

# 10" Commercial Vertical Replacement Drive Kit

Installation Manual

PNEG-1583

Date: 04-16-08

GSI GROUP



PNEG-1583



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## 1. Introduction

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READ THIS MANUAL carefully to learn how to properly use and install equipment. Failure to do so could result in personal injury or equipment damage.

INSPECT the shipment immediately upon arrival. The customer is responsible for ensuring that all quantities are correct. The customer should report and note any damage or shortage on the bill of lading to justify their claim to the transport company.

THIS MANUAL SHOULD BE CONSIDERED a permanent part of your equipment and should be easily accessible when needed.

This warranty provides you the assurance that the company will back its products when defects appear within the warranty period. In some circumstances, the company also provides field improvements, often without charge to the customer, even if the product is out of warranty. Should the equipment be abused, or modified to change its performance beyond the factory specifications, the warranty will become void and field improvements may be denied.

## 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.**



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



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



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



**CAUTION** used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.



**NOTE** indicates information about the equipment that you should pay special attention.

## 2. Safety

### 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 which 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.

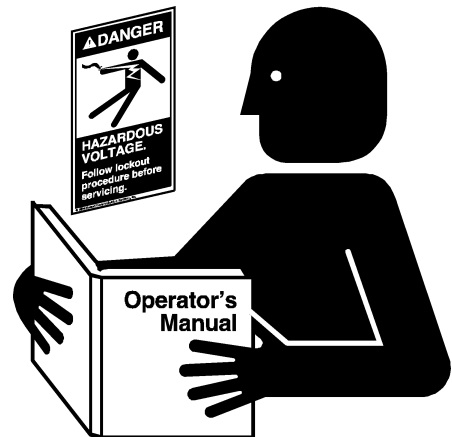
#### Follow Safety Instructions

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**

#### Install and Operate Electrical Equipment Properly

Electrical controls should be installed by a qualified electrician and must meet the standards set by the National Electrical Code and all local and state codes.

Disconnect and lock out all power sources before installing wires/cables or servicing equipment.



**Electric Shock Hazard**

## Operate Unload Equipment Properly

- 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 shutdown 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 Unload  
Equipment Safely**

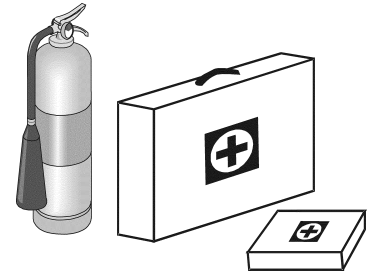
## 2. Safety

### 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.

Long hair should be tied up and back.

Safety glasses should be worn at all times to protect eyes from debris.

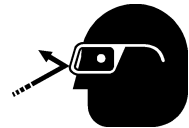
Wear gloves to protect your hands from sharp edges on plastic or steel parts.

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

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

Wear hard hat to help protect your head.

**Eye Protection**



**Gloves**



**Steel Toe Boots**



**Respirator**



**Hard Hat**





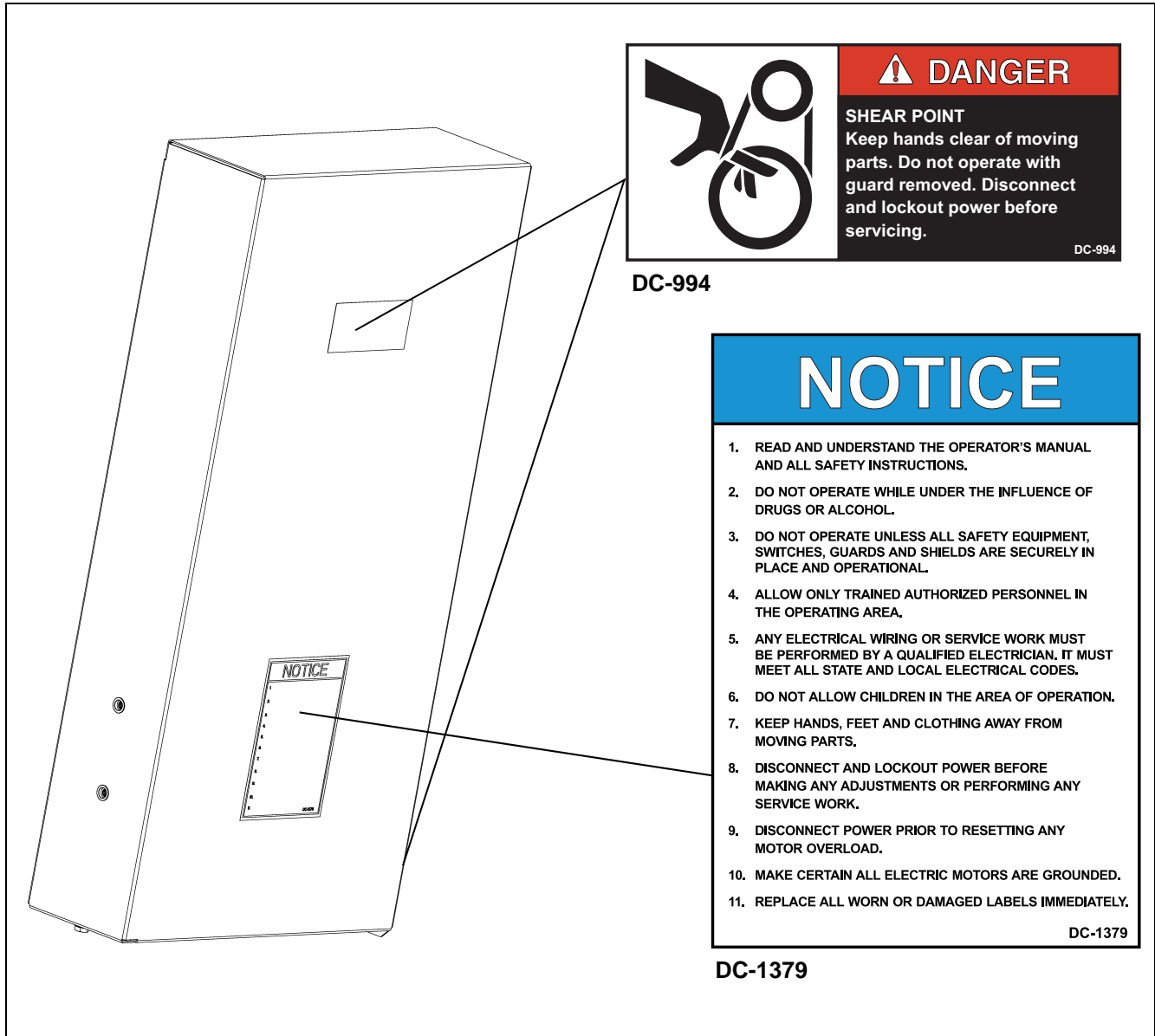


### 3. Safety Decals

Check components shown below to ensure that the safety decals are in place and in good condition. If a decal cannot be easily read for any reason or has been painted over, replace it immediately. Contact your dealer or the manufacturer to order a replacement decal free of charge.

**Contact:**

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



**Decal List**

Part #	Description	Size
DC-994	Danger - Shear Point	4-1/2" x 2"
DC-1379	Notice	5-1/8" x 7-3/8"

## Prepare the Powerhead

1. Disconnect and lock out all power to the 10" commercial double-drive vertical unload auger.



***A main power disconnect switch capable of being locked only in the OFF position should be used. The switch should be locked out whenever work is being done on the powerhead.***

2. After the power has been disconnected and locked out, remove the existing belt guard assembly on the horizontal drive.
  - a. Open the existing belt guard.
  - b. Relieve tension on the drive belts by adjusting the motor mount assembly.
  - c. Remove the drive belts.
  - d. Remove the motor pulley and drive sheave.
  - e. Unbolt and remove the existing belt guard assembly.
3. Remove the horizontal drive motor from the powerhead.
4. After the motor has been removed, loosen and remove the 3/4" hex nut underneath the motor mount sides, holding down the motor mount assembly. (See Figure 4A.)

