

CE Compliant Chute Controller for TopDry Grain Dryer

Installation Manual - Original Instructions

PNEG-1894CE

Version: 1.1

Date: **09-27-20**



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.**



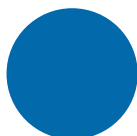
This symbol is used to address practices not related to personal injury.



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

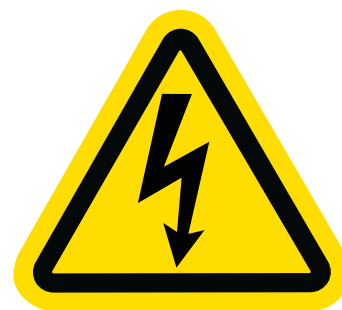
- **Warning:** If the information in the manual is not followed exactly, a fire or explosion can result, causing property damage, personal injury or loss of life.
- Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged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

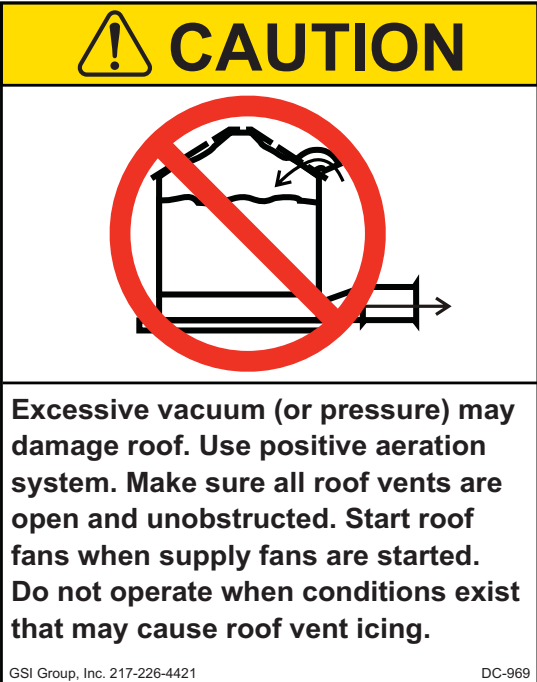

2. Decals


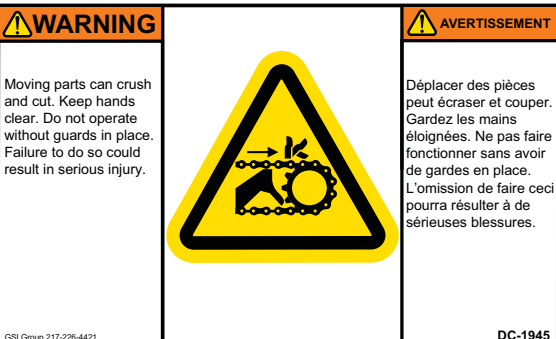

The safety decals on your equipment are safety indicators which must be carefully read and understood by all personnel involved in the installation, operation, service and maintenance of the equipment.

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>Caution, Vacuum Pressure</p>
<p>On bin door covers</p>	<p>DC-GBC-1A</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

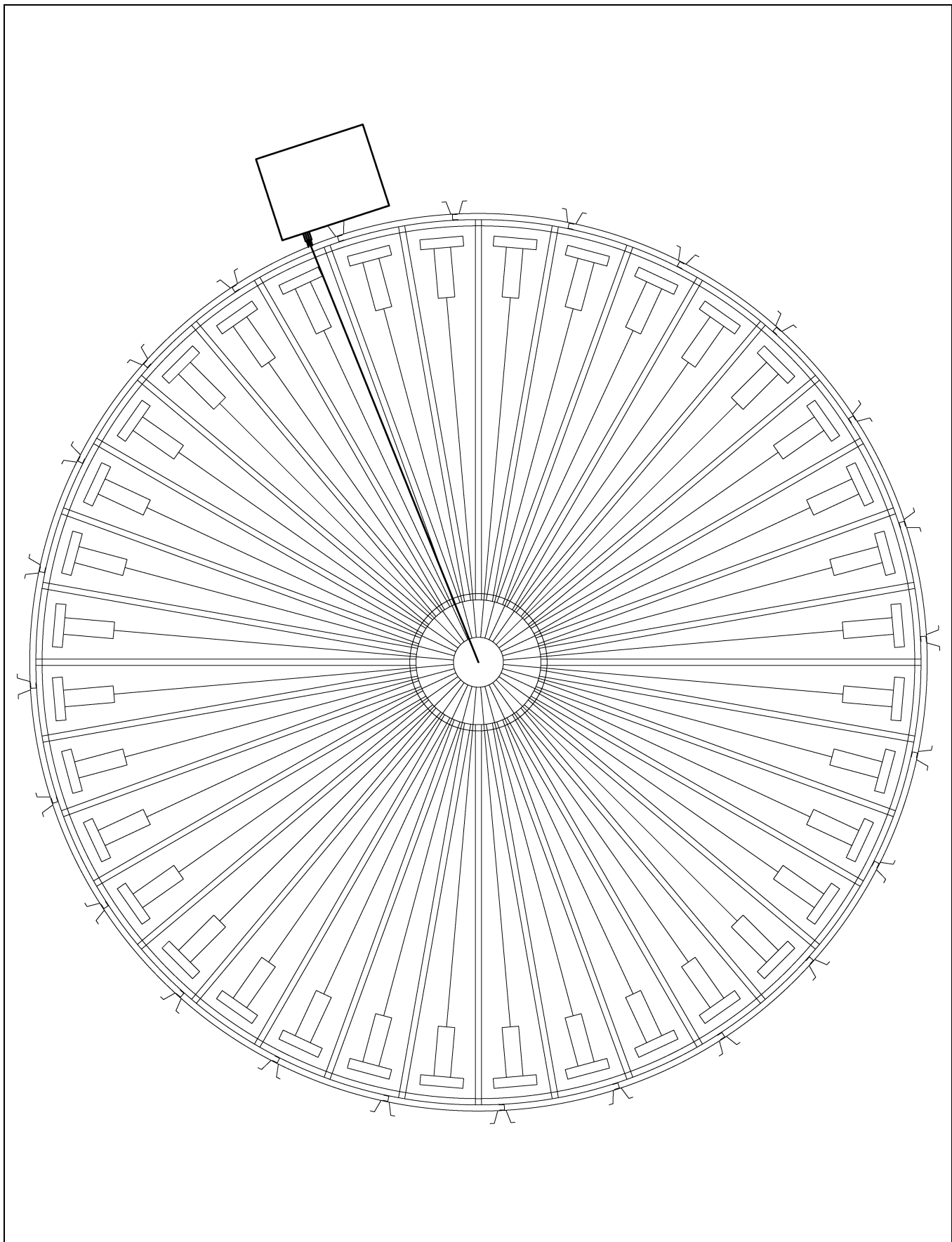


Figure 3A Chute Pulley Cable Location

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.)

