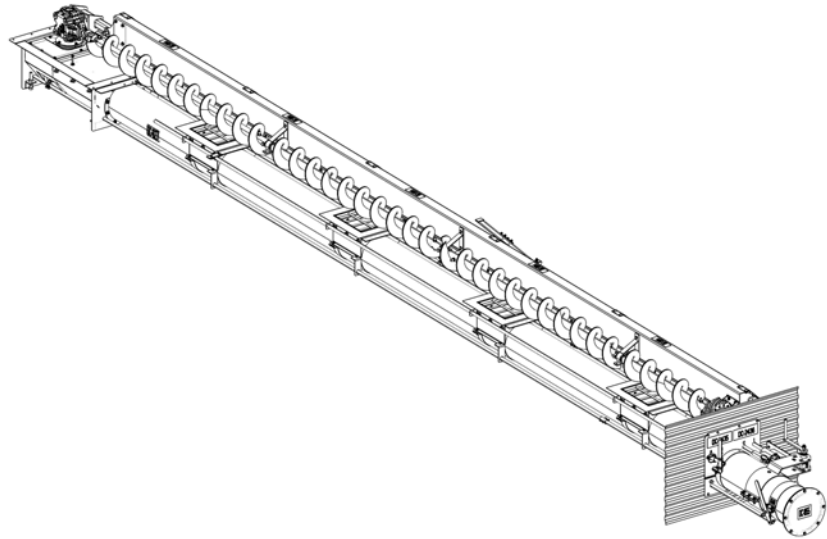




Direct Gear Drive Bin Sweep

Models:

8" AND 10" STANDARD DUTY

Installation and Operation Manual

PNEG-2108

Version 2.0

Date: 02-23-18



PNEG-2108

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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1 Safety Precautions

Topics Covered in this Chapter

- Safety Guidelines
- Cautionary Symbol Definitions
- Safety Precautions
- 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. Save these safety guidelines for future reference.

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

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

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

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

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

ST-0001-3

Cautionary 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 Precautions

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

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.

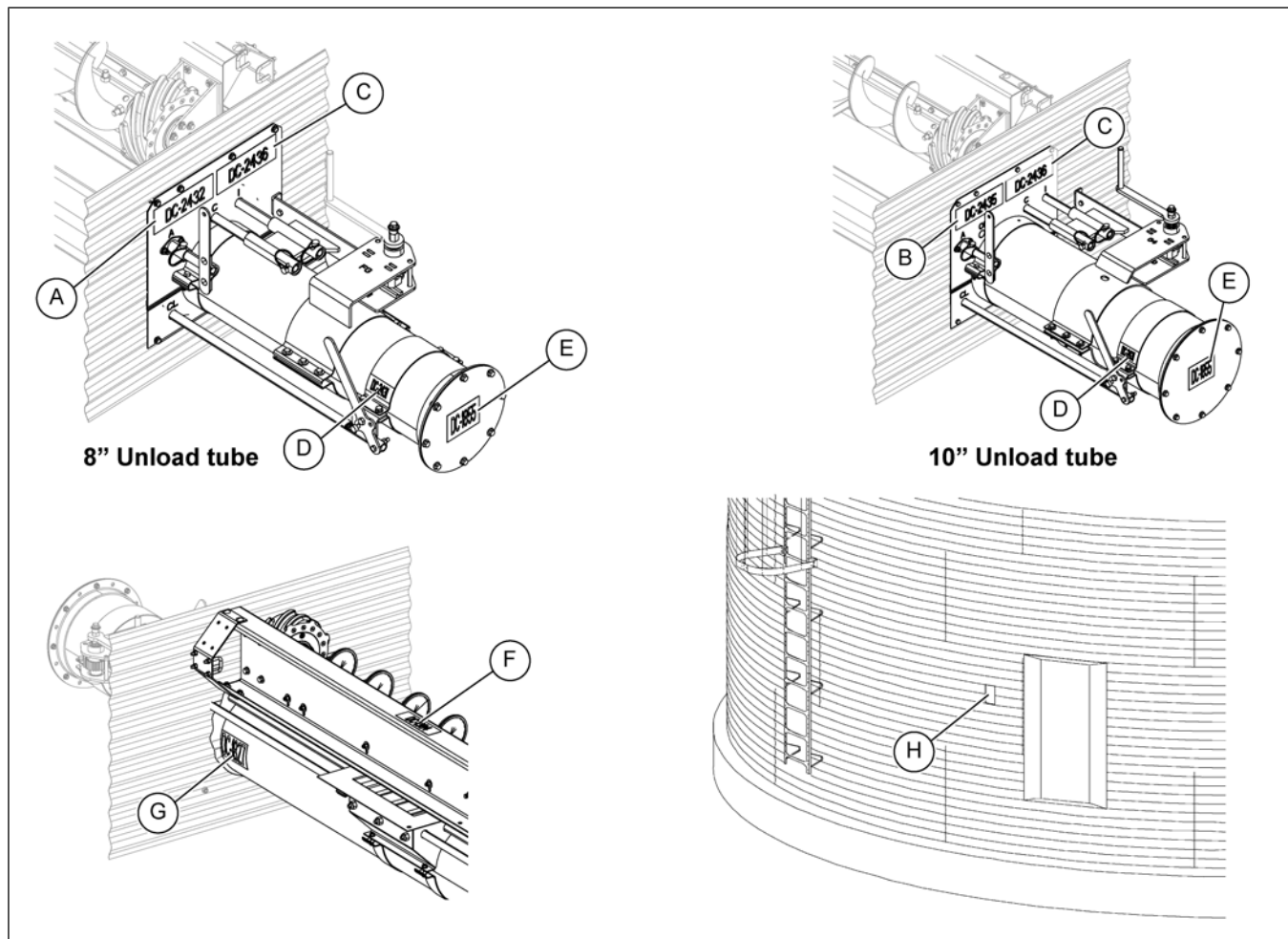


ST-0051-1

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-2432		Decal, sweep operating instructions – 8 in.
B	Upper bin flange	DC-2435		Decal, sweep operating instructions – 10 in.

Ref #	Location	Decal No.	Decal	Description
C	Upper bin flange	DC-2436		Decal, Danger Sweep auger
D	Clutch control upper half band	DC-2431		Decal, power sweep engage
E	Unload tube flange	DC-1855		Decal, control pipe
F	Flighting shield top	DC-1384		Decal, keep out of bin

Chapter 1: Safety Precautions

Ref #	Location	Decal No.	Decal	Description
G	Unload tube side	DC-1827	 NOTICE DO NOT LIFT OR HANDLE EQUIPMENT USING SMALL CONTROL PIPES. HANDLE EQUIPMENT USING UNLOAD TUBE ONLY	decal, do not handle
H	Bin sidewall	DC-1395	 DANGER ROTATING FLIGHTING This bin is equipped with grain augers which can kill or dismember. Keep clear of all augers and never enter this bin unless all power is disconnected and locked out. FAILURE TO DO SO WILL RESULT IN SERIOUS INJURY OR DEATH.	Decal, rotating flight

To replace a damaged or missing decal, contact us to receive a free replacement.

GSI Decals

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

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.

[illegible]

ST-0007

NOTES

2 General Information

Topics Covered in this Chapter

- Sweep Offerings and Sweep Arm Details
- Sweep Options

Sweep Offerings and Sweep Arm Details

When sweep is used with standard 2-ring farm door on all plenum heights, standard sweep length can be used.

Figure 2-1 Sweep details

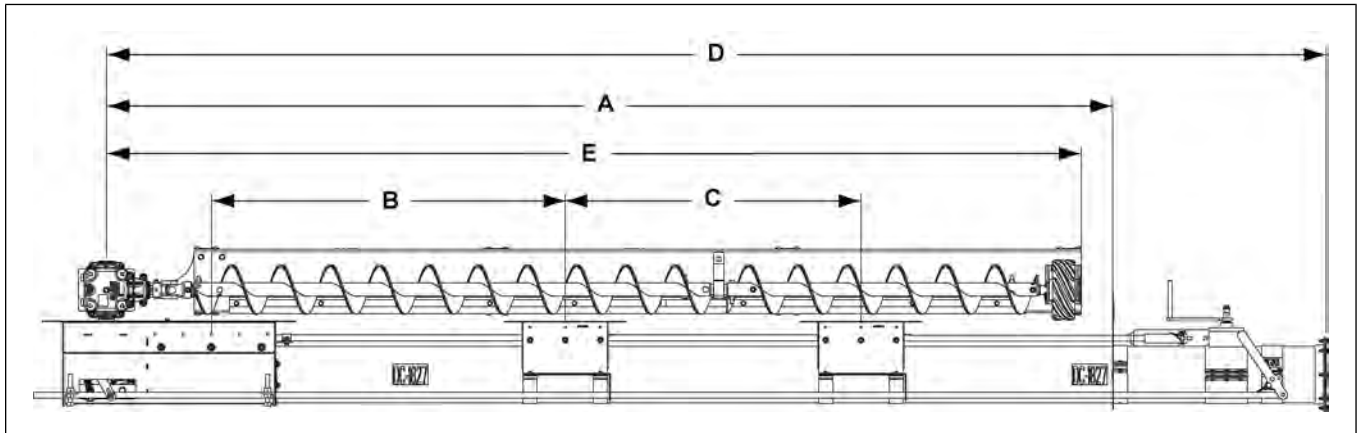


Table 2-1 Details for 8 in.

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"
33'	3	16' - 4-15/16"		42"	18' - 11-3/16"	16' - 1-1/2"
36'	3	17' - 10-7/8"		60"	20' - 5-3/16"	17' - 7"
42'	4	20' - 10-11/16"		54"	23' - 5-3/16"	20' - 6-1/2"
48'	4	23' - 10-1/2"		62"	26' - 5-3/16"	23' - 6-1/2"

Chapter 2: General Information

Table 2-2 Details for 10 in.

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"
33'	3	16' - 4-15/16"		42"	18' - 11-3/16"	16' - 1-1/2"
36'	3	17' - 10-7/8"		60"	20' - 5-3/16"	17' - 7"
42'	4	20' - 10-11/16"		54"	23' - 5-3/16"	20' - 6-1/2"
48'	4	23' - 10-1/2"		62"	26' - 5-3/16"	23' - 6-1/2"

Sweep Options

Low Capacity Sweeps

There will be approximately 30 percent capacity reduction in the low capacity sweep compared to the standard sweep.

Figure 2-2 Low capacity sweep details

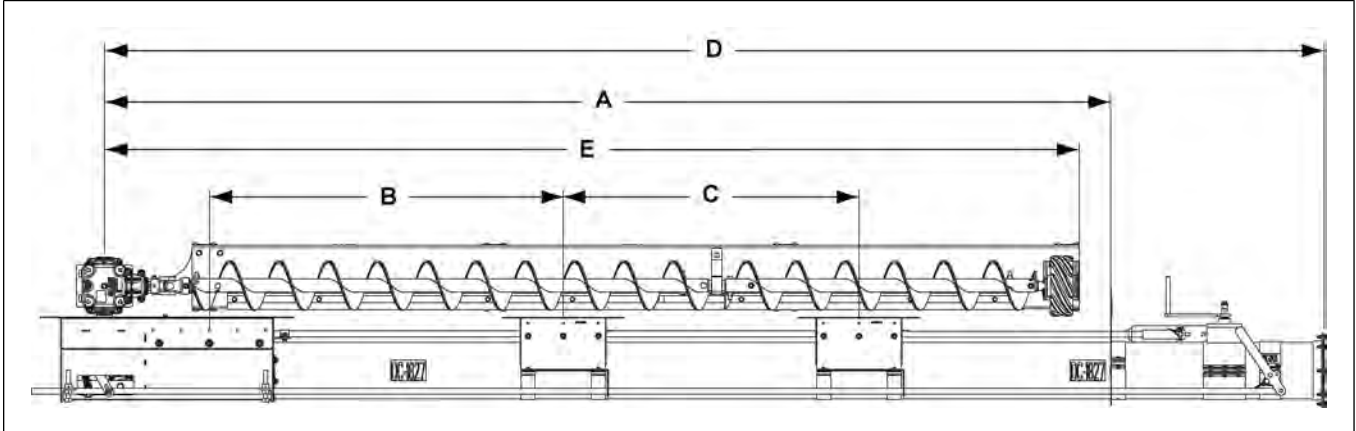


Table 2-3 Details for 8 in.

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"
33'	3	16' - 4-15/16"		42"	18' - 11-3/16"	16' - 1-1/2"
36'	3	17' - 10-7/8"		60"	20' - 5-3/16"	17' - 7"
42'	4	20' - 10-11/16"		54"	23' - 5-3/16"	20' - 6-1/2"
48'	4	23' - 10-1/2"		62"	26' - 5-3/16"	23' - 6-1/2"

Short Sweeps

A shortened sweep is required when using welded sleeve or double frame door with a plenum other than 12 in. The sweep arm is shortened approximately 7 in. from standard length for short sweep.

Figure 2-3 Sweep Details

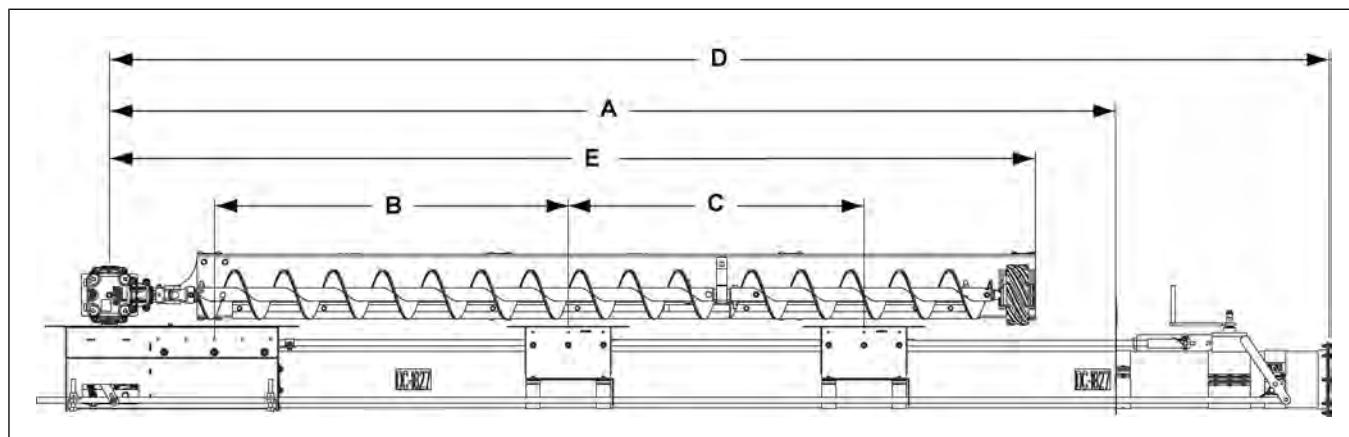


Table 2-4 Details for 8 in. and 10 in.

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)
30'	2	14' - 11"	4' - 2-1/4"	60"	17' - 5-3/16"	14' - 1/2"
33'	3	16' - 4-15/16"		42"	18' - 11-3/16"	15' - 6-1/2"
36'	3	17' - 10-7/8"		60"	20' - 5-3/16"	17'
42'	4	20' - 10-11/16"		54"	23' - 5-3/16"	19' - 11-1/2"
48'	4	23' - 10-1/2"		62"	26' - 5-3/16"	22' - 11-1/2"

3 Installation

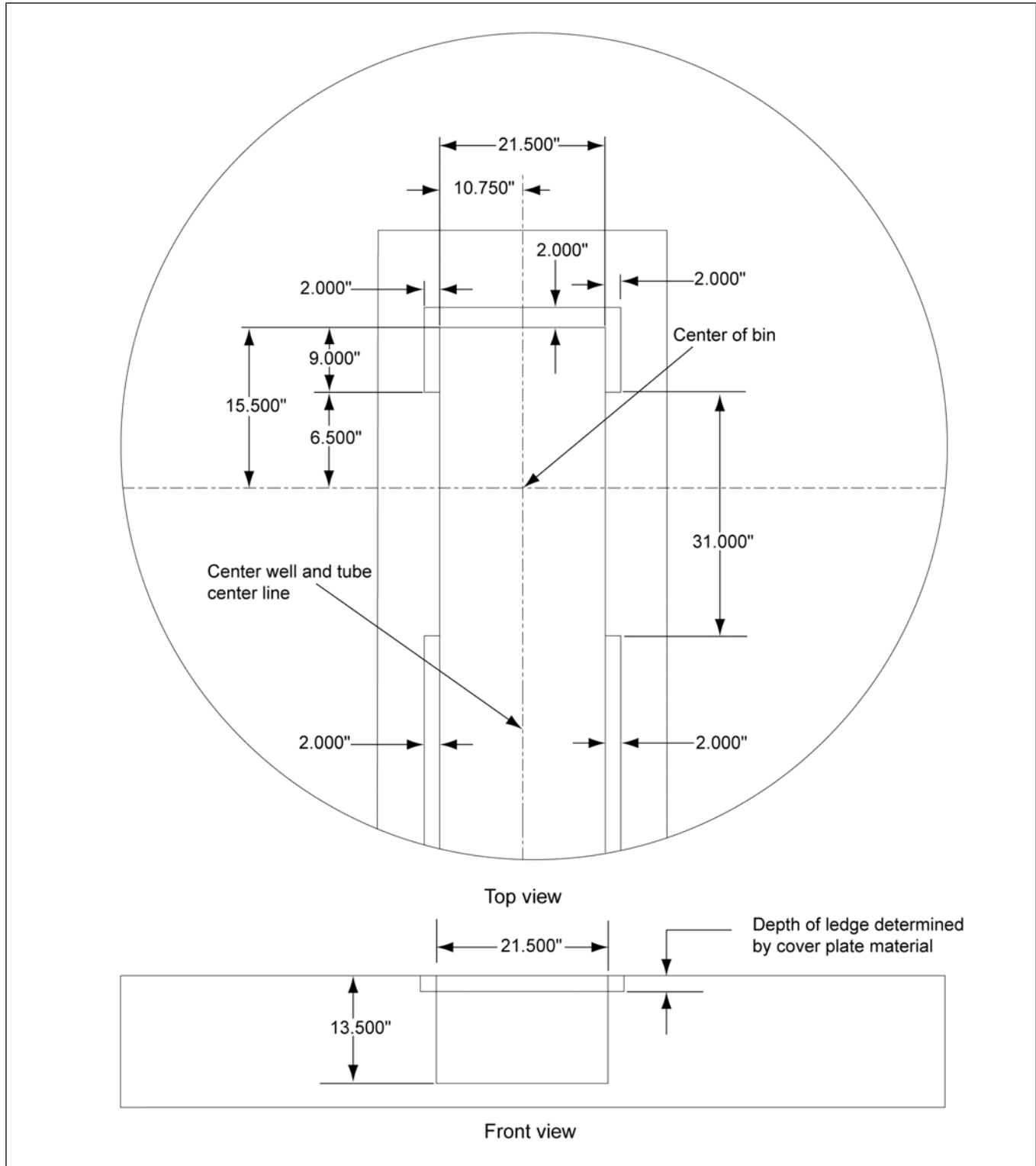
Topics Covered in this Chapter

- Power Sweeps in Bins with Concrete Floors
- Installing the Unload Tube
- Installing the Bin Flange
- Installing the Center Well Gate
- Installing the Auxiliary Intermediate Well (Optional)
- Installing the Rack and Pinion
- Installing the Clutch Control
- Installing the Unload Tube Flight
- Installing Intermediate Well Flange
- Installing the Sweep Flighting
- Installing the Flighting Shield
- Installing the Sweep Wheel
- Adjusting the Wiper
- Installing the Backshield Support Assembly

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 performed trench using the image shown.

Figure 3-1 Floor view



Installing the Unload Tube

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

Figure 3-2 8 in. Tube

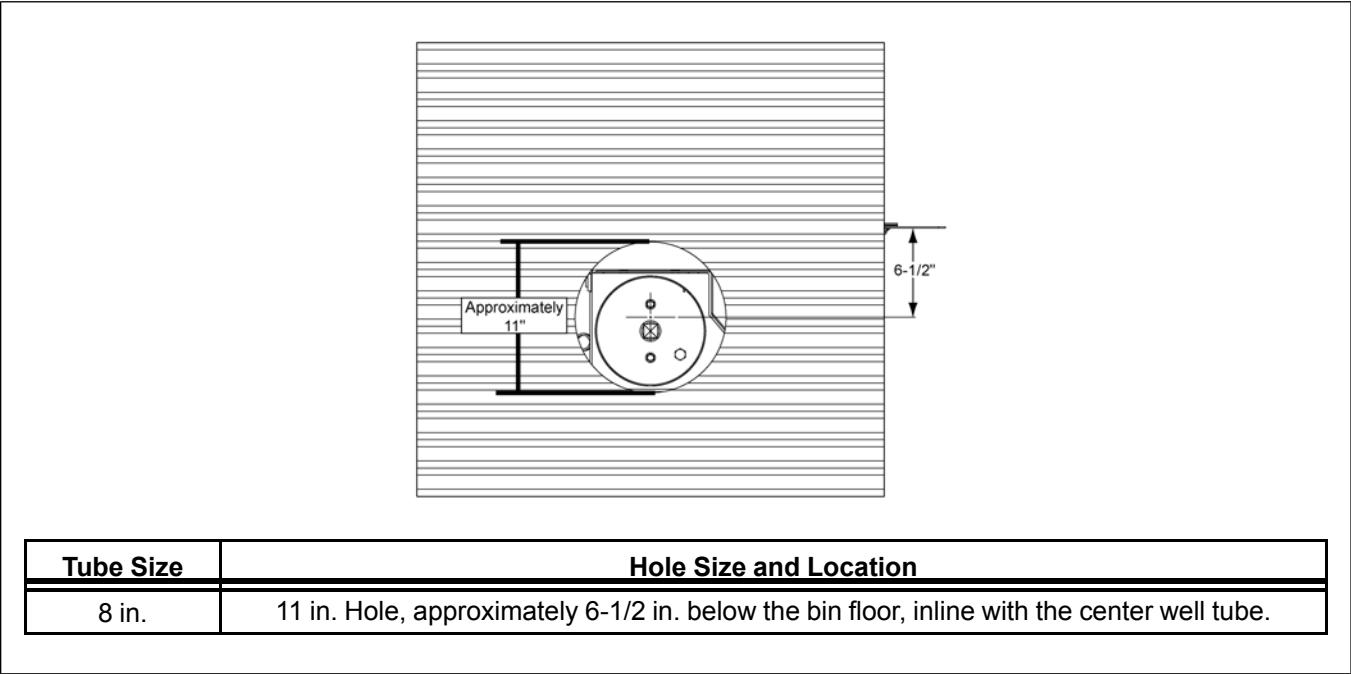
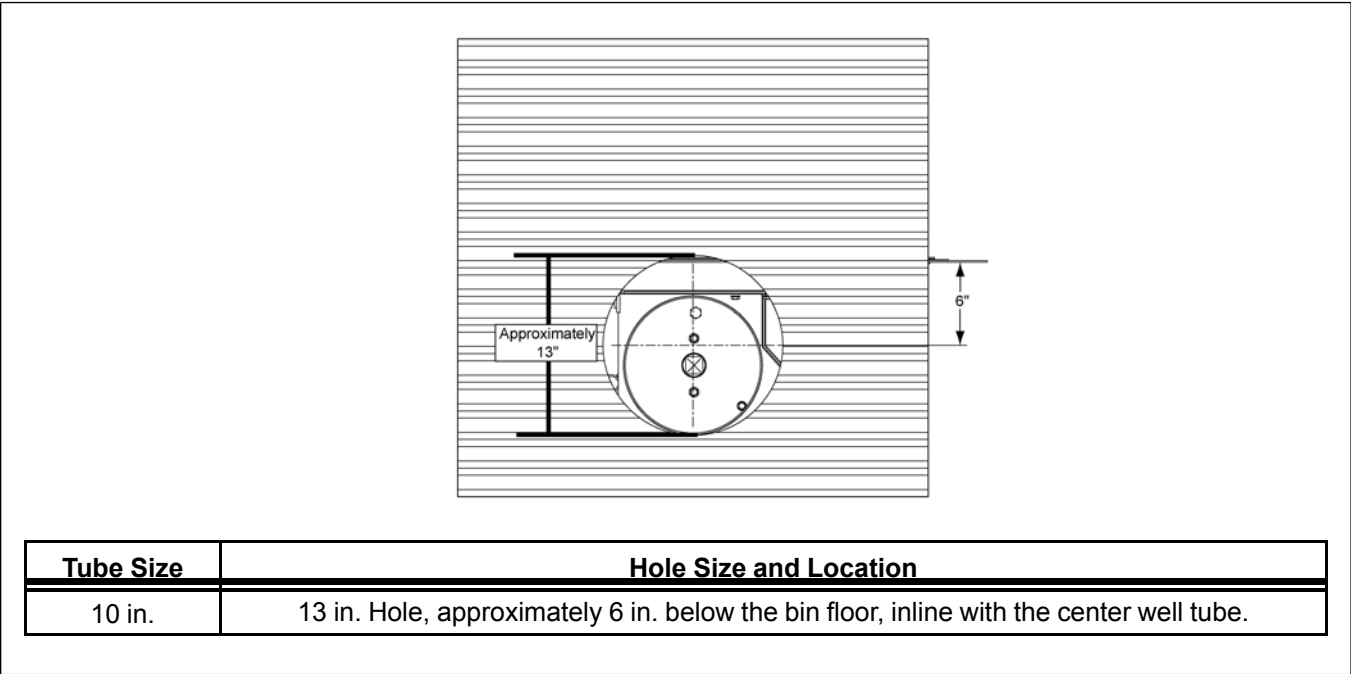


Figure 3-3 10 in. Tube



Chapter 3: Installation

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

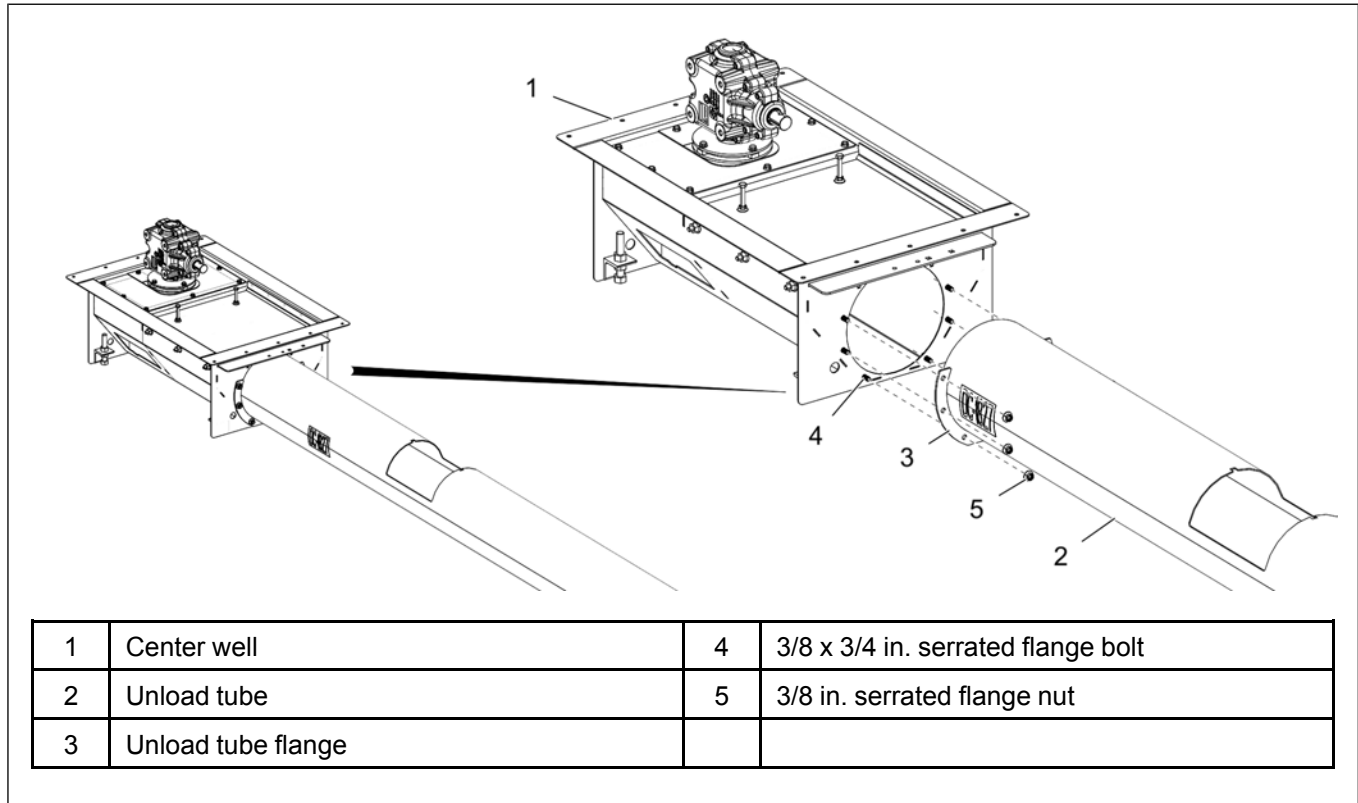
NOTE: Before installing tube, remove flight from inside of tube.

3. Insert the unload tube (2 and 3) into the center well (1) till the tube flange aligns to the outside of the center well and secure using serrated flange bolts (4) serrated flange nuts (5).

NOTE:

- For 8" – Four (4) 3/8 x 3/4 in. bolts
- For 10" – Six (6) 3/8 x 3/4 in. bolts

Figure 3-4 Secure the center well to unload tube



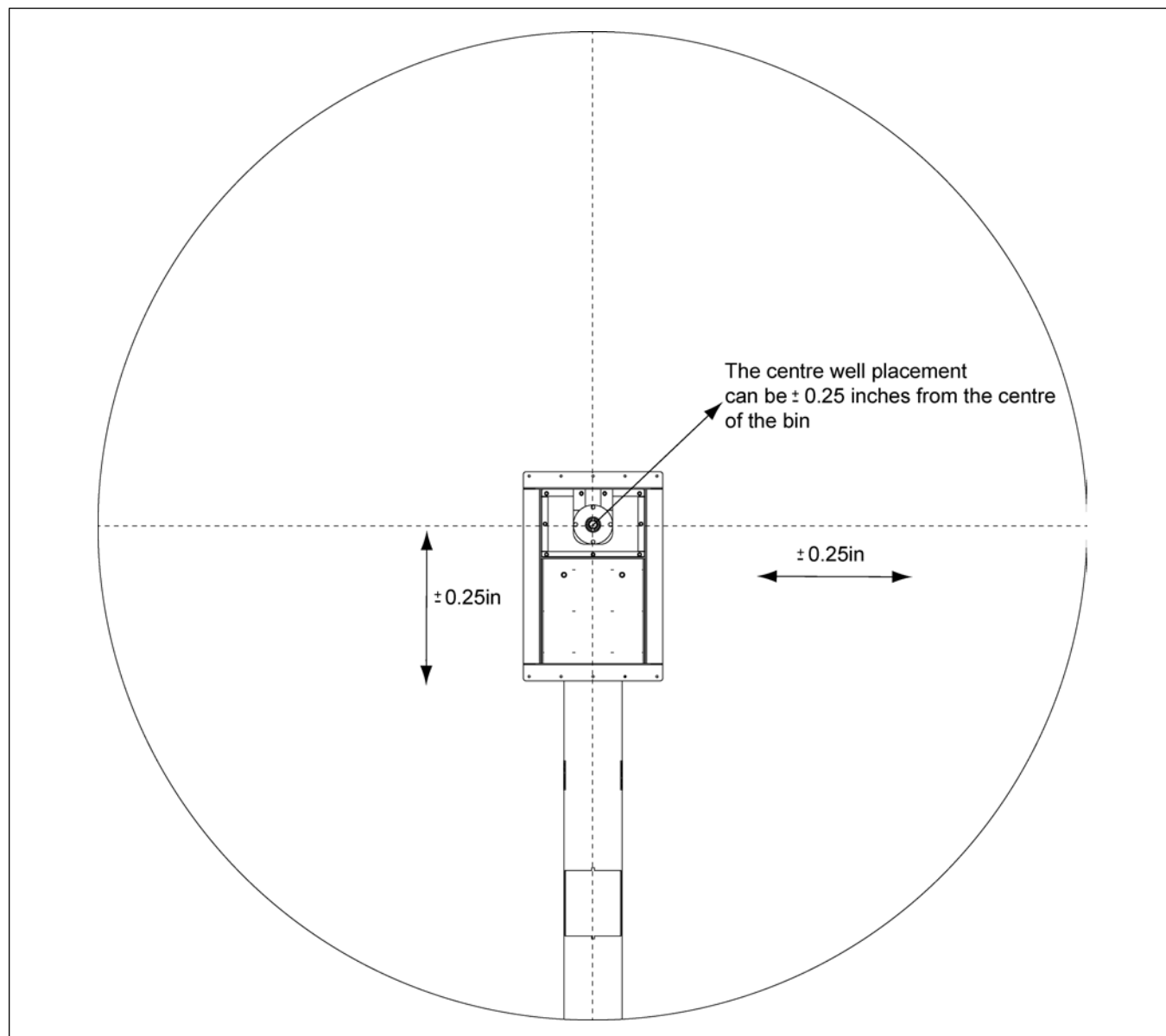
NOTE: In order to install the carriage bolts, the gate needs to be attached to the pipe *PRIOR* to assembling the tube to the center well. Extend the center well pipe off the end of the tube and slide the gate out of the well. This will give the space to tighten the nuts.

4. Locate the center of the bin and place the center well into position with the vertical shaft in the gear-box at the center of the bin.

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

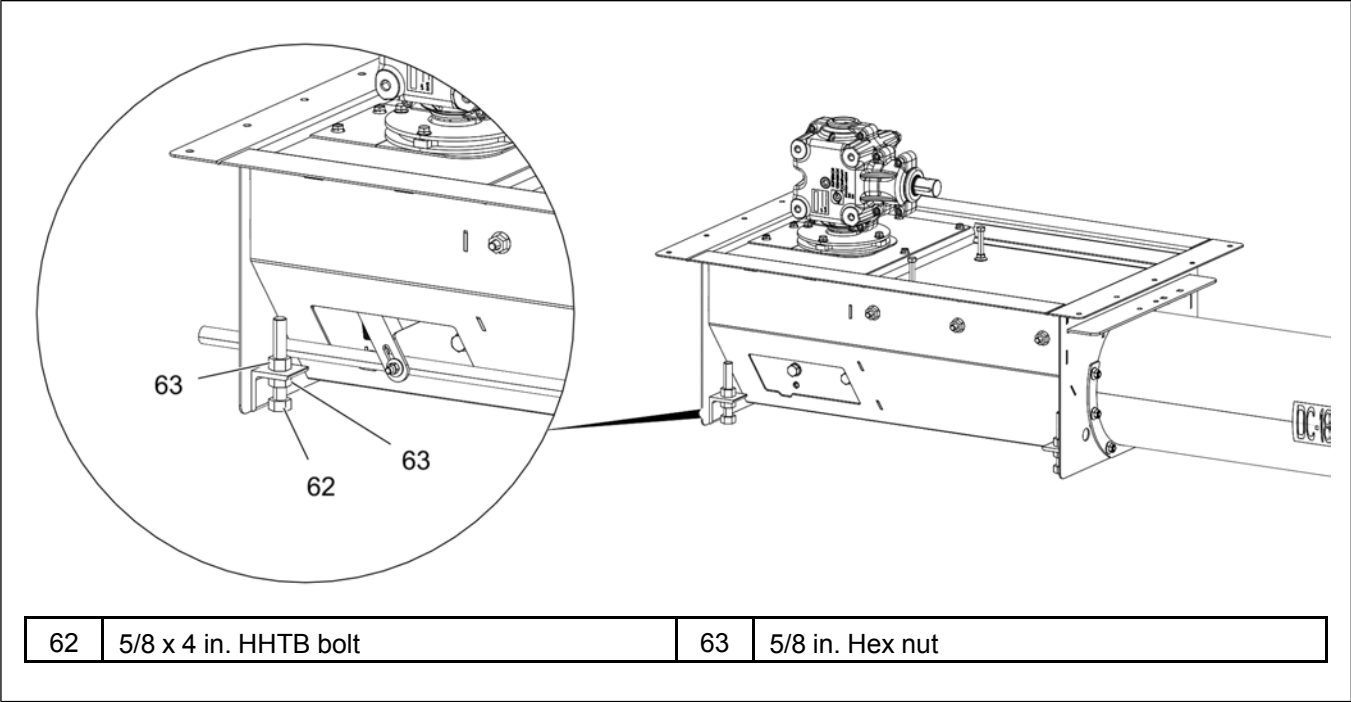
NOTE: GSI does not recommend installing the Direct Gear Drive Power Sweep in concrete. When flush-floor installations are necessary, a pre-formed trench is needed. A steel trench cover adequate for the grain height and trench size must be installed. Consult the factory for further information.

Figure 3-5 Center well placement



- 5. Level the center well to the concrete floor by adjusting the HHTB bolt (62) lengths using both nuts (63) (above and below of center well angle) located at the bottom corners of the center well.

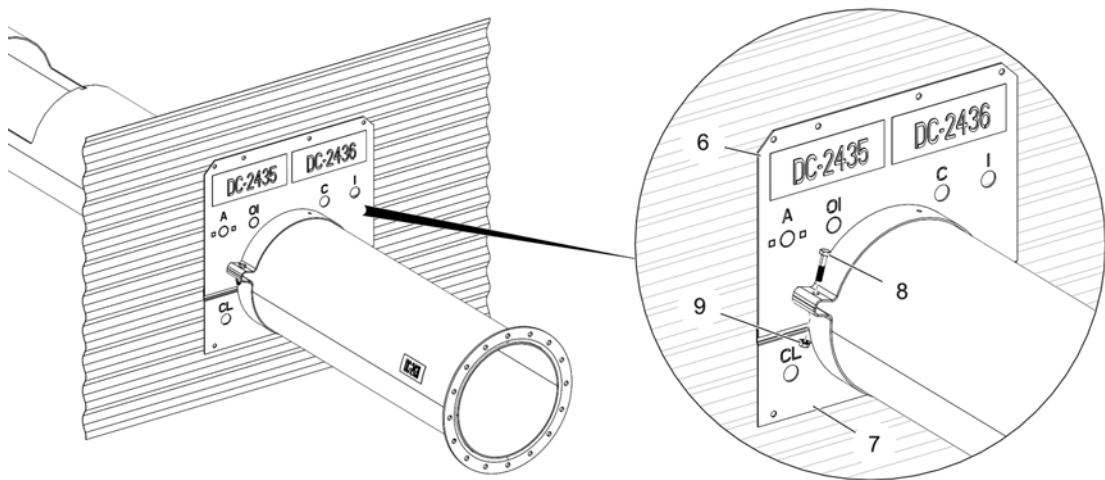
Figure 3-6 Leveling of center well



Installing the Bin Flange

1. Attach the upper bin flange (6) and lower bin flange (7) loosely to the unload tube using HHCS bolts (8) and serrated flange nuts (9).

