12" and 16" “X” Series Sweep

Installation Manual

PNEG-1857

Version: 6.0

Date: 12-16-15

PNEG-1857

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

Safety guidelines are general-to-specific safety rules that must be followed at all times. This manual is written to help you understand safe operating procedures and problems that can be encountered by the operator and other personnel when using this equipment. Save these safety guidelines for future reference.

As owner or operator, you are responsible for understanding the requirements, hazards, and precautions that exist and to inform others as required. Unqualified persons must stay out of the work area at all times.

Alterations must not be made to the equipment. Alterations can produce dangerous situations resulting in SERIOUS INJURY or DEATH.

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

When necessary, you must consider the installation location relative to electrical, fuel and water utilities.

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

ST-0001-3

Cautionary Symbols Definitions

Cautionary symbols appear in this manual and on product decals. The symbols alert the user of potential safety hazards, prohibited activities and mandatory actions. To help you recognize this information, we use the symbols that are defined below.

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

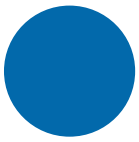
WARNING This symbol indicates a potentially hazardous situation which, if not avoided, **can result in serious injury or death.**

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

NOTICE This symbol is used to address practices not related to personal injury.

This symbol indicates a general hazard.

This symbol indicates a prohibited activity.



This symbol indicates a mandatory action.

ST-0005-2

Safety Cautions

Use Personal Protective Equipment

- Use appropriate personal protective equipment:

Eye Protection

Respiratory Protection

Foot Protection

Hearing Protection

Head Protection

Fall Protection

Hand Protection

- Wear clothing appropriate to the job.
- Remove all jewelry.
- Tie long hair up and back.

ST-0004-1

Follow Safety Instructions

- Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.
- Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.
- If you do not understand any part of this manual or need assistance, contact your dealer.

ST-0002-1

Lifting Hazard

- Single person lift can cause injury.
- Use a mechanical lifting device to lift or move the equipment during installation.

ST-0021-2

Maintain Equipment and Work Area

- Understand service procedures before doing work. Keep area clean and dry.
- Never service equipment while it is operating. Keep hands, feet, and clothing away from moving parts
- Keep your equipment in proper working condition. Replace worn or broken parts immediately.

ST-0003-1

Sharp Edge Hazard

- This product has sharp edges, which can cause serious injury.
- To avoid injury, handle sharp edges with caution and always use proper protective clothing and equipment

ST-0036-2

Rotating Auger Hazard

- Keep clear of rotating augers and moving parts.
- Do not remove or modify guards or covers.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.
- Failure to follow these precautions will result in serious injury or death.

ST-0037-1

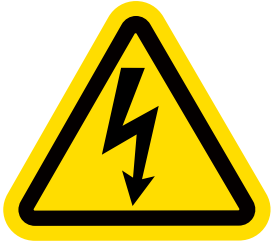
Stay Clear of Moving Parts

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

ST-0063-1

Operate Motor Properly

- All electrical connections must be made in accordance with the National Electric Code (US) or Canadian Electrical Code (CEC). Be sure equipment and bins are properly grounded.
- Lock-out power before resetting motor overloads.
- Do not repetitively stop and start the drive in order to free a plugged condition. Jogging the drive in this manner can damage the equipment and drive components.



ST-0009-2

Do Not Enter Bin

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

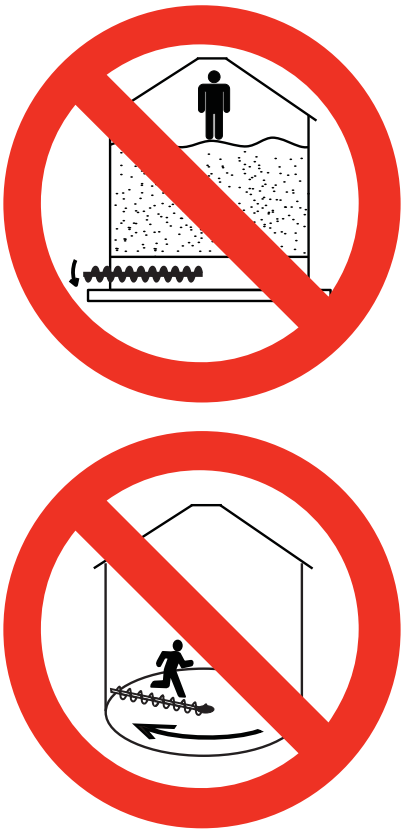
    - If you must enter the bin:

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

ST-0061-1

Use Unload Equipment Properly

- Do not operate this equipment alone. Make sure someone nearby is aware of the proper shut down sequence in the event of an emergency.
- Do not allow any person intoxicated or under the influence of drugs to operate this equipment. All operators must be adequately rested and prepared to perform all functions of operating the equipment.
- Do not start equipment until all persons are clear of the work area and safety guards are in place.
- Do not allow anyone inside a bin, truck, or wagon which is being unloaded by an auger. Flowing grain can trap and suffocate in seconds.
- Use ample overhead lighting after sunset to light the work area.
- Always use caution to not hit the auger when positioning the load.
- Do not leave equipment operating while unattended.
- Be aware of pinch points, which can trap or catch objects and cause injury.
- Be sure all equipment is locked in position before operating.
- Always lock out all power sources to the equipment when unloading is finished.



ST-0051-1

Safety Sign-Off Sheet

Below is a sign-off sheet that can be used to verify that all personnel have read and understood the safety instructions. This sign-off sheet is provided for your convenience and personal record keeping.

Date	*Employee Name*	*Supervisor Name*

ST-0007

The images below show the location of the decals and safety signs which should appear on the "X" Series Sweep. *(Refer to Page 11-14 for Decals.)*

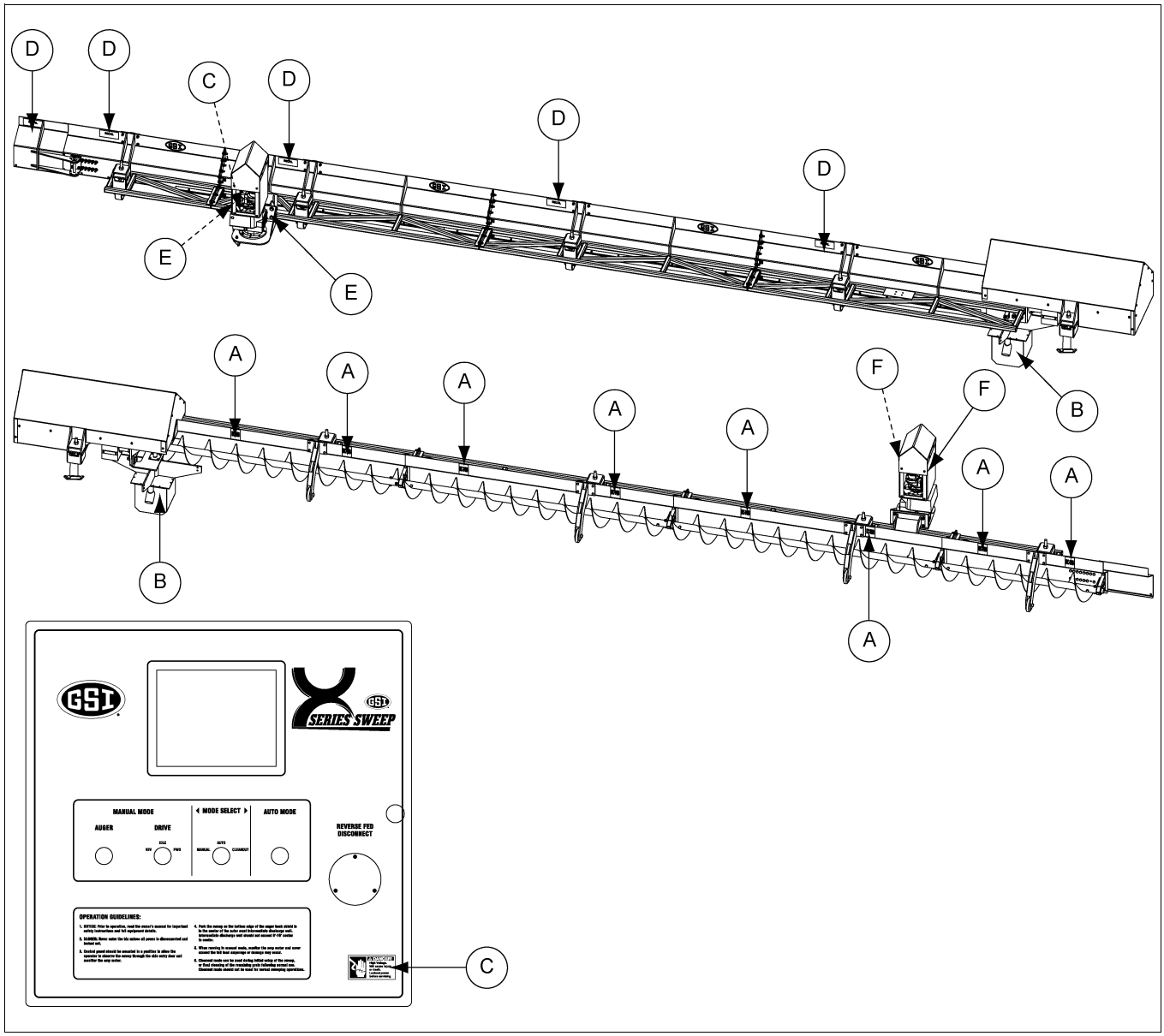


Figure 2A *Safety Decal General Location Placement*

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.*

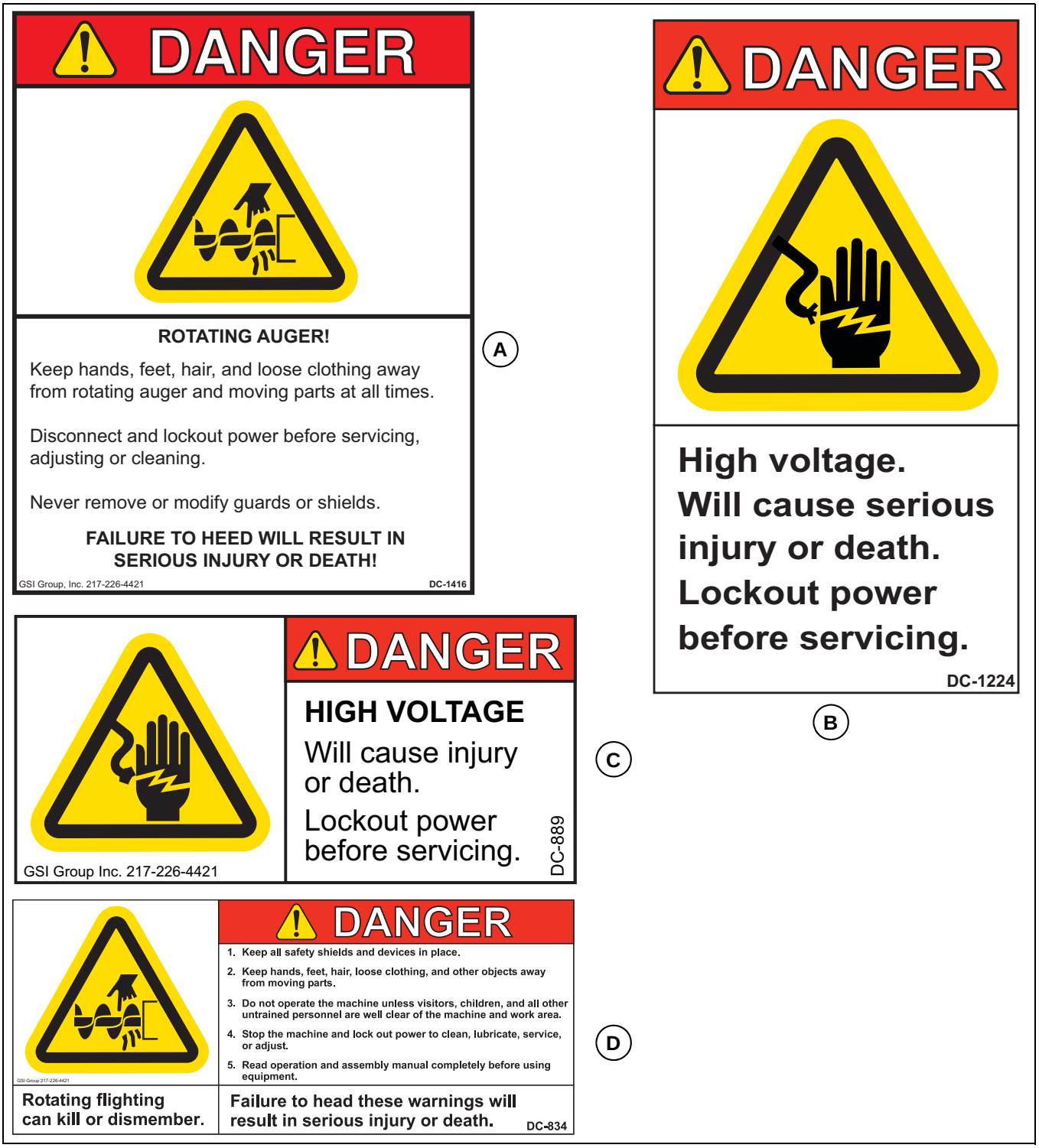
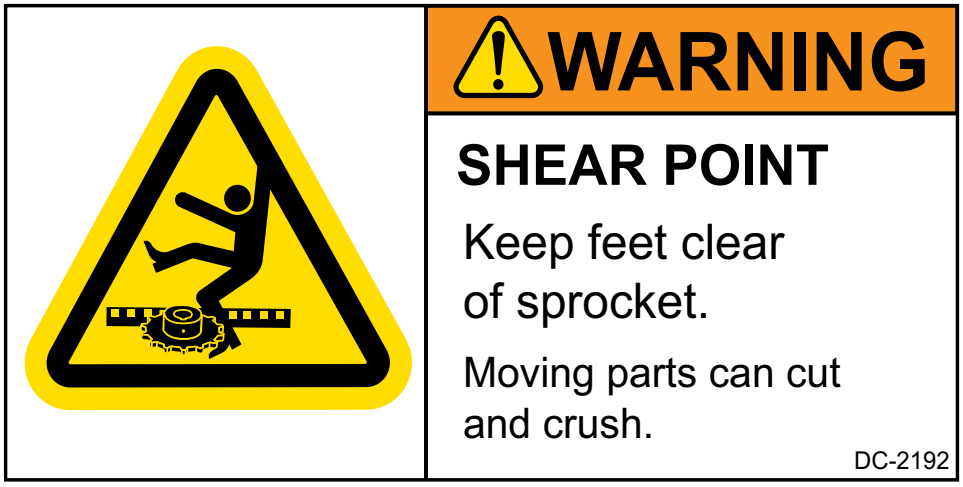


Figure 2B

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 Flighting



E

F

Figure 2C

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

2. Safety Decals

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.

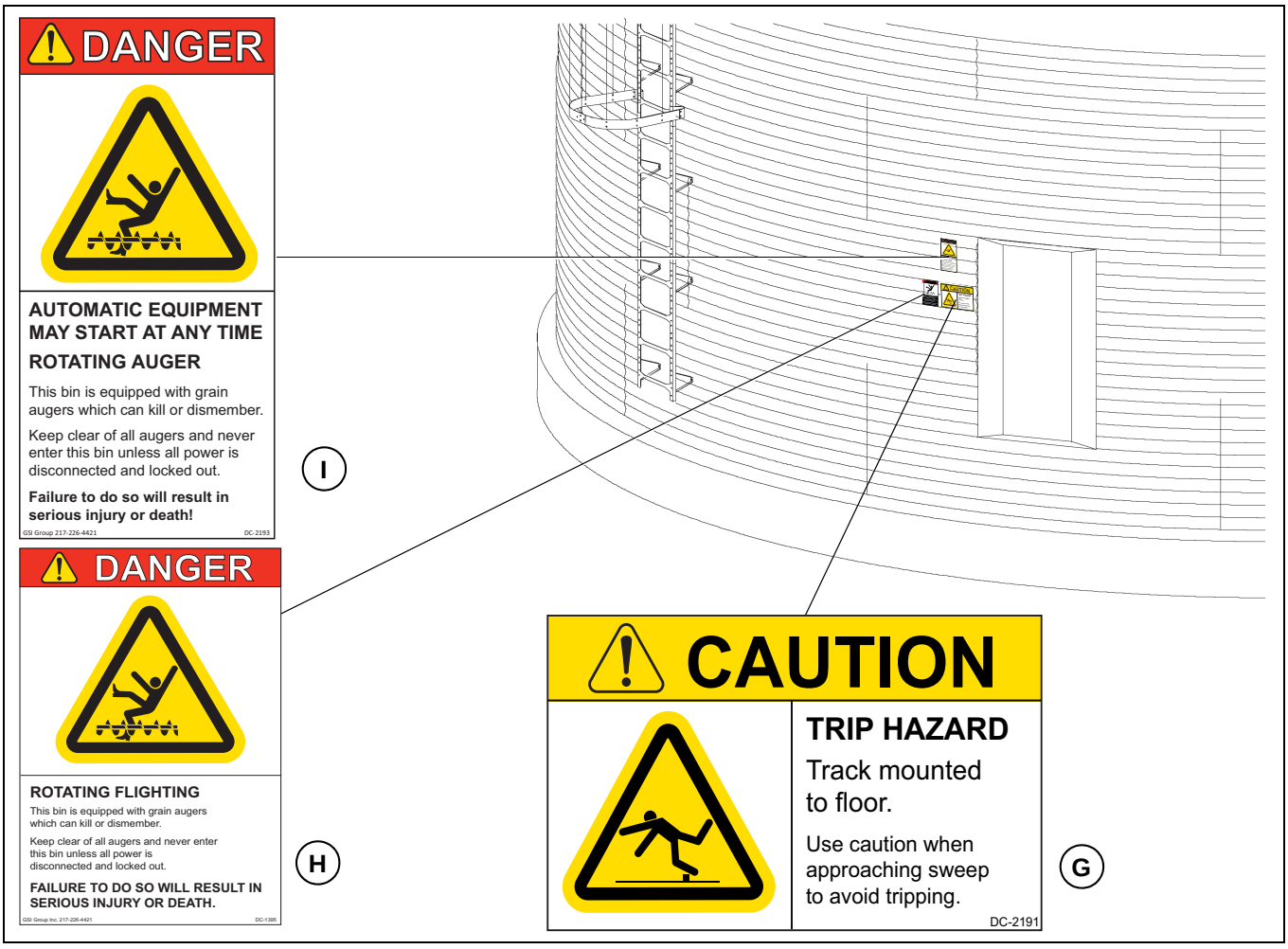


Figure 2D

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

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 cleanout 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
Flooring	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 18* 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.
Center Sump Size	When installing a 12" or 16" sweep, the minimum recommended opening is 42" x 42". 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. 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.
Number of Intermediate Sumps	Intermediate sumps must be installed on a maximum of 8' centers where the sweep will be parked during storage. The first intermediate sump should be placed at a maximum of 8' from the center sumps and the end sump should be no more than 4' from the bin wall. The extra sumps will help cleanout 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.
Routing the Power Supply to the Sweep	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.
Floor Level Tolerance	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".
Bin Roundness Tolerance	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.

Issues	Recommendations
Bin Opening Size Required for Installation	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".
Voltage Specification	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.
Electrical Requirements	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. 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. 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.

Product Information

CAUTION

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.

WARNING

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.

3. 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.

4. 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.)								
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)

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.

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.

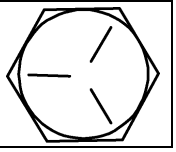
Suggested Initial Tightening Torque

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		

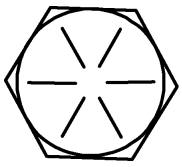
Grade 5 Bolts

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.



CAUTION

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

Installing “X” Series Posi-Drive Track

NOTE: *This procedure is only a temporary assembly and installation of the cross brace and collector ring shield and is required to correctly install the track. It will be removed and disassembled after the track is installed.*

1. Install center well.
2. Temporarily install the collector ring shield (F) to the bottom of the cross brace (A) using eight (8) hex bolts (E), eight (8) flat washers (C) and eight (8) hex nuts (B). *(See Figure 4A.)*

   NOTE: *Do not fully tighten hex bolts; collector ring shield will be removed after track installation.*
3. Slide lower conduit tubes (D) into collector ring shield (F). Temporarily secure each conduit tube with adhesive tape or equivalent to help prevent them from sliding out during installation.

   NOTE: *Two (2) different tubes are shipped with the sweep. Use the tubes that best fit the center well.*
4. Install part # PDS-236 track pivot tool (G) to the top of the cross brace (A) using four (4) flange bolts (H) and nuts (I).

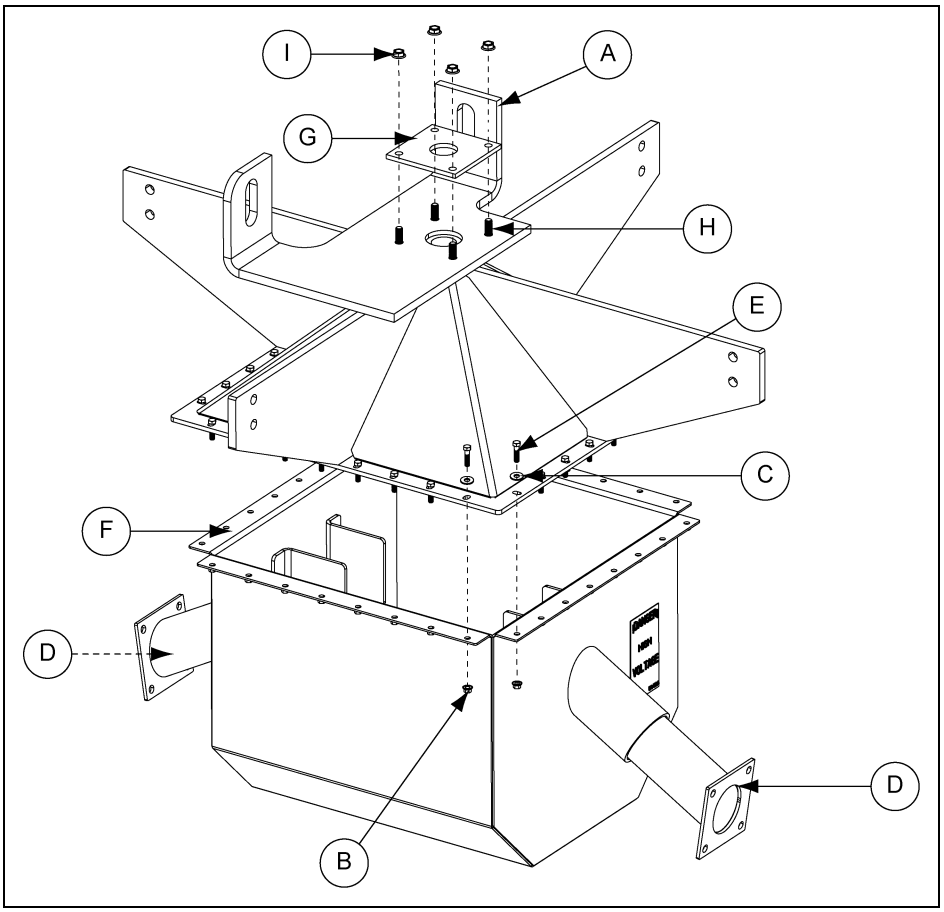


Figure 4A

Ref #	Description
A	Cross Brace
B	1/4"-20 Hex Nut
C	1/4" Flat Washer
D	Lower Conduit Tube
E	1/4"-20 x 1" Hex Bolt

Ref #	Description
F	Collector Ring Shield
G	Track Pivot Tool
H	3/8"-16 x 1-1/4" Flange Bolt
I	3/8"-16 Flange Nut

5. Install the cross brace assembly (J) into center well (K). Temporarily attach cross brace flanges to center well using hex bolts (L), flat washers (M) and flange nuts (N). *(See Figure 4B.)*

   NOTE: *Do not fully tighten hex bolts; cross brace assembly will be removed after track installation.*

6. Using a tape measure with an anchor loop, bolt the tape measure (I) to the track pivot tool (G).

   NOTE: *Locate where the absolute zero is on the tape measure and record any length that may need to be subtracted from the track radius.*

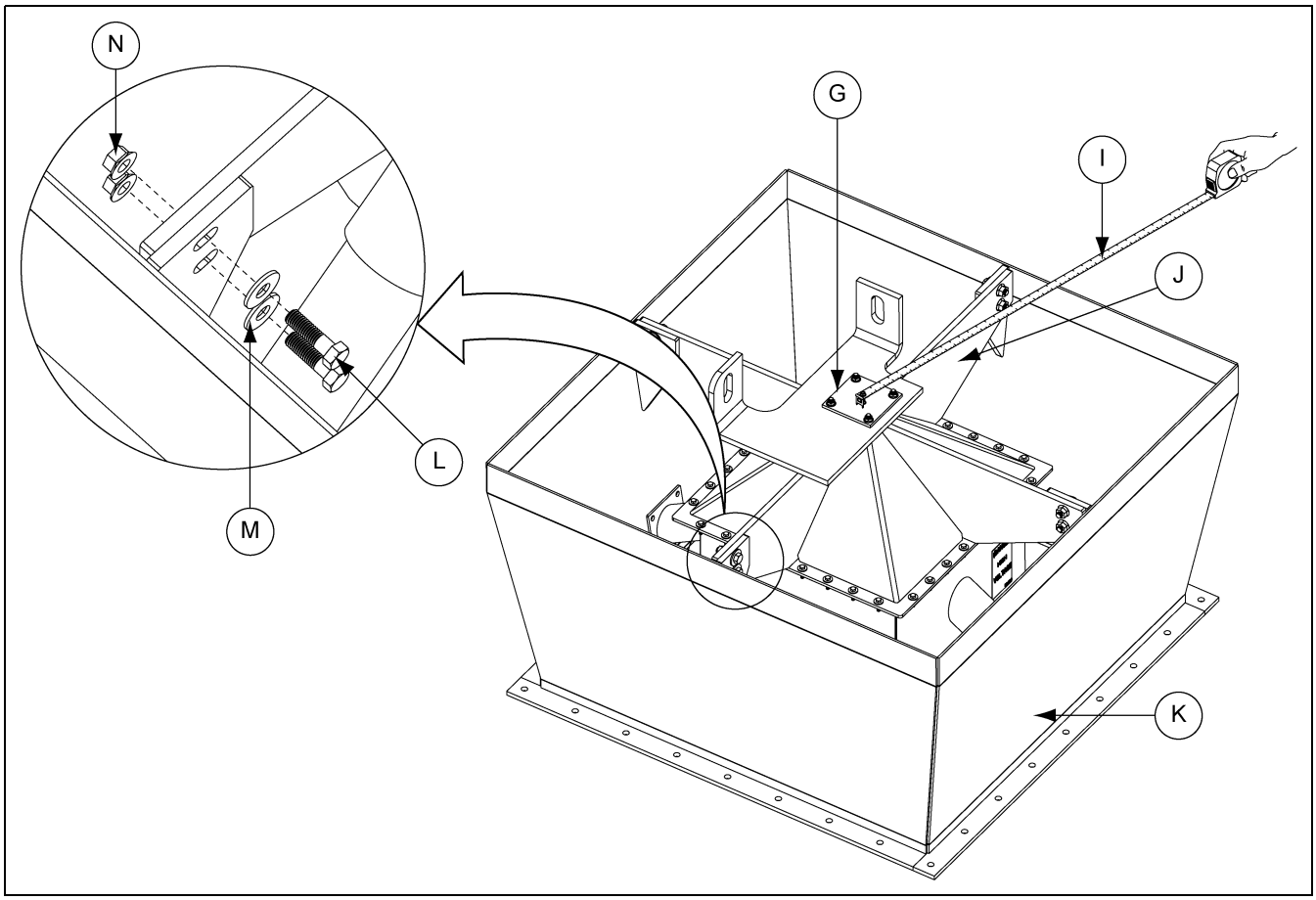


Figure 4B

Ref #	Description
G	Track Pivot Tool
I	Tape Measure
J	Cross Brace Assembly
K	Center Well

Ref #	Description
L	1/2"-13 x 1-3/4" Hex Bolt
M	1/2" Flat Washer
N	1/2"-13 Flange Nut

7. Determine the correct radius dimensions for the application. Measure the desired radius from center, marking the bin floor in 2' intervals. *(See Table on Page 18.)*

   NOTE: *When taking measurements, ensure the tape measure is pulled tight and in a straight line from the center with no interference before marking the bin floor.*

8. Place each section of track in position around the center well, aligning the inside track edges (P) with the marks in the bin floor. Using the tape measure, ensure each track section has the proper measurement. *(See Figure 4C.)*

   NOTE: *One section of track will overlap another and will need to be cut to the proper length before anchoring. This will be done near the end of the installation.*

9. Install the pitch tool (Q) at each track seam (O) to ensure proper track pitch.

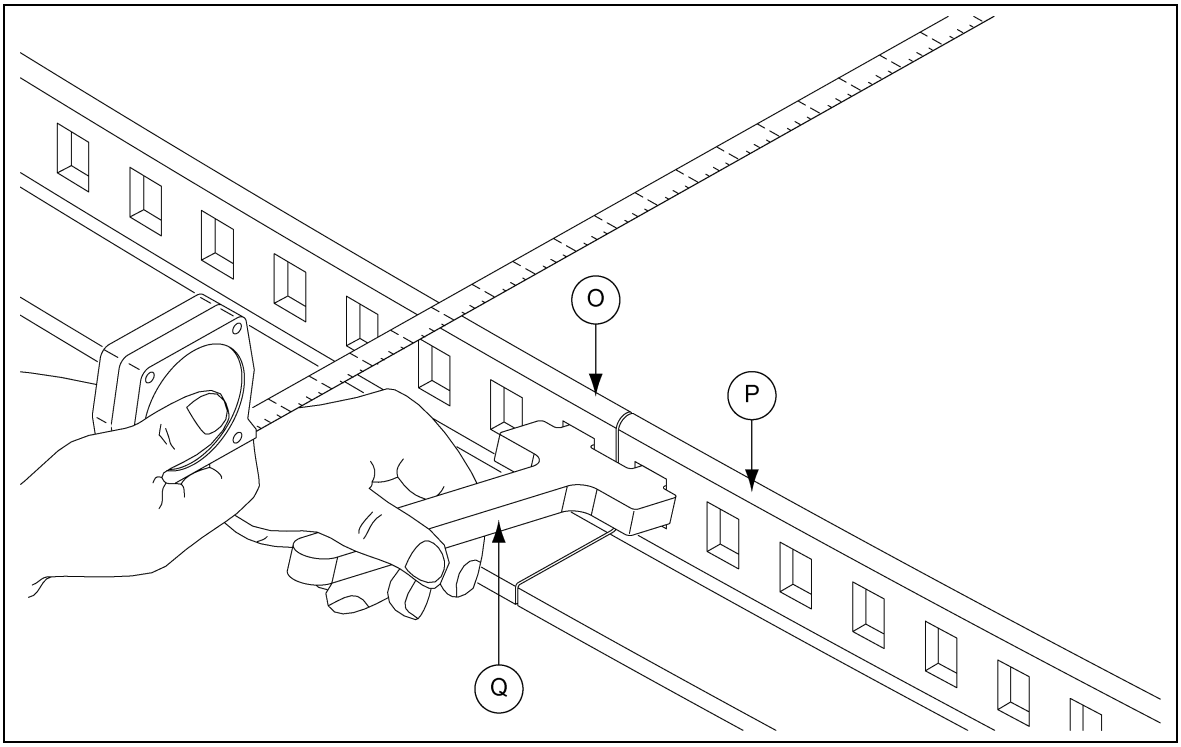


Figure 4C

Ref #	Description
O	Track Seam
P	Inside Track Edge
Q	Pitch Tool

10. Tack weld each track seam, excluding the overlapping track section.

    NOTE: *When bolting track in place, use measuring tape to ensure correct dimension of inside edge of track at each anchor location. Use pitch tool to ensure the correct spacing.*

11. Bolt each section of track in place with mechanical concrete anchors, except for the last six (6) sections of track (three (3) sections on each side of the cut seam) to allow movement for adjusting the cut track. *(See Table below.)*

Part #	Description	Qty. per Assembly	Concrete Anchors per Assembly
PDS-601	“X” Series Track Section - 8' Radius	6	24
PDS-273	“X” Series Track Section - 18' Radius	12	48
PDS-272	“X” Series Track Section - 28' Radius	19	76
PDS-270	“X” Series Track Section - 38' Radius	25	100
PDS-271	“X” Series Track Section - 48' Radius	32	128

NOTE: *Reference mark should be centered between two (2) square openings to maintain the proper track alignment.*

12. Install the track pitch tool into the squares of the overlapping track sections. Place a reference mark (S) where tracks overlap and cut the last section of track (R). *(See Figure 4D.)*

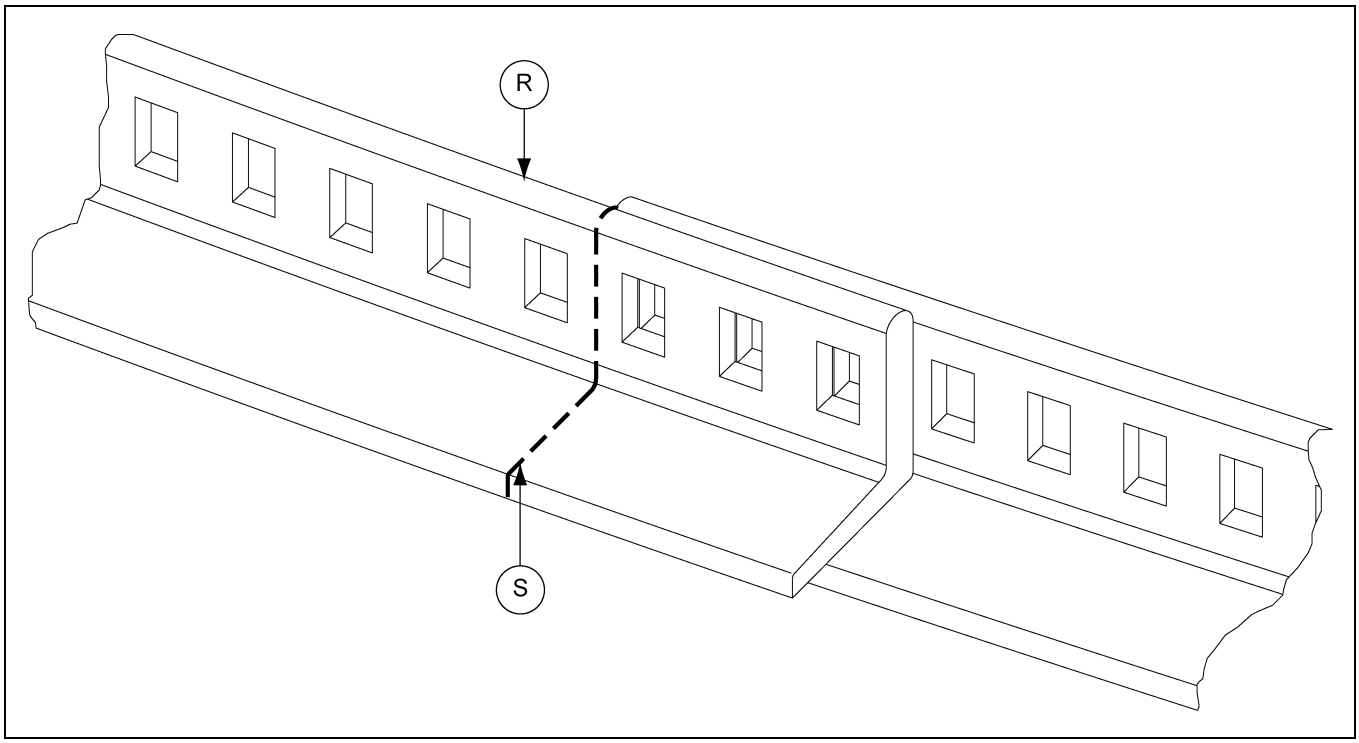


Figure 4D

Ref #	Description
R	Last Section of Track
S	Reference Mark

NOTICE ***Before fastening track sections in place, always use the tape measure to ensure correct dimension with the inside edge track sections at each anchor location.***

13. Align the remaining track sections with each mark and anchor the track sections in place.
14. Cut off any bolt ends that protrude above the nuts on the anchor bolts.
15. Remove track pivot tool from cross brace assembly.
16. Remove tape from lower conduit tubes and let them slide against the center well sides.
17. To assist with the permanent assembly, trace or scribe an outline around the square plate of the lower conduit tubes.
18. Remove the cross brace and collector ring shield assembly from the center well.

Install Cross Brace Assembly to Collector Ring

CAUTION

ALWAYS follow local and national codes, using a certified electrician when working with electrical components.

1. Guide electrical wires (H) from top of cross brace assembly (A), through the cross brace pivot shaft (G) and secure cross brace assembly (A) onto the collector ring (F) with hex bolts (D) and hex nuts (B). Tighten to specification. *(See Figure 4E.)*
2. Continue to guide the electrical wires (H) from the collector ring (F) through each conduit elbow (C) and attach the conduit elbow (C) to the collector ring (F).
3. Guide the electrical wires (H) through the lower flex conduit (E) and attach to the conduit elbows (C).

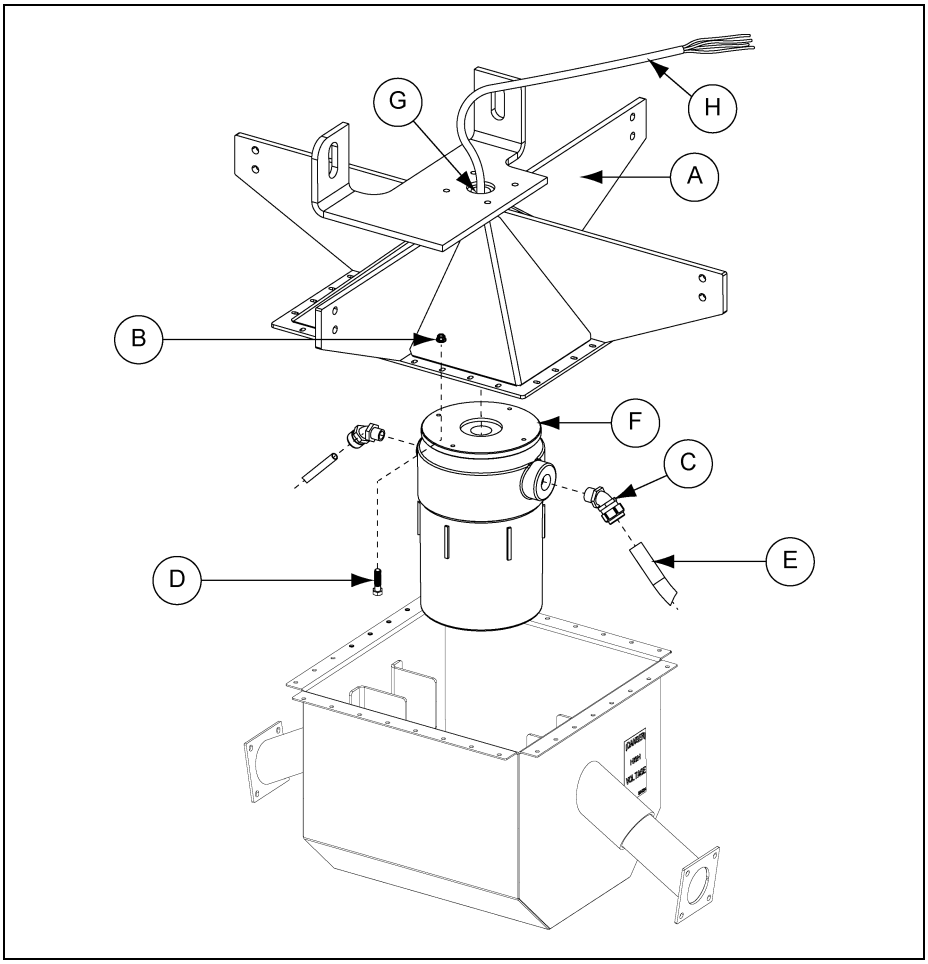


Figure 4E

Ref #	Description
A	Cross Brace Assembly
B	1/4"-20 Hex Nut
C	Conduit Elbow
D	1/4"-20 x 1" Hex Bolt

Ref #	Description
E	Lower Flex Conduit
F	Collector Ring
G	Cross Brace Pivot Shaft
H	Electrical Wires

Install Cross Brace Assembly to Collector Ring Shield

1. Guide the lower flex conduit (C) through the collector ring shield (D). *(See Figure 4F.)*
2. Install the cross brace and collector ring assembly (F) to the collector ring shield (D) and secure with hex bolts (E), flat washers (B) and hex nuts (A). Tighten to specifications. *(See Table on Page 21.)*
3. Install the pivot tube (H) to the top of the cross brace and collector ring assembly (F) and secure with hex bolts (G) and nuts (I). Tighten to specifications. *(See Table on Page 21.)*

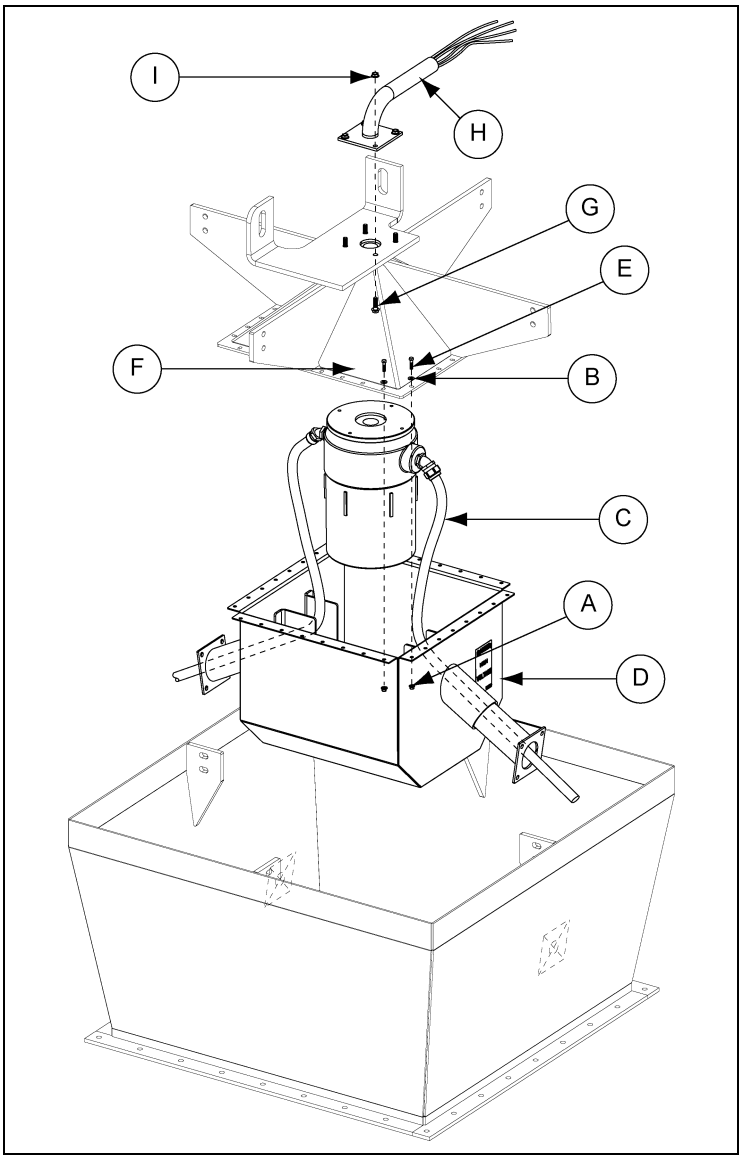


Figure 4F

Ref #	Description
A	1/4"-20 Hex Nut
B	1/4" Flat Washer
C	Lower Flex Conduit
D	Collector Ring Shield
E	1/4"-20 x 1" Hex Bolt

Ref #	Description
F	Cross Brace and Collector Ring Assembly
G	3/8"-16 x 1-1/4" Hex Bolt
H	Pivot Tube
I	3/8"-16 Flange Nut

Install Cross Brace and Collector Ring Shield Assembly to Center Well

1. Locate the traced outlines (A) that were created on the inside wall of the center well (B) during the track installation. *(See Figure 4G.)*

   NOTE: *The traced outlines were made during the temporary assembly of the cross brace and collector ring shield of the track installation procedure.*

2. Connect the corners of the traced outline (A), creating an “X”. This will represent the center of the traced outline that will need to be drilled.

