



Feed Flow Hammer

Installation and Operation Manual

PNEG-1887

Version: 7.0

Date: 10-20-23



RECOGNIZED
COMPONENT



Intertek



PNEG-1887

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.

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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. Read and save these instructions.

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-0001-4

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

Operate Motor Properly

- All electrical connections must be made in accordance with applicable local codes (National Electrical Code for the US, Canadian Electric Code, or EN60204 along with applicable European Directives for Europe). Make sure equipment and bins are properly grounded.
- Lock-out power 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 drive components.



ST-0009-3

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

Lifting Hazard

- Single person lift can cause injury.
- Use a mechanical lifting device to lift or move the equipment during installation.



ST-0021-2

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

1. Safety



IMPORTANT SAFETY INSTRUCTIONS

When using electric appliances, basic precautions should always be followed, including the following:

- ***Read all the instructions before using the appliance.***
 - ***To reduce the risk of injury, close supervision is necessary when an appliance is used near children.***
 - ***Do not contact moving parts.***
 - ***Only use attachments recommended or sold by the manufacturer.***
 - ***For a permanently connected appliance - Turn the power switch to the OFF position, when the appliance is not in use and before servicing or cleaning.***
 - ***For a grounded appliance - Proper grounding must be provided.***
- See Grounding Instructions.***

SAVE THESE INSTRUCTIONS

Safety Sign-Off Sheet

Below is a sign-off sheet that can be used to verify that all personnel have read and understood the safety instructions. This sign-off sheet is provided for your convenience and personal record keeping.

[illegible]

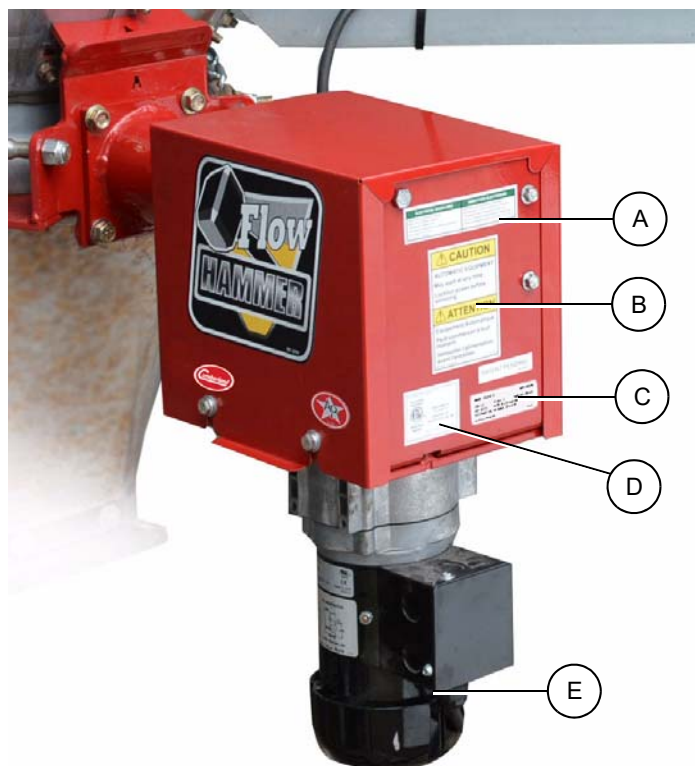
ST-0007

This page shows where product safety decals should be placed on the Flow Hammer. If a decal is missing, damaged or unreadable, please contact your dealer or the GSI Group for a free replacement.

Contact:

GSI Group

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



Model: FLX-5185

mm/dd/yyyy

HP: 1/8

Phase: 1

Voltage: 230 VAC

HZ: 60 / 50

RPM: 60 / 50 (output)

Serv Fact: 1.0

FL Amps: 0.7 / 0.58

GSI Group, Inc. 217-226-4421

DC-2301

DC-2301

Product / Model: Flow Hammer

RECOGNIZED
COMPONENT



Intertek
4000801

CONFORMS TO
UL STD 73
CERTIFIED TO
CSA STD C22.2 NO. 68

GSI Group, Inc. 217-226-4421

DC-2268

DC-2268



CAUTION

AUTOMATIC EQUIPMENT
May start at any time.
Lockout power before
servicing.



ATTENTION

Equipement Automatique
Peut commencer à tout
moment.
Verrouiller l'alimentation
avant l'entretien.

GSI Group 217-226-4421

DC-2302

DC-2302 is located on the
Flow Hammer gear box cover.



DANGER

HIGH VOLTAGE

Will cause serious
injury or death.
Lockout power
before servicing.

GSI Group 217-226-4421



DANGER

HAUTE TENSION

Causera de sérieuses
blessures ou la mort.
Couper/verrouiller le
courant avant l'entretien.

DC-1948

DC-1948 is located on the Flow Hammer motor. (NOTE: Not shown.)

ELECTRICAL GUIDELINES

- Method for permanent wiring:
RIGID OR FLEXIBLE CONDUIT
- Suitable for outdoor use
- For supply connection, use wires acceptable
for at least 75 C (167 F)

GSI Group 217-226-4421

DIRECTIVES ÉLECTRIQUES

- Méthode pour l'installation électrique
permanente : CONDUIT RIGIDE OU FLEXIBLE
- Convenable pour l'utilisation en plein air
- Pour la connexion d'alimentation, utilisez des
câbles acceptable pendant au moins 75 C (167 F)

DC-2291

DC-2291 is located on the Flow Hammer gear box cover.

Installing the Mounting Bracket on 16" Collars

1. Connect the end links of the chain (A) to the clevis using 3/8" x 1-1/2" bolts (B) and nuts (C).
(See Figure 3A.)

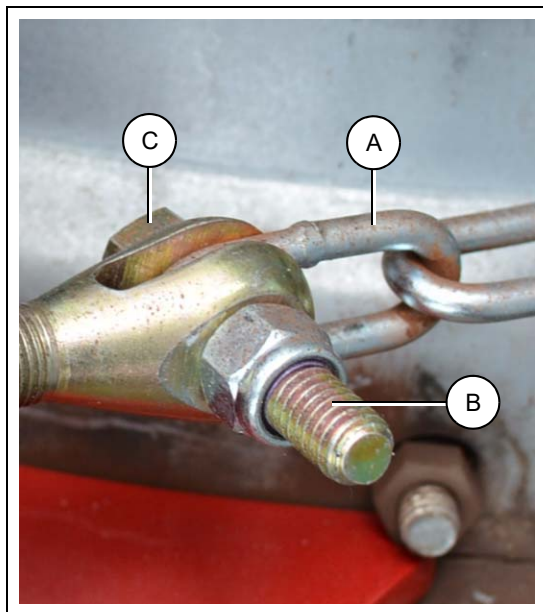


Figure 3A

Ref #	Part #	Description
A	FLX-5240	Chain
B	S-7486	Flange Bolt 3/8"-16 x 1-1/2"
C	S-7383	3/8" Nut

2. Position the mounting bracket against the bin hopper with the bottom of the mounting bracket seated on the hopper collar lip. The top of the bracket is marked with a letter. (See Figure 3B.)
3. Wrap the chain around the hopper collar.
4. Attach each clevis to the mounting bracket using a fine thread nut (1FH0728) and torque to 15-20 ft. lbs.

NOTE: Do not overtighten. If there is any slack in the chain, reduce the chain length by one link.

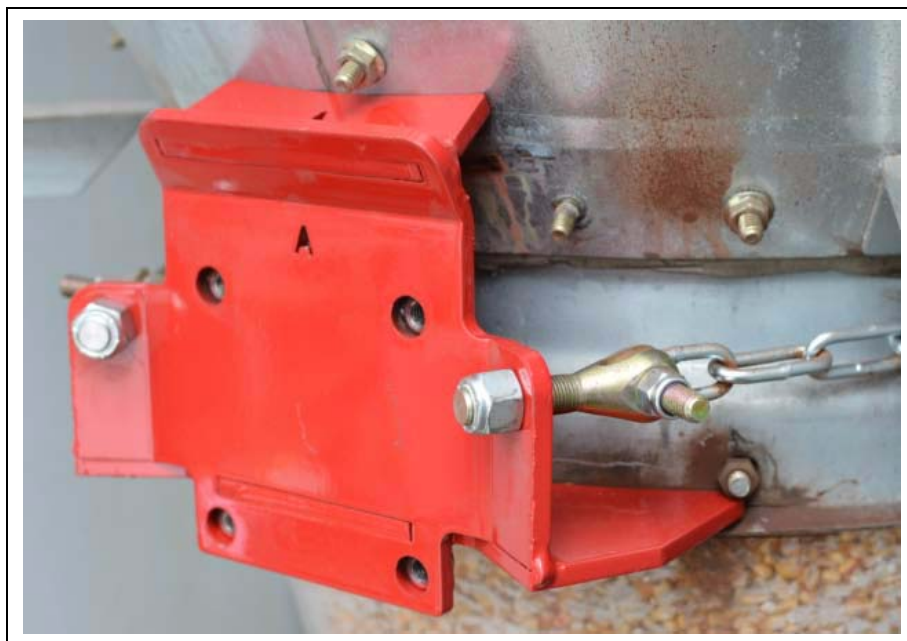


Figure 3B

Connecting the Power Unit to the Mounting Plate on 16" Collars

1. Align the holes on power unit (C) with the holes in the mounting plate.
2. Fasten them together with bolts (B). (See Figure 3C.)

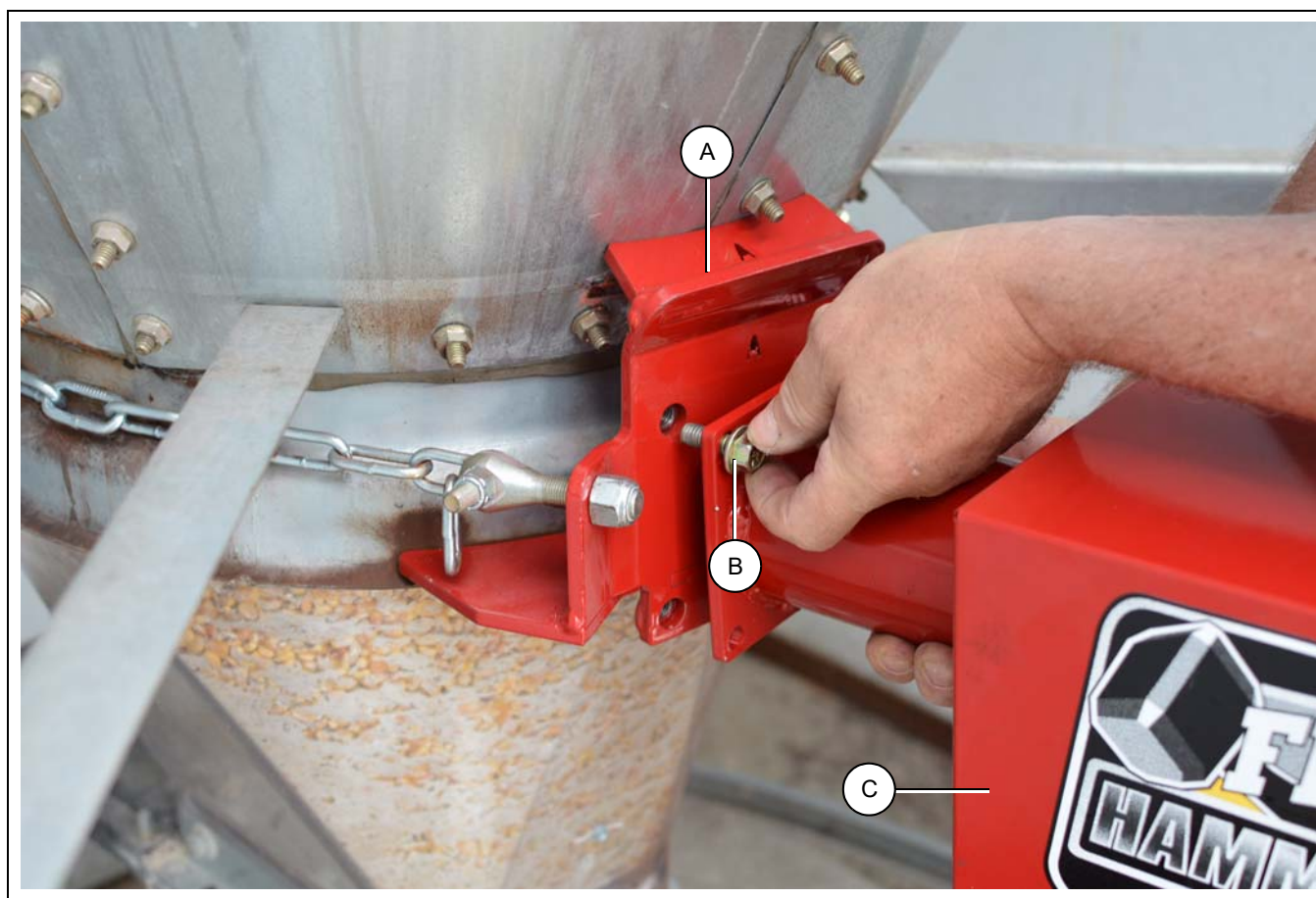


Figure 3C

Ref #	Part #	Description
A	FLX-5187	Chain Mount Assembly
B	S-7486	Flange Bolt 3/8"-16 x 1-1/2"
C	FLX-5185A	Power Unit Assembly



To avoid injury, two (2) persons should assist in lifting the power unit during installation.

3. Assembly

Installing the Mounting Bracket on 22" Collars

1. Remove and discard eight (8) existing bolts and nuts from the square collar as shown in [Figure 3D](#).
2. Slide mounting bracket (A) into position over the edge of the square collar as shown in [Figure 3E](#).
3. Insert the eight (8) provided 5/16"-18 x 1-1/4" grade 8 hex bolts (B) and nylock nuts (C) in place of the eight (8) bolts and nuts removed in [Step 1](#). (See [Figure 3D](#).) Tighten these new bolts and nylock nuts securely.

Connecting the Power Unit to the Mounting Plate on 22" Collars

1. Align the four (4) holes on power unit (D) with the holes in the mounting plate (A). (See [Figure 3D](#).)
2. Fasten them together using the four (4) 3/8"-16 x 1-1/2" hex head flange bolt (E).

