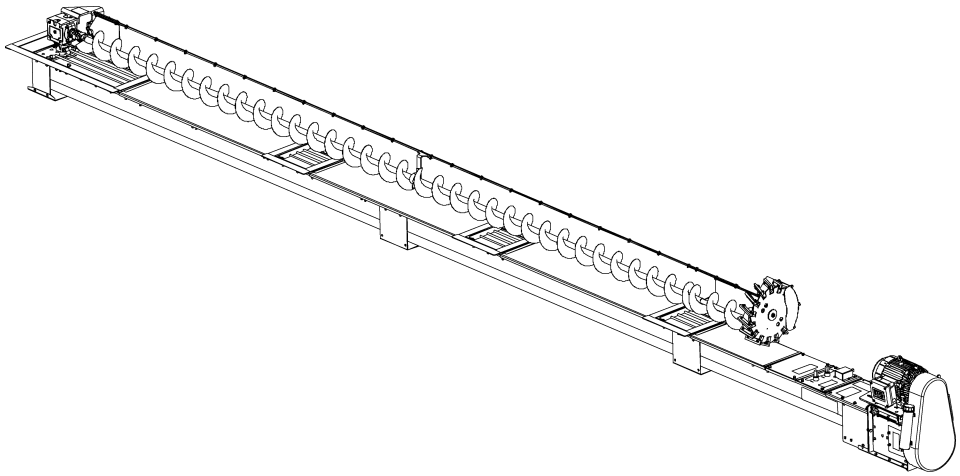


U-Trough Free Flow Unloading System

Model:
2021

Installation and Operation Manual

PNEG-2343
Version: 1.0

Date: 02-02-21

PNEG-2343

All information, illustrations, photos and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Contents

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. Read and save these instructions.

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-0001-4

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.**

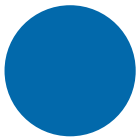
WARNING — This symbol indicates a potentially hazardous situation which, if not avoided, **can result in serious injury or death.**

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

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

Install and Operate Electrical Equipment Properly

- Electrical controls must be installed by a qualified electrician and must meet the standards set by applicable local codes (National Electrical Code for the US, Canadian Electric Code, or EN60204 along with applicable European Directives for Europe).
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.
- Make sure all equipment and bins are properly grounded.

ST-0075-1

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

Stay Clear of Rotating Parts

- Do not service equipment while it is in operation.
- Entanglement in rotating parts or exposed belts 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-0072-1

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.

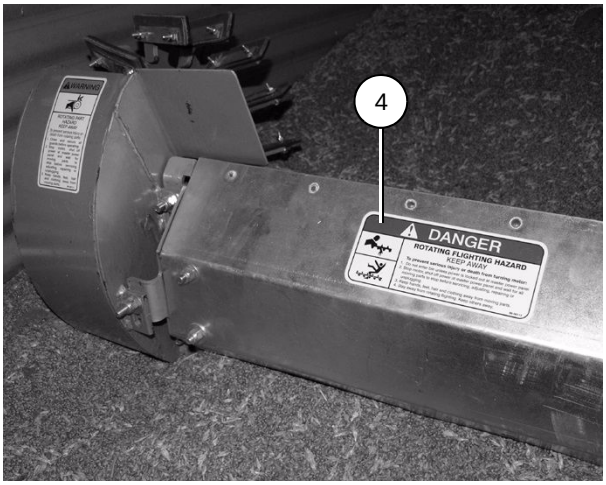
Date	*Employee Name*	*Supervisor Name*

ST-0007

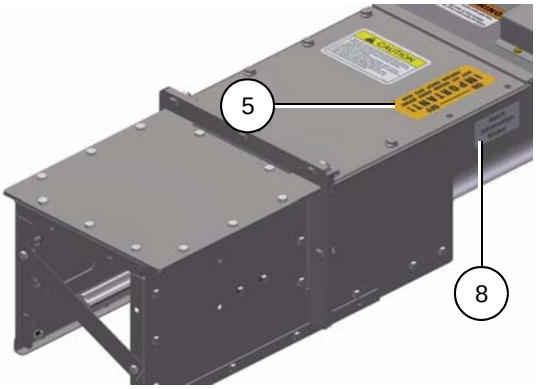
2. Decals

The types of decals and locations on the equipment are shown below. Good safety requires that you familiarize yourself with the various safety decals, the type of warning and the area or particular function that related to the area, that requires your SAFETY AWARNESS.

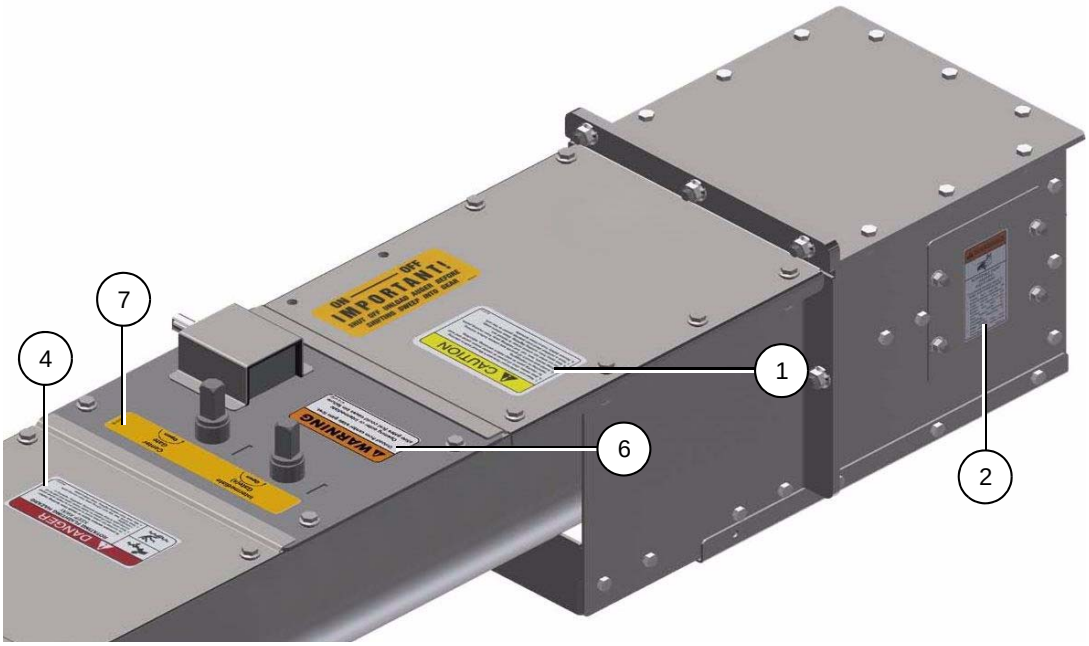
Powerhead



Sweep



Powerhead right



Powerhead left

Ref #	Decal #	Decals	Location
1	80-00110	**CAUTION** 1. Read and understand Operator's Manual before starting. 2. Stop motor, shut off power at master power panel and wait for moving parts to stop before servicing, adjusting, repairing or unplugging. 3. Install and secure all guards and shields before starting. 4. Keep hands, feet, hair and clothing away from moving parts. 5. Do not enter bin unless power is locked out. 6. Stay away from rotating flighting. Keep others away. 7. Have a certified electrician provide power to the unit. 8. Review Safety Instructions annually. 80-00110	Powerhead Left
2	80-00111	**WARNING**  **ROTATING PART HAZARD** ***KEEP AWAY*** To prevent serious injury or death from rotating parts: 1. Close and secure all guards before operating. 2. Stop motor, shut off power at master power panel and wait for moving parts to stop before servicing, adjusting, repairing or unplugging. 3. Keep hands, feet, hair and clothing away from moving parts. 80-00111	Powerhead and Powerhead Left
3	80-00112	**WARNING** **MISSING GUARD HAZARD** **Install and secure guard before operating** 80-00112	Powerhead

Ref #	Decal #	Decals	Location
4	80-00113		Sweep and Powerhead Left
5	80-00114		Powerhead Right
6	80-01242		Powerhead Left
7	80-01250		Powerhead Left
8			Powerhead Right

U-Trough Unloader

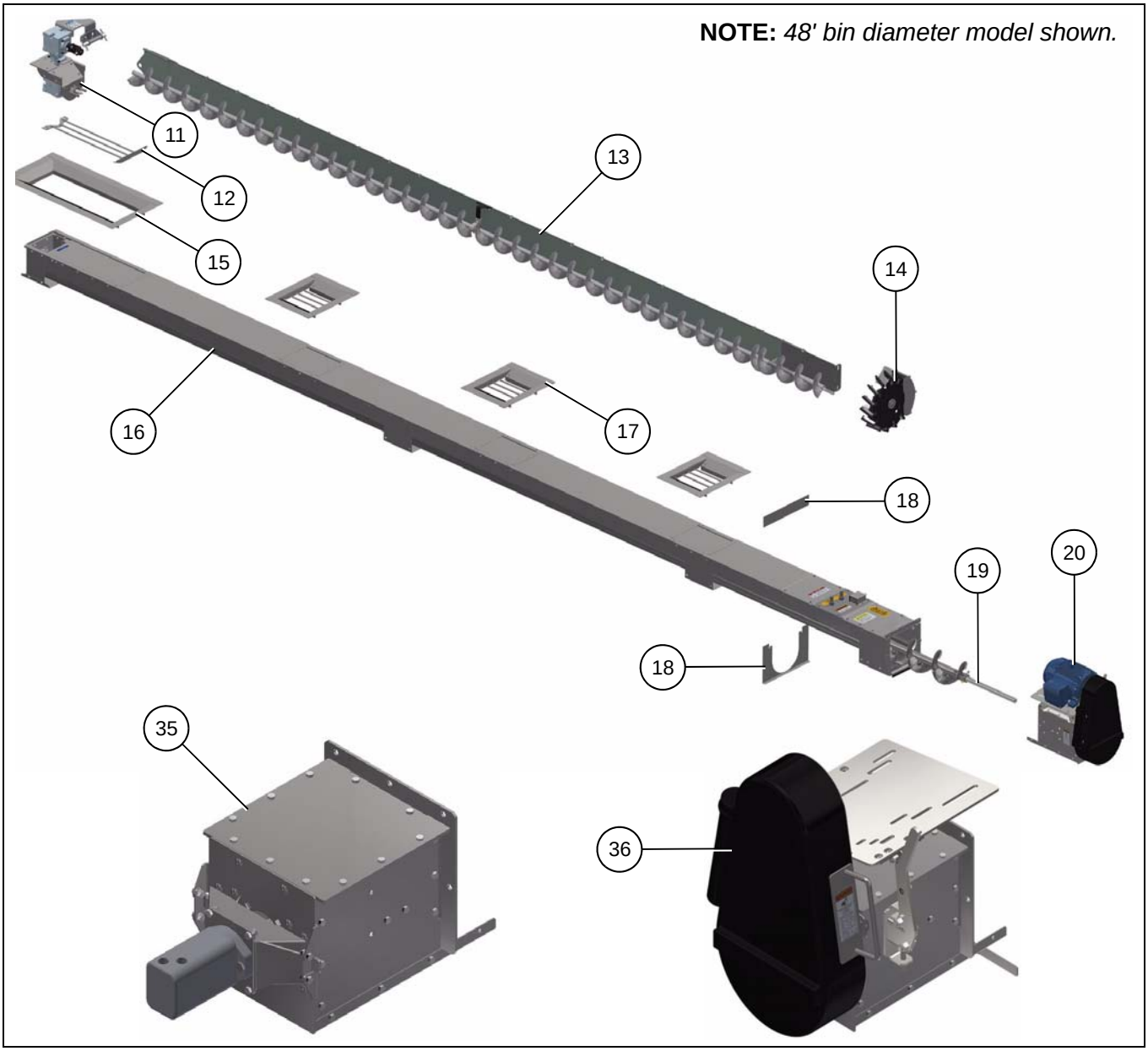


Figure 3A

Ref #	Description
11	Center Gearbox Assembly
12	Center Grate
13	Sweep (See detailed view *on Page 16*.)
14	Elevator Drive Wheel Assembly
15	Center Floor Flange
16	U-Trough Unloader
17	Intermediate Floor Flange Assembly

Ref #	Description
18	Bin Plate
19	Unloader Flight
20	Powerhead
Horizontal Powerhead Options	
35	Hydraulic (Motor Included)
36	Electric 18" Driven Pulley

Optional Equipment

25° Incline Elbow (For Horizontal Powerhead Only)

1. Uses a wood bushing and universal joint.
2. Shown with electric powerhead. Powerhead not included.

Figure 3B

U-Trough Extension (For Horizontal Powerhead Only)

1. Sizes from 6" (457 mm) to 120" (3048 mm), 6" (152 mm) increments.
2. For use in horizontal applications ONLY.

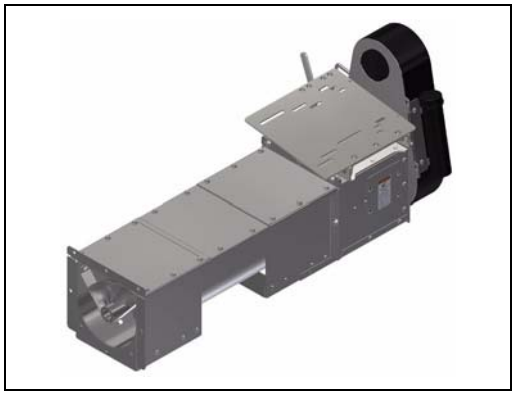


Figure 3C

Grain Flow Maintainer (GFM)

1. Prevents clumps of grain from blocking the center sump.
2. Hinges back and rests on the sweep backplate when not in use.

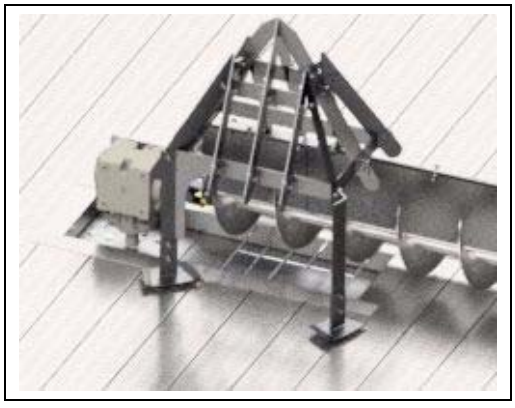


Figure 3D

Sweep Components (18'-51')

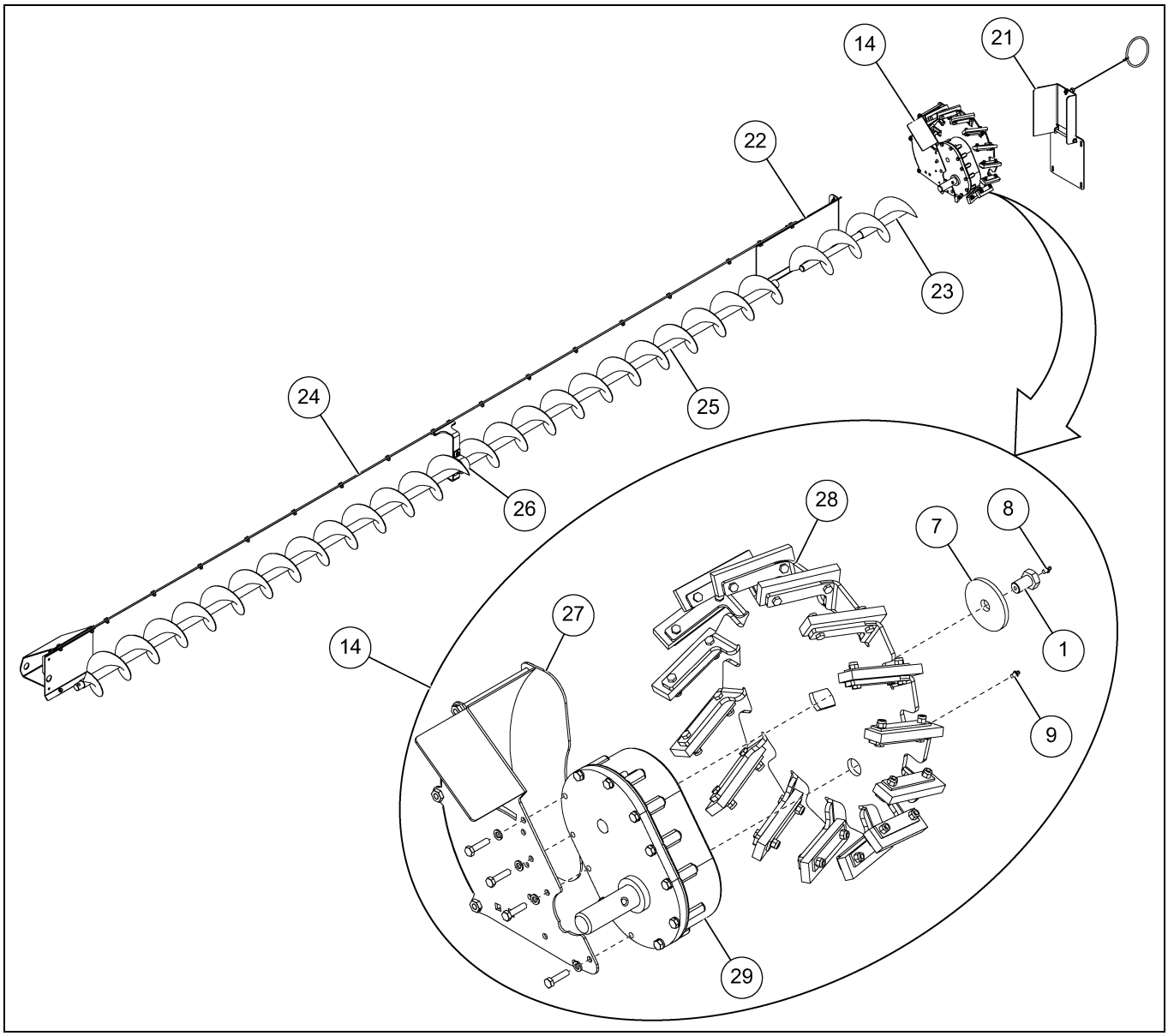


Figure 3E

Sweep Components (18'-51') Parts List

Ref #	Description
1	5/8" x 1" Bolt with 3/16" Hole
7	Washer
8	3/16" Drive-In Grease Zerk
9	M6 x 1.0 Grease Zerk
14	Elevator Drive Wheel Assembly
21	Sweep Stop
22	Sweep Backplate Adjuster Plate

Ref #	Description
23	Sweep End Flight
24	Sweep Backplate
25	Sweep Flight (Available in 6", 7-1/4" and 8")
26	Wood Bushing (Sweep Sizes 27' and Up)
27	Elevator Drive Wheel Fender
28	Elevator Wheel
29	Chain Reduction Box

Sweep Components (52'-6" - 66')

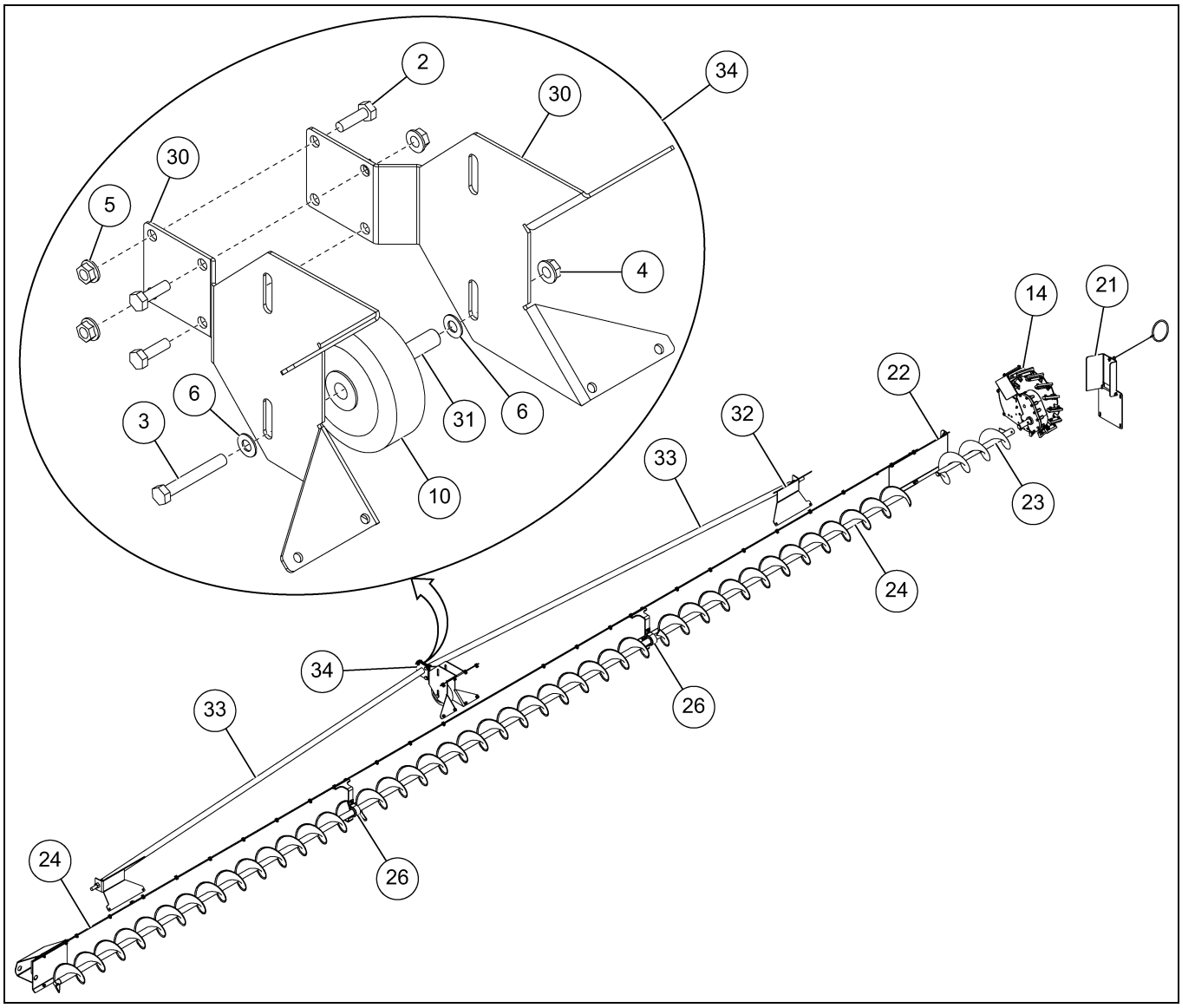


Figure 3F

Sweep Components (52'-6" - 66') Parts List

Ref #	Description
2	1/2" x 1-1/2" Bolt
3	1/2" x 3-1/2" Bolt Grade 8
4	1/2" Flange Nut Grade 5 UNC
5	1/2" Flange Nut
6	1/2" Flat Washer
10	6" Wheel with 3/4" bearing
14	Elevator Drive Wheel Assembly
21	Sweep Stop
22	Sweep Backplate Adjuster Plate

Ref #	Description
23	Sweep End Flight
24	Sweep Backplate
24	Sweep Flight (Available in 6", 7-1/4" and 8")
26	Wood Bushing
30	Support Wheel Mounting Plate
31	Bushing
32	Sweep Brace Mounting Plate
33	Sweep Brace
34	Sweep Support Wheel Assembly

Unloaders Under Aeration Floor

1. Cut 12" (H) x 14" (W) (305 mm x 356 mm) rough opening (52) in the bin wall where the unloader is to exit the bin. *(See Figure 4A.)*

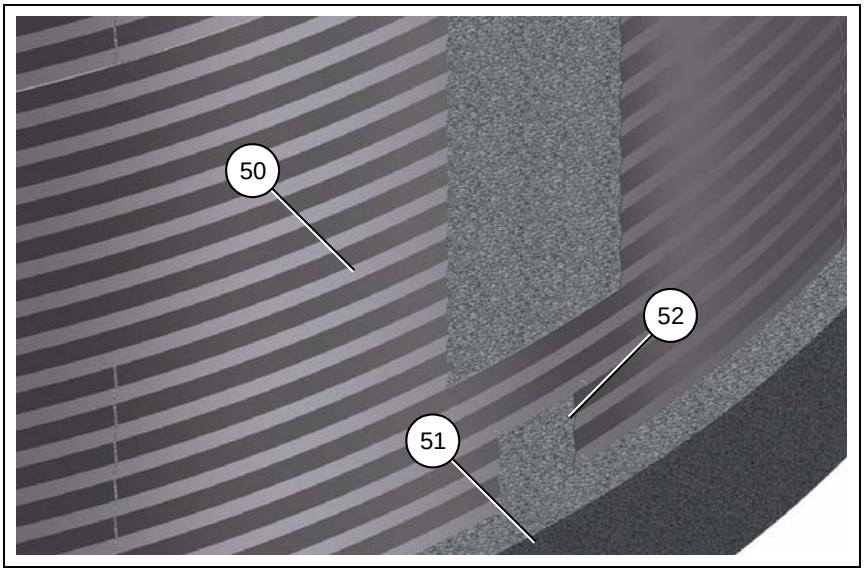


Figure 4A

Ref #	Description
50	Bin Wall Exterior
51	Bin Foundation

Ref #	Description
52	Rough opening, shown below the door opening.

