

Installation and Operation of Accu-Drop Feed Dispenser

Owner's Manual

PNEG-615

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BY THE
GSI GROUP



PNEG-615

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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.



WARNING! BE ALERT!

Personnel operating or working around electric fans should read this manual. This manual must be delivered with the equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.

General Safety Statement

Our foremost concern is your safety and the safety of others associated with grain handling equipment. This manual is to help you understand safe operating procedures and some problems which may be encountered by the operator and other personnel.

As owner and/or operator, you are responsible to know what requirements, hazards, and precautions exist and 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, which may produce a very dangerous situation, where SERIOUS INJURY or DEATH may occur.

GSI Group recommends contacting the local power company and having a representative review the installation so that wiring will be compatible with their system and to ensure that adequate power will be supplied to the unit.

This product is intended for the use of feeding only. Any other use is a misuse of the product.



This product is used with rotating disks and augers. Serious injury may occur. Use precaution when operating or working on this product.

The [Figure 1A](#), [Figure 1B](#) and [Figure 1C](#) shows the location of decals for this equipment. If a decal has been damaged or is missing, contact GSI Group for a free replacement.

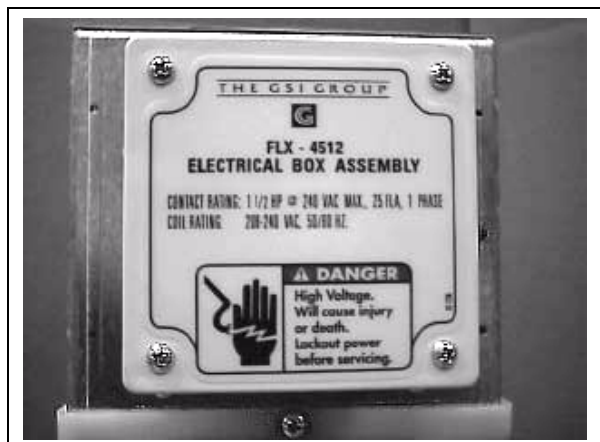


Figure 1A



Figure 1B



Figure 1C

2. Introduction

Using the Manual

Read the entire manual prior to attempting any work on the equipment. This installation/owner's manual is to be used as a guide for the installation of the Accu-Drop Feed Dispenser System. All instructions should be construed as recommendations only, as the actual installation may vary according to local conditions. Wiring diagrams can be found in this manual. (See Page 19.) Instructions presented in this manual should only be carried out by a trained technician. It is essential that the technician have a sound understanding of technical matters and drawings in both mechanical and electrical areas.

Background

The Accu-Drop Feed Dispenser System is specifically designed to hold and deliver feed to gestating sows within a swine facility. The capacity of each feed dispenser is 1 to 12 pounds. Capacity is based on a feed density of 40 lbs/ft³. The delivery of feed can be controlled manually or automatically with the use of winches, trip levers, actuators, control units, timers, and sensors.

Application

Typical Accu-Drop Feed Dispenser applications are shown as follows:

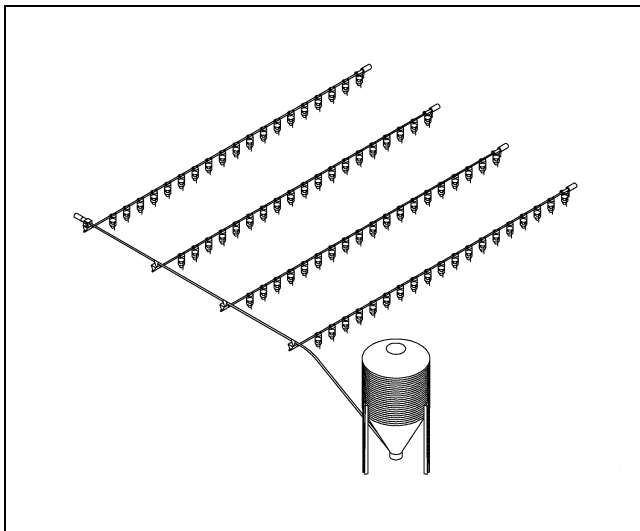


Figure 2A Flex-Flo Application

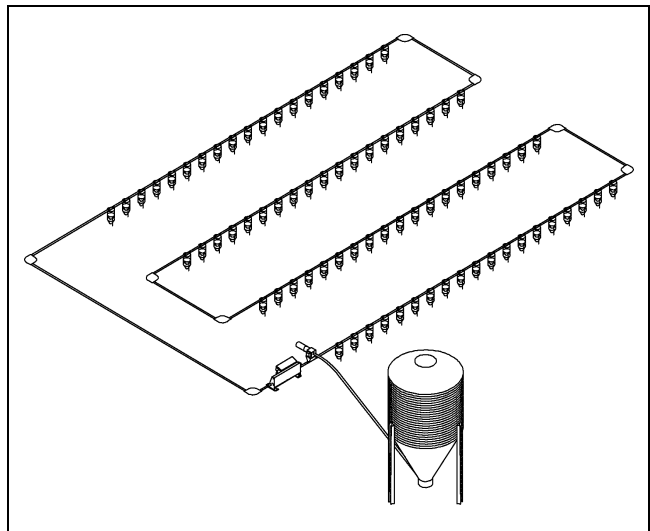


Figure 2B Chain Disk Application

In Flex-Flo applications, an Accu-Drop control unit with a proximity switch must be installed at the end of the line to turn the system ON and OFF. The control unit is designed to allow total drop-out of feed, thus preventing the build up of feed at the end of the line. (See Figure 2A.)

In chain disk applications, a proximity switch is installed in the last Accu-Drop in the system, and is used to turn the system ON and OFF. (See Figure 2B.)

Specifications

Capacity	The capacity of the Accu-Drop Feed Dispenser is 1 to 12 pounds. Capacity is based on a feed density of 40 lbs/ft ³ .
Models	This Accu-Drop is available in three (3) models: Model 300, 236 and 220, with fitting tubing with outside dimensions of 3.0", 2.36" and 2.2" respectively.
Dimensions	The main body had an outside diameter of 8.0". The overall height ranges from 19.8" (Model 300) to 19.5" (Model 220). The installed height from the bottom of the system tubing to the bottom of the feed dispenser is 18.3".
Materials	The Accu-Drop Feed Dispenser has been designed with the following materials: <ul style="list-style-type: none"> - Body: Transparent PVC - Other plastic parts: Polypropylene - Hardware: Stainless steel (Exceptions include a nylon pulley, aluminum cable stops and a zinc-plated weight.)
Adjustment Method	The Accu-Drop Feed Dispenser capacity can be adjusted by using the cup inside of it.
Feed Drop Method	To release the feed from the Accu-Drop a ball is pulled vertically by a cable, which uncovers the hole in the bottom of the cup.

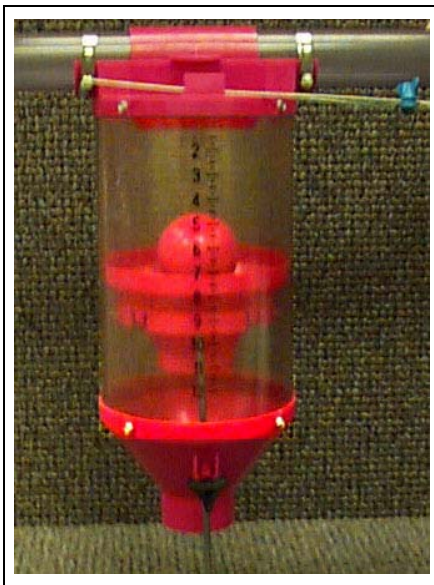


Figure 2C

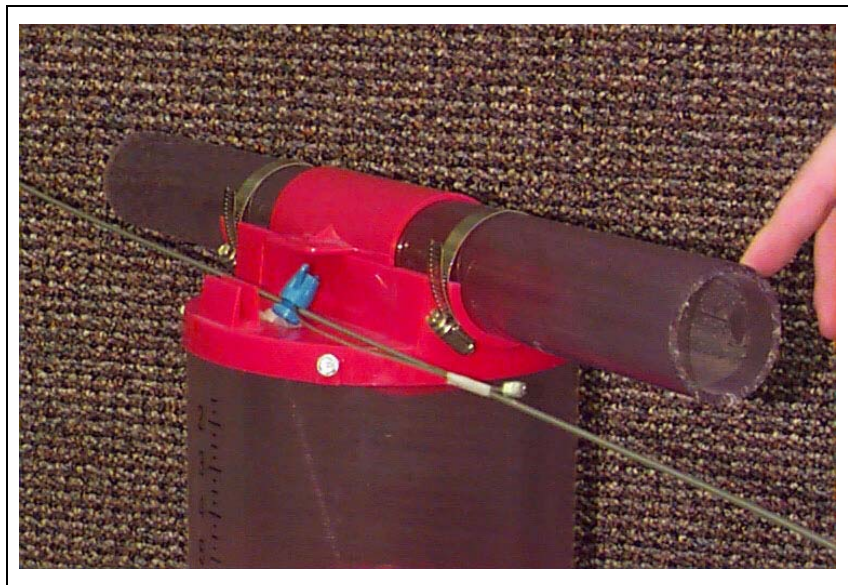


Figure 2D

Figure 2C and *Figure 2D*: Accu-Drop Feed Dispenser feed drop method.

Figure 2C shows the ball and cup. When the ball is pulled out of the hole, feed flows freely.

Figure 2D shows the cable being pulled to release feed.

3. Installation

Installation of Drop Tubes

The most common drop tube combination is to use the adjustable drop tube (AP-0474 or AP-0475) attached to a built-in drop tube on the gestation stall. (See Figure 3A.) The adjustable drop tube simply slips over the end of the built-in drop tube. There are many other possible combinations that also use one or more of the drop tubes listed in the table of optional equipment.



With any combination of drop tubes, the Accu-Drop must NOT be supported by or rigidly connected to the gestation stall.