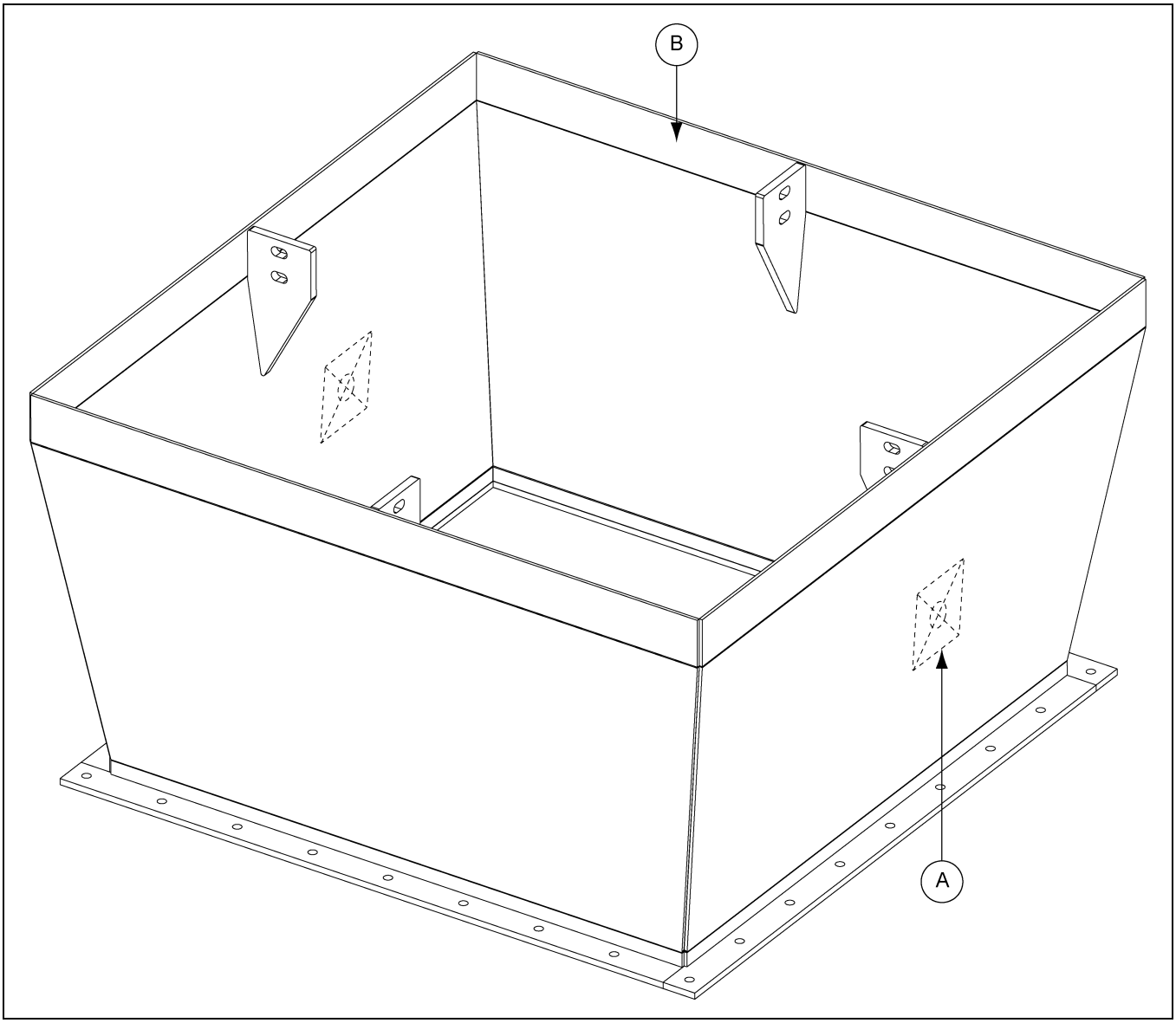


Figure 4G

Ref #	Description
A	Traced Outline
B	Center Well

3. Determine the correct hole size needed for each lower flex conduit (D) and drill hole (C) from the center of the traced outline (A). *(See Figure 4H.)*

   NOTE: *Outside diameter of each lower flex conduit tube will determine the correct size of hole needed.*

4. Apply some adhesive tape (F) to the lower flex conduit tubes (E) to keep them from sliding out of place.
5. Guide the lower flex conduit (D) through the drilled hole (C) of the center well (B).
6. Slide the lower flex conduit tubes (E) into the collector ring shield and secure with adhesive tape (F).
7. Install the cross brace and collector ring shield assembly (G) into the center well (B) and secure with hex bolts (J), flat washers (I) and flange nuts (H). *(See Table on Page 21.)*

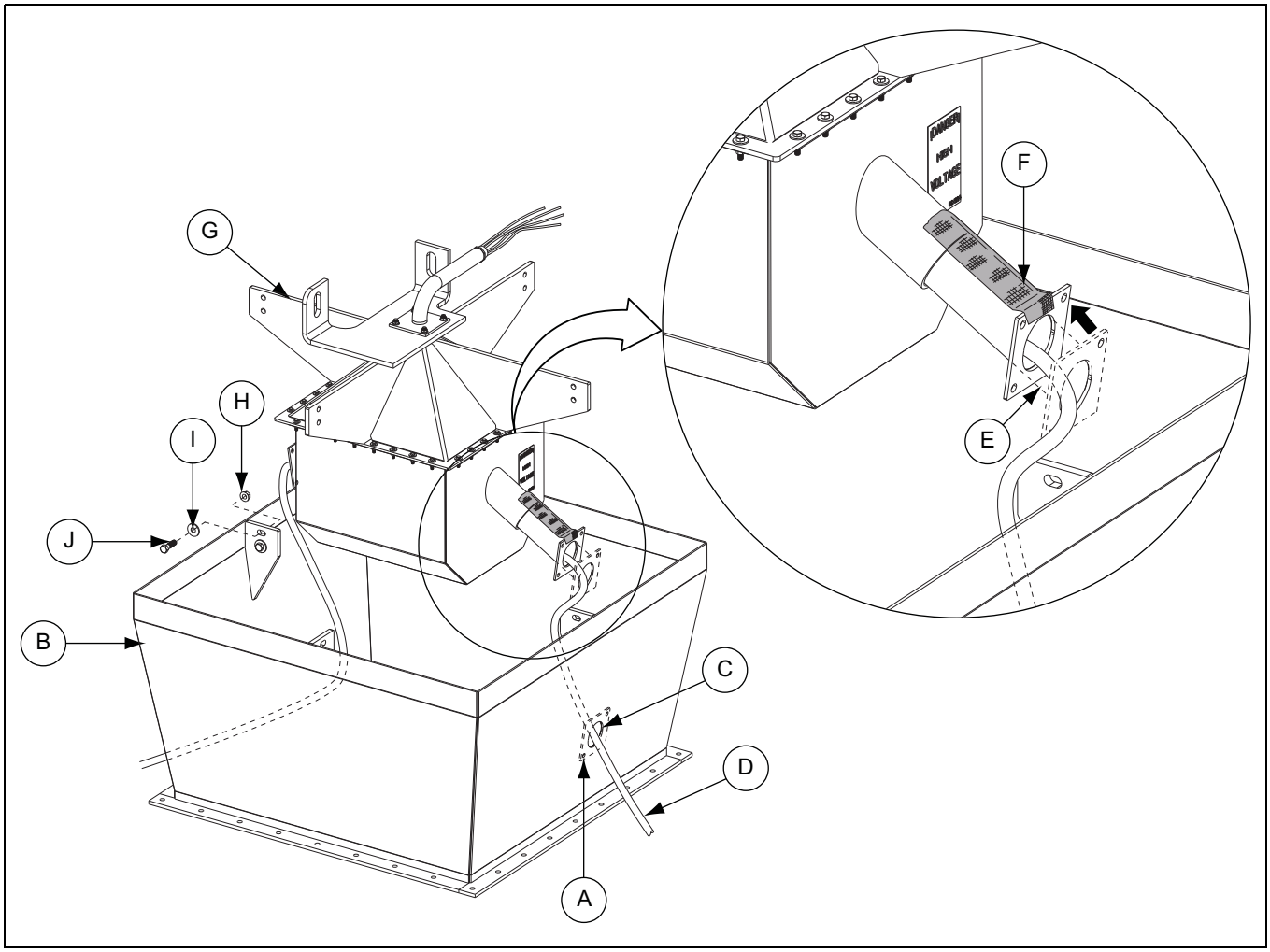


Figure 4H

Ref #	Description
A	Traced Outline
B	Center Well
C	Drilled Hole
D	Lower Flex Conduit
E	Lower Flex Conduit Tube

Ref #	Description
F	Adhesive Tape
G	Cross Brace and Collector Ring Shield Assembly
H	1/2"-13 Flange Nut
I	1/2" Flat Washer
J	1/2"-13 x 1-3/4" Hex Bolt

8. Remove all adhesive tape, allowing the lower flex conduit tubes (E) to slide and rest against the walls of the center well (B). *(See Figure 4I.)*

9. Weld each lower flex conduit tubes (E) to the sides of the center well (B).

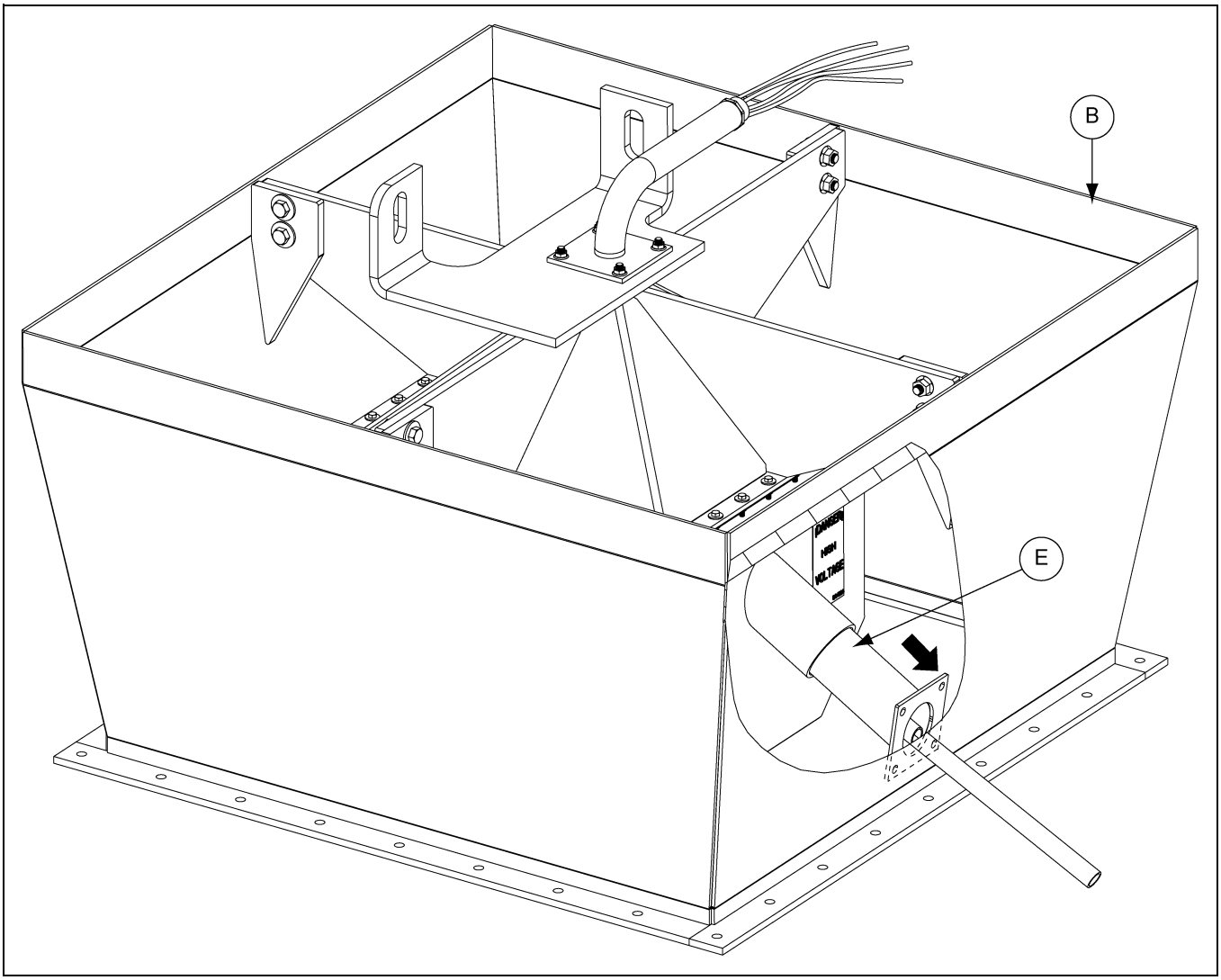


Figure 4I

Ref #	Description
B	Center Well
E	Lower Flex Conduit Tube

Sweep Shield Sections Reference Chart

The sweep shield has been broken down into four (4) different section types: the head, intermediate, tail and extension sections.

NOTE: *Use below table, to determine the correct order and back shield/auger combination. Then follow tables on Page 32 to identify the correct part number for each individual sweep section.*

Bin Diameter	# of Sections	Back Shield and Auger Combinations							
27'	2	M/1	D/3						
30'	2	M/1	E/4						
33'	2	M/1	G/6						
34'	2	M/1	G/6						
36'	2	M/1	H/7						
37'	2	M/1	I/8						
39'	2	M/1	J/9						
40'	2	M/1	J/9						
42'	2	M/1	K/2						
43'	2	M/1	K/2						
45'	3	M/1	L/10						
48'	3	A/1	C/2	D/3					
49'	3	A/1	C/2	D/3					
51'	3	A/1	C/2	E/4					
54'	3	A/1	C/2	G/6					
55'	3	A/1	C/2	G/6					
57'	3	A/1	C/2	H/7					
59'	3	A/1	C/2	I/8					
60'	3	A/1	C/2	J/9					
62'	3	A/1	C/2	K/2					
63'	3	A/1	C/2	K/2					
66'	4	A/1	C/2	L/10					
68'	4	A/1	C/2	B/2	D/3				
69'	4	A/1	C/2	B/2	D/3				
72'	4	A/1	B/2	C/2	F/5				
75'	4	A/1	B/2	C/2	G/6				
78'	4	A/1	B/2	C/2	I/8				
80'	4	A/1	B/2	C/2	J/9				
81'	4	A/1	B/2	C/2	J/9				
84'	4	A/1	B/2	C/2	L/10				
87'	5	A/1	B/2	C/2	L/10				
88'	5	A/1	B/2	C/2	B/2	D/3			
90'	5	A/1	B/2	B/2	C/2	E/4			
91'	5	A/1	B/2	B/2	C/2	E/4			
92'	5	A/1	B/2	B/2	C/2	F/5			
95'	5	A/1	B/2	B/2	C/2	G/6			
98'	5	A/1	B/2	B/2	C/2	I/8			
99'	5	A/1	B/2	B/2	C/2	I/8			
105'	5	A/1	B/2	B/2	C/2	L/10			
113'	6	A/1	B/2	B/2	C/2	B/2	F/5		
115'	6	A/1	B/2	B/2	C/2	B/2	G/6		
118'	6	A/1	B/2	B/2	C/2	B/2	I/8		
120'	6	A/1	B/2	B/2	B/2	C/2	J/9		
131'	7	A/1	B/2	B/2	B/2	C/2	B/2	E/4	
132'	7	A/1	B/2	B/2	B/2	C/2	B/2	F/5	
135'	7	A/1	B/2	B/2	B/2	C/2	B/2	G/6	
139'	7	A/1	B/2	B/2	B/2	C/2	B/2	I/8	
156'	8	A/1	B/2	B/2	B/2	C/2	B/2	B/2	H/7

NOTE: *When the correct back shield and auger combination has been determined from table on Page 31, use below tables to identify the correct size and part number for each individual sweep section.*

Back Shield Part Numbers			
Reference	Length	Part #	
		12" Back Shield	16" Back Shield
A	10'	PDS-333G	PDS-336G
B	10'	PDS-334G	PDS-337G
C	10'	PDS-335G	PDS-338G
D	3'	PDS-442G	PDS-435G
E	4'	PDS-447G	PDS-440G
F	5'	PDS-445G	PDS-438G
G	6'	PDS-443G	PDS-436G
H	7'	PDS-509G	PDS-510G
I	8'	PDS-446G	PDS-439G
J	9'	PDS-444G	PDS-437G
K	10'	PDS-621G	PDS-605G
L	11'	PDS-351G	PDS-441G
M	10'	PDS-617G	PDS-603G

Auger Part Numbers				
Reference	Length		Part #	
	12" Auger	16" Auger	12" Auger	16" Auger
1	116-3/4"	115-5/8"	GC06613	GC06761
2	118"	117"	GC06627	GC06766
3	34"	33"	PDS-331	PDS-332
4	46"	45"	GC06468	GC06767
5	58"	57"	GC06622	GC06762
6	70"	69"	GC06623	GC06764
7	82"	81"	GC06624	GC06768
8	94"	93"	GC06582	GC06638
9	106"	105"	GC06626	GC06763
10	130"	129"	GC06467	GC06644

Assemble Caster Wheel to Caster Wheel Mount

1. Assemble caster wheel (C) to caster wheel mount (B) using hex bolts (E) and flange nuts (D). *(See Figure 4J.)*
2. Install hex nut (A) to caster wheel mount (B).

NOTE: *16" Sweep - Install hex nut (A) so that there is approximately 1" of threads between the nut and the caster wheel mount base.*

12" Sweep - Install hex nut (A) so that there is approximately 1-1/2" of threads between the nut and the caster wheel mount base.

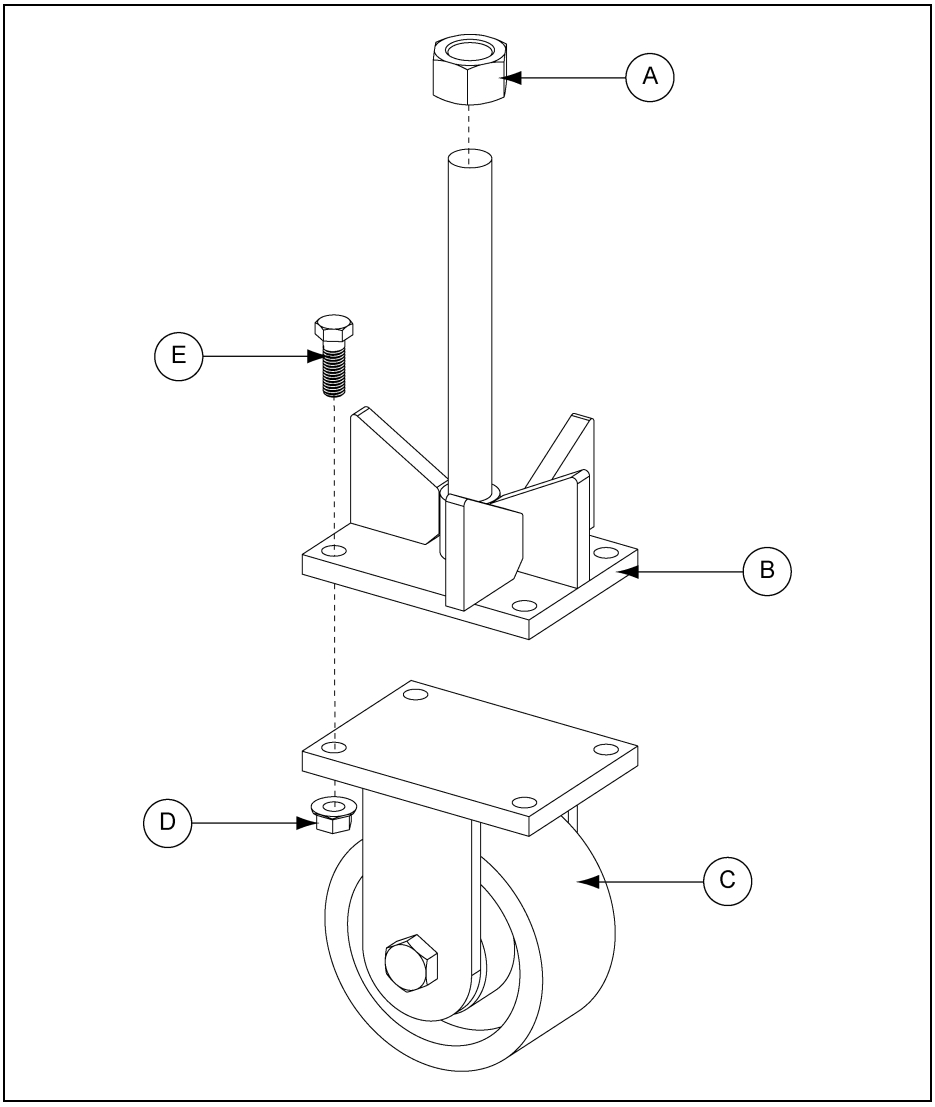


Figure 4J

Ref #	Description
A	1"-5 Hex Nut
B	Caster Wheel Mount
C	Caster Wheel

Ref #	Description
D	1/2"-13 Flange Nut
E	1/2"-13 x 1-1/2" Hex Bolt

Install Caster Wheel Assembly to Sweep Shield

1. Install all caster wheel assemblies (C) to all sweep shields (B). *(See Figure 4K.)*
2. Install hex nut (A) to caster wheel assembly (C).

NOTE: *Tighten hex nut (A) finger tight. After the sweep is fully assembled it is necessary to adjust and level the sweep before operating.*

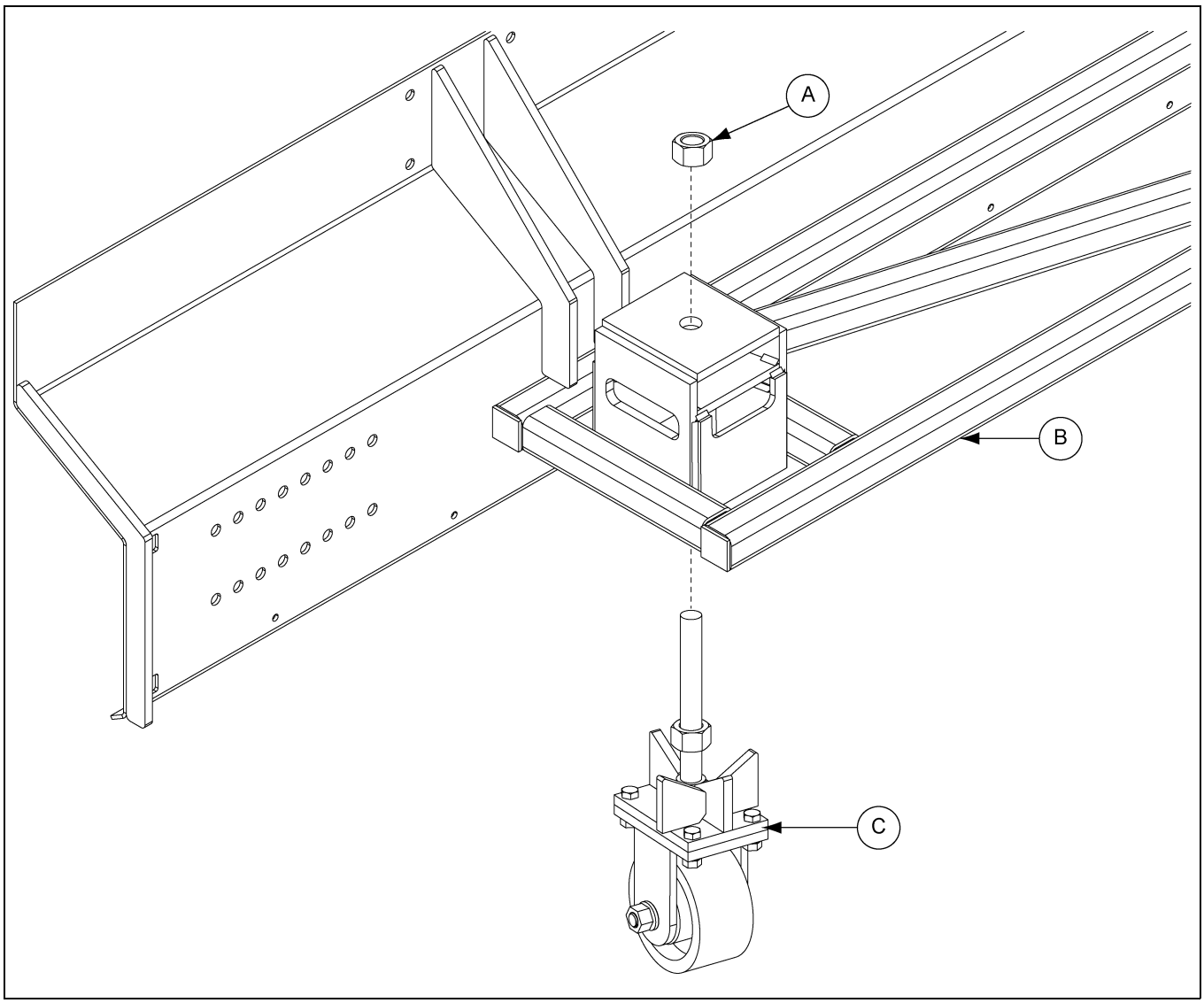


Figure 4K

Ref #	Description
A	1"-5 Hex Nut
B	Sweep Shield
C	Caster Wheel Assembly

Install Sweep Head Section to Cross Brace

1. Install sweep shield head section (J) to pivot plate (I) using hex bolts (G and H), flat washer (F), bracket (E), spacer (D), lock washer (A), lock nut (C) and hex nut (B). *(See Figure 4L.)*

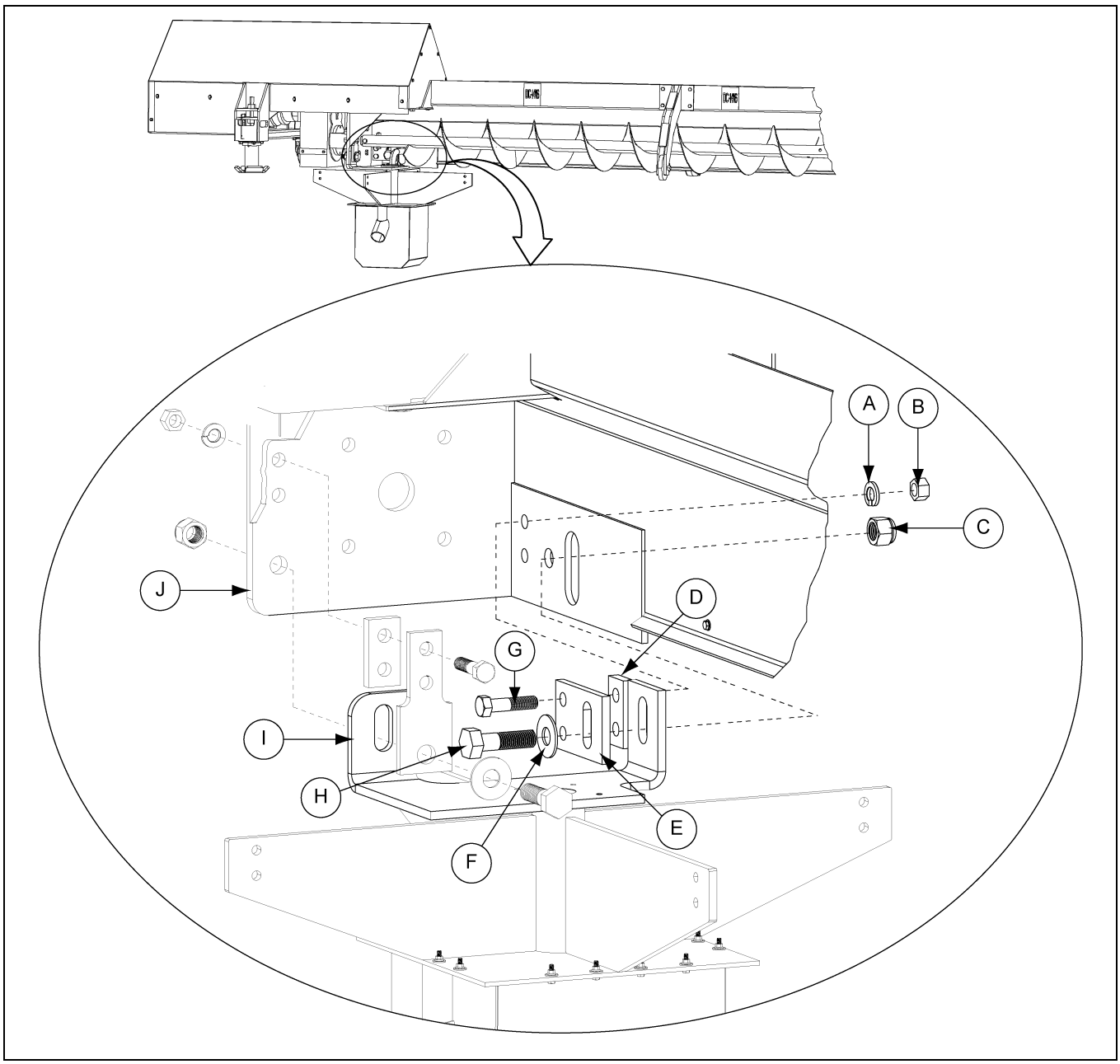


Figure 4L

Ref #	Description
A	3/4" Lock Washer
B	3/4"-10 Hex Nut
C	1"-8 Lock Nut
D	Spacer
E	Bracket

Ref #	Description
F	1" Flat Washer
G	3/4"-10 x 3-1/2" Hex Bolt
H	1"-8 x 3-1/2" Hex Bolt
I	Pivot Plate
J	Sweep Shield Head Section

2. Install hex bolts (K and M), flat washer (L), bracket (N), spacer (O), lock washer (Q), lock nut (P) and hex nut (R). *(See Figure 4M.)*

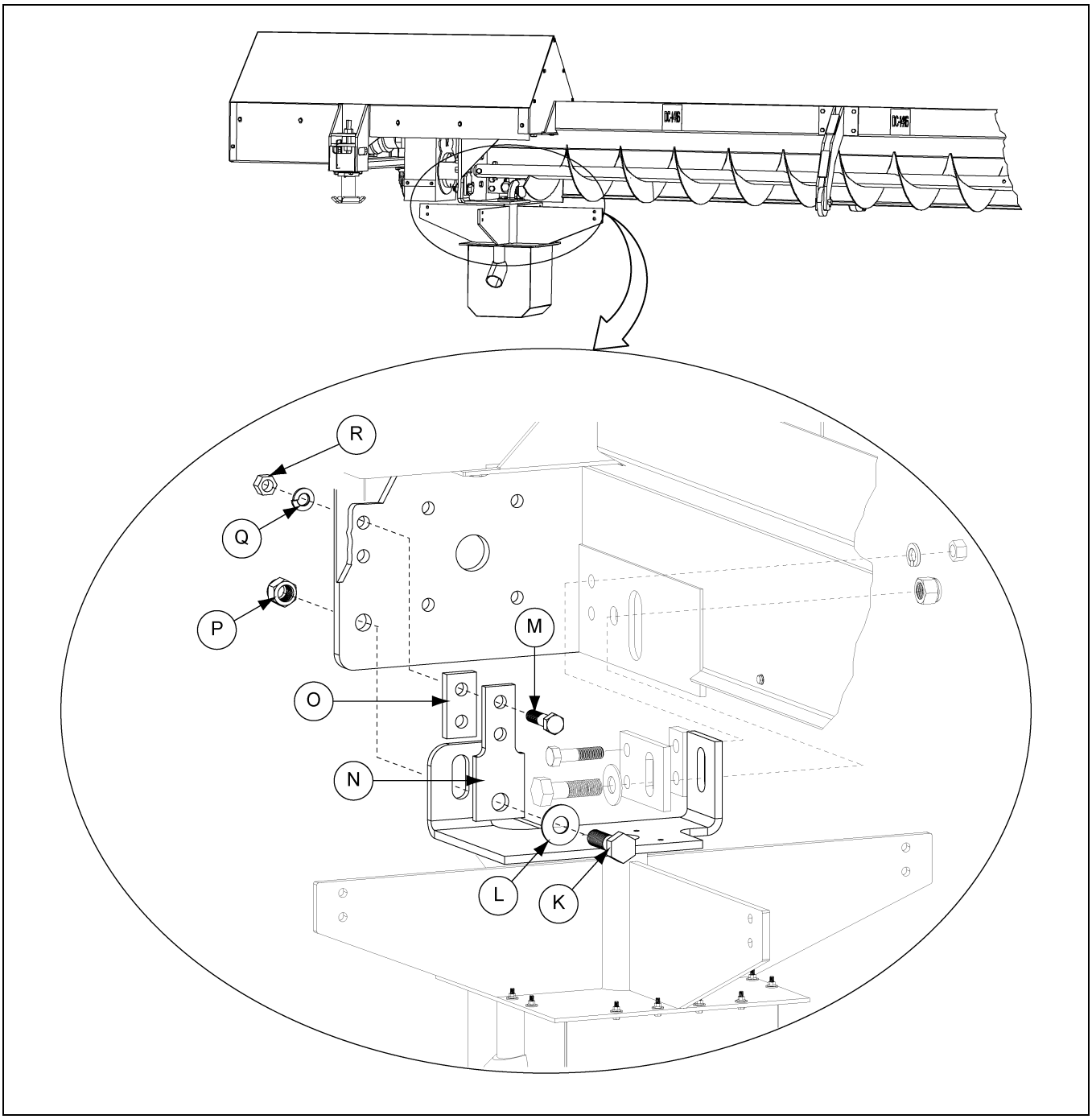


Figure 4M

Ref #	Description
K	1"-8 x 3-1/2" Hex Bolt
L	1" Flat Washer
M	3/4"-10 x 3-1/2" Hex Bolt
N	Bracket

Ref #	Description
O	Spacer
P	1"-8 Lock Nut
Q	3/4" Lock Washer
R	3/4"-10 Hex Nut

Attach Intermediate Sweep Shields Together

1. Attach sweep shields (B) together using hex bolts (A) and flange nuts (C). *(See Figure 4N.)*

   NOTE: *12" Shield connection shown. 16" Shield will have two (2) additional bolt locations.*

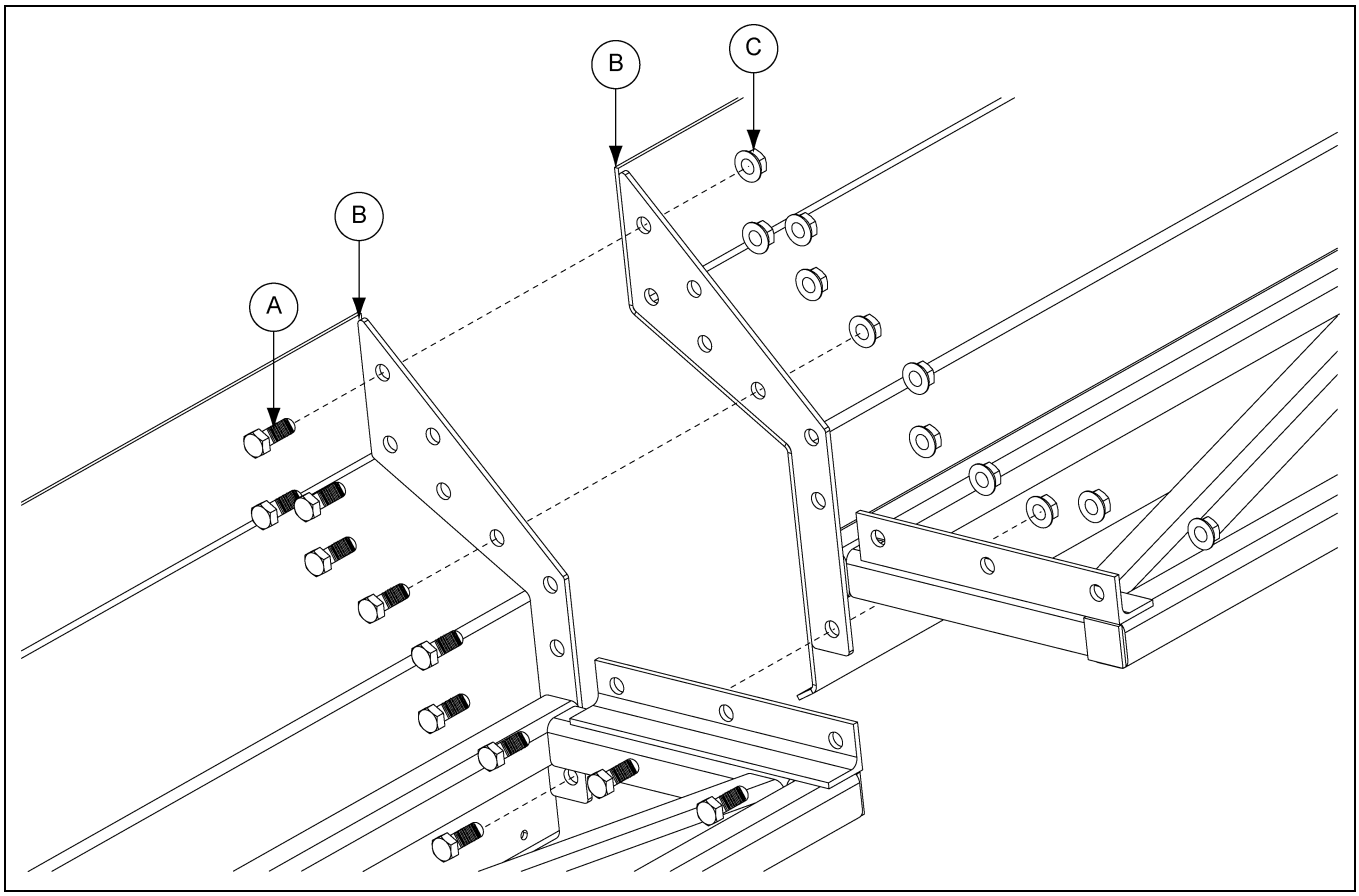


Figure 4N *12" Sweep Shield Connection*

Ref #	Description
A	5/8"-11 x 1-3/4" Hex Bolt
B	Sweep Shield
C	5/8"-11 Flange Nut

Install Plow

1. Install plow mount (E) to sweep shield (B) using four (4) bolts (A) and flange nuts (F). *(See Figure 4O.)*

   NOTE: *Plow mount location is adjustable and must be installed using four (4) bolts. Location of plow mount is determined by the desired length of sweep.*

2. Install plow (K) to plow mount (E) using pivot pin (D), roll pin (I), hex bolts (C and G) and lock nuts (H and J).

   NOTE: *Hex bolts (C and G) locations will determine if plow is extended or not extended.*

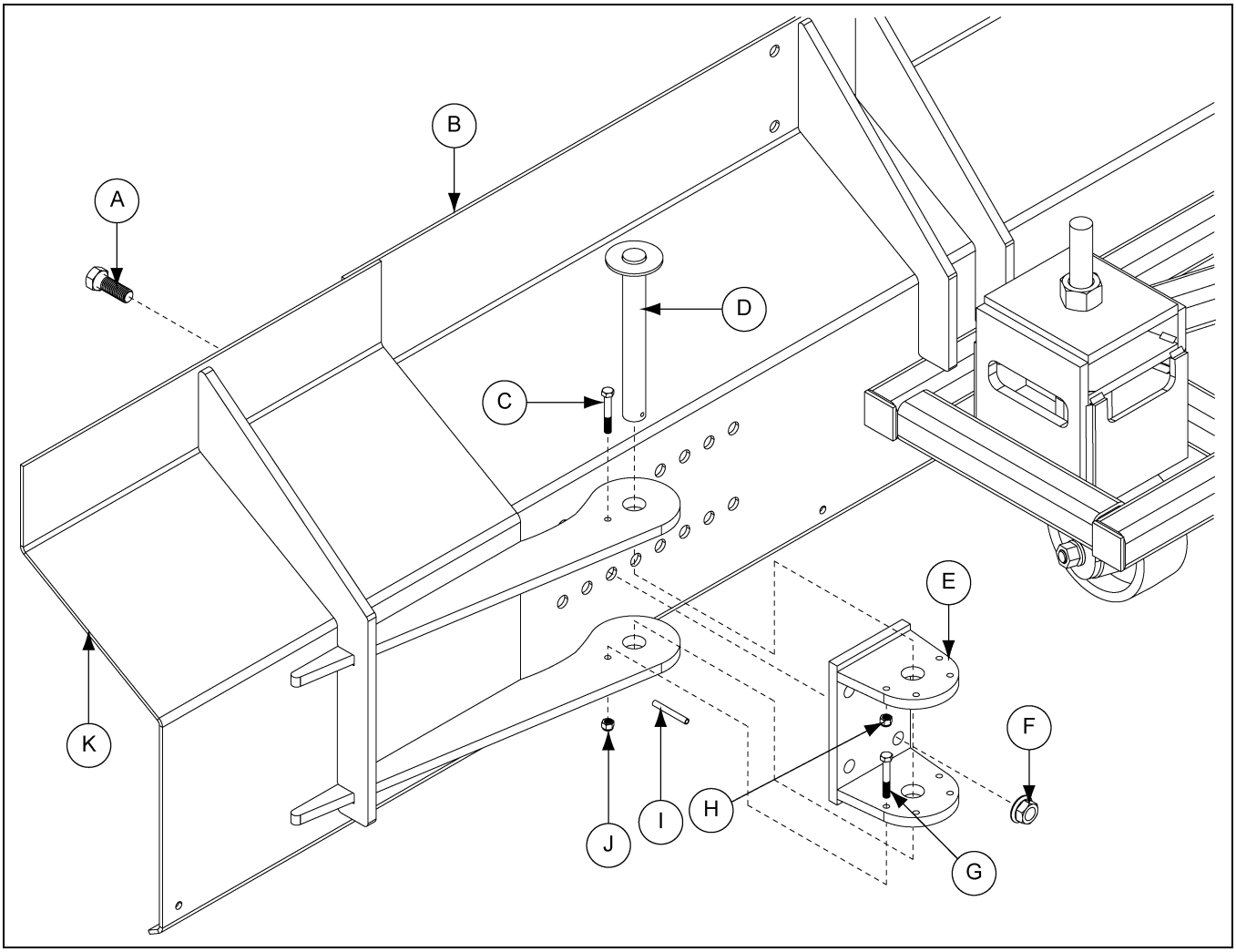


Figure 4O

Ref #	Description
A	5/8"-11 x 1-3/4" Hex Bolt
B	Sweep Shield
C	5/16"-18 x 2" Hex Bolt
D	Pivot Pin
E	Plow Mount
F	5/8"-11 Flange Nut

Ref #	Description
G	5/16"-18 x 2" Hex Bolt
H	5/16"-18 Lock Nut
I	Roll Pin
J	5/16"-18 Lock Nut
K	Plow

3. Install hex bolts (L) and flange nuts (M) to sweep shield (B), to fill in all of the remaining bolt holes. *(See Figure 4P.)*

   NOTE: *Hex bolts (A) must be installed from auger side of sweep shield as shown. (See Figure 4P.)*

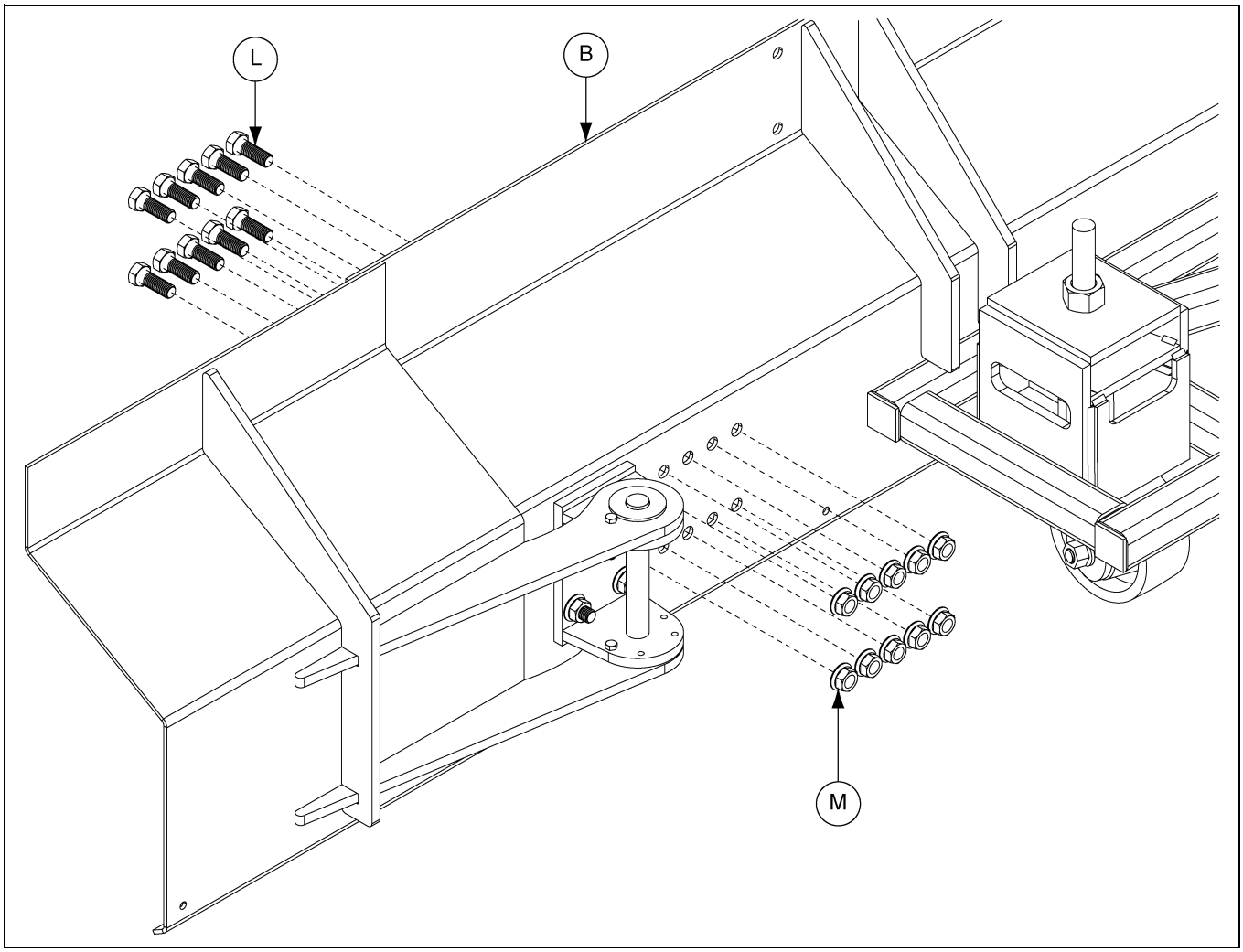


Figure 4P

Ref #	Description
B	Sweep Shield
L	5/8"-11 x 1-3/4" Hex Bolt
M	5/8"-11 Flange Nut

Assembling Brush Holder and Brush Bristles

1. Measure and record the brush length needed from the sweeper head (B) to the track wiper (C) and from the track wiper (C) to the end of the sweeper (A). *(See Figure 4Q.)*

   NOTE: *Installing the brush to the plow will be covered later in this manual.*

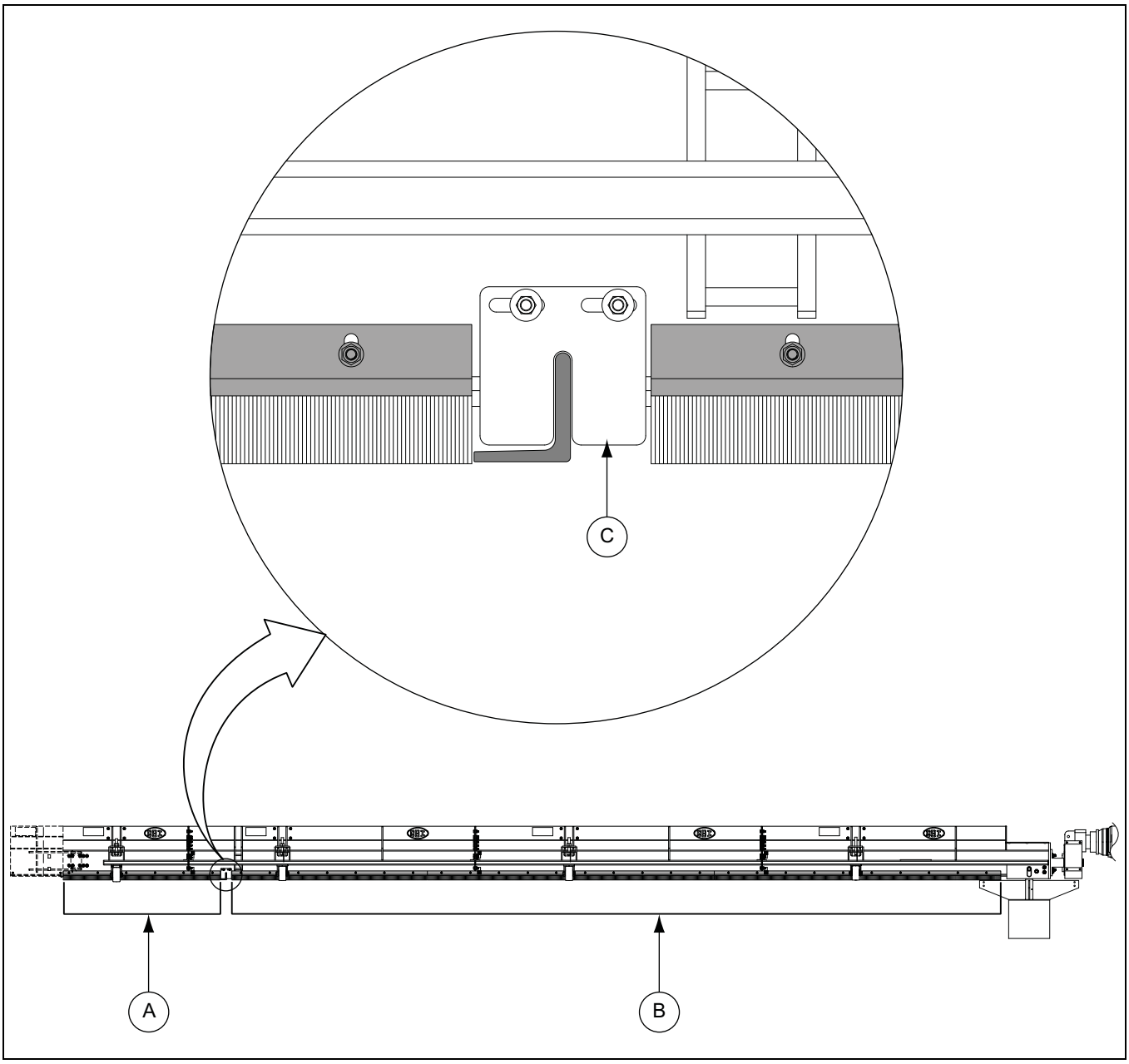


Figure 4Q

Ref #	Description
A	Track Wiper to End of Sweeper Length
B	Sweeper Head to Track Wiper Length
C	Track Wiper

2. Install one end of the brush (D) to the end of the brush holder (E) and guide the brush along the slotted groove (F). *(See Figure 4R.)*

   NOTE: *Tap the end of the brush holder with a mallet. If the brush does not guide along the slotted groove in the brush holder.*

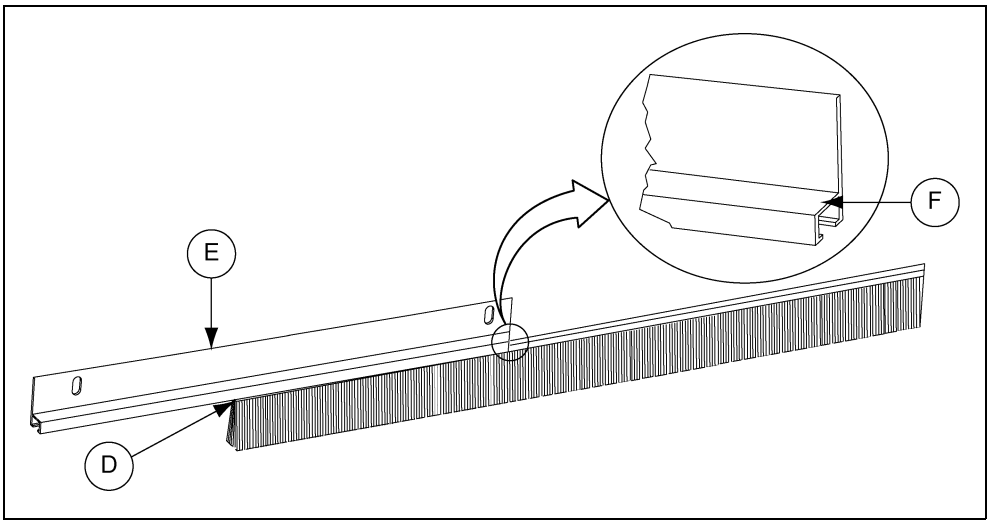


Figure 4R

Ref #	Description
D	Brush
E	Brush Holder
F	Slotted Groove

   NOTE: *When assembling the brush to the brush holder, always alternate the seams of brush and brush holder.*

