



# Farm U-Trough Bin Unload System

## 100 Series Assembly & Installation Manual

This manual applies to:

U-Trough Unload	Bin Diameters: 24', 27', 30', 33', 36', 39', 42', 45', 48', 51', 54', 60'
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Original Instructions



Read this manual before using product. Failure to follow instructions and safety precautions can result in serious injury, death, or property damage. Keep manual for future reference.

Part Number: BU-0101742 R3

Revised: June 2018



## New in this Manual

The following changes have been made in this revision of the manual:

Description	Section
Update bolt size and jam nut.	<a href="#">Figure 31 on page 45</a>
Add 9' u-trough extension.	<a href="#">Section 6.10. – Assemble the U-Trough Extension (Optional) on page 49</a>

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# 1. Introduction

This manual describes how to assemble a Westfield Farm U-Trough Bin Unload System.

Before assembling the bin unload, please read this manual. Familiarize yourself with the process and the necessary precautions for efficient and safe assembly.

Everyone present at the assembly site is required to be familiar with all safety precautions.

Keep this manual available for frequent reference and review it with new personnel. Call your local distributor or dealer if you need assistance or additional information.




# 2. Safety


## 2.1. Safety Alert Symbol and Signal Words





This safety alert symbol indicates important safety messages in this manual. When you see this symbol, be alert to the possibility of injury or death, carefully read the message that follows, and inform others.

**Signal Words:** Note the use of the signal words **DANGER**, **WARNING**, **CAUTION**, and **NOTICE** with the safety messages. The appropriate signal word for each message has been selected using the definitions below as a guideline.

 **DANGER** Indicates an imminently hazardous situation that, if not avoided, will result in serious injury or death.

 **WARNING** Indicates a hazardous situation that, if not avoided, could result in serious injury or death.

 **CAUTION** Indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.

 **NOTICE** Indicates a potentially hazardous situation that, if not avoided, may result in property damage.

## 2.2. General Product Safety

**YOU** are responsible for the **SAFE** use and maintenance of your bin unload. **YOU** must ensure that you and anyone else who is going to work around the bin unload understands all procedures and related **SAFETY** information contained in this manual.

Remember, **YOU** are the key to safety. Good safety practices not only protect you, but also the people around you. Make these practices a working part of your safety program. All accidents can be avoided.

- It is the bin unload owner, operator, and maintenance personnel's responsibility to read and understand **ALL** safety instructions, safety decals, and manuals and follow them when assembling, operating, or maintaining the equipment.
- Owners must give instructions and review the information initially and annually with all personnel before allowing them to operate the bin unload. Untrained users/operators expose themselves and bystanders to possible serious injury or death.
- The bin unload is not intended to be used by children.
- Use the bin unload for its intended purposes only.
- Do not modify the bin unload in any way without written permission from the manufacturer. Unauthorized modification may impair the function and/or safety, and could affect the life of the bin unload. Any unauthorized modification of the bin unload will void the warranty.



## 2.3. Rotating Flighting Safety

### DANGER

- KEEP AWAY from rotating flighting.
- DO NOT remove or modify flighting guards, doors, or covers. Keep in good working order. Have replaced if damaged.
- DO NOT operate the bin unload without all guards, doors, and covers in place.
- NEVER touch the flighting. Use a stick or other tool to remove an obstruction or clean out.
- Shut off and lock out power to adjust, service, or clean.



## 2.4. Rotating Parts Safety

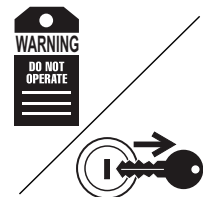
### WARNING

- Keep body, hair, and clothing away from rotating pulleys, belts, chains, and sprockets.
- Do not operate with any guard removed or modified. Keep guards in good working order.
- Shut off and remove key or lock out power source before inspecting or servicing machine.



## 2.5. Drives and Lockout Safety

Inspect the power source(s) before using and know how to shut down in an emergency. Whenever you service or adjust your equipment, make sure you shut down the power source and follow lockout and tagout procedures to prevent inadvertent start-up and hazardous energy release. Know the procedure(s) that applies to your equipment from the following power source(s). Ensure that only 1 key exists for each assigned lock, and that you are the only one that holds that key. Ensure that all personnel are clear before turning on power to equipment.



## 2.5.1 Electric Motor Safety

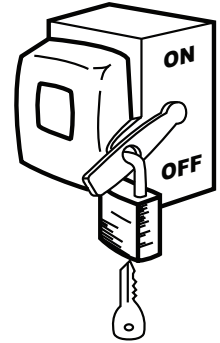
### **WARNING** Power Source

- Electric motors and controls shall be installed and serviced by a qualified electrician and must meet all local codes and standards.
- A magnetic starter should be used to protect your motor.
- You must have a manual reset button.
- Reset and motor starting controls must be located so that the operator has full view of the entire operation.
- Locate main power disconnect switch within reach from ground level to permit ready access in case of an emergency.
- Motor must be properly grounded.
- Guards must be in place and secure.
- Ensure electrical wiring and cords remain in good condition; replace if necessary.
- Use a totally enclosed electric motor if operating in extremely dusty conditions.

#### Lockout

- The main power disconnect switch should be in the locked position during shutdown or whenever maintenance is performed.
- If reset is required, disconnect all power **before** resetting motor.

#### SERVICE DISCONNECT



## 2.6. Personal Protective Equipment

The following Personal Protective Equipment (PPE) should be worn when assembling the equipment.

### Safety Glasses

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



### Work Gloves

- Wear work gloves to protect your hands from sharp and rough edges.



### Steel-Toe Boots

- Wear steel-toe boots to protect feet from falling debris.





### Coveralls

- Wear coveralls to protect skin.



### Hard Hat

- Wear a hard hat to help protect your head.



## 2.7. Safety Equipment

---

The following safety equipment should be kept on site:

### Fire Extinguisher

- Provide a fire extinguisher for use in case of an accident. Store in a highly visible and accessible place.



### First-Aid Kit

- Have a properly-stocked first-aid kit available for use should the need arise, and know how to use it.



### Eyewash Kit

- Keep a portable eye wash kit available or make sure a permanent eyewash station is available should the need arise to flush materials from the eyes. Review instructions for use before working with the bin unload.



### Salvage Container

- Keep a sealable salvage container on site, such as a spill containment pallet.



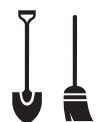
### Absorbent Materials

- Keep granular absorbent materials on hand to clean up any chemical spills.



### Aluminum Shovel and Broom

- Keep an aluminum shovel and broom for cleanup of spilled materials.



## 2.8. Safety Decals

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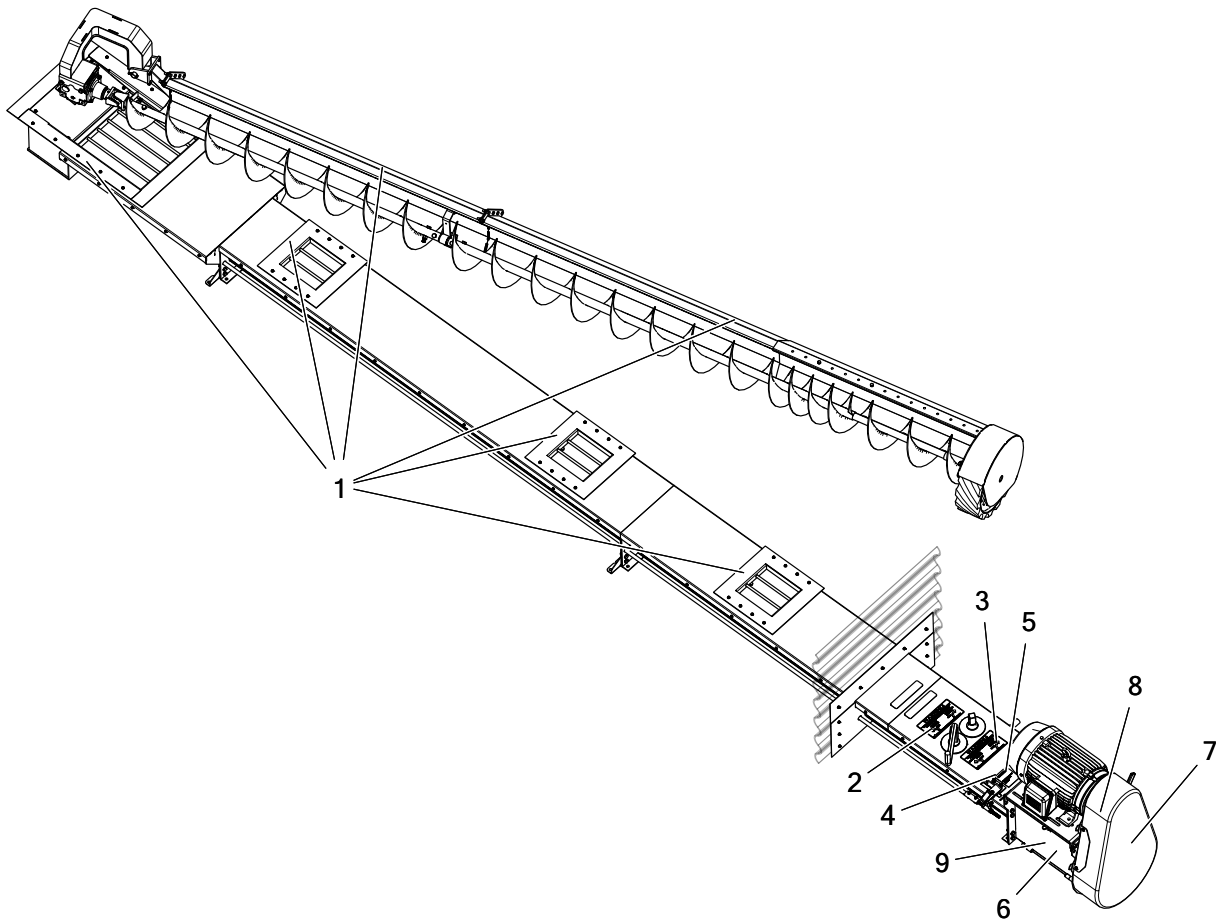
- Keep safety decals clean and legible at all times.
- Replace safety decals that are missing or have become illegible. See decal location figures that follow.
- Replaced parts must display the same decal(s) as the original part.
- Replacement safety decals are available **free of charge** from your distributor, dealer, or factory as applicable.

### 2.8.1 Decal Installation/Replacement

1. Decal area must be clean and dry, with a temperature above 50°F (10°C).
2. Decide on the exact position before you remove the backing paper.
3. Align the decal over the specified area and carefully press the small portion with the exposed sticky backing in place.
4. Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
5. Small air pockets can be pierced with a pin and smoothed out using the sign backing paper.

### 2.8.2 Safety Decal Locations and Details

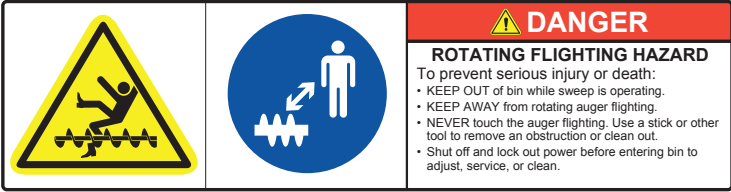
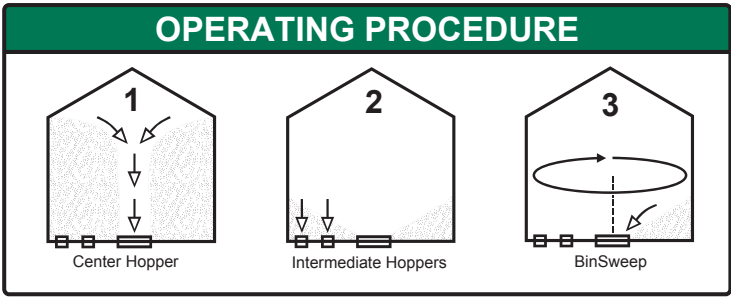
Replicas of the safety decals that are attached to the bin unload and their messages are shown in the figure(s) that follow. Safe operation and use of the bin unload requires that you familiarize yourself with the various safety decals and the areas or particular functions that the decals apply to, as well as the safety precautions that must be taken to avoid serious injury, death, or damage.



**Note**

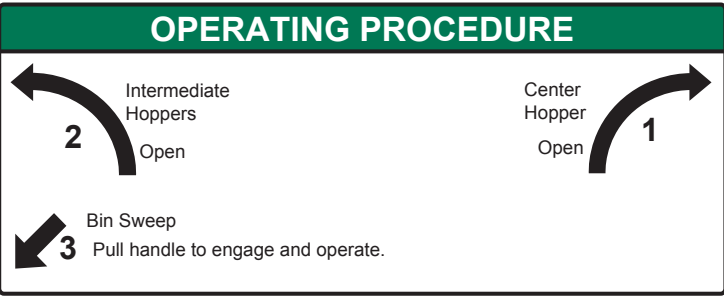
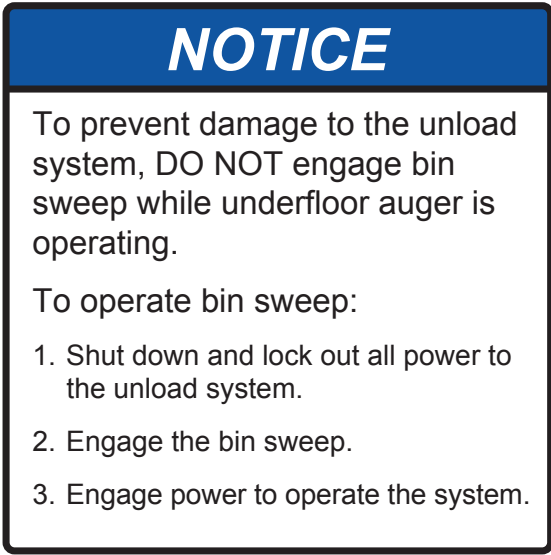

Decal locations same on incline discharge.

**Table 1. Safety Decals**



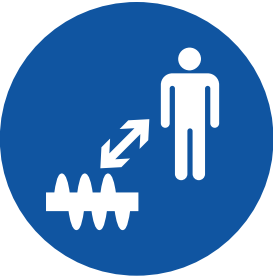
Item	Description	Part Number
1		BU-0100470
2		BU-0101800



**Table 1 Safety Decals (continued)**



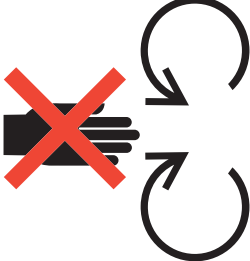



Item	Description	Part Number
3	 <p><b>OPERATING PROCEDURE</b></p> <p>2 Intermediate Hoppers Open</p> <p>Center Hopper Open 1</p> <p>3 Bin Sweep Pull handle to engage and operate.</p>	BU-0100472
4	 <p><b>NOTICE</b></p> <p>To prevent damage to the unload system, DO NOT engage bin sweep while underfloor auger is operating.</p> <p>To operate bin sweep:</p> <ol style="list-style-type: none"> <li>1. Shut down and lock out all power to the unload system.</li> <li>2. Engage the bin sweep.</li> <li>3. Engage power to operate the system.</li> </ol>	BU-0100476
5	 <p><b>WARNING</b></p> <p><b>BIN COLLAPSE HAZARD</b></p> <p>Center hopper must be opened first to empty bin. Failure to follow could result in serious injury or death.</p>	BU-0000002

**Table 1 Safety Decals (continued)**




Item	Description	Part Number
6	<div style="border: 2px solid black; padding: 10px;"> <div style="background-color: red; color: white; text-align: center; padding: 5px;">  <b>DANGER</b> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;">   </div> <div style="text-align: center; margin-top: 10px;"> <p><b>ROTATING FLIGHTING HAZARD</b></p> <p>To prevent death or serious injury:</p> <ul style="list-style-type: none"> <li>• KEEP AWAY from rotating auger flighting.</li> <li>• DO NOT remove or modify auger flighting guards, doors, or covers. Keep in good working order. Have replaced if damaged.</li> <li>• DO NOT operate the auger without all guards, doors, and covers in place.</li> <li>• NEVER touch the auger flighting. Use a stick or other tool to remove an obstruction or clean out.</li> <li>• Shut off and lock out power to adjust, service, or clean.</li> </ul> </div> </div>	20813



**Table 1 Safety Decals (continued)**

Item	Description	Part Number
7	<div data-bbox="311 275 954 1041" style="border: 1px solid black; padding: 10px;"> <div style="background-color: #f4a460; padding: 5px; text-align: center;">  <span style="font-weight: bold; font-size: 1.2em;">WARNING</span> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin-top: 10px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <div style="margin-top: 10px;"> <p style="text-align: center; font-weight: bold; margin: 0;">ENTANGLEMENT HAZARD</p> <p>To prevent serious injury or death:</p> <ul style="list-style-type: none"> <li>Keep body, hair, and clothing away from rotating pulleys, belts, chains, and sprockets.</li> <li>Do not operate with any guard removed or modified. Keep guards in good working order.</li> <li>Shut off and remove key or lock out power source before inspecting or servicing machine.</li> </ul> </div> </div>	20804
8	<div data-bbox="311 1094 857 1402" style="border: 1px solid black; padding: 10px;"> <div style="background-color: #f4a460; padding: 5px; text-align: center;">  <span style="font-weight: bold; font-size: 1.2em;">WARNING</span> </div> <div style="display: flex; justify-content: space-between; align-items: flex-start; margin-top: 10px;"> <div style="text-align: center;">  </div> <div style="margin-left: 10px;"> <p style="font-weight: bold; margin: 0;">MISSING GUARD HAZARD</p> <p>To prevent serious injury or death, shut off power and reattach guard before operating machine.</p> </div> </div> <div style="margin-top: 10px;">  </div> </div>	20803

**Table 1 Safety Decals (continued)**

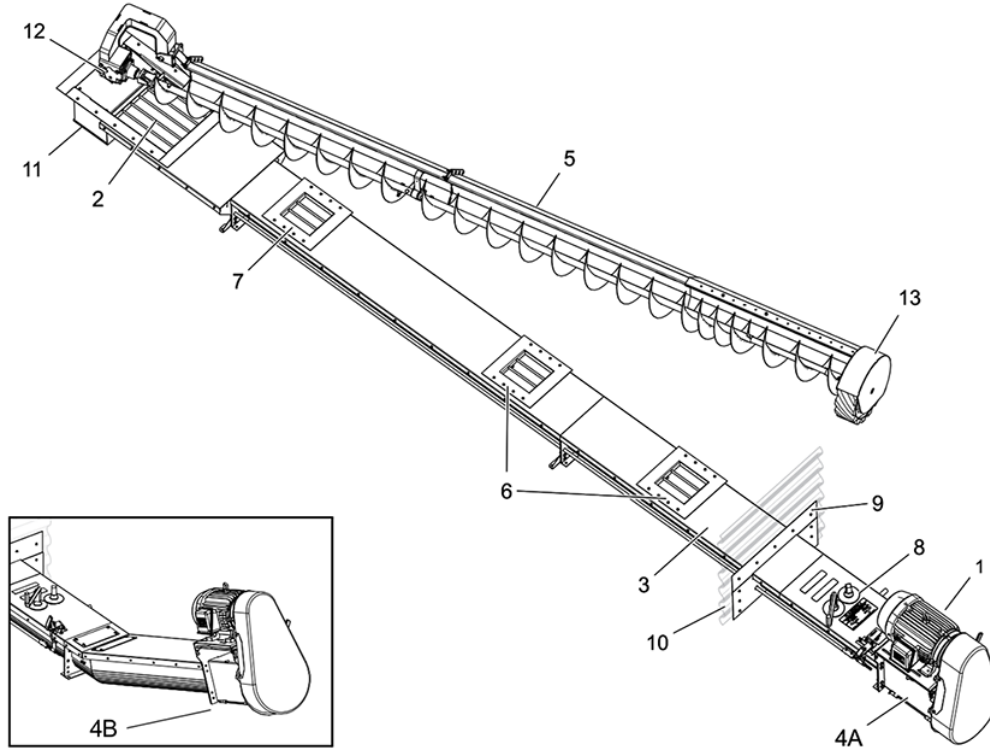
Item	Description	Part Number
9	<div style="border: 2px solid black; padding: 10px;"> <div style="background-color: #f4a460; padding: 5px; text-align: center;">  <span style="font-size: 24px; font-weight: bold; color: white;">WARNING</span> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <div style="margin-top: 10px;"> <p>To prevent serious injury or death:</p> <ul style="list-style-type: none"> <li>• Read and understand the manual before assembling, operating, or maintaining the equipment.</li> <li>• Only trained personnel may assemble, operate, or maintain the equipment.</li> <li>• Children and untrained personnel must be kept outside of the work area.</li> <li>• Do not modify the equipment. Keep in good working order.</li> <li>• If the manual, guards, or decals are missing or damaged, contact factory or dealer for replacements.</li> <li>• Lock out power before performing maintenance.</li> </ul> </div> </div>	BU-0020807



# 3. Features

This section covers the main features of the bin unload.

**Figure 1. Bin Unload System Features**



**Table 2. Bin Unload System Features**

Item	Description	Item	Description
1	Electric Power Head	7	Emergency Sump (E-Sump) (optional on 30' bin diameter model and greater)
2	Center Sump (Hopper)	8	Controls
3	Underfloor Auger	9	Bin Adapter
4A	Horizontal Discharge	10	Bin Wall
4B	Incline Discharge	11	Lower Gearbox
5	Bin Sweep	12	Upper Gearbox
6	Intermediate Sump (Hopper)	13	Sweep Drive Wheel

Optional u-trough extensions are available in lengths of 1.5', 3', 4.5', 6' and 9'.



# 4. Preparation

## 4.1. Diameter Tolerance

In order to use the Westfield Farm U-Trough Bin Unload System bin unload, the bin diameter must be within the tolerance in the following table.

**Table 3. Bin Diameter Tolerances for Bin Unload Models**

Bin Unload Model	Bin Diameter Tolerance
24'	23'6" - 25'6" (7.16 - 7.77 m)
27'	26'6" - 27'6" (8.08 - 8.38 m)
30'	29'6" - 30'6" (8.99 - 9.30 m)
33'	32'6" - 33'6" (9.91 - 10.21 m)
36'	35'6" - 36'6" (10.82 - 11.13 m)
39'	38'6" - 39'6" (11.73 - 12.04 m)
42'	41'6" - 42'6" (12.65 - 12.95 m)
45'	44'6" - 45'6" (13.56 - 13.87 m)
48'	47'6" - 48'6" (14.48 - 14.78 m)
51'	50'6" - 51'6" (15.39 - 15.70 m)
54'	53'6" - 54'6" (16.31 - 16.61 m)
60'	59'6" - 60'6" (18.14 - 18.44 m)

## 4.2. Intended Floor Types

The unload system may be installed as part of a:

- full floor aeration system
- concrete form with an aeration pit
- trench in a full concrete foundation

The instructions in this manual are written for full floor aeration systems, however any type may be safely used noting the additional requirements below.

### Concrete Form with an Aeration Pit

Install the tandem gearboxes in the center sump before positioning the underfloor auger in the trench to prevent clearance problems.

Connect the bin adapter pieces to the concrete form wall using eleven 1/4" x 1-1/4" self-tapping **concrete** screws (purchased separately).

### Trench in a Full Concrete Foundation

The concrete floor must meet the dimensions in the figure below.



Install the tandem gearboxes in the center sump before positioning the underfloor auger in the trench to prevent clearance problems.

Do not install the anchor legs (they are unnecessary and would cause clearance problems).

The bin adapter top piece may not fit against the underfloor auger and corrugated bin wall in the same way as the lower pieces. In this case, use another method to seal the top of the underfloor auger to the bin.

Connect the bin adapter pieces to the concrete foundation using six 1/4" x 1-1/4" self-tapping **concrete** screws purchased separately.

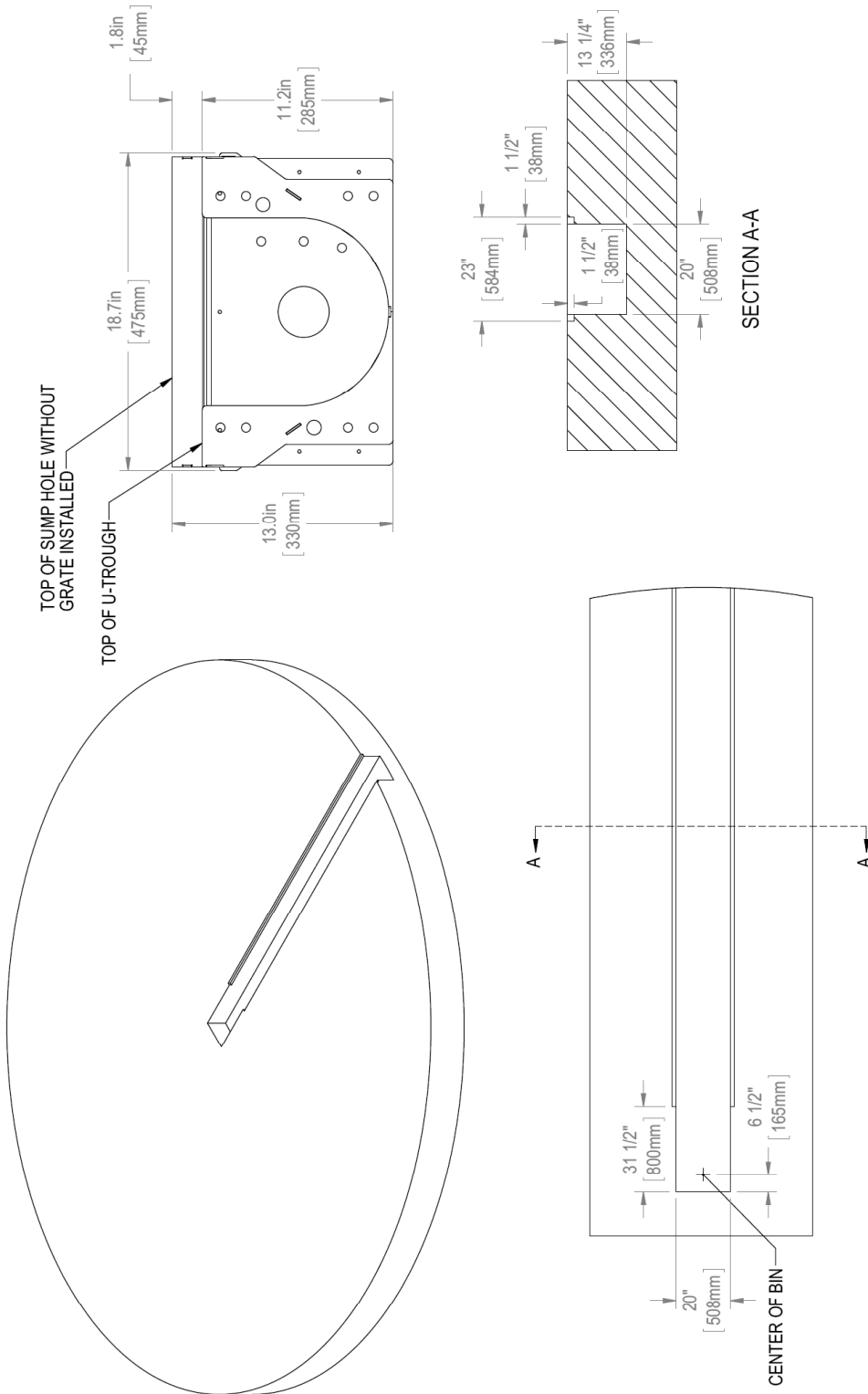
Cover the underfloor auger with 23" (584 mm) length steel planks, wood planks, or aeration planks (not supplied). The planks must be strong enough to support the weight of grain.

