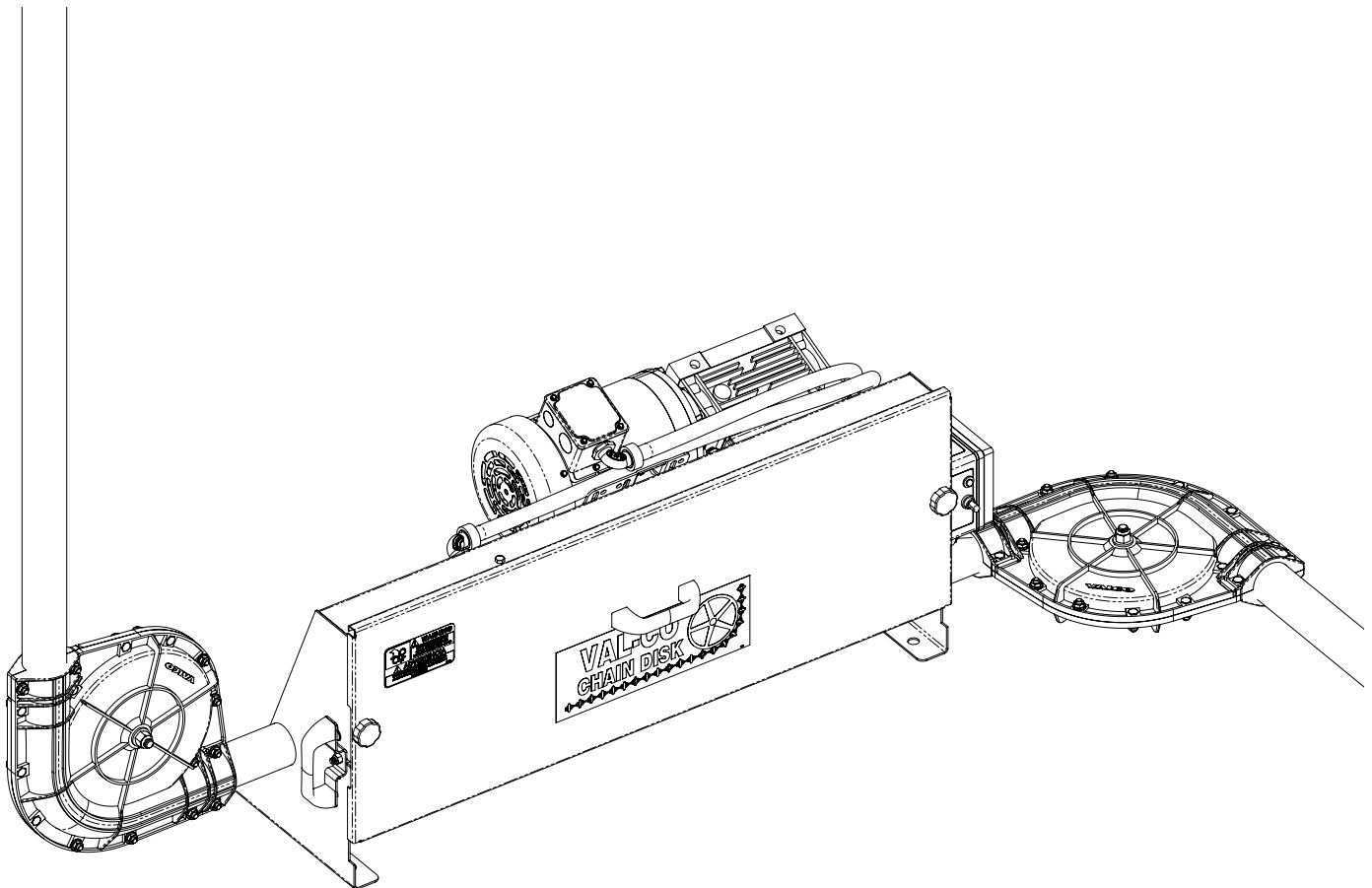




CHAIN DISK FEED DELIVERY SYSTEM

Instruction and Operations Manual

780160, 780162



990000

Rev B

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VAL PRODUCTS, INC. WARRANTIES

MANUFACTURED PRODUCTS STANDARD WARRANTY:

Val Products, Inc. (Valco) warrants that Valco-manufactured products (other than the products subject to an extended warranty set forth below) will be free of defects in material and workmanship, when used in a usual and customary fashion, for a period of one (1) year from the date of original purchase from an authorized Valco distributor or three (3) years from the date of original purchase from Valco, whichever period expires first. If Valco is notified that such a defect exists within that time and, upon inspection, agrees that the product is defective, Valco will, at its option, (a) repair or replace (EXW Valco's plant) the defective product, or (b) refund to the original purchaser (Valco's distributor) the original purchase price paid for the defective product less any installation, shipping, or other charges associated with the original purchase. All defective products must be returned to a Valco designated location for evaluation. Valco's determination as to whether the product is defective is final. See the General Conditions and Limitations.

Product	<u>Extended¹ Warranty Coverage Period</u>	<u>Limited² Warranty Coverage Period</u>	<u>Total Warranty Coverage Period (Extended + Limited)</u>
VR & VBL series drinkers	5 years	5 years	10 years
VQ, VA & VBR series drinkers	2 years	3 years	5 years
Roll-formed Tube	3 years	7 years	10 years
Coreless auger ³	3 years	7 years	10 years
FUZE [®] feed pans	2 years	3 years	5 years
Fiberglass fan housings	Lifetime ⁴	na	Lifetime ⁴
Aluminum fan blades	Lifetime ⁴	na	Lifetime ⁴
Z-Fan [™] housings ⁵	7 years	na	7 years

Explanations/Conditions of above listed footnotes for VAL-CO warranties:

1. Extended Warranty Coverage: Valco warrants products subject to an extended warranty (above) will be free of defects in material and workmanship, when used in a usual and customary fashion, for the period of time as stated from the date of original purchase by an authorized Valco distributor. If Valco is notified that such a defect exists within that time and, upon inspection, agrees that the product is defective, Valco will, at its option, (a) repair or replace (EXW Valco's plant) the defective product, or (b) refund to the original purchaser the original purchase price paid for the defective product less any installation, shipping, or other charges associated with the original purchase. All defective products must be returned to a Valco designated location for evaluation. Valco's determination as to whether the product is defective is final. See the General Conditions and Limitations.
2. Limited warranty coverage products will be provided at a charge rate of 50% off the Valco list price at the time the warranty claim is made known to the company in writing and is subject to Valco's standard warranty policy conditions and limitations.
3. Coreless Auger warranty is voided if conveying materials with greater than 18% moisture content.
4. Lifetime warranty for fiberglass fan housings and cast aluminum blades is limited to products that prove to be defective in workmanship or material and become unusable over the life of the structure where the product was originally installed, provided that the product has remained undisturbed in its original installation location, and will be repaired or replaced, at Valco's option, at no charge (excluding labor of removal and installation and shipping), EXW Valco's plant.
5. Z-Fan housings are warranted for 7 years against rust through when employed in poultry housing ventilation applications only. Fan components excluding housing are covered by Valco's standard warranty.



VAL PRODUCTS, INC. WARRANTIES - continued

General Conditions and Limitations

1. The Product must be installed and operated in accordance with instructions published by Valco or the warranty will be void.
2. Warranty will be void if all components of the product or system are not original equipment supplied by the manufacturer.
3. Products not manufactured by Valco and supplied by outside manufacturers (such as, but not limited to, certain electrical motors, certain controls, gas valves, etc.) are warranted separately by the respective manufacturer and only to the extent of the manufacturer's warranty.
4. Valco feed bins are designed to be used with free-flowing agricultural feed materials with a density proximate to 40 pounds (18.15 kilograms) per cubic foot (.03 cubic meter). Soybean meal, meat scraps and other materials, both agricultural and industrial, are not free flowing and may significantly exceed recommended material density. Feed bin structural failure from their use will void this warranty.
5. Valco does not warrant against feed bin structural failure, or bin unloading components such as flexible auger transitions and boots that arises due to the addition of aftermarket devices attached to, or installed within or attached to the feed bin structure for the purpose of enhancing feed material flow and/or the elimination of feed bridging issues.
6. Warranty applies only to products used in applications as originally intended by Valco – other applications in industry or commerce are not covered by the Warranty. Valco products are expressly not designed or authorized for use in any applications where intended to sustain or support human life or any other application where the failure of the product could result in personal injury or death.
7. Malfunctions resulting from misuse, abuse, mismanagement, negligence, alteration, accident, lack of proper maintenance, lightning strikes, electrical power surges, or electrical power interruption shall not be considered defects under the Warranty. Corrosion, material deterioration and/or equipment malfunction caused by or consistent with the excessive additions of chemicals, minerals, sediments or other foreign elements with the product shall not be considered defects under the Warranty.
8. VALCO WILL NOT, UNDER ANY CIRCUMSTANCES, BE LIABLE FOR ANY KIND OF SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR CONTINGENT DAMAGES INCLUDING, BUT NOT LIMITED TO, LOST OR DAMAGED PRODUCT, GOODS OR LIVESTOCK, COSTS OF TRANSPORTATION, LOST SALES, LOST ORDERS, LOST INCOME, INCREASED OVERHEAD, LABOR AND INCIDENTAL COSTS AND OPERATIONAL INEFFICIENCIES. IN NO EVENT SHALL THE WARRANTY LIABILITY EXCEED THE INVOICED PRICE OF THE PRODUCT TO THE ORIGINAL PURCHASER.
9. THE WARRANTIES SET FORTH ABOVE CONSTITUTE VALCO'S ENTIRE AND SOLE WARRANTY. VALCO EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY AND ALL OTHER EXPRESS OR IMPLIED WARRANTIES AS TO THE MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR USE, DESCRIPTION OF QUALITY OF THE PRODUCT FURNISHED, AND ANY OTHER WARRANTY ARISING BY OPERATION OF LAW, CUSTOM OR USAGE.
10. Valco denies any authorization of any distributor, dealer, agent, or employee to modify, extend, or otherwise alter the conditions of any warranty in addition to, or in lieu of, those conditions and terms expressly stated above. Any exceptions not noted in the body of the Warranty must be authorized in writing by an officer of Valco. Valco reserves the right to change or delete models, or change specifications at any time without notice or obligation to improve previous products.



Effective April 1, 2020

Safety Information

Failure to read this manual could result in severe injury or even death.

It is the responsibility of the owner/operator to properly educate anyone working on or around the chain disk equipment, of all safety guidelines/requirements.

- Ensure all parts are properly installed.
- Keep extremities and loose clothing from rotating parts.
- Keep area dry and clean; remove any grease, oil or debris build-up.
- Keep all parts in working condition; fix or replace damaged or broken parts immediately.
- DO NOT remove any safety guards during operation.
- Never service, lubricate or modify the chain disk feed system while in operation or when the power is on.
- Perform the necessary Lockout / Tag-out procedures when servicing the chain disk.
- To avoid serious injury or death, DO NOT attempt alterations to the design of the chain disk equipment.
- All electrical wiring must be done by a qualified electrician in accordance with all local and national codes.
- Adhere to all warning labels on the chain disk equipment.

Safety Symbols - Warning Labels

It is important that you read all instructions and pay particular attention to all SAFETY information.
(Measurements throughout the manual are given in both English then metric units with brackets.)



= IMPORTANT INFORMATION - Be sure to read!



= DANGER - imminent hazard, if ignored serious injury or death **WILL** occur

= WARNING - probable hazard, if ignored serious injury or death **COULD** occur

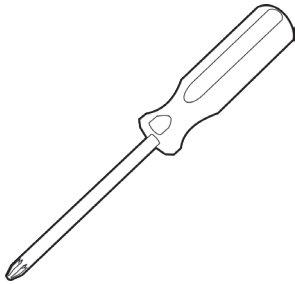
= CAUTION - potential hazard, if ignored, minor or moderate injury **MAY** occur



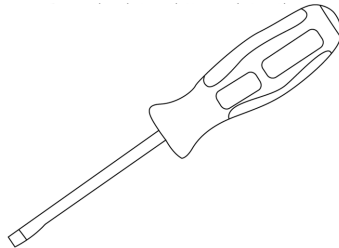
Tools

- *Phillips Screwdriver # 2*
- *Straight Screwdriver 1/4" & 3/16"*
- *Drill with 1-1/2" Hole Saw*
- *Socket Set, Open End Wrenches & Adjustable Wrench*
- *Hacksaw or Chop Saw*
- *Wire Strippers*
- *Fish Tape*
- *Electrical Tape*
- *Grinder w/ Cut Off Wheel*

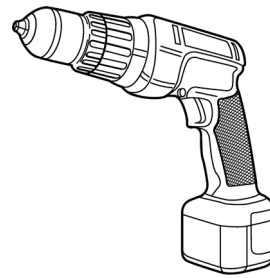
Phillips Screwdriver



Straight Screwdriver



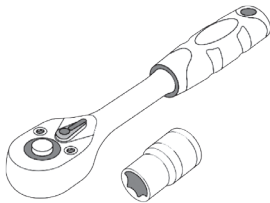
Drill



Hole Saw



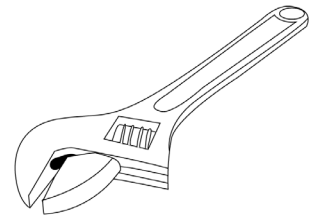
Socket Set



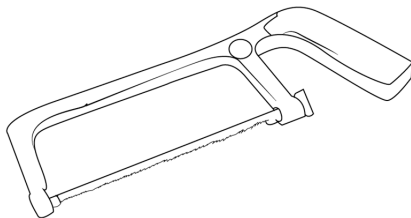
Open End Wrenches



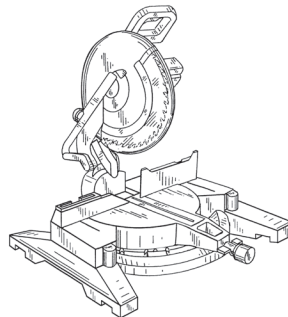
Adjustable Wrench



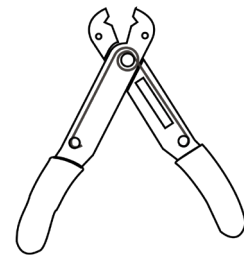
Hacksaw



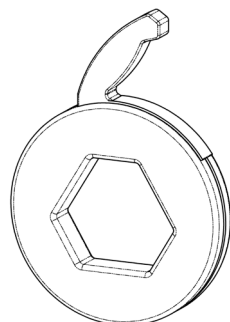
Chop Saw



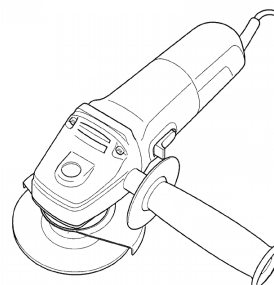
Wire Strippers



Fish Tape



Grinder w/ Cut Off Wheel



Introduction

About this Manual

This manual is meant as a guide for the installation and operation of the chain disk feed system. Actual installations may vary due to local conditions and/or codes. Reference the CD-500 manual and CD-500-S manual for complete information regarding the electronic chain disk controls. The following manual will not fully cover the chain disk controls.

Background

The chain disk feed system conveys feed from a bin, or other storage unit, to feeders inside a barn. It consists of a drive unit that pulls a chain with attached disks through tubing, producing a highly efficient conveyor system, even in vertical arrangements. The chain disk feed system can be used either manually or with a control unit and accessories.

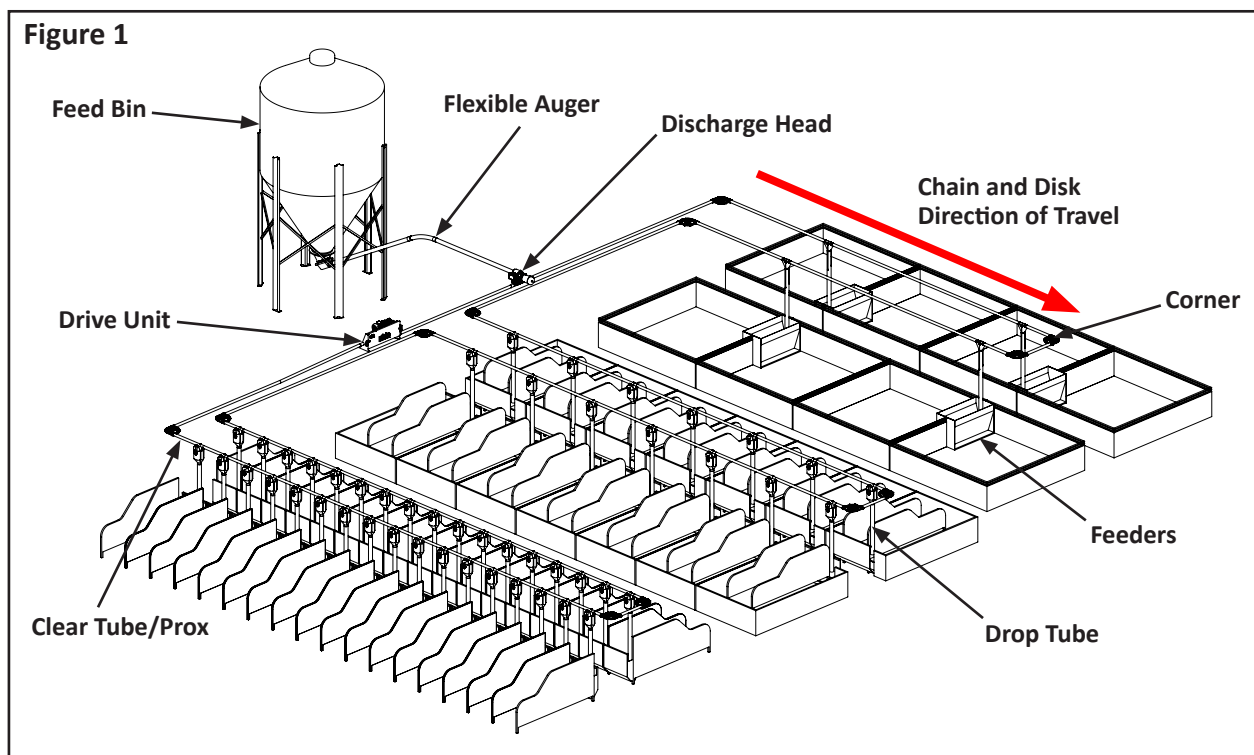
Swine Application

- Install a switch in the last hopper at the end of the delivery system.
- Install a tube mounted proximity switch just beyond the last feeder.

Table 1

Chain Disk Tube	Max. # Corners	Max. Chain (ft)	Max. Effective Length (ft)	Max. Daily Run Time (min)	Flexible Auger System Flow Rate (lbs/min)	Effective Length (ft)	Chain Disk Capacity (lbs/min)
2.36" OD PVC Tube	24	900 (4 corners)	1000	120	35	100-1000	35
2.37" OD Steel	24	1700 (4 corners)	1800	240	35	100-1500	35
					30	1500-1800	30

Figure 1



Specifications

Table 2

Capacity	Up to 35 lbs/min (See Table 1) Capacity based on a feed density of 40 lbs/ft ³
Maximum Overall System Length	See Table 1
Effective Length	Total feet of chain + 25 ft per corner
Types of feed	Normal types of swine and poultry feeds Anything other than swine or poultry feed will VOID the manufacturer's warranty
PVC Tubing 780600 780610 780601	White PVC Tube - 2.36" x 10' (60mm x 3mm) Clear PVC Tube - 2.36" x 10' (60mm x 3mm) PVC Tube Splice - 2.36"/60mm (White Only)
Steel Tubing 775030 775129 775130 775026	Steel Tube, 2.37" OD x 10', G90 Steel Tube, 2.37" OD x 20', G90 Steel Tube Coupler, Galvanized, per piece Steel Tube Coupler, Galvanized, carton of 15
Corners 780060	9.3" (236 mm) diameter steel cast wheel Non-greasable ball bearings Nylon housing with a removable cover
Chain 780068	150' per bag Heat treated & case hardened
Drive unit 780160 780162	46" (1.2 m) length, 16.5" (0.4 m) height, and 16.25" (0.4 m) width Enclosed stainless steel housing Spring loaded aluminum idler tensioning wheel Internal drive sprocket directly coupled to the output shaft of an aluminum housed speed reducer Driven by an electric motor, 1 Ph or 3 Ph
Drive Unit Motor 775064 780195	2 HP motor: 115/208-230 VAC, 1 Ph, 60 Hz, 1730 RPM 190/380 & 208-230/460 VAC, 3 Ph, 50/60 Hz, 1465/1760 RPM
Control C805 C806	Master & Slave Controllers 230 VAC, 1 Ph, 50/60 Hz Requires a 3 Ph contactor to control a 3 Ph drive unit motor (not included)



Tubing - Planning, Procedures & Installation

Tubing Layout

1. VAL-CO suggests using a combination of solid and clear tubing. Use clear pvc around proximity switches, and anywhere else that would be helpful to view the chain or feed level.
2. Install a section of clear PVC tube near the feed outlet side of the fill hopper for viewing feed levels.
3. Lay out all tubing in the approximate location in which they will be installed either on the floor or on top of the penning.
4. The complete chain disk feed system must be a closed loop. The tubing may go in any direction as long as direction changes are all at 90° angles.
5. Establish where all outlet drops will need to be located.
6. Drop kit or drop feeders cannot be installed over tubing splices. If this occurs, cut the tube shorter to move the coupler away from drop kit.