2. Insert the unloader and center in the bin. Note the bin center location marked on the dust cover. Secure the unloader with anchor bolts (16) (not provided) to the bin foundation. *(See Figure 4B.)*

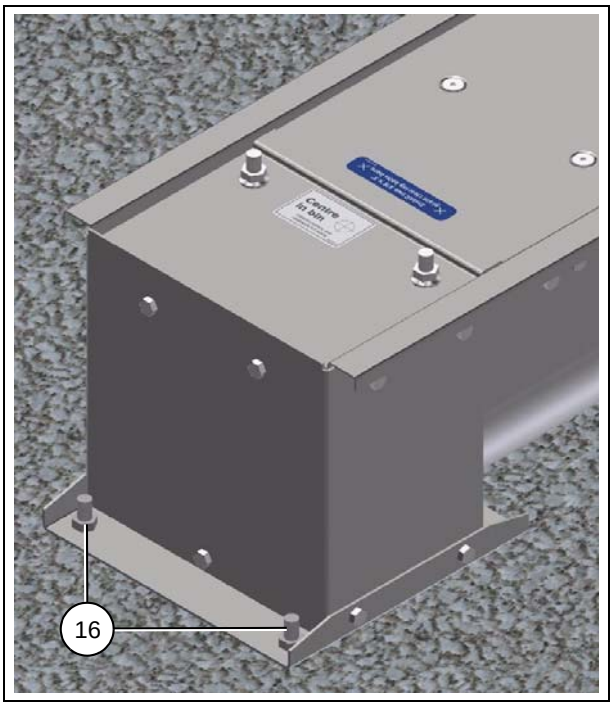


Figure 4B

Ref #	Description
16	Concrete Anchor Bolts

3. Install the bin wall flange as shown in *Figure 4C*.

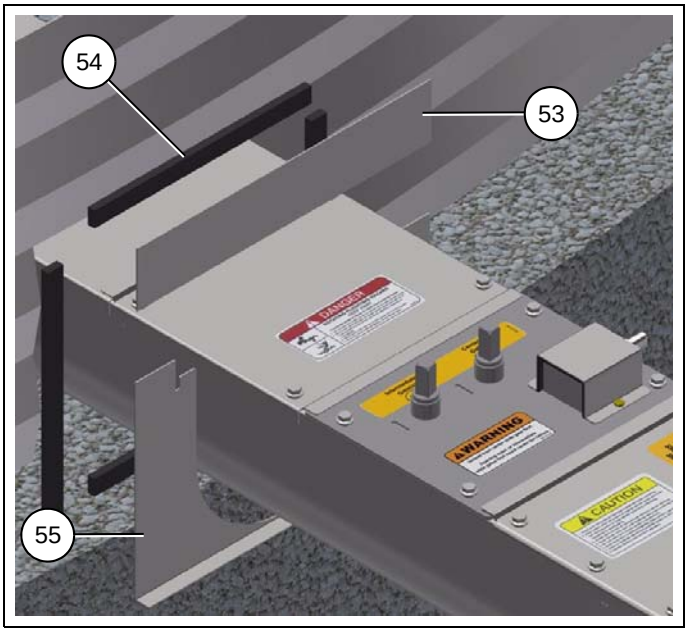


Figure 4C

Ref #	Description
53	Bin Plate Upper
54	Foam Sealing Strips

Ref #	Description
55	Bin Plate Lower

4. Secure the bin wall flange with self-tapping screws (33) as shown in *Figure 4D*.

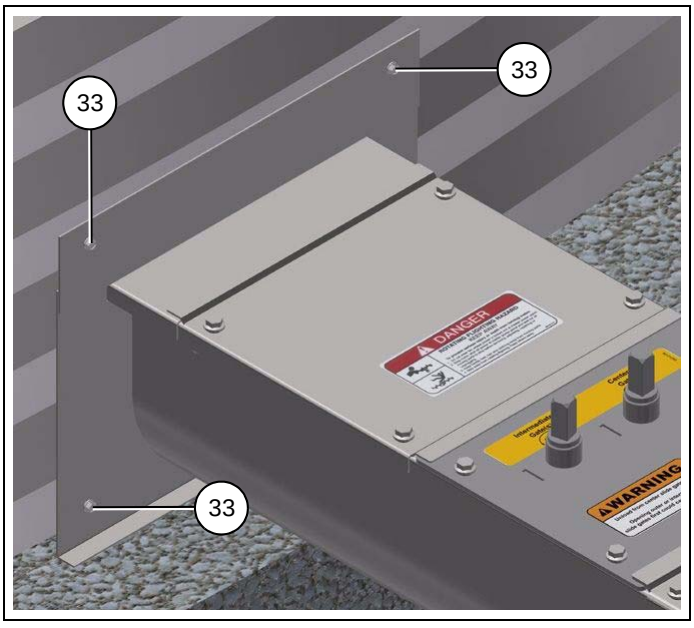


Figure 4D

Ref #	Description
33	Self-Tapping Screw

5. Layout the aeration floor and cut the opening around the gates (57). Refer to *Page 53* for rough opening dimensions. *(See Figure 4E.)*

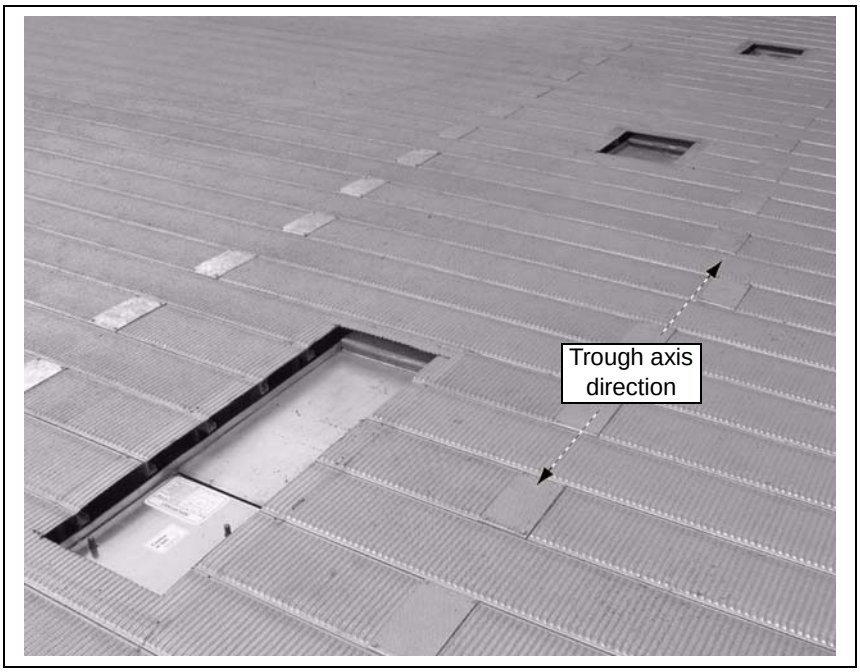


Figure 4E

6. Install the gate seal assemblies (56) on each intermediate gate (57). Secure to trough with the supplied hardware (2 and 17). The aeration floor is not shown for clarity. *(See Figure 4F.)*

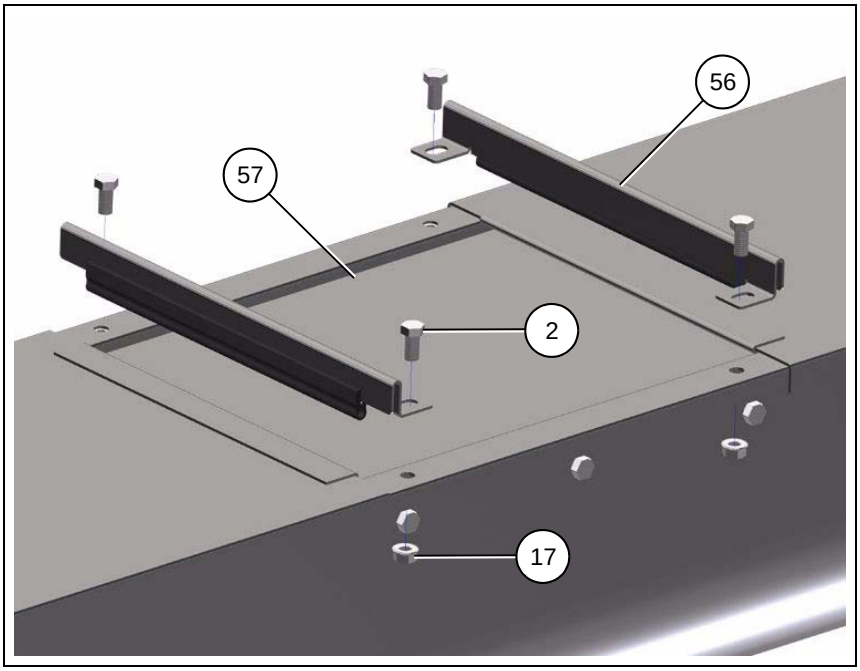


Figure 4F

Ref #	Description
2	3/8" x 3/4" Bolt Grade 5 UNC Plated (4) (per gate)
17	3/8" Serrated Flange Nut (4) (per gate)

Ref #	Description
56	Gate Seal Assembly (2) (per gate)
57	Intermediate Gate

7. Install the intermediate floor flange (59) and secure with self-tapping screws (33) (not provided). *(See Figure 4G.)*

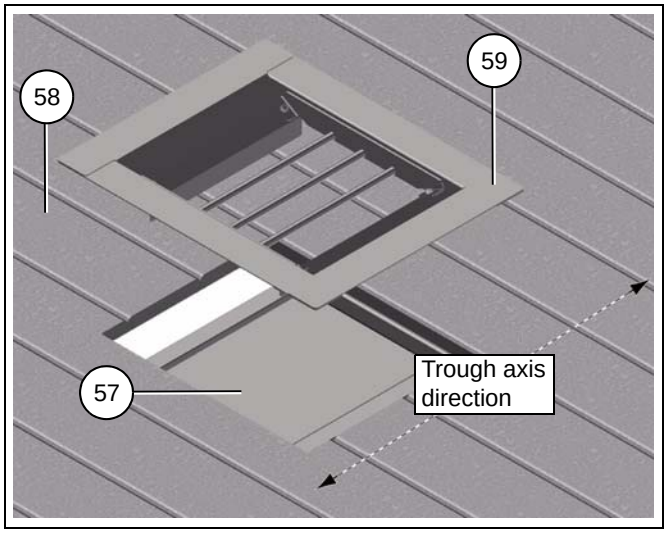


Figure 4G

Ref #	Description
57	Intermediate Gate
58	Aeration Floor
59	Intermediate Floor Flange

8. Install the center floor flange (105) (but not the center floor grate yet). *(See Figure 4H.)*

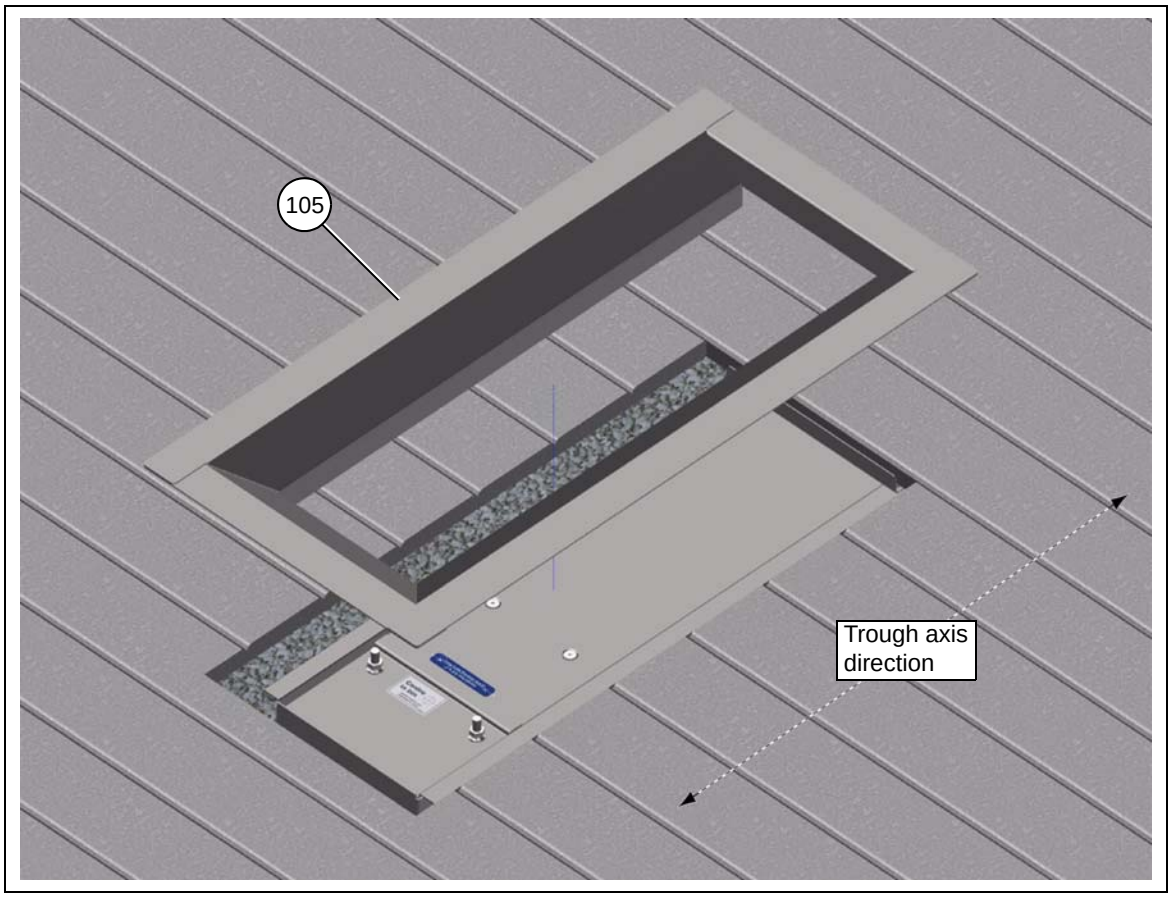


Figure 4H

Ref #	Description
105	Center Floor Flange

Unloaders in Concrete Knock-Out

1. Center the unloader in the bin foundation. Anchor to the bottom of the knock-out with the concrete anchor bolts (16) (not provided). *(See Figure 4I.)*

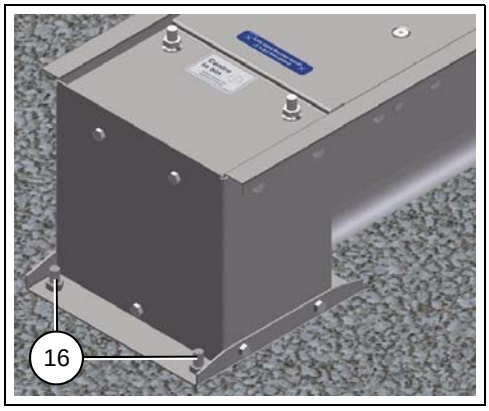


Figure 4I

Ref #	Description
16	Concrete Anchor Bolts

2. Install the bin wall flange (60) as shown in *Figure 4J*. Use the concrete screws (not provided) to attach the bin wall flange (60) to the concrete foundation.

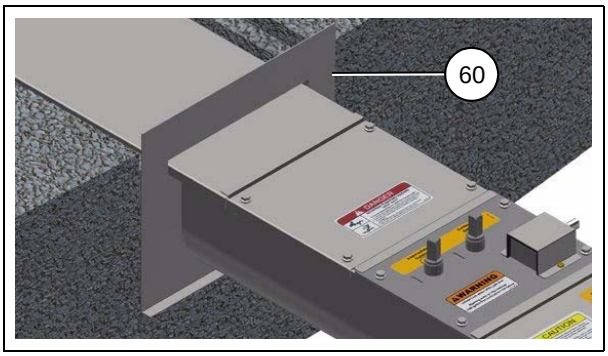


Figure 4J

Ref #	Description
60	Bin Wall Flange

3. Install the floor flanges over the gates. Use the wood or metal planking (61) to the cover exposed unloader between the gates (not provided). *(See Figure 4K.)*

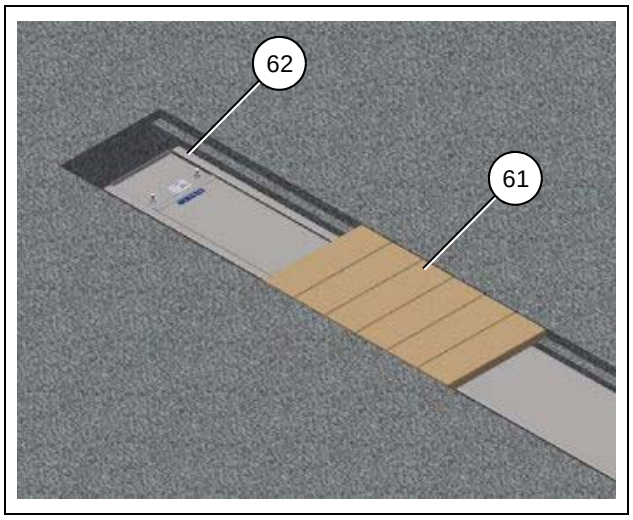


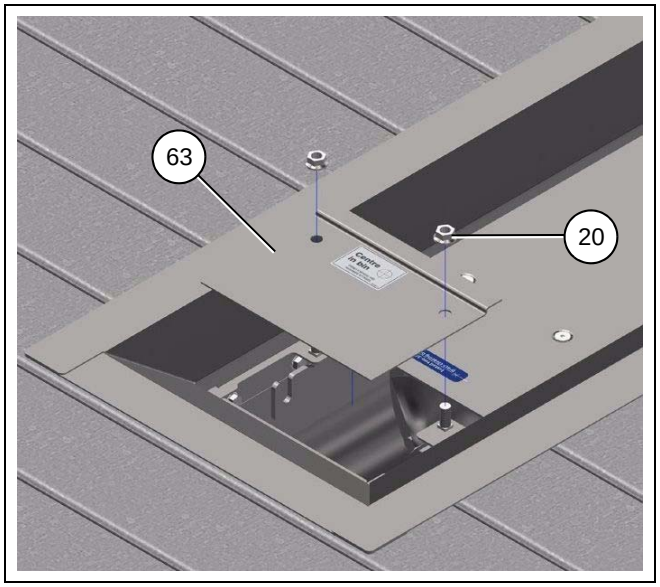
Figure 4K

Ref #	Description
61	Planking
62	Center in Bin

Sweep Drive

Center Gearbox Assembly

1. Remove the two 1/2" flange nuts (20) to securing the dust cover (63) and remove the dust cover (63). Keep the flange nuts (20) for *Step 7 on Page 25*. The dust cover (63) can be discarded. *(See Figure 4L.)*



Ref #	Description
20	1/2" Flange Nut
63	Dust Cover

Figure 4L

2. Install the gate clearing bolts in holes in the center gate. The holes are covered by the blue sticker. In the hardware kit, you will find bolts with one flange nut already threaded (14) on to the correct depth. *(See Figure 4M.)*

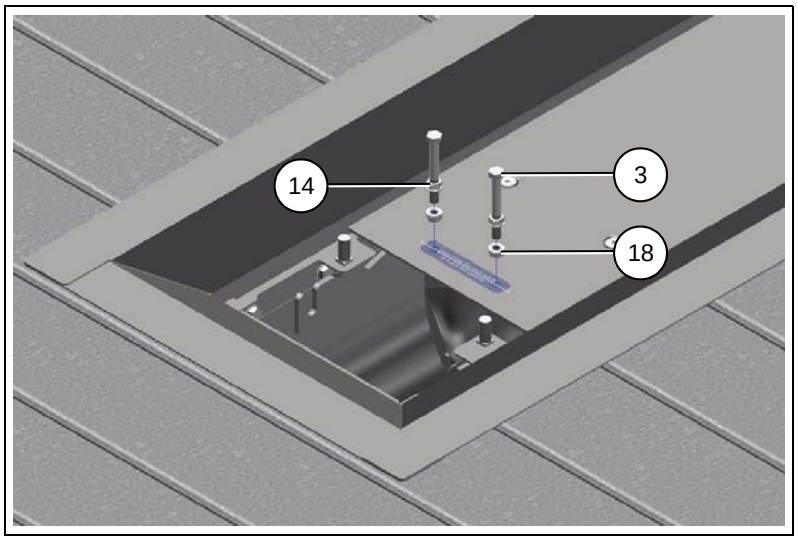
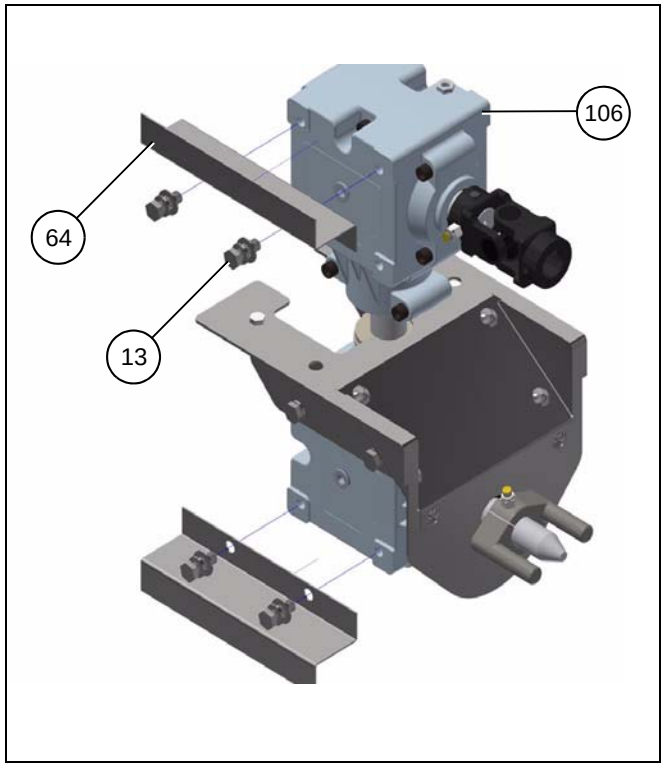


Figure 4M

Ref #	Description
3	3/8" x 3" Bolt Grade 5 UNC Plated (2)
14	Bolt with Pre-threaded nut

Ref #	Description
18	1/2" Serrated Flange Nut (4)

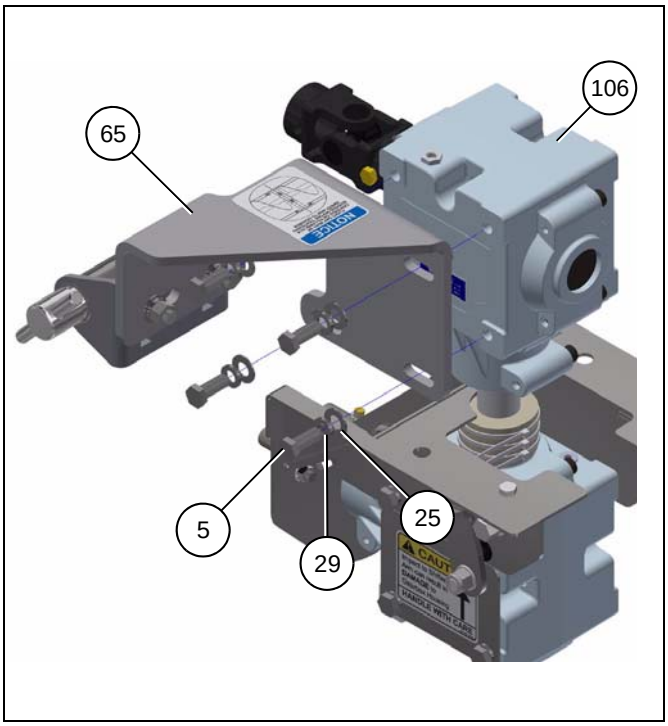
3. Prepare the gearbox assembly (106) for installation by removing the two shipping brackets (64). Remove four bolts (13) as shown in *Figure 4N*. The shipping brackets (64) can be discarded. The removed hardware is used in the next step.