Use standard bin flashing (can be purchased through Westfield) to cover the small gaps where the planks meet the concrete foundation.

**Table 4. Rating for 23" Floor Planks**

Bin Unload Model (Bin Diameter)	Maximum Number of Bin Tiers
24'	13
27'	
30'	
33'	12
36'	11
39'	10
42'	
45'	9
48'	
51'	
54'	8
60'	

**Figure 2. Trench Dimensions for Concrete Foundation Floor**



### 4.3. Bin Height

---

Follow the sections below for when installing in a full floor or partial floor aeration system.

#### Westeel Bins

➡ This section applies only to Westeel Bins.

The bin height requirements below must be met when installing a bin unload system in a Westeel bin with a full floor aeration system. If your bin height exceeds the maximum height for a given diameter, contact Westeel.

**Table 5. Maximum Bin Heights for Bin Unload System Use**

Bin Diameter (ft)	Max Number of Tiers
24	18
27	18
30	19
33	16
36	15
39	14
42	13
45	13
48	12
51	11
54	11
60	10

#### Other Branded Grain Bins

➡ This section applies to bins branded not as Westeel.

The underfloor auger requires spacing of floor supports no less than the requirements in the table below to clear floor supports.

**Table 6. Minimum Floor Support Spacing for Underfloor Auger**

U-Trough Bin Unload System
17" Floor Support Spacing (center to center)

### 4.4. Bin Wall Cutout

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An opening must be cut in the bin wall for the underfloor auger.

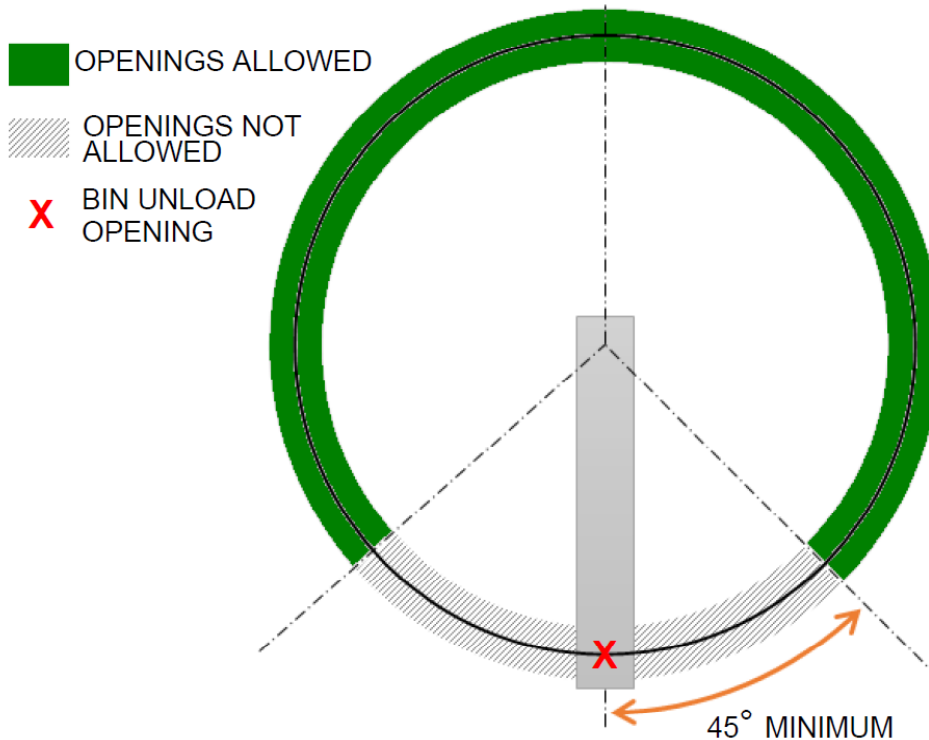
**WARNING** Cutting an opening in the bin can weaken the bin's structure and may lead to bin collapse if the instructions in this section are not accurately followed.

The Westfield 100 Series bin unload is intended to be installed in a Westeel grain bin. To install the bin unload in other bins, consult the manufacturer for specific details related to your bin.

For Westeel bins, follow the below when cutting the opening in the bin sidewall. For other bins, consult the bin manufacturer/dealer for specific details.

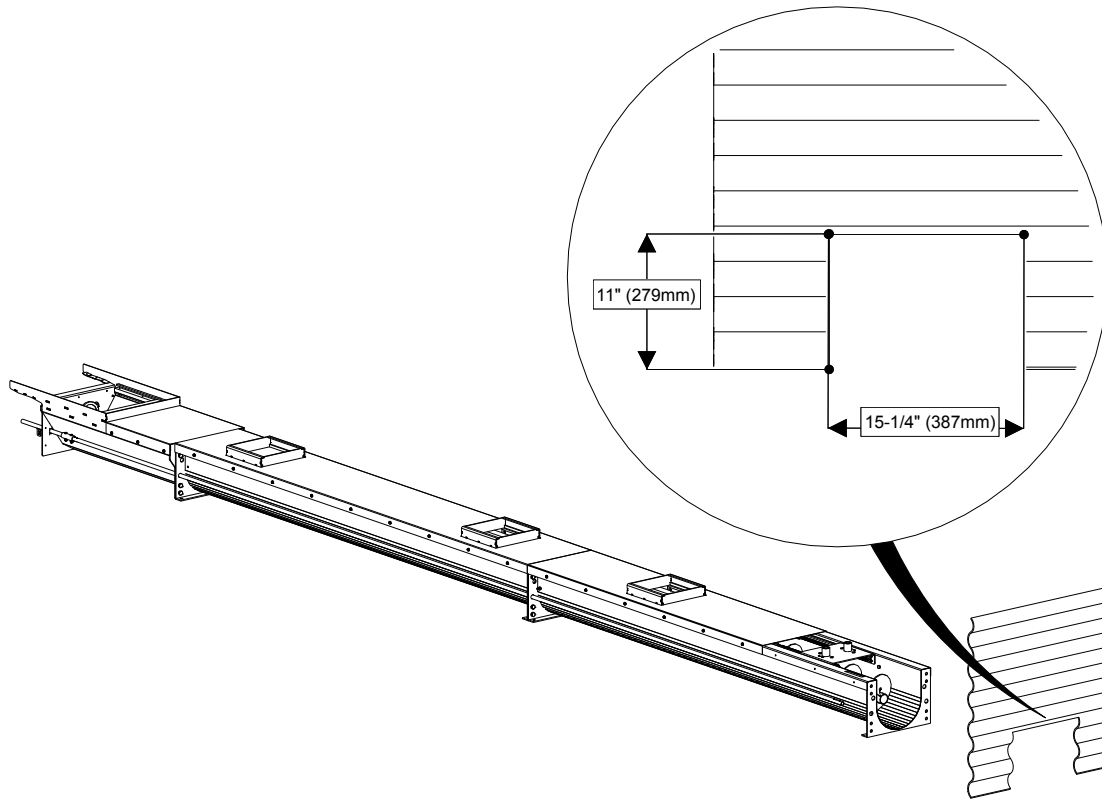
- Keep a minimum 45° angle between the center points of any two openings, such as an aeration fan (see [Figure 3](#)).

**Figure 3. Minimum Angle Between Openings**



- Center the opening in the middle of the bin sheet, between two vertical bolt seams.
- Do not cut an opening through a vertical bolt seam between two sheets or a stiffener position.
- Cut the opening in a bin sheet at a location designated for discharge (see [Figure 4](#)).
- The dimensions of the opening should measure 11" (279 mm) high x 15-1/4" (387 mm) wide. When measuring the opening, measure 11" (279 mm) from the bottom edge of the bottom wall sheet.
- Cut the opening as tight as possible for the underfloor auger to pass through and do not have more than a 1/4" (6 mm) gap to the auger joint flange on any side.
- The vertical flange of the bottom bin angle may be cut flush to the sides of the opening to allow the underfloor auger to fit through the opening.



**Figure 4. Bin Wall Cutout**

## 4.5. Retrofit Information

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When retrofitting the unload system into an existing bin:

1. Clean up and remove all settled grain dust deposits and ensure the air is nearly free of dust.

**⚠ WARNING** Sparks from grinding and hammer strikes which contact settled grain dust deposits or dusty air present a risk of explosion.

2. Temporarily remove the floor planks (if equipped) which will be used to cover the bin unload from the bin wall cutout to past the bin center point.

## 4.6. Installation Planning

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Site planning should be performed prior to assembly and installation, including a bin site layout drawing (with dimensions), structural analysis, and consideration of suitability of connected equipment. Proper foundation design must be completed according to local building codes for full grain bin loading if the installer is planning to use the trench in the bin's concrete foundation floor as specified in this manual.

# 5. Pre-Assembly



Before continuing, ensure you have completely read and understood this manual's Safety section, in addition to the safety information in the section(s) below.

## 5.1. Check Shipment

---

Unload the bin unload parts at the assembly site and compare the packing slip to the shipment. Ensure that all items have arrived and that none are damaged.

Report missing or damaged parts immediately to ensure that proper credit is received from Westfield or your distributor/dealer, and to ensure that any missing parts can be shipped quickly to avoid holding up the assembly process.

### Important

Do not assemble or install damaged components.

## 5.2. Before You Begin

---

Before you assemble the bin unload:

- Familiarize yourself with all the sub-assemblies, components, and hardware that make up the equipment.
- Have all parts and components on hand, and arrange them for easy access.
- Separate the hardware (bolts, nuts, etc.) and lay them out into groups for easier identification during assembly.

## 5.3. Required Materials

---

These materials are not supplied and must be purchased separately:

- shim steel of various thicknesses
- four 1/2" concrete anchor bolts (for anchoring the underfloor auger to the floor) (see [Figure 5](#) and [Figure 6](#)).

**Figure 5. Wedge Concrete Anchor Bolt**



**Figure 6. Epoxy Bonding Concrete Anchor Bolt**



- 2 corrugated sponge strips (for bin adapter)
- outdoor-rated, ultraviolet-resistant spray foam (for bin adapter)

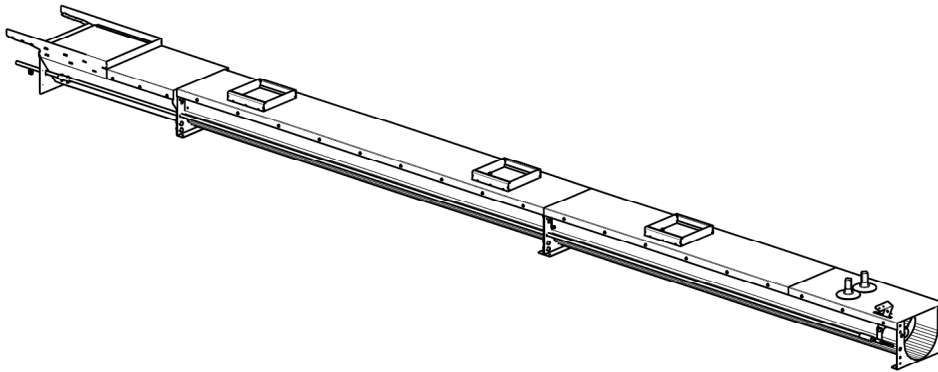


- silicon sealant or neoprene rubber (for sealing around lip of each sump to floor planks across the underfloor auger)
- electric motor (including hardware) (see [Table 8 on page 74](#) for horsepower requirements)
- triple-groove motor pulley (see [Table 9 on page 74](#) for size recommendations)
- three B62 belts

## 5.4. Required Lifting Equipment

Use proper lifting equipment rated to lift the underfloor auger assembly (see weights in [Table 7](#)).

**Figure 7. Underfloor Auger (As-Shipped)**



**Table 7. Underfloor Auger Weight**

Bin Unload Model (Bin Diameter)	Underfloor Auger Weight
24'	491 lb (223 kg)
27'	531 lb (241 kg)
30'	631 lb (286 kg)
33'	670 lb (304 kg)
36'	691 lb (313 kg)
39'	737 lb (334 kg)
42'	782 lb (355 kg)
45'	827 lb (375 kg)
48'	879 lb (399 kg)
51'	927 lb (420 kg)
54'	945 lb (429 kg)
60'	1025 lb (465 kg)



## 5.5. Required Tools

---

The following tools are required to assemble the bin unload system:

- angle grinder with grinding disc (for cutting bin wall opening, sump openings in aeration planks)
- impact wrench (with full set of SAE sockets)
- full set of SAE hand wrenches
- full set of SAE Allen keys
- 40' (12 m) tape measure
- hand tools (hammer, punches, etc.)
- one 25" (635 mm) straight edge
- five to ten 1/4" wood blocks
- work lights
- one floor dolly



# 6. Assembly



Before continuing, ensure you have completely read and understood this manual's Safety section, in addition to the safety information in the section(s) below.

## 6.1. Assembly Safety

---

### **WARNING**

- Do not take chances with safety. The components can be large, heavy, and hard to handle. Always use the proper tools, rated lifting equipment, and lifting points for the job.
- Carry out assembly in a large open area with a level surface.
- Always have two or more people assembling the bin unload.
- Make sure you have sufficient lighting for the work area.
- Tighten all fasteners according to their specifications. Do not replace or substitute bolts, nuts, or other hardware that is of lesser quality than the hardware supplied by the manufacturer.

## 6.2. Bin Floor Preparation

---

1. Locate the center of the bin by measuring and drawing horizontal lines across the bin (see [Figure 8](#)).

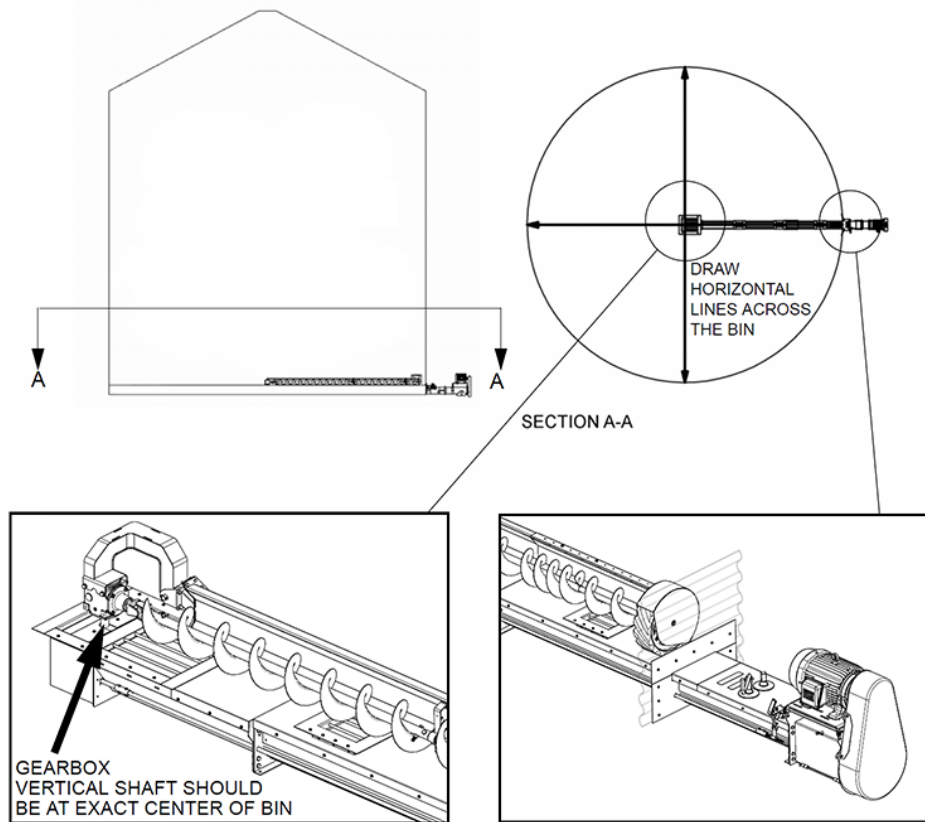
### **Important**

The center point must be found accurately to ensure that the sweep does not interfere with the bin wall.

2. The vertical gearbox shaft in the center sump is aligned with the bin center point later in the assembly.

### **Note**

The aeration floor planks should not be installed until the underfloor auger is installed.

**Figure 8. Locating the Bin Center**

## 6.3. Install the Underfloor Auger

If you are installing the underfloor auger **before** completion of the sidewall and anchoring the bin to the foundation:

- Move the underfloor auger into nearly its final position in the bin before the final sidewall tier is complete.
- Cut an opening in the appropriate bin sheet before the sheet is installed (see [Section 4.4. – Bin Wall Cutout on page 20](#)).
- After the bin sidewall has been completed and anchored to the foundation, according to the principles given in [Section 6.3.1 – Install by Removing the Bin Sheet on page 27](#), perform final positioning and leveling of the underfloor auger, installing the anchor legs, and anchoring the underfloor auger.

If you are installing the underfloor auger **after** anchoring the bin sidewall to the foundation, follow either [Section 6.3.1 – Install by Removing the Bin Sheet on page 27](#) or [Section 6.3.2 – Install by Cutting a Bin Sheet in Place on page 29](#) according to the conditions given within those sections.

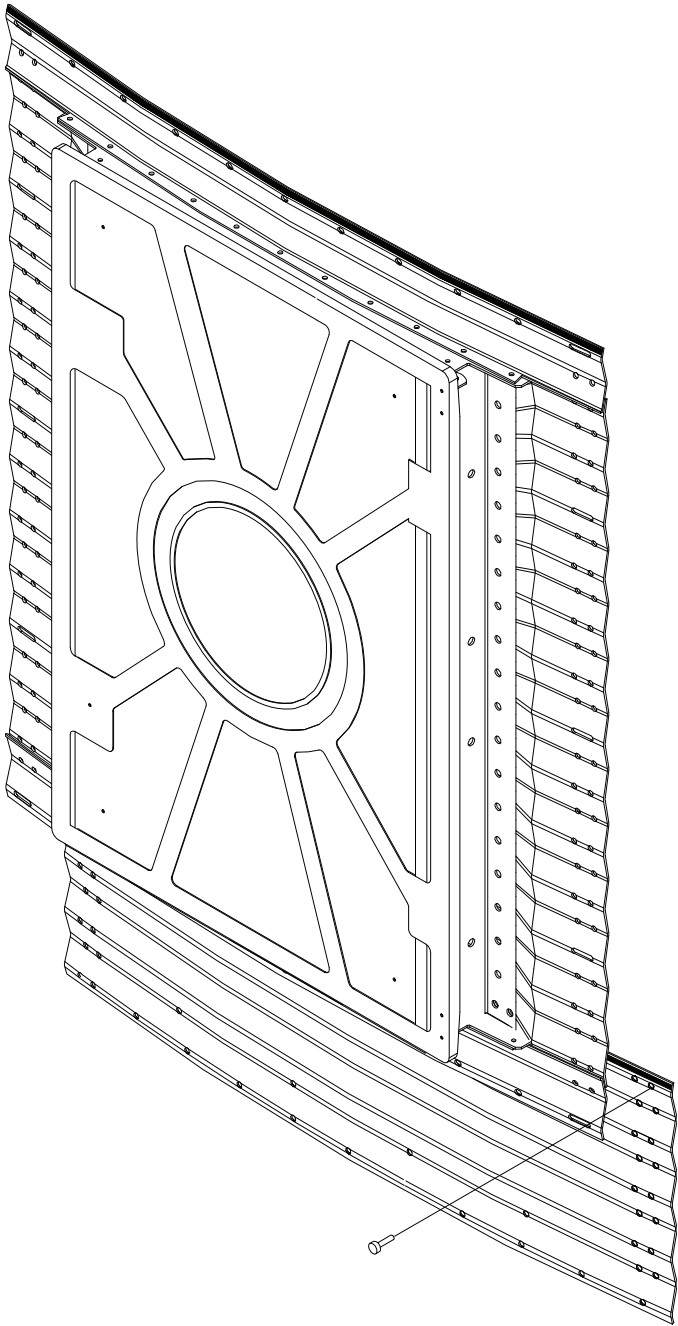
### 6.3.1 Install by Removing the Bin Sheet

This procedure describes removing a bin sheet after the bin sidewall has been anchored to the foundation and applies to the installation of the underfloor auger **below the main door in a Westeel or Twister bin only**. You **must receive written permission from your bin manufacturer** if you want to use this procedure for:

- removing sidewall sheets other than below the main door for Westeel or Twister bins, or
- removing any sidewall sheets for bin manufacturers other than Westeel or Twister.

1. With the bin secured to the foundation, remove the bottom spacer sheet below the door by removing the 3/8" x 1-1/2" bolts and nuts (see [Figure 9](#)).

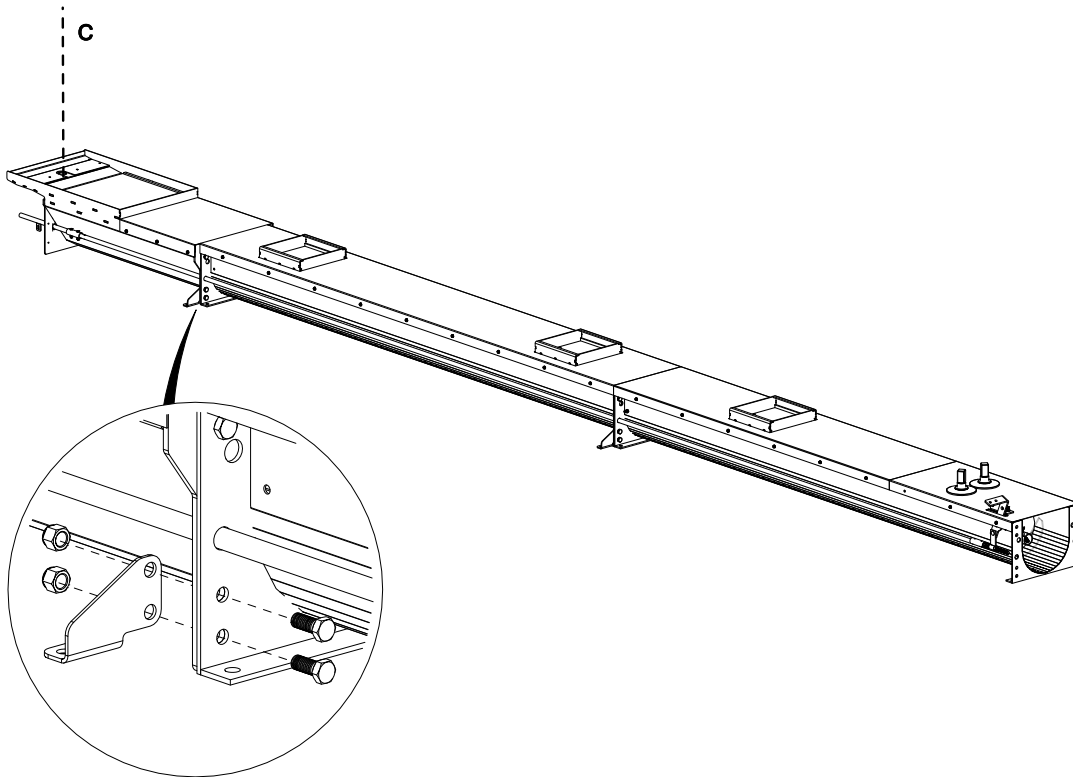
**Figure 9. Spacer Sheet**



2. Slide the underfloor auger through the space underneath the bin door and align the center sump vertical gearbox shaft hole exactly at the bin center point (C) (refer to [Section 6.2. – Bin Floor Preparation on page 26](#)). Insert the top and bottom access panels in the center sump temporarily to aid positioning (see [Figure 10](#)).
3. Level the underfloor auger using shims (not supplied) at every floor mount bracket. The underfloor auger must be level within 1/4" (6 mm) per 10' (3048 mm) of span or not more than 1/2" (13 mm) for whole underfloor auger. This will prolong life and ensure smooth operation.

- Install the anchor legs to the underfloor auger using the existing 1/2" x 1-1/4" bolts and locknuts used in the joint connections (see [Figure 10](#)). Install two legs at the auger joint nearest the center sump. Install two legs at the auger joint inside the bin nearest the bin wall.