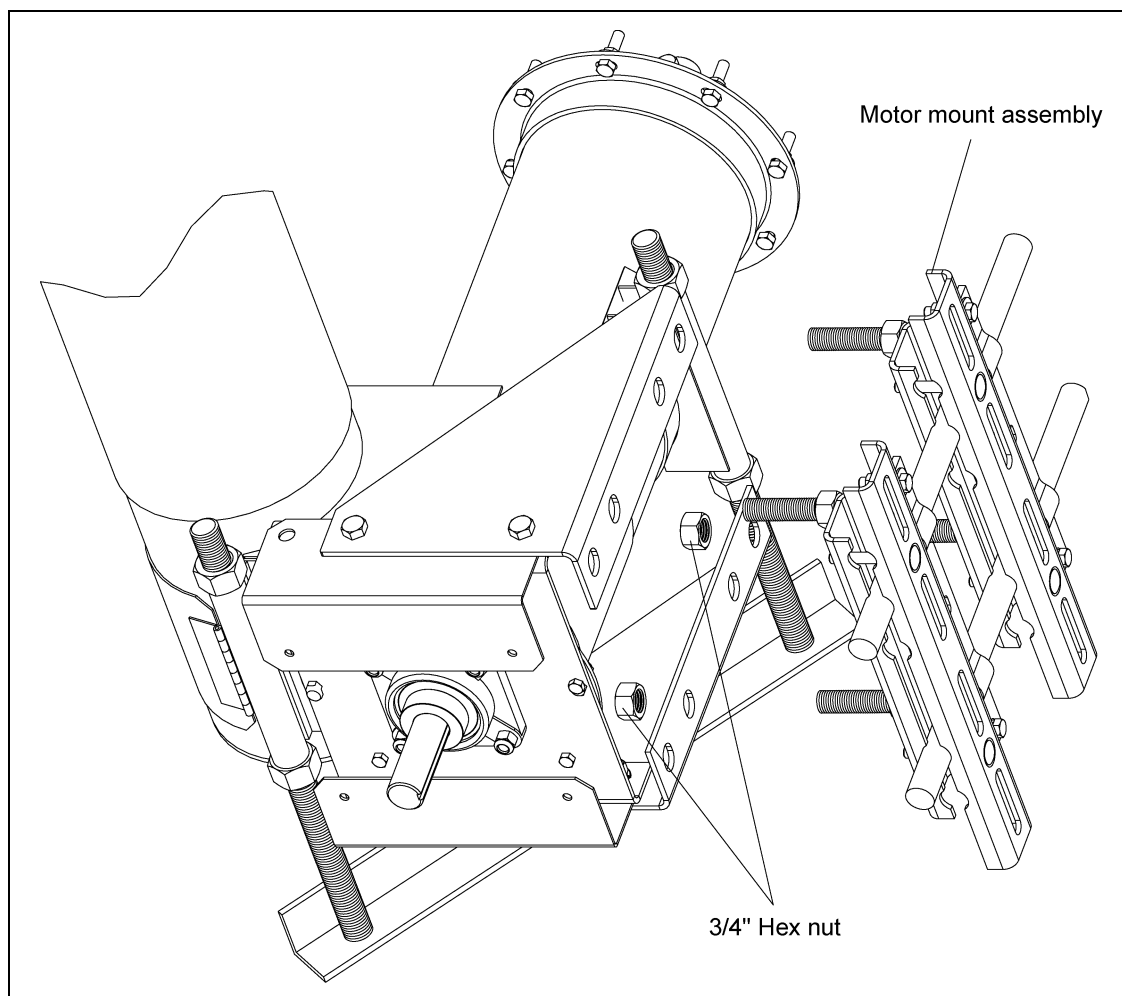


Figure 4A

## 4. Installation

5. Remove the motor mount assembly.
6. Unbolt the four (4) 1/2" x 1" hex bolts, lock washers, and hex nuts, and remove the existing belt guard brackets and motor mount sides. (See Figure 4B.)
7. Loosen and remove the lock collar on the 1-1/2" four (4) hole flange bearing. (See Figure 4C.)

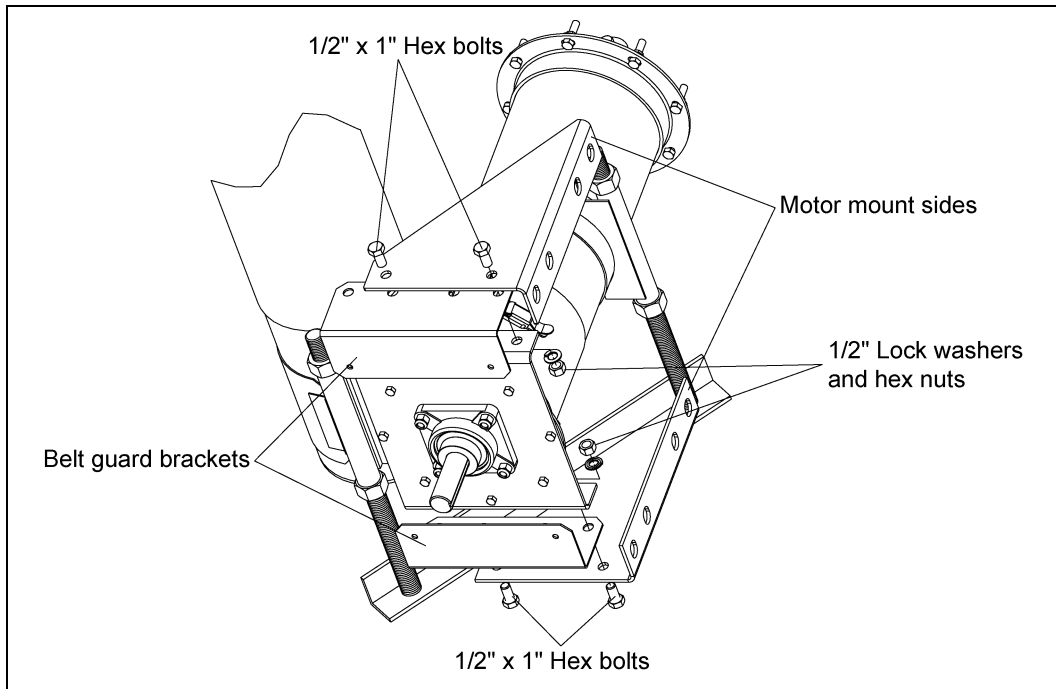


Figure 4B

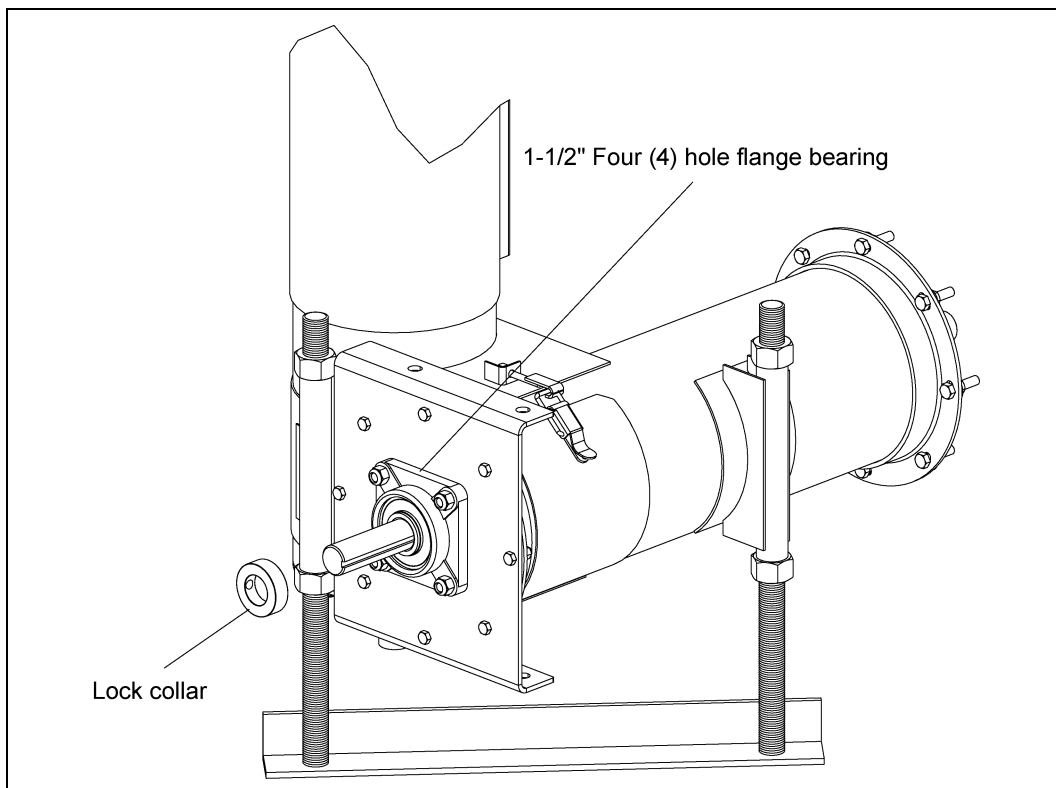
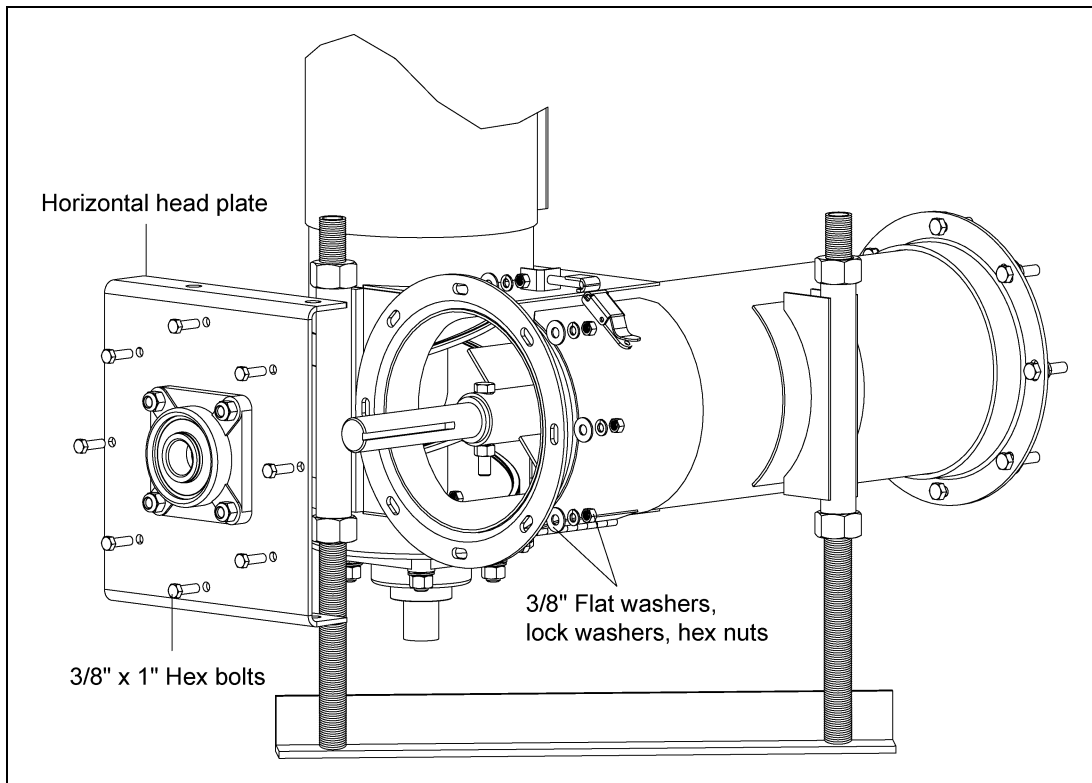
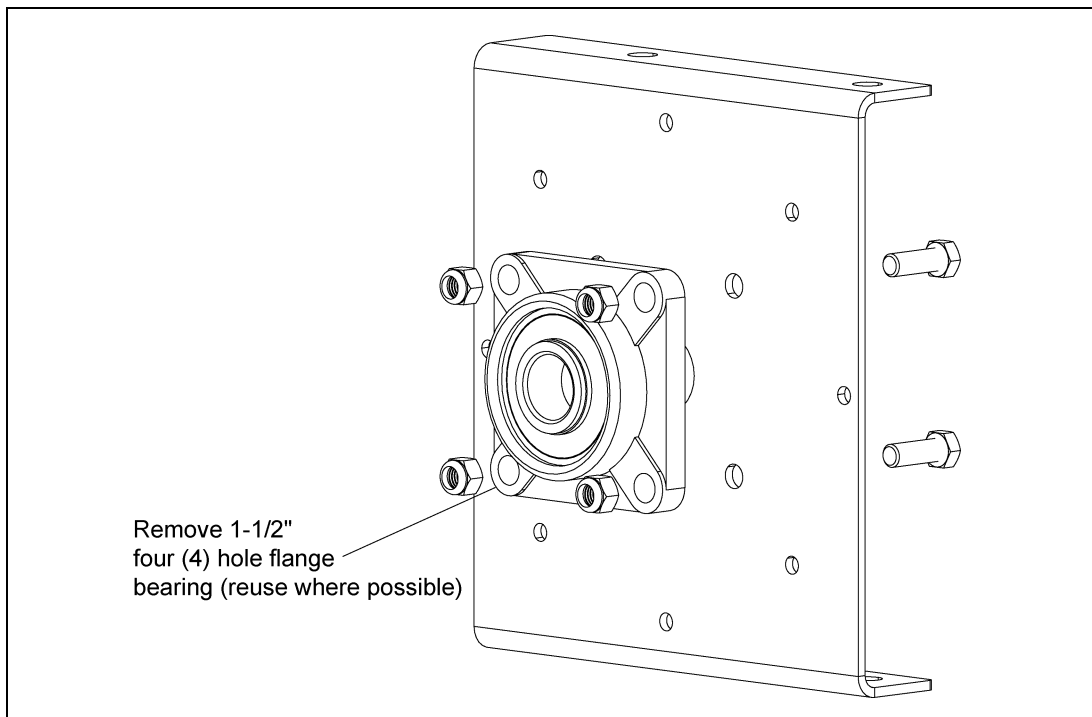