Assembly and Gluing PVC Tubing



The maximum length of each glued section should not exceed the length of a fish tape (approximately 100 ft) used to install the chain.

Be aware of thermal expansion/contraction. Allow both ends and all suspension points of straight tubing sections free to move.

Gluing/Cementing Directions

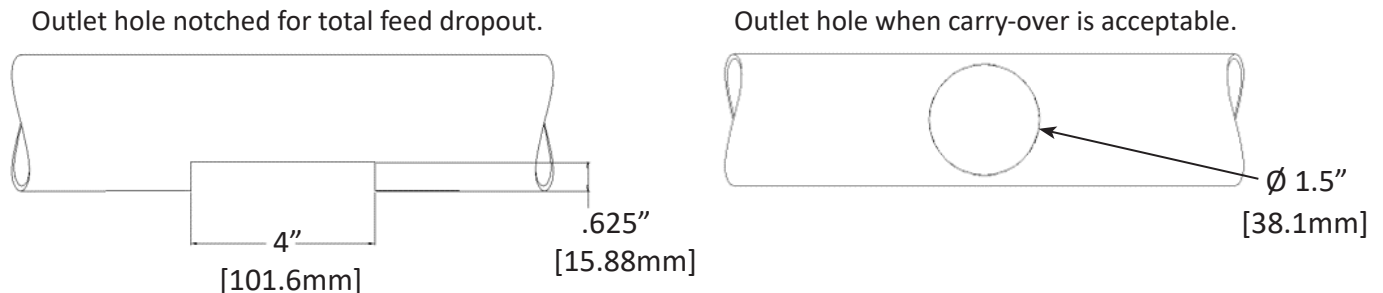
1. Tubing ends should be square. Remove all burrs and debris.
2. Verify that all connections are smooth.
3. If the temperature is below 40°F (4.4°C) or above 85°F (29.4°C), take special note of PVC solvent's temperature instructions
4. Apply PVC cement to tube and coupler and assemble quickly. (if cement is not fluid you must recoat parts). Keep PVC cement container closed when not in use.
5. Slide parts together, rotating 45 degrees until the tube is inserted half way into coupler. Parts should be held together for 30 seconds. Wipe off any excess PVC cement with a cloth.
6. Leave completed joints undisturbed until they have cured enough to withstand handling. (read the PVC solvent label for time required)



Outlet Drop Installation

Marking and drilling the holes after the tubing has been glued will ensure the holes are all in line. After the holes have been marked, cut the outlet hole in the auger tube. A saber saw or hacksaw should be used when total feed dropout is desired. Use a 1-1/2" hole saw and drill to cut round carry over hole. NOTICE: Deburr all holes to ensure proper slide valve function. See Figure 2 for recommended hole sizes.

Figure 2



Volume Drop (Refer to Volume Drop instruction manual.)

All-Out Drop

Insert the cord through the hole in the rotary feed gate. Pull cord until it is centered and knot it on both sides of the tab. Slip cord through the holes located on either side of the drop housing. Slide the indicator balls on the cord ends, and knot the ends to ensure that the indicator balls will not fall off, as shown in Figure 3. Locate the colored balls so they indicate if the gate is open or closed. If the green ball is lower than the red ball, the gate is open. If the red ball is lower than the green ball, the gate is closed.

Attach the rotary feed gate assembly to the tube as shown in Figure 4. Attach the drop housing to the tube, making sure the pre-made outlet hole in the PVC tube is centered in the middle of the housing as shown in Figure 5 and secure with stainless steel hose clamps.

Figure 3

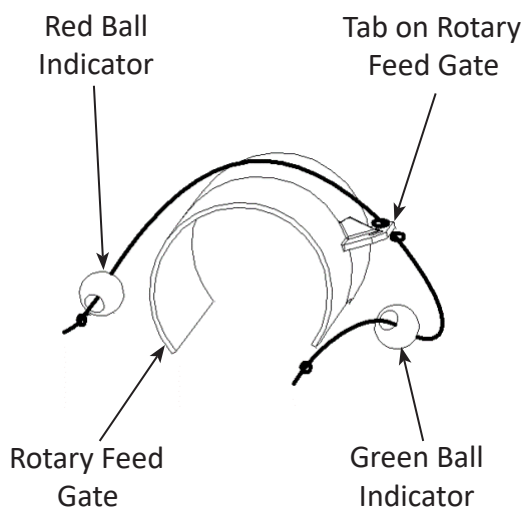


Figure 4

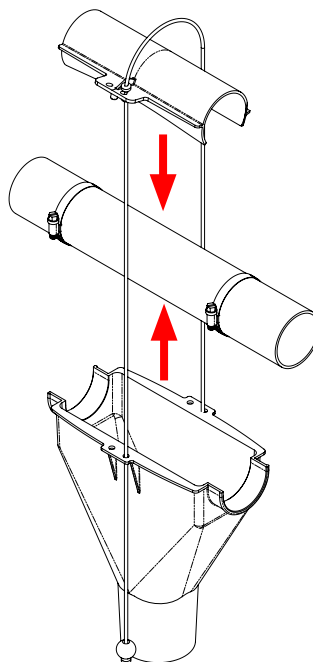
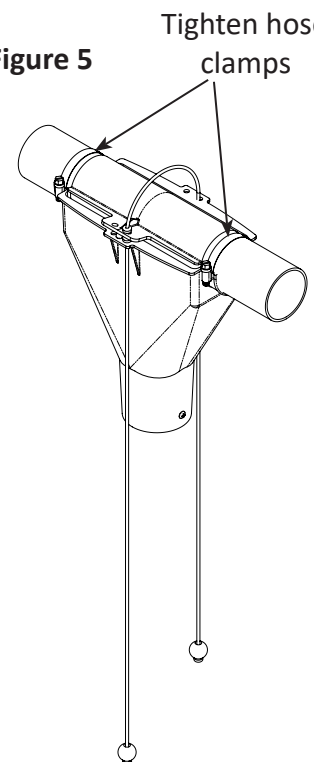


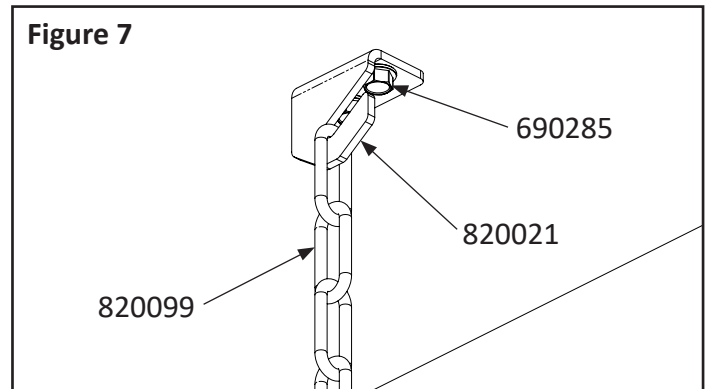
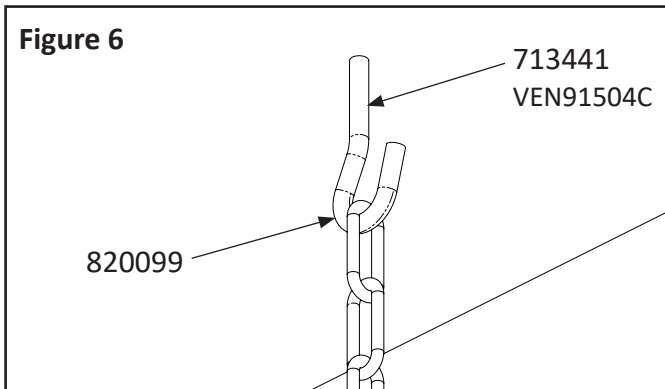
Figure 5



Tubing Suspension

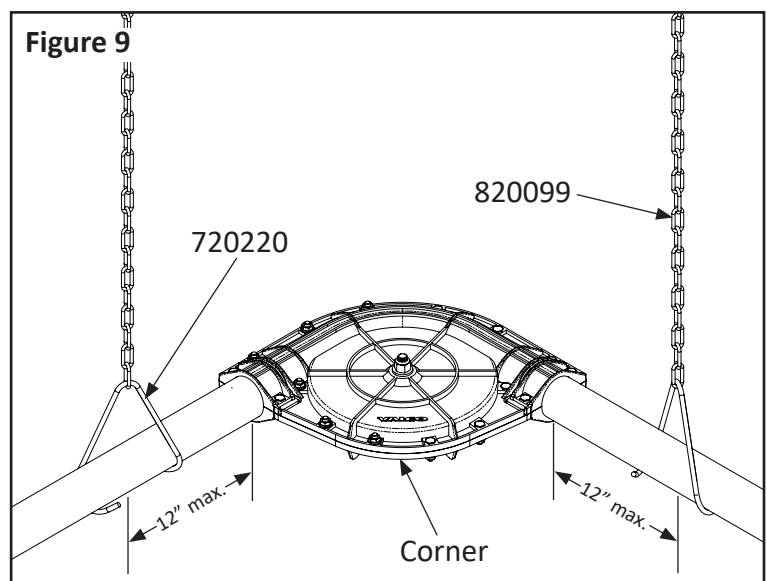
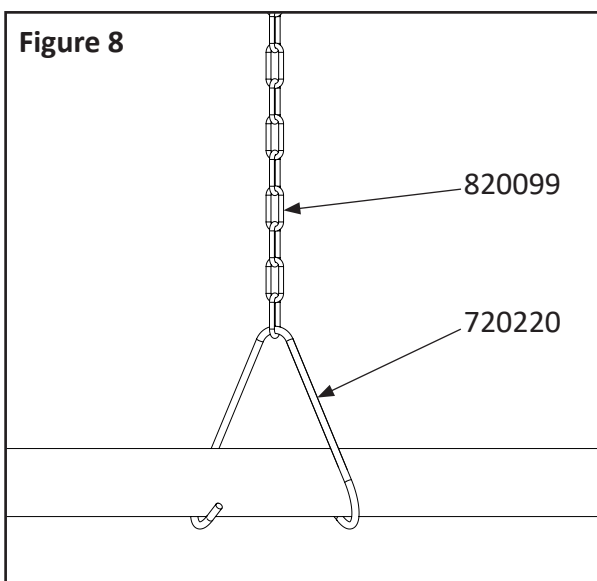
The chain disk feed system requires appropriate support, with additional support at the chain disk drive unit, discharge fill hopper and each corner:

- PVC tubing must be supported every 4 feet or less.
 - Steel tubing must be supported every 8 feet or less.
 - Corners must be supported within 12" on both incoming and outgoing tubes.
 - Failure to secure tubing at specified intervals will void warranty.
 - Tubing must be straight. Do not force bows into the tubing to get around obstacles. For PVC tube secure the weight of every drop to feeder to avoid tube bowing. If tubing develops bows or unevenness, more suspension points must be added. Uneven or bowed tubing will cause premature tube wear and will void the warranty.
1. Screw VEN91504C or 713441 hooks where needed into appropriate support of the building's ceiling to hang 820099 chains to attach hangers for the feed tubing, as shown in Figure 6. If attaching chains to **steel trusses** you may use 820021 ceiling brackets, as shown in Figure 7. VEN91507C S Hooks may be used where necessary.



2. Use 720220 hanger brackets on feed tubes to attach chains, as shown in Figure 8.

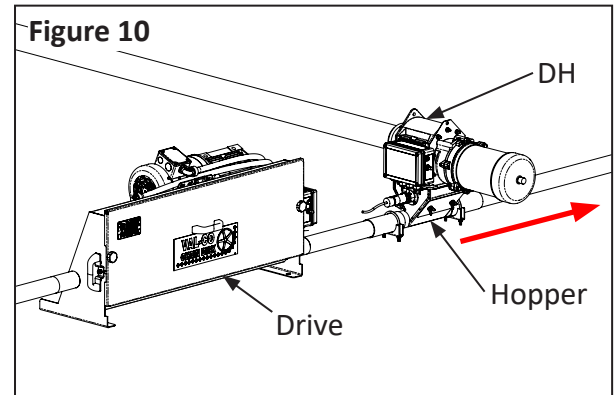
3. Add extra support on each side of the corners, shown in Figure 9.



Drive Unit Installation

Location

Although the drive unit may be placed anywhere in the chain disk feed system, (as it is able to carry any feed that enters the system back out again), it is recommended that the drive unit be placed between the last feeder and the fill hopper so the least amount of feed flows through the chain disk feed system drive unit. The drive unit can be bolted to the floor, wall, or may be suspended. It is important that you have worked with your dealer or VAL-CO salesman on the layout design of the system to ensure you have all the proper equipment at the time of installation. Keep placement in mind as it can affect the number of corners needed within the system.



Structural Support Integrity

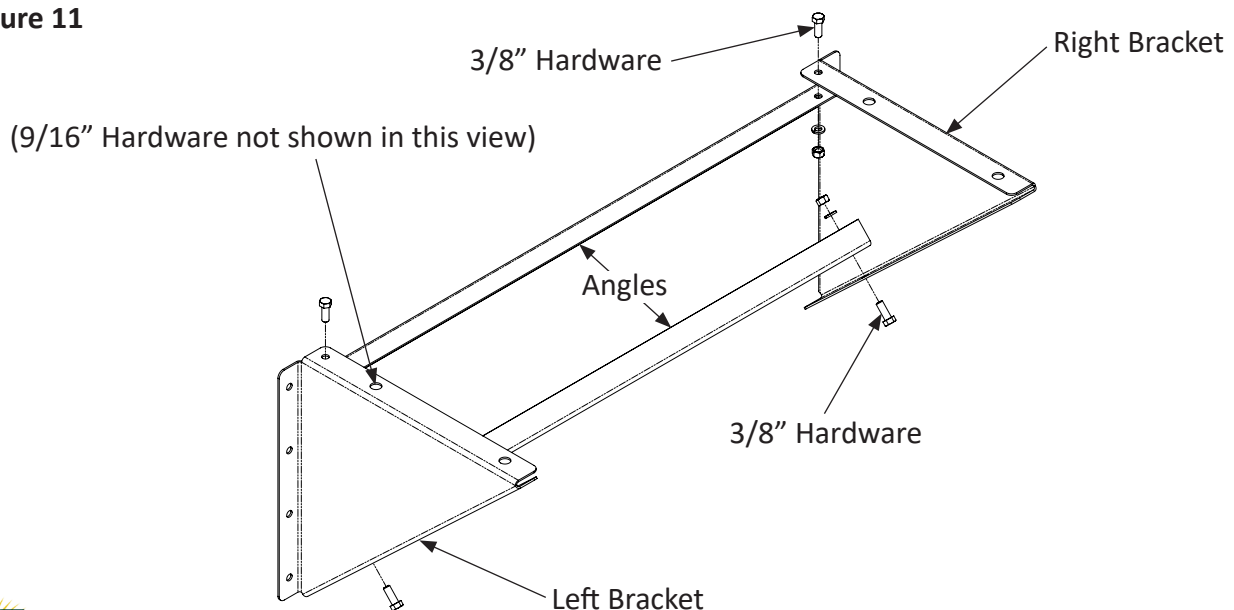
The drive unit weighs about 170 lbs. [77kg]. If suspending the drive unit, verify that the structural member(s) in which you are attaching to is/are able to support the weight of the drive unit. Use extreme caution to avoid structural damage and bodily injury. Contact a qualified structural engineer to evaluate any structural members that may be used to suspend the chain disk feed system drive unit.

Wall Mounting the Drive Unit

If desiring to wall mount the drive unit, a hardware package containing angles, brackets and hardware should have been ordered separately (780300).

1. Attach one angle to the top of the left and right brackets using the supplied 3/8" bolts, nuts, and washers.
2. Attach the second angle to the bottom of the left and right brackets using the same supplied 3/8" hardware.
3. Mount the bracket assembly to the wall. (Hardware not included.) It is recommended to place at a height that is easily accessible for maintenance.
4. Place the drive unit on the wall bracket and bolt it down using the supplied 9/16" bolts, nuts, and washers.
(The access door of the drive unit should be located to the front for accessibility.)

Figure 11

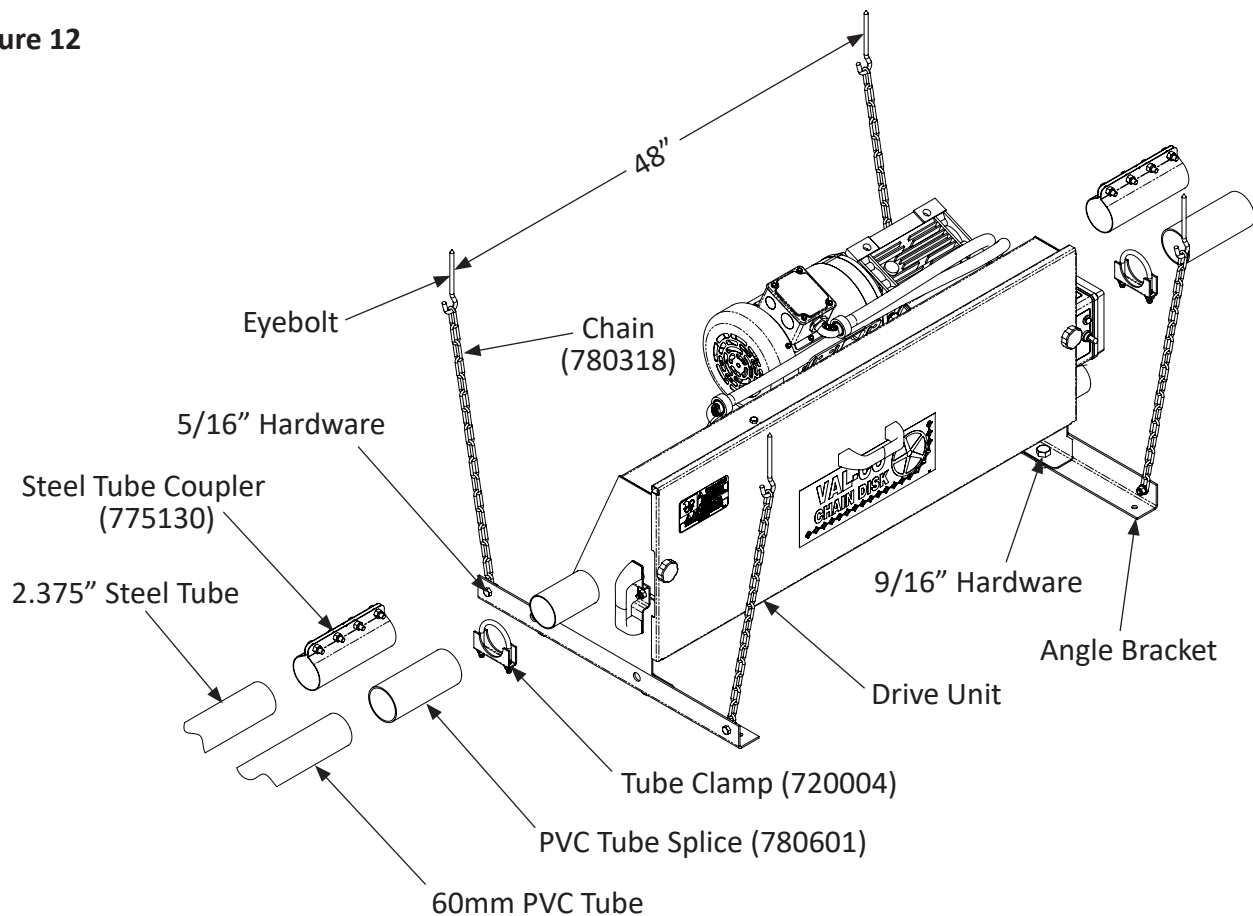


Suspending the Drive Unit

If desiring to suspend drive unit, a hardware package containing angle brackets, bolts, chain and eyebolts should have been ordered separately (780310).