**Figure 10. Install Underfloor Auger in Position**



- Anchor the underfloor auger to the bin floor using concrete anchor bolts through the holes in the bottom of the anchor legs. The anchor bolts are purchased separately according to type (see [Section 5.3. – Required Materials on page 23](#)).
- Cut an opening in the bottom spacer sheet (refer to [Section 4.4. – Bin Wall Cutout on page 20](#)).
- Slide the spacer sheet over top of the unload and re-attach to the bin door using the existing 3/8" x 1-1/2" bolts and nuts.

Go to [Section 6.4. – Install the Bin Adapter on page 36](#).

### 6.3.2 Install by Cutting a Bin Sheet in Place

This procedure describes cutting the opening for the underfloor auger with the sheet in place after the bin sidewall has been anchored to the foundation. This procedure requires some disassembly and reassembly of components in order to install the underfloor auger. This procedure is allowed for use with all bin manufacturers and for any appropriate sidewall sheet at the bin bottom (under the door and elsewhere).

#### Position the Underfloor Auger on the Bin Floor

Lift the underfloor auger and place it on the bin floor. Use proper lifting equipment (see [Section 5.4. – Required Lifting Equipment on page 24](#)).

#### Note

The bin unload does not need to be located at the center point of the bin at this stage of assembly.

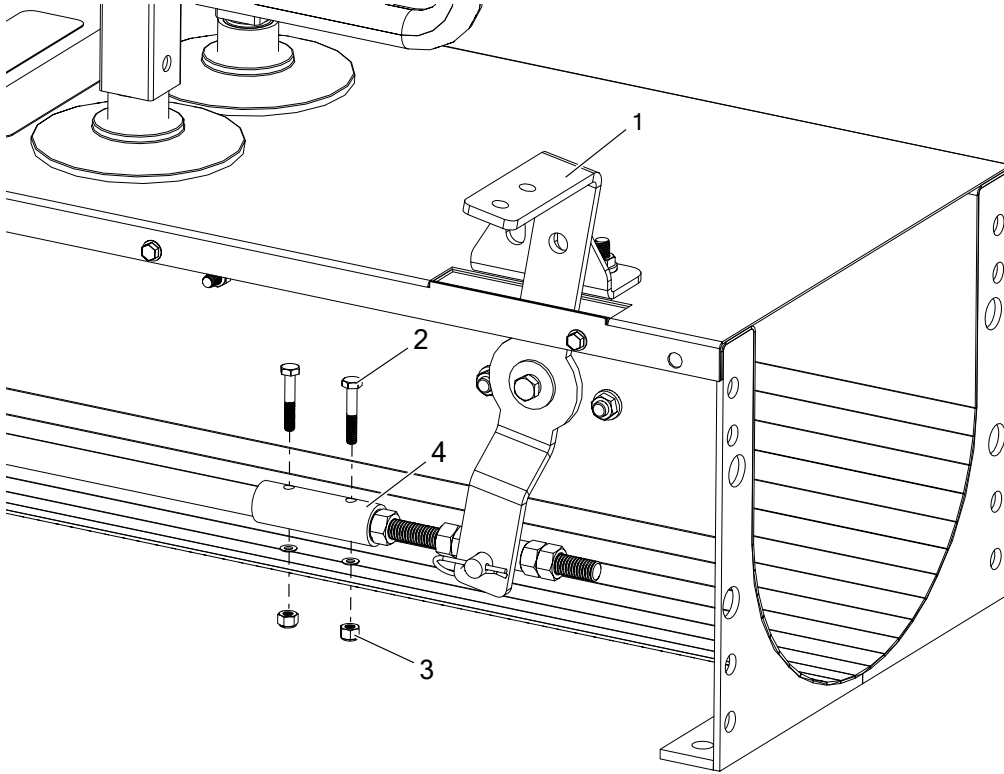


### Remove the Lower Gearbox Controls

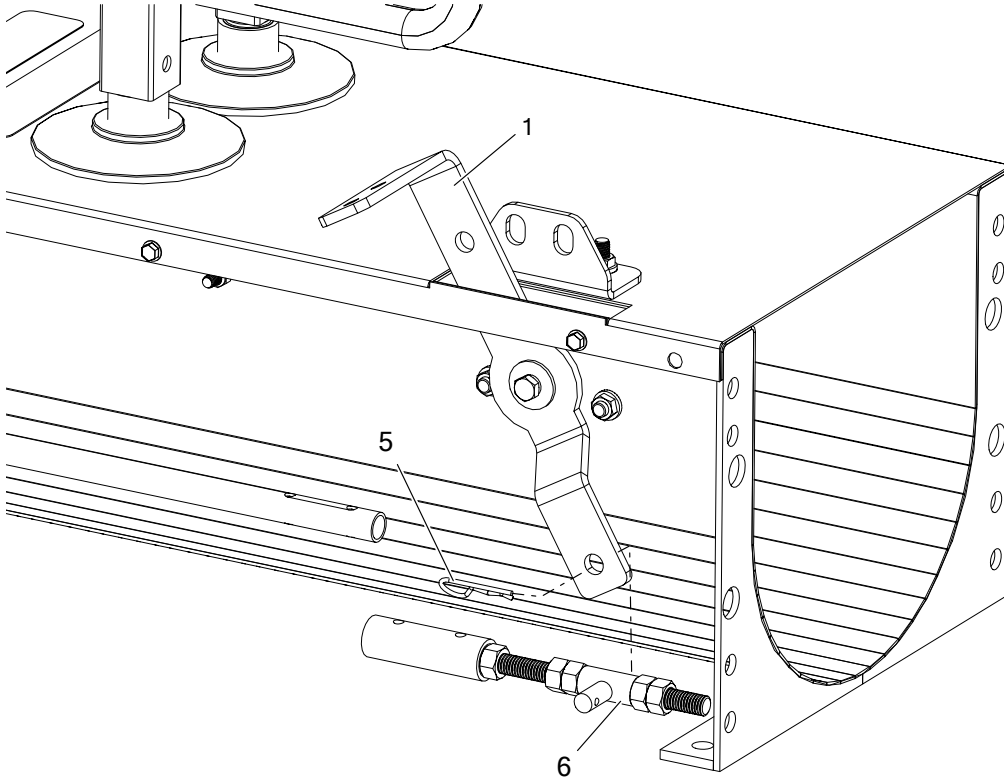
Remove the lower gearbox controls to allow for the underfloor auger to clear the bin wall cutout and to enable the bin adapter to slide over the lower gearbox control rod.

1. Pull the gearbox shift lever (1) away from the center sump and remove the 1/4" x 1-1/2" bolts (2) and nylon locknuts (3) from the coupler (4) of the lower gearbox control rod (see [Figure 11](#)). Push the gearbox shift lever toward the center sump to allow the control rod to come out of the coupler.

**Figure 11. Unfasten the Coupler from the Gearbox Control Rod**

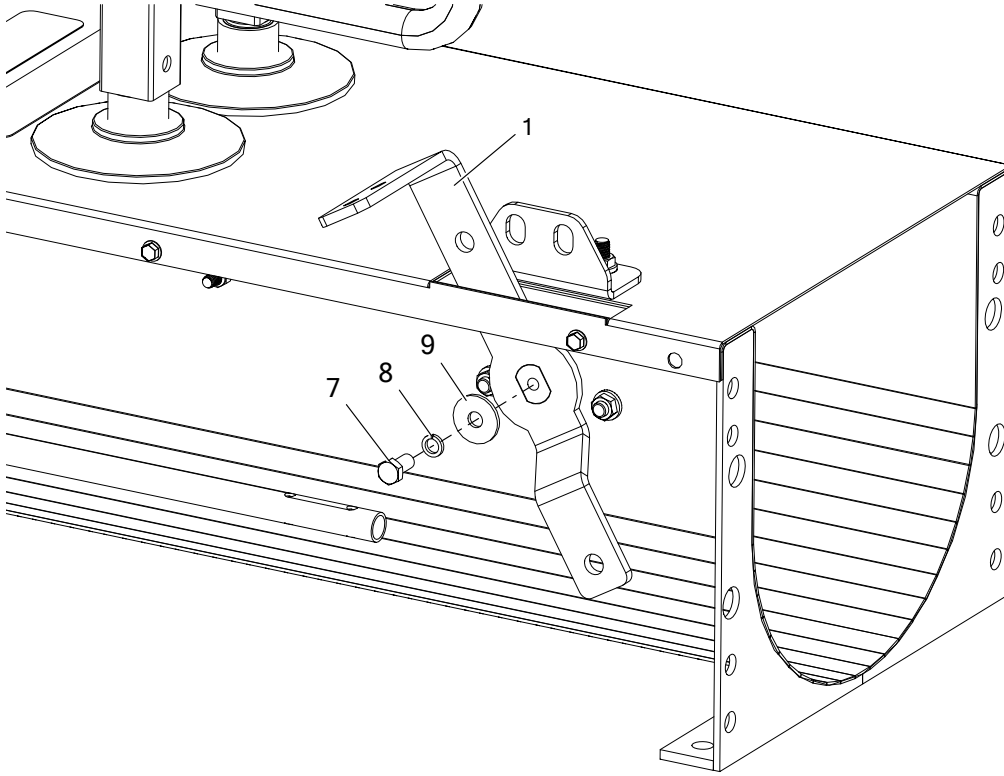


2. Remove the cotter pin (5) from the gearbox shift adjust tube (6) and remove the coupler assembly from the gearbox shift lever (1) (see [Figure 12](#)).

**Figure 12. Remove the Coupler Assembly from the Gearbox Shift Lever**

3. Remove the 3/8" x 1" bolt (7), lock washer (8), and flat washer (9) from the gearbox shift lever (1). Remove the gearbox shift lever by lifting it straight upward (see [Figure 13](#)).



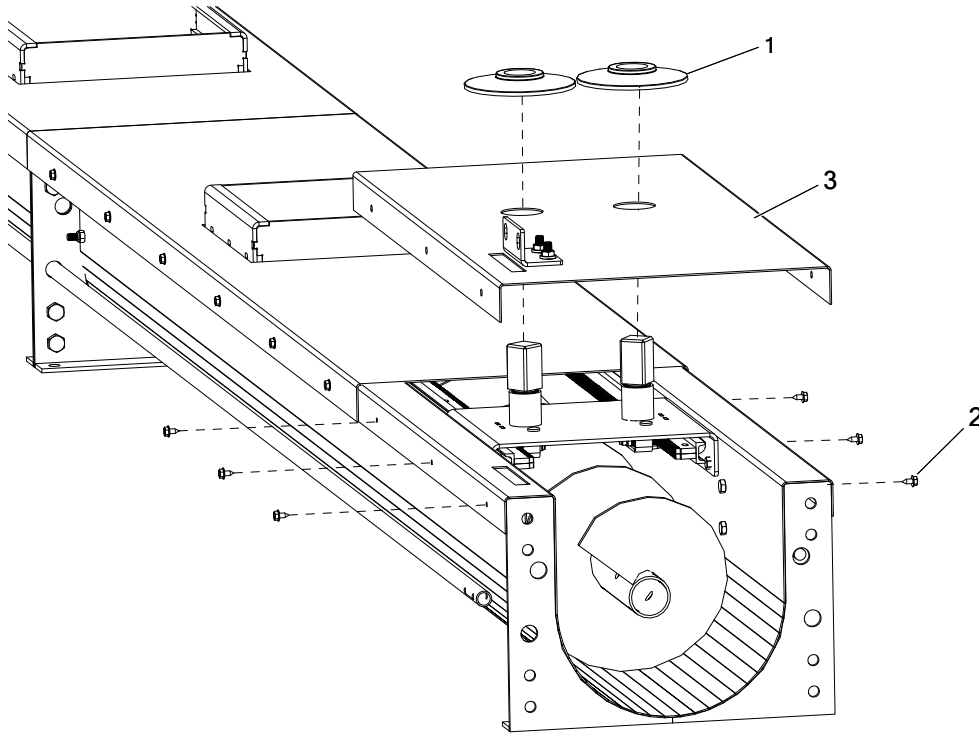
**Figure 13. Remove the Gearbox Shift Lever****Remove the Sump Controls**

Removing the sump controls allows sufficient clearance for the underfloor auger to slide out through the bin wall cutout.

1. Remove the dust seals (1), six #14 x 1/2" self-tapping screws (2), and control cover (3) (see [Figure 14](#)).

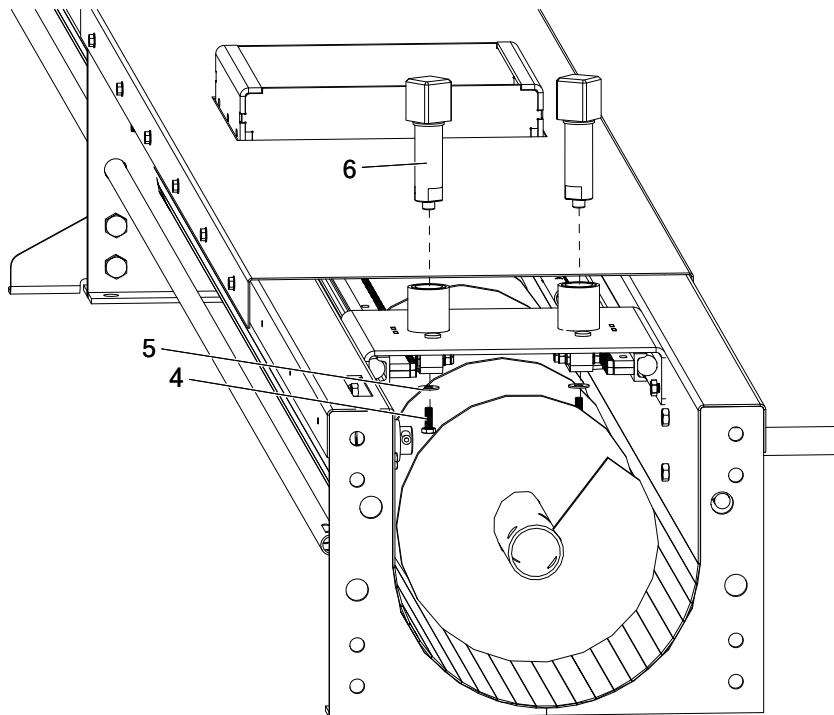


**Figure 14. Control Cover Disassembly**



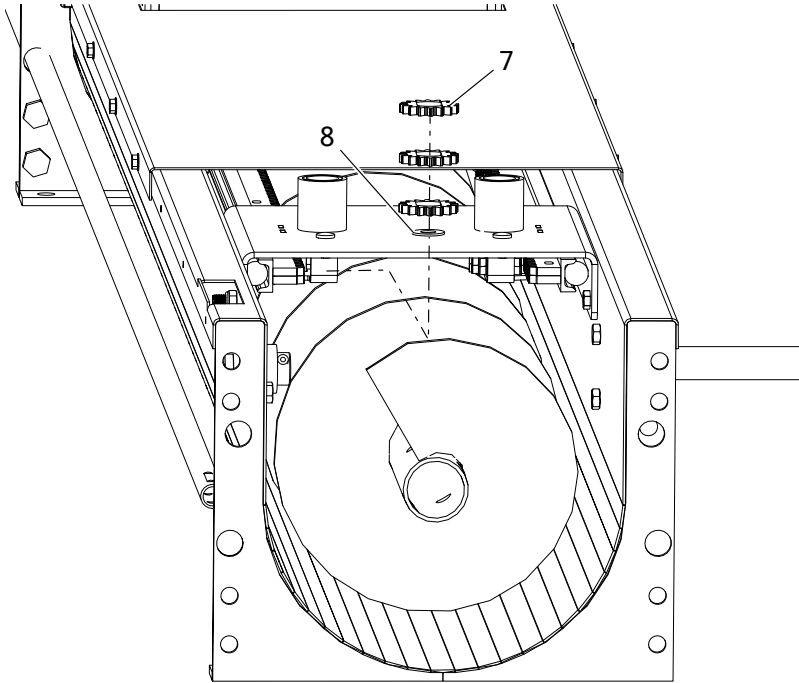
2. Remove the 1/4" x 3/4" bolt (4) and washer (5), and the control knob/shaft (6). Do this for both control knobs/shafts (see [Figure 15](#)).

**Figure 15. Remove the Sump Control Knob/Shafts**



3. Remove the pinion gears (7) and washers (8) for each control knob/shaft (see [Figure 16](#)).

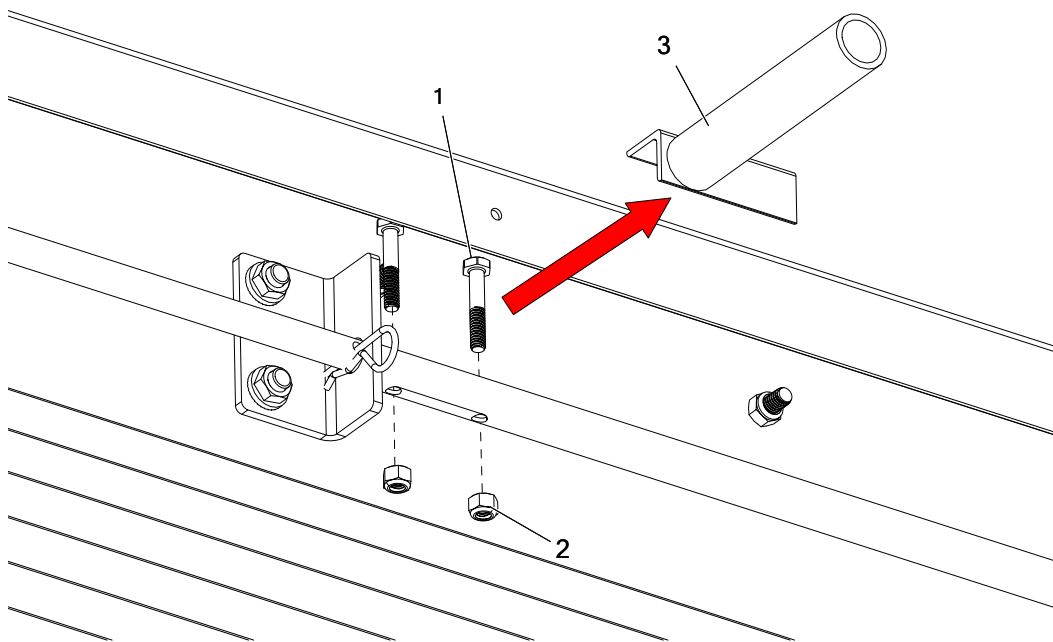


**Figure 16. Remove the Pinion Gears****Remove the E-Sump Controls**

➡ When equipped with an e-sump:

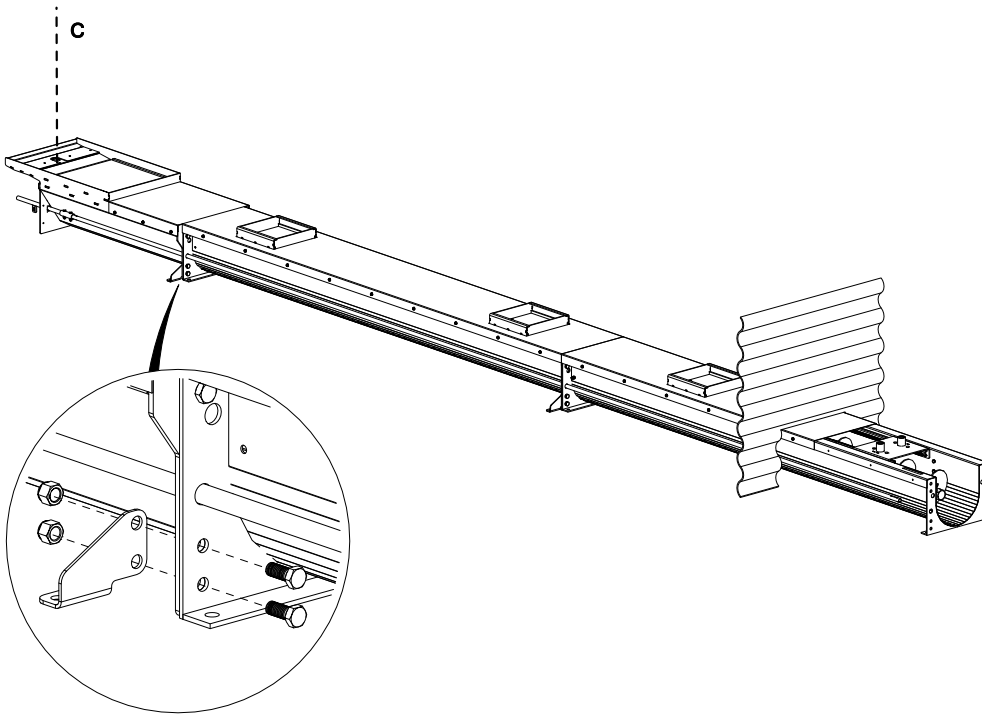
The following disassembly step allows sufficient clearance for the underfloor auger to slide out through the bin wall cutout.

Remove the two 1/4" x 1-1/2" bolts (1), nylon locknuts (2), and handle (3) from the control rod (see [Figure 17](#)).

**Figure 17. Remove the Handle****Install the Underfloor Auger in its Final Position**

1. Cut an opening in the appropriate bin sheet (see [Section 4.4. – Bin Wall Cutout on page 20](#)).
2. Slide the underfloor auger through the bin wall cutout and align the center sump vertical gearbox shaft hole exactly at the bin centerpoint (C) (refer to [Section 6.2. – Bin Floor Preparation on page 26](#)). Insert the top and bottom access panels in the center sump temporarily to aid positioning (see [Figure 18](#)).
3. Level the underfloor auger using shims (not supplied) at every floor mount bracket. The underfloor auger must be level within 1/4" (6 mm) per 10' (3048 mm) of span or not more than 1/2" (13 mm) for whole underfloor auger. This will prolong life and ensure smooth operation.
4. Install the anchor legs to the underfloor auger using the existing 1/2" x 1-1/4" bolts and locknuts used in the joint connections. Install two legs at the auger joint nearest the center sump. Install two legs at the auger joint inside the bin nearest the bin wall (see [Figure 18](#)).



**Figure 18. Install Underfloor Auger in Position**

5. Anchor the underfloor auger to the bin floor using concrete anchor bolts through the holes in the bottom of the anchor legs. The anchor bolts are purchased separately according to type (see [Section 5.3. – Required Materials on page 23](#)).

## 6.4. Install the Bin Adapter

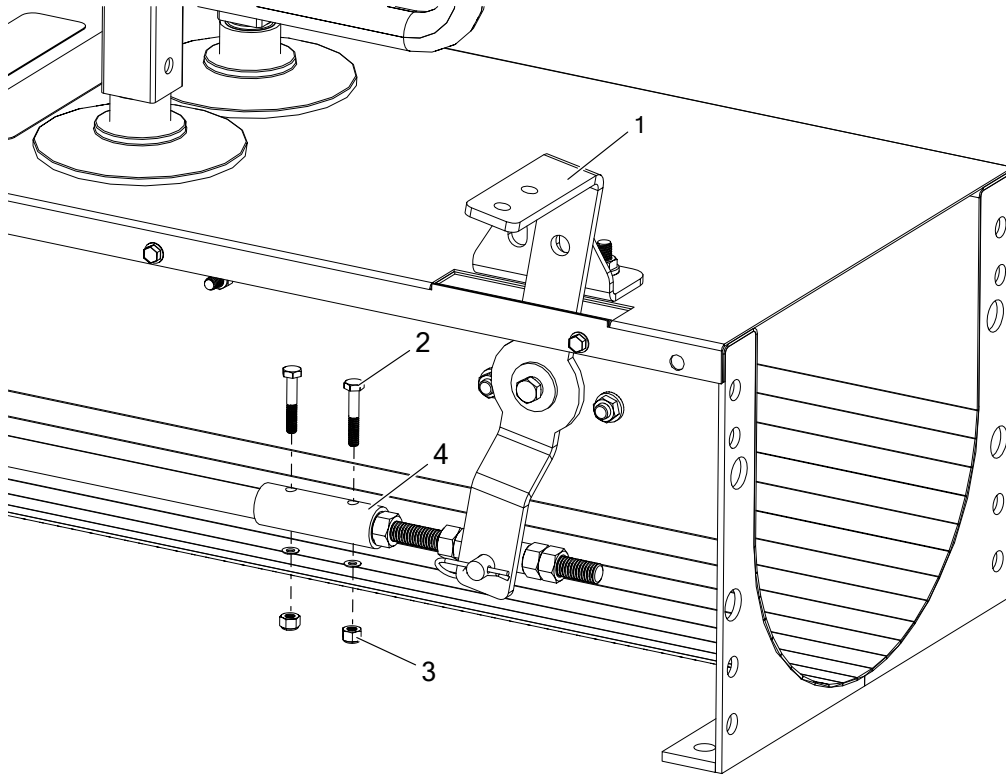
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### Note

The bin adapter creates a seal to minimize aeration and heat losses (when applicable) and keeps snow and rodents out.

