

Commercial Bin Well Control Rod Kits and Rack and Pinion Controls

Assembly Manual

PNEG-790

Date: **12-21-20**

GSI GROUP



PNEG-790

Control Rod Kits

Diameter	Part #	Diameter	Part #
24'	GCP24000	68'-69'	GCP68000
27'	GCP27000	72'	GCP72000
30'	GCP30000	75'	GCP75000
33'-34'	GCP33000	78'	GCP78000
36'	GCP36000	80'	GCP80000
37'-39'	GCP38000	82'	GCP82000
40'	GCP40000	90'	GCP90000
42'	GCP42000	92'	GCP92000
48'-49'	GCP48000	105'	GCP105000
54'-55'	GCP54000	113'	GCP113000
60'	GCP60000	120'	GCP120000
63'	GCP63000		

Rack and Pinion Control

Size	Part #
8"	GSA80110
10"	GSA10110
12"	GCA12110

Personnel operating or working around this equipment should 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. Any misuse of the equipment may void the warranty.

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Safety Guidelines

This manual contains information that is important for you, the owner/operator, to know and understand. This information relates to protecting **personal safety** and **preventing equipment problems**. It is the responsibility of the owner/operator to inform anyone operating or working in the area of this equipment of these safety guidelines. To help you recognize this information, we use the symbols that are defined below. Please read the manual and pay attention to these sections. Failure to read this manual and its safety instructions is a misuse of the equipment and may lead to serious injury or death.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.



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, **may result in serious injury or death**.



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



This symbol indicates a potentially hazardous situation which, if not avoided, **may result in property damage**.

Safety Instructions

Our foremost concern is your safety and the safety of others associated with this equipment. We want to keep you as a customer. This manual is to help you understand safe operating procedures and some problems that may be encountered by the operator and other personnel.

As owner and/or operator, it is your responsibility to know what requirements, hazards, and precautions exist, and to inform all personnel associated with the equipment or in the area. Safety precautions may be required from the personnel. Avoid any alterations to the equipment. Such alterations may produce a very dangerous situation where **SERIOUS INJURY** or **DEATH** may occur.

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.

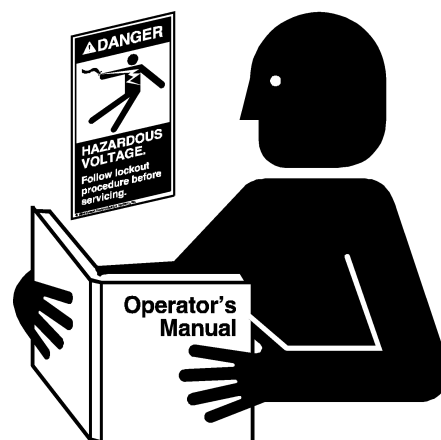
Follow Safety Instructions

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.

Keep your machinery in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.

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



Read and Understand Manual

Practice Safe Maintenance

Understand service procedures before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is in operation. Keep hands, feet, and clothing away from rotating parts.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any built-up grease, oil, and debris.



Maintain Equipment and Work Area

Operate Unload Equipment Properly



**Operate Unload
Equipment Safely**

- Untrained operators subject themselves and others to **SERIOUS INJURY** or **DEATH**. **NEVER** allow untrained personnel to operate this equipment.
- **NEVER** work alone.
- Keep children and other unqualified personnel out of the working area at **ALL** times. Refer to the **Start-Up** section of this manual for diagrams of the work area.
- Make sure **ALL** equipment is locked in position before operating.
- **NEVER** start equipment until **ALL** persons are clear of the work area.
- Keep hands and feet away from the auger intake and other moving parts.
- **NEVER** attempt to assist machinery operation or to remove trash from equipment while in operation.
- Be sure all operators are adequately rested and prepared to perform all functions of operating this equipment.
- **NEVER** allow any person intoxicated or under the influence of alcohol or drugs to operate the equipment.
- Make sure someone is nearby who is aware of the proper shut down sequence in the event of an accident or emergency.
- **ALWAYS** think before acting. **NEVER** act impulsively around the equipment.
- **NEVER** allow anyone inside a bin, truck or wagon which is being unloaded by an auger or conveyor. Flowing grain can trap and suffocate in seconds.
- Use ample overhead lighting after sunset to light the work area.
- Keep area around intake free of obstacles such as electrical cords, blocks, etc., that might trip workers.
- **NEVER** drive, stand or walk under the equipment.
- Use caution not to hit the auger when positioning the load.
- **ALWAYS** lock out **ALL** power to the equipment when finished unloading a bin.
- Be aware of pinch points. A pinch point is a narrow area between two surfaces that is likely to trap or catch objects and so is a potential safety hazard.

