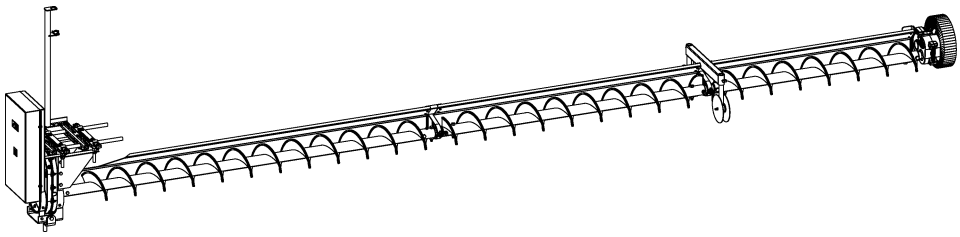

10"-12" Commercial Bin Sweep Augers

Assembly and Operation Manual

PNEG-1049

Date: 12-07-12

GSI GROUP

GSI®

PNEG-1049

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

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General Information

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

Receiving Merchandise and Filing Claims

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

WARNING

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

NOTE: *The only way to prevent damage to the bin sweep, bin floor and wells is to completely remove the bin sweep from the bin.*

Safety Guidelines

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

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

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

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

CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

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

Safety Instructions

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

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

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

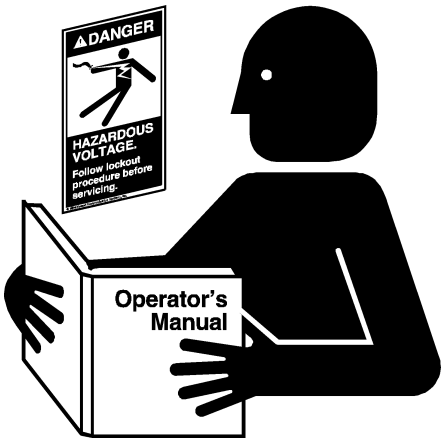
Follow Safety Instructions

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

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

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

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



Read and Understand Manual

Keep Hands Away from Moving Parts

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

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

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

Keep all shields and covers in place during operation.

Rotating Auger

Operate Motor Properly

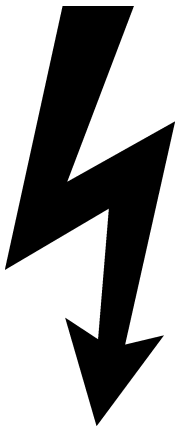
In an emergency, shut down the power source.

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

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

Disconnect power on electrical driven units before resetting motor overloads.

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



Electric Shock Hazard

Practice Safe Maintenance

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

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

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

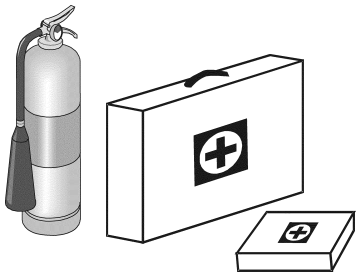
Maintain Equipment and Work Area

Prepare for Emergencies

Be prepared if fire starts.

Keep a first aid kit and fire extinguisher handy.

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



Keep Emergency Equipment Quickly Accessible

Wear Protective Clothing

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

Remove all jewelry.

Tie long hair up and back.

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

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

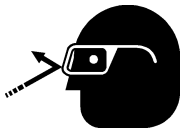
Wear steel-toed boots to help protect your feet from falling debris. Tuck in any loose or dangling shoestrings.

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

Wear a hard hat to help protect your head.

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

Eye Protection



Gloves

Steel-Toed Boots

Respirator

Hard Hat

Fall Protection

Operate Unload Equipment Properly

Operate Unload Equipment Safely

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

Operator Qualifications

A. The User/Operator must be competent and experienced to operate auger equipment. Anyone who works with or around augers must have good common sense in order to be qualified. These persons must also know and meet all other qualifications, such as:

i. Any person who has not read and/or does not understand all operation and safety procedures is not qualified to operate any auger systems.

ii. Certain regulations apply to personnel operating power machinery. Personnel under the age of 18 years may not operate power machinery, including augers. It is your responsibility, as owner and/or supervisor, to know what these regulations are in your area or situation.

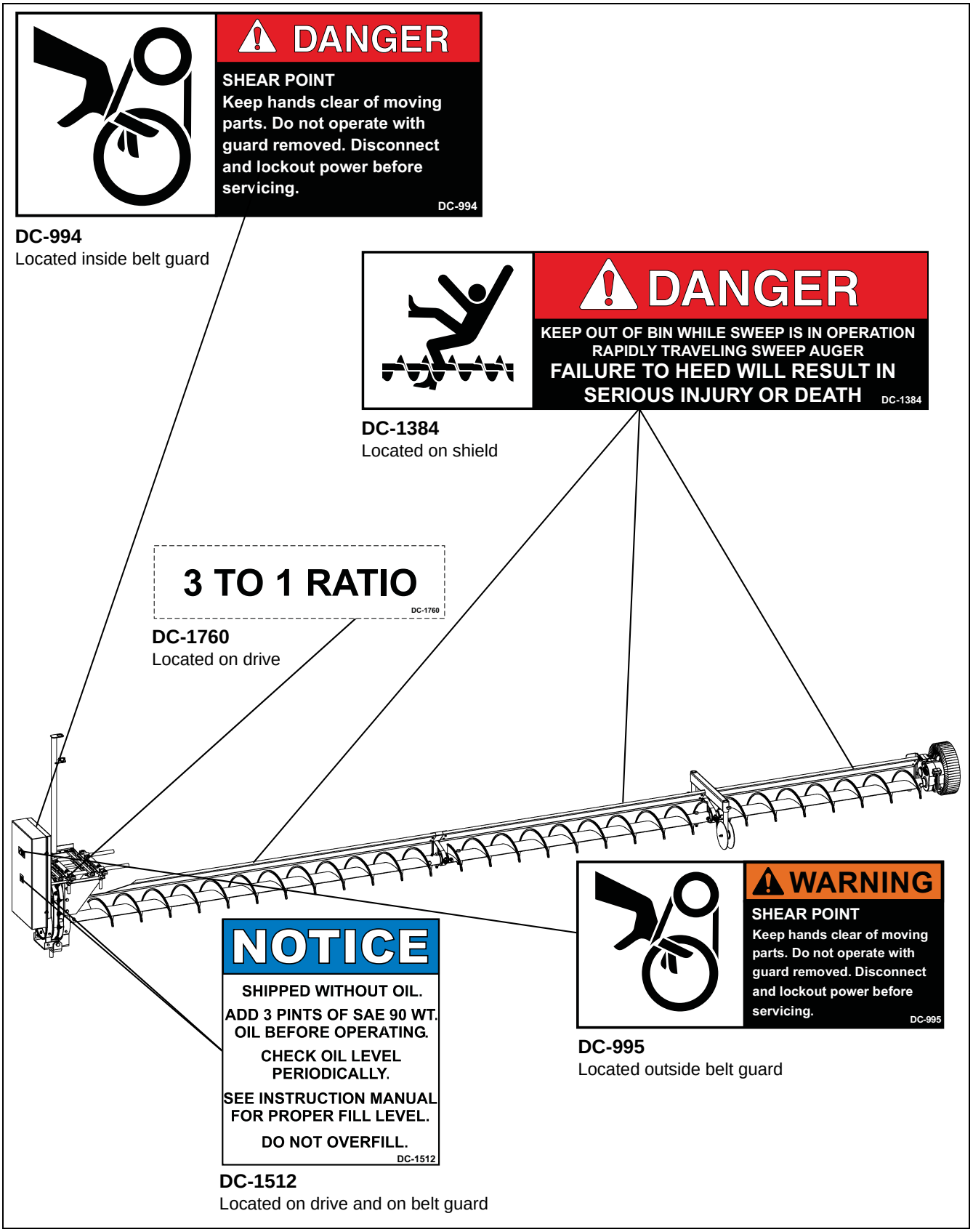
iii. Unqualified or incompetent persons are to remain out of the work area.

iv. O.S.H.A. (Occupational Safety and Health Administration) regulations state: “At the time of initial assignment and at least annually thereafter, the employer shall instruct every employee in the safe operation and servicing of all equipment with which the employee is, or will be involved”. (Federal Occupational Safety and Health Standards for Agriculture. Subpart D, Section 1928.57 (a) (6)).

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

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

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



DC-994
Located inside belt guard

DC-1384
Located on shield

DC-1760
Located on drive

DC-1512
Located on drive and on belt guard

DC-995
Located outside belt guard

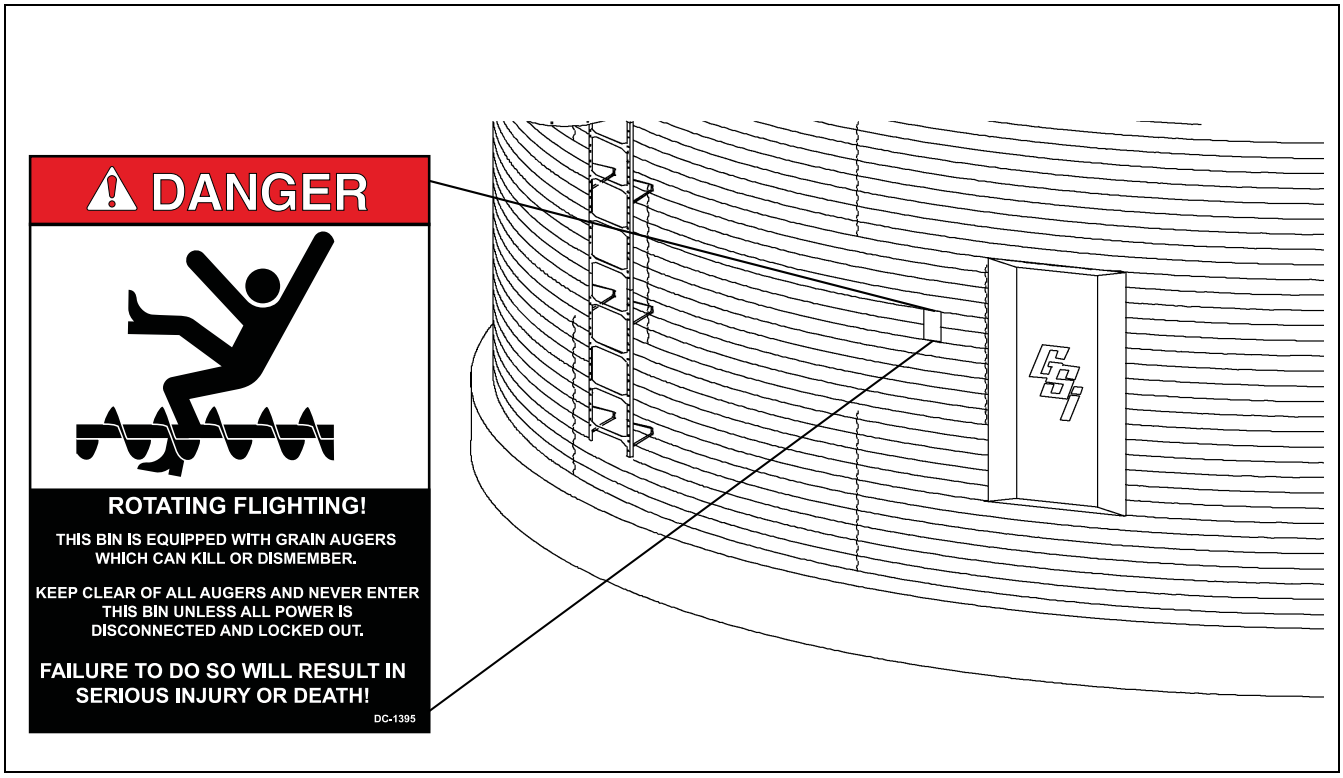
3. Safety Decals

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

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.*



NOTE: *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.*

Order SAFETY SIGN NO. DC-1395

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

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

1. Attach the pivot yoke to the drive assembly with two (2) 5/8" x 2" grade 8 hex bolts and nylock nuts. *(See Figure 4A.)*

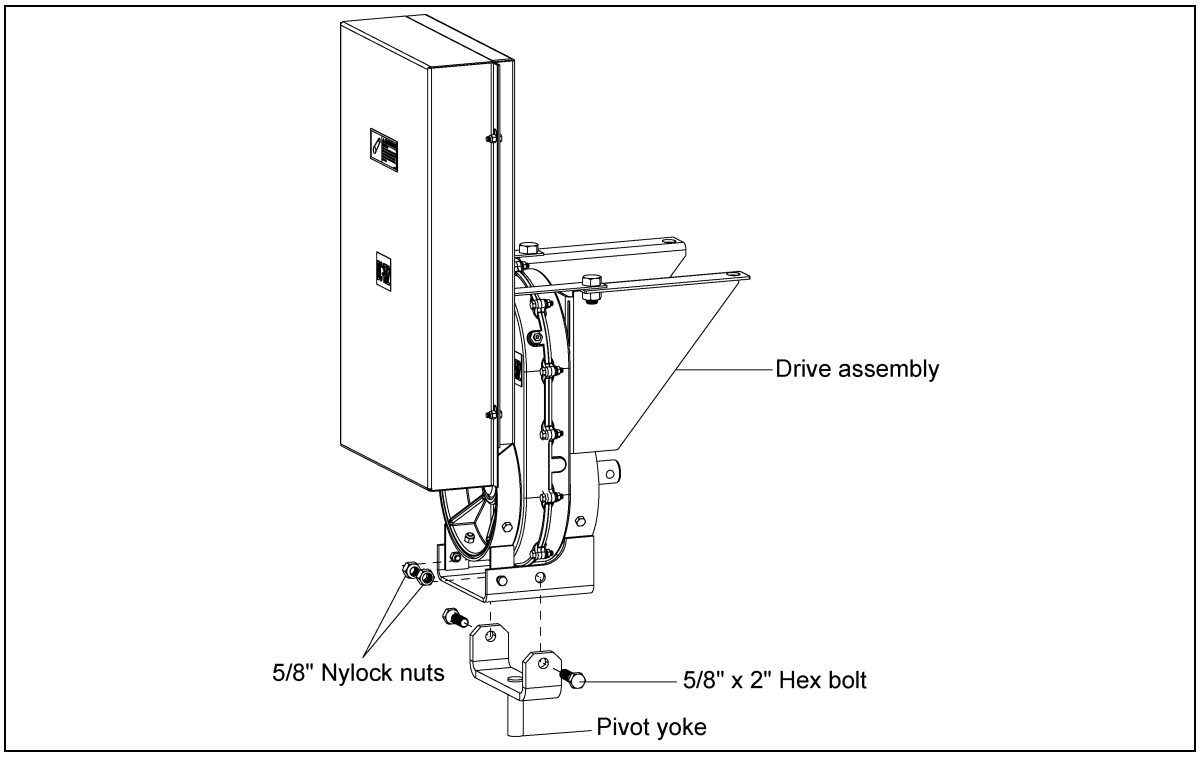


Figure 4A *Pivot to Drive Assembly*

2. Remove the two (2) 3/4" x 1-1/4" grade 8 hex bolts and nuts that attach the belt guard mounting strap to the motor mount frame assembly. These nuts will be reused in the *Step 3 on Page 15*. *(See Figure 4B.)*

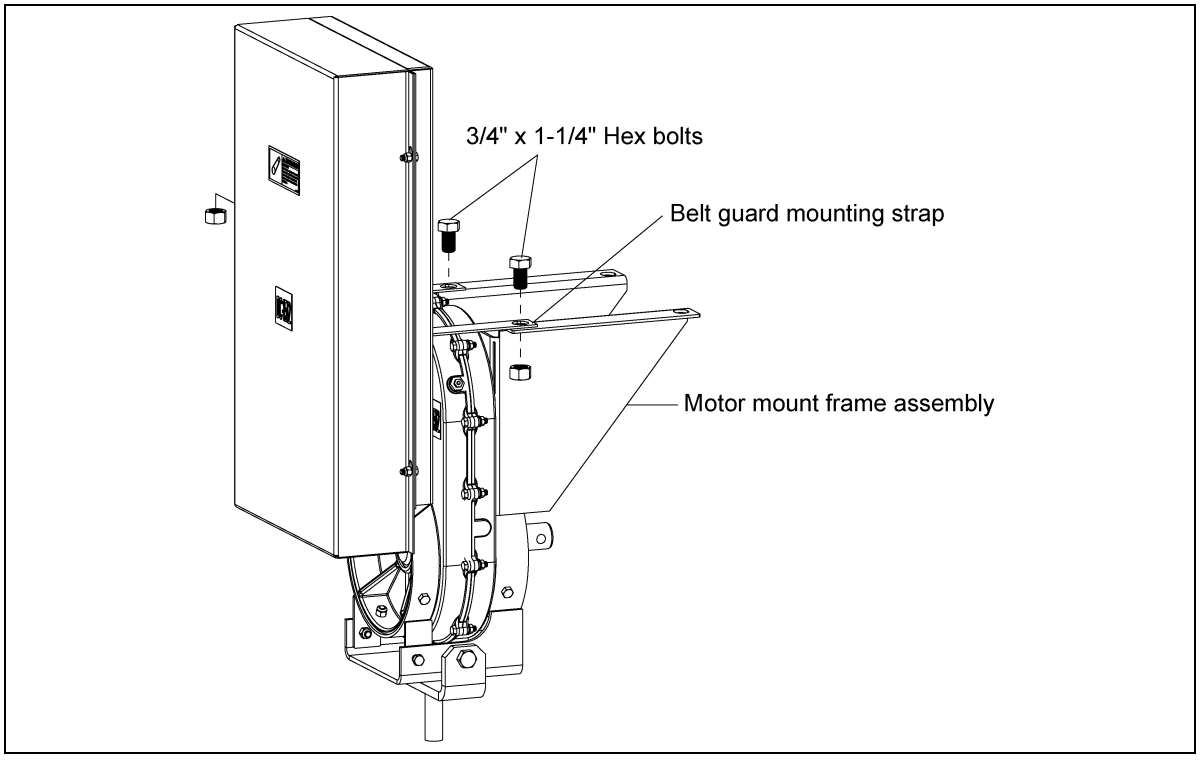


Figure 4B *Remove Hardware*

3. Thread one 3/4" hex nut onto each post of the bottom motor straps. Next, place the front bottom motor strap through the belt guard mounting strap and the front hole of the motor mount frame assembly. Place the back bottom motor strap thought the back hole of the motor mount frame assembly. Retain the straps by threading one 3/4" hex nut onto each post. DO NOT TIGHTEN the nuts at this time. They will need adjustment when the motor is installed. *(See Figure 4C.)*

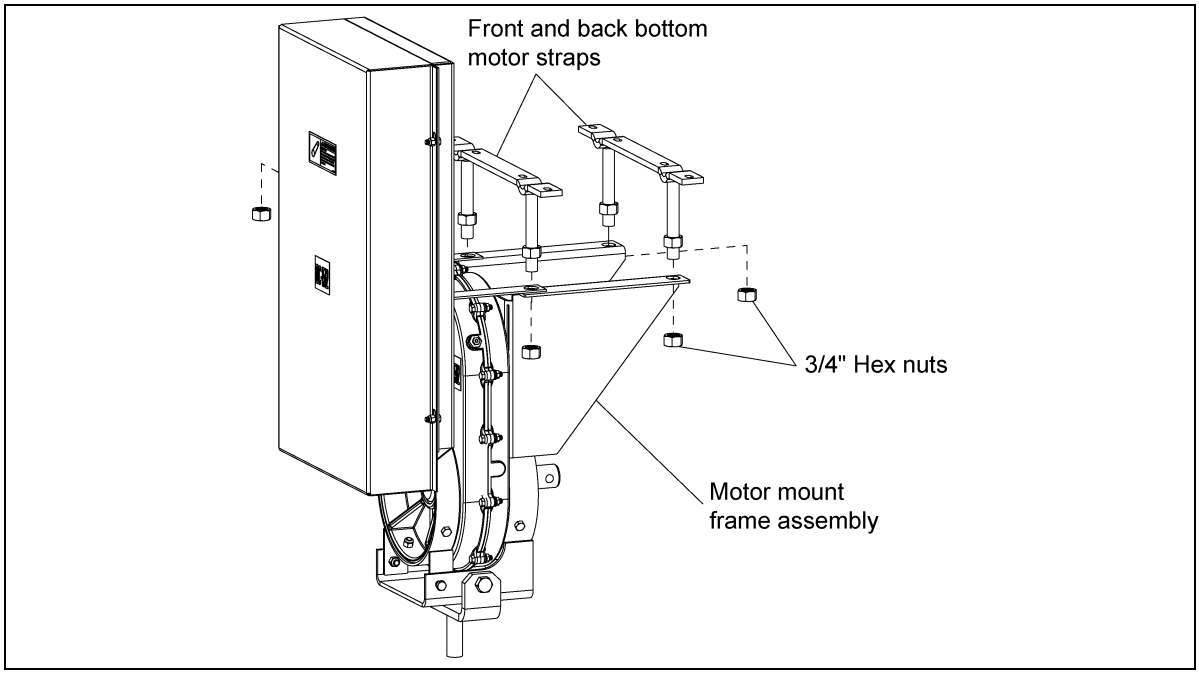


Figure 4C *Attach Bottom Motor Mount Strap*

4. Place the motor rods into the indentations on the bottom motor straps. Secure the motor rods in place by bolting the top motor straps to the bottom motor straps using eight (8) 3/8" x 1-1/2" grade 8 hex bolts, sixteen (16) flat washers and eight (8) nylock nuts. DO NOT TIGHTEN the nuts at this time. They will need adjustment when the motor is installed. *(See Figure 4D.)*

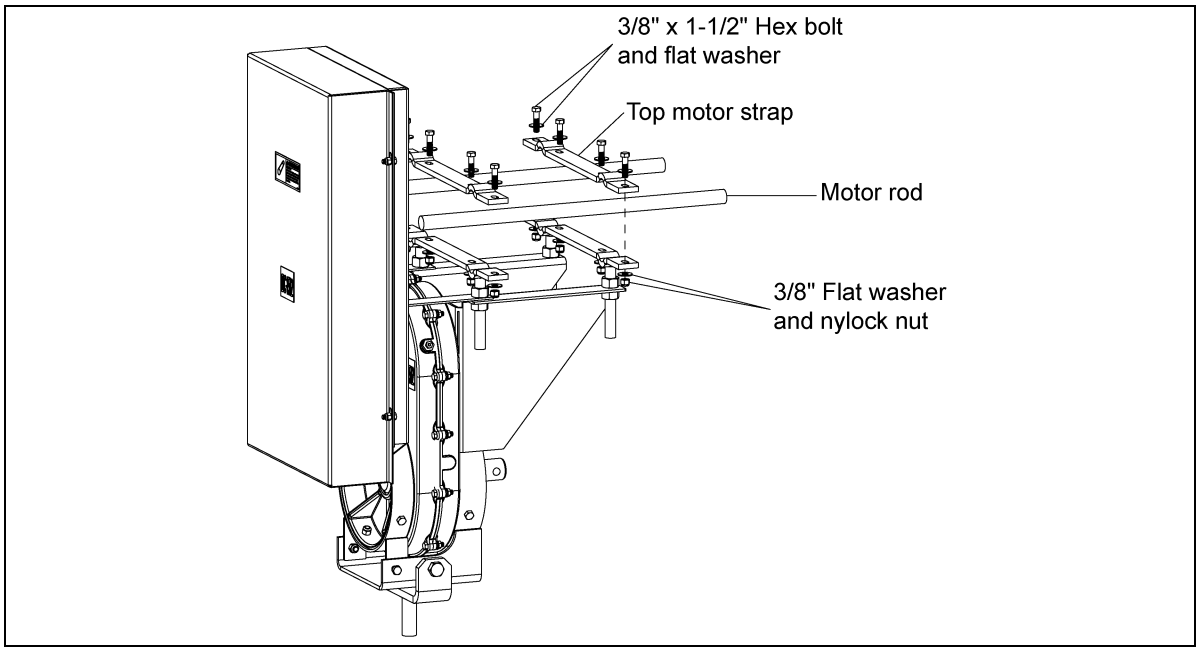


Figure 4D *Attach Motor Rod and Top Motor Strap*

5. When installing the bin sweep in the bin, put two (2) 1" flat washers onto the post of the pivot yoke. Place the drive assembly onto the center well pivot tube. *(See Figure 4E.)*

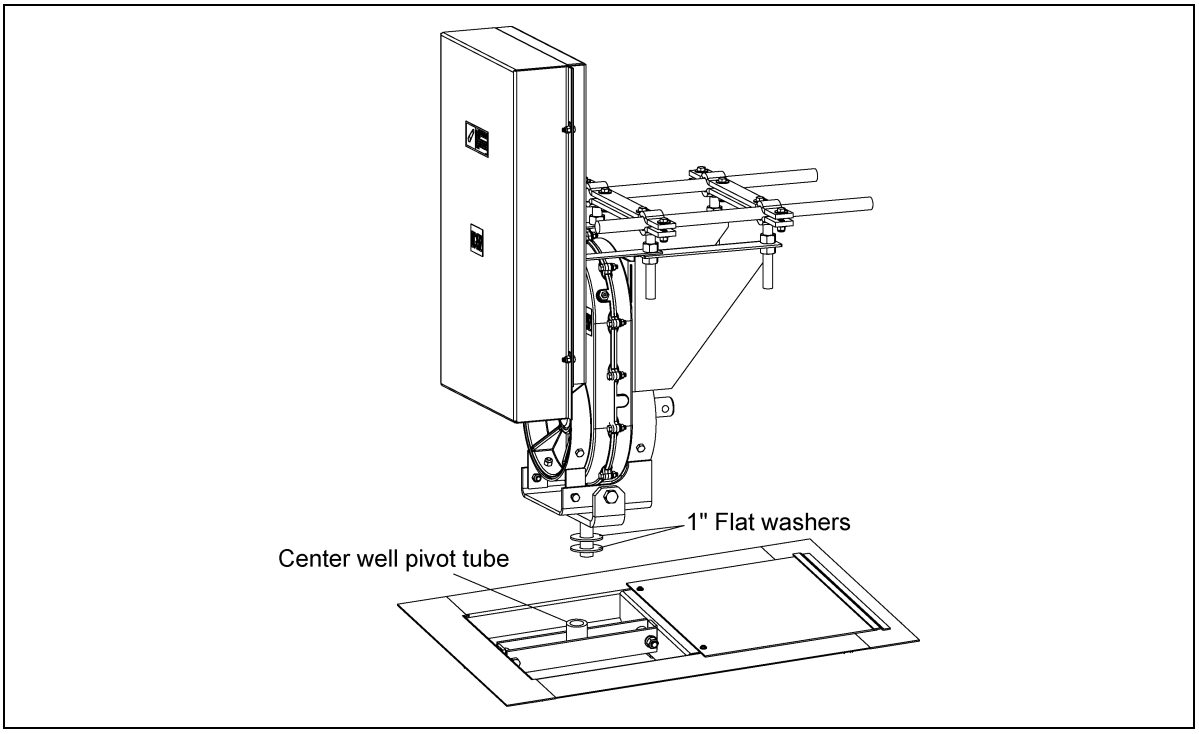


Figure 4E *Drive Assembly to Center Pivot*

6. Attach the discharge flight to the connecting shaft on the drive assembly using two (2) 1/2" x 3-1/2" grade 8 hex bolts and stover nuts. The discharge flight is distinguished by the absence of flight ribbon at one end. This end gets attached to the drive assembly. *(See Figure 4F.)*

