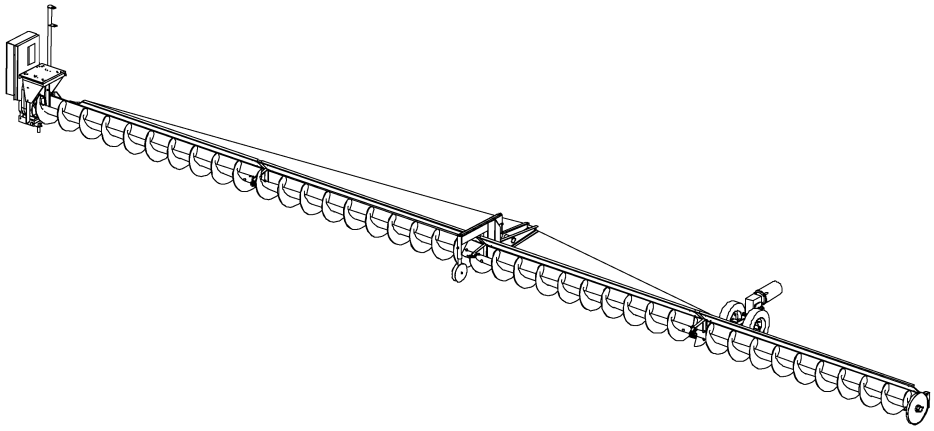

12" and 14" Commercial Bin Sweep Auger

Assembly and Operation Manual

PNEG-1050

Date: 11-05-14

GSI GROUP

GSI

PNEG-1050

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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General Information

1. We reserve the right to improve our product whenever possible and practical to do so. We reserve the right to change, improve and modify products at any time without obligation to make changes, improvements and modifications on equipment sold previously.
2. The Commercial Bin Sweeps have been designed and manufactured to give years of dependable service. The care and maintenance of this machine will affect the satisfaction and service obtained. By observing the instructions and suggestions we have recommended, the owner should receive competent service for many years. If additional information or assistance should be required, please contact the factory or the local dealer.

Receiving Merchandise and Filing Claims

When receiving merchandise, it is important to check both the quantity of parts and their descriptions with the packing list enclosed within each package. All claims for freight damage or shortage must be made by the consignee within ten (10) days from the date of the occurrence of freight damage. The consignee should accept the shipment after noting the damage or loss.

DO NOT STORE SWEEPS IN THE BIN.

Sweeps are NOT designed to remain in a bin during filling, storage or bottom (gravity) unloading. A sweep left in a bin during these operations may be severely damaged. The GSI Group will not be responsible for such damages.

The following action may reduce damages to a sweep remaining in a bin: Lifting the sweep off the center pivot, positioning it parallel to the intermediate wells (along side of - not on top of) and fully supporting the sweep to the bin floor. However, even with this procedure, the GSI Group will not be responsible for any damages to the sweep.

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

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

CAUTION 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.

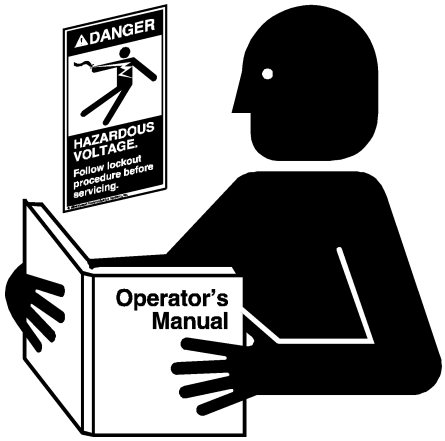
Follow Safety Instructions

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.

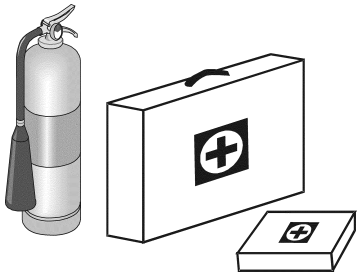
Maintain Equipment and Work Area

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.

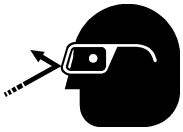
Wear steel-toed boots to help protect your feet from falling debris. Tuck in any loose or dangling shoestrings.

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

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.

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.

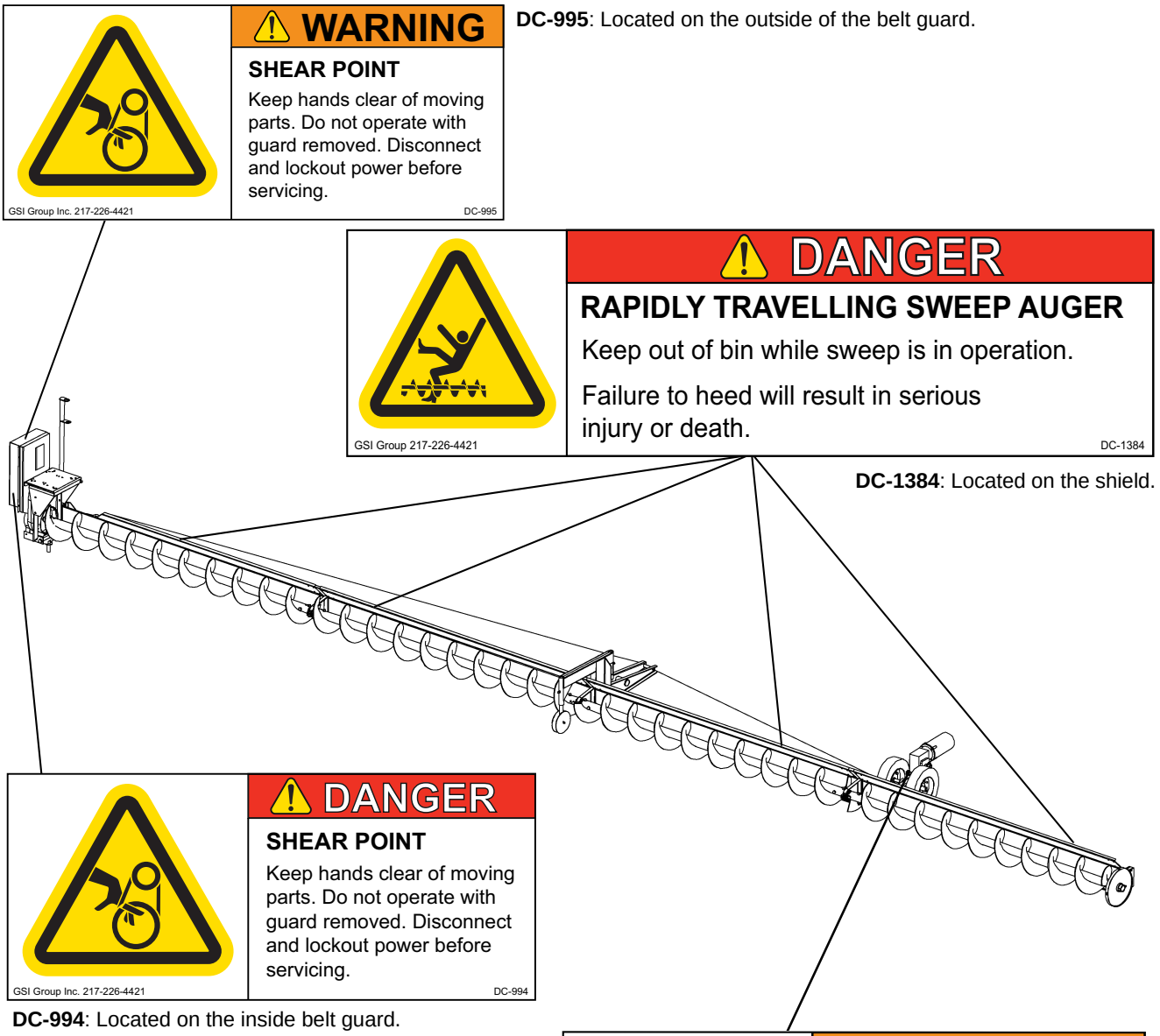
iv. O.S.H.A. (Occupational Safety and Health Administration) regulations state: “At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all equipment with which the employee is, or will be involved”. (Federal 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.

Date	***Employee Name***	***Supervisor Name***

3. Decals

Check components shown below to insure 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.



DC-995: Located on the outside of the belt guard.

DC-1384: Located on the shield.

DC-994: Located on the inside belt guard.

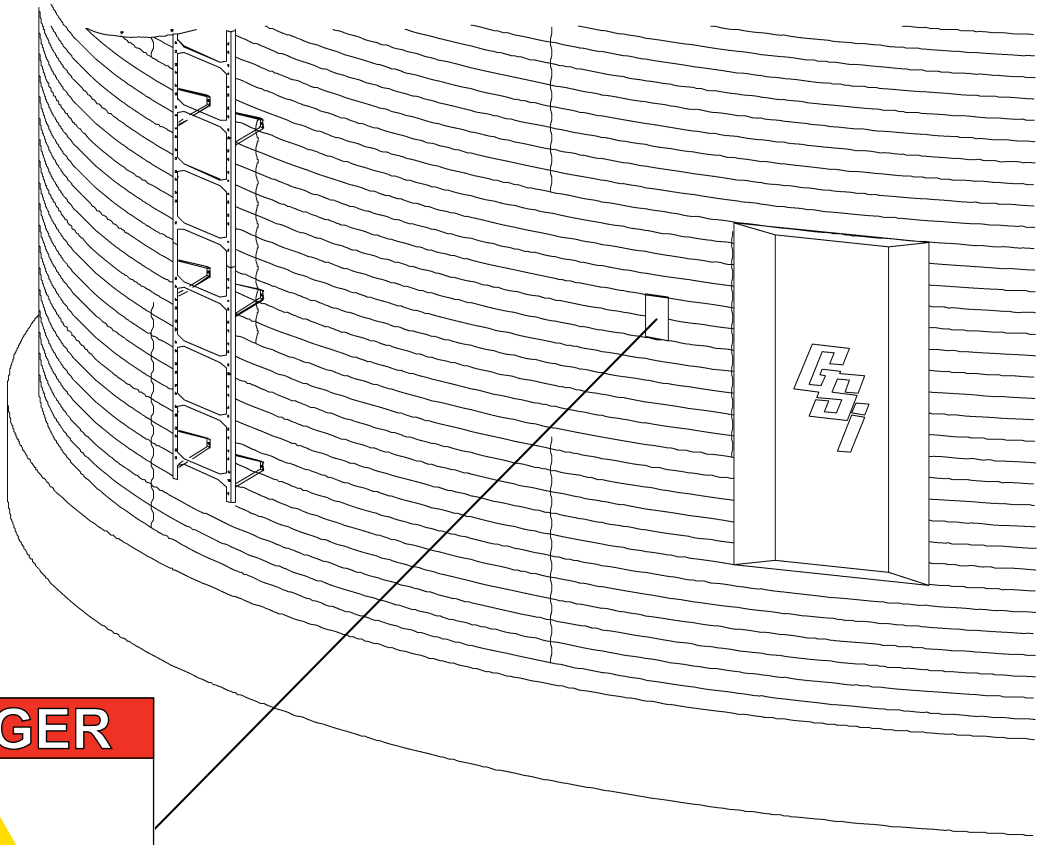
DC-1386: Located on the tractor drive chain guards.

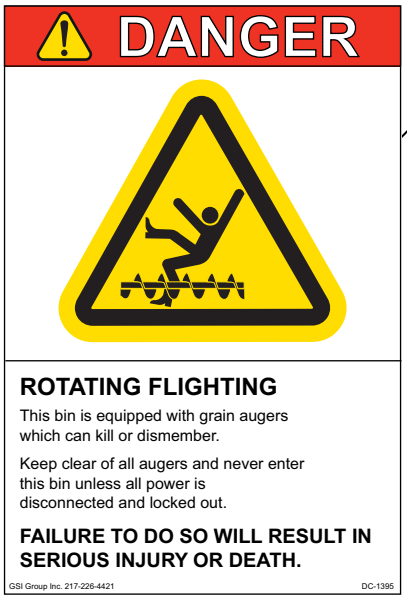
1.DANGER Sign No. DC-1395 was supplied with your bin unloading equipment. This safety sign should be applied to the side of the bin near the bin opening, so it will be viewed by people entering into the bin storage building. Do not cover any safety signs or any other signs that are already there.

A. If the safety sign location suggested is not in full view because of equipment modifications, other equipment in the area or any reason, then locate the safety sign in a more suitable location.

B. Be certain the surface is clean, dry and free of dirt and oil. Peel paper backing from decals and stick into place. The adhesive backing will bond on contact.

NOTE: *Please remember, safety signs provide important safety information for people working near bin unloading equipment that is in operation.*





DC-1395: Located outside of the bin door.

Chain Reducer Drive (For 36' through 78' Diameter Bins)

Motor Mount Assembly Instructions *(See Figure 4B on Page 13.)*

1. First, fill the chain reducer drive with oil by removing the vented fill plug and pouring 48 oz. of oil into drive. Oil level can be checked by removing the check plug. Oil should not be over the check plug. *(See Figure 4A.)*
2. Install pivot bracket (O) to bottom of motor mount frame (N) using a 3/4" x 11" long (grade 5) hex head cap screw and nylon lock nut (P).
3. Attach the electric cord support stand (E) and one side of the motor mount support plate (H) to the motor mount frame (N) using two (2) 1/2" x 1-1/2" long (grade 5) hex head cap screws with lock washers and hex nuts (J). Attach the other side of the motor mount support plate (H) to the motor mount frame (N) using two (2) 1/2" x 1-1/4" long cap screws with lock washers and nuts (I).
4. Mount the chain reducer drive (K) to the mounting ring on the motor mount frame (N) with four (4) 3/8" x 1" long (grade 5) hex head cap screws and nylon lock nuts.
5. Screw the 3/4" threaded adjusting rod (G) down through the nut welded to the top of the motor mount support plate (H). Leave the adjusting rod (G) an inch or two (2) above the top surface of the motor mount support plate (H). The adjusting rod will be adjusted later after the drive belts are installed.
6. Thread a 3/4" hex nut onto the bottom end of the adjusting rod (G) underneath the motor mount support plate (H). This nut is for locking the adjusting rod in place after adjusting it to the required position to tighten the drive belts. **DO NOT** tighten this nut against the motor mount support plate until the belts have been installed and tightened.
7. Align the pivot holes (D) of the motor mount plate (C) with those in the motor mount support plate (H) and slide the pivot rod (F) through the holes. Insert a 3/16" cotter pin into the holes in each end of the pivot rod (F) to keep it in place.

CAUTION

Oil must be added before assembly. The chain reducer is shipped without oil.

Do NOT add more oil than recommended. Additional oil may damage the seals or be forced out through the vented fill plug.

For lubrication in normal operating temperature between 40°F to 120°F, we recommend the use of non-foaming, multi purpose gear oil, SAE 90 weight. For temperatures below 40°F, use a SAE 80 weight oil. Use grade commercially available for automotive differentials. Extra pressure additives may be of value in severe applications.

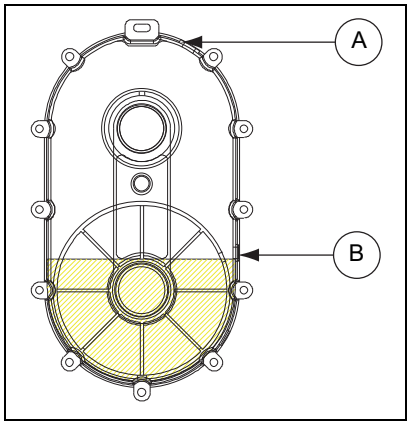


Figure 4A *Enclosed Drive*

Ref #	Description
A	Fill Plug
B	Check Plug

Chain Reducer Drive (Continued)

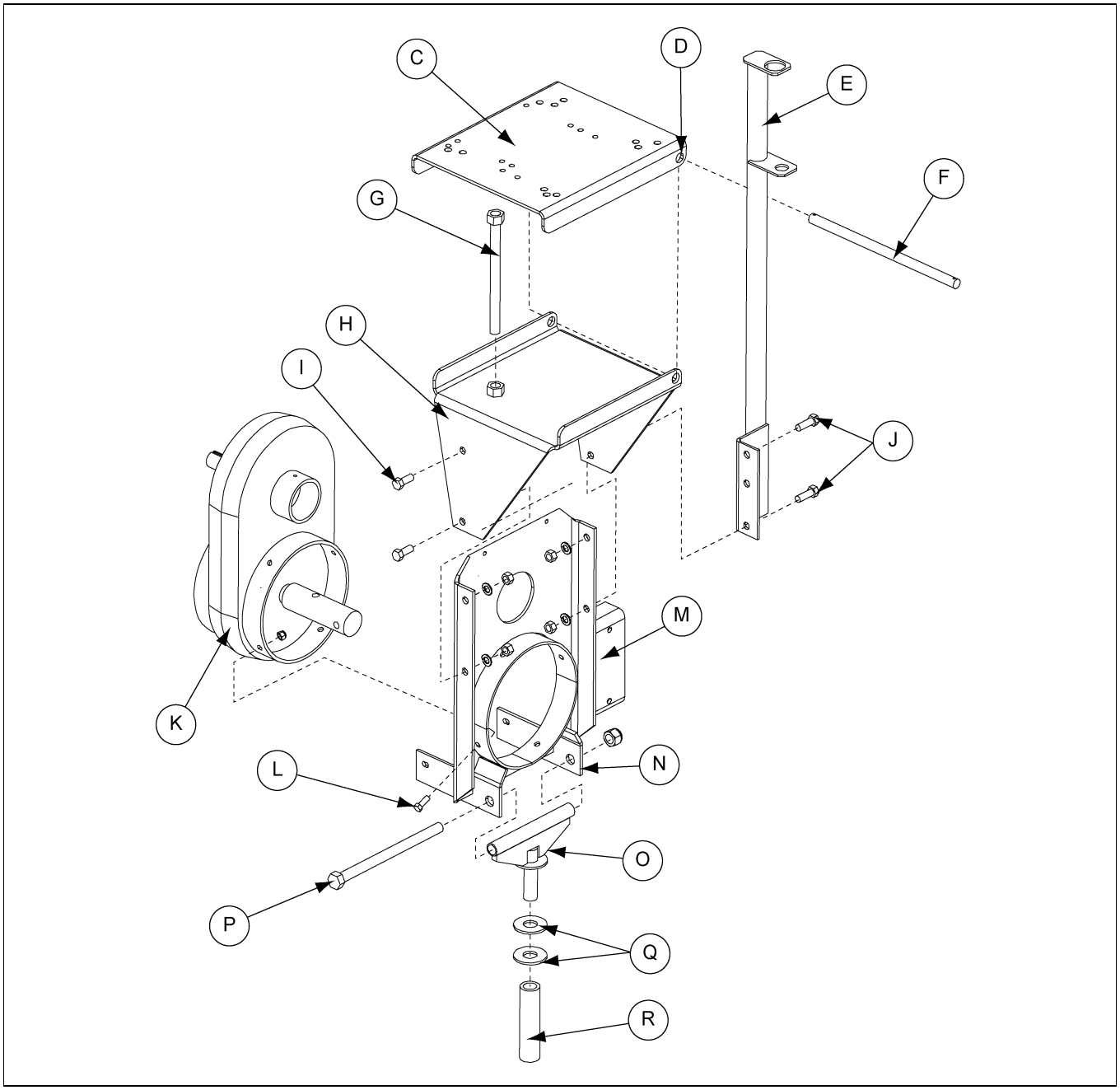


Figure 4B

Ref #	Description
C	Motor Mount Plate
D	Pivot Holes
E	Electrical Cord Support Stand
F	Pivot Rod
G	Adjusting Rod
H	Motor Mount Support Plate
I	1/2" x 1-1/4" HHCS, Lock Washers and Nuts
J	1/2" x 1-1/2" HHCS with Lock Washers and Nuts

Ref #	Description
K	Chain Reducer Drive
L	3/8" x 1" HHCS Bolt
M	Shield Mount Plate
N	Motor Mount Frame
O	Pivot Bracket
P	3/4" x 11" HHCS with Lock Nut
Q	1" Flat Washers
R	Pivot Tube in Center of Bin

Chain Reducer Drive (Continued) (Refer to *Figure 4C*.)

8. Slide the mounting ring of the belt guard (U) over the mounting ring of the chain reducer drive (K).
9. Fasten the bottom of the belt guard (U) to the motor mount frame (N) using two (2) 3/8" x 1-1/4" long (grade 5) hex head cap screws, eight (8) 1/16" thick flat washers and two (2) nylon lock nuts. Position the flat washers between the inside of the motor mount frame (N) and the outside of the belt guard (U).
10. Use two (2) 1/4" x 5" long hex head cap screws, belt guard spacer tubes (T) and nylon lock nuts to connect the upper portion of the belt guard (U) to the motor mount frame (N).
11. Install electric motor on the motor mount plate (C). (**NOTE:** *The motor and motor mounting hardware are not furnished.*) (*See Figure 4D on Page 15* for motor size and bolt hole locations.)
12. Install motor pulley on motor shaft and secure with drive key. (**NOTE:** *Motor pulley and drive key are not furnished.*) (*See Page 44* for pulley size.)
13. Slide 12" O.D. pulley (X) onto the input shaft of the chain reducer (K). Using 1/4" square key (AA) and set screw to secure pulley in place. Align motor pulley with 12" O.D. pulley.
14. Install drive belts (Z) on pulleys and tighten. Using a wrench, turn the adjusting rod (G) (installed in *Step 5 on Page 12*) so that it pushes against the bottom of the motor mount plate (C). When the belts are tight, screw the hex nut on the bottom side of the adjusting rod tightly up against the nut welded to the bottom of the motor mount support plate.
15. Bolt the belt guard door (U) closed with two (2) 3/8" x 3/4" long (grade 5) hex head cap screws and nylon lock nuts.

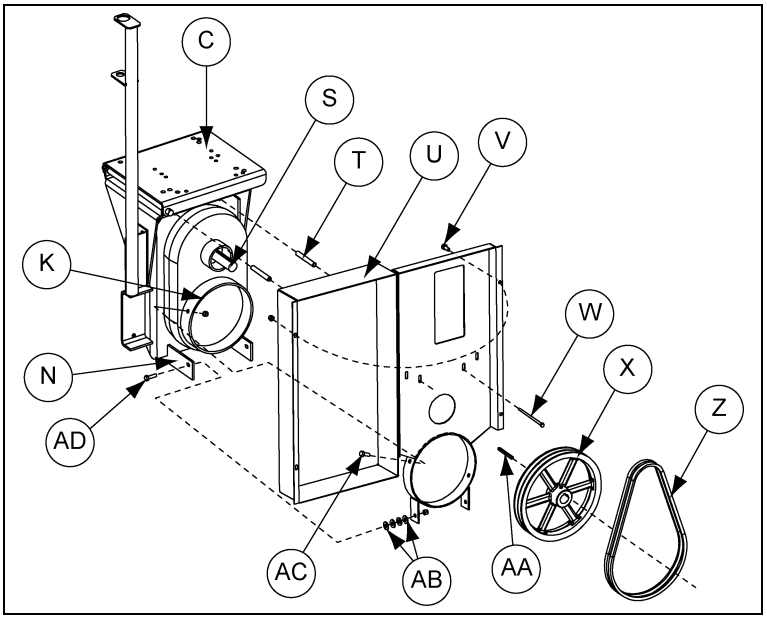


Figure 4C

Ref #	Description	Ref #	Description
C	Motor Mount Plate	W	1/4" x 5" HHCS and Nylock Nut
K	Chain Reducer Drive	X	12" O.D. Driven Pulley
N	Motor Mount Frame	Z	Drive Belt
S	Input Shaft	AA	Square Key
T	Belt Guard Spacer Tubes	AB	1/16" Flat Washers
U	Belt Guard	AC	3/8" x 1" HHCS and Nylon Lock Nuts
V	3/8" x 3/4" HHCS and Nylon Lock Nut	AD	3/8" x 1-1/4" HHCS

Chain Reducer Drive (Continued)

Motor Mount Hole Locations

Use the charts and *Figure 4D* below to determine the location of the holes where you need to install the motor.