Ref #	Description
13	Bolt with Washers
64	Shipping Bracket
106	Gearbox Assembly

Figure 4N

4. Install the sweep gearbox arm (65) on the gearbox assembly (106) using the hardware (5, 25 and 29) removed in the previous step. *(See Figure 4O.)*



Ref #	Description
5	1/2" x 1-1/4" Bolt Grade 5 UNC Plated (4)
25	1/2" Flat Washer SAE Plated (4)
29	1/2" Lock Washer Plated (4)
65	Sweep Gearbox Arm
106	Gearbox Assembly

Figure 4O

5. Remove the flight strap (66) at the powerhead (41) end of the unloader. This allows the flighting to be moved for the next step. The removed flight strap (66) and hardware can be discarded. *(See Figure 4P.)*

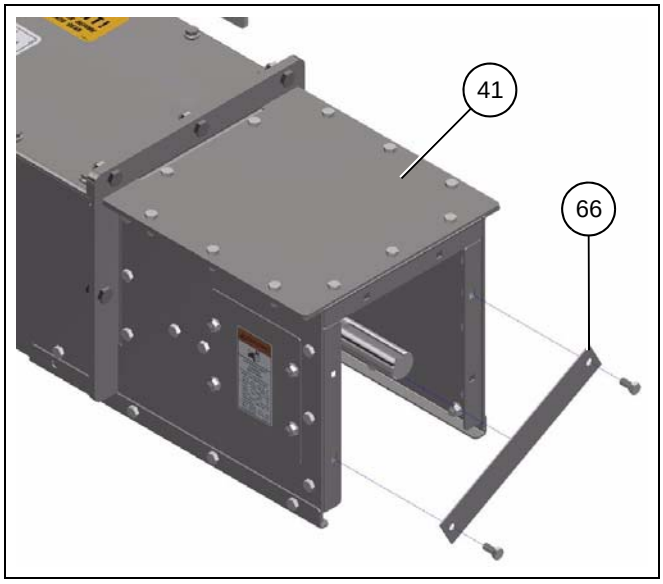


Figure 4P

Ref #	Description
41	Powerhead
66	Flight Strap

6. Push the center gate (38) partially open. Push flighting forward. Install the gearbox assembly (106) into the unloader ensuring that the shifter arm on the gearbox (67) aligns with the shifter arm slot (68) on the unloader. Gearbox position is aligned by two bolts (15). *(See Figure 4Q and Figure 4R.)*

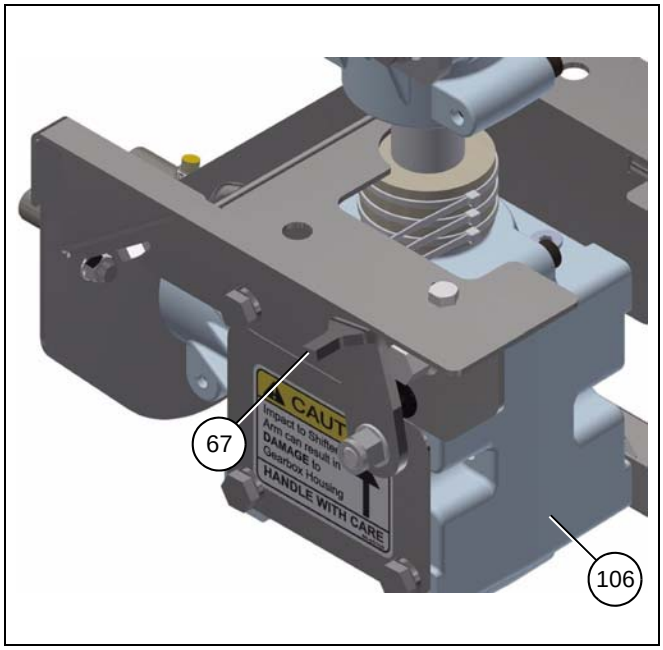


Figure 4Q

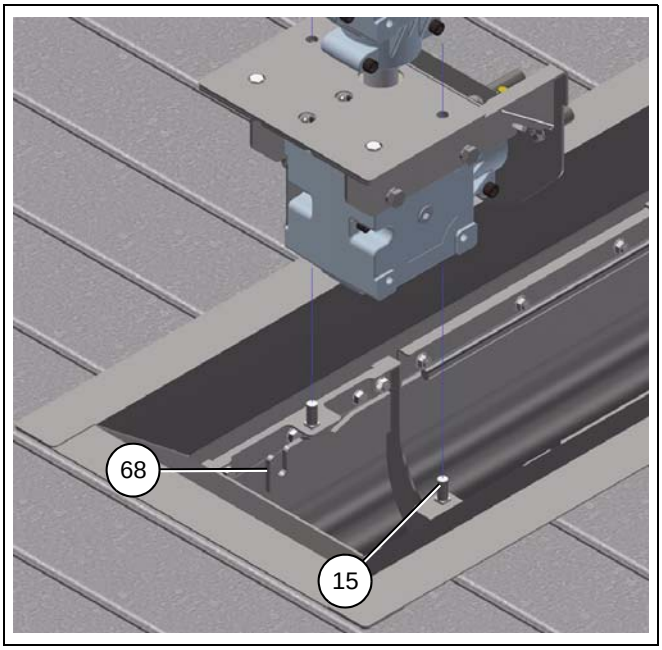


Figure 4R

Ref #	Description
15	Aligning Bolt
67	Shifter Arm on Gearbox

Ref #	Description
68	Shifter Arm Slot
106	Gearbox Assembly

7. Install the gearbox access cover (69) and the center floor flange grate (38). Secure them with the two flange nuts (18) removed earlier. Secure the center floor flange grate (38) with self-tapping screws (33) (not provided). *(See Figure 4S and Figure 4T.)*

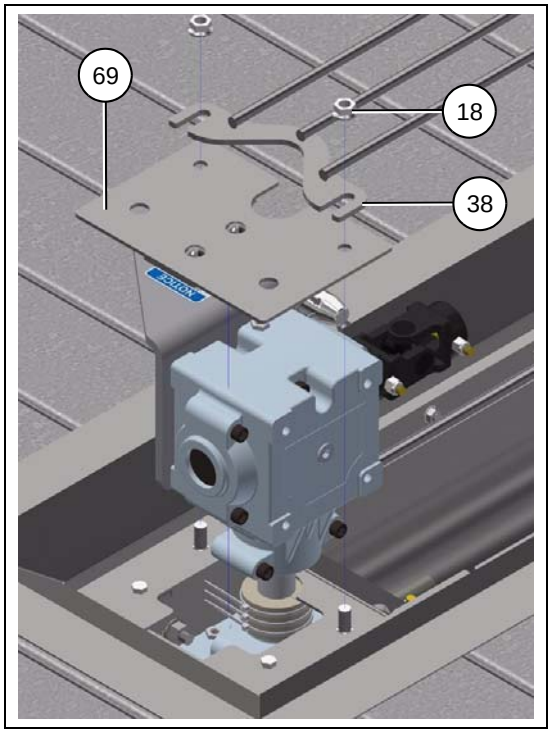


Figure 4S

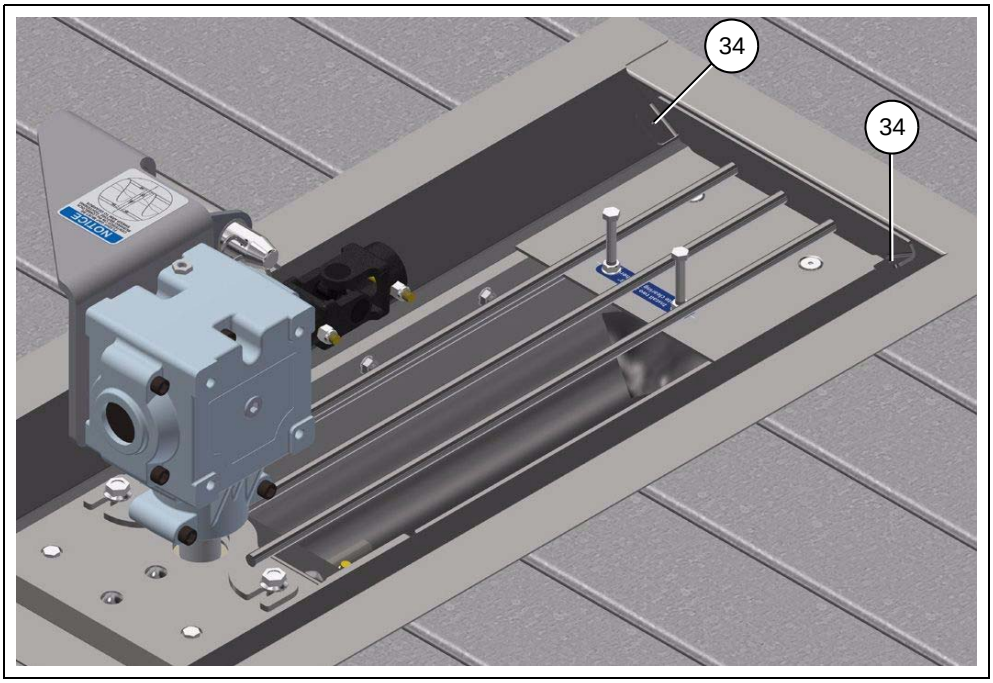


Figure 4T

Ref #	Description
18	1/2" Serrated Flange Nut (2)
34	Self-Tapping Screw Location

Ref #	Description
38	Center Grate
69	Access Cover

8. Install the shifter assembly at the powerhead end of the unloader. Secure the shifter linkage end (72) to the shifter shaft (73) with the 3/8" x 3/4" bolt (6) and washers (26 and 30). Secure the shifter bracket (74) to the lid (75) with the 3/8" x 1-1/4" bolts (4), nuts (17) and washers (26).

   NOTE: *If you also installing an inclined powerhead, skip to incline powerhead* *on Page 39* *before completing this step.* *(See Figure 4U and Figure 4V.)*

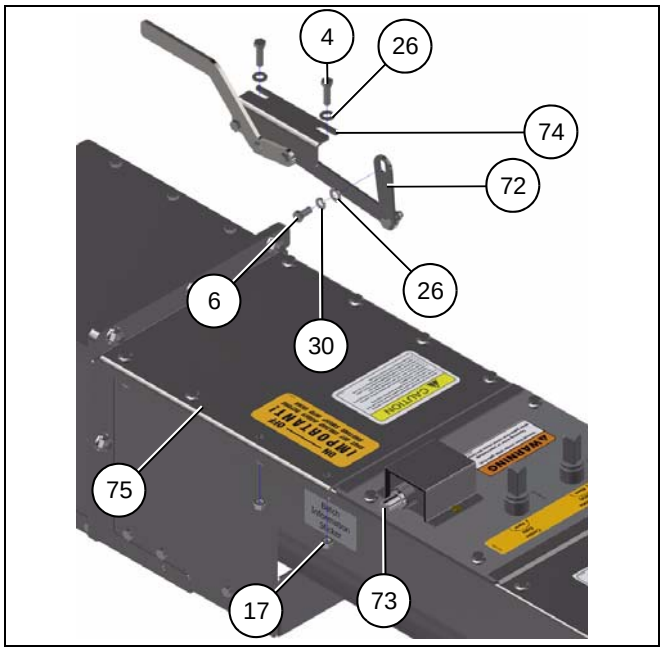


Figure 4U

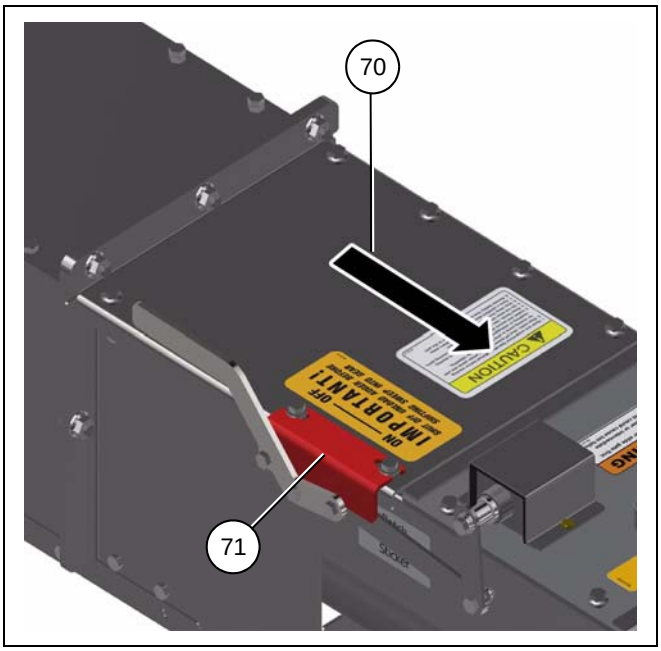


Figure 4V

Ref #	Description
4	3/8" x 1-1/4" Bolt Grade 5 UNC Plated (2)
6	3/8" x 3/4" Bolt Grade 5 UNC (1)
17	3/8" Serrated Flange Nut (2)
26	3/8" Flat Washer Plated (3)
30	3/8" Lock Washer Plated (1)
70	Towards Bin Center

Ref #	Description
71	Shifter Assembly Bracket
72	Shifter Linkage End
73	Shifter Shaft
74	Shifter Bracket
75	Lid

Bracket Adjustment

The back-to-front location of the shifter assembly bracket MUST be adjusted to ensure proper shifting of the gearbox.

Install the bracket with the handle in the down (OFF) position as shown and the bracket slid as far towards the bin center as the slots will allow. Then test shifting (see *Step 9*). Adjust the bracket away from the bin center as needed to get proper shifting.

9. To complete installation, ensure that the gearbox is shifting properly.
   - First lock out the power supply if it has been hooked up.
   - Shift the sweep into the OFF position and turn the unloader flight by hand.

     NOTE: *The sweep flight should not be turning.*
   - Shift the sweep into ON position and turn the unloader flight again by hand.

     NOTE: *The sweep flight should now turn, along with the unloader flight and the elevator wheel.*

Sweeps

Installing the Elevator Wheel Assembly

1. Install the elevator wheel assembly (40) to the end of the sweep backplate (44) using 3/8" x 1" carriage bolt (11), 3/8" flat washer (28), 3/8" lock washer (31) and 3/8" hex nut (21). *(See Figure 4W.)*

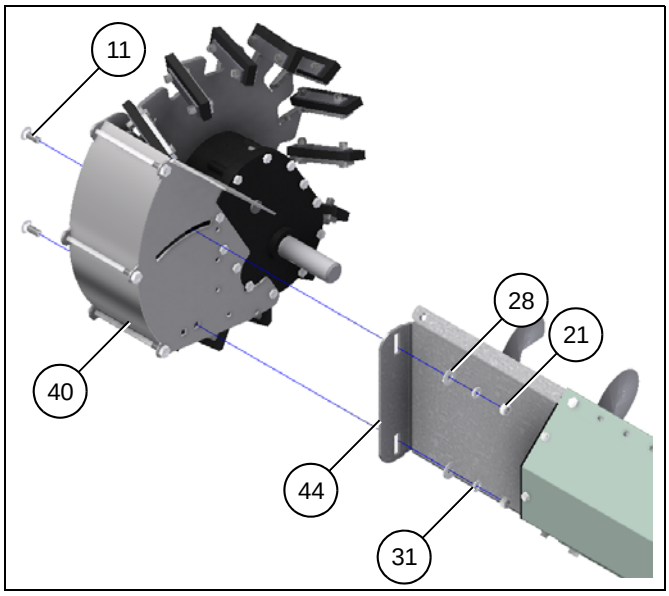


Figure 4W

Ref #	Description
11	3/8" x 1" Carriage Bolt (2)
21	3/8" Hex Nut (2)
28	3/8" Flat Washer (2)
31	3/8" Lock Washer (2)
40	Elevator Drive Wheel Assembly
44	Sweep Backplate

2. Install the sweep end flight (43) onto the elevator wheel assembly (40) shaft using 3/8" x 2-1/2" bolt (7) and 3/8" lock nut (23). *(See Figure 4X.)*

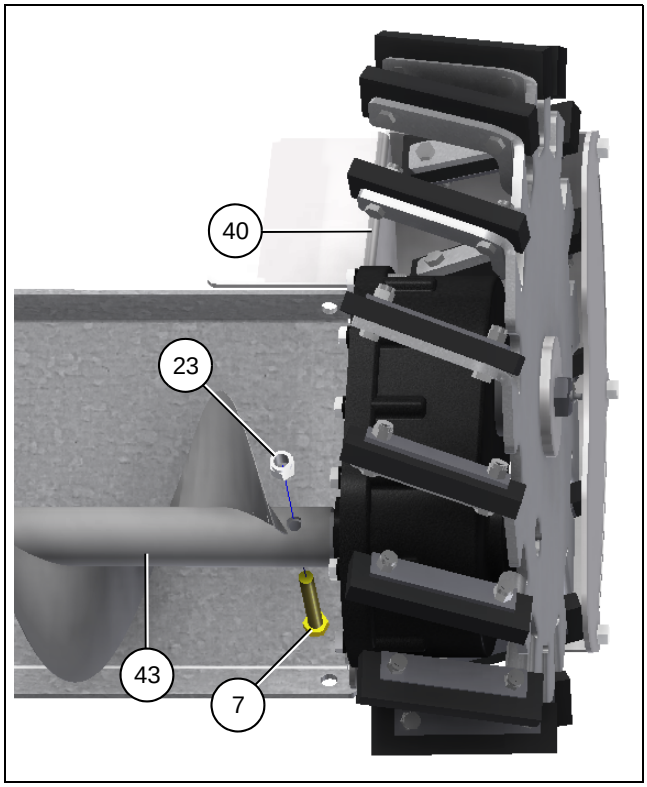


Figure 4X

Ref #	Description
7	3/8" x 2-1/2" Bolt (1)
23	3/8" Lock Nut (1)
40	Elevator Drive Wheel Assembly
43	Sweep End Flight

Installing the Sweep onto Center Gearbox

1. Install the sweep (39) onto gearbox sweep arm (65) using sweep pin (35) and secure with 3" hair pin (36). *(See Figure 4Y.)*

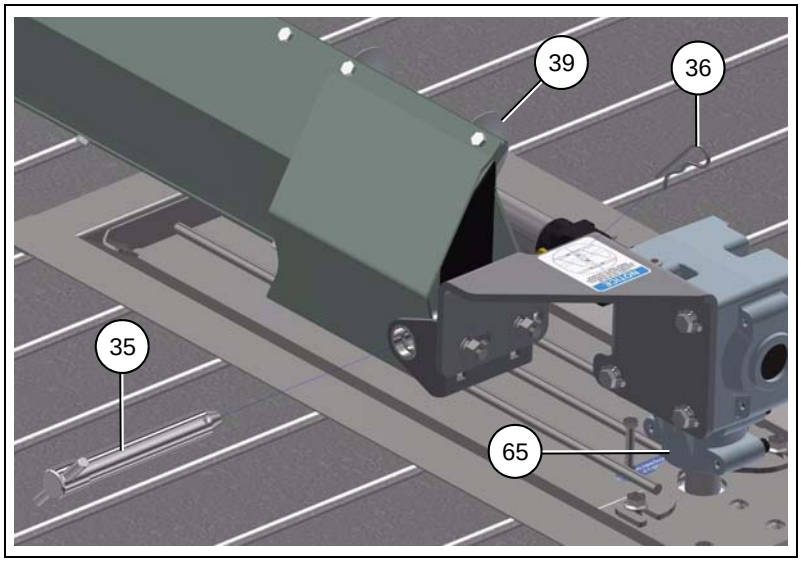


Figure 4Y

Ref #	Description
35	Sweep Pin (1)
36	3" Hair Pin (1)

