

CE Compliant Chute Controller for TopDry Grain Dryer

Installation Manual - Original Instructions

PNEG-1894CE

Version: 1.0

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PNEG-1894CE

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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1. Safety

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

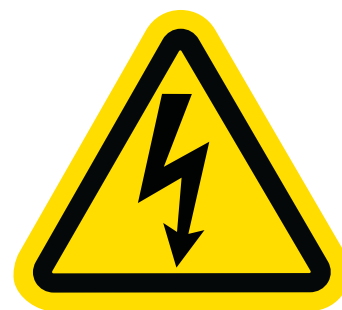
- **Warning:** If the information in the manual is not followed exactly, a fire or explosion can result, causing property damage, personal injury or loss of life.
- Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged 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.
- Retain these instructions for future reference.



ST-0025-3

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 and bins are properly grounded.



ST-0075-1

Install and Operate Equipment Properly

- Make sure grain chutes are empty by performing a manual dump before entering the bin.
- Before attempting to remove and reinstall the fan blade, contact GSI for the recommended procedure.



ST-0031-2

Sharp Edge Hazard

- This product has sharp edges, which can cause serious injury.
- To avoid injury, handle sharp edges with caution and always use proper protective clothing and equipment.



ST-0036-2

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

Confined Space Hazards and Entry Procedures

- Note that the interior of this equipment is considered a confined space. Maintenance of this equipment can require access to the confined space.
- Access doors must be shut and locked except when access is required.
- Doors giving access to dangerous equipment must be safety interlocked.
- The following entry procedures must be followed:
 - Be aware of all possible hazards present inside the confined space and wear personal protective equipment (PPE) as needed.
 - Complete a permit to work and follow all permit required confined space entry procedures defined by the site manager.
 - Make sure that the area has been purged of any hazardous products or gases. Check the atmosphere for harmful gases or vapors with a suitable gas analyzer and make sure levels are safe before entering.
 - Do not smoke or use naked flames.
 - Lock out and tag out power supplies and fuel supplies to all equipment.
 - Do not work alone. Work in teams of at least three so that help is immediately available in the event of an emergency.
 - Confirm that all personnel have safely exited the equipment and tools have been recovered once work is complete.



ST-0055-1

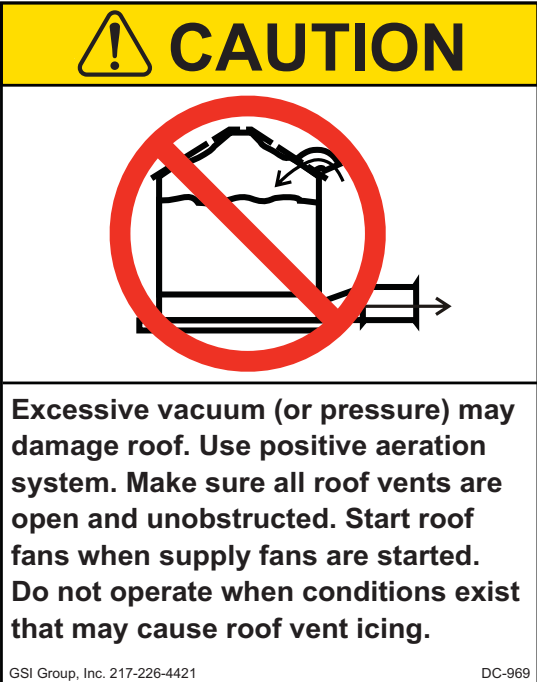

2. Decals


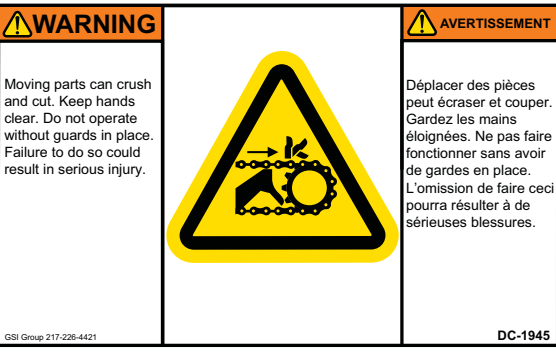

The safety decals on your equipment are safety indicators which must be carefully read and understood by all personnel involved in the installation, operation, service and maintenance of the equipment.

To replace a damaged or missing decal, contact us to receive a free replacement.

GSI Decals

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

Location	Decal #	Decals	Description
<p>Located next to aeration system.</p>	<p>DC-995</p>	 <p>Excessive vacuum (or pressure) may damage roof. Use positive aeration system. Make sure all roof vents are open and unobstructed. Start roof fans when supply fans are started. Do not operate when conditions exist that may cause roof vent icing.</p> <p><small>GSI Group, Inc. 217-226-4421 DC-969</small></p>	<p>Caution, Vacuum Pressure</p>
<p>On bin door covers</p>	<p>DC-GBC-1A</p>	 <p>Keep clear of all augers. DO NOT ENTER this bin!</p> <p>If you must enter the bin:</p> <ol style="list-style-type: none"> 1. Shut off and lock out all power. 2. Use a safety harness and safety line. 3. Station another person outside the bin. 4. Avoid the center of the bin. 5. Wear proper breathing equipment or respirator. <p>Failure to heed these warnings will result in serious injury or death.</p> <p><small>GSI GROUP, INC. 217-226-4421 DC-GBC-1A</small></p>	<p>Danger, Keep Clear of Augers</p>

Location	Decal #	Decals	Description
On bin door covers	DC-GBC-2A		Warning, Unload Instructions
Outside and inside enclosures of chute control	DC-1945		Warning, Moving Parts
Outside control box of chute control	DC-1948		Danger, High Voltage

