

Installation and Operation of Ultra-Drop Feed Dispenser

Owner's Manual

PNEG-1718

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All information, illustrations, photos and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Contents

Chapter 1 Safety	4
Safety Guidelines	4
Cautionary Symbols Definitions	5
Safety Cautions	6
Safety Sign-Off Sheet	8
General Safety Statement	9
Chapter 2 Introduction	10
Using the Manual	10
Background	10
Application	10
Specifications	11
Chapter 3 Installation	12
Installation of Drop Tubes	12
Tubing Installation	12
Ultra-Drop Feed Dispenser Installation	14
Installation of Trip System	19
Installation of Trip Actuator	19
Drop Feeder Machines	20
Cable and Rod Connections	23
Connection and Initial Adjustment of Ball Assemblies	24
Chapter 4 Wiring	25
Wiring Instructions	25
Wiring Diagrams	26
Chapter 5 Start-Up	30
Initial Start-Up	30
Maintenance	30
Chapter 6 Parts List	31
Manual Trip Level	32
Model 220/236 Ultra-Drop Feeder for Gestation Stalls (AP-3800)	34
Model 220/236 Ultra-Drop Feeder w/ Agitator for Farrowing Crates (AP-3800A)	36
Accu-Drop Feed Dispenser Control Unit - Model 220 Flex-Flo Tubing	38
Chapter 7 Troubleshooting	40
Troubleshooting Guide	40
Conversion Table	41
Chapter 8 Warranty	43

Safety Guidelines

Safety guidelines are general-to-specific safety rules that must be followed at all times. This manual is written to help you understand safe operating procedures and problems that can be encountered by the operator and other personnel when using this equipment. Save these safety guidelines for future reference.

As owner or operator, you are responsible for understanding the requirements, hazards, and precautions that exist and to inform others as required. Unqualified persons must stay out of the work area at all times.

Alterations must not be made to the equipment. Alterations can produce dangerous situations resulting in **SERIOUS INJURY or DEATH**.

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

When necessary, you must consider the installation location relative to electrical, fuel and water utilities.

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

ST-0001-3

Cautionary Symbols Definitions

Cautionary symbols appear in this manual and on product decals. The symbols alert the user of potential safety hazards, prohibited activities and mandatory actions. To help you recognize this information, we use the symbols that are defined below.



This symbol indicates an imminently hazardous situation which, if not avoided, **will result in serious injury or death.**



This symbol indicates a potentially hazardous situation which, if not avoided, **can result in serious injury or death.**



This symbol indicates a potentially hazardous situation which, if not avoided, **can result in minor or moderate injury.**



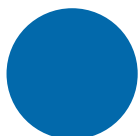
This symbol is used to address practices not related to personal injury.



This symbol indicates a general hazard.



This symbol indicates a prohibited activity.



This symbol indicates a mandatory action.

ST-0005-2

Safety Cautions

Use Personal Protective Equipment

- Use appropriate personal protective equipment:

Eye Protection



Respiratory Protection



Foot Protection



Hearing Protection



Head Protection



Fall Protection



Hand Protection



- Wear clothing appropriate to the job.
- Remove all jewelry.
- Tie long hair up and back.

ST-0004-1

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



ST-0002-1

Maintain Equipment and Work Area

- Understand service procedures before doing work. Keep area clean and dry.
- Never service equipment while it is operating. Keep hands, feet, and clothing away from moving parts.
- Keep your equipment in proper working condition. Replace worn or broken parts immediately.



ST-0003-1

Install and Operate Electrical Equipment Properly

- Electrical controls must be installed by a qualified electrician and must meet the standards set by applicable local codes (National Electrical Code for the US, Canadian Electric Code, or EN60204 along with applicable European Directives for Europe).
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.
- Make sure all equipment is properly grounded.



ST-0027-4

Rotating Auger Hazard

- Keep clear of rotating augers and moving parts.
- Do not remove or modify guards or covers.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.
- Failure to follow these precautions will result in serious injury or death.



ST-0037-1

General Safety Statement

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.

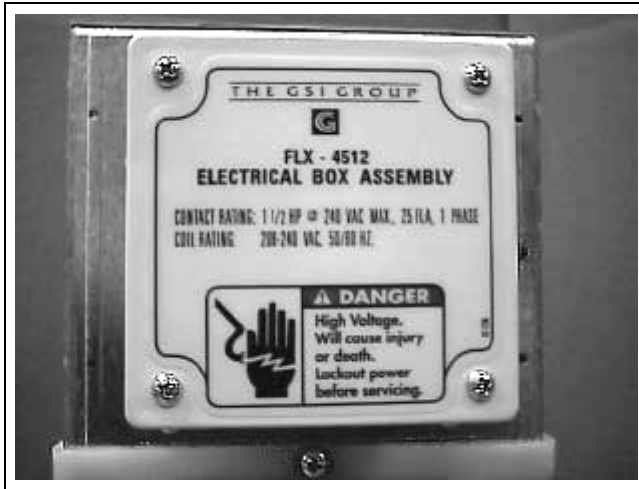


Figure 1A



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 Ultra-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 Pages 26-29.) 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 Ultra-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 8 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 Ultra-Drop Feed Dispenser applications are shown as follows:

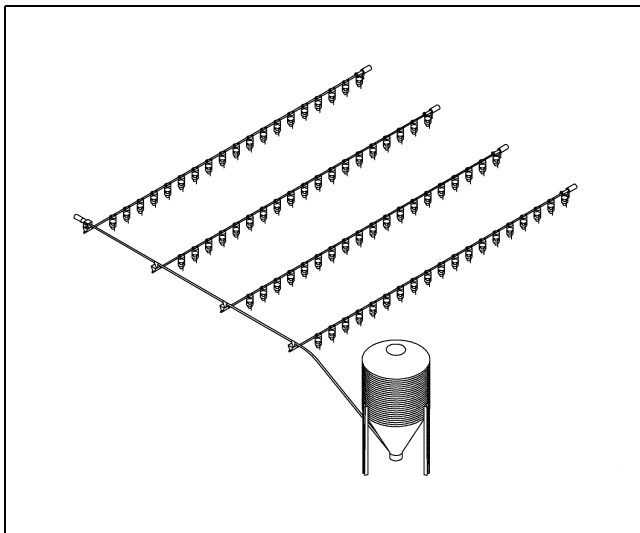


Figure 2A Flex-Flo Applications

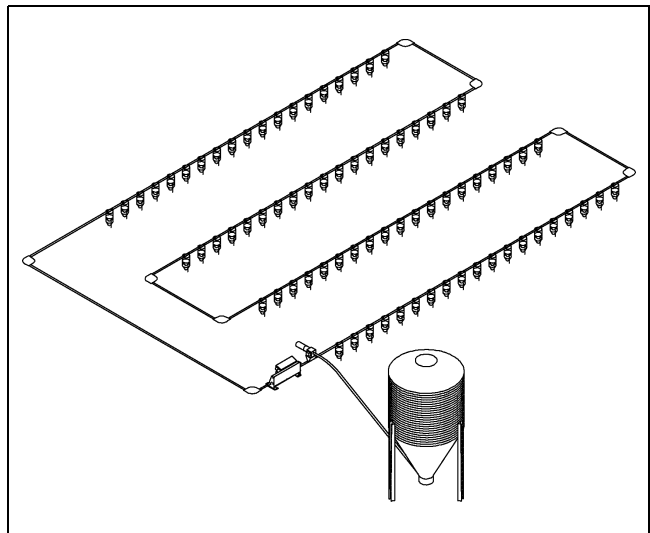


Figure 2B Chain Disk Application

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.

In chain disk applications, a tube mounted proximity switch is installed on the tube just beyond the last Ultra-Drop in the system and is used to turn the system ON and OFF.

Specifications

Capacity	The capacity of the Ultra-Drop Feed Dispenser is 1 to 8 pounds. Capacity is based on a feed density of 40 lbs/ft ³ .
Models	The Ultra-Drop Feeder is designed to fit the Model 220 Flex-Flo and the Model 236 chain disk using any of the following: 2" O.D. Chain disk with ribbed tubing, 2.2" O.D. Flex-Flo PVC tubing or 2.36" chain disk with PVC tubing.
Dimensions	The main body is 8" wide x 8-1/2' deep. The overall height range is 18". The installed height from the bottom of the system tubing to the bottom of the feed dispenser is 17".
Materials	The Ultra-Drop Feed Dispenser has been designed with the following materials: <ul style="list-style-type: none"> - Body: Transparent Polypropylene - Other plastic parts: Polypropylene - Hardware: Stainless Steel
Adjustment Method	To change the capacity of the Ultra-Drop, a retractable wall inside the chute is adjusted up and down.
Feed Drop Method	To release the feed from the Ultra-Drop a ball is pulled vertically by a cord, which uncovers the hole in the bottom of the feeder.

3. Installation

Installation of Drop Tubes

The most common drop tube combination is to use the two-piece adjustable drop tube (AP-0476) (A) 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 (B). 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 Ultra-Drop must NOT be supported by or rigidly connected to the gestation stall.

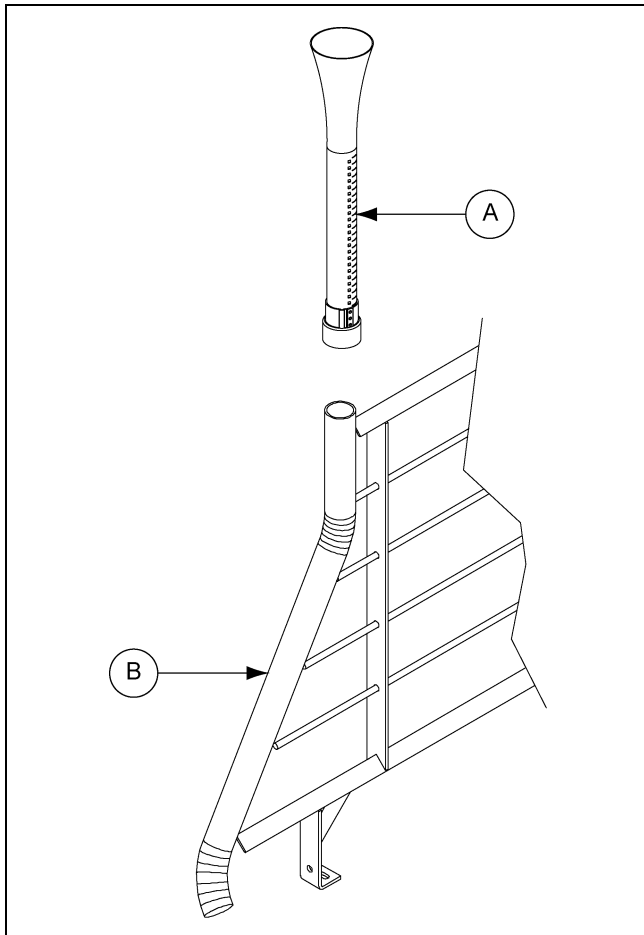


Figure 3A Adjustable Drop Tube Installation

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.

Cutting Outlet Holes

With the sections of tubing still laid out and the placement of the Ultra-Drops already established, the next step is to mark each tube with the desired location of each Ultra-Drop. The outlet hole for the tube is 3-1/4" offset from the Ultra-Drop outlet. Once the tubes are marked, drill the appropriate hole diameter according to the chart *below*, for the feed dispenser as shown in *Figure 3B*. Be sure to remove any burrs after drilling so that the Ultra-Drop shut off slide can perform properly.