1. Bolt the angle bracket to each bottom support of the drive unit using provided 9/16" bolts, nuts, and washers.
2. Screw the eyebolts into the structural members where the drive unit will be located.
3. Keep the eyebolts approximately 48" (1.2m) apart to allow for a stable suspension.
4. Cut the chain into four equal sections - leave each section long for adjustment.
5. Bolt the chain to the angle using provided 5/16" hardware (bolts, nuts, and washers).
6. Lift the drive unit up and hook one chain into each eyebolt.
7. To level the drive unit adjust the chain up or down.

Figure 12



Attaching Tubing to the Drive Unit

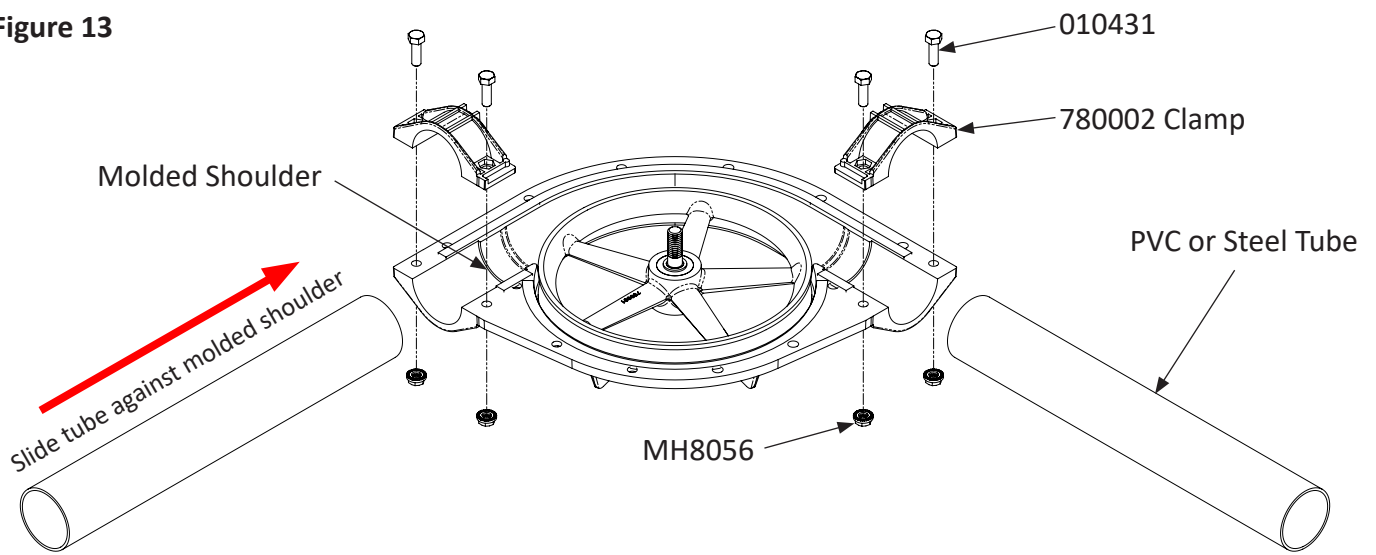
1. Cut the lengths of tubing so that it will butt up with the inlet and outlet of the drive unit.
2. Glue a PVC tube splice on to each PVC tube or tighten the steel coupler, depending on your choice of tubing.
3. For PVC tubes, use tube clamps (720004 – purchased separately) to secure the coupler to the drive unit.

Corner Assembly

Measure, Cut, and Assemble

1. Remove the corner top. Replace the ½" washer and lock nut on the shaft to hold the idler wheel during the rest of the installation.
2. Remove the two provided clamps attached to the corner tops.
3. Place tubing inside the corner and butt up into the shoulder.
4. Replace clamp and tighten the bolts to hold tubing in place, as shown in Figure 13.

Figure 13



Support with suspension chain when mounting.
Corners should be at a minimum of 24" (60.96cm) apart.



**DO NOT INSTALL CORNER TOP UNTIL
CHAIN DISK HAS BEEN PULLED THROUGH.**

Flexible Auger Fill System

To transport feed from a bulk feed bin to the chain disk feed system, VAL-CO recommends using a flexible auger fill system.

The chain disk system can freeze when used outside in colder climates. The flexible auger fill system is better able to loosen frozen feed, making it a better choice to use outside in colder climates.

To prevent overfilling of the chain disk system, choose the correct delivery rate on the flexible auger system.

The flexible auger fill system can run parallel or perpendicular to the chain disk feed system



**Feed level should not exceed the height of the steel link chain within the tube.
Modify slide plate on fill hopper, as shown on page 26.**

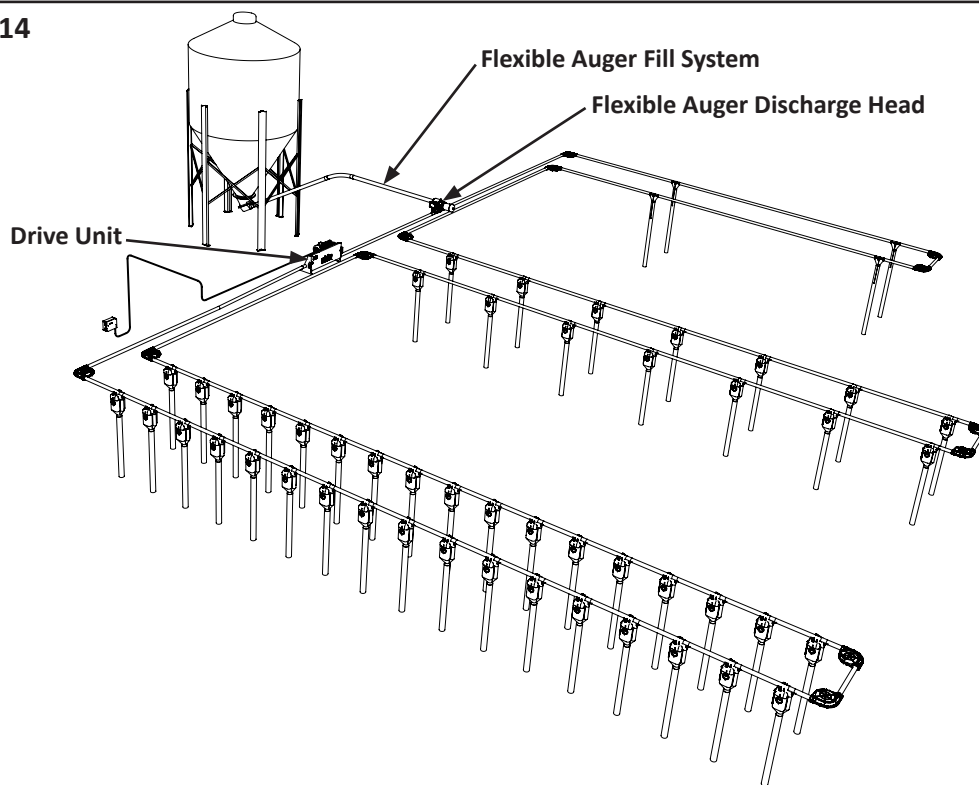
Fill System Requirements

(Reference Flexible Auger Fill System Manual for more information.)

Table 3

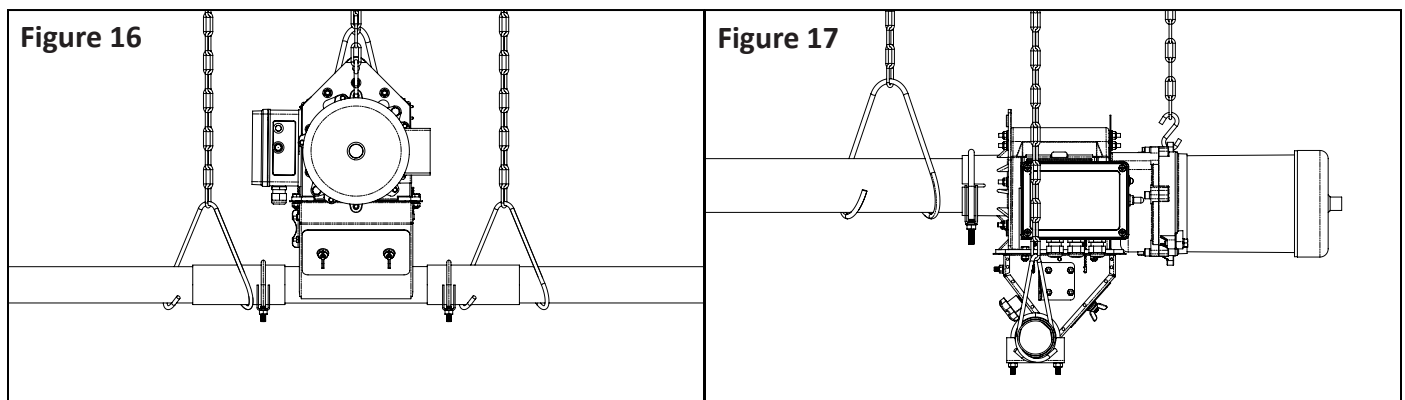
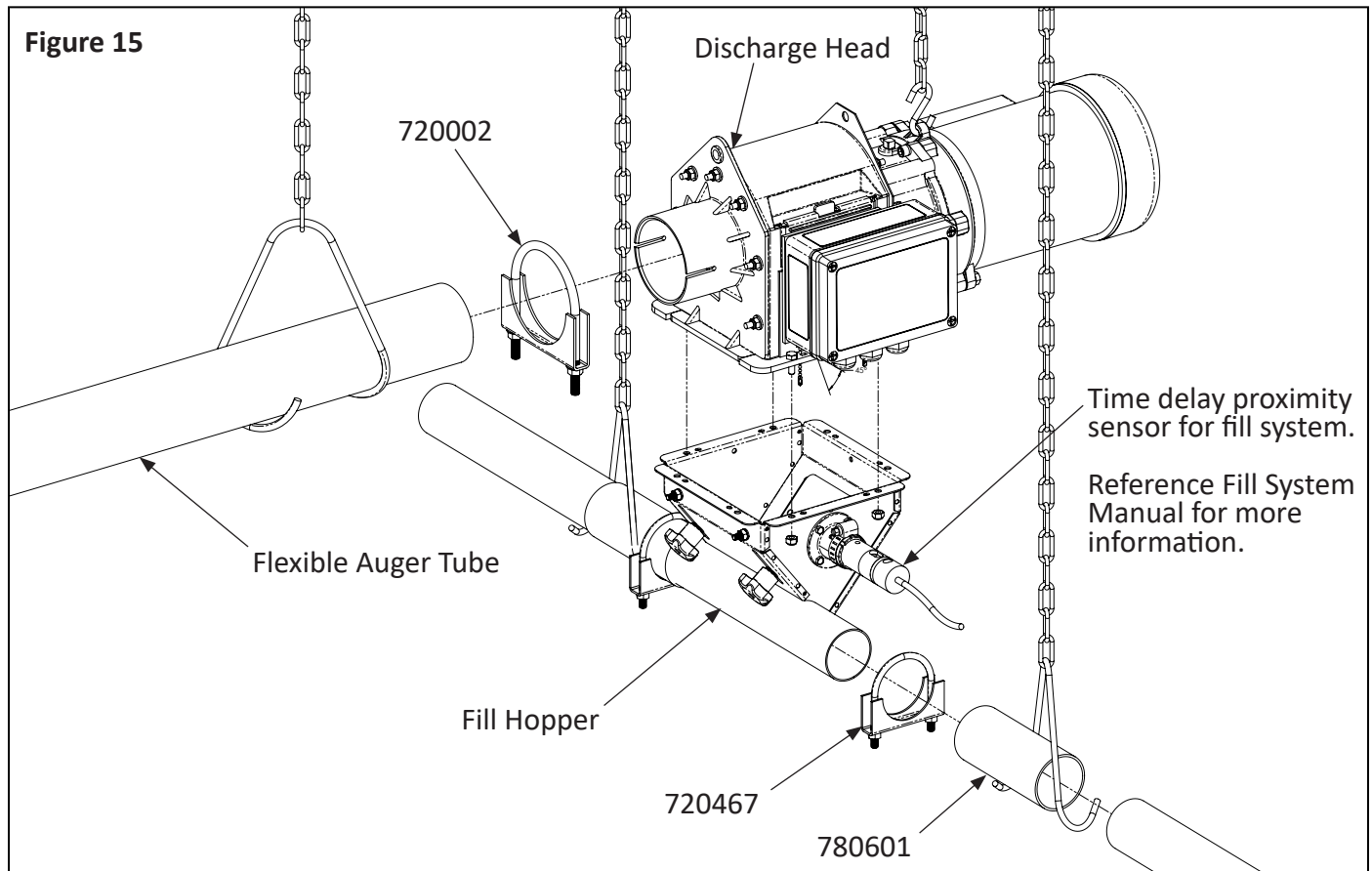
Chain Disk Tube	Flexible Auger System Flow Rate (lbs/min)	Effective Length (ft)	Chain Disk Capacity (lbs/min)
2.36" OD PVC Tube	35	100-1000	35
2.37" OD Steel	35	100-1500	35
	30	1500-1800	30

Figure 14



Chain Disk Fill Hopper Installation

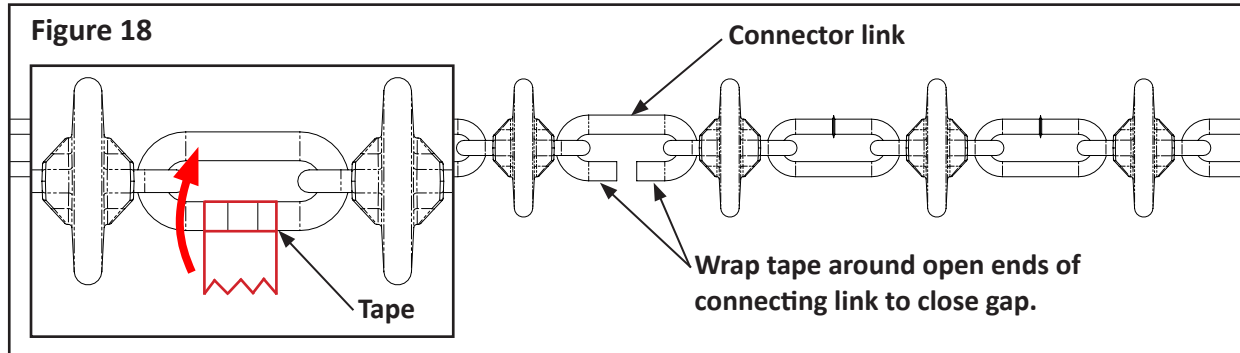
1. Attach the chain disk fill hopper to the flexible auger fill system using hardware provided with hopper.
2. Adjust the suspension height of the flexible auger control unit by making the chain disk fill hopper tubing level with the rest of the tubing.
3. Cut the tubing to butt up against the steel tubing on the inlet & outlet sides of the chain disk fill hopper.
4. Glue a PVC coupler or secure steel tube coupler to the tube.
5. If using PVC tubing, use tube clamps (720002) to secure the PVC coupler to the flexible auger control unit, as shown in Figure 15.
6. Keep hangers within 12" of fill hopper for support, as shown in Figures 16 & 17.



Chain Installation

Pulling the Chain Through Tubing

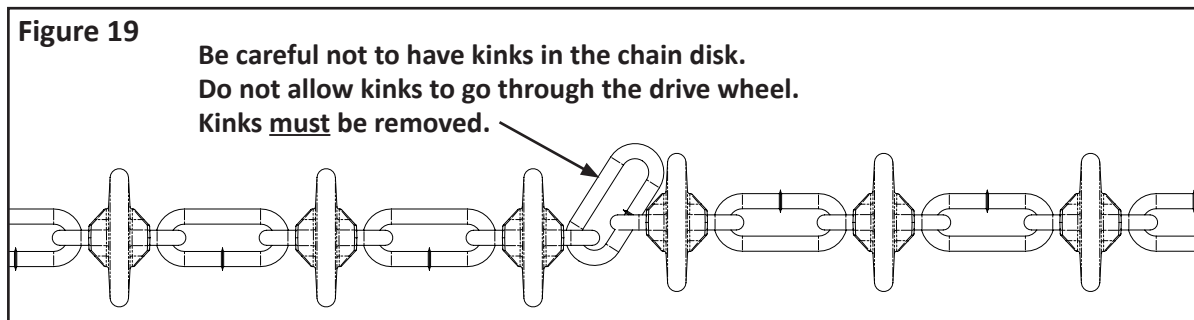
- A fish tape longer than the longest section of tubing is required.
- Spray paint the connector links in the chain for easier identification through the clear tubing.
- Use a connector link for every 150ft (46m) of chain used to connect chain together.
- Tape the opening of the connector link as shown in Figure 18.
- Use a grinder and cut-off wheel to separate chain.



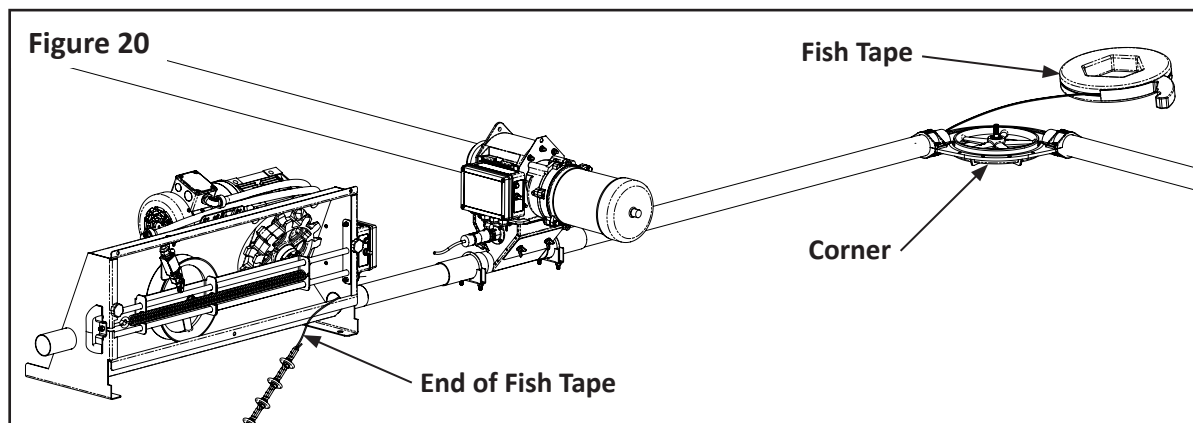
Chain disks with connector link

Start the chain installation at either end of the drive unit.

NOTE: Make sure there are no kinks in the chain before feeding the chain into the tube.

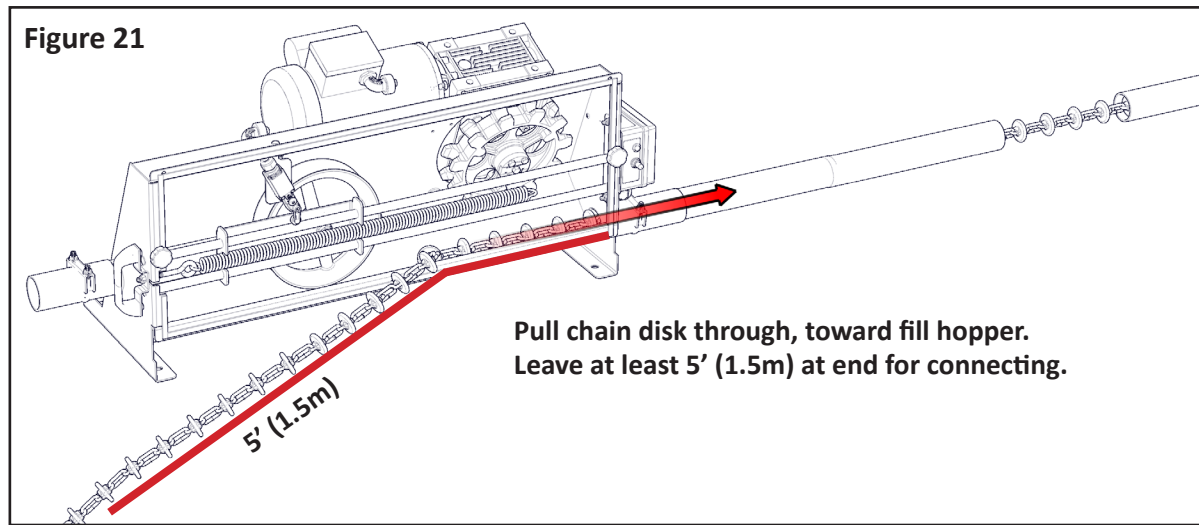


1. Push the fish tape through the first corner until it reaches the drive unit, as shown in Figure 20.
2. Connect the first chain link to the fish tape at the drive unit, as shown in Figure 20.

