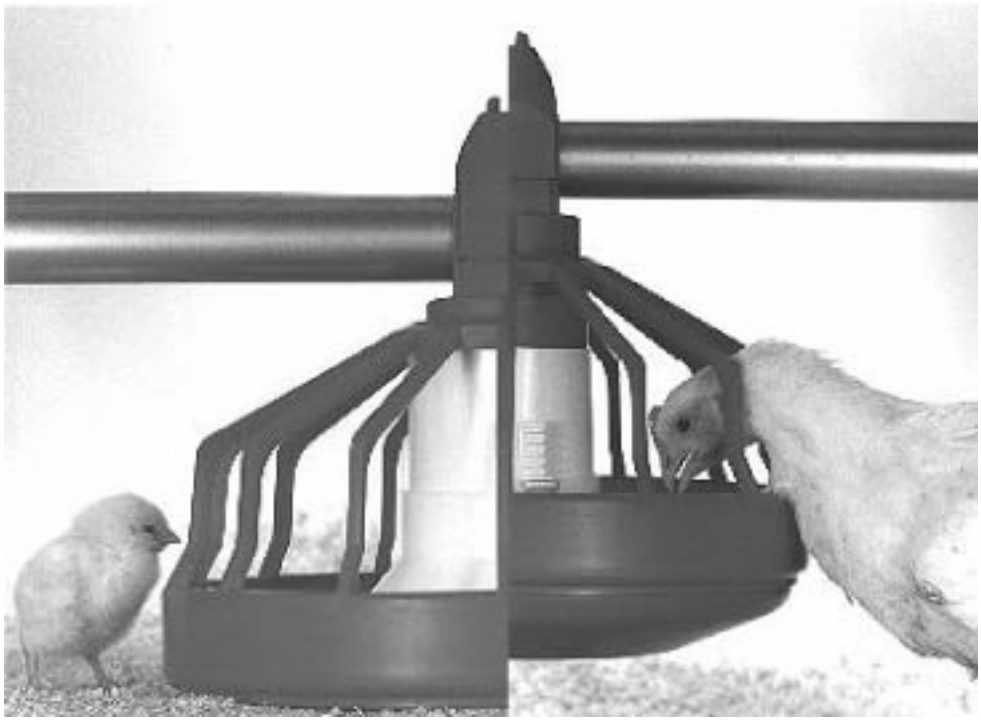

Hi-Lo and PRO-1 Pan Feeder

(For parts, refer to PNEG-250-PM)

Installation and Operation Manual

PNEG-250

Version: 2.0

Date: 10-20-11

BY THE

GSI GROUP

PNEG-250

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1. Introduction

Cumberland's Hi-Lo Pan Feeder is a revolutionary two-stage feeder bringing together features and advantages of other systems, and introducing original and effective solutions to some persistent problems and concerns.

The Pan Feeder System is designed to convey granular or powdered poultry feed from external feed bins into the poultry house. It utilizes a screw auger to supply feed to Pan Feeders. The auger and pans are located in the building, and the birds feed directly from it.

Feed is delivered from the feed bin via a feed conveying system such as the Flex-Flo, which is designed to run in conjunction with the Pan Feeder.

For clean out purposes, the Pan Feeder may be raised up to a high level using a winching system. This allows clear access to the building.

The Hi-Lo Pan Feeder System is designed for simple installation, though it is recommended that a specialist be consulted with for the electrical wiring installation.

Because the first 7-10 days of a broiler's life are critical, the Hi-Lo Pan Feeder rests on the house floor and presents a lip height of 2.1" (5.334 cm) the average height of traditional "feeder lids". Young chicks can easily get in and out of the pan and are eating out of the pan from day one. And because the pan need not be flooded, they get fresher feed. The Hi-Lo Pan Feeder provides an excellent start for young birds.

As the birds grow, and the feed line is raised, the Hi-Lo Pan Feeder expands into the more easily managed 3.5" (8.89 cm) deep pan.

For larger birds, the higher wall and feed saver lip (wider than the lip currently on the standard grilled feeder) prevent waste from raking and eliminate bill-out. The additional height also compels the birds to eat nearer the edge of the pan, assuring a more even "first in, first out" utilization of feed (which both saves feed and maintains freshness).

Cumberland values customer feedback and suggestions to help determine what features and functions most enhance the efficiency and profitability of operations. Many of Cumberland's design and manufacturing advantages, including the Hi-Lo Pan Feeder, have been direct responses to customer comments and suggestions.

Please send any questions, suggestions or comments to Cumberland at the following address:

Contact:

Cumberland
1004 E. Illinois St.
Assumption, IL. 62510
Phone: 1-217-226-4421

Safety Guidelines

This manual contains information that is important for you, the owner/operator, to know and understand. This information relates to protecting ***personal safety*** and ***preventing equipment problems.*** It is the responsibility of the owner/operator to inform anyone operating or working in the area of this equipment of these safety guidelines. To help you recognize this information, we use the symbols that are defined below. Please read the manual and pay attention to these sections. Failure to read this manual and its safety instructions is a misuse of the equipment and may lead to serious injury or death.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE is used to address practices not related to personal injury.

Safety Instructions

Our foremost concern is your safety and the safety of others associated with this equipment. We want to keep you as a customer. This manual is to help you understand safe operating procedures and some problems that may be encountered by the operator and other personnel.

As owner and/or operator, it is your responsibility to know what requirements, hazards, and precautions exist, and to inform all personnel associated with the equipment or in the area. Safety precautions may be required from the personnel. Avoid any alterations to the equipment. Such alterations may produce a very dangerous situation where SERIOUS INJURY or DEATH may occur.

This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

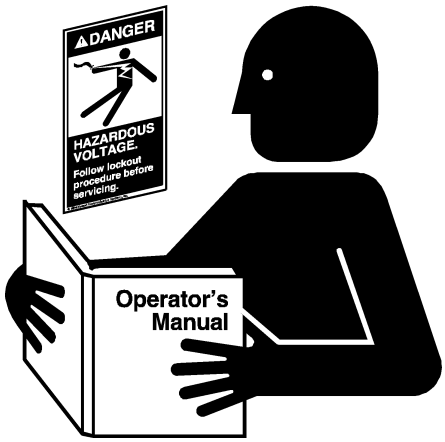
Follow Safety Instructions

Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machinery in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

If you do not understand any part of this manual or need assistance, contact your dealer.



Read and Understand Manual

Practice Safe Maintenance

Understand service procedures before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is in operation. Keep hands, feet, and clothing away from rotating parts.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any built-up grease, oil, and debris.

Maintain Equipment and Work Area

Operate Motor Properly

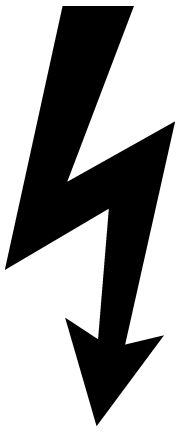
In an emergency, shut down the power source.

Turn OFF and lock out all power sources before performing any maintenance.

Do not operate electric motor equipped units until motors are properly grounded.

Disconnect power on electrical driven units before resetting motor overloads.

Do not repetitively stop and start the drive in order to free a plugged condition. Jogging the drive in this manner can damage the equipment and/or drive components.



Electric Shock Hazard

Electrical Safety

An adequate and safe power supply to the Pan Feeder System unit is essential for safety. A competent and qualified electrician must undertake all electrical wiring. All wiring is to be installed according to the National Standards and Regulations relevant to your Country and Region.

A main isolator should be installed with the Pan Feeder System and is essential for safety. This should be installed as indicated in the enclosed installation instructions and in accordance with the relevant codes and directives.

Users Manual

This manual contains information and instructions essential to the safe installation and use of the Pan Feeder System. Read this manual thoroughly **before** attempting any installation or use of the Pan Feeder System. Keep this manual with the Pan Feeder System or in a location where it can be readily accessed. Failure to read this manual and its safety instructions is a misuse of the equipment.

Structural Safety

Raising and lowering the Pan Feeder System in a poultry house imposes additional load on the building. It is essential that the building is able to bear this additional load. Consult a structural engineer to verify the building's load capacity. Likely/estimated weights of the Pan Feeding System are provided in the table in the Installation Manual.

Correct Use of the Pan Feeder System

The Pan Feeder System is designed solely for the purpose of conveying granular or powdered agricultural feed products for poultry feeding. Use of the system in any other way is a misuse of the system and may endanger safety and health.

Only genuine Cumberland parts are to be used in installation and use of the Pan Feeder System. Use of other non-genuine parts is a misuse of the system and may lead to dangerous situations imperilling the safety and health of you and others.

This machine is not designed for use in atmospheres where there is a risk of explosion. Such environments may include enclosed areas of high dusts concentrations, gas vapors and fumes. Use of the Pan Feeder System in such an environment is prohibited. If in doubt, contact Cumberland or your dealer.

Safety Guards

The Pan Feeder System contains many moving and electrical parts, which will cause serious injury or death if touched. Guards are placed on the machine for your protection. Operating the machine at any time with guards removed or incorrectly fitted is a serious misuse of the machine and endangers safety.

Safety in Handling the Pan Feeding System

To prevent injury, use suitable hand protection when manually handling the components of this system.

Safety in Maintenance

While the Pan Feeder System is designed to keep maintenance to a minimum, some repairs will be necessary in the course of the life of the machine. Do not attempt any repairs on the machine unless you are competent to do so. Remember that the Pan Feeder System may operate under automatic control and start without warning. Never attempt any work on the Pan Feeder System without first isolating the machine from the power and locking the isolator so that only you can turn the power back on.

When working on or around the auger, be aware that it may be under tension and may move suddenly when released. Approach the auger using a suitable tool rather than your hands until it is clear that the tension is released and the auger is slack in all places.

Follow all guidelines given in the maintenance section of this manual.

Before restarting the Pan Feeder System, ensure that all electrical enclosures are locked closed and all guards and other safety measures are correctly fitted. If in any doubt, contact your dealer or Cumberland for assistance.

Dust

Under normal working conditions, the Pan Feeder System should create little or no dust hazard. However, some feed materials may create dust when being moved. This dust may be harmful to your health if inhaled. Seek advice from your feed supplier and use a suitable dust mask as needed.

Noise

Tests on this machine indicate noise levels at a position 1 meter from the drive unit, 1.6 meters above the ground do not exceed 70 dBa, continuous ‘A’ weighted sound pressure or 63 Pa, instantaneous ‘C’ weighted sound pressure.

Use Caution in the Operation of this Equipment

The design and manufacture of the Pan Feeding System is directed toward operator safety. However, the very nature of a Pan Feeding System requiring electrical power and possessing moving parts does present a hazard to personnel which cannot be completely safeguarded against without interfering with efficient operation and reasonable access to components.

Continued safe, dependable operation of automatic equipment depends, to a great degree, upon the owner/operator. For a safe and dependable Pan Feeding System, follow the recommendations within this manual and make it a practice to regularly inspect the operation of the unit for any developing problems or unsafe conditions.

READ THESE INSTRUCTIONS BEFORE OPERATION AND SERVICE
SAVE FOR FUTURE REFERENCE

1. Read and understand the operating manual before trying to install or operate the Pan Feeding System.
2. Power supply should be OFF for service of electrical components. Use CAUTION in checking voltage or other procedures requiring power to be ON.
3. Never attempt to operate the Pan Feeding System by jumping or otherwise bypassing any safety devices on the unit.
4. Keep the Pan Feeding System clean. Do not allow debris to collect around drive unit, control pan, hoppers or boots.
5. Use CAUTION in working around the Pan Feeding System's moving parts.

This product is intended for the use of feed handling only. Any other use is considered a misuse of the product.

Some edges of the product's components are sharp. Examine each product component to determine if there are any safety considerations to be taken prior to use and/or installation. Any and all necessary personal protective equipment should be worn at all times when handling, assembling, installing and operation of the product and/or its components.

Throughout this manual, guards are removed for illustration purposes only. All guards must be in place before and during operation.

For guidance or assistance on any issues relating to the safe use of Pan Feeder System,

Contact:

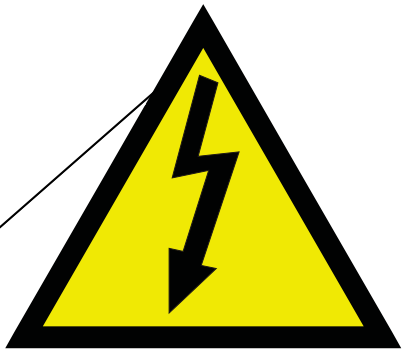
Cumberland
1004 E. Illinois St.
Assumption, IL. 62510
Phone: 1-217-226-4421

Safety Sign-Off Sheet

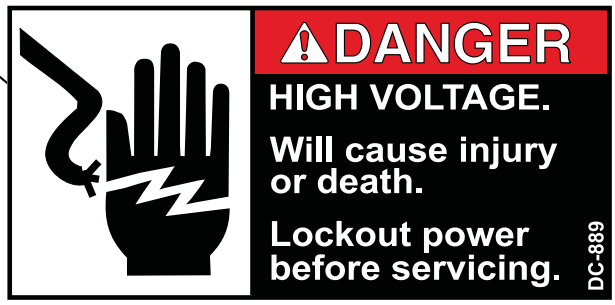
As a requirement of O.S.H.A., it is necessary for the employer to train the employee in the safe operating and safety procedures for this auger. This sign-off sheet is provided for your convenience and personal record keeping. All unqualified persons are to stay out of the work area at all times. It is strongly recommended that another qualified person who knows the shut down procedure be in the area in the event of an emergency.

Date	*Employee Name*	*Supervisor Name*

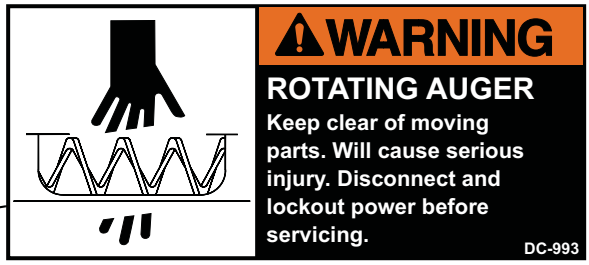
Safety Decals and Placement



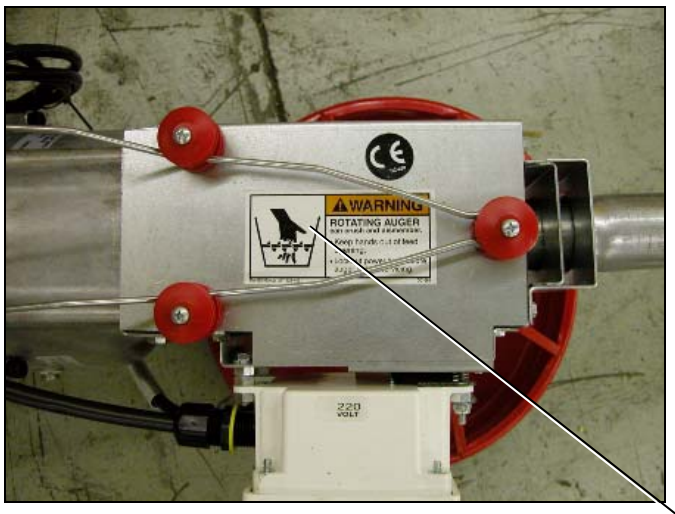
DC-852: The decal shown is located on boxes or enclosures containing electrical components. It measures 2.25" wide x 2.15" tall. **It alerts the operator of potential injury or death from electrical shock.**

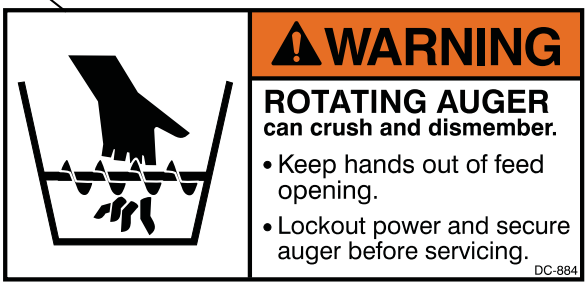


DC-889: The decal shown is located on the lid of the Hi-Lo control pan. It measures 2.8" wide x 1.4" tall. It alerts the operator of injury or death from electrical shock. **It also instructs the operator to lock out the power before servicing.**

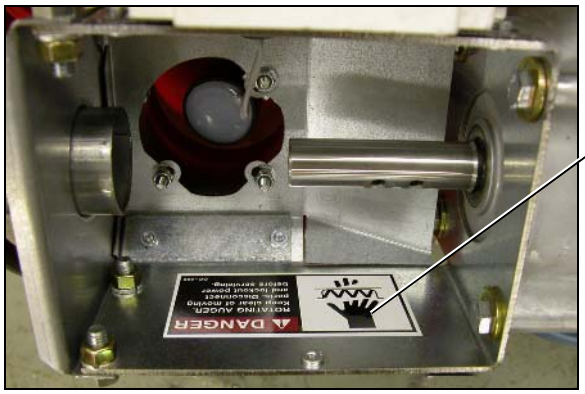


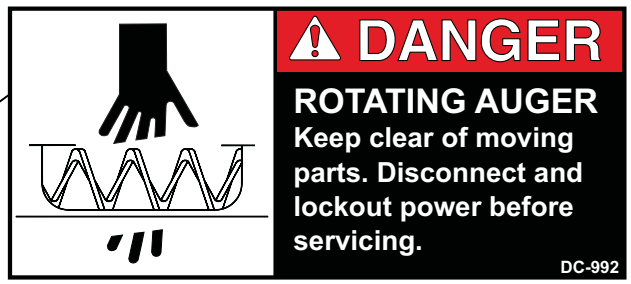
DC-993: The decal shown is located on the hopper. It measures 2.8" wide x 1.4" tall. **It alerts the operator of serious injury from coming into contact with a moving auger. It also instructs the operator to disconnect and lock out the power before servicing.**





DC-884: The decal shown is located on the lid of the grilled control pan. It measures 2.8" wide x 1.4" tall. It alerts the operator of death or dismemberment from coming into contact with a moving auger. **It also instructs the operator to lock out the power before servicing.**





DC-992: The decal shown is located under the lid, inside the drive mount. It measures 2.8" wide x 1.4" tall. **It alerts the operator to keep clear of moving parts. It also instructs the operator to disconnect and lock out the power before servicing.**

**** The above pictures show the drive mount with the lid off for illustration purposes only. Never operate the system without the lid in place. Never remove the lid without disconnecting and locking out the power first.**

The winching system used to raise and lower the feed system in the poultry house imposes additional load on the building. It is essential to confirm that the building is able to carry this extra load. Consult a structural engineer to check the building strength. Details of the likely weight of the feed system are given in the calculations below. However, if there is any uncertainty, contact your dealer or Cumberland for assistance with calculating the weight.

To calculate the weight of the pan feeding system, you must identify the weights of the following components: A) hopper, boot and the feed they will hold, B) weight of tubing, pans, auger and the feed they contain per section of tube and C) weight of control pan and drive unit.

A. From the *Capacities and Specifications Section on Pages 15 and 16*, find the weight of the hopper (H) being used, the boot (BT) being used and the capacity (HP) of the hopper being used. Add the weights of these three (3) components together: A = H+BT+HP.

B. Find the pan weight (PW) and the pan capacity weight (PC) using the *Capacities and Specifications Section on Pages 15 and 16*. Add these two (2) weights together and multiply by the number of pans per tube section (NP) to get the total pan weight (TPW) per tube section. TPW = (PW+PC)(NP).

   Next find the weight of the tubing (T) and auger (AG) being used from the *Capacities and Specifications Section on Pages 15 and 16*. Note the tube length (TL). Feed weight (FW) in the tube are: 10' of tubing will hold 3 lbs. of feed, 9' tubing holds 2.7 lbs. and 12' tube holds 3.6 lbs. Figure the total weight per length of tube from the formula: B = T+(AG x TL)+FW+TPW.

C. Find the weight of the control pan (CPW) and drive unit (DU) being used from the *Capacities and Specifications Section on Pages 15 and 16*. Add these two (2) weights together: C = CP+DU.

Calculating Weight of Feedline at Each Suspension Point

After determining A, B and C, determine the quantity of each component to be suspended by any suspension point.

Determine Weight of Entire System

System weight (SW) is determined by adding the number of tubes in use (NT), number of drive units in use (ND) and finding the total weight of A, B and C: SW = A+(B x NT)+(C x ND).

NOTE: *Weight of feed calculated at 40 lbs. per cubic foot. If feed to be used is of different density, the weight of the system must be adjusted appropriately.*

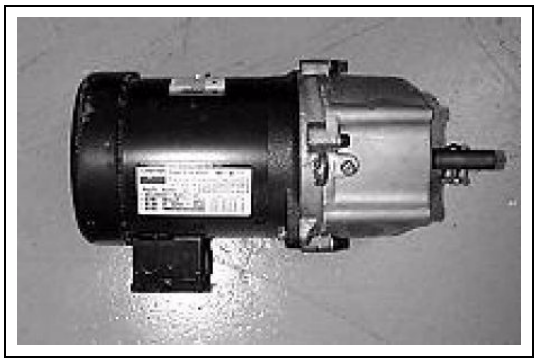


Figure 5A *Drive Unit*

Drive Units

Phase	HP	Voltage	Hz	Gearbox	RPM	Weight
Single	1/3 or 1/2	110/220	50 or 60	Direct Drive	358	28.4 lbs. (12.9 kgs)
Three	1/3 or 1/2	190/380//208-230/460	50 or 60	Direct Drive	358	28.4 lbs. (12.9 kgs)

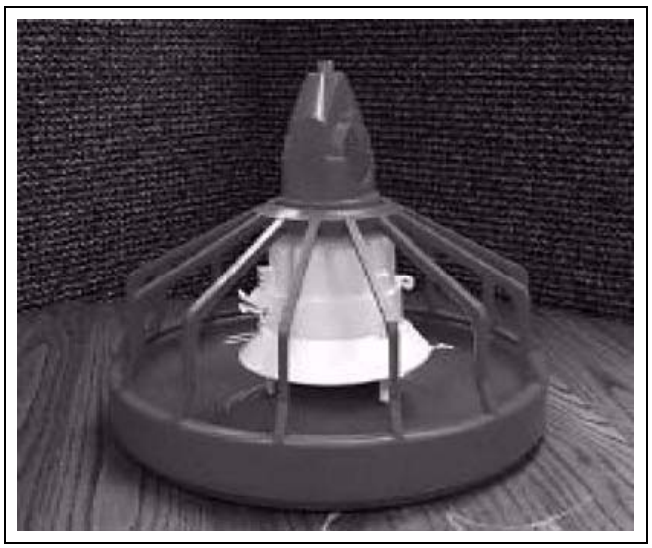


Figure 5B

Pans

Model	Diameter	Weight
Hi-Lo	13" (330 mm)	1.6 lbs. (0.7 kgs)
PRO-1	13" (330 mm)	1.8 lbs. (0.8 kgs)

Hoppers

Capacity	Height	Top Opening	Weight
120 lbs. (54 kgs)	21.7" (55 cm)	18" x 18" (45 cm x 45 cm)	22.0 lbs. (10.0 kgs)
200 lbs. (91 kgs)	32.5" (83 cm)	18" x 18" (45 cm x 45 cm)	31.0 lbs. (14.1 kgs)
300 lbs. (136 kgs)	32.5" (83 cm)	24" x 24" (61 cm x 61 cm)	41.9 lbs. (19.0 kgs)
400 lbs. (182 kgs)	42.5" (108 cm)	24" x 24" (61 cm x 61 cm)	58.3 lbs. (26.5 kgs)

Control Pans

	Pan Style	Switch Style	Weight
End Control	Hi-Lo	Microswitch	8.8 lbs. (4.0 kgs)
	Hi-Lo	Spinner	8.8 lbs. (4.0 kgs)
	Hi-Lo	Proximity	8.8 lbs. (4.0 kgs)
Center House	Hi-Lo	Microswitch	4.1 lbs. (1.8 kgs)
	Hi-Lo	Spinner	8.8 lbs. (4.0 kgs)
	Hi-Lo	Proximity	3.7 lbs. (1.6 kgs)

Tubing

Length	Weight	Feed Hole Tubes	Feed and Brood Hole Tubes
9 ft. (2.74 m)	7.5 lbs. (3.4 kgs)	0, 1, 2, 4	8 Centered, Staggared (4" or 6")
10 ft. (3.05 m)	8.3 lbs. (3.7 kgs)	0, 1, 3, 4, 5	6 Centered, Staggared, Skipped
			9 Double Staggared
			8 Centered, Staggared
			12 Double Staggared
12 ft. (3.65 m)	9.74 lbs. (4.4 kgs)	0, 2, 3, 4, 5	8 Centered, Staggared
			10 Centered, Staggared
			12 Double Staggared
			15 Double Staggared

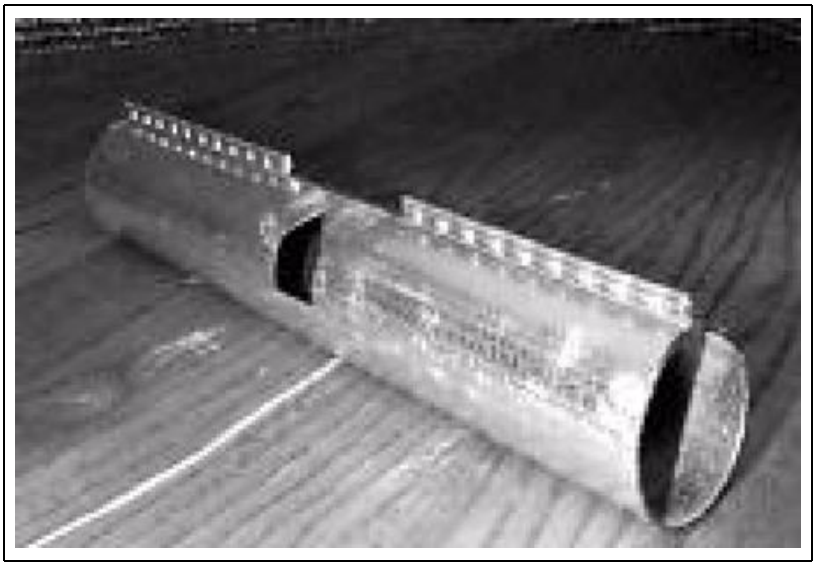


Figure 5C

Auger

O.D.	Pitch	Weight/Ft.
1.483" (36.5 mm)	2" (50.8 mm)	0.33 lb. (0.15 kgs)

House Layout

One-half (1/2) horsepower drive units are recommended for houses over 500' (152.4 m) long. It is not recommended that a drive unit ever be located more than 500' from the hopper/boot.

Figure 6A shows a single boot feed system with the feed tank at the end of the house.

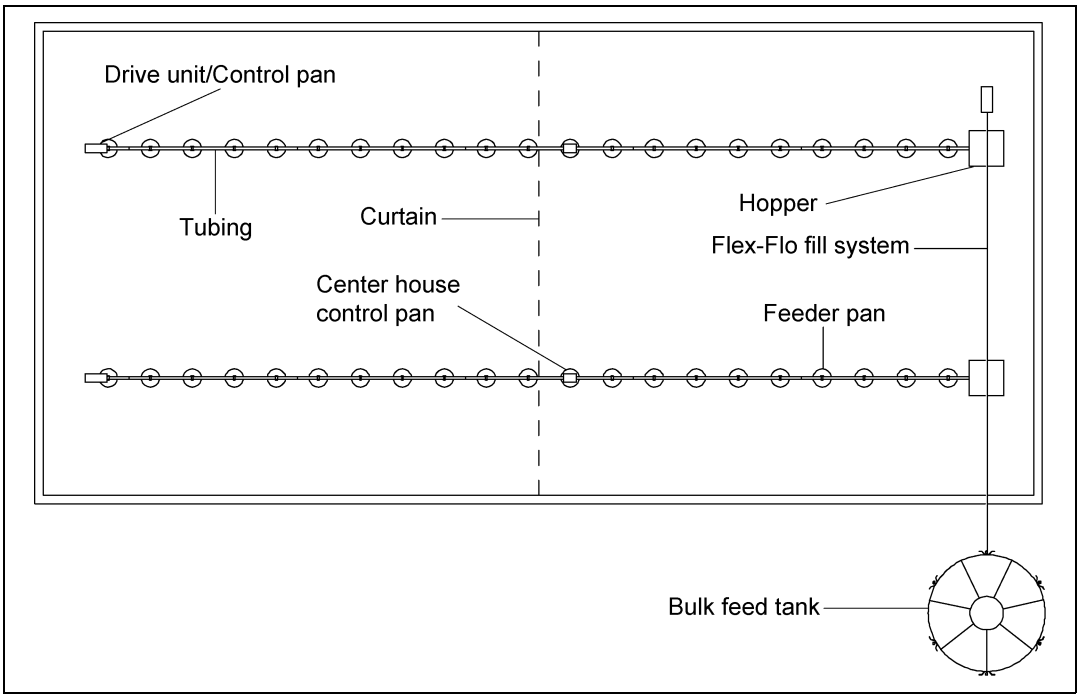


Figure 6A

Figure 6B shows a double boot feed system with the feed tank in the middle of the house.

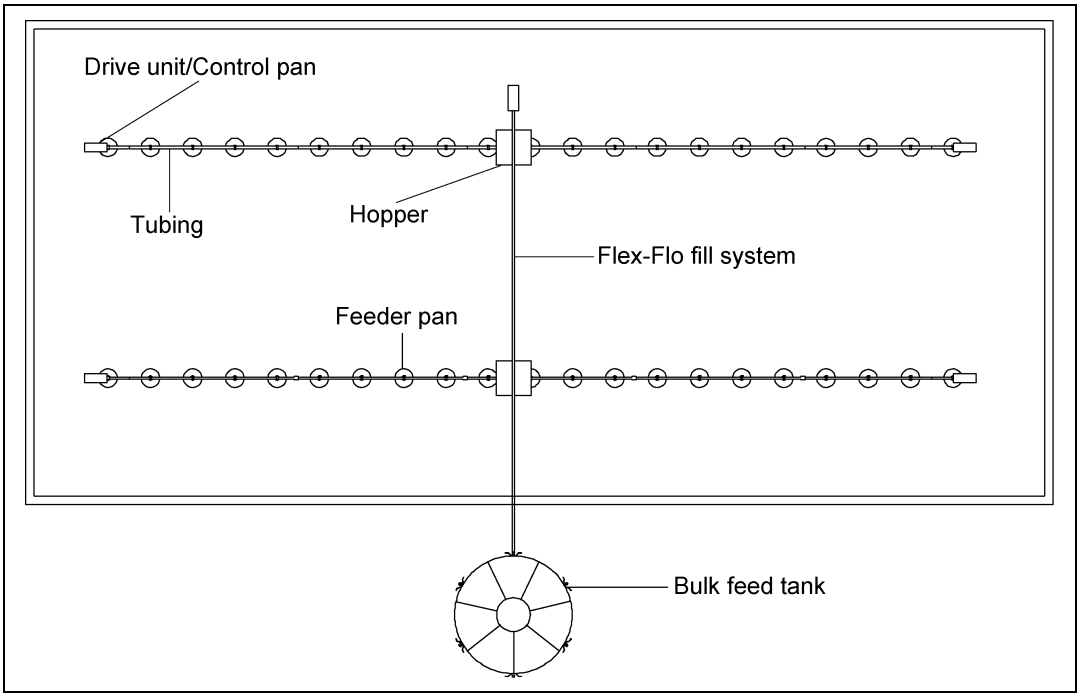


Figure 6B

Installation Sequence

This manual outlines the recommended sequence for the installation of the Hi-Lo Pan Feeder System. Observing this sequence provides the safest and easiest method of installation.

