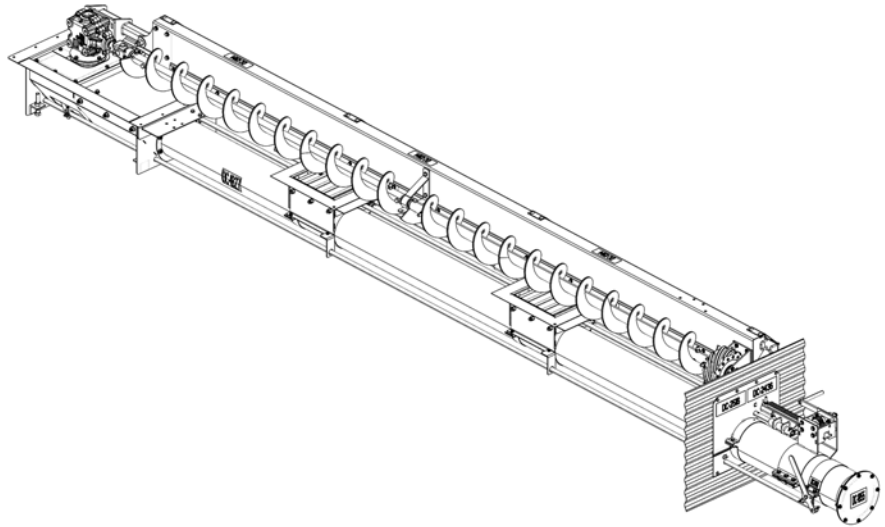




Standard Duty Direct Gear Drive Bin Sweep (15' - 30')

Models:
8" AND 10" (2020)

Installation and Operation Manual

PNEG-2303
Version 1.0

Date: 03-06-20



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.

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NOTES

1 Safety Precautions

Topics Covered in this Chapter

- Safety Guidelines
- Cautionary Symbol Definitions
- Safety Cautions
- Safety Decals
- Safety Sign-off Sheet

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 Symbol 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.

Table 1-1 *Description of the different cautionary symbols*

Symbol	Description
	This symbol indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.
	This symbol indicates a potentially hazardous situation which, if not avoided, can result in serious injury or death.
	This symbol indicates a potentially hazardous situation which, if not avoided, can result in minor or moderate injury.
	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

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

Chapter 1: Safety Precautions

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

Operate Motor Properly

- All electrical connections must be made in accordance with applicable local codes (National Electrical Code for the US, Canadian Electric Code, or EN60204 along with applicable European Directives for Europe). Make sure equipment and bins are properly grounded.
- Lock-out power before resetting motor overloads.
- Do not repetitively stop and start the drive in order to free a plugged condition. Jogging the drive in this manner can damage the equipment and drive components.



ST-0009-3

Rotating Auger Hazard

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



ST-0037-1

Stay Clear of Hoisted Equipment

- Always use proper lifting or hoisting equipment when assembling or disassembling equipment.
- Do not walk or stand under hoisted equipment.
- Always use sturdy and stable supports when needed for installation. Not following these safety precautions creates the risk of falling equipment, which can crush personnel and cause serious injury or death.



ST-0047-1

Stay Clear of Rotating Parts

- Do not enter the bin while the equipment is in operation.
- Entanglement in rotating augers will cause serious injury or death.
- Keep all guards and covers in place at all times.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.



ST-0008-2

Use Unload Equipment Properly

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

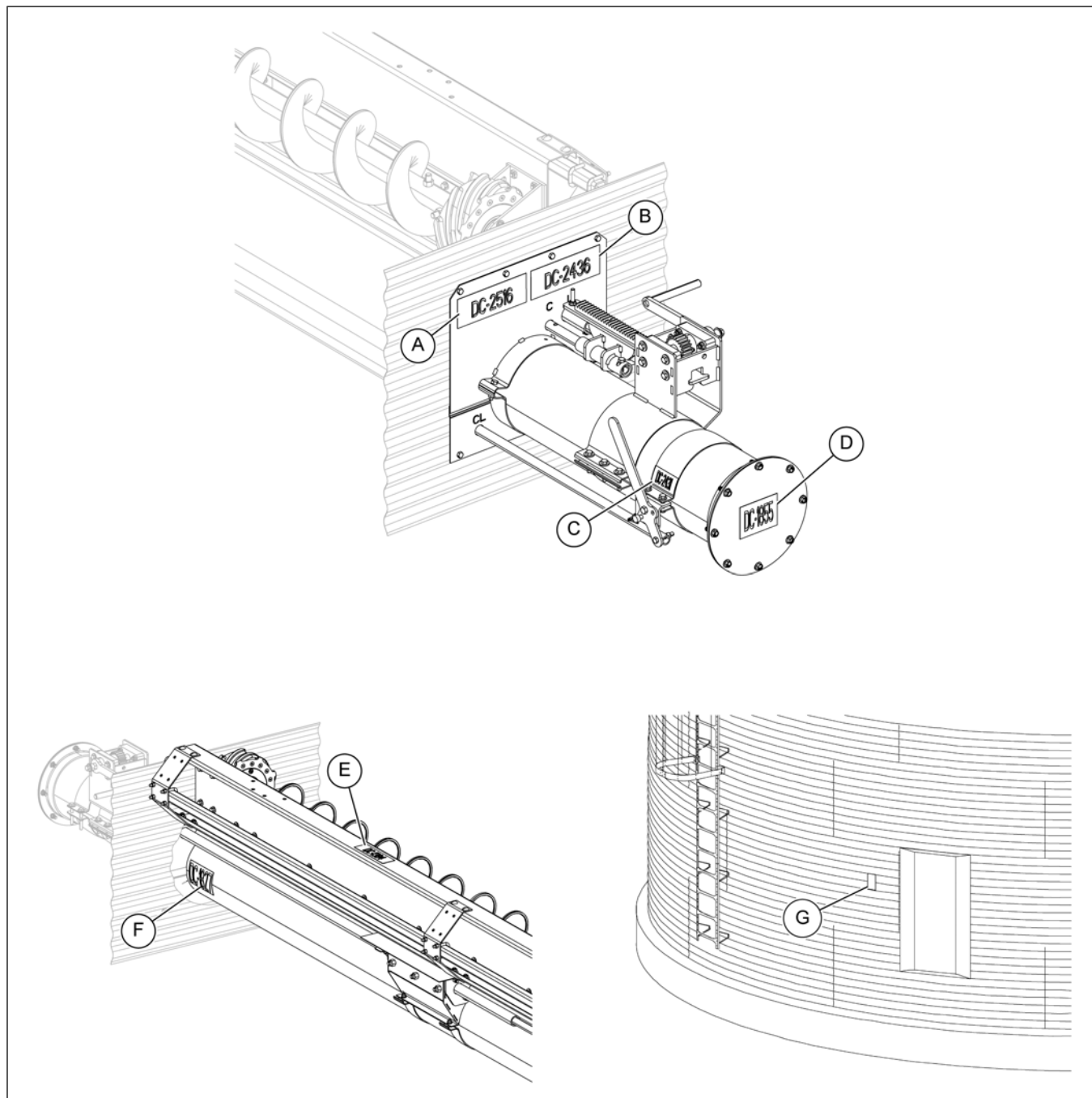


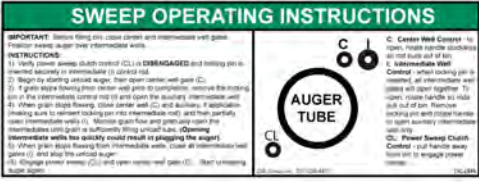
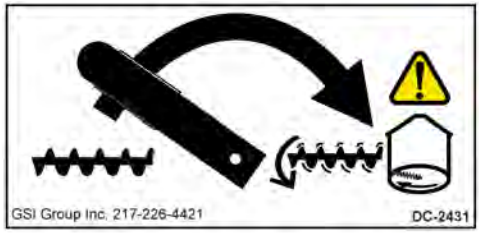
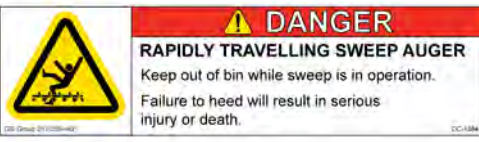
ST-0051-1

Safety Decals

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.

Figure 1-1 Decal locations



Ref #	Location	Decal No.	Decal	Description
A	Upper bin flange	DC-2516		Decal, sweep operating instructions
B	Upper bin flange	DC-2436		Decal, Danger Sweep auger
C	Clutch control upper half band	DC-2431		Decal, power sweep engage
D	Unload tube flange	DC-1855		Decal, control pipe
E	Flighting shield top	DC-1384		Decal, keep out of bin
F	Unload tube side	DC-1827		decals, do not handle

12

PNEG-2303 SD DGD Bin Sweep (15' - 30')

ST-0007

1004 E. Illinois St.
Assumption, IL 62510
Tel: 1-217-226-4421

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.

[illegible]

2 General Information

Topics Covered in this Chapter

- Sweep Offerings and Sweep Arm Details
- Auxiliary Intermediate Well

Sweep Offerings and Sweep Arm Details

Figure 2-1 Sweep details

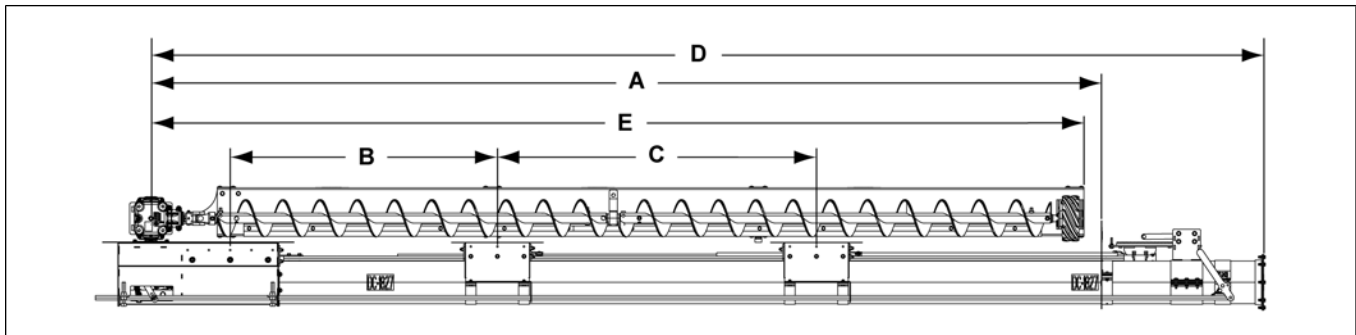


Table 2-1 Details for 8"

Bin Diameter	# of Intermediate Wells	Distance from Center of Bin to Wall (A)	Distance between Center Well Gate and First Intermediate Well (B)	Distance between Intermediate Wells (C)	Distance from Center of Bin to Angle Ring (D)	Distance between Center of Bin to End of Sweep (E)
15'	1	7' - 5-1/2"	4' - 2-1/4"	-	9' - 11-3/16"	7' - 1/2"
18'	1	8' - 11-7/16"		-	11' - 5-3/16"	8' - 7"
21'	2	10' - 5-5/16"		36"	12' - 11-3/16"	10' - 1/2"
24'	2	11' - 11-1/4"		42"	14' - 5-3/16"	11' - 6-1/2"
27'	2	13' - 5-3/16"		60"	15' - 11-3/16"	13' - 1/2"
30'	2	14' - 11"		60"	17' - 5-3/16"	14' - 7-1/2"

Table 2-2 Details for 10"

Bin Diameter	# of Intermediate Wells	Distance from Center of Bin to Wall (A)	Distance between Center Well Gate and First Intermediate Well (B)	Distance between Intermediate Wells (C)	Distance from Center of Bin to Angle Ring (D)	Distance between Center of Bin to End of Sweep (E)
24'	2	11' - 11-1/4"	4' - 2-1/4"	42"	14' - 5-3/16"	11' - 6-1/2"
27'	2	13' - 5-3/16"		60"	15' - 11-3/16"	13' - 1/2"
30'	2	14' - 11"		60"	17' - 5-3/16"	14' - 7-1/2"

Auxiliary Intermediate Well

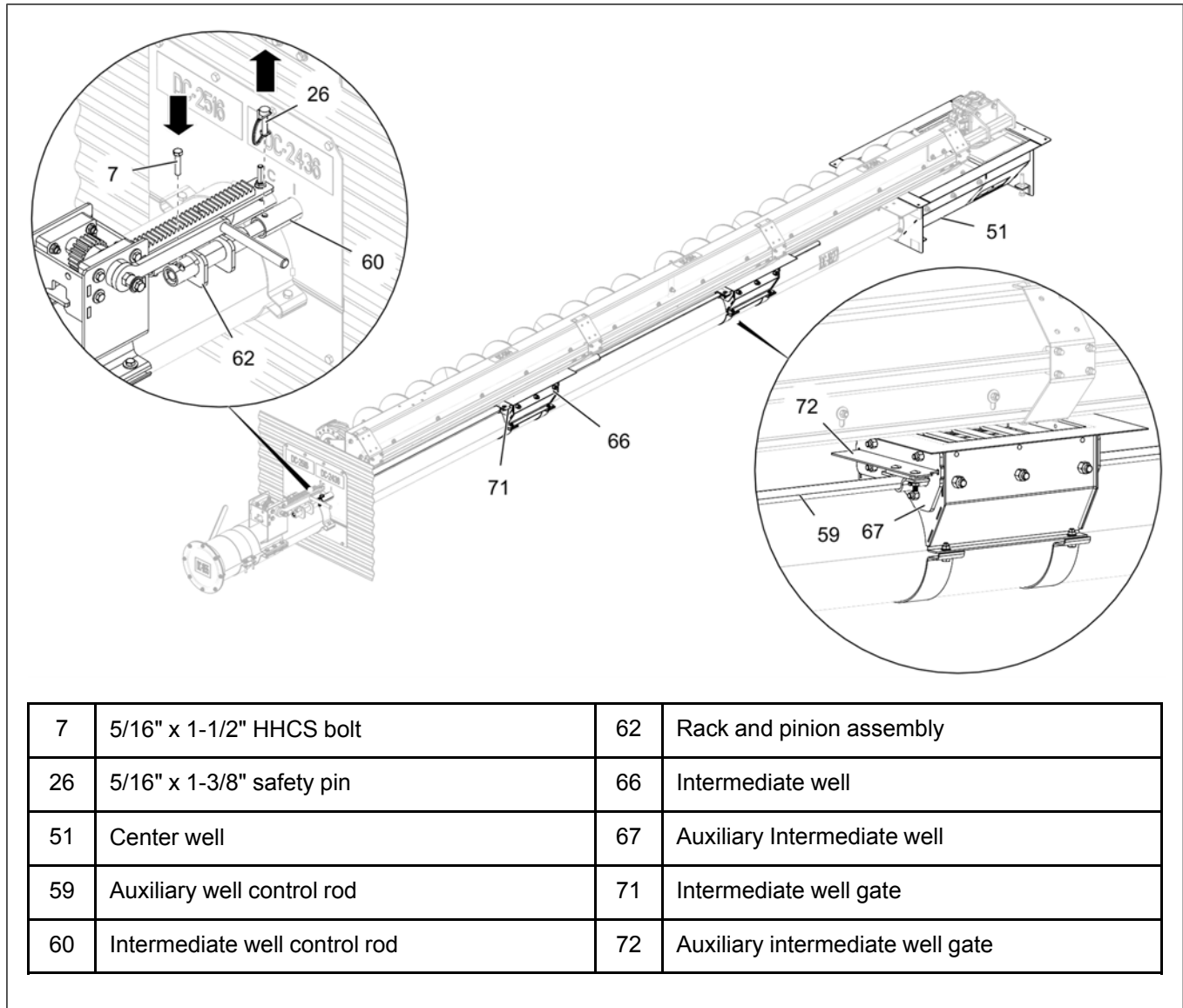
What You Should Know

In all the 24' and larger standard duty sweeps, the well which is immediately next to the center well is the auxiliary intermediate well. There will be a need to use the auxiliary intermediate well if the center well is plugged or if there is any difficulties in opening the center well during the gravity unloading process.

1. The auxiliary intermediate well (67) is the intermediate well closest to the center well (51) and will be operated by the smaller diameter control rod.
2. The auxiliary well control rod (59) is factory assembled as rod-in-rod with the larger diameter intermediate well control rod (60) and can be connected to the rack and pinion assembly (62) tube by placing a 5/16" x 1-1/2" HHCS bolt (7) through the rack and pinion assembly (62) tube to the auxiliary well control rod (59).

NOTE: During gravity unloading, if the center well (51) is plugged, the auxiliary intermediate well gate (72) must be opened independently from the rest of the intermediate well gates (71). Make sure to remove the 5/16" x 1-3/8" safety pin (26) to open the auxiliary well gate (72) alone.

Figure 2-2 Identifying the auxiliary intermediate well and auxiliary well control rod



3 Installation

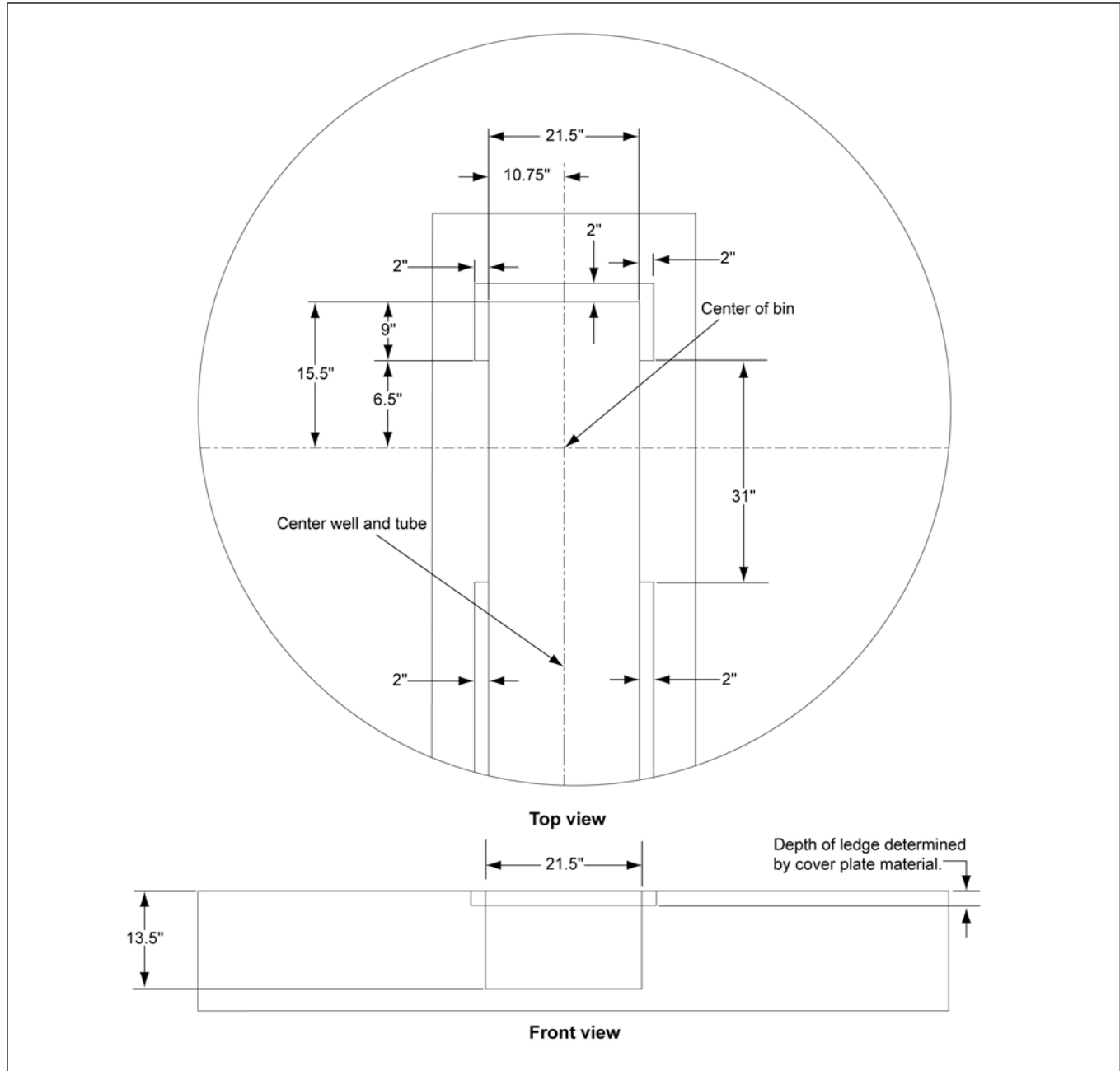
Topics Covered in this Chapter

- Power Sweeps in Bins with Concrete Floors
- Installing the Unload Tube
- Installing the Unload Tube Flight
- Installing the Bin Flange
- Installing the Center Well Gate
- Installing the Rack and Pinion
- Installing the Clutch Control Rod
- Installing the Intermediate Well Flange
- Installing the Sweep Flighting
- Installing the Flighting Shield
- Installing the Sweep Wheel
- Adjusting the Wiper

Power Sweeps in Bins with Concrete Floors

NOTE: GSI does not recommend setting the power sweep unit in concrete. If installing a unit flush with a concrete floor, it is recommended the unit be installed in a preformed trench using the image shown.

Figure 3-1 Floor view



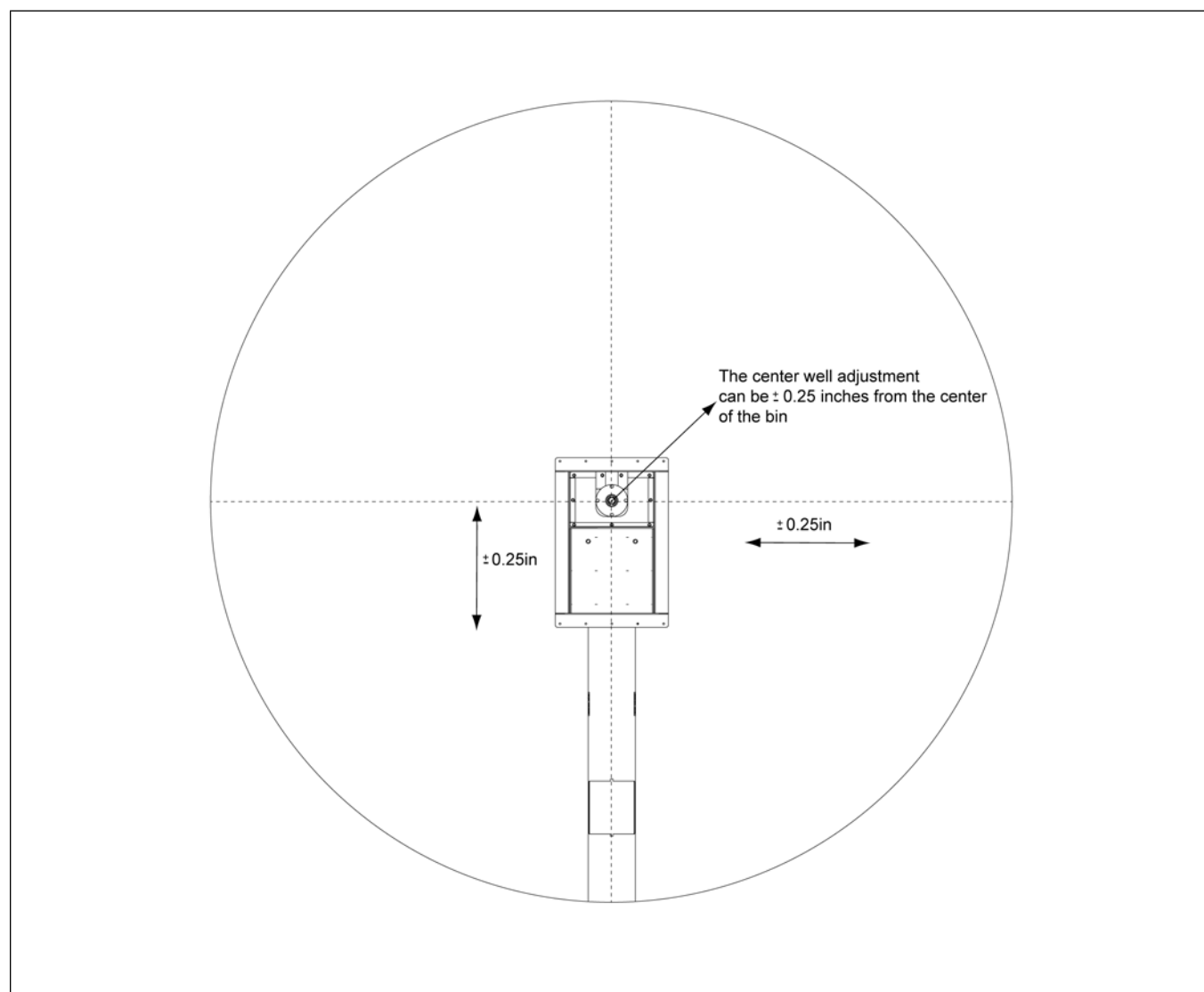
Installing the Unload Tube

1. Locate the center of the bin and place the center well into position with the vertical shaft in the gearbox at the center of the bin.

NOTE: When placing the center well at the center of the bin, GSI recommends a tolerance of $\pm 0.25"$ (both directions) for the slight adjustment of sweep length to enable the sweep to run without any interference.

NOTE: GSI does not recommend installing the Direct Gear Drive Power Sweep in concrete. When flush-floor installations are necessary, a preformed trench is needed. A steel trench cover adequate for the grain height and trench size must be installed. Consult the factory for further information.

Figure 3-2 Center well placement



- 2. Cut an opening in the bin wall for the unloading tube to pass through.

Figure 3-3 8" tube

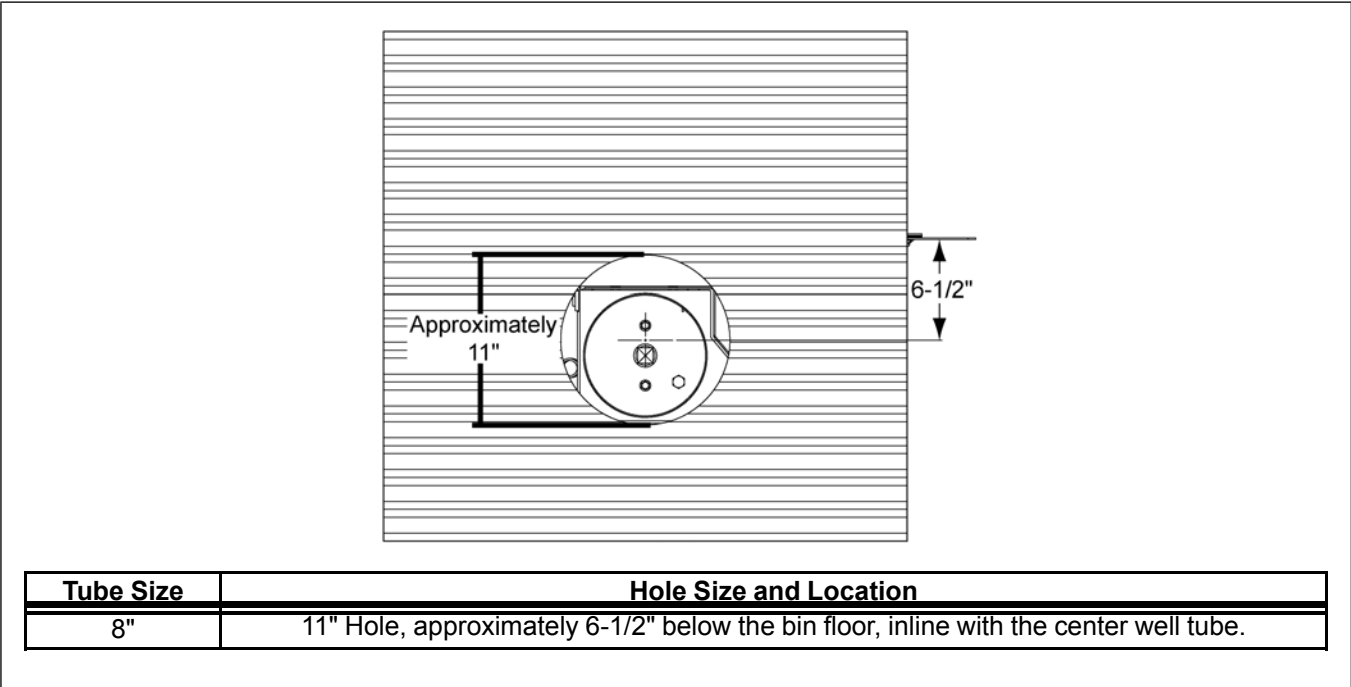
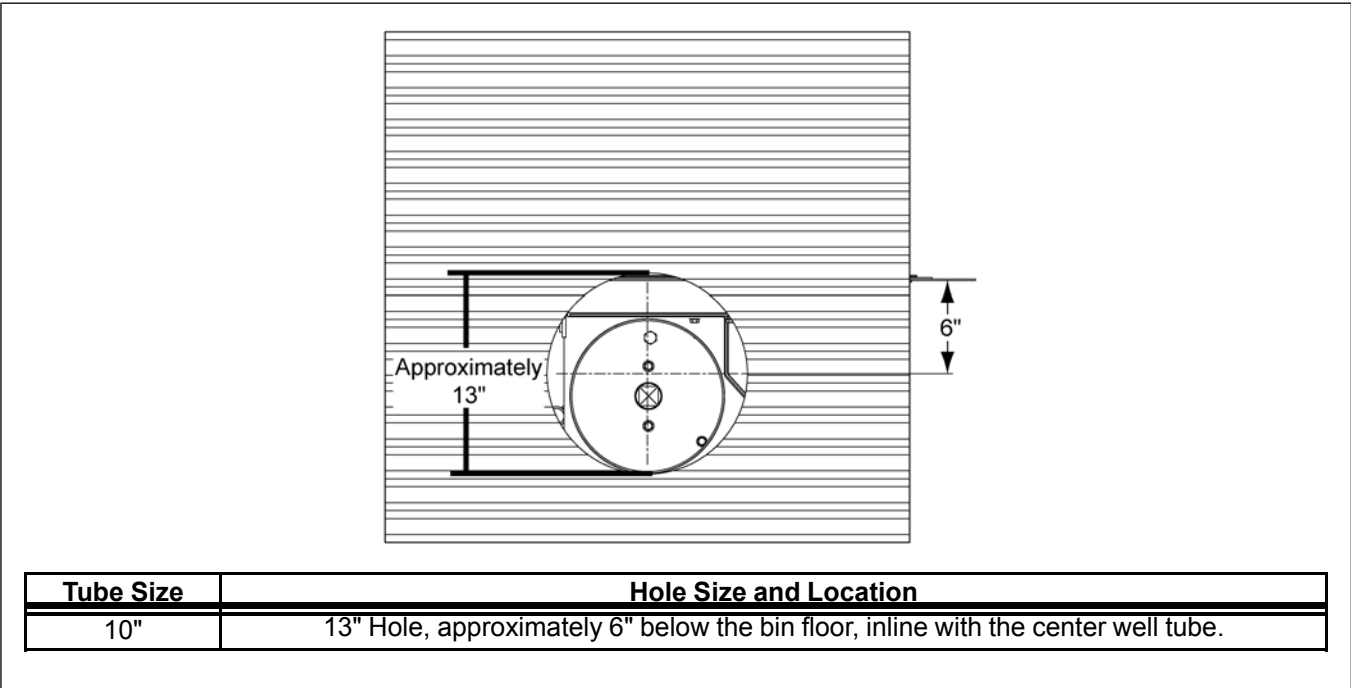


Figure 3-4 10" tube



- From the inside of the bin, insert the angle ring end of the unload tube through the hole in the bin sidewall.