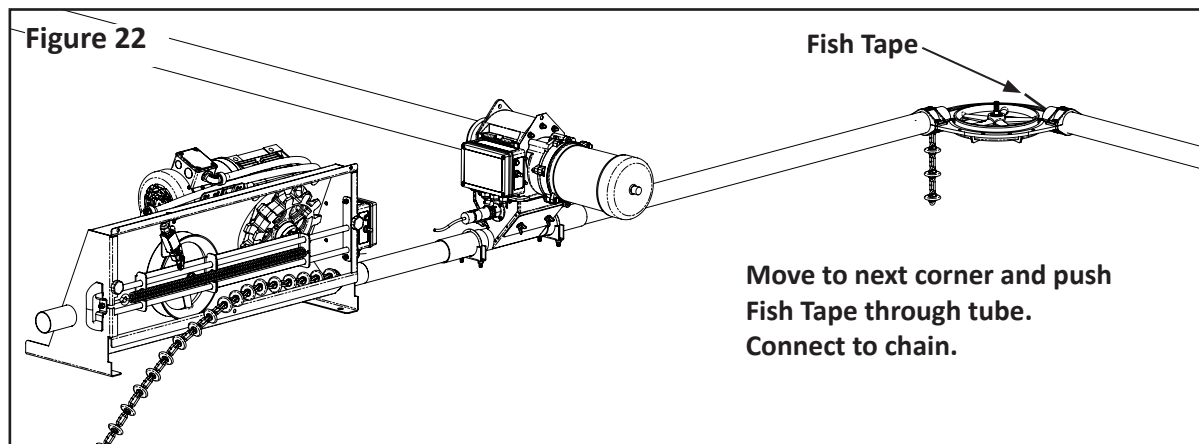


Pulling the Chain Through Tubing - continued

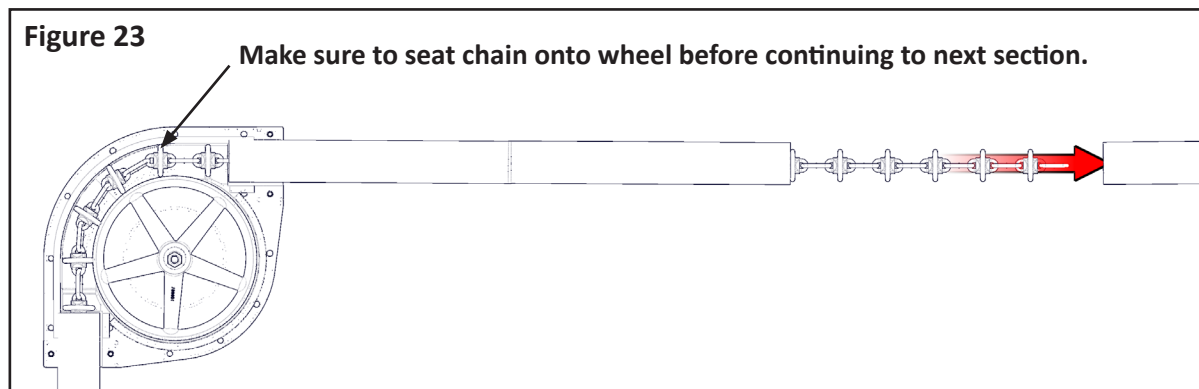
3. Pull the chain through the tubing as shown in Figure 21 until it comes out of the corner – leaving at least 5' (1.5m) outside of the drive unit, as shown in Figures 21 & 22.



4. Disconnect the fish tape and move to the next corner. Push the fish tape through the next section of tubing, until it comes out of the previous corner, as shown in Figure 22. Connect to chain.



5. Start pulling the chain through the next section of tubing – if there is a corner assembly, lay the chain inside the corner assembly before pulling the chain all the way through the tubing section, as shown in Figure 23.

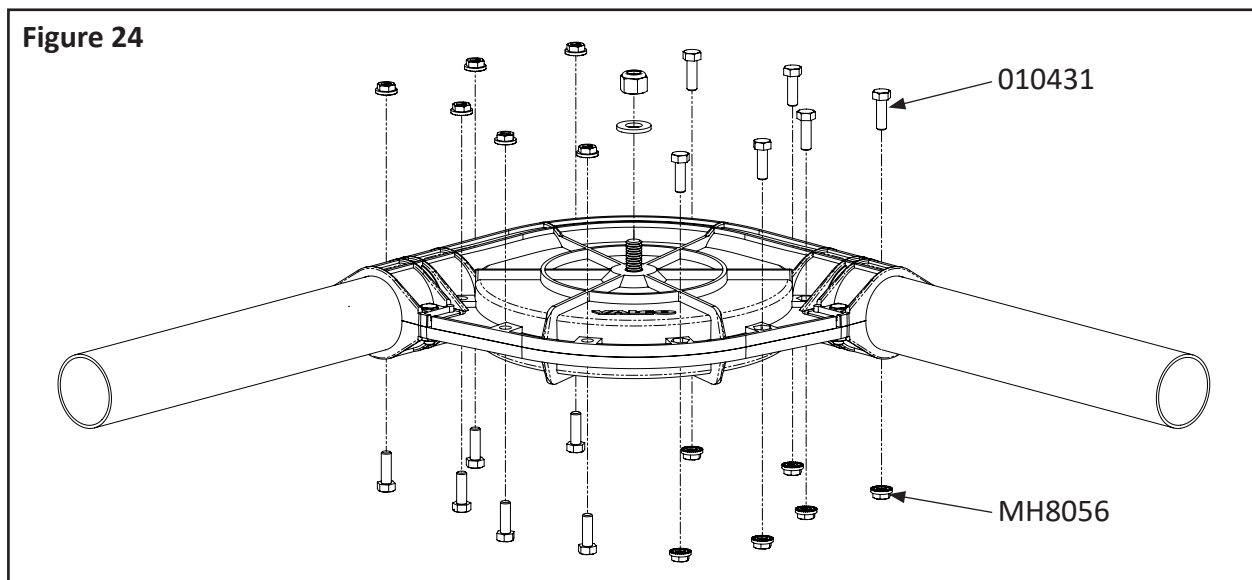


Pulling the Chain Through Tubing - continued

6. If any sections of chain need to be secured together with a connector link, make sure that all the slack is pulled out of the chain through the sections and corners.
7. Repeat this process until the chain is installed in the entire loop, arriving back at the drive. Leave about 8' extending out to wrap around drive wheel.
8. Replace all of the corners & tops and tighten all hardware as shown in Figure 24.

Corner Final Assembly

1. Remove the ½" lock nut and flat washer previously placed on the shaft.
2. Replace the corner covers with the provided 5/16 x 1-1/4" bolts and 5/16" nuts. Torque the nuts to 5ft-lbs. [6.8Nm]. DO NOT OVER-TIGHTEN.
3. Replace the ½" washer & lock nut on the shaft. Torque the lock nut to 10ft-lbs. [13.6Nm]. DO NOT OVER-TIGHTEN.



Replace the top cover of the corner assemblies before completing the final connection of the chain. Failure to do so can warp the housing of the corner assemblies.

Wrapping Chain Around Drive Wheel

1. Remove the idler spring inside the drive unit, as shown in Figure 25.
2. Slide the idler wheel over to the right so it is near the drive sprocket.
3. Wrap the end of chain coming in from the left hand side of the drive unit around the drive sprocket counter-clockwise bottom to top.
4. Wrap the end of chain coming in from the right hand side of the drive unit clock-wise around the idler wheel bottom to top, as shown in Figure 26.
5. Cut the two ends of chain so that the left limit tab is 2" from the limit switch roller wheel after the chain connection. Secure the two ends together using a connector link, as shown in Figure 26.
6. Reconnect the idler spring.
7. Put the drive unit cover on.



Wrapping Chain - continued

Figure 25

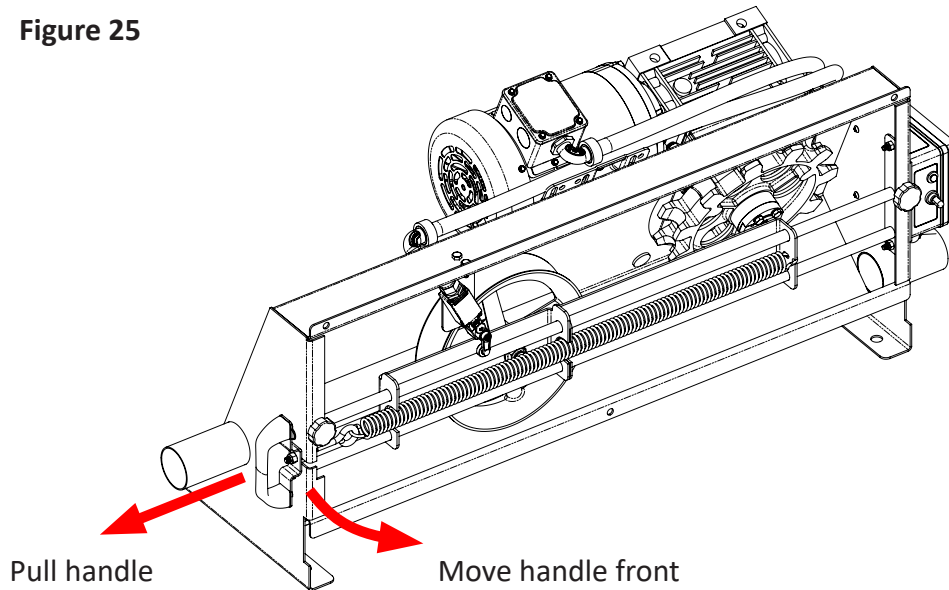
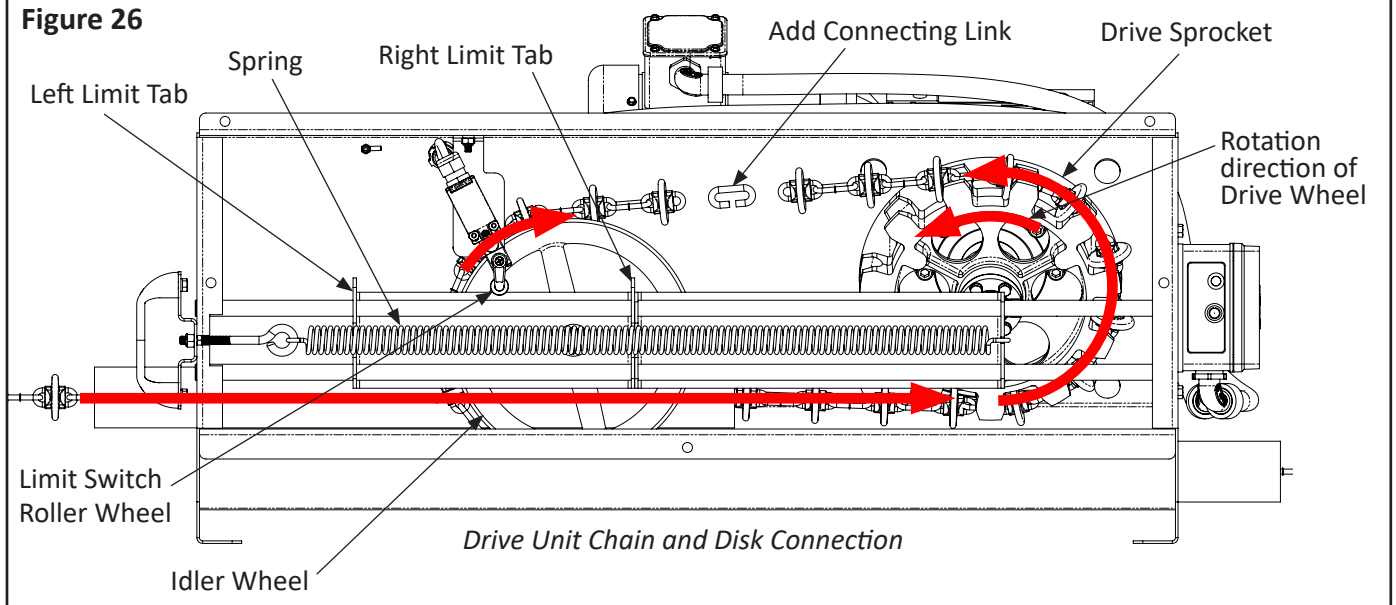


Figure 26



Note: Arrows indicate direction to wrap chain around idler wheel and drive sprocket.

Before continuing, the drive unit will need to be wired - reference wiring diagrams on pages 29-31. When the control, drive, and all supporting systems are wired, check the rotation of the drive wheel. It should rotate counter clockwise when looking at the unit from the front, as shown in Figure 26.



Limit Switch in Drive Unit

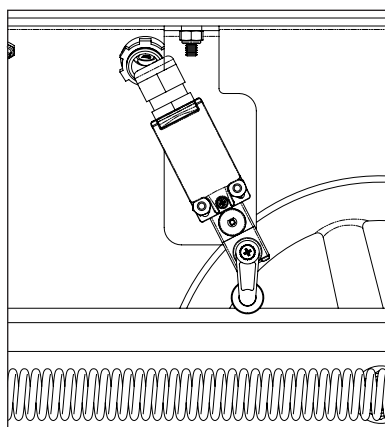
Serving as a safety switch, there is a limit switch located within the chain disk drive unit. There is a bracket connected to the idler wheel which can activate the limit switch from either direction.

The limit switch will shut down the chain disk feed system if:

- The chain is too long
- The chain is too short
- Something gets caught in the system

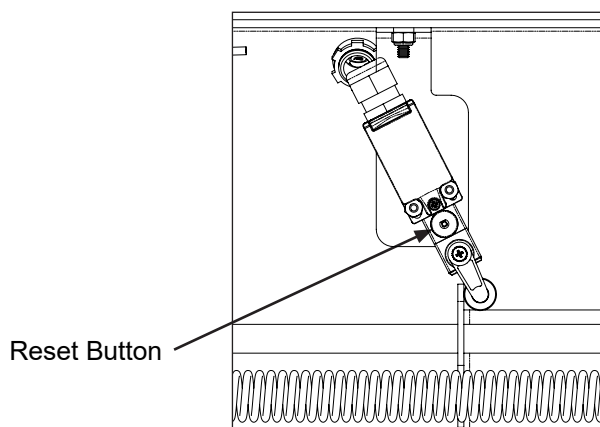
Should one of the above occur, disconnect the power and fix the problem that activated the limit switch before resetting the chain disk control unit. Then engage the reset button on the limit switch to reactivate the chain disk drive system. Afterwards, acknowledge the alarm within the chain disk control.

Figure 27



Limit Switch Normal

Figure 28



Limit Switch Active

Proximity Sensor Mounting

1. Place the proximity sensor base through the back side of the mounting bracket and secure using the provided 10-24 hardware – bolt heads should be on the inside of mounting bracket and washer and nut to the outside.
2. Use the 2-1/2" hose clamps provided to attach the proximity sensor mounting bracket to a CLEAR section of PVC tubing (*do not tighten*) – locate the proximity switch after the last drop tube and before the chain disk feed system drive unit.
3. Adjust the mounting bracket so the proximity sensor is at a 45 degree angle, as shown in Figure 29.
4. Tighten the 2-1/2" hose clamps.
5. Place the provided 1-1/2" hose clamp over the top of the proximity sensor base – (*do not tighten*).
6. Place the proximity sensor inside the proximity sensor base making sure the proximity sensor is touching the clear PVC tube, as shown in Figure 30.
7. Tighten the 1-1/2" hose clamp over the proximity sensor and proximity sensor base.
8. Wire proximity sensor into CD-500 control.

Figure 29

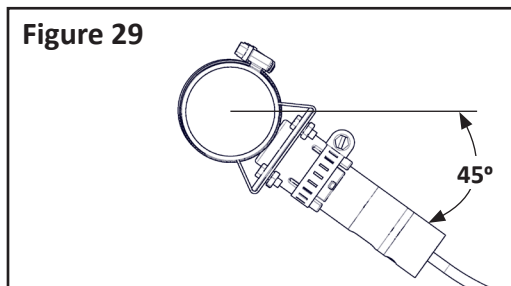
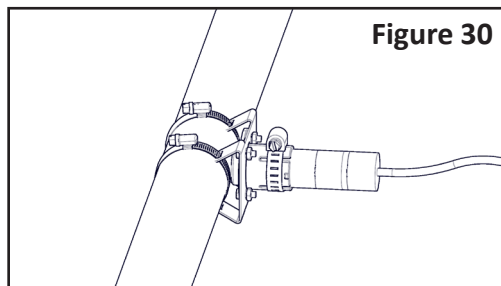


Figure 30



System Start-Up and Break-In

The chain disk system should have a break-in period before running on a regular basis. Over time, as the chain disk runs, the chain will lengthen slightly which will cause the limit switch actuator bracket to move to the left. If the bracket is allowed to move far enough to the left and hit the limit switch, it will shut down the system. When this occurs, some links of chain will need to be removed from the chain disk feed system.

1. Run the chain disk feed system for at least 15 seconds.
2. Remove all power to the chain disk feed system.
3. Remove the drive unit cover.
4. Verify the limit controller is about 2" away from the left.

If Needed (refer to images on Pages 21 & 22 for assistance):

- 4a. Remove the idler spring inside the drive unit.
 - 4b. Slide the idler wheel over to the right so it is near the drive sprocket.
 - 4c. Use a grinder & cut-off wheel to remove one or more of the chain links and disks to take excess slack out of the chain. Reconnect the chain together using a connector link. Remove twice the amount of chain as is required to move the idler wheel. For example: To move the idler wheel 4 inches, remove 8 inches of chain. Make sure there are no kinks in the chain, as shown in Figure 18.
 - 4d. Reattach the limit spring inside the drive unit.
5. Put the drive unit cover on.
 6. Turn power back on to the chain disk feed system.



Control Operation



For complete Chain Disk Controller Instructions, reference the CD-500 & CD-500-S (C805 & C806) Manuals. The controllers are not fully covered in the current Chain Disk Feed Delivery System Manual (990000).

General

If the flexible auger fill system capacity is greater than that of the chain disk feed system, the chain disk feed system can over fill. This can also happen if longer systems are allowed to re-circulate. If the chain disk feed system's motor is over loaded by over filling, it can cause the thermal reset switch on the motor to trip or premature motor failure, or both.

Current Sensor

A current sensor is installed on the PC board inside the chain disk control unit, as shown in Figure 31.

The current sensor:

1. Monitors the AMP draw of the chain disk motor
2. Controls a relay wired to the flexible auger fill system.

During the chain disk feed system fill cycle, the amperage draw will steadily increase. The current sensor will automatically turn off the flexible auger fill system – temporarily – if the amperage reaches the maximum point set up within the system, as shown in Figure 32. As the chain disk feed system continues to empty, the amperage draw will steadily decrease. The current sensor will automatically turn the flexible auger fill system on when the amperage reaches a minimum point set up within the system.

The 'ON/OFF' cycle of the flexible auger fill system should occur every few minutes, until the chain disk feed system is full. When the chain disk feed system is full, both the chain disk feed system and the flexible auger fill system should shut off.