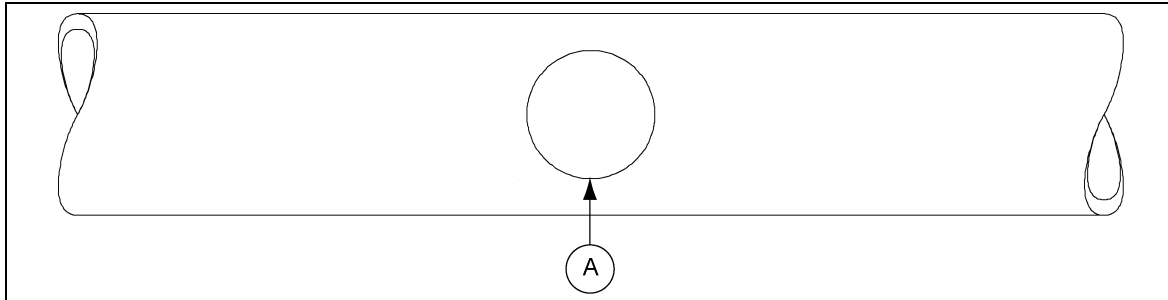


Figure 3B Outlet Hole with Carry-Over

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 Ultra-Drop. The Ultra-Drop (B) measures 17" from the bottom of the tubing to the bottom of the Ultra-Drop. *Figure 3C* shows a typical application using two-piece adjustable drop tubes (C). **Remember that the Ultra-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.*

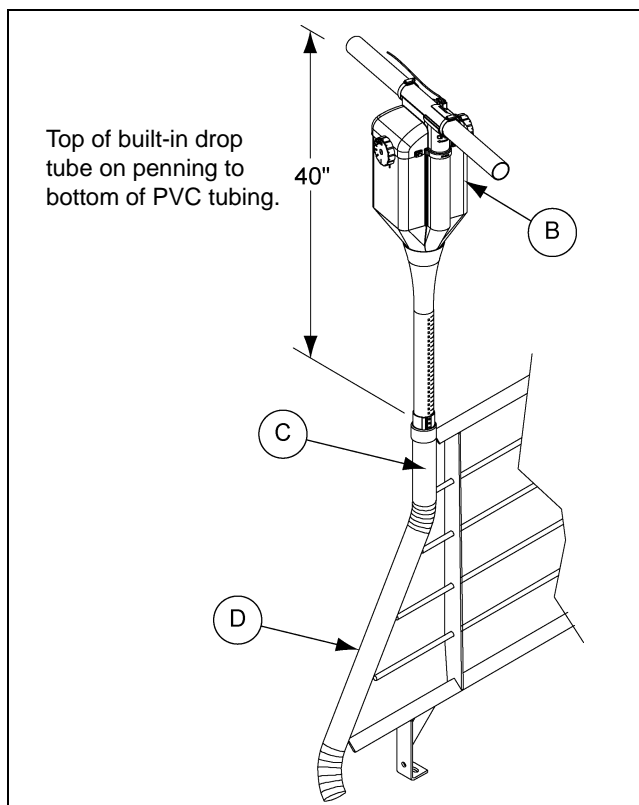


Figure 3C Suspension of Tubing

Ref #	Description
A	1-1/2" Diameter (Model 220) 1-3/8" Diameter (Model 236)
B	Ultra-Drop
C	Two-Piece Adjustable Drop Tube
D	Penning with Built-in Drop Tube

3. Installation

Ultra-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 tube mounted proximity switch (A) must be used.

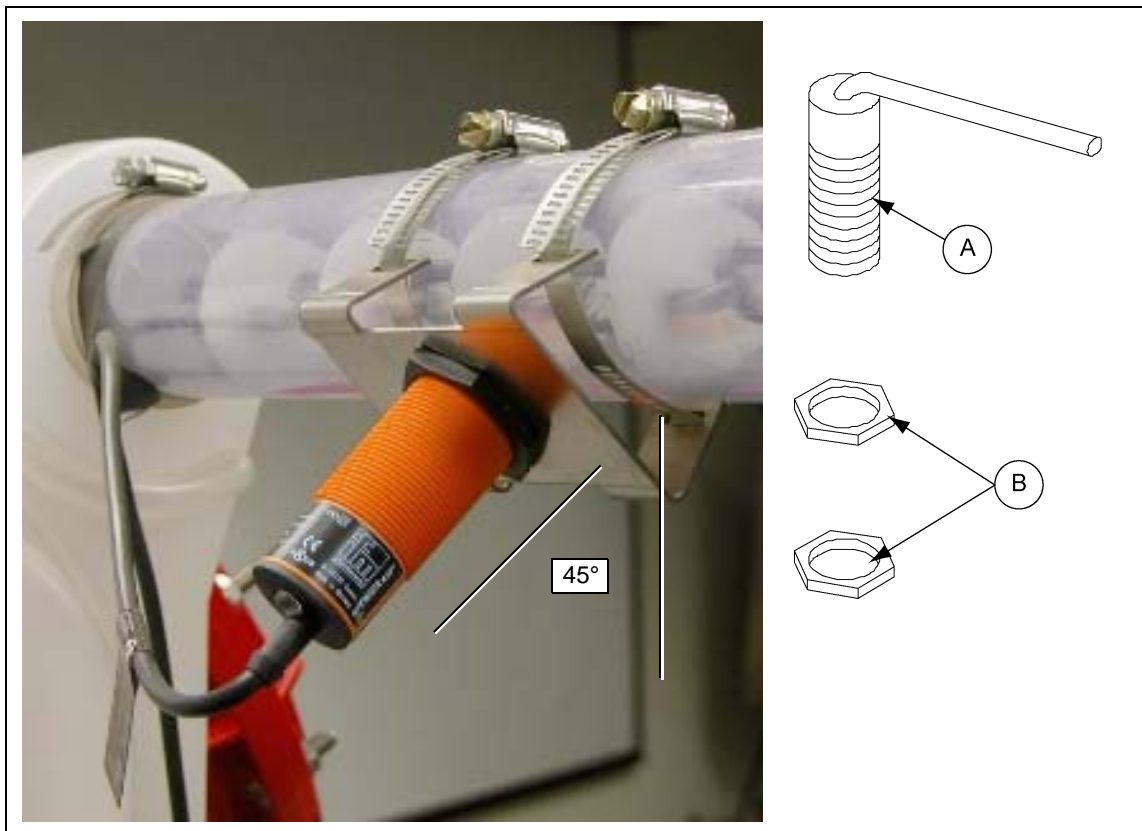


Figure 3D Proximity Switch Installation

Ref #	Description
A	Proximity Switch
B	Nuts

Ultra-Drop Feed Dispenser Installation (Continued)

Model 220 Flex-Flo Feed Systems

1. Bolt the Accu-Drop control unit (F) 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 3E.](#))

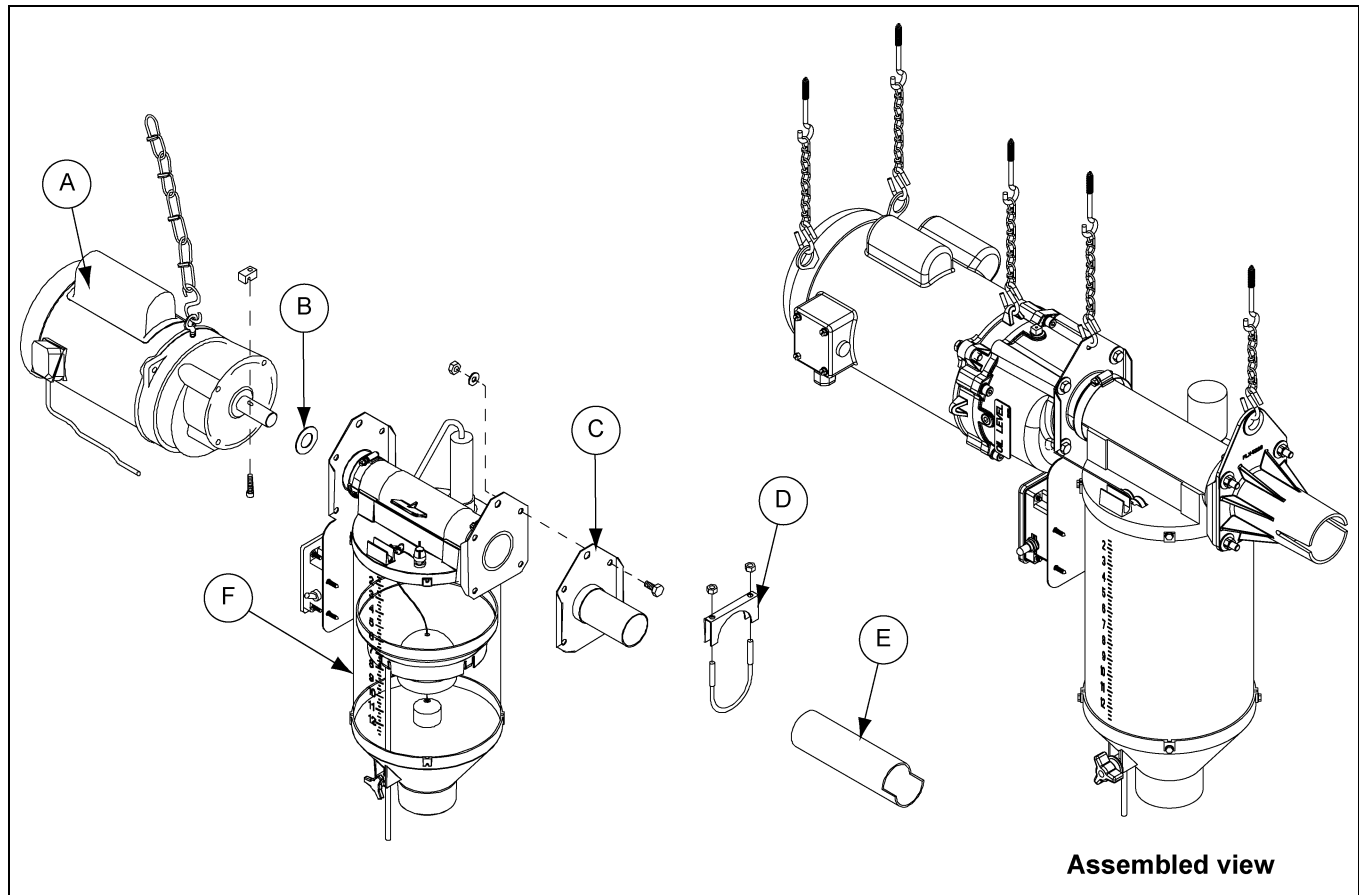


Figure 3E Control Unit with Model 220 Tubing

Ref #	Description
A	Flex-Flo Power Unit
B	Anchor Washer
C	Tube Anchor Plate

Ref #	Description
D	U-Bolt with Saddle
E	Model 220 Tubing
F	Accu-Drop Control Unit

2. Slide end of straight section of Model 220 tubing (E) over the tube anchor plate (C) weldment and secure using 5/16" x 2-1/4" U-bolt with saddle (D).
3. Slide the anchor washer (B) over the output shaft on the Flex-Flo power unit (A).
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

Ultra-Drop Feed Dispenser Installation (Continued)

Standard Ultra-Drop (AP-3800) for Gestation Stalls

1. If the hose clamps have not already been placed onto the tubing, (see laying out the tubing section [on Page 12](#)) take apart each hose clamp (A). Place it over the tubing and put it back together loosely.
2. Snap the shut off slide (C) over the top of the tubing and make sure it is not too tight and can be rotated back and forth.
3. Hold the Ultra-Drop up next to the tubing making sure the hole in the tubing is in the center of the Ultra-Drop inlet hole. (See [Figure 3F.](#)) Slide the hose clamps into the groove on each side of the top of the Ultra-Drop and tighten.