Bin Diameter	Motor Size HP	Motor Frame Size	Bolt Diameter Required	Mount In Holes Marked (*)					
				A1	A2	A3	A4	A5	A6
36'-39'	7-1/2"	213T	3/8"	*	*	*	*		
40'-49'	10"	215T	3/8"	*	*			*	*

Bin Diameter	Motor Size HP	Motor Frame Size	Bolt Diameter Required	Mount In Holes Marked (*)										
				B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11
54'-78'	15	254T	1/2"	*	*	*	*							
80'-105'	20	256T	1/2"					*	*	*	*			
113'-120'	25	284T	1/2"		*							*	*	*

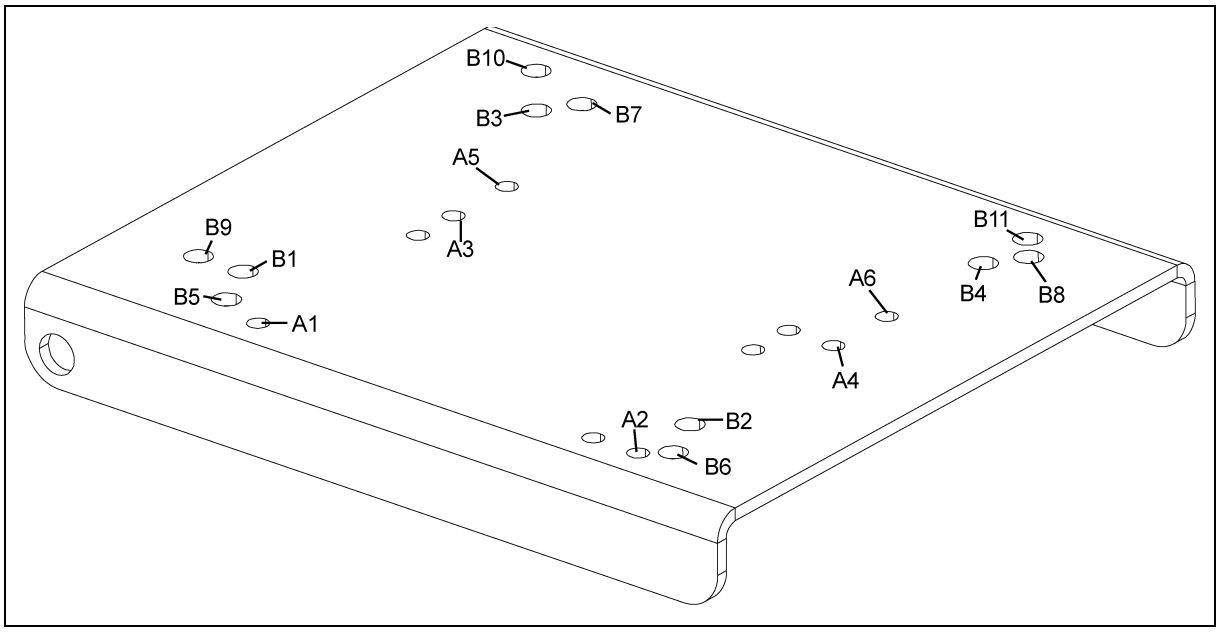


Figure 4D

Electrical Cord Support Stand

Refer to *Figure 4E*.

1. Fasten electrical cord support stand (E) to the side of the motor mount support (L) with two (2) 1/2" x 1-1/2" hex head cap screws, flat washers, and lock nuts (K).
2. Install electrical cord clamp (C) into plate (B) on support stand. Secure in place with the jam nut (D) provided with the clamp.
3. Route the electrical cord (F) from the electrical junction box (H) through the electrical cord clamp (C) on the support stand then through the ring on the top of the support stand.
4. Leave a small loop of electrical cord between the cord clamp (G) on the support stand and the electrical junction box (H) on the outside of the motor (N). Tighten the clamp on the electrical cord clamp to secure the cord to the support stand.

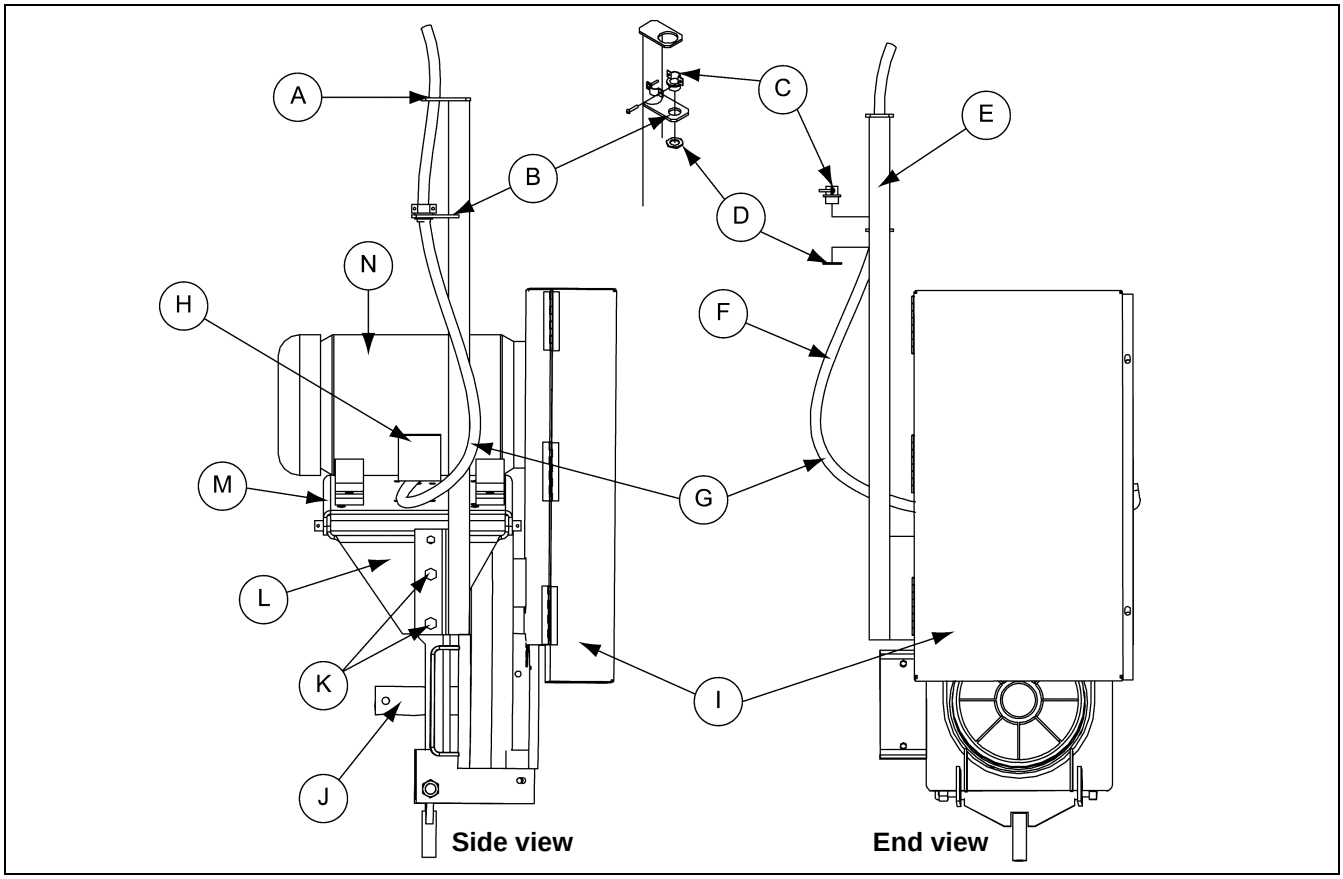


Figure 4E

Ref #	Description
A	Route Cord Through Ring on Top of Support Stand
B	Plate
C	Electrical Cord Clamp
D	Jam Nut for Cord Clamp
E	Electrical Cord Support Stand
F	Electrical Cord
G	Leave a small loop of cord between clamp and junction box.

Ref #	Description
H	Motor Junction Box
I	Belt Guard
J	Output Shaft for Connection to Flight Shaft
K	1/2" x 1-1/2" HHCS, Flat Washers and Lock Nuts
L	Motor Mount Support
M	Motor Mount Plate
N	Motor

Flight and Shield Assembly

A Commercial Bin Sweep can be made up of several sections of flighting and back shields. The quantity and lengths of the sweep flight and back shield sections will vary depending on the bin size. Use the *Chart below* for the number and length of sections for the size of bin.

The sweep flight with a cut back must connect to the drive assembly. The remaining sections should be assembled in the order shown in the *Chart below*. The section furthest from the drive has mounting holes for the sweep tractor.

The assembly instructions in this section cover assembling the complete Commercial Sweep. Refer to *Pages 40-43* and read where use of only a part of the sweep auger may be recommended when starting to sweep unload a bin, particularly a large bin. You may choose to only assemble one or two (2) sections of sweep flight, back shields and bearing stands for initial sweep unloading. Remember, any number of sweep sections can be used together up to a maximum of six (6). If a sweep auger with four (4) or more sections was selected, a truss assembly is included. The truss should be used when four (4) or more sections are assembled together. Refer to *Page 24* for truss assembly instructions. If the truss assembly you have is for a greater number of sweep auger sections than you are assembling, be sure to tie off the extra cable length so it does not become entangled in the sweep auger.

Sweep Flight and Back Shield Sections

12" Catalog Number	Bin Diameter	1st Section with Cutback Attached Drive Unit	2nd Section from Drive Unit	3rd Section from Drive Unit	4th Section from Drive Unit	5th Section from Drive Unit	6th Section from Drive Unit
GCS14360	24'	9' - 9-3/4"	6' - 7-1/2"				
GCS14370	37'	9' - 9-3/4"	7' - 1-1/2"				
GCS14400	40'	9' - 9-3/4"	8' - 7-1/2"				
GCS14420	42'	9' - 9-3/4"	9' - 3-1/2"				
GCS14430	43'	9' - 9-3/4"	9' - 9-3/4"				
GCS14480	48'	9' - 9-3/4"	7' - 1-1/2"	5'- 3-1/2"			
GCS14490	49'	9' - 9-3/4"	8'-10"	3' - 9-1/2"			
GCS14540	54'	9' - 9-3/4"	8'-10"	6' - 7-1/2"			
GCS14550	55'	9' - 9-3/4"	8'-10"	7' - 1-1/2"			
GCS14590	59'	9' - 9-3/4"	9' - 3-1/2"	8' - 7-1/2"			
GCS14600	60'	9' - 9-3/4"	9' - 9-3/4"	8' - 7-1/2"			
GCS14620	62'	9' - 9-3/4"	9' - 3-1/2"	9'- 3-1/2"			
GCS14680	68'	9' - 9-3/4"	6' - 7-1/2"	8'-10"	6' - 7-1/2"		
GCS14720	72'	9' - 9-3/4"	7' - 1-1/2"	9' - 9-3/4"	7' - 1-1/2"		
GCS14750	75'	9' - 9-3/4"	7' - 1-1/2"	9' - 3-1/2"	9' - 3-1/2"		
GCS14780	78'	9' - 9-3/4"	9' - 3-1/2"	9' - 3-1/2"	8' - 7-1/2"		
GCS14800	80'	9' - 9-3/4"	9' - 9-3/4"	9' - 9-3/4"	8' - 7-1/2"		
GCS14880	88'	9' - 9-3/4"	6' - 7-1/2"	8'-10"	6' - 7-1/2"	9' - 9-3/4"	
GCS14900	90'	9' - 9-3/4"	3' - 9-1/2"	9' - 9-3/4"	9' - 3-1/2"	9' - 9-3/4"	
GCS14920	92'	9' - 9-3/4"	7' - 1-1/2"	8'-10"	8'-10"	8'-10"	
GCS14105	105'	9' - 9-3/4"	5' - 3-1/2"	9' - 9-3/4"	9' - 9-3/4"	9' - 9-3/4"	5' - 3-1/2"
GCS14113	113'	9' - 9-3/4"	8'-10"	9' - 9-3/4"	8'-10"	9' - 9-3/4"	6' - 7-1/2"
GCS14120	120'	9' - 9-3/4"	9' - 3-1/2"	9' - 9-3/4"	9' - 9-3/4"	9' - 9-3/4"	8' - 7-1/2"

Flight and Shield Assembly (Continued)

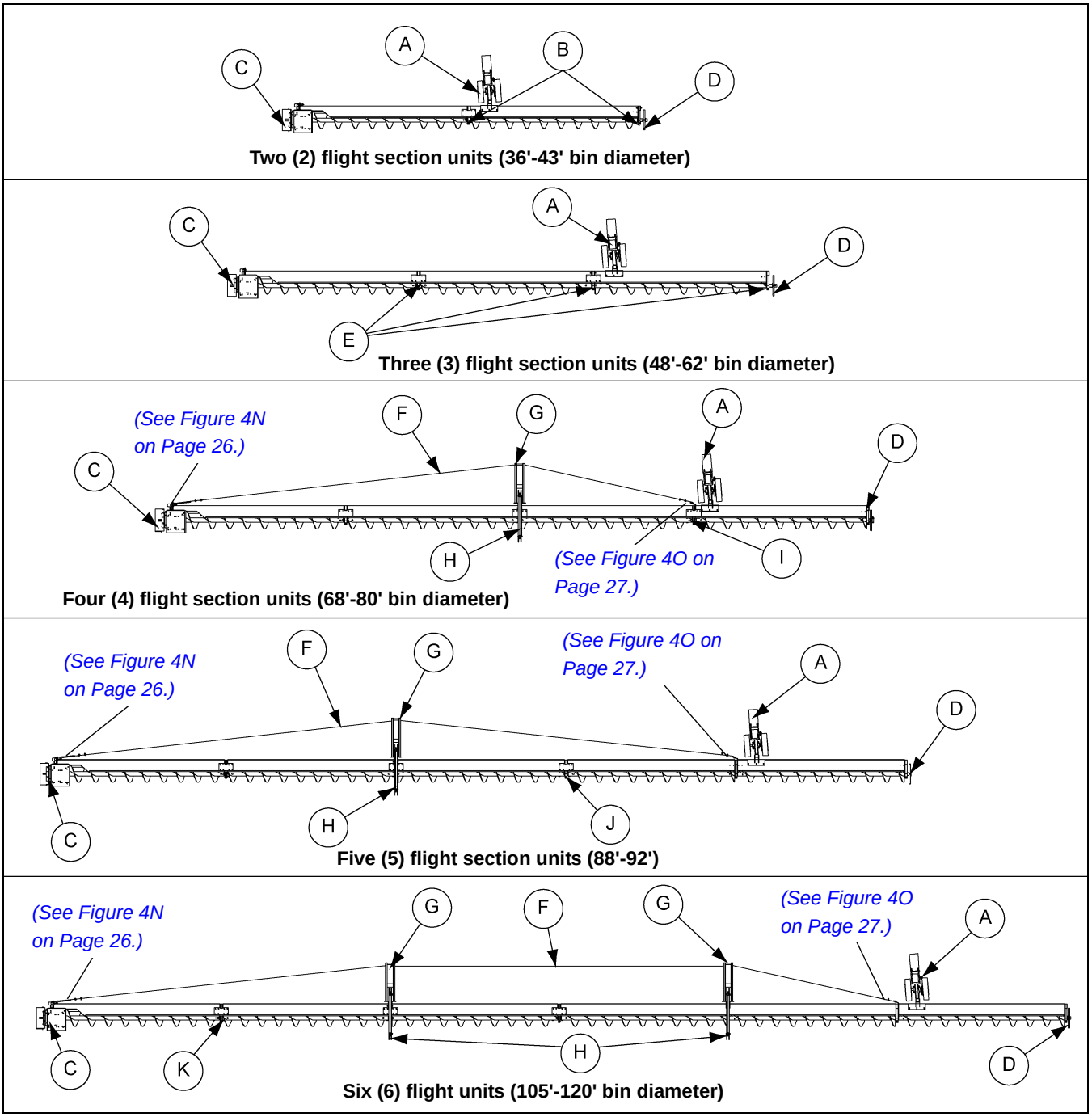


Figure 4F *Sweep Flight Back Shield Layouts*

Ref #	Description
A	Sweep Tractor
B	Bearing Stand (Two (2) Places)
C	Drive Unit and Pivot Point
D	Sweep End Wheel
E	Bearing Stand (Three (3) Places)
F	Truss Cable

Ref #	Description
G	Truss Stand
H	Sweep Carrier
I	Bearing Stand (Four (4) Places)
J	Bearing Stand (Five (5) Places)
K	Bearing Stand (Six (6) Places)

Flight and Shield Assembly (Continued)

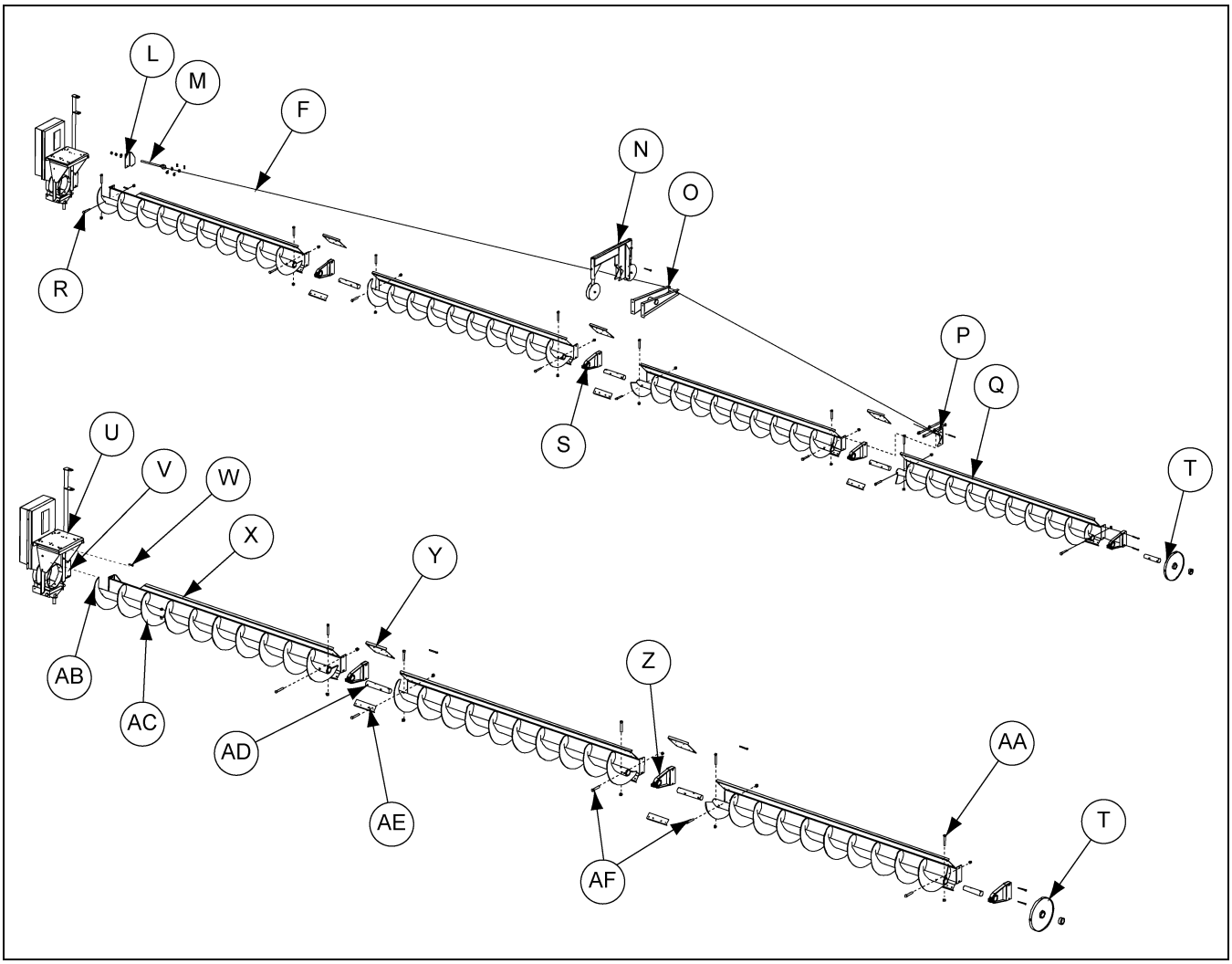


Figure 4G

Ref #	Description
F	Truss Cable
L	Truss Cable Take-Up Bracket
M	Eye Bolt
N	Sweep Carrier Assembly (Two (2) used on 105'-120' diameter bins.)
O	Truss Stand (Two (2) used on 105'- 20' diameter bins.)
P	Truss Cable Mounting Bracket
Q	Sweep Back Shield with Tractor Mounting Holes
R	3/8" x 1-1/2" Long HHCS with Flat Washer, Lock Washer and Nut
S	Bearing Stand
T	End Wheel
U	Drive Unit (Shown without Reducer Drive)

Ref #	Description
V	Shield Mount Plate
W	3/8" x 1-1/4" HHCS with Flat Washer, Lock Washer and Nut
X	Sweep Back Shield with Cut Out
Y	Large Shield Splice Plate
Z	Bearing Stand Assembly
AA	5/8" x 4" HHCS with Lock Nut
AB	Connect to Reducer Output Shaft
AC	Sweep Flight with Cutback
AD	Weld-In Connecting Stub
AE	Small Shield Splice Plate
AF	5/8" x 4" HHCS with Lock Nut

Flight and Shield Assembly (Continued)

Connecting Flight and Shield Sections

1. Bolt the sweep flight with the cutback (D) to the reducer output shaft of the drive assembly. Use two (2) 5/8" x 4" long hex head cap screws and nylon lock nuts. *(See Figure 4H.)*
2. Attach the sweep back shield with cut out (C) to the shield mount plate (A) on the drive assembly. Use two (2) 3/8" x 1-1/4" long hex head cap screws, flat washers, lock washers and nuts (B). *(See Figure 4H.)*
3. Bolt the bearing holders (K) to the inside of the bearing stands (L). Use a 7/16" x 1-1/2" long hex head cap screw and nylon lock nut to secure the bearing holder (K) to the bearing stand (L). *(See Figure 4I on Page 21.)*
4. Place the bearing stand (L) between the first sweep back shield section and the next section to be used. Bolt the sweep back shield sections to the bearing stand (L) by using two (2) 3/8" x 3" long hex head cap screw (N), two (2) flat washers, two (2) lock washers and two (2) nuts. *(See Figure 4I on Page 21.)*

NOTE: *On larger units that use four (4) or more sections of flight (68' to 120' diameter bins) a cable truss is provided for the sweep back shields. On these units the truss cable take-up bracket must be attached to the back shield mounting bracket with the same bolts that hold the sweep back shield. The mounting bracket will be sandwiched between the cable bracket and the back shield. (See Figure 4N on Page 26.) Use two (2) 3/8" x 1-1/2" long hex head cap screws, flat washers, lock washers and nuts to fasten the take-up bracket and sweep back shield to the shield mount plate.*