Figure 4C

8. Remove the horizontal head plate from the vertical auger by removing the eight (8) 3/8" x 1" hex bolts, flat washers, lock washers and hex nuts. (See Figure 4D.)
9. Unbolt and remove the 1-1/2" four (4) hole flange bearing. Where possible, this bearing will be reused with the new horizontal drive parts. (See Figure 4E.)



**Figure 4D**



**Figure 4E**

## Assemble the Motor Mount Plate to the New Head Plate

1. Position the motor mount plate over the new head plate so that the motor mount plate is almost flush with the new head plate. (See Figure 4F.)
2. Bolt the motor mount plate to the head plate using four (4) 5/8" x 1-1/2" hex bolts and nylock nuts. (See Figure 4G.)

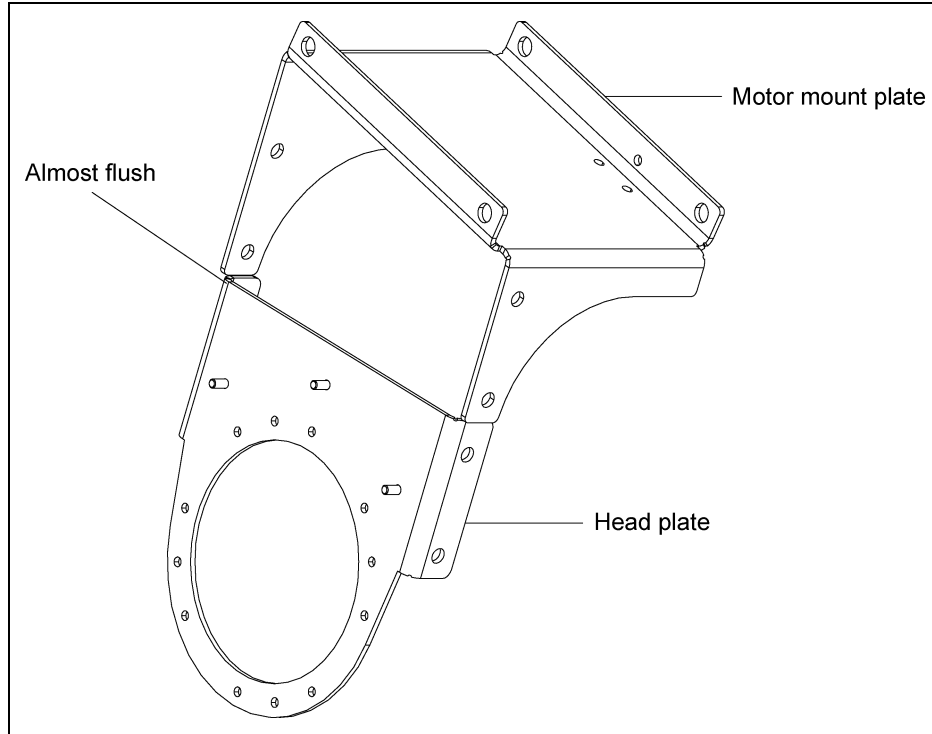


Figure 4F

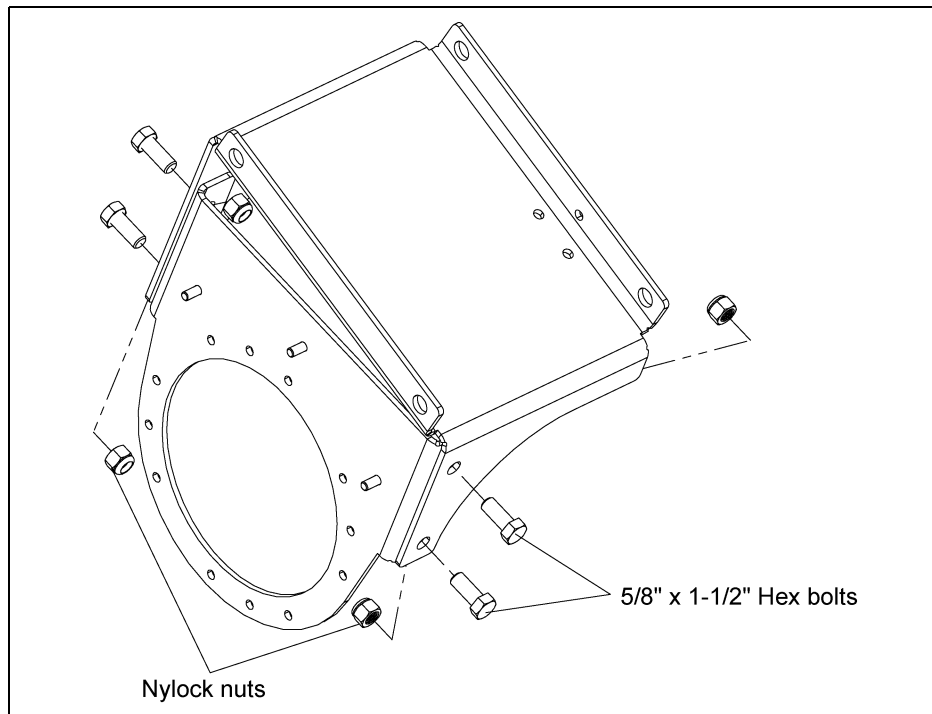


Figure 4G

## Install the Head Plate Assembly to the Auger

1. Place the head plate assembly against the angle ring on the horizontal tube.
2. Rotate the head plate assembly so that the side of the motor mount plate is as close as possible to the vertical connecting band, while making sure that the mounting holes in the head plate still align with the mounting holes in the angle ring. (See Figure 4H.)
3. Bolt the head plate assembly to the angle ring on the horizontal tube using four (4) 3/8" x 1" hex bolts and serrated flange nuts. Use center hole in every three (3) hole group. (See Figure 4I.)