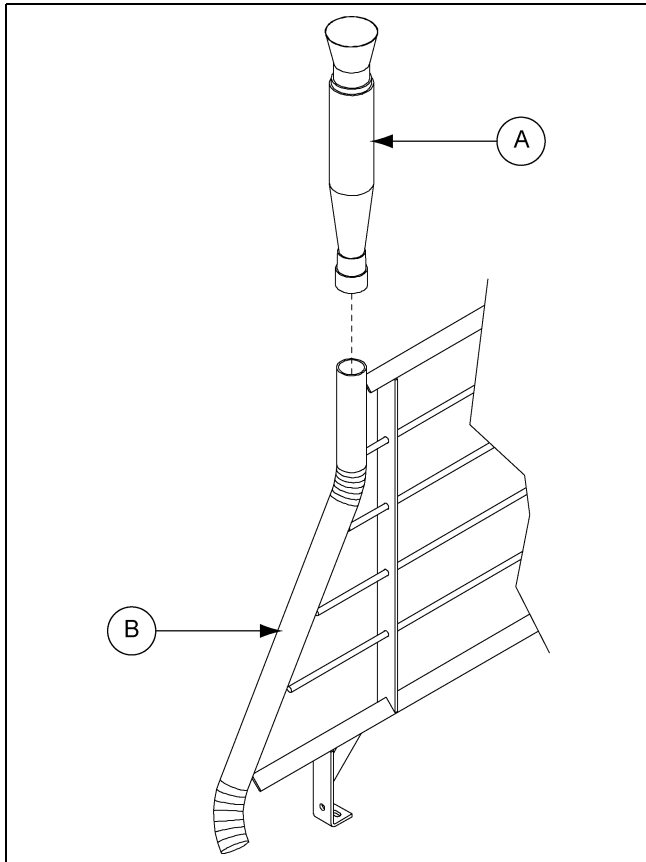


Figure 3A Adjustable Drop Tube Installation

Ref #	Description
A	Adjustable Drop Tube
B	Built-In Drop Tube

Tubing Installation

Laying Out the Tubing

Refer to the chain disk feed system manual on how to layout the tubing for each respective system. These manuals also explain how to glue sections of tubing together.

Suggestion: To reduce the amount of work required when installing the feed dispenser, slide the hose clamps (provided with feed dispensers) over the tubing at each spot where there is to be a dispenser at the same time the tubing is laid out.

Tubing Installation (Continued)

Cutting Outlet Holes

With the sections of tubing still laid out and the placement of the Accu-Drops already established, the mark each tube with the desired location of each Accu-Drop. **NOTE:** *It is important to mark the tubing in advance to ensure that the holes remain aligned, even if the tubes rotate as the holes are being cut.* Once the tubes are marked, cut the holes for the feed dispenser as shown in [Figure 3B](#) and [Figure 3C](#). When carry-over is acceptable, drill one hole ([See Figure 3B](#)) using a holesaw. If total drop-out is necessary, cut a hole ([See Figure 3C](#)) in the tube using a saber saw or hacksaw. In the Flex-Flo systems, the last two or three feed dispensers before the control unit should have holes cut out for total drop-out. This helps ensure that the control unit does not fill up before the system is full. Be sure to remove any burrs after cutting so that the Accu-Drop slide can be performed properly.

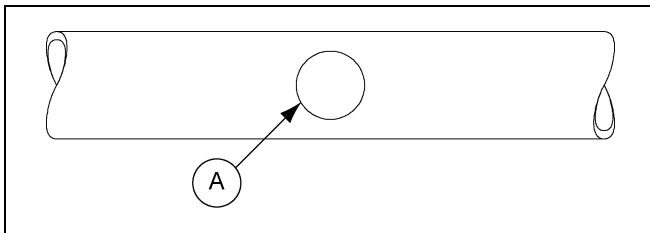


Figure 3B Outlet Hole with Carry-Over

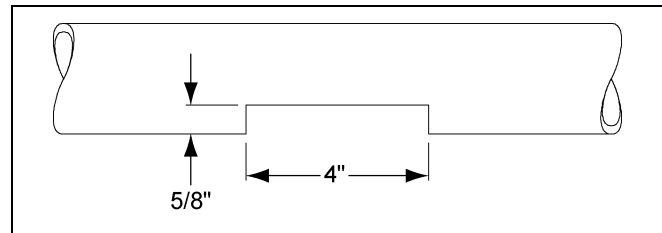


Figure 3C Outlet Hole with Total Dropout

Suspension of Tubing

Suspend the sections of tubing from the ceiling at least once every 4'. The height at which the tubing is installed must be determined based on the placement of the drop tube and the height of the Accu-Drop. The Accu-Drop measures 18.3" from the bottom of the tubing to the bottom of the Accu-Drop. [Figure 3D](#) shows a typical application using adjustable drop tubes. **Remember that the Accu-Drops must NOT be supported by or rigidly connected to the gestating stall.**

IMPORTANT: *Be sure to leave room between the tubing and the ceiling for other components such as chain disk drive units and Flex-Flo control units.* The adjustable drop tubes can be cut off if the ceiling is not high enough to accommodate everything. Chain and lag screws are provided in each suspension kit for tubing.

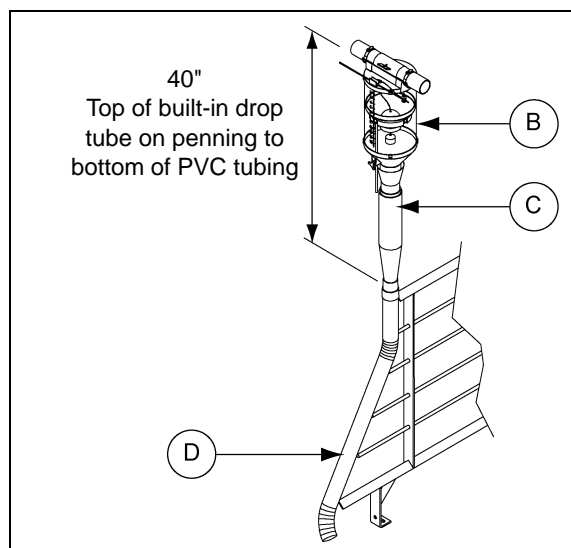


Figure 3D Suspension of Tubing

Ref #	Description
A	1-1/2" Diameter (Model 220 and Model 236) 2-1/2" Diameter (Model 300)
B	Accu-Drop
C	Adjustable Drop Tube
D	Penning with Built-In Drop Tube

3. Installation

Accu-Drop Feed Dispenser Installation

Accu-Drop Control Unit

Chain Disk Feed Systems

The next step for a chain disk system is to install the chain and disk (see the chain disk installation and operation manual) and finish connecting the sections of tubing together with couplers. The chain disk system does not require an Accu-Drop control unit. To turn the system ON and OFF, a proximity switch and/or a time clock must be used. To install a proximity switch (FLXDF-1172), drill a 1-3/6" hole in the middle of the top on the back side. (See [Figure 3E.](#)) Insert the proximity switch and secure it using two (2) nuts, one on the inside and one on the outside of the top. Position the switch so that it extends into the feed dispenser 2-3/4".

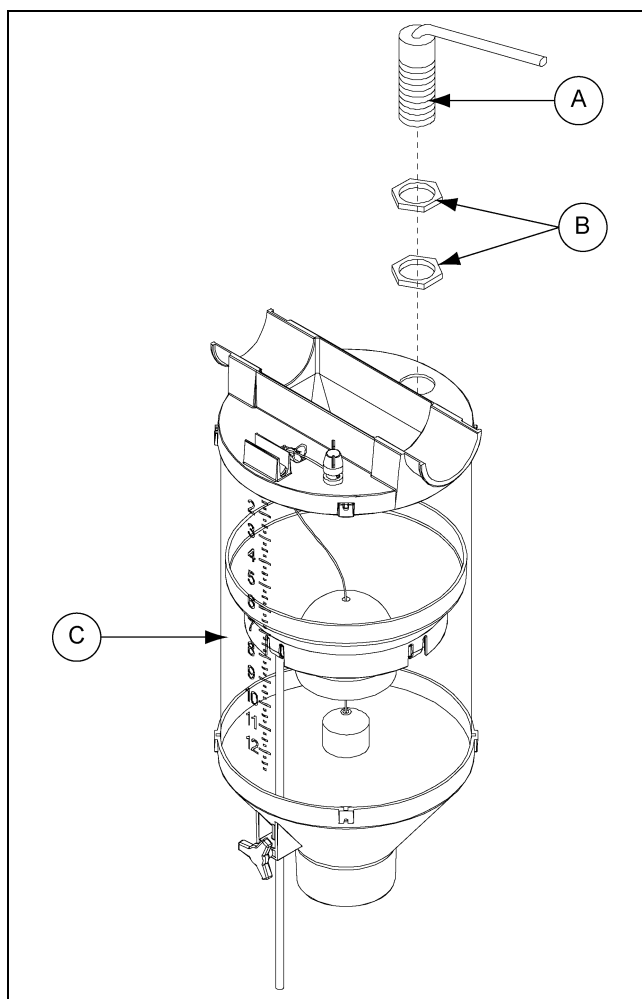


Figure 3E Proximity Switch Installation

Ref #	Description
A	Proximity Switch
B	Nuts
C	Accu-Drop Feed Dispenser

Accu-Drop Feed Dispenser Installation (Continued)

Flex-Flo Feed Systems

The installation of the control unit varies slightly depending on whether it is a Model 220 or a Model 300 system.

Model 220

1. Bolt the Accu-Drop control unit to the Model 220 tube anchor plate weldment using four (4) 5/16" x 3/4" bolts, 5/16" washers and 5/16" nuts. (See Figure 3F.)