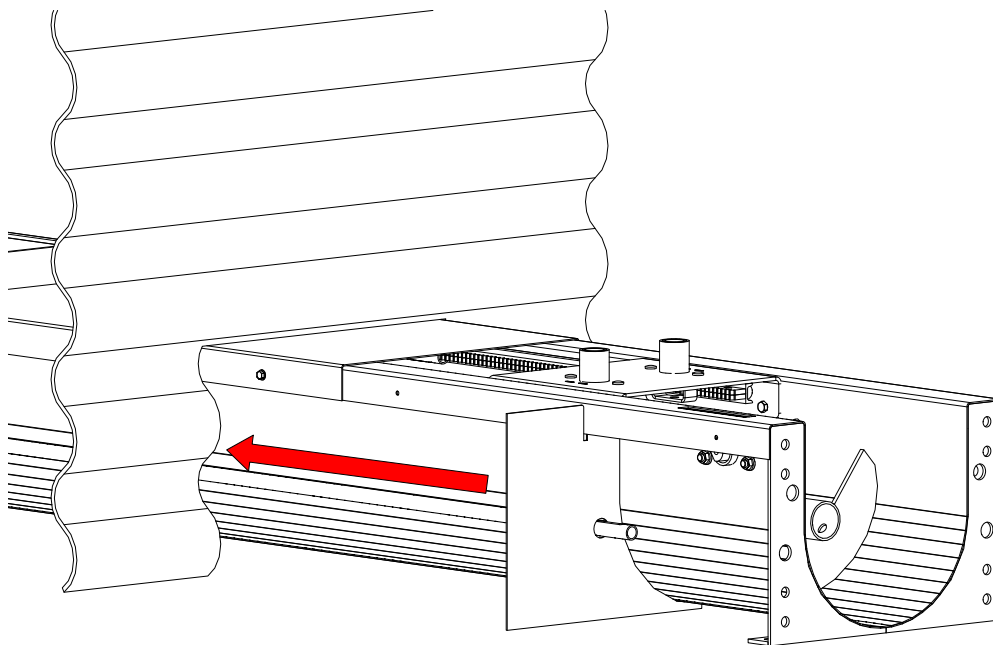
- ➔ 1. **For a Westeel or Twister bin:** If not done so already, pull the gearbox shift lever (1) away from the center sump and remove the 1/4" x 1-1/2" bolts (2) and nylon locknuts (3) from the coupler (4) of the lower gearbox control rod (see [Figure 19](#)). Push the gearbox shift lever toward the center sump to allow the control rod to come out of the coupler.

**Figure 19. Unfasten the Coupler from the Gearbox Control Rod**



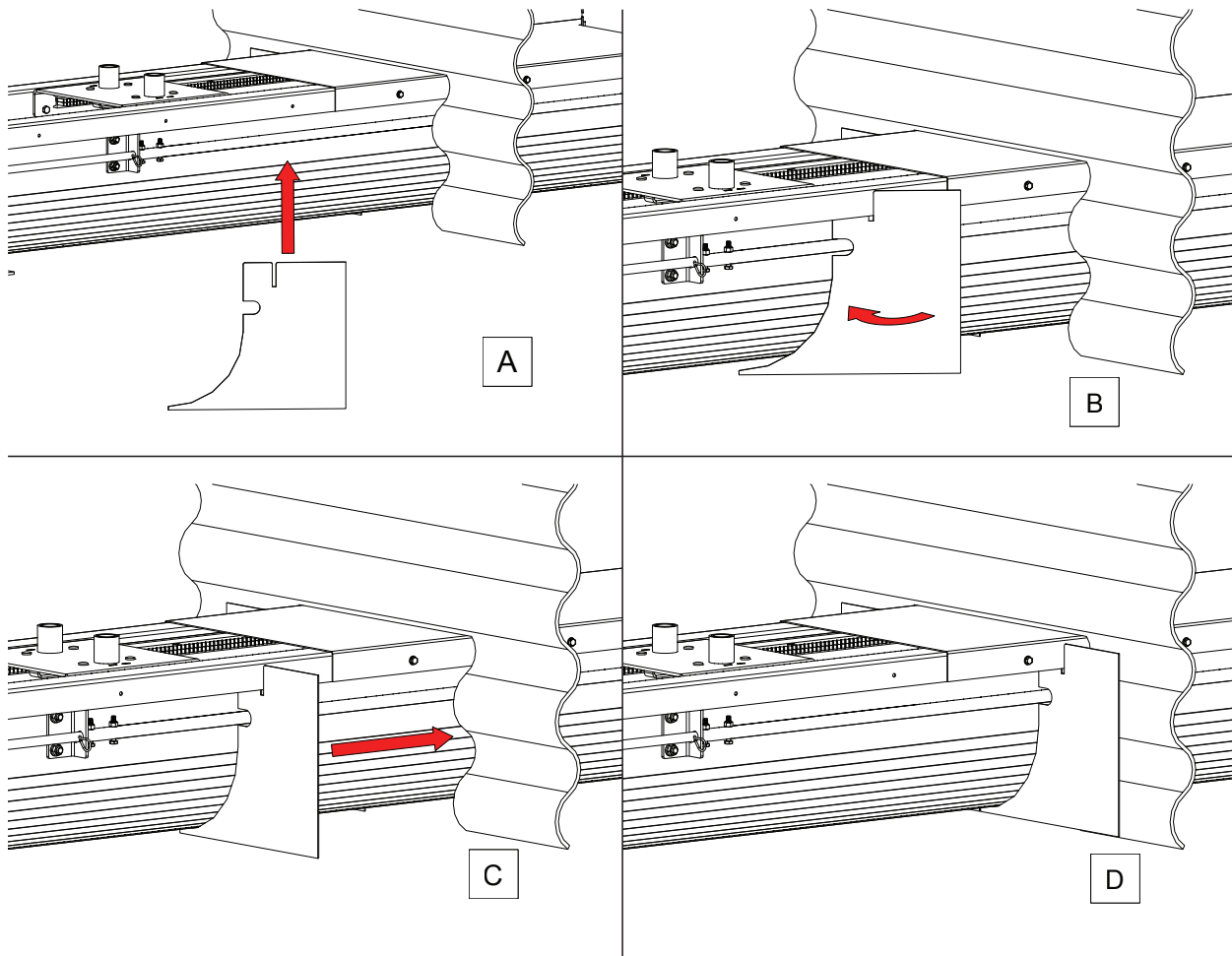
2. Slide the bin adapter piece onto the lower gearbox control rod and up against the bin wall (see [Figure 20](#)).

**Figure 20. Slide Bin Adapter Piece on Lower Gearbox Control Rod**

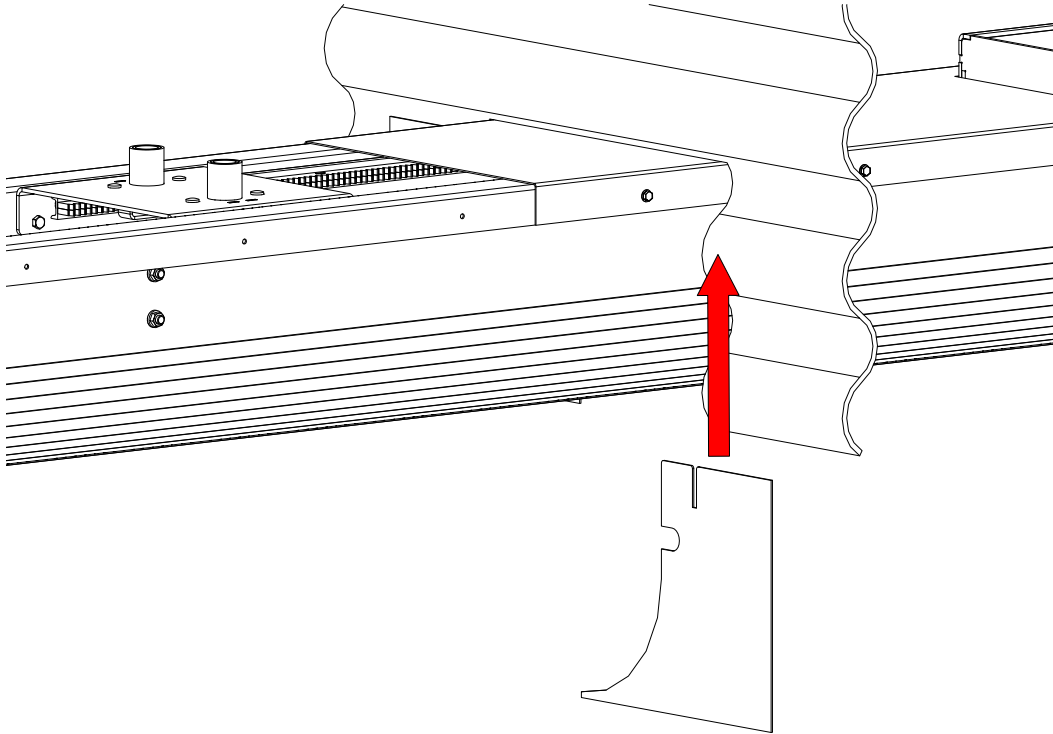


- ➔ 3. **When equipped with an e-sump:** Place the bin adapter piece on the side of the u-trough and up against the bin wall (see A-B-C-D in [Figure 21](#)).

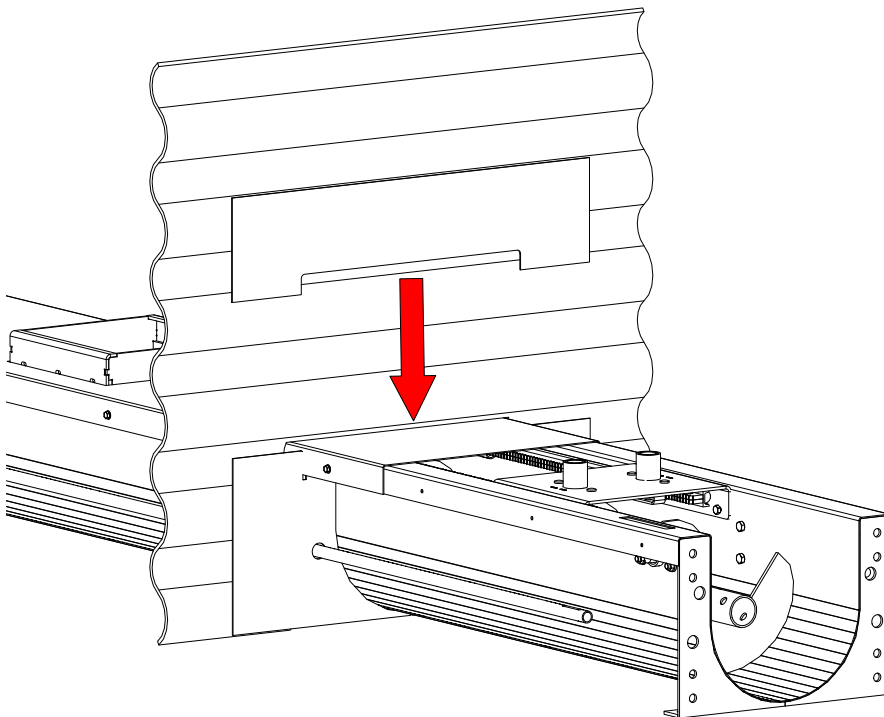
**Figure 21. Place Bin Adapter Piece on Side of E-Sump Control Rod**



- ➔ 4. **When not equipped with an e-sump:** Place the bin adapter piece on the side of the u-trough and up against the bin wall (see [Figure 22](#)).

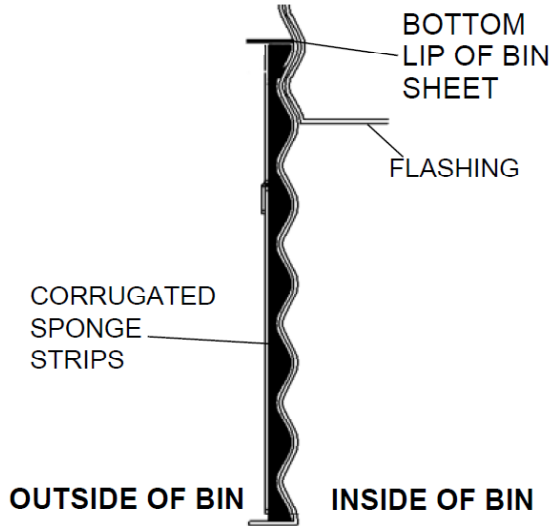
**Figure 22. Slide Bin Adapter Piece on Side Opposite of Lower Gearbox Control Rod**

5. Place the top piece behind the bin adapter lower pieces (see [Figure 23](#)).

**Figure 23. Position Bin Adapter Top Piece**

6. Push the bin adapter pieces up against the bin wall. Two corrugated sponge strips (not supplied) can be arranged as shown in [Figure 24](#).

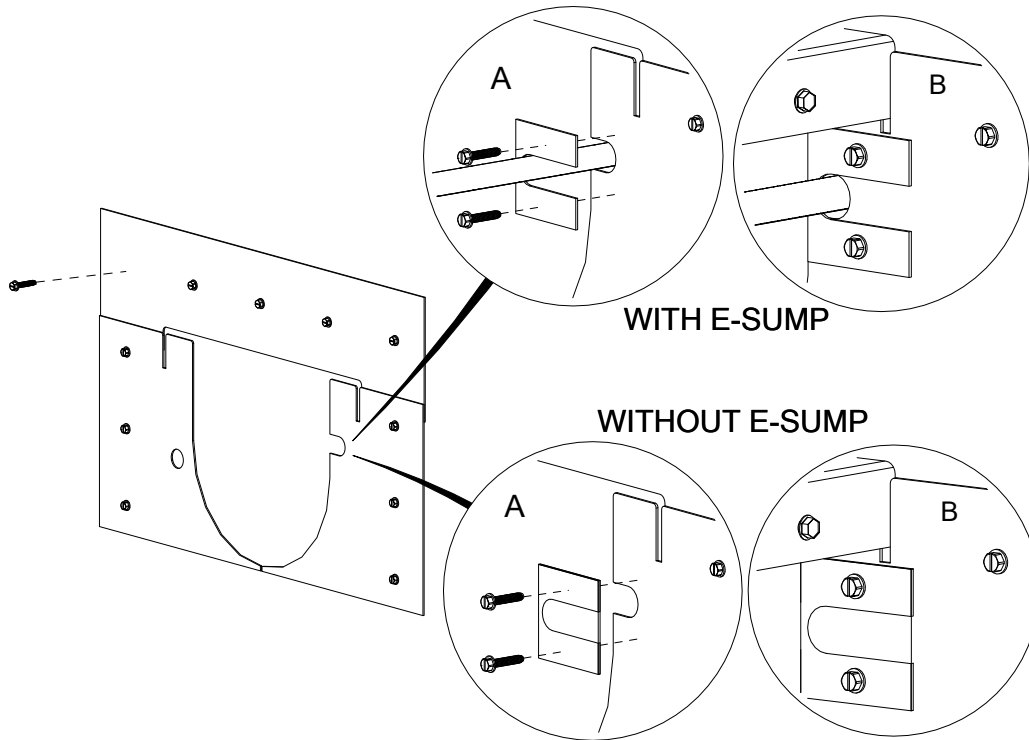


**Figure 24. Sponge Strips****Important**

Ensure that center sump, e-sump, intermediate sumps, and bin adapter are all level with each other during installation.

7. Securely fasten the bin adapter pieces to the bin wall using the eleven 1/4" x 1-1/4" self-tapping screws provided (see [Figure 25](#)). Fasten the screws to the "hills" in the corrugations on the bin wall sheet.
- ➡ 8. **When equipped with an e-sump:** On the e-sump rod hole cover, punch out the micro-jointed slot and place it over the e-sump control rod and up against the bin adapter piece (see [Figure 25](#)). Fasten the cover to the bin adapter piece with two 1/4" x 1-1/4" self-tapping screws provided.
- ➡ 9. **When not equipped with an e-sump:** Fasten the e-sump rod hole cover over the open slot in the bin adapter piece with two 1/4" x 1-1/4" self-tapping screws provided (see [Figure 25](#)).



**Figure 25. Screwing Bin Adapter Pieces**

10. Apply spray foam (purchased separately) in the following locations for sealing:

- Along the top and bottom seams of the bin adapter where it meets the bin wall.
- If necessary, along the sides for further sealing in addition to the corrugated sponge strips.
- Along the seam of the underfloor auger cover where it meets the bin adapter top piece.
- Along the seam of the underfloor auger where it meets the bin adapter lower pieces.

## 6.5. Reassemble the E-Sump Controls

➡ When equipped with an e-sump:

If the e-sump controls were previously disassembled, reassemble them by following the reverse order of steps and ensure all bolts and nuts are tight.

## 6.6. Reassemble Sump Control Knobs

If the sump control knobs/shafts were previously disassembled, reassemble them by following the reverse order of steps and ensure all bolts and nuts are tight.

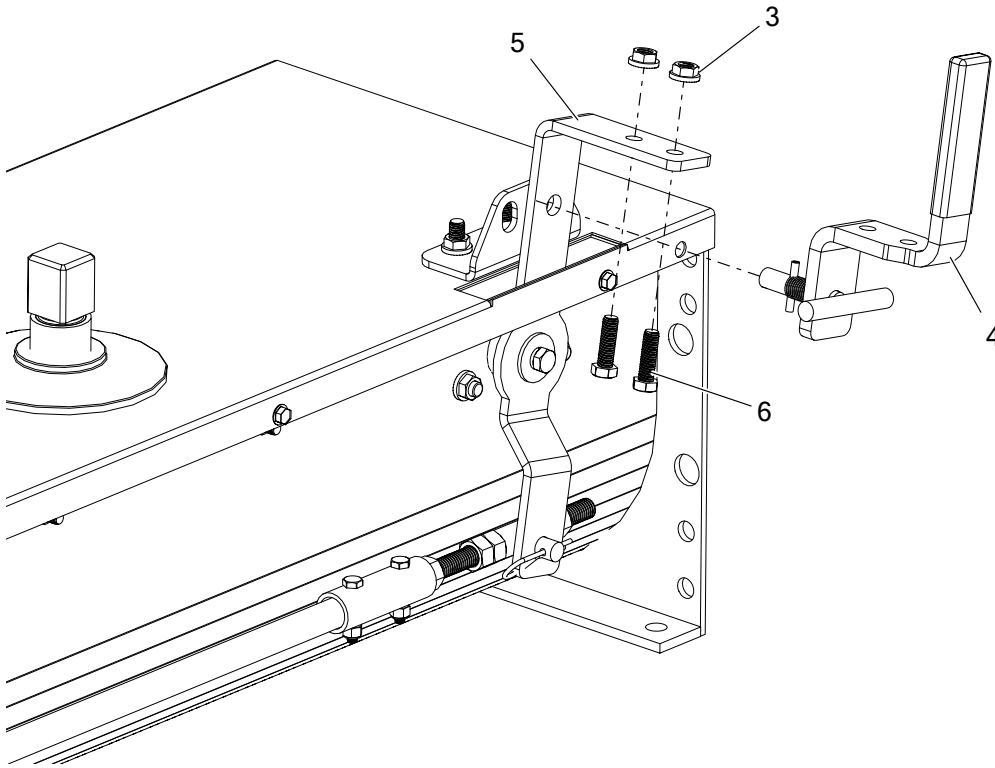
## 6.7. Reassemble Lower Gearbox Controls

1. To reassemble the lower gearbox controls, follow the reverse order of steps used to disassemble and ensure all bolts and nuts are tight.



2. Assemble the gearbox shift handle (4) onto the gearbox shift lever (5) with two  $3/8'' \times 1-1/4''$  bolts (6) and serrated flange nuts (3) (see [Figure 26](#)).

**Figure 26. Assemble Gearbox Shift Handle**

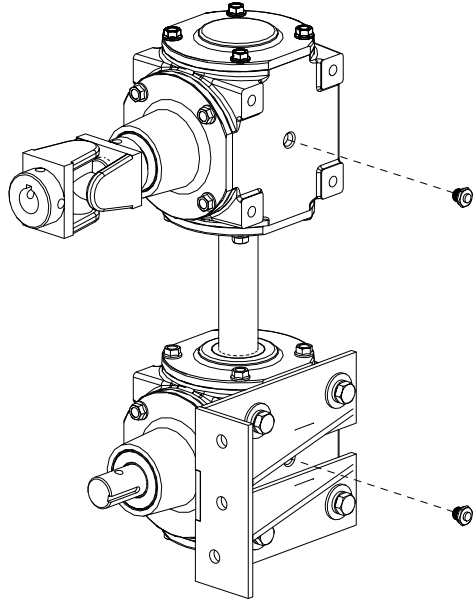


## 6.8. Install Tandem Gearboxes in the Center Sump

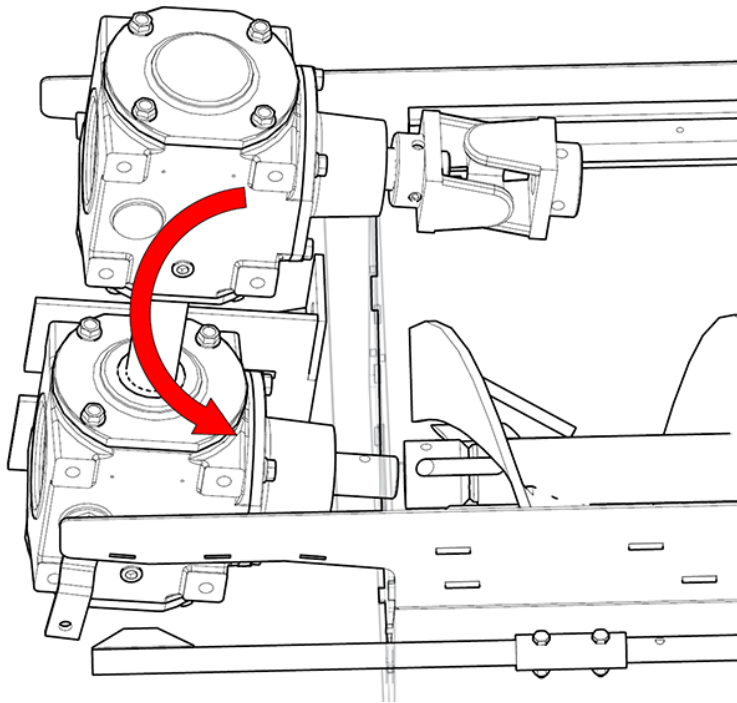
1. Confirm each gearbox is filled with gear oil.

**Note**

Gearboxes are supplied from the factory with EP90 gear oil up to the vented fill plug. Keep the tandem gearboxes level when filling or checking the oil level, as shown in [Figure 27](#).

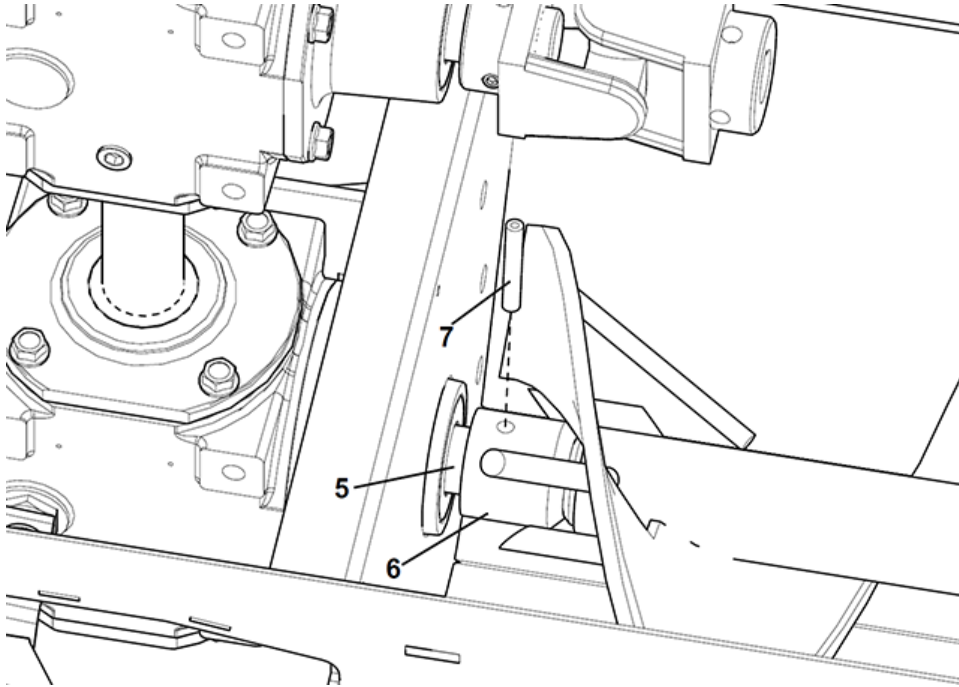
**Figure 27. Check the Oil Level**

2. Fully open the center sump gate and tilt the tandem gearboxes into the center sump and insert the lower gearbox shaft through the hole in the center sump divider wall (see [Figure 28](#)).

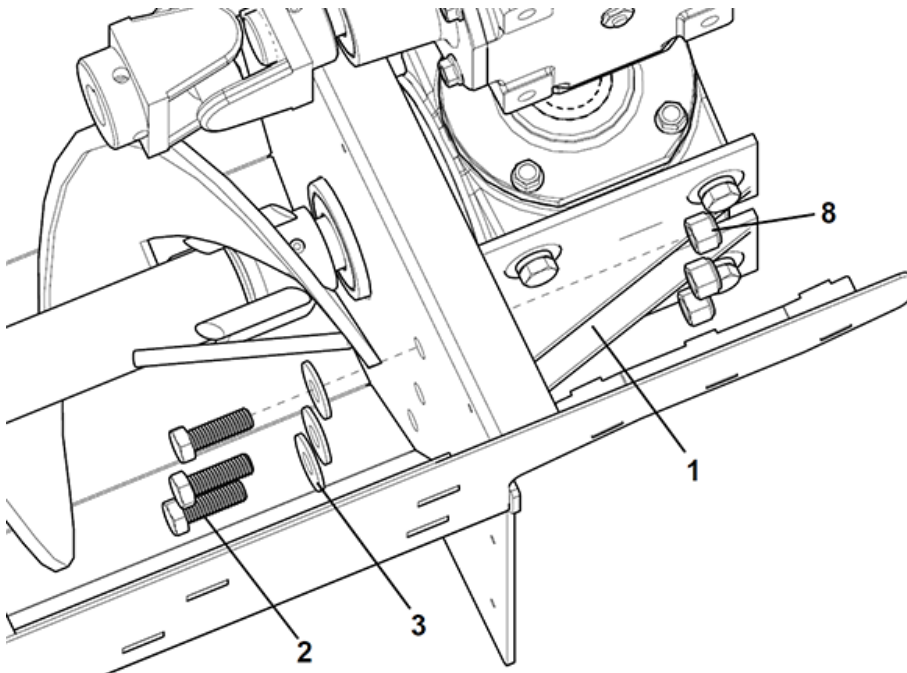
**Figure 28. Install Tandem Gearboxes into Center Sump**

3. Secure the lower gearbox shaft (5) to the flying coupler (6) with a 1/4" x 1-1/2" key (not shown) and spring pin (7) (see [Figure 29](#)).

