



12" and 16" "X" Series Sweep

Operator's Manual

PNEG-1858

Date: 09-01-14



PNEG-1858

GSI GROUP



Model Number of My Sweep:

Date Delivered:

Date Installed:

NOTE: *The manufacturer reserves the right to improve its 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.*

Personnel operating or working around this equipment should read this manual. This manual must be delivered with equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment. Any misuse of the equipment may void the warranty.

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Safety Guidelines

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



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



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



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



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



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

Safety Instructions

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

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

This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

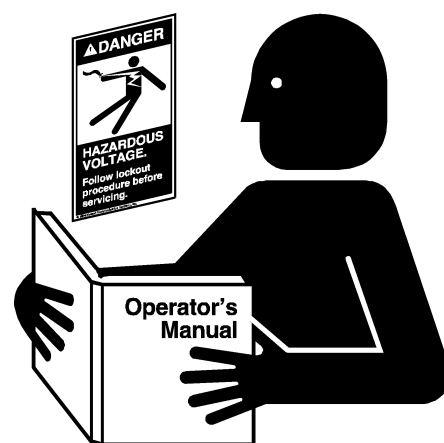
Follow Safety Instructions

Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

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

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



Read and Understand Manual

Keep Hands Away from Moving Parts

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

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

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

Keep all shields and covers in place during operation.



Rotating Auger

1. Safety

Operate Motor Properly

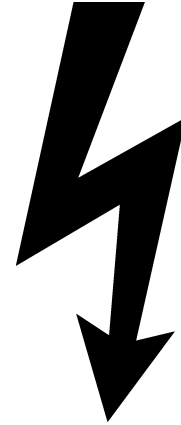
In an emergency, shut down the power source.

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

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

Disconnect power on electrical driven units before resetting motor overloads.

Do not repetitively stop and start the drive in order to free a plugged condition. Jogging the drive in this manner can damage the equipment and/or drive components.



Electric Shock Hazard

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.



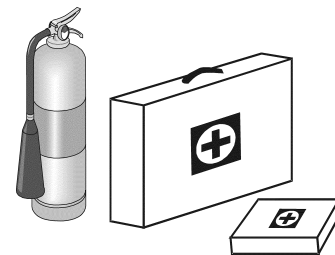
**Maintain Equipment
and Work Area**

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.

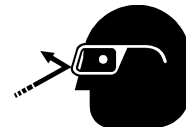
Wear gloves to protect your hands from sharp edges on plastic or steel parts.

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

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



**Operate Unload
Equipment Safely**

2. Safety Decals

The images below show the location of the decals and safety signs which should appear on the “X” Series Sweep. (*Refer to Page 10-13 for Decals.*)

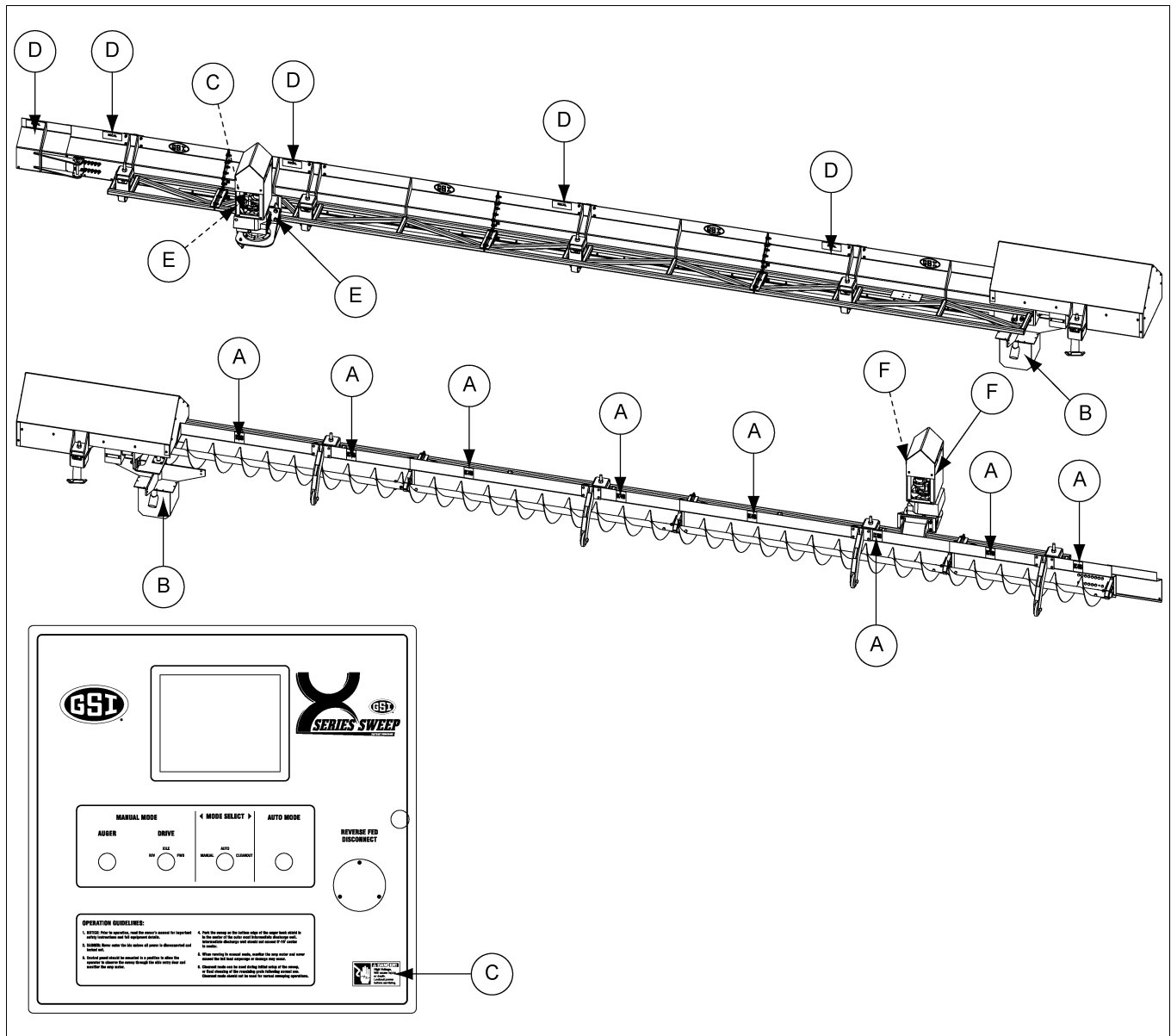


Figure 2A Safety Decal General Location Placement

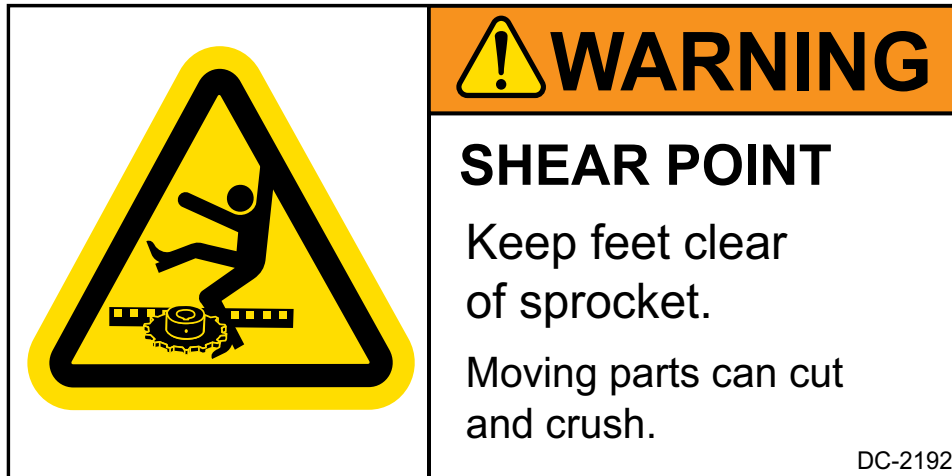
Ref #	Description	Location
A	Rotating Auger	Front of top flange
B	High Voltage	Corner of auger motor mount and each side of center well
C	High Voltage	Corner of drive motor plate
D	Rotating Flighting	Back of top flange
E	Shear Point	Corner of drive motor plate
F	Trip Hazard	Each side of auger motor housing

NOTE: Please remember safety signs provide important safety information for people working near bin unloading equipment that is in operation. Any safety signs that are worn, missing, illegible or painted over should be replaced immediately. Obtain FREE replacements by contacting GSI.



Figure 2B

Ref #	Part #	Description
A	DC-1416	Safety Decal, Rotating Auger
B	DC-1224	Safety Decal, High Voltage
C	DC-889	Safety Decal, High Voltage
D	DC-834	Safety Decal, Rotating Fighting



(E)



(F)

Figure 2C

Ref #	Part #	Description
E	DC-2192	Safety Decal, Shear Point
F	DC-2190	Safety Decal, Trip Hazard

- A. DANGER Signs No. DC-1395, DC-2191 and DC-2193 were supplied with your bin unloading equipment. The safety signs should be applied to the side of the bin near the bin opening, so they can be viewed by people entering into the bin storage building. Do not cover any safety signs or any other signs that are already there.
- B. 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.
- C. 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.

If the Safety Sign cannot be easily read for any reason or has been painted over, replace it immediately. Additional Safety Signs may be obtained free of charge from your dealer, distributor or ordered from the factory.

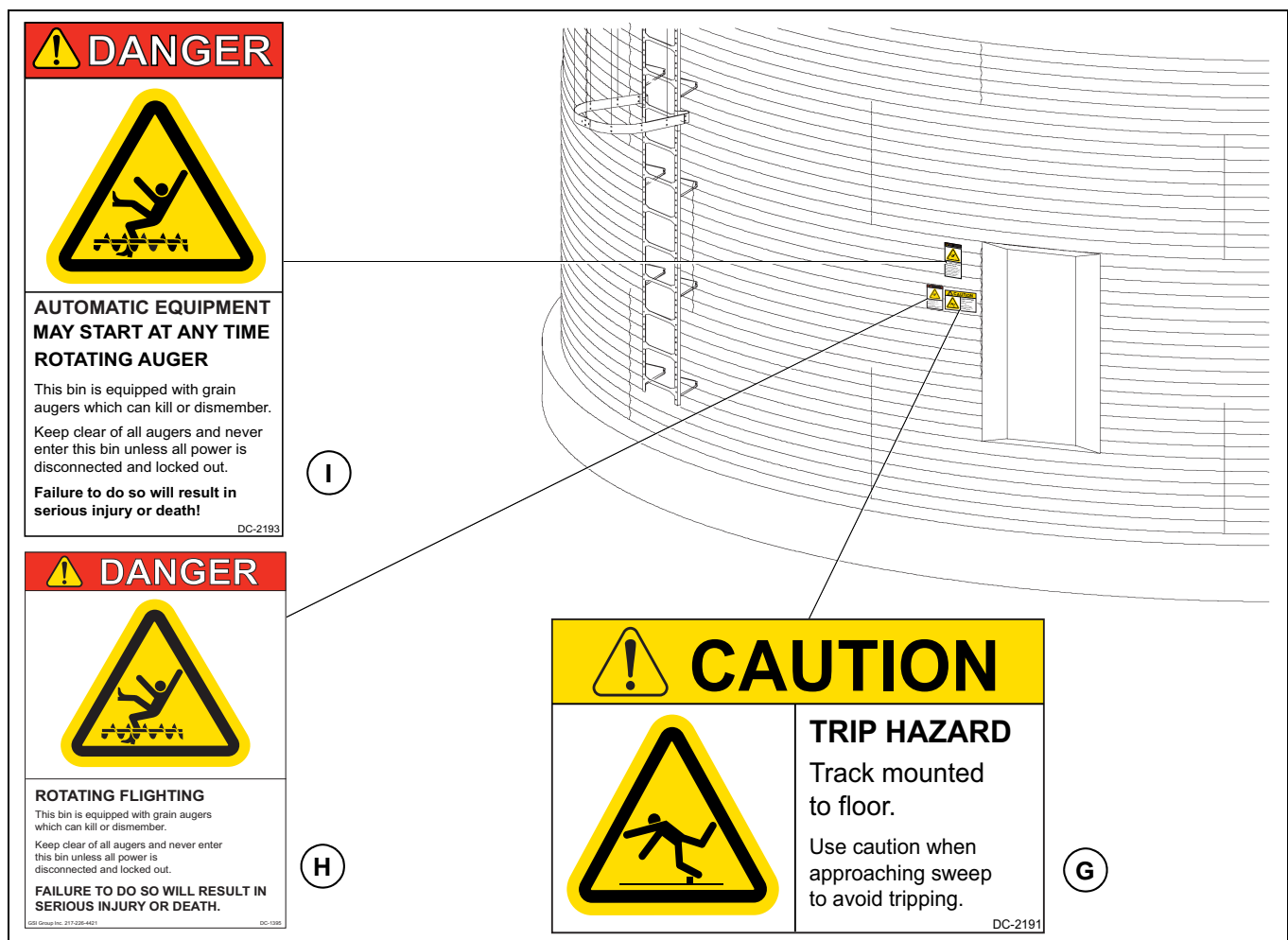


Figure 2D

Ref #	Part #	Description
G	DC-2191	Safety Decal, Trip Hazard
H	DC-1395	Safety Decal, Rotating Flighting
I	DC-2193	Safety Decal, Automatic Equipment

3. Product Overview

Sweep Criteria Recommendations

Congratulations! Your selection of the GSI “X” Series Sweep is a wise investment. It will give you years of dependable service. The main function of the “X” Series Sweep is to clean out the remaining grain, from the bin, after all gravity unloading has finished. The GSI “X” Series Sweep is a single pass sweep only. The unit will only operate in a round grain bin equipped with a center sump in the bin floor.

NOTE: *The bin manufacturer should be contacted for their recommendations on the bin’s structural integrity. The following are sweep criteria recommendations.*

Issues	Recommendations
<p style="text-align: center;">Flooring</p>	<p>A track is required under each of the sweep wheels where they travel over the aeration (steel) floor. The track should be a minimum of 10 gauge thick and made from steel. The steel can be galvanized for the wheel paths. A Table on Page 17 is included that shows radius dimensions locating the points of contact between the sweep and the bin floor. The dimensions may be used to figure the material quantities of track to support the sweep across the aeration flooring. The track material is not supplied with the sweep and must be supplied by the installer. The dimensions are approximate and the assembled sweep should be checked for exact points of contact.</p>
<p style="text-align: center;">Center Sump Size</p>	<p>When installing a 12" or 16" sweep, the minimum recommended opening is 42" x 42".</p> <p>The sump hopper supplied by GSI was designed with sufficient clearance around the collector ring housing to allow grain to gravity flow through the hopper and be carried away by the material handling equipment below. 42-3/4" is the maximum opening size to allow rolling clearance for the casters assembled to the head end jack. If made smaller, grain flow may be decreased to an unacceptable level.</p> <p>Flow of grain is limited when using this sump and collector ring housing assembly. The collector ring housing extends 23-1/2" down from the floor surface and is approximately 14-1/4" x 14-1/4" in size.</p>
<p style="text-align: center;">Number of Intermediate Sumps</p>	<p>Intermediate sumps must be installed on a maximum of 10' centers where the sweep will be parked during storage. The first intermediate sump should be placed at a maximum of 10' from the center sumps and the end sump should be no more than 4' from the bin wall.</p> <p>The extra sumps will help clean out the grain in front of the sweep, reducing the start-up load. Doing this will save labor dollars and hours of work to dig out the sweep and will help the sweep during start-up. The sweep is not designed to start-up when submerged in material. The sweep should be parked behind the intermediate sumps with sumps on the auger side of the sweep.</p>
<p style="text-align: center;">Routing the Power Supply to the Sweep</p>	<p>The only option is to use the hopper sump with collector ring. This allows the power to be transferred through a mechanical device in the center sump and does not twist any cords.</p>
<p style="text-align: center;">Floor Level Tolerance</p>	<p>The top edge of the sump hopper and the top edge of the “X” brace support must be level with the floor. The floor must be level within 3/4" plus (or) minus, preferably less. Any high or low points must be gradually sloped. The change in elevation should be no more than 3/4" over 60".</p>
<p style="text-align: center;">Bin Roundness Tolerance</p>	<p>Diameter tolerances are limited by foundation limits and sweep operation as well as structural issues. For 72' diameter and larger, the overall tolerance would be plus or minus 1-1/4" on the radius, plus or minus 1" on 42'-66' diameter bins and plus or minus 3/4" on 30'-39' bins.</p>

Issues	Recommendations
<p>Bin Opening Size Required for Installation</p>	<p>The head section is the largest piece of a standard "X" Series Sweep. The dimensions for a 16" head section are 23-1/2" x 55-1/4". If the bin wall is not too thick, this unit should fit through a 23-1/2" x 47" opening. The dimensions for a 12" head section are 21-1/4" x 51-1/2". Again, if the bin wall is not too thick, the section should fit through an opening 21-1/2" x 45".</p>
<p>Voltage Specification</p>	<p>The "X" Series Sweep is designed to operate using 460 Volt 3 Phase 60 Hz, 380V 50 Hz or 600V 60 Hz. The voltage must be within plus or minus 4% for proper operation. Voltages outside of this range may cause excessive power draw or other operating problems. Please contact the factory for applications outside of these parameters.</p>
<p>Electrical Requirements</p>	<p>Electrical controls and wiring should be installed by a qualified electrician. The motor disconnect switches and conductor cables should comply with the National Electric Code and any local codes which may apply.</p> <p>A main power disconnect switch capable of being locked only in the OFF position should be used. This is integrated into the control panel for the "X" Series Sweeps. Disconnect and lock out the power before servicing the equipment, entering the bin or resetting the motor overloads.</p> <p>The control panel MUST be mounted OUTSIDE the bin near the door. It must be located so the operator has a full view of the equipment and can see that all personnel are clear. It must NEVER be installed inside the bin. Motor thermal protection leads must also be wired into or plugged into the control panel before the sweep will operate.</p>

3. Product Overview

Product Information



This “X” Series Sweep is a single pass sweep. Consult the manufacturer of the storage tank regarding the requirements or restrictions of the sweeping process. The manufacturer may require a multiple pass sweep.

1. The “X” Series Sweep includes the following components:

Control Panel

Two (2) Motors

Motor Covers

Motor Mount

Auger Flighting

Auger Back Shield Assembly

Caster Wheels

Track

Shield Brush

2. The following components are NOT included with the “X” Series Sweep:

Track Anchors

Electrical Components

- Wire

- Fittings

- Conduit

3. The unit will operate only in a round grain bin equipped with a center sump in the bin floor.



NEVER enter a grain bin unless ALL power driven equipment has been shut down. Disconnect and lock out power before entering the bin or servicing the equipment.

General Information

1. GSI reserves the right to improve its 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. This new bin sweep auger has been engineered and manufactured to give years of dependable service. The care and maintenance of this equipment will affect the satisfaction and service obtained. By following the instructions and recommendations, the owner should receive quality service for many years. If additional information or assistance is required, please contact GSI.

- 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 of the date of the occurrence. The consignee should accept the shipment after noting the damage or loss on the bill of lading.
- Table *below* shows radius dimensions locating the points of contact between the sweep and the bin floor. The dimensions may be used to figure material quantities of track to support the sweep across the aeration flooring. The track material is not supplied with the sweep and must be supplied by the installer. The dimensions are approximate and the assembled sweep should be checked for exact points of contact.