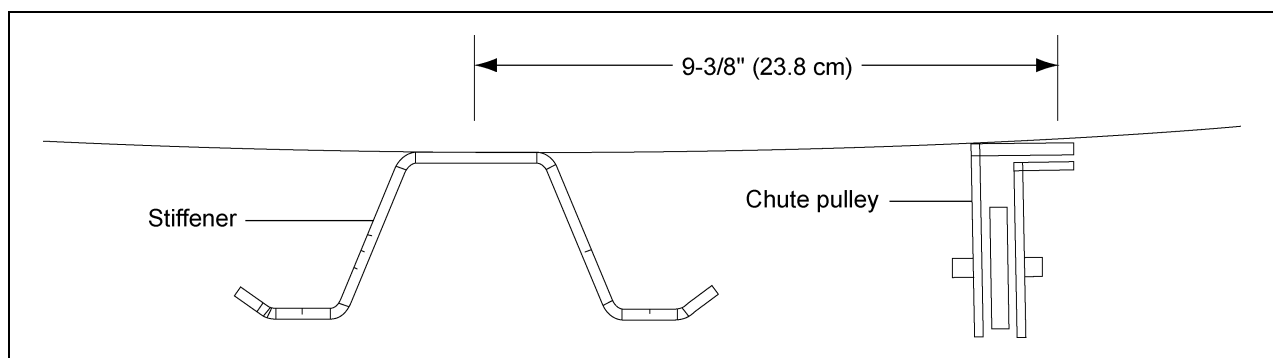


Figure 4A

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.)