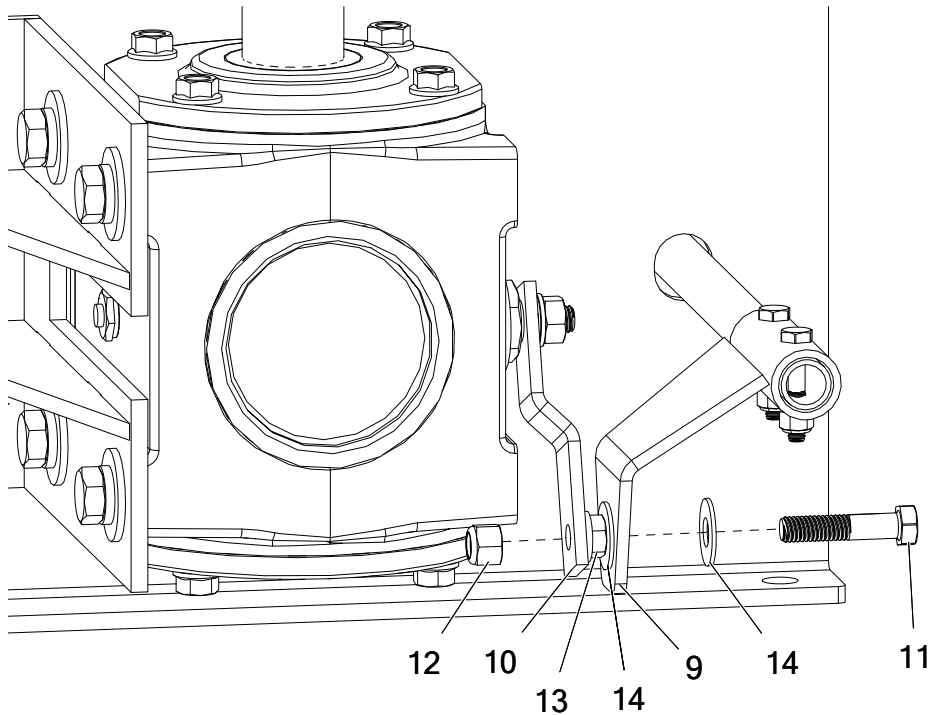


**Figure 29. Attach Flighting to Lower Gearbox**

4. Fasten the gearbox mount bracket (1) to the center sump divider wall using three 1/2" x 1-1/2" bolts (2), flat washers (3), and nylon locknuts (8) (see [Figure 30](#)).

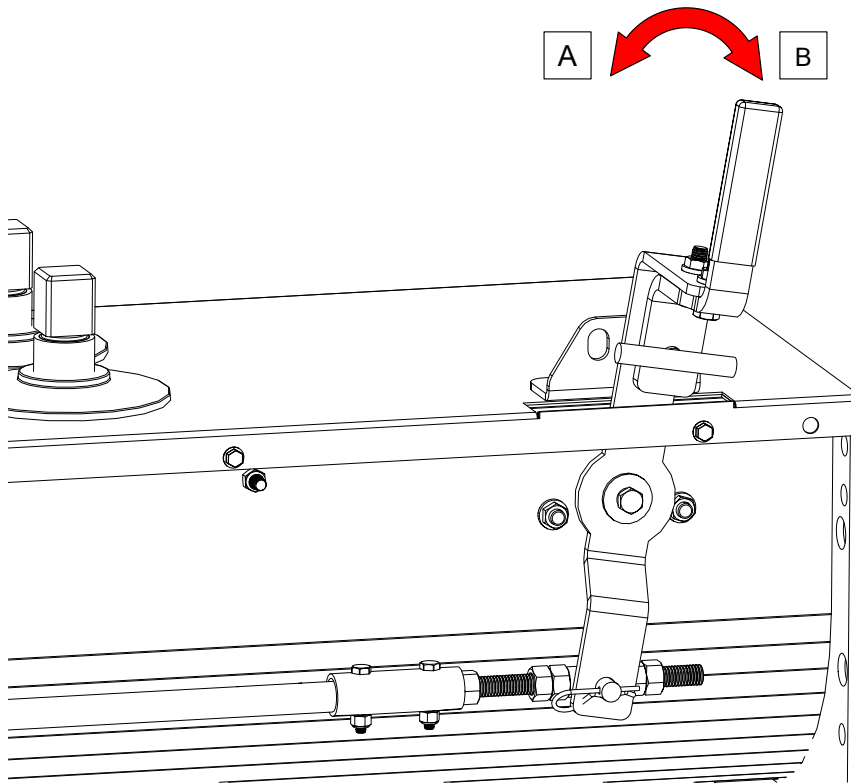
**Figure 30. Attach Gearbox Mount Bracket to Center Sump Divider Wall**

5. Ensure the tandem gearboxes are vertically aligned. If the gearboxes are not vertically aligned, loosen the bolts holding the mount bracket to the gearbox, align the gearboxes vertically, and fully tighten the bolts.
6. Connect the shifter control rod bracket (9) to the lower gearbox linkage (10) with a 3/8" x 1-1/2" bolt (11), a nylon jam nut (12), and a serrated flange nut (13) and two flat washers (14) (see [Figure 31](#)).

**Figure 31. Connect Lower Gearbox Shifting Linkage to Control Rod**

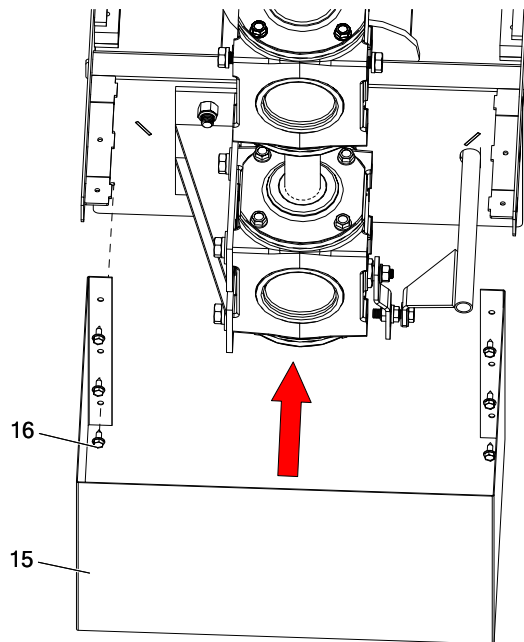
7. Test gearbox for engagement: Move the gearbox shift handle to the engaged position (B) and pin in place (see [Figure 32](#)). Turn the upper gearbox horizontal shaft and confirm the lower gearbox horizontal shaft will rotate. If the lower gearbox horizontal shaft rotates, the gearbox is properly engaged.
8. Test gearbox for disengagement: Move the gearbox shift handle to the disengaged position (A) and pin in place. Turn the upper gearbox horizontal shaft. The lower gearbox horizontal shaft should **NOT** rotate. If the lower gearbox horizontal shaft does not rotate, the gearbox is properly disengaged.
9. Using the gearbox shift handle, engage/disengage the gearbox multiple times to verify normal working operation.

**Figure 32. Moving the Gearbox Shift Handle**



10. Install the gearbox cover (15) onto the center sump divider wall with six #14 x 5/8" self-tapping screws (16) (see [Figure 33](#)).

**Figure 33. Attach Gearbox Cover to Center Sump**

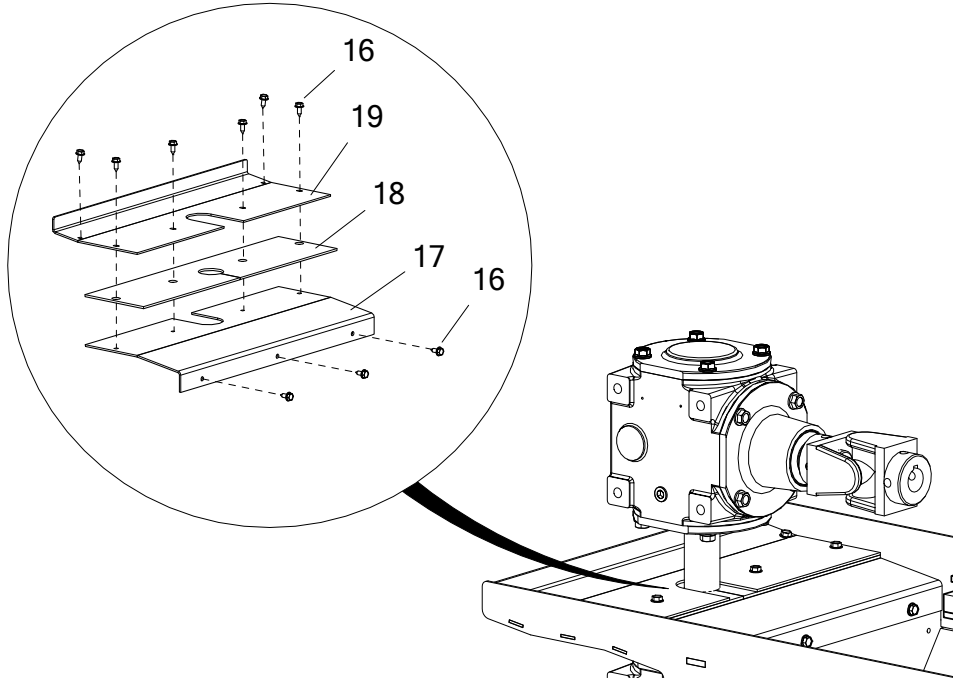


11. Install the bottom access panel (17), rubber seal (18), and top access panel (19) with nine #14 x 5/8" self-tapping screws (16) (see [Figure 34](#)).

**Note**

The seam of the rubber seal (18) must be oriented as shown to ensure grain leakage is avoided.

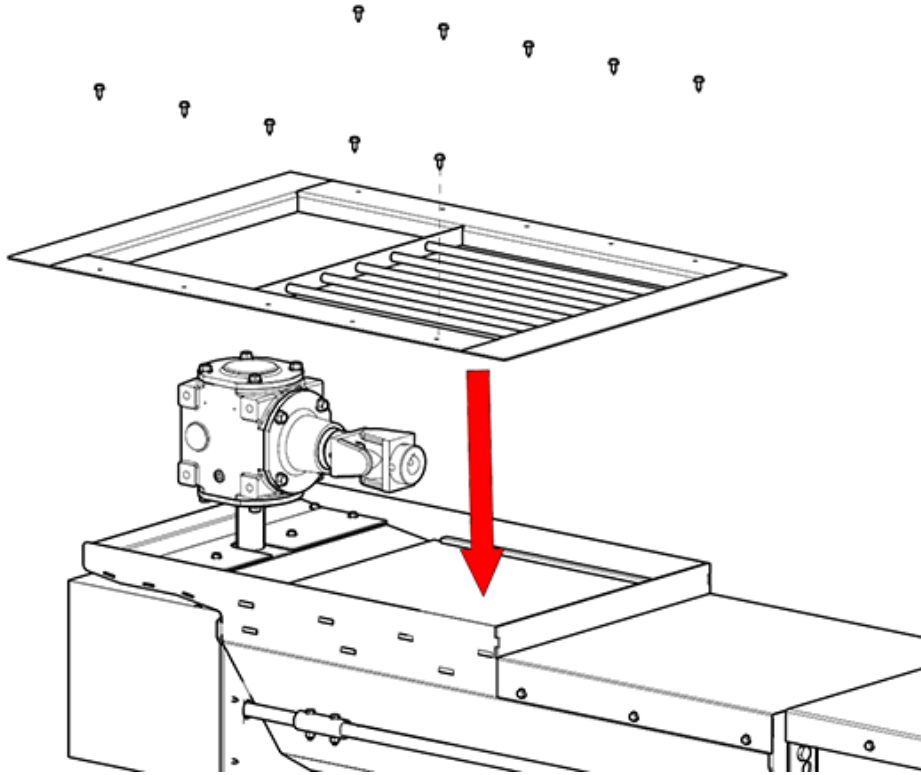
**Figure 34. Install Access Panels and Seal over Lower Gearbox**



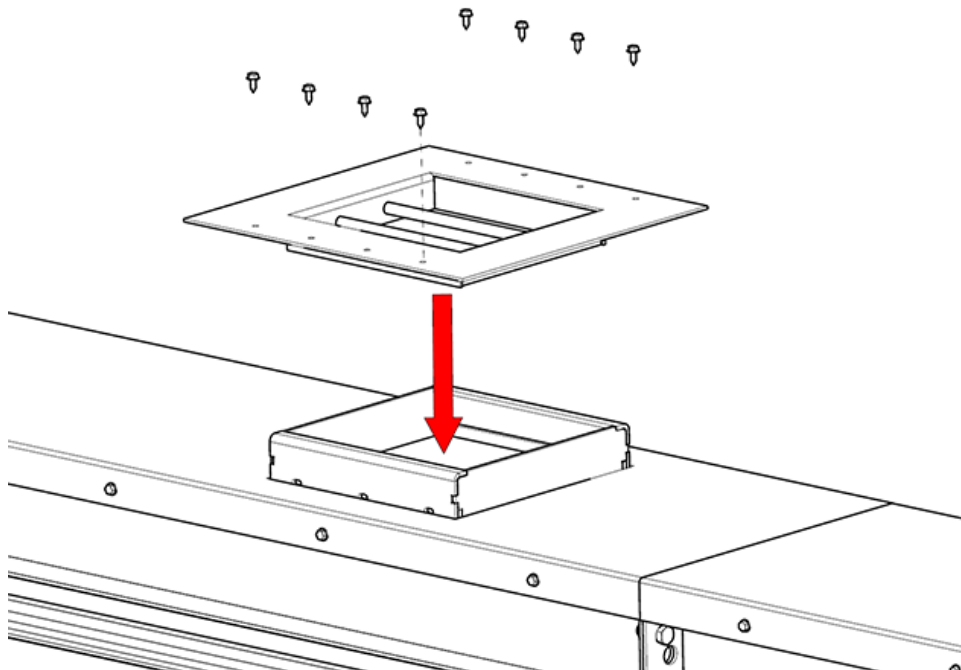
## 6.9. Floor Plank Completion and Sump Grates

1. Before installing the floor planks, check that all bolts and nuts on the underfloor auger are tight.
2. Install floor planks at a right angle across the top of the underfloor auger. While installing the floor planks, periodically check the function of the center sump gate, e-sump gate (when equipped), intermediate sump gates, and lower gearbox engagement to ensure no control mechanisms interfere with the floor supports. If there is interference, slightly adjust the position of the floor support(s).
3. Cut the planks as necessary around the center sump, e-sump (when equipped), and intermediate sumps.
4. Apply silicon sealant or neoprene rubber (not supplied) around the edge of each sump and screw the top surfaces of each sump grate to the floor planks using the #14 x 5/8" self-tapping screws provided (see [Figure 35](#) and [Figure 36](#)).

**Figure 35. Install Center Sump Grate**



**Figure 36. Install Grate(s) for Intermediate Sump(s) and E-Sump (when equipped)**





## 6.10. Assemble the U-Trough Extension (Optional)

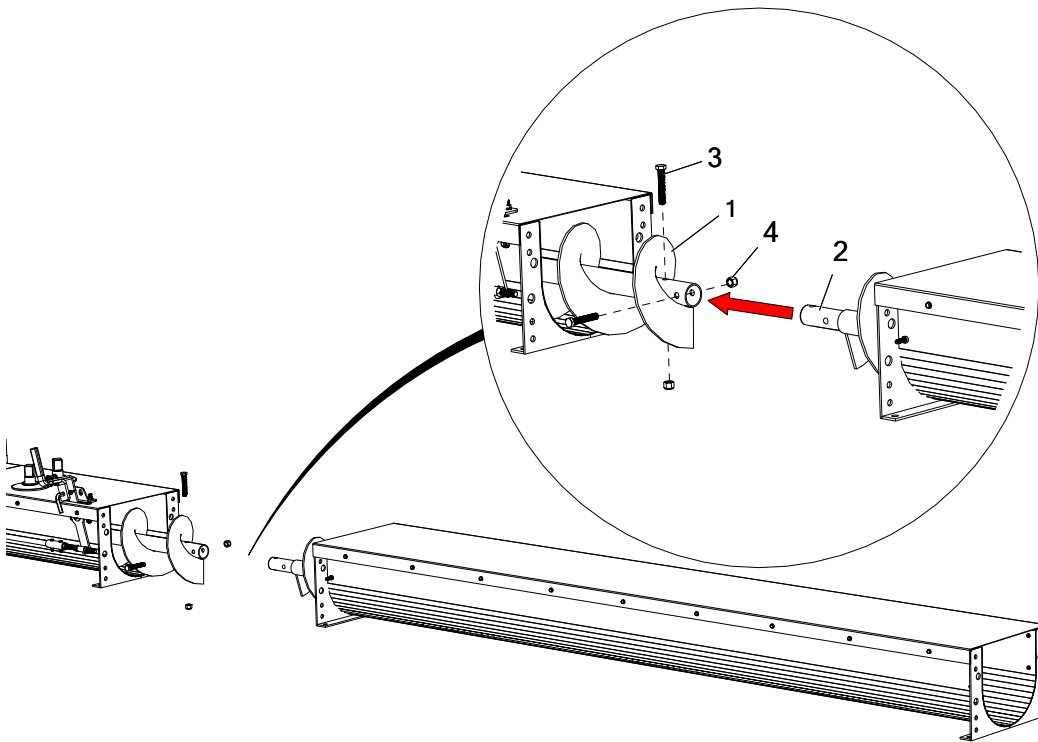
Optional u-trough extensions are available in lengths of 1.5', 3', 4.5', 6' and 9'.

1. Pull out the underfloor auger flighting (1) far enough to access the two holes in the end of flighting. Fasten the extension flighting (2) onto the underfloor flighting (1) with two 1/2" x 2-3/4" bolts (3) and nylon locknuts (4) (see [Figure 37](#)).

### Important

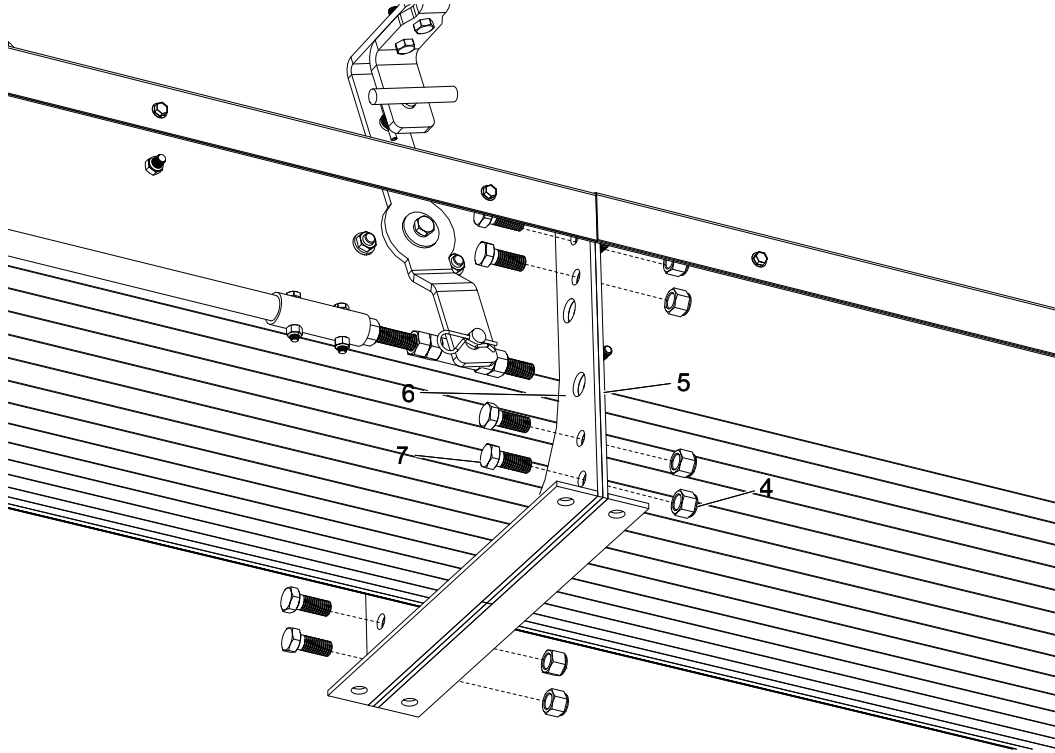
Make sure that the extension flighting is bolted onto the underfloor flighting so that the flightings are synchronized (the helical pattern continues across the bolted connection). If the connection is bolted a half-rotation out of position, it will not result in proper/optimum grain flow performance during operation.

**Figure 37. Fasten Extension Flighting onto Underfloor Auger Flighting**



2. Mount the extension trough flange (5) onto the underfloor auger flange (6) with eight 1/2" x 1-1/4" bolts (7) and nylon locknuts (4) (see [Figure 38](#)).

**Figure 38. Mount Extension Trough onto Underfloor Flange**

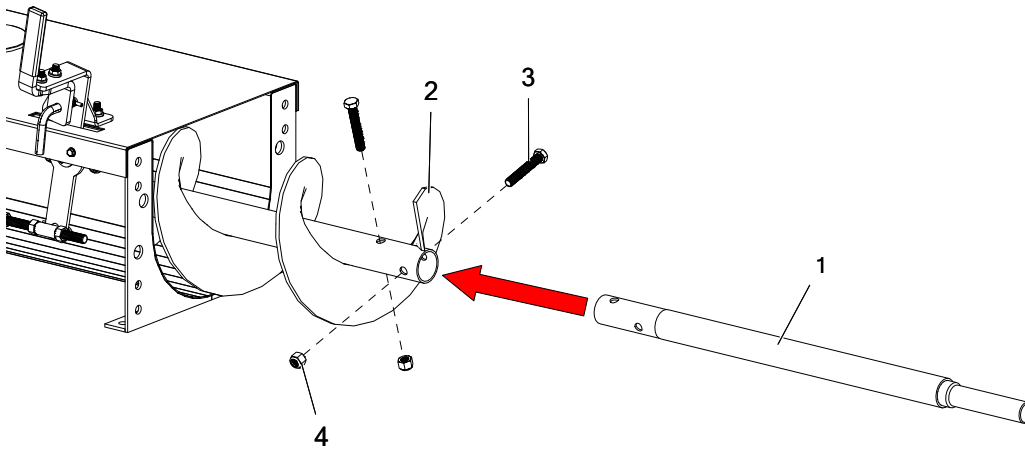


## 6.11. Assemble the Horizontal Powerhead

➡ When equipped with a horizontal powerhead:

1. Pull out the underfloor auger flighting (2) far enough to access the two holes in the end of flighting. Fasten the shaft (1) onto the underfloor flighting (2) with two 1/2" x 2-3/4" bolts (3) and nylon locknuts (4) (see [Figure 39](#)).