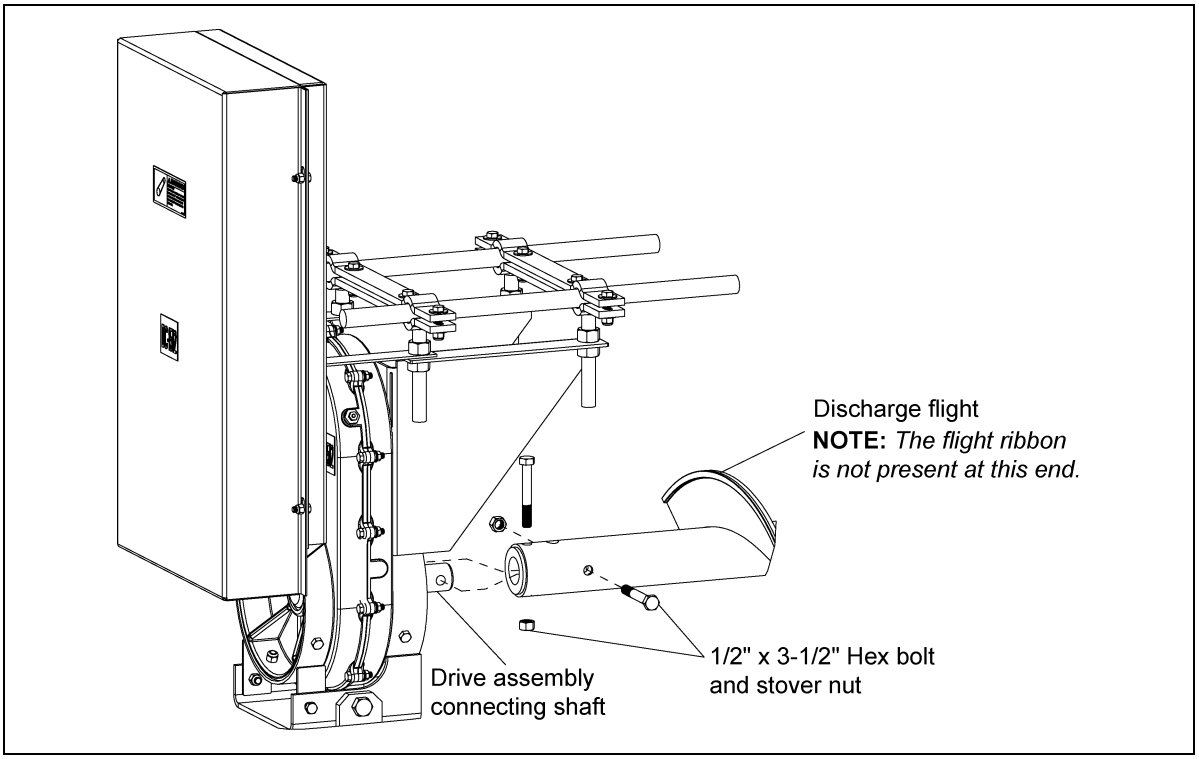


Figure 4F *Discharge Flight to Drive*

7. Attach the discharge back shield to the drive assembly using two (2) 3/8" x 1-1/2" grade 8 hex bolts, four (4) flat washers and two (2) nylock nuts. The discharge back shield does not have the full continuous high back shield. It is cut away at the discharge to allow more grain flow around the drive assembly. This cut back end gets attached to the drive assembly. *(See Figure 4G.)*

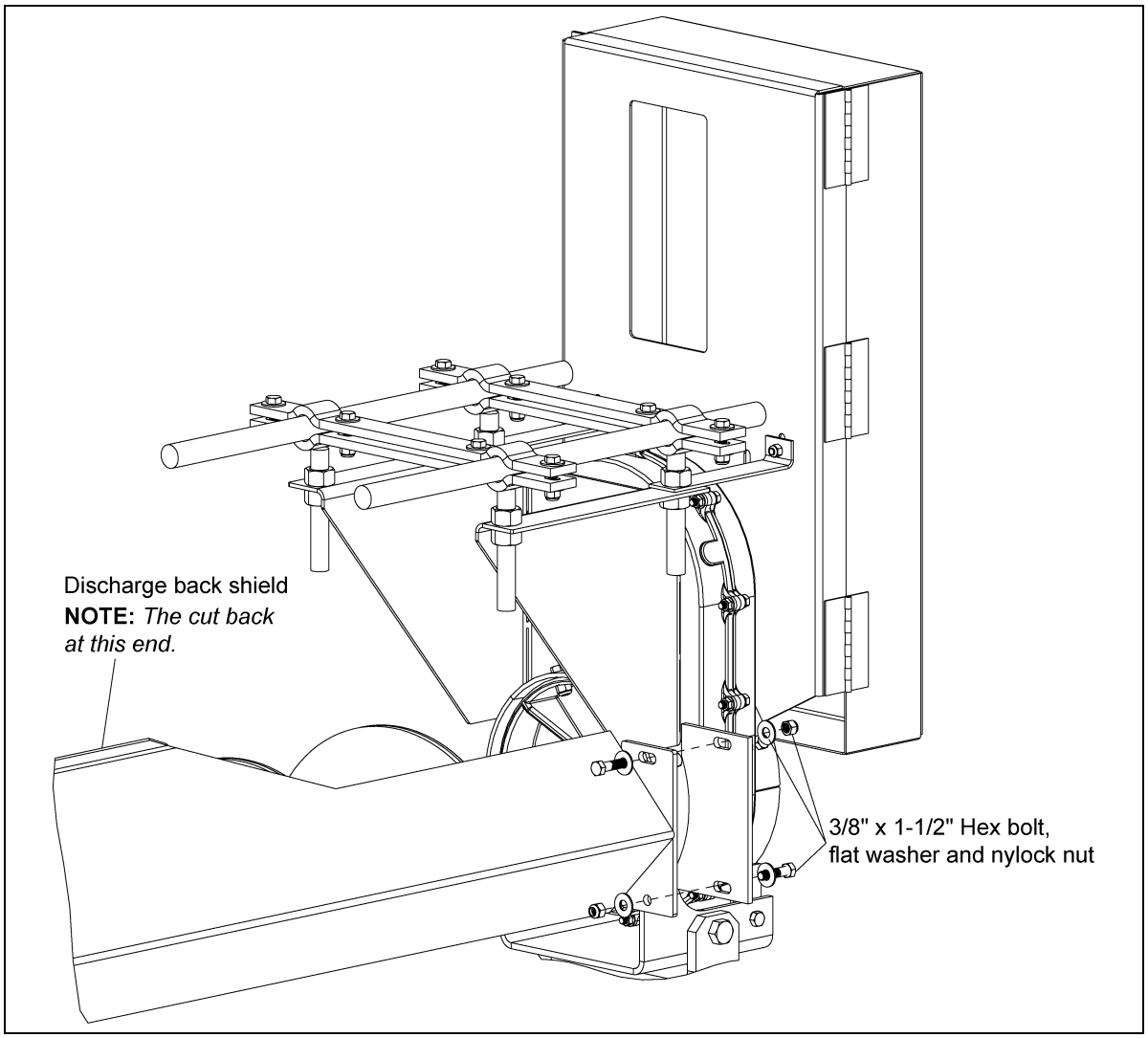


Figure 4G *Discharge Shield to Drive*

NOTE: *Bin sweeps containing more than two (2) sections of flight and back shield can have multiple configurations. These configurations determine where the flight and back shield joints exist in relation to the center of the bin.*

Consider all configurations for the bin diameter before continuing. On bin sweeps with three (3) or more sections of flight and back shield, a carrier wheel assembly is used every two (2) sections.

Choose the configuration for the bin diameter to ensure that the(se) carrier wheel assembly(s) do not interfere with the existing well positions.

Damage to the bin sweep and unload well or well grate could result from an incorrect configuration of flight and back shield sections.

See the configuration section for the specific bin diameter *on Page 56.*

8. Place the 2" O.D. x 11-1/2" connecting shaft into the free end of the flight. Once the holes are aligned properly, attach the shaft to the flight using two (2) 5/8" x 4" grade 8 hex bolts and stover nuts. *(See Figure 4H.)*

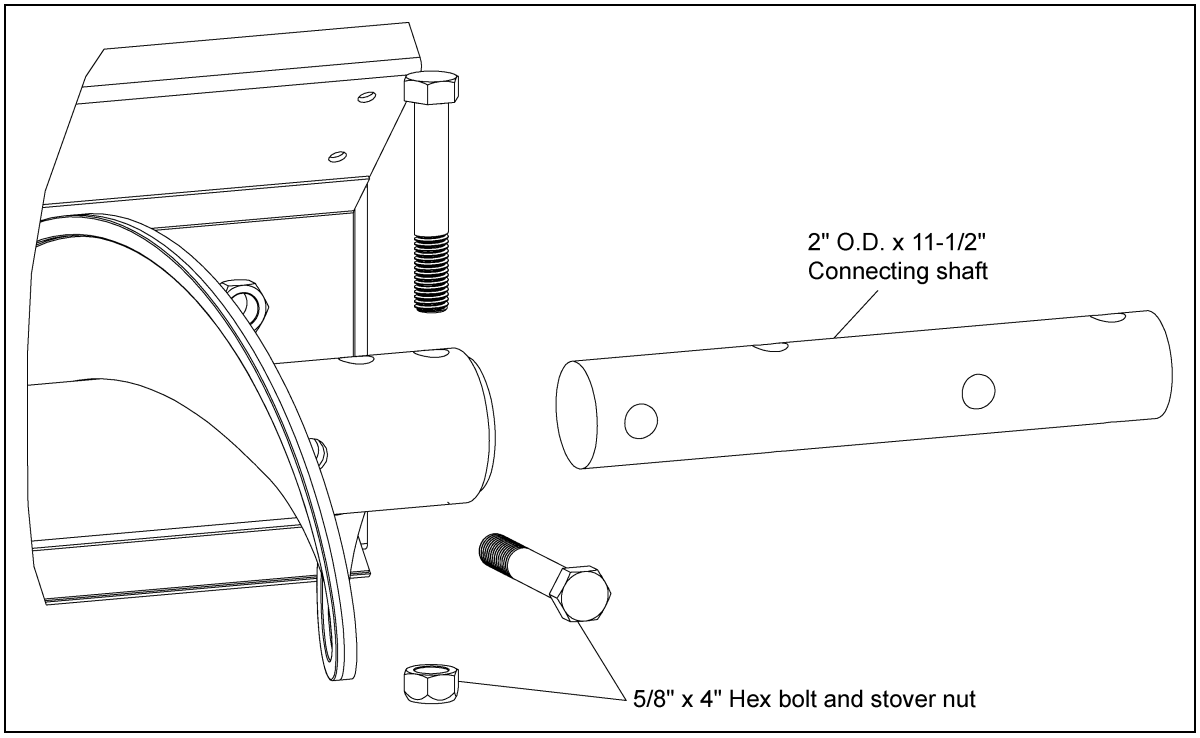


Figure 4H *Connecting Shaft to Flight*

9. Place the bearing stand assembly onto the connecting shaft. *(See Figure 4I.)*

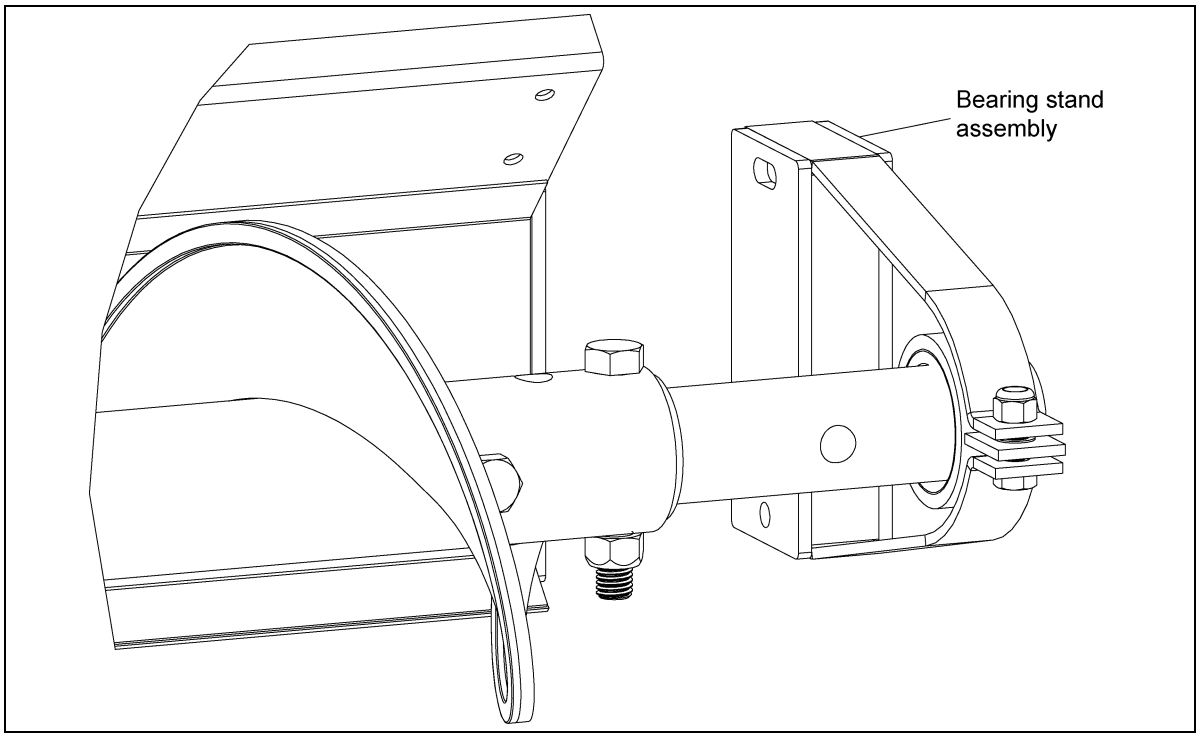


Figure 4I *Bearing on Connecting Shaft*

10. Align the next section of flight making sure that the Dura-Edge on both flights are as continuous as possible, the angle between both faces being greater than 90° and less than 180° and without overlapping.

    NOTE: *Overlapping the flights or having an angle between the ribbon faces be less than 90° or greater than 180°, will result in reduced unload capacity.*

11. Attach the next flight to the connecting shaft using two (2) 5/8" x 4" grade 8 hex bolts and stover nuts. *(See Figure 4J.)*

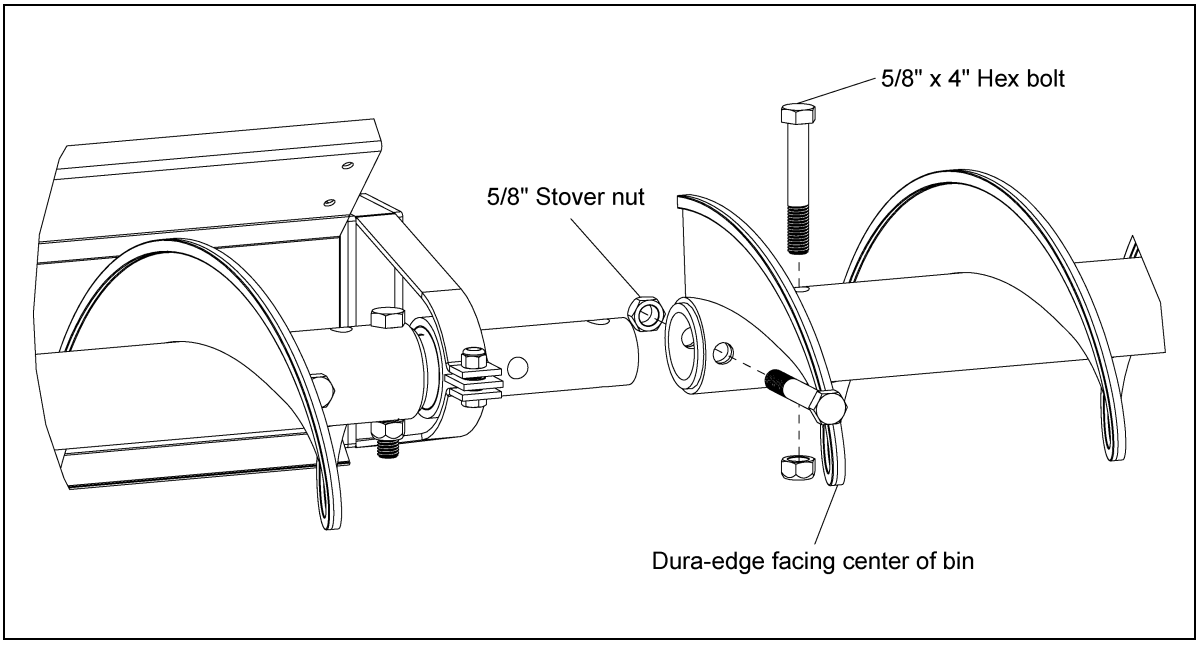


Figure 4J *Flight to Flight Via Connecting Shaft*

12. Attach the matching section of back shield to the bearing stand assembly and the previous section of back shield with two (2) 3/8" x 3" carriage bolts, flat washers and nylock nuts. *(See Figure 4K.)*

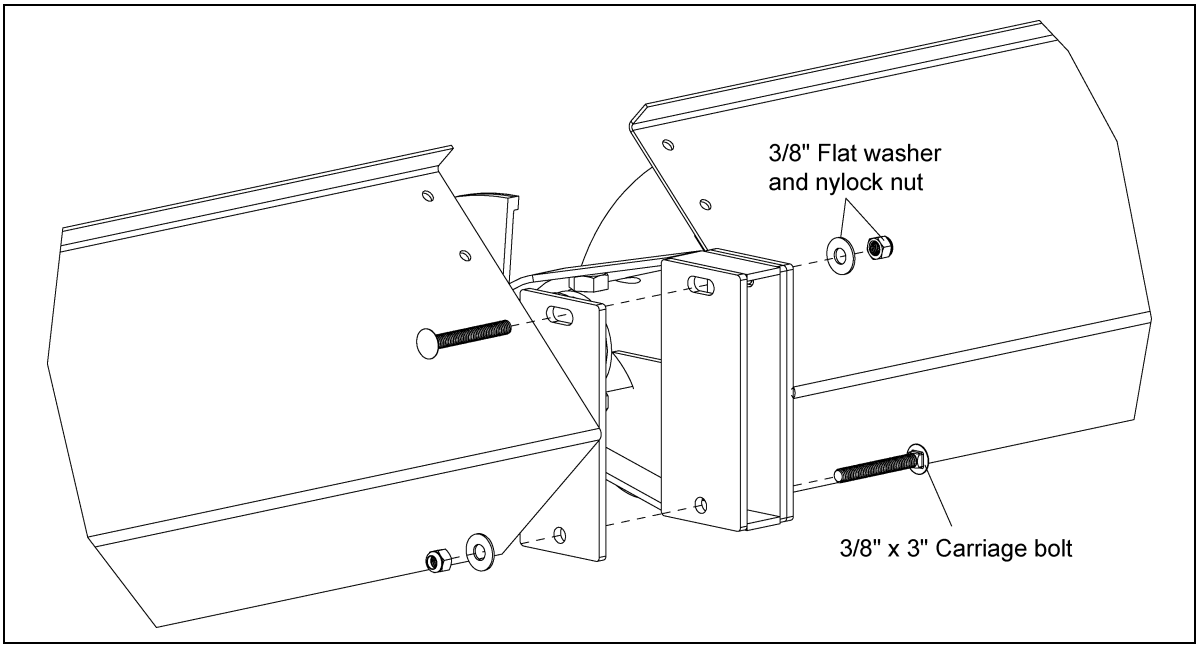


Figure 4K *Shield to Shield through Bearing*

13. Bolt the shield splice plate to complete the connection of the two (2) back shields. Use four (4) 5/16" x 3/4" hex bolts, flat washers and serrated flange nuts. *(See Figure 4L.)*

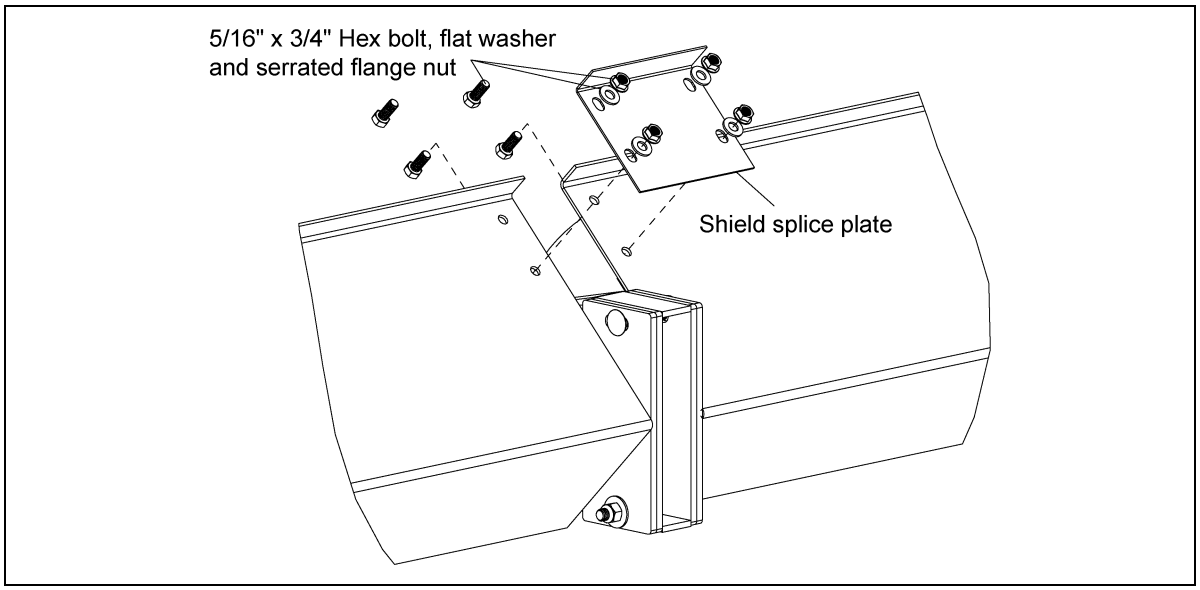


Figure 4L *Shield to Shield through Splice Plate*

14. Repeat *Step 8 on Page 18* through *Step 11 on Page 19*.

NOTE: *Bin sweeps with three (3) or more flight and shield sections use a carrier wheel assembly after every two (2) sections. The first carrier wheel assembly should be installed after the first two (2) sections of flight and shield.*

15. Place the carrier wheel assembly over the bearing stand assembly. Attach the previous and next sections of back shield to the carrier and bearing stand assembly using two (2) 3/8" x 3-1/2" hex bolts, four (4) flat washers and two (2) nylock nuts. *(See Figure 4M.)*

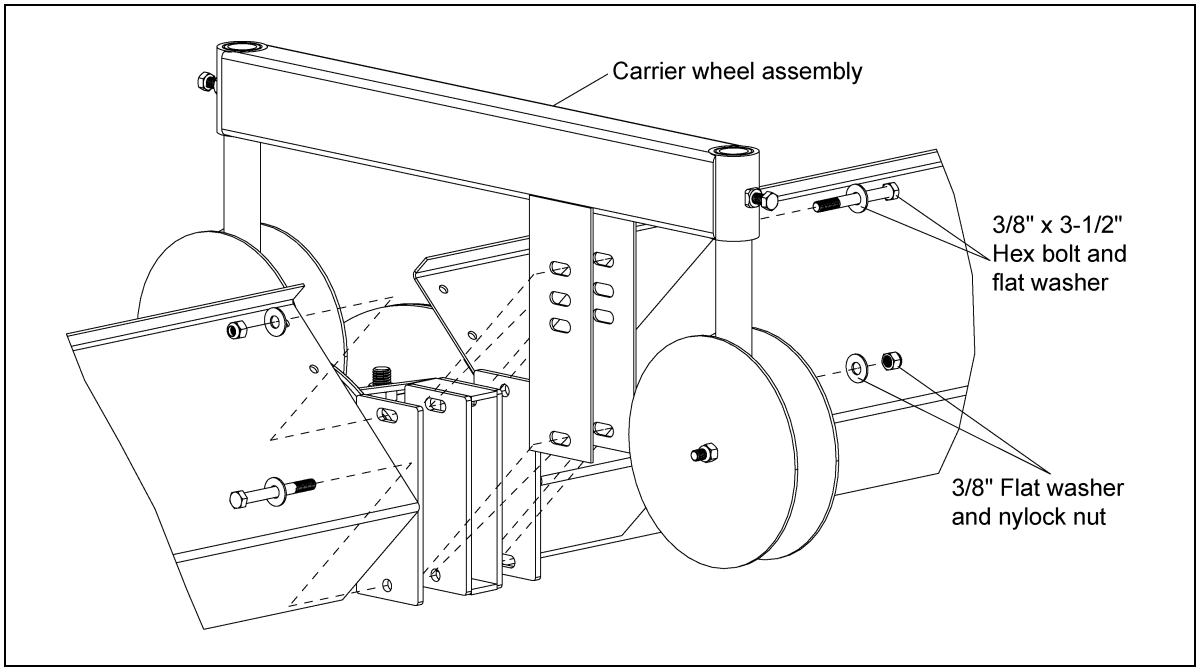


Figure 4M *Shield to Shield through Carrier and Bearing*

16. Repeat *Step 8 on Page 18* through *Step 15 on Page 20* until all flight and shield sections are assembled.

17. Join the segmented wheel bracket to the reduction wheel drive with two (2) 1/2" x 4-1/2" grade 5 bolts, flat washers and nylock nuts. *(See Figure 4N.)*

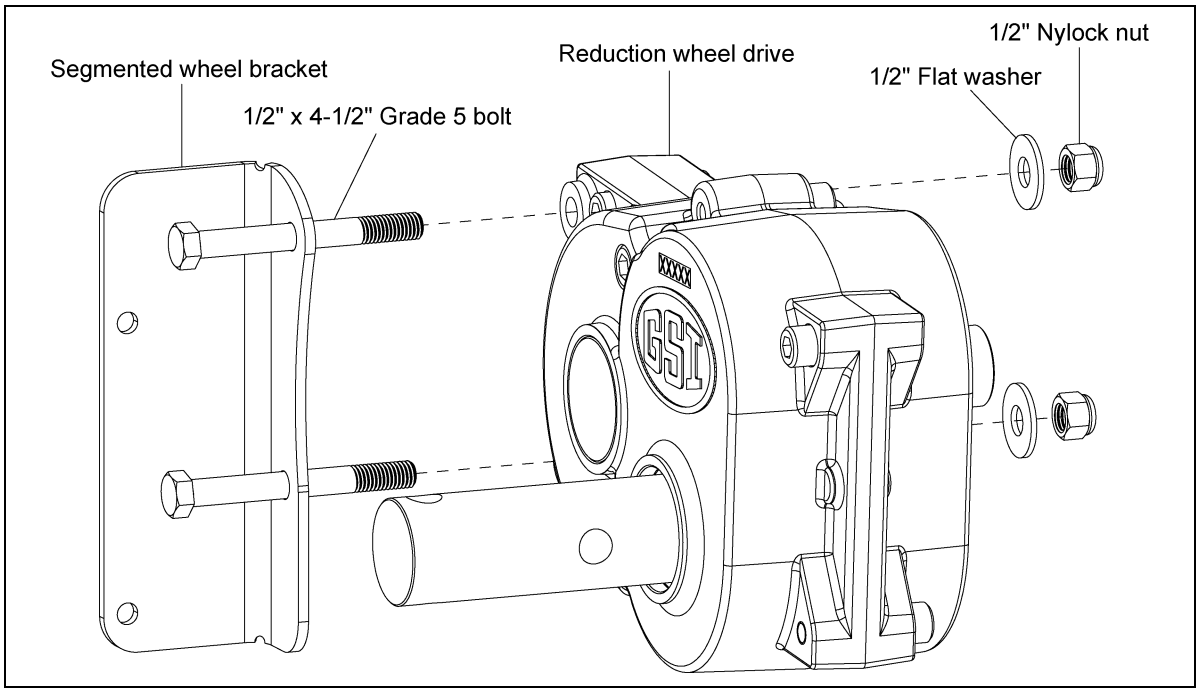


Figure 4N *Segmented Wheel Bracket to Reduction Wheel Drive*

18. Join the mounting bracket and the segmented wheel bracket together with two (2) 3/8" x 1-1/2" grade 8 hex bolts, two (2) flat washers and two (2) nylock nuts. *(See Figure 4O.)*