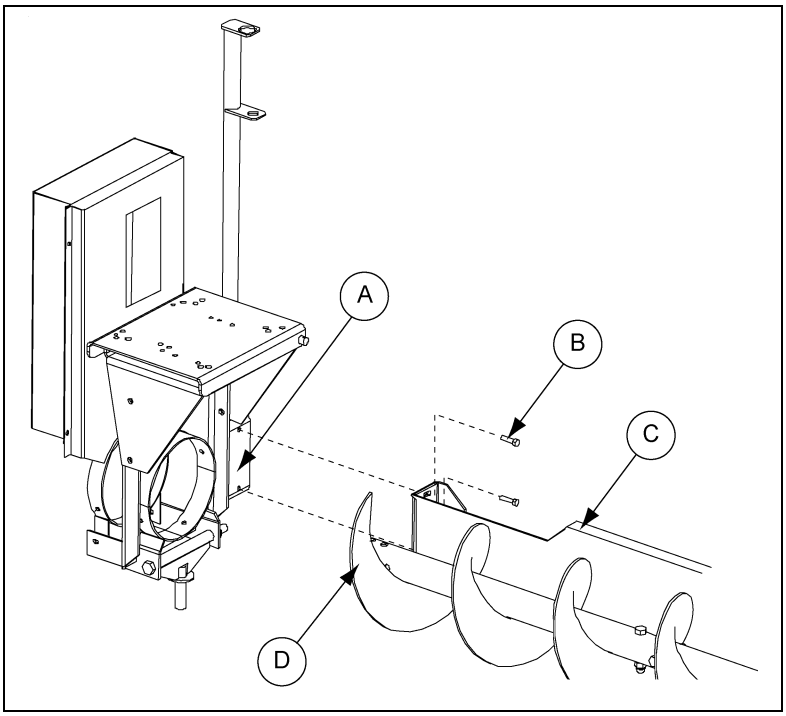


Figure 4H

Ref #	Description
A	Shield Mount Plate
B	3/8" x 1-1/4" HHCS, Flat Washers, Lock Washers and Nuts
C	Sweep Back Shield with Cut Out
D	Sweep Flight with Cutback

Flight and Shield Assembly (Continued)

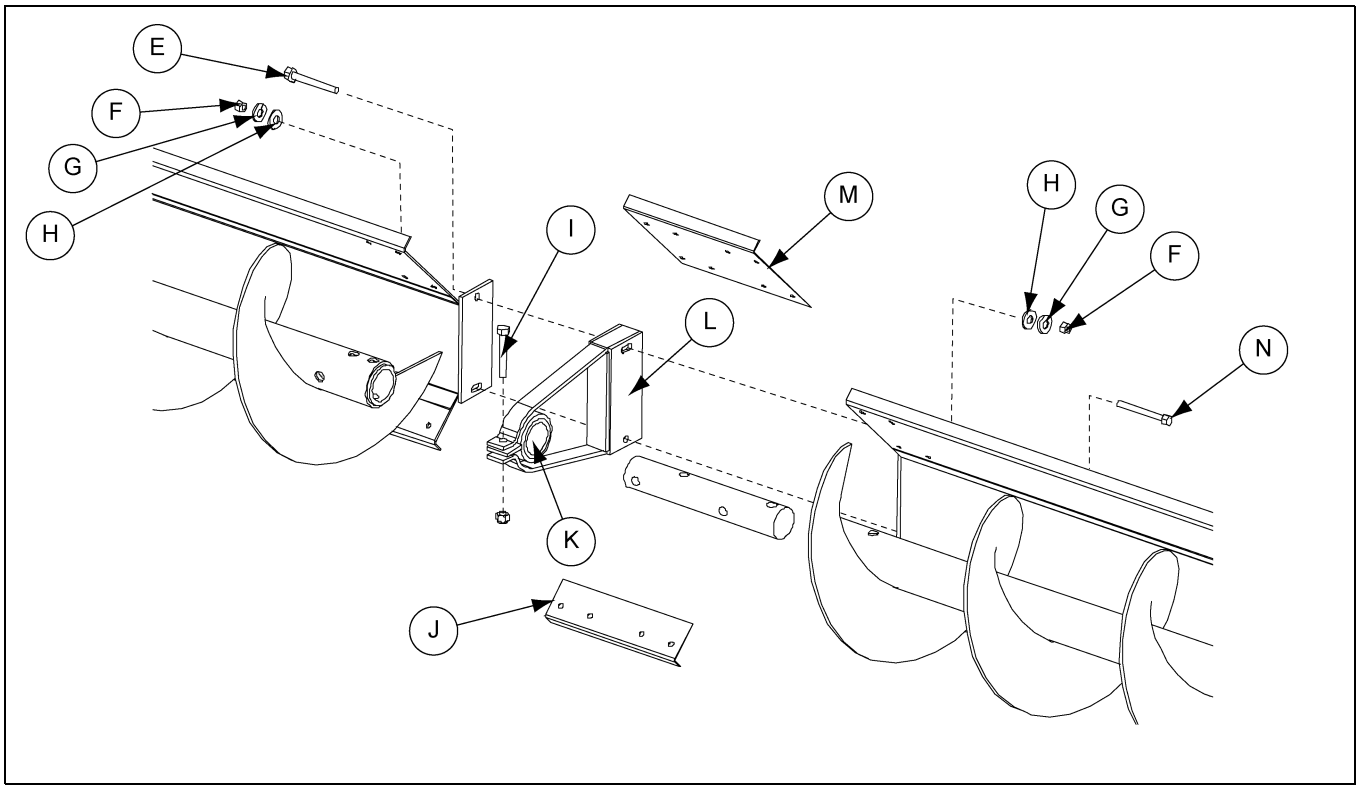


Figure 4I *Bearing Stand Assembly*

Ref #	Description
E	3/8" x 3" Carriage Bolt
F	Hex Nut
G	Lock Washer
H	Flat Washer
I	7/16" x 1-1/2" Hex Head Cap Screw with Lock Nut
J	Lower Back Shield Splice Plate
K	Bearing Holder
L	Bearing Stand
M	Upper Back Shield Splice Plate
N	3/8" x 3" HHCS

Flight and Shield Assembly (Continued)

5. Attach sweep back shield splice plates (J and M) to back side of the sweep back shield.
   Use eight (8) 5/16" x 3/4" hex head cap screw and nylon lock nuts for each upper splice plate.
   Use four (4) 5/16" x 3/4" long hex head cap screws and nylon lock nuts for each lower splice plate.
   (See Figure 4J below and *Figure 4K on Page 23.)*

6. Slide the flight connecting stub (V) through the bronze bearing (R) and into the next flight section.
   Connect the flight sections together using two (2) 5/8" x 4" hex head cap screws and nylon lock nuts.
   (See Figure 4K and *Figure 4L on Page 23.)*

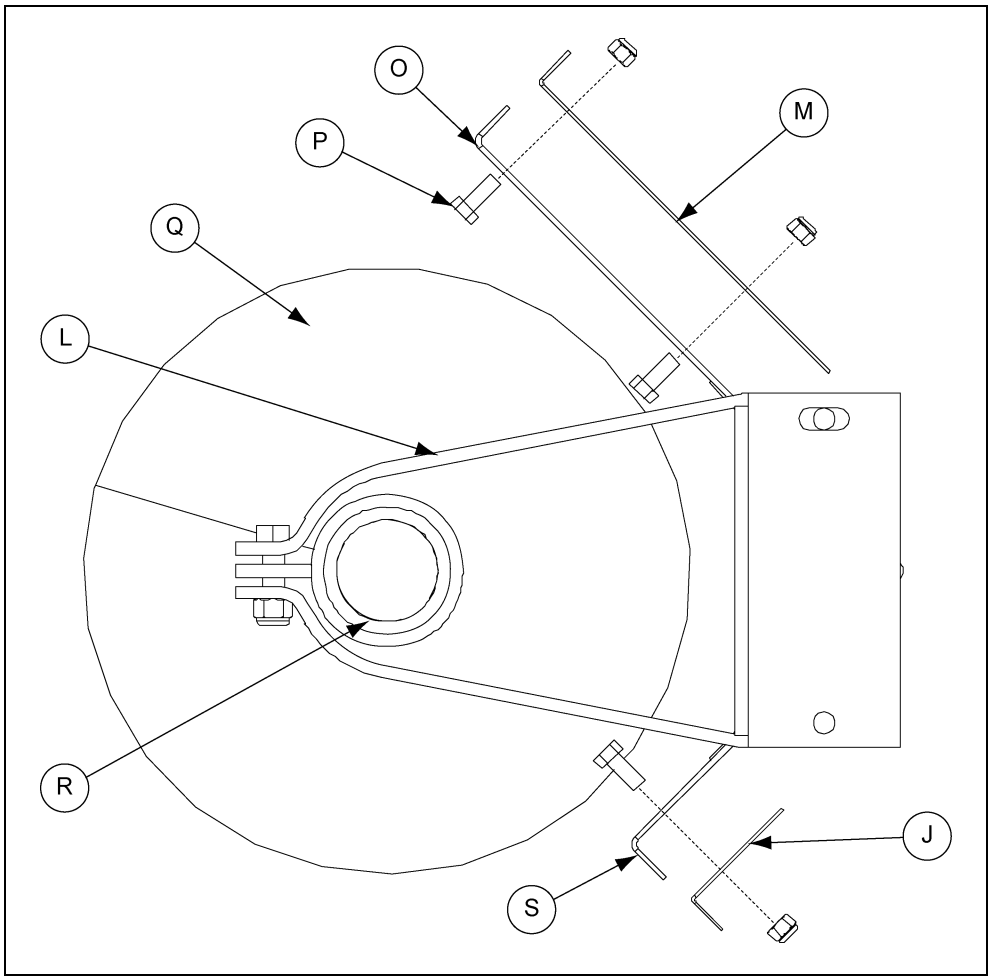


Figure 4J *Splice Plate Side View*

Ref #	Description	Ref #	Description
J	Lower Back Shield Splice Plate	P	5/16" x 3/4" HHCS and Lock Nuts
L	Bearing Stand	Q	Sweep Flight
M	Upper Back Shield Splice Plate	R	Bronze Bearing
O	Upper Portion of Sweep Back Shield	S	Lower Portion of Sweep Back Shield

NOTE: *The sweep flights are indexed to achieve "timed" connections. (A "timed" connection is where the flight pitch does not change across the connection.) When bolting timed flight sections together at the bearing stand, position the flight ends so they are open 90° to 180° to one another.*

Flight and Shield Assembly (Continued)

7. Repeat *Step 3 on Page 20* to *Step 6 on Pages 22* for the other add-on sweep back shield and flight sections.
(**NOTE:** *Units that use four (4) or more sections of flight include a sweep carrier assembly that is used in conjunction with a truss stand. (See Figure 4F on Page 18 for locations.*)) A cable truss is also provided for the sweep back shields on these units. The truss stand will fasten to the sweep carrier assemblies. Fasten the truss stand to the sweep carrier with 3/8" x 1" long hex head cap screws. *(See Figure 4M on Page 24.)* Use 3/8" x 3-1/2" hex head cap screws to connect the sweep carrier, sweep back shield and bearing stand together.

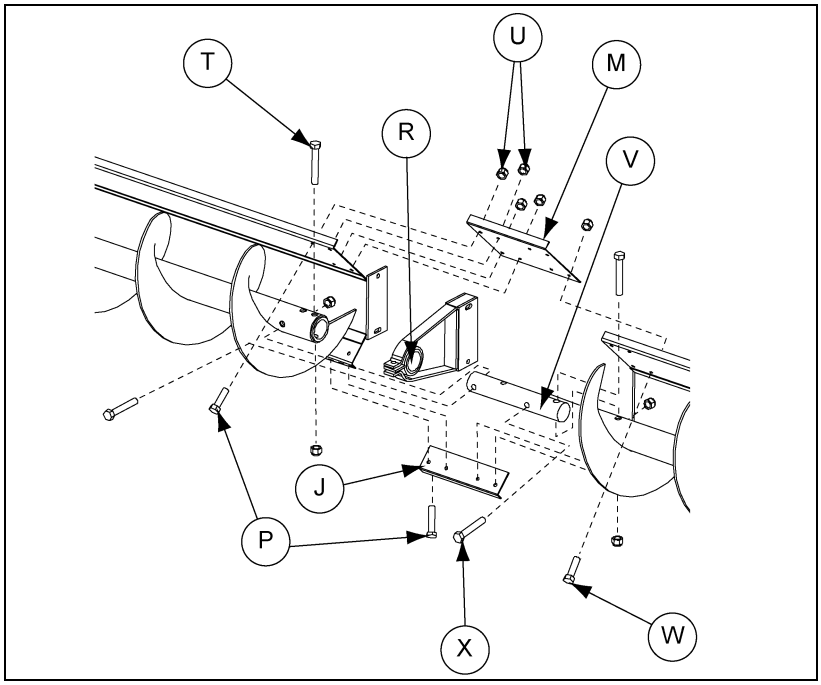


Figure 4K *Splice Plate Angled View*

Ref #	Description
J	Lower Back Shield Splice Plate
M	Upper Back Shield Splice Plate
P	5/16" x 3/4" HHCS with Lock Nut
R	Bronze Bearing
T	5/8" x 4" HHCS with Lock Nut

Ref #	Description
U	5/16" Lock Nuts
V	Connecting Stub
W	5/16" x 3/4" HHCS
X	5/8" x 4" HHCS with Lock Nut

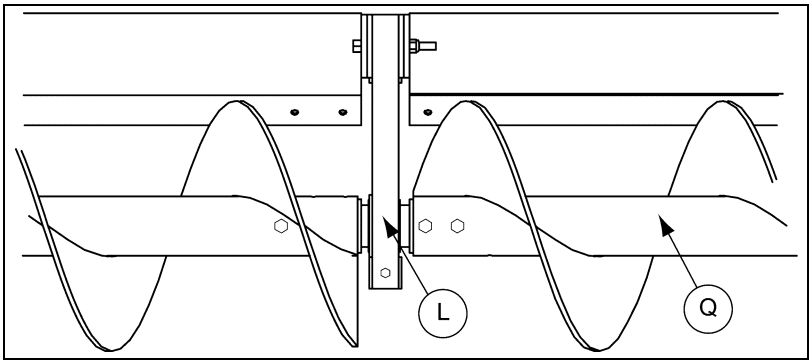


Figure 4L

Ref #	Description
L	Bearing Stand

Ref #	Description
Q	Sweep Flight

Sweep Carrier Wheel and Truss Stand Assembly

Carrier Wheel Assembly

(For bins with four (4) or more sections.) (Refer to *Figure 4M on Page 24.*)

1. Place sweep carrier wheel assembly (C) over bearing stand (J).
2. Connect carrier wheel (C) and bearing stand (J) to sweep back shields (A) using a 3/8" x 3-1/2" carriage bolt with flat washer, lock washer and lock nut and a 3/8" x 3-1/2" HHCS with lock nut (G).
3. Slide connecting stub (I) through bearing stand (J) and connect to flighting (H) using four (4) 5/8" x 4" HHCS with lock nuts (B).

Truss Stand

1. Attach truss stand (D) to sweep wheel carrier assembly (C) using four (4) 3/8" x 3-1/2" HHCS with lock nuts (G).

   NOTE: *To use a single section of auger flighting with back shield (or just few sections) for gradual unloading, install the sweep wheel at the end of the last section used.*
   On units that use four (4) or more sections of flight, a cable is provided for the sweep back shields. A truss cable anchor will be attached to the bearing stand and shield joint of the last section. (See Figure 4N on Page 26.) Use the same 3/8" bolts to connect the sweep back shield, bracket, and truss cable anchor together.

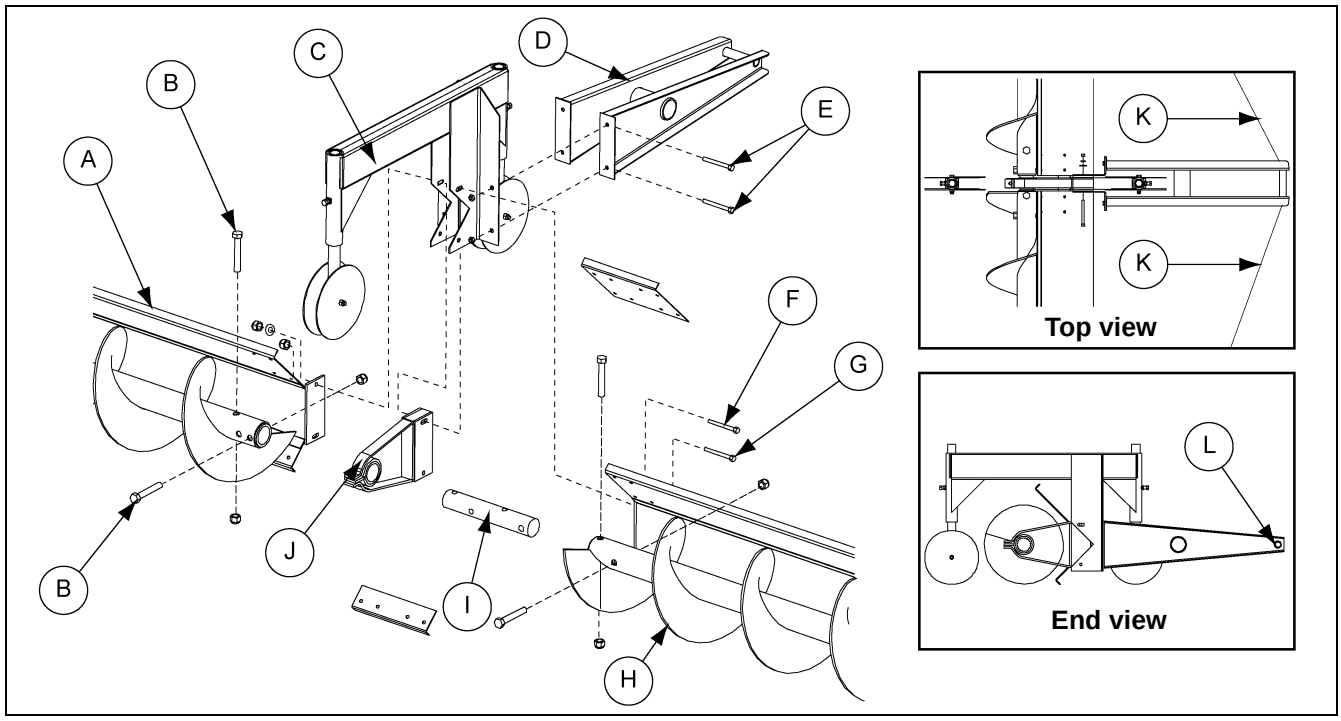


Figure 4M *Sweep Carrier Wheel and Truss Stand Detail*

Ref #	Description
A	Sweep Back Shield
B	5/8" x 4" HHCS with Lock Nut
C	Sweep Carrier Wheel Assembly
D	Truss Stand
E	3/8" x 1" HHCS with Lock Nut
F	3/8" x 3-1/2" Carriage Bolt with Flat Washer and Lock Nut

Ref #	Description
G	3/8" x 3-1/2" HHCS with Lock Nut
H	Flighting
I	Connecting Stub
J	Bearing Stand
K	Cable
L	Cable goes through this tube on truss stand.

Sweep Flight Back Shield Assembly

Truss Cable Assembly

(For units without cable truss, go to *Page 26*.)

1. Install eye bolt (F) through anchor on cable take-up bracket (D), using flat washer and two (2) 5/8" hex nuts. *(See Figure 4N on Page 26.)*
2. Install the cable anchor (Q) to the outside of the back shield using the existing hardware provided for the shield. *(See Figure 4O on Page 27.)*
3. Attach truss cable (H) to cable anchor (Q) using two (2) cable clamps (M). *(See Figure 4O on Page 27.)*
4. Route the truss cable (H) through the small tube at the end of the truss stand(s). *(See Figure 4M on Page 24.)*

Secure the clamp U-bolts against the loose end of the cable. *(See Figure 4N on Page 26.)*

5. Attach truss cable (H) to eye bolt (F) using two (2) cable clamps (M). *(See Figure 4N on Page 26.)*
6. Using the eye bolt (F), tighten the truss cable (H) until it is reasonably snug.

Sweep Flight Back Shield Assembly (Continued)

Inspect "DANGER" decal on back shield. If decal cannot be easily read or is missing, order a new one immediately from your dealer or the manufacturer.

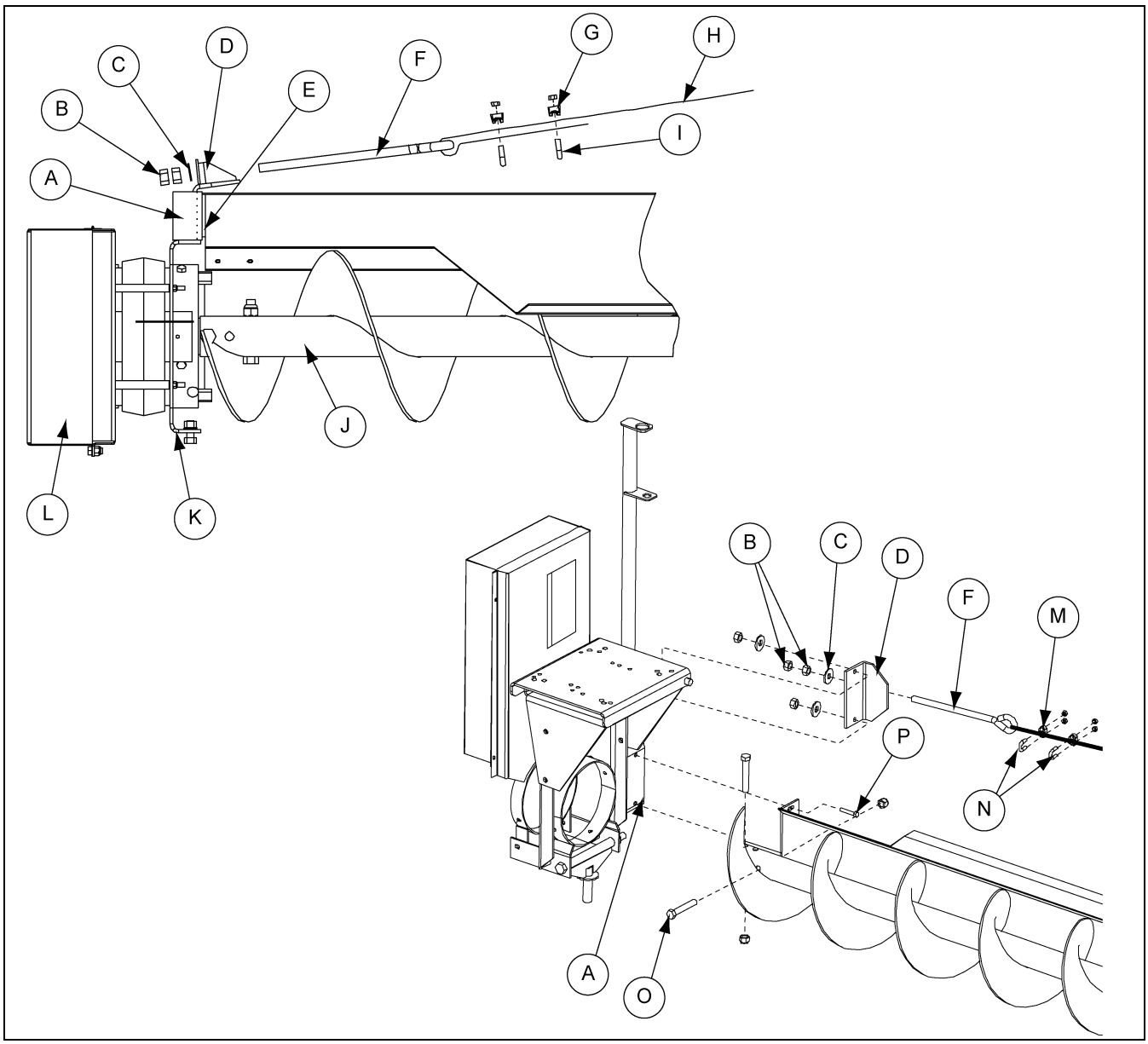


Figure 4N *Truss Cable Take-Up Detail (As viewed from the top.)*

Ref #	Description
A	Shield Mount Plate
B	5/8" Non-Lock Nuts
C	Flat Washer
D	Cable Take-Up Bracket
E	Sweep Back Shield End Plate
F	Eye Bolt
G	Saddle Portion of Cable Clamp
H	Truss Cable

Ref #	Description
I	U-Bolt Portion of Cable Clamp
J	Flighting with Cutback
K	Reducer Mount Plate
L	Drive Unit
M	Cable Clamps
N	U-Bolts
O	5/8" x 4" HHCS with Lock Nut
P	3/8" x 1-1/2" HHCS with Flat Washer and Lock Nut