3. Controller Layout

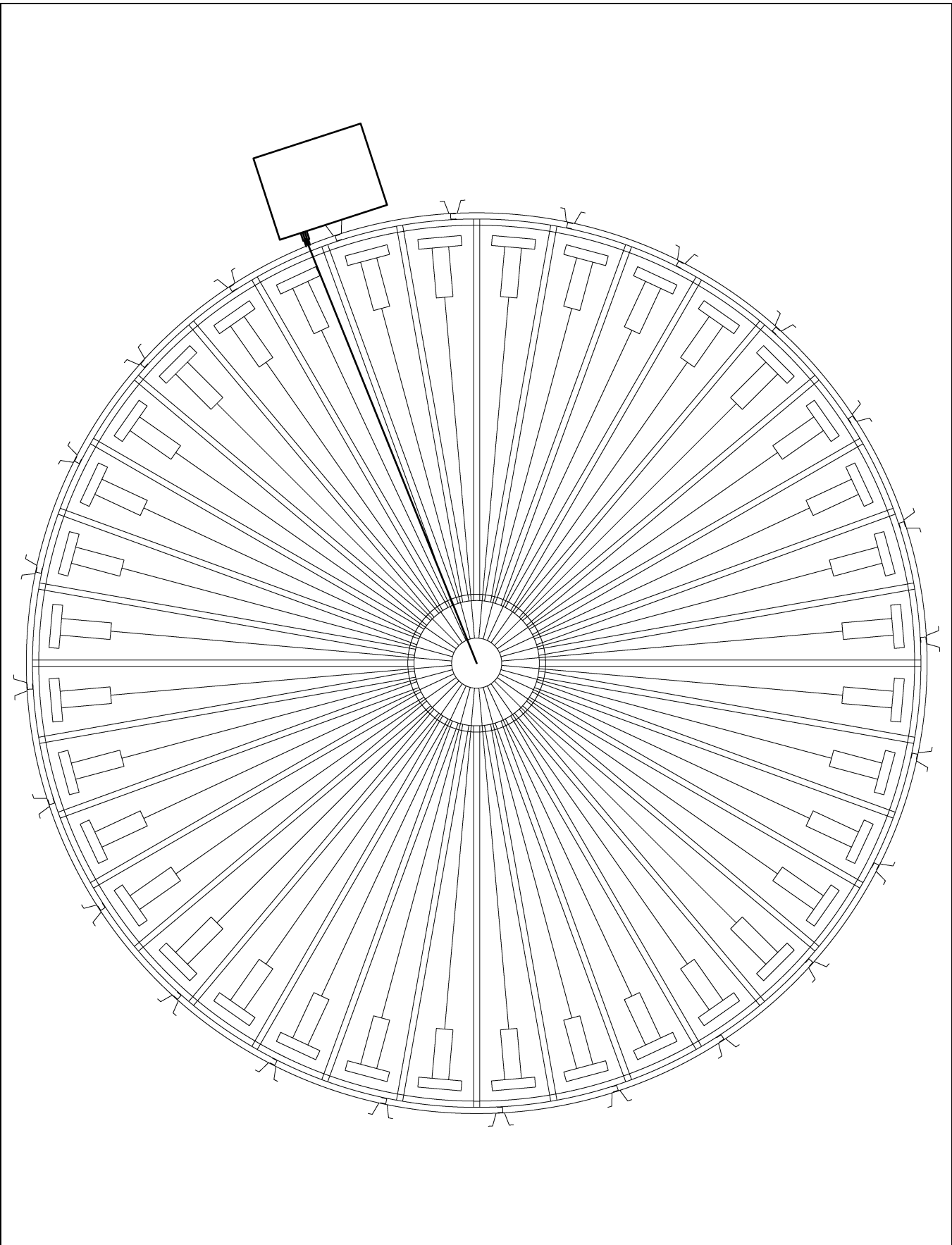


Figure 3A Chute Pulley Cable Location

Chute Controller Installation for TopDry System

The chute controller is mounted to the side of a TopDry bin and actuates the chutes that allow the grain to transfer from the drying floor to the bin floor.

NOTE: Before beginning the chute controller installation, make sure the pulley bracket is properly installed. The pulley bracket must be positioned above the chute controller location before installing the stiffener mounting plate.

Locating the Chute Pulley Assembly

1. Position the pulley in the hole that is located 9-3/8" (23.8 cm) horizontally from the center of the stiffener. **NOTE:** When positioning the pulley, ensure the pulley cable does not interfere with the dump chutes. This can only be accomplished at every other stiffener. (See Figure 4A below and Figure 3A on Page 12.)

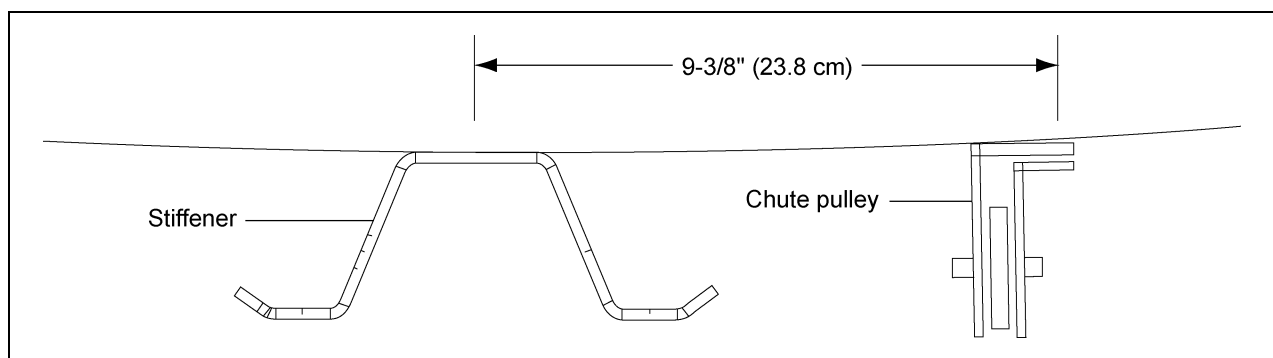


Figure 4A

Field drill five (5) 3/8" diameter holes as shown in Figure 4B. Attach the pulley assembly with 5/16" x 3/4" bolts with the neoprene on the inside of the bin. (See Figure 4B.)