Figure 31



Chain Disk PC Board

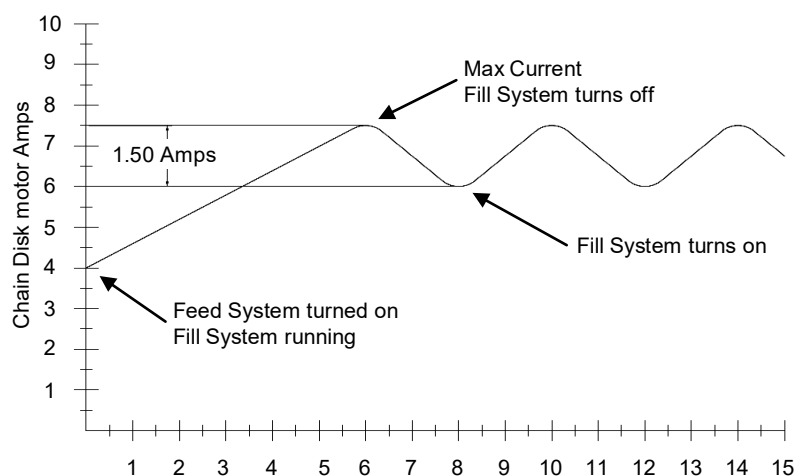


Figure 32

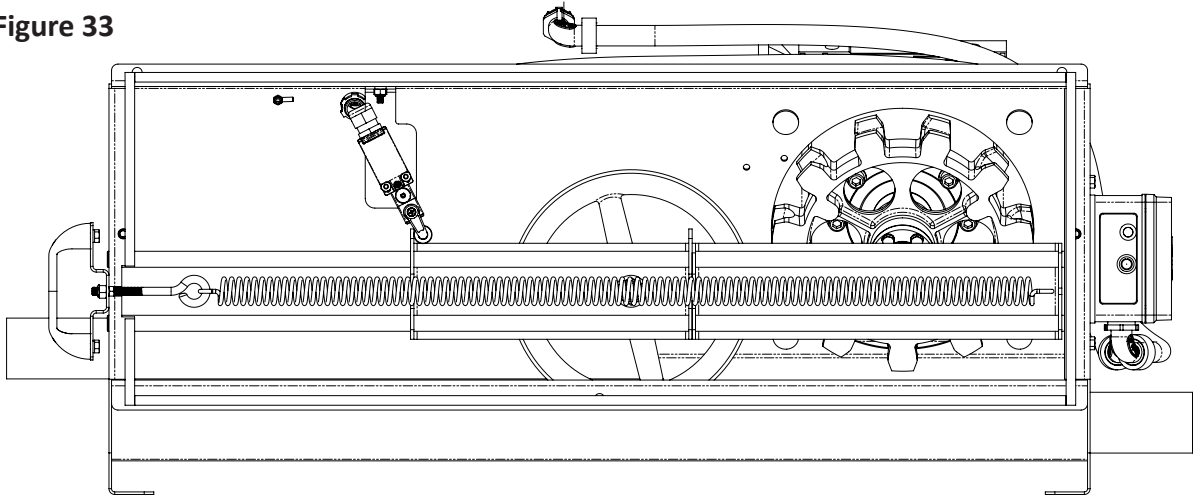
**Current Sensor Operation Illustration
Typical Feed System**

Limit Switch Testing

1. Disconnect the power and remove the drive unit cover.
2. Activate the limit switch in either direction.
3. Replace the drive unit cover and turn the power on.

The Chain Disk Feed System motor should not run. If the Chain Disk Feed System motor is running, refer to the troubleshooting guide on page 28.

Figure 33



Additional Information on the C805 Controller can be found in the CD-500 Manual supplied with the controller.

Proximity Sensor Sensitivity Adjustment

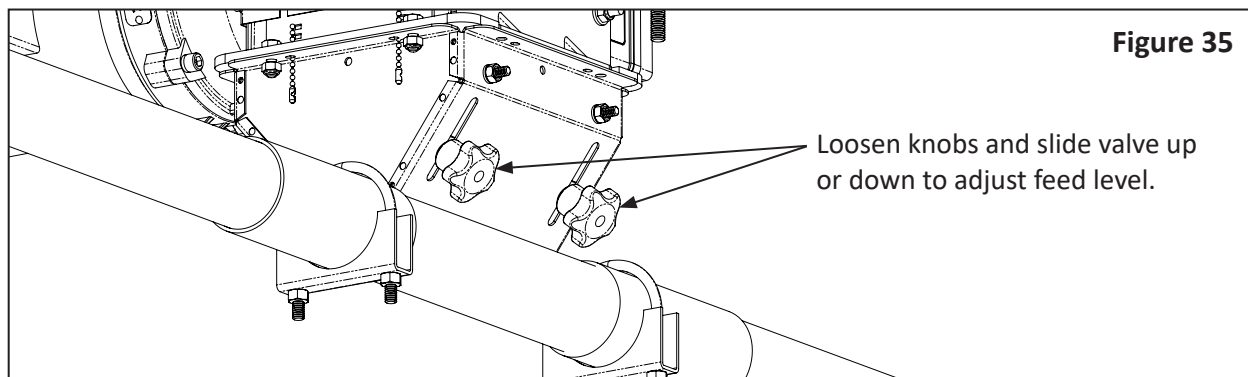
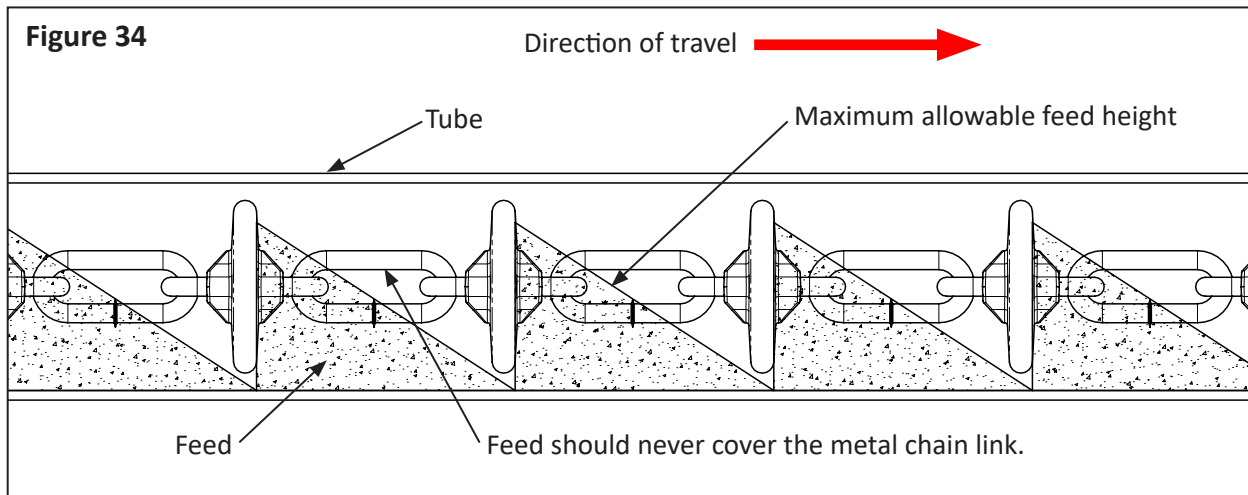
1. Turn OFF the flexible auger.
2. Turn the chain disk feed system control on to Manual Mode. (Reference Controller Manual.) This will clear any feed left inside the line.
3. After the lines are cleared, check the proximity sensor indicator light. If the indicator light is on, the proximity sensor is set too sensitive.
 - To reduce the proximity sensor sensitivity, turn the set screw near the indicator light clockwise, as shown on the sensor's label.
 - To increase the proximity sensor sensitivity, turn the set screw near the indicator light counterclockwise.
4. To verify whether the correct sensitivity has been set, place an index finger $\frac{1}{4}$ " from the top of the proximity sensor on the tubing. Turn the set screw, near the indicator light, until the indicator light blinks or turns on. Either option is acceptable. While verifying the proximity sensor sensitivity, only use an index finger. Create a fist with the rest of the hand. Do not touch the tubing with the other hand or have any item laying on the top of the tube that may interfere with the sensitivity checks.



Disconnect power and perform lockout/tagout procedure before removing any covers and/or performing any type of service and/or maintenance work.

Feed Level Height Adjustment

1. The feed flow rate into the chain disk system is controlled by the adjustment slide valve in the hopper.
2. The feed should never cover the metal chain link, shown in Figure 34.
3. Use the slide valve on the hopper to adjust the feed level, as shown in Figure 35.



Maintenance

Chain and Disk Tension

1. If the actuator bracket is too close to the limit switch follow steps on page 23 on how to remove extra chain and disk sections/links.
2. The chain and disk tension should be checked weekly or until there is no longer any need to remove sections of chain and disk.



The Chain Disk drive unit may need to be lowered slightly to allow access to the fill plug.

Idler Wheel Bushing Replacement

1. The idler wheel bushing should be replaced if it shows excessive wearing.
2. The idler wheel bushing should be checked on an annual basis.
3. Contact a dealer for replacement bushings.

Limit Switch Inspection

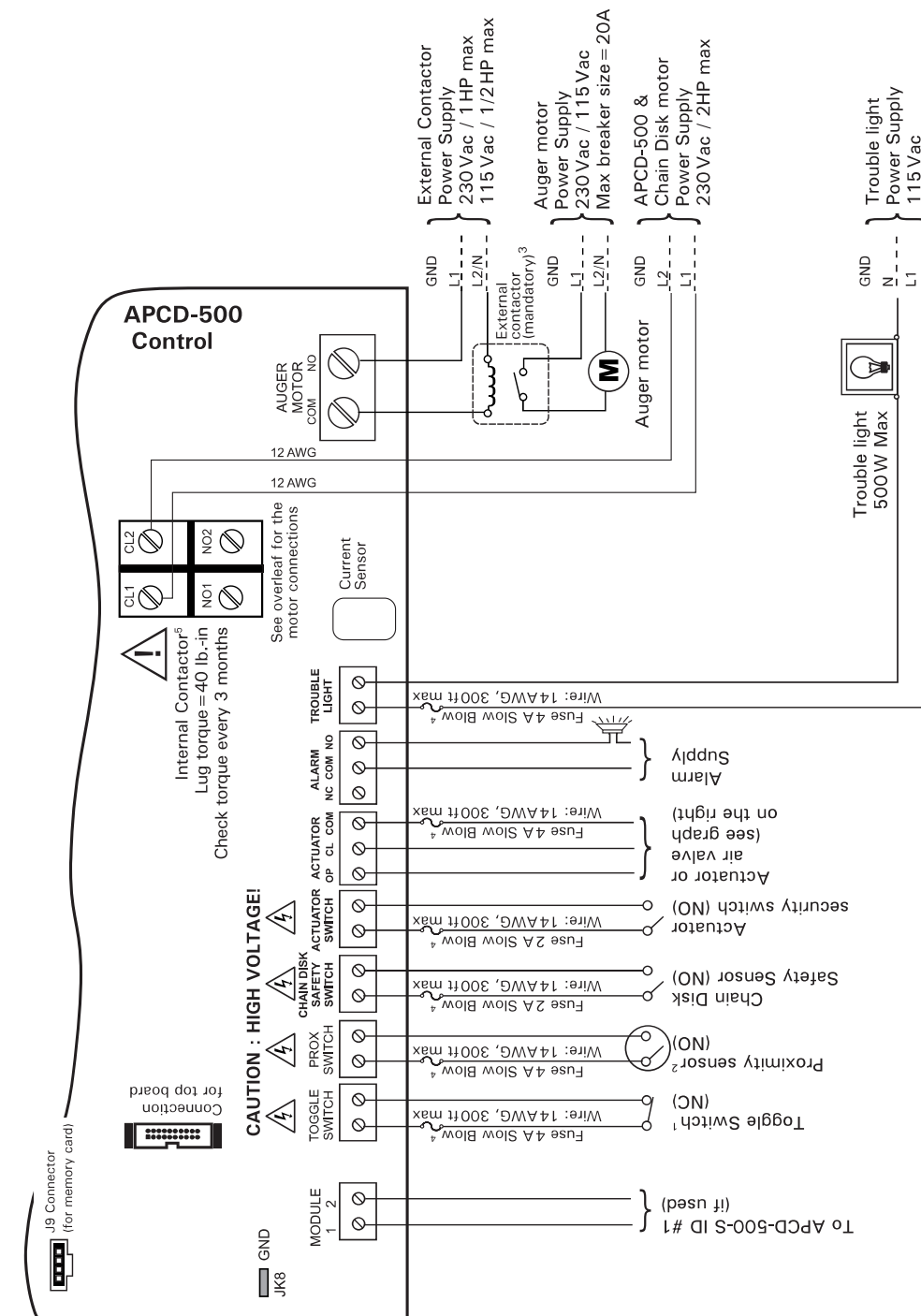
The limit switch operation should be checked on a monthly basis.

1. Disconnect the power and remove the drive unit cover.
2. Activate the limit switch in either direction.
3. Replace the drive unit cover and turn the power on.
4. Turn the Chain Disk Feed System control on to Manual Mode. Disconnect power and inspect wiring and the limit switch if the lights do not come on for the Chain Disk safety switch and/or the alarm indicator. Replace the safety switch if there is repeated light failure.
5. Change the Chain Disk Feed System control to a manual stop and resume normal operations.

Troubleshooting

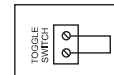
CONCERN	POSSIBLE CAUSE	CORRECTIVE ACTION
Chain disk motor not running.	No power.	Check on/off switches, fuses, wiring and circuits on all parts of equipment.
	Limit switch has been activated in the drive unit.	Refer to limit switch section.
	Motor thermal overload switch has been activated.	Refer to motor overload section.
	Shear ring or plate broken.	Replace shear ring or broken plate.
Limit switch is activated.	Chain disk has too much slack.	Take out chain and disk sections. Refer to chain install section. Engage limit switch reset button. Acknowledge the alarm within the controller.
	Chain disk is broken within the system.	Fix broken chain using the connector link. Engage limit switch reset button. Acknowledge the alarm within the controller.
	A foreign object is detected within the system.	Locate and remove any foreign objects. Engage limit switch reset button. Acknowledge the alarm within the controller.
	Chain disk feed system is over full with feed.	Check flexible fill system and the feed sensing switch. Engage limit switch reset button. Acknowledge the alarm within the controller.
Motor overloads.	Low voltage.	Check voltage at motor - verify adequate wire size has been used.
	Foreign object is detected within the chain disk.	Locate and remove any foreign objects.
	Chain disk feed system is over full with feed.	Check flexible fill system, the feed sensing switch and the current sensor setting.
	Wet feed detected within the system.	Clean system. Avoid conveying wet feed.
	Defective motor.	Replace motor.
Gearbox is overheating.	Low fluid levels.	Add gearbox lubricant.
Chain disk motor does not shut off even when feed is present.	Proximity switch sensitivity has been improperly modified.	Refer to proximity sensor sensitivity section.
Chain disk motor does not shut off when limit switch is activated.	Faulty limit switch or improper wiring.	Ensure switch is wired to NO terminals. Replace limit switch.
Chain disk motor always shuts off immediately after the proximity by-pass time.	Proximity switch adjustment is too sensitive.	Refer to proximity sensor sensitivity section.





Installation Notes:

1. **Toggle Switch:** If the toggle switch is not required, connect up both toggle switch terminals together
2. **Proximity Sensor:** Set the default proximity sensor to the minimum



- 3. External Contactors:** It is mandatory to use an external contactor for the auger motor. Use CSA certified and sealed contactors only !
- 4. Surge Protection:** Provide a surge protection from the control to the sensors (consult a certified electrician if required).

- 5. Contactor Lugs** — With a torque wrench, apply a 40 lb.-in. torque on each lug and check the torque every 3 months (Cu 75°C only).

4. Surge Protection: Provide a surge protection from the control to the sensors (consult a certified electrician if required).

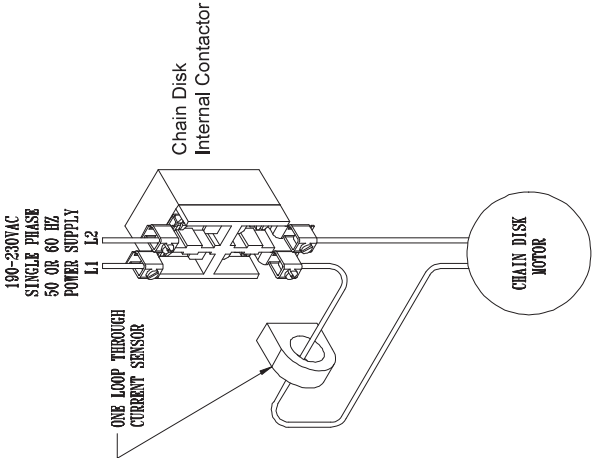
Cable Entry — Punch holes at the bottom of the enclosure to allow wires to be introduced in the controller. Do not drill the top or side panels of the enclosure.

Chain Disk Control Current Sensor Settings

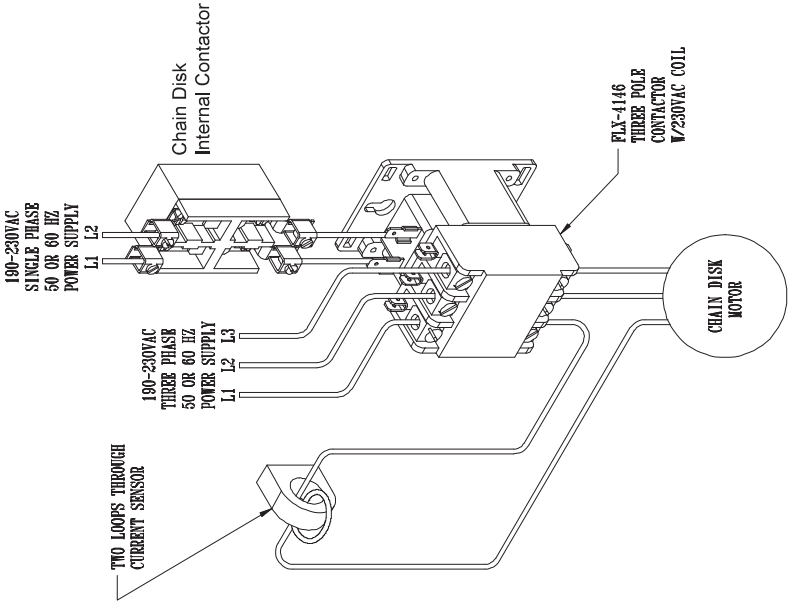
Chain Disk Motor	Voltage	Recommended Number of Loops Through Current Sensor	Recommended Window Size
Single Phase, 60 Hz	208-230	1	1.0
Single Phase, 50 Hz	190-230	1	1.0
Three Phase, 60 Hz	208-230	2	1.5
	460	3	1.0
Three Phase, 50 Hz	190	2	1.5
	230	2	1.5
	380	3	1.0

Critical Amp setting should be 2 amps over Maximum Current Sensor Setting.

