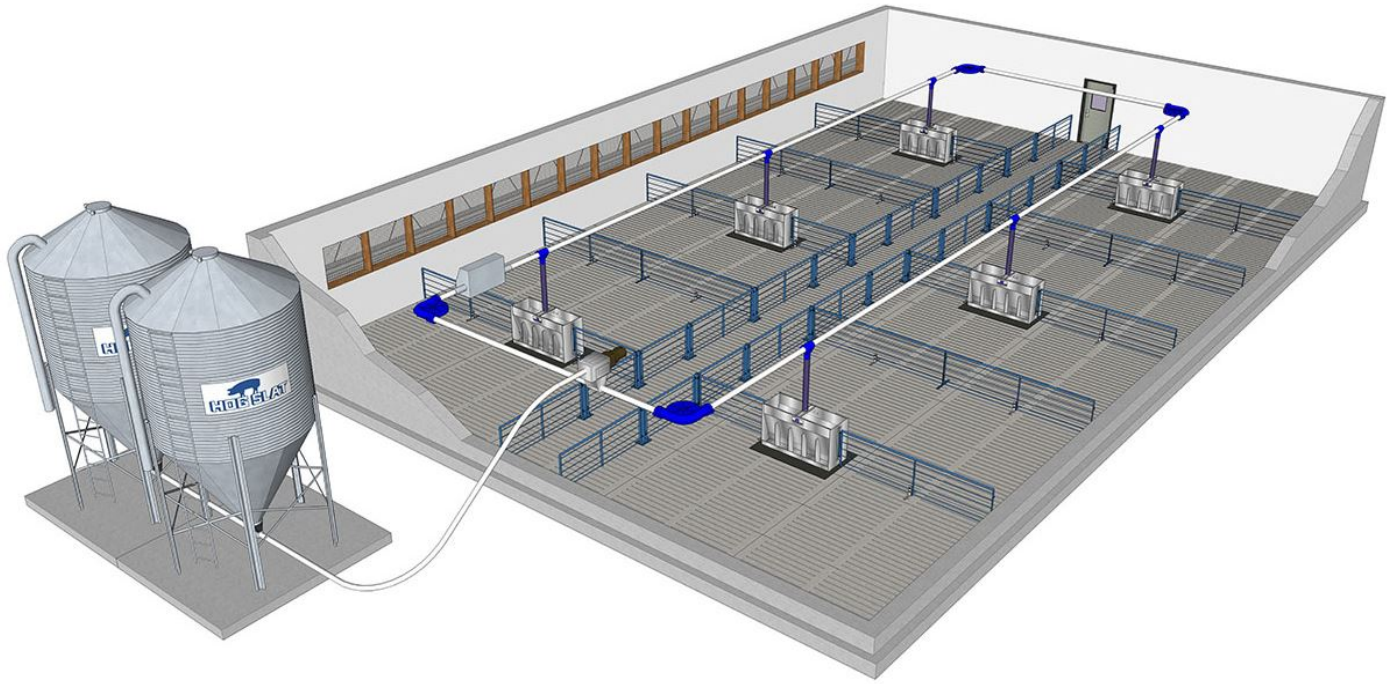
GrowerSELECT®

GROW-DISK™

FEED SYSTEM
ASSEMBLY & OPERATING INSTRUCTIONS



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Safety Information

Caution, **Warning**, and **Danger** decals have been placed on the equipment to warn of potential dangerous situations. Care should be taken to keep this information intact and easy to read at all times. Replace missing or damaged safety signs.

Safety – Alert Symbol

This is a safety-alert symbol. When you see this symbol on your equipment, be alert to the potential or personal injury. GrowerSelect equipment is designed to be installed and operated as safely as possible, however, hazards do exist.

Signal Words

Signal words are used in conjunction with the safety-alert symbol to identify the severity of the warning.

DANGER - identifies immediate hazards which WILL result in severe personal injury or death.

WARNING - identifies hazards or unsafe practices which COULD result in severe personal injury and death.

CAUTION – identifies hazards or unsafe practices which COULD result in minor personal injury or product or property damage.

Warning – Moving Parts

Keep hands and clothing clear of moving parts. Chain Disk can cut and crush.

Severe personal injury will result if the electrical power is not disconnected prior to servicing the unit.

DANGER – ELECTROCUTION HAZARD

Disconnect electrical power before inspecting or servicing equipment unless maintenance instructions specifically states otherwise.

Ground all electrical equipment for safety.

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

Ground all non-current carrying metal parts to guard against electrical shock. With the exception of motor overload protection, electrical disconnects and over current protection are not supplied with the equipment.

General Safety Notes

The assembly, installation, and maintenance must be performed by qualified personnel.

- Safety notes and warnings in these instructions and on the system equipment must be followed. Failure to follow specified instructions may cause damage to equipment and/or personal injury or death.
- All components in the GROW-DISK™ chain system must be transported and assembled properly.
- System may only be operated if all the necessary emergency and alarm systems are connected and operational.
- System must be maintained at regular intervals.
- Only manufacturer-approved components and accessories may be operated in conjunction with the system.
- A lockable main switch must be installed between the controls and the main power capable of shutting the system down. It must be ensured that the system cannot be turned on by a third party.
- Before components in the feed system are opened, the chain must have come to a complete stop.
- Work on the feed system may only be carried out with the corresponding safety equipment (work gloves etc.).
- All system parts must be properly grounded to guard against electrical shock.
- The system may only be operated if all components are closed (driving unit, deflector corner pieces, and feed receiving station).
- The system must be switched off immediately if the conveyor chain is blocked.
- In systems with two or more feed bins in a row, only one bin may dispense feed into the feed system.
- The system can be started automatically using the controls. It must be ensured that no persons can reach into dangerous places with their hands.
- The safety equipment may not be switched to inactive.
- The feed system may only be repaired by persons who are authorized by the manufacturer.
- These instructions are to be submitted to the system operator following successful assembly.
- Always wear protective clothing and any applicable Personal Protective Equipment (Safety Glasses and/or Ear Plugs) when working with the equipment.
- Discarded materials, equipment, and boxes should be recycled in accordance with local and national codes.

Note: System is to be wired in accordance with all applicable local and national electrical wiring codes. All wiring sizes and fuse capacities are to be sized according to applicable electrical code specifications or other regulations.

General Assembly / Operation Notes

Prior to performing any work on Grow-Disk Feed System, read this entire manual. This assembly/operating instructions manual is intended to provide guidelines for the installation of system. Instructions should be considered as recommendations only. Actual installation may vary depending on specific conditions.

Wiring diagrams are included within this manual. Instructions should only be carried out by a qualified technician. This person must have a good understanding of technical issues and drawings in both mechanical and electrical areas.

The system is only suitable for operation in dry areas. System parts that are assembled outside the house must be adequately protected against moisture.

Do not pressure wash the drive unit, chain disk fill hopper, unsealed corners, proximity switch, controller or any other electronic components.

The surfaces on which the system parts are assembled must be able to withstand the static loads.

The GROW-DISK™ Feed System must not exceed any of the design criteria (See Grow-Disk Feed System Specifications on page 9).

Refer to Grow-Disk HSCD-100 System Controller (Hog Slat part # HSMANUAL-048) for system control.

Refer to GROW-FLEX™ AUGER SYSTEM Manual (Hog Slat part # HSMANUAL-020) for proper installation of the GROW-FLEX™ AUGER SYSTEM.

The feed system is intended for the transportation of feed. Maximum running time of the system may not exceed 4 hours per day.

Only dry feed may be transported in the feed conveyor system (maximum residual moisture = 14%, maximum filling level = 50%). The feed can be floury, crumbly, or in pellets.

GROW-DISK™ Feed System Principle of Operation

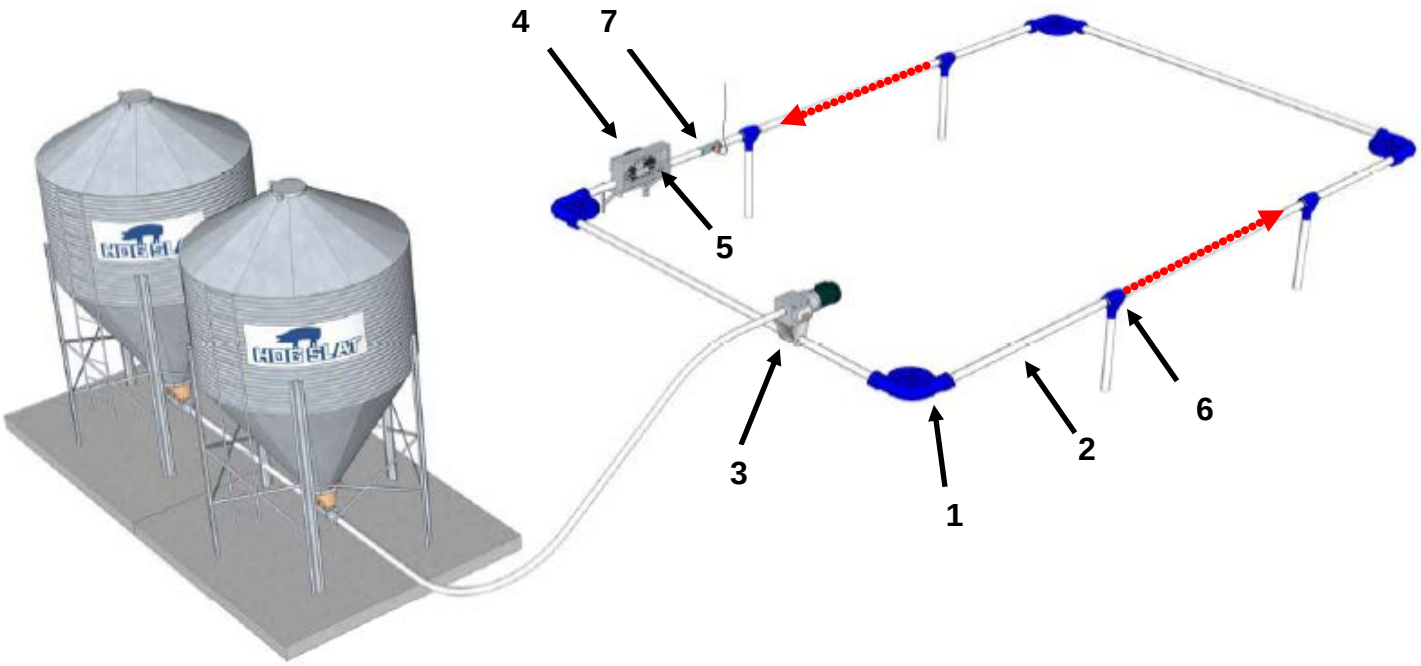
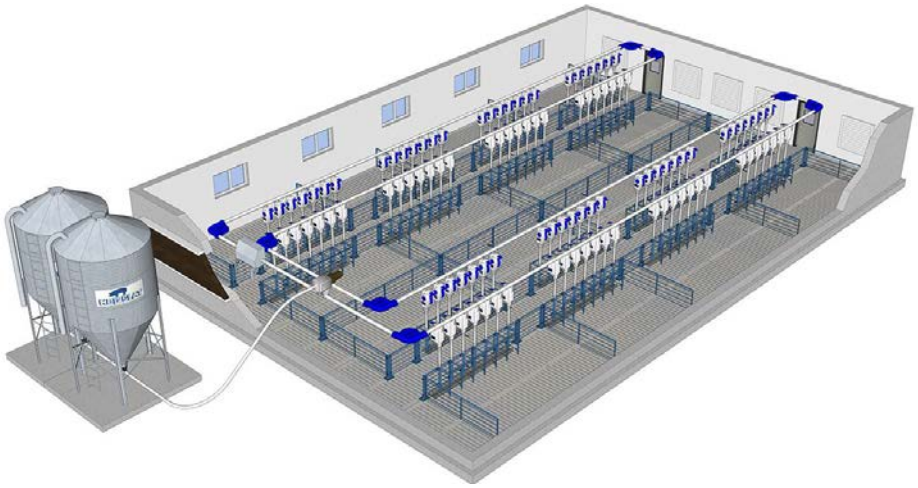


Figure 1.

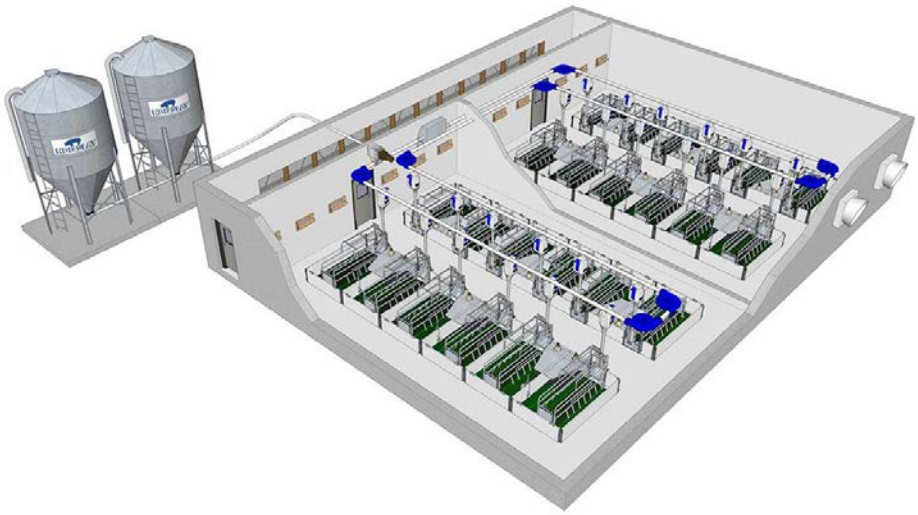
The structure of the GROW-DISK™ Feed System depends on the conditions at the site and must be designed individually. The delivered quantity of corners (1) and the length of the conveyer tubes (2) are calculated by the seller. The manufacturer must be consulted before any extension of the feed conveyer system with corner pieces and / or conveyer tubes.

The GROW-DISK™ Feed system is a closed loop made up of conveyer tubes (2) and corner (1) pieces. The feed is distributed by a GROW-FLEX™ AUGER SYSTEM to the chain disk fill hopper (3). The fill level can be monitored at the conveyer tube with the GROWER-SELECT Control Tube (clear tube) if provided. The drive unit (4) pulls a closed conveyer chain through the conveyer tube system. The conveyer chain (5) transports the feed to the feed dispensing stations with drop tubes (6). Depending on the shutter position of the outlet drops or sow drops (open or closed), the feed is either let out of the conveyer tubes or transported further. The shutdown proximity switch (7) located near the last feed dispenser station stops the drive unit so that no feed can be transported past the last feed dispenser station.

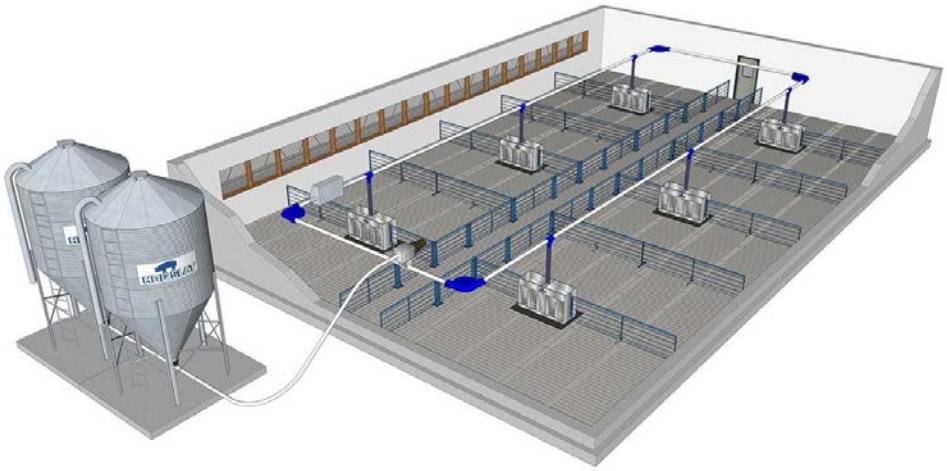
Installation Layout Examples



Gestation



Farrowing

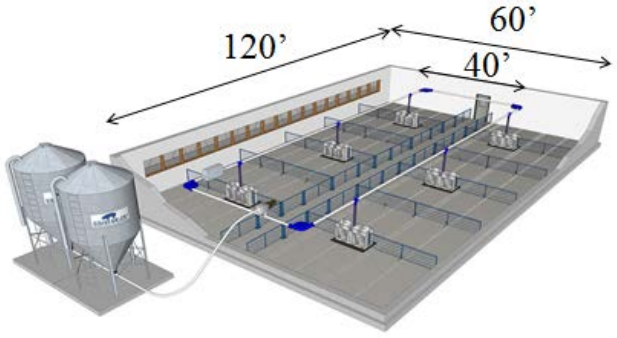


Finishing

GROW-DISK™ Feed System Specifications

Table below shows the technical specifications of the GROW-DISK™ Feed transportation system and the critical design criterias. ***The GROW-DISK™ Feed System must not exceed any of these design criterias***. Refer to GROW-FLEX™ AUGER SYSTEM Manual (Hog Slat part # HSMANUAL-020) for proper installation of the GROW-FLEX™ AUGER SYSTEM.

GROW-DISK™ Applications	
Breeding / Gestation	**Maximum Effective Length 1,300 Ft**
Nursery / Finisher	
Farrowing	
GROW-DISK™ Drive Unit	
Motor Size	1.1kW (1-1/2 HP) 60Hz Single Phase 1725 RPM
Speed	115 Ft/minute
Maximum Runtime	4 hours / day
GROW-FLEX™ AUGER System	
Model	75 (300)
Gear Motor output speed	156 RPM
Feed Delivery (single bin)	21.5 Lbs/minute
GROW-DISK™ Corner	
Maximum qty. per system	24
Effective length reduction	20 Ft/corner
GROW-DISK™ Conveyer tube	
Dimensions	2.375" O.D., 20 Ft long
Material	Welded galvanized steel tube
Maximum installed length	1,300 Ft
GROW-DISK™ Conveyer Chain	
Dimensions	1.732" O.D. Disk
Length per bag	164 Ft
Running Direction	None



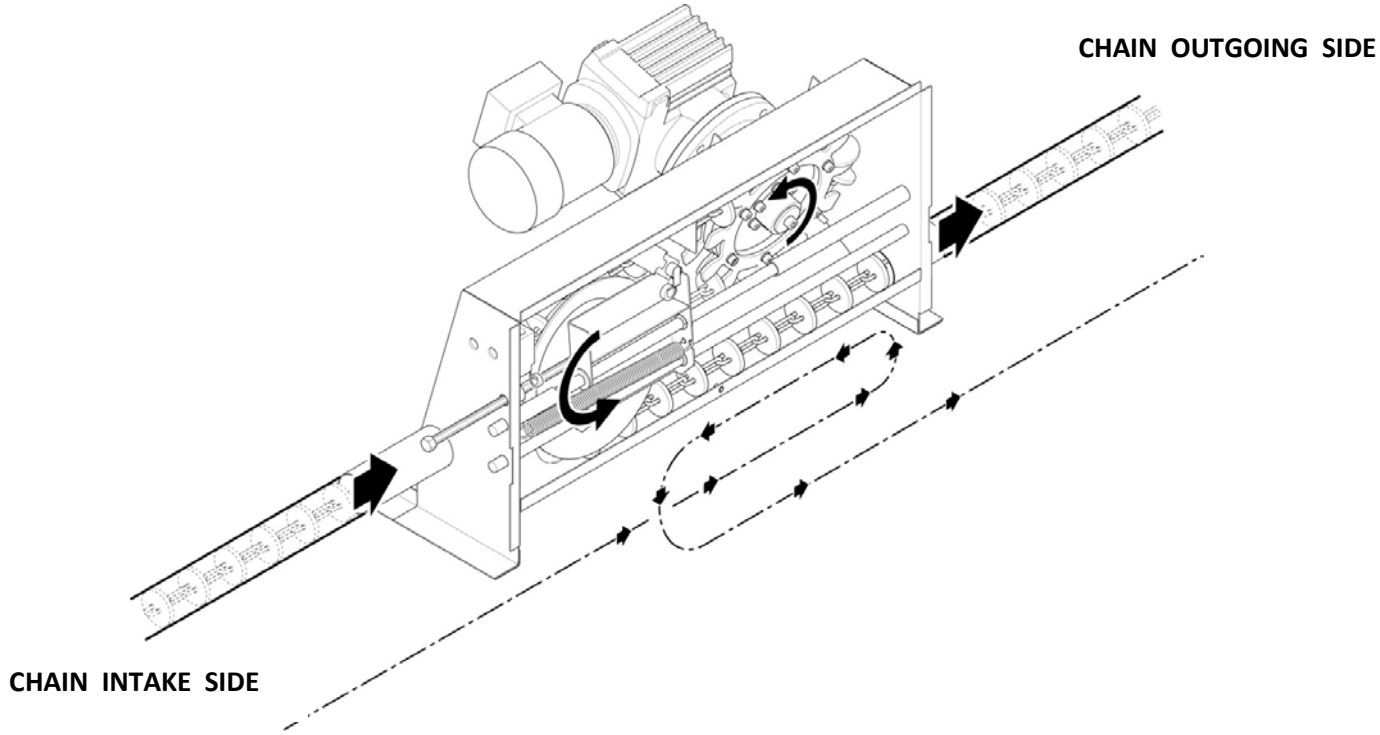
Effective Length Calculation

Components	Qty.	Multiplier	Effective Length
GROW-DISK™ Conveyer tube	320	1	320
GROW-DISK™ Corner	4	20	80
			400

Maximum Runtime = Maximum daily feed requirement divided by Feed Delivery per minute

Principle of Operation for the GROW-DISK™ Drive Unit (WL10022012)

The Drive Unit is an enclosed stainless steel housing with a spring loaded idler tensioning wheel, a drive sprocket wheel, and a safety switch to shut down the system if it becomes obstructed by a foreign object or has incorrect conveyer chain tension. The drive sprocket wheel pulls the conveyer chain out of the conveyer tube system. The guide wheel takes the chain back into the conveyer tube system on the other side of drive unit. Correct chain tension is automatically adjusted by a spring loaded tensioning wheel.
The Drive Unit is designed so that if feed enters the unit, it is able to carry it back out again. Because of this, the Drive Unit can be placed anywhere in the system as long as it is accessible and away from potential traffic areas. The best position to locate the Drive Unit is between the last dispensing point and the Chain Disk Fill Hopper. Ideally, the Drive Unit can be suspended from ceiling but can also be mounted to the wall via brackets. The entire Drive Unit weighs around 200 pounds. If it is suspended, make sure it is mounted properly to avoid structural damage and bodily injury.