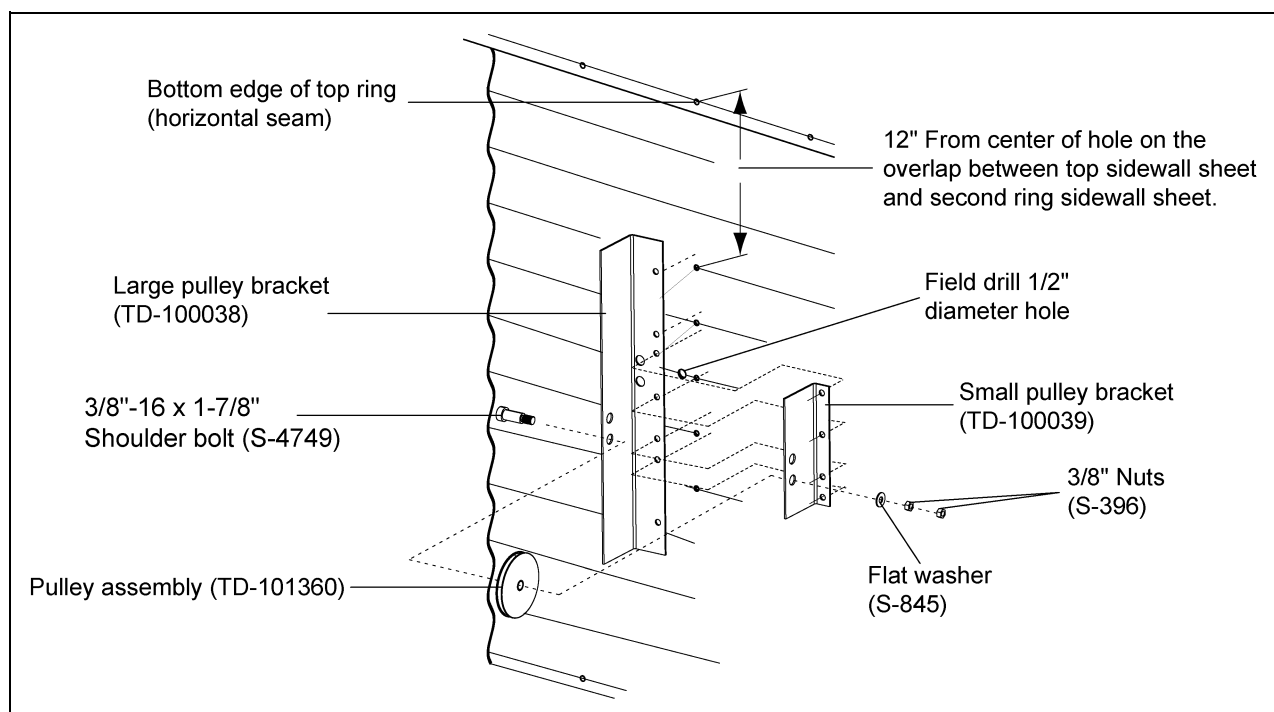


Figure 4B

4. Installation

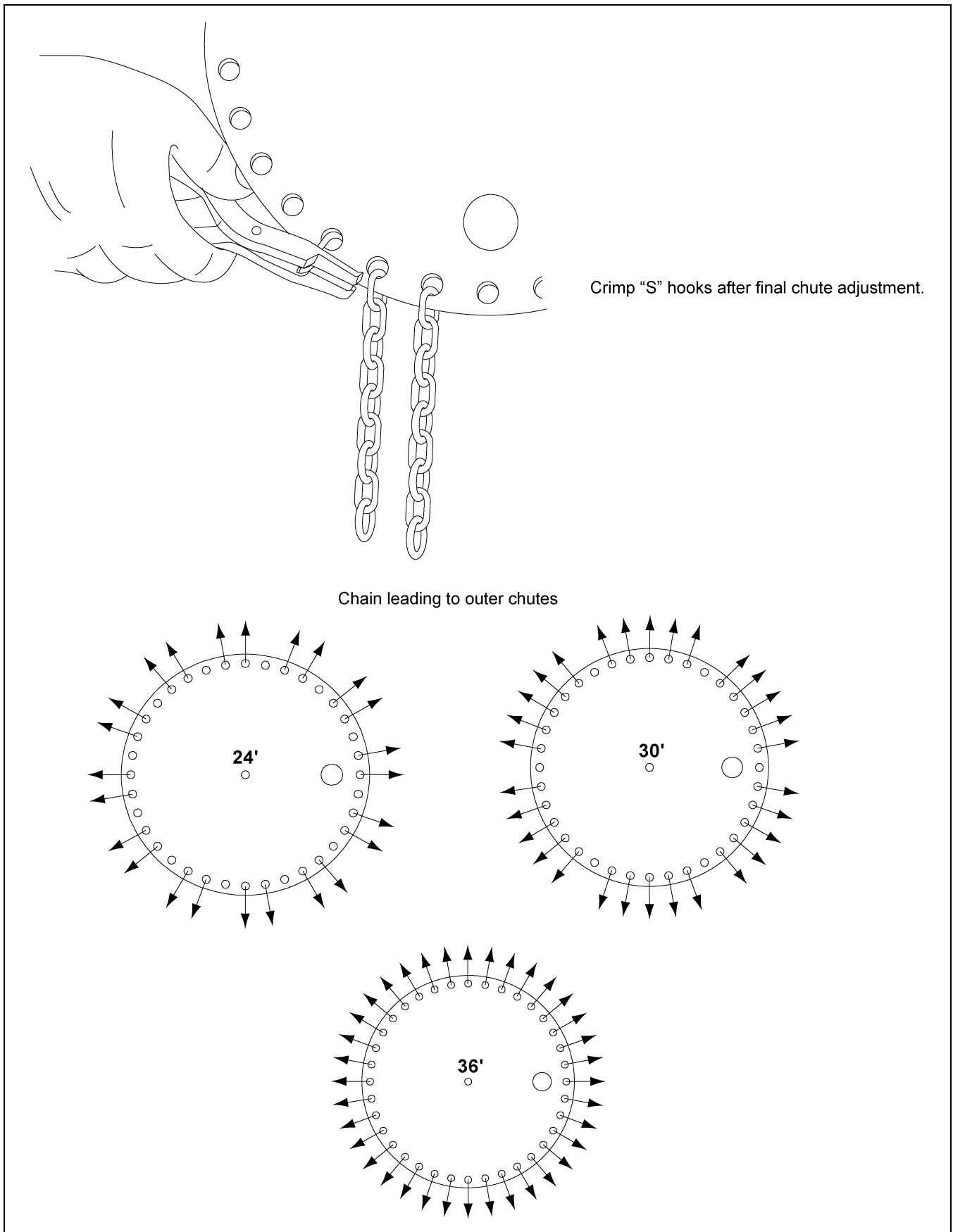


Figure 4C

Attaching the Mounting Plate and Gussets to the Stiffener

1. Position the bottom edge of the stiffener mounting plate 13" from the bottom of the stiffener.
2. Field drill all six (6) holes in the stiffener using the mounting plate as a template for hole locations, making sure that the holes are drilled on the peaks of corrugation ridge.
3. Attach the stiffener mounting plate (A) using six (6) bolts (B) and nuts (C). (See Figure 4D.)

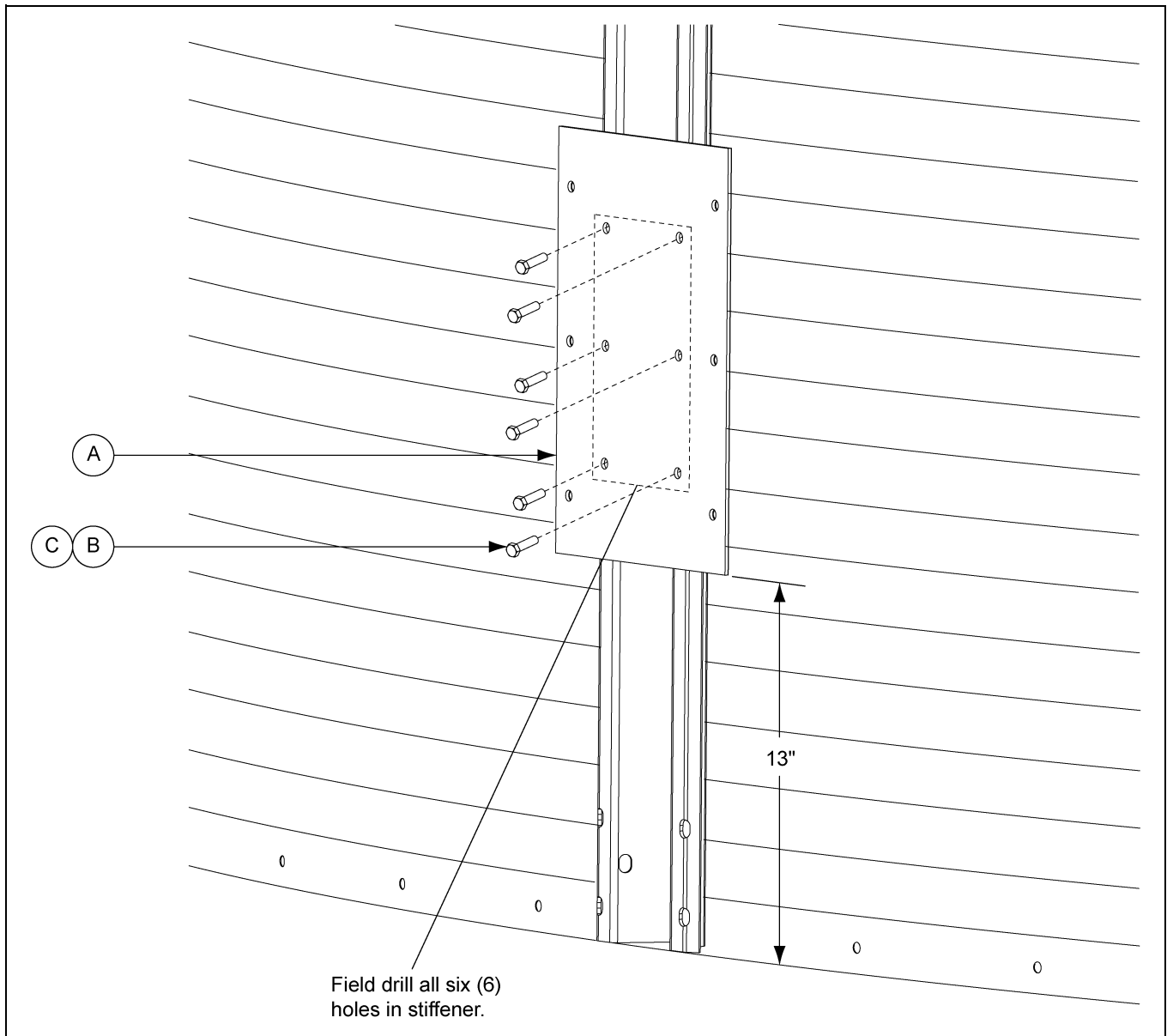


Figure 4D

Ref #	Part #	Description
A	TD-101327	Stiffener Mounting Plate
B	S-10275	Bolt, HHCS 3/8"-16 x 1-1/2" YDP Grade 8 or Grade 8.2
C	S-7383	Nylock Nut 3/8"-16 Zinc Grade 5

4. Installation

4. Attach the lower mounting gussets (D) to stiffener mounting plate (A) using three (3) flange bolts (E) and nuts (F) for each mounting gusset. (See Figure 4E.)