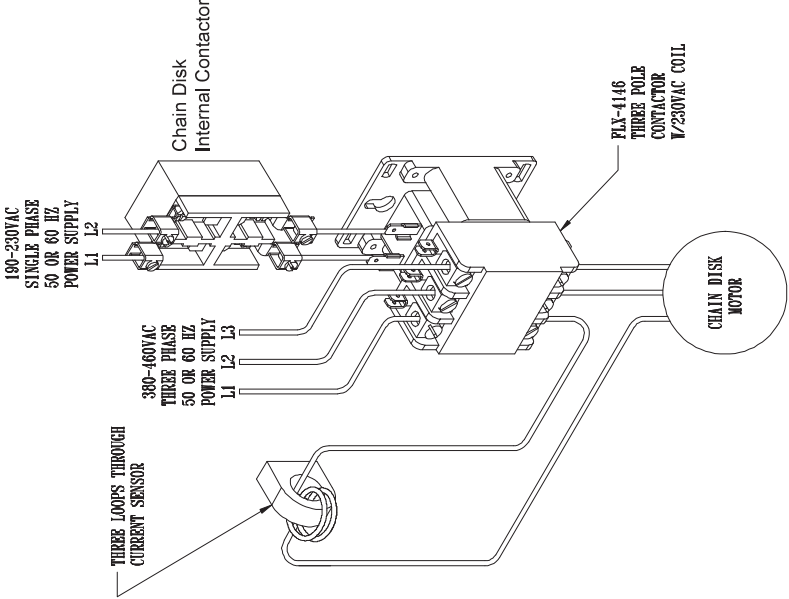
SINGLE PHASE

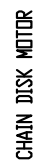


THREE PHASE LOW VOLTAGE



THREE PHASE HIGH VOLTAGE





208A-230V/460 130/380 VAC 3 PH, 2 HP MOTOR
REFER TO MOTOR WIRING DIAGRAM FOR
CLOCKWISE ROTATION, FACING SHAFT END
OR
115/208-230VAC 1 PH, 2 HP MOTOR
REFER TO MOTOR WIRING DIAGRAM FOR
CLOCKWISE ROTATION, FACING SHAFT END

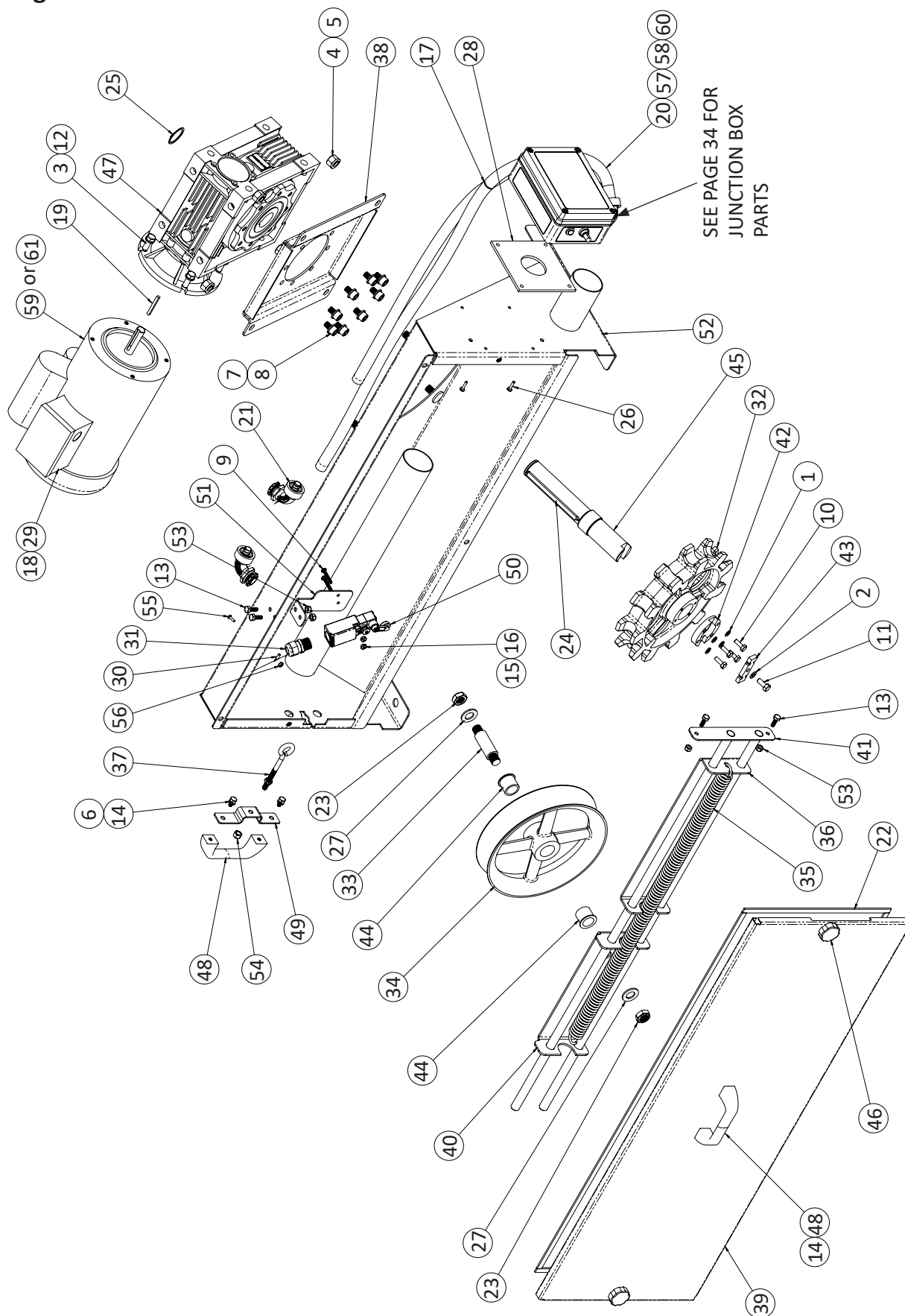
CHAIN DISK DRIVE
SAFETY SWITCH
(N.D.)

WIRE CHART							
ITEM	LABEL	WIRE TYPE	LENGTH	TERMINATION 1		TERMINATION 2	
				TYPE	PART#	TYPE	PART#
1	1	SPE-000-1039	46"	7/6"	STRIPPED	7/6"	STRIPPED
2	2	SPE-000-1039	46"	7/6"	STRIPPED	7/6"	STRIPPED
3	3	SPE-000-1039	46"	7/6"	STRIPPED	7/6"	STRIPPED
4	4	SPE-000-1039	5'	#6	RING	730513	7/6" STRIPPED
5	5	SPE-000-1039	5'	#6	RING	730513	7/6" STRIPPED
6	6	lead	6'	none		lead	
7	7	lead	6'	none		lead	
8	8	SPE-000-1082	56"	7/6"	STRIPPED	7/6"	STRIPPED
	9			7/6"	STRIPPED	7/6"	STRIPPED
10	GND_1	SPE-000-1045	56"	#10	RING	730058	7/6" STRIPPED
11	GND_2	SPE-000-1045	56"	#6	RING	730513	7/6" STRIPPED

NOTE:

1. TERMINAL BLOCK WIRE ENDS ARE STRIPPED 1/4"
2. TOGGLE SWITCH WIRE ENDS ARE RING TERMINALS
3. NUMBERS SHOWN ON WIRES ARE WIRE LABELS.
4. LABEL WIRE ON BOTH ENDS
5. NUMBERS IN BALLOONS ARE ITEM NUMBERS
6. ALL WIRE SHOWN IS FACTORY WIRING

Chain Disk Drive Unit (780160 & 780162) - Exploded View



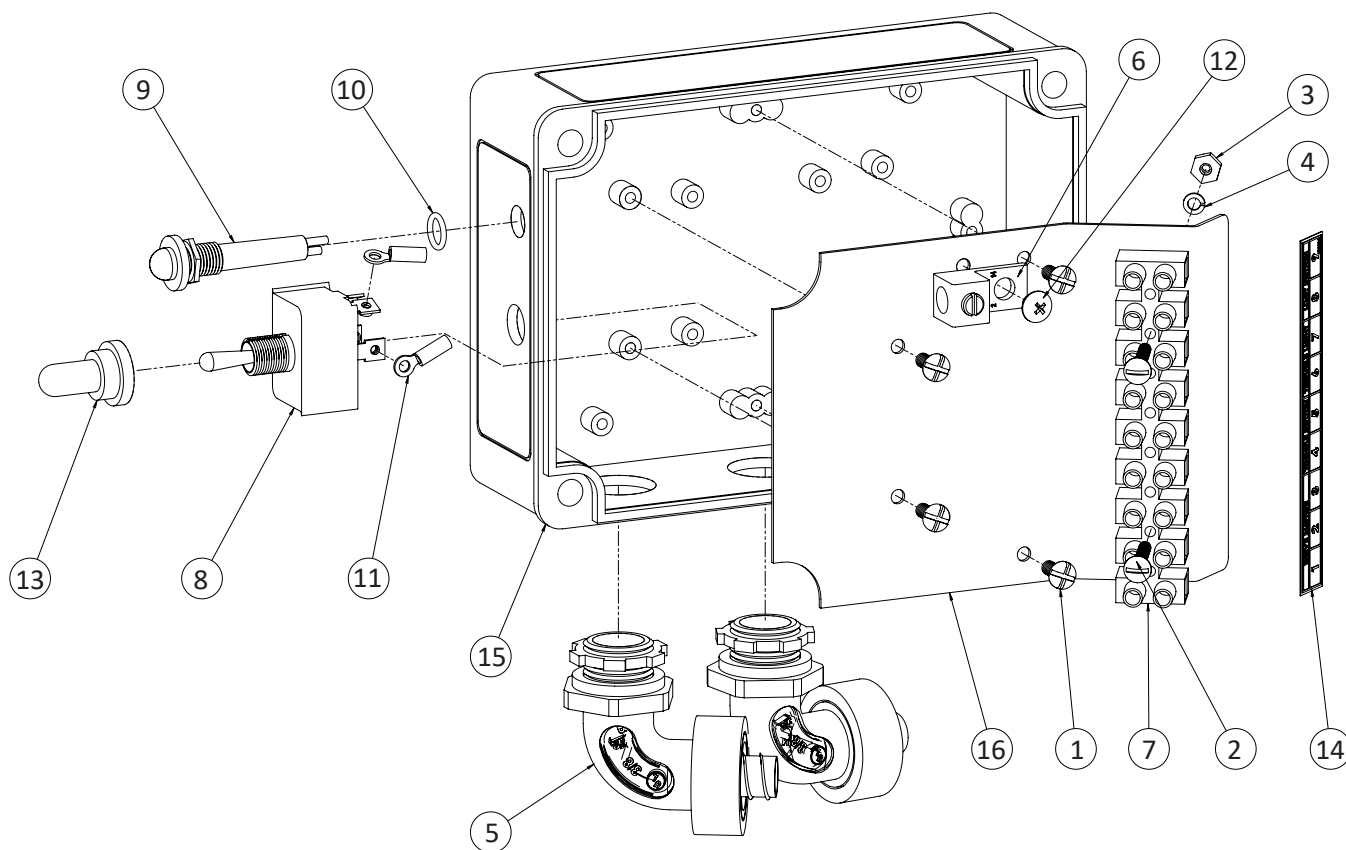


Chain Disk Drive Unit (780160 & 780162) - Parts List

ITEM #	PART #	QTY	DESCRIPTION
780160 - 1 PHASE & 780162 - 3 PHASE (common parts)			
1	010251	4	1/4" MED SPLIT LOCK WASHER
2	010252	1	5/16" MED SPLIT LOCK WASHER
3	010253	4	3/8" MED SPLIT LOCK WASHER
4	010407	4	1/2" SS LOCK WASHER
5	010408	4	1/2-13 SS NUT
6	010409	2	1/4" SS LOCK WASHER
7	010411	8	M10 X 3/4" SS SOCKET HD CAP SCREW
8	010412	8	M10 SS LOCK WASHER
9	010422	2	#10 X 1-1/4" SS PAN MACHINE BOLT
10	010617	4	1/4-20 X 3/4" LG HCS BOLT
11	010643	1	5/16-18 X 3/4" HEX BOLT
12	010664	4	3/8" X 1" HEX HEAD BOLT
13	011426	4	1/4-20 X 3/4" SS HEX CAP SCREW
14	012615	4	1/4-20 X 1/2" SS HEX BOLT
15	012686	2	#10-24 SS MACHINE SCREW NUT
16	012687	2	#10 SS MEDIUM SPLIT LOCK WASHER
17	012800	2	7.5" PLASTIC CABLE TIE
18	305418	3	YELLOW WIRE NUT
19	420012	1	3/16" X 3/16" X 1-3/4" KEY
20	425044	5.6	1/2" BLACK FLEXIBLE TUBING
21	425045	4	90 DEG 1/2" CONDUIT CONNECTOR
22	501400	9	1/8" X 3/8" WEATHERSTRIPPING
23	690308	2	5/8-11 THIN HEX NYLON NUT
24	690316	1	5/16" X 5/16" X 5" KEY
25	690317	1	EXT. RETAINING RING, 1.375" SHAFT
26	690376	4	10-24 X 3/4" SELF TAP SS SCREW
27	714352	2	5/8" ID X 1-1/4" OD SS WASHER
28	730046	1	DISCHARGE HEAD GASKET
29	730058	1	#10 BLUE RING TERMINAL, 16-14AWG
30	730513	3	#6 BLUE RING TERMINAL, 16-14AWG
31	750030	1	1/2" NPT STRAIGHT CORD GRIP
32	780004	1	MACHINED SPROCKET

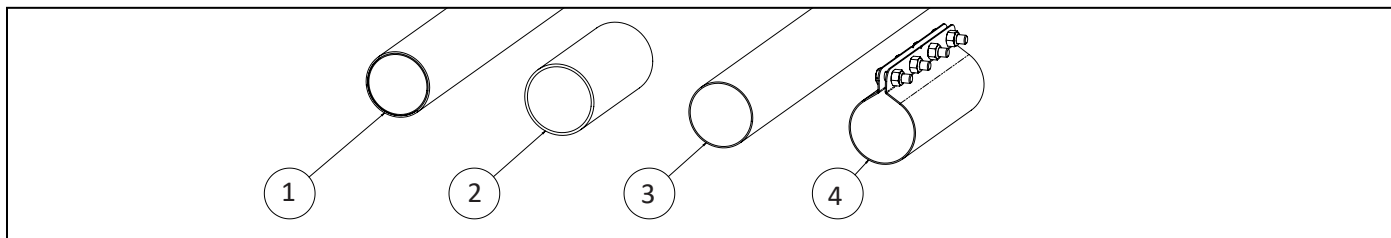
ITEM #	PART #	QTY	DESCRIPTION
780160 - 1 PHASE & 780162 - 3 PHASE (common parts)			
33	780006	1	IDLER SHAFT
34	780008	1	IDLER, 60MM CHAIN DISC
35	780017	1	18" X 1-1/8" IN SS SPRING
36	780020	1	TENSIONER BRACKET
37	780023	1	5/16" X 2" SS EYE BOLT & NUT
38	780025	1	REDUCER MOUNT BRACKET
39	780027	1	ACCESS PANEL
40	780030	1	SWITCH TRIP BRACKET
41	780033	1	RAIL WA, 60MM CHAIN DISC
42	780042	1	2.5" DIA X .438" SHEAR RING
43	780043	1	SHEAR PLATE
44	780051	2	NYLON IDLER BUSHING
45	780058	1	1.5" DIA DRIVE SHAFT
46	780069	2	ROSETTE HANDLE
47	780071	1	GEAR REDUCER, 40:1, RT ANGLE
48	780074	2	SPRING TENSIONER HANDLE
49	780075	1	SPRING TENSIONER BRACKET
50	780077	1	MANUAL RESET LIMIT SWITCH
51	780078	1	LIMIT SWITCH BRACKET
52	780165	1	DRIVE HOUSING ASSEMBLY
53	MH90043	4	1/4-20 SS HEX NYLOCK NUT
54	MH90044	1	5/16-18 SS HEX NYLOCK NUT
55	MH90935	1	6-32 X .50 SS PHILLIPS PH SCREW
56	MH90936	1	6-32 SS LOCK NUT
57	SPE-000-1045	8.5	14GA STANDARD WIRE, GREEN
58	SPE-000-1082	4.66	WIRE, 16-2 SJOW 300V PER FT
(Specific to) 780160 - 1 PHASE			
59	775064	1	1P MOTOR, 2HP
60	SPE-000-1039	12.33	14 AWG STRAND WIRE, BLACK
(Specific to) 780162 - 3 PHASE			
61	780195	1	3P MOTOR, 2HP
60	SPE-000-1039	8.5	14 AWG STRAND WIRE, BLACK

Chain Disk Drive Unit Junction Box (780160 & 780162)

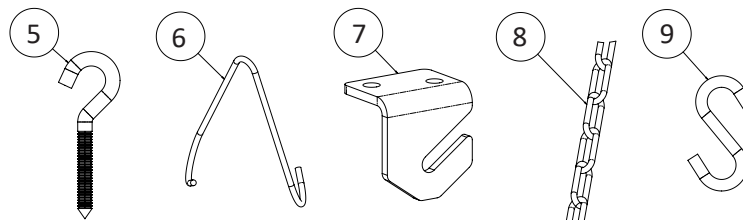


ITEM #	PART #	QTY	DESCRIPTION
780160 - 1 PHASE & 780162 - 3 PHASE (common parts)			
1	011380	4	8-32 X 3/8" THD CUT PAN PH SCREW
2	012570	2	#6-32 X 1" RD HD MACHINE SCREW, SLOTTED
3	012731	2	#6-32 MACHINE NUT
4	012732	2	#6 LOCK WASHER
5	425045	4	90 DEG 1/2" CONDUIT CONNECTOR
6	450484	1	GROUND BLOCK
7	450555	1	9 HOLE TERMINAL BLOCK
8	723424	1	TOGGLE SWITCH, DPST, 10A, 250V SCREW TERMINALS
9	730043	1	INDICATOR LIGHT, RED 250V, 1/2W PANEL MOUNT
10	730502	1	3/8" ID X 1/2" OD BUNA-N O-RING
11	730513	3	#6 BLUE RING TERMINAL, 16-14AWG
12	730516	1	10-32 X 1/4" PPH TRS SCREW
13	750657	1	TOGGLE SWITCH BOOT
14	780036	1	DECAL, JUNCTION BOX WIRES
15	780082	1	JUNCTION BOX ENCLOSURE ASSEMBLY
16	780083	1	TERMINAL STRIP MOUNT PLATE

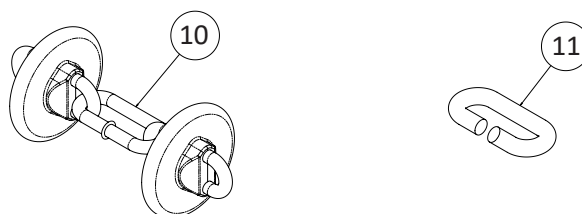
Chain, Disk, Tubes & Hangers



ITEM #	PART #	QTY	DESCRIPTION
PVC TUBES			
1	780600	EACH	WHITE PVC TUBE - 2.36" X 10' (60MM X 3M)
	780610	EACH	CLEAR PVC TUBE - 2.36" X 10' (60MM X 3M)
2	780601	EACH	PVC TUBE SPLICE
-	VG125	EACH	PVC CEMENT - QUART
STEEL TUBES			
3	775030	EACH	STEEL TUBE, 2.37" OD X 10' LONG, G90
	775129	EACH	STEEL TUBE, 2.37" OD X 20' LONG, G90
4	775130	EACH	STEEL TUBE COUPLER, GALVANIZED, PER PIECE
	775026	EACH	STEEL TUBE COUPLER, CARTON OF 15



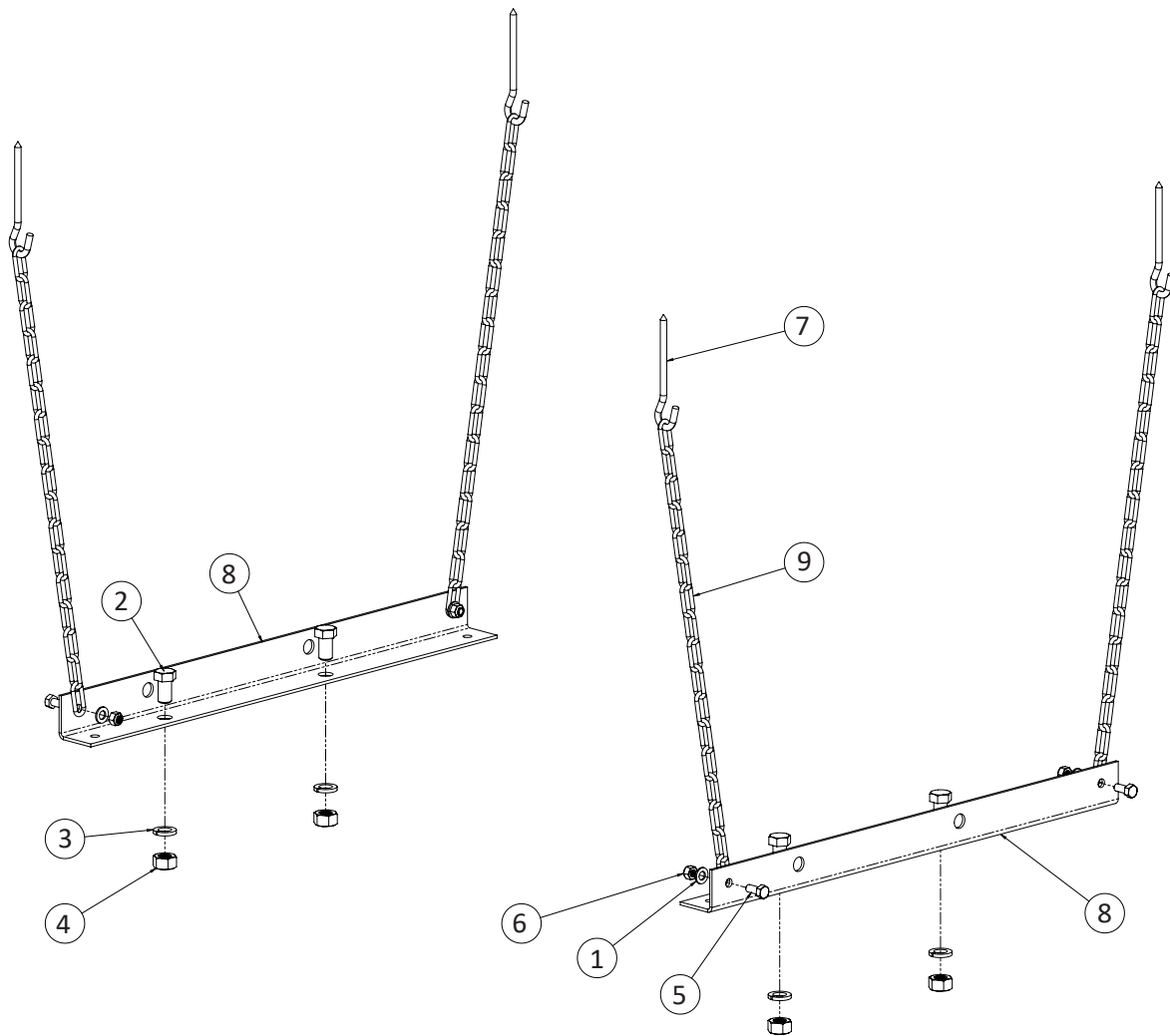
ITEM #	PART #	QTY	DESCRIPTION
TUBE HANGERS			
5	713441	EACH	5/16" X 5" SCREW HOOK
	VEN91504C	EACH	5/16" X 3-1/2" SCREW HOOK
6	720220	EACH	TUBE HANGER
7	820055	EACH	CEILING BRACKET (& HARDWARE) FOR STEEL TRUSSES
8	820099	FOOT	#2 DOUBLE LOOP HANGER CHAIN PER FT
9	VEN91507C	EACH	1/4" X 2-1/4" S HOOK



