturer) warrants its seed treating equipment as follows:

1. **Limited Warranty:** Manufacturer warrants that the Products sold hereunder will be free from defects in material and workmanship for a period of 18 months from date of shipment. If the Products do not conform to this Limited Warranty during the warranty period, Buyer shall notify Manufacturer in writing of the claimed defects and demonstrate to Manufacturer satisfaction that said defects are covered by this Limited Warranty. If the defects are properly reported to Manufacturer within the warranty period, and the defects are of such type and nature as to be covered by this warranty, Manufacturer shall, at its expense, furnish replacement Products or, at Manufacturer's option, replacement parts for the defective products. Shipping and installation of the replacement Products or replacement parts shall be at the Buyer's expense.

2. **Other Limits:** THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Manufacturer does not warrant against damages or defects arising from improper installation (where installation is by persons other than Manufacturer), against defects in products or components not manufactured by Manufacturer, or against damages resulting from such non-Manufacturer made products or components. Manufacturer passes on to the Buyer the warranty it received (if any) from the maker of such non-Manufacturer made products or components. This warranty also does not apply to Products upon which repairs and / or modifications have been effected or attempted by persons other than pursuant to written authorization by Manufacturer. This includes any welding on equipment which could damage electrical components. Manufacturer does not warrant against casualties or damages resulting from misuse and / or abuse of Products, improper storage or handling, acts of nature, effects of weather, including effects of weather due to outside storage, accidents, or damages incurred during transportation by common carrier.

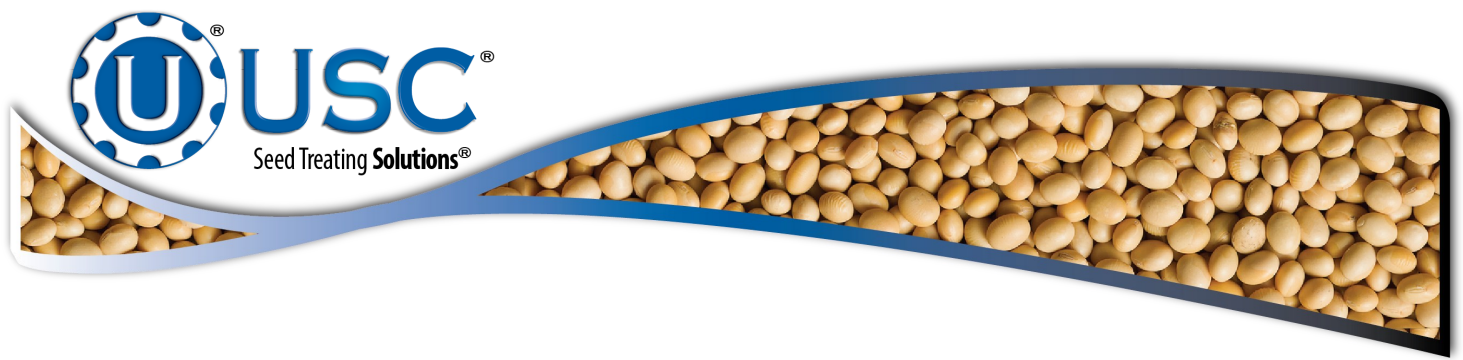
3. **Exclusive Obligation:** THIS WARRANTY IS EXCLUSIVE. The sole and exclusive obligation of Manufacturer shall be to repair or replace the defective Products in the manner and for the period provided above. Manufacturer shall not have any other obligation with respect to the Products or any part thereof, whether based on contract, tort, strict liability or otherwise. Under no circumstances, whether based on this Limited Warranty or otherwise, shall Manufacturer be liable for lost profits, lost revenue, lost sales (whether direct or indirect damages), incidental, special, punitive, indirect or consequential damages.

4. **Other Statements:** Manufacturer's employees or representatives' oral or other written statements do not constitute warranties, shall not be relied upon by Buyer, and are not a part of the contract for sale or this limited warranty.

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

6. **Entire Obligation:** This Limited Warranty states the entire obligation of Manufacturer with respect to the Products. If any part of this Limited Warranty is determined to be void or illegal, the remainder shall remain in full force and effect.

US / Canada Non-Exclusive 2016



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