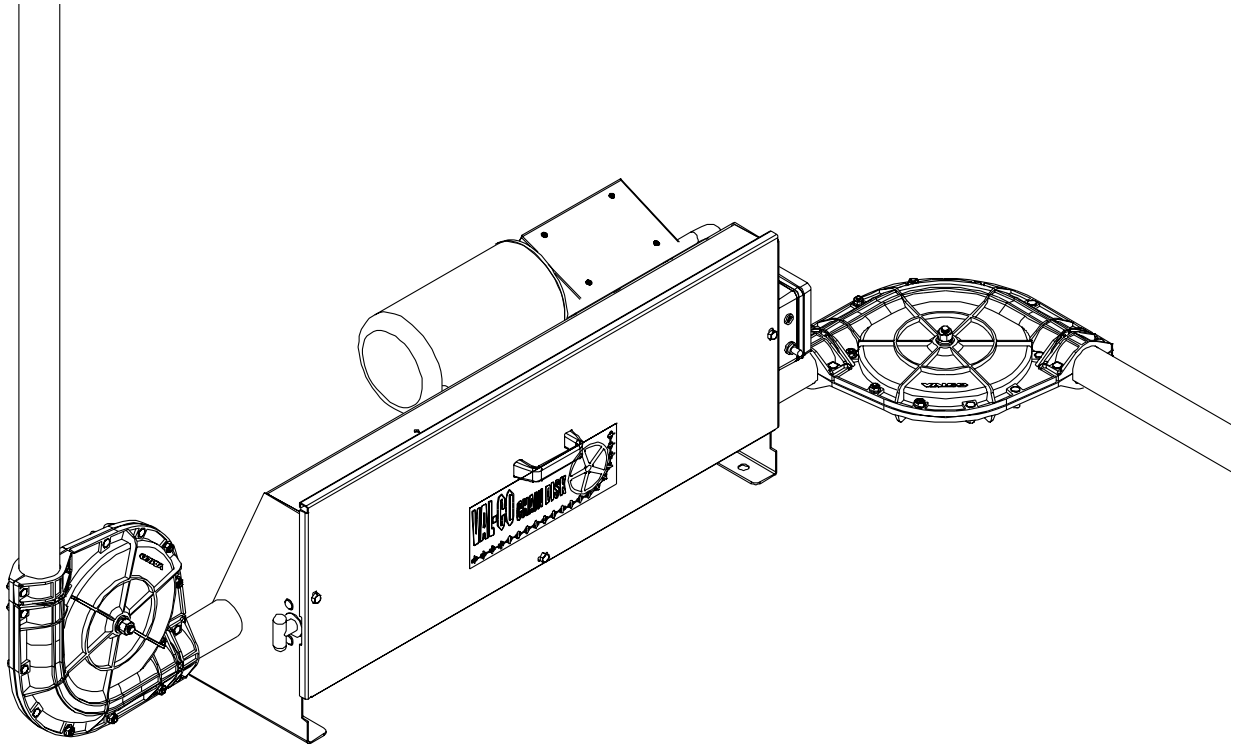
780160, 780162 CHAIN DISK

Installation & Operation Manual



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JDS Rev (1) 12/10/09

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VAL PRODUCTS, INC. WARRANTIES

VAL-C0™ MANUFACTURED PRODUCTS OTHER THAN EXTENDED WARRANTY PRODUCTS

Val Products, Inc. (Val Products) warrants to the original purchaser that Val Products' manufactured products (other than the products subject to an extended warranty set forth below) will be free of defects in material and workmanship for a period of one (1) year from and after the date of original purchase and when used in a usual and customary fashion. If Val Products is notified that such a defect exists within one year of the original purchase date and, upon inspection, agrees that the product is defective, Val Products will, at its option, (a) repair or replace (FOB Val Products' 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 Val Products designated location for evaluation. Val Products' determination as to whether the product is defective is final. See the General Conditions and Limitations set forth below.

NIPPLE DRINKERS EXTENDED WARRANTY

Val Products, Inc. (Val Products) agrees to the following extended warranty with respect to VR Series and VL Series Nipple Drinkers manufactured by Val Products: VR Series and VL Series Nipple Drinkers that prove to be defective in workmanship or material and become unusable within a period of five (5) years from and after the date of original purchase will be repaired or replaced, at Val Products' option, at no charge (excluding labor of removal and installation), FOB Val Products' plant. VR Series and VL Series Nipple Drinkers which prove to be defective in workmanship or material and become unusable after five (5) years but within ten (10) years of the date of original purchase will be repaired or replaced, at Val Products' option, at a pro rated cost basis (excluding labor of removal and installation) to the original purchaser, FOB Val Products' plant, on the following basis: Year six (6), customer pays 50% of the current price, year seven (7), customer pays 60% of the current price, year eight (8), customer pays 70% of the current price, year nine (9), customer pays 80% of the current price, and year ten (10), customer pays 90% of the current price. All defective Nipple Drinkers must be returned to a Val Products' designated location for evaluation. Val Products' determination as to whether the product is defective and unusable is final. See the General Conditions and Limitations set forth below.

FIBERGLASS FAN HOUSINGS EXTENDED WARRANTY

Val Products, Inc. (Val Products) agrees to the following extended warranty with respect to the fiberglass fan housings manufactured by Val Products on VAL-CO™ PMC Power Miser 12", 16", 21", 24", 36", 48", and 50" Fiberglass Fans that prove to be defective in workmanship or material and become unusable over the life of the structure where the VAL-CO ™ Fiberglass Fan was originally installed after original purchase, provided that the fan has remained undisturbed in its original installation location, will be repaired or replaced, at Val Products' option, at no charge (excluding labor of removal and installation and shipping), FOB Val Products' plant. All defective fan housings must be returned to a Val Products' designated location for evaluation. Val Products' determination as to whether the product is defective and unusable is final. See the General Conditions and Limitations set forth below.

FIBERGLASS FAN MOTORS EXTENDED WARRANTY

Val Products, Inc. (Val Products) agrees to the following extended warranty with respect to the fiberglass fan motors included as original equipment on VAL-CO™ PMC Power Miser 12", 16", 21", and 24" Fiberglass Fans manufactured by Val Products that prove to be defective in workmanship or material and become unusable within a period of two (2) years from and after the date of original purchase will be repaired or replaced, at Val Products' option, at no charge (excluding labor of removal and installation and shipping), FOB Val Products' plant. All defective fan motors must be returned to a Val Products' designated location for evaluation. Val Products' determination as to whether the product is defective and unusable is final. See the General Conditions and Limitations set forth below.

General Conditions and Limitations Applicable to All Val Products, Inc. (Val Products) Warranties, Including Extended Warranties

1. The Product must be installed and operated in accordance with instructions published by Val Products 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 Val Products 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. Warranty applies only to products used in applications as originally intended by Val Products – other applications in industry or commerce are not covered by the Warranty. Val Products' 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.

5. Malfunctions resulting from misuse, abuse, mismanagement, negligence, alteration, accident, lack of proper maintenance, lightening 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.

6. VAL PRODUCTS 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.

7. THE WARRANTIES SET FORTH ABOVE CONSTITUTE VAL PRODUCTS' ENTIRE AND SOLE WARRANTY. VAL PRODUCTS 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.

8. Val Products 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 Val Products. Val Products reserves the right to change or delete models, or change specifications at any time without notice or obligation to improve previous products.

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1 SAFETY INFORMATION

1.1 General

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



"Safety is Val-Co's primary concern"

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 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.
- Keep extremities and loose clothing from rotating parts.
- Never service, lubricate or adjust 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

1.2 Warnings



To avoid serious injury or death, DO NOT attempt alterations to the design of the chain disk equipment.

- **DO NOT** remove any safety guards during operation.
- Adhere to all warning labels on the chain disk equipment.



All electrical wiring must be done by a qualified electrician in accordance with all local and national codes.

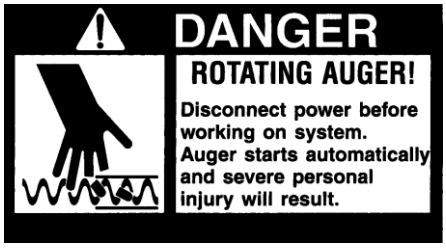
1.3 Symbols

Symbols are used to identify hazards, warnings, or alert the operator to important information. **"Danger"** (SAFETY) symbols are depicted in the 3 examples below and are displayed at appropriate locations on the chain disk equipment.



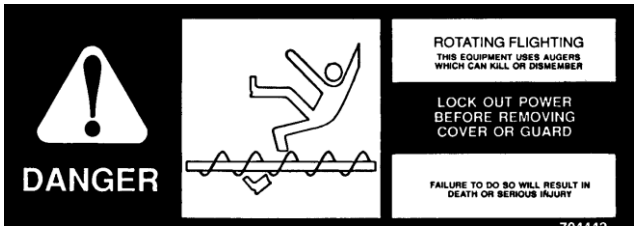
DANGER – ELECTRICAL HAZARD

- Disconnect power before inspection or servicing
- Ground all electrical equipment
- Ground all non-current carrying metal parts
- Perform the necessary Lockout / Tag-out procedures when servicing.



DANGER – MOVING AUGER PARTS

- Remove and lock out power
- Keep hands clear as moving chain disks can cut or crush
- Do not operate with covers/guards removed.
- Perform the necessary Lockout / Tag-out procedures when servicing.



DANGER – ROTATING FLIGHTING

- Remove and lock out power
- Keep hands and all loose fitting clothing clear as moving auger can dismember or cause death
- Perform the necessary Lockout / Tag-out procedures when servicing.



PLEASE NOTE !



IMPORTANT !



WARNING !

1.4 Attire

It is recommended that you follow the instructions below. Protective clothing and equipment while working on or around the Chain Disk Feed System could save you from serious harm.



No loose clothing, shoe strings, necklaces, bracelets or long hair. Loose items could get pulled into any moving parts or the auger system



Wear Safety glasses to protect eyes from flying debris



Wear Gloves (leather or Kevlar would work best): to protect against sharp edges



Wear Hard hat to protect against falling items



Wear Steel toe boots to protect against falling items



Use a respirator if barns have poor ventilation

2 INTRODUCTION

2.1 About this Manual

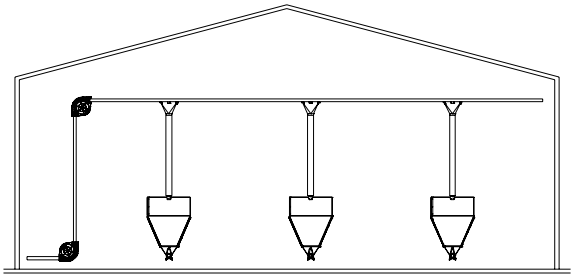
This manual is meant as a guide for the installation and operation of the chain disk feed system. Actual installations may vary due to local conditions and/or codes.

Only a certified technician should carry out electrical portions of the installation.

2.2 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.

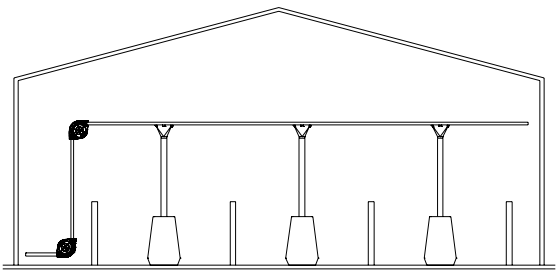
2.3 Applications



Poultry Application

-Place switches in multiple hoppers to prevent any one hopper from going empty before the control unit hopper requires feed

-Wire all switches in parallel so one switch can start the system if the hoppers are emptying before the control unit hopper needs feed



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

2.4 Emergencies:

Have the following readily available near the Chain Disk Feed System:

- First Aid Kit
- Fire extinguisher
- Emergency numbers
  *Doctor/Hospital
  *Ambulance
  *Fire Department **Or Call 911**

3 GETTING STARTED - TUBING AND DROP KIT

3.1 Tubing Options

See page 71 for **15*. Specifications***

3.2 Tubing Layout

One of the most important steps of installing the chain disk feed system is:
Laying out the tubing.

1. Val-Co suggests using a combination of white and clear PVC. Use clear PVC around proximity switches, and anywhere else that it would be helpful to view the chain or feed level.
   - Install a section of clear PVC tube to feed outlet side of the fill hopper for viewing feed levels.
   - Lay out all tubing in the approximate location in which they will be installed either on the floor or on top of the penning.
2. 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.
   - Establish where all outlet drops will need to be located.
3. Drop kit or drop feeders cannot be installed over tubing splices. (Place splices outside of the bell of the drop coupler.)

3.3 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.

For extremely long systems, glue only one side of the coupler and leave a 1/8" (3mm) gap between tubing ends to allow for tubing expansion.

Gluing/Cementing directions: *Keep PVC cement container closed when not in use*.

1. Square tube ends and remove all burrs and debris.
2. Verify that all connections are smooth.
3. Take note of the PVC solvents label; if the temperature is below 40°F (4.4°C) or above 85°F (29.4°C).
4. Apply PVC cement to tube and coupler and assemble quickly. (if cement is not fluid you will need to recoat parts).
5. 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)

3.4 Cutting Outlet Holes

With the PVC tubing still laid out, mark the top of the tubing where each drop kit will be located. Marking the holes in advance ensures proper alignment. After all the tubes are marked, cut the holes for the outlet drops. There are two types of outlet holes; 1.The Carry Over (Figure 6A); which consists of two (2) 1.5" (38 mm) diameter holes approximately 3.0" (76mm) apart (use a hole saw to make holes). 2. Total dropout (Figure 6B); consists of a 6.5" (165mm) long by .625" (16mm) deep cut (use a saber saw or hacksaw to cut opening). Be sure to de-burr for proper performance of the drop kit.

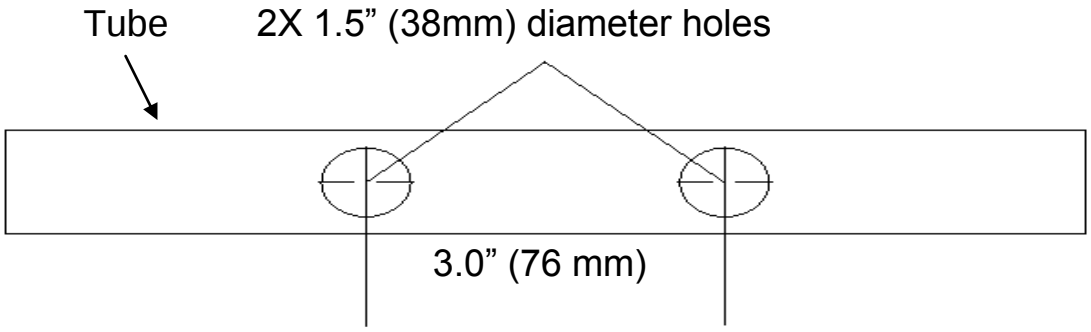


Figure 6A *Outlet Holes with Carry-Over*

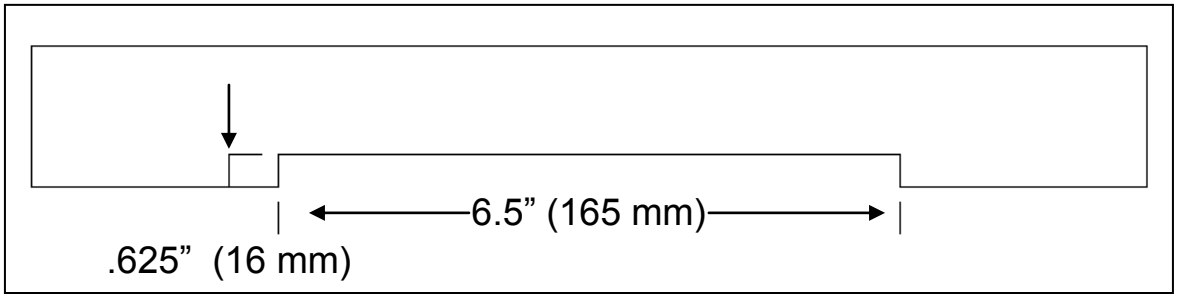


Figure 6B *Outlet Holes with Total Dropout*

3.5 Tubing Suspension

To minimize drag and wear, be sure to suspend the PVC tubing at 4.0' (1.2192m) intervals.

Failure to do so will VOID the warranty.

3.6 Drop Kit Installation

1. Snap a slide on a PVC tube over the pre-made outlet hole.
2. Lay the PVC tube down inside the housing making sure the outlet hole is in the middle of the housing.
3. Fasten the PVC tube, with the slide, to the housing using 2 hose clamps

Verify that the slide can be turned from side to side (to open / close the drop kit).

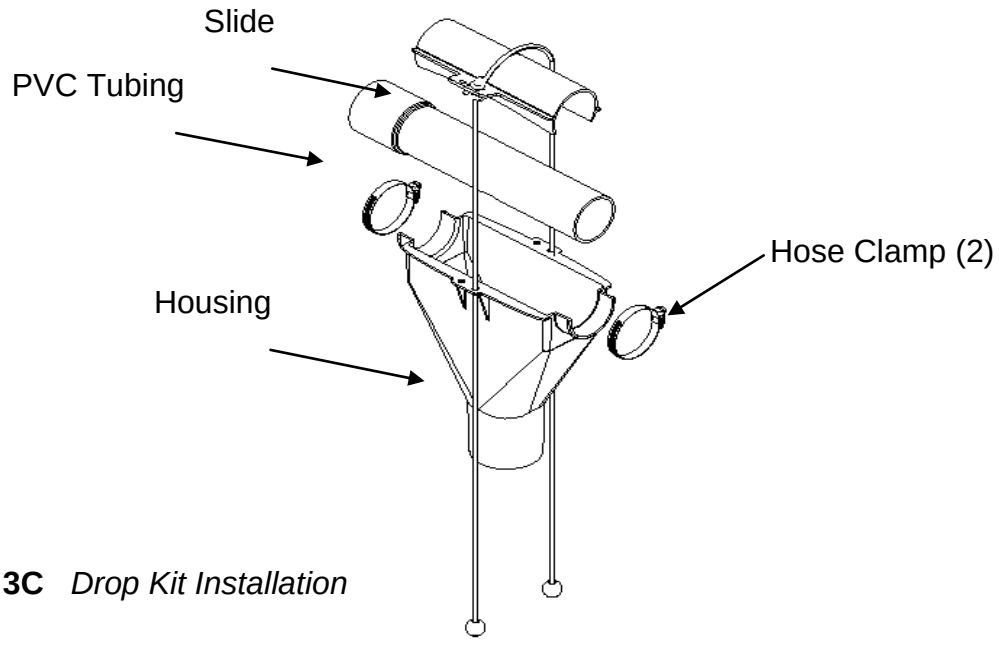


Figure 3C *Drop Kit Installation*

3.7 Drop Feeder Installation

Refer to proper manual for feeder being installed.