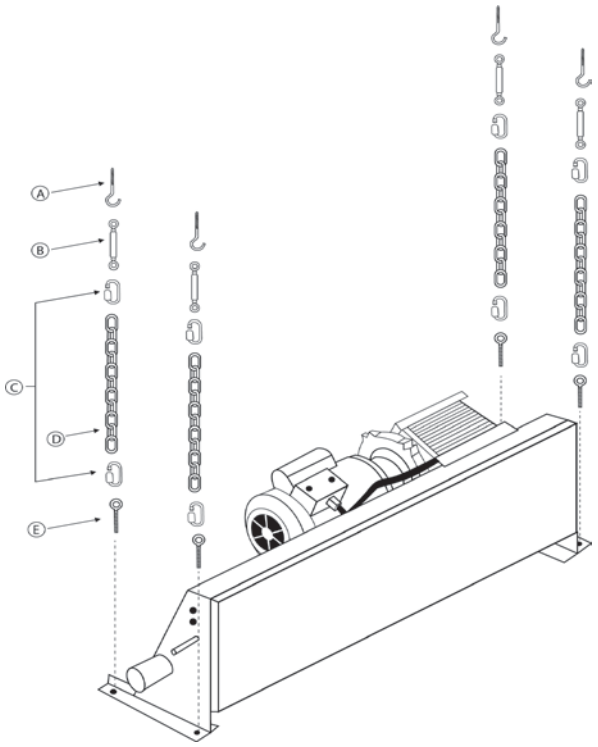


GROW-DISK™ Drive Unit Assembly Requirements

The GROW-DISK™ Drive Unit must be installed in such a way that it meets all the following conditions.

- Drive Unit must be mounted horizontally and securely. **MUST BE LEVEL WHEN INSTALLED!**
- Assemble Drive Unit so internal components and the motor on the backside are accessible.
- Distance between the input-side of drive unit to corner must be a minimum of **8** feet.
- Distance between the output-side of drive unit to corner must be a minimum of **4** feet.
- The Chain Disk Fill Hopper must be placed on the output side of Drive Unit and mounted horizontally.
- The connections for the Drive Unit and the Chain Disk Fill Hopper must be aligned with one another.
- Do not assemble any feed dispensers between the Drive Unit and Chain Disk Fill Hopper.
- Shutdown proximity switch must be installed either in or after the last feed dispenser.

Suspension of the Drive Unit



- Screw cup hooks (A) securely into ceiling approximately 32” apart from one another to provide a stable suspension.
- Place turnbuckle (B) onto lag eye bolts in ceiling.
- Connect quick link (C) to turnbuckle and one end of chain (D).
- Place second quick link (C) to chain at approximately the desired height for drive unit.
- Attach eye bolt (E) to drive unit with washer and locknut.
- Connect the second quick link to the eyebolt.
- Level drive unit by re-hooking chain as necessary or by adjusting the turnbuckles in or out.

Drive Unit Hanging Kit Parts List (WL10022012-HK)

Item	Description	Quantity
A	Cup Hooks	4
B	Turnbuckle	4
C	Quick Link	8
D	Chain	16 feet
E	Eye Bolt (with nut)	4
	Lock Nuts	4
	Washers	8

GROW-DISK™ Conveyer Tubes Assembly Requirements

The GROW-DISK™ Conveyer Tubes must be assembled in such a way that it meets all the following conditions.

- All conveyer tubes must be assembled so the welded joint is at the top.
- Conveyer tubes must be mounted horizontally and hung every 5 feet on wall brackets or chain supports.
- Conveyer tubes can be laid at a maximum angle of 45° to cover different levels of height. Greater inclines should be avoided.

Assembly / Layout of Conveyer Tubes (HSFT2375)

Layout of the tubing is one of the most important steps in the installation of the GROW-DISK™ Feed System. Tubes should be placed in the approximate location where they will be installed. System must be closed looped, sections of tubing can go in any direction, and the change in direction must be 90°. Overlap the tubes where there is to be a corner but do not cut the tubes until all other components are installed. Determine where the drop tubes will be placed.

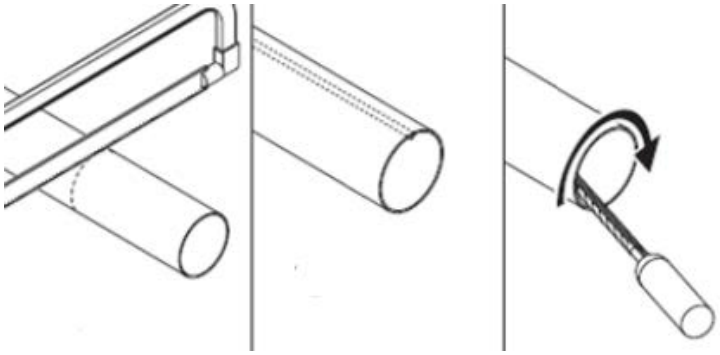
Note: Before installation check the optimal installation height of the system. Check positions and height levels of Inlets, Chimneys, Doors, Flexible Auger, or old Chain Feeding Systems.

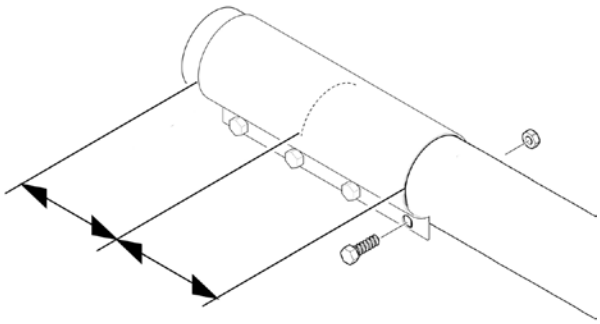
Note: Make sure that the ends of the tubes do not connect where there is to be a drop kit or other feed dispenser. If this occurs, one end of the tube must be cut off enough so the coupler will miss the drop kit.

Note: Drill or cut all outlet holes before assembling

Once the tubing has been laid out, the tubes should be connected in full lengths where possible. All tubes must be connected to each other in the center of the coupler, no space between the tubes! All tubes need to have straight cuts (90°) and all burrs must be removed before installation.

The weld on the tube must be facing up (as shown below) to avoid any chain disk damages during operation and to preserve the drill bits. Assemble welded steel tubing using steel compression couplers**.**





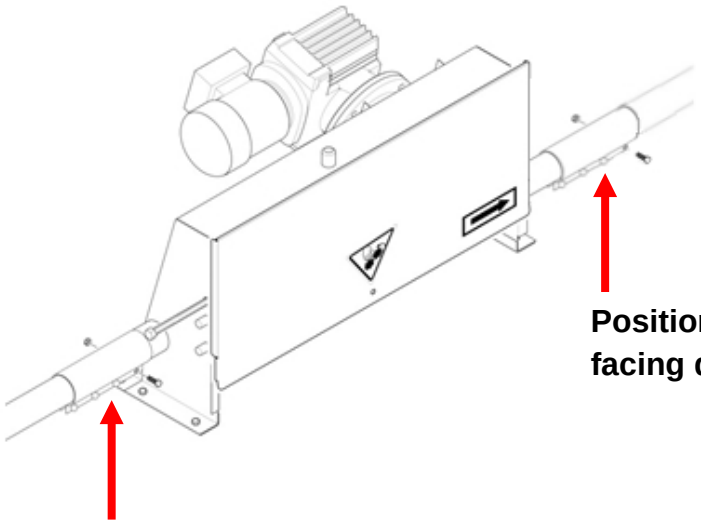
Note: Make sure all couplers are facing downward as shown below. This will ensure no water gets in the system!

INCORRECT CUT

Connection of Conveyer Tube to Drive Unit (WL10022012)

Attach the conveyer tube so that it butts up to the stainless steel tubing on both the inlet and outlet side of the drive unit.

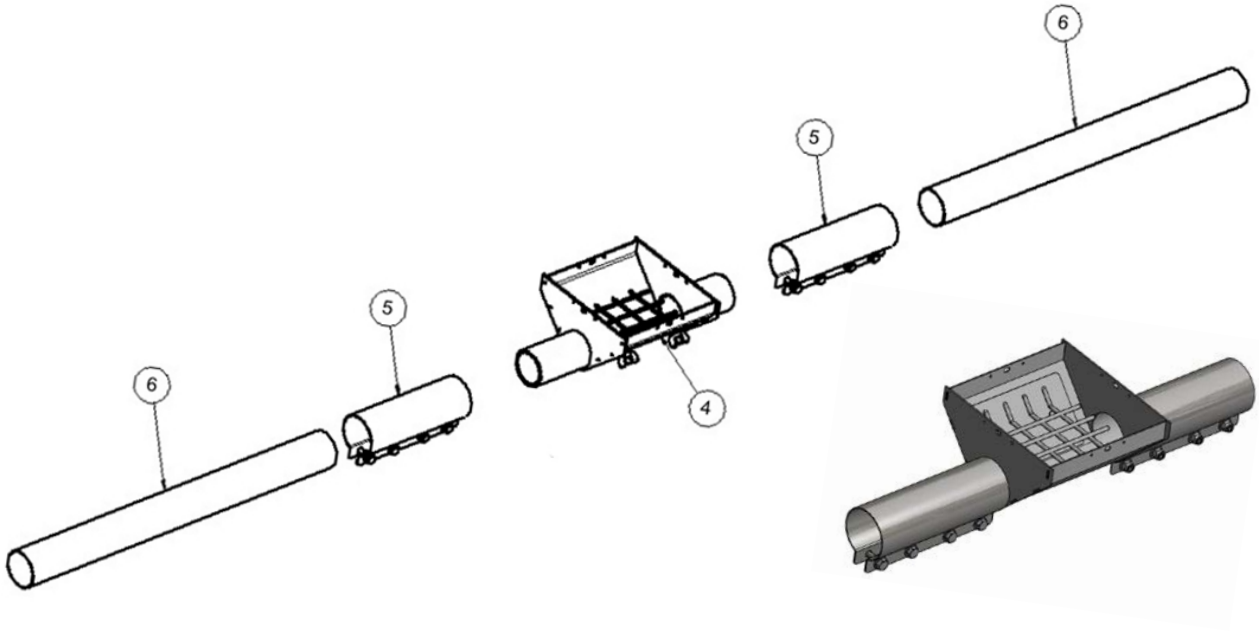
- Place a steel compression coupler over the welded steel tubing and the inlet/outlet of the drive unit and tighten hardware securely. **Note: Make sure coupler is assembled facing downward as shown below to prevent water from entering.**



Connection of Conveyer Tube to Chain Disk Fill Hopper (HSCD304-4)

Attach the welded steel tubing so that it butts up to the stainless steel tubing on both the inlet and outlet side of the Chain Disk Fill Hopper.

- Place a steel compression coupler (5) over the welded steel tubing (6) and the inlet/outlet of the fill hopper (4) and tighten hardware securely. **Note: Make sure coupler is assembled facing downward as shown below to prevent water from entering.**



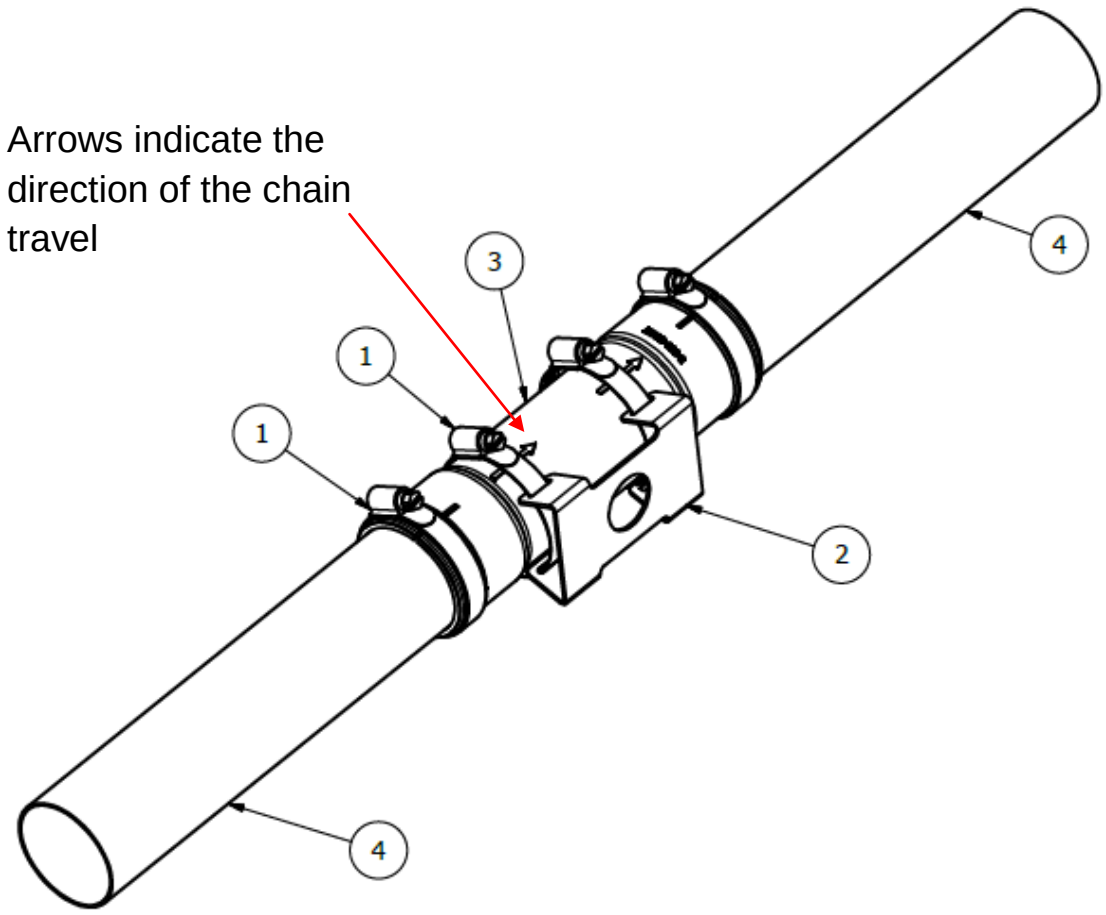
Connection of Conveyer Tube to Feed Sensor Sight Tube (HSCD-900)

In a location after the last drop but before the chain disk drive system, install the feed sensor Clear Tube.

The clear tube (3) HSCD-900-2 installs in-line with the chain disk pipe as shown below. The orientation of the clear tube should be located so the direction arrows on the side of the tube points in the travel direction of the chain disk. Insert the chain disk feed pipe from each side into the tube until it stops (approximately 2"). Secure the clear tube to the chain disk feed pipe using two pipe clamps (1) position near the outer edges of the clear tube. The clear tube has molded in ribs to provide the locations for the clamps.

Next install HSCD-900-1 Feed Sensor mounting bracket (2) to the clear tube (3). Using two clamps (1) route the end of the clamp through the slots of the mounting bracket and secure to the clear tube as shown**. HAND TIGHTEN THE CLAMPS WITH SCREWDRIVER OR NUT DRIVER ONLY. DO NOT USE POWER TOOLS TO TIGHTEN!**

For installation of the Feed Sensor, refer to section **HS11 Feed Sensor**.



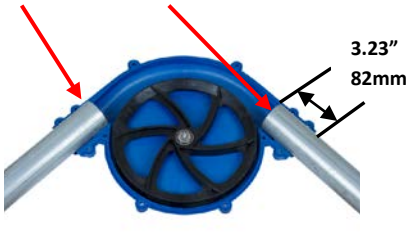
GROW-DISK™ Corner Assembly Requirements

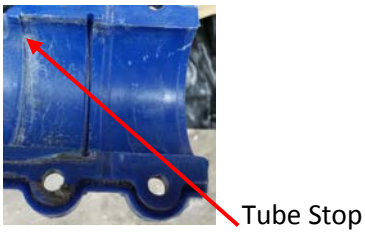
The GROW-DISK™ Corners must be assembled in such a way that it meets all the following conditions.

- The corners must be assembled so that the arrow on the guide wheel turns in the direction of transportation**. Note: Mark the chain running direction at the conveyer tubes in front or behind of each corner.**
- Conveyer tubes must be inserted into the corner up to the tube stop.
- Conveyer tubes must be supported in front of and behind each corner.
- Distance between the corners must be at least **4** feet.
- Distance between the input side of drive unit to corner must be a minimum of **8** feet.
- Distance between the output side of drive unit to corner must be a minimum of **4** feet.
- Maximum 24 corners per system.

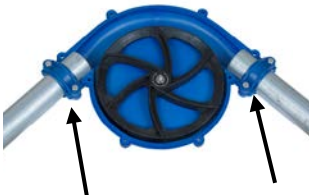
Installation and Sealing of Corners (WL10222096)

Tube Stop Location





1. Open the pre-assembled corner and remove the fastener kit.
   Place the corner between the installed conveyor tubes (tubes must be straight cut and clean).
   Insert both tubes 3.23” (82mm) into the corner as shown above.
   Note: Tubes must bottom out against tube stop as shown above on right.



2. Attach the blue clamp straps over the conveyer tubes with 2 bolts and nuts per strap. Important: Confirm position of wheel has gap as shown above on right.

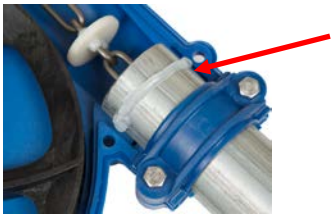
3. Confirm corner wheels running direction corresponds with direction of feed travel in the conveyer tubes. **Note: Mark running direction at the conveyer tubes at each corner**.

Important: Cast Iron wheel is designed to turn in only one direction. Arrow on top of wheel indicates running direction.