Track and Support Wheel Radius Dimensions

Bin Dia.	# of Sections	Radius Dimensions for Support Wheels and Track from Center Pivot (Support wheel locations are approximate and should be checked after sweep assembly is complete.)								
		6' - 2-1/2" (1.89 m)	8' (2.44 m) Track	8'-10" (2.71 m)						
27'	2	6' - 2-1/2" (1.89 m)	8' (2.44 m) Track	8'-10" (2.71 m)						
30'	2	6' - 2-1/2" (1.89 m)	8' (2.44 m) Track	10'-10" (3.30 m)						
33'	2	6' - 2-1/2" (1.89 m)	8' (2.44 m) Track	12'-10" (3.91 m)						
34'	2	6' - 2-1/2" (1.89 m)	8' (2.44 m) Track	12'-10" (3.91 m)						
36'	2	6' - 2-1/2" (1.89 m)	8' (2.44 m) Track	13'-10" (4.22 m)						
37'	2	6' - 2-1/2" (1.89 m)	8' (2.44 m) Track	14'-10" (3.91 m)						
39'	2	6' - 2-1/2" (1.89 m)	8' (2.44 m) Track	15'-10" (4.83 m)						
40'	2	6' - 2-1/2" (1.89 m)	8' (2.44 m) Track	15'-10" (4.83 m)						
42'	2	6' - 2-1/2" (1.89 m)	8' (2.44 m) Track	16'-10" (5.13 m)						
43'	2	6' - 2-1/2" (1.89 m)	8' (2.44 m) Track	16'-10" (5.13 m)						
45'	2	6' - 2-1/2" (1.89 m)	8' (2.44 m) Track	17'-10" (5.44 m)						
48'	3	6' - 2-1/2" (1.89 m)	16' (4.88 m)	18' (5.49 m) Track	19'-10" (6.05 m)					
49'	3	6' - 2-1/2" (1.89 m)	16' (4.88 m)	18' (5.49 m) Track	19'-10" (6.05 m)					
51'	3	6' - 2-1/2" (1.89 m)	16' (4.88 m)	18' (5.49 m) Track	20'-10" (6.35 m)					
54'	3	6' - 2-1/2" (1.89 m)	16' (4.88 m)	18' (5.49 m) Track	22'-10" (6.96 m)					
55'	3	6' - 2-1/2" (1.89 m)	16' (4.88 m)	18' (5.49 m) Track	22'-10" (6.96 m)					
57'	3	6' - 2-1/2" (1.89 m)	16' (4.88 m)	18' (5.49 m) Track	23'-10" (7.27 m)					
59'	3	6' - 2-1/2" (1.89 m)	16' (4.88 m)	18' (5.49 m) Track	24'-10" (7.57 m)					
60'	3	6' - 2-1/2" (1.89 m)	16' (4.88 m)	18' (5.49 m) Track	25'-10" (7.88 m)					
62'	3	6' - 2-1/2" (1.89 m)	16' (4.88 m)	18' (5.49 m) Track	26'-10" (8.18 m)					
63'	3	6' - 2-1/2" (1.89 m)	16' (4.88 m)	18' (5.49 m) Track	26'-10" (8.18 m)					
66'	3	6' - 2-1/2" (1.89 m)	16' (4.88 m)	18' (5.49 m) Track	27'-10" (8.49 m)					
68'	4	6' - 2-1/2" (1.89 m)	16' (4.88 m)	18' (5.49 m) Track	26' (7.93 m)	29'-10" (9.10 m)				
69'	4	6' - 2-1/2" (1.89 m)	16' (4.88 m)	18' (5.49 m) Track	26' (7.93 m)	29'-10" (9.10 m)				
72'	4	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	28' (8.54 m) Track	31'-10" (9.71 m)				
75'	4	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	28' (8.54 m) Track	32'-10" (10.01 m)				
78'	4	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	28' (8.54 m) Track	34'-10" (10.32 m)				
80'	4	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	28' (8.54 m) Track	35'-10" (10.62 m)				
81'	4	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	28' (8.54 m) Track	35'-10" (10.62 m)				
84'	4	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	28' (8.54 m) Track	37'-10" (11.23 m)				
87'	5	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	28' (8.54 m) Track	37'-10" (11.23 m)				
88'	5	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	28' (8.54 m) Track	36' (10.98 m)	39'-10" (12.14 m)			
90'	5	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	38' (11.59 m) Track	40'-10" (12.45 m)			
91'	5	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	38' (11.59 m) Track	40'-10" (12.45 m)			
92'	5	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	38' (11.59 m) Track	41'-10" (12.75 m)			
95'	5	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	38' (11.59 m) Track	42'-10" (13.06 m)			
98'	5	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	38' (11.59 m) Track	44'-10" (13.67 m)			
99'	5	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	38' (11.59 m) Track	44'-10" (13.67 m)			
105'	5	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	38' (11.59 m) Track	47'-10" (14.58 m)			
113'	6	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	38' (11.59 m) Track	46' (14.02 m)	51'-10" (15.80 m)		
115'	6	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	38' (11.59 m) Track	46' (14.02 m)	52'-10" (16.11 m)		
118'	6	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	38' (11.59 m) Track	46' (14.02 m)	53'-10" (16.41 m)		
120'	6	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	46' (14.02 m)	48' (14.63 m) Track	55'-10" (17.02 m)		
131'	7	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	46' (14.02 m)	48' (14.63 m) Track	56' (17.07 m)	60'-10" (18.55 m)	
132'	7	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	46' (14.02 m)	48' (14.63 m) Track	56' (17.07 m)	61'-10" (18.85 m)	
135'	7	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	46' (14.02 m)	48' (14.63 m) Track	56' (17.07 m)	62'-10" (19.16 m)	
139'	7	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	46' (14.02 m)	48' (14.63 m) Track	56' (17.07 m)	64'-10" (19.77 m)	
156'	8	6' - 2-1/2" (1.89 m)	16' (4.88 m)	26' (7.93 m)	36' (10.98 m)	46' (14.02 m)	48' (14.63 m) Track	56' (17.07 m)	66' (20.12 m)	73'-10" (25.10 m)

3. Product Overview

Capacities and Specifications



Electrical controls and wiring should be installed by a qualified electrician. The motor disconnect switches and conductor cables should comply with the National Electrical Code and any local codes.

1. Use below [Table](#) to determine the horsepower required.

NOTE: Sweep is not designed to start under full load.

Horsepower Requirements and Shield Lengths

Bin Diameter	Track Drive Horsepower	Bushel/MT per Hour Horsepower			Back Shield Length Pivot to End	Plow Length Pivot to End Minimum	Plow Length Pivot to End Maximum
		12" - 3000 (77.5)	12" - 5000 (125) to 7000 (180)	16" - 8000 (205) to 10000 (255)			
27'	1/2	15	15	15	12'-4" (3.78 m)	13' - 4-1/8" (4.09 m)	14'-1" (4.32 m)
30'	1/2	15	15	15	13'-4" (4.09 m)	14' - 2-3/4" (4.37 m)	14' - 11-3/4" (4.57 m)
33'	1/2	15	15	15	15'-4" (4.68 m)	16' - 4-3/8" (4.98 m)	16' - 11-7/8" (5.18 m)
34'	1/2	15	15	15	15'-4" (4.68 m)	16' - 4-3/8" (4.98 m)	16' - 11-7/8" (5.18 m)
36'	1/2	15	15	15	16'-4" (4.98 m)	17' - 4-3/8" (5.29 m)	17' - 11-7/8" (5.49 m)
37'	1/2	15	15	15	17'-4" (5.29 m)	18' - 2-7/8" (5.57 m)	18' - 11-7/8" (5.79 m)
39'	1/2	15	15	15	18'-4" (5.59 m)	19'-3" (5.87 m)	20'-0" (6.10 m)
40'	1/2	15	15	15	18'-4" (5.59 m)	19'-3" (5.87 m)	20'-0" (6.10 m)
42'	1/2	15	15	15	19'-4" (5.90 m)	20'-3" (6.18 m)	21'-0" (6.40 m)
43'	1/2	15	15	15	19'-4" (5.90 m)	20'-3" (6.18 m)	21'-0" (6.40 m)
45'	1/2	15	15	15	20'-4" (6.20 m)	21' - 2-7/8" (6.48 m)	22'-0" (6.72 m)
48'	1/2	15	15	15	22'-4" (6.81 m)	23' - 4-1/8" (7.12 m)	24'-1" (7.34 m)
49'	1/2	15	15	15	22'-4" (6.81 m)	23' - 4-1/8" (7.12 m)	24'-1" (7.34 m)
51'	1/2	15	15	15	23'-4" (7.12 m)	24' - 2-3/4" (7.37 m)	24' - 11-3/4" (7.60 m)
54'	1/2	15	15	15	25'-4" (7.73 m)	26' - 4-3/8" (8.04 m)	26' - 11-7/8" (8.23 m)
55'	1/2	15	15	15	25'-4" (7.73 m)	26' - 4-3/8" (8.04 m)	26' - 11-7/8" (8.23 m)
57'	1/2	15	15	15	26'-4" (8.03 m)	27' - 4 - 3/8" (8.33 m)	27' - 11-7/8" (8.51 m)
59'	1/2	15	15	20	27'-4" (8.34 m)	28' - 2-7/8" (8.59 m)	28' - 11-7/8" (8.82 m)
60'	1/2	15	15	20	28'-4" (8.64 m)	29'-3" (8.92 m)	30'-0" (9.15 m)
62'	1/2	15	15	20	29'-4" (8.95 m)	30'-3" (9.22 m)	31'-0" (9.45 m)
63'	1/2	15	15	20	29'-4" (8.95 m)	30'-3" (9.22 m)	31'-0" (9.45 m)
66'	1/2	15	15	20	31'-4" (9.56 m)	32' - 2-7/8" (9.81 m)	33'-0" (10.06 m)
68'	1/2	15	15	20	32'-4" (9.86 m)	33' - 4-1/8" (10.16 m)	34'-1" (10.39 m)
69'	1/2	15	15	20	32'-4" (9.86 m)	33' - 4-1/8" (10.16 m)	34'-1" (10.39 m)
72'	1/2	15	15	20	34'-4" (10.47 m)	35'-3" (10.75 m)	36'-0" (10.98 m)
75'	1/2	15	15	20	35'-4" (10.78 m)	36' - 4-3/8" (11.09 m)	36' - 11-7/8" (11.28 m)
78'	1/2	15	15	20	37'-4" (11.39 m)	38' - 2-7/8" (11.64 m)	38' - 11-7/8" (11.86 m)
80'	1/2	15	20	20	38'-4" (11.69 m)	39'-3" (11.97 m)	40'-0" (12.20 m)
81'	1/2	15	20	20	38'-4" (11.69 m)	39'-3" (11.97 m)	40'-0" (12.20 m)
84'	1/2	15	20	25	40'-4" (12.30 m)	41' - 2-7/8" (12.55 m)	42'-0" (12.80 m)
87'	1/2	15	20	25	40'-4" (12.30 m)	41' - 2-7/8" (12.55 m)	42'-0" (12.80 m)
88'	1/2	15	20	25	42'-4" (12.91 m)	43' - 4-1/8" (13.19 m)	44'-1" (13.44 m)
90'	1/2	15	20	25	43'-4" (13.22 m)	44' - 2-3/4" (13.47 m)	44' - 11-3/4" (13.69 m)
91'	1/2	15	20	25	43'-4" (13.22 m)	44' - 2-3/4" (13.47 m)	44' - 11-3/4" (13.69 m)
92'	1/2	15	20	25	44'-4" (13.52 m)	45'-3" (13.80 m)	46'-0" (14.02 m)
95'	1/2	15	20	25	45'-4" (13.83 m)	46' - 4-3/8" (14.13 m)	46' - 11-7/8" (14.30 m)
98'	1/2	15	20	25	47'-4" (14.44 m)	48' - 2-7/8" (14.68 m)	48' - 11-7/8" (14.91 m)
99'	1/2	15	20	25	47'-4" (14.44 m)	48' - 2-7/8" (14.68 m)	48' - 11-7/8" (14.91 m)
105'	1/2	15	25	30	50'-4" (15.35 m)	51' - 2-7/8" (15.60 m)	52'-0" (15.85 m)
113'	1/2	15	25	30	50'-4" (15.35 m)	55'-3" (16.84 m)	56'-0" (17.07 m)
115'	1/2	15	25	30	55'-4" (16.86 m)	56' - 4-3/8" (17.16 m)	56' - 11-7/8" (17.38 m)
118'	1/2	15	25	30	57'-4" (17.49 m)	58' - 2-7/8" (17.73 m)	58' - 11-7/8" (17.96 m)
120'	1/2	15	25	30	58'-4" (17.79 m)	59'-3" (18.06 m)	60'-0" (18.29 m)
131'	1/2	15	25	30	63'-4" (19.31 m)	64' - 2-3/4" (19.56 m)	64' - 11-3/4" (19.79 m)
132'	1/2	15	25	30	64'-4" (19.62 m)	65'-3" (19.89 m)	66'-0" (20.12 m)
135'	1/2	15	25	30	65'-4" (19.92 m)	66' - 4-3/8" (20.23 m)	66' - 11-7/8" (20.42 m)
139'	1/2	15	25	30	67'-4" (20.53 m)	68'-2" 7/8" (20.81 m)	68'-11 7/8" (21.04 m)
156'	1/2	15	25	40	76'-4" (23.27 m)	77' - 4-3/8" (20.23 m)	77' - 11-7/8" (20.42 m)

Due to continual improvements, GSI designs and specifications are subject to change without notice.

NOTE: *The horsepower recommendations are for augering reasonably dry grain. High moisture grain (greater than 15%) will require greater power for maximum capacity.*

NOTE: *Sweep carrier wheels require plates or track over aeration flooring for travel. Carrier wheel track is not supplied with the sweep unit. Contact your installer or flooring provider for possible sources and details.*

2. The motor starting controls must be located outside the bin. They must NEVER be installed on the "X" Series Sweep auger inside the bin.
3. Disconnect and lock out the power before re-setting motor overloads.
4. Disconnect and lock out the power before entering the bin.
5. Disconnect and lock out the power before servicing the equipment.
6. Position the reset and motor starting controls so that the operators have full view of the equipment.



There should ALWAYS be two (2) people in the work area.

7. Make sure electric motors are grounded.



A main power disconnect switch capable of being locked only in the OFF position should be used. It should be locked in the OFF position whenever work is being done on the "X" Series Sweep.

3. Product Overview

Torque values to be used when tightening the bolts on the “X” Series Sweep

It takes more force to tighten a 3/4"-10 bolt than to tighten a 1/2"-13 bolt because of its larger diameter. It also takes more force to tighten a grade 8 bolt than it does to tighten a grade 5 bolt because of the greater material strength. A bolt that is waxed or otherwise lubricated requires much less force to tighten. If the same amount of force is used with a lubricated bolt as with a non-lubricated bolt, the lubricated bolt often will break.

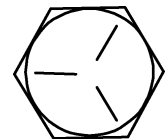
Suggested Initial Tightening Torque

Size	Grade #5 Assembly Torque		Grade #8 Assembly Torque	
	Dry	Lubricated	Dry	Lubricated
1/4"-20	8 ft. lbs.	75 in lbs.	12 ft. lbs.	9 ft. lbs.
1/4"-28	10 ft. lbs.	86 in lbs.	14 ft. lbs.	10 ft. lbs.
5/16"-18	17 ft. lbs.	13 ft. lbs.	25 ft. lbs.	18 ft. lbs.
5/16"-24	19 ft. lbs.	14 ft. lbs.	25 ft. lbs.	20 ft. lbs.
3/8"-16	30 ft. lbs.	23 ft. lbs.	45 ft. lbs.	35 ft. lbs.
3/8"-24	35 ft. lbs.	25 ft. lbs.	50 ft. lbs.	35 ft. lbs.
1/2"-13	75 ft. lbs.	55 ft. lbs.	110 ft. lbs.	80 ft. lbs.
1/2"-20	90 ft. lbs.	65 ft. lbs.	120 ft. lbs.	90 ft. lbs.
5/8"-11	150 ft. lbs.	110 ft. lbs.	220 ft. lbs.	170 ft. lbs.
5/8"-18	180 ft. lbs.	130 ft. lbs.	240 ft. lbs.	180 ft. lbs.
3/4"-10	260 ft. lbs.	200 ft. lbs.	380 ft. lbs.	280 ft. lbs.
3/4"-16	300 ft. lbs.	220 ft. lbs.	420 ft. lbs.	320 ft. lbs.
7/8"-9	320 ft. lbs.	320 ft. lbs.	600 ft. lbs.	460 ft. lbs.
1"-8	640 ft. lbs.	480 ft. lbs.	900 ft. lbs.	680 ft. lbs.
1-1/8" - 7	800 ft. lbs.	600 ft. lbs.	1280 ft. lbs.	960 ft. lbs.
1-1/4" - 7	1120 ft. lbs.	840 ft. lbs.	1820 ft. lbs.	1360 ft. lbs.
1-3/8" - 6	1460 ft. lbs.	1100 ft. lbs.	2380 ft. lbs.	1780 ft. lbs.
1-1/2" - 6	1910 ft. lbs.	1460 ft. lbs.	3160 ft. lbs.	2360 ft. lbs.

Diameter	Proof Load	Yield Strength	Tensile Strength	Proof Load	Yield Strength	Tensile Strength
1/4" to 3/4"	85000	92000	120000	120000	130000	150000
3/4" to 1-1/2"	74000	81000	105000			
Medium Carbon Stl, Quenched and Tempered				Carbon Alloy Stl, Quenched and Tempered		

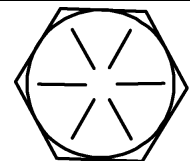
Grade 5 Bolts

Grade 5 bolts are designated by three (3) slash marks on the head.



Grade 8 Bolts

Grade 8 bolts are designated by six (6) slash marks evenly spaced on the head of the bolt.



Under no condition shall any other fasteners be substituted for those supplied by the manufacturer.

Perform Pre-Start Checks



To ensure that the drive is not unexpectedly started, turn OFF and lock out the power source before proceeding.

Failure to perform any or all of these pre-start checks may cause damage to the equipment and/or cause *SERIOUS INJURY* or *DEATH* to those in the work area.

Failure to perform any or all of these pre-start checks may also be a misuse of the equipment. Any misuse of the equipment may void the warranty.



ALWAYS keep ALL guards and shields in place, until all the power is disconnected and locked out.

1. Make sure ALL shields are in place.
2. Inspect the drive unit for any problems or potential problems.



Make certain *ONLY* trained operators are in the work area before operating or moving the machine. Two (2) people must always be in position to monitor the operation of the equipment from outside the bin.

3. Be aware of any emergency shut down procedures. Two (2) people must always be in position to monitor the operation of the equipment from outside the bin.
4. Before starting the auger for the first time, make sure that all parts are assembled correctly according to the instructions in this manual.
5. If an operator present device is used, ensure it is installed and enabled in the controller.
6. Ensure that all thermal protectors are connected or the sweep will not operate.

Start the Auger



DO NOT start or stop the auger while it is under load.

1. When running the auger for the first time or the first time of the season, “break-in” the auger by running the auger at partial capacity until it is “polished smooth” before attempting full capacity.



Failures may occur if the auger is run full before it has been “polished” during the “break-in” period.



NEVER operate the auger empty. Operating augers empty for any length of time will cause excessive wear. NEVER operate the auger at speeds higher than recommended.



Be aware of any unusual vibration or noises during the initial start-up and “break-in” period. If anything unusual is detected, immediately shut down the auger and disconnect and lock out the power supply before servicing.

Operating the Sweep Auger



Keep out of the bin while the bin sweep auger is in operation. The rapidly moving sweep auger can cause *SERIOUS INJURY* or *DEATH*.

NOTE: *The auger capacity can fluctuate greatly under varying conditions. Moisture content, different commodities, amount of foreign matter and speeds all play a part in the performance of the auger. Twenty five percent (25%) moisture may cut capacity by as much as 40% under some conditions.*

1. Make certain there are at least two (2) people in the work area to monitor operations at all times.
2. Start the bin unloading equipment before starting the bin sweep auger.



Be alert for any unusual vibrations, noises and the loosening of any fasteners. If anything unusual is detected, immediately shut down the auger, disconnect and lock out the power source before servicing.

3. Shut down the auger as soon as the bin is empty.
4. Consideration should be given to the proper size auger for any intermittent type operations. When augers are stopped and restarted under full load, it may result in damage to the auger. Using a larger diameter auger and reducing its load level will be far better than subjecting a smaller diameter auger to big loads. If an auger is kept from absolute filling, it will make start-up easier and will convey more efficiently.



NEVER enter the bin while the bin sweep is in operation.

NEVER attempt to control the operation of the bin sweep by depressing the operating controls with shovels, brooms or any other objects.

DO NOT attempt to restrain movement of the bin sweep with ropes, bars or other devices.

NEVER allow an operator to attempt to manually restrain the bin sweep.

Operating in Manual Mode

NOTE: Manual mode is generally only used during setup and at the beginning of the unload cycle. At the beginning of the cycle, it may be necessary to jog the auger motor ON and OFF to break up any grain packed around the auger.

NOTICE

When running in manual mode, monitor the amp meter on the control panel display screen and never exceed the full load amperage or damage may occur.

NOTE: DO NOT run the sweep too far forward where the grain avalanches over the sweep, burying the sweep. Allowing this to happen will result in a sweep shut down and will need to be manually dug out.

1. Turn ON the bin unload system before starting the sweep auger.
2. Under “**MODE SELECT**” turn the switch ON the main control panel to “**MANUAL**”. (See Figure 5A.)



Figure 5A

5. Operation

Manual Start

1. Under “**MANUAL MODE**” locate the “**AUGER**” ON/OFF button, depress the “**GREEN**” button to start the sweep auger. (See *Figure 5B* and *Figure 5C*.)