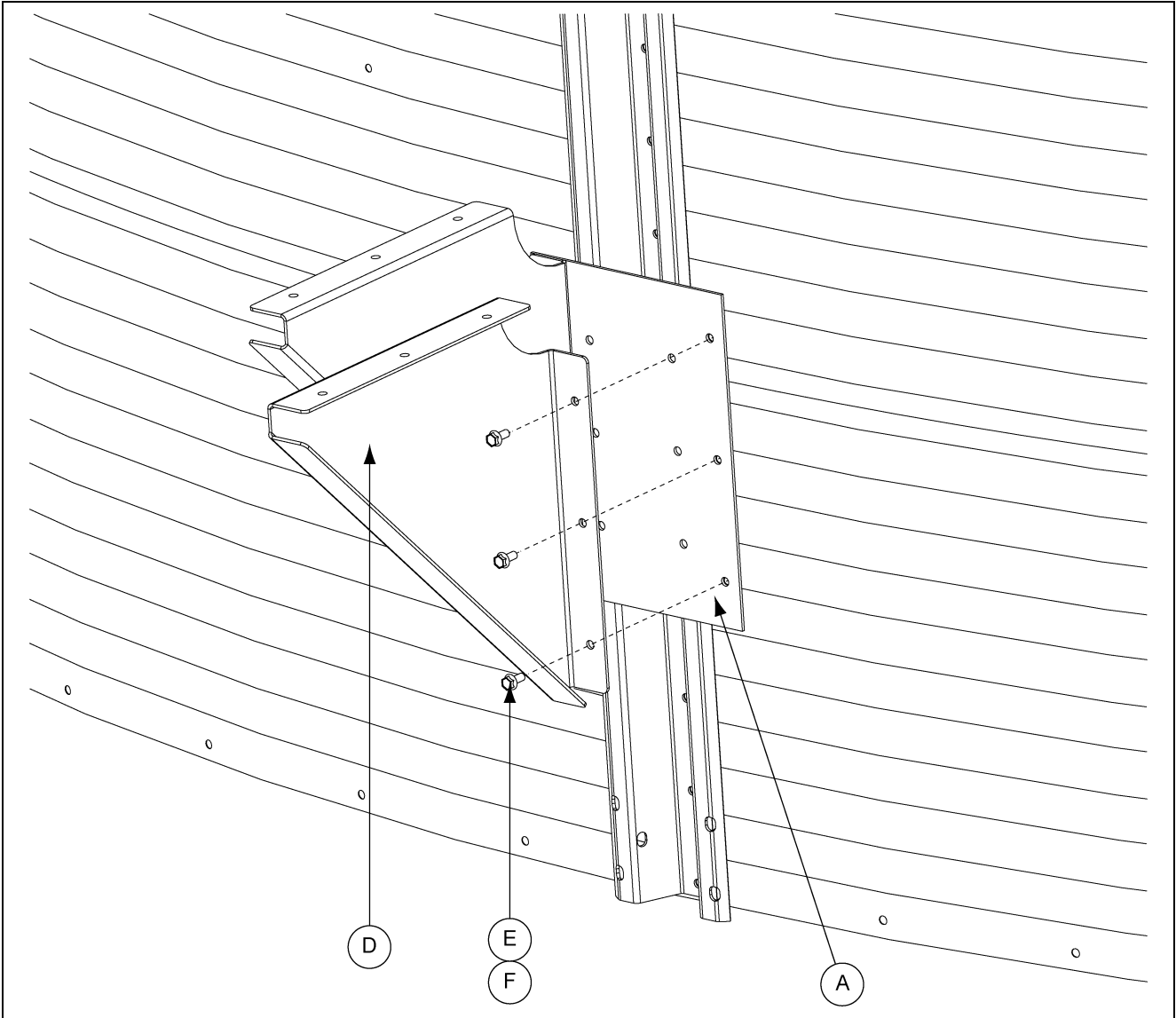


Figure 4E

Ref #	Part #	Description
A	TD-101327	Stiffener Mounting Plate
D	TD-101326	Lower Mounting Gussets
E	S-6606	Flange Bolt 5/16"-18 x 3/4" ZN Grade 5
F	S-3611	Flange Nut 5/16"-18 YDP Grade 2

Assembling the Chain Guard

1. Position the chute controller assembly so that all sides are accessible. Remove the cover from the chute position controller enclosure.
2. Align the top and bottom tabs of the rear chain guard (B) with holes in the idler sprocket mounting brackets (C) and attach by inserting flange bolts (D) through the sides and tightening with flange nuts (E). (See Figure 4F.)
3. Feed chain (A) that is part of the chute position controller drive from the chute position controller around the small sprocket and out through the back panel and in between the idler sprocket mounting brackets (C). (See Figure 4F.)
4. Replace cover and secure for lifting. (See Figure 4F.)