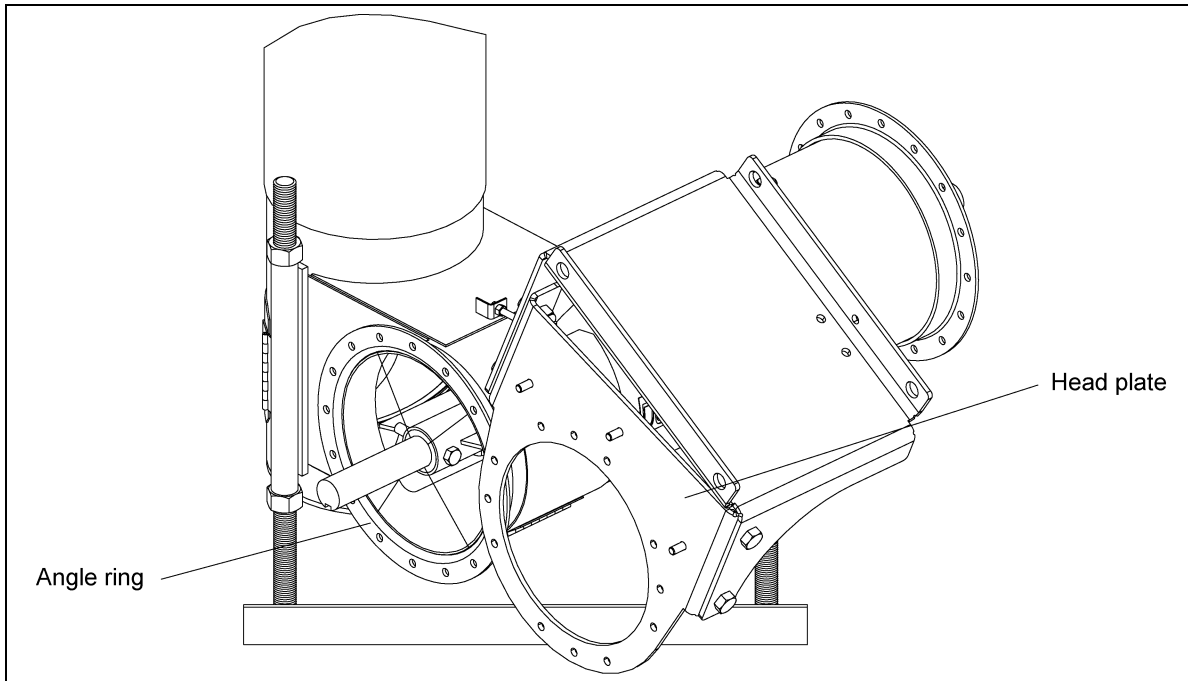


Figure 4H

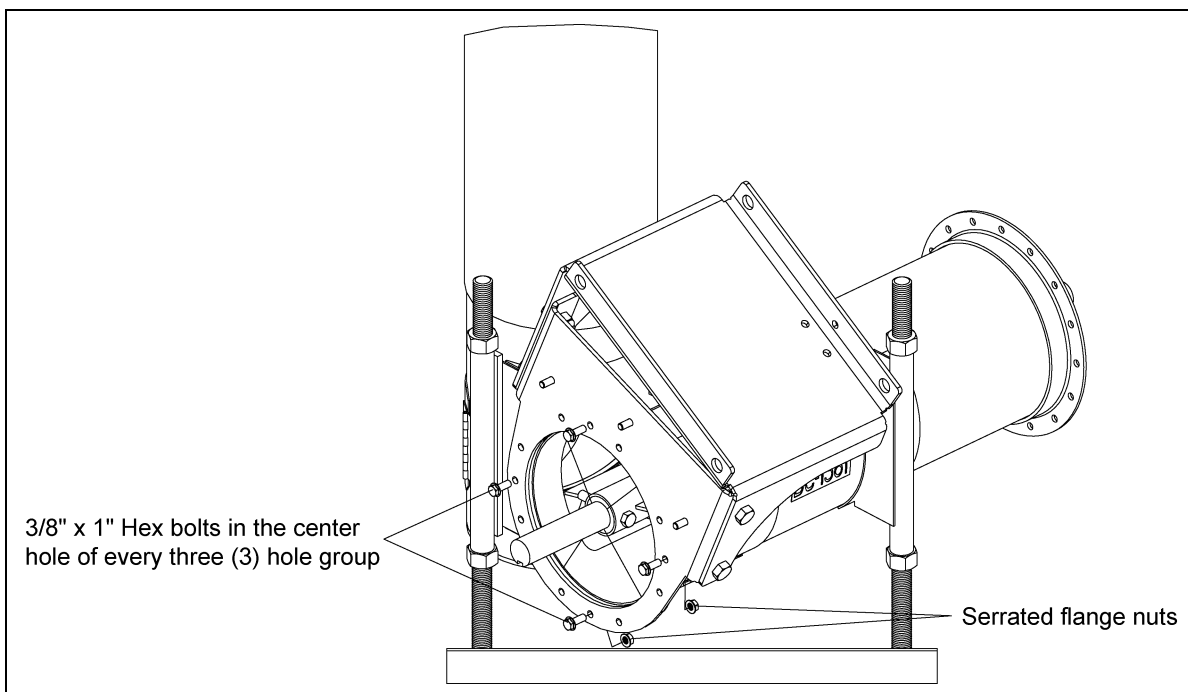


Figure 4I

## Install Motor Mount Brace

1. Position brace under motor mount plate aligning the three (3) holes with the slots in the brace.
2. Secure brace to motor mount plate using three (3) 3/8" x 1-1/4" serrated flange bolts and nylock nuts.

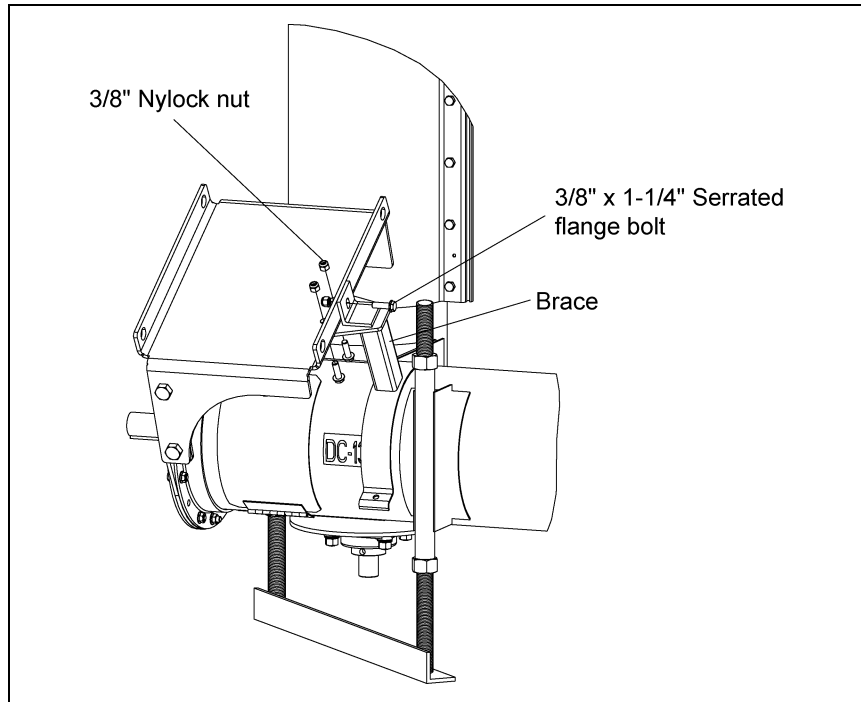


Figure 4J

3. Position 10" x 2" half band under tube and connect to brace using two (2) 5/16" x 1-3/4" hex bolts, four (4) 5/16" flat washers, and two (2) 5/16" nylock nuts.

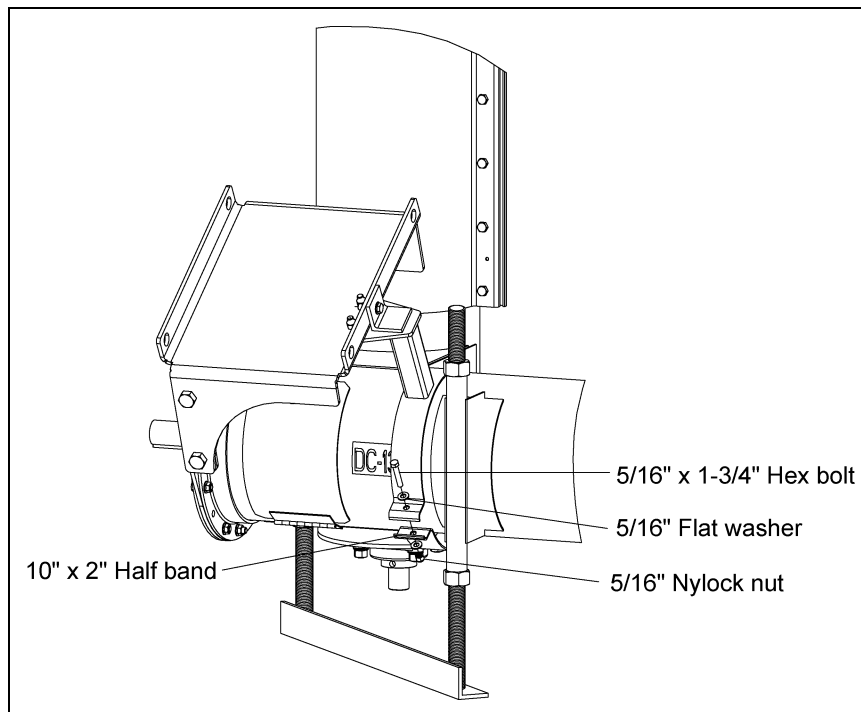


Figure 4K



## Assemble the Bearing to the Bearing Plate

1. Bolt the previously removed 1-1/2" four (4) hole flange bearing to the bearing plate using four (4) 1/2" x 1-1/2" hex bolts, lock washers and hex nuts.