Ref #	Description
39	Sweep
65	Gearbox Sweep Arm

2. Install the sweep flight (45) onto gearbox universal joint (103) using 3/8" x 3" bolt (8) and 3/8" lock nut (23). *(See Figure 4Z.)*

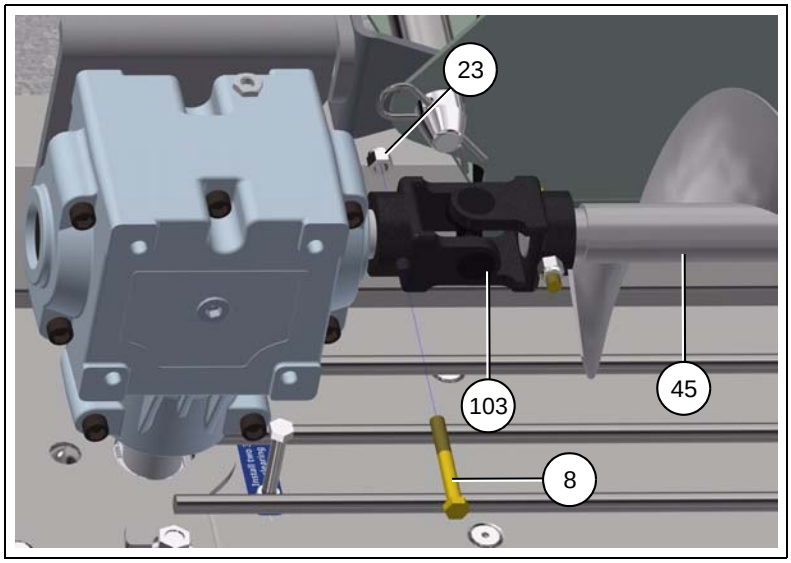


Figure 4Z

Ref #	Description
8	3/8" x 3" Bolt (1)
23	3/8" Lock Nut (1)

Ref #	Description
45	Sweep Flight
103	Gearbox Universal Joint

Sweep Braces and Support Wheel Assemblies (54'-66' Only)

1. Mount sweep brace mounting plates (48) to the sweep backplate (44) using 3/8" x 1" bolt (9) and 3/8" flange nut (19). *(See Figure 4AA and Figure 4AB.)*

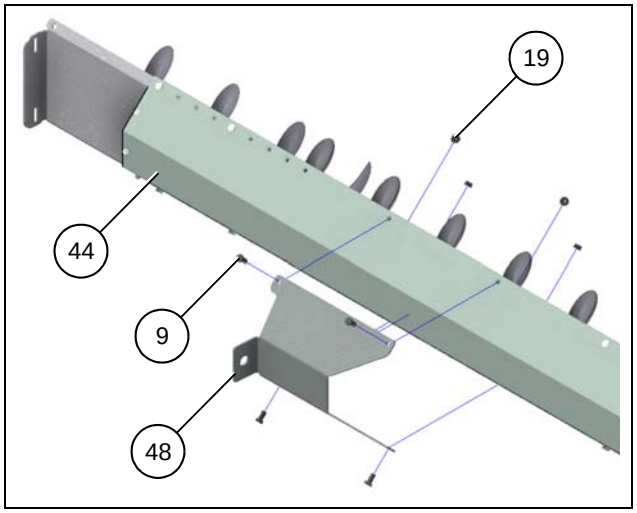


Figure 4AA

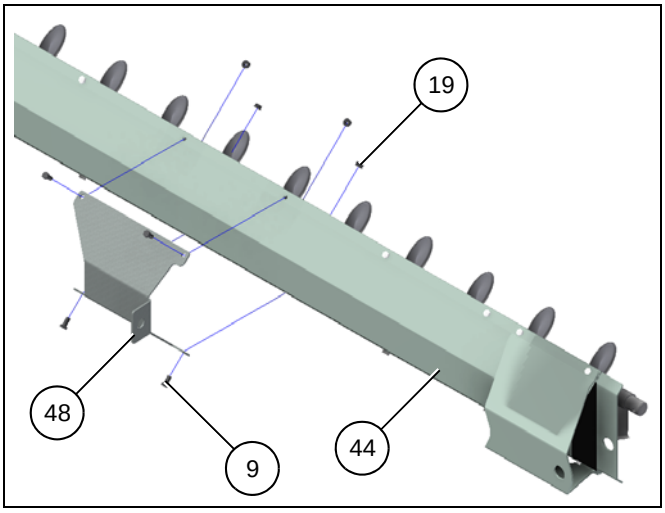


Figure 4AB

Ref #	Description
9	3/8" x 1" Bolt (4)
19	3/8" Flange Nut (4)

Ref #	Description
44	Sweep Backplate
48	Sweep Brace Mounting Plate

2. Assemble the support wheels (37) to the support wheel mounting plate (46) using 1/2" x 3-1/2" bolt (10), 1/2" flat washer (27) and 1/2" flange nut (20). *(See Figure 4AD.)*

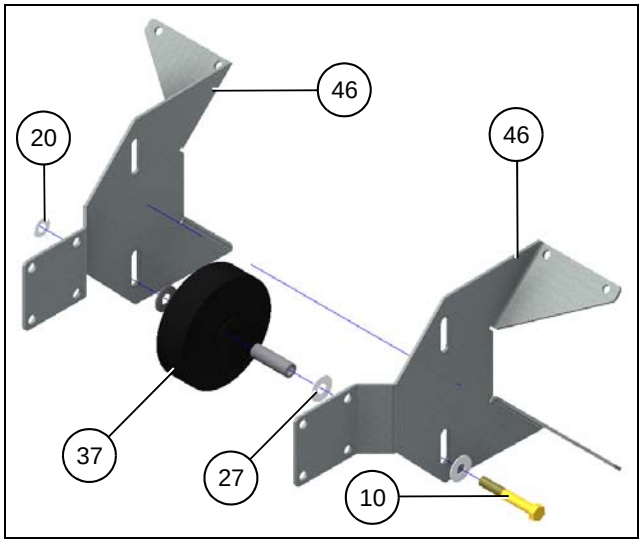


Figure 4AC

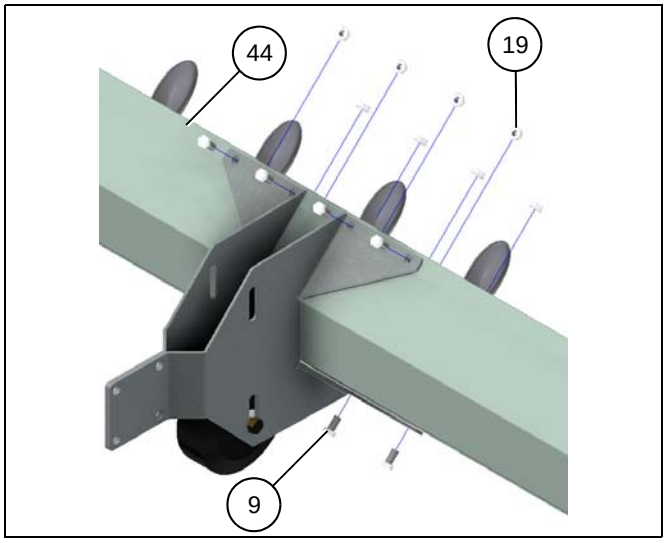


Figure 4AD

Ref #	Description
9	3/8" x 1" Bolt (8)
10	1/2" x 3-1/2" Bolt (1)
19	3/8" Flange Nut (8)
20	1/2" Flange Nut (1)

Ref #	Description
27	1/2" Flat Washer (3)
37	6" Wheel with 3/4" bearing
44	Sweep Backplate
46	Support Wheel Mounting Plate

3. Install the braces (49) to the support wheels and brace mounting plates (48). *(See Figure 4AE and Figure 4AF.)*

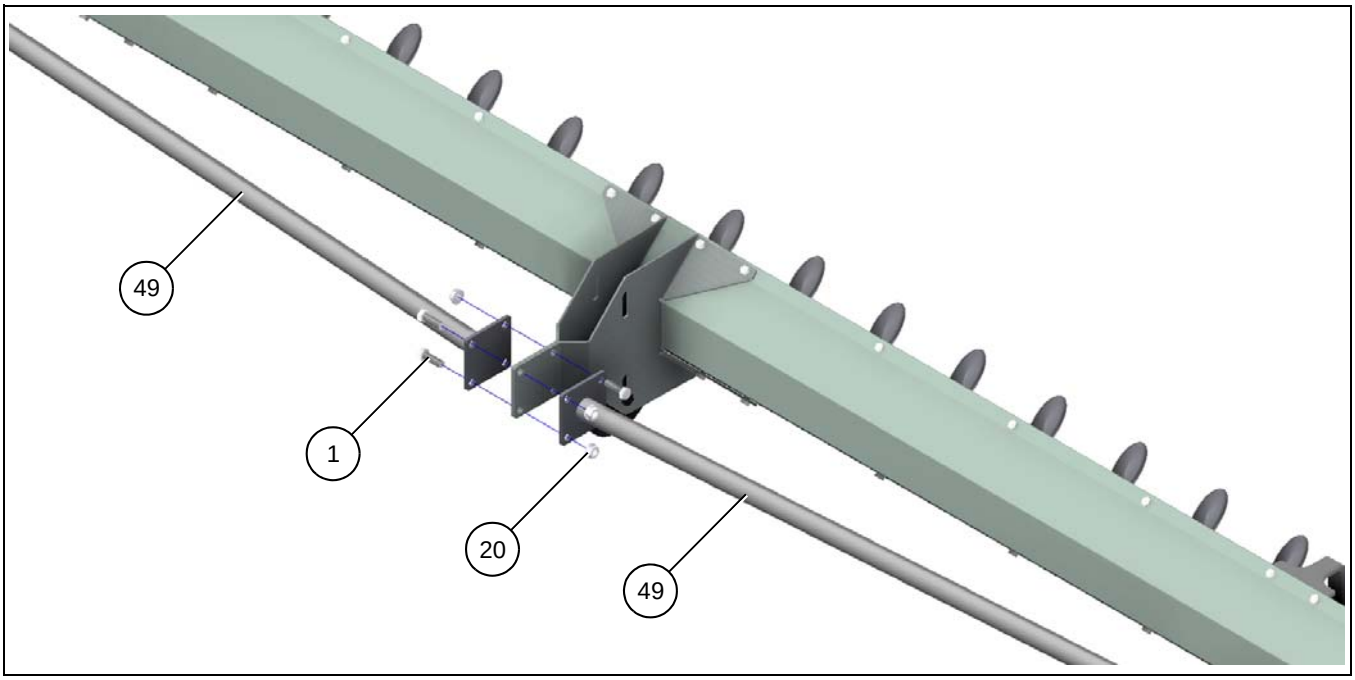


Figure 4AE

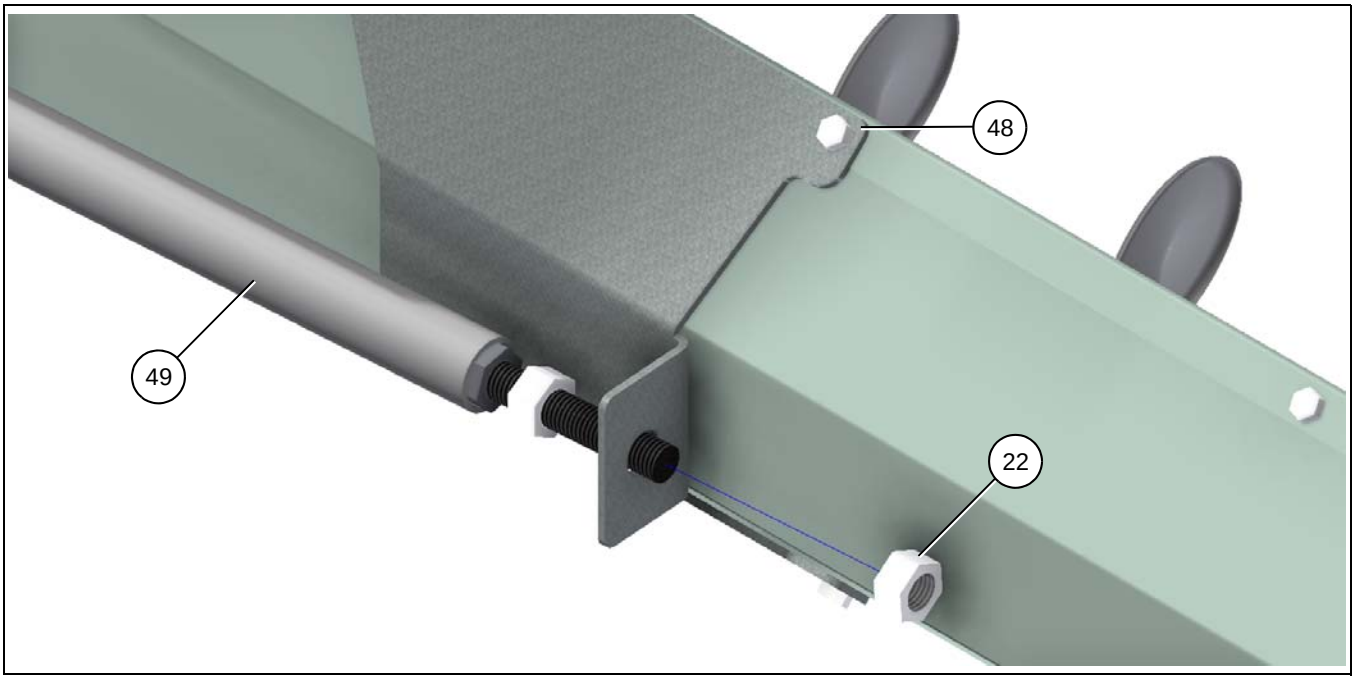


Figure 4AF

Ref #	Description
1	1/2" x 1-1/2" Bolt (4)
20	1/2" Flange Nut (4)
22	3/4" Hex Nut (4)

Ref #	Description
48	Sweep Brace Mounting Plate
49	Sweep Brace

Sweep Stop

1. Mount the sweep stop (42) such that it will stop the sweep before it reaches the walk through door. *(See Figure 4AG.)*
2. Install the bolt containing a through hole (104) at height shown. Feed cable through hole (104) and reconnect to the sweep stop (42). *(See Figure 4AH and Figure 4AI.)*

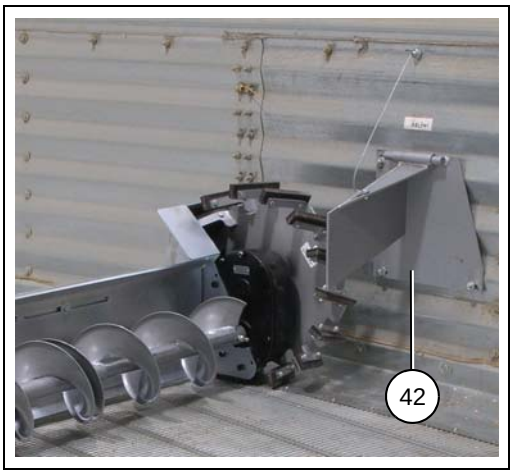


Figure 4AG

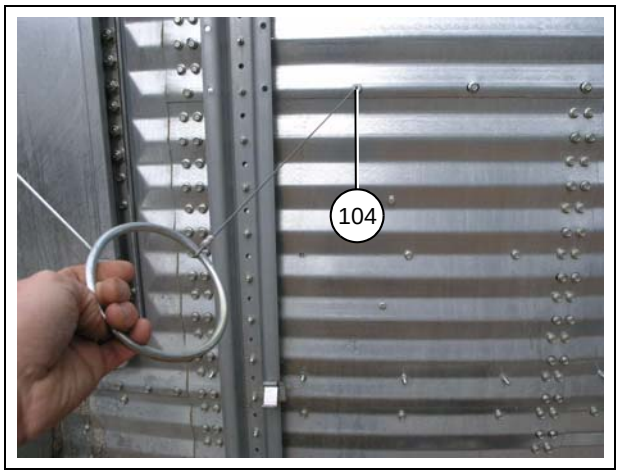


Figure 4AH

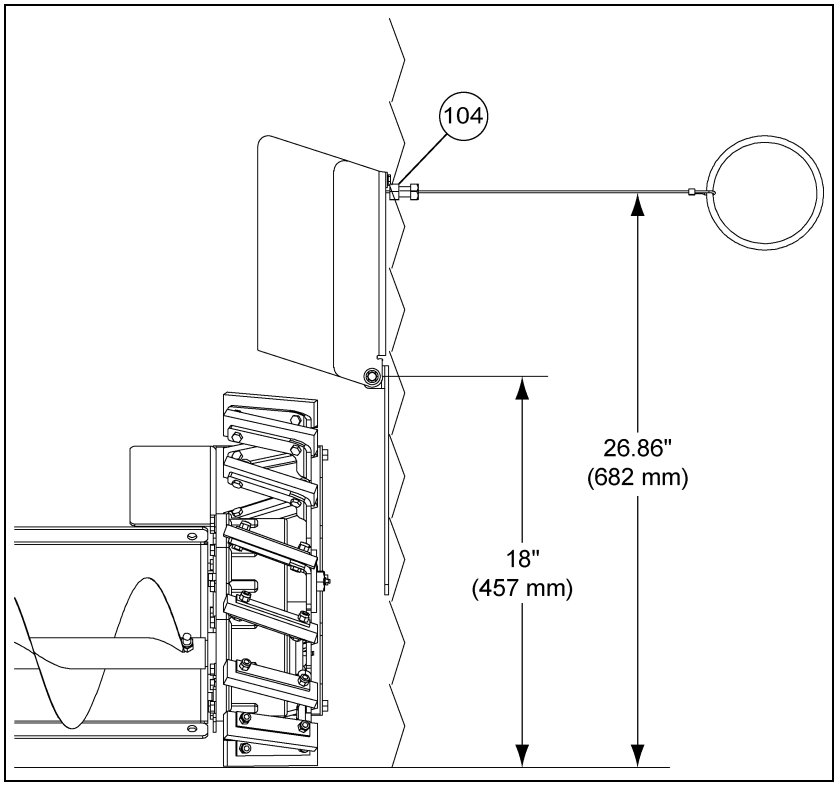


Figure 4AI

Ref #	Description
42	Sweep Stop
104	Feed Cable Through Hole

NOTE: ***Only operate sweep stop from the outside of the bin.***

Sweep Adjustments

Sweep adjustments are critical to achieve proper advancement and in turn, maximize sweep performance.

1. To adjust the overall sweep length, remove the four mounting bolts holding the adjuster plate to the sweep backplate. Re-position it to achieve desired length and then re-install hardware. *(See Figure 4AJ.)*
2. The height of the sweep backplate can be adjusted both at the wheel and at the center gearbox assembly (106). *(See Figure 4AK and Figure 4AL.)*
3. The sweep backplate can be adjusted in and out at the center gearbox assembly (106) to achieve the desired sweep flight to the sweep backplate spacing. *(See Figure 4AM.)*

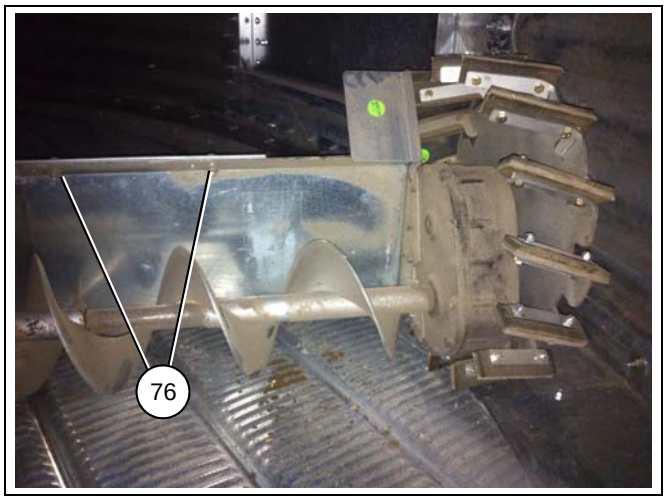


Figure 4AJ

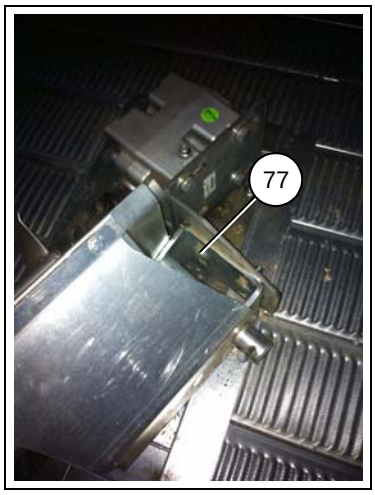


Figure 4AL

Figure 4AK

Figure 4AM

Ref #	Description
76	Length Adjustment
77	Height Adjustment

Ref #	Description
78	Side Adjustment

4. To adjust the elevator wheel, loosen the top nut and move to the desired position. Then re-tighten the hardware.

5. See *Figure 4AN-Figure 4AS* for position options.

Figure 4AN *Note Slot Position (Back View)*

Figure 4AQ *More Aggressive (Front View)*

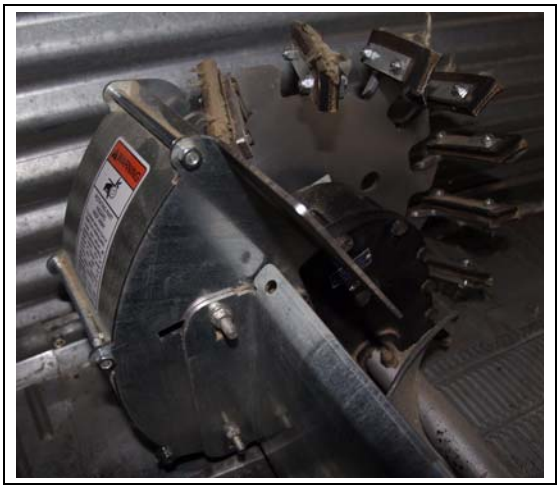


Figure 4AO *Note Slot Position (Back View)*

Figure 4AR *Neutral (Front View)*

Figure 4AP *Note Slot Position (Back View)*

Figure 4AS *Less Aggressive (Front View)*

Ref #	Description
24	Loosen this Nut

Polyshield Plate Assembly

1. Install the bearing (80) in the polyshield plate assembly (81) as shown in *Figure 4AT*.

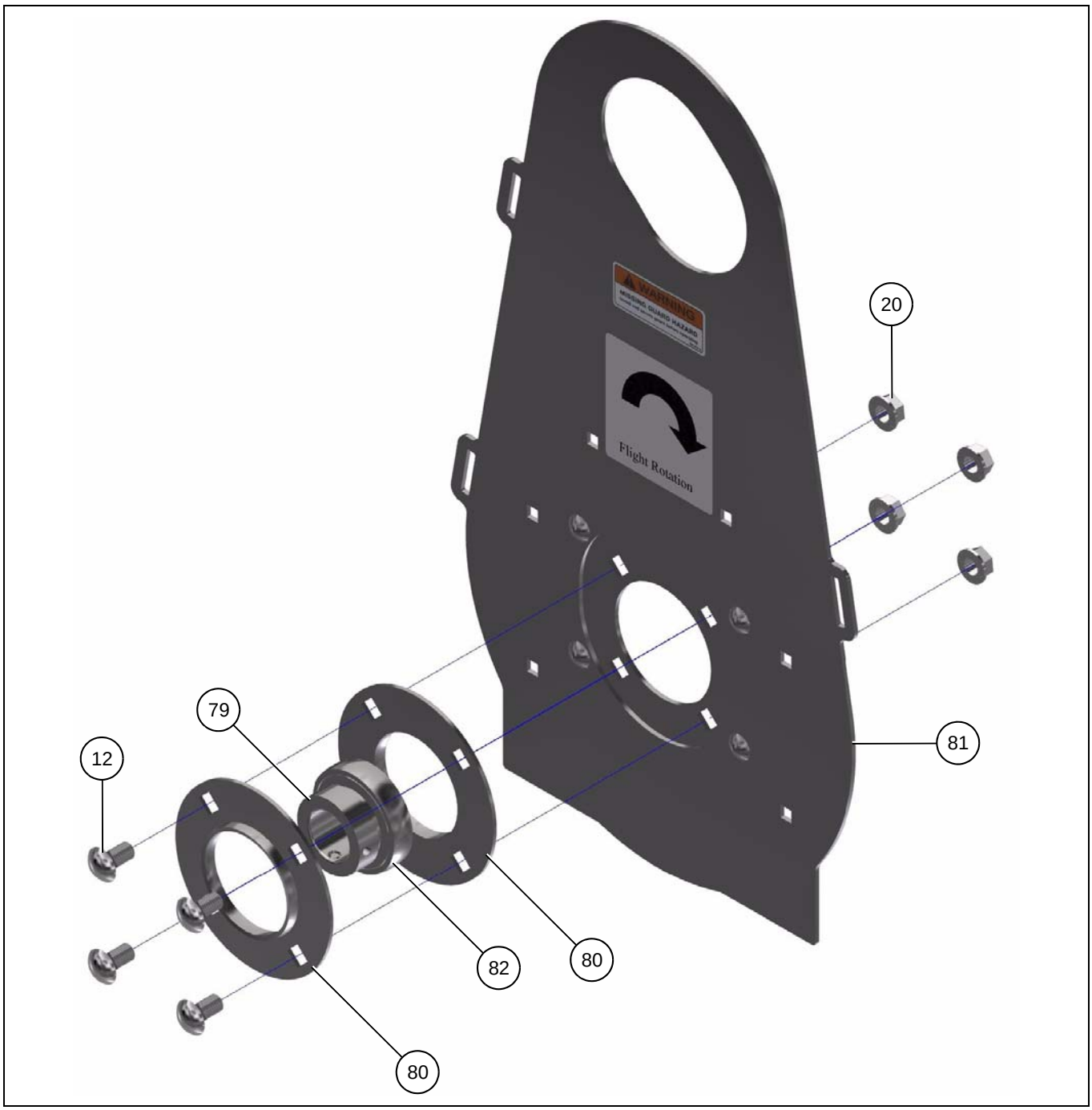


Figure 4AT

Ref #	Description
12	1/2" x 1" Carriage Bolt (4)
20	1/2" Flange Nut (4)
79	Bearing Insert (1)