Figure 5B

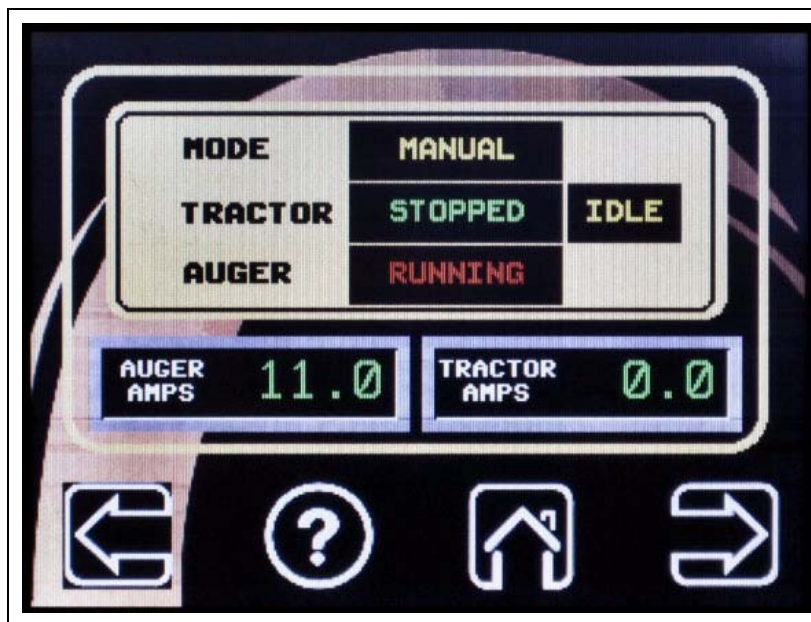


Figure 5C

2. Under “**MANUAL MODE**” locate the “**DRIVE**” switch and turn the momentary drive switch to “**FWD**” to move the sweep forward or “**REV**” to move the sweep backwards. (See Figure 5D.)

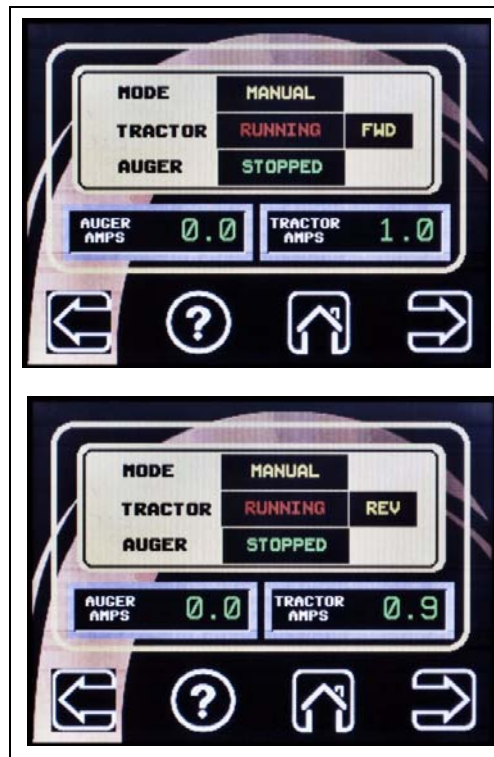


Figure 5D

NOTE: Once the switch is released it will automatically toggle to the idle position. (See Figure 5E.)

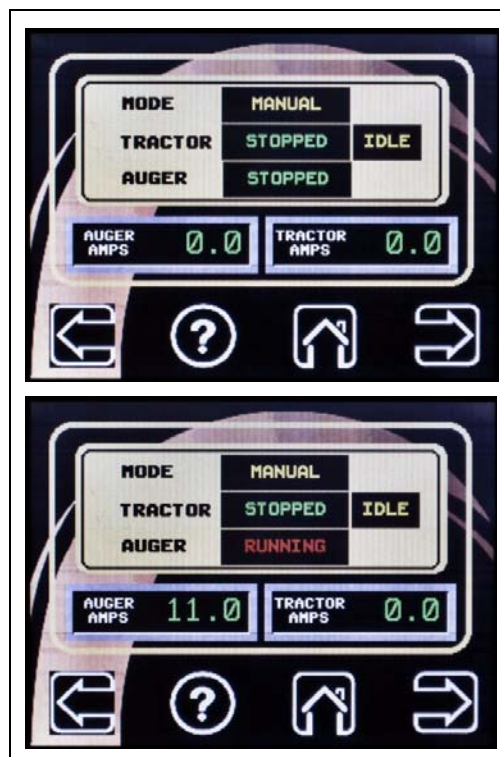


Figure 5E

5. Operation

Manual Stop

1. Under “**MANUAL MODE**” locate the “**AUGER**” ON/OFF button, depress the “**RED**” button to stop the sweep auger. (See Figure 5F and Figure 5G.)

NOTE: DO NOT stop the auger under full load.



Figure 5F

NOTE: If shutting down the sweep during break timer or between shifts, it is recommended to reverse the sweep away from the grain pile so the grain does not avalanche onto the sweep.

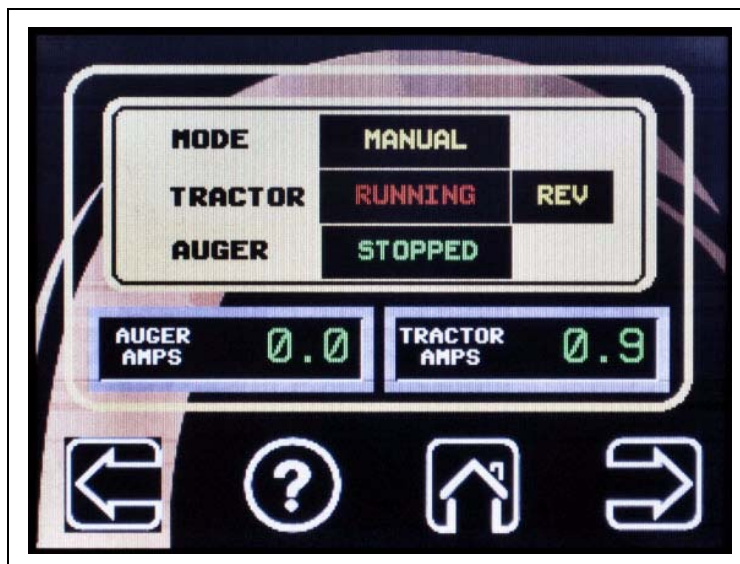


Figure 5G

Operating in Auto Mode

Auto Start

1. Turn ON the bin unload system before starting the sweep auger.
2. On the main control panel adjust the “**MODE SELECT**” switch to “**AUTO MODE**” and locate the ON/OFF button, depress the “**GREEN**” button to start the sweep auger.
3. The auger motor starts immediately after depressing the “**GREEN**” ON/OFF button. The track drive motor forward progression is delayed until no load is experienced on the auger. (See Figure 5H.)
4. The control panel program will automatically determine the speed of the track drive motor by the amps being pulled by the auger motor and move forward or reverse accordingly. (See Figure 5I.)



Figure 5H

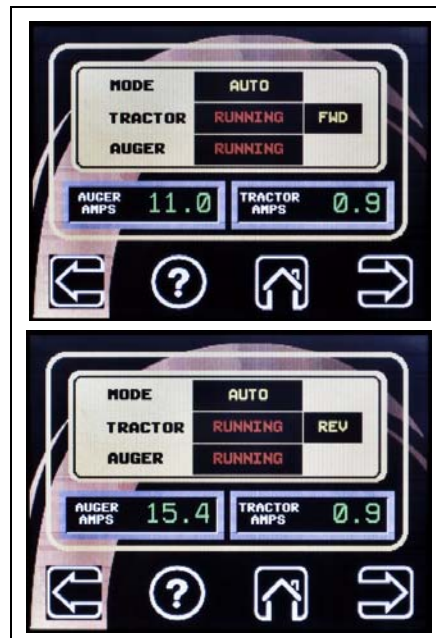


Figure 5I

5. Operation

Auto Stop

1. On the main control panel locate “**AUTO MODE**” and depress the “**RED**” button to stop the sweep auger. (See Figure 5J and Figure 5K.)

NOTE: *DO NOT stop the auger under full load.*



Figure 5J

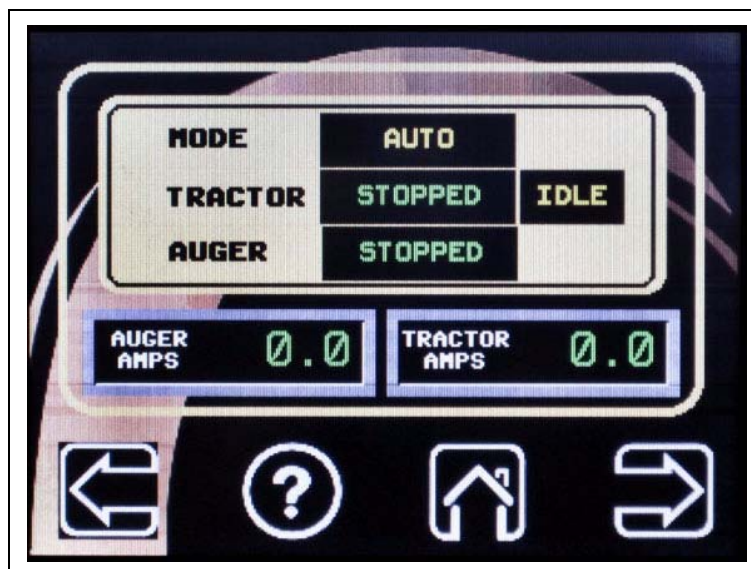


Figure 5K

NOTE: If shutting down the sweep during break timer or between shifts, it is recommended to reverse the sweep away from the grain pile so the grain does not avalanche onto the sweep. Reversing of the sweep can be done using the “Drive” momentary switch in “MANUAL” mode. (See Figure 5L.)

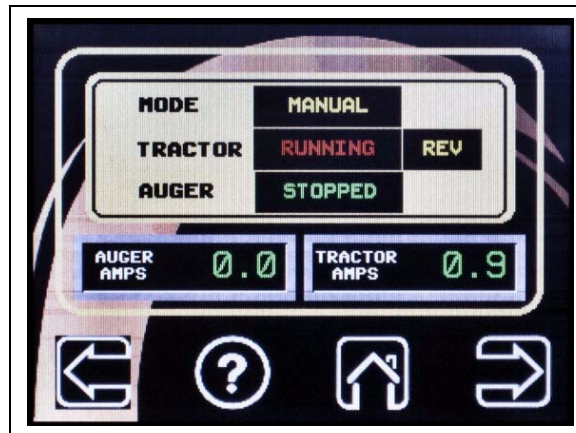


Figure 5L

Cleanout Mode

NOTE: Cleanout mode increases the sweep speed and should only be used during initial setup of the sweep or during final cleaning of the remaining grain following the first cleanout pass. CLEANOUT MODE SHOULD NOT BE USED FOR NORMAL SWEEPING OPERATIONS.

1. Turn ON the bin unload system before starting the sweep auger.
2. Under “**MODE SELECT**” turn the switch ON the main control panel to “**CLEANOUT**”.

Start Cleanout

1. On the main control panel locate “**AUTO MODE**” and depress the “**GREEN**” button to start the sweep auger. (See Figure 5M.)



Figure 5M

NOTE: “Cleanout” mode has a built in maximum auger amperage threshold. If the amp threshold is reached, the control program will automatically kick the sweep out of “Cleanout” mode.

5. Operation

Stop Cleanout

1. On the main control panel locate “**AUTO MODE**” and depress the “**RED**” button to stop the sweep auger. (See Figure 5N and Figure 5O.)



Figure 5N

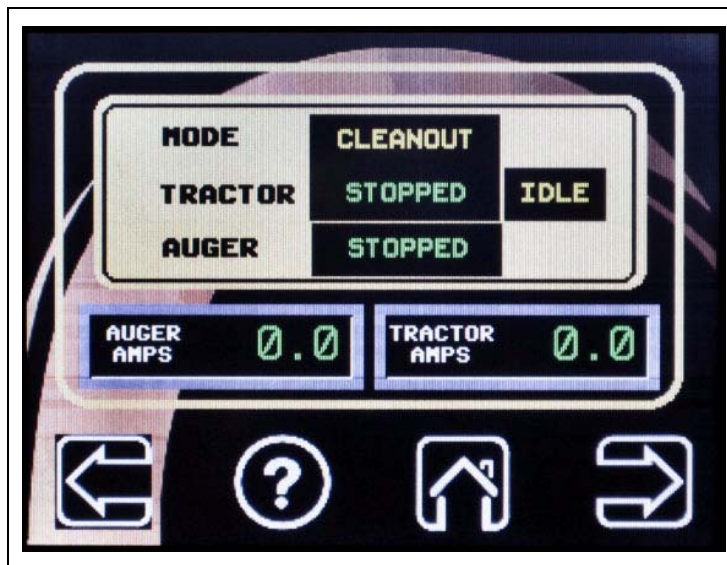


Figure 5O

NOTE: DO NOT stop the auger under full load.

Warning Messages

The following are possible pop-up warnings and should NOT be ignored. Correct any pop-up warning before operation continues. (See Figures 5P-5W.)



Figure 5P Auger Over Current



Figure 5T Disable



Figure 5Q Auger Starter Fault



Figure 5U Obstacle



Figure 5R Auger Thermal

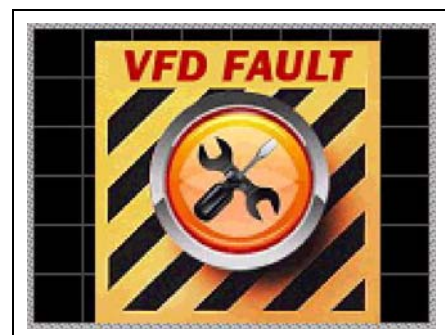


Figure 5V VFD Fault



Figure 5S Cleanout Overamps



Figure 5W Process Complete

6. Shut Down

Normal Shut Down

1. Before shutting down the unit, be sure the sumps and unload are empty.
2. Depress the “RED” button under AUTO MODE/MANUAL MODE to stop the sweep auger.

NOTICE

NEVER start the equipment under load. Doing so may cause damage. This type of damage is considered a misuse of the equipment. Any misuse of the equipment may void the warranty.

Emergency Shut Down

1. In an emergency, hit the “Enable/Disable” button on the side of the control panel.
2. Disconnect and lockout the power source.

NOTICE

NEVER start the equipment under load. Doing so may cause damage. This type of damage is considered a misuse of the equipment. Any misuse of the equipment may void the warranty.

Storage Preparation

1. Be sure the sumps and unload are empty.
2. Close the sump control gates.
3. Park the sweep so the centerline of the sweep auger is in line with the back edge of the outer most intermediate discharge well. Intermediate discharge wells should not exceed 6'-10' center to center.

Maintain the Auger



ALWAYS shut down and disconnect the power supply before adjusting, servicing or cleaning the equipment.

1. Use caution when repairing or replacing equipment parts.
2. Make sure ALL decals are legible and securely attached to the auger. If necessary, replace them **FREE OF CHARGE** by contacting GSI at:

GSI
P.O. Box 20
1004 E. Illinois St.
Assumption, IL 62510
Phone: 1-217-226-4421

3. Ensure that ALL electric motors are operating at the proper speed.
4. Make sure ALL electrical wiring is not damaged and that it meets proper wiring codes.
5. Make sure ALL components are in good working condition before use.

NOTICE

Do not mix non-synthetic and synthetic oil in the unit.

Lubrication

A. Lubrication - Electric Motors

Electric motors supplied for use on “X” Series Sweeps are properly lubricated at the time of manufacture. It is not necessary to lubricate them at the time of installation unless the motor has been in storage for one year or longer. Some motors may be factory lubricated and sealed for the life of the bearings. Overgreasing the bearings can cause premature failure of the motor. The amount of grease added must be carefully controlled.

B. Procedure for Lubrication of Electric Motors

1. Stop motor. Disconnect and lock out all power sources.
2. Follow all safe bin entry procedures and wear all required personal protective equipment.
3. Remove contaminants from grease inlet area.
4. Remove filler and drain plugs.
5. Check filler and drain holes for blockage and clean as necessary.
6. Add proper type and amount of grease. According to manufacturers recommendations. Too much grease or injecting grease too quickly can cause premature bearing failure. Use approximately one minute to slowly inject the recommended amount of grease.
7. Wipe off excess grease and replace filler and drain plugs. Do not run motor without the grease and drain plugs installed.

NOTE: *It is very important to keep the grease clean. Mixing dissimilar grease is not recommended.*

C. Type of Lubrication

A polyurea mineral oil NGLI grade 2 type grease is to be used for lubrication of the electric motors. Grease meeting this specification include:

- | | |
|------------------|-------------|
| 1.) Chevron | SRI #2 |
| 2.) Exxon-Mobile | Polyrex EM |
| 3.) Texaco | Polystar RB |

D. Frequency of Lubrication

Motors should be lubricated after storage of one year or more or at the beginning of each season. Refer to manufacturer recommendations for amount of lubricant to use.

E. Lubrication - Reducers (Gearboxes)

Reducers supplied for use on "X" Series Sweeps are shipped with lubricant (dry). Double check to make sure correct amount of lubricant is present and reducer has not leaked. Over lubrication may cause premature failure of the reducer. The amount of lubricant must be carefully controlled.

F. Procedure for Initial Filling of Reducers

1. Disconnect and lock motor out of service. Do not run gear box without lubricant.
2. Follow all safe bin entry procedures and wear all required personal protective equipment.
3. Remove contaminants from inlet area.
4. Remove filler and oil level fill plugs.
5. Check filler holes for blockage and clean as necessary.
6. Clean the magnetic drain plug if one was supplied.
7. Add proper type of lubricant to fill level or until oil runs out of oil level fill hole.
See the Lubrication Chart on Page 36 for amounts and types of lubricant.
8. Wipe off excess lubricant and replace filler and oil level fill plugs.

NOTE: *It is very important to keep the lubricant clean. Mixing dissimilar lubricants is not recommended.*

G. Procedure for Changing of Lubricant

1. Stop motor. Disconnect and lock out all power sources.
2. Follow all safe bin entry procedures and wear all required personal protective equipment.
3. Remove contaminants from inlet and drain area.
4. Remove filler, oil level fill and drain plugs. Drain old lubricant from reducer.
5. Flush reducer with a nonflammable solvent such as Lubriplate Pure Flush or Whitmore's Flushing Oil.
6. Clean the magnetic drain plug if installed.
7. Carefully replace drain plug.
8. Add proper type of lubricant to fill level or until oil runs out of oil level fill hole.
See the Lubrication Chart on Page 36 for amounts and types of lubricant.
9. Wipe off excess lubricant and replace filler and oil level fill plugs.

NOTE: *It is very important to keep the lubricant clean. Mixing dissimilar lubricants is not recommended.*

H. Frequency of Lubrication

Lubricant should be changed after storage of one year or more or at the beginning of each season.

7. Maintenance

I. Type of Lubrication

The type and quantity of lubrication required for each type and size of reducer is listed in *below* tables.

Lubrication - Gearboxes Quantity and Type of Lubricant per Box Size

Dodge Quantis MSM Reducer

Box Size	Volume	
	Quarts	Liters
MW88	9.2	8.7
MW108	15.2	14.4
MW128	29.25	27.7

Lubrication Specification		
Ambient Temp	25°F to 75°F	45°F to 105°F
	(-4°C to 29°C)	(7°C to 41°C)
Chevron Oil Company	FM 260	* FM 460
	Food Grade H1 Mineral Oil	
* Factory Filled by Dodge		

Motovario PH Reducer

Box Size	Volume	
	Quarts	Liters
PH051FA	0.634	0.6
PH103	7.61	7.2
Lubrication Specification		
Ambient Temp	(-25°F to 248°F) (-32°C to 120°C)	
Ultrachem, Inc. (Omnilube FGG 1220)	* 220	
	Food Grade H1 Synthetic	
* Factory Filled by Motovario		

J. Lubrication - Casters

The casters supplied for use on “X” Series Sweeps are shipped from the factory lubricated. From time to time a small amount of the proper lubricant must be added. Over lubrication may cause premature failure of the components.

K. Procedure for Lubricating Casters

1. Disconnect and lock motors out of service.
2. Follow all safe bin entry procedures and wear all required personal protective equipment.
3. Remove contaminants from the grease zerk and surrounding area.
4. Add proper type of lubricant. See [Table on Page 38](#) for types of lubricant.
5. Wipe off excess lubricant.

NOTE: *It is very important to keep the lubricant clean.*

L. Frequency of Lubrication

The casters should be lubricated after each use of the “X” Series Sweep. If possible, lubricate all the components at the beginning of each season or after long term storage.

7. Maintenance

M. Type of Lubrication

The type of lubrication required, for each component, is listed. [\(See Chart Below\)](#).

Lubrication - Casters and Misc. Equipment

Type of Lubricant		
Equipment	Lubrication Specification	
Nylon Flight Bearings	None Required	None Required
Casters	Shell Oil Company	Alvania #2 (or equivalent)

NOTICE

Too much oil will cause overheating and too little will result in gear failure. Check oil level regularly.