Figure 3-7 Installing the upper and lower bin flanges

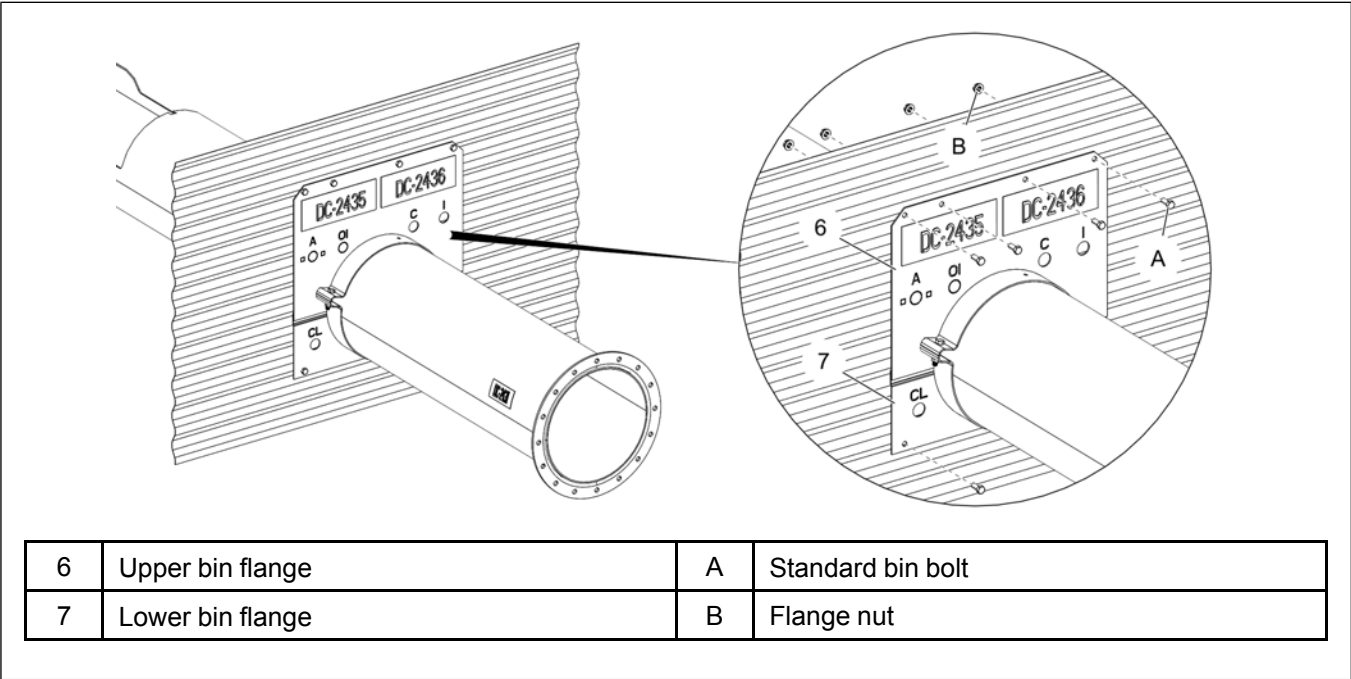


6	Upper bin flange	8	5/16 x 1-1/2 in. HHCS bolt
7	Lower bin flange	9	5/16 in. serrated flange nuts

Chapter 3: Installation

- 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 flush up to the bin wall and tighten the bolts connecting the two flanges.
- 4. Drill holes in the bin wall through the four holes located in the upper bin flange (6) and two holes located in lower bin flange (7) and secure the bin flanges to the bin wall using six bin standard bolts (A) and flange nuts (B).

Figure 3-8 *Secure the upper and lower bin flanges*



Installing the Center Well Gate

1. Close the center well gate (10) completely.
2. Align the center well control rod (11 and 61) between holes in gate.

NOTE:

- For 8 in. sweep, control rod (61) attaches on the TOP side of the center well gate.
- For 10 in. sweep, control rod (11) attaches on the BOTTOM side of the center well gate.

3. Attach the control rod clamp (12) to control rod (61) with roll pin (15) through the clamp and control rod.
4. Secure the control rod clamp (12) to control gate by using bolts (13), flat washers (14) and serrated flange nuts (9).

NOTE:

- Use 5/16 in. flange bolts (60) for 8 in. sweep.
- Use 5/16 in. carriage bolts (13) for 10 in. sweep.

Figure 3-9 8 in. Center well gate assembly

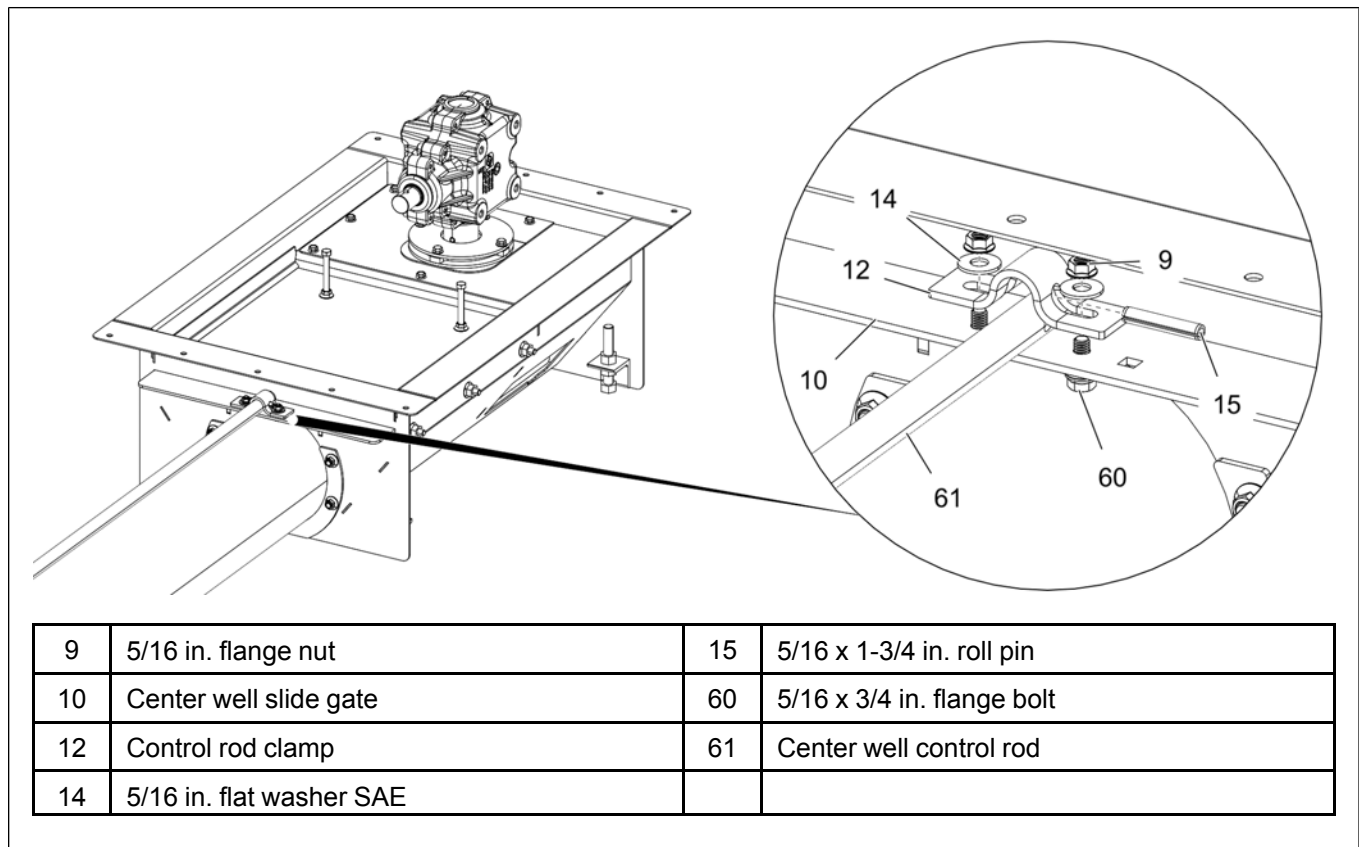
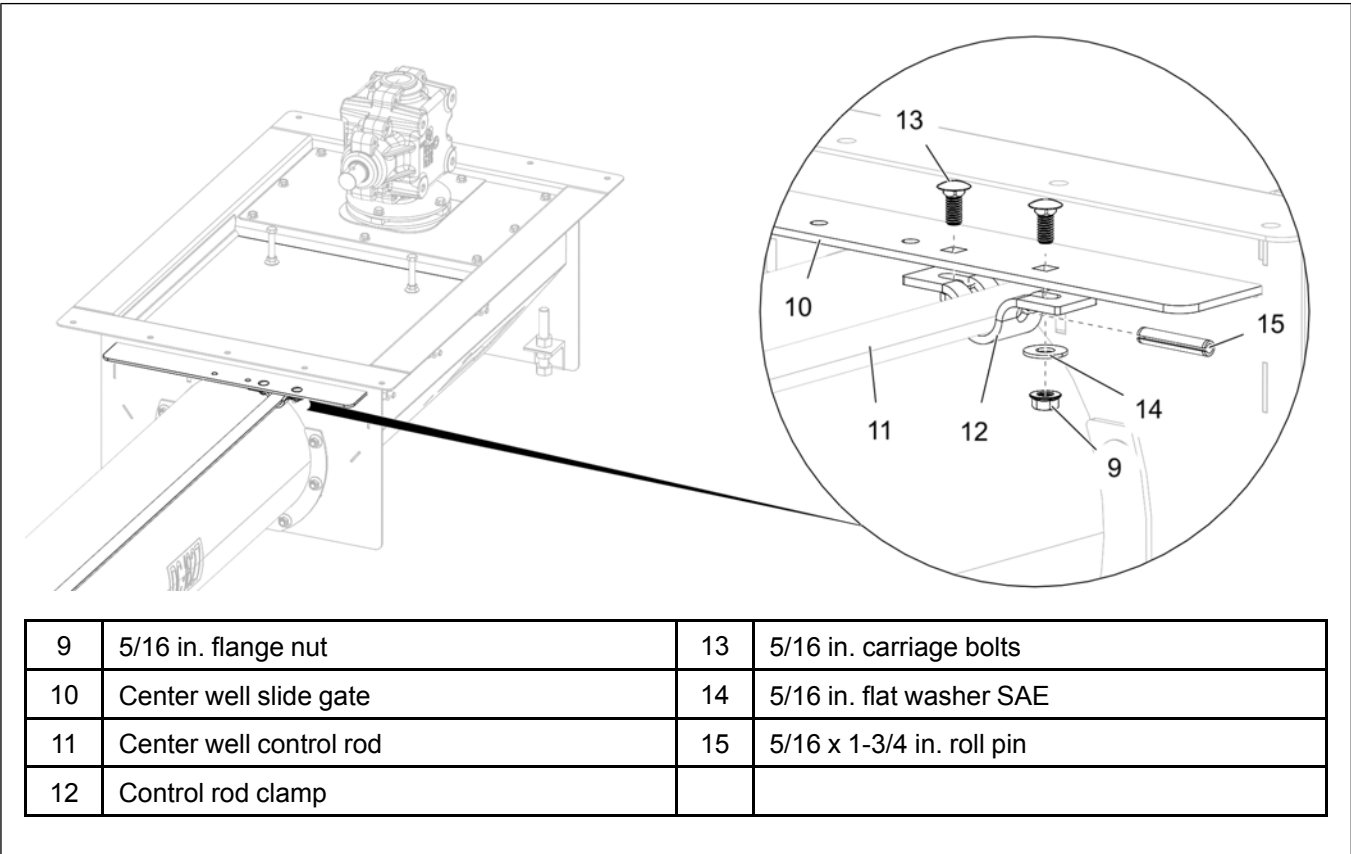


Figure 3-10 10 in. Center well gate assembly



NOTE: In order to install the carriage bolts, the gate needs to be attached to the pipe *PRIOR* to assembling the tube to the center well. Extend the center well pipe off the end of the tube and slide the gate out of the well. This will give the space to tighten the nuts.

After You Finish

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

Installing the Auxiliary Intermediate Well (Optional)

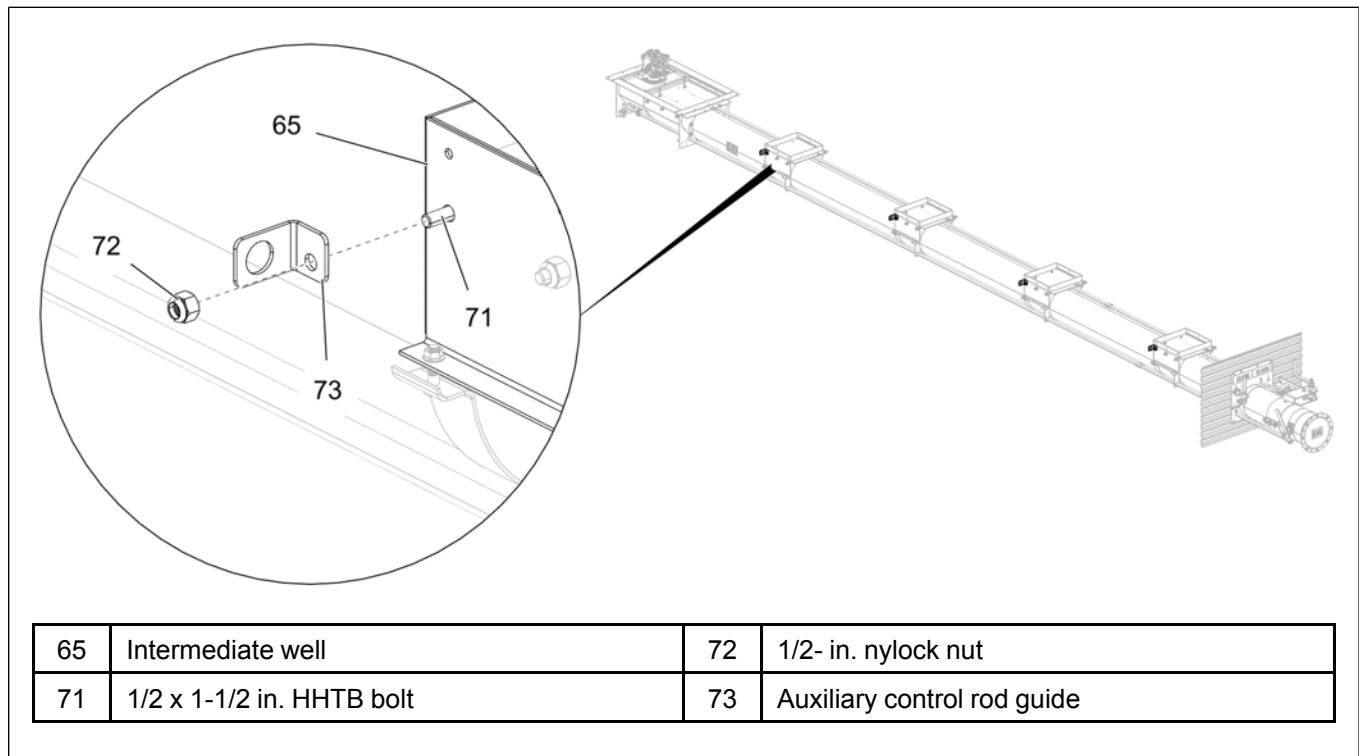
What You Should Know

If the center well becomes plugged during gravity unloading, this option allows the bin to still be unloaded until the plugged center well can be addressed. This control option allows the end user to independently control the intermediate closest to the center well

1. Install the auxiliary control rod guides (73) to all intermediate wells (65) using the HHTB bolts (71) and nylock nuts (72).

NOTE: The control rod guide must mount to the intermediate well as shown for proper rod alignment to gate and wall flange.

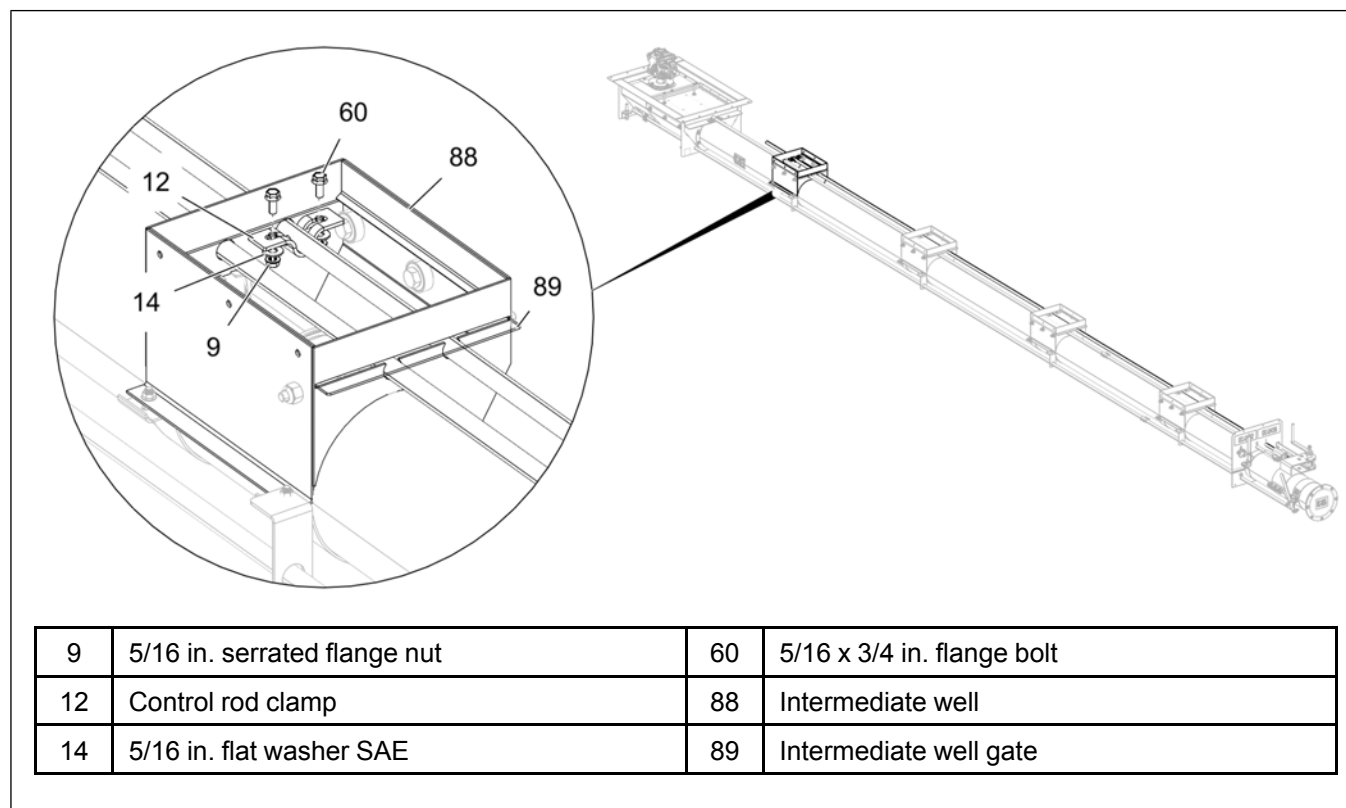
Figure 3-11 Installing the auxiliary rod guide to intermediate well



- Slide and remove the intermediate gate from the intermediate well next to the center well.

NOTE: Make sure to partially pull the intermediate gate (89) out to allow gap for removing the gate clamp (12), pin (15), bolts (13), washers (14) and nuts (9) at the inside of the intermediate well (88) before removing the intermediate gate in a 8 in. sweep.

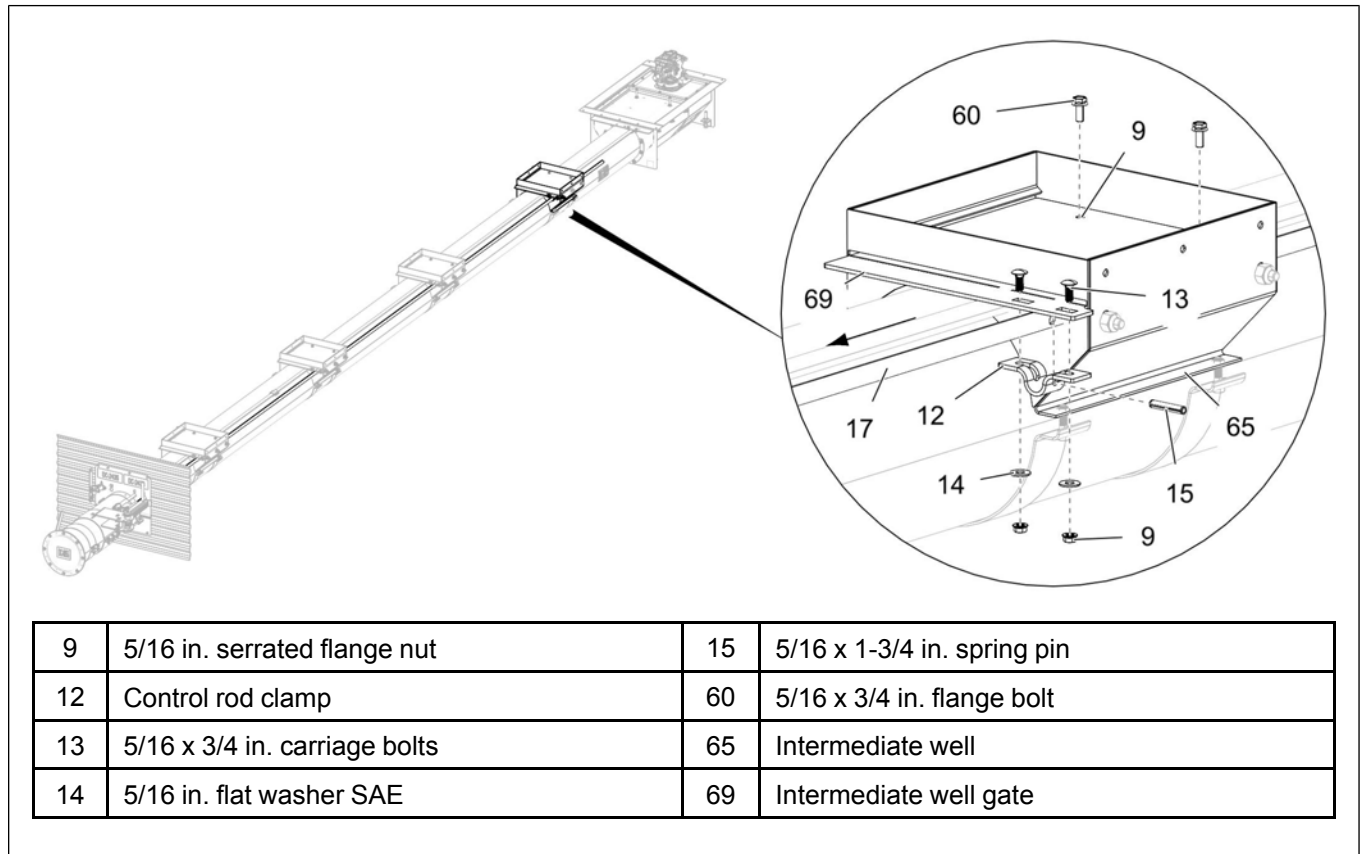
Figure 3-12 Removing the intermediate gate (8 in. sweep)



NOTE:

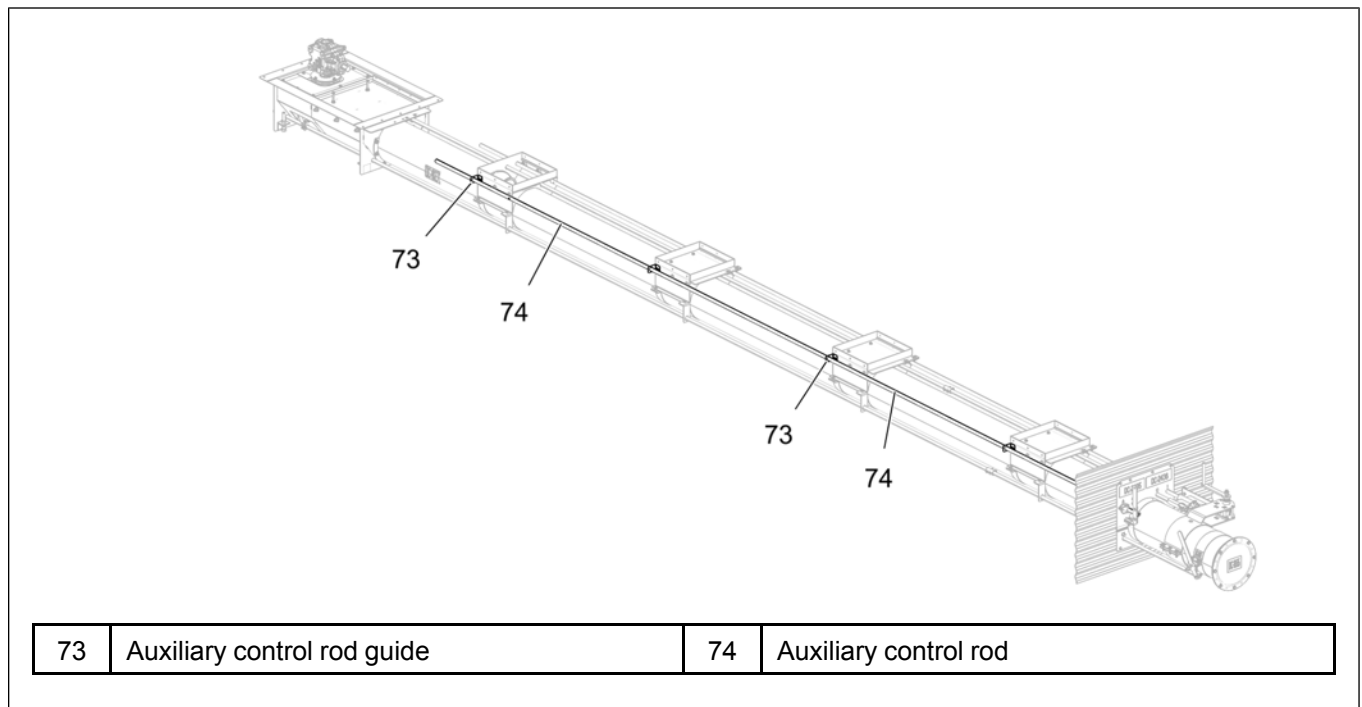
- Make sure to partially pull the intermediate gate (69) out to allow gap for removing the bolts (60) and nuts (9) inside the intermediate well (65) in a 10 in. sweep
- Make sure to remove the gate clamp (12), pin (15), bolts (13), washers (14) and in. nuts (9) at the outside of the intermediate well to remove the intermediate gate in a 10 in. sweep

Figure 3-13 *Removing the intermediate gate (10 in. sweep)*



- Slide the auxiliary control rod (74) through the bin flange and auxiliary well control rod guide brackets (73) in the intermediate wells.

Figure 3-14 *Sliding the auxiliary control rod through rod guide bracket*



Chapter 3: Installation

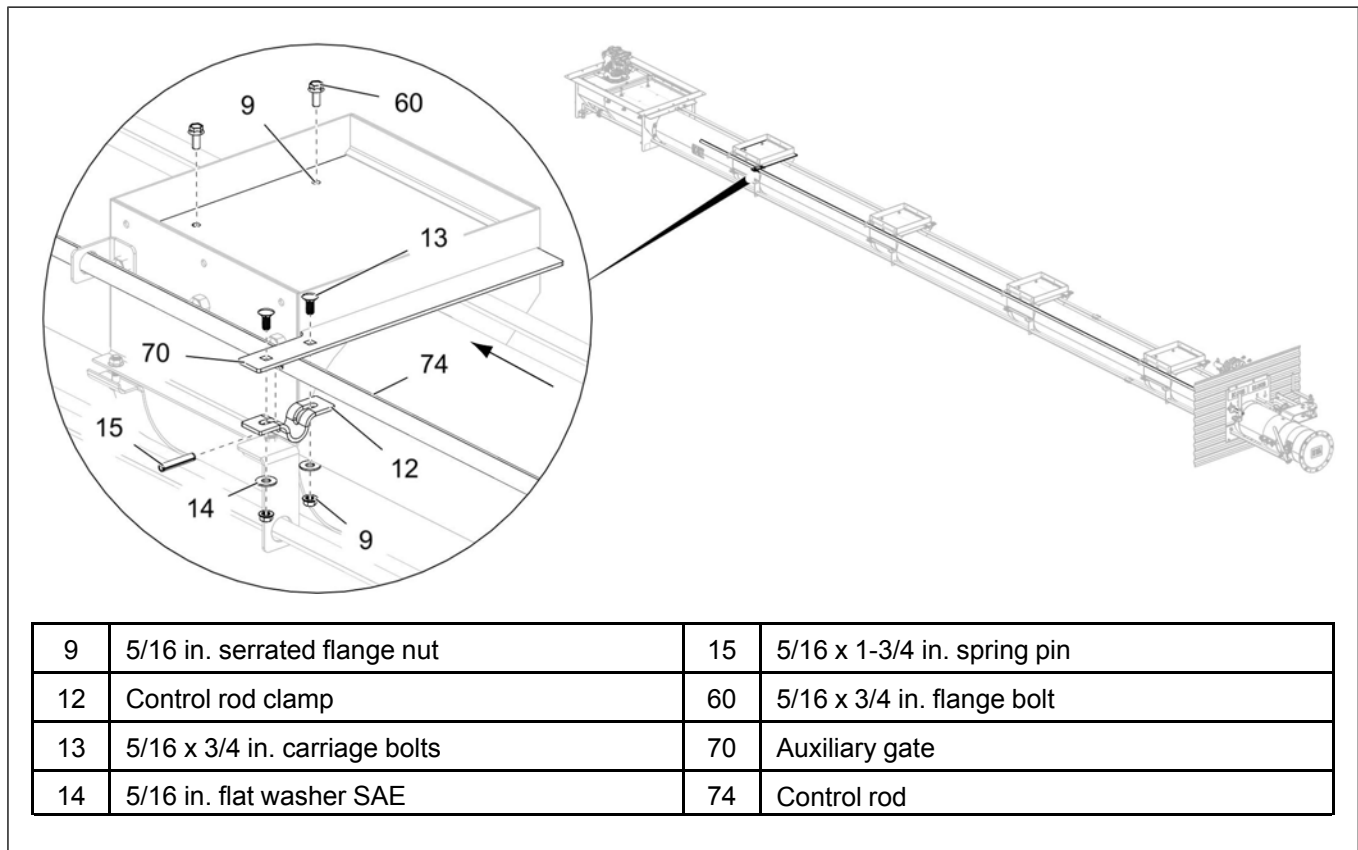
4. Install the auxiliary gate (70) using the flange bolts (60) and serrated flange nuts (9). Install the gate clamp (12), carriage bolts (13), washers (14), nuts (9) and pin (15) at the outside of the intermediate well.

NOTE:

- Make sure to provide gap in the intermediate well to install the bolts (60) and serrated flange nuts (9) in the auxiliary gate before closing.
- Make sure to install the gate clamp (12), carriage bolts (13), flat washers (14), serrated flange nuts (9) and pin (15) to the auxiliary gate with the auxiliary control rod at the outside of the intermediate well.

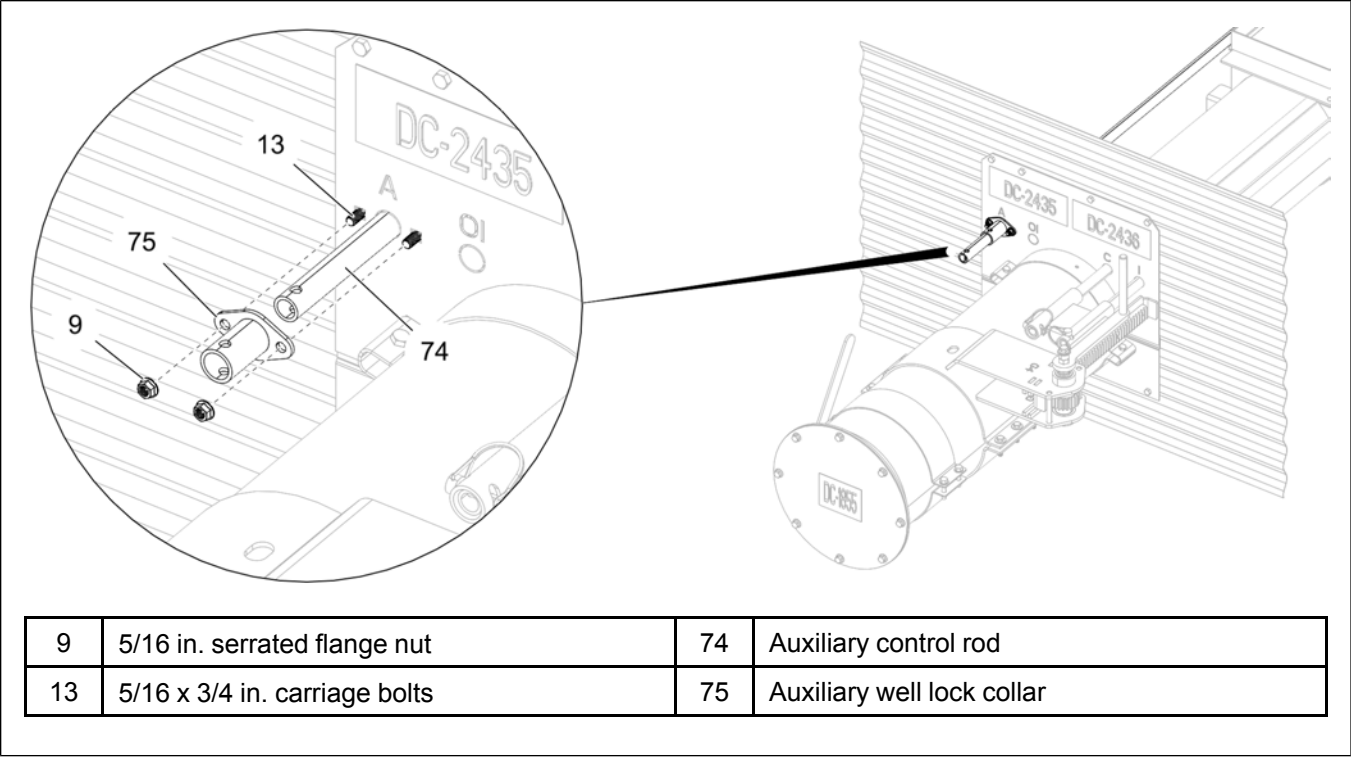
IMPORTANT: Carriage bolts (13) must be installed from top down as shown, if not, they will interfere with the flooring and will not open.

Figure 3-15 Installing the auxiliary intermediate gate (For 8 in. and 10 in.)



5. Insert the auxiliary well lock collar (75) onto the auxiliary control rod (74) and install to the bin flange using carriage bolts (13) and serrated flange nuts (9).