QTY	PART #	QTY	DESCRIPTION
CHAIN & DISK			
10	780068	150	BAG OF 150' - 46MM CHAIN & DISK
11	780072	1	CHAIN CONNECTOR LINK (QTY 1) - FOR 780068 CHAIN
	780073	12	CHAIN CONNECTOR LINK (QTY 12) - FOR 780068 CHAIN

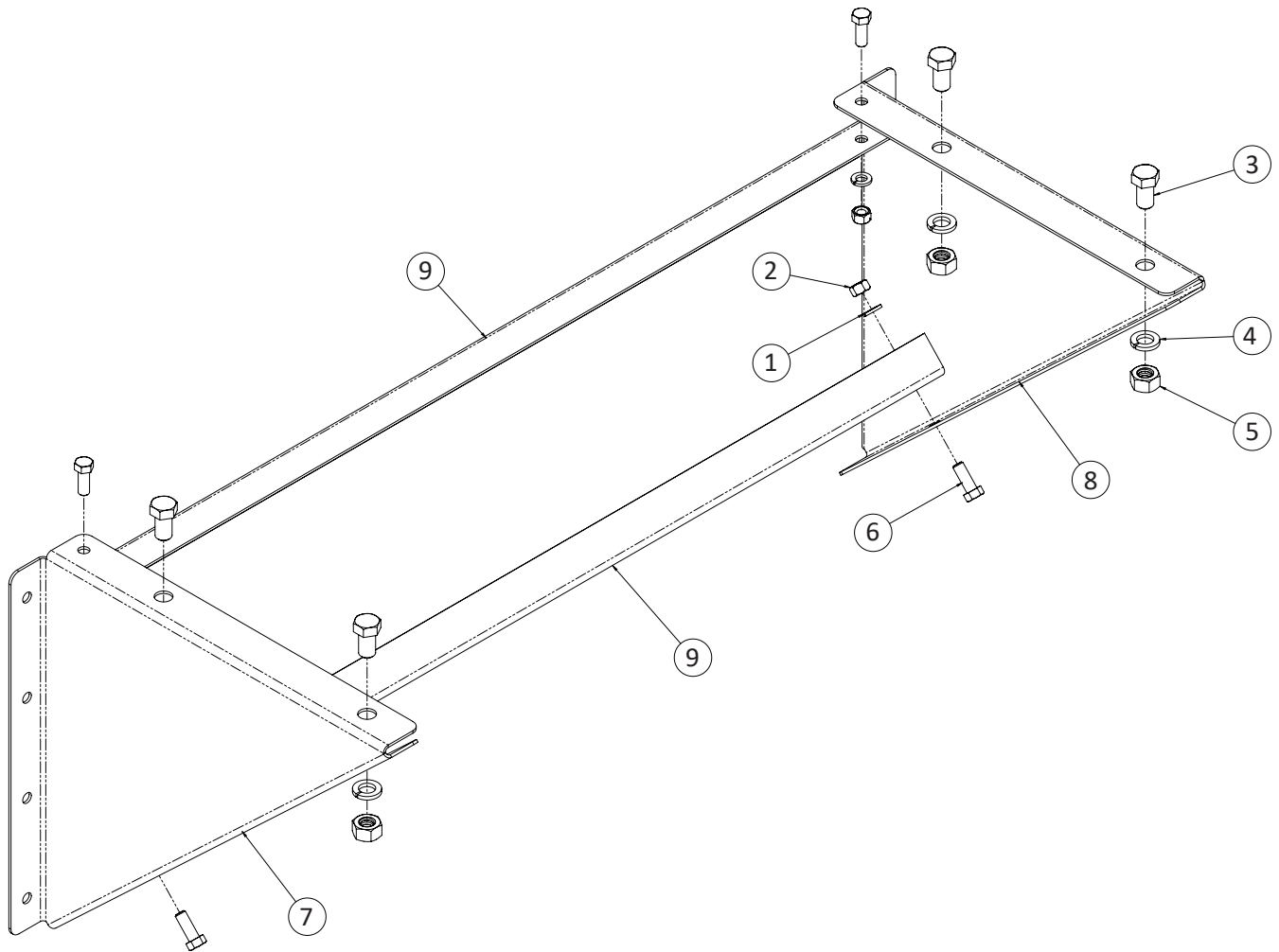


Suspension Kit (780310)



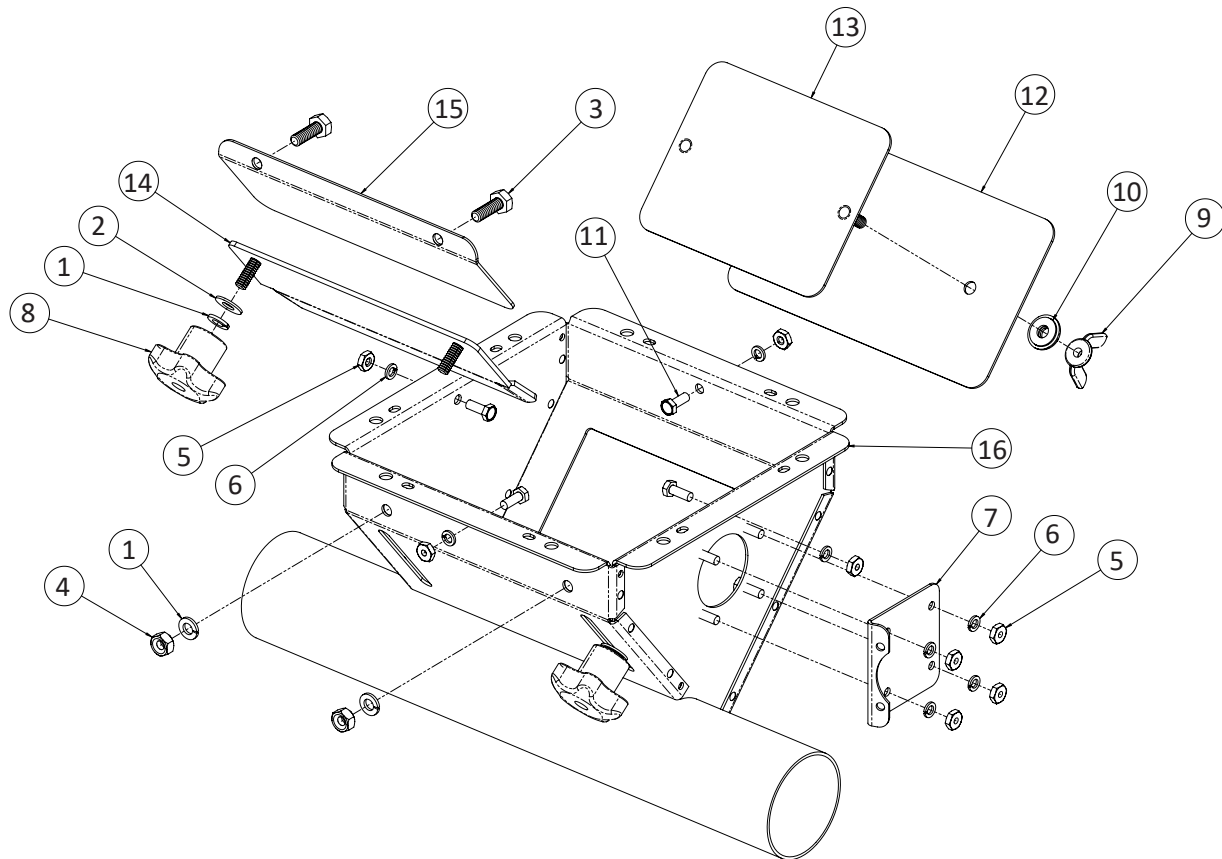
ITEM #	PART #	QTY	DESCRIPTION
780310 - SUSPENSION KIT			
1	010426	4	WASHER, FLAT 5/16" SAE ZP
2	010429	4	9/16-12 X 1" SS HEX BOLT
3	010435	4	9/16" SS LOCKWASHER
4	010436	4	9/16-12 SS NUT
5	010643	4	5/16-18 X 3/4" HEX BOLT
6	012789	4	5/16-18 NYLOCK NUT
7	713441	4	5/16" X 5" SCREW HOOK
8	780311	2	CHAIN DISK SUSPENSION RAIL
9	780318	4	CHAIN DISK SUSP, CHAIN 48"

Wall Mount Kit (780300)



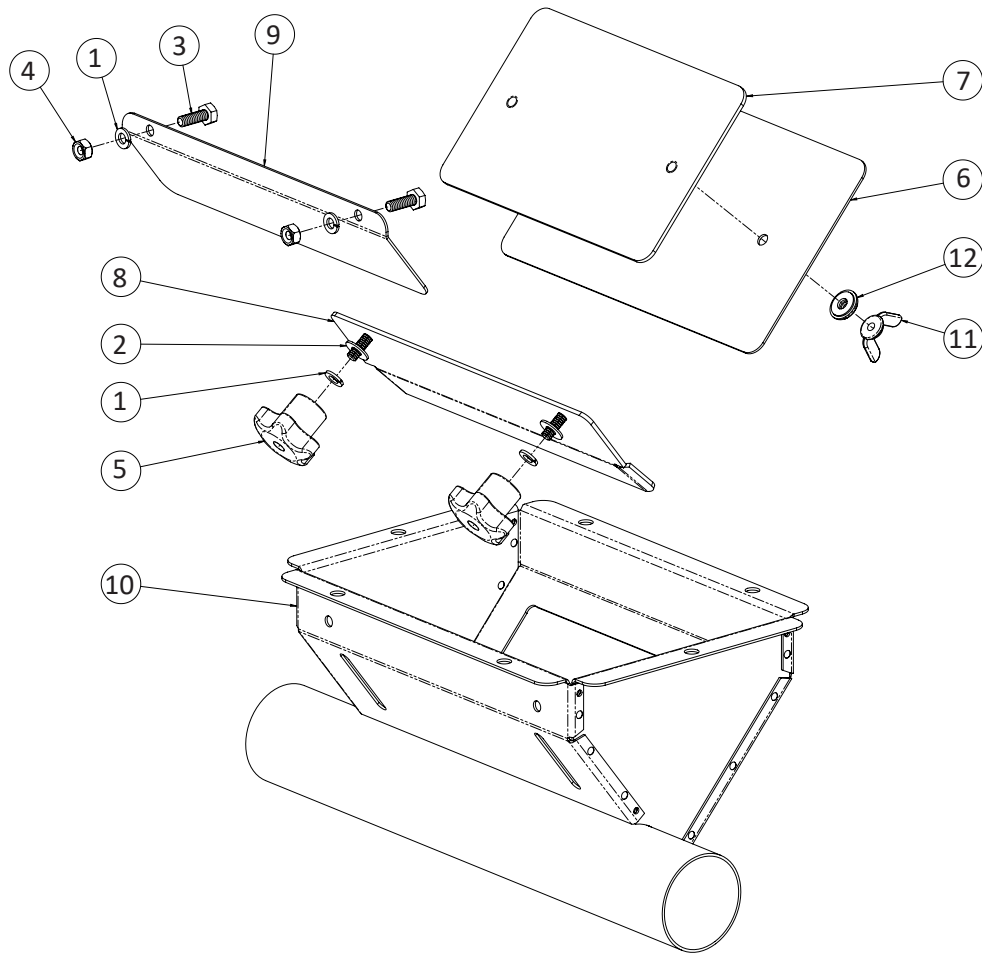
ITEM #	PART #	QTY	DESCRIPTION
780300 - WALL MOUNT KIT			
1	010257	4	3/8" SS LOCKWASHER
2	010258	4	3/8-16 SS FINISHED HEX NUT
3	010429	4	9/16-12 X 1" SS HEX BOLT
4	010435	4	9/16" SS LOCKWASHER
5	010436	4	9/16-12 SS NUT
6	010438	4	3/8-16 X 1" SS HEX BOLT
7	780301	1	LEFT WALL SUPPORT
8	780302	1	RIGHT WALL SUPPORT
9	780303	2	WALL SUPPORT ANGLE

Fill Hopper Assembly (780780)



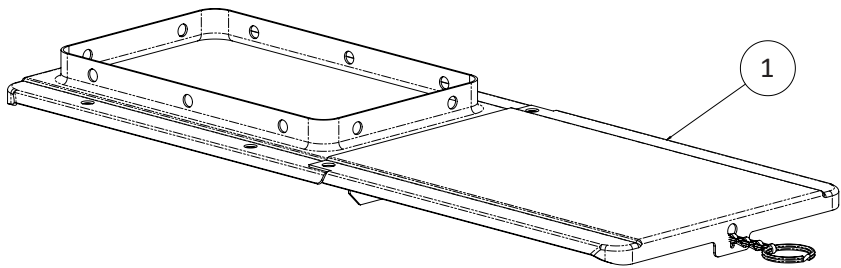
ITEM #	PART #	QTY	DESCRIPTION
780780 - FILL HOPPER ASSEMBLY			
1	010409	4	1/4" SS LOCKWASHER
2	010410	2	1/4" SS FLAT WASHER
3	011426	2	HEX CAP SCREW, 1/4"-20X3/4" SS GRADE 18-8
4	012679	2	FINISH NUT, 1/4"-20 SS GR18-8
5	012686	8	#10-24 SS MACHINE SCREW NUT
6	012687	8	#10 SS MEDIUM SPLIT LOCKWASHER
7	780045	1	PROX SHIELD
8	780064	2	PLASTIC KNOB, 1/4-20 LOCKING
9	780273	2	1/4-20 SS WING NUT
10	780274	2	1/4" BONDING SEALING WASHER
11	780275	8	#10-24 X 1/2" SS HEX BOLT
12	780782	1	ACCESS DOOR
13	780783	1	DOOR RETAINER
14	780788	1	FEED GATE
15	780789	1	GATE SHIELD
16	780790	1	60MM CD FILL HOPPER - WELDED

Fill Hopper, Bin Boot Assembly (780260)

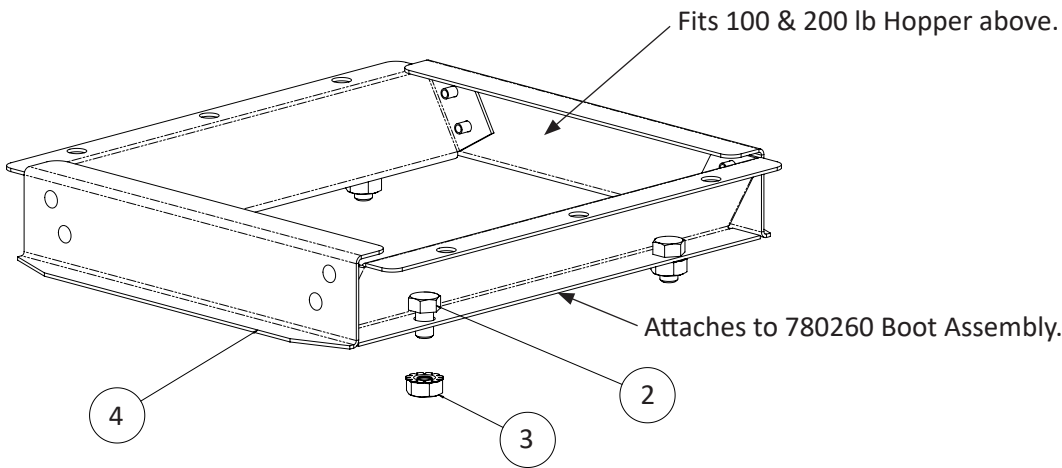


ITEM #	PART #	QTY	DESCRIPTION
780260 - FILL HOPPER, BIN BOOT ASSEMBLY			
1	010409	4	1/4" SS LOCKWASHER
2	010410	2	1/4" SS FLAT WASHER
3	011426	2	HEX CAP SCREW, 1/4"-20X3/4" SS GRADE 18-8
4	012679	2	FINISH NUT, 1/4"-20 SS GRI8-8
5	780064	2	PLASTIC KNOB, 1/4-20 LOCKING
6	780262	1	ACCESS DOOR
7	780263	1	DOOR RETAINER
8	780268	1	FEED GATE
9	780269	1	GATE SHIELD
10	780270	1	60MM CD BIN BOOT HOPPER
11	780273	2	1/4-20 SS WING NUT
12	780274	2	1/4" BONDING SEALING WASHER

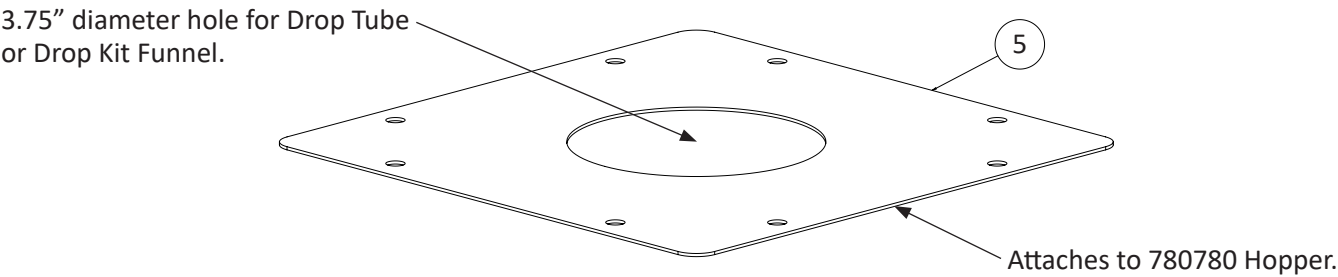
Hopper Adapters (500471, 730375 & 780795)