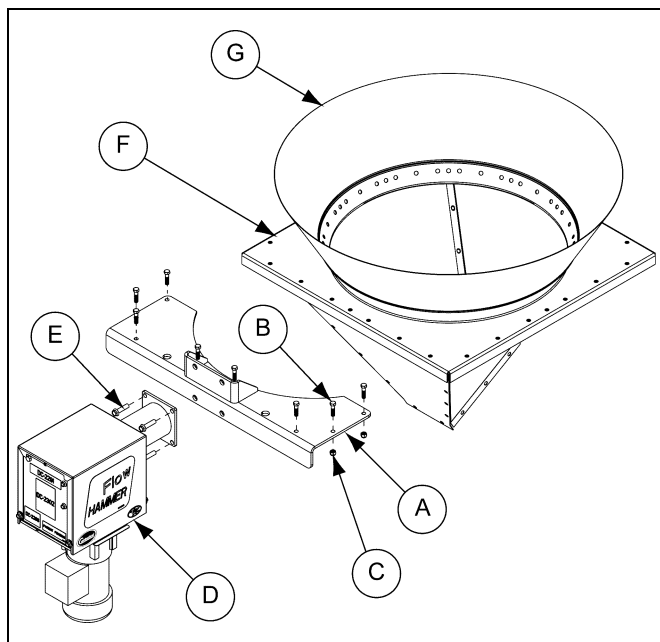


Figure 3D Exploded View

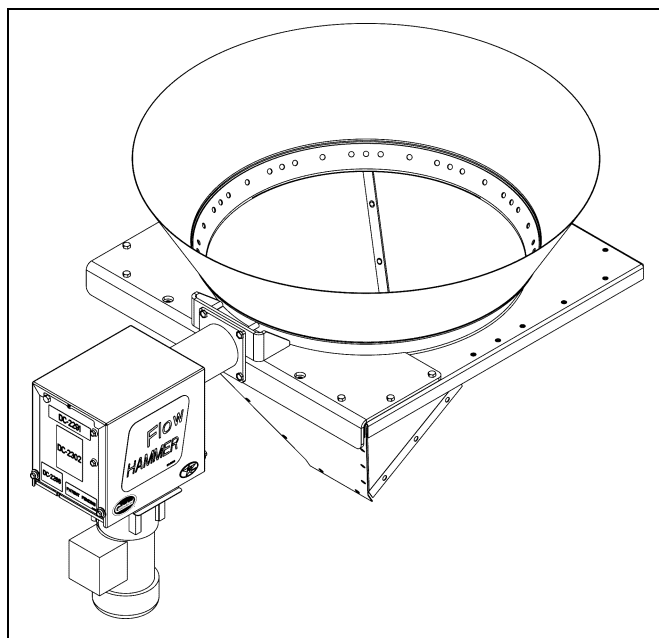


Figure 3E Assembled View

Ref #	Part #	Description
A	FLX-5199-RD	Mounting Bracket - 22" Collar
B	S-9350	Bolt, HHCS 5/16"-18 x 1-1/4"
C	S-7382	Nylock Nut 5/16"-18
D	FLX-5185A	Power Unit Assembly
E	S-7486	Flange Bolt 3/8"-16 x 1-1/2"
F		22" Collar
G		60° Hopper



To avoid injury, two (2) persons should assist in lifting the power unit during installation.

Mounting the Control Unit to the Bin Leg

1. Attach the control unit (A) to the control unit mounting bracket (B) (not provided). *(See Figure 3F.)*

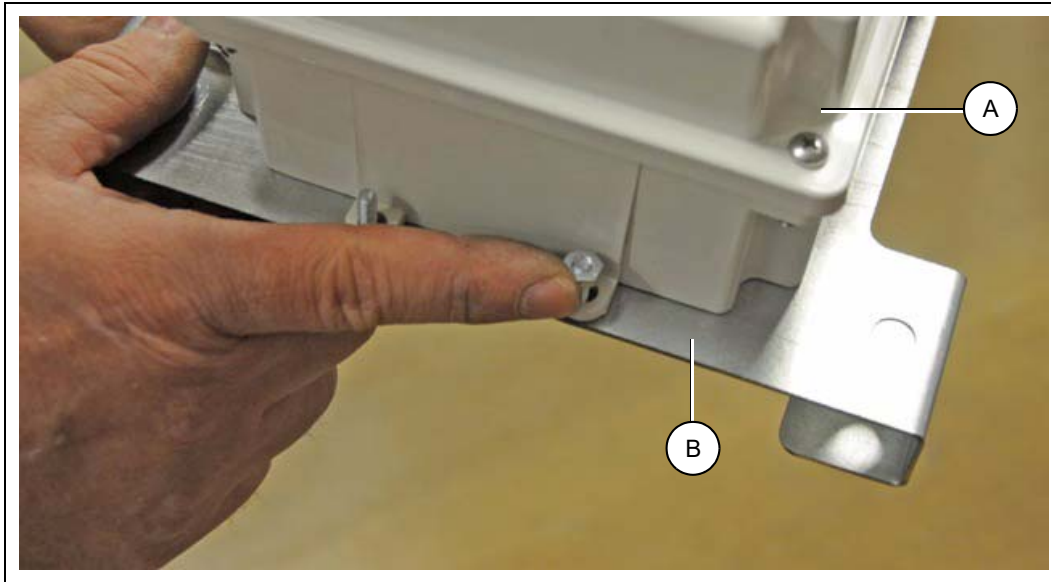


Figure 3F

Ref #	Part #	Description
A	FLX-5194	Control Unit
B	INT-4812	Control Unit Mounting Bracket

2. Mount the bracket to the bin leg using the provided bolts (S-7515) and nuts (S-7383). *(See Figure 3G.)*



Figure 3G

Routing the Motor Cord to the Control Box



To avoid electric shock, disconnect and lock out power source when making electrical connections.

1. Connect four (4) conductor SJO motor cord (not provided) to motor according to wiring diagrams. Capacitor should be housed inside conduit box on side of motor.
2. Route the motor cord from the power unit assembly (A) along the bin frame, up the bin leg to the control unit (FLX-5194).
3. Fasten the cord to bin structure with zip ties. *(See Figure 3H.)*
4. Connect motor cord to the control unit according to the wiring diagrams.



Figure 3H

Ref #	Part #	Description
A	FLX-5185A	Power Unit Assembly
B		Power Cord

Connecting Power to the Control Box

1. Study wiring diagrams and select which diagram best applies to the application.
2. Route high voltage cord (230 VAC) or individual conductors in a conduit from the power source to the control unit (FLX-5194) according to wiring diagrams [on Page 18](#) or [on Page 25](#).
3. For **Timer Mode**, connect low voltage two (2) conductor cord (22 AWG minimum) from dry contact relay (AP-3775), to control unit (FLX-5194) according to wiring diagram [on Page 18](#).
4. For **Proximity Switch Mode**, connect the proximity switch cords inside control unit (FLX-5194) according to the wiring diagram [on Page 25](#).

4. Operating in Timer Mode

Timer Mode

In **Timer Mode**, the Flow Hammer can only run when an auger turns ON. At that time, the “On/Off” cycle will start, beginning with a 4 minutes “Off” cycle followed by a 1 minute “On” cycle.

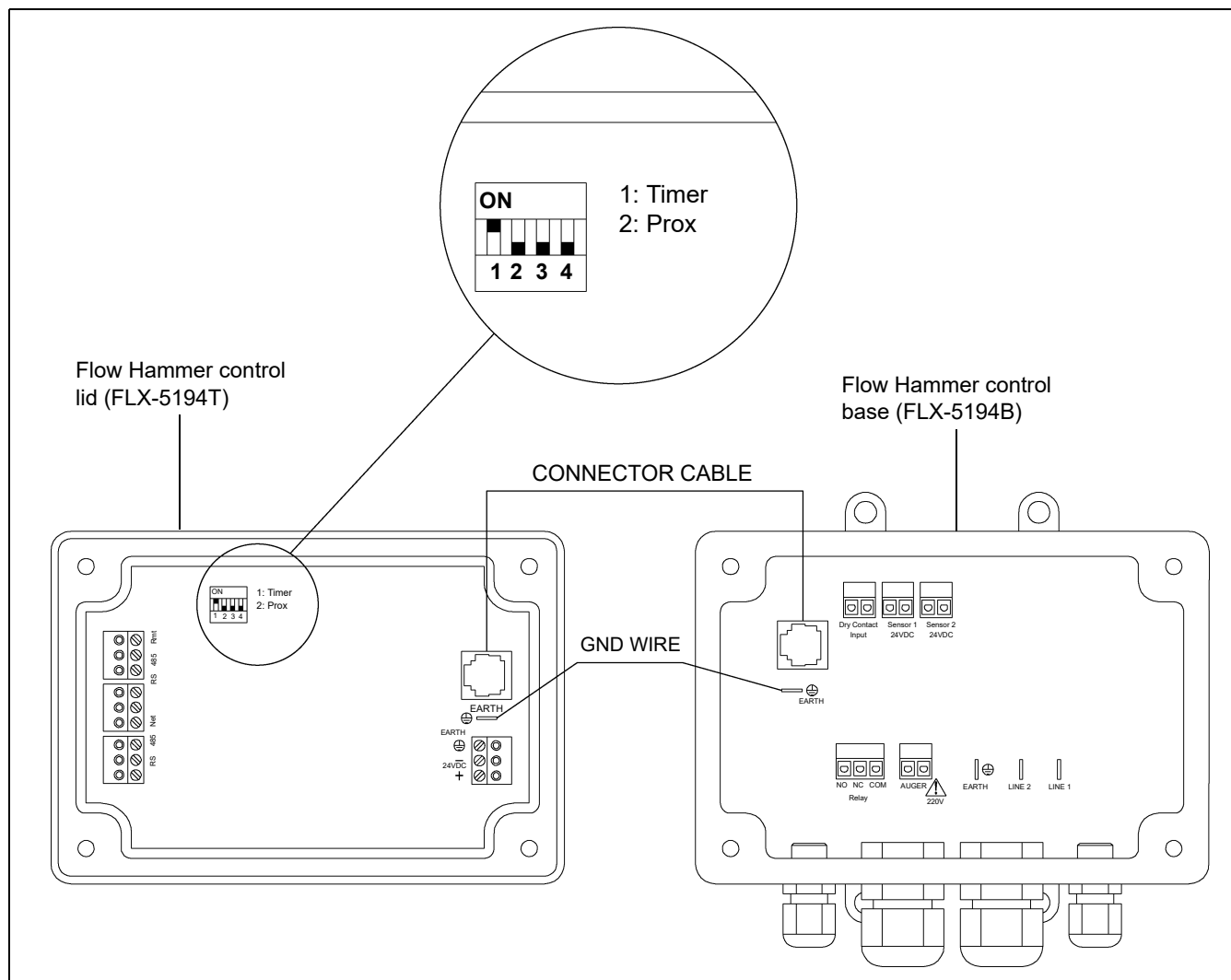


Figure 4A Dip Switch Settings for Timer Mode

To Change to Timer Mode

1. Remove the control unit lid.
2. Inside the lid, turn dip switch #1 to **ON** position according to [Figure 4A](#). Switch #2, #3 and #4 must be in **OFF** position.

To Program “Maximum Run” Time While in Timer Mode

In **Timer Mode**, “Maximum Run” Time refers to “Auger Run” Time.

1. Push the “Menu” button to get to “Maximum Run”.
2. Use the up and down arrow buttons to change the “Maximum Run” time setting. (Holding the arrow buttons down continuously speeds up the adjustment process.) The “Maximum Run” time can be set in 1 minute increments from 1 minute to 4 hours.
3. When the desired setting is achieved, push the “Enter” button to save this setting.

Alarms

The only alarm the Flow Hammer has is for **“Maximum Run”** Time. Any time the **“Maximum Run”** Time expires, the alarm indicator light will come ON and the Flow Hammer operation is disabled. Push the **“On/Off”** button to reset or clear alarm. This will return the Flow Hammer back to normal operation.

Disabling and Enabling the Flow Hammer

For tandem feed bin systems, the Flow Hammers for both bins are tied together, so that they will both run according to the **“On/Off”** cycle time. If the slide gates are closed for one of the bins or if one of the bins is empty, the Flow Hammer for this bin should be disabled to avoid needless use.

To Disable the Flow Hammer

1. Push the **“On/Off”** button for this control.
2. The display will show **“Disabled”**.

To Enable the Flow Hammer to Run

1. Push the **“On/Off”** button again.
2. The display will now show **“Ready”** and is set for normal operation.

4. Operating in Timer Mode

Flow Hammer Wiring Diagram Using Timer Mode and Dry Contact Input

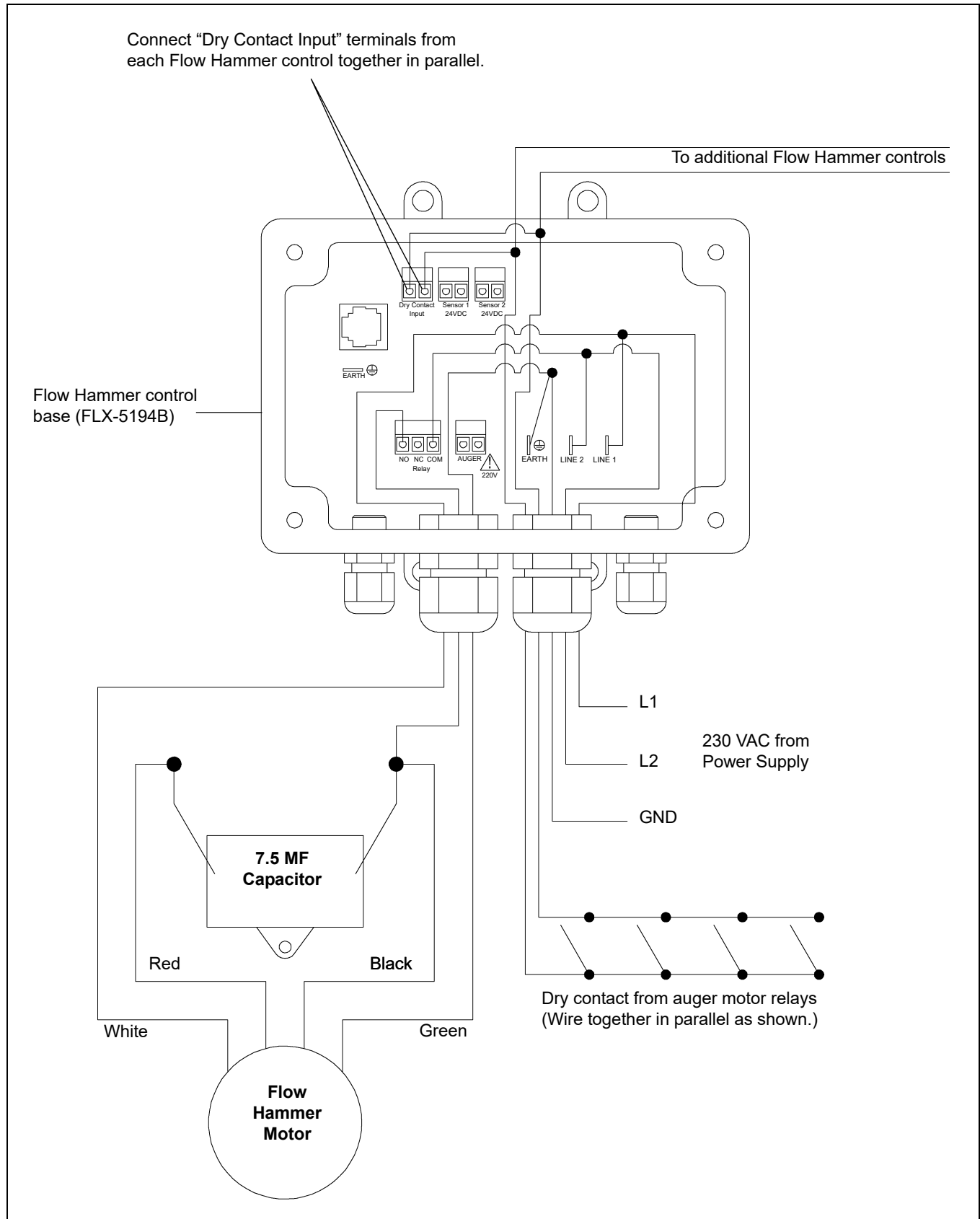


Figure 4B

Flow Hammer Wiring Diagram Using Timer Mode and Relay Output from FLX-5350 Control Unit