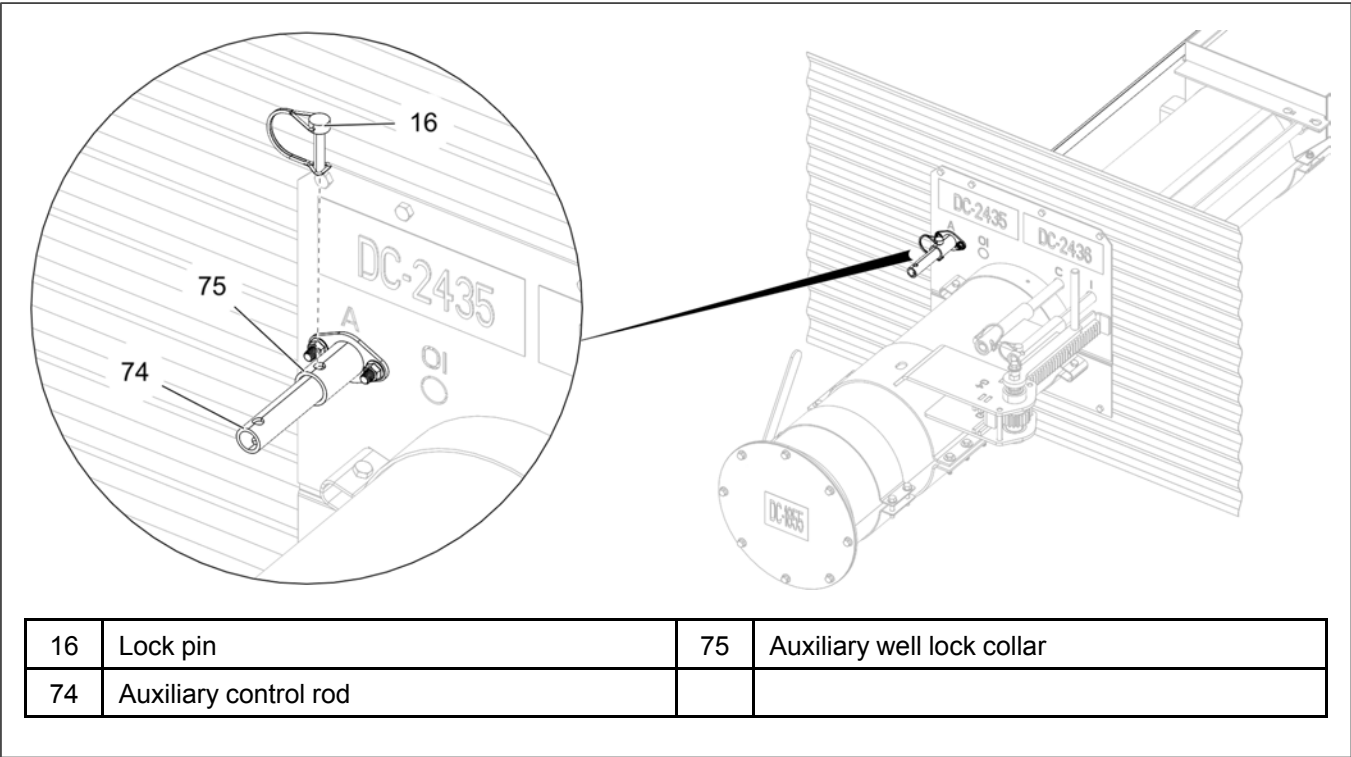
Figure 3-16 Installing the auxiliary well lock collar to bin flange



6. Insert the lock pin (16) through the auxiliary lock collar (75) and auxiliary control rod (74).

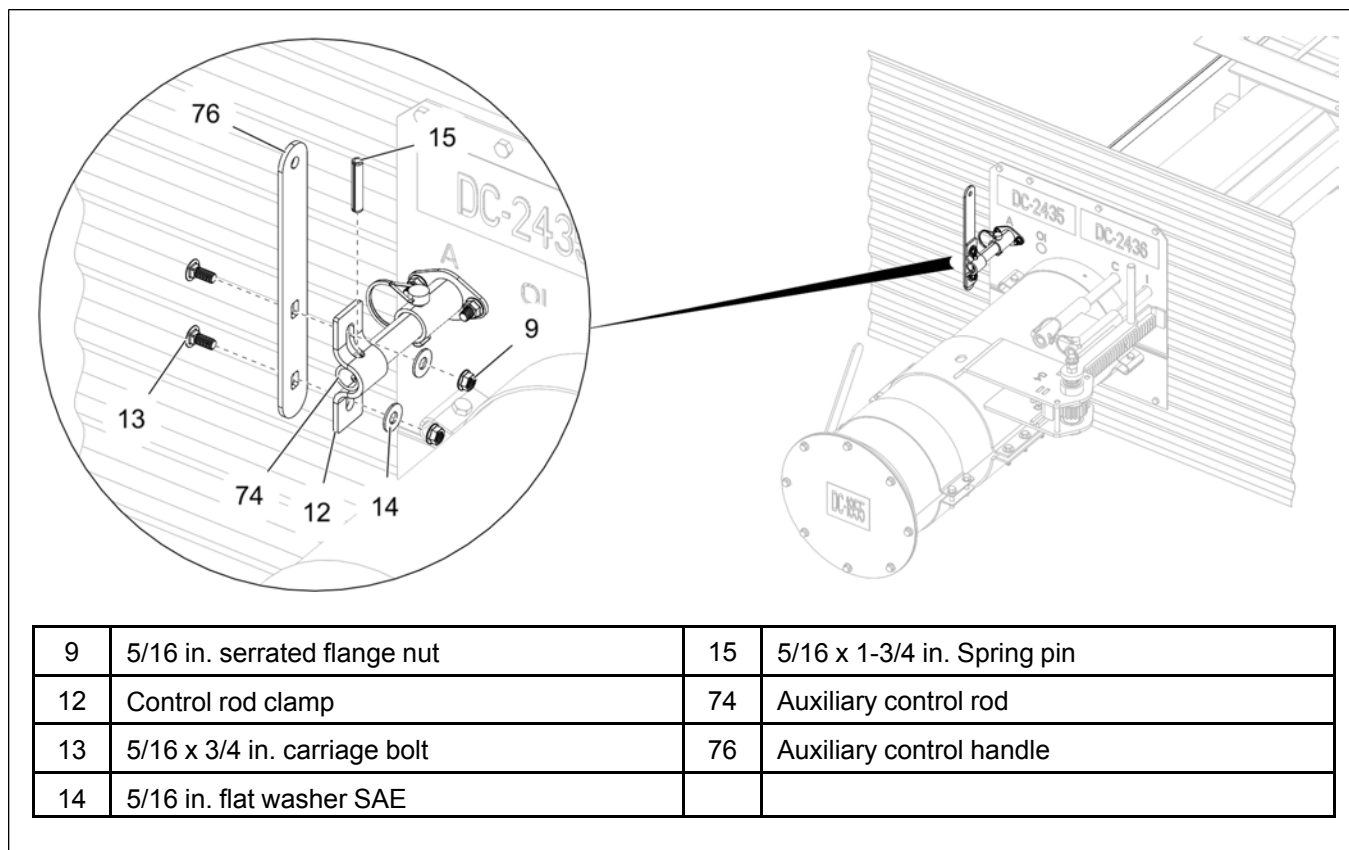
NOTE: Make sure the auxiliary well gate is completely closed, drill a hole in the auxiliary control rod (74) using the auxiliary lock collar (75) as drilling guide to insert the lock pin (16).

Figure 3-17 Installing the lock pin



7. Install the auxiliary control handle (76) to the auxiliary control rod (74) using carriage bolts (13), flat washers (14), serrated flange nuts (9) and pin (15).

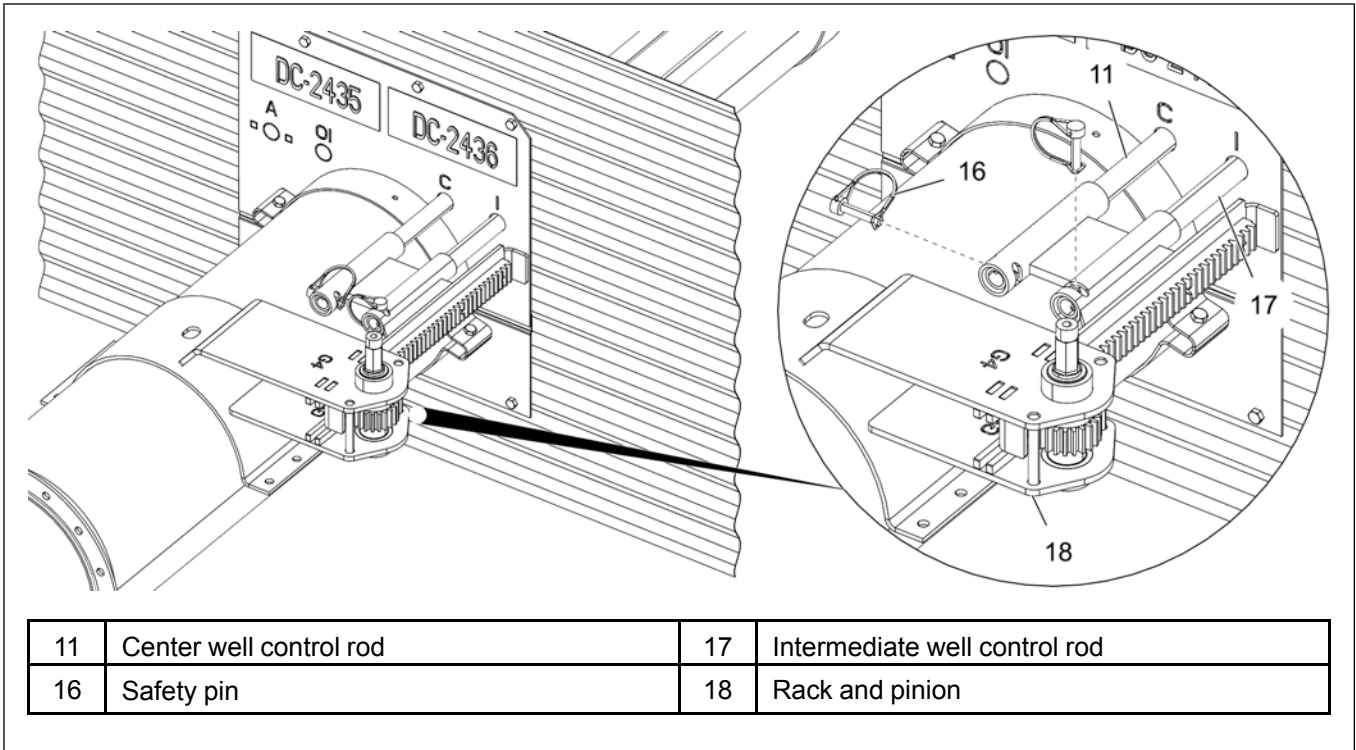
Figure 3-18 *Installing the auxiliary control lever*



Installing the Rack and Pinion

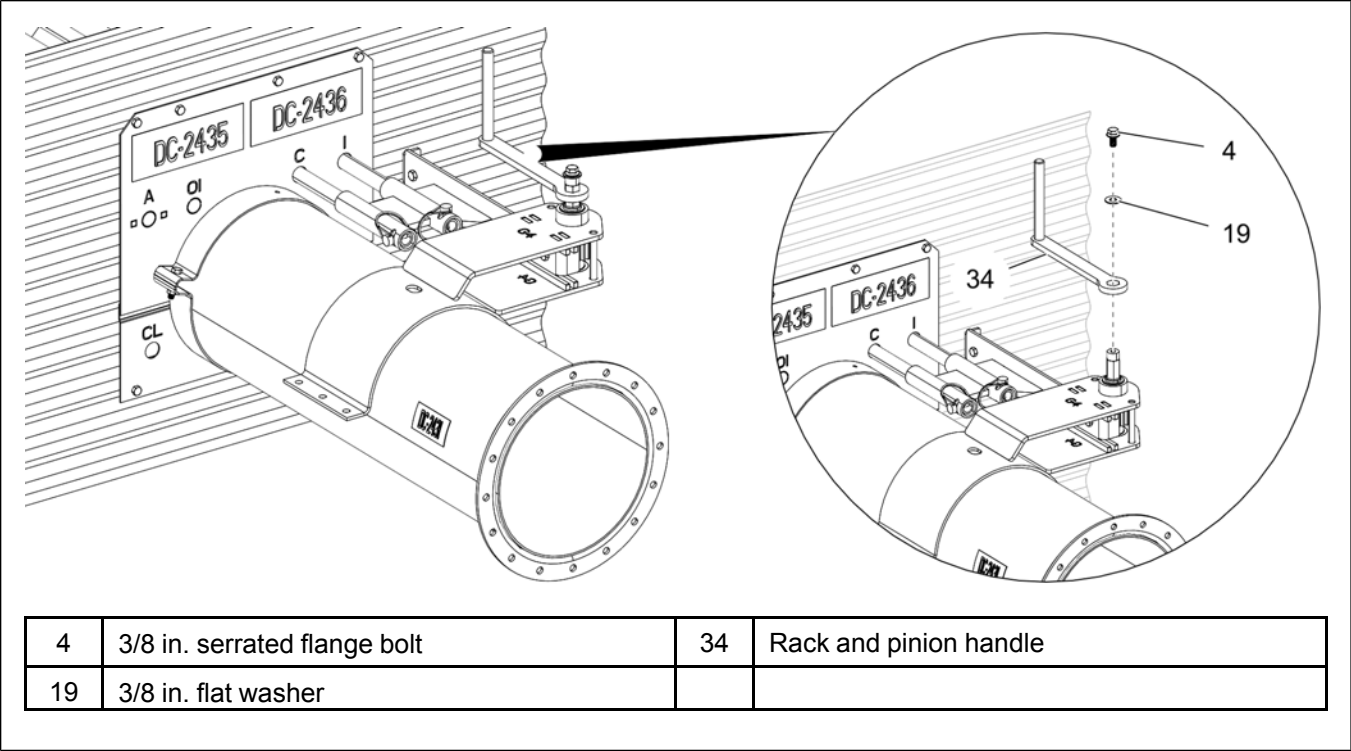
1. Make sure all gates are fully closed.
2. Slip the rack and pinion over center gate and intermediate control rods (17). Align holes, making sure rack and pinion is fully extended toward bin wall.
3. With rack and pinion resting on unload tube and tube holes aligned, place the safety snap-on pins (16) through the center and intermediate well control rods (11 and 17) to the rack and pinion tubes (18) as shown.

Figure 3-19 *Installing the rack and pinion*



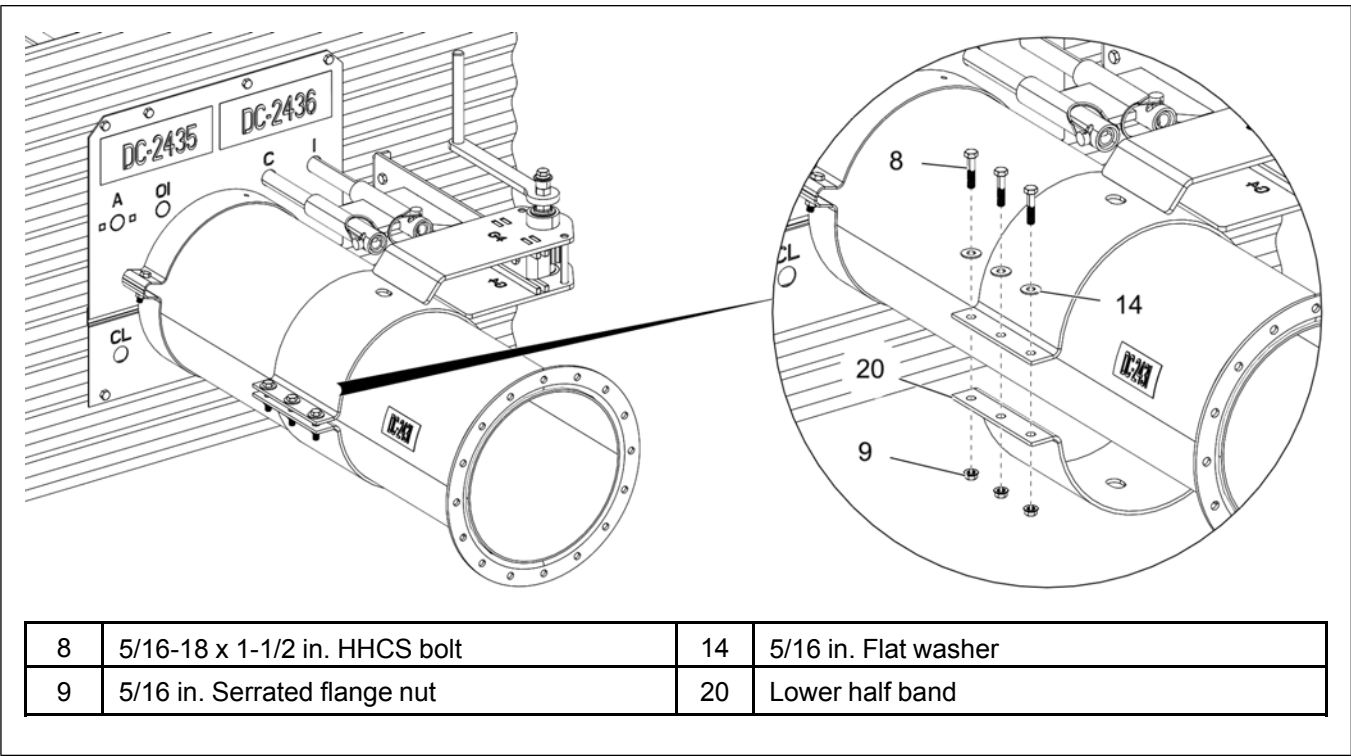
- 4. Slide the handle (34) over shaft on rack and pinion. Fasten down with serrated flange bolt (4) and flat washer (19).

Figure 3-20 Installing the handle to rack and pinion



5. With rack and pinion fully extended towards the bin wall, attach lower half band (20) and secure to unload tube with HHCS bolts (8), flat washers (14) and serrated flange nuts (9).

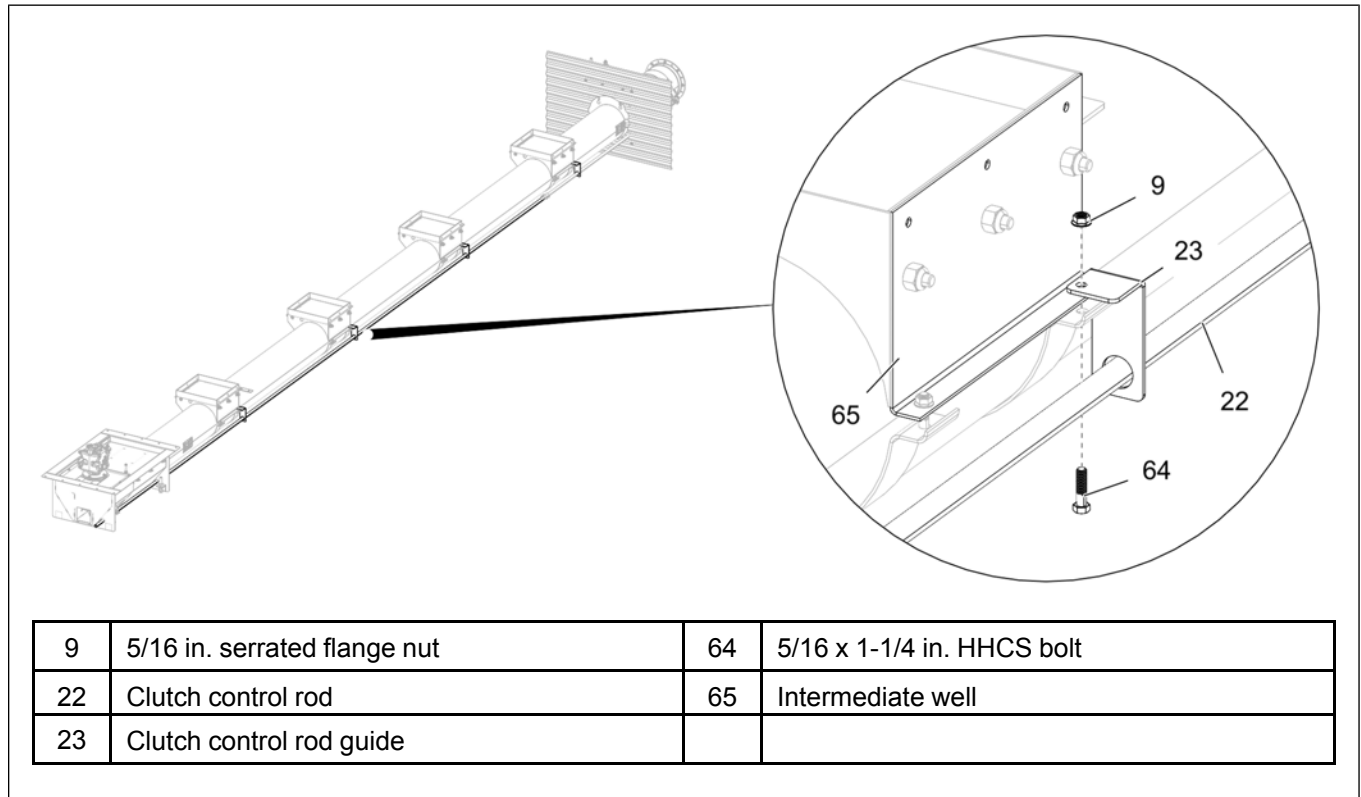
Figure 3-21 Installing the lower half band



Installing the Clutch Control

1. Install the clutch control rod guides (23) to the left side of the intermediate well (65) using HHCS bolts (64) and serrated flange nuts (9).
2. Slide the clutch control rod (22) through the bin flange (6), rod guides (23) on the intermediate wells and through the back of center well.

Figure 3-22 *Sliding the clutch control rod through support brackets*



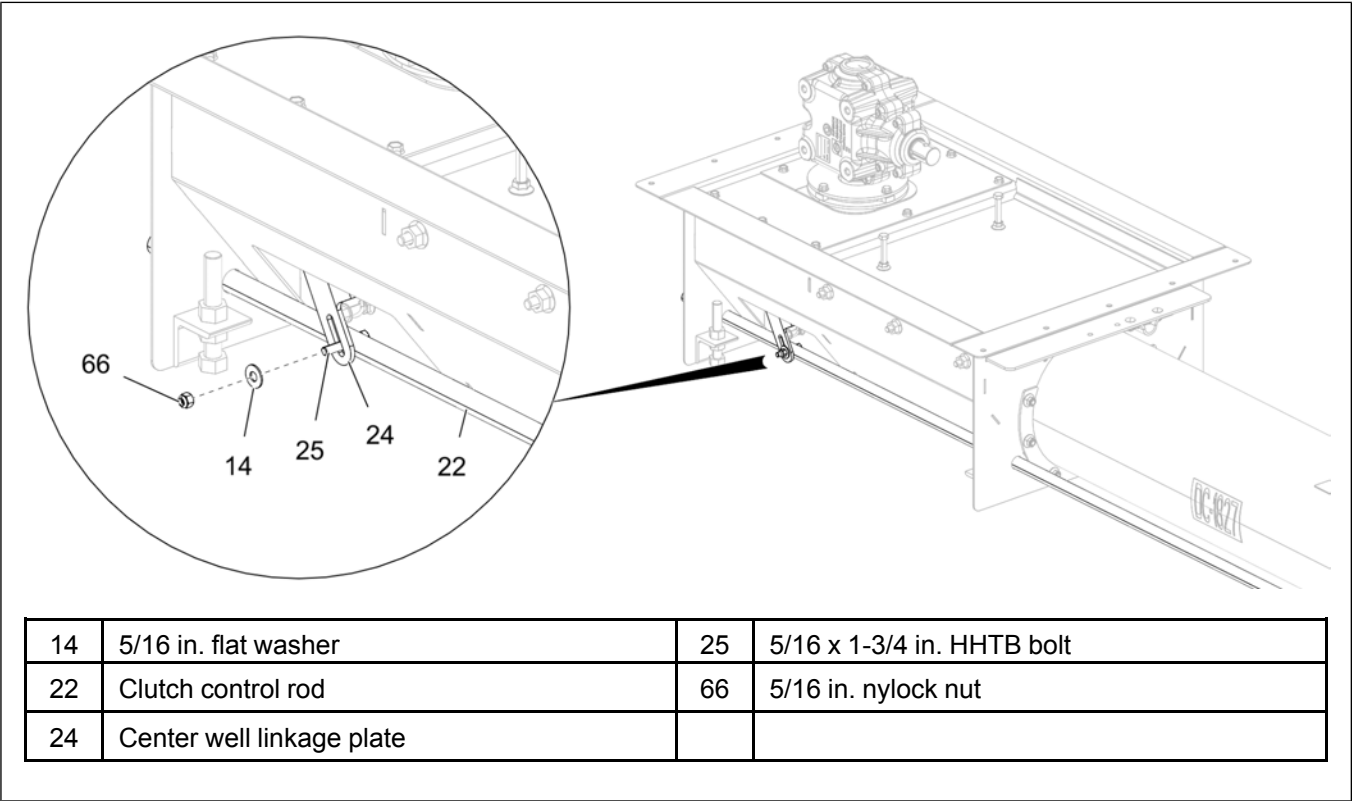
Chapter 3: Installation

3. Bolt the clutch control rod to the center well linkage plate (24) using HHTB bolt (25), flat washer (14) and nylock nut (66).

NOTE: Make sure that bolt head is inside. Do not over tighten the nylock nut. The linkage plate should slide freely on bolt.

NOTE: The clutch control rod should slide freely and should not interfere with floor supports.

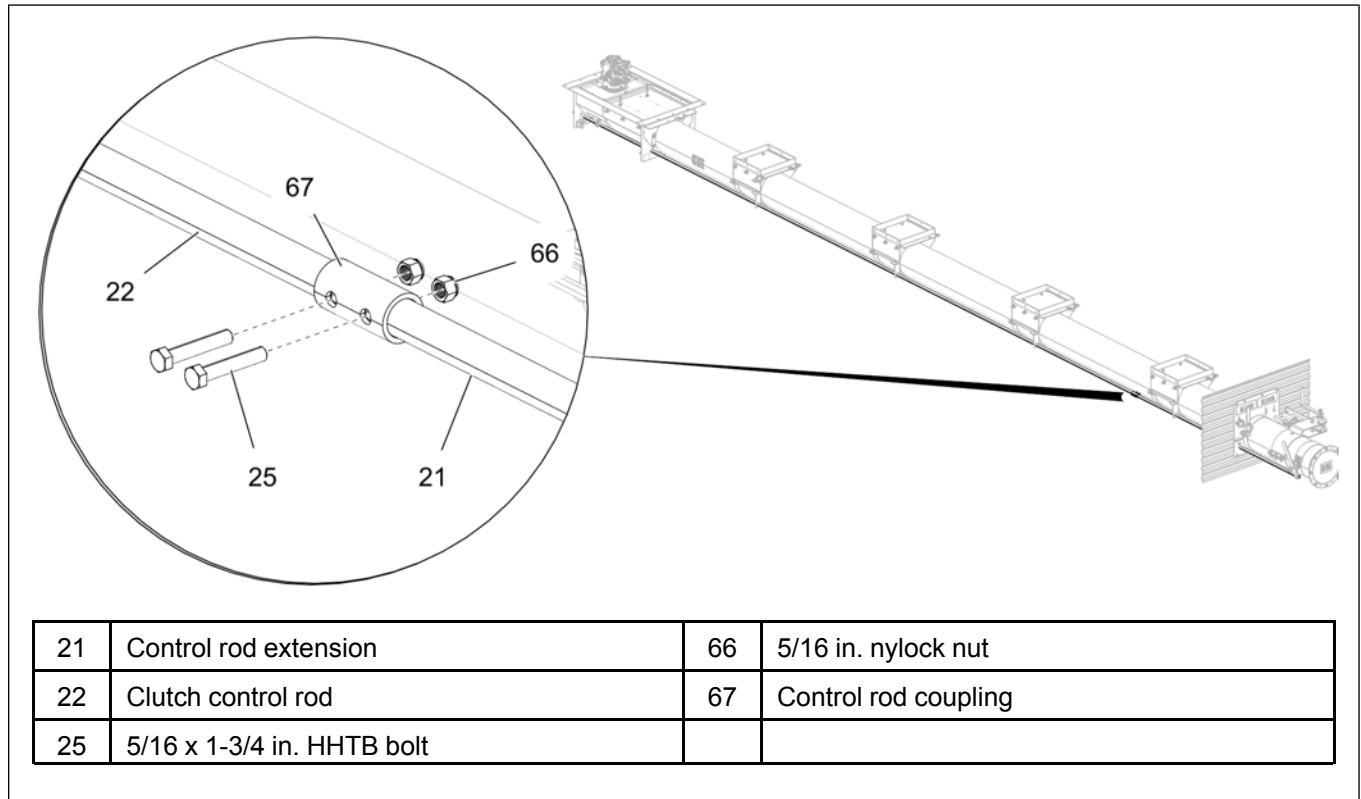
Figure 3-23 Installing the clutch control rod to center well linkage



4. Attach the two clutch control rods (21 and 22) with a control rod coupler (67) using the HHTB bolts (25) and nylock nuts (66) as shown.

NOTE: The connecting rod coupler is used for sweeps in 42' diameter bins and larger.

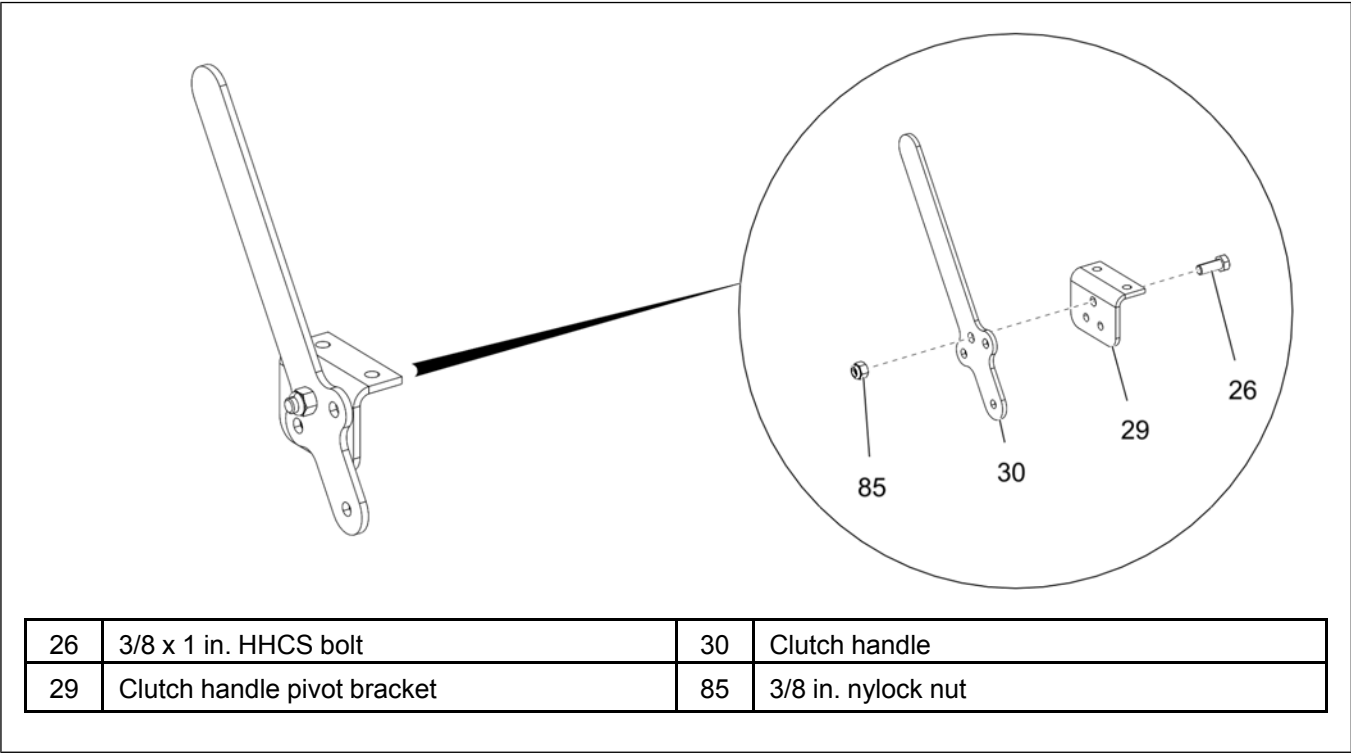
Figure 3-24 Assembling the two clutch control rods



5. Attach the clutch handle (30) to pivot bracket (29) using HHCS bolt (26), nylock nut (85).

NOTE: Do not over tighten. Handle must pivot freely.

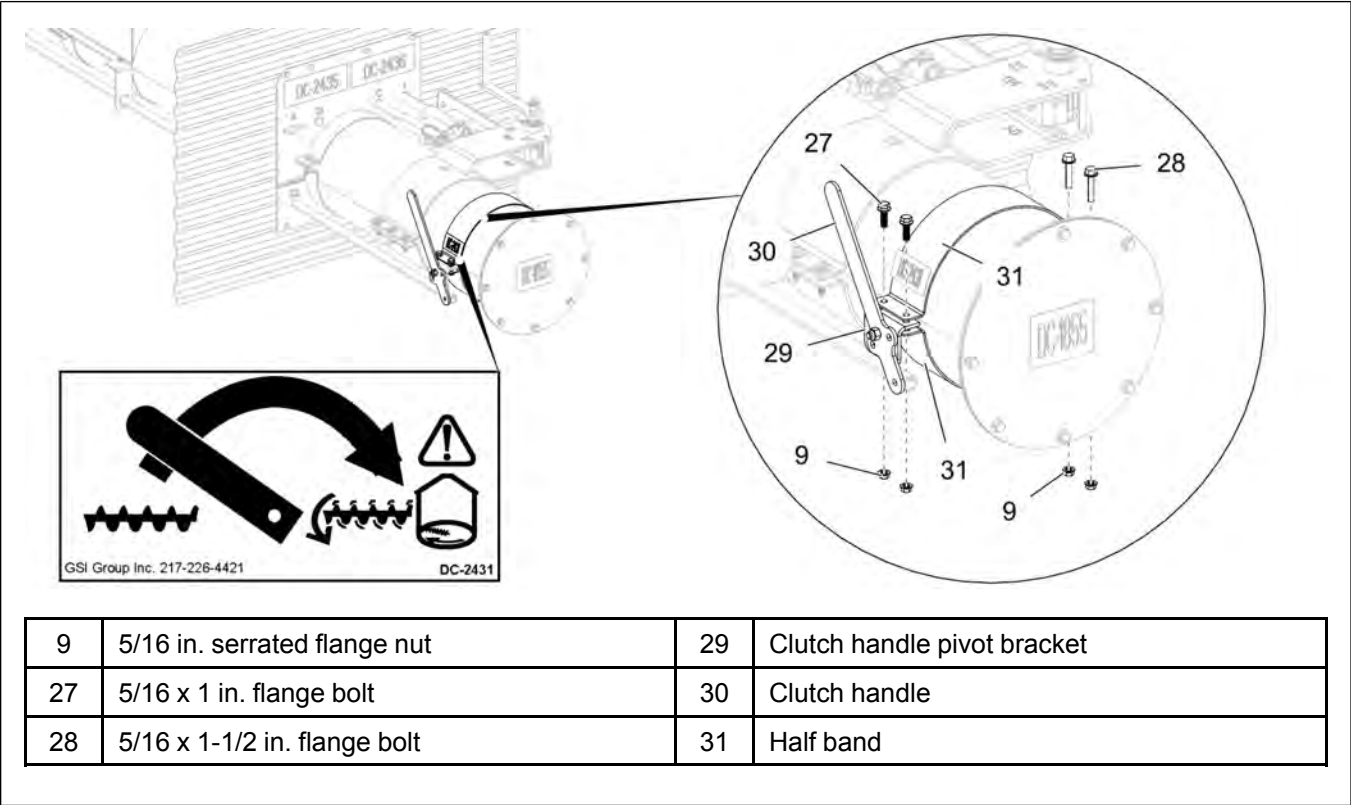
Figure 3-25 Attaching the clutch handle to pivot bracket



6. Attach the clutch pivot bracket (29) between the half bands (31). Secure the bracket with bands using flange bolts (27) and serrated flange nuts (9). Secure the bands together using flange bolts (28) and serrated flange nuts (9) on the other side.

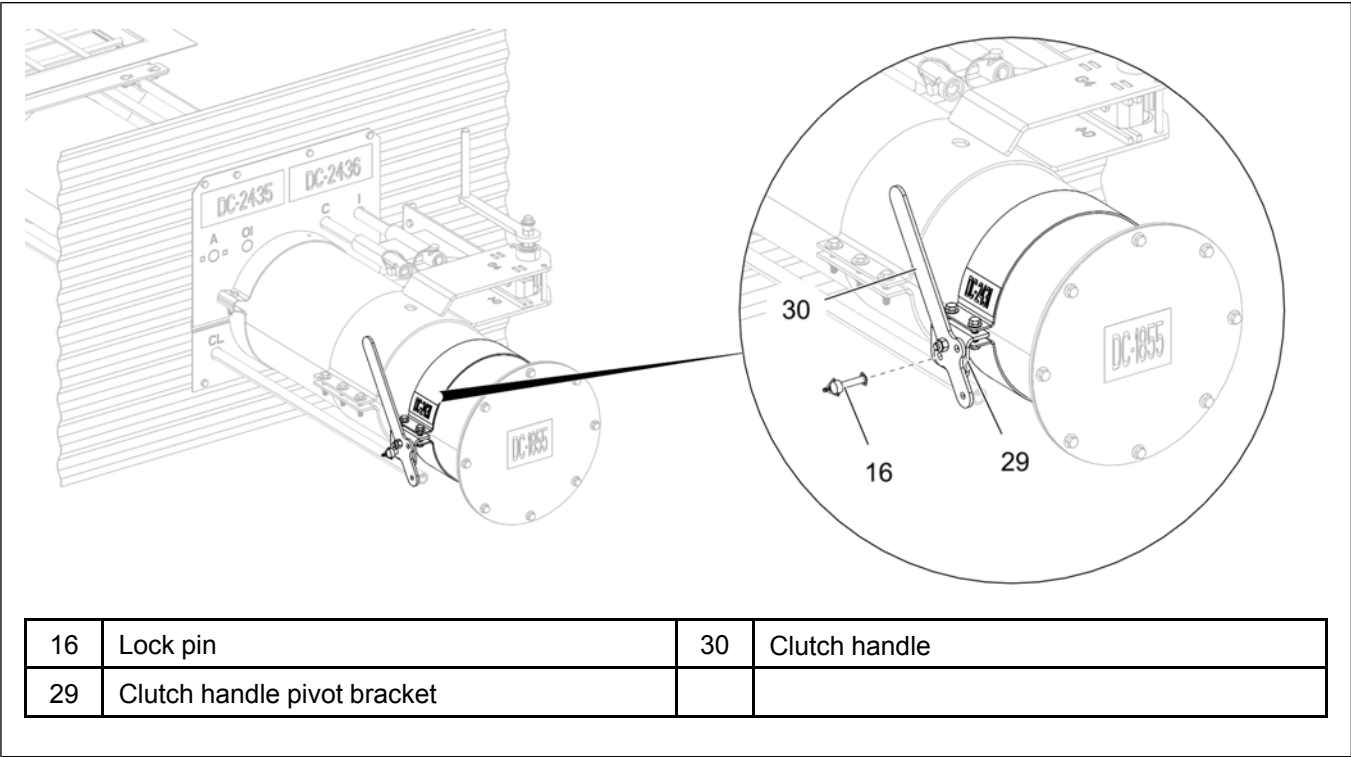
NOTE: Clutch pivot bracket must be clamped tight between the half bands.