DANGER

Do not connect the system to the electrical mains until the final stage of installation. Failure to observe critical sequencing could prove fatal.

Feeder Assembly

Feeders with one-piece drop tubes must be assembled on the tubes before the tubes are assembled together. Feeders with two-piece drop tubes may be assembled before or after the tubes are assembled.

Hi-Lo Feeder Assembly

One-Piece Drop Tube

1. Place the grill on the drop tube as shown in *Figure 7A*.

Figure 7A

2. Slide the proper number of feeder assemblies onto each auger tube. The tube rib slides through the slot at the top of the drop tube. *(See Figure 7B.)*

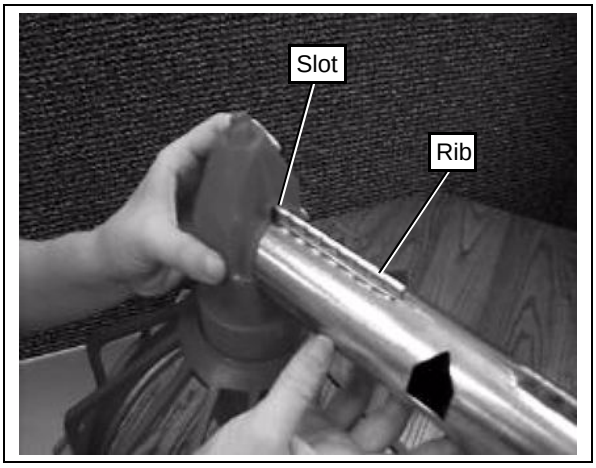


Figure 7B

Two-Piece Drop Tube

1. Place the top piece of the two-piece drop tube over the hole opening on the tube. *(See Figure 7C.)*

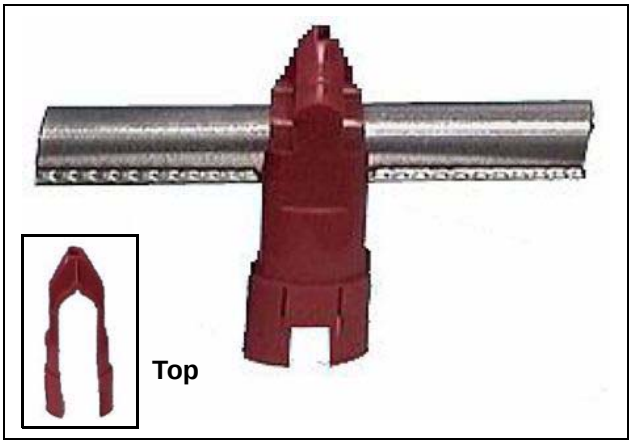


Figure 7C

Figure 7D

2. Push the grill up on to the top piece of the two-piece drop tube. *(See Figure 7D.)*
3. Slide the bottom piece of the two-piece drop tube into the top piece, making certain the tabs are locked in place. *(See Figure 7E.)*

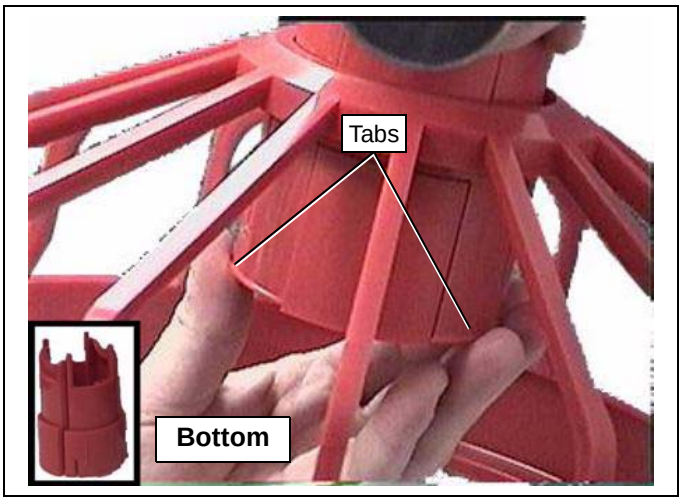


Figure 7E

4. For assembly when no shut off slide is used, the indicator bumps on the top and bottom of the drop tube pieces must be aligned. *(See Figure 7F.)* Failure to do so will result in feed shifting where the drop tube meets the tube. If the indicator bumps are not aligned, remove the bottom and turn it 180°.

   Proper alignment can also be found by following the text on the top and bottom drop tube pieces.

   IMPORTANT: *Top and bottom pieces of the drop tube must be oriented correctly to prevent feed leakage.*

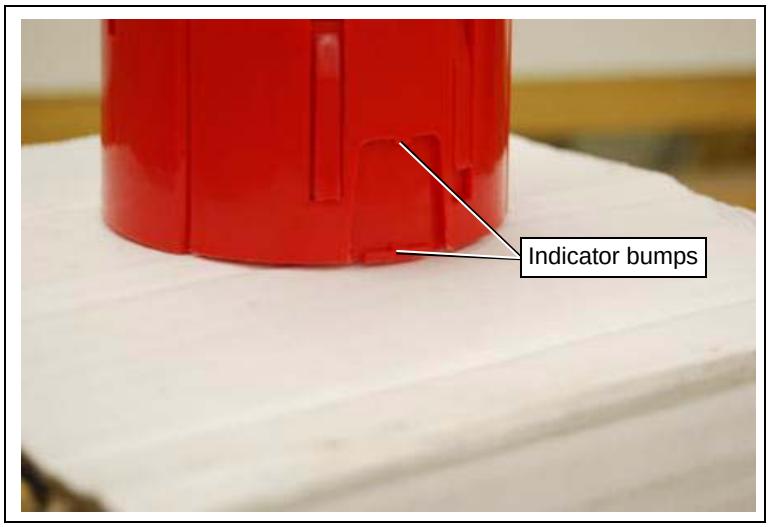


Figure 7F

5. To remove the bottom of the two-piece drop tube, squeeze the tabs at the end of the assembly and pull the two (2) pieces apart. *(See Figure 7G.)*

Figure 7G

6. Place the feed level on the feed level stand. *(See Figure 7H.)*

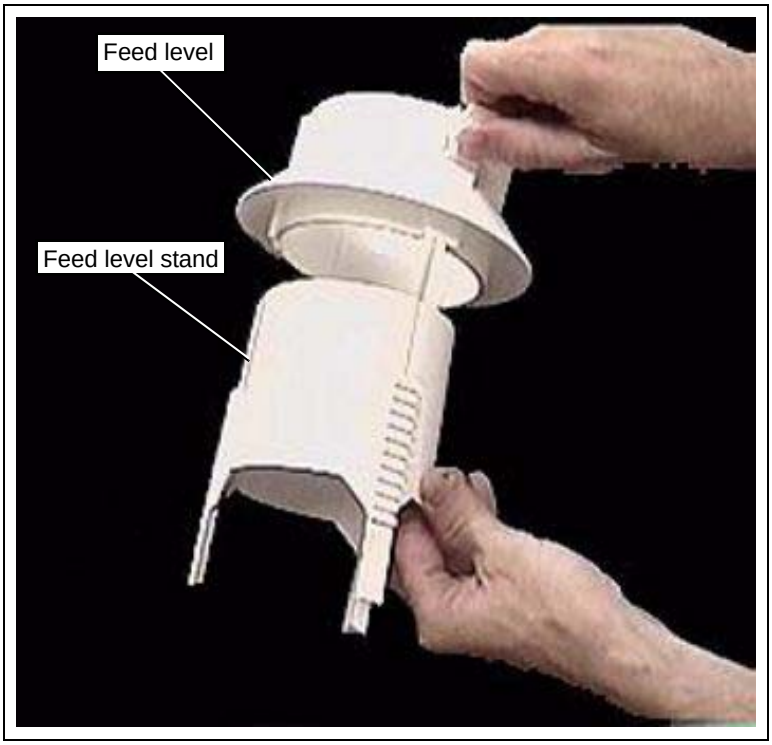


Figure 7H

Visually check that the clip is securely situated in a notch. If the clip does not fit into the slot, the feed level can lower and the clip can become fixed out of the notches. If the clip becomes fixed while out of a notch, the feed flow may stop. It will be difficult to return the clip to a slot if it becomes fixed while out of a slot.

Optimal results will be obtained by maintaining as shallow of feed depth as possible, while maintaining sufficient feed flow ability.

7. Place the clip into the preferred notch. The standard setting is with three (3) notches visible. *(See Figure 7I.)*

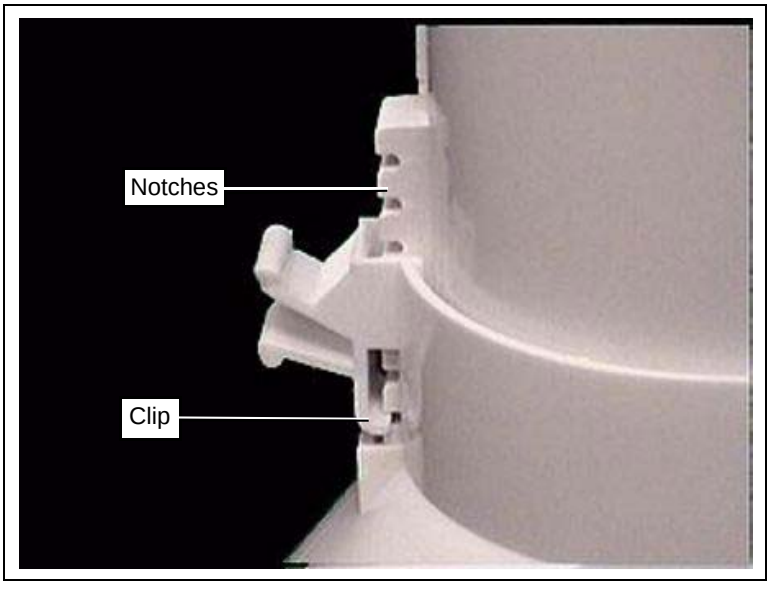


Figure 7I

8. Place the feed level on the assembly. *(See Figure 7J.)*

Figure 7J

9. Place the pan on the assembly. *(See Figure 7K.)*

Figure 7K

10. The completed assembly should look like the image below. *(See Figure 7L.)*

NOTE: *Disassembly of the pan and grill may be performed by lifting on one side of the pan while pushing down on the other side and flexing the grill. With practice, this operation will become easy for cleaning.*

Figure 7L

PRO-1 Assembly Instructions

1. Align slots in drop tube (C2000215) with tabs in drop tube extension (C2000209) and snap together as shown in *Figure 7M.*
2. Align adjustment slots on lower drop tube (C2000210) with notches on feed level adjustor (C2000211) and snap into position as shown in *Figure 7N.*

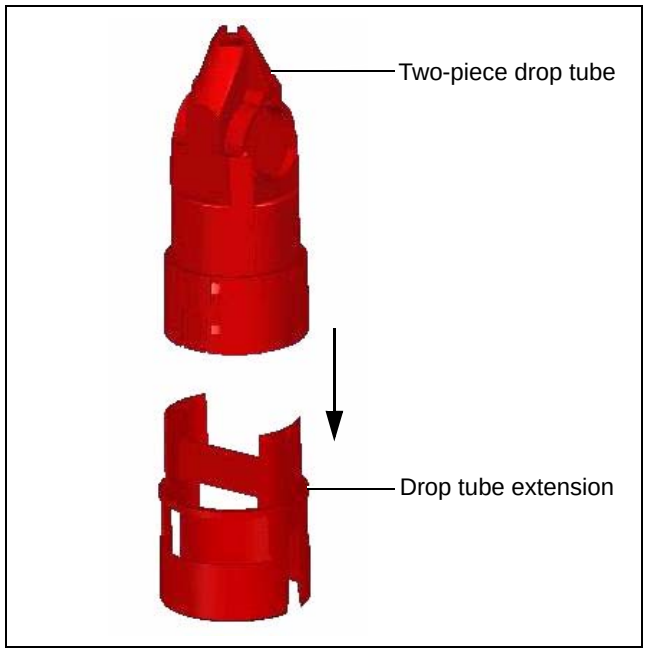


Figure 7M

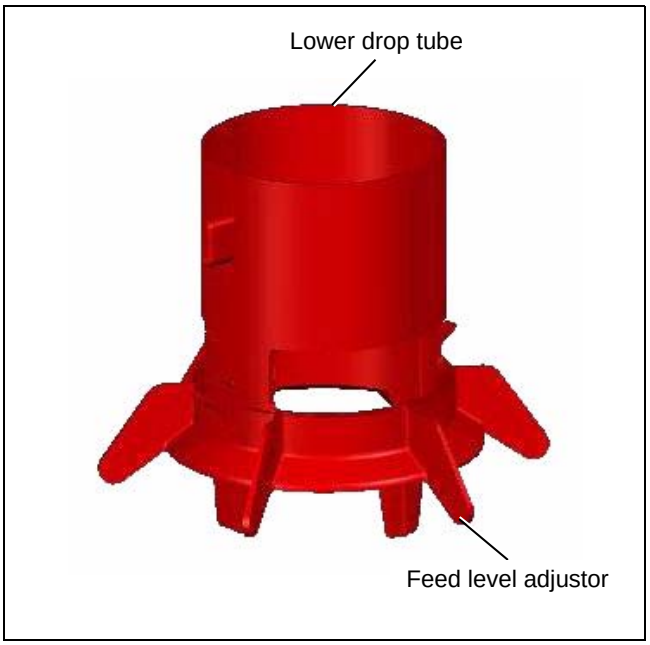


Figure 7N

3. Align slot on locking collar (C2000212) with tab on lower drop tube (C2000210) and slide over the lower drop tube. *(See Figure 7O.)*
4. Insert the drop tube assembly into the lower drop tube assembly as shown in *Figure 7P.*

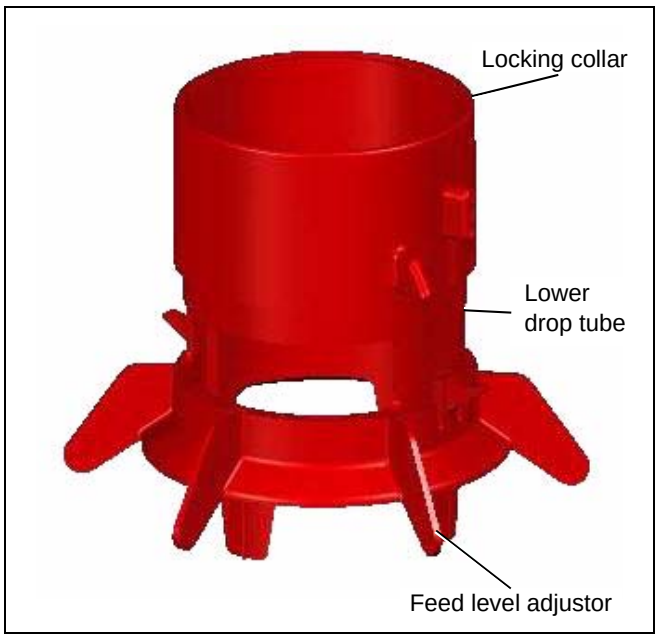


Figure 7O

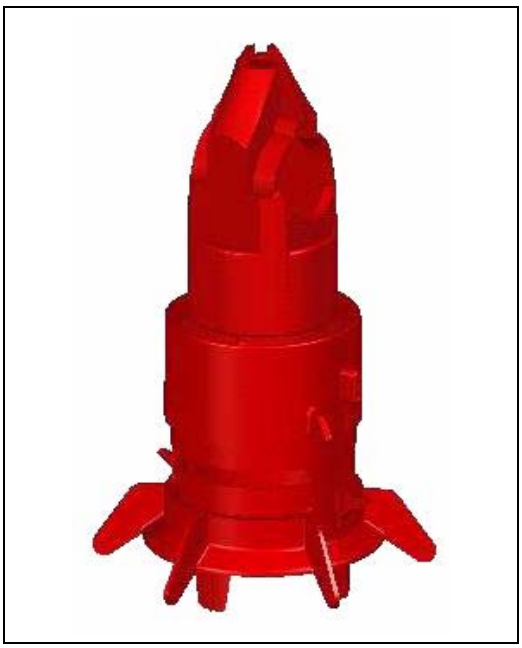


Figure 7P

5. Slide grill (7101254) over the top of the drop tube assembly and snap the pan (7098857) onto the grill as shown in *Figure 7Q.*

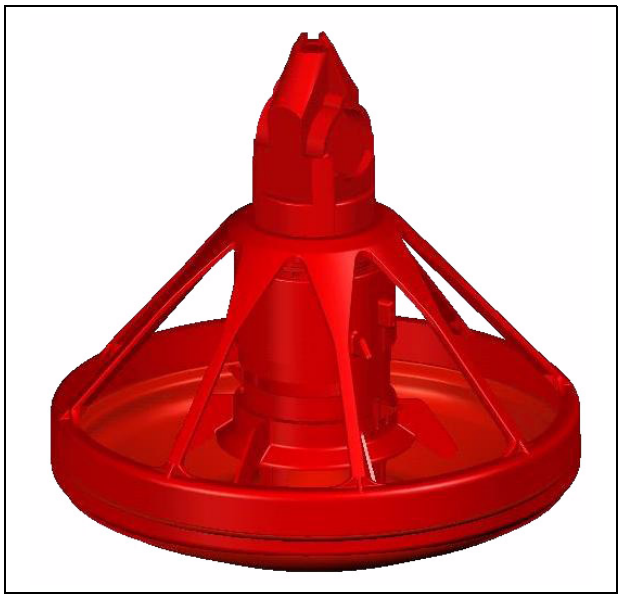


Figure 7Q

Flooding Applications

For flooding applications, the feeder can be used in either a locked position, which prevents the pan from collapsing or in a collapsed position to take advantage of the Hi-Lo feature.

Uncollapsed Pan

Lift locking collar (C2000212) and use the tabs on both the locking collar and lower drop tube (C2000210) to rotate the collar into its locked position as shown in *Figure 7R* below and *Figure 7S on Page 25.* When the feed line is lowered to ground level, the drop tube is lowered into position to open the flooding windows as shown in *Figure 7T on Page 25.*

Figure 7R

Figure 7S

Figure 7T

Collapsed Pan

Simply leave the locking collar in its assembled or lowered position to allow the pan to collapse into the grill for standard Hi-Lo operation as shown in *Figure 7U.* When the feed line is lowered to ground level, the pan is raised into position to open the flooding windows as shown in *Figure 7V.*

Figure 7U

Figure 7V

PRO-1 Retrofit

Converting a standard Hi-Lo feeder to the PRO-1 feeder is simple with the use of the PRO-1 retrofit kit (C2000235). The kit contains the drop tube extension (C2000209), lower drop tube (C2000210), feed level adjustor (C2000211) and the locking collar (C2000212). Simply remove the existing Hi-Lo feed level stand (7098855) and Hi-Lo feed level (7098854) and follow the instructions at the beginning of this section.

Tubing Assembly

CAUTION

Be careful, there are many sharp edges that can cut while assembling the feedline. Wear protective clothing and gloves.

NOTE: *Check to see that structural members are overhead to support winching the boot and hopper.* *(See Winching Section on Page 64.)*

NOTICE

Every fifth (5th) auger tube should receive an insulator bracket assembly for the shocker wire. Do not over tighten the tube clamps or distortion of the tubes may result.

1. Place the boot in its approximate final position: Single boot at the end of the house, double boot in the center of the house. *(See Figure 7W.)* Assemble the auger tubing the length of the building, starting with the bell end towards the boot. *(See Figure 7W* and *Figure 7X.)*

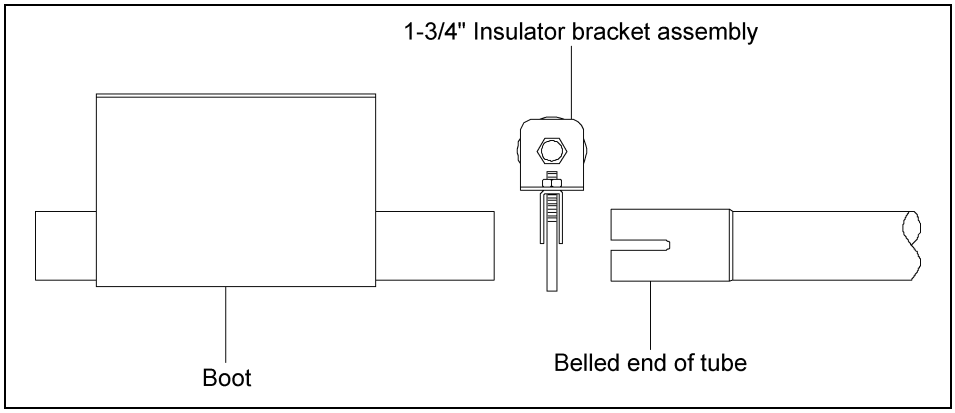


Figure 7W

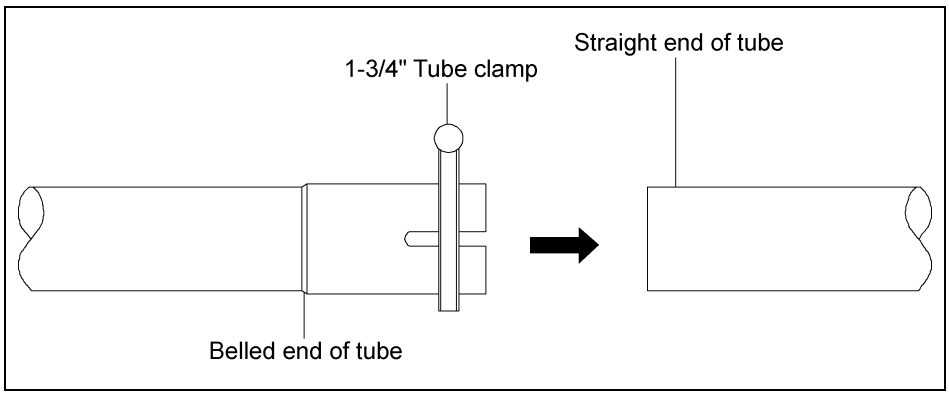


Figure 7X

2. If the winching system is already in place, hang the line at approximately waist level.
3. Shorten the last full length of auger tube on the line (control pan side), if the building size requires it.
4. Secure the auger tubes together with the tube clamps as shown in *Figure 7Y*.

Figure 7Y

Programming Poultry Tubes for Pullet and Breeder Applications

NOTE: *Pans should already be assembled onto the tubes, in position over the holes (less the anti-rotation clips) and with the belled ends facing the control unit end. Do not attach tube clamps at this time.*

1. Starting with the poultry boot, attach a double swedged tube (7101478) to each outlet on the boot. (If single boot use one, if double boot use two (2) - one on each side of the boot.) Insert the poultry tubes into the double swedged tube. Continue to insert tubes into each other until the end of the line where the control unit will be located. *(See Figure 7Z below and Figure 7AA on Page 28.)*

   NOTE: *It will be necessary to cut off the belled end of the last tube and a small portion of the rib to enable the tube to slide into the control unit bell.*

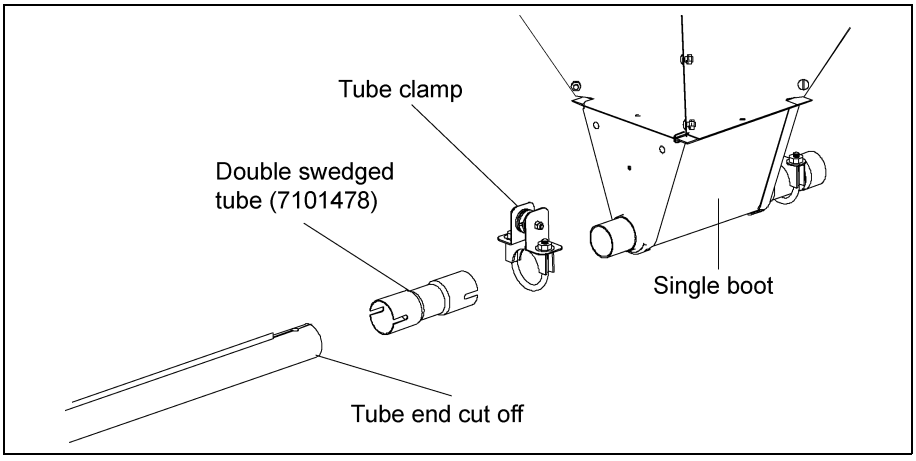


Figure 7Z

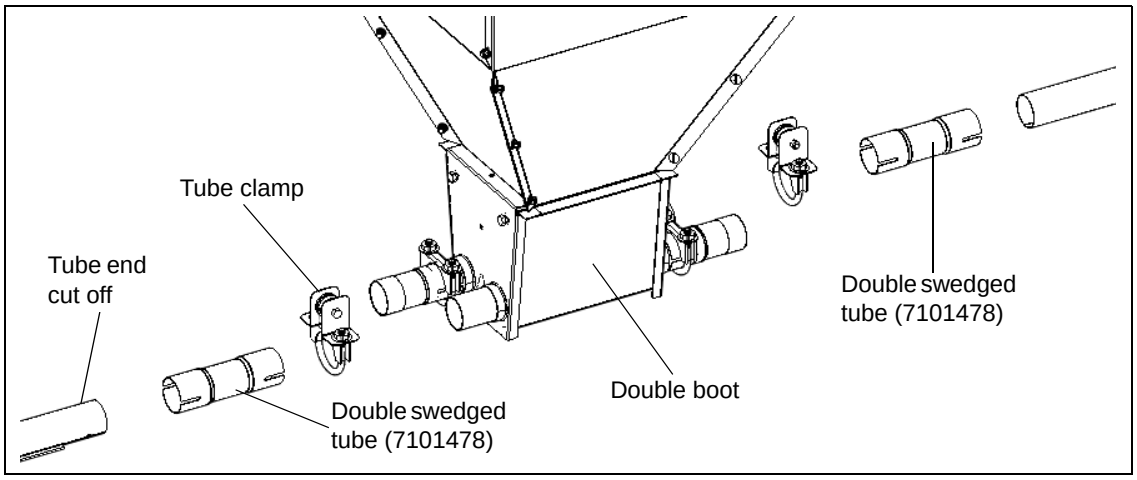


Figure 7AA

2. Count and label (number) the tubes starting from the poultry boot and ending at the control unit. It is important to count and number each “group” of tubes (from the boot to the control unit) separately. If using a double boot in the center of the house, this would be considered as two (2) separate groups. *(See Figure 7AB and Figure 7AC.)*

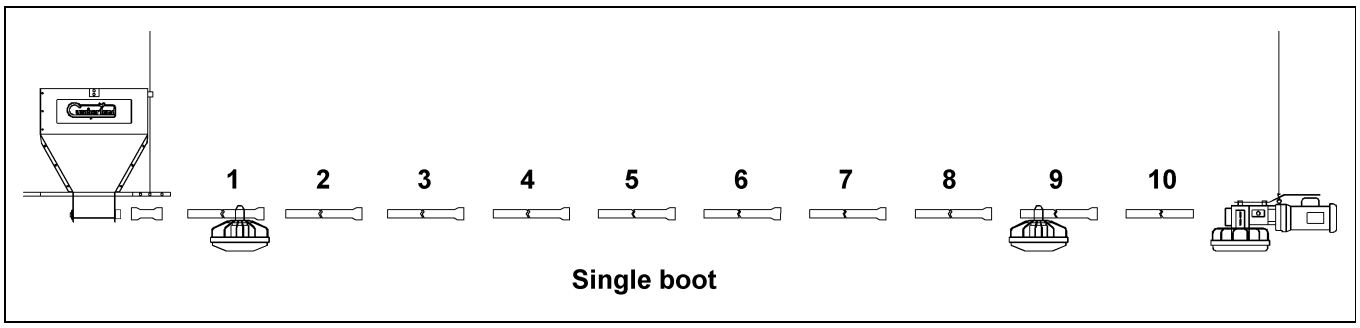


Figure 7AB

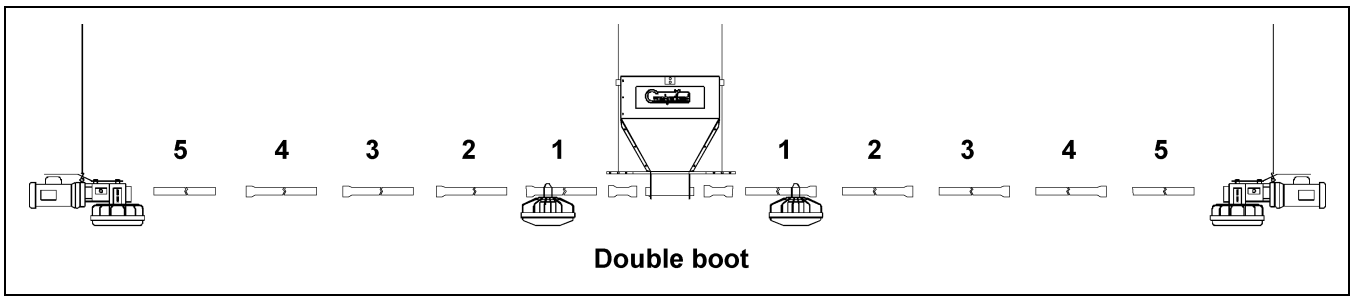


Figure 7AC

3. Use the *Programming Charts on Pages 35-40* to determine which notch in the anti-rotation clip each tube rib will be inserted into. Charts are listed according to tube length and RPM.