Operate Motor Properly

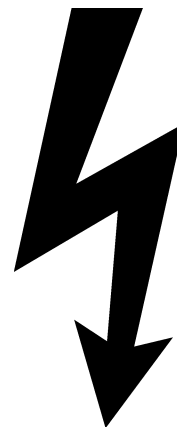
In an emergency, shut down the power source.

Turn OFF and lock out all power sources before performing any maintenance.

Do not operate electric motor equipped units until motors are properly grounded.

Disconnect power on electrical driven units 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/or drive components.

**Electric Shock Hazard****Keep Hands Away from Moving Parts**

DO NOT put hand or arm in hopper. Rotating auger can crush and dismember.

DO NOT put any kind of tool inside hopper to try and clear debris while the auger is running. Damage to the equipment will result.

ALWAYS turn off and lock out all power sources before servicing equipment.

Keep all shields and covers in place during operation.

**Rotating Auger****Practice Safe Maintenance**

Understand service procedures before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is in operation. Keep hands, feet, and clothing away from rotating parts.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any built-up grease, oil, and debris.

**Maintain Equipment and Work Area**

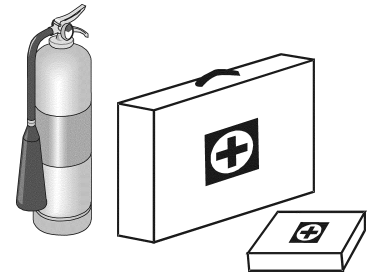
1. Safety

Prepare for Emergencies

Be prepared if fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



Keep Emergency Equipment Quickly Accessible

Wear Protective Clothing

Wear close-fitting clothing and safety equipment appropriate to the job.

Remove all jewelry.

Tie long hair up and back.

Wear safety glasses at all times to protect eyes from debris.

Wear gloves to protect your hands from sharp edges on plastic or steel parts.

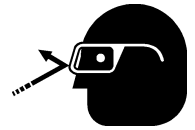
Wear steel toe boots to help protect your feet from falling debris. Tuck in any loose or dangling shoestrings.

A respirator may be needed to prevent breathing potentially toxic fumes and dust.

Wear a hard hat to help protect your head.

Wear appropriate fall protection equipment when working at elevations greater than six feet (6').

Eye Protection



Gloves



Steel-Toed Boots



Respirator



Hard Hat



Fall Protection



Operator Qualifications

- A. The User/Operator must be competent and experienced to operate auger equipment. Anyone who works with or around augers must have good common sense in order to be qualified. These persons must also know and meet all other qualifications, such as:
- i. Any person who has not read and/or does not understand all operation and safety procedures is not qualified to operate any auger systems.
 - ii. Certain regulations apply to personnel operating power machinery. Personnel under the age of 18 years may not operate power machinery, including augers. It is your responsibility, as owner and/or supervisor, to know what these regulations are in your area or situation.
 - iii. Unqualified or incompetent persons are to remain out of the work area.
 - iv. O.S.H.A. (Occupational Safety and Health Administration) regulations state: "At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all equipment with which the employee is, or will be involved". (Federal Occupational Safety and Health Standards for Agriculture. Subpart D, Section 1928.57 (a) (6)).
- B. As a requirement of O.S.H.A., it is necessary for the employer to train the employee in the safe operating and safety procedures for this auger. The sign-off sheet is provided for your convenience and personal record keeping. All unqualified persons are to stay out of the work area at all times. It is strongly recommended that another qualified person who knows the shut down procedure is in the area in the event of an emergency.

[illegible]

As a requirement of O.S.H.A., it is necessary for the employer to train the employee in the safe operating and safety procedures for this equipment. This sign-off sheet is provided for your convenience and personal record keeping. All unqualified persons are to stay out of the work area at all times. It is strongly recommended that another qualified person who knows the shut down procedure be in the area in the event of an emergency.