Sweep Flight Back Shield Assembly (Continued)

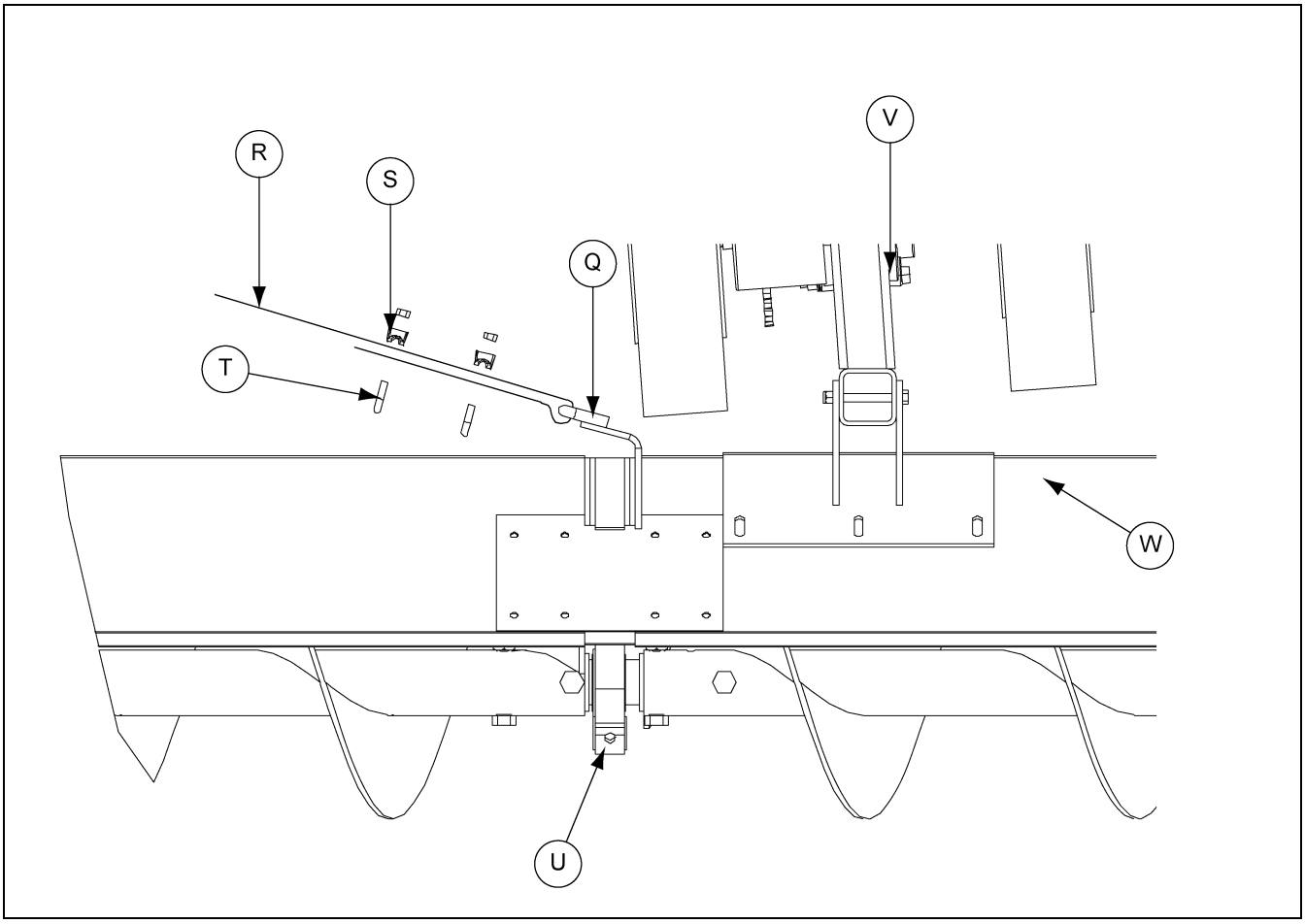


Figure 4O *Truss Cable Anchor Detail (As viewed from the top.)*

Ref #	Description
G	Saddle Portion of Cable Clamp
H	Truss Cable
I	U-Bolt Portion of Cable Clamp
Q	Cable Anchor
R	Bearing Stand
S	Sweep Tractor
T	Sweep Shield (Farthest from Drive End)

Sweep Tractor Assembly

1. Place the tractor frame (A) on plain flat ground.
2. Bolt each pillow block bearing (E) to a bearing mount bracket (D) using two (2) 1/2"-13 x 2" hex head cap screws (G), two (2) flat washers (F) and serrated flanged nuts (C).
3. Bolt each bearing mount bracket (D) to the tractor frame (A) using two (2) 1/2"-13 x 1-1/4" flange bolts (B) and serrated flanged nuts (C). *(See Figure 4P.)*

   NOTE: *Lock collar flanges for each pillow block bearing (E) must be to the inside of frame.*

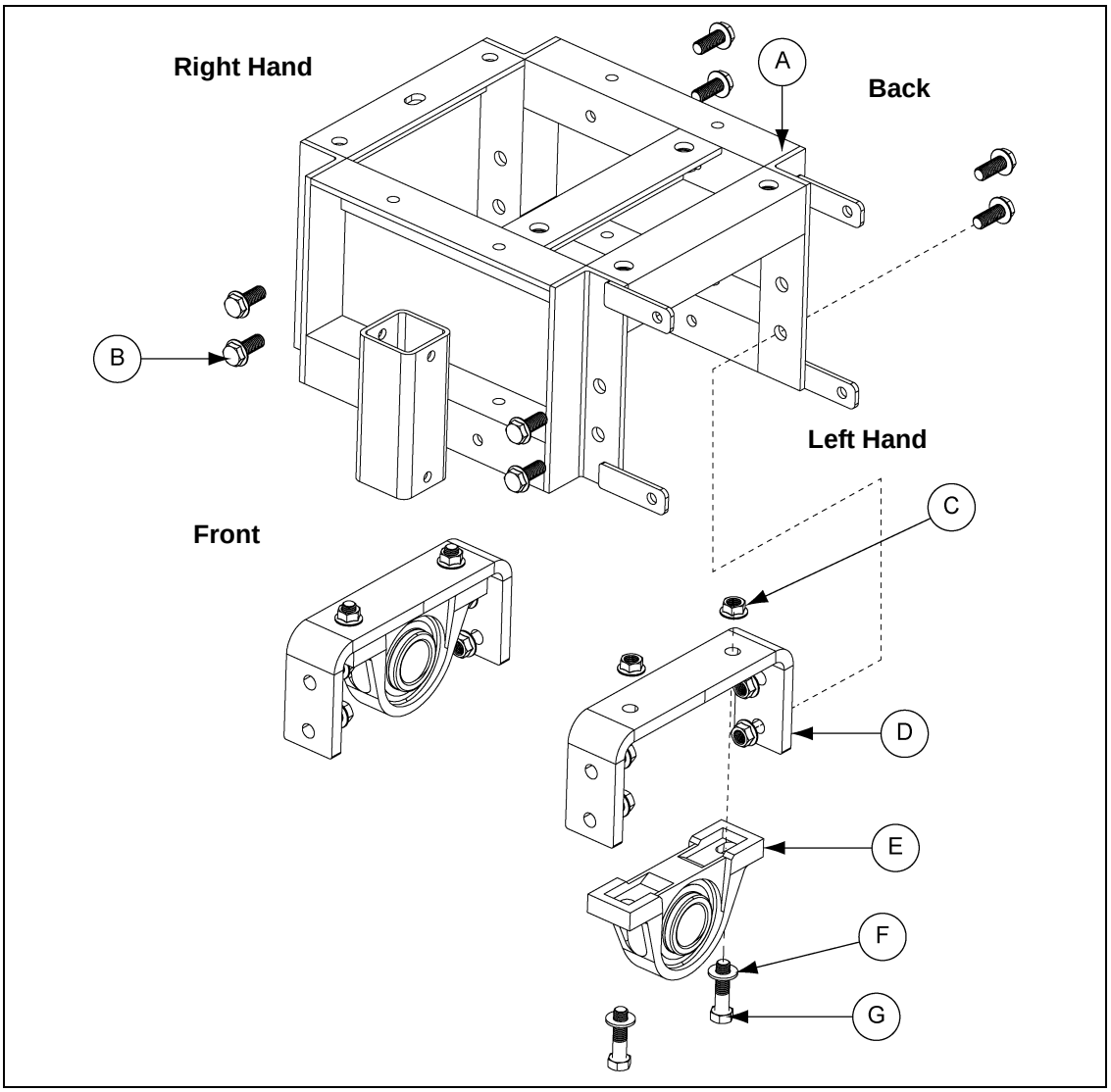


Figure 4P

Ref #	Description
A	Tractor Frame
B	1/2" x 1-1/4" Flange Bolt
C	1/2" Serrated Flange Nut
D	Bearing Mount Bracket

Ref #	Description
E	Pillow Block Bearing
F	1/2" Flat Washer
G	1/2" x 2" HHCS Bolt

Sweep Tractor Assembly (Continued)

4. Slide the tractor axle through the left side of the pillow block bearing and the lock collars so as to pass through the right side of the pillow block bearing. Make sure the keyway of the shaft is on the left hand side of the tractor.

   NOTE: *Do not tighten the pillow block bearing lock collars yet.*

5. Assemble the 40 tooth sprocket (I) to the tractor axle using a 3/8" square x 1-3/4" key (H). Temporarily tighten the sprocket to the key and the shaft. Final adjustment of the sprocket placement will occur after the chain is installed.

6. Mount the wheel hubs to the tractor axle using 3/8"-16 x 2-1/2" hex head cap screws (J) and stover lock nuts (K). *(See Figure 4Q.)*

   NOTE: *Lock collars on inside of frame.*

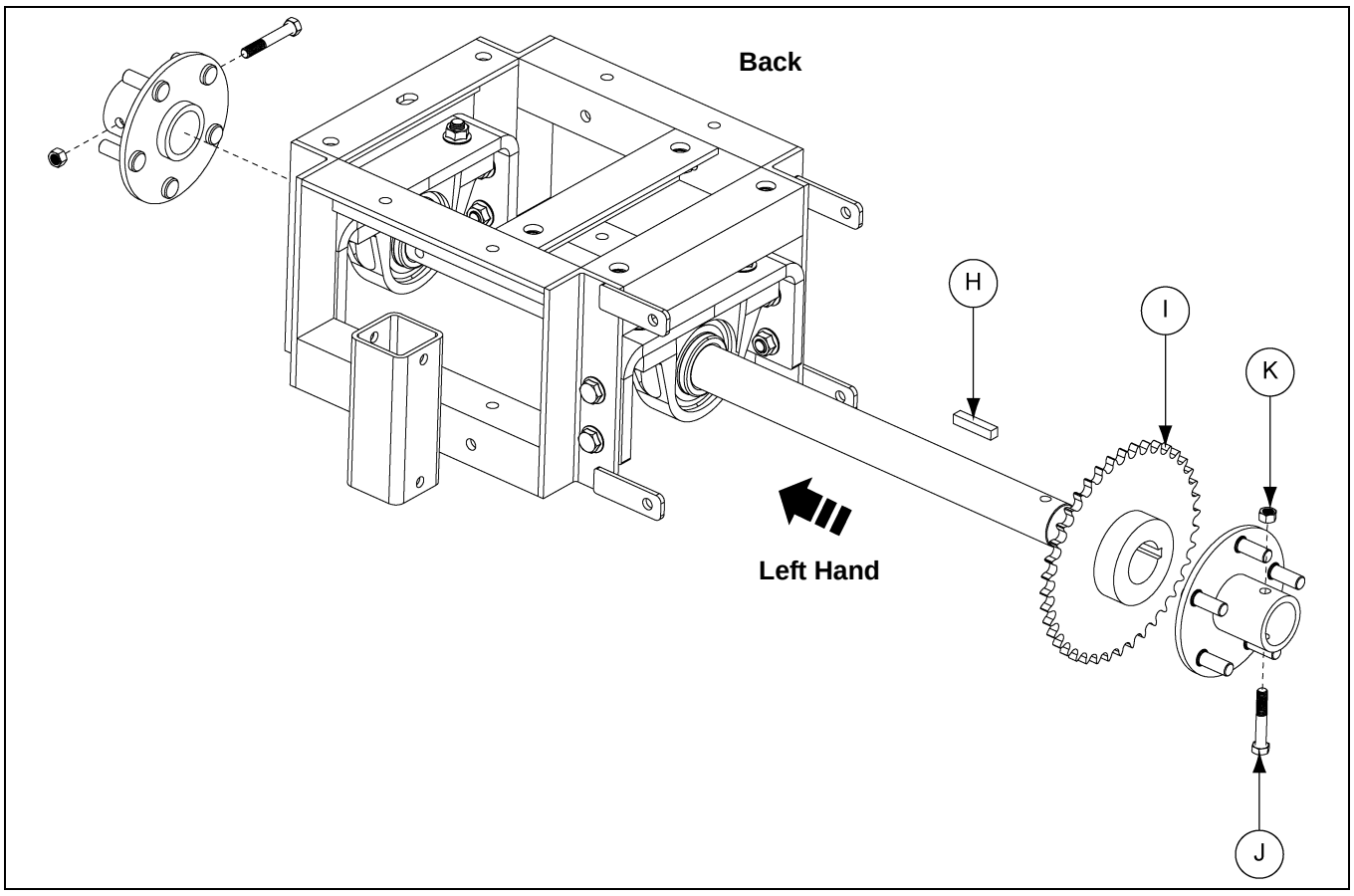


Figure 4Q

Ref #	Description
H	3/8" x 1-3/4" Square Key
I	40 Tooth Sprocket
J	3/8" x 2-1/2" HHCS Bolt
K	3/8" Stover Nut

Sweep Tractor Assembly (Continued)

7. Assemble the tire and wheel assemblies securely to the wheel hubs using five (5) 1/2" flat washers (F) and fine thread hex nut (O).

   NOTE: *Remove the screws or nails that are present in the tires to contain the foam in the tires when they are made. The treads of the tires should be in the forward direction. Figure 4R shows the proper orientation of the tire and wheel assemblies.*

8. Assemble the strut bracket (M) to the tractor frame using four (4) 3/8"-16 x 1" flange bolts (L) and serrated flange nuts (N). *(See Figure 4R.)*

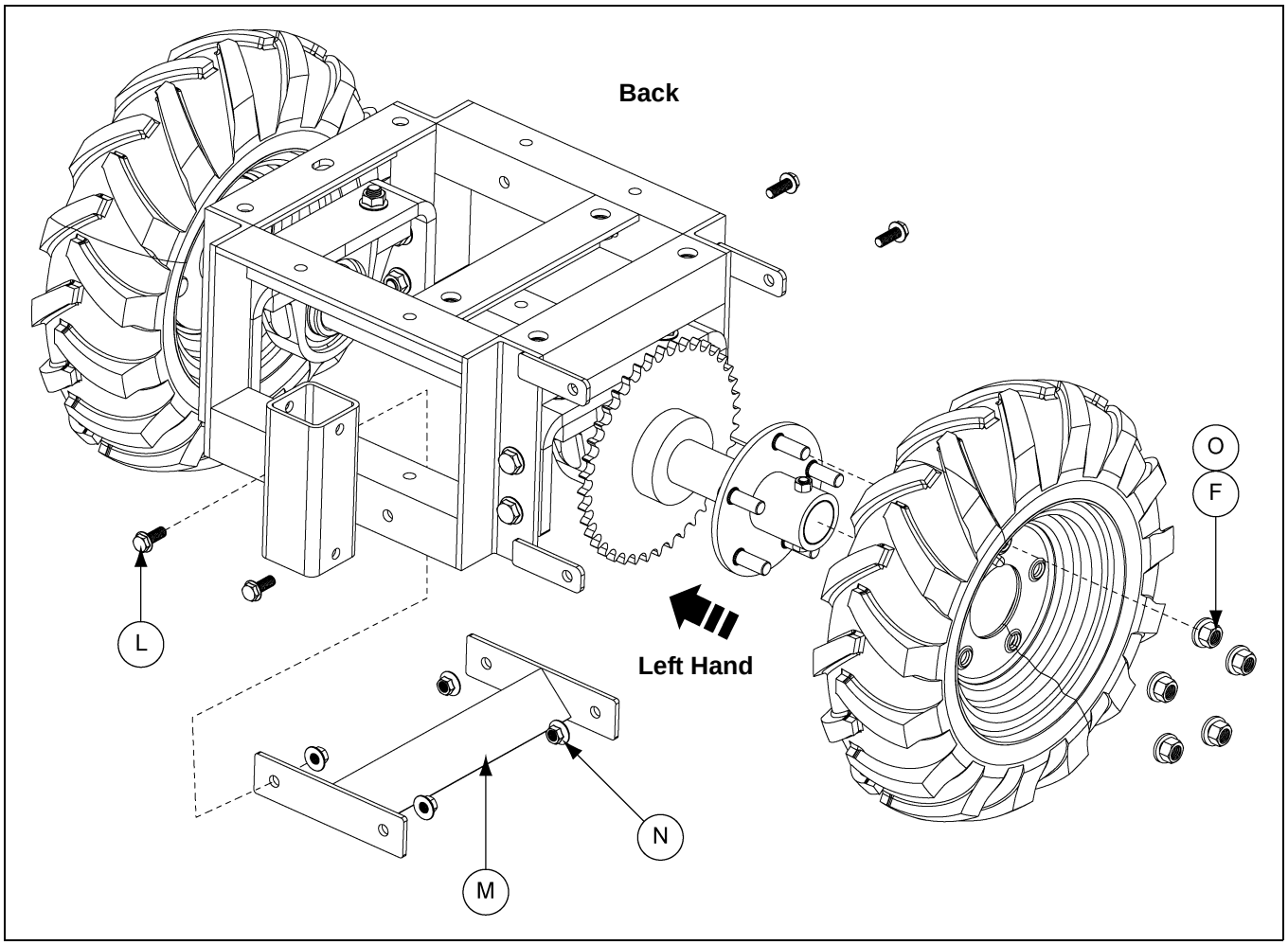


Figure 4R

Ref #	Description
F	1/2" Flat Washer
L	3/8" x 1" Flange Bolt
M	Strut Bracket
N	3/8" Serrated Flange Nut
O	1/2" Fine Thread Hex Nut

Sweep Tractor Assembly (Continued)

9. Bolt the shield bracket to the front of the tractor frame using two (2) 3/8"-16 x 3-1/2" hex head cap screws (K), two (2) flat washers (R) (only on the bottom slot of the bracket) and hex nuts (Q).
10. Attach the weight plate (P) to the tractor frame using two (2) 3/8"-16 x 1" flange bolts (L) and serrated flange nuts (N). *(See Figure 4S.)*

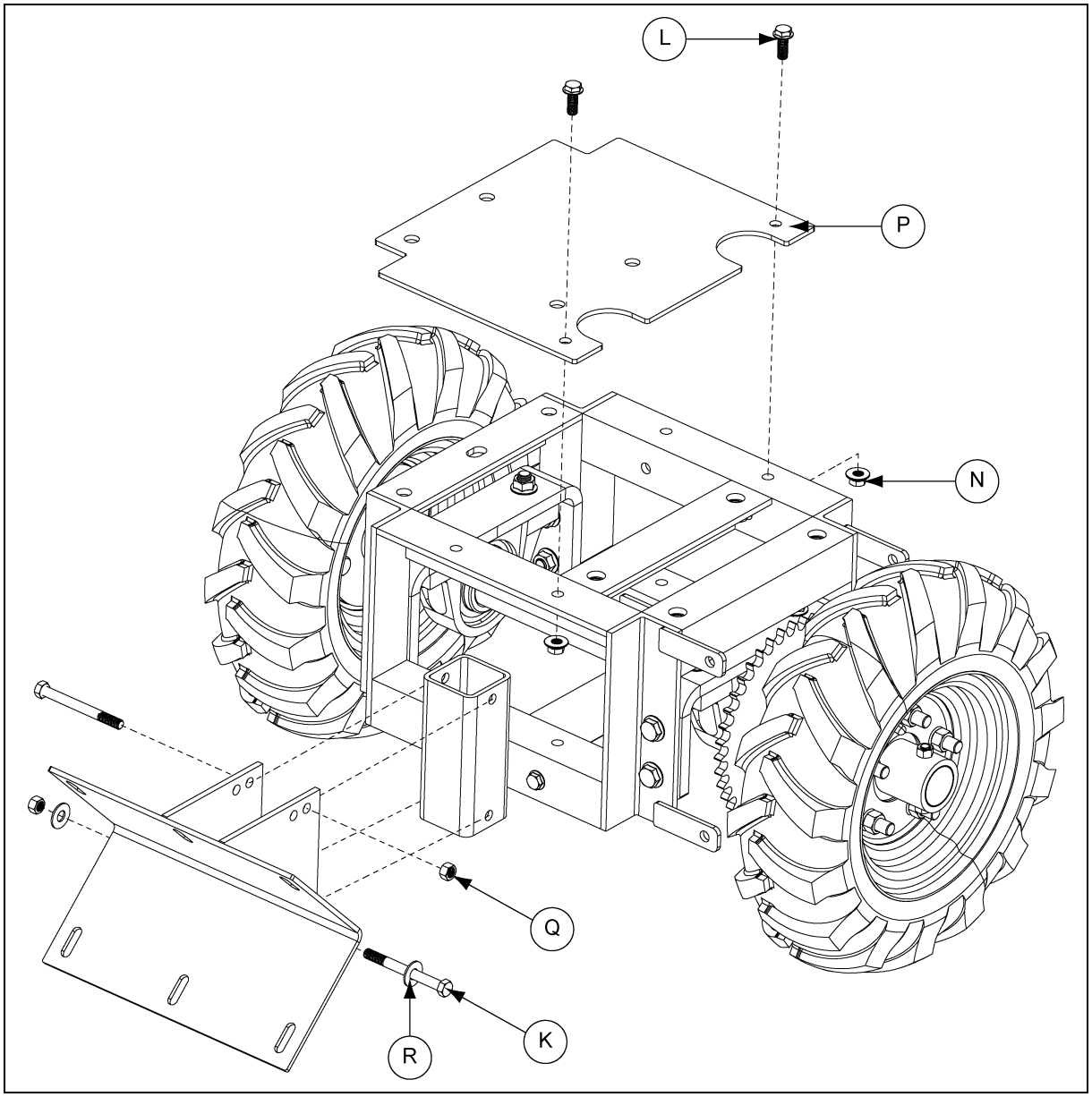


Figure 4S

Ref #	Description
K	3/8" x 3-1/2" HHCS Bolt
L	3/8" x 1" Flange Bolt
N	3/8" Serrated Flange Nut
P	Weight Plate
Q	3/8" Hex Nut
R	3/8" Flat Washer

Sweep Tractor Assembly (Continued)

11. Bolt the four (4) 5/8"-11 x 6" threaded rods (S) to the tractor frame using one 5/8"-11 hex nut (T) for each rod. *(See Figure 4T.)*