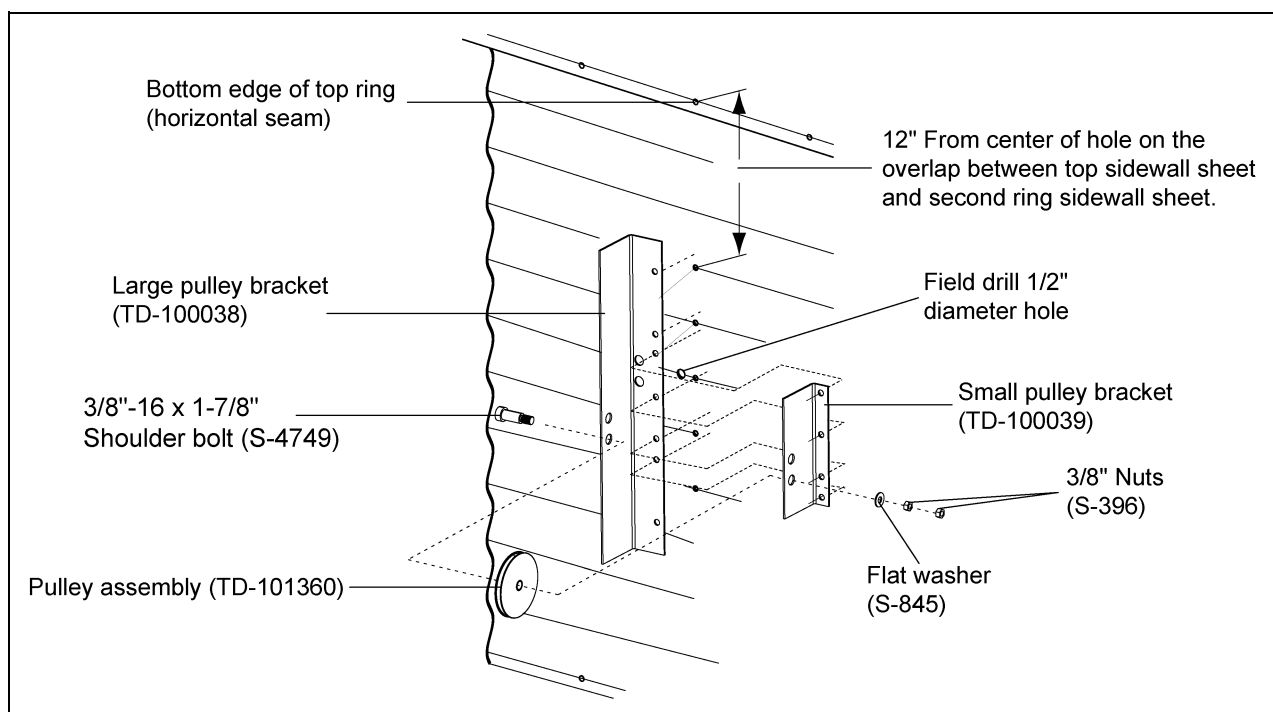


Figure 4B

4. Installation

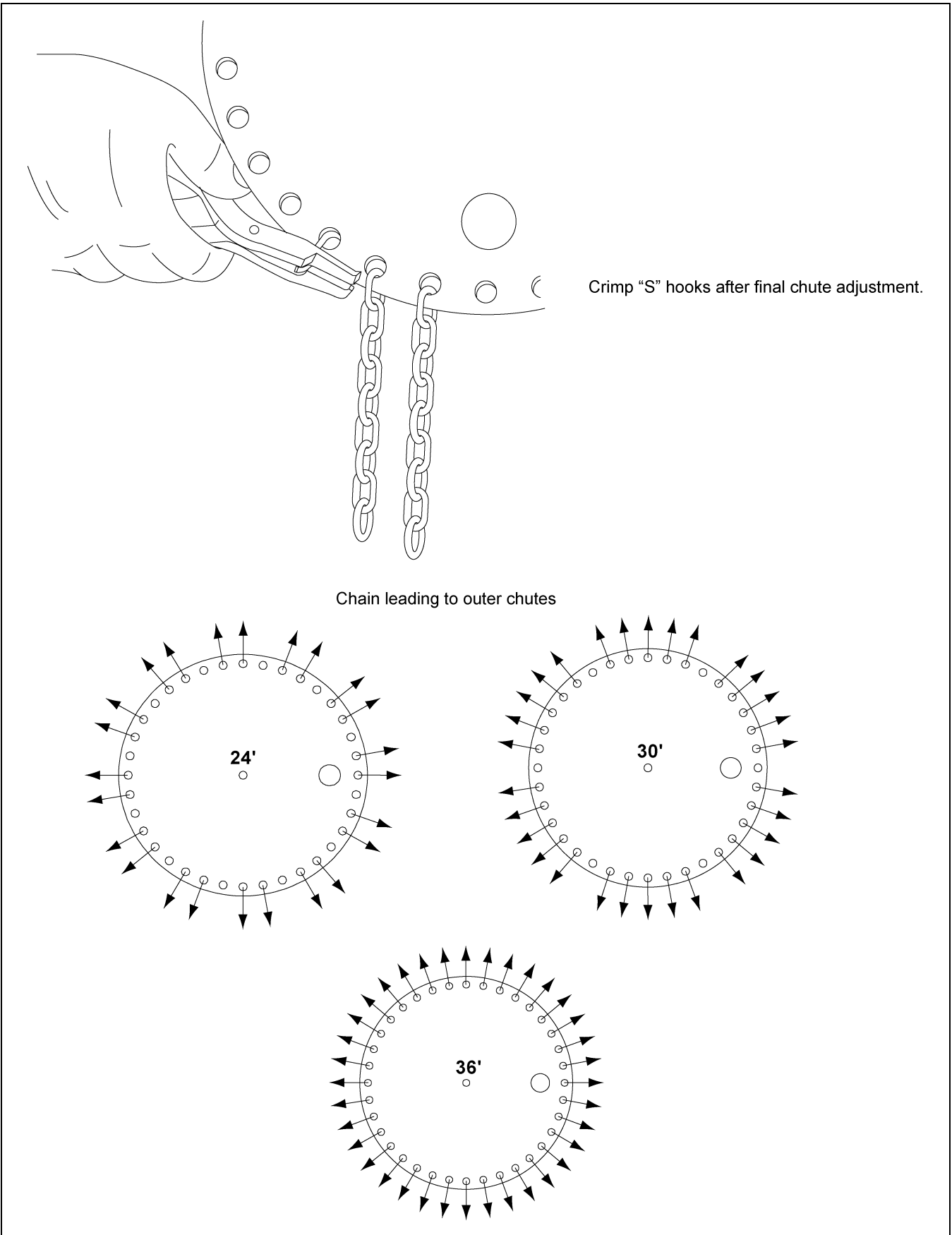


Figure 4C

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.)

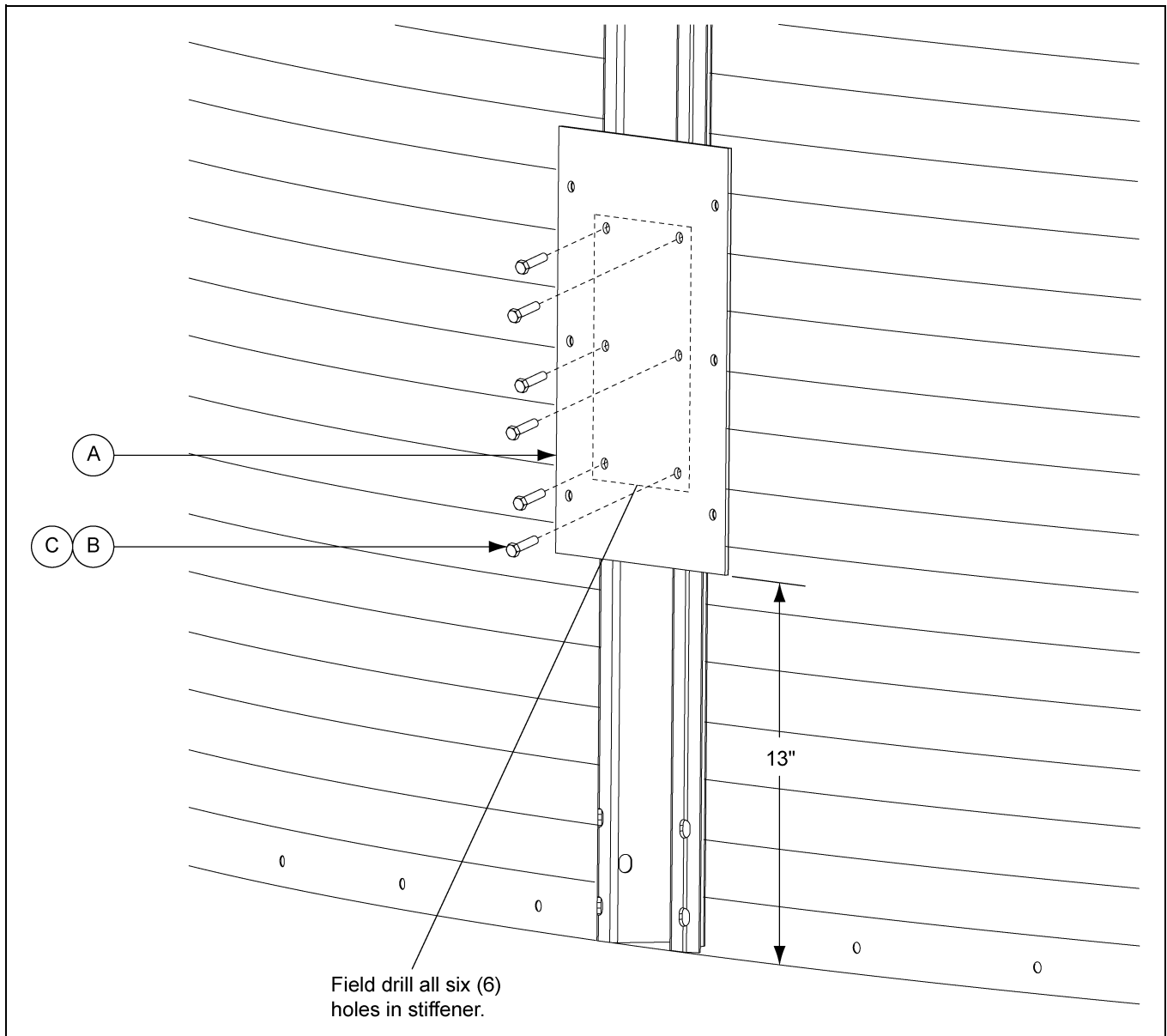


Figure 4D

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.)