[illegible]

ATTENTION: The decal shown below should be present on the outside of the door cover of the 2 ring, 24" porthole door cover and the roof manway cover. If a decal has been damaged or is missing in any of these locations, contact the manufacturer for a free replacement decal.

GSI Decals

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


DANGER

		
Rotating fighting will kill or dismember.	Flowing material will trap and suffocate.	Crusted material will collapse and suffocate.

Keep clear of all augers.

DO NOT ENTER this bin!

If you must enter the bin:

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.

Failure to heed these warnings will result in serious injury or death.

GSI GROUP, INC. 217-226-4421
DC-GBC-1A

Commercial Bin Control Rod Kits

The Commercial Bin Control Rod Kit is used for opening and closing the bin well control gates from outside of the bin. The optional rack and pinion control can be used to open the bin well control gates easier. Contact your distributor for more information.

What You Should Know

The Commercial Bin Control Rod Kit can be used on 24'-75' (7.32m-22.86m) diameter bins.

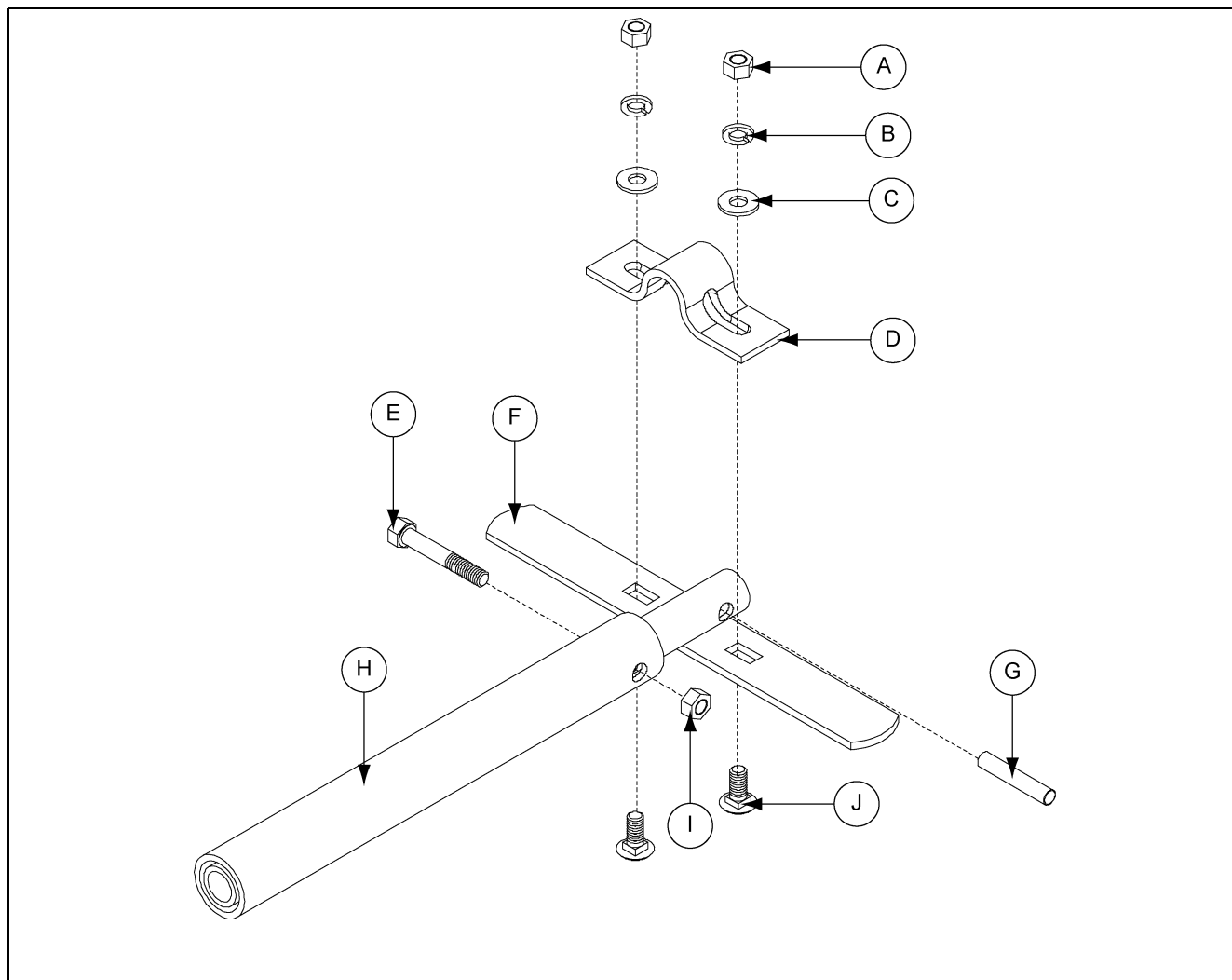


Figure 3A

NOTE: All 5/16" nuts must be installed, so that the 5/16" x 1-3/4" long roll pin is secured.

Ref #	Description	Ref #	Description
A	5/16" Nut	F	Control Rod
B	5/16" Lock Washer	G	5/16" x 1-3/4" Roll Pin
C	5/16" Flat Washer	H	1.2" Control Rod
D	Gate Control Clamp	I	5/16" Hex Nut
E	5/16" x 2" Long Hex Head Bolt	J	5/16" x 3/4" Carriage Bolt

Commercial Bin Control Rod Kits (Continued)

1. Use the following illustration ([Figure 3B](#)) and the chart [on Page 14](#) to determine the necessary pipe lengths.