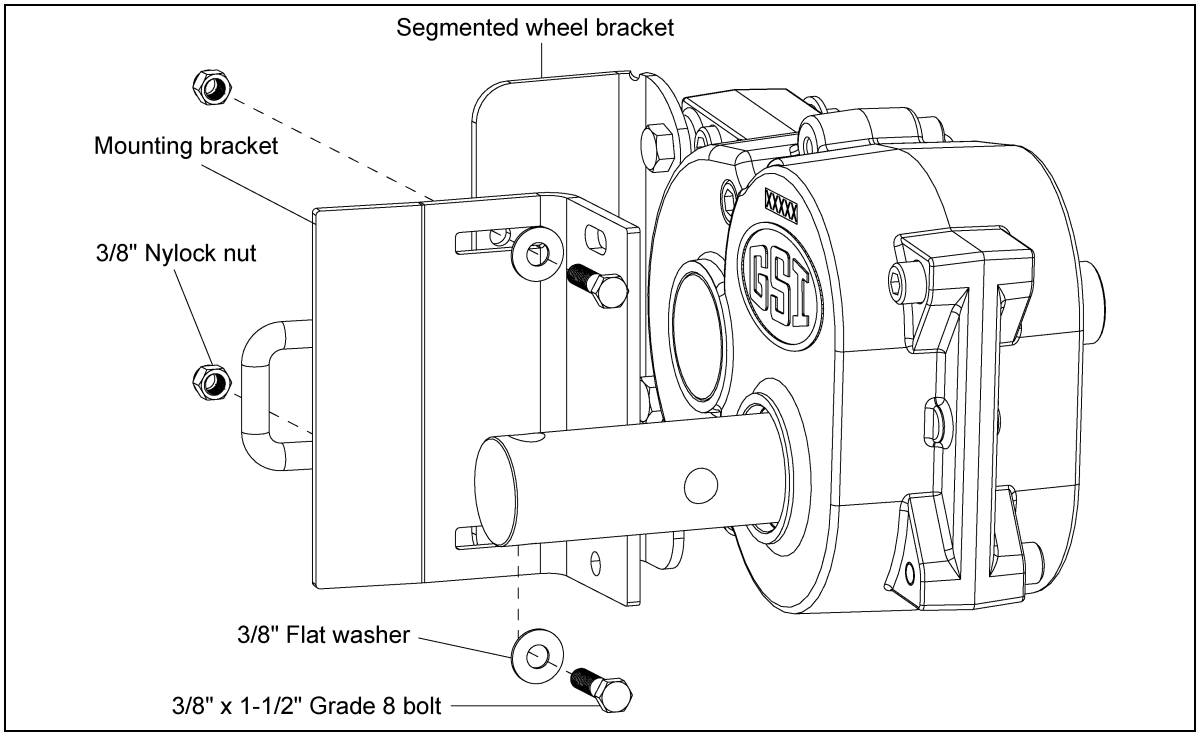


Figure 4O *Segmented Wheel Bracket to Mounting Bracket*

19. Attach the mounting bracket to the final back shield with two (2) 3/8" x 1-1/2" grade 8 hex bolts, four (4) flat washers and two (2) nylock nuts. Attach the input shaft of the reduction wheel drive to the final flight with two (2) 5/8" x 4" grade 8 bolts and stover nuts. *(See Figure 4P.)*

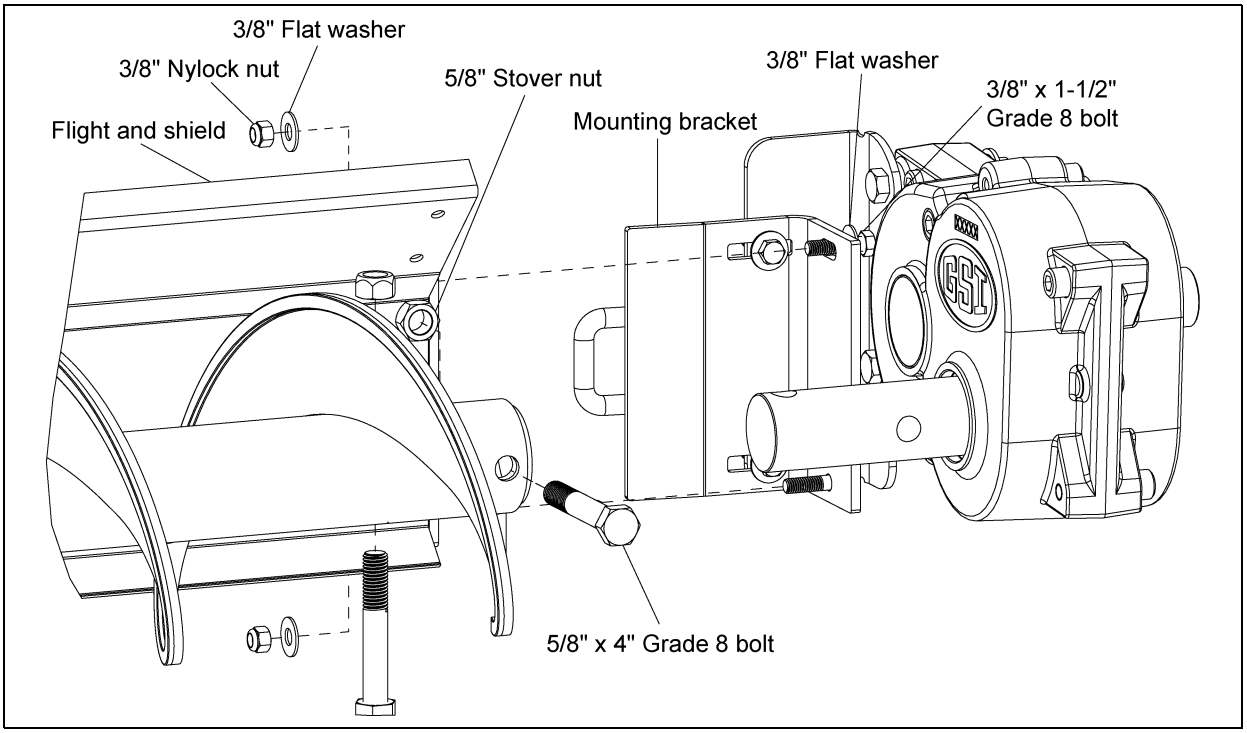


Figure 4P *Mounting Bracket Assembly to Shield*

20. Attach the segmented wheel hub assembly to the reduction wheel drive with one 1/2" x 3-1/2" grade 8 bolt and stover nut. *(See Figure 4Q.)*

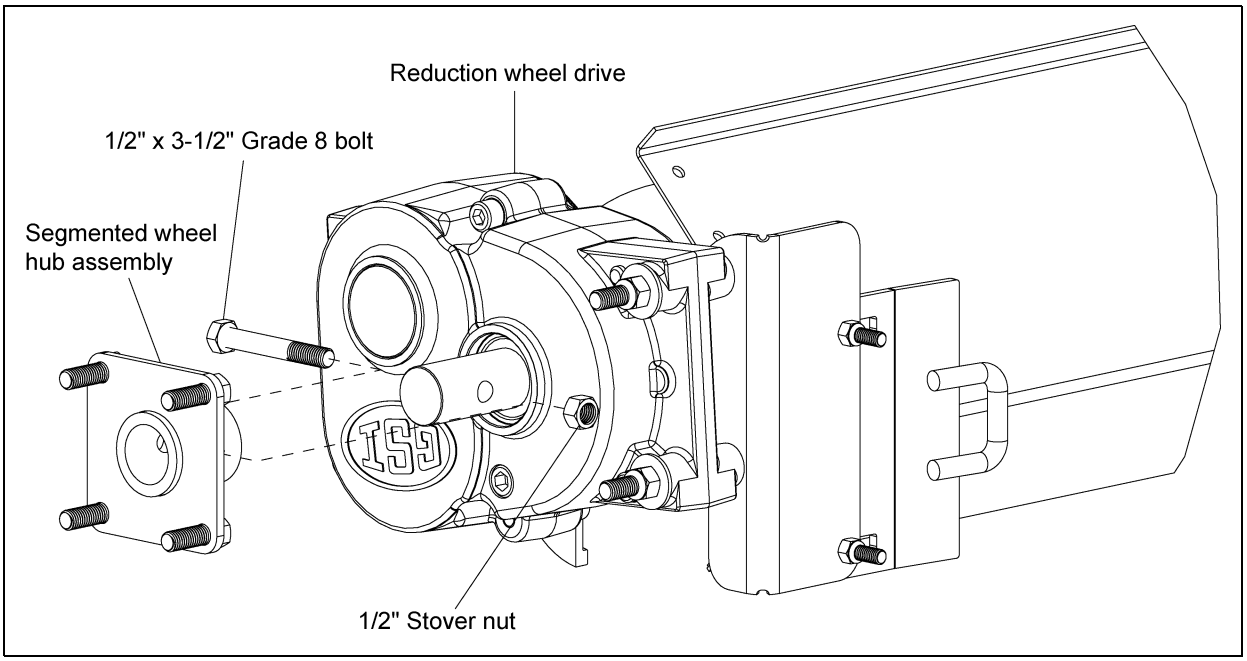


Figure 4Q *Hub Assembly to Reduction Wheel Drive*

21. Bolt the segmented rubber wheel to the segmented wheel hub assembly with four (4) 1/2" nylock nuts. *(See Figure 4R.)*

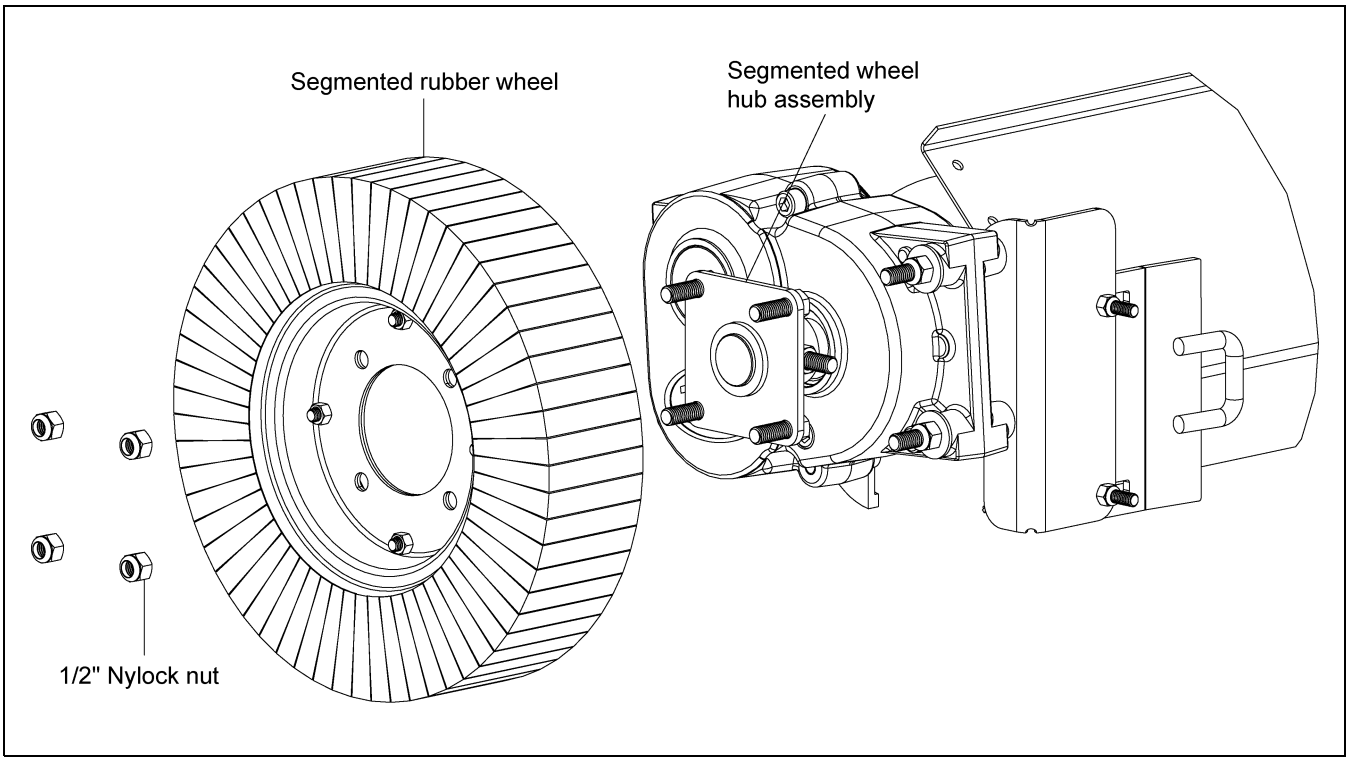


Figure 4R *Wheel to Enclosed Chain Drive*

22. Make final adjustments to the back shields and mounting brackets and tighten all hardware. Adjust the carrier wheel assemblies if provided. The carrier wheel assembly should NOT be adjusted to support the full weight of the flight and shield sections. The carrier wheel assembly should be adjusted so that it ONLY keeps the flight and back shield from contacting the floor.

    NOTE: *Failure to properly adjust the carrier wheel assembly as described above can result in damage to the bin floor and the bin sweep.*

23. Inspect the “DANGER” decals on the back shields to ensure legibility. If the decal cannot easily be read or is missing, order a new decal immediately from the dealer.

24. Fill the 3:1 aluminum enclosed drive with oil. This is accomplished by removing the vented fill plug and pouring 48 ounces of oil into the drive. The oil level can be checked by removing the check plug on the opposite side of the drive. The oil level should not be over the check plug.

CAUTION

Oil must be added prior to running the bin sweep. The 3:1 aluminum enclosed drive is shipped WITHOUT oil.

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

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

25. Sandwich the front top and bottom motor clip onto the motor rods using two (2) 3/8" x 3" carriage bolts and nylock nuts. Sandwich the back top and bottom motor clip onto the motor rods using two (2) 3/8" x 3" carriage bolts and nylock nuts. DO NOT TIGHTEN the nuts at this time. They will need adjustment when the motor is installed. *(See Figure 4S.)*

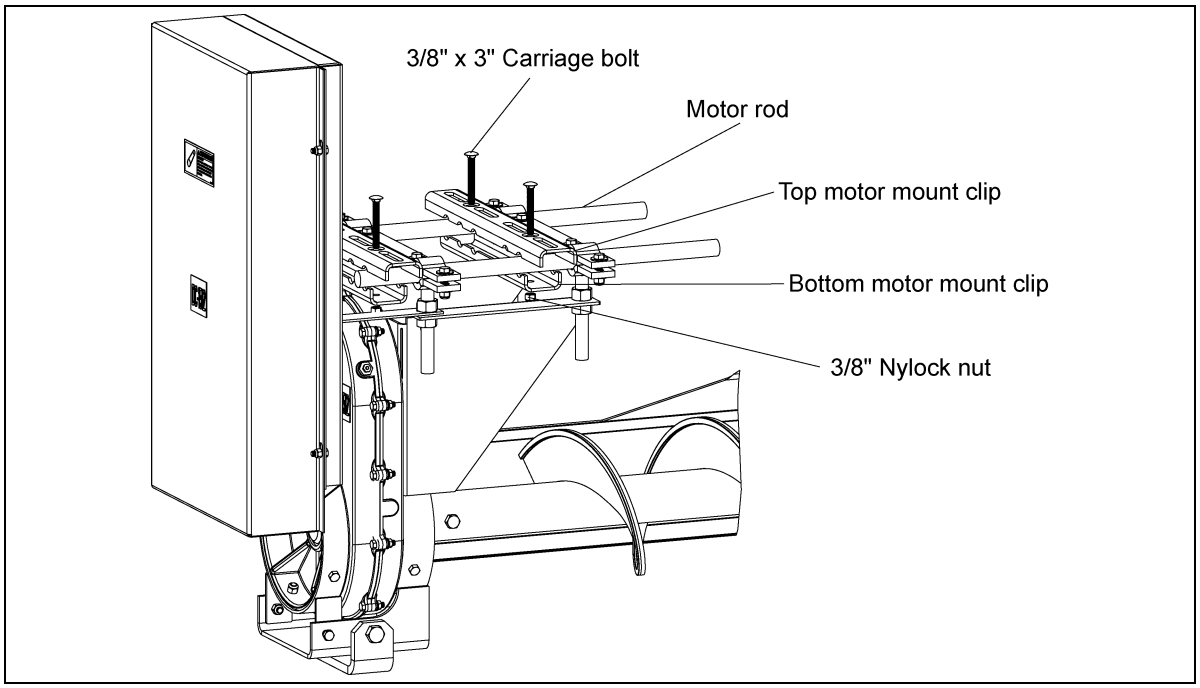


Figure 4S *Motor Clips to Motor Rod*

26. Attach the electrical cord support stand to the top motor clips using two (2) 7/16" x 1-1/4" hex bolts, four (4) flat washers and two (2) nylock nuts. *(See Figure 4T.)*

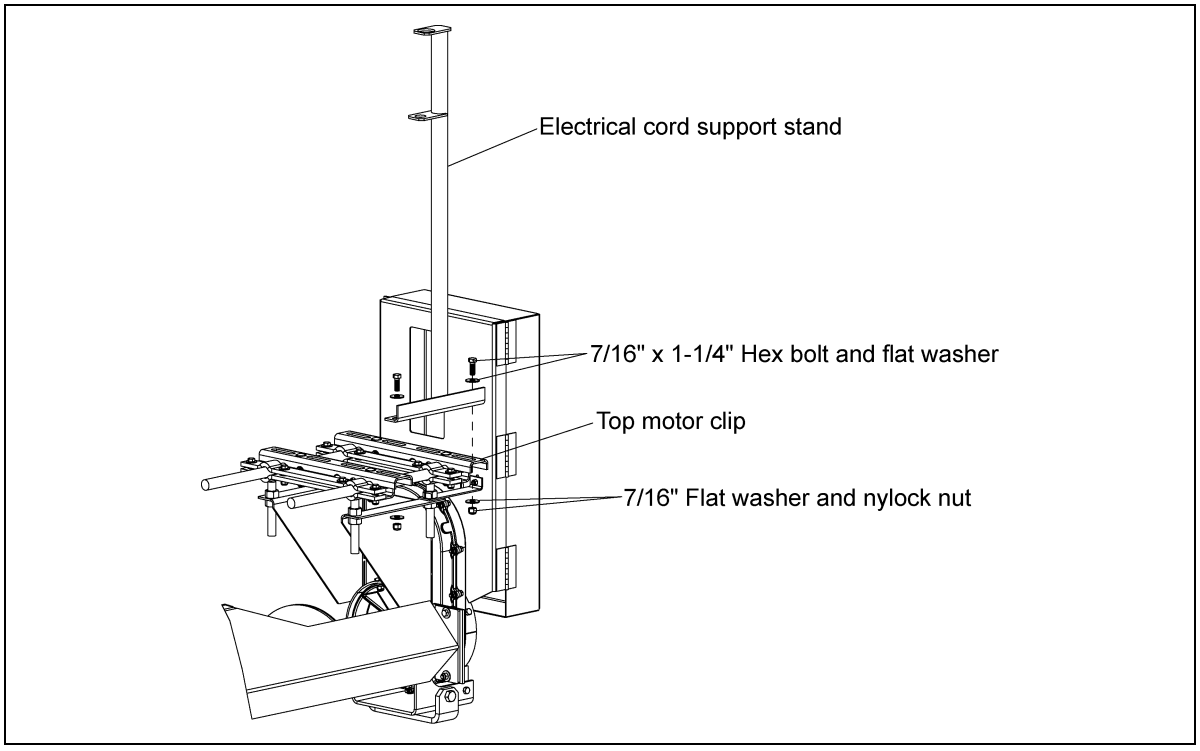


Figure 4T *Electrical Stand to Clip*

27. Remove the two (2) 5/16" x 3/4" hex bolts and nylock nuts from the front of the belt guard. This will allow access to the sheave and belts. *(See Figure 4U.)*

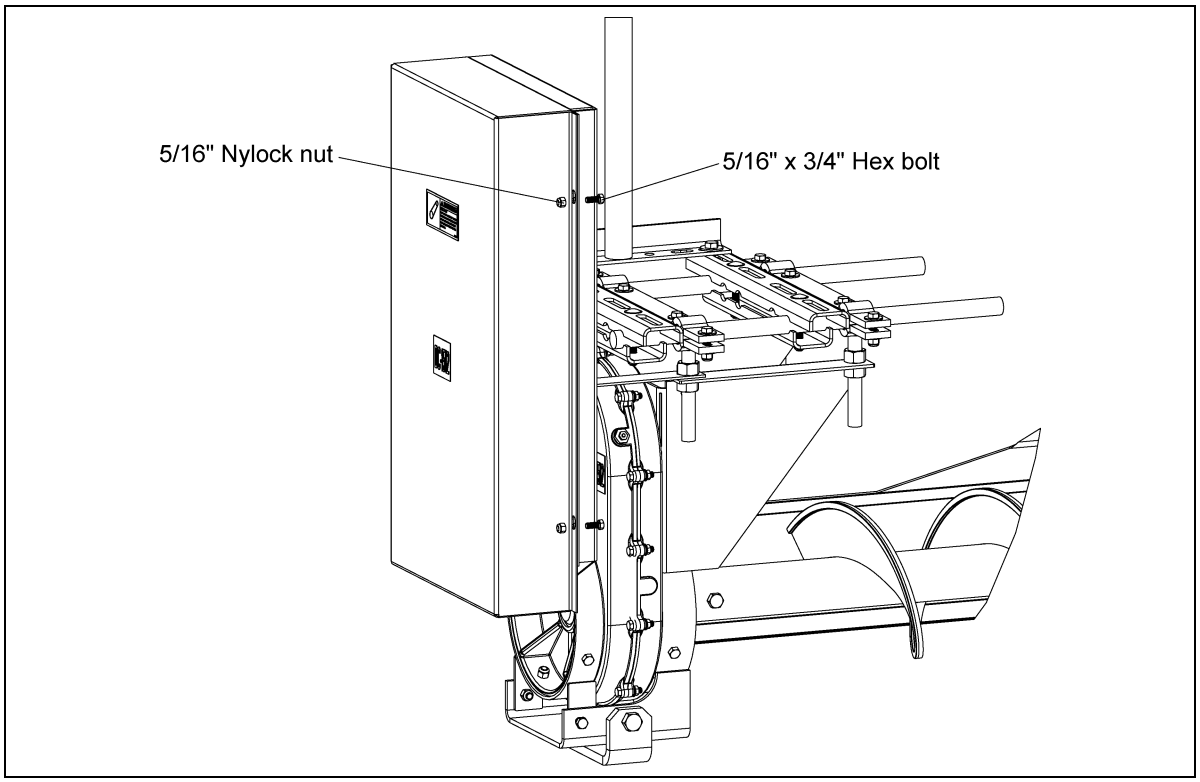


Figure 4U *Remove Belt Guard Hardware*

28. Place the 1/4" square key on the keyway of the 3:1 aluminum enclosed drive input shaft. Place the 12" sheave onto the input shaft and key. The set screws of the sheave should be away from the enclosed drive. Do NOT tighten the set screws. These will be adjusted after the motor and motor sheave is in place. *(See Figure 4V.)*

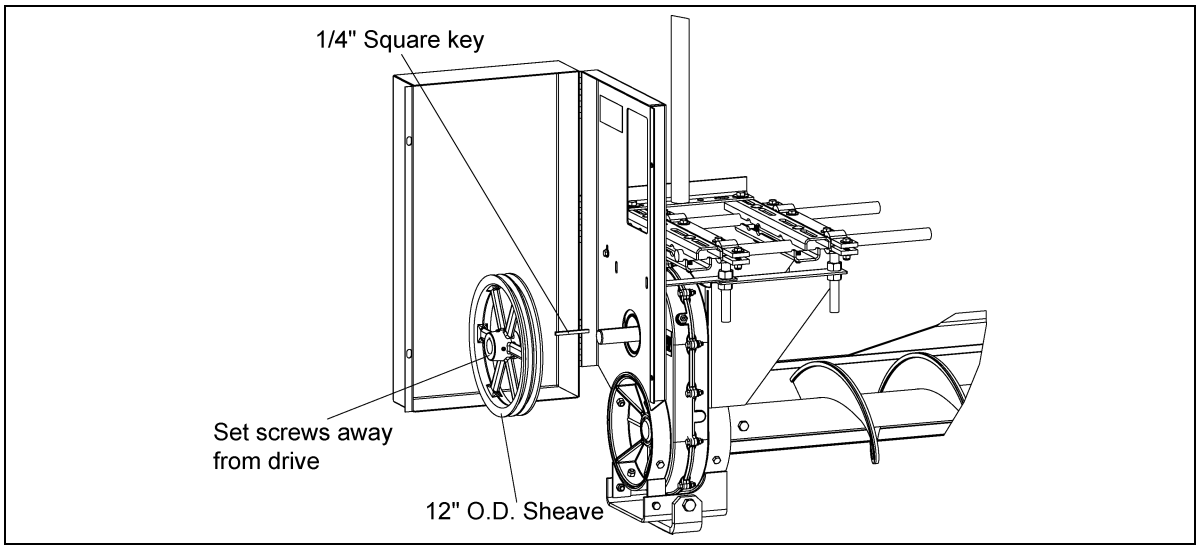


Figure 4V *Sheave to Drive Assembly*

29. Attach the motor (not supplied) to the top motor clips with the appropriate hardware (not supplied.)

30. Attach the motor sheave to the motor.

31. Adjust the position of the motor clips, motor sheave and the aluminum enclosed drive sheave to achieve proper alignment. Tighten all set screws.

32. Place the two (2) belts over the sheaves. *(See Figure 4W.)*

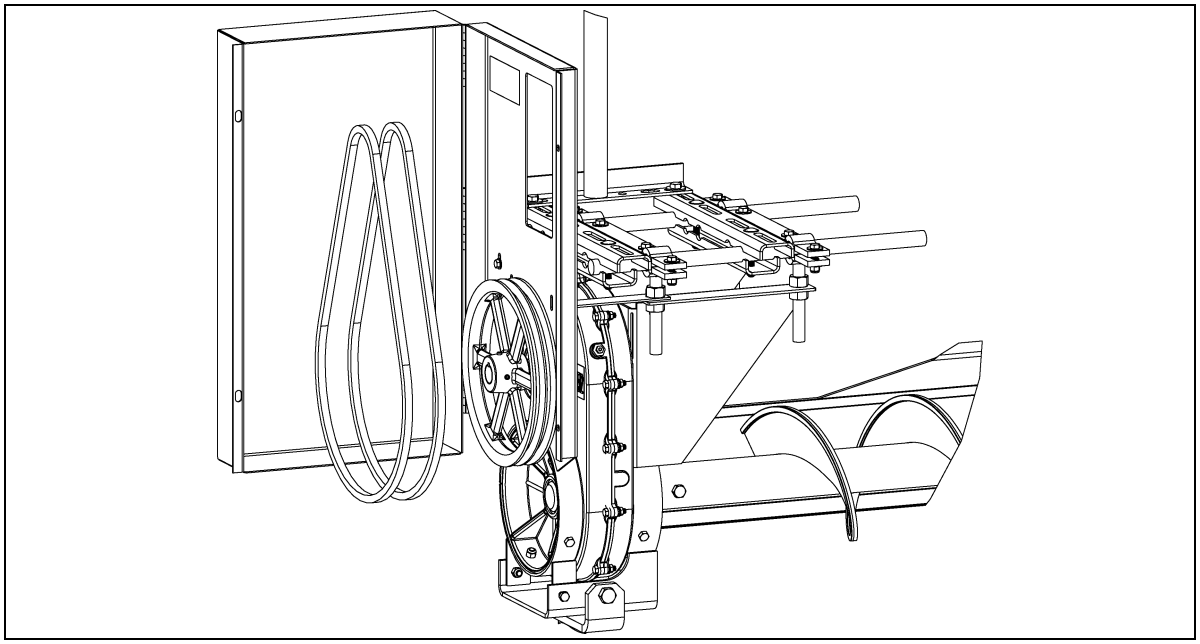


Figure 4W *Belts to Sheave*

33. Adjust the position of the bottom motor straps to provide adequate tension on the drive belts. The belts should allow 1/64" of deflection for every 1" of center distance between the two (2) shafts.