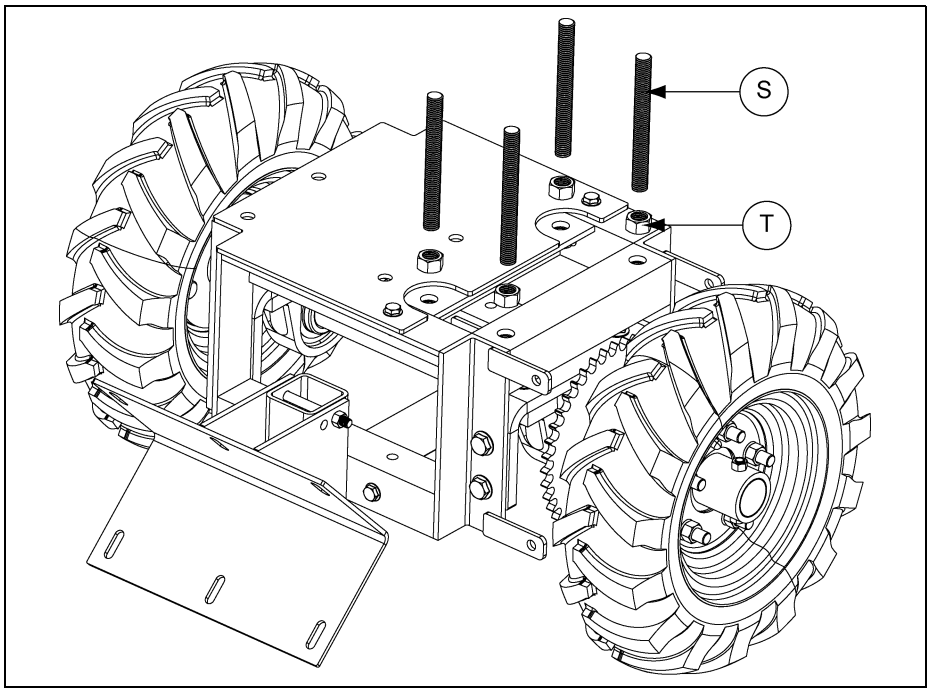


Figure 4T

12. Place one 5/8"-11 hex nut (T) onto each rod in a temporary position. These will hold the motor plate in place. *(See Figure 4U.)*

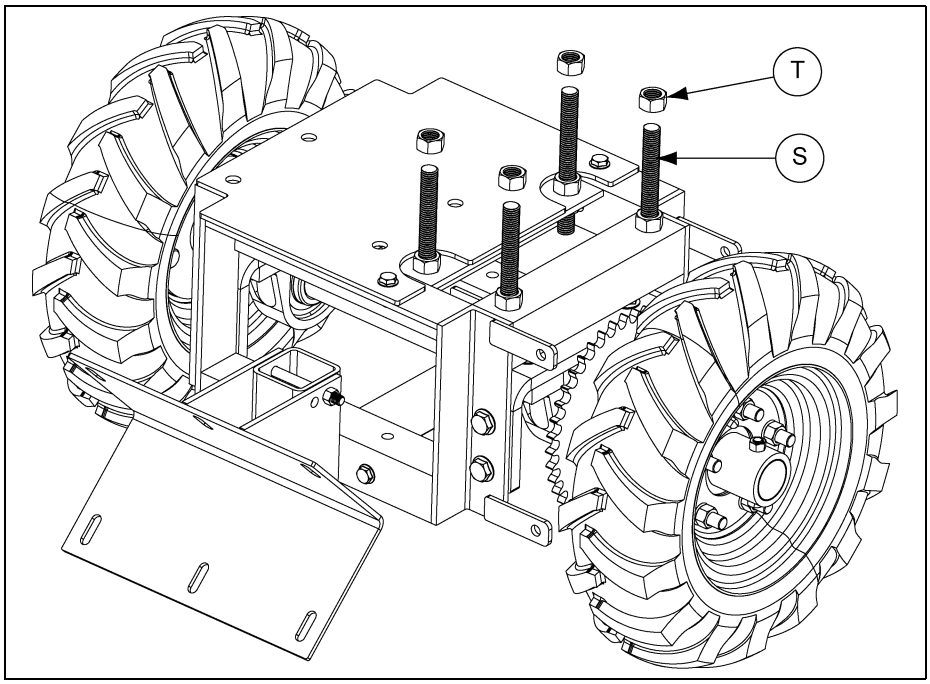


Figure 4U

Ref #	Description
S	5/8" x 6" Threaded Rod
T	5/8" Hex Nut

Sweep Tractor Assembly (Continued)

13. Mount the drive assembly to the gearbox plate using four (4) 3/8"-16 x 1" flange bolts (L). Place the gearbox plate and motor assembly (U) over the threaded rods (S), resting on the hex nuts. *(See Figure 4V.)*

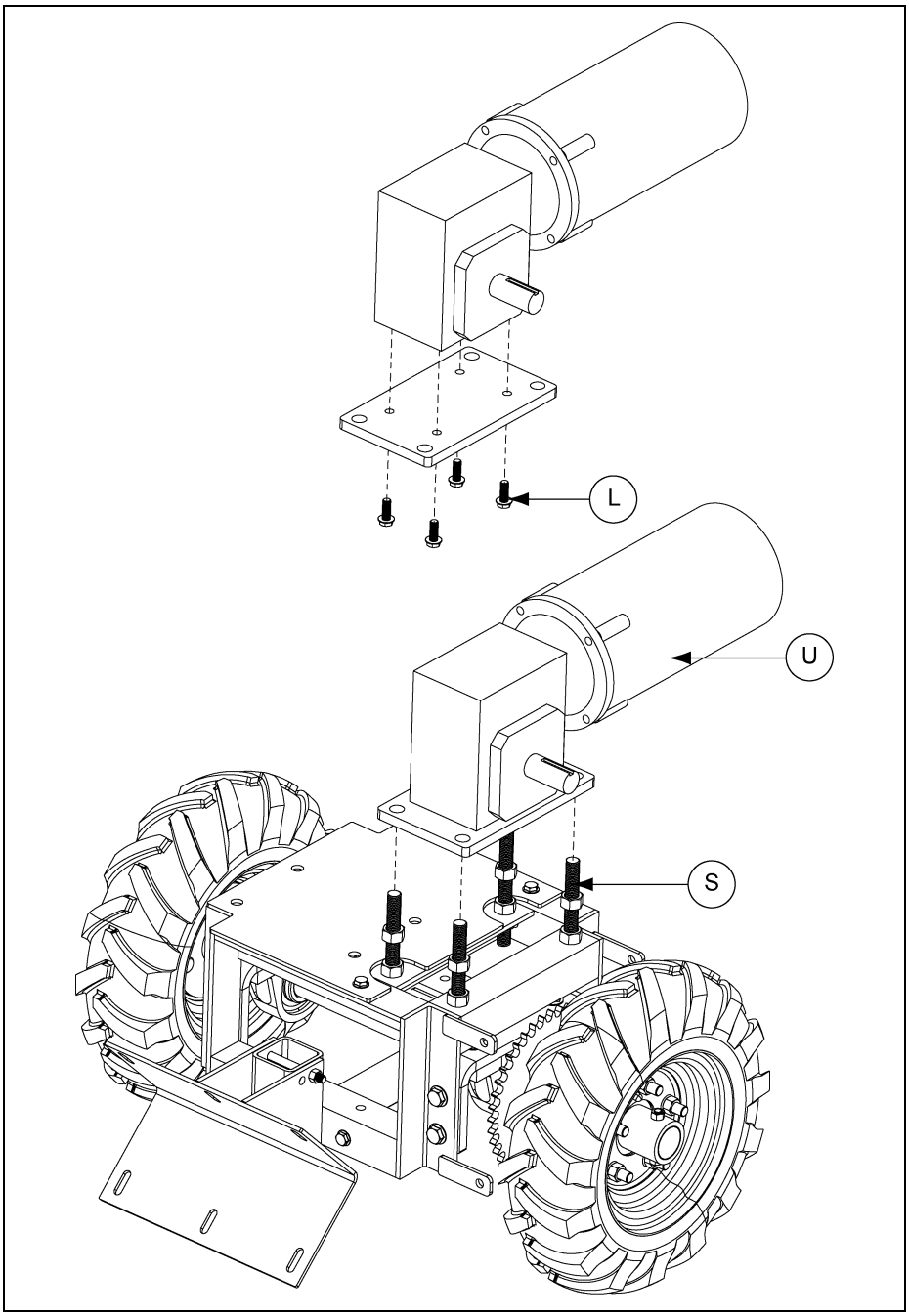


Figure 4V

Ref #	Description
L	3/8" x 1" Flange Bolt
S	5/8" x 6" Threaded Rod
U	Gear Motor Assembly

Sweep Tractor Assembly (Continued)

14. Mount the gearbox plate and motor assembly to the 5/8"-11 x 6" threaded rod installed to the tractor frame using four (4) 5/8"-11 hex nuts (T).
15. Attach the weight stand (V) to the weight plate and tractor frame with four (4) 1/2"-13 x 1-1/4" flange bolts (B) and serrated flange nuts (C). *(See Figure 4W.)*

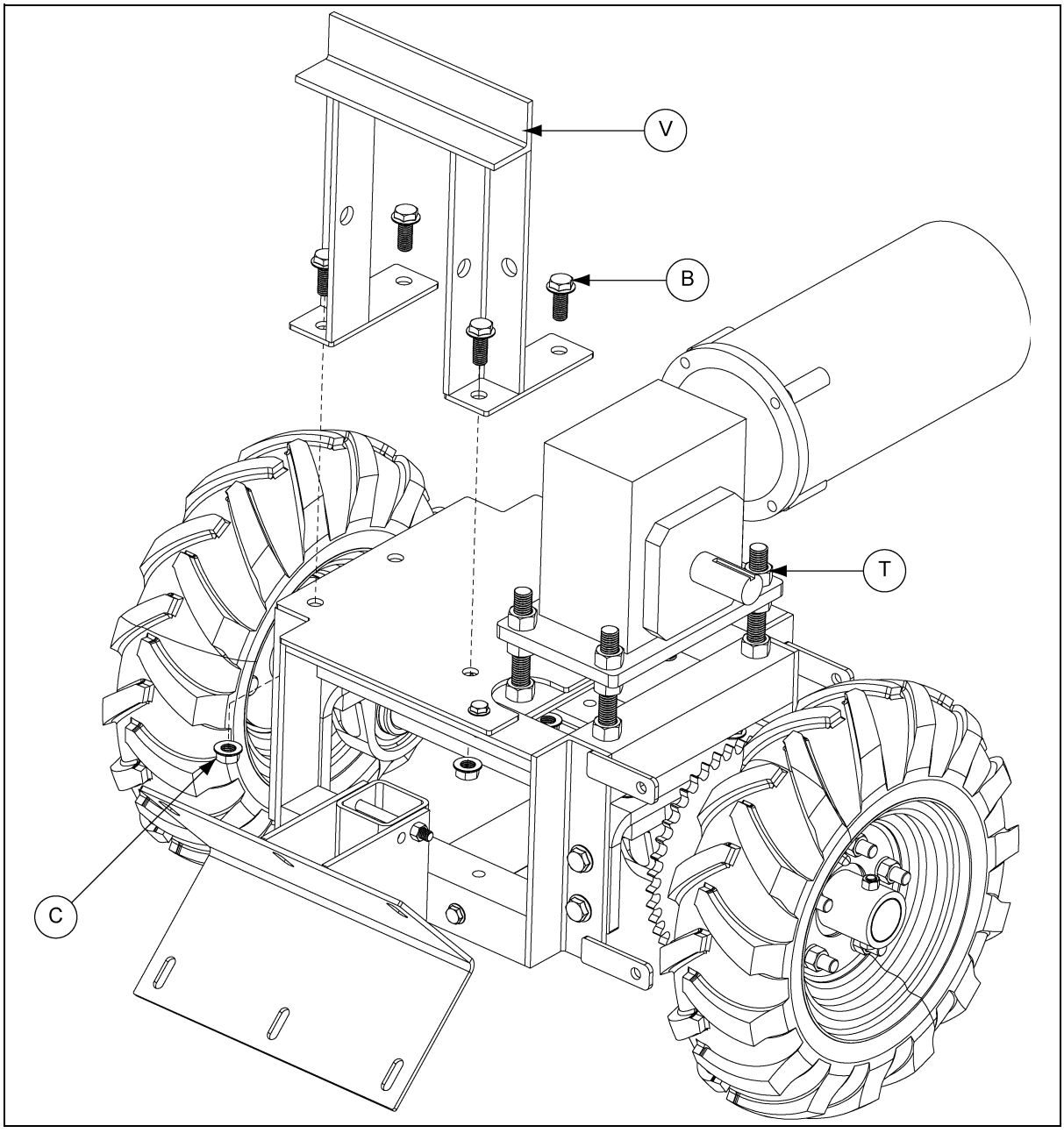


Figure 4W

Ref #	Description
B	1/2" x 1-1/4" Flange Bolt
C	1/2" Serrated Flange Nut
T	5/8" Hex Nut
V	Weight Stand

Sweep Tractor Assembly (Continued)

16. Assemble the 13 tooth sprocket (X) to the motor shaft using a 1/4" square x 1" key (W).
17. Install the roller chain around both sprockets. Adjust the position each sprocket or the tractor axle (if necessary) to correctly align the chain.
18. Tighten all the sprocket set screws.
19. Tension the roller chain (Y) as required by adjusting the nuts on the 5/8"-11 x 6" threaded rods. *(See Figure 4X.)*

NOTE: *Tighten both pillow block bearing lock collars at this time.*

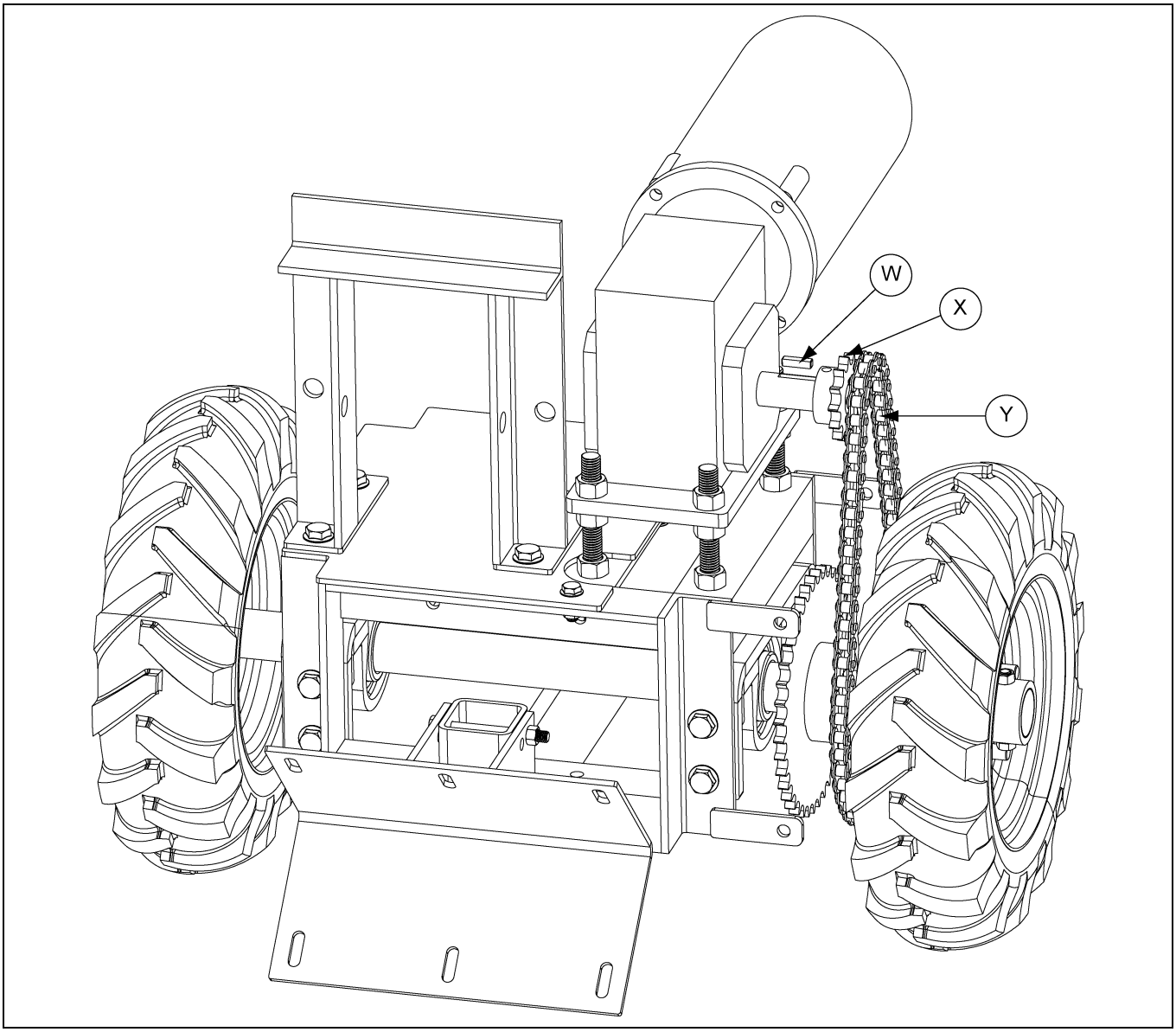


Figure 4X

Ref #	Description
W	1/4" x 1" Square Key
X	13 Tooth Sprocket
Y	Roller Chain

Sweep Tractor Assembly (Continued)

20. Install the top chain guard assembly (Z) to the tractor frame using four (4) 3/8"-16 x 1" flange bolts (L). Slide the bottom chain guard assembly (AA) through the slot on the top chain guard and secure it with a 3/8"-16 x 3/4" flange bolt (AB). *(See Figure 4Y.)*

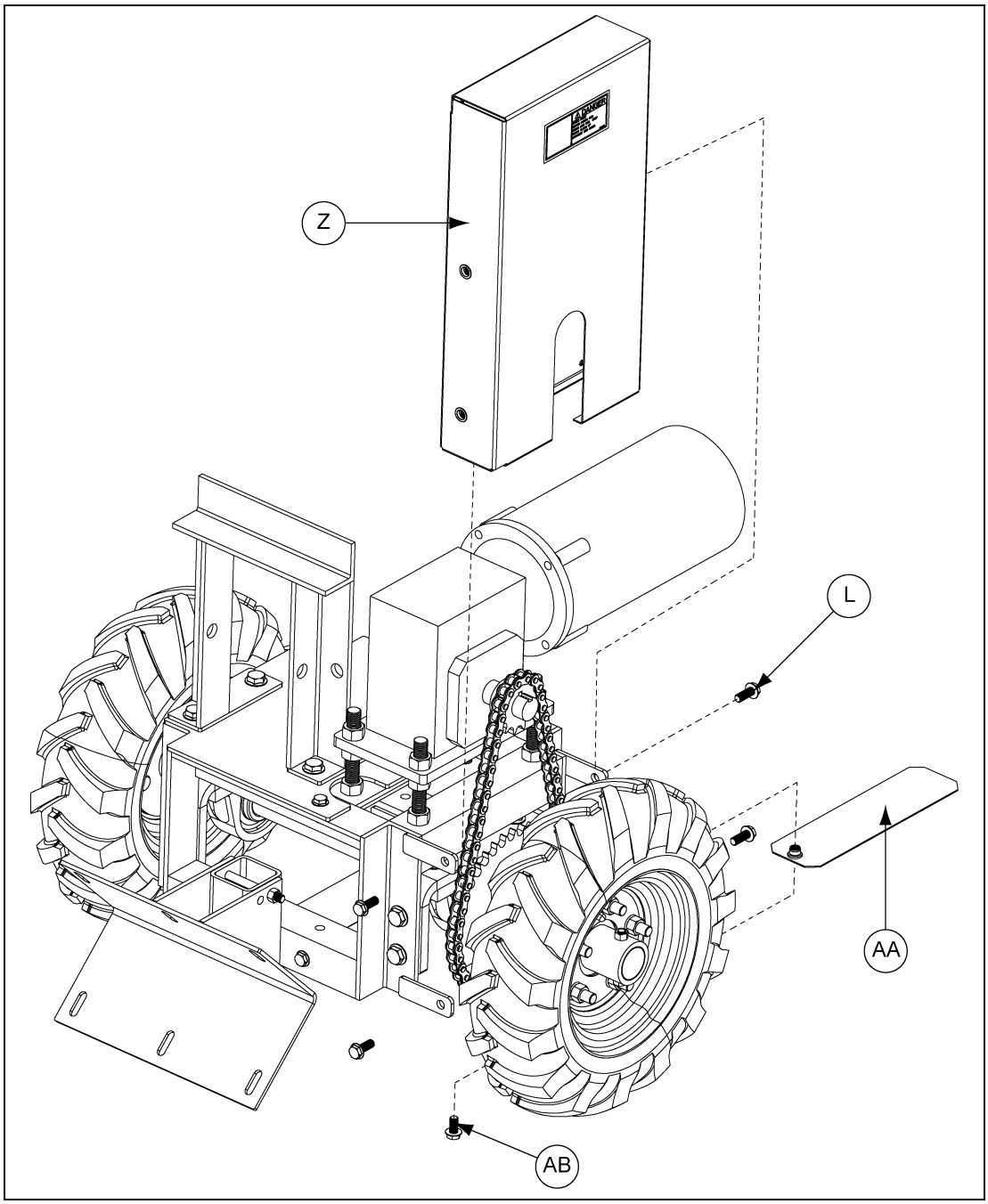


Figure 4Y

Ref #	Description
L	3/8" x 1" Flange Bolt
Z	Chain Guard Top Assembly
AA	Chain Guard Bottom Assembly
AB	3/8" x 3/4" Flange Bolt

Sweep Tractor Assembly (Continued)

21. Mount the weights (AC) to the weight stand using one 5/8"-11 x 8-1/2" threaded rod (AD) and three (3) flange nuts (AF) and one flat washer (AE). *(See Figure 4Z.)*

NOTE: *Install the weights against the left hand of the weight stand so the weight is in the middle of the tractor assembly. The weight stand can be reversed so that the weights hang over the front of the frame, if necessary. Adjust the weights to the inside of the frame to center the weight on the frame when the weight stand is reversed as described above.*

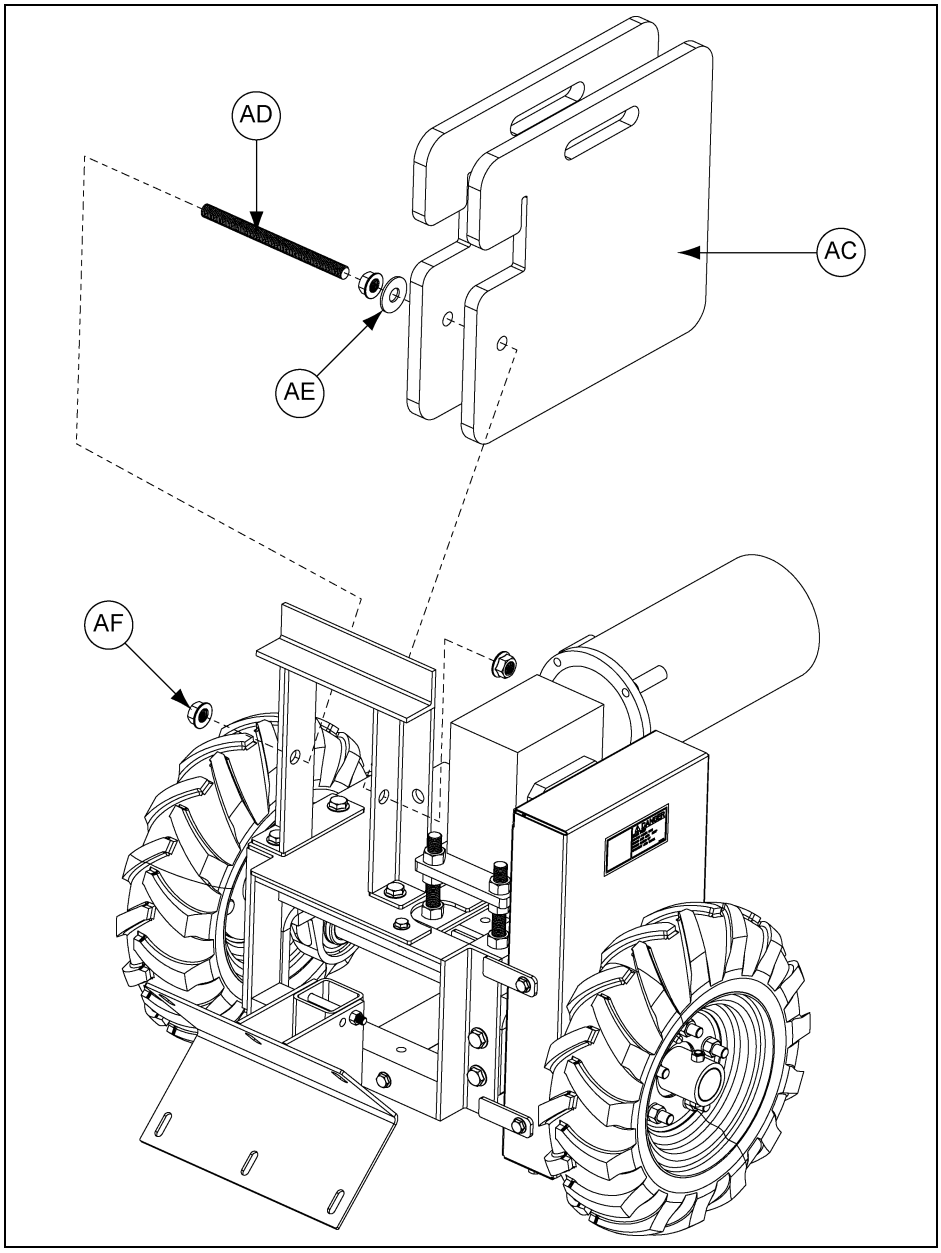


Figure 4Z

Ref #	Description
AC	50 Lbs. Tractor Weight
AD	5/8" x 8-1/2" Threaded Rod
AE	5/8" Flat Washer
AF	5/8" Serrated Flange Nut