4. When standing at the poultry boot and facing the control unit, snap on an anti-rotation clip on both sides of each pan assembly. With the home plate hole on the tube to the left and above the tube rib, rotate the anti-rotation clips to the proper notch according to the program chart. Do this to each pan assembly on the tube. *(See Figure 7AD and Figure 7AE on Page 29.)*

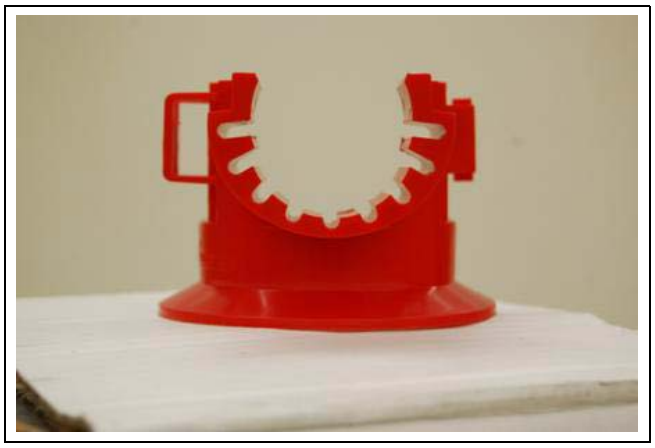


Figure 7AD *Anti-Rotation Clip*

Figure 7AE *Tube Inserted into Slot on Anti-Rotation Clip*

5. Snap the two (2) anti-rotation clips together around each pan assembly on the tube to secure the pans. Rotate the tube to position the bottom of the pans horizontal to the floor. Continue to the next tube. There will be four (4) different positions that tubes will be rotated to. *(See Figure 7AF and Figure 7AG.)*

Figure 7AF *Anti-Rotation Clip Open*

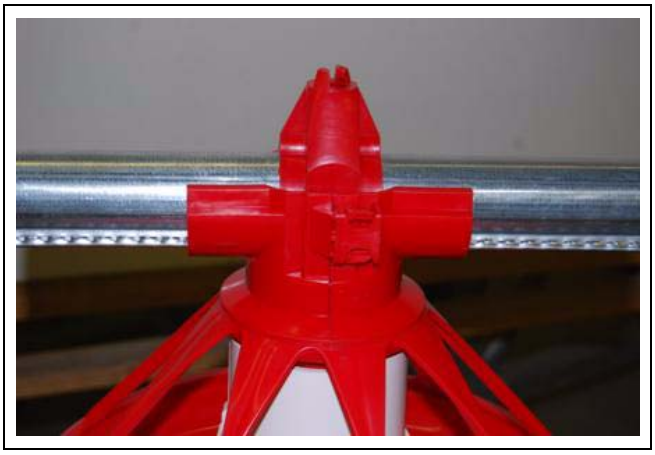


Figure 7AG *Anti-Rotation Clip Snapped Together*

6. Attach and secure tube clamps where tubes come together.
7. Attach the scissor hangers and S-Hooks the tube at the proper winching positions.
8. It is recommended to use Hi-Speed DDPU's for all straight line pullet and breeder applications to ensure adequate feed distribution.
9. Large volume hoppers with lower hopper switches are also recommended to ensure the tubes are fully charged and ready for the next feeding when the system shuts down. Before feeding, be sure to pre-fill the feed hoppers.

Feeder Assembly Rooster Feeder

Two-Piece Drop Tube

1. Place the top of the two-piece drop tube over the hole opening on the tube. *(See Figure 7AH.)*

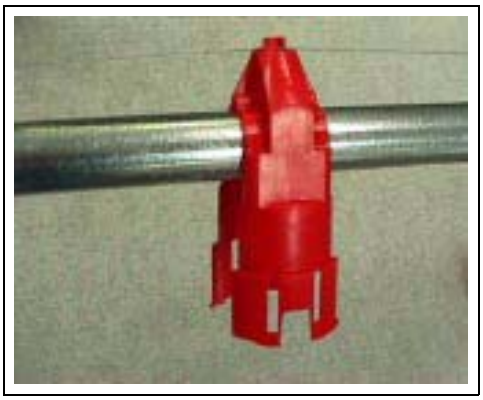


Figure 7AH

2. Push the grill up on to the assembly. *(See Figure 7AI and Figure 7AJ.)*

Figure 7AI

Figure 7AJ

3. Place the funnel restrictor through the drop tube bottom. *(See Figure 7AK.)*

Figure 7AK

4. Slide the bottom of the two-piece drop tube on the assembly, making certain the tabs are locked in place. *(See Figure 7AL and Figure 7AM.)*

Figure 7AL

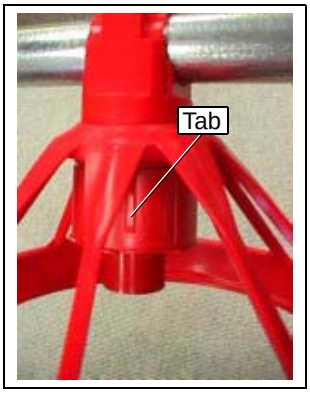


Figure 7AM

IMPORTANT: *Top and bottom pieces of the drop tube must be oriented the correct way or feed leakage could occur.*

5. For assembly when **NO SHUT OFF SLIDE IS USED**, the indicator bumps on the top and bottom of the drop tube pieces must be aligned. *(See Figure 7AN.)* Failure to do so will result in feed sifting where the drop tube meets the tube. If these are not aligned, remove the bottom and turn it 180°.

   If a **SHUT OFF SLIDE IS USED**, indicator bumps must be opposite each other.

   Proper alignment can also be found by following the text on the top and bottom drop tube pieces.

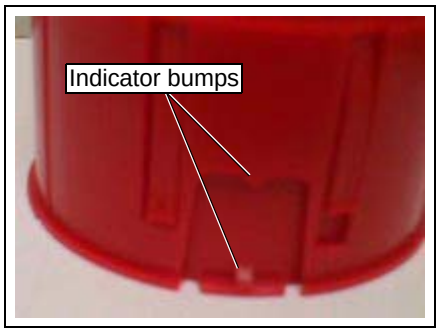


Figure 7AN

6. Optional: If the optional shut off slide is used place it under the tube before snapping the lower part of the drop tube in place. When using the shut off slide, indicator bumps on the drop tube should be on opposite sides. *(See Figure 7AO.)*

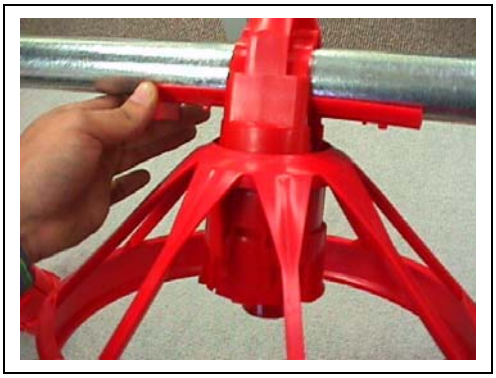


Figure 7AO

7. To remove the bottom of the two-piece drop tube, squeeze the finger tabs at the end of the assembly and pull the two (2) pieces apart. *(See Figure 7AP.)*

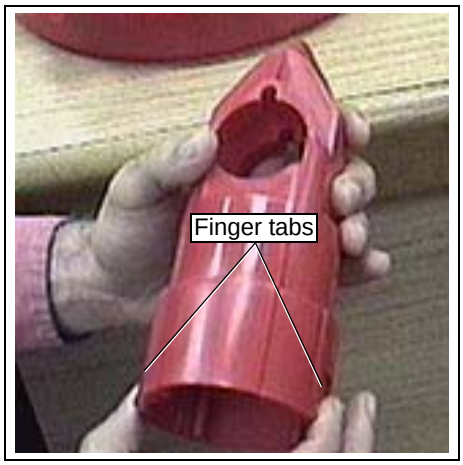


Figure 7AP

8. Slide the telescoping restrictor over the smaller funnel restrictor with the legs pointed down. *(See Figure 7AQ.)*

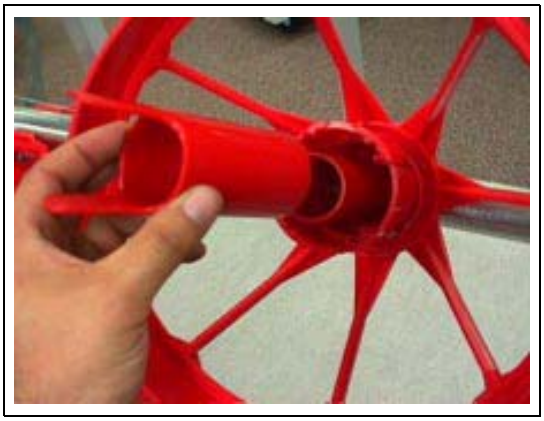


Figure 7AQ

9. Place the feed level on the feed level stand. *(See Figure 7AR.)*

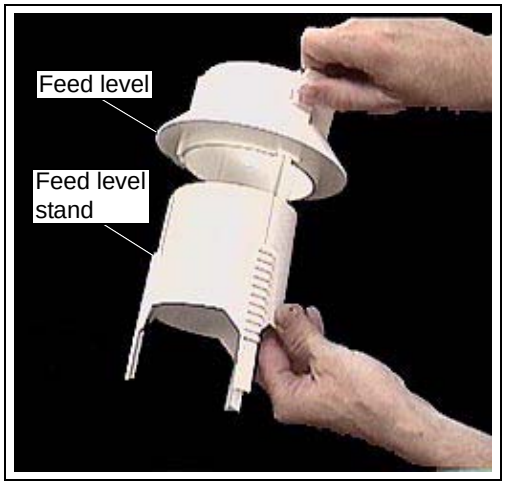


Figure 7AR

10. Place the clip into the preferred notch. *(See Figure 7AS.)*

    Visually check that the clip is securely in a notch. If the clip does not fit into the slot, the feed level can lower and the clip can become fixed out of the notches. If the clip becomes fixed while out of a slot, the feed flow can stop. It will be difficult to return the clip to a slot if it becomes fixed while out of a slot.

    Optimum results will be obtained by maintaining as shallow of feed depth as possible, while still having sufficient feed flow ability. This is normally 3 or 4 notches showing.

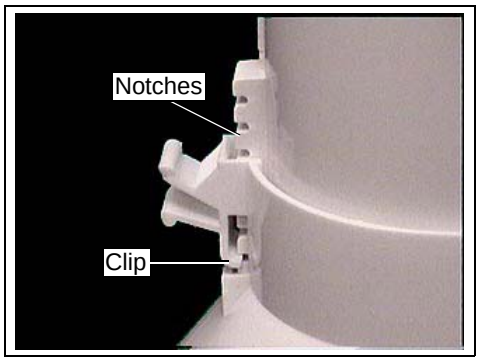


Figure 7AS

11. Spread the hold-down clip and slide it over the feed level stand. *(See Figure 7AT and Figure 7AU.)*

Figure 7AT

Figure 7AU

12. Place the feed level on the assembly. *(See Figure 7AV.)*

Figure 7AV

13. Disassembly of the pan and grill may be performed by lifting on one side of the pan while pushing down on the other side and flexing the grill. With practice, this operation will become easy for cleaning.

    Place the pan on the assembly. *(See Figure 7AW.)*

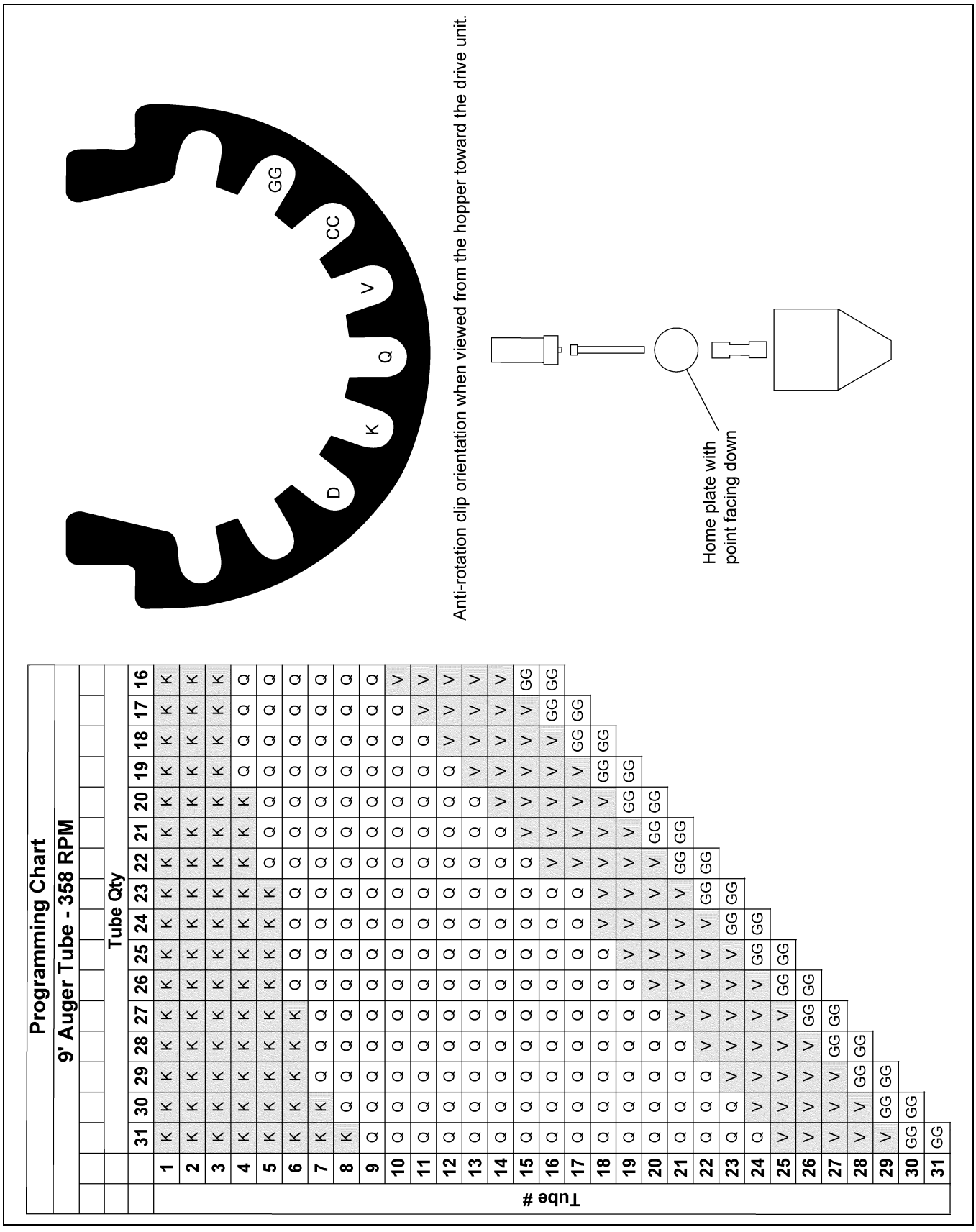
Figure 7AW

14. Slide the hold-down clip up until it snaps in place over the feed level stand. *(See Figure 7AX and Figure 7AY.)*

Figure 7AX

Figure 7AY

Program Chart



Programming Chart

9' Auger Tube - 358 RPM

Tube #	Tube Qty																														
		31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
1	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K
2	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K
3	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K
4	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
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18	Q	Q	Q	Q	Q	Q	Q	Q	V	V	V	V	V	V	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
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20	Q	Q	Q	Q	Q	Q	V	V	V	V	V	V	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
21	Q	Q	Q	Q	Q	V	V	V	V	V	V	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
22	Q	Q	Q	Q	V	V	V	V	V	V	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
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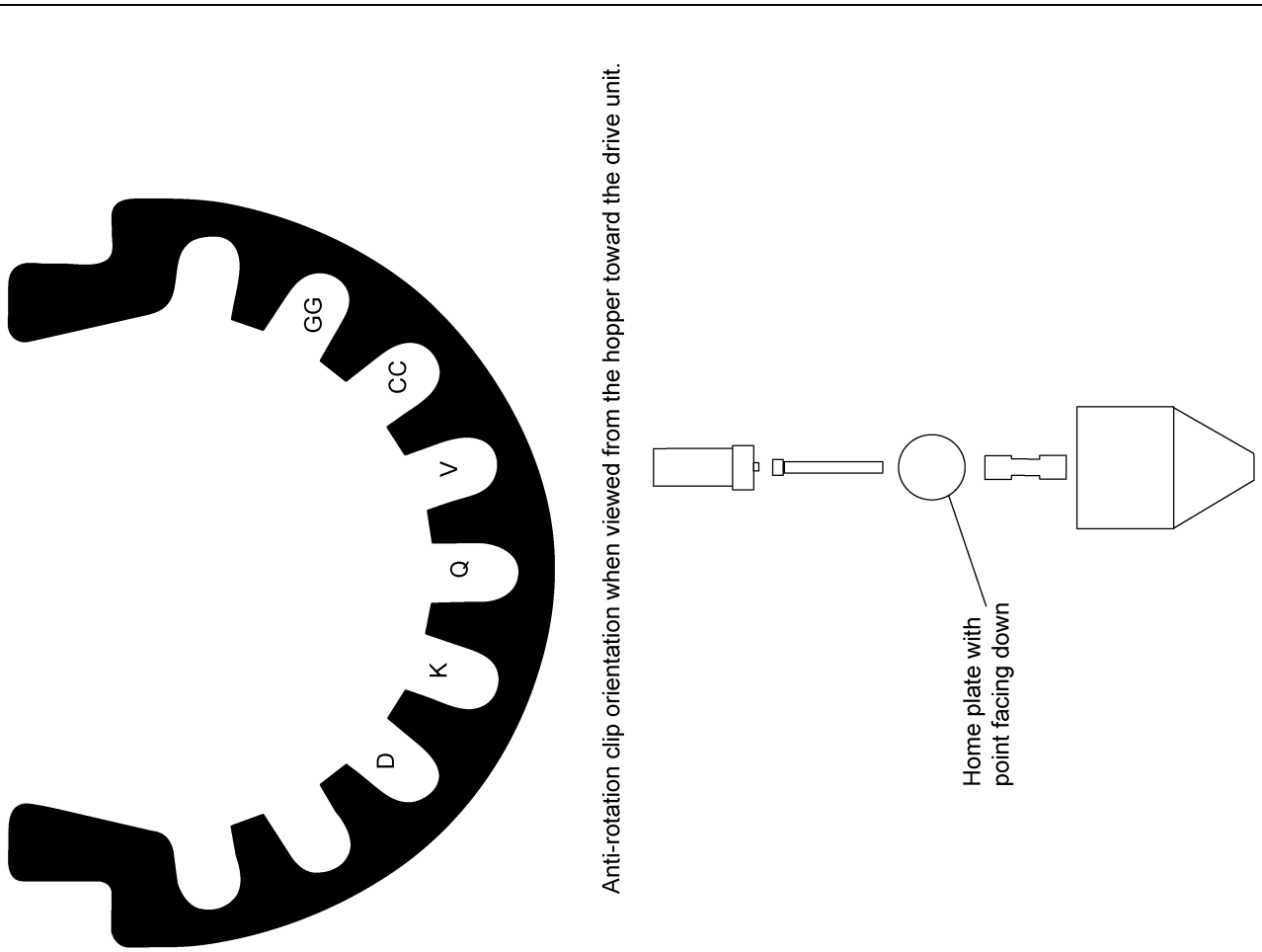
25	V	V	V	V	V	V	V	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
26	V	V	V	V	V	V	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
27	V	V	V	V	V	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
28	V	V	V	V	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
29	V	V	V	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
30	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG
31	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG

Figure 7AZ



Programming Chart

9' Auger Tube - 716 RPM

Tube #	Tube Qty	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
1		K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K
2		K	K	K	K	K	K	K	K	K	K	K	K	K	Q	Q	Q
3		K	K	K	K	K	K	K	K	K	K	Q	Q	Q	Q	Q	Q
4		K	K	K	K	K	K	K	Q	Q	Q	Q	Q	Q	Q	Q	Q
5		K	K	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
6		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
7		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
8		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
9		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
10		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V
11		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V
12		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V	V
13		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V	V	V
14		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V	V	V	V
15		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V	V	V	V	GG
16		Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V	V	V	V	GG	GG
17		Q	Q	Q	Q	Q	Q	Q	V	V	V	V	V	V	GG	GG	
18		Q	Q	Q	Q	V	V	V	V	V	V	V	V	GG	GG		
19		Q	Q	Q	Q	V	V	V	V	V	V	V	GG	GG			
20		Q	Q	Q	V	V	V	V	V	V	V	GG	GG				
21		Q	Q	V	V	V	V	V	V	V	GG	GG					
22		V	V	V	V	V	V	V	V	GG	GG						
23		V	V	V	V	V	V	V	GG	GG							
24		V	V	V	V	V	V	GG	GG								
25		V	V	V	V	V	GG	GG									
26		V	V	V	V	GG	GG										
27		V	V	V	GG	GG											
28		V	V	GG	GG												
29		V	GG	GG													
30		GG	GG														
31		GG															

Figure 7BA

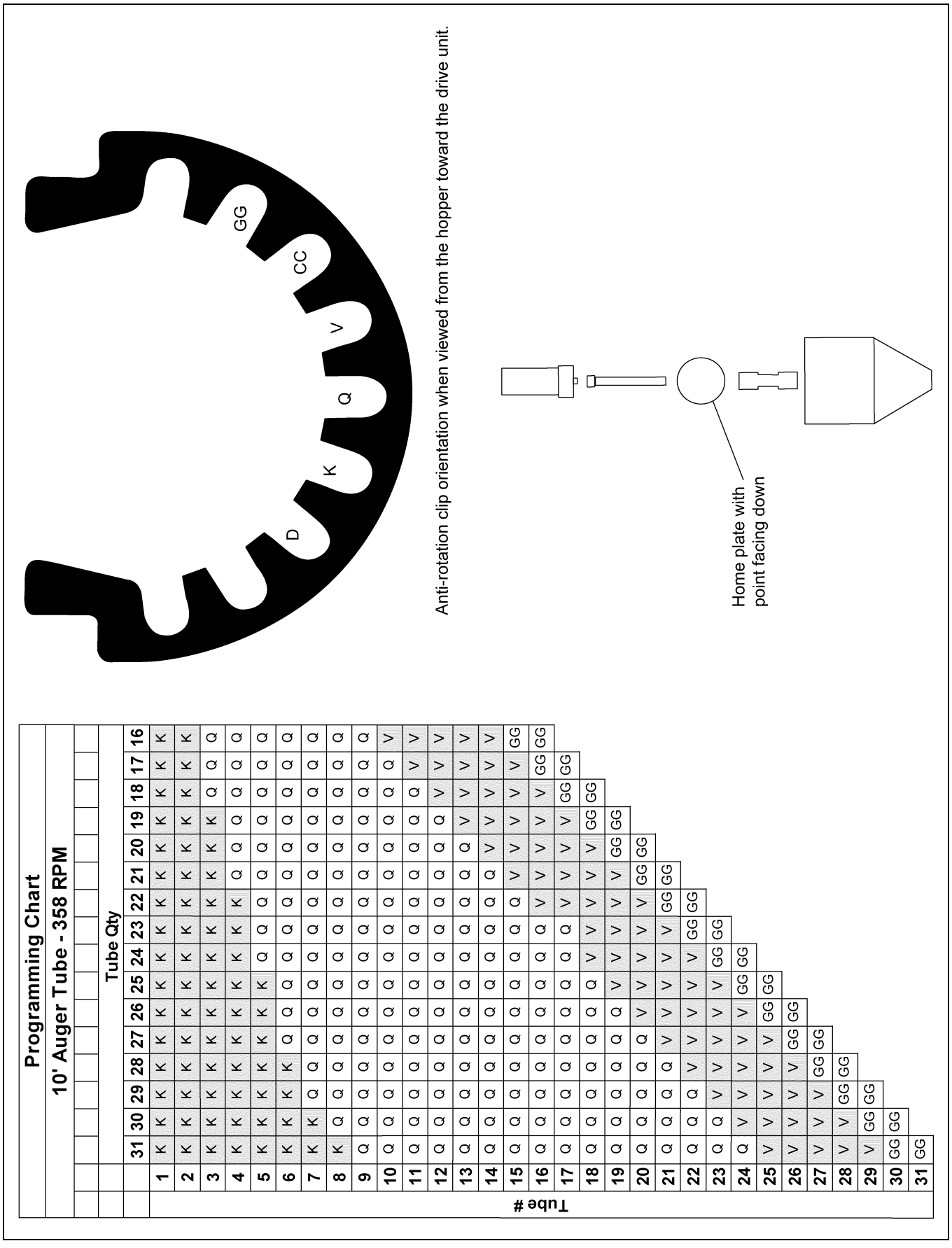

Programming Chart
10' Auger Tube - 358 RPM
Tube Qty
Tube #
GG
CC
V
Q
K
D
Anti-rotation clip orientation when viewed from the hopper toward the drive unit.
Home plate with
point facing down

Figure 7BB

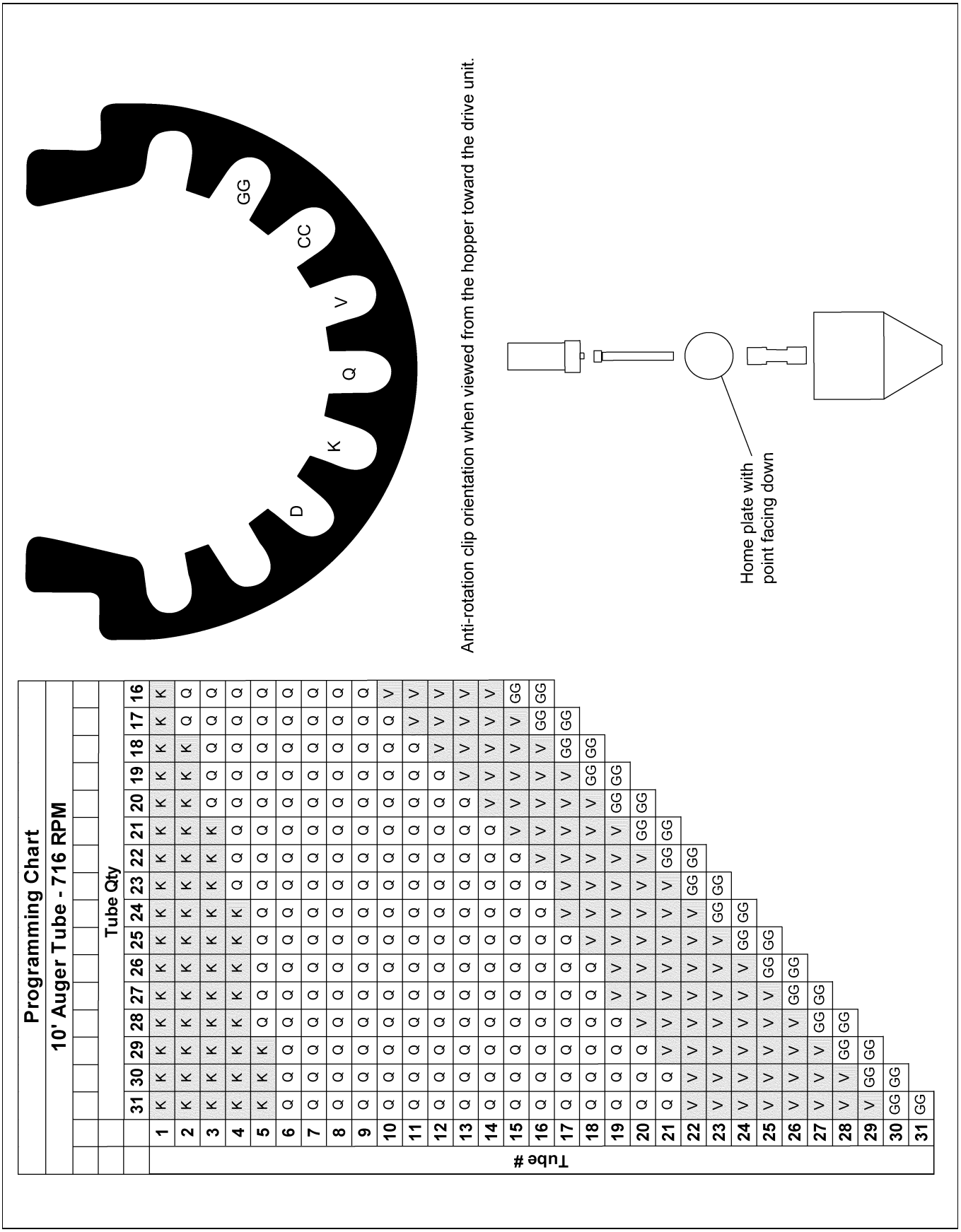
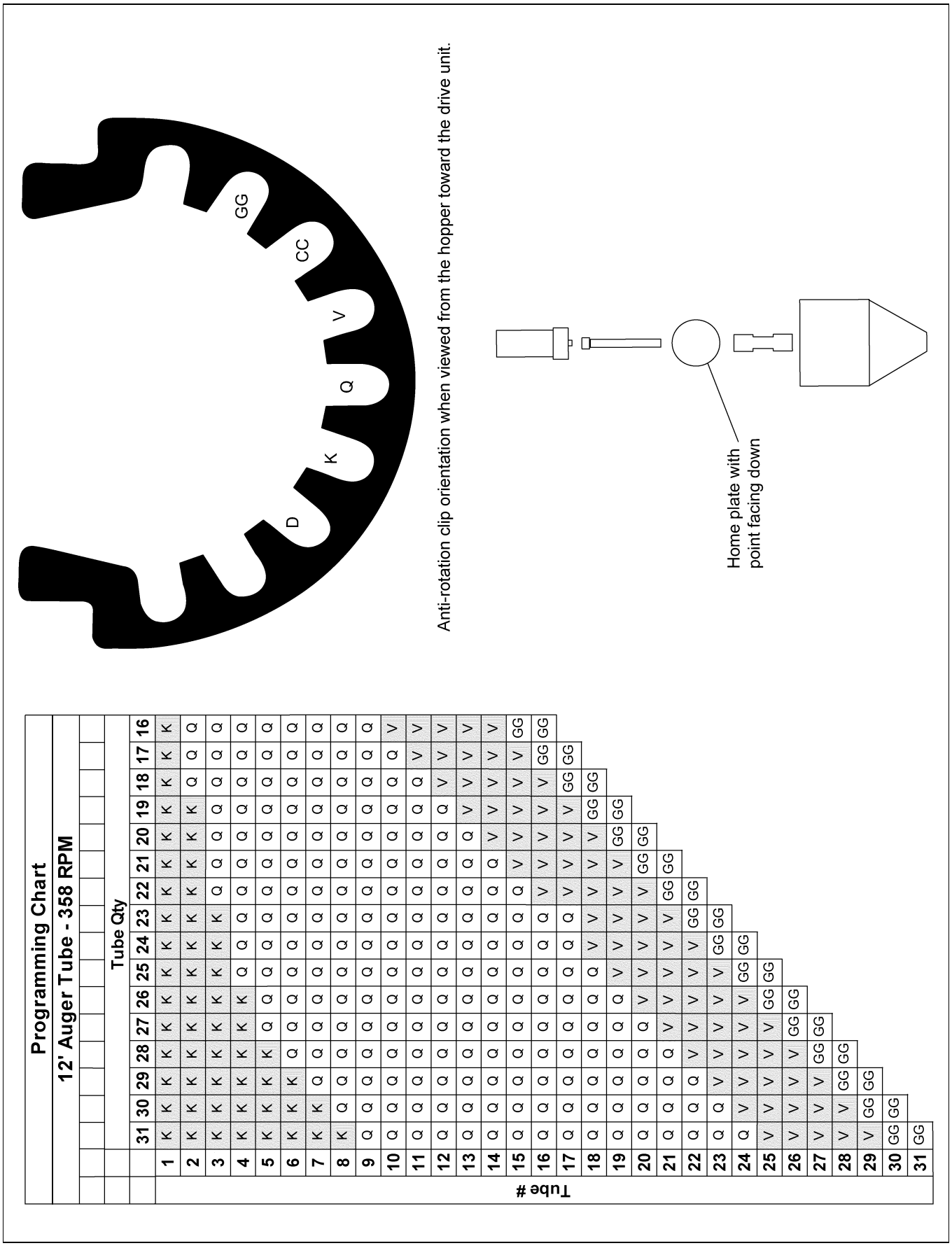