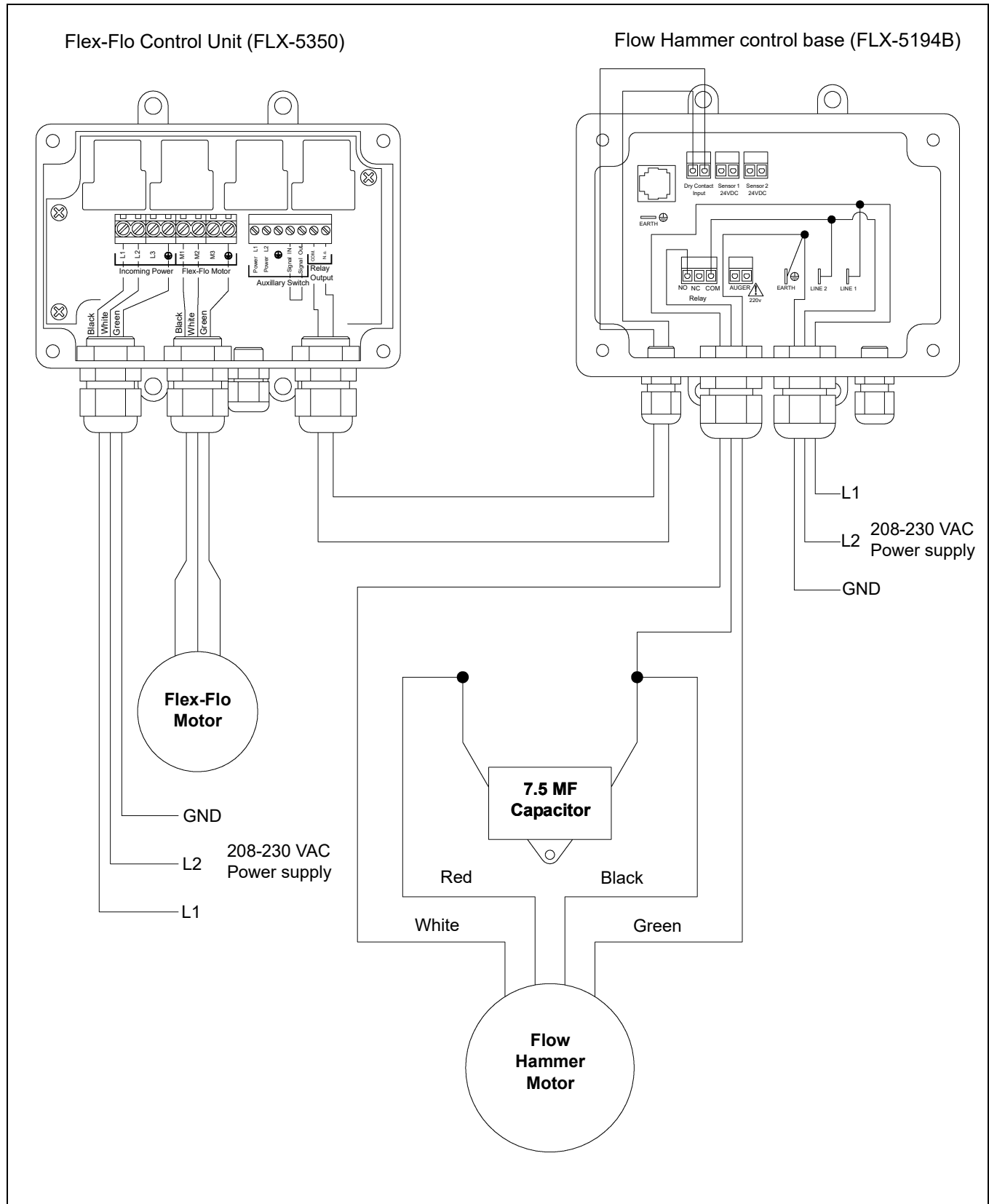


Figure 4C

5. Operating in Proximity Switch Mode

Proximity Switch Mode

In **Proximity Switch Mode**, the *Flow Hammer* will run independent of the auger. The Flow Hammer can only run when either proximity switch detects a feed bridge.

Any time the Flow Hammer runs to clear a feed bridge, it will run for a minimum of **30 seconds** or until the bridge is cleared, whichever is longer.

In **Proximity Switch Mode**, the “**Maximum Run**” time is the maximum time the Flow Hammer will run during one cycle to clear a feed bridge. If the feed bridge is not cleared in that amount of time, the Flow Hammer will shut off and be disabled until the “**On/Off**” button is pushed to reset alarm. If the “**Maximum Run**” time expires due to an empty bin, when new feed is added to the bin and is detected again by the proximity switch, the Flow Hammer will automatically reset and will begin to operate normally again.

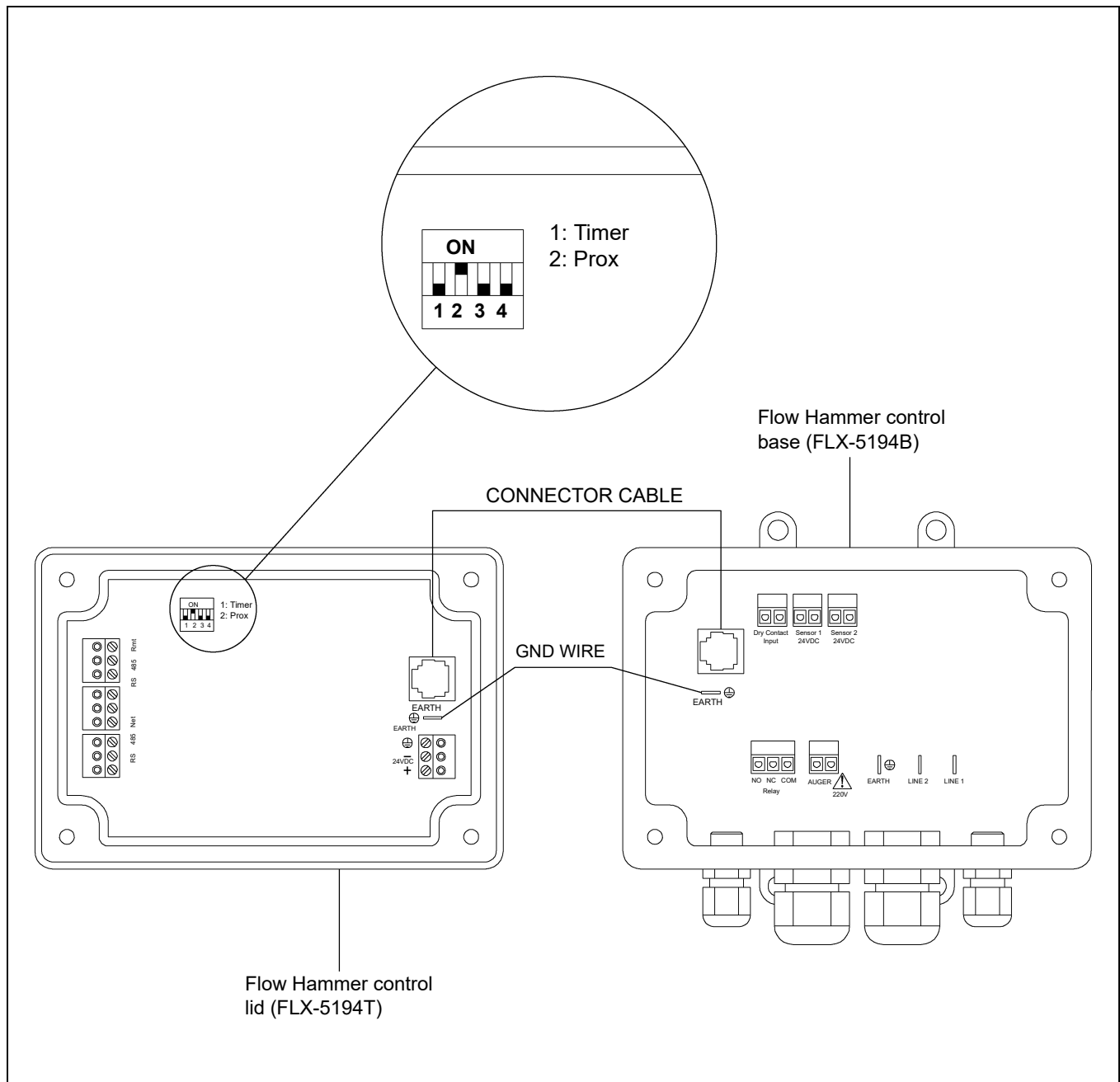


Figure 5A Dip Switch Settings for Proximity Mode

To Change to Proximity Switch Mode

1. Remove the control unit lid.
2. Inside the lid, turn **ON** dip switch #2. Dip switches #1, #3 and #4 must be turned OFF.
(See Figure 5A on Page 20.)

To Program “Maximum Run” Time While in Proximity Switch Mode

In Proximity Switch Mode, **Maximum Run** time refers to Flow Hammer “Run” Time.

1. Push the “**Menu**” button to get to “**Maximum Run**”.
2. Use the up and down arrow buttons to change the “**Maximum Run**” time setting. (Holding the arrow buttons down continuously speeds up the adjustment process.) The “**Maximum Run**” time can be set in 1 minute increments from 1 minute to 1 hour.
3. When the desired setting is achieved, push the “**Enter**” button to save this setting.

Alarms

The only alarm the Flow Hammer has is for “**Maximum Run**” Time. Any time the “**Maximum Run**” Time expires, the alarm indicator light will come ON and the Flow Hammer operation is disabled. Push the “**On/Off**” button to reset or clear alarm. This will return the Flow Hammer back to normal operation.

Disabling and Enabling the Flow Hammer

If the slide gates are closed for one of the bins or if one of the bins is empty, the Flow Hammer for this bin should be disabled to avoid needless use.

To Disable the Flow Hammer

1. Push the “**On/Off**” button for this control.
2. The display will show “**Disabled**”.

To Enable the Flow Hammer to Run

1. Push the “**On/Off**” button again.
2. The display will now show “**Ready**” and is set for normal operation.

Proximity Switch Requirements

1. Normally closed (N.C.) proximity switches are required.
2. They must be of two (2) wire design capable of operating on 24 VDC.
3. The proximity switches must also be at least “IP67 rating” and compatible for outdoor use. We recommend using the following AP part number: **FLXDF-1172**

Installing the Proximity Switch in a Single Boot

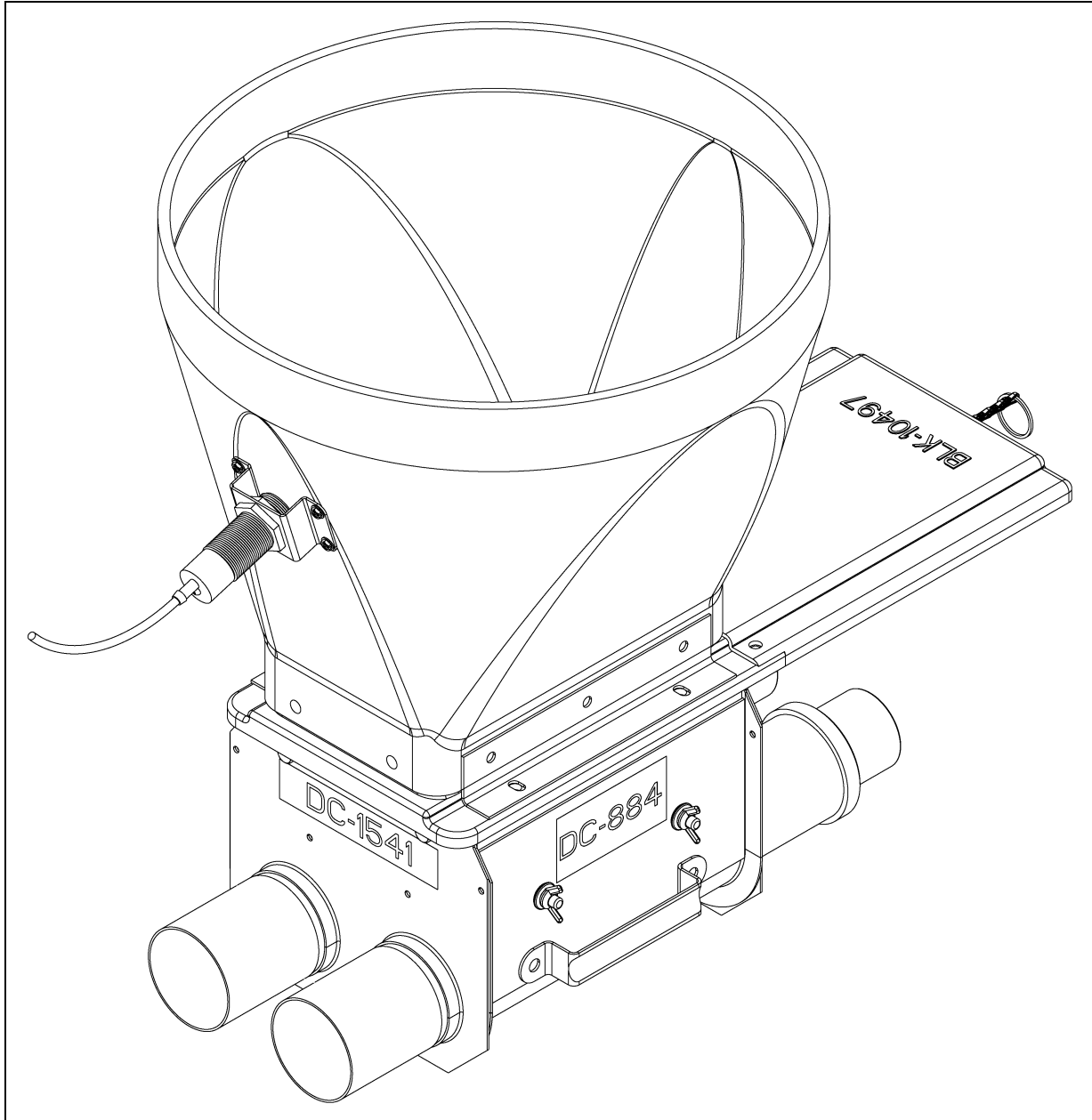


Figure 5B *Location of Proximity Switch for Single Boot*

1. Locate the proximity switch on the front side of the boot, approximate 7" above and to the **opposite** side of the slide gate.
2. Attach the Proximity Switch and Mounting Bracket Kit (FLX-5207) to the plastic boot as shown in [Figure 5B](#), using four (4) #10-16 HWH SDS screws provided in the kit.
3. Adjust the proximity switch until the end of the sensor is **touching** the outside surface of the plastic boot.
4. Place adjustment decal included with proximity switch kit close by in a convenient location for future reference.