4 DRIVE UNIT INSTALLATION

4.1 Location

Although the drive unit can 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 (bolts are not provided).



It is important that you have worked with your dealer or Val-Co salesman on the layout design of the system to assure 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.

4.2 Structural Support Integrity

The drive unit weighs about 170 lbs. If suspending the drive unit, verify that the structural member(s) it will be attached to is/are able to support it.



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.

4.3 Suspending the Drive Unit

If not bolting the drive unit to the floor, a hardware package containing angle iron, bolts, chain and eyebolts should have been ordered separately (780310) for suspending the drive unit.

1. Bolt a piece of angle iron to each bottom support of the drive unit using 5/16 x 1” bolts and 5/16” nuts.
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 iron using 5/16 x 1” bolts, 5/16” nuts, and 5/16” flat washers.
6. Lift the drive unit up and hook one chain into each eyebolt.
7. To level the drive unit either adjust the chain or screw the eyebolts in or out.
8. Cut the lengths of PVC tubing so that it will butt up with the inlet and outlet of the drive unit.
9. Glue on a coupler to each PVC tube. (See Page 12.)
10. Use saddle clamps (460022 – purchased separately) to secure the coupler to the drive unit.

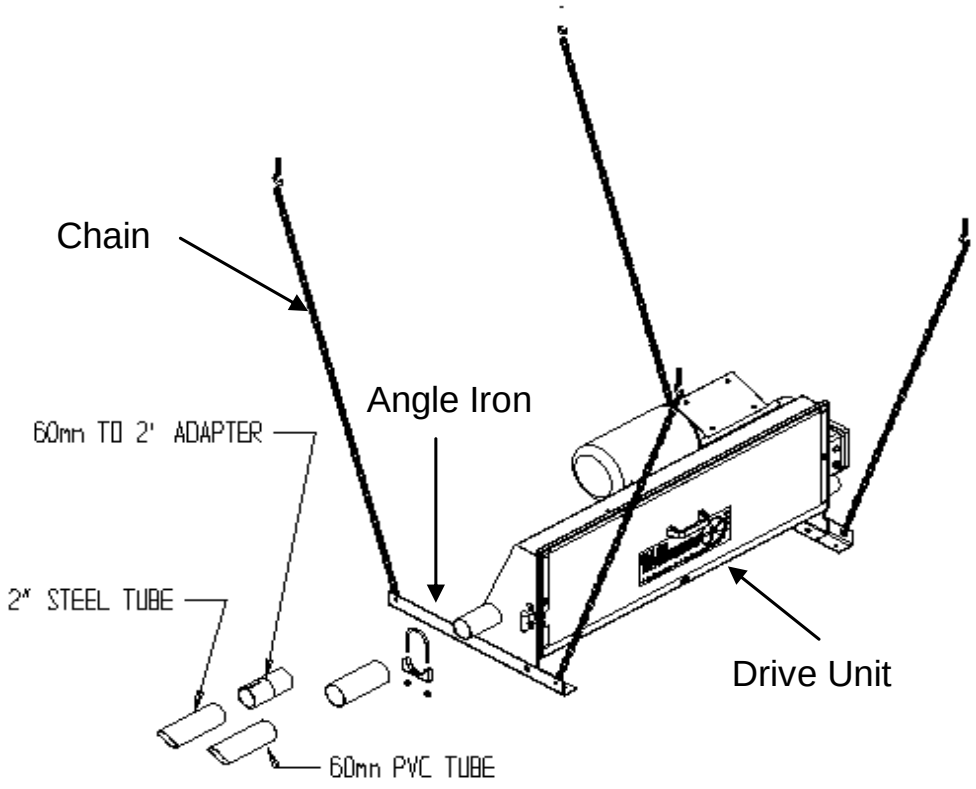


Figure 4A *Drive Unit Suspended Installation*

4.4 Wall Mounting the Drive Unit

If not bolting the drive unit to the floor, a hardware package containing angles, brackets and hardware should have been ordered separately (780300) for wall mounting the drive unit.

1. Attach one angle on top of the left and right brackets using the supplied hardware.
2. Attach the second angle to the bottom angle of the left and right brackets using the supplied 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.

(The drive unit should have the access door to the front.)

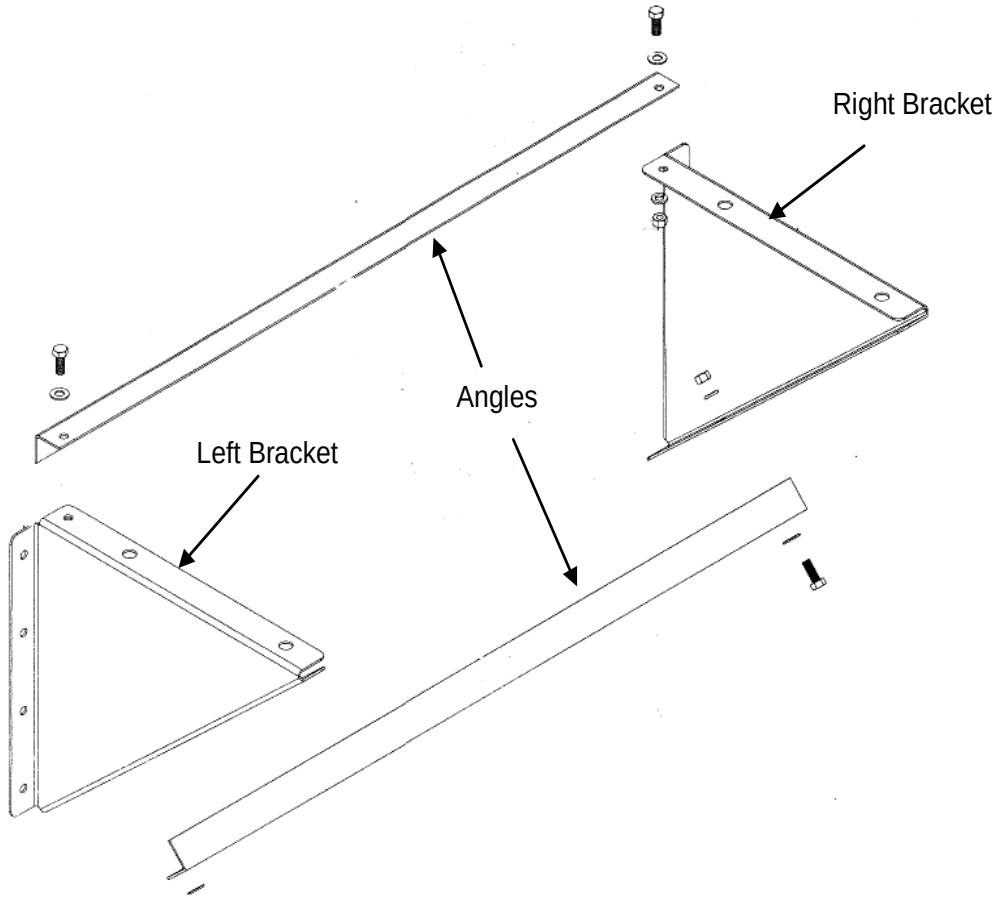


Figure 4B *Drive Unit Wall Mount Installation*

5 CORNER INSTALLATION

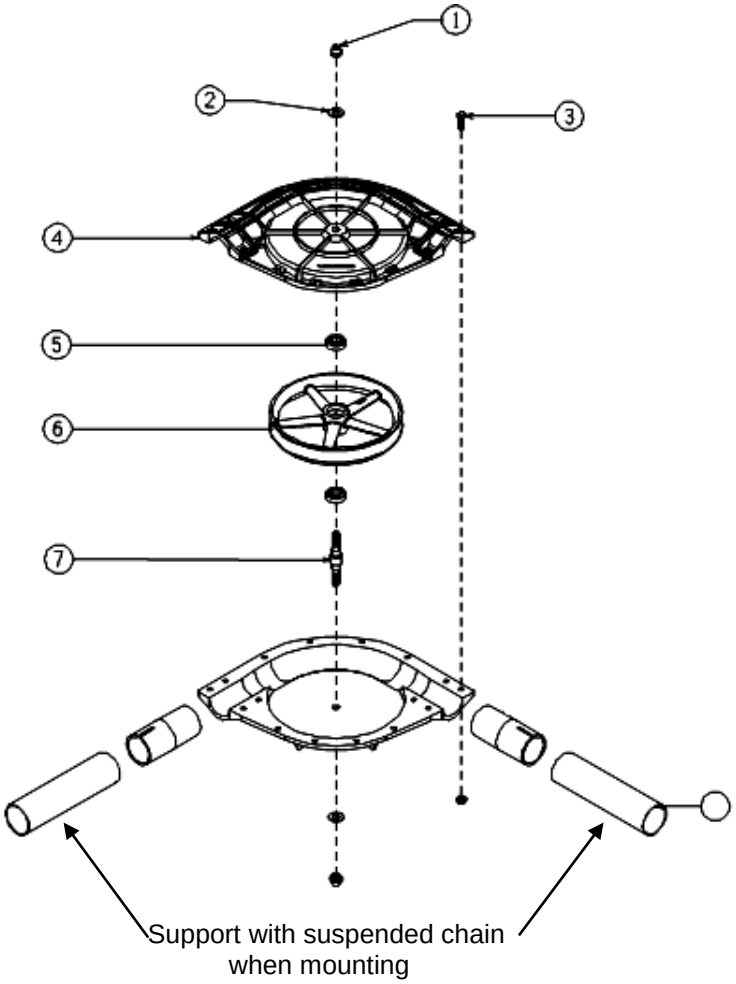
5.1 Measuring and Cutting Tube

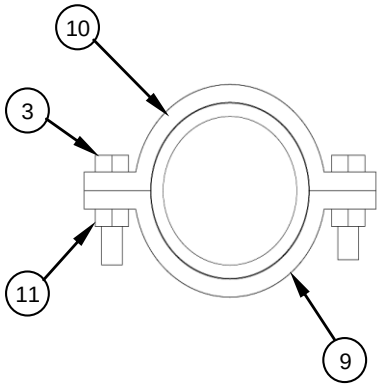
1. Remove the corner top (item 4 in Figure 5A). Replace the ½" neoprene washer and lock nut (items 1 & 2) on the pivot shaft (item 7) to hold the idler wheel (item 6) during the rest of the installation.
2. Lay a tube inside the corner bottom (item 9) so the end of the tube is flush with the molded shoulder and cut the tube to the needed length – repeat for second location within the corner bottom.

5.2 Initial Assembly of Corners

Securing the tubes to the corner bottom:

1. Remove the two (2) provided **add-on** clamps (item 10) attached to the corner tops.
2. Place PVC tubing or coupler inside the corner and butt up into the shoulder.
3. Replace **add-on** clamp and tighten the bolts down to hold PVC tubing or coupler in place.





- 1/2 Lock Nut
- 1/2 Neoprene Backed Flat Washer
- 5/16-18 x 1-1/4 Bolt
- Corner Top
- 1/2 Flat Washer and Bearing
- Corner Wheel Casting
- Shaft
- Clear PVC Tubing
- Corner Bottom
- Add on clamps
- 5/16 Lock nut

Figure 5A *Drive Unit Corner Installation*

6 FILL SYSTEM

6.1 General

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

1. The chain disk system can freeze up when used outside in colder climates. The flexible auger fill system is better able to break loose frozen feed using rotational motion and latent spring energy making it a better choice to use outside in colder climates.
2. To prevent overfilling of the chain disk system, use the correct gear box on the flexible auger system.
3. ***Feed level should not exceed the height of the chain within the tube.*** Adjust slide plate on Fill Hopper as pictured on page 66 #14.

The Flexible Auger Fill System can run parallel or perpendicular to the Chain Disk Feed System

Flexible Auger Feed Tank Configuration (Single or Tandem)	Effective Length of Chain Disk System, ft. (m)	Maximum Fill System Rate, Lbs/min (kg/min)	Flexible Auger Fill System Gearbox RPM
Single	Up to 700 (213)	50 (23)	358 (Standard)
Single	700-1000 (213-315)	35 (14)	250
Tandem	Up to 700 (213)	50 (23)	250
Tandem	700-100 (213-305)	35 (14)	250

Table 1 *Maximum Fill System Requirements*

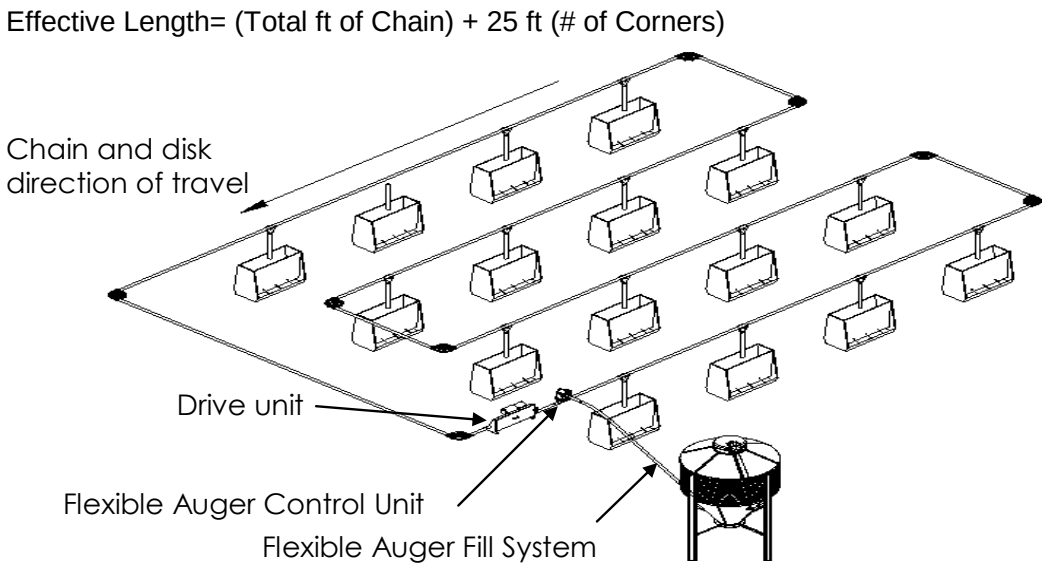


Figure 6A *Typical Fill System Installation*

6.2 Chain Disk Fill Hopper Installation

1. Attach the Chain Disk Fill Hopper to the Flexible Auger Fill System. Use the #10 x 1 self tapping screws provided with the Flexible Auger Fill System.
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 PVC tubing.
3. Cut the PVC tubing to butt up against the steel tubing on the inlet and outlet sides of the Chain Disk Fill Hopper.
4. Glue a PVC coupler to the PVC tube (follow instructions on page 12).
5. Use saddle clamps (460022) to secure the PVC coupler to the Flexible Auger Control Unit.

A time delayed proximity switch can be used in the Chain Disk Fill Hopper to eliminate short cycling and keep the Flexible Auger Fill System from bridging. To install the proximity switch , insert a rubber grommet in one of the 'KNOCK-OUT' holes in either end of the Chain Disk Fill Hopper to hold the proximity switch in place.

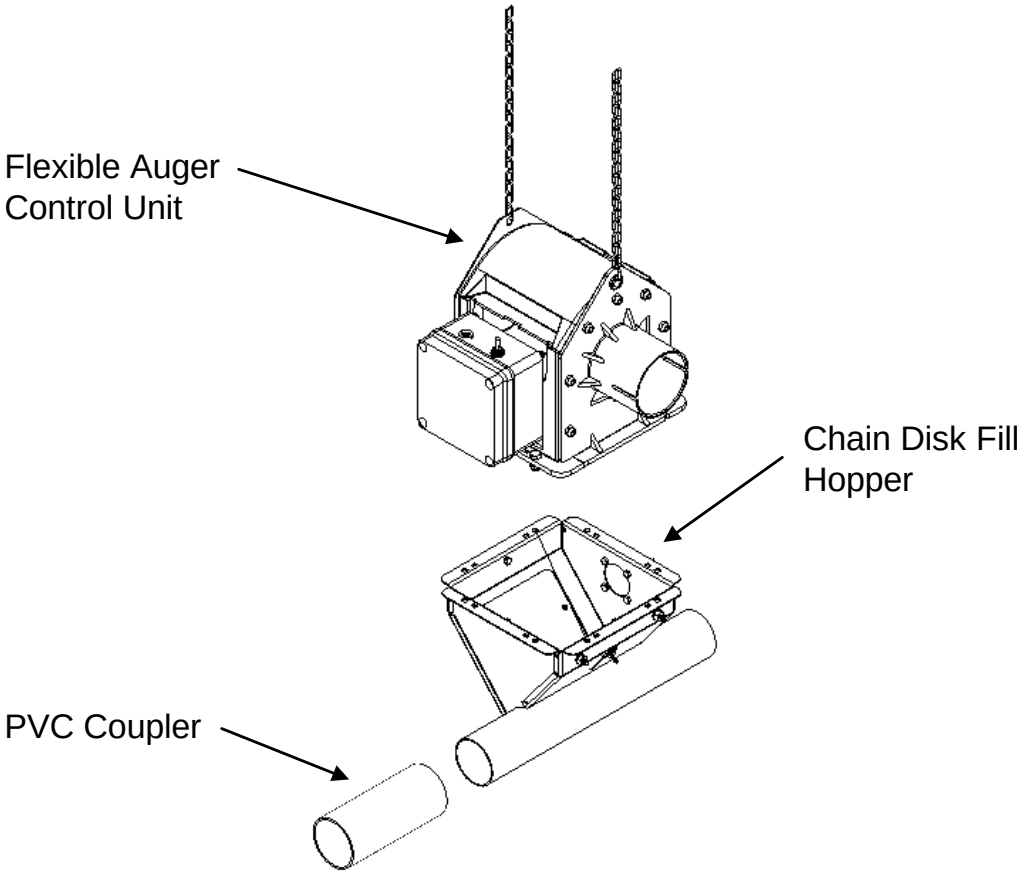


Figure 6B *Fill Hopper Installation*

7 CHAIN INSTALLATION

7.1 Drive Sprocket Rotation

*****The drive sprocket should turn counterclockwise*****

If the drive sprocket does not turn counterclockwise, check the wiring of the motor.