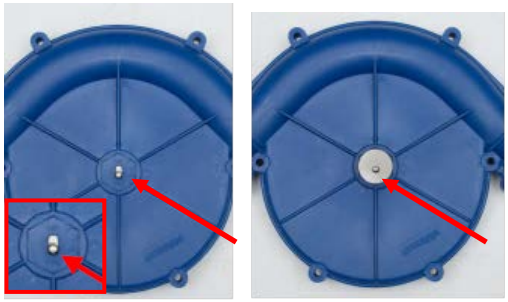
4. Pull the chain through the conveyer tubes and all corners, in direction as shown. The conveyer chain must be tight on the cast iron wheel. (additional information see GROW-DISK™ Chain Installation)

Note: All corners remain open until the installation of the chain has been completed.

5. Place the washer (spacer) on top of wheel bearing



6. Sealing Tubes in Corner – Apply a thick silicone strip over the conveyer tubes.



7. Place cover over all corners and lay the eccentric washers on top of the axle and place them into the socket of the covers as shown above. Place all bolts and nuts and tighten them by hand to hold the cover in position. Check the position of the tubes before you tighten all fasteners crosswise with a wrench. **Caution:** Do **NOT** over tighten nuts.

Note: Corners must be installed with supports on each side as shown.

Sealing of Corners (WL10222096)

8. After proper Initial Operation / Start up (additional information see Start Up instructions) turn off the power of the GROW-DISK™ Feed System and remove nuts and eccentric washers on corners.
   Apply thick silicone in the sockets around the axle – top and bottom as shown above.
   Replace eccentric washers and nuts.

9. Apply silicone into the groove around the complete corner.

10. Press the silicone into the groove with your finger
    System may be operated 1.5 hours after silicone is applied.

Note: Only Sealed Corners Can Be Pressure Washed! Silicone needs 24 hours to completely cure before reopen!

GROW-DISK™ Conveyer Chain Installation Requirements

The GROW-DISK™ Conveyer Chain must be assembled in such a way that it meets all the following conditions.

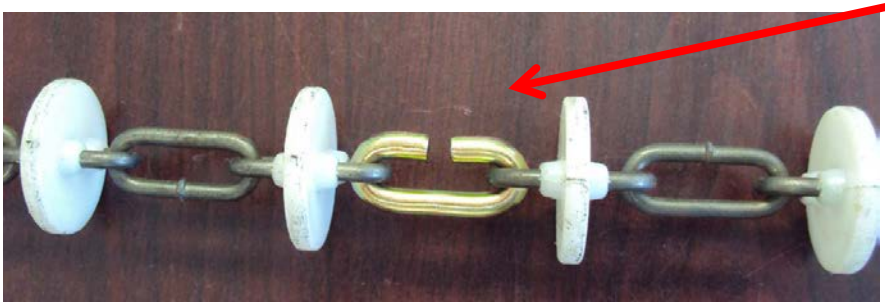
- All conveyer tubes must be assembled so the welded joint is at the top.
- Conveyer tubes must be mounted horizontally and hung every 5 feet on wall brackets or chain supports.
- All outlet holes are drilled or cut before chain installation!
- **Caution!** In order to avoid damage to the conveyer chain and contamination of the feed, all burrs and metal shavings created by cutting and drilling must be removed prior to use.
- All Corners are in place and prepared for chain installation!

GROW-DISK™ Conveyer Chain Installation

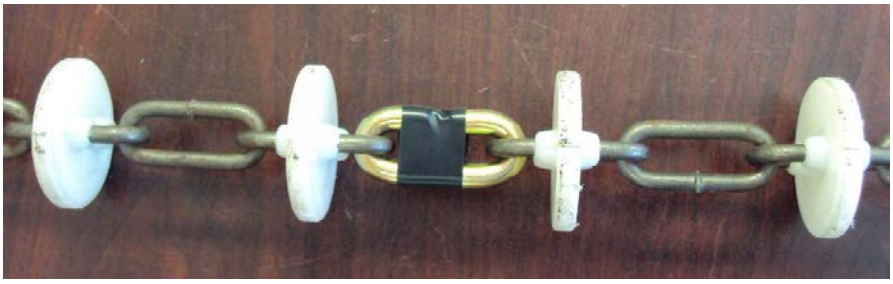
Caution: To prevent damage, the chain disk must not be twisted when it is installed.

Note: Recommendation that 2 or more people assist in the chain installation.

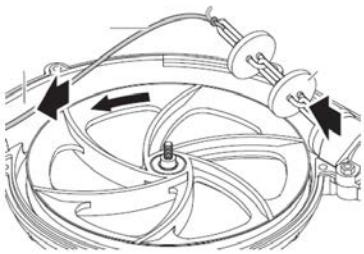
1. Remove chain from bag (164 ft). (Leather work gloves are recommended.)
2. Lay the entire length of chain out straight. **Note: remove any kinks or knots.**
3. Check if any disk or chain links are damaged.
4. At the end of the feed tube loop (behind the Drive unit), push a cable/fish tape through the tube until it comes out into the first corner. A plastic hopper/funnel will be beneficial to prevent chain disk from blocking on feed tube. **Note: Pull chain from one end of the loop only.**
5. Connect one end of the first section of chain to the cable/fish tape.
6. Pull the conveyer chain through the tubing to the first corner piece.
7. If the section of tubing is longer that the section of chain, use more than one bag of chain and connect them together by using a chain coupler.



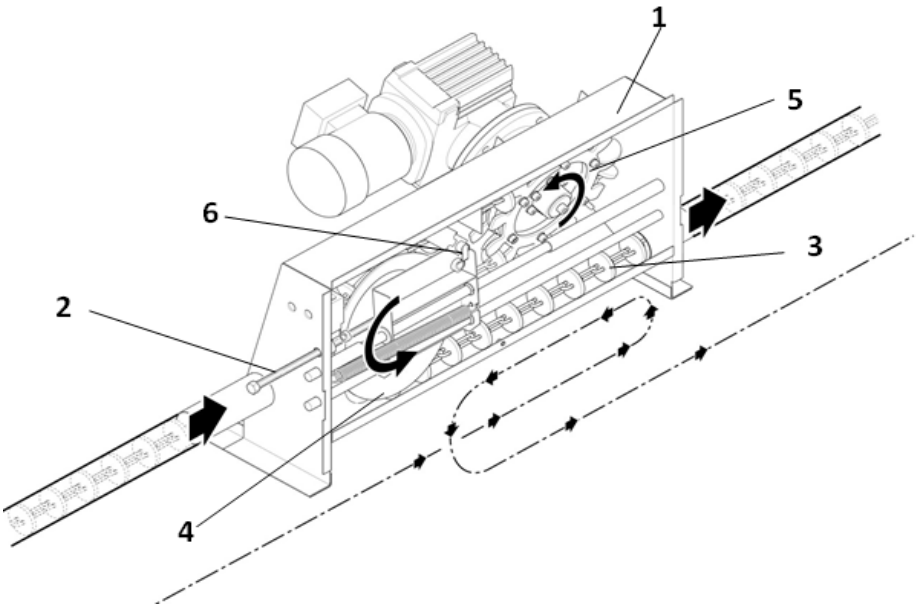
Note: To easily identify the chain coupler for maintenance purposes, mark the coupler with color adhesive tape.

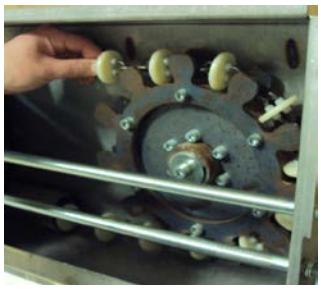


8. Push the cable/fish tape again through the outgoing tube at the first corner until it comes out at the next corner.
9. Pull the conveyer chain from the second corner through the tubing. If the section of tubing is longer than the chain, connect a new section of chain. (Details step 7)
10. Repeat this process (step 8 & 9) until the conveyer chain is pulled through the complete conveyer tubes, all corners, chain disk fill hopper and closed the loop at the other side of the Drive Unit.

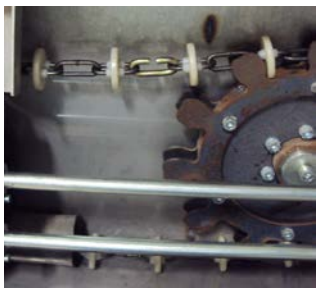


11. Before you can install the conveyer chain in the Drive Unit; pull on the chain and disks until all the slack has been removed from each sides of the chain loop!
12. Confirm the conveyer chain is tight on the nylon wheel at each corner.





13. Adjust the tensioning rod (2) inward on drive unit (1) as far as possible towards the drive sprocket (5). This will allow the idler tensioning wheel (4) to get close to the drive sprocket for tightening chain (3) after assembled.
14. Wrap one end of the chain (3) around the idler wheel (4) and the other end of chain onto the drive sprocket (5).



15. Position the Safety Switch (6) approximately 2 inches from the left side of bracket. This will prevent the initial startup movement from causing an erroneous activation of switch due to any slack in chain or stretching of chain.
16. Cut the ends of each chain (3) so that the connection can be made in a convenient location.

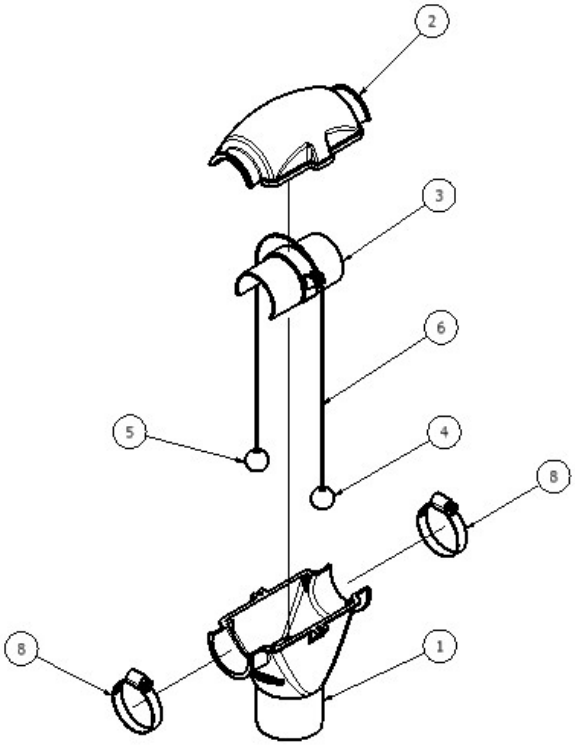
17. Connect the chain (3) ends with chain coupler and mark with color adhesive tape for easy identification. (details chain connection step 7)
18. Readjust the tensioning rod (2) all the way back out so the Safety Switch bracket is capable of floating freely.
19. Place cover on drive unit and secure.

Important: Do not drill holes in conveyer tubes after chain is installed!

GROW-DISK™ Outlet Drop Assembling / Installation

GrowerSELECT HS660S Model 60 Drop Adaptor – Straight Chain Disk

The GrowerSELECT HS660S Feed Line Drop Adaptor is designed to allow the transfer of feed from a feed line or Feed Delivery System into a gravity Drop Tube at desired location along the Feed Delivery System. They are to be used only with 2.375" diameter chain disk tubes.

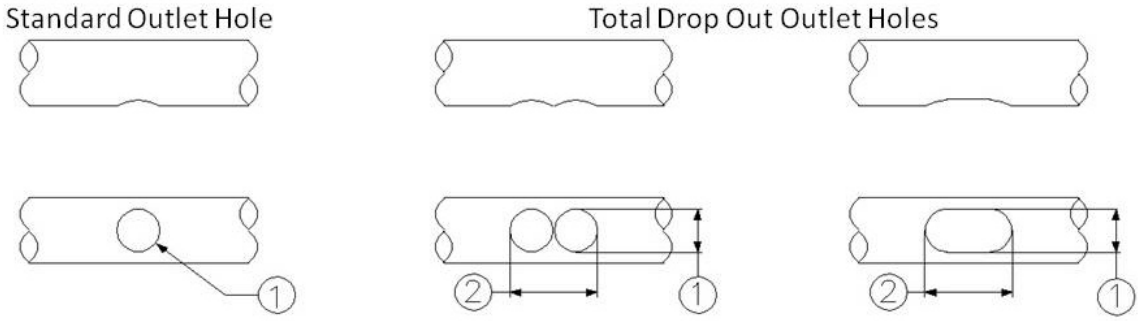


		GrowerSELECT Part
Item	Name	HS660S
1	Outlet Adapter	*
2	Cover	*
3	Shutoff	*
4	Green Ball	HS655-5
5	Red Ball	HS655-6
6	Rope	-----
8	Clamp	HSHC-36

* Not Sold Separately

GrowerSELECT HS660S Feed Line Drop Adaptor Installation

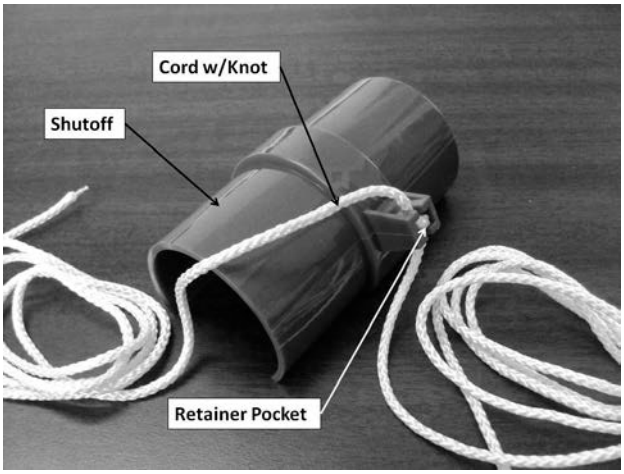
1. Determine the desired location for the Outlet Drop. Use a hole saw or uni-bit to drill outlet holes. All burrs should be removed after cutting so drop will perform properly. This is important on chain disk system as to not damage the chain disks or drop adapter. Reference Figures and Charts below.



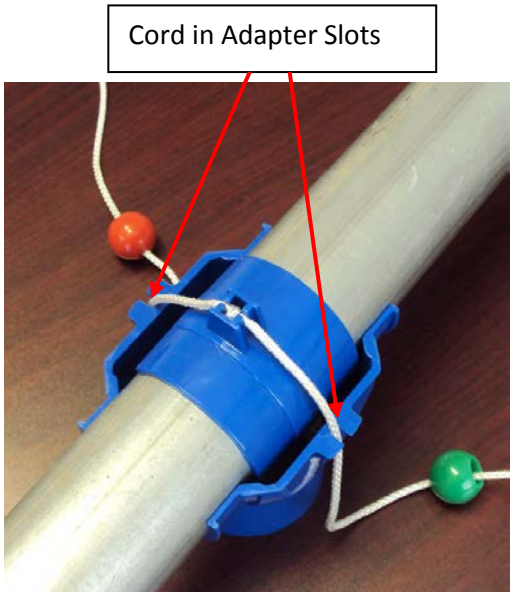
Outlet Hole Configuration

Model	Item 1	Item 2
60	1-1/2" Dia. (40 mm)	n/a

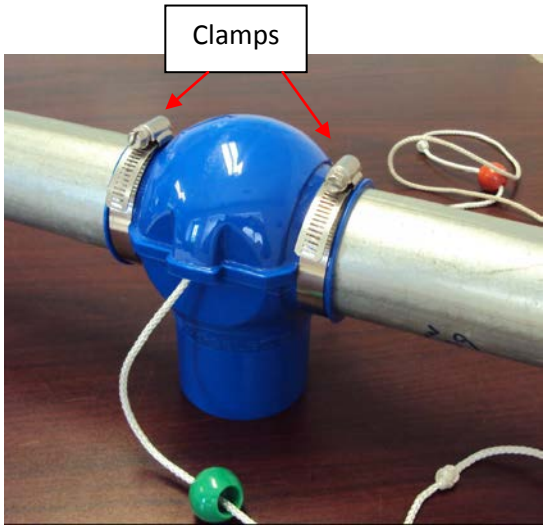
2. Tie an overhand knot in Cord provided located at center of Cord length. Assemble Cord with Knot into retainer pocket of the Shutoff making sure that cord is fully seated in slots.



3. Snap the Shutoff Assembly with Cord on the metal tubing of previously drilled or cut Outlet Hole.
4. Assemble (snap) the Outlet Adapter onto the metal tubing under the Shutoff Assembly over the Outlet Hole. Outlet Adapter should remain in place.
5. Tie a knot in center of cord and position knot into Shutoff Assembly as shown below. Place cord in slots of Outlet Adapter. Assemble Cover to top of Outlet Adapter over Shutoff Assy.



6. Assemble supplied Clamps on each end of Outlet Assembly as shown to prevent sliding and rotation. Make sure the entire Outlet Drop is centered over the Outlet Hole. Adjust Outlet drop for proper downward orientation and tighten Clamps to hold in place. **Note: Make sure that Cords are still in guide slots and move freely prior to tightening Clamps.**

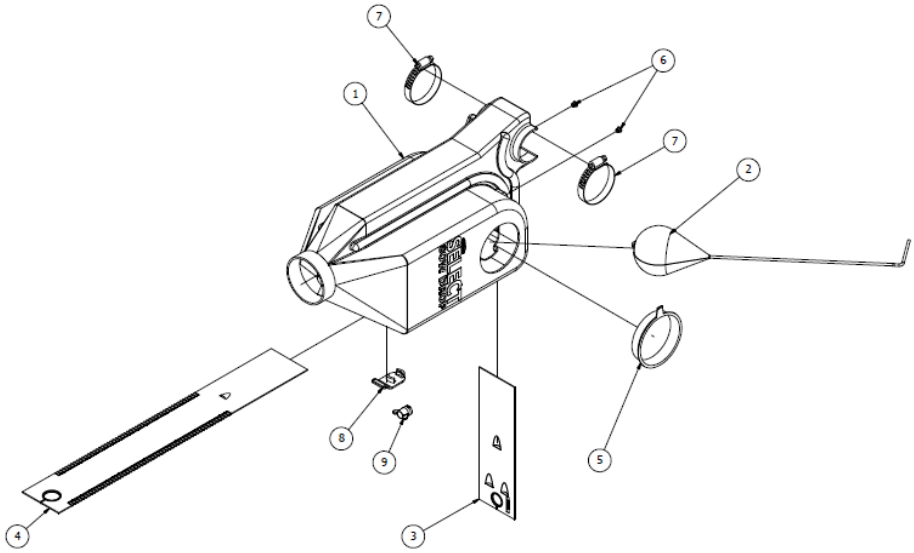


7. Determine the appropriate length of Cord needed to ensure greatest ease of actuation. Assemble Indicator Balls on the Cord ends and knot each end of Cord so the Indicator Balls will not pull off. Green Indicator Ball should be assembled to end of Cord closest to retainer pocket of Shutoff or the “Open” position. Check by looking up through the Adapter opening. Check for proper function by using Indicator Balls to open and close Outlet Drop.

GROW-DISK™ Sow Drop Assembling / Installation

GrowerSELECT HSSD55 12 Pound Sow Drop Feeder

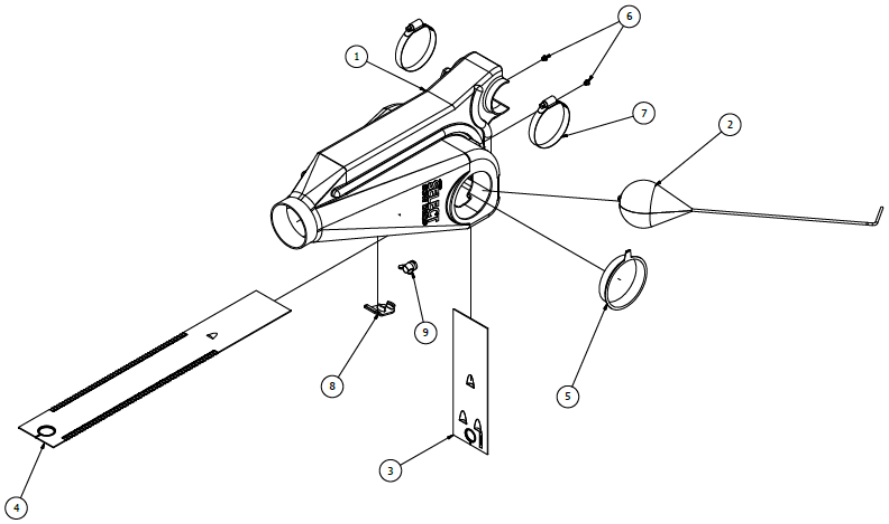
The GrowerSelect HSSD Feeder Sow Drop Dispenser is specifically designed to hold and deliver feed to gestating sows within a swine facility. The capacity of each feed dispenser is 1-1/2 to 12 pounds. The delivery of feed can be controlled manually or automatically with the use of winches, trip levers, actuators, control units, timers, and sensors.