Figure 3-26 Attaching the clutch pivot bracket between the half bands



7. Insert the lock pin (16) through the disengaged holes in the clutch handle (30) and pivot bracket (29).

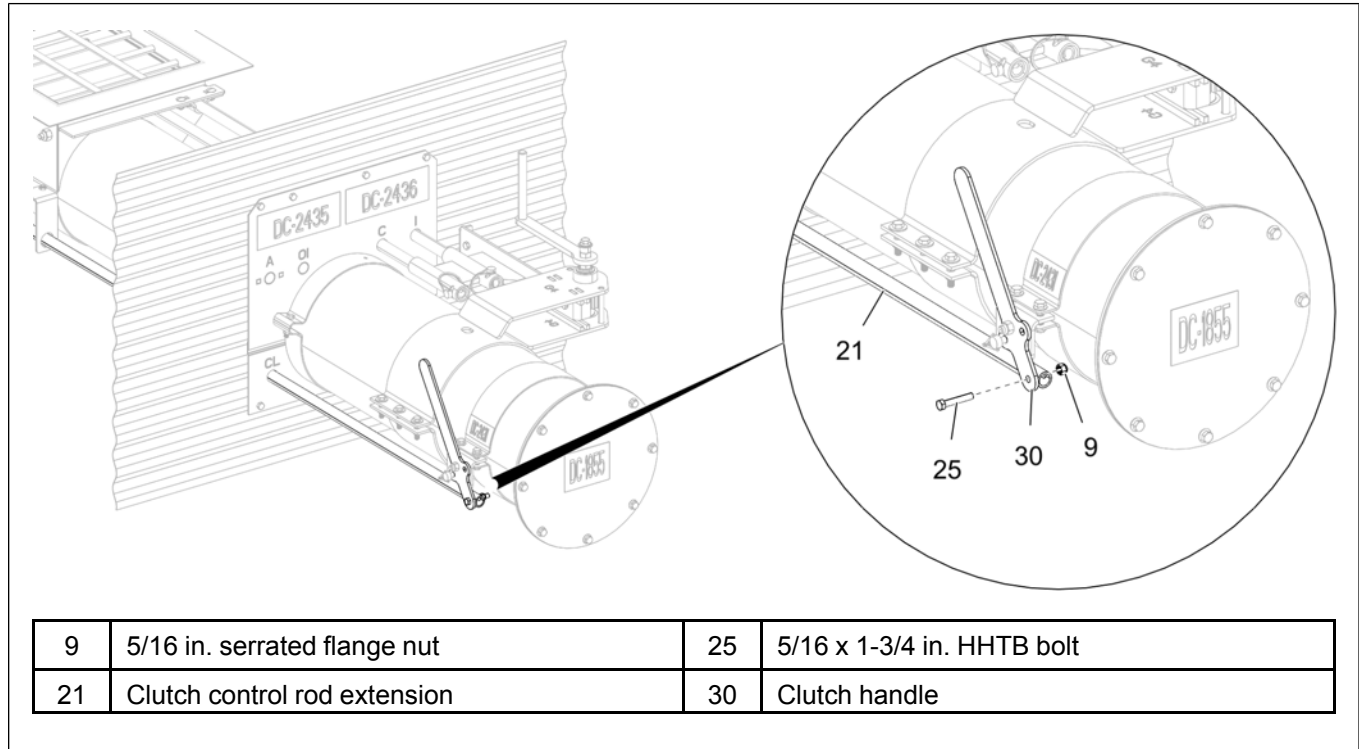
Figure 3-27 Inserting the lock pin



8. Attach the clutch handle (30) to the clutch control rod extension (21) using HHTB bolt (25) and serrated flange nut (9).

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

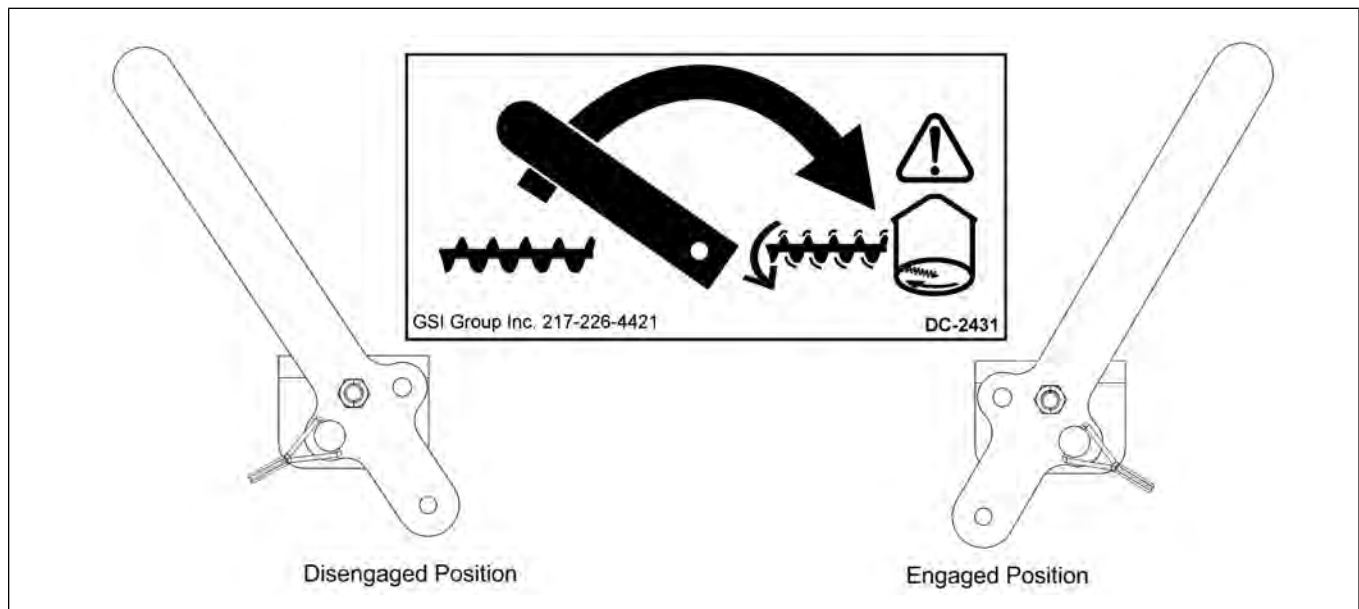
Figure 3-28 Installing clutch handle to clutch control rod



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.

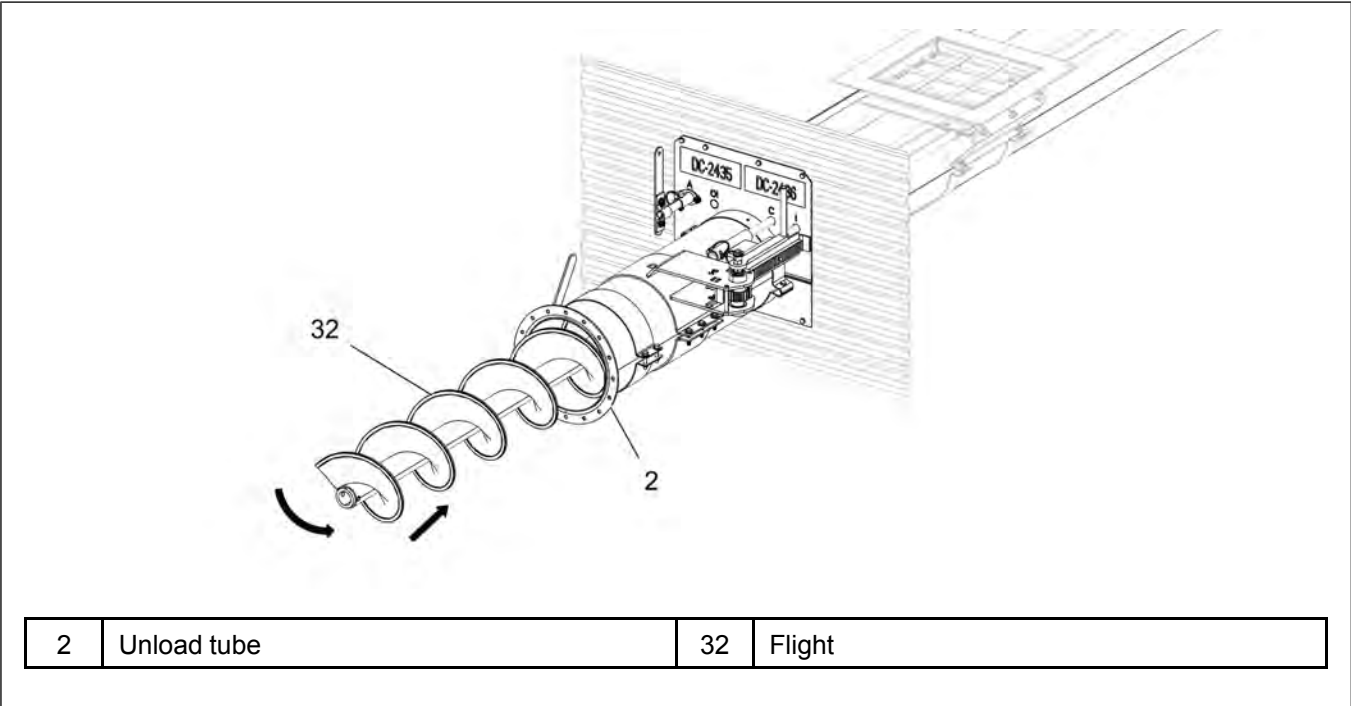
Figure 3-29 Clutch positions



Installing the Unload Tube Flight

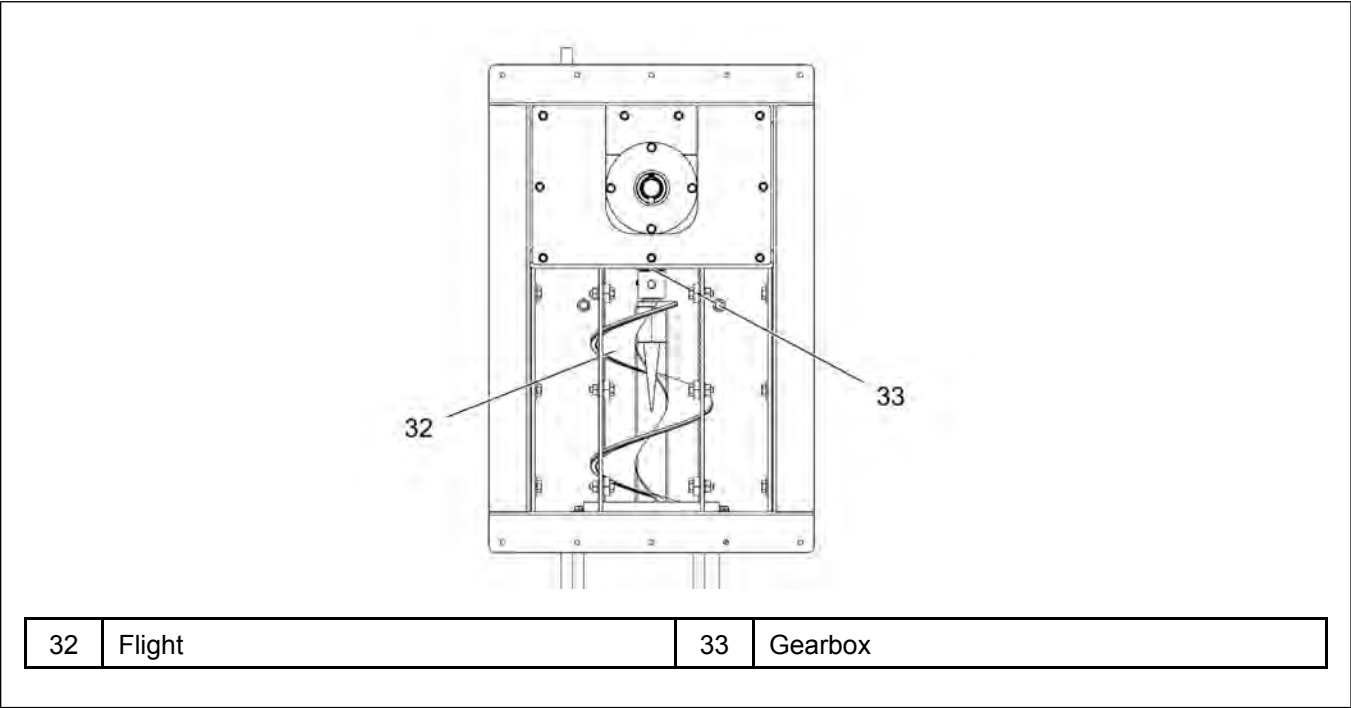
- 1. Begin by removing the tube end cap if you have not already done so.
- 2. Insert the flight (32) into the tube (2) with the square bushing end facing the center well and the round bushing end facing the discharge end of the tube.

Figure 3-30 *Installing the flight into unload tube*



3. When the flight (32) is approaching the center well shaft, it will be necessary to rotate flighting counter clockwise in order to get it to seat properly on the square shaft (33). When the flight is properly seated, the flight should be entirely inside the unload tube. It may be necessary to pull the flight out, a small amount and attempt this step multiple times in order to seat the flight properly.

Figure 3-31 Attaching flight to center well shaft

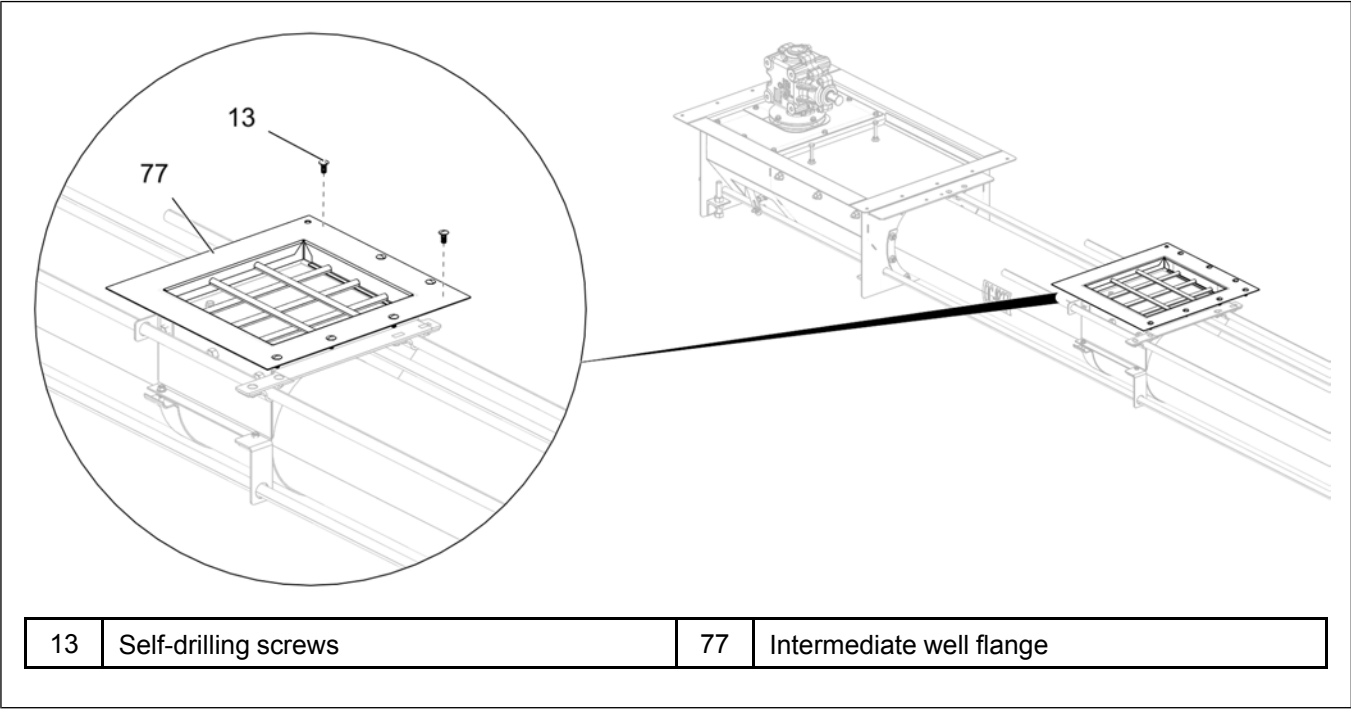


4. Open the center well gate and enter the bin to check and see that the flight is seated.

Installing Intermediate Well Flange

- 1. Place the intermediate well flange (77) onto the intermediate well.
- 2. Install self-drilling screws (13) to secure the intermediate well flange (77) to the bin floor.

Figure 3-32 *Installing the intermediate flange well*



After You Finish

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

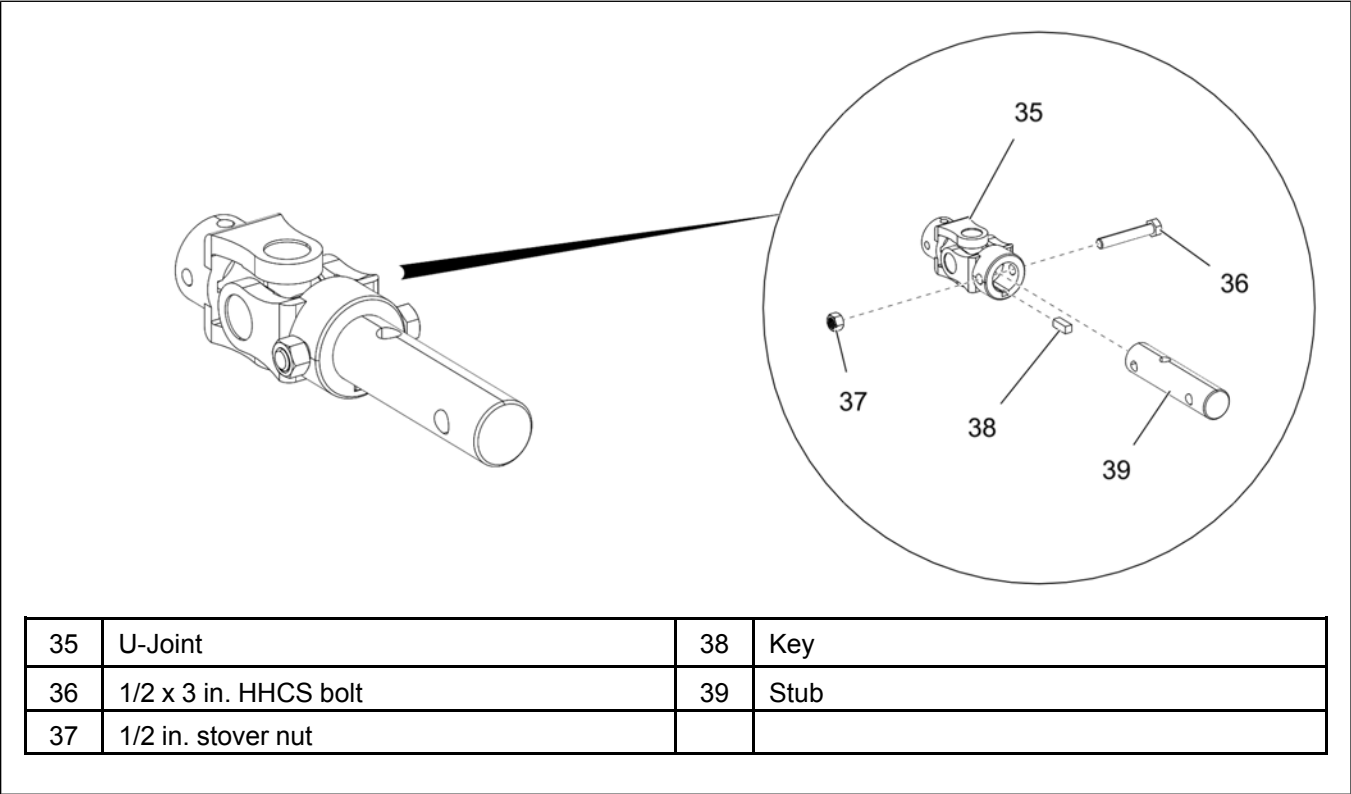
Installing the Sweep Flighting

1. Assemble the U-joint.

NOTE:

- Insert the stub (39) into the U-joint.
- Secure the U-joint (35) using a HHCS bolt (36), stover nut (37) and key (38).

Figure 3-33 Assembling the U-joint

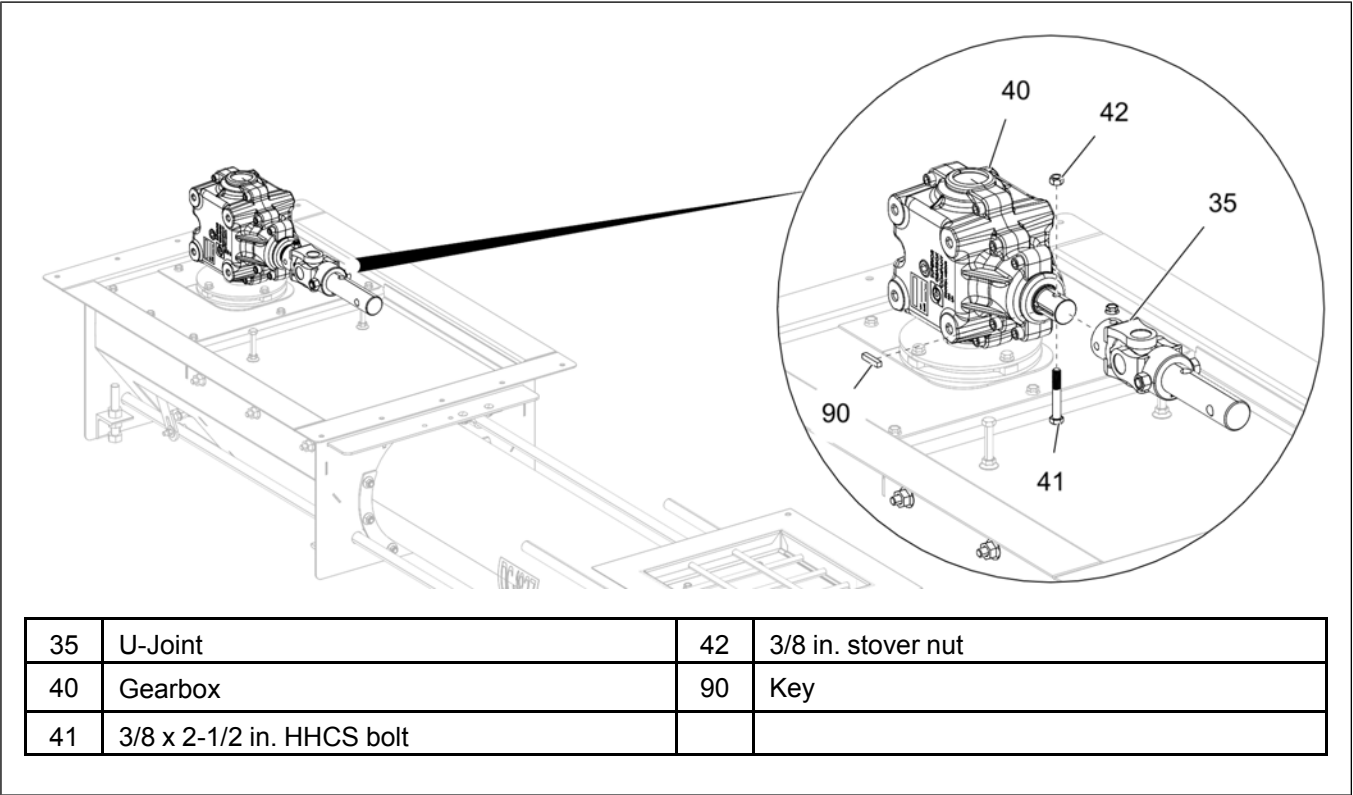


2. Attach the U-joint.

NOTE:

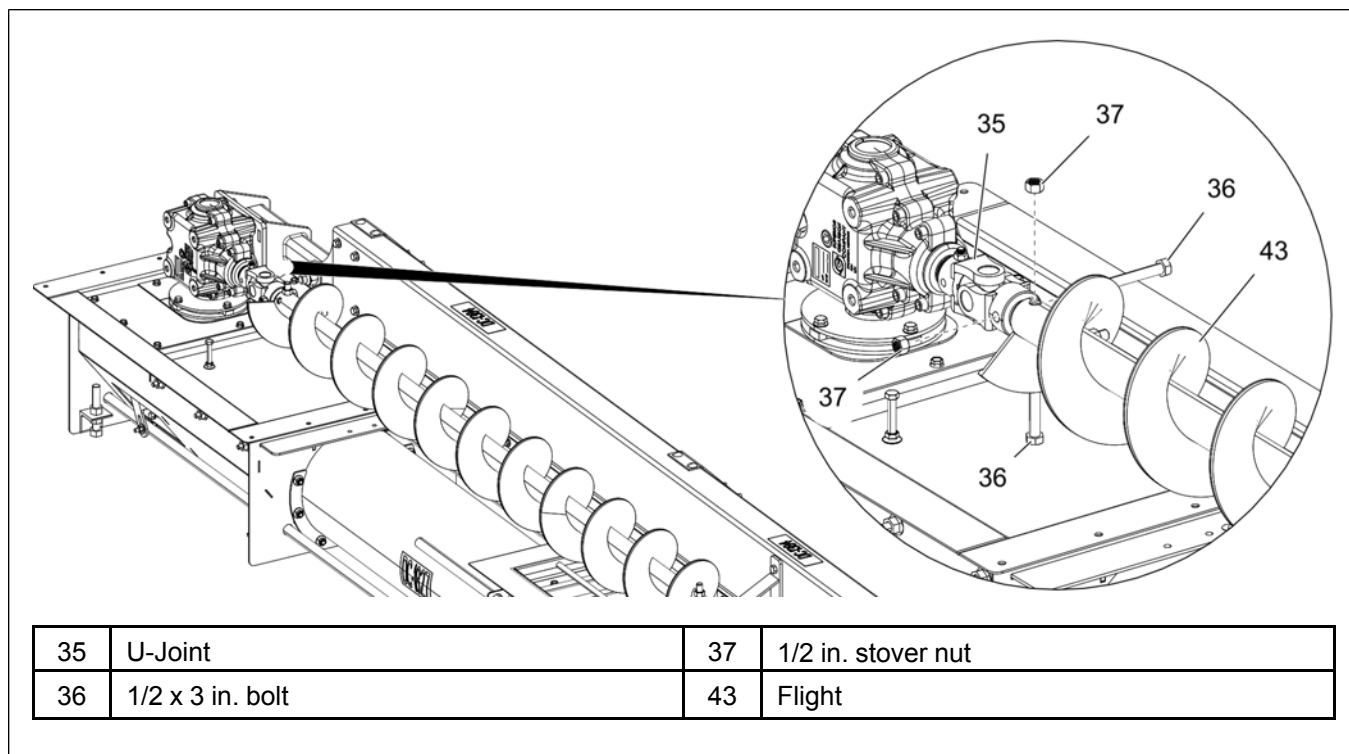
- Slide the U-joint (35) onto the top gearbox (40) output shaft.
- Secure the U-joint using a HHCS bolt (41), stover nut (42) and key (90).

Figure 3-34 Attaching the U-joint to the gearbox



3. Attach the first auger section to the U-joint shaft (35). Making sure that the Dura-Edge® side of the flight (43) faces the center of the bin. Secure it with bolts (93) and stover nuts (94).

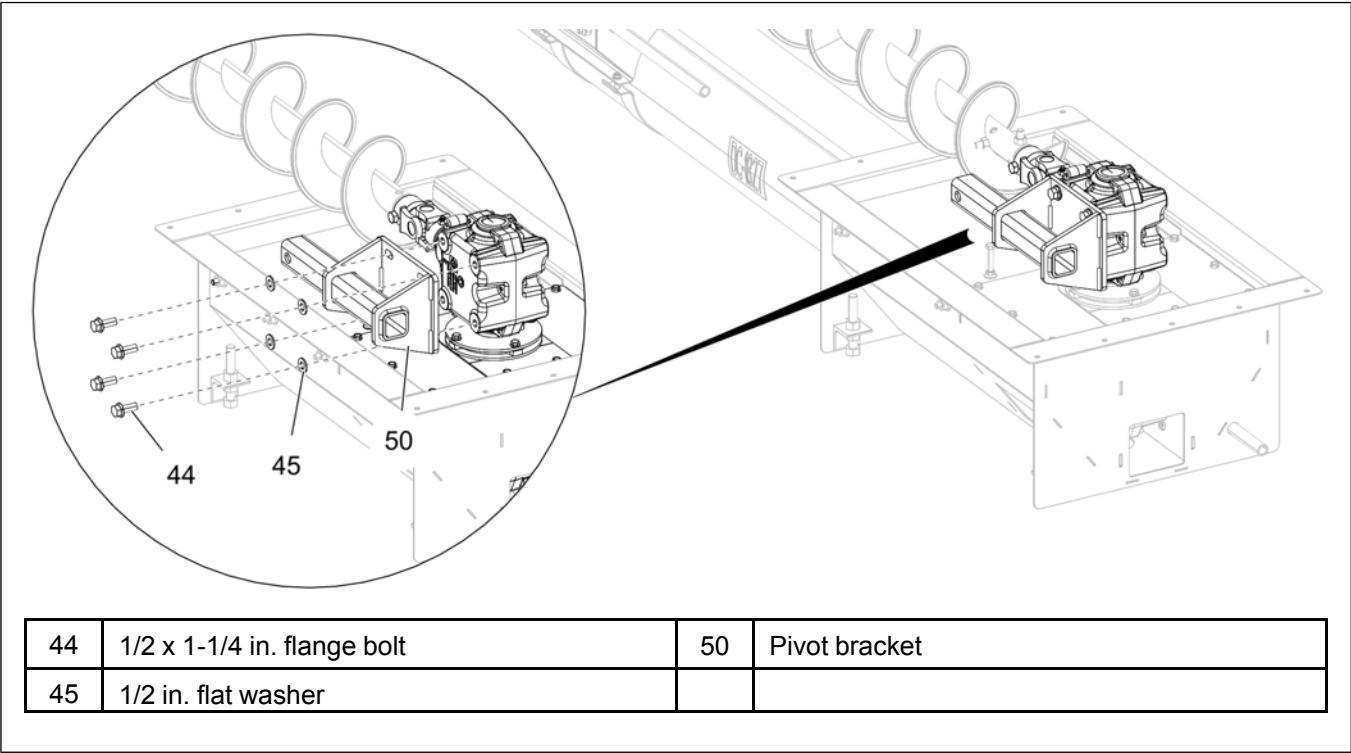
Figure 3-35 Attaching the auger to the U-joint



4. Attach the pivot bracket (50) to the side of the gearbox using flange bolts (44) and flat washers (45).

NOTE: Do not tighten the bolts.

Figure 3-36 Attaching the pivot bracket to the gearbox

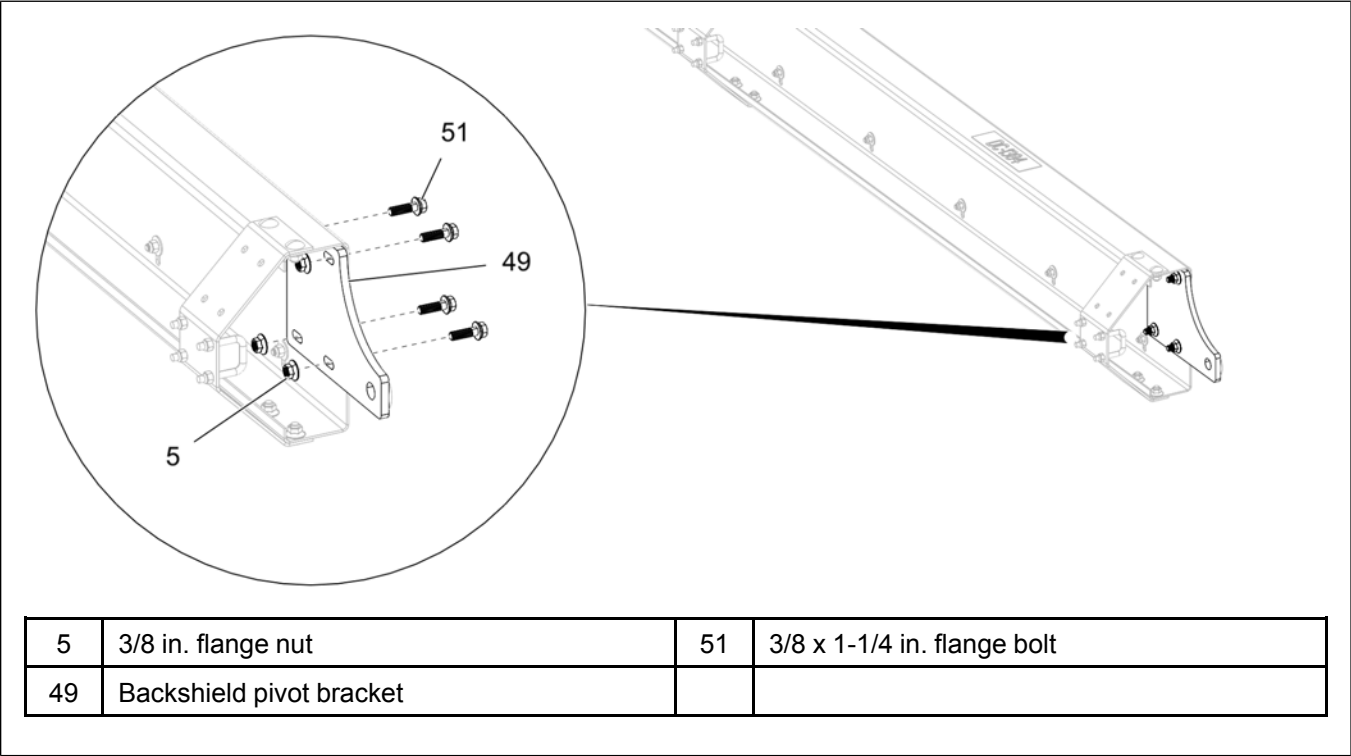


Installing the Flighting Shield

1. Assemble the flighting shield to the shield pivot bracket (49) using four flange bolts (51), and four flange nuts (5).

NOTE: Do not tighten the bolts.

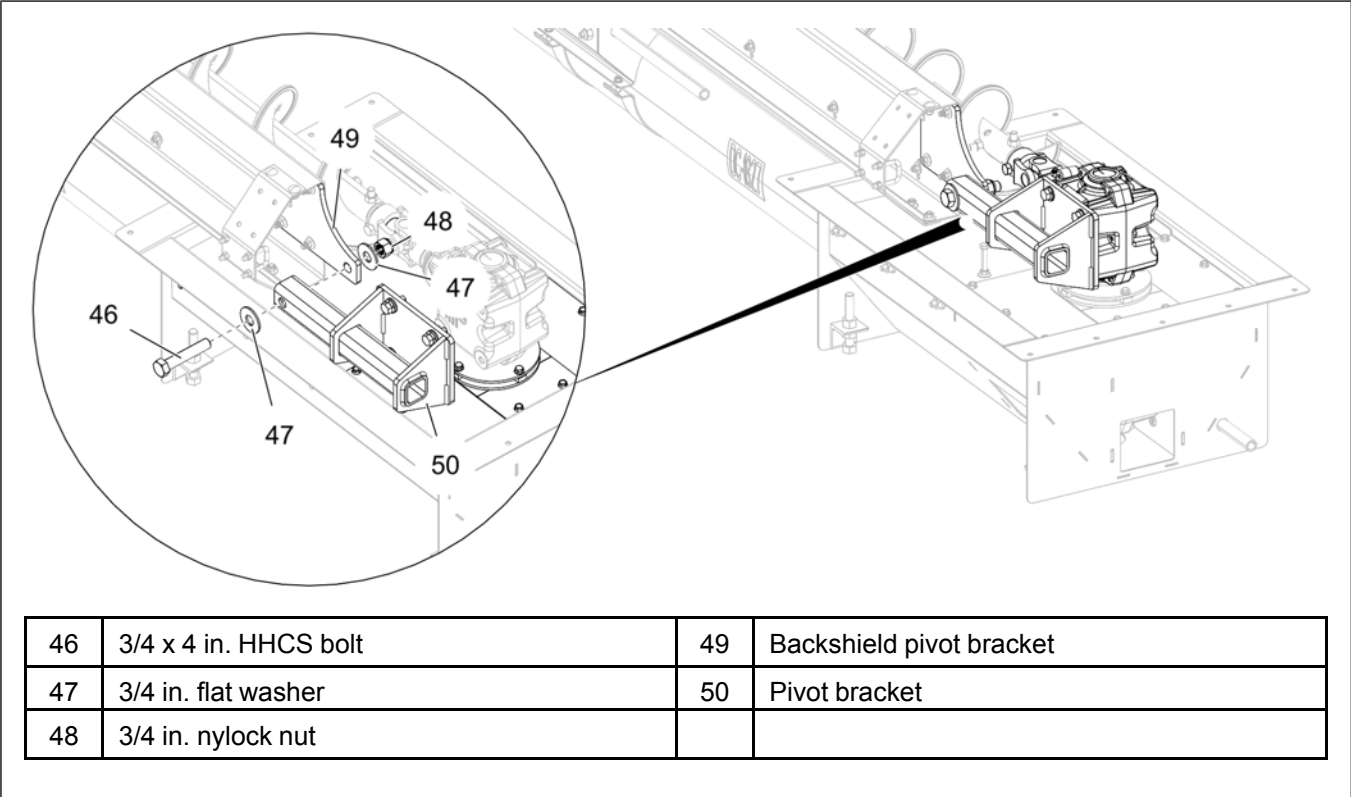
Figure 3-37 Assembling the flighting shield to shield pivot bracket



2. Install the flighting shield pivot bracket assembly (49) to the pivot bracket (50) using a HHCS bolt (46), two flat washers (47) and a nylock nut (48).

NOTE: Do not tighten bolt (46) and nut (48). It should be snug-tighten to pivot freely.