End Wheel Assembly

NOTE: *If installing sweep tractor to an existing sweep, the current end wheel components must be removed.*

1. Connect the stub shaft (E) into the sweep flight (F) using a 5/8"-11 x 4" hex head cap screw and 5/8" stover nut.
2. Install the bearing stand assembly (D) onto the stub shaft (E) and bolt it to the sweep shield using two (2) 3/8" x 3" carriage bolts, flat washers and nylock nuts.
3. Install the end wheel (B) and collar (C) onto the end of the stub shaft (E). Pin the collar in place with a 1/2" x 3-1/2" hex head cap screw and prevailing torque lock nut. *(See Figure 4AA.)*

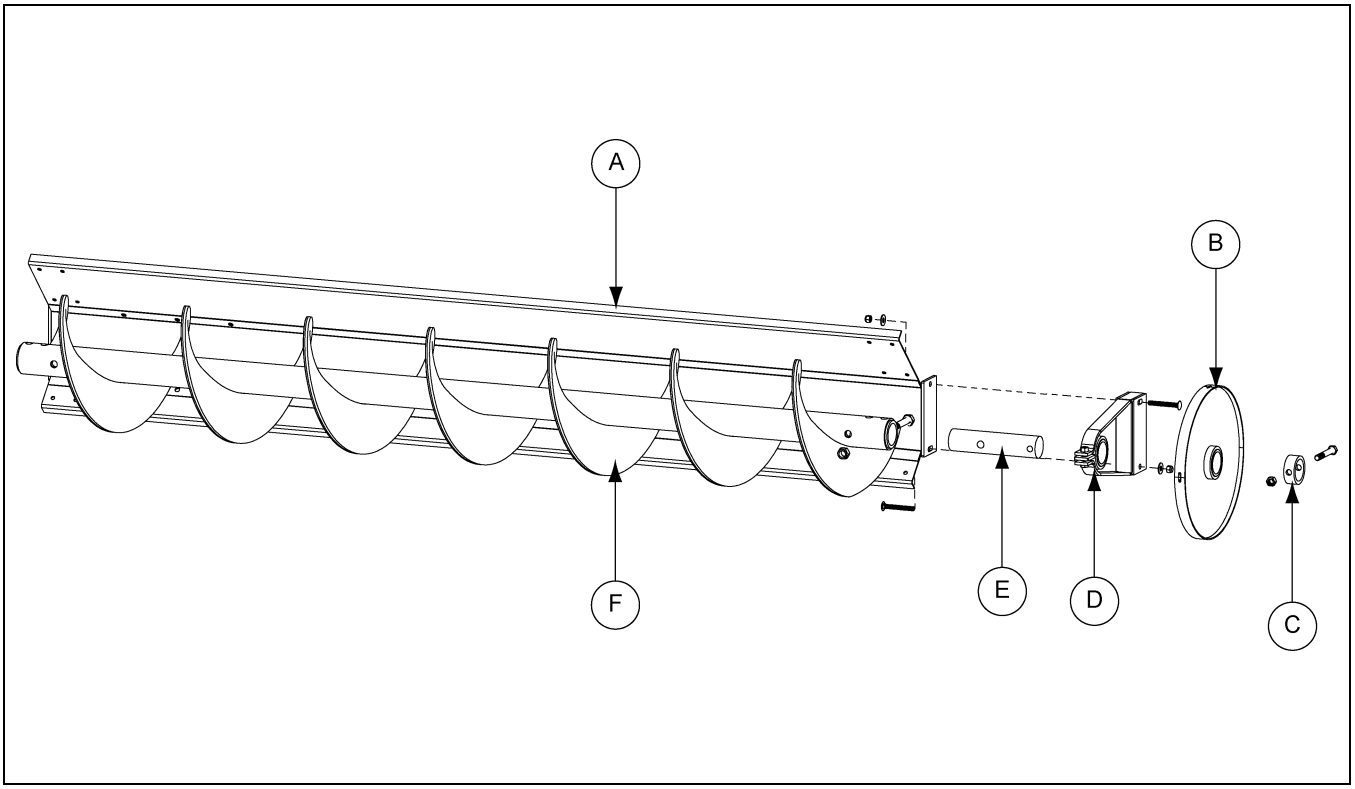


Figure 4AA *End Wheel Assembly*

Ref #	Description
A	Sweep Back Shield
B	End Wheel
C	Collar
D	Bearing Stand Assembly
E	Stub Shaft
F	Sweep Flight

Sweep Tractor to Shield Assembly

1. Position sweep tractor against the sweep shield approximately 3' from the end wheel.
2. Use the bracket on the sweep tractor to mark the location where the holes need to be drilled into the sweep shield.
3. The bolts that attach the sweep bracket to the tractor frame may need to be adjusted so that height and angle of the sweep back shield and the shield bracket are matched.
4. After marking the hole locations, drill six (6) 7/16" holes and attach the sweep tractor to the back shield (B) using six (6) 3/8" x 1" hex head cap screws, flat washers and nylock nuts.
5. Install electric wiring for motor and controls. *(See Figure 4AB.)*

CAUTION

All electrical wiring shall be installed by a qualified electrician and must meet the standards set by the National Electric Code and all local and state codes.

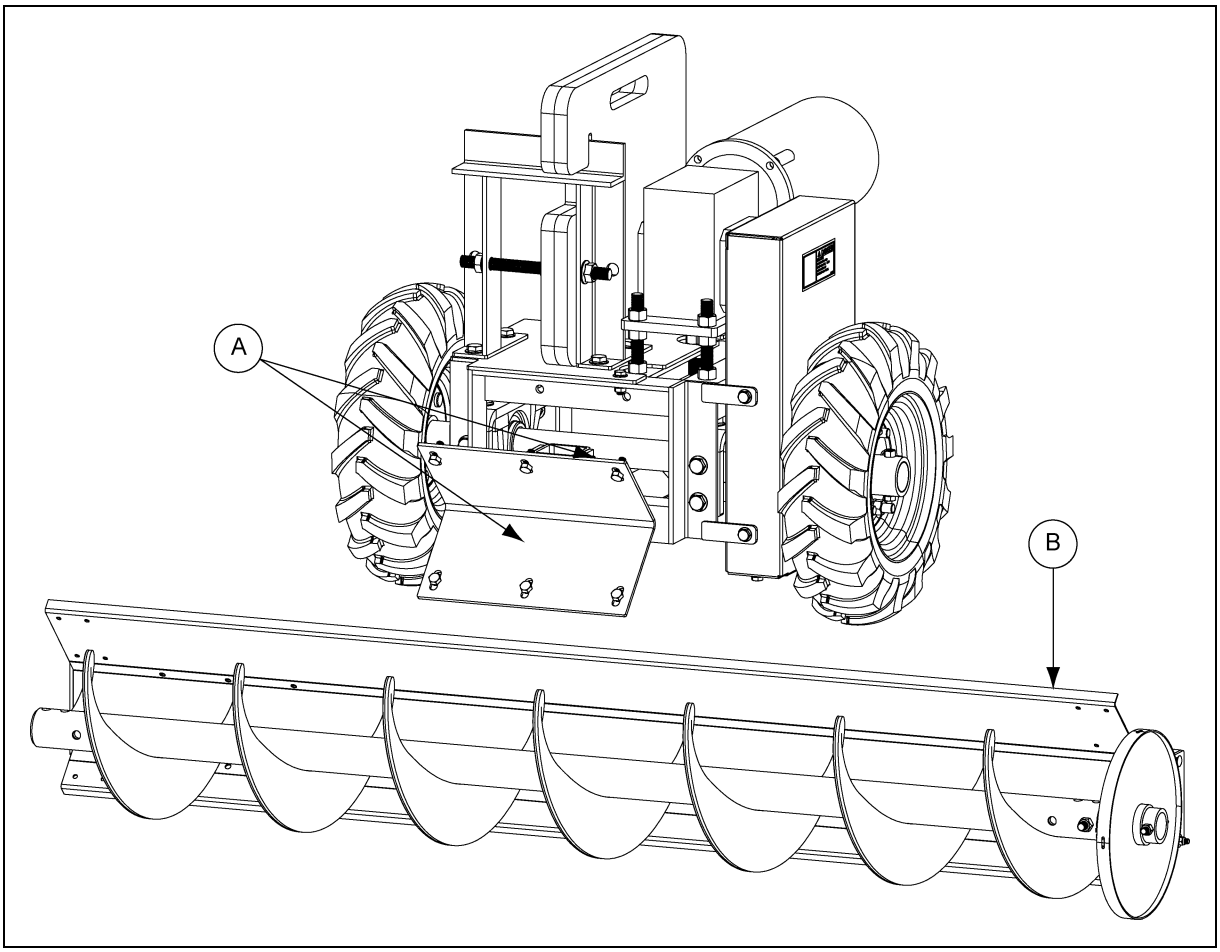


Figure 4AB *Sweep Tractor to Shield Assembly*

Ref #	Description
A	Adjustment bolts for adjusting the angle and height of the bracket (3/8" x 1" HHCS bolt with flat washer and nylock nut).
B	Sweep Back Shield

Installation and Unload Procedures

1. Shut down and lock out the unloading unit before entering the bin.

   If the bin is not equipped with intermediate wells, the Commercial Sweep Auger may be placed in the bin after all the grain has been removed that will gravity flow through the center well.

   The grain remaining should appear as shown in *Figure 5C*. DO NOT enter a bin if the grain has bridged or flowed abnormally out of the bin as shown in *Figure 5A* or *Figure 5B*. Suffocation can occur if grain suddenly breaks loose, burying persons who are inside the bin.

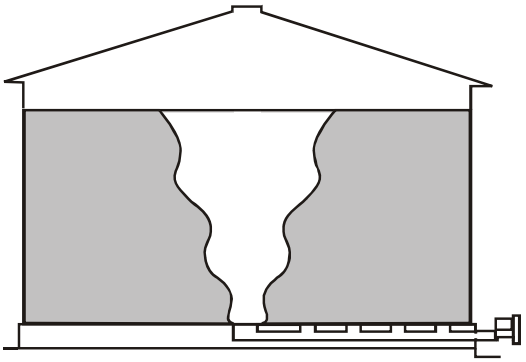
DANGER

Keep clear of all augers.
DO NOT ENTER this bin.

If you must enter this bin:

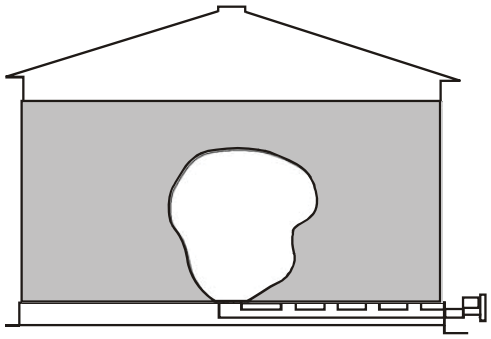
1. Shut off and lock out all power.
2. Use safety harness and safety line.
3. Station another person outside the bin.
4. Avoid the center of the bin.
5. Wear proper breathing equipment or respirator.

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



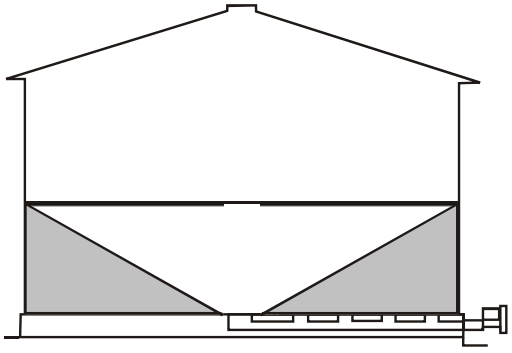
Abnormal grain flow can easily fall and bury a person, suffocating them. **DO NOT** enter a bin with abnormal

Figure 5A



Bridged grain can easily break loose and bury a person, suffocating them. **DO NOT** enter a bin with bridged grain.

Figure 5B



Grain should look similar to this. Always shut down and lock out the power to all devices before entering a bin.

Figure 5C

Installation and Unload Procedures (Continued)

2. If the bin is equipped with intermediate bin wells, open them after grain has stopped flowing into the center well and before the sweep auger is placed in the bin. Open the intermediate wells near the bin center first. Then when grain flow stops, open the wells near the bin wall. (*See Figure 5D* and *Figure 5E*.) The Commercial Bin Sweep Auger can then be installed. Always shut down the unloading equipment and lock out power before entering the bin.

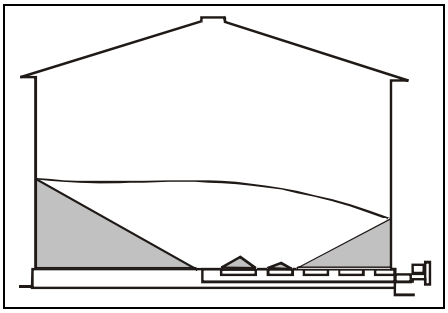


Figure 5D

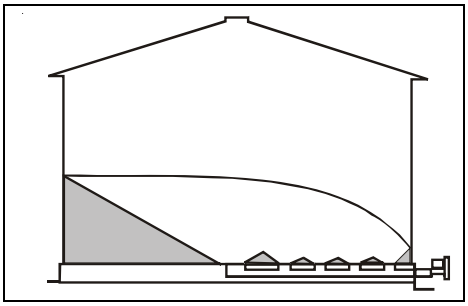


Figure 5E

3. Place the sweep motor mount pivot pin into the pivot tube of the center well. Lay the sweep auger assembly on the pile of sloping grain or in the area of the intermediate wells where additional grain has been removed.

DANGER

Keep out of bin while sweep is in operation.

4. The Commercial Bin Sweep Augers are made with the sweep auger and back shield in two (2) or more sections. One of the sections can be used first alone by attaching the section to the drive unit and mounting the reduction wheel on that section. Then, after the center portion of the bin has been emptied, another section of sweep auger and back shield may be added and the unloading process continued. *(See Figure 5F.)* If the sweep is equipped with a truss, be sure to tie-off extra cable length so it does not become entangled in the sweep auger. Always shut down the unloading equipment and lock out power before entering the bin.

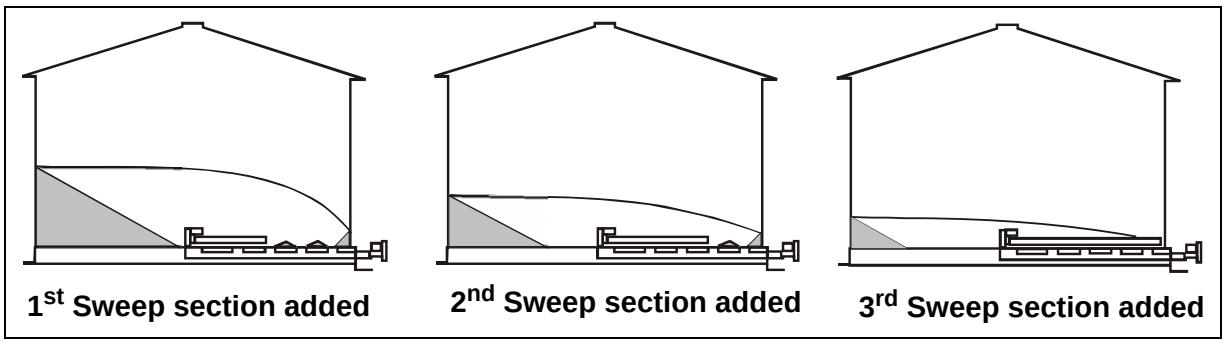


Figure 5F

Using the gradual method of unloading described above helps to avoid situations where cascading grain can bury the sweep causing high torque loads and possible damage to the sweep assembly. This kind of damage is not covered by the warranty.

This type of operation may also be used to prevent the unloading of one side of the bin totally before any grain is removed from the other side. Total unloading of one side of large diameter bins without some unloading from the other side can cause structural damage to the bin. Check with the grain bin dealer or the bin manufacturer for bin unloading recommendations.

Installation and Unload Procedures (Continued)

5. Attach suitable electric wiring to the motor in a manner that will permit the sweep to rotate several times about the bin. The motor starting controls must be located outside of the bin. They must never be installed on the sweep auger inside the bin. Locate the motor starting controls outside the bin, but near the door so the operator has full view of the operation inside the bin. (*See Figure 5G*.)

6. Start the under floor bin unloading equipment before starting the Commercial Bin Sweep Auger. The sweep auger will work towards the floor at approximately a 45° angle and then empty the bin or center area of the bin in one revolution after reaching the floor. As soon as the bin or center area of the bin empties, the sweep auger will rotate rapidly around the bin. Shut down the sweep auger as soon as the bin or center area of the bin is empty.

   The height of the Commercial Bin Sweep back shield above the bin floor can be adjusted at the motor mount and at the bolted connection between back shields. Be sure back shields will clear splices in metal flooring or cracks in concrete floors.

DANGER ***NEVER enter the bin while the sweep auger is in operation.***

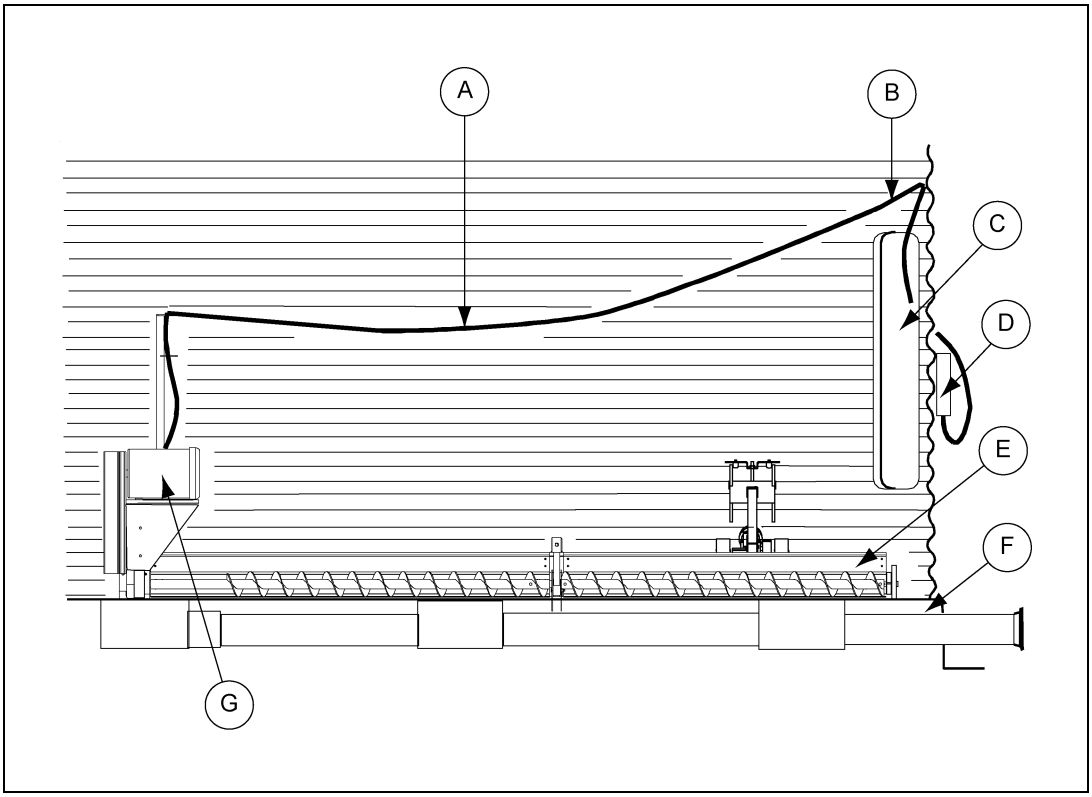


Figure 5G

Ref #	Description
A	Extension cord must be supported in a manner that will not allow loop to get into the sweep flight.
B	It is recommended the cord be attached to bin above doorway.
C	Doorway
D	Electrical Box

Ref #	Description
E	Bin Sweep
F	Floor
G	Motor

Final Clean-Out

The following procedure is recommended for cleaning the floor of the bin after the sweep auger has removed as much grain as possible.

1. Lock out all power.
2. Clean (scoop and sweep by hand) the outer area of the floor into a circular pile towards the center of the bin. (*See Figure 5H* (I).)
3. Get out of the bin.
4. After making sure everyone is outside the bin and clear of the equipment, start the under floor unloader and the sweep auger. In a short time, the circular pile towards the center of the bin will have been removed.
5. Stop the equipment and lock out all power.
6. Scoop and sweep by hand the remaining floor area to the center of the bin. (*See Figure 5H* (II).)
7. Get out of the bin.
8. Repeat *Steps 3-6* until all grain has been removed from the bin.

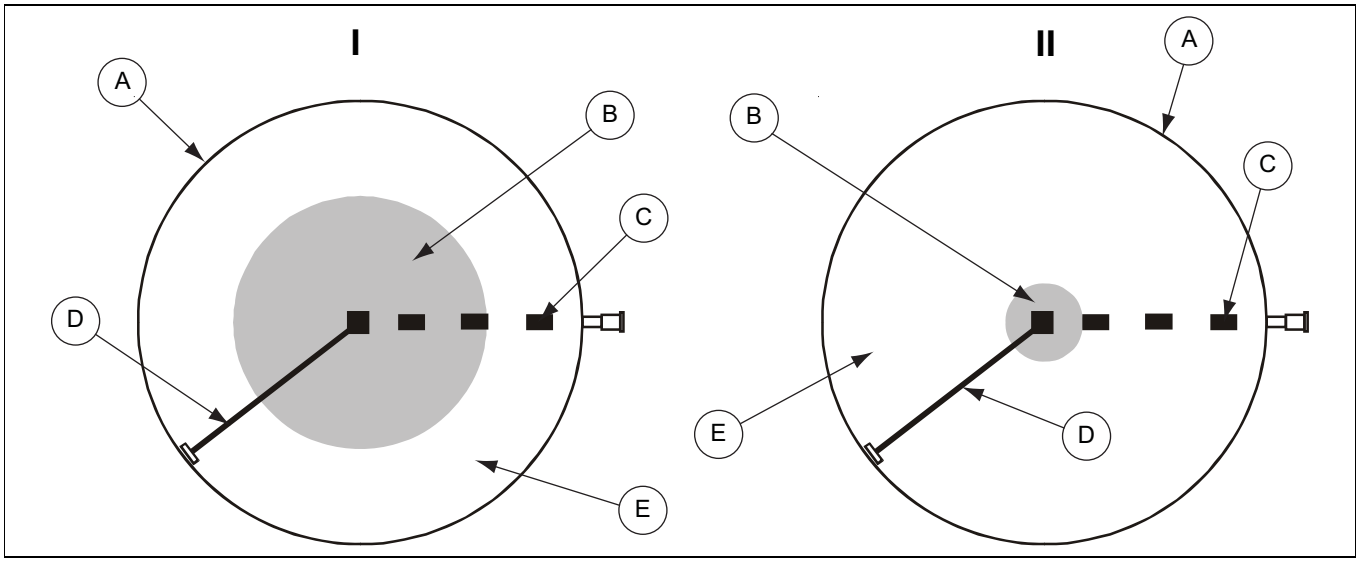


Figure 5H *Top View of Bin*

Ref #	Description
A	Bin Wall
B	Remaining Grain
C	Bin Wells

Ref #	Description
D	Sweep Auger
E	Cleaned Area

DO NOT enter a grain bin unless all power driven equipment has been shut down and locked out.