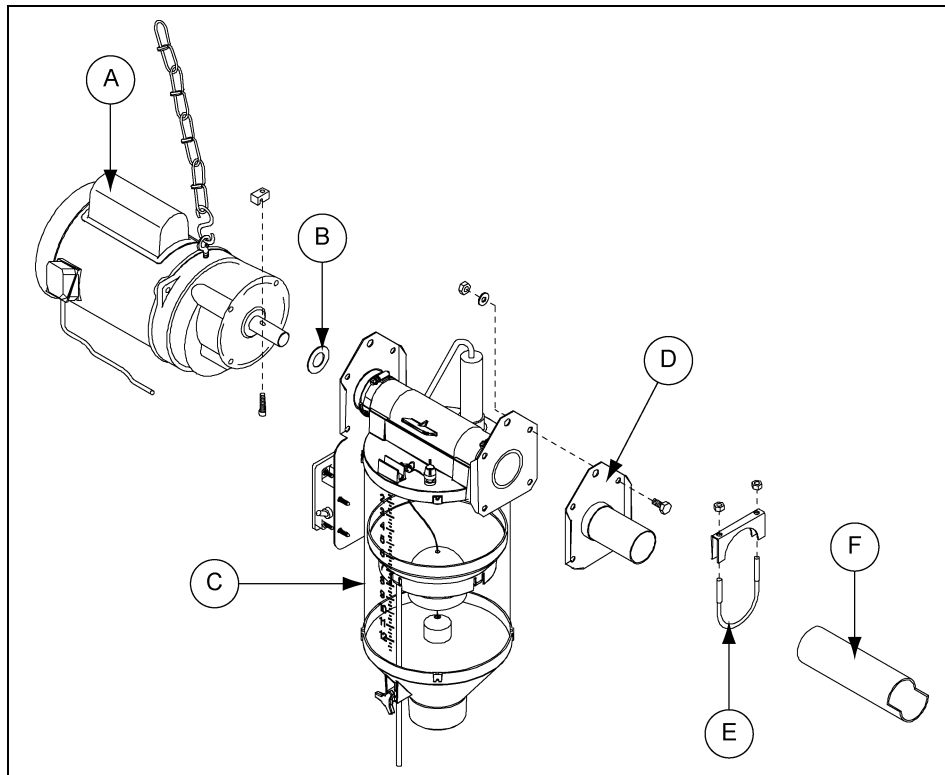


Figure 3F Control Unit with Model 220 Tubing

Ref #	Description
A	Flex-Flo Power Unit
B	Anchor Washer
C	Accu-Drop Control Unit

Ref #	Description
D	Tube Anchor Plate
E	U-Bolt with Saddle
F	Model 220 Tubing

2. Slide end of straight section of Model 220 tubing over the tube anchor plate weldment and secure using 5/16" x 2-1/4" U-bolt with saddle.
3. Slide the anchor washer over the output shaft on the Flex-Flo power unit.
4. Install auger through the Flex-Flo tubing and fasten to the output shaft on the power unit using the auger lock and 1/4" x 1-1/4" socket head cap screw.
5. Connect the power unit to the Accu-Drop control using hardware provided with the power unit.
6. Support the power unit and Accu-Drop control unit with the chain and lag screws provided.

3. Installation

Accu-Drop Feed Dispenser Installation (Continued)

Model 300

1. Bolt the Accu-Drop control unit to the Model 300 tube anchor plate weldment using four (4) 5/16" x 3/4" bolts, 5/16" washers and 5/16" nuts. (See Figure 3G.)

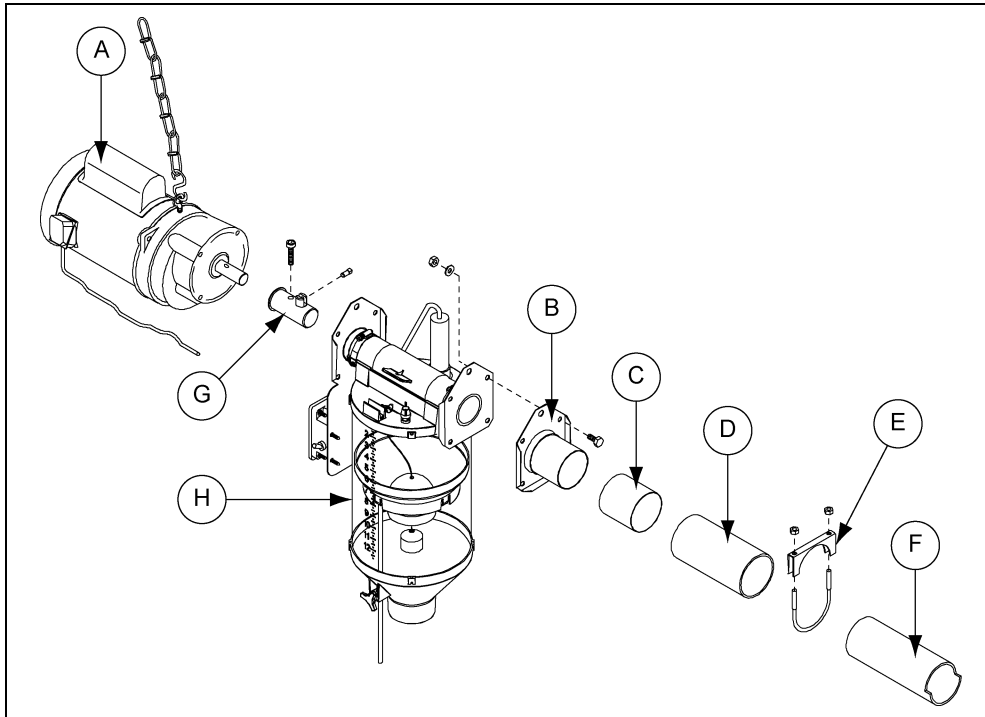


Figure 3G Control Unit with Model 300 Tubing

Ref #	Description
A	Flex-Flo Power Unit
B	Tube Anchor Plate
C	Spacer
D	Coupler

Ref #	Description
E	U-Bolt with Saddle
F	Model 300 Tubing
G	Spindle
H	Accu-Drop Feed Dispenser

2. Slide the tube spacer over the end of the tube anchor plate weldment.
3. Glue coupler on end of straight section of Model 300 tubing.
4. Connect coupler and tubing to the tube anchor plate weldment using 3/8" x 3" U-bolt with saddle.
5. Slip the clamp pin into the hole in spindle and slide the spindle over output shaft on the power unit. Secure using a 5/16" x 1/2" square head cap screw.
6. Install auger through the Flex-Flo tubing and fasten to the output shaft on the power unit using a 5/16" x 1/2" square head set screw.
7. Connect the power unit to the Accu-Drop control unit using hardware that is provided with the power unit.
8. Support the power unit and Accu-Drop control with a chain and lag screws provided.

Accu-Drop Feed Dispenser Installation (Continued)

Standard Accu-Drop

1. If not already done, slide hose clamps over tubing and *(See Laying Out the Tubing Section on Page 8)* take apart each hose clamp. Place it over the tubing and put it back together loosely. *(See Figure 3H and Figure 3I.)*
2. Hold the Accu-Drop up next to the tubing, making sure the hole in the tubing is in the center of the Accu-Drop. *(See Figure 3J.)* Slide the hose clamps into the groove on each side of the top of the Accu-Drop and tighten.
3. Snap the slide over the top of the tubing and make sure it can be rotated back and forth.