Figure 3-38 Installing the flighting shield pivot bracket assembly to pivot bracket

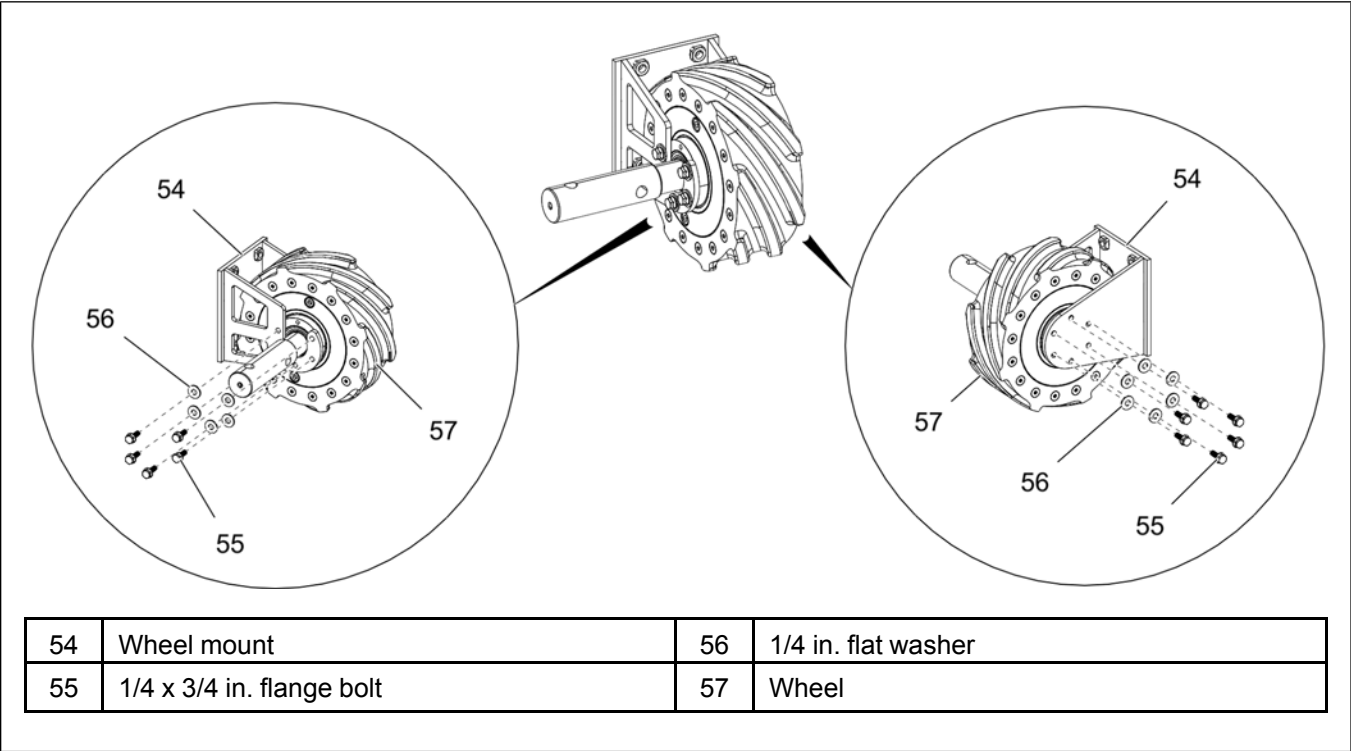


NOTE: Pick up at pivot bolt location *PRIOR* to tightening the four gearbox bolts and four backshield bolts. This will help raise the sweep arm for additional floor clearance.

Installing the Sweep Wheel

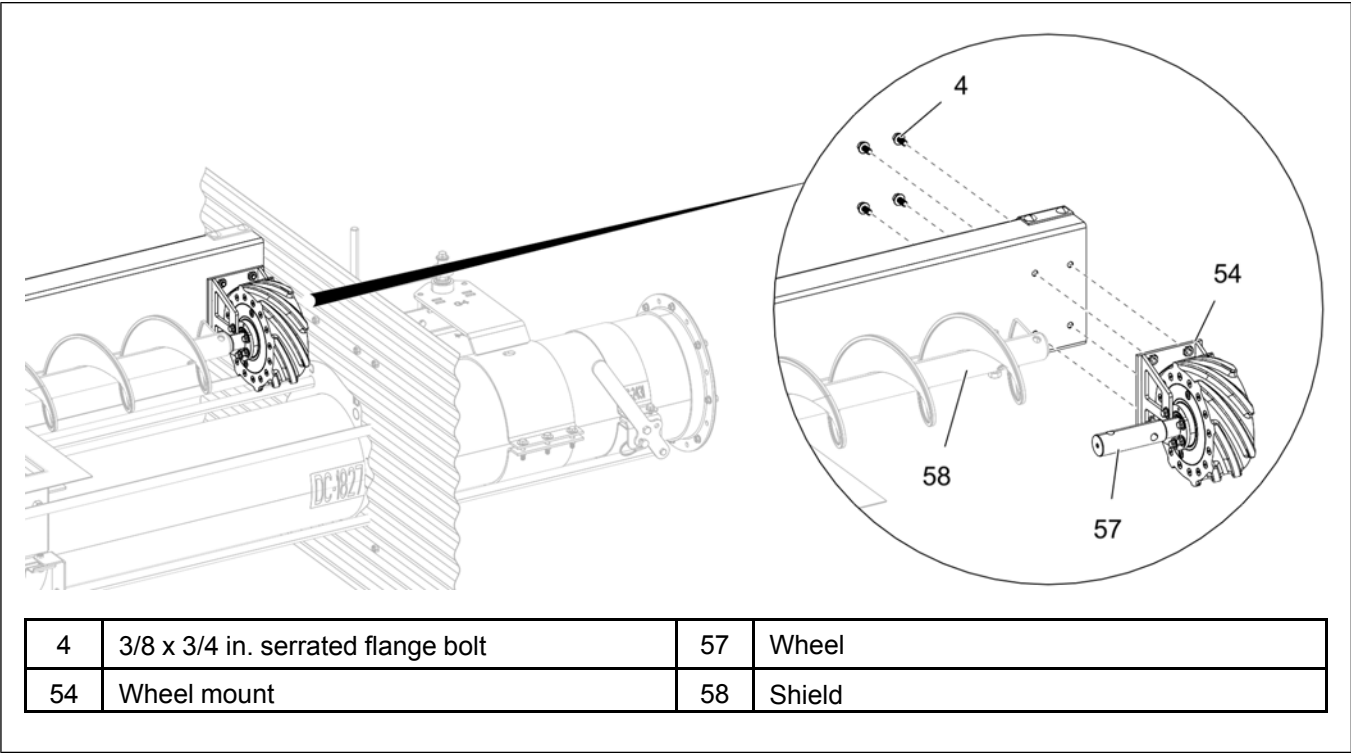
1. Attach the wheel (57) to the wheel mount (54) using eleven flange bolts (55) and eleven flat washers (56).

Figure 3-39 Attaching the wheel to wheel mount



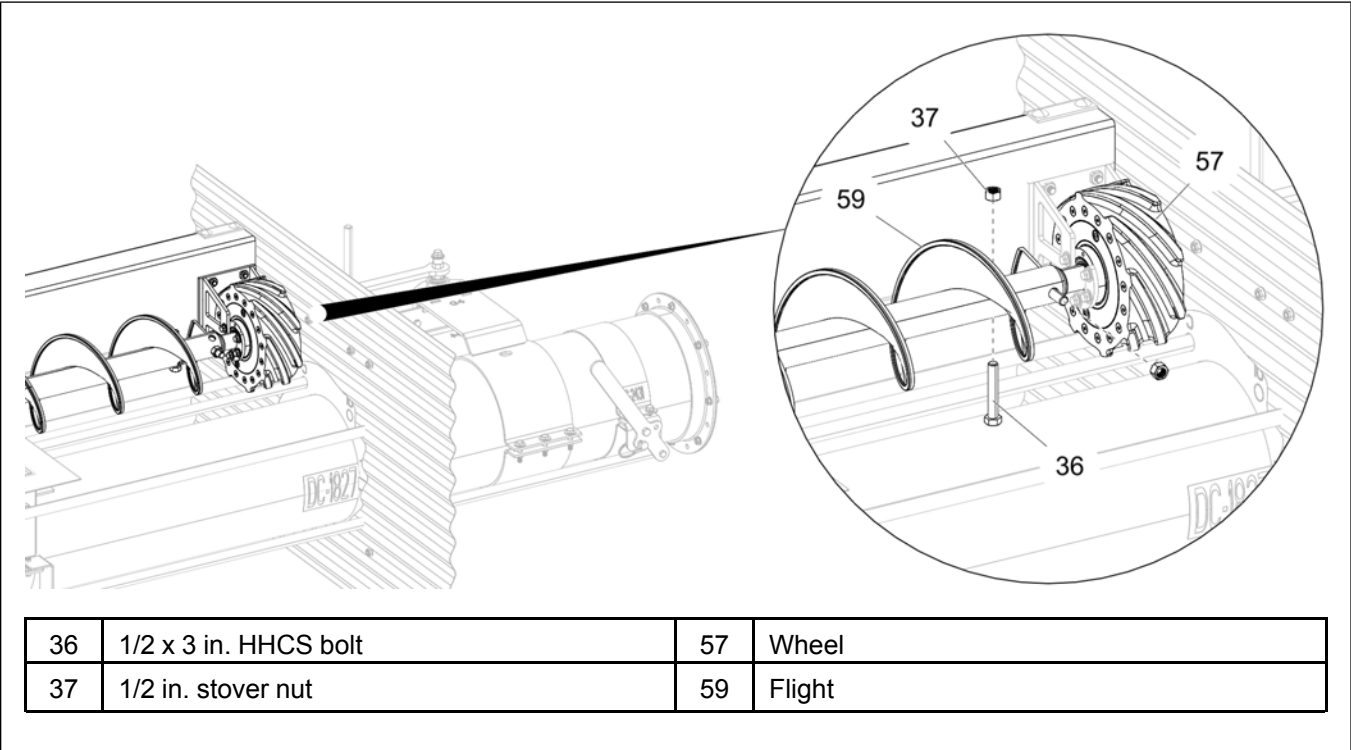
2. Slide wheel shaft (57) into the auger. Attach the wheel mount (54) to the shield (58) using four serrated flange bolts (4).

Figure 3-40 Attaching the wheel mount to shield



3. Attach the wheel (57) to the flight (59) with two HHCS bolts (36) and stover nuts (37).

Figure 3-41 *Installing the wheel to auger*



Adjusting the Wiper

What You Should Know

The sweep 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 flange bolts (27) in the backshield assembly to adjust the wiper (78) position.
- 2. Adjust the wiper (78) UP/DOWN depending on the highest point of the floor within the slots in the backshield assembly.
- 3. Tighten the wiper in position after adjustment using flange bolts (27), flat washers (14) and nylock nuts (66).

Figure 3-42 Wiper in UP position

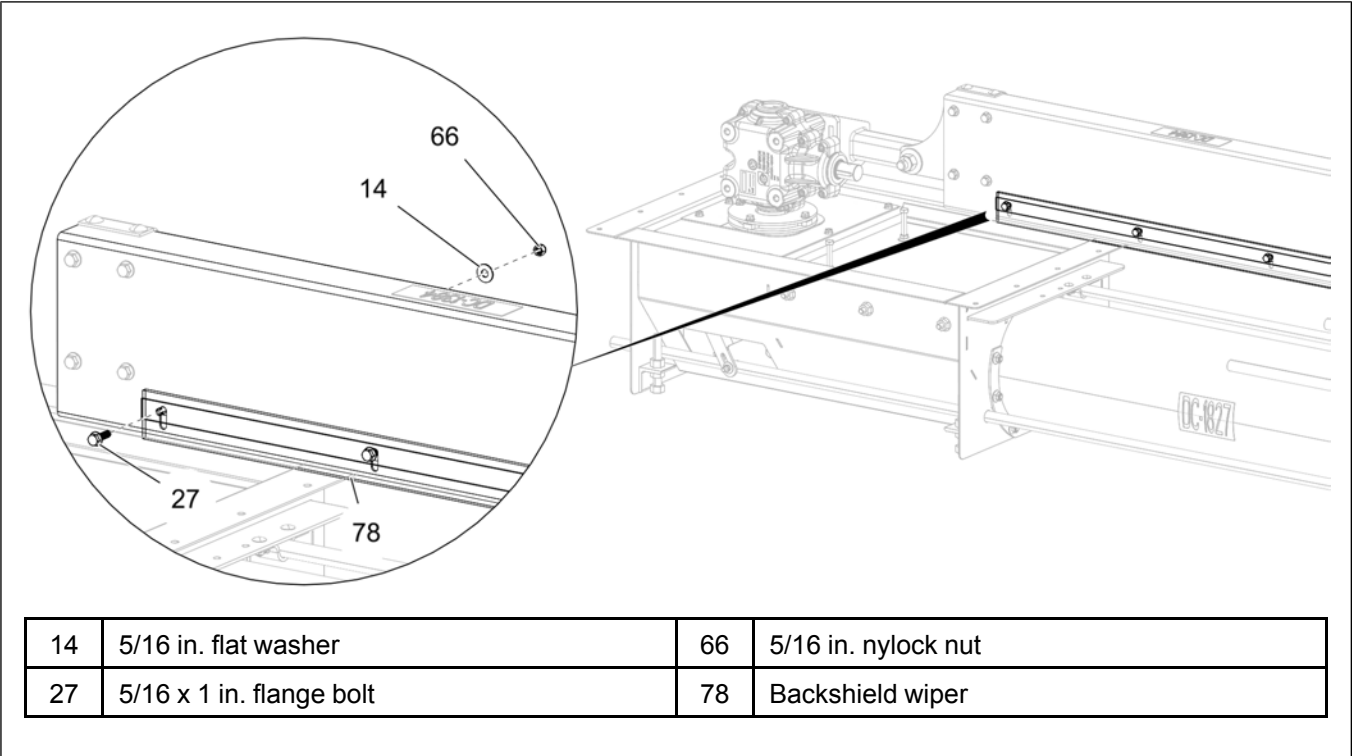
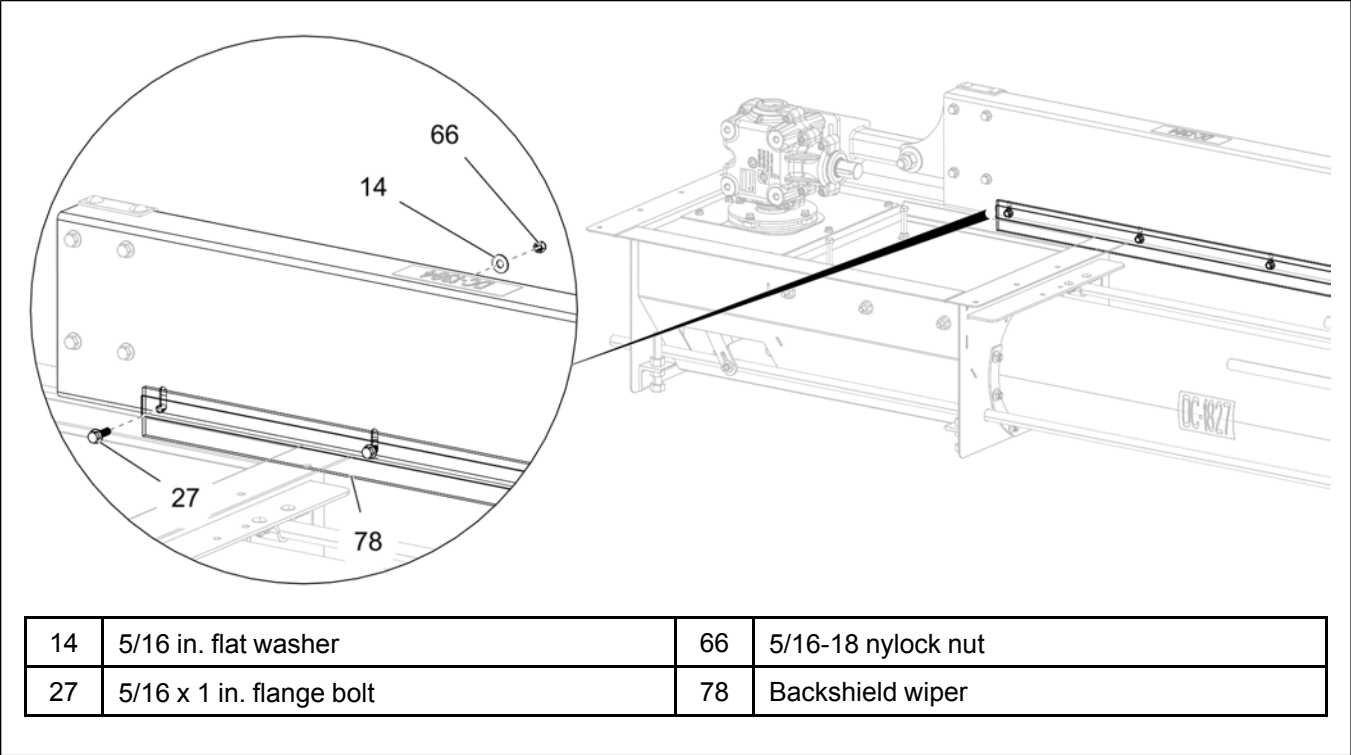


Figure 3-43 Wiper in DOWN position



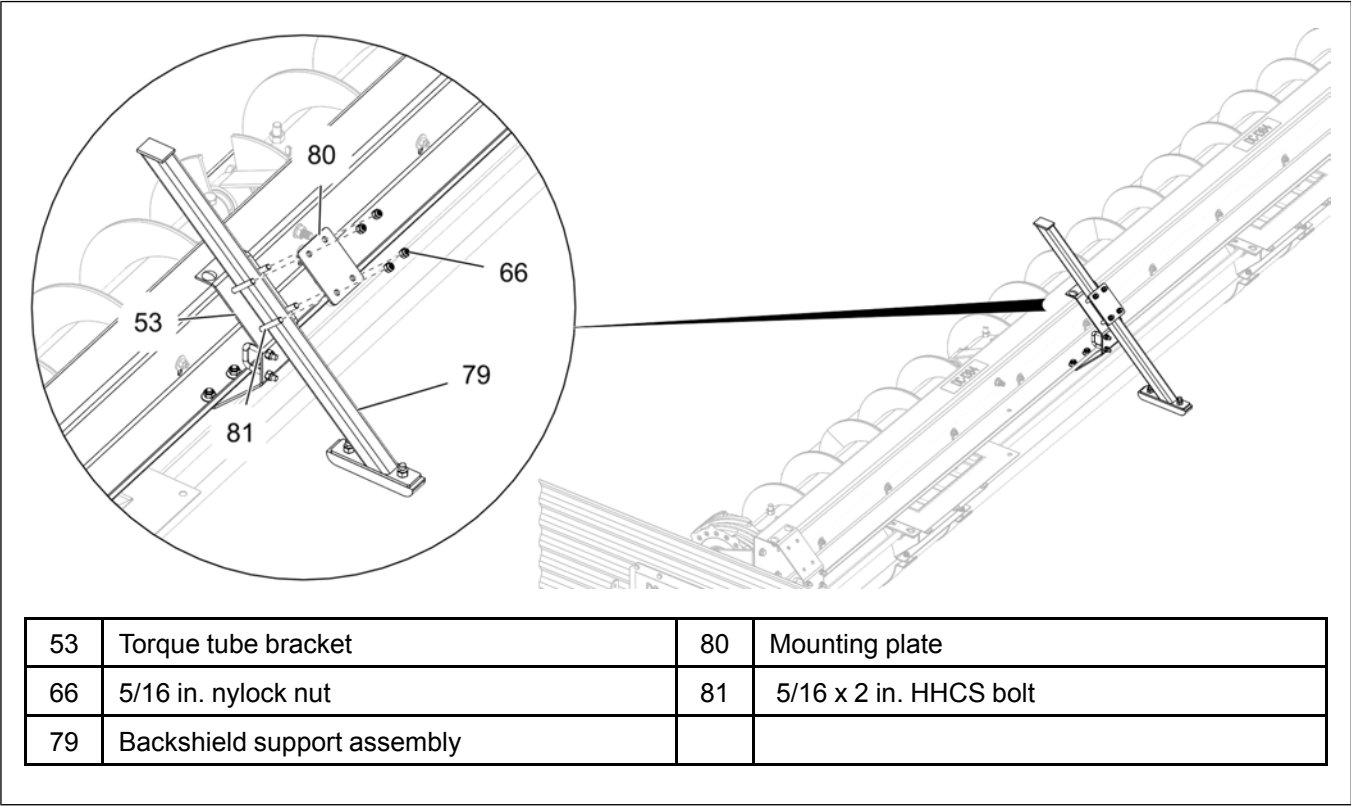
Installing the Backshield Support Assembly

Backshield support assembly is for 21 ft to 48 ft sweeps.

1. Install the backshield support assembly (79) to the torque tube bracket (53) using mounting plate (80), HHCS bolts (81) and nylock nuts (66).

NOTE: *The backshield support assembly should be installed at the bracket location that does not allow it to interfere with any intermediate wells.*

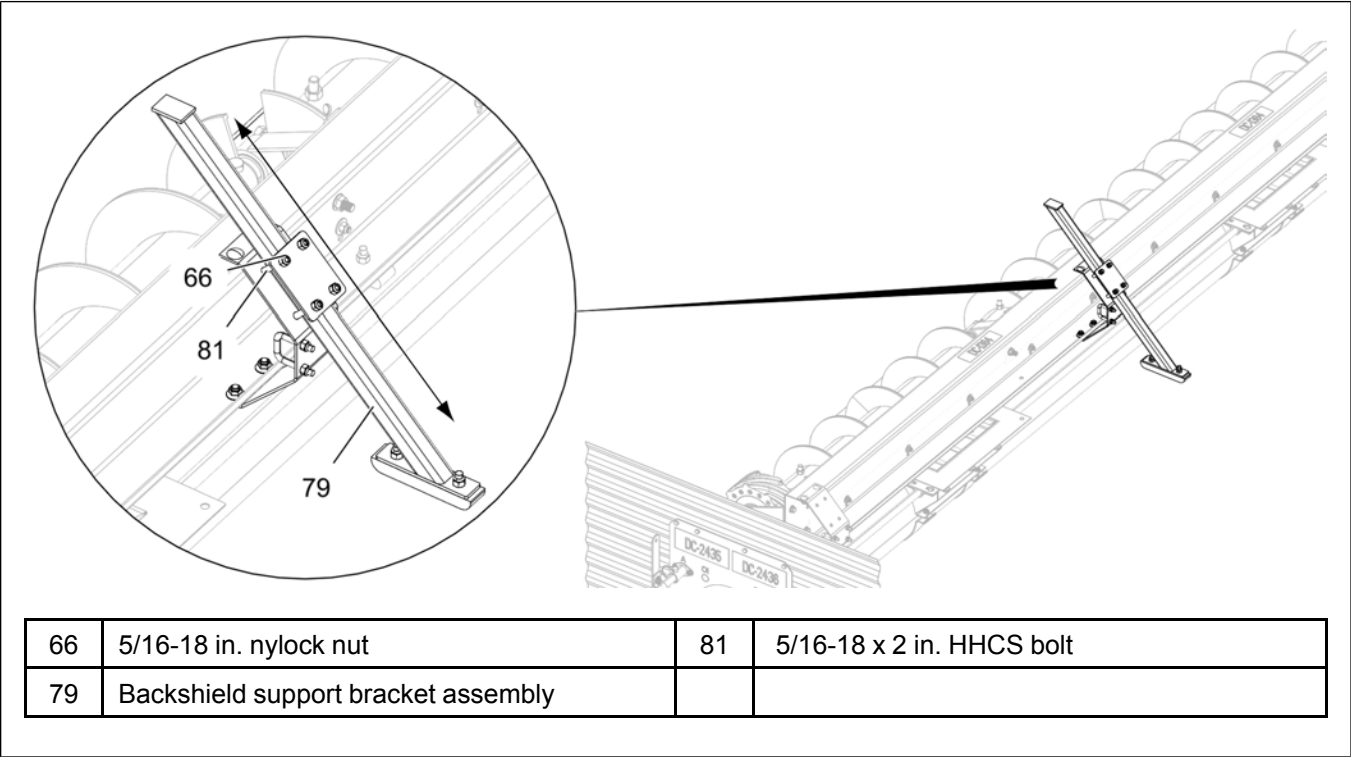
Figure 3-44 *Installing the backshield support assembly*



2. The backshield support assembly (79) can be adjusted in the direction (as shown) for proper sweep clearance.

NOTE: When sliding the support down closer to the floor, it will raise the sweep off the floor and put down pressure onto the reduction wheel.

Figure 3-45 Adjusting the backshield assembly



NOTES

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 reasonably dry grain. High moisture grain above (15%) will require greater power if maximum capacity is to be maintained. The maximum possible capacity will be less with high moisture grain than with dry grain. Use an 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 Vertical 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
33	5	7-1/2	7-1/2	10	15	NA	5	7-1/2	7-1/2	10
36	7-1/2	10	10	15	15	NA	7-1/2	10	7-1/2	10
42	10	10	10	15	NA	NA	10	10	7-1/2	10
48	10	10	10	15	NA	NA	10	10	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.

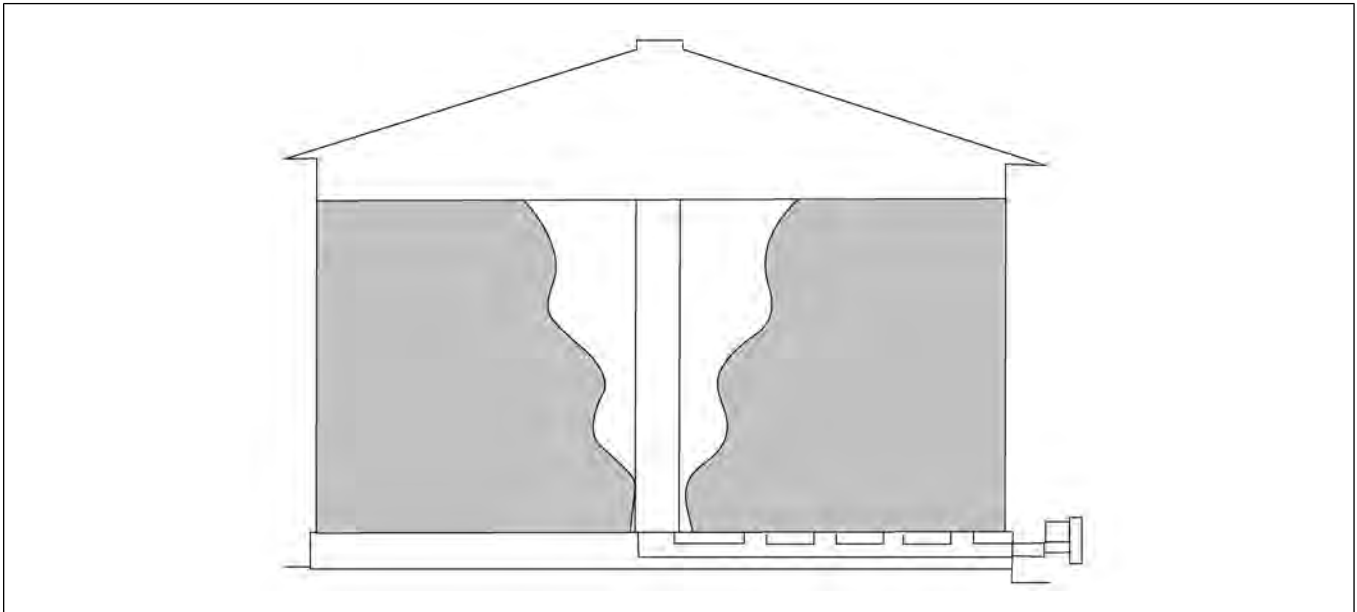
Shut OFF power to adjust, service or clean.

Before Filling the Bin

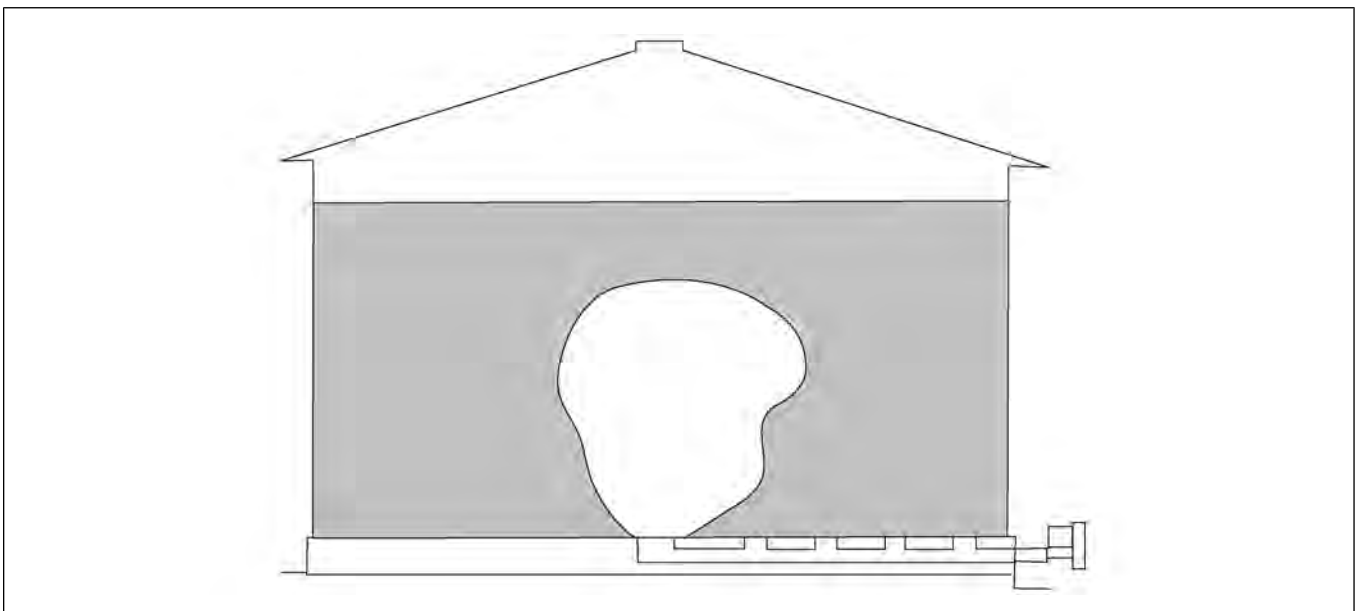
1. Read the instructional decal located on the upper bin flange to learn how to control the direct gear drive power sweep well gates.
2. Close the center well and the intermediate well gates.
3. Position the sweep auger alongside of the intermediate wells.
4. Make sure the clutch is disengaged and locked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



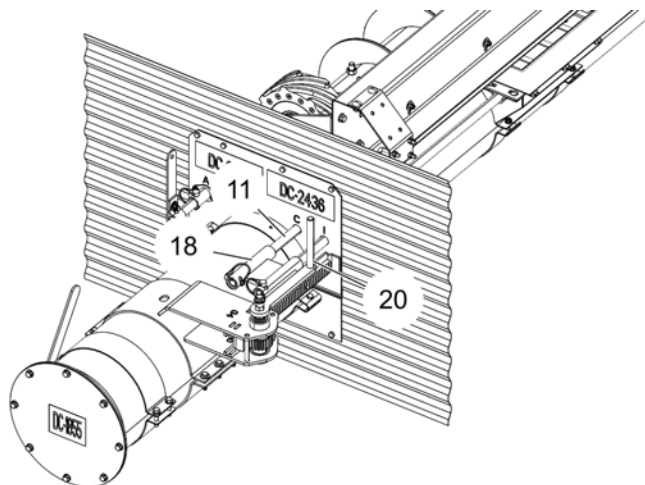
Failures may occur if the auger is run full before it has been “polished” during the “break-in” period.



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. Make sure the lock pin is inserted through the rack and pinion tube (18) and center well control rod (11). Make sure the intermediate well control rod is not attached to the rack and pinion tube (18).

Figure 4-3 Opening the center well gate



11	Center well control rod	20	Rack and pinion handle
18	Rack and pinion tube		

3. Using the handle (20) 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 in. to 6 in. Do not open the gate more than 3 in. to 6 in. 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 auger to plug or jam.
4. Always close the well gates and allow the unloader to clean out before stopping the unloader.

Chapter 4: Operation

- When grain flow stops from the center well gate, close the center well gate and remove the pin. Insert the pin through the intermediate well control rod (17) (indicated with "I"). Remaining grain should look like as shown below.

Figure 4-4 *Intermediate well control rod*

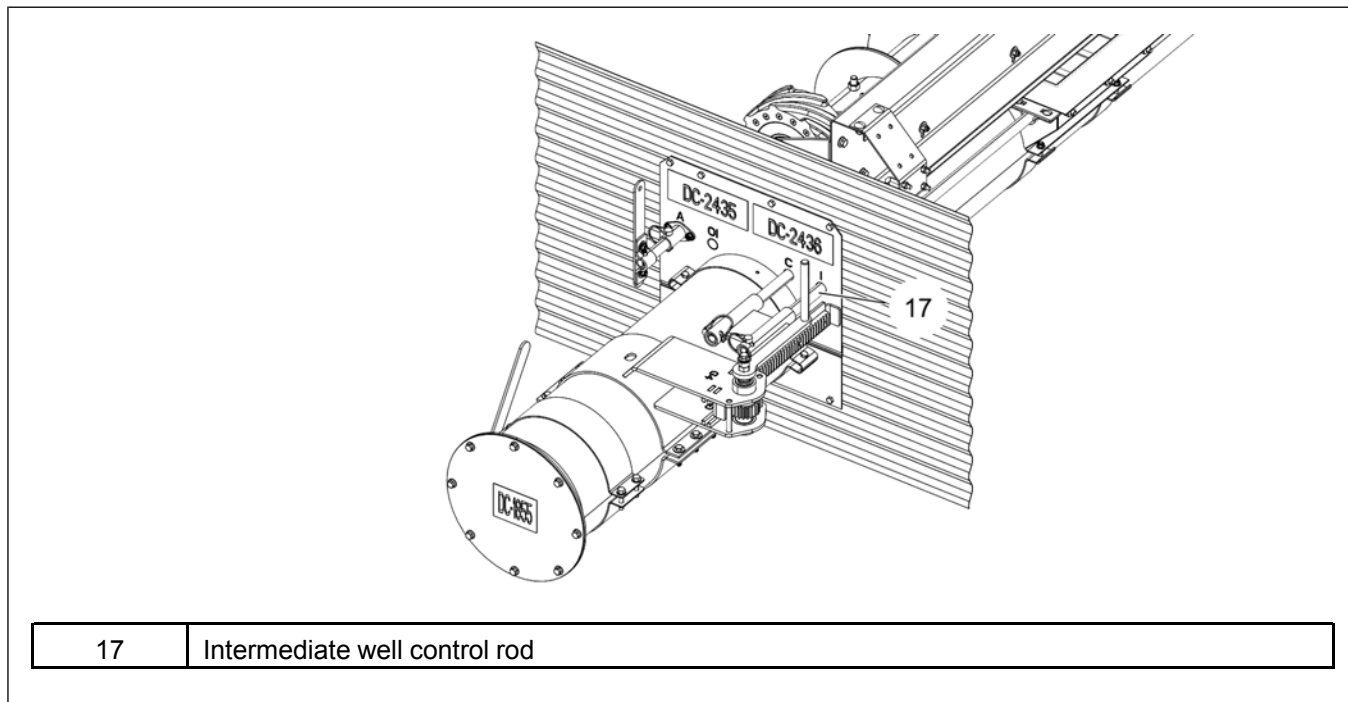
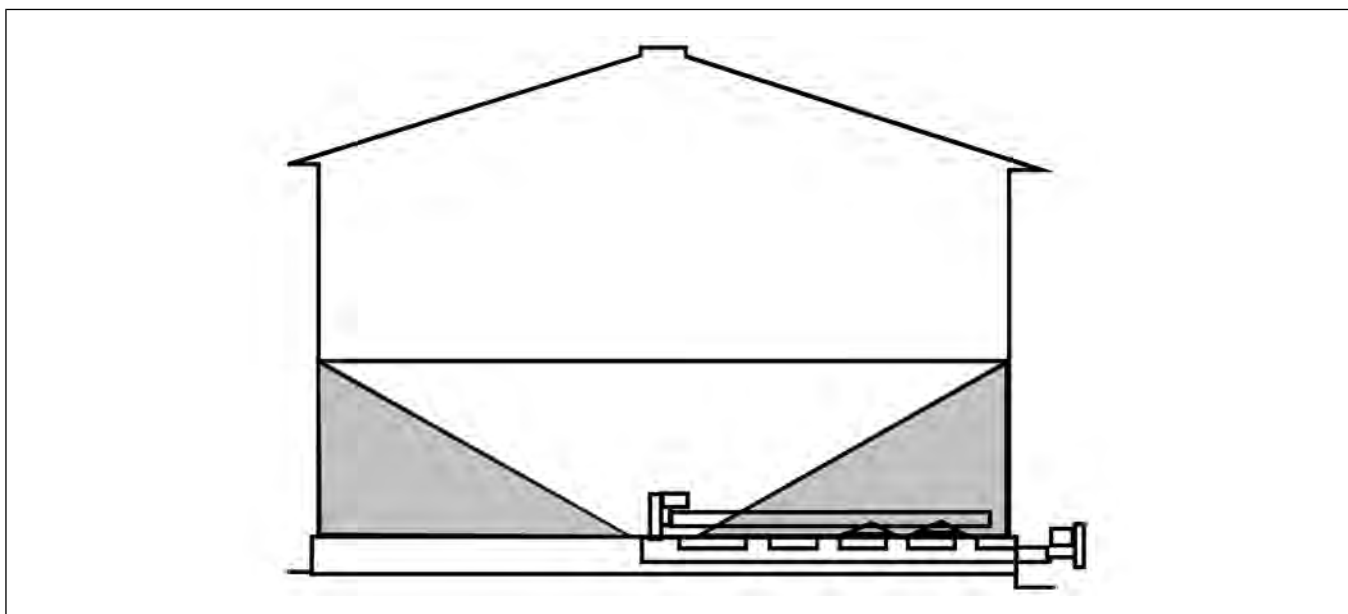


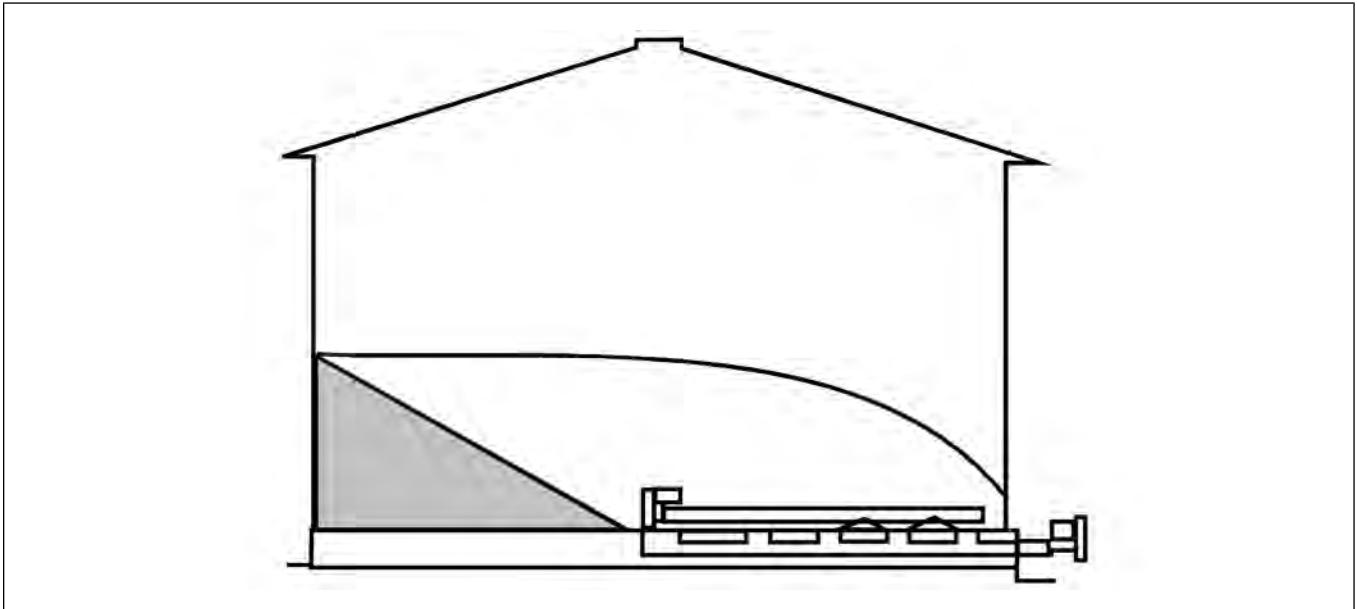
Figure 4-5 *Grain flow from the center well gate*



