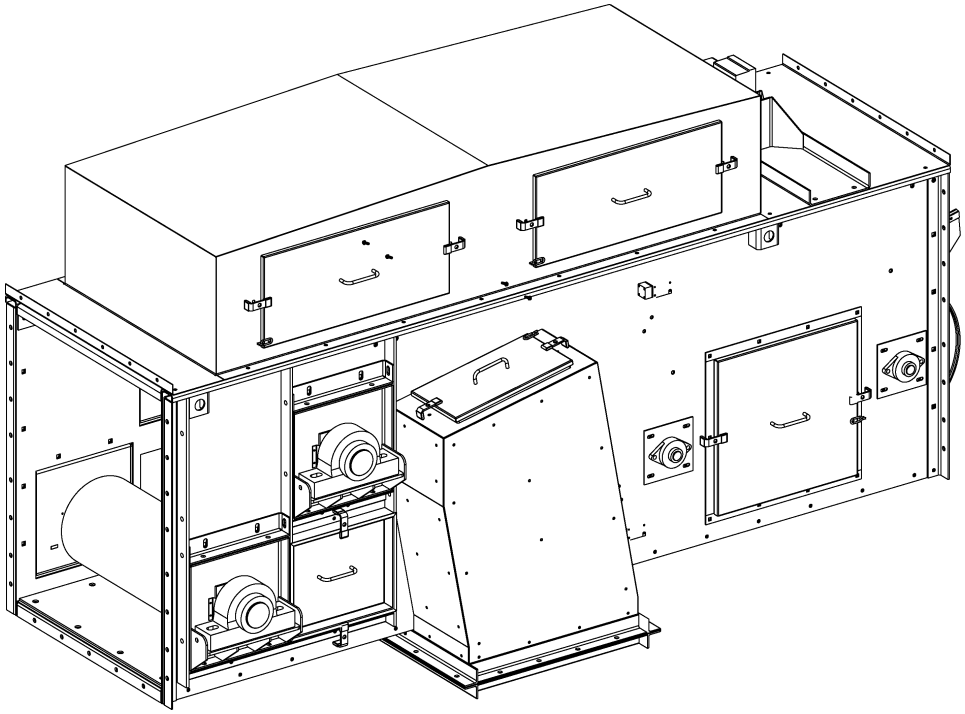


Tripper Assembly

Installation and Operator's Manual

PNEG-1980

Version: 1.0

Date: 01-06-17

PNEG-1980

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

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.

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

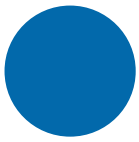
WARNING This symbol indicates a potentially hazardous situation which, if not avoided, **can result in serious injury or death.**

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

NOTICE 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 and bins are properly grounded.

ST-0075-1

Stay Clear of Hoisted Equipment

- Always use proper lifting or hoisting equipment when assembling or disassembling equipment.
- Do not walk or stand under hoisted equipment.
- Always use sturdy and stable supports when needed for installation. Not following these safety precautions creates the risk of falling equipment, which could crush personnel and cause serious injury or death.

ST-0047-1

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

Stay Clear of Moving Parts

- Entanglement in rotating sprocket or moving chain will cause serious injury or death.
- Keep all guards and covers in place at all times.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.

ST-0017-1

Toxic Fume and Dust Hazard

- Do all work outside or in a well-ventilated area. Dispose of paint and solvent properly.
- Remove paint before welding or heating:
  - — Avoid potentially toxic fumes and dust. Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.
  - — If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
  - — If you use solvent or paint-stripper, remove stripper with soap and water before welding.
  - — Remove solvent or stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

ST-0043-2

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

Stay Clear of Slide Gate

- Keep hands away from slide gate opening. Slide gates can crush and dismember. Motor can start at any time.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.

ST-0049-1

Fall Hazard

- Ladders, stairways and platforms are for use by competent and trained personnel only. Do not allow children or other unauthorized persons to have access to the equipment.
- Access to the equipment must be restricted by the use of security fencing and lockable gates.
- Lower sections of ladders must be fitted with a lockable safety gate to prevent unauthorized access.
- Make sure that hot surfaces have had adequate time to cool before working on or in the equipment.
- Lock out and tag out power supplies and fuel supplies to all equipment.
- Do not attach lifting equipment to ladders or platforms.
- Do not go outside of the safety rails provided on elevated platforms.
- Do not work at heights during high winds, rain, snow, or ice storms.

ST-0056-1

Flying Material Hazard

- Flying material can cause severe eye injury or blindness.
- Wear safety glasses around operating equipment.

ST-0074-1

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.

Date	*Employee Name*	*Supervisor Name*

ST-0007

General Information

Tripper assembly is used inline of a belt conveyor to discharge the material at the desired point in between head and tail section. When the tripper mechanism is activated, the grain flow is interrupted and is discharged at the both sides of the tripper. *(See Figure 2A.)*

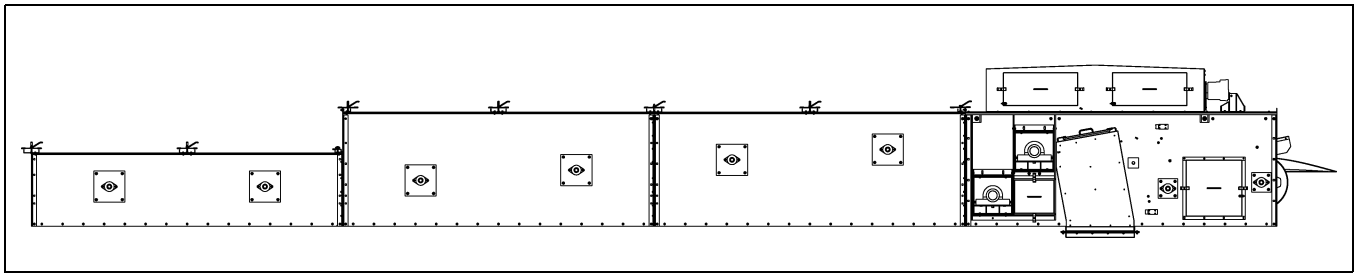


Figure 2A

Tripper Assembly Naming

1 2 3 4 5 6 7 8 9 10 11 12

1. # 1 thru 2 = Width of conveyor
2. #3 = “T” for Tripper
3. #4 = “M” Manual, “E” Electric
4. #5 = Liner Material
    - U = 1/4" EMBU
    - K = 5/16" Kryptane
    - C = 1/4" Ceramic
5. #6 = Construction Material - “G” for galvanized; “P” for painted; “S” for stainless steel
6. #7 = Bottom liner
    - A = 1/4" Anti-Static UHMW BTM liner and 1/4" EMBU discharge liner
    - B = 1/2" Anti-Static UHMW BTM liner and 1/4" EMBU discharge liner
    - C = 1/4" Anti-Static UHMW BTM liner and 5/16" Kryptane discharge liner
    - D = 1/2" Anti-Static UHMW BTM liner and 5/16" Kryptane discharge liner
    - E = 1/4" Anti-Static UHMW BTM liner and 1/4" Ceramic discharge liner
    - F = 1/4" Anti-Static UHMW BTM liner and 1/2" Ceramic discharge liner
    - N = non-lined

Example: 36TMUPA: 36" Wide Tripper, Manual, Urethane Lined, Painted, 1/4" Bottom Liner