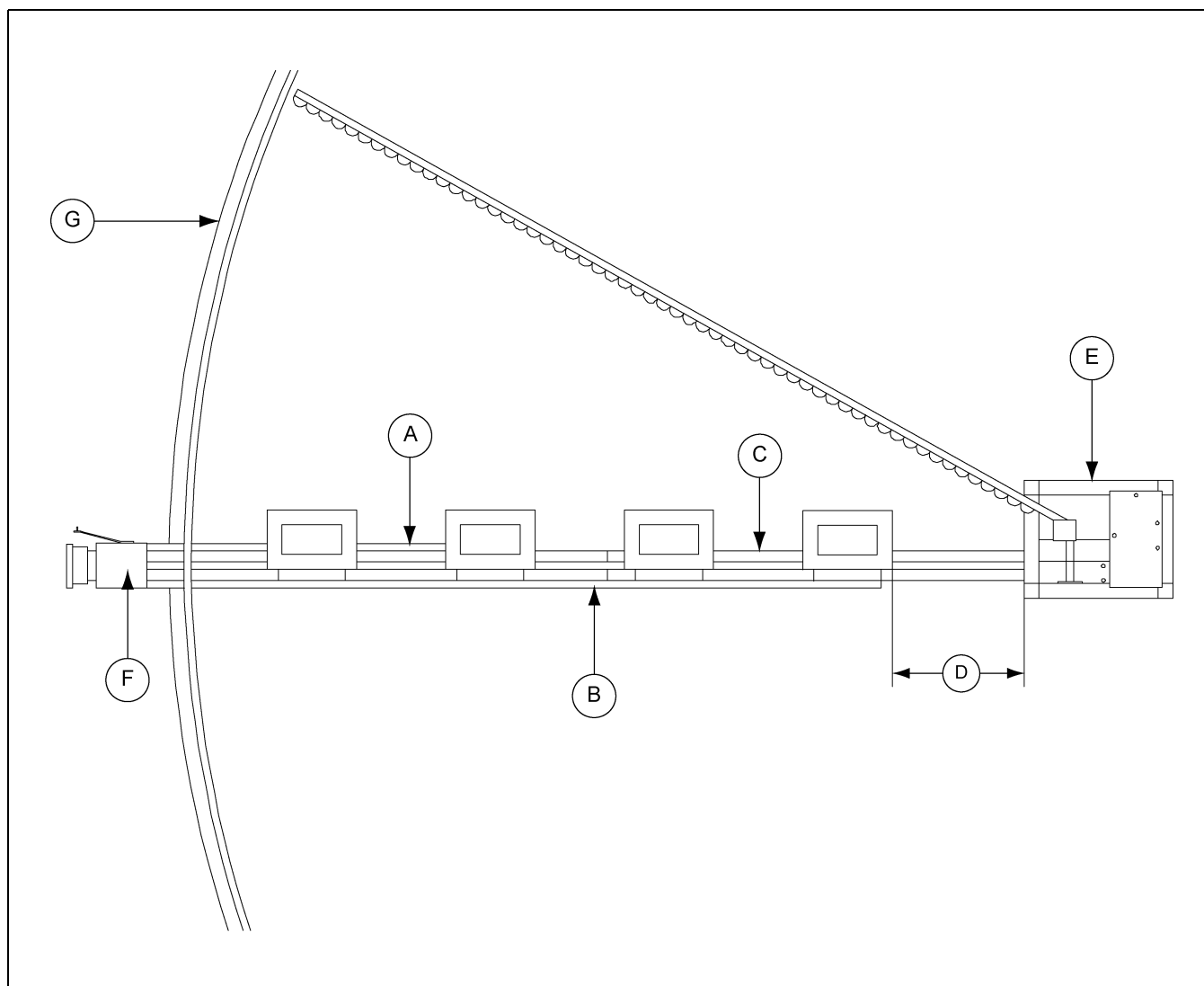


Figure 3B

Ref #	Description
A	Outer Intermediate Bin Well Control Rod
B	Inner Intermediate Bin Well Control Rod
C	Center Bin Well Control Rod
D	Intermediate Bin Wells Spacing (See table on Page 14.)
E	Center Well
F	Rack and Pinion Control
G	Bin Wall

3. Assembly

Commercial Bin Control Rod Kits (Continued)

Length of Control Rods								
D			C		B		A	
			Center Well		Inner Intermediate Wells		Outer Intermediate Wells	
Bin Diameter	Spacing between Intermediate Bin Wells	Number of Intermediate Bin Wells	Assembly Length	Length of Sections	Assembly Length	Length of Sections	Assembly Length	Length of Sections
24'	31-1/2"	2	11' - 11-1/2"	11' - 11-1/2"	8' - 2-1/2"	8' - 2-1/2"	3' - 4-1/2"	3' - 4-1/2"
27'	38-1/2"	2	13' - 5-1/2"	13' - 5-1/2"	9' - 1-1/2"	9' - 1-1/2"	3' - 8-1/2"	3' - 8-1/2"
30'	45-1/2"	2	14' - 11-1/2"	14' - 11-1/2"	10' - 1/2"	10' - 1/2"	4' - 1/2"	4' - 1/2"
34'	55-1/2"	2	16' - 11-1/2"	16' - 11-1/2"	11' - 2-1/2"	11' - 2-1/2"	4' - 4-1/2"	4' - 4-1/2"