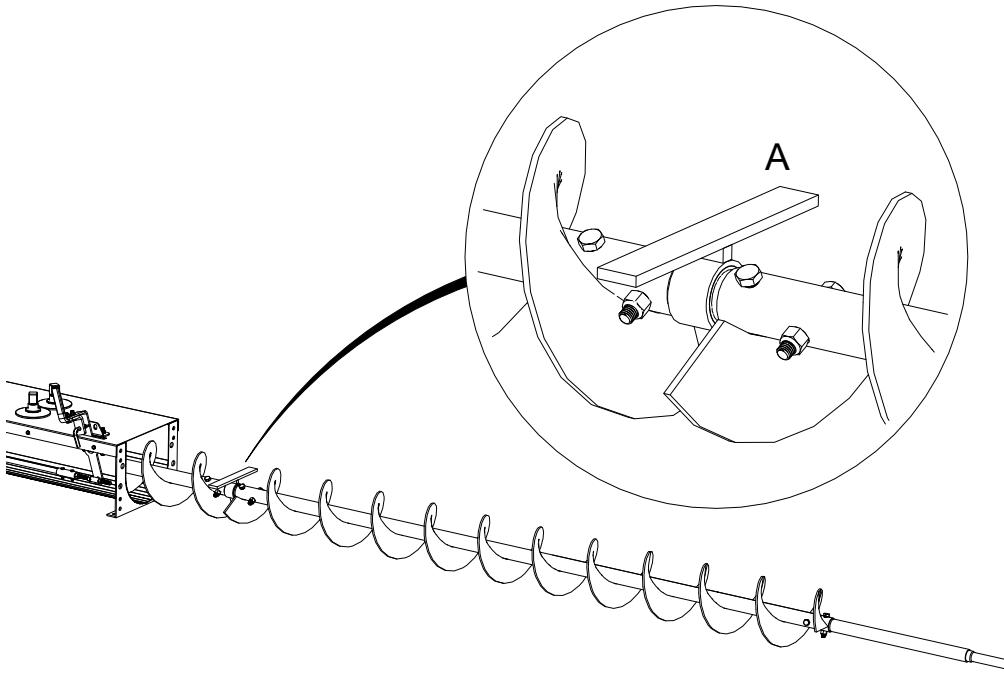
**Figure 39. Fasten Shaft onto Underfloor Auger Flighting**

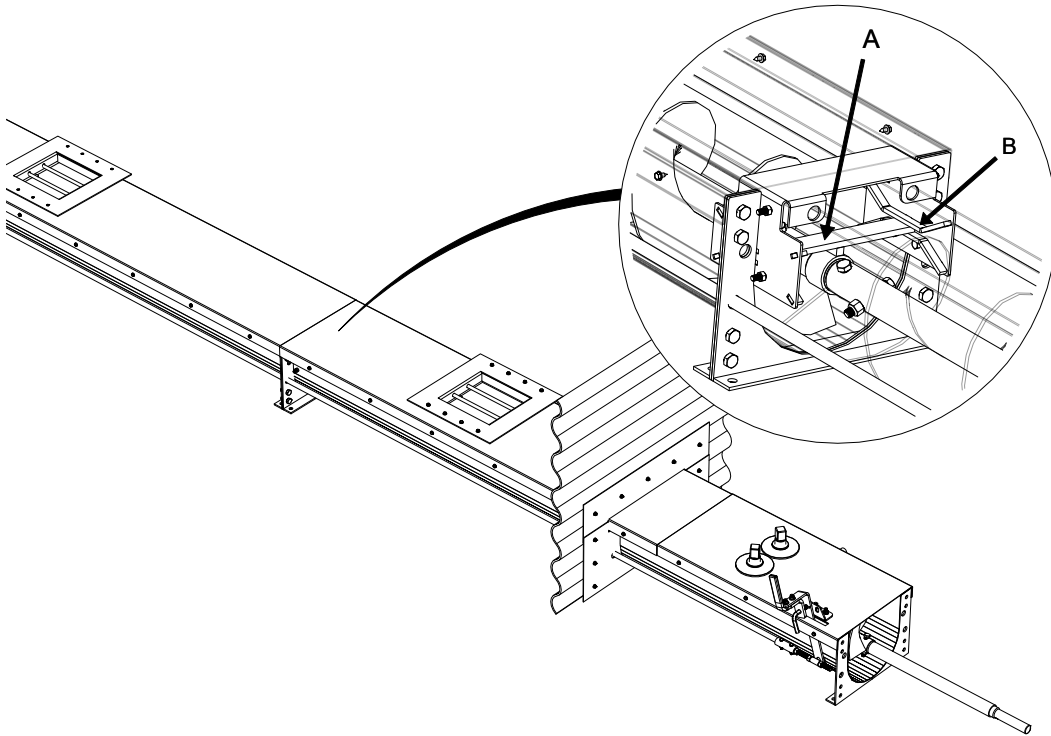


**Important**

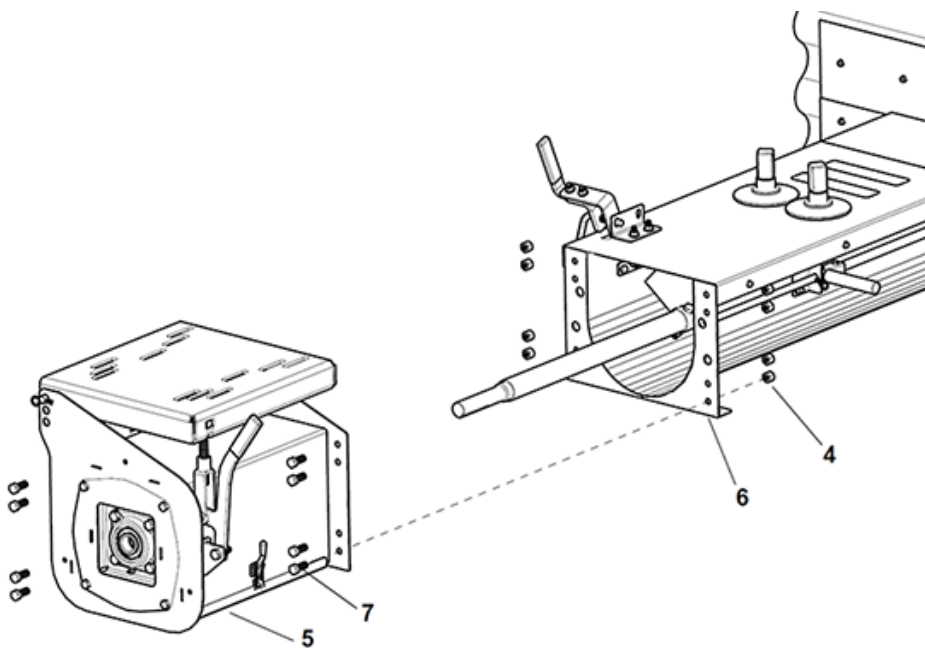
U-Trough models for 42' diameter bins and greater come equipped with a hanger bearing bushing assembly attached to the underfloor flighting. Pull the underfloor flighting out far enough to see the hanger bearing bushing assembly (A) and ensure it is positioned horizontally before and during pushing the underfloor flighting back into the underfloor auger, so it can properly slide into and be seated in its support bracket (B) on the inside of the trough on both sides (see [Figure 40](#) and [Figure 41](#)). Failure to do so could cause the underfloor flighting to bind and stop rotating.

**Figure 40. Ensure Hanger Bearing Bushing Assembly is Horizontal**



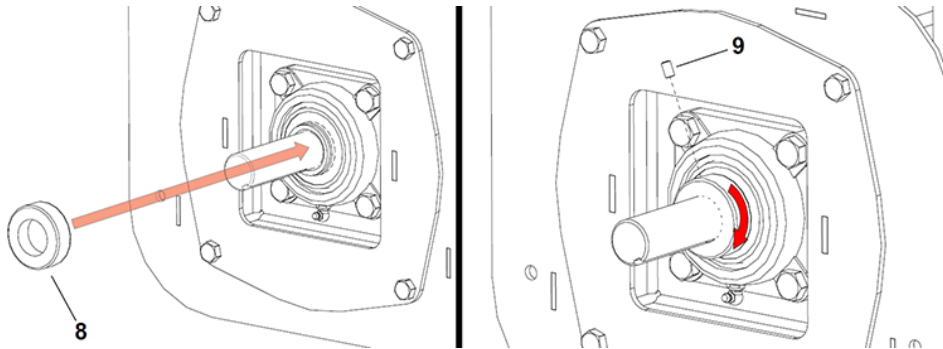
**Figure 41. Hanger Bearing Bushing Assembly Properly Seated in its Support Bracket**

2. Push the underfloor flighting all the way back into the underfloor auger, ensuring that the opposite end of the flighting is securely fitted onto the flighting coupler connected to the lower gearbox shaft in the center sump (see [Figure 29 on page 44](#)).
3. Mount the powerhead (5) onto the underfloor auger (6) with eight 1/2" x 1-1/4" bolts (7) and nylon locknuts (4) (see [Figure 42](#)).

**Figure 42. Mount Powerhead on the Underfloor Auger**

- Place the bearing lock collar (8) onto the flighting shaft. Use a hammer and punch to rotate the lock collar clockwise so that it seats onto the inner race of the bearing. Tighten the lock collar securely to the shaft with the set screw (9) (see [Figure 43](#)).

**Figure 43. Mount the Bearing Lock Collar**



## 6.12. Assemble the Incline Powerhead

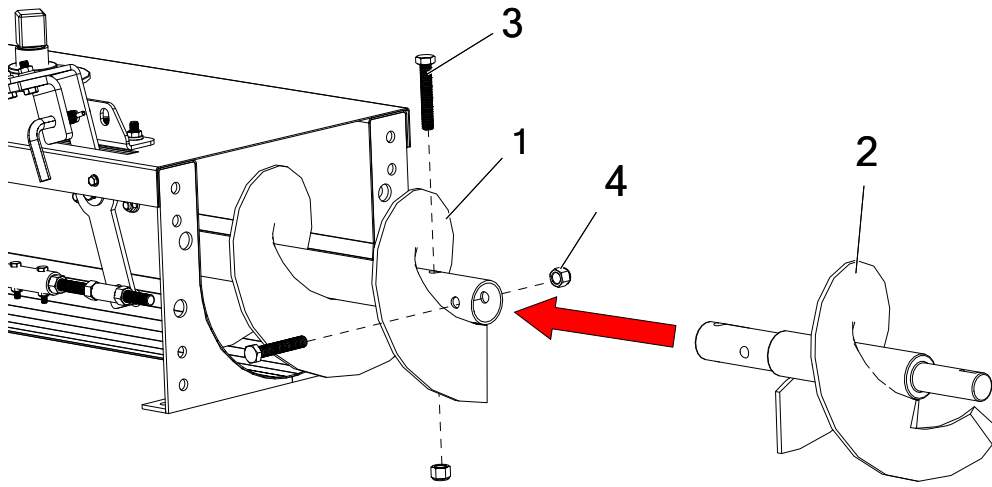
➡ When equipped with an incline powerhead:

- Pull out the underfloor flighting (1) far enough to access the two holes in the end of flighting. Install the transition flighting (2) with two 1/2" x 2-3/4" bolts (3) and nylon locknuts (4) (see [Figure 44](#)). Tighten securely.

### Important

Make sure that the transition flighting is bolted onto the underfloor flighting so that the flightings are synchronized (the helical pattern continues across the bolted connection). If the connection is bolted a half-rotation out of position, it will not result in proper/optimum grain flow performance during operation.

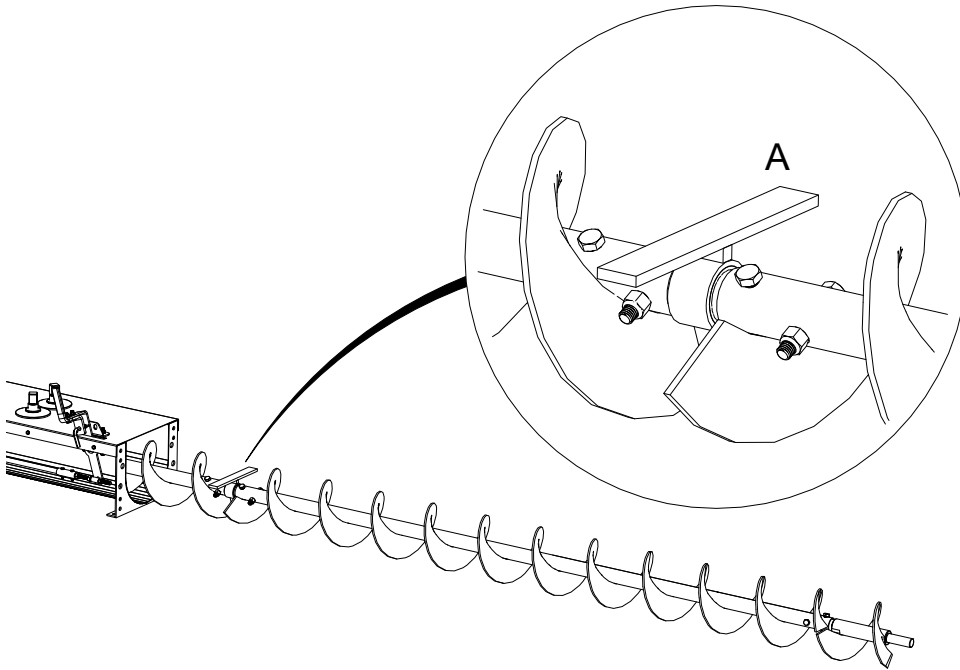
**Figure 44. Install Transition Flighting**



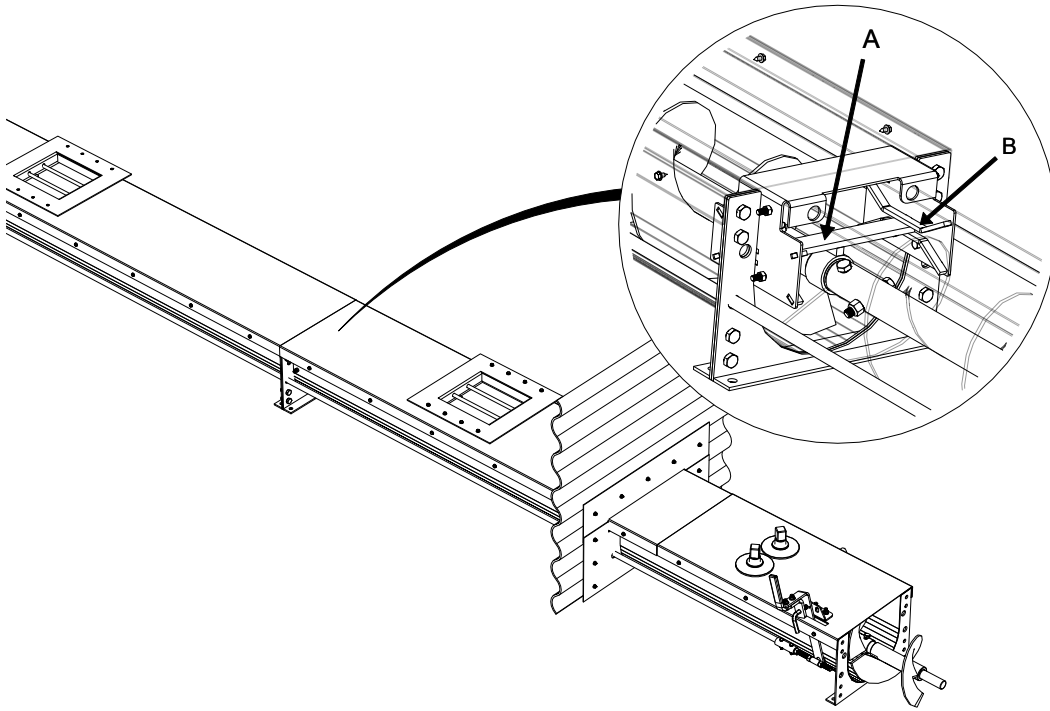
**Important**

U-Trough models for 42' diameter bins and greater come equipped with a hanger bearing bushing assembly attached to the underfloor flighting. Pull the underfloor flighting out far enough to see the hanger bearing bushing assembly (A) and ensure it is positioned horizontally before and during pushing the underfloor flighting back into the underfloor auger, so it can properly slide into and be seated in its support bracket (B) (see [Figure 45](#) and [Figure 46](#)). Failure to do so could cause the underfloor flighting to bind and stop rotating.

**Figure 45. Ensure Hanger Bearing Bushing Assembly is Horizontal**





**Figure 46. Hanger Bearing Bushing Assembly Properly Seated in its Support Bracket**

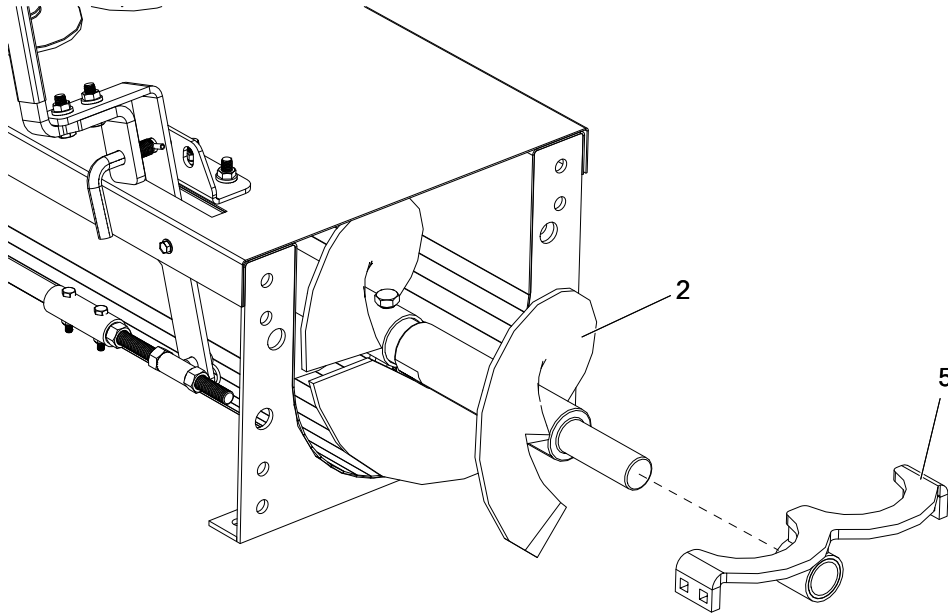
2. Push the underfloor flighting all the way back into the underfloor auger, ensuring that the opposite end of the flighting is securely fitted onto the flighting coupler connected to the lower gearbox shaft in the center sump (see [Figure 29 on page 44](#)).
3. Slide the support bushing (5) onto the stub shaft of the transition flighting (2) (see [Figure 47](#)).

**Important**

Clean off all debris from the stub shaft of the transition flighting and the inside of the bushing before fitting them together.

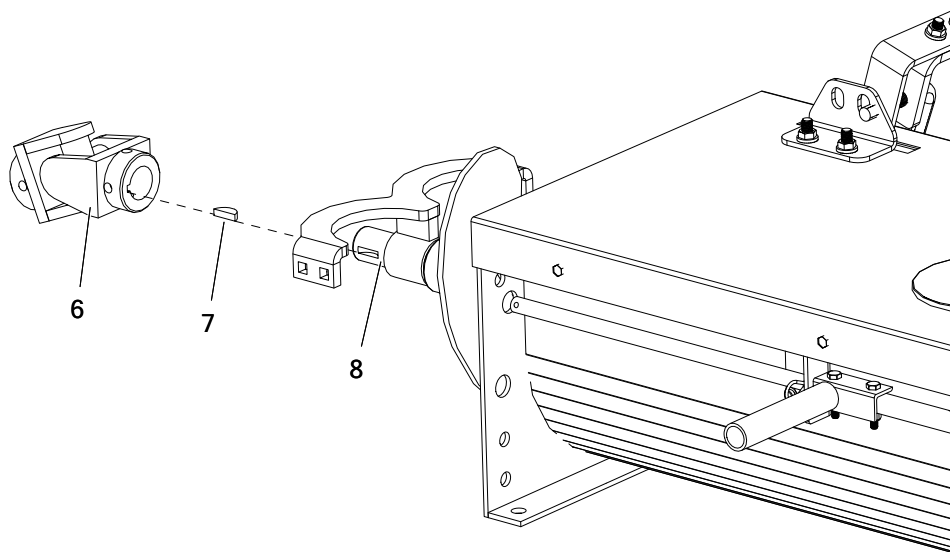


**Figure 47. Mount Support Bushing**



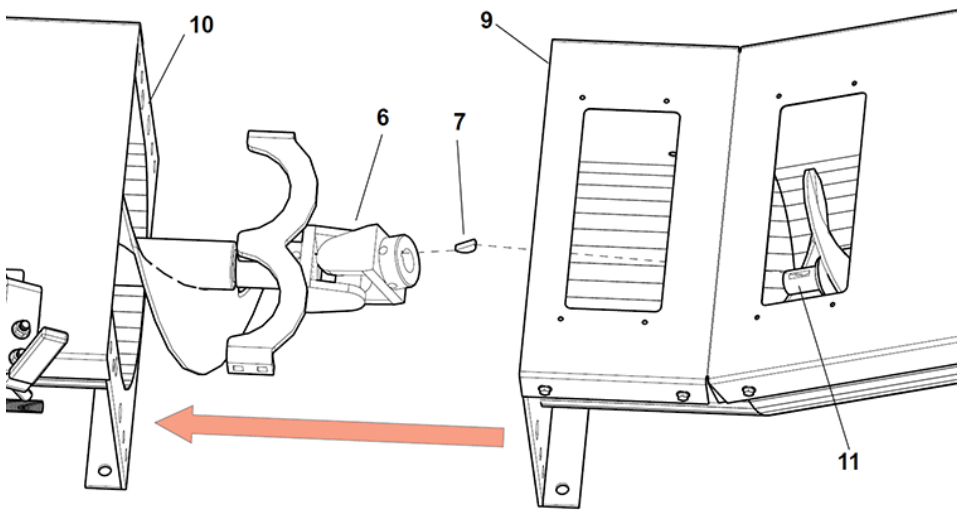
- Slide the universal joint (6) and 1/4" Woodruff key (7) onto the remainder of the transition flying stub shaft (8) (see [Figure 48](#)). Leave the universal joint loose, in preparation for later adjustment.

**Figure 48. Connect Universal Joint onto Transition Flying**



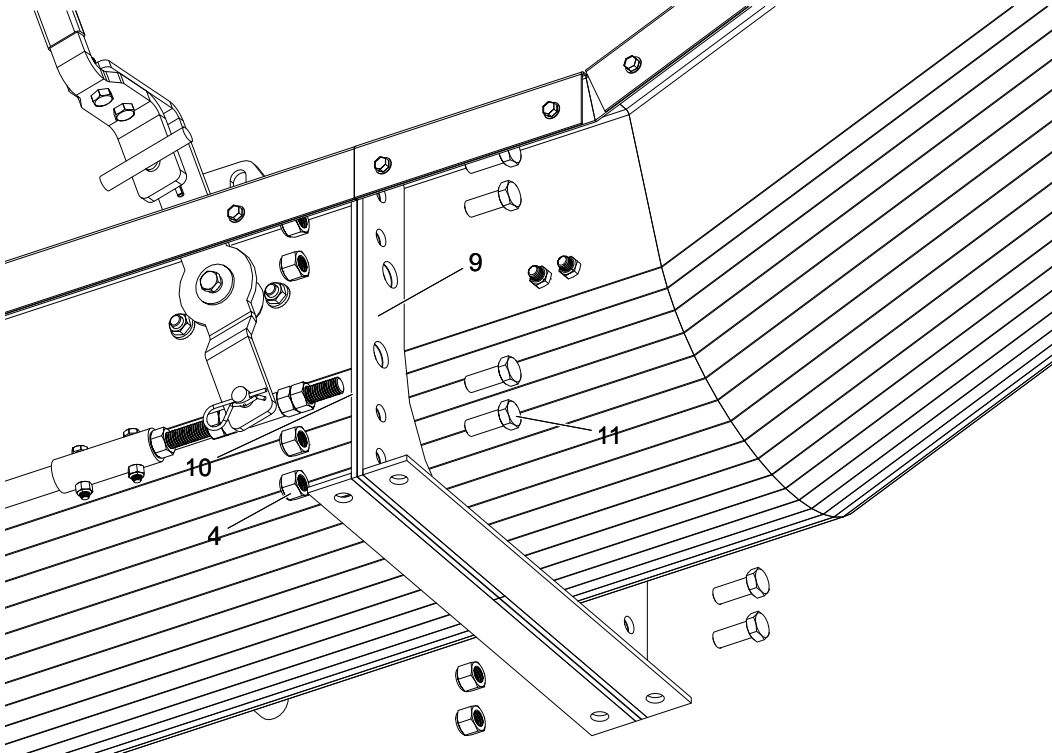
- Slide the incline assembly (9) to the underfloor auger (10) while sliding the stub shaft of the incline flighting (11) and 1/4" Woodruff key (7) into the universal joint (6) (see [Figure 49](#)).

**Figure 49. Connect Incline Assembly to Underfloor Auger**



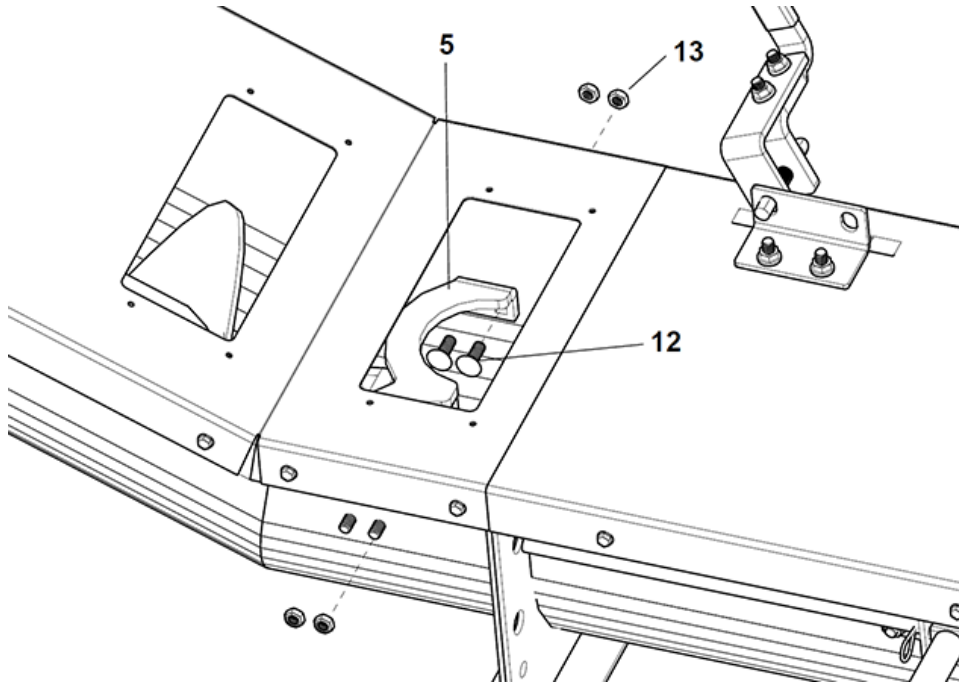
- Fasten the flange of the incline assembly (9) to the flange of the underfloor auger (10) using eight 1/2" x 1-1/4" bolts (11) and nylon locknuts (4) (see [Figure 50](#)).