Ref #	Description
80	Bearing Flange (2)
81	Polyshield Plate Assembly
82	Bearing with Eccentric Locking Collar

Horizontal Powerhead

Discharge Gate, Motor Plate Preparation

1. Slide the discharge gate assembly (84) onto the powerhead in the orientation as shown in *Figure 4AU*.
2. Remove the three bolts and nuts (83) shown along one edge of the powerhead (41) in the preparation for installation of the motor plate assembly.

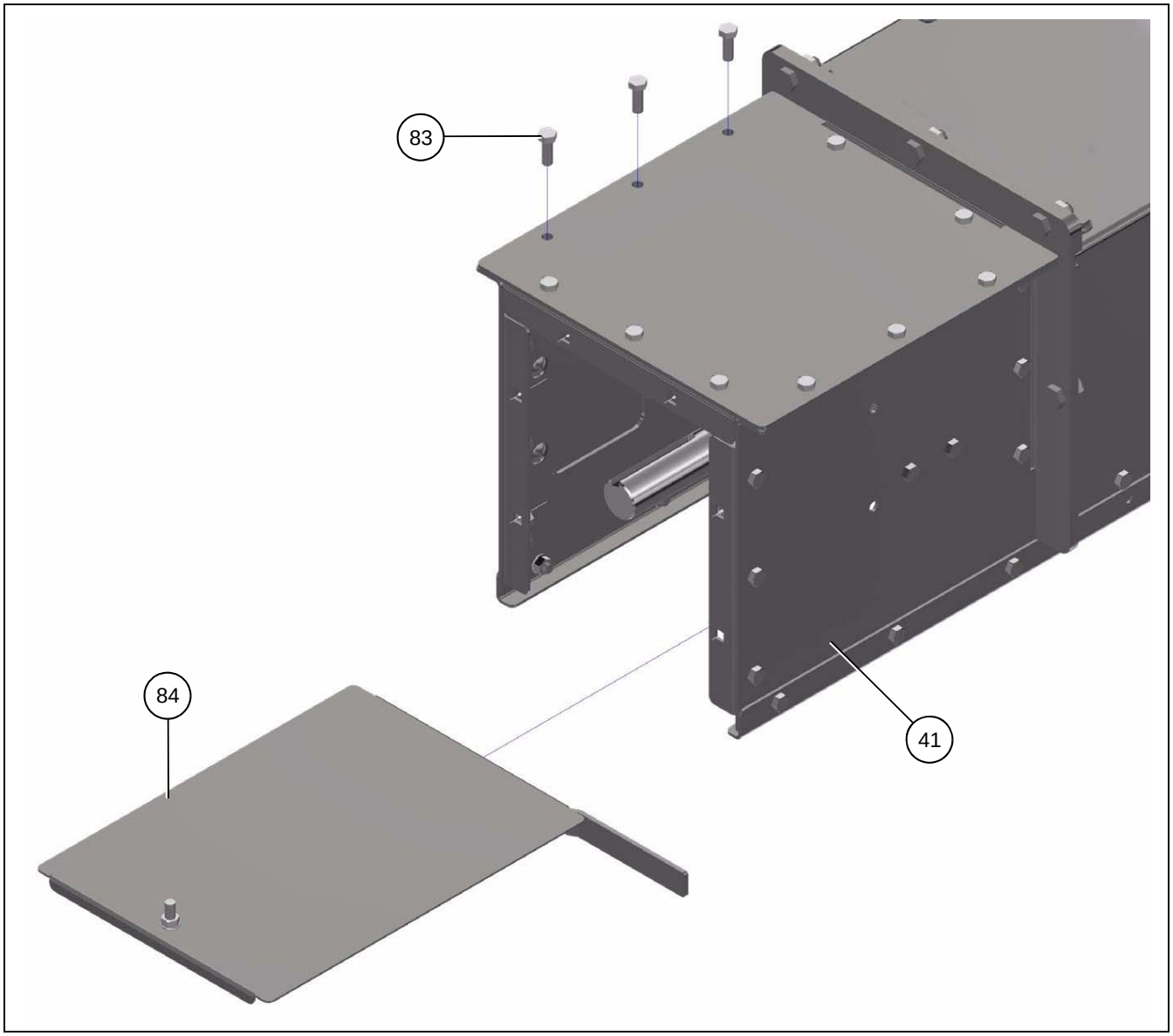


Figure 4AU

Ref #	Description
41	Powerhead
83	Remove Hardware
84	Discharge Gate Assembly

Powerhead Shaft, Motor Plate

1. Ensure the flighting is pushed fully towards gearbox.
2. Install the motor plate assembly (85) on the top of the powerhead (41), secure with three nuts and bolts removed previously. *(See Figure 4AV.)*
3. Secure the shifter handle bracket (86) with two nuts (19) and bolts (9).
4. Install the powershield plate assembly (81) and secure with six nuts (19) and bolts.

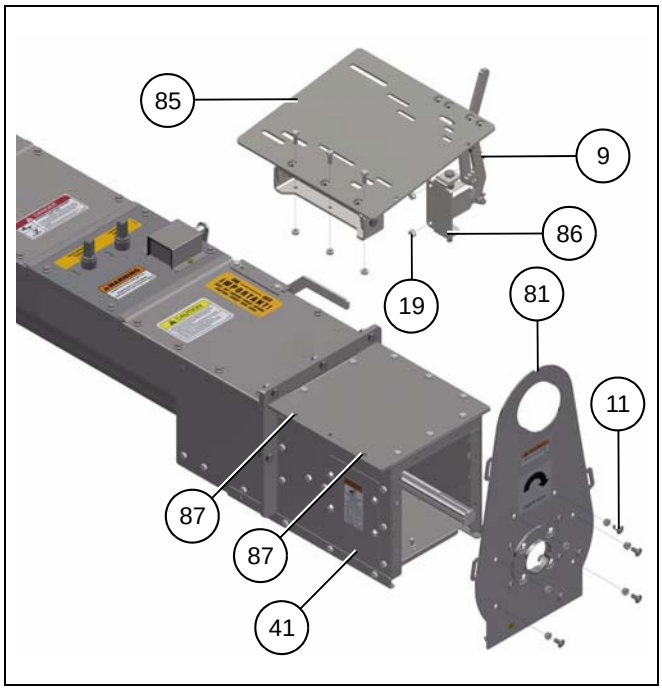


Figure 4AV

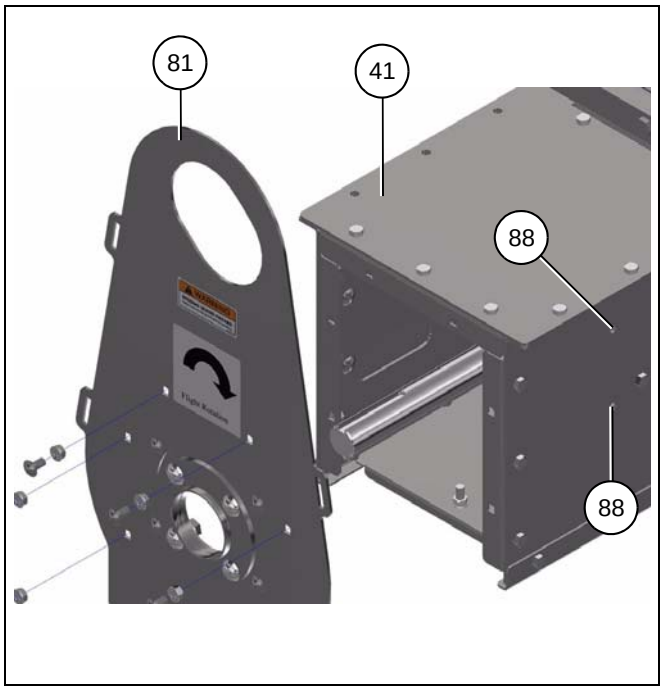


Figure 4AW

Ref #	Description
9	3/8" x 1" Bolt (2)
11	3/8" x 1" Carriage Bolt (6)
19	3/8" Flange Nut (8)
41	Powerhead
81	Polyshield Plate Assembly
85	Motor Plate Assembly
86	Shifter Handle Bracket
87	Motor Plate Assembly Mounting Holes
88	Shifter Handle Bracket Mounting Holes

Bearing Eccentric Locking Collar Installation

The bearing on the polyshield plate assembly includes an eccentric locking collar. Complete the following steps to lock the bearing onto the powerhead shaft.

1. Ensure the bearing assembly with eccentric locking collar (89) is assembled on the powerhead shaft (91) as shown in *Figure 4AX*.
2. Using a hammer and a punch, lock the bearing onto the shaft by inserting the punch into the blind hole (90) on the eccentric locking collar (89) and tapping punch with the hammer to rotate the collar clockwise (matching the flight rotation direction) until it binds.
3. Secure the eccentric locking collar (89) in this position by tightening down the set screw (32).

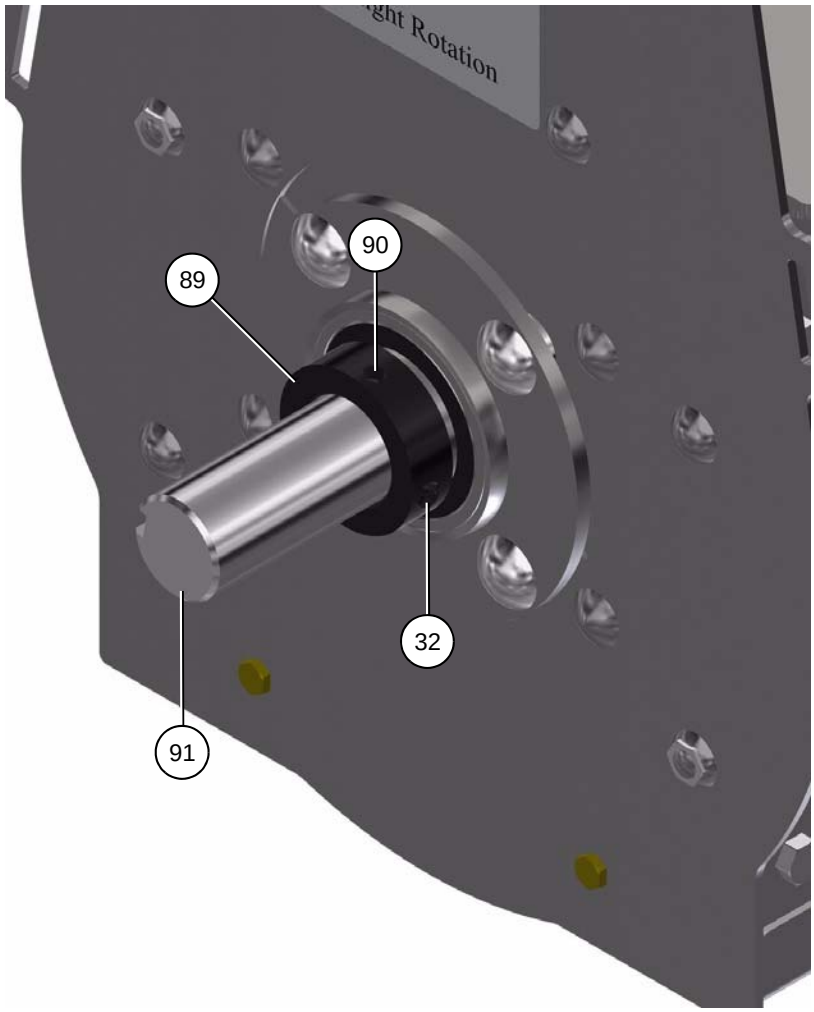


Figure 4AX

Ref #	Description
32	Set Screw
89	Eccentric Locking Collar
90	Blind Hole
91	Powerhead Shaft

Pulley Taper Bore Hub Installation

1. Be sure the tapered cone surfaces of the bushing (47) and inside of pulley (93) are clean and free of grease and oil.
2. Place the bushing (47) in the pulley (93).
3. Place the bolts and lock washers (13) loosely in pull-up holes. Bushing (47) remains fully expanded to assure sliding fit on the shaft.
4. With key (92) on shaft slide pulley (93) to the desired position on shaft. Be sure heads of bolts are on the outside.
5. Tighten bolts alternately and progressively until they are pulled up tight. Tighten to 15 lbs.-ft. (20 Nm) torque. Do not allow pulley (93) to be drawn in contact with the flange of bushing (47). There should be a gap from 1/8" to 1/4" (3.2 mm-6.4 mm). *(See Figure 4AY.)*

   NOTE: *Do not over-tighten. Dry fit only.*

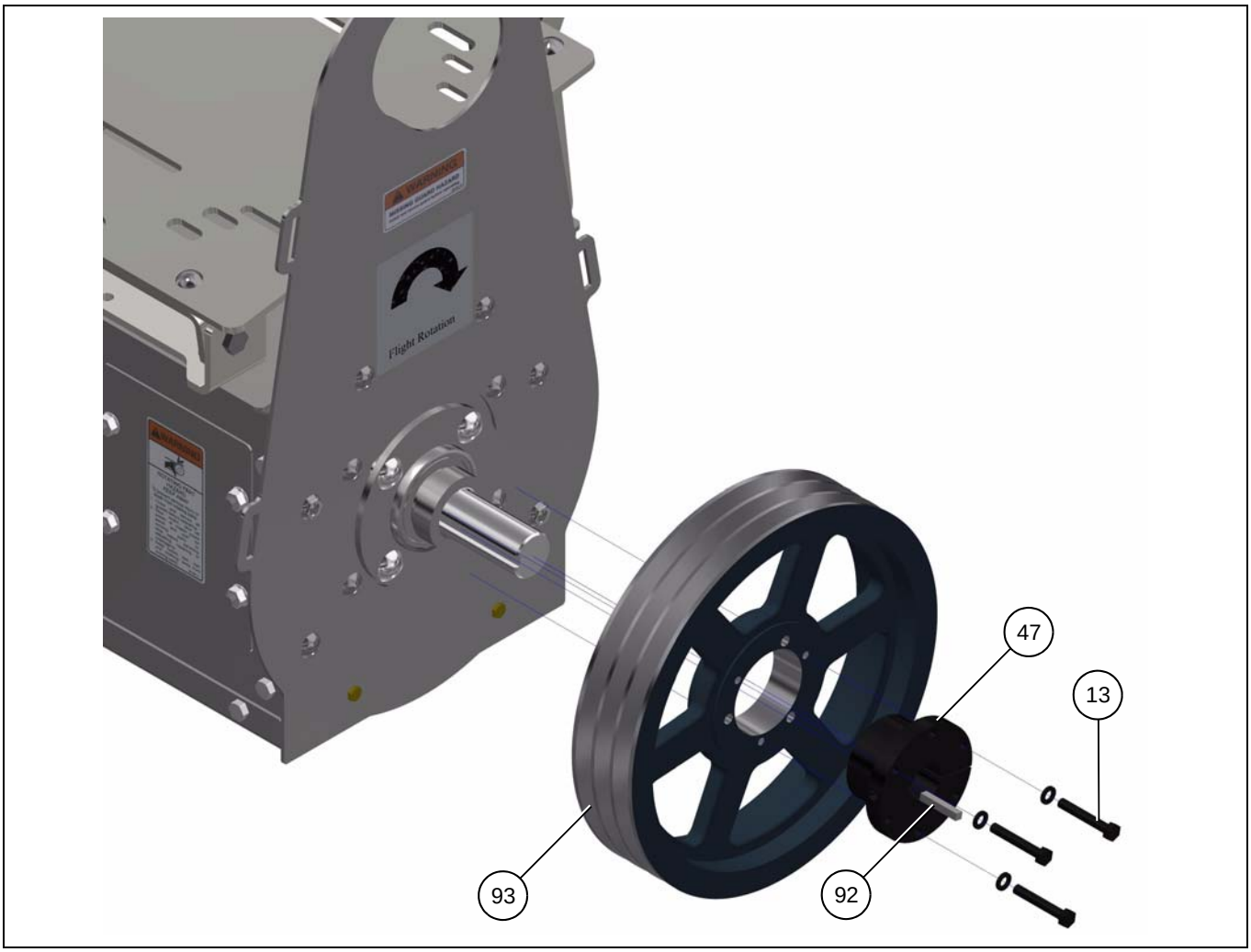


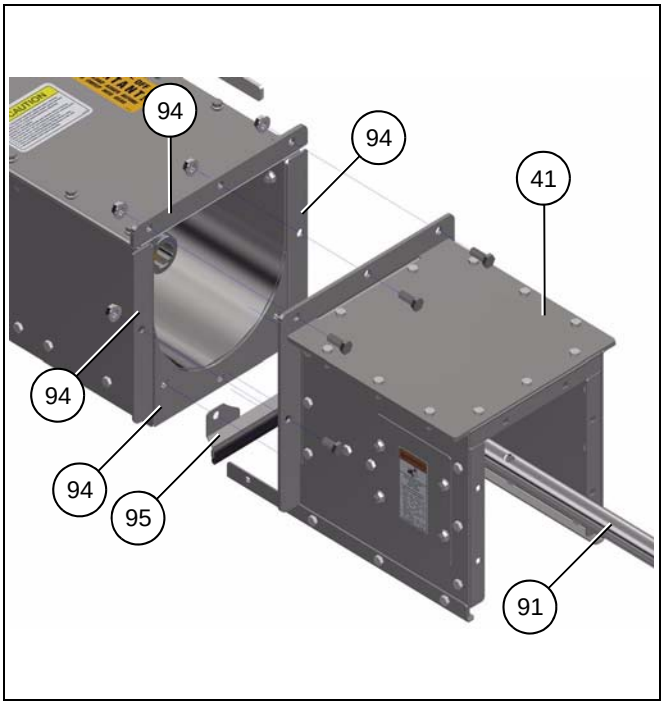
Figure 4AY

Ref #	Description
13	Bolt with Washer
47	Bushing

Ref #	Description
92	Key
93	Pulley

Incline Powerhead

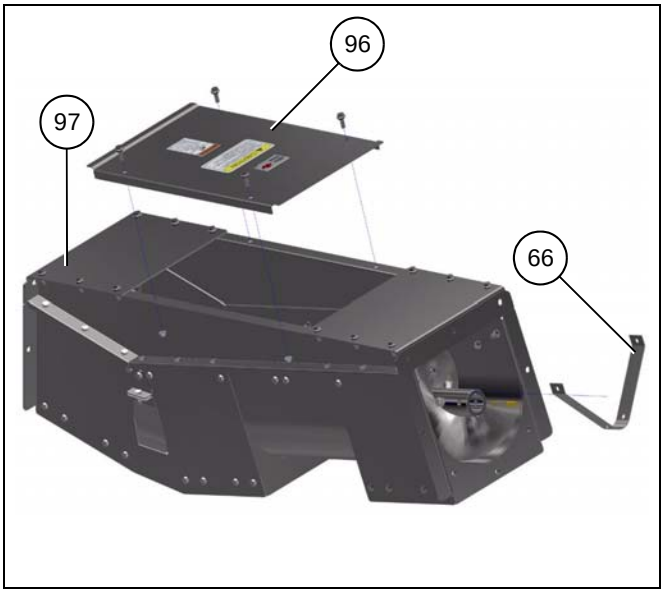
1. Remove the powerhead (41) from the standard horizontal position by removing the eight bolts around the perimeter of the box flange (94). Remove the discharge gate seal (95). Remove the powerhead shaft (91) from the unloader flighting by removing two 3-1/2" bolts. *(See Figure 4AZ.)*



Ref #	Description
41	Powerhead
91	Powerhead Shaft
94	Box Flange Perimeter
95	Discharge Gate Seal