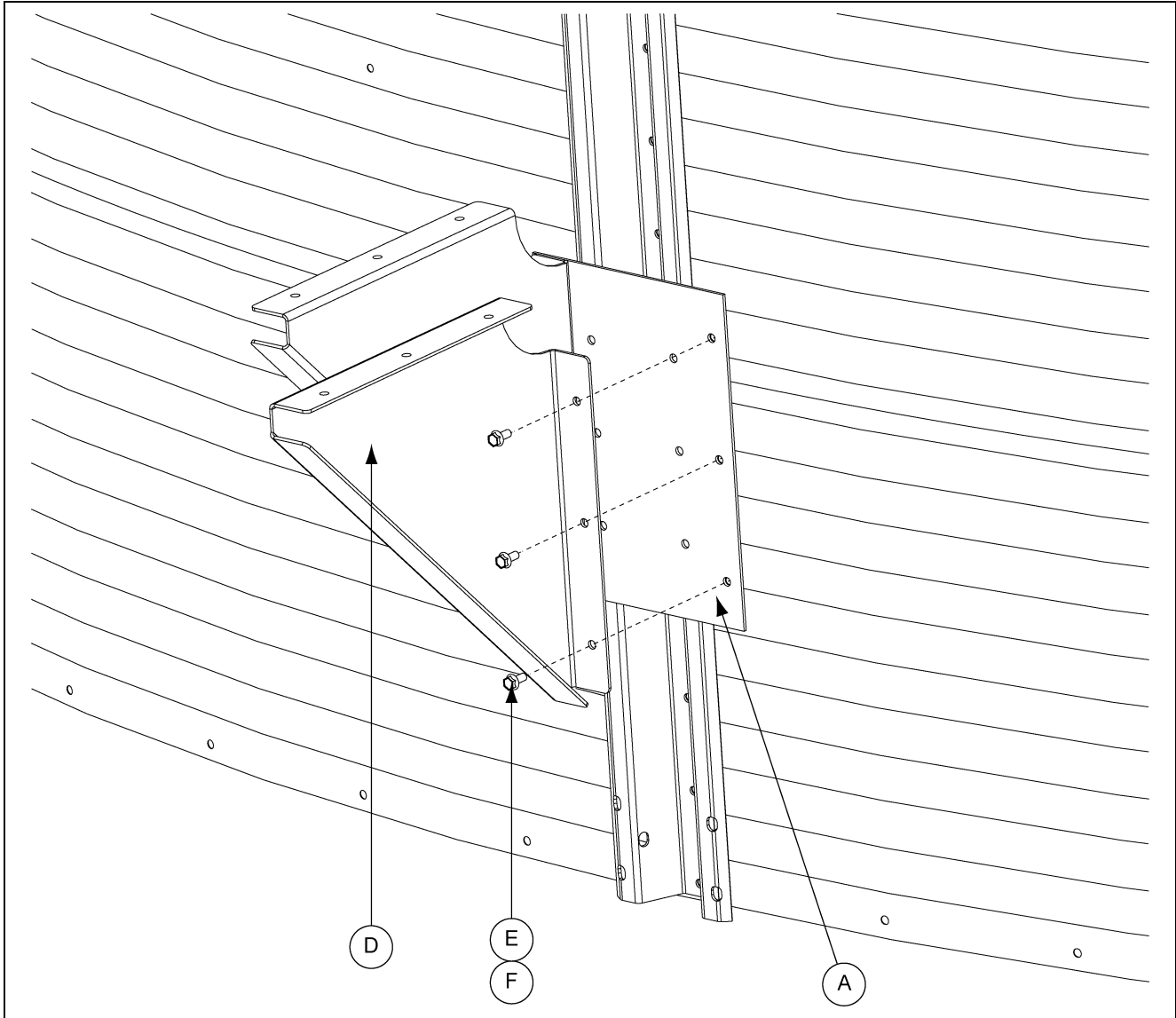


Figure 4E

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.)

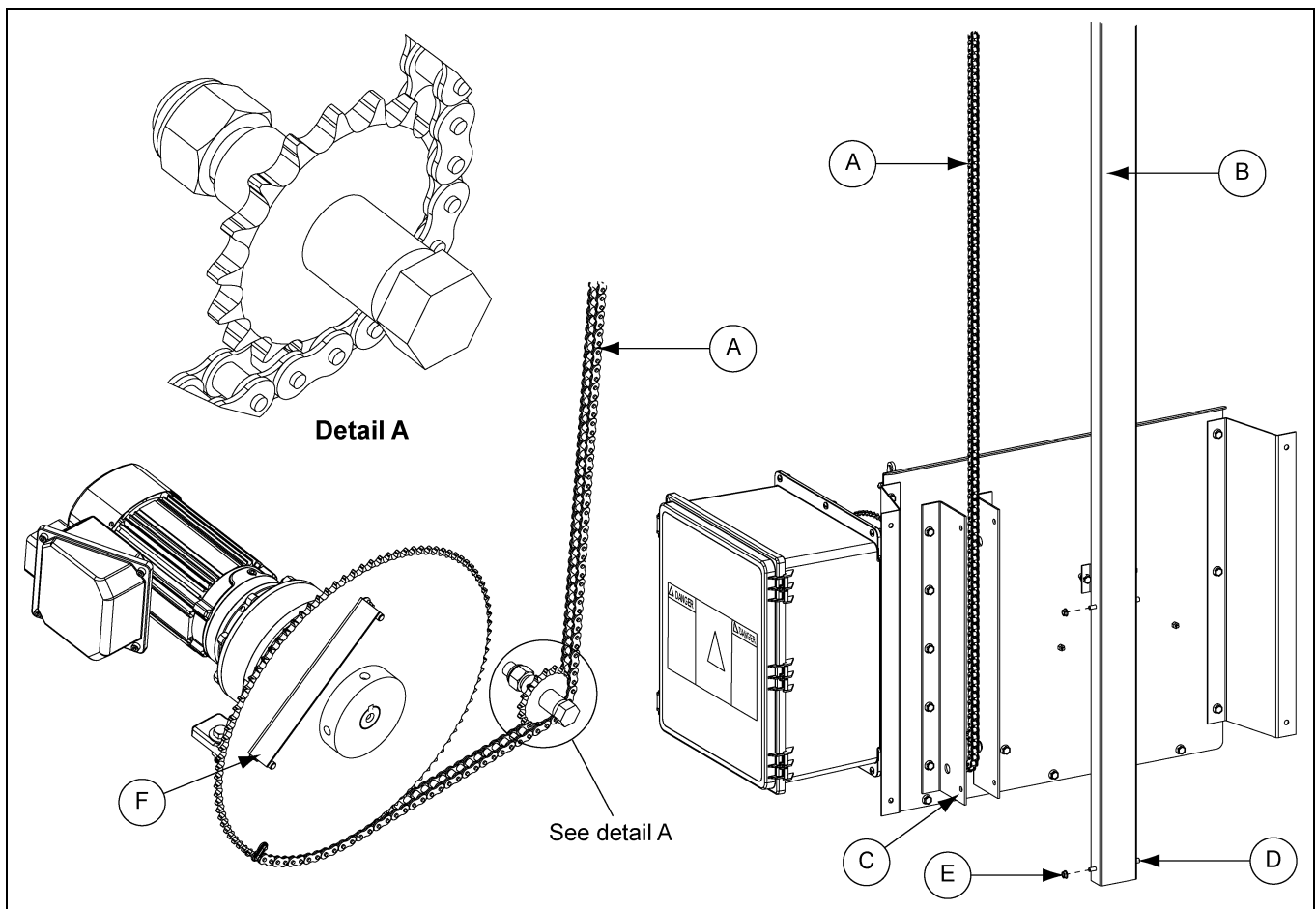


Figure 4F

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.