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

NOTE: *If auxiliary well is installed, open it before opening intermediate gates.*

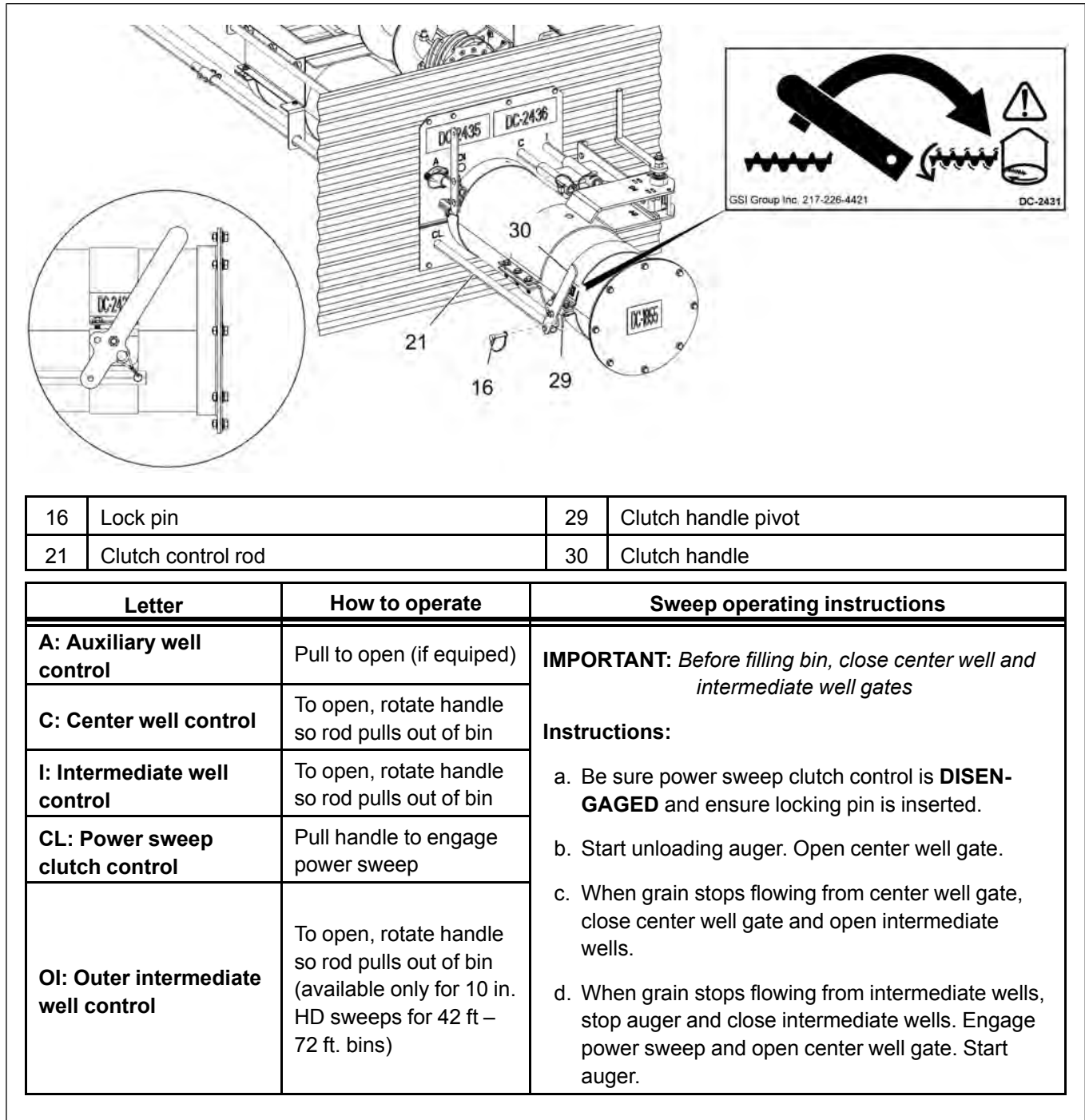
Figure 4-6 Grain flow from the intermediate gates



Engaging the Clutch for Bin Sweep

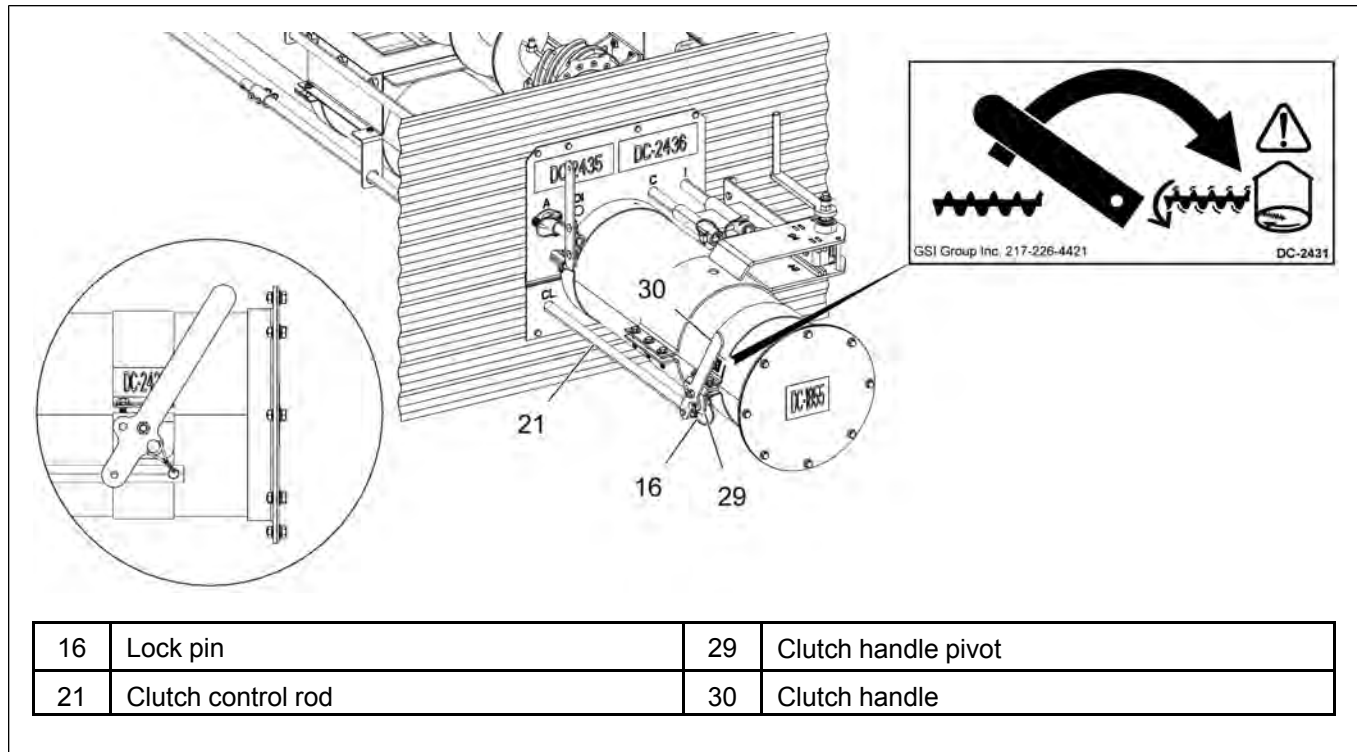
1. All power should be OFF and locked out before starting.
2. Close the intermediate wells.
3. Remove the pin (16) from the clutch handle (30).
4. Pull the clutch handle (30) away from the bin to engage the gearbox clutch.

Figure 4-7 Engaging the clutch



5. Assemble the pin (16) through the clutch handle (30) and pivot bracket (29). If they do not align, start the motor and pull the handle until the holes align and insert pin (16).

Figure 4-8 Locking the clutch handle



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

6. 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.



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.



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



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

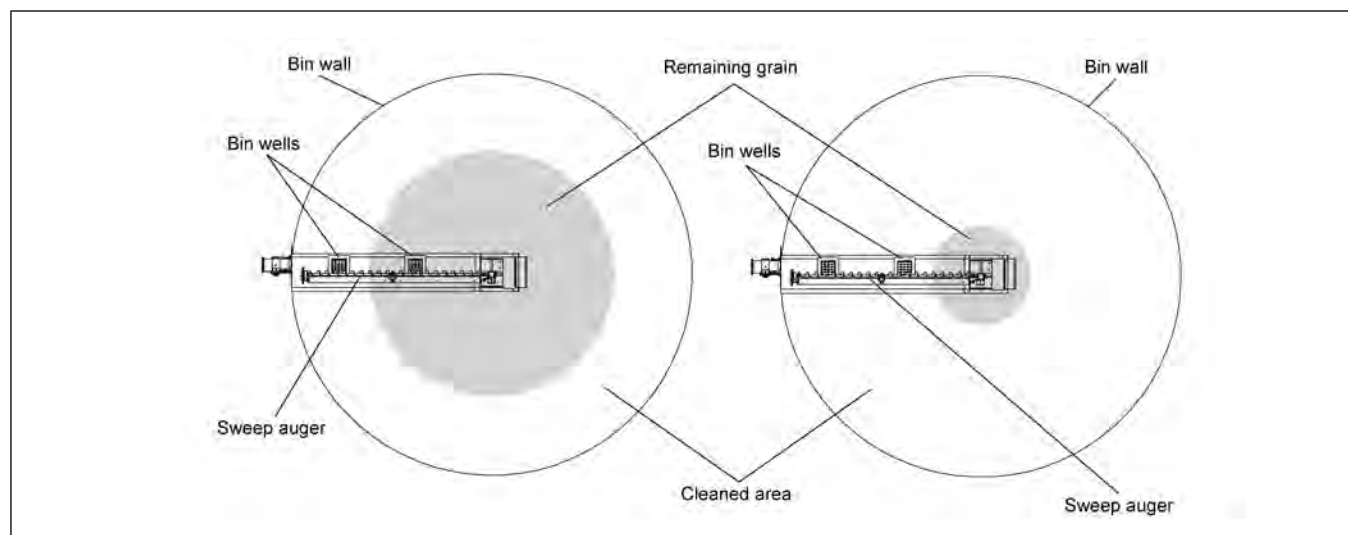
1. Clean (scoop and sweep by hand) the outer area of the floor into a circular pile towards the center of the bin.
2. Get out of the bin.
3. After making sure everyone is outside the bin and clear of the equipment, start the under floor unloader and the sweep auger. In a short time, the circular pile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



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 by hand the remaining floor area to the center of the bin.
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 4-9 *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 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.
5. Be sure the unload tube is empty.
6. Shut down the auger.
7. 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 Kits (Optional)
- Rack and Pinion
- Bin Flange
- Unload Tube Flight
- Clutch Control
- Backshield with One Auger for Standard and Low Capacity Sweeps (15 Ft and 18 Ft Bins)
- Backshield with Two Augers for Standard and Low Capacity Sweeps (21 Ft – 30 Ft Bins)
- Backshield with Two Augers for Standard and Low Capacity Short Sweeps (30 Ft Bins)
- Backshield with Three Augers for Standard and Low Capacity Sweeps (33 Ft – 42 Ft Bins)
- Backshield with Three Augers for Standard and Low Capacity Short Sweeps (33 Ft – 42 Ft Bins)
- Backshield with Four Augers for Standard and Low Capacity Sweeps (48 Ft Bins)
- Backshield with Four Augers for Standard and Low Capacity Short Sweeps (48 Ft Bins)
- Backshield Connections
- Sweep Wheel

Center Well

Figure 7-1 Center well – Exploded view

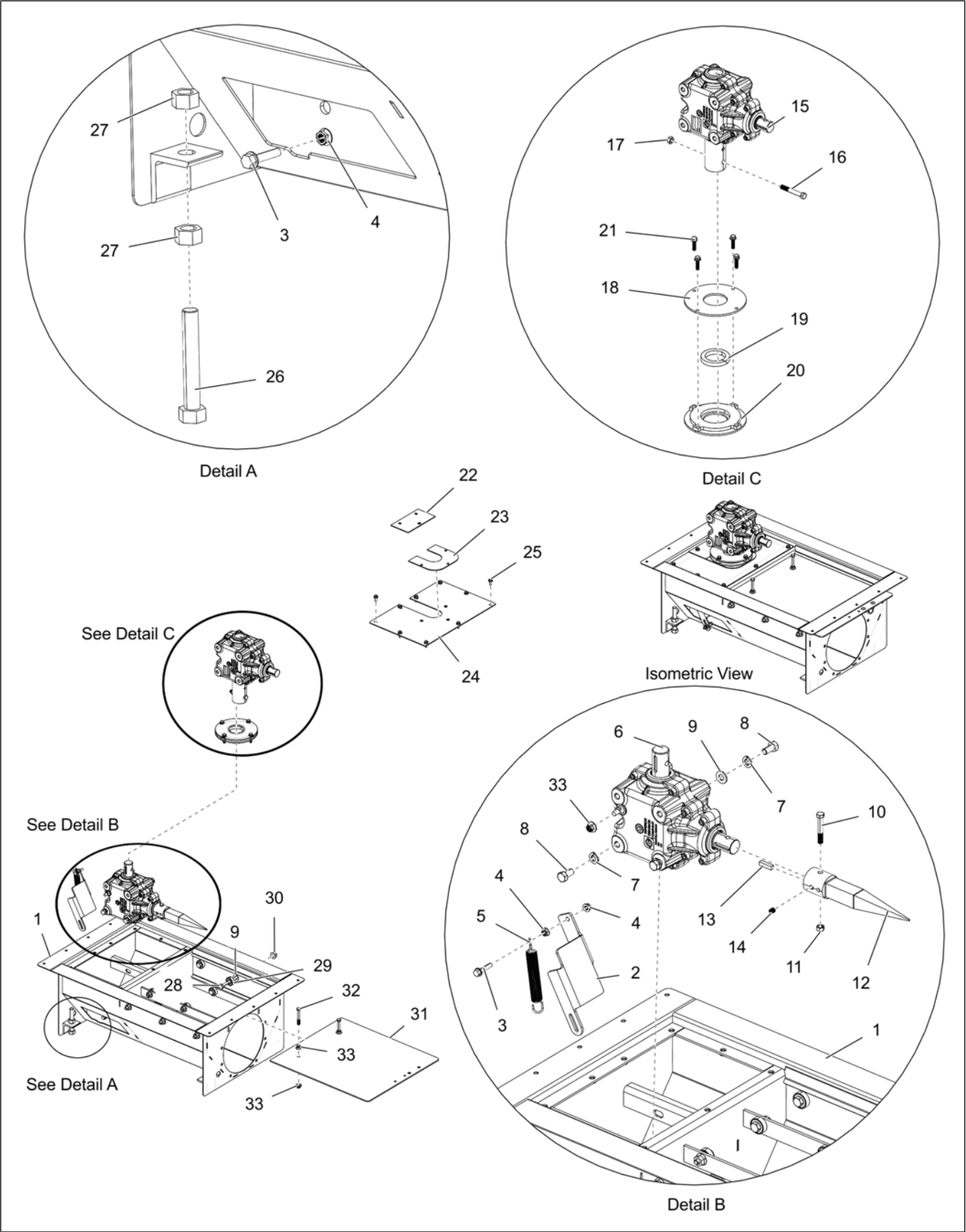


Table 7-1 Center well – Parts list

Ref #	Part #	Description
1	GC20403-Y	Center well weldment – 8 in.
	GC20575-Y	Center well weldment – 10 in.
2	GK80368	Center well linkage plate – 8 in.
	GK80541	Center well linkage plate – 10 in.
3	S-10185	5/16 x 1-1/2 in. flange bolt
4	S-3611	5/16 in. flange nut
5	GK80655	Spring, extension 6.5L x .75D x .120 wire galv. HDMB
6	GK80597	Gearbox, DGD lower shifting 1.25:1 ratio
7	S-236	1/2 in. split lock washer
8	S-7935	1/2 x 1 in. HHCS bolt
9	S-2120	1/2 in. flat washer
10	S-10107	3/8 x 2-1/2 in. HHCS bolt
11	S-8251	3/8 in. stover nut
12	GK80362	Center well square shaft – 8 in.
	GK80540	Center well square shaft – 10 in.
13	S-10335	5/16 x 1-1/4 in. square key
14	S-7256	3/8 x 3/8 in. set screw
15	GK80598	Gearbox, DGD upper 1.35:1 ratio w/ coupler – 8 in.
	GK80599	Gearbox, DGD upper 1:1 ratio w/ coupler – 10 in.
16	S-8316	7/16 x 3 in. HHCS bolt
17	S-8317	7/16 in. stover nut
18	GC20413-Y	Seal retainer flange
19	GK80364	Coupler seal
20	GK80363-Y	Seal retainer weldment
21	S-8135	5/16 x 1-1/4 in. flange bolt
22	GK80366	Center well back cover weldment
23	GK80542	Center well front cover
24	GK80365	Center well front cover weldment
25	S-6606	5/16 x 3/4 in. flange bolt
26	S-9154	5/8 x 4 in. HHTB bolt
27	S-4110	5/8 in. hex nut
28	S-8760	1/2 x 1-1/2 in. HHTB bolt
29	MHC01055	Bearing, radial 1.375 OD, 0.50 ID double-shielded
30	S-8506	1/2 in. flange nut
31	GK80361	Center well gate
32	S-8676	3/8 x 3-1/2 in. HHCS bolt – 8 in.
	S-8988	3/8 x 2-3/4 in. HHCS bolt – 10 in.
33	S-968	3/8 in. flange nut

Intermediate Well

Figure 7-2 8 in. Intermediate well – Exploded view

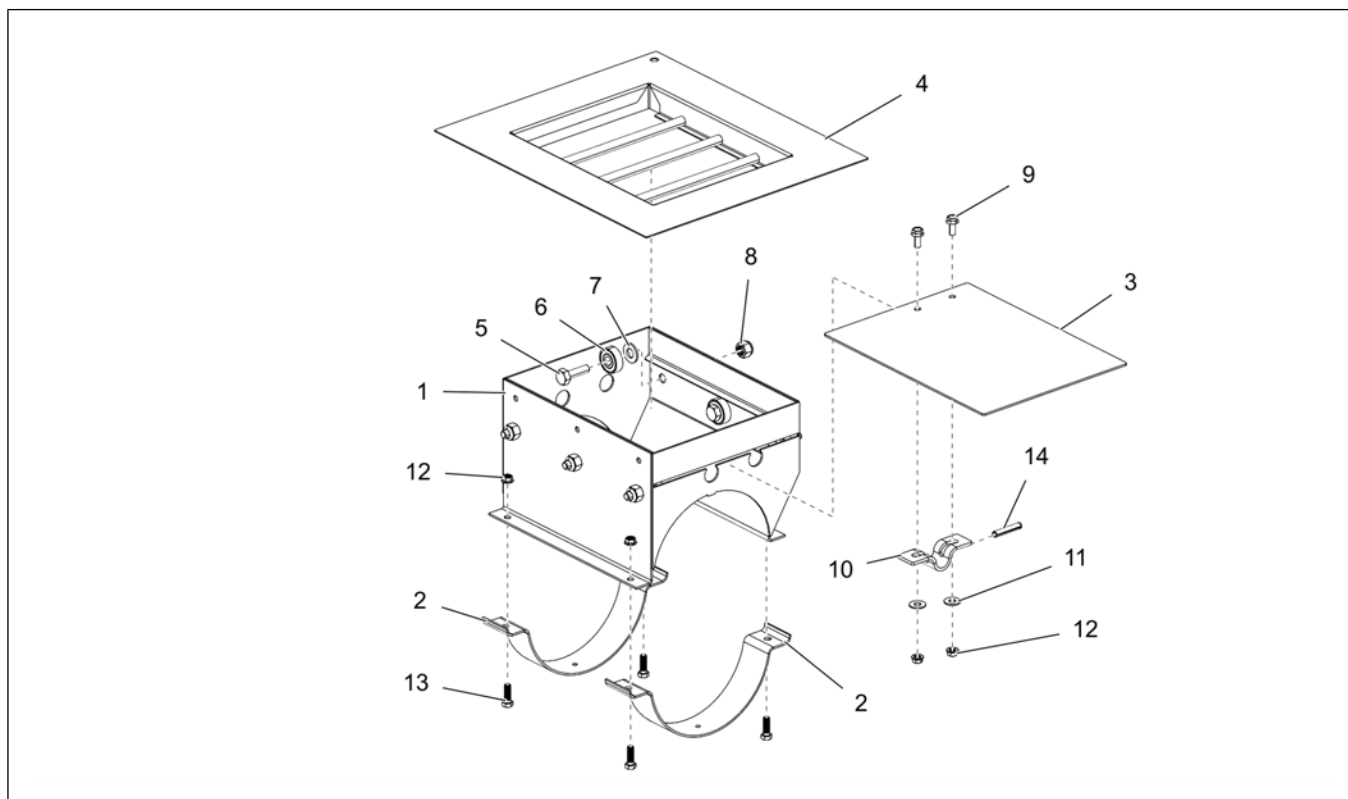


Figure 7-3 10 in. Intermediate well – Exploded view

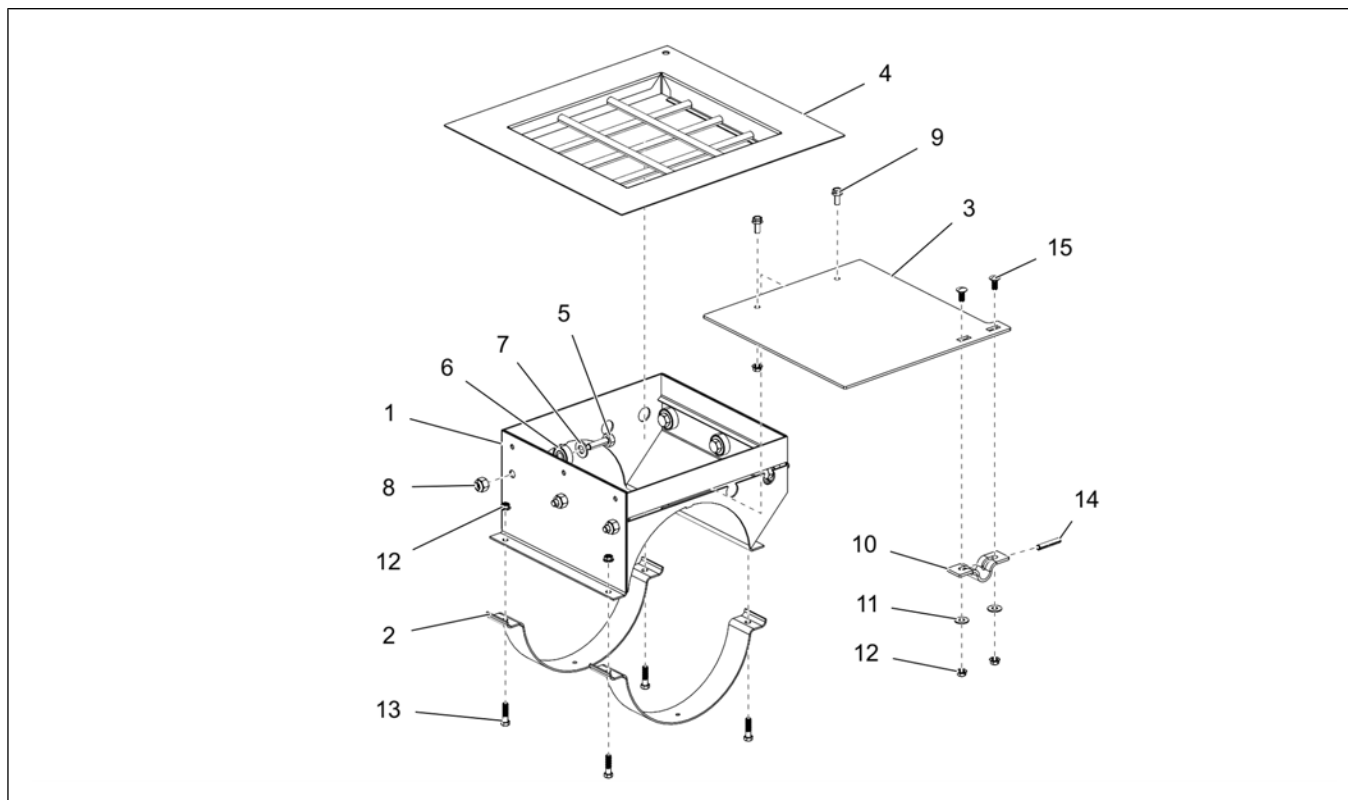


Table 7-2 Intermediate well - Parts List

Ref #	Part #	Description
1	GK80371-Y	Intermediate well weldment – 8 in. ochre
	GK80554-Y	Intermediate well weldment – 10 in. ochre
2	GK1055	Half band, 8 in. x 2 in. 12 ga. galv. – 8 in.
	GK1057	Half band, 10 in. x 2 in. 12 ga. galv. – 10 in.
3	GK80373	Intermediate well gate – 8 in.
	GK80556	Intermediate well gate – 10 in.
4	GK80402-Y	Intermediate well top flange – 8 in. ochre
	GK80561-Y	Intermediate well top flange – 10 in. ochre
5	S-8760	1/2 x 1-1/2 in. HHTB bolt
6	MHC01055	Bearing, radial 1.375 OD, 0.50 ID double-shielded
7	S-2120	1/2 in. flat washer
8	S-8260	1/2 in. nylock nut
9	S-6606	5/16 x 3/4 in. flange bolt
10	GK1726	Control gate clamp for SCH 40 x 1/2 in.
11	S-1937	5/16 in. flat washer SAE
12	S-3611	5/16 in. flange nut
13	S-1196	5/16 x 1 in. HHCS bolt – 8 in.
	S-9350	5/16 x 1-1/4 in. HHCS bolt – 10 in.
14	S-8397	5/16 x 1-3/4 in. spring pin
15	S-6076	5/16 x 3/4 in. carriage bolt – 10 in.

Auxiliary Kits (Optional)

Figure 7-4 8 in. Auxiliary Kit – Exploded View

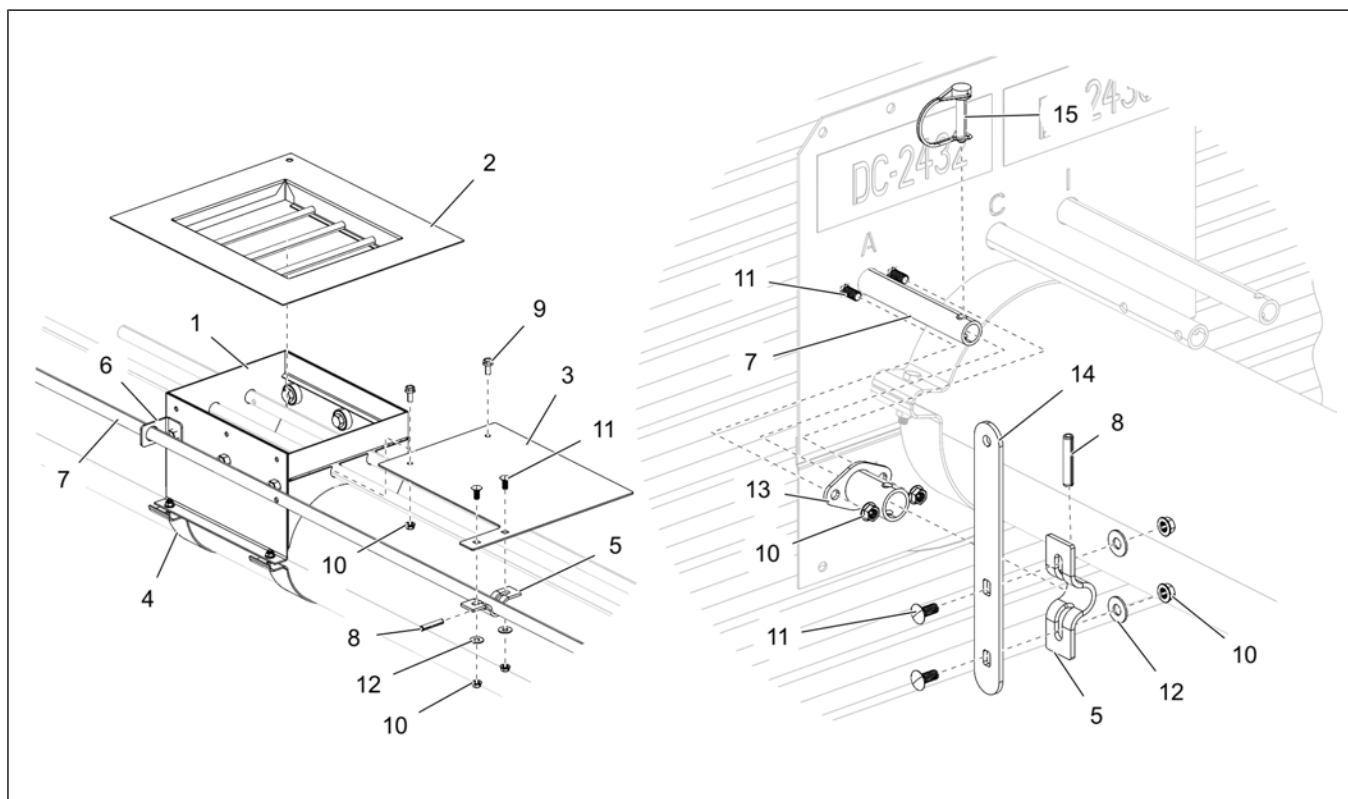


Figure 7-5 10 in. Auxiliary Kit – Exploded View

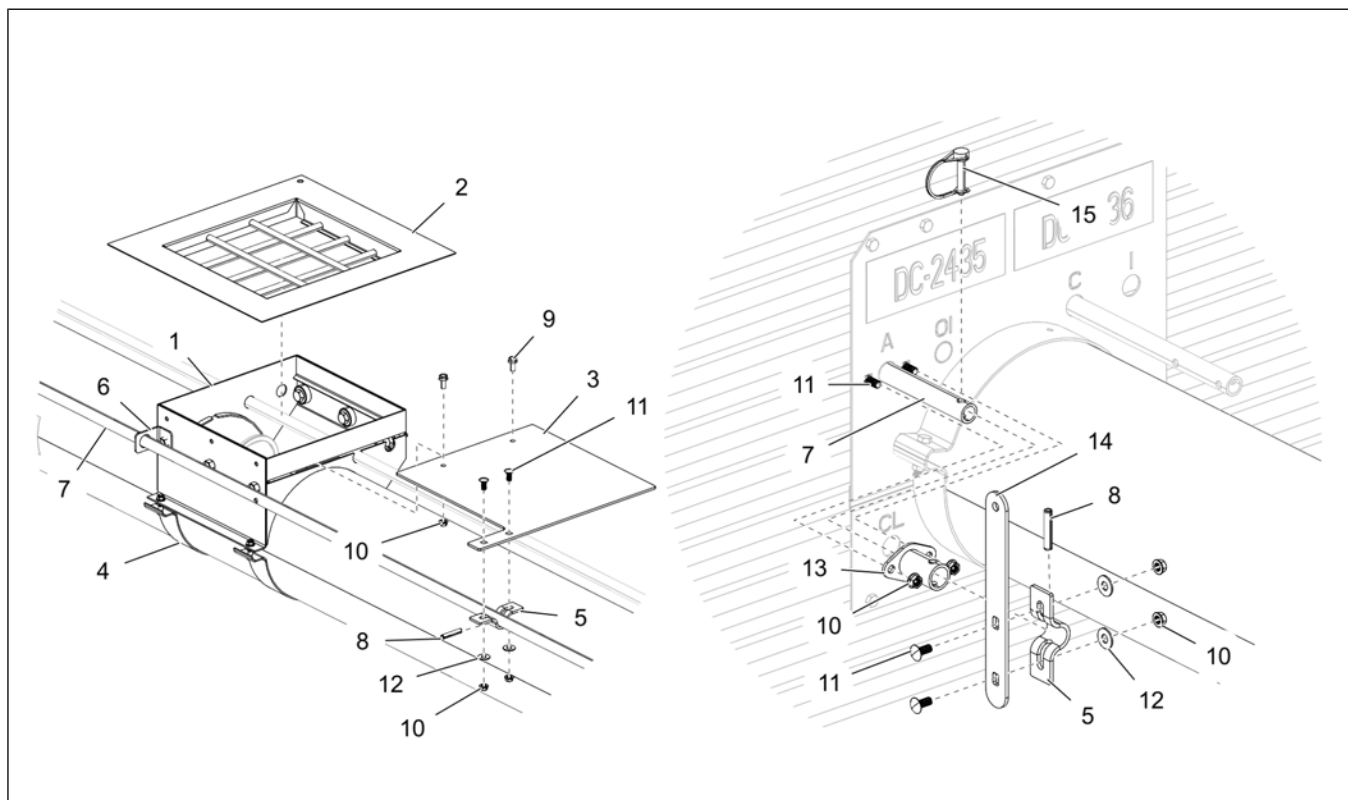


Table 7-3 Auxiliary kits - Parts List

Ref #	Part #	Description
1	GK80371-Y	Intermediate well weldment – 8 in. ochre
	GK80554-Y	Intermediate well weldment – 10 in. ochre
2	GK80402-Y	Intermediate well top flange – 8 in. ochre
	GK80561-Y	Intermediate well top flange – 10 in. ochre
3	GK80638	Auxiliary well gate – 8 in.
	GK80560	Auxiliary well gate – 10 in.
4	GK1055	Half band, 8 in. x 2 in. 12 ga. galv.
	GK1057	Half band, 10 in. x 2 in. 12 ga. galv.
5	GK1726	Control gate clamp for SCH 40 x 1/2 in.
6	GK80559	Auxiliary well control rod guide
7	See table below	Auxiliary well control rod
8	S-8397	5/16 x 1-3/4 in. spring pin
9	S-6606	5/16 x 3/4 in. flange bolt
10	S-3611	5/16 in. flange nut
11	S-6076	5/16 x 3/4 in. carriage bolt
12	S-1937	5/16 in. flat washer SAE
13	GK80613-BS	Auxiliary well lock collar
14	GC12074	Auxiliary clutch control rod handle
15	S-10547	5/16 x 1-3/8 in. safety snap pin

Table 7-4 Auxiliary well control Rod

Ref #	Part #	Description
7	GK80632	Auxiliary well control rod – 27 Ft
	GK80633	Auxiliary well control rod – 30 Ft
	GK80634	Auxiliary well control rod – 33 Ft
	GK80635	Auxiliary well control rod – 36 Ft
	GK80636	Auxiliary well control rod – 42 Ft
	GK80637	Auxiliary well control rod – 48 Ft

Rack and Pinion

Figure 7-6 8 in. Rack and Pinion – Exploded view

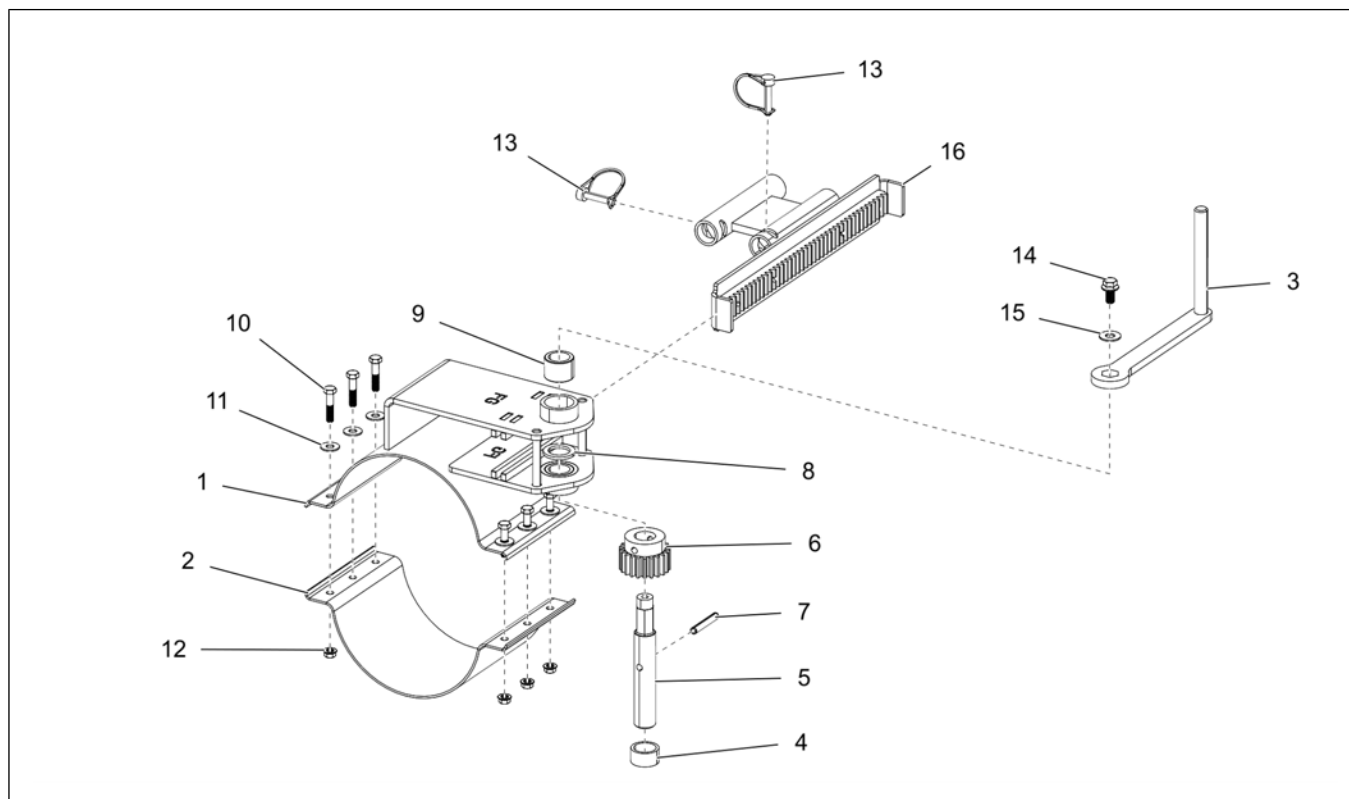


Figure 7-7 10 in. Rack and Pinion – Exploded view

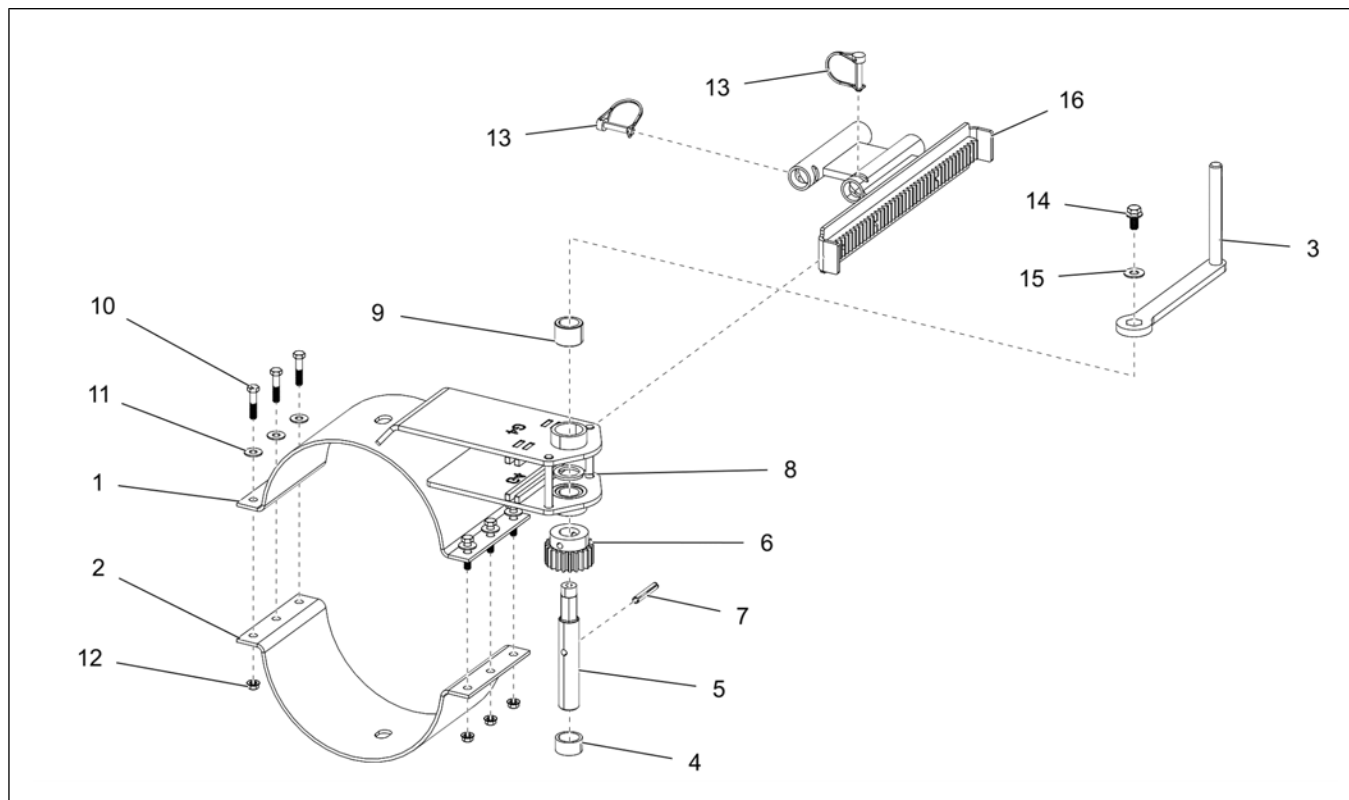


Table 7-5 Rack and pinion – Parts list

Ref #	Part #	Description
1	GK80384-BS	Rack and pinion housing weldment – 8 in. bin silver
	GK80567-BS	Rack and pinion housing weldment – 10 in. bin silver
2	GK1603-BS	8 in. x 6 in. 12 ga. half band – 8 in. bin silver
	GK1509-BS	10 in. x 6 in. 7 ga. half band – 10 in. bin silver
3	GK80404-BS	Crank gate weldment painted
4	GK6841	Rack and pinion spacer tube
5	GK6845	Rack and pinion crank shaft hex
6	GC09859	Gear, spur 10 DP 14.5 PA 1 in. F x 22T Martin #S1022; 1 in. bore w/ 0.313 pin hole
7	S-4377	5/16 x 2 in. spring pin
8	GK4211	1 x 1-1/2 in. 10 ga. ZN flat washer
9	GK1070	Bronze bushing 1.377 x 1.013 ID x 1 in. L
10	S-2741	5/16 x 1-1/2 in. bolt
11	S-845	5/16 in. flat washer
12	S-3611	5/16 in. flange nut
13	S-10547	5/16 x 1-3/8 in. safety snap pin
14	S-9067	3/8 x 3/4 in. flange bolt
15	S-248	3/8 in. 7/16 in. ID 1 in. OD flat washer
16	GK80386	Rack bar assembly – 8 in.
	GK80568	Rack bar assembly – 10 in.