Figure 4AZ

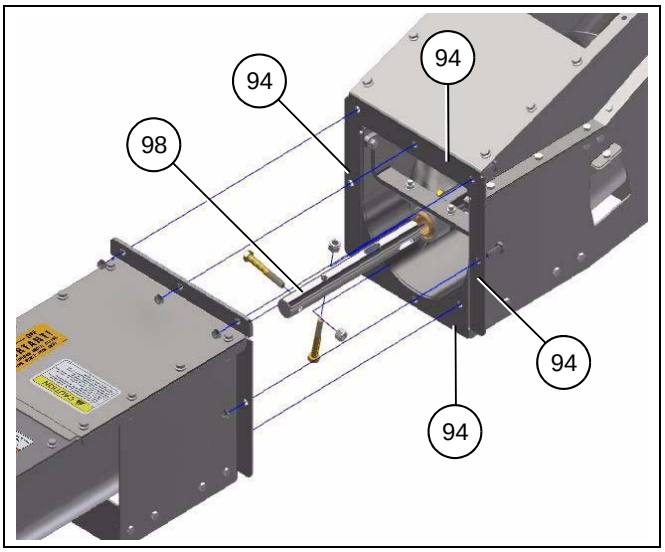
2. Prepare the incline elbow assembly (97) for installation by removing the middle lid (96). Remove four bin bolts and nuts. Remove the flight strap (66) securing the flighting by removing two flange nuts and by removing the 3-1/2" bolt and nut in the flight bushing. The removed flange nuts can be discarded. *(See Figure 4BA.)*



Ref #	Description
66	Flight Strap
96	Middle Lid
97	Incline Elbow Assembly

Figure 4BA

3. Install the incline elbow assembly on the end of the unloader. Insert the incline shaft (98) into the flight bushing. Secure the incline elbow assembly to the unloader end by installing the eight nuts and bolts remove in *Step 1* around the perimeter of the box flange (94). Install the two 3-1/2" bolts and nuts in the flight bushing to couple the flighting. *(See Figure 4BB.)*



Ref #	Description
94	Box Flange Perimeter
98	Incline Shaft (Shown out of normal position)

Figure 4BB

4. Prepare the powerhead (41) for installation. Move the hanger bushing bracket (99) up 1/2" by removing the four bolts, securing the hanger bushing bracket (99) and re-installing them using the lower set of holes (101). *(See Figure 4BC and Figure 4BD.)*

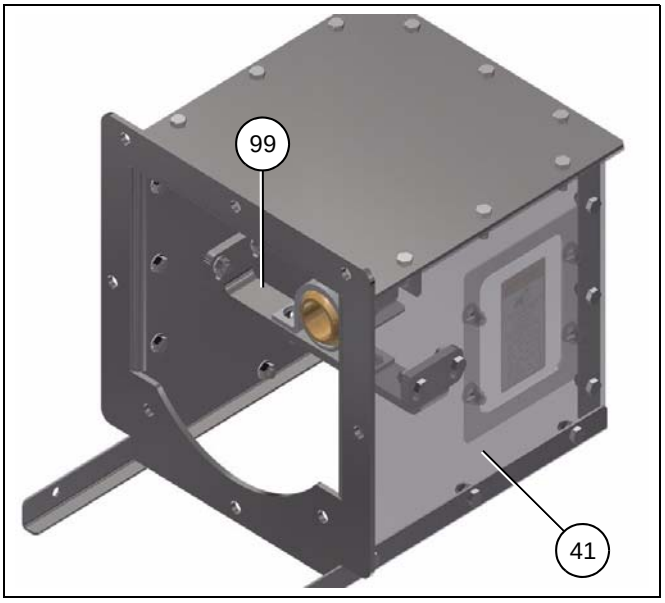


Figure 4BC

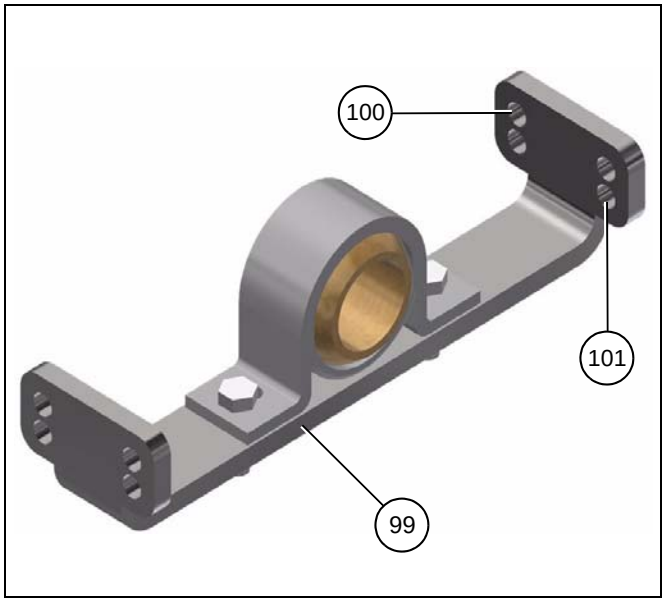


Figure 4BD

Ref #	Description
41	Powerhead
99	Hanger Bushing Bracket

Ref #	Description
100	Upper Holes
101	Use Lower Holes Instead

5. Bolt the powerhead (41) onto the end of the incline elbow assembly (97) with the eight bolts removed previously. Ensure the discharge gate seal (95) is re-installed during this step. Insert the powerhead shaft (91) into the incline flight bushing and secure it with two 3-1/2" bolts. *(See Figure 4BE and Figure 4BF.)*

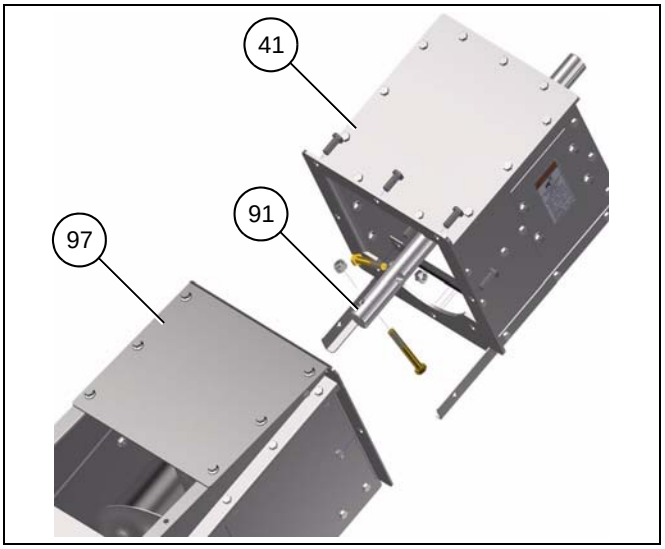


Figure 4BE

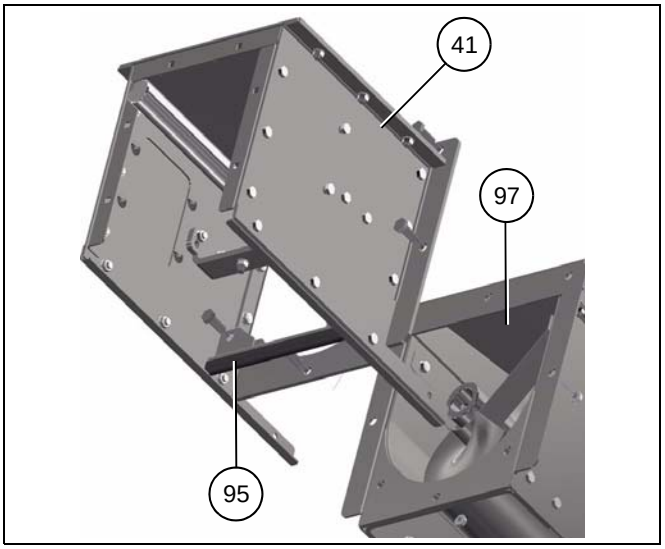


Figure 4BF

Ref #	Description
41	Powerhead
91	Powerhead Shaft

Ref #	Description
95	Discharge Gate Seal
97	Incline Elbow Assembly

6. Prepare polyshield plate assembly (81) for installation by un-bolting the bearing plate (102) and rotate it 180°. Re-install the bearing plate (102). The words “10" FLIGHT” should now be upright. *(See Figure 4BG and Figure 4BH.)*

   NOTE: *You can now proceed with typical powerhead installation as shown* *on Page 35**.*

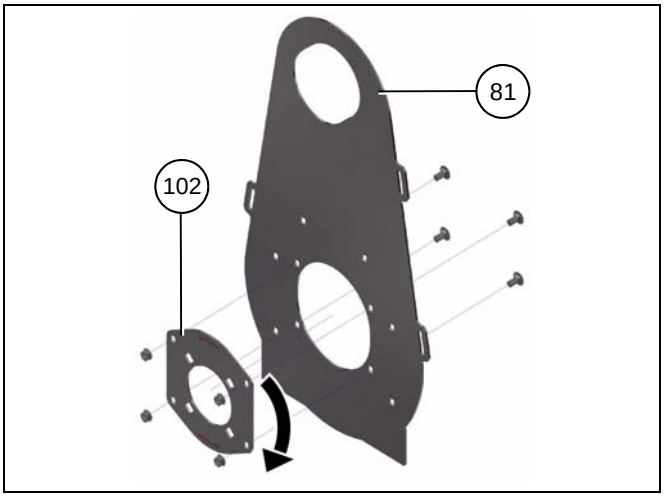


Figure 4BG

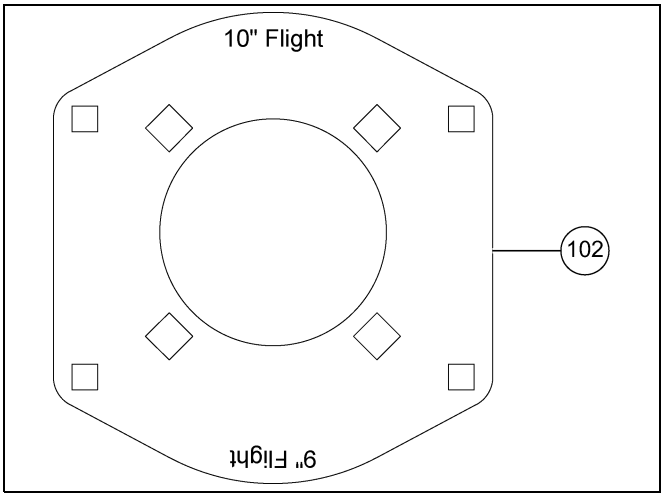


Figure 4BH *Correct orientation of Bearing Plate for Incline Elbow*

Ref #	Description
81	Polyshield Plate Assembly

Ref #	Description
102	Bearing Plate

7. Re-install the middle lid on the incline elbow, removed in step 2.

U-Trough Extension Installation

1. Install the U-trough extension using the hardware provided with the extension.
2. Install the supports. Kits available separately.
3. Install the powerhead as shown *on Page 35*.

Power requirements are dependent on the grain type, condition and moisture level. Power requirements are suggestions and may vary in specific circumstances. Steps can be taken to reduce the power needed to operate the unloader or sweep if the power available to the site is limited. Operating the unloader at a slower speed and reducing the flow of grain into the unloader will reduce power requirements.

Electric Drive

All values in horsepower, (1 HP = 0.746 Kw).

Electric drive motor pulley is not provided.

For 1750 RPM motors a 3-1/2" - 3-3/4" diameter pulley is required;

For 1460 RPM motors a 4-1/4" - 4-1/2" diameter pulley is required.

U-Trough Unloader with Sweep - Horizontal Powerhead

Bin Diameter	6" Sweep		7-1/4" Sweep		8-1/4" Sweep		9" Sweep	
	12.4" Flight Pulley	18.4" Flight Pulley	12.4" Flight Pulley	18.4" Flight Pulley	12.4" Flight Pulley	18.4" Flight Pulley	12.4" Flight Pulley	18.4" Flight Pulley
18'	5	3	5	3	5	3	7.5	5
19'	5	5	5	5	5	5	7.5	5
21'	5	5	5	5	5	5	7.5	5
24'	7.5	5	7.5	5	7.5	5	7.5	5
27'	7.5	5	7.5	5	7.5	5	7.5	5
30'	7.5	5	7.5	5	7.5	5	10	7.5
33'	7.5	5	7.5	5	7.5	5	10	7.5
36'	10	7.5	10	7.5	10	7.5	10	7.5
42'	10	10	10	10	10	10	15	10
48'	15	15	15	15	15	15	15	15
54'	N/A	15	N/A	15	N/A	15	N/A	20
60'	N/A	20	N/A	20	N/A	20	N/A	20
66'	N/A	20	N/A	20	N/A	20	N/A	25

U-Trough Unloader with Sweep - 25° Incline Elbow and Horizontal Powerhead

Bin Diameter	6" Sweep		7-1/4" Sweep		8-1/4" Sweep		9" Sweep	
	12.4" Flight Pulley	18.4" Flight Pulley	12.4" Flight Pulley	18.4" Flight Pulley	12.4" Flight Pulley	18.4" Flight Pulley	12.4" Flight Pulley	18.4" Flight Pulley
18'	7.5	5	7.5	5	7.5	5	7.5	5
19'	7.5	5	7.5	5	7.5	5	7.5	5
21'	7.5	5	7.5	5	7.5	5	7.5	5
24'	7.5	5	7.5	5	7.5	5	10	7.5
27'	10	7.5	10	7.5	10	10	10	7.5
30'	10	7.5	10	7.5	10	10	10	7.5
33'	10	7.5	10	7.5	10	10	15	10
36'	10	7.5	10	7.5	10	10	15	10
42'	10	10	10	10	15	10	15	10
48'	15	15	15	15	15	15	20	15
54'	N/A	20	N/A	20	N/A	20	N/A	20
60'	N/A	20	N/A	20	N/A	25	N/A	20
66'	N/A	25	N/A	25	N/A	25	N/A	25

U-Trough Unloader without Sweep - Horizontal Powerhead

Bin Diameter	Required HP	
	12.4" Pulley	18.4" Pulley
18'	5	3
19'	5	5
21'	5	5
24'	7.5	5
27'	7.5	5
30'	7.5	5
33'	7.5	5

Bin Diameter	Required HP	
	12.4" Pulley	18.4" Pulley
36'	10	7.5
42'	10	7.5
48'	15	10
54'	N/A	15
60'	N/A	15
66'	N/A	20

U-Trough Unloader without Sweep - 25° Incline Elbow and Horizontal Powerhead

Bin Diameter	Required HP	
	12.4" Pulley	18.4" Pulley
18'	5	3
19'	5	5
21'	5	5
24'	7.5	5
27'	7.5	5
30'	7.5	5
33'	7.5	5

Bin Diameter	Required HP	
	12.4" Pulley	18.4" Pulley
36'	10	7.5
42'	10	7.5
48'	15	10
54'	N/A	15
60'	N/A	15
66'	N/A	20

U-Trough Extensions

Pulley	HP/ft.
12.4"	0.36
18.4"	0.24

Hydraulic Drive

Two hydraulic powerhead options are available. Choose the powerhead suitable for the system being installed. Refer to tables *on Page 43* (12.4" pulley systems) to determine the power requirements for the specific unloader or sweep sizes and installation configuration.

Power Requirement	HYD Powehead	Motor Size	Pump Requirement
HP	Part #	Cu. in. / Rev.	Minimum
1.5-10	41UP009	5.9	12 GPM @ 1500 PSI
10-25	41UP010	8.0	16 GPM @ 2500 PSI

When pumps with more capacity are used it may be necessary to limit the oil flow in order to obtain the correct flight speed.

Pre-Operation Check List

IMPORTANT: *Lock out power source prior to performing pre-operation checks. Failure to do so may result in serious injury or death.*

1. Before filling the grain bin, check to ensure that all unloader components are functioning properly.
2. Rotate driven pulley to ensure U-Trough flight is free of obstructions and rotating smoothly.
3. Open and close all unloader gates to ensure that they are operating freely.
4. **ENSURE ALL GATES ARE IN THE CLOSED POSITION PRIOR TO FILLING THE BIN.**
5. Verify that the sweep shifts from the OFF to the ON position correctly.
6. **ENSURE SWEEP IS IN THE OFF POSITION PRIOR TO FILLING THE BIN.**
7. Check to make sure there is clearance between the sweep backplate and the floor. (*See Page 32* for sweep adjustments.)
8. Position the bin sweep above the intermediate gates or such that the intermediate gates are just in the front of the sweep. *(See Figure 6A.)*

Figure 6A

9. After the bin is filled with product, keep moisture from entering the grain bin at the center and draining down into the unloader and sweep drive area.

NOTE: *Poor grain conditions will affect performance of unload/sweep operation.*

Unloading

WARNING ***ALWAYS UNLOAD FROM THE CENTER GATE FIRST. Unloading from the intermediate gates when the bin is still mostly full, causes excessive stress on the grain bin and can cause the grain bin to be damaged or collapse.***

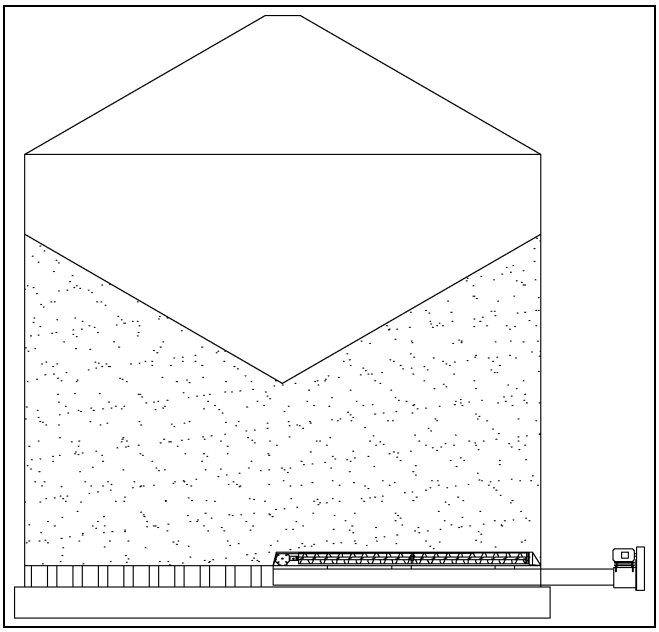


Figure 6B *Center Unloading*

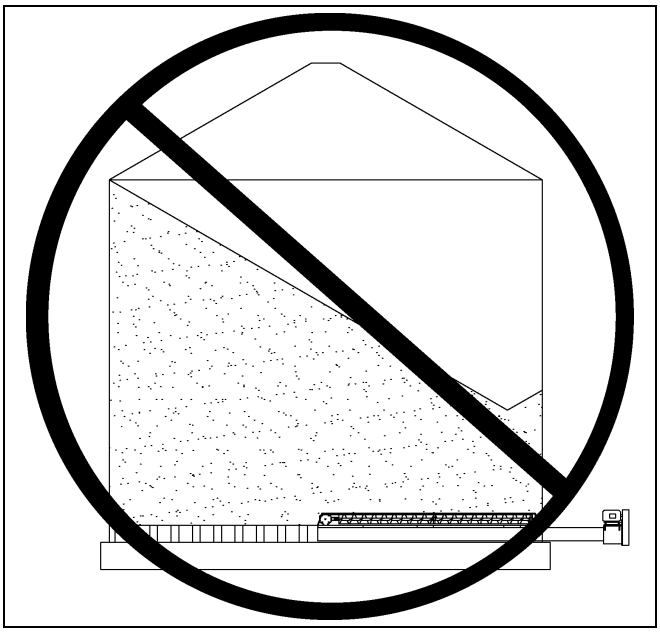


Figure 6C *Off - Center Unloading*

1. Gate controls include interlocks to prevent off-center unloading. The outer gates cannot open without the inner intermediate gates opening. The inner intermediate gates cannot open without the center gate opening. *(See Figure 6D.)*

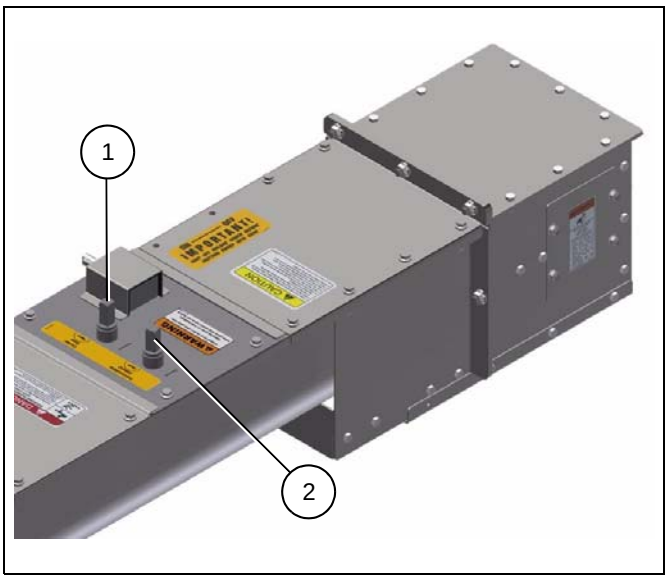


Figure 6D

Ref #	Description
1	Center Gate Control
2	Intermediate Gate Control

Gearbox Oil Level

(Check levels once per season, or every 50 hours of operation.)

1. Fill the top gearbox to the side plug level.
2. Remove the cover and fill bottom gearbox to line on dipstick.
3. Gearboxes are factory filled with full synthetic 75W90 gear oil.

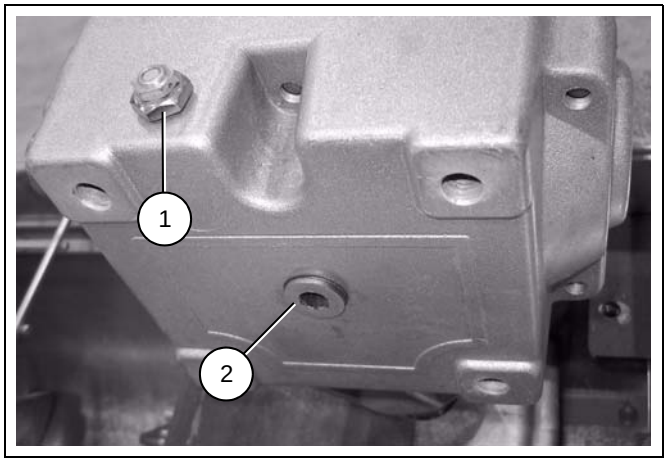


Figure 7A *Top Gearbox*

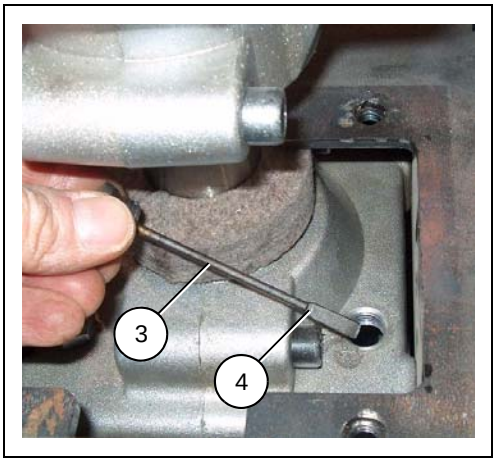


Figure 7B *Bottom Gearbox*

Ref #	Description
1	Vent Plug
2	Side Plug

Ref #	Description
3	Dipstick
4	Full Line

Grease Points

Grease every 8 hours of operation.