36'	35-1/2"	3	17' - 11-1/2"	17' - 11-1/2"	13' - 10-1/2"	13' - 10-1/2"	8' - 8-1/2"	8' - 8-1/2"
39'	40-1/2"	3	19' - 5-1/2"	19' - 5-1/2"	14' - 11-1/2"	14' - 11-1/2"	9' - 4-1/2"	9' - 4-1/2"
40'	42-1/2"	3	19' - 11-1/2"	19' - 11-1/2"	15' - 3-1/2"	15' - 3-1/2"	9' - 6-1/2"	9' - 6-1/2"
42'	29-1/2"	4	20' - 11-1/2"	20' - 11-1/2"	17' - 4-1/2"	17' - 4-1/2"	8' - 1/2"	8' - 1/2"
49'	38-1/2"	4	24' - 5-1/2"	21' and 3' - 5-1/2"	20' - 1-1/2"	20' - 1-1/2"	9' - 4-1/2"	9' - 4-1/2"
55'	46-1/2"	4	27' - 5-1/2"	21' and 6' - 5-1/2"	22' - 5-1/2"	21' and 1' - 5-1/2"	10' - 9-1/2"	10' - 9-1/2"
60'	53-1/2"	4	29' - 11-1/2"	21' and 8' - 11-1/2"	24' - 4-1/2"	21' and 3' - 4-1/2"	9' - 1"	9' - 1"
63'	57-1/2"	4	31' - 5-1/2"	21' and 10' - 5-1/2"	25' - 6-1/2"	21' and 4' - 6-1/2"	13' - 9-1/2"	13' - 9-1/2"
68'	65-1/2"	4	34' - 5-1/2"	21' and 13' - 5-1/2"	27' - 10-1/2"	21' and 6' - 10-1/2"	12' - 6-1/2"	12' - 6-1/2"
72'	69-1/2"	4	35' - 11-1/2"	21' and 14' - 11-1/2"	29' - 1/2"	21' and 8' - 1/2"	13' - 1/2"	13' - 1/2"
75'	73-1/2"	4	36' - 5-1/2"	21' and 16' - 5-1/2"	30' - 2-1/2"	21' and 9' - 2-1/2"	13' - 6-1/2"	13' - 6-1/2"