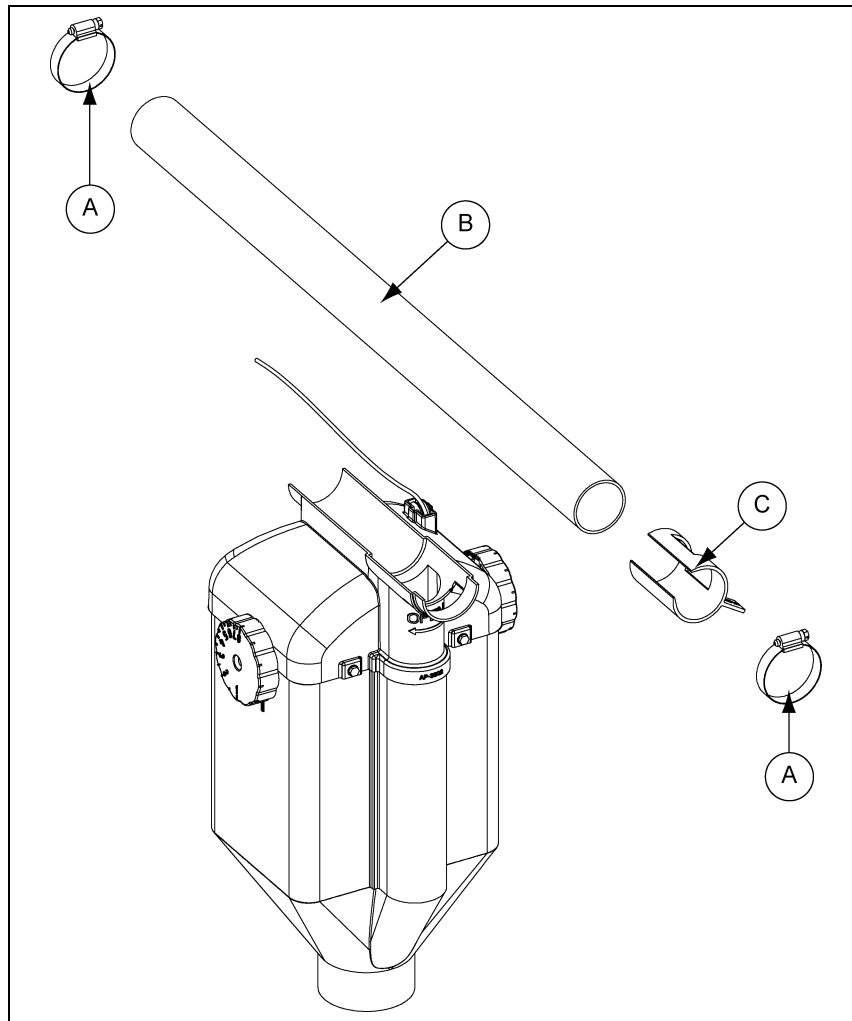


Figure 3F Ultra-Drop Installation (Gestation)

Ref #	Description
A	Hose Clamp
B	PVC Tubing
C	Shut Off Slide

Ultra-Drop Feed Dispenser Installation (Continued)

Shut Off Slide Operation

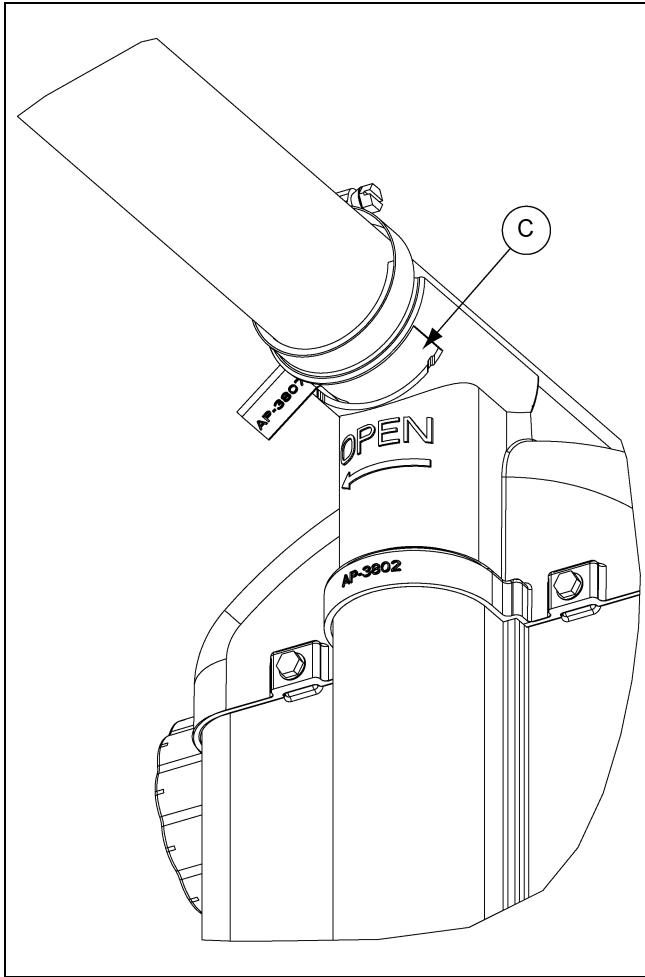


Figure 3G Slide Open to Let Feed Flow

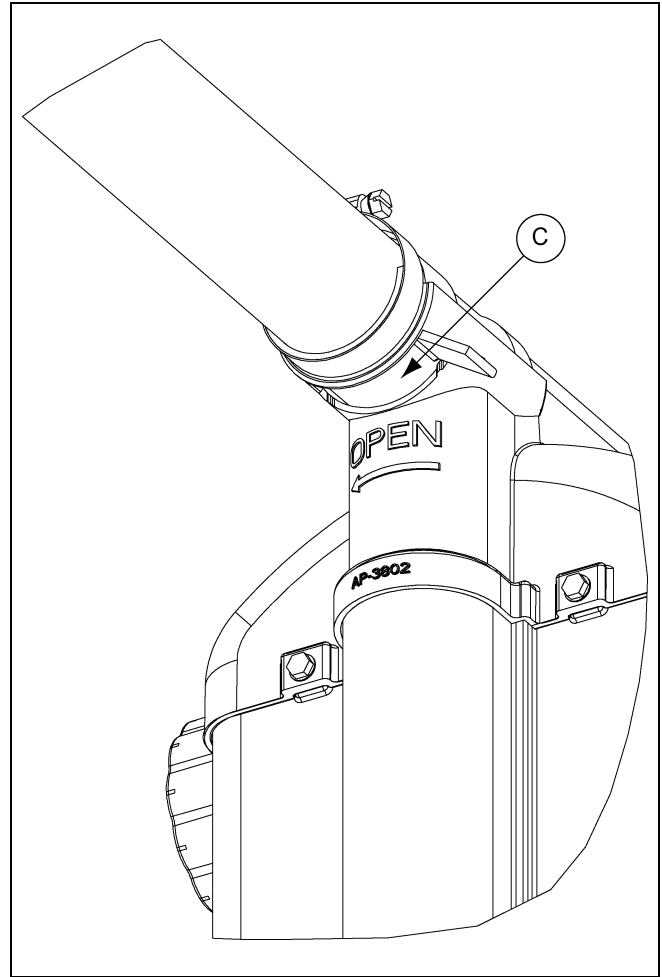


Figure 3H Slide Closed to Cover Outlet Hole

Ref #	Description
C	Shut Off Slide

3. Installation

Ultra-Drop Feed Dispenser Installation (Continued)

Standard Ultra-Drop (AP-3800A) for Farrowing Crates

1. If the hose clamps have not already been placed onto the tubing, (see laying out the tubing section [on Page 12](#)) take apart each hose clamp (A). Place it over the tubing and put it back together loosely.
2. Place ribbed tube spacer (C) over ribbed tube (D) if used. If PVC tube is used, disregard ribbed tube spacer.
3. Snap the shut off slide (E) over the top of the tubing and make sure it is not too tight and can be rotated back and forth.
4. Place water shield (B) over tube.
5. Hold the Ultra-Drop up next to the tubing, making sure the hole in the tubing is in the center of the Ultra-Drop. (See [Figure 3F on Page 16.](#)) Snap rain guard over the tubing as shown in [Figure 3I](#). Slide the hose clamps into the groove on each side of the top of the Ultra-Drop and tighten.

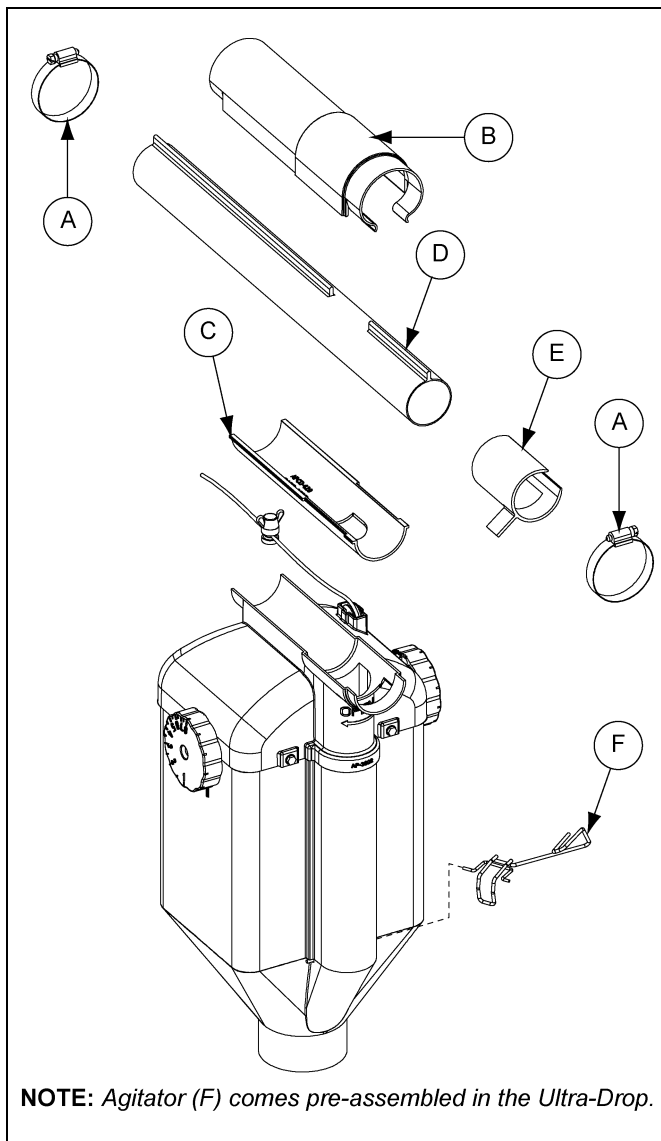


Figure 3I

Ref #	Description
A	Hose Clamp
B	Water Shield
C	Ribbed Tube Spacer
D	Ribbed Tubing
E	Shut Off Slide
F	Agitator

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 Ultra-Drops.

Rod Suspension

1. Unroll the bundle of rod. **NOTE:** Use care. The rod (C) was torsion straightened before rolled and therefore will have a tendency to unroll once the packaging bands are broken.