3. Assemble brush (D) to brush holder (E) to the desired length and cut brush holder (E) with a suitable device. Crimp the two (2) ends of the brush holder, locking the brush in place. *(See Figure 4S.)*

   NOTE: *Crimp brush ends after cutting to length to secure the bristles.*

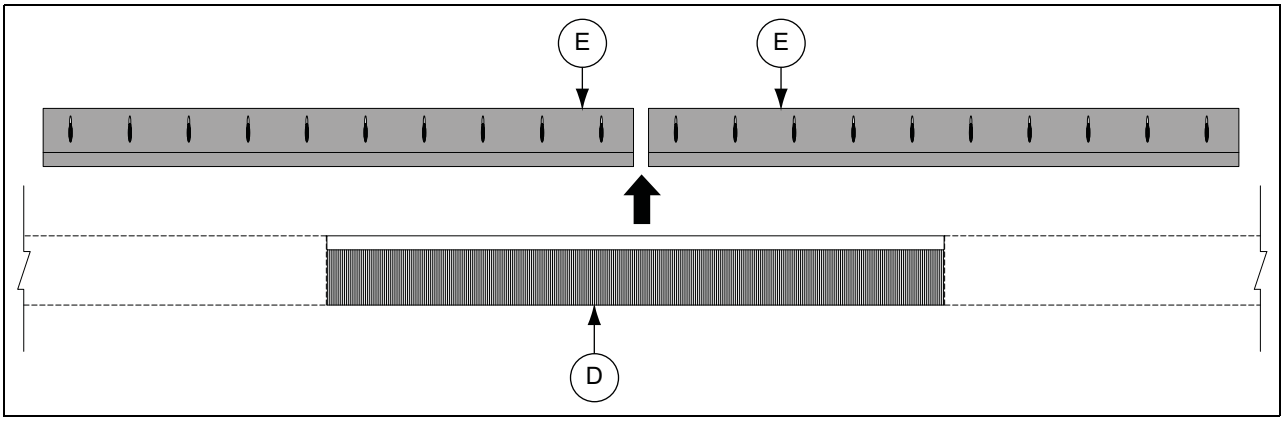


Figure 4S

Ref #	Description
D	Brush
E	Brush Holder

Installing Brush Assembly to Sweep Shield

1. Slide brush assemblies (C) along back of sweep shield (B). Align holes in brush assembly with holes in shield using a drift punch. *(See Figure 4T.)*

   NOTE: *This procedure requires two (2) people, one person in front of the sweep shield installing hex bolts and one behind the sweep shield installing the flange nuts.*

2. Install all brush assembles (C) to sweep shield (B) using hex bolts (A) and flange nuts (D).

   NOTE: *On 12" sweeps, the brush holder will need to be notched out around the lower hanger bearing hardware.*

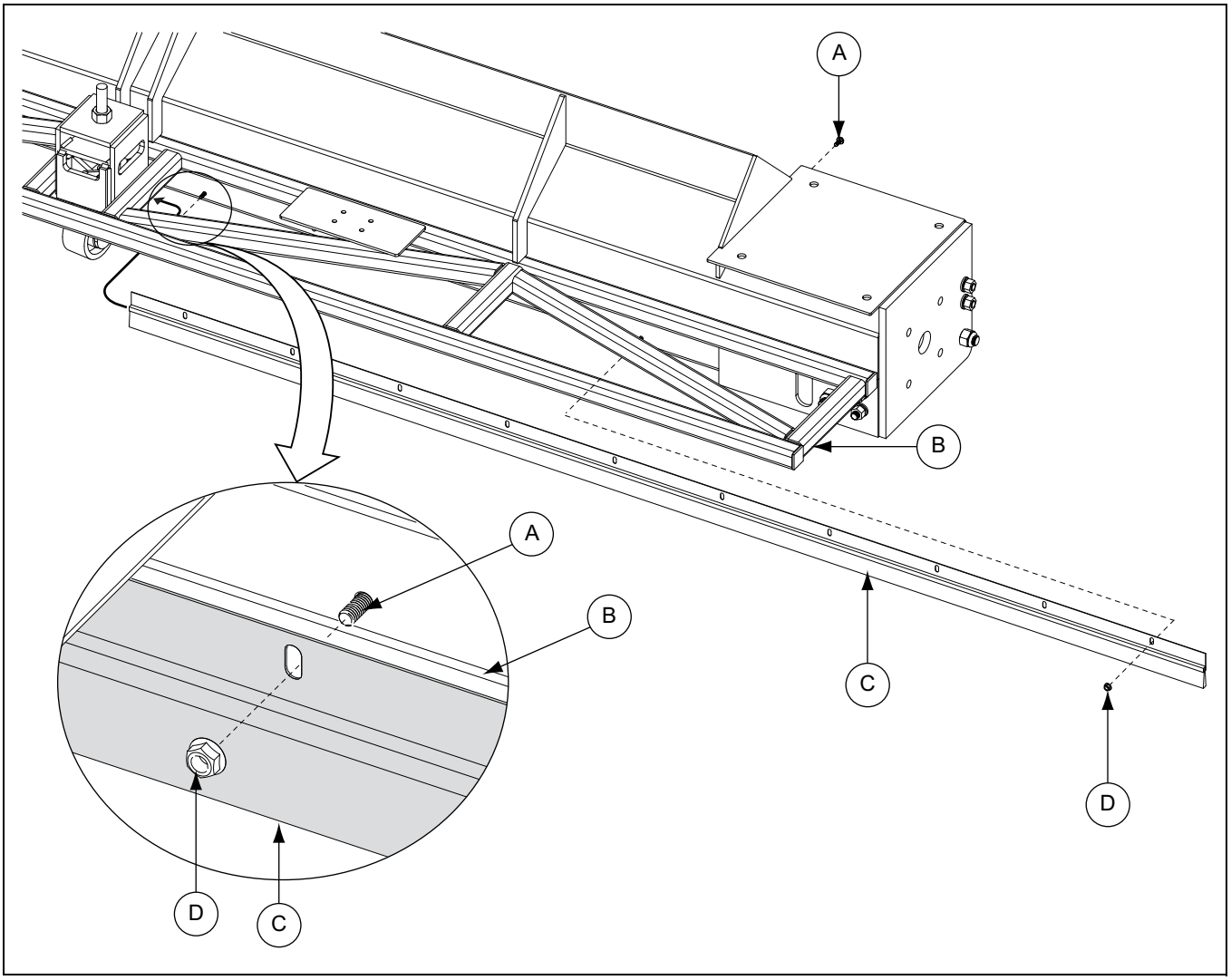


Figure 4T

Ref #	Description
A	5/16"-18 x 3/4" Hex Bolt
B	Sweep Shield
C	Brush Assembly
D	5/16"-18 Flange Nut

Install Brush Assembly to Plow

1. Place a brush holder (A) to the frame of the plow (I). *(See Figure 4U.)*
2. Align brush holder hole (E) with plow frame hole (G) and scribe or mark each outer edge (B and F) of the plow frame. Transfer these marks to the brush holder (A).
3. Cut the excess material from the brush holder at marks (B and F).
4. Cut a notch (D) in brush holder to fit around plow brace (H) on the plow.
5. Line brush holder up with edges of plow and the notch.
6. Using a scribe or marker, place a reference mark (C) from the front side of plow through hole onto brush holder. Drill out this reference mark (C) on brush holder (A).

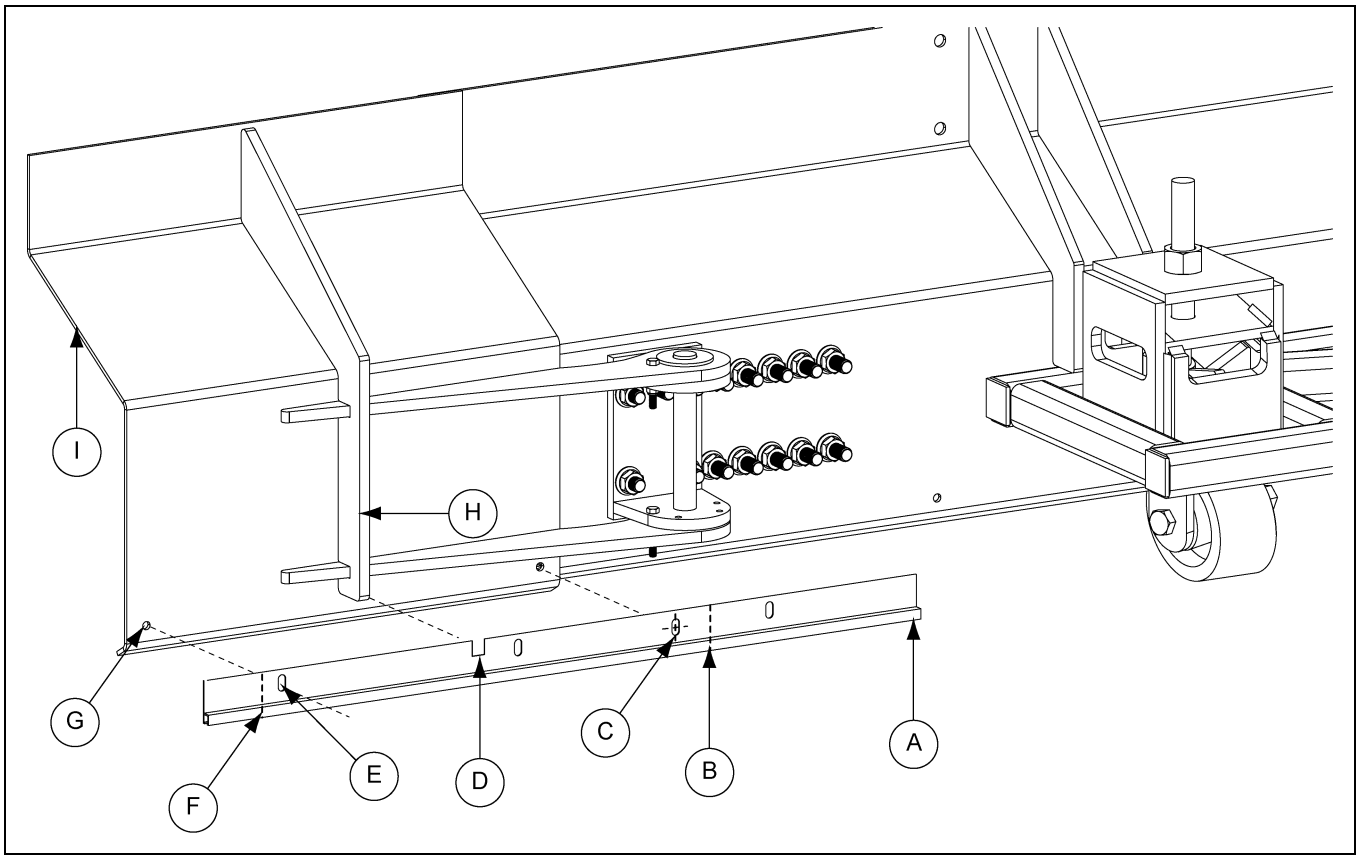


Figure 4U

Ref #	Description
A	Brush Holder
B	Outer Edge Mark
C	Reference Mark
D	Notch
E	Brush Holder Hole

Ref #	Description
F	Outer Edge Mark
G	Plow Frame Hole
H	Plow Brace
I	Plow

7. Install brush (J) to brush holder (A). *(See Figure 4V.)*

   NOTE: *The brush should be cut 1/8" shorter than brush holder on each end to allow correct crimping.*

8. Cut brush (J) to length and ensure that the brush is installed 1/8" shorter than brush holder on each end.

   NOTE: *Crimp brush ends after cutting to length to secure the bristles.*

9. Crimp the ends of the brush holder to secure the brush.

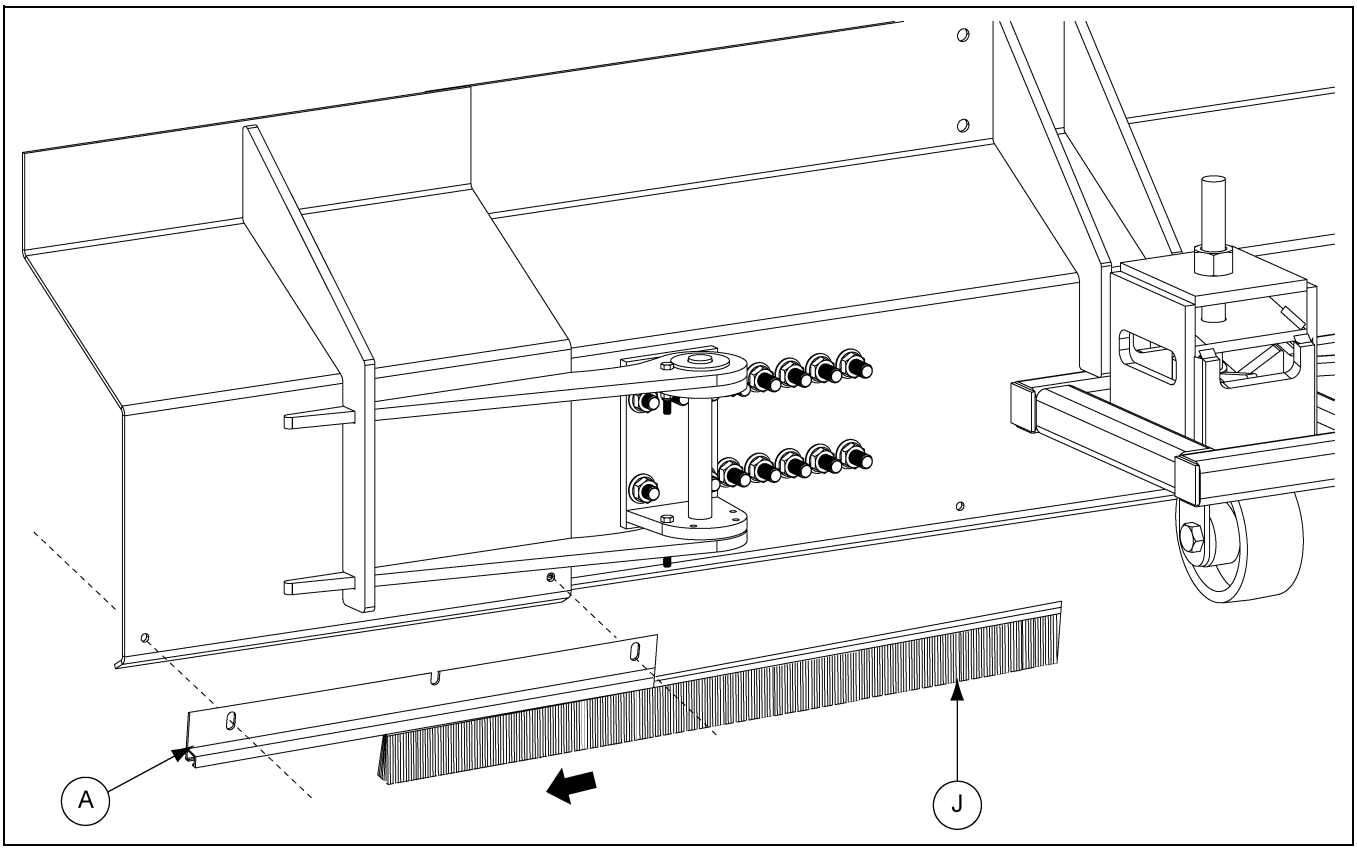


Figure 4V

Ref #	Description
A	Brush Holder
J	Brush

10. Install brush assembly (A and J) to plow (I) using hex bolts (L) and flange nuts (K). *(See Figure 4W.)*

11. Tighten hex bolts and flange nuts specifications. *(See Table on Page 21.)*

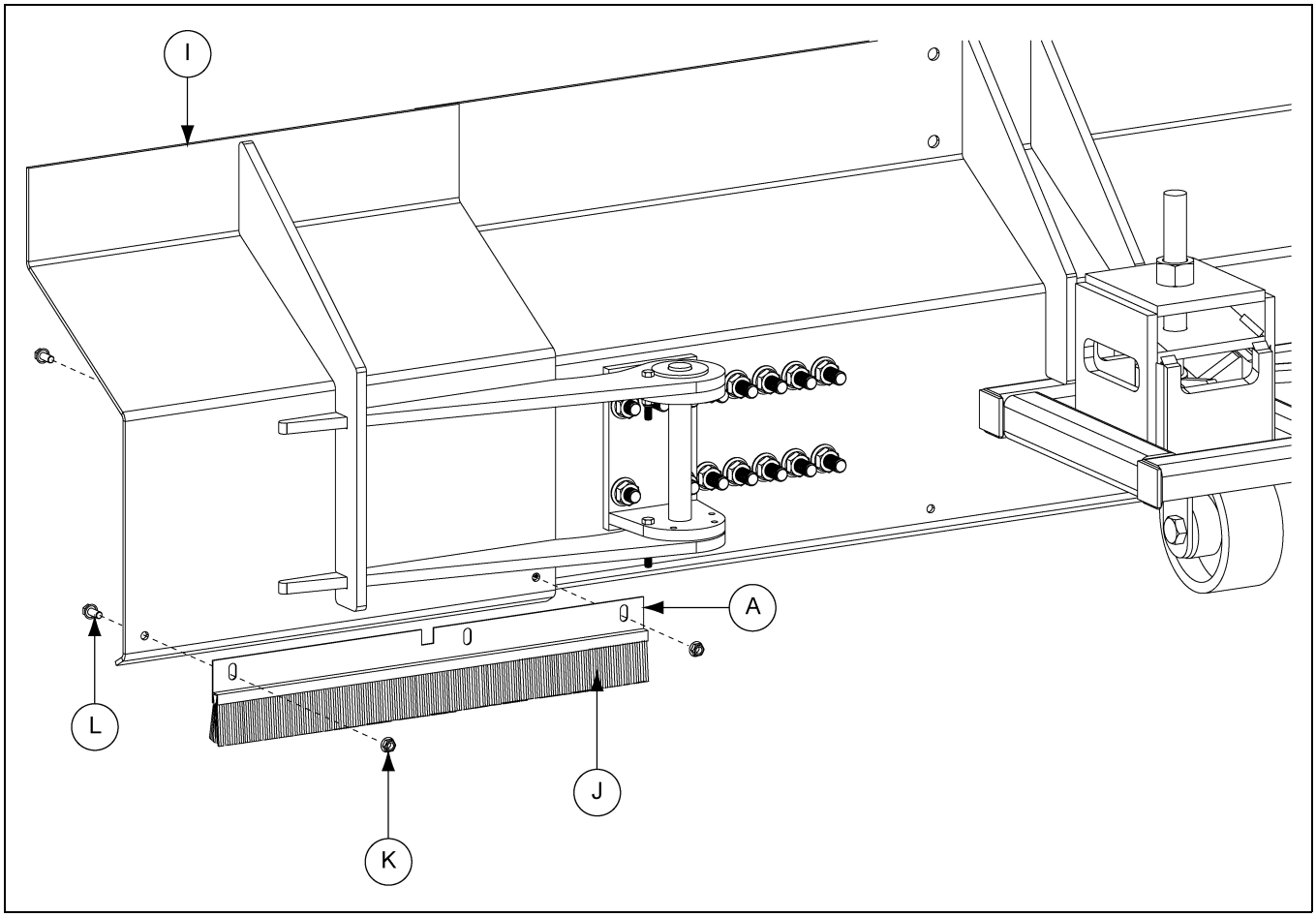


Figure 4W

Ref #	Description
A	Brush Holder
I	Plow
J	Brush Assembly
K	5/16"-18 Flange Nut
L	5/16"-18 x 3/4" Hex Bolt

Install Sweep Track Wiper

1. Install flange bolts (A) though the front of the sweep shield. *(See Figure 4X.)*

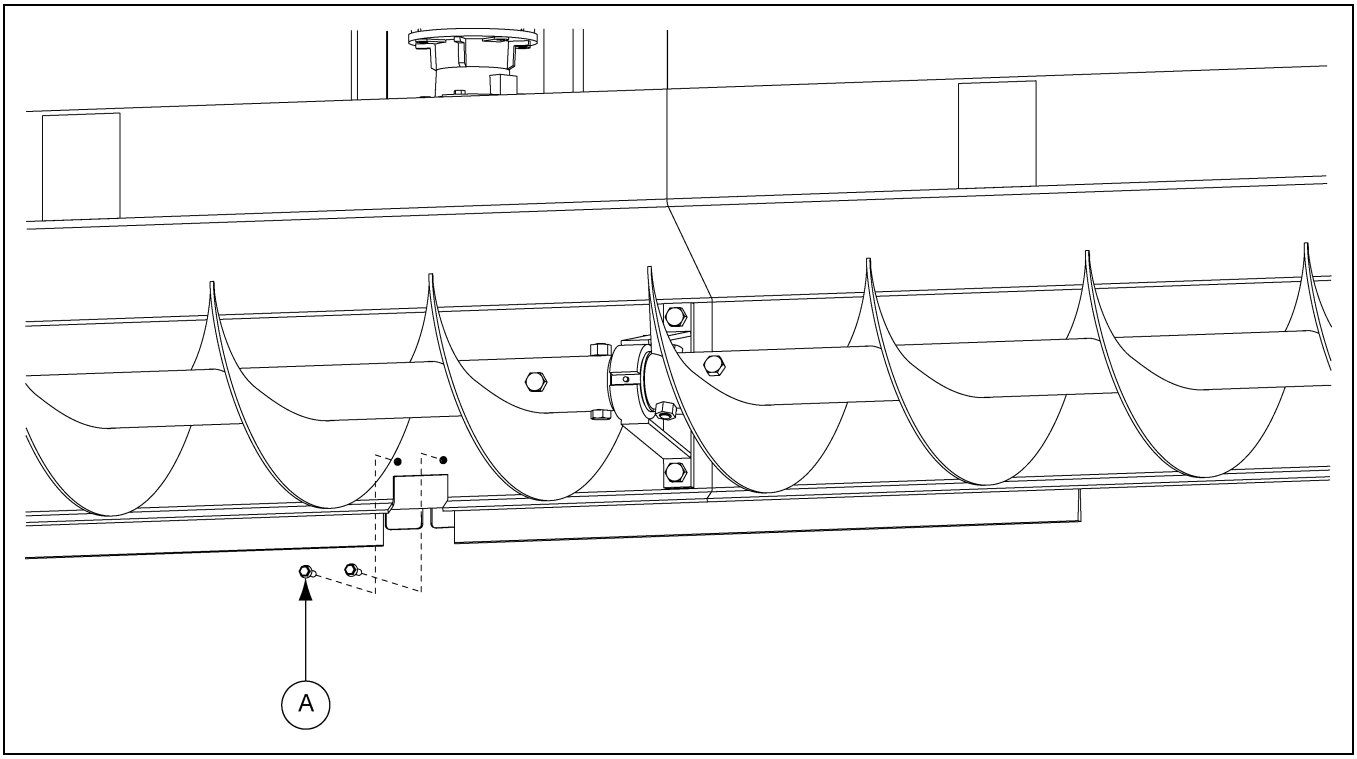


Figure 4X

Ref #	Description
A	5/16"-18 Flange Bolt

2. Install the sweep track wiper (B) to the rear side of the sweep shield and secure with flat washers (D) and lock nuts (C). *(See Figure 4Y.)*

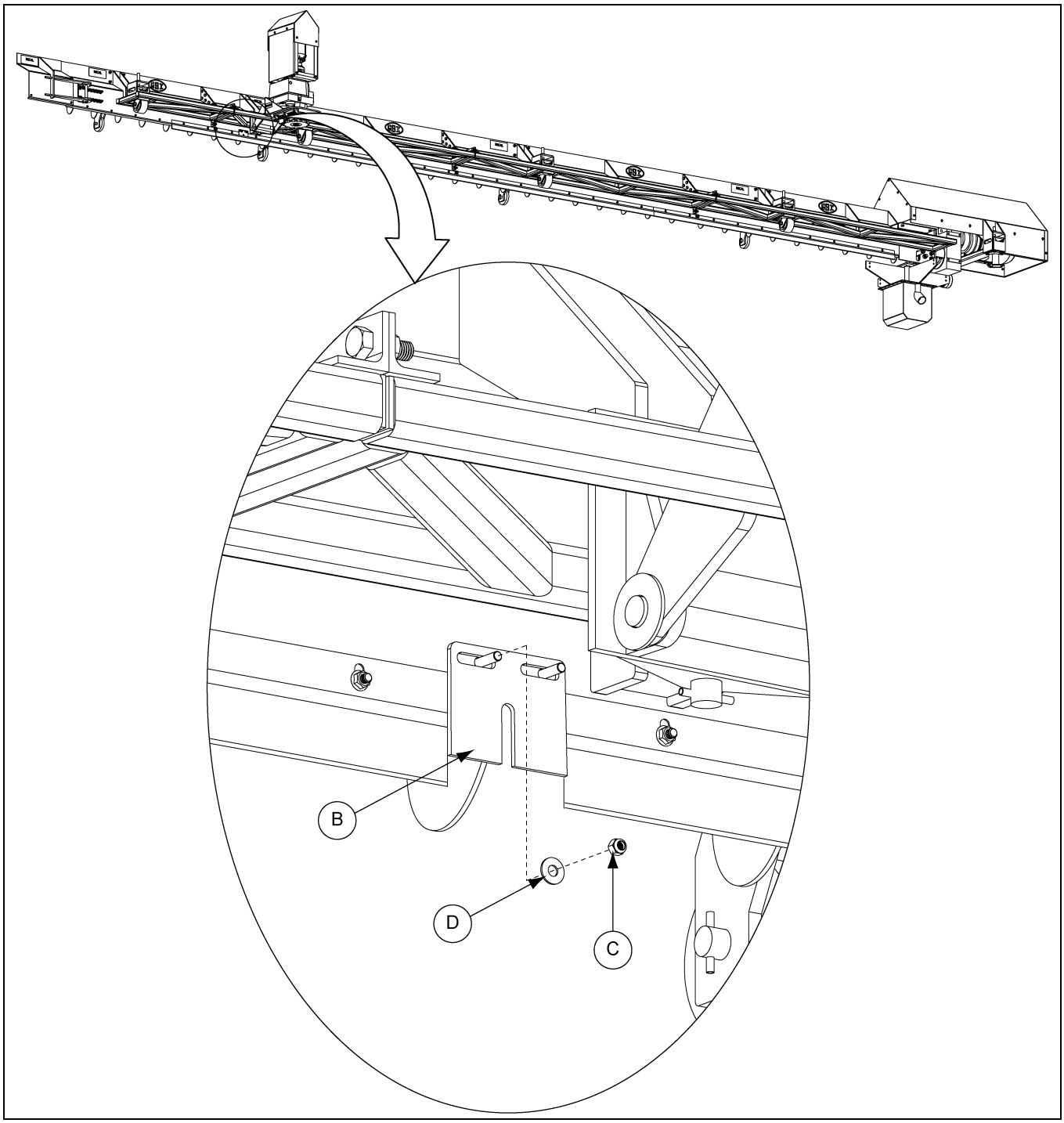


Figure 4Y

Ref #	Description
B	Sweep Track Wiper
C	5/16"-18 Lock Nut
D	5/16" Flat Washer

Assemble Hanger Bearings

1. Bolt the bronze bearings (C) and hanger brackets (B) together using hex bolts (A) and flange lock nuts (D) as shown. *(See Figure 4Z.)*

   NOTE: *For ease of installation, do not tighten bracket bolts at this time. Install bronze bearings as shown, locating the detents to the front and rear of the hanger bracket.*

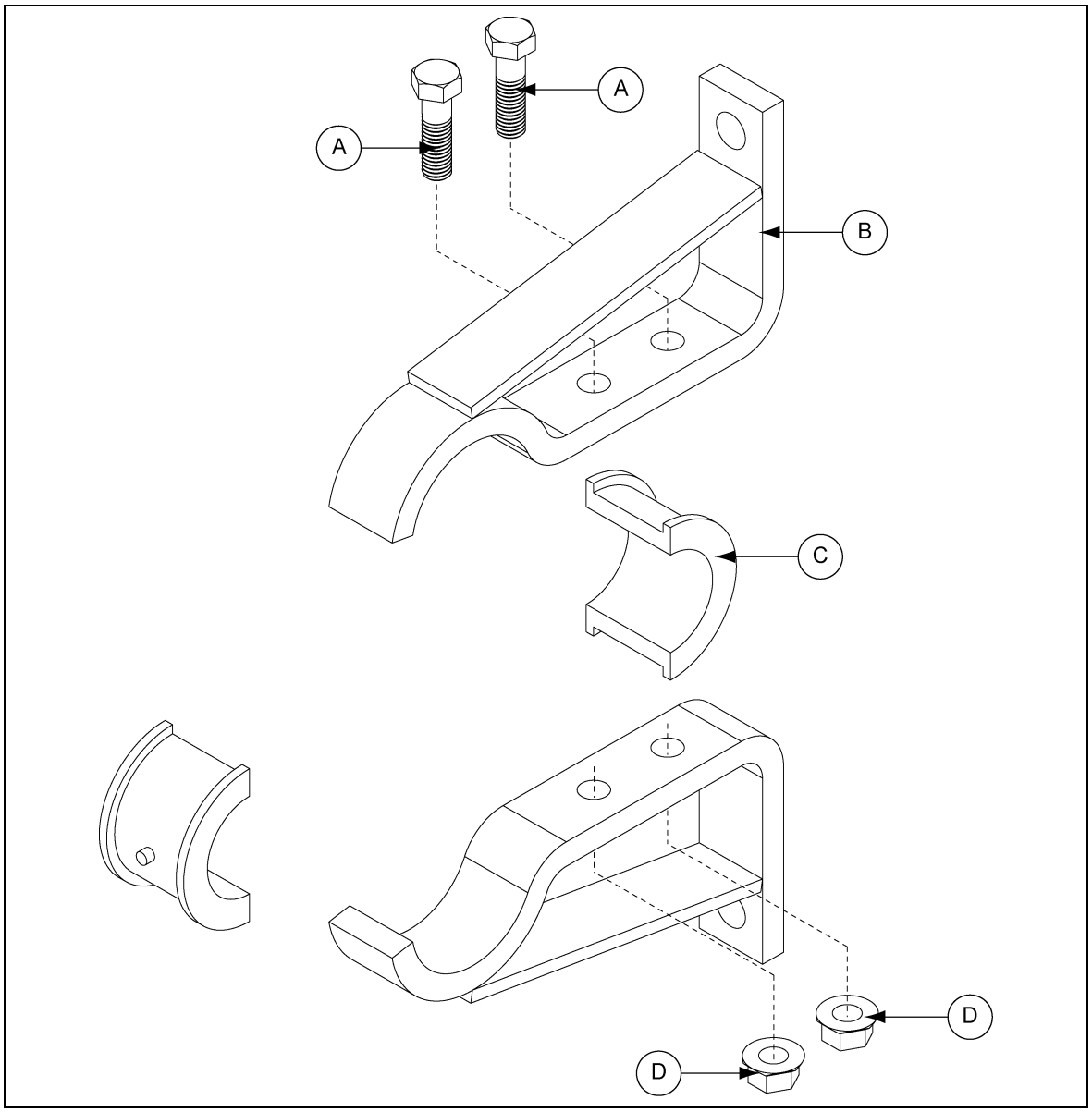


Figure 4Z

Ref #	Description
A	1/2"-13 x 1-3/4" Hex Bolt
B	Hanger Bracket
C	Bronze Bearing
D	1/2"-13 Flange Nut

Assemble Auger Flighting

1. Place the flight sections in order of assembly, starting with the head flight working toward the extension flight.
2. Install connecting shaft (B) to head flight (D), secure with hex bolts (A) and lock nuts (C). *(See Figure 4AA.)*

   NOTE: *For more information regarding flight section and shield layout, see "Sweep Shield Sections Reference Chart" on Page 31.*

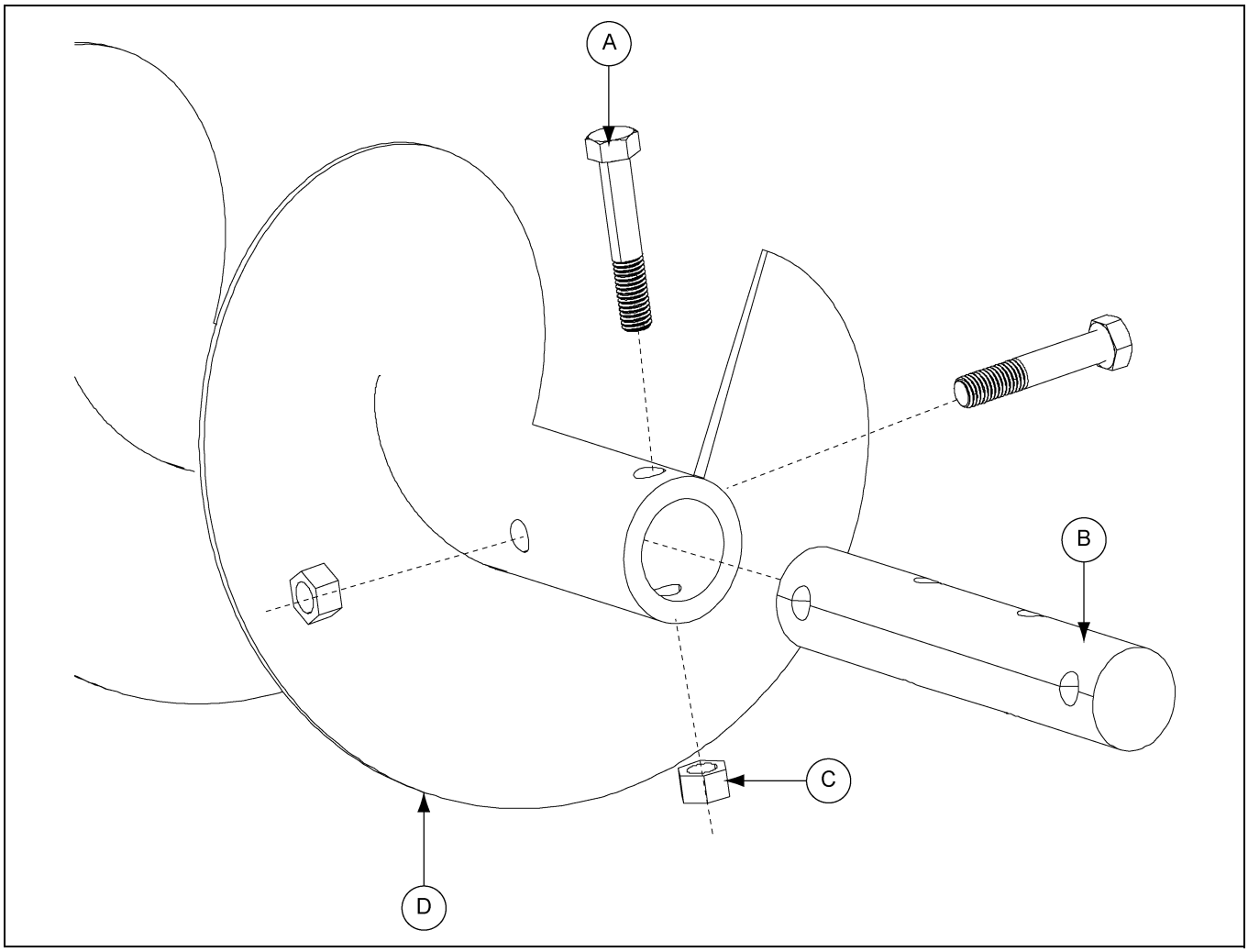


Figure 4AA

Ref #	Description
A	12" Sweep: 5/8"-11 x 3-1/2" Hex Bolt
	16" Sweep: 3/4"-10 x 5-1/2" Hex Bolt
B	Connecting Shaft
C	12" Sweep: 5/8"-11 Lock Nut
	16" Sweep: 3/4"-10 Lock Nut
D	Head Flight

3. Slide the hanger bearing (E) onto the connecting shaft (B) and tighten the hanger bracket bolts. *(See Figure 4AB.)*

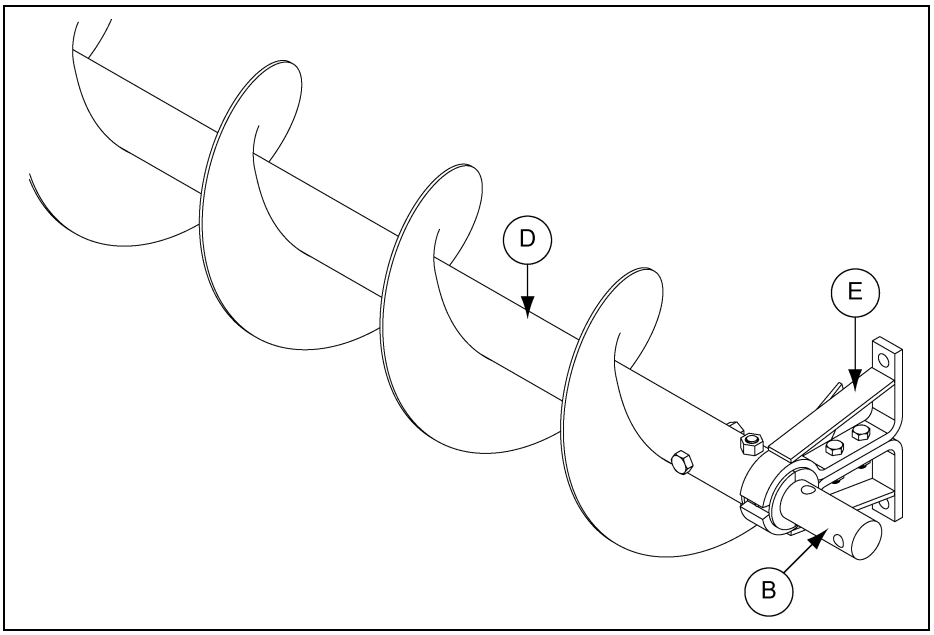


Figure 4AB

Ref #	Description
B	Connecting Shaft
D	Head Flight
E	Hanger Bearing

4. Slide the next flight section (G) onto the connecting shaft and attach using the hex bolts (A) and lock nuts (C). *(See Figure 4AC.)*

NOTE: *Align flight sections until the flighting flows into the next section and does not overlap. Use a drift punch to align the flight for bolt installation.*

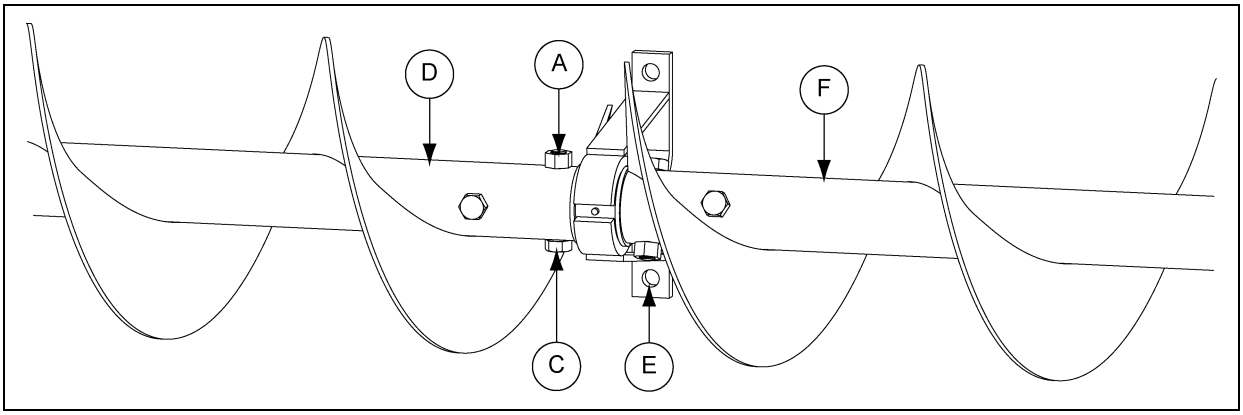


Figure 4AC

Ref #	Description
A	12" Sweep: 5/8"-11 x 3-1/2" Hex Bolt
	16" Sweep: 3/4"-10 x 5-1/2" Hex Bolt
C	12" Sweep: 5/8"-11 Lock Nut
	16" Sweep: 3/4"-10 Lock Nut

Ref #	Description
D	Head Flight
E	Hanger Bearing
F	Flight Section

Attach Auger Flighting to Sweep Shield

1. Roll flight assembly to sweep shield and align hanger bearing mounting holes. *(See Figure 4AD.)*

   NOTE: *Use a wooden lever to lift the auger into position for bolt installation. This is a two (2) person operation - one person in front of the auger installing bolts and one behind the auger shield installing the washers and nuts.*

2. Attach hanger bearing (D) to sweep shield using hex bolts (C), flange lock nuts (A) and rectangle washers (B). Repeat procedure for each hanger bearing. It is helpful to install the top bolt of the hanger bracket first.

   NOTE: *Leaving the hanger fasteners loose at this point will allow for adjustment and make gearbox installation easier. Do not torque hanger fasteners until after the gearbox has been installed. Hanger bearings should be centered between the flight assemblies.*

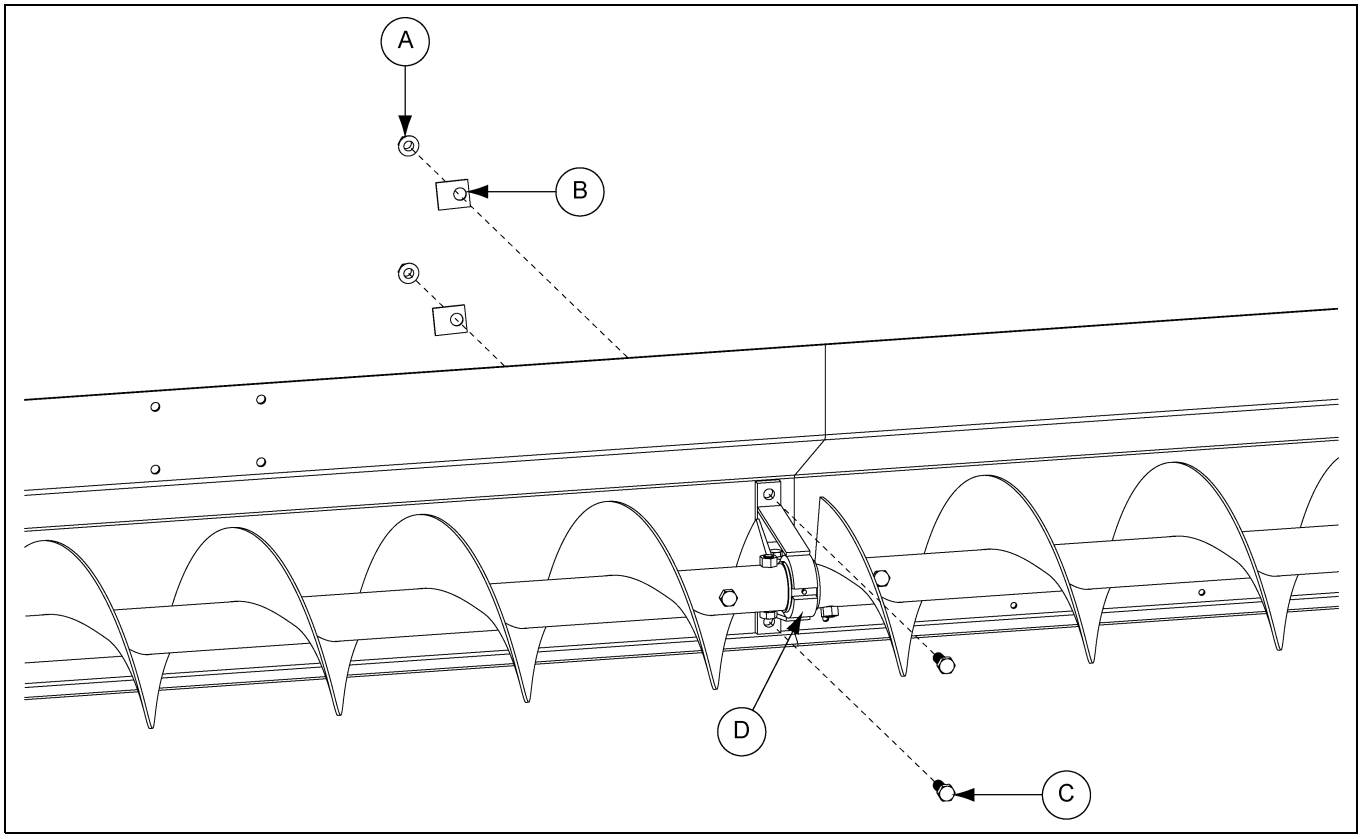


Figure 4AD

Ref #	Description
A	1/2"-13 Flange Lock Nut
B	11/16" Rectangle Washer
C	1/2"-13 x 1-3/4" Hex Bolt
D	Hanger Bearing

Install Gearbox to Auger Flighting

1. Slide the output shaft of the gearbox (A) through the end plate of the head section (B) and into the end of the head flight section (I).
2. Bolt the gearbox to the end plate of the head section using hex bolts (F), flat washers (E), lock washers (D) and hex nuts (C). *(See Figure 4AE.)*
3. Secure the gearbox output shaft to the head flight section (I) with hex bolts (G) and lock nuts (H). *(See Figure 4AE.)*

NOTICE ***The gearbox is filled with oil from the factory. For gearbox specifications and oil fill recommendations, refer to lubrication section of the operator's manual (PNEG-1858).***

NOTE: *The input of the gearbox MUST be to the top of the gearbox. Refer to the owner's manual supplied with the gearbox for proper vent plug, fill plug and drain plug locations.*

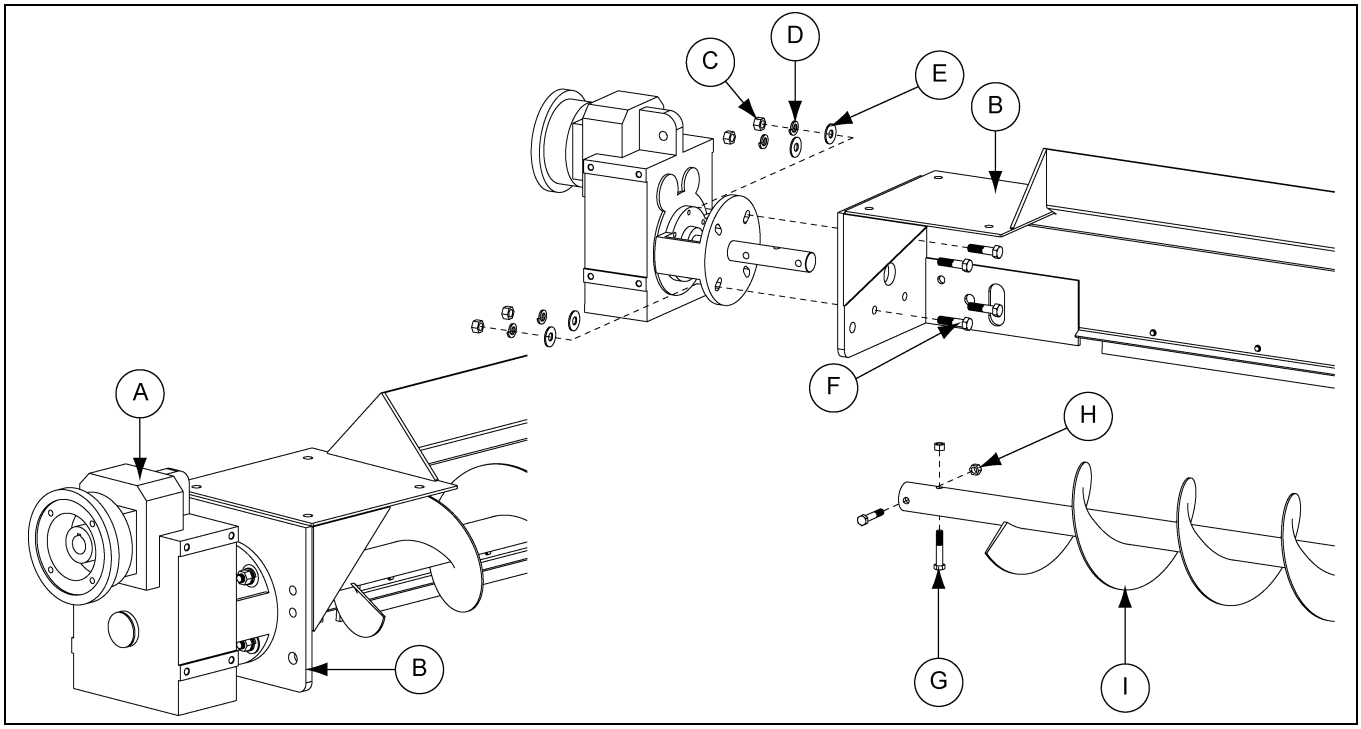


Figure 4AE

Ref #	Description
A	Gearbox
B	Head Section
C	3/4"-10 Hex Nut
D	3/4" Lock Washer
E	3/4" Flat Washer

Ref #	Description
F	3/4"-10 x 3-1/2" Hex Bolt
G	12" Sweep: 5/8"-11 x 3-1/2" Hex Bolt
	16" Sweep: 3/4"-10 x 5-1/2" Hex Bolt
H	12" Sweep: 5/8"-11 Lock Nut
	16" Sweep: 3/4"-10 Lock Nut
I	Flight Section

Install Skids to Motor Mount Assembly

1. Install hex nut (B) to mount (A). *(See Figure 4AF.)*

NOTE: *16" Sweep - Install hex nut (B) so that there is approximately 1" of threads between the nut and the mount base.*

12" Sweep - Install hex nut (B) so that there is approximately 1-1/2" of threads between the nut and the mount base.