The labels "A", "B", "C" and "D" correlate with the same labels in [Figure 3B on Page 13](#).

Control Rod Assembly

The commercial bin control rod kit comes with three control rods to be used with a minimum of two (2) intermediate bin wells and the center bin well. Two (2) or more rod sections are used for larger diameter bins.

1. Screw the two (2) 1/2" rod sections (A) together with an internal threaded coupler (B), as shown in [Figure 3C](#).

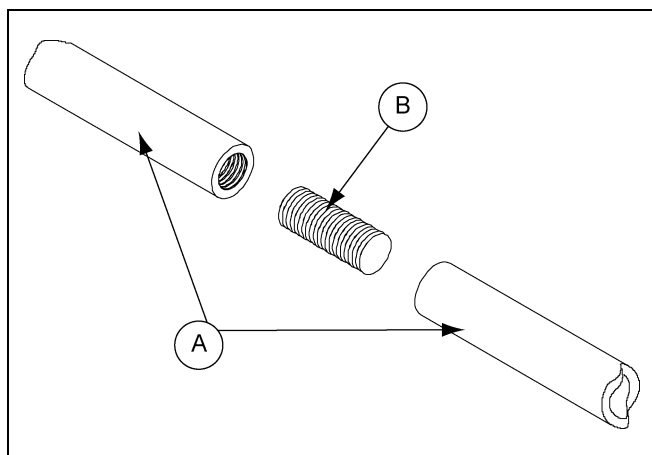


Figure 3C

Ref #	Description
A	Control Rod Sections
B	Internal Threaded Coupler

Commercial Bin Well Rack and Pinion Control (Optional)

The rack and pinion control can be used with up to three (3) sets of controls. The center controller is used to open and close the center bin well. The other two (2) controls are used to open and close the intermediate bin wells.

What You Should Know

Control rod kits with the rods pre-cut to be ready for use can be purchased. Contact your distributor for more information.

Installing the Commercial Bin Well Rack and Pinion Control

1. Position the control rod sleeves (L and M) towards the bin wall (G) and place the rack and pinion control (F) on the unload tube (K).
2. Place the rack and pinion control (F) as close as possible to the unload tube flange and tighten it in position with the half bands (J) and 5/16" x 1" bolts (H) and nuts (I).

NOTE: *Make sure there is enough space to reach the flange bolts to ease the frequent removal and installation of the powerhead.*

3. Rotate the handle assembly (O) towards the bin as far as possible to move control rod sleeves (L and M) and also make sure the center bin well control gate is closed.
4. Measure the distance from the center bin well control gate to the hole in the center control rod sleeve (L) and add 2" (5.08 cm) to it.
5. Cut a control rod of length equal to the length measured in [Step 4](#).
6. Attach one end of the control rod to the center bin well control gate and the other end to rack and pinion control.
7. Secure the control rod (N) to the control rod sleeve (L), using a roll pin or 5/16" bolt and nut.

NOTE: *Control rod guides are necessary when not using the recommended number of intermediate bin wells or when there is a larger-than-normal distance between the bin wells. Control rod guides are available for purchase separately.*



The control rods MUST be supported. Unsupported control rods can cause misalignment due to sagging and will cause the controls to grind. This is a misuse of the equipment. Any misuse of the equipment will void the warranty.

8. Make sure the intermediate bin wells are properly distanced.

NOTE: *Make sure the intermediate bin well control gates open toward the outside of the bin when the control rods are pulled.*

9. Close all the control gates.

Commercial Bin Well Rack and Pinion Control (Optional) (Continued)

10. Identify the control rods.

- The center control rod should control the center bin well.
- One control rod should control the intermediate bin wells nearest to the center bin well.
- One control rod should control the intermediate bin wells nearest to the bin wall.