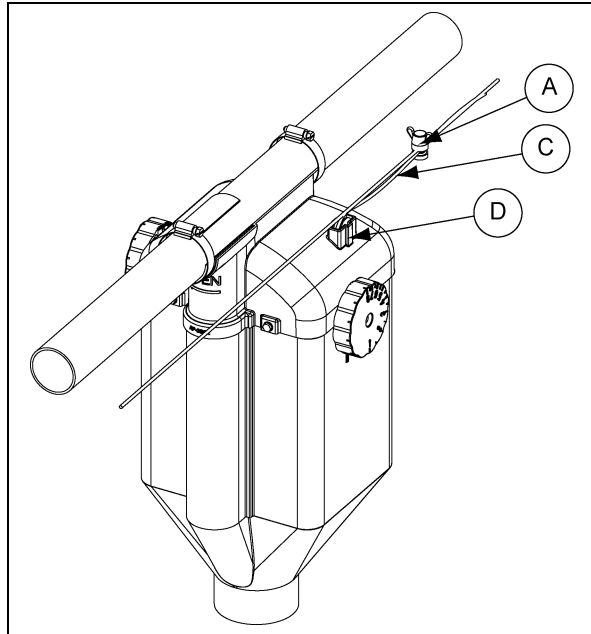


Figure 3J Right Hand Actuation

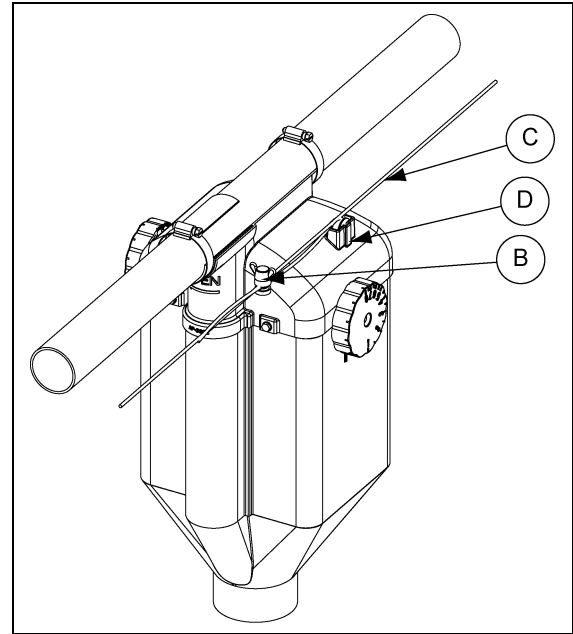


Figure 3K Left Hand Actuation

Ref #	Description
A	Plastic cable clamp on right hand side of rod guide.
B	Plastic cable clamp on left hand side of rod guide.
C	Rod
D	Rod Guide

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 Ultra-Drops for each actuator.

Automatic actuator	Maximum of 300 Ultra-Drops
Split drum winch	Maximum of 200 Ultra-Drops
Shelby winch	Maximum of 150 Ultra-Drops
Trip lever	Maximum of 30 Ultra-Drops

3. Installation

Drop Feeder Machines

The DF2415, DF2415S, DF2460 and DF2460S Drop Feeder Machines can be mounted either vertically on walls or horizontally on ceilings to raise and lower balls in Ultra-Drop, Accu-Drop and Econo-Drop feeders.

1. Frame ceiling or wall supports as required and attach machine using 3/8" x 2" lag bolts provided. Feeder quantity and configuration preference will dictate machine quantity. (See mounting configuration section [on Page 21.](#))
2. Install pulleys and brackets according to the appropriate mounting configuration.
3. Install cabling through the pulleys according to the appropriate mounting configuration. Recommended cable size is 3/16".
4. Refer to cable configurations section of the Drop Feeder Manual (PNEG-620-2) and install the cables into the Drop Feeder Machine pulley cover and loop the cable around the pulley.
5. While the drive block is near the lower position (bottom of the drive screw), loop the incoming cable through the two (2) holes in the drive block as shown in [Figure 3L](#) and fasten the cable to itself using three (3) 3/16" cable clamps per cable.



Figure 3L

Drop Feeder Machines (Continued)

6. Wire the electrical box to the appropriate control. (See wiring diagrams section of the Drop Feeder Manual (PNEG-620-2).)
7. Adjust the lower limit using the lower limit adjustment collar. **NOTE: Be sure to tighten the limit switch adjustment collar. Failure to do so can cause damage to the machine and barn.**
8. With the lower limit switch accuated, connect and adjust the ball assemblies following the instructions in the installation section.
9. Lower the balls using the MANUAL mode of the controls. Set the upper limit switch using the upper limit adjustment. **NOTE: Be sure to tighten the limit switch adjustment collar. Failure to do so can cause damage to the machine and barn.**
10. Attach the door to the machine. This will protect the integrity of the machine and ensure the safety of those working on or near the machine.

Mounting Configuration

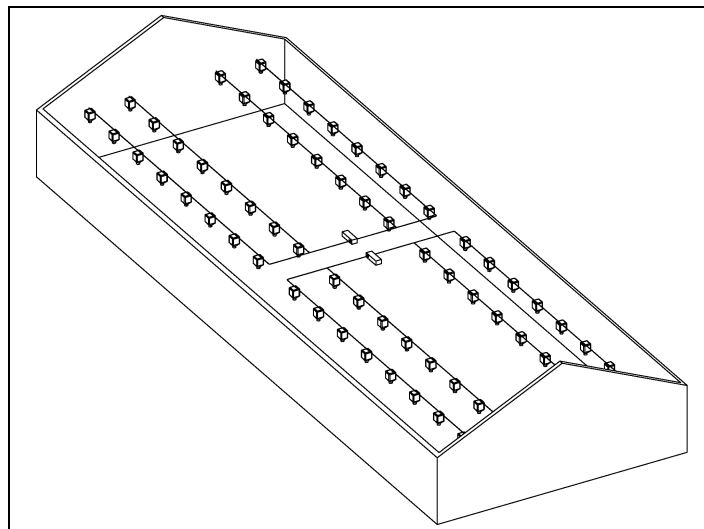


Figure 3M Ceiling Mount

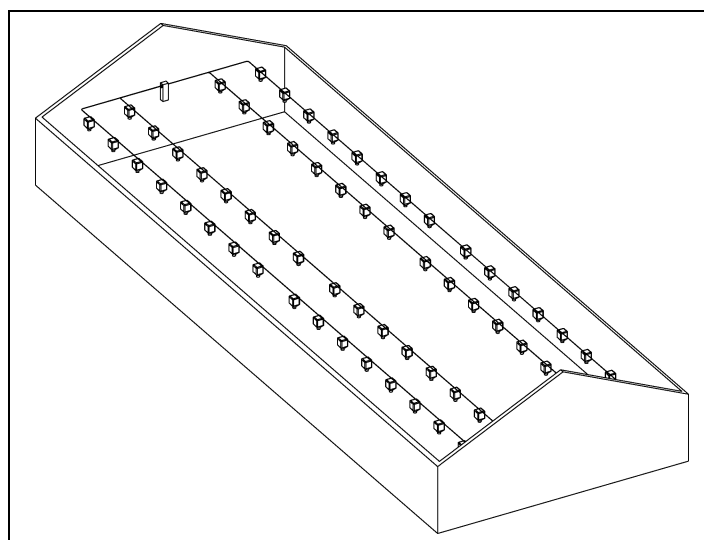
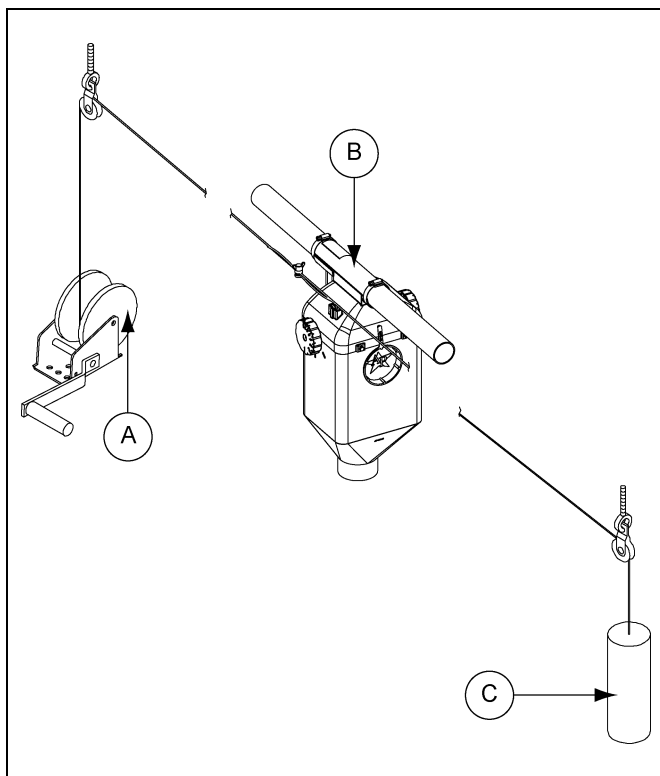


Figure 3N Wall Mount

3. Installation

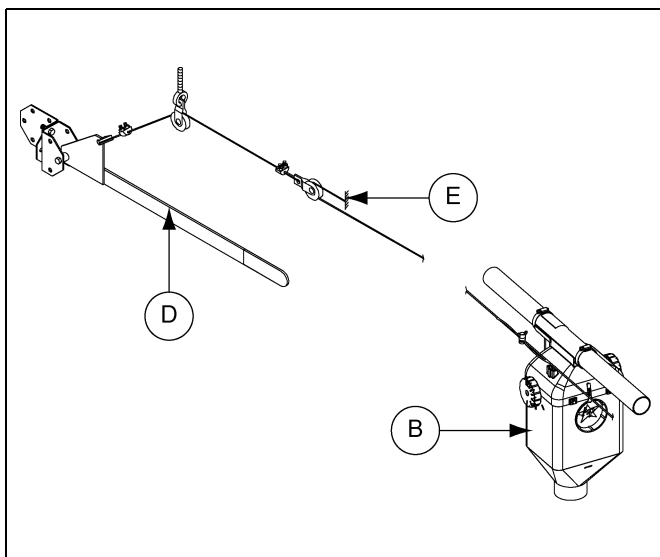
Figure 30 shows a typical application using a shelby winch (A) mounted to the end wall. An automatic actuator or a split drum winch could also be used in a setup such as this.



Ref #	Description
A	Shelby Winch
B	Ultra-Drop
C	Counterweight

Figure 30 Trip System with Shelby Winch

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



Ref #	Description
B	Ultra-Drop
D	Trip Lever
E	Stationary Connection

Figure 3P Trip System with Trip Lever

Cable and Rod Connections

It is very important to make sure all connections are secure. *Figure 3Q* 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 3R* shows the correct way to make a rod-to-rod connection to ensure there is no slipping.