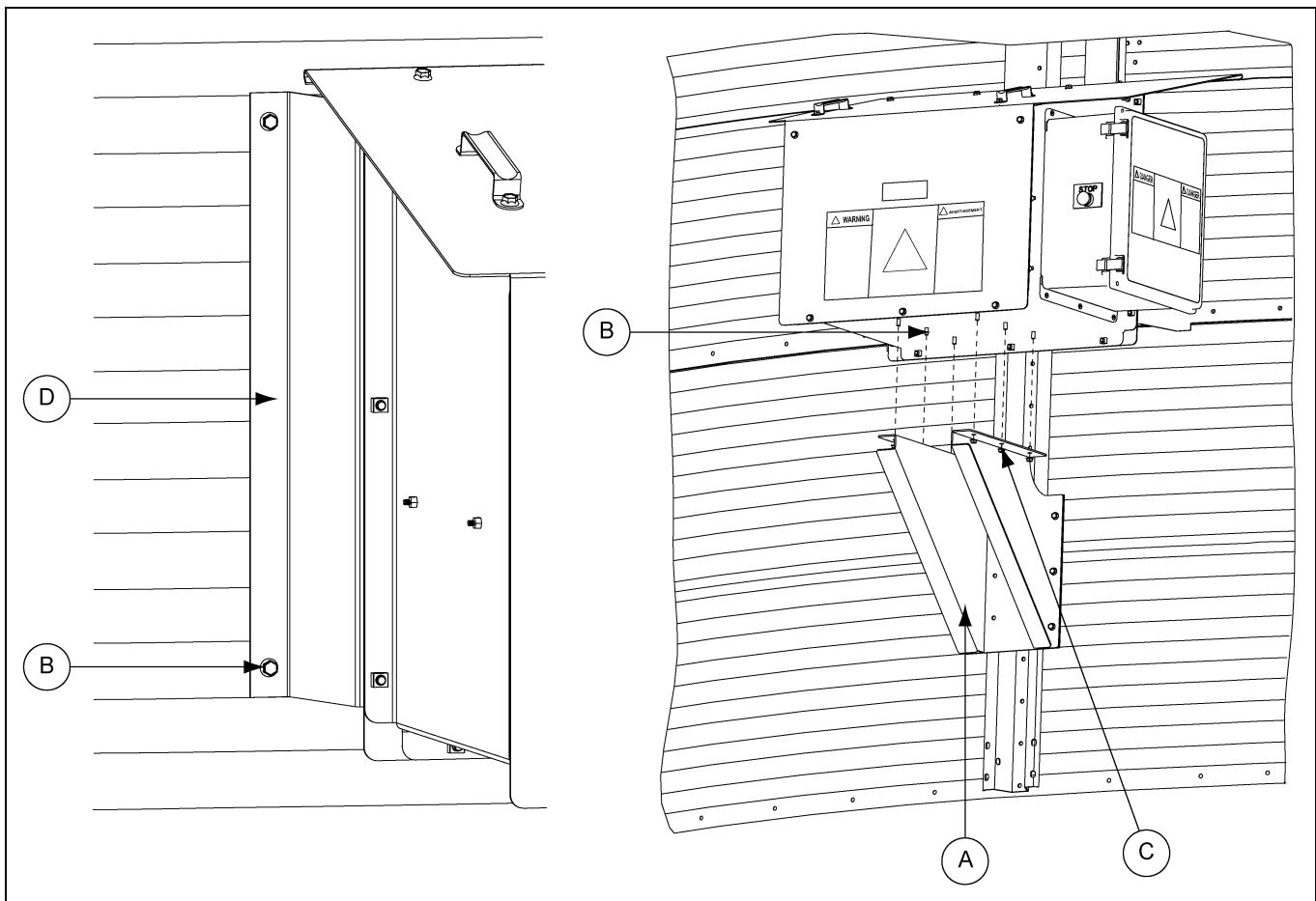


Figure 4G

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](#).