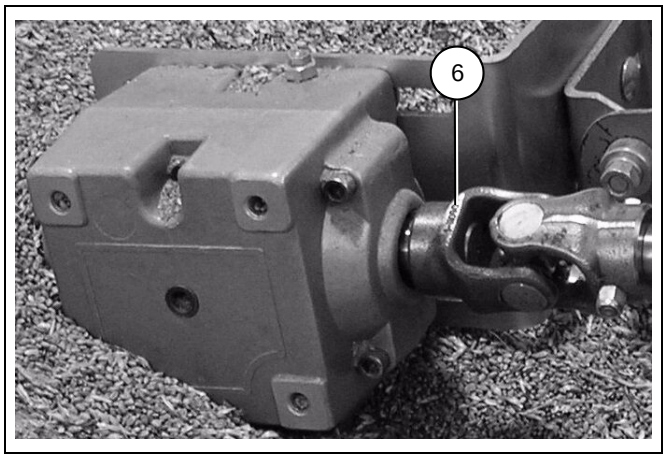


Figure 7C

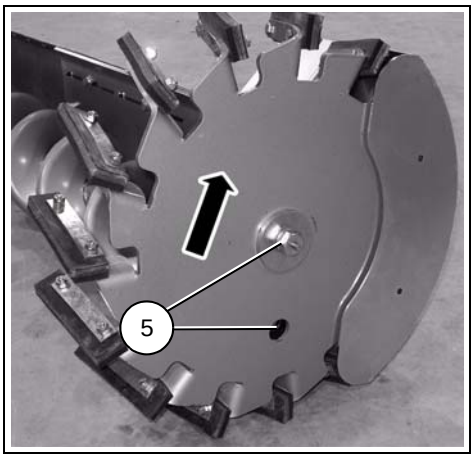


Figure 7D

Ref #	Description
5	Sweep Drive Wheel
6	Gearbox U-Joint

U-Trough Unloader for Nominal Bin Diameters

U-Trough System with Horizontal Powerhead

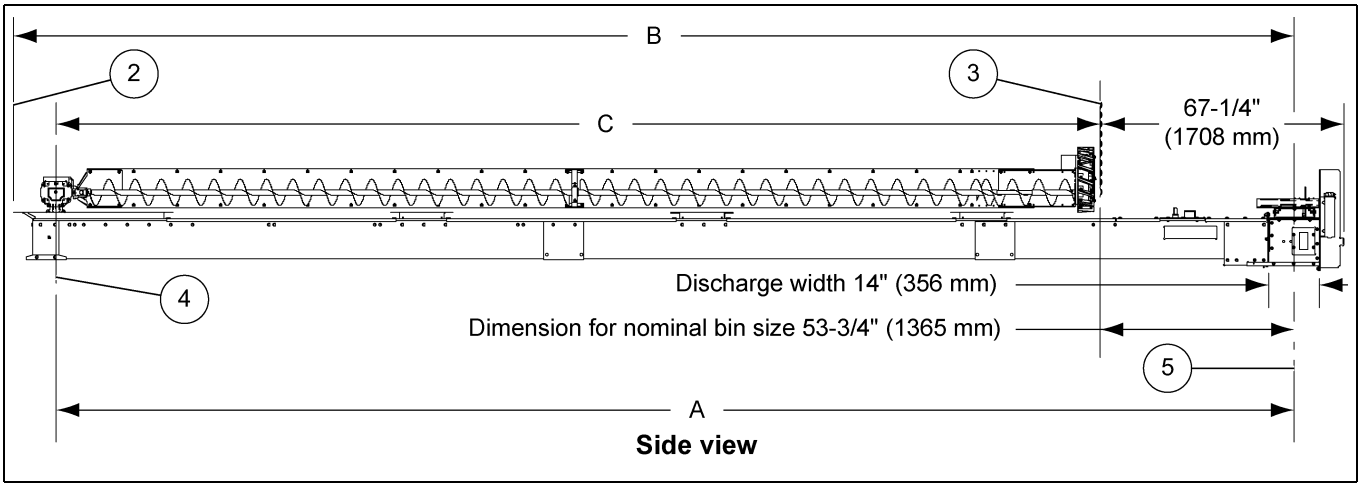


Figure 8A

Ref #	Description
2	Extent of Floor Flange
3	Bin Wall

Ref #	Description
4	Center of Bin
5	Center of Discharge

Nominal Bin Diameter	# of Intermediate Gates	A		B		C	
		Center of Bin to Center of Discharge		Unloader Overall Length		Nominal Bin Radius	
		Inches	mm	Inches	mm	Inches	mm
18'	1	1.125	29	12.875	327	108	2743
19'	1	167.625	4258	179.375	4556	114	2896
21'	1	179.625	4562	191.375	4861	126	3200
24'	1	197.625	5020	209.375	5318	144	3658
27'	2	215.625	5477	227.375	5775	162	4115
30'	2	233.625	5934	245.375	6233	180	4572
33'	2	251.625	6391	263.375	6690	198	5029
36'	2	269.625	6848	281.375	7147	216	5486
39'	2	287.625	7306	299.375	7604	234	5944
42'	3	305.625	7763	317.375	8061	252	6401
44'	3	317.625	8068	329.375	8366	264	6706
48'	3	341.625	8677	353.375	8976	288	7315
50'	3	353.625	8982	365.375	9281	300	7620
54'	3	377.625	9592	389.375	9890	324	8230
57'	4	395.625	10049	407.375	10347	342	8687
60'	4	413.625	10506	425.375	10805	360	9144
66'	4	449.625	11420	461.375	11719	396	10058

U-Trough Unloader for Nominal Bin Diameters (Continued)

U-Trough System with 25° Incline Elbow and Horizontal Powerhead

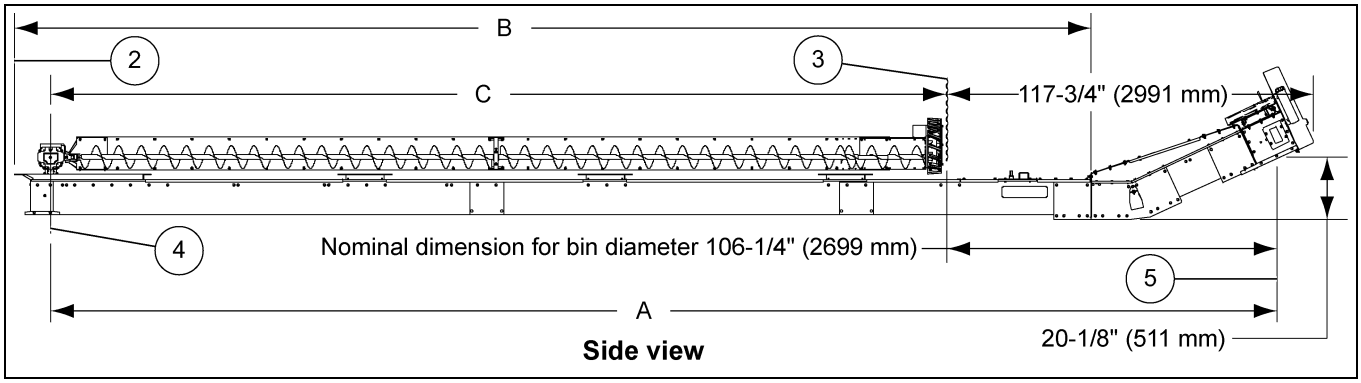


Figure 8B

Ref #	Description
2	Extent of Floor Flange
3	Bin Wall

Ref #	Description
4	Center of Bin
5	Center of Discharge

Nominal Bin Diameter	# of Intermediate Gates	A		B		C	
		Center of Bin to Center of Discharge		Unloader Overall Length		Nominal Bin Radius	
		Inches	mm	Inches	mm	Inches	mm
18'	1	53.75	1365	5.5	140	108	2743
19'	1	220.25	5594	172	4369	114	2896
21'	1	232.25	5899	184	4674	126	3200
24'	1	250.25	6356	202	5131	144	3658
27'	2	268.25	6814	220	5588	162	4115
30'	2	286.25	7271	238	6045	180	4572
33'	2	304.25	7728	256	6502	198	5029
36'	2	322.25	8185	274	6960	216	5486
39'	2	340.25	8642	292	7417	234	5944
42'	3	358.25	9100	310	7874	252	6401
44'	3	370.25	9404	322	8179	264	6706
48'	3	394.25	10014	346	8788	288	7315
50'	3	406.25	10319	358	9093	300	7620
54'	3	430.25	10928	382	9703	324	8230
57'	4	448.25	11386	400	10160	342	8687
60'	4	466.25	11843	418	10617	360	9144
66'	4	502.25	12757	454	11532	396	10058

Gate Dimensions

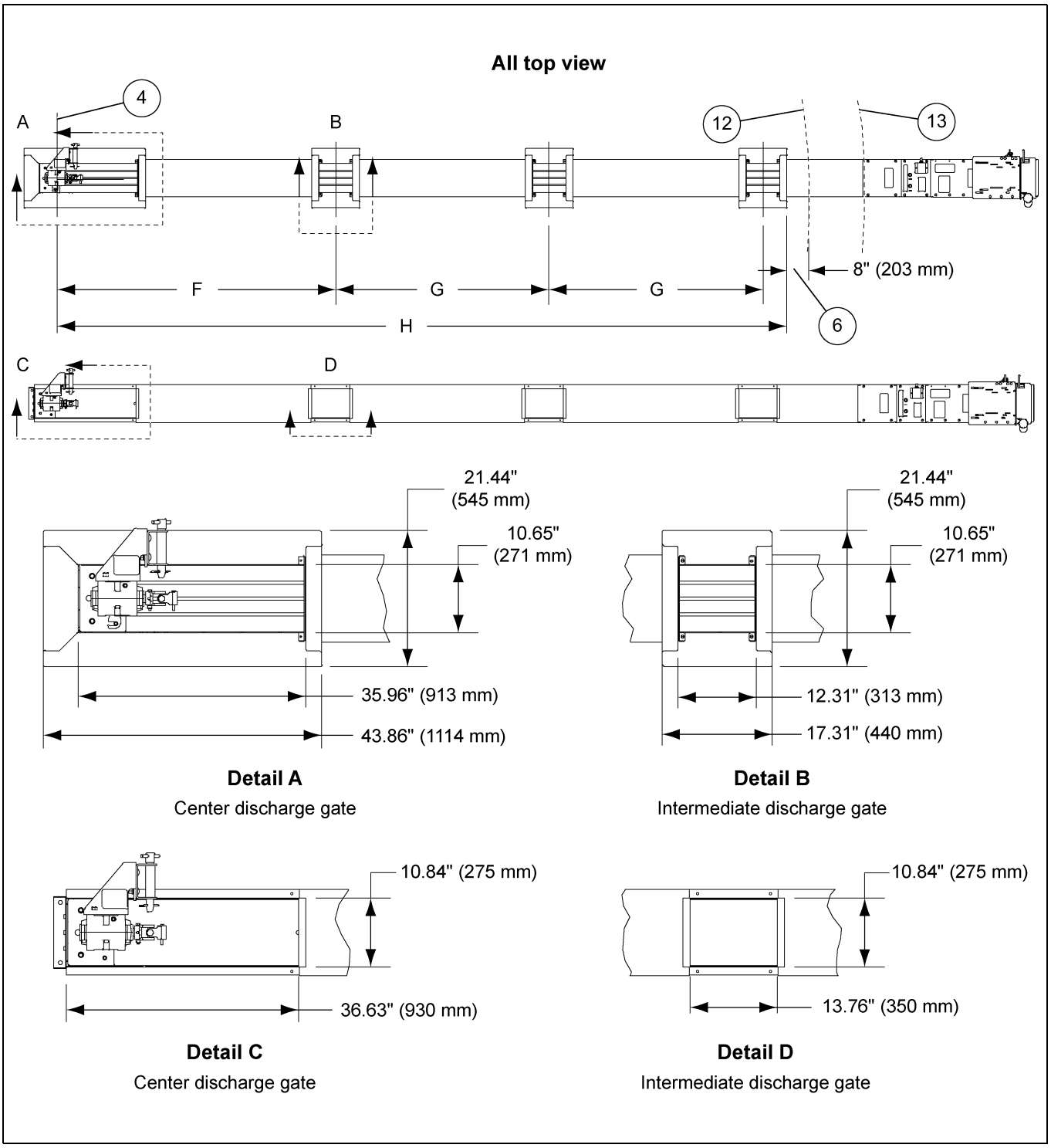


Figure 8C

Ref #	Description
4	Center of Bin
6	Minimum clearance required between the bin wall and outer gate for the elevator wheel.

Ref #	Description
12	I (Minimum Bin Radius)
13	J (Maximum Bin Radius)

Nominal Bin Diameter	# of Intermediate Gates	E		F		G	
		Distance Between Gates		Center of Bin to 1st Intermediate Gate		Intermediate Gate Center to Center	
		Inches	MM	Inches	MM	Inches	MM
18'	1	39.3	997	75.38	1915	51.75	1314
19'	1	45.3	1149	81.38	2067	57.75	1467
21'	1	57.3	1454	93.38	2372	69.75	1772
24'	1	75.3	1911	111.38	2829	87.75	2229
27'	2	40.4	1026	76.50	1943	52.88	1343
30'	2	49.4	1254	85.50	2172	61.88	1572
33'	2	58.4	1483	94.50	2400	70.88	1800
36'	2	67.4	1711	103.50	2629	79.88	2029
39'	2	76.4	1940	112.50	2858	88.88	2257
42'	3	52.8	1340	88.88	2257	65.25	1657
44'	3	56.8	1441	92.88	2359	69.25	1759
48'	3	64.8	1645	100.88	2562	77.25	1962
50'	3	68.8	1746	104.88	2664	81.25	2064
54'	3	76.8	1949	112.88	2867	89.25	2267
57'	4	58.9	1497	95.06	2415	71.44	1815
60'	4	63.4	1611	99.56	2529	75.94	1929
66'	4	72.4	1840	108.56	2757	84.94	2157

Nominal Bin Diameter	# of Intermediate Gates	H		I		J	
		Center of Bin to Outer Gate		Minimum Bin Radius		Maximum Bin Radius	
		Inches	MM	Inches	MM	Inches	MM
18'	1	84	2134	93	2362	114	2896
19'	1	90	2286	99	2515	120	3048
21'	1	102	2591	111	2819	132	3353
24'	1	120	3048	129	3277	150	3810
27'	2	138	3505	147	3734	168	4267
30'	2	156	3962	165	4191	186	4724
33'	2	174	4420	183	4648	204	5182
36'	2	192	4877	201	5105	222	5639
39'	2	210	5334	219	5563	240	6096
42'	3	228	5791	237	6020	258	6553
44'	3	240	6096	249	6325	270	6858
48'	3	264	6706	273	6934	294	7468
50'	3	276	7010	285	7239	306	7772
54'	3	300	7620	309	7849	330	8382
57'	4	318	8077	327	8306	348	8839
60'	4	336	8534	345	8763	366	9296
66'	4	372	9449	381	9677	402	10211

Bin Sweep Dimensions

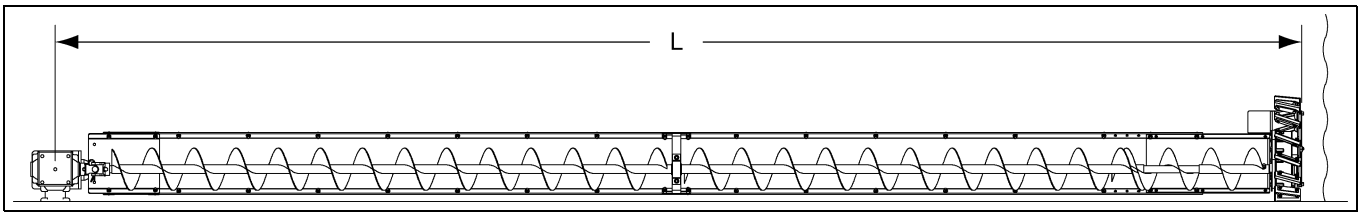


Figure 8D

Nominal Bin Diameter		Sweep Length (L)				Bin Diameter Range Allowing 4-1/2" (114 mm) Clearance Between Sweep and Bin Wall			
		Minimum		Maximum		Minimum		Maximum	
Ft.	M	Inches	MM	Inches	MM	Ft.	M	Ft.	M
18.0	5.5	97.5	2477	106.5	2705	17.1	5.2	18.5	5.6
19.5	5.9	106.5	2705	115.5	2934	18.6	5.7	20.0	6.1
21.0	6.4	115.5	2934	124.5	3162	20.1	6.1	21.5	6.6
22.5	6.9	124.5	3162	133.5	3391	21.6	6.6	23.0	7.0
24.0	7.3	133.5	3391	142.5	3620	23.1	7.0	24.5	7.5
25.5	7.8	142.5	3620	151.5	3848	24.6	7.5	26.0	7.9
27.0	8.2	151.5	3848	160.5	4077	26.1	8.0	27.5	8.4
28.5	8.7	160.5	4077	169.5	4305	27.6	8.4	29.0	8.8
30.0	9.1	169.5	4305	178.5	4534	29.1	8.9	30.5	9.3
31.5	9.6	178.5	4534	187.5	4763	30.6	9.3	32.0	9.8
33.0	10.1	187.5	4763	196.5	4991	32.1	9.8	33.5	10.2
34.5	10.5	196.5	4991	205.5	5220	33.6	10.2	35.0	10.7
36.0	11.0	205.5	5220	214.5	5448	35.1	10.7	36.5	11.1
37.5	11.4	214.5	5448	223.5	5677	36.6	11.2	38.0	11.6
39.0	11.9	223.5	5677	232.5	5906	38.1	11.6	39.5	12.0
40.5	12.3	232.5	5906	241.5	6134	39.6	12.1	41.0	12.5
42.0	12.8	241.5	6134	250.5	6363	41.1	12.5	42.5	13.0
43.5	13.3	250.5	6363	259.5	6591	42.6	13.0	44.0	13.4
45.0	13.7	259.5	6591	268.5	6820	44.1	13.4	45.5	13.9
46.5	14.2	268.5	6820	277.5	7049	45.6	13.9	47.0	14.3
48.0	14.6	277.5	7049	286.5	7277	47.1	14.4	48.5	14.8
49.5	15.1	286.5	7277	295.5	7506	48.6	14.8	50.0	15.2
51.0	15.5	295.5	7506	304.5	7734	50.1	15.3	51.5	15.7
52.5	16.0	304.5	7734	313.5	7963	51.6	15.7	53.0	16.2
54.0	16.5	313.5	7963	322.5	8192	53.1	16.2	54.5	16.6
55.5	16.9	322.5	8192	331.5	8420	54.6	16.6	56.0	17.1
57.0	17.4	331.5	8420	340.5	8649	56.1	17.1	57.5	17.5
58.5	17.8	340.5	8649	349.5	8877	57.6	17.6	59.0	18.0
60.0	18.3	349.5	8877	358.5	9106	59.1	18.0	60.5	18.4
61.5	18.7	358.5	9106	367.5	9335	60.6	18.5	62.0	18.9
63.0	19.2	367.5	9335	376.5	9563	62.1	18.9	63.5	19.4
64.5	19.7	376.5	9563	385.5	9792	63.6	19.4	65.0	19.8
66.0	20.1	385.5	9792	394.5	10020	65.1	19.8	66.5	20.3
67.5	20.6	394.5	10020	403.5	10249	66.6	20.3	68.0	20.7
69.0	21.0	403.5	10249	412.5	10478	68.1	20.8	69.5	21.2
70.5	21.5	412.5	10478	421.5	10706	69.6	21.2	71.0	21.6
72.0	21.9	421.5	10706	430.5	10935	71.1	21.7	72.5	22.1
73.5	22.4	430.5	10935	439.5	11163	72.6	22.1	74.0	22.6
75.0	22.9	439.5	11163	448.5	11392	74.1	22.6	75.5	23.0
76.5	23.3	448.5	11392	457.5	11621	75.6	23.0	77.0	23.5
78.0	23.8	457.5	11621	466.5	11849	77.1	23.5	78.5	23.9

Installation Dimensions

Aeration Floor Installation

Gate openings must be added to the aeration floor. Consult the table *on Page 51* to determine the location of the openings according to the bin size. Then, cut the openings with dimensions as shown to provide clearance for the floor flanges.