Installing the Proximity Switch in a Double Boot

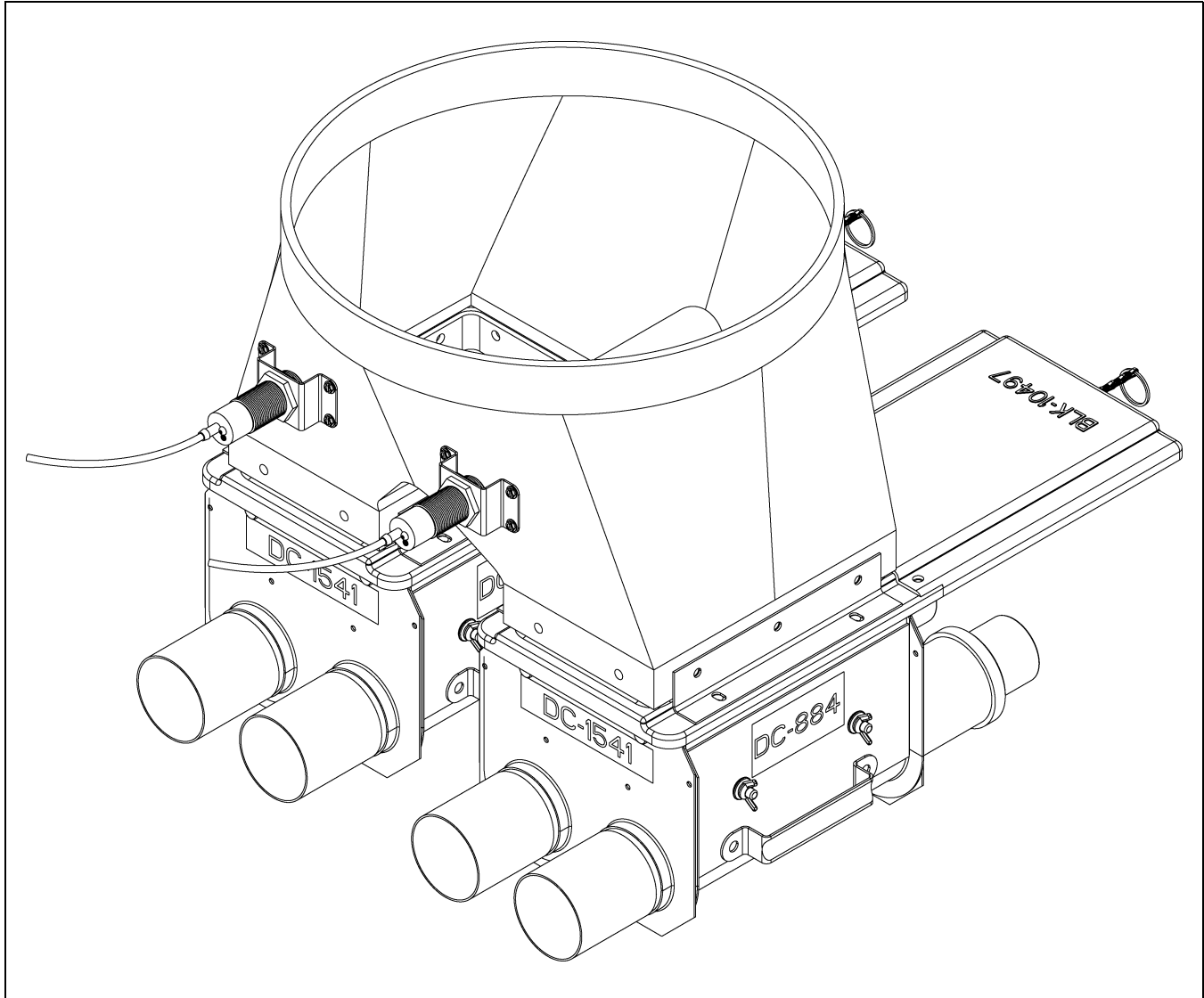


Figure 5C Location of Proximity Switches for Double Boot

1. Use two (2) proximity switches, one on each fork of the boot.
2. Locate the proximity switches on the front side of the boot, approximate 7" above and to the **opposite** side of the slide gates.
3. Attach the Proximity Switch and Mounting Bracket Kits (FLX-5207) to the plastic boot as shown in [Figure 5C](#), using four (4) #10-16 HWH SDS screws provided in the kits.
4. Adjust the proximity switches until the end of the sensors are **touching** the outside surface of the plastic boot.
5. Place adjustment decal included with proximity switch kit close by in a convenient location for future reference.

Proximity Switch Adjustment Instructions

Installation

Install mounting bracket and sensor 7" above transfer plate. Adjust plastic mounting nuts until end of sensor contacts boot. (See Figure 5D.)

Sensitivity Adjustment

Boot Full of Feed

1. Turn adjusting screw counterclockwise until indicator lights comes ON.
2. Slowly turn adjusting screw clockwise until indicator light just goes out.
3. Turn adjusting screw an additional 3/4 turn clockwise.

Boot Empty of Feed

1. Turn adjusting screw clockwise until indicator lights goes out.
2. Slowly turn adjusting screw counterclockwise until indicator light just comes ON.
3. Turn adjusting screw an additional 3/4 turn counterclockwise.

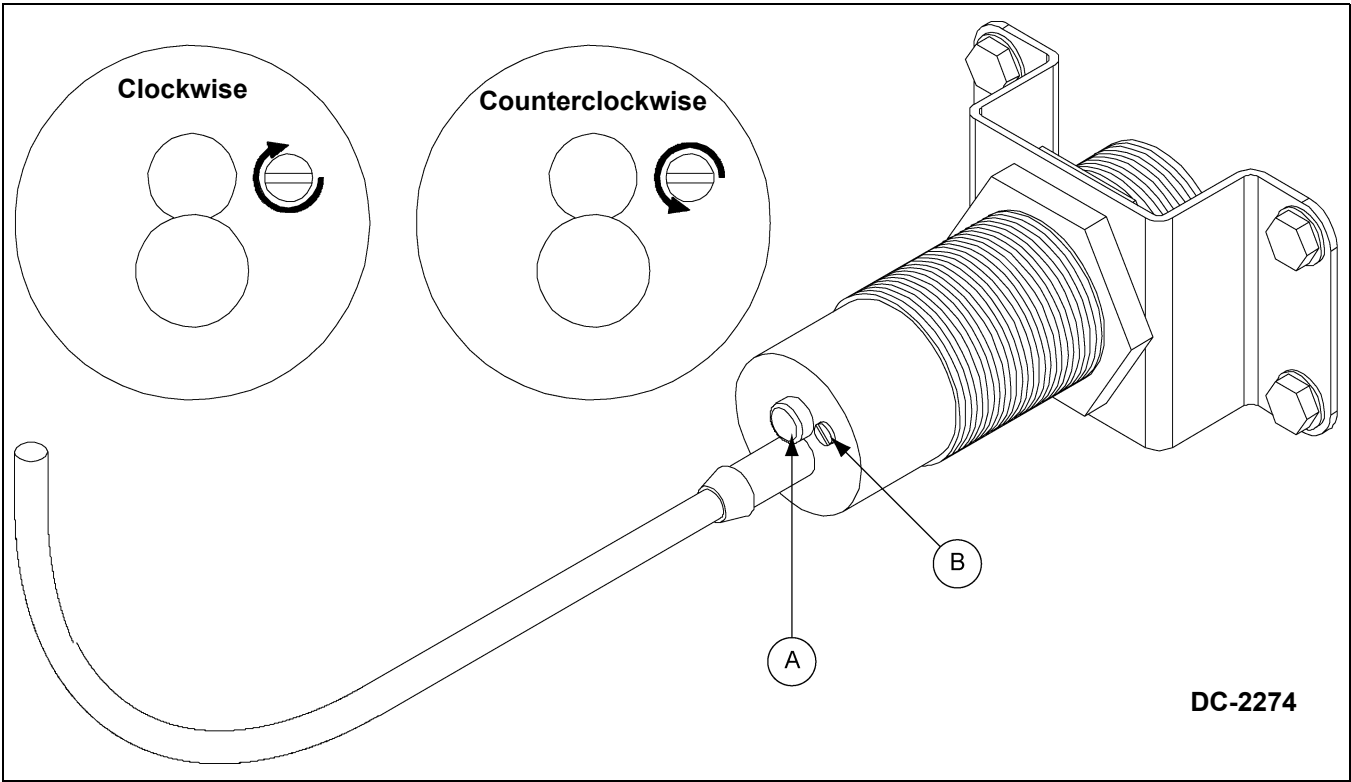


Figure 5D

Ref #	Description
A	Indicator Light
B	Adjusting Screw

Flow Hammer Wiring Diagram Using Proximity Switch Mode

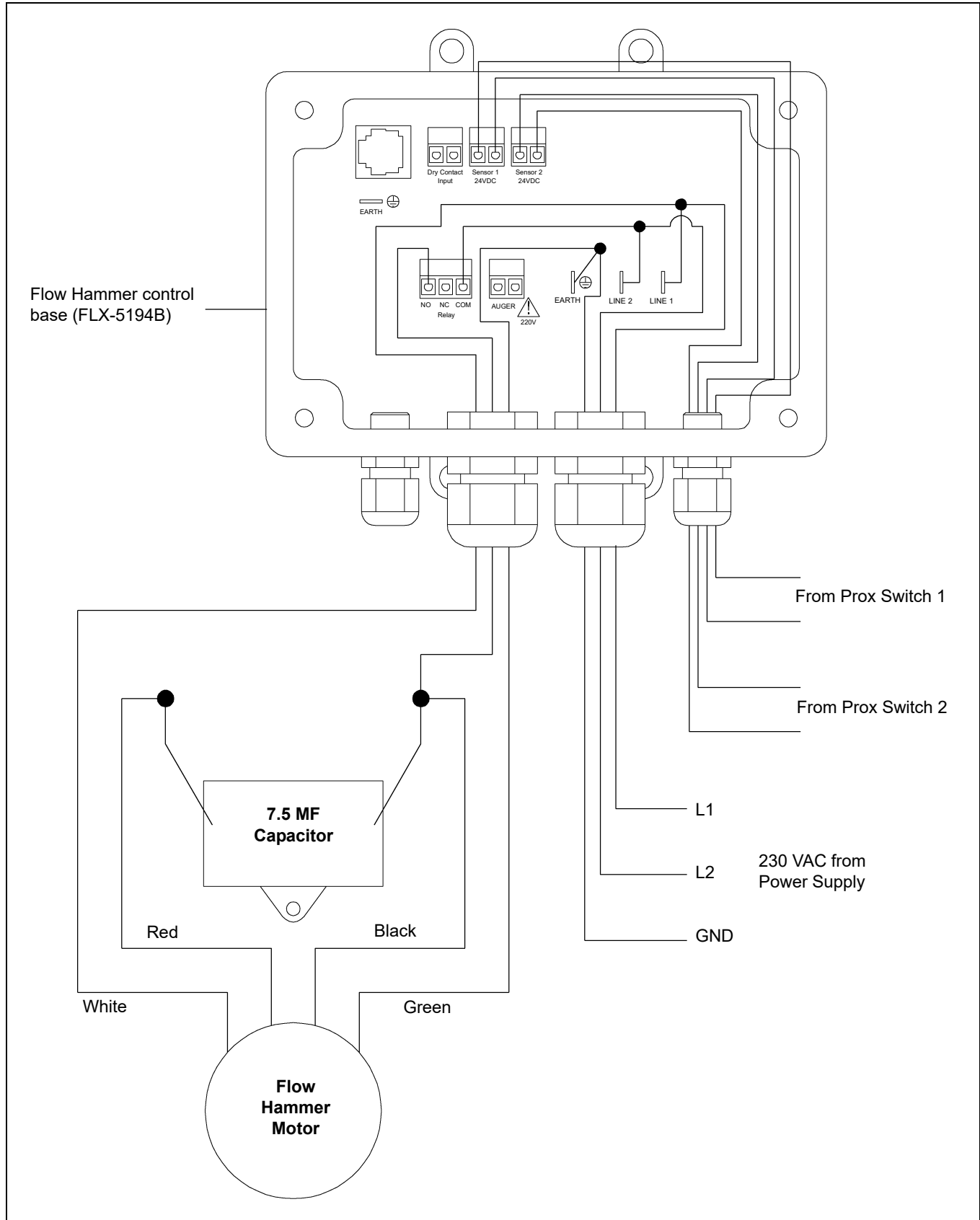


Figure 5E

Greasing the Bearings

Bearings should be greased every three (3) months of operation.