Component Identification

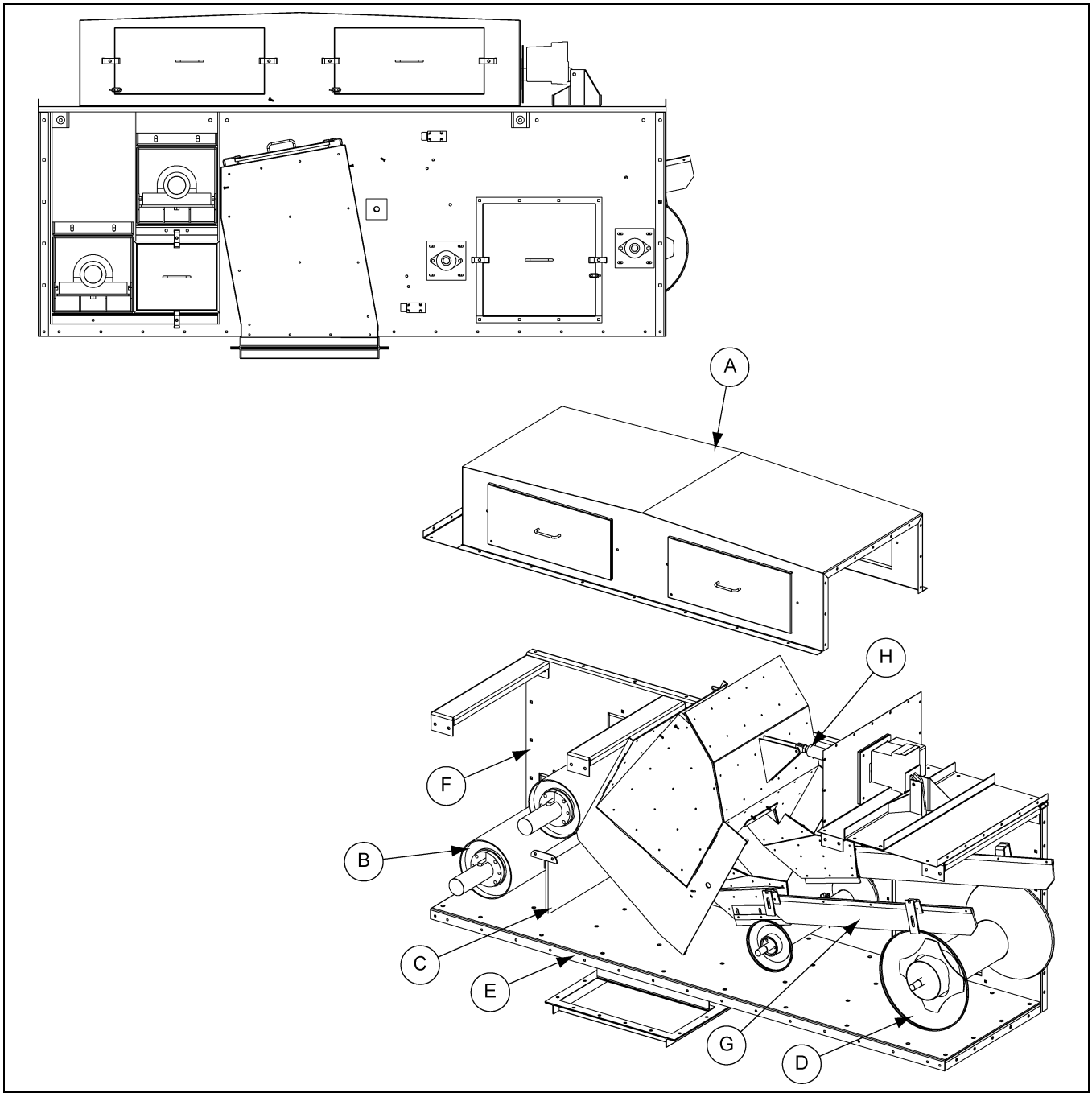


Figure 2B

Ref #	Description
A	Cover
B	Pulleys
C	Belt Wiper
D	Idler

Ref #	Description
E	Bottom Cover
F	Side Cover
G	Belt Stopper
H	Diverter

Tripper Assembly Installation Overview

1. Remove any banding and crating material. Arrange all the conveyor components in such a fashion that all are easily accessible.
2. Locate sturdy items to serve as blocking (i.e. wood blocks, saw horses, etc.). Blocking is used to support the conveyor sections above the ground to help in assembly. Locate and place the conveyor sections on the blocking in order, starting with the head section and concluding with the tail section.
3. A clearance of at least the width of the conveyor is recommended on all sides of the unit. Less clearance may be acceptable however; serious consideration must be given to methods of maintenance, removal and replacement of the conveyor and/or its parts.
4. The standard conveyor is constructed with one discharge located at the drive end.
5. The location(s) for installing the tripper discharge sections must be determined before continuing with the conveyor assembly. It may be necessary to position a shorter intermediate section to serve as a spacer in order to accommodate the placement of the tripper discharge(s) where required.
6. During installation of the conveyor, string a chalk line along the conveyor sides to assure that the conveyor is being assembled in a straight line. All hardware should be included with your conveyor. It is recommended that all flanges be caulked to seal the conveyor to keep the dust in and the weather out.

Tripper Trunking Section Installation

What you should know:

The top pulley in the tripper assembly is usually higher than the normal conveyor sections. To assist a smooth inclination of the belt, two (2) tripper trunking sections should be installed before the tripper assembly.

The tripper trunking sections (B) must be installed in the correct order of pulley heights.

1. Position the opening of the first trunking section in line with the standard intermediate section pulley (C).
2. Make sure the flanges of intermediate section (A) and trunking section (B) are aligned. Caulk the flanges (D) and tighten all hardware on the trough section.
3. Carefully inspect each flange joint to ensure that the inside, bottom and side surfaces of the intermediates are flush with the first tripper trunking section. *(See Figure 3A.)*

   NOTE: *The maximum run-out in any direction should be ±1/4". Make sure the conveyor is level in horizontal applications.*

4. Fasten the intermediate covers to the trunking section with the 3/8" easy grip handles provided. Adequately tighten the 3/8" handles so that the covers are in tight contact with cross channel.