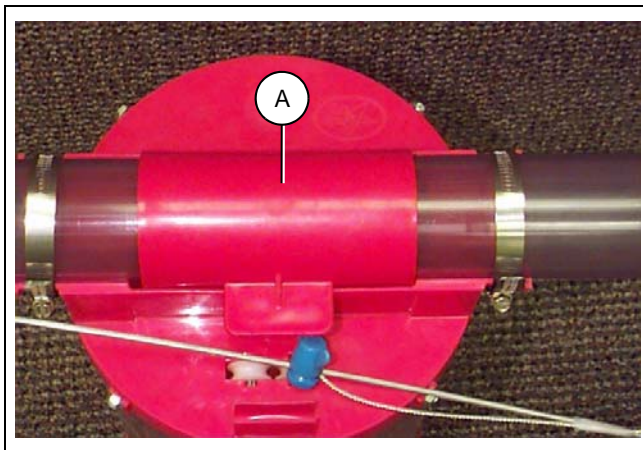


Figure 3H Slide Open to Let Feed Flow

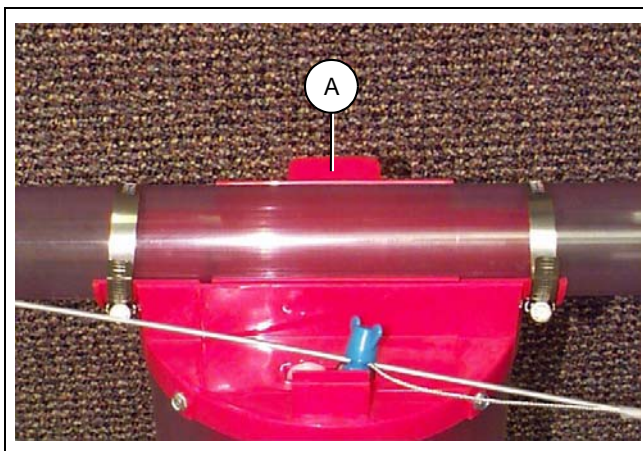


Figure 3I Slide Closed to Cover Outlet Hole

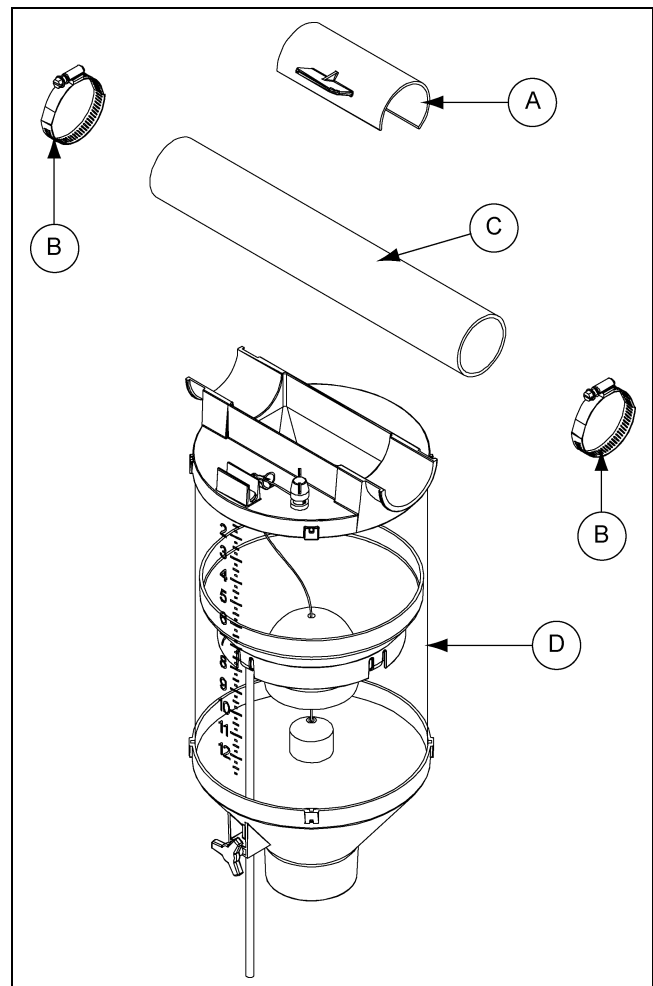


Figure 3J Accu-Drop Installation

Ref #	Description
A	Slide
B	Hose Clamps
C	Tubing
D	Accu-Drop Feed Dispenser

3. Installation

Installation of Trip System



To minimize stretch in the trip system, use rod for all straight sections and use cable only when going around pulleys. Also, limit each run to 200' and 100 Accu-Drops.

Rod Suspension

1. Unroll the bundle of rod. **NOTE:** Use care. The rod was torsion straightened before rolled and therefore will have a tendency to unroll once the packaging bands are broken.
2. Hang rod on top of Accu-Drops by placing it inside of the rod guide located on the top front side of the Accu-Drop. Drill a screw through the guide to hold the rod in place on every fourth or fifth Accu-Drop (screw is not provided). (See Figure 3K.)

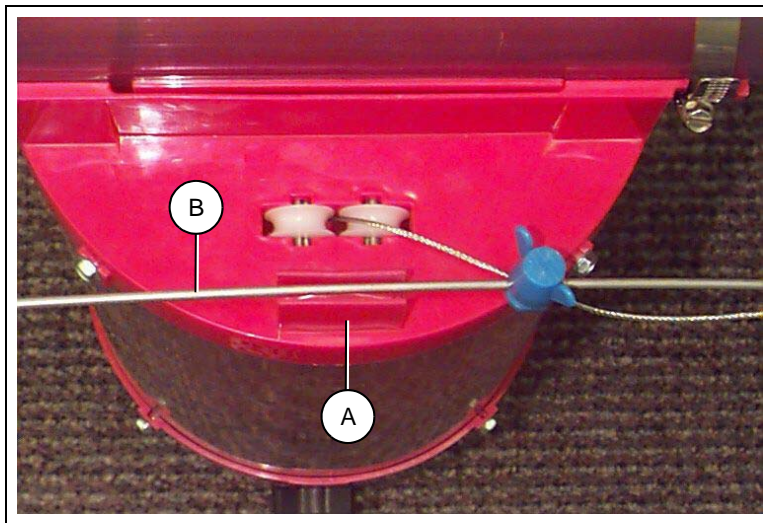


Figure 3K Rod and Rod Guide

Ref #	Description
A	Rod Guide
B	Rod

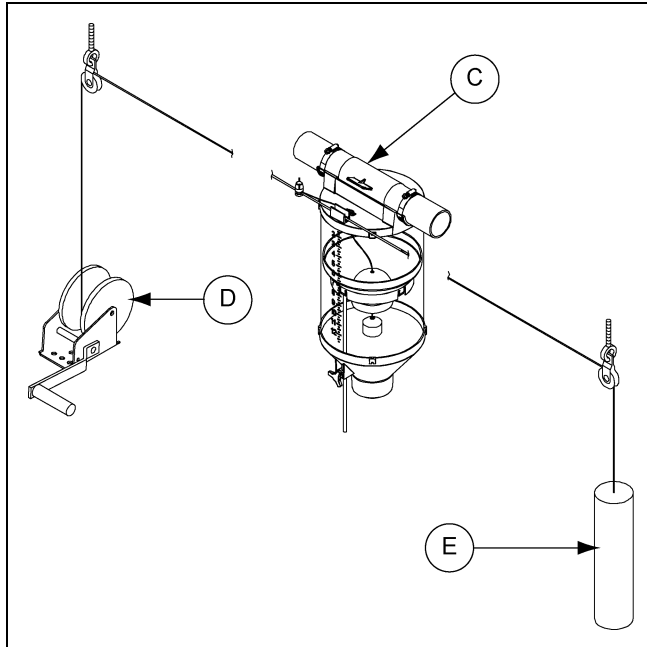
Installation of Trip Actuator

There are several actuators to choose from and many different configurations in which they can be used. These are the actuators available from the manufacturer and the maximum number of Accu-Drops for each actuator.

Automatic Actuator	Maximum of 300 Accu-Drops
Split Drum Winch	Maximum of 200 Accu-Drops
Shelby Winch	Maximum of 150 Accu-Drops
Trip Lever	Maximum of 30 Accu-Drops

Installation of Trip System (Continued)

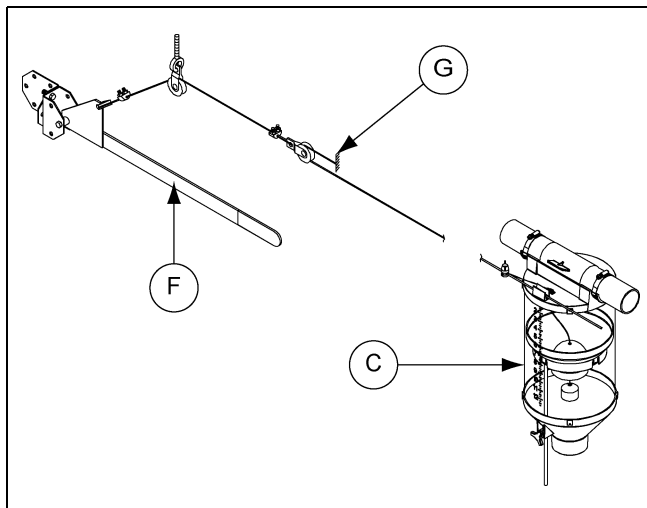
Figure 3L shows a typical application using a shelby winch mounted to the end wall. An automatic actuator or a split drum winch could also be used in a setup such as this.



Ref #	Description
C	Accu-Drop
D	Shelby Winch
E	Counterweight

Figure 3L Trip System with Shelby Winch

If a trip lever is used, it should be installed as shown in Figure 3M. The Accu-Drops need about 12" of travel from the trip system and with this configuration the rod cable assembly running across the top of the Accu-Drops will travel twice as far as the cable connected to the trip lever.



Ref #	Description
C	Accu-Drop
F	Trip Lever
G	Stationary Connection

Figure 3M Trip System with Trip Lever

Installation of Trip System (Continued)

Cable and Rod Connections

It is very important to make sure all connections are secure. [Figure 3N](#) shows the correct way to make a cable-to-cable or a cable-to-rod connection. When making a loop at the end of a rod, use something round like a screw driver to help form the radius of the loop. [Figure 3O](#) shows the correct way to make a rod-to-rod connection to ensure there is no slipping.