Programming Chart
10' Auger Tube - 716 RPM
Tube Qty
Tube #
GG
CC
V
Q
K
D
Anti-rotation clip orientation when viewed from the hopper toward the drive unit.
Home plate with point facing down

Figure 7BC

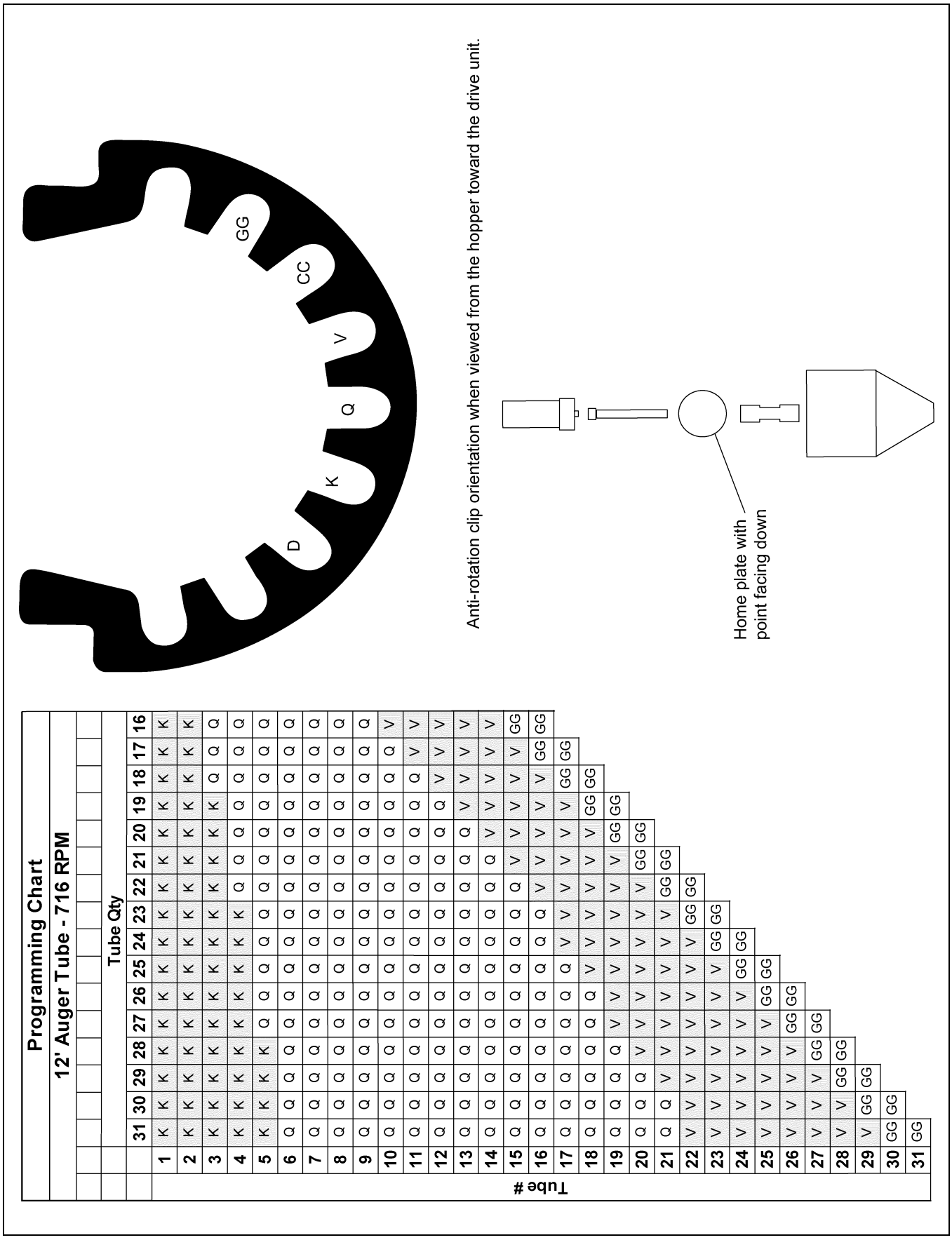


Programming Chart

12' Auger Tube - 358 RPM

Tube #	Tube Qty	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
1		K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K
2		K	K	K	K	K	K	K	K	K	K	K	K	K	Q	Q	Q
3		K	K	K	K	K	K	K	K	K	K	Q	Q	Q	Q	Q	Q
4		K	K	K	K	K	K	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
5		K	K	K	K	K	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
6		K	K	K	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
7		K	K	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
8		K	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
9		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
10		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V
11		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V
12		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V	V
13		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V	V	V
14		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V	V	V	V
15		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V	V	V	V	GG
16		Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V	V	V	V	GG	GG
17		Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V	V	V	GG	GG	
18		Q	Q	Q	Q	Q	Q	Q	V	V	V	V	V	GG	GG		
19		Q	Q	Q	Q	Q	Q	V	V	V	V	V	GG	GG			
20		Q	Q	Q	Q	Q	V	V	V	V	V	GG	GG				
21		Q	Q	Q	Q	V	V	V	V	V	GG	GG					
22		Q	Q	Q	V	V	V	V	V	GG	GG						
23		Q	Q	V	V	V	V	V	GG	GG							
24		Q	V	V	V	V	V	GG	GG								
25		V	V	V	V	V	GG	GG									
26		V	V	V	V	GG	GG										
27		V	V	V	GG	GG											
28		V	V	GG	GG												
29		V	GG	GG													
30		GG	GG														
31		GG															

Figure 7BD



Programming Chart

12' Auger Tube - 716 RPM

Tube #	Tube Qty																														
	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16															
1	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K															
2	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K	K															
3	K	K	K	K	K	K	K	K	K	K	K	K	K	Q	Q	Q															
4	K	K	K	K	K	K	K	K	K	Q	Q	Q	Q	Q	Q	Q															
5	K	K	K	K	K	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q															
6	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q															
7	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q															
8	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q															
9	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V															
10	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V															
11	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V															
12	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V															
13	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V															
14	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V															
15	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V															
16	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V															
17	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V	V	V	V	V	V															
18	Q	Q	Q	Q	Q	Q	Q	Q	Q	V	V	V	V	V	V	V															
19	Q	Q	Q	Q	V	V	V	V	V	V	V	V	V	V	V	V															
20	Q	Q	Q	Q	V	V	V	V	V	V	V	V	V	V	V	GG															
21	Q	Q	V	V	V	V	V	V	V	V	V	V	V	V	V	GG															
22	V	V	V	V	V	V	V	V	V	V	V	V	V	V	GG	GG															
23	V	V	V	V	V	V	V	V	V	V	V	V	V	V	GG	GG															
24	V	V	V	V	V	V	V	V	V	V	V	V	V	V	GG	GG															
25	V	V	V	V	V	V	V	V	V	V	V	V	V	GG	GG	GG															
26	V	V	V	V	V	V	V	V	V	V	V	V	V	GG	GG	GG															
27	V	V	V	V	V	V	V	V	V	V	V	V	V	GG	GG	GG															
28	V	V	V	V	V	V	V	V	V	V	V	V	GG	GG	GG	GG															
29	V	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG															
30	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG															
31	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG	GG															

Figure 7BE

Drive Unit/Control Pan Assembly

1. Unpack the drive unit and grilled control unit.
2. Connect the drive mount *(See Figure 7BG)* or anchor plate *(See Figure 7BH)*, depending on the model of the control pan, to the gearbox of the drive unit, *(See Figure 7BF)* using the four (4) bolts provided with the control unit.

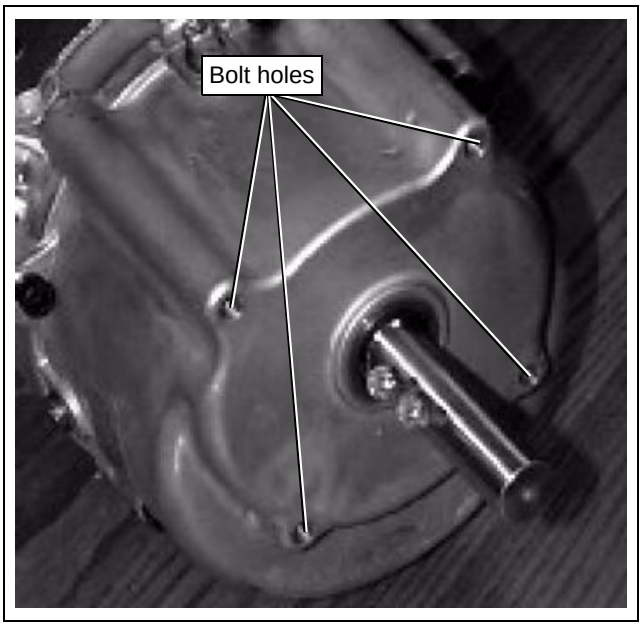


Figure 7BF

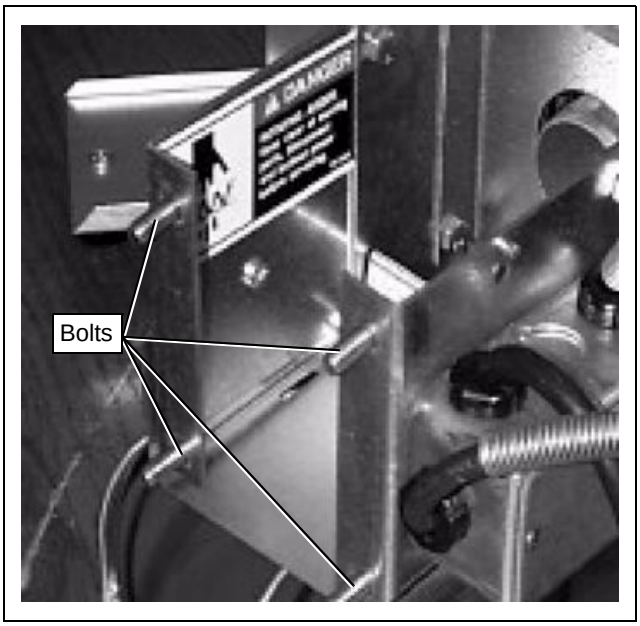


Figure 7BG

3. The attached unit should look like the picture in *Figure 7BI*.

Figure 7BH

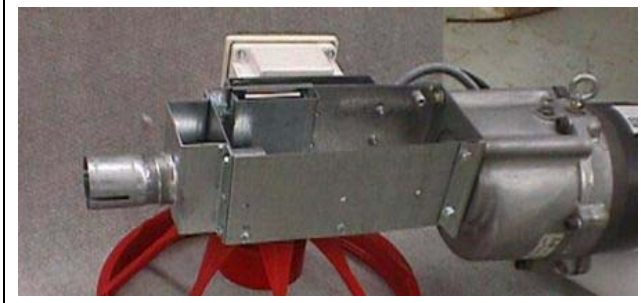


Figure 7BI

4. If the pan assembly is not provided with the control pan, assemble the Hi-Lo grill onto the control pan. *(See Figure 7BJ.)*
   a. Take off drop tube.
   b. Place through grill.
   c. Replace drop tube onto control pan base.
   d. Assemble remainder of Hi-Lo pan components.

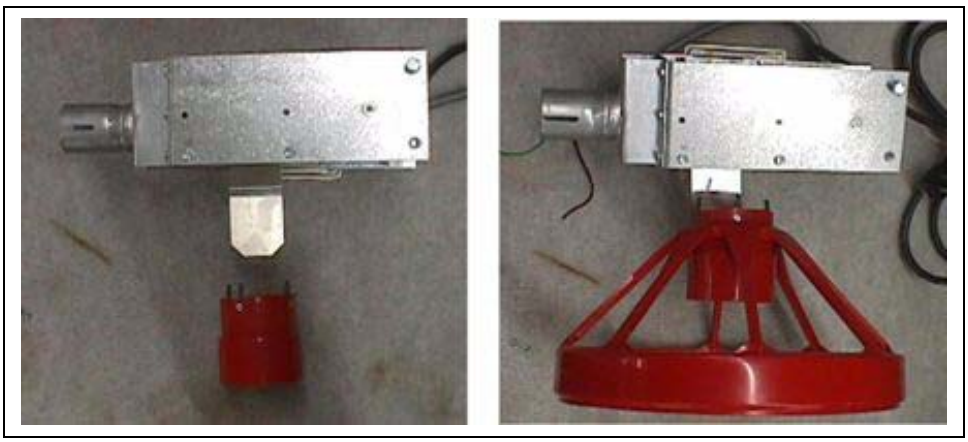


Figure 7BJ

5. On the Hi-Lo microswitch control pan, attach slope panel using screws provided. *(See Figure 7BK.)*

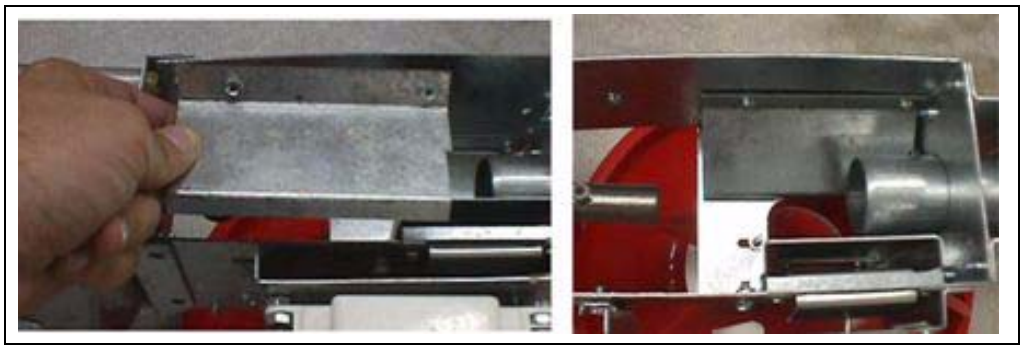


Figure 7BK

6. Attach the control unit/drive unit onto the last auger tube section and secure it with a tube clamp. *(See Figure 7BL.)*

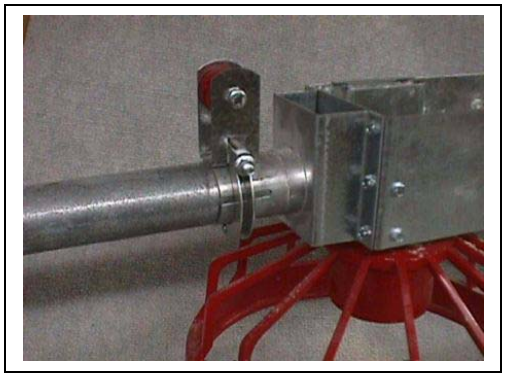


Figure 7BL

7. Wire the control pan to the drive unit motor. *(See Figure 7BM.)*

   a. Place cord into motor connection box.

   b. Tighten cord connector.

   c. Connect wires to motor leads, matching black to brown and blue to white.

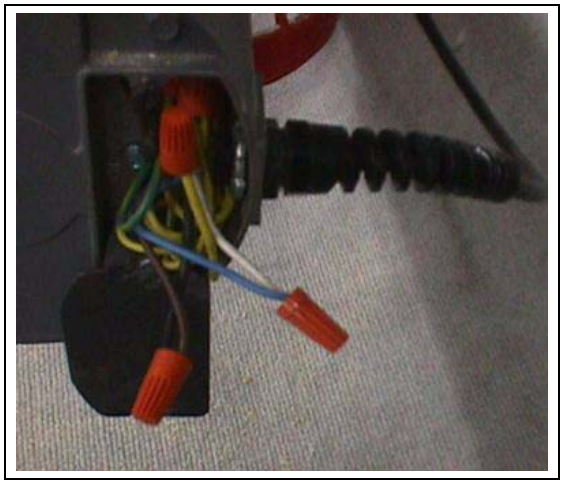


Figure 7BM

8. Wire control pan to power source. *(See Figure 7BN.)*
9. Attach top and bottom covers. *(See Figure 7BO.)*

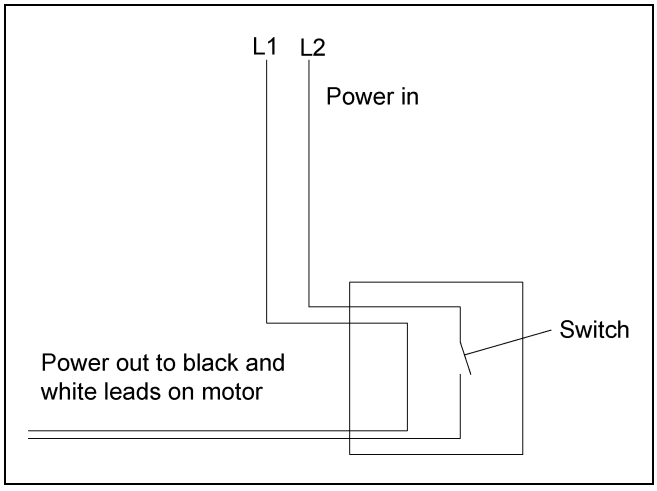


Figure 7BN

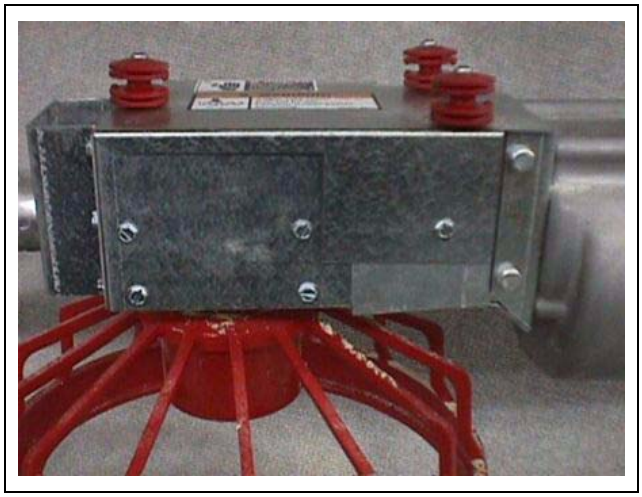


Figure 7BO

10. Remove the vent plug at the top of the gearbox. *(See Figure 7BP on Page 44.)*
11. Fill the gearbox with the recommended quantity of lubricant found on the gearbox: (15 ounces (0.9375 pints)).
12. Replace the plug and tighten firmly.

The following type lubricants are recommended for the gear reducer: Standard Oil of Ohio Factolube #2 or equivalent, Gearup 90, Mobilube E.P. 80-90 or a good differential oil SAE 90.

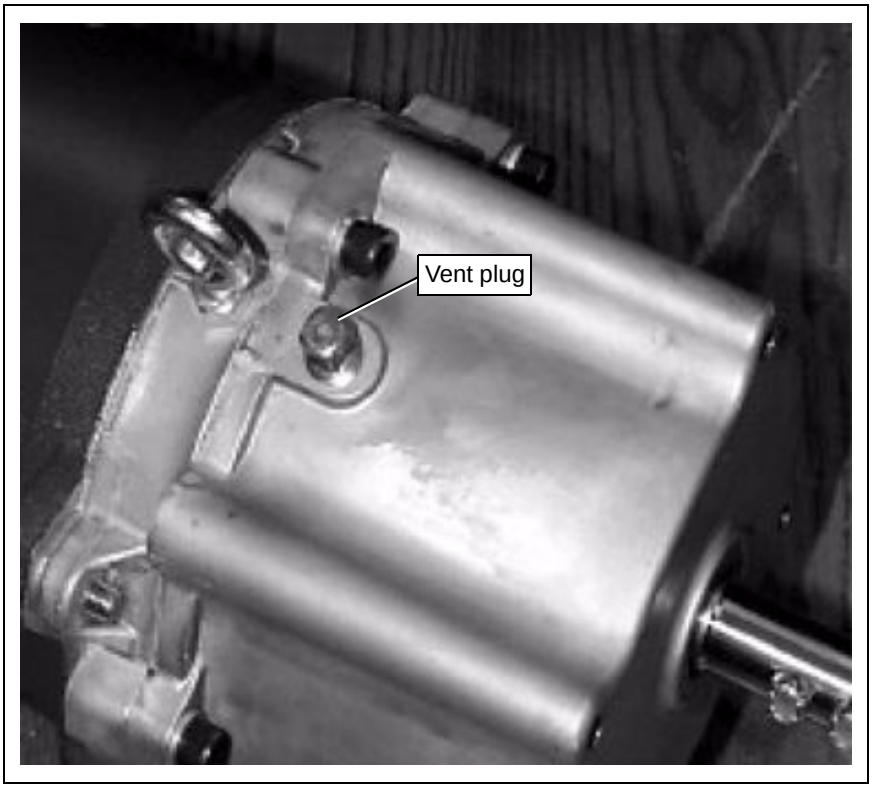


Figure 7BP

Control Pan Assembly

Hi-Lo Center House Control Pan (All Clamp on Models)

Figure 7BQ is the Hi-Lo center house control pan with the pre-assembled double bell auger tube. The center house control pan can be mounted between two (2) sections of auger tube by trimming one auger bell as shown in *Figure 7BR on Page 45* and installing it as shown in *Figure 7BS on Page 45* with two (2) 1-3/4" U-bolts (included). Depending on the location of the control pan, you may need to install the control pan between two (2) auger tube holes on one section of auger tube. In this case, cut the auger in half and trim back the rib to install the control pan.

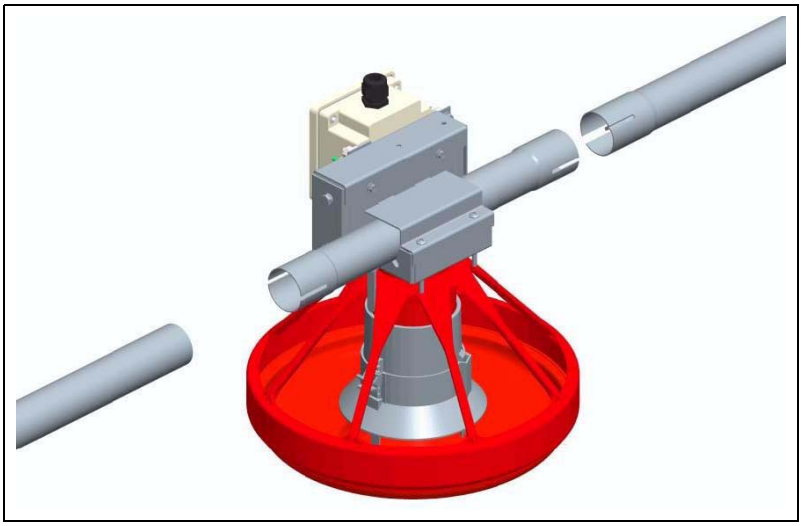


Figure 7BQ

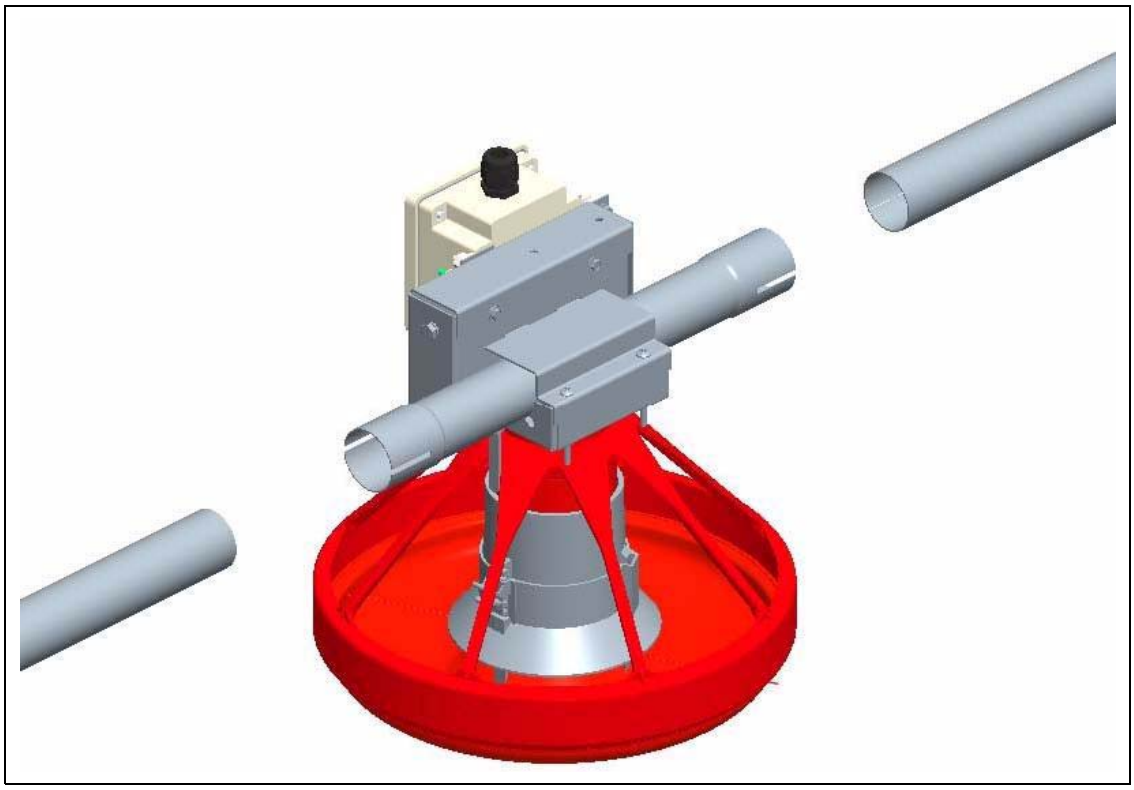


Figure 7BR

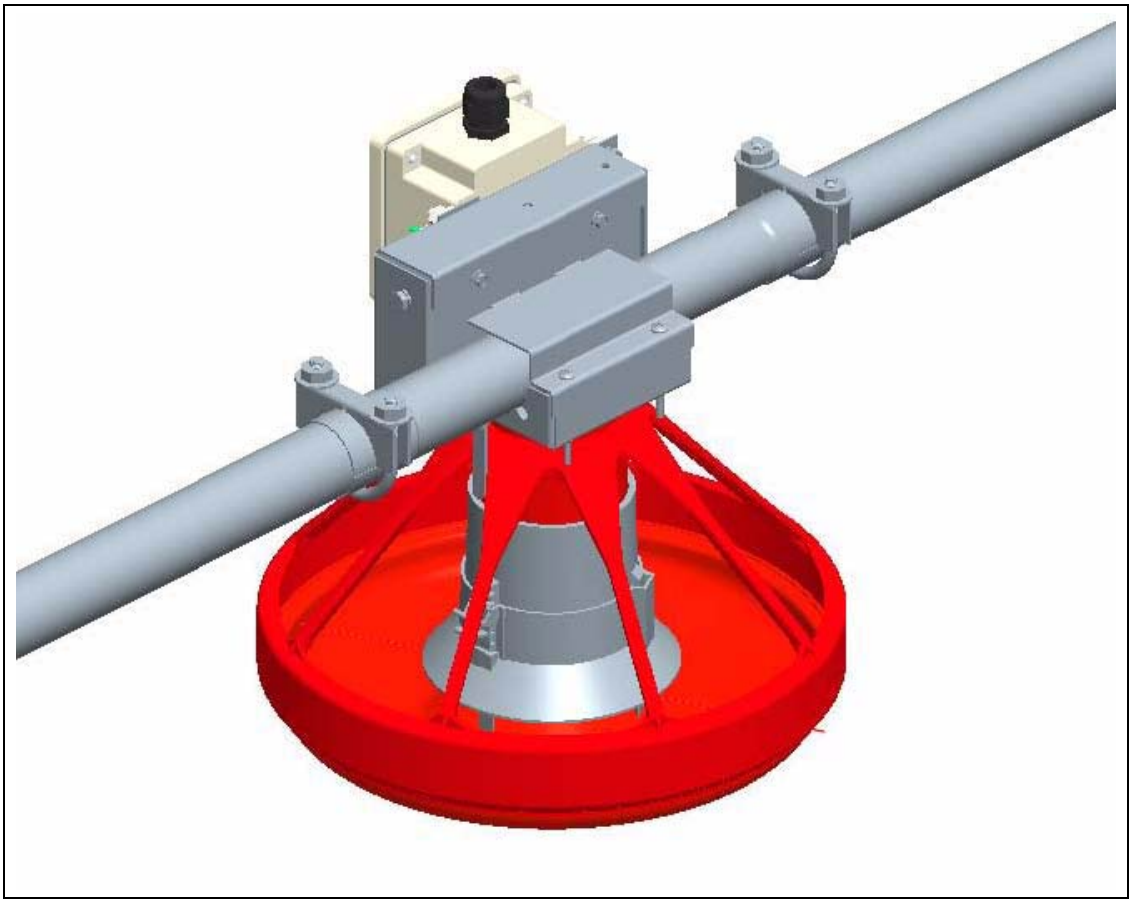


Figure 7BS

If breaking the feed line is not an option, the double belled auger tube can be removed and the center house control pan can then be clamped to the feed line as shown in *Figure 7BT*.