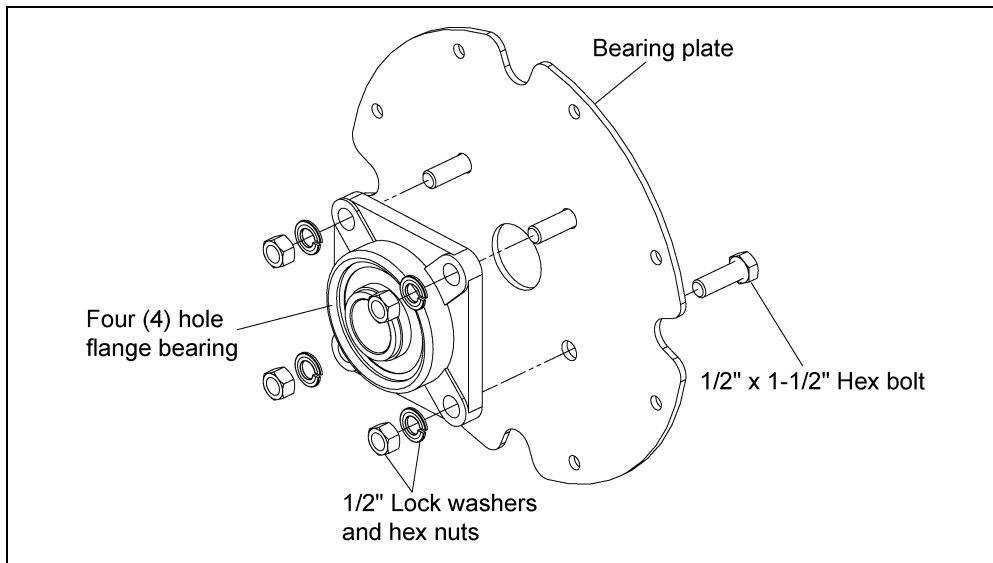


Figure 4L

## Assemble the Bearing Plate Assembly to the Head Plate

1. Slide the bearing plate over the drive shaft and line up the bearing plate assembly in front of the head plate.
2. Bolt the bearing plate assembly to the head plate using four (4) 3/8" x 1" hex bolts and serrated flange nuts.

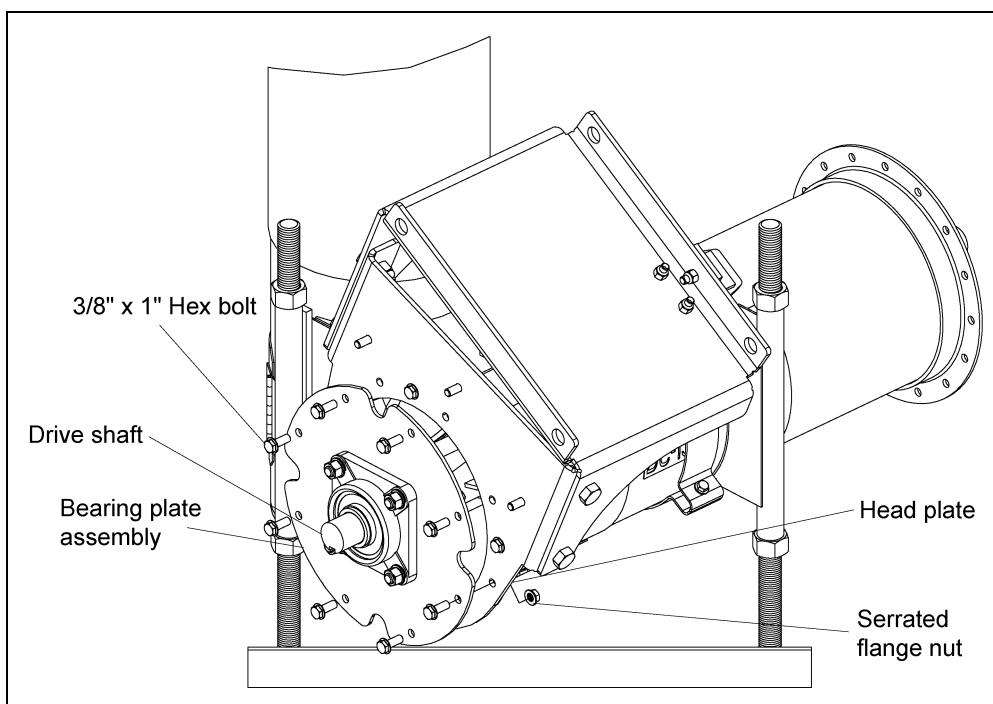


Figure 4M

## 4. Installation

- Slide the bearing lock collar over the drive shaft up to the bearing. Using a hammer and punch, continue to drive it onto the bearing in the clockwise direction, the same direction of the auger flight rotation. (See Figure 4N.)
- Tighten the set screw on the lock collar to the drive shaft.

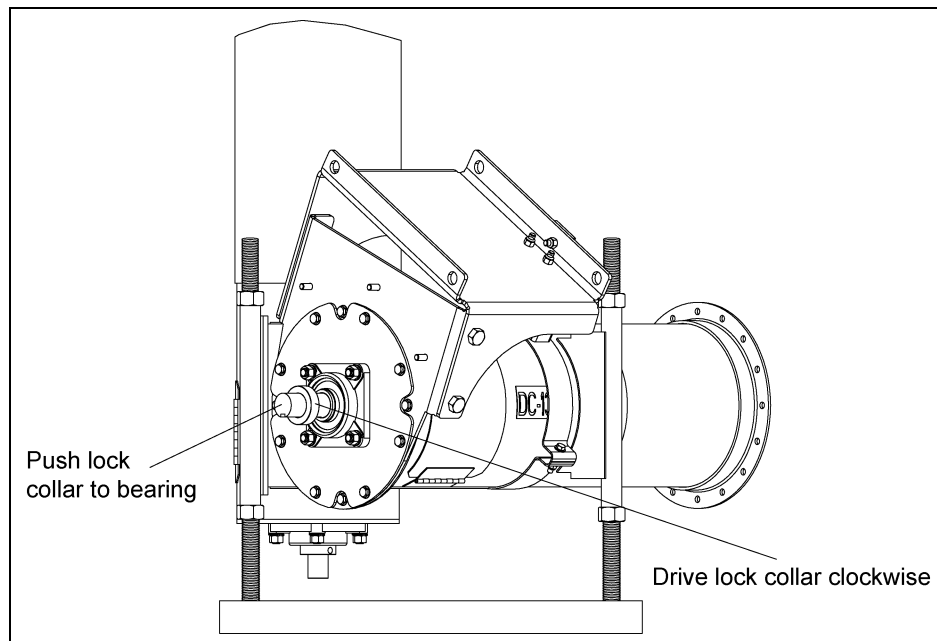


Figure 4N

## Assemble Belt Guard Brackets to the Head Plate

- Place the left and right hand belt guard brackets up to the head plate.
- Loosely bolt the brackets to the head plate using three (3) 3/8" serrated flange nuts and flat washers. (See Figure 4O.)

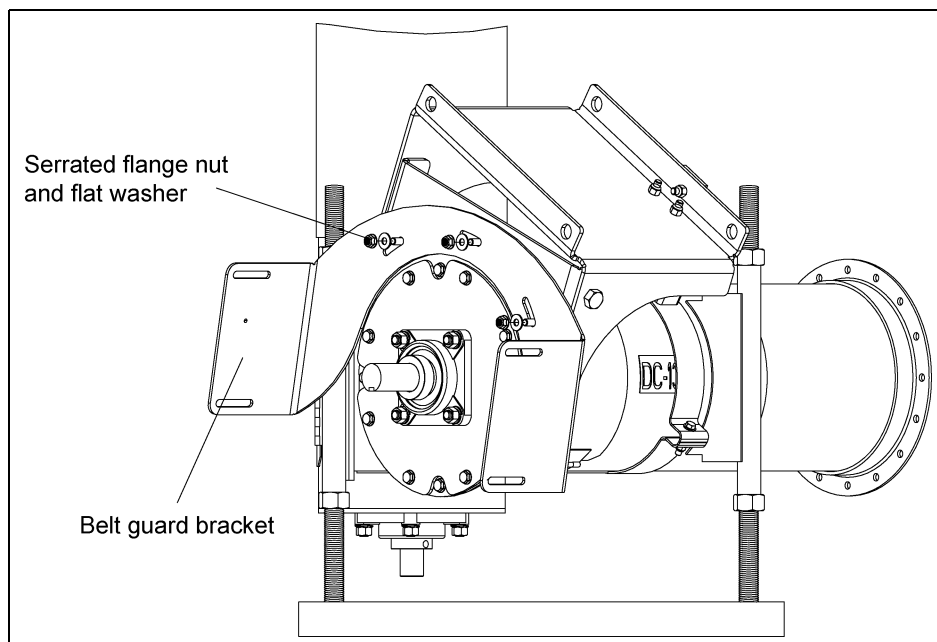


Figure 4O

## Install the Motor Mount Adjuster

1. Place the motor mount adjuster between the bottom pivot holes on the motor mount plate.  
(See Figure 4P.)
2. Insert the pivot rod through the front bottom pivot hole, the motor mount adjuster, and the back bottom pivot hole. Secure the pivot rod in place with two (2) 3/16" x 2" cotter pins. (See Figure 4P.)
3. With the cotter pins in the pivot rod, bend one tab of the cotter pin back so that it touches the pivot rod, and bend the other tab of the cotter pin away from the first tab. (See Figure 4Q.)