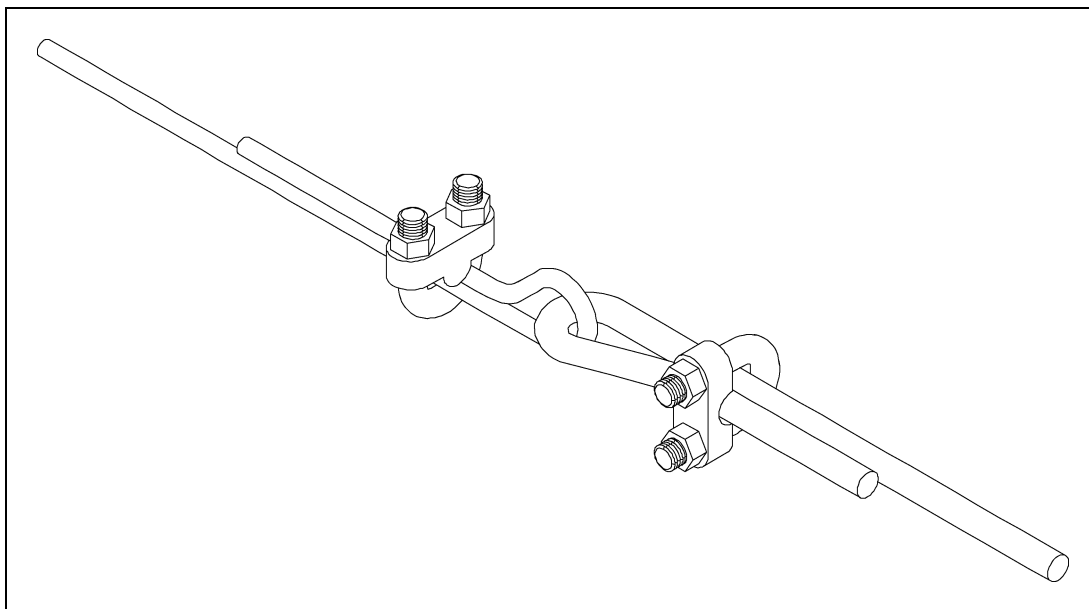


Figure 3N Cable-to-Cable or Cable-to-Rod Connections

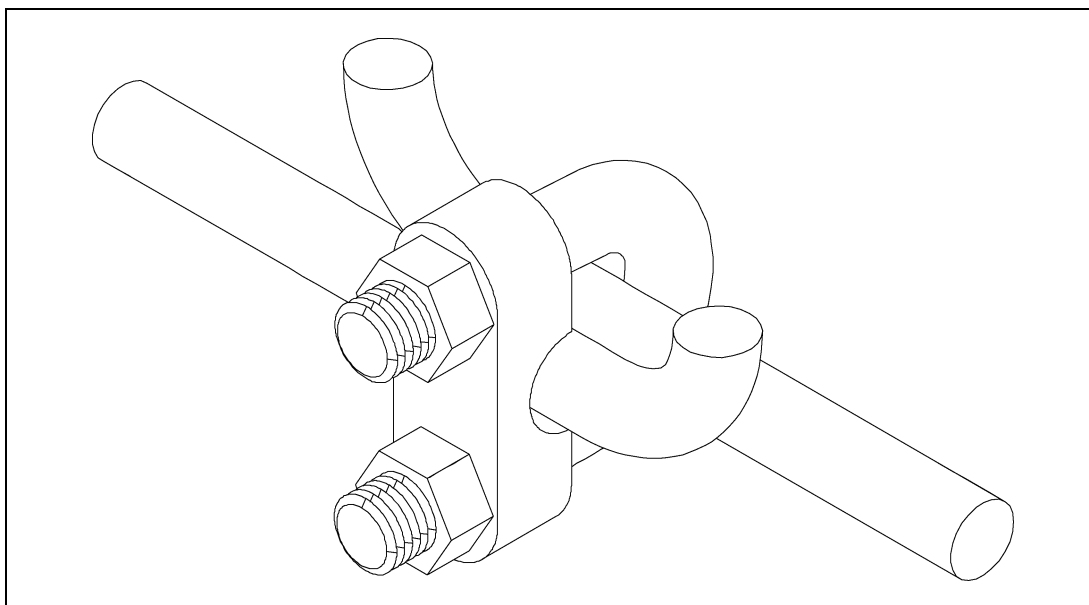
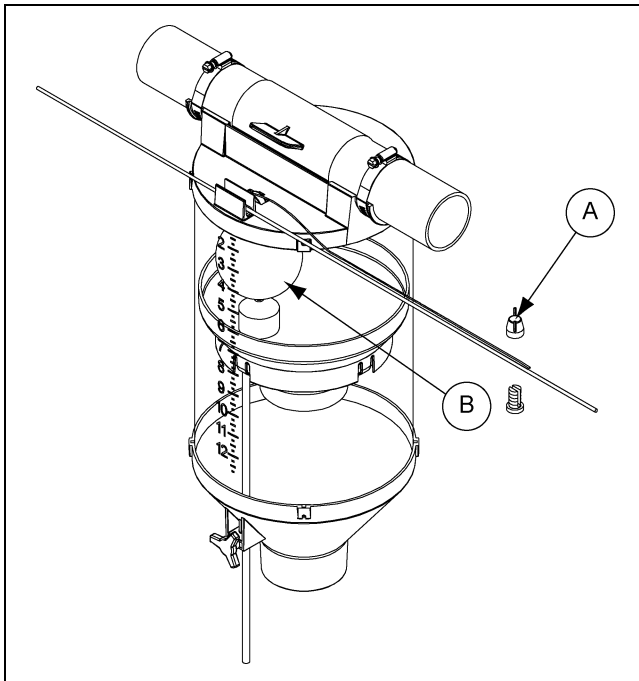


Figure 3O Rod-to-Rod Connections

Connection and Initial Adjustment of Ball Assemblies

1. Position the actuator and trip system so that it is in the pulled position. A few of the actuators may need to be tied or blocked to stay pulled.
2. Starting with the Accu-Drop closest to the actuator, pull the ball and weight assembly until they hit the top of the Accu-Drop. *(See Figure 3P.)*
3. Connect the cable to the rod using the plastic cable clamp. *(See Figure 3Q.)*



Ref #	Description
A	Plastic Cable Clamp
B	Ball and Weight Assembly

Figure 3P Connection of Ball and Weight Assembly

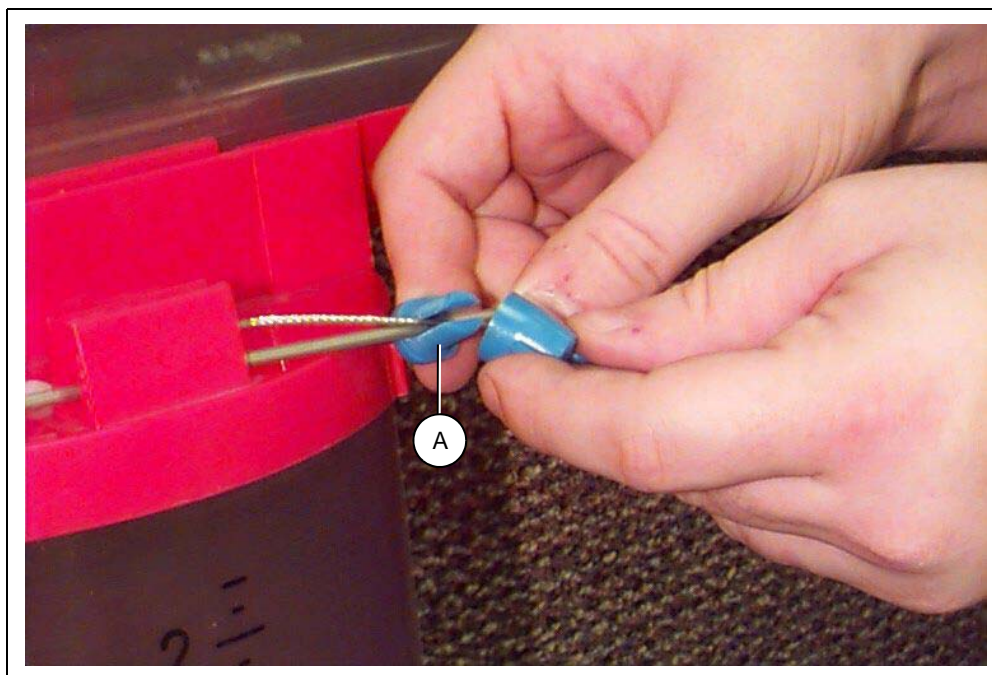


Figure 3Q Plastic Cable Clamp

Wiring Instructions

Warning

1. Disconnect all electrical power before inspecting or servicing equipment unless maintenance instructions specifically state otherwise.
2. Keep hands and tools away from exposed chain disks or auger.
3. Do not operate equipment without covers and guards properly positioned. Failure to do so may cause personal injury or damage to the equipment.

Safety Regulations

1. All wiring should be done by a qualified electrician in accordance with local and National Electrical Codes.
2. Ground all electrical equipment for safety.
3. Use proper size wire according to the National Electric Codes or other applicable regulations to wire all systems.

Accu-Drop Feed Dispenser Control Unit

110 Volt P/N AP-1263 and 220 Volt P/N AP1262

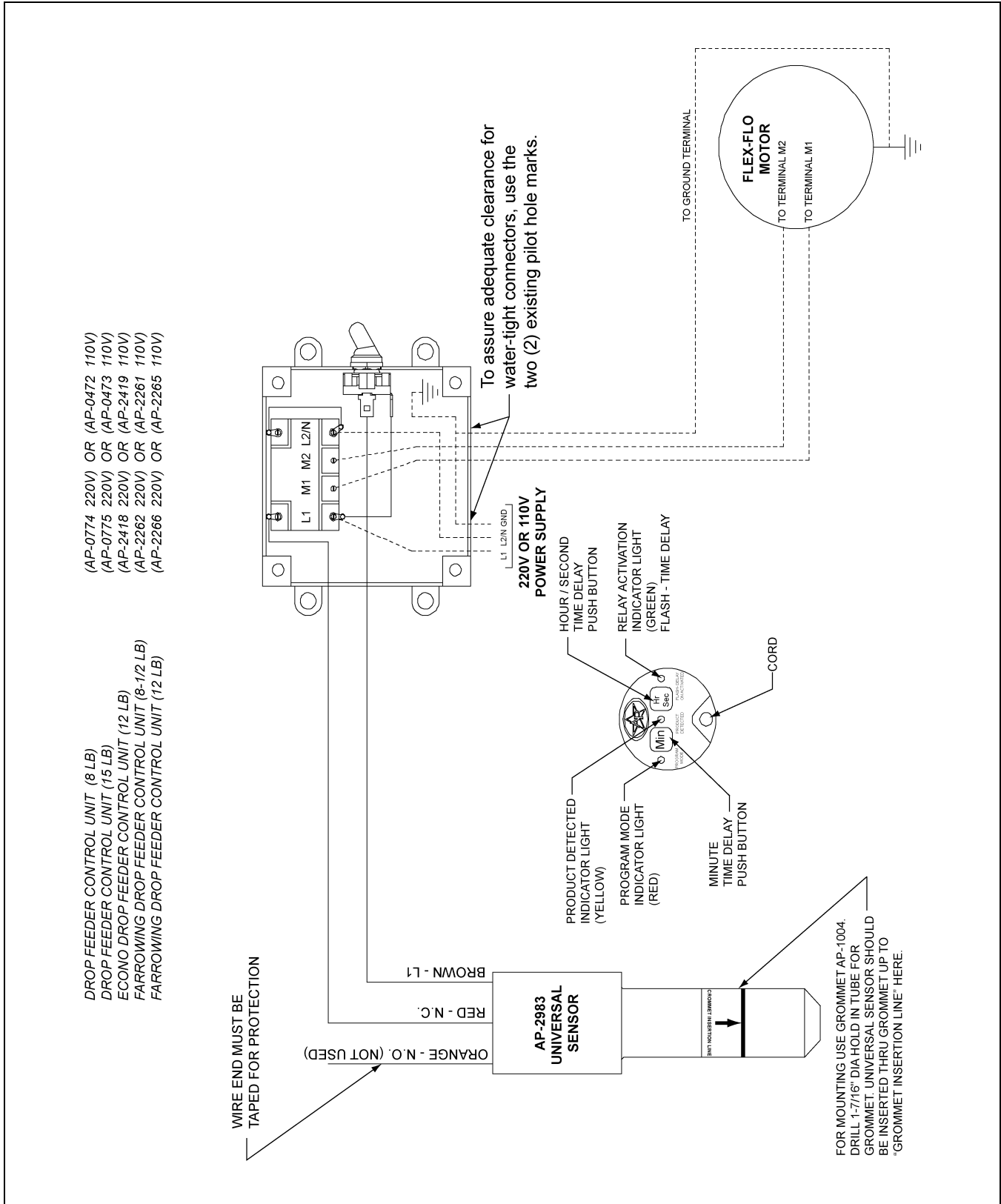


Figure 4A

5. Start-Up

Initial Start-Up

Test Control Switches

1. Test the toggle switch, on the electrical box and on the Accu-Drop control unit. When the switch is turned to ON, the motor should turn ON. If the motor does not turn ON, [Refer to the Troubleshooting Guide on Page 28](#) of the feed system manual.
2. Test the proximity switch by placing the hand in front of it while the motor is running. If the motor does not stop, [Refer to the Troubleshooting Guide on Page 28](#) or to the instruction sheet for the proximity switch.