7.2 Direction of Travel

IMPORTANT !

Chain and disks must be correctly installed.
The leading side of the disk must be the flat side for smoother release from the drive sprocket and for more efficient feed transport throughout the Chain Disk Feed System. If improperly installed the whole system will become jumpy and cause excessive disk wear.

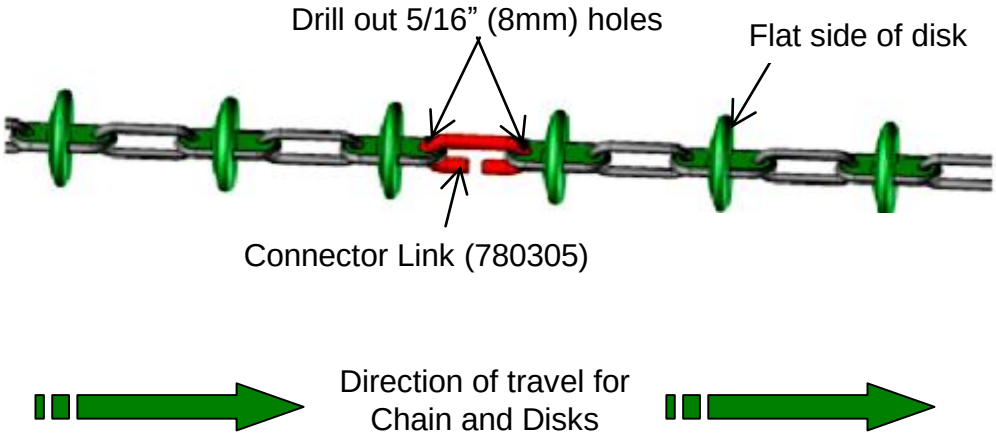


Figure 7A *Chain and Disks with Connector Link*

7.3 Pulling Chain through Tubing

1. A length of fish tape (approx. 100 ft) long or equal to the longest section of completed PVC tubing is recommended.
2. *Spray paint the connector links* in the chain for easier identification through the clear tubing.
3. Lay out all the chain from the bags prior to installation to avoid tangles.
4. *Use a connector link for every 165ft (50m) of chain used or where (PVC) tubing section change.*

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

1. Push the fish tape through one of the sections of PVC tubing from the drive unit toward the feed hopper.
2. Connect the first chain link to the fish tape on the drive unit end– *Verify that the chain and disks are facing the correct direction.*
3. Pull the chain through the PVC tubing – leaving about 5ft (1.5m) of chain in the drive unit.
4. Push the fish tape through the next section of PVC tubing.
5. Start pulling the chain through the next section of PVC tubing – if there is a corner assembly, lay the chain inside the corner assembly before pulling the chain all the way through the PVC tubing section.
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. Place all of the PVC tubing sections inside the corners or splices/adapters and tighten down the corner clamps.
8. Repeat steps 4 through 7 until chain is through all the PVC tubing sections and corners. Leave a 2-3ft (.61-.91m) of chain section from the last section of PVC tubing in the drive unit.



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.

7.4 Corner Final Assembly

1. Remove the ½" lock nut and neoprene flat washer previously placed on the pivot shaft (see section 10.1).
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. DO NOT OVER TIGHTEN.
3. Replace the ½" neoprene washer and lock nut on the pivot shaft. Torque the lock nut to 10ft-lbs. DO NOT OVER TIGHTEN.

Make sure corners are supported by suspended chain at both the inlet and outlet locations. Support the PVC tubing at a minimum of 4 foot intervals by suspended chain.

7.5 Wrapping Chain

1. Remove the spring inside the drive unit.
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.
5. Cut the two ends of chain to secure the two ends together using a connector link (see figure 7a).
6. Reconnect the spring.
7. Put the drive unit cover on.

Arrows indicate direction to wrap chain around idler wheel and drive sprocket. (See instructions 3 and 4 above.)

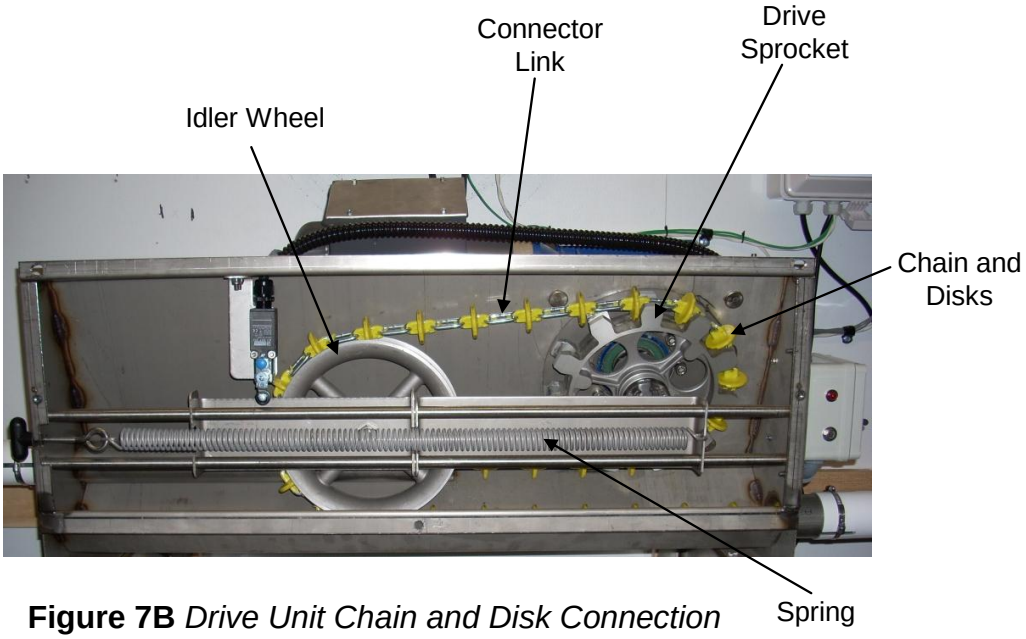


Figure 7B *Drive Unit Chain and Disk Connection*

7.6 Chain Take-Up

The chain and disk should have a break in period before running the Chain Disk Feed System on a regular basis. As the chain and disks are used, the chain will lengthen which can cause the actuator bracket to move to the left. If the bracket is allowed to move far enough to the left and hit into the limit switch, it will shut down the system. To avoid this happening, 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 actuator location is approximately in the middle of the limit switch.
5. Remove the spring inside the drive unit.
6. Slide the idler wheel over to the right so it is near the drive sprocket.
7. 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 (see figure 7a). (Remember, a 5/16”(8mm) hole may/will need to be drilled into the plastic for the connector link.)

Remove twice the amount of chain as is required to move the idler wheel.
Example: To move the idler wheel 4 inches, remove 8 inches of chain.

8. Reattach the spring inside the drive unit.
9. Put the drive unit cover on.
10. Turn power back on to the Chain Disk Feed System.
11. Repeat steps 1-10 until the final location of the limit switch is approximately 2 to 3 inches from the left end of the limit switch, and the system has run for at least 10 minutes without further movement from the limit switch.

Regularly check the limit switch position.

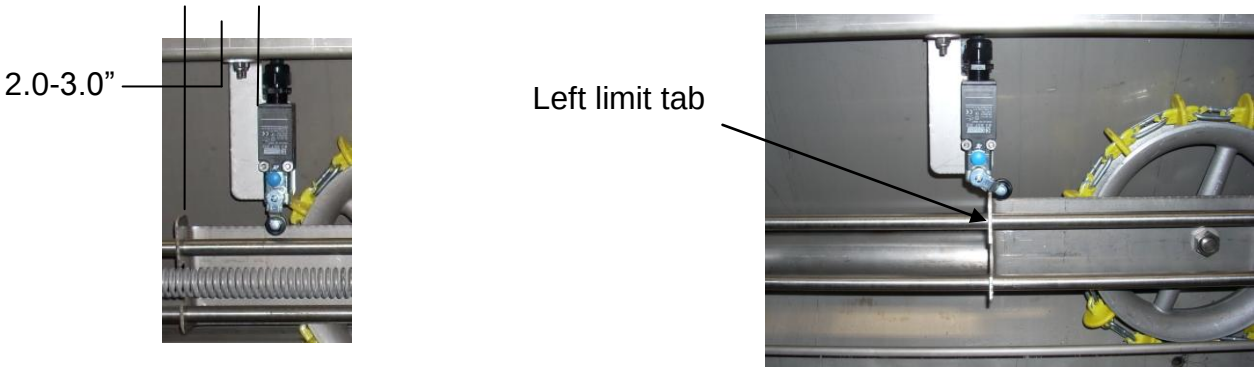


Figure 7C *Limit Switch Adjustment*

7.7 Proximity Sensor Mounting

1. Place the proximity sensor base through the back side of the mounting bracket and secure together 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 down)* – 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 from top or bottom.
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 down).*
6. Place the proximity sensor inside the proximity sensor base making sure the proximity sensor is touching the clear PVC tube.
7. Tighten the 1-1/2" hose clamp over the proximity sensor and proximity sensor base.

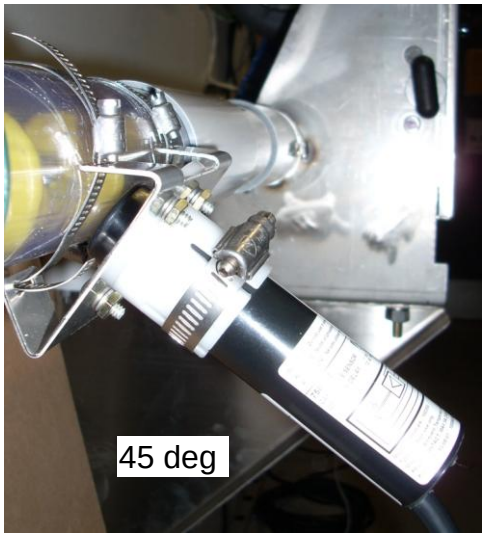


Figure 7D *Proximity Sensor Mounting to CLEAR section of PVC*

7.8 Sensitivity Adjustment

1. Turn OFF the flex auger.
2. Turn the Chain Disk Feed System control on to Manual Mode. This will clear any feed left inside the line.

To allow the Feed Sensor Bypass a longer run time, adjust the time during setup.

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 counterclockwise (if may be filled with silicone – remove the silicone).
   - To increase the proximity sensor sensitivity, turn the set screw near the indicator light clockwise.
4. To verify whether the correct sensitivity has been set, place an index finger ¼" 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. (When the sensitivity adjustment is complete, it is recommended to fill the hole back in with silicone.)

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.

5. If the Feed Sensor Bypass time was changed for setup, reset the Feed Sensor By-pass time.

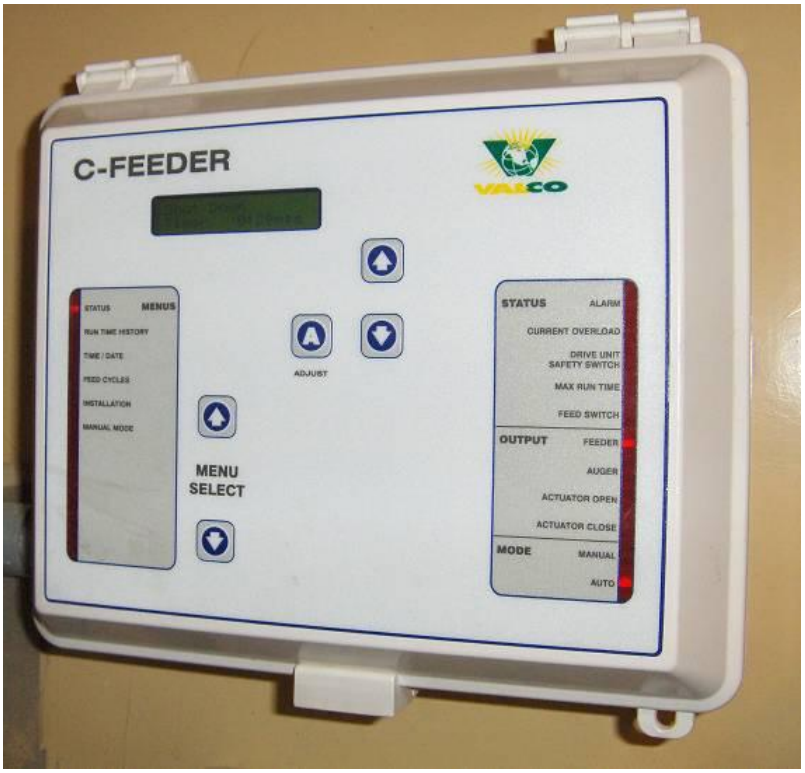
Disconnect power before removing any covers and/or performing any type of service and/or maintenance work.

8 WIRING DIAGRAMS

8.1 Wiring Instructions

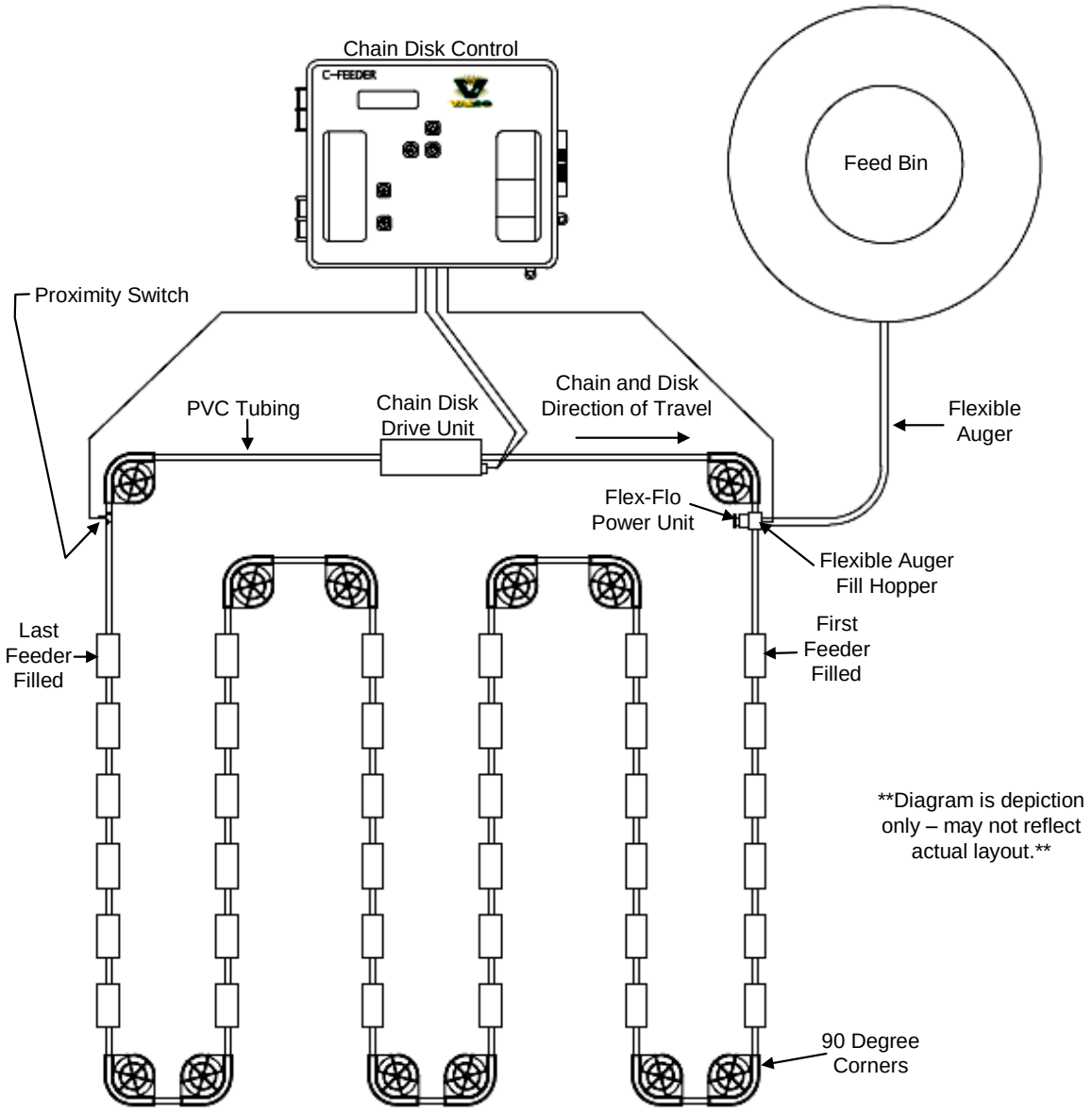
WARNING !