- 1. Remove hammer cover.
- 2. Use standard lithium based grease gun to grease the three (3) bearings. *(See Figure 6A and Figure 6B.)*

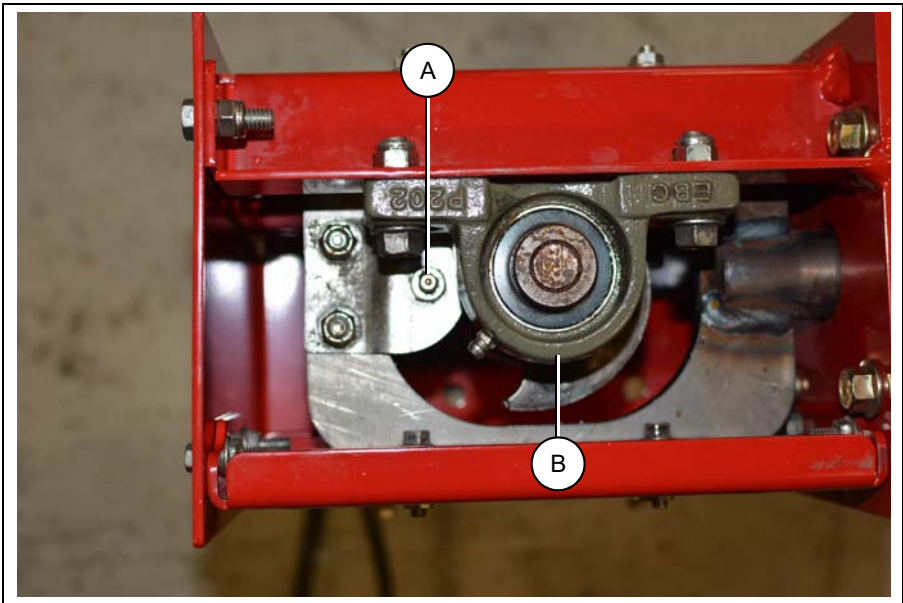


Figure 6A

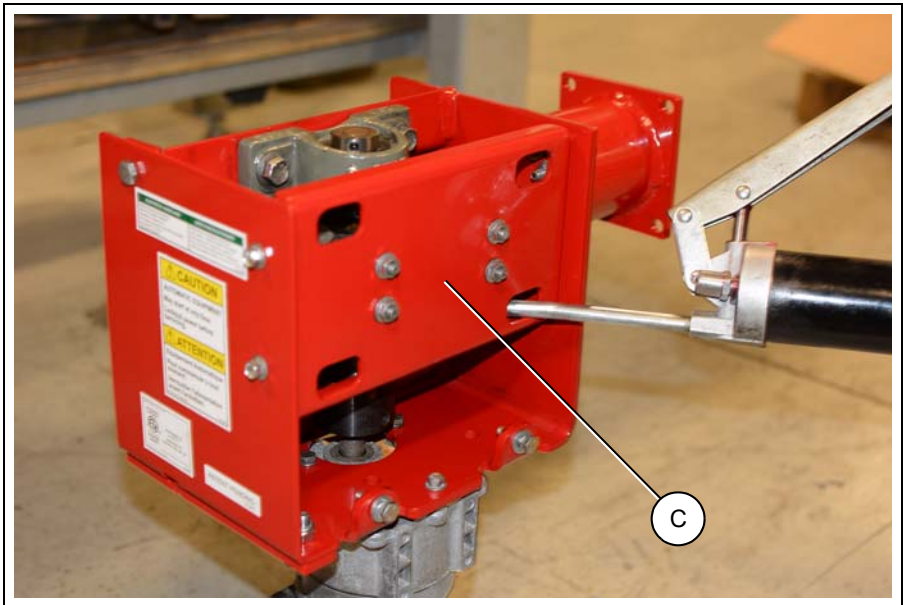


Figure 6B

Ref #	Description
A	Cam Roller Bearing
B	Upper Pillow Block Bearing
C	Lower Pillow Block Bearing (Inside)

Greasing the Bearings (Continued)

3. Replace cover (D) and secure with washers (F) and bolts (E). (See Figure 6C.)



Figure 6C

Ref #	Description
D	Cover
E	Bolt
F	Washer
G	Lock Washer

Replacing the Compression Spring

1. Remove tube (A) from power unit to expose hammer and spring (B). *(See Figure 6D and Figure 6E.)*

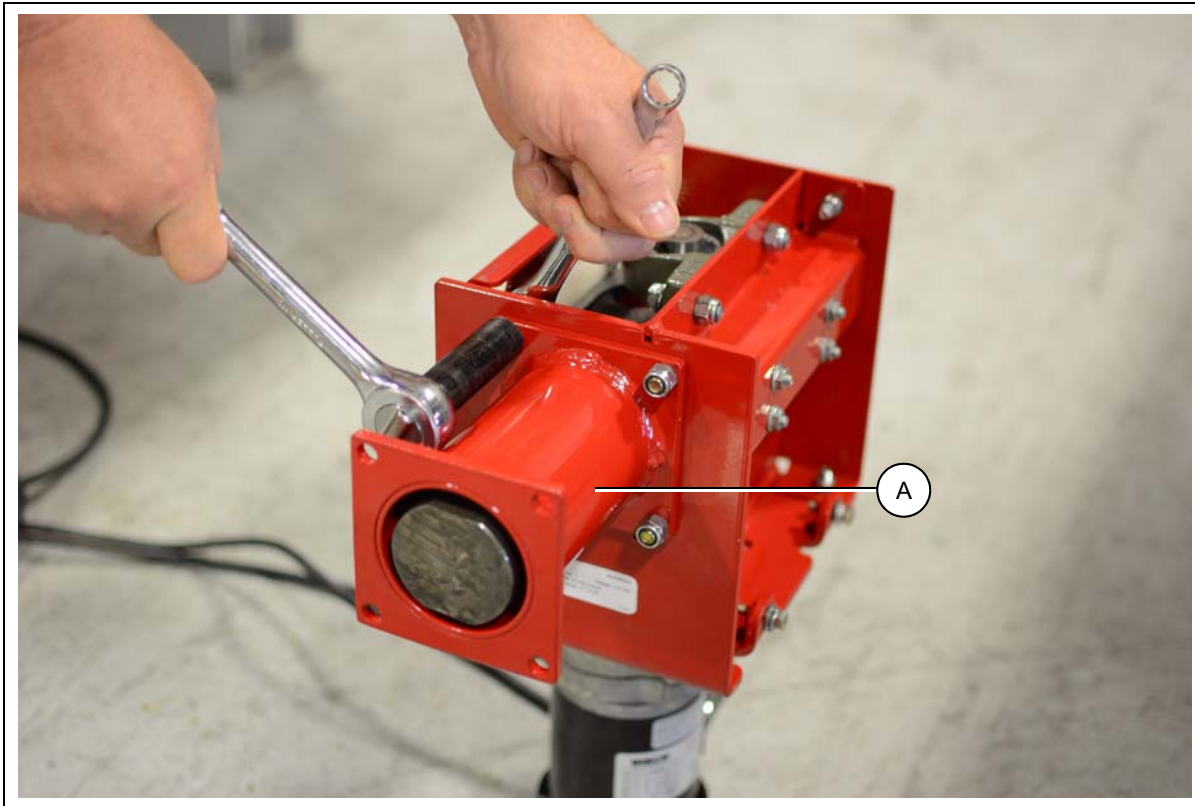


Figure 6D

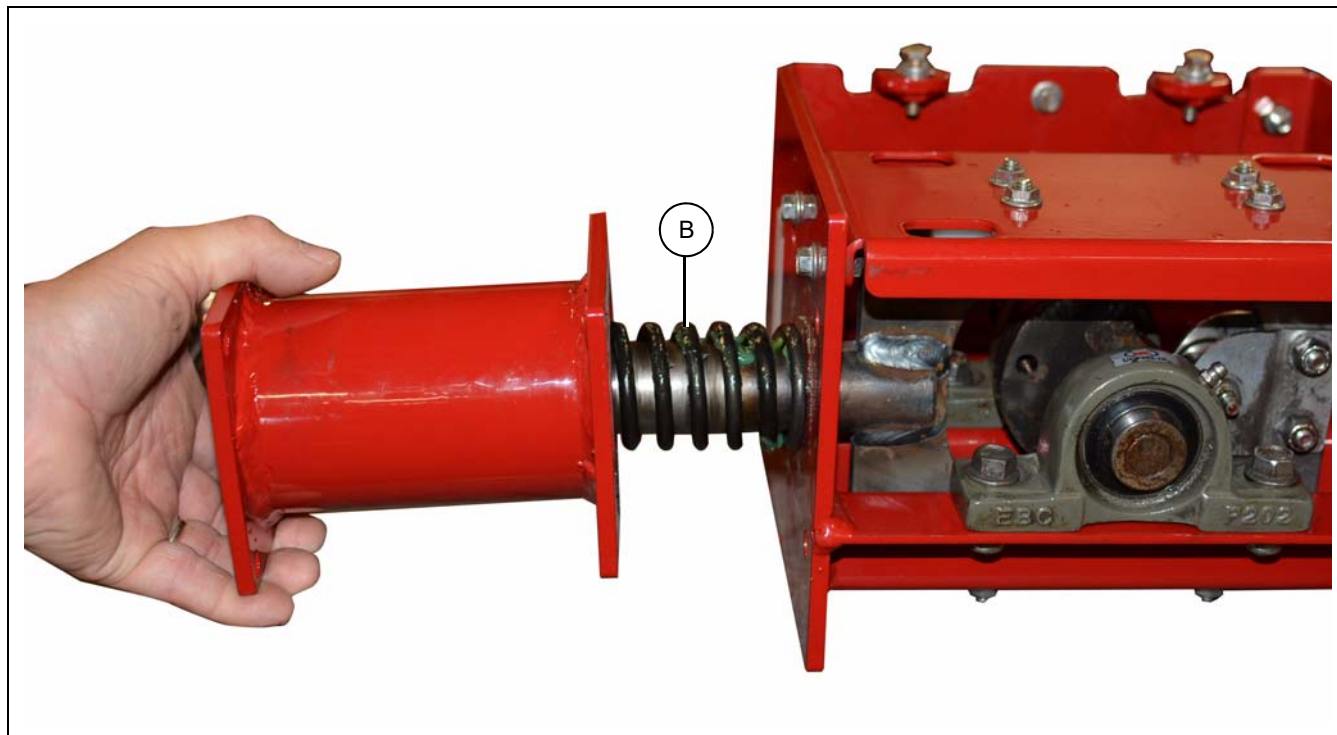


Figure 6E

Replacing the Compression Spring (Continued)

2. The hammer shaft (C) must be disassembled from the cam follower (FLX-5189). *(See Figure 6F.)*

NOTE: The 7/8"-14 UNC threads have loctite applied to them. To break the loctite bond, heat the 2" long area at the end of the hammer shaft with a torch.

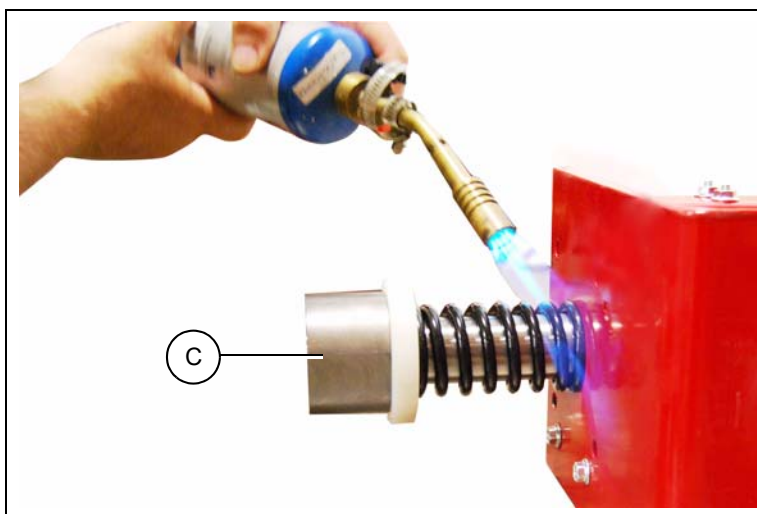


Figure 6F

3. While securely holding the power unit, use a pipe wrench to loosen and remove the hammer shaft (C) from the cam follower. *(See Figure 6G.)*

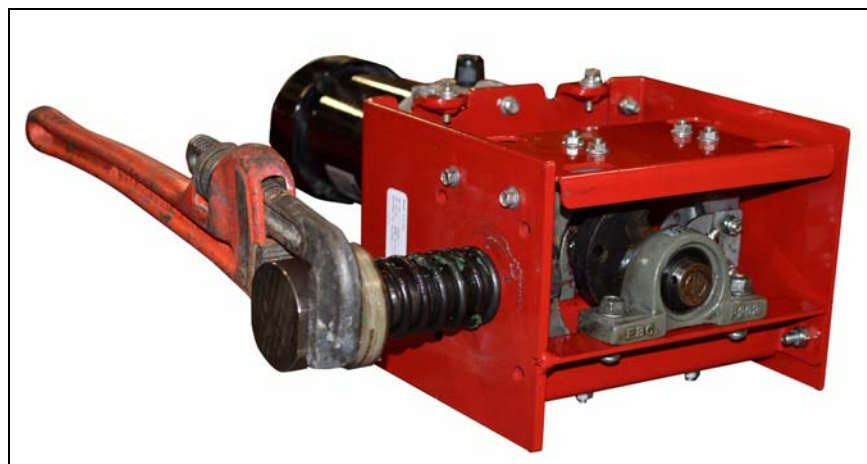


Figure 6G

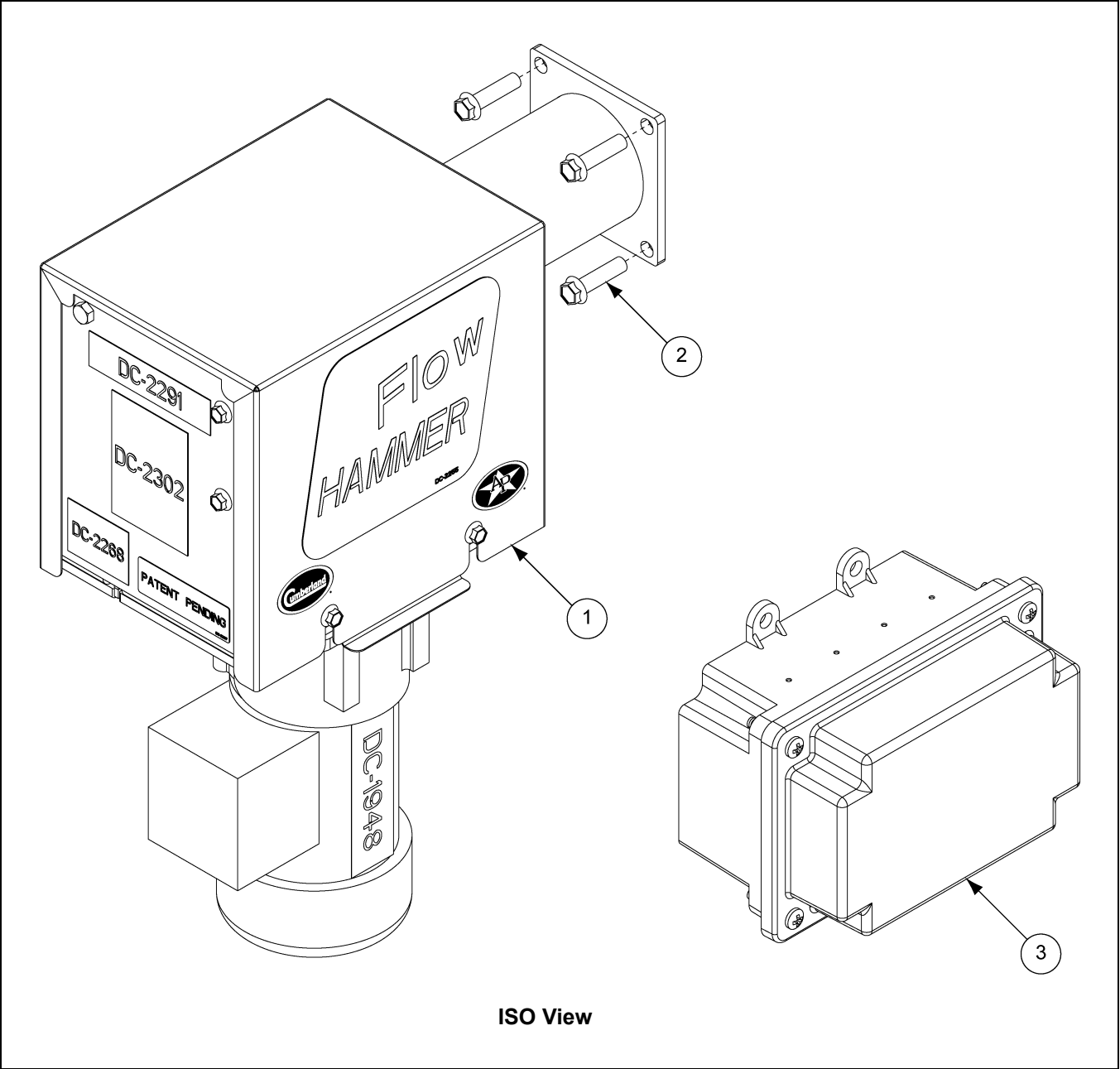
Ref #	Part #	Description
A	FLX-5160-RD	Tube
B	FLX-5136	Spring
C	FLX-5163	Hammer Shaft

- Remove the spring and replace with a new spring (B).
- Re-apply loctite 609 to the 7/8"-14 UNF threads.
- Re-assemble parts in reverse order, making sure hammer is securely tightened to cam follower with 150 in-lbs. of torque.