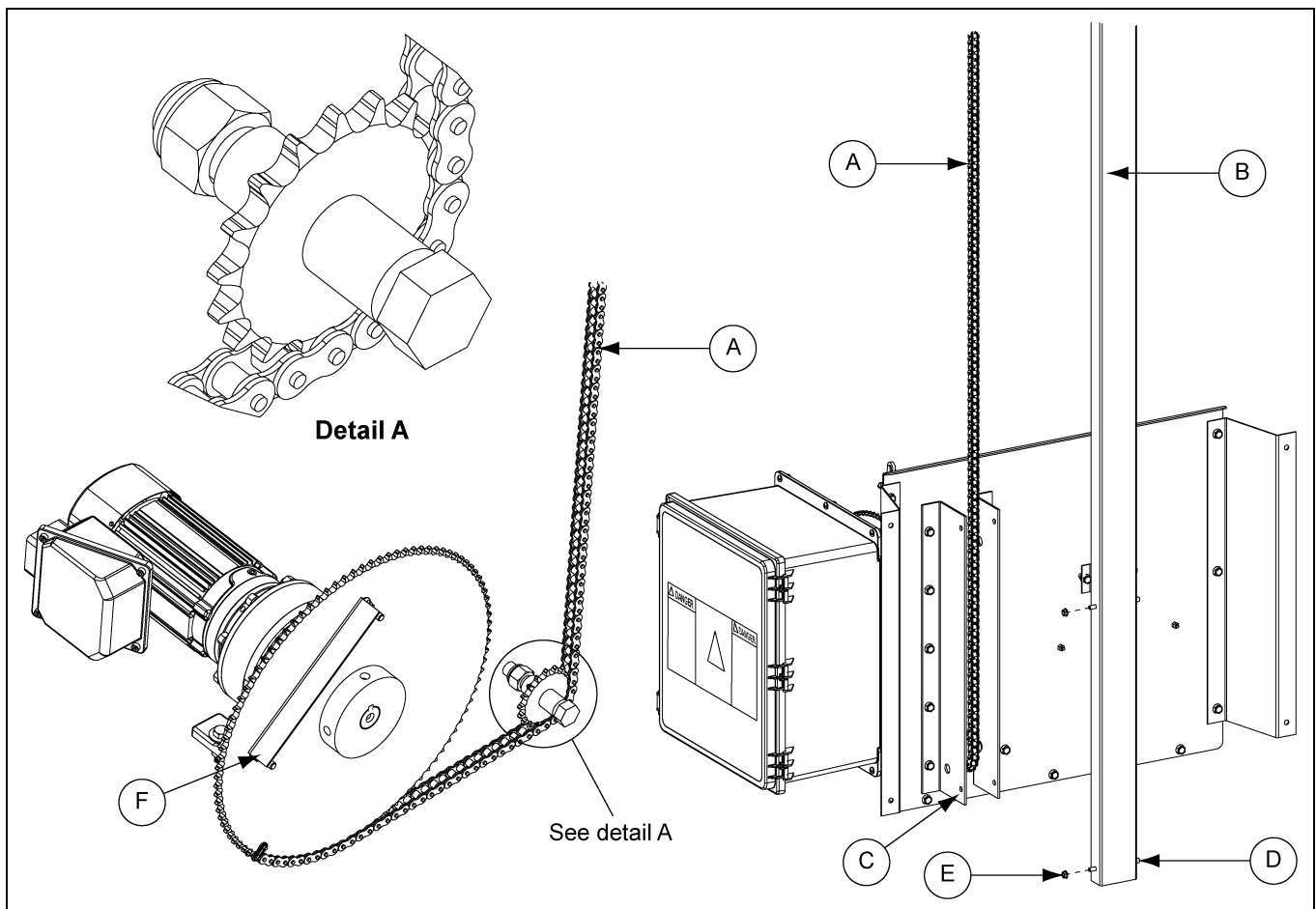


Figure 4F

Ref #	Part #	Description
A	TD-101357	#40 Roller Chain
B	TD-101336	Rear Chain Guard
C	TD-101332	Idler Sprocket Mounting Bracket
D	S-6606	Flange Bolt 5/16"-18 x 3/4" ZN Grade 5
E	S-3611	Flange Nut 5/16"-18 YDP Grade 2
F	TD-101521	Chute Controller Sprocket Bracket

4. Installation

Installing the Housing Assembly



Chute position controller enclosure weighs approximately 275 lbs. pounds. Failure to use proper equipment and personnel when lifting could cause bodily injury or damage to equipment.

1. Lift the housing assembly onto the lower mounting gussets (A), aligning holes in the bottom of the chute position controller enclosure with the holes in the lower mounting gussets.
2. Remove cover to attach chute position controller enclosure to gussets with six (6) flange bolts (B) and flange nuts (C). (See Figure 4G.)
3. Field drill all four (4) holes in the bin sidewalls through the four (4) holes in the sidewall mounting brackets (D), making sure that the holes are drilled on the peaks of the corrugation ridges. Use bolts to attach housing to bin.

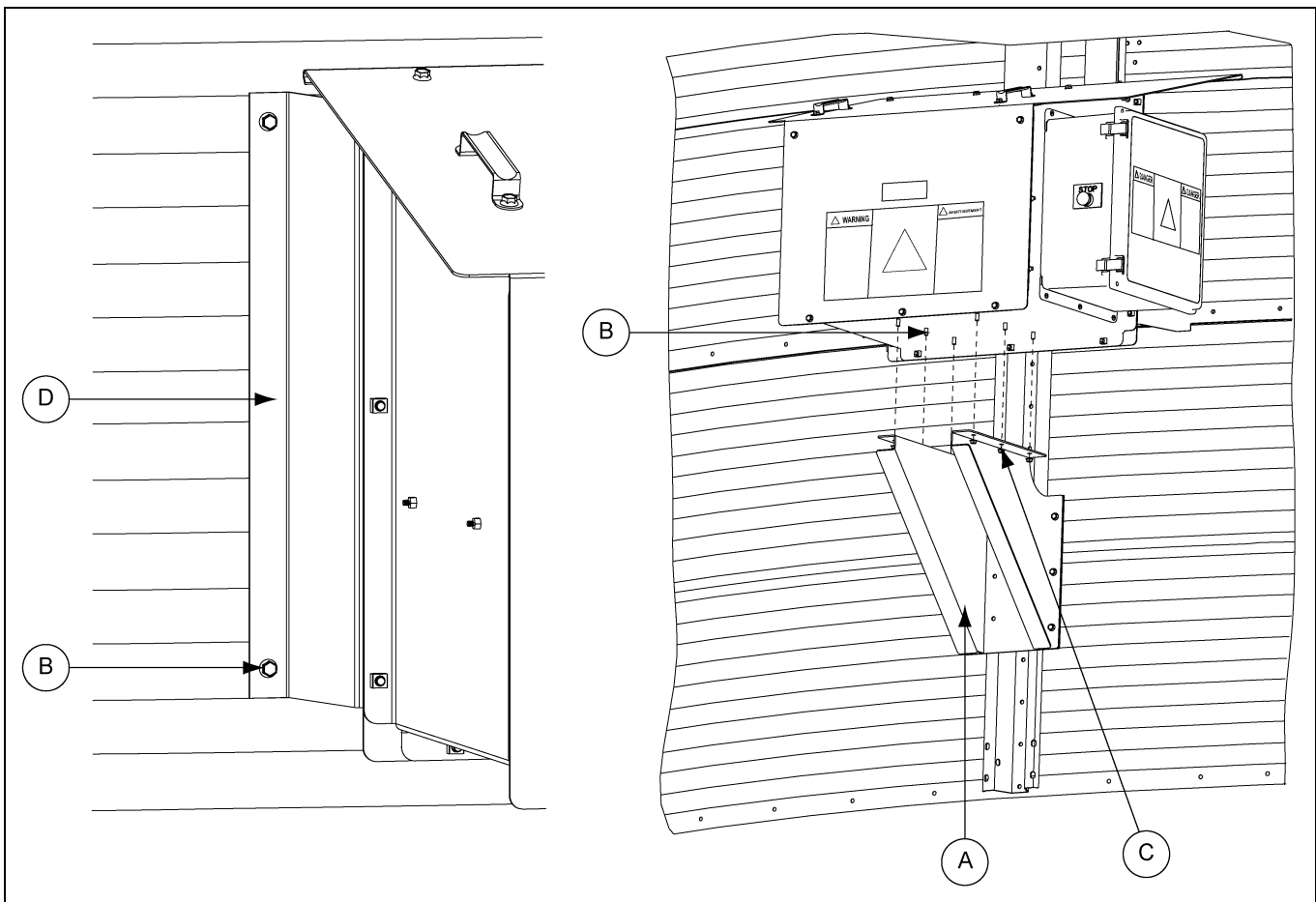


Figure 4G

Ref #	Part #	Description
A	TD-101326	Lower Mounting Gussets
B	S-6606	Flange Bolt 5/16"-18 x 3/4" ZN Grade 5
C	S-3611	Flange Nut 5/16"-18 YDP Grade 2
D	TD-101331	Sidewall Mounting Bracket

Testing that the Sprocket Correctly Activates the Limit Switch



Disconnect all power sources before attempting to connect wiring. All wiring should be done by a certified electrician. Follow all national and local electrical codes.

1. Field drill two (2) holes in bottom of chute position controller electrical box (A) large enough to accommodate cables for power and Autoflow controls. Refer to wiring diagrams on [Pages 23 and 24](#) to feed conduit for wiring to the main power breaker and Autoflow controls. (See [Figure 4H](#).)
2. After wiring and before attaching the chain to the cable, test that the sprocket travels from the open limit switch position to the close limit switch position. To test sprocket travel:

NOTE: For system to function when testing travel with the cover removed, the tamper switch (B) must be depressed.

- a. Use tape to secure tamper switch in the depressed position.
- b. Ensure the sprocket (C) is in the open position when beginning testing. Use the manual dump chute switch located on the main control panel to move between the open and closed positions. Set the sprocket travel to the closed position on the Autoflow control and observe the bolts in the sprocket (C) travel from the open (clockwise) position to the closed (counterclockwise) position to the limit switch (D) as shown in [Figure 4H](#).