Test Operation of Actuator

Refer to the installation and operation manual for the actuator on how to start it up.

Maintenance

Ball Assembly Adjustment

After the ball assemblies have been pulled a few times, the cable/rod connections and the rod itself may stretch slightly. To ensure that all the balls are raised high enough to release the feed, some ball assemblies may need to be re-adjusted, particularly those toward the end of the trip system.

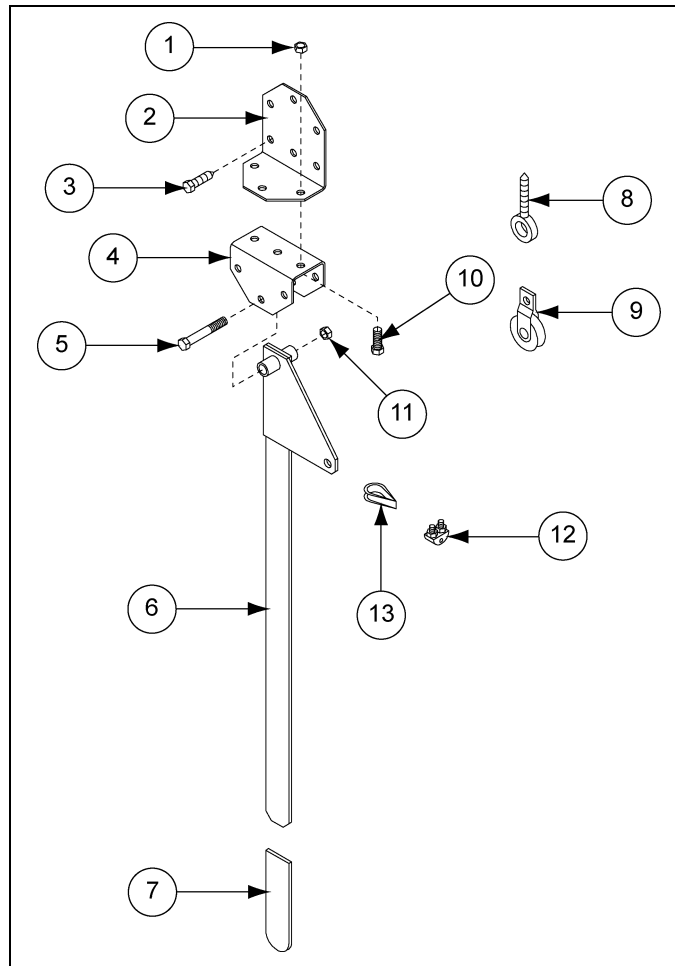
Connections and Pulleys Inspection

Check all connections once a month to make sure they are not slipping and causing the trip system not to work properly. Also check to make sure all pulleys stay properly secured and that they are free to rotate.

Actuator

Refer to the actuator operations manual for the proper maintenance required on the actuator.

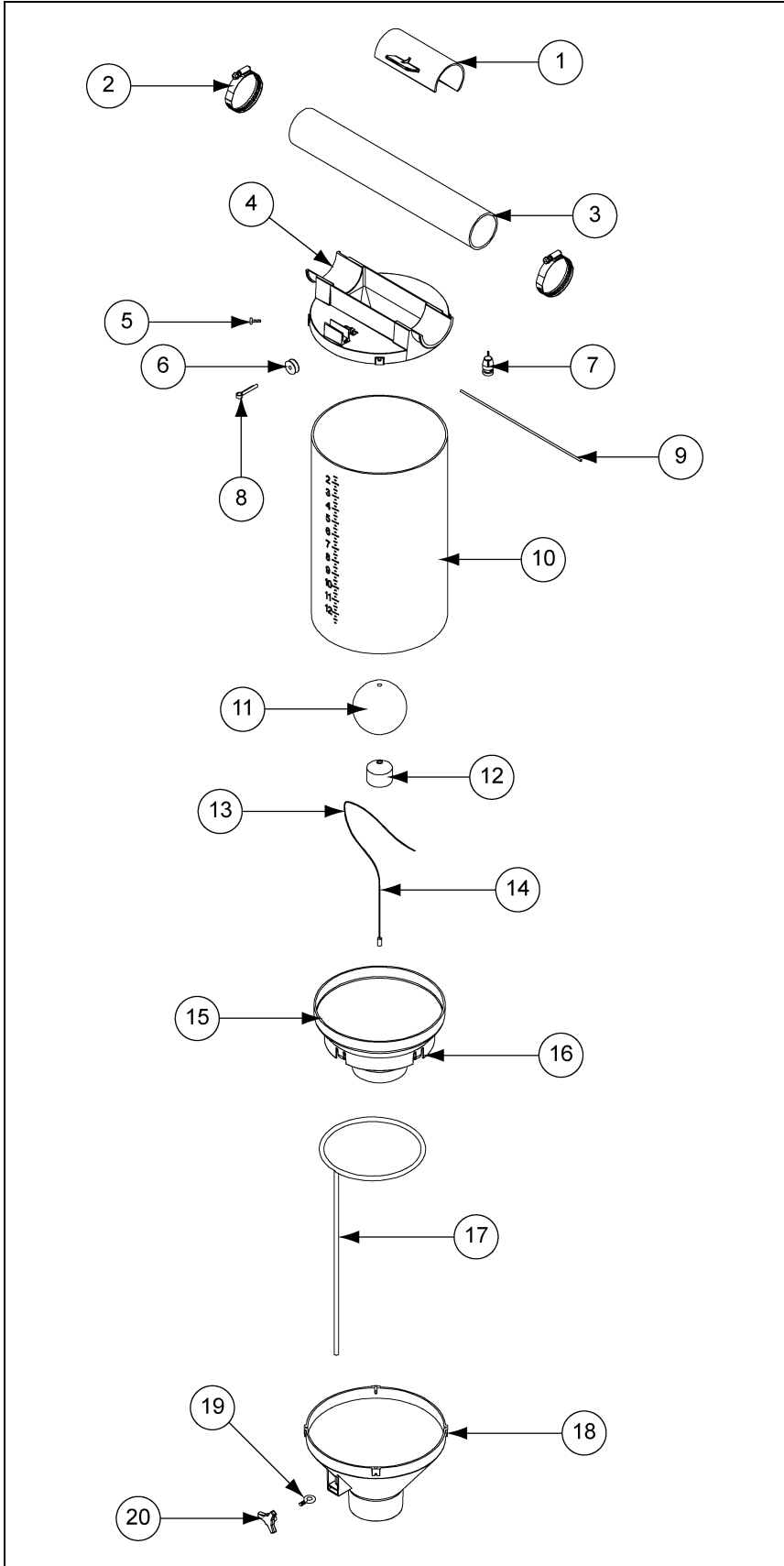
Manual Trip Level (FLXDF-1027)



Manual Trip Level (FLXDF-1027) Parts List

Ref #	Part #	Description	Qty
1	S-456	Hex Nut 3/8"-16 YDP Grade 5	2
2	FLXDF-1054	Angle Bracket	1
3	S-2313	3/8" x 1-1/2" Hex Head Lag Screw	2
4	FLXDF-1053	Channel Bracket	1
5	S-6762	Bolt, HHCS 3/8"-16 x 2-1/2" ZN Grade 5	1
6	FLXDF-1056	Trip Lever Weldment	1
7	FLXDF-1193	Cover, 0.188" x 1-1/2" x 5-1/4" Plastic Grip	1
8	S-6438	Screw, Eye 5/16" x 4" Overall Length ZN	3
9	7100512	Pulley, 1-7/8" White Nylon with Steel Straps	3
10	S-7927	Flange Bolt 3/8"-16 x 1" YDP Grade 8 or Grade 8.2	2
11	S-4663	Stover Nut 3/8"-16 ZN Grade 2	1
12	60041	3/16" Wire Rope Clamp	1
13	G3230A1	Cable 1/4" Zinc Plated Ferrule	1