34. Close the front of the belt guard. Attach the front to the back with the two (2) 5/16" x 3/4" hex bolts and nylock nuts that were previously removed. *(See Figure 4X.)*

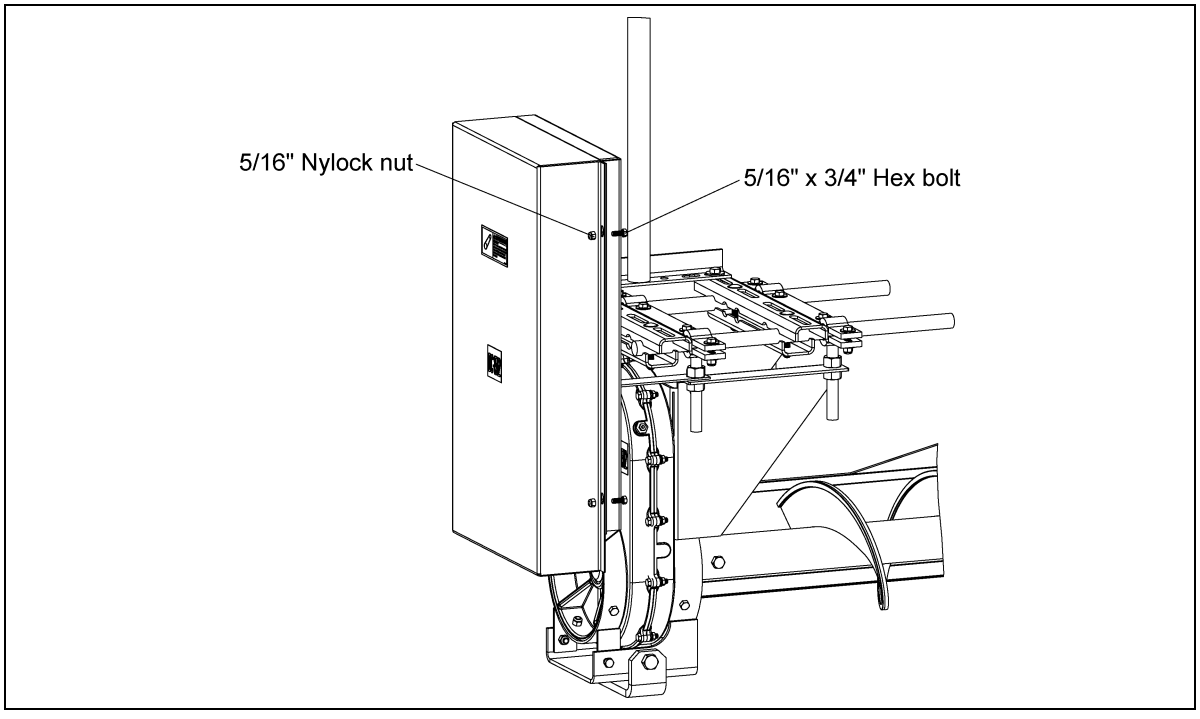


Figure 4X *Close Belt Guard*

35. Route the power cord for the motor through the electrical cord support stand top ring and the 3/4" electrical clamp. Leave a small loop of electrical cord between the clamp and the electrical junction box on the outside of the motor. Tighten the clamp to secure the cord. *(See Figure 4Y.)*

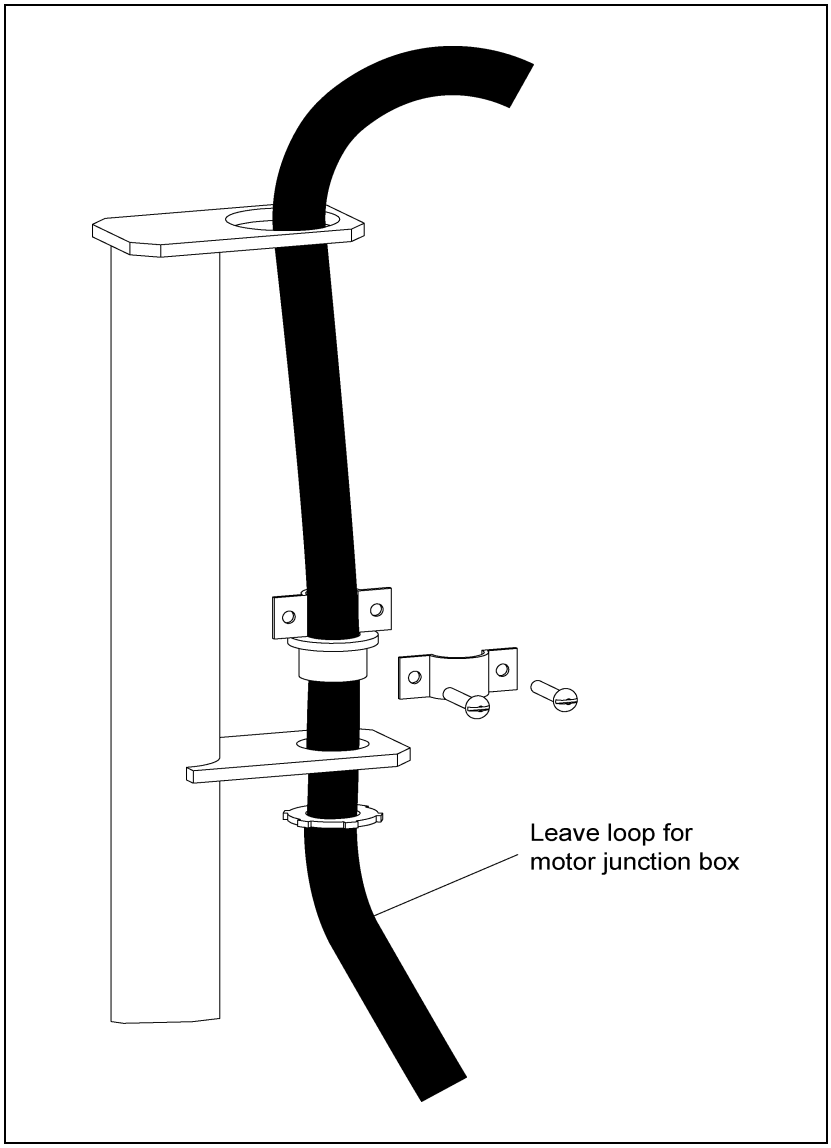


Figure 4Y *Electrical Cable Clamp*

5. Electrical Motor Drive Selection

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

DANGER

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

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

Use the *Table below* to determine the horsepower required for the bin sweep and the motor sheave diameter. Use an electric motor that operates at 1750 RPM. The motor and the motor sheave are not furnished.

	Bin Diameter				
	24'-37'	**38'-55'**	**56'-75'**	**76'-113'**	**114'-120'**
Horsepower	3	5	7-1/2	10	15

Motor sheave for the bin sweep when used with a 10" unloading system: 5" O.D. motor sheave, results in speed of 250 RPM.

Motor sheave for the bin sweep when used with a 12" unloading system: 6" O.D. motor sheave, results in speed of 290 RPM.

1. Abnormal grain flow can easily fall and bury a person, suffocating them. DO NOT enter a bin with abnormal grain flow. *(See Figure 6A.)*

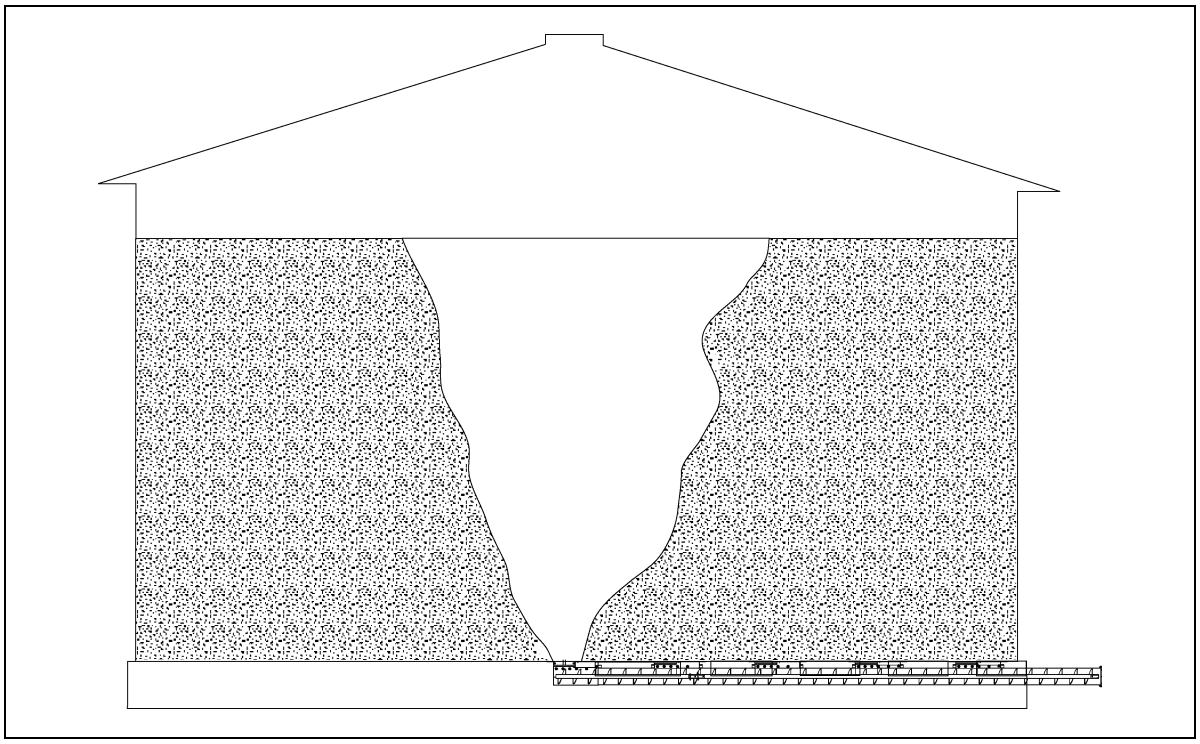


Figure 6A

2. Bridged grain can easily break loose and bury a person, suffocating them. DO NOT enter a bin with bridged grain. *(See Figure 6B.)*

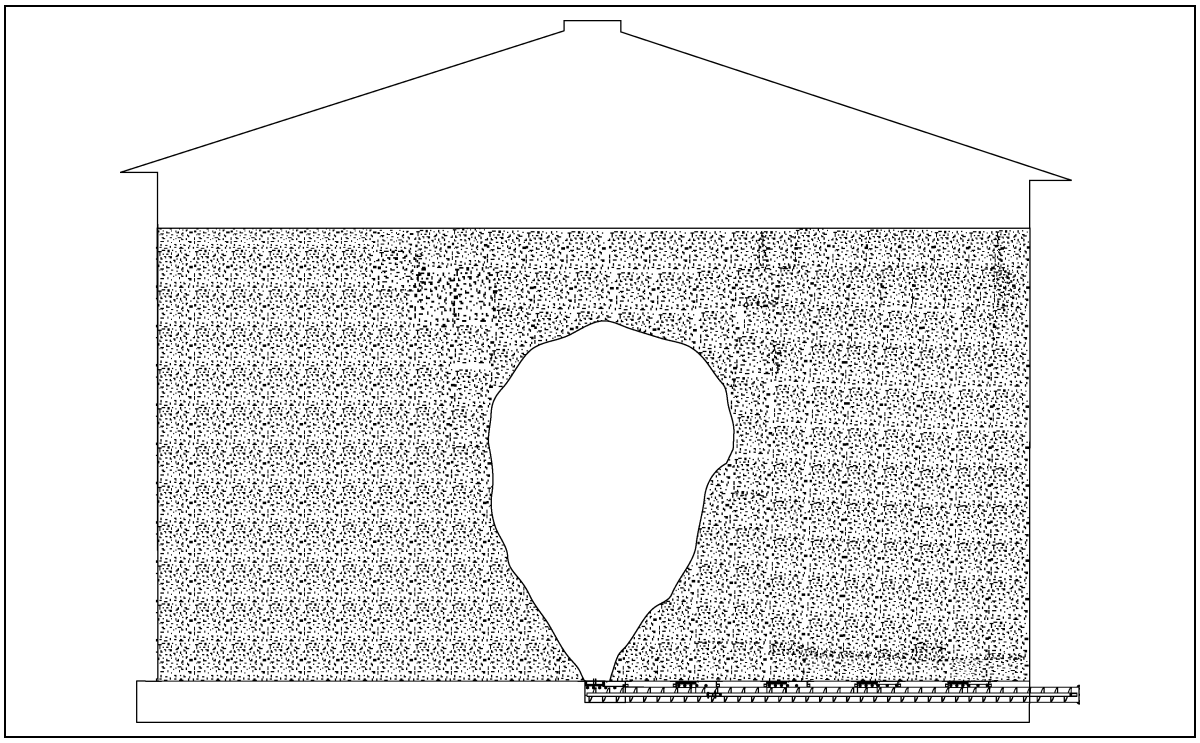


Figure 6B

CAUTION

Failure to perform any and all of these pre-start checks may cause damage to the equipment and could cause SERIOUS INJURY or DEATH to those in the work area. A failure to perform any and all of these pre-start checks may also be a misuse of the equipment, which may void the warranty.

3. Make sure that ALL belt(s) are tensioned properly on the unload system.
4. Make sure that ALL shield(s) are in place and that the belt(s) and pulley(s) are able to move freely.

DANGER

ALWAYS keep ALL guard(s) and shield(s) in place until all the power is disconnected and locked out.

5. Inspect the drive unit for any problems or potential problems.
6. Be aware of ALL emergency shut down procedures. Two (2) people must always be in a position where the operation of the equipment can be monitored.

WARNING

Make certain that ONLY trained operators are in the work area before operating or moving the equipment. Two (2) people must always be in a position where the operation of the equipment can be monitored.

CAUTION

DO NOT start or stop the auger while it is under load, this may cause the auger to "jam".

CAUTION

Failures may occur in the auger is run full before it has been polished by the grain, during the break-in period. The auger should run at a partial capacity until it becomes polished and smooth. Several hundred bushels of grain should be run before operating at full capacity.

CAUTION

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

DANGER

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

7. Start the unloading auger. The motor is located on the drive unit outside the bin, attached to the unload tube.
8. Gravity unload the bin, through the center well first.

WARNING

NEVER unload the bin from the intermediate wells before unloading the grain from the center well FIRST. This situation could result in structural damage to the grain bin.

9. Always close the well gates and allow the unload auger to clean out before stopping the unload auger.

10. When the grain flow stops from the center well, close the center well gate. The remaining grain should look like *Figure 6C.*

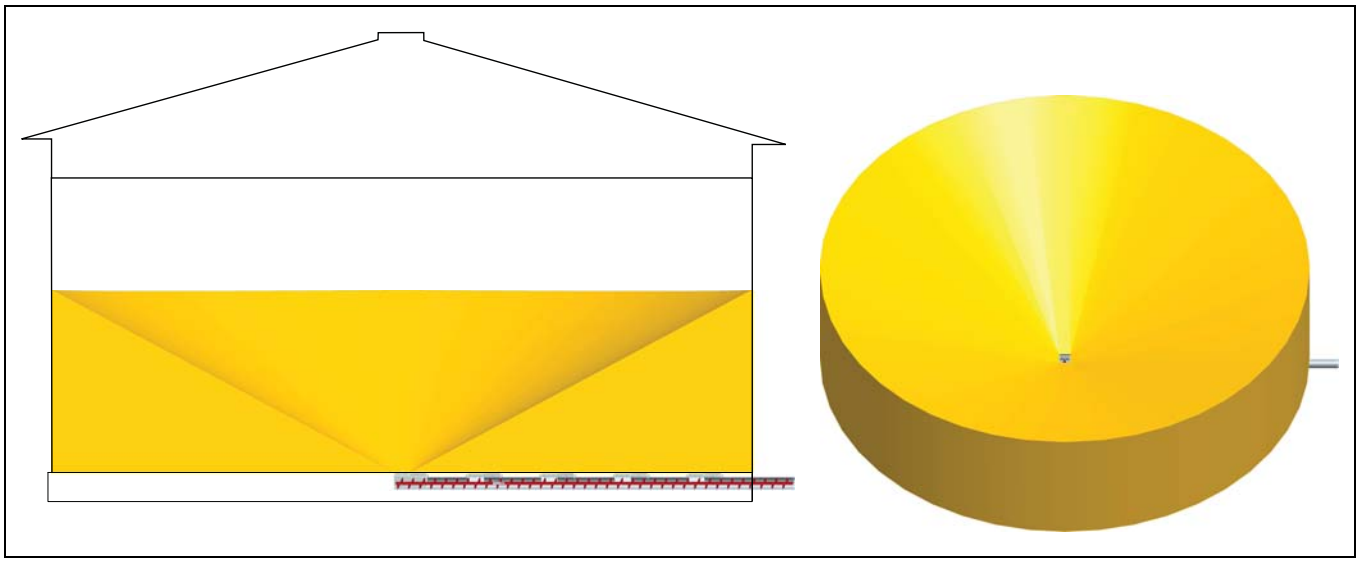


Figure 6C

11. Gradually open the center well and inside intermediate wells until the desired flow has been established. DO NOT excessively open the gates, as the flow of grain into the inside intermediate wells and occasional grain flow into the center well will be at a higher rate than what the unload system can remove. This will cause the auger to plug or “jam”.
12. Always close the well gates and allow the unload auger to clean out before stopping the unload auger.
13. When the grain flow stops from the center well and inside intermediate wells, close the center well and intermediate well gates. The remaining grain should look like *Figure 6D.*

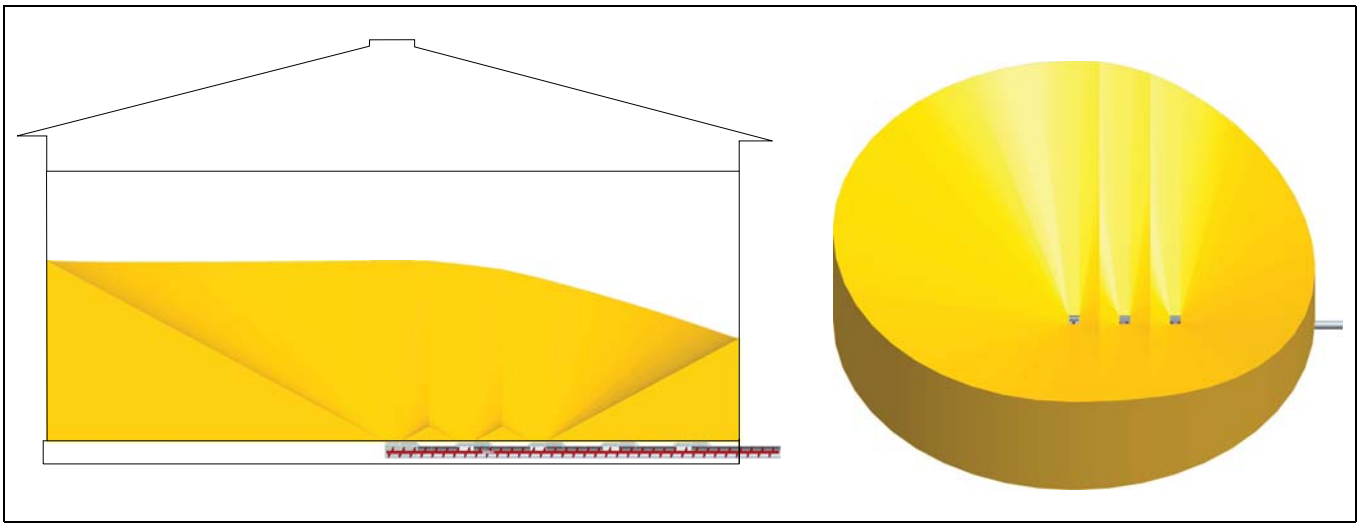


Figure 6D

14. Gradually open the center well, inside intermediate wells and outside intermediate wells until the desired flow has been established. DO NOT excessively open the gates, as the flow of grain into the inside intermediate wells and occasional grain flow into the center well will be at a higher rate than what the unload system can remove. This will cause the auger to plug or “jam”.
15. Always close the well gates and allow the unload auger to clean out before stopping the unload auger.
16. When the grain flow stops from the center well, inside intermediate wells and the outside intermediate wells, close the center well and intermediate well gates. The remaining grain should look like *Figure 6E.*

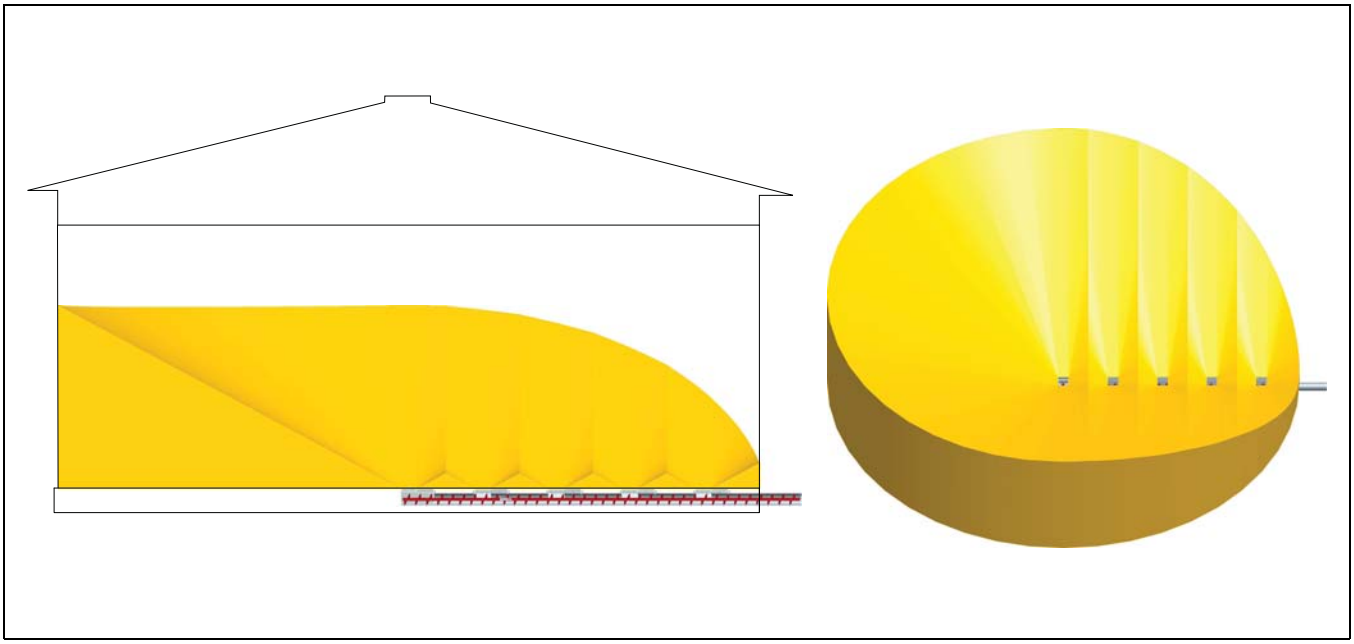


Figure 6E

DANGER

All power should be disconnected and locked out before entering the bin.

DANGER

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

CAUTION

The center well gate must be FULLY open during the bin sweep operation.

17. Assemble the bin sweep and place the pivot onto the center well pivot tube. See installation *Step 5 on Page 16*.

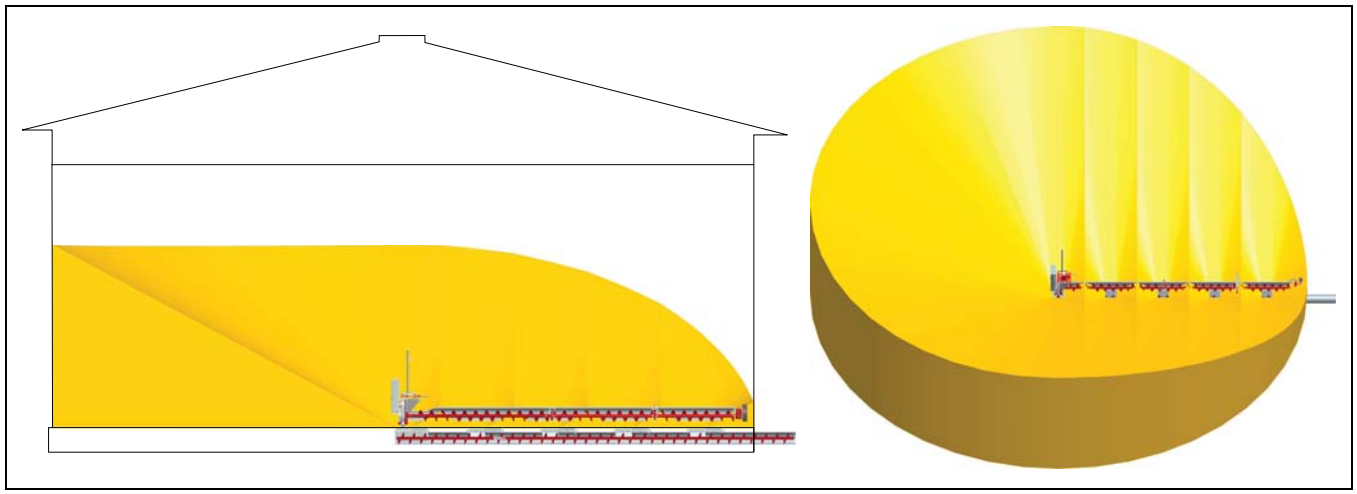


Figure 6F

18. Attach suitable electric wiring to the motor in a manner that will permit the bin sweep to rotate several times around the bin. The motor starting controls must be located outside of the bin. They must NEVER be installed on the bin sweep itself. Locate the motor starting controls outside the bin, but near the bin door so the operator has full view of the operation inside the bin. *(See Figure 6G.)*

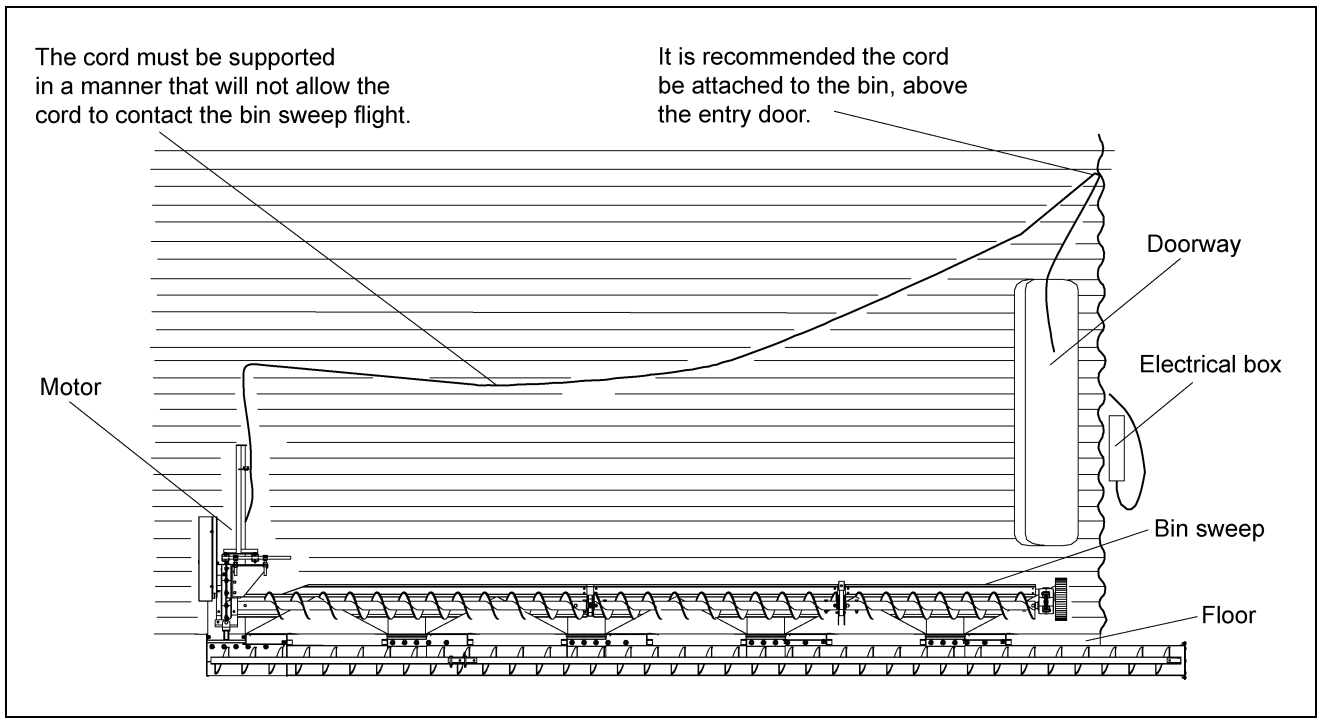


Figure 6G

19. Restore power and start the unload auger motor. Activate the bin sweep. Each time the bin sweep is stopped, it may be necessary to adjust the sweep carrier wheel assembly up or down, so that the arm is allowed to feed into the grain pile, but also not come into contact with the floor. Follow proper safety procedures before entering the bin to adjust the carrier wheel assembly.