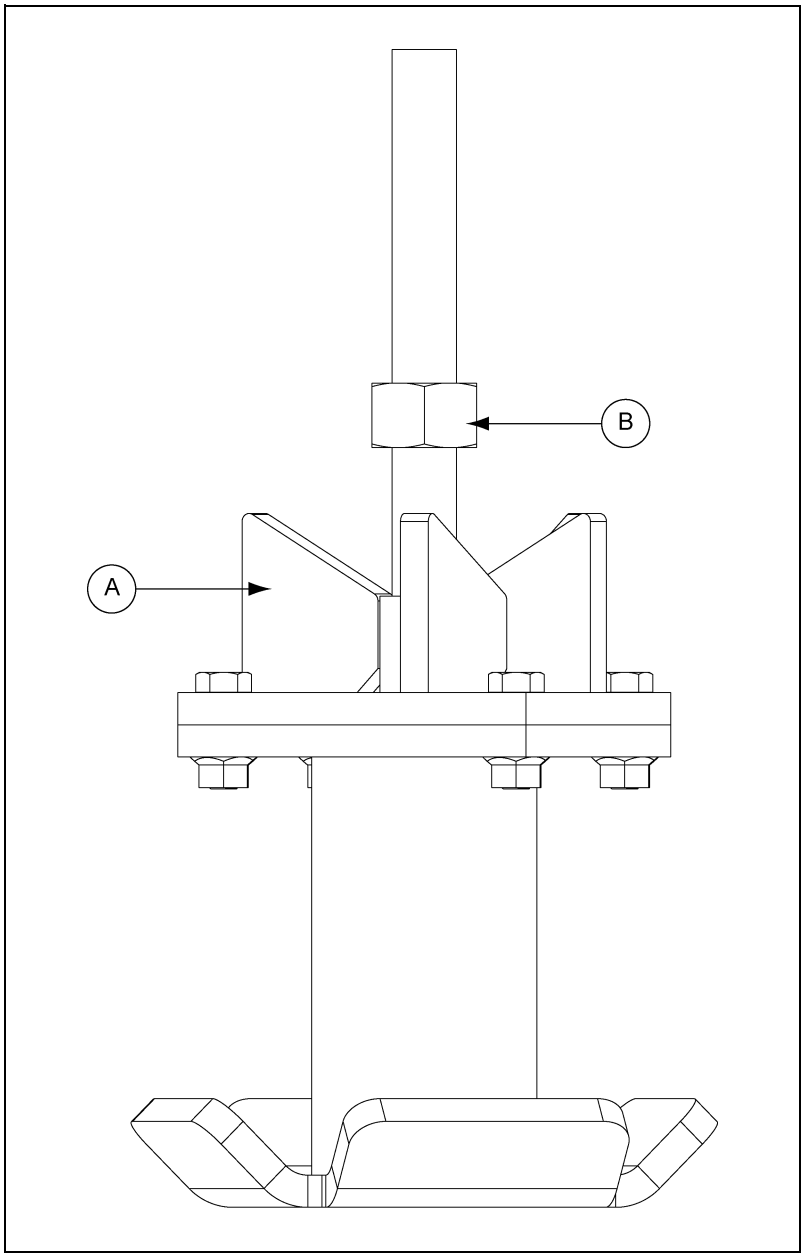


Figure 4AF

Ref #	Description
A	Mount
B	1"-5 Hex Nut

2. Install skid to motor mount assembly (D) and install hex nut (C). *(See Figure 4AG.)*

NOTE: *Adjustment and tightening will be done when adjustment of sweep height is performed.* *(See Page 67.)*

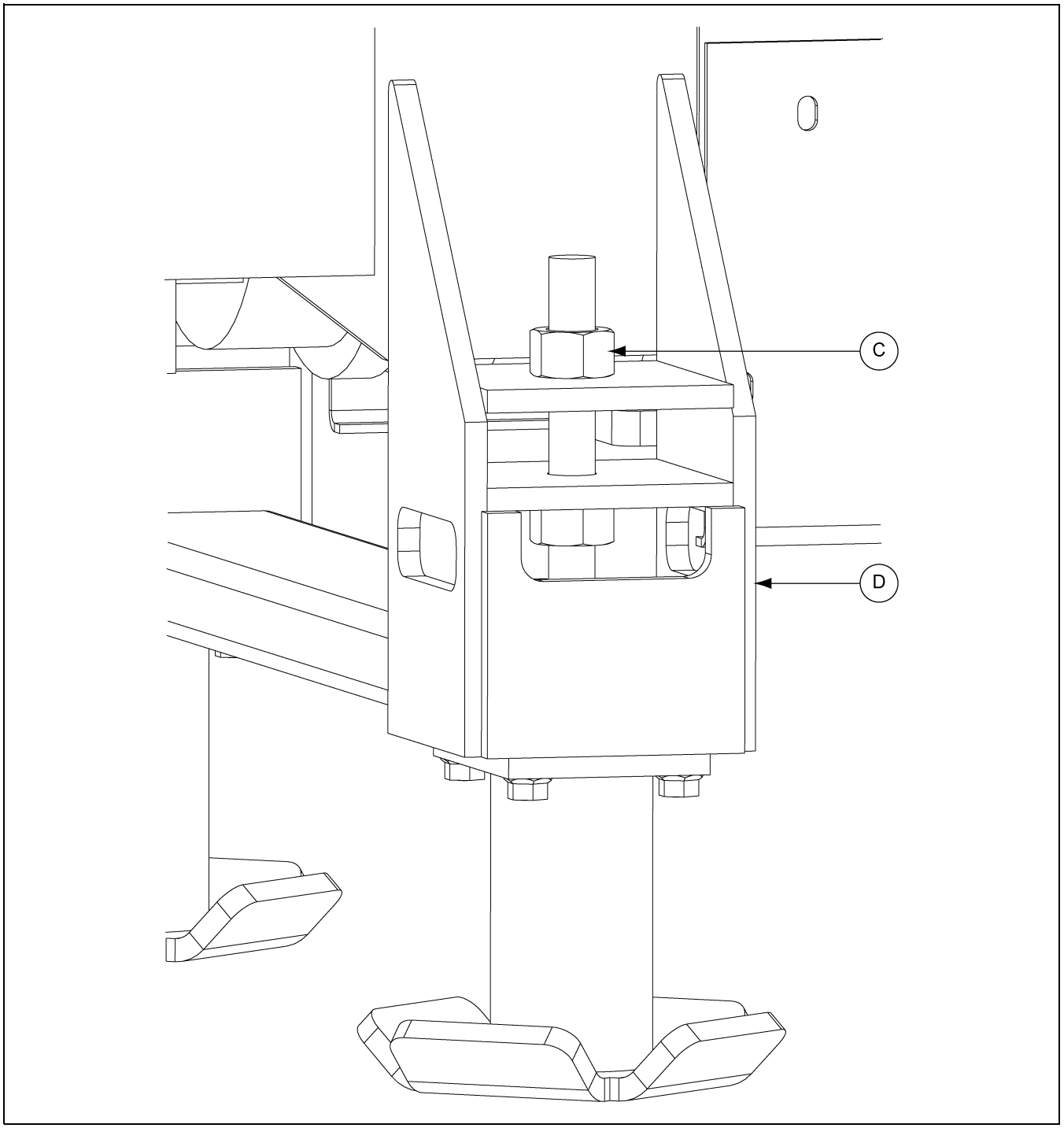


Figure 4AG

Ref #	Description
C	1"-5 Hex Nut
D	Motor Mount Assembly

Install Motor Mount Assembly

CAUTION

Use proper lifting procedures and equipment when lifting motor mount frame.

1. Attach suitable lifting device and lift the motor mount frame (B) onto the shield (A).
2. Fasten motor mount frame to shield using hex bolts (E), lock washers (D) and hex nuts (C). *(See Figure 4AH.)*

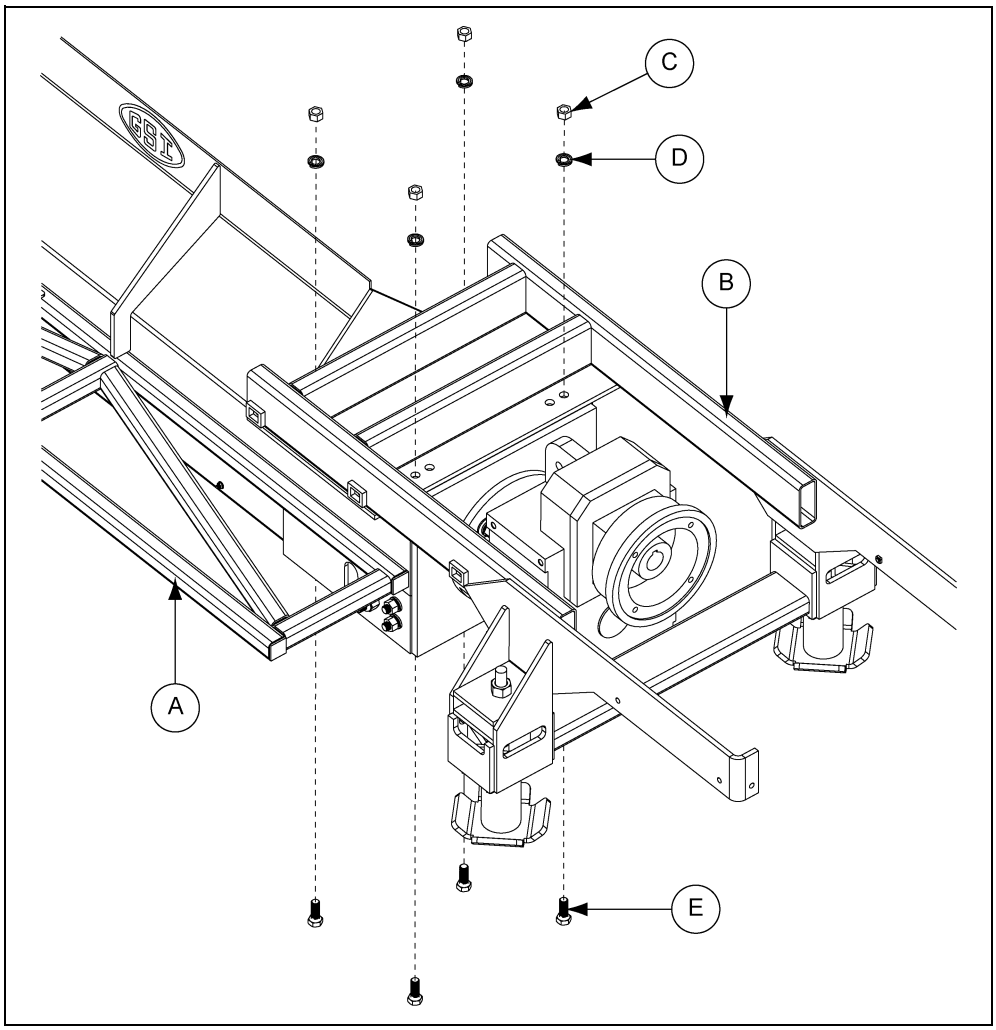


Figure 4AH

Ref #	Description
A	Shield
B	Motor Mount Frame
C	3/4"-10 Hex Nut
D	3/4" Lock Washer
E	3/4"-10 x 2" Hex Bolt

Install Auger Motor to Gearbox and Motor Mount

CAUTION

Use proper procedures and equipment when lifting motor.

1. Remove set screw plugs (A) from gearbox, allowing access to set screws (B). *(See Figure 4AI.)*

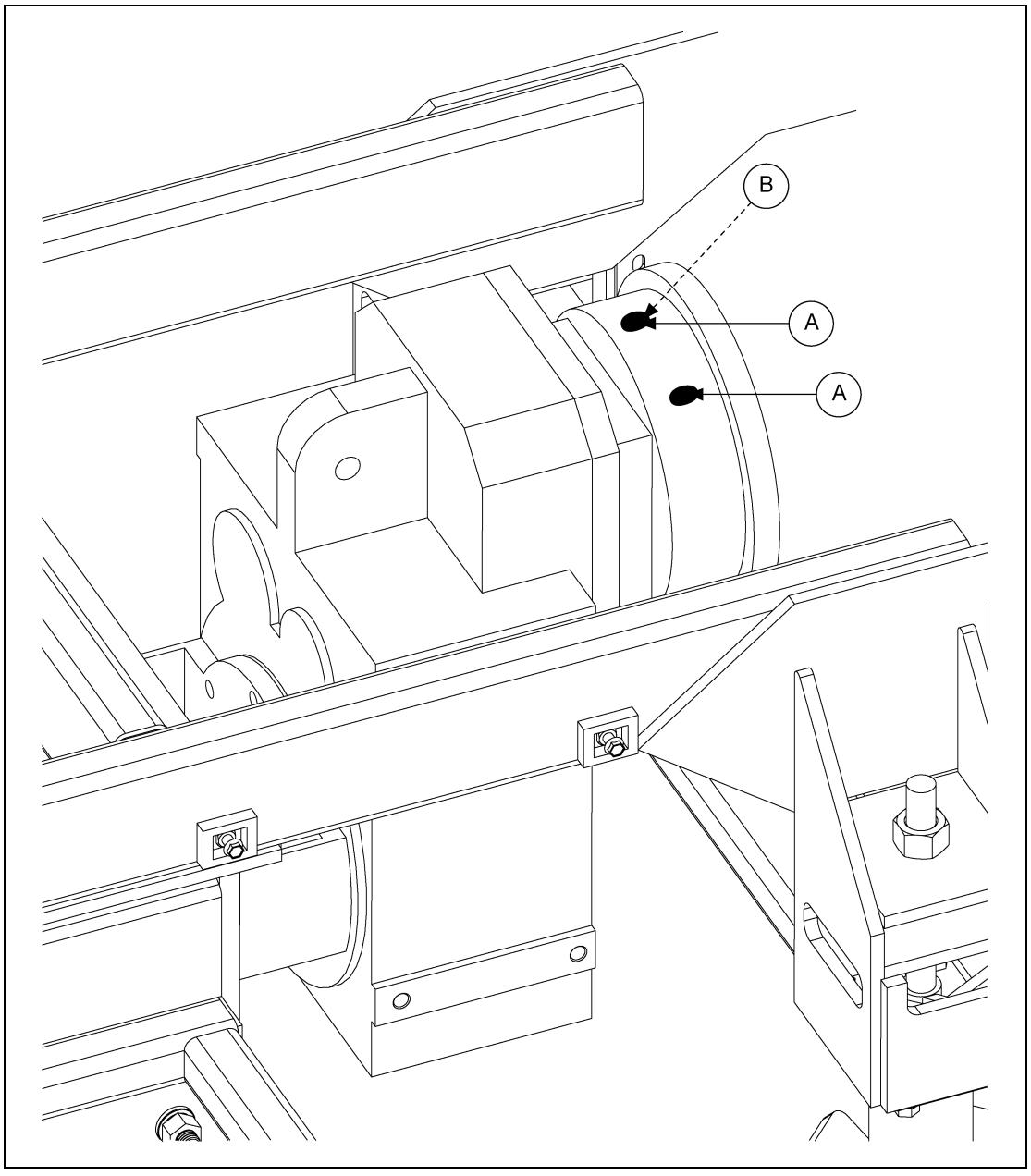


Figure 4AI

Ref #	Description
A	Set Screw Plugs
B	3 mm Set Screw

2. Using a 3 mm allen wrench, loosen the 3 mm set screw (B) from motor shaft collar (C). *(See Figure 4AJ.)*

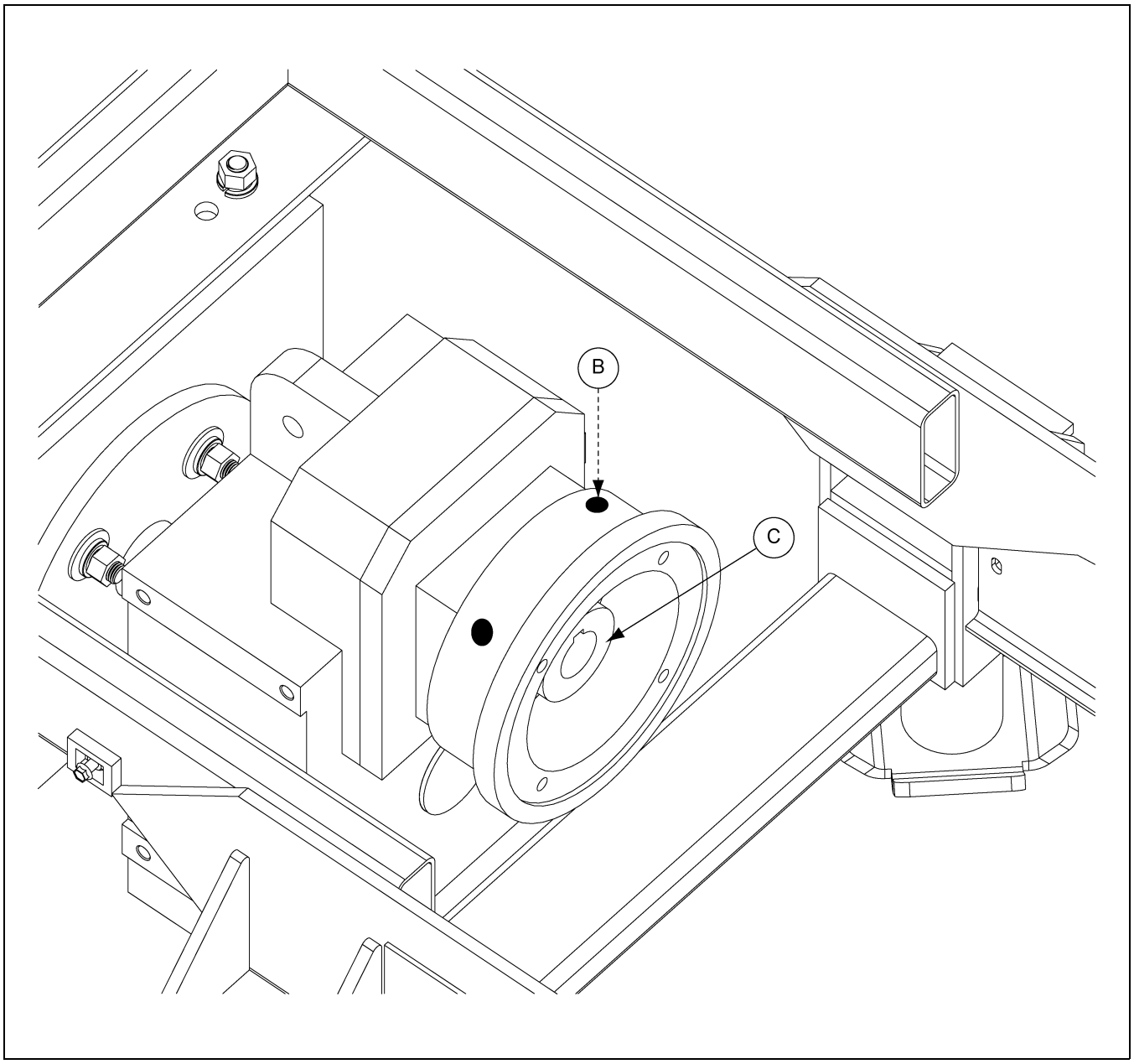


Figure 4AJ

Ref #	Description
B	3 mm Set Screw
C	Motor Shaft Collar

3. Using a 6 mm allen wench, loosen the 6 mm clamping set screw (D) from the motor shaft collar (C). *(See Figure 4AK.)*

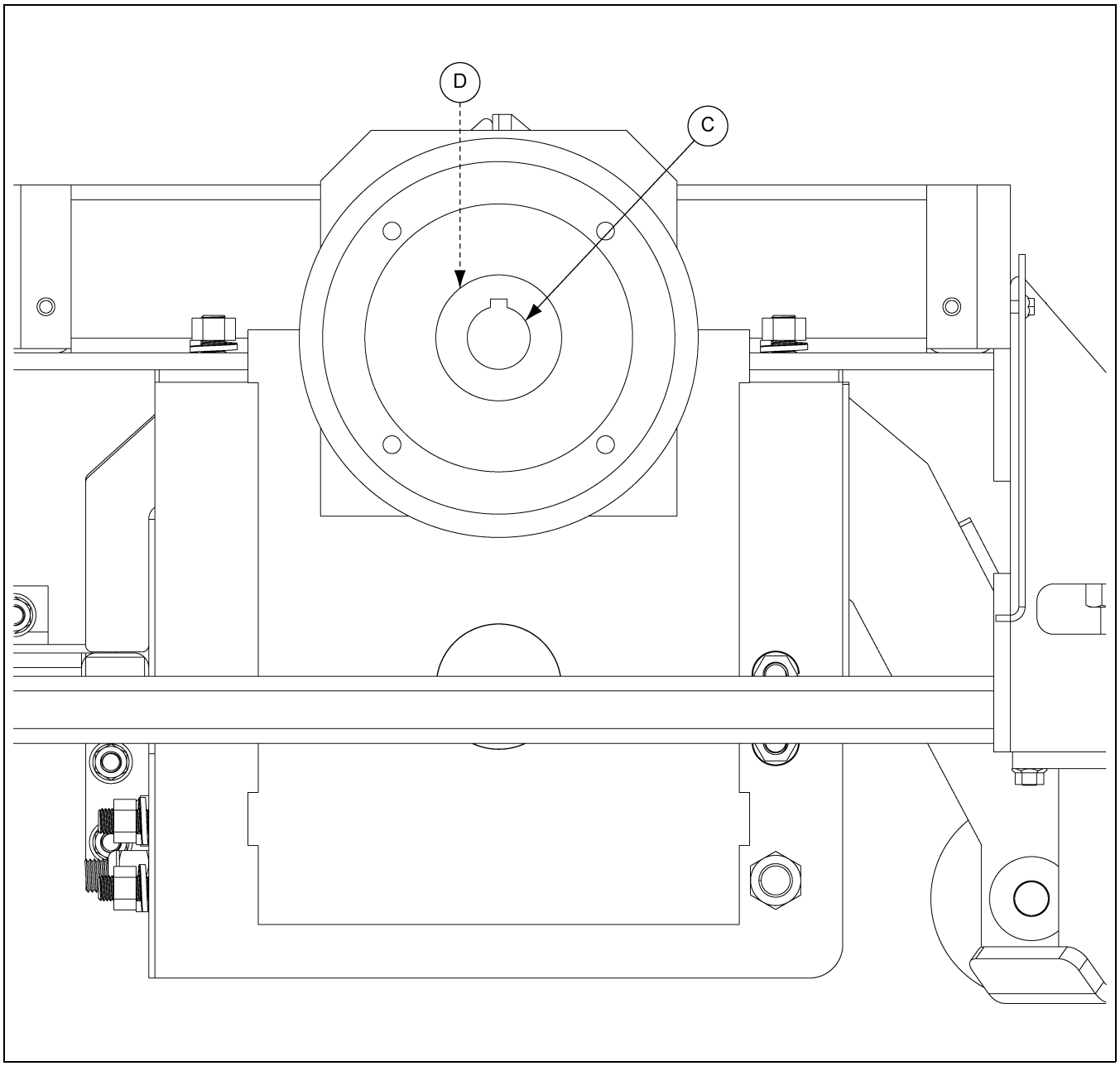


Figure 4AK

Ref #	Description
C	Motor Shaft Collar
D	6 mm Clamping Set Screw

4. Using a suitable lifting device, lift and guide the auger motor (E) into position. Align key and install motor to gearbox. *(See Figure 4AL.)*

   NOTE: *DO NOT use the motor key. Use the key provided with the gearbox.*

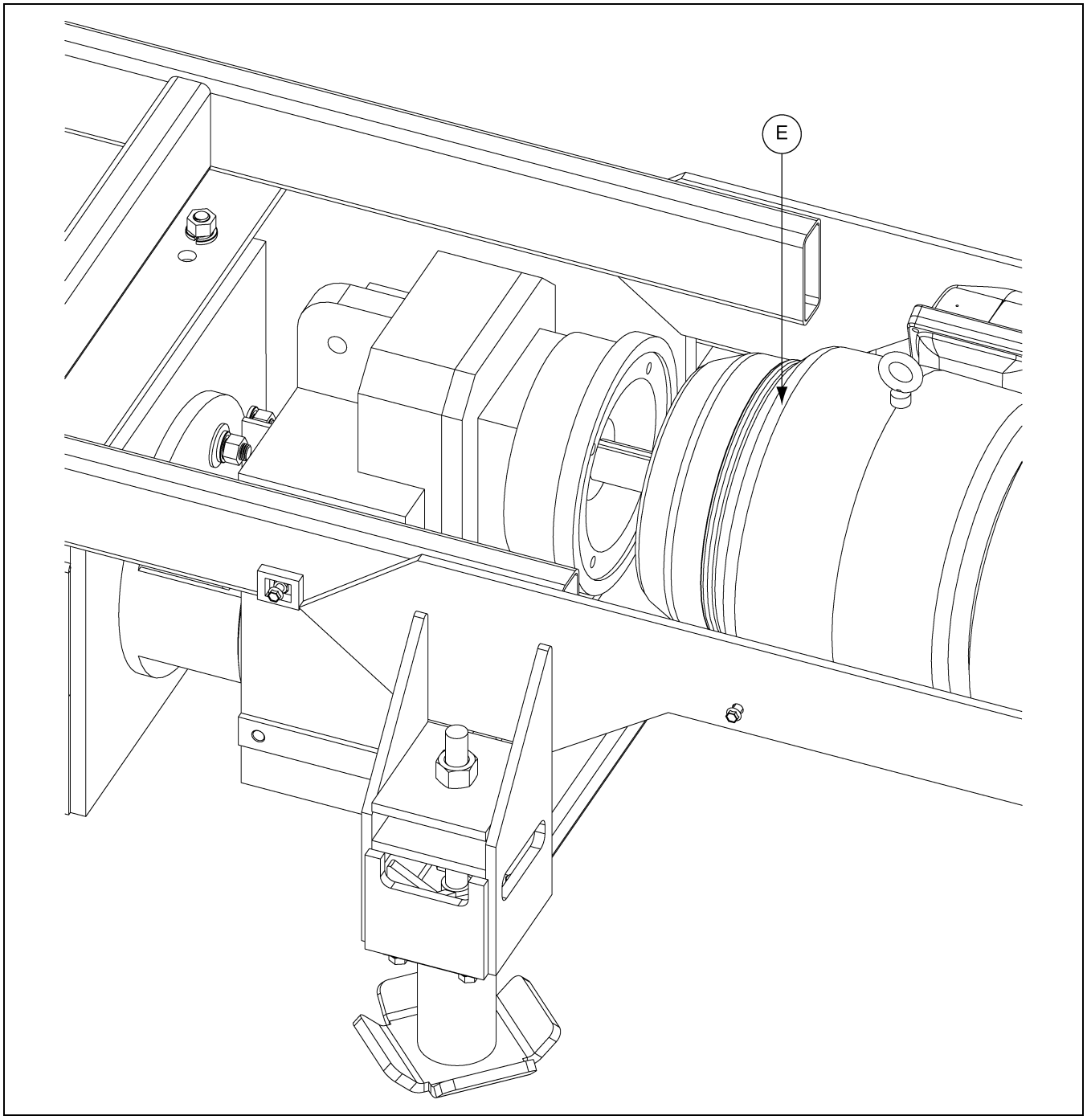


Figure 4AL

Ref #	Description
E	Auger Motor

5. Attach auger motor to gearbox using four (4) lock washers (G) and hex bolts (F). *(See Figure 4AM.)*

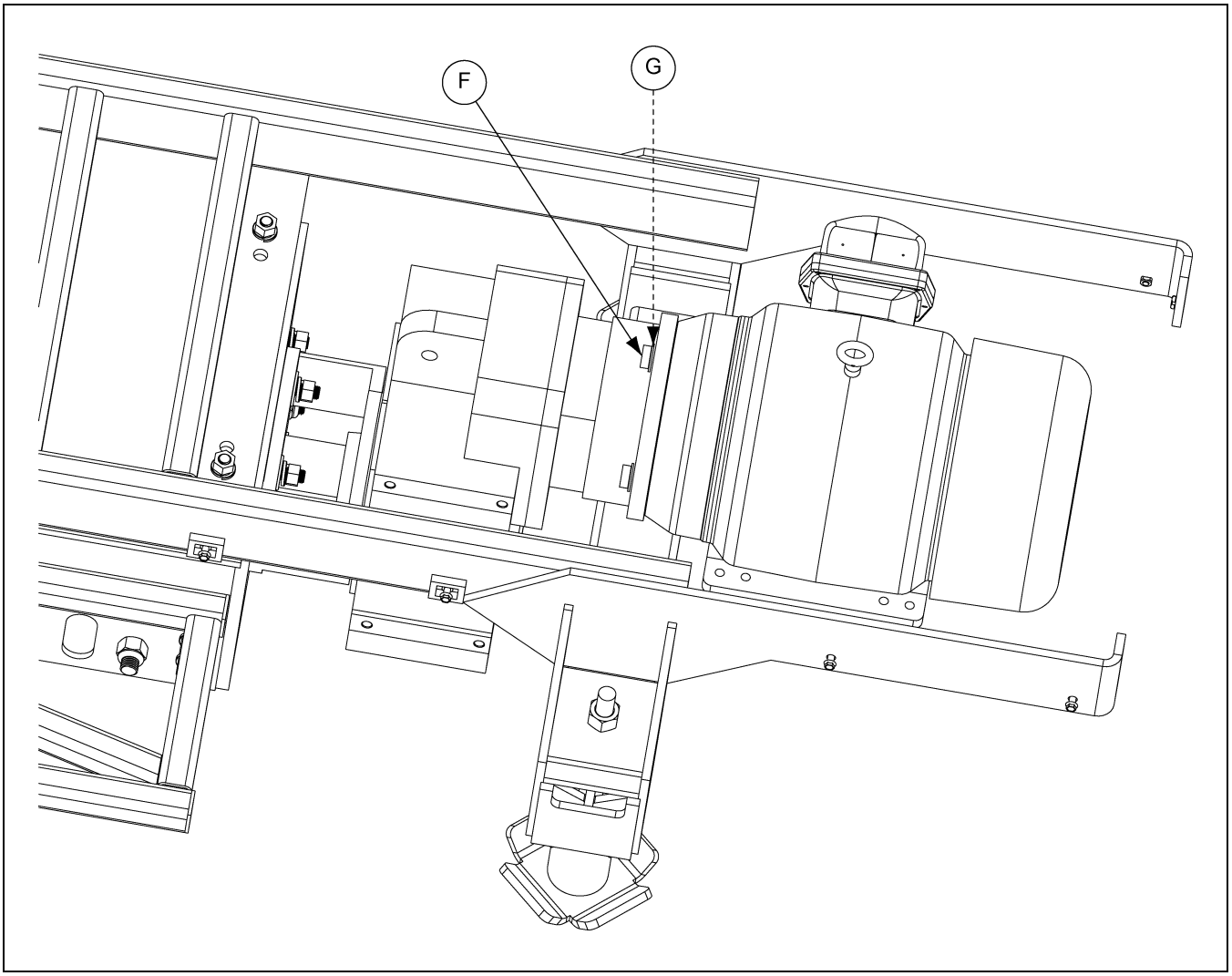


Figure 4AM

Ref #	Description
F	Hex Bolt (Use hex bolts supplied with gearbox.)
G	Lock Washer (Use washers supplied with gearbox.)

NOTE: *Mounting hardware may change depending on gearbox model.*

6. Tighten the 3 mm set screw, 6 mm clamping set screw and install the set screw plugs into the gearbox.

Install Auger Motor Hood

CAUTION

Use proper procedures and equipment when lifting auger motor hood.

1. Attach a suitable lifting device to hood. Carefully lift auger motor hood (A) over the motor frame assembly (B). *(See Figure 4AN.)*
2. Carefully lower the hood, aligning the fastening holes in the hood with the threaded holes in the frame.

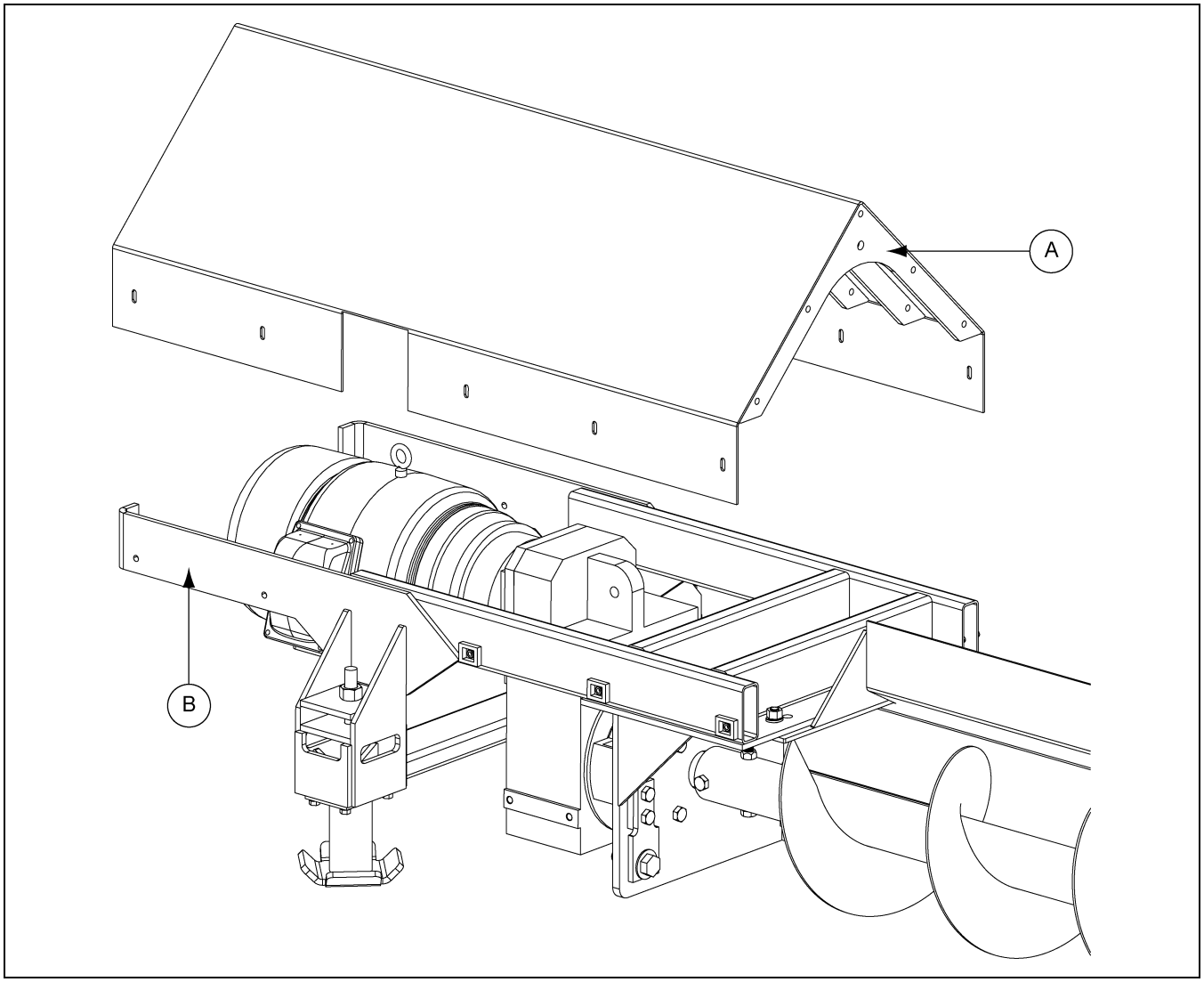


Figure 4AN

Ref #	Description
A	Auger Motor Hood
B	Motor Frame Assembly

3. Install ONLY five (5) hex bolts for 12" sweep, seven (7) hex bolts for 16" sweep (C) to each side of the auger motor hood and side covers (D) as shown, leaving the first threaded hole empty until the auger motor front cover is installed. *(See Figure 4AO.)*

   NOTE: *DO NOT tighten at this time. Leaving the hex bolts loose will ensure proper alignment of the front and rear covers.*

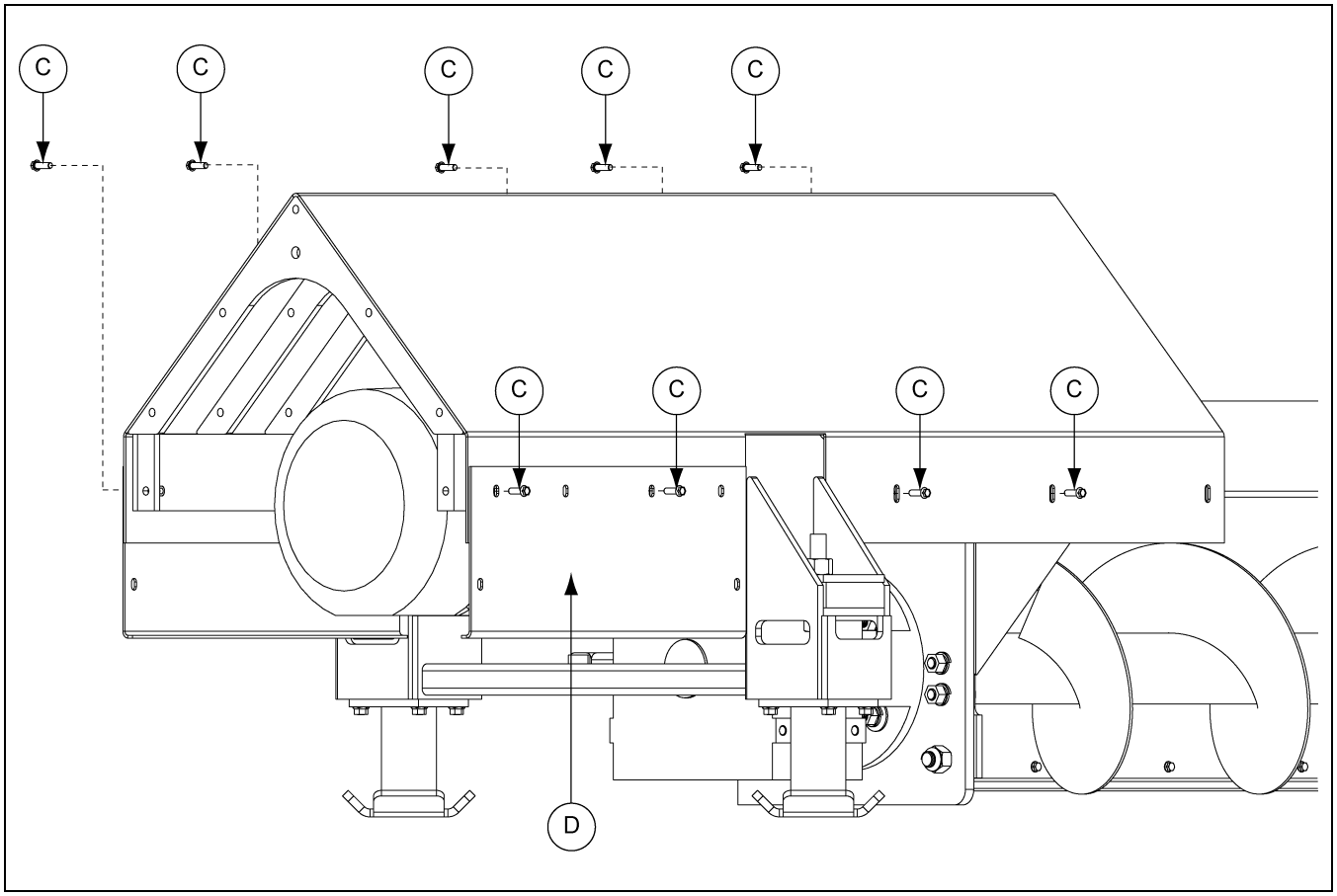


Figure 4AO

Ref #	Description
C	3/8"-16 Hex Bolt
D	Side Cover

Install Auger Motor Front Cover

1. Attach auger motor front cover (A) to the auger motor hood (D) and install with hex bolts (B).
2. Install hex bolts (C) and nuts to each side of the auger motor hood (D). *(See Figure 4AP.)*

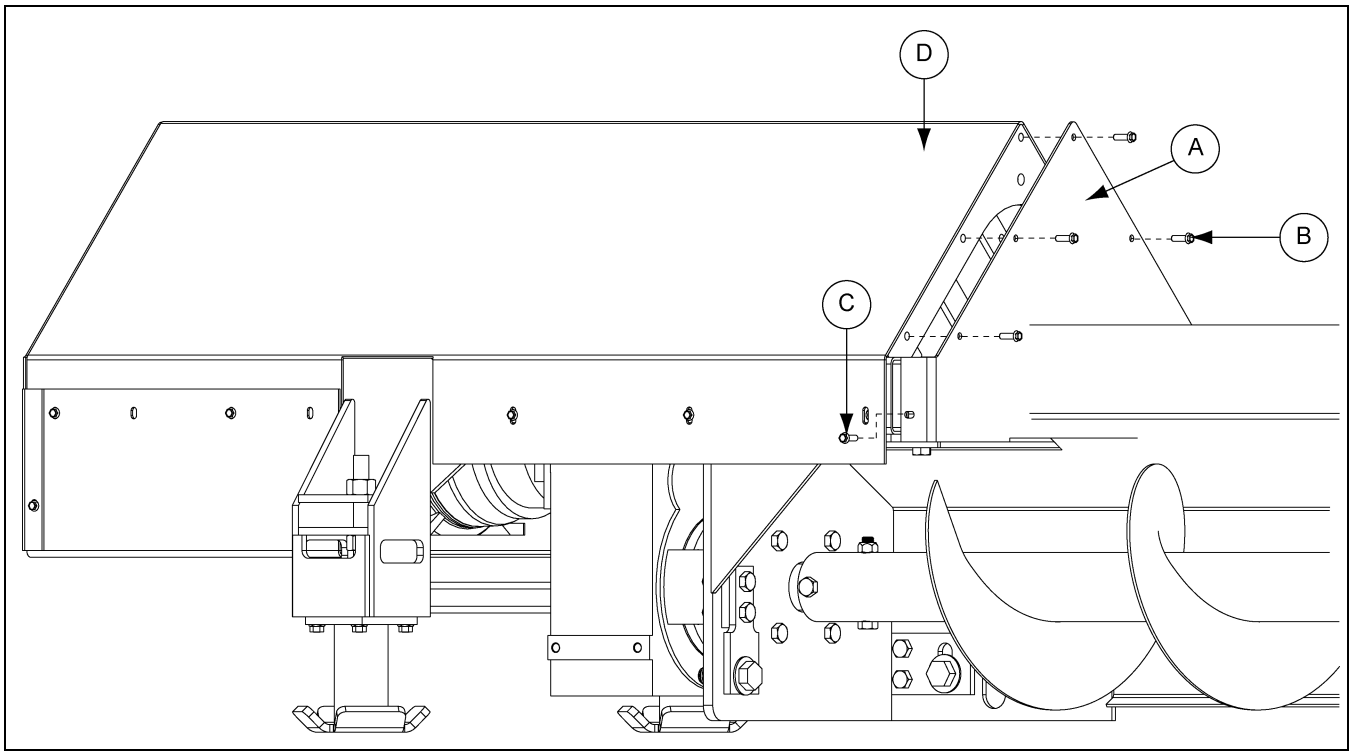


Figure 4AP

Ref #	Description
A	Auger Motor Front Cover
B	3/8"-16 Hex Bolt
C	3/8"-16 Hex Bolt
D	Auger Motor Hood

Install Auger Motor Rear Cover

1. Attach auger motor rear cover (A) to the auger motor hood (C) and install hex bolts (B).
2. Install hex bolts (D) and hex nuts (E) to each side of the auger motor hood (C). *(See Figure 4AQ.)*
3. Tighten all hex bolts and hex nuts to specifications. *(See Table on Page 21.)*

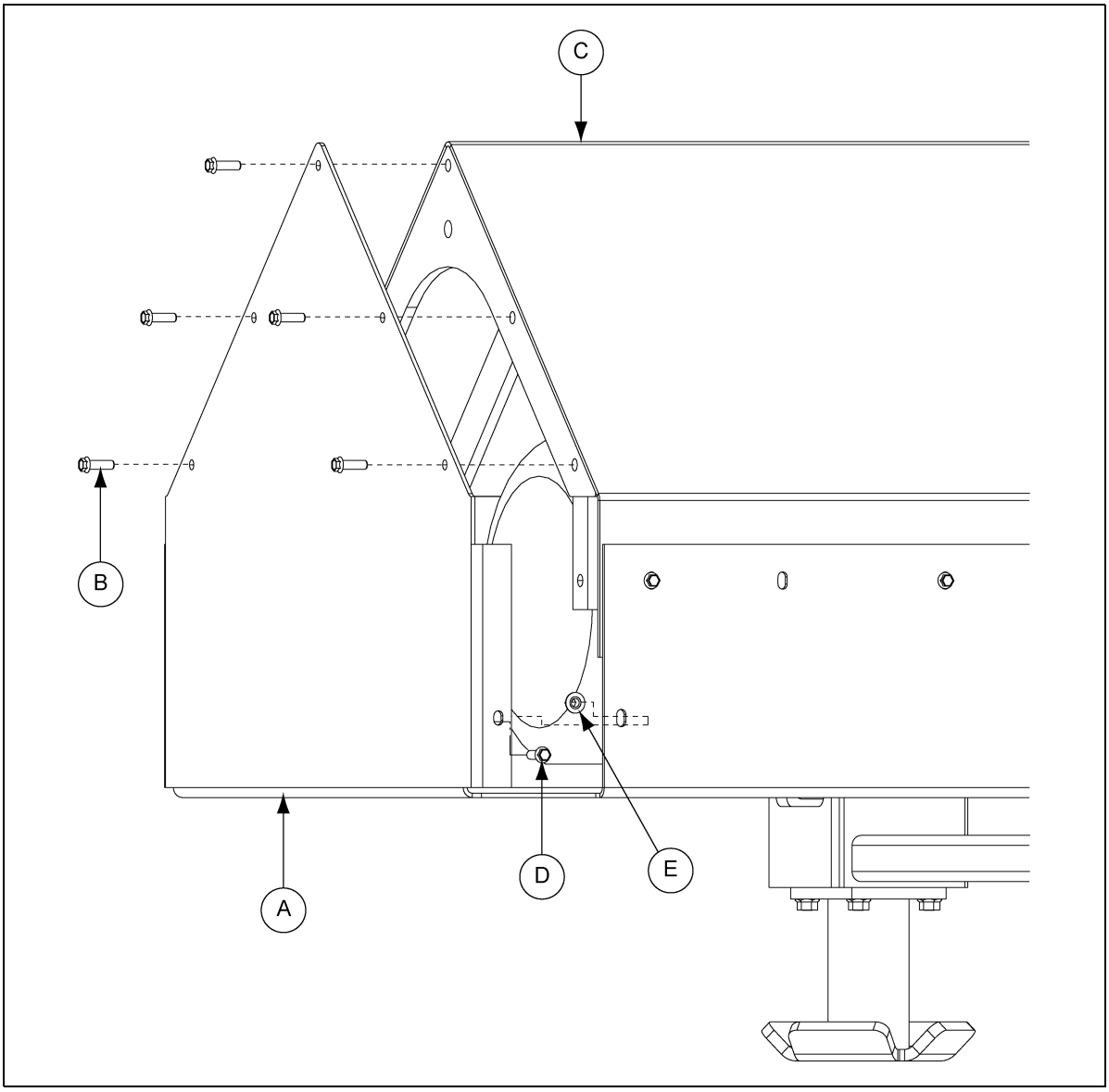


Figure 4AQ

Ref #	Description
A	Auger Motor Rear Cover
B	3/8"-16 Hex Bolt
C	Auger Motor Hood
D	3/8"-16 Hex Bolt
E	3/8"-16 Hex Nut