NOTES

1. Flow Hammer with Timer Control - Complete Assembly (FLX-5195LMB) - ([See Page 32.](#))
2. Hammer Mounting Bracket Complete - 16" Collar AP/Choretime (FLX-5187A) - ([See Page 33.](#))
3. Hammer Mounting Bracket Complete - 16" Collar Schuld/Bushnell (FLX-5187S) - ([See Page 34.](#))
4. Hammer Mounting Bracket Complete - 16" Collar Valco/Pax (FLX-5187V) - ([See Page 35.](#))
5. Hammer Mounting Bracket Complete - 22" Collar (FLX-5187-22) - ([See Page 36.](#))
6. Control Unit Assembly for Feed Flow Hammer (FLX-5194) - ([See Page 37.](#))
7. Power Unit Assembly for Feed Flow Hammer (FLX-5185A) - ([See Pages 38-39.](#))
8. Dry Contact Relay Box (AP-3775) - ([See Pages 40-41.](#))
9. Proximity Switch and Mounting Bracket (FLX-5207) - ([See Page 42.](#))

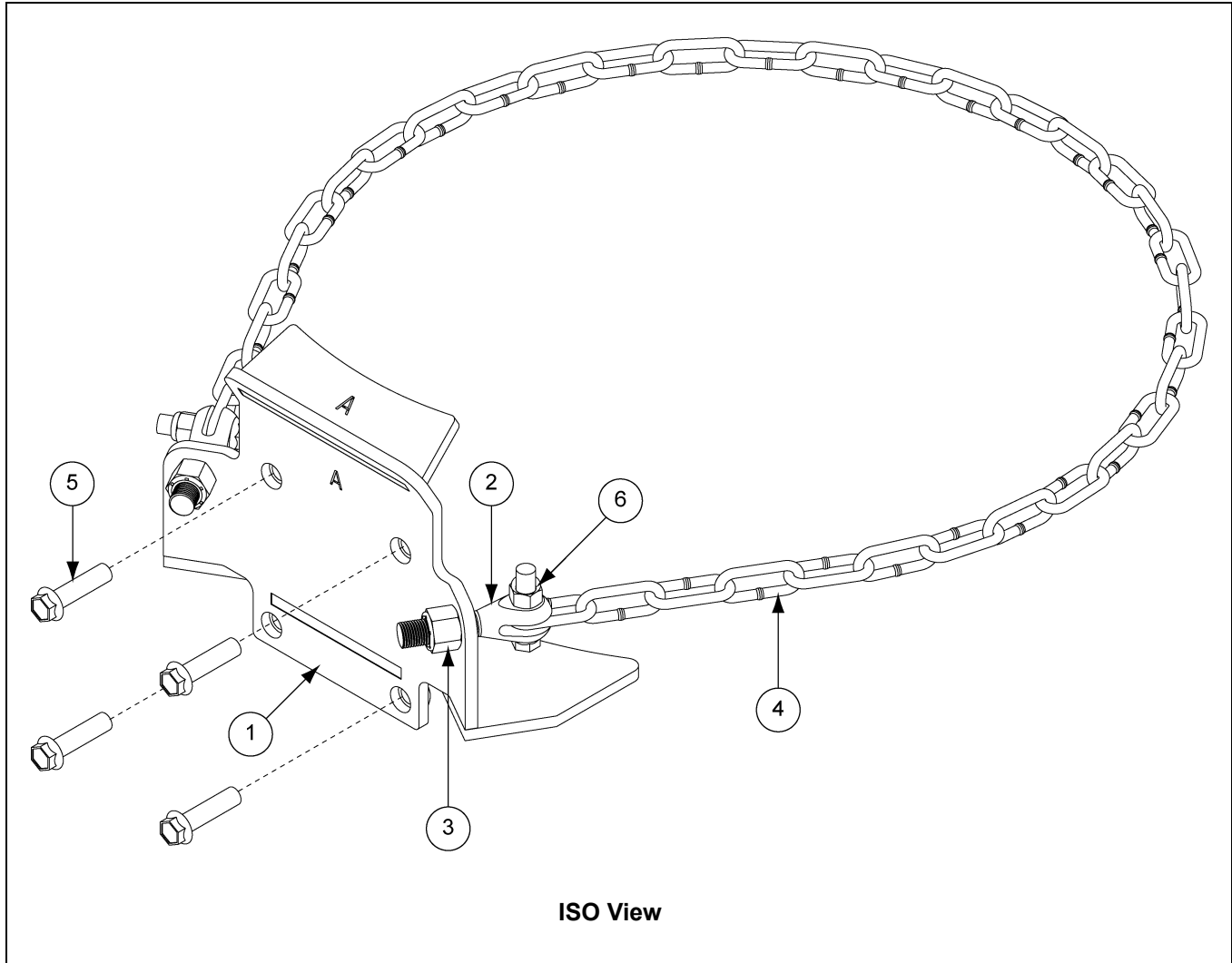
Flow Hammer with Timer Control - Complete Assembly
(FLX-5195LMB)



Flow Hammer with Timer Control - Complete Assembly (FLX-5195LMB) Parts List

Ref #	Part #	Description	Qty
1	FLX-5185A	Power Unit Assembly for Flow Hammer	1
2	S-7486	Flange Bolt 3/8"-16 x 1-1/2" JS500 Grade 8 or 8.2 Full Thread	4
3	FLX-5194	Flow Hammer Control Unit	1

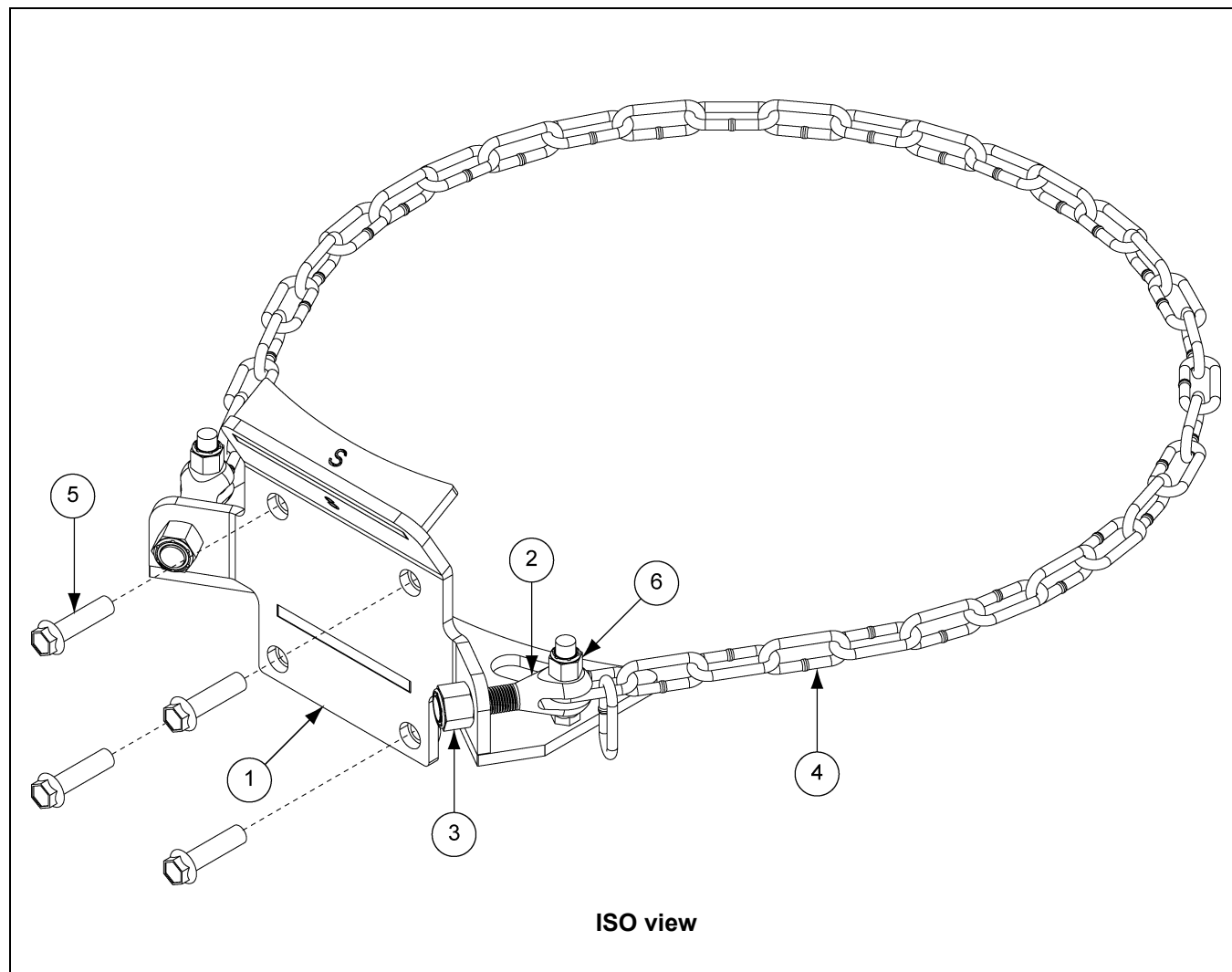
Hammer Mounting Bracket Complete - 16" Collar AP/Choretime (FLX-5187A)



Hammer Mounting Bracket Complete - 16" Collar AP/Choretime (FLX-5187A) Parts List

Ref #	Part #	Description	Qty
1	FLX-5219-RD	Mounting Assembly for Flow Hammer AP/Choretime - Painted Red	1
2	FLX-5231	Clevis Rod End, 1/2"-20 R.H. x 2-1/2" Shank with 3/8" I.D.	2
3	1FH0728	Nylock Nut 1/2"-20 Plated Grade 2	2
4	FLX-5240	Chain for Flow Hammer Mount	1
5	S-7486	Flange Bolt 3/8"-16 x 1-1/2" JS500 Grade 8 or 8.2 Full Thread	6
6	S-7383	Nylock Nut 3/8"-16 ZN Grade 5	2

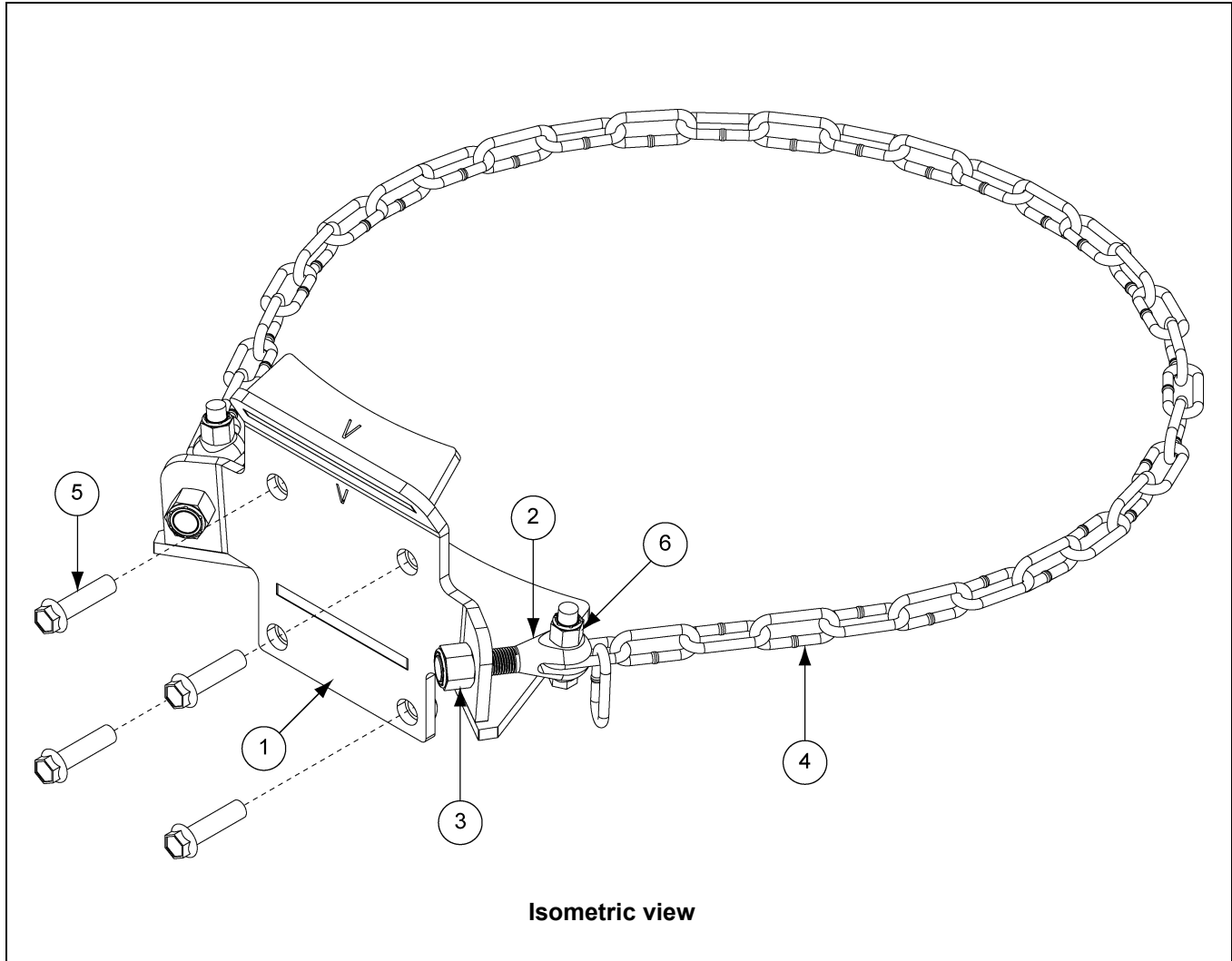
Hammer Mounting Bracket Complete - 16" Collar Schuld/Bushnell (FLX-5187S)