Item	Description	Part Number
1	Tank	HSSD55-1
2	Ball Drop with String	HSSD01
3	Shut-off Gate	HSSD02
4	Feed Measure Gate	HSSD03
5	Cap	HSSD04
6	Grommet	HSSD06
7	Hose Clamp	HSHC-36
8	Clip	HSSD05
9	Thumb Nut 1/8”	HSH032

HSSD558 8 Pound Sow Drop Feeder

The GrowerSelect HSSD558 Feeder Sow Drop Dispenser is specifically designed to hold and deliver feed to gestating sows within a swine facility. The capacity of each feed dispenser is 1-1/2 to 8 pounds. The delivery of feed can be controlled manually or automatically with the use of winches, trip levers, actuators, control units, timers, and sensors.



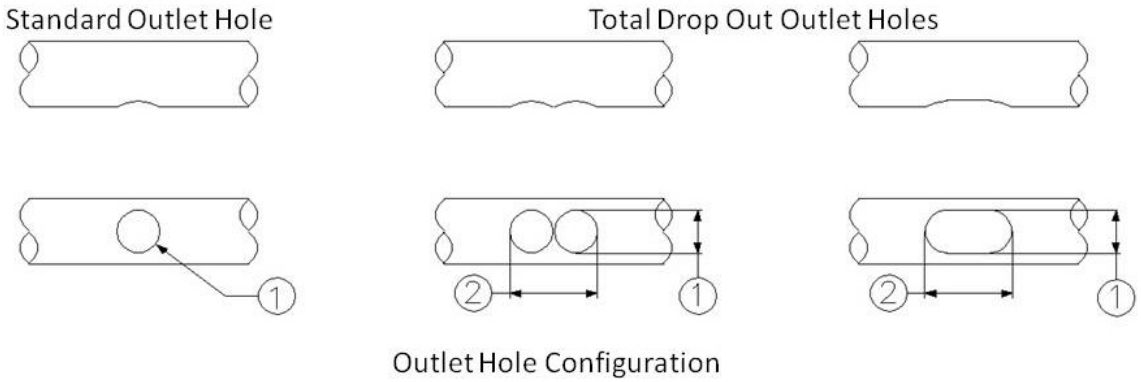
Item	Description	Part Number
1	Tank	HSSD558-1
2	Ball Drop with String	HSSD01
3	Shut-off Gate	HSSD02
4	Feed Measure Gate	HSSD03
5	Cap	HSSD04
6	Grommet	HSSD06
7	Hose Clamp	HSHC-36
8	Clip	HSSD05
9	Thumb Nut 1/8”	HSH032

HSSD60C 8 Pound Sow Drop Center Drop Feeder 60mm with Guard

The GrowerSelect HSSD60C Feeder Sow Drop Dispenser is specifically designed to hold and deliver feed to gestating sows within a swine facility. The capacity of each feed dispenser is 1-1/2 to 8 pounds. The delivery of feed can be controlled manually or automatically with the use of winches, trip levers, actuators, control units, timers, and sensors.

GrowerSELECT Feed Line Sow Drop Installation

Determine the desired location for the Outlet Drop. Use a hole saw or uni-bit to drill outlet holes. All burrs should be removed after cutting so drop will perform properly. This is important on chain disk system as to not damage the chain disks or drop adapter. Reference Figures and Charts below.



Outlet Hole Configuration

Model	Item 1	Item 2
60	1-1/2" Dia. (40 mm)	n/a

Adjustment Method – To change the capacity of the Sow Drop dispenser, a retractable wall is adjusted up and down by sliding the blue capacity indicator tab to meet the specified amount.

Shut Off Operation – dispenser is equipped with a top slide which covers the top inlet hole preventing flow of feed. Pull the slide out will allow feed to flow.

Feed Drop Method – In order to release the feed from the Sow Drop dispenser, a ball is pulled vertically by a cable which uncovers the hole in the bottom of the feeder.

GROW-FLEX™ AUGER System Installation

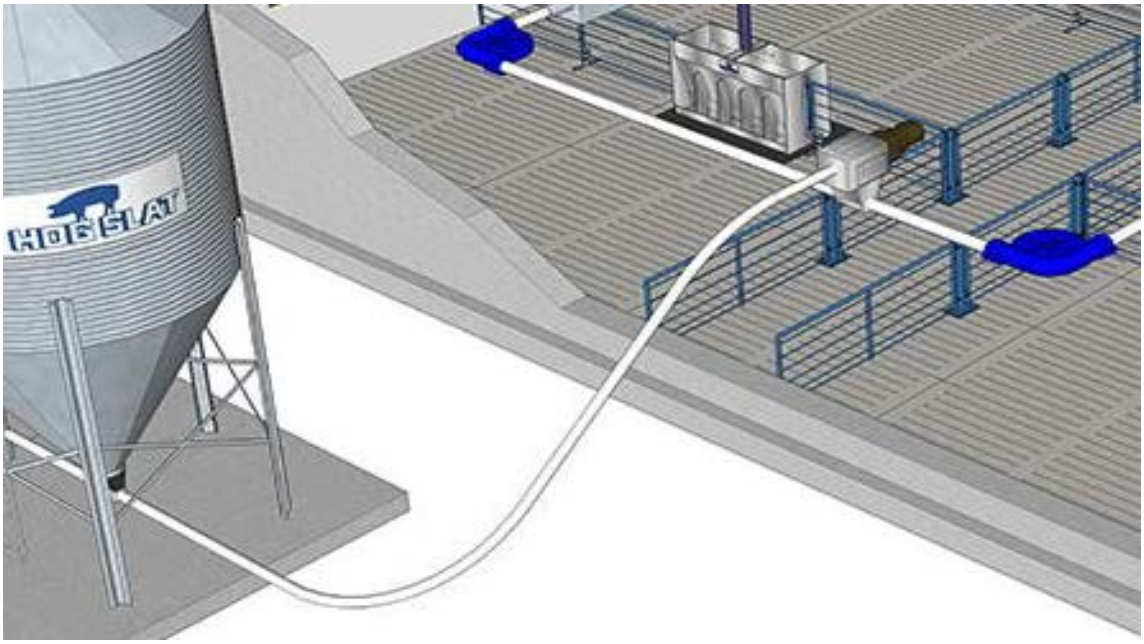


Diagram above shows an example of a GROW-DISK™ Feed System including a GROW-FLEX™ AUGER System. The GROW-FLEX™ AUGER System must be used to transport feed from the bulk feed tank to the GROW-DISK™ Feed System inside the containment house. In colder climates, the GROW-DISK™ Feed System can possibly lock up when used outside due to freezing temperatures whereas the GROW-FLEX™ AUGER System can break up loose frozen feed for delivery. The GROW-FLEX™ AUGER SYSTEM can be installed either parallel or perpendicular to the Grow-Disk chain system. Refer to GROW-FLEX™ AUGER SYSTEM Manual (Hog Slat part # HSMANUAL-020) for proper installation of the GROW-FLEX™ AUGER SYSTEM.

GrowerSELECT HS693 Feed Line Control Unit – 230V Single Phase

The HS693 Control Unit is designed for use with a flexible auger feed system where control of an auger drive motor is required. Power to the auger drive motor is done through feed pressure being applied to a diaphragm coupled to an electrical switch internal to the control unit housing. This switch in conjunction with a multi pole relay is used to control the auger drive motor by turning off the power when feed is present and turning on the power when feed has been removed from the control unit housing. Auxiliary switch inputs provide a series circuit that allows the Control Unit Switch Assembly to be controlled by a variety of methods including hopper level, drop tube, proximity and various other control devices found in feed systems.

The sensitivity of the electrical switch is not adjustable.

ELECTRICAL RATING : 1 ½ HP @ 230VAC MAX, 1 PHASE

A red indicator light on the side of the switch housing will illuminate when the diaphragm has been pressed (MOTOR OFF) and the switch has been activated.
The ON/OFF switch is used to enable or disable the Control Unit. **DO NOT USE THIS SWITCH AS DISCONNECTING MEANS FOR SERVICING.**

GrowerSELECT HS693 Feed Line Control Unit Installation

1. (Figure 1) Illustrates a typical installation example of the HS693 Feed Line Control Unit**.**
   (The hopper/funnel will not be used.)
   a. Mount tube anchor to one side using 4 of 5/16" x 3/4" bolts with 4 flat washers.
   b. Mount auger power drive unit gear box (1) secured with 4 of 5/16" x 3/4" bolts and 4 flat washers.

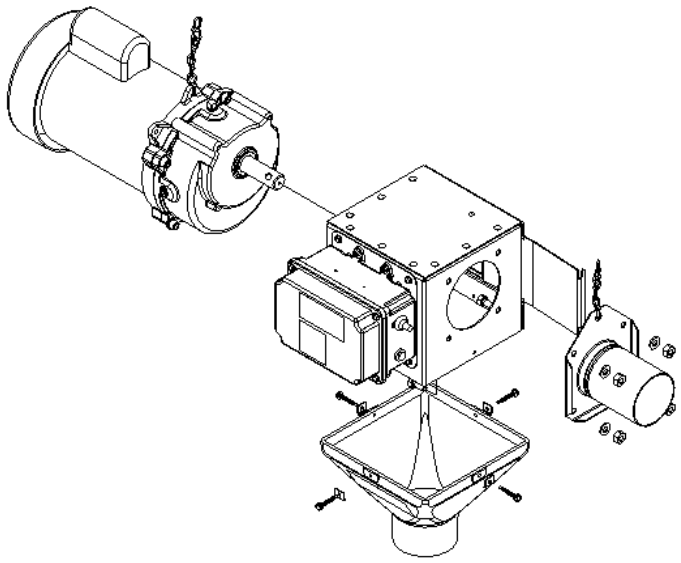


FIGURE 1

2. (Figure 2) Illustrates the installation of the HS693 Control Unit on top of the Chain Disk Fill Hopper
   a. Hang the assembled Control Unit (2) with supporting chains (3) over the Chain Disk Fill Hopper (4)
   b. Connect the Control Unit (2) on top of the Chain Disk Fill Hopper (4).
   c. Attach conveyer tubes (6) to Chain Disk Fill Hopper (4) with the tube couplers (5).

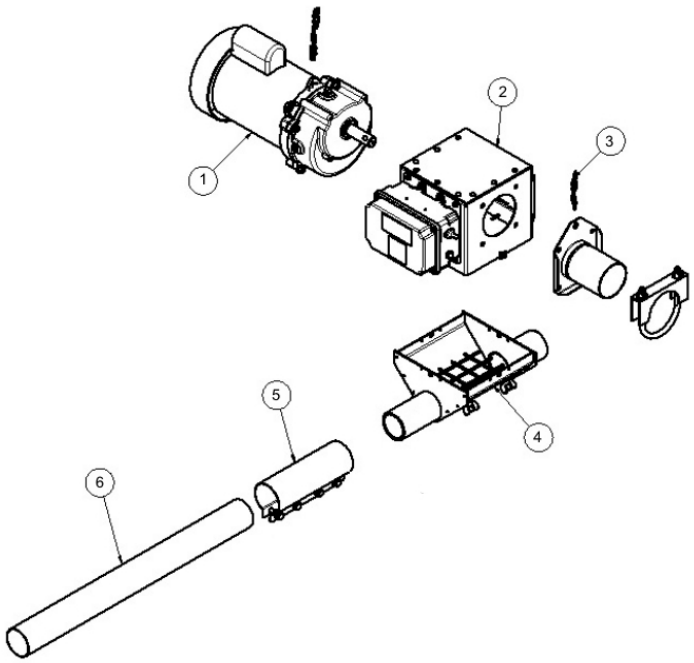


FIGURE 2

3. The HS693 Control Unit must be hardwired. See (Figure 3) for factory wiring diagram.
4. See “Wiring Instructions” for external wiring for various connection options.
5. When using external control switches such as a **Hopper Level Control Switch**, switch should be wired as “Normally Closed” contact.
6. A jumper wire between “COM” and “N.C.” at the AUX. SWITCH input terminal is provided. Leave in place if no external control switch is to be used.

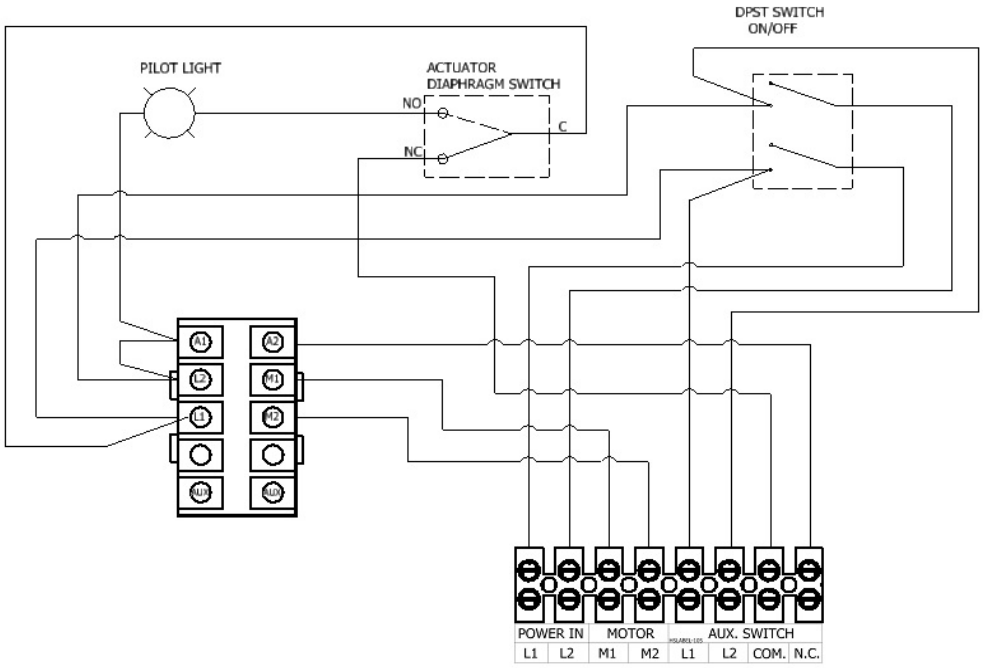
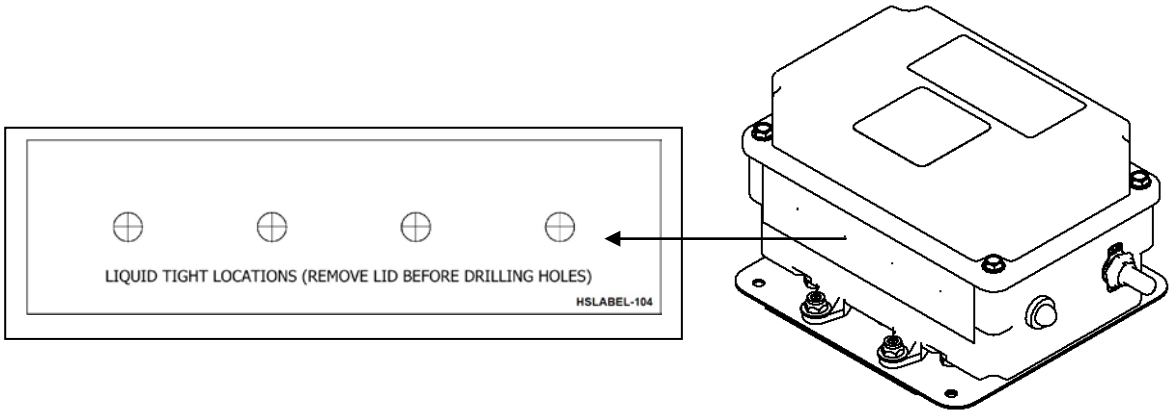
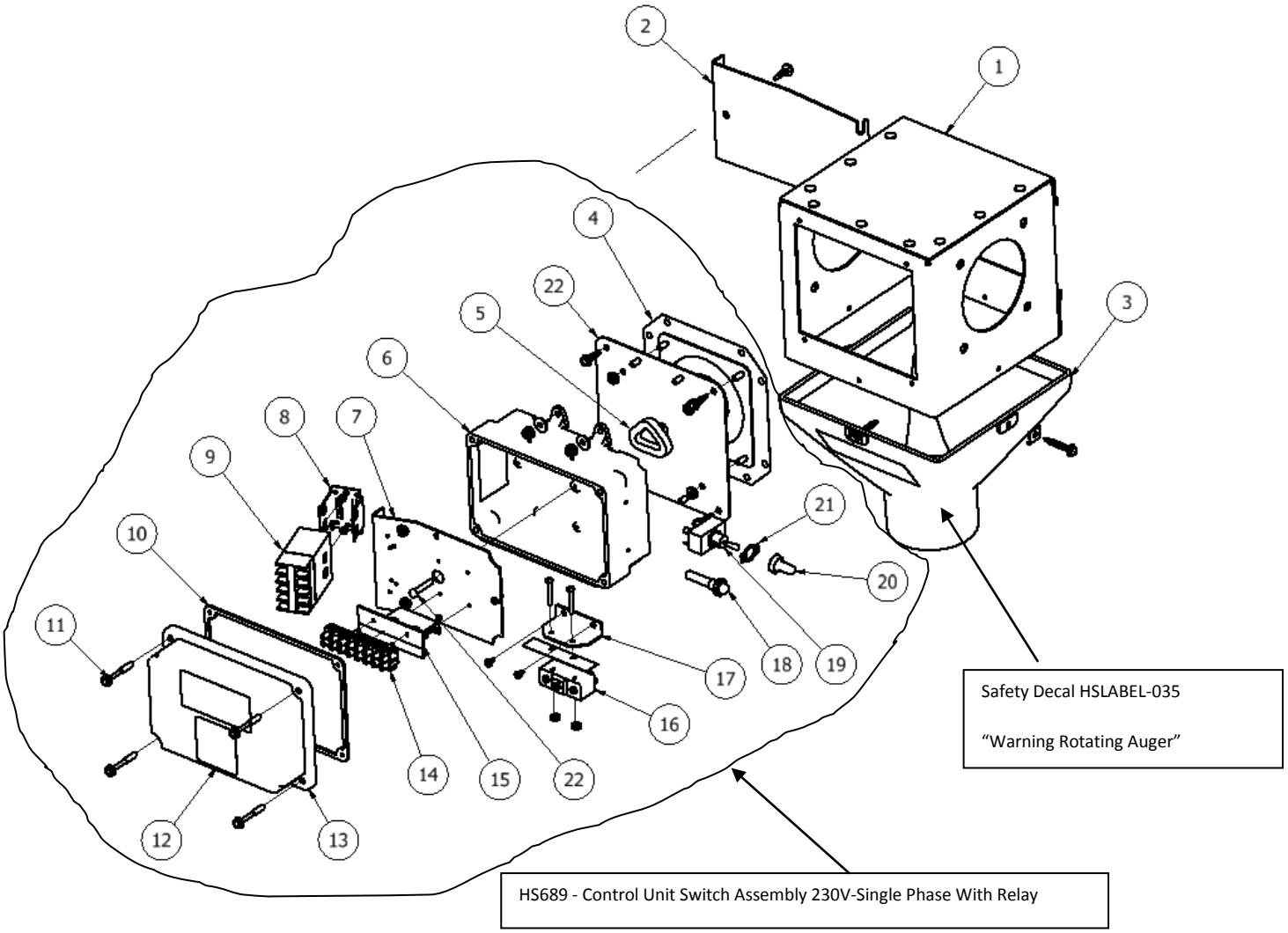


FIGURE 3 (FACTORY WIRING DIAGRAM)

7. A temporary drill template is affixed on the outside of the enclosure indicating where to install up to (4) 1/2“ non-metallic liquid tight strain relief cord connectors. Location of template provides bottom entry into the enclosure and allowing sufficient clearance to internal components. Care should be taken (including removing enclosure lid /cover) when drilling holes to ensure no internal components are damaged during drilling**.**
   DO NOT USE RIGID CONDUIT.