Install Front Wheel Struts

1. Assemble front wheel (C) to strut (A) using pin (D) and roll pin (B). *(See Figure 4AR.)*

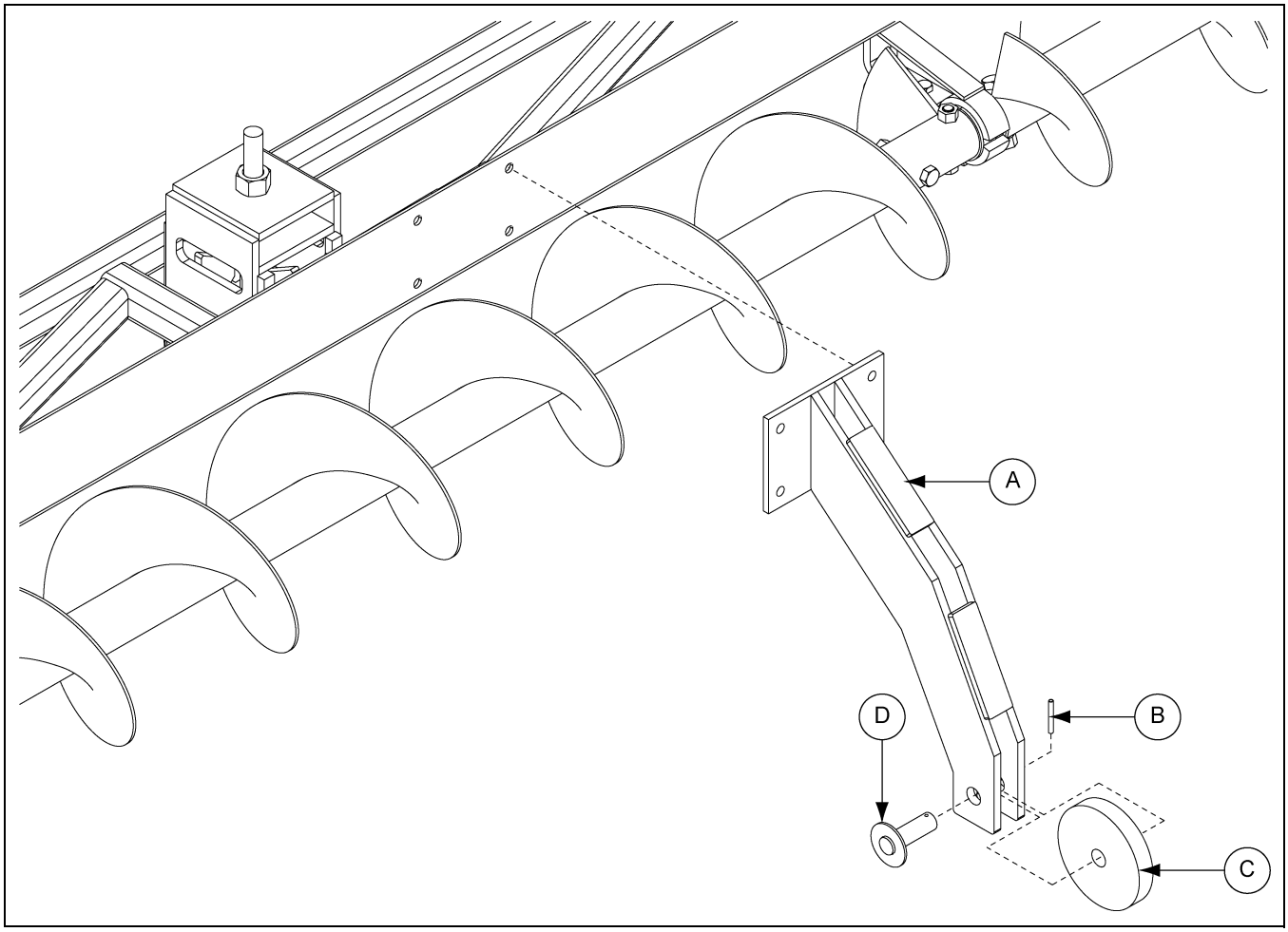


Figure 4AR

Ref #	Description
A	Strut
B	Roll Pin
C	Front Wheel
D	Pin

2. Install all front wheel struts (G) using hex bolts (F) and flange nuts (E). *(See Figure 4AS.)*

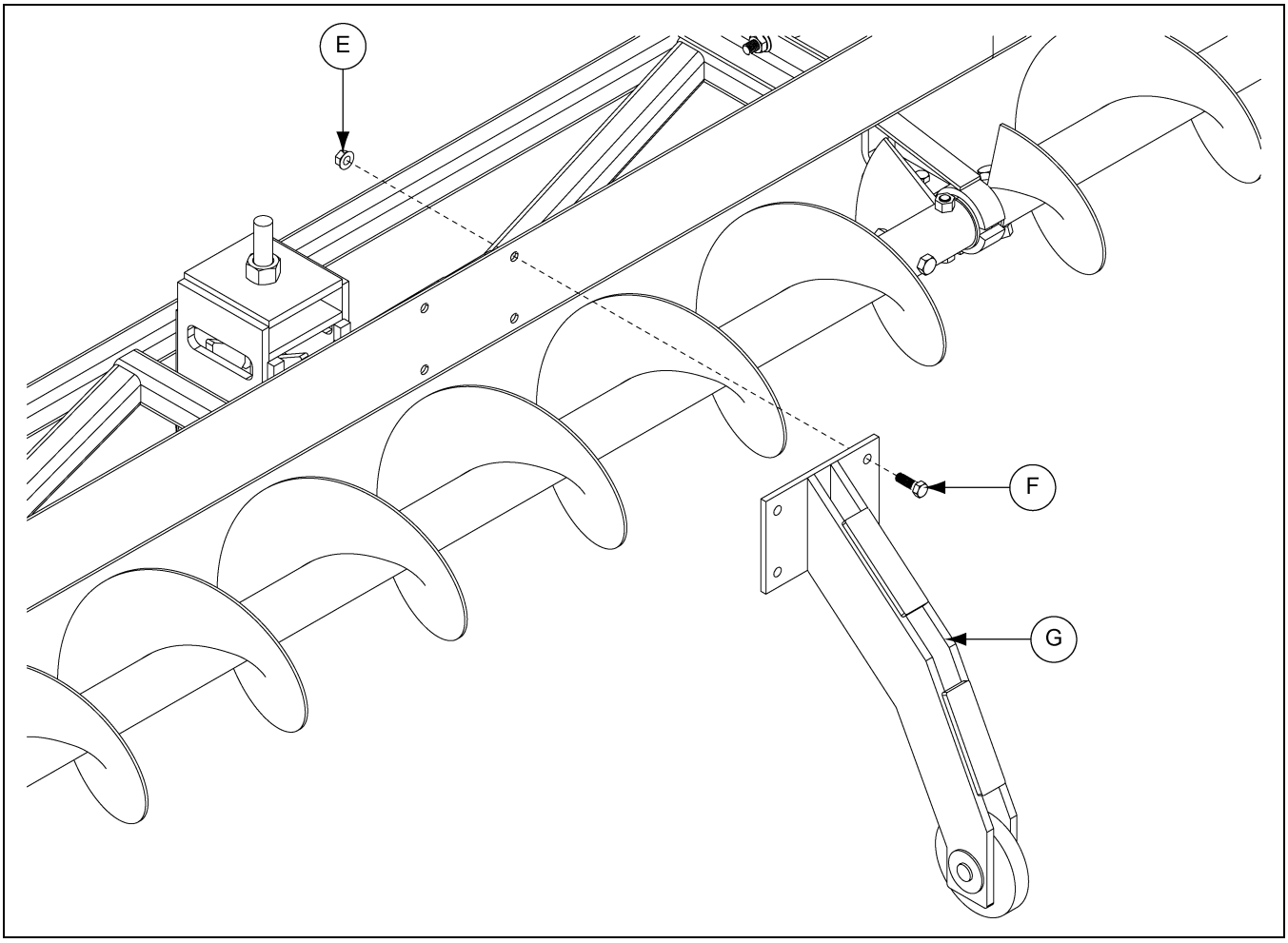


Figure 4AS

Ref #	Description
E	1/2"-13 Flange Nut
F	1/2"-13 x 1-1/2" Hex Bolt
G	Front Wheel Strut

Adjust Sweep Height

1. Loosen brush assembly (C) and slide to the lowest setting possible. *(See Figure 4AT.)*
2. Rotate hex nut (A) counterclockwise to travel upwards on the threaded shaft so it does not interfere with height adjustment.

   NOTE: *Hex nut (A) will lock the sweep height when the correct sweep height is achieved.*
3. Rotate hex nut (B) as needed to adjust the height of the shield until the brush is touching the floor.
4. Rotate hex nut (A) clockwise until it is tight against the plate, locking the height position.

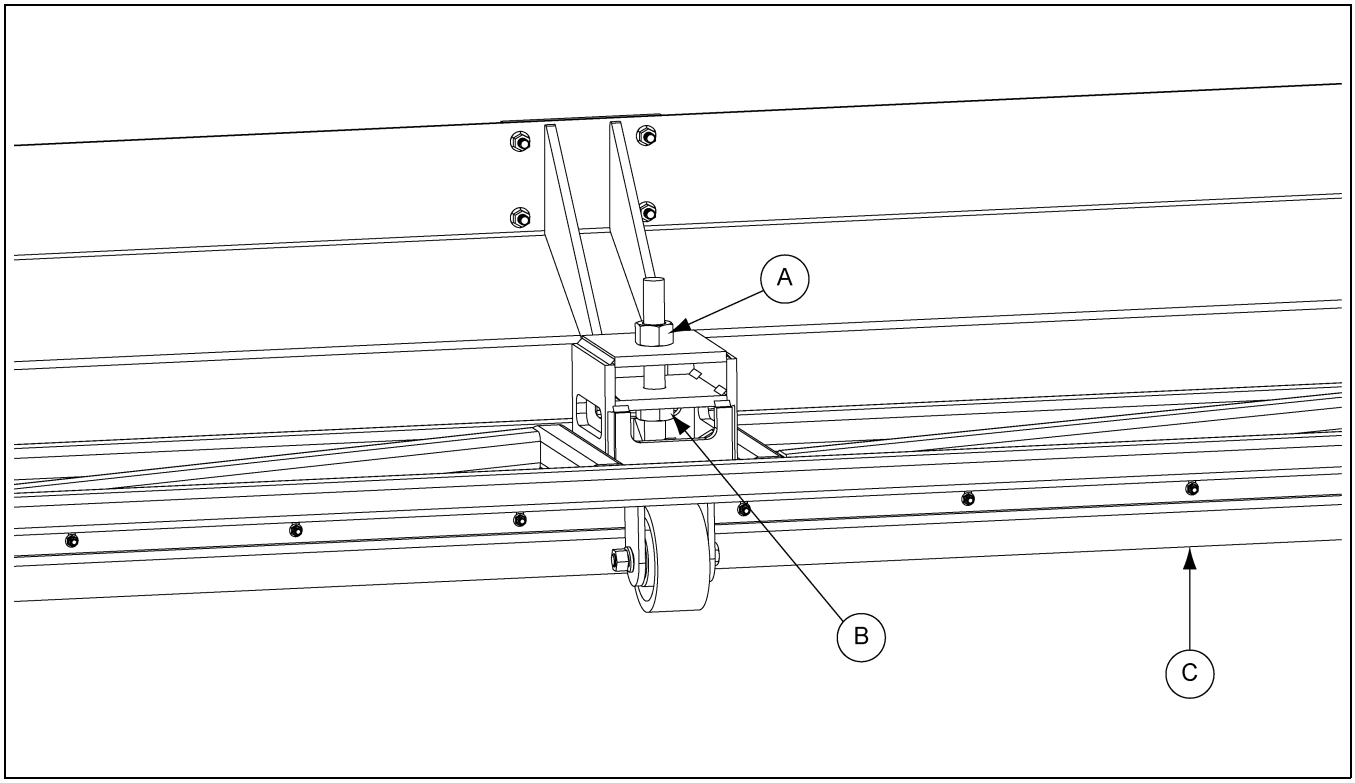


Figure 4AT

Ref #	Description
A	1"-5 Hex Nut
B	1"-5 Hex Nut
C	Brush Assembly

Level Sweep Frame

1. Adjust sweep height. (See “Adjust Sweep Height” *on Page 67*.)

   NOTE: *The brush assembly should be loose at this time.*

2. Set a level (D) on the sweep frame (C). *(See Figure 4AU.)*

3. Turn nuts (A and B) as needed to level the sweep frame front to back.

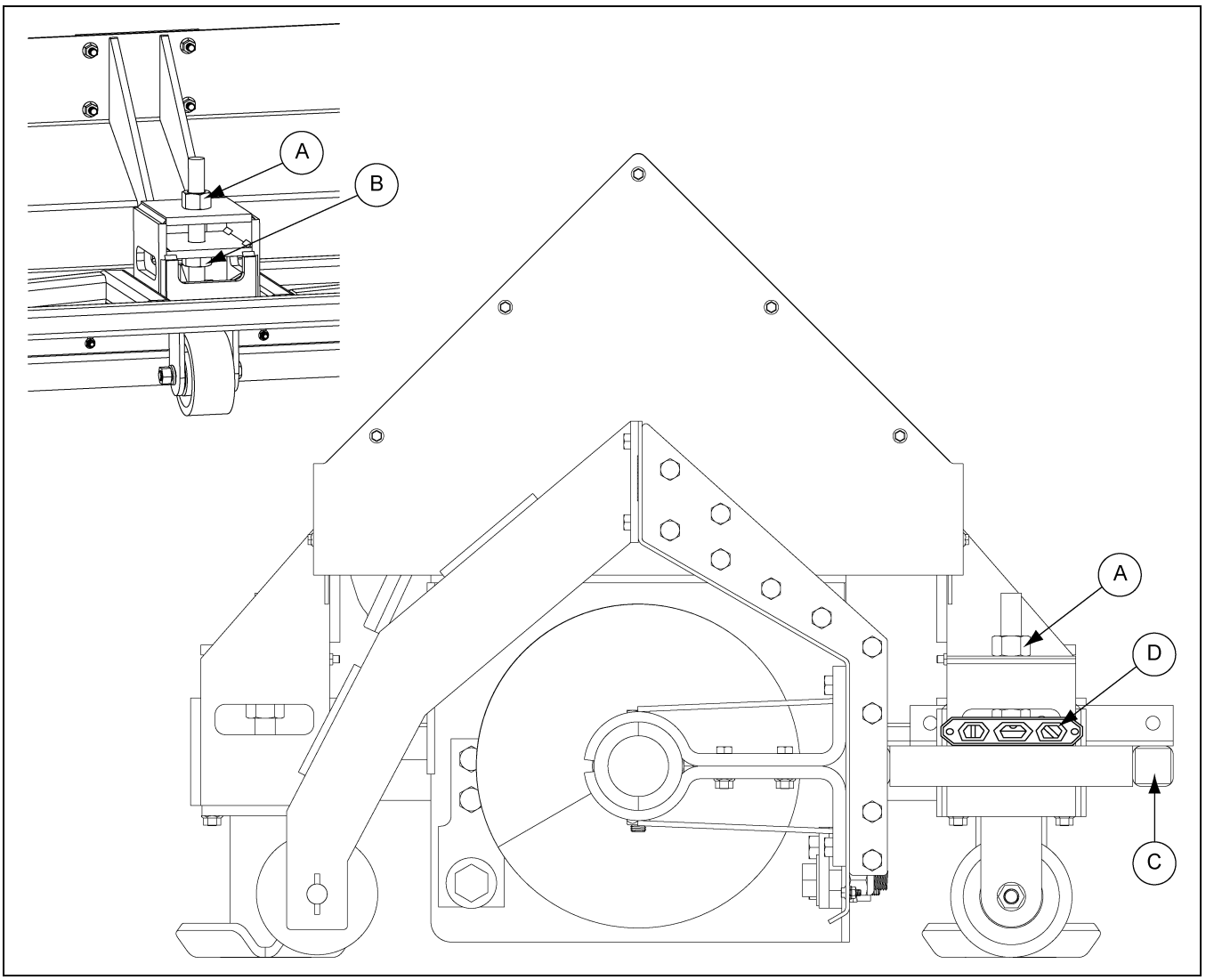


Figure 4AU

Ref #	Description
A	1"-5 Hex Nut
B	1"-5 Hex Nut
C	Sweep Frame
D	Level

4. Adjust sweep brushes. (See “Adjust Sweep Brushes” *on Page 79*.)

Attach Vertical/Horizontal Pivot Plate to Sweep Shield

1. Position the vertical/horizontal pivot plate (A) onto the sweep shield (D) as shown. *(See Figure 4AV.)*
2. Align the holes on the vertical/horizontal pivot plate (A) with the sweep shield (D) and install the vertical pivot pin (B).
3. Locate the hole near the bottom of the vertical pivot pin (B) and install the slotted roll pin (C), securing the vertical/horizontal pivot plate (A) to the sweep shield (D).

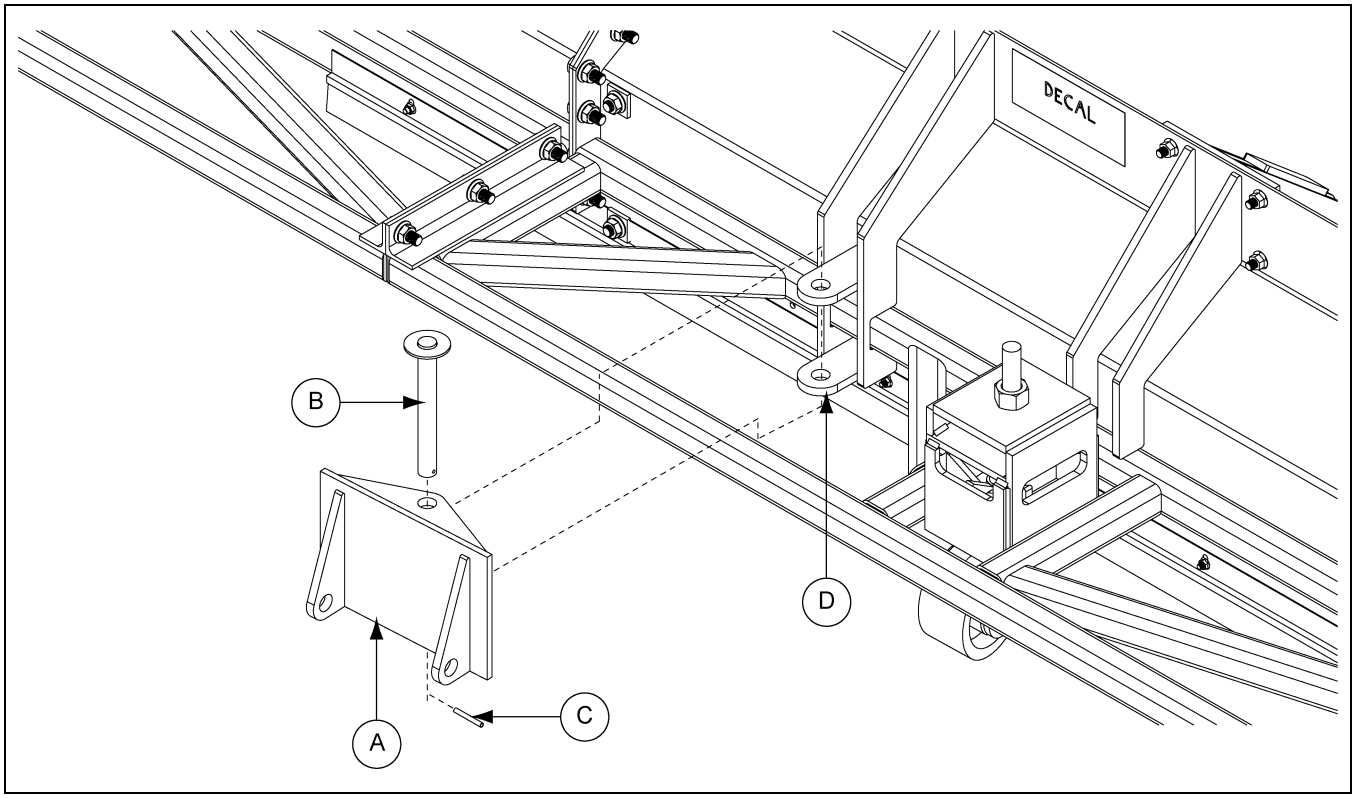


Figure 4AV

Ref #	Description
A	Vertical/Horizontal Pivot Plate
B	Vertical Pivot Pin
C	3/16" x 2" Slotted Roll Pin
D	Sweep Shield

Attach Horizontal Mount to Vertical/Horizontal Pivot Plate

1. Position the horizontal mount (A) onto the vertical/horizontal pivot plate (C) as shown. *(See Figure 4AW.)*
2. Align the holes on the horizontal mount (A) with the vertical/horizontal pivot plate (C) and install the horizontal pivot pin (B).
3. Locate the hole near the end of the horizontal pivot pin (B) and install the slotted roll pin (D), securing the horizontal mount (A) to the vertical/horizontal pivot plate (C).

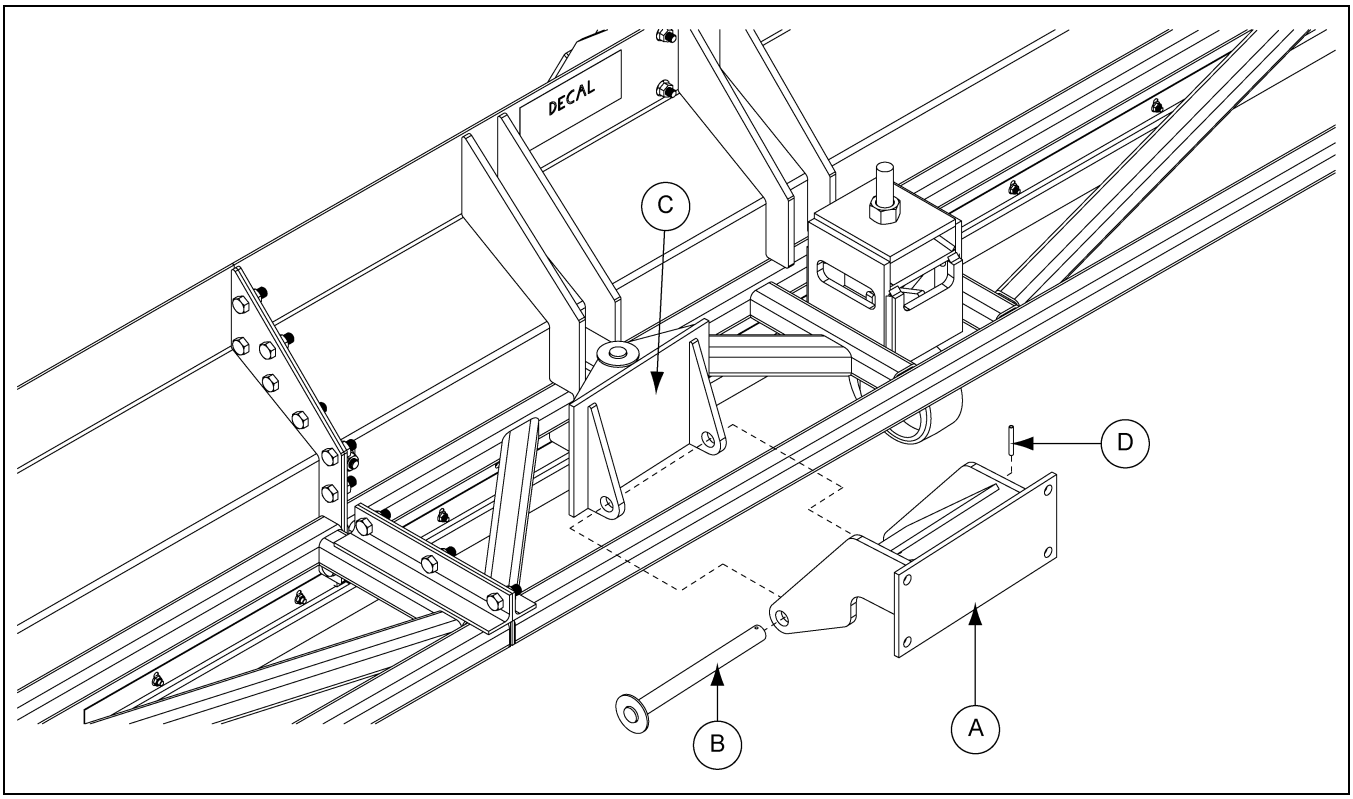


Figure 4AW

Ref #	Description
A	Horizontal Mount
B	Horizontal Pivot Pin
C	Vertical/Horizontal Pivot Plate
D	3/16" x 2" Slotted Roll Pin

Attach Gearbox to Track Drive Plate

Use proper procedures and equipment when lifting gearbox.

1. Using the appropriate lifting device, carefully lift and place the gearbox on its side, using blocks to stabilize each end as shown. *(See Figure 4AX.)*

   NOTE: *Gearbox will only assemble in one direction. Note the orientation of gearbox oil level sight glass (E).*

2. Position the track drive plate (A) onto the gearbox (C), carefully guiding the gearbox shaft though the track drive plate.

3. Align each hole and install hex bolts (D) and flange nuts (B), securing the track drive plate (A) onto the gearbox (C). Tighten to specifications. *(See Table on Page 21.)*

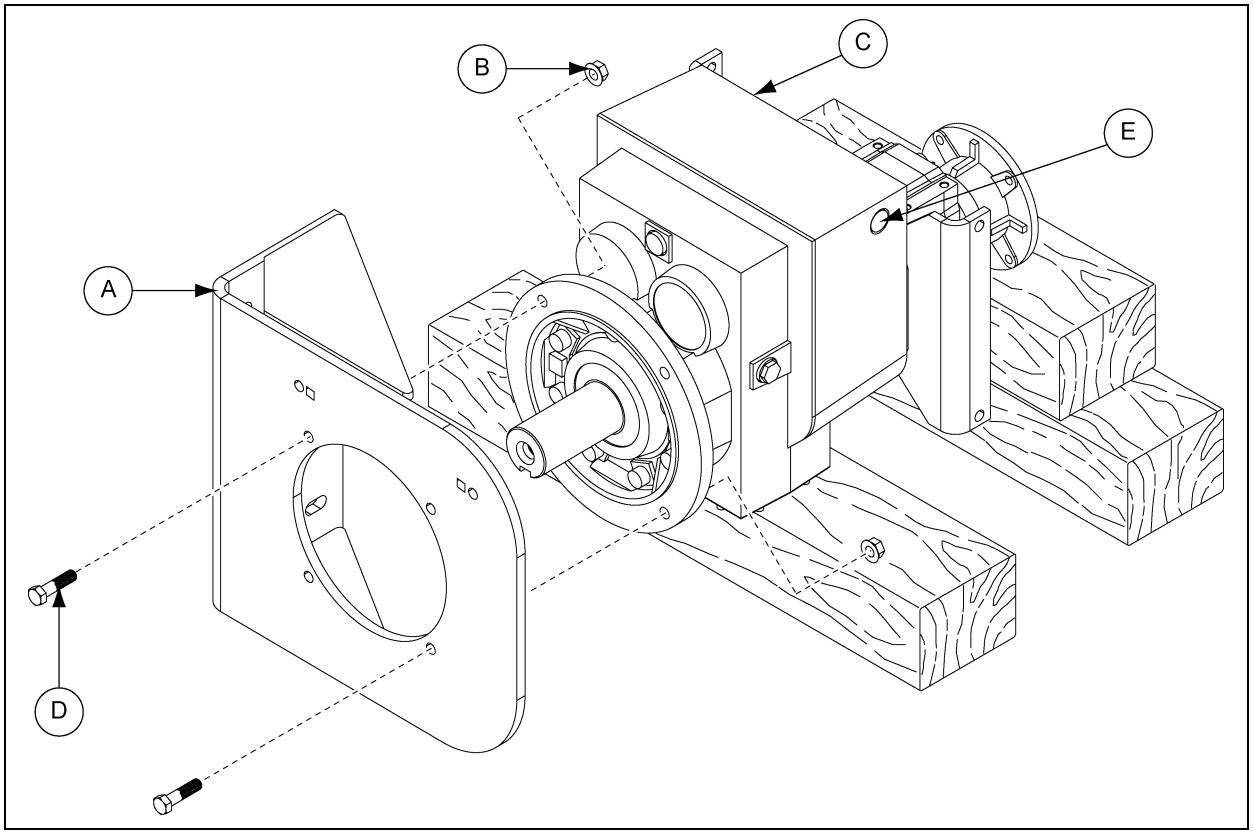


Figure 4AX

Ref #	Description
A	Track Drive Plate
B	1/2"-13 Flange Nut
C	Gearbox
D	1/2"-13 x 2" Hex Bolt
E	Gearbox Oil Level Sight Glass

Attach Gear Drive Sprocket to Gearbox Shaft

1. Install key (D) to gearbox shaft (B). *(See Figure 4AY.)*
2. Attach gear drive sprocket (A) to gearbox shaft (B).

   NOTE: *When attaching gear drive sprocket to gearbox shaft, it may be necessary to use a rubber mallet to tap the gear 1/8" below the end of the gearbox shaft.*
3. Tap gear drive sprocket (A) 1/8" below the end of gearbox shaft (B).
4. Install and tighten set screws (C).

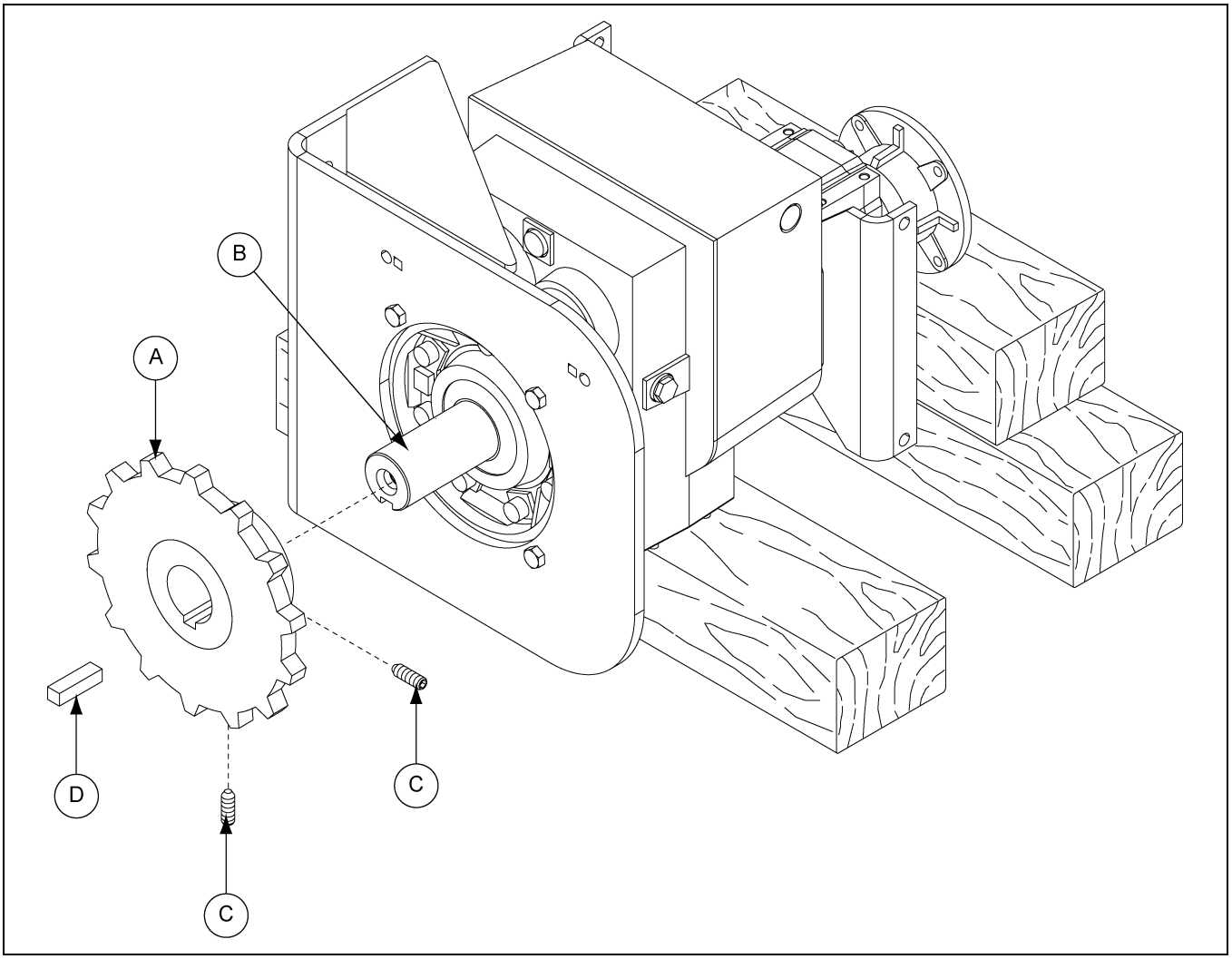


Figure 4AY

Ref #	Description
A	Gear
B	Gearbox Shaft
C	Set Screw
D	Key

Attach Drive Keeper Mount Plate Assembly to Track Drive Plate

1. Install drive keeper mount plate assembly (C) to track drive plate (B) using hex bolts (D) and flange nuts (A). *(See Figure 4AZ.)* **NOTE:** *The square holes (E) are used for 8' track radius only and the round holes (F) are used for 18' through 48' track radius.*
2. Tighten to specifications. *(See Table on Page 21.)*

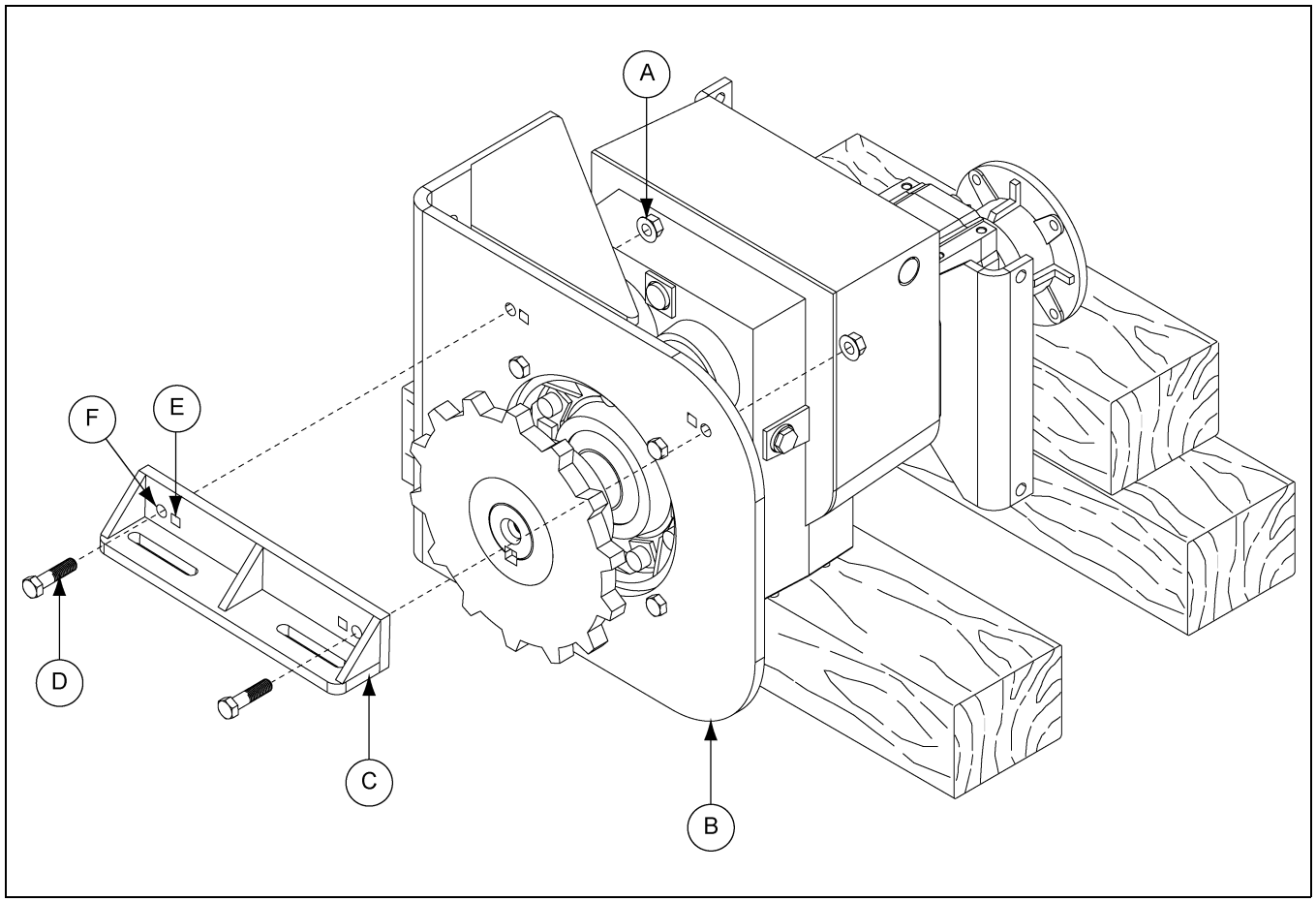


Figure 4AZ

Ref #	Description
A	1/2"-13 Flange Nut
B	Track Drive Plate
C	Drive Keeper Mount Plate
D	1/2"-13 x 2" Hex Bolt
E	Square Holes
F	Round Holes

Install Gearbox Assembly to Pivot Mount Assembly

CAUTION

Use proper procedures and equipment when lifting gearbox.

1. Carefully place the gearbox assembly (A) in the upright position and support the assembly with blocks. *(See Figure 4BA.)*
2. Position the gearbox assembly (A) so the drive keeper mounting plate (F) rests on top of the track and center the gear wheel teeth vertically in the track slots.
3. Install gearbox assembly (A) to pivot mount assembly (D) using hex bolts (C), flat washers (B) and flange nuts (E).
4. Tighten to specifications. *(See Table on Page 21.)*.

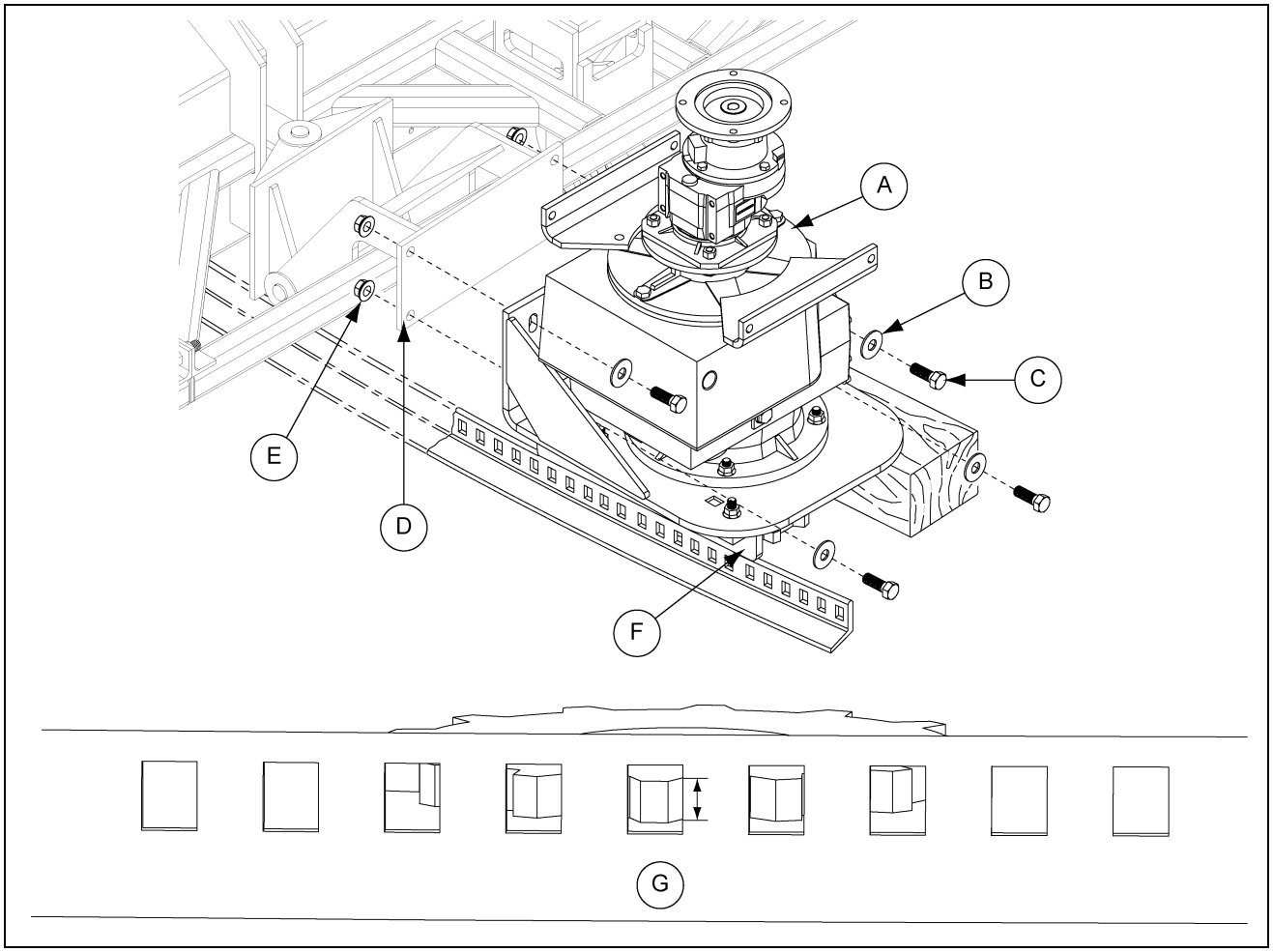


Figure 4BA

Ref #	Description
A	Gearbox Assembly
B	5/8" Flat Washer
C	5/8"-11 x 1-3/4" Hex Bolt
D	Pivot Mount Assembly

Ref #	Description
E	5/8"-11 Flange Nut
F	Drive Keeper Mounting Plate
G	Center Gear in Slot

Attach Drive Keeper to Drive Keeper Mount Plate

1. Install drive keepers (D) to drive keeper mount plate (C) using hex bolts (A), flat washers (B) and flange nuts (E). *(See Figure 4BB.)*

   NOTE: *The drive keepers are beveled on both edges so they can be installed in either direction.*

2. Tighten to specifications. *(See Table on Page 21.)*

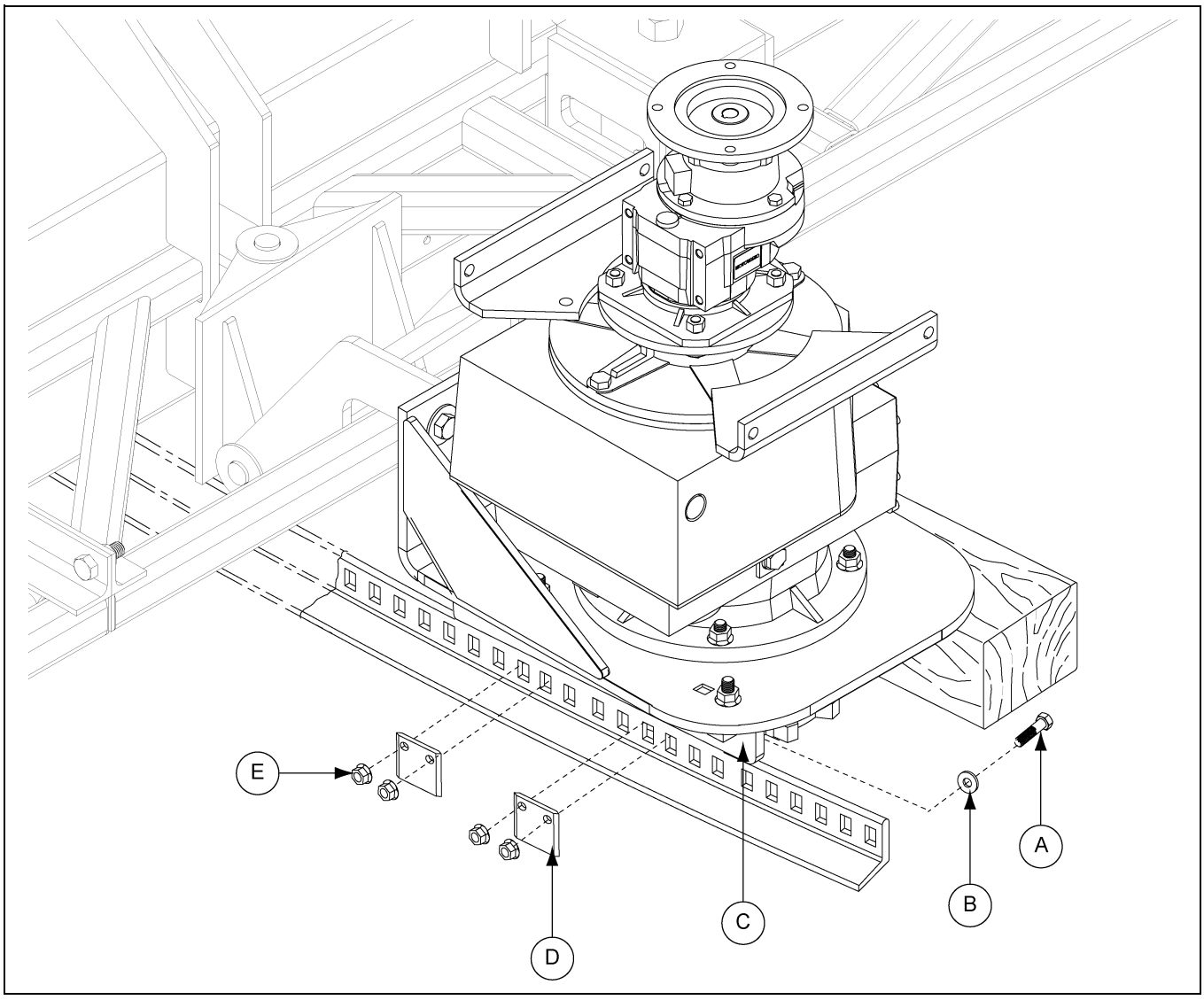


Figure 4BB

Ref #	Description
A	1/2"-13 x 2" Hex Bolt
B	1/2" Flat Washer
C	Drive Keeper Mount Plate
D	Drive Keeper
E	1/2"-13 Flange Nut

Install Track Drive Motor to Gearbox

CAUTION

Use proper procedures and equipment when lifting gearbox.