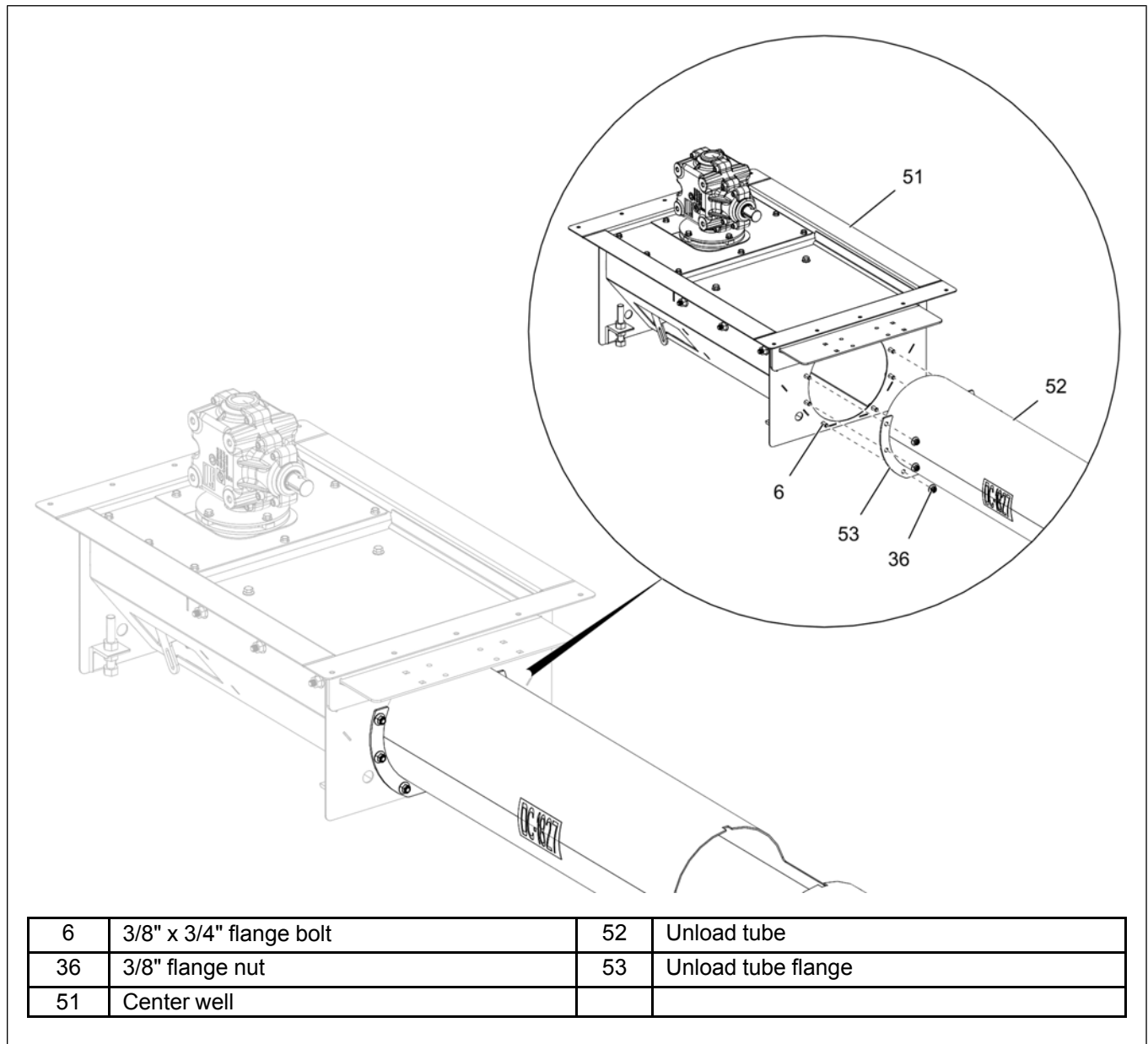
NOTE: Before installing the tube, remove flight from the inside of the tube.

- Insert the unload tube (52) into the center well (51) until the tube flange (53) aligns to the outside of the center well (51) and secure using 3/8" x 3/4" flange bolts (6) and 3/8" flange nuts (36).

NOTE:

- For 8" – Use four 3/8" x 3/4" flange bolts.
- For 10" – Use six 3/8" x 3/4" flange bolts.

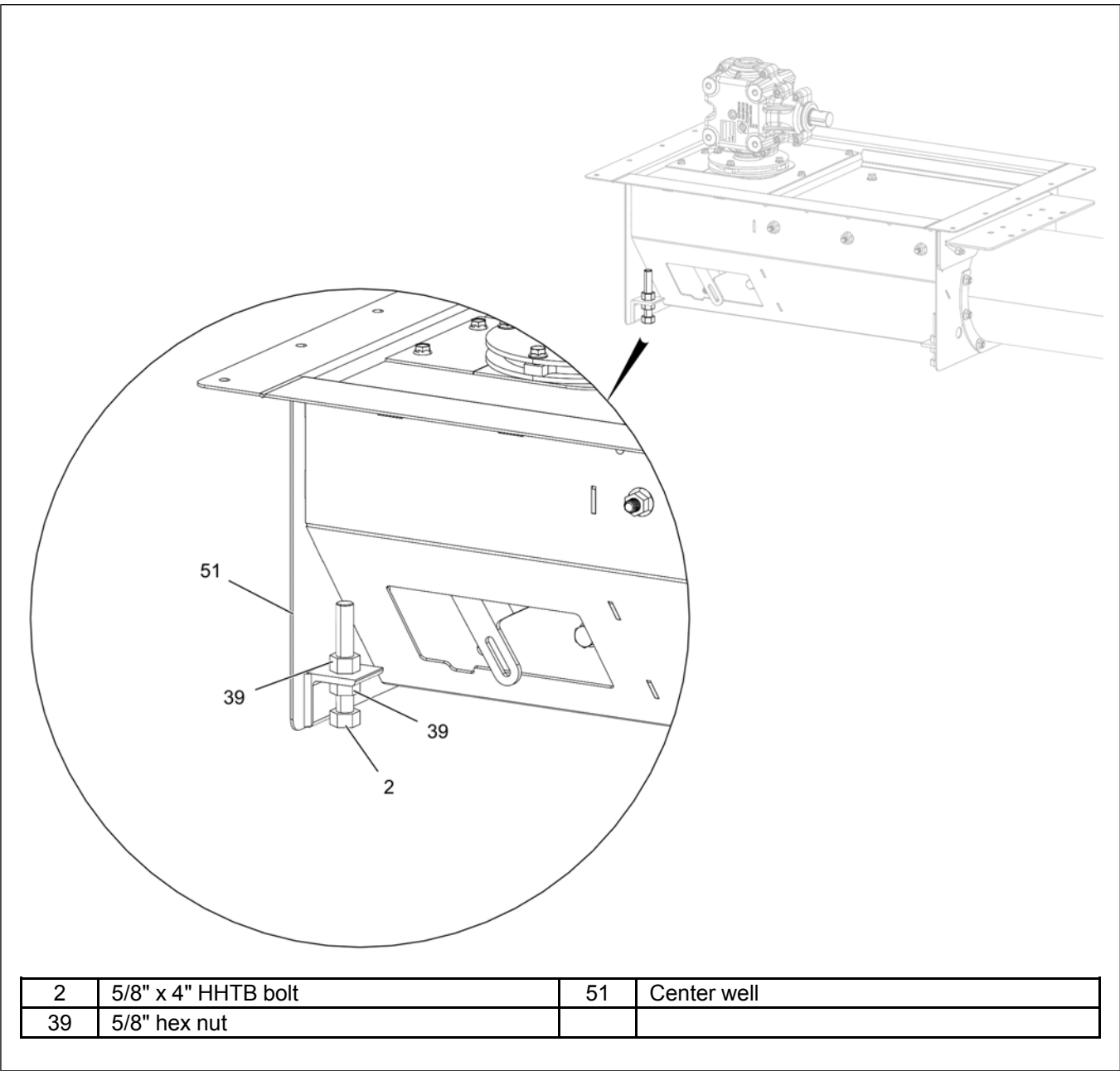
Figure 3-5 Installing the unload tube to the center well



5. Level the center well to the concrete floor by adjusting the 5/8" x 4" HHTB bolt (2) lengths using both 5/8" hex nuts (39) (above and below of center well angle) located at the bottom corners of the center well (51).

NOTE: After leveling the center well, check if the intermediate wells are also level to the center well side to side. If not, adjust the intermediate wells by loosening, adjusting and re-tightening the half bands or by loosening the flange bolts at the center well connection.

Figure 3-6 Leveling of center well



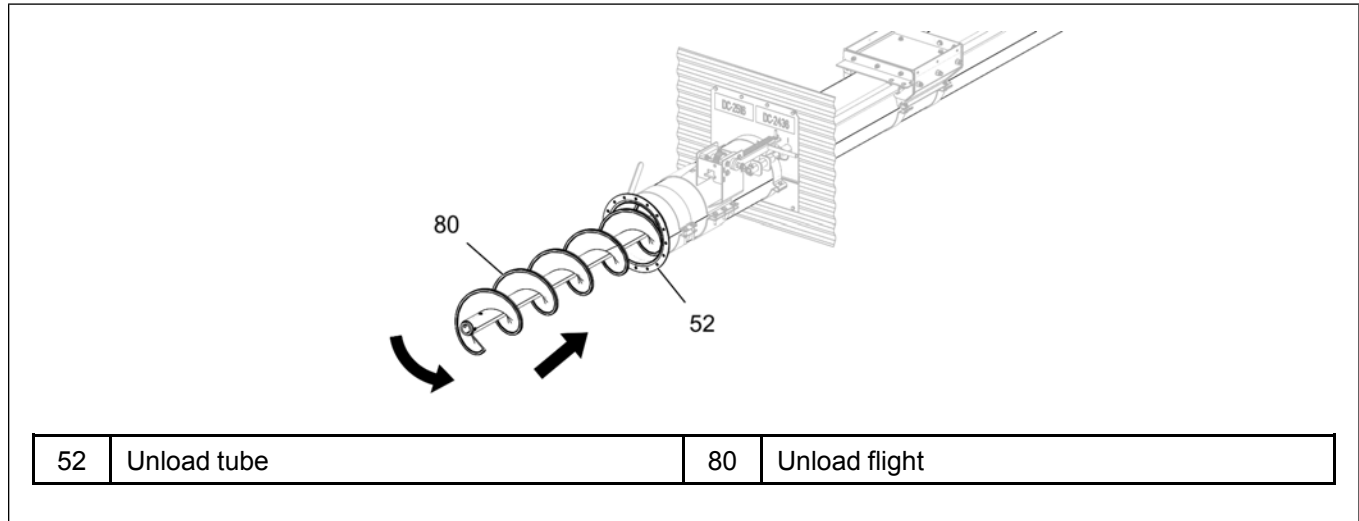
After You Finish

** Ensure the center well is centered in the bin within the tolerances specified previously in [step 1, page 17](#).

Installing the Unload Tube Flight

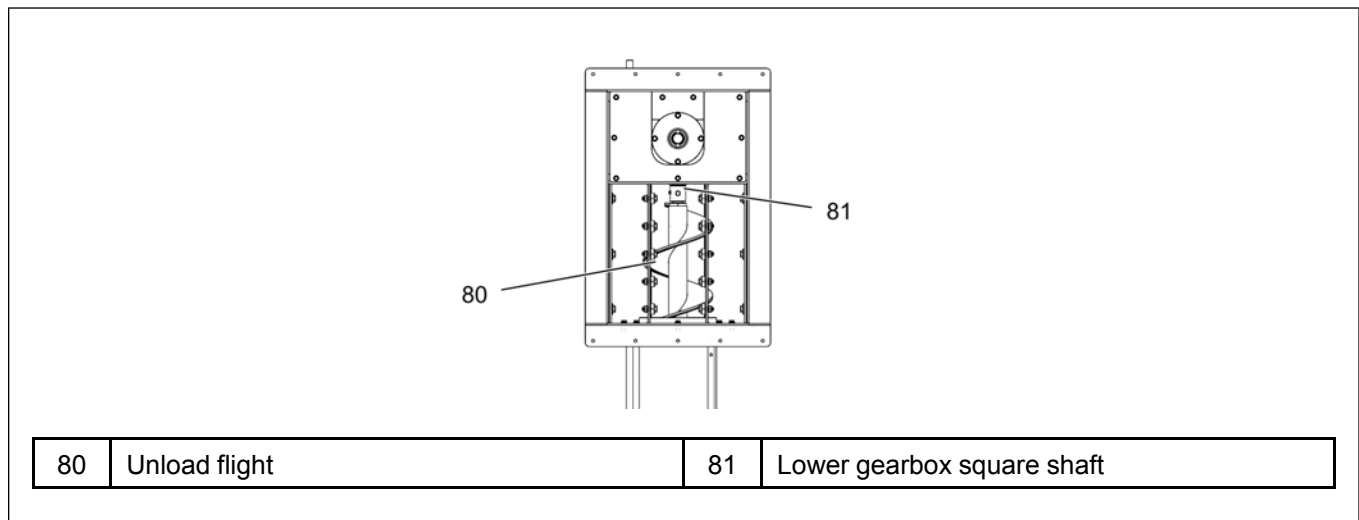
1. Begin by removing the tube end cap if it is not already done so.
2. Insert the unload flight (80) into the unload tube (52) with the square bushing end facing the center well and the round bushing end facing the discharge end of the tube.

Figure 3-7 *Installing the flight into unload tube*



3. When the unload flight (80) is approaching the center well shaft, it will be necessary to rotate the flight counter-clockwise in order to get it to seat properly on the lower gearbox square shaft (81). When the unload flight (80) is properly seated, the flight should be entirely inside the unload tube. It may be necessary to pull the unload flight (80) out a small amount and attempt this step multiple times in order to seat the flight properly.

Figure 3-8 *Attaching the flight to the center well shaft*

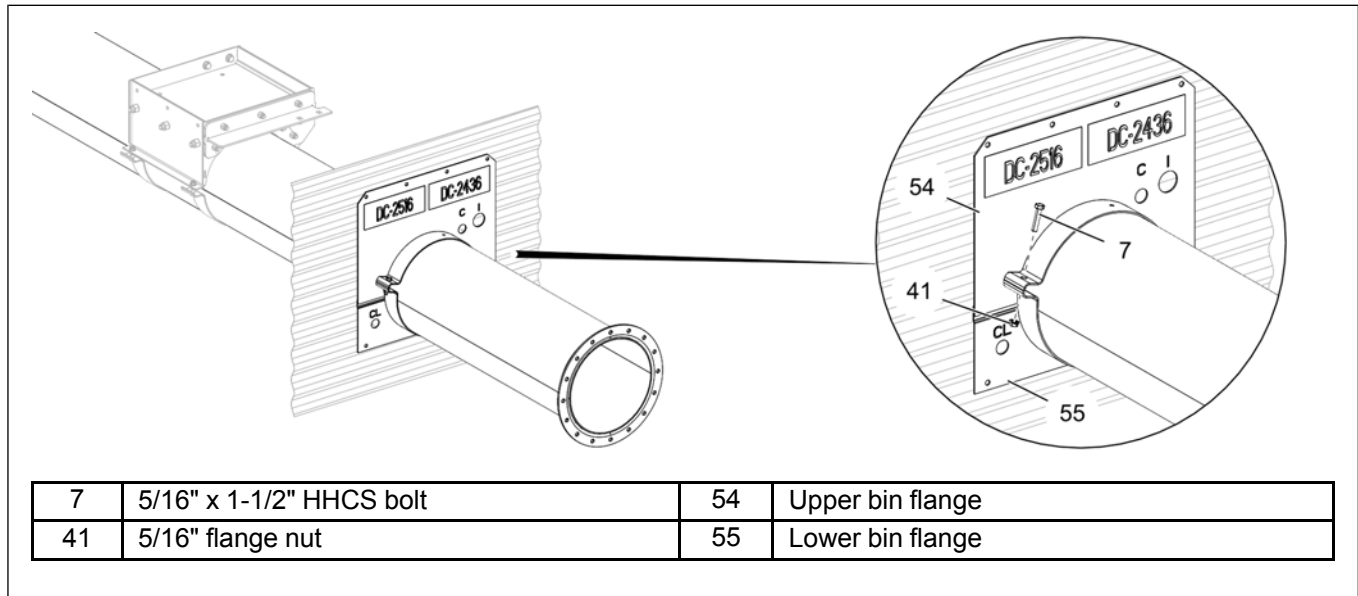


4. Open the center well gate and enter the bin to check and see that the flight is seated.

Installing the Bin Flange

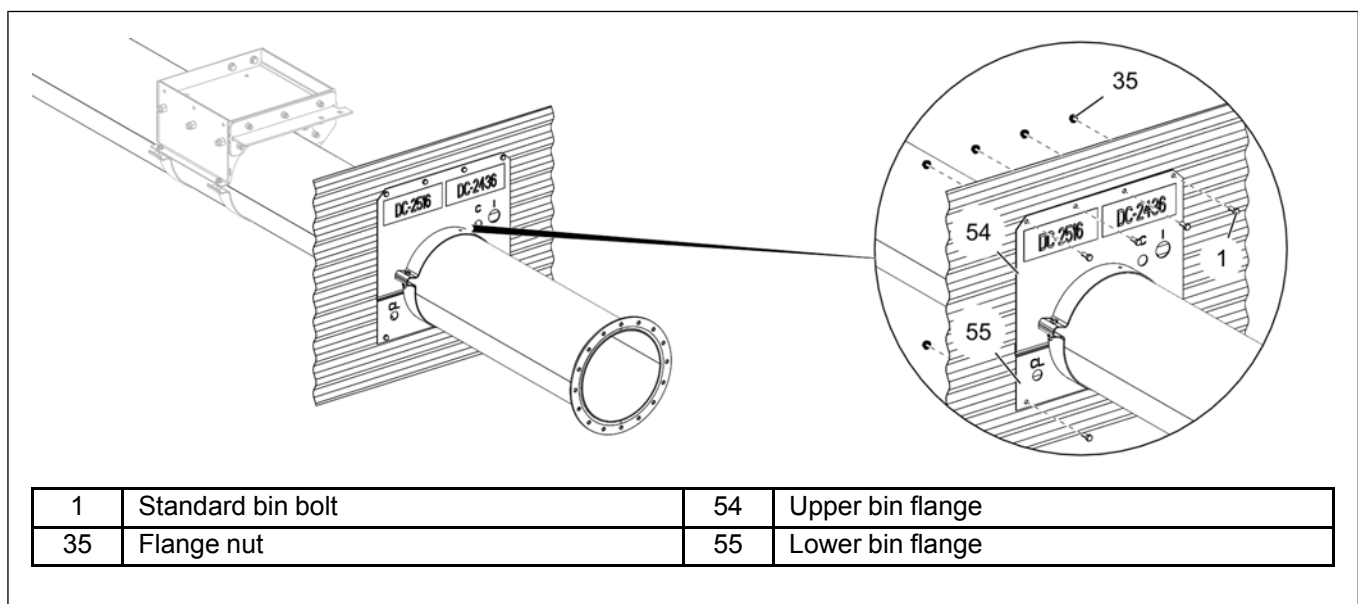
1. Attach the upper bin flange (54) and lower bin flange (55) loosely to the unload tube using 5/16" x 1-1/2" HHCS bolts (7) and 5/16" flange nuts (41).

Figure 3-9 *Installing the upper and lower bin flanges*



2. With the flange not yet attached to the bin wall, make sure that the bin wall opening is large enough for the clutch and well control rods to pass through the bin wall.
3. Slide the bin flanges (54 and 55) flush up to the bin wall and tighten the 5/16" x 1-1/2" HHCS bolts (7) connecting the two flanges.
4. Drill holes in the bin wall through the four holes located in the upper bin flange (54) and two holes located in the lower bin flange (55) and secure the bin flanges to the bin wall using six standard bin bolts (1) and flange nuts (35).

Figure 3-10 *Secure the upper and lower bin flanges*

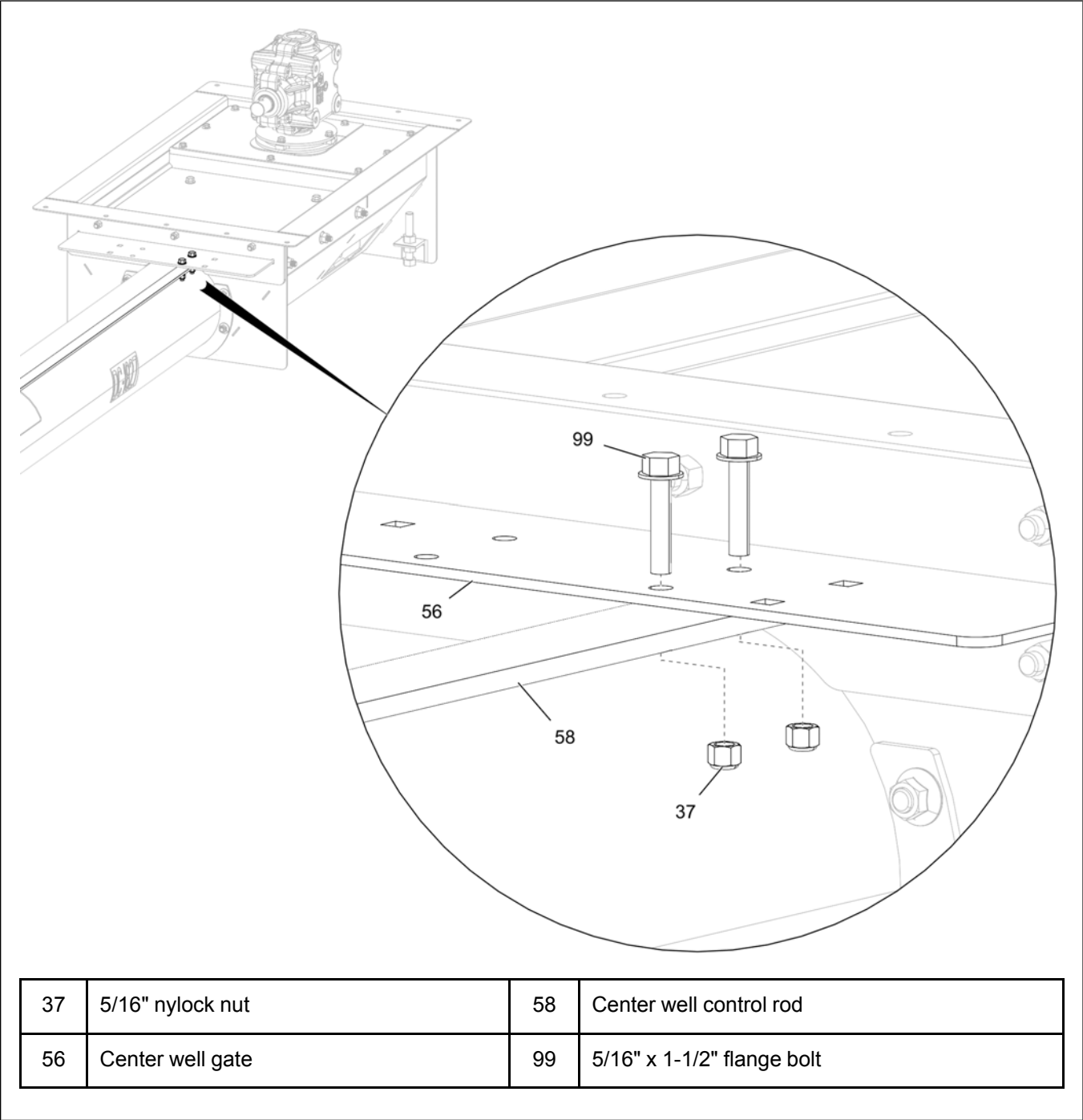


Installing the Center Well Gate

1. Close the center well gate (56) completely.
2. For 8" unloads: Attach the center well control rod (58) to the bottom of the center well gate (56) using two 5/16" x 1-1/2" flange bolts (99) and 5/16" nylock nuts (37).

NOTE: Install the flange bolts (99) with bolt head on top of the center well gate (56).

Figure 3-11 8" center well gate assembly

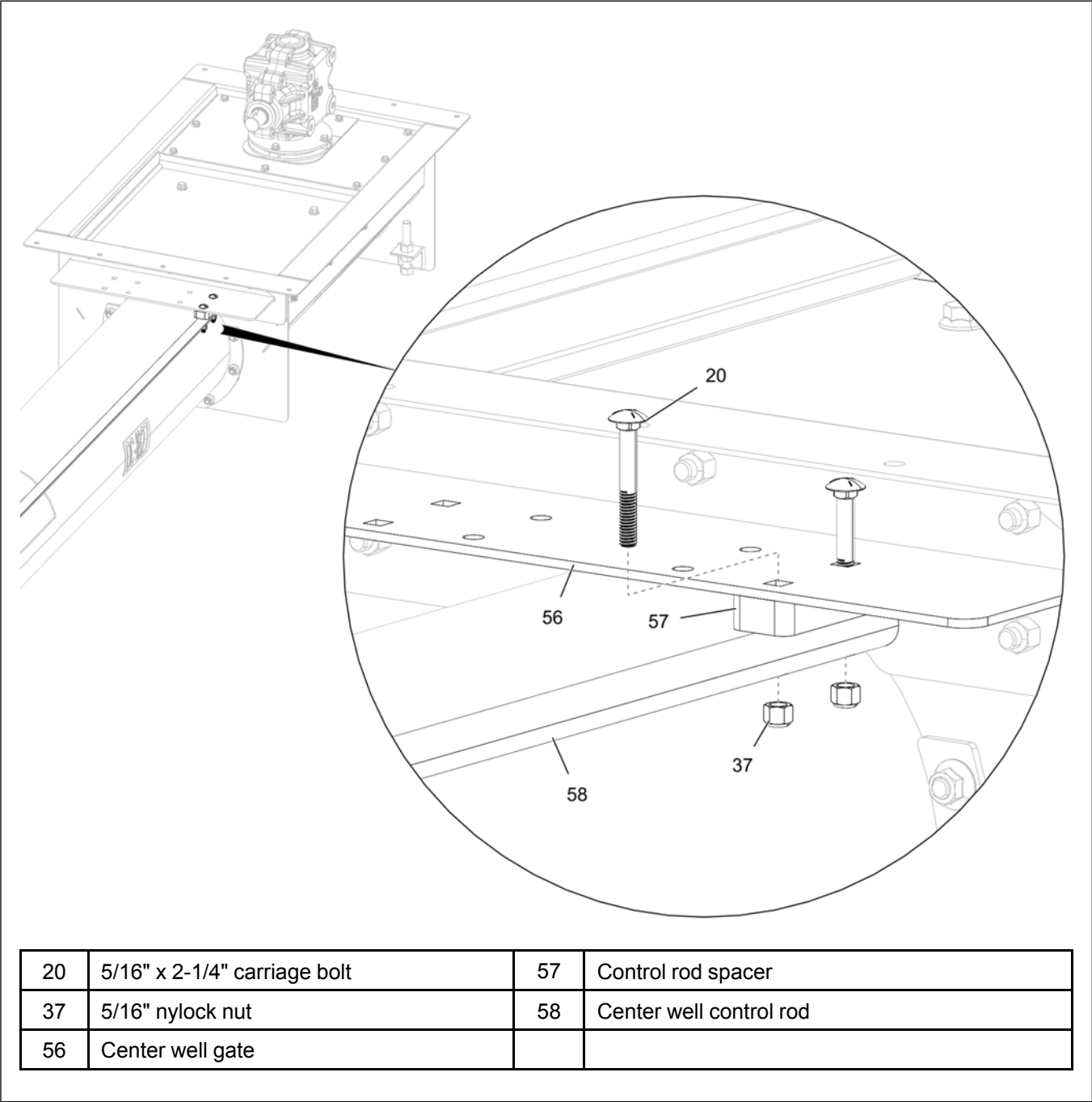


3. For 10" unloads: Attach the center well control rod (58) and a control rod spacer (57) to the bottom of the center well gate (56) using two 5/16" x 2-1/4" carriage bolts (20) and 5/16" nylock nuts (37).

NOTE:

- a. Make sure to place the control rod spacer (57) between the center well gate (56) and center well control rod (58).
- b. Install the carriage bolts (20) with bolt head on top of the center well gate (56).

Figure 3-12 10" center well gate assembly



After You Finish

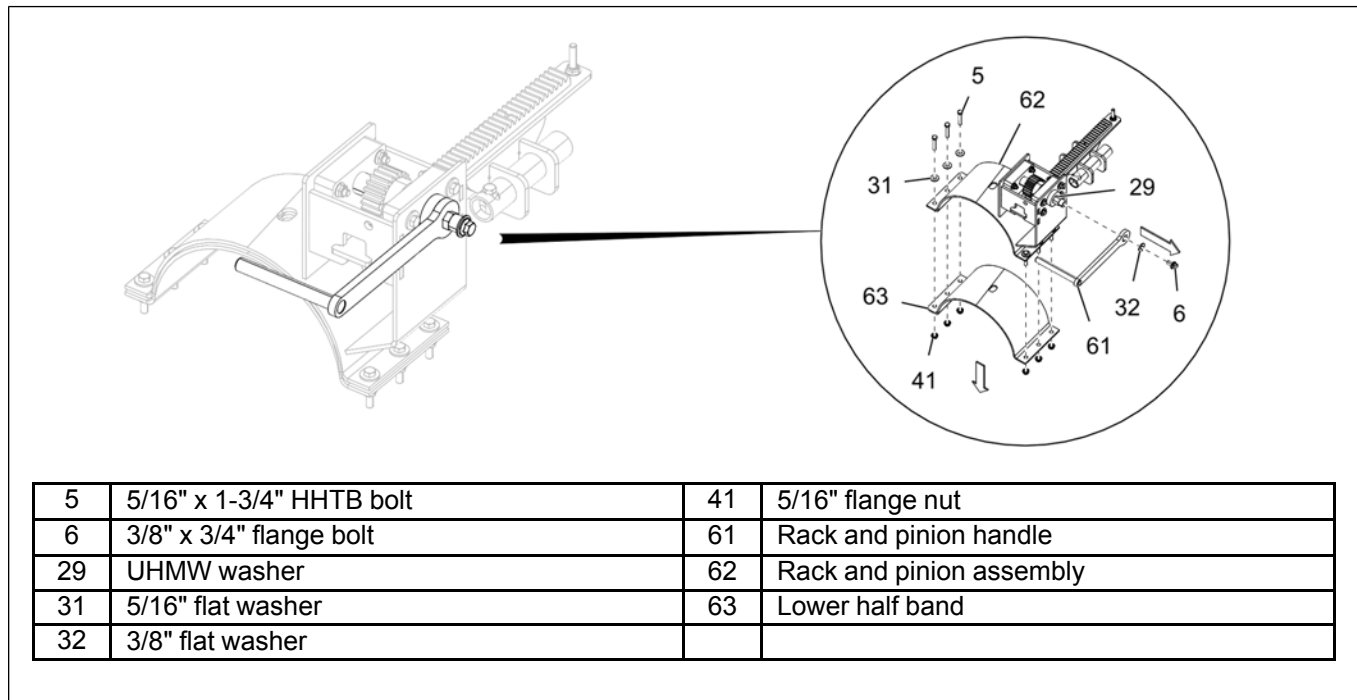
After assembly, make sure gate operates smoothly and closes completely. Make necessary adjustments.

Installing the Rack and Pinion

Before You Begin

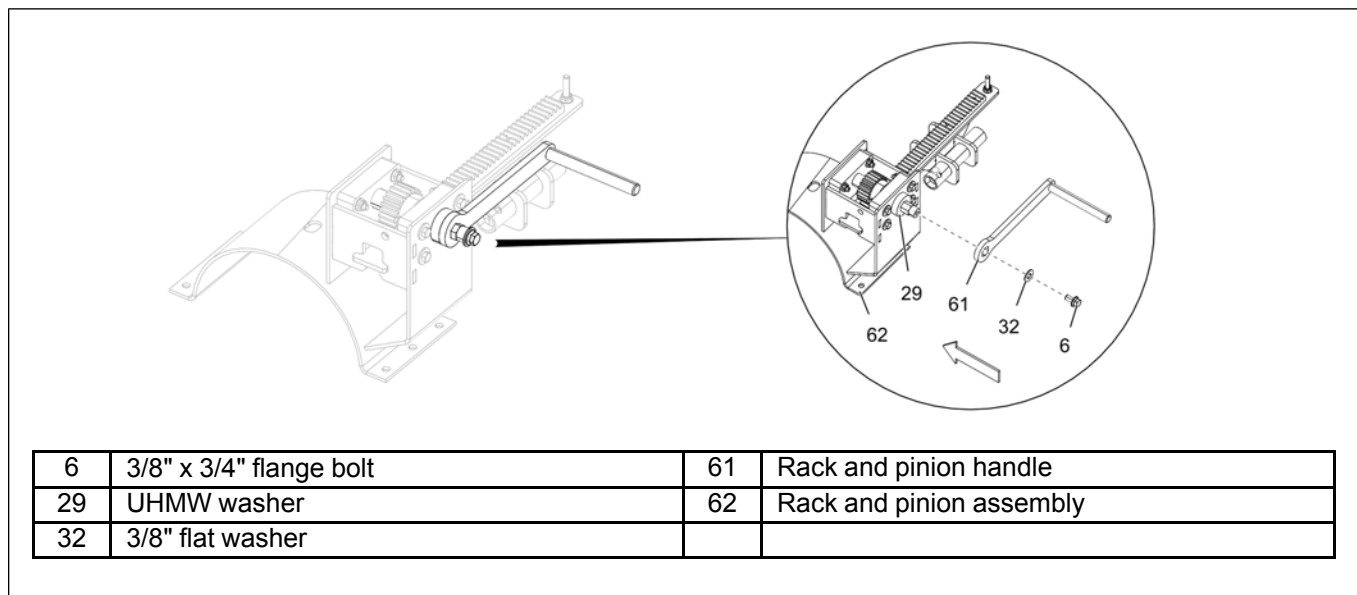
Before installing the rack and pinion, make sure to remove the handle (61) and lower half band (63) from factory setting as shown in [Figure 3-13, page 25](#) and re-install the handle (61) back as shown in [Figure 3-14, page 25](#). The lower half band (63) will be installed when installing the rack and pinion assembly on the unload tube as shown in [Figure 3-16, page 27](#).