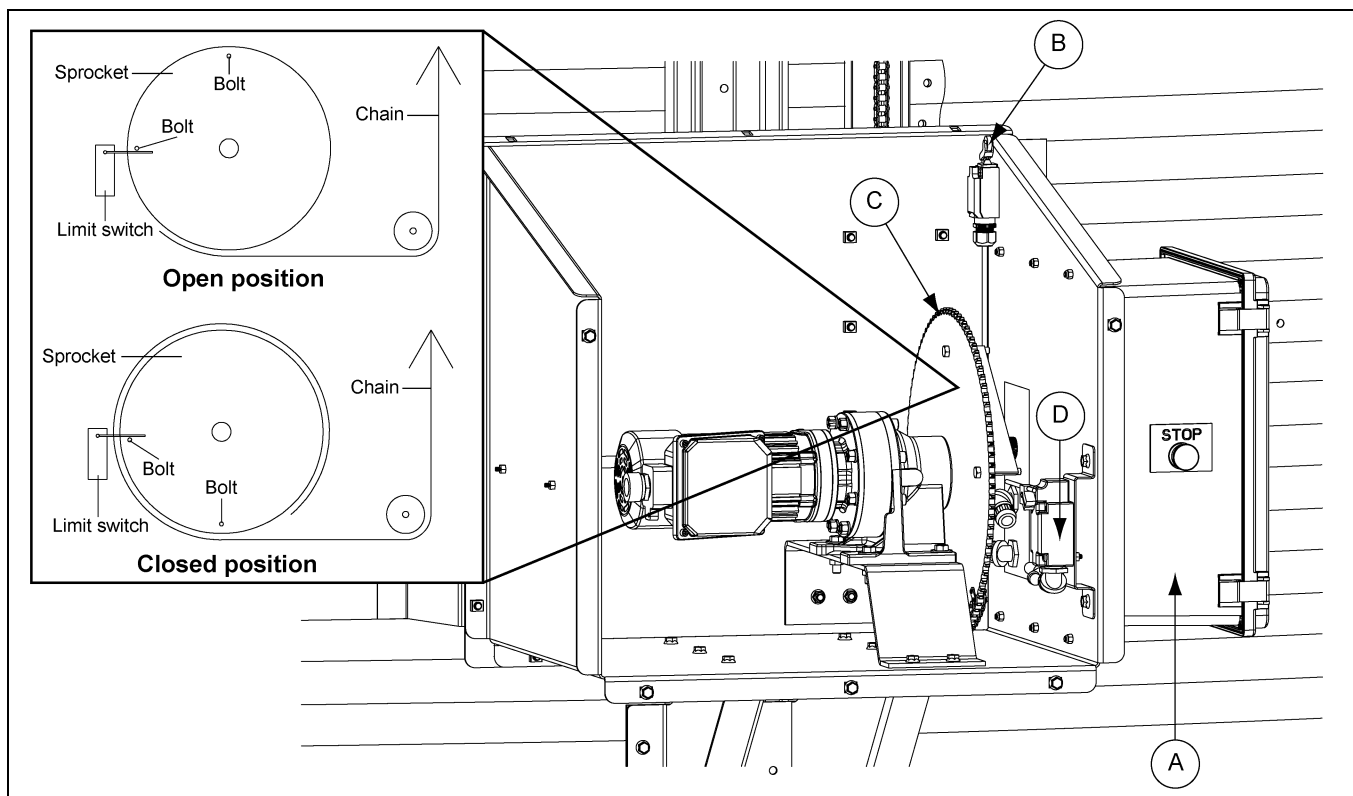


Figure 4H

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.)