HS693 Feed Line Control Unit

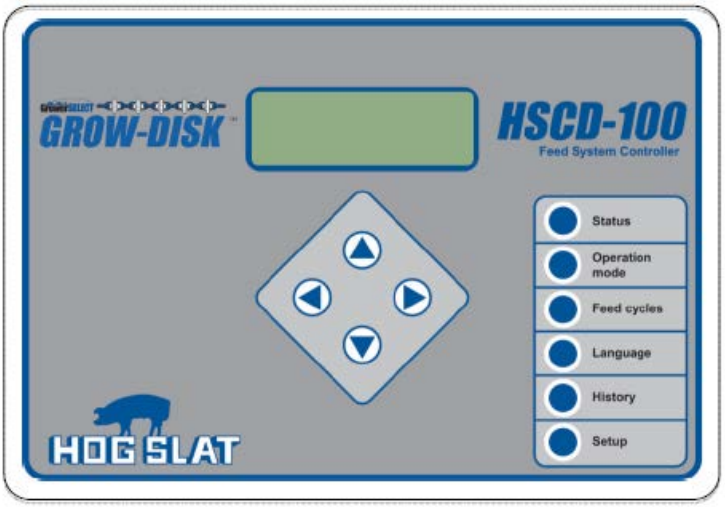


Parts List of serviceable components

REF #	PART #	DESCRIPTION	REF #	PART #	DESCRIPTION
1	HS590-1	ASSEMBLY HOPPER	12	HSLABEL-008	WARNING- SHOCK HAZARD DECAL
2	HS590-11	ACCESS GATE	13	HS589-2	COVER, SWITCH HOUSING
3	HS591	DROP CONE - CLARIFIED PLASTIC	14	EL1161	Terminal Strip 8 Position 10 AWG Max
4	HS582	DIAPHRAGM ASSEMBLY	15	HS689-6	BRACKET, TERMINAL MOUNT OFFSET
5	HS529-45	PLUNGER SEAL	16	EL1052M	SNAP ACTION 20A @ 250VAC SWITCH
6	HS589-1	BOX, SWITCH HOUSING	17	HS589-5	SWITCH MOUNT
7	HS589-4	COMPONENT MOUNT PLATE	18	EL1079	INDICATOR LAMP, RED, 250 VAC
8	EL1081	RELAY BRACKET	19	EL1011	SWITCH, TOGGLE DPST, 20A @ 250V, 1 ½ HP
9	EL1080	RELAY, MULTIPOLE, NO 208-240V, 25A	20	EL1083	TOGGLE SWITCH BOOT COVER
10	HS589-3	GASKET	21	EL1082	LEGEND PLATE
11	60932	Screw #10-16 x 1-1/4" SS	22	HS589-6	SWITCH PIN

GROW-DISK™ HSCD-100 System Controller

The HSCD-100 is a livestock feed system controller used to control a chain disk and auger motor with feed drop tubes. The user can define up to 12 feed cycle start and dump times over the course of a normal day. A proxy switch is used to detect feed in the last drop tube or at the end of the feed line. A toggle switch can be connected to manually stop the system without generating an alarm. The system features a current sensor input used for overload protection on the feeding system. (Refer to manual HSMANUAL-048 HSCD-100 User Manual)



Recommended HSCD-100 System Controller Settings (amps, delay times, etc.)

a. Recommendation for Amps (Motor 1.1kW 60Hz Single Phase, item# BM966)
   i. Max Current 7.5 Amps
   ii. Window Size 1.0 Amps
   iii. Critical Amp Draw 8.5 Amps

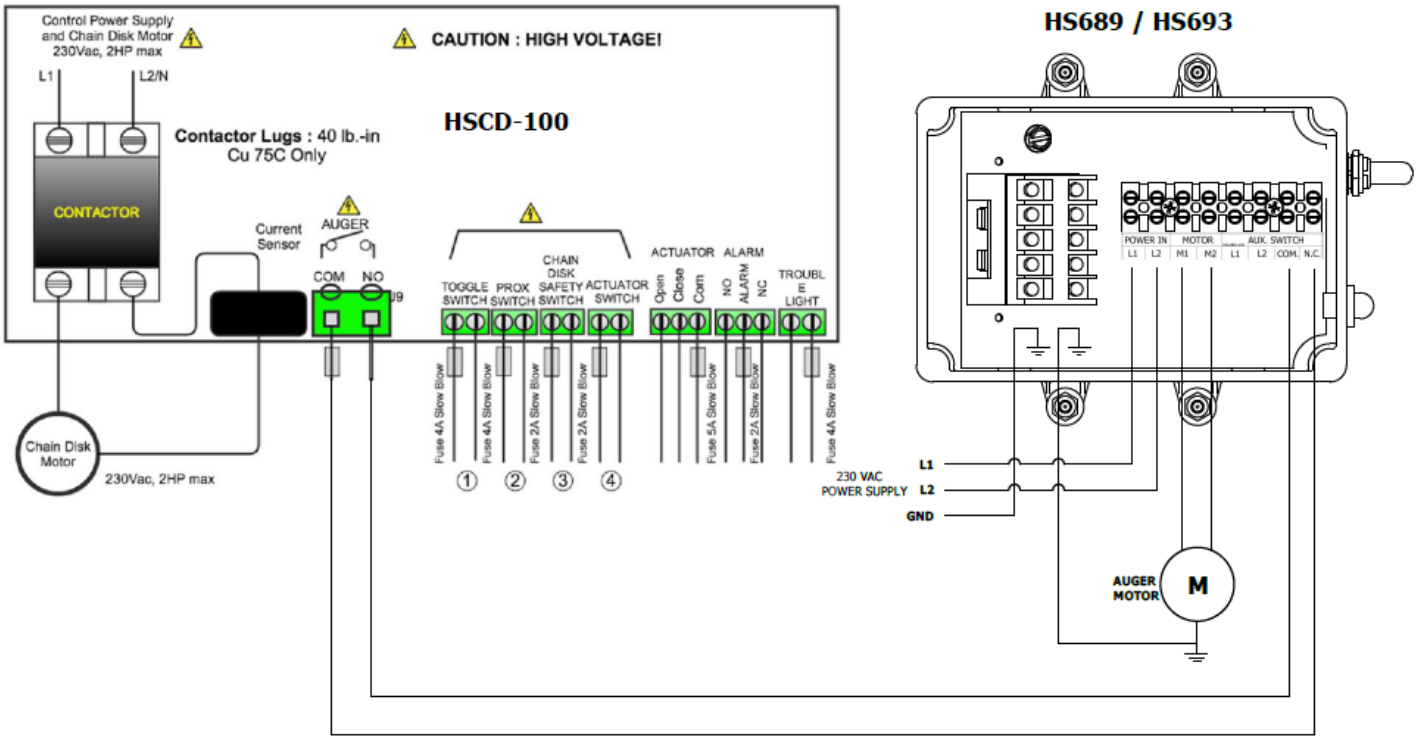
b. Recommendation for Auger Delay for 900 feet system (speed of chain 115 feet/min)
   i. 8 minutes

c. Recommendation for Feed Sensor Bypass (minimum 30 seconds less than auger delay)
   i. 7 minutes

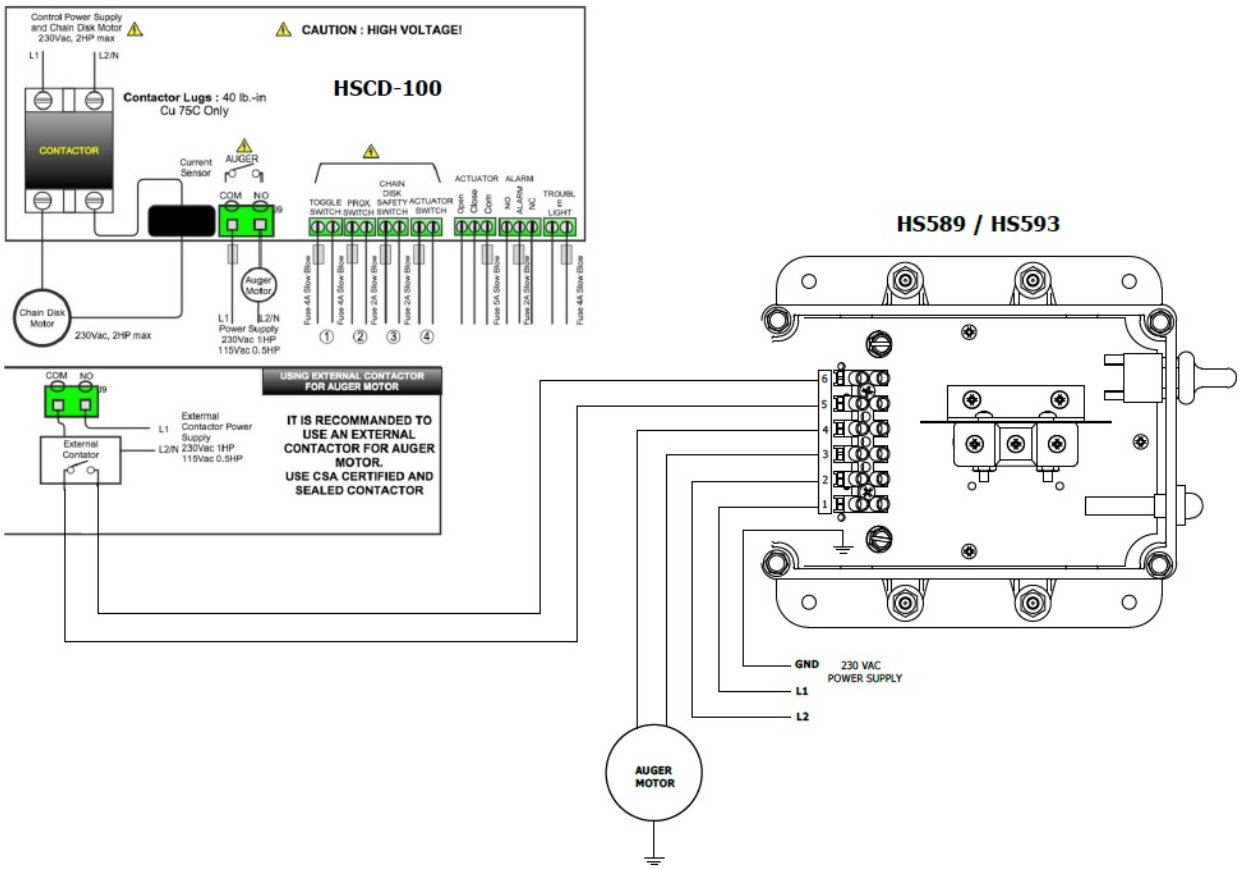
d. Recommendation for Shutdown Delay
   i. 30 seconds

e. Recommendation for Maximum Runtime
   i. Average feeding time plus 10 minutes

Wiring Diagram - HS693 to HSCD-100



Wiring Diagram - HS593 to HSCD-100

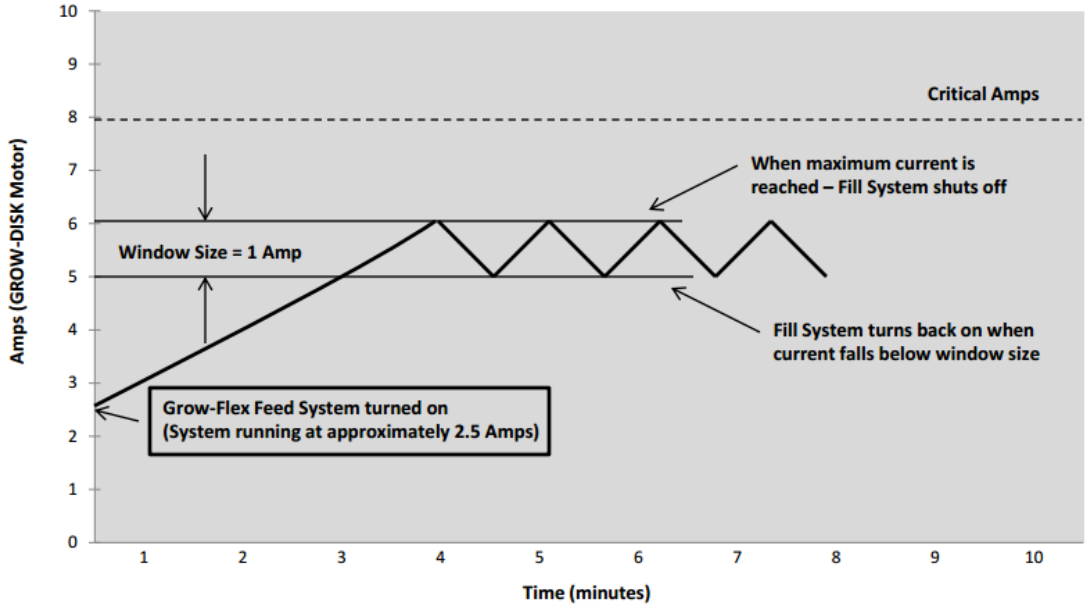


HSCD-100 Current Sensor

The Grow-Disk chain disk system can over fill if the Grow-Flex feed system's capacity is greater than the capacity of the Grow-Disk system. Overfilling will overload the Grow-Disk motor causing the thermal overload switch to kick out and/or premature motor failure. To prevent this from occurring, a current sensor has been installed on the Grow-Disk HSCD-100 Controller circuit board. This current sensor monitors the amp draw of the Chain Disk motor and controls a relay which is wired to the fill system. If the amperage exceeds the value defined by Max Current, it will temporarily turn off the GROW-FLEX™ AUGER System. As the Chain Disk system continues to empty itself the amp draw will decrease steadily. If the amperage drops below the defined Window values then the GROW-FLEX™ AUGER System will turn on. This ON/OFF cycling of the GROW-FLEX™ AUGER System will occur every few minutes until the Grow-Disk system is full. At this time, both the chain disk system and the fill system will shut off. When the amperage exceeds the value defined by critical amps on the Chain Disk motor load, the complete system is shut down and the controller goes into alarm mode.

Grow-Disk Controller Current Sensor Settings

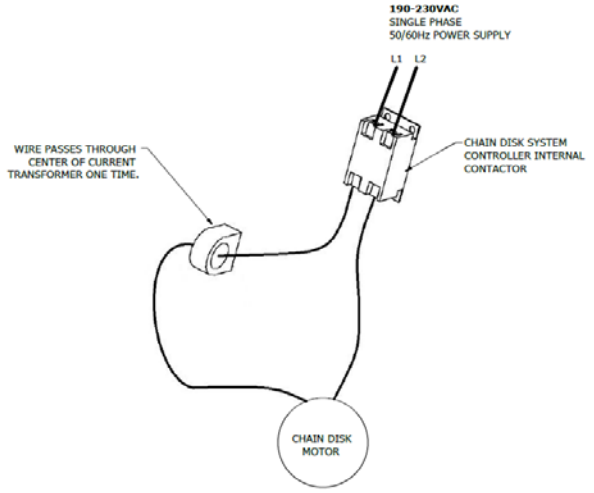
Grow-Disk Motor	Voltage	Recommended # of Loops through Current Sensor	Recommended Window Size	Recommended Maximum Current Sensor Setting
Single Phase, 60 Hz	208-230	1	1.0	6.0
Single Phase, 50 Hz	190-230	1	1.0	6.0
Three Phase, 60 Hz	208-230	2	1.5	8.0
	460	3	1.0	6.0
Three Phase, 50 Hz	190	2	1.5	9.0
	230	2	1.5	8.0
	380	3	1.0	7.0



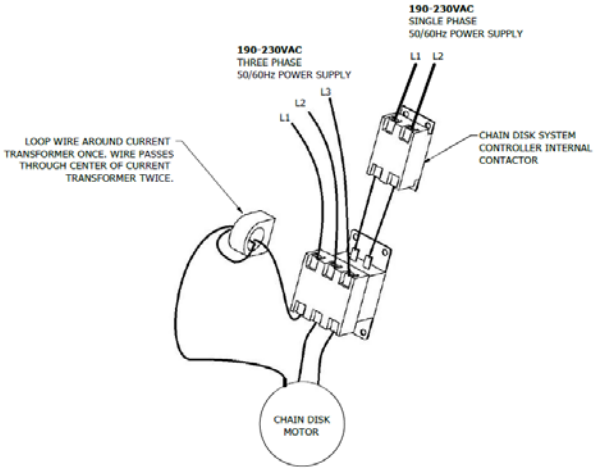
Graphical Illustration of Current Sensor Operation for Typical Feed System

Wiring – Current Sensor Single / 3-Phase

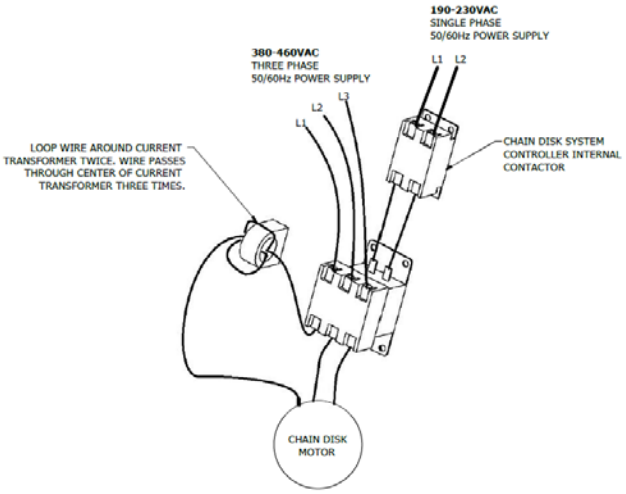
SINGLE PHASE 190-230VAC 50/60 Hz
CONNECTION DIAGRAM



3 PHASE 190-230VAC 50/60 Hz
CONNECTION DIAGRAM



3 PHASE 380-460VAC 50/60 Hz
CONNECTION DIAGRAM

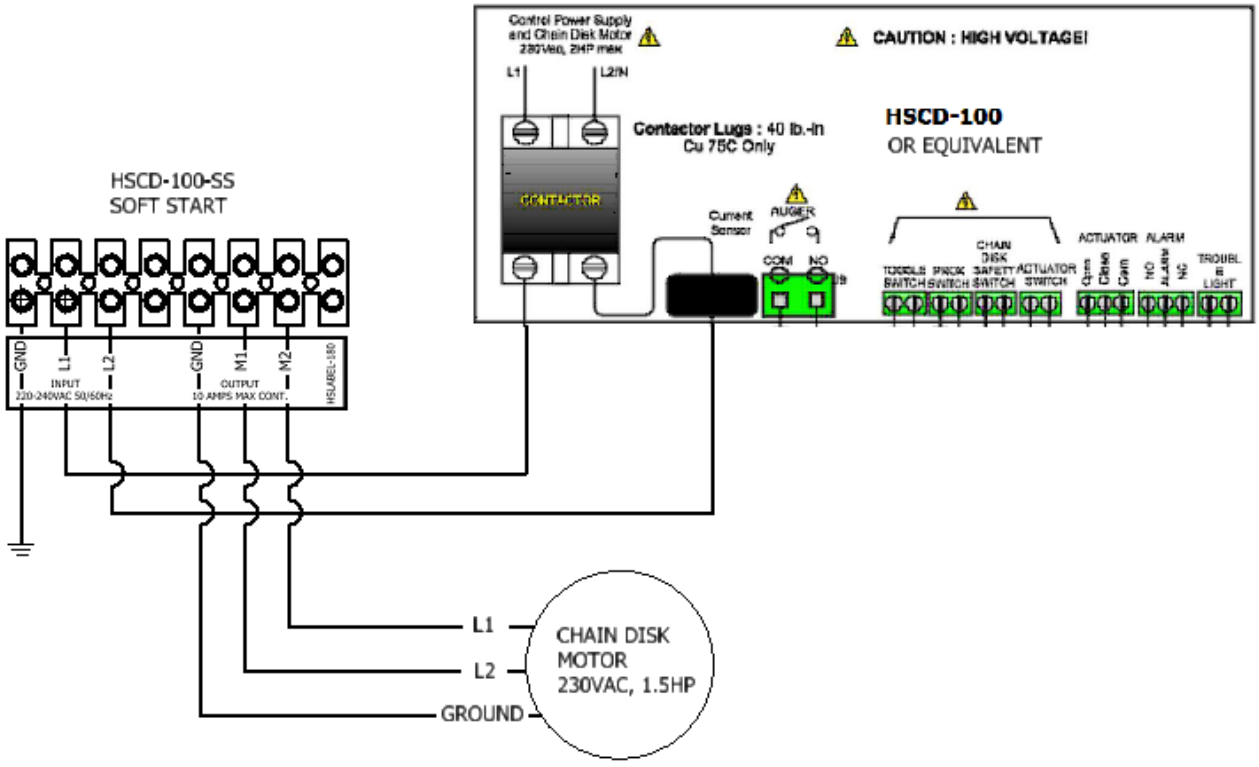


GROW-DISK™ HSCD-100-SS -Soft Start for Chain Disk System

The HSCD-100-SS soft starter is designed to start the chain disk drive motor at a slower rate in order to reduce the mechanical impact on the system upon start-up. With longer systems, the impact of starting the system almost instantaneously results in severe force placed on the chain, corners and drive system until the system is up to speed. The HSCD-100-SS reduces the start-up current of the drive motor and ramps the motor up to full speed over a period of 3 seconds reducing the sudden impact on the system. Once the system has been started for 5 seconds, the soft start circuit is bypassed allowing the motor to run at normal full speed. Any time the chain disk drive motor is started, the soft start circuitry will be active.