DANGER

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

20. The bin sweep will clear most of the remaining grain in one pass. A second pass will clean out additional grain, before final clean out.

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

21. After the bin sweep has made two (2) passes removing most of the grain, it will be necessary to clean the floor. *(See Figure 6H, Figure 6I below and Figure 6J on Page 35.)*

NOTE: *The bin sweep is composed of several sections of flight and back shields. The bin can be emptied using just the discharge section of flight and back shield and attaching the wheel assembly to the free end. After the center of the bin has been swept, the next section of light and back shield can be attached to the discharge section, with the wheel assembly at the end of the second section. After the bin has been swept with two (2) sections more the process can be repeated until the bin is completely empty.*

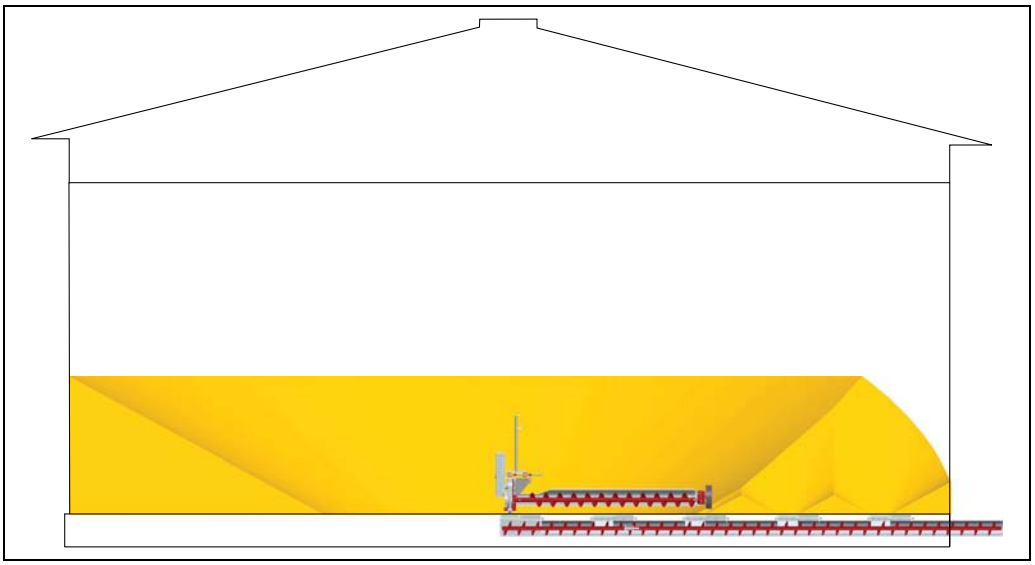


Figure 6H

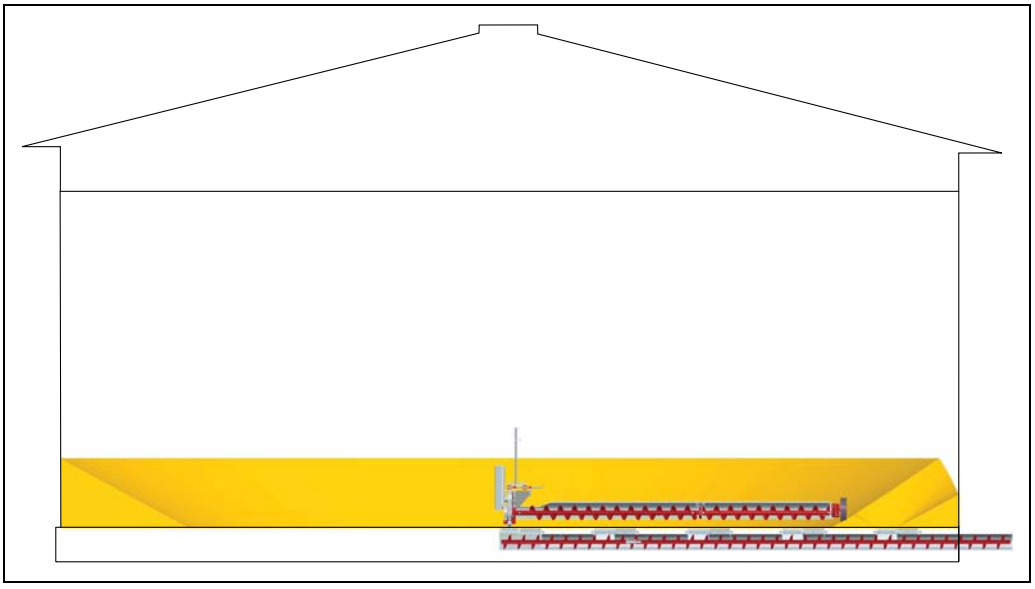


Figure 6I

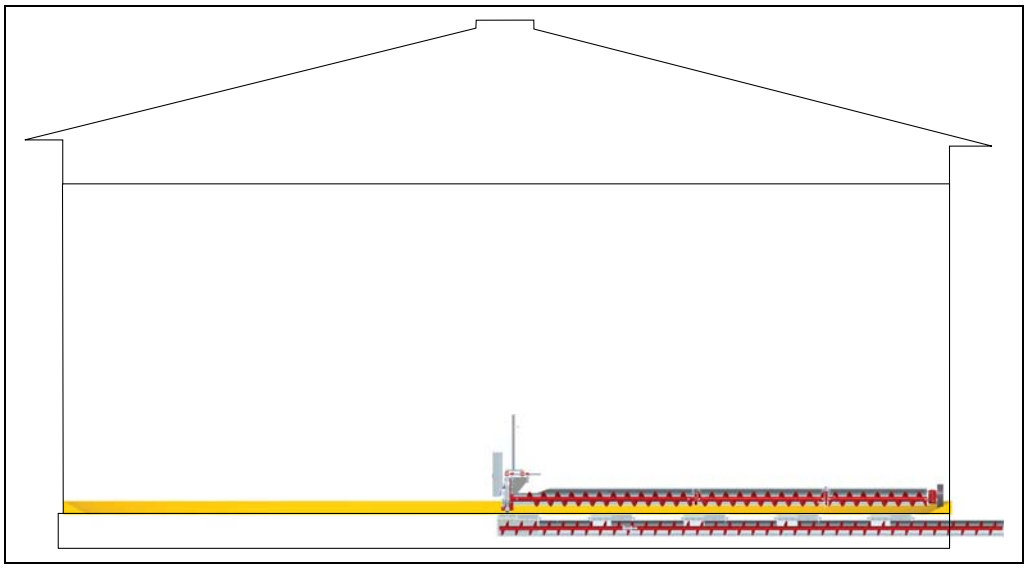


Figure 6J

22. With all power disconnected and locked out, enter the grain bin. Sweep or scoop the remaining grain from the outer area of the floor and move it to a circular pile towards the center of the bin. *(See Figure 6K below and Figure 6L on Page 36.)*

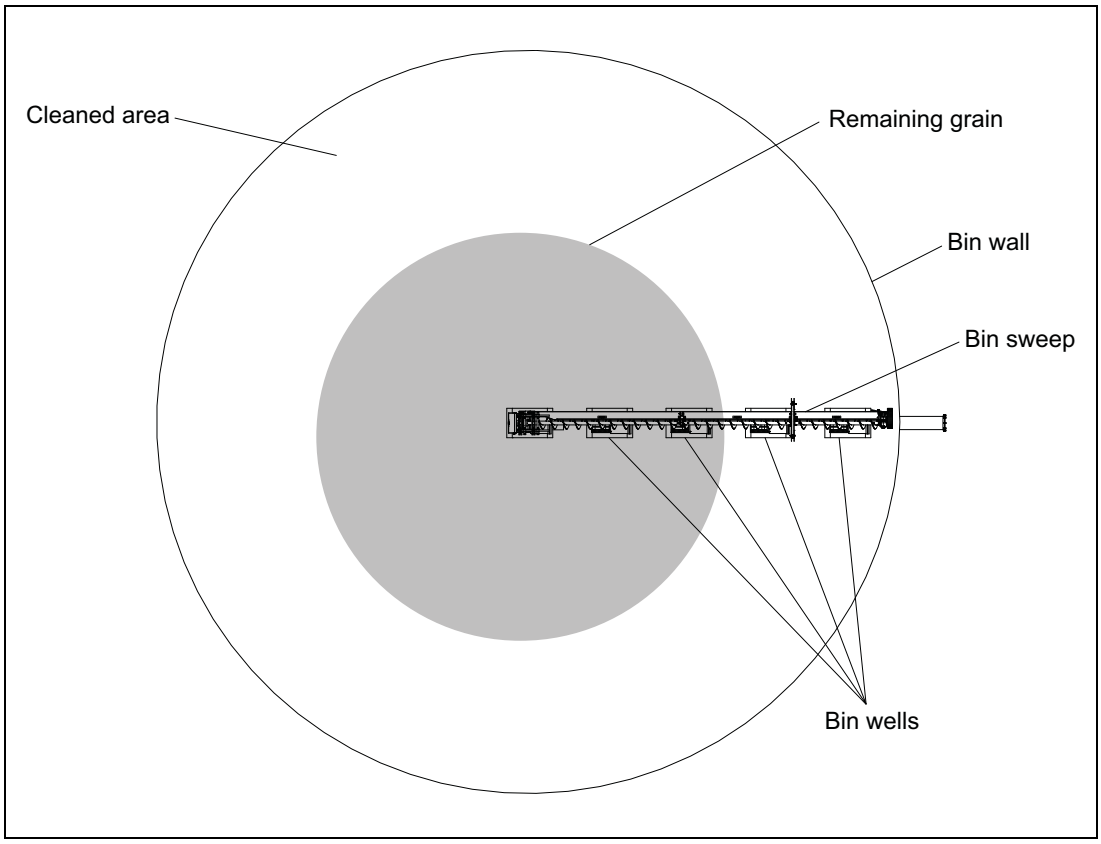


Figure 6K

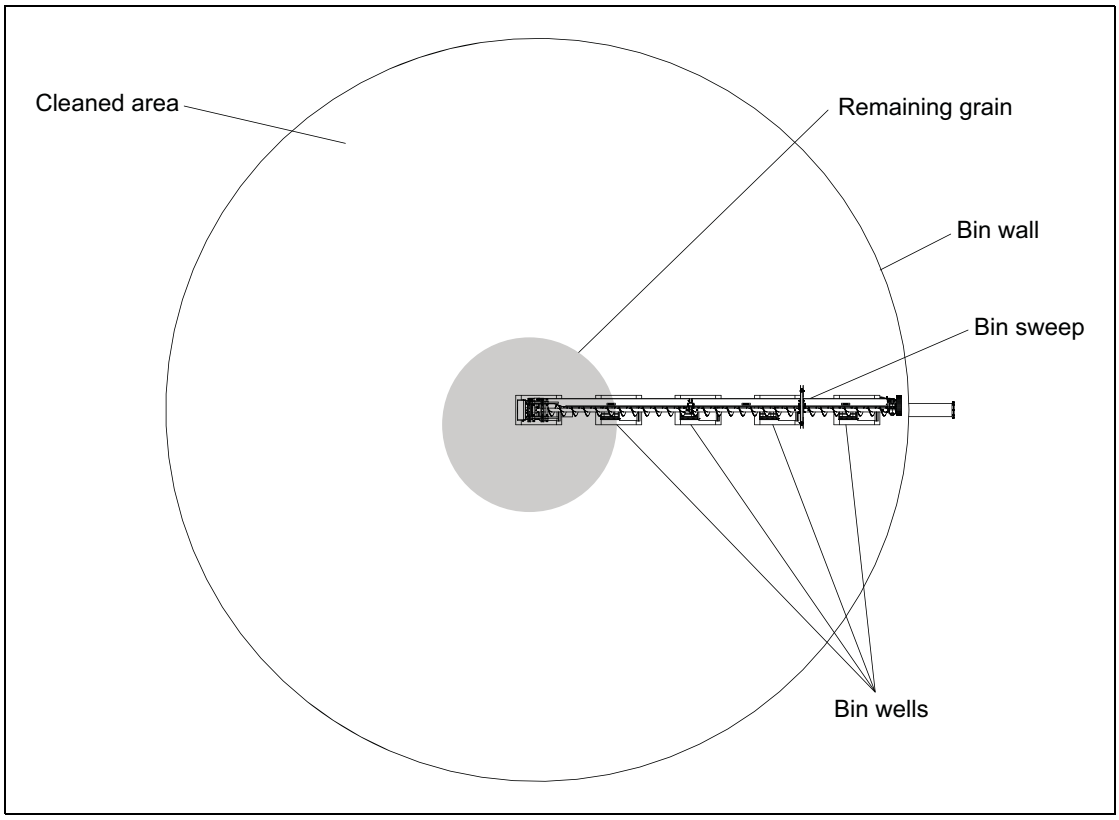


Figure 6L

23. Check the sweep carrier wheel assembly. If necessary, adjust the height so that the sweep arm assembly is close to the floor, but will not contact the floor, intermediate well top flanges or the floor screws.
24. Exit the grain bin.
25. Make sure everyone is outside of the bin and clear of the equipment.
26. Start the unload auger and then the bin sweep. Shortly, the swept pile will have been removed by the bin sweep.
27. Disconnect and lock out all power to the bin sweep and unload auger.
28. Repeat *Step 20 on Page 34*, moving the grain into a smaller circular pile, as shown in *Figure 6L*.
29. Repeat *Step 21 on Page 34*.
30. Exit the grain bin.
31. Make sure everyone is outside of the bin and clear of the equipment.
32. Start the unload auger and then the bin sweep. Shortly, the swept pile will have been removed by the bin sweep.

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

DANGER ***Keep out of the bin while the bin sweep is in operation. The bin sweep travels rapidly around the bin. As the bin empties, the bin sweep travels around the bin faster.***

DANGER ***Stay clear of the unload auger under the floor at the bin wells. The unload auger could be exposed at these locations.***

33. Disconnect and lock out all power the bin sweep and unlock auger.

34. Disconnect the sweep auger wiring and remove the sweep from the bin. Disassemble the sweep as necessary to remove it safety from the bin. See storage section for more details. *(See Figure 6M.)*

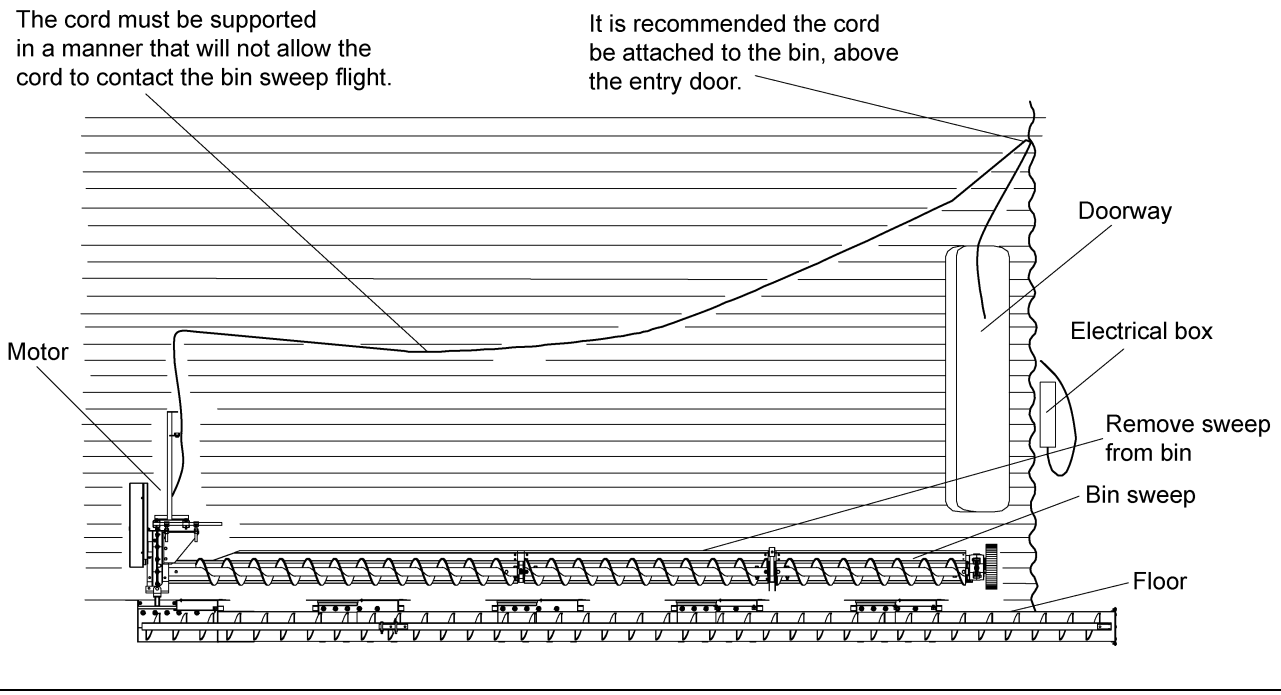


Figure 6M

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

NOTE: *The only way to prevent damage to the bin sweep, bin floor and wells is to completely remove the bin sweep from the bin.*

DANGER

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

1. Always stop and disconnect the power source whenever the operator must leave the work area or for maintenance of the machinery.
2. Make sure no one can operate the unload auger while the operator is not in the work area.
3. Use caution when repairing or replacing equipment parts.
4. Make sure ALL decals are legible and tightly attached to the auger. If necessary, replace them FREE OF CHARGE by contacting the dealer or the manufacturer.
5. Ensure that ALL electric motors, etc., are operating at the proper speed.
6. Maintain proper adjustments on the belts. To tighten the belts, adjust the nuts on the bottom motor straps. The belts should allow 1/64" of deflection for every 1" of center distance between the two (2) shafts. DO NOT over tighten the belts.
7. Mount controls for any electric motors at a safe distance from the machine and in a location accessible in case of an emergency.
8. Make sure ALL electrical wiring is not damaged and that it meets proper wiring codes.
9. Make sure ALL components are in good working condition before use.
10. Check the auger flight to make sure it is in good working condition.
11. The 3:1 aluminum enclosed drive is shipped without oil. Oil is to be added during field assembly of the bin sweep, assembly *Step 24 on Page 23*. Oil will dissipate under normal operating conditions. Check the oil level regularly. Add non-foaming oil to the unit the check point is reached.
12. For lubrication in normal operating temperature between 40°F and 120°F, we recommend the use of non-foaming, multi-purpose gear oil, SAE 90 weight. For temperatures below 40°F, use SAE 80 weight oil. Use grade commercially available for automotive differentials. Extra pressure additives may be of value in severe applications.

CAUTION

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

Storage

1. Close all wells to discharge auger.
2. Be sure the unload tube is empty.
3. Shut down the bin sweep first and then the unload auger.
4. Make sure power source for both are locked out and disconnected.

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

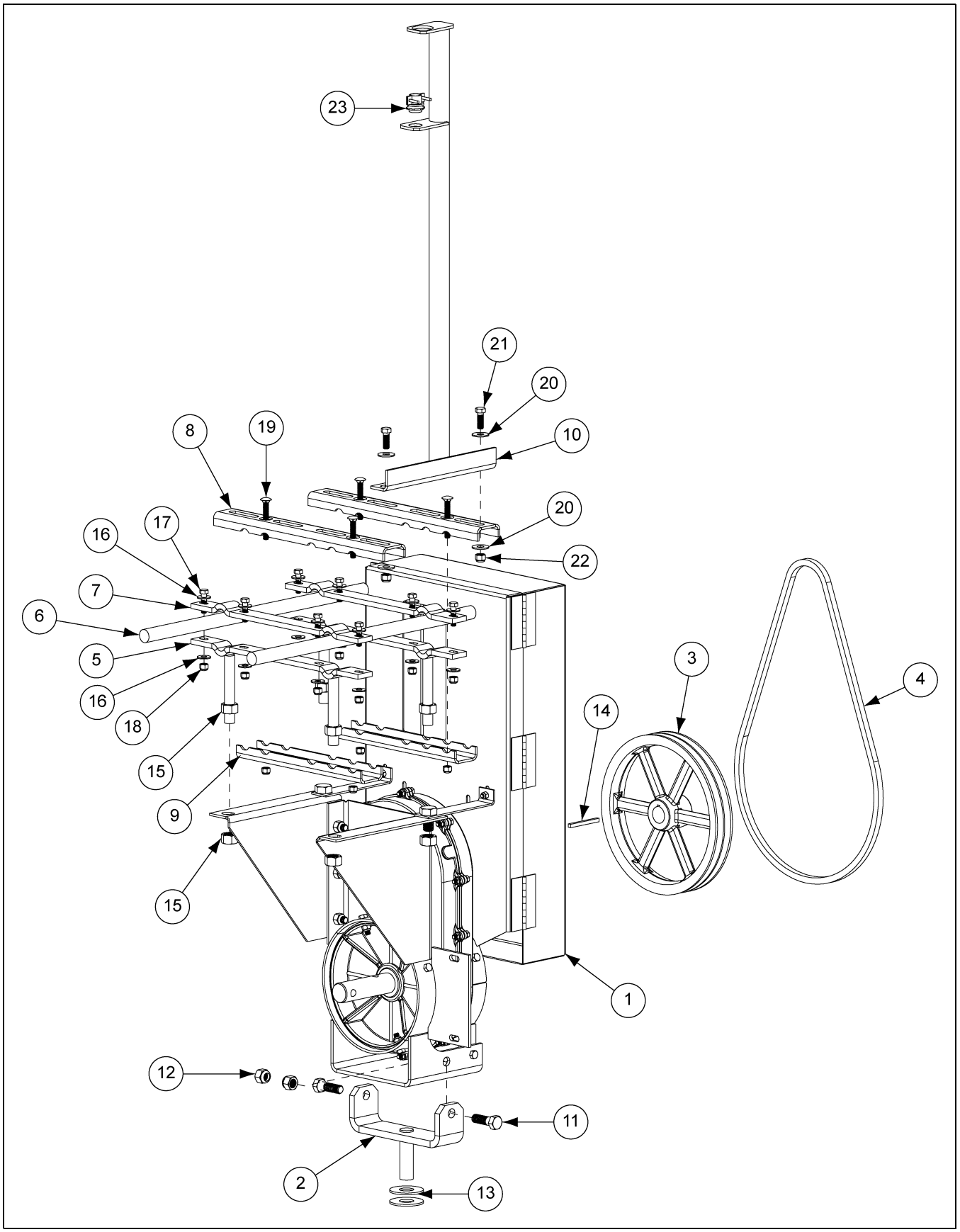
NOTE: *The only way to prevent damage to the bin sweep, bin floor and wells is to completely remove the bin sweep from the bin.*

5. Adjust the motor straps to remove tension from the belts.
6. Open the belt guard and remove the belts.
7. Remove the motor sheave from the motor.
8. Disconnect the electrical cord from the motor.
9. Remove the motor from the drive unit by removing the top motor straps. The motor should still be attached to the top and bottom motor clips.
10. Remove the motor from the bin.
11. Remove the drive assembly from the flight and back shields.
12. Remove the drive assembly and the flight and back shields from the bin.