1. The outlet hole for the center house control pan and two (2) holes in front of the center house pan must be enlarged.
2. *See Figure 7BT* for recommended size and placement. Use a hacksaw and tin snips to enlarge hole size. Be sure there are no burrs inside the tube on which the auger could catch.

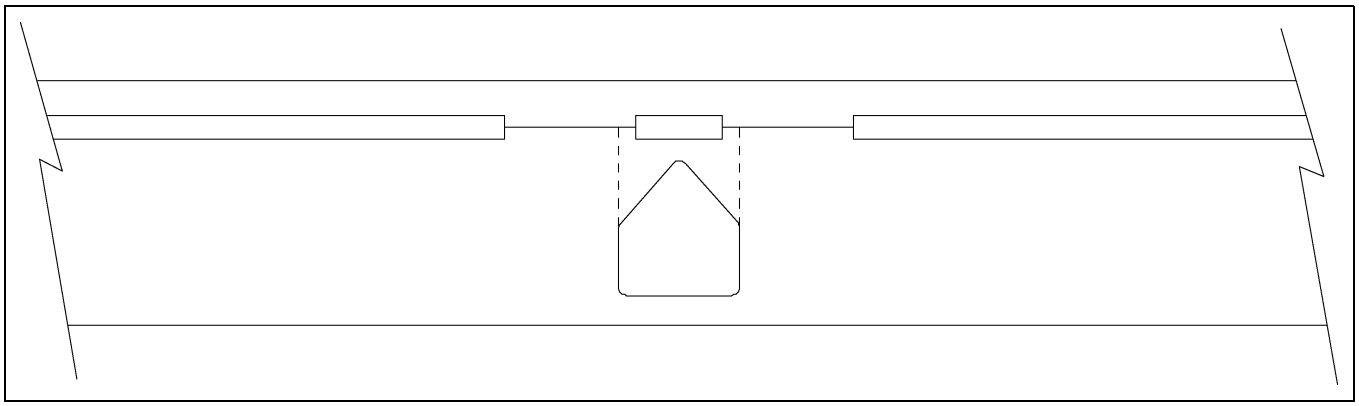


Figure 7BT

3. Remove the #10-24 x 2-1/4" machine screws and lid. Attached center house control pan to feed line as shown in *Figure 7BU* and *Figure 7BV*.

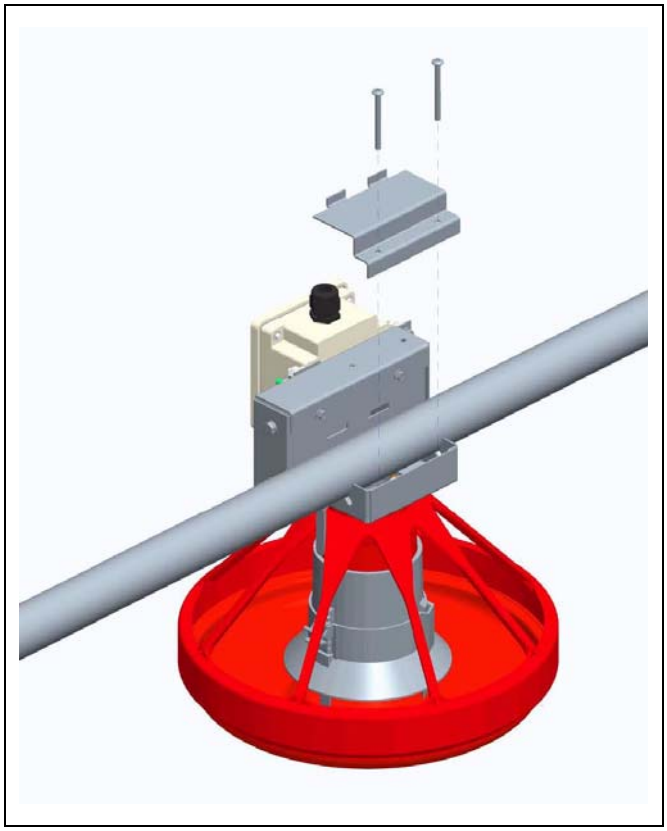


Figure 7BU

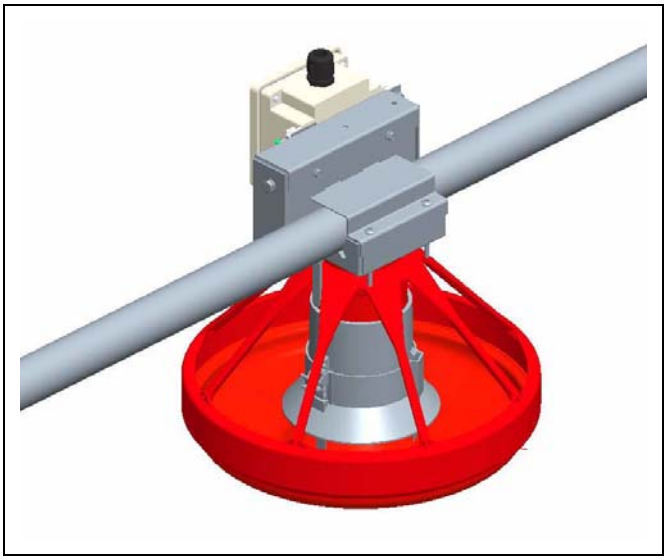


Figure 7BV

Adjusting the Hi-Lo Microswitch Control Pans (End and Center House)

1. Check switch and adjust if necessary. Switch should click with 1/4" of movement. *(See Figure 7BW.)*

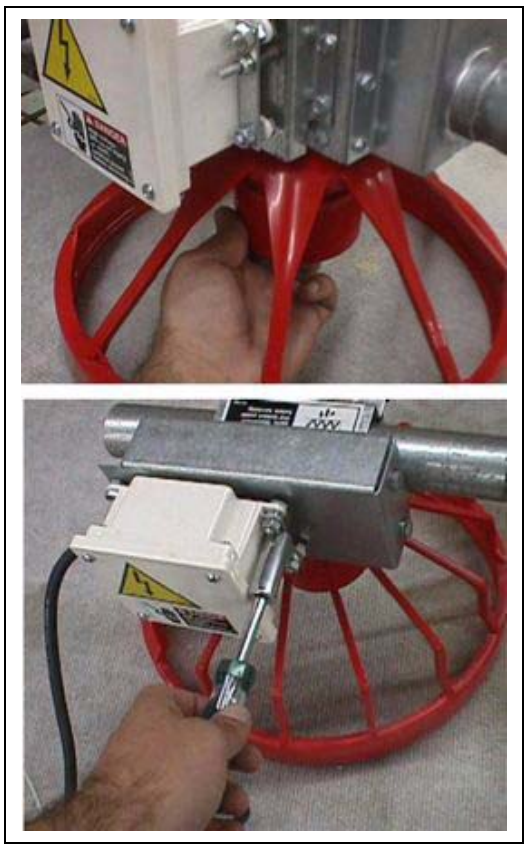


Figure 7BW

2. Assemble remainder of Hi-Lo pan. *(See Figure 7BX.)*

Figure 7BX

3. Wire control pan to power source. *(See Figure 7BY.)*

DANGER ***Lock out power before servicing.***

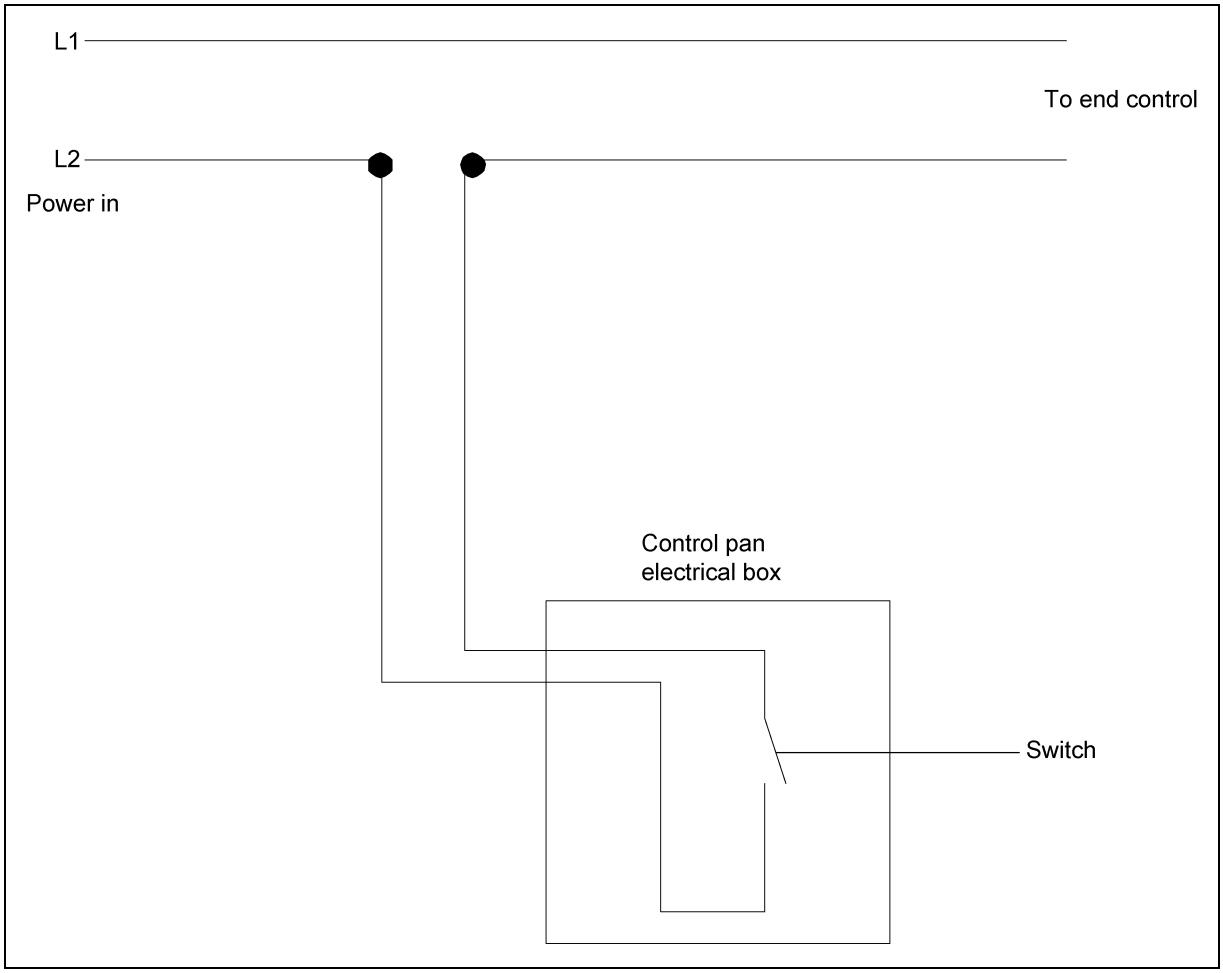


Figure 7BY

Proximity Switch Sensor Adjustment

All capacitive switches have a potentiometer which allows switch sensitivity to be adjusted for the best results. To establish the proper sensitivity for a particular set of target conditions, follow these procedures.

1. Mount the switch in the application. Set up the worst case condition which can cause a false “OFF” signal. As an example, assume the switch is being used to sense the level of a liquid through a sight glass. The worst case condition exists when moisture is present on the inside surface of the glass. Turn the potentiometer clockwise (CW) until the LED is OFF, then turn the potentiometer counterclockwise (CCW) until it just turns ON.
2. Bring the target into position. In the example, bring the water above the level of the switch. The LED should be OFF. Turn the potentiometer CCW and count the number of turns until the LED turns ON.
3. Turn the potentiometer CW for half the number of turns counted in *Step 2*. For example if it took four (4) turns for the LED to turn ON, turn the potentiometer two (2) turns CW. The switch will now be set.

Hi-Lo End Control Pan Assembly with Spinner Motor

The Hi-Lo end control pan has three (3) main sensing components: The PC board (inside the electrical box of the end control pan), the solid state relay (mounted on the back side of the PC board) and the spinner motor (located in the “throat” of the end control and center house control pans). *(See Figure 7CA.)* Should any part need replaced, the PC board has two (2) diagnostic lights (green and yellow) to help determine the status of the components. *(See Figure 7CB.)*

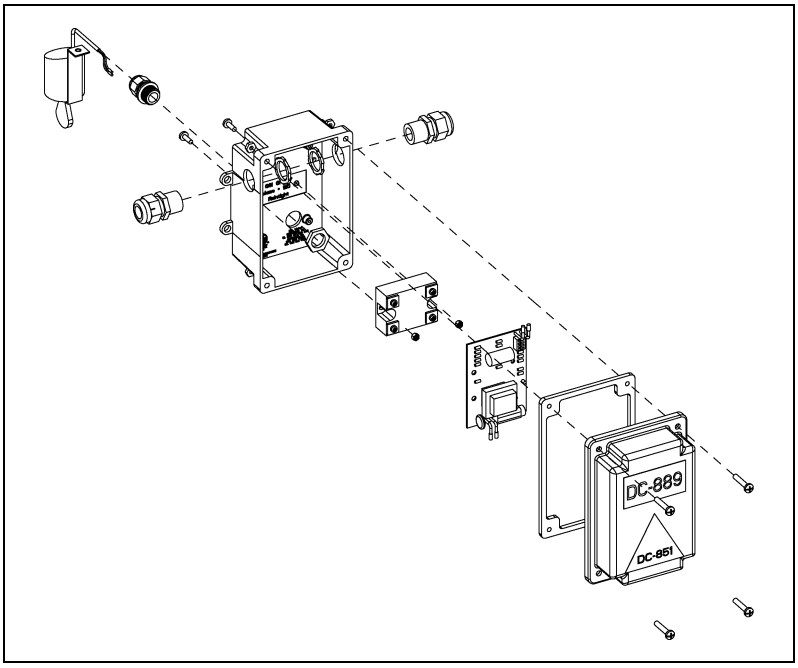


Figure 7BZ

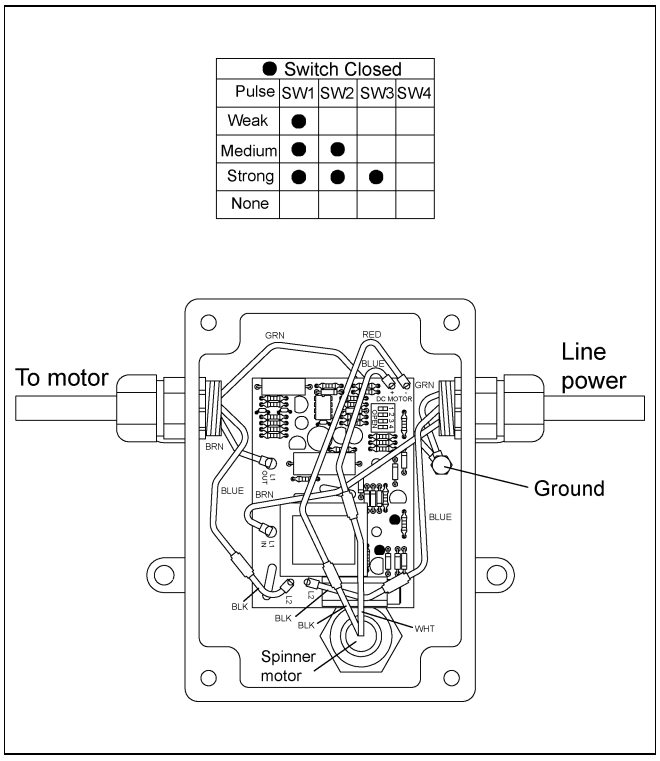


Figure 7CA

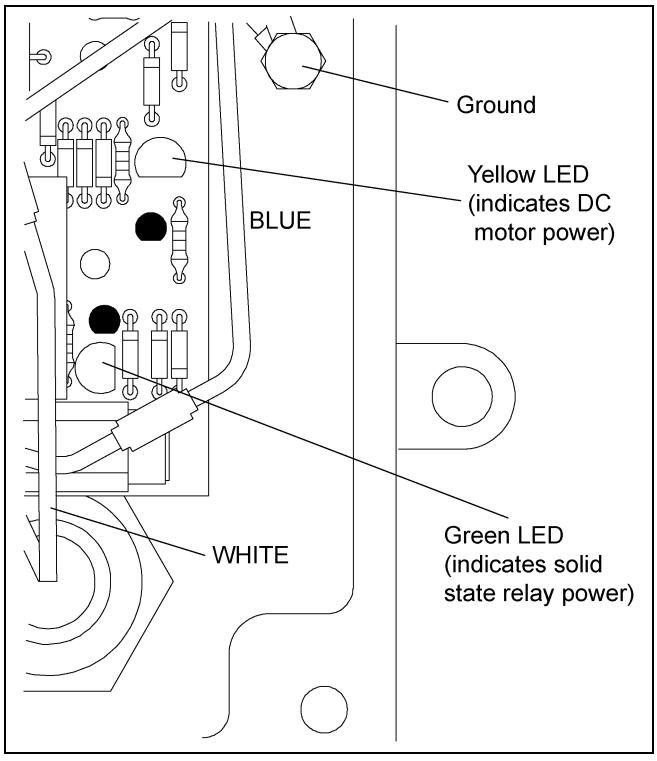


Figure 7CB

When there is no feed in the control pan and power is applied, the paddle on the spinner motor will spin in the throat of the control pan. After a 10 second delay, the feed line motor will run until feed fills the throat of the control pan, stops the paddle on the spinner motor and shuts the feed line motor OFF. When feed moves away from the spinner motor, the paddle will spin, starting the cycle over.

Figure 7CC shows the electronic box with the lid off for illustration purposes only. Never operate the system without the lid in place. Never remove the lid without first disconnecting and locking out the power.

The Cumberland Hi-Lo control pan features a starting pulse on the spinning sensor motor (in the control pan feed level) that enhances operation. When feed is present, the spinning sensor motor applies a constant pressure against the feed with a spike of power every few seconds (the starting pulse). The amount of pulse that the spinner receives can be adjusted from no pulse to a full burst of power by DIP switches located on the upper right hand corner of the electronic board inside the electric box on the control pan. *(See Figure 7CC.)* Control pans are shipped with full pulse on, which is best in most situations.

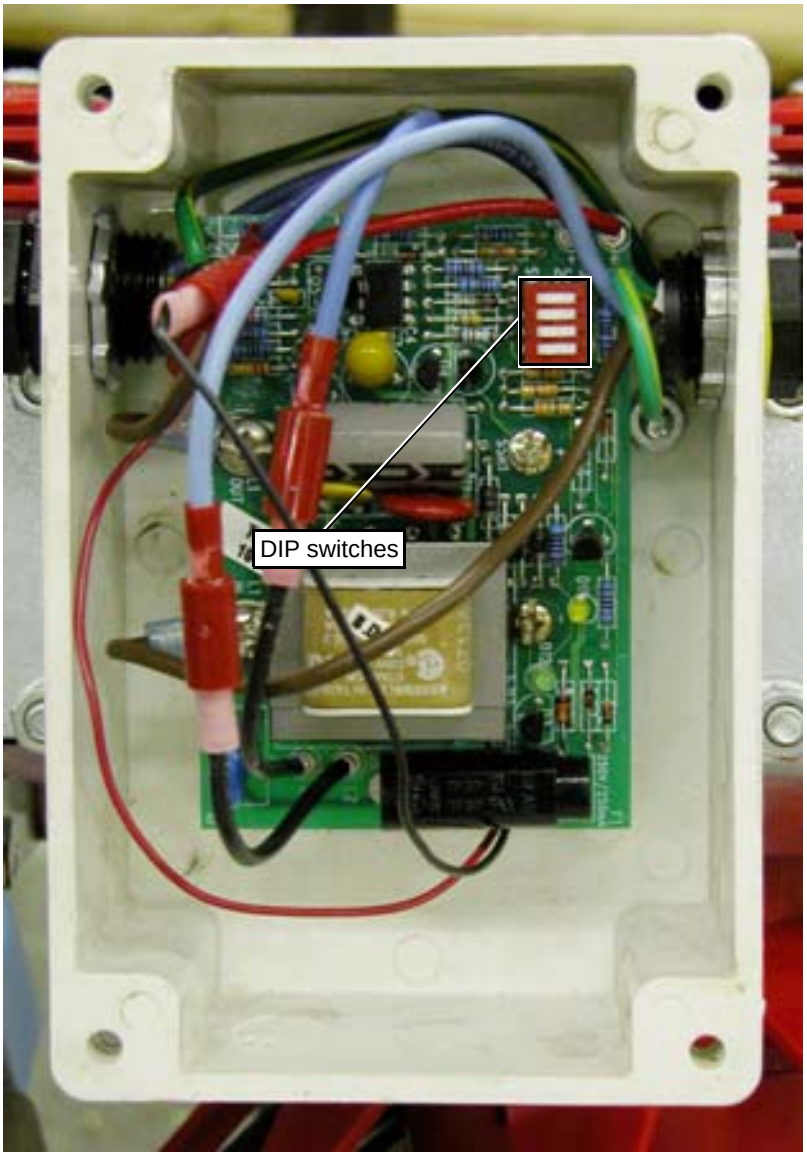


Figure 7CC

Hi-Lo Center House Control Pan Wiring

1. Attach switch box assembly (supplied with center house pan) to lid of end control pan.
2. Run 20 gauge two (2) wire cord (not supplied) from the center house into the switch box. *(See Figure 7CH for Wiring on Page 52.)*
3. Remove the electronics box lid on end control unit.
4. The extra lid wired to the switch box is the new lid for the electronics box. (*See Figure 7CE*, *Figure 7CF* below and *Figure 7CG on Page 52* for connections.)
5. In the center house control pan switch box, connect the wire that you just ran to the leads coming into the back of the box. Match like colors (black to black and white to white).

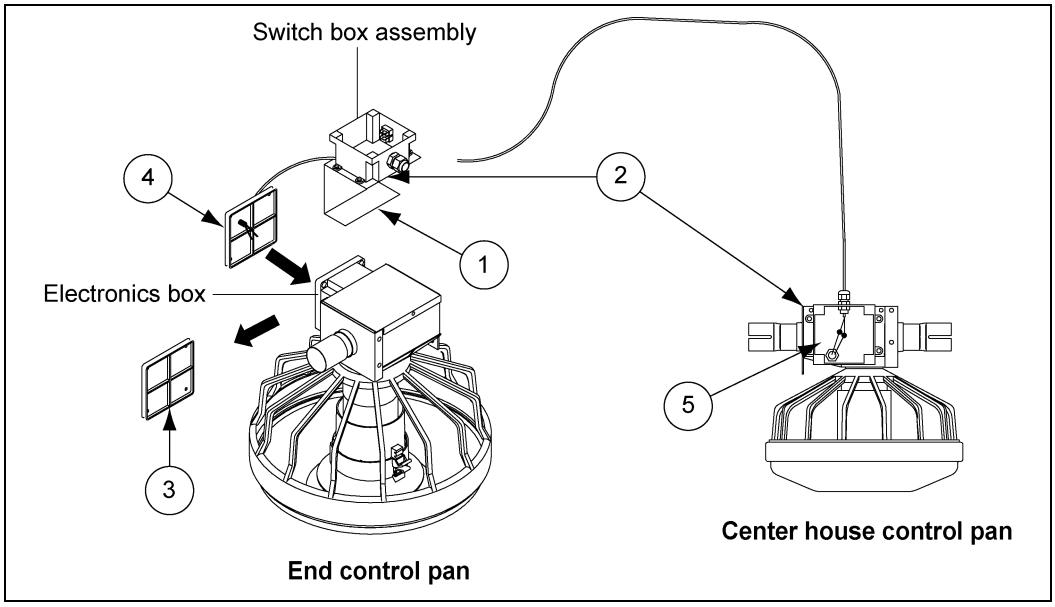


Figure 7CD

6. In the end control pan electronics box, disconnect the blue and red wires of the circuit board from the black and red wires of the spinner motor by pulling the barrel terminals apart. *(See Figure 7CE and Figure 7CF.)*

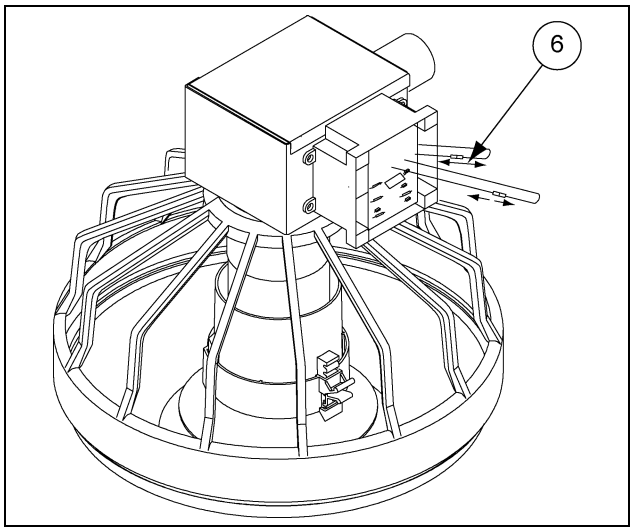


Figure 7CE *End Control Pan*

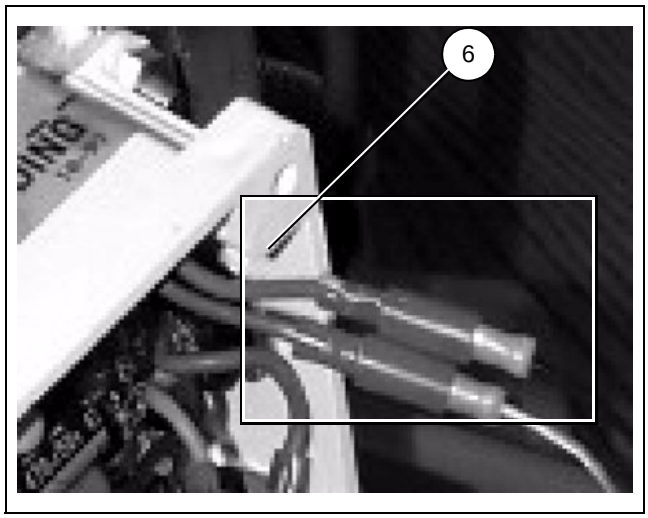


Figure 7CF

7. Match the four (4) wires on the new lid to the wires that you just disconnected in the electronics box. Match the male to female connections with the following colors: 20 Gauge black to 20 gauge black, 16 gauge red to 20 gauge red, 16 gauge blue to 20 gauge blue and 20 gauge yellow to 20 gauge red. *(See Figure 7CG.)*

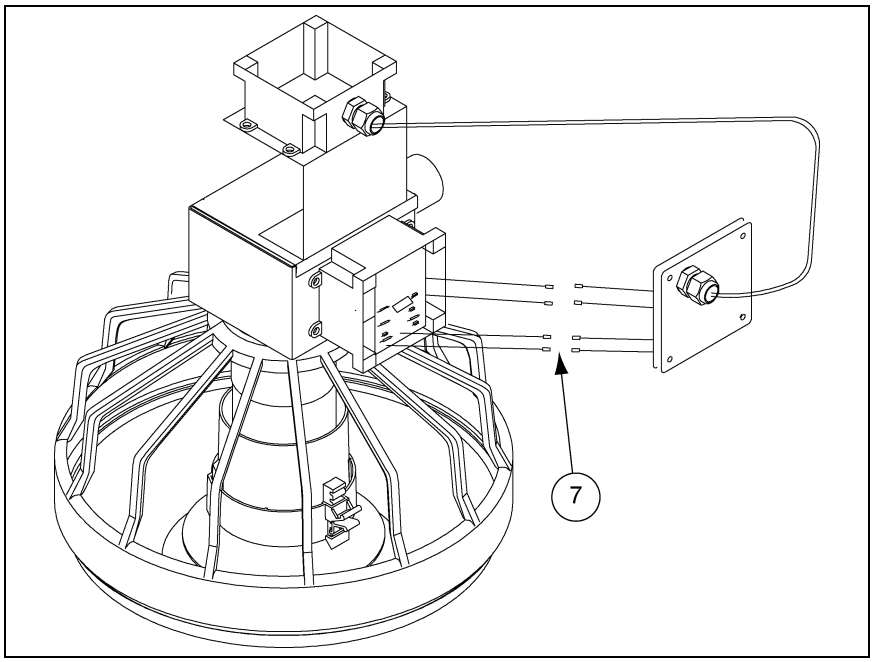


Figure 7CG *End Control Pan*

8. In the switch box assembly, connect the wire from the center house control pan to the leads from the switch, matching black to black and red to red. *(See Figure 7CH.)*

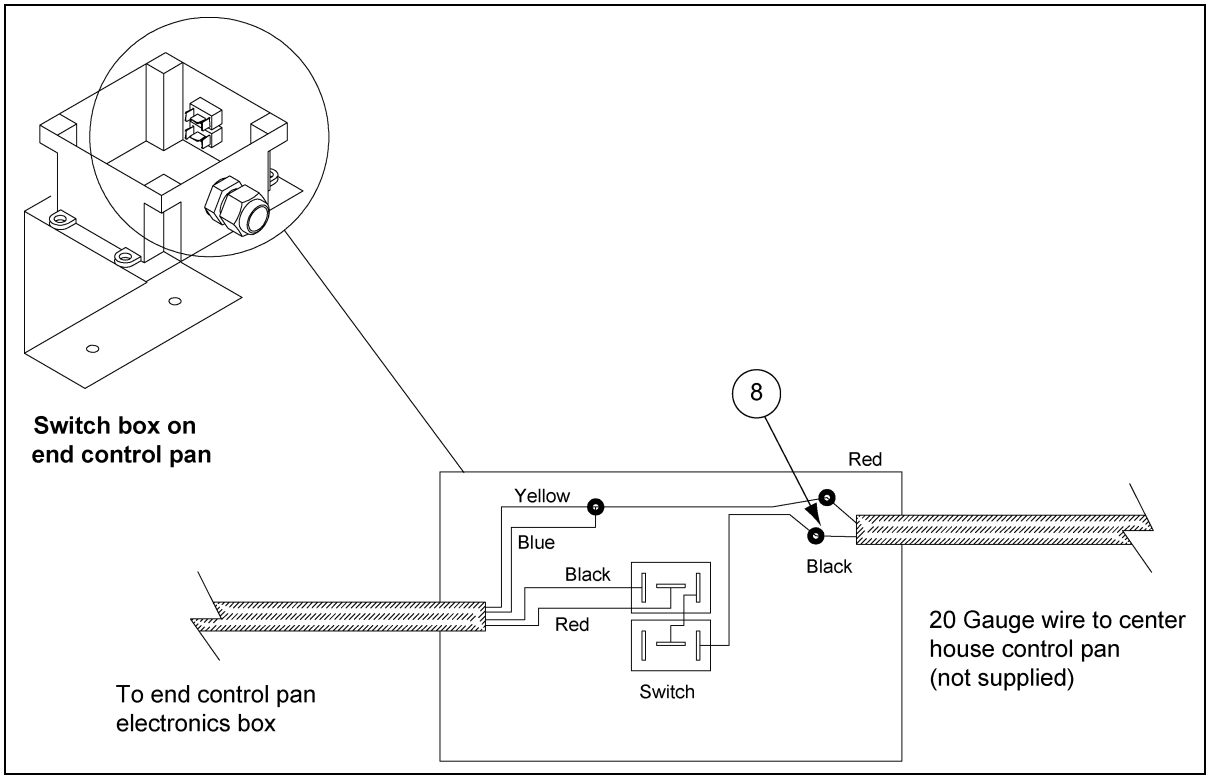


Figure 7CH *Wiring Diagram for Switch Box*

9. To add a second control pan, run a wire from the second center house control pan to the switch box on the end control pan, as with the first center house control pan. *(See Figure 7CI.)*
(**NOTE:** *The switch box included in the second center house control pan is not used. Both center house control pans are wired into the same switch.*)