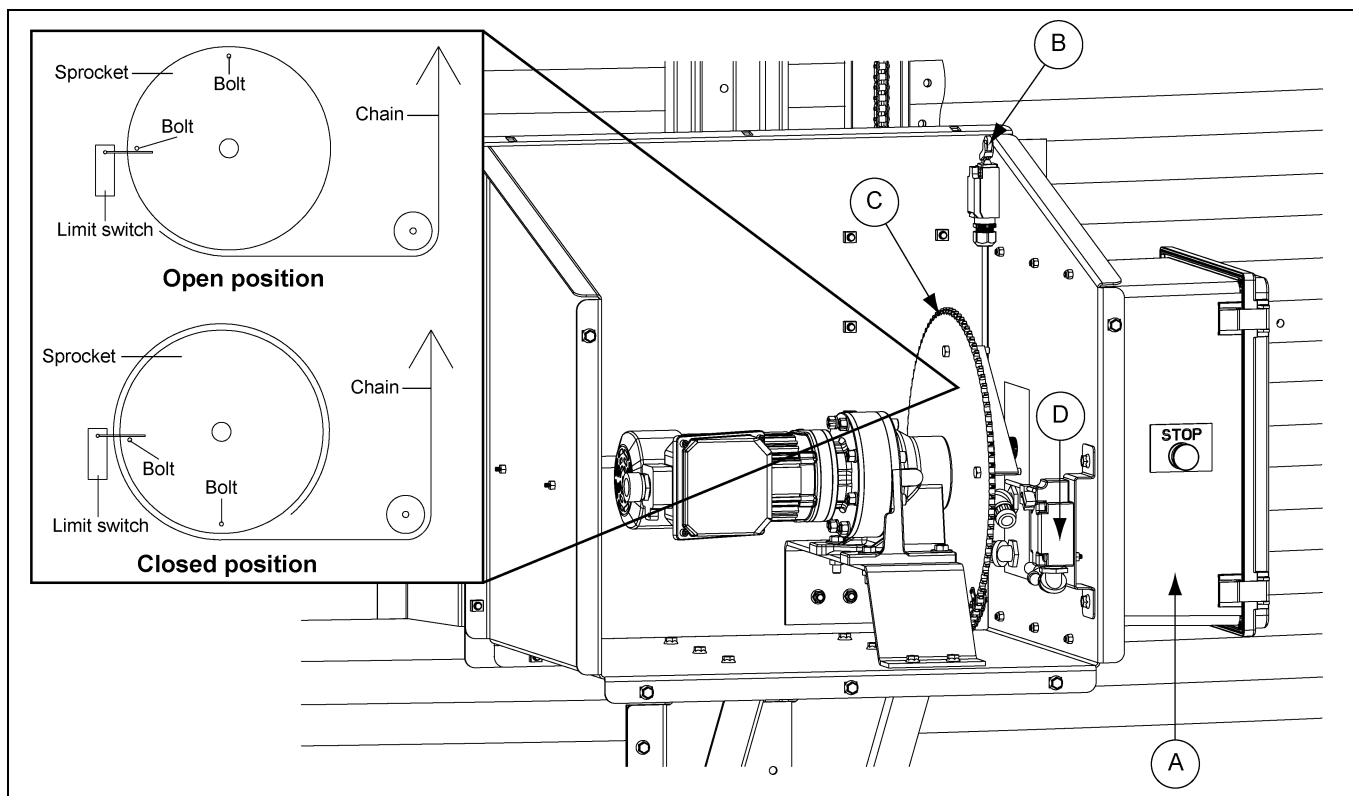


Figure 4H

Ref #	Part #	Description
A	TD-101349	Chute Position Controller Electrical Box
B	TD-101463	Tamper Switch
C	TD-101351	Sprocket
D	TD-101465	Limit Switch

4. Installation

Connecting the Cable to the Turnbuckle

1. Run the cable from the inside of the bin through the sidewall sheet over the chute pulley on the bin eave and down to the chain turnbuckle from the controller. (See Figure 4I.)

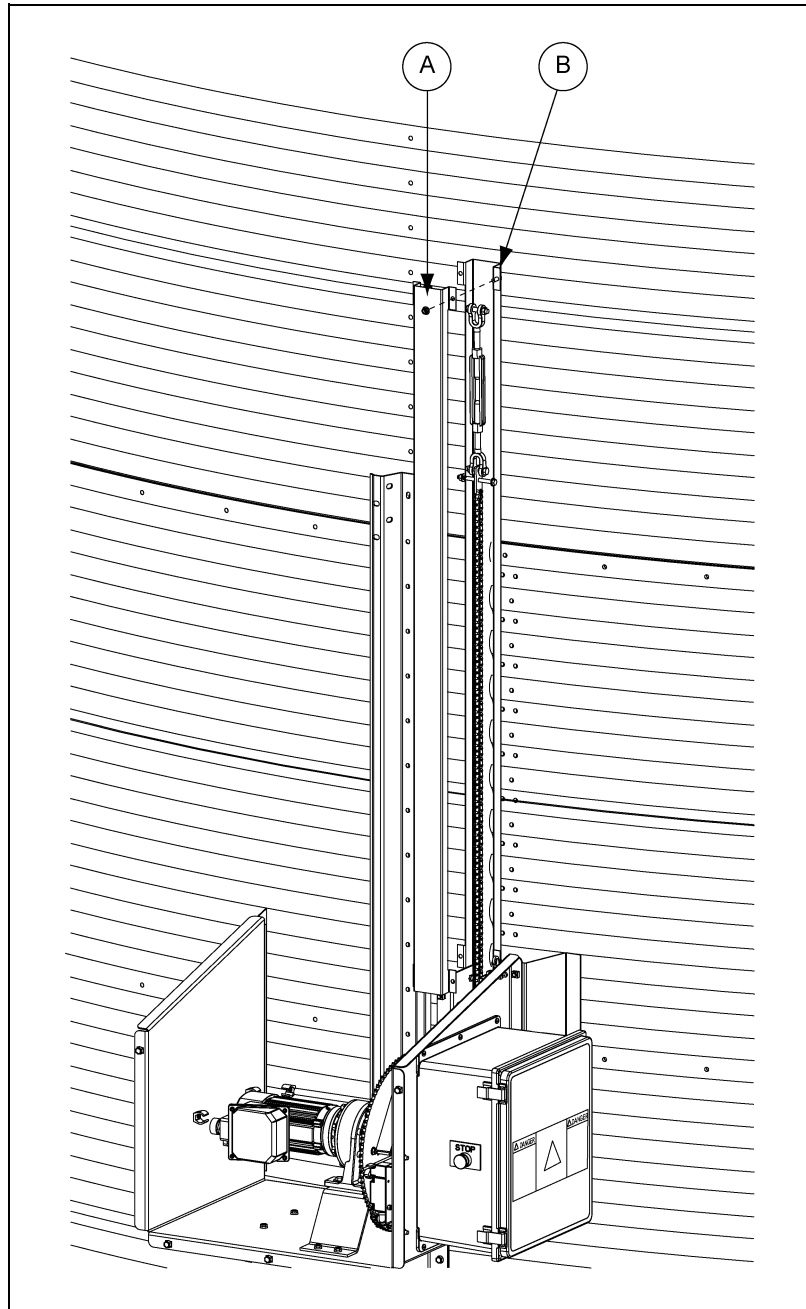


Figure 4I

Ref #	Part #	Description
A	TD-101335	Front Chain Guard
B	TD-101336	Rear Chain Guard