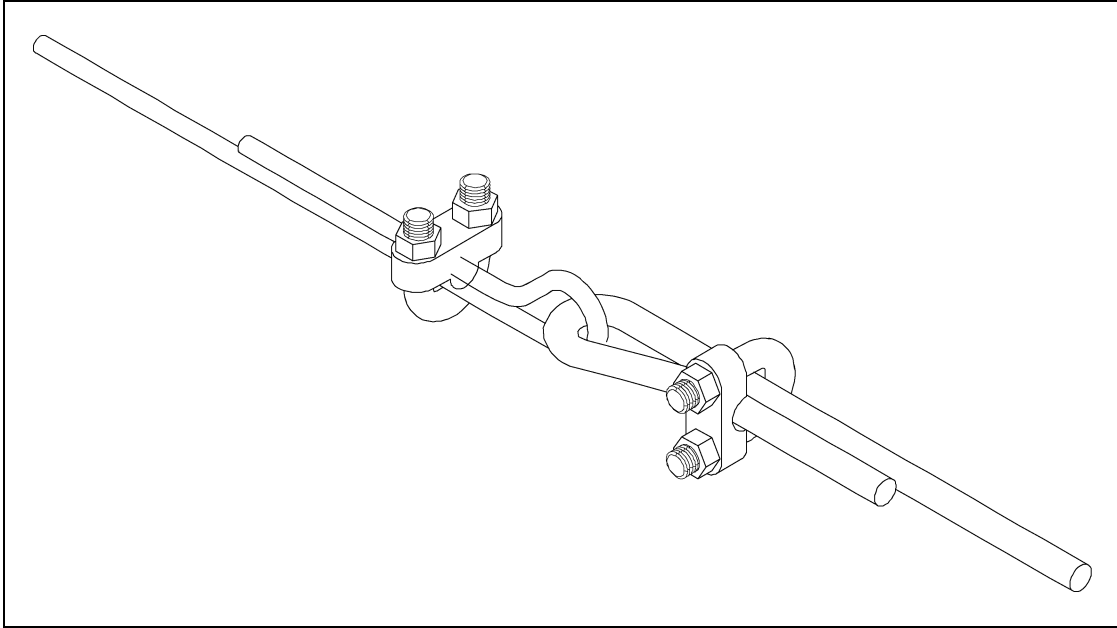


Figure 3Q *Cable-to-Cable or Cable-to-Rod Connections*

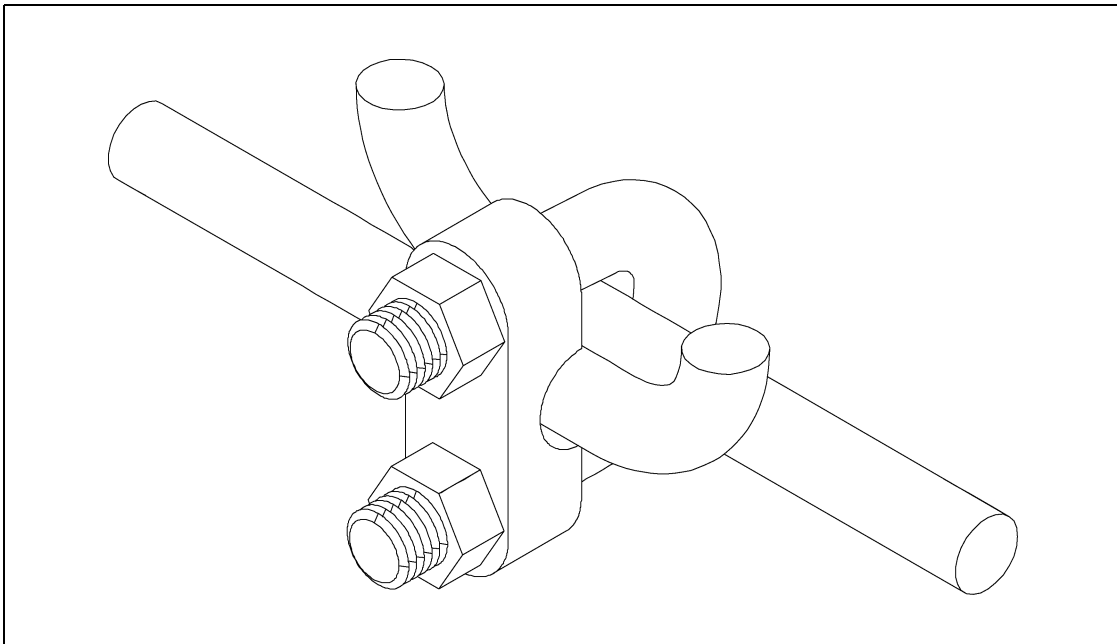


Figure 3R *Rod-to-Rod Connections*

3. Installation

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 Ultra-Drop closest to the actuator, pull the ball until they hit the top of the Ultra-Drop. (See Figure 3S.)
3. Connect the cable to the rod using the plastic cable clamp (B), making sure there is at least 12" between the plastic cable clamp (B) and rod guide (C) to allow the ball to drop completely.

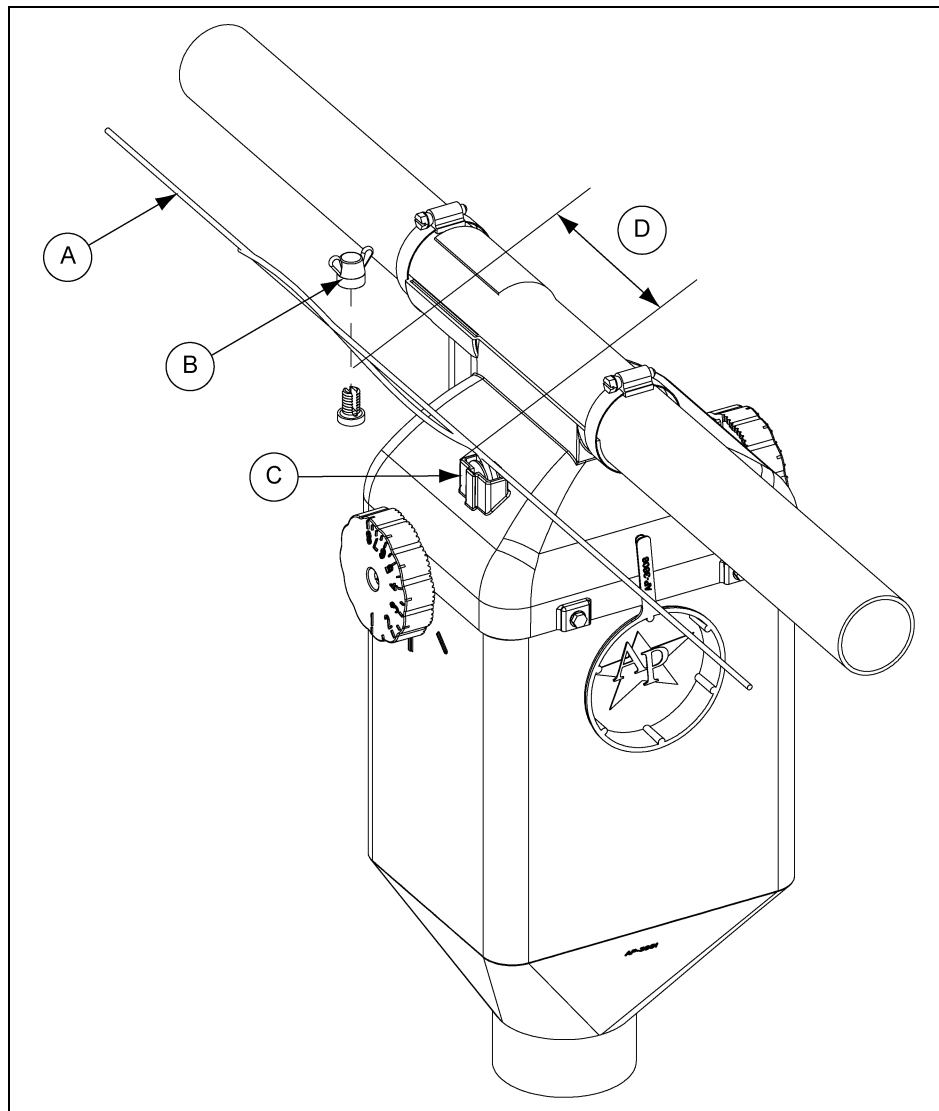


Figure 3S Connection of Ball to Trip System

Ref #	Description
A	Rod or Cable
B	Plastic Cable Clamp
C	Rod Guide
D	12" Minimum With Ball Raised to Top

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.

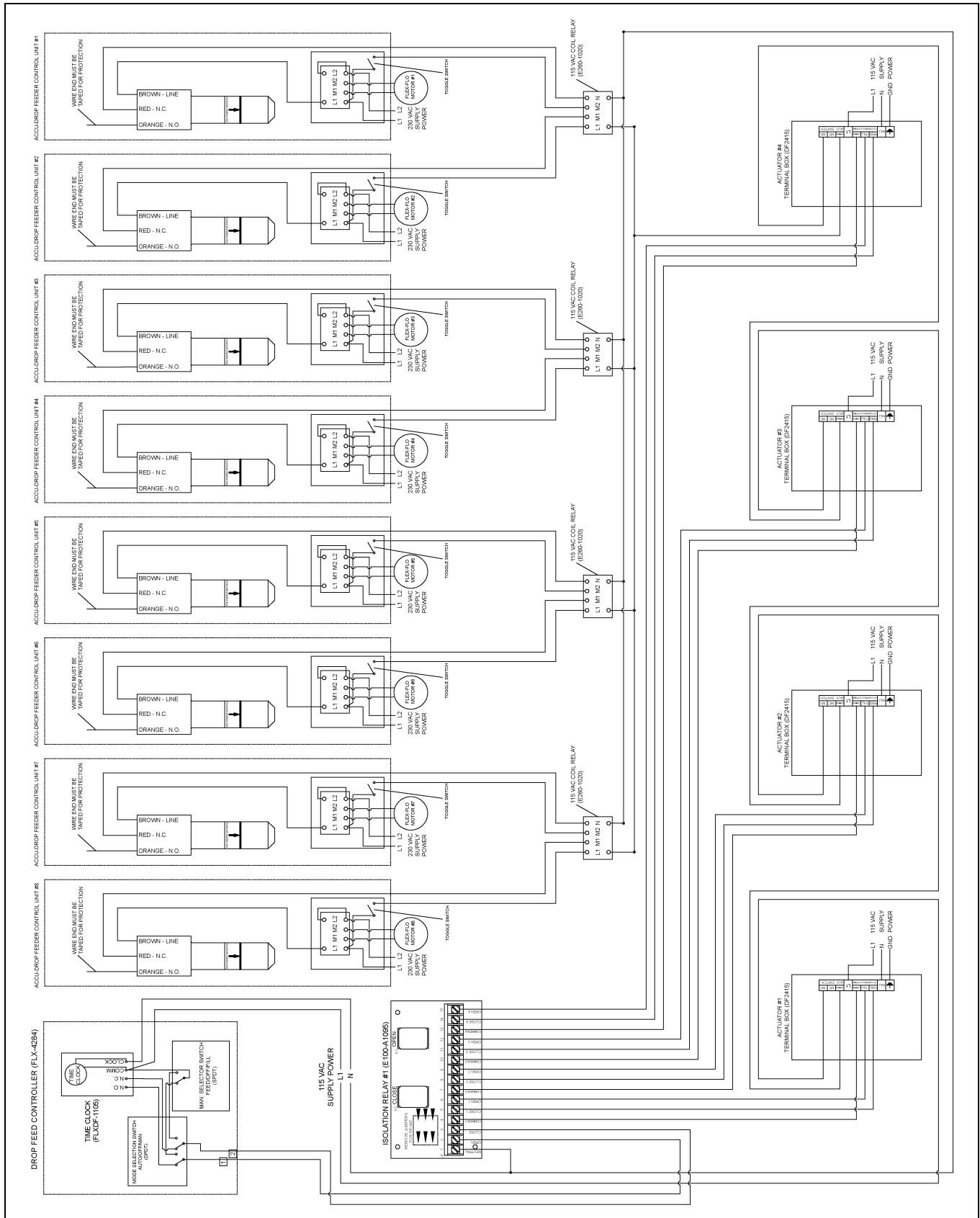
Safety Regulations

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.