Figure 3-13 Removing the rack and pinion handle and lower half band



NOTE: Use the existing 3/8" x 3/4" flange bolt (6), UHMW washer (29) and 3/8" flat washer (32) to secure the handle (61).

Figure 3-14 Re-installing the rack and pinion handle



Chapter 3: Installation

1. Make sure all gates are fully closed.
2. Slip the rack and pinion assembly (62) over the center well and intermediate well control rods (58 and 60). Align the holes, making sure the rack and pinion assembly (62) is fully extended towards the bin wall.

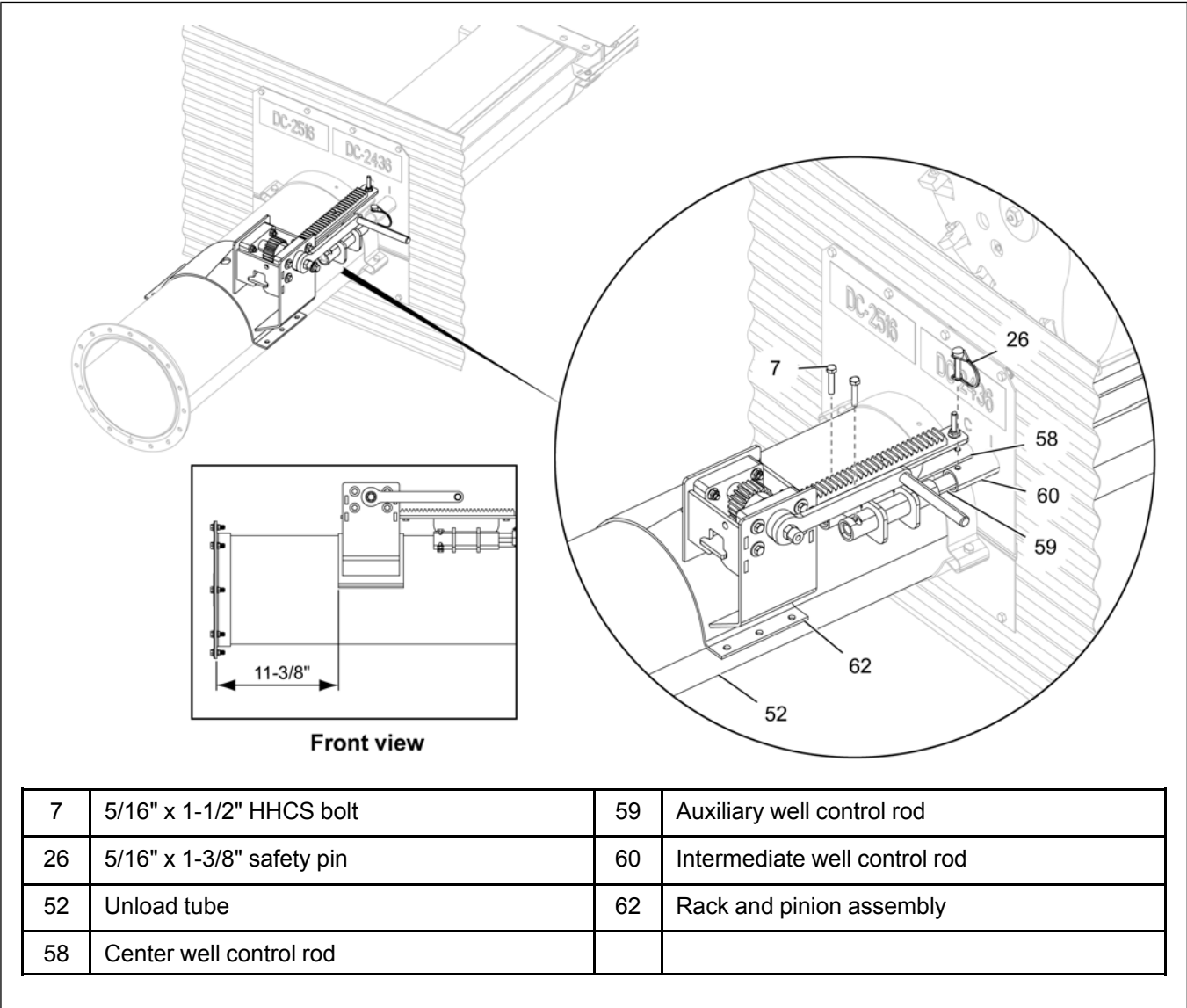
NOTE: *Aligning the holes will allow the rack and pinion to line up approximately at 11-3/8" from the face of the angle ring.*

3. With rack and pinion assembly (62) resting on the unload tube (52) and tube holes aligned, place the 5/16" x 1-1/2" HHCS bolts (7) through the center well and intermediate well control rods (58 and 60) to the rack and pinion (62) tubes.

NOTE: *Place a 5/16" x 1-3/8" safety pin (26) through the intermediate well control rod (60) to the auxiliary well control rod (59).*

NOTE: *The rack and pinion assembly has an additional 5/8" tolerance built into it to allow for out of round bin installations.*

Figure 3-15 Installing the rack and pinion assembly

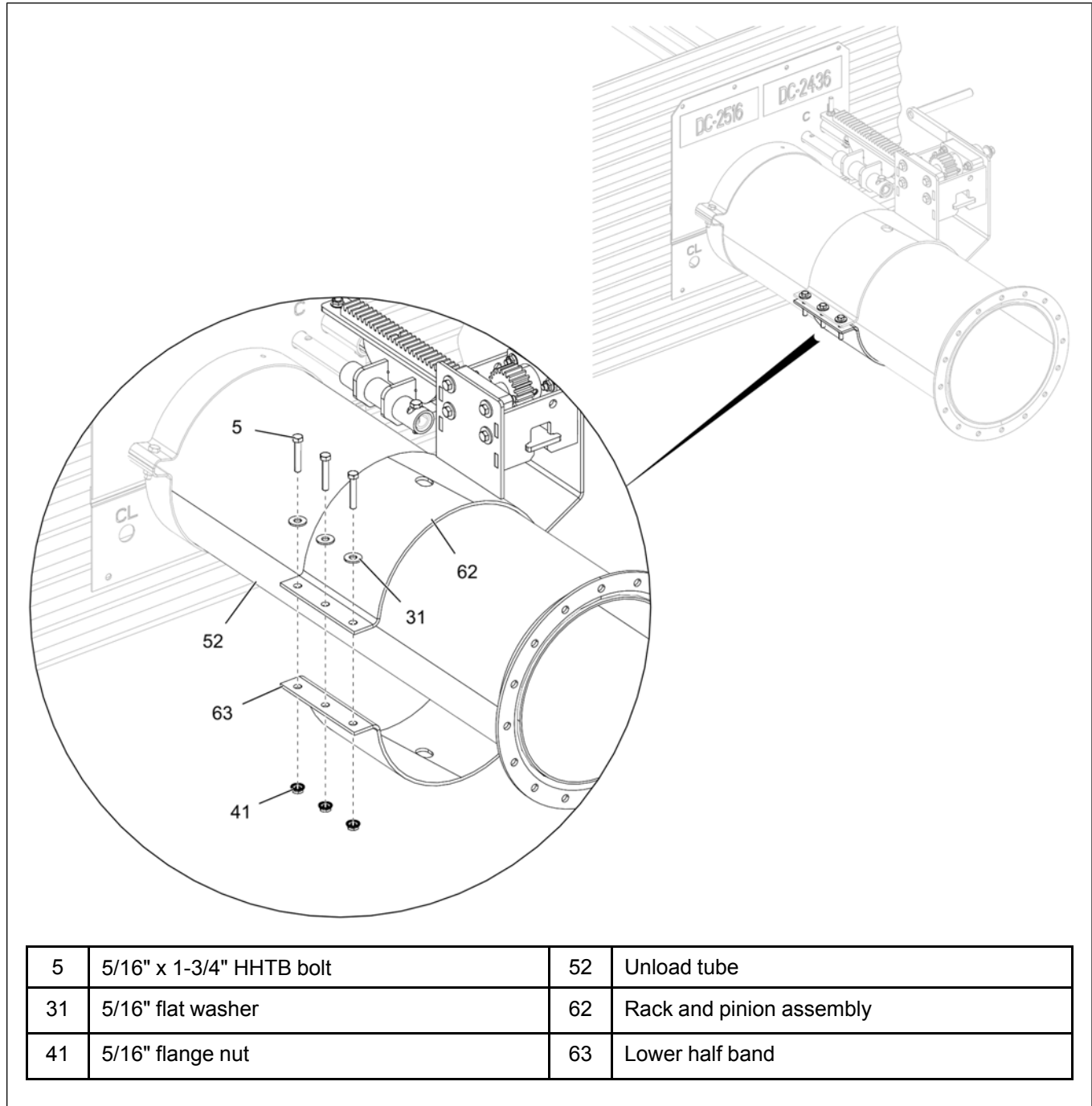


4. With the rack and pinion assembly (62) fully extended towards the bin wall, align the lower half band (63) with the rack and pinion assembly (62) and secure it to the unload tube (52) using 5/16" x 1-3/4" HHTB bolts (5), 5/16" flat washers (31) and 5/16" flange nuts (41).

NOTE:

- a. After securing the rack and pinion assembly (62) to the unload tube (52), rotate the rack and pinion handle to make sure all the gates open fully and smoothly. If not, make the necessary adjustments.
- b. When the gates are opened all the way, the rack bar is almost fully extended away from the bin. The gates will bottom out on stop bolts located on the gate if installed correctly.

Figure 3-16 Installing the lower half band for rack and pinion

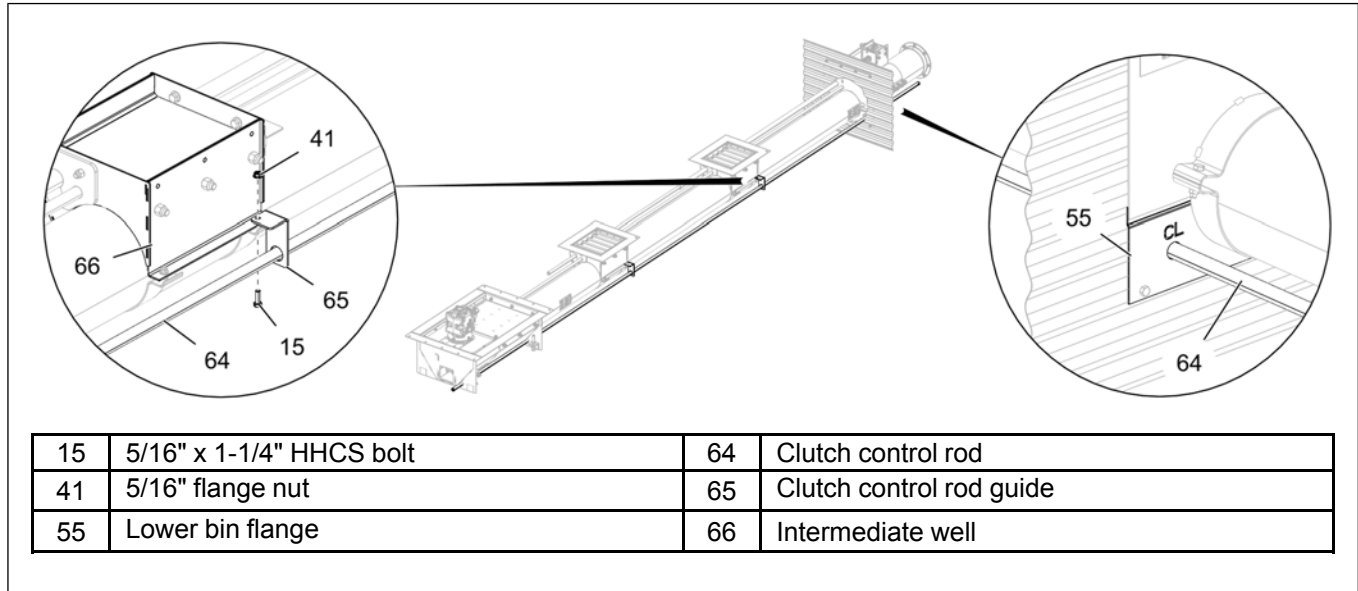


Installing the Clutch Control Rod

1. Install the clutch control rod guides (65) to the left side of the intermediate wells (66) using the existing 5/16" x 1-1/4" HHCS bolts (15) and 5/16" flange nuts (41).
2. Slide the clutch control rod (64) through the lower bin flange (55), rod guides (65) on the intermediate wells (66) and through the back of center well.

NOTE: For 8" sweeps, use the existing 5/16" x 1" HHCS bolts (15) to install the rod guides (65).

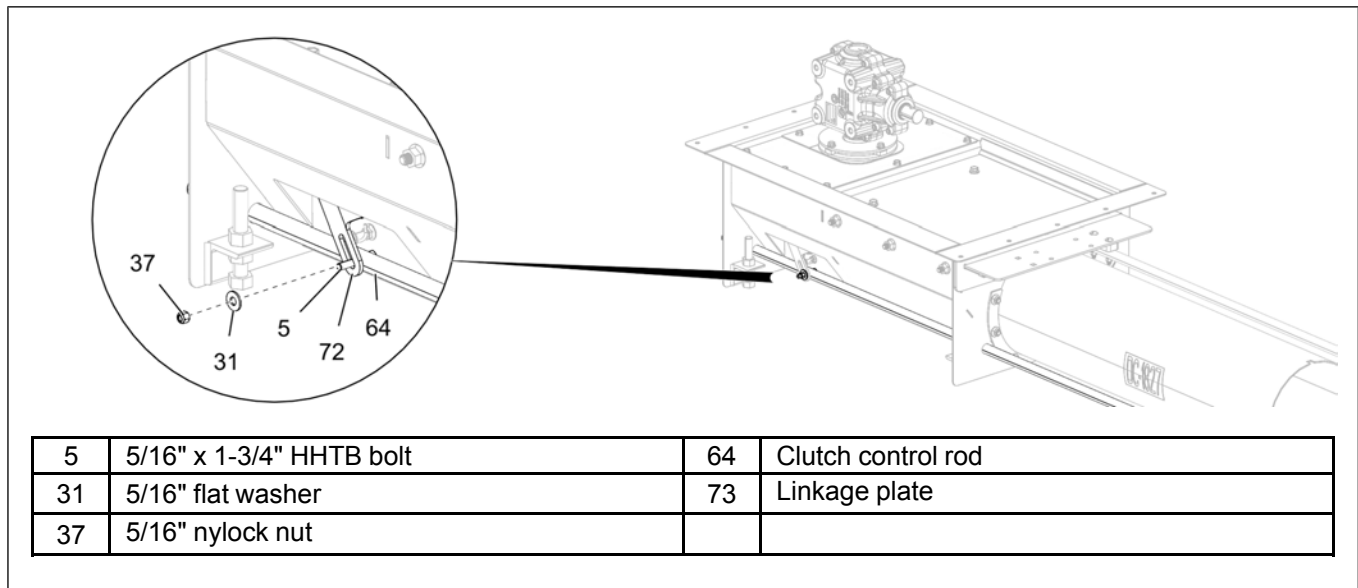
Figure 3-17 Sliding the clutch control rod through the rod guides



3. Bolt the clutch control rod (64) to the center well linkage plate (73) using a 5/16" x 1-3/4" HHTB bolt (5), 5/16" flat washer (31) and 5/16" nylock nut (37).

NOTE: Make sure the bolt head is inside. Do not over tighten the nylock nut (37). The linkage plate (73) should slide freely on the HHTB bolt (5). Also, the clutch control rod (64) should slide freely and should not interfere with floor supports.

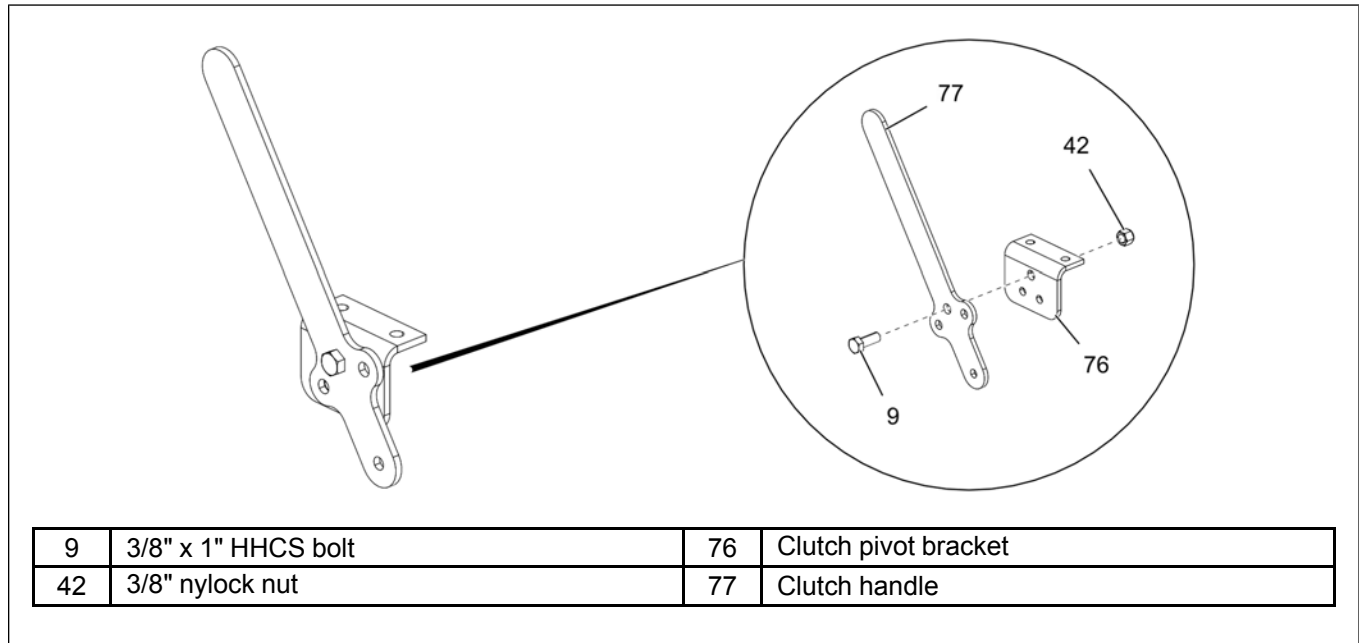
Figure 3-18 Installing the clutch control rod to the center well linkage



- Attach the clutch handle (77) to the clutch pivot bracket (76) using a 3/8" x 1" HHCS bolt (9) and 3/8" nylock nut (42).

NOTE: Do not over tighten the HHCS bolt (9). Handle (77) must pivot freely.

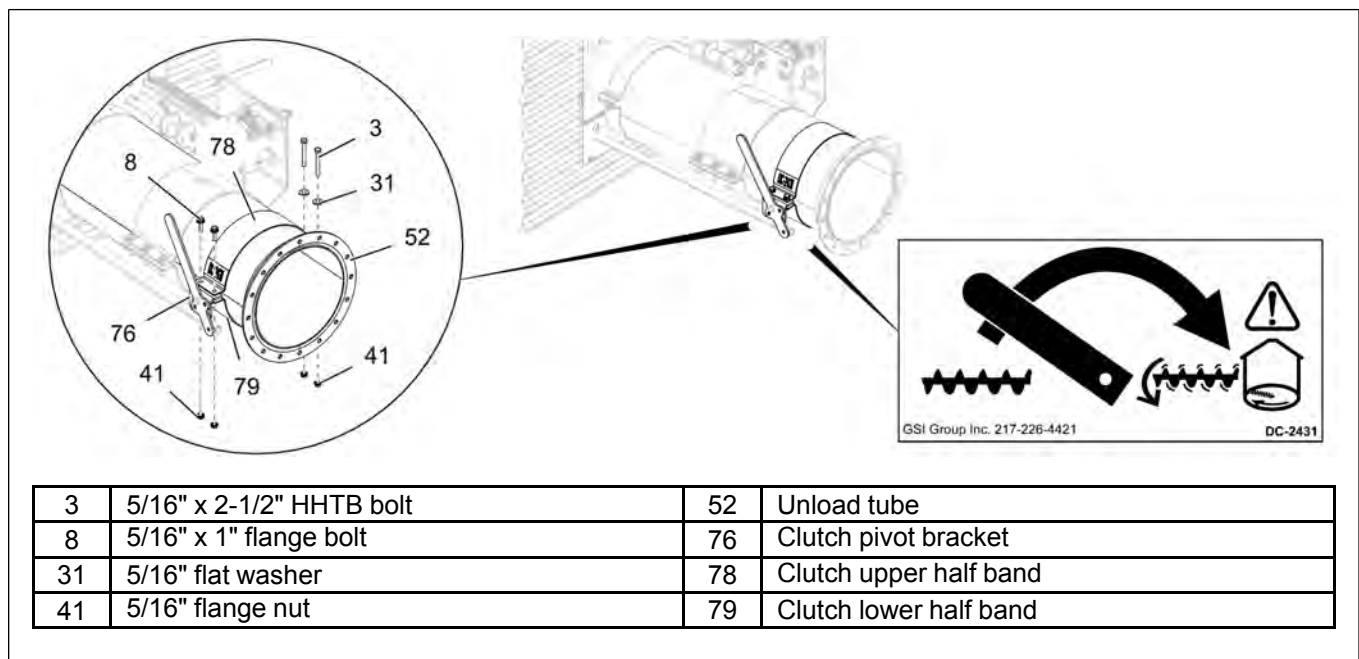
Figure 3-19 Attaching the clutch handle to the pivot bracket



- Place the clutch upper and lower half bands (78 and 79) onto the unload tube (52) and insert the clutch pivot bracket (76) between the bands. Secure the pivot bracket (76) along with the half bands (78 and 79) to the unload tube (52) using two 5/16" x 1" flange bolts (8) and 5/16" flange nuts (41).

NOTE: On the other side, secure the bands together using two 5/16" x 2-1/2" HHTB bolts (3), 5/16" flat washers (31) and 5/16" flange nuts (41). Clutch pivot bracket (76) must be clamped tight between the half bands (78 and 79) before tightening the other side.

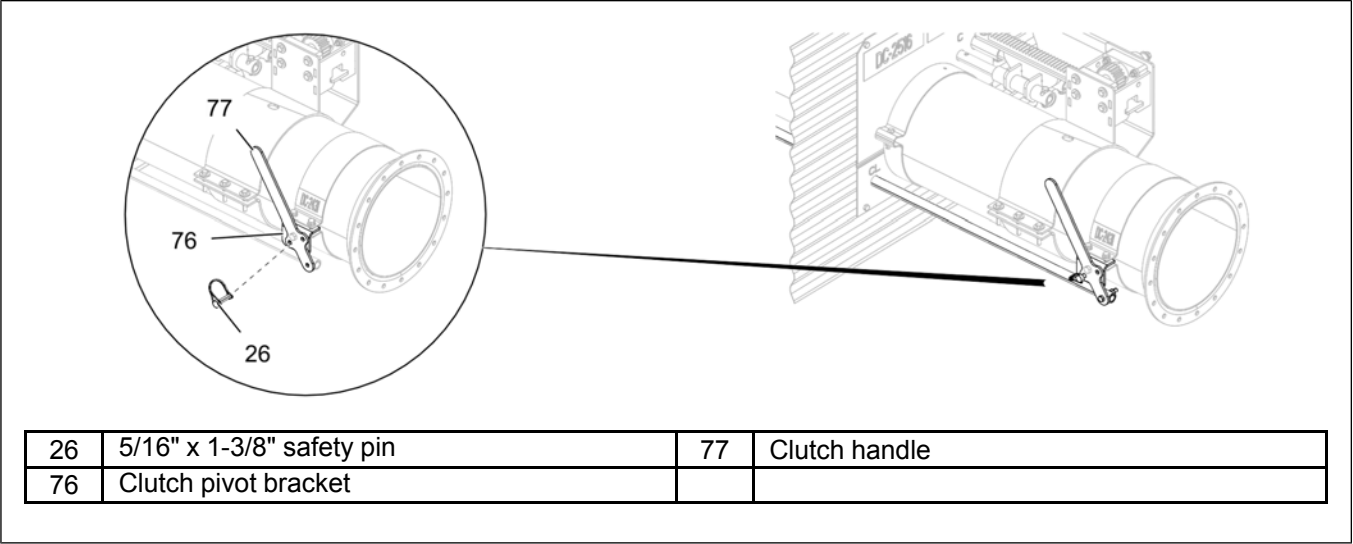
Figure 3-20 Attaching the clutch pivot bracket between the half bands



Chapter 3: Installation

6. Insert the 5/16" x 1-3/8" safety pin (26) through the disengaged hole in the clutch handle (77) and pivot bracket (76).

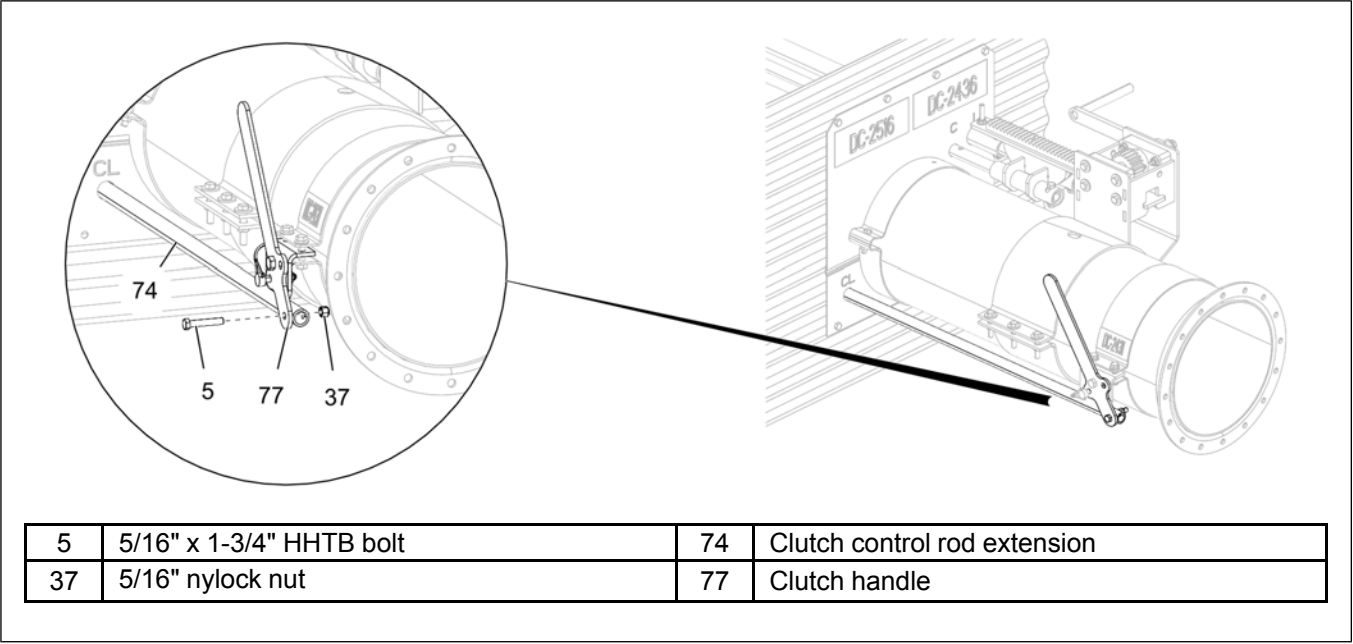
Figure 3-21 Inserting the safety pin



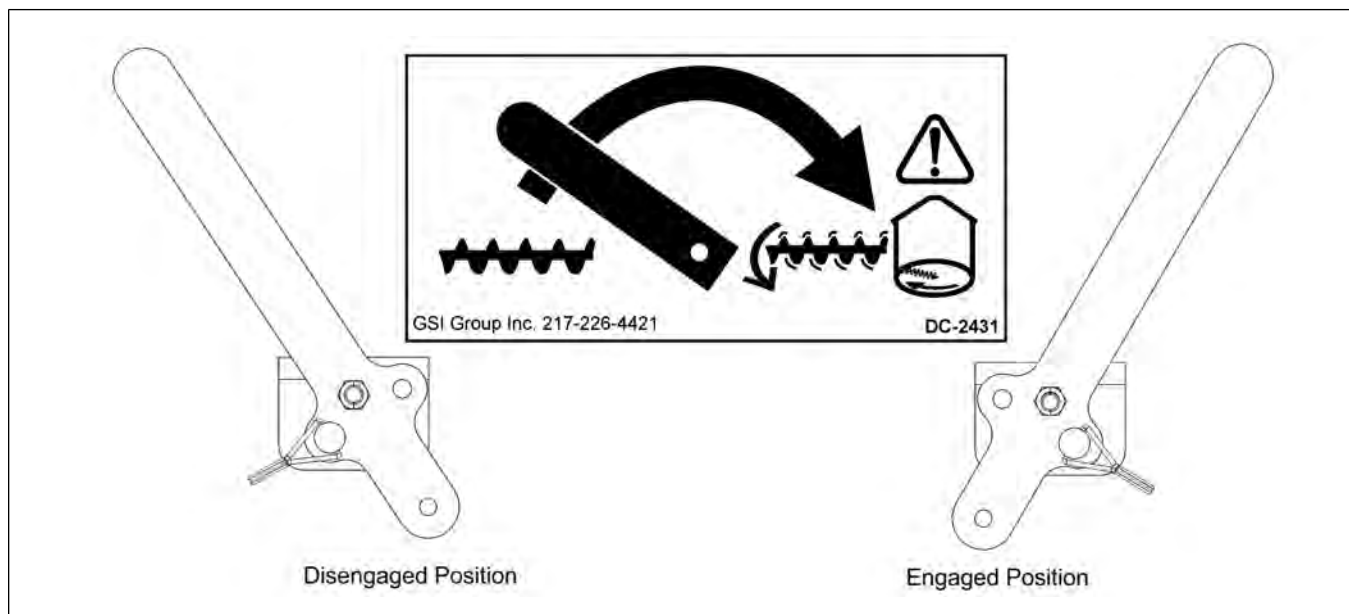
7. Attach the clutch handle (77) to the clutch control rod extension (74) using a 5/16" x 1-3/4" HHTB bolt (5) and 5/16" nylock nut (37).

NOTE: Make sure the control rod extension (74) is fully disengaged (pulled out) and the clutch handle (77) is in the disengaged position.