1. Using the appropriate lifting device, carefully lift and install track drive motor (A) to gearbox (C) using hex bolts (B). *(See Figure 4BC.)*
2. Tighten to specifications. *(See Table on Page 21.)*

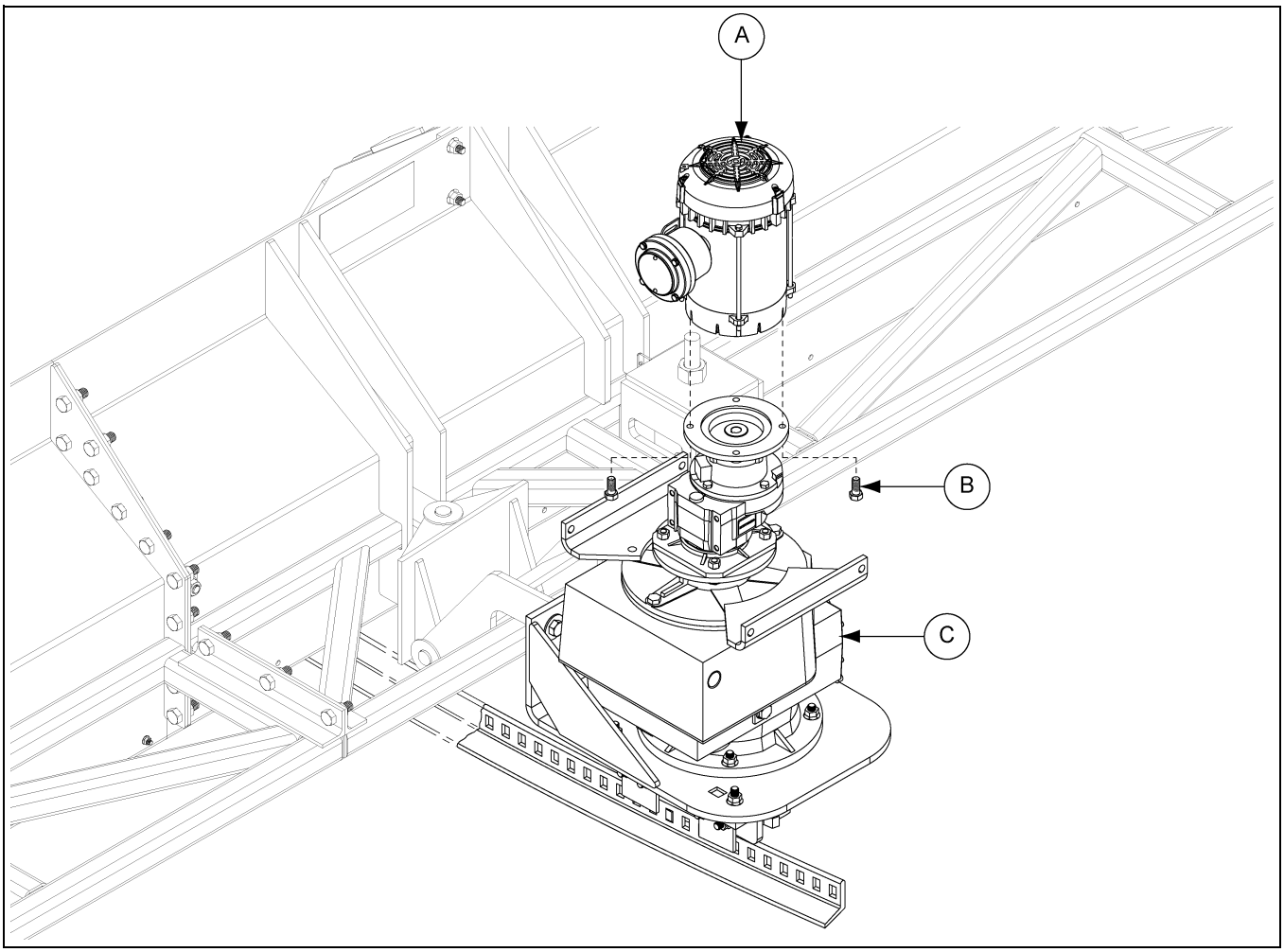


Figure 4BC

Ref #	Description
A	Track Drive Motor
B	Hex Bolt
C	Gearbox

Attach Drive Motor Side Covers to Gearbox

1. Attach drive motor side covers (B) to gearbox (D) using flange bolts (C) and flange nuts (A). *(See Figure 4BD.)*
2. Tighten to specifications. *(See Table on Page 21.)*

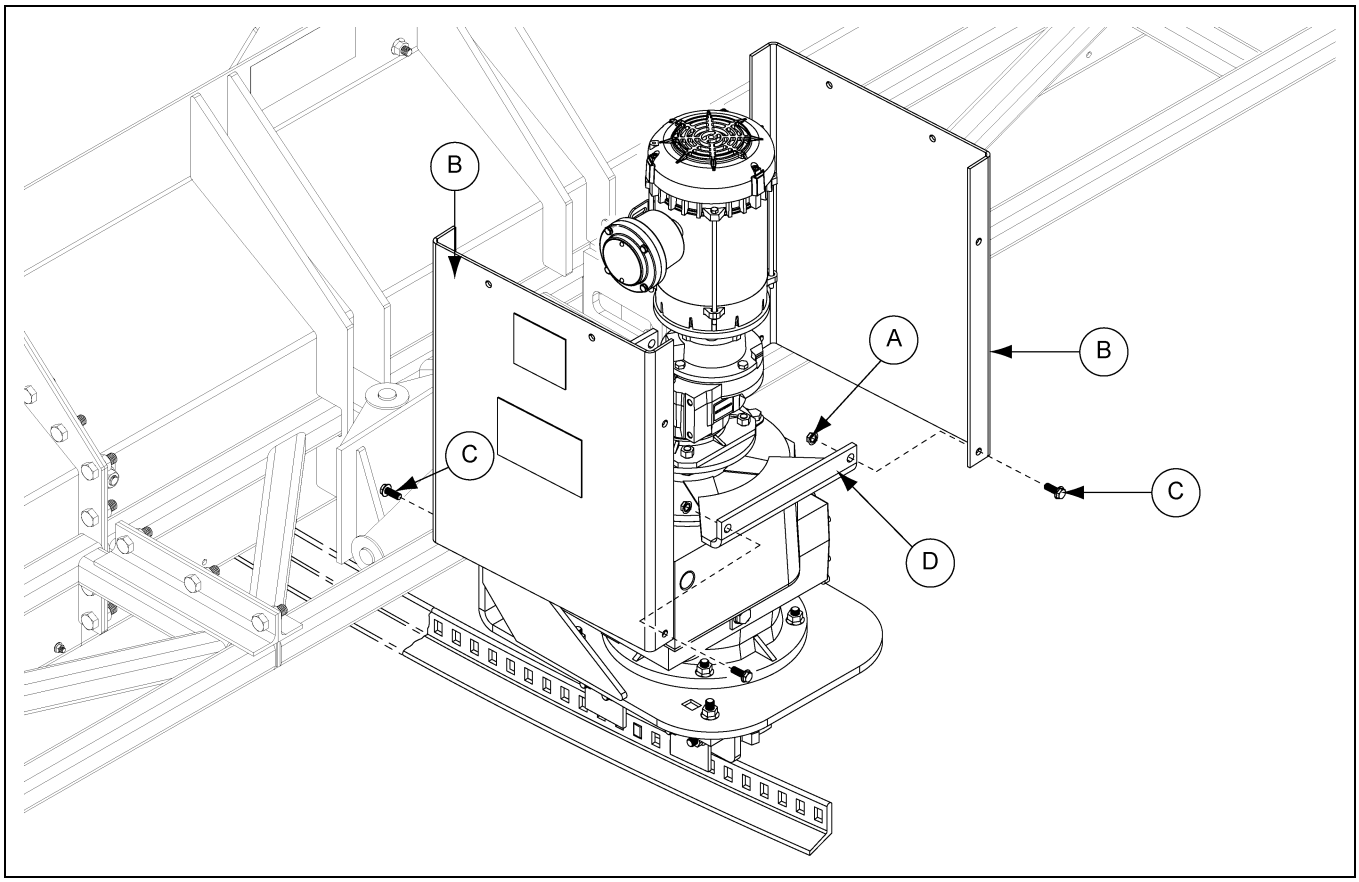


Figure 4BD

Ref #	Description
A	3/8"-16 Flange Nut
B	Drive Motor Side Cover
C	3/8"-16 x 1" Flange Bolt
D	Gearbox

Attach Drive Motor Hood to Drive Motor Side Covers

1. Attach drive motor hood (A) to drive motor side covers (C) using flange bolts (B) and flange nuts (D). *(See Figure 4BE.)*
2. Tighten to specifications. *(See Table on Page 21.)*

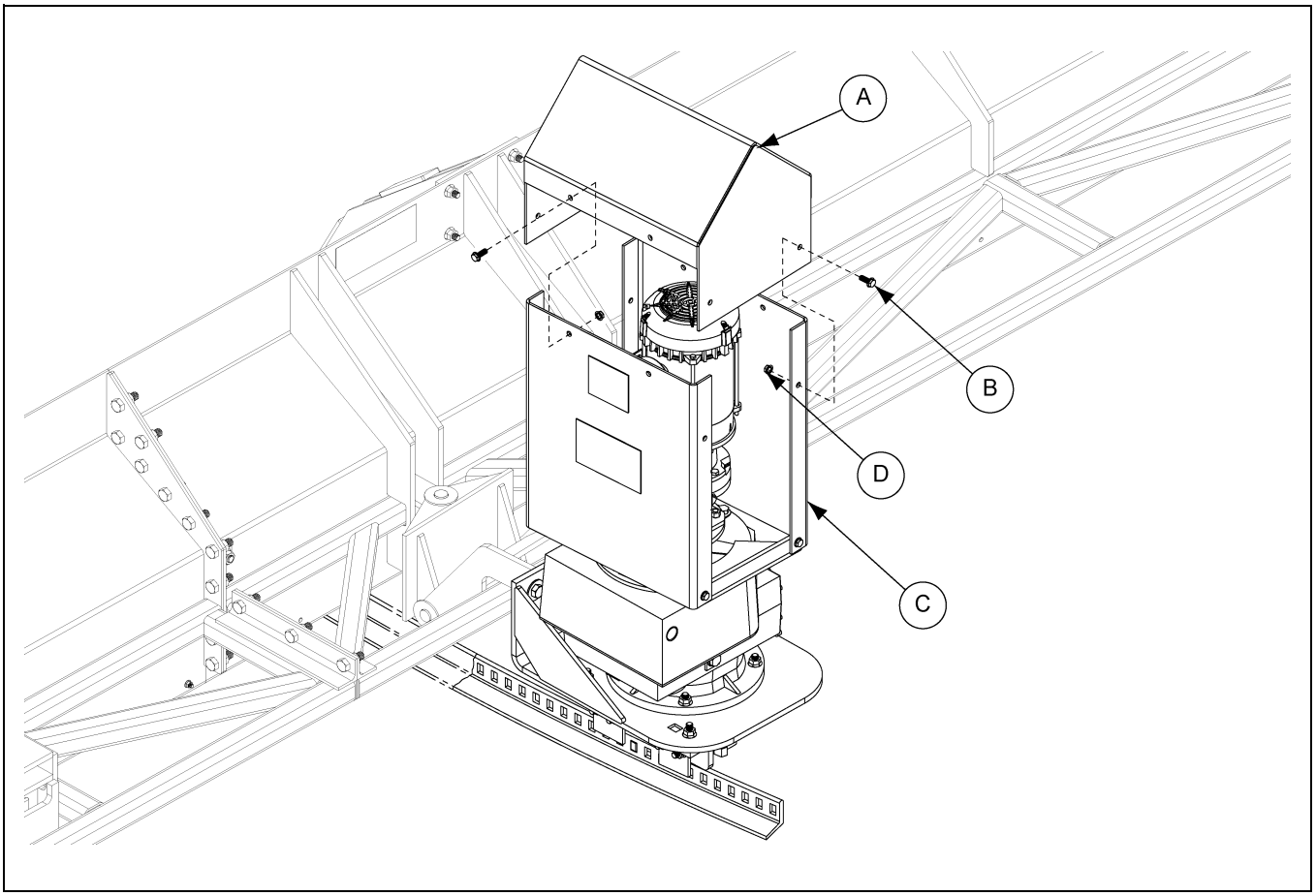


Figure 4BE

Ref #	Description
A	Drive Motor Hood
B	3/8"-16 x 1" Flange Bolt
C	Drive Motor Side Cover
D	3/8"-16 Flange Nut

Adjust Sweep Brushes

1. Loosen flange nuts (B). *(See Figure 4BF.)*
2. Slide sweep brush (A) up or down as needed to follow the contour of the floor.
3. Install flange nuts (B). Tighten to specifications. *(See Table on Page 21.)*

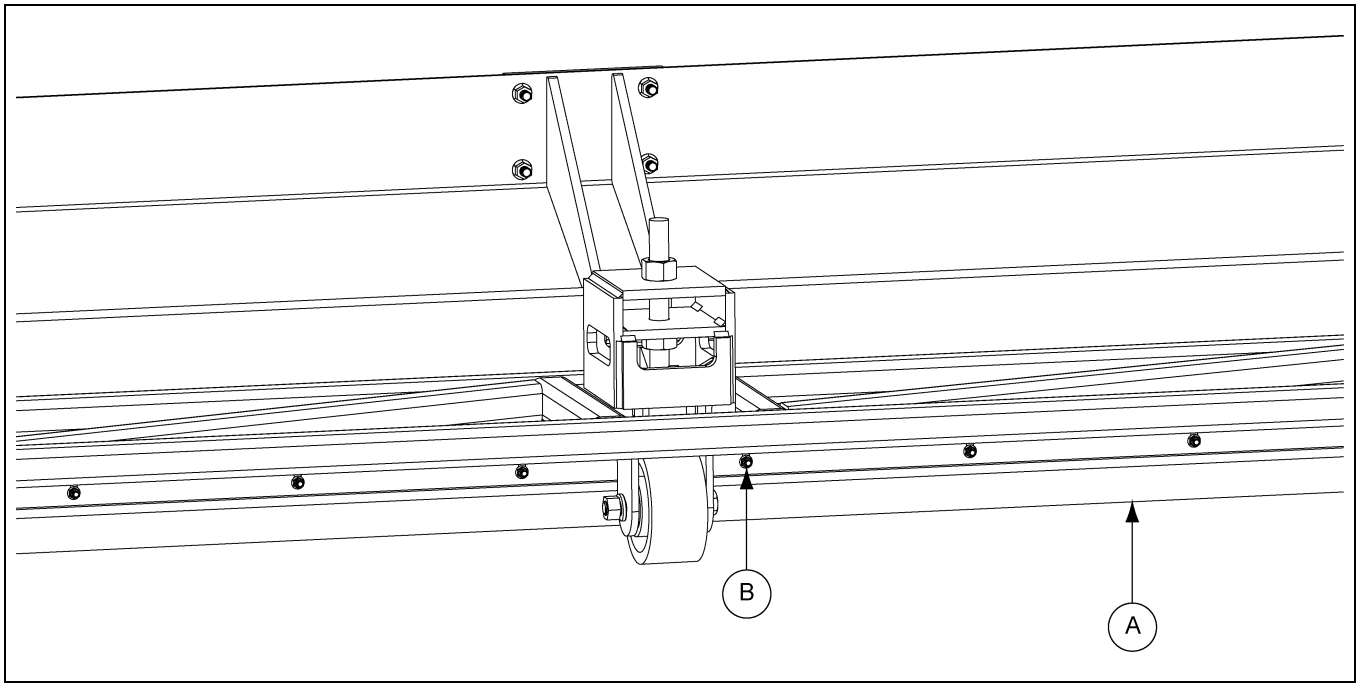


Figure 4BF

Ref #	Description
A	Sweep Brush
B	5/16"-18 Flange Nut

Cutting the Auger Flighting

The auger flighting must be cut to allow the auger to rotate without interfering with the Posi-Drive Track. *(See Figure 4BG.)*

To Cut the Auger Flighting

1. Install the auger.
2. Use the flight cutting templates for cutting area. *(See Figure 4BH on Page 81 and Figure 4BI on Page 82.)*

   NOTE: *Templates should be printed at 100%; therefore all dimensions should be at a one to one scale.*

3. Center the template length above the track. This will give you the area that will interfere with the track as the flight is rotated.

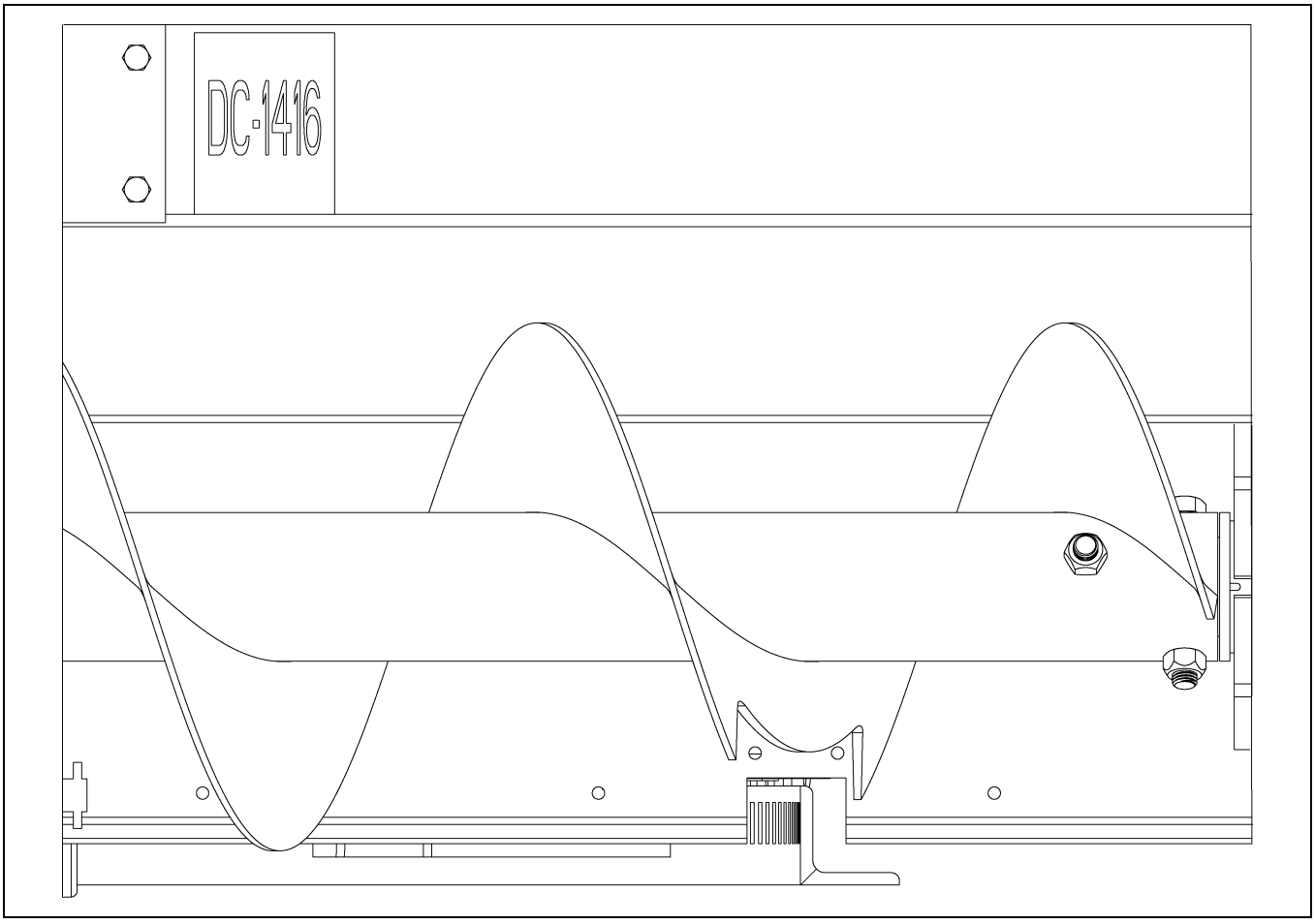


Figure 4BG

12" Flight Cut Template

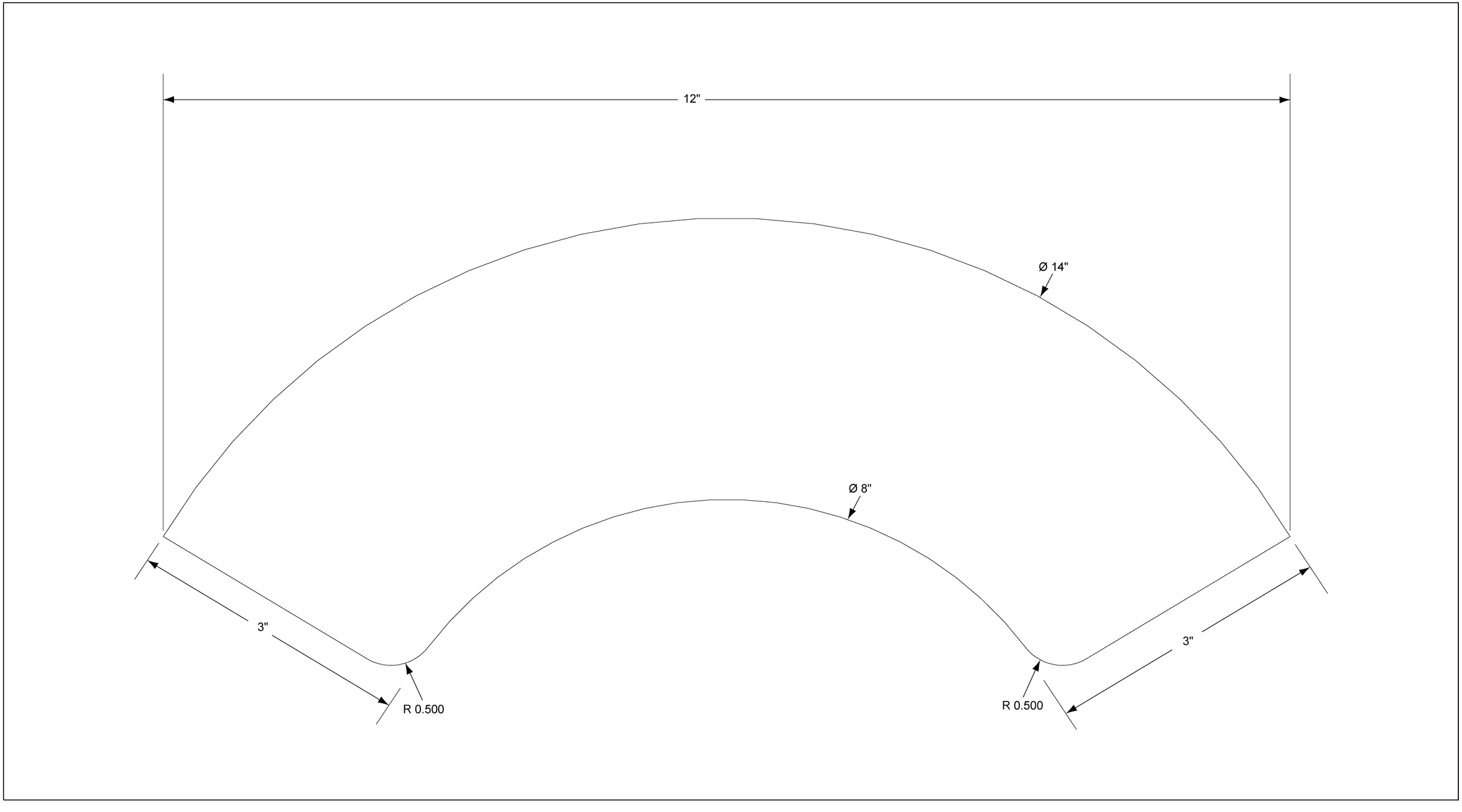


Figure 4BH

16" Flight Cut Template

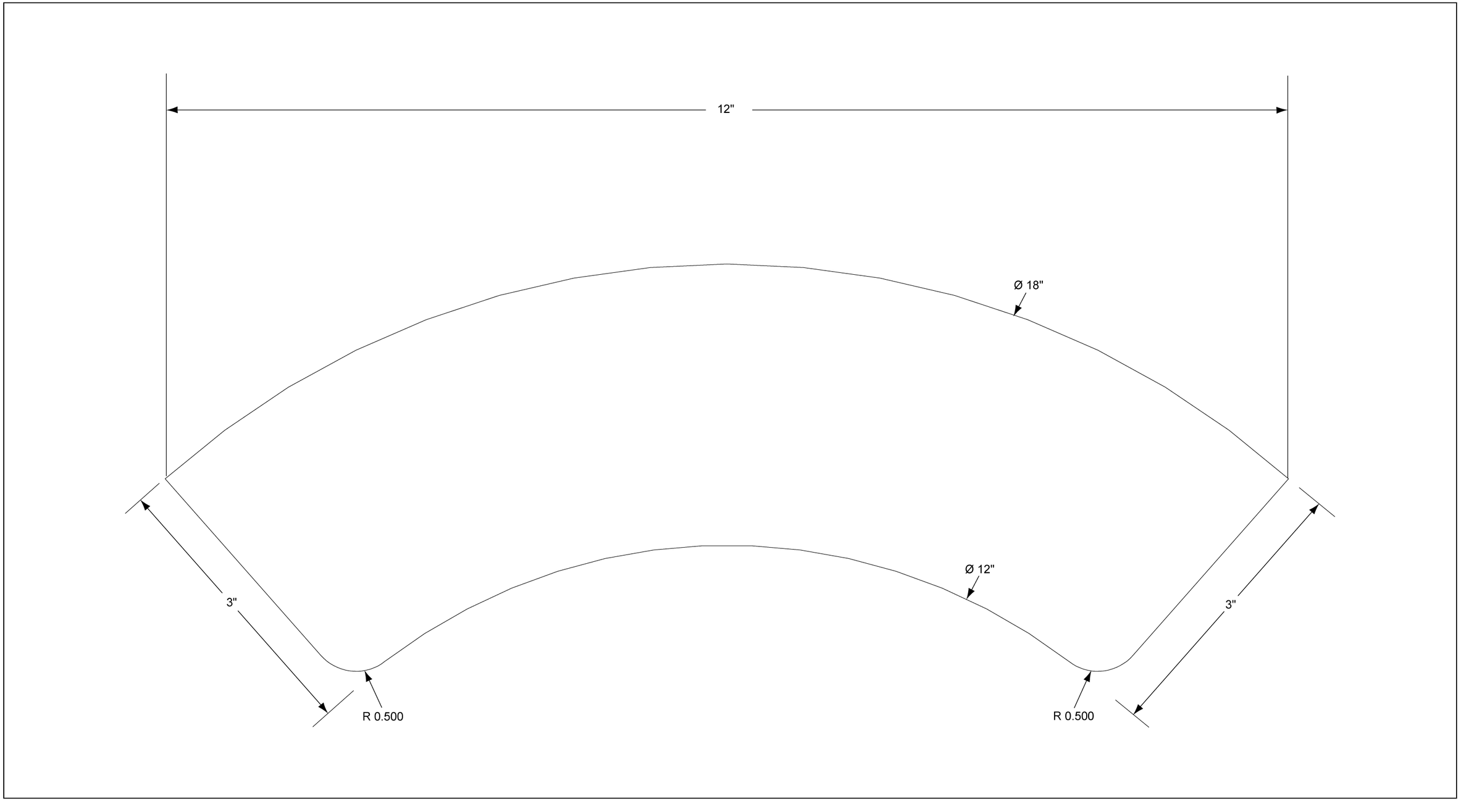


Figure 4BI

Installing Junction Box

1. Install junction boxes (B) to sweep shield (D) using conduit nipple (E), U-bolts (C) and flange nuts (F). *(See Figure 4BJ.)*
2. Connect conduit to junction boxes (B) using couplings (A).

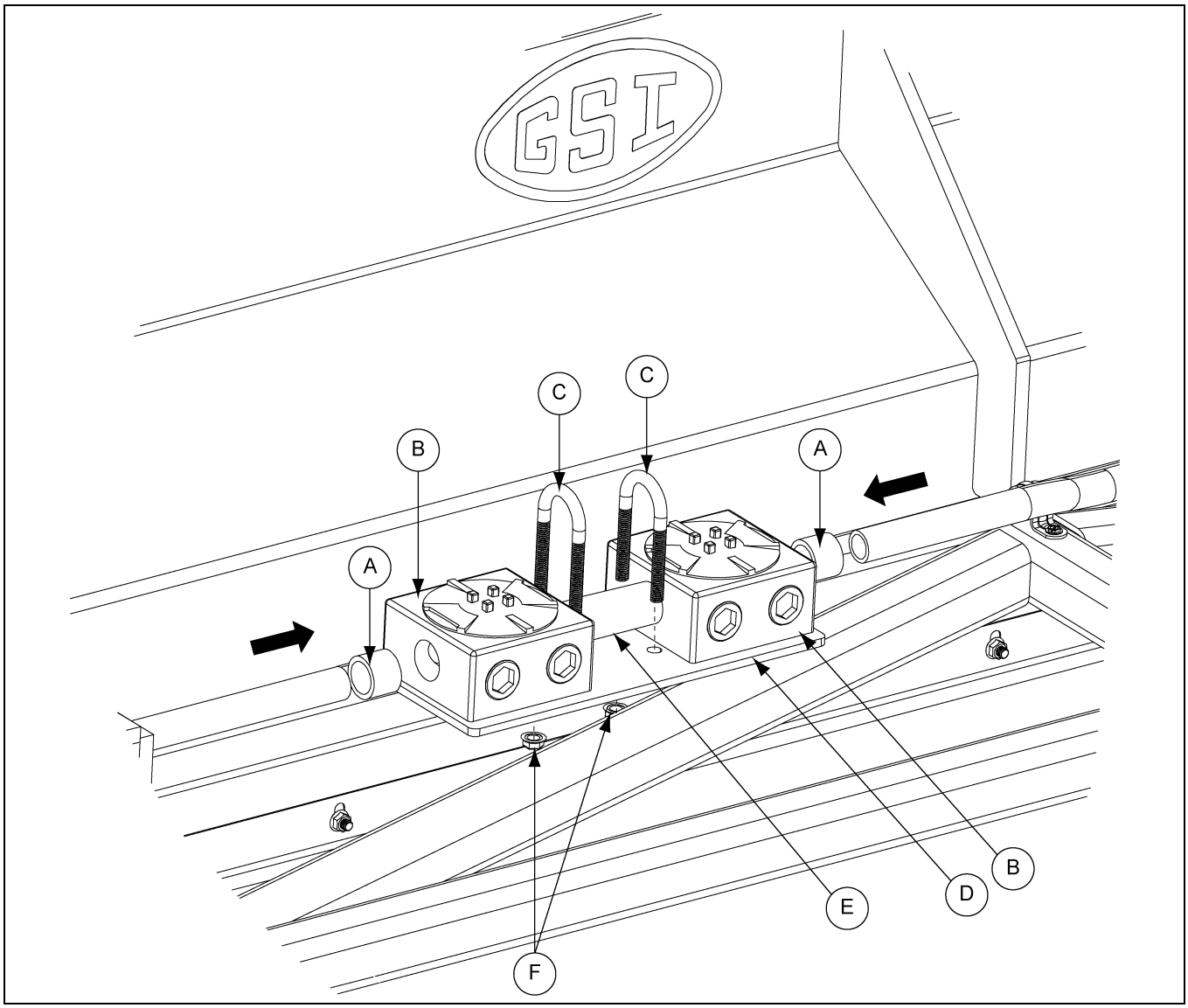


Figure 4BJ

Ref #	Description
A	Coupling
B	Junction Box
C	3/8" x 1-3/8" U-Bolt
D	Sweep Shield
E	Conduit Nipple
F	3/8" Flange Nut

Installing Conduit

1. Install conduit (C) to sweep shield (B) using clamps (D) and screws (A). *(See Figure 4BK.)*

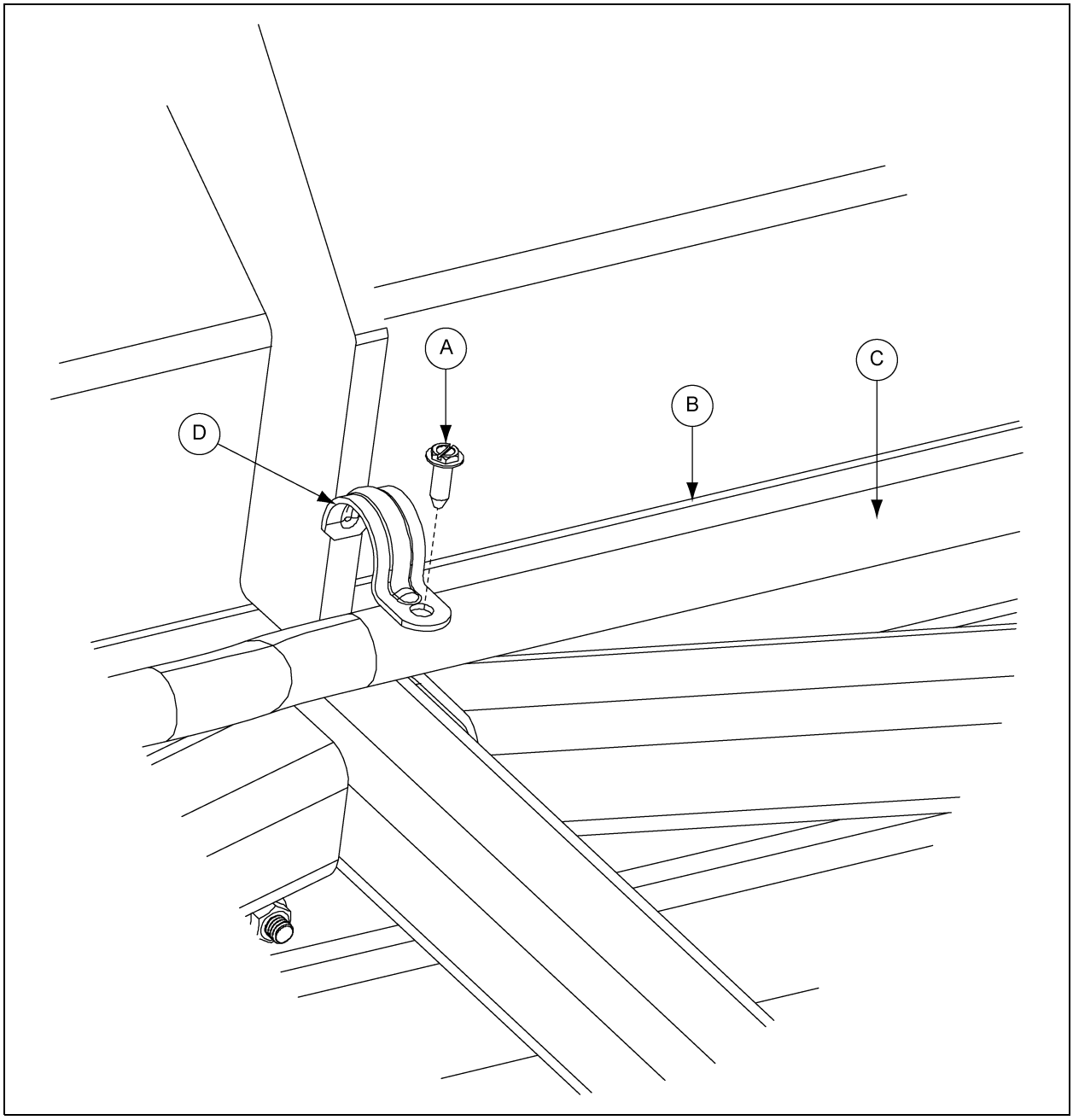


Figure 4BK

Ref #	Description
A	Screw
B	Sweep Shield
C	Conduit
D	Clamp

Wiring Collector Ring to Motors

Installation must be done by a certified electrician and adhere to all national and local codes.

Wire the slip ring to the motors using the sweep junction boxes as stated below:

1. Wires 1-2: Motor Thermal Protection Leads (wired in series)
2. Wires 3-5: Track Drive Motor Line Leads
3. Wires 6-8: Auger Motor Line Leads
4. Wire 9: Ground Lead

NOTE: *Current/Voltage:*

- *Rings 1-5: Signal to 30 amps/up to 600 volts.*
- *Rings 6-8: 60 Amps/up to 600 volts.*
- *Ring 9: 60 Amps/up to 600 volts (to be grounded).*

NOTE: *Termination Type:*

- *1-5: #10 AWG BLK Lead wires.*
- *6-8: #8 AWG BLK Lead wires.*
- *9: #8 AWG GRN Lead wire.*

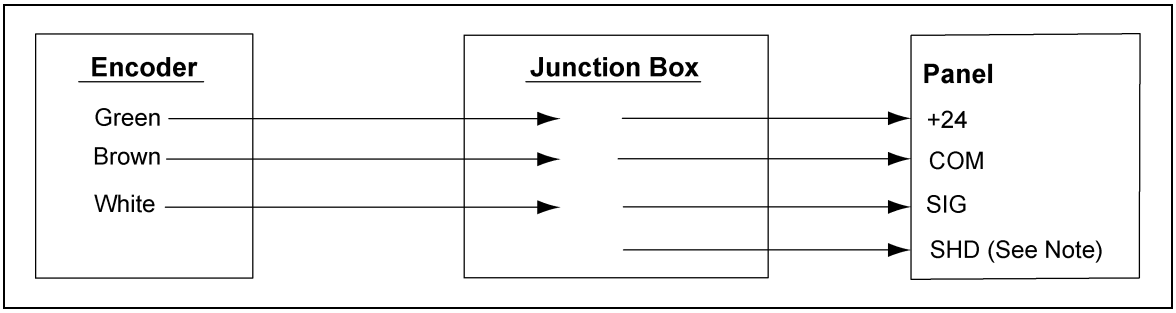


Figure 4BL

NOTE: *Use shielded wire from junction box to panel. Wire from junction box to panel could be any color.*

NOTICE

The encoder wires MUST be ran in conduit separate from the supply wires on the opposite side of the tunnel.

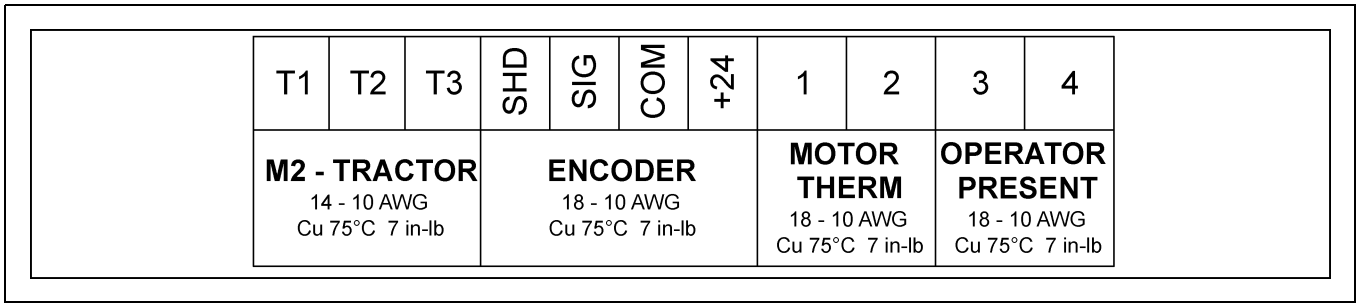


Figure 4BM

Setup “X” Series Sweep Control

Start-Up

The control panel should be mounted in a position to allow the operator to observe the sweep through the side entry door and monitor the control panel display screen.

NOTE: *Ensure all personnel are clear of the working area and equipment. There should always be a clear view of the equipment*.

1. Turn the main power switch to the **“ON”** position.
2. Upon initial start-up, a program will load and display a set up screen. Press the **“SETUP”** icon.

Figure 4BN *Screen Detail for Initial Power Up*

Figure 4BO *Screen Detail for Subsequent Power Ups*

NOTE: *Sweep will not start until all parameters have been set. At any time you can press the question mark for help information about the current screen.*

Bin Diameter Setup

1. Select **“BIN DIAMETER”** icon from start-up screen. *(See Figure 4BP.)*

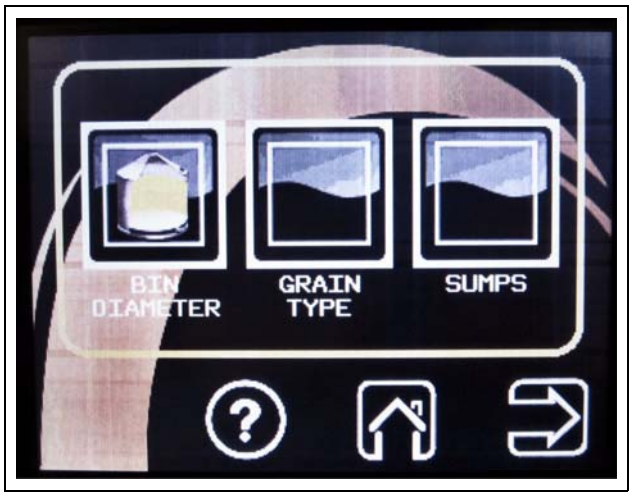


Figure 4BP

2. From the **“BIN DIAMETER”** screen, select the diameter of the bin. Bin diameter options range from 36' to 156'. If the exact size is not displayed, select the next closest size. *(See Figure 4BQ.)*

Figure 4BQ

NOTE: *If the bin diameter is exactly the same difference from the next larger or smaller bin, we suggest selecting the larger diameter. This is will give you a longer unload time than what it will actually take the system to unload.*

Grain Type Setup

1. Select **“GRAIN TYPE”** icon from start-up screen. *(See Figure 4BR.)*

Figure 4BR

2. From the **“GRAIN TYPE”** screen, select the grain type that will be stored in the bin being unloaded. Choices include corn, soybeans, wheat, rice and milo. *(See Figure 4BS.)*

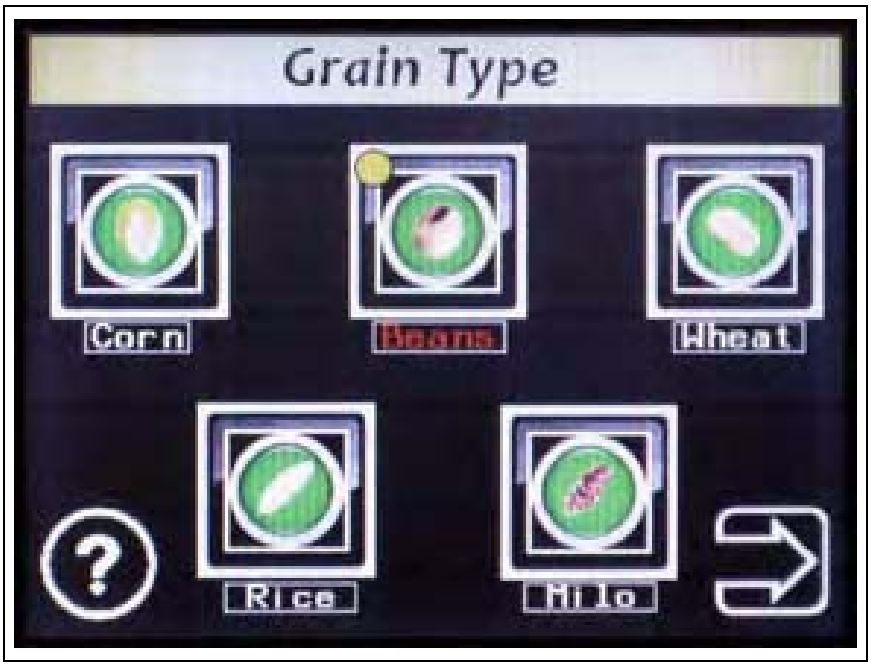


Figure 4BS

NOTE: *If the specific grain type is not present, select the most similar option.*

Sump Setup

1. Select the **“SUMPS”** icon from start-up screen. *(See Figure 4BT.)*

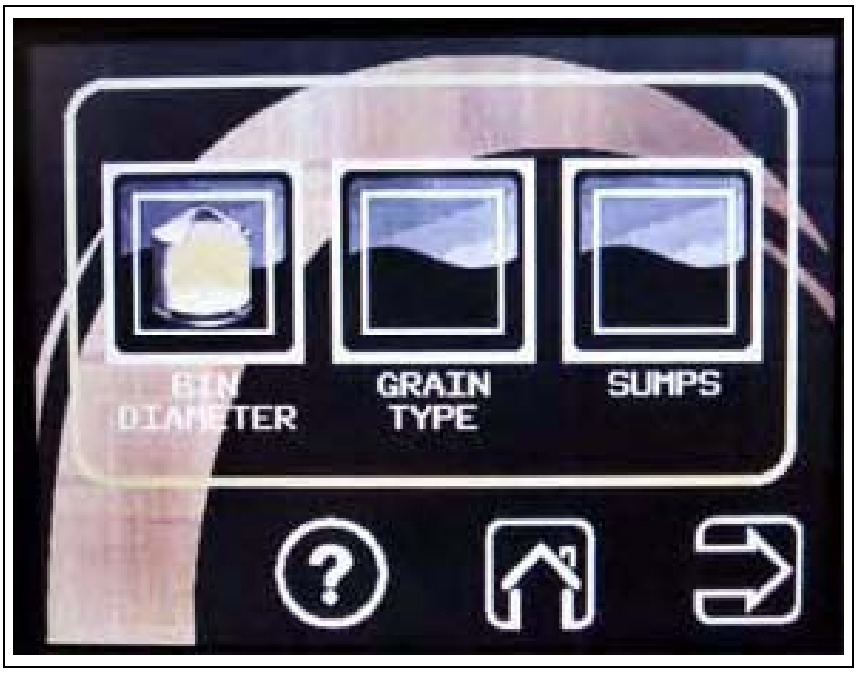


Figure 4BT

2. From the **"SUMP CONFIGURATION"** screen, select the type of sump configuration in the bin. *(See Figure 4BU.)*

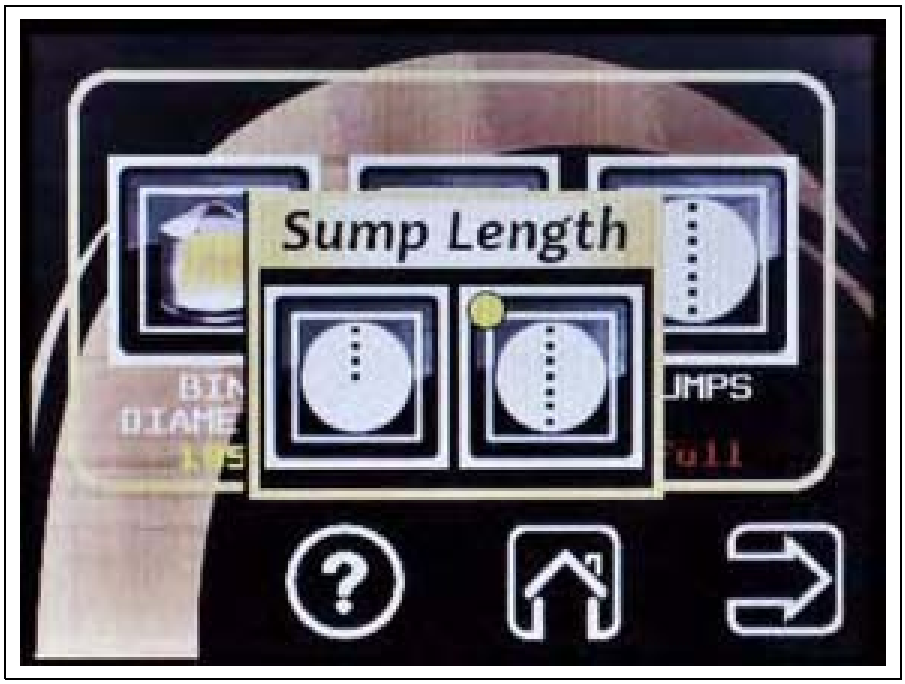


Figure 4BU

NOTE: *Determine if the intermediate sumps are located on one side of the center sump or both sides of the center sump.*

3. Select the **"NEXT"** screen icon to go to the next setup screen. *(See Figure 4BV.)*

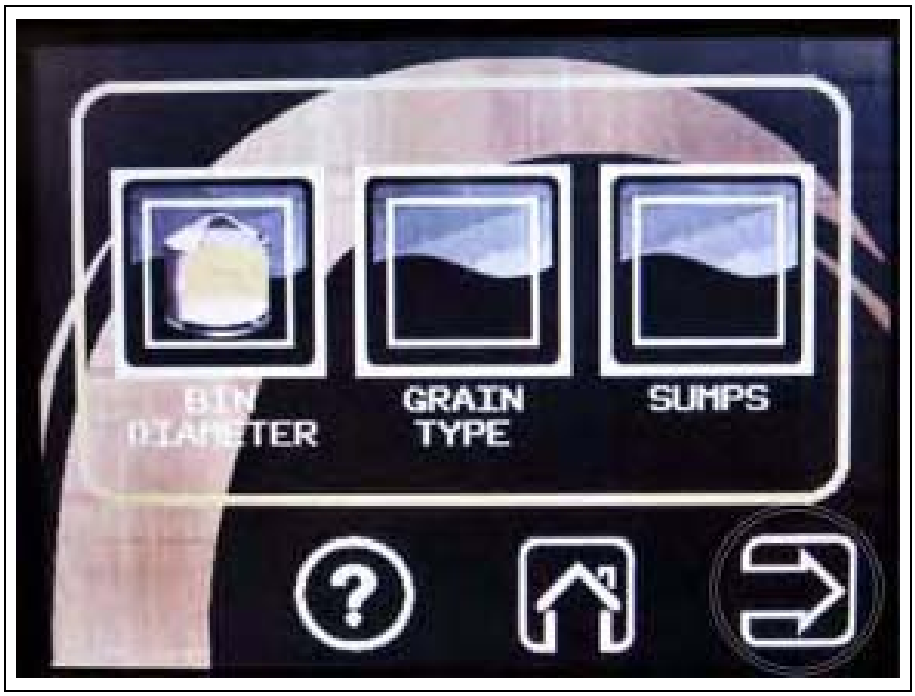


Figure 4BV

Auger Capacity Setup

1. Select **“AUGER CAPACITY”** from setup screen. *(See Figure 4BW.)*

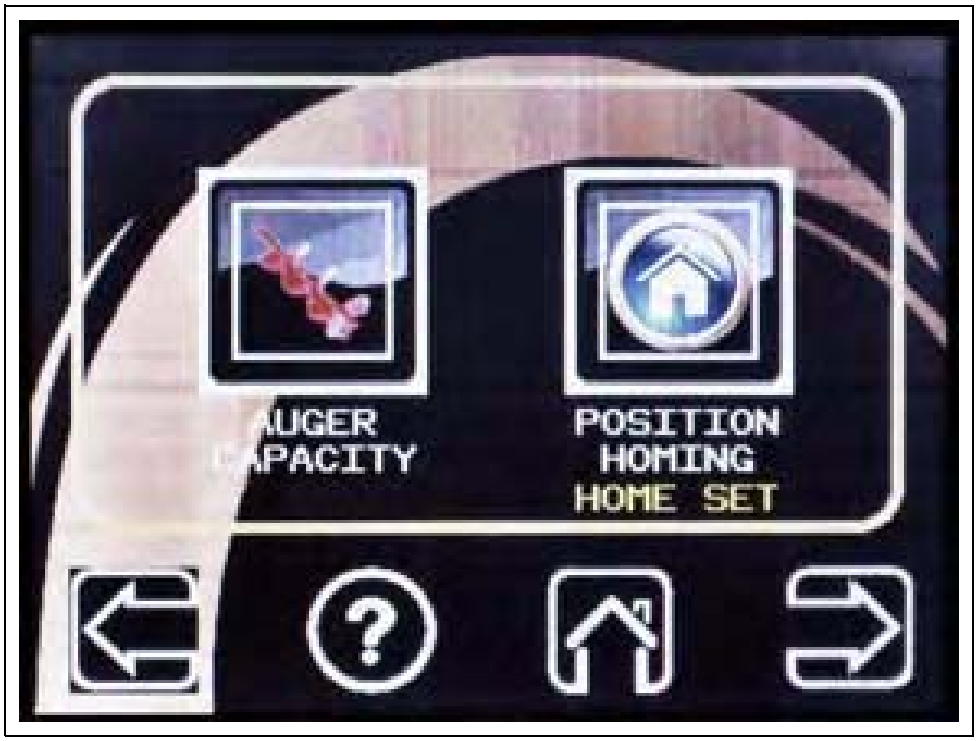


Figure 4BW

2. From the **“AUGER SIZE”** screen, select the sweep auger size installed in the bin, either 12" or 16". *(See Figure 4BX.)*

Figure 4BX

3. From the **"SELECT AUGER CAPACITY"** screen, select the unload capacity of unload system installed in the bin. *(See Figure 4BY.)*

Figure 4BY

4. Adjust the capacity within the selected range using the plus or minus arrows to the right of the screen. *(See Figure 4BZ.)*

Figure 4BZ

Homing and Obstacle Setup

This setup marks the home position of the sweep and up to three (3) obstacles in the bin. Home position should locate the sweep behind the intermediate sumps with the sumps on the auger side of the sweep.