ITEM #	PART #	QTY	DESCRIPTION
1	500471	1	16" BIN BOOT SLIDE VALVE - SINGLE PLATE



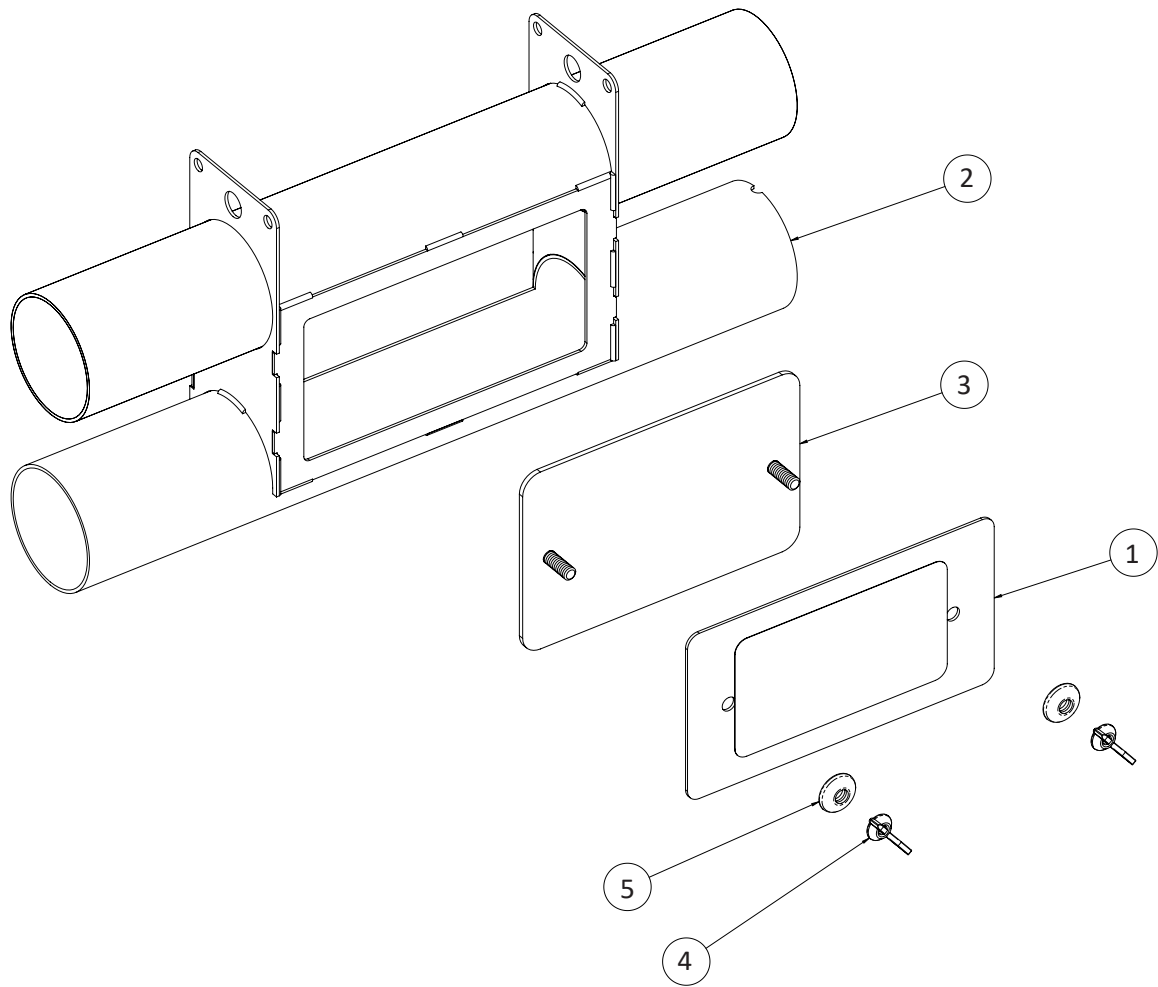
ITEM #	PART #	QTY	DESCRIPTION
730375 - FEED HOPPER ADAPTER ASSEMBLY			
2	010640	8	5/16-18 X 1/2" HEX BOLT
3	690020	8	5/16-18 KEP NUT
4	730375	1	FEED HOPPER ADAPTER ASSEMBLY



ITEM #	PART #	QTY	DESCRIPTION
5	780795	1	FILL HOPPER ADAPTER PLATE FOR ALL-OUT DROP

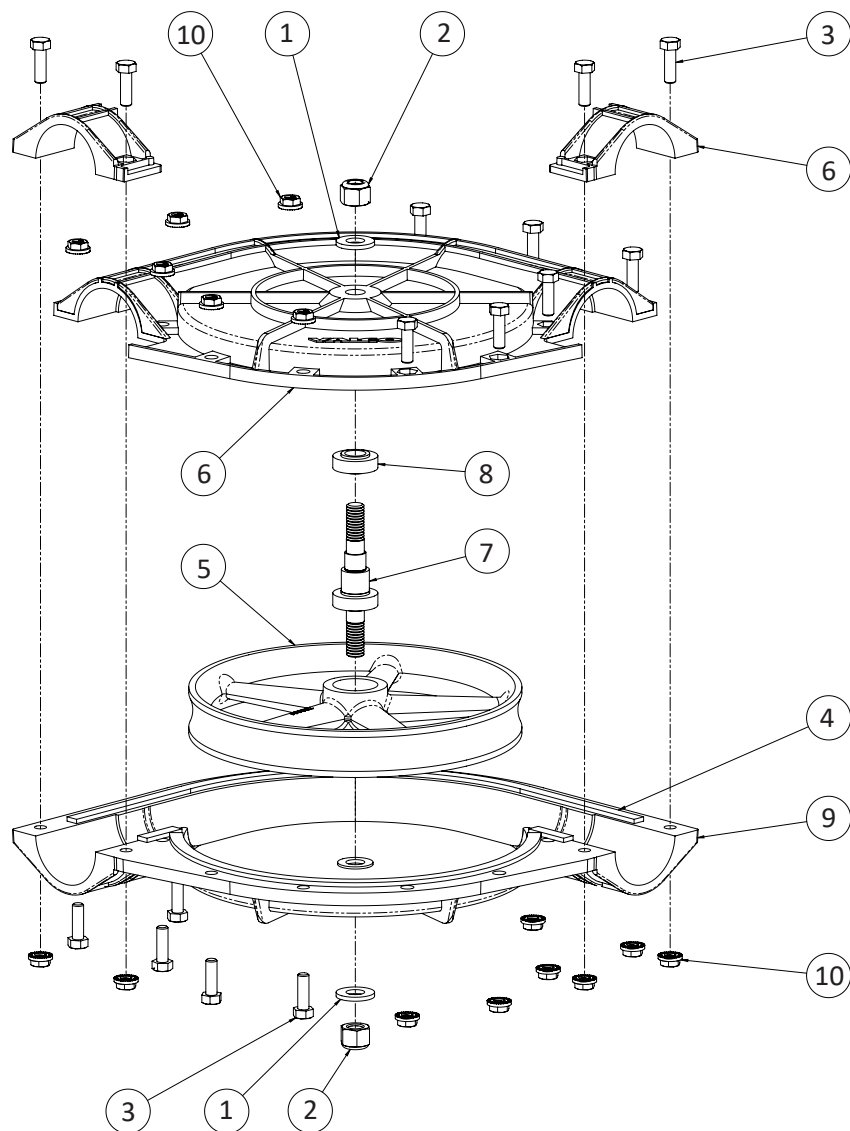


Line to Line Transfer (780170)



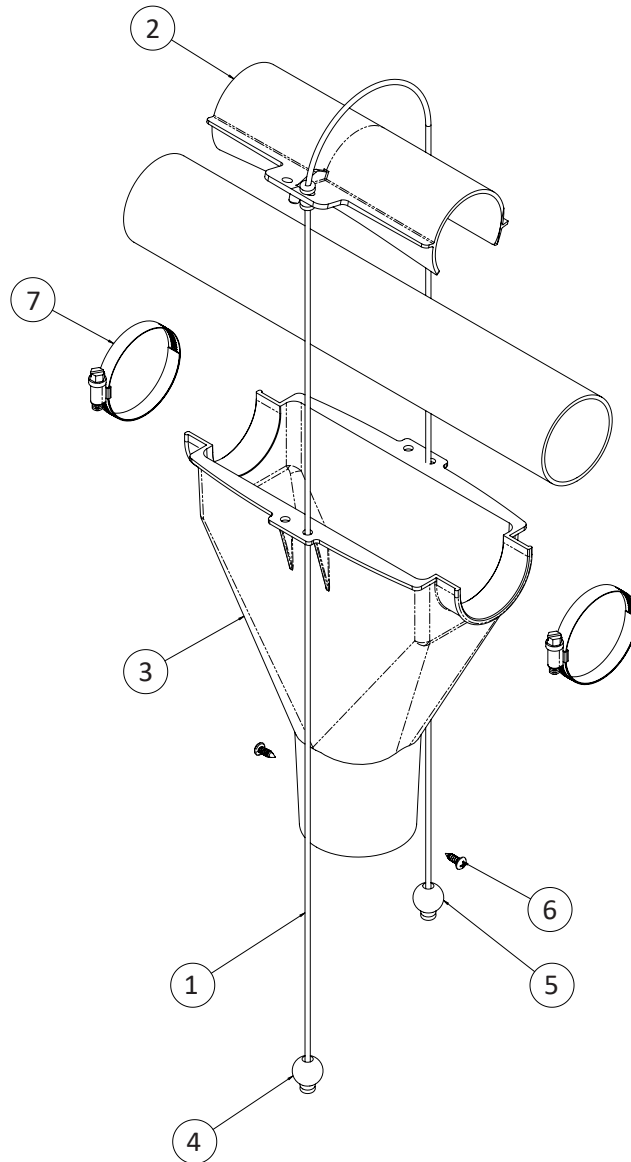
ITEM #	PART #	QTY	DESCRIPTION
780170 - LINE TO LINE TRANSFER UNIT			
1	780172	1	ACCESS DOOR
2	780176	1	TRANSFER HOUSING WELDMENT
3	780178	1	ACCESS DOOR RETAINER
4	780273	2	1/4-20 SS WING NUT
5	780274	2	1/4" BONDING SEALING WASHER

90 Degree Corner Assembly (780060)



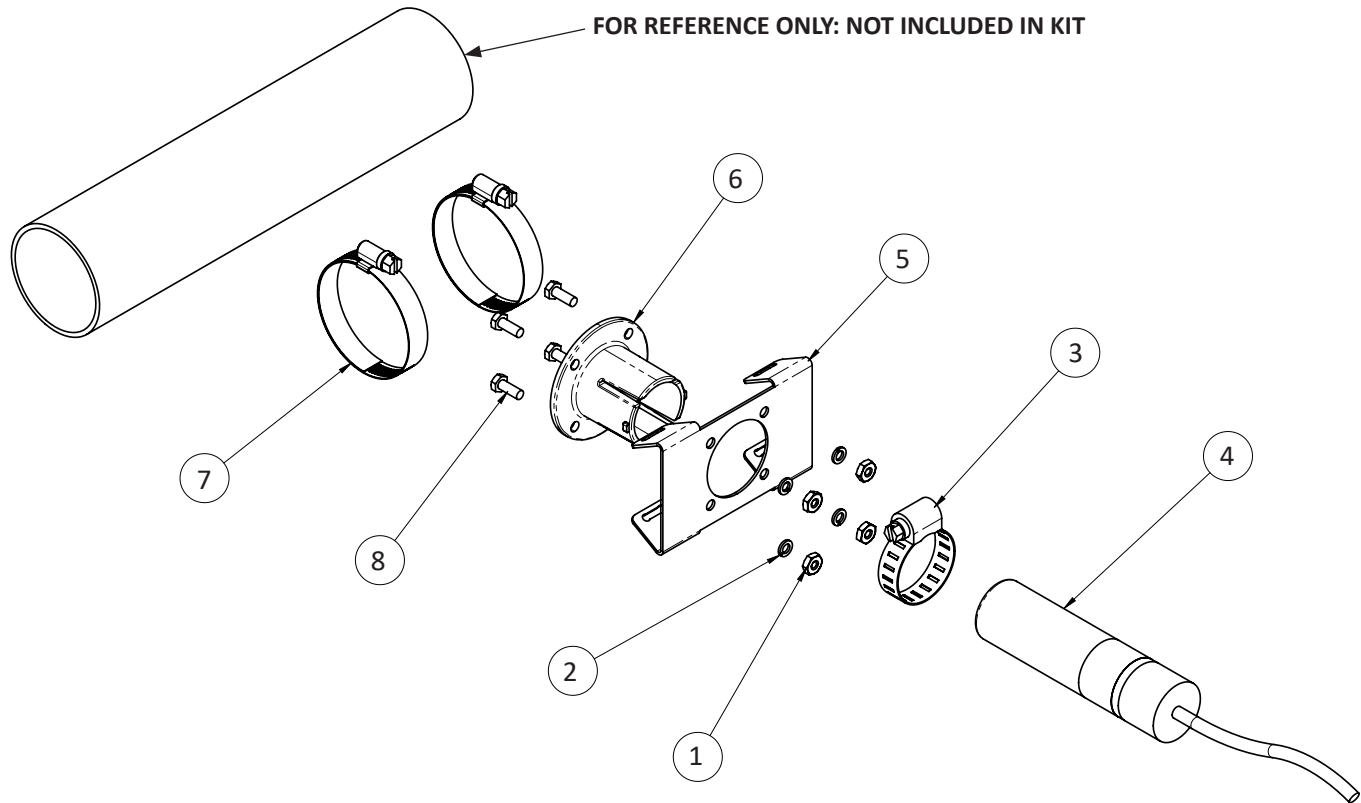
ITEM #	PART #	QTY	DESCRIPTION
780060 - 90 DEGREE CORNER ASSEMBLY			
1	010406	2	1/2" SS FLAT WASHER
2	010413	2	1/2-13 SS NYLOK NUT
3	010431	16	5/16-18 X 1" SS HEX BOLT
4	501400	3	1/8" X 3/8" WEATHERSTRIPPING
5	780001	1	CORNER WHEEL, 60MM CHAIN DISK
6	780002	1	60MM CHAIN DISK CORNER TOP
7	780003	1	CHAIN DISK CORNER POST
8	780005	2	15MM ID x 32MM OD BALL BEARING
9	780031	1	60MM CHAIN DISK CORNER BOTTOM
10	MH8056	16	5/16-18 FLANGE HEAD SS NUT

Drop Kit Assembly (720550)



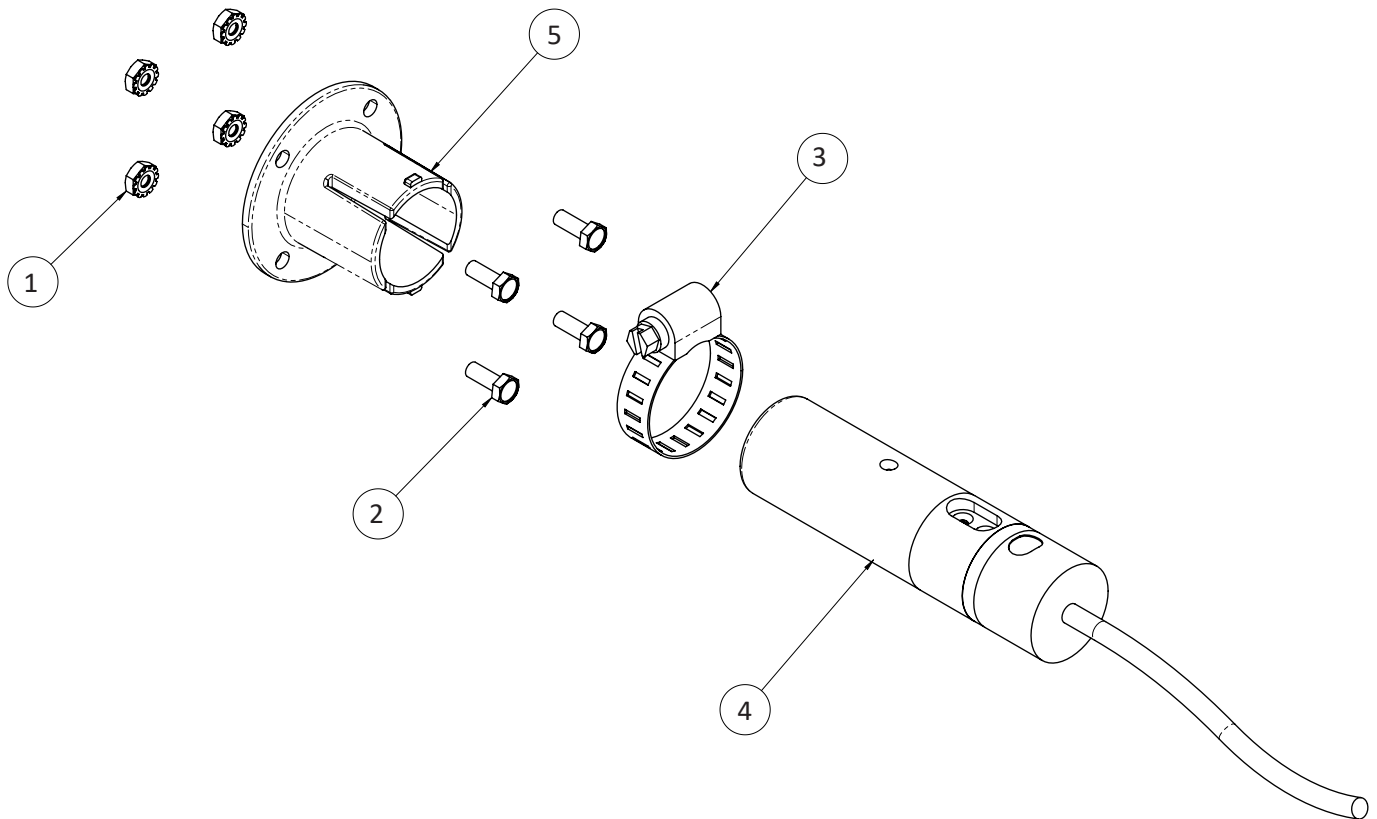
QTY	PART #	QTY	DESCRIPTION
720550 - ALL OUT DROP KIT			
1	713110	1	CORD, POLY, 1/8" DIA. X 120"
2	720551	1	2-1/4" FEED DROP SHUTOFF GATE
3	720552	1	2-1/4" FEED DROP HOUSING
4	730490	1	GREEN SHUTOFF BALL
5	730492	1	RED SHUTOFF BALL
6	730622	2	#8 X 1/2" PAN HEAD SCREW
7	775095	2	2-1/2" SS HOSE CLAMP

Tube Mounted Proximity Sensor (780350)



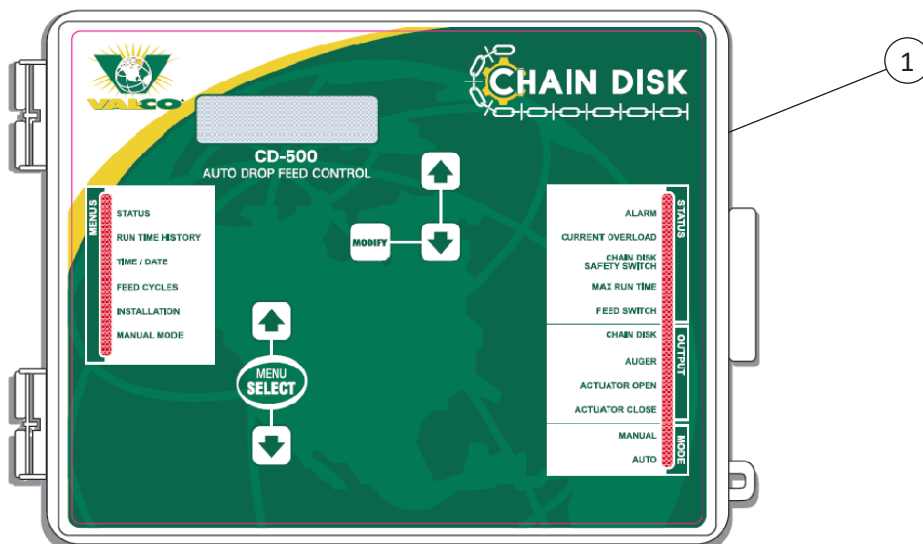
ITEM #	PART #	QTY	DESCRIPTION
780350 - TUBE MOUNTED PROXIMITY SENSOR			
1	012686	4	10-24 SS MACHINE SCREW NUT
2	012687	4	#10 SS MEDIUM SPLIT LOCKWASHER
3	730282	1	1-1/2" SS HOSE CLAMP
4	750418	1	PROX SENSOR, DOL 33R 220V 0-60MIN DELAY, 30SEC PRE-SET
5	780048	1	PROX SENSOR MTG BRACKET
6	780055	1	PROX SENSOR BASE W/HOLE
7	780122	2	SS TUBE CLAMP
8	780275	4	10-24 X 1/2" SS HEX BOLT

Face Mounted Proximity Sensor (730465)



ITEM #	PART #	QTY	DESCRIPTION
730465 - FACE MOUNTED PROXIMITY SENSOR			
1	012408	4	10-24 KEP NUT
2	012795	4	10-24 X 1/2" UNSLOTTED HEX BOLT
3	730282	1	1-1/2" SS HOSE CLAMP
4	750418	1	PROX SENSOR, DOL 33R 220V 0-60MIN DELAY, 30SEC PRE-SET
5	780055	1	SENSOR ADAPTER WITH HOLE

Chain Disk Controllers (C805 & C806)



ITEM #	PART #	QTY	DESCRIPTION
1	C805	1	CHAIN DISK CONTROL
-	C805B	EACH	REPLACEMENT BOTTOM BOARD, MAIN CONTROL
-	C805T	EACH	REPLACEMENT TOP BOARD, MAIN CONTROL (door & board)



ITEM #	PART #	QTY	DESCRIPTION
2	C806	1	CHAIN DISK AUXILIARY CONTROL
-	C806B	EACH	REPLACEMENT BOTTOM BOARD, AUXILIARY CONTROL
-	C806T	EACH	REPLACEMENT TOP BOARD, AUXILIARY CONTROL (door & board)

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800.998.2526



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