Figure 3-22 Installing the clutch handle to clutch control rod



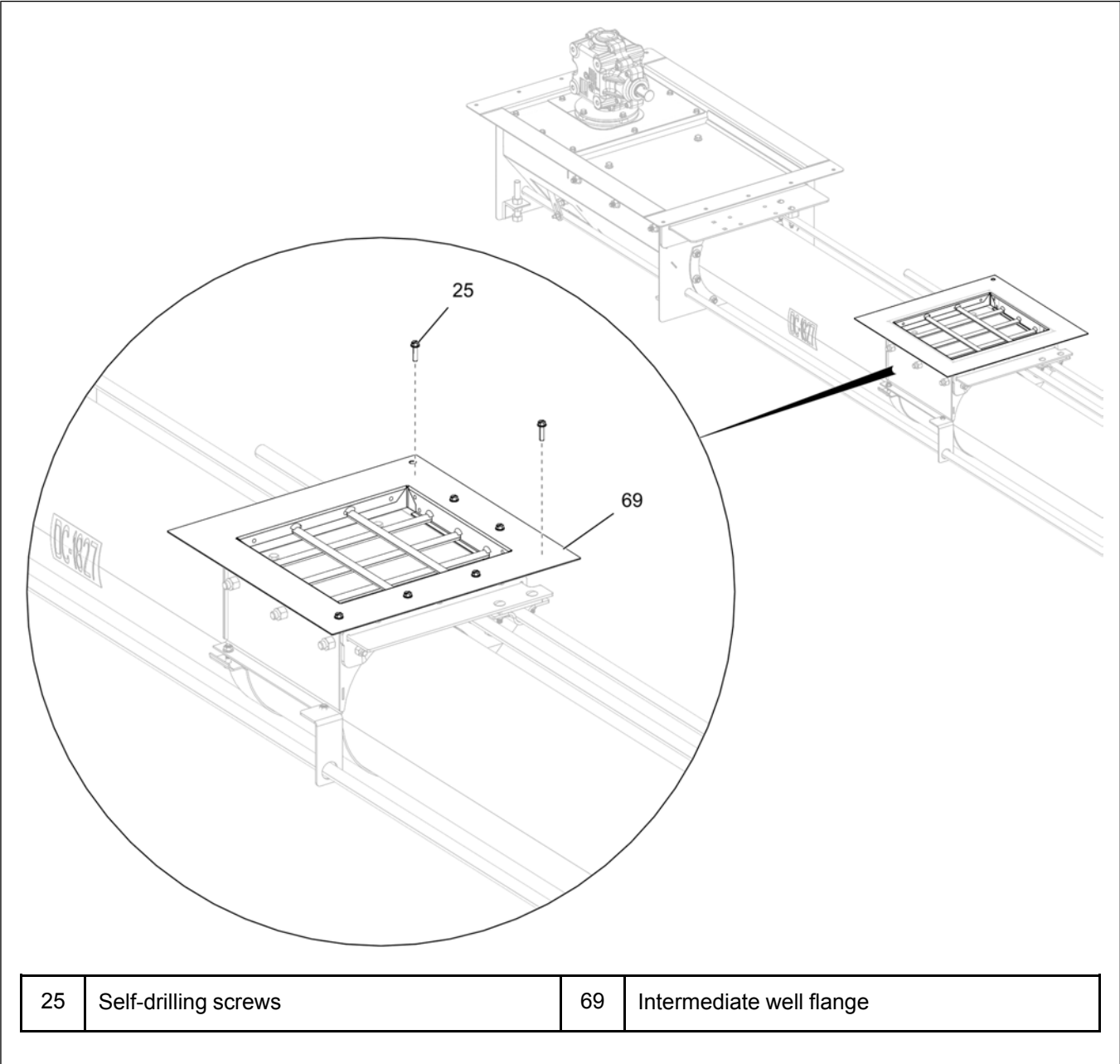
- NOTE:** Move the half bands on the tube as required to make necessary adjustments before locking the clutch in either disengaged or engaged position.
- NOTE:** Make sure to check the operation of the clutch rod by pulling the handle to engage the clutch and pushing the handle to disengage it.

Figure 3-23 *Clutch positions*

Installing the Intermediate Well Flange

- 1. Place the intermediate well flange (69) onto the intermediate well.
- 2. Install self-drilling screws (25) to secure the intermediate well flange (69) to the bin floor.

Figure 3-24 *Installing the intermediate well flange*



After You Finish

Repeat the above procedure to install the intermediate well flange in all the remaining intermediate wells.

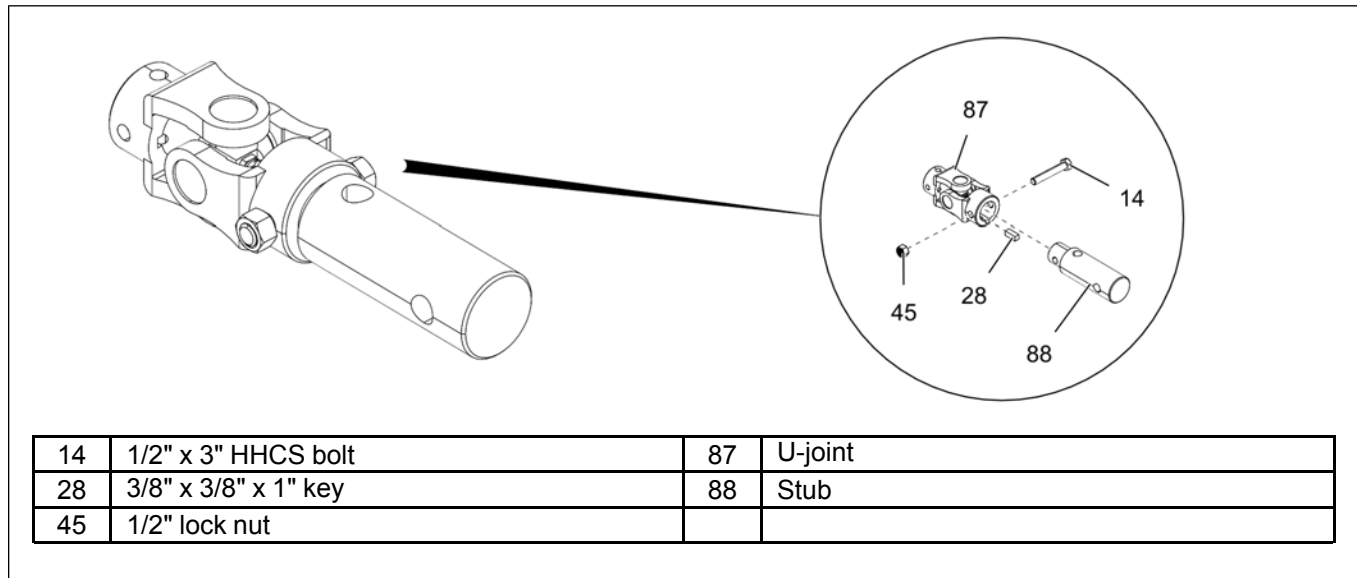
Installing the Sweep Flighting

1. Assemble the U-joint (87).

NOTE:

- Insert the stub (88) into the U-joint (87).
- Secure the U-joint (87) using a 1/2" x 3" HHCS bolt (14), 1/2" lock nut (45) and 3/8" x 3/8" x 1" key (28).

Figure 3-25 Assembling the U-joint

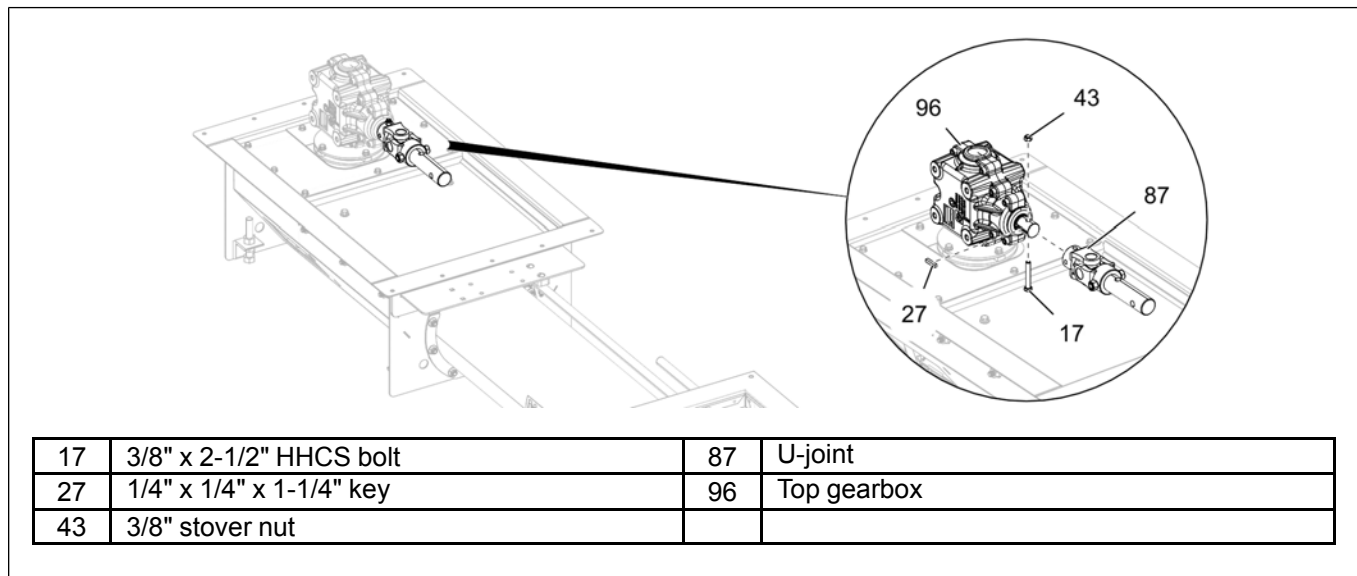


2. Attach the U-joint (87).

NOTE:

- Slide the U-joint (87) onto the top gearbox (96) output shaft.
- Secure the U-joint (87) using a 3/8" x 2-1/2" HHCS bolt (17), 3/8" stover nut (43) and 1/4" x 1/4" x 1-1/4" key (27).

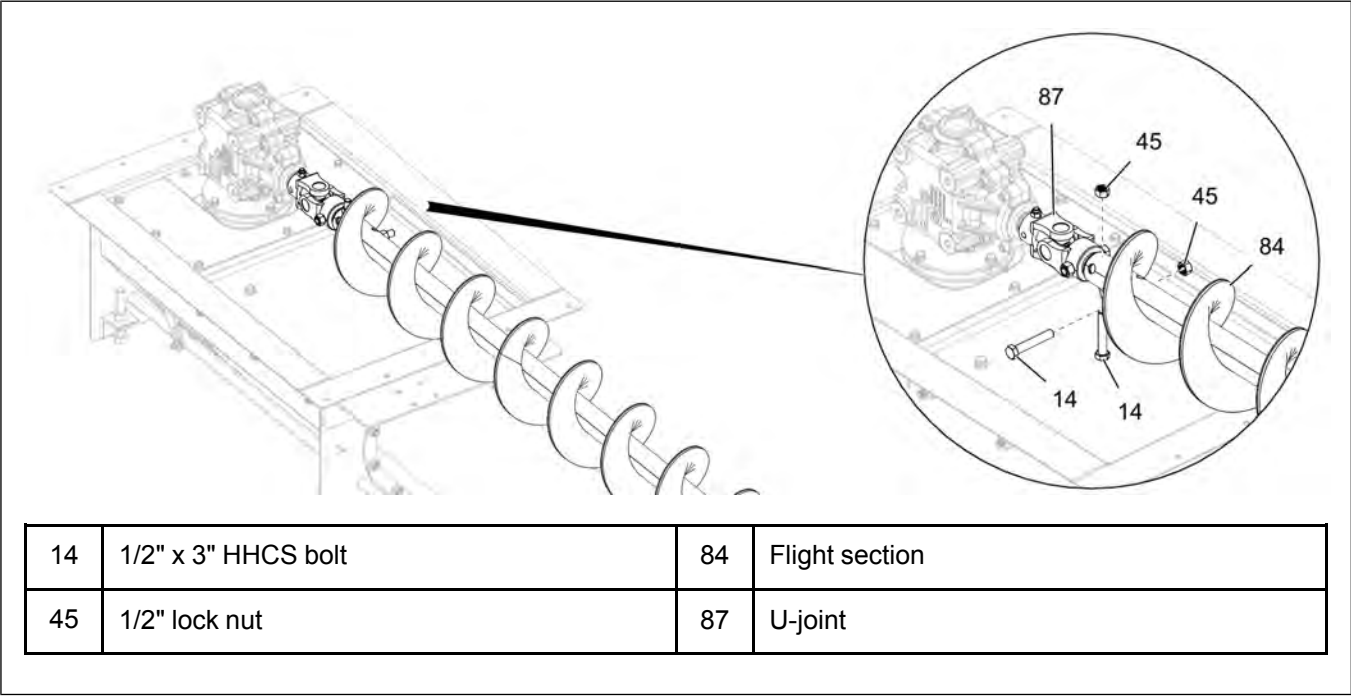
Figure 3-26 Attaching the U-joint to the gearbox



Chapter 3: Installation

3. Attach the first auger section (84) to the U-joint (87) shaft. Make sure that the Dura-Edge® side of the flight (84) faces the center of the bin. Secure it with two 1/2" x 3" HHCS bolts (14) and 1/2" lock nuts (45).

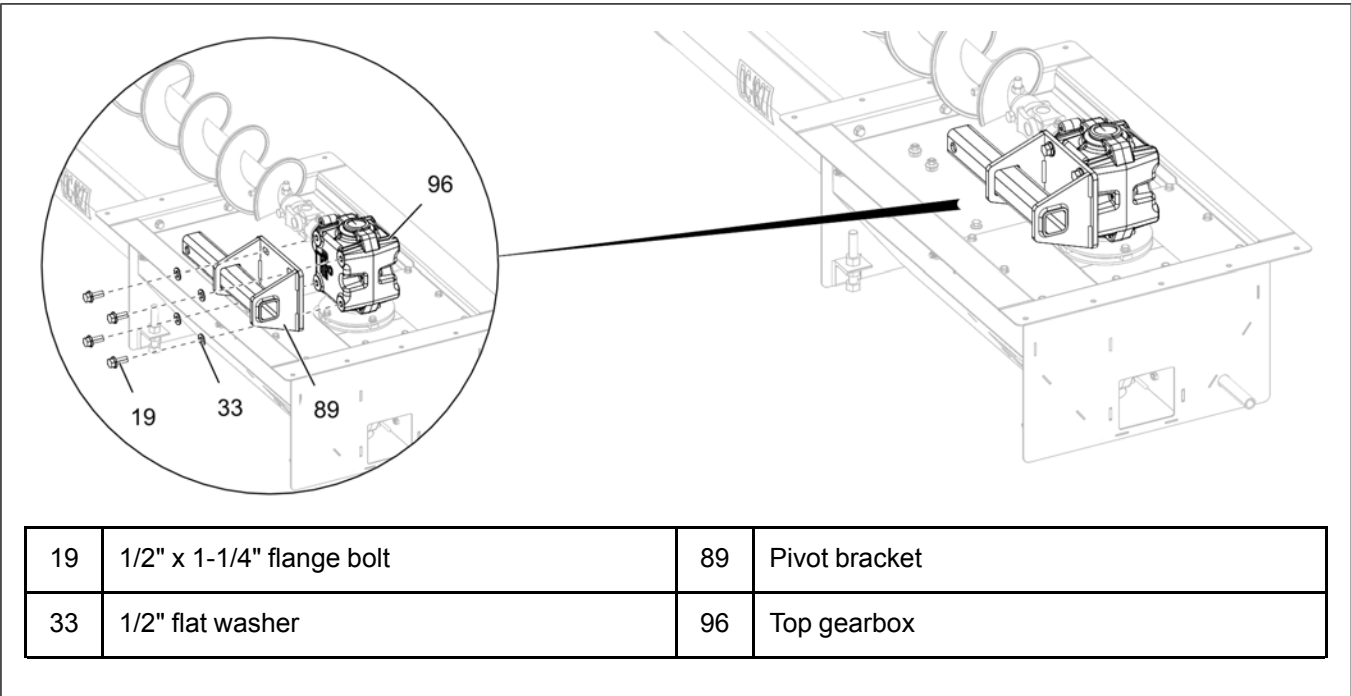
Figure 3-27 Attaching the auger to the U-joint



4. Attach the pivot bracket (89) to the side of the top gearbox (96) using four 1/2" x 1-1/4" flange bolts (19) and 1/2" flat washers (33).

NOTE: Do not tighten the flange bolts (19).

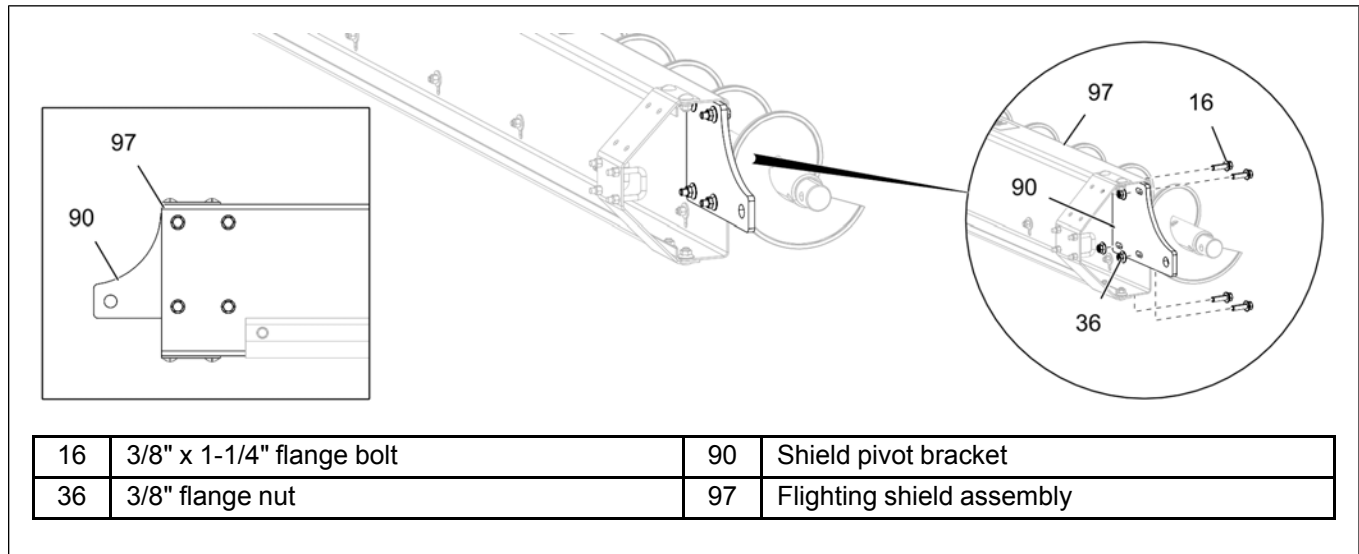
Figure 3-28 Attaching the pivot bracket to the gearbox



Installing the Flighting Shield

1. Assemble the shield pivot bracket (90) to the flighting shield assembly (97) using four 3/8" x 1-1/4" flange bolts (16) and 3/8" flange nuts (36).

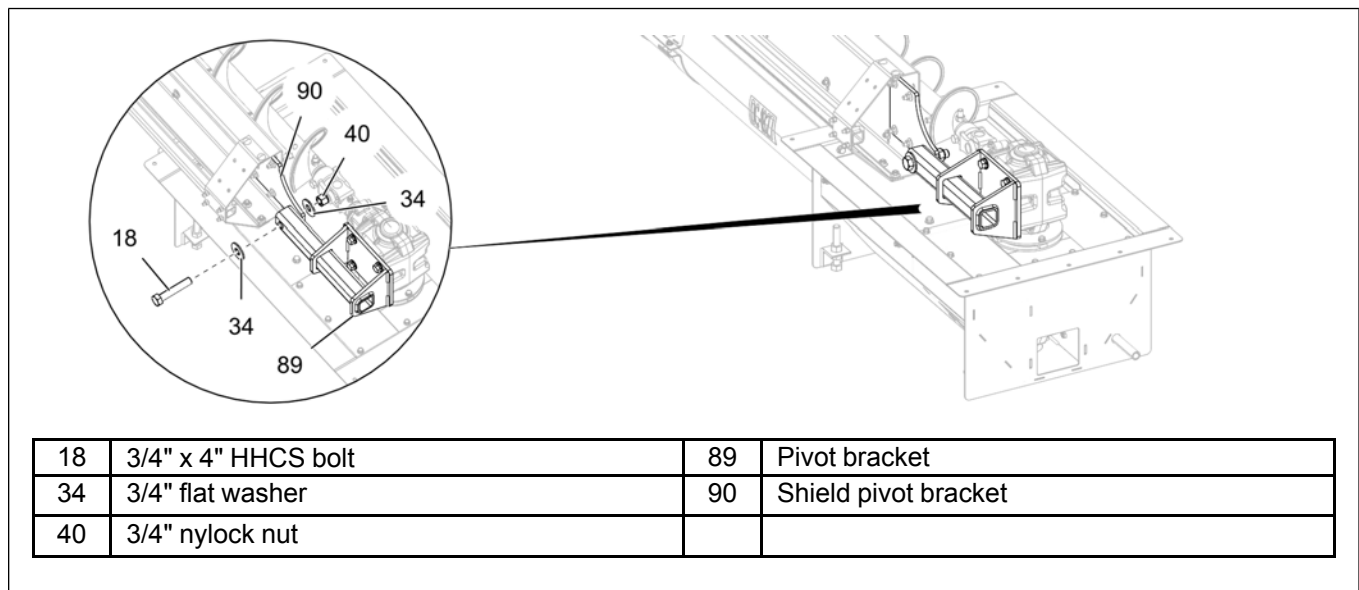
Figure 3-29 Assembling the flighting shield to shield pivot bracket



2. Attach the shield pivot bracket (90) to the pivot bracket (89) using a 3/4" x 4" HHCS bolt (18), two 3/4" flat washers (34) and a 3/4" nylock nut (40).

NOTE: Do not tighten the HHCS bolt (18) and nut (40). It should be snug-tighten to pivot freely. There should only be 1-2 threads visible on the HHCS bolt (18) after nut (40) is snug-tightened.

Figure 3-30 Installing the flighting shield pivot bracket assembly to pivot bracket

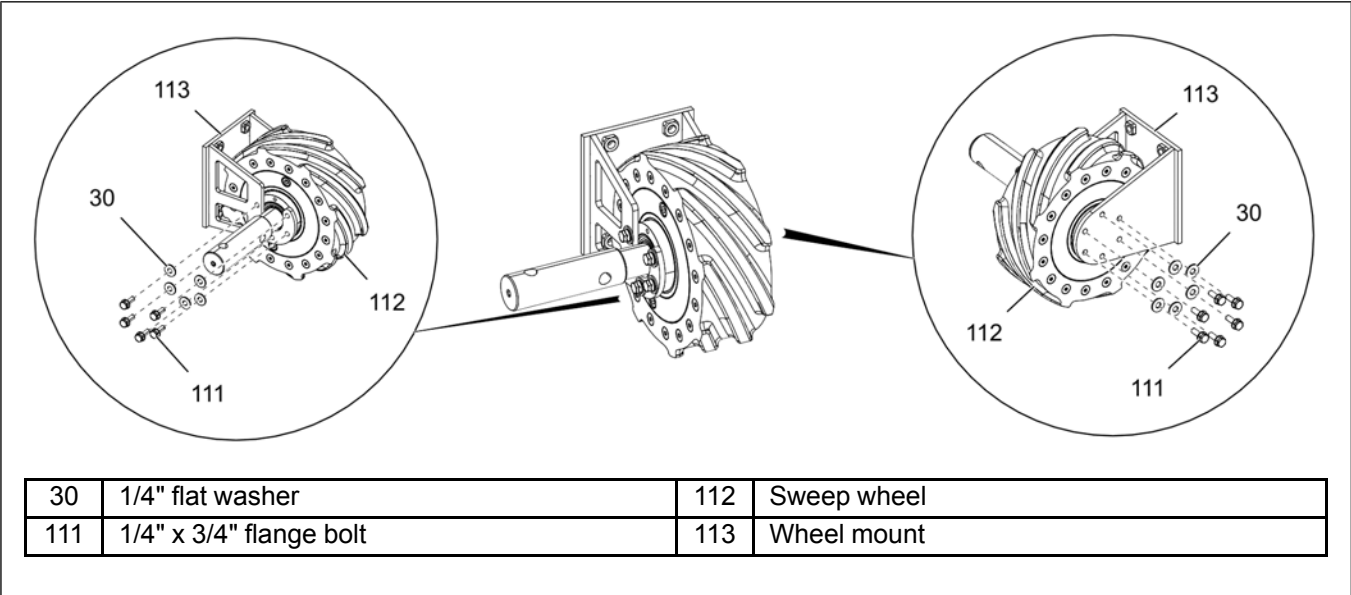


NOTE: Pick up at pivot bolt location *PRIOR* to tightening the four gearbox bolts and four backshield bolts. This will help raise the sweep arm for additional floor clearance.

Installing the Sweep Wheel

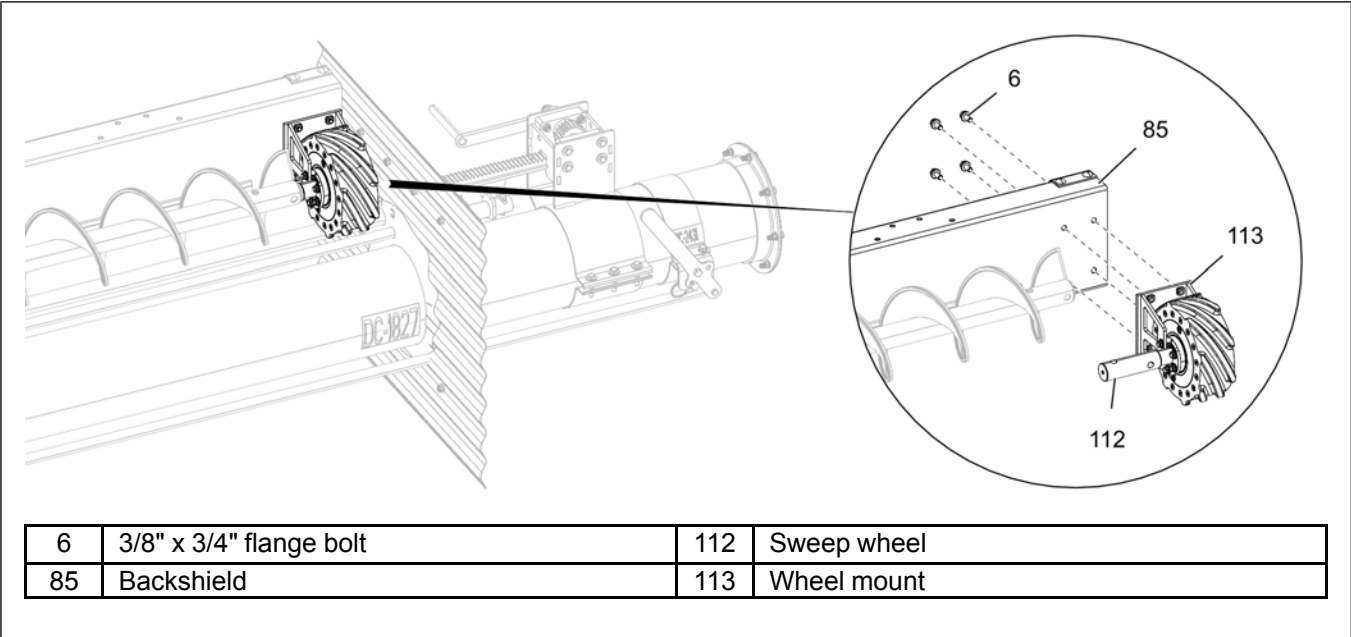
- 1. Attach the sweep wheel (112) to the wheel mount (113) using eleven 1/4" x 3/4" flange bolts (111) and eleven 1/4" flat washers (30).

Figure 3-31 Attaching the wheel to wheel mount



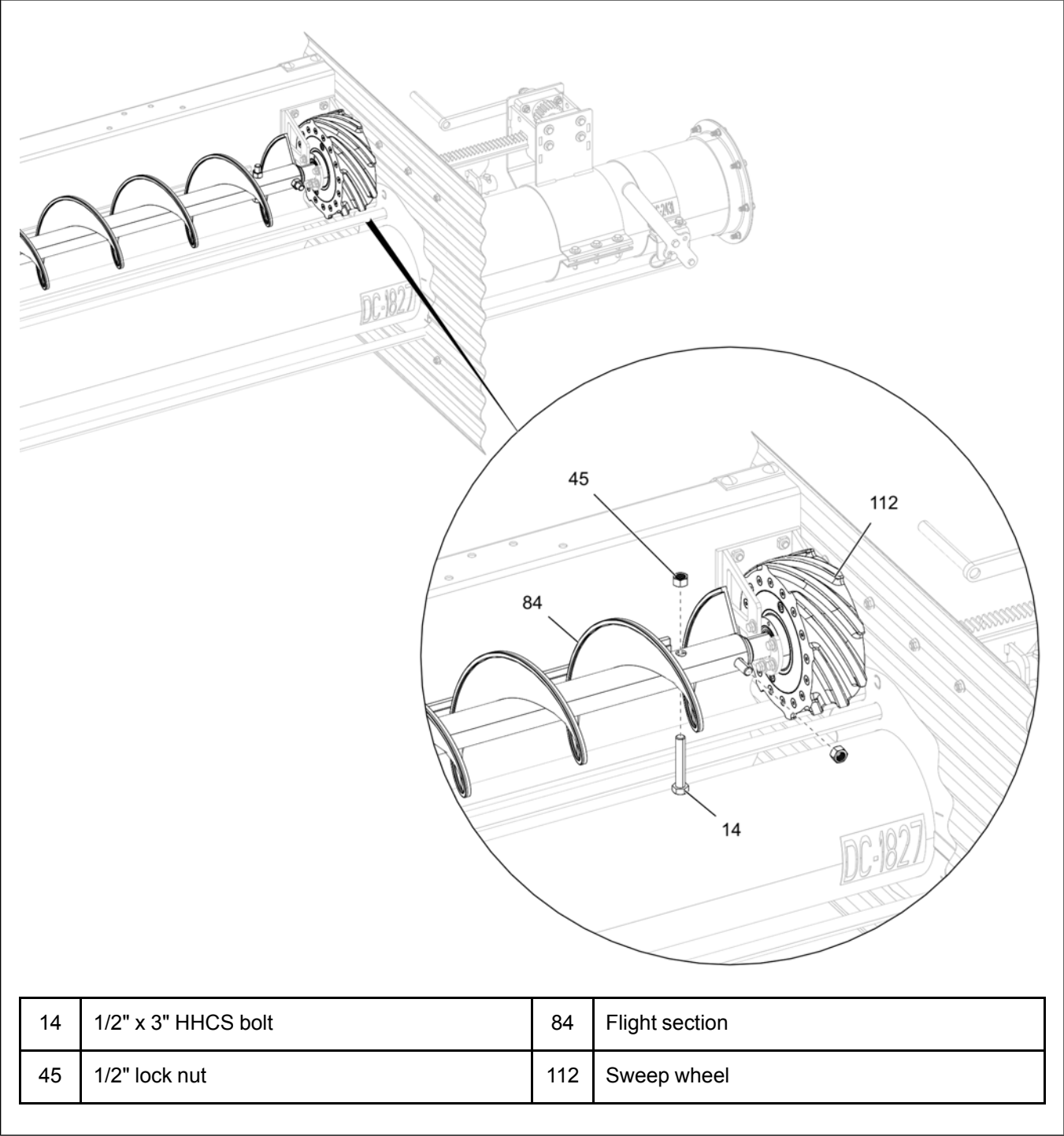
- 2. Slide the sweep wheel (112) shaft into the auger. Attach the wheel mount (113) to the backshield (85) using four 3/8" x 3/4" flange bolts (6).

Figure 3-32 Attaching the wheel mount to backshield



3. Attach the sweep wheel (112) to the flight (84) with two 1/2" x 3" HHCS bolts (14) and 1/2" lock nuts (45).

Figure 3-33 Installing the wheel to auger



Adjusting the Wiper

What You Should Know

The wiper should be adjusted based on the highest point of the floor so that the sweep can run around the bin with proper clearance. Otherwise the sweep will not work as intended.

- 1. Loosen the 5/16" flange bolts (8) in the backshield assembly (97) to adjust the wiper (94) position.
- 2. Adjust the wiper (94) UP/DOWN depending on the highest point of the floor within the slots in the backshield assembly (97). For ideal operation, the wiper should be 1/4"-1/2" off the floor.
- 3. Tighten the wiper (94) in position after adjustment using 5/16" flange bolts (8), 5/16" flat washers (31) and 5/16" nylock nuts (37).