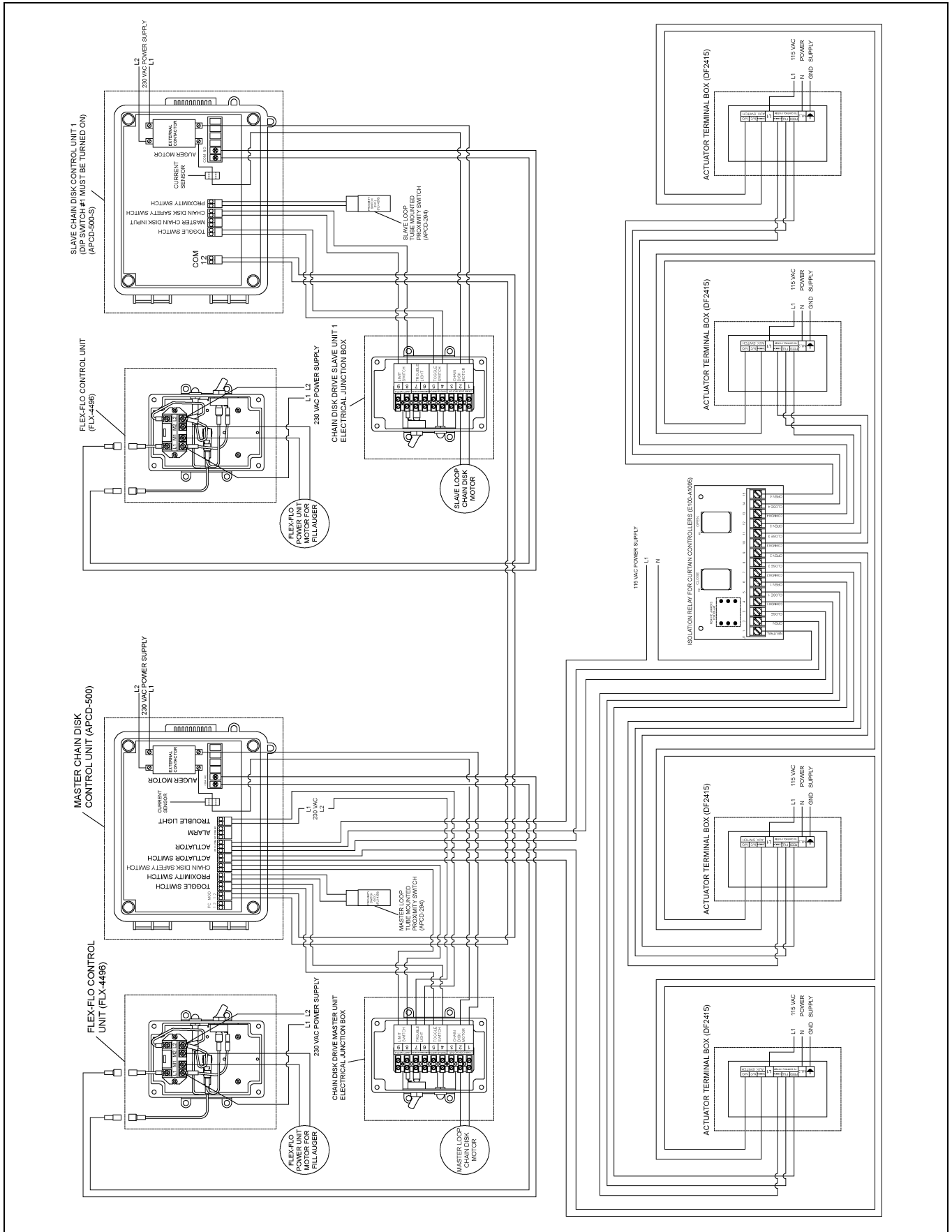
4. Wiring

Wiring Diagrams

Auto Feed Ultra-Drop System for Model 220 Flex-Flo



Auto Feed Drop System for Model 236 Chain Disk



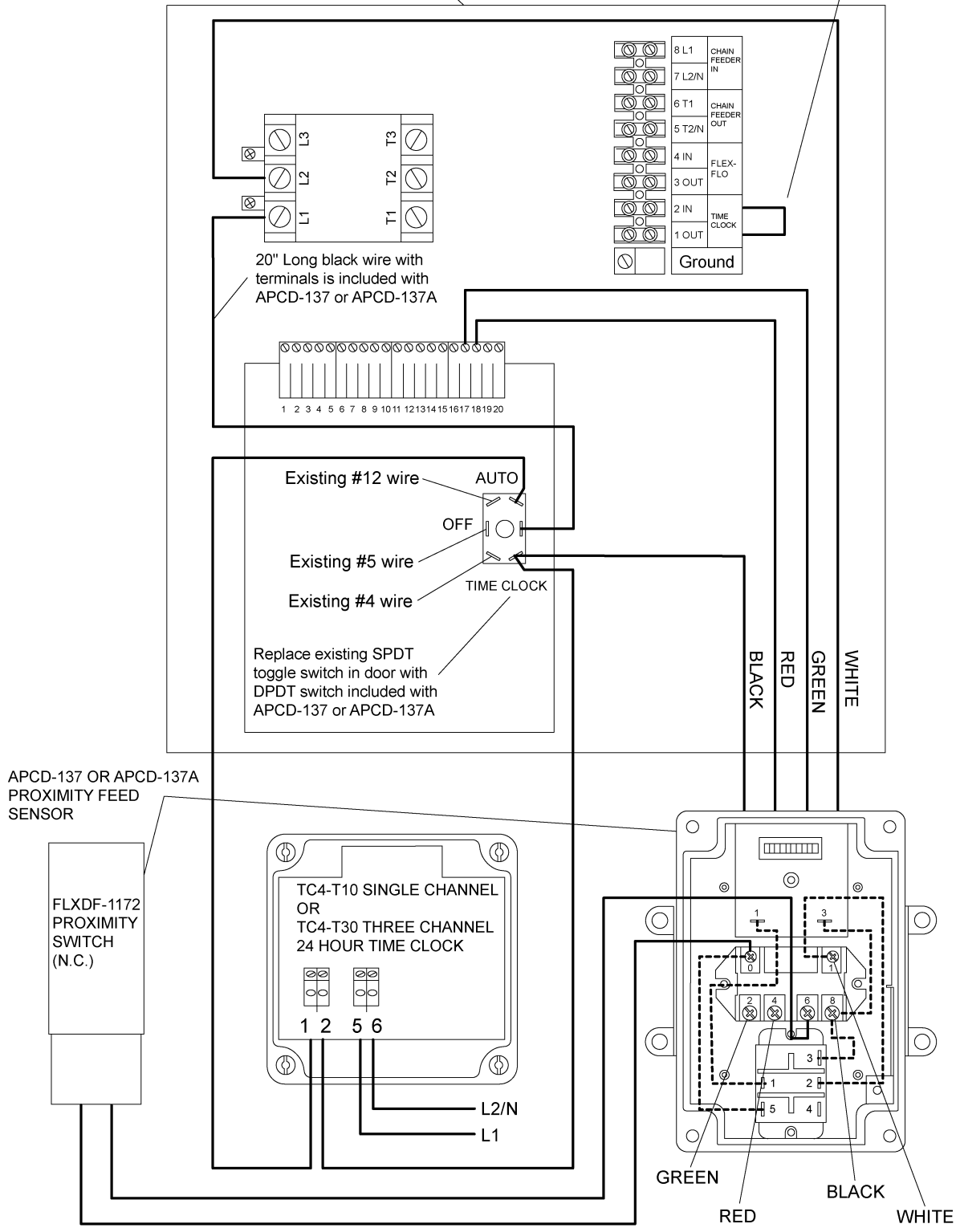
4. Wiring

Tube Mounted Proximity Switch APCD-137 or APCD-137A

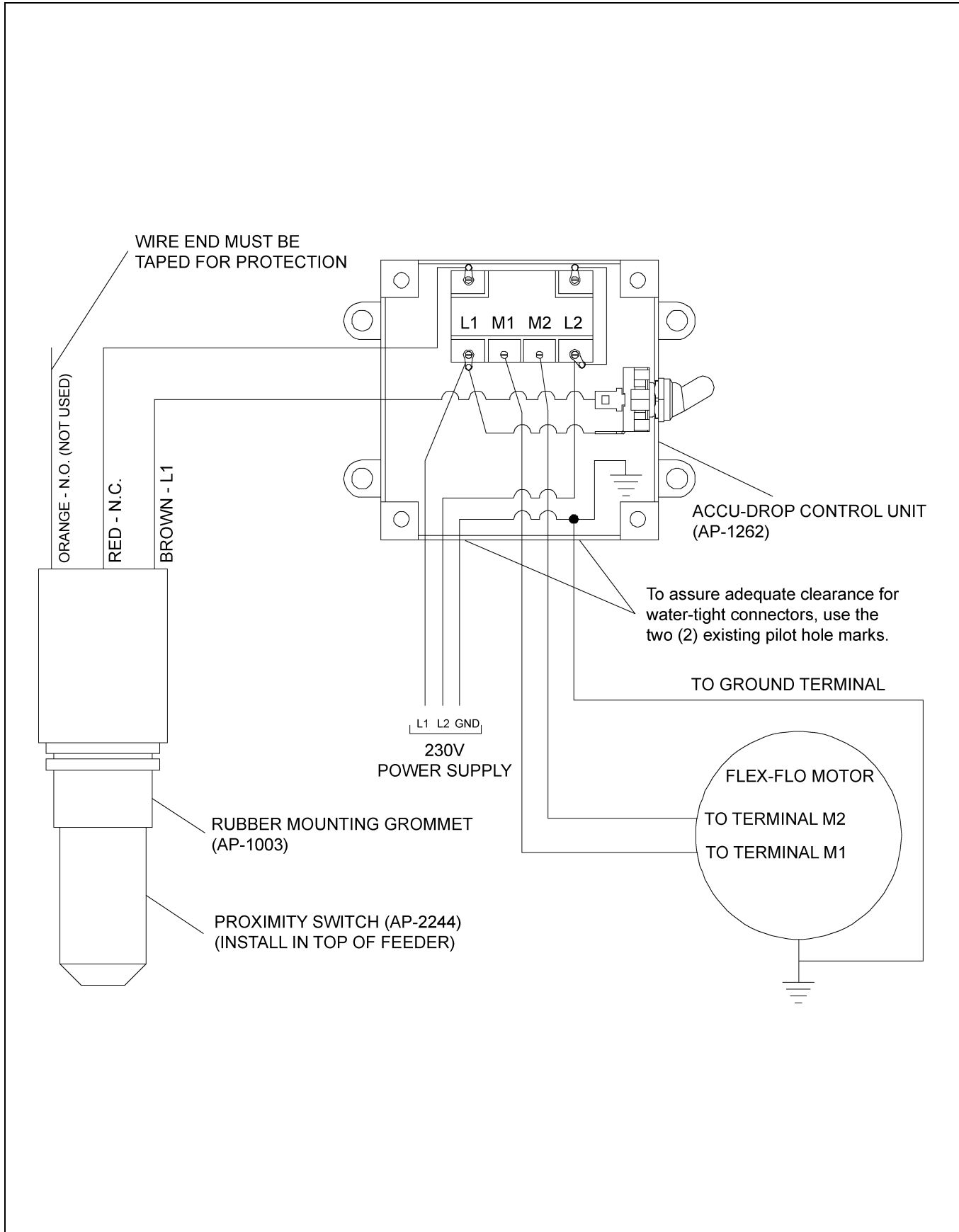
**Wiring diagram for chain disk feed system
using tube mounted proximity switch APCD-137 or APCD-137A to control chain disk system.**

APCD-108-220 (220V) OR
APCD-108-110 (110V) OR
APCD-108-3 PH (3 PHASE)
CHAIN DISK CONTROL UNIT

6" Long black jumper wire required
here when using a time clock
(included with APCD-137 or APCD-137A)



Accu-Drop Control Unit



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 troubleshooting guide [on Page 40](#) 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 troubleshooting guide [on Page 40](#) or to the instruction sheet for the proximity switch.