Homing Position

1. Select **“POSITION HOMING”** from setup screen 2. *(See Figure 4CA.)*

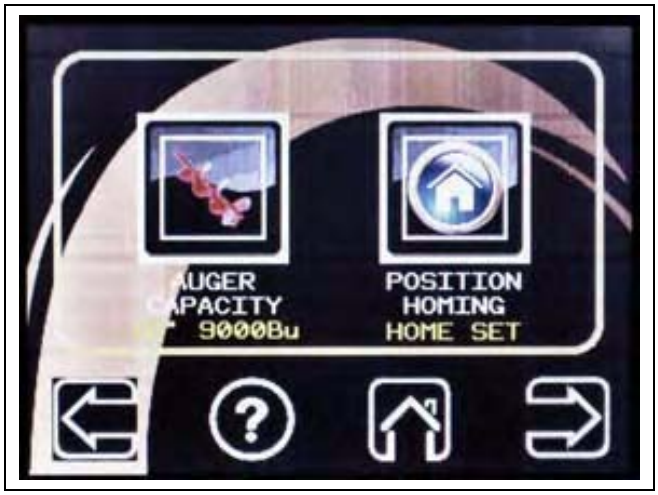


Figure 4CA *Setup Screen 2*

2. If the sweep is not positioned in the bin directly behind the intermediate sumps, reposition the sweep by turning the mode select switch to **“MANUAL”**.
   Turn the momentary drive switch to **“FWD”** to move the sweep forward or **“REV”** to move the sweep backwards.

NOTE: *Once you release the switch, it will automatically toggle to the idle position.*

3. Select **“SET HOME”** to set the current location of the sweep as the home position (0°). *(See Figure 4CB.)*

Figure 4CB *Home/Obstacle Setup Screen*

NOTE: *You may choose reset at any time to reset home. Be aware that this may affect the obstacle locations. They may need to be reset.*

Obstacles

1. Move the auger to the first obstacle location by turning the mode select switch to **“MANUAL”**. Turn the momentary drive switch to FWD to move the sweep forward to the first obstacle location.
2. Select the obstacle triangle #1. This will set the current location of the sweep as obstacle number one. The sweep position in degrees will display. (Example: 124°) *(See Figure 4CC.)*

Figure 4CC

3. Repeat *Steps 1 and 2* for obstacles 2 and 3 and select the **“NEXT”** icon to go back to setup screen 2. *(See Figure 4CD.)*

Figure 4CD

NOTE: *It is not required to set any or all three (3) obstacles. If you only have one obstacle, then you only need to set one obstacle and can also be set in any order.*

4. Select the **“NEXT”** icon to go back to setup screen 3 to set up obstacle presence behavior. *(See Figure 4CE.)*

Figure 4CE

Obstacle Presence

1. Select the **“OBSTACLE PRESENCE”** icon to choose if the sweep should **“STOP”** or **“WARN ONLY”** when encountering an obstacle. Warn only will be the default setting for all obstacles. Selecting **“STOP”** will display a warning on screen and stop the sweep before it gets to the obstacle.

NOTE: *Selecting “WARN ONLY” will only display a warning on the screen and the sweep will continue proceed around the bin. (See Figure 4CF below, Figure 4CG and Figure 4CH on Page 95.)*

Figure 4CF *Setup Screen 3*

Figure 4CG

Figure 4CH

Operator Presence

An operator presence device may include a foot switch, contact on bin door or any normally closed contact used as a safety or non-entry device to prevent activation of the system.

1. Pressing the **“OPERATOR PRESENCE”** allows the operator to toggle between **“ACTIVE”** or **“INACTIVE”** if operator presence sensor is installed. *(See Figure 4CI and Figure 4CJ.)*

NOTE: *These are not supplied by GSI. Contact local authorities to verify if these are required in the area.*

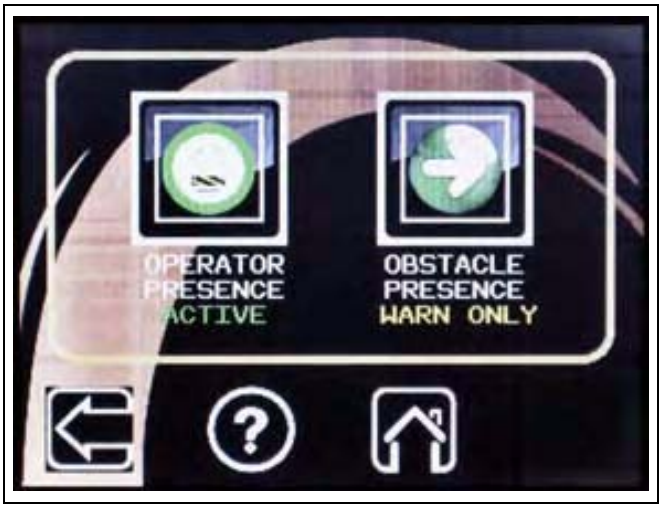


Figure 4CI

Figure 4CJ

“X” Series Sweep - Software Updates

V1.1

1. Added “Advanced” button to part selection screen. *(See Figure 4CK.)*
2. Moved “Encoder Rotation” selection to Advanced Setup screen.

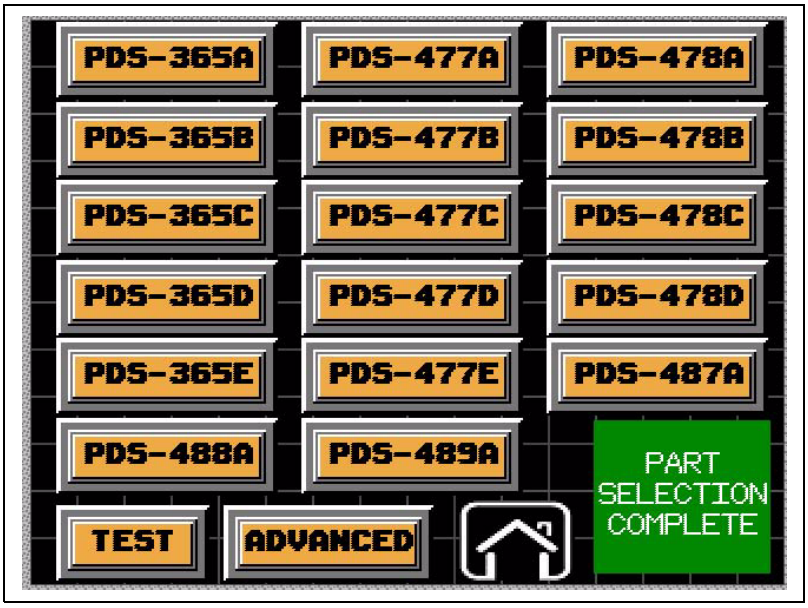


Figure 4CK

Advanced Setup Screen

1. View high amperage set point for sweep shut down in the cleanout mode.
2. Added a user-settable adder to allowing high amperage set point for cleanout mode to be changed. *(See Figure 4CL.)*

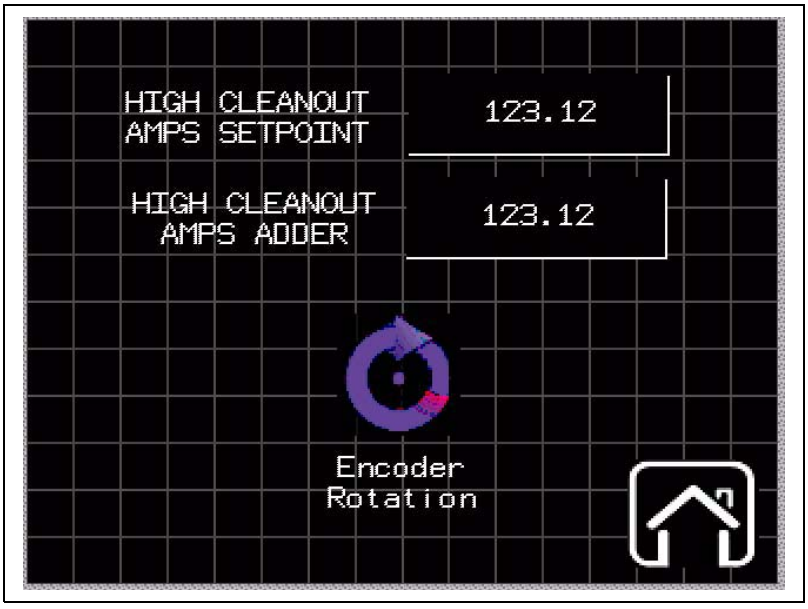


Figure 4CL

V1.2 (Released 28JUN12)

A. Cleanout mode high amperage shut down.

1. Moved manual calibration from advanced screen to setup screens. *(See Figure 4CM.)*

    a. To calibrate:

        - Start auger in manual with zero load applied.
        - After 5 seconds the calibration icon will appear. *(See Figure 4CN.)*
        - When button is pressed, calibration complete will appear on the screen. *(See Figure 4CO on Page 98.)*
        - If load is applied during process the message “Unload Auger Before Calibration” will appear. *(See Figure 4CP on Page 98.)*

    b. This calibrates the amperage to the known “no load amps”.

2. If calibration is not completed, the factory calculated values will be used.

B. Added VFD Logic Input 3 (E-Stop Input) to Panel Build Testing screen. *(See Figure 4CQ on Page 98.)*

C. Added manual PID settings to advanced setup page. *(See Figure 4CR on Page 98.)*

D. Added smaller bin sizes to bin diameter page. *(See Figure 4CS on Page 98.)*

1. 36
2. 39
3. 42
4. 45

Figure 4CM

Figure 4CN

Figure 4CO

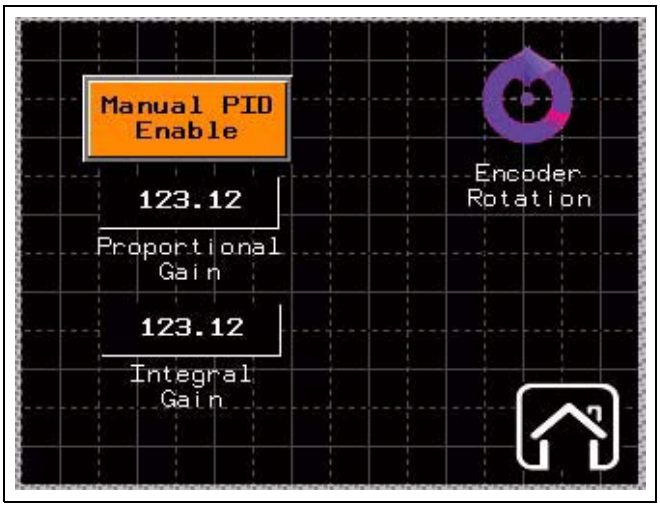


Figure 4CR

Figure 4CP

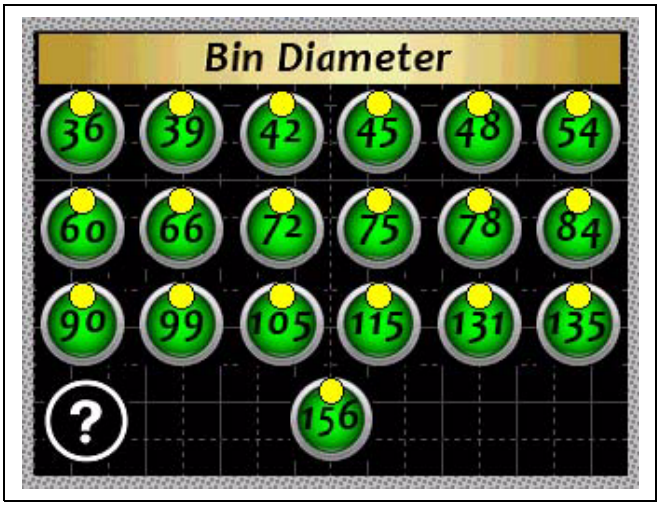


Figure 4CS

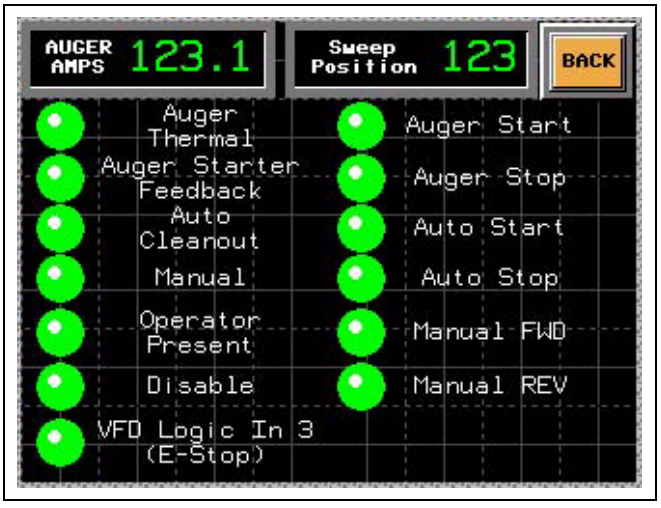


Figure 4CQ

V1.2.4 (Released 14AUG12)

A. Added ability to disable encoder functions on advanced screen. *(See Figure 4CT.)*

1. When encoder is disabled:

a. Advanced screen will flash “Encoder Not In Use”.

b. Run Screen 1 will no longer offer a link to the second run.

- New link to adjust capacity on lower right corner. *(See Figure 4CU.)*
- When link is pressed, auger capacity can be adjusted/changed. *(See Figure 4CX.)*

c. Setup Screen 3 no longer offers Home Setup. *(See Figure 4CV.)*

d. Setup Screen 4 no longer offers Obstacle Setup. *(See Figure 4CW.)*

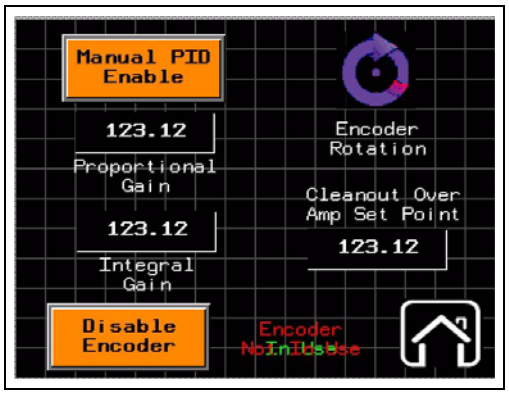


Figure 4CT

Figure 4CV

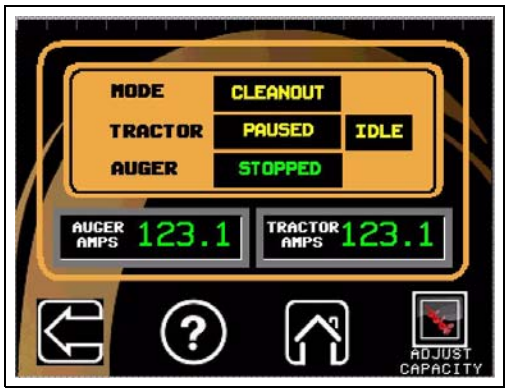


Figure 4CU

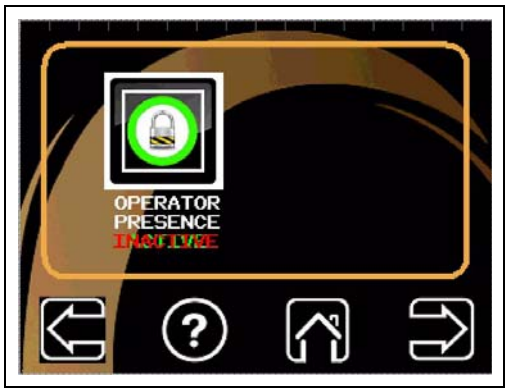


Figure 4CW

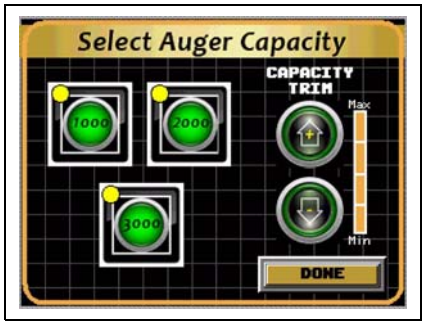


Figure 4CX

Updating the Controller Software

NOTE: *When performing updates, all current setup options will be erased and will need to be reset.*

1. Plug the USB Drive with the software updates into the USB port, located on the back of the control panel. *(See Figure 4CY.)*

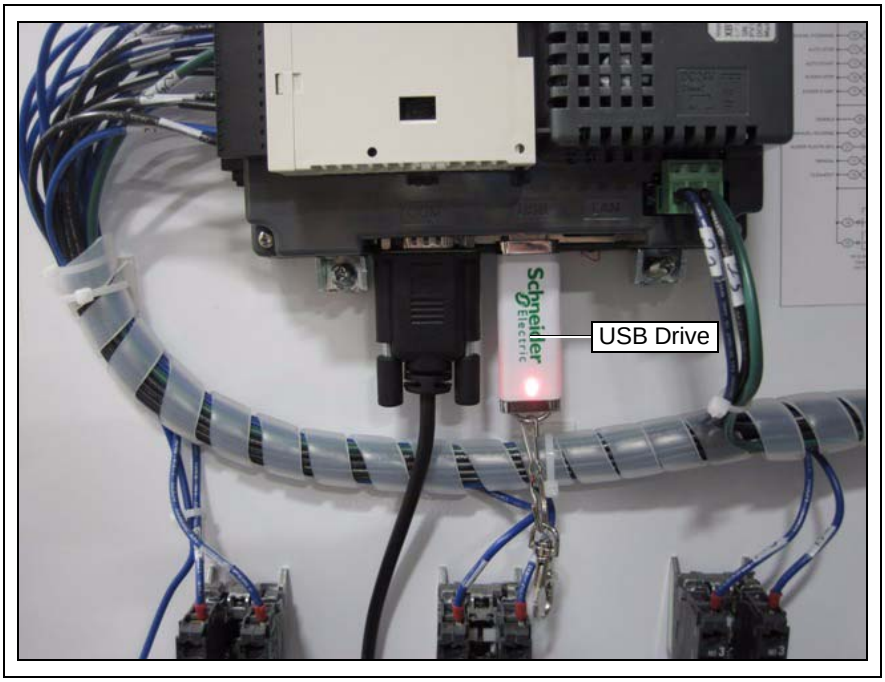


Figure 4CY

2. A prompt will display if you would like to install new project from USB drive? Select **"Yes"** to install. *(See Figure 4CZ.)*

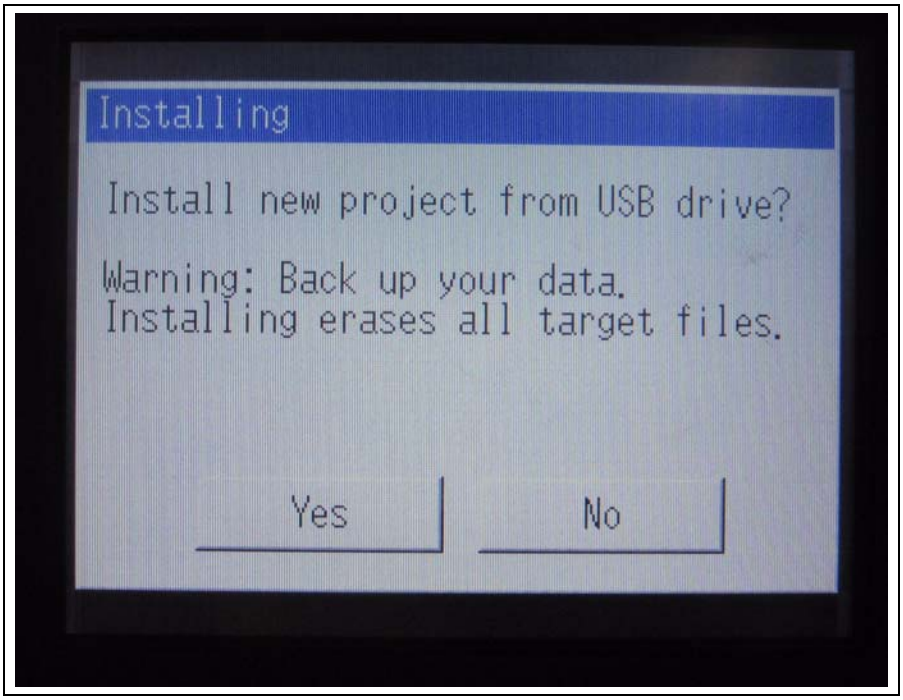


Figure 4CZ

3. When prompted, remove USB drive and press **“Restart”**. *(See Figure 4DA.)*

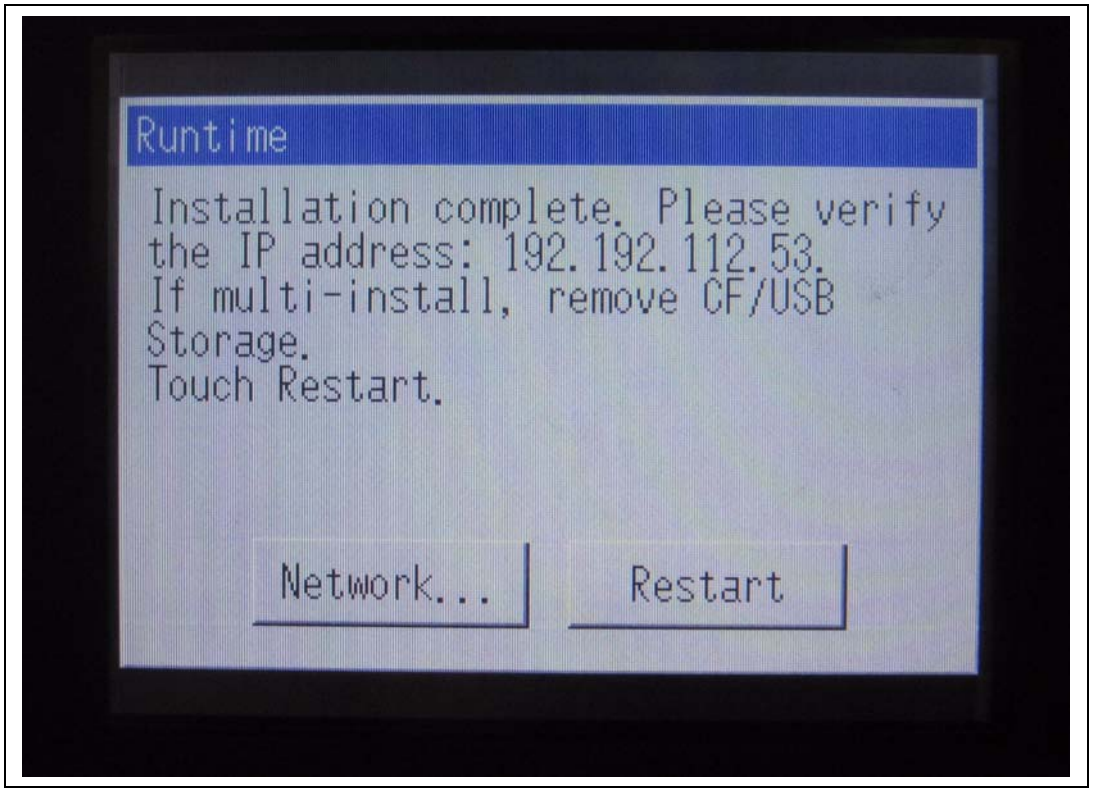
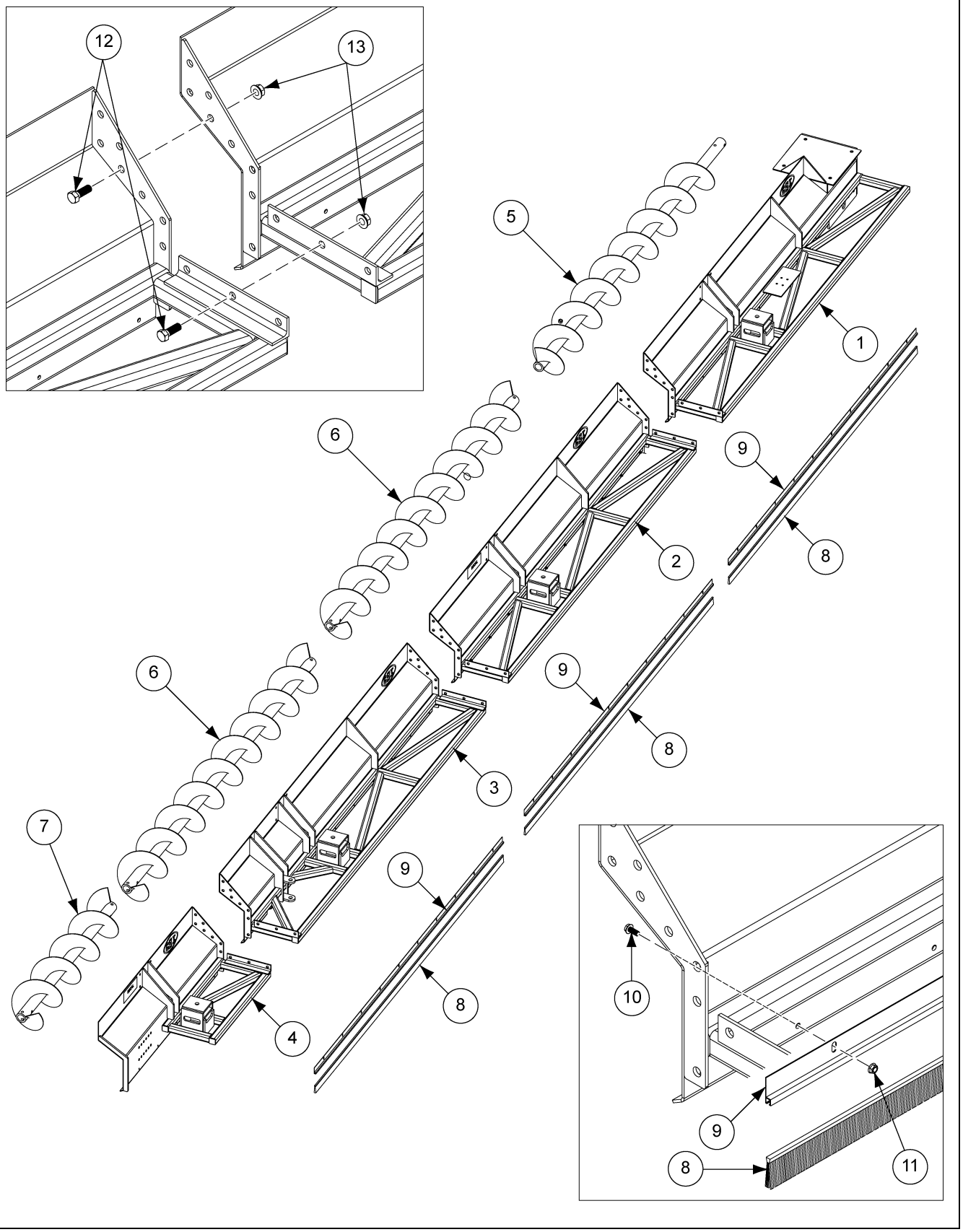


Figure 4DA

4. Perform setup to reset all parameters for the equipment.

NOTES

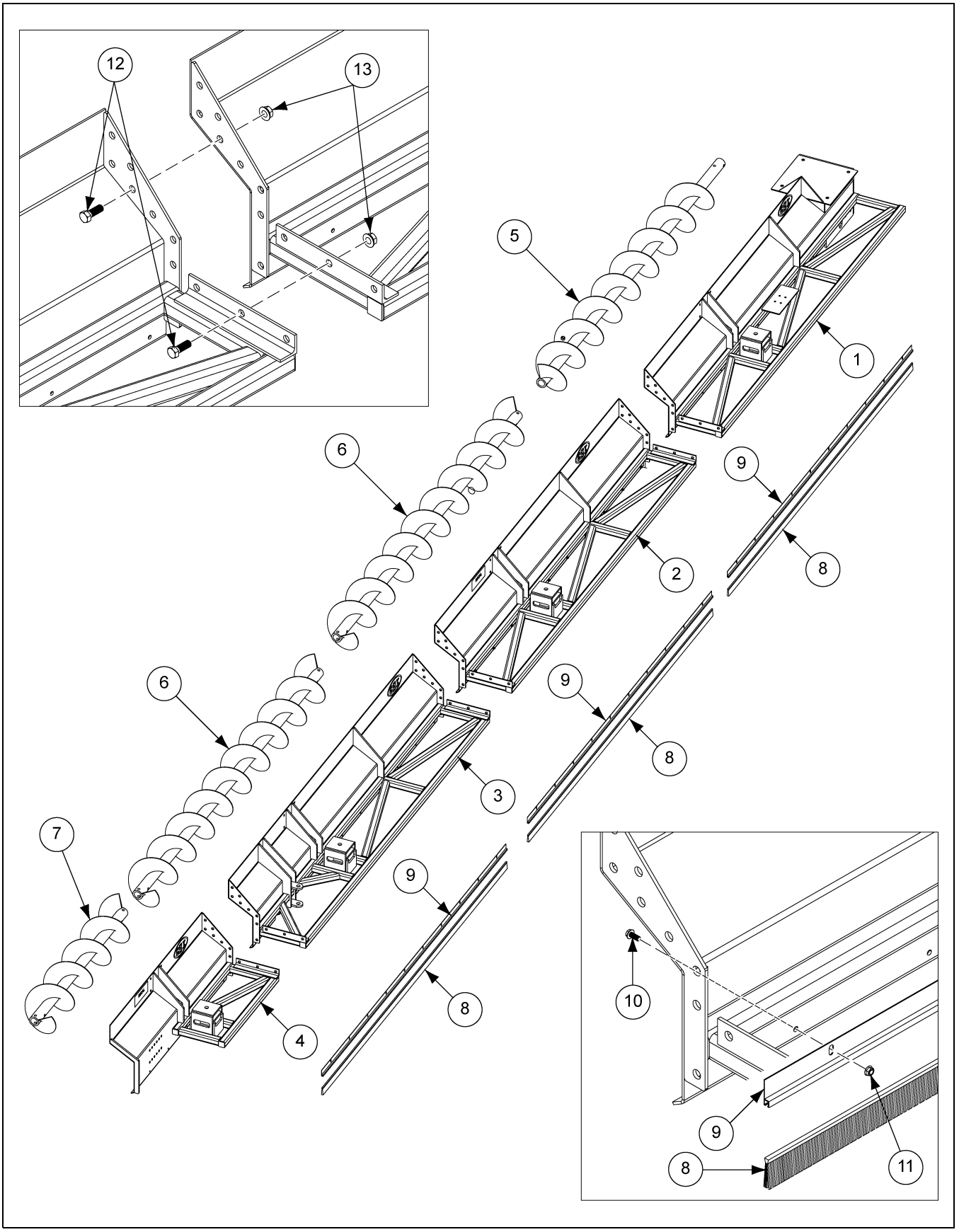
Main Auger Components



Main Auger Components Parts List

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

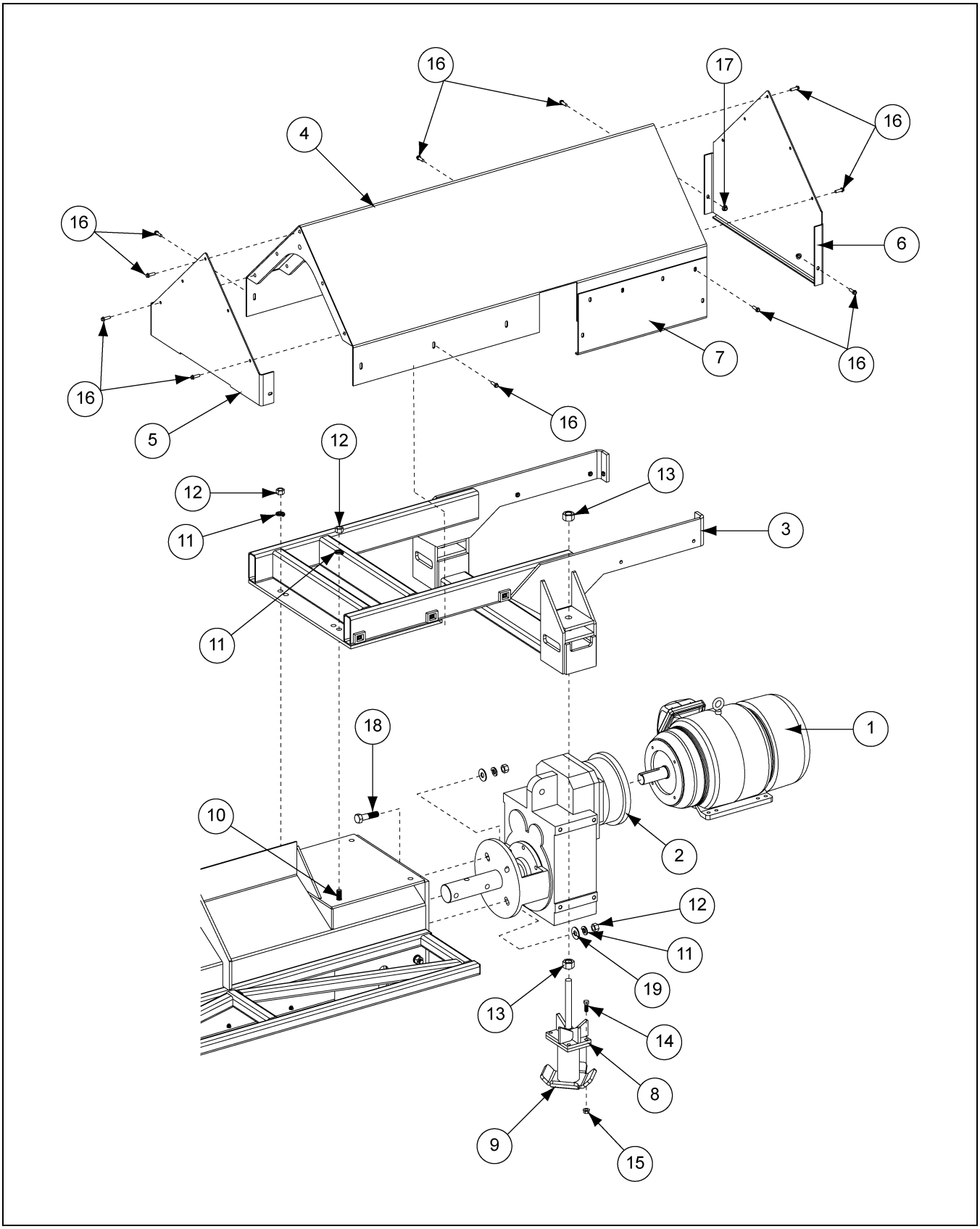


Main Auger Components Parts List (Continued)

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

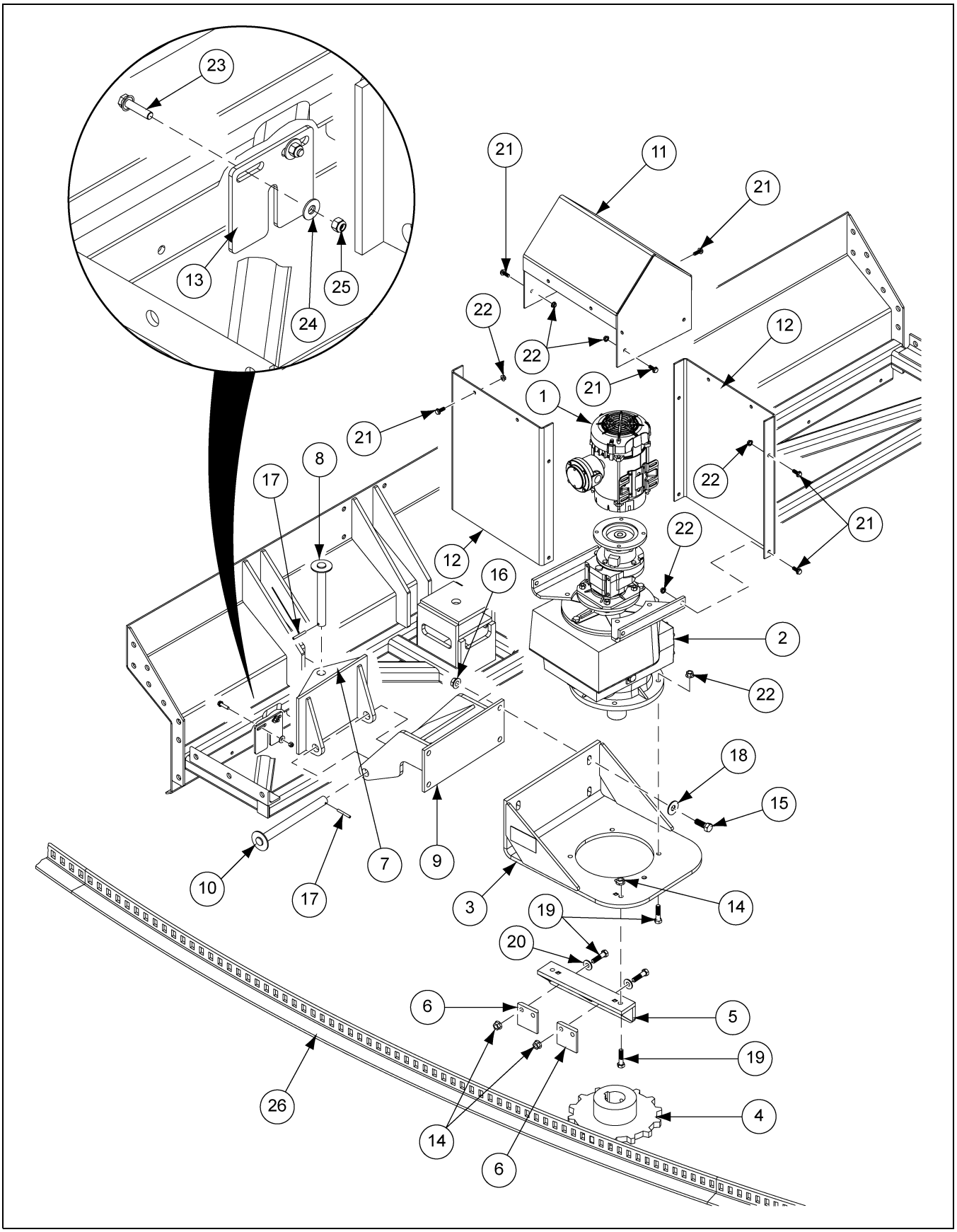
Wheel and Caster Components



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-BS	“X” Series Motor Mount Weldment - 12" - Bin Silver	1
3	PDS-675-BS	“X” Series Motor Mount Weldment - 16" - Bin Silver	1
4	PDS-666-BS	“X” Series Sweep Auger Motor Heavy Cover, 12" - Bin Silver	1
4	PDS-694-BS	“X” Series Sweep Auger 40 HP Motor Heavy Cover, 16" - Bin Silver	1
5	PDS-670-BS	“X” Series Sweep Auger Motor Front Cover - Bin Silver	1
6	PDS-671-BS	“X” Series Sweep Auger Motor Back Cover - Bin Silver	1
7	PDS-672-BS	“X” Series Sweep Auger Motor Side Cover, 12" - Bin Silver	2
7	PDS-678-BS	“X” Series Sweep Auger Motor Side Cover, 16" - Bin Silver	2
8	PDS-289-BS	“X” Series Caster Mount Bin Silver - Bin Silver	2
9	GC20247-BS	“X” Series Sweep Skid Weld - Bin Silver	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

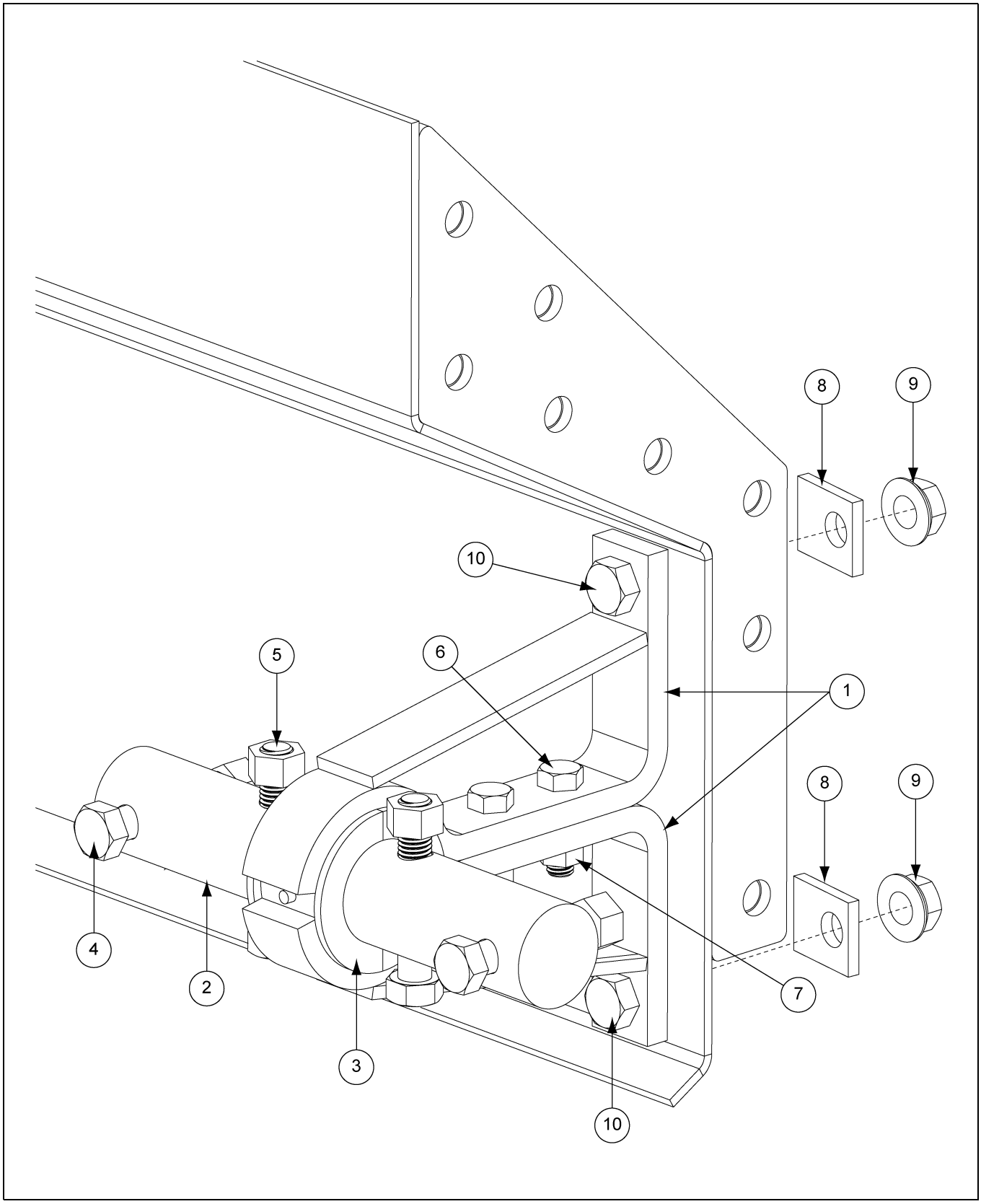


Track Drive Components Parts List

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-434G	“X” Series Sweep TD Plate Assembly	1
4	PDS-157	Position Track Sprocket	1
5	PDS-198-BS	“X” Series Drive Keeper Mount - Bin Silver	1
6	PDS-200-BS	“X” Series Drive Keeper - Bin Silver	2
7	PDS-217-BS	“X” Series Vertical/Horizontal Pivot Mount - Bin Silver	1
8	PDS-233	“X” Series Vertical Pivot Pin	1
9	PDS-611-BS	“X” Series TD Horizontal Mount Weldment - 12"/16" x 30'-45' - Bin Silver	1
9	PDS-479-BS	“X” Series TD Horizontal Mount Weldment - 12"/16" x 48'-156' - Bin Silver	1
10	PDS-235	“X” Series Horizontal Pivot Pin	1
11	PDS-245-BS	“X” Series Drive Motor Cover - Bin Silver	1
12	PDS-482G	“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