Figure 3-34 Wiper in UP position

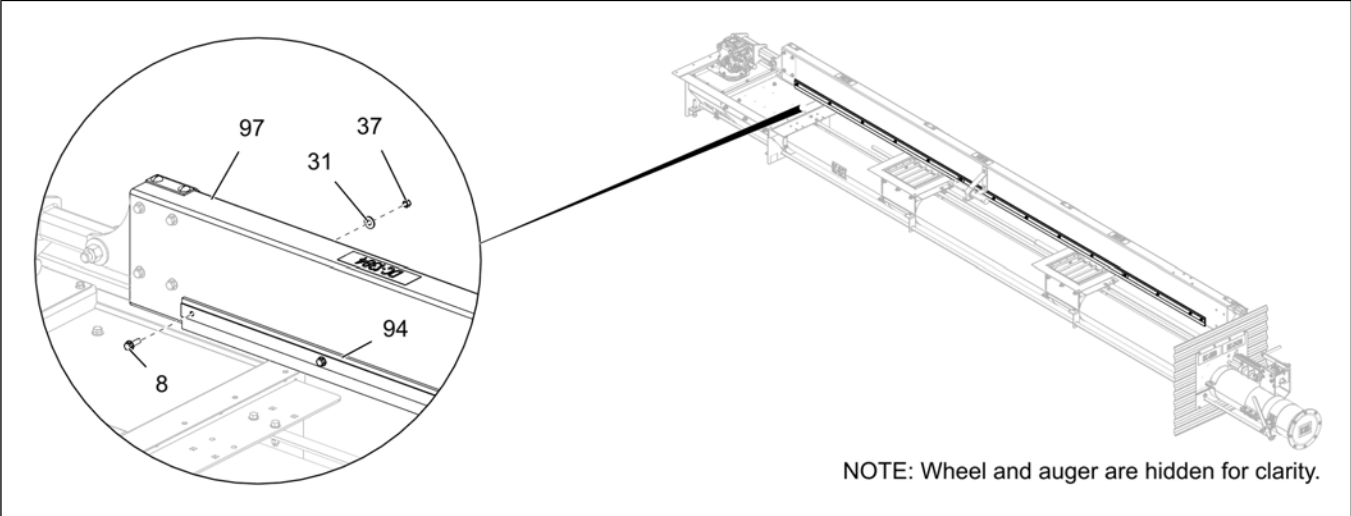
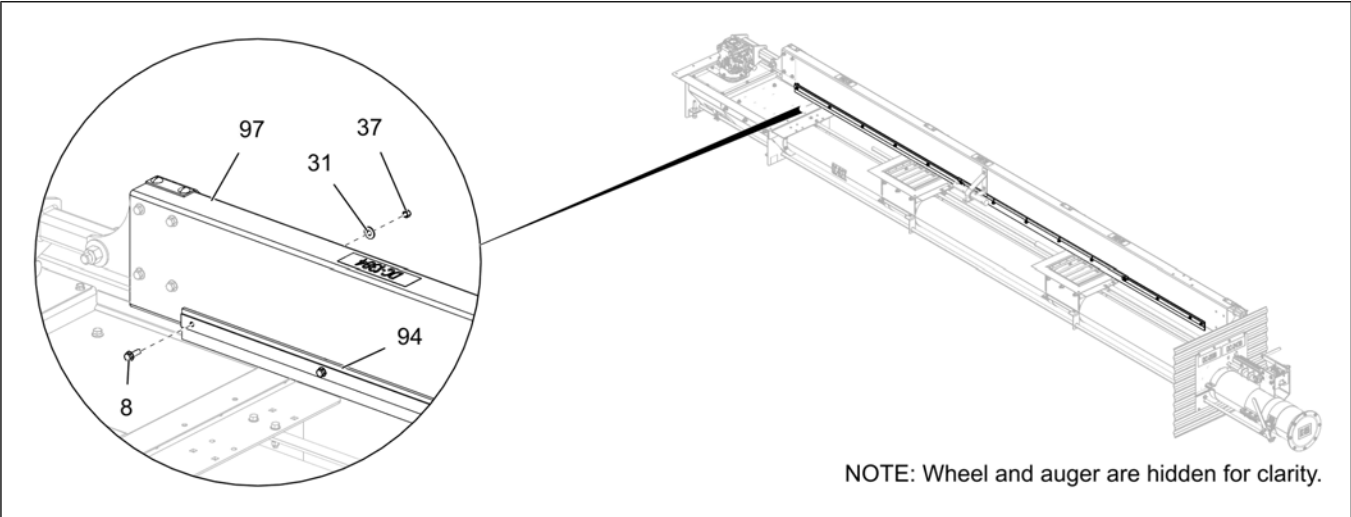


Figure 3-35 Wiper in DOWN position



8	5/16" x 1" flange bolt	94	Backshield wiper
31	5/16" flat washer	97	Backshield assembly
37	5/16" nylock nut		

4 Operation

Topics Covered in this Chapter

- Power Recommendations
- Before Filling the Bin
- Performing Pre–Start Checks
- Operating the Auger
- Engaging the Clutch for Bin Sweep
- Final Clean Out

Power Recommendations

1. The horsepower recommendations are to auger dry free flowing 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. Use the electric motor of the correct size that operates at 1750 RPM. DO NOT use a motor size that is greater than what is shown for the largest bin size in the column.
2. Consideration should be given to the proper size auger for a batch drying or any intermittent type operations. When augers are stopped and restarted under full load, it may result in damage to the auger. Using a larger diameter auger and reducing its load level will be far better than subjecting a smaller diameter auger to big loads. If an auger is kept from absolute filling, it will make start-up easier and will convey more efficiently.

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

Bin Dia (Ft.)	Horizontal Head		25° Head		Single Drive Ver- tical Power Head		Double Drive Vertical HP Requirements			
	Std HP		Std HP		Std HP		Std HP (Horizontal)		Std HP (Vertical)	
	8 in.	10 in.	8 in.	10 in.	8 in.	10 in.	8 in.	10 in.	8 in.	10 in.
15	3	-	5	-	15	-	3	-	7-1/2	-
18	3	-	5	-	15	-	3	-	7-1/2	-
21	5	-	7-1/2	-	15	-	5	-	7-1/2	-
24	5	7-1/2	7-1/2	10	15	NA	5	7-1/2	7-1/2	10
27	5	7-1/2	7-1/2	10	15	NA	5	7-1/2	7-1/2	10
30	5	7-1/2	7-1/2	10	15	NA	5	7-1/2	7-1/2	10



Electric motors and controls must be installed by a qualified electrician and must meet the standards set by the National Electrical Code and all local and state codes.

A main power disconnect switch capable of being locked only in the OFF position shall be provided. This shall be locked whenever work is being done on the auger.



A magnetic starter should be used to protect the motor when starting and stopping. It should stop the motor in case of power interruption, conductor fault, low voltage, circuit interruption or motor overload. Then the motor must be restarted manually.

Some motors have built-in thermal overload protection. If this type motor is used, use only those with a manual reset.

The motor starting controls must be located outside the bin. Locate the motor starting controls outside the bin but near the bin door so the operator has full view of the operation inside the bin.

Disconnect power before resetting motor overloads.

Reset and motor starting controls must be located so that the operator has full view of the entire operation.

Make certain electric motors are grounded.

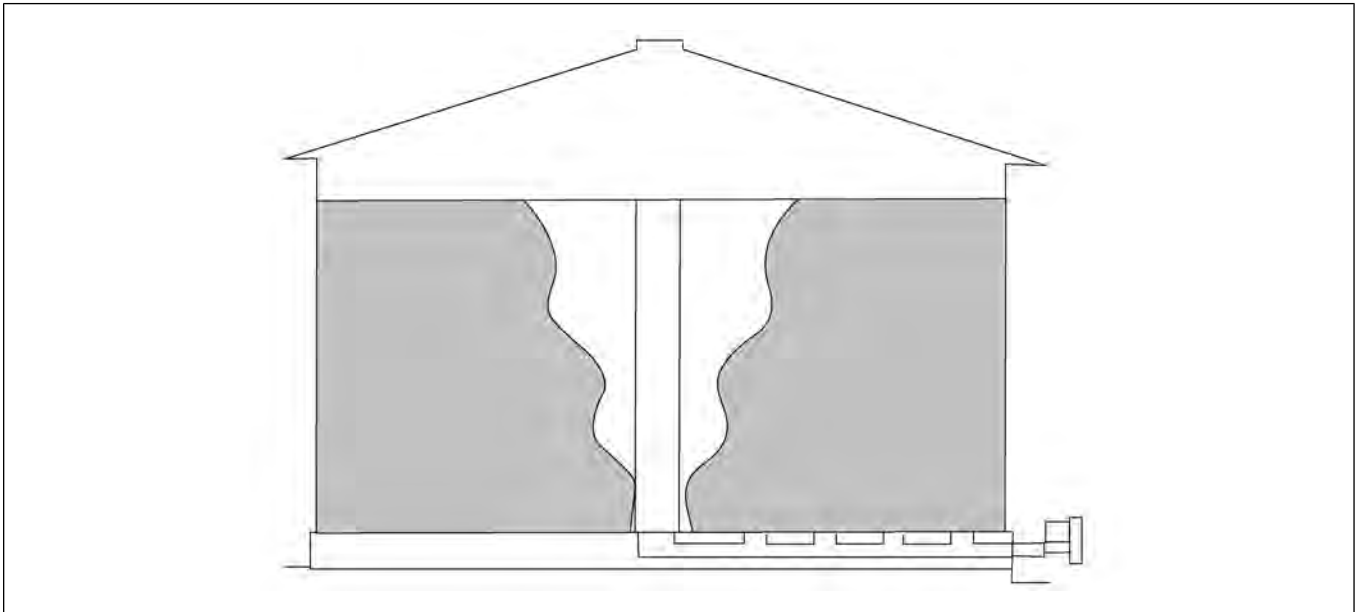
Shut OFF power to adjust, service or clean.

Before Filling the Bin

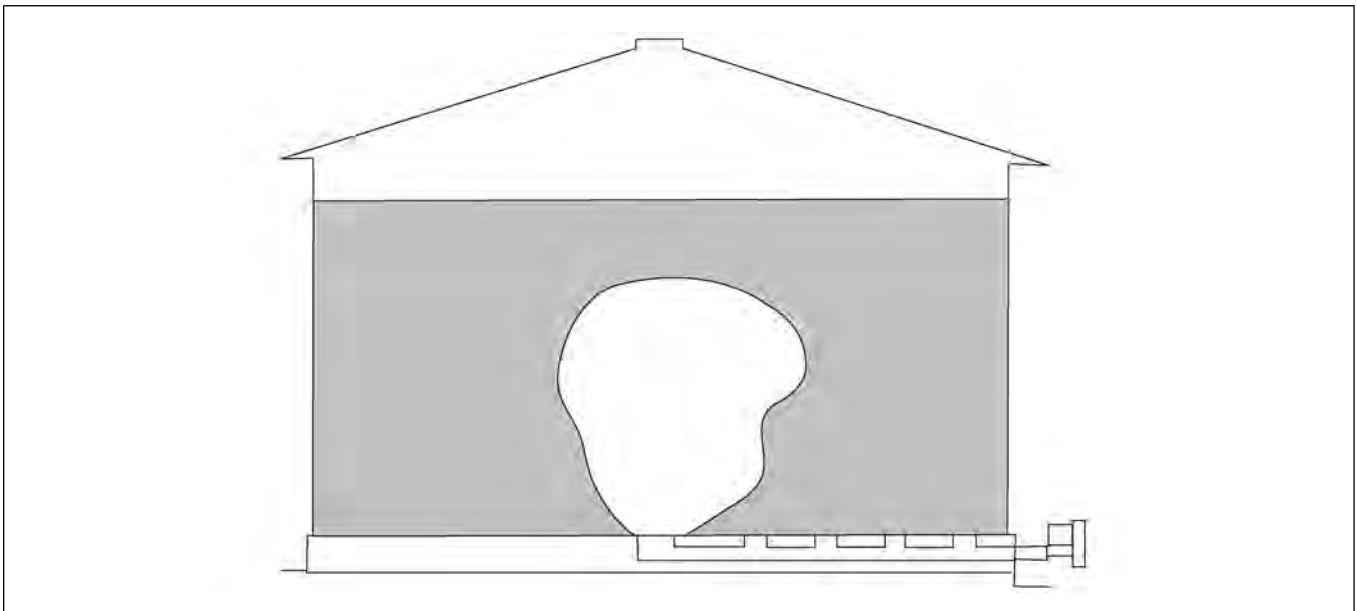
1. Read the instructional decal located on the upper bin flange to learn how to control the direct gear drive power sweep well gates.
2. Close the center well and the intermediate well gates.
3. Position the sweep auger alongside of the intermediate wells.
4. Make sure the clutch is disengaged and locked out with pin.



1. DO NOT enter the grain bin unless all power driven equipment has been shut down and locked out. Never enter the grain bin unless monitored by another person.
2. DO NOT enter the bin if the grain has bridged or has flowed abnormally out of the bin as shown. Suffocation can occur if grain suddenly breaks loose, burying persons who are inside the bin.

Figure 4-1 *Abnormal grain flow*

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

Figure 4-2 *Bridged grain flow*

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

Performing Pre–Start Checks



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

1. Make sure ALL belts are tensioned properly.
2. Make sure ALL shields are in place and that the belt(s) and pulley(s) are able to move freely.



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

3. Inspect the drive unit for any problems or potential problems.
4. Be aware of any emergency shut down procedures. Two people must always be in a position where the operation of the equipment can be monitored.
5. Before starting the auger for the first time, make sure that all parts are assembled correctly according to the instructions in this manual.



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

Operating the Auger



DO NOT start/stop the auger while it is under load, this may cause the auger to “jam”.



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

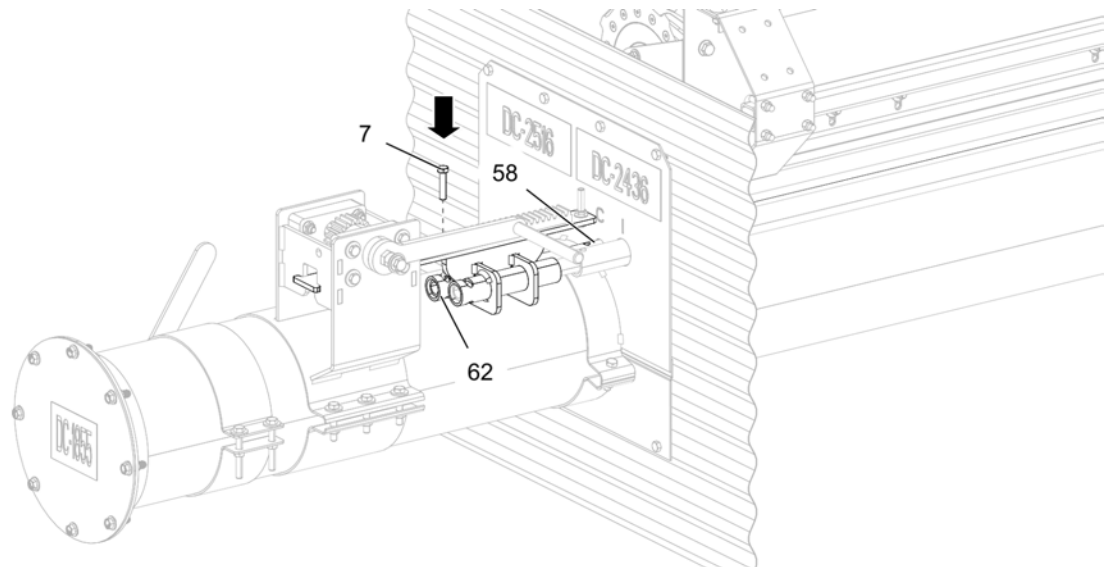


Be aware of any unusual vibration or noises during the initial start-up and “break-in” period. If anything unusual is detected, immediately shut down the auger and disconnect and lock out the power supply before servicing. Visually inspect the auger periodically during operation.

1. Start the unloading auger. The motor is located on the power head outside the bin on the unload tube. To figure out the horsepower needed for the equipment, use the horsepower chart.
2. Insert the 5/16" x 1-1/2" HHCS bolt (7) through the rack and pinion (62) tube and center well control rod (58). Also, make sure the 5/16" x 1-1/2" HHCS bolt (7) through the rack and pinion (62) tube and intermediate well control rod **is not** inserted.

NOTE: Refer to the decal (DC-2516) on the unload tube for operating assistance.

Figure 4-3 Opening the center well gate



7	5/16" x 1-1/2" HHCS bolt	62	Rack and pinion assembly
58	Center well control rod		

3. Using the handle on rack and pinion, open center gate (indicated with “C”) until desired flow is established. It should not be necessary to open gate more than 3" to 6" . Do not open the gate more than 3" to 6" as the flow of grain 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.

NOTE: Always close the well gates and allow the unload tube to clean out before stopping the unload auger.

4. If the center well is jammed or if unable to open the center well gate, open the auxiliary well gate by inserting the 5/16" x 1-1/2" HHCS bolt (7) through the rack and pinion (62) tube and auxiliary well control rod (59). Open slowly while monitoring the grain flow to prevent plugging of the auger.

NOTE: Make sure to remove the 5/16" x 1-3/8" safety pin, that couples the auxiliary well control rod with the intermediate well control rod (only the smaller diameter control rod should be opened by the operator). The grain flow should look like as shown in [Figure 4-5, page 44](#).

Figure 4-4 Opening the auxiliary well gate

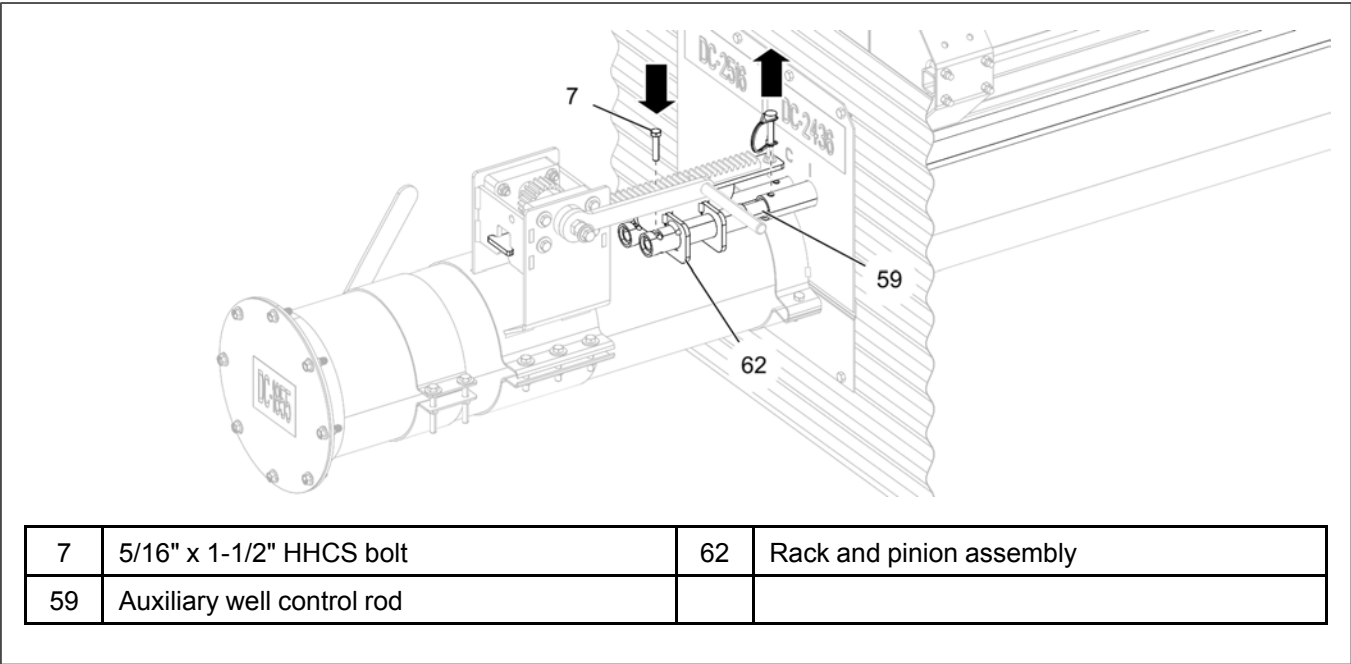
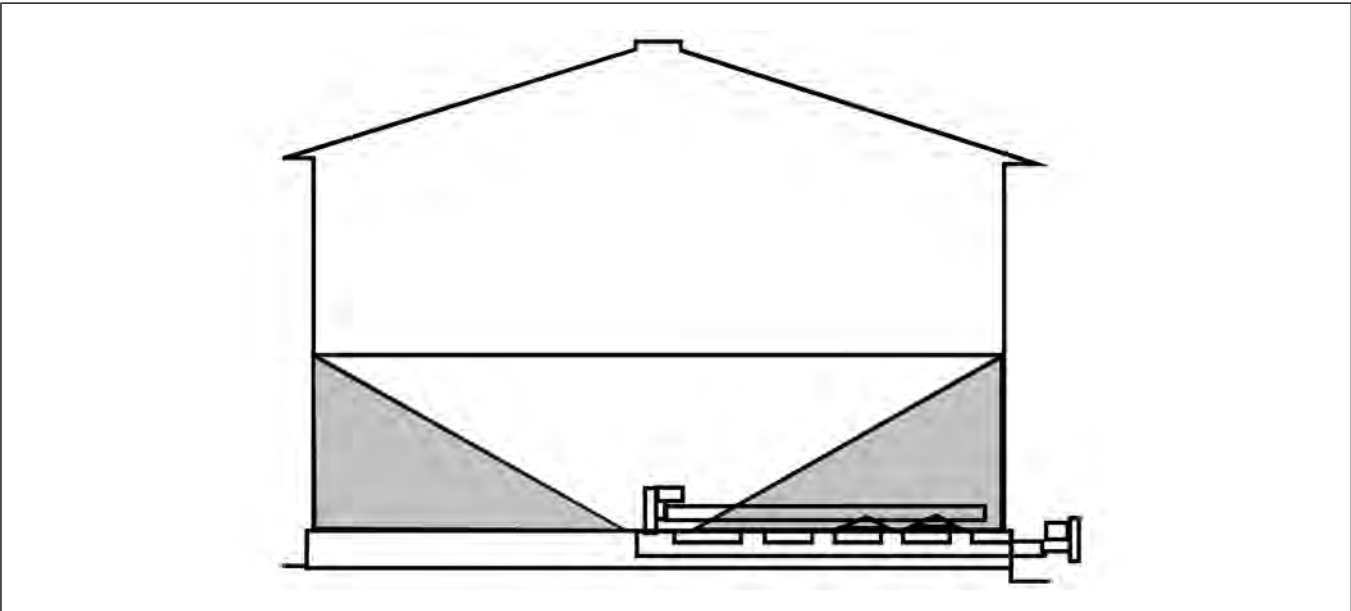


Figure 4-5 Grain flow from the center well gate

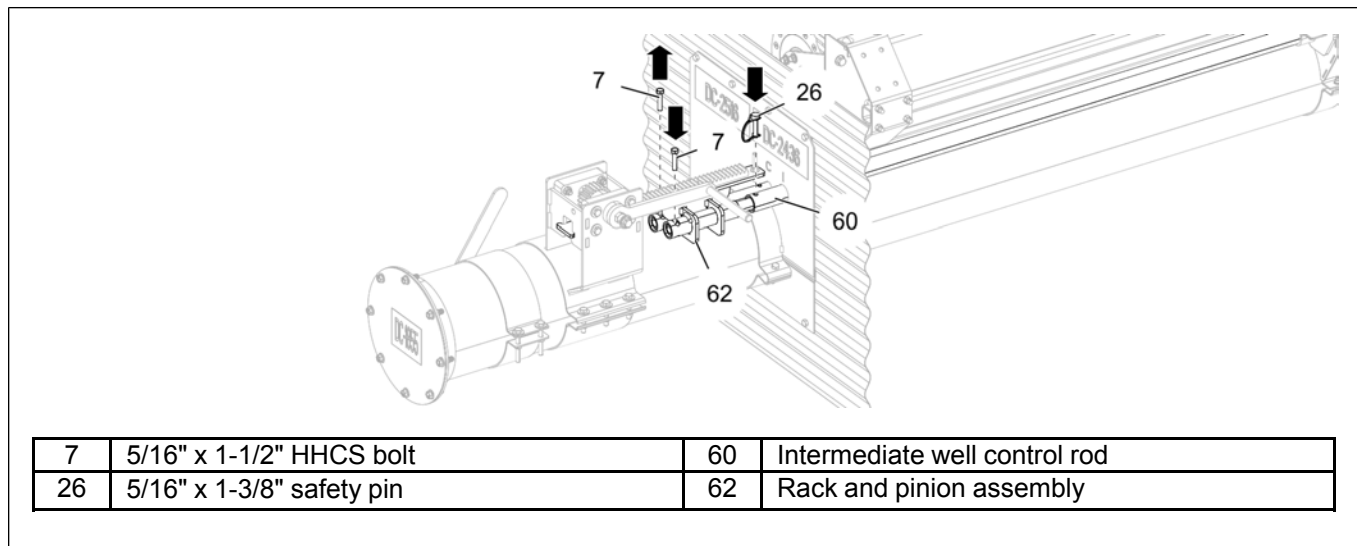


5. When grain flow stops from the center well, close the center well gate and remove the 5/16" x 1-1/2" HHCS bolt (7), coupling the rack and pinion (62) tube with the center well control rod.
6. Insert the 5/16" x 1-3/8" safety pin (26) through the intermediate well control rod (60) (indicated with "I") and auxiliary well control rod. Also, make sure the 5/16" x 1-1/2" HHCS bolt (7) is inserted through the rack and pinion (62) tube and auxiliary well control rod.



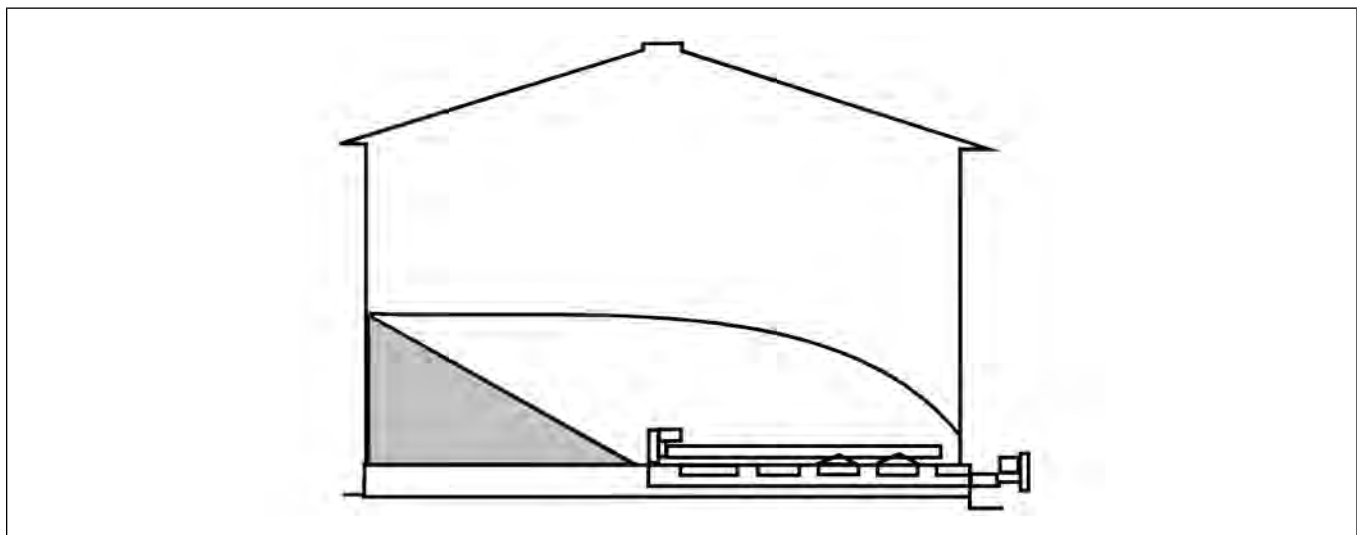
When pinned correctly, all intermediate well gates will open together. Do not open the intermediate well gates completely, as this will cause the auger to plug.

Figure 4-6 Intermediate well control rod



7. Gradually open the gates until the desired flow of grain is reached. Do not open the gate more than 2" to 4". The remaining grain flow should look like as shown below.

Figure 4-7 Grain flow from the intermediate gates



Unload until grain stops flowing from the intermediate wells. At this point, close all the wells.

Engaging the Clutch for Bin Sweep

- 1. All power should be OFF and locked out before starting.
- 2. Close the intermediate wells, if not already done.
- 3. Remove the pin (26) from the clutch handle (77).
- 4. Pull the clutch handle (77) away from the bin to engage the gearbox clutch.
- 5. Replace the pin (26) to lock the clutch handle (77) in the engaged position.