NOTES

1. Motor Rods to Drive
2. 10"-12" Drive Assembly
3. 3:1 Aluminum Enclosed Drive
4. Motor Mount Frame Assembly
5. Drive to Discharge Flight and Shield
6. Discharge Flight and Shield Bundles
7. Flight and Shield Joint w/o Carrier
8. Intermediate Flight and Shield Bundles
9. Flight and Shield Joint w/ Carrier
10. Flight and Shield to Segmented Wheel
11. Sweep Carrier Assembly
12. Sweep Carrier Wheel Assembly

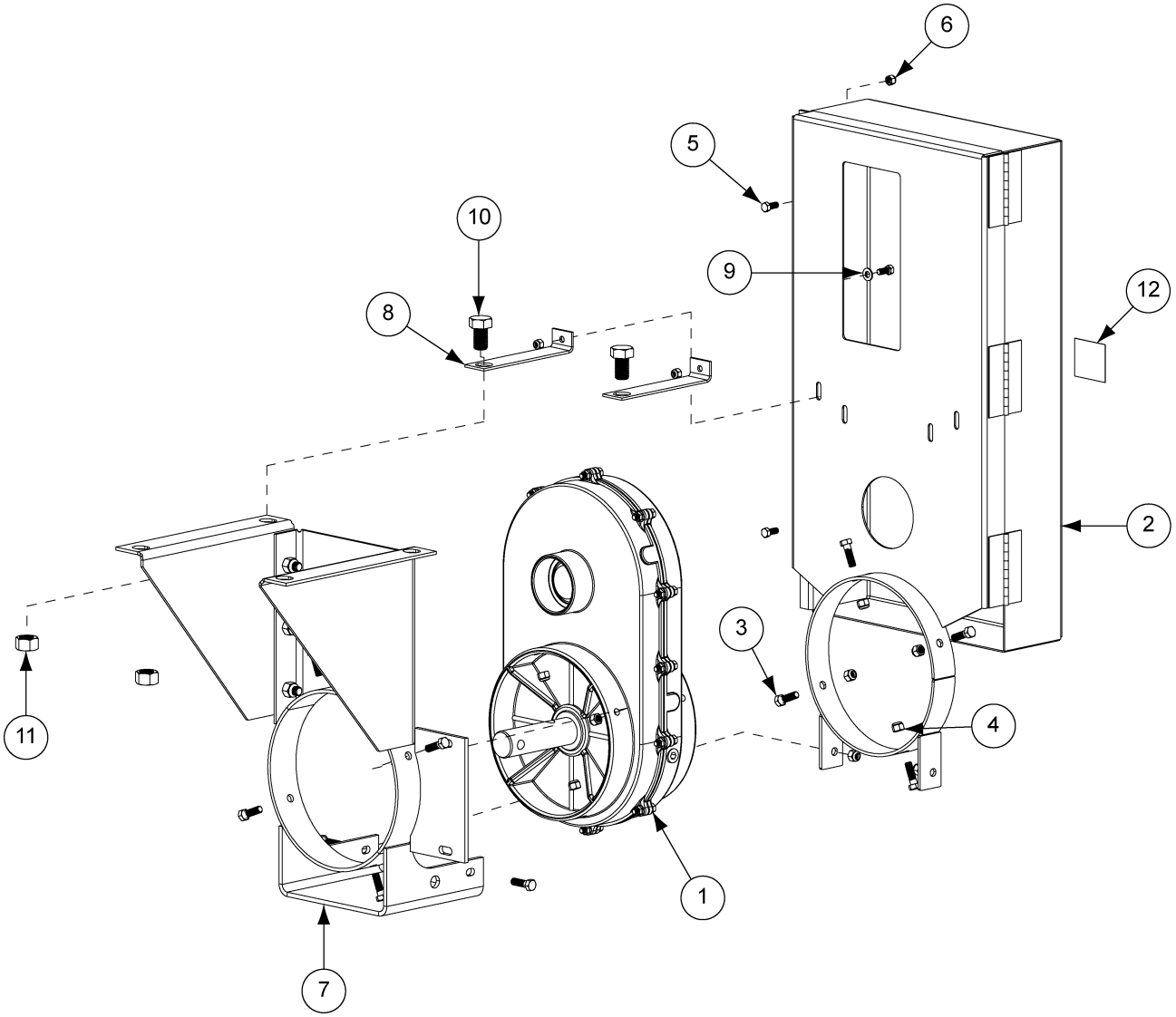
Motor Rods to Drive



Motor Rods to Drive Parts List

Ref #	Part #	Description
1	GK6973	10"-12" Drive Assembly
2	GK2338	Drive Pivot Yoke
3	GK1335	2 Groove Sheave, 12" x 1-1/4"
4	GK1346	V-Belt, B57
5	GK1900	Motor Strap - Bottom
6	GK1893	Motor Rod
7	GK1901	Motor Strap - Top
8	GK1342	Motor Clip - Top
9	GK1341	Motor Clip - Bottom
10	GK4203	Electric Cord Support Stand
11	S-4329	5/8"-11 x 2" HHCS YDP Grade 8
12	S-8349	5/8"-11 Nylock Nut Zinc Grade 2
13	S-7835	1" Flat Washer Zinc
14	S-8276	1/4" x 3" Square Key
15	S-234	3/4"-10 Hex Nut Zinc Grade 5
16	S-248	3/8" Flat Washer YDP Grade 2
17	S-2086	3/8"-16 x 1-1/2" HHCS Zinc Grade 8
18	S-7383	3/8"-16 Nylock Nut Zinc Grade 5
19	S-8055	3/8"-16 x 3" Carriage Bolt Zinc Grade 5
20	S-8320	7/16" Flat Washer Zinc
21	S-3886	7/16"-14 x 1-1/4" HHCS Zinc Grade 5
22	S-8234	7/16"-14 Nylock Nut Zinc Grade 2
23	CH-1829	3/4" Clamp, Non-metallic Cable, 2 Screw

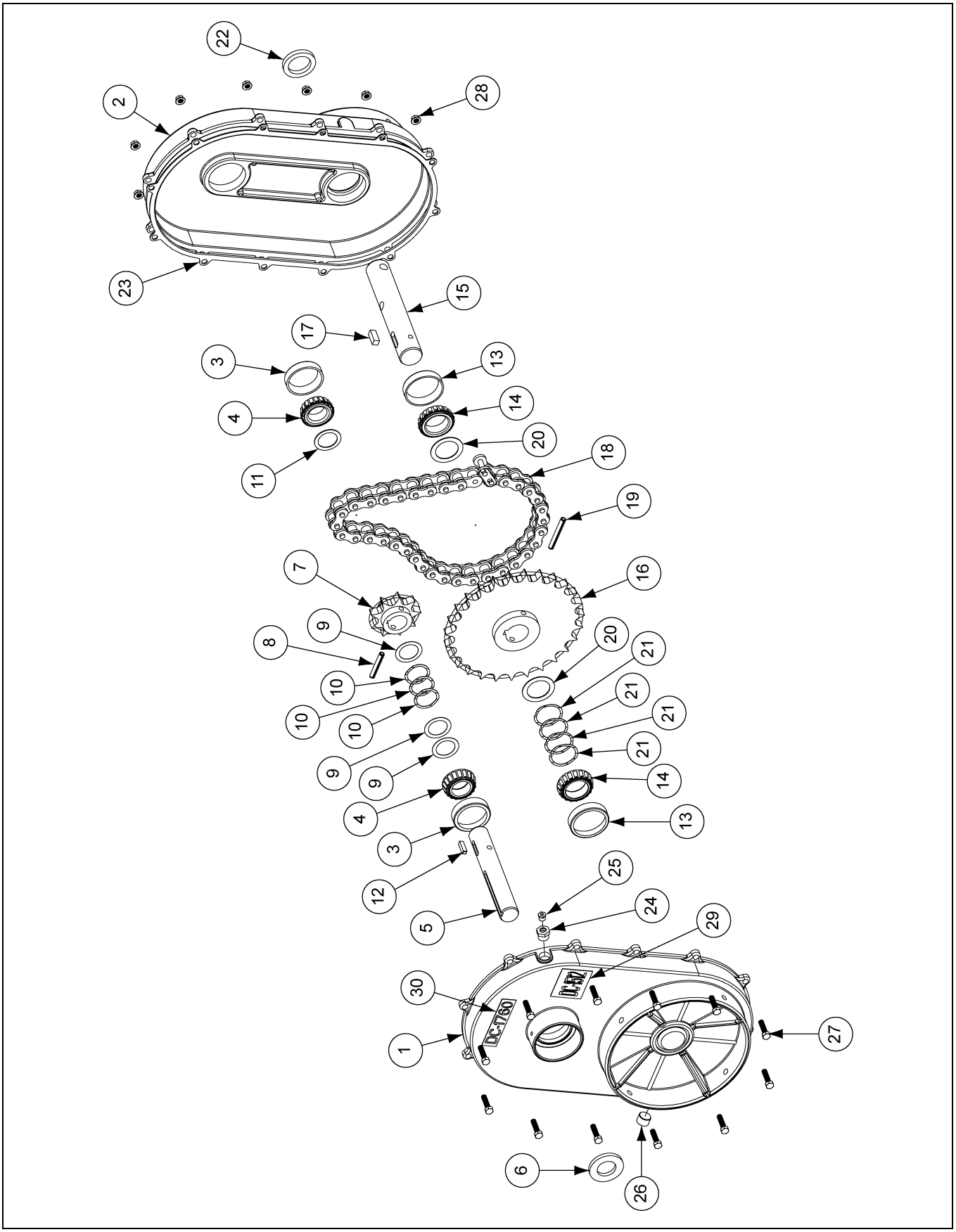
10"-12" Drive Assembly



10"-12" Drive Assembly Parts List

Ref #	Part #	Description
1	GK2341	3:1 Aluminum Enclosed Drive
2	GK2339	Belt Guard Assembly w/ Mounting Ring
3	S-2071	3/8"-16 x 1-1/4" HHCS Zinc Grade 5
4	S-7383	3/8"-16 Nylock Nut Zinc Grade 5
5	S-8072	5/16"-18 x 3/4" HHCS Zinc Grade 2
6	S-7382	5/16"-18 Nylock Nut Zinc Grade 5
7	GK80083	Motor Mount Frame Assembly
8	GK2343	Belt Guard Mounting Strap
9	S-1937	5/16" Flat Washer Zinc Grade 2
10	S-4552	3/4"-10 x 1-1/4" HHCS YDP Grade 5
11	S-234	3/4"-10 Hex Nut Zinc Grade 5
12	DC-1512	Oil Level Decal

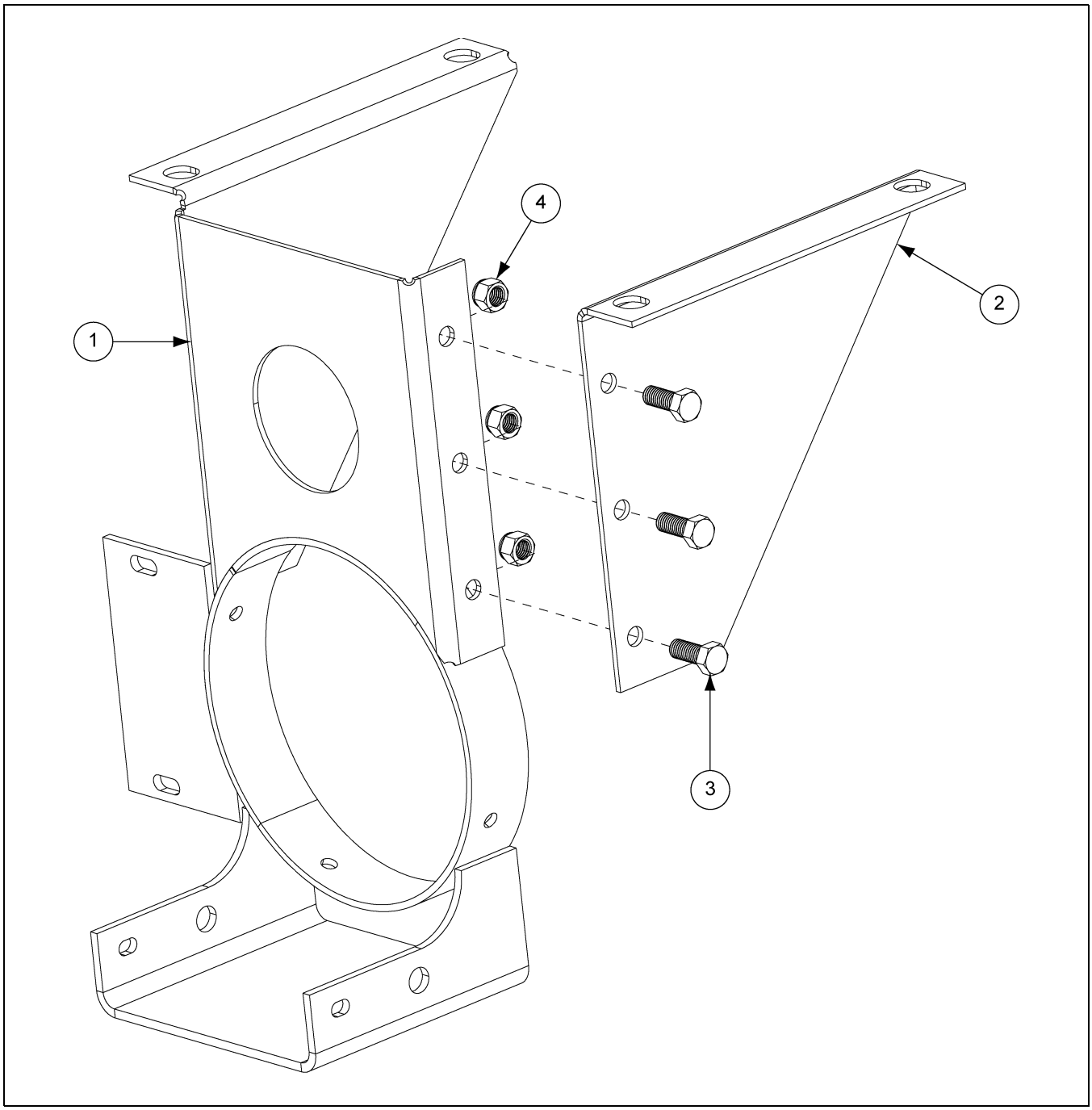
3:1 Aluminum Enclosed Drive



3:1 Aluminum Enclosed Drive Parts List

Ref #	Part #	Description
1	GK2364	Cast Aluminum Cover - Output
2	GK2363	Cast Aluminum Cover - Input
3	GK2383	1-1/4" Tapered Roller Bearing Cup - Cup Only
4	GK2367	1-1/4" Tapered Roller Bearing Cone - Cone Only
5	GK2371	1-1/4" x 7-7/8" Input Drive Shaft
6	GK2374	2-1/4" O.D. x 1-1/4" I.D. x 0.252" Oil Seal
7	GK2372	Sprocket, #80, 9 Teeth - Hardened, 1-1/4" Bore, “C” Hub
8	S-4377	5/16" x 2" Slotted Rolled Spring Pin
9	GK7794	1-3/4" O.D. x 1-1/4" I.D. x 0.020" Shim
10	GK7734	Wave Spring, Single Turn, 1-5/8" x 1.310"
11	GK6780	1-3/4" O.D. x 1-1/4" I.D. x 0.048" Shim
12	S-9168	1/4" x 1" Square Key
13	GK2384	1-1/2" Tapered Roller Bearing Cup - Cup Only
14	GK2368	1-1/2" Tapered Roller Bearing Cone - Cone Only
15	GK2370	1-1/2" x 8-9/16" Output Connecting Shaft
16	GK2369	Sprocket, #80, 27 Teeth - Hardened, 1-1/2" Bore, “C” Hub
17	GC03540	3/8" x 1" Square Key
18	GK2365	#80 Chain, 36P
19	S-4375	5/16" x 2-1/2" Slotted Rolled Spring Pin
20	GK6781	2-1/8" O.D. x 1-1/2" I.D. x 0.048" Shim
21	GK7812	Wave Spring, Single Turn, 1-7/8" x 1.560"
22	GK2373	2-1/8" O.D. x 1-1/2" I.D. x 0.315" Oil Seal
23	TCR-GEN-0320	Loctite 518 Sealant
24	GK5350	1/8"-27 x 3/8"-18 NPT Pipe Adapter Bushing Brass
25	GK2697	1/8"-27 NPT Vent Plug - 7-1/2 - 15 PSI
26	GK2376	3/8"-18 NPT Hex Socket Plug Zinc
27	S-4276	5/16"-18 x 1-1/4" HHCS Zinc Grade 5
28	S-3611	5/16"-18 Serrated Flange Nut YDP Grade 2
29	DC-1512	Oil Level Decal
30	DC-1760	Enclosed Drive Reduction Ratio Decal

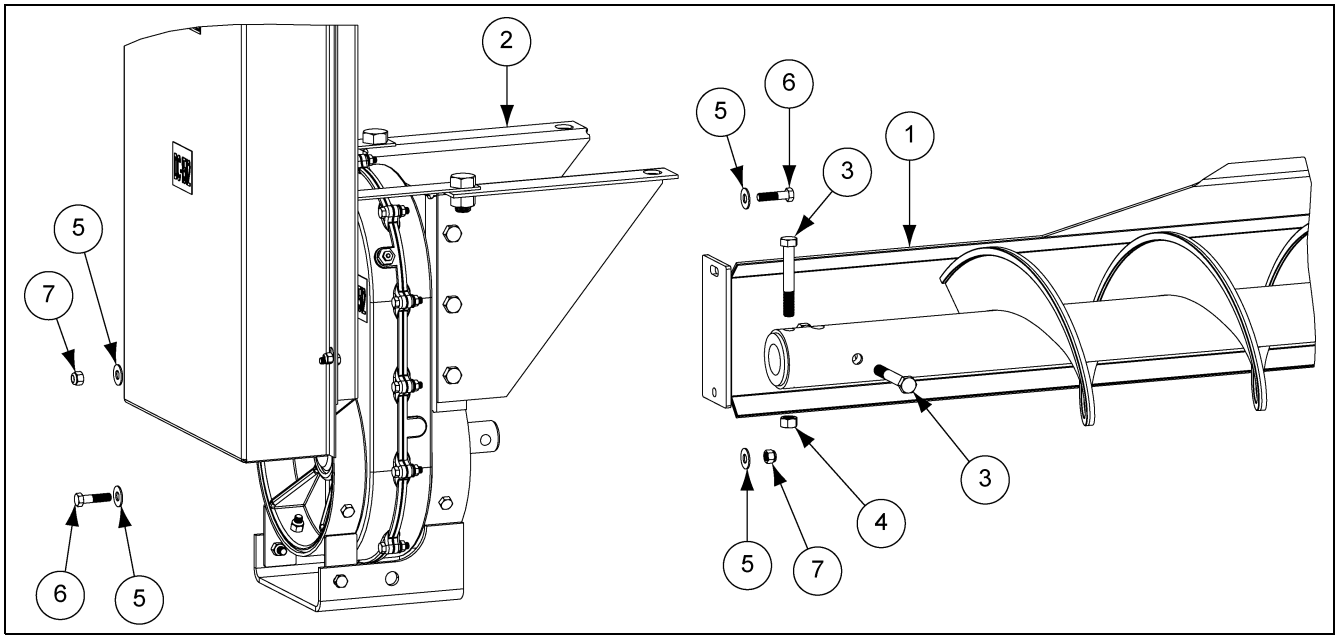
Motor Mount Frame Assembly



Motor Mount Frame Assembly Parts List

Ref #	Part #	Description
1	GK2337	Motor Mount Frame
2	GK80082	Motor Mount Side Plate
3	S-7534	1/2"-13 x 1-1/4" HHCS Zinc Grade 5
4	S-8260	1/2"-13 Nylock Nut Zinc Grade 5

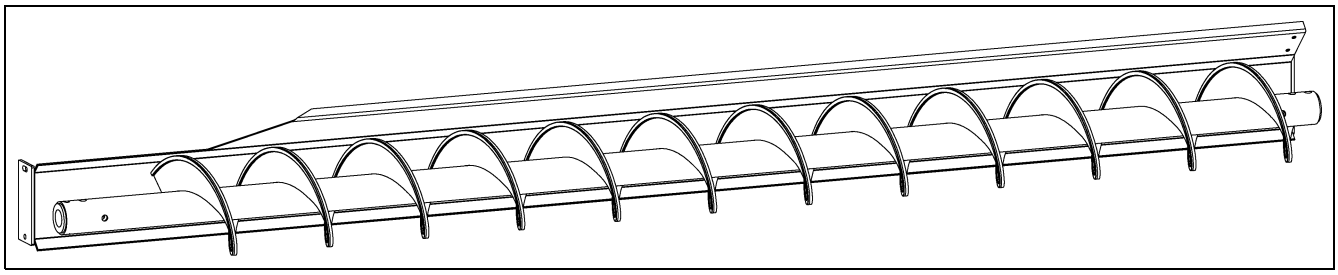
Drive to Discharge Flight and Shield



Drive to Discharge Flight and Shield Parts List

Ref #	Part #	Description
1	Flight and Shield Bundle	Discharge Flight and Shield Bundle
2	GK6973	10"-12" Drive Assembly
3	S-8314	1/2"-13 x 3-1/2" HHCS YDP Grade 8
4	S-8315	1/2"-13 Stover Nut Zinc Grade C
5	S-248	3/8" Flat Washer YDP Grade 2
6	S-2086	3/8"-16 x 1-1/2" HHCS Zinc Grade 8
7	S-7383	3/8"-16 Nylock Nut Zinc Grade 5

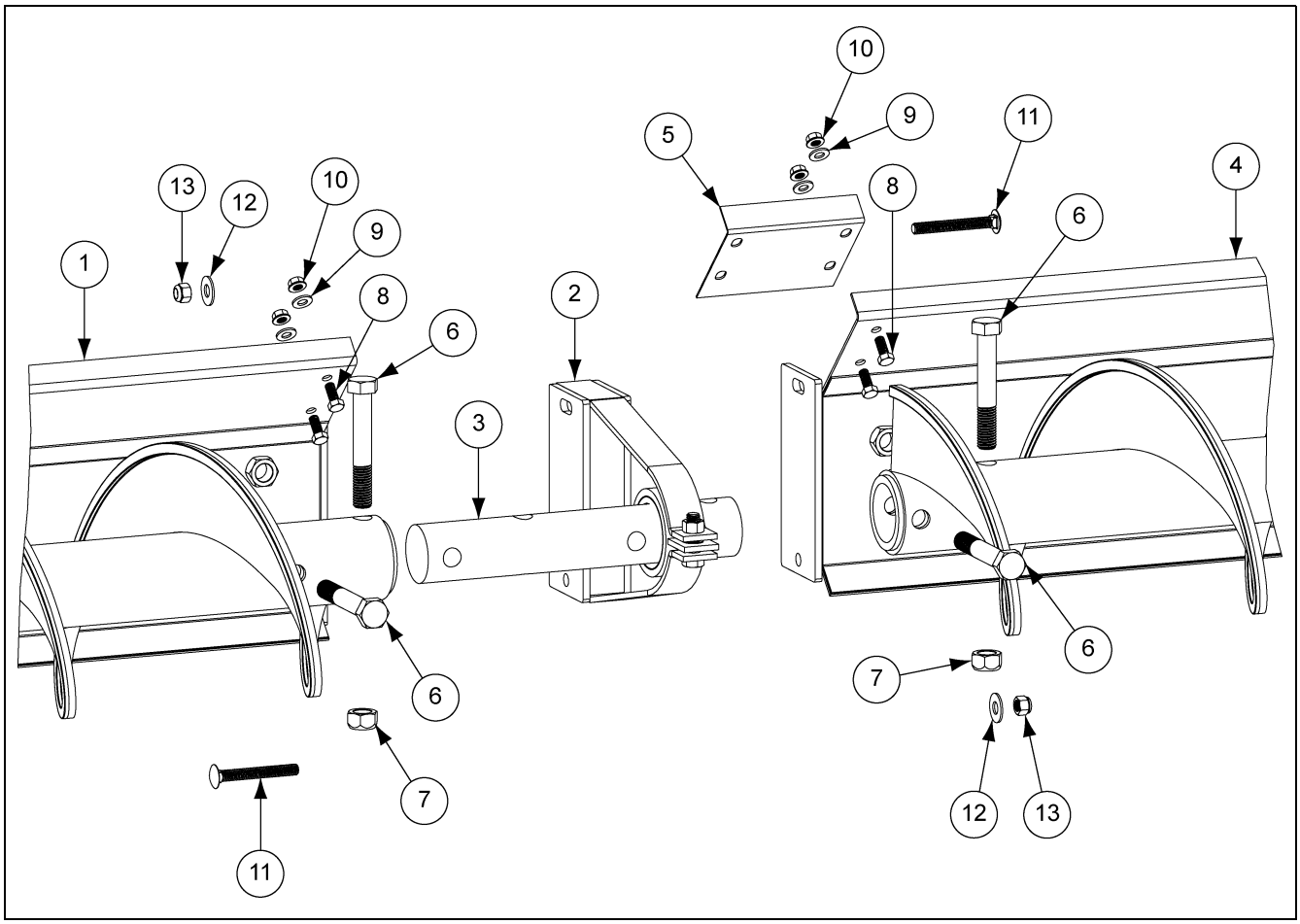
Discharge Flight and Shield Bundles



Discharge Flight and Shield Bundles

Bundle	Flight	Shield	Length
GK5372	GK5047	GK5064	82-1/4"
GK5373	GK5048	GK5065	100-1/4"
GK5374	GK5049	GK5066	118-1/2"
GK80021	GK80019	GK80020	109-1/4"

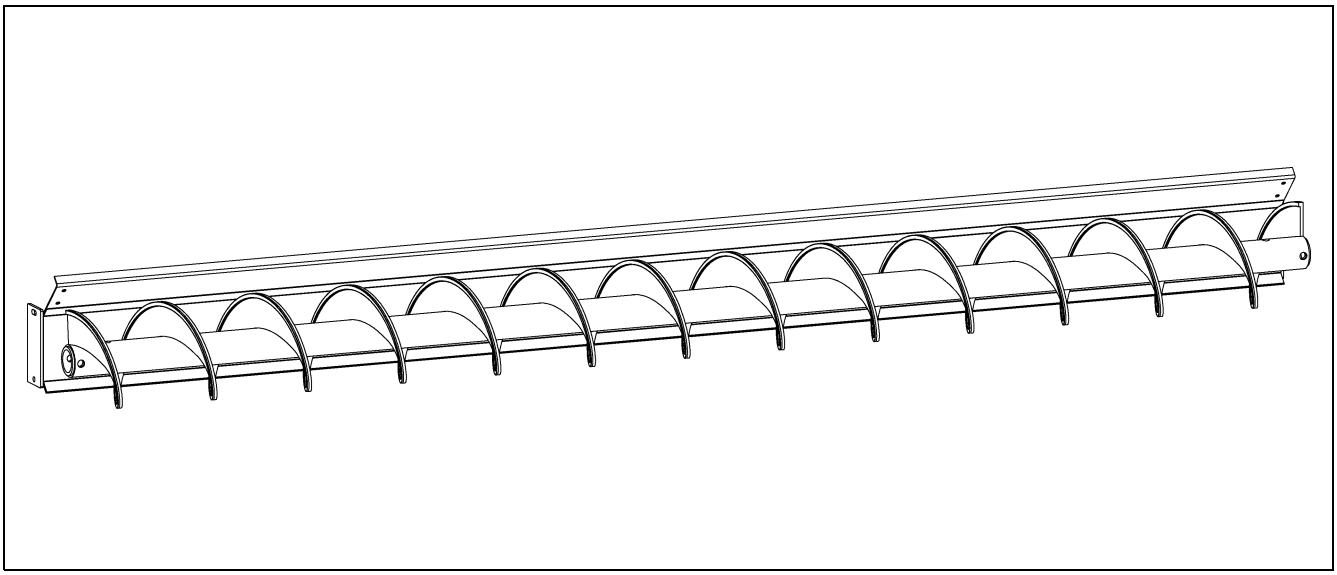
Flight and Shield Joint w/o Carrier



Flight and Shield Joint w/o Carrier Parts List

Ref #	Part #	Description
1	Flight and Shield Bundle	Discharge or Intermediate Flight and Shield Bundle
2	GK2047	Bearing Stand Assembly
3	GK2222	Connecting Shaft 2" O.D. x 11-1/2"
4	Flight and Shield Bundle	Intermediate Flight and Shield Bundle
5	GK5615	Shield Splice Plate
6	S-7893	5/8"-11 x 4" HHCS Zinc Grade 8
7	S-8606	5/8"-11 Stover Nut Zinc Grade C
8	S-4275	5/16"-18 x 3/4" HHTB Zinc Grade 5
9	S-1937	5/16" Flat Washer Zinc Grade 2
10	S-3611	5/16"-18 Serrated Flange Nut YDP Grade 2
11	S-8055	3/8"-16 x 3" Carriage Bolt Zinc Grade 5
12	S-248	3/8" Flat Washer YDP Grade 2
13	S-7383	3/8"-16 Nylock Nut Zinc Grade 5

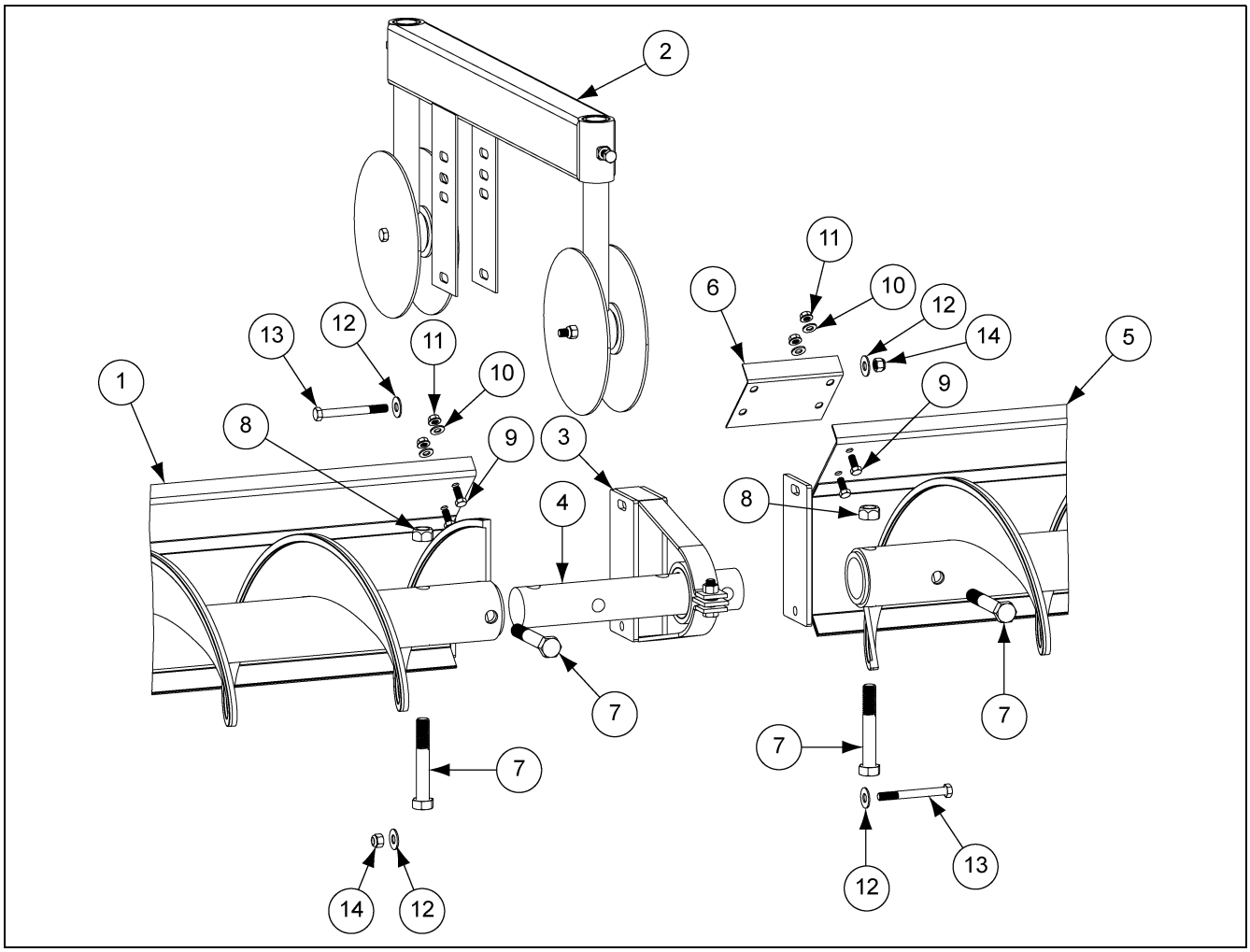
Intermediate Flight and Shield Bundles



Intermediate Flight and Shield Bundles

Bundle	Flight	Shield	Length
GK5375	GK2053	GK2052	46"
GK5376	GK2280	GK2279	64"
GK5377	GK2055	GK2054	70-1/2"
GK5378	GK2294	GK2293	82"
GK5379	GK2299	GK2298	100"
GK5380	GK2284	GK2283	106-1/2"
GK5381	GK2296	GK2295	112"
GK5382	GK2289	GK2288	118-1/4"