1. **A qualified technician should perform all wiring to ensure local and national codes are followed.**
2. **Disconnect all power before inspecting or servicing equipment.**
3. **Always use the proper wire size for wiring systems.**
4. **Keep hands and tools away from exposed chains and gears.**
5. **Do not operate without covers or guards.**



Example:

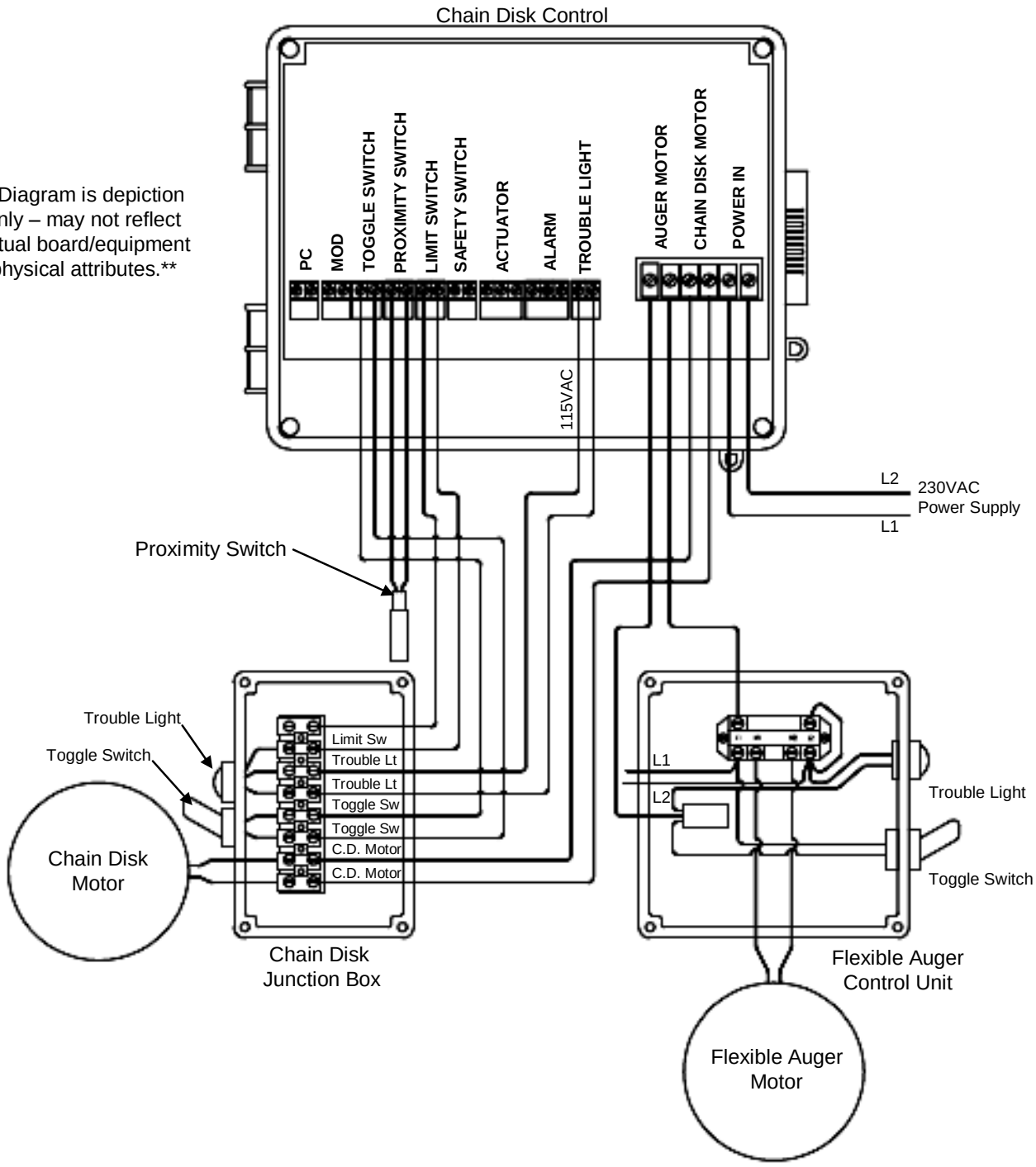
Wiring Diagrams - One Chain Disk Loop / Filled by One Flex Flo Auger / Timed Feeding



Example:

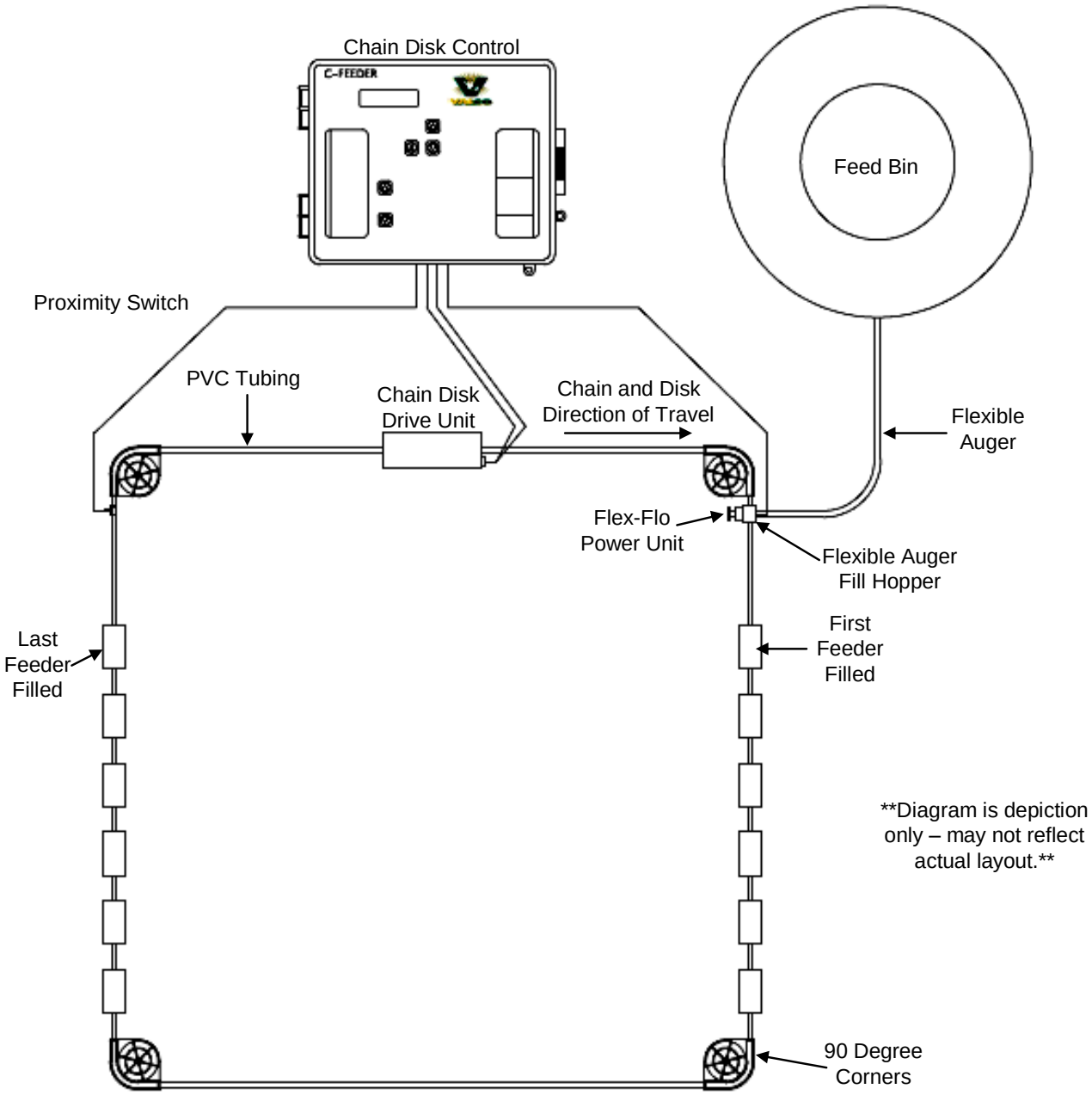
Control Wiring Diagram

Diagram is depiction only – may not reflect actual board/equipment physical attributes.



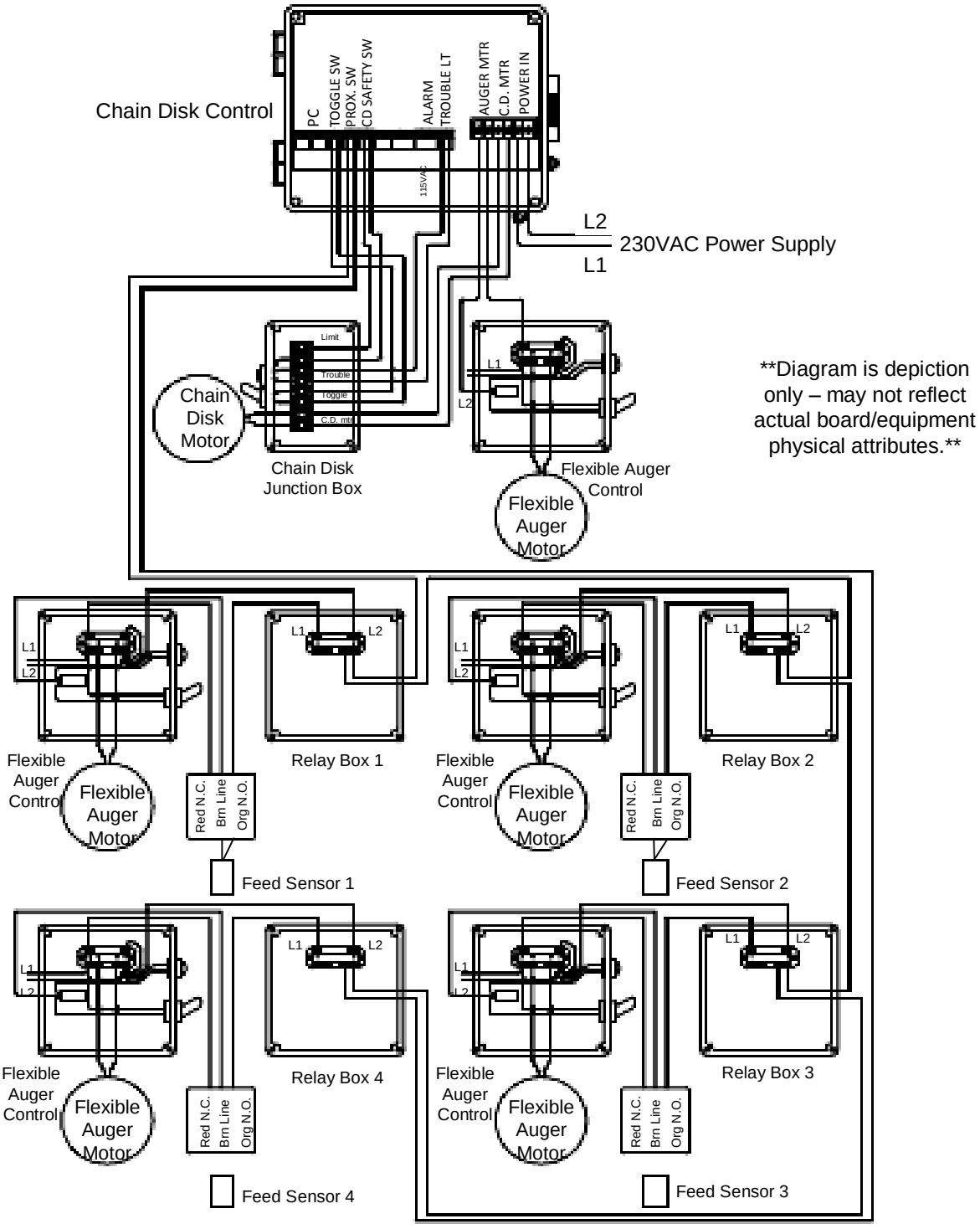
Example:

One Chain Disk Loop / Filled by One Flexible Auger fill system / Continuous Feed after Time Delay



Example:

One Chain Disk Loop / Filled by Four Flexible Auger Lines / Started by any of four (4) Proximity Switches at the end of the Auger Lines



9 CONTROL OPERATION

9.1 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 Systems' 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.

9.2 Current Sensor

A current sensor is installed on the PC board inside the Chain Disk Control Unit.
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 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 9A
Chain Disk PC Board

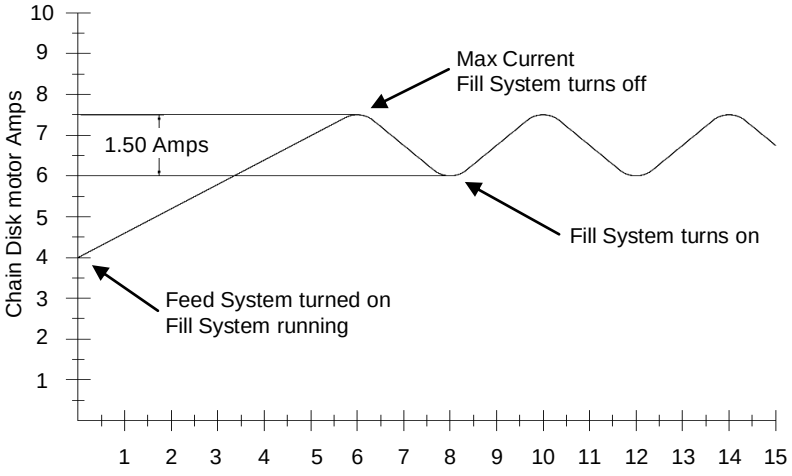


Figure 9B
Current Sensor Operation Illustration
Typical Feed System

9.3 Limit Switch

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
- The chain breaks
- The spring breaks

Should one of the above occur, press the blue reset button on the limit switch to reactivate the Chain Disk Drive System, then acknowledge the alarm within the Chain Disk control.



Figure 9C *Limit Switch Normal*

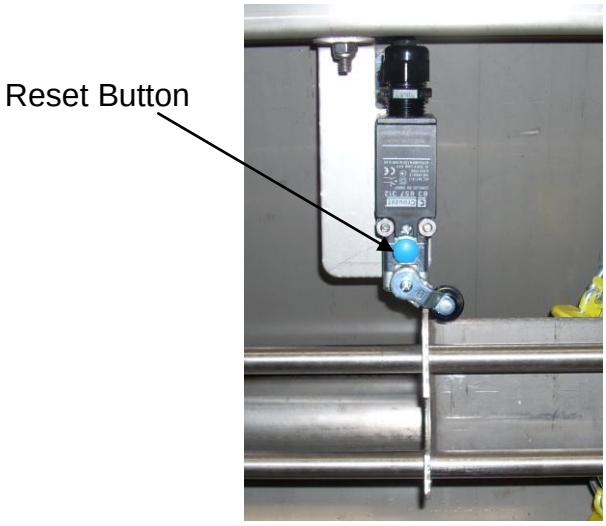
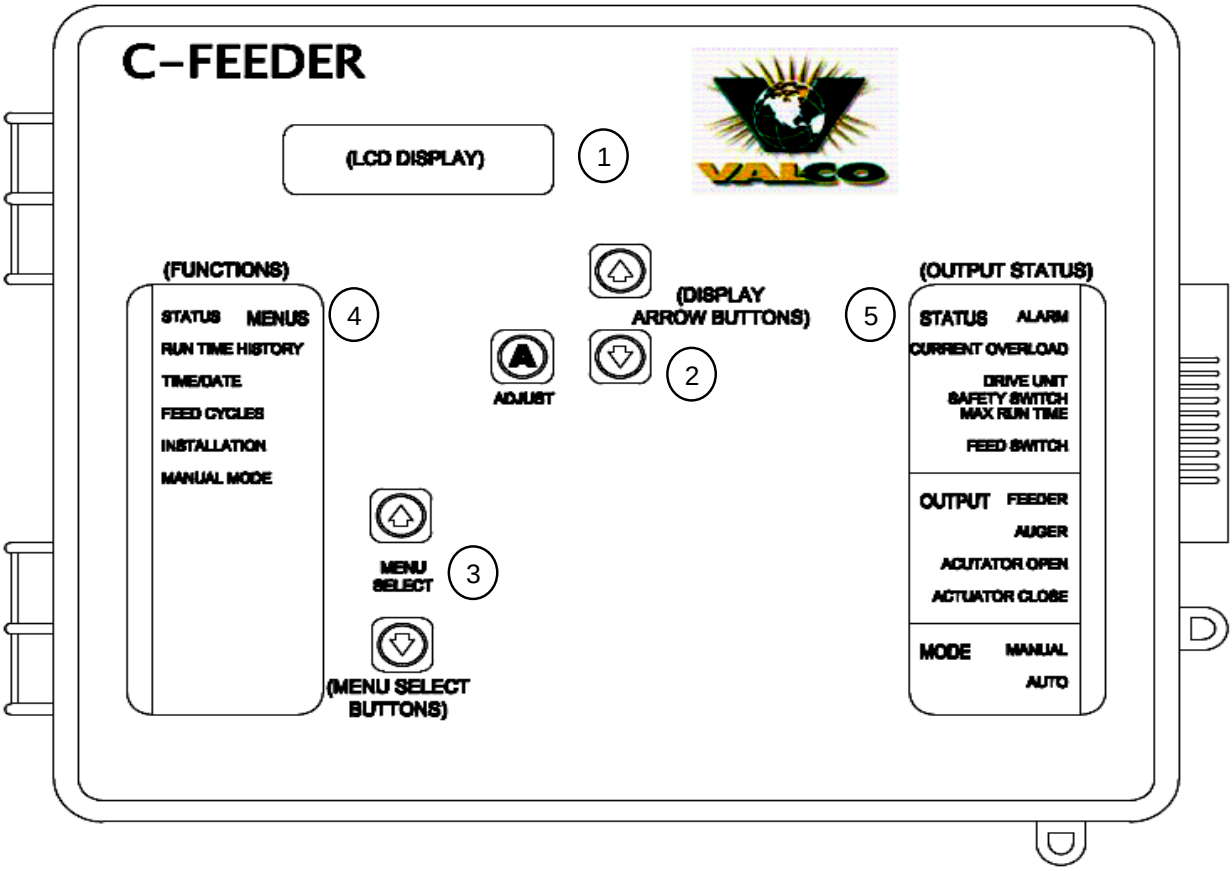


Figure 9D *Limit Switch Active*

Disconnect the power and fix the problem that activated the limit switch before resetting the Chain Disk control unit.