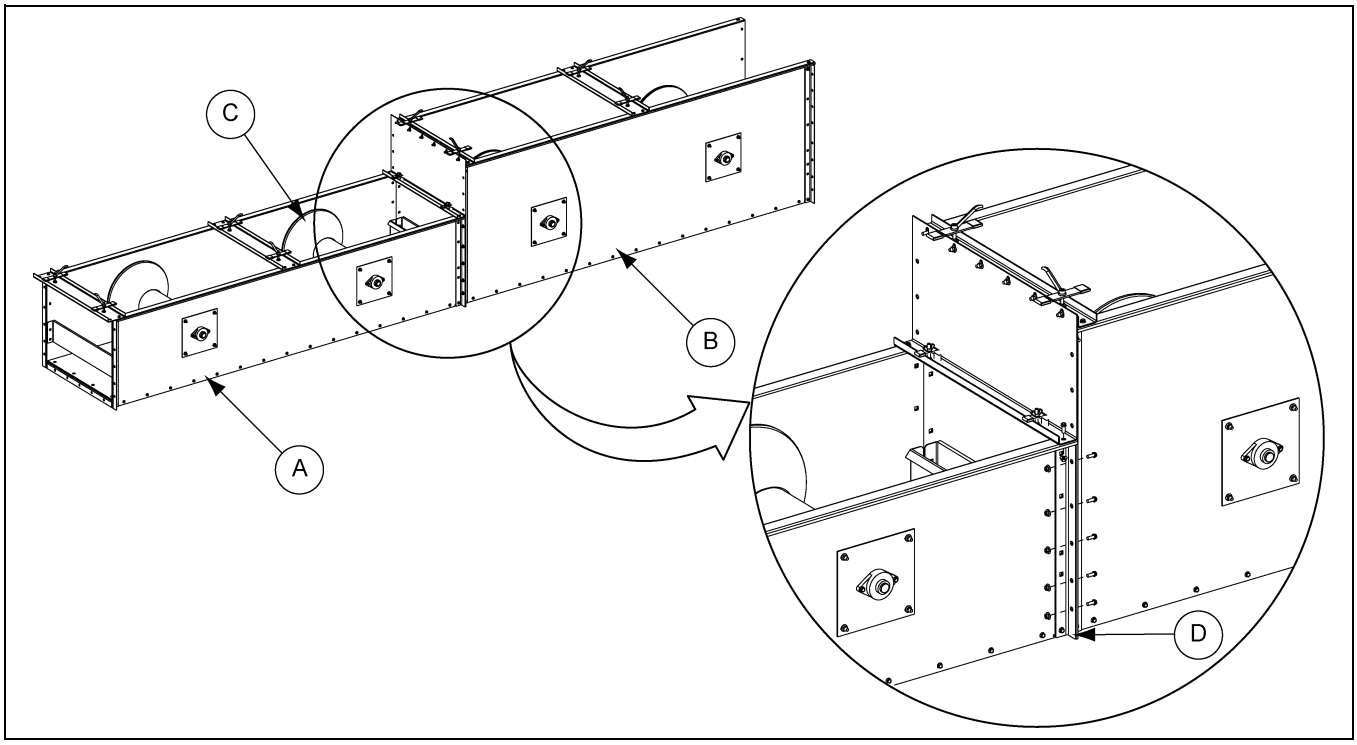


Figure 3A

Ref #	Description
A	Intermediate Section
B	Trunking Section
C	Intermediate Section Pulley
D	Flanges

5. Position the second trunking section (E) in line with the first trunking section.

   NOTE: *Make sure the correct orientation of the trunking section (B).*

6. Make sure the flanges of the trunking sections are aligned. Caulk the flanges (D) to ensure sealing from dust and outside moisture and tighten all hardware on the flanges.

7. Carefully inspect each flange joint to ensure that the inside, bottom and side surfaces of the trunking sections. *(See Figure 3B.)*

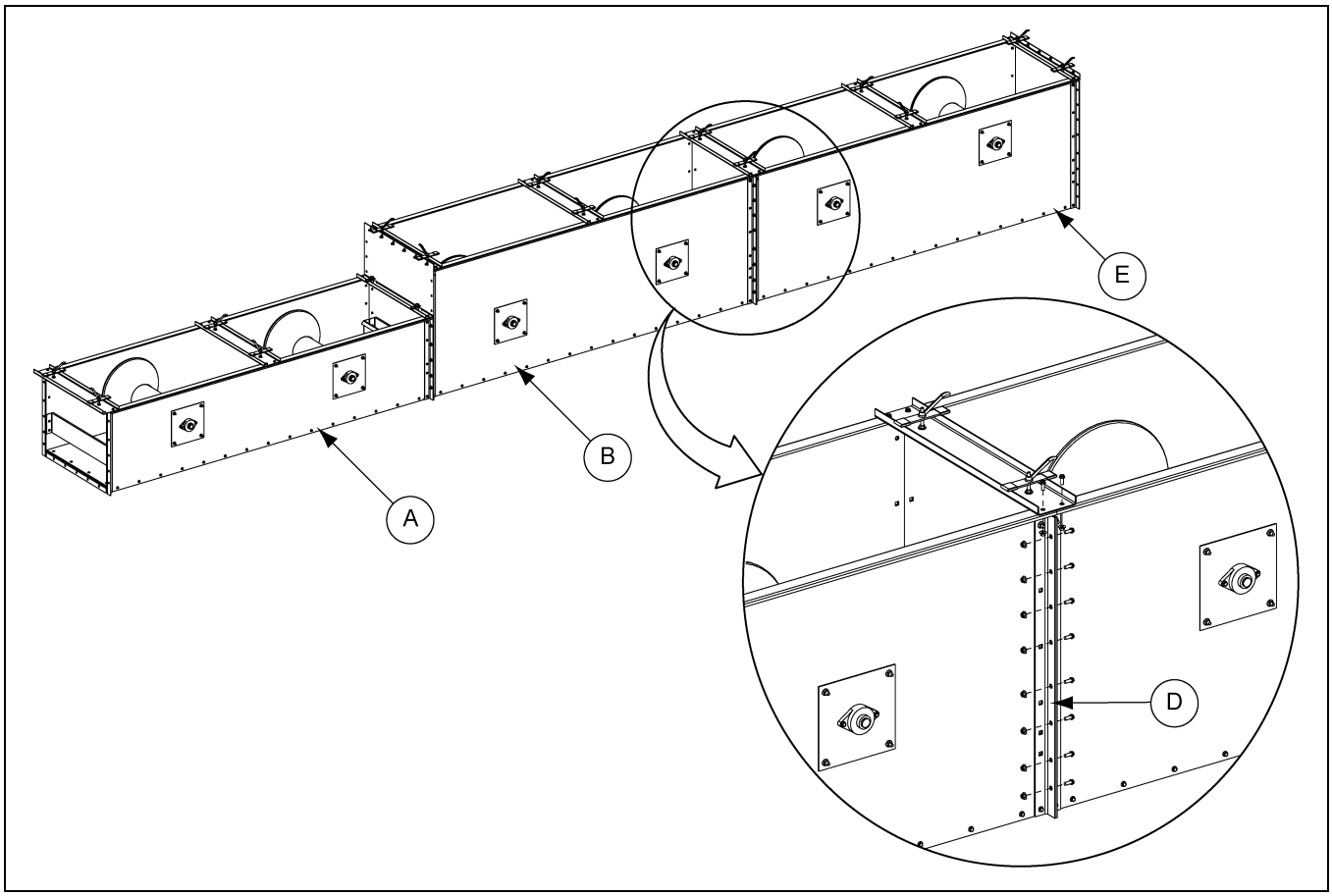


Figure 3B

Ref #	Description
A	Intermediate Section
B	Trunking Section
D	Flanges
E	Second Trunking

8. The covers are made to fit over the entire width and half the length of the trunking sections (B).
9. Place the covers (G) over the trunking section and secure the covers with clips (H) and easy grip handles (F) provided. Adequately tighten the 3/8" handles so that the covers are in tight contact with the cross channels. *(See Figure 3C.)*