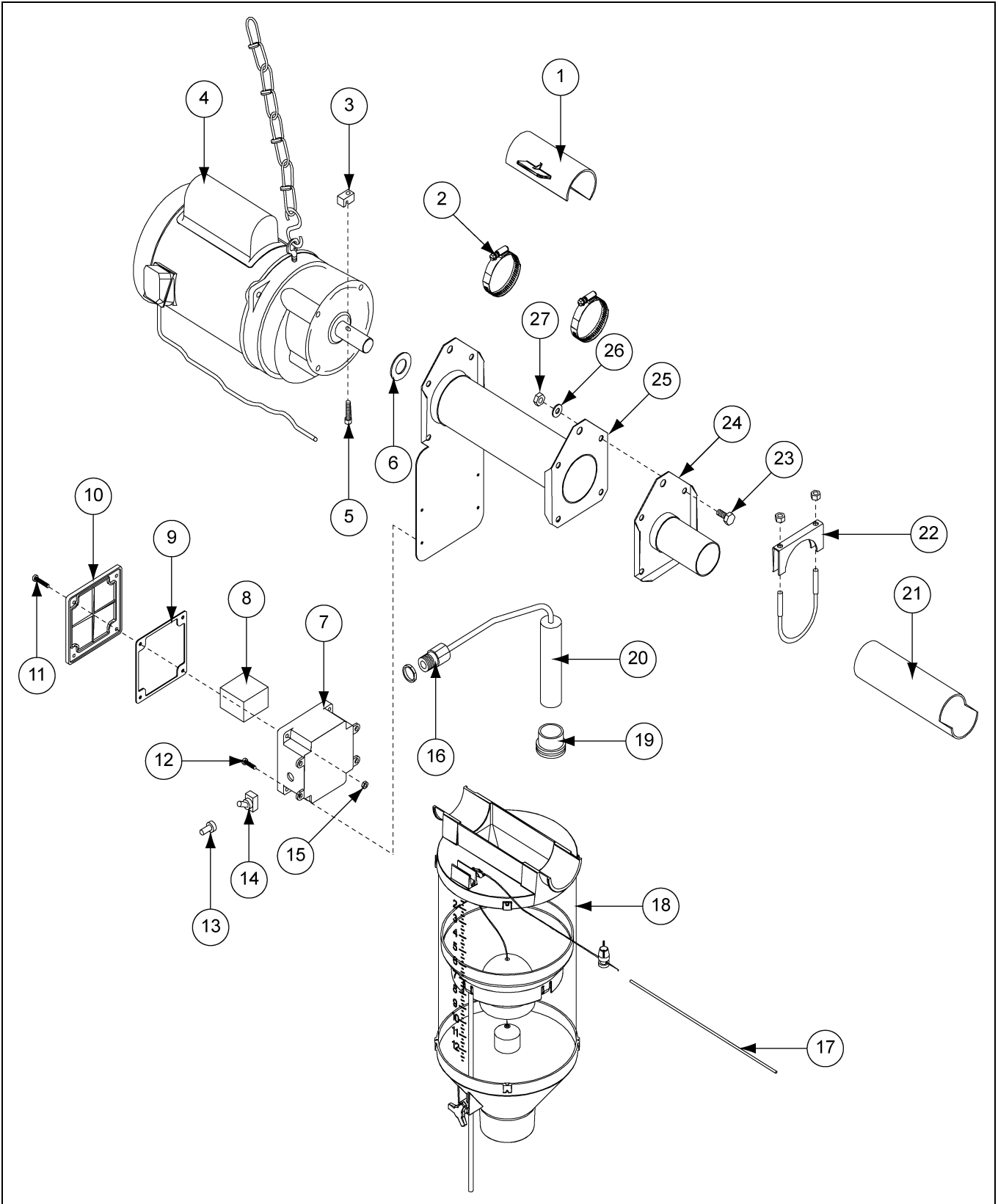
Accu-Drop Feed Dispenser



Accu-Drop Feed Dispenser Parts List

Ref #	Part #	Description	Qty
	AP-1259	Model 220 Accu-Drop Feed Dispenser	
	AP-1260	Model 236 Accu-Drop Feed Dispenser	
	AP-1261	Model 300 Accu-Drop Feed Dispenser	
	AP-1264	Model 220 Accu-Drop Feed Dispenser, Box of 50	
	AP-1265	Model 236 Accu-Drop Feed Dispenser, Box of 50	
	AP-1266	Model 300 Accu-Drop Feed Dispenser, Box of 50	
1	AP-1246	Model 220/236 Slide	1
1	AP-1247	Model 300 Slide	1
2	AP-0583	1-3/4" to 2-3/4" Stainless Steel Hose Clamp	2
2	AP-0584	2-1/4" to 4-1/4" Stainless Steel Hose Clamp	2
3	PVC-1004	Model 220 10' Straight Flex-Flo Tube	
3	PVC-1005	Model 300 10' Straight Flex-Flo Tube	
3	APCD-104	10' Clear PVC - Chain Disk Tube	
3	APCD-112	10' White PVC - Chain Disk Tube	
4	AP-1240	Model 220 Top	1
4	AP-1241	Model 236 Top	1
4	AP-1241	Model 300 Top	1
5	S-8045	Screw, SDS #10 x 3/4" HWH SS410	8
6	35-0030S	7/8" Nylon - Sheave Only Pulley	2
7	35-0018	Bolt, Plastic Azuma Nut	1
8	S-8013	3/16" x 1" Stainless Steel Cotter Pin	2
9	AP-1282	Rod, 1/8" Stainless Steel - 400' Roll	
10	AP-1245	Tube Body	1
11	AP-1248	3-3/16" Solid Ball	1
12	AP-1252	Weight	1
13	AP-1253	Harness, for Accu-Drop Feeders 24"	1
14	APCD-046	1/8" Aluminium Sleeve Cable Stop	1
15	AP-1244	Cup	1
16	S-8014	Screw, SMSAB #10 x 1/2" PHP SS	2
17	AP-1249	Cup Support Rod	1
18	AP-1243	Bottom	1
19	AP-1255	#10-32 Eye Bolt	1
20	AP-1282	1-3/4" O.D. #10-32 Female Knob	