NOTICE

Extreme pressure (EP) lubricants are not recommended for average operating conditions. Failure to observe these precautions could result in damage to or destruction of the equipment.

NOTICE

Under Extreme operating conditions, such as rapid rise and fall of temperatures, dust, dirt, chemical particles, chemical fumes or oil sump temperature above 200°F, the oil should be changed every one to three months, depending on severity of conditions.



If the unit is used in the food or drug industry (including animal food) consult the petroleum supplier for recommendations on lubricants which meet the specifications of the FDA, USDA and/or other authoritative bodies having jurisdiction. Standard lubricants are not suitable for these applications or these industries.

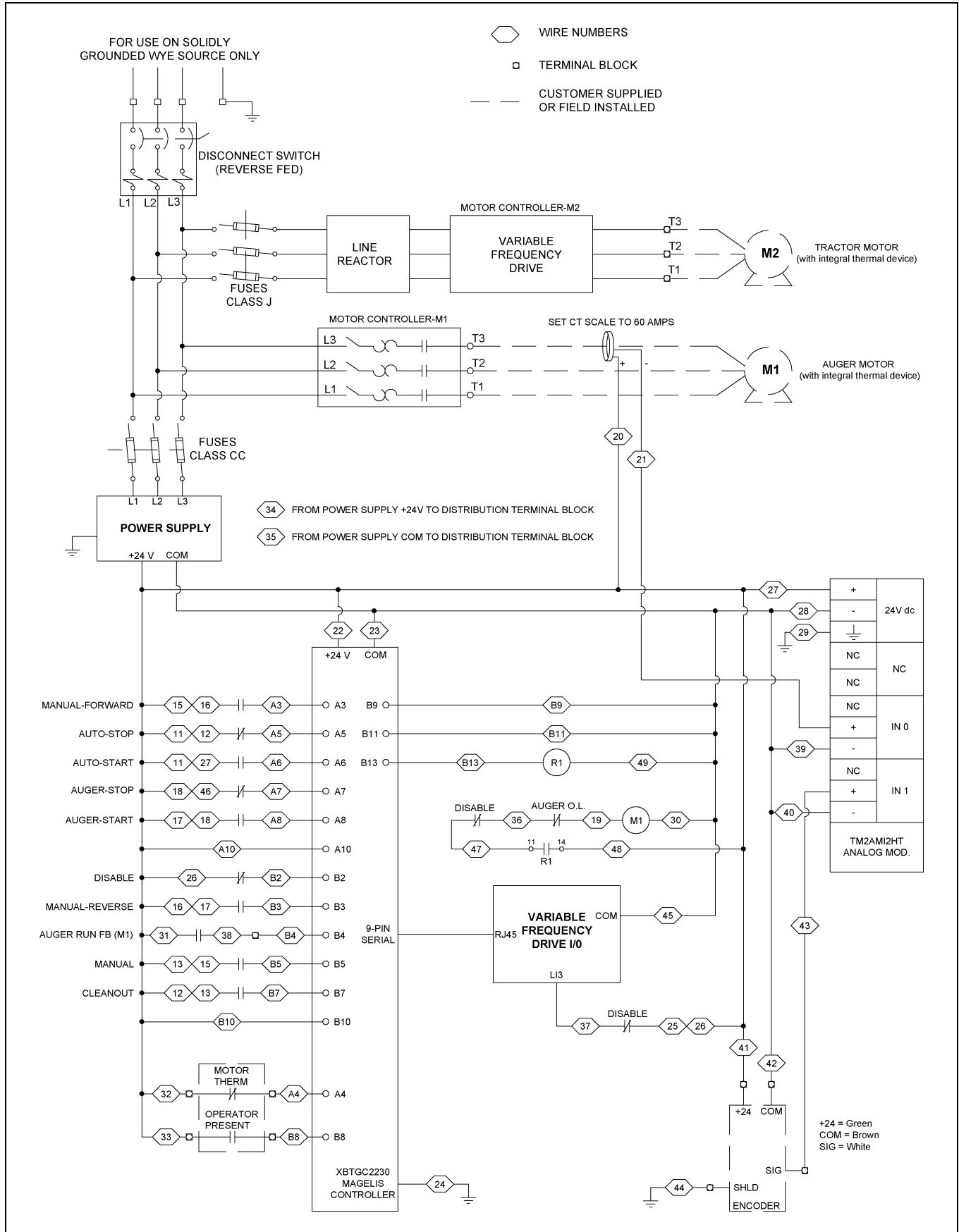


Oil, housings and other components can reach high temperatures during operation and can cause severe burns. Use extreme care when removing lubrication plugs and vents while servicing the unit.

NOTE: The pour point of the lubricant selected should be at least 10°F lower than the expected minimum ambient starting temperature. Extreme pressure (EP) lubricants are not recommended for average operating conditions.

8. Control Panel Diagrams

Control Panel Schematic 600V



Problem	Possible Cause	Solution
1. Sweep does not run	1. Overloads may be tripped.	1. Reset the overloads.
	2. Adjustable overloads not set correctly.	2. Set overload to 10% over the value listed on motor nameplate for full load amps.
	3. Motor thermal protection leads are not wired to control panel.	3. Wire motor thermal protection leads to control panel.
2. Low capacity	1. The auger may not be fully loaded.	1. Make sure the grain is flowing into the auger, making it fully loaded.
	2. The auger is moving too slowly.	2. Check the auger speed. Low capacity results from speeds slower than recommended.
	3. The control panel is not set to the correct capacity.	4. Select the correct capacity in the control panel.
3. Sweep does not move around the bin	1. The control panel may not be in "Automatic Mode".	1. Turn the switch to "Automatic Mode".
4. The sweep is vibrating	1. The auger may have foreign materials in it.	1. Remove the foreign material.
	2. The hanger bearings may be worn.	2. Replace the hanger bearings.
	3. The flight connections may be loose.	3. Tighten all of the flight connecting bolts.
	4. The flighting may be worn.	4. Replace all the flighting sections that are worn.

9. Troubleshooting

FAQs

Who do I contact for parts or service?

Contact your dealer. If your unit was purchased direct from GSI, contact your inside sales person.

What is/where do I find the model number of my sweep?

The model number of your sweep can be found on your quote or invoice.

How complete is the “X” Series Sweep?

With the exception of a few electrical connectors, all components required to assemble your sweep are included.

How level does my floor need to be for the sweep to operate properly?

The top edge of the sump hopper and the top edge of the “X” brace support must be level with the floor. The floor must be level within 3/4" plus or minus, preferably less. Any high or low points must be gradually sloped. The change in elevation should be no more than 3/4" over 60".

Where should the center pivot pipe be located?

The center pivot pipe **must** be in the center of the bin. If it is not, the sweep could hit the bin wall. There should be between 2" and 14" of clearance between the end of the sweep and the closest obstruction (bin wall, stiffeners, etc.).

How round must my bin be for the sweep to operate properly?

Diameter tolerances are limited by foundation limits and sweep operation as well as structural issues. For 72' diameter and larger bins, the overall tolerance would be plus or minus 1-1/4" on the radius, plus or minus 1" on 42'-66' diameter bins and plus or minus 3/4" on 30'-39' bins.

How large of an opening do I need for a standard flow (15000 BPH) center sump?

The minimum recommended sump opening is 42" x 42".

If installing a GSI supplied sump shell with collector ring, the opening must be 42-1/2" x 42-1/2" x 30" deep for either the 12" or 16" sweep.

The sump hopper supplied by GSI was designed with sufficient clearance around the collector ring housing to allow grain to gravity flow through the hopper and be carried away by the material handling equipment below it. 42-3/4" is the maximum opening size to allow rolling clearance for the casters assembled to the head end jack. If the sump is made smaller, grain flow may decrease to an unacceptable level.

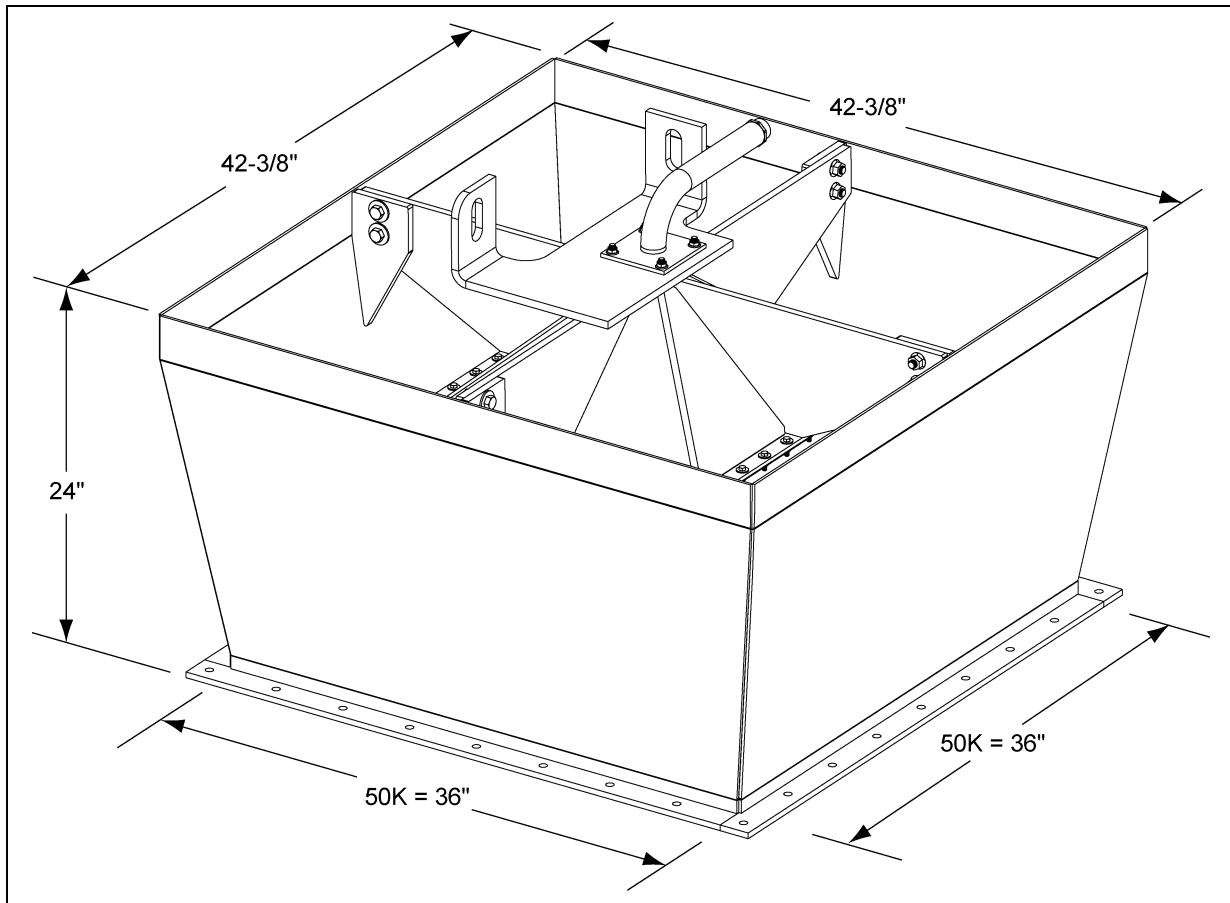


Figure 9A

The open area of this sump is misleading. The collector ring housing sticks down into the sump, blocking off a portion of the flow. Also, the sweep covers about one quarter of the opening at the top. We use 75% of the theoretical flow around the housing for the actual flow.

What intermediate sump spacing do I need? Why?

It is required to install the intermediate sumps on a maximum of 6' to 10' centers depending on the grain used and where the sweep will be parked during storage. The first intermediate sump should be placed a maximum of 10' on center from the center sump and the end sump should be no farther than 4' from the bin wall. The extra sumps will help clean out the grain in front of the sweep, reducing the start-up load. Doing this will save labor dollars and hours of work to dig out the sweep and will help the sweep during start-up. The sweep is not designed to start-up when submerged in material. The sweep should be parked behind the intermediate sumps with the sumps on the auger side of the sweep.

9. Troubleshooting

Do I need to clean out around the track drive prior to starting it up?

No, enough material should have been removed during gravity unload.

Where do I park the sweep before I fill the bin with grain?

There is a section in the manual called "[Storage Preparation on Page 32](#)". The section says to "Park the sweep behind the intermediate sumps, so that the sumps are on the auger side of the sweep". The sweep should not completely cover the inside sump hole (the one closest to the center sump).

Where do I find the wheel path track dimensions?

The wheel path dimensions are listed [on Page 17](#).

What do I need to hook electrical power to the "X" Series Sweep?

The "X" Series Sweep is designed to operate using **460 Volt 3 Phase 60 Hz, 380V 50 Hz or 600V 60 Hz**. The voltage must be within **plus or minus 4%** for proper operation. Voltages outside of this range may cause excessive power draw or other operating problems. Please contact the factory for applications outside of these parameters.

A fused main power disconnect switch capable of being locked only in the OFF position should be used. This switch must be sized for the screw and tractor drive motors. The power must be locked out before servicing the equipment, entering the bin or resetting the motor overloads.

Electrical controls and wiring should be installed by a qualified electrician. The conductor cables should comply with the National Electrical Code and any state or local codes which may apply.

How does the "X" Series Sweep operate?

The "X" Series Sweep is designed with a small controller in the control panel door to monitor the load on the screw motor. It automatically shuts the track drive OFF when the screw motor reaches a percentage of the motor nameplate full load amperage. As the material clears the screw, the amperage lowers until it reaches a set value and the track drive turns back on and moves the screw into the material. The customer must program the discharge sweep capacity into the controller and this setup is fully explained in the Owner's Manual.

Why does the controller need to be located at the bin door?

The control panel **MUST** be mounted **OUTSIDE** the bin near the door for safety reasons. It must be located so the operator has a full view of the equipment. It must **NEVER** be installed inside the bin.

Can I just run my sweep in the manual mode?

The "X" Series Sweep is designed to run in the automatic mode. If the sweep is run in the manual mode, either of the motors may overheat and/or become damaged. Also, excessive amounts of material may spill over the back board of the sweep.

How do I set my overloads?

The overload for the auger motor is adjustable and is **not** set at the factory. The overload inside the control panel has a small, dial with numbers on it. Record the full load running amp value listed on the nameplate attached to the auger motor. Increase the full load amp value by 10% and set this number on the overload dial. If the adjustable overload is set too low, the motors will shut down as soon as a load is put on them. Disconnect and lock out the power before resetting the motor overloads.

(See Figure 9B.)

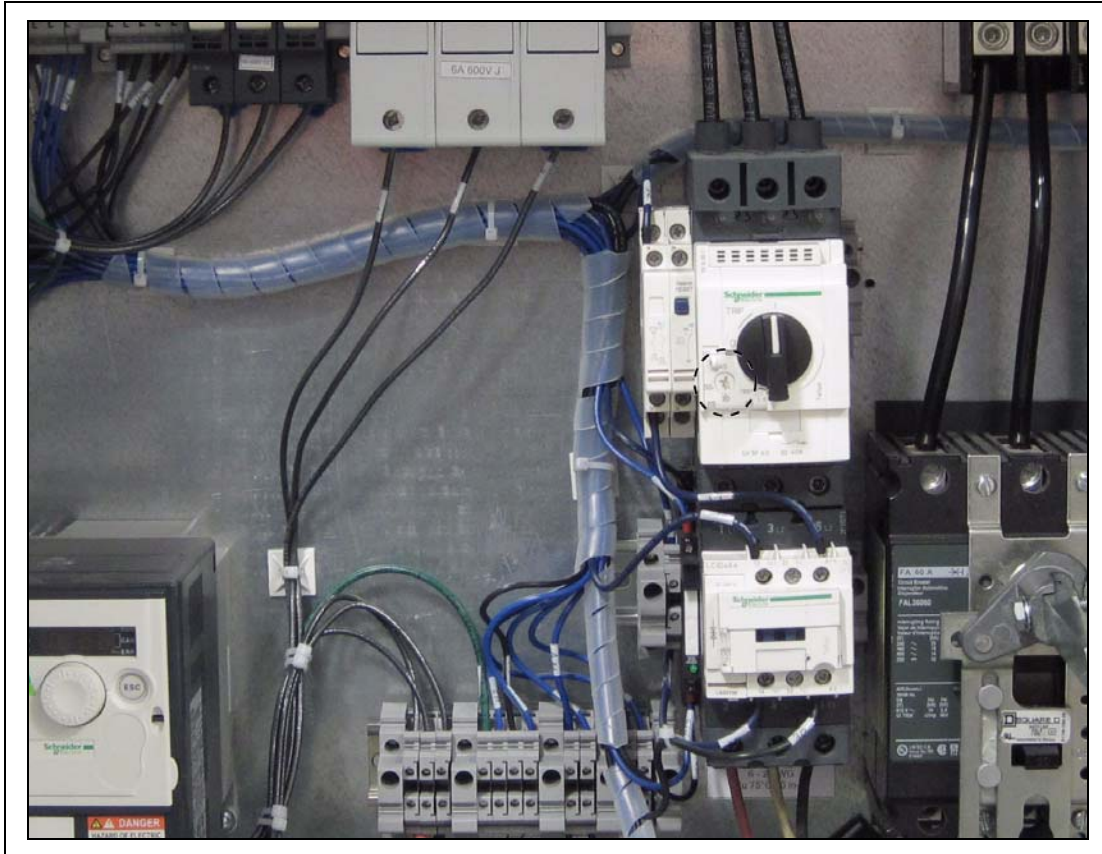


Figure 9B

When do I program my controller?

Initially the sweep should be tested in the manual mode. If it operates properly, then move on to try the automatic mode.

How do I program my controller for automatic mode?

The Owner's Manual has a detailed set of instructions describing the setup of automatic mode.

Can I get the unit to reverse while in automatic?

Yes, switch it to manual mode to reverse sweep auger direction.

9. Troubleshooting

What do I do if I encounter any operational problems?

Disconnect and lock out the power before servicing the equipment, entering the bin or resetting the motor overloads. Look through the troubleshooting section to identify any problems.

There does not seem to be any power to my sweep. What do I do?

The thermal protection lead must be connected before the sweep will operate.

Your electrician should check to make sure there are no loose or shorted connections or wires. It is possible that one of the components failed after it was tested in our plant and needs to be replaced. A jobsite electrician can isolate any malfunctioning components. Each fuse should also be checked and replaced if necessary.

The sweep must be wired according to the Owner/Installation Manuals.

The overload for the screw drive keeps tripping. What do I do?

The overload for the auger motor is adjustable. The auger is **not** set at the factory prior to delivery and installation. The overload inside the control panel has a small, dial with numbers on it. Record the full load running amp value listed on the nameplate attached to each motor. Increase the full load amp value by 10% and set this number on the overload dial. If the adjustable overload is set too low, the motors will shut down as soon as a load is put on them. Disconnect and lock out the power before resetting the motor overloads.

Check the incoming power at the control box. The "X" Series Sweep is designed to operate using **460 Volt 3 Phase 60 Hz Cycle Power, 380V 50 Hz or 600V 60 Hz**. The voltage must be within **plus or minus 4%** for proper operation. Voltages outside of this range may cause excessive power draw or other operating problems. Please contact the factory for applications outside of these parameters.

Check the incoming power at the motor. Check for balanced phases. If the loads are not properly balanced between leads, disconnect the motor and check the power leads. By using this method, we can tell if the imbalance is caused by the motor or is from the incoming power.

The sweep must be wired according to the Owner/Installation Manuals.

My controller quits operating. What do I do?

Check to make sure the controller has power. Each of the fuses should be checked and replaced if required.

If the controller is functioning, it may need to be reprogrammed. Programming instructions are included in the manual that shipped with the sweep. The controller can be damaged by large power fluctuations or lightning strikes.

My sweep is not operating as well as it did the last time I used it. What do I do?

If the type of material or the density (moisture) of the material changes, the controller set points may need to be adjusted for maximum output.

Is there any maintenance I need to perform on the electrical system?

None of the electrical components require maintenance. Be sure to disconnect and lock out the power before servicing the equipment, entering the bin or resetting the auger motor overloads.

Does any part of the “X” Series Sweep need lubrication?

The fluid level of each of the gear reducers must be checked before operation. These reducers may have been shipped dry and require oil before operation.

A complete lubrication section is provided in the Owner’s Manual, which shows the type and amount of lubricant to be used and which components need to be lubricated.

What maintenance should I perform and how often?

Follow the lubrication instructions in the Owner’s Manual. Also visually inspect the sweep before operation.

What should I visually inspect?

Starting from the auger drive end of the sweep.

Inspect all casters, wheels and motor mount frame. Look for any bent or damaged components.

Inspect the motor covers. They should be in good shape and should be used properly. If the covers are not used, the material will work its way into the motor cooling slots and when the sweep is started, the motor fan and housing will be destroyed.

Inspect the front wheel struts for damaged components.