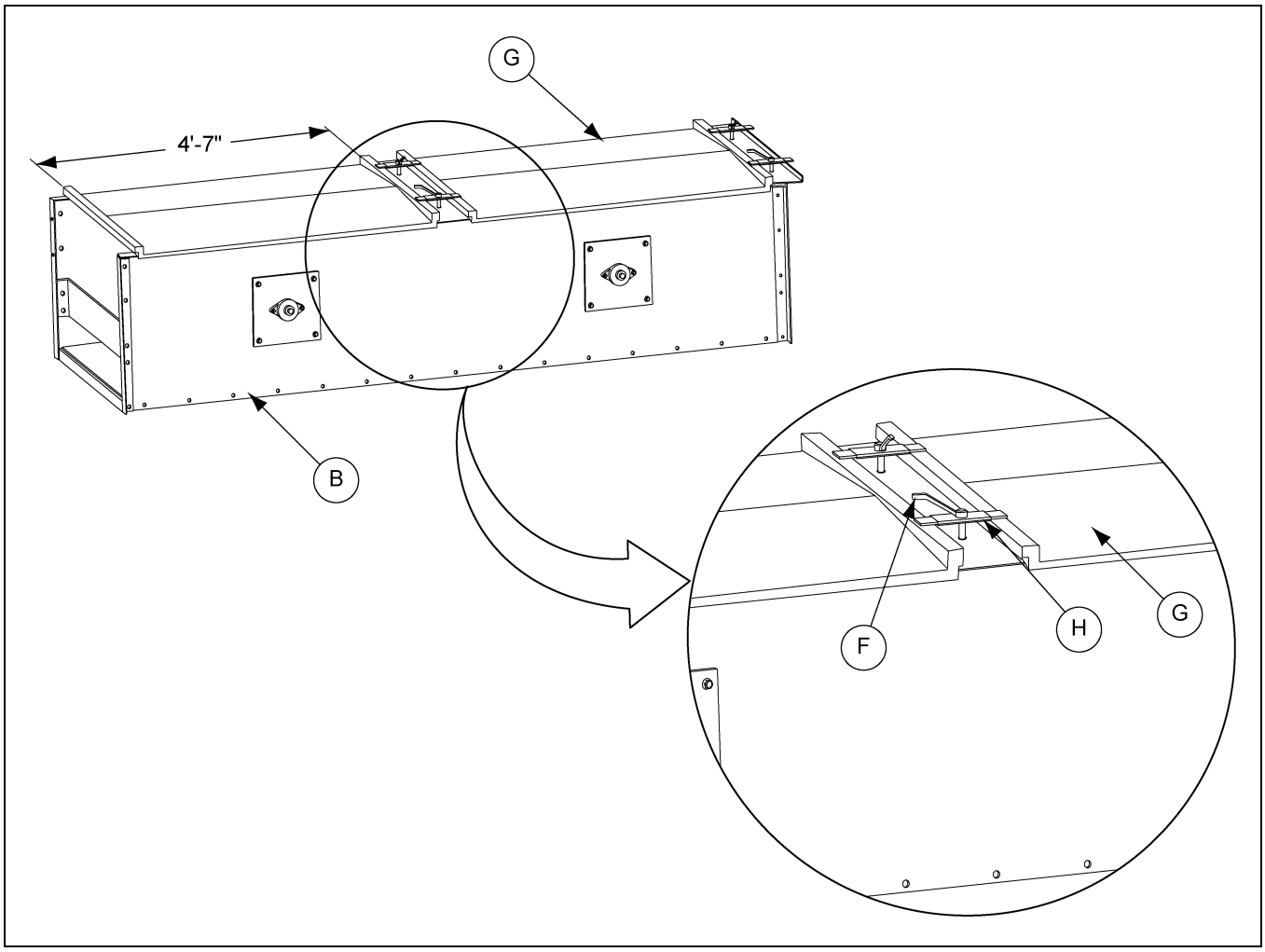


Figure 3C

Ref #	Description
B	Trunking Section
F	Grip Handles
G	Trunk Covers
H	Clips

Tripper Assembly Installation

Before you begin:

Make sure the tripper trunking sections (B) are installed to the standard intermediate sections (C) prior to the installation of the tripper assembly (A).

1. Position the tripper assembly (A) in line with the trunking section (B). *(See Figure 3D.)*

   NOTE: *Make sure the tripper assembly is placed in correct orientation as shown.*

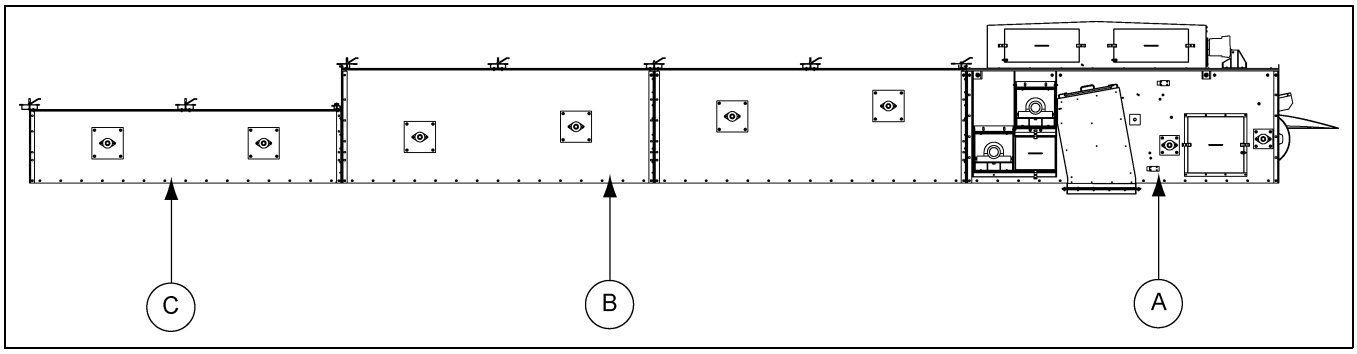


Figure 3D

Ref #	Description
A	Tripper Assembly
B	Tripper Trunking
C	Intermediate Sections

2. Make sure the flanges (D) of trunking section (B) and tripper assembly (A) are aligned. Caulk the flanges (D) and tighten all hardware (E and F) on the trough section. *(See Figure 3E.)*