The HSCD-100-SS unit is electrically placed in between the output of the HSCD-100 chain disk controller contactor and the chain disk drive motor. The HSCD-100-SS enclosure is rated NEMA 4X so it is fully protected from the environment.

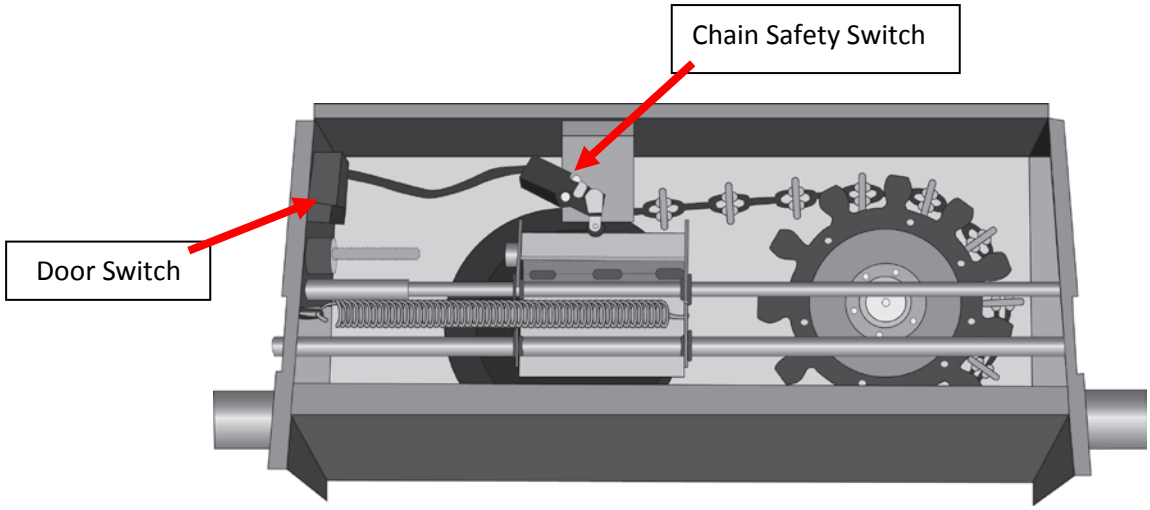
Wiring Diagram – HSCD-100-SS to HSCD-100:



ALL WIRES SHOULD BE 12 AWG STRANDED, 300V

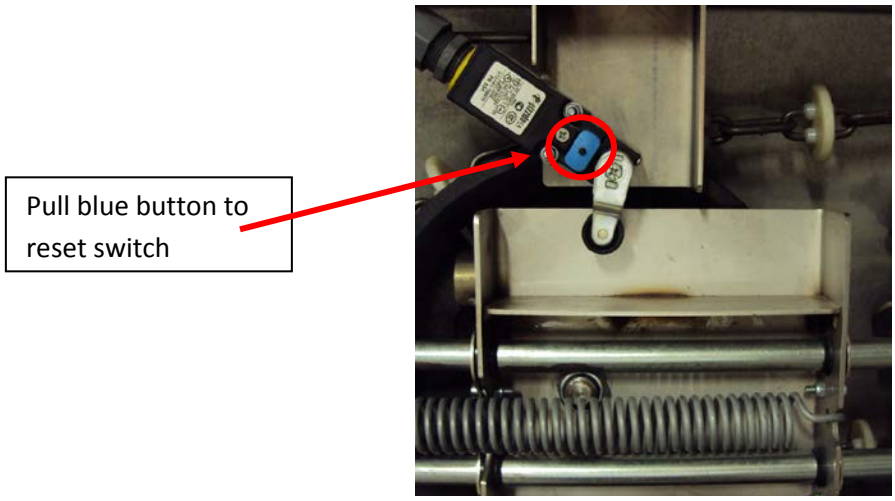
Drive Unit Chain Safety Switch and Door Switch

Each Drive unit is equipped with 2 safety switches. The door switch prevents the system from starting with cover off or shuts it down if the cover would be removed during operation. The chain safety switch will shut off the system if the conveyer chain tension is too loose or conveyer chain is blocked.



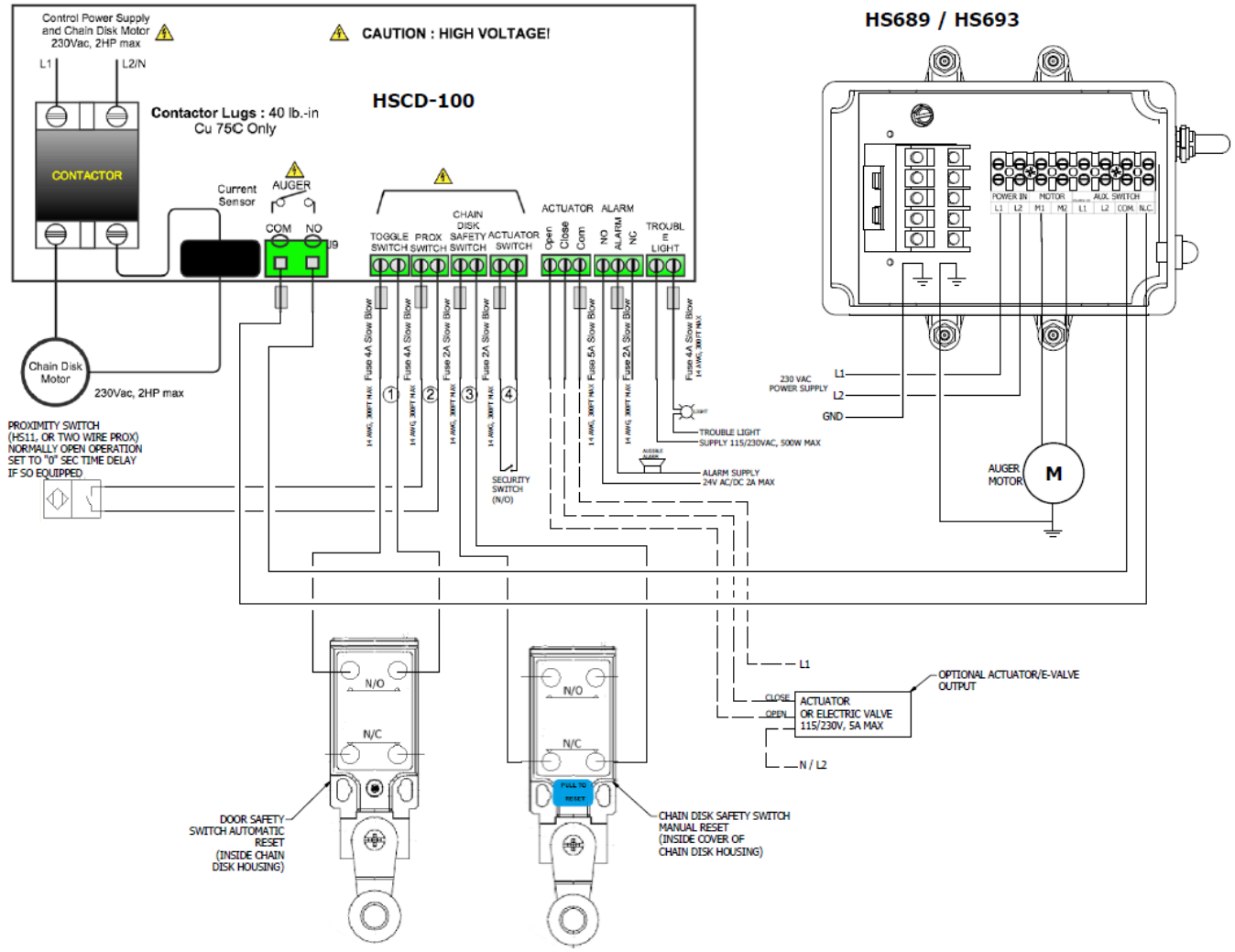
Drive Unit Chain Safety Switch

The safety switch is located inside the Drive Unit as shown below. The switch can be activated in either direction by a bracket which is attached to the idler wheel. If either side of the bracket (caused by chain being too long or too short) comes in contact with the limit switch, it will shut the system down. It will also shut down if the chain or spring breaks or if a foreign object gets hung in system. Disconnect power and locate problem before attempting to reactivate the system. Once the problem has been corrected, pull the blue reset button on the safety switch and reset the HSCD-100 Controller.

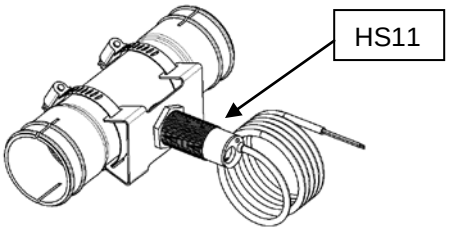


Position of Safety Switch should be installed approximately 2" from left side of bracket as shown above.

Wiring of Chain Safety Switch and Door Switch



GrowerSELECT™ HS11 Feed Sensor



Specifications:

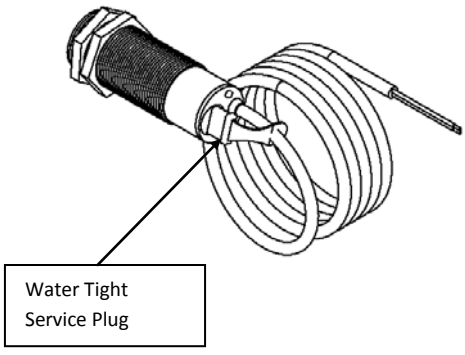
Operating Voltage: 20-250 VAC/DC
Frequency: 50-60 Hz
Output Current max: 330 mA
Sensitivity: 3/32".3/4" [2…20mm]
Ambient Operating Temperature: -13°F-+158°F [-25…+70°C]
Cord: Length= 6' [2m] 2 x .75mm^2

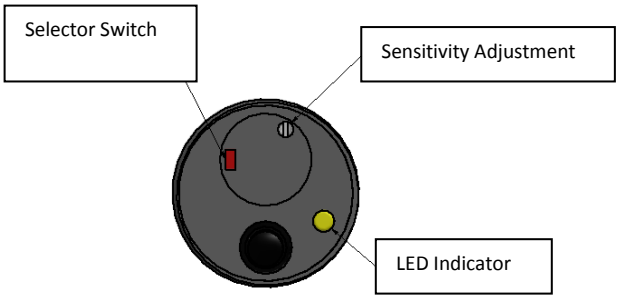
The HS11 Feed Sensor is used to signal the chain disk system controller when the feed system is full and to shut off the chain disk system drive unit. The HS11 is mounted in the chain disk feed tube after the last drop or mounted in the last drop tube depending upon application.

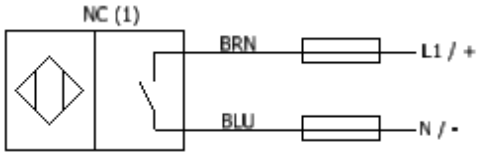
These instructions are a guideline for installation of the GrowerSelect Chain Disk System Feed Sensor (2) wire (Current Robbing) application for use with GrowerSelect Chain Disk Controllers and other Controllers utilizing (2) wire proximity switch inputs non-time delay. In all cases, the OEM (Original Equipment Manufacturer) wiring instructions should be followed if possible when connecting the HS11 to controller inputs.

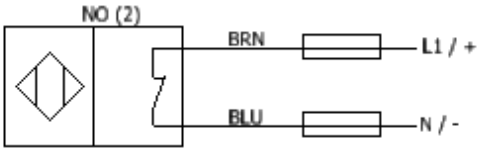
It is in no way to be used to violate or supersede local, state and national wiring codes. All wiring sizes and fuse capacities are to be sized according to national electrical code specifications or other applicable regulations.

Feed sensor switch is switchable from Normally Open (NO) to Normally Closed (NC) depending upon application. Sensor is factory set to NO.









For the purpose of installation:

- **NO** (Normally Open) is defined as contacts open with power supply connected to Feed Sensor and no product in contact with sensor.
- **NC** (Normally Closed) defined as contacts closed with power supply connected to Feed Sensor and no product in contact with sensor.

Mounting:

Sensor should be installed consistent with existing sensor mounting if used as replacement or other suitable mount using the supplied locking nuts.

For installation in a chain disk feed tube, mount sensor to tube bracket as illustrated in ***Figure 1*** and ***Figure 2***. Sensor is supplied with (2) lock nuts. Thread one lock nut onto sensor about 1-2" from the end of the sensor. Place end of sensor through bracket and thread on second lock nut. Position sensor until end of sensors is touching the clear tube. Secure sensor by tightening the lock nuts on each side of the mounting bracket.

Position sensor bracket so that it is angled downward approximately 45 degrees to ensure feed detection.

Sensor location should be over clear section of chain disk tube

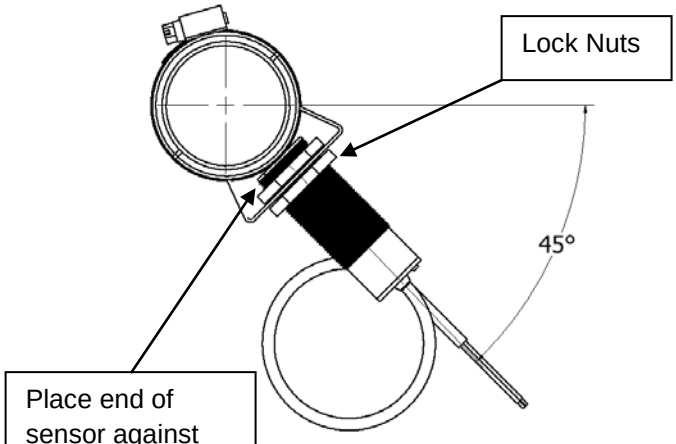


FIGURE 1

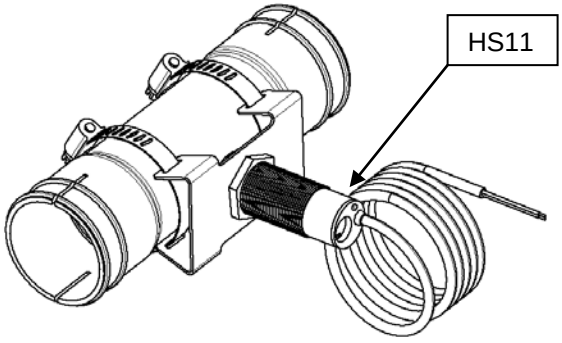


FIGURE 2

Adjustment:

Make sure there is no feed in the clear section of tube and there is not a disk section of the chain directly in front of the sensor.

For Normally Open (NO) Sensor Set-up:

1. Turn ON power to chain disk system controller so that Feed Sensor switch is powered.
2. Remove water tight service plug from back of sensor to reveal “sensitivity adjustment”.
3. If LED indicator is *not illuminated*, turn sensitivity adjustment CLOCKWISE until the LED indicator comes ON. Then turn sensitivity adjustment COUNTERCLOCKWISE until LED indicator is fully OFF (not blinking).
4. To set sensitivity, place index finger on tubing 1/4“away from edge of sensor. ***See Figure 3*** Adjust sensitivity until LED indicator is ON.
5. With the chain disk running past the Feed Sensor and no feed in the chain disk tube, the LED indicator may blink as the disks pass by which is acceptable but should not be ON solid as this would indicate the sensitivity is too high and would send false detection signal to the controller. Turn sensitivity adjustment slowly COUNTERCLOCKWISE until the LED indicator is not ON solid while the disks pass by.
6. Further adjustment of the sensitivity may be required once system contains feed. If further adjustment is required, simply turn sensitivity adjustment CLOCKWISE to detect objects farther away from the sensor (more sensitive) or COUNTERCLOCKWISE to detect objects closer to the sensor (less sensitive).

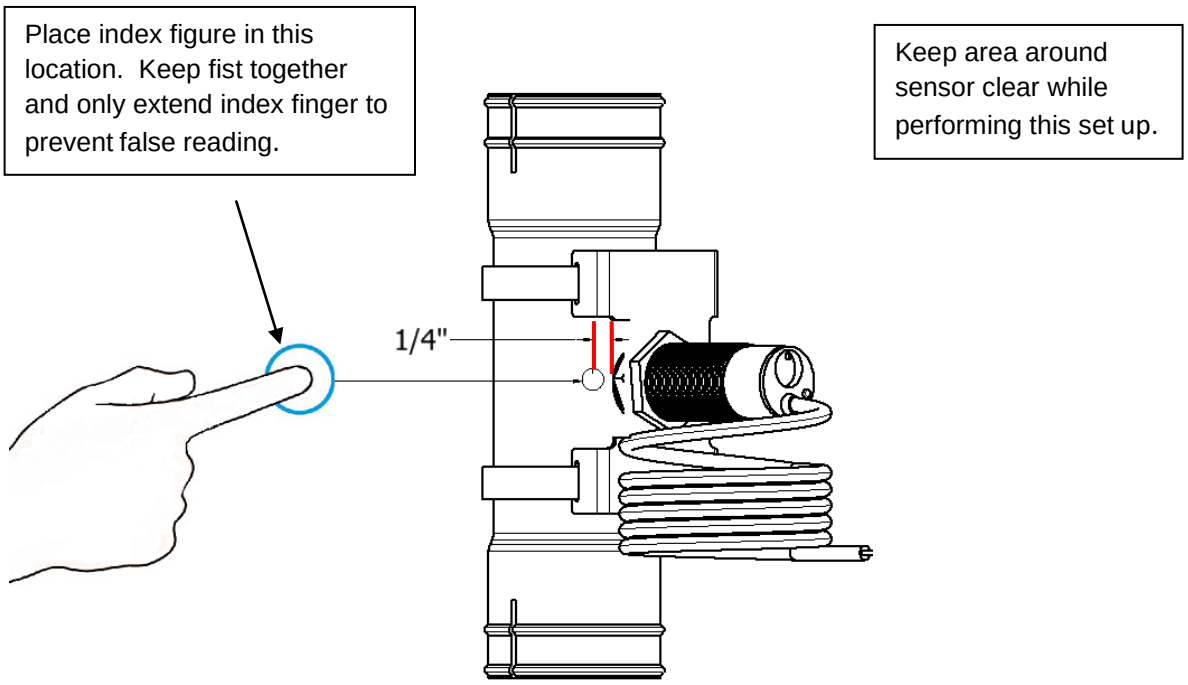


FIGURE 3

For Normally Closed (NC) Sensor Set-up:

1. Turn ON power to chain disk system controller so that the Feed Sensor switch is powered.
2. Remove water tight service plug from back of sensor to reveal “sensitivity adjustment”.
3. If LED indicator is *illuminated*, turn sensitivity adjustment CLOCKWISE until the LED indicator goes OFF. Then turn sensitivity adjustment COUNTERCLOCKWISE until LED indicator is fully ON (not blinking).
4. To set sensitivity, place index finger on tubing 1/4“ away from edge of sensor. ***See Figure 3.*** Adjust sensitivity until LED indicator is OFF.
5. With the chain disk running past the Feed Sensor and no feed in the chain disk tube, the LED indicator may blink as the disks pass by which is acceptable but should not be OFF solid as this would indicate the sensitivity is too high and would send false detection signal to the controller. Turn sensitivity adjustment slowly COUNTERCLOCKWISE until the LED indicator is not OFF solid while the disks pass by.
6. Further adjustment of the sensitivity may be required once system contains feed. If further adjustment is required, simply turn sensitivity adjustment CLOCKWISE to detect objects farther away from the sensor (more sensitive) or COUNTERCLOCKWISE to detect objects closer to the sensor (less sensitive).