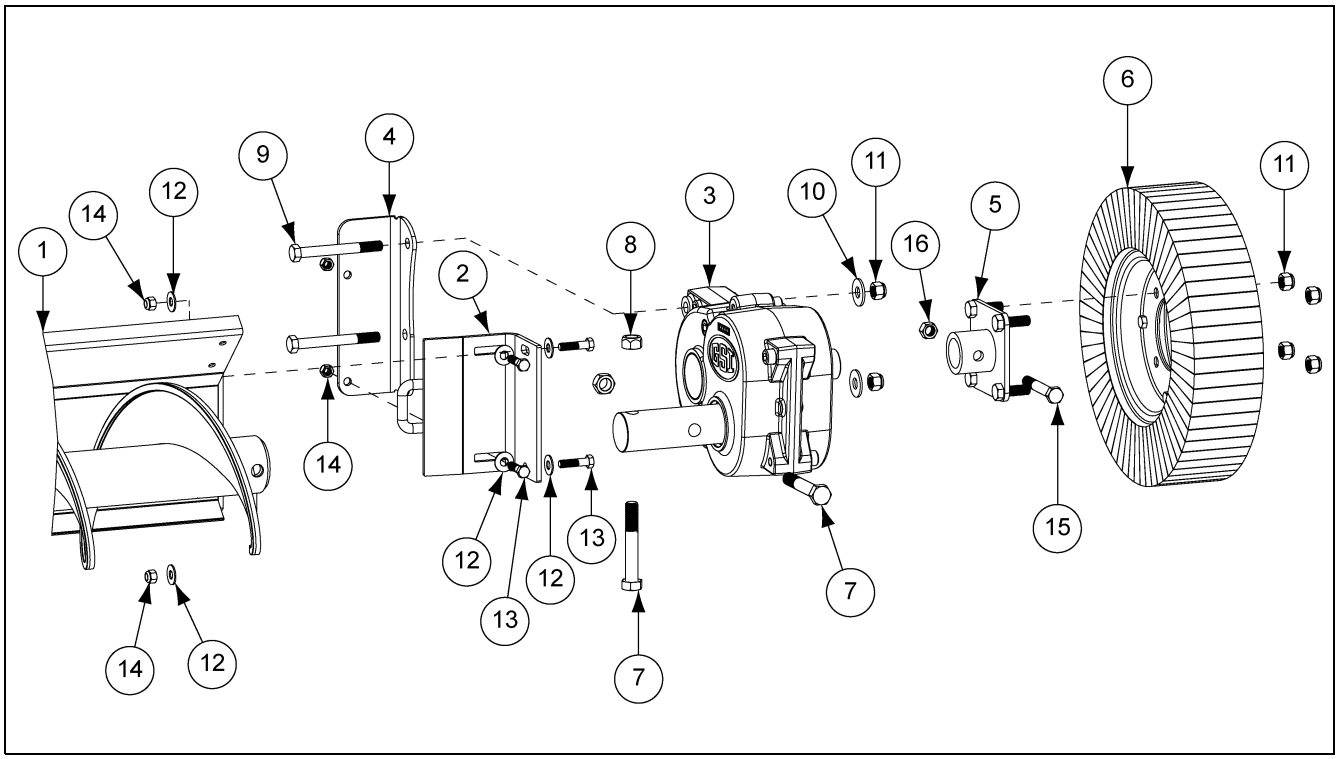
Flight and Shield Joint w/ Carrier



Flight and Shield Joint w/ Carrier Parts List

Ref #	Part #	Description
1	Flight and Shield Bundle	Discharge or Intermediate Flight and Shield Bundle
2	GK2078	Carrier Wheel Assembly
3	GK2047	Bearing Stand Assembly
4	GK2222	Connecting Shaft 2" O.D. x 11-1/2"
5	Flight and Shield Bundle	Intermediate Flight and Shield Bundle
6	GK5615	Shield Splice Plate
7	S-7893	5/8"-11 x 4" HHCS Zinc Grade 8
8	S-8606	5/8"-11 Stover Nut Zinc Grade C
9	S-4275	5/16"-18 x 3/4" HHTB Zinc Grade 5
10	S-1937	5/16" Flat Washer Zinc Grade 2
11	S-3611	5/16"-18 Serrated Flange Nut YDP Grade 2
12	S-248	3/8" Flat Washer YDP Grade 2
13	S-8676	3/8"-16 x 3-1/2" HHCS Zinc Grade 5
14	S-7383	3/8"-16 Nylock Nut Zinc Grade 5

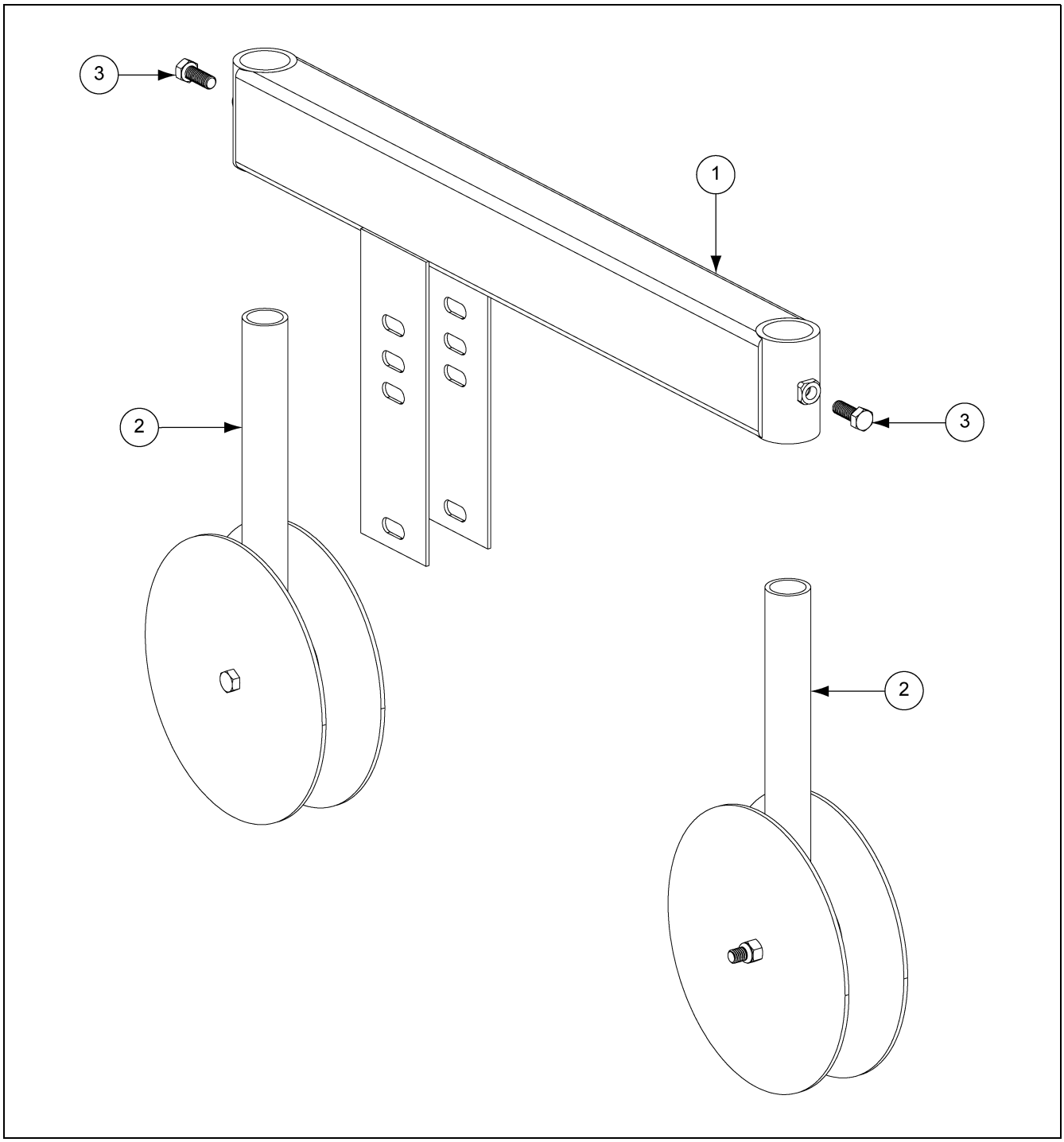
Flight and Shield to Segmented Wheel



Flight and Shield to Segmented Wheel Parts List

Ref #	Part #	Description
1	Flight and Shield Bundle	Discharge or Intermediate Flight and Shield Bundle
2	GK2347	Mounting Bracket with Anchor Loop
3	GK80022	Gear Driven Reduction Wheel Drive, 9.92:1
4	GK80049	Segmented Wheel Bracket
5	GK80048	Segmented Wheel Hub Assembly
6	GK2344	Segmented Rubber Wheel
7	S-7893	5/8"-11 x 4" HHCS Zinc Grade 8
8	S-8606	5/8"-11 Stover Nut Zinc Grade C
9	S-8232	1/2"-13 x 4-1/2" HHCS Zinc Grade 5
10	S-2121	1/2" Flat Washer Plated
11	S-8260	1/2"-13 Nylock Nut Zinc Grade 5
12	S-248	3/8" Flat Washer YDP Grade 2
13	S-2086	3/8"-16 x 1-1/2" HHCS Zinc Grade 8
14	S-7383	3/8"-16 Nylock Nut Zinc Grade 5
15	S-8314	1/2"-13 x 3-1/2" HHCS YDP Grade 8
16	S-8315	1/2"-13 Stover Nut Zinc Grade C

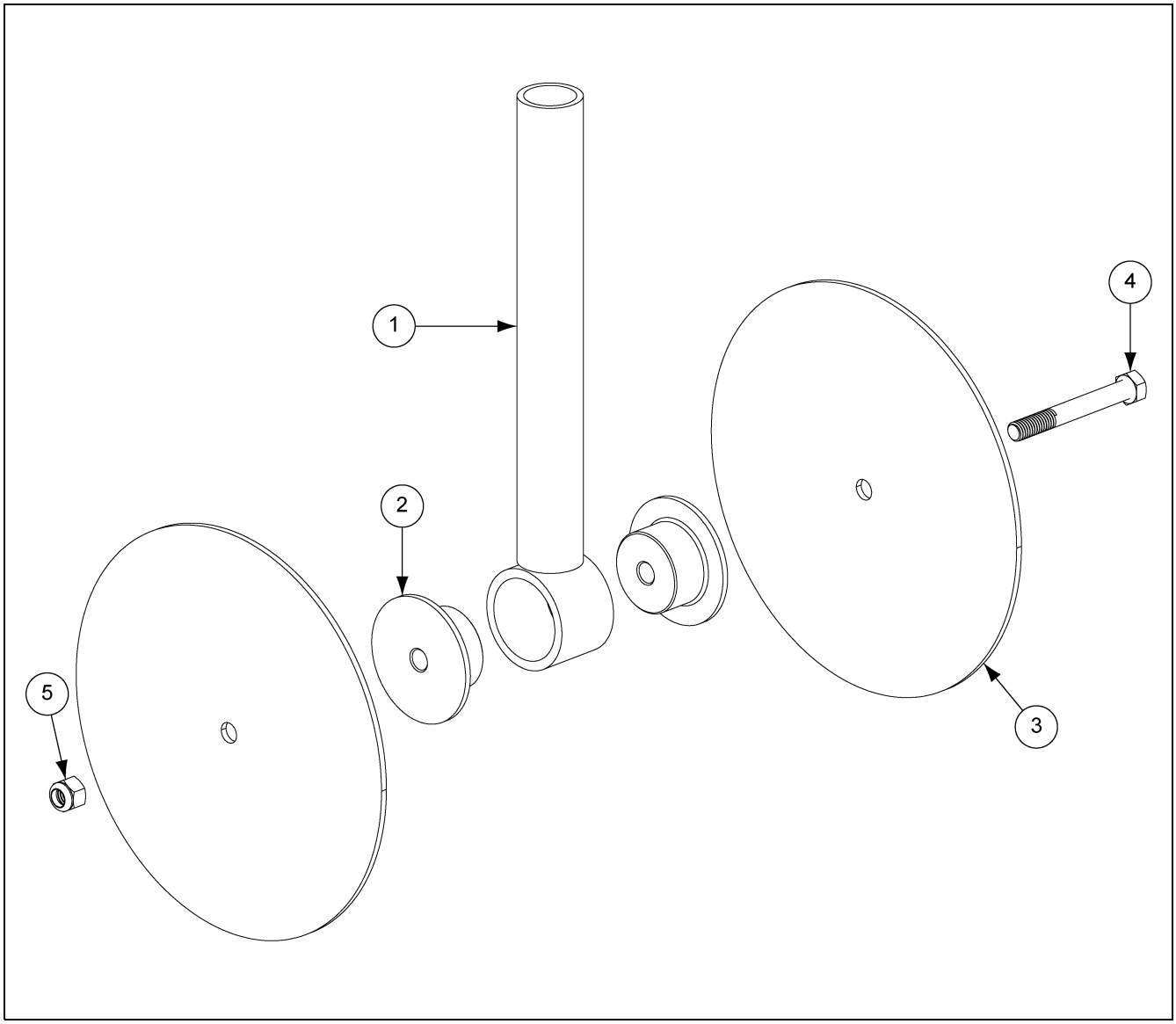
Sweep Carrier Assembly



Sweep Carrier Assembly Parts List

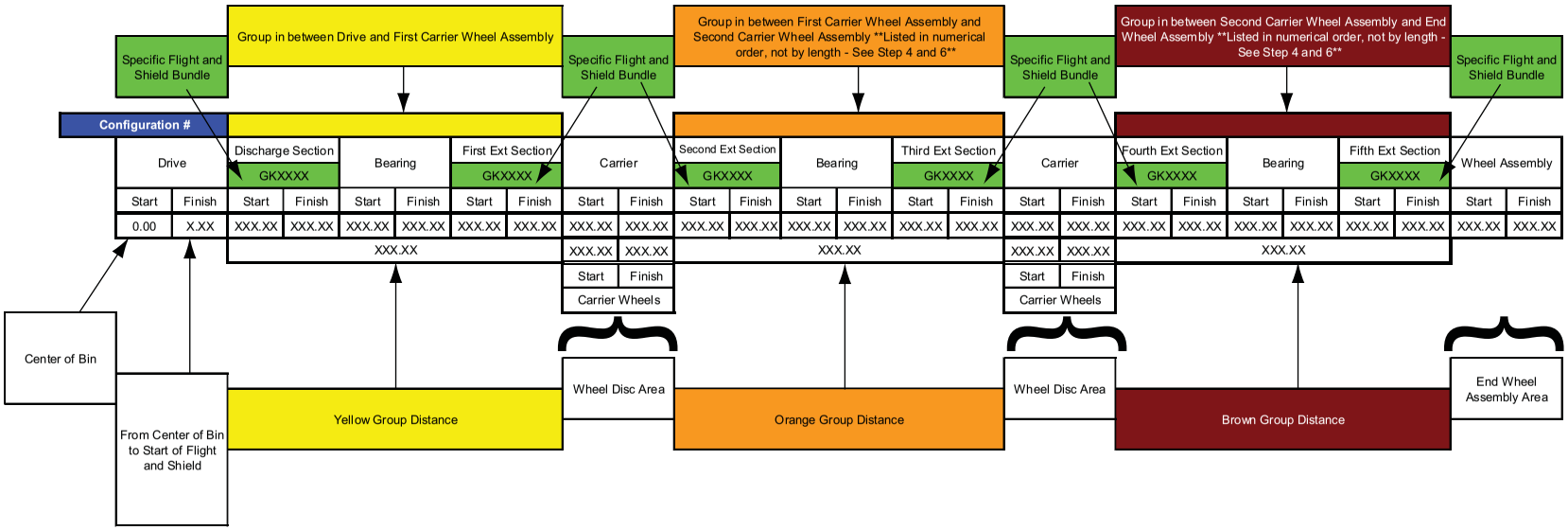
Ref #	Part #	Description
1	GK2082	Sweep Carrier Body
2	GK2083	Sweep Carrier Leg Assembly
3	S-7469	3/8"-16 x 1" HHCS Zinc Grade 5

Sweep Carrier Wheel Assembly



Sweep Carrier Wheel Assembly Parts List

Ref #	Part #	Description
1	GC08887	Sweep Carrier Wheel Leg
2	GC09726	Sweep Carrier Wheel Bushing
3	GK2085	Sweep Wheel Disc
4	S-7249	3/8"-16 x 3" HHCS Zinc Grade 5
5	S-7383	3/8"-16 Nylock Nut Zinc Grade 5



All Distances Stated in Inches

1. All care should be taken to ensure that the wheel discs on the carrier wheel assemblies do not conflict with known well positions. Choose the applicable configuration that accomplishes this.
   a. If multiple configurations exist that satisfy the above criteria, choose the configuration that makes the yellow, orange and brown groups as equal as possible.
2. Install the longest group (yellow, orange or brown) closest to the center well. The discharge section must be installed to the drive.
3. Install the first carrier wheel assembly.
4. Install the shortest group (yellow, orange or brown) next. Assemble the shorter of the two (2) sections to the installed carrier wheel assembly from the *Step 3.*
5. Install the second carrier wheel assembly.
6. Install the last group (yellow, orange or brown) next. Assemble the shorter of the two (2) sections to the installed carrier wheel assembly from the *Step 5.*
7. Install the end wheel assembly.

Flight and Shield Configuration (Continued)

24' Bin

Drive		Discharge Section GK5372		Bearing		First Ext Section GK5375		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	84.57	84.57	86.32	86.32	132.32	132.32	142.33
			130.00						

27' Bin

Drive		Discharge Section GK5372		Bearing		First Ext Section GK5376		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	84.57	84.57	86.32	86.32	150.32	150.32	160.33
			148.00						

30' Bin

Drive		Discharge Section GK80021		Bearing		First Ext Section GK5375		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	111.57	111.57	113.32	113.32	159.32	159.32	169.33
			157.00						

33' Bin

Drive		Discharge Section GK5372		Bearing		First Ext Section GK5379		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	84.57	84.57	86.32	86.32	186.32	186.32	196.33
			184.00						

34' Bin

Drive		Discharge Section GK5372		Bearing		First Ext Section GK5380		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	84.57	84.57	86.32	86.32	192.82	192.82	202.83
			190.50						

36' Bin

Drive		Discharge Section GK5372		Bearing		First Ext Section GK5381		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	84.07	84.07	85.82	85.82	197.32	197.32	207.75
			195.00						

37' Bin

Drive		Discharge Section GK5373		Bearing		First Ext Section GK5380		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	102.57	102.57	104.32	104.32	210.82	210.82	220.83
			208.50						

39' Bin

Drive		Discharge Section GK5373		Bearing		First Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	102.57	102.57	104.32	104.32	222.57	222.57	232.58
			220.25						

40' Bin

Drive		Discharge Section GK5374		Bearing		First Ext Section GK5380		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	229.07	229.07	239.08
			226.75						

42' Bin

Drive		Discharge Section GK5374		Bearing		First Ext Section GK5381		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	234.57	234.57	244.58
			232.25						

Flight and Shield Configuration (Continued)

45' Bin

1														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5375		Carrier		Second Ext Section GK5378		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	168.57	168.57	170.78	170.78	252.78	252.78	262.79
		166.25						163.41	173.74	82.00			
								Start	Finish				
								Carrier Wheels					

45' Bin

2														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5378		Carrier		Second Ext Section GK5375		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	204.57	204.57	206.78	206.78	252.78	252.78	262.79
		202.25						199.41	209.74	46.00			
								Start	Finish				
								Carrier Wheels					

48' Bin

1														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5376		Carrier		Second Ext Section GK5378		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	186.57	186.57	188.78	188.78	270.78	270.78	280.79
		184.25						181.41	191.74	82.00			
								Start	Finish				
								Carrier Wheels					

48' Bin

2														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5378		Carrier		Second Ext Section GK5376		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	204.57	204.57	206.78	206.78	270.78	270.78	280.79
		202.25						199.41	209.74	64.00			
								Start	Finish				
								Carrier Wheels					

49' Bin

1														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5377		Carrier		Second Ext Section GK5378		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	193.07	193.07	195.28	195.28	277.28	277.28	287.29
		190.75						187.91	198.24	82.00			
								Start	Finish				
								Carrier Wheels					

49' Bin

2														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5378		Carrier		Second Ext Section GK5377		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	204.57	204.57	206.78	206.78	277.28	277.28	287.29
		202.25						199.41	209.74	70.50			
								Start	Finish				
								Carrier Wheels					

52' Bin

1														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5376		Carrier		Second Ext Section GK5380		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	186.57	186.57	188.78	188.78	295.28	295.28	305.29
		184.25						181.41	191.74	106.50			
								Start	Finish				
								Carrier Wheels					

52' Bin

2														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5380		Carrier		Second Ext Section GK5376		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	229.07	229.07	231.28	231.28	295.28	295.28	305.29
		226.75						223.91	234.24	64.00			
								Start	Finish				
								Carrier Wheels					

Flight and Shield Configuration (Continued)

54' Bin

1														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5376		Carrier		Second Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	186.57	186.57	188.78	188.78	307.03	307.03	317.04
		184.25						181.41	191.74	118.25			
								Start	Finish				
								Carrier Wheels					

54' Bin

2														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5382		Carrier		Second Ext Section GK5376		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	240.82	240.82	243.03	243.03	307.03	307.03	317.04
		238.50						235.66	245.99	64.00			
								Start	Finish				
								Carrier Wheels					

55' Bin

1														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5377		Carrier		Second Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	193.07	193.07	195.28	195.28	313.53	313.53	323.54
		190.75						187.91	198.24	118.25			
								Start	Finish				
								Carrier Wheels					

55' Bin

2														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5382		Carrier		Second Ext Section GK5377		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	240.82	240.82	243.03	243.03	313.53	313.53	323.54
		238.50						235.66	245.99	70.50			
								Start	Finish				
								Carrier Wheels					

58' Bin

1														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5379		Carrier		Second Ext Section GK5380		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	222.57	222.57	224.78	224.78	331.28	331.28	341.29
		220.25						217.41	227.74	106.50			
								Start	Finish				
								Carrier Wheels					

58' Bin

2														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5380		Carrier		Second Ext Section GK5379		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	229.07	229.07	231.28	231.28	331.28	331.28	341.29
		226.75						223.91	234.24	100.00			
								Start	Finish				
								Carrier Wheels					

60' Bin

1														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5379		Carrier		Second Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	222.57	222.57	224.78	224.78	343.03	343.03	353.04
		220.25						217.41	227.74	118.25			
								Start	Finish				
								Carrier Wheels					

60' Bin

2														
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5382		Carrier		Second Ext Section GK5379		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	240.82	240.82	243.03	243.03	343.03	343.03	353.04
		238.50						235.66	245.99	100.00			
								Start	Finish				
								Carrier Wheels					

Flight and Shield Configuration (Continued)

63' Bin

1																	
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5376		Carrier		Second Ext Section GK5377		Bearing		Third Ext Section GK5379		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	186.57	186.57	188.78	188.78	259.28	259.28	261.03	261.03	361.03	361.03	371.04
		184.25						181.41	191.74	172.25							
								Start	Finish								
								Carrier Wheels									

2																	
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5377		Carrier		Second Ext Section GK5376		Bearing		Third Ext Section GK5379		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	193.07	193.07	195.28	195.28	259.28	259.28	261.03	261.03	361.03	361.03	371.04
		190.75						187.91	198.24	165.75							
								Start	Finish								
								Carrier Wheels									

3																	
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5379		Carrier		Second Ext Section GK5376		Bearing		Third Ext Section GK5377		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	222.57	222.57	224.78	224.78	288.78	288.78	290.53	290.53	361.03	361.03	371.04
		220.25						217.41	227.74	136.25							
								Start	Finish								
								Carrier Wheels									

68' Bin

1																	
Drive		Discharge Section GK5372		Bearing		First Ext Section GK5377		Carrier		Second Ext Section GK5382		Bearing		Third Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	84.57	84.57	86.32	86.32	156.82	156.82	159.03	159.03	277.28	277.28	279.03	279.03	397.28	397.28	407.29
		154.50						151.66	161.99	238.25							
								Start	Finish								
								Carrier Wheels									

2																	
Drive		Discharge Section GK5372		Bearing		First Ext Section GK5382		Carrier		Second Ext Section GK5377		Bearing		Third Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	84.57	84.57	86.32	86.32	204.57	204.57	206.78	206.78	277.28	277.28	279.03	279.03	397.28	397.28	407.29
		202.25						199.41	209.74	190.50							
								Start	Finish								
								Carrier Wheels									

69' Bin

1																	
Drive		Discharge Section GK5372		Bearing		First Ext Section GK5377		Carrier		Second Ext Section GK5382		Bearing		Third Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	84.57	84.57	86.32	86.32	156.82	156.82	159.03	159.03	277.28	277.28	279.03	279.03	397.28	397.28	407.29
		154.50						151.66	161.99	238.25							
								Start	Finish								
								Carrier Wheels									

2																	
Drive		Discharge Section GK5372		Bearing		First Ext Section GK5382		Carrier		Second Ext Section GK5377		Bearing		Third Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	84.57	84.57	86.32	86.32	204.57	204.57	206.78	206.78	277.28	277.28	279.03	279.03	397.28	397.28	407.29
		202.25						199.41	209.74	190.50							
								Start	Finish								
								Carrier Wheels									

Flight and Shield Configuration (Continued)

1

Drive		Discharge Section GK5374		Bearing		First Ext Section GK5377		Carrier		Second Ext Section GK5379		Bearing		Third Ext Section GK5380		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	193.07	193.07	195.28	195.28	295.28	295.28	297.03	297.03	403.53	403.53	413.54
		190.75						187.91	198.24	208.25							
								Start	Finish								
								Carrier Wheels									

2

Drive		Discharge Section GK5374		Bearing		First Ext Section GK5379		Carrier		Second Ext Section GK5377		Bearing		Third Ext Section GK5380		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	222.57	222.57	224.78	224.78	295.28	295.28	297.03	297.03	403.53	403.53	413.54
		220.25						217.41	227.74	178.75							
								Start	Finish								
								Carrier Wheels									

3

Drive		Discharge Section GK5374		Bearing		First Ext Section GK5380		Carrier		Second Ext Section GK5377		Bearing		Third Ext Section GK5379		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	229.07	229.07	231.28	231.28	301.78	301.78	303.53	303.53	403.53	403.53	413.54
		226.75						223.91	234.24	172.25							
								Start	Finish								
								Carrier Wheels									