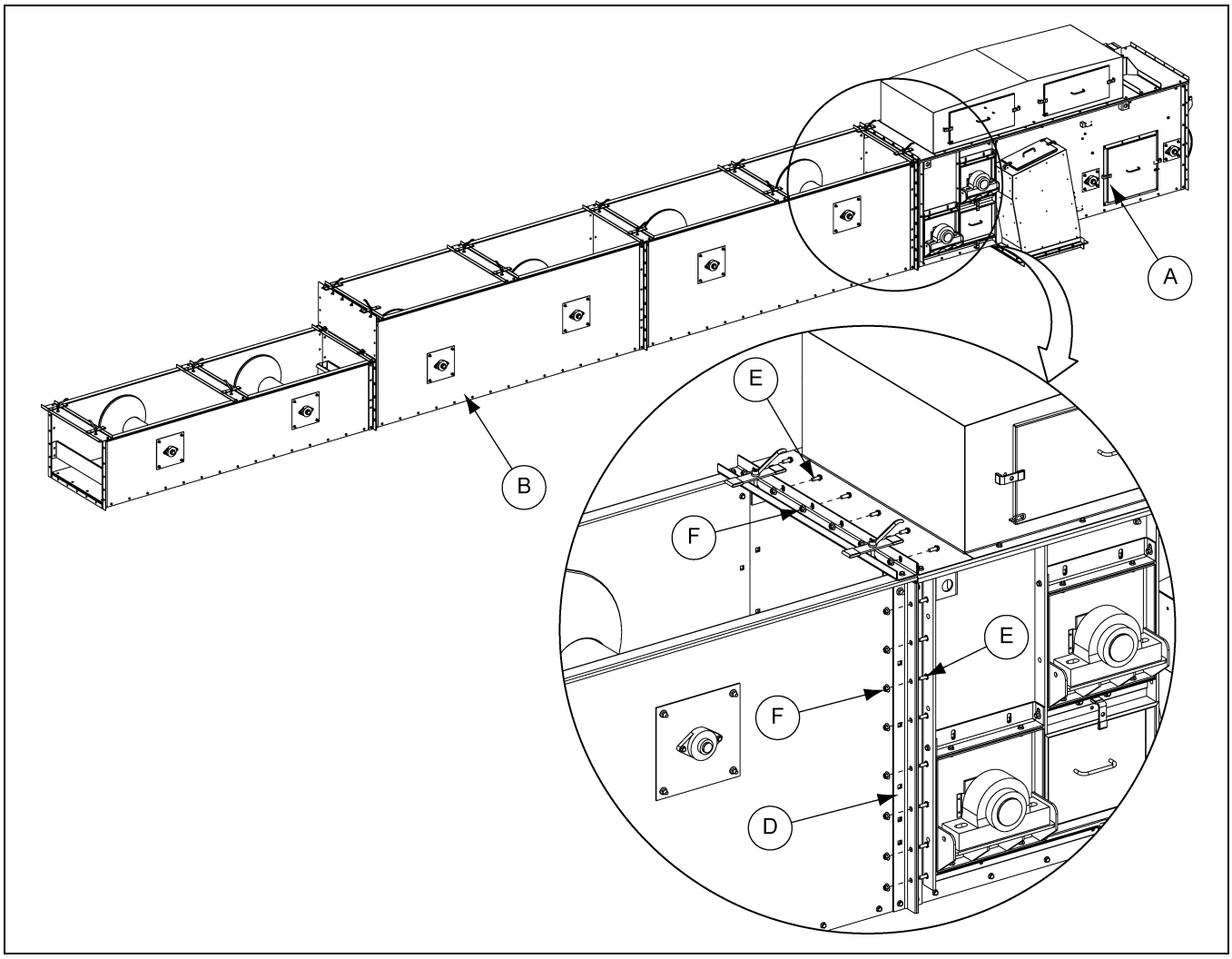


Figure 3E

Ref #	Description
A	Tripper Assembly
B	Tripper Trunking
D	Flanges
E	Bolt
F	Nut

3. Carefully inspect each flange joint to ensure that the inside, bottom and side surfaces of the tripper are flush with the tripper trunking section (B).

NOTE: *The maximum run-out in any direction should be ±1/4". Make sure the conveyor is level in horizontal applications.*

4. Make sure the standard intermediate sections are installed at the other end of the tripper assembly (A).

Belt Installation

What you should know:

For preparation and installation of the belt, follow the procedure in the belt conveyor manual PNEG-1204. The following procedure is to install the belt inside the tripper assembly.

Before you begin:

The belt is elevated gradually to the tripper assembly (A) with the help of the trunking sections.

1. The belt from the intermediate section (C) should be passed over the pulley in the tripper trunking sections (B).
2. Make sure there is a gradual increase in the position of the belt when it reaches the tripper assembly.
3. Pass the belt over the top pulley (E) and back towards the reverse direction in the tripper assembly.
4. Pass the belt under the bottom pulley (D) of the tripper assembly (A). *(See Figure 3F.)*

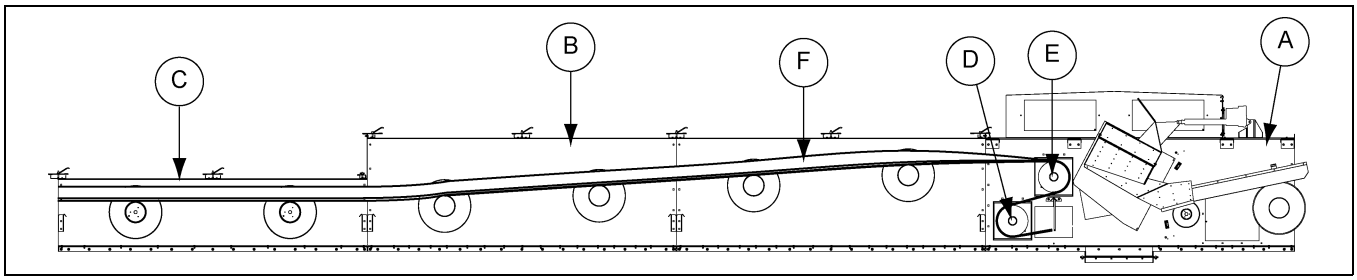


Figure 3F

5. Continue to install the belt (F) under the belt wiper (H) and pass over the third and fourth idlers (G) in the tripper assembly. *(See Figure 3G.)*

   NOTE: *Make sure the belt is passed under the tripper skirts.*

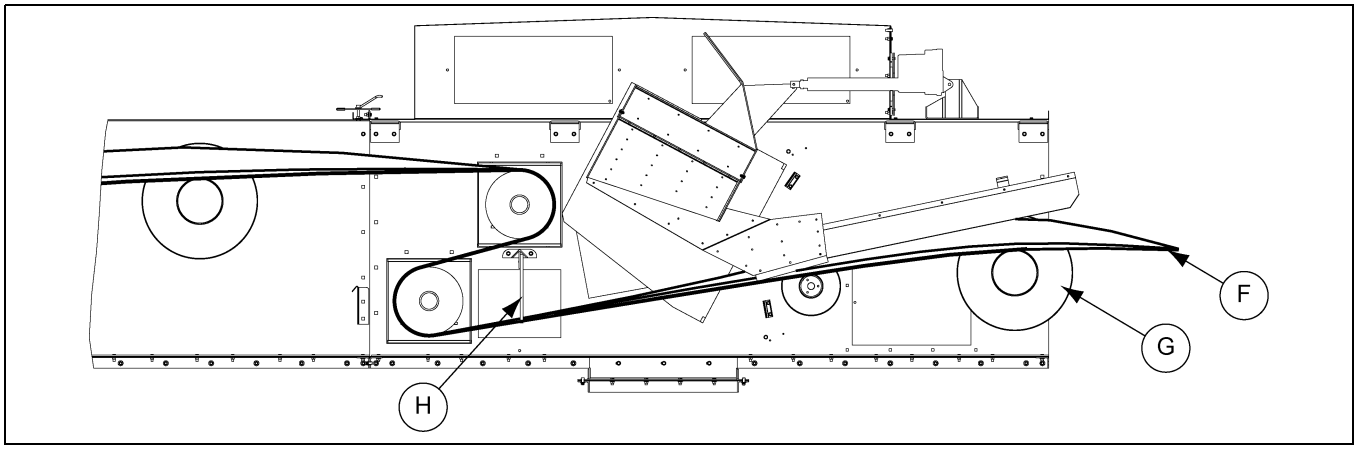


Figure 3G

Ref #	Description
A	Tripper Assembly
B	Trunking Sections
C	Intermediate Section
D	Bottom Pulley

Ref #	Description
E	Top pulley
F	Belt
G	Idler
H	Belt Wiper

Tripper Assembly Operation

1. The tripper assembly is activated to discharge the grain at the desired point.
2. The tripper is activated manually or electrically operated using an actuator (F).
3. When the tripper is in normal position, the grain flow is normal as it passes from the top pulley under the diverter (E) and down to the belt again for continuous flow to the discharge point.
4. The belt wiper (D) assembly prevent the grain to flow backwards. *(See Figure 4A.)*