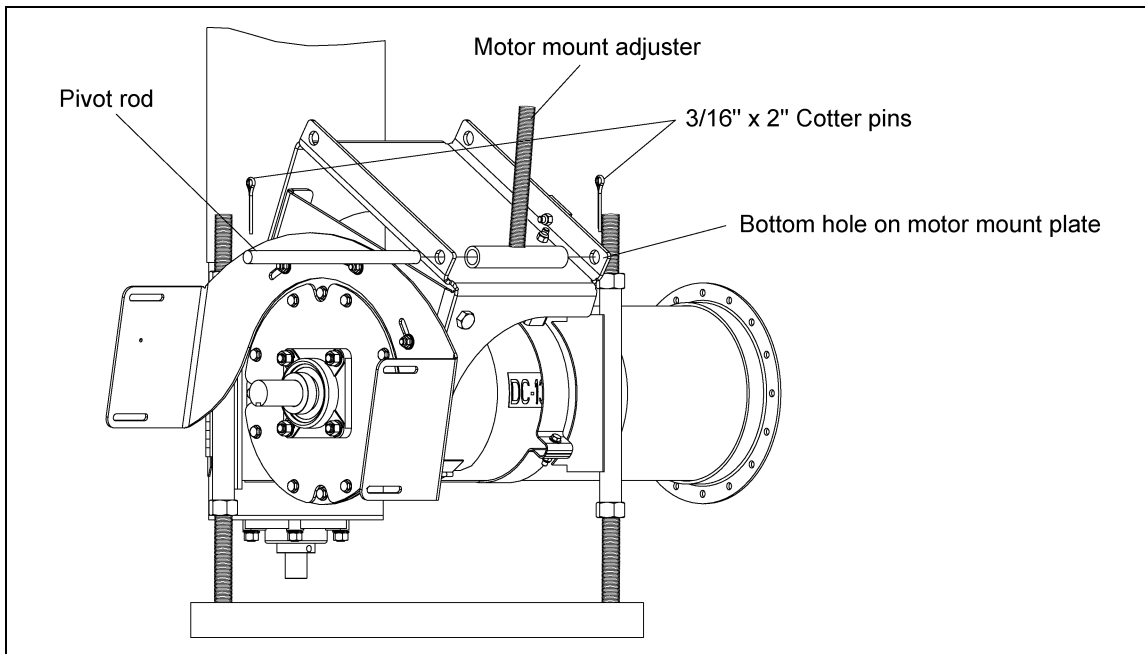


Figure 4P

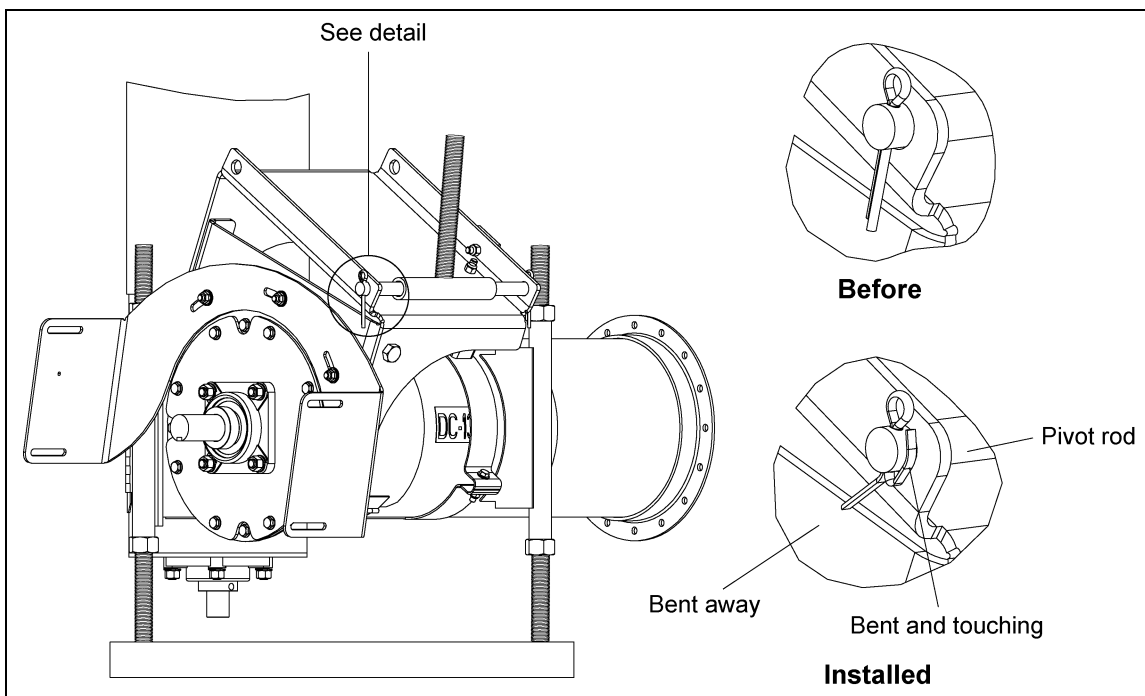
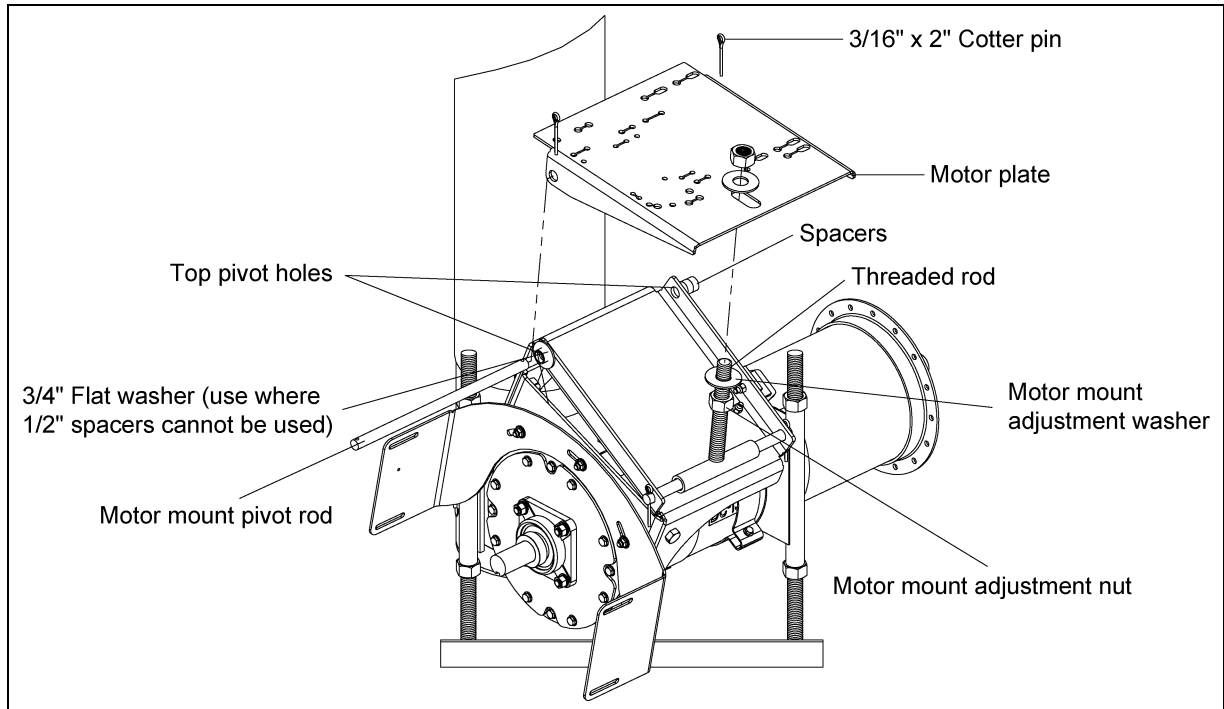


Figure 4Q

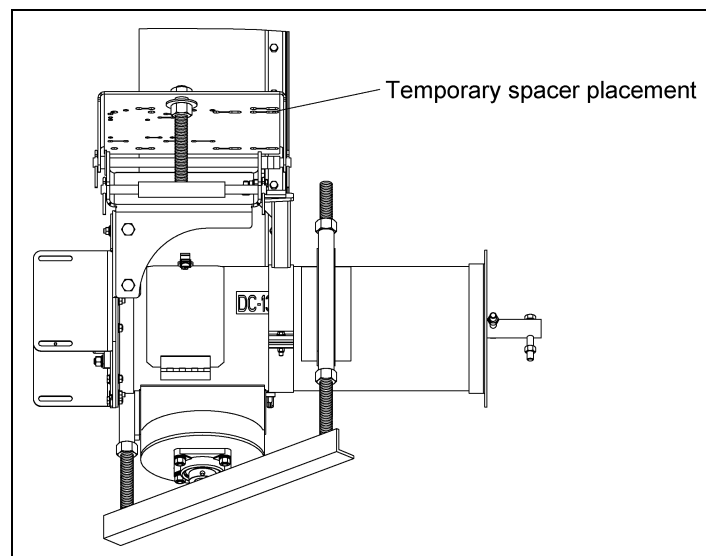
### Install the Motor Plate

1. Thread one (1) of the motor mount adjustment nuts and one (1) motor mount adjustment washer approximately 3/4 of the way down the motor mount adjuster's threaded rod.
2. Once the nut and washer are in place, slip the motor plate over the adjuster and align its pivot holes with the top pivot holes on the motor mount plate. (See [Figure 4R.](#))



**Figure 4R**

3. Slide the motor mount pivot rod through the pivot holes on the motor plate and motor mount plate. Insert the 3/4" flat washer between the motor plate and the motor mount plate for the front pivot hole.
4. When the pivot rod begins to extend through the back pivot hole on the motor mount plate, install the spacers BETWEEN it and the inner face of the motor plate. (See [Figure 4S.](#))



**Figure 4S**

- Secure the motor mount pivot rod in place with two (2) 3/16" x 2" cotter pins. With the cotter pins in the pivot rod, bend one tab of the cotter pin back so that it touches the pivot rod, and bend the other tab of the cotter pin away from the first tab.
- Loosely install the upper motor mount adjustment washer and nut onto the threaded rod over the motor mount plate.

## Install the Pulley

- Place and position the key into the keyway located on the drive shaft.
- If applicable, assemble the supplied sheave bushing to the flight pulley. Place the flight pulley onto the drive shaft with the set screw side of the flight pulley facing away from the bearing plate. Position the flight pulley so that it is as close to the lock collar as possible, but not touching it.
- Once the pulley is appropriately positioned, tighten the set screw with a hex head wrench to secure it to the drive shaft. (See Figure 4T.)