Inspect each of the screw flight bearings and hangers for damage. Check to see if the bearings need to be replaced. All hardware should be tight.

Inspect the screw flights for damage or excessive wear. Check to see if the screws are rusted or pitted.

Inspect track drive sprocket and components for any damage.

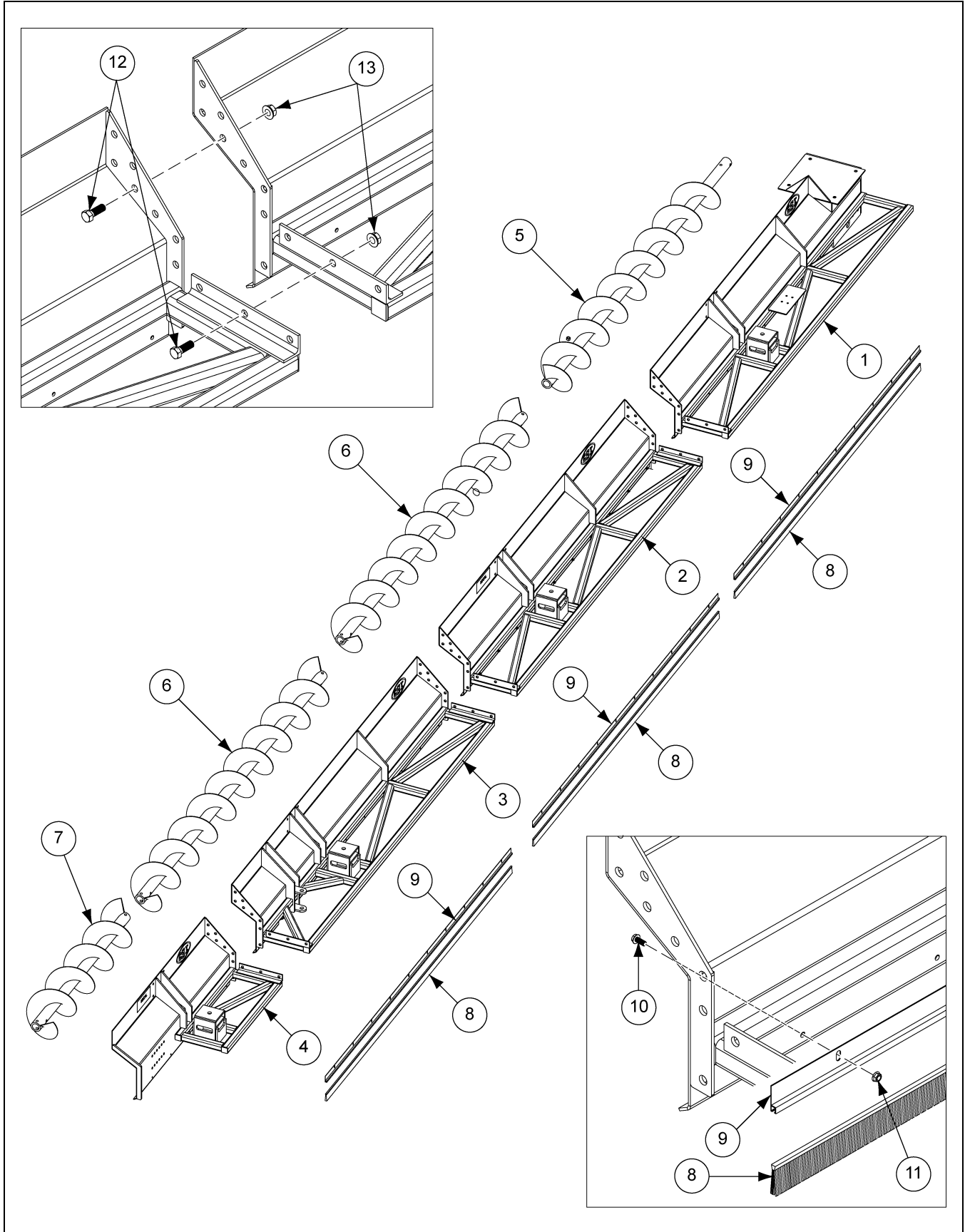
Make sure all hardware is tight.

Inspect the sweep structure for damaged or bent components.

NOTES

1. **Main Auger Components** - *(See Pages 50-53.)*
2. **Auger Drive Components** - *(See Pages 54-55.)*
3. **Track Drive Components** - *(See Pages 56-57.)*
4. **Flight Components** - *(See Pages 58-61.)*
5. **Wheel and Caster Components** - *(See Pages 62-63.)*
6. **12" and 16" Plow Components** - *(See Pages 64-65.)*
7. **Center Pivot and Collector Ring Components (Prior to 2013)** - *(See Pages 66-67.)*
8. **Center Pivot and Collector Ring Components (Current)** - *(See Pages 68-69.)*
9. **Electrical Connection Components** - *(See Pages 70.)*
10. **Control Panel Components** - *(See Pages 71.)*
11. **Control Panel Assembly - 380V 3 Phase** - *(See Pages 72-73.)*
12. **Control Panel Assembly - 480V 3 Phase** - *(See Pages 74-75.)*
13. **Control Panel Assembly - 600V 3 Phase** - *(See Pages 76-77.)*
14. **Components** - *(See Pages 78.)*

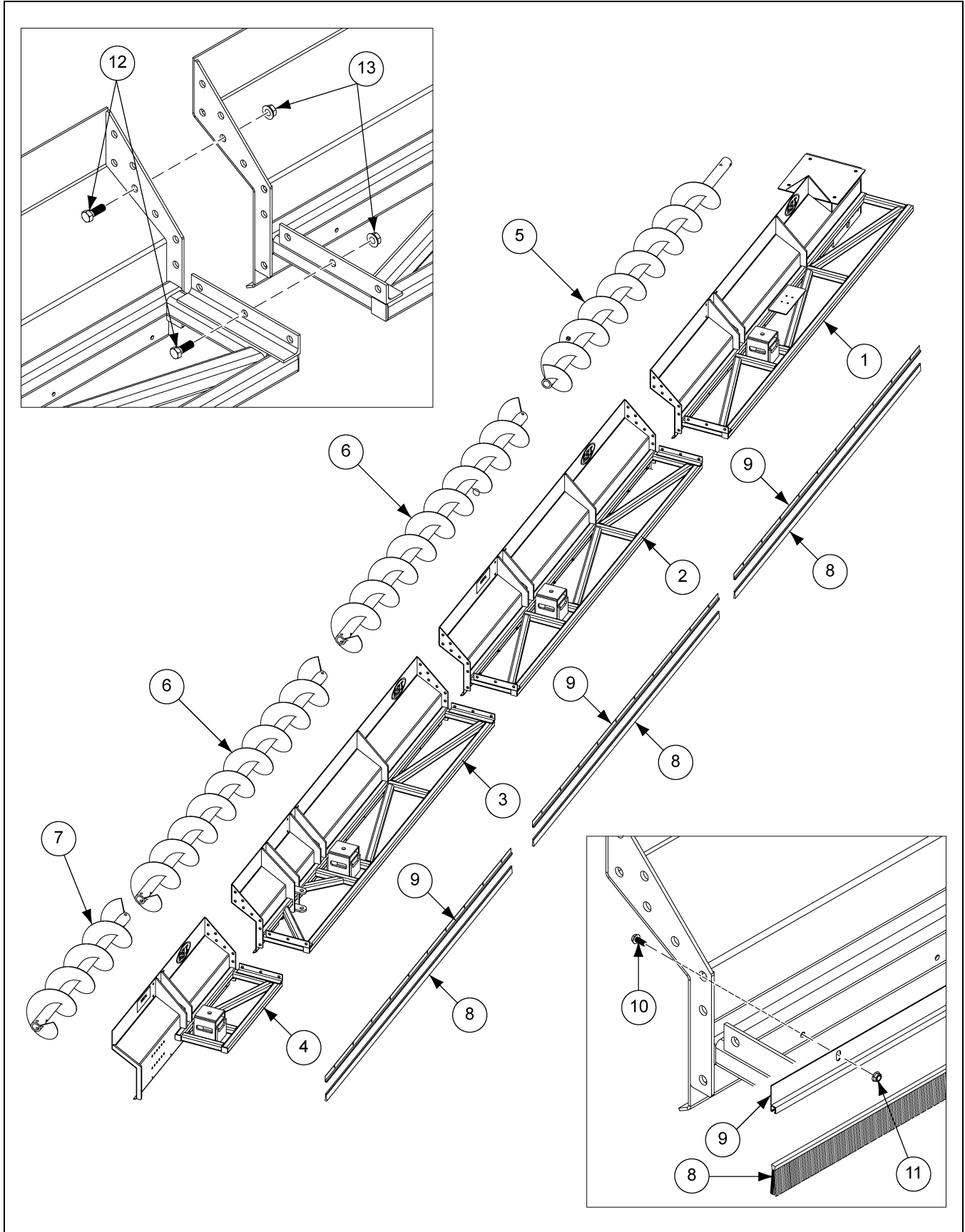
Main Auger Components



Main Auger Components Parts List

Ref #	Part #	Description
1	PDS-333	"X" Series Sweep Head Section Assembly - 12"
1	PDS-336	"X" Series Sweep Head Section Assembly - 16"
1	PDS-617	"X" Series Sweep Head/Tail Section Assembly - 12"
1	PDS-603	"X" Series Sweep Head/Tail Section Assembly - 16"
2	PDS-334	"X" Series Sweep Intermediate Section Assembly - 12"
2	PDS-337	"X" Series Sweep Intermediate Section Assembly - 16"
3	PDS-335	"X" Series Sweep Tail Section Assembly - 12"
3	PDS-338	"X" Series Sweep Tail Section Assembly - 16"
4	PDS-442	"X" Series Sweep - Extension Section Assembly - 12" x 3'
4	PDS-447	"X" Series Sweep - Extension Section Assembly - 12" x 4'
4	PDS-445	"X" Series Sweep - Extension Section Assembly - 12" x 5'
4	PDS-443	"X" Series Sweep - Extension Section Assembly - 12" x 6'
4	PDS-509	"X" Series Sweep - Extension Section Assembly - 12" x 7'
4	PDS-446	"X" Series Sweep - Extension Section Assembly - 12" x 8'
4	PDS-444	"X" Series Sweep - Extension Section Assembly - 12" x 9'
4	PDS-511	"X" Series Sweep - Extension Section Assembly - 12" x 10'
4	PDS-351	"X" Series Sweep - Extension Section Assembly - 12" x 11'
4	PDS-435	"X" Series Sweep - Extension Section Assembly - 16" x 3'
4	PDS-440	"X" Series Sweep - Extension Section Assembly - 16" x 4'
4	PDS-438	"X" Series Sweep - Extension Section Assembly - 16" x 5'
4	PDS-436	"X" Series Sweep - Extension Section Assembly - 16" x 6'
4	PDS-510	"X" Series Sweep - Extension Section Assembly - 16" x 7'
4	PDS-439	"X" Series Sweep - Extension Section Assembly - 16" x 8'
4	PDS-437	"X" Series Sweep - Extension Section Assembly - 16" x 9'
4	PDS-512	"X" Series Sweep - Extension Section Assembly - 16" x 10'
4	PDS-441	"X" Series Sweep - Extension Section Assembly - 16" x 11'
5	GC06613	S2 Sweep Head Flight 12" x 116-3/4"
5	GC06761	S2 Sweep Head Flight 16" x 115.63"
6	GC06627	S2 Sweep Intermediate Flight 12" x 118"
6	GC06766	S2 Sweep Intermediate Flight 16" x 117"

Main Auger Components (Continued)



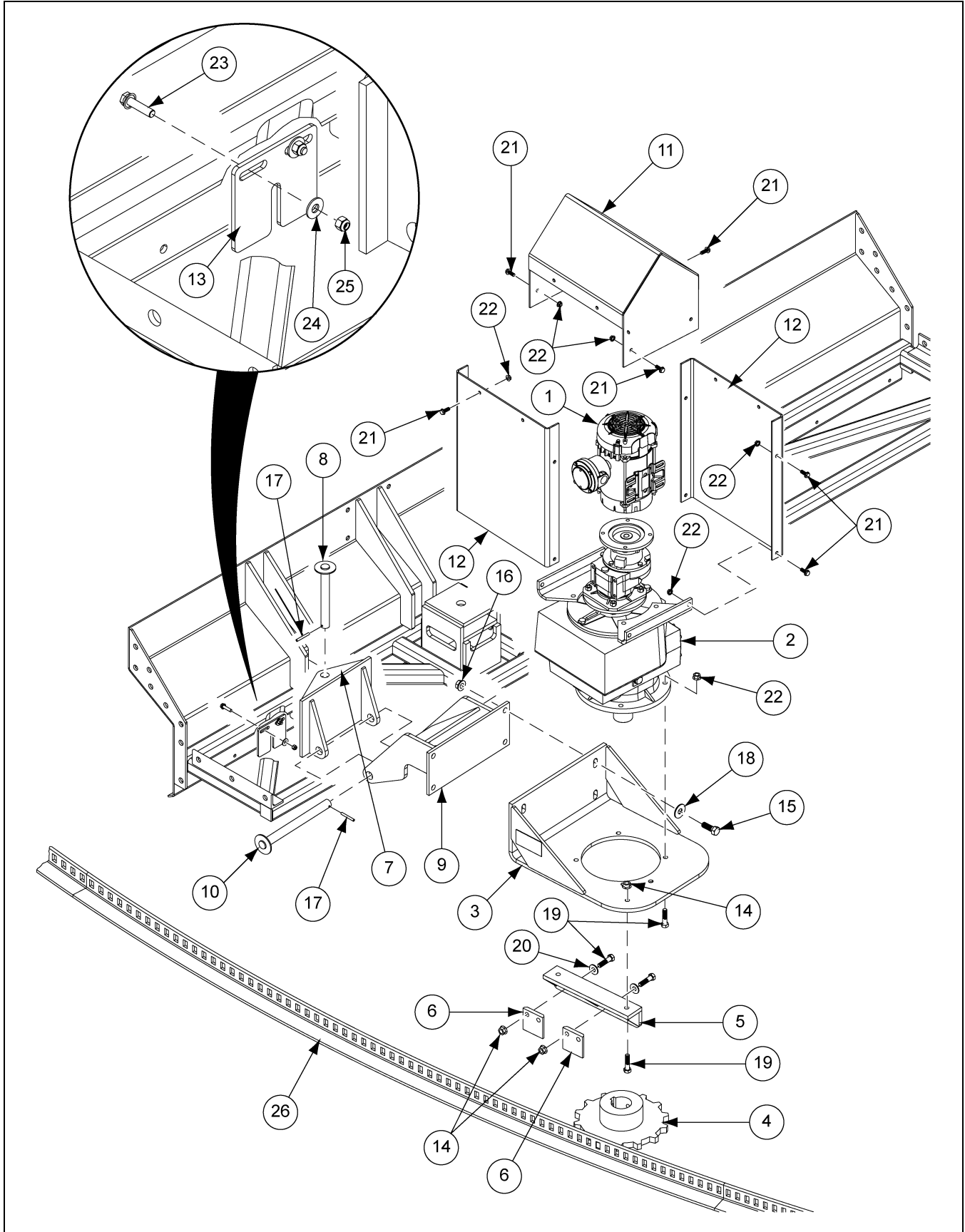
Main Auger Components Parts List (Continued)

Ref #	Part #	Description
7	PDS-331	S2 Sweep Extension Flight 12" x 34"
7	GC06468	S2 Sweep Extension Flight 12" x 46"
7	GC06622	S2 Sweep Extension Flight 12" x 58"
7	GC06623	S2 Sweep Extension Flight 12" x 70"
7	GC06624	S2 Sweep Extension Flight 12" x 82"
7	GC06582	S2 Sweep Extension Flight 12" x 94"
7	GC06626	S2 Sweep Extension Flight 12" x 106"
7	GC06627	S2 Sweep Extension Flight 12" x 118"
7	GC06467	S2 Sweep Extension Flight 12" x 130"
7	PDS-332	S2 Sweep Extension Flight 16" x 33"
7	GC06767	S2 Sweep Extension Flight 16" x 45"
7	GC06762	S2 Sweep Extension Flight 16" x 57"
7	GC06764	S2 Sweep Extension Flight 16" x 69"
7	GC06768	S2 Sweep Extension Flight 16" x 81"
7	GC06638	S2 Sweep Extension Flight 16" x 93"
7	GC06763	S2 Sweep Extension Flight 16" x 105"
7	GC06766	S2 Sweep Extension Flight 16" x 117"
7	GC06644	S2 Sweep Extension Flight 16" x 129"
8	PDS-065	Brush - Bristle, 120" Long
9	PDS-066	Brush Holder - 120" Long
10	S-6606	Flange Bolt 5/16"-18 x 3/4" ZN Grade 5
11	S-3611	Flange Nut 5/16"-18 YDP Grade 2
12	S-7886	Bolt, HHCS 5/8"-11 x 1-3/4" YDP Grade 8
13	S-9259	Flange Nut 5/8"-11 ZN

Auger Drive Components Parts List

Ref #	Part #	Description	Qty per Assembly
1	MTR-0127	Motor HE, 10/15 HP 1470/1765R 190/380/230/460V 3 PH 50/60 Hz XPFC	1
1	MTR-0128	Motor HE, 15/20 HP 1465/1765R 190/380/230/460V 3 PH 50/60 Hz XPFC	1
1	MTR-0129	Motor HE, 20/25 HP 1470/1780R 190/380/230/460V 3 PH 50/60 Hz XPFC	1
1	MTR-0130	Motor HE, 25/30 HP 1470/1770R 190/380/230/460V 3 PH 50/60 Hz XPFC	1
1	MTR-0161	Motor, 30/40 HP 1480/1775R 190/380/230/460V 3 PH 50/60 Hz XPFC	1
1	MTR-0157	Motor, 15 HP 1760R 575V 3 PH 60 Hz 254TC XPFC	1
1	MTR-0158	Motor, 20 HP 1765R 575V 3 PH 60 Hz 256TC XPFC	1
1	MTR-0159	Motor, 25 HP 1775R 575V 3 PH 60 Hz 284TC XPFC	1
1	MTR-0160	Motor, 30 HP 1780R 575V 3 PH 60 Hz 286TC XPFC	1
1	MTR-0162	Motor, 40 HP 1775R 575V 3 PH 60 Hz 324TC XPFC	1
2	PDS-303	Gearbox, Quantis 882, 17:1, 250TC, 2" Shaft	1
2	PDS-296	Gearbox, Quantis 882, 8:1, 250TC, 2" Shaft	1
2	PDS-293	Gearbox, Quantis 1082, 8:1, 280TC, 2" Shaft	1
2	PDS-295	Gearbox, Quantis 882, 13:1, 250TC, 3" Shaft	1
2	PDS-141	Gearbox, Quantis 1082, 13:1, 280TC, 3" Shaft	1
2	PDS-294	Gearbox, Quantis 1282, 13:1, 320TC, 3" Shaft	1
3	PDS-255-RD	"X" Series Motor Mount Weldment - 12"	1
3	PDS-301-RD	"X" Series Motor Mount Weldment - 16"	1
4	PDS-666-RD	"X" Series Sweep Auger Motor Heavy Cover, 12"	1
4	PDS-673-RD	"X" Series Sweep Auger 40 HP Motor Heavy Cover, 16"	1
5	PDS-670-RD	"X" Series Sweep Auger Motor Front Cover	1
6	PDS-671-RD	"X" Series Sweep Auger Motor Back Cover	1
7	PDS-672-RD	"X" Series Sweep Auger Motor Side Cover, 12"	2
7	PDS-678-RD	"X" Series Sweep Auger Motor Side Cover, 16"	2
8	PDS-289-RD	"X" Series Caster Mount	2
9	GC20247-RD	"X" Series Sweep Skid Weld	2
10	S-869	Bolt, HHCS 3/4"-10 x 2" YDP Grade 8	4
11	S-233	Split Lock Washer 3/4" MED ZN Grade 2	12
12	S-234	Hex Nut 3/4"-10 ZN Grade 5, ZN	12
13	S-8905	Nut, ACME 1-5 ZN	4
14	S-8760	Bolt, HHCS 1/2"-13 x 1-1/2" ZN Grade 5	8
15	S-8506	Flange Nut 1/2"-13 ZN	8
16	S-9065	Flange Bolt 3/8"-16 x 1" ZN Grade 5	24
17	S-968	Flange Nut 3/8"-16 ZN Grade 5	2
18	S-4515	Bolt, HHCS 3/4"-10 x 3-1/2" ZN Grade 8	8
19	S-866	Flat Washer 3/4" USS ZN Flat Grade 2	4