GROW-DISK™ Initial Operation/ Start Up Requirements

The GROW-DISK™ Feed System must be assembled / installed in such a way that it meets all the following conditions.

- The Drive Unit is mounted horizontally and securely. **MUST BE LEVEL WHEN INSTALLED!**
- The Drive Unit is installed so that internal components and the motor on the backside are accessible.
- The Safety Switches of the Drive Unit are installed and active. (function test before start up)
- The tensioning bolt was readjusted all the way out so the Safety Switch bracket is capable of floating freely.
- Place cover on drive unit and secure.
- All corners must be assembled so that the arrow on the guide wheel turns in the direction of transportation.
- **All corner covers must be installed accurately!**
- The Conveyer tubes must be supported in front and behind of each corner.
- The Conveyer tubes must be mounted horizontally and hung every 5 feet on wall brackets or chain supports.
- The cover on the chain disk fill hopper is installed and secured.
- The Shutdown proximity switch must be installed either in or after the last feed dispenser.
- The Chain Feeding Controller must be installed accurately!
- **GROW-FLEX™ AUGER System must be turned OFF!**
- **Close all slides at the feed tank unloaders**
- **All slides of any outlet or sow drop must be open**!

GROW-DISK™ Feed System Initial Operation/ Start Up

Only qualified and trained personnel are allowed to make the electrical connections. To prevent injuries, the feed transportation system must be isolated from the power system. The system must be safeguarded against accidental restart. Caution: Drive wheel must come to a complete stop, before opening any drive units.

1. **Check Chain Running Directions**
   - o Start the drive unit and run it for 1-2 seconds
   - o Check to make sure drive sprocket is turning counterclockwise as viewed from inside the drive unit. If not, rewire the motor connections according to the wiring diagram on the motor.

2. **Check the function of the Drive Unit Door Switch**
   - o Restart the drive unit and remove the cover, system should turn off! If not, rewire the switch connections according to the wiring diagram on the switch.

3. **Check the function of the Drive Unit Chain Safety Switch**
   - o Disconnect power and remove drive unit cover.

- Move safety switch roller in one direction so that safety switch is activated and blue reset button is tripped.
- Replace cover and turn power back on.

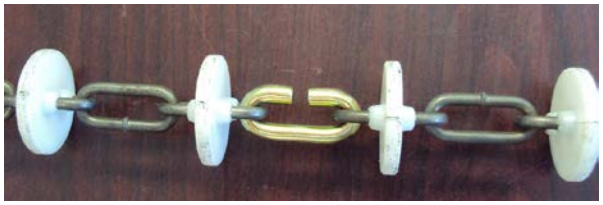
- Put the HSCD-100 Controller into the manual start position. If alarm indication is displayed, then safety switch is working properly. If not, disconnect power, inspect wiring and safety switch, and replace if necessary.
- Turn power back off, remove cover, and pull blue reset button out to normal position, turn the Controller to manual stop, and acknowledge alarm on Controller is off.

4. Check Chain Tension of the System

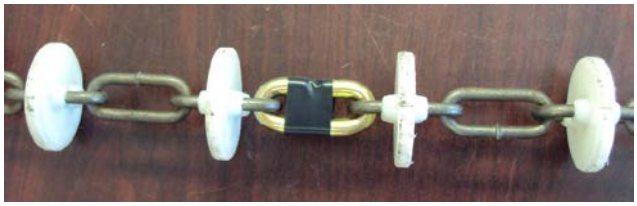
- Position the Safety Switch approximately 2 inches from the left side of bracket. This will prevent the initial startup movement from causing an erroneous activation of switch due to any slack in chain or stretching of chain.
- Block the Door Switch (tape) and restart the drive unit and run it for 10-15 seconds. **Caution: Make sure no one is in front of the drive unit and keeps their distance!**
- Check the position of the Chain Safety Switch during operation; it should be in the center of the safety bracket.
- If not, turn off the drive unit and disconnect all electrical power to shorten the conveyer chain. (step 5)

5. Shorten conveyer chain if needed

- Adjust the tensioning bolt inward on drive unit as far as possible towards the drive sprocket.
- Remove the chain from the idler wheel and drive sprocket and cut it with a Grinder
- Accordantly to the chain tension cut 1-3 chain disk links out of the loop.

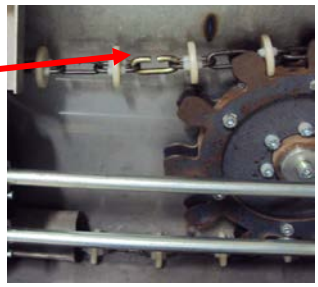


Chain sections attached with Coupler



Tape wrapped on Coupler

- Wrap one end of the chain around the idler wheel and the other end of chain onto the drive sprocket.
- Connect the ends with chain coupler and mark with color adhesive tape for easy identification.
- Readjust the tensioning bolt all the way back out so the Safety Switch bracket is capable of floating freely.
- Reset Chain Safety Switch
- Repeat this process until the correct chain tension is achieved



6. **First system start-up (1 hour)**
   - When accurate chain tension is achieved, remove the tape from the Door switch.
   - Reset Chain Safety Switch (pull blue button)
   - Place cover on drive unit and secure.
   - **Make sure GROW-FLEX™ AUGER System is turned OFF!**
   - **All slides of any outlet or sow drop must be open!**
   - Start the Grow Disk System and let it run for min. 1 hour
   - During operation inspect all corners, fill hopper, outlet and sow drops for unusual vibrations or sounds! If so, stop system immediately and check installation of the affected part!

7. **Controller and Proximity Switch adjustments**
   - After successful system start-up, turn on the **GROW-FLEX™ AUGER System**
   - All slides at the feed tank unloaders are remain closed!
   - Close all sliders of any outlet or sow drops.
   - Restart system in automatic mode
   - Check setup e.g. delay start of flexible auger, maximum runtime etc.
   - Check setup and function of proximity switch
   - Make setup adjustment if necessary

8. **Seal all Corners**
   - Turn off the drive unit and disconnect all electircal power
   - Follow instructions for Corner sealing on page 16
   - **DO NOT restart the system for 1 ½ hours after sealing is completed!**
   - Turn on the power and make sure that the controller is reset and in automatic mode.
   - Turn on the **GROW-FLEX™ AUGER System**
   - Open the slide at only 1 feed tank unloader!

GROW-DISK™ Feed System Maintenance

Caution: Always disconnect power before performing maintenance on system.

Only qualified and trained personnel are allowed to make the electrical connections. To prevent injuries, the feed transportation system must be isolated from the power system. The system must be safeguarded against accidental restart. Caution: Drive wheel must come to a complete stop, before opening any drive units.

Product	Maintenance description	Maintenance interval			
		1 month	3 months	6 months	12 months
Chain Disk Drive Unit					
	Remove dust from the drive unit motor fan		X		
	Remove feed residue from inside drive unit		X		
	Check wiring for damage				X
Gearhead	Check for oil leakage	X			
Switches	Check functioning of Chain Safety switch			X	
	Check functioning of Door Safety switch			X	
	Check wiring for damage				X
Wheels	Check Idler Tensioning Wheel for wear			X	
	Check Idler Tensioning Wheel is turning easily				X
	Check Drive Sprocket Wheel for wear				X
	Check Nylon Bushings on sliding rods for wear				X
Conveyer Chain					
	Check tension of conveyer chain	X			
	Check Chain Disk for wear or any damages			X	
Chain Disk Fill Hopper					
	Check Cover is in place and secured	X			
	Remove feed residue from inside Hopper		X		
	Verify that Chain Disk is not hitting the Hopper			X	

Product	Maintenance description	Maintenance interval			
		1 month	3 months	6 months	12 months
Corners					
	Check Corner for any leakage		X		
	Check functionality of Corner Wheels			X	
	Remove feed residue from inside corner				X
Conveyer Tubes					
	Check Conveyer Tubes for any leakage	X			
	Check to verify Supports for damage				X
Outlet / Sow Drops					
	Check Outlet / Sow Drops for any feed leakage	X			
	Check functionality of Slides			X	
	Check functionality of Sow Drop Feed Measure Slide				X
	Check Drop Tubes / Hoses for any damage				X
Proximity Switch					
	Check functionality of proximity switch		X		
	Check wiring for damage				X
	Check control tube for damage				X
Chain Disk Controller					
	Check functionality of Controller			X	
	Check wiring for damage				X
GROW-FLEX™ AUGER System					
Motor	Check Cover is in place and secured	X			
	Remove dust from the drive unit ventilator		X		
	Remove feed residue from inside drive unit		X		
	Check wiring for damage				X
Gearhead	Check for oil leakage	X			
Switches	Check functioning of Toggle switch			X	
	Check wiring for damage				X
Unloaders	Check Unloader for any leakage	X			
	Check Cover is in place and secured	X			
	Check to verify that no Flexible Auger is hitting the Unloader			X	
	Remove feed residue from inside Unloader			X	
Tubes / Elbows	Check PVC Tubes and Elbows for any leakage	X			
	Check to verify Supports for damage				X

Maintenance Pressure Washing Procedure

1. Preparation

a. Close all Feed Bin Slides!

b. Empty the complete chain disk system (runtime minimum 2 complete chain cycles)

c. Turn off the **GROW-FLEX™ AUGER System** at toggle switch located on control unit**.**

d. Turn off the drive unit and disconnect all electircal power

e. Make sure all corners are sealed!

f. Clean out the remaining feed from the Chain Disk Fill Hopper and Drive Unit

g. Close the Drive Unit and Chain Disk Fill Hopper covers.

h. Close the slides on all outlet and sow drops.

2. Pressure Washing

- DO NOT pressure wash the **GROW-FLEX™ AUGER System**
- DO NOT pressure wash the **Chain Disk Drive Unit**
- DO NOT pressure wash the **Chain Disk Fill Hopper**
- DO NOT pressure wash the **Grower Select Proximity Switch**
- DO NOT pressure wash the **Outlet and Sow Drops** from inside

3. Post-Processing

a. Make sure the **GROW-FLEX™ AUGER System stays turned off!**

b. Connect the electrical power and start the chain system in **manual mode**

c. Run the Grow Disk System for 30 minutes.

d. During operation inspect all corners, chain disk fill hopper, outlet and sow drops for unusual vibration or sounds. If so, stop system immediately and investigate the source.

e. After successful checkup turn off the drive unit.

4. Reset Grow Disk System

a. Turn on the **GROW-FLEX™ AUGER System**

b. Change the Grow Disk Controller setting in **automatic mode.**

c. Reset the Grow Disk Controller if necessary.

d. Double check the slide positions of all outlet and sow drops and make adjustment if necessary.

e. Restart system in automatic mode

f. Check setup e.g. delay start of flexible auger, maximum runtime etc.

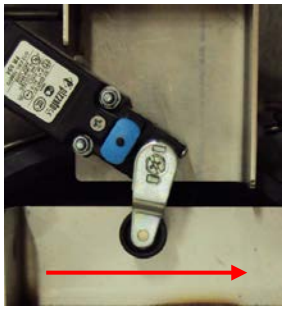
g. Check setup and function of proximity switch

h. Make setup adjustment if necessary

i. Open the slide on one feed bin.

Maintenance Safety Switch Inspection

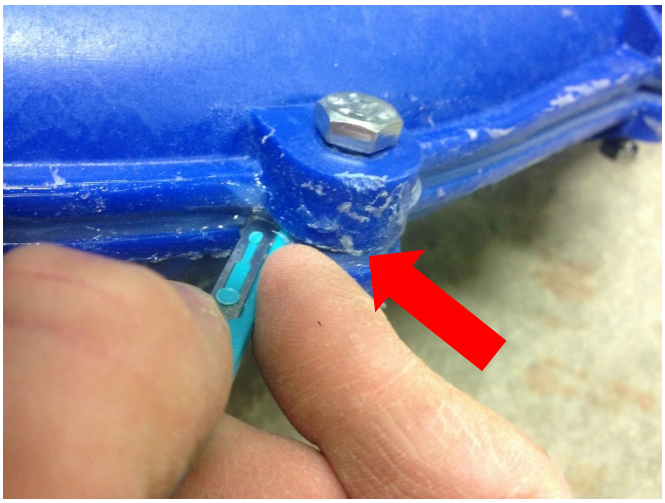
- Disconnect power and remove drive unit cover.
- Move safety switch roller in one direction so that safety switch is activated and blue reset button is tripped.

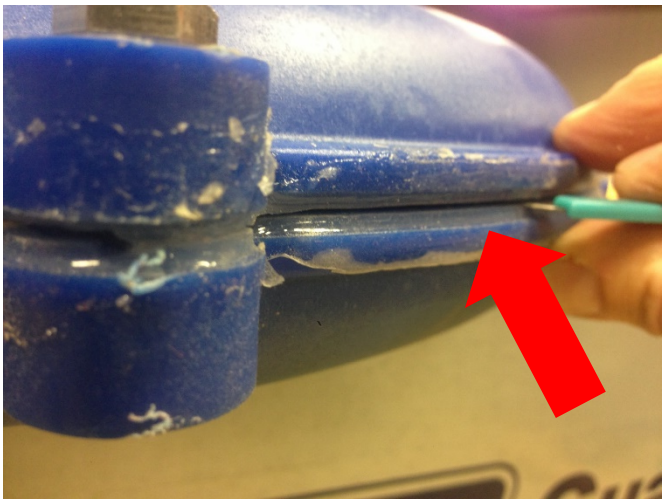


- Replace cover and turn power back on.
- Put the HSCD-100 Controller into the manual start position. If alarm indication is displayed, then safety switch is working properly. If not, disconnect power, inspect wiring and safety switch, and replace if necessary.
- Turn power back off, remove cover, and pull blue reset button out to normal position.
- Replace cover, power unit back on, turn the Controller to manual stop, and acknowledge alarm on Controller is off.
- System is ready for normal operation.

Maintenance Re-Open Sealed Corners

- **Caution: Silicone needs 24 hours for cure!**
- Required tools: **Sharp cutter**
- Cut the Silicone around the Groove.
- Remove top cover carefully to avoid any damage at the silicone sealing!



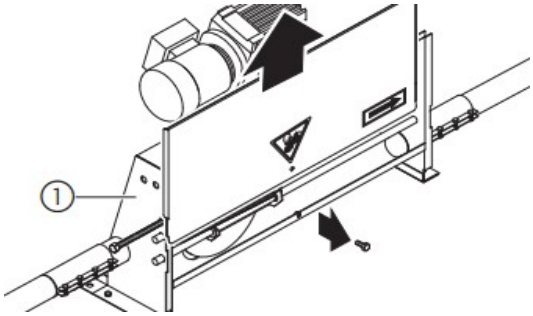


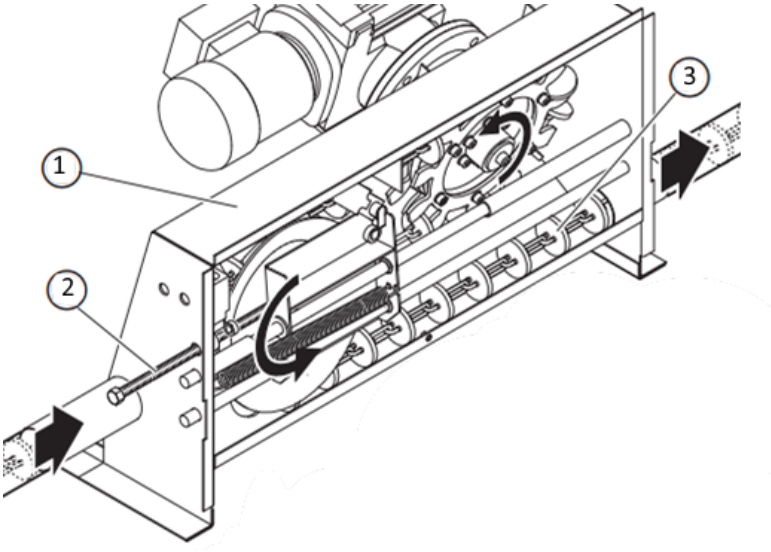
Maintenance Grow-Disk Feed System Corner Cleaning Instructions

Required Tools & Parts

- Permanent Marker
- Wrench 1/2”
- Ratchet, socket 1/2” & 15/16”
- Screwdriver
- Wire Brush
- Cloth
- Sharp cutter

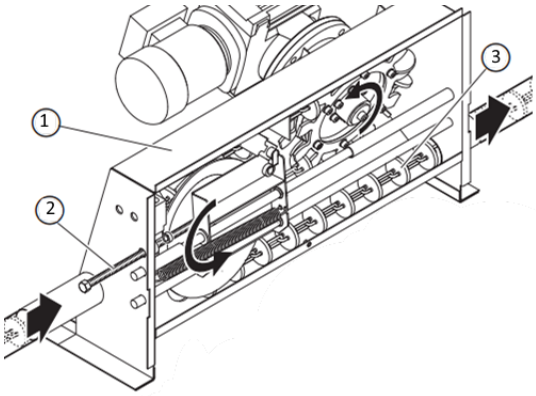
Step 1: Relieve Chain Tension



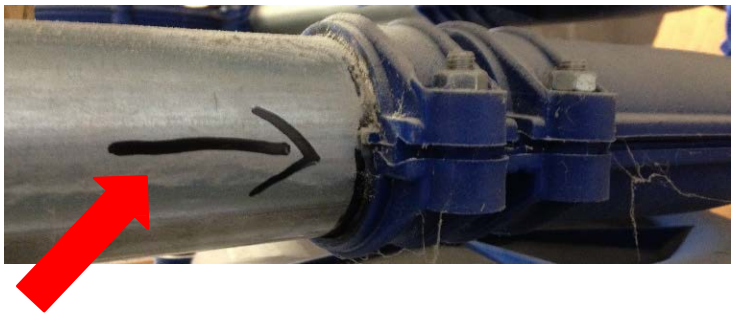


- Disconnect electrical power to drive unit (1)
- Remove the front cover of the drive Unit
- Tighten the tension rod (2) into the drive unit until chain tension is relieved

Step 2: Mark Running Direction



Mark the chain running direction at the conveyer tubes in front or behind of each corner.



Step 3: Open Corner

Do NOT remove blue clamp straps!

Step 4: Remove Wheel

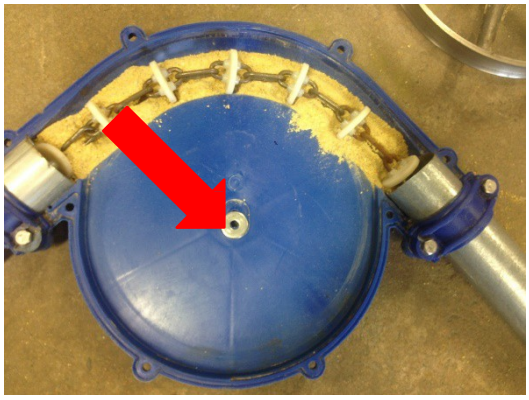
- **Remove the wheel.**
- **Secure small spacer washers!**

Step 5: Clean Corner

Remove the feed and clean the surface inside the corner.

Clean the GROOVE around the corner on the top and bottom cover!