Bin Flange

Figure 7-8 8 in. Bin flange – Exploded view

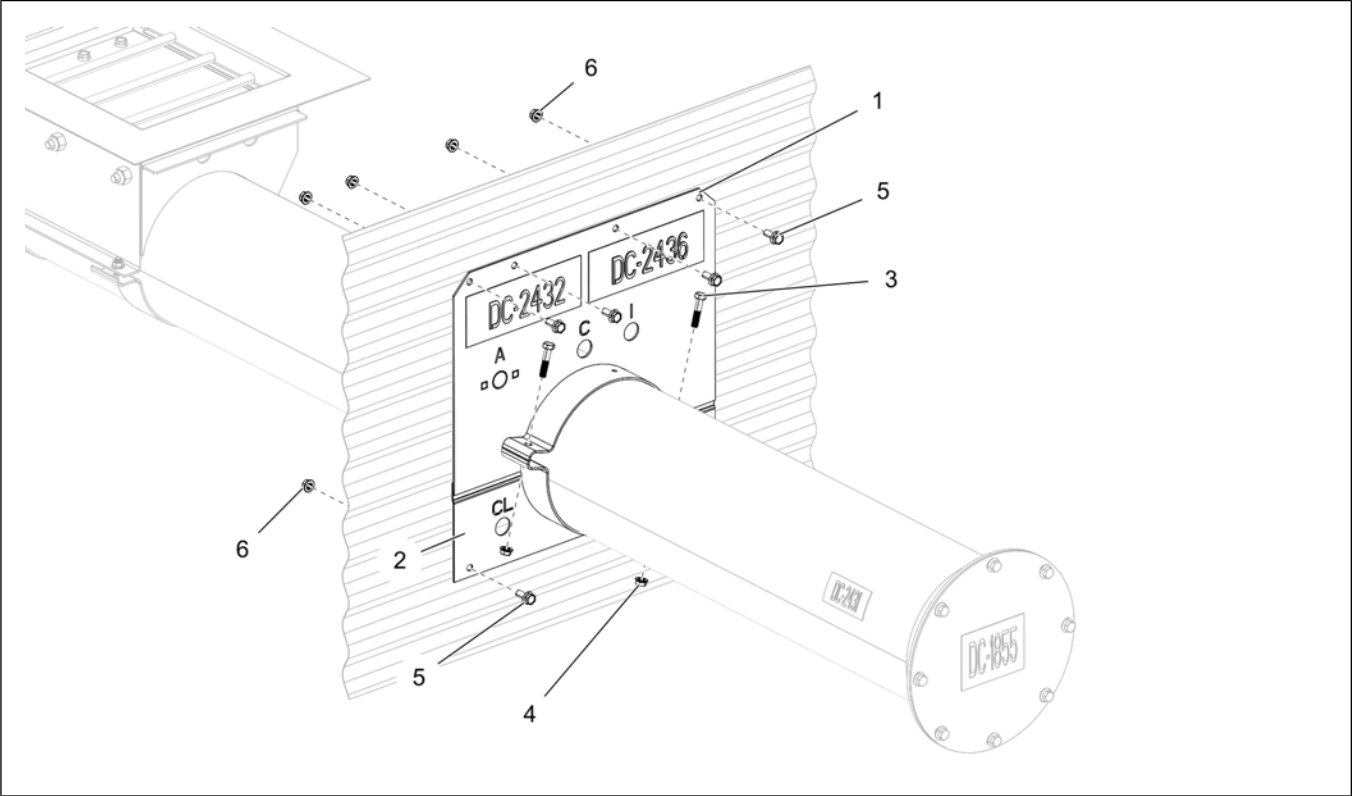


Figure 7-9 10 in. Bin flange – Exploded view

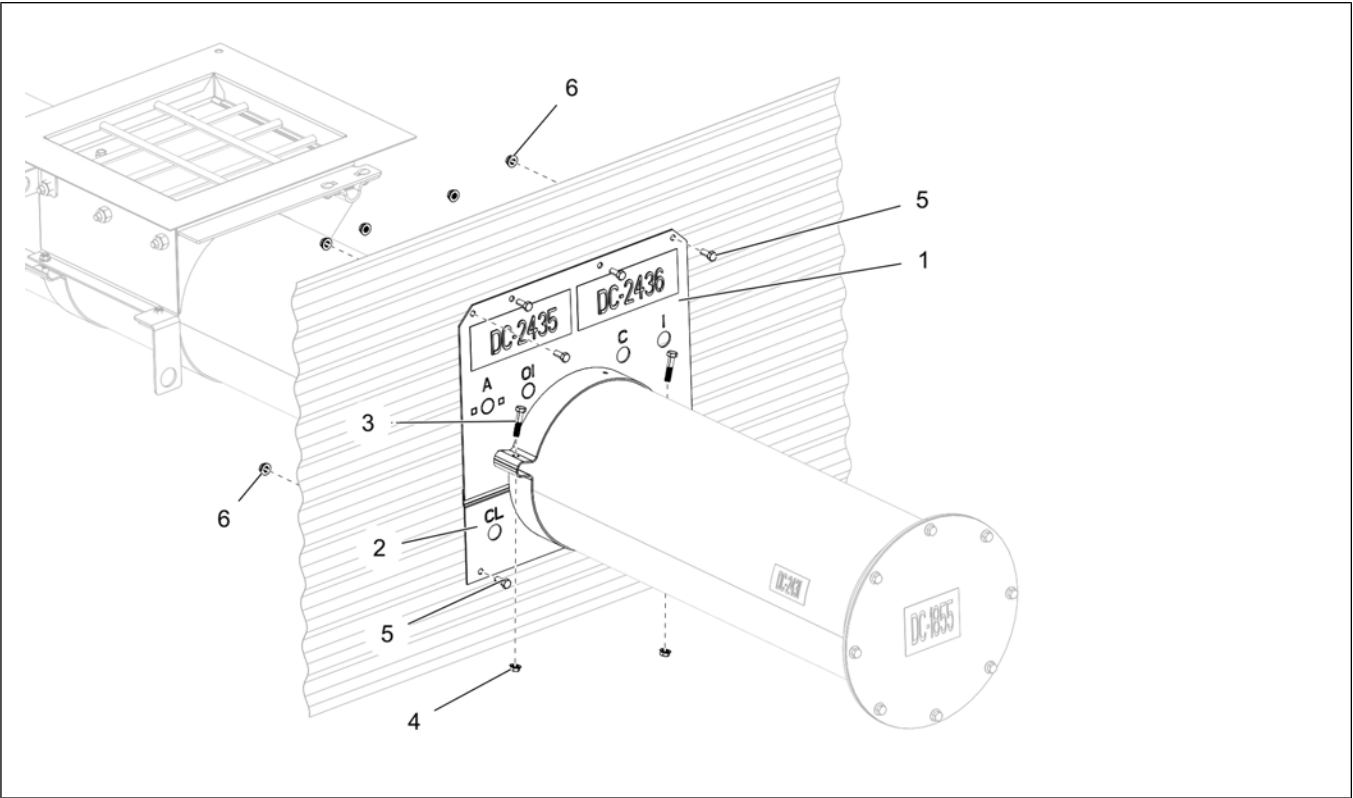


Table 7-6 Bin flange – Parts List

Ref #	Part #	Description
1	GK80380	Top wall flange – 8 in.
	GK80595	Top wall flange – 10 in.
2	GK80381	Bottom wall flange – 8 in.
	GK80596	Bottom wall flange – 10 in.
3	S-2741	5/16 x 1-1/2 in. HHCS bolt
4	S-3611	5/16 in. flange nut
5		Standard bin bolt
6		Flange nut

Unload Tube Flight

Figure 7-10 8 in. Unload tube flight – Exploded view

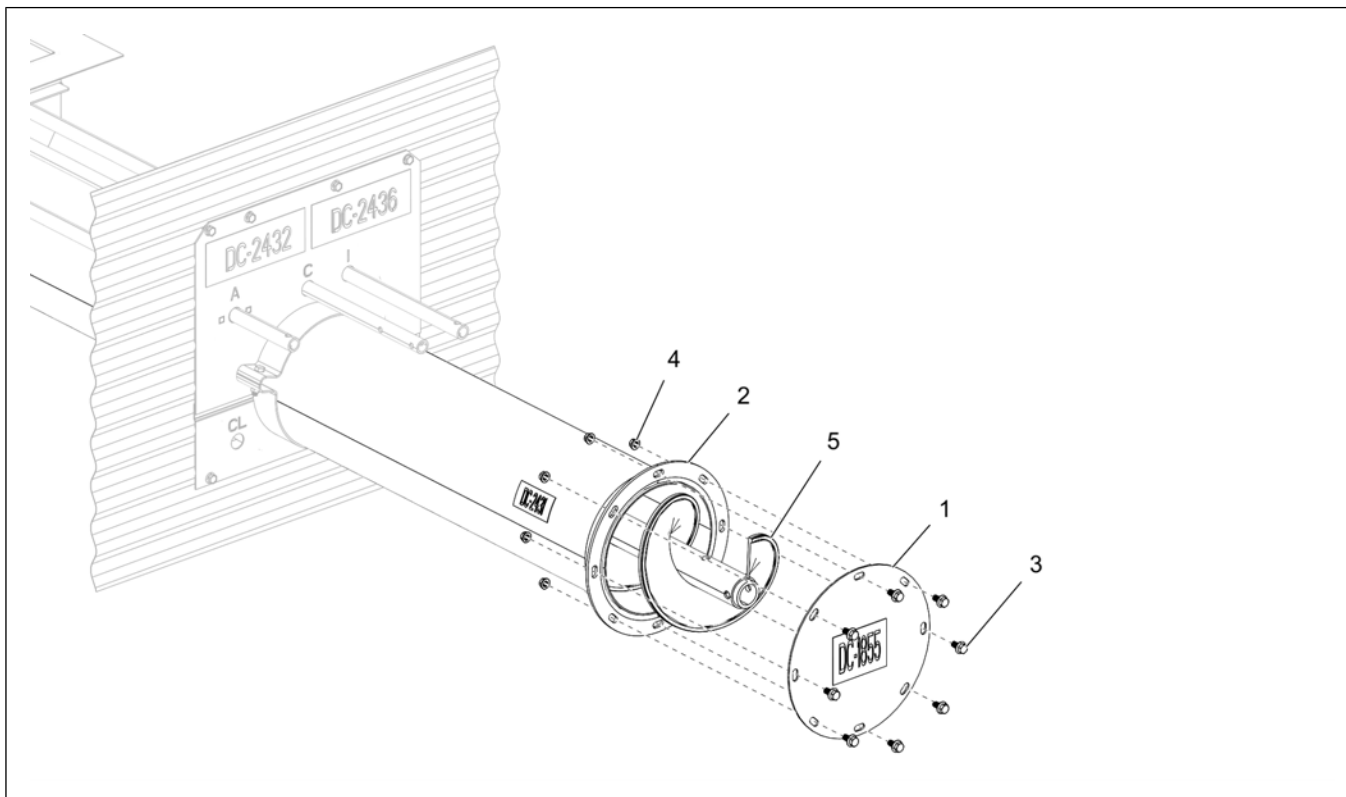


Figure 7-11 10 in. Unload tube flight – Exploded view

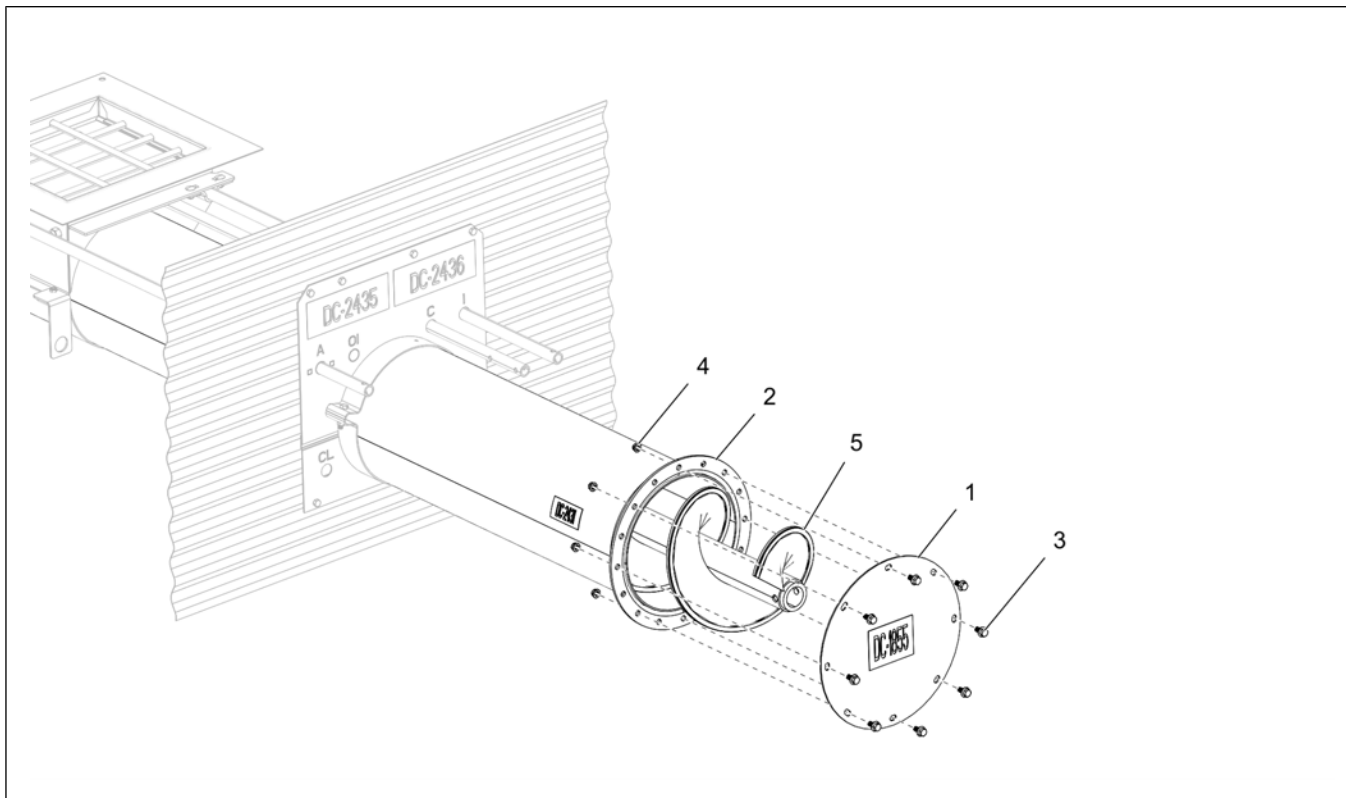


Table 7-7 Unload tube flight – Parts list

Ref #	Part #	Description
1	GK1216	End cap – 8 in.
	GK2184	End cap – 10 in.
2	See table below	Tube weldment
3	S-10260	5/16 x 3/4 in. flange bolt
4	S-3611	5/16 in. flange nut
5	See table below	Flight weldment

Table 7-8 Tube weldment

Ref #	Bin Dia (Ft)	8 in.	10 in.
2	15	GK80408	–
	18	GK80409	–
	21	GK80410	–
	24	GK80411	GK80547
	27	GK80412	GK80548
	30	GK80406	GK80549
	33	GK80413	GK80550
	36	GK80414	GK80551
	42	GK80415	GK80552
	48	GK80416	GK80553

Table 7-9 Flight weldment

Ref #	Bin Dia (Ft)	8 in.	10 in.
5	15	GK80619	–
	18	GK80618	–
	21	GK80617	–
	24	GK80616	GK80620
	27	GK80615	GK80621
	30	GK80535	GK80622
	33	GK80614	GK80623
	36	GK80536	GK80624
	42	GK80537	GK80625
	48	GK80538	GK80626

Clutch Control

Figure 7-12 Clutch control – Exploded view

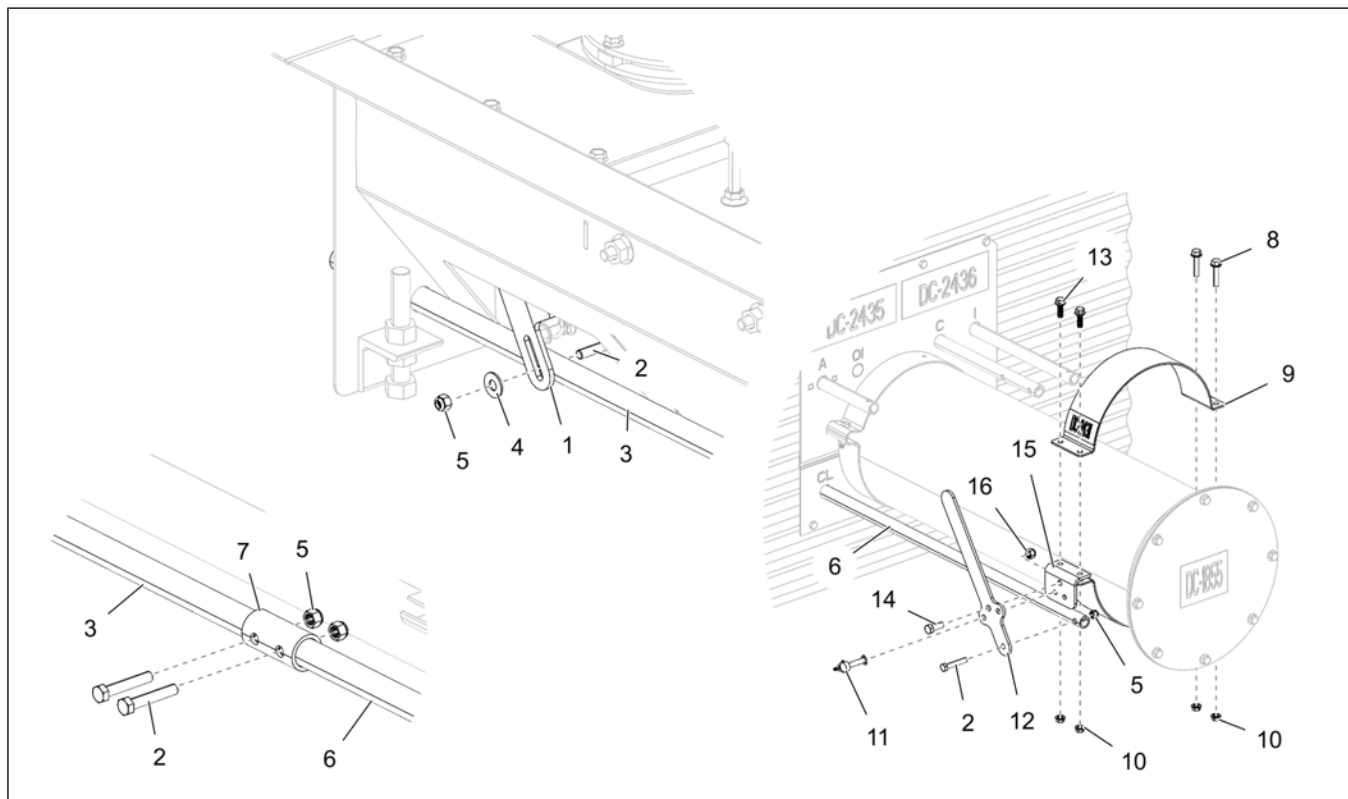


Table 7-10 Clutch control – Parts List

Ref #	Part #	Description
1	GK80368	Center well linkage plate – 8 in.
	GK80541	Center well linkage plate – 10 in.
2	S-7149	5/16 x 1-3/4 in. HHTB bolt
3	See table below	Clutch control rod
4	S-845	5/16 in. flat washer
5	S-7382	5/16 in. nylock nut
6	See table below	Clutch control rod extension
7	GK80532-BS	Clutch control rod coupling bin silver
8	S-10185	5/16 x 1-1/2 in. flange bolt
9	GK80388	Half band, 8 in. x 3 in. 12 ga. galv. – 8 in.
	GK80562	Half band, 10 in. x 3 in. 12 ga. galv. – 10 in.
10	S-3611	5/16 in. flange nut
11	S-10547	5/16 x 1-3/8 in. safety snap pin
12	GK80390	Clutch handle
13	S-7470	5/16 x 1 in. flange bolt
14	S-7469	3/8 x 1 in. HHCS bolt
15	GK80389	Clutch pivot handle
16	S-7383	3/8 in. nylock nut

Table 7-11 Clutch control rod

Ref #	Part #	Description
3	GK80451	Clutch control rod – 15 ft
	GK80452	Clutch control rod – 18 ft
	GK80453	Clutch control rod – 21 ft
	GK80454	Clutch control rod – 24 ft
	GK80455	Clutch control rod – 27 ft
	GK80456	Clutch control rod – 30 ft
	GK80457	Clutch control rod – 33 ft
	GK80458	Clutch control rod – 36 ft to 48 ft

Table 7-12 Clutch control rod extension

Ref #	Part #	Description
6	GK80459	Clutch control rod extension – 42 ft
	GK80460	Clutch control rod extension – 48 ft

Backshield with One Auger for Standard and Low Capacity Sweeps (15 Ft and 18 Ft Bins)

Figure 7-13 Backshield with one auger – Exploded view

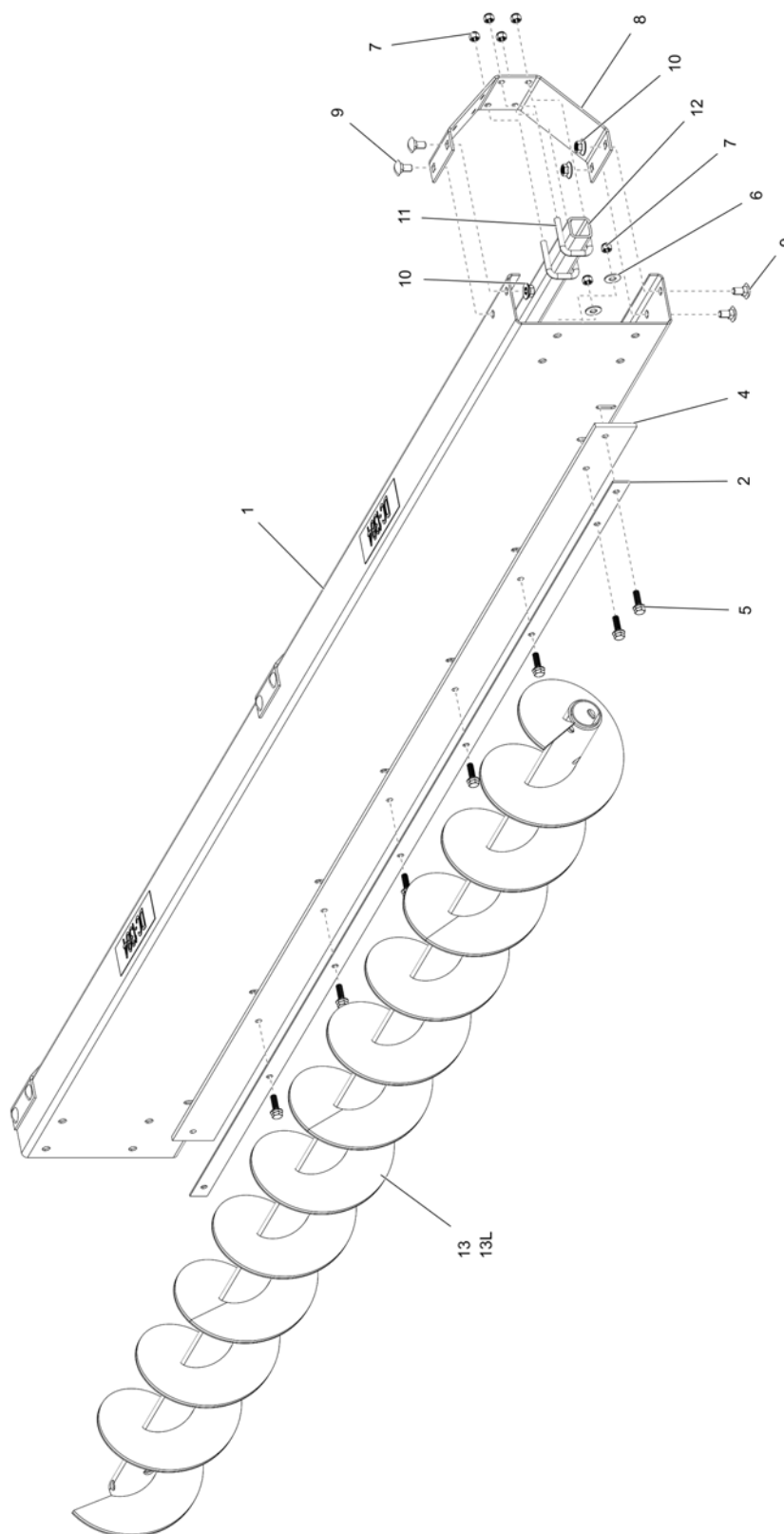


Table 7-13 Backshield with one auger (standard capacity) – Parts list

Ref #	Part #	Description
1	GK80462	Backshield – 8 in. x 15 ft bin
	GK80463	Backshield – 8 in. x 18 ft bin
2	GK80484	Wiper retainer standard – 15 ft bin
	GK80485	Wiper retainer standard – 18 ft bin
4	GK80495	Backshield wiper – 15 ft bin
	GK80496	Backshield wiper – 18 ft bin
5	S-7470	5/16 x 1 in. flange bolt
6	S-845	5/16 in. flat washer
7	S-7382	5/16 in. nylock nut
8	GK80377	Torque tube bracket
9	S-7391	3/8 x 3/4 in. carriage bolt
10	S-968	3/8 in. flange nut
11	S-10521	U-bolt
12	GK80473	Torque tube – 15 ft bin
	GK80474	Torque tube – 18 ft bin
13	GK80606	7 in. x 5.5 ft. 3/16 in. flight weldment – 15 ft bin
	GK80605	7 in. x 7 ft. 0.5 in. 3/16 in. flight weldment – 18 ft bin

Table 7-14 Backshield with one auger (low capacity) – Parts list

Ref #	Part #	Description
13L	GK80803	5 in. x 5.5 ft. 3/16 in. flight weldment – 15 ft bin
	GK80804	5 in. x 7 ft. 0.5 in. 3/16 in. flight weldment – 18 ft bin

Backshield with Two Augers for Standard and Low Capacity Sweeps (21 Ft – 30 Ft Bins)

Figure 7-14 Backshield with two augers – Exploded view

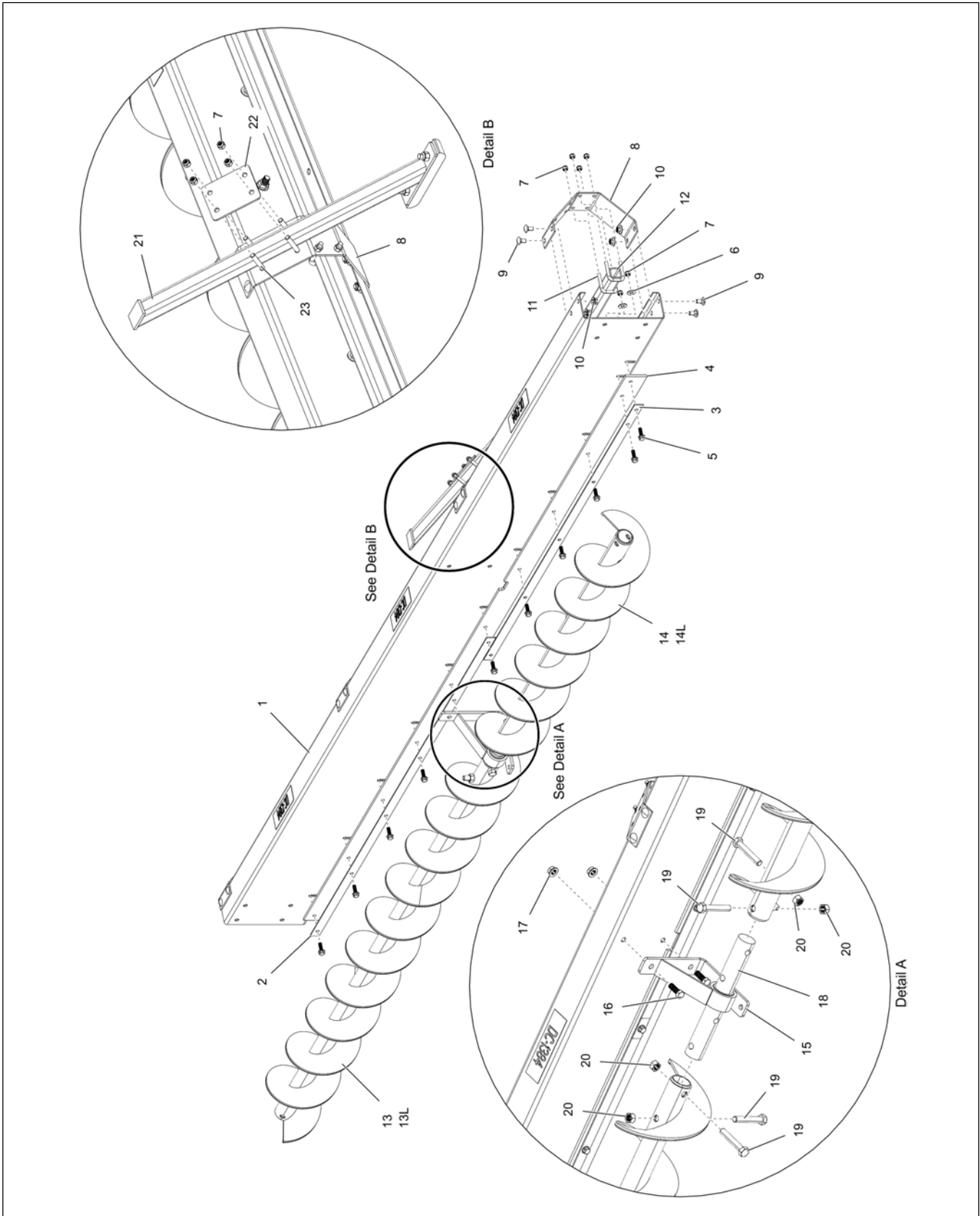


Table 7-15 Backshield with two augers (standard capacity) – Parts list

Ref #	Part #	Description
1	GK80464	Backshield – 8 in. x 21 ft bin
	GK80465	Backshield – 8 in. x 24 ft bin
	GK80466	Backshield – 8 in. x 27 ft bin
	GK80467	Backshield – 8 in. x 30 ft bin
2	GK80486	Wiper retainer standard – 21 ft bin
	GK80534	Wiper retainer standard – 24 ft to 48 ft bins
3	GK80487	Wiper retainer – 24 ft bin
	GK80488	Wiper retainer – 27 ft bin
	GK80489	Wiper retainer – 30 ft bin
4	GK80497	Backshield wiper – 21 ft bin
	GK80498	Backshield wiper – 24 ft bin
	GK80499	Backshield wiper – 27 ft bin
	GK80500	Backshield wiper – 30 ft bin
5	S-7470	5/16 x 1 in. flange bolt
6	S-845	5/16 in. flat washer
7	S-7382	5/16 in. nylock nut
8	GK80377	Torque tube bracket
9	S-7391	3/8 x 3/4 in. carriage bolt
10	S-968	3/8 in. flange nut
11	S-10521	U-bolt
12	GK80475	Torque tube – 21 ft bin
	GK80476	Torque tube – 24 ft bin
	GK80477	Torque tube – 27 ft bin
	GK80478	Torque tube – 30 ft bin
13	GK80233	7 in. x 6 ft. 1.5 in. 3/16 in. flight weldment standard
14	GK80604	7 in. x 2 ft. 2.25 in. 3/16 in. flight weldment – 21 ft bin
	GK80602	7 in. x 3 ft. 8.25 in. 3/16 in. flight weldment – 24 ft bin
	GK80603	7 in. x 5 ft. 2.25 in. 3/16 in. flight weldment – 27 ft bin
	GK80531	7 in. x 6 ft. 9.25 in. 3/16 in. flight weldment – 30 ft bin
15	GK80376	Hanger bracket assembly
16	S-3886	7/16 x 1-1/4 in. HHCS bolt
17	S-9073	7/16 in. flange nut
18	GK1951	1.50 in. OD x 11.5 in. connecting shaft
19	S-8252	1/2 x 3 in. HHCS bolt
20	S-8315	1/2 in. stover nut
21	GK80609	Backshield support bracket assembly
22	GK80610	Backshield support mount plate
23	S-7877	5/16-18 x 2 in. HHCS bolt