2. Set turnbuckle (D) to the halfway point to allow for adjustment in both directions. *(See Figure 4J.)*

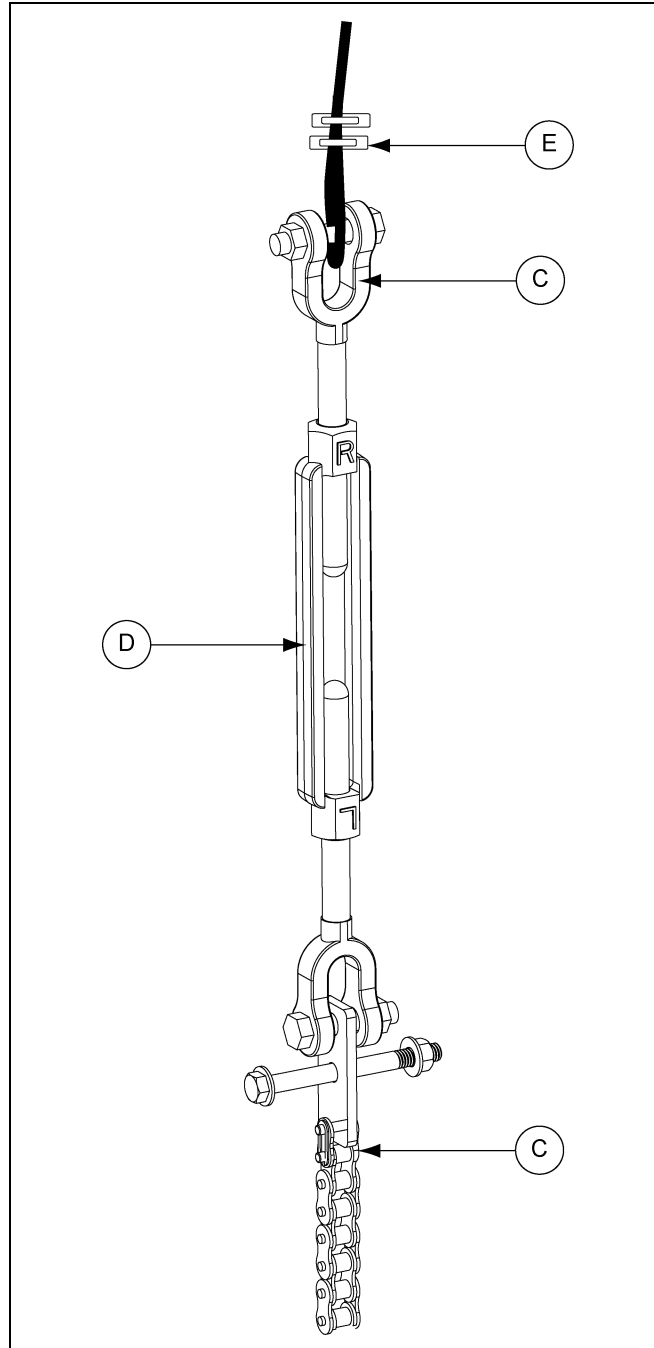


Figure 4J

Ref #	Description
C	Chain
D	Turnbuckle
E	Cable Clamps

3. Bolt the turnbuckle to the chain (C). *(See Figure 4J.)*

4. Attach the cable to the turnbuckle using cable clamps (E). *(See Figure 4J.)*

4. Installation

Leveling the Dump Chutes

NOTE: When testing the chute positions, tamper switch must be depressed when the cover is removed before the system can function. Use tape to secure tamper switch in the depressed position.

1. The chain (C) is connected to a cable with a turnbuckle (D). The cable travels up the outside of the bin to the chute pulley on the bin eave and goes through the sidewall sheet into the bin to the center collar and down to the chain plate. (See Figure 4C on Page 14.) The plate is connected to the chutes via chains. The controller retracts the cable to close the chutes or extends the cable to open the chutes.
2. Dump chutes should be level in the closed position. Use the turnbuckle to adjust the chutes until they are level.
3. After adjustments are complete, verify the chutes fully open and close. Also, visually verify that the sprocket goes through a full open to close rotation by performing the limit switch test described in Step 2 on Page 19.
4. When all adjustments have been made, secure the front chain guard cover to the chute position controller mount.
5. Install the enclosure cover (A) and secure with eight (8) flange bolts (B). (See Figure 4K.)