Track Drive Components

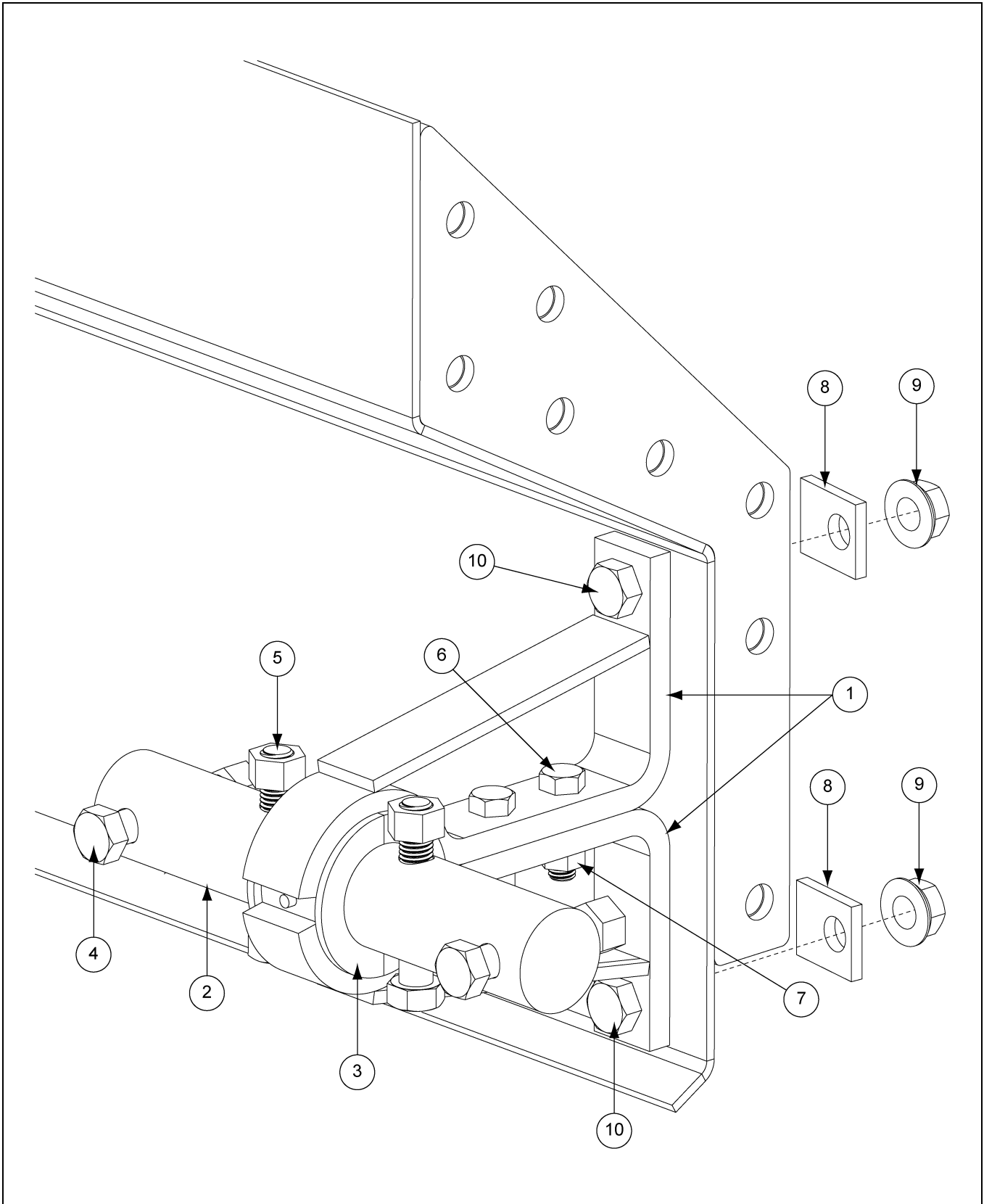


Track Drive Components Parts List

Ref #	Part #	Description	Qty per Assembly
1	MTR-0156	Motor, 1/2 HP 1735R 230/460V 3 PH 60 Hz 56C XPFC	1
1	MTR-0163	Motor, 1/2 HP 1735R 575V 3 PH 60 Hz 56C XPFC	1
2	PDS-237	Gearbox, 1579:1, 56C, 2-3/8" Shaft	1
3	PDS-434	"X" Series Sweep TD Plate Assembly	1
4	PDS-157	Position Track Sprocket	1
5	PDS-198-RD	"X" Series Drive Keeper Mount	1
6	PDS-200-RD	"X" Series Drive Keeper	2
7	PDS-217-RD	"X" Series Vertical/Horizontal Pivot Mount	1
8	PDS-233	"X" Series Vertical Pivot Pin	1
9	PDS-611-RD	"X" Series TD Horizontal Mount Weldment - 12"/16" x 30'-45'	1
9	PDS-479-RD	"X" Series TD Horizontal Mount Weldment - 12"/16" x 48'-156'	1
10	PDS-235	"X" Series Horizontal Pivot Pin	1
11	PDS-245-RD	"X" Series Drive Motor Cover	1
12	PDS-482	"X" Series Sweep Drive Motor Side Plate Assembly	2
13	PDS-431	"X" Series Sweep Track Wiper	1
14	S-8506	Flange Nut 1/2"-13 ZN	15
15	S-7886	Bolt, HHCS 5/8"-11 x 1-3/4" YDP Grade 8	4
16	S-9259	Flange Nut 5/8"-11 ZN	4
17	S-1341	Spring Pin 3/16" x 2" Slotted Rolled	2
18	S-858	Flat Washer 5/8" USS ZN Grade 2	4
19	S-7811	Bolt, HHCS 1/2"-13 x 2" ZN Grade 5	10
20	S-2120	Flat Washer 1/2" SAE ZN	4
21	S-9065	Flange Bolt 3/8"-16 x 1" ZN Grade 5	12
22	S-968	Flange Nut 3/8"-16 ZN Grade 5	12
23	S-8135	Flange Bolt 5/16"-18 x 1-1/4" ZN Grade 5	2
24	S-845	Flat Washer 5/16" USS SAE YDP Grade 2	2
25	S-7382	Nylock Nut 5/16"-18 ZN Grade 5	2
26	PDS-601	"X" Series Track Section - 8' Radius	6
26	PDS-273	"X" Series Track Section - 18' Radius	12
26	PDS-272	"X" Series Track Section - 28' Radius	19
26	PDS-270	"X" Series Track Section - 38' Radius	25
26	PDS-271	"X" Series Track Section - 48' Radius	32

Flight Components

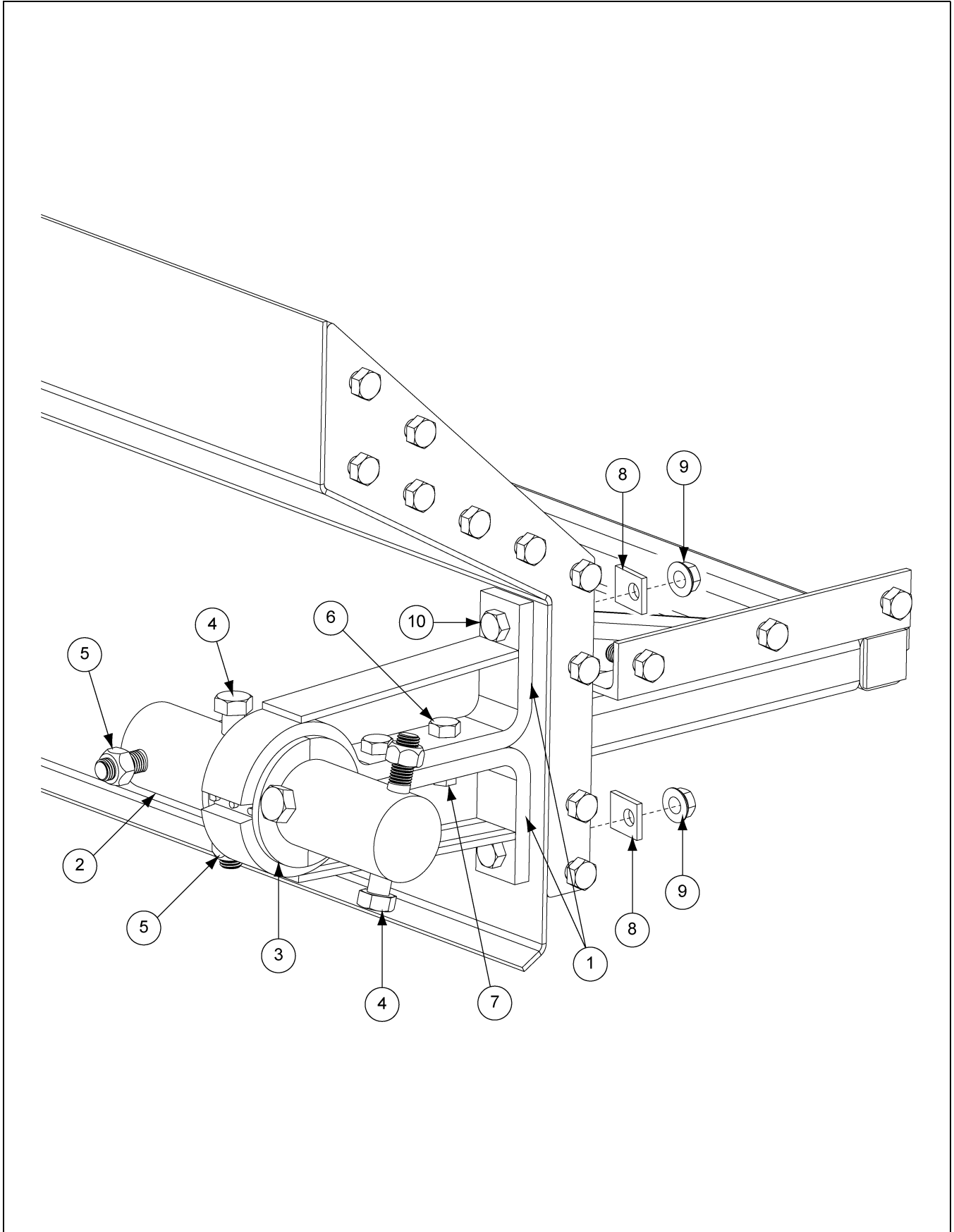
12" Flight Connection Components



12" Flight Connection Components Parts List

Ref #	Part #	Description	Qty per Connection
1	PDS-306	"X" Series Sweep Hanger Weldment - 12"	2
2	GC03956	Shaft Coupling 2" O.D. x 11-1/2"	1
2	PDS-329	"X" Series Sweep End Shaft - 12"	1
3	GC07701	Bearing, Nylon 2" I.D.	2
4	S-7011	Bolt, HHCS 5/8"-11 x 3-1/2" ZN Grade 8 ZN	4
5	S-6638	Bolt, HHCS 3/4"-10 x 5-1/2" YDP Grade 8	4
6	S-7876	Bolt, HHCS 1/2"-13 x 1-3/4" ZN Grade 5	2
7	S-8506	Flange Nut 1/2"-13 ZN	2
8	PDS-665-RD	Flat Washer 11/16" ZN Rectangle	2
9	S-9259	Flange Nut 5/8"-11 ZN	2
10	S-7886	Bolt, HHCS 5/8"-11 x 1-3/4" YDP Grade 8	2

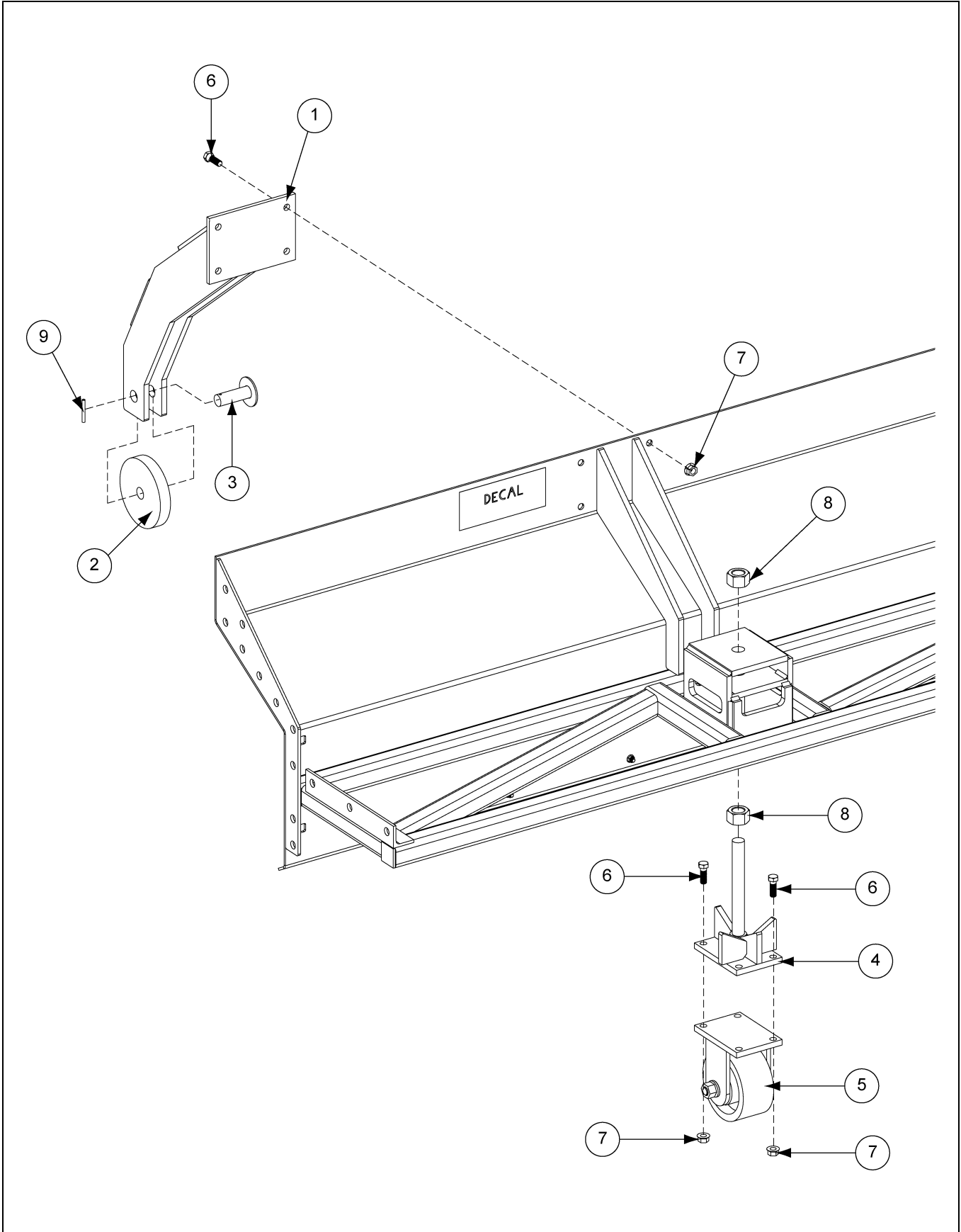
16" Flight Connection Components



16" Flight Connection Components Parts List

Ref #	Part #	Description	Qty per Connection
1	PDS-307	"X" Series Sweep Hanger Weldment - 16"	2
2	GC03559	Shaft, Coupling 3" Diameter x 13"	1
2	PDS-330	"X" Series Sweep End Shaft - 16"	1
3	GC07702	Bearing, Nylon 3" I.D.	2
4	S-6638	Bolt, HHCS 3/4"-10 x 5-1/2" YDP Grade 8	4
5	S-6639	Lock Nut 3/4"-10 ZN Deformed Nut Grade 5	4
6	S-7876	Bolt, HHCS 1/2"-13 x 1-3/4" ZN Grade 5	2
7	S-8506	Flange Nut 1/2"-13 ZN	2
8	PDS-665-RD	Flat Washer 11/16" ZN Rectangle	2
9	S-9259	Flange Nut 5/8"-11 ZN	2
10	S-7886	Bolt, HHCS 5/8"-11 x 1-3/4" YDP Grade 8	2

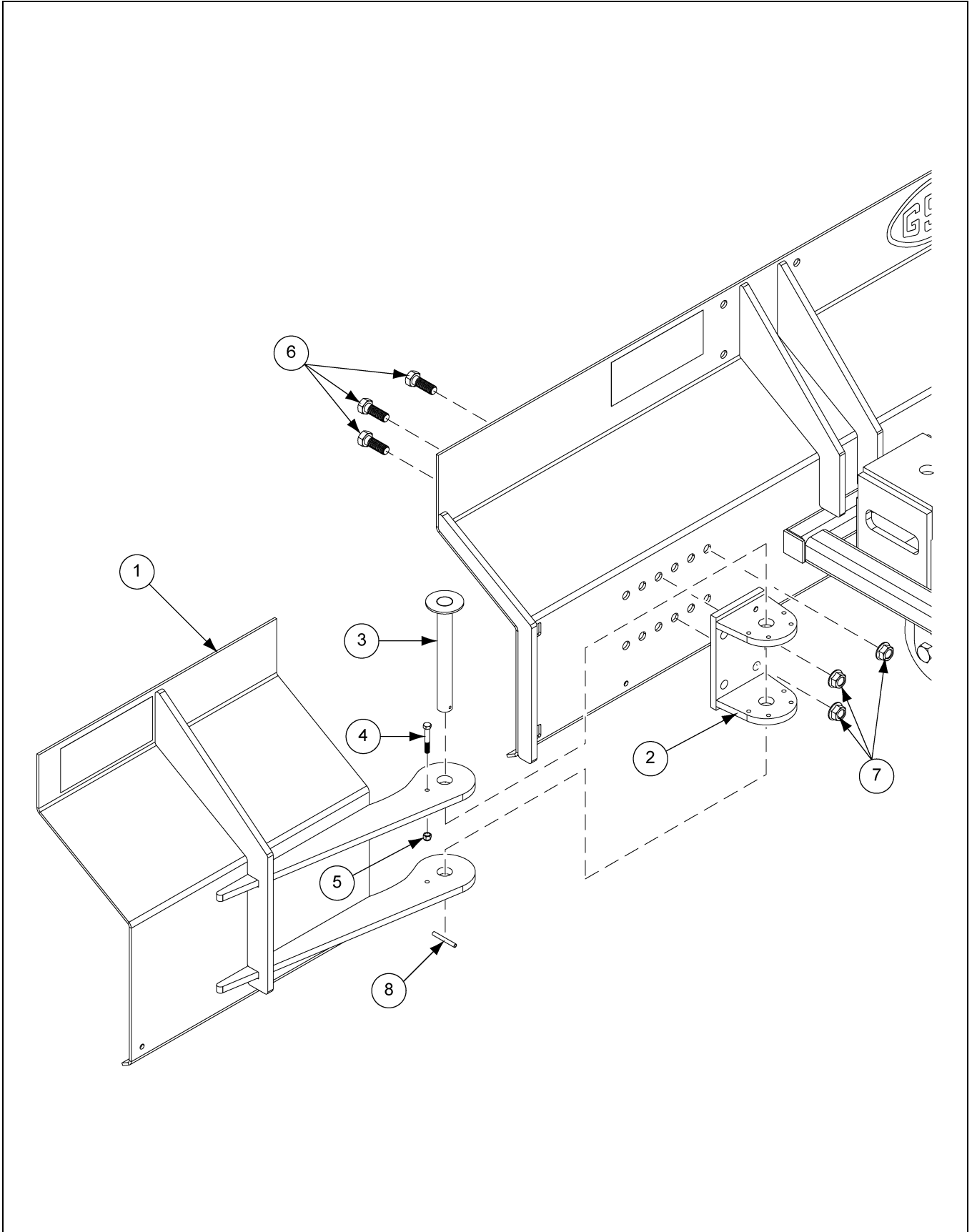
Wheel and Caster Components



Wheel and Caster Components Parts List

Ref #	Part #	Description	Qty per Assembly
1	PDS-281-RD	"X" Series Front Wheel Strut Weldment - 12"	1
1	PDS-319-RD	"X" Series Front Wheel Strut Weldment - 16"	1
2	PDS-054	Front Support Wheel	1
3	PDS-341	"X" Series Front Wheel Pin	1
4	PDS-289-RD	"X" Series Caster Mount	1
5	PDS-661	"X" Series Sweep Wheel Assembly	1
6	S-8760	Bolt, HHCS 1/2"-13 x 1-1/2" ZN Grade 5	8
7	S-8506	Flange Nut 1/2"-13 ZN	8
8	S-8905	Nut, ACME 1-5 ZN	2
9	S-1341	Spring Pin 3/16" x 2" Slotted Rolled	1