Figure 4-8 Engaging the clutch

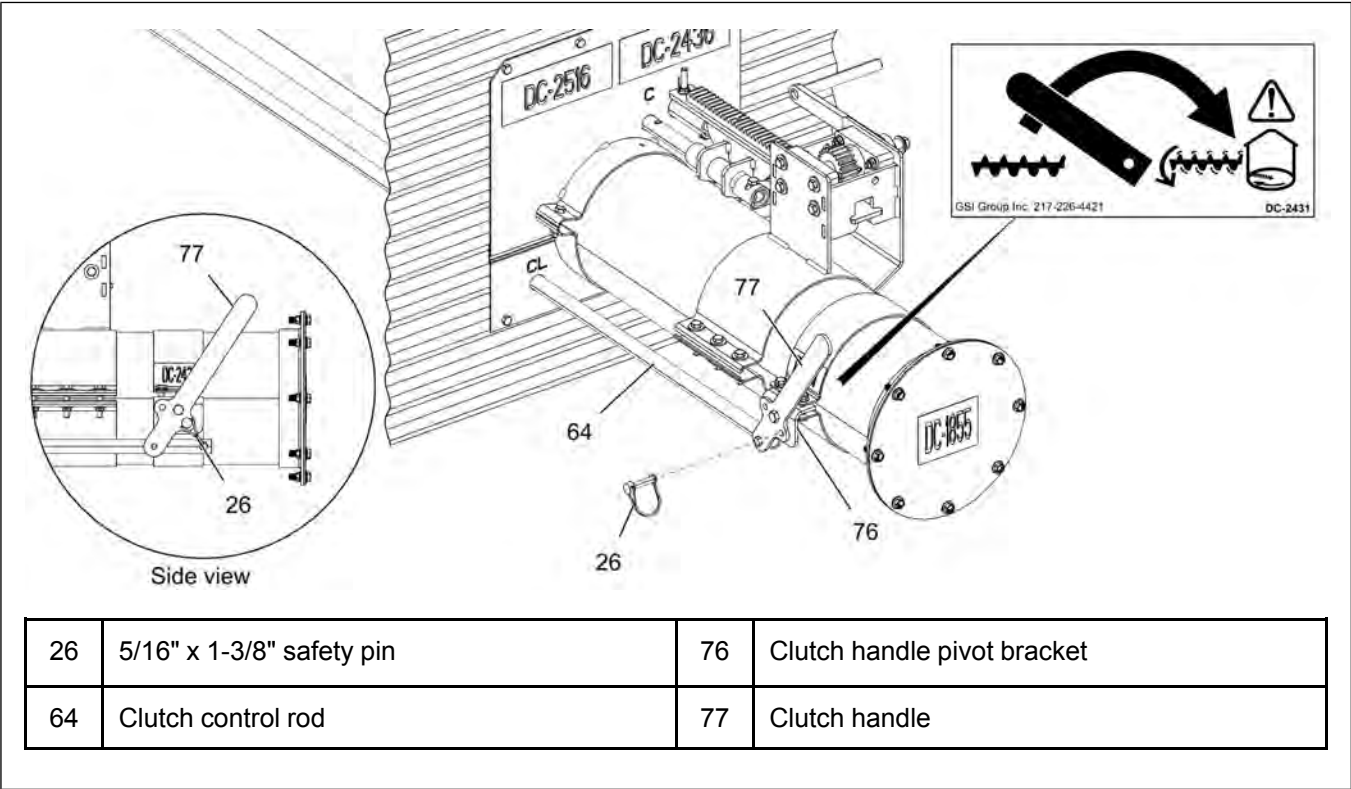
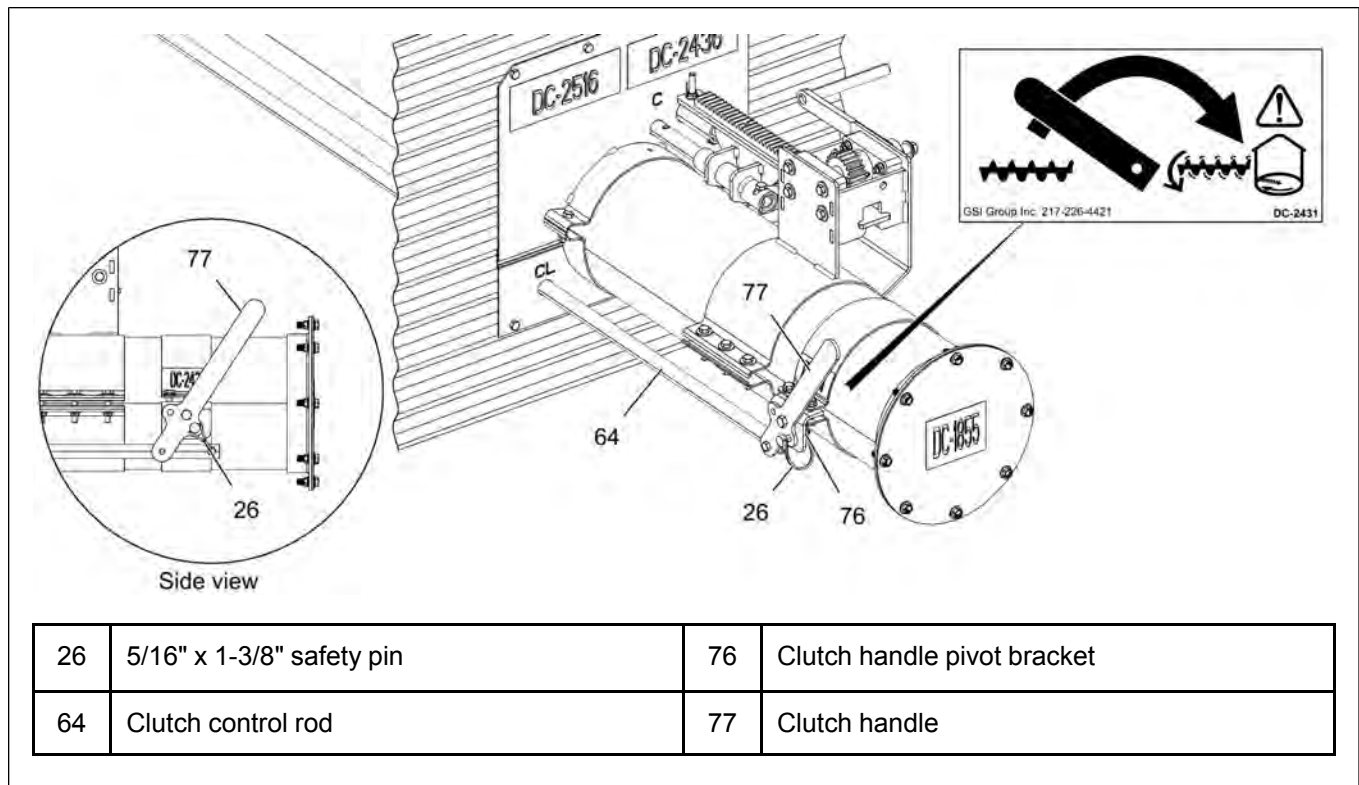


Table 4-1 Sweep operating instructions

Letter	How to operate	Sweep operating instructions
C: Center well control	To open, rotate handle clockwise so rod pulls out of bin.	IMPORTANT: Before filling bin, close center and intermediate well gates. Position sweep auger over intermediate wells. a. Verify power sweep clutch control (CL) is DISENGAGED and locking pin is inserted securely in intermediate (I) control rod. b. Begin by starting unload auger, then open center well gate (C). c. If grain stops flowing from center well prior to completion, remove the locking pin in the intermediate control rod (I) and open the auxiliary intermediate well. d. When grain stops flowing, close center well (C) and auxiliary, if applicable, (making sure to re-insert locking pin into intermediate rod), and then partially open intermediate wells (I). Monitor grain flow and gradually open the intermediates until grain is sufficiently filling unload tube. (Opening intermediate wells too quickly could result in plugging the auger). e. When grain stops flowing from intermediate wells, close all intermediate well gates (I), and stop the unload auger. f. Engage power sweep (CL) and open center well gate (C). Start unloading auger again.
I: Intermediate well control	When locking pin is inserted, all intermediate well gates will open together. To open, rotate handle so rods pull out of bin. Remove locking pin and rotate handle to open auxiliary intermediate well only.	
CL: Power sweep clutch control	Pull handle away from bin to engage power sweep.	

- Assemble the pin (26) through the clutch handle (77) and pivot bracket (76). If they do not align, start the motor and pull the handle until the holes align and insert pin (26).

Figure 4-9 Locking the clutch handle



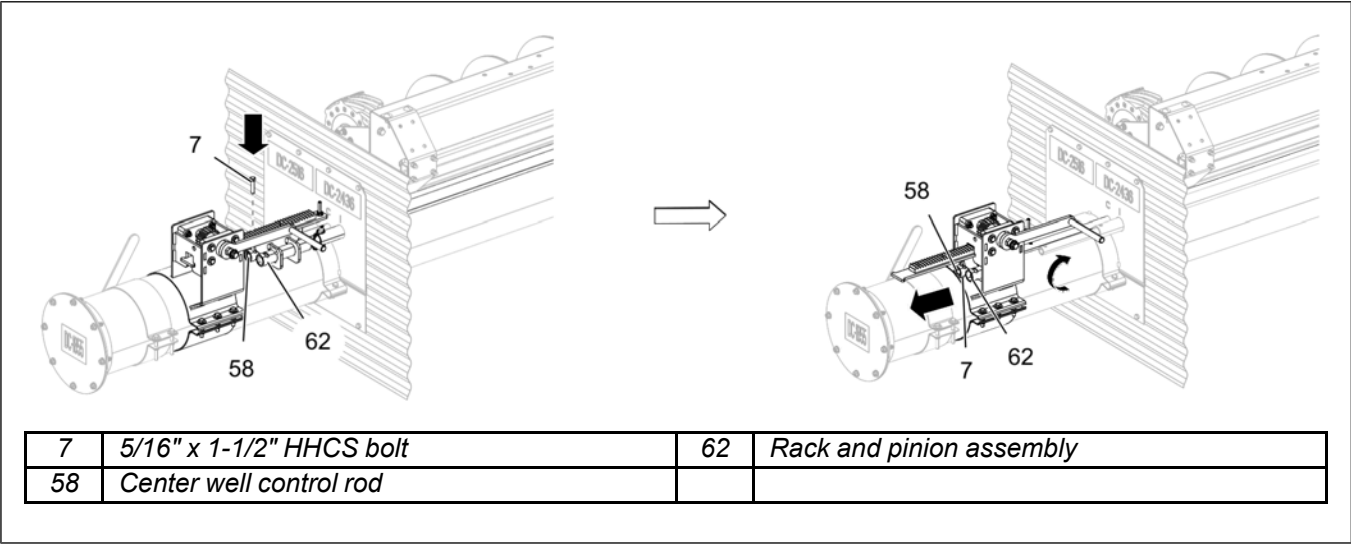


The center well gate must be FULLY open during the bin sweep operation.

NOTE: Follow the instructions below to fully open the center well gate:

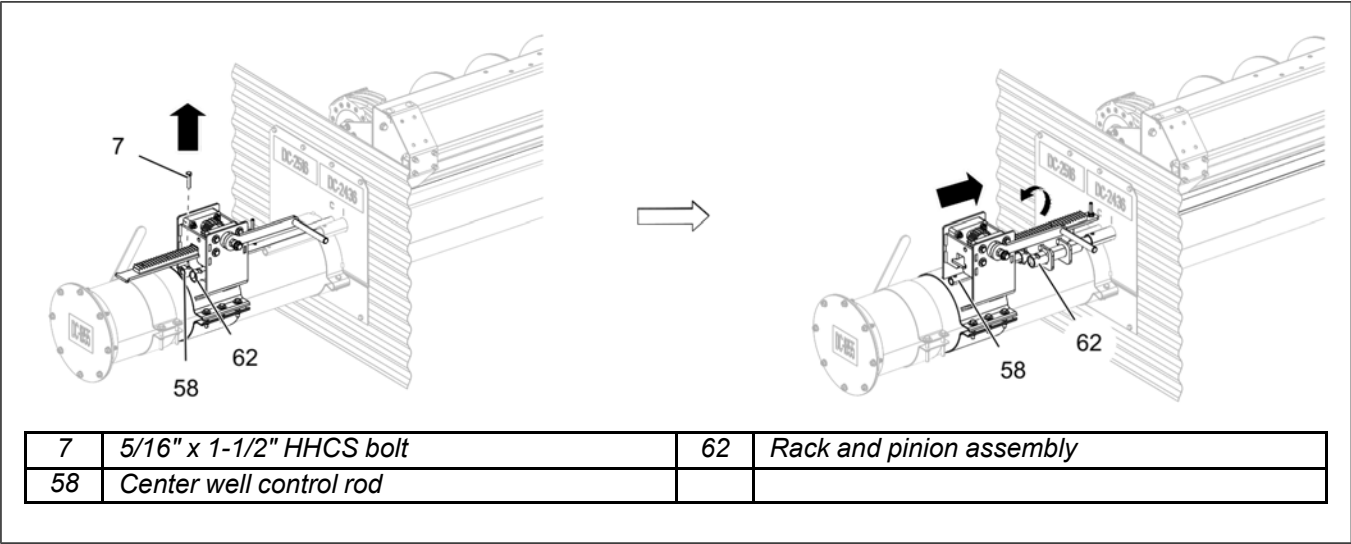
Insert the 5/16" x 1-1/2" HHCS bolt (7) through the rack and pinion (62) tube and center well control rod (58). Rotate the rack and pinion handle clockwise to open the center well gate. The center well control rod (58) extends past the rack and pinion assembly (62) as shown below.

Figure 4-10 Partially opening the center well gate



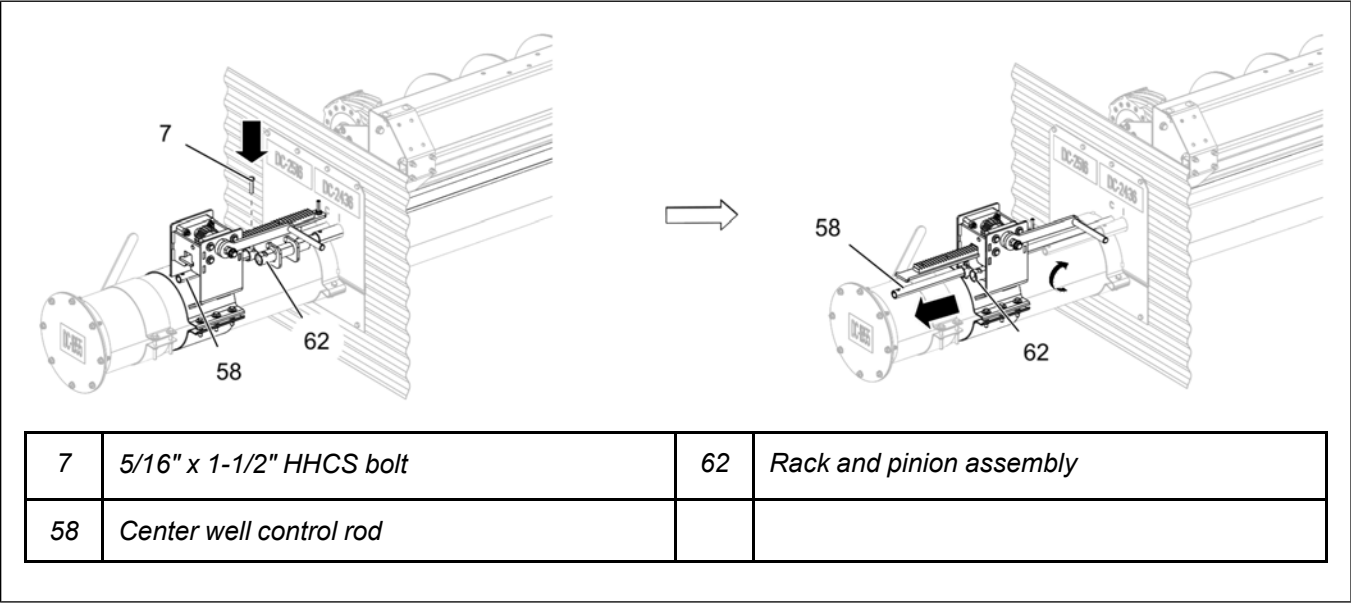
Remove the 5/16" x 1-1/2" HHCS bolt (7) from the center well control rod (58). Rotate the rack and pinion handle counter-clockwise so that the rack and pinion assembly (62) moves back to the original position without moving the control rod.

Figure 4-11 Returning the rack and pinion to original position



Align the rack and pinion assembly (62) with the second hole in the center well control rod (58) and insert the 5/16" x 1-1/2" HHCS bolt (7). Rotate the rack and pinion handle clockwise to fully open the center well gate.

Figure 4-12 Fully opening the center well gate



7. Restore power and start the power sweep motor. The sweep auger will start along with the unload auger. The sweep auger will remain on the floor and clear most of the grain in one pass. A second pass will clean out additional grain, before final clean out.

Final Clean Out

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


DANGER

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


DANGER

Stay clear of the under floor unloader at the bin wells. The under floor unloader is exposed at these locations in the bin floor.


DANGER

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

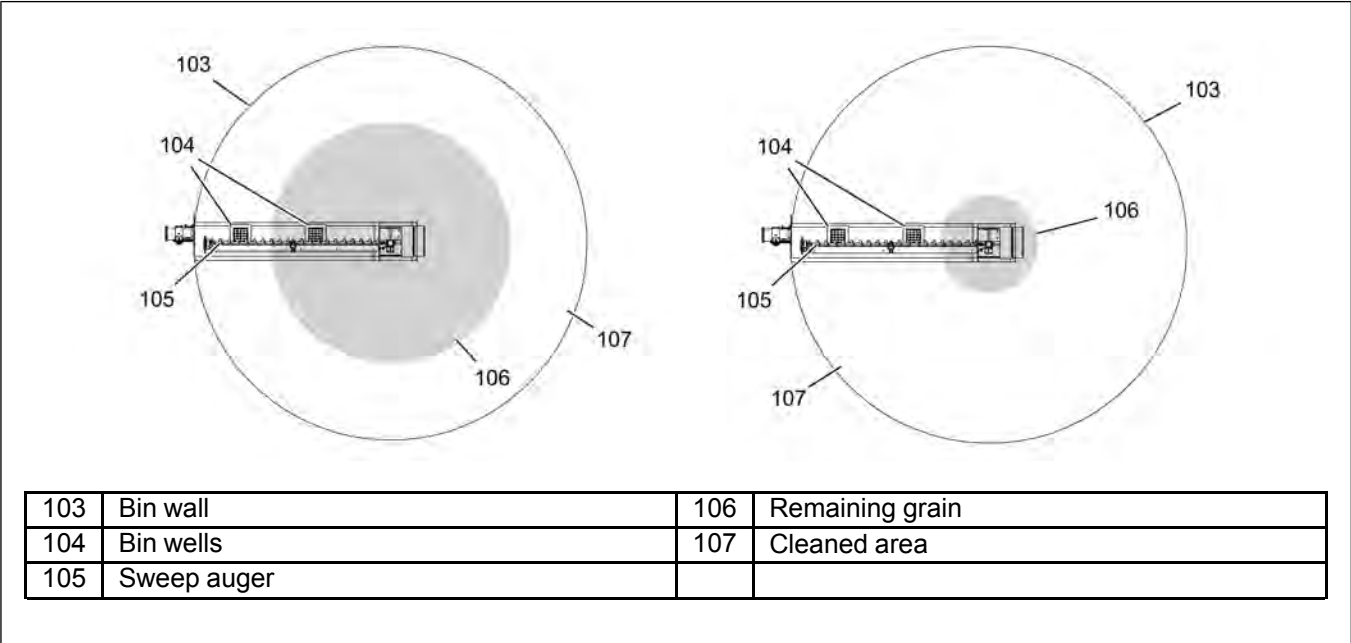
- 1. Clean (scoop and sweep by hand) the outer area of the floor into a circular pile towards the center of the bin.
- 2. Get out of the bin.
- 3. After making sure everyone is outside of the bin and clear of the equipment, start the under floor unloader and the sweep auger. In a short time, the circular pile towards the center of the bin will have been removed.


DANGER

Stay clear of the under floor unloader at the bin wells. The under floor unloader is exposed at these locations in the bin floor.

- 4. Scoop and sweep remaining floor area to the center of the bin by hand.
- 5. Get out of the bin.
- 6. Repeat the above steps (step-3 to step-6) until all grain has been removed from the bin.

Figure 4-13 Cleaning the floor



5 Shut Down

Topics Covered in this Chapter

- Normal Shut Down
- Emergency Shut Down
- Storage Preparation

Normal Shut Down

1. Before shutting down the unit, be sure the augers are empty.
2. Disconnect and lock out the power source before leaving the work area.

Emergency Shut Down

1. Know how to shut down the auger in case of an emergency.
2. Do not restart the auger while it is under load.



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

3. Close the bin well control gates.
4. Reconnect and unlock the power source.
5. Clear the auger gradually, until there is no grain and there are no obstructions.

Storage Preparation

1. Read the instructional decal located on the upper bin flange to learn how to control the power sweep well gates.
2. Close the center well and the intermediate well gates.
3. Position the sweep auger alongside of the intermediate wells.
4. Be sure the unload tube is empty.
5. Shut down the auger.
6. Make sure all fasteners are tight.



DO NOT enter the grain bin unless all power driven equipment has been shut down.

NOTES

6 Maintenance and Troubleshooting

Topics Covered in this Chapter

- Maintaining the Auger
- Troubleshooting

Maintaining the Auger

IMPORTANT: *For locations that will be operating the sweep in temperatures colder than -5° Fahrenheit, the grease in both gearboxes should be removed and replaced with 80W90 gear oil (40 fluid oz. each).*



Properly maintaining this equipment will help to ensure it continues to work properly. Failure to properly maintain this equipment may result in damage to the equipment or may cause *SERIOUS INJURY* or *DEATH* to the operator.

Failure to properly maintain this equipment may also be a misuse of the equipment. Any misuse of the equipment may void the warranty.

1. The U-joint must be lubricated with SAE multipurpose grease every 10 operational hours or after each use.
2. The upper and lower gearboxes are grease filled and do not need operational maintenance. If repairing the gearboxes, it is recommended to fill them each with 40 fluid oz. of Mobilux EP 023 grease. If this grease is not used, 40 fluid oz. of SAE 80W90 gear oil is suggested.
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, warehouse or the manufacturer.
5. Mount controls for any electric motors at a safe distance from the machine and in a location accessible in case of an emergency.
6. Make sure ALL electrical wiring is not damaged and that it meets proper wiring codes.
7. Make sure ALL components are in good working condition before use.

Troubleshooting

Problem	Possible Cause	Solution
The auger is vibrating.	The drive belt may be too tight, binding the head stub and flight. Damage can occur to the auger flighting, causing noise. Damage usually is caused from foreign material being run through the auger.	Adjust the drive belt to the proper tightness.
		It may be necessary to remove the flighting for inspection.
Capacity is too low.	There may not be enough grain reaching the auger.	Make sure the intake has not bridged over, restricting flow. The flighting at the intake should be covered with grain for maximum capacity.
	The auger is moving too slowly.	Check the auger speed. Low capacity will result from speeds slower than recommended.
The auger plugs.	The auger may be “jamming” because too much grain is reaching the auger.	Decrease the amount of grain the auger is gathering.
	The motor may be too small or wired improperly.	If the motor is a newer light weight aluminum type, the next larger size may be desirable.
	The grain may be wet.	If wet grain or other hard-to-move material is being augered, use a larger size motor than recommended for normal use.
	The auger may be jammed with foreign material.	Remove any foreign material in the auger.
	The discharge end may be plugged.	Unplug any plugs at the discharge end of the auger.
The sweep flight and shield are no longer moving.	Too much drag.	Check the clearance between the shield and the bin floor. Make sure there is room for the auger to move. Adjusting the shield may be necessary.
	Worn sweep wheel.	The sweep wheel wears down over time. Replace the wheel.
	Unconditioned grain.	Moisture and/or insects can cause the grain to harden or “Cake-up”. Disconnect and lock out the power to the auger before going into the bin to correct this problem or to address any other problem.
	Clutch disengaged.	Pull the clutch hand to engage and use pin to lock it in place.

7 Parts List

Topics Covered in this Chapter

- Center Well
- Intermediate Well
- Auxiliary Intermediate Well
- Rack and Pinion
- Sweep Wheel
- Bin Flange
- Unload Tube Flight
- Clutch Control
- Backshield with One Auger for Standard Sweeps (15' and 18' Bins)
- Backshield with Two Augers for Standard Sweeps (21'-30' Bins)
- Backshield Connections

Center Well

Figure 7-1 Center well parts

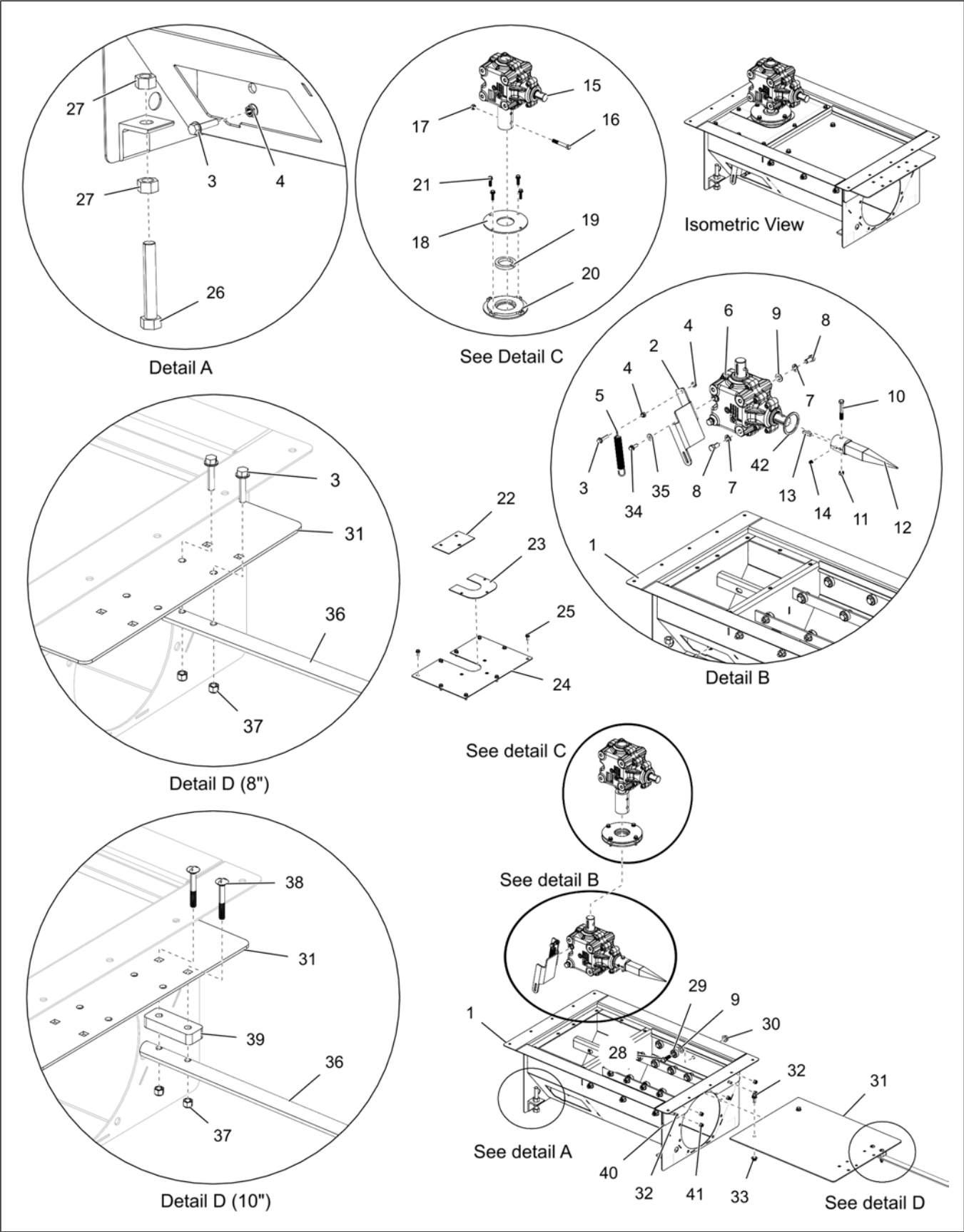


Table 7-1 Center well parts list

Ref #	Part #	Description	Ref #	Part #	Description
1	GC21200-Y	Center Well with UHMW Weldment Painted Ochre - 8"	21	S-8135	Bolt, Flange 5/16"-18 x 1-1/4" ZN Grade 5
	GC21157-Y	Center Well with UHMW Weldment Painted Ochre - 10"	22	GK80366	Center Well Back Cover Weldment
2	GK80368	8" Center Well Linkage Plate	23	GK80542	Center Well Front Cover
	GK80541	10" Center Well Linkage Plate	24	GK80365	Center Well Front Cover Weldment
3	S-10185	Bolt, Flange 5/16"-18 x 1-1/2" ZN Grade 5	25	S-6606	Bolt, Flange 5/16"-18 x 3/4" ZN Clear Grade 5
4	S-3611	Nut, Flange 5/16"-18 YDP Grade 2	26	S-9154	Bolt, HHTB 5/8"-11 x 4" ZN Grade 5
5	GK80655	Spring, Extension 6.5" L x 0.75" D x 0.120" Wire Galvanized	27	S-4110	Nut, Hex 5/8"-11 YDP Grade 5
6	GK80597	Gearbox, Lower Shifting 1.25:1 Ratio	28	S-8760	Bolt, HHTB 1/2"-13 x 1-1/2" ZN Grade 5
7	S-236	Washer, Lock Split, 1/2" REG Zinc Plated	29	MHC01055	Bearing, Radial 1.375 OD, 0.50 ID
8	S-7935	Bolt, HHCS 1/2"-13 x 1" ZN Grade 5	30	S-8506	Nut, Flange 1/2"-13 ZN Grade 5
9	S-2120	Washer, Flat 1/2" SAE ZN	31	GK81333	Center Well with UHMW Gate
10	S-10107	Bolt, HHCS 3/8"-16 x 2-1/2" YDP Grade 8	32	S-9065	Bolt, Flange 3/8"-16 x 1" ZN Grade 5
11	S-8251	Nut, Stover 3/8"-16 ZN Grade C	33	S-968	Nut, Flange 3/8"-16 ZN Grade 5
12	GK80362	Center Well Square Shaft - 8"	34	S-7470	Bolt, Flange 5/16"-18 x 1" ZN Grade 5
	GK80540	Center Well Square Shaft - 10"	35	S-845	Washer, Flat 5/16" USS ZN
13	S-10335	Key, Square, 5/16" x 1-1/4" Long	36	See table below	Center Well Control Rod
14	S-7256	Screw, Set 3/8"-16 x 3/8" SKT HD Knurled Cup Point	37	S-7382	Nut, Nylock 5/16"-18 ZN Grade 5
15	GK80598	Gearbox, Upper 1.35:1 Ratio with Coupler	38	S-10810	Bolt, Carriage 5/16" x 2-1/4" ZN Grade 5
	GK80599	Gearbox, Upper 1:1 Ratio with Coupler	39	GK81553	Center Control Rod Spacer - 10"
16	S-8316	Bolt, HHCS 7/16"-14 x 3" ZN YDP Grade 8	40	GK81511	Center Well UHMW Flange - 8"
17	S-8317	Nut, Stover 7/16"-14 ZN Grade C		GK81337	Center Well UHMW Flange - 10"
18	GC20413-Y	Seal Retainer Flange	41	S-7383	Nut, Nylock 3/8"-16 ZN Clear Grade 5
19	GK80364	Coupler Seal	42	S-4458	Sealant, Caulking 1/8" x 1/4" x 24' Roll
20	GK80363-Y	Seal Retainer Weldment Ochre			

Table 7-2 Center well control rod part numbers

Ref #	Part #		Description
	8"	10"	
36	GK81600	-	Control Pipe Center Well - 15' Bin
	GK81601	-	Control Pipe Center Well - 18' Bin
	GK81602	-	Control Pipe Center Well - 21' Bin
	GK81603		Control Pipe Center Well - 24' Bin
	GK81604		Control Pipe Center Well - 27' Bin
	GK81605		Control Pipe Center Well - 30' Bin

Intermediate Well

Figure 7-2 8" Intermediate well parts

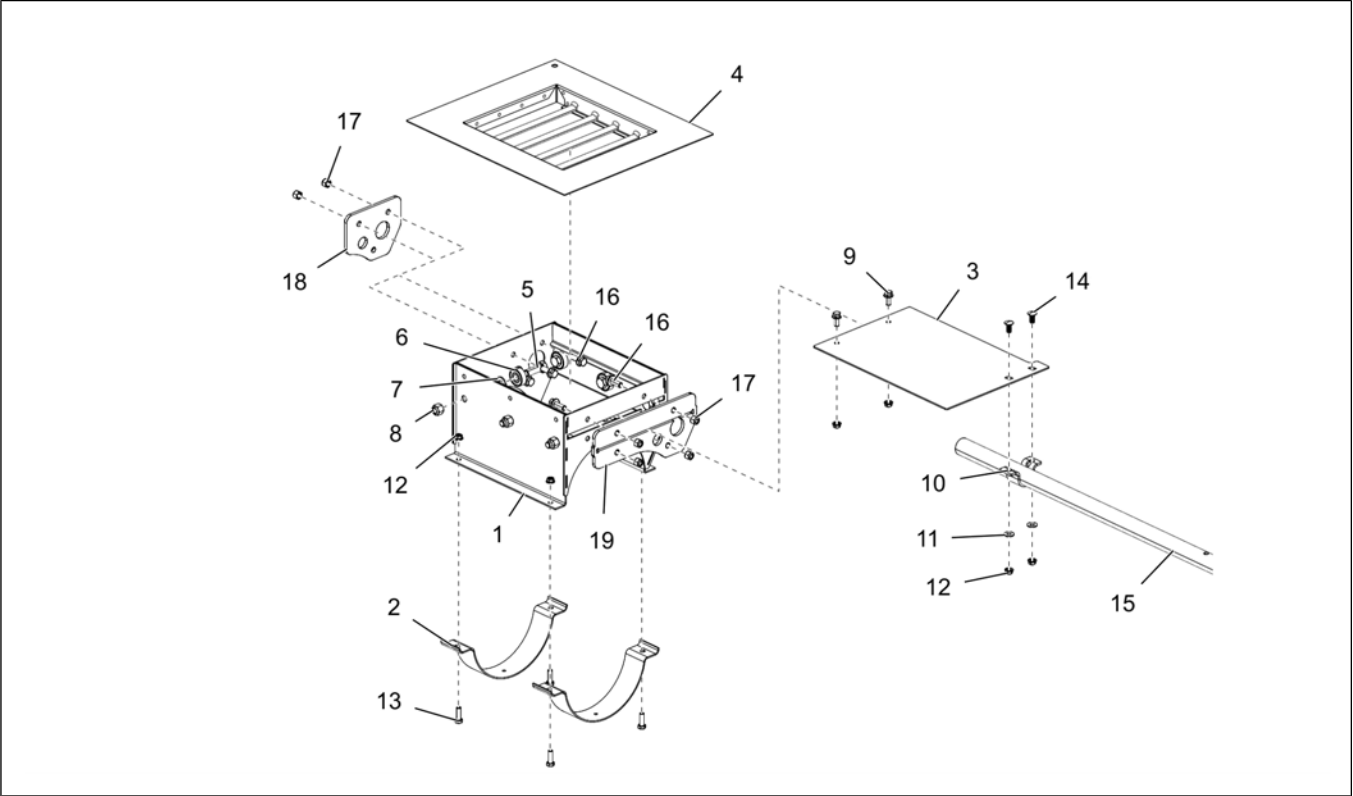


Figure 7-3 10" Intermediate well parts (24' - 30' Bins)