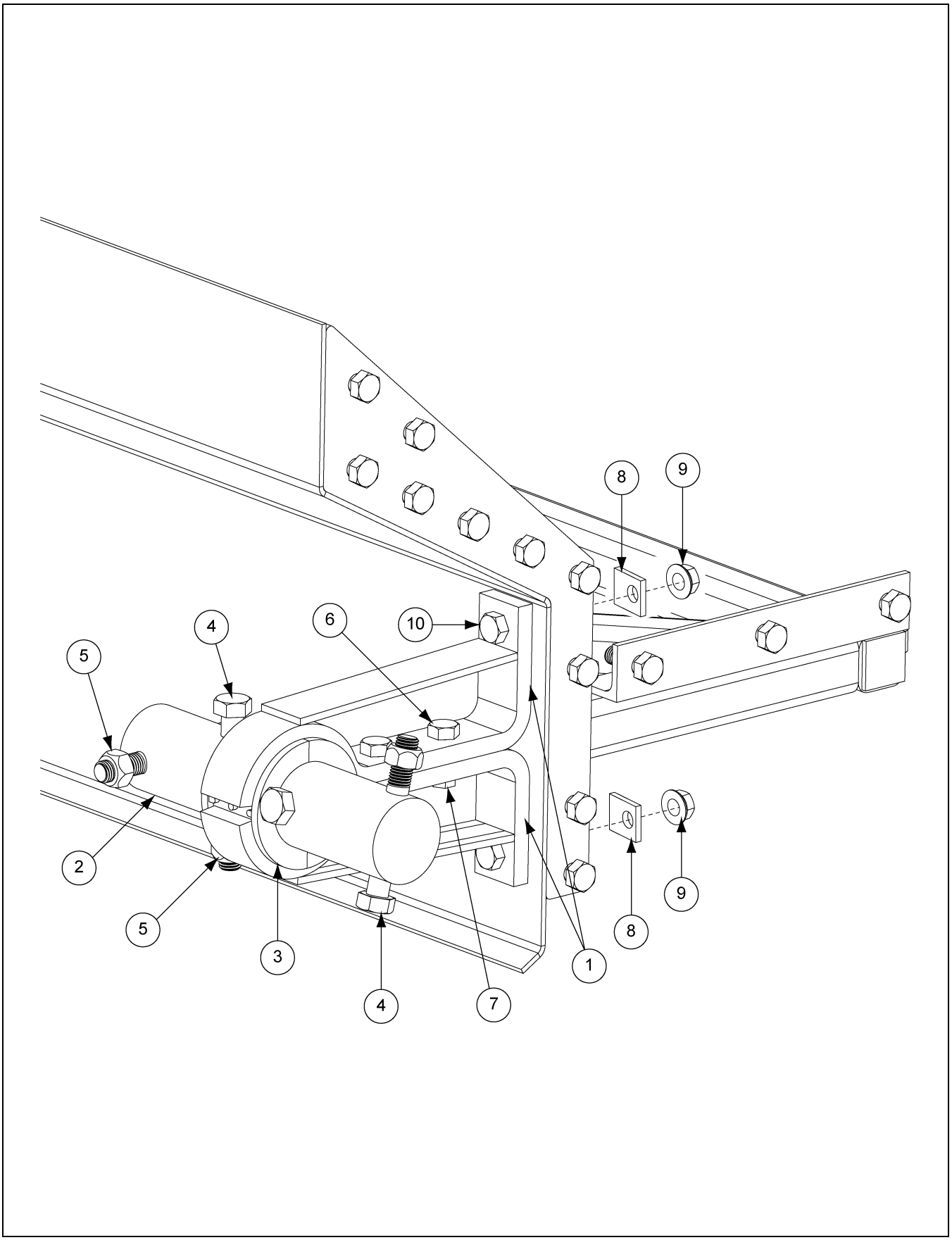
12" Flight Connection Components



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	PDS-711	Bearing, Bronze Oil IMP 2" Bore Style 220	1
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-BS	Flat Washer 11/16" ZN Rectangle - Bin Silver	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

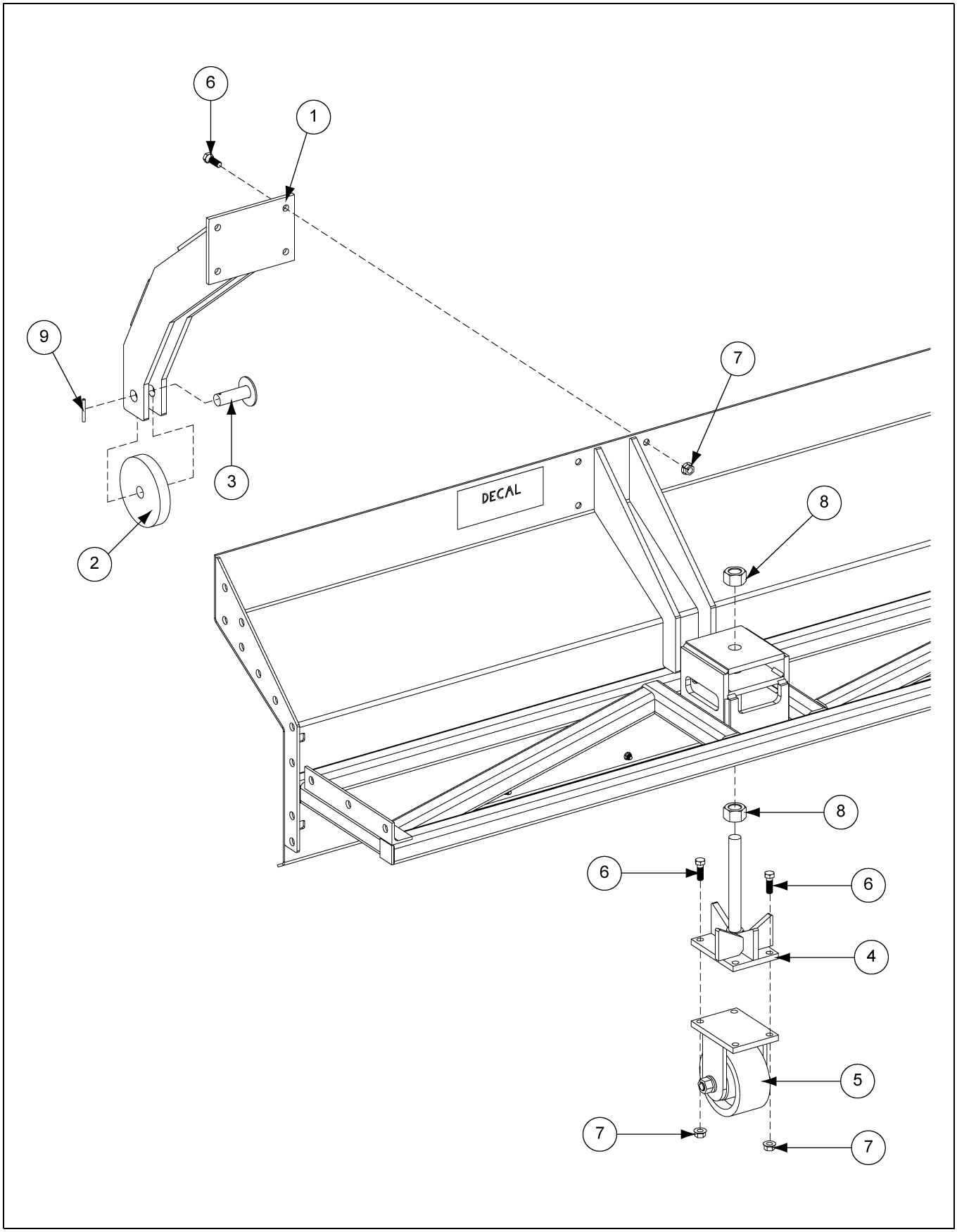
16" Flight Connection Components



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	PDS-710	Bearing, Bronze Oil IMP 3" Bore Style 220	1
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-BS	Flat Washer 11/16" ZN Rectangle - Bin Silver	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

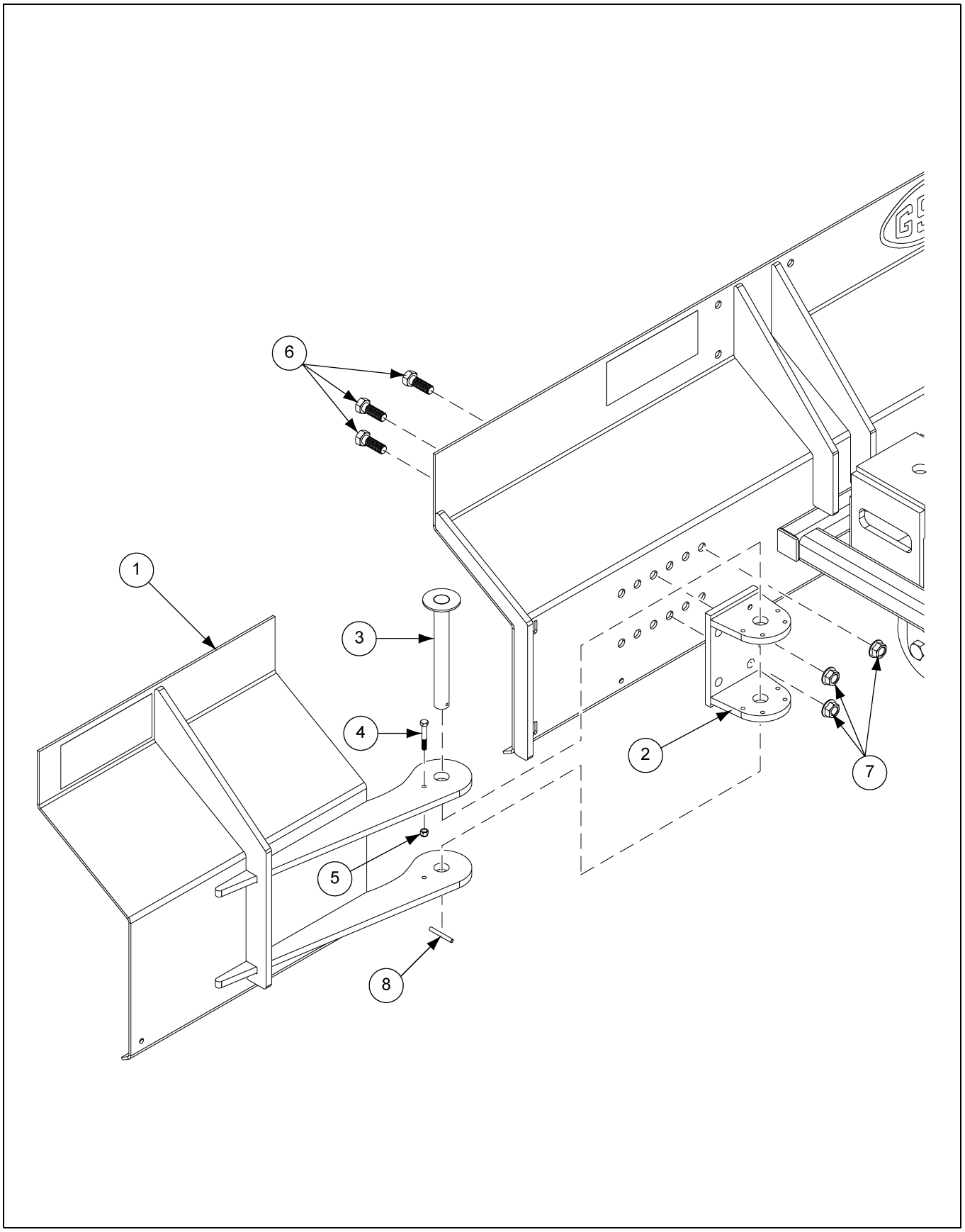
Wheel and Caster Components



Wheel and Caster Components Parts List

Ref #	Part #	Description	Qty per Assembly
1	PDS-281-BS	“X” Series Front Wheel Strut Weldment - 12" - Bin Silver	1
1	PDS-319-BS	“X” Series Front Wheel Strut Weldment - 16" - Bin Silver	1
2	PDS-054	Front Support Wheel	1
3	PDS-341	“X” Series Front Wheel Pin	1
4	PDS-289-BS	“X” Series Caster Mount - Bin Silver	1
5	PDS-661G	“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

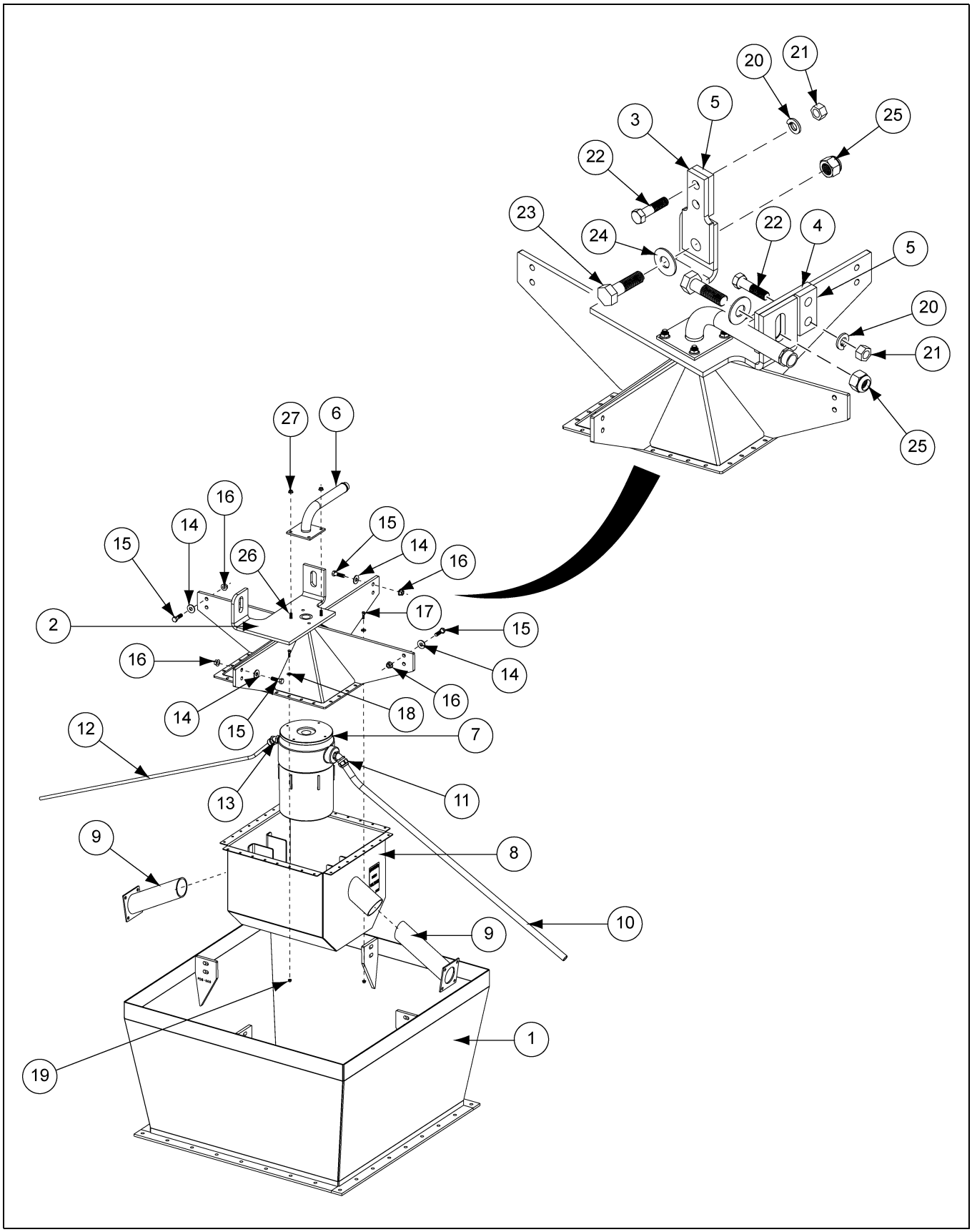
12" and 16" Plow Components



12" and 16" Plow Components Parts List

Ref #	Part #	Description	Qty per Assembly
1	PDS-449G	“X” Series Sweep Plow Assembly - 12"	1
1	PDS-450G	“X” Series Sweep Plow Assembly - 16"	1
2	PDS-356-BS	“X” Series Sweep Plow Mount - Bin Silver	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

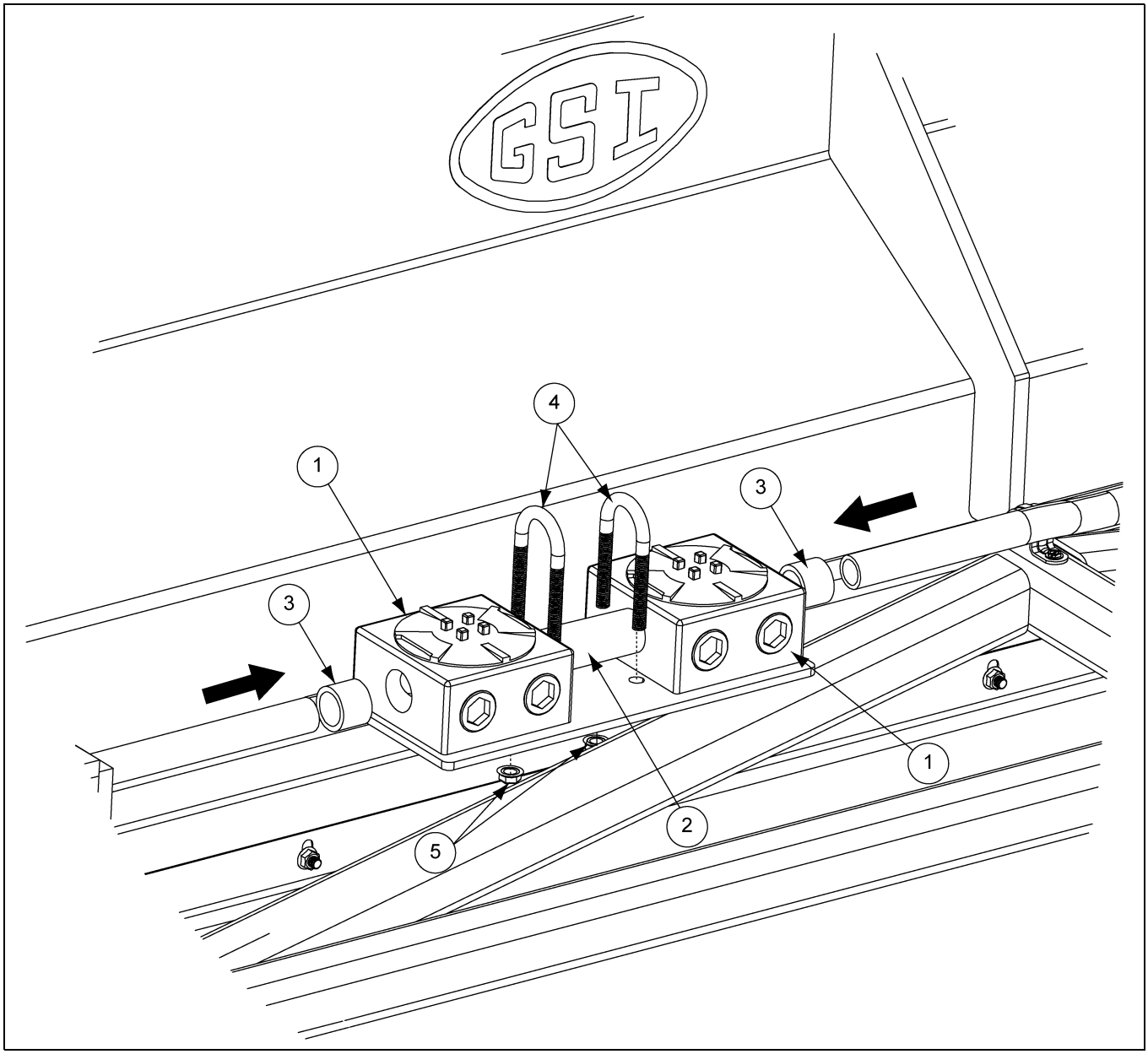


Center Pivot and Collector Ring Components Parts List

Ref #	Part #	Description	Qty per Assembly
1	PDS-578-BS	“X” Series Sump Weldment Assembly 50K - Bin Silver	1
2	PDS-580G	“X” Series Sweep Cross Brace - 12" 50K	1
2	PDS-632G	“X” Series Sweep Cross Brace - 16" 50K	1
3	PDS-359-BS	“X” Series Sweep Head Pivot Plate - Bin Silver	1
4	PDS-078-BS	Plate - Pivot Slot - Bin Silver	1
5	PDS-079-BS	Plate - Slot Spacer - Bin Silver	2
6	PDS-077-BS	Pivot Plate Tube - Bin Silver	1
7	PDS-472	Ring, Slip, XPFC, 9 Ring, with Encoder	1
8	PDS-589G	“X” Series Sweep - Collector Ring Shield 50K	1
9	PDS-596-BS	Lower Conduit Tube Weldment Assembly 50K - Bin Silver	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

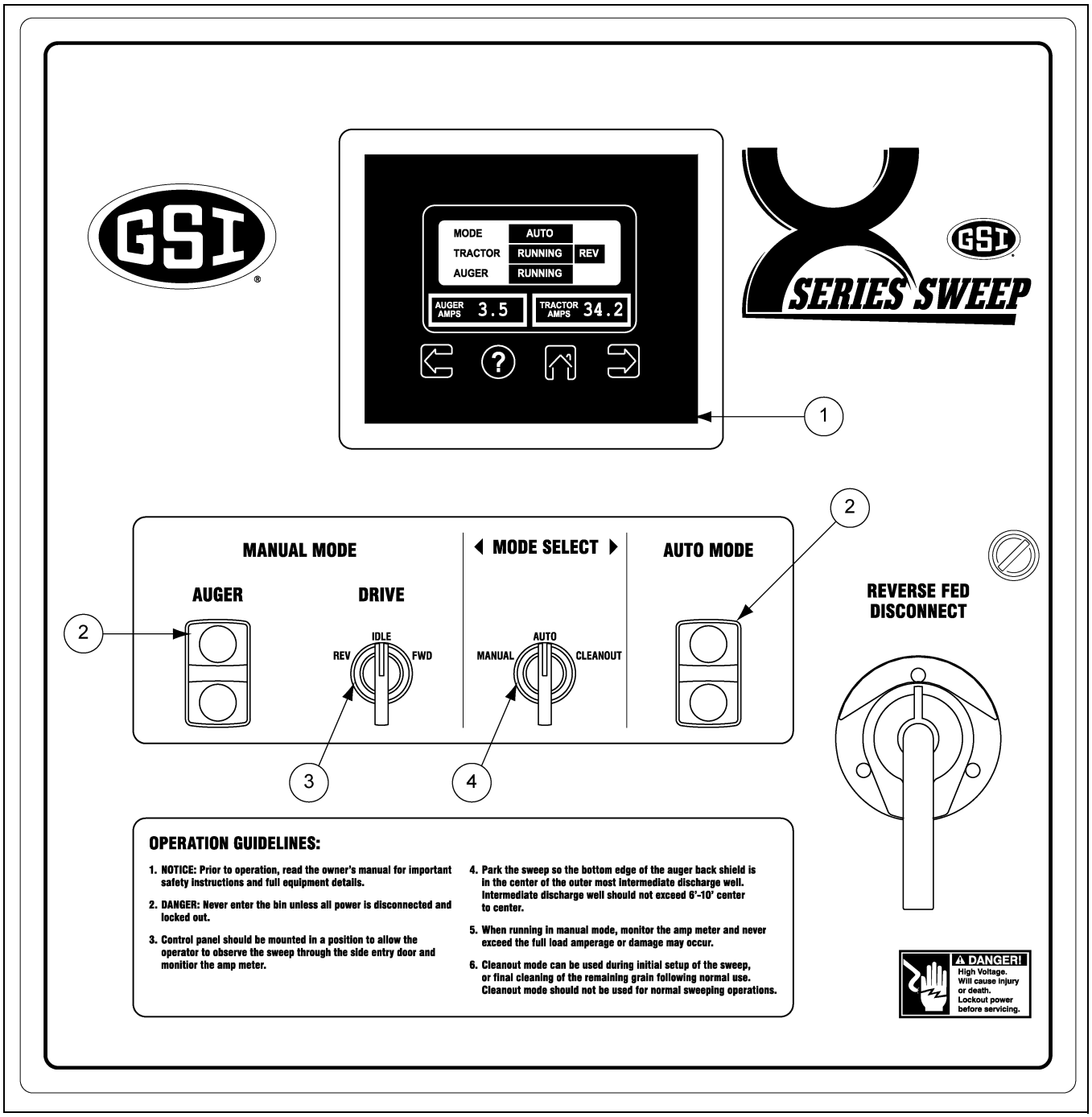
Junction Box Components



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

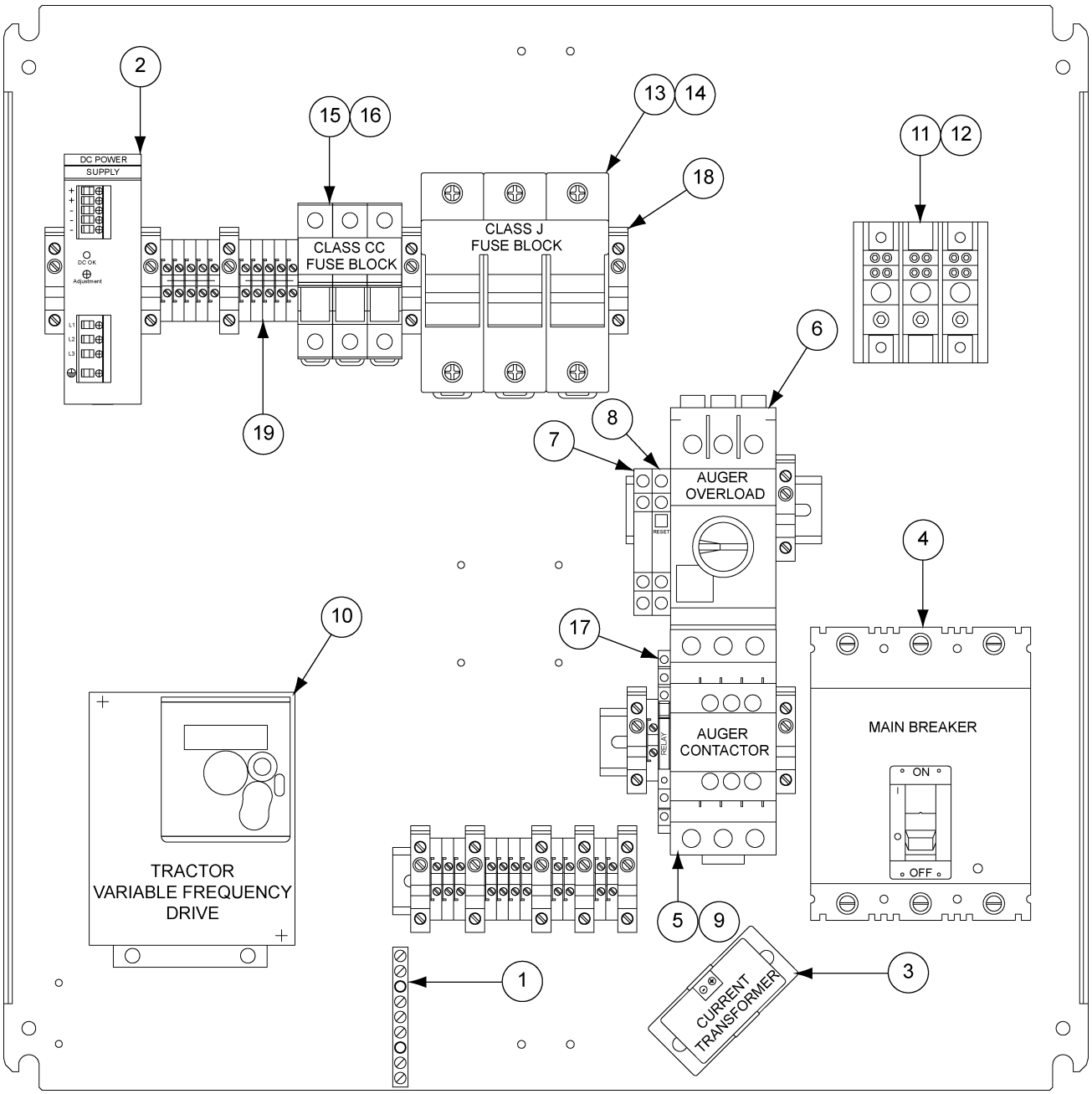
Control Panel Components



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

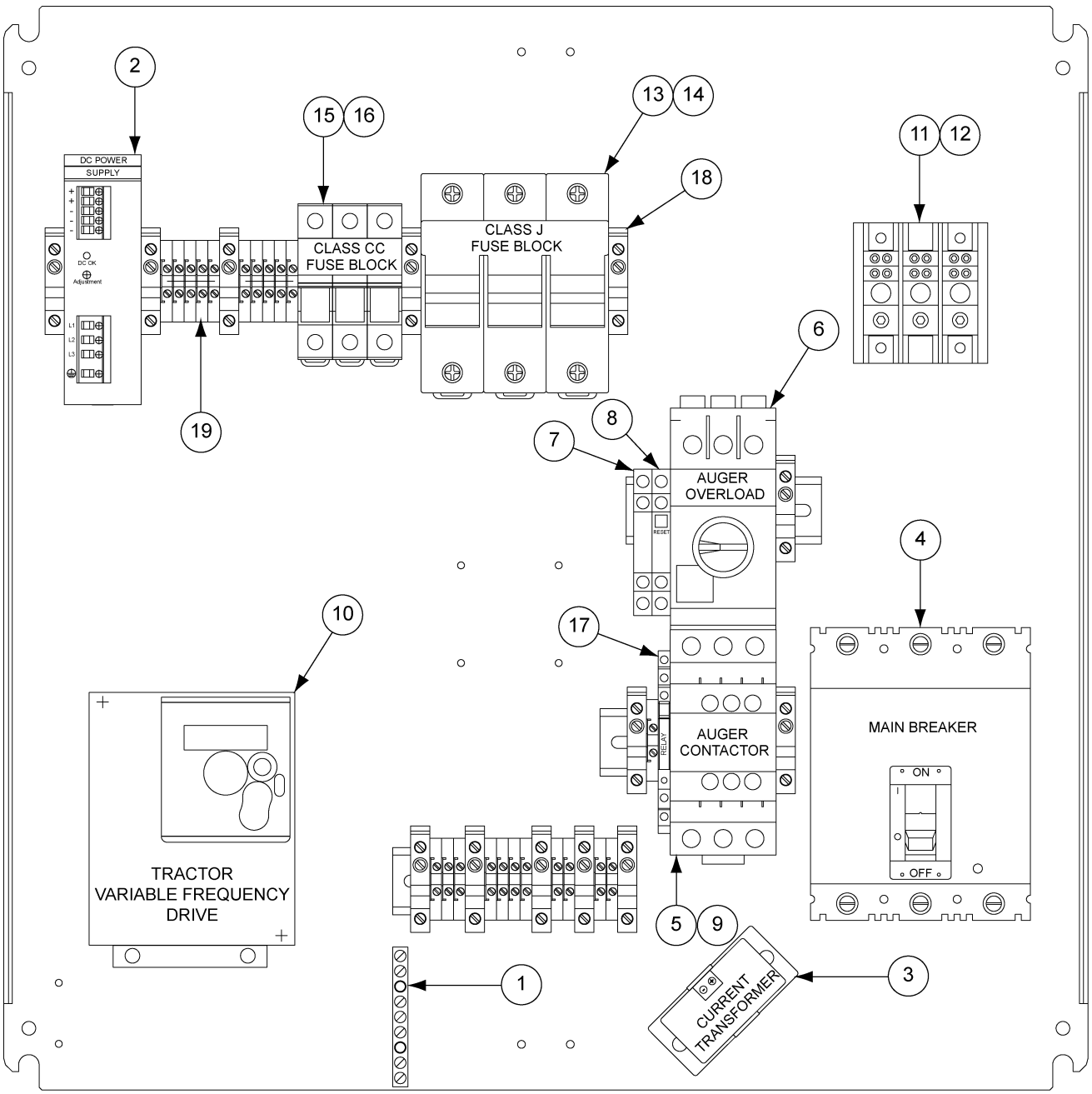
Control Panel Assembly - 380V 3 Phase



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

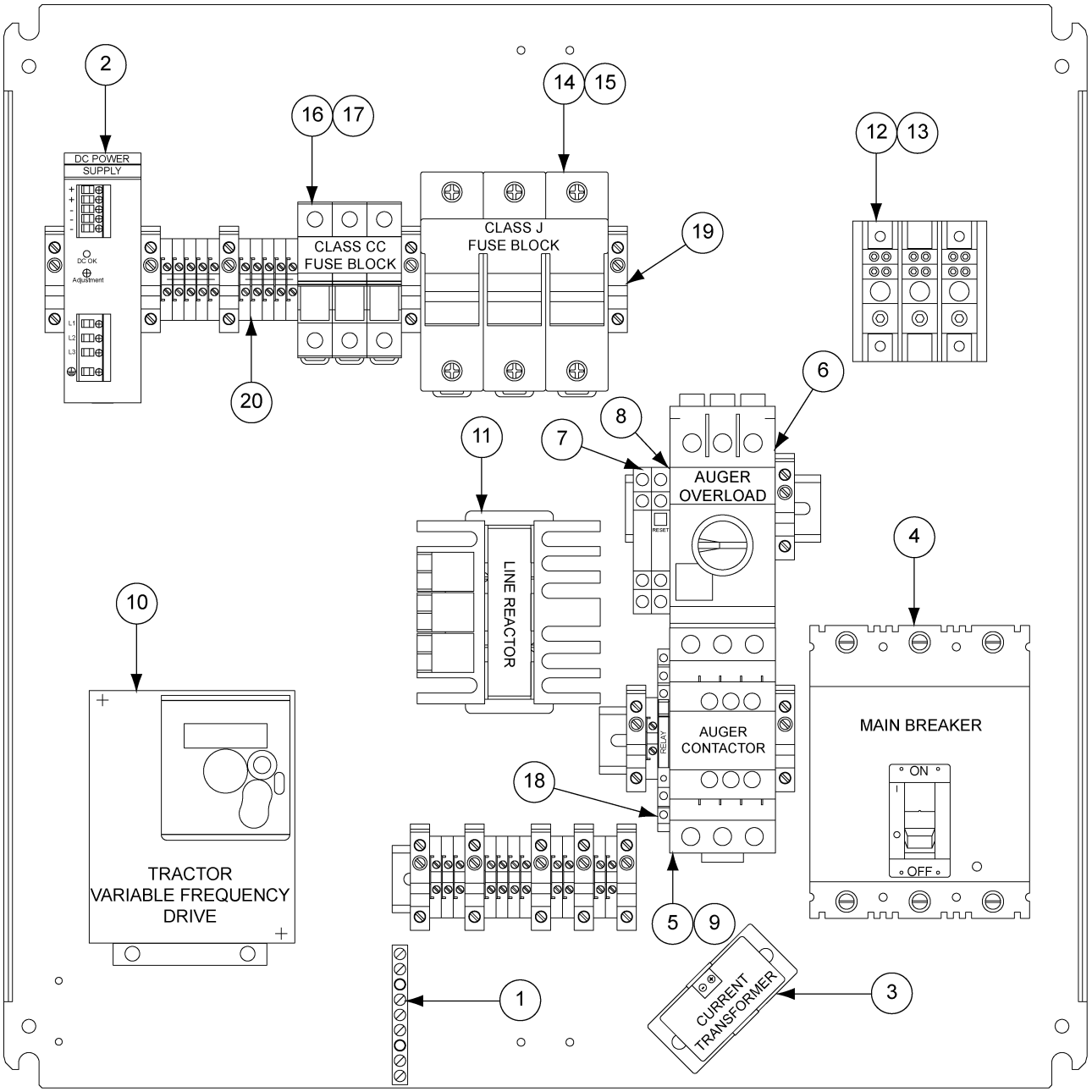
Control Panel Assembly - 480V 3 Phase



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

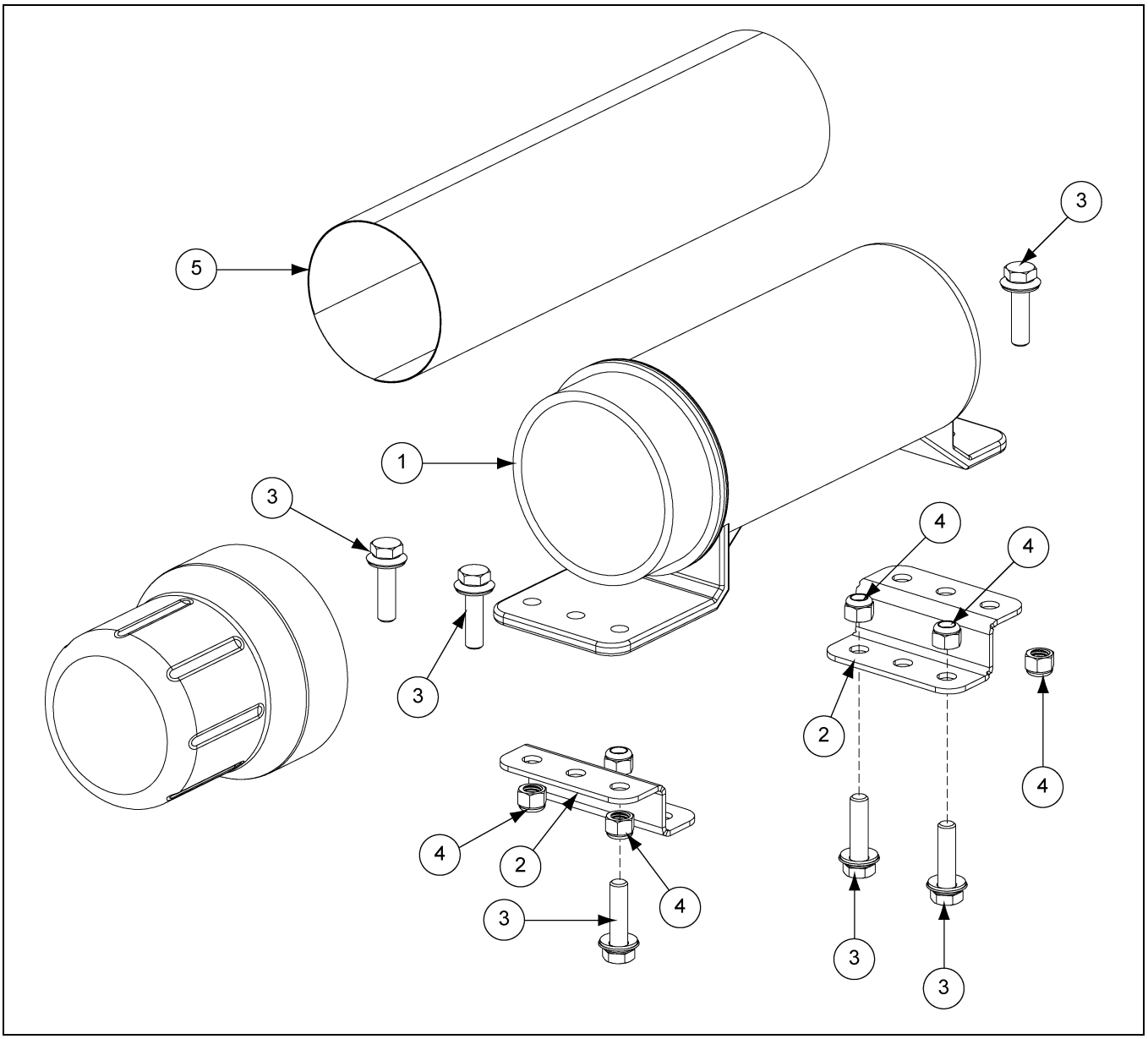
Control Panel Assembly - 600V 3 Phase



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

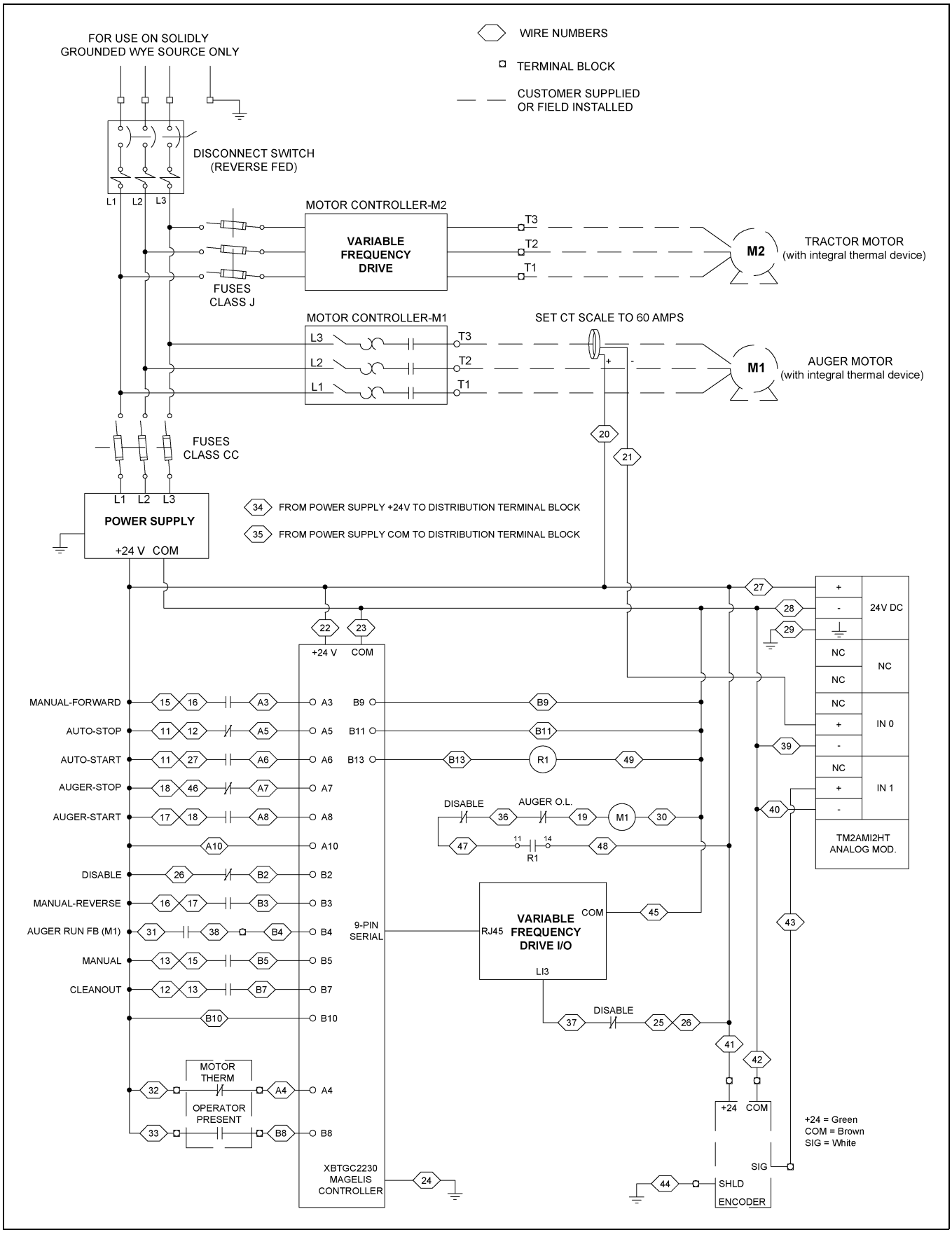
Components



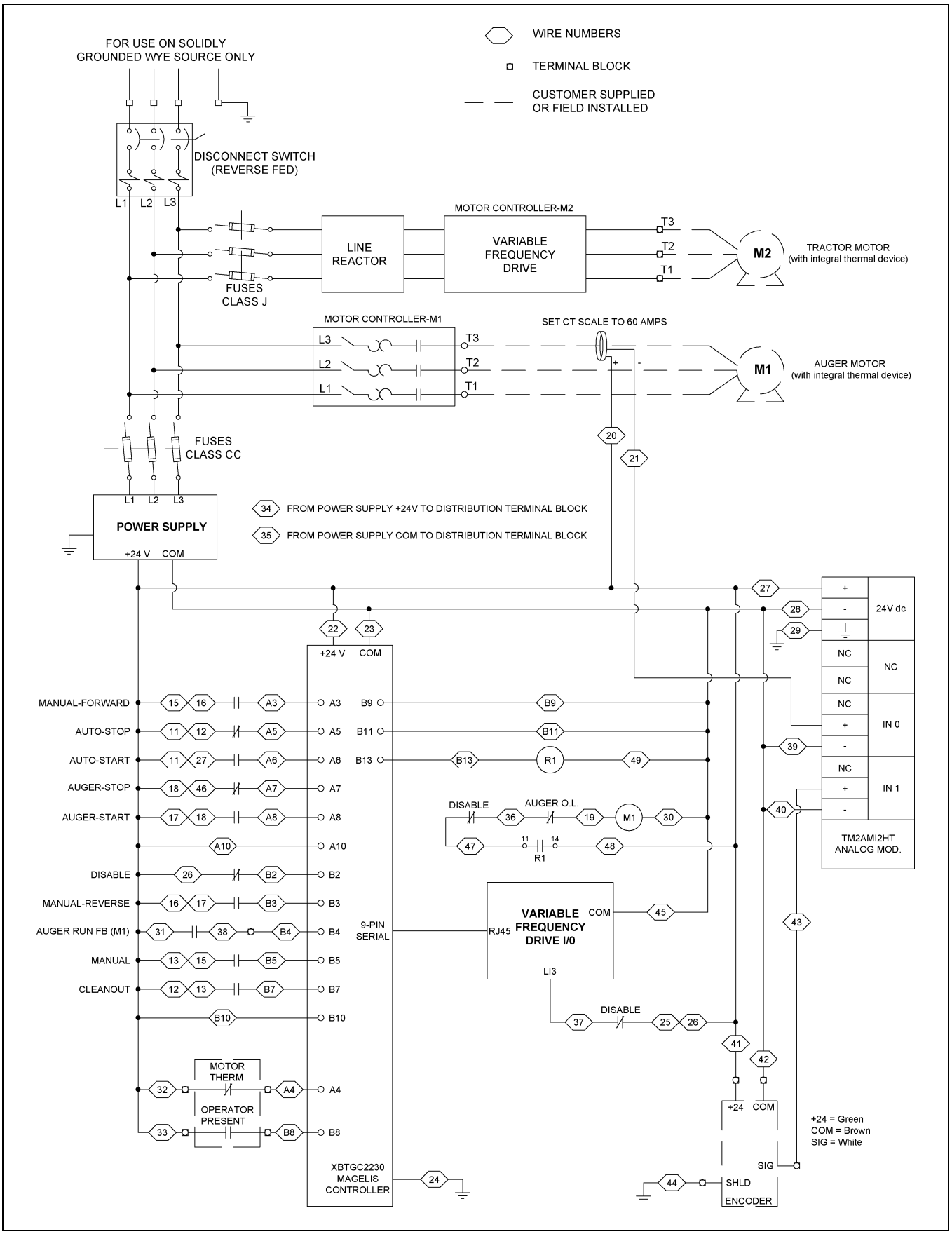
Components Parts List

Ref #	Part #	Description	Qty
N/S	GK80047	Quick Start Guide Complete Assembly	N/A
1	GK80046	Manual Canister Assembly	1
2	GK80045-BS	Canister Bracket - Bin Silver	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

Control Panel Schematic 380V and 480V



Control Panel Schematic 600V



GSI Group, LLC Limited Warranty

The GSI Group, LLC (“GSI”) warrants products which it manufactures to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months after sale to the original end-user or if a foreign sale, 14 months from arrival at port of discharge, whichever is earlier. The end-user’s sole remedy (and GSI’s only obligation) is to repair or replace, at GSI’s option and expense, products that in GSI’s judgment, contain a material defect in materials or workmanship. Expenses incurred by or on behalf of the end-user without prior written authorization from the GSI Warranty Group shall be the sole responsibility of the end-user.

Warranty Extensions:

The Limited Warranty period is extended for the following products:

	Product	Warranty Period
AP Fans and Flooring	Performer Series Direct Drive Fan Motor	3 Years
	All Fiberglass Housings	Lifetime
	All Fiberglass Propellers	Lifetime
AP and Cumberland	Flex-Flo/Pan Feeding System Motors	2 Years
Cumberland Feeding/Watering Systems	Feeder System Pan Assemblies	5 Years **
	Feed Tubes (1-3/4" and 2.00")	10 Years *
	Centerless Augers	10 Years *
	Watering Nipples	10 Years *
Grain Systems	Grain Bin Structural Design	5 Years
Grain Systems Farm Fans Zimmerman	Portable and Tower Dryers	2 Years
	Portable and Tower Dryer Frames and Internal Infrastructure †	5 Years

* Warranty prorated from list price:
0 to 3 years - no cost to end-user
3 to 5 years - end-user pays 25%
5 to 7 years - end-user pays 50%
7 to 10 years - end-user pays 75%

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

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

GSI further warrants that the portable and tower dryer frame and basket, excluding all auger and auger drive components, shall be free from defects in materials for a period of time beginning on the twelfth (12^{th}) month from the date of purchase and continuing until the sixtieth (60^{th}) month from the date of purchase (extended warranty period). During the extended warranty period, GSI will replace the frame or basket components that prove to be defective under normal conditions of use without charge, excluding the labor, transportation, and/or shipping costs incurred in the performance of this extended warranty.

Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH ABOVE. SPECIFICALLY, GSI MAKES NO FURTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (I) PRODUCT MANUFACTURED OR SOLD BY GSI OR (II) ANY ADVICE, INSTRUCTION, RECOMMENDATION OR SUGGESTION PROVIDED BY AN AGENT, REPRESENTATIVE OR EMPLOYEE OF GSI REGARDING OR RELATED TO THE CONFIGURATION, INSTALLATION, LAYOUT, SUITABILITY FOR A PARTICULAR PURPOSE, OR DESIGN OF SUCH PRODUCTS.

GSI shall not be liable for any direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. The sole and exclusive remedy is set forth in the Limited Warranty, which shall not exceed the amount paid for the product purchased. This warranty is not transferable and applies only to the original end-user. GSI shall have no obligation or responsibility for any representations or warranties made by or on behalf of any dealer, agent or distributor.

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

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