Hammer Mounting Bracket Complete - 16" Collar Schuld/Bushnell (FLX-5187S) Parts List

Ref #	Part #	Description	Qty
1	FLX-5244-RD	Mounting Assembly for Flow Hammer Schuld/Bushnell - Painted Red	1
2	FLX-5231	Clevis Rod End, 1/2"-20 R.H. x 2-1/2" Shank with 3/8" I.D.	2
3	1FH0728	Nylock Nut 1/2"-20 Plated Grade 2	2
4	FLX-5240	Chain for Flow Hammer Mount	1
5	S-7486	Flange Bolt 3/8"-16 x 1-1/2" JS500 Grade 8 or 8.2 Full Thread	6
6	S-7383	Nylock Nut 3/8"-16 ZN Grade 5	2

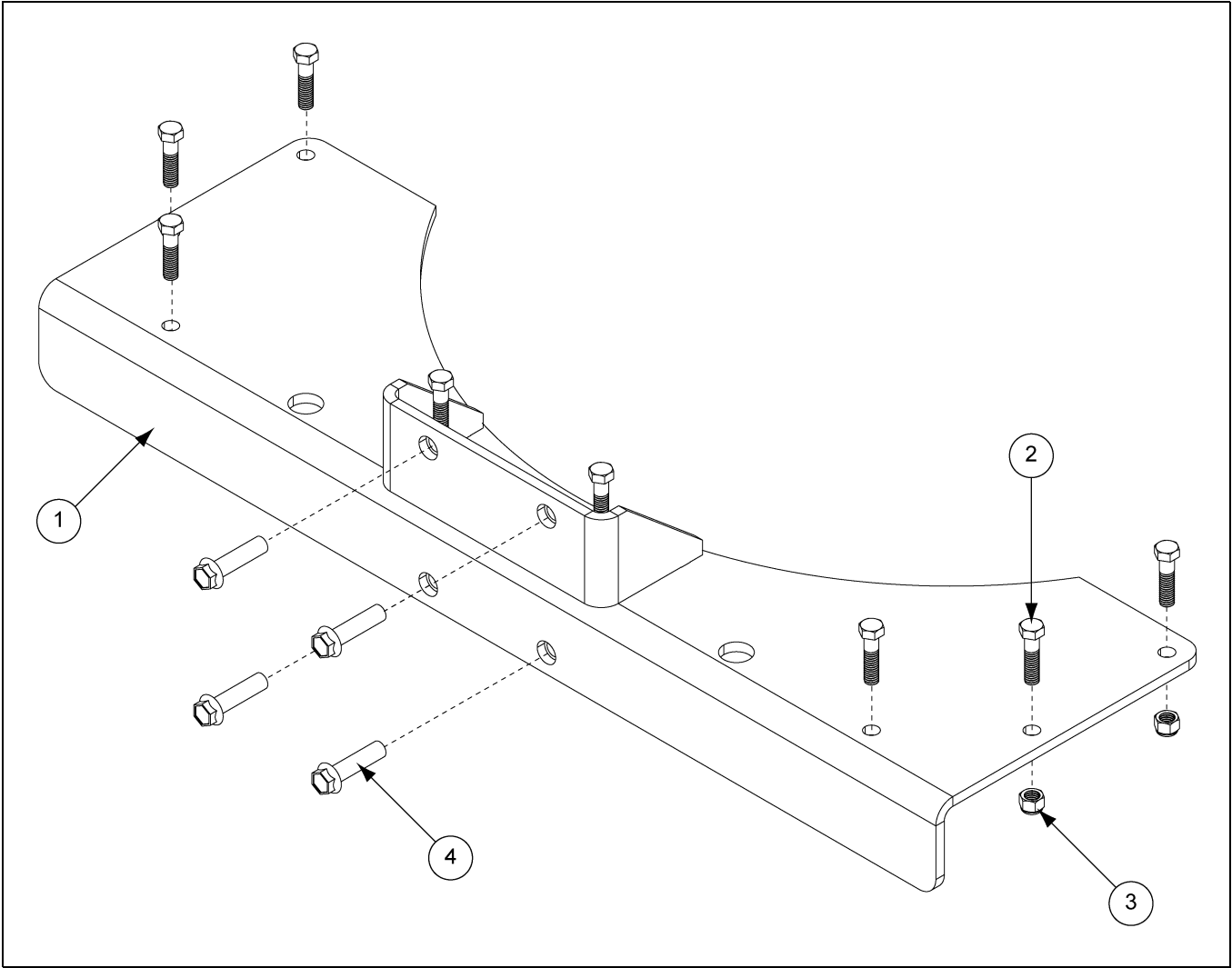
Hammer Mounting Bracket Complete - 16" Collar Valco/Pax (FLX-5187V)



Hammer Mounting Bracket Complete - 16" Collar Valco/Pax (FLX-5187V) Parts List

Ref #	Part #	Description	Qty
1	FLX-5234-RD	Mounting Assembly for Flow Hammer Valco/Pax - Painted Red	1
2	FLX-5231	Clevis Rod End, 1/2"-20 R.H. x 2-1/2" Shank with 3/8" I.D.	2
3	1FH0728	Nylock Nut 1/2"-20 Plated Grade 2	2
4	FLX-5240	Chain for Flow Hammer Mount	1
5	S-7486	Flange Bolt 3/8"-16 x 1-1/2" JS500 Grade 8 or 8.2 Full Thread	6
6	S-7383	Nylock Nut 3/8"-16 ZN Grade 5	2

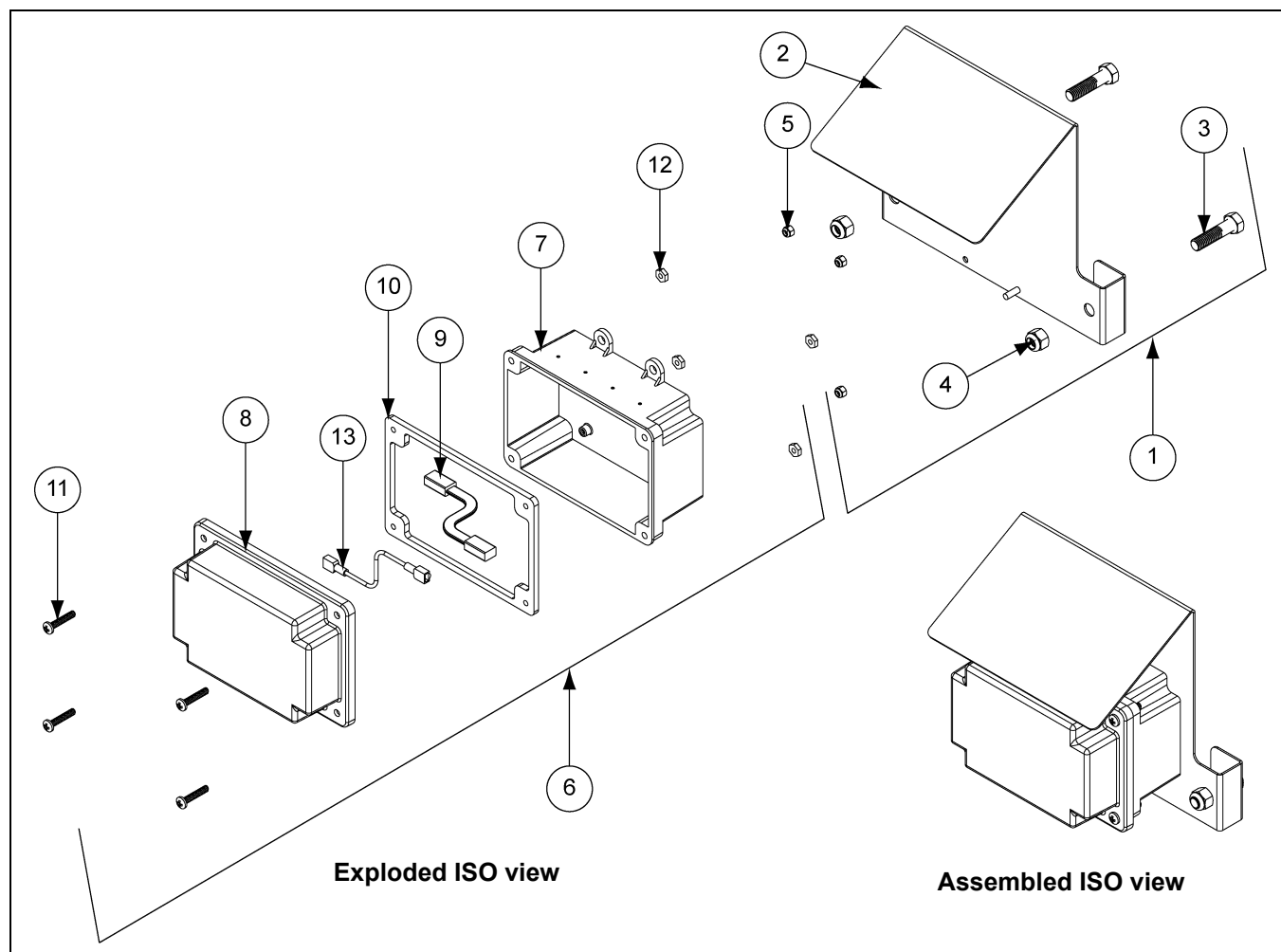
Hammer Mounting Bracket Complete - 22" Collar (FLX-5187-22)



Hammer Mounting Bracket Complete - 22" Collar (FLX-5187-22) Parts List

Ref #	Part #	Description	Qty
1	FLX-5199-RD	Mounting Bracket Assembly, 22" Collar - Painted Red	1
2	S-9350	Bolt HHCS 5/16"-18 x 1-1/4" YDP Grade 8	8
3	S-7382	Nylock Nut 5/16"-18 ZN Grade 5	8
4	S-7486	Flange Bolt 3/8"-16 x 1-1/2" JS500 Grade 8 or 8.2 Full Thread	4

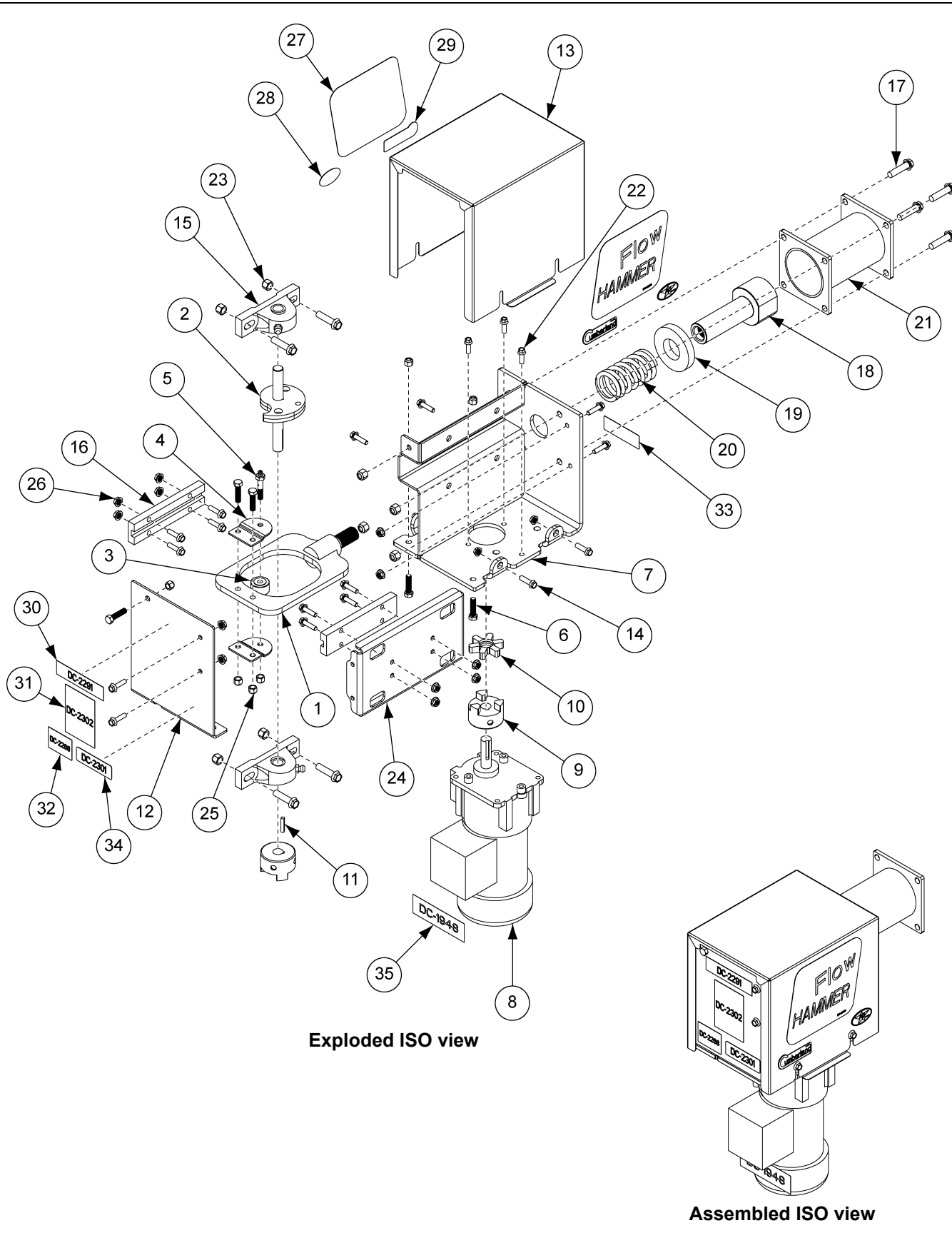
Control Unit Assembly for Feed Flow Hammer (FLX-5194)



Control Unit Assembly for Feed Flow Hammer (FLX-5194) Parts List

Ref #	Part #	Description	Qty
1	INT-4812	Display Mounting Bracket for Bin Leg	1
2	AP-3645	Rain Guard Assembly Display Load Cell Display	1
3	S-10275	Bolt, HHCS 3/8"-16 x 1-1/2" YDP Grade 8 or Grade 8.2	2
4	S-7383	Nylock Nut 3/8"-16 ZN Grade 5	2
5	S-2010	Nylock Nut #10-24 ZN Grade 2	4
6	FLX-5194	Flow Hammer Control Unit	1
7	FLX-5194B	Flow Hammer Control Base with PC	1
8	FLX-5194T	Flow Hammer Control Lid with PC	1
9	FLX-5001	Cable, IR Sensor Connector	1
10	FLX-4561	Gasket, Electrical Box 4 x 6	1
11	S-995	Screw, MS #10-24 x 1" PHP SS	4
12	S-7931	Hex Nut #10-24 SS	4
13	E105-1024	Ground Wire, 18 Gauge Black x 5" Long	1