72' Bin

1

Drive		Discharge Section GK5374		Bearing		First Ext Section GK5377		Carrier		Second Ext Section GK5382		Bearing		Third Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	193.07	193.07	195.28	195.28	313.53	313.53	315.28	315.28	433.53	433.53	443.54
		190.75						187.91	198.24	238.25							
								Start	Finish								
								Carrier Wheels									

2

Drive		Discharge Section GK5374		Bearing		First Ext Section GK5382		Carrier		Second Ext Section GK5377		Bearing		Third Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	240.82	240.82	243.03	243.03	313.53	313.53	315.28	315.28	433.53	433.53	443.54
		238.50						235.66	245.99	190.50							
								Start	Finish								
								Carrier Wheels									

74' Bin

1

Drive		Discharge Section GK5374		Bearing		First Ext Section GK5379		Carrier		Second Ext Section GK5379		Bearing		Third Ext Section GK5380		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	222.57	222.57	224.78	224.78	324.78	324.78	326.53	326.53	433.03	433.03	443.04
		220.25						217.41	227.74	208.25							
								Start	Finish								
								Carrier Wheels									

2

Drive		Discharge Section GK5374		Bearing		First Ext Section GK5380		Carrier		Second Ext Section GK5379		Bearing		Third Ext Section GK5379		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	229.07	229.07	231.28	231.28	331.28	331.28	333.03	333.03	433.03	433.03	443.04
		226.75						223.91	234.24	201.75							
								Start	Finish								
								Carrier Wheels									

75' Bin

Flight and Shield Configuration (Continued)

1

Drive		Discharge Section GK5374		Bearing		First Ext Section GK5379		Carrier		Second Ext Section GK5380		Bearing		Third Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	222.57	222.57	224.78	224.78	331.28	331.28	333.03	333.03	451.28	451.28	461.29
		220.25						217.41	227.74	226.50							
								Start	Finish								
								Carrier Wheels									

78' Bin

2

Drive		Discharge Section GK5374		Bearing		First Ext Section GK5380		Carrier		Second Ext Section GK5379		Bearing		Third Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	229.07	229.07	231.28	231.28	331.28	331.28	333.03	333.03	451.28	451.28	461.29
		226.75						223.91	234.24	220.00							
								Start	Finish								
								Carrier Wheels									

78' Bin

3

Drive		Discharge Section GK5374		Bearing		First Ext Section GK5382		Carrier		Second Ext Section GK5379		Bearing		Third Ext Section GK5380		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	240.82	240.82	243.03	243.03	343.03	343.03	344.78	344.78	451.28	451.28	461.29
		238.50						235.66	245.99	208.25							
								Start	Finish								
								Carrier Wheels									

78' Bin

1

Drive		Discharge Section GK5374		Bearing		First Ext Section GK5379		Carrier		Second Ext Section GK5382		Bearing		Third Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	222.57	222.57	224.78	224.78	343.03	343.03	344.78	344.78	463.03	463.03	473.04
		220.25						217.41	227.74	238.25							
								Start	Finish								
								Carrier Wheels									

80' Bin

2

Drive		Discharge Section GK5374		Bearing		First Ext Section GK5382		Carrier		Second Ext Section GK5379		Bearing		Third Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	240.82	240.82	243.03	243.03	343.03	343.03	344.78	344.78	463.03	463.03	473.04
		238.50						235.66	245.99	220.00							
								Start	Finish								
								Carrier Wheels									

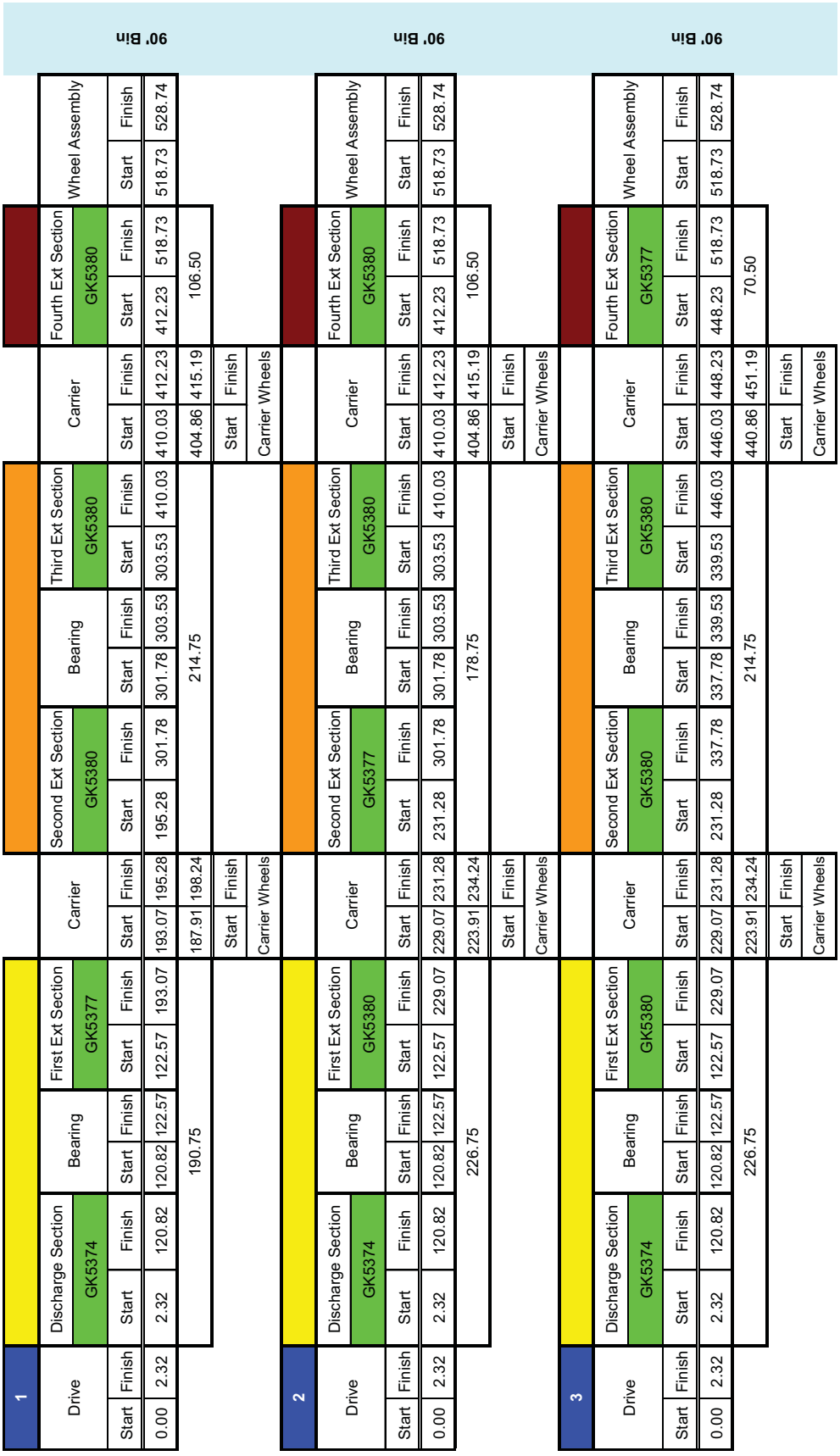
80' Bin

3

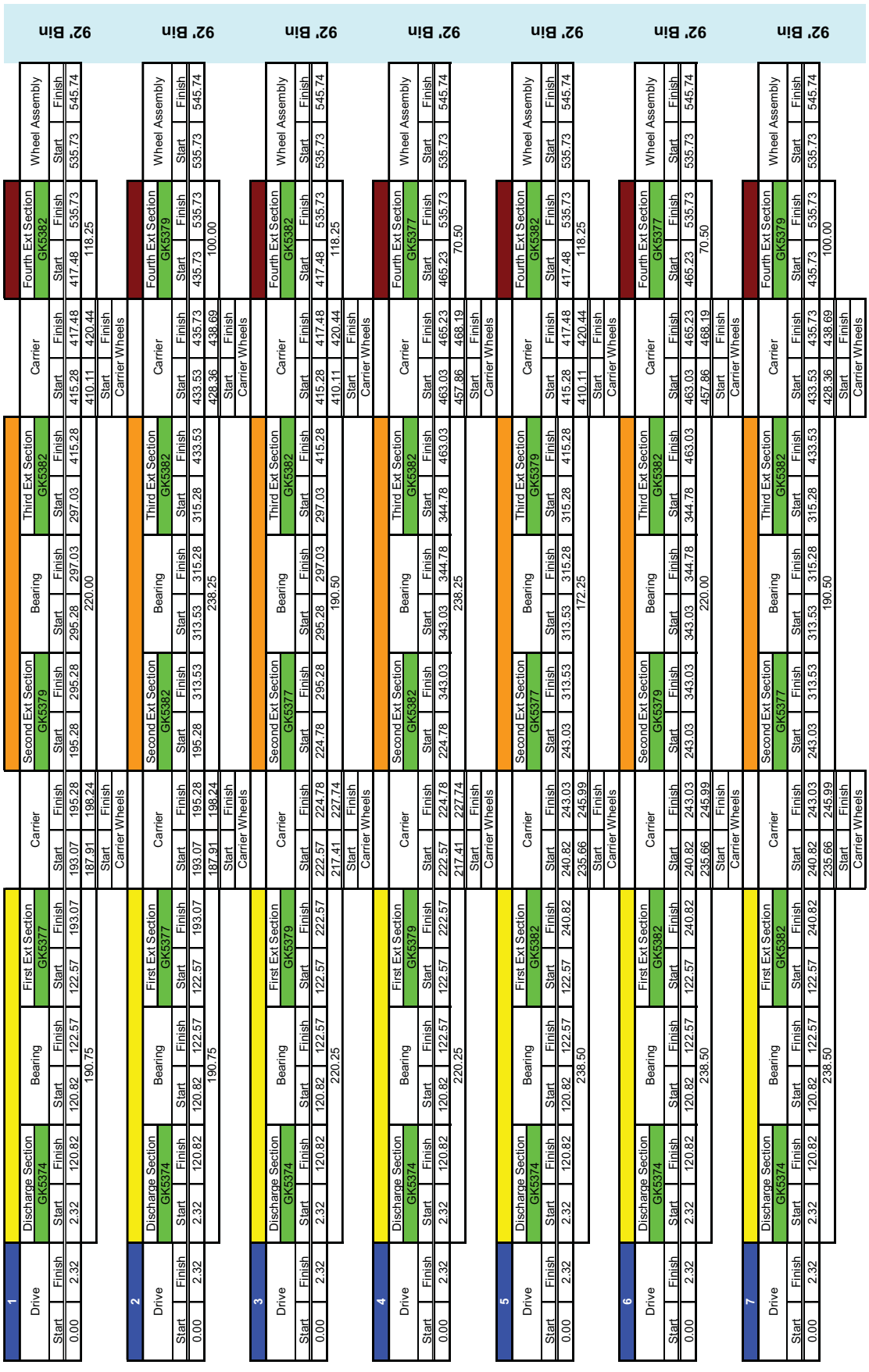
Drive		Discharge Section GK5374		Bearing		First Ext Section GK5382		Carrier		Second Ext Section GK5382		Bearing		Third Ext Section GK5382		Wheel Assembly	
Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
0.00	2.32	2.32	120.82	120.82	122.57	122.57	240.82	240.82	243.03	243.03	361.28	361.28	363.03	363.03	481.28	481.28	491.29
		238.50						235.66	245.99	238.25							
								Start	Finish								
								Carrier Wheels									

82' Bin

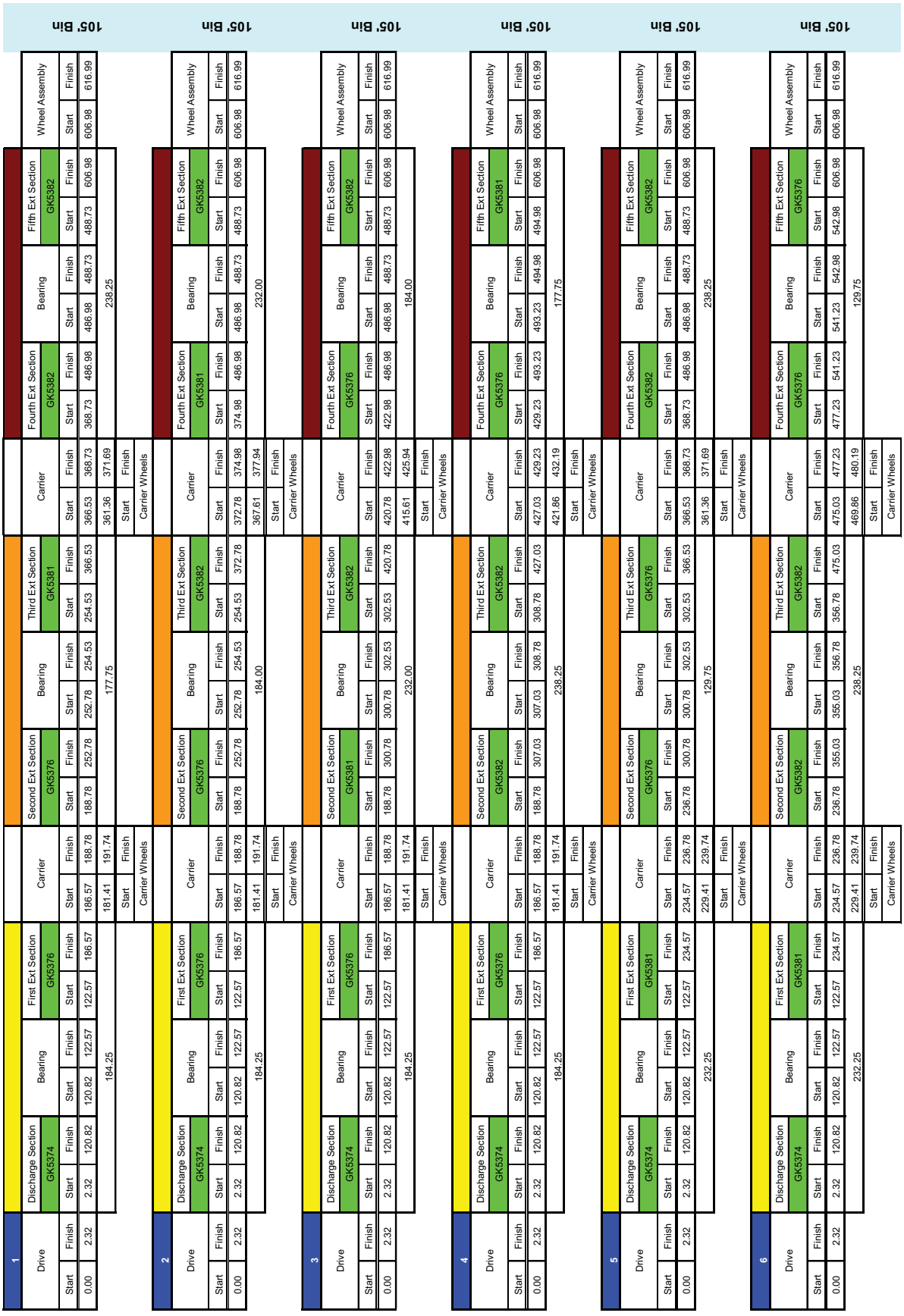
Flight and Shield Configuration (Continued)



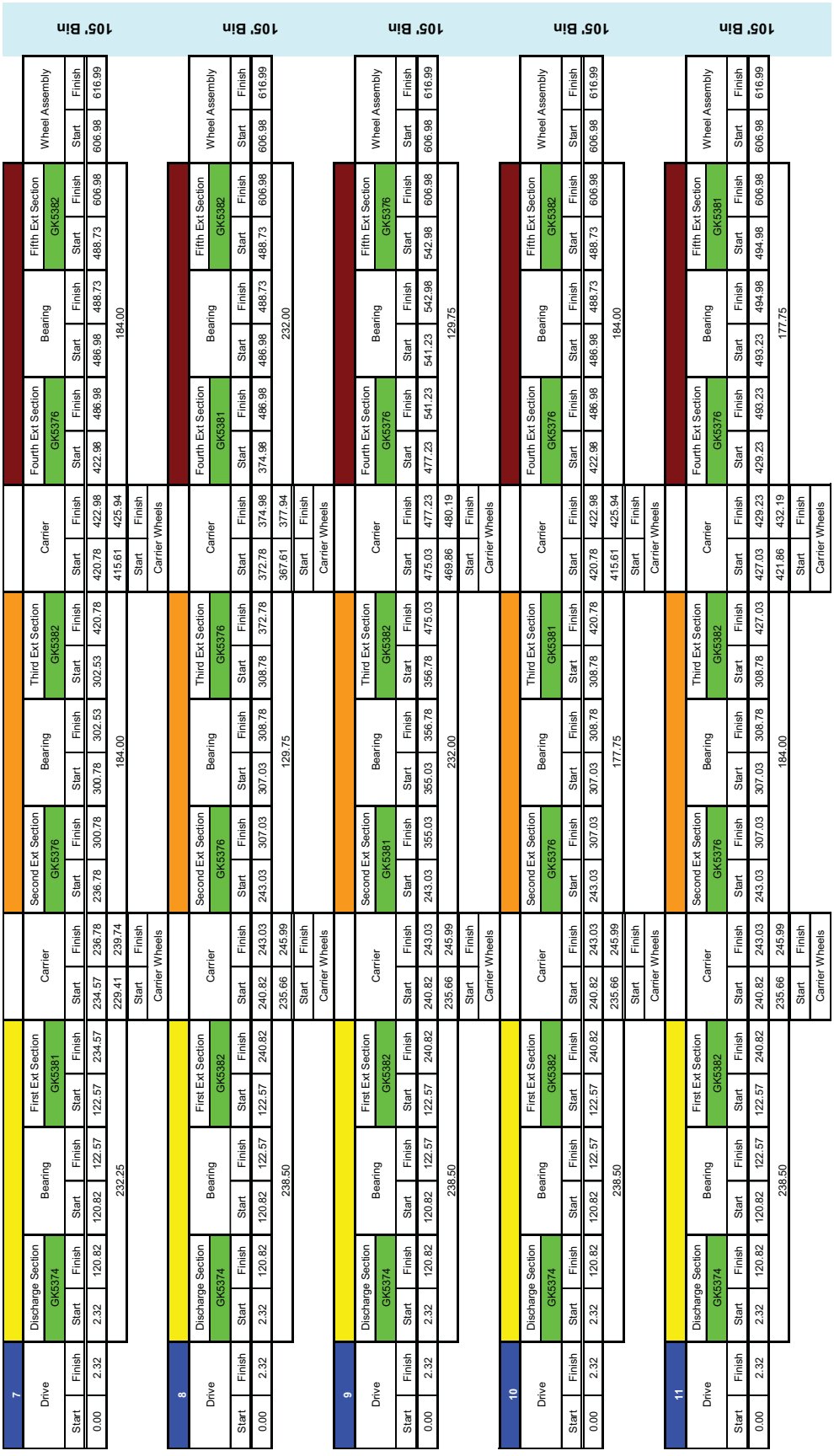
Flight and Shield Configuration (Continued)



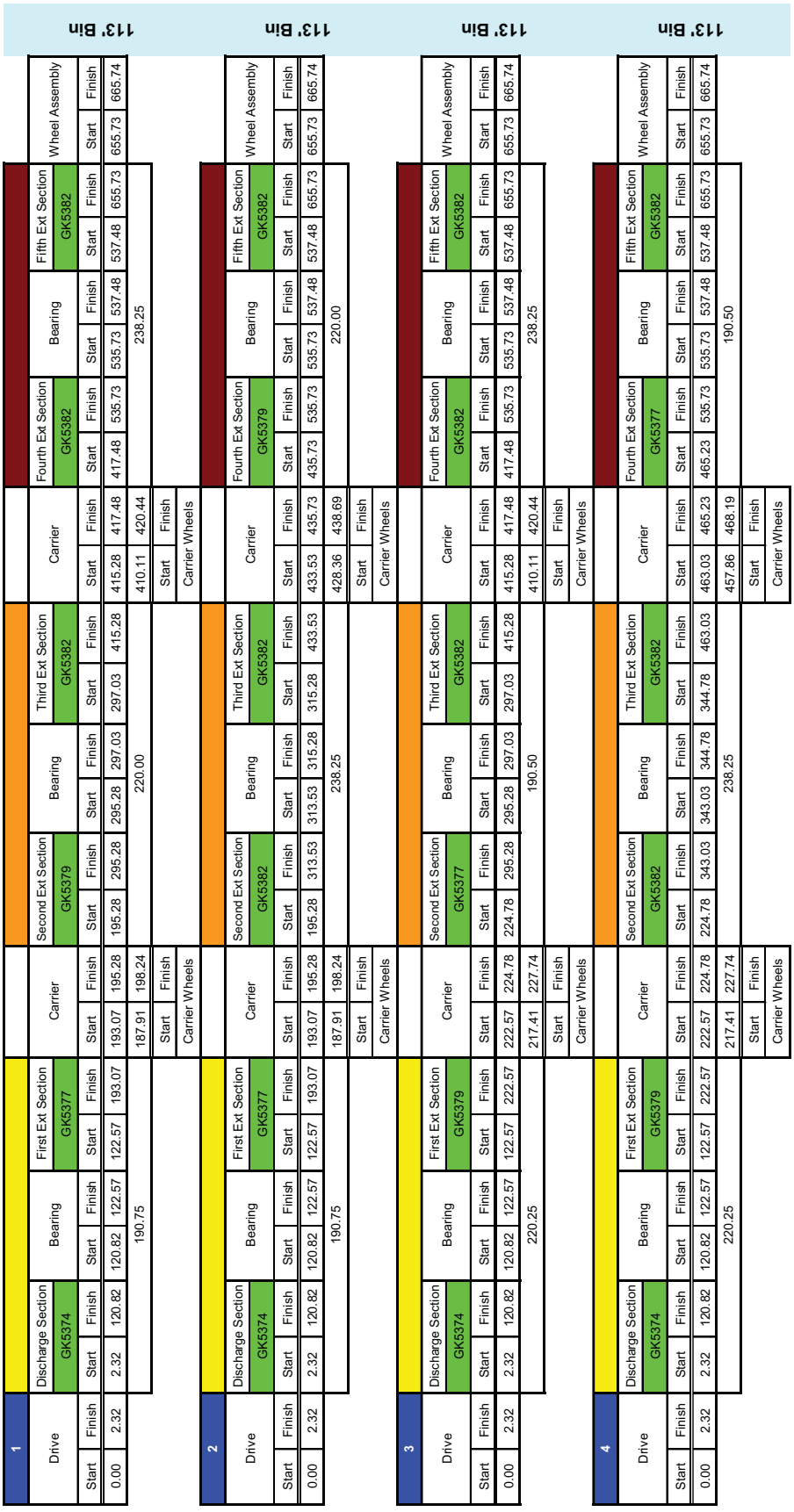
Flight and Shield Configuration (Continued)



Flight and Shield Configuration (Continued)

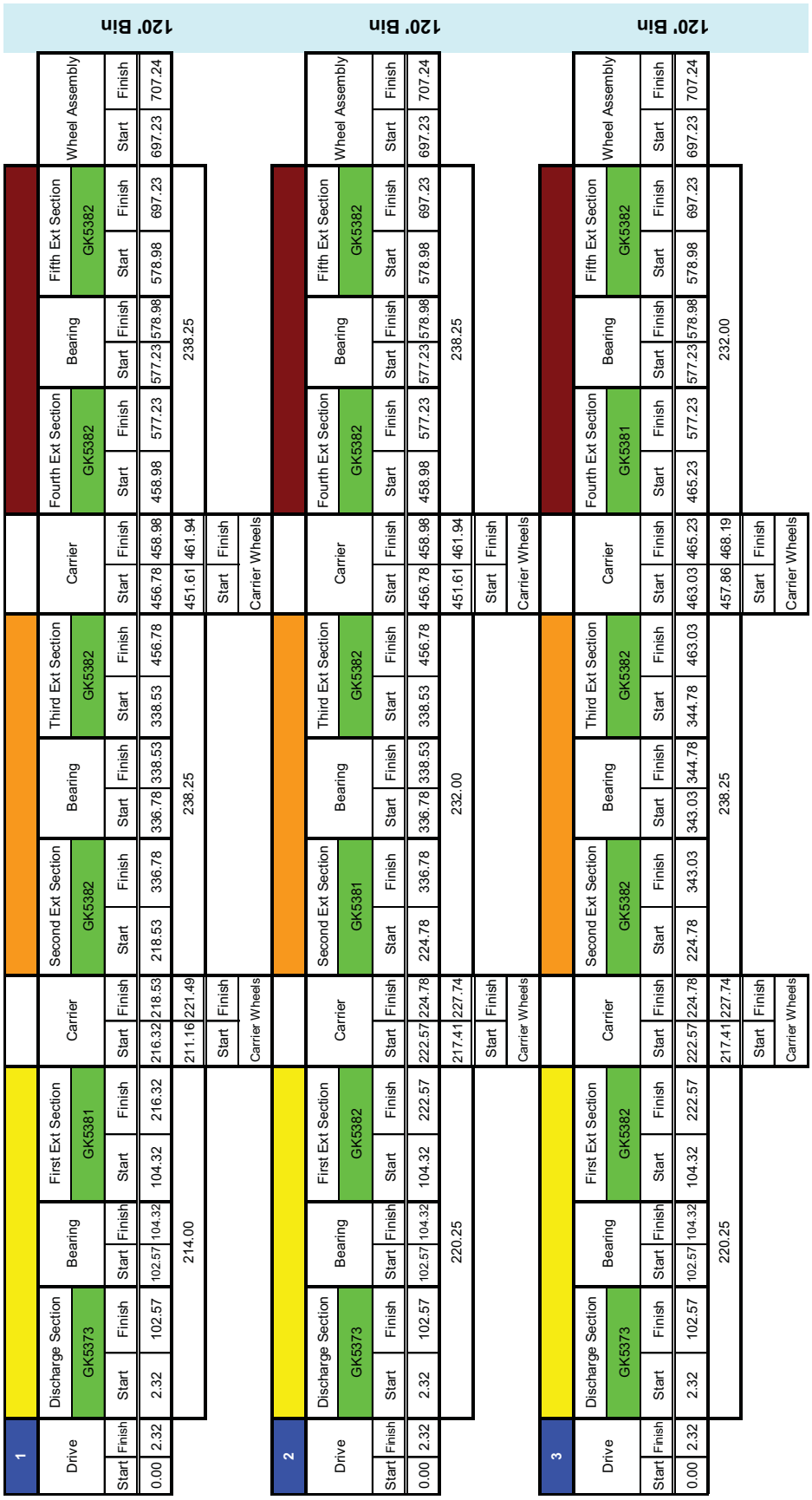


Flight and Shield Configuration (Continued)



Flight and Shield Configuration (Continued)

Flight and Shield Configuration (Continued)



NOTES

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
Cumberland Feeding/Watering Systems	Feeder System Pan Assemblies	5 Years **
	Feed Tubes (1-3/4" and 2.00")	10 Years *
	Centerless Augers	10 Years *
	Watering Nipples	10 Years *
Grain Systems	Grain Bin Structural Design	5 Years
Grain Systems Farm Fans Zimmerman	Portable and Tower Dryers	2 Years
	Portable and Tower Dryer Frames and Internal Infrastructure †	5 Years

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

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

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

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

Conditions and Limitations:

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

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

GSI assumes no responsibility for claims resulting from construction defects or unauthorized modifications to products which it manufactured. Modifications to products not specifically delineated in the manual accompanying the equipment at initial sale will void the Limited Warranty.

This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained. This Limited Warranty extends solely to products manufactured by GSI.

Prior to installation, the end-user has the responsibility to comply with federal, state and local codes which apply to the location and installation of products manufactured or sold by GSI.

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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.

GSI GROUP

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