Keep out of bin while sweep is in operation. The sweep auger will move rapidly around the bin when the bin is nearly empty.

Power Source

The horsepower recommendations are for augering reasonably dry grain. High moisture grain (above 15%) will require greater power if maximum capacity is to be maintained. The maximum possible capacity will be less with high moisture grain than with dry grain.

DANGER

A main power disconnect switch capable of being locked only in the OFF position should be used. The switch should be locked out whenever sweep is not in operation.

DANGER

1. ***Electric motors and 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.***
2. ***A magnetic starter should be used to protect the motor when starting and stopping. It should stop the motor in case of power interruption, conductor fault, low voltage, circuit interruption or motor overload. Then the motor must be restarted manually. Some motors have built-in thermal overload protection. If this type motor is used, use only those with a manual reset.***
3. ***The motor starting controls must be located outside the bin. They must never be installed on the sweep auger inside the bin. Locate the motor starting controls outside the bin, but near the bin door so the operator has full view of the operation inside the bin.***
4. ***Disconnect power before resetting motor overloads.***
5. ***Reset and motor starting controls must be located so that the operator has full view of the entire operation.***
6. ***Make certain all electric motors are grounded.***
7. ***Shut off power to adjust, service or clean.***

Use the *table below* to determine the horsepower and electric motor pulley size the specific sweep requires. Use an electric motor that operates at 1750 RPM (motor pulley not furnished).

Horsepower Requirements For Power Sweep With 9" Diameter Flighting

Bin Diameter	24' - 37'	39' - 55'	60' - 75'	78' - 113'
H.P. (Electric)	3 H.P.	5 H.P.	7 1/2 H.P.	10 H.P.

Motor pulley for sweep when used with **12"** unloading system - Chain Reducer Drives (oil bath) 5" O.D. motor pulley and 9.4 P.D. driven pulley for sweep auger speed of 196 RPM.

Motor pulley for sweep when used with **14"** unloading system - Chain Reducer Drives (oil bath) 6" O.D. motor pulley and 9.4" P.D. driven pulley for sweep auger speed of 226 RPM.

Belt Tension

Check the belt tension on electric drive. To tighten belts, use the adjusting rod on the motor mount assembly. **DO NOT** over tighten belts.

Enclosed Drive Lubrication

1. The enclosed drive is located at the discharge end of the auger housing and is shipped without oil. Oil is to be added to the unit during field assembly of the auger. Oil will dissipate under normal operating conditions, therefore the oil level should be checked regularly. Add 90 EP (non-foaming) oil until the oil level reaches the check point.
2. For lubrication in normal operating temperature between 40º F to 120º F, we recommend the use of non-foaming, multi purpose gear oil. Use SAE 90 weight for normal operating temperatures. For temperatures below 40º F, use SAE 80 weight oil. Use a grade of oil commercially available for automotive differentials. Extra pressure additives may be of value in severe applications.

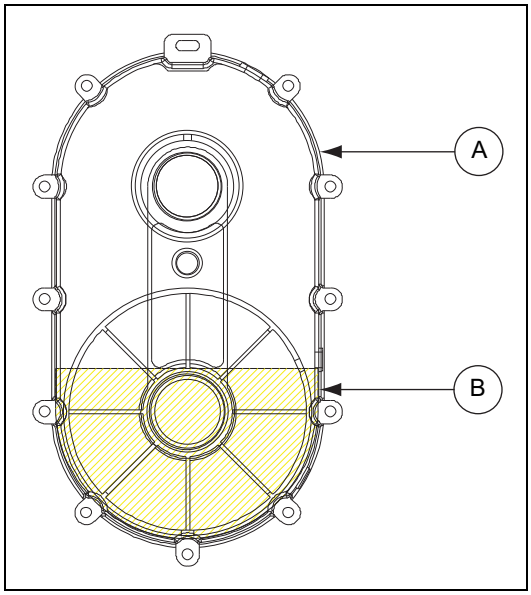


Figure 6A *Enclosed Drive*

Ref #	Description
A	Fill Plug
B	Check Plug

CAUTION ***DO NOT add more oil than recommended. Additional oil may damage the seals or be forced out through the vented plug.***

Reduction Sweep Wheel

Add two (2) ounces of multi purpose gun grease to the sweep wheel drive enclosure during assembly and each time the bin has been emptied. Use the grease zerk on the drive housing.

Low Capacity

Sweep capacity may vary as the angle of sloping grain varies. Check the horsepower requirements *on Page 44*, to determine correct operating speed and the motor pulley size recommended for that speed. If a greater or lower capacity is desired it may be possible to change the motor pulley which will change the sweep flight speed. Do not attempt operation at speeds greater than 50 to 100 RPM above standard recommended speed. Do not operate a sweep that is overfeeding the unloading auger unit. The slide gate in the center well should be left full open during sweep operation.

Sweep Flight and Back Shield not Moving

DO NOT STORE SWEEPS IN THE BIN. Sweeps are NOT designed to remain in a bin during filling, storage or bottom (gravity) unloading. A sweep left in a bin during these operations may be serverly damaged. The GSI Group, Inc. will not be responsible for such damages.

The following action may reduce damages to a sweep remaining in a bin: Lifting the sweep off the center pivot, positioning it parallel to the intermediate wells (along side of - not on top of) and fully supporting the sweep to the bin floor. However, even with this procedure, The GSI Group, Inc. will not be responsible for any damges to the sweep.

Check clearance between back shield and the bin floor for excessive drag. It may be possible to adjust the back shield up by working the slotted connections between back shields at bearing brackets.

The grain may have gone out of condition due to moisture or insect activity and has become hard or caked. Stop the sweep auger and lock out power before entering the bin to correct this or any other difficulty. Make sure the grain has not flowed abnormally or bridged over. See *Page 40* for illustrations.

1. Chain Reducer Drive Assembly - *(See Page 48.)*

2. 12" Flight and Shield - *(See Page 49.)*

3. 12" Reducer Drive Parts - *(See Page 50.)*

4. 3 to 1 Enclosed Chain Drive Parts (GK4704) - *(See Page 52.)*

5. Sweep Tractor Parts - *(See Page 54.)*

6. Chain Guard Assembly - *(See Page 56.)*

7. Drive Motor Assembly - *(See Page 57.)*

8. Bearing Stand Assembly - *(See Page 58.)*

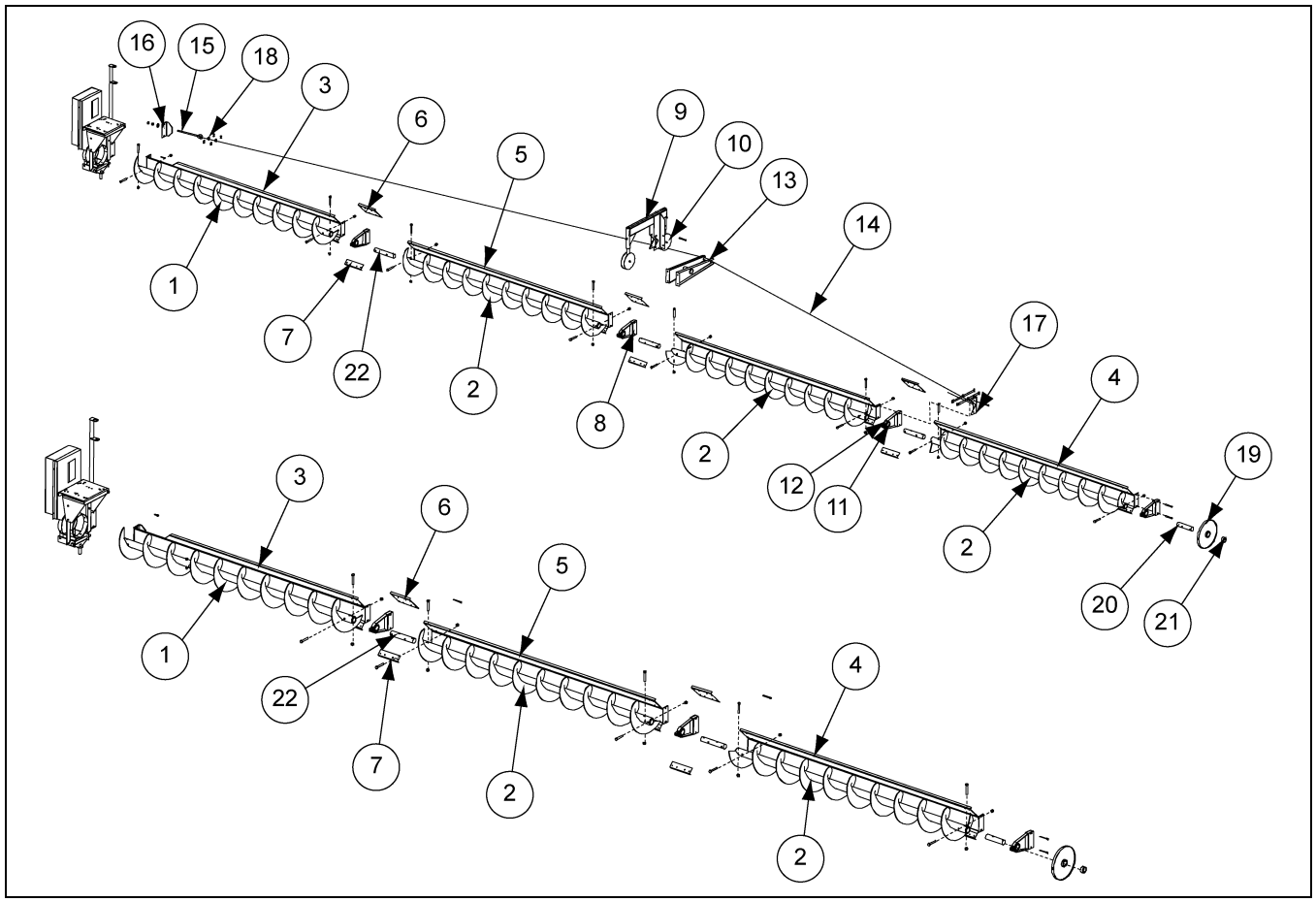
Chain Reducer Drive Assembly

Refer to *Page 49* for reference numbers.

12" Flight and Shield Bundles

Bundle #	Ref #	Part #	Description
GK5580		--	--
	2	GK5027	12" x 3' 9-1/2" Flight
	5	GK5074	12" x 3' 9-1/2" Shield
GK5581		--	--
	2	GK5028	12" x 5' 3-1/2" Flight
	5	GK5075	12" x 5' 3-1/2" Shield
GK5582		--	--
	2	GK5029	12" x 6' 7-1/2" Flight
	5	GK5076	12" x 6' 7-1/2" Shield
GK5583		--	--
	2	GK5030	12" x 7' 1-1/2" Flight
	5	GK5077	12" x 7' 1-1/2" Shield
GK5584		--	--
	2	GK5031	12" x 8' 7-1/2" Flight
	5	GK5078	12" x 8' 7-1/2" Shield
GK5585		--	--
	2	GK5032	12" x 8' 10" Flight
	5	GK5079	12" x 8' 10" Shield
GK5586		--	--
	2	GK5033	12" x 9' 3-1/2" Flight
	5	GK5080	12" x 9' 3-1/2" Shield
GK5587		--	--
	2	GK5034	12" x 9' 9-3/4" Flight
	5	GK5081	12" x 9' 9-3/4" Shield
GK5588		--	--
	2	GK5027	12" x 3' 9-1/2" Flight
	5	GK5266	12" x 3' 9-1/2" Shield
GK5589		--	--
	2	GK5028	12" x 5' 3-1/2" Flight
	4	GK5267	12" x 5' 3-1/2" Shield for Tractor
GK5590		--	--
	2	GK5029	12" x 6' 7-1/2" Flight
	4	GK5268	12" x 6' 7-1/2" Shield for Tractor
GK5591		--	--
	2	GK5030	12" x 7' 1-1/2" Flight
	4	GK5269	12" x 7' 1-1/2" Shield for Tractor
GK5592		--	--
	2	GK5031	12" x 8' 7-1/2" Flight
	4	GK5270	12" x 8' 7-1/2" Shield for Tractor
GK5593		--	--
	2	GK5032	12" x 8' 10" Flight
	4	GK5271	12" x 8' 10" Shield for Tractor
GK5594		--	--
	2	GK5033	12" x 9' 3-1/2" Flight
	4	GK5272	12" x 9' 3-1/2" Shield for Tractor
GK5595		--	--
	2	GK5034	12" x 9' 9-3/4" Flight
	4	GK5273	12" x 9' 9-3/4" Shield for Tractor
GK5596		--	--
	1	GK5026	12" x 9' 9-3/4" Flight with Cutback
	3	GK5073	12" x 9' 9-3/4" Shield with Cut Out

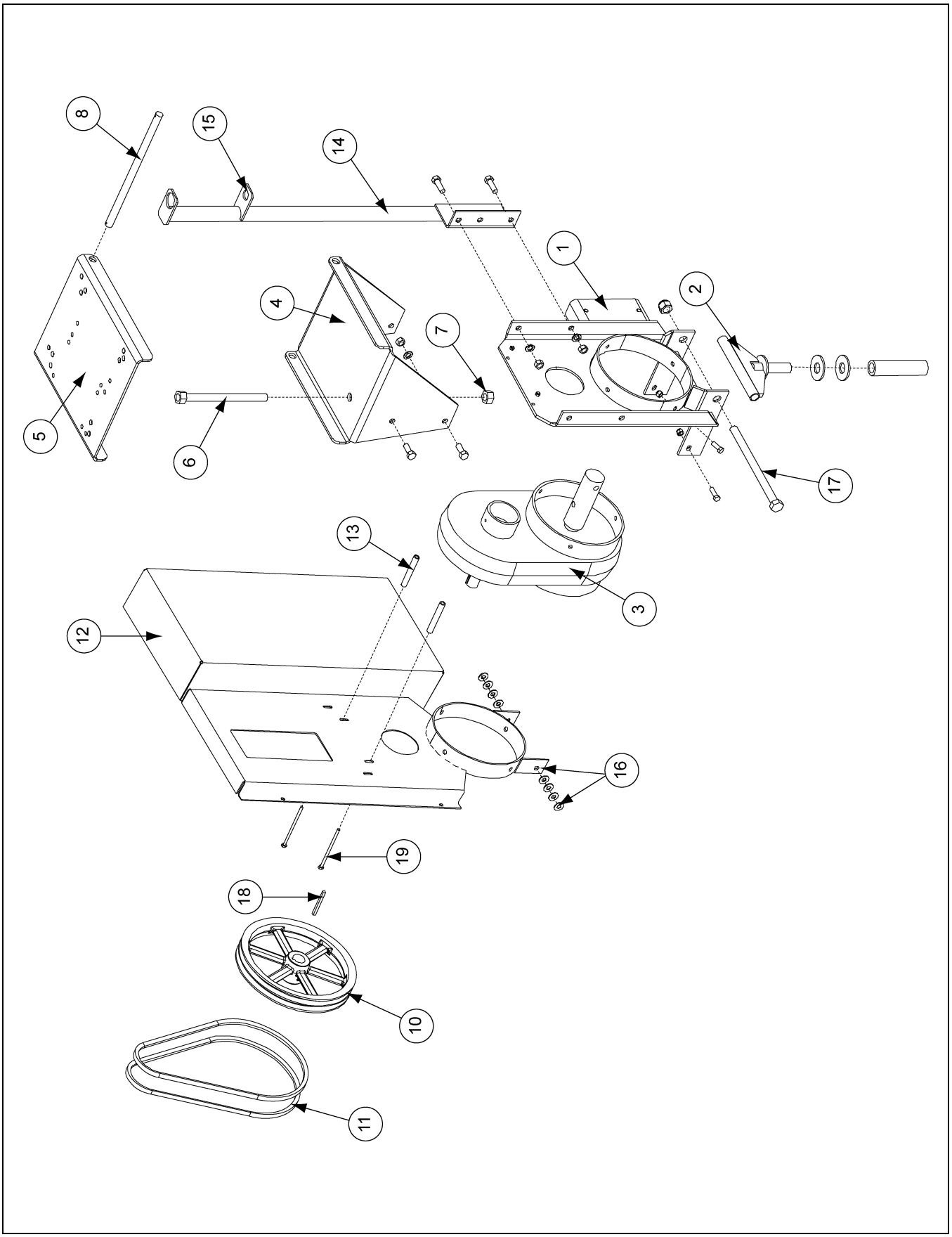
12" Flight and Shield



12" Flight and Shield Parts List

Ref #	Part #	Description
6	GK2163	Upper Shield Splice Plate
7	GK2162	Lower Shield Splice Plate
8	GK2172	Bearing Bracket
9	GK5163	Sweep Carrier Body Weldment
10	GK5164	Sweep Carrier Leg Assembly
11	GK2163	Bearing Holder with Bronze Bushing
12	GK2010	2" I.D. Bronze Bushing
13	GK5119	Truss Stand Weldment
14	GK5285	Cables 5/16" x 34' 6" Cable Cut Roll for 68'-78'
14	GK5286	Cables 5/16" x 43' Cable Cut Roll for 88'-92'
14	GK5287	Cables 5/16" x 53' Cable Cut Roll for 105'-120'
15	GK3107	5/8"-11 x 13" Grade 2 Zinc Eye Bolt
16	GK2509	Cable Take-Up Plate Weldment
17	GK5120	Cabel Bracket Weldment
18	GK2760	5/16" Cable Clamp
19	GK4954	End Wheel
20	GK4952	Stub for End Wheel
21	GK4951	Stub Collar for End Wheel
22	GK2222	2" O.D. x 11-1/2" Connecting Stub

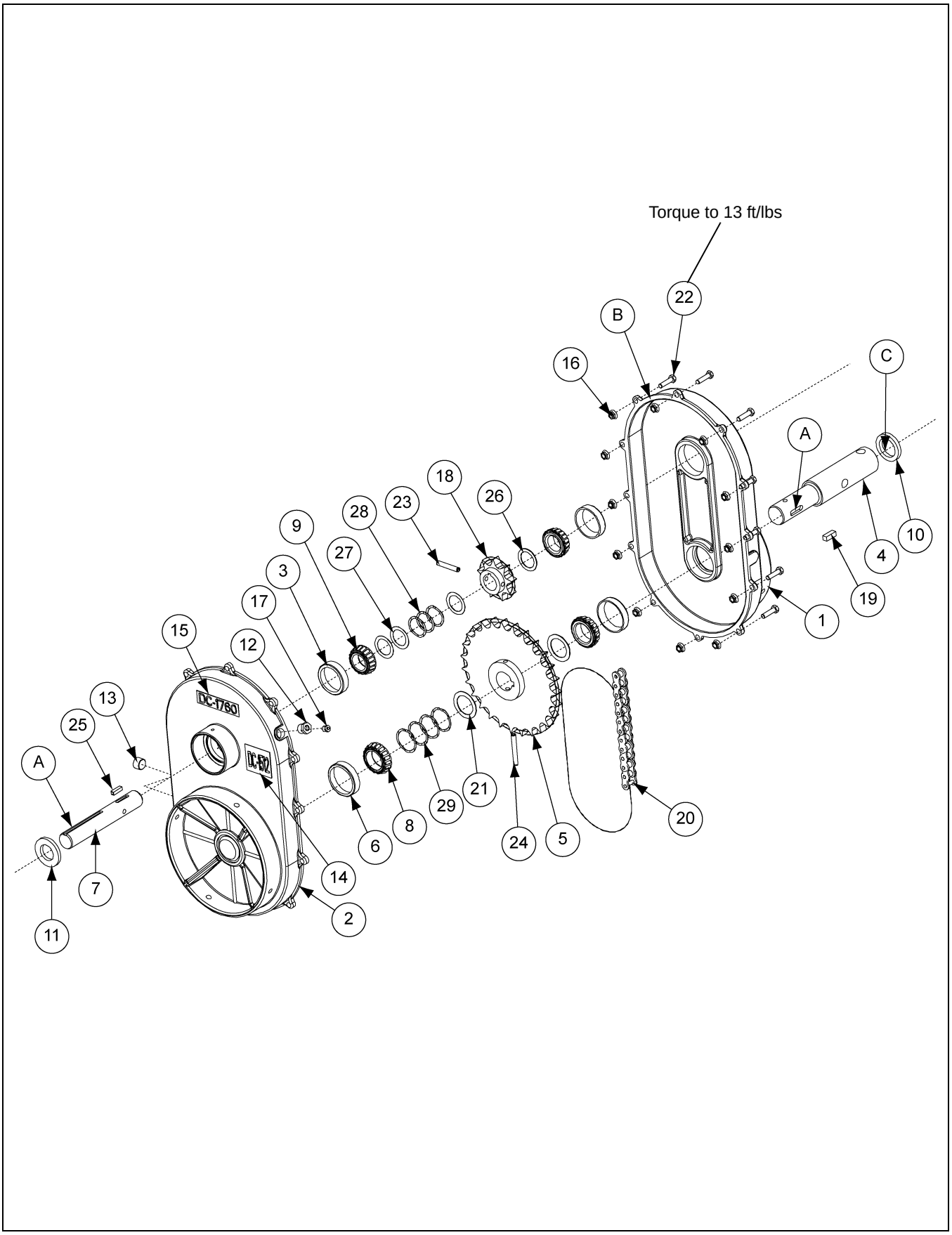
12" Reducer Drive Parts



12" Reducer Drive Parts List

Ref #	Part #	Description
1	GK4949	Motor Mount Frame
2	GK2159	Center Pivot Weldment
3	GK4704	Chain Reducer Drive (3 to 1)
4	GK5114	Motor Mount Support Weldment
5	GK5109	Motor Mount Plate
6	GK4909	Motor Mount Adjustment Rod
7	S-234	3/4" Nut for Adjustment
8	GK5112	Pivot Pin
10	GK1335	12" O.D. Pulley 2B (for 36'-37' Bin Diameter)
10	GK2332	12" O.D. Pulley 3B (for 40'-78' Bin Diameter)
11	GK2349	V-Belt, B-54
12	GK2339	Belt Guard Assembly
13	GK5113	Belt Guard Spacer Tube
14	GK5111	Chord Holder Weldment
15	CH-1829	Cord Clamp
16	S-248	Spacer Washer 1" O.D. x 1/4"
17	S-8259	3/4" x 11" Long Pivot Bolt
18	S-8276	1/4" x 3" Drive Key
19	S-7111	1/4" x 6" Long Bolt