Table 7-16 Backshield with two augers (low capacity) – Parts list

Ref #	Part #	Description
13L	GK80802	5 in. x 6 ft. 1.5 in. 3/16 in. flight weldment standard
14L	GK80805	5 in. x 2 ft. 2.25 in. 3/16 in. flight weldment – 21 ft bin
	GK80806	5 in. x 3 ft. 8.25 in. 3/16 in. flight weldment – 24 ft bin
	GK80807	5 in. x 5 ft. 2.25 in. 3/16 in. flight weldment – 27 ft bin
	GK80808	5 in. x 6 ft. 9.25 in. 3/16 in. flight weldment – 30 ft bin

Backshield with Two Augers for Standard and Low Capacity Short Sweeps (30 Ft Bins)

Figure 7-15 Backshield with two augers for standard and low capacity short sweeps – Exploded view

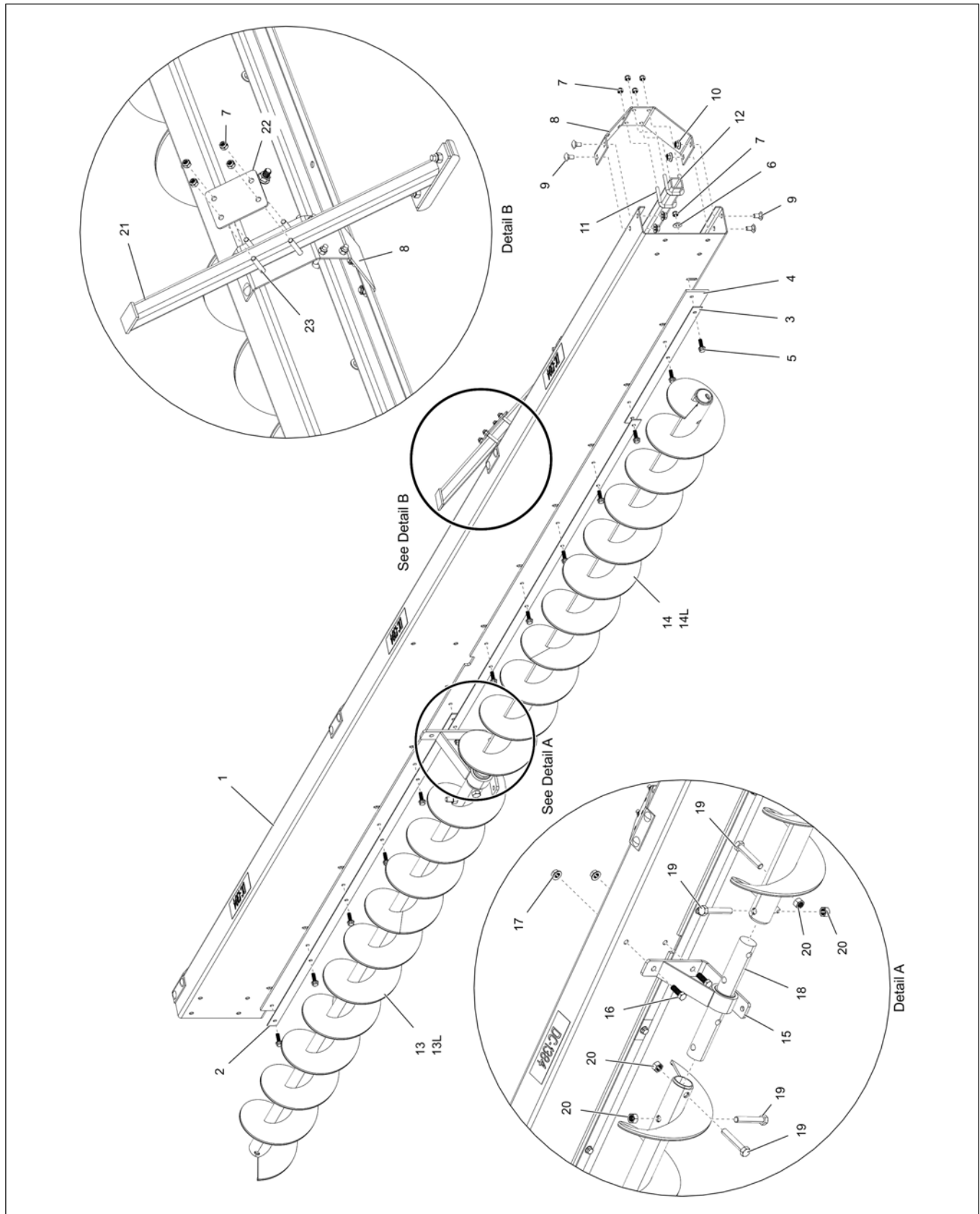


Table 7-17 Backshield with two augers for short sweeps (standard capacity) – Parts list

Ref #	Part #	Description
1	GK80670	Backshield – 8 in. x 30 ft bin – short
2	GK80534	Wiper retainer extension standard – 24 ft to 48 ft bins
3	GK80680	Wiper retainer – 30 ft bin – short
4	GK80675	Backshield wiper – 30 ft bin – short
5	S-7470	5/16 x 1 in. flange bolt
6	S-845	5/16 in. flat washer
7	S-7382	5/16 in. nylock nut
8	GK80377	Torque tube bracket
9	S-7391	3/8 x 3/4 in. carriage bolt
10	S-968	3/8 in. flange nut
11	S-10521	U-bolt
12	GK80665	Torque tube – 30 ft bin – short
13	GK80233	7 in. x 6 ft. 1.50 in. 3/16 in. flight weldment standard
14	GK80692	7 in. x 6 ft. 2.25 in. 3/16 in. flight weldment – short
15	GK80376	Hanger bracket assembly
16	S-3886	7/16 x 1-1/4 in. HHCS bolt
17	S-9073	7/16 in. flange nut
18	GK1951	1.50 in. OD x 11.5 in. connecting shaft
19	S-8252	1/2 x 3 in. HHCS bolt
20	S-8315	1/2 in. stover nut
21	GK80609	Backshield support bracket assembly
22	GK80610	Backshield support mount plate
23	S-7877	5/16-18 x 2 in. HHCS bolt

Table 7-18 Backshield with two augers for short sweeps (low capacity) – Parts list

Ref #	Part #	Description
13L	GK80802	5 in. x 6 ft. 1.50 in. 3/16 in. flight weldment standard
14L	GK80821	5 in. x 6 ft. 2.25 in. 3/16 in. flight weldment

Backshield with Three Augers for Standard and Low Capacity Sweeps (33 Ft – 42 Ft Bins)

Figure 7-16 Backshield with three augers – Exploded view

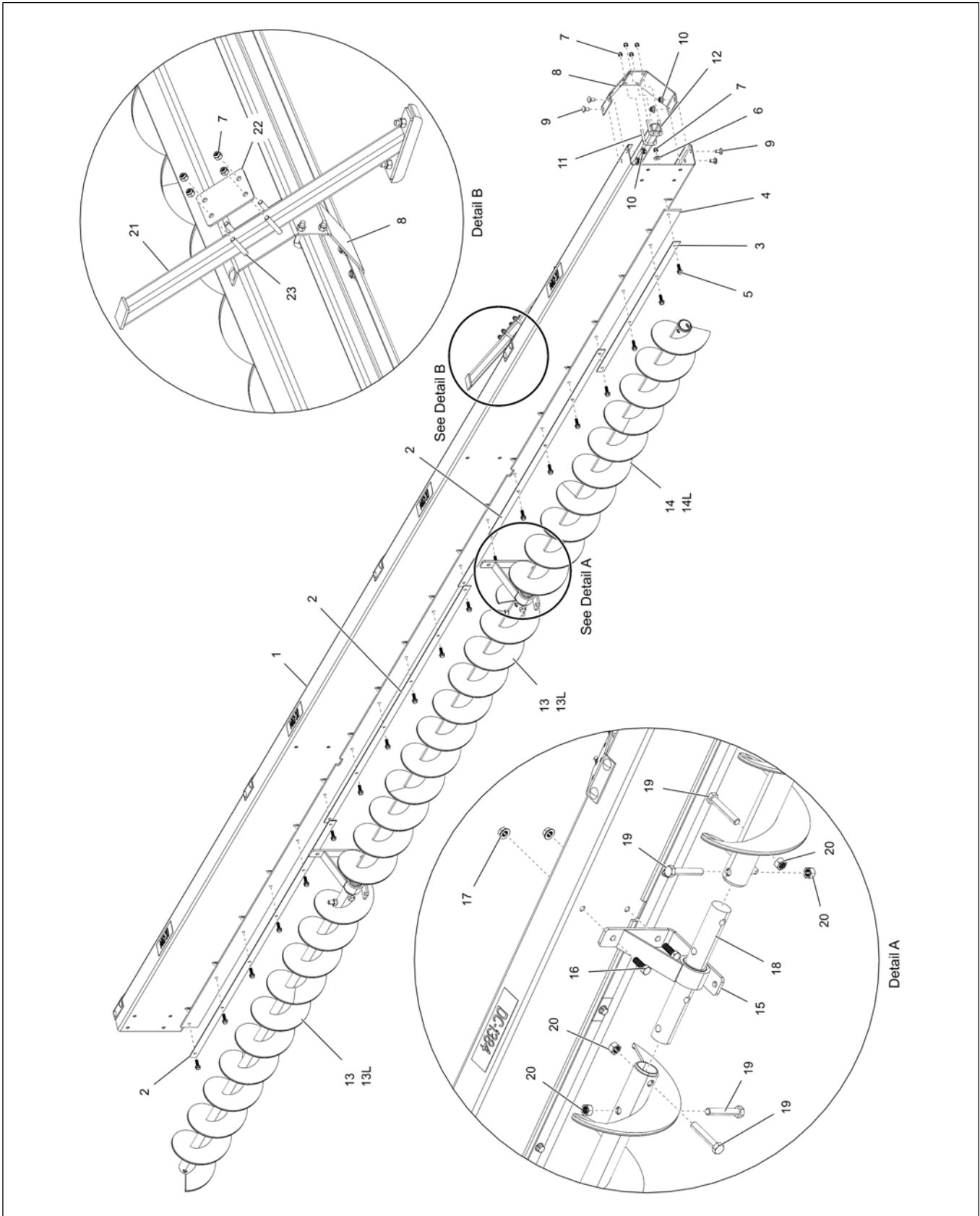


Table 7-19 Backshield with three augers (standard capacity) – Parts list

Ref #	Part #	Description
1	GK80468	Backshield – 8 in. x 33 ft bin
	GK80469	Backshield – 8 in. x 36 ft bin
	GK80470	Backshield – 8 in. x 42 ft bin
2	GK80534	Wiper retainer standard – 24 ft to 48 ft bins
3	GK80490	Wiper retainer – 33 ft bin
	GK80491	Wiper retainer – 36 ft bin
	GK80492	Wiper retainer – 42 ft bin
4	GK80501	Backshield wiper – 33 ft bin
	GK80502	Backshield wiper – 36 ft bin
	GK80503	Backshield wiper – 42 ft bin
5	S-7470	5/16 x 1 in. flange bolt
6	S-845	5/16 in. flat washer
7	S-7382	5/16 in. nylock nut
8	GK80377	Torque tube bracket
9	S-7391	3/8 x 3/4 in. carriage bolt
10	S-968	3/8 in. flange nut
11	S-10521	U-bolt
12	GK80479	Torque tube – 33 ft bin
	GK80480	Torque tube – 36 ft bin
	GK80481	Torque tube – 42 ft bin
13	GK80233	7 in. x 6 ft. 1.50 in. 3/16 in. flight weldment standard
14	GK80601	7 in. x 1 ft. 11.50 in. 3/16 in. flight weldment – 33 ft bin
	GK80528	7 in. x 3 ft. 5 in. 3/16 in. flight weldment – 36 ft bin
	GK80530	7 in. x 6 ft. 4.5 in. 3/16 in. flight weldment – 42 ft bin
15	GK80376	Hanger bracket assembly
16	S-3886	7/16 x 1-1/4 in. HHCS bolt
17	S-9073	7/16 in. flange nut
18	GK1951	1.50 in. OD x 11.5 in. connecting shaft
19	S-8252	1/2 x 3 in. HHCS bolt
20	S-8315	1/2 in. stover nut
21	GK80609	Backshield support bracket assembly
22	GK80610	Backshield support mount plate
23	S-7877	5/16-18 x 2 in. HHCS bolt

Table 7-20 Backshield with three augers (low capacity) – Parts list

Ref #	Part #	Description
13L	GK80802	5 in. x 6 ft. 1.50 in. 3/16 in. flight weldment standard
14L	GK80809	5 in. x 1 ft. 11.5 in. 3/16 in. flight weldment – 33 ft bin
	GK80810	5 in. x 3 ft. 5 in. 3/16 in. flight weldment – 36 ft bin
	GK80811	5 in. x 6 ft. 4.5 in. 3/16 in. flight weldment – 42 ft bin

Backshield with Three Augers for Standard and Low Capacity Short Sweeps (33 Ft – 42 Ft Bins)

Figure 7-17 Backshield with three augers for standard and low capacity short sweeps – Exploded view

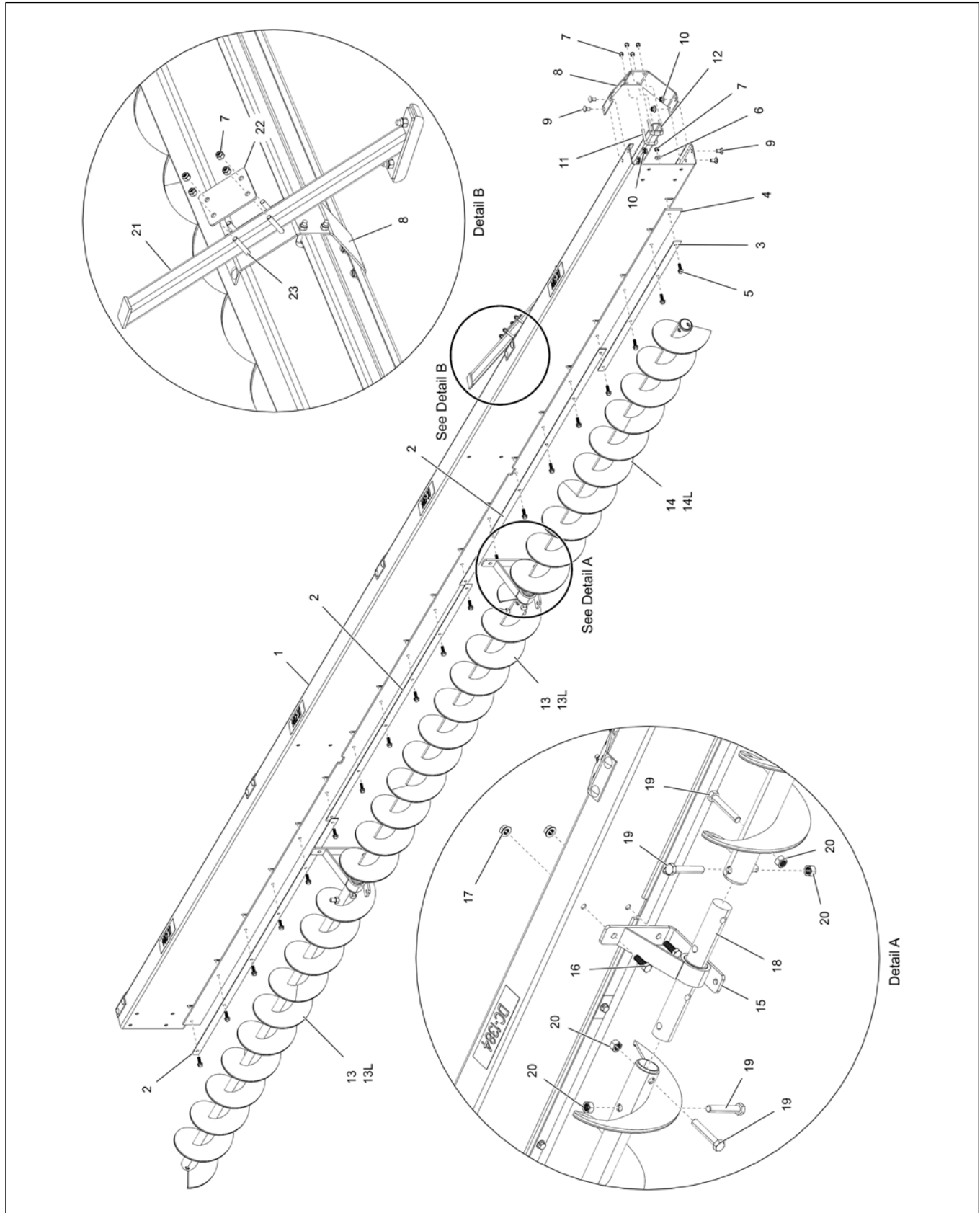


Table 7-21 Backshield with three augers for short sweeps (standard capacity) – Parts list

Ref #	Part #	Description
1	GK80671	Backshield – 8 in. x 33 ft bin – short
	GK80672	Backshield – 8 in. x 36 ft bin – short
	GK80673	Backshield – 8 in. x 42 ft bin – short
2	GK80534	Wiper retainer standard – 24 ft to 48 ft bins
3	GK80681	Wiper retainer – 33 ft bin – short
	GK80682	Wiper retainer – 36 ft bin – short
	GK80683	Wiper retainer – 42 ft bin – short
4	GK80676	Backshield wiper – 33 ft bin – short
	GK80677	Backshield wiper – 36 ft bin – short
	GK80678	Backshield wiper – 42 ft bin – short
5	S-7470	5/16 x 1 in. flange bolt
6	S-845	5/16 in. flat washer
7	S-7382	5/16 in. nylock nut
8	GK80377	Torque tube bracket
9	S-7391	3/8 x 3/4 in. carriage bolt
10	S-968	3/8 in. flange nut
11	S-10521	U-bolt
12	GK80666	Torque tube – 33 ft bin – short
	GK80667	Torque tube – 36 ft bin – short
	GK80668	Torque tube – 42 ft bin – short
13	GK80233	7 in. x 6 ft. 1.50 in. 3/16 in. flight weldment standard
14	GK80689	7 in. x 1 ft. 4.50 in. 3/16 in. flight weldment – 33 ft bin
	GK80688	7 in. x 2 ft. 10 in. 3/16 in. flight weldment – 36 ft bin
	GK80691	7 in. x 5 ft. 9.50 in. 3/16 in. flight weldment – 42 ft bin
15	GK80376	Hanger bracket assembly
16	S-3886	7/16 x 1-1/4 in. HHCS bolt
17	S-9073	7/16 in. flange nut
18	GK1951	1.50 in. OD x 11.5 in. connecting shaft
19	S-8252	1/2 x 3 in. HHCS bolt
20	S-8315	1/2 in. stover nut
21	GK80609	Backshield support bracket assembly
22	GK80610	Backshield support mount plate
23	S-7877	5/16-18 x 2 in. HHCS bolt

Table 7-22 Backshield with three augers short sweeps (low capacity) – Parts list

Ref #	Part #	Description
13L	GK80802	5 in. x 6 ft. 1.50 in. 3/16 in. flight weldment standard
14L	GK80817	5 in. x 1 ft. 4.50 in. 3/16 in. flight weldment – 33 ft bin
	GK80819	5 in. x 2 ft. 10 in. 3/16 in. flight weldment – 36 ft bin
	GK80820	5 in. x 5 ft. 9.50 in. 3/16 in. flight weldment – 42 ft bin

Backshield with Four Augers for Standard and Low Capacity Sweeps (48 Ft Bins)

Figure 7-18 Backshield with four augers – Exploded view

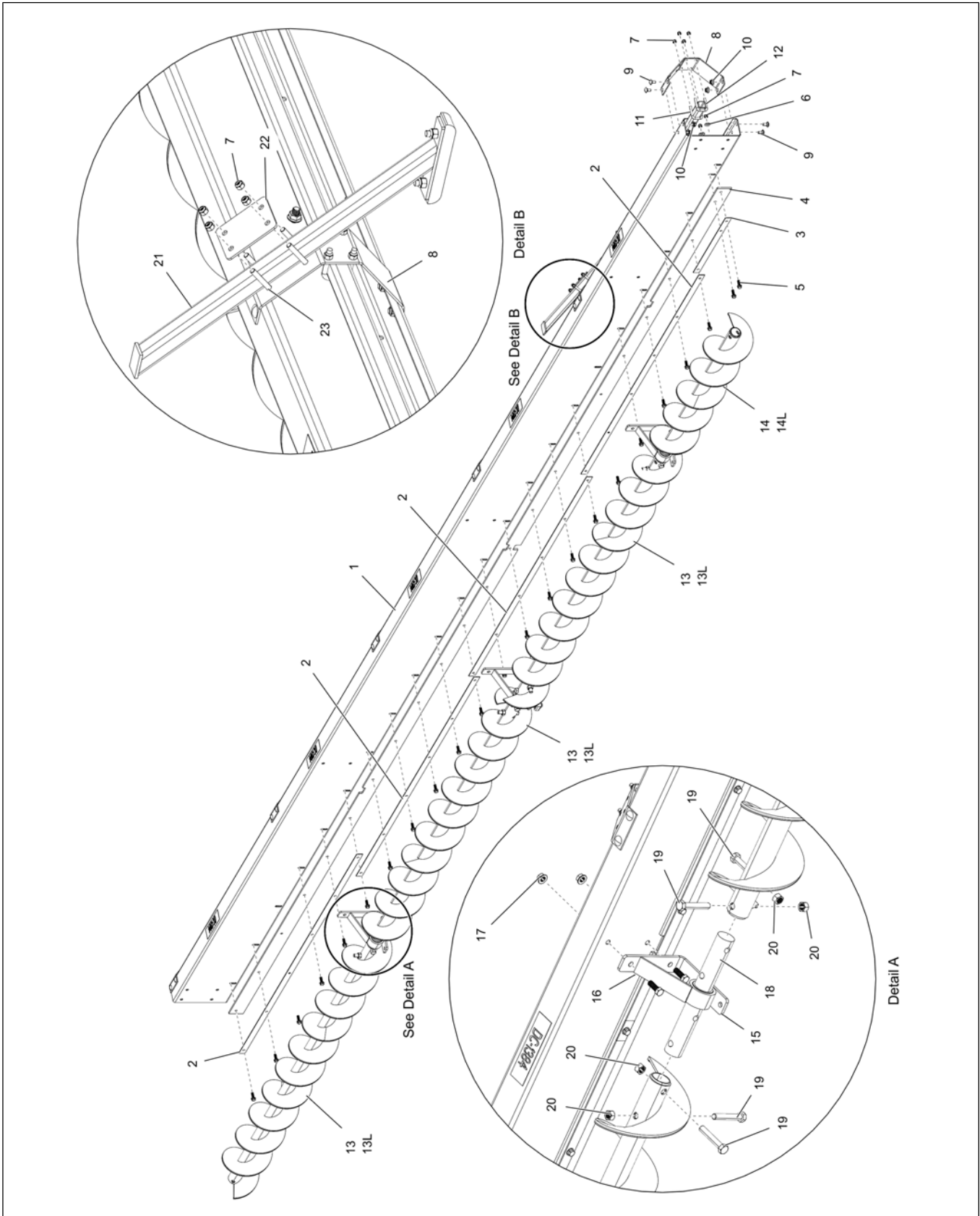


Table 7-23 Backshield with four augers (standard capacity) – Parts list

Ref #	Part #	Description
1	GK80471	Backshield – 8 in. x 48 ft bin
2	GK80534	Wiper retainer standard – 30 ft to 72 ft bins
3	GK80493	Wiper retainer – 48 ft bin
4	GK80504	Backshield wiper – 48 ft bin
5	S-7470	5/16 x 1 in. flange bolt
6	S-845	5/16 in. flat washer
7	S-7382	5/16 in. nylock nut
8	GK80377	Torque tube bracket
9	S-7391	3/8 x 3/4 in. carriage bolt
10	S-968	3/8 in. flange nut
11	S-10521	U-bolt
12	GK80482	Torque tube – 48 ft bin
13	GK80233	7 in. x 6 ft. 1.50 in. 3/16 in. flight weldment standard
14	GK80527	7 in. x 36.750 in. 3/16 in. flight weldment
15	GK80376	Hanger bracket assembly
16	S-3886	7/16 x 1-1/4 in. HHCS bolt
17	S-9073	7/16 in. flange nut
18	GK1951	1.50 in. OD x 11.5 in. connecting shaft
19	S-8252	1/2 x 3 in. HHCS bolt
20	S-8315	1/2 in. stover nut
21	GK80609	Backshield support bracket assembly
22	GK80610	Backshield support mount plate
23	S-7877	5/16-18 x 2 in. HHCS bolt

Table 7-24 Backshield with four augers (low capacity) – Parts list

Ref #	Part #	Description
13L	GK80802	5 in. x 6 ft. 1.50 in. 3/16 in. flight weldment standard
14L	GK80812	5 in. x 3 ft. 0.75 in. 3/16 in. flight weldment

Backshield with Four Augers for Standard and Low Capacity Short Sweeps (48 Ft Bins)

Figure 7-19 Backshield with four augers for standard and low capacity sweeps – Exploded view

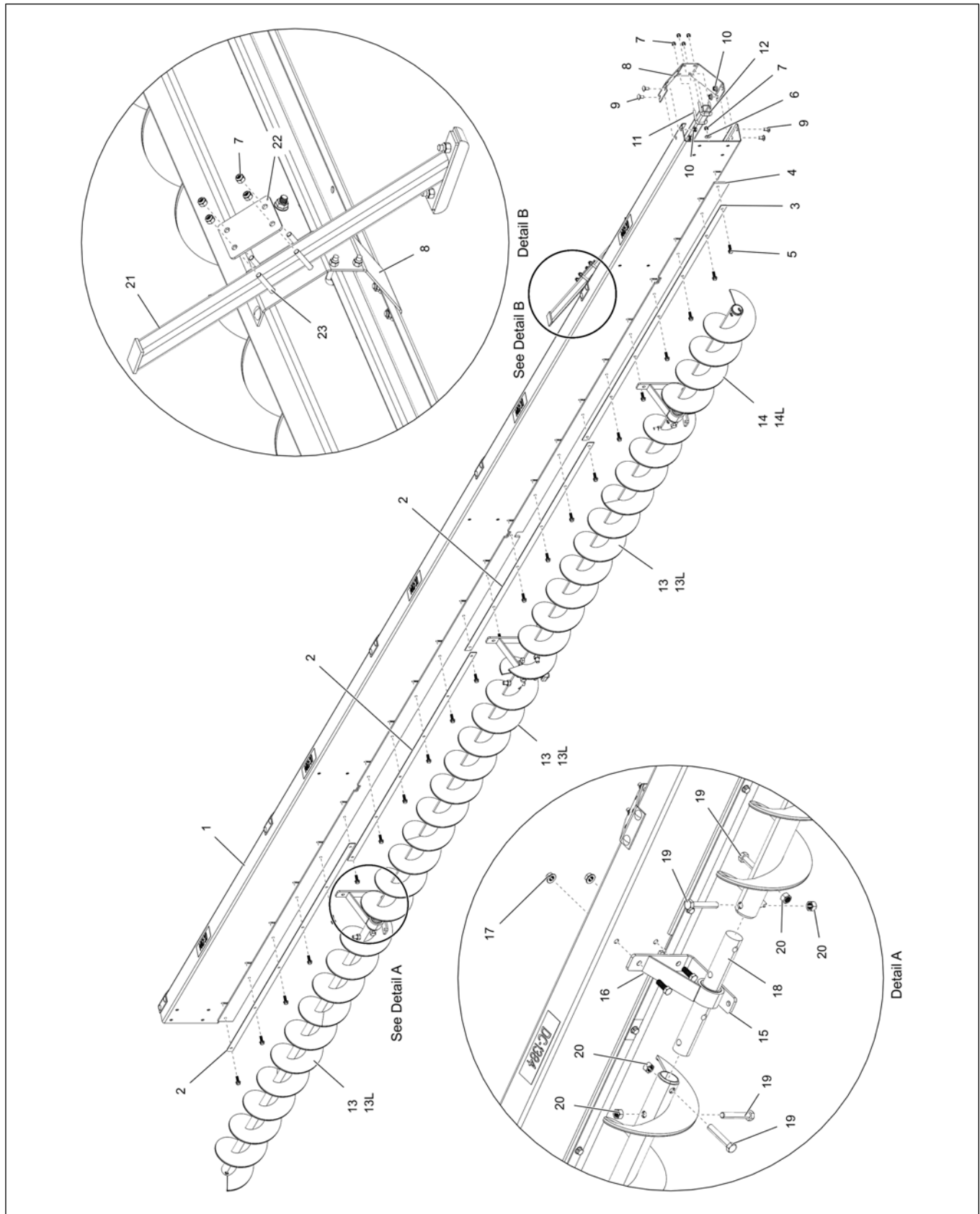


Table 7-25 Backshield with four augers for short sweeps (standard capacity) – Parts list

Ref #	Part #	Description
1	GK80674	Backshield – 8 in. x 48 ft bin – short
2	GK80534	Wiper retainer standard – 24 ft to 48 ft bins
3	GK80684	Wiper retainer – 48 ft bin – short
4	GK80679	Backshield wiper – 48 ft bin – short
5	S-7470	5/16 x 1 in. flange bolt
6	S-845	5/16 in. flat washer
7	S-7382	5/16 in. nylock nut
8	GK80377	Torque tube bracket
9	S-7391	3/8 x 3/4 in. carriage bolt
10	S-968	3/8 in. flange nut
11	S-10521	U-bolt
12	GK80669	Torque tube – 48 ft bin – short
13	GK80233	7 in. x 6 ft. 1.50 in. 3/16 in. flight weldment standard
14	GK80687	7 in. x 2 ft. 5.750 in. 3/16 in. flight weldment
15	GK80376	Hanger bracket assembly
16	S-3886	7/16 x 1-1/4 in. HHCS bolt
17	S-9073	7/16 in. flange nut
18	GK1951	1.50 in. OD x 11.5 in. connecting shaft
19	S-8252	1/2 x 3 in. HHCS bolt
20	S-8315	1/2 in. stover nut
21	GK80609	Backshield support bracket assembly
22	GK80610	Backshield support mount plate
23	S-7877	5/16-18 x 2 in. HHCS bolt

Table 7-26 Backshield with four augers for short sweeps (low capacity) – Parts list

Ref #	Part #	Description
13L	GK80802	5 in. x 6 ft. 1.50 in. 3/16 in. flight weldment standard
14L	GK80818	5 in. x 2 ft. 5.750 in. 3/16 in. flight weldment

Backshield Connections

Figure 7-20 Backshield connections – Exploded view

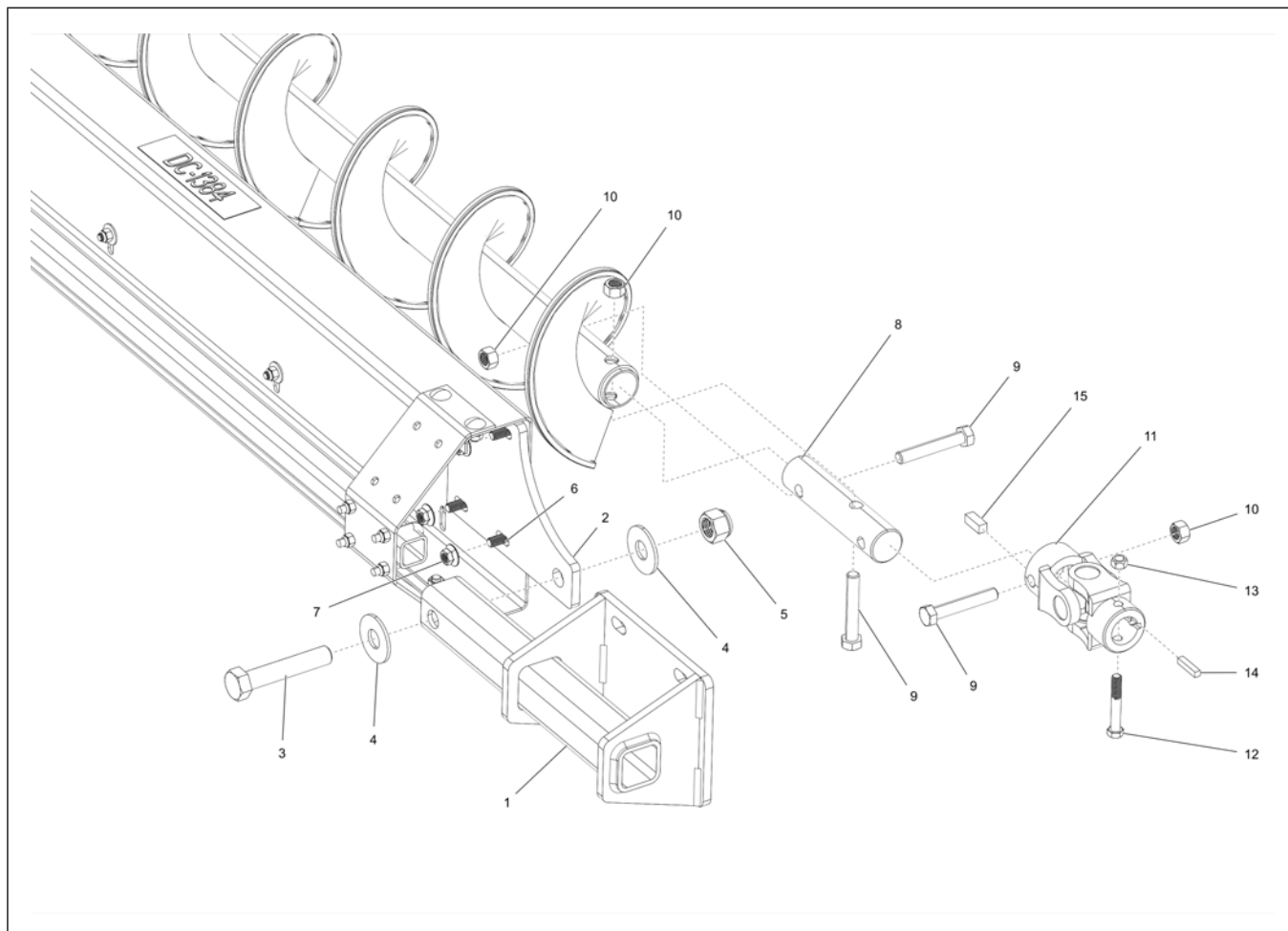


Table 7-27 Backshield Connections – Parts List

Ref #	Part #	Description
1	GK80607-Y	Gearbox mount assembly – 8 in.
2	GK80608-Y	Backshield pivot bracket – 8 in.
3	S-7884	3/4 x 4 in. HHCS bolt
4	S-866	3/4 in. flat washer
5	S-7217	3/4 in. nylock nut
6	S-9066	3/8 in. flange bolt
7	S-968	3/8 in. flange nut
8	GK80378	1.5 in. x 6.5 in. U-joint connecting shaft
9	S-8252	1/2 x 3 in. HHCS bolt
10	S-8315	1/2 in. stover nut
11	GK7614	U-joint 1.25 in. B and 1.5 in. B x 5.50 in. long 12E
12	S-10107	3/8 in. HHCS bolt
13	S-8251	3/8 in. stover nut
14	S-8382	1/4 x 1/4 x 1 1/4 in. square key
15	GC03540	3/8 x 3/8 x 1 in. key

Sweep Wheel

Figure 7-21 Sweep wheel – Exploded view

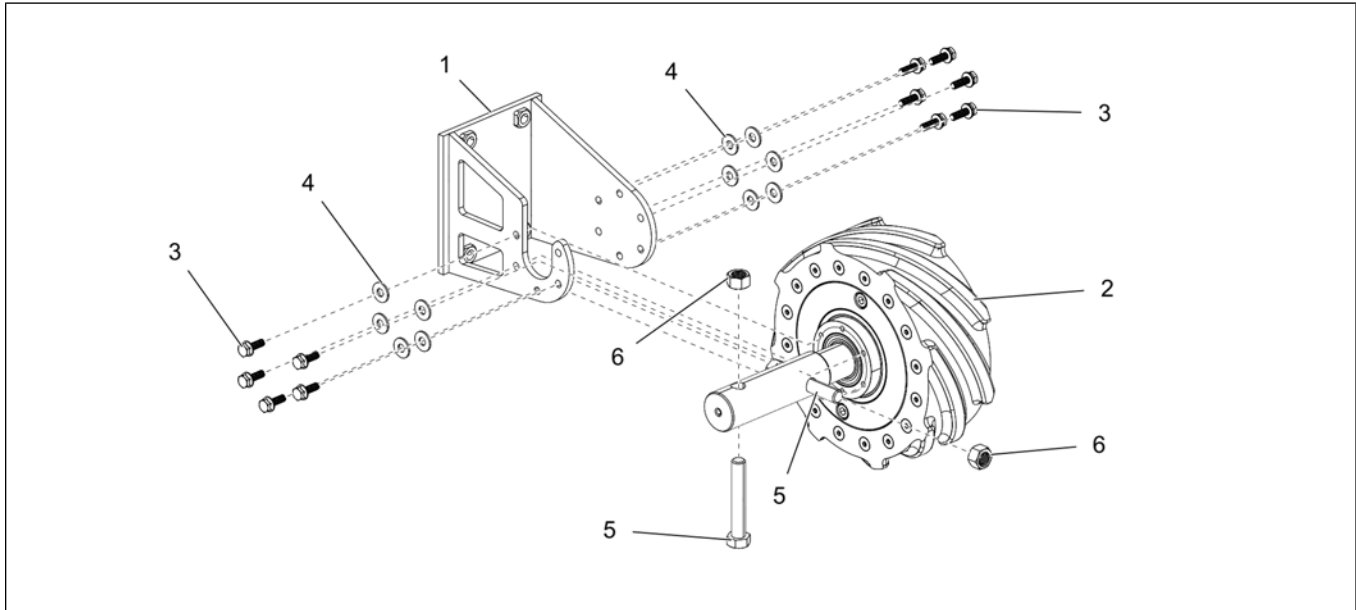


Table 7-28 Sweep Wheel – Parts List

Ref #	Part #	Description
1	GK80397-Y	Wheel housing weldment – 8 in.
2	GK80398	Sweep wheel 8.5 in. x 8.5:1 ratio
3	S-8680	1/4 in. flange bolt
4	S-1430	1/4 in flat washer
5	S-8252	1/2 x 3 in. HHCS bolt
6	S-8315	1/2 in. stover nut

NOTES

GSI Group, LLC Limited Warranty

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

Warranty Extensions: The Limited Warranty period is extended for the following products:

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

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

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

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

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

Conditions and Limitations:

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

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

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

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

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

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



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