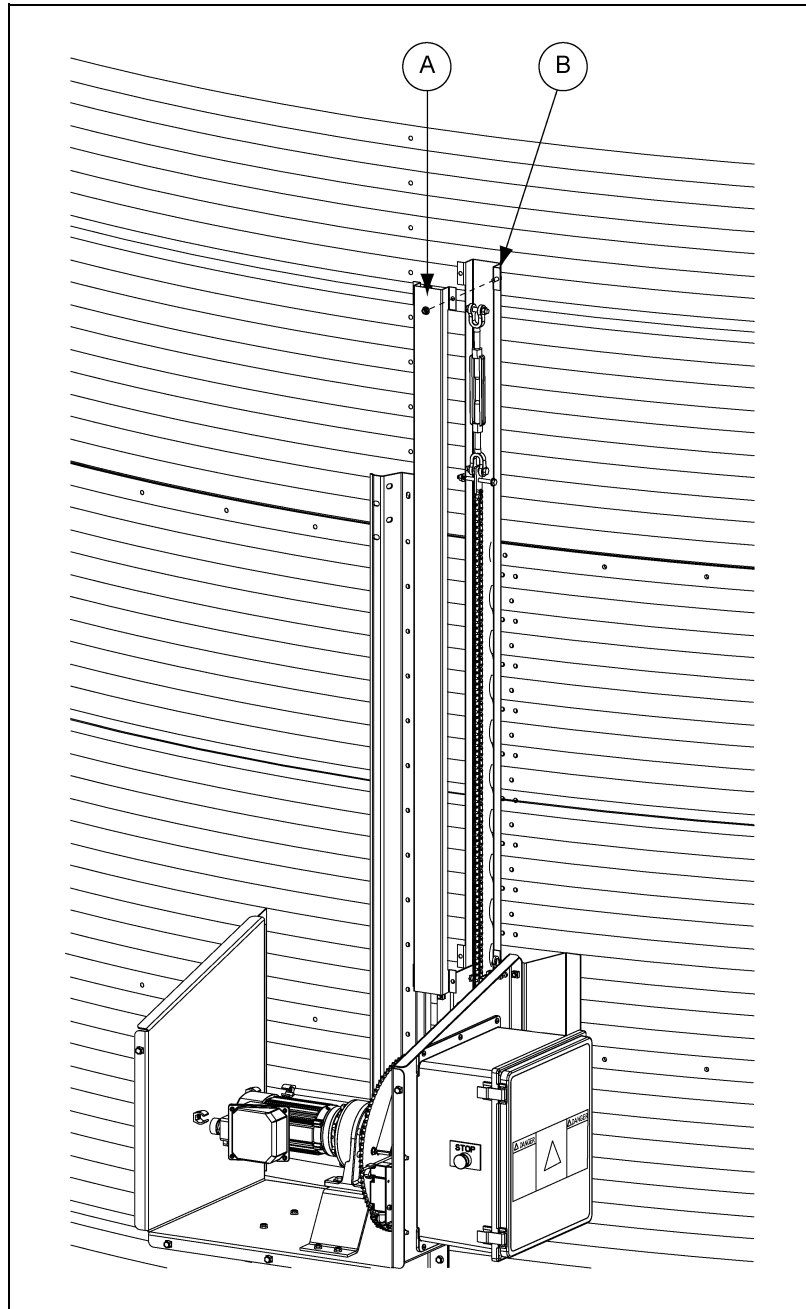


Figure 4I

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.)*

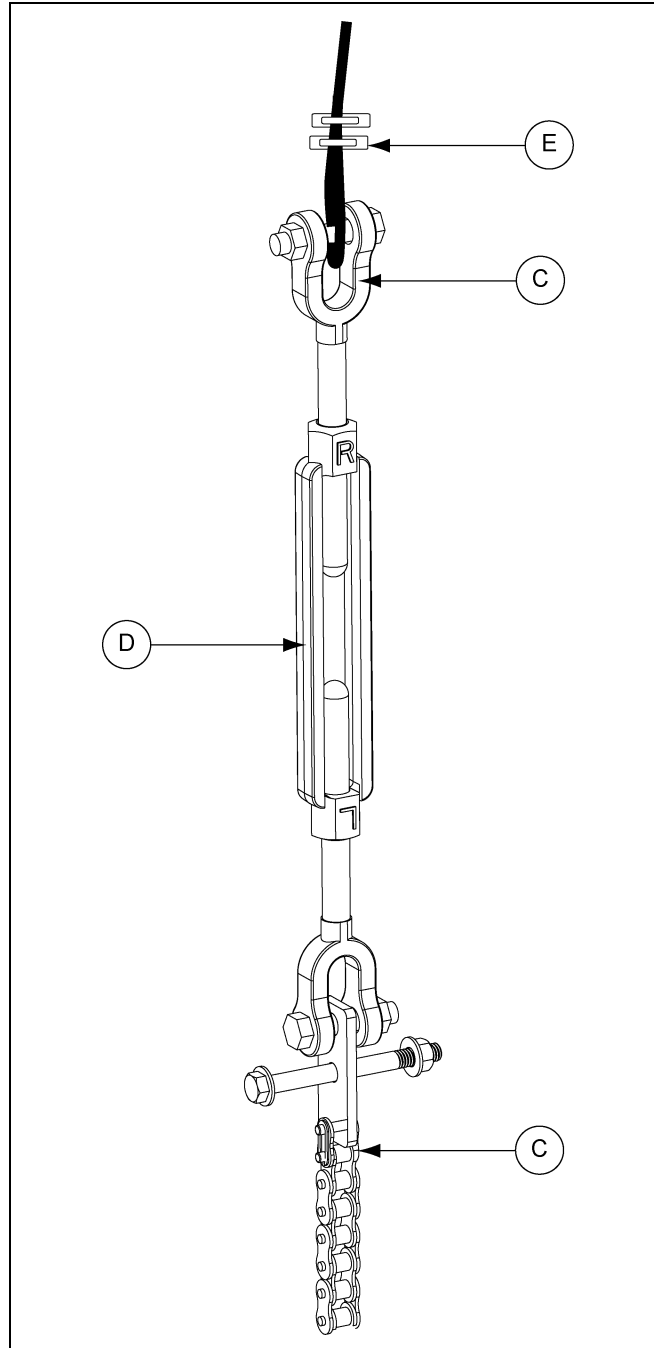


Figure 4J

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.)

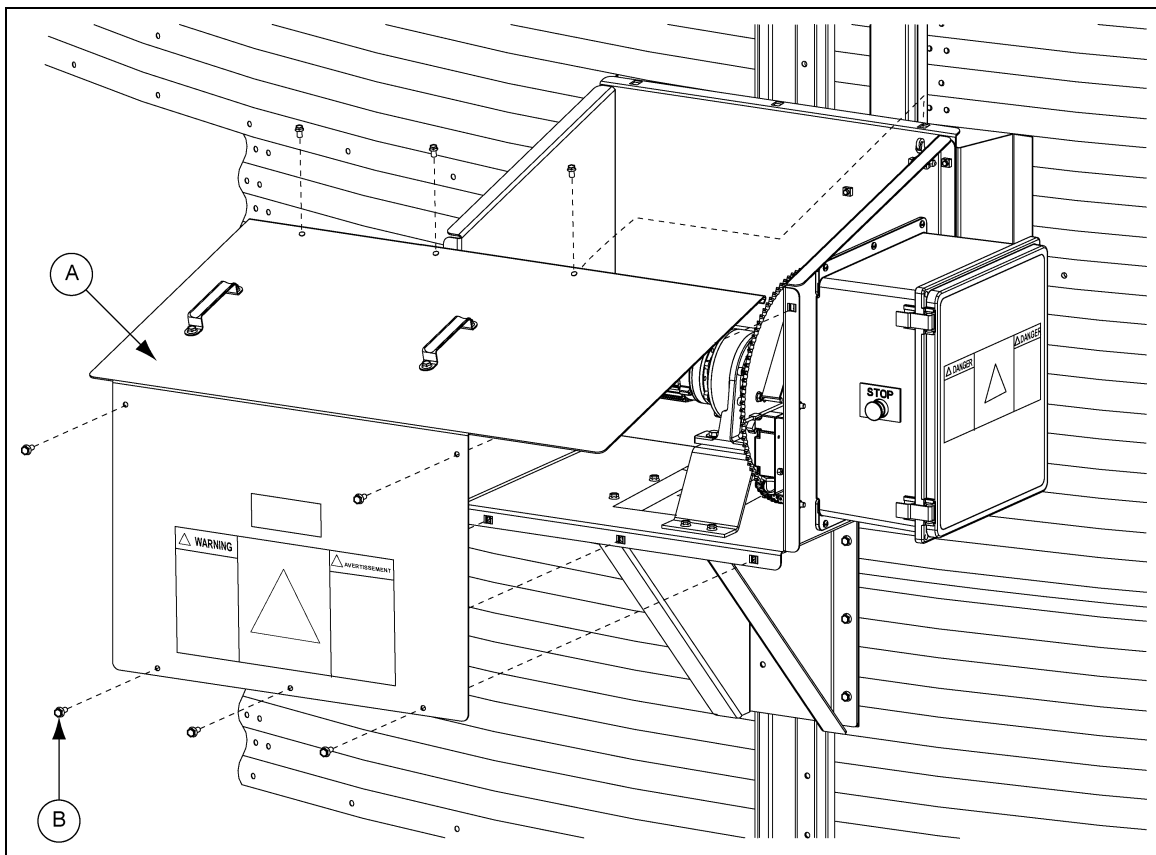
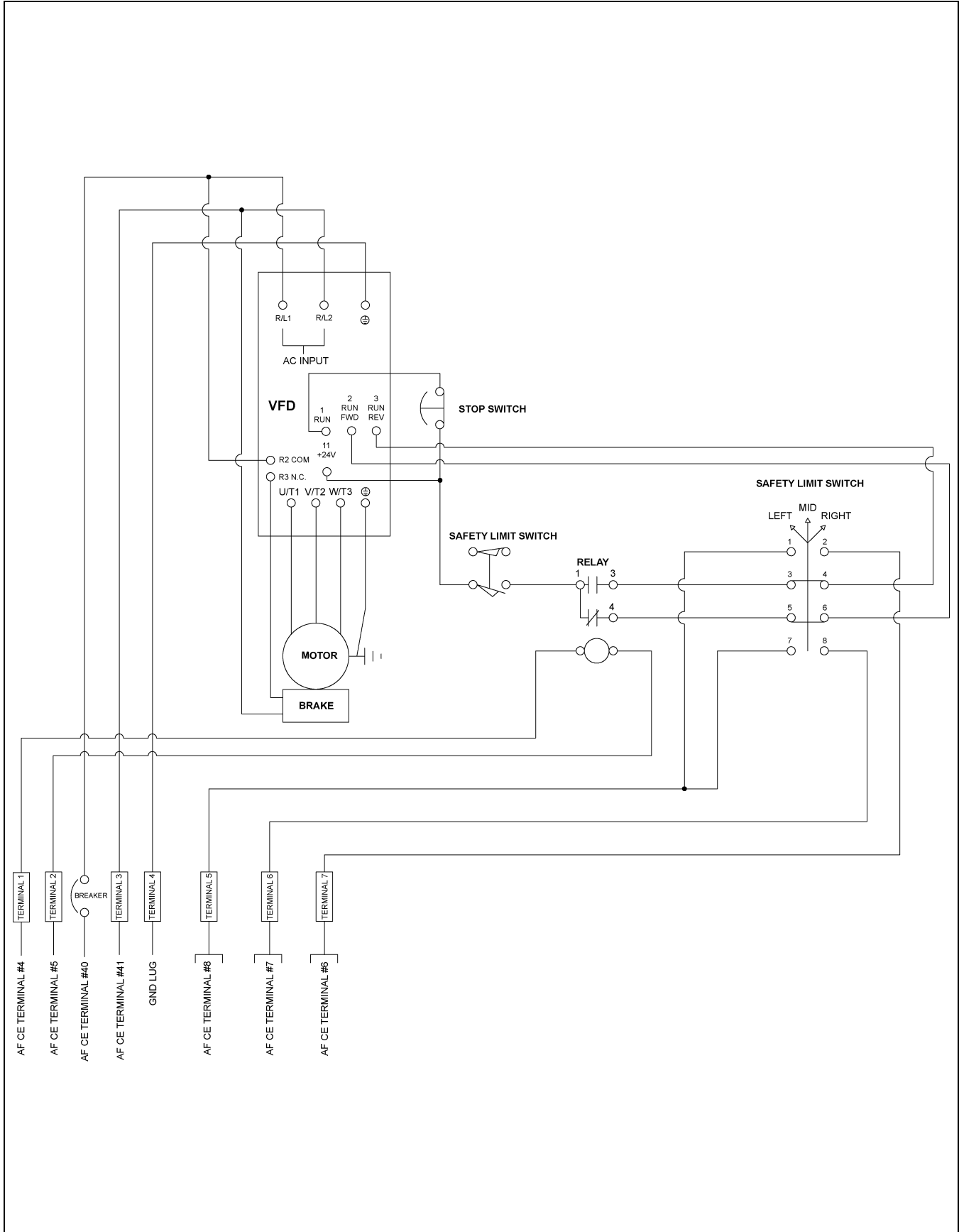