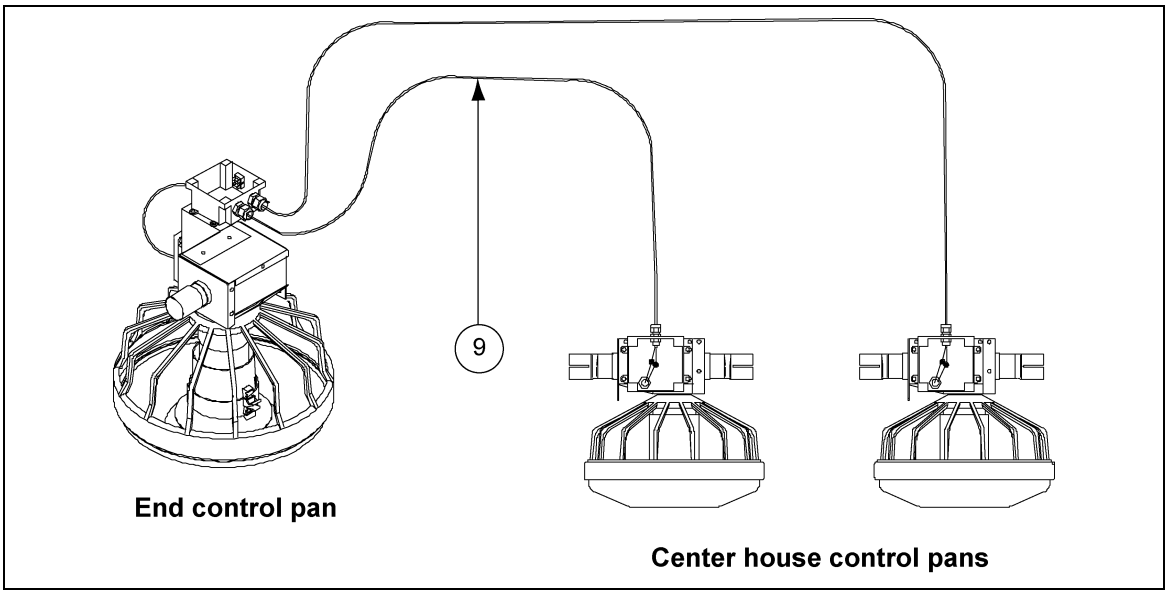


Figure 7CI

10. Connect the black lead to the remaining terminal on the switch and tie the red lead together with the other red and blue leads. *(See Figure 7CJ.)*

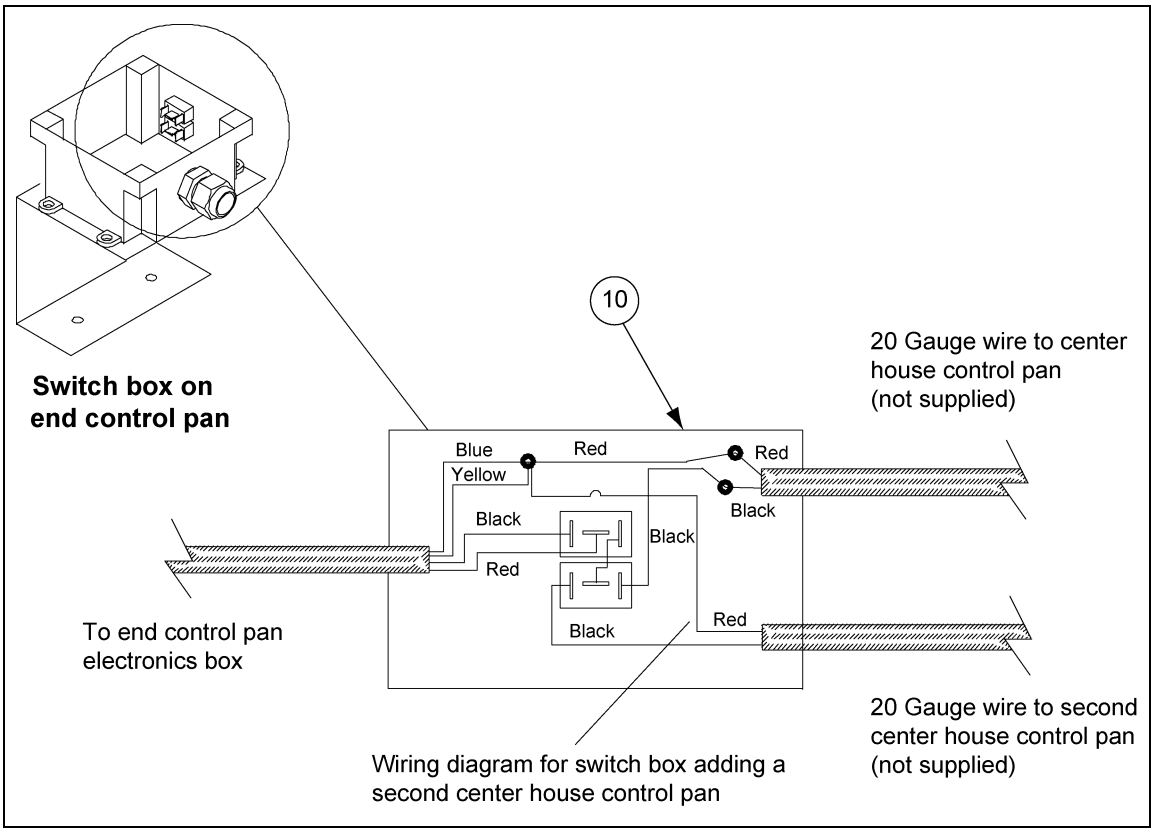


Figure 7CJ

Auger Installation

NOTICE ***Watch carefully for wire, tags, metal clips and especially for kinks and bends. If the auger is bent or kinked, it must be straightened prior to operation. Otherwise, excessive auger tube wear will result.***

1. Remove the bearing cap, bearing and idler shaft from the boot.
2. Remove the cover plate on the control unit.
3. Feed the auger through the boot end into the auger tube, using constant care and inspection. Two (2) people should be used for this operation: One should feed the auger into the auger tube while the other sees that the auger is uncoiled without creating any strain. If feeding long lengths of auger into the auger tube, overcome resistance by rotating the auger while pushing it into the tube.
4. In the event of a bend or kink, try to straighten the auger by hand. If the auger will not straighten by hand, use locking pliers. If the auger still cannot be straightened, cut it on both sides of the bend and remove the bent portion. A hacksaw or bolt cutters can be used to cut the auger. Refer to the auger brazing section to reconnect the auger.
5. Make certain that the 3/4" washer is installed on the gearbox output shaft and is located between the gearbox face and U-bolt. Loosen the U-bolt on the gearbox shaft and thread the auger through the U-bolt to within 1/2" (13 mm) of the rear drive wall as shown in *Figure 7CK*. Tighten the U-bolt securely.
6. Pull the auger from the boot end until all slack is removed.

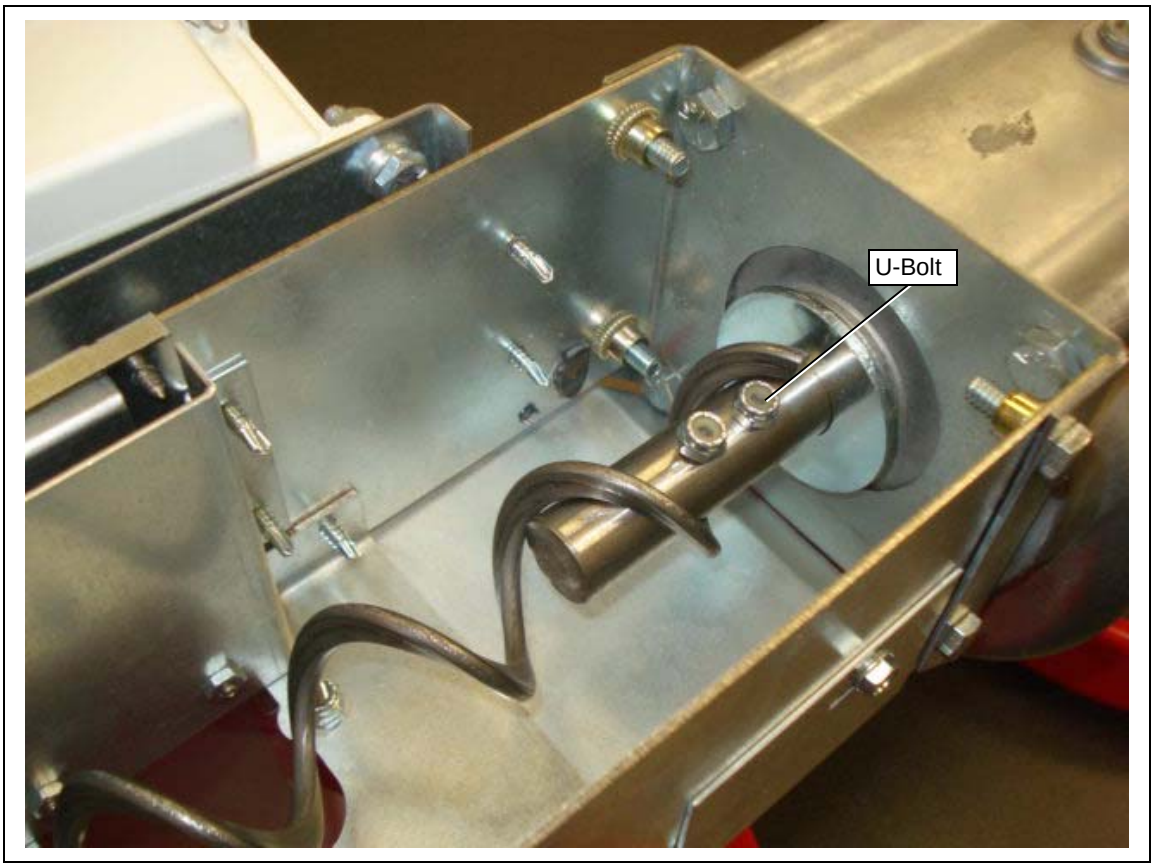


Figure 7CK

CAUTION

Use caution when releasing the tension on the auger. If the auger moves too quickly in any direction, it can injure the operator.

7. Mark the auger at the edge of the boot where the bearing mounts, as shown in *Figure 7CL*.

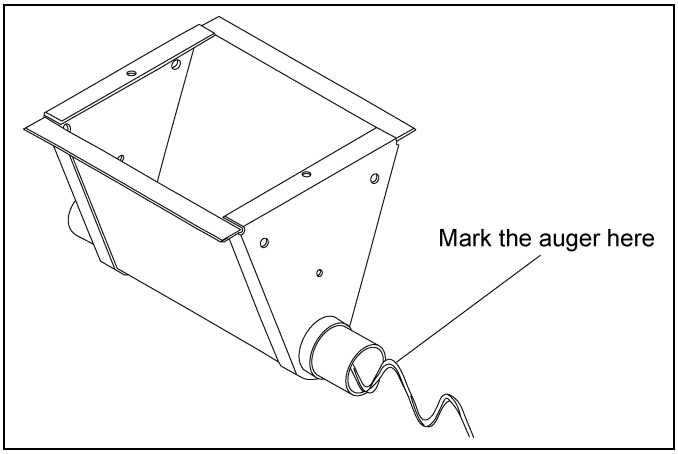


Figure 7CL

8. Determine the amount of stretch required, by using the chart. *See Auger Stretch Chart.*

Auger Stretch Chart

2" Pitch 0.814 I.D.	
Length of System	**Stretch per 100 Ft.**
0-100 ft. (0-30.48 m)	7.5" (19.05 cm)
100-200 ft. (30.48-60.96 m)	8.0" (20.32 cm)
200-300 ft. (60.96-91.44 m)	9.0" (22.86 cm)
300-400 ft. (91.44-121.92 m)	10" (25.4 cm)
400-500 ft. (121.92-152.4 m)	11" (27.94 cm)
500 ft.+ (152.4 m+)	12" (30.48 cm)

9. Pull the auger out as far as necessary, starting from the “relaxed” mark on the auger and measuring towards the boot.
10. Mark the auger at the point which allows the proper stretch. *(See Figure 7CM.)*

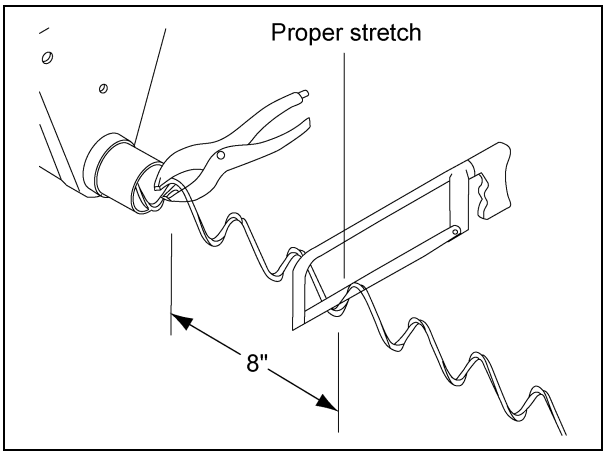


Figure 7CM

11. Pull the auger out from the back of the hopper an additional 8" (20.3 cm) and clamp at that point with a pair of locking pliers. *(See Figure 7CN.)*

12. Allow the pliers to rest against the boot to hold the auger in place.

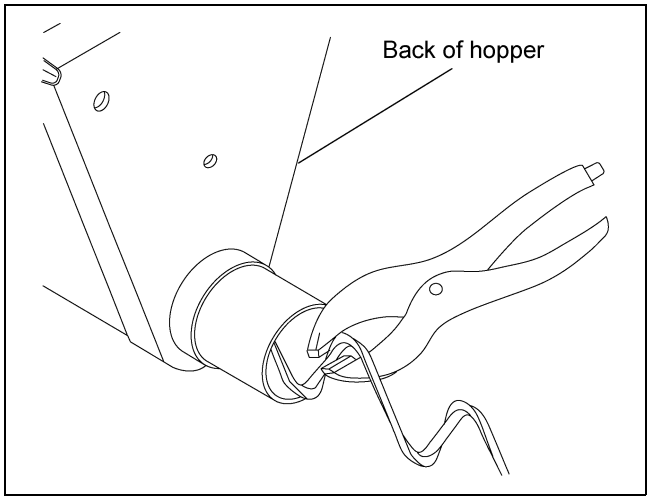


Figure 7CN

If the auger is allowed to spring back, the bearing race may crack. The auger will pull itself and the bearing plate assembly into the correct position. Do not overtighten the U-clamp or distortion of the auger tube may result. Rapid cooling will cause hardening and embrittlement. The auger must be smooth to prevent feed buildup and premature tube wear.

13. Cut the auger at the mark which allowed proper stretch.

14. Leave the pliers in place against the boot.

15. Insert the idler shaft assembly into the auger and thread the auger through the U-bolt up to 1/2" (1.27 cm) from the bearing.

16. Tighten the U-bolt securely.

17. Slowly release tension on the auger.

18. Re-attach the bearing cap and the U-clamp and tighten them securely.

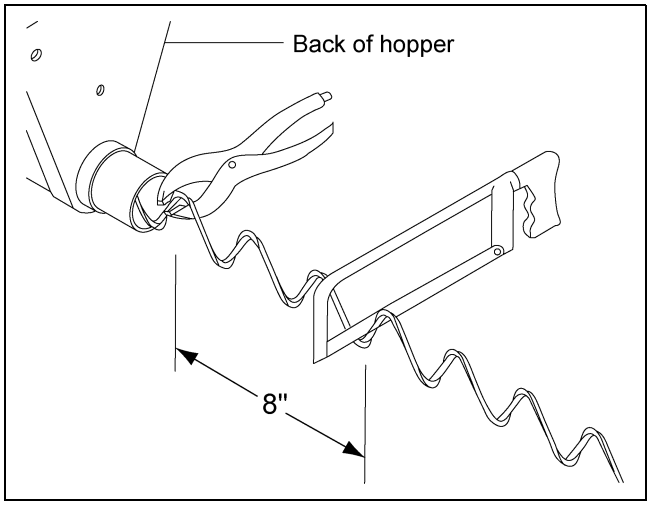


Figure 7CO

19. The auger may be lengthened by brazing two (2) sections of auger together. *(See Figure 7CP.)*
20. The ends to be brazed should be well filed and cleaned. Weld length should be 1/2" to 3/4" (13 mm to 19 mm).
21. Use a bronze, flux-coated rod and low heat, as overheating could warp the auger.
22. To keep the auger aligned and to prevent warping and kinking, lay the auger into an angle or channel iron and clamp firmly.
23. The auger must not be lapped. This causes a narrow flight spacing and will hamper feed movement.
24. Allow the auger to air-cool slowly.
25. Grind off any rough edges.

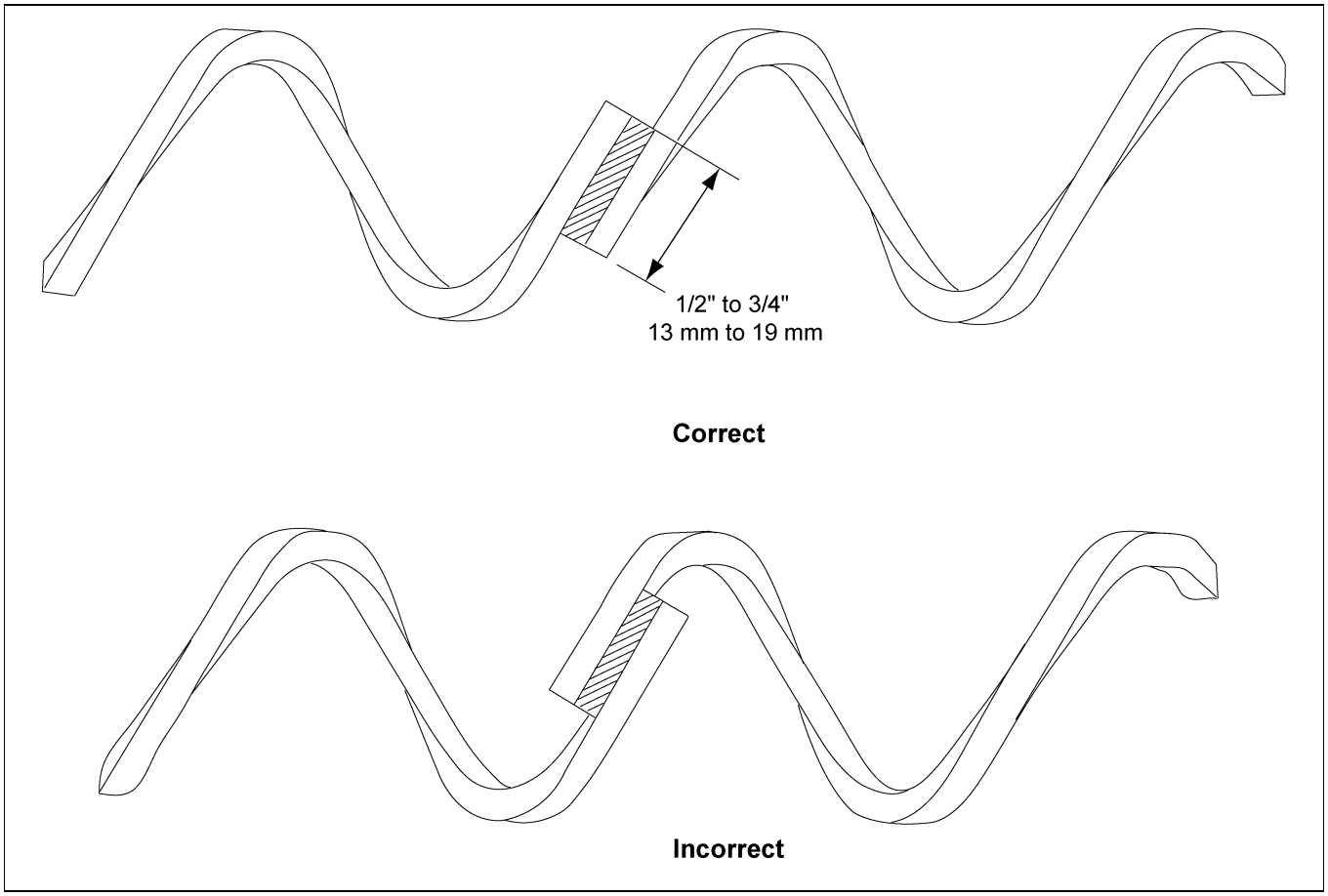


Figure 7CP

Hopper Assembly

CAUTION

Be careful, there are many sharp edges that can cut while assembling the feedline. Wear protective clothing and gloves.

The head of the bolts should be to the inside of the hopper to help prevent feed from bridging.

1. Assemble the hopper panels with the side flanges on the outside of the hopper.
2. Install the cover, hopper brace and hanger brackets at the top of the hopper. *(See Figure 7CQ.)*

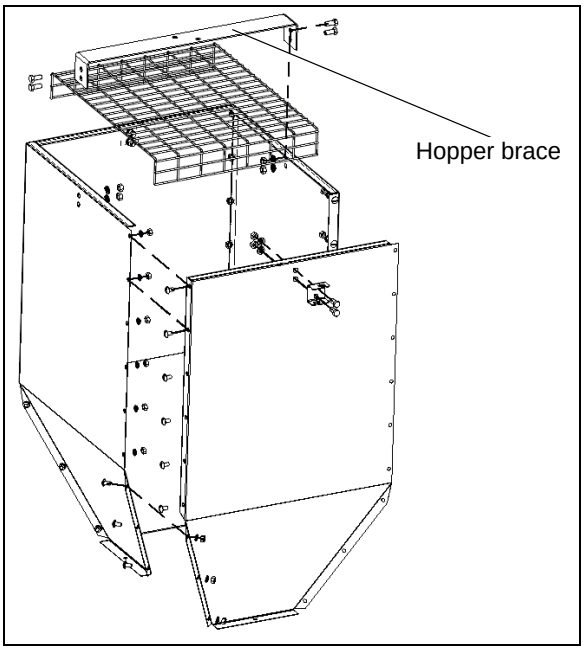


Figure 7CQ

3. Slide the assembled hopper onto the top of the boot.
4. Secure the hopper to the boot by inserting the pin from the boot through the holes in the hopper bottom flange and boot top flange as shown *in Figure 7CR*.
5. Feed agitation: Most feed will fall through the hopper and boot without agitation. For feed that require agitation, a “cannon ball” agitator is provided. The cannon ball simply rests on the auger inside the boot.

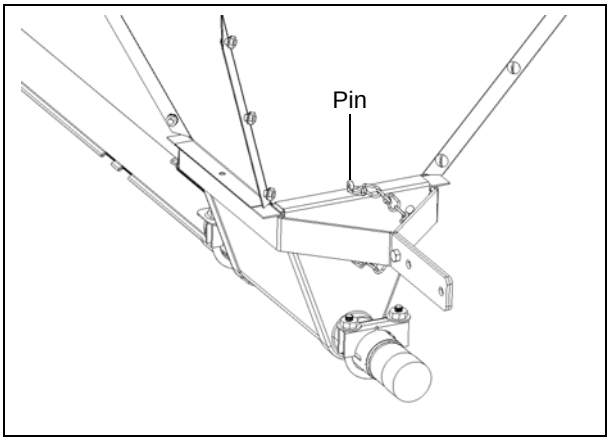


Figure 7CR

650 Lbs. Hopper Scale

Refer to *Figure 7CS* as the scales are being assembled and installed.

1. Hang the 650# hopper scale assembly with four (4) drops from the main winch cable.
2. Using the cotter pins attached to the unloader, assemble the unloader extension to the top of the unloader. With cables, the unloader/extension assembly can now be suspended from the 650# hopper scale assembly at the desired height.
3. Assemble the hopper hangers to the hopper during hopper assembly. The hangers for 120/200 lbs. hoppers and 300/400 lbs. hoppers are included with the scale. Use the correct set of hangers for the hopper that you have.
4. Attach the scale gate to the bottom of the hopper and secure into place with the supplied cotter pins.
5. The hopper can now be placed into the scale with the notches in the hopper hanger resting on the hopper scale bars.

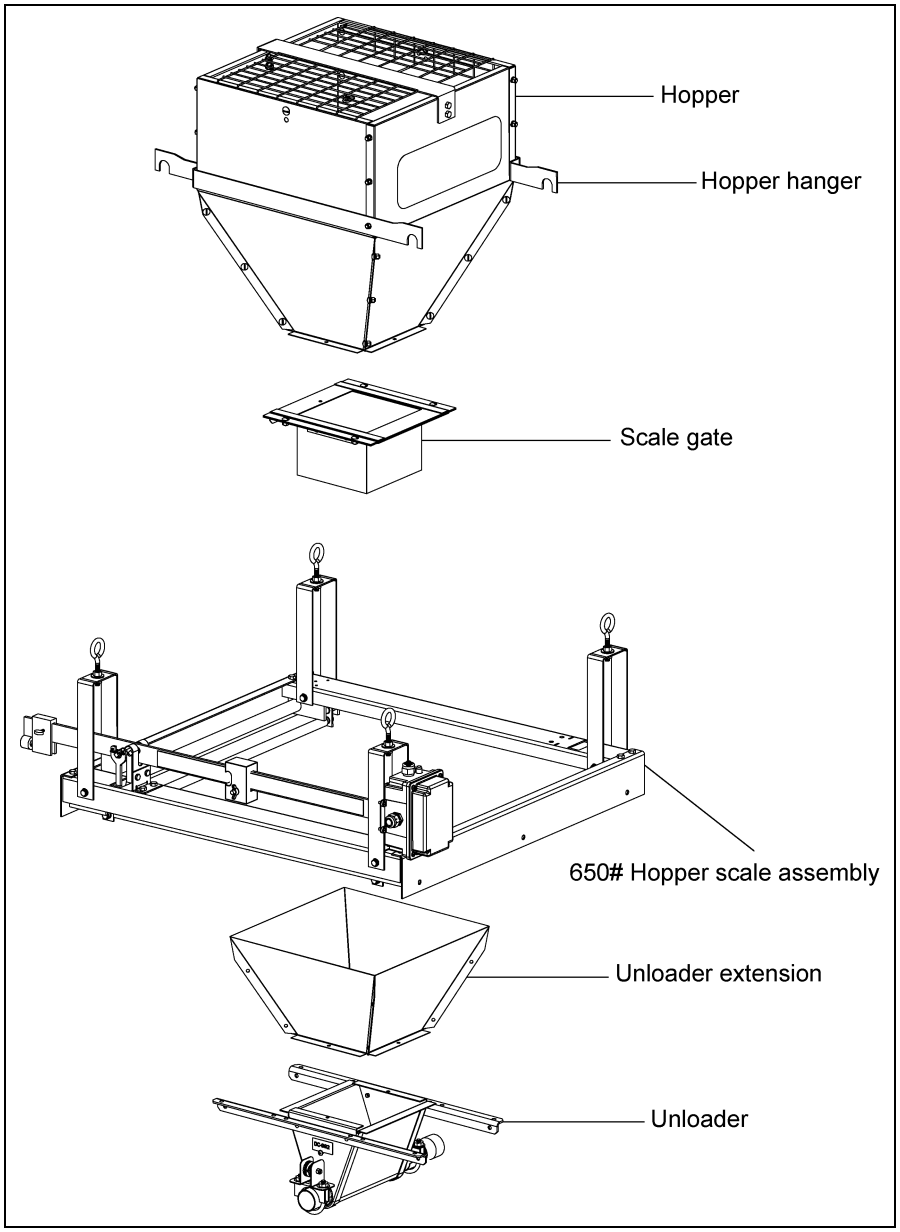


Figure 7CS

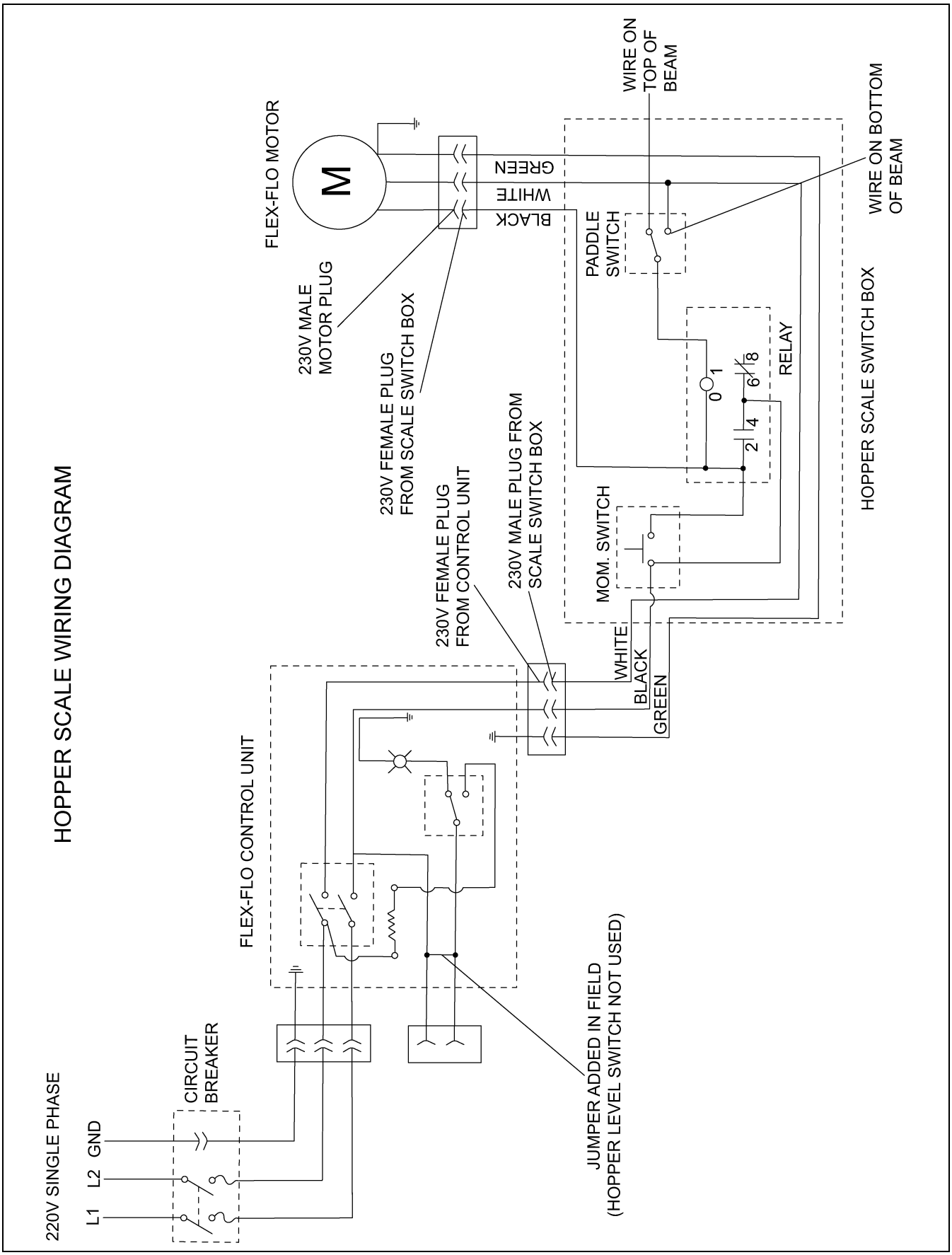

HOPPER SCALE WIRING DIAGRAM
220V SINGLE PHASE
L1
L2
GND
CIRCUIT BREAKER
FLEX-FLO CONTROL UNIT
JUMPER ADDED IN FIELD
(HOPPER LEVEL SWITCH NOT USED)
230V FEMALE PLUG
FROM CONTROL UNIT
230V MALE PLUG FROM
SCALE SWITCH BOX
WHITE
BLACK
GREEN
MOM. SWITCH
RELAY
PADDLE SWITCH
HOPPER SCALE SWITCH BOX
WIRE ON TOP OF BEAM
WIRE ON BOTTOM OF BEAM
230V FEMALE PLUG
FROM SCALE SWITCH BOX
230V MALE
MOTOR PLUG
FLEX-FLO MOTOR
M
GREEN
WHITE
BLACK

Figure 7CT

Anti-Roost Wire

1. Double loop the anti-roost wire around the first insulator at the boot as shown in *Figure 7CU*.
2. Secure the anti-roost wire around the insulator with the cable clamp sleeves provided as shown in *Figure 7CU*.