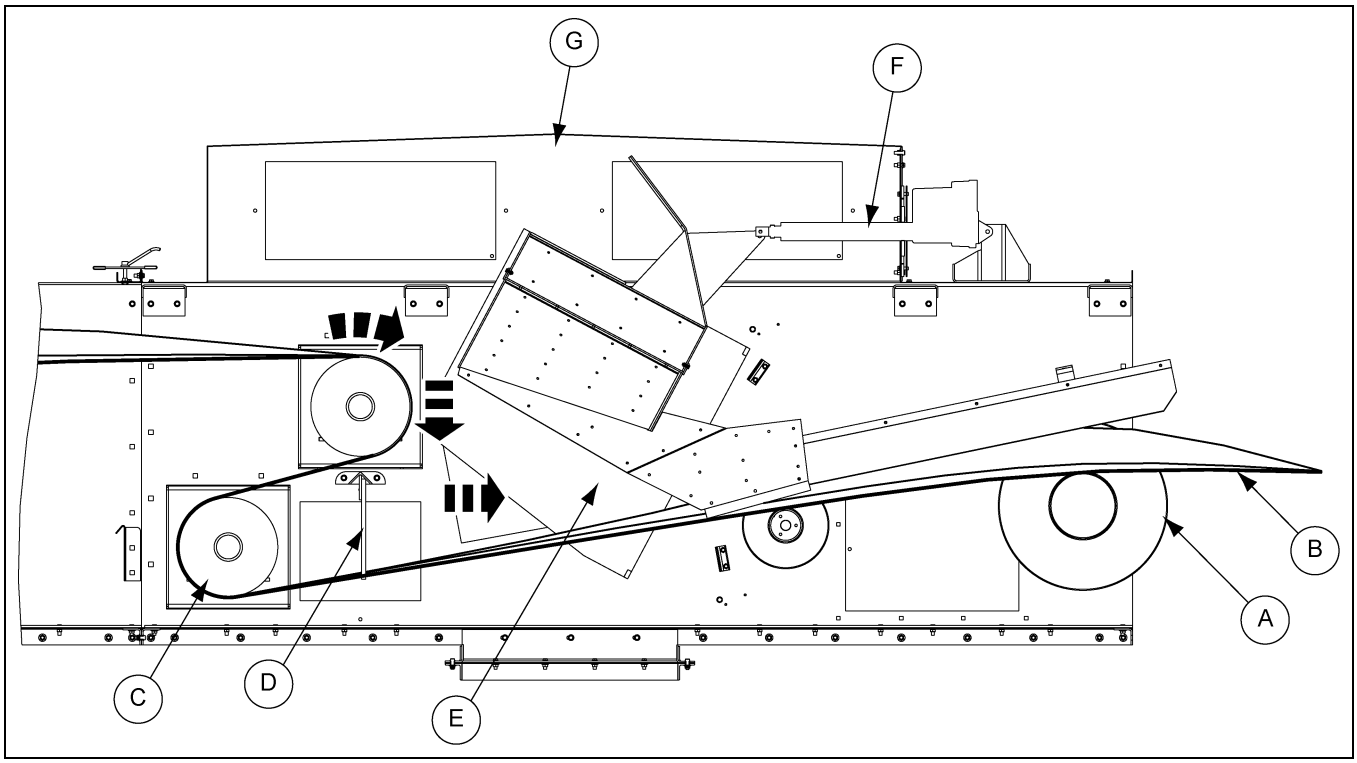


Figure 4A

Ref #	Description
A	Idler
B	Belt
C	Pulley
D	Belt Wiper
E	Diverter
F	Actuator
G	Top Cover

5. When the tripper is activated, the grain flow is disrupted and makes the grain flow through the diverter (E) and is discharged on the either side of the discharge cavity. *(See Figure 4B.)*

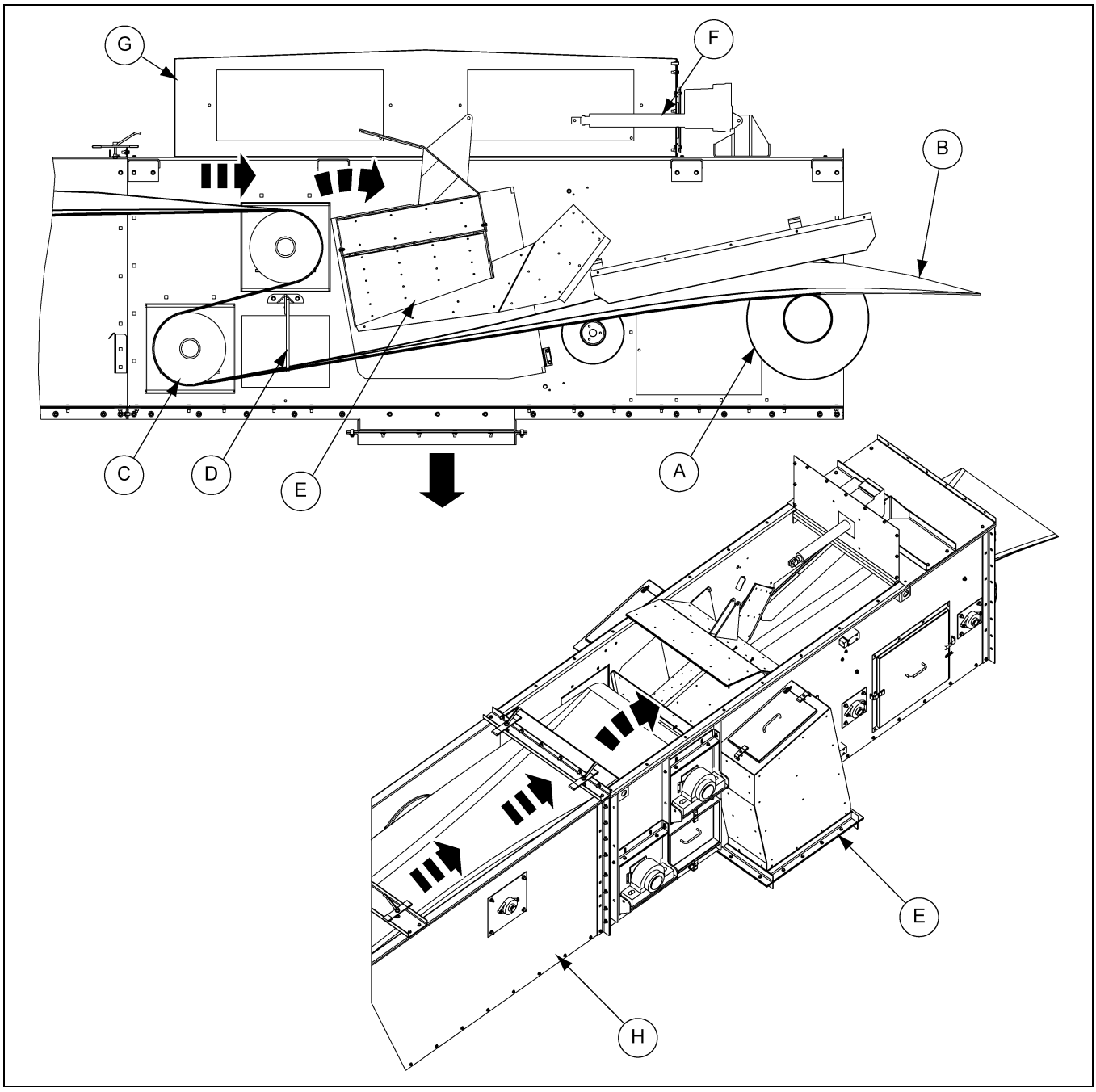


Figure 4B

Ref #	Description
A	Idler
B	Belt
C	Pulley
D	Belt Wiper

Ref #	Description
E	Diverter
F	Actuator
G	Top Cover
H	Trunking Section

General Maintenance

1. The tripper assembly and the trunking section must be checked for squareness.
2. The belt tension should be checked regularly.
3. The belt should be properly tracked/trained before the operation of the tripper assembly.
4. Make sure that there is proper clearance between the diverter and top pulley.
5. Make sure proper clearance is maintained between the belt wiper and the belt.
6. Make sure the pulley bearings are properly lubricated and free to operate.
7. The manually operated handle should be free to operate and adjust the position of the diverter.
8. The actuator in the electrically operated tripper assembly should be adjusted properly for free grain flow.
9. Make sure all access panels are properly installed before the operation of the tripper assembly.
10. Make sure there is proper clearance between the tripper skirt and the fourth pulley.
11. Check wear and tear of the belt at the access door on the discharge chutes.
12. Check proper working of the diverter at the access door in the top cover.