Step 6: Re-Install Wheel



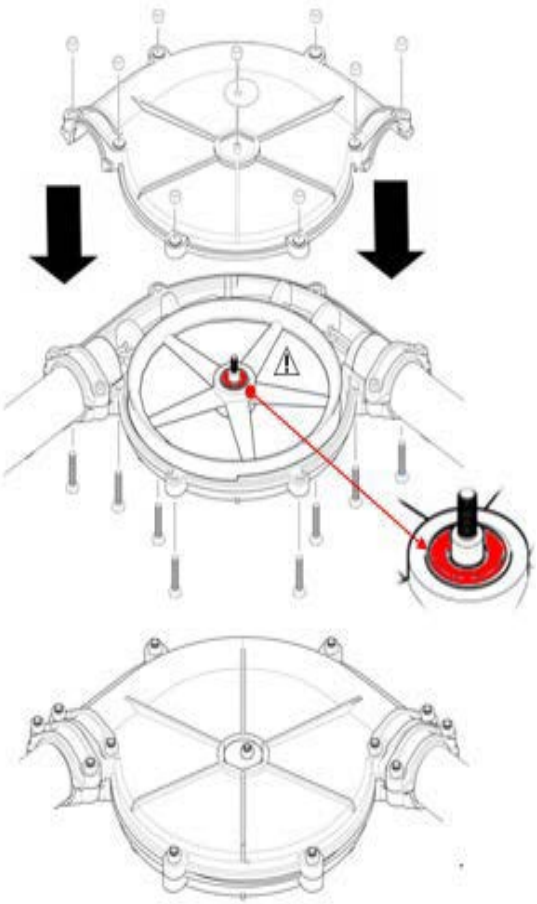
Place the 1st small spacer washer into socket of the bottom cover.

Place the wheel on top of the washer.

Install the 2nd small washer on top of the wheel.

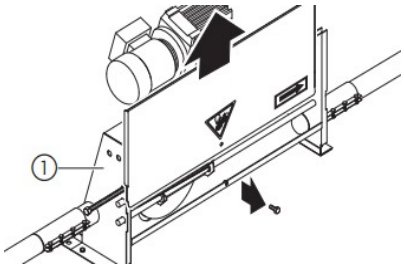
Step 7: Close Corner

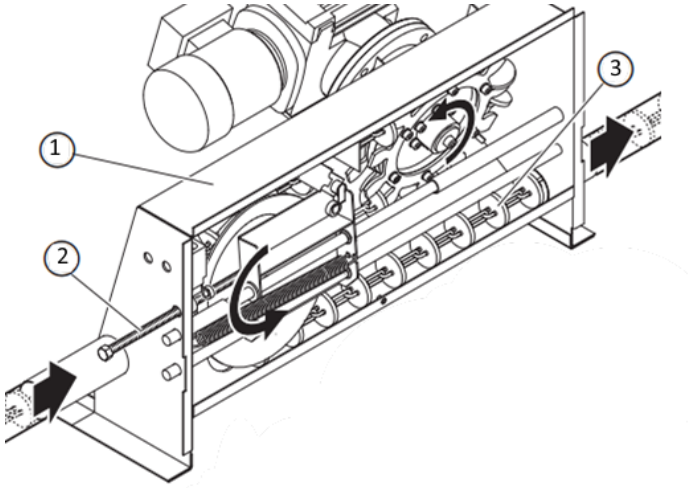
- Verify the conveyer tubes are against the pipe stops as shown on right!



- Place the cover on top of the corner and press it down.
- Place all bolts and nuts and tighten them by Wrench to hold the cover in position. **Caution: DO NOT OVERTIGHTEN!**
- Press the eccentric washer in the sockets and secure with nuts!

Step 8: Remove Clamping Rod





- Remove the front cover of the drive Unit (1)
- Remove the clamping rod (2) from the drive unit
- Close front cover of the drive unit
- Connect electrical power to drive unit

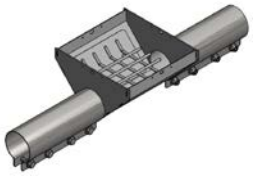
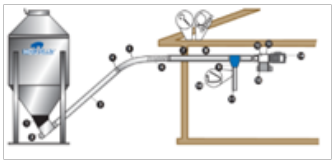
Troubleshooting

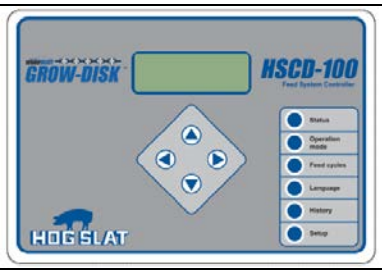
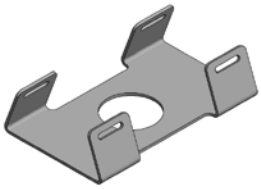
Problem	Possible Cause	Corrective Action
Drive unit not operates	Motor will not run.	NO Power, Check wiring, fuses, and switches on equipment.
	Safety switches activated in drive unit.	Refer to Safety switch section.
	Motor thermal overload switch activated	Check motor overload reset and refer to Controller Manual
Motor overloads after running briefly	Low voltage (motor runs slow & overheats)	Check line voltage at motor; confirm appropriate wire size
	Foreign object stuck in chain	Remove foreign object
	System too full with feed	Check fill system rate, check proximity switch
	Wet feed being transported or allowed to stand in system	Check functions of all corners, Clean system from wet feed!
	Defective motor	Replace motor
Safety switch activated	Chain in system not tight enough	Remove sections of chain; reset limit switch
	Chain has broken in system	Repair broken section and reattach with chain coupler; reset Safety switch
	Foreign object in system	Remove foreign object; reset Safety switch
	System too full with feed	Check fill system rate; reset Safety switch
Drive unit motor does not shut off when full	Proximity switch sensitivity not adjusted properly (Not sensitive enough)	Adjust sensitivity
Drive unit motor always shuts off immediately after proximity by-pass time	Proximity switch sensitivity not adjusted properly (Too sensitive)	Adjust sensitivity

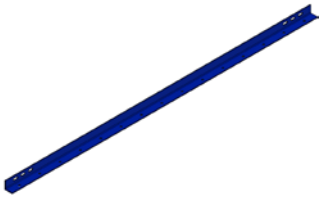
Grower Select Chain Feeding Components / Parts List

WL10022012	**Drive Unit SS AISI 304 For Chain Feeding Includes Gear Box** **(Does not include motor – BM996 required)**	
HSCD-301	**Gear Box for Grower Select Drive Unit** **(Replacement for AP Gear Box)** **(GrowerSelect Drive Unit not yet in Production)**	
BM996	**Motor 1.1kW 60Hz Single Phase 1725RPM Chain Disc System**	
WL32013035	**Flange Output for Grow-Disk Gear Box**	
WL10011001	**Steel Wheel for Drive Unit**	
WL10023047	**Drive Shaft for Steel Sprocket**	
WL10021001-1	**Idler Guide Wheel Plastic For Drive Unit With Bearing**	
WL601304-25	**Axle for Idler Guide Wheel**	
WL10011000	**Switch Door Cover For Drive Unit**	

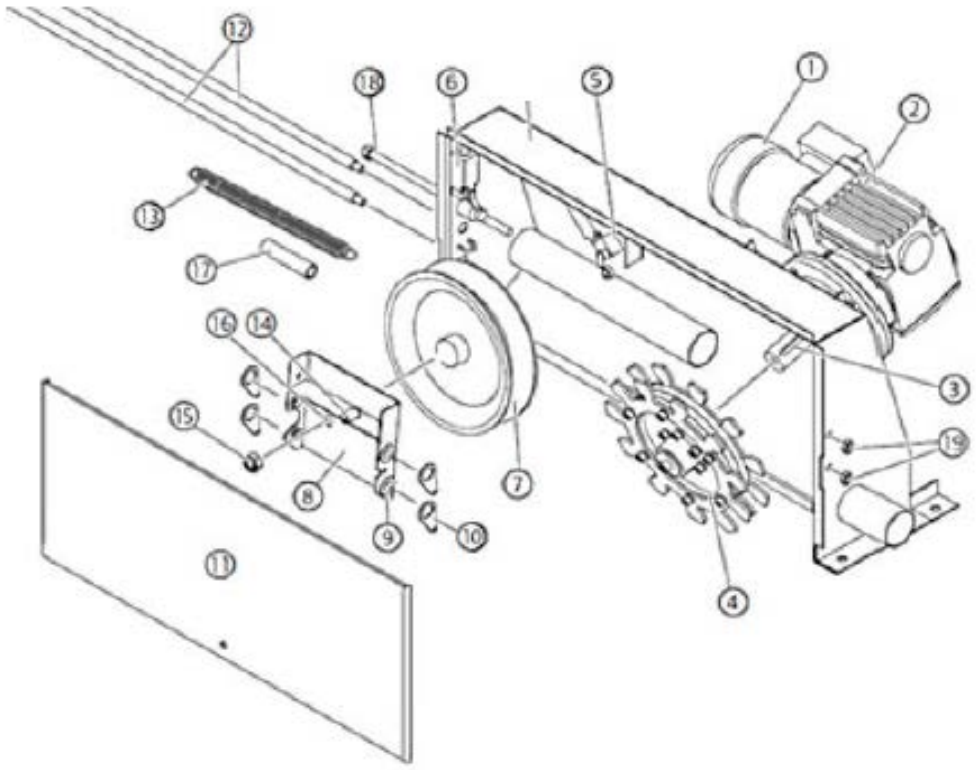
WL601304-19	**Safety Switch (Limit Switch) With Blue Reset Button**	
WL10023008	**Cover Stainless Steel For Chain Drive Unit**	
WL70011028	**Knob for Drive Unit Cover**	
WL601304-17	**Spring Tension for Drive Unit**	
WL601304-27	**Bolt Clamping (Tension Rod)**	
WL10023103	**Guide Rod for Sliding Carriage**	
WL10023002	**Clamping Sliding Carriage**	
WL10022012-HK	**Hanging Kit for Chain Disk Drive Unit**	
WL10211031	**Grower Select Hardened Conveyor Chain Disc 44 MM (164 Feet per Bag)**	

WL10211019	Grower Select Hardened Chain Coupler, 71.5 MM Disc Distance	
HSCD-01	Grower Select Galvanized Coupler with Hardware	
HSFT2375	Grower Select Galvanized Tube for Chain Disk, 2.375" x 20'	
HSCD304-4	Chain Disk Fill Hopper Assembly with Couplers	
WL10121029	Cover SS Complete for Chain Fill Hopper (WL10121016)	
GROW-FLEX	Grower Select Grow-Flex System Model 75 with 156 RPM	
WL10222096	Corner 90 Degree Grow-Disk Cast Iron Wheel Self-cleaning 2.375"	
WL10222046	Wheel Corner Cast Iron Self Clean Pre-Assembled W/Axle & Bearings	
WL802108-08	Washer Eccentric SS Diameter 45 X 2 mm for Grow-Disk Corner	
003030	Caulk G E Silicone SCS1000 White (1 tube per 5 corners)	

59501	**Caulk Silicone Clear**	
HSCD-100	**Control Chain Disc With Timed Feed Grow-Disk**	
EL1051	**1 amp fuse 5x20 mm**	
HSCD-100-SS	**Soft Start Chain Disk System Grow-Disk**	
HSCD-900	**Grower Select Control Tube w/ Mount includes Proximity Switch**	
HSCD-900-1	**Bracket Chain Disk for Proximity Switch**	
HSCD-900-2	**Tube Clear Chain for Disk Proximity Switch**	
HS11	**Proximity Switch 220V Flush Mount Packaged Grower Select**	

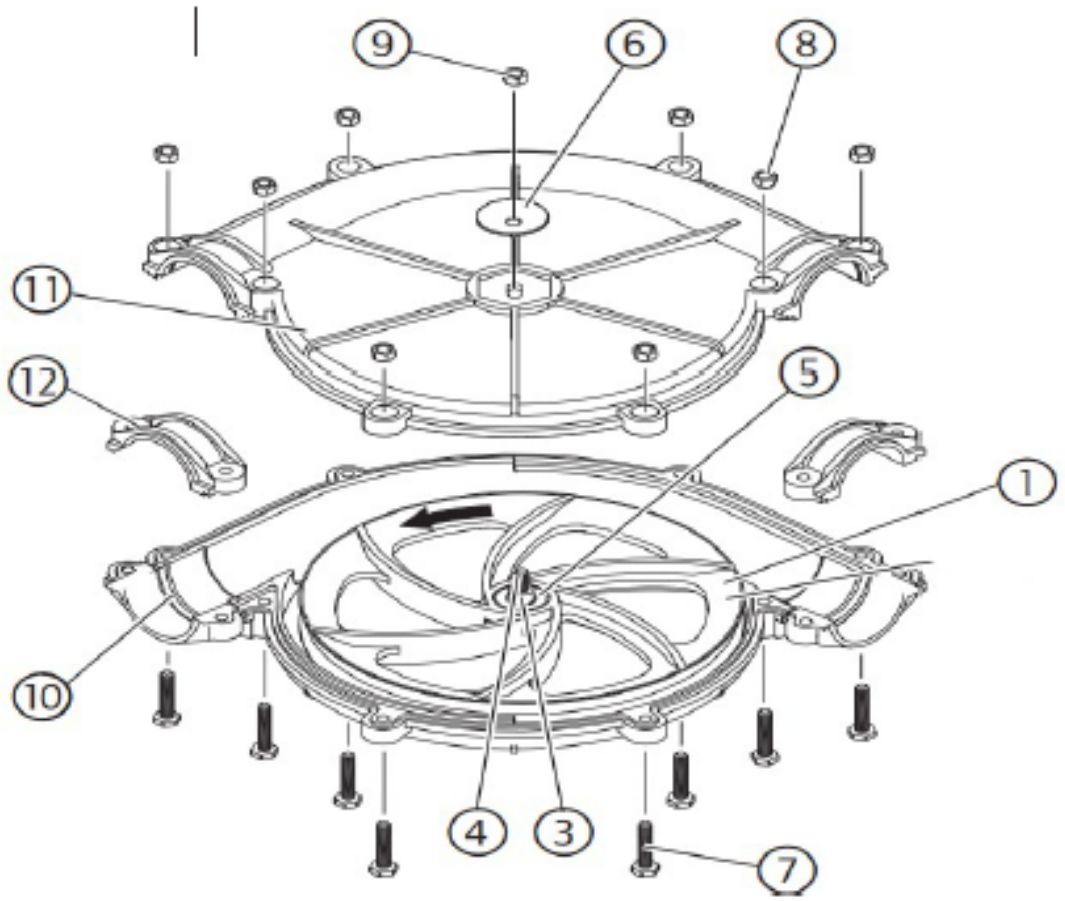
HS660S	**Grower Select Outlet Drop Model 60/236-CD**	
HSSD55	**Feeder Sow Drop M55/220 M236 12 LB Capacity**	
HSSD558	**Feeder Sow Drop M55/220 M236 8 LB Capacity**	
HSSD60C	**Feeder Sow Drop 60mm With Guard 8 LB Capacity**	
8082780100	**Feed System Hanger Bracket 60”**	
HSDT002	**Tube Drop 3.000" ID X 3.188"OD X 12' Grower Select**	
HSHC-56	**Clamp Hose SAE56 3-1/16" - 4" SS (2 per Drop)**	
606655	**Cup Open Hook SS ¼” x 3 ¾” One hook for every 4’ of tube 2 hooks for every corner**	
606733	**Chain #1 Double Loop Weldless Type 304 SS 100’ 1’ of chain for every 1’ of tube 10’ of chain for every corner**	

Drive Unit Spare Parts



Item #	Quantity	Part #	Description
1	1	BM996	Motor 1.1kW 60Hz SP 1725 RPM
2	1	WL32013034	Gear Box for Grow-Disk drive unit (WL10022012)
3	1	WL10023047	Drive Shaft Incl. Fit-in Key for Drive Unit WL10022012
4	1	WL10011001	Drive Unit Wheel Steel for Chain
5	1	WL601304-19	Switch Limit With Blue Reset Button
6	1	WL10011000	Switch Door Cover for Drive Unit
7	1	WL10021001-1	Wheel Return Plastic For Drive Unit With Bearing
8	1	WL10023002	Clamping Sliding Carriage for Drive Unit
9	1	WL601304-42	Bushing Plastic for Guide Rod Diameter 17 x030 mm for Drive
10	4	WL10023003	SST Locking for Sledge from WL-Drive Unit
11	1	WL10023008	Cover Stainless Steel For Chain Drive Unit
12	2	WL10023028	Rods Guide for Slide in Chain Drive Unit
13	1	WL601304-17	Spring Tension For Chain Drive Unit
14	1	WL601304-25	Axle for the Guide Wheel
15	2	WL70111005	Nut Hexagon M16 Galvanized
16	2	WL70111006	Washer 17 mm Galvanized
17	1	WL601304-30	Spacer Sleeve, Small
18	1	WL10023103	Bolt Clamping (Tension Rod) Galvanized TR 16X4
19	2	WL70111010	Nut Hexagon Stop M10 For Guide Rods

Corner Spare Parts



Item	Qty.	Article No.	Name
1	1	WL10222046	Corner Wheel Cast Iron
2	2	WL10211029	Ball bearing 6202 2RD
3	1	WL802108-10	Axle SST for guide wheel
4	2	WL802108-05	Washer Ø 9mm Outer Ø 28mm Stainless Steel
5	2	WL802108-08	Disk Eccentric SST Ø45x2 mm For Corner
6	12	WL802108-04	Bolt Hexagon Head SS M8 X 35 mm For Corner
7	13	WL70111003	Hexagon Nut Stainless Steel M8 DIN 934
8	1	WL802108-02	Nut Lock M8-1.25 DIN 985 GR A2 SS For Corner
9	1	WL10223038	Housing half blue, bottom Ø 60 mm pipe
10	1	WL10223076	Housing half blue, top Ø 60 mm pipe with logo
11	1	WL10223041	Clamp strap blue, for Ø 60 mm pipe

Notes

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Hog Slat Limited Warranty

Hog Slat warrants products to be free from defects in material or workmanship for a period of twenty-four (24) months from the date of **original purchase**. Hog Slat will credit, repair, or replace, at its option any product deemed defective within this time period. Labor costs associated with the replacement or repair of the product are not covered by the Seller/Manufacturer.

Conditions and Limitations

1. The product must be installed by and operated in accordance with the instructions published by the **Seller/Manufacturer or Warranty will be void**.
2. Warranty is void if **all components** are not original equipment supplied by the **Seller/Manufacturer**.
3. This product must be purchased from and installed by an authorized retailer/distributor or certified representative thereof or the Warranty will be void.
4. Malfunctions or failure resulting from misuse, abuse, negligence, alteration, accident, or lack of proper maintenance shall not be considered defects under the Warranty.
5. This Warranty applies only to components/systems for the care of poultry and livestock. Other applications in industry or commerce are not covered by this Warranty.
6. This Warranty applies only to the Original Purchaser of the product.

The **Seller/Manufacturer** shall not be liable for any **Consequential or Special Damage** which any purchaser may suffer or claim to suffer as a result of any defect in the product. **"Consequential"** or **"Special Damages"** *as used herein include, but are not limited to, lost or damaged products or goods, costs of transportation, lost sales, lost orders, lost income, increased overhead, labor and incidental costs and operational inefficiencies.*

THIS WARRANTY CONSTITUTES THE SELLER/MANUFACTURER'S ENTIRE AND SOLE WARRANTY AND THIS MANUFACTURER EXPRESSLY DISCLAIMS ANY AND ALL OTHER WARRANTIES, INCLUDING, BUT NOT LIMITED TO, EXPRESS AND IMPLIED WARRANTIES AS TO MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSES SOLD AND DESCRIPTION OR QUALITY OF THE PRODUCT FURNISHED HEREUNDER.

Hog Slat Retailers/Distributors are not authorized to modify or extend the terms and conditions of this Warranty in any manner or to offer or grant any other warranties for GrowerSelect products in addition to those terms expressly stated above. An officer of Hog Slat must authorize any exceptions to this Warranty in writing. The Seller/Manufacturer reserves the right to change models and specifications at any time without notice or obligation to improve previous models.

This equipment must be installed in accordance with all State and Local Codes and applicable Regulations which should be followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

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www.hogslat.com

Part Number: HSMANUAL-049
HSART-368 Revision A3
Market - Hog