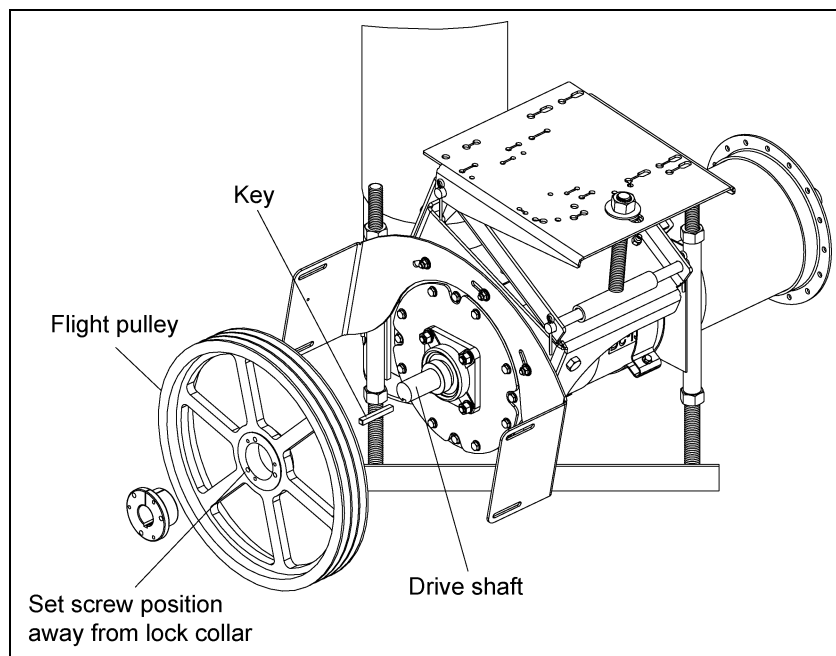


Figure 4T

## Install the Motor (NOT PROVIDED)

- Attach the motor to the motor mount plate using appropriate bolts, lock washers, and hex nuts. (See Table below.)

### Motor Bolt Selection

Motor Frame	Hex Bolt Quantity and Size
56	(4) 5/16"-18 x 1-1/4"
143T	
145T	
182T	(4) 3/8"-16 x 1-1/4"
184T	
213T	
215T	
254T	(4) 1/2"-13 x 1-3/4"
256T	

## 4. Installation

2. Install the drive pulley onto motor shaft making sure that it is aligned with the flight pulley. It may be necessary to move spacers to gain shaft alignment. Use the 3/4" flat washer where the 1/2" spacers cannot be used. (See Figure 4U.)

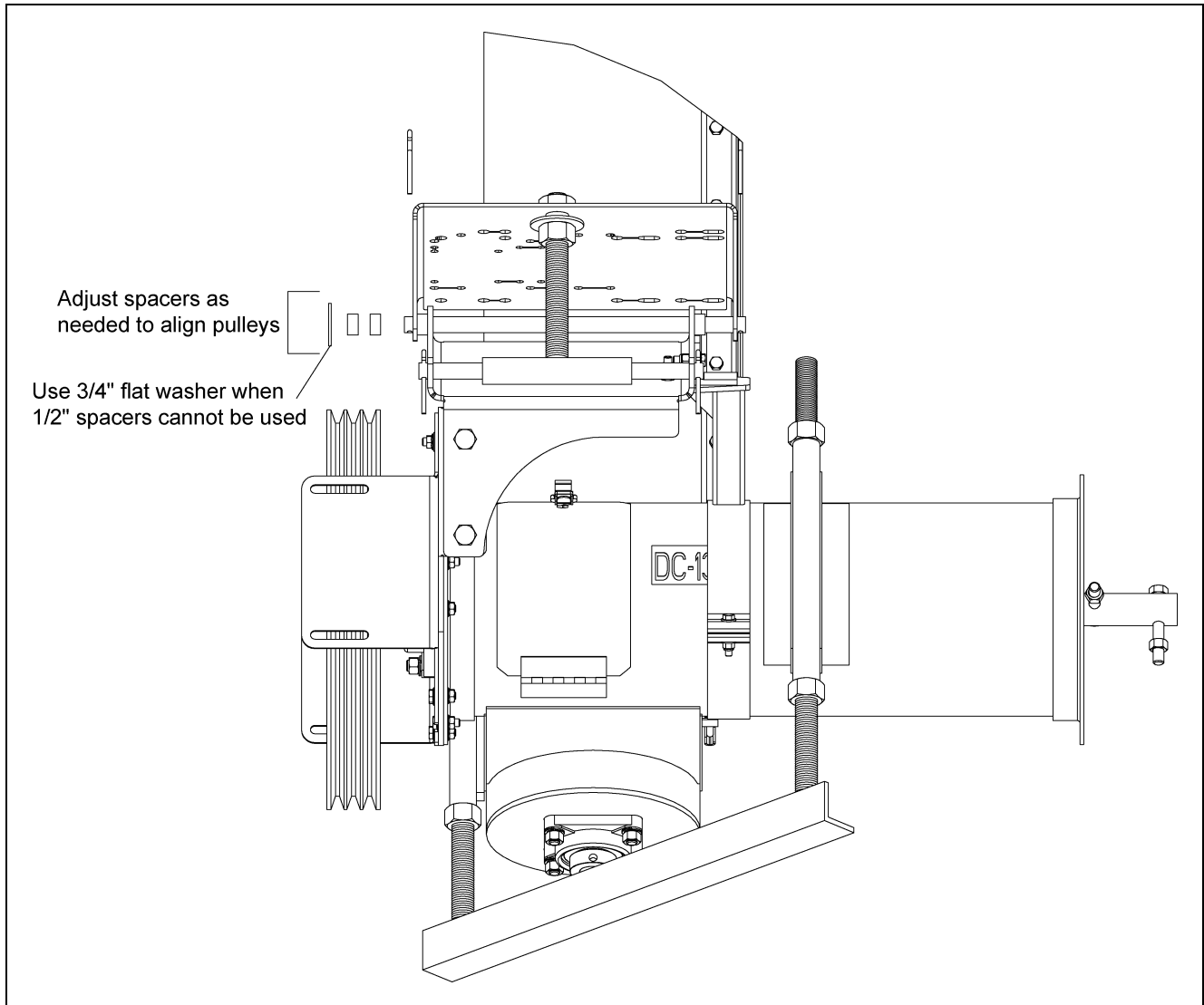


Figure 4U

### Install the Belts

1. Place the belts onto the pulleys.
2. First, screw the lower motor mount adjustment nut upward, raising the motor mount plate and putting tension on the belts.
3. Once the desired tension is reached, tighten the upper motor mount adjustment nut down onto the motor plate locking it into place.

## Install the Belt Guard

1. With the belts properly tensioned, remove the bottom belt guard cover.
2. Slip the belt guard down over the motor and drive sheaves, enclosing the drive belts.
3. Bolt the belt guard loosely to the belt guard brackets with four (4) 3/8" x 1" flange bolts.
4. Center the belt guard slot with the motor shaft and the auger drive shaft. Make sure the belt guard DOES NOT contact the pulleys, belts, or bearing, and tighten the belt guard to the belt guard mounting bracket(s).
5. Once the belt guard is secured, slide the bottom belt guard cover back into place and secure it with the 3/8" x 1" flange bolt previously removed.