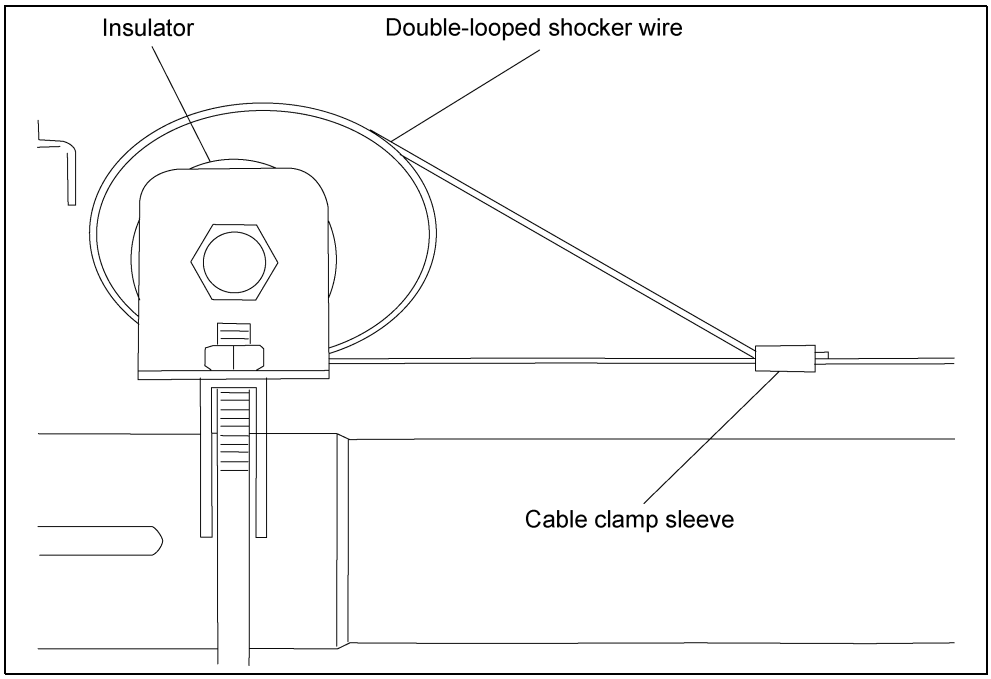


Figure 7CU

3. Thread the anti-roost cable through the slots in the tops of the feeder drop tubes and through the hangers, as shown in *Figure 7CV*.

Figure 7CV

The shocker wire is to be installed in 50' (15.24 m) increments maximum.

4. Install an anti-roost wire tension spring, as shown in *Figure 7CW* at the next insulator, the fifth (5th) auger tube down.
5. Hook one end of the spring over the insulator of the next section of wire as shown in *Figure 7CW*.

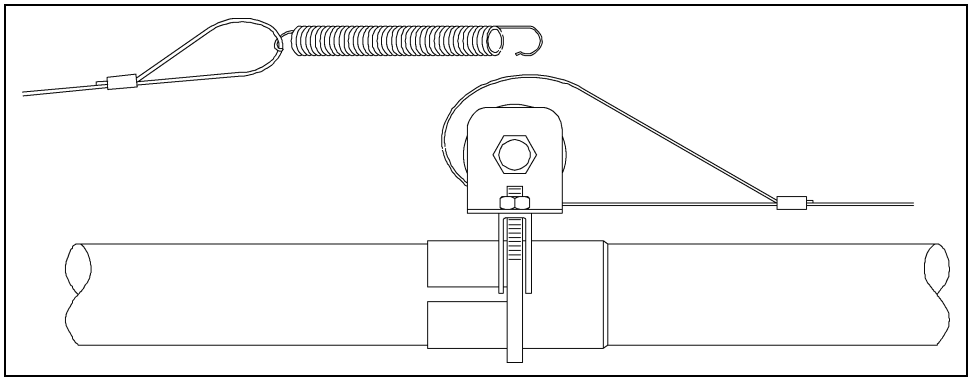


Figure 7CW

There should be 3/4" to 1" (1 cm to 2.5 cm) of stretch on the spring.

6. Cut the cable with enough slack to loop the end of the cable through the spring and secure it with a cable clamp sleeve. *(See Figure 7CX.)*

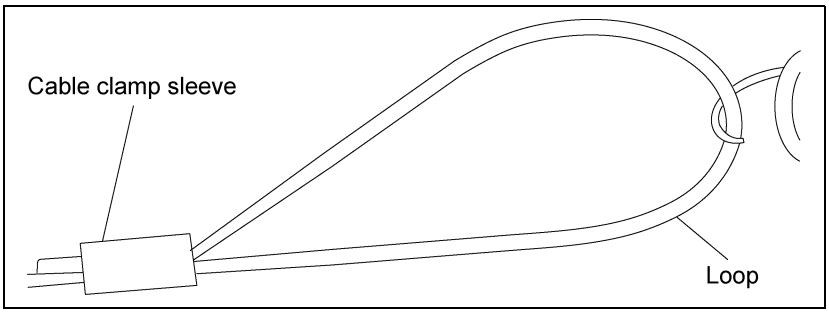


Figure 7CX

7. Repeat the preceding steps of attaching sections of anti-roost wire until the control pan is reached. *(See Figure 7CY.)*
8. Attach the anti-roost bracket onto the three (3) insulators onto the lid of the control pan as shown in *Figure 7CY*.

Figure 7CY

Hopper Level Control Switch

Cumberland's feed level control switches are designed to provide automatic control for the fill system on any hopper-fed feeding system. The switch should be mounted on the back (bearing) side of the feed hopper, using the provided mounting hardware. Mounting the switch as close as possible to the drop from the fill system will provide optimum operation.

The bottom of the fill system drop should be positioned in the hopper so feed will activate the switch, yet not run over the side of the hopper. When installed, the switch must hang vertically or at a slight angle so that gravity will cause the switch paddle to activate and close the operating circuit. Bend the mounting bracket as necessary to accomplish this. Be careful not to deform the paddle when bending the arm.

Remove the tape from around the fabric and paddle before installing the switch in the hopper.

On installations with multiple hoppers, it may be necessary to locate the switch in the last hopper lower than the others. This will create a "buffer area" in the hopper to allow for any "carry-over" of feed from the other drops. If there is carry-over, without this buffer, feed may eventually fill the last drop tube and trip the control unit safety switch. *(See Figure 7CZ.)*

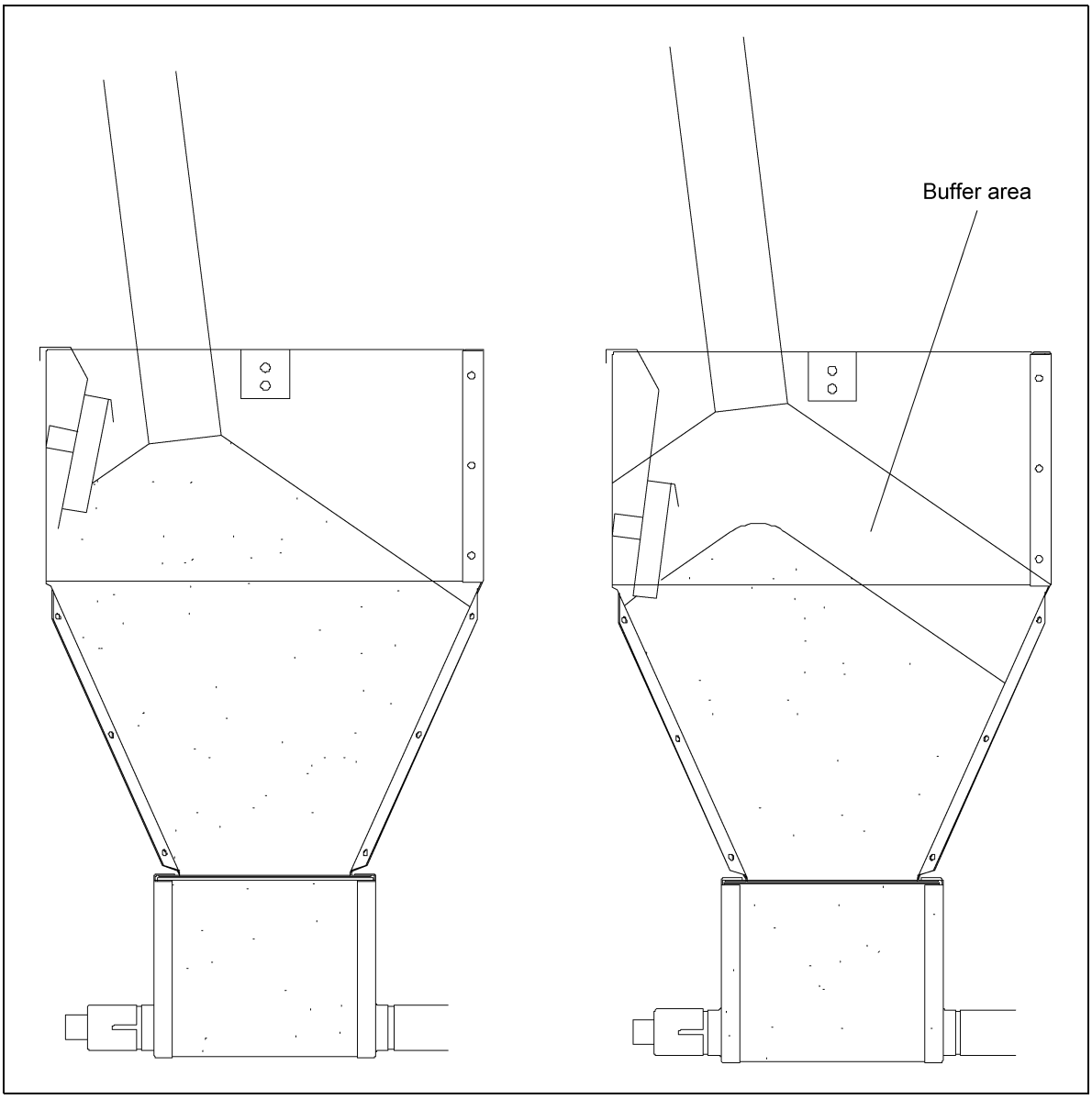


Figure 7CZ

Winching

Building Safety

WARNING

Before attempting to install a winching system, it is important to verify the structure of the poultry house can carry the added weight of the pan feeding system. *See Capacities and Specifications Section on Page 15* ***to assess the weight to be carried. Seek the advice from a structural engineer.***

Choose Correct Winching System

Cumberland strongly recommends the use of the correct winching system for the feed line. The winch must have the capacity to lift the weight of the feed line. If in doubt, please contact Cumberland or your dealer.

Winching systems should be rated to lift the weight load to be raised and lowered and must bear the CE mark and comply with all the requirements of EC Machinery Directive, Directive 89/392/EEC. Use of non-genuine parts may result in accident, injury or failure of the system.

All winching systems should be fitted with a check chain so that when the feed line is in the raised position, it cannot fall, even if the winch cable snaps or the winch fails.

For proper installation, the feed line must hang straight and reasonably level. Winch systems should be carefully planned to keep all cables clear of building components, trusses, electrical wiring and gas and water lines. Drops to the feeders should be straight so as not to impose improper loads on the feeder when raised.

Safety when Raising and Lowering

The main risk when raising and lowering the feed line is that a cable may snap or slip. This may result in cable whip or the feed line falling. Therefore, the use of a hard hat and face shield is recommended.

The winch should be placed in the building so that it is not too close (3' minimum) to any section the feed line in case of the feed line falling.

Take extreme care when raising and lowering the Pan Feeder. Cables used for winching are under tension.

- Always check that the cables and clamps are in good condition. Replace any frayed or damaged cables and clamps.
- Never raise or lower the feed line with another person in the building unless they are clear of the system and cables.
- Once the feed line has reached the fully raised position, lock the check chains.

1. After deciding where the feed line is to be installed, mark a straight line on the ceiling or rafters the full length of the feed line. Center the line directly over where the feed line is to be installed.

2. Required winch drop line locations. *(See Figure 7DB on Page 66.)*

   a. One to hang each drive unit.

   b. One within 3' (0.9 m) of the drive.

   c. Two (2) to hang each feed hopper (19" (48.26 cm) apart for 120# and 200# hoppers, 25" (63.50 cm) for 300# and 400# hoppers).

   d. Bolt two (2) halves of the hopper suspension brackets using two (2) 5/16"-18 bolts and nuts. The drop cables will need to be spaced 19" apart for 120# and 200# hoppers or 25" for 300# and 400# hoppers. Suspend the boot using the two (2) drops on each side of the hopper as shown in *Figure 7DA*. Bolt the cable guides to two (2) sides of the hopper using four (4) 5/16"-18 bolts and nuts. Run the cable through the cable guides interlocking them in the cable guide slots.

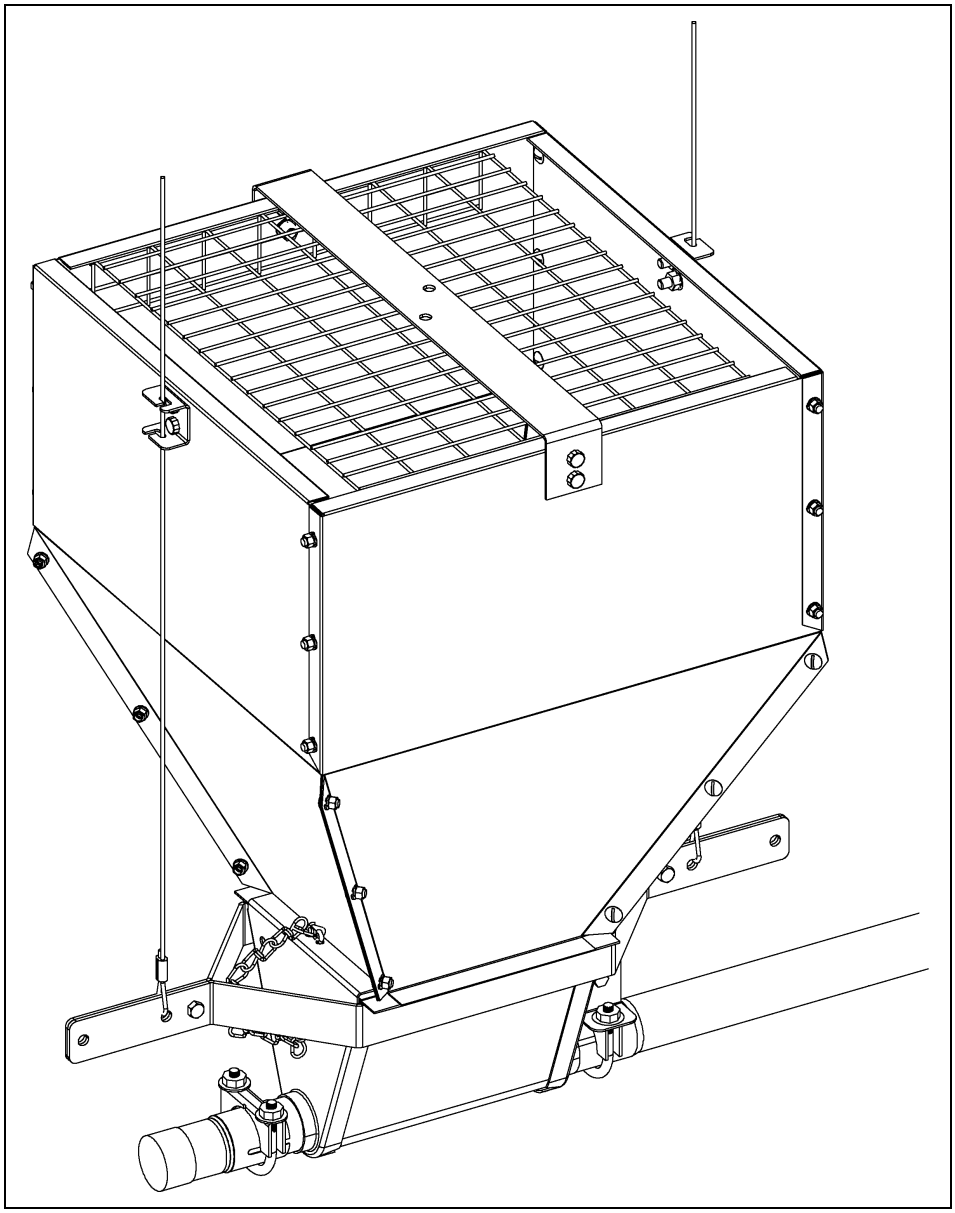


Figure 7DA

   e. Multiple drops at 8' or 10' spacing (2.438 m or 3.048 m).

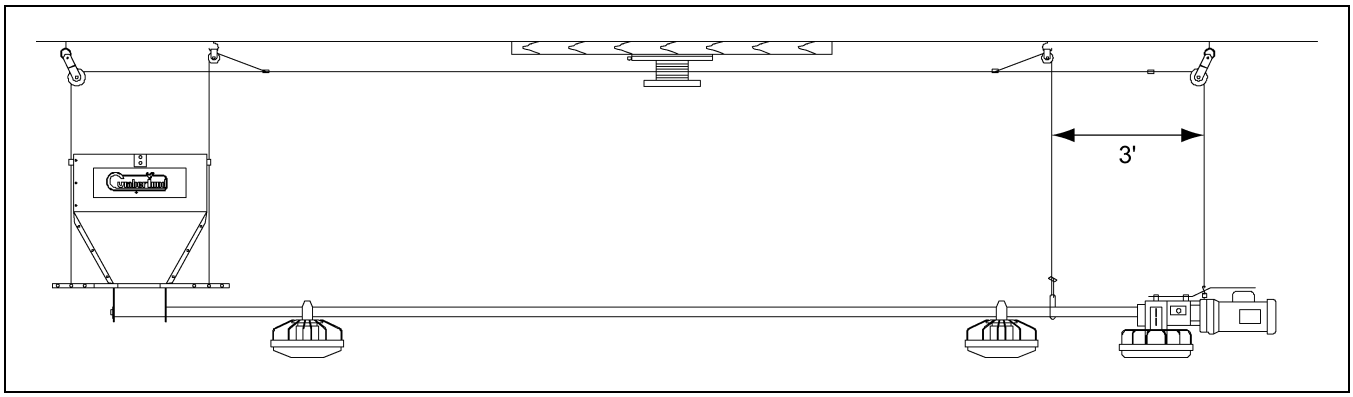


Figure 7DB

3. Screw the hooks along the marked line at the recommended spacing, for wood frame installation. Screw the hooks into the ceiling supports or rafters the full length of the threads to prevent bending.

   For metal frame installations, some support fabrication may be necessary in order to install pulleys at the recommended spacing. For additional information and recommendations, contact a Cumberland representative.

4. Ensure that the openings of the screw hooks point away from the direction of cable travel when the winch raises the feeder as shown in *Figure 7DC*. If the distance raised is greater than the distance between drop spacings, stagger the hooks 3" (8 cm) to each side of the line to prevent the cable clamps from catching on the pulleys.

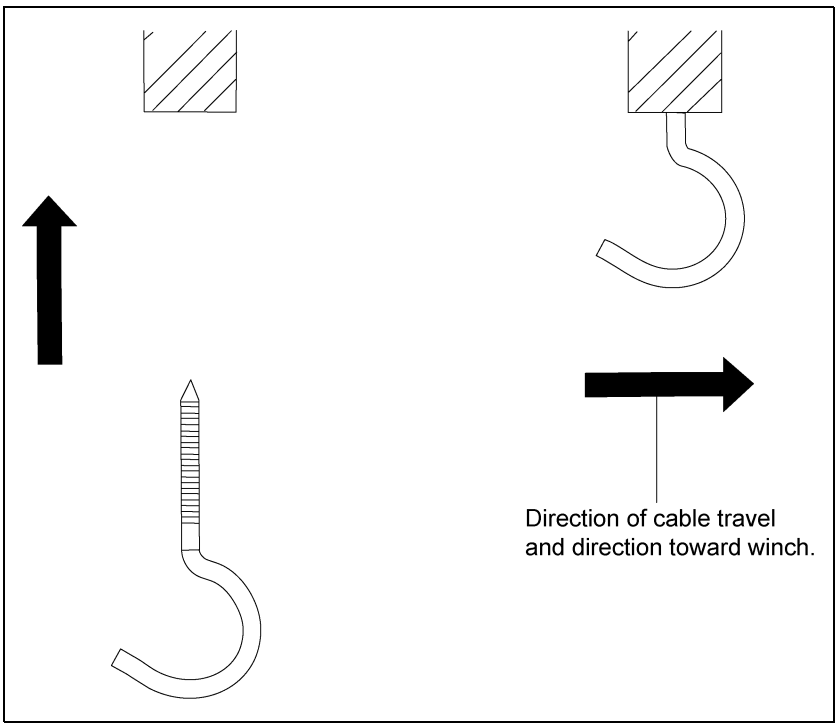


Figure 7DC

5. Attach a board, capable of supporting the weight of the feeding system, to the ceiling a few feet from the center of the feeder line.
6. Securely attach the winch to the board. The brake mechanism will protrude on one side.

7. For systems shorter than 360' (109.7 m), extend the 3/16" (0.476 cm) winch cable the full length of the feeder line, stringing the cable through the cable hole on the winch drum. Temporarily attach the cable to the ceiling with nails, staples or some type of fastener. The winch cable does not pass though any pulleys. *(See Figure 7DD.)*

8. For systems longer than 360' (109.7 m), install the cable with double reduction pulleys as shown in *Figure 7DE*.

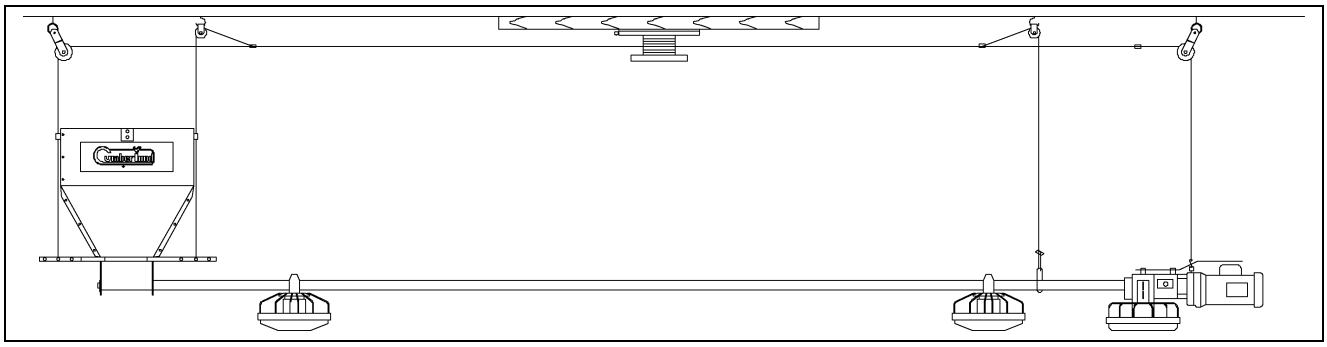


Figure 7DD

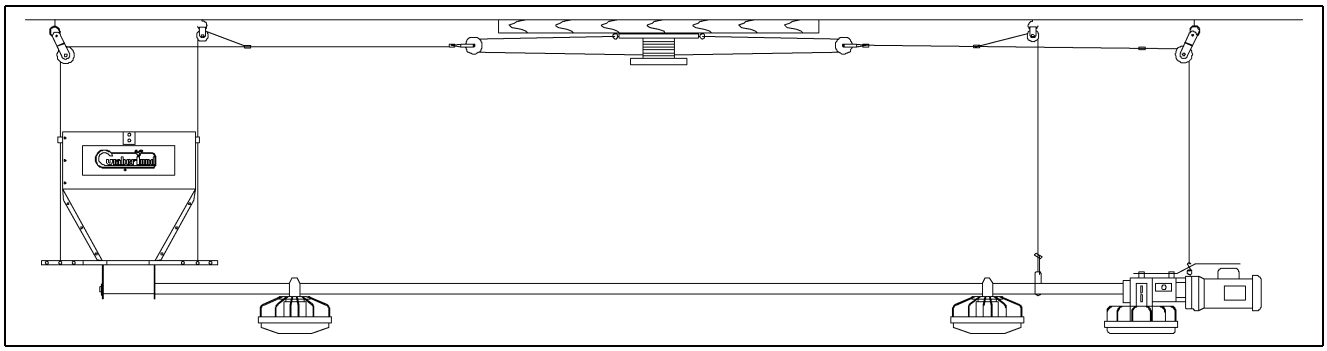


Figure 7DE

NOTE: *The distance between the winch drum and the double reduction pulleys should be slightly greater than the distance the feed line is to be raised.*

9. Attach the 1-3/4" (4.445 cm) pulley to each hook as shown in *Figure 7DF*.

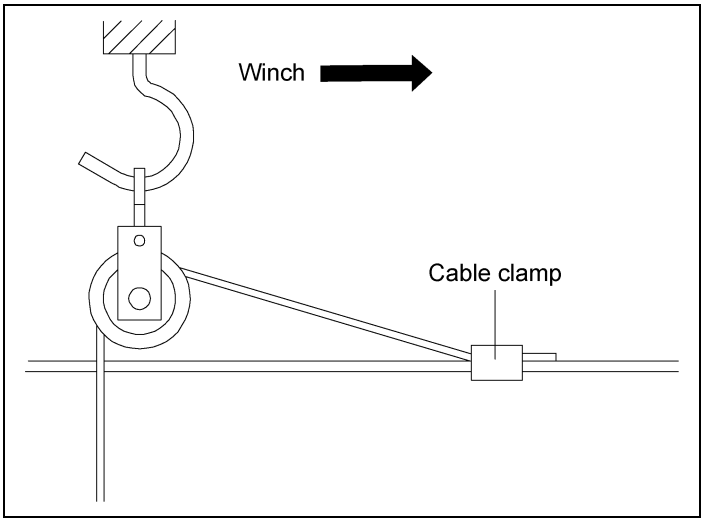


Figure 7DF

10. Thread the 1/8" (0.3175 cm) drop cable through each pulley and attach it to the 3/16" (0.47625 cm) winch cable about 6" (15 cm) from the pulley towards the winch with the 1/8" x 3/16" (0.3175 cm x 0.47625 cm) cable clamps. *(See Figure 7DF on Page 67.)*
11. Place the hangers to the feed line directly below each pulley by snapping the wire hanger around the rib of the tube. *(See Figure 7DG.)*

Be sure the hangers are not touching the shocker wire.

Spread the wire hanger just enough to force it over the auger tube. The clip should be located within 6" (15 cm) above the hanger, as shown in *Figure 7DG*. So the feeder line can be raised without interference when the house is cleaned.

12. Cut the drop cable long enough for installation from the winch cable, through the hanger to the cable adjustment clip. *(See Figure 7DG.)*

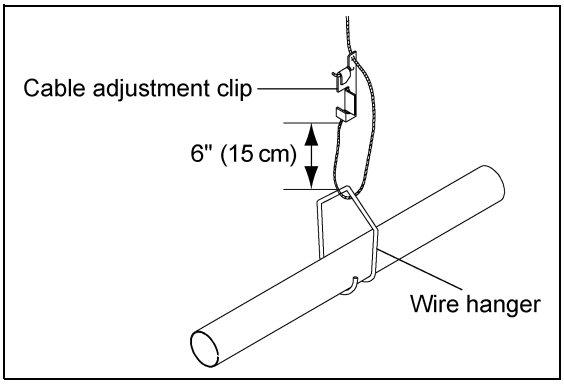


Figure 7DG

13. Begin installing the drops at the winch and proceed to the end of the feeder line.
14. Clamp off the ends of the winch cable around a truss on the ends of the feeder line. Use a cable clamp sleeve to clamp the drop cable to the winch cable. Thread the drop cable through the tube hanger and adjustment clip. Cut the winch cable behind the cable clamp.
15. Level the feed line using the adjustment clips. Trim excess drop cable close to the clips. Keep tension on hanging cables at all times to prevent the pans from resting in the litter.