NOTE: *The control rods for the intermediate bin wells should each control an even number of bin wells.*

11. Measure the distance from the intermediate bin well control gate clamp to the hole in the respective control rod sleeve and add 2" (5.08 cm) to it.

12. Cut a control rod of length equal to the length measured in [Step 14](#).

13. Install one end of the control rod to the intermediate bin well control gate and other end to the rack and pinion control.

14. Secure the control rod (N) to the control rod sleeve (L), using a roll pin or a 5/16" bolt and nut.

15. Repeat [Steps 13-15](#) for the other control rod.

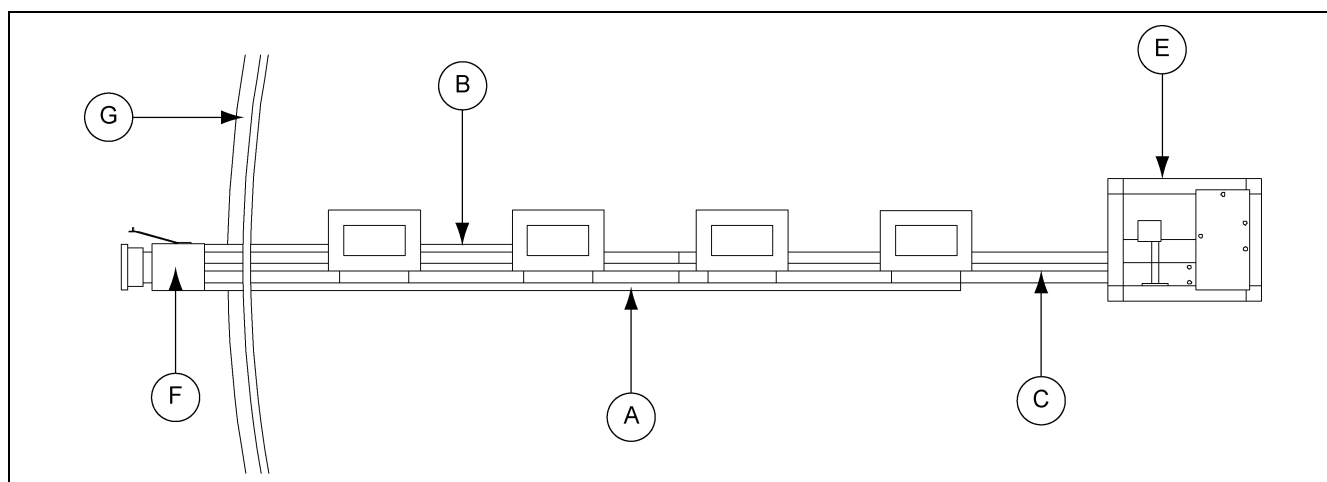
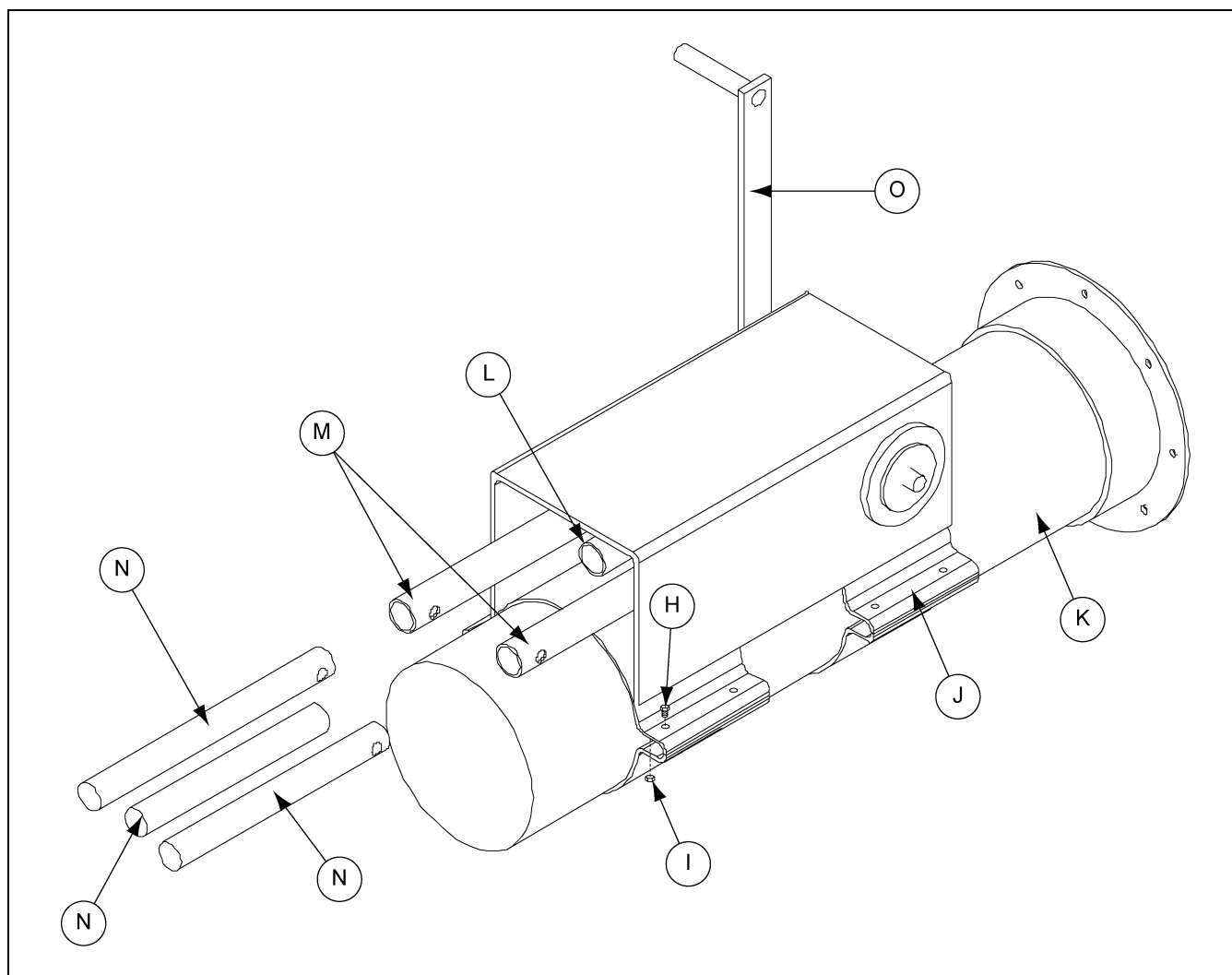