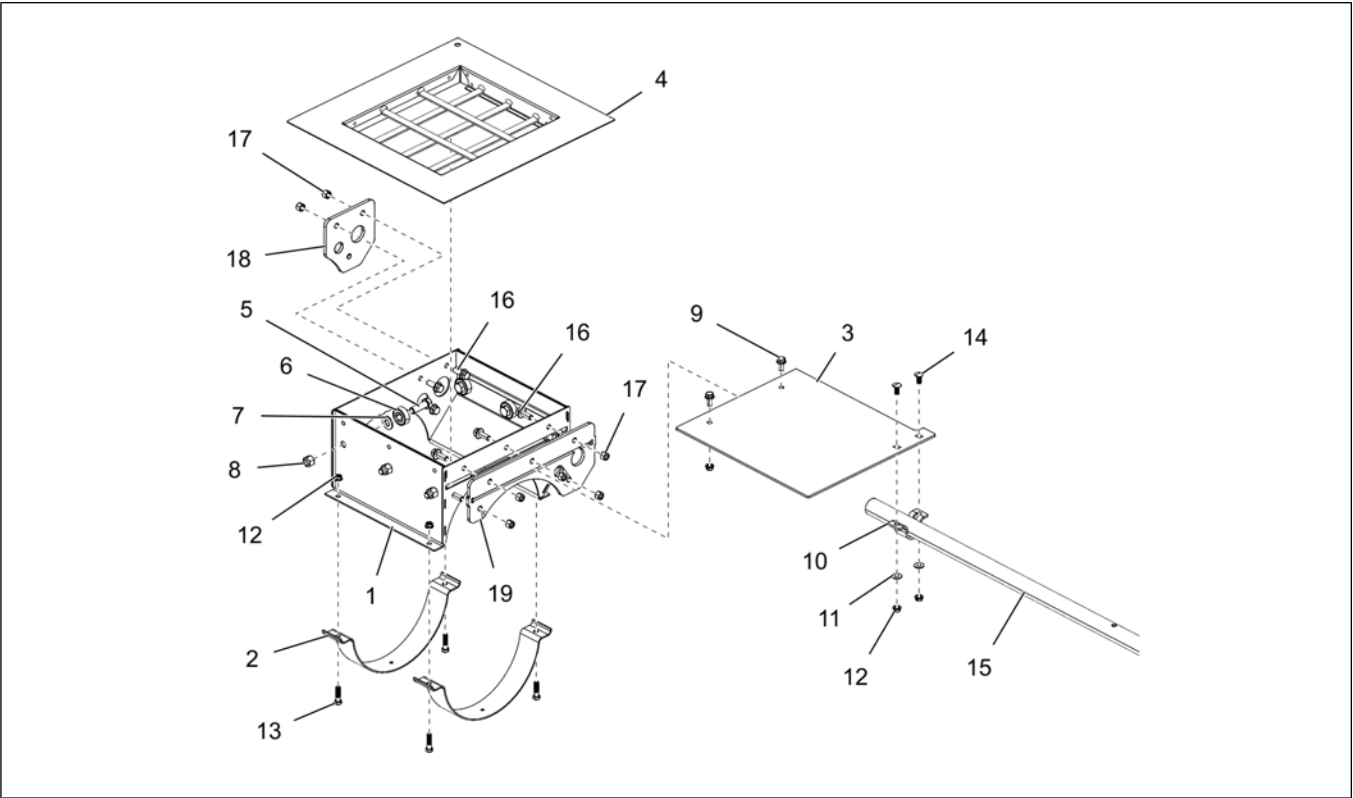


Table 7-3 Intermediate well parts list

Ref #	Part #	Description
1	GC21203-Y	Weldment, 8" Intermediate Well with UHMW
	GC21160-Y	Weldment, 10" Intermediate Well with UHMW
2	GK1055	Band, Half 8" x 2" 12 Gauge Galvanized
	GK1057	Band, Half 10" x 2" 12 Gauge Galvanized
3	GK81515	Intermediate Well Gate - 8"
	GK81344	Intermediate Well Gate - 10"
4	GK81520-Y	Intermediate Well with UHMW Top Flange - 8"
	GK81356-Y	Intermediate Well with UHMW Top Flange - 10"
5	S-8760	Bolt, HHTB 1/2"-13 x 1-1/2" ZN Grade 5
6	MHC01055	Bearing, Radial 1.375 OD, 0.50 ID
7	S-2120	Washer, Flat 1/2" SAE ZN
8	S-8260	Nut, Nylock 1/2"-13 ZN Clear Grade 5
9	S-6606	Bolt, Flange 5/16"-18 x 3/4" ZN Clear Grade 5
10	GC09006	Control Pipe Clamp F/10" Intermediate LP
11	S-1430	Washer, Flat 1/4" ZN Grade 2 USS
12	S-3611	Nut, Flange 5/16"-18 YDP Grade 2
13	S-1196	Bolt, HHCS 5/16"-18 x 1" ZN Grade 5 - 8"
	S-9350	Bolt, HHCS 5/16"-18 x 1-1/4" YDP Grade 8 - 10"
14	S-6076	Control Pipe Clamp F/10" Intermediate LP
15	See table below	Intermediate Well Control Rod
16	S-9065	Bolt, Flange 3/8"-16 x 1" ZN Grade 5
17	S-7383	Nut, Nylock 3/8"-16 ZN Clear Grade 5
18	GK81513	Intermediate Well Back UHMW Flange - 8"
	GK81341	Intermediate Well Back UHMW Flange - 10"
19	GK81512	Intermediate Well Front UHMW Flange - 8"
	GK81340	Intermediate Well Front UHMW Flange - 10"

Table 7-4 Intermediate well control rod part numbers

Ref #	Part #		Description
	8"	10"	
15	GK81596	-	Control Pipe Intermediate Well - 15' Bin
	GK81597	-	Control Pipe Intermediate Well - 18' Bin
	GK81598	-	Control Pipe Intermediate Well - 21' Bin
	GK81358		Control Pipe Intermediate Well - 24' Bin
	GK81358		Control Pipe Intermediate Well - 27' Bin
	GK81359		Control Pipe Intermediate Well - 30' Bin

Auxiliary Intermediate Well

Figure 7-4 8" Auxiliary intermediate well parts (24' - 30' Bins)

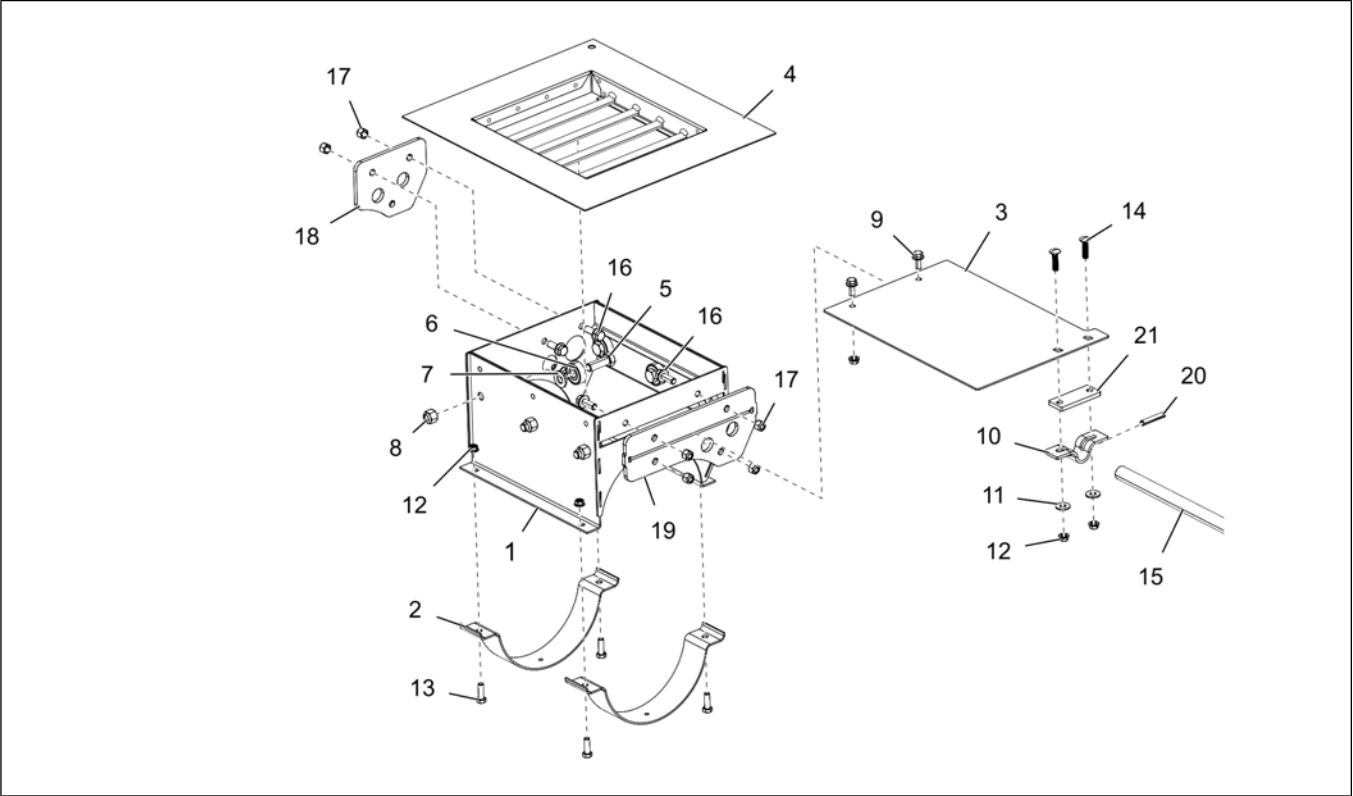


Figure 7-5 10" Auxiliary intermediate well parts (24' - 30' Bins)

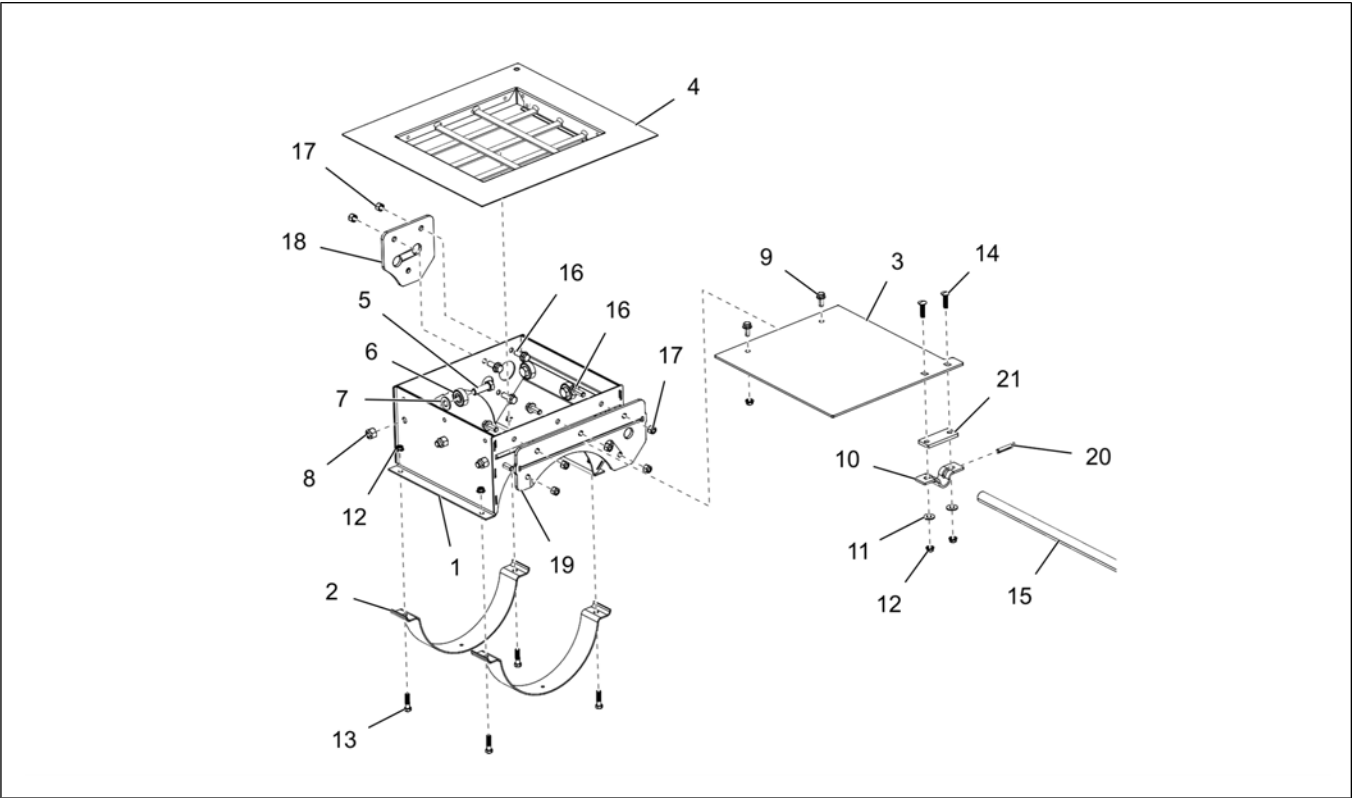


Table 7-5 Auxiliary intermediate well parts list

Ref #	Part #	Description
1	GC21203-Y	Weldment, 8" Intermediate Well with UHMW
	GC21160-Y	Weldment, 10" Intermediate Well with UHMW
2	GK1055	Band, Half 8" x 2" 12 Gauge Galvanized
	GK1057	Band, Half 10" x 2" 12 Gauge Galvanized
3	GK81515	Intermediate Well Gate - 8"
	GK81344	Intermediate Well Gate - 10"
4	GK81520-Y	Intermediate Well with UHMW Top Flange - 8"
	GK81356-Y	Intermediate Well with UHMW Top Flange - 10"
5	S-8760	Bolt, HHTB 1/2"-13 x 1-1/2" ZN Grade 5
6	MHC01055	Bearing, Radial 1.375 OD, 0.50 ID
7	S-2120	Washer, Flat 1/2" SAE ZN
8	S-8260	Nut, Nylock 1/2"-13 ZN Clear Grade 5
9	S-6606	Bolt, Flange 5/16"-18 x 3/4" ZN Clear Grade 5
10	GK1726	Clamp, Control Gate F/SCH 0.40" x 1/2"
11	S-845	Washer, Flat 5/16" USS ZN
12	S-3611	Nut, Flange 5/16"-18 YDP Grade 2
13	S-1196	Bolt, HHCS 5/16"-18 x 1" ZN Grade 5 - 8"
	S-9350	Bolt, HHCS 5/16"-18 x 1-1/4" YDP Grade 8 - 10"
14	S-9088	Bolt, Carriage 5/16"-18 x 1-1/4" ZN Grade 5
15	See table below	Auxiliary Well Control Rod
16	S-9065	Bolt, Flange 3/8"-16 x 1" ZN Grade 5
17	S-7383	Nut, Nylock 3/8"-16 ZN Clear Grade 5
18	GK81513	Intermediate Well Back UHMW Flange - 8"
	GK81349	Intermediate Well Back UHMW Flange - 10"
19	GK81517	Intermediate Well Front UHMW Flange - 8"
	GK81348	Intermediate Well Front UHMW Flange - 10"
20	S-8397	Pin, Spring 5/16" x 1-3/4" Plain Steel Slotted Rolled
21	GK81345	Intermediate Control Rod Spacer

Table 7-6 Auxiliary well control rod part numbers

Ref #	Part #	Description
15	GK81370	Control Pipe Auxiliary Well - 24' Bin
	GK81371	Control Pipe Auxiliary Well - 27' Bin
	GK81372	Control Pipe Auxiliary Well - 30' Bin

Rack and Pinion

Figure 7-6 Rack and pinion parts

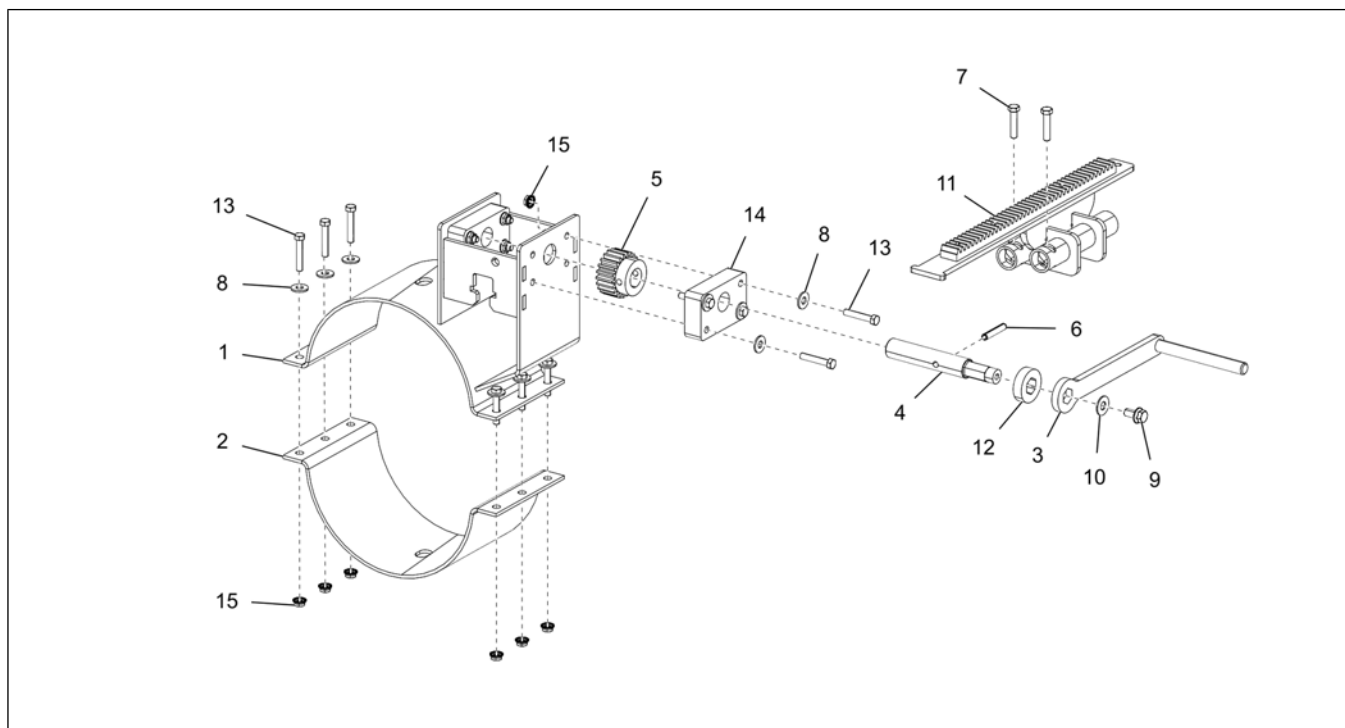


Table 7-7 Rack and pinion parts list

Ref #	Part #	Description
1	GC21302-BS	Weldment, with UHMW 8" Rack and Pinion Crank Box Painted
	GC21297-BS	Weldment, with UHMW 10" Rack and Pinion Crank Box Painted
2	GK1603-BS	Band, Half 8" x 6" 12 Gauge - Bin Silver
	GK1509-BS	Band, Half 10" x 6" 7 Gauge - Bin Silver
3	GK80404-BS	Gate Crank Weldment, Painted
4	GK6845	Rack and Pinion Crank Shaft Hex
5	GC09859	Gear, Spur 10 DP 14.5 PA 1" FX22T Martin #S1022; 1" Bore with 0.313 Pin Hole
6	S-8397	Pin, Spring 5/16" x 1-3/4" Plain Steel Slotted Rolled
7	S-2741	Bolt, HHCS 5/16"-18 x 1-1/2" ZN Grade 5
8	S-845	Washer, Flat 5/16" USS ZN
9	S-9067	Bolt, Flange 3/8"-16 x 3/4" ZN Grade 5
10	S-248	Washer, Flat 3/8" 7/16" ID 1" OD YDP
11	GK81594	Assembly, with UHMW 8" Rack and Pinion Rack Bar
	GK81592	Assembly, with UHMW 10" Rack and Pinion Rack Bar
12	GK81591	Rack and Pinion Shaft Washer
13	S-7149	Bolt, HHTB 5/16"-18 x 1-3/4" ZN Grade 5
14	GK81590	Rack and Pinion Shaft Bushing
15	S-10268	Nut, Flange 5/16"-18 JS 500 Grade 5

Sweep Wheel

Figure 7-7 Sweep wheel parts

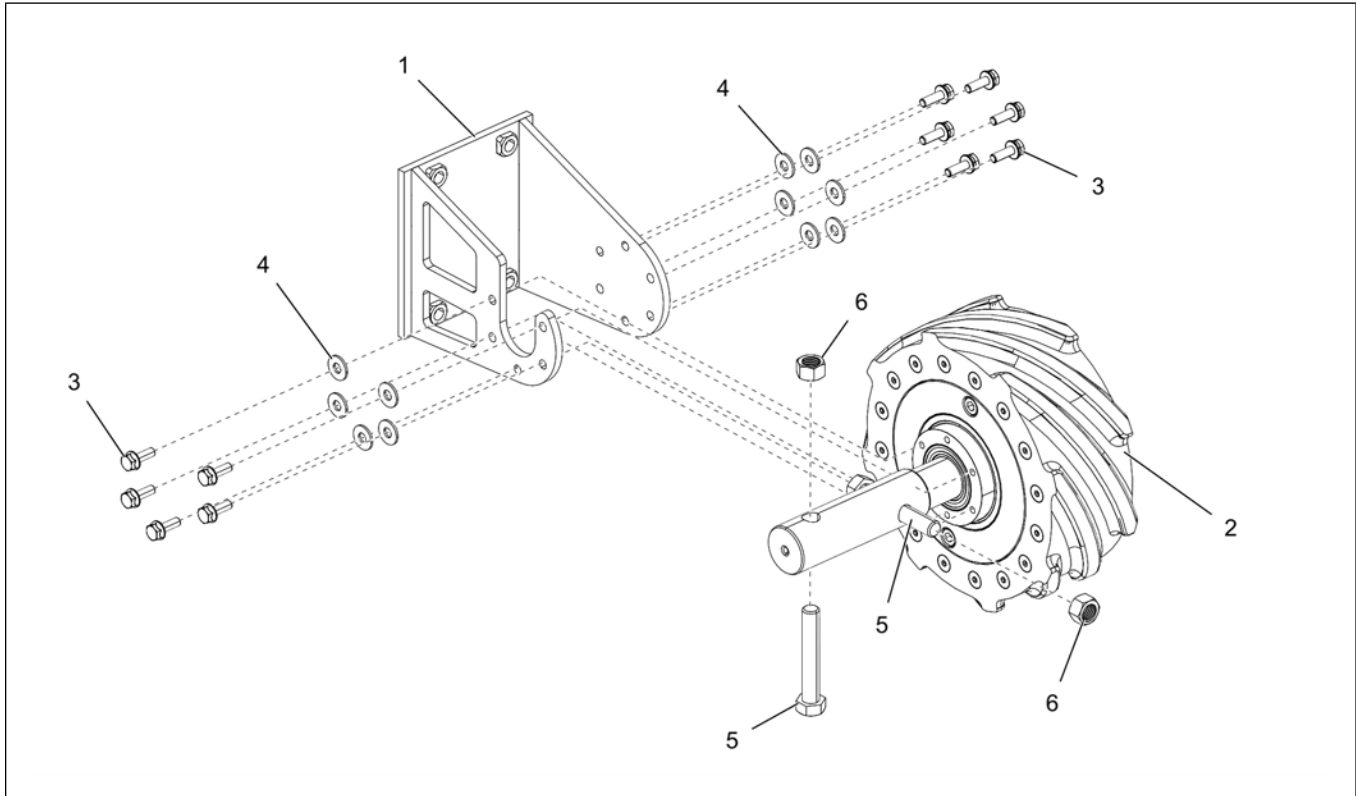


Table 7-8 Sweep wheel parts list

Ref #	Part #	Description
1	GK80397-Y	Sweep Wheel Housing Weldment
2	GK80398	Sweep GM Wheel 8.5" x 8.5:1 Ratio
3	S-8680	Bolt, Flange 1/4"-20 x 3/4" ZN Grade 5
4	S-1430	Washer, Flat 1/4" ZN Grade 2 USS
5	S-8252	Bolt, HHCS 1/2"-13 x 3" YDP Grade 8
6	S-8315	Nut, Lock 1/2"-13 ZN Grade C Prevailing Torque

Bin Flange

Figure 7-8 8" Bin flange parts

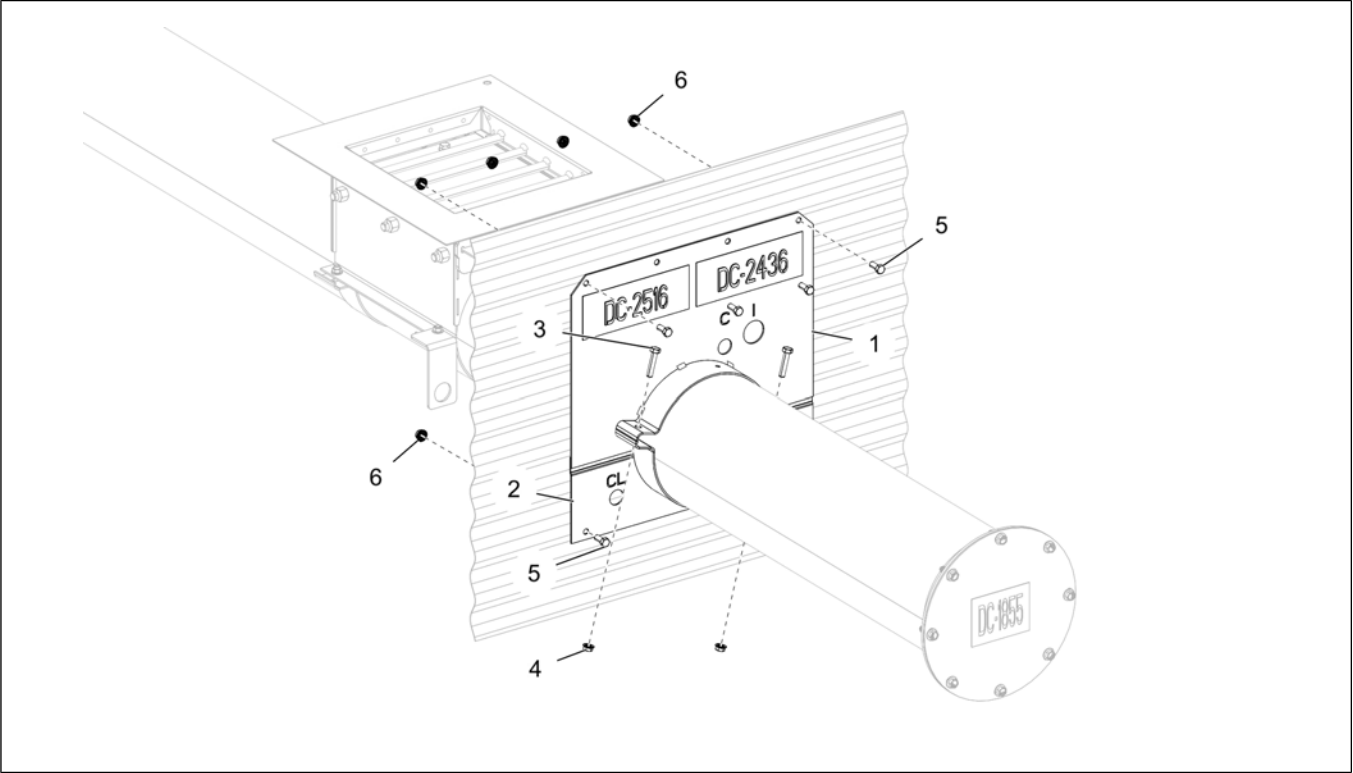


Figure 7-9 10" Bin flange parts (24' - 30' Bins)

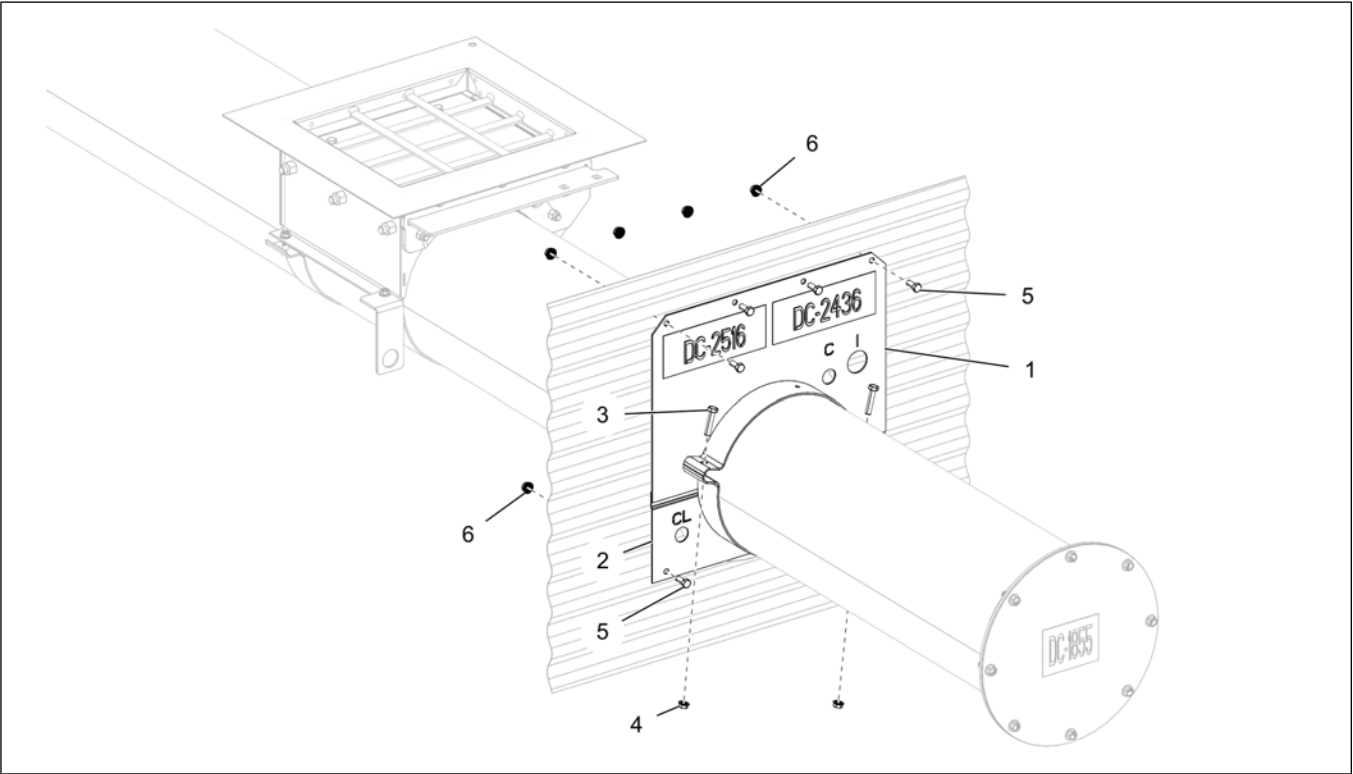


Table 7-9 Bin flange parts list

Ref #	Part #	Description
1	GK81519	Assembly, 8" Wall Flange Top with UHMW
	GK81352	Assembly, 10" Wall Flange Top with UHMW
2	GK80381	Wall Flange Bottom Weldment - 8"
	GK80596	Wall Flange Bottom Weldment - 10"
3	S-2741	Bolt, HHCS 5/16"-18 x 1-1/2" ZN Grade 5
4	S-3611	Nut, Flange 5/16"-18 YDP Grade 2
5		Standard Bin Bolt
6		Flange Nut