“Throwback” Installation

Drops located close enough to the winch that they will wrap onto the drum when the feeder line is raised must be connected to the winch cable by a “throwback,” as shown in *Figure 7DH*. This is a suspension drop which routes the cable away from the winch far enough that the cable clamp sleeve and drop cable do not get wound onto the winch drum.

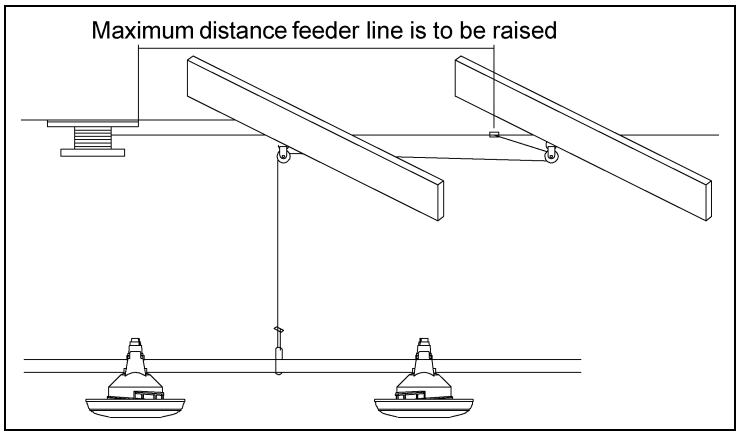


Figure 7DH

Power Winch Instructions

Mounting Winch Assembly

1. Cut one length of 2 x 10 and one length of 2 x 4 long enough to span three (3) ceiling purlins. These will be used to support the winch assembly.
2. Using the winch assembly as a template, pre-drill the 2 x 10 and 2 x 4 as shown in *Figure 7DI*.
3. Insert carriage bolts (not supplied) down through winch supports and through winch assembly. Tighten winch support bolts.
4. Mount the winch supports securely to the ceiling purlins. BE SURE WINCH SUPPORTS SPAN THREE (3) PURLINS. Winch cable drum must be centered through the centerline of the main cable run as shown in *Figure 7DJ*.

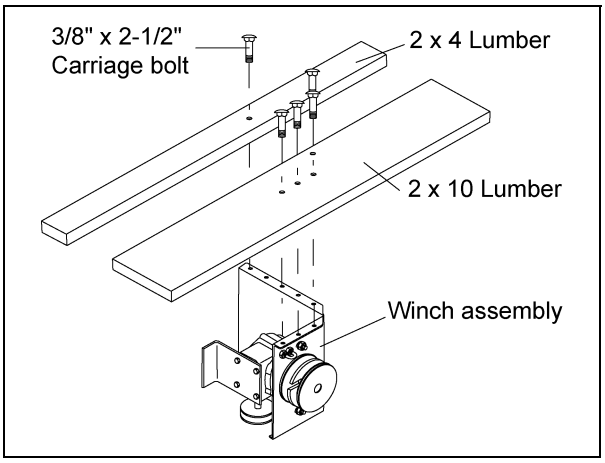


Figure 7DI

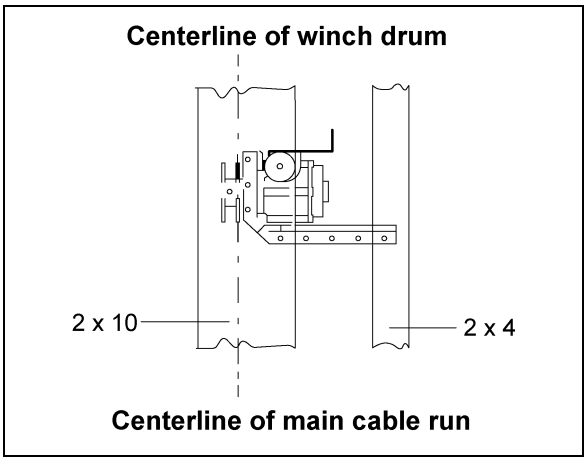


Figure 7DJ

Winch Cable Assembly

1. Winch system is designed to operate using a block and tackle system. Two (2) 3-1/2" master pulleys, 3/16" cable and cable clamps are required to complete block and tackle cable loop. *(See Figure 7DK.)*

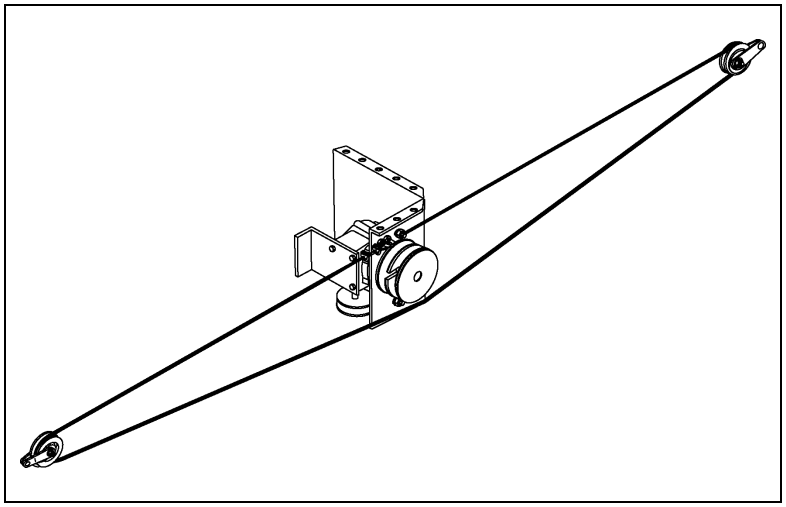


Figure 7DK

2. Attach one end of the cable loop to the “U-bolt” on the winch frame as shown in *Figure 7DL*. IT IS RECOMMENDED THAT LOOP BE DOUBLE CLAMPED TO “U-BOLT”.

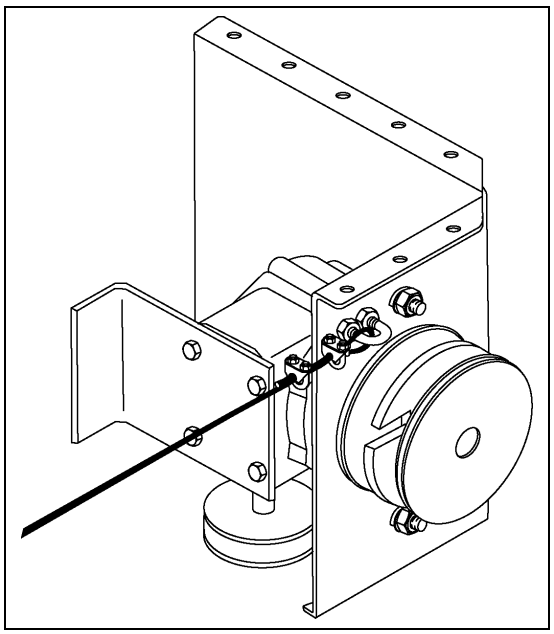


Figure 7DL

3. Thread the two (2) master pulleys on to the cable and then attach remaining end of loop to “U-bolt”. The master pulleys must be attached to the main line cable.
4. Position the cable drum as shown in *Figure 7DL*. CABLE IS NOT TO BE ATTACHED TO THE WINCH DRUM.

Refer to the winch kit instructions in this manual to complete feeder system suspension installation. The drop cable nearest to the winch should not be installed at this time.

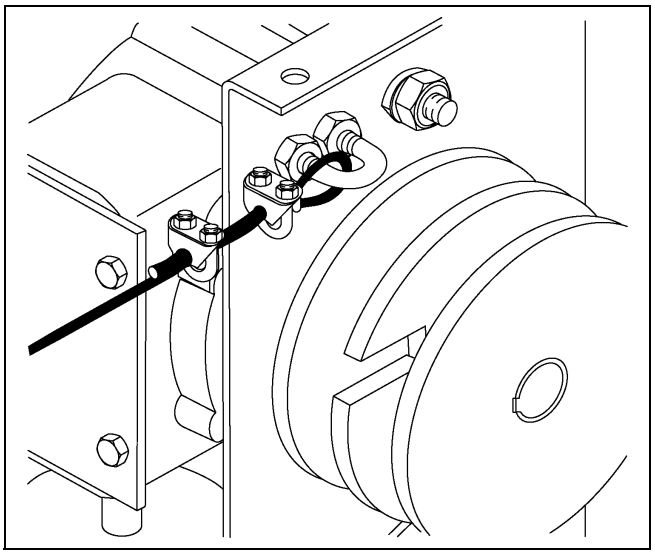


Figure 7DM

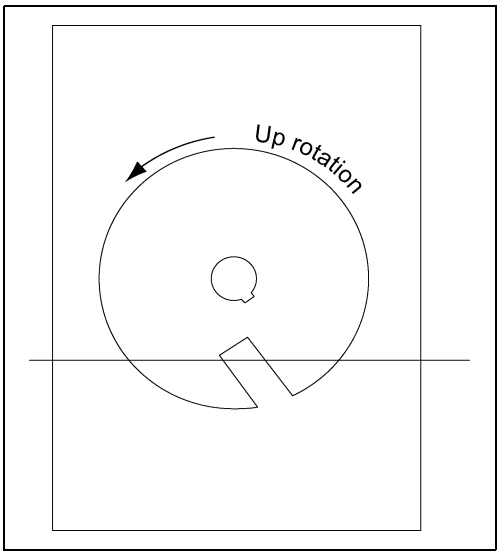


Figure 7DN

Controls Installation

1. Mount master control box to the wall or other adequate surface. Unit should be mounted as close to winch assembly as possible (not more than 15') only 20' of control cable is supplied. If control box needs to be mounted further away then control cable must be spliced. FOR SAFETY OF OPERATION WHEN RAISING THE SYSTEM YOU SHOULD BE ABLE TO SEE SYSTEM IN CASE OF COMPONENT FAILURE.
2. Mount the winch motor to the motor mount as shown in *Figure 7DO* using 5/16" x 3/4" bolts supplied in hardware bag. DO NOT LIFT MOTOR BY ELECTRICAL CORDS.

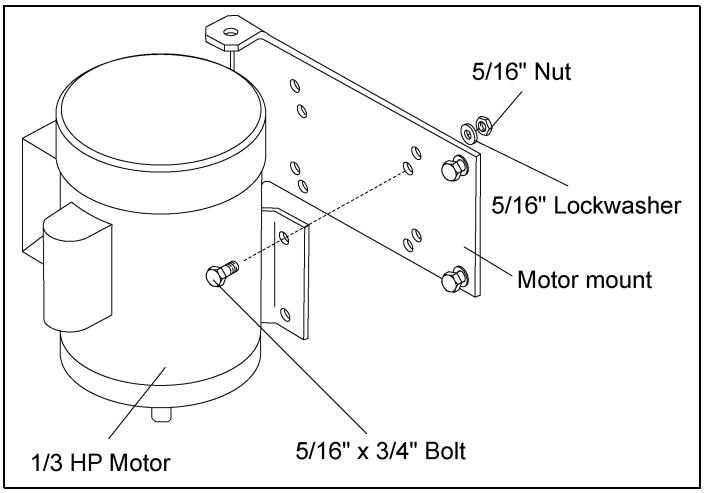


Figure 7DO

3. Remove belt guard from winch assembly. Attach motor mount assembly to the winch frame as shown in *Figure 7DP* using 5/16" carriage bolts supplied in hardware bag.
4. Install drive pulley on motor shaft. Align with drive pulley on gearbox and tighten drive pulley.
5. Install belt onto the two (2) pulleys and check the belt alignment.
6. Tighten drive belt by adjusting bolts on motor mount. **IMPORTANT:** *DO NOT OVER TIGHTEN DRIVE BELT THIS WILL REDUCE LIFE OF MOTOR BEARINGS AND GEARBOX BEARINGS.* Replace belt guard on winch assembly.

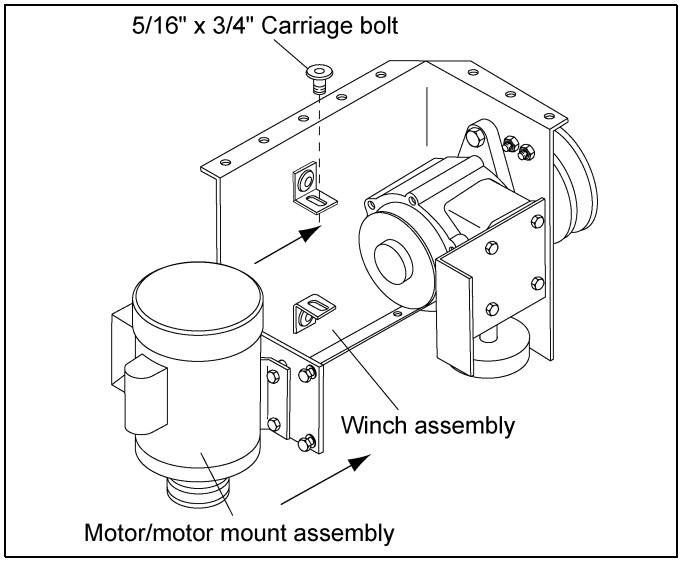


Figure 7DP

7. The drop cable nearest the winch assembly is to be installed and used as the control cable as shown in *Figure 7DQ*. Install the control mounting channel to the ceiling using the two (2) clamps provided. Mount the clamps approximately 1' from each end of channel. The channel must be mounted with the open end down. Mount the channel in close proximity to main cable run without creating interference.
8. Mount one drop pulley at each end of channel. The drop line end pulley must be at least 24" from end of channel for installation purposes.
9. Mount the overhead control box to the channel using channel clips and wing nuts supplied in the hardware bag. The box must be mounted with end marked “UP” towards the point where the control cable will attach to the main cable.
10. Mount the up and down microswitches to the control channel using remaining clips and wing nuts. THE ACTIVATOR ARMS ON THE SWITCHES MUST POINT TOWARDS THE END OF THE CONTROL CHANNEL.

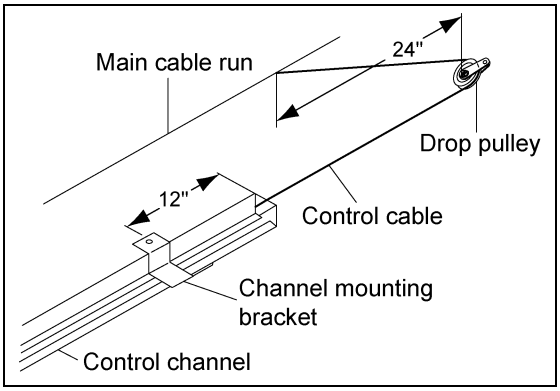


Figure 7DQ

Control Cable Installation

1. Clamp one end of control cable to main line approximately 24" back towards winch from drop pulley as shown in *Figure 7DQ*.
2. Insert the cable through cable clamp switch block and then other cable clamp as shown in *Figure 7DR*. Do not tighten switch block cable clamps at this time.
3. Run drop cable through control channel and drop end drop pulley and then attach to the feeder line. Be sure that cable does not interfere with switch actuator arms when in operation.
4. Insert switch block into control channel being careful to move switch activator arm down so as not to damage it.

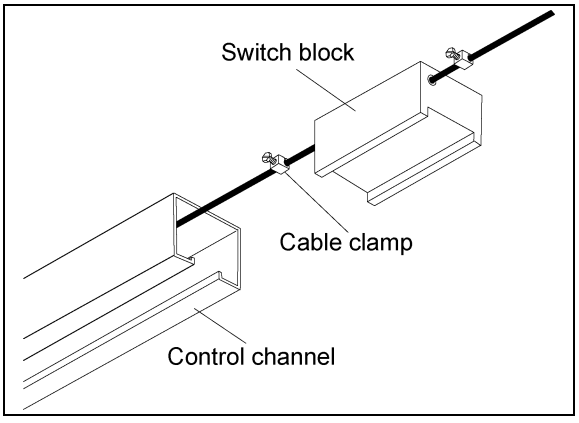


Figure 7DR

Primary Wiring

ALL WIRING SHOULD BE DONE BY A QUALIFIED ELECTRICIAN.

System operates on 230V 1 phase power only. 230V Power must be supplied to main control box.

NOTE: *Ground wire must be supplied to overhead control box to provide proper grounding for winch motor.*

1. Open main control box and note colors of wire connected to terminals 1 through 4. The SJ cord that is connected to these terminals should be run up to the overhead control box.
2. Connect the wires from the SJ cord to the terminal strip in the overhead control box. Terminal 1 should go to terminal 1, terminal 2 should go to terminal 2, etc.

   NOTE: *Use the terminal strip in the overhead control box that is not connected to the winch motor.*
3. The feeder line fill system and the feeder line should get power from terminal 4 and terminal 5 in main control box. THIS WORKS ON SYSTEMS THAT ARE WIRED 220 VOLT 1 PHASE ONLY. For other systems, consult the factory.

   See *Wiring Schematic on Page 77* for wiring details.

Setting the Microswitches

The span of winching operations is determined by the space between the microswitches and can be increased or decreased by loosening the wing nuts on the microswitches and adjusting then closer or farther apart.

1. Raise the system to the feeding height required by the breed of bird (18" to 24" from floor). The height should be comfortable for the males but not too high for the females.
2. Slide the switch block against the activator arm of the down microswitch until switch clicks. Mark location of black on cable.
3. Release the tie back end of the control cable at the main cable. Pull the cable partially out at the drop end until you have access to the marks on the cable.
4. Pull the switch block to its marked location and tighten the cable clamps on each side of the block. Return the switch block to its position inside the channel. Reconnect the tie back end to the main cable.
5. Raise the system to the desired height for filling.
6. Loosen wing nut holding the up microswitch. Slide switch assembly back against switch block until activator arm of microswitch is activated by switch block and retighten wing nut.

   IMPORTANT: *THE CABLE MUST BE PLACED IN THE DRUM NOTCH DURING IT'S FIRST REVOLUTION.*

Power Winch Operation

Start with feeder in down position.

1. Flip DPDT toggle switch to up position. Push and hold in up push button until light is lit. Release up button. Feeder should now be in the up position ready to fill.
2. Flip the feed switch to the ON position. The feeder fill light should be lit and the feeder and fill system should start. System should fill until all pans are filled to proper level.
3. After filling is complete turn feed switch to the OFF position.
4. The DPDT toggle switch must now be to set to the “Down on Clock” position. MAKE SURE TIME CLOCK IS SET TO THE PROPER TIME. See inside of time clock box for instructions on setting time clock.
5. Pull out two (2) tabs on time clock at time which you wish feeding to begin.

At pre-determined time power winch will lower feed line to feeding position. System may only be raised manually using up push button and up toggle switch.

Safety in Maintenance and Repairs

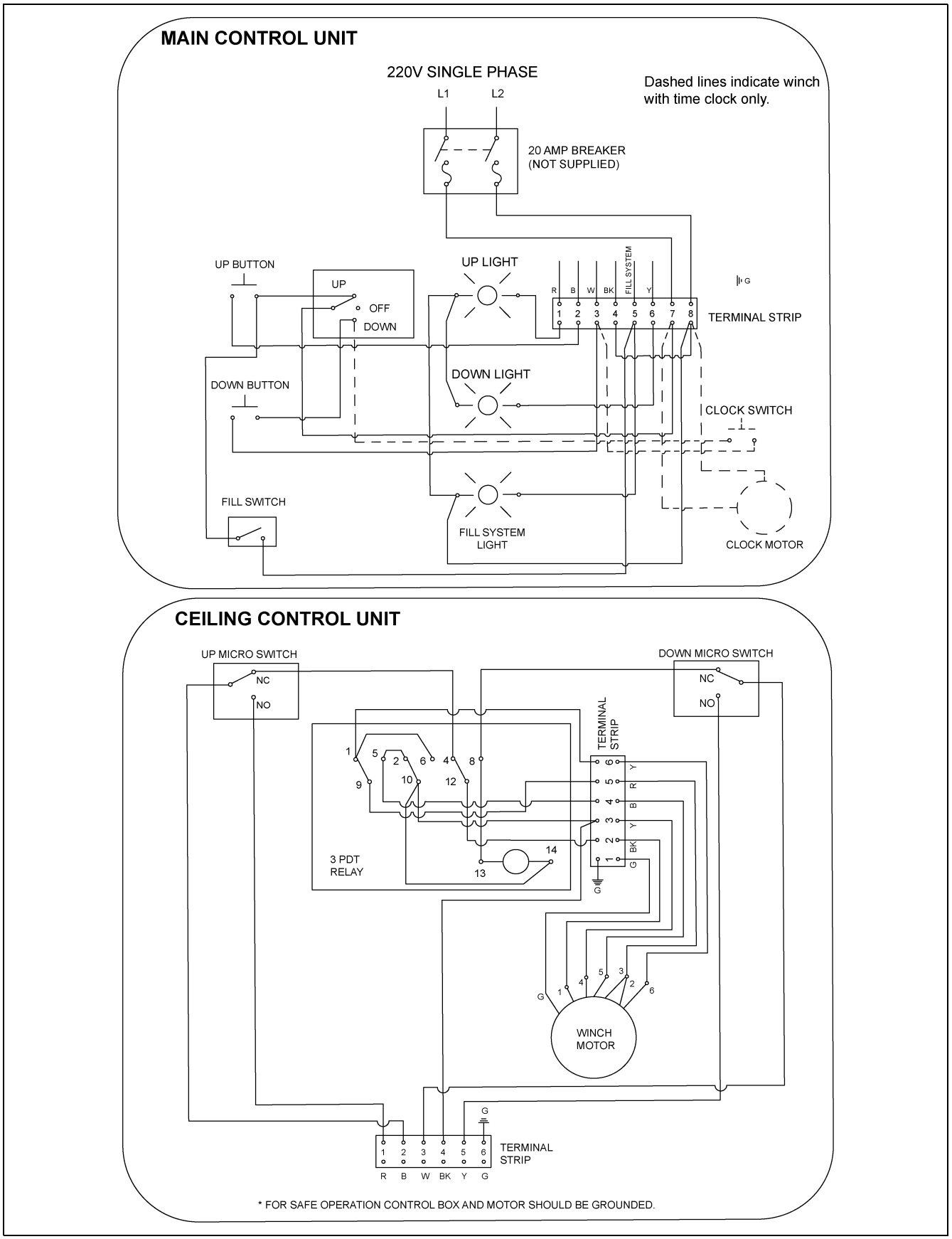
Before starting any repairs or maintenance on the Pan Feeder System observe the following safety steps:

1. Isolate the whole of the system from the electricity supply by switching OFF the power isolator and locking it.
2. Keep the key in the possession.
3. When making any repairs to the auger, be aware that it may be under some degree of tension. Avoid touching the auger with the hands until you are sure that it is loose at all points. Use a suitable tool to check the auger.
4. Do not reconnect the power supply until all work is completed and all guards are correctly refitted.

Problem	Checks	Corrective Action
1. Spinner control pan will not shut system OFF.	a. Check to see if the feed has stopped the paddle of the spinner motor and the green light is OFF, but the feed line motor still runs.	a. Replace the solid state relay.
	b. Check to see if the feed has stopped the paddle of the spinner motor and the green light is ON, but the feed line motor still runs.	b. Replace the PC board.
	c. Check to see if feed reaches the spinner motor, but the paddle continues to “drill” through the feed.	c. Change the pulse settings to a lower pulse, using the DIP switches on the PC board.
	d. Check to see if the feed bridges over the throat instead of falling into the pan.	d. Make sure nothing is blocking the throat and that feed is dropping into the center of the throat.
2. Spinner control pan will not restart system when feed is called for.	a. Check to see if the spinner motor in the end control pan does not spin and the yellow light is ON with a bright pulse every 5-10 seconds.	a. Replace the spinner motor.
	b. Check that the spinner motors, in a system with a center house control pan, does not spin and the yellow light is ON with a bright pulse every 5-10 seconds.	b1. Make sure the voltage at the spinner motor in the center house pans is between 17 and 24 volts, if center house pans are used. b2. Make sure the field wiring is correct to the center house control pans, if there is no voltage. b3. Use a heavier gauge wire, if the voltage is very low.
	c. Check to see if the spinner motor does not spin and the yellow light is not ON.	c. Replace the PC board.
	d. Check that the spinner motor spins, but the feed line motor does not come ON and the green light comes ON after a 10 seconds delay.	d. Replace the solid state relay.

Problem	Checks	Corrective Action
2. Spinner control pan will not restart system when feed is called for. (continued)	e. Check to see if the spinner motor spins, but the feed line motor does not come ON and the green light does not come ON.	e. Replace the PC board.
	f. Check to see if the spinner motor does not spin due to something lodged between the paddle and the throat.	f. The spinner motor mounting bracket may need to be bent to point the paddle slightly to the center of the throat and away from the throat wall.
3. Motor overloads.	a. Check that there is the proper supply of power from the supply line.	a1. Use the proper line voltage. a2. Use the proper wiring size for the motor and the length of the line run.
	b. Check to see if any object(s) are caught in the auger.	b. Remove any obstruction(s) from the hopper, boot and outlet holes.
	c. Check to see that the auger was properly installed.	c. Make sure the boot and control unit are installed properly.
4. The feeders will not run.	a. Check to see if there is power in the circuit line.	a. Replace any burned out fuse(s) and correct any tripped circuit breaker(s).
	b. Check to see if the overload was tripped on the motor.	b. Determine the reason for the overload. *(See Motor Overloads.)*
	c. Check to see if the control pan switch is defective or out of alignment.	c1. Adjust the switch. c2. Replace the switch, if it is defective.
5. The auger runs erratically.	a. Note that a new auger will cause excessive noise until it is polished.	a. Run feed through the feed line.
	b. Check to see if there is a bad bearing in the boot assembly.	b1. Replace the bearing, if necessary. b2. Make sure the auger was stretched properly.
	c. Check to see if the auger was incorrectly stretched.	c. Refer to assembly and installation section *on Page 54* of this manual.
	d. Check for any obstruction(s) in the auger.	d. Remove any obstruction(s) in the boot and/or line.
6. The feeder is extra noisy and/or there is excessive wear.	a. Check to see if the auger is bent.	a. Remove the auger, find the kink and straighten it. Refer to assembly and installation section on *Pages 55-56* of this manual.
	b. Check for any bad weld(s) in the auger.	b. File any bad weld(s) smooth.
	c. Check for any distortions or bends in the auger tube.	c. Remove and replace the auger tube.
7. There is not enough feed moving to the pans.	a. Check to see if the feed is bridged in the hopper or the boot.	a. Install an agitator ball.
	b. Check to see that the boot idler shaft is the proper length.	b. Cut the shaft to a shorter length for more feed. Do not shorten the shaft more than 1" (2.54 cm) from the boot sidewall.
	c. Check to see if the fill system feed level control switch is out of adjustment or defective.	c. Adjust the feed level control switch for the proper operation.

Rooster/Power Winch Wiring Diagram



NOTES

GSI Group, LLC Limited Warranty

The GSI Group, LLC ("GSI") warrants products which it manufactures to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months after sale to the original end-user or if a foreign sale, 14 months from arrival at port of discharge, whichever is earlier. The end-user's sole remedy (and GSI's only obligation) is to repair or replace, at GSI's option and expense, products that in GSI's judgment, contain a material defect in materials or workmanship. Expenses incurred by or on behalf of the end-user without prior written authorization from the GSI Warranty Group shall be the sole responsibility of the end-user.

Warranty Extensions:

The Limited Warranty period is extended for the following products:

	Product	Warranty Period
AP Fans and Flooring	Performer Series Direct Drive Fan Motor	3 Years
	All Fiberglass Housings	Lifetime
	All Fiberglass Propellers	Lifetime
Cumberland Feeding/Watering Systems	Feeder System Pan Assemblies	5 Years **
	Feed Tubes (1-3/4" and 2.00")	10 Years *
	Centerless Augers	10 Years *
	Watering Nipples	10 Years *
Grain Systems	Grain Bin Structural Design	5 Years
Grain Systems Farm Fans Zimmerman	Portable and Tower Dryers	2 Years
	Portable and Tower Dryer Frames and Internal Infrastructure †	5 Years

* Warranty prorated from list price:
0 to 3 years - no cost to end-user
3 to 5 years - end-user pays 25%
5 to 7 years - end-user pays 50%
7 to 10 years - end-user pays 75%

** Warranty prorated from list price:
0 to 3 years - no cost to end-user
3 to 5 years - end-user pays 50%

† Motors, burner components and moving parts not included. Portable dryer screens included. Tower dryer screens not included.

GSI further warrants that the portable and tower dryer frame and basket, excluding all auger and auger drive components, shall be free from defects in materials for a period of time beginning on the twelfth (12^{th}) month from the date of purchase and continuing until the sixtieth (60^{th}) month from the date of purchase (extended warranty period). During the extended warranty period, GSI will replace the frame or basket components that prove to be defective under normal conditions of use without charge, excluding the labor, transportation, and/or shipping costs incurred in the performance of this extended warranty.

Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH ABOVE. SPECIFICALLY, GSI MAKES NO FURTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (I) PRODUCT MANUFACTURED OR SOLD BY GSI OR (II) ANY ADVICE, INSTRUCTION, RECOMMENDATION OR SUGGESTION PROVIDED BY AN AGENT, REPRESENTATIVE OR EMPLOYEE OF GSI REGARDING OR RELATED TO THE CONFIGURATION, INSTALLATION, LAYOUT, SUITABILITY FOR A PARTICULAR PURPOSE, OR DESIGN OF SUCH PRODUCTS.

GSI shall not be liable for any direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. The sole and exclusive remedy is set forth in the Limited Warranty, which shall not exceed the amount paid for the product purchased. This warranty is not transferable and applies only to the original end-user. GSI shall have no obligation or responsibility for any representations or warranties made by or on behalf of any dealer, agent or distributor.

GSI assumes no responsibility for claims resulting from construction defects or unauthorized modifications to products which it manufactured. Modifications to products not specifically delineated in the manual accompanying the equipment at initial sale will void the Limited Warranty.

This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained. This Limited Warranty extends solely to products manufactured by GSI.

Prior to installation, the end-user has the responsibility to comply with federal, state and local codes which apply to the location and installation of products manufactured or sold by GSI.

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This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

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