**Figure 50. Fasten the Incline Assembly to the Underfloor Auger**

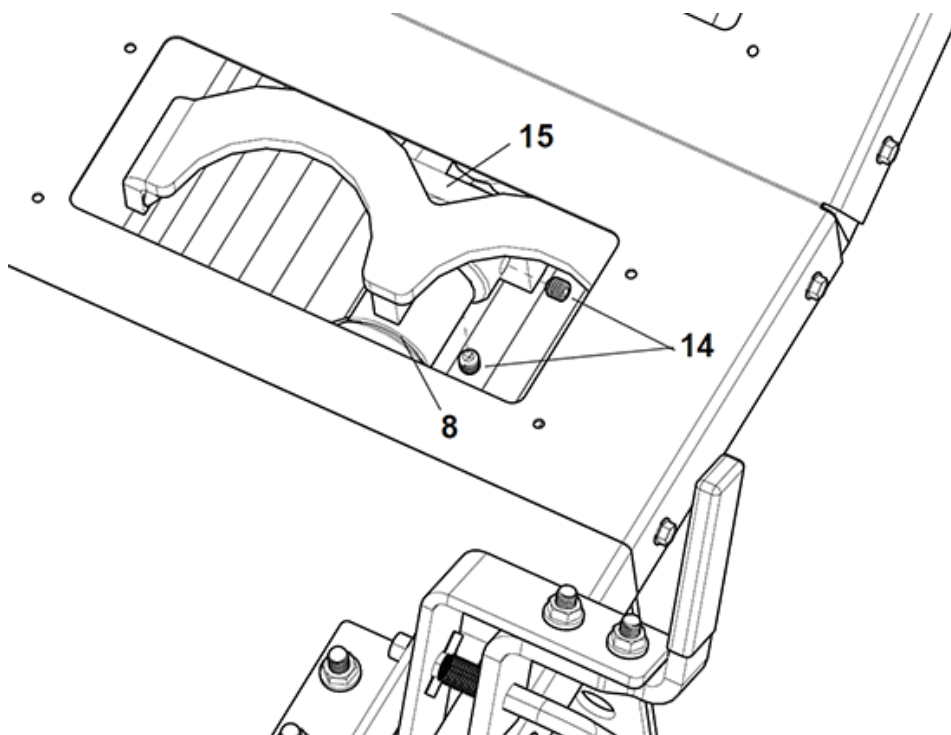


- Fasten the support bushing (5) into the holes of the transition of the incline auger using four 3/8" x 1" carriage bolts (12) and nylon jam nuts (13) (see [Figure 51](#)).

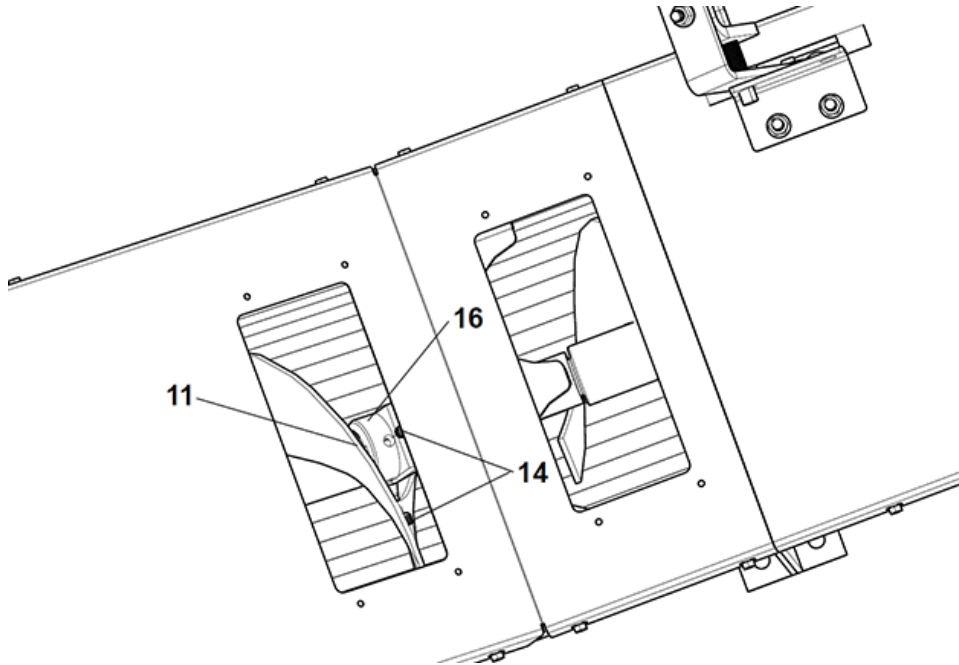


**Figure 51. Fasten the Support Bushing**

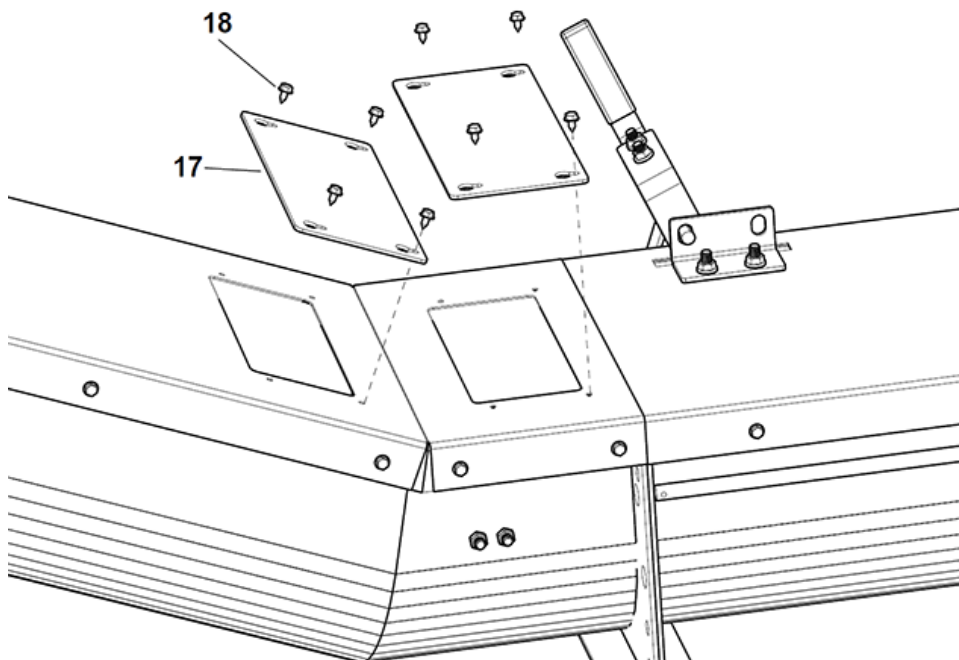
8. Insert and tighten two 3/8" set screws (14) in the two threaded holes of the universal joint end (15) which is connected to the transition flighting stub shaft (8) (see [Figure 52](#)).

**Figure 52. Secure Set Screws in Universal Joint for Transition Flighting**

9. Insert and tighten two 3/8" set screws (14) in the two threaded holes of the universal joint end (16) which is connected to the incline flighting stub shaft (11) (see [Figure 53](#)).

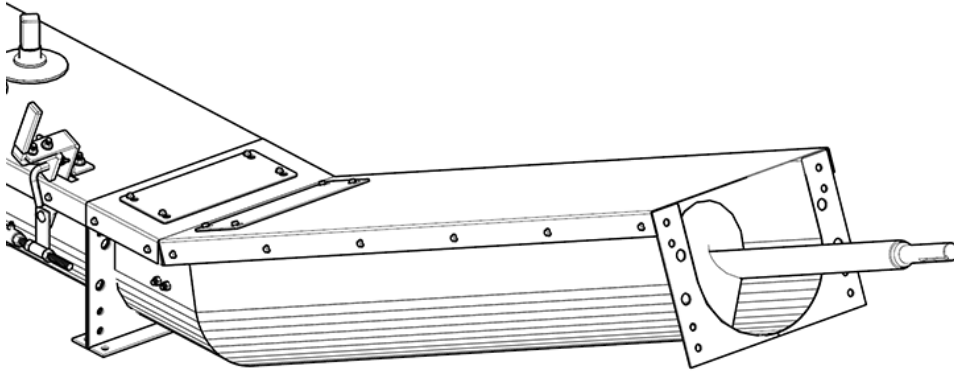
**Figure 53. Secure Set Screws in Universal Joint for Incline Flighting**

10. Attach the two inspection doors (17) to the incline assembly using the #14 x ½" self-tapping screws (18) provided (see [Figure 54](#)).

**Figure 54. Attach Inspection Doors**

11. The incline powerhead should now appear as shown in [Figure 55](#). To complete the installation of the incline powerhead, follow the same steps as shown in [Section 6.11. – Assemble the Horizontal Powerhead on page 51](#), starting at [Step 3 on page 53](#).



**Figure 55. Assembled Incline**

## 6.13. Electric Motor Installation / Alignment

1. Place the electric motor (1) onto the motor mount (2) and secure with the motor mounting hardware, see [Figure 56 on page 63](#). Ensure that the motor shaft is parallel to and centered on the discharge end. Align the ends of the motor shaft and flying shaft with a straight edge.
2. Have a qualified electrician perform the electrical connections and wiring to the electric motor. Ensure the requirements in [2.5.1 Electric Motor Safety on page 8](#) are met. See also [Table 8 on page 74](#).
3. Attach the pulley guard backplate (3) to the face of the powerhead using three 3/8" x 1" bolts (4), flat washers (5), and nylon locknuts (6). The backplate should sit flush with the head plate. Do not tighten bolts/nuts at this time; the backplate will need to be aligned later on.
- ➡ 4. **For two-piece drive pulleys only:** Install the drive pulley (7A) (see [Table 9 on page 74](#) for available pulley sizes, depending on desired flying speed) using a 3/8" x 3" square key (8), hub (9), three bolts (11), three lock washers (10), and set screw (12). Align the drive pulley face flush with the end of the motor shaft and tighten. Do not tighten set screw until belts are aligned.
- ➡ 5. **For finished bore drive pulleys only:** Install the drive pulley (7B) (see [Table 9 on page 74](#) for available pulley sizes, depending on desired flying speed) using a 3/8" x 3" square key (8) and set screw (12). Align the drive pulley face flush with the end of the motor shaft and tighten. Do not tighten set screw until belts are aligned.
6. Install the large unload pulley (13) onto the flying shaft using a 1/4" x 2-1/2" square key (14) (see [Table 9 on page 74](#) for available pulley sizes, depending on desired flying speed). DO NOT tighten set screws (not shown).
7. Place the belts (15) on the pulleys (7, 13).
8. Move the belt adjust handle (17) upward (engaged position). Ensure the 5/8" threaded rod (18) is positioned behind its slot in the motor mount to support the motor mount.
9. Align the two pulleys using a straight edge, ensuring that the large unload pulley is flush against the bearing lock collar.
10. To tension the belts, adjust the motor mount hinge pin (19) to the hole position that will keep the motor level and fully tension the belts. The hole selected will depend on the pulley diameters and the motor size (height between motor shaft and motor legs). Rotate the 5/8" threaded rod (18) in the clevis until the belts have approximately 1/4" – 1/2" (6 mm – 13 mm) deflection when a 5 lb (22 N) force is applied at the belt center. Tighten/lock the threaded rod in the clevis with the 5/8" hex nut (not shown).

**Note**

The correct operating tension is the lowest tension at which the belts will not slip under peak load conditions.

11. Tighten all the set screws on the pulleys.

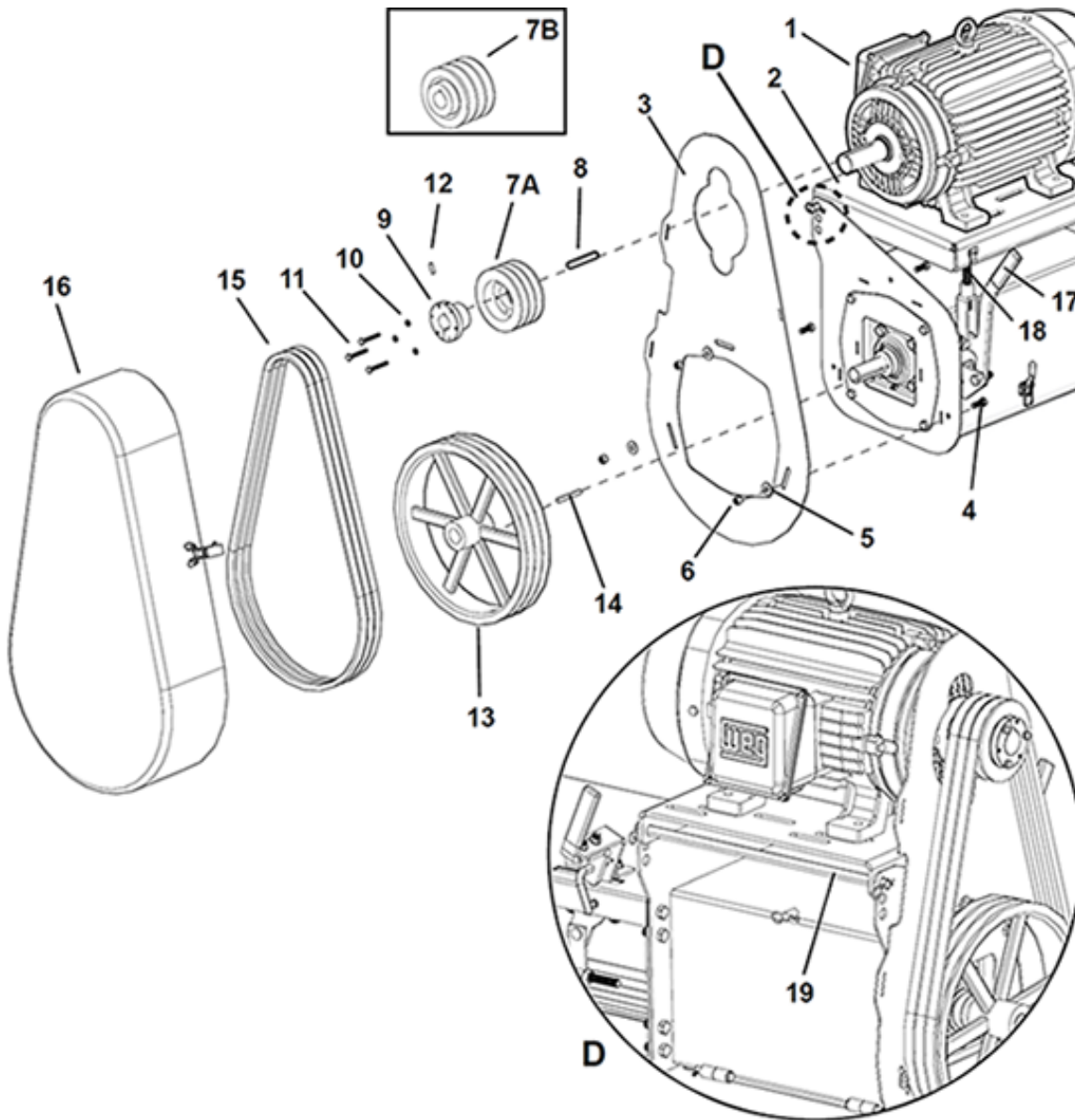
**Note**

Once all bolts and set screws are tightened, re-check alignment. Proper alignment will prolong belt life.

12. Once belt alignment is complete, move the backplate (3) to a position where the motor shaft will cause the least interference. Tighten the backplate bolts (4) securely.

13. Close and lock the plastic pulley guard (16) using the quick-clip.

**Figure 56. Assembly of Pulleys and Belts**

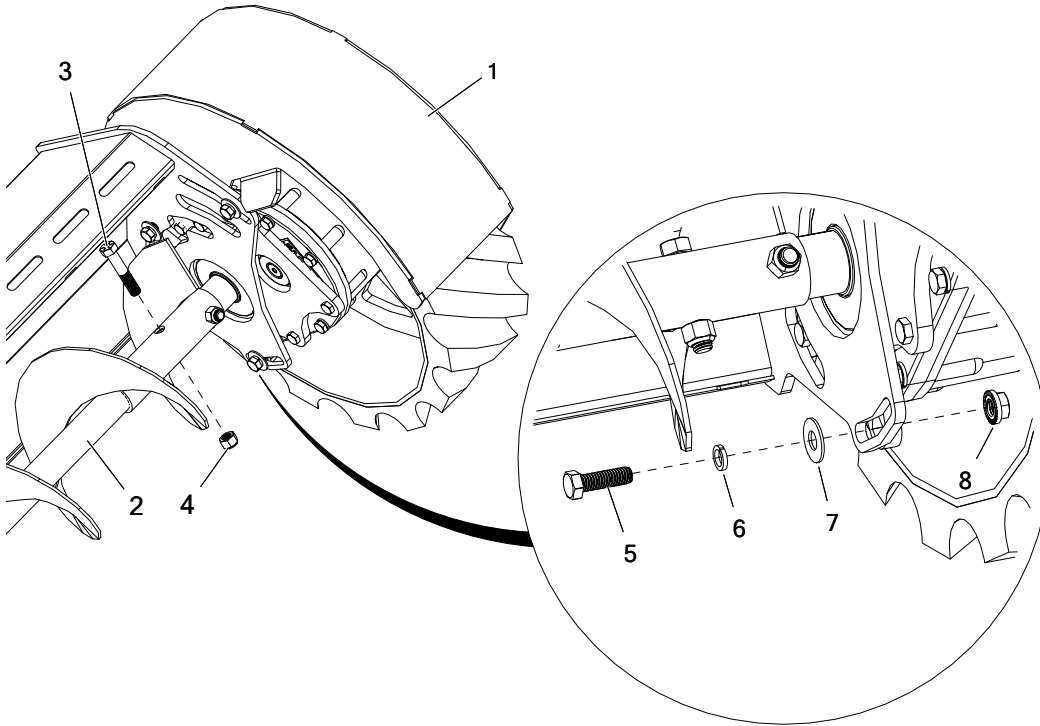




## 6.14. Install the Sweep End Wheel, Flighting, and Backboard

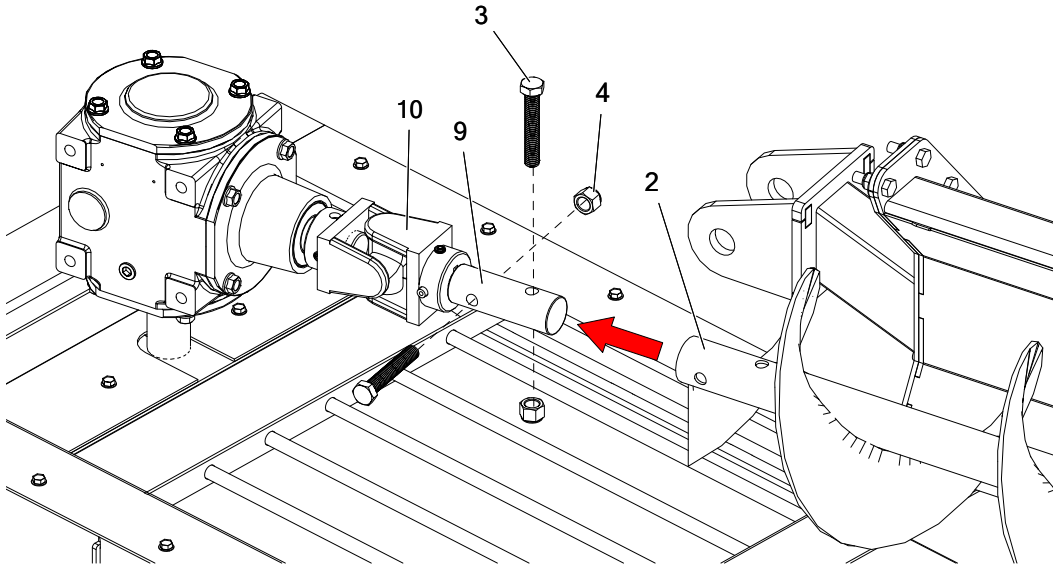
1. Install the end wheel sub-assembly (1) onto the end of the backboard with three 3/8" x 1-1/4" bolts (5), lock washers (6), flat washers (7), and serrated nuts (8) (see [Figure 57](#)). At the same time, secure the two 7/16" x 2-1/4" bolts (3) and nylon locknuts (4) to connect the sweep flighting (2) to the end wheel gearbox.

**Figure 57. Install End Wheel Sub-Assembly**



2. Attach the sweep flighting (2) to the yoke (9) in the universal joint (10) with two 7/16" x 2-1/4" bolts (3) and nylon locknuts (4) (see [Figure 58](#)).



**Figure 58. Connect Sweep Flighting to Upper Gearbox**

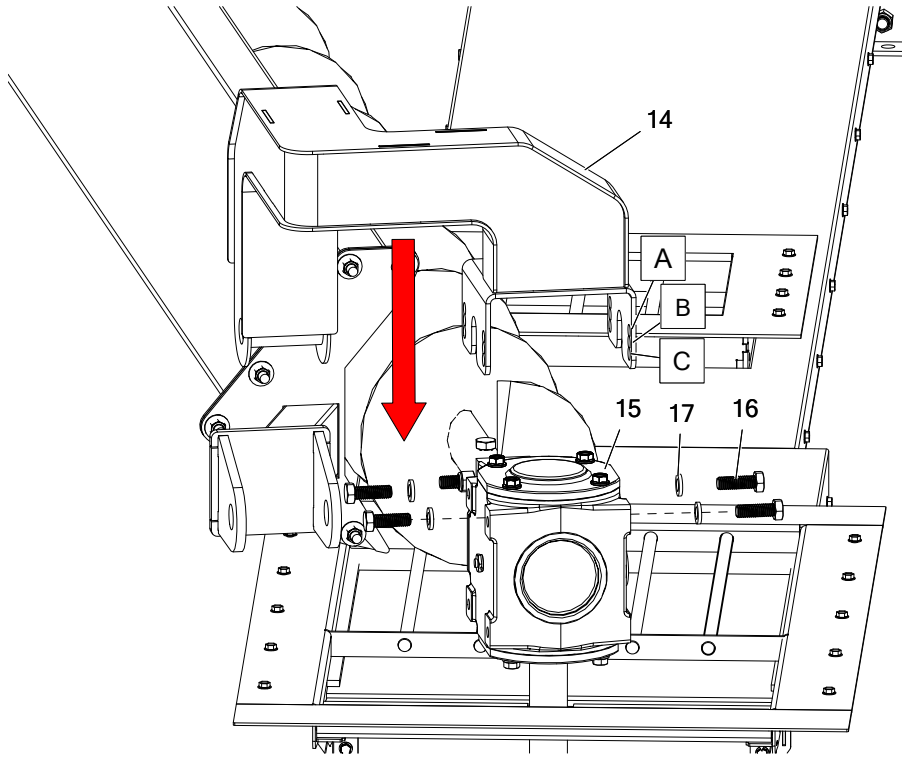
3. Fasten the backboard mounting bracket (14) to the upper gearbox (15) with four 1/2" x 1-1/2" bolts (16) and lock washers (17) (see [Figure 59](#)). Do not fully tighten bolts at this time.

**Note**

Position A is the standard setting for all flighting. Positions B and C are secondary to adjust so the flighting does not hit the floor.

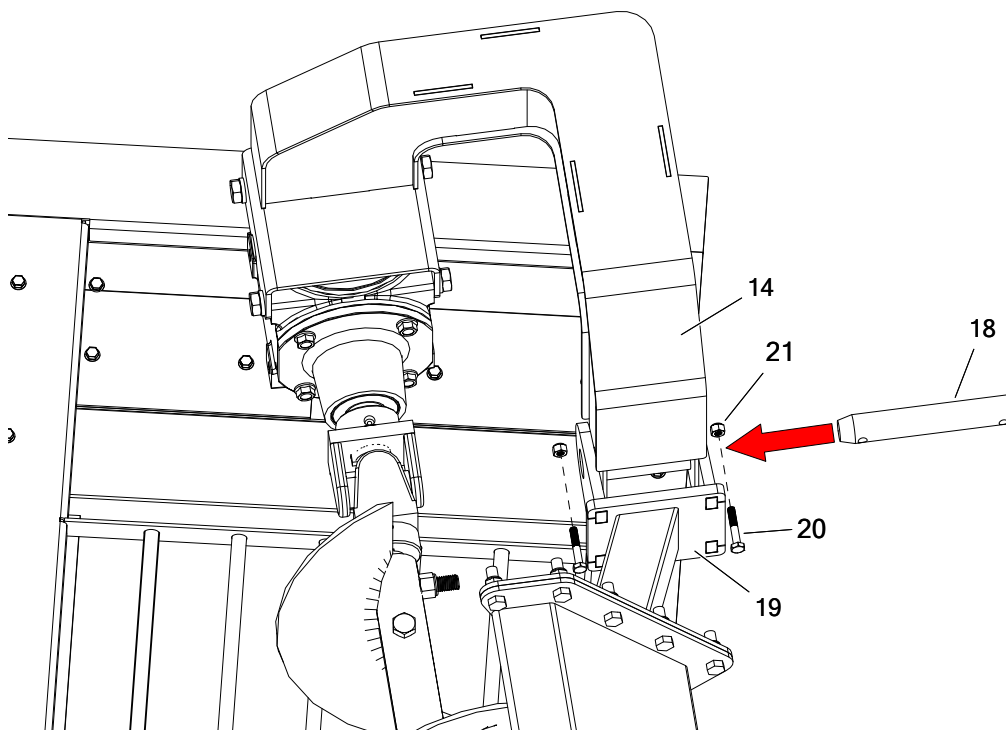


**Figure 59. Attach Backboard Mounting Bracket on Upper Gearbox**



4. Secure the backboard pivot pin (18) between the backboard mounting bracket (14) and backboard connector (19) with two 1/4" x 1-1/2" bolts (20) and nylon locknuts (21) (see [Figure 60](#)).