10 CHAIN DISK CONTROLLER – C805

10.1 Front Panel



1. **LCD Display:** Shows the current information and adjustable parameters within a function.
2. **Adjust Arrows:** Steps through displayed information or allows a flashing parameter to be modified.
3. **Menu Arrows:** Keys are used to select the functions that are located in the main menu.
4. **Menu LED's:** LED's at the Left of the control panel shows current menu displayed.
5. **Status LED's:** LED's at the right of the control panel give the status of each output.

Steps to adjusting parameters:

1. Chose a specific menu that corresponds with a parameter that needs to be changed using the MENU arrow keys
2. Choose a parameter from the display using the **ADJUST** up and down arrow buttons.
3. Once a parameter is chosen, press the **ADJUST** button. The parameter will flash on the display.
4. Adjust the parameter with the same up and down buttons used to select the parameter.
5. Once the parameter is set, press the **ADJUST** button to validate the change. (A parameter that can be changed will flash on the display. If the parameter does not flash, it is a read only parameter and can not be changed.)

The display will return to 'STATUS' mode after four (4) minutes of inactivity.

10.2 Status LEDs

The following table gives the definition of each LED displayed on the right side of control:

LED	DEFINITION
Alarm	'ON' when there is a problem with the system that requires attention. The Chain Disk Feed System will stop operating until the alarm is acknowledged and fixed.
Current Overload	'FLASHES' when the amperage draw of the Chain Disk Feed System has exceeded the maximum current limit. Fix the error. Then to restart the system, press *and hold* the RESET button.
Chain Disk Safety Switch	'ON' when the Chain Disk Feed System drive unit trips the safety switch.
Max Run Time	'ON' when the Chain Disk Feed System run time exceeds the maximum parameter value (this only occurs if a proximity sensor is used).
Feed Switch	'ON' when feed is detected by the proximity sensor. 'FLASHES' during the Feed Bypass Delay.
Chain Disk Output	'ON' when the master Chain Disk Feed System is running.
Auger Output	'ON' when the bin auger is running. 'FLASHES' during Auger Delay.
Actuator Open	'ON' when the dumps are opened.
Actuator Close	'ON' when the dumps are closed.
Manual Mode	'ON' when outputs are manually controlled. *Flashes when the Actuator or Electrical Valve is in manual*
Automatic Mode	*'ON' when the controller is in the Automatic mode.*

10.3 Control Installation

Mounting instructions:

1. Remove the front cover.
2. Remove the black caps from the four (4) mounting holes.
3. Mount the enclosure – make sure the electrical knock outs are to the bottom of the enclosure to prevent water seepage.
4. Replace the black caps over the four (4) mounting holes.
5. Replace front cover.

Connections:

Refer to the wiring diagrams provided in this manual and with the Chain Disk control.



Do not make any additional holes in the enclosure.

1. Use only nylon cable strain reliefs.
2. Do not install rigid conduit into the electrical knock outs. *(For safety in regard to damaging wires and shorting out high voltage wires).*
3. Add a switch or circuit breaker in close proximity to any person operating this equipment. Mark the switch or circuit breaker *as **'DISCONNECT FOR CHAIN DISK CONTROL UNIT'.***
4. Use a 20A (L1/L2 Power In) circuit breaker for the Chain Disk Feed System motor.
5. Use a minimum of 12AWG wire for the Chain Disk Feed System main power supply and motor.
6. Use a separate 15A circuit breaker and a minimum of 14AWG wire for the Flexible Auger motor.



Always follow the safety instructions specified by the manufacturer and any applicable local and national codes.

10.4 Controller Operation

Controller's Description:

The C805 controls the feed entry into the Chain Disk feeders and the distribution of feed to the animals.

1. Timed or continuous feed cycles.
2. With or without proximity sensors at the end of the feeders.
3. With or without actuators/electric valves to open the drops.
4. With one or multiple bin augers.

10.5 Feed Distribution

Timed Feed Distribution

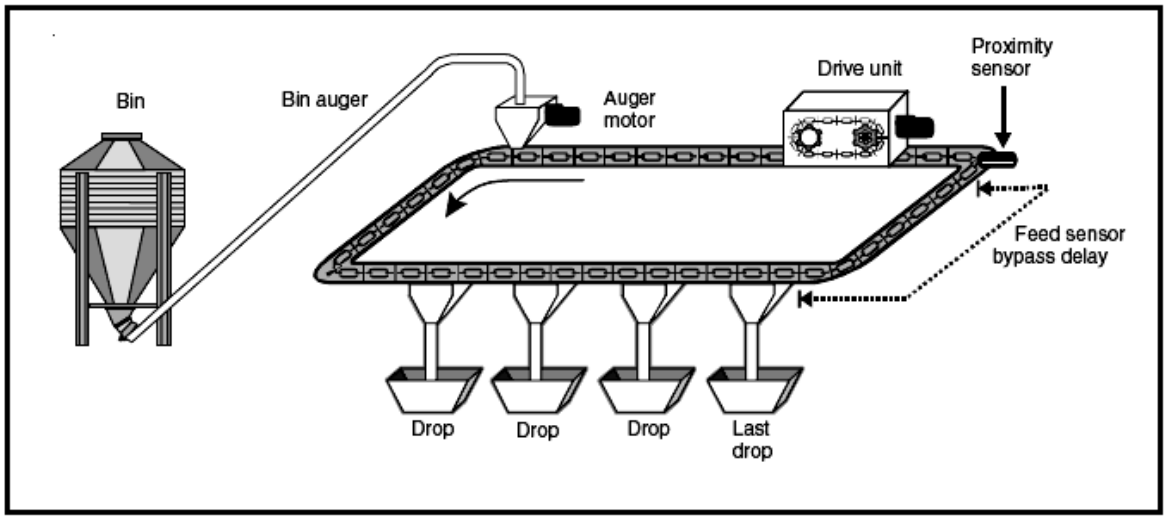
- Allows the time to be chosen as to when the feed is delivered to the feeders. Twenty (20) different feed cycles can be programmed daily. See *'Installation Setup'* for further assistance in setting up timed feed distributions.

Continuous Feed Distribution

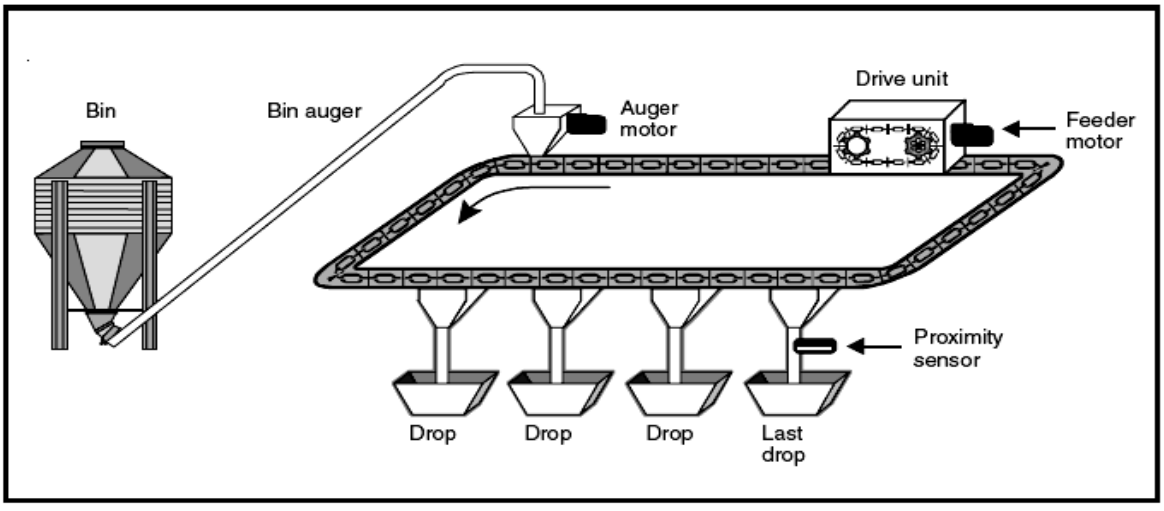
- Allows the feeders to be filled when a proximity sensor (located at the end of the Chain Disk Feed System) does not detect any feed.

Proximity Sensor Location

In Timer Mode: One proximity sensor must be located at the end of each feed line.



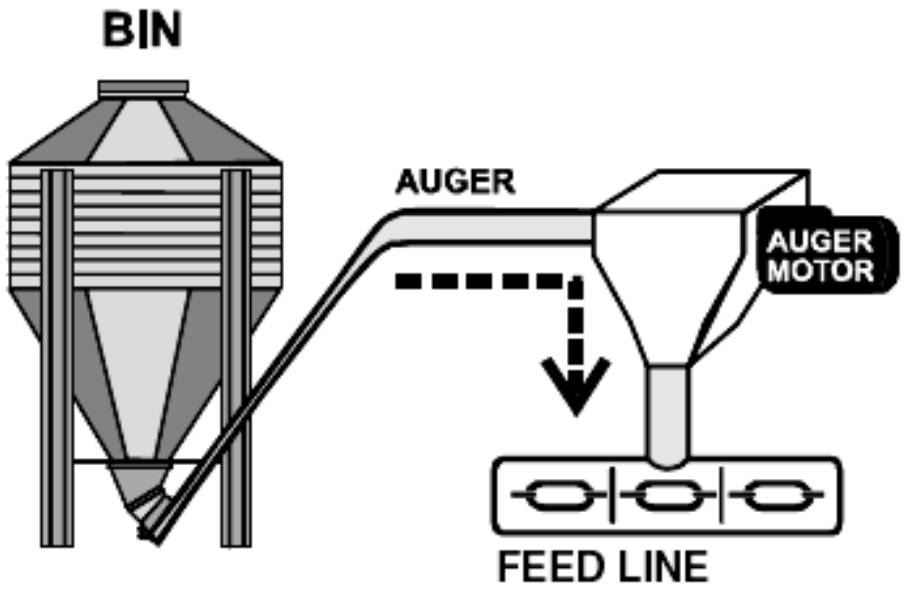
In Continuous Mode: A proximity sensor must be located in the tube of the last feeder drop.



Filling Chain Disk Feeders

Operation of the Bin Auger

At the beginning of a feed cycle, the bin auger brings feed to the feeders and stops when the feeder is full.



There are two (2) ways for the controller to detect a full feeder:

1. The proximity sensor, located at the end of each feeder, detects feed for a 5 second period without any interruptions.
2. If no proximity sensor is used, the drive unit will run for the maximum run time set up within the controller.

Chain Disk Overload Protection

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 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.

Filling Process

Option A  Timed Feed Distribution

1. **Beginning the Filling Process:** Starts at the beginning of a feed cycle.

2. **Drop Cleaning:** Using actuators, the control will open and close the drops three (3) times in succession to eliminate any feed left in the system. Enable *'Clean Drop'* option in the Installation menu.

3. **Emptying the Feeders:** The control will activate all drive units during the '*Auger Delay'* to empty all feeders before new feed is delivered.

4. **Filling the Chain Disk Feeders**: Feeders continue to run after an '*Auger Delay*' elapses and the bin auger can start filling the feeders.

5. **Feeder is Full:**
   a. **Proximity sensor used:** A proximity sensor is located at the end of each feeder. When the control detects feed for 5 seconds without interruption, it will stop the bin auger. The drive unit will continue to run until the '*Shutdown Delay'* cycle has elapsed.
   b. **No proximity sensor used:** A '*Run Time'* parameter value is set up within the control, once the Chain Disk drive unit has run for the length set up in the control for the *'Run Time',* the control will stop the feeder drive unit when the feeder is full.

6. **Feed Dumping:** Feed is delivered to the animals when the Chain Disk Feed System is fully loaded.

See page 37, *'Proximity Sensor Location'* for further information.

Option B  Continuous Feed Distribution

1. **The Filling Process:** Begins when the '*Continuous Delay'* has elapsed. The delay is triggered when the proximity sensor stops feed detection. The proximity sensor is located in the tube of the last feed drop.

2. **Emptying the Feeders:** Begins after the '*Continuous Delay'* has elapsed. All the drive units are then activated by the controller during the '*Auger Delay'* cycle to ensure all feeders are empty before bringing feed to the feeders.

3. **Filling the Chain Disk Feeders**: Begins after the '*Auger Delay'* cycle has elapsed. All the feeders will continue to run as they are being filled by the designated bin augers.

4. **Full Feeder (one):** A proximity sensor is located in the tube of the last feed drop. When the control detects feed for 5 seconds without interruption, it will stop the bin auger. The drive unit will continue to run until the '*Shutdown Delay'* cycle has elapsed.

5. **Full Feeders (all):** All drive units and bin augers will shut off when the last feeder is full. As the feeder load decreases, the '*Continuous Delay'* cycle will activate when the proximity sensor of the Chain Disk feeder stops detecting feed. (Start back at Step 1.)

Feed Delivery Process

Actuators and electric valves can only be used with the timed feed distribution. Do not use actuators and electric valves with the continuous feed distribution. It is possible to run the Chain Disk Feed System without using actuators or electric valves.

Actuator Feed Delivery

- The actuator opens the feeder drops during ***'Open Time'***.
- After the ***'Open Time'*** has elapsed, the actuator moves during ***'Actuator Delay'***.
- *Once the* ***'Actuator Delay'*** has elapsed, the actuator closes the feeder drops until the safety switch (limit switch) is triggered or for the length of a double ***'Open Time'*** period.
- The feed cycle is ended.

Electric Valve Feed Delivery

- During the ***'Dump Time'*** cycle the electric valves open the feeder drops.
- The feeder drops will remain open during the ***'Electric Valve Delay'*** cycle.
- After the ***'Electric Valve Delay'*** cycle has elapsed, the electric valves close the feeder drops.
- The feed cycle is ended.

Feed Delivery without Actuators or Electric Valves

Feed falls directly into the Chain Disk feeder drops as the feeders are being filled. After all the feeders are full, the feed will gradually unload as the feed is eaten.

Feed Cycles

In timer feed distribution, feed cycles must be programmed to signal when the feeders are to be filled and when the feed will be delivered to the animals. Twenty (20) feed cycles per day can be programmed.

See page 48 on how to enter the desired number of feed cycles.



So cycles do not overlap the control restricts times the feed cycle can start.

- **Start Time – Feed Cycle**: Time feed cycle starts.
- **Drop Times**: Set times for the feeder drops to open if using actuators or electric valves. The feeder drop should always be full when a dump is scheduled. (Start time + Max run time.)
- **Run Time:** Time needed to fill each feeder. Only available if a proximity sensor is not used.

10.6 Parameter Settings

Controller Status

STATUS menu: displays all ongoing operations of the controller.

All alarms must be acknowledged from the STATUS menu.

After 4 minutes of inactivity the control automatically returns to the STATUS menu.

See pages 51-54 *'Manual Mode/Test Mode'* for further alarm information.

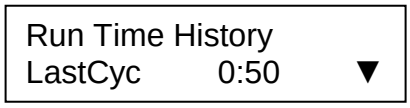
STATUS menu displays:

- An active test mode
- An active manual mode
- Start of the next feed cycle
- Stopped drive units ('Shut Down Delay')
- Cease of actuator movement
- End of 'Actuator Delay'
- End of 'Purge Time'
- When the next drop will occur
- Drive unit amperage draws

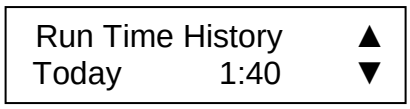
1. To select the STATUS main menu, use the menu select buttons.
2. To scroll through all the displays, use the up and down arrow buttons.

Run Time History

Six (6) days of Run Time history is kept in memory within the Chain Disk Feed System control.

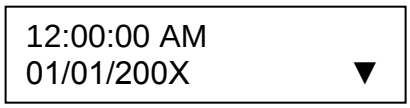


Press the **MENU SELECT** up or down buttons to get to **Run Time History**.
Displayed is the total run time of the last cycle.



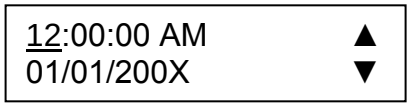
Press the **MENU SELECT** down button to scroll through the last 6 days of total run times.

Date & Time

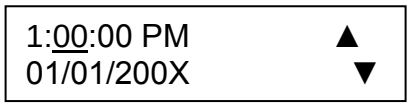


Press the **MENU SELECT** up or down buttons to get to **TIME/DATE**.

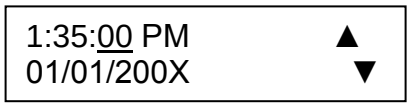
Follow the below process to change the time and/or date – if necessary:



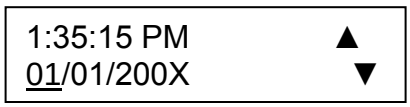
Press **ADJUST**: The hour will flash on the display.
Press the ADJUST up or down buttons to select the correct hour.



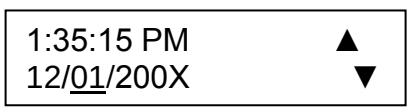
Press **ADJUST**: The minutes will flash on the display.
Press the ADJUST up or down buttons to select the correct minute.



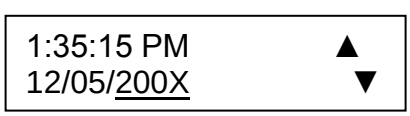
Press **ADJUST**: The seconds will flash on the display.
Press the ADJUST up or down buttons to select the correct seconds.



Press **ADJUST**: The day will flash on the display.
Press the ADJUST up or down buttons to select the correct day.



Press **ADJUST**: The month will flash on the display.
Press the ADJUST up or down buttons to select the correct month.