12" and 16" Plow Components



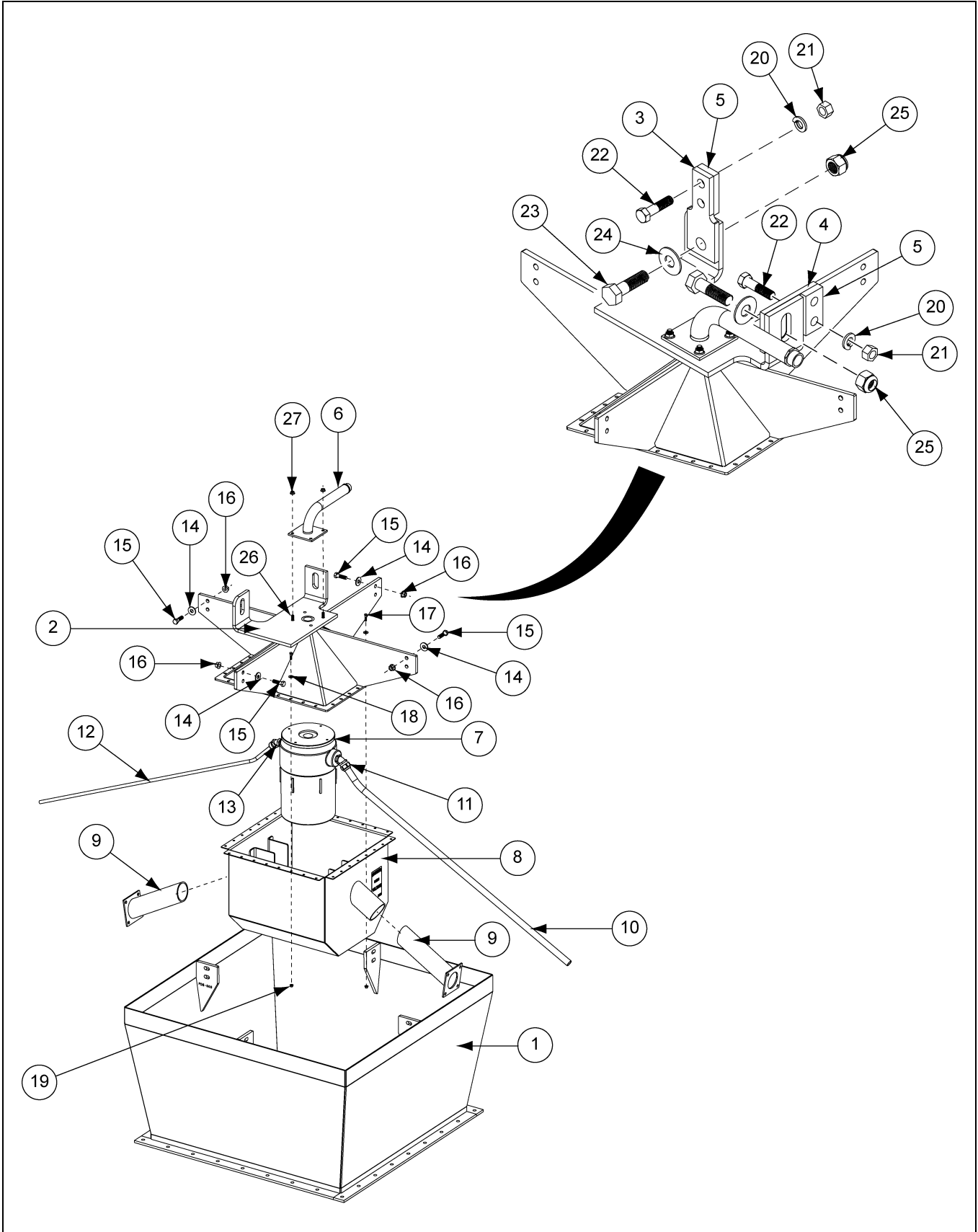
12" and 16" Plow Components Parts List

Ref #	Part #	Description	Qty per Assembly
1	PDS-449	"X" Series Sweep Plow Assembly - 12"	1
1	PDS-450	"X" Series Sweep Plow Assembly - 16"	1
2	PDS-356-RD	"X" Series Sweep Plow Mount	1
3	PDS-233	"X" Series Vertical Pivot Pin	1
4	S-7329	Bolt, HHCS 5/16"-18 x 2" ZN Grade 2	2
5	S-7382	Nylock Nut 5/16"-18 ZN Grade 5	12
6	S-7886	Bolt, HHCS 5/8"-11 x 1-3/4" YDP Grade 8	16
7	S-9259	Flange Nut 5/8"-11 ZN	16
8	S-1341	Spring Pin 3/16" x 2" Slotted Rolled	1

Center Pivot and Collector Ring Components (Prior to 2013) Parts List

Ref #	Part #	Description	Qty per Assembly
1	GC11410	Sump Weldment Assembly - 42 x 30 x 31 - S2 HC 34K	1
1	GC11328	Sump Weldment Assembly - 42 x 30 x 36 - S2 HC 50K	1
2	PDS-311	"X" Series Sweep Cross Brace - 12"	1
2	PDS-315	"X" Series Sweep Cross Brace - 16"	1
3	PDS-359-RD	"X" Series Sweep Head Pivot Plate	1
4	PDS-078-RD	Plate - Pivot Slot	1
5	PDS-079-RD	Plate - Slot Spacer	2
6	PDS-077-RD	Pivot Plate Tube	1
7	PDS-472	Ring, Slip, XPFC, 9 Ring, with Encoder	1
8	PDS-504	"X" Series Sweep - Collector Ring Shield	1
9	GC11416	Lower Conduit Tube Weldment Assembly, S2 HC34K	2
9	GC11326	Lower Conduit Tube Weldment Assembly, S2 HC50K	2
10	GC07575	Conduit 1" Flex x 48"	1
11	GC04654	Elbow, Connector, Sealtite 45° 1"	1
12	PDS-513	Conduit 1/2" Flex x 48"	1
13	GT3-0707	Elbow, Connector, Sealtite 45° 1/2"	1
14	S-2121	Flat Washer 1/2"	8
15	S-3883	Bolt, HHCS 1/2"-13 x 1-3/4" YDP Grade 8	8
16	S-8506	Flange Nut 1/2"-13 ZN	8
17	S-6998	Bolt, HHCS 1/4"-20 x 1" ZN Grade 5	20
18	S-1430	Flat Washer 1/4" ZN Grade 2 USS	16
19	S-7215	Flange Nut 1/4"-20 ZN	20
20	S-233	Lock Split Washer 3/4" MED ZN Grade 2	4
21	S-234	Hex Nut 3/4"-10 ZN Grade 5	4
22	S-4515	Bolt, HHCS 3/4"-10 x 3-1/2" ZN Grade 8	4
23	S-7622	Bolt, HHCS 1"-8" x 3-1/2" YDP Grade 8	2
24	S-7835	Flat Washer 1" I.D. USS	2
25	S-8418	Nylock Nut 1-8 ZN Grade 5	2
26	S-9067	Flange Bolt 3/8"-16 x 3/4" ZN Grade 5	4

Center Pivot and Collector Ring Components (Current)

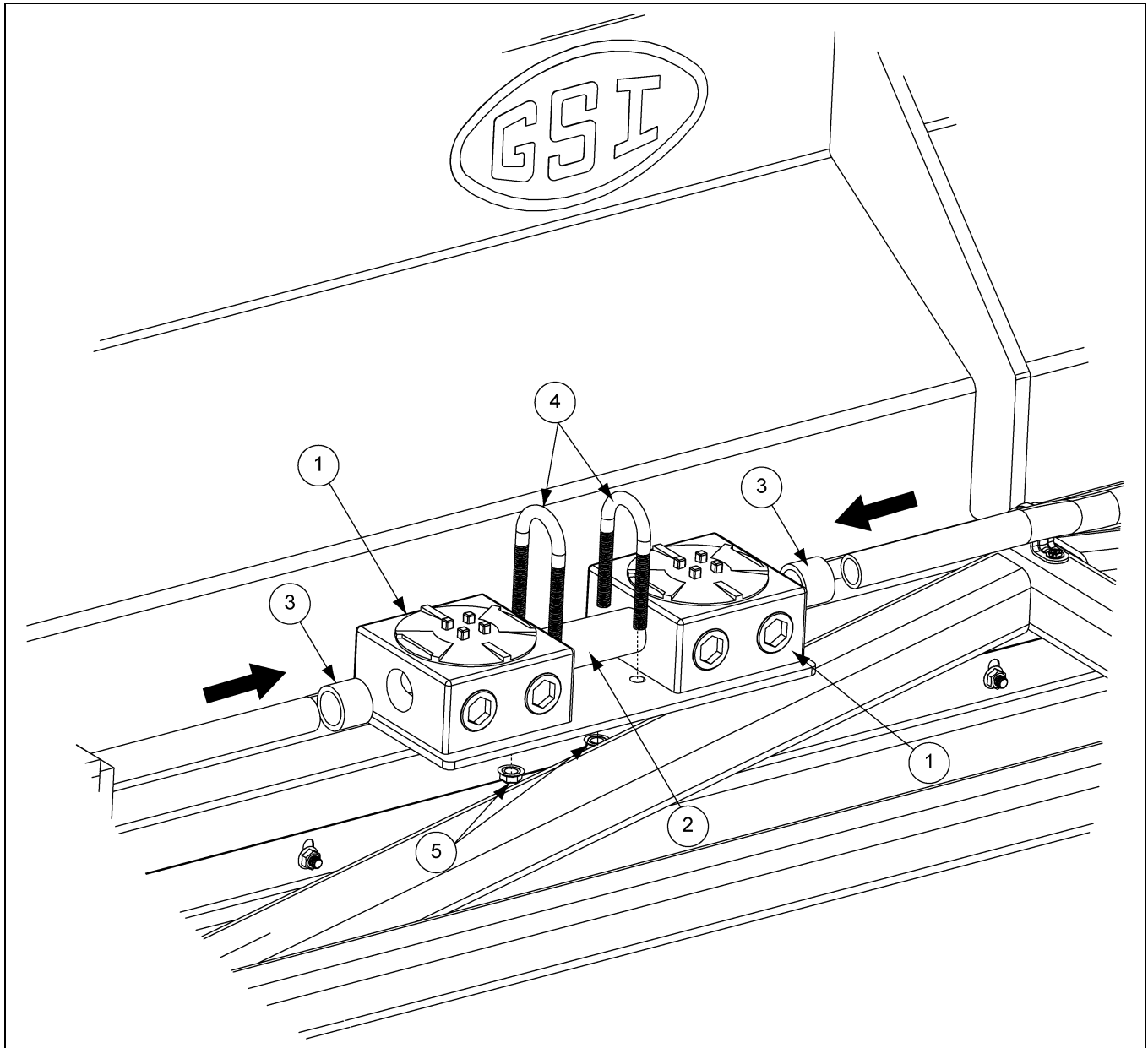


Center Pivot and Collector Ring Components (Current) Parts List

Ref #	Part #	Description	Qty per Assembly
1	PDS-578-RD	"X" Series Sump Weldment Assembly 50K	1
2	PDS-580	"X" Series Sweep Cross Brace - 12" 50K	1
2	PDS-632	"X" Series Sweep Cross Brace - 16" 50K	1
3	PDS-359-RD	"X" Series Sweep Head Pivot Plate	1
4	PDS-078-RD	Plate - Pivot Slot	1
5	PDS-079-RD	Plate - Slot Spacer	2
6	PDS-077-RD	Pivot Plate Tube	1
7	PDS-472	Ring, Slip, XPFC, 9 Ring, with Encoder	1
8	PDS-589	"X" Series Sweep - Collector Ring Shield 50K	1
9	PDS-596-RD	Lower Conduit Tube Weldment Assembly 50K	2
10	GC07575	Conduit 1" Flex x 48"	1
11	GC04654	Elbow, Connector, Sealtite 45° 1"	1
12	PDS-513	Conduit 1/2" Flex x 48"	1
13	GT3-0707	Elbow, Connector, Sealtite 45° 1/2"	1
14	S-2121	Flat Washer 1/2"	8
15	S-3883	Bolt, HHCS 1/2"-13 x 1-3/4" YDP Grade 8	8
16	S-8506	Flange Nut 1/2"-13 ZN	8
17	S-6998	Bolt, HHCS 1/4"-20 x 1" ZN Grade 5	20
18	S-1430	Flat Washer 1/4" ZN Grade 2 USS	16
19	S-7215	Flange Nut 1/4"-20 ZN	20
20	S-233	Lock Split Washer 3/4" MED ZN Grade 2	4
21	S-234	Hex Nut 3/4"-10 ZN Grade 5	4
22	S-4515	Bolt, HHCS 3/4"-10 x 3-1/2" ZN Grade 8	4
23	S-7622	Bolt, HHCS 1"-8" x 3-1/2" YDP Grade 8	2
24	S-7835	Flat Washer 1" I.D. USS	2
25	S-8418	Nylock Nut 1-8 ZN Grade 5	2
26	S-9066	Flange Bolt 3/8"-16 x 1-1/4" ZN Grade 5	4
27	S-968	Flange Nut 3/8"-16 ZN Grade 5 Wide Flange	4

Electrical Connection Components

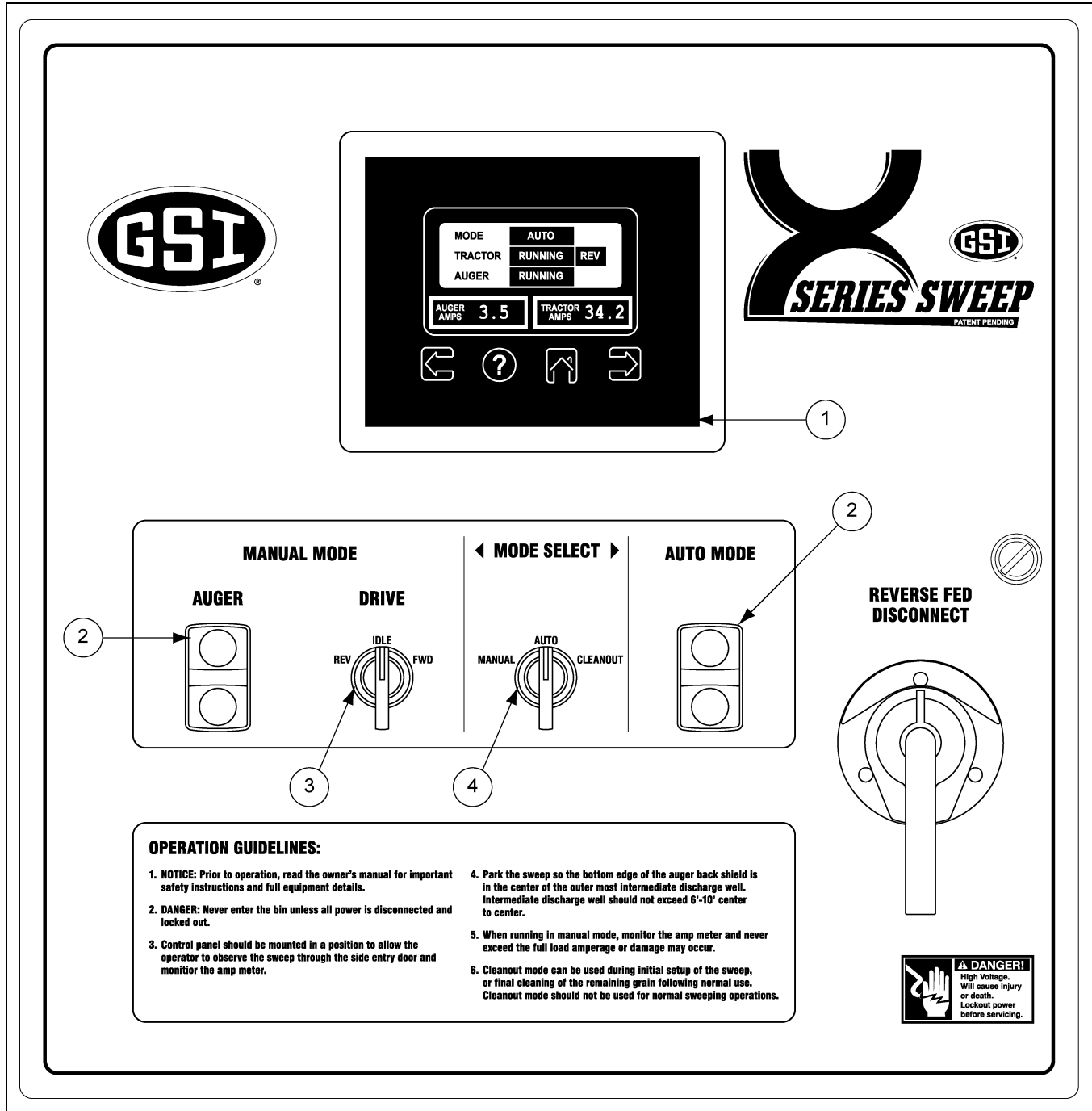
Junction Box Components



Junction Box Components Parts List

Ref #	Part #	Description	Qty per Assembly
1	GC07521	Box, Junction Explosion Proof	2
2	GC07744	Nipple, Conduit 1" x 4-3/4"	1
3	S-8513	Bushing, Conduit Reducer 1-3/4"	2
4	S-8568	Bolt, U-Bolt 3/8"-16 x 1-3/8" IW x 3-7/16" IL x 2-3/8" TL	2
5	S-968	Flange Nut 3/8"-16 ZN Grade 5	4

Control Panel Components

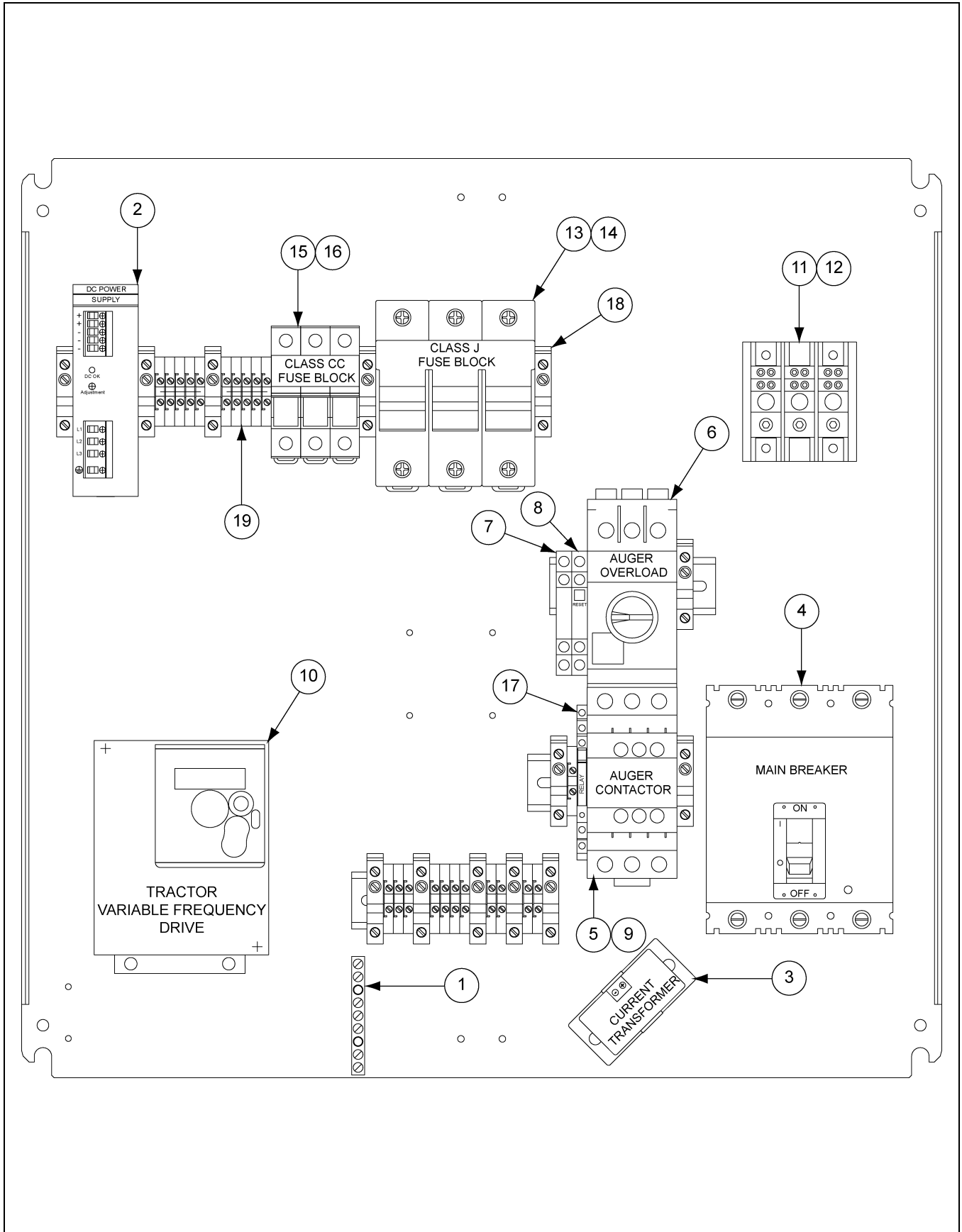


Control Panel Components Parts List

Ref #	Part #	Description	Qty
1	PDS-539	Controller, Color 5.7" with Expansion Module	1
2	C-8716	Switch, Green/Red	2
3	GC20182	Switch, 3 Position Momentary	1
4	PDS-660	Switch, 3 Position Maintain	1
N/A	PDS-542	40 mm Emergency Stop Mushroom N.O./N.C.	1