Test Operation of Actuator

Refer to 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

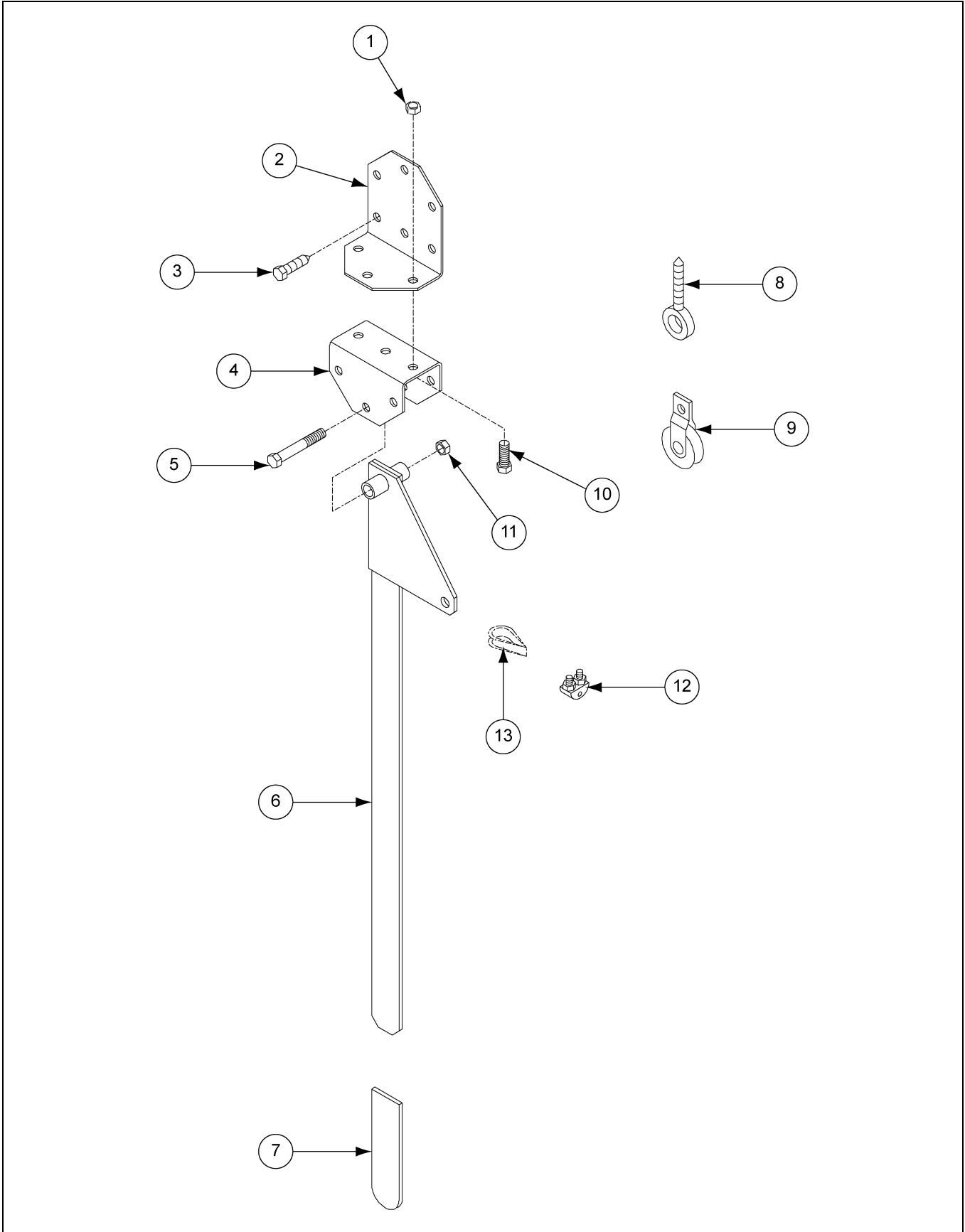
Check all connections once a month to make sure they are not slipping and causing the trip system not to work properly. Also check to make sure all pulleys stay properly secured and that they are free to rotate.

Actuator

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

1. **Manual Trip Level** - *(See Pages 32 and 33.)*
2. **Model 220/236 Ultra-Drop Feeder for Gestation Stalls (AP-3800)** - *(See Pages 34 and 35.)*
3. **Model 220/236 Ultra-Drop Feeder w/ Agitator for Farrowing Crates (AP-3800A)** - *(See Pages 36 and 37.)*
4. **Accu-Drop Feed Dispenser Control Unit - Model 220 Flex-Flo Tubing** - *(See Pages 38 and 39.)*

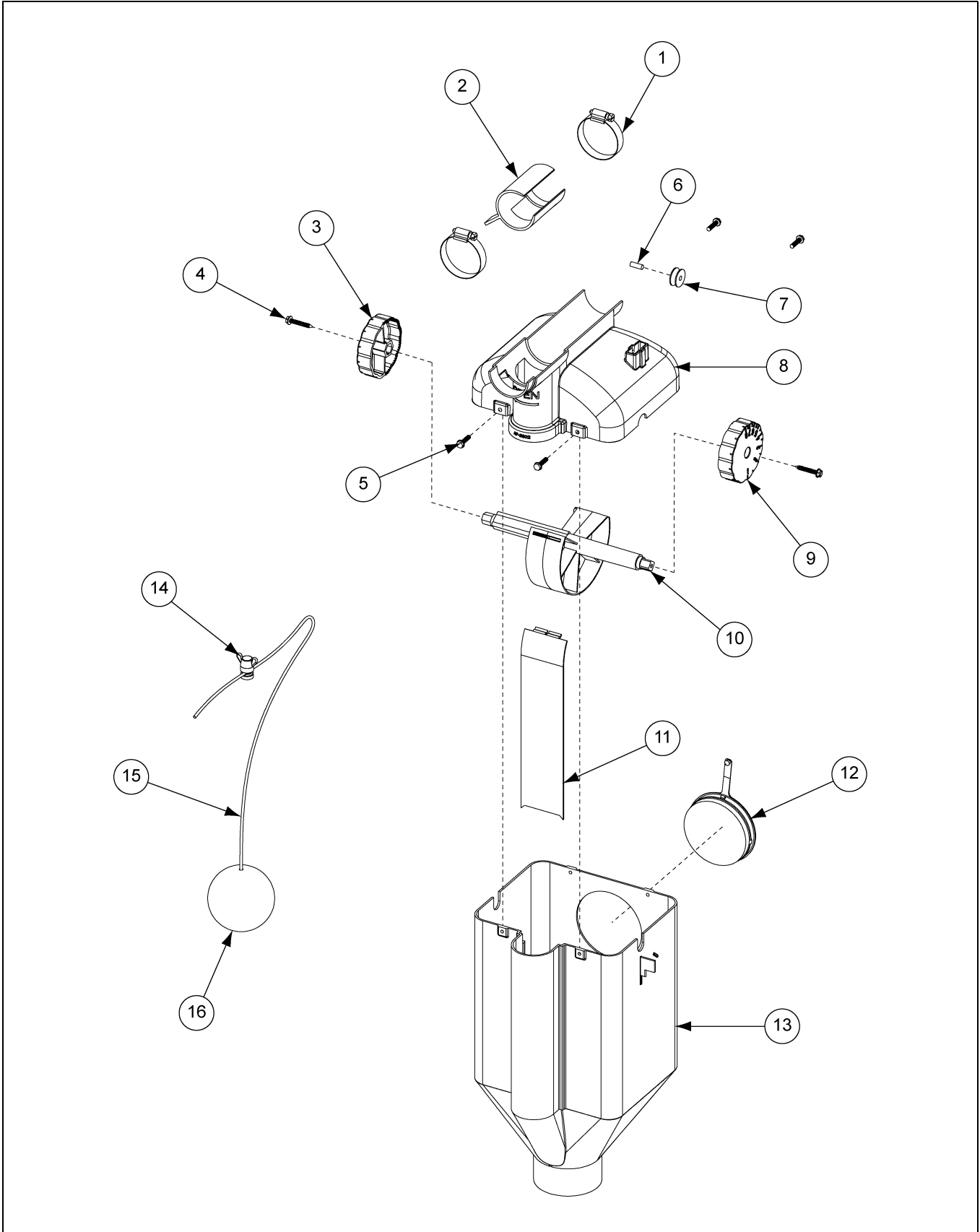
Manual Trip Level



Manual Trip Level Parts List

Ref #	Part #	Description	Qty
	FLXDF-1027	Manual Trip Level	
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	Eye Screw 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" JS500 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

Model 220/236 Ultra-Drop Feeder for Gestation Stalls (AP-3800)