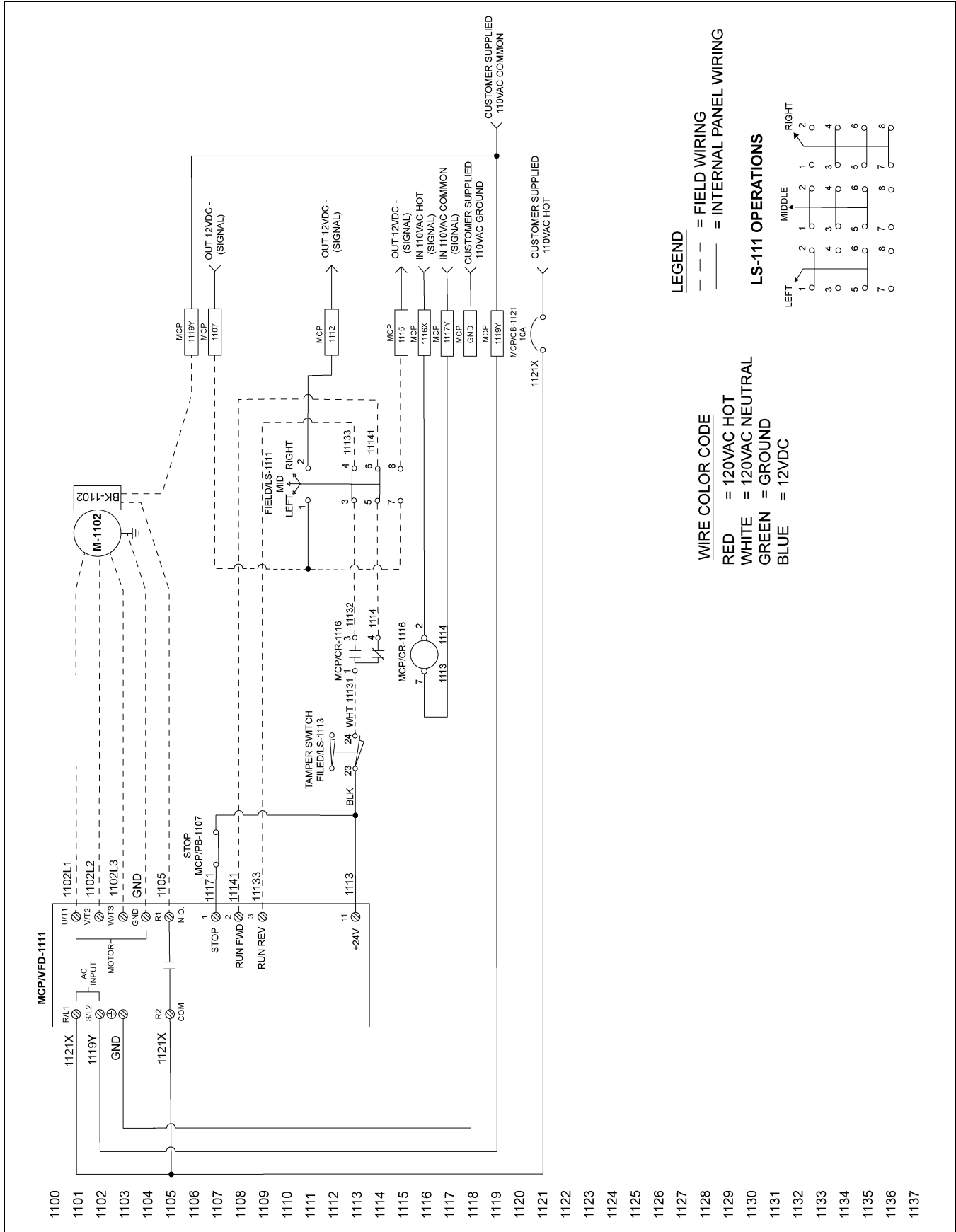
Figure 4K

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



Limited Warranty — N.A. Grain 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 shipment (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. (Warranty Period is from date of shipment.)

	Product	Warranty Period
Storage	Grain Bin Structural Design • Sidewall, roof, doors, platforms and walkarounds • Flooring (when installed using GSI specified floor support system for that floor) • Hopper tanks (BFT, GHT, NCHT, and FCHT)	5 Years
Conditioning	Dryer Structural Design – (Tower, Portable and TopDry) • Includes (frame, portable dryer screens, ladders, access doors and platforms)	5 Years
	All other Dryer parts including: • Electrical (controls, sensors, switches and internal wiring)	2 Years
	All Non-PTO Driven Centrifugal and Axial Fans	3 Years
	Bullseye Controllers	2 Years
Material Handling	Bucket Elevators Structural Design	5 Years
	Towers Structural Design	5 Years
	Catwalks Structural Design	5 Years
	Accessories (stairs, ladders and platforms) Structural Design	5 Years

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.

Notice Procedure:

In order to make a valid warranty claim a written notice of the claim must be submitted, using the RMA form, within 60 days of discovery of a warrantable nonconformance. The RMA form is found on the OneGSI portal.

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.

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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