Figure 3D

Ref #	Description
A	Inner Intermediate Bin Well Control Rod
B	Outer Intermediate Bin Well Control Rod
C	Center Bin Well Control Rod
E	Center Well
F	Rack and Pinion Control
G	Bin Wall

Commercial Bin Well Rack and Pinion Control (Optional) (Continued)**Figure 3E**

Ref #	Description
H	5/16" x 1" Bolt
I	5/16" Nut
J	Half Bands
K	Unload Tube
L and M	Control Rod Sleeves
N	Control Rod
O	Handle Assembly

Operation of the Commercial Bin Well Rack and Pinion Control

1. Rotate the handle assembly (O) to push all the control rod sleeves (L and M) toward the bin, as far as possible.
2. Make sure all the bin well control gates are properly closed.
3. Pull the control rods and open the center bin well control gates to the proper flow rate.



NEVER open the intermediate bin wells until the grain stops flowing from the center bin well.

4. After the grain flow from the center bin well was stopped, open the intermediate bin well (nearest to the center bin well) control gates and then open the intermediate bin well nearest to the bin well.



Make sure that the center bin well is also open when the intermediate bin wells are open.

5. If using the direct gear drive bin sweep auger, remove the pin from the center control rod and open the center bin well control gate as far as possible. Place the control rod in the **CLOSED** position and insert the pin in the second (2nd) hole of the center control rod.
6. To close the opening, perform [Step 5](#) in reverse.

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	5 Years
	• 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)	
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.

(Limited Warranty - N.A. Grain Products_ revised 01 October 2020)

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.

G S I G R O U P



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