**Figure 60. Connect Backboard Mounting Bracket to Backboard Connector**



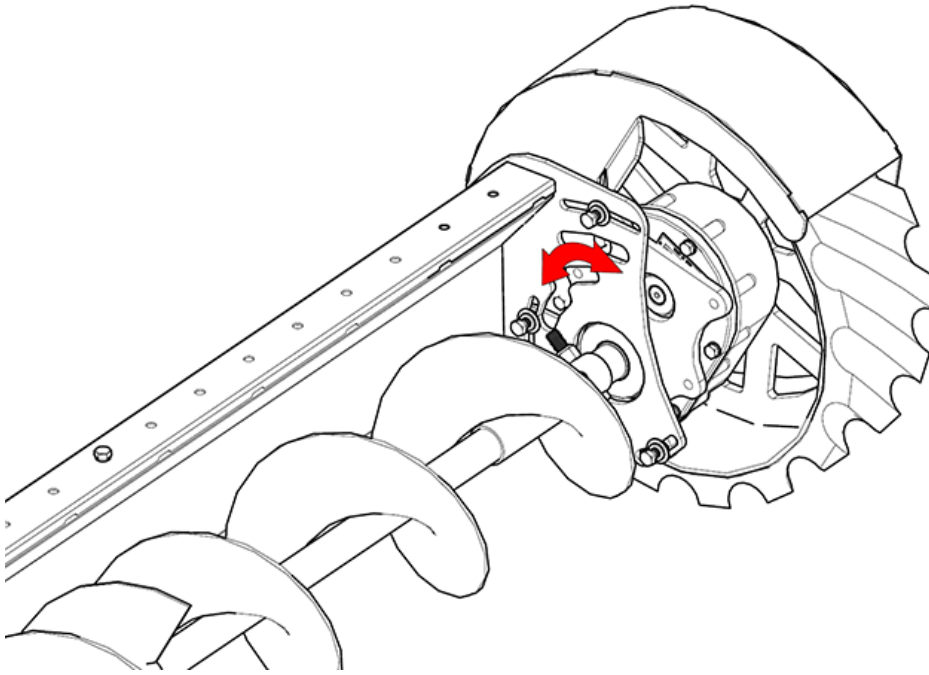
5. Fully tighten the four bolts (16) that fasten the backboard mounting bracket to the upper gearbox (see [Figure 59 on page 66](#)).

## 6.15. Set Backboard Clearance

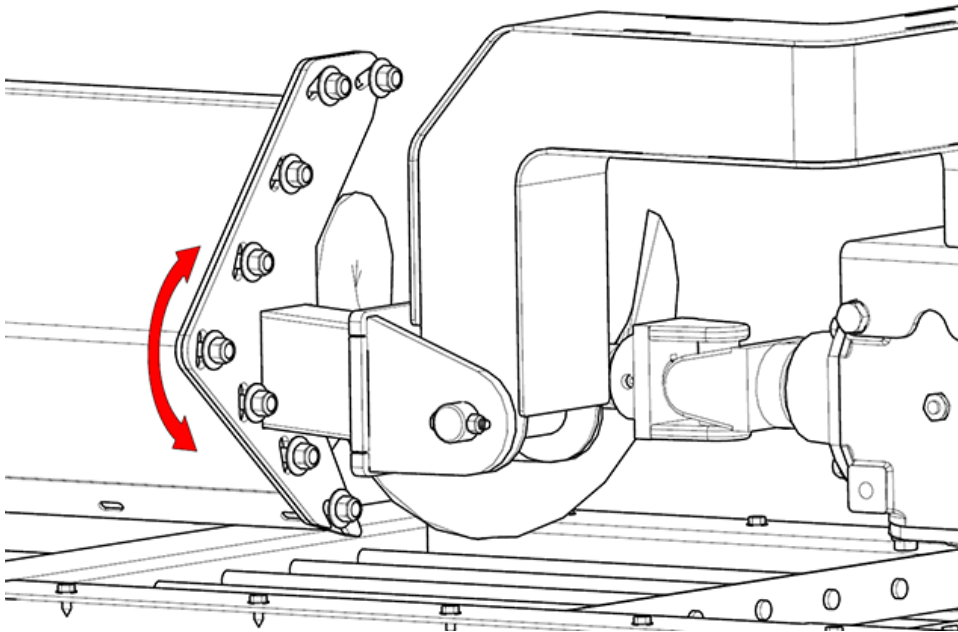
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1. Slightly loosen the three 3/8" bolts on the backboard pivot mount plate with slotted holes nearer the sweep drive wheel (see [Figure 61](#)).

**Figure 61. Adjusting Sweep Backboard Height at Sweep Drive Wheel**



2. Slightly loosen the eight 3/8" bolts on the backboard pivot mount plate with slotted holes near the center sump (see [Figure 62](#)).

**Figure 62. Adjusting Sweep Backboard Height near Center Sump**

3. Rotate the backboard so that its lower scraper is resting on 1/4" wood blocks which are placed underneath the backboard scraper every 3' (0.9 m). This sets the required clearance between the backboard scraper and the bin floor.
4. Retighten all the bolts which were loosened.

## 6.16. Testing

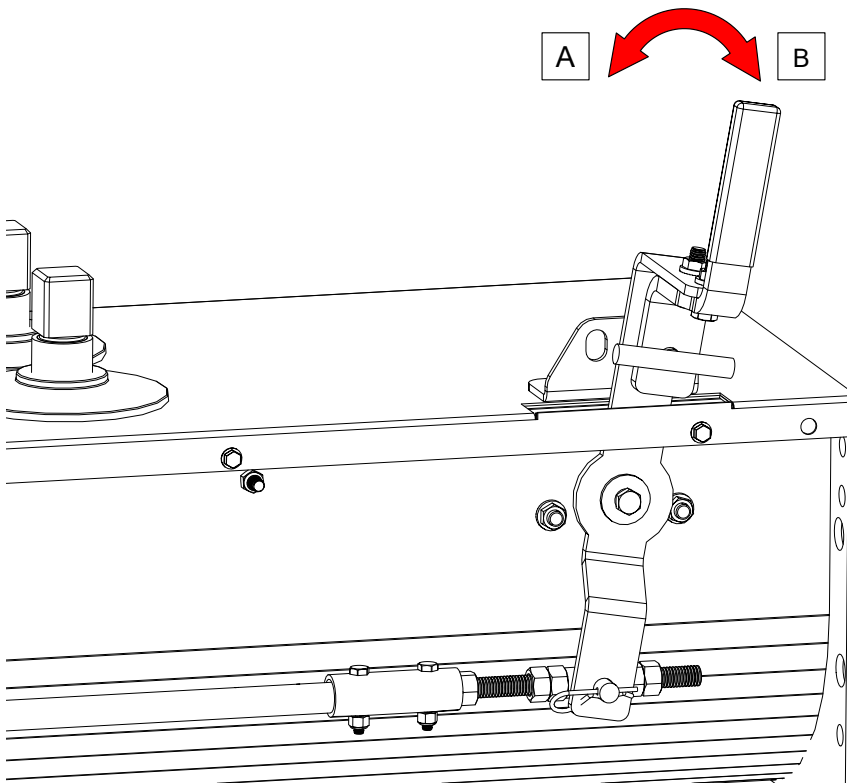
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1. Ensure that the power to the bin unload system is shut down and locked out.
2. Ensure that there are no obstructions in the sumps, sweep flighting, or sweep path along the bin floor.
3. Move the gearbox shift handle to the engaged position (B) (see [Figure 63](#)).

**NOTICE**

Use the locking pin to lock the gearbox shift handle into the engaged or disengaged position at all times. Failure to do so will result in damage to gearbox.

**Figure 63. Lower Gearbox Engagement & Disengagement for Sweep**



4. Unlock the power to the bin unload system.



**DANGER** During testing, KEEP AWAY from rotating flighting. Do not perform adjustments on the equipment while it is being tested.

5. Turn on the electric powerhead to bin unload system so that underfloor auger flighting and sweep flighting are both rotating.
6. Move the gearbox shift handle to the disengaged position (A) and ensure the lower gearbox comes fully out of gear with no grinding (see [Figure 63](#)). Then shut down the bin unload system.
  - If grinding occurred when disengaging the gearbox shift handle: Lock out whole bin unload system. Adjust the gearbox shift adjust tube as noted in the Maintenance chapter of the Operator's Manual.
  - If grinding did not occur: With the unload system shut down, re-engage the gearbox. Restart the electric powerhead so that underfloor auger flighting and sweep flighting are both rotating.

**NOTICE**

To prevent damage to the unload system, DO NOT engage bin sweep while underfloor auger is operating.

7. Perform a test-run of the bin sweep (one full revolution around bin). During testing check the general function of the system and monitor the following:
  - a. Ensure that the bushings (between sweep sections) are not interfering with the sweep flighting.
  - b. Ensure sweep backboard does not catch on high spots on the aeration floor. If necessary, consult bin or aeration floor assembly manual to level.

- c. Observe the end of the bin sweep around the bin and note the position in its revolution which has the minimum clearance to the bin wall. This minimum clearance will later be used to adjust the sweep extender.
8. After the bin sweep has completed its test-run, ensure the sweep is in its “start/park position” (directly over the intermediate sumps), and then shut down and lock out bin unload system.

**NOTICE**

Failure to park the bin sweep over the intermediate sumps could result in damage to the bin sweep when it is next operated.

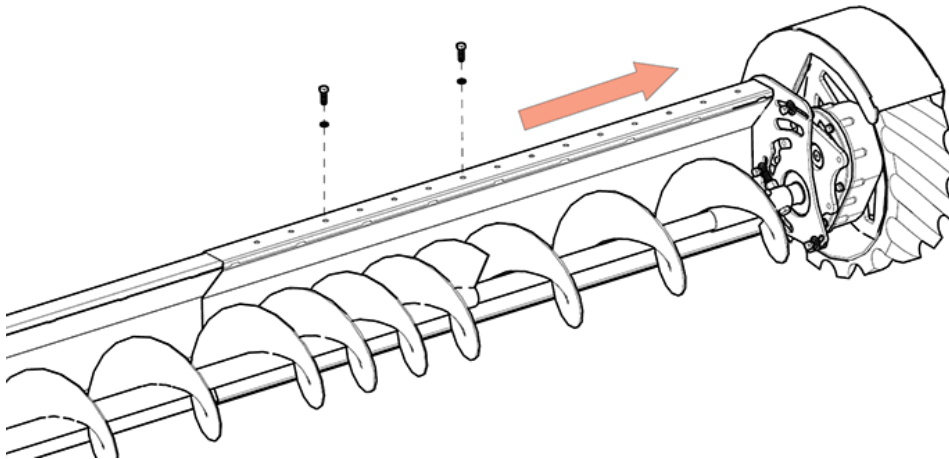
9. Close all sump gates.

## 6.17. Adjust the Bin Sweep Extension

---

1. Remove the two 3/8" x 1" bolts and lock washers on the top of backboard extension (see [Figure 64](#)).
2. Move the extension outward to the same length as the minimum clearance between the end of the sweep and the bin wall (and attached parts), as observed during the full test-run revolution. Pull and twist the sweep flighting to extend it.
3. Re-fasten the bolts on the backboard extension.

**Figure 64. Adjust Bin Sweep Extension**



## 6.18. Attach the Westfield Brand Logo Decal

---

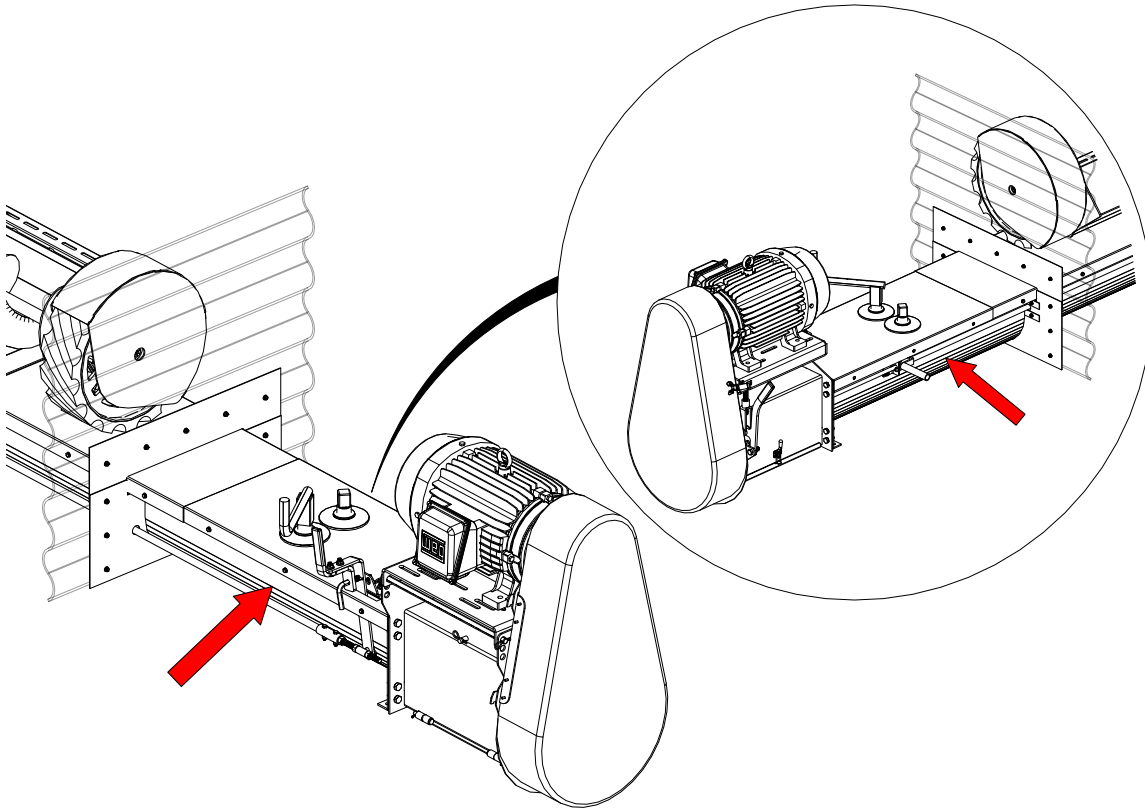
1. Apply brand logo decals to both sides of the u-trough (see [Figure 65](#)).

**Important**

Do not cover any existing safety or instruction decals with the brand logo decals.

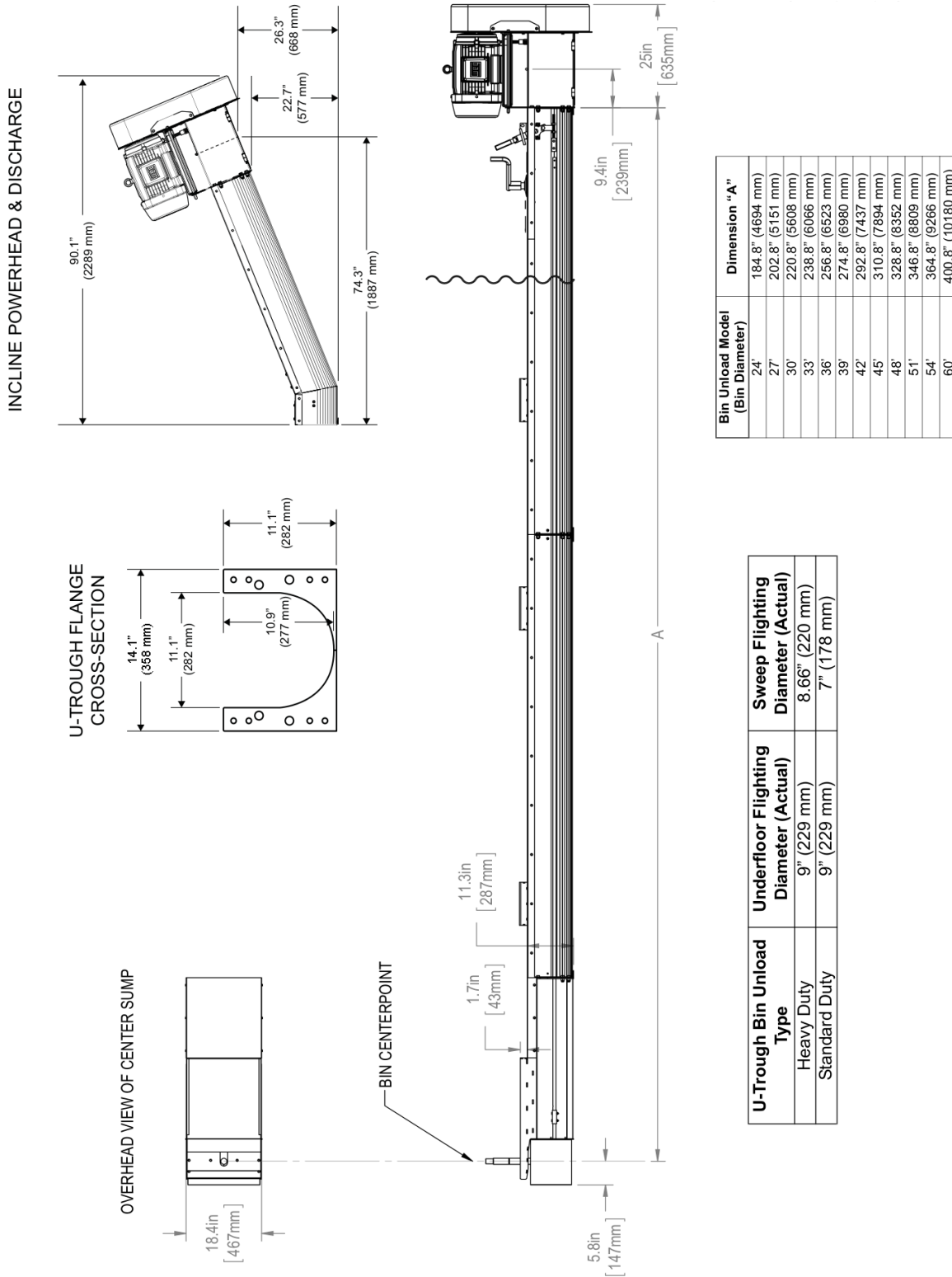
2. Refer to [Section 2.8.1 – Decal Installation/Replacement on page 10](#) for specific instructions on applying decals.

**Figure 65. Placement for the Brand Logo Decals**



# 7. Specifications

## 7.1. Mechanical



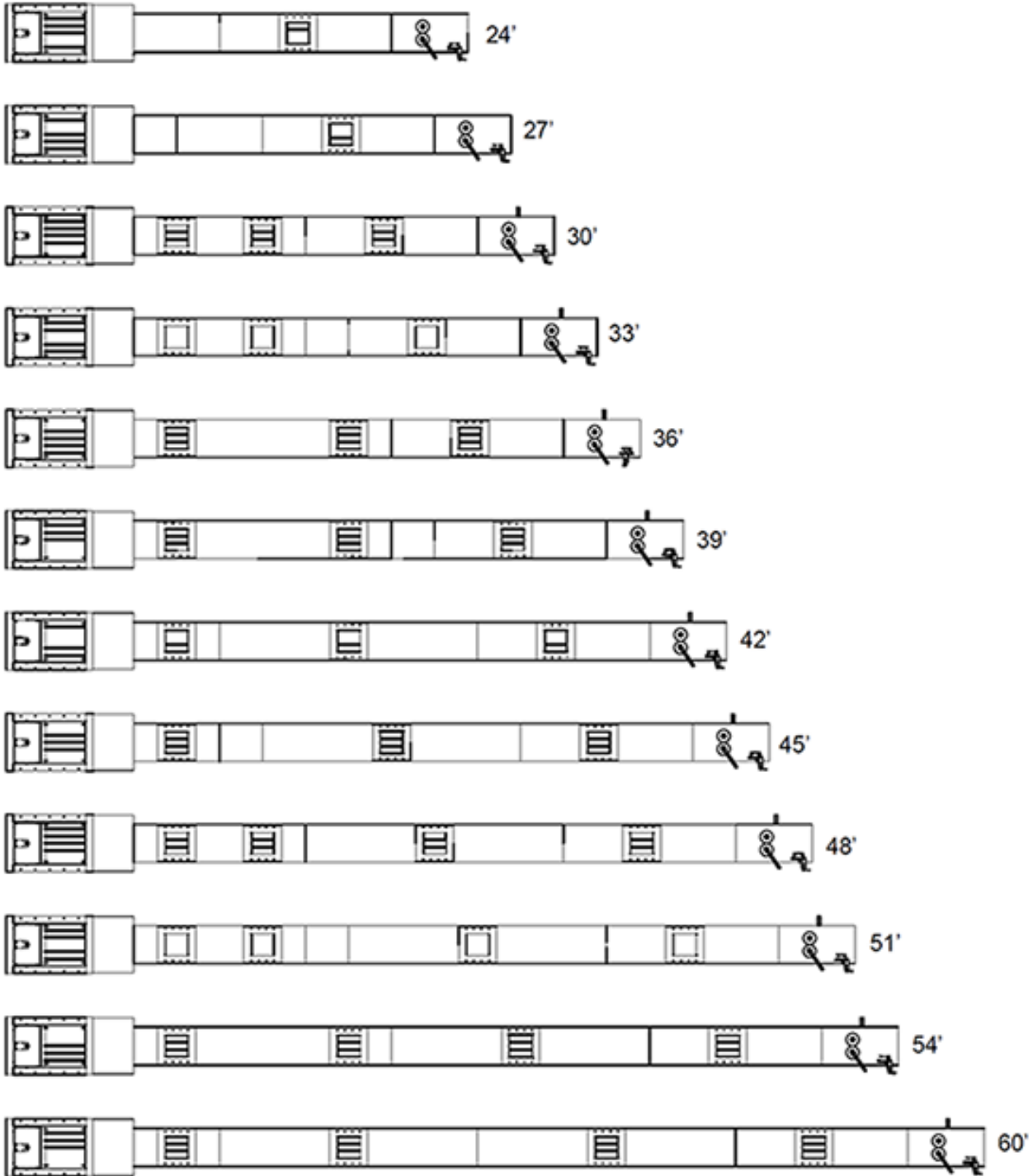
Bin Unload Model (Bin Diameter)	Dimension "A"
24'	184.8" (4694 mm)
27'	202.8" (5151 mm)
30'	220.8" (5608 mm)
33'	238.8" (6066 mm)
36'	256.8" (6523 mm)
39'	274.8" (6980 mm)
42'	292.8" (7437 mm)
45'	310.8" (7894 mm)
48'	328.8" (8352 mm)
51'	346.8" (8809 mm)
54'	364.8" (9266 mm)
60'	400.8" (10180 mm)

U-Trough Bin Unload Type	Underfloor Flighting Diameter (Actual)	Sweep Flighting Diameter (Actual)
Heavy Duty	9" (229 mm)	8.66" (220 mm)
Standard Duty	9" (229 mm)	7" (178 mm)



## 7.2. Bin Unload System Sizes

Bin Unload System Models (Bin Diameters)



## 7.3. Power Requirements

**Table 8. Electric Motor Requirements**

Bin Unload Model (Bin Diameter)	System Horsepower (hp) Requirements with Sweep	
	Standard Duty (7" Sweep Flighting)	Heavy Duty (8.66" Sweep Flighting)
24'	7.5	10
27' / 30' / 33'	10	10
36' / 39'	10	15
42' / 45'	15	15
48' / 51'	15	20
54' / 60'	20	20

**Table 9. Recommended Pulley Size Combinations**

Unload Pulley	Drive Motor Pulley	Pulley Type	Belt Size	Flighting Speed (rpm)
15"	4-3/4"	Triple Groove	B62	554
16"	4"	Triple Groove	B62	438

Flighting Speed is calculated using a 1750 rpm electric motor. To determine flighting speed (rpm), divide the motor speed (rpm) by the outside diameter of the large unload pulley, then multiply by the outside diameter of the small motor pulley. Example:  $1750 \text{ rpm} / 15" \times 4\text{-}3/4" = 554 \text{ rpm}$ .

If a slower flighting speed is desired, install a smaller motor pulley.

For 51', 54', and 60' bin unload models used in dense crops (such as wheat or canola), a flighting speed of 438 rpm is recommended.

# 8. Bin Unload Limited Warranty

Ag Growth International (“AGI”) warrants all new equipment manufactured by it or one of its divisions, and purchased from an authorized dealer or distributor, to be free from defects in materials or workmanship for a period of two (2) years from the date of original purchase or initial installation (“Warranty Period”).

AGI’s obligation under this warranty is limited to repairing, replacing, or refunding defective part(s) during the Warranty Period. Labor costs associated with the repair of the warranted equipment are not covered by AGI. Any defects must be reported to AGI before the expiry of the Warranty Period and defective parts identified during the Warranty Period must be returned to the factory, or an authorized AGI dealer or distributor, with transportation charges prepaid.

Bin Unload systems are designed for use with free flowing, properly conditioned grains and are not warranted for use with other substances. Any other use is considered misuse. Malfunctions or failure resulting from misuse, abuse, negligence, alteration, accident, or lack of proper maintenance shall not be considered defects under this warranty. This warranty shall be void if components of the system are not original equipment supplied by AGI, or if the equipment has not been assembled, installed, operated, and maintained in accordance with instructions published by AGI.

***The total liability of AGI on any claim, whether in contract, tort or otherwise, arising out of, connected with, or resulting from the manufacture, sale, delivery, repair, replacement or use of the equipment or any part thereof, shall not exceed the price paid for the equipment. AGI shall not be liable for any consequential or special damage which any purchaser may suffer or claim to suffer as a result of any defect in the equipment. Consequential or special damages as used herein include, but are not limited to, lost or damaged products or goods, costs of transportation, lost sales, lost orders, lost income, increased overhead, labor and incidental costs and operational inefficiencies.***

The warranty provisions herein constitute the full extent of the warranties supplied by AGI for the equipment. Without limiting the generality of the foregoing and to the extent permitted by law, AGI EXPRESSLY DISCLAIMS AND EXCLUDES ALL WARRANTIES AND CONDITIONS OF MERCHANTABILITY & FITNESS FOR PURPOSE OR PERFORMANCE, WHETHER EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE.

Notwithstanding anything contained herein to the contrary, the foregoing sets out the purchaser’s sole and exclusive remedies for breach of warranty by AGI in respect of the equipment.

Dealers are not authorized to make any modifications on behalf of AGI, to any of the terms, conditions or limitations of this warranty.

AGI reserves the right to change models and specifications at any time without notice or obligation to improve previous models.





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