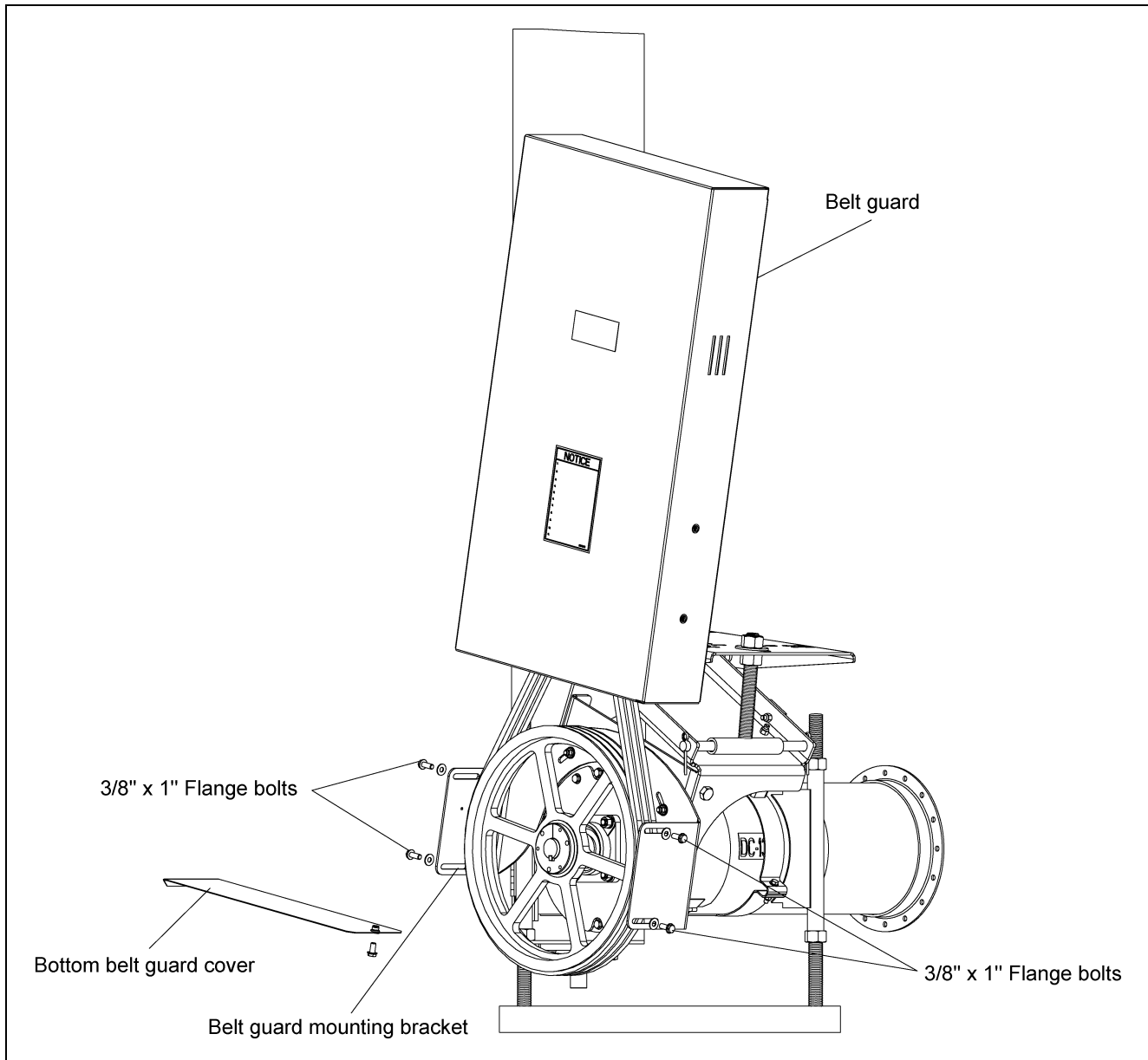
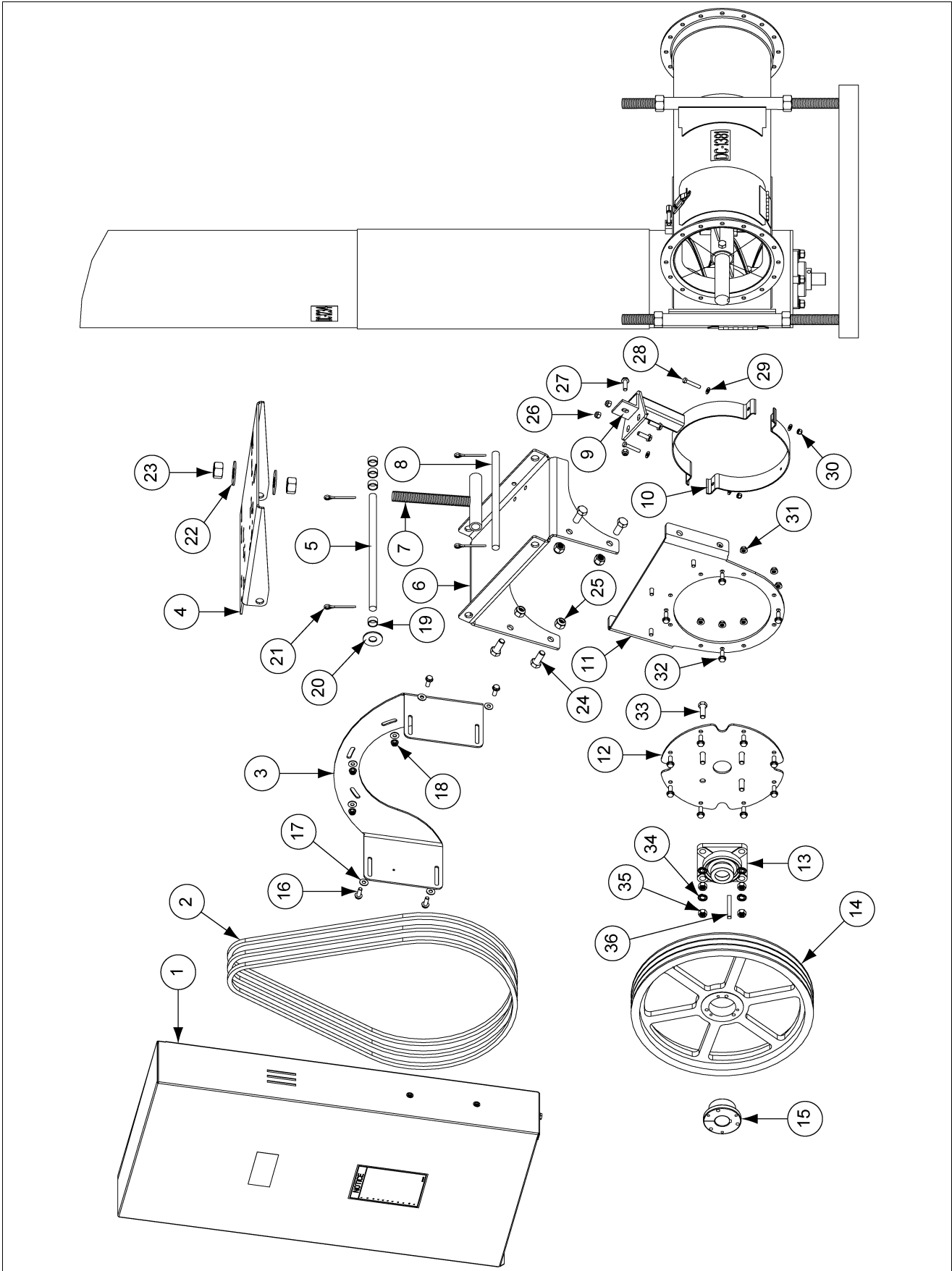


Figure 4V

# Replacement Drive Kit Components





### Double-Drive Vertical Retro Belt Guard Kit

Ref #	Part #	Description
1	GK7851	Double Drive Vertical 10" Retro Belt Guard
2	MHC00894	V-Belt BX78
3	GK7855	Double Drive Vertical 10" Retro Belt Guard Bracket
4	GK6986	Motor Plate
5	GK7013	Motor Mount Pivot Rod
6	GK7853	Double Drive Vertical 10" Retro Motor Mount
7	GK6942	Motor Mount Adjustment Weldment
8	GK7012	Motor Mount Adjustment Pivot Rod
9	GK7911	Double Drive Vertical 10" Retro Brace
10	GK1057	Half Band 10" x 2" 12 Gauge Galvanized
11	GK7852	Double Drive Vertical 10" Retro Head Plate
12	GK7854	Double Drive Vertical 10" Retro Bearing Plate
13	GK1343	1-1/2" 4 Hole Flange Bearing w/ Lock Collar
14	GK2570	18.4" 3 Belt Sheave
	GK2567	18.4" 2 Belt Sheave
15	GK4248	1-1/2" Bore SK Bushing
16	S-9065	3/8"-16 x 1" Serrated Flange Bolt Zinc Grade 5
17	S-845	5/16" Flat Washer Yellow Dip Grade 2
18	S-968	3/8"-16 Serrated Flange Nut Zinc Grade 5
19	GK7014	Pivot Spacer Tube
20	S-866	3/4" Flat Washer Zinc Grade 2
21	S-6994	3/16" x 2" Cotter Pin
22	S-7835	1" Flat Washer Zinc
23	S-240	1"-8 Hex Nut Zinc Grade 5
24	S-4109	5/8"-11 x 1-1/2" Hex Head Tap Bolt Yellow Dip Grade 8
25	S-8349	5/8"-11 Nylock Nut Zinc Grade 2
26	S-7383	3/8"-16 Nylock Nut Zinc Grade 5
27	S-9066	3/8"-16 x 1-1/4" Serrated Flange Bolt Zinc Grade 5
28	S-7149	5/16"-18 x 1-3/4" Hex Head Cap Screw Zinc Grade 5
29	S-1937	5/16" Flat Washer Zinc Grade 2
30	S-7382	5/16"-18 Nylock Nut Zinc Grade 5
31	S-968	3/8"-16 Serrated Flange Nut Zinc Grade 5
32	S-7927	3/8"-16 x 1" Serrated Flange Bolt Yellow Dip Grade 8
33	S-8760	1/2"-16 x 1-1/2" Hex Head Cap Screw Zinc Grade 5
34	S-236	1/2" Lock Washer Zinc
35	S-7510	1/2"-13 Hex Nut Zinc Grade 2
36	S-9181	3/8" x 3" Square Key

## 6. Troubleshooting

Problem	Possible Cause	Solution
Auger vibration	Drive belt may be overtightened, putting head stub and flight in a bind. Damage can occur to the auger flighting, thus causing noise. Damage is usually caused from foreign material having been run through the auger.	It may be necessary to remove the flighting for inspection.  Adjust the drive belt to the proper tension.
Low capacity	The auger may not be getting enough grain.	Check that the intake has not bridged over, restricting flow. The exposed flighting at the auger intake should be covered with grain to achieve maximum capacity.
	The auger is moving too slowly.	Check the auger speed. Speeds slower than the recommended speed will result in low capacity.
Auger plugs	The auger may be getting too much grain, causing "jamming" inside the housing.	Decrease the amount of grain the auger is gathering.
	The motor may be too small or wired improperly.	If the motor is a newer light-weight aluminum type, the next larger size should be considered.
	The grain may be wet.	If wet grain or other hard-to-move material is being augered, use a larger size motor than recommended for normal use.
	The auger may be jammed with foreign material.	Be sure there is no foreign material in the auger such as sacks, tarp corners, etc.
	The discharge end may be plugged.	Make sure the discharge end of the auger is not plugged. A plug of the discharge end will cause an auger plug.

## The GSI Group Limited Warranty

The GSI Group, Inc. ("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
<b>AP Fans and Flooring</b>	Performer Series Direct Drive Fan Motor	3 Years
	All Fiberglass Housings	Lifetime
	All Fiberglass Propellers	Lifetime
	Apex Flooring	10 Years *
<b>Cumberland Feeding/Watering Systems</b>	Feeder System Pan Assemblies	5 Years **
	Feed Tubes (1.75" and 2.00")	10 Years *
	Centerless Augers	10 Years *
	Watering Nipples	10 Years *
<b>Grain Systems</b>	Grain Bin Structural Design	5 Years
	Portable Dryers (Excluding Motors)	2 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%

### 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.

G S I G R O U P



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