Press **ADJUST**: The year will flash on the display.
Press the ADJUST up or down buttons to select the correct year.

Feed Cycle

Available only if using timed feed distribution, *(a password may be required for access.)*

A template has been provided to write down feed cycle settings to ease the programming process. (See next 2 pages.)

Feeding Cycle 1 ▲ Start At 6:01A ▼

Press the **MENU SELECT** up or down buttons to get to **FEED CYCLES**.

Press **ADJUST** : The start time of the first feed cycle flashes on the display.
Press the ADJUST up or down buttons to change the time value.
Press **ADJUST** to accept.

Feeding Cycle 1 ▲ Stop At 6:25A ▼

Press the **ADJUST** down button one time.
Displayed is the stop time of the first feed cycle. (Only available if a proximity sensor is **NOT** used.)

Press **ADJUST** : The stop time of the first feed cycle flashes on the display.
Press the ADJUST up or down buttons to change the time value.
Press **ADJUST** to accept.

Feeding Cycle 1 ▲ Dump At 7:01A ▼

Press the ADJUST down button one time.
Displayed is the dump time of the first feed cycle. (Only available if an actuator or electric valve is in use.)

Press **ADJUST** : The dump time of the first feed cycle flashes on the display.
Press the ADJUST up or down buttons to change the time value.
Press **ADJUST** to accept.

Repeat the above process for the number of feed cycles that will be used.

If the ADJUST button (or any other button) is not pressed after making a parameter change, the control will automatically accept the change after 8 seconds.

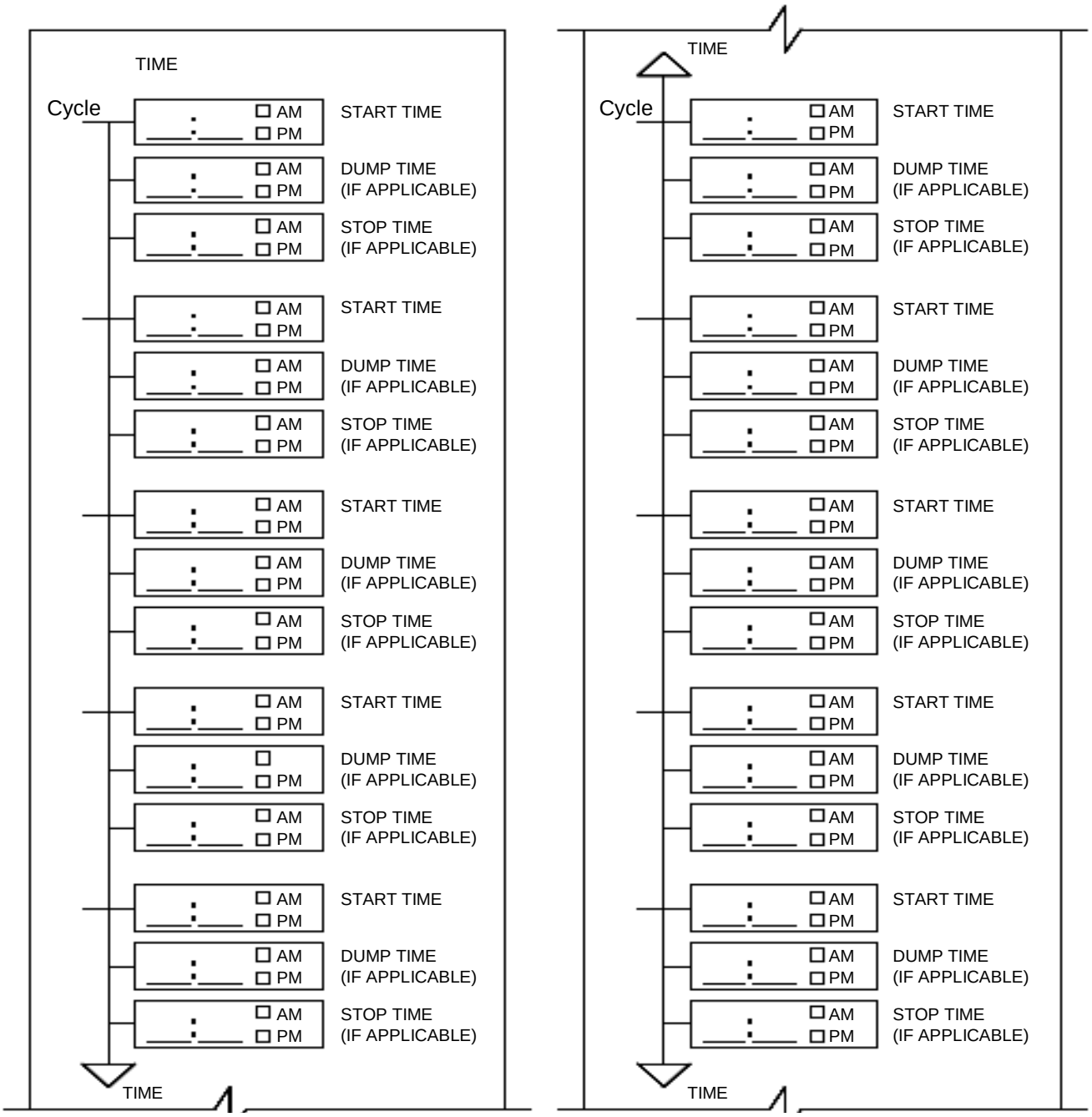
IMPORTANT !

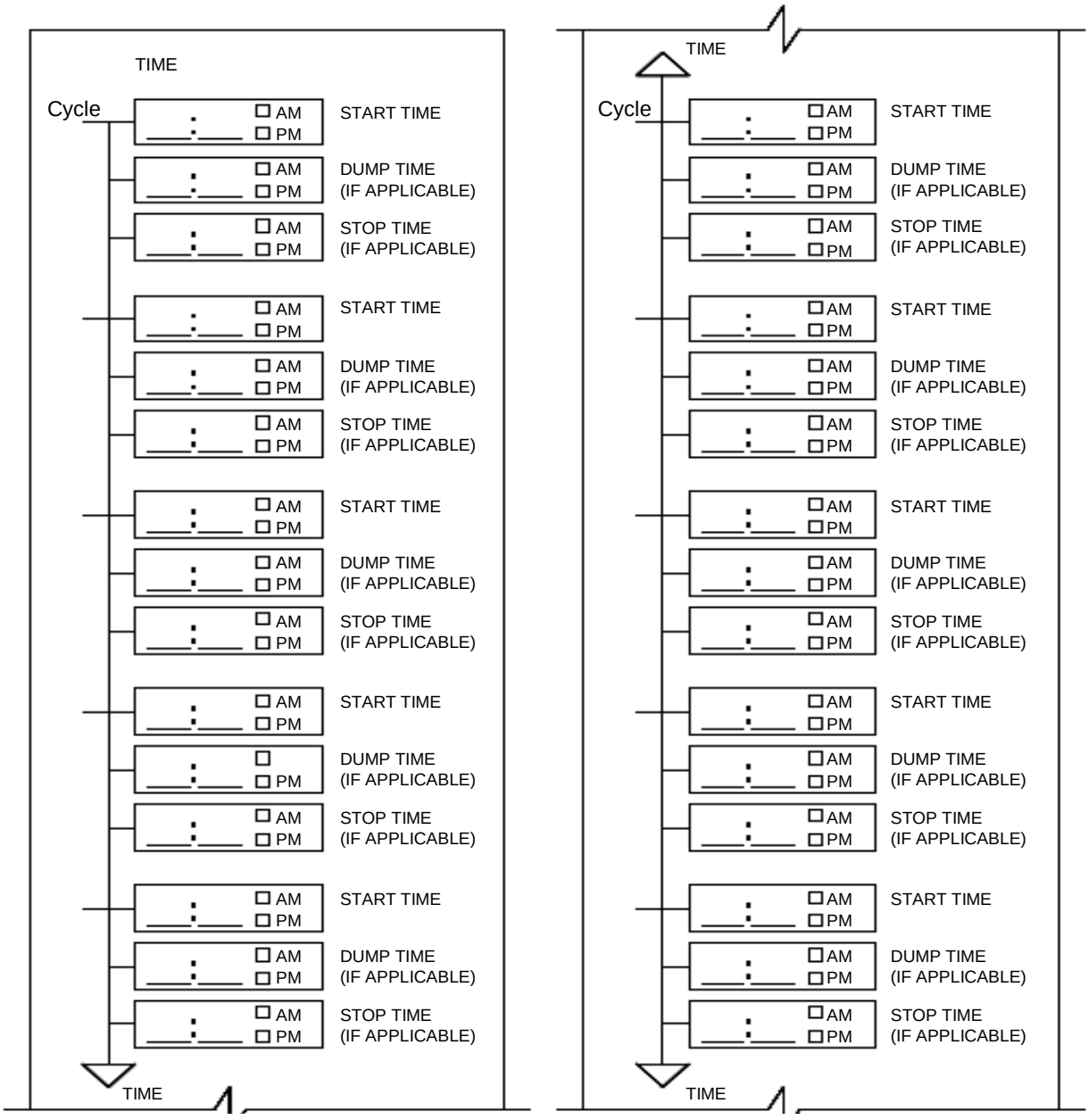
Feed cycles are automatically rearranged within the control if a programming error has occurred. A warning message *"Check Feed Cycles"* will occur. To accept the new feed cycle, scroll through the *"Feed Cycle"* menu completely. The warning message will disappear.

Feed Cycle Template

Write down the start time and stop time (if a proximity sensor will not be used).
Write down the dump time (if an actuator or electric valve is used).

Only perform the dump time after all feeders are full.




TIME
Cycle
AM
PM
START TIME
DUMP TIME
(IF APPLICABLE)
STOP TIME
(IF APPLICABLE)
TIME

Installation Setup

The following will explain how to customize the Chain Disk Feed System control for individual applications. Setup should only need to occur one time.

Enter Password 06 01 00

Press the **MENU SELECT** up or down buttons to get to **INSTALLATION**.
A password may be required.
The password is set to 6-1-0 by default.

Use password? Yes ▼

Press the **MENU SELECT** down button to select **Yes**.
Using a password will restrict the access to the "*Installation & Feed Cycle*' menus.

Use Proxy ▲ Switch? Yes ▼

Press the **MENU SELECT** up or down buttons to select whether a proximity sensor will be used to detect feed presence at the end of the feed line.

The 'Prox Switch' status only appears if the proximity switch is enabled in the previous option.

Proxy Switch ▲ Normally Open ▼

Press the **MENU SELECT** up or down buttons to select the status of the proximity switch to **Normally Open (NO)** or **Normally Closed (NC).**

The 'Feed Sensor Bypass' only appears if the proximity switch is enabled and the system is set up for timed feed distribution.

Feed Sensor ▲ Bypass 0:30m:s ▼

Press the **MENU SELECT** up or down buttons to set the length of time required to eliminate the feed that remains at the end of the feed line.
Length of time can be set from 0 to 30 minutes.

..

The 'Continuous Feeding' or 'Timed Feeding' only appears if the proximity switch is enabled.*

Continuous ▲ Feeding? No ▼

Press the **MENU SELECT** up or down buttons to select **Yes** for **Continuous Feed Distribution** or **No** for T**imed Feed Distribution**.

The 'Cont. Feeding Delay' only appears if the Continuous Feeding is enabled in the previous option.

Cont. Feeding ▲ Delay 0:30m:s ▼	Press the **MENU SELECT** up or down buttons to set the length of time for the feeder motor to restart when separating feed cycles. Length of time can be set from 1 minute to 23 hours and 59 minutes.

The 'Feed dump use' only appears if the Continuous Feeding is disabled.

Feed dump use ▲ Actua▼	Press the **MENU SELECT** up or down buttons to select **Actua** if feed drops are actuator controlled; **Valve** if the feed drops are electric valve controlled or **None** to disable the feed drops.

The 'Actuator Open Time' only appears if the actuator is enabled.

Actuator Open ▲ Time 2:30m:s ▼	Press the **MENU SELECT** up or down buttons to set the length of time needed for the actuator delay to open the drops. Length of time can be set from 0 to 120 minutes.

The 'Actuator Delay' only appears if the actuator is enabled.

Actuator Delay ▲ 2:30m:s ▼	Press the **MENU SELECT** up or down buttons to set the length of time for the drops to remain open after the actuators open time has elapsed. Length of time can be set from 0 to 60 minutes.

The 'Use Security Sensor' only appears if the actuator is enabled.

Use Security ▲ Sensor? No▼	Press the **MENU SELECT** up or down buttons to select **Yes** if a limit switch has been placed at the end of the actuator.

The 'Elec. Valve Delay' Time only appears if the electric valves are enabled.

Elec. Valve Delay ▲ Time 2:30m:s ▼	Press the **MENU SELECT** up or down buttons to set the length of time for the drops to remain open using electric valves instead of actuators. Length of time can be set from 0 to 60 minutes.

Max. Current ▲ 7.0AMP ▼	Press the **MENU SELECT** up or down buttons to set the maximum current allowed to be used by the feeder motor. Amp range can be set from 1.0 to 14.0Amp.
Window Size ▲ 1.0AMP ▼	Press the **MENU SELECT** up or down buttons to set the current difference, below the Max. Current, when the auger motor restarts. Amp range can be set from 0.5 to 3.0Amp.
Over Current ▲ Delay 0:45m:s ▼	Press the **MENU SELECT** up or down buttons to set the length of time the feeder motor's current consumption is allowed to exceed the Max. Current limit before an alarm is triggered. Length of time can be set from 30seconds to 15 minutes.
Auger Delay ▲ 0:20m:s ▼	Press the **MENU SELECT** up or down buttons to set the length of time in which the auger is delayed after the feeder start up (Continuous Delay elapse). Length of time can be set from 0 to 60 minutes.
Max Run Time ▲ 2:10m:s ▼	Press the **MENU SELECT** up or down buttons to set the Max Run Time. Operation is different if using a proximity sensor or not – See below. Length of time can be set from 0 to 4 hours.

Proximity sensor used: The '**Max Run Time'** is the feeder's maximum allowable run time. If the set run time is reached, an alarm is triggered stopping the Chain Disk Feed System operation until the alarm is acknowledged and fixed.

Proximity sensor not used: The **'Max Run Time'** is the length of time the Chain Disk Feed System is not running while operating in manual mode.

# of Feeding ▲ Cycles 1 ▼	Press the **MENU SELECT** up or down buttons to set the number of feed cycles to be used each day – up to 20 per day.

IMPORTANT !

Feed cycles are automatically rearranged within the control if a programming error has occurred. A warning message *'Check Feed Cycles'* will occur. To accept the new feed cycle, scroll through the *'Feed Cycle'* menu completely. The warning message will disappear.

Time Mode 12h ▲ ▼	Press the **MENU SELECT** up or down buttons to select whether to display the time in a 12 hour or 24 hour format.

The 'Shut Down Delay' only appears if the proximity switch is enabled.

Shut down delay ▲ 5:00m:s ▼	Press the **MENU SELECT** up or down buttons to set the length of time the feeder motor needs before stopping when feed is detected by the proximity switch at the end of the feed line. This delay time also stop the bin auger. Length of shut down delay can be set from 0 to 10 minutes.

Changing the Password

Change password? ▲ Yes ▼	Press the **MENU SELECT** down button.
Enter new password ▲ ** ** ** ▼	Press **ADJUST**. The first two digit number set will begin to flash on the display. Use the ADJUST up and down buttons to set the first number set.
Enter new password ▲ ** ** ** ▼	Press **ADJUST**. The second two digit number set will begin to flash on the display. Use the ADJUST up and down buttons to set the second number set.
Enter new password ▲ ** ** ** ▼	Press **ADJUST**. The third two digit number set will begin to flash on the display. Use the ADJUST up and down buttons to set the third number set.

Version Display

C-FEEDER Version X.X ▲	Displays the current version of the Chain Disk Feed System Controller.

10.7 Manual Mode/Test Mode

Manual Mode – Filling Feeders

1. In Manual Mode, actuators, electric valves and drive units can all be manually activated.
2. The Chain Disk Feed System can be filled without waiting for a feed cycle to start.
3. At start up, when the manual mode is used, the 'Manual Mode' light will turn on and the control will activate the outputs needed for the feeder to fill.

The manual mode process is completed after the feeder is full.

Press the **MENU SELECT** up or down buttons to select the **Manual Mode** menu.
A password may be required.
Press the ADJUST down button to select **Feed Cycle Mode**.

Feed Cycle Mode: Auto

Press the **ADJUST** button to activate the **Feed Cycle Mode**.
Press the ADJUST up or down buttons to select **Auto**, **Start** or **Stop**.
Press the **ADJUST** button to accept.

IMPORTANT !

When a manual fill of a feeder is started while a feed cycle is in process, the feed cycle is overridden by the manual fill. The controller will not resume the interrupted feed cycle when it returns to the automatic mode, but will perform a drop at the next Dump Time (if applicable)**. A manual dump can also be performed.** (See *'Manual Dump Section'* on pg 58)
Exit from the manual mode after the completed manual filling process.

Manual Mode – Manual Dump

1. An actuator or electric valve can be manually activated so long as a drive unit is not in use.
2. When an actuator or electric valve is manually controlled the Manual Mode light will flash.

Press the **MENU SELECT** up or down buttons to select the **Manual Mode** menu.
Press the ADJUST down button to select **Actuator Mode**.

The 'Actuator Mode' only appears if an actuator is enabled.

Actuator Mode: Auto

Press the **ADJUST** button to activate **Actuator Mode**.
Press the ADJUST up or down buttons to select **Auto**, **Open**, **Stop** or **Close**.
Press the **ADJUST** button to accept.

Press the ADJUST down button once to select **Electric Valve Mode**.
The 'Electric Valve Mode' only appears if an electric valve is enabled.

Electric Valve Mode: Auto

Press the **ADJUST** button to activate **Electric Valve Mode**.
Press the ADJUST up or down buttons to select **Auto**, **Open** or **Close**.
Press the **ADJUST** button to accept.