10. Parts List

Control Panel Assembly - 380V 3 Phase

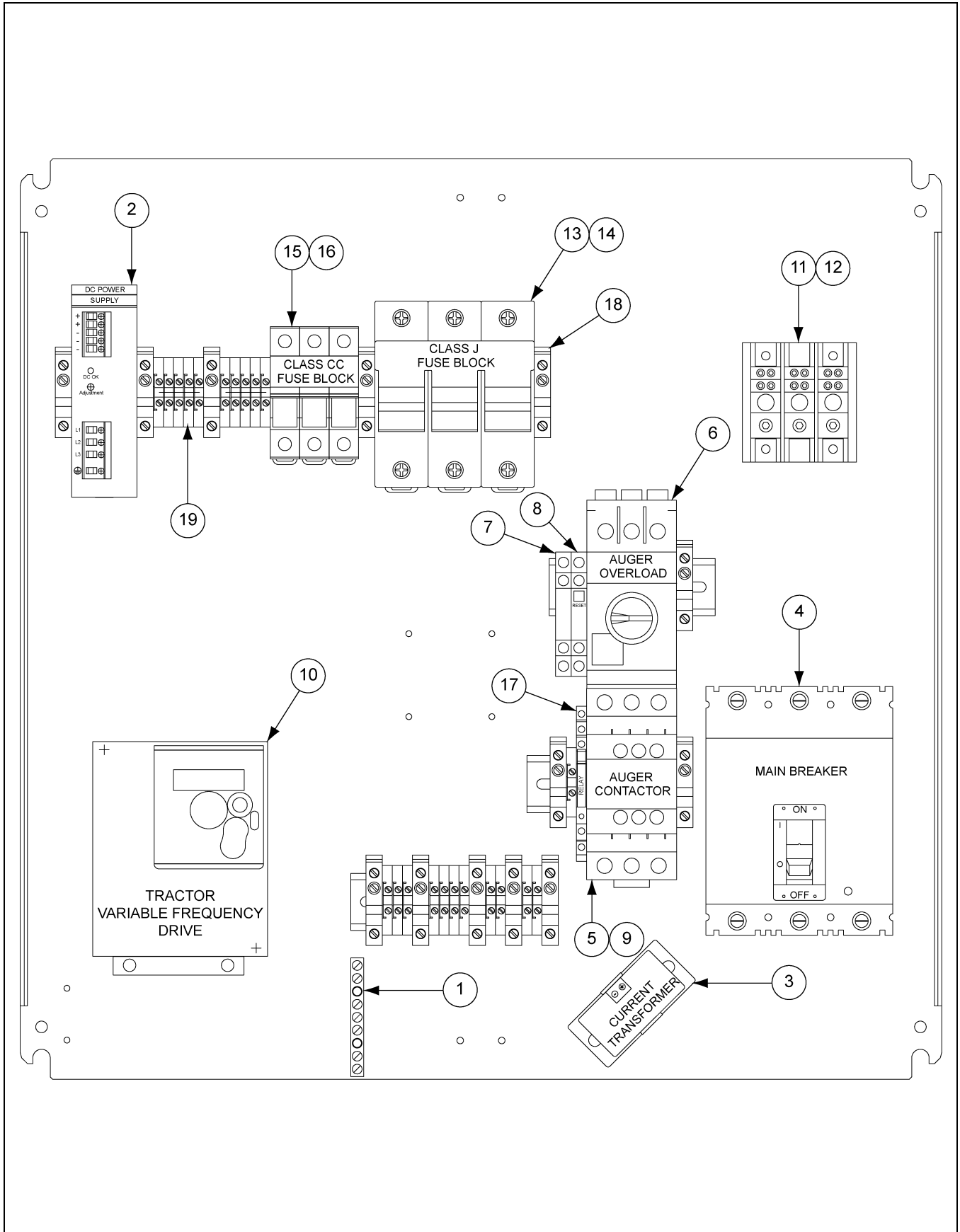


Control Panel Assembly - 380V 3 Phase Parts List

Ref #	Part #	Description	Qty				
			PDS-478A-P	PDS-478B-P	PDS-478C-P	PDS-478D-P	PDS-489A-P
			15 HP	20 HP	25 HP	30 HP	3K BPH 15 HP
1	AS-0730	Ground Bar Kit	1	1	1	1	1
2	PDS-536	Power Supply, 24V DC 5A, 575V 3 PH	1	1	1	1	1
3	AS-0736	Current Transducer	1	1	1	1	1
4	GC20231	3P 480V 50A Circuit Breaker	1	-	-	-	1
4	GK5962	3P 480V 60A Circuit Breaker	-	1	-	-	-
4	AS-0751	3P 480V 80A Circuit Breaker	-	-	1	1	-
5	PDS-527	32A 600V Contactor	1	-	-	-	1
5	GC20214	40A 600V Contactor	-	1	-	-	-
5	PDS-528	65A 600V Contactor	-	-	1	1	-
6	PDS-520	Motor Starter and Protector 20A-25A	1	-	-	-	1
6	PDS-521	Motor Starter and Protector 23A-32A	-	1	-	-	-
6	PDS-522	Motor Starter and Protector 37A-50A	-	-	1	1	-
7	PDS-526	Starter Aux. Contact 575 VAC 5 Amp	1	1	1	1	1
8	GC20213	Starter Short Circuit Contact 575 VAC	1	1	1	1	1
9	PDS-540	Starter Combo Block 600 VAC 38A	1	-	-	-	1
10	PDS-517	AC Drive, 1 HP, 480 VAC, 3 PH	1	1	1	1	1
11	1EL0911	Power Distribution Block 175A 600V 3 Pole	1	1	1	1	1
12	AS-0742	Clear Dist. Block Cover	1	1	1	1	1
13	PDS-660	Switch, 3 Position Maintain	1	1	1	1	1
14	PDS-533	Fuse 600V 6A Fast Acting Class J	3	3	3	3	3
15	PDS-534	Holder 30A 3P CC Fuse	1	1	1	1	1
16	PDS-535	Fuse 600V 6A Fast Acting Class CC	3	3	3	3	3
17	PDS-537	Relay	1	1	1	1	1
18	AS-0758	End Clamp	13	13	13	13	13
19	AS-0759	Terminal Block	21	21	21	21	21
N/A	PDS-538	Modbus Cable	1	1	1	1	1

10. Parts List

Control Panel Assembly - 480V 3 Phase

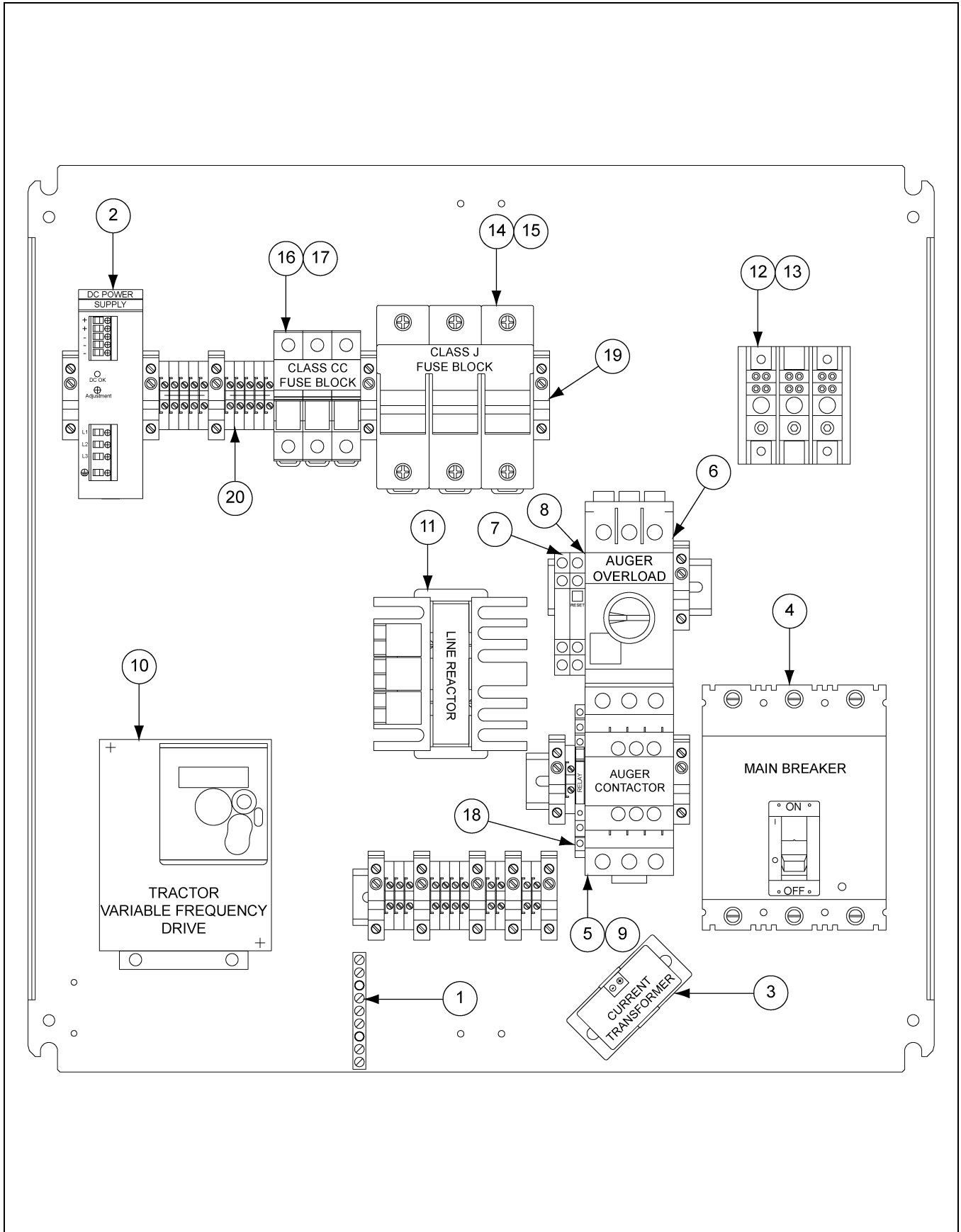


Control Panel Assembly - 480V 3 Phase Parts List

Ref #	Part #	Description	Qty					
			PDS-365A-P	PDS-365B-P	PDS-365C-P	PDS-365D-P	PDS-365E-P	PDS-487A-P
			15 HP	20 HP	25 HP	30 HP	40 HP	3K BPH 15 HP
1	AS-0730	Ground Bar Kit	1	1	1	1	1	1
2	PDS-536	Power Supply, 24V DC 5A, 575V 3 PH	1	1	1	1	1	1
3	AS-0736	Current Transducer	1	1	1	1	1	1
4	GC20231	3P 480V 50A Circuit Breaker	1	-	-	-	-	1
4	GK5962	3P 480V 60A Circuit Breaker	-	1	1	-	-	-
4	AS-0751	3P 480V 80A Circuit Breaker	-	-	-	1	1	-
5	PDS-527	32A 600V Contactor	1	-	-	-	-	1
5	GC20214	40A 600V Contactor	-	1	1	-	-	-
5	PDS-528	65A 600V Contactor	-	-	-	1	1	-
6	PDS-520	Motor Starter and Protector 20A-25A	1	-	-	-	-	1
6	PDS-521	Motor Starter and Protector 23A-32A	-	1	-	-	-	-
6	GC20212	Motor Starter and Protector 30A-40A	-	-	1	-	-	-
6	PDS-522	Motor Starter and Protector 37A-50A	-	-	-	1	-	-
6	PDS-523	Motor Starter and Protector 48A-65A	-	-	-	-	1	-
7	PDS-526	Starter Aux. Contact 575 VAC 5 Amp	1	1	1	1	1	1
8	GC20213	Starter Short Circuit Contact 575 VAC	1	1	1	1	1	1
9	PDS-540	Starter Combo Block 600 VAC 38A	1	-	-	-	-	1
10	PDS-517	AC Drive, 1 HP, 480 VAC, 3 PH	1	1	1	1	1	1
11	1EL0911	Power Distribution Block 175A 600V 3 Pole	1	1	1	1	1	1
12	AS-0742	Clear Dist. Block Cover	1	1	1	1	1	1
13	PDS-660	Switch, 3 Position Maintain	1	1	1	1	1	1
14	PDS-533	Fuse 600V 6A Fast Acting Class J	3	3	3	3	3	3
15	PDS-534	Holder 30A 3P CC Fuse	1	1	1	1	1	1
16	PDS-535	Fuse 600V 6A Fast Acting Class CC	3	3	3	3	3	3
17	PDS-537	Relay	1	1	1	1	1	1
18	AS-0758	End Clamp	13	13	13	13	13	13
19	AS-0759	Terminal Block	21	21	21	21	21	21
N/A	PDS-538	Modbus Cable	1	1	1	1	1	1

10. Parts List

Control Panel Assembly - 600V 3 Phase

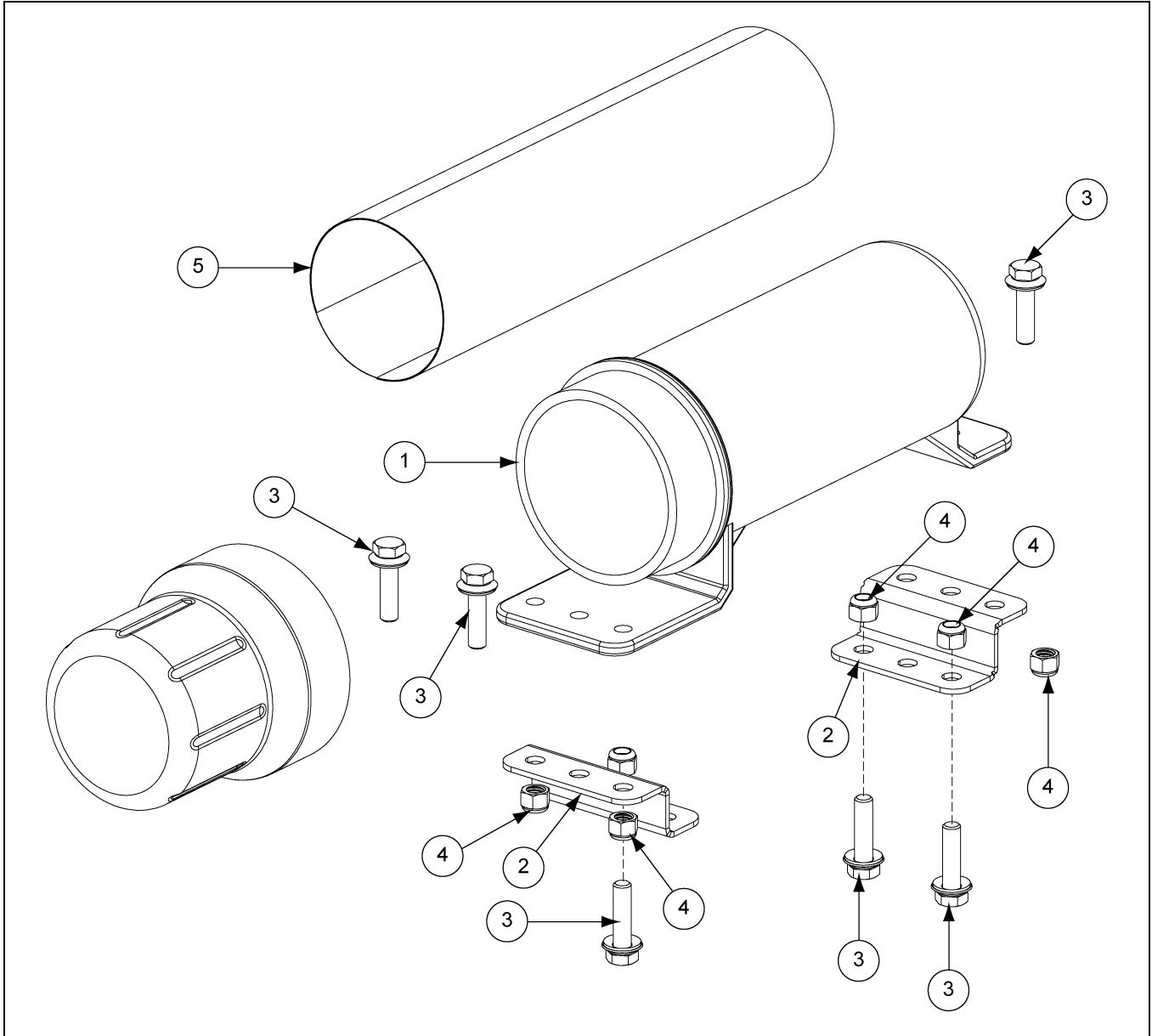


Control Panel Assembly - 600V 3 Phase Parts List

Ref #	Part #	Description	Qty					
			PDS-477A-P	PDS-477B-P	PDS-477C-P	PDS-477D-P	PDS-477E-P	PDS-488A-P
			15 HP	20 HP	25 HP	30 HP	40 HP	3K BPH 15 HP
1	AS-0730	Ground Bar Kit	1	1	1	1	1	1
2	PDS-536	Power Supply, 24V DC 5A, 575V 3 PH	1	1	1	1	1	1
3	AS-0736	Current Transducer	1	1	1	1	1	1
4	GC20230	3P 600V 50A Circuit Breaker	1	1	1	-	-	1
4	AS-0782	3P 600V 60A Circuit Breaker	-	-	-	1	-	-
4	GC20232	3P 600V 70A Circuit Breaker	-	-	-	-	1	-
5	PDS-529	18A 600V Contactor	1	-	-	-	-	1
5	PDS-530	25A 600V Contactor	-	1	-	-	-	-
5	PDS-527	32A 600V Contactor	-	-	1	-	-	-
5	GC20214	40A 600V Contactor	-	-	-	1	-	-
5	PDS-531	50A 600V Contactor	-	-	-	-	1	-
6	PDS-524	Motor Starter and Protector 17A-23A	1	-	-	-	-	1
6	PDS-520	Motor Starter and Protector 20A-25A	-	1	-	-	-	-
6	PDS-525	Motor Starter and Protector 24A-32A	-	-	1	-	-	-
6	GC20212	Motor Starter and Protector 30A-40A	-	-	-	1	-	-
6	PDS-522	Motor Starter and Protector 37A-50A	-	-	-	-	1	-
7	PDS-526	Starter Aux. Contact 575 VAC 5 Amp	1	1	1	1	1	1
8	GC20213	Starter Short Circuit Contact 575 VAC	1	1	1	1	1	1
9	PDS-540	Starter Combo Block 600 VAC 38A	1	1	1	1	1	1
10	PDS-518	AC Drive, 1 HP, 600 VAC, 3 PH	1	1	1	1	1	1
11	PDS-541	Input Line Reactor, Low Z, 575/600V 1.7A	1	1	1	1	1	1
12	1EL0911	Power Distribution Block 175A 600V 3 Pole	1	1	1	1	1	1
13	AS-0742	Clear Dist. Block Cover	1	1	1	1	1	1
14	PDS-660	Switch, 3 Position Maintain	1	1	1	1	1	1
15	PDS-533	Fuse 600V 6A Fast Acting Class J	3	3	3	3	3	3
16	PDS-534	Holder 30A 3P CC Fuse	1	1	1	1	1	1
17	PDS-535	Fuse 600V 6A Fast Acting Class CC	3	3	3	3	3	3
18	PDS-537	Relay	1	1	1	1	1	1
19	AS-0758	End Clamp	13	13	13	13	13	13
20	AS-0759	Terminal Block	21	21	21	21	21	21
N/A	PDS-538	Modbus Cable	1	1	1	1	1	1

10. Parts List

Components



Components Parts List

Ref #	Part #	Description	Qty
N/S	GK80047	Quick Start Guide Complete Assembly	N/A
1	GK80046	Manual Canister Assembly	1
2	GK80045	Canister Bracket	1
3	S-277	5/16"-18 x 1-1/4" HH Bin Bolt with Washer YDP Grade 5	6
4	S-7382	Nylock Nut 5/16"-18 ZN Grade 5	6
5	PNEG-1858	"X" Series Sweep Operation Manual	1

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	* 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%
	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 **	** Warranty prorated from list price: 0 to 3 years - no cost to end-user 3 to 5 years - end-user pays 50%
	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	† Motors, burner components and moving parts not included. Portable dryer screens included. Tower dryer screens not included.
	Portable and Tower Dryer Frames and Internal Infrastructure †	5 Years	

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

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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