Minimum openings as shown in *Figure 8E.*

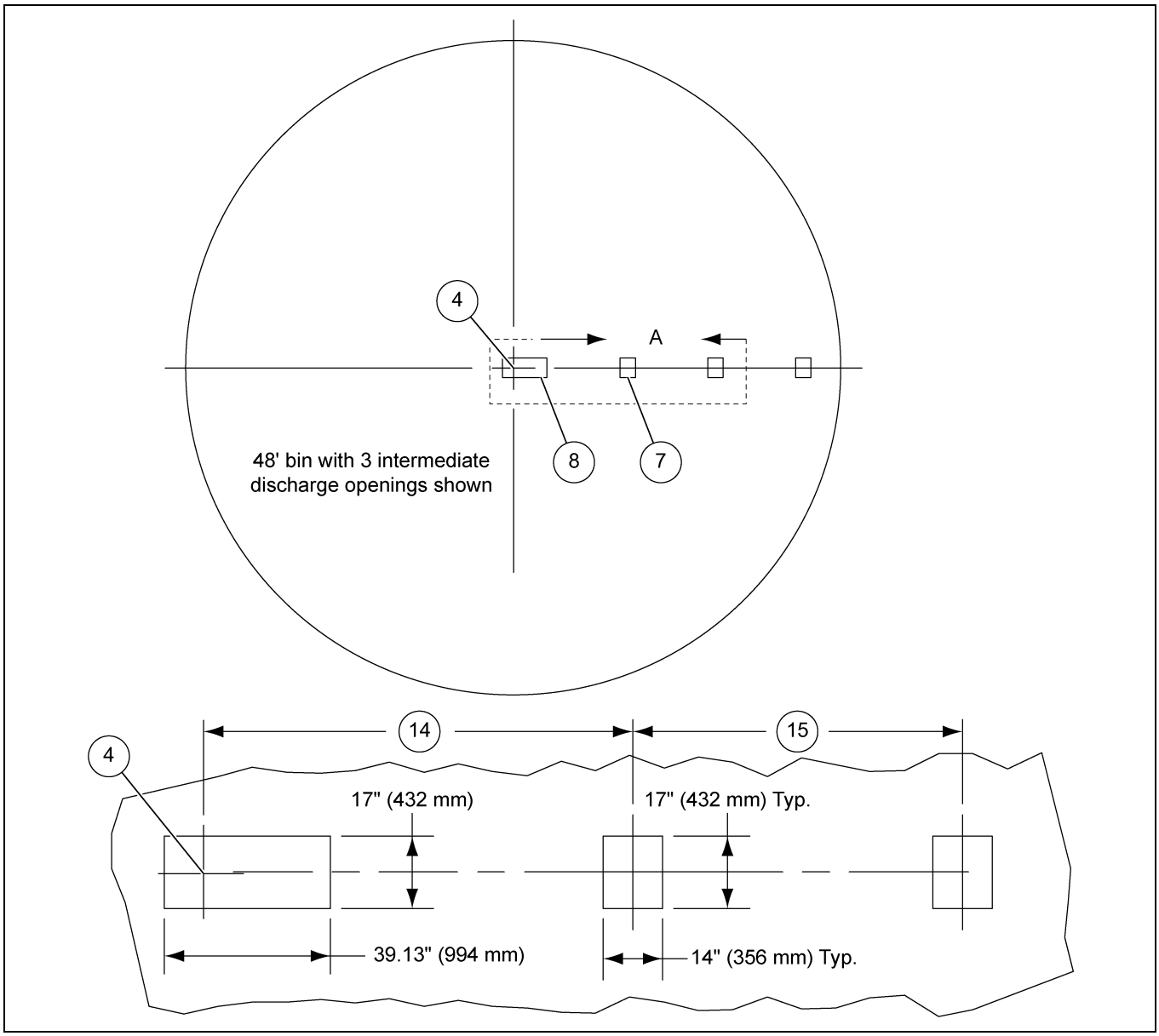


Figure 8E

Ref #	Description
4	Center of Bin
7	Intermediate Discharge Floor Opening
8	Center Discharge Floor Opening

Ref #	Description
14	Refer to Dimension “F” on Table *Page 51*
15	Refer to Dimension “G” on Table *Page 51*

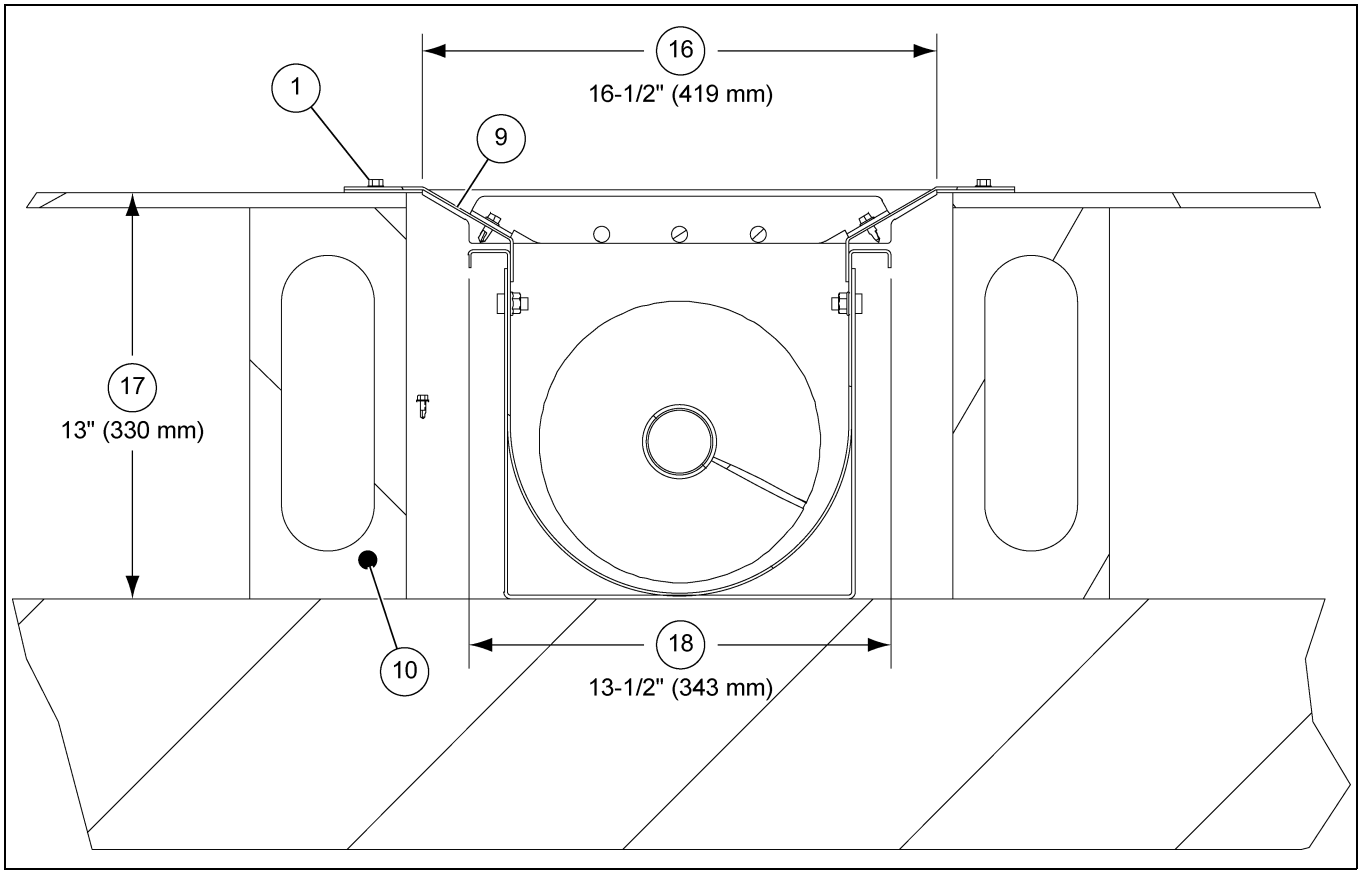


Figure 8F *Unloader Section View Through Gate*

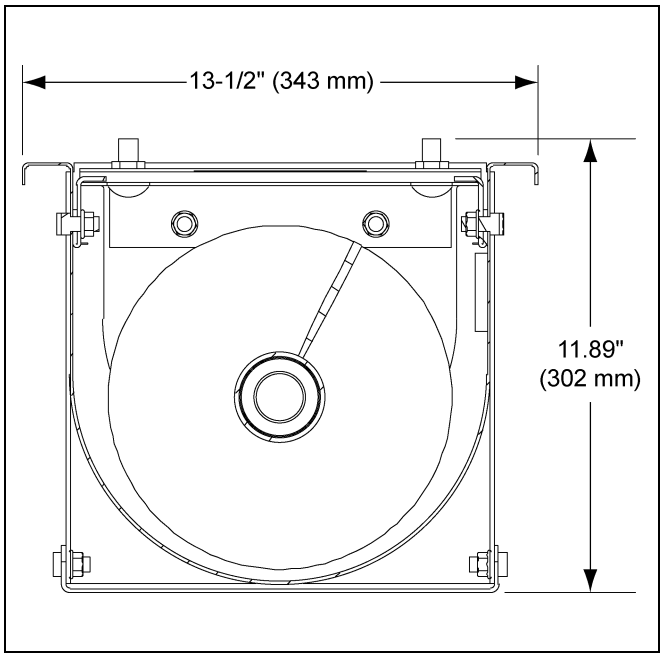


Figure 8G *Overall Unloader Dimensions Under Bin*

Ref #	Description
1	Self-Tapping Screw
9	Floor Flange Surface
10	Aeration Floor Support
16	Floor Flange Wdith
17	Typical Aeration Floor Height
18	Maximum Unloader Width

IMPORTANT: *It is imperative that the concrete be absolutely level where the unloader is to be positioned. Failure to do so may cause distortion of the U-Trough when the unit is anchored down. This distortion is likely to cause excessive operational noise from incorrect U-Trough flight clearance.*

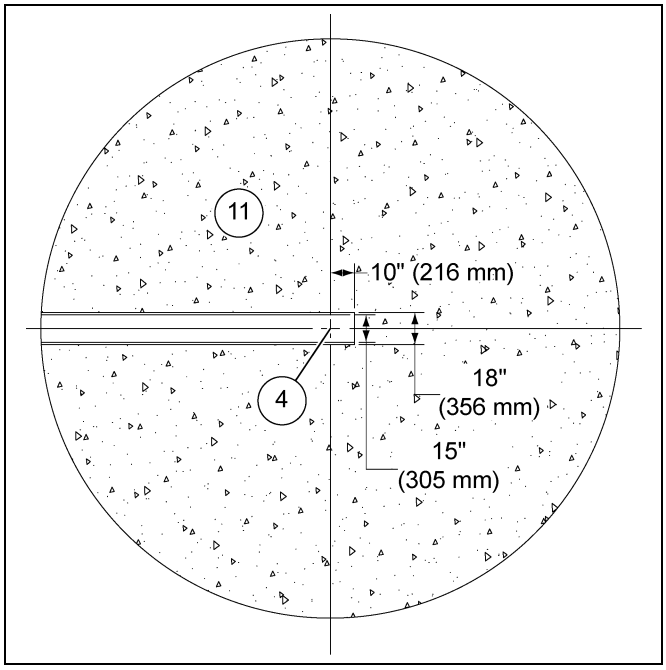
Concrete Knock-Out Installation

Knock-out in the foundation must be 10" (216 mm) past the center point as shown *in Figure 8H.*

This is important to ensure that the pivot point of the sweep is centered in the bin once the system has been installed.

Cross section below shows the width and depth of the knock-out. Note this detail assumes planking is 1-1/2" (38 mm) high.

Knock-out must be level. (See note *on Page 54*).



Ref #	Description
4	Center of Bin
11	Concrete Bin Foundation

Figure 8H *Top View of Foundation Knock-Out*

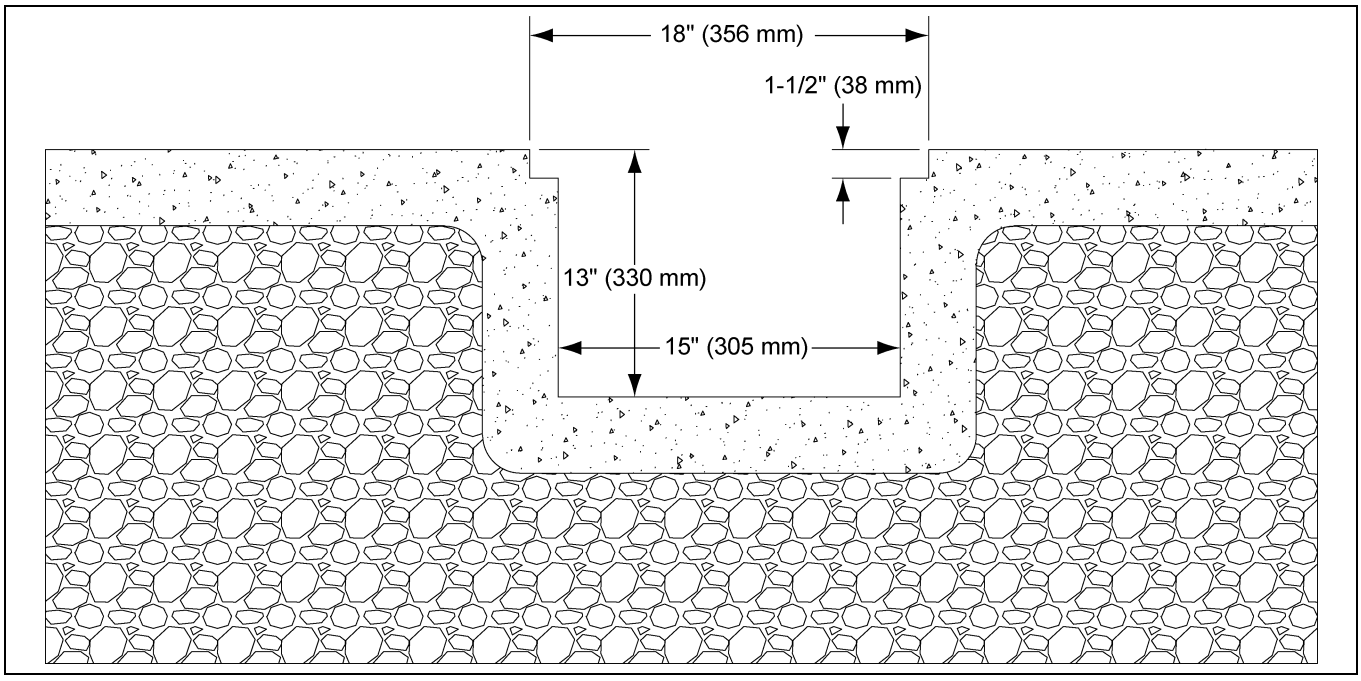


Figure 8I *Cross Section of Foundation Knock-Out*

IMPORTANT: *Capacity requirements must be determined prior to ordering any unload/sweep system. Failure to do so may cause the sweep to overfeed the center gate. This could cause the electric motor to cut out and may damage the sweep backplate.*

Listed on the next two pages are guidelines to assist with proper flight diameter and motor pulley selection. These are only theoretical values and will change with grain types, conditions and moisture content.

All capacities are shown in bushels per hour (BPH).

Pulley Selection

1750 RPM/60 Hz Motors

Below are charts outlining unload and sweep speeds and capacities when using a 1750 RPM motor.

NOTE: *1750 motor RPM is typically used in North America.*

12" Pulley

U-Trough Unloader with Sweep			
3.6" Motor Pulley and 12.4" Flight Pulley			
		RPM	Capacity (Bushels per Hour)
Motor		1750	
Unload		508	6000
Sweep	6"	338	1500
	7-1/4"		2500
	8-1/4"		3500
	9"		4500

18" Pulley

U-Trough Unloader with Sweep			
5" Motor Pulley and 18.4" Flight Pulley			
		RPM	Capacity (Bushels per Hour)
Motor		1750	
Unload		475	5800
Sweep	6"	316	1400
	7-1/4"		2400
	8-1/4"		3400
	9"		4400

1460 RPM/50 Hz Motors

Below are charts outlining unload and sweep speeds and capacities when using a 1460 RPM motor.

NOTE: *1460 motor RPM is typically used in Europe.*

12" Pulley

U-Trough Unloader with Sweep			
4-1/4" Motor Pulley and 12.4" Flight Pulley			
		RPM	Capacity (Bushels per Hour)
Motor		1460	
Unload		503	6000
Sweep	6"	335	1500
	7-1/4"		2500
	8-1/4"		3500
	9"		4500

18" Pulley

U-Trough Unloader with Sweep			
4-1/2" Motor Pulley and 18.4" Flight Pulley			
		RPM	Capacity (Bushels per Hour)
Motor		1460	
Unload		356	4300
Sweep	6"	237	1100
	7-1/4"		1700
	8-1/4"		2500
	9"		3400

Belt Size Selection

Springland MFG does not supply belts. Use the following table to select the correct belt for your unloader.

U-Trough Belt Sizes				
Horsepower	NEMA Frame	Center to Center Distance Inches	12.4" Pulley (1)	18.4" Pulley (2)
3	182T	14.85	B56	B69
5	184T			
7.5	213T	15.60	B58	B70
10	215T			
15	254T	16.60	B60	B72
20	256T			
25	284T	17.35	-	B74

(1) The 12.4" pulley 3B124 should be paired with a 4" motor pulley 3B36.

(2) The 18.4" pulley 3B184 should be paired with a 5" motor pulley 3B50.

Capacity Chart

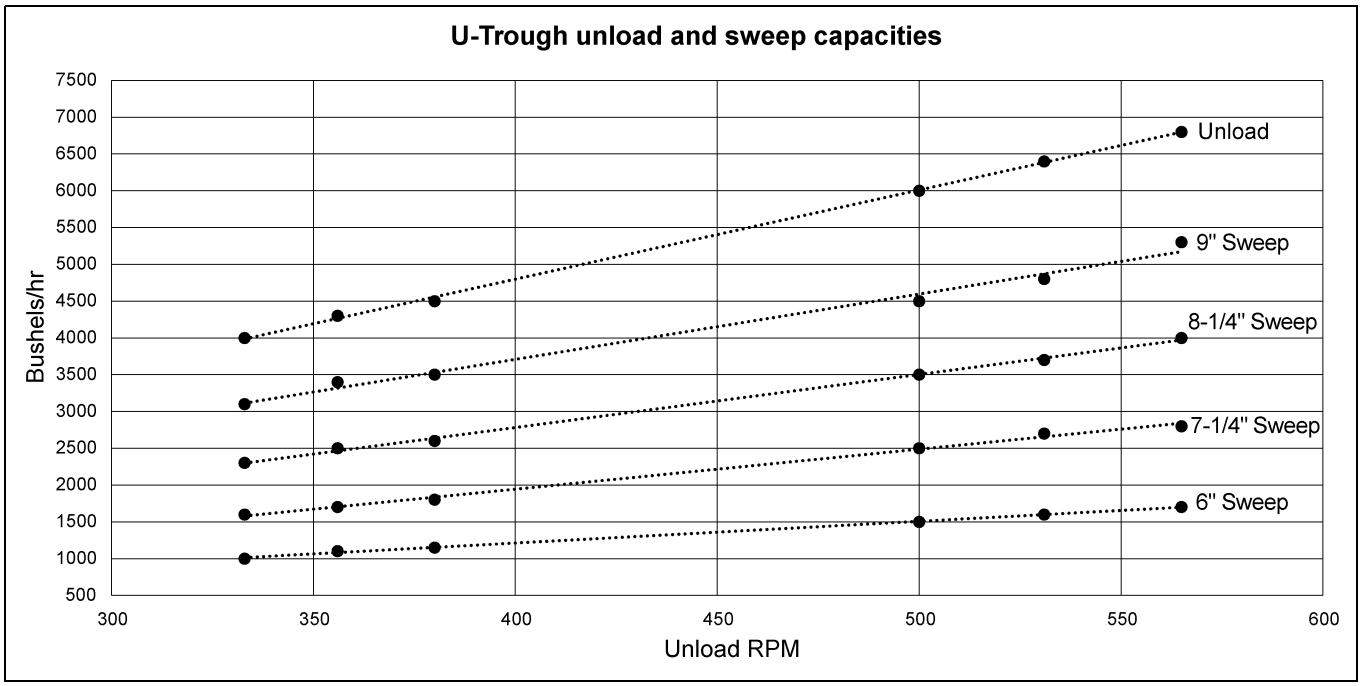


Figure 9A

Q: My slide gates will not open?

A:

1. Check floor flange gate slide clearance. (*See Page 53* for details.)
2. In colder temperatures moisture can collect and freeze slide gate to the lid.

Q: Why is my unload tube filled with product?

A:

1. The center and intermediate gates were not fully closed before filling the bin. Close the center gate and the intermediate gates. *(See Page 46.)*
2. The powerhead door is open when aeration fans are running. Make sure to close the powerhead door to pressurize the U-Trough and prevent product build up when aeration fans are operating.

Q: My sweep will not advance?

A: Check sweep engagement lever adjustment (*See Page 26* for details) problem solved? *Yes or No*

If No,

Is the sweep flight turning? *Yes or No*

If Yes,

Is the sweep flight turning but not the elevator drive wheel? *Yes or No*

If Yes,

Is the elevator drive wheel turning but the sweep is not advancing? *Yes or No*

If Yes,

Adjust sweep backplate and elevator wheel to be more aggressive. This is done by tilting the backplate towards the pile. *(See Page 32.)*

Q: My sweep will not disengage?

A:

1. Check sweep engagement lever adjustment. (*See Page 26* for details.)
2. Ensure center gearbox assembly shifter arm is in shifter slot. (*See Page 22* for details.)

Q: My sweep is piling grain at the center of the bin?

A:

1. Center gate must be completely open. This is done by using the crank handle to rotate the center gate control. (*See Page 46* for details.)
2. Unload is exceeding the capacity of the take away (i.e. transport auger). *(See Page 56.)*
3. Some piling of grain around the center is normal, especially when the sweep is 180° from its parked position.

Q: Grain is avalanching over the sweep backplate?

A: Under normal operation there will be some grain spillage over the backplate. It is important not to enter the bin while the sweep is operating and is recommended that a second pass of the sweep is performed to collect any grain that spills over.

Limited Warranty - N.A. Grain Products

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 from the date of shipment (or, if shipped by vessel, 14 months from the date of arrival at the port of discharge). If, in GSI’s sole judgment, a product is found to have a defect in materials and/or workmanship, GSI will, at its own option and expense, repair or replace the product or refund the purchase price. This Limited Warranty is subject to extension and other terms as set forth below.

Warranty Enhancements:

The warranty period for the following products is enhanced as shown below and is in lieu of (and not in addition to) the above stated warranty period. (Warranty Period is from date of shipment.)

	Product	Warranty Period
Storage	Grain Bin Structural Design • Sidewall, roof, doors, platforms and walkarounds • Flooring (when installed using GSI specified floor support system for that floor) • Hopper tanks (BFT, GHT, NCHT, and FCHT)	5 Years
Conditioning	Dryer Structural Design - (Tower, Portable and TopDry) • Includes (frame, portable dryer screens, ladders, access doors and platforms)	5 Years
	All other Dryer parts including: • Electrical (controls, sensors, switches and internal wiring)	2 Years
	All Non-PTO Driven Centrifugal and Axial Fans	3 Years
	Bullseye Controllers	2 Years
Material Handling	Bucket Elevators Structural Design	5 Years
	Towers Structural Design	5 Years
	Catwalks Structural Design	5 Years
	Accessories (stairs, ladders and platforms) Structural Design	5 Years

Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH HEREIN; SPECIFICALLY, GSI DISCLAIMS ANY AND ALL OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (I) ANY 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.

The sole and exclusive remedy for any claimant is set forth in this Limited Warranty and shall not exceed the amount paid for the product purchased. This Warranty only covers the value of the warranted parts and equipment, and does not cover labor charges for removing or installing defective parts, shipping charges with respect to such parts, any applicable sales or other taxes, or any other charges or expenses not specified in this Warranty. GSI shall not be liable for any other direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. Expenses incurred by or on behalf of a claimant without prior written authorization from the GSI warranty department shall not be reimbursed. 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. Prior to installation, the end-user bears all responsibility to comply with federal, state and local codes which apply to the location and installation of the products.

This Limited Warranty extends solely to products sold by GSI and does not cover any parts, components or materials used in conjunction with the product, that are not sold by GSI. GSI assumes no responsibility for claims resulting from construction defects, unauthorized modifications, corrosion or other cosmetic issues caused by storage, application or environmental conditions. Modifications to products not specifically delineated in the manual accompanying the product at initial sale will void all warranties. 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.

Notice Procedure:

In order to make a valid warranty claim a written notice of the claim must be submitted, using the RMA form, within 60 days of discovery of a warrantable nonconformance. The RMA form is found on the OneGSI portal.

Service Parts:

GSI warrants, subject to all other conditions described in this Warranty, Service Parts which it manufactures for a period of 12 months from the date of purchase unless specified in Enhancements above.

(Limited Warranty - N.A. Grain Products_ revised 01 October 2020)

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.

1004 E. Illinois St.
Assumption, IL 62510-0020
Phone: 1-217-226-4421
Fax: 1-217-226-4420
www.gsiag.com

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