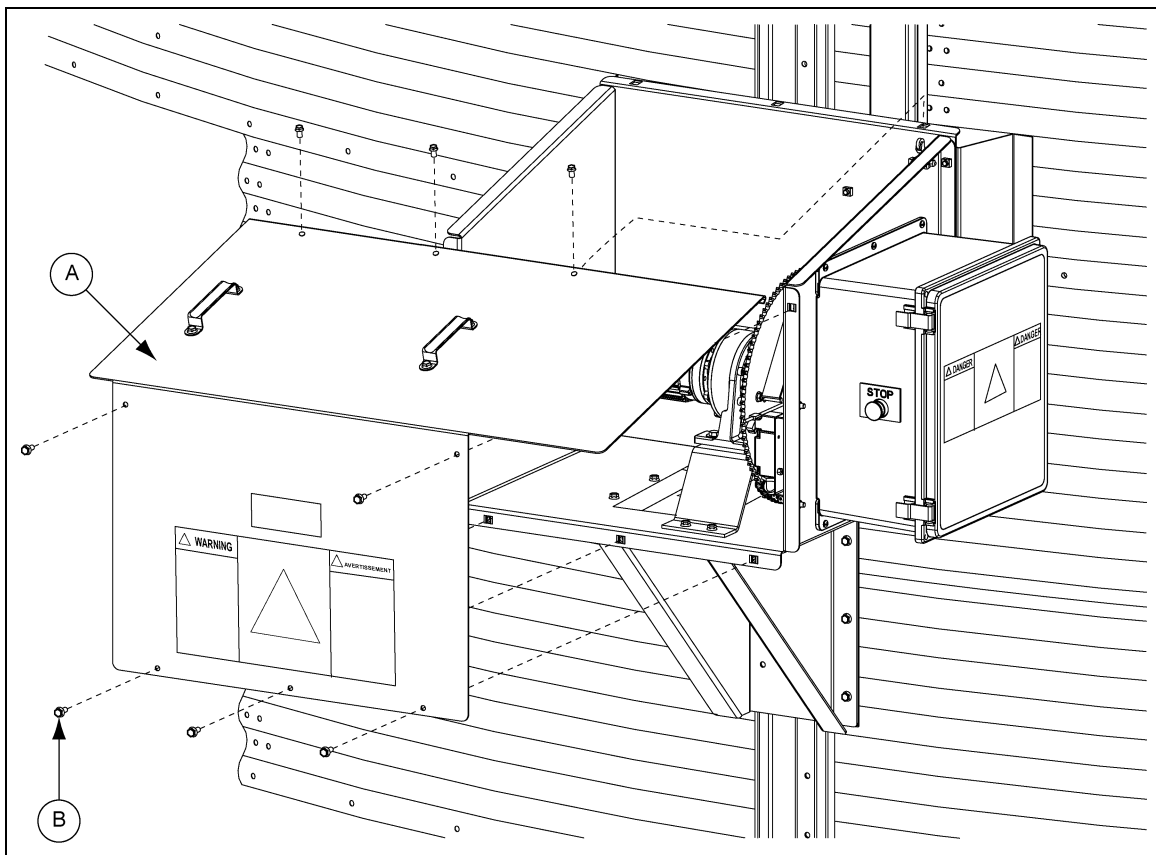
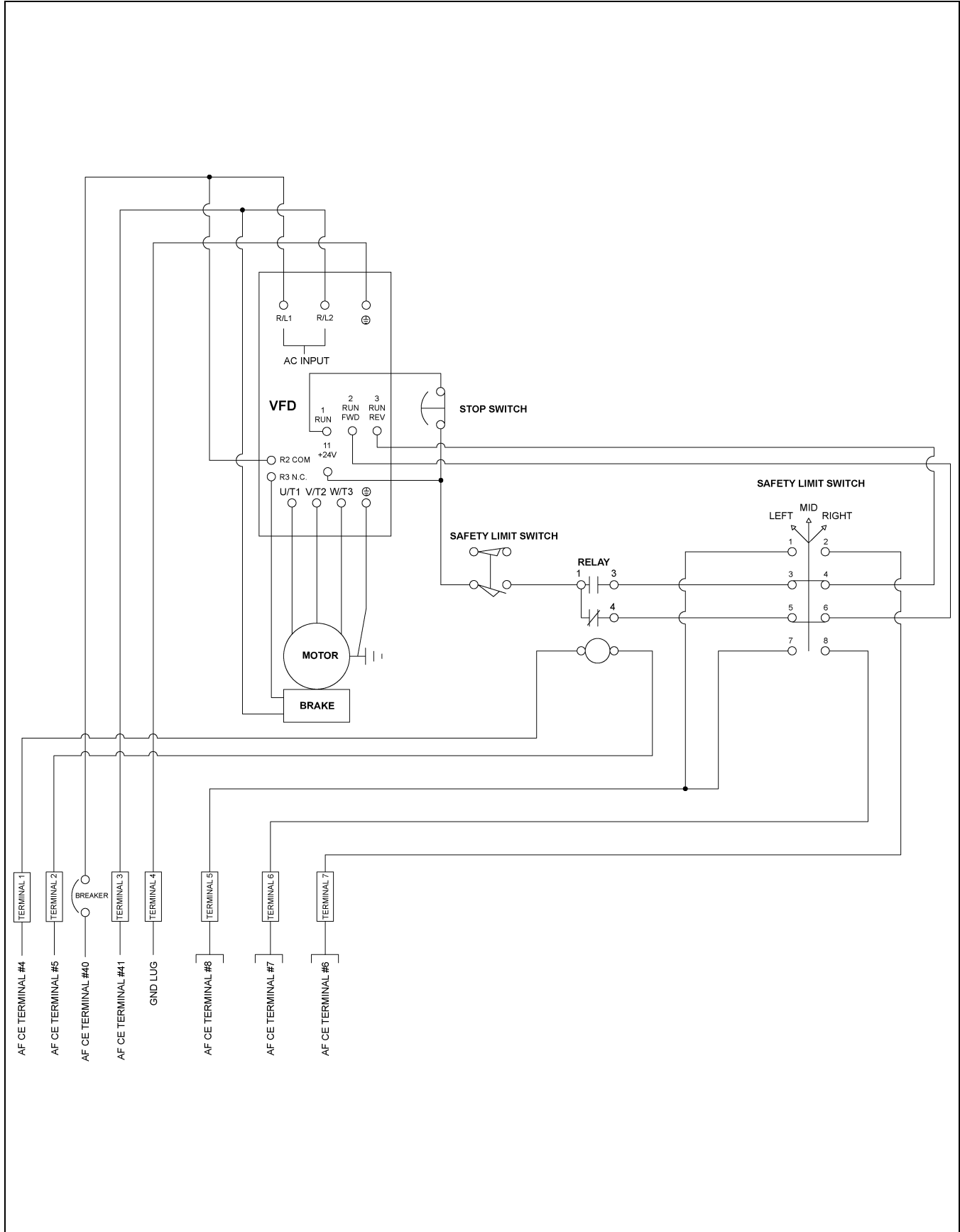


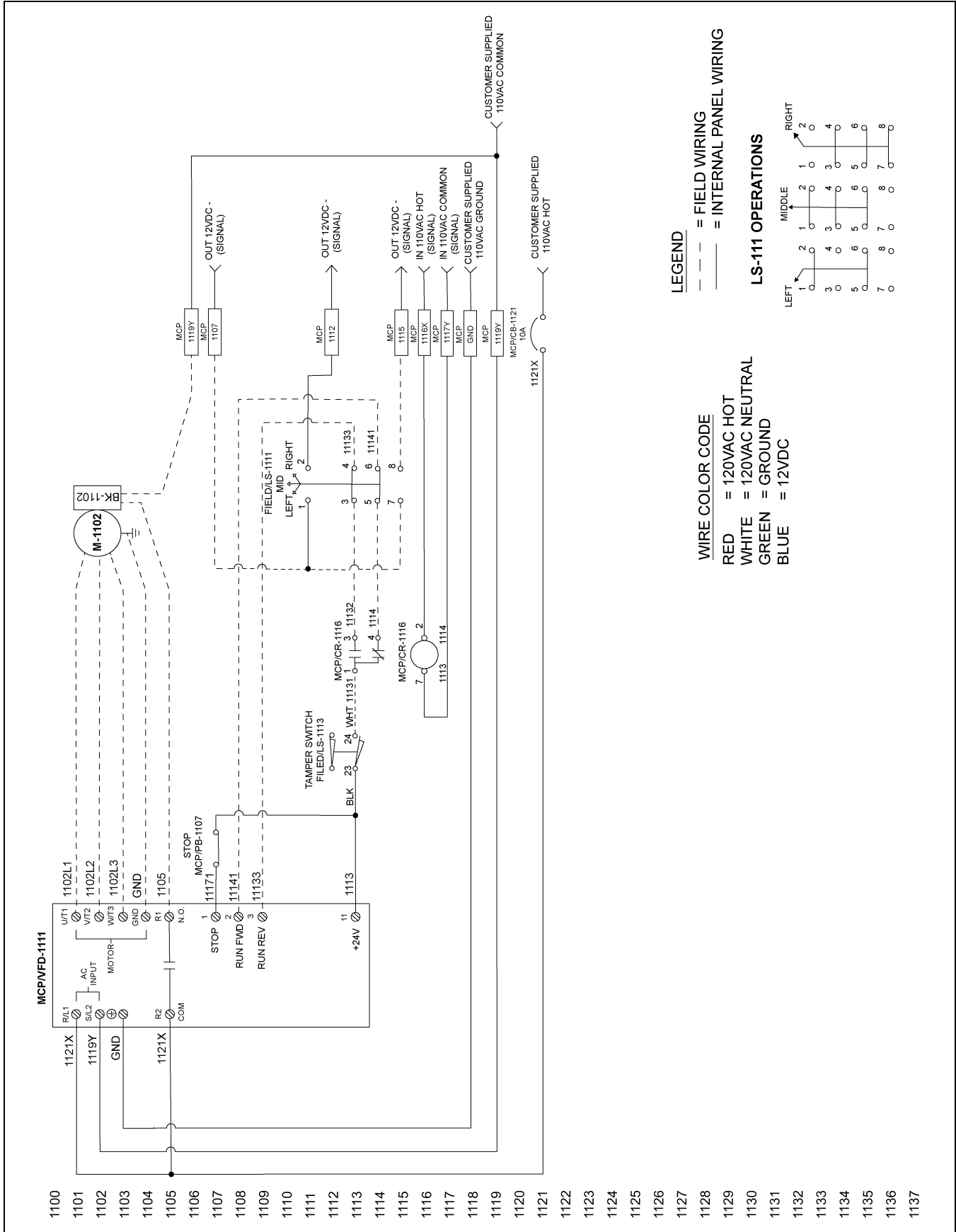
Figure 4K

Ref #	Part #	Description
A	TD-101330	Enclosure Cover
B	S-6606	Flange Bolt 5/16"-18 x 3/4" ZN Grade 5

Actuator Wiring Schematic - CE TopDry Terminal Connections



Internal Wiring Reference for Chute Controller



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	
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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