Test Mode

The Test Mode allows a simulated amperage draw of the drive unit to verify the controller's performance.

Press the **MENU SELECT** up or down buttons to select the **Manual Mode** menu.
Press the ADJUST down button to select **Test Mode Status**.

Test Mode	
Status:	On

Press the **ADJUST** button to activate **Test Mode Status**.
Press the ADJUST up or down buttons to enable the test mode.
Press the **ADJUST** button to accept.

*Press the ADJUST down button once to select **Feeder Current**.*

Feeder	
Current:	0.5AMP

Press the **ADJUST** button to activate **Feeder Current**.
Press the ADJUST up or down buttons to set the simulated current usage.
Press the **ADJUST** button to accept.

Exit from the test mode after the testing is completed.

Toggle Switch

1. A toggle switch can be added to the main board of the control.
2. The toggle switch allows the feeder and auger motors to be manually stopped without setting off an alarm *(Feeder Is Not Running)* between feed cycles.

Refer to the Chain Disk control wiring diagram to add a toggle switch.

The feeder motor power is not cut when using the toggle switch.
Cut the power via a circuit breaker during service and/or

Alarms

Possible alarm conditions are shown in the table below.

Any alarm will shut down the whole Chain Disk Feed System until the alarm is acknowledged and fixed.

Alarm	Description
Actuator is not Closed	The actuator limit switch has not been reached after the Closing Time (only occurs if a safety sensor is enabled).
Actuator is not Opened	The actuator limit switch is still detected after the Opening Time (only occurs if a safety sensor is enabled).
Chain Disk is not running	The feeder motor amperage draw is less than 2.0 Amps.
Current Overload	The feeder motor amperage draw has exceeded the Maximum Current Consumption limit for the Over Current Delay.
Max Run Time	The run time of the Chain Disk drive unit exceeded the Max. Run Time (can only occur if a proximity switch has been enabled).
Toggle Switch is off	Toggle switch is not properly wired or is in the off position.
Chain Disk Safety Switch	The Chain Disk feeder safety switch has been reached.

Alarm Acknowledgement

Toggle Switch is off

Press the **MENU SELECT** up and buttons to select **STATUS**.
Press **ADJUST** button. The display flashes an acknowledgement status.
Press the ADJUST up button to acknowledge the alarm.
Press the **ADJUST** button to accept.

Trouble Light

A trouble light can be added to the main board of the control and can be set to turn on whenever there is an alarm.

The trouble light should ONLY be wired 115-120 VAC
Refer to the Chain Disk control wiring diagrams to add a trouble light.

10.8 Technical Specifications

Control name	C805
Main Supply Fuse F1	F 1A, 250V, Fast-Blow
Main Supply/Frequency	230V+10%-20%, 12A 50/60 Hz
Housing	Plastic Casing
Operating Temperature	32 to 104°F (0 to 40°C)
Storage Temperature	5 to 122°F (-15 to 50°C)
Ambient Relative Humidity	MAX 95% (non condensing)
Alarm	10mA to 2A, 24 VAC or DC MAX
Chain Disk Motor	230 VAC/2 HP MAX
Auger Motor	230 VAC/1 HP MAX - 115 VAC/ ½ HP MAX
Actuator/Electric Valve	230 VAC MAX 5A MAX
Trouble Light	500W MAX, 115 VAC
Installation Category	Category II: Overvoltage Category
Pollution Degree	2
Altitude	Up to 6560ft (2000m)

The C805 is for indoor use only.

Controller room temperature MUST ALWAYS REMAIN BETWEEN 32 AND 104°F (0° AND 40°C).

10.9 Memory Card

A memory card can be used to:

1. Create a back-up copy of the Chain Disk Feed System control configuration.
2. Transfer the Chain Disk Feed System control configuration to another Chain Disk Feed System control.

A switch is located toward the bottom of the memory card allowing the card to be Locked or unlocked.

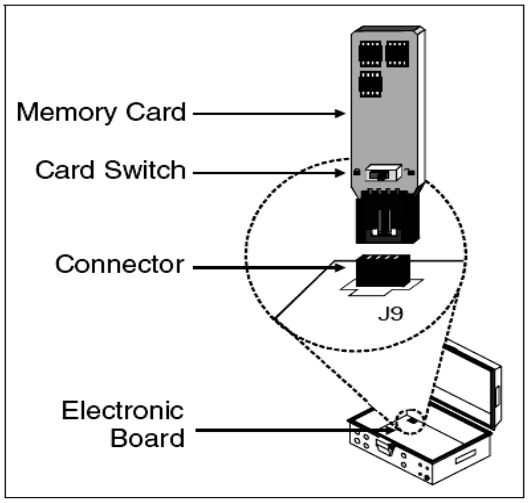
WARNING !

Cut the power while doing any type of work inside the control.
Example: service and/or maintenance.

Configuration Transfers

1. Cut the power before opening the control cover.
2. Switch the memory card to the unlocked position – **a configuration transfer can not occur in the locked position**.
3. Insert the memory card in the J8 connector – see the illustration at the right for proper placement of the memory card within the control. **Do not hold onto the memory card during a transfer.**
4. Close the control cover and turn the power back on.
5. The configuration transfer menu will appear on the display.

If the transfer menu does not appear;
Press the MENU SELECT up and down buttons simultaneously for 3 seconds.
Press the ADJUST up or down buttons to select the transfer type.



Memory Card to Control

Mem.Card -> Ctrl	▲
Press	▼

Simultaneously press the **ADJUST** up and down buttons to start the configuration transfer.

Control to Memory Card

Ctrl -> Mem.Card	▲
Press	▼

Simultaneously press the **ADJUST** up and down buttons to start the configuration transfer.

Press the MENU SELECT up and down buttons simultaneously for 5 seconds to exit the configuration transfer menu.

6. Cut the power before opening the control cover.
7. Remove the memory card.
8. Close the control cover and turn the power back on.

There is NO warning if there is a configuration transfer error. Scrolling though the parameters will indicate whether the transfer was successful. If the transfer was unsuccessful, follow the above process again.

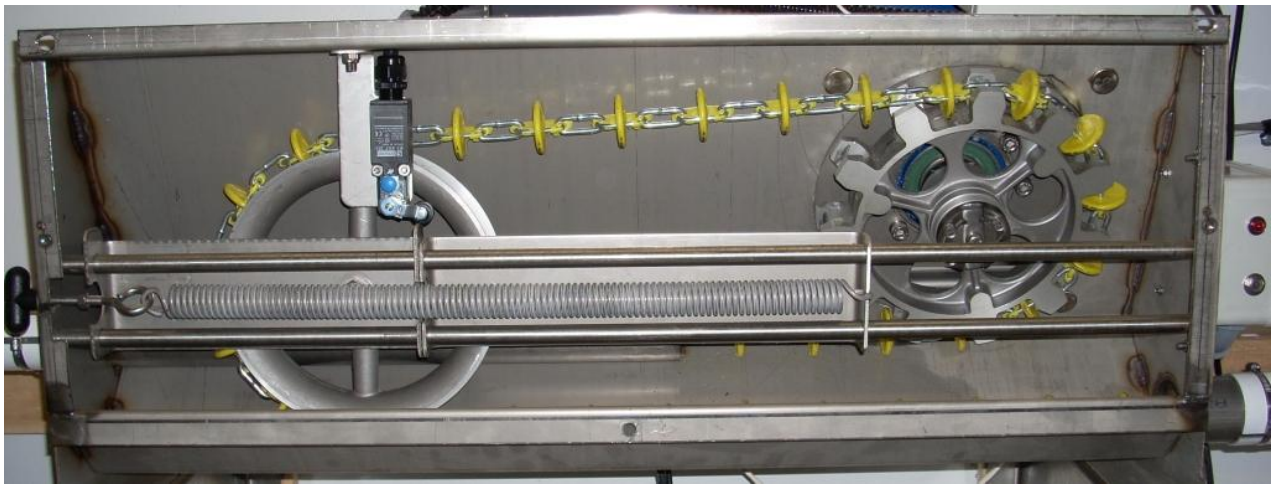
If using a toggle switch and a Flex-Flo System, turn the toggle switch to OFF.

11 CONTROLLER TESTING

11.1 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.



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

12 MAINTENANCE

12.1 Chain and Disk Tension

1. If the actuator bracket is too close to the limit switch follow steps in section 7.6 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.



Remove twice the amount of chain as is required to move the idler wheel.

Example: To move the idler wheel 4 inches, remove 8 inches of chain.

12.2 Gearbox Fluid Level Check

1. The gearbox fluid should be maintained to within 1.0” from the top of the opening.
2. The fill plug is located at the top of the gearbox.
3. The gearbox fluid should be checked on a monthly basis.
4. Use the *recommended lubricant*:



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

12.3 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.

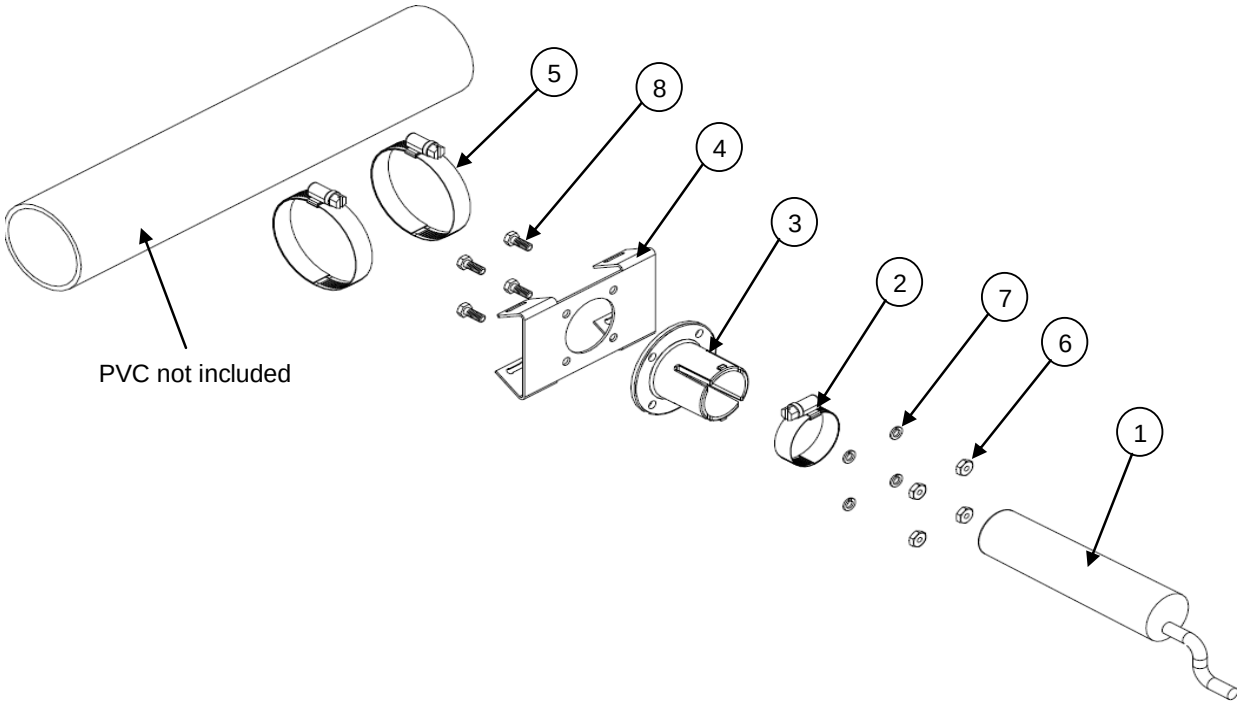
12.4 Limit Switch Inspection

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.

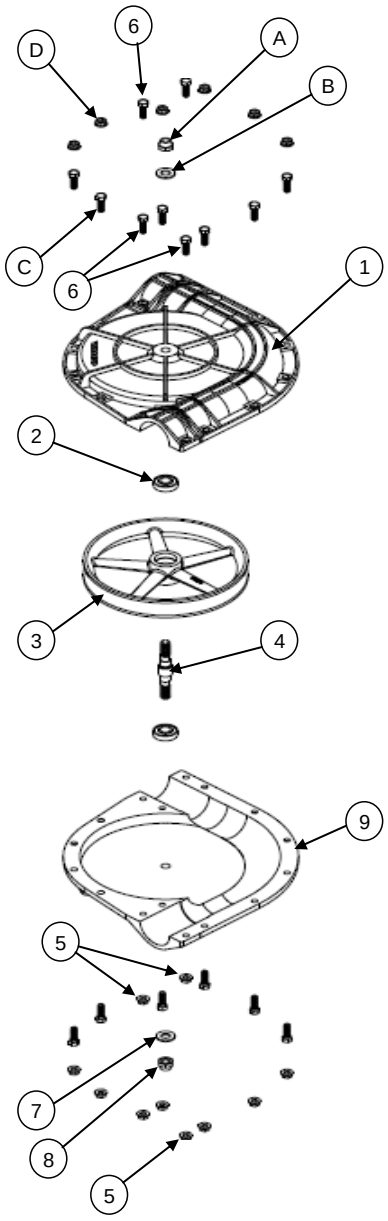
13 PARTS LIST

13.1 (780049) - Tube Proximity Feed Sensor



KEY#	QTY	PART #	DESCRIPTION
1	1	750418	Switch, Proximity
2	1	730282	Clamp, Hose 1-1/2” SS
3	1	780055	Base, Switch Mounting w/ hole
4	1	780048	Bracket, Proximity Mounting
5	2	775095	Clamp, Hose 2-1/2” SS
6	4	012408	Nut, Kep 10-24
7	4	012687	Washer, Lock #10
8	4	012690	Bolt, Hex 10-24 x 3/8

13.2 (780060) - 90 Degree Corner Assembly with Hardware Package



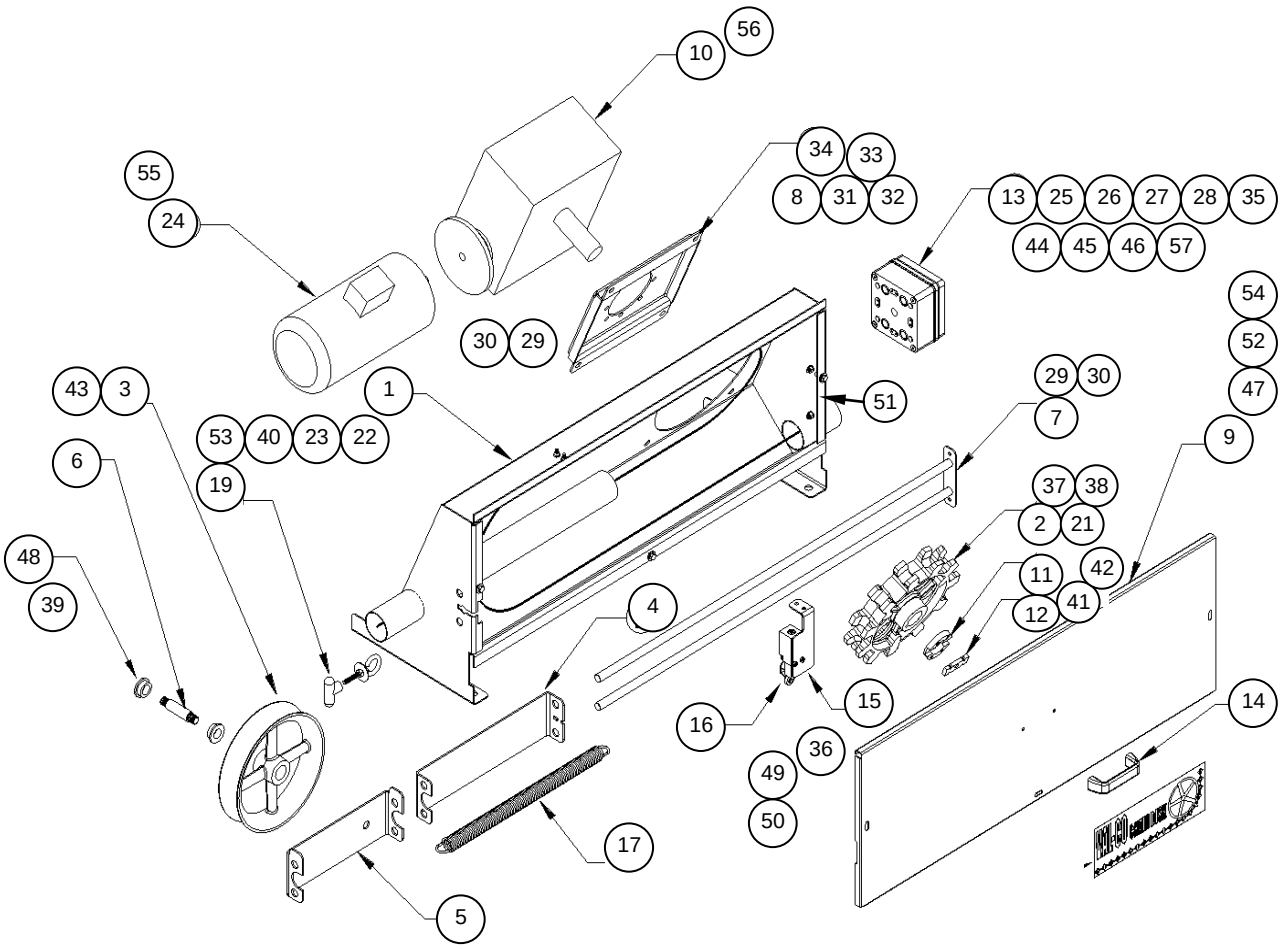
780060 - PARTS LIST

KEY#	QTY	PART #	DESCRIPTION
1	1	780002	60mm C.D. corner top
2	2	780005	Bearing ball 15mm ID x 32mm OD
3	1	780001	Corner wheel casting
4	1	780003	Post corner C.D.
5	4	010432	Nut Flange 5/16-18 SS
6	4	010431	Bolt Hex 5/16-18 x 1 SS
7	1	010406	Washer Flat 1/2 SS
8	1	010413	Nut Lock 1/2 SS
9	1	780031	60mm C.D. corner bottom