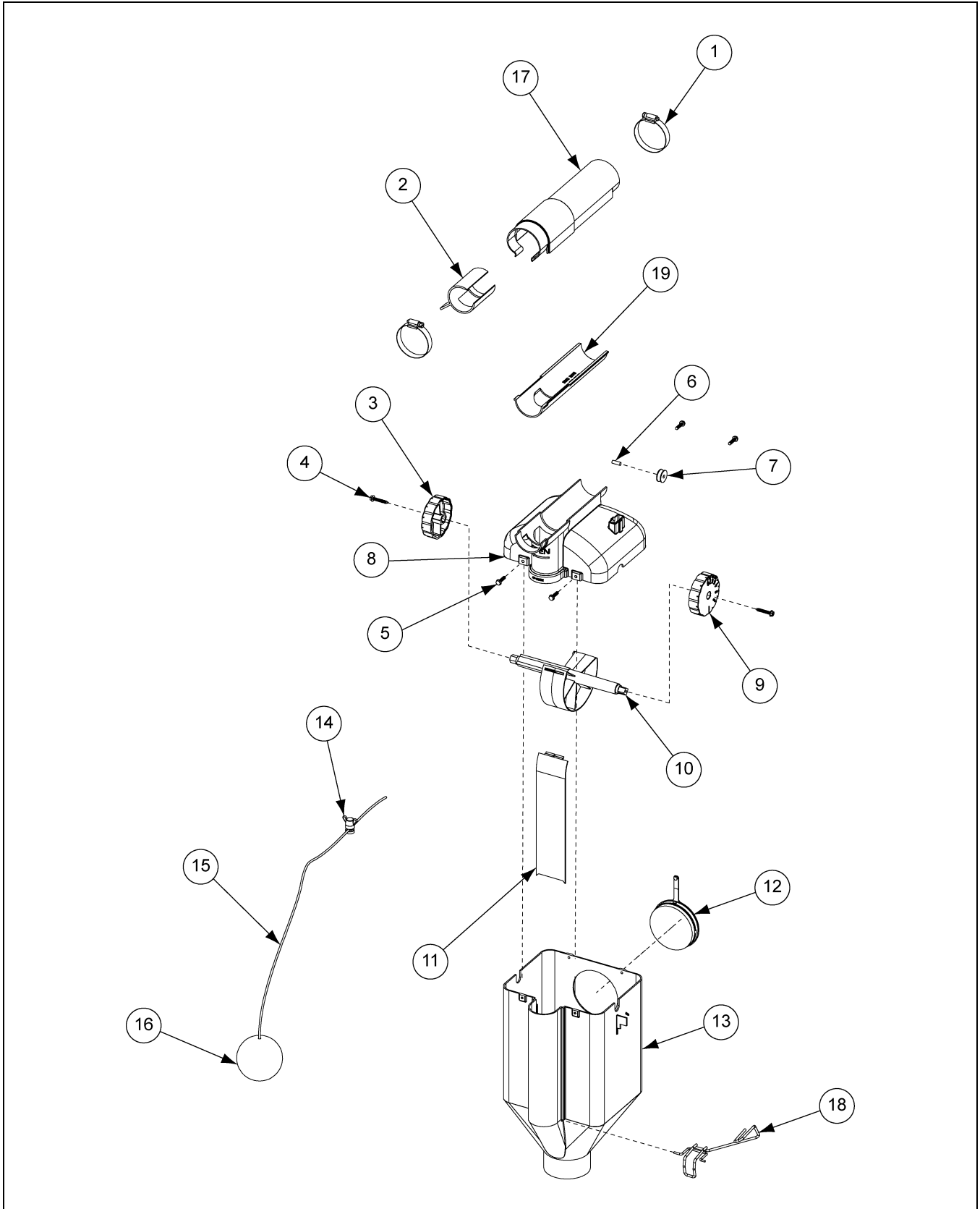


Model 220/236 Ultra-Drop Feeder for Gestation Stalls (AP-3800) Parts List

Ref #	Part #	Description	Qty
1	AP-0583	Clamp, Hose, SAE 36 - Stainless Steel 1-13/16" - 2-3/4"	2
2	AP-3807	Slide, Ultra-Drop Feeder Shut Off	1
3	AP-3804	Knob, Ultra-Drop Feeder L.H.	1
4	S-9346	Screw, SMSA #10 x 1-1/4" HWH SS	2
5	S-8045	Screw, SDS #10 x 3/4" HWH SS410	4
6	AP-3865	Pin, Ultra-Drop Feeder Pulley	1
7	35-0030S	Pulley, 7/8", Nylon Sheave	1
8	AP-3802	Top, Ultra-Drop Feeder	1
9	AP-3805	Knob, Ultra-Drop Feeder R.H.	1
10	AP-3803	Drum, Ultra-Drop Feeder	1
11	AP-3806	Slide, Ultra-Drop Feeder Adjustor	1
12	AP-3808	Cap, Ultra-Drop Feeder Hole	1
13	AP-3801	Housing, Ultra-Drop Feeder Bottom	1
14	35-0018	Bolt, Plastic Azuma Nut	1
15	AP-3866	Cord #4 Solid Braid 1/8" Whit 3'	1
16	AP-1248	Ball, 3-3/16" Diameter Solid Black Plastic	1

6. Parts List

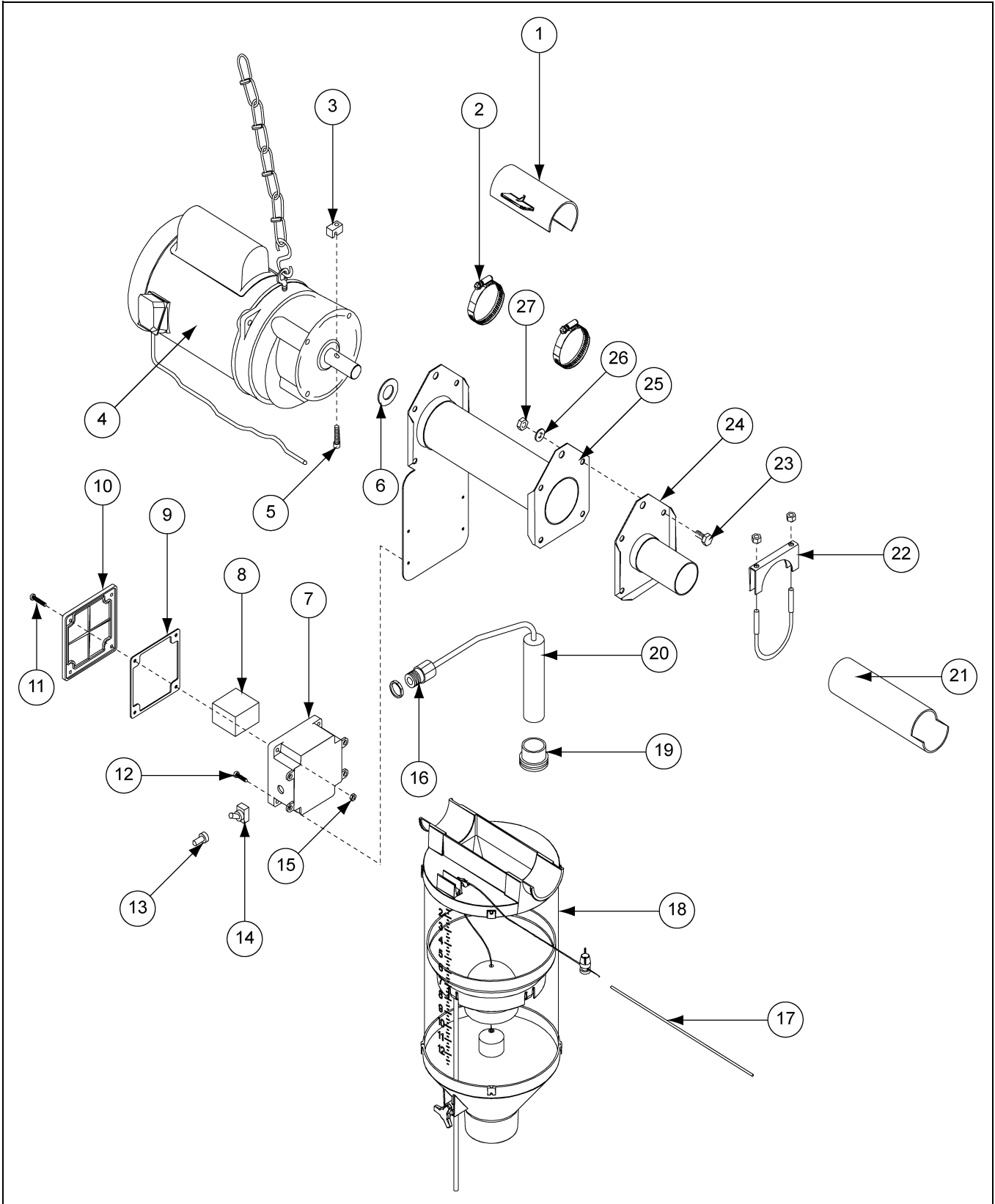
Model 220/236 Ultra-Drop Feeder w/ Agitator for Farrowing Crates (AP-3800A)



Model 220/236 Ultra-Drop Feeder w/ Agitator for Farrowing Crates (AP-3800A) Parts List

Ref #	Part #	Description	Qty
1	AP-0583	Clamp, Hose, SAE 36 - Stainless Steel 1-13/16" - 2-3/4"	2
2	AP-3807	Shield, Ultra-Drop Feeder Shut Off	1
3	AP-3804	Knob, Ultra-Drop Feeder L.H.	1
4	S-9346	Screw, SMSA #10 x 1-1/4" HWH SS	2
5	S-8045	Screw, SDS #10 x 3/4" HWH SS410	4
6	AP-3865	Pin, Ultra-Drop Feeder Pulley	1
7	35-0030S	Pulley, 7/8", Nylon Sheave	1
8	AP-3802	Top, Ultra-Drop Feeder	1
9	AP-3805	Knob, Ultra-Drop Feeder R.H.	1
10	AP-3803	Drum, Ultra-Drop Feeder	1
11	AP-3806	Slide, Ultra-Drop Feeder Adjustor	1
12	AP-3808	Cap, Ultra-Drop Feeder Hole	1
13	AP-3801	Housing, Ultra-Drop Feeder Bottom	1
14	35-0018	Bolt, Plastic Azuma Nut	1
15	AP-3866	Cord #4 Solid Braid 1/8" Whit 3'	1
16	AP-1248	Ball, 3-3/16" Diameter Solid Black Plastic	1
17	AP-3812	Guard, Ultra-Drop Feeder Water	1
18	AP-4292	Link, Ultra-Drop Agitator Assembly	1
19	APCD-429R	Ribbed Tube Spacer	1

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-5275	Model 220 Direct Drive Driver and Plastic Tube Anchor Package	
1	AP-1246	Slide, Shut Off Model 220/236 for Accu-Drop Feeder	1
2	AP-0584	Clamp, Hose, 3"-4" - Stainless Steel	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" Thread Lock Grade 8 Alloy Steel	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, Boot Weatherproof Replaces: FH-5261	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	Connector, 1/2" Cord	1
17	AP-1282	ROD, 1/8" S.S. - 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 PVC Flex-Flo Tube, 10' (3 Meters) with Belled End	
22	S-4490	Clamp, 2-1/4" Tube	1
23	S-4275	Bolt, HHCS 5/16"-18 x 3/4" ZN Grade 5	4
24	FLX-2316	Model 220 Tube Anchor Plate Assembly	1
25	AP-1258	Drop Feeder Adapter Tube for Accu-Drop Feeder Control Unit	1
26	S-845	Flat Washer 5/16" USS ZN	4
27	S-396	Hex Nut 5/16"-18 YDP Grade 2	4

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 Ultra-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.</p> <p>Refer to chain disk manual for adjustment of time delay switch inside control unit.</p>
Pigs agitate Ultra-Drop causing feed to sift out.	<p>Ultra-Drops are supported by or rigidly connected to the gestation stall.</p>	<p>Install the Ultra-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 Ultra-Drops per section of rod.</p>	<p>Re-adjust ball assemblies. <i>(See Ball Assemblies on Page 24.)</i></p> <p>Limit number of Ultra-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 Ultra-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 Ultra-Drops to recommended quantity. (Refer to installation of trip actuator on Page 19.)</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	Fractions	Decimals	Millimeters
1/64	0.0156	0.3969	33/64	0.5156	13.0969
1/32	0.0313	0.07938	17/32	0.5313	13.4938
3/64	0.0469	1.1906	35/64	0.5469	13.8906
1/16	0.0625	1.5875	9/16	0.5625	14.2875
5/64	0.0781	1.9844	37/64	0.5781	14.6844
3/32	0.0938	2.3813	19/32	0.5938	15.0813
7/64	0.1094	2.7781	39/64	0.6094	15.4781
1/8	0.125	3.1750	5/8	0.625	15.8750
9/64	0.1406	3.5719	41/64	0.6406	16.2719
5/32	0.1563	3.9688	21/32	0.6563	16.6688
11/64	0.1719	4.3656	43/64	0.6719	17.0656
3/16	1.875	4.7625	11/16	0.6875	17.4625
13/64	0.2031	5.1594	45/64	0.7031	17.8594
7/32	0.2188	5.5563	23/32	0.7188	18.2563
15/64	0.2344	5.9531	47/64	0.7344	18.6531
1/4	0.250	6.3500	3/4	0.750	19.0500
17/64	0.2656	6.7469	49/64	0.7656	19.4469
9/32	0.2813	7.1438	25/32	0.7813	19.8438
19/64	0.2969	7.5406	51/64	0.7969	20.2406
5/16	0.3125	7.9375	13/16	0.8125	20.6375
21/64	0.3281	8.3344	53/64	0.8281	21.0344
11/32	0.3438	8.7313	27/32	0.8438	21.4313
23/64	0.3594	9.1281	55/64	0.8594	21.8281
3/8	0.375	9.5250	7/8	0.875	22.2250
25/64	0.3906	9.9219	57/64	0.8906	22.6219
13/32	0.4063	10.3188	29/32	0.9063	23.0188
27/64	0.4219	10.7156	59/64	0.9219	23.4156
7/16	0.4375	11.1125	15/16	0.9375	23.8125
29/64	0.4531	11.5094	61/64	0.9531	24.2094
15/32	0.4688	11.9063	31/32	0.9688	24.6063
31/64	0.4844	12.3031	63/64	0.9844	25.0031
1/2	0.500	12.7000	1	1.000	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	
AP and Cumberland	Flex-Flo/Pan Feeding System Motors	2 Years	** Warranty prorated from list price: 0 to 3 years - no cost to end-user 3 to 5 years - end-user pays 50%
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	† Motors, burner components and moving parts not included. Portable dryer screens included. Tower dryer screens not included.
Grain Systems Farm Fans Zimmerman	Portable and Tower Dryers	2 Years	
	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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