Accu-Drop Feed Dispenser Control Unit - Model 220 Flex-Flo Tubing

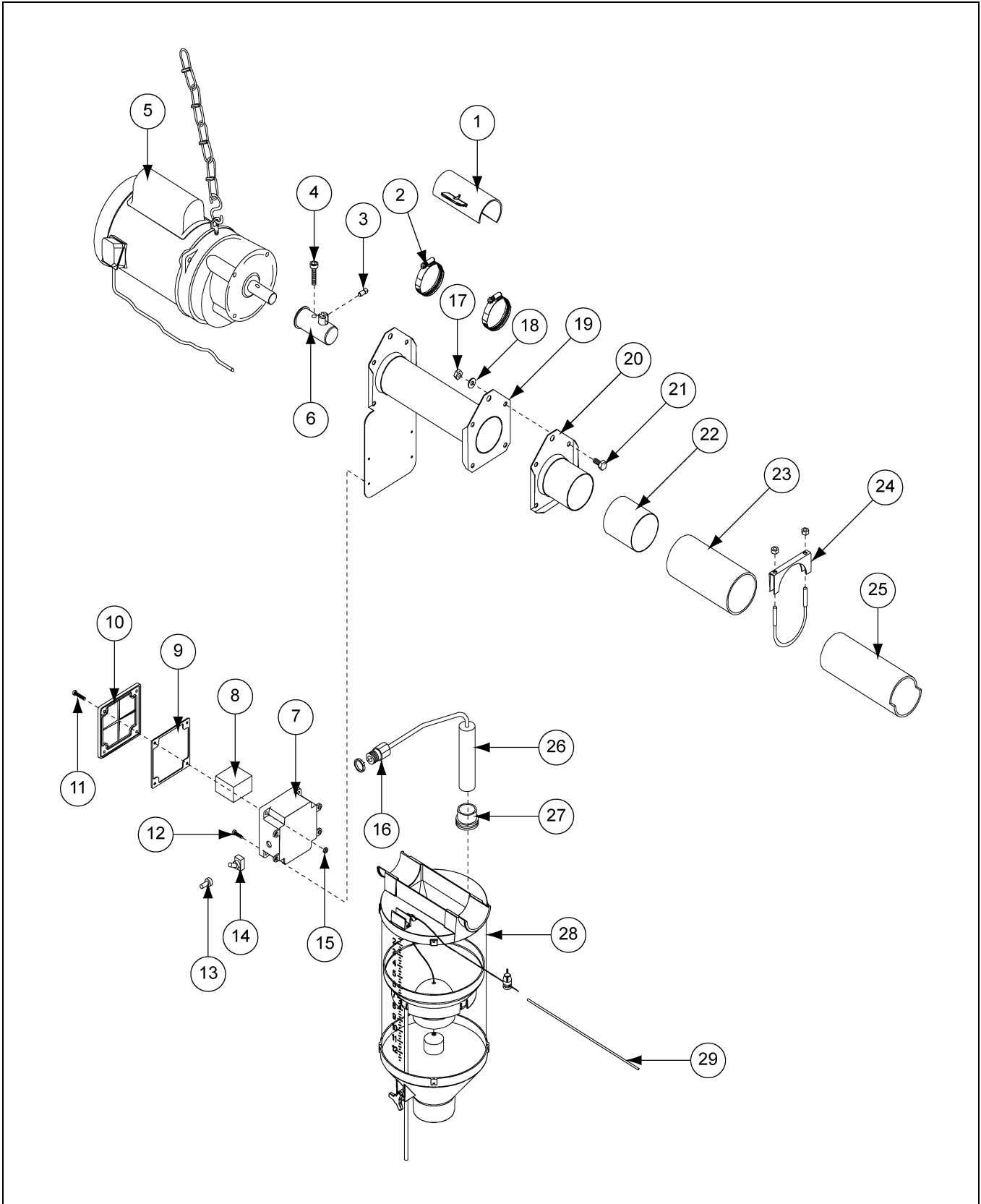


Accu-Drop Feed Dispenser Control Unit - Model 220 Flex-Flo Tubing Parts List

Ref #	Part #	Description	Qty
	AP-1262	Accu-Drop Feed Dispenser Control Unit - 220V	
	AP-1263	Accu-Drop Feed Dispenser Control Unit - 110V	
	FLX-2699	Model 220 Direct Drive Driver and Tube Anchor	
1	AP-1246	Model 220 Slide	1
2	AP-0584	2-1/4" to 4-1/4" Stainless Steel Hose Clamp	2
3	FLX-4543	Auger Lock	1
4		Flex-Flo Power Unit	1
5	S-8039	Bolt, SHCS 1/4"-20 x 1-1/4" SKT	1
6	FLX-2685	Anchor Washer	1
7	FLX-2688	Electrical Box Bottom	1
8	E260-1020	Relay, 0.2PST 25 Amp, 110V	1
8	E260-1021	Relay, 0.2PST 25 Amp, 220V	1
9	FLX-2690	Gasket, Electrical Box 4 x 4	1
10	FLX-2689	Cover, Electrical Box	1
11	S-7377	Screw, MS #10-24 x 1" RHP ZN Grade 2	1
12	S-7466	Screw, SDS #10-16 x 3/4" HWH ZN Grade 2	1
13	70-0129	Switch Weatherproof Boot	1
14	20-5060	Switch, Toggle SPST 15A with ON/OFF	1
15	S-849	Hex Nut 10-24 Grade 2	1
16	S-7906	1/2" Cord Connector	1
17	AP-1282	Rod, 1/8" Stainless Steel - 400' Roll	
18	AP-1285	Model 300 Accu-Drop Feed Dispenser w/o Hardware	1
19	AP-1004	Grommet, 36-1/2 mm x 4 mm Groove for Proximity Switch	1
20	AP-1001	Switch, Proximity 110V SKOV	1
20	AP-1002	Switch, Proximity 220V SKOV	1
21	PVC-1004	Model 220 10' Straight Flex-Flo Tube	
22	S-4490	Clamp, 2-1/4" Tube	1
23	S-4275	Bolt, HHTB 5/16"-18 x 3/4" ZN Grade 5	4
24	FLX-2316	Model 220 Tube Anchor Plate Assembly	1
25	AP-1258	Accu-Drop Feed Dispenser Adapter	1
26	S-845	Flat Washer 5/16" USS SAE YDP Grade 2	4
27	S-396	Hex Nut 5/16"-18 YDP Grade 2	4

6. Parts List

Accu-Drop Feed Dispenser Control Unit - Model 300 Flex-Flo Tubing



Accu-Drop Feed Dispenser Control Unit - Model 300 Flex-Flo Tubing Parts List

Ref #	Part #	Description	Qty
	AP-1262	Accu-Drop Feed Dispenser Control Unit - 220V	
	AP-1263	Accu-Drop Feed Dispenser Control Unit - 110V	
	FLX-2696	Model 300 Direct Drive Driver and Tube Anchor	
1	AP-1246	Model 300 Slide	1
2	AP-0584	2-1/4" to 4-1/4" Stainless Steel Hose Clamp	2
3	S-4312	Screw, Set 5/16"-18 x 1/2" Square Head BK Cup Point	1
4	S-6481	Bolt, SHCS 5/16"-18 x 1-1/2"	1
5		Flex-Flo Power Unit	1
6	FLX-2938	Spindle	1
7	FLX-2688	Electrical Box Bottom	1
8	E260-1020	Relay, 0.2PST 25 Amp, 110V	1
8	E260-1021	Relay, 0.2PST 25 Amp, 220V	1
9	FLX-2690	Gasket, Electrical Box 4 x 4	1
10	FLX-2689	Cover, Electrical Box	1
11	S-7377	Screw, MS #10-24 x 1" RHP ZN Grade 2	1
12	S-7466	Screw, SDS #10-16 x 3/4" HWH ZN Grade 2	1
13	70-0129	Switch Weatherproof Boot	1
14	20-6050	SPST 15A ON/OFF Toggle Switch	1
15	S-849	Hex Nut 10-24 Grade 2	1
16	S-7906	1/2" Cord Connector	1
17	S-396	Hex Nut 5/16"-18 YDP Grade 2	4
18	S-845	Flat Washer 5/16" USS SAE YDP Grade 2	4
19	AP-1258	Accu-Drop Feed Dispenser Adapter	1
20	FLX-2317	Model 300 Tube Anchor Plate Assembly	1
21	S-4275	Bolt, HHTB 5/16"-18 x 3/4" ZN Grade 5	4
22	FLX-2634	Model 300 Tube Spacer	1
23	FLX-2534	Model 300 PVC Coupler	1
24	S-4320	Clamp, 3" Tube	1
25	PVC-1005	Model 300 10' Straight Flex-Flo Tube	
26	AP-1001	Switch, Proximity 110V SKOV	1
26	AP-1002	Switch, Proximity 220V SKOV	1
27	AP-1004	Grommet, 36-1/2 mm x 4 mm Groove for Proximity Switch	1
28	AP-1285	Model 300 Accu-Drop Feed Dispenser w/o Hardware	1
29	AP-1282	Rod, 1/8" Stainless Steel - 400' Roll	

Troubleshooting Guide

Problem	Possible Cause	Corrective Action
Feed system motor does not run.	<p>No power to system.</p> <p>Motor thermal overload switch activated.</p> <p>Proximity switch not adjusted properly.</p> <p>Proximity switch time delay not expired.</p> <p>Feed stuck on end of proximity switch.</p> <p>Sensitivity of proximity switch not set properly.</p>	<p>Check circuits, fuses, and ON-OFF switches on equipment.</p> <p>Refer to motor overload problem.</p> <p>Position the switch so that it extends into the Accu-Drop 2-3/4".</p> <p>Refer to instruction sheet on proximity switch. Refer to chain disk manual for adjustment of time delay switch inside of control unit.</p> <p>Clean off end of proximity switch.</p> <p>Refer to instruction sheet on proximity switch.</p>
Motor overloads after running briefly.	<p>Low voltage (motor runs slow and overheats).</p> <p>Foreign object caught in system.</p> <p>Wet feed being conveyed or allowed to stand in system.</p> <p>Defective motor.</p>	<p>Check line voltage at motor; use adequate wire size.</p> <p>Check system for any foreign objects and remove them.</p> <p>Clean the system; avoid conveying wet feed or empty line after each feeding.</p> <p>Replace motor.</p>
Feed system turns ON while trip system is operating.	<p>Proximity switch time delay not set properly.</p>	<p>Set time delay for a longer period of time than it takes to pull the balls.</p> <p>Refer to instruction sheet on proximity switch. Refer to chain disk manual for adjustment of time delay switch inside control unit.</p>
Pigs agitate Accu-Drop causing feed to sift out.	<p>Accu-Drops are supported by or rigidly connected to the gestation stall.</p>	<p>Install the Accu-Drops so they are not supported by or rigidly connected to the gestation stall.</p>
Trip system pulls only a portion of the balls.	<p>Ball assemblies are not properly adjusted.</p> <p>Too many Accu-Drops per section of rod.</p>	<p>Re-adjust ball assemblies. <i>(See Ball Assemblies on Page 17.)</i></p> <p>Limit number of Accu-Drops to 200 per section of rod.</p>
Trip system does not pull any balls.	<p>Rod and/or cable has been broken.</p> <p>Too many Accu-Drops per trip system.</p> <p>Cable wedged in pulley.</p> <p>Automatic trip system control unit malfunctioning.</p>	<p>Fix cable or rod.</p> <p>Limit number of Accu-Drops to recommended quantity. <i>(Refer Installation of Trip Actuator on Page 14.)</i></p> <p>Make sure cable moves freely over pulleys.</p> <p>Refer to section on automatic trip system.</p>

Conversion Table

Fractions to Millimeters

Fractions	Decimals	Millimeters
1/64	0.0156	0.3969
1/32	0.0313	0.07938
3/64	0.0469	1.1906
1/16	0.0625	1.5875
5/64	0.0781	1.9844
3/32	0.0938	2.3813
7/64	0.1094	2.7781
1/8	0.1250	3.1750
9/64	0.1406	3.5719
5/32	0.1563	3.9688
11/64	0.1719	4.3656
3/16	1.8750	4.7625
13/64	0.2031	5.1594
7/32	0.2188	5.5563
15/64	0.2344	5.9531
1/4	0.2500	6.3500
17/64	0.2656	6.7469
9/32	0.2813	7.1438
19/64	0.2969	7.5406
5/16	0.3125	7.9375
21/64	0.3281	8.3344
11/32	0.3438	8.7313
23/64	0.3594	9.1281
3/8	0.3750	9.5250
25/64	0.3906	9.9219
13/32	0.4063	10.3188
27/64	0.4219	10.7156
7/16	0.4375	11.1125
29/64	0.4531	11.5094
15/32	0.4688	11.9063
31/64	0.4844	12.3031
1/2	0.5000	12.7000

Fractions	Decimals	Millimeters
33/64	0.5156	13.0969
17/32	0.5313	13.4938
35/64	0.5469	13.8906
9/16	0.5625	14.2875
37/64	0.5781	14.6844
19/32	0.5938	15.0813
39/64	0.6094	15.4781
5/8	0.6250	15.8750
41/64	0.6406	16.2719
21/32	0.6563	16.6688
43/64	0.6719	17.0656
11/16	0.6875	17.4625
45/64	0.7031	17.8594
23/32	0.7188	18.2563
47/64	0.7344	18.6531
3/4	0.7500	19.0500
49/64	0.7656	19.4469
25/32	0.7813	19.8438
51/64	0.7969	20.2406
13/16	0.8125	20.6375
53/64	0.8281	21.0344
27/32	0.8438	21.4313
55/64	0.8594	21.8281
7/8	0.8750	22.2250
57/64	0.8906	22.6219
29/32	0.9063	23.0188
59/64	0.9219	23.4156
15/16	0.9375	23.8125
61/64	0.9531	24.2094
31/32	0.9688	24.6063
63/64	0.9844	25.0031
1	1.0000	25.4000

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	* 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%
	All Fiberglass Housings	Lifetime	
	All Fiberglass Propellers	Lifetime	
Cumberland Feeding/Watering Systems	Feeder System Pan Assemblies	5 Years **	** Warranty prorated from list price: 0 to 3 years - no cost to end-user 3 to 5 years - end-user pays 50%
	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	† Motors, burner components and moving parts not included. Portable dryer screens included. Tower dryer screens not included.
	Portable and Tower Dryer Frames and Internal Infrastructure †	5 Years	

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 (12th) month from the date of purchase and continuing until the sixtieth (60th) 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.

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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