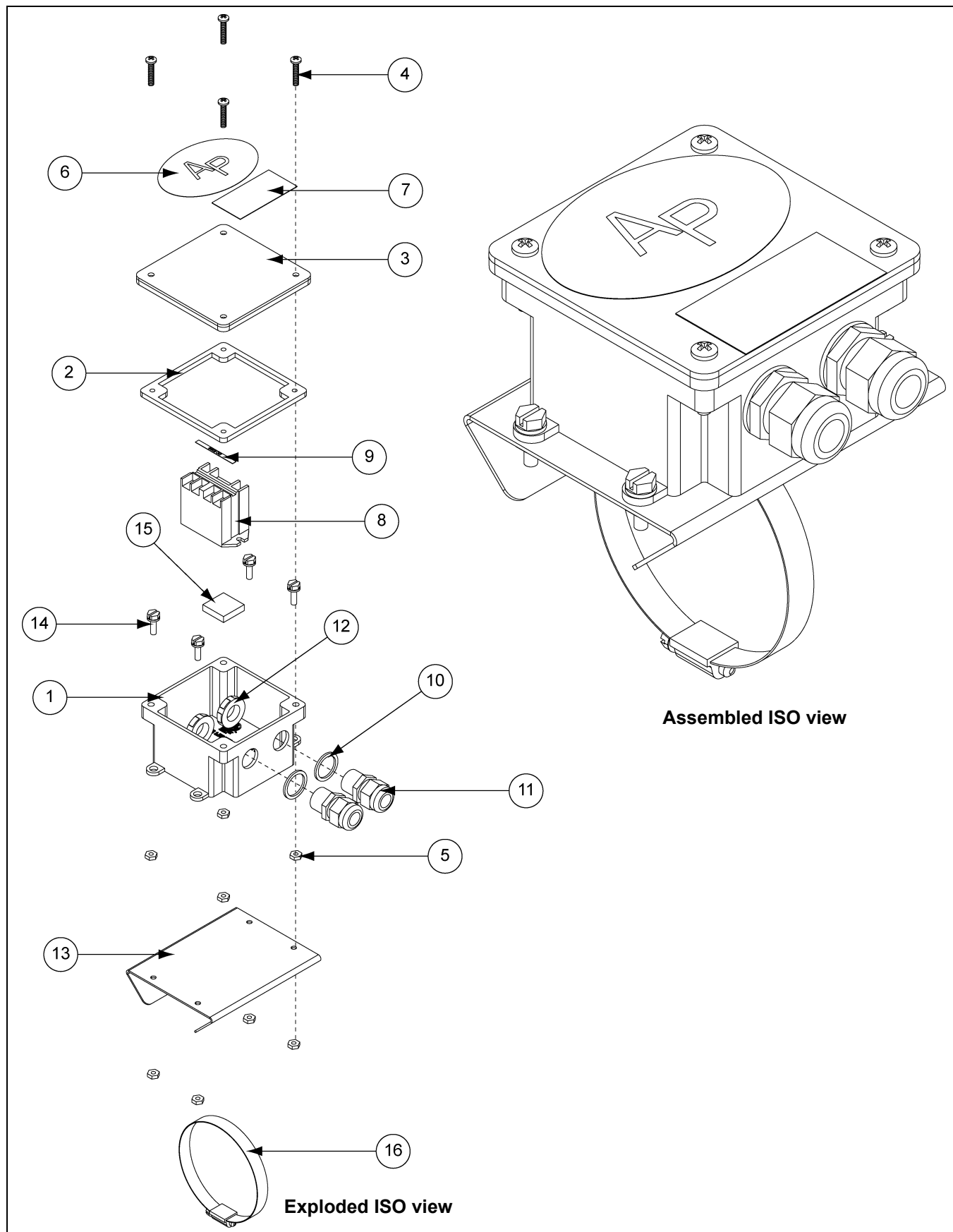
Power Unit Assembly for Feed Flow Hammer (FLX-5185A)



Power Unit Assembly for Feed Flow Hammer (FLX-5185A) Parts List

Ref #	Part #	Description	Qty
1	FLX-5189A	Cam Follower and Bushing Assembly	1
2	FLX-5179	Cam and Shaft Assembly	1
3	FLX-5177	Flat Sealed Track Roller	1
4	FLX-5174	Bearing Holder Bracket	2
5	S-10194	Lube Bolt, HHCS 5/16"-18 x 1-1/2" ZN Grade 5	1
6	S-9350	Bolt, HHCS 5/16"-18 x 1-1/4" YDP Grade 8	5
7	FLX-5190A-RD	Hammer Frame - Painted	1
8	FLX-5193	Feed Flow Hammer Motor	1
9	50-0009	Coupler, LO95 x 5/8" Lovejoy	2
10	52-0012	Coupler, Spider Hytrel 7/8" F/LO95 Lovejoy	1
11	S-8426	Square Key 3/16" x 1" Long	1
12	FLX-5182A-RD	End Plate Bracket - Painted	1
13	FLX-5184A-RD	Cover - Painted	1
14	S-9063	Flange Bolt 1/4"-20 x 1" ZN Grade 5	16
15	FLX-5178	5/8" Pillow Block Bearing (UCP202-10)	2
16	FLX-5180	Nylon Wear Guide for Cam Follower	2
17	S-7486	Flange Bolt 3/8"-16 x 1-1/2" JS500 Grade 8 or 8.2 Full Thread	8
18	FLX-5163	Hammer Shaft	1
19	FLX-5164	Wear Ring for Feed Flow Hammer	1
20	FLX-5136	Spring, Compression	1
21	FLX-5160-RD	Tube Assembly - Painted	1
22	S-8680	Flange Bolt 1/4"-20 x 3/4" ZN Grade 5	3
23	S-7383	Nylock Nut 3/8"-16 ZN Grade 5	8
24	FLX-5181A-RD	Wear Guide Support Bracket - Painted	1
25	S-7382	Nylock Nut 5/16-18 ZN Grade 5	6
26	S-7215	Flange Nut 1/4"-20 ZN	12
27	DC-2255	Decal, Flow Hammer	2
28	DC-2256	Decal, AP Logo 1-3/4" x 1-1/32"	2
29	DC-1897	Decal, Cumberland Logo	2
30	DC-2291	Decal, Ansi, Electrical Guidelines, Hammer	1
31	DC-2302	Decal, Automatic Equip, English and French	1
32	DC-2268	Decal, Intertek ETL Label, Flow Hammer	1
33	DC-2267	Decal, Patent Pending	1
34	DC-2301	Decal, Rating Label, Flow Hammer	1
35	DC-1948	Decal, Danger High-Voltage (LG), CE, CSA Harmonized	1

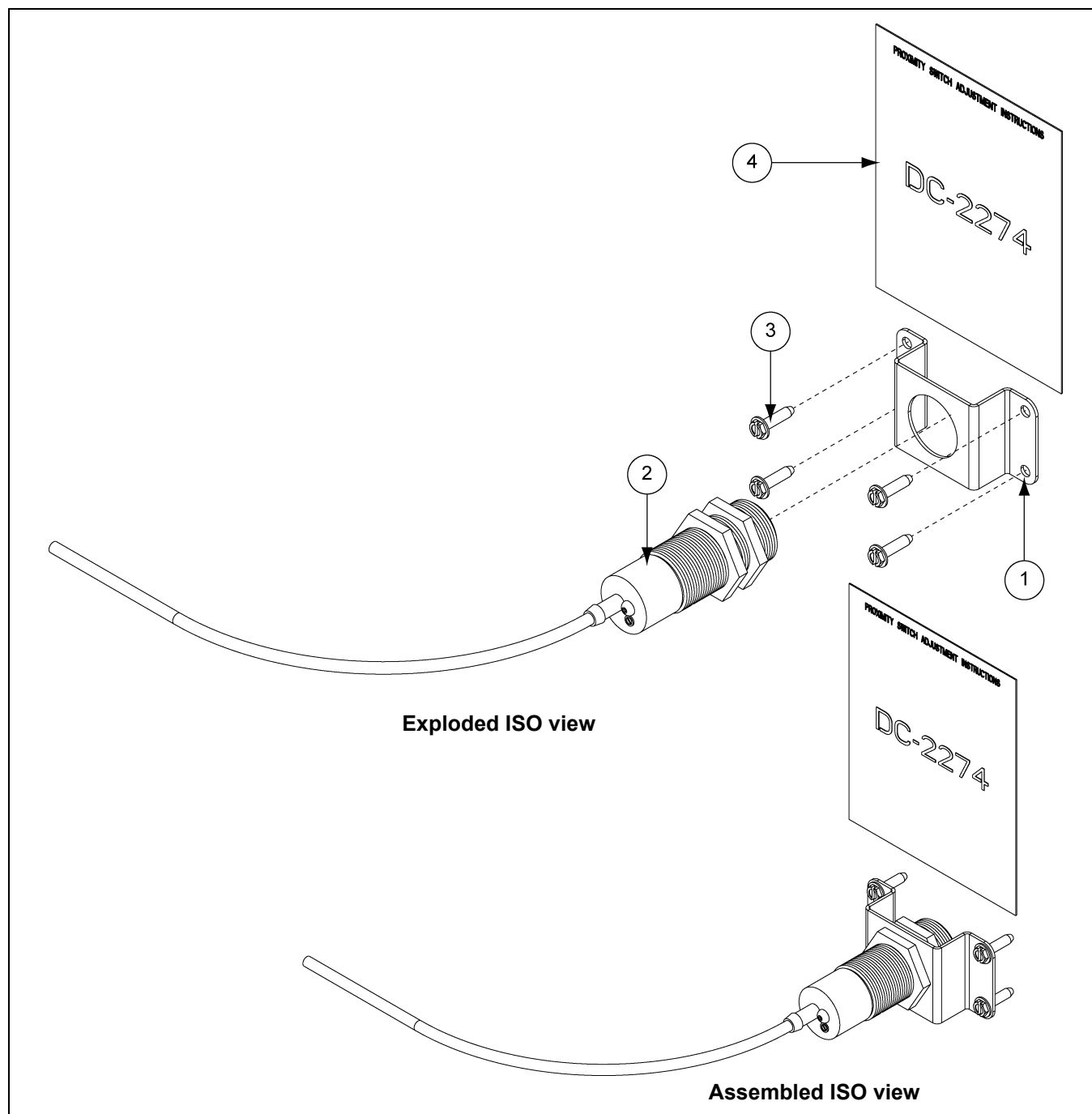
Dry Contact Relay Box (AP-3775)



Dry Contact Relay Box (AP-3775) Parts List

Ref #	Part #	Description	Qty
1	C2000548	Electrical Box, Drilled, LED Light	1
2	FLX-2690	Gasket, Electrical Box 4 x 4	1
3	FLX-2689	Electrical Box Cover	1
4	S-995	Screw, MS #10-24 x 1" PHP SS	4
5	S-7931	Hex Nut #10-24 SS	8
6	DC-490	Decal, 3" Automated Production	1
7	DC-889	Decal, Danger High Voltage	1
8	E260-1021	Relay, 0.2 PST 25 Amp, 220V	1
9	DC-1098	Decal, 240V Relay Wire Label	1
10	FH-7400	Washer, 1/2" PVC Connector Yellow	2
11	FH-1310	Connector, Cord Heyco #3231	2
12	006-1236-6	Lock Nut 1/2" NPT Nylon	2
13	AP-3841	Electrical Box Mount Plate Flex Tube	1
14	S-8174	Screw, MS #10-24 x 5/8" HWHS SS	4
15	E160-1075	Tape, Foam Pads, 1 x 1, Double Side Panduit	1
16	AP-0584	Clamp, Hose Stainless Steel 2-1/4" to 4-1/4"	1
16	AP-0583	Clamp, Hose Stainless Steel 1-13/16" - 2-3/4"	1

Proximity Switch and Mounting Bracket (FLX-5207)



Proximity Switch and Mounting Bracket (FLX-5207) Parts List

Ref #	Part #	Description	Qty
1	FLX-5206	Proximity Switch Hold-Down Bracket	1
2	FLXDF-1172	Cap, Proximity Switch N.C. 20 VAC-250 VAC	1
3	S-7466	Screw, SDS #10-16 x 3/4" HWH ZN Grade 2	4
4	DC-2274	Decal, Proximity Adjustment Instructions	1

Limited Warranty - Protein Products

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 from the date of purchase (or, if shipped by vessel, 14 months from the date of arrival at the port of discharge). If, in GSI's sole judgment, a product is found to have a defect in materials and/or workmanship, GSI will, at its own option and expense, repair or replace the product or refund the purchase price. This Limited Warranty is subject to extension and other terms as set forth below.

Warranty Enhancements:

The warranty period for the following products is enhanced as shown below and is in lieu of (and not in addition to) the above stated warranty period.

	Product	Warranty Period	
AP® Fans	Performer Series Direct Drive Fan Motor	3 Years	* Warranty prorated from material list price: 0 to 3 years - no material 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%
AP® and Cumberland®	Flex-Flo/Pan Feeding System Motors	2 Years	
Electronic Controls	All Protein controls manufactured by GSI	24 Months from date code on part	
Cumberland® Feeding and Watering Systems	Feeder System Pan Assemblies	5 Years, Prorated **	** Warranty prorated from material list price: 0 to 3 years - no material cost to end user 3 to 5 years - end user pays 75%
	Feed Tubes (1.75" and 2.00")	10 Years, Prorated *	
	Centerless Augers	10 Years, Prorated *	
	Watering Nipples	10 Years, Prorated *	

Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH HEREIN; SPECIFICALLY, GSI DISCLAIMS ANY AND ALL OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (I) ANY 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.

The sole and exclusive remedy for any claimant is set forth in this Limited Warranty and shall not exceed the amount paid for the product purchased. This Warranty only covers the value of the warranted parts and equipment, and does not cover labor charges for removing or installing defective parts, shipping charges with respect to such parts, any applicable sales or other taxes, or any other charges or expenses not specified in this Warranty. GSI shall not be liable for any other direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. Expenses incurred by or on behalf of a claimant without prior written authorization from the GSI warranty department shall not be reimbursed. 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. Prior to installation, the end user bears all responsibility to comply with federal, state and local codes which apply to the location and installation of the products.

This Limited Warranty extends solely to products sold by GSI and does not cover any parts, components or materials used in conjunction with the product, that are not sold by GSI. GSI assumes no responsibility for claims resulting from construction defects, unauthorized modifications, corrosion or other cosmetic issues caused by storage, application or environmental conditions. Modifications to products not specifically delineated in the manual accompanying the product at initial sale will void all warranties. 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.

Service Parts:

GSI warrants, subject to all other conditions described in this Warranty, Service Parts which it manufactures for a period of 12 months from the date of purchase, unless specified in Enhancements above. Parts not manufactured by GSI will carry the Manufacturer's Warranty.

(Protein Limited Warranty_REV01_06 November 2018)

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.

This product covered by U.S. Patent # 9,493,300.



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