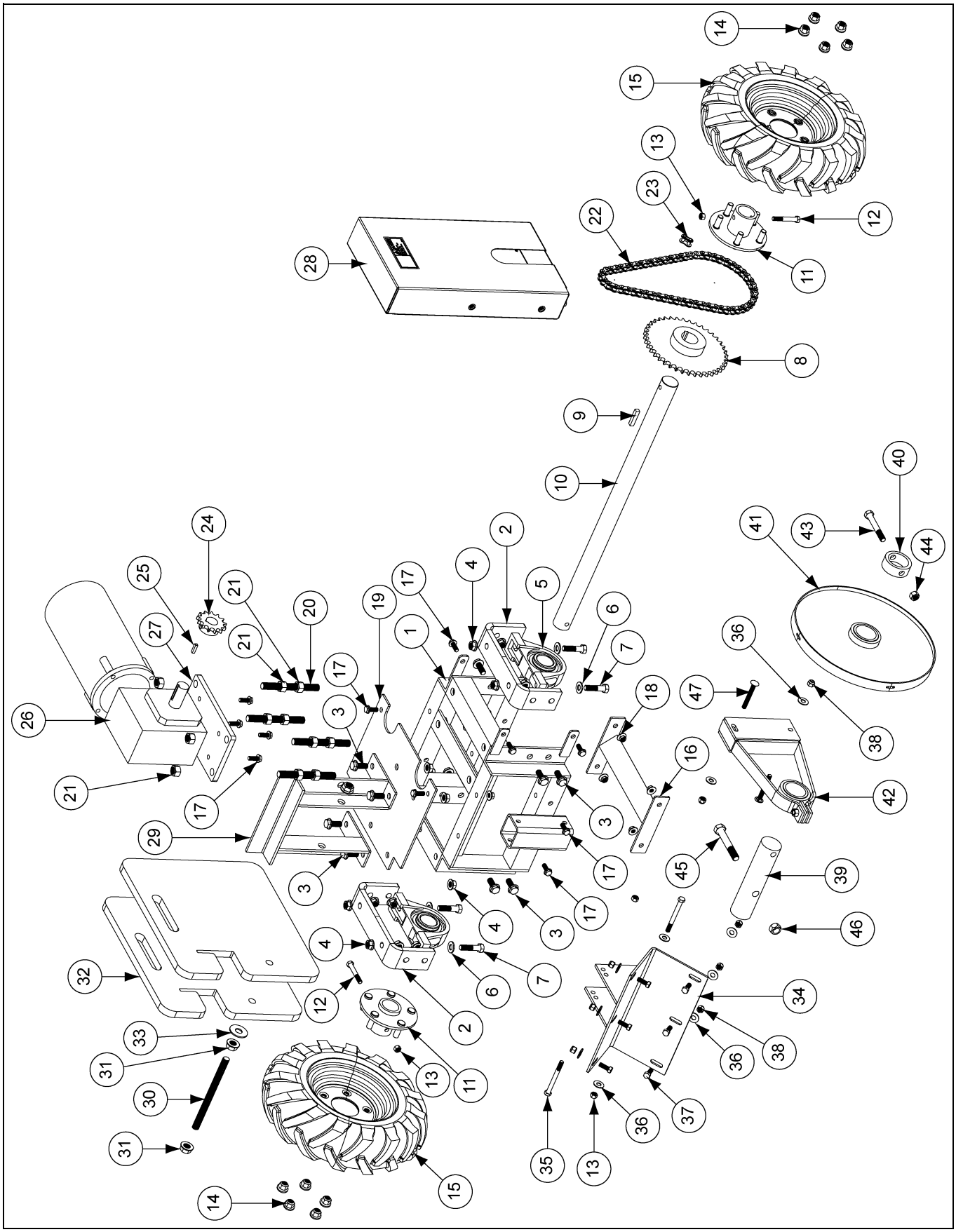
3 to 1 Enclosed Chain Drive Parts (GK4704)



3 to 1 Enclosed Chain Drive Parts (GK4704)

Ref #	Part #	Description
1	GK2363	Aluminum Casting Cover (Inside)
2	GK2364	Aluminum Casting Cover (Outside)
3	GK2383	1-1/4" Bearing Cup (Timken # 15245)
4	GK5808	Stub Output Shaft (2" Turned Down to 1-1/2")
5	GK2369	1-1/2" Bore Sprocket - 27 Tooth
6	GK2384	1-1/2" Bearing Cup (Timken # LM29710)
7	GK2371	Stub Input Shaft - 1-1/4"
8	GK2368	1-1/2" Bearing Cone (Tinken # LM29749)
9	GK2367	1-1/4" Bearing Cone (Timken # 15123)
10	GK2373	Output Shaft Seal - 1-1/2"
11	GK2374	Input Shaft Seal - 1-1/4"
12	GK5350	Pipe Bushing, 1/8" x 3/8" NPT
13	GK2376	Drain Plug - 3/8" NPT
14	DC-1512	Decal, Notice Oil Level 3 Pint
15	DC-1760	Decal, 3.0 to 1.0 Ratio
16	S-8675	5/16"-18 Whiz Lock Nut
17	GK2697	Vent Plug, 1/8" NPT
18	GK2372	1-1/4" Bore Sprocket - 9 Tooth
19	GC03540	Square Key 3/8" x 1"
20	GK2365	#80 Roller Chain - 36 Pitch
21	GK6781	Shim, 0.048" Thick, for 1-1/2" Shaft
22	S-4276	Bolt, HHTB, 5/16"-18 x 1-1/4" ZN Grade 5
23	S-4377	Pin, Grooved Spring, 5/16" x 2
24	S-4375	Pin, Grooved Spring, 5/16" x 2-1/2"
25	S-9168	Square Key 1/4" x 1"
26	GK6780	Machinery Bushing, 1-1/4" I.D. x 0.048" Thick
27	GK7794	Shim, 0.020 Thick x 1-1/4" I.D. x 1-3/4" O.D.
28	GK7734	Wave Spring
29	GK7812	Wave Spring
30	GK7516	Blue RTV Silicone Gasket Maker
A		Cover keyway with plastic tape to protect seal during assembly remove tape after assembly is complete.
B		Apply Ø1/8 bead of blue RTV silicone gasket maker, GK7516, to cover flange.
C		Lubricate seals, Ref # 10 and 11 with 80W90 gear oil prior to assembly of shafts.

Sweep Tractor Parts

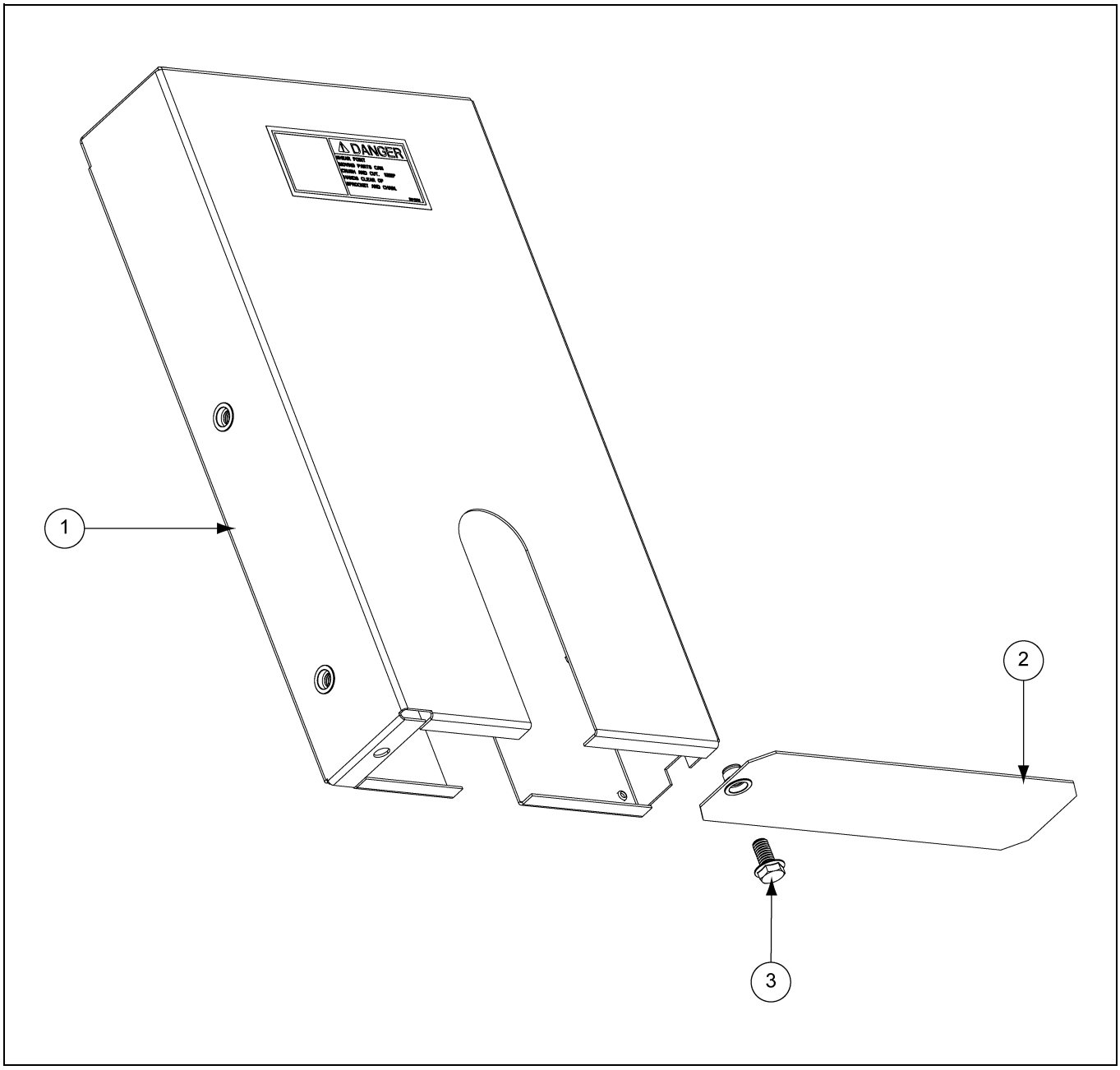


Sweep Tractor Parts List

Ref #	Part #	Description
1	GK7714	Tractor Frame
2	GK7716	Bearing Mounting Bracket
3	S-9062	1/2"-13 x 1-1/4" Flange Bolt Zinc Grade 5
4	S-8506	1/2"-13 Serrated Flange Nut Zinc
5	017-1486-4	Bearing: 1-5/8" Bore Pillow Block
6	S-2120	1/2" Flat Washer SAE Zinc
7	S-7811	1/2"-13 x 2" HHCS Bolt Zinc Grade 5
8	GK7724	Sprocket, #50, 40 Tooth, 1-5/8" Bore, Type B
9	S-9179	3/8" Square x 1-3/4" Key
10	GK7715	Tractor Axle
11	GK7718	Wheel Hub
12	S-6762	3/8"-16 x 2-1/2" Hex Bolt Zinc Grade 5
13	S-8251	3/8"-16 Stover Nut Zinc Grade C
14	S-8133	Hex Nut 1/2"-20 ZN
15	GK7748	Tire and Wheel: 4.80-8 5-Lug, Foam Filled
16	GK80116	Strut Bracket
17	S-9065	3/8"-16 x 1" Flange Bolt Zinc Grade 5
18	S-968	3/8"-16 Wide Serrated Flange Nut Zinc Grade 5
19	GK80115	Weight Support Plate
20	GC03552	5/8"-11 x 6" Threaded Rod
21	S-4110	5/8"-11 Hex Nut Zinc Grade 5
22	GK7883	Roller Chain, #50, 61 Pitch
23	D32-0015	Roller Chain Connecting Link, #50
24	GK4978	Sprocket, #50, 13 Tooth, 1-1/8" Bore, Type B
25	S-9168	1/4" Square x 1" Key
26	GK4985	Drive Motor Assembly - 1 PH, 60 Hz, 115/230V, TEFC
	GK7828	Drive Motor Assembly - 1 PH, 60 Hz, 115V/208V-230V, XPFC
	GK5481	Drive Motor Assembly - 3 PH, 60 Hz, 230V/460V, TEFC
	GK6387	Drive Motor Assembly - 3 PH, 60 Hz, 208V-230V/460V, XPFC
	GK7720	Drive Motor Assembly - 3 PH, 60 Hz, 575V, XPFC
	GK6827	Drive Motor Assembly - 3 PH, 50 Hz, 220V/380V/460V, TEFC
27	GK7719	Drive Assembly Plate
28	GK80029	Chain Guard Assembly
29	GK80117	Weight Bracket

Ref #	Part #	Description
30	GK7725	5/8"-11 x 8-1/2" Threaded Rod
31	S-9259	5/8"-11 Serrated Flange Nut Zinc
32	GK7717	Tractor Weight - 50 Lbs.
33	S-858	5/8" Flat Washer USS Zinc
34	GK80172	Shield Bracket - GCS6-8
	GK80173	Shield Bracket - GCS8-10
	GK4975	Shield Bracket - GCS10-12 and GCS12-14
35	S-8989	3/8"-16 x 3-3/4" HHCS Bolt Zinc Grade 5
36	S-248	3/8" Flat Washer YDP
37	S-7469	3/8"-16 x 1" HHCS Bolt Zinc Grade 5
38	S-7383	3/8"-16 Nylock Nut Zinc Grade 5
39	GK80165	Stub Shaft - GCS6-8
	GK80166	Stub Shaft - GCS8-10
	GK4952	Stub Shaft - GCS10-12 and GCS12-14
40	GK80163	Stub Collar - GCS6-8
	GK80164	Stub Collar - GCS8-10
	GK4951	Stub Collar - GCS10-12 and GCS12-14
41	GK80161	End Wheel with Bearing - GCS6-8
	GK80162	End Wheel with Bearing - GCS8-10
	GK6457	End Wheel with Bearing - GCS10-12
	GK4954	End Wheel with Bearing - GCS12-14
42	GK2107	Bearing Stand Assembly - GCS6-8
	GK1954	Bearing Stand Assembly - GCS8-10
	GK2047	Bearing Stand Assembly - GCS10-12
	GK80084	Bearing Stand Assembly - GCS12-14
43	S-8314	1/2"-13 x 3-1/2" HHCS Bolt YDP Grade 8
	S-7372	Bolt, HHCS 7/16"-14 x 2-1/2" ZN Grade 8 - GCS6
44	S-8315	1/2"-13 Prevailing Torque Lock Nut Zinc Grade C
	S-8317	Stover Nut 7/16"-14 ZN Grade C - GCS6
45	S-7893	5/8"-11 x 4" HHCS Bolt YDP Grade 8
	S-8316	Bolt, HHCS 7/16"-14 x 3 ZN YDP Grade 8 - GCS6
46	S-8606	5/8"-11 Stover Nut Zinc Grade C
	S-8317	Stover Nut 7/16"-14 ZN Grade C - GCS6
47	S-8055	3/8"-16 x 3" Carriage Bolt Zinc Grade 5

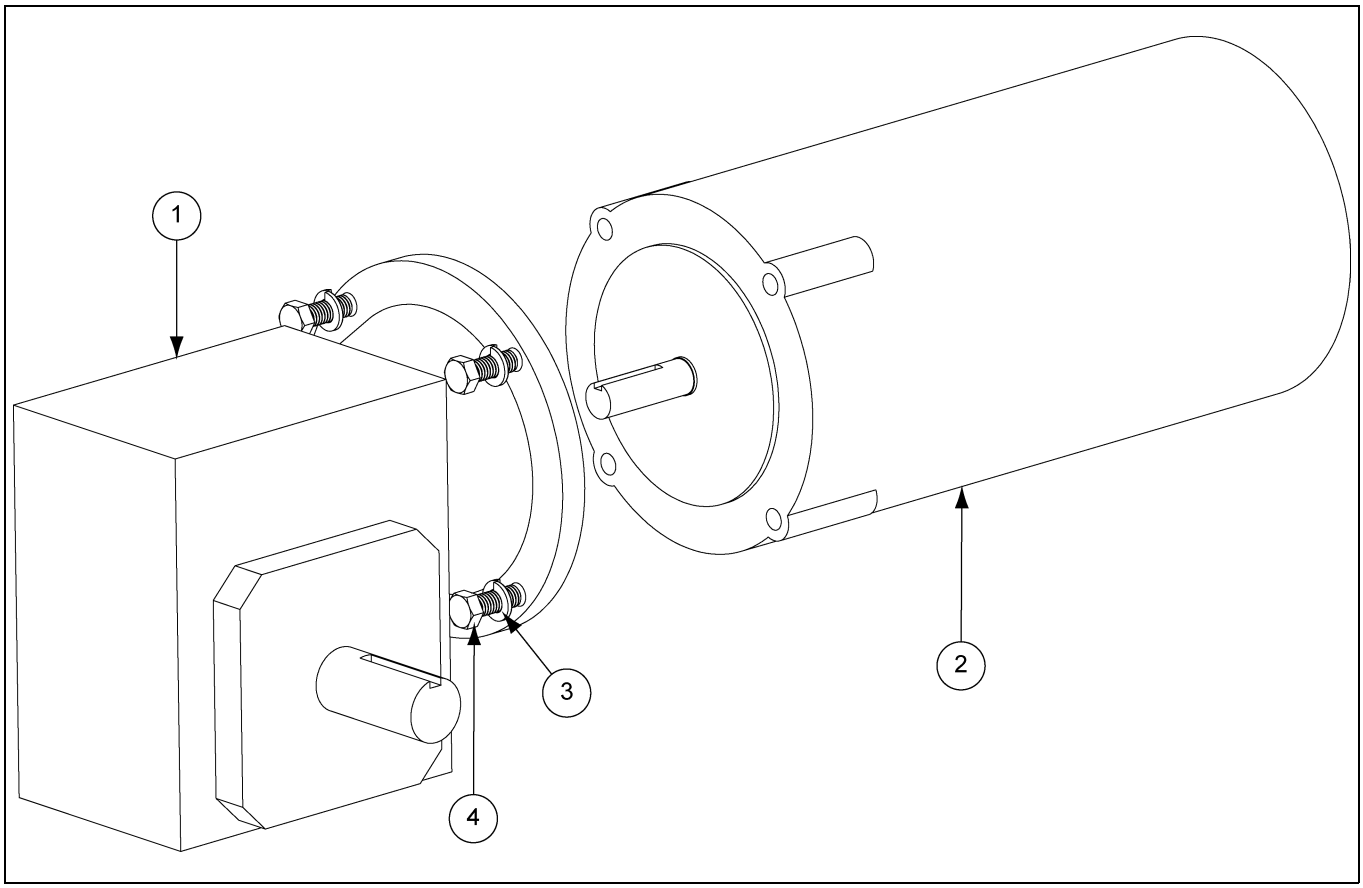
Chain Guard Assembly



Chain Guard Assembly Parts List

Ref #	Part #	Description
1	GK7712	Chain Guard Top Assembly
2	GK7713	Chain Guard Bottom Assembly
3	S-9067	3/8"-16 x 3/4" Flange Bolt Zinc Grade 5

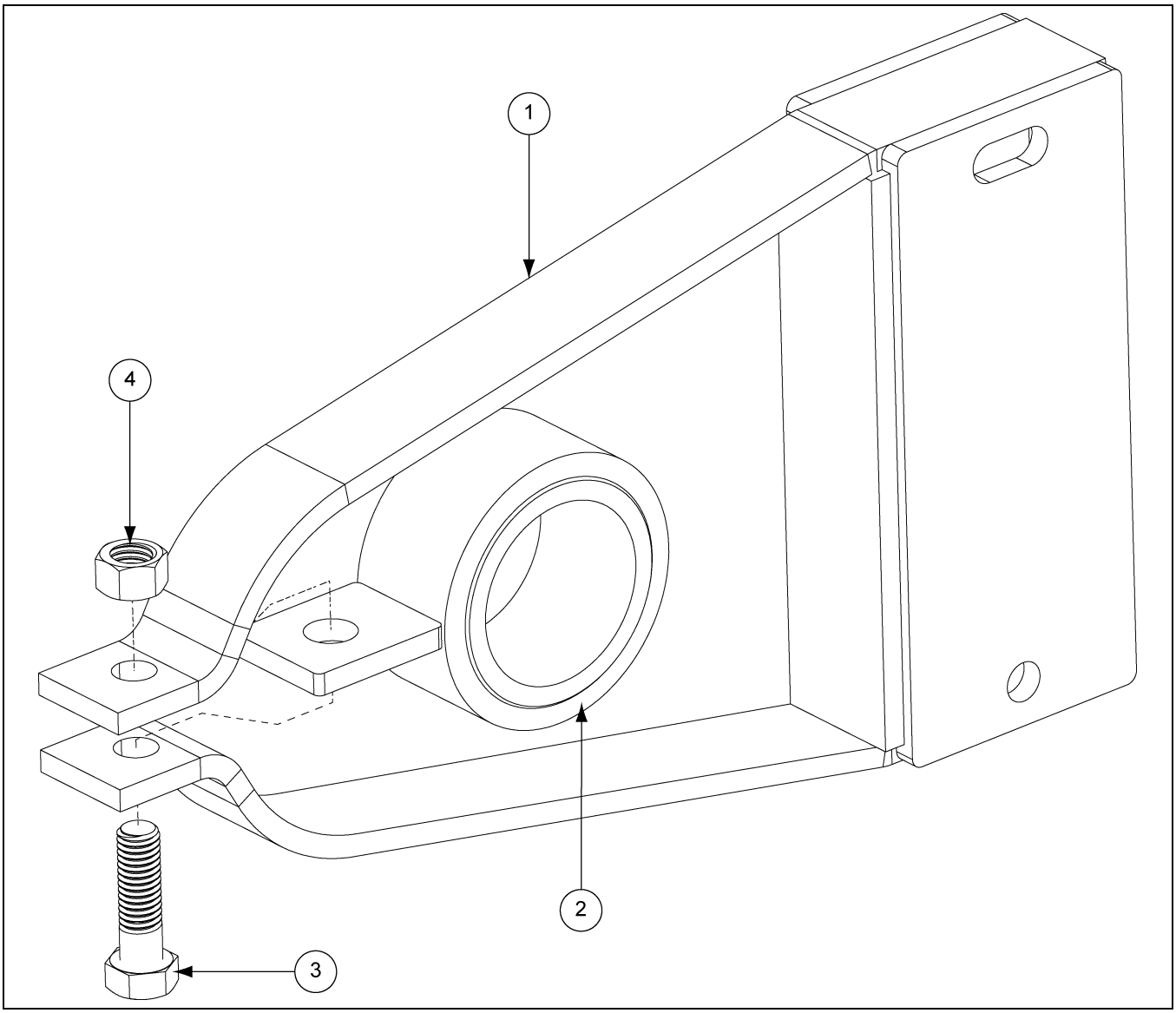
Drive Motor Assembly



Drive Motor Assembly Parts List

Ref #	Part #	Description
1	GK4987	Worm Gear Reducer, 60:1, 56C, LO, S23
2	CFDL3504M	Motor - 1/2 HP, 1 PH, 60 Hz, 1725 RPM, 115/230V, TEFC, 56C
2	FLX-4021-1PH	Motor - 1/2 HP, 1 PH, 60 Hz, 1725 RPM, 115/208-230V, XPFC, 56C
2	FLX-3547	Motor - 1/2 HP, 3 PH, 60 Hz, 1725 RPM, 230/460V, TEFC, 56C
2	FLX-4021	Motor - 1/2 HP, 3 PH, 60 Hz, 1725 RPM, 208-230/460V, XPFC, 56C
2	012-3E-575XP	Motor - 1/2 HP, 3 PH, 60 Hz, 1725 RPM, 575V, XPFC, 56C
2	002-1408-0	Motor - 1/2 HP, 3 PH, 50 Hz, 1725 RPM, 220/380/460V, TEFC, 56C
3	S-1054	3/8" Split Lock Washer Zinc
4	S-7469	3/8"-16 x 1" HHCS Bolt Zinc Grade 5

Bearing Stand Assembly



Bearing Stand Assembly Parts List

Ref #	Part #	Description
1	GK1626	Bearing Stand - GCS8
1	GK1679	Bearing Stand - GCS10
1	GK2049	Bearing Stand - GCS12
1	GK2172	Bearing Stand - GCS14
2	GK1680	Bearing Stand Bearing Assembly - GCS8
2	GK1955	Bearing Stand Bearing Assembly - GCS10
2	GK2050	Bearing Stand Bearing Assembly - GCS12
2	GK2163	Bearing Stand Bearing Assembly - GCS14
3	S-7837	7/16"-14 x 1-1/2" HHCS Bolt Zinc Grade 5
4	S-8317	Stover Nut 7/16"-14 ZN Grade C

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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