Unload Tube Flight

Figure 7-10 8" Unload tube flight parts

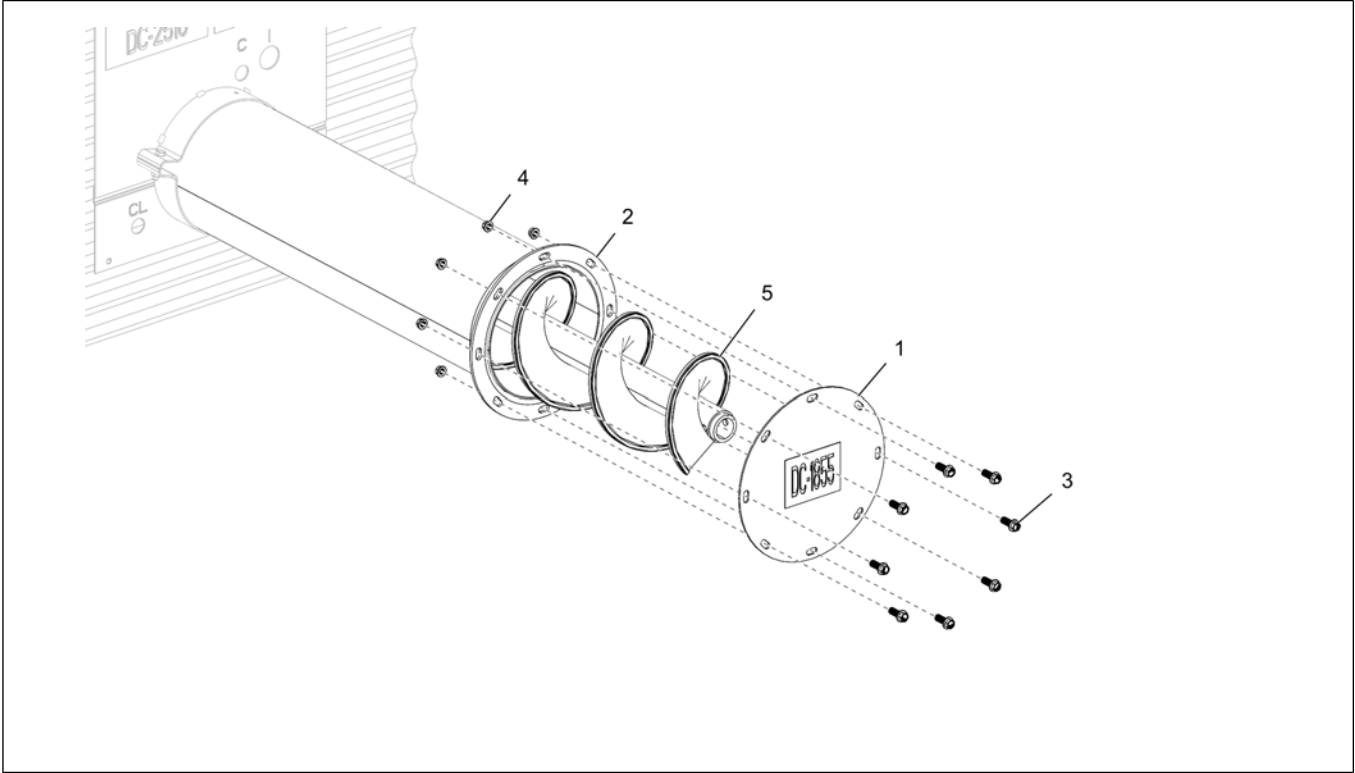


Figure 7-11 10" Unload tube flight parts (24' - 30' Bins)

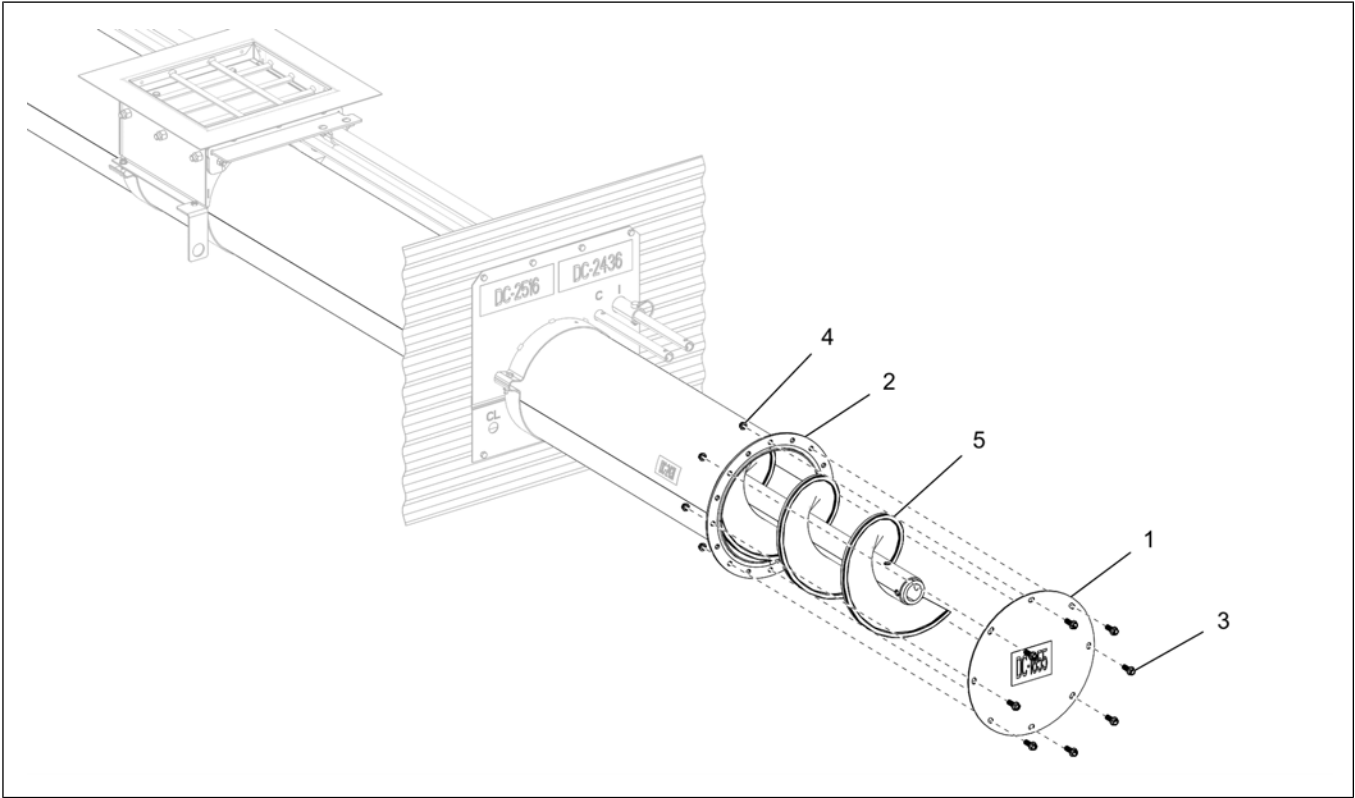


Table 7-10 Unload tube flight parts list

Ref #	Part #	Description
1	GK1216	Cap End - 8"
	GK2184	Cap End - 10"
2	See table below	Tube Weldment
3	S-10260	Bolt, Flange 5/16"-18 x 1" JS 500 Grade 8 or 8.2
4	S-3611	Nut, Flange 5/16"-18 YDP Grade 2
5	See table below	Flight Weldment

Table 7-11 Tube weldment part numbers

Ref #	Bin Dia	8"	10"	Description
2	15'	GK80408	-	Tube Weldment - 15' Bin
	18'	GK80409	-	Tube Weldment - 18' Bin
	21'	GK80410	-	Tube Weldment - 21' Bin
	24'	GK80411	GK80547	Tube Weldment - 24' Bin
	27'	GK80412	GK80548	Tube Weldment - 27' Bin
	30'	GK80406	GK80549	Tube Weldment - 30' Bin

Table 7-12 Flight weldment part numbers

Ref #	Bin Dia	8"	10"	Description
5	15'	GK80619	-	Flight Weldment 110.125" - 15' Bin
	18'	GK80618	-	Flight Weldment 128.125" - 18' Bin
	21'	GK80617	-	Flight Weldment 146.125" - 21' Bin
	24'	GK80616	GK80620	Flight Weldment 164.125" - 24' Bin
	27'	GK80615	GK80621	Flight Weldment 182.125" - 27' Bin
	30'	GK80535	GK80622	Flight Weldment 200.125" - 30' Bin

Clutch Control

Figure 7-12 8" Clutch control parts

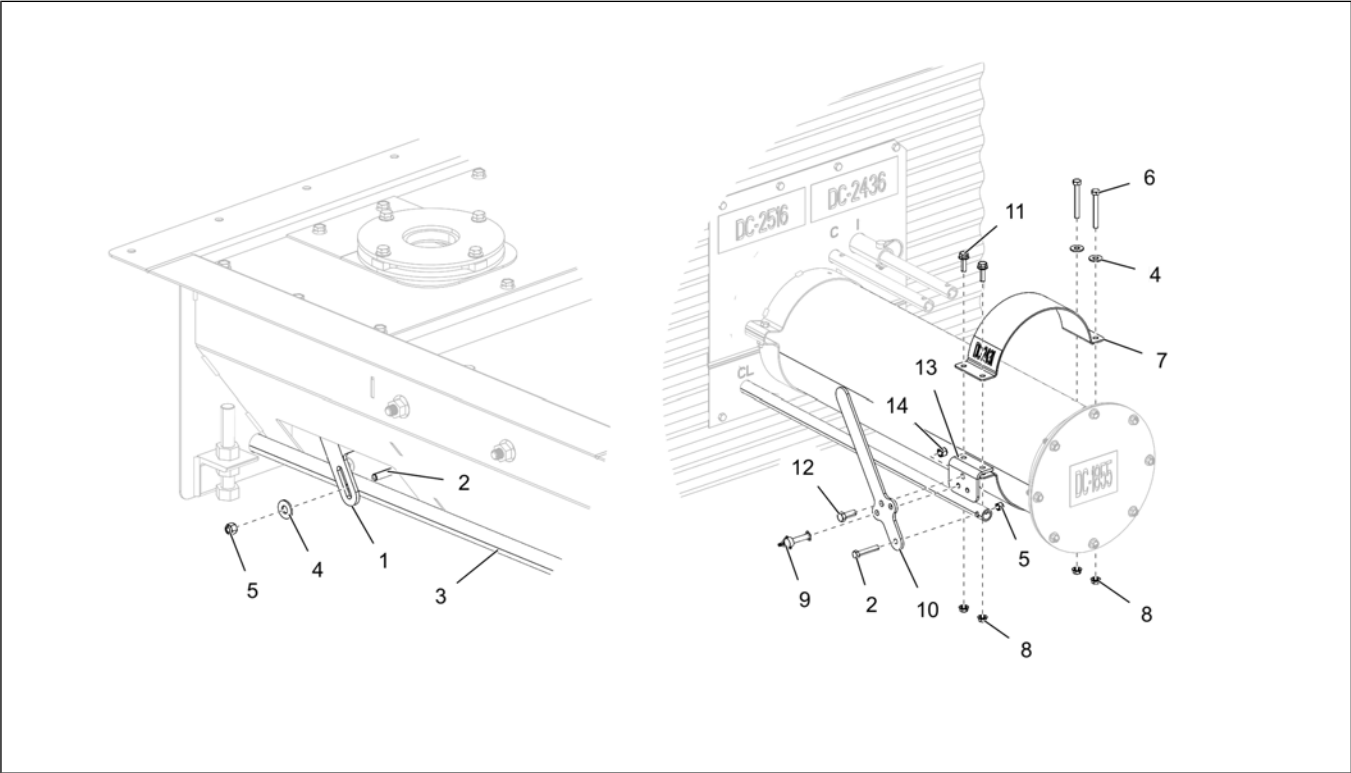


Figure 7-13 10" Clutch control parts (24' - 30' Bins)

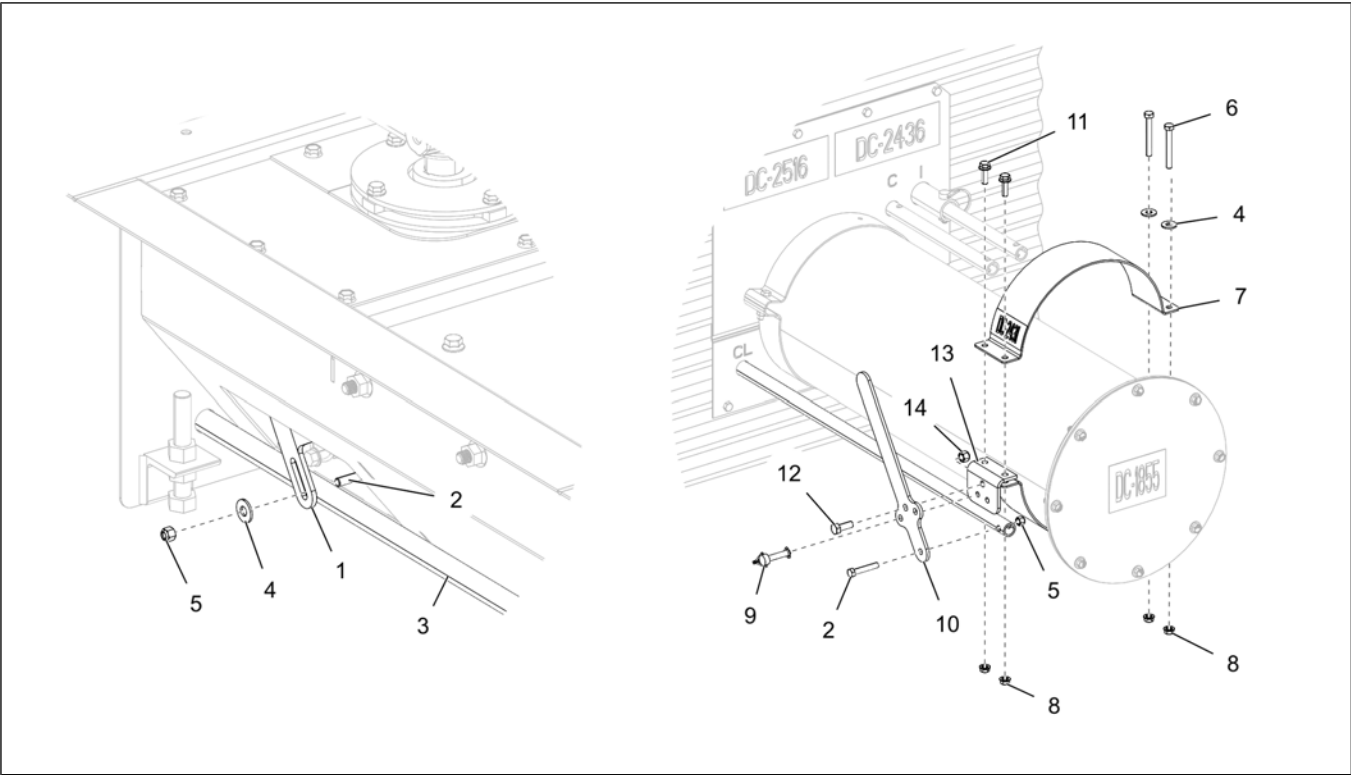


Table 7-13 *Clutch control parts list*

Ref #	Part #	Description
1	GK80368	8" Center Well Linkage Plate
	GK80541	10" Center Well Linkage Plate
2	S-7149	Bolt, HHTB 5/16"-18 x 1-3/4" ZN Grade 5
3	See table below	Clutch Control Rod
4	S-845	Washer, Flat 5/16" USS ZN
5	S-7382	Nut, Nylock 5/16"-18 ZN Grade 5
6	S-7299	Bolt, HHTB 5/16"-18 x 2-1/2" ZN Grade 2
7	GK81575	8" Clutch Half Band Assembly
	GK81576	10" Clutch Half Band Assembly
8	S-3611	Nut, Flange 5/16"-18 YDP Grade 2
9	S-10547	Pin, Safety Snap 5/16" x 1.375" ZN
10	GK80390	Clutch Handle
11	S-7470	Bolt, Flange 5/16"-18 x 1" ZN Grade 5
12	S-7469	Bolt, HHCS 3/8"-16 x 1" ZN Grade 5
13	GK80389	Clutch Handle Pivot
14	S-7383	Nut, Nylock 3/8"-16 ZN Clear Grade 5

Table 7-14 *Clutch control rod part numbers*

Ref #	Part #	Description
6	GK80451	Clutch Control Pipe - 15' Bin
	GK80452	Clutch Control Pipe - 18' Bin
	GK80453	Clutch Control Pipe - 21' Bin
	GK80454	Clutch Control Pipe - 24' Bin
	GK80455	Clutch Control Pipe - 27' Bin
	GK80456	Clutch Control Pipe - 30' Bin

Backshield with One Auger for Standard Sweeps (15' and 18' Bins)

Figure 7-14 Backshield with one auger parts

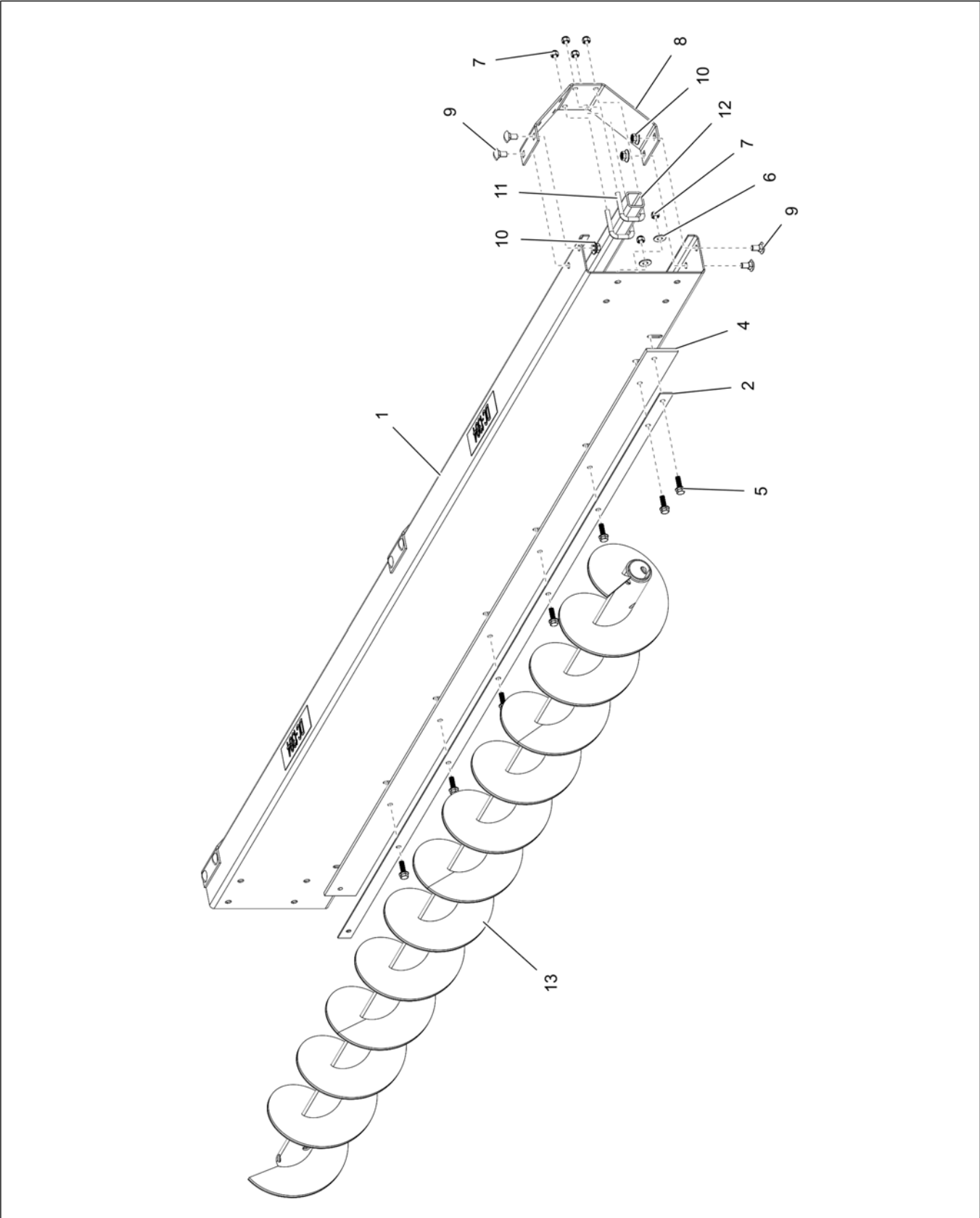


Table 7-15 Backshield with one auger parts list (15' and 18' Bins)

Ref #	Part #	Description
1	GK80462	Backshield - 8" x 15' Bin
	GK80463	Backshield - 8" x 18' Bin
2	GK80484	Wiper Retainer - 15' Bin
	GK80485	Wiper Retainer - 18' Bin
4	GK80495	Backshield Wiper - 15' Bin
	GK80496	Backshield Wiper - 18' Bin
5	S-7470	Bolt, Flange 5/16"-18 x 1" ZN Grade 5
6	S-845	Washer, Flat 5/16" USS ZN
7	S-7382	Nut, Nylock 5/16"-18 ZN Grade 5
8	GK80377	Torque Tube Bracket
9	S-7391	Bolt, Carriage 3/8"-16 x 3/4" ZN Grade 5
10	S-968	Nut, Flange 3/8"-16 ZN Grade 5 Wide Flange
11	S-10521	Bolt, U-bolt 5/16"-18 x 1-1/4" IW x 2" IL x 3/4" TL ZN
12	GK80473	Torque Tube - 15' Bin
	GK80474	Torque Tube - 18' Bin
13	GK80606	Flight 7" x 5.50' 3/16" Weldment - 15' Bin
	GK80605	Flight 7" x 7' 0.50" 3/16" Weldment - 18' Bin

Backshield with Two Augers for Standard Sweeps (21'-30' Bins)

Figure 7-15 Backshield with two augers parts

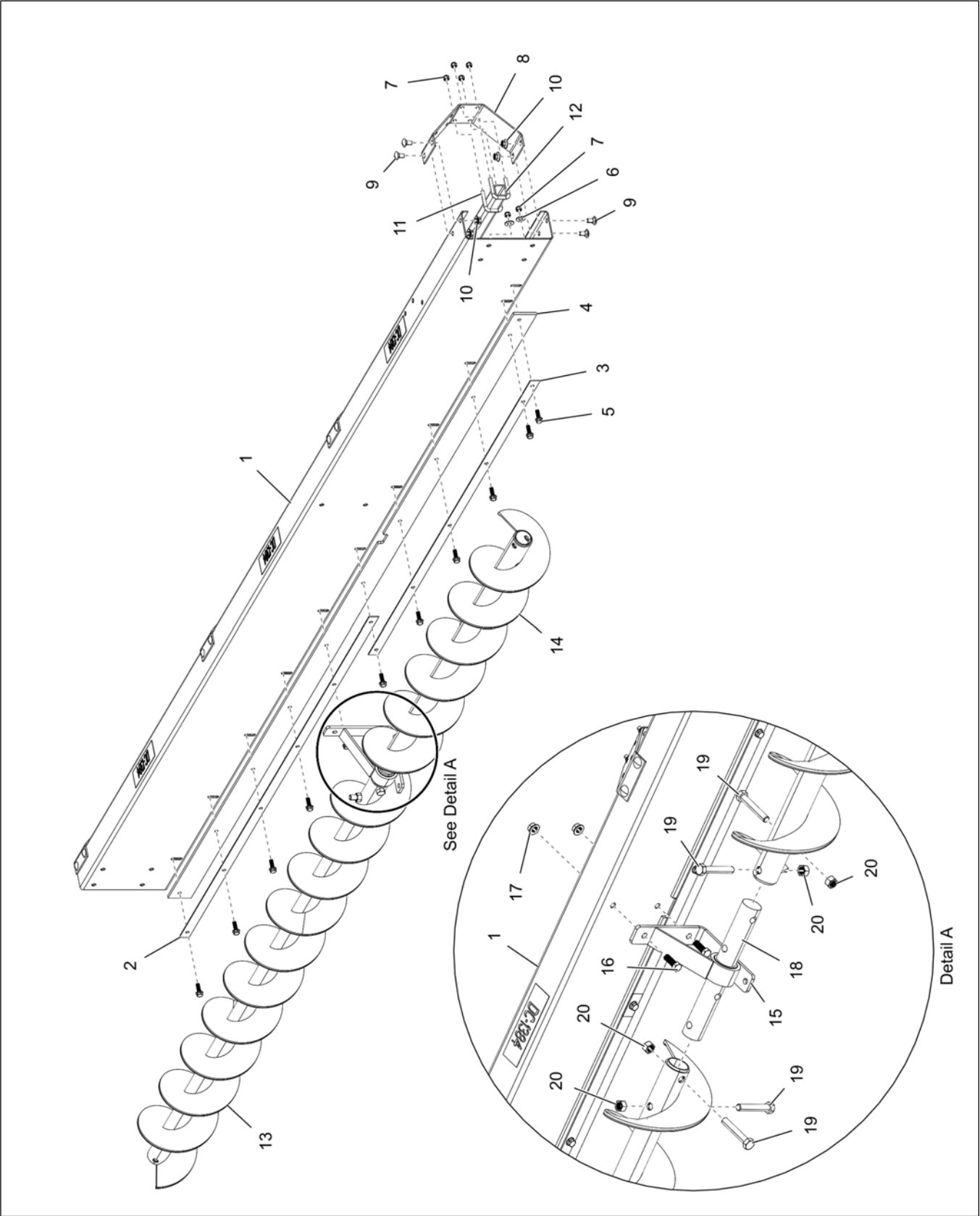


Table 7-16 Backshield with two augers parts list (21'-30' Bins)

Ref #	Part #	Description
1	GK80464	Backshield - 21' Bin (8" only)
	GK80465	Backshield - 24' Bin
	GK80466	Backshield - 27' Bin
	GK80467	Backshield - 30' Bin
2	GK80486	Wiper Retainer - 21' Bin
	GK80534	Wiper Retainer Extension - 24'-30' Bins
3	GK80487	Wiper Retainer - 24' Bin
	GK80488	Wiper Retainer - 27' Bin
	GK80489	Wiper Retainer - 30' Bin
4	GK80497	Backshield Wiper - 21' Bin
	GK80498	Backshield Wiper - 24' Bin
	GK80499	Backshield Wiper - 27' Bin
	GK80500	Backshield Wiper - 30' Bin
5	S-7470	Bolt, Flange 5/16"-18 x 1" ZN Grade 5
6	S-845	Washer, Flat 5/16" USS ZN
7	S-7382	Nut, Nylock 5/16"-18 ZN Grade 5
8	GK80377	Torque Tube Bracket
9	S-7391	Bolt, Carriage 3/8"-16 x 3/4" ZN Grade 5
10	S-968	Nut, Flange 3/8"-16 ZN Grade 5 Wide Flange
11	S-10521	Bolt, U-bolt 5/16"-18 x 1-1/4" IW x 2" IL x 3/4" TL ZN
12	GK80475	Torque Tube - 21' Bin
	GK80476	Torque Tube - 24' Bin
	GK80477	Torque Tube - 27' Bin
	GK80478	Torque Tube - 30' Bin
13	GK80233	Flight 7" x 6' 1.50" 3/16" Weldment - Standard
14	GK80604	Flight 7" x 2' 2.25" 3/16" Weldment - 21' Bin
	GK80602	Flight 7" x 3' 8.25" 3/16" Weldment - 24' Bin
	GK80603	Flight 7" x 5' 2.25" 3/16" Weldment - 27' Bin
	GK80531	Flight 7" x 6' 9.25" 3/16" Weldment - 30' Bin
15	GK80376	Hanger Bracket Assembly
16	S-3886	Bolt, HHCS 7/16"-14 x 1-1/4" ZN Grade 5
17	S-9073	Nut, Flange 7/16"-14 ZN
18	GK1951	Shaft, Connecting 1.50" OD x 11.5"
19	S-8252	Bolt, HHCS 1/2"-13 x 3" YDP Grade 8
20	S-8315	Nut, Lock 1/2"-13 ZN Grade C Prevailing Torque

Backshield Connections

Figure 7-16 Backshield connections parts

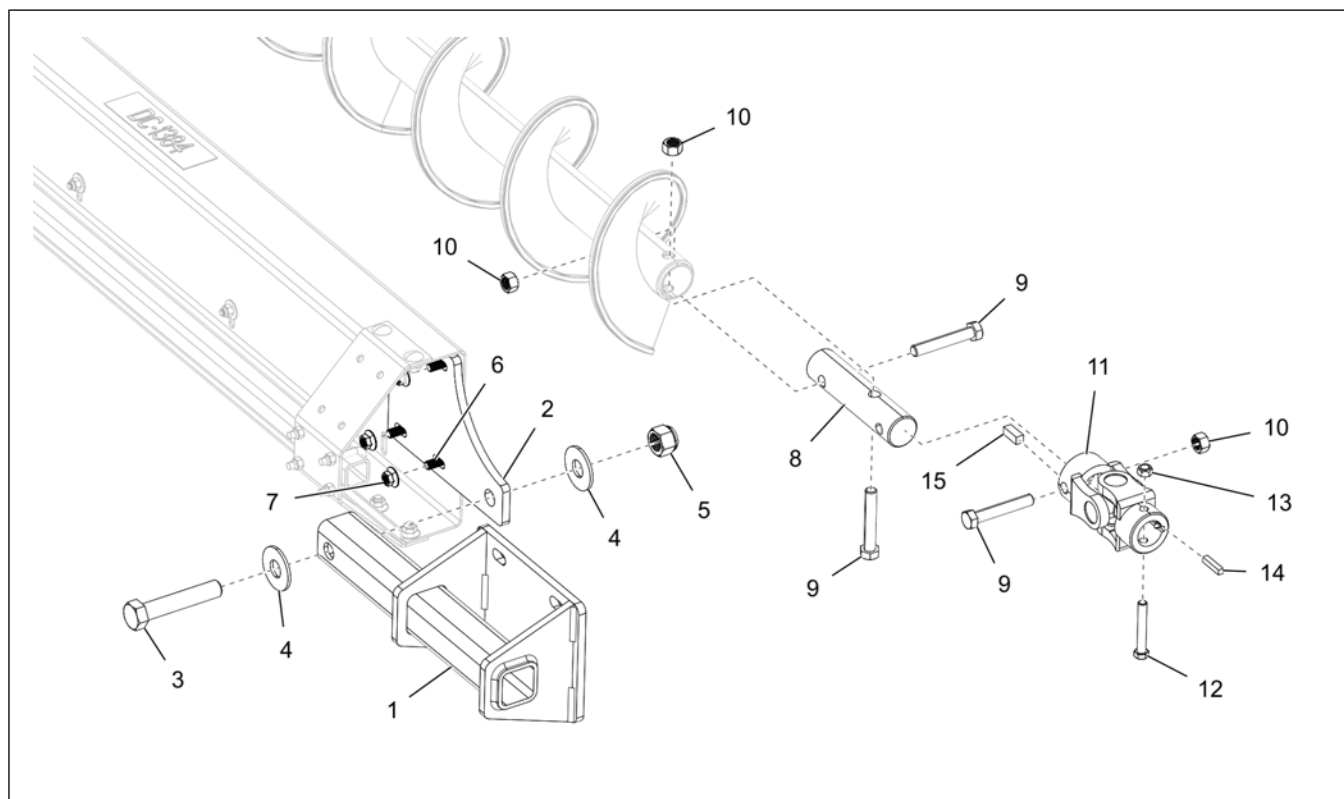


Table 7-17 Backshield connections parts list

Ref #	Part #	Description
1	GK80607-Y	Gearbox Mount Assembly - 8"
2	GK80608-Y	Backshield Pivot Bracket - 8"
3	S-7884	Bolt, HHCS 3/4"-10 x 4" Grade 8
4	S-866	Washer, Flat 3/4" USS ZN
5	S-7217	Nut, Nylock 3/4"-10 ZN Grade 5
6	S-9066	Bolt, Flange 3/8"-16 x 1-1/4" ZN Grade 5
7	S-968	Nut, Flange 3/8"-16 ZN Grade 5 Wide Flange
8	GK80378	U-Joint Connecting Shaft 1.5" x 6.5" - 8"
9	S-8252	Bolt, HHCS 1/2"-13 x 3" YDP Grade 8
10	S-8315	Nut, Lock 1/2"-13 ZN Grade c Prevailing Torque
11	GK7614	U-Joint 1.25" B and 1.5" B x 5.50" Long 12E
12	S-10107	Bolt, HHCS 3/8"-16 x 2-1/2" YDP Grade 8
13	S-8251	Nut, Stover 3/8"-16 ZN Grade C
14	S-8382	Key, Square 1/4" x 1/4" x 1-1/4" L
15	GC03540	Key, 3/8" x 3/8" x 1"
16	S-7893	Bolt, HHCS 5/8"-11 x 4" YDP Grade 8
17	S-8606	Nut, Stover 5/8"-11 ZN Grade C

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	
	• Roof, doors, platforms and walk arounds	
	• Flooring (when installed using GSI specified floor support system for that floor)	
	• Hopper tanks	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 & internal wiring)	2 Years
Material Handling	Bullseye Controllers	2 Years
	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 19 October 2018)

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