Hardware Bag Contents

KEY#	QTY	PART #	DESCRIPTION
A	1	010406	Washer Flat 1/2 SS
B	1	010413	Nut Lock 1/2 SS
C	12	010431	Bolt Hex 5/16-18 x 1 SS
D	12	010432	Nut Flange 5/16-18 SS

13.3 (780160 & 780162) - Chain Disk Drive Unit – Assembly



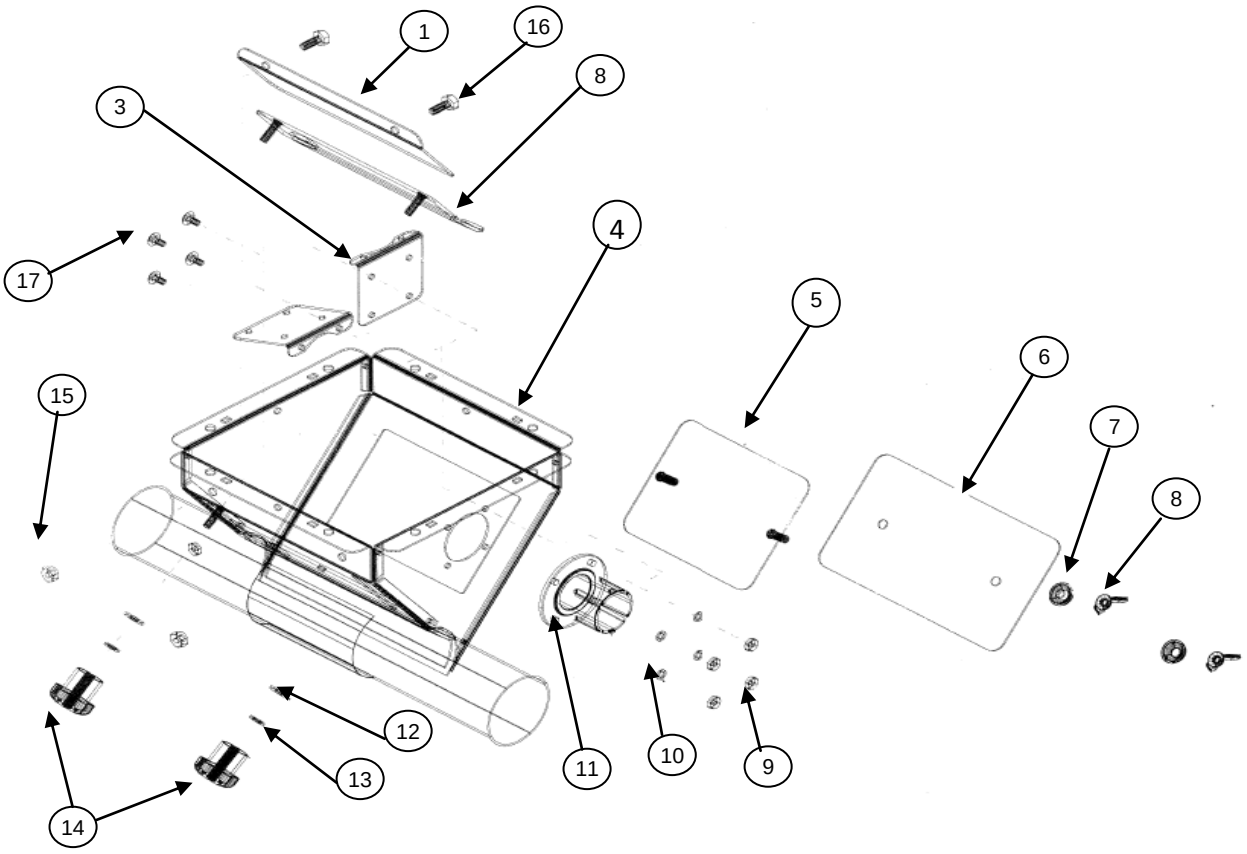
13.4 (780160 & 790162) - Chain Disk Drive Unit – PARTS LIST

KEY#	QTY	PART #	DESCRIPTION
1	1	780165	Weldment 60mm C.D.
2	1	780004	Drive Wheel 60mm C.D.
3	1	780008	Idler Wheel 60mm C.D.
4	1	780020	Bracket Tensioner 60mm C.D.
5	1	780030	Bracket Trip 60mm C.D.
6	1	780006	Shaft Idle Wheel 60mm C.D.
7	1	780033	Weldment Rail 60mm C.D.
8	1	780025	Bracket Reducer 60mm C.D.
9	1	780027	Panel Access 60mm C.D.
10	1	780029	Reducer Gear 40:1
11	1	780042	Ring Shear 2.5 Dia. x .438
12	1	780043	Plate Shear
13	1	780046	Plate Terminal Block Mounting
14	1	780012	Handle Access Panel
15	1	780028	Bracket Limit Switch
16	1	780032	Switch Limit
17	1	780017	Spring Tension
18	1	780023	Eyebolt w/nut 5/16-18 x 2
19	1	780024	T-Handle Spring Pull Plastic
20	1	780007	Washer Fender 1-1/2 x 3/8 SS
21	1	780047	Collar Shaft 1.5”
22	2	425045	Conduit ½” x 90 deg
23	3 ft	425044	Tubing Flexible ½” black
24	1	775064	Motor 2HP 1Ph 115/230V, 1725 RPM **(for Kit 780160)**
25	1	450555	Terminal Block 8P
26	1	780044	Box Electrical C.D.
27	1	750657	Cover Toggle Switch
28	1	730043	Lamp IDI Neon
29	4	011426	Bolt Hex ¼-20 x ¾ SS
30	4	012701	Nut Lock ¼ Nylon Insert S

Chain Disk Drive Unit – PARTS LIST Continued

KEY#	QTY	PART #	DESCRIPTION
31	4	010407	Washer Lock Split ½ SS
32	4	010408	Nut ½-13 SS
33	8	010411	SHCS Hex M10x1.5x20mm SS
34	8	010412	Washer Lock M10 SS
35	1	780059	Switch 20A 250V Tyco HD
36	2	010422	Screw Mach Pan 10-24 x 1-1/4 SS
37	4	010617	Bolt Hex ¼-20 x ¾ SS
38	4	010409	Washer Lock ¼ SS
39	2	780070	Nut Jam 5/8-11 SS
40	2	750030	Grommet straight.197-.348 liquid tight
41	1	010419	Bolt Hex 5/16-18 x ¾ SS
42	1	010252	Washer Lock Split 5/16 SS
43	2	714352	Washer Flat 5/8ID x 1-1/4OD SS
44	2	012570	Screw Mach Rnd 6-32 x 1 SS
45	2	010425	Washer Lock #6 SS
46	2	010423	Nut Hex 6-32 SS
47	9 ft	501400	Weather Stripping 1/8 x 3/8
48	2	780051	Bushing Idler Nylon
49	2	012686	Nut Hex 10-24 SS
50	2	012687	Washer Lock Split #10 SS
51	2	780067	Handle Plastic Rosette
52	2	012615	Bolt Hex ¼-20 x ½ SS
53	4 ft	SPE-000-1052	Wire Electric 16-3
54	2	010410	Washer Flat ¼-20 SS
55	1	780195	Motor 2HP 3PH 208-230/460V, 1725/1450 RPM **(for kit 780162)**
56	4	010440	SHCS 5/16-18 x ½ SS
57	4	011380	Scr Self Tap 8-32 x 3/8 SS
58	4	010253	Washer Lock Split 3/8 SS
59	4	010664	Bolt Hex 3/8 x 1.0 SS

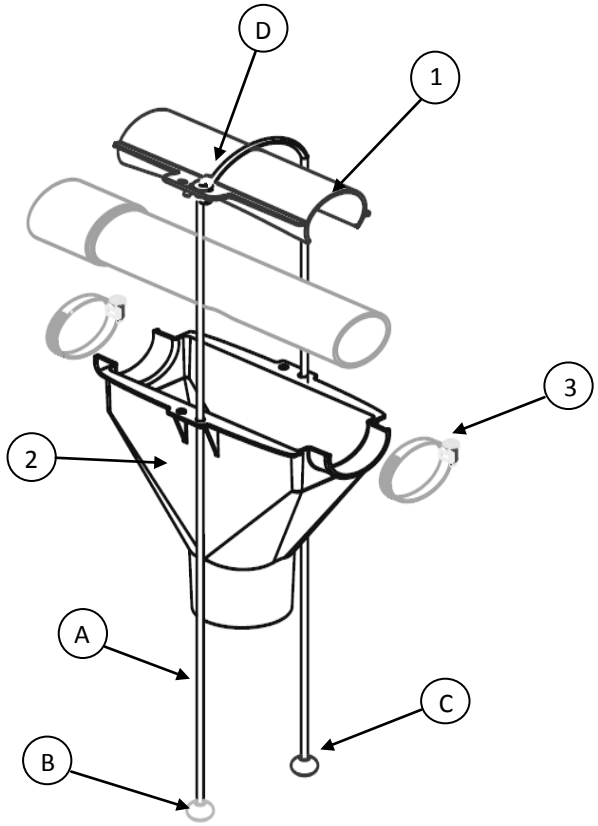
13.5 (780780) - Fill Hopper Assembly



13.6 (780780) - Fill Hopper Assembly – PARTS LIST

KEY#	QTY	PART #	DESCRIPTION
1	1	780789	Shield Gate
2	1	780788	Feed Gate
3	1	780045	Shield Proximity
4	1	780790	Welded 60mm C.D. Fill Hopper
5	1	780783	Door Retainer
6	1	780782	Door Access
7	2	780274	Washer, Bonded Neoprene ¼ SS
8	2	780273	Nut Wing ¼-20 SS
9	4	012686	Nut 10-24 SS
10	4	012687	Washer Lock #10 SS
11	1	780055	Base, Switch Mounting w/ hole
12	2	010410	Washer, Flat ¼ SS
13	2	010409	Washer, Lock ¼ SS
14	2	780064	Knob, 5 Lobe ¼-20
15	3	012701	Nut, Hex Lock ¼-20
16	2	012655	Bolt, Hex ¼-20 x ½ SS
17	4	010502	Bolt, Truss 10-24 x ½ SS

13.7 (720550) - Drop Kit Chain Disk Assembly



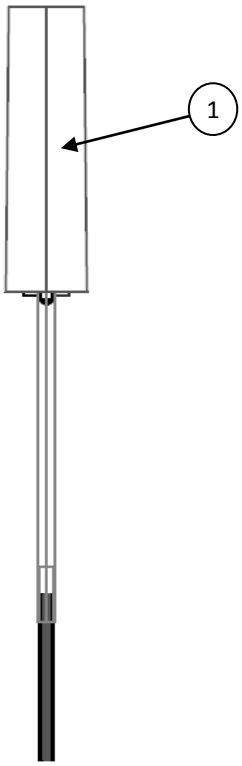
Drop Kit Chain Disk Assembly – PARTS LIST

KEY#	QTY	PART #	DESCRIPTION
1	1	720551	Shut Off Gate 2-1/4” Feed Drop
2	1	720552	Housing 2-1/4” Feed Drop
3	2	775095	Clamp Downspout 2-1/2”

Hardware Bag Contents

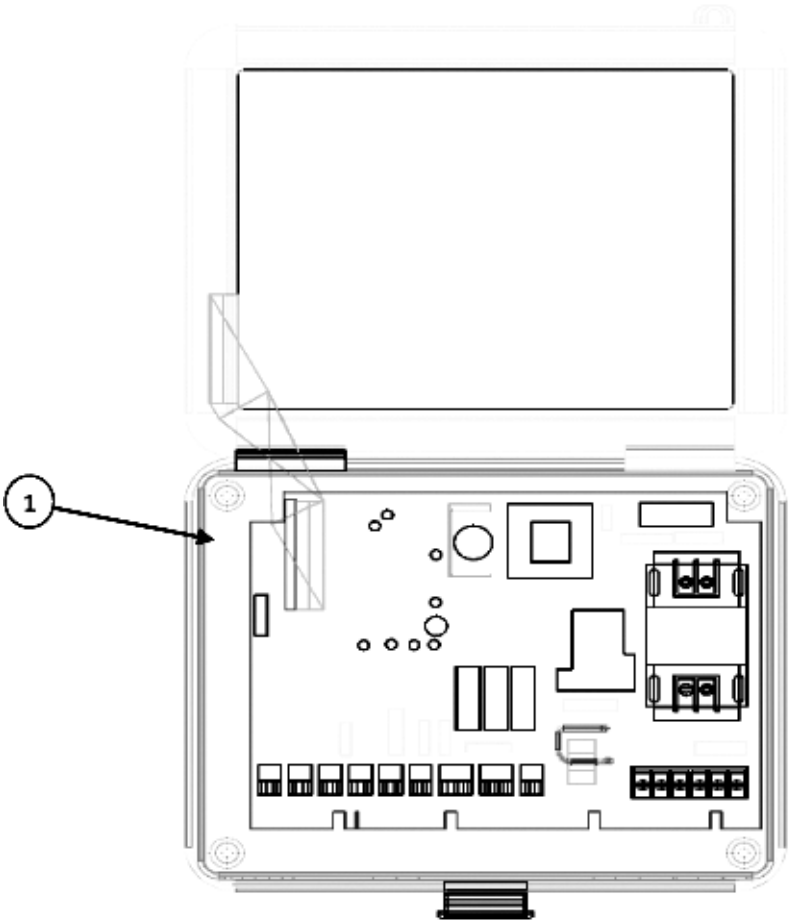
KEY#	QTY	PART #	DESCRIPTION
A	1	713110	Cord, Nylon 10’
B	1	730490	Ball, Shutoff Green
C	1	730492	Ball, Shutoff Red
D	2	730622	Scr, pan hd 8-32 X 1/2

13.8 (750418) - Proximity Switch



KEY#	QTY	PART #	DESCRIPTION
1	1	750418	Proximity Switch 220 Volt

13.9 (780190) - Val-Co Chain Disk Control Box



PART	QTY	PART #	DESCRIPTION
1	1	C805	Chain Disk Control Box

14 OPTIONAL EQUIPMENT

PART #	DESCRIPTION
PX735HMDD02-050	Val-Co Flexible Auger Fill System or comparable equivalent having a maximum of 50 lbs/min rated capacity.
780780	Chain Disk fill hopper which connects to Flex Flo Control Unit
720550	Manual Kwik Attach Drop Kit (single)
720555	Manual Kwik Attach Drop Kit (Box of 10)
780310	Suspension kit for drive unit

15 SPECIFICATIONS

Capacity	Up to 50 lbs/min (23 kg/min) Capacity based on a feed density of 40 lbs/ft3. (641 kg/ m3)
Maximum Overall System Length	1000 ft. Subtract 25 ft. per corner
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
Tubing **780610-PVC Clear 3m** **780600-PVC White 3m** **780601-PVC Coupler** **780602-PVC Coupler**	-Clear or white PVC tubing: 2.00"(51mm)I.D. x 2.36"(60mm)O.D. x 10ft. (3 m) lengths -2.38"(60.5mm)I.D. x 2.63"(67mm)O.D.-used to join sections of tubing together -2.38"(60.5mm)I.D. x 2.63"(67mm)O.D.-used to join PVC sections and drive unit together
Corners **780060**	9.3" (236 mm) diameter steel cast wheel Non-greasable ball bearings Nylon housing with a removable cover
Chain **780056-46mm 50' bag** **780038-46mm 150' bag**	Heat treated Case hardened 3000 lb. (13.3 kN) breaking strength
Drive unit **780160-115/230VAC** **780162-230/460VAC**	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
Drive Unit motor **780195**	2 HP motor: 115/230 VAC, 1 Ph, 50/60 Hz 1725(780160)/1450(780161) RPM 208-230/460 VAC, 3 Ph, 50/60 Hz 1725/1450 RPM (780162)
Control **C-805**	230 VAC, 1 Ph Use a 3 Ph contactor to control a 3 Ph drive unit 24 hr time clock Max run timer Drop feed control

16 TROUBLESHOOTING AND TECHNICAL SUPPORT

16.1 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 15.6.
	Motor thermal overload switch has been activated.	Refer to motor overload section 12.
	Shear Ring or Plate broken	Replace Shear Ring or Plate broken
Limit switch is activated.	Chain disk has too much slack.	Take out chain and disk sections. Refer to section 15. Push the control reset button.
	Chain disk is broken within the system.	Fix broken chain using the connector link. Refer to section 15. Push the control reset button.
	A foreign object is detected within the system.	Locate and remove any foreign objects. Push the control reset button.
	Chain disk feed system is over full with feed.	Check flex flo fill system and the feed sensing switch. Reset the limit switch and push the control unit reset button.
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 flex flo 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.
Chain disks are caught on the drive sprocket	Chain disk installed in wrong direction.	Refer to chain installation section 15.2.
Gearbox is overheating	Low fluid levels.	Add gearbox lubricant.
Chain Disk motor does not shut off	Proximity switch sensitivity has been improperly adjusted.	Refer to section 15.8.
Chain disk motor always shuts off after the proximity by-pass time	Proximity switch sensitivity has been improperly adjusted.	Refer to section 15.8.

16.2 Service and technical support

Val-Co has provided this check list with the most common causes of failure to operate in the table above section 16.1. Our products are designed and manufactured to provide reliable operation with quality control procedures. However; in the event that you should have difficulty your dealer will be happy to answer all technical questions.

My dealer's name: _____

How to contact my dealer:

Street/PO Box _____
City _____
State/Province _____
Zip/Postal _____

Phone _____
Fax _____
E-mail _____
Web site _____

North America:
Phone: 800.99VALCO
(800.998.2526)
Fax: 419.678.2200
Email: sales@valcompanies.com

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Fax: 717.735.1800
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intl.sales@valcompanies.com