Belt Tension

IMPORTANT: *The belt tension should be checked every day of use for the first few days.*

NOTE: *After an hour of running, the belt should be retightened and thereafter checked at regular intervals.* ***Take-up rods are for tightening belt only****. They are not to be used to adjust belt tracking.*

1. Conveyor belts stretch when new and must be checked at regular intervals. After approximately two (2) weeks of usage, checks of belt tension may be done at less frequent intervals.
2. After splice has been installed and 2" x 12" piece of wood is removed, belt is ready to be tightened.
3. The belt is tightened by turning the take-up rods located on the tail section. Make sure that they are adjusted equally to prevent misalignment. The conveyor belt should be tightened enough to prevent the belt from slipping on the drive pulley. When done adjusting take-up rods, tighten nuts against flanges to lock in place. *(See Figure 5A and Figure 5B.)*

   NOTE: *Do not over tighten belt. Over tightening can cause premature wear of bearings and shafts.*

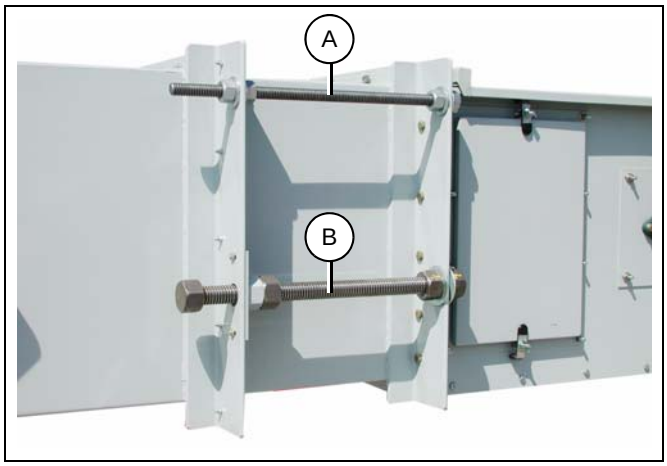


Figure 5A

Ref #	Description
A	Leveling Rod
B	Take-Up Rod
C	Nuts
D	Flanges
E	To tighten belt tension, adjust tail section in this direction.

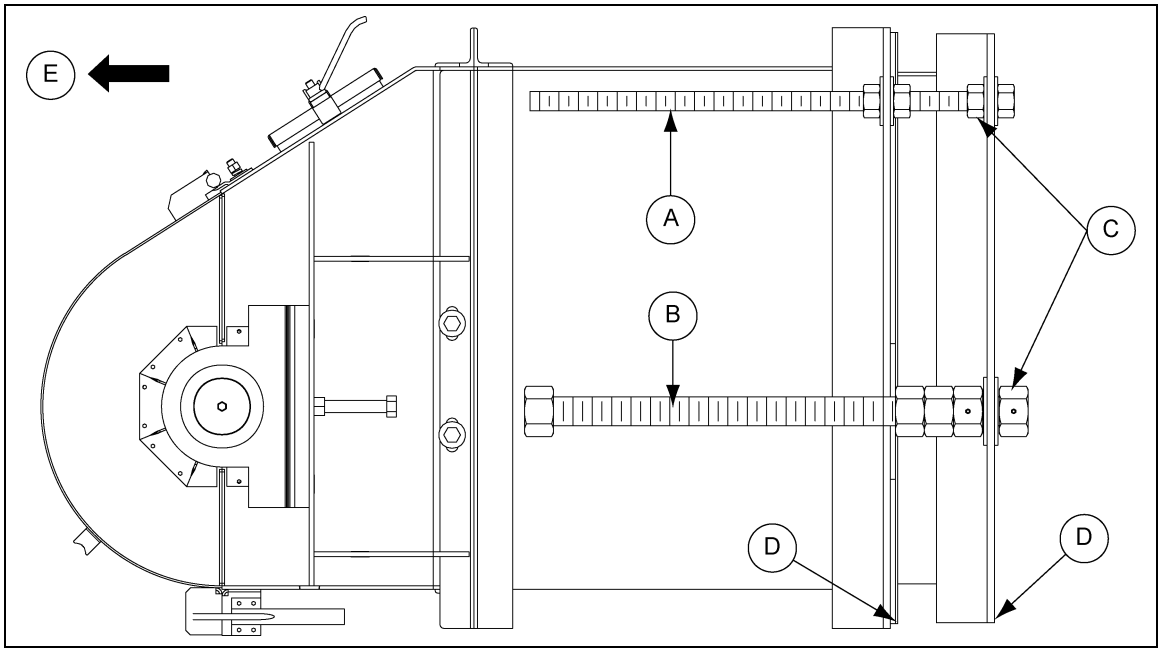


Figure 5B *Tail Section*

Squareness of the Conveyor

1. Before tracking procedure is begun, each section should be square and straight so there is no unequal weight distribution. Check conveyor intermediate sections for any extensive damage such as cave-in sides, etc. Idlers should be checked for looseness. If idlers are loose, re-center and tighten set screws on bearing lock collar.
2. After intermediate sections are bolted together, a chalk line should be strung along the sides of the conveyor, making sure that it is in a straight line. Loosening bolts on the intermediate frames will permit slight adjustment of the intermediate sections.
3. After conveyor has been installed, check to see if the unit is level (width wise). The conveyor must be level for proper belt tracking. *(See Figure 5C.)*

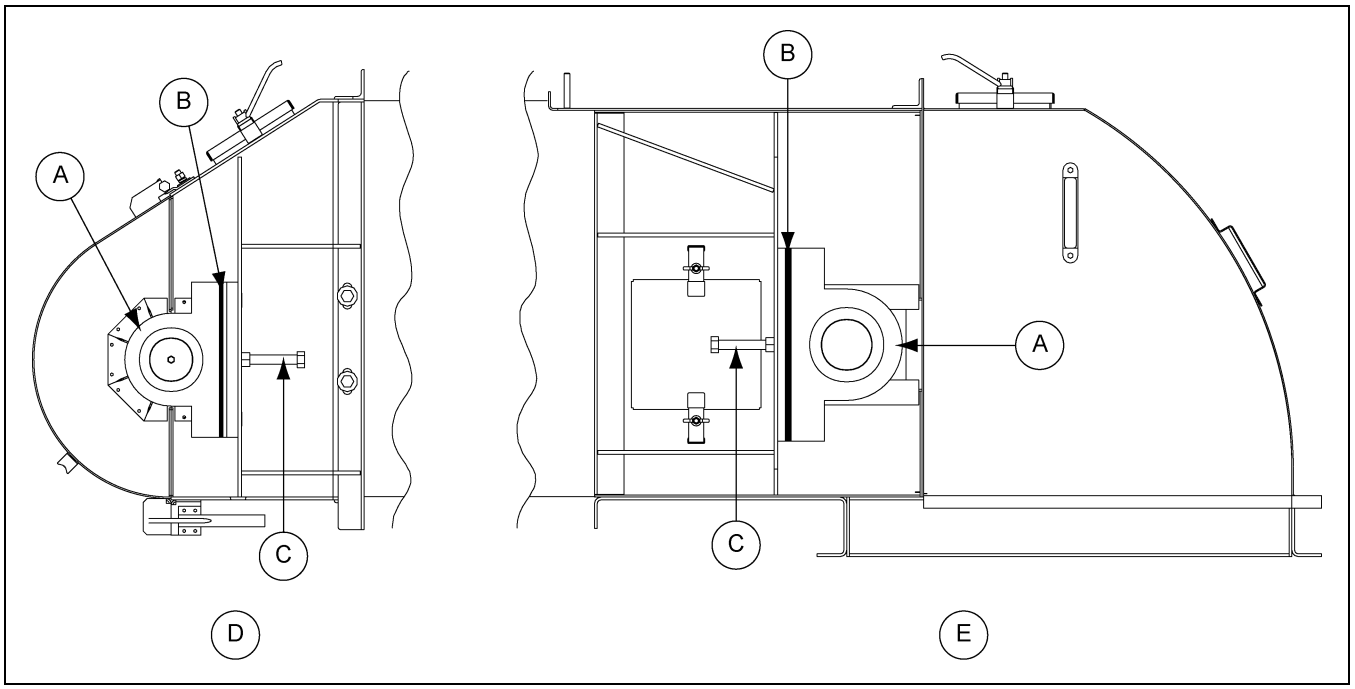


Figure 5C

Ref #	Description
A	Bearing
B	Shims
C	Bearing Adjustment Bolts
D	Tail Section
E	Head Section

Tracking Adjustment

1. Belt tracking adjustment is initiated by moving the bearing adjustment bolts. These are located on both sides of the head and tail sections. Belt tracking adjustments are made by adding or removing shims under bearing as necessary. **DO NOT** use take-up rods to correct belt tracking. *(See Figure 5D and Figure 5E.)*

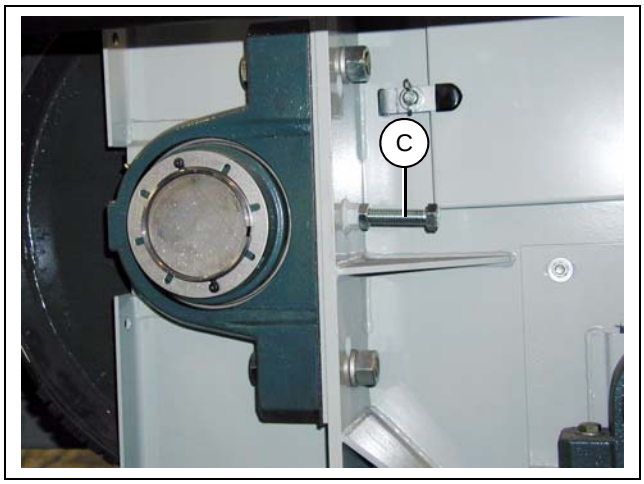


Figure 5D

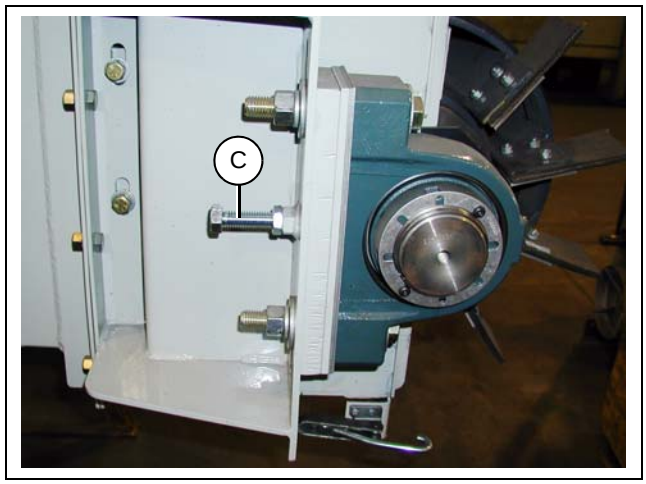


Figure 5E

2. Adjustment of the idlers is done by loosening eight (8) bolts. These bolts hold the bearings in place and are located on both sides of the conveyor sections (four (4) on each side). After loosening these bolts, the end of the idler can shift either forward or backward. *(See Figure 5F.)*

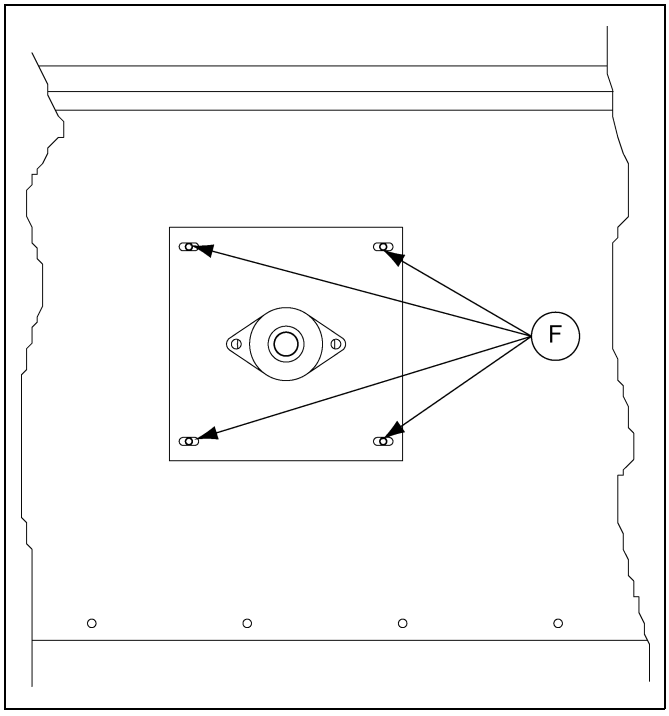


Figure 5F

Ref #	Description
C	Bearing Adjustment Bolts
F	Loosen these four (4) nuts on both sides for adjustment.

Trouble	Probable Cause	Remedy
No proper grain flow when tripper assembly is not actuated.	The diverter is not properly aligned at the UP position.	Adjust the position of the diverter. Check proper working of the actuator/ handle.
	Improper clearance between the wiper and belt.	Check and adjust clearance.
No or less discharge at the side chutes of the tripper assembly.	The diverter is not properly aligned at the UP position.	Adjust the position of the diverter. Check proper working of the actuator/ handle.
More discharge at one side of the tripper assembly.	Belt not properly tracked.	Track the belts.
Grain spillage at the end of the tripper.	Improper clearance of the tripper skirts.	Check and adjust the tripper skirt.
Tripper not discharging.	The handle or actuator disconnected from the diverter.	Check and connect the diverter to the handle/actuator.
	The actuator not working.	Check and replace/repair the actuator.

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
	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 **
	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
	Portable and Tower Dryer Frames and Internal Infrastructure †	5 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%

** Warranty prorated from list price:
0 to 3 years - no cost to end-user
3 to 5 years - end-user pays 50%

† Motors, burner components and moving parts not included. Portable dryer screens included. Tower dryer screens not included.

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

9101239_1_CR_rev8.DOC (revised January 2014)

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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Printed in the USA

CN-314682