AG GROWTH INTERNATIONAL

TUBE BIN UNLOAD SYSTEM

FARM-DUTY (100 SERIES), 8"/10" X 14’-60’ MODELS
ASSEMBLY & OPERATION MANUAL

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-0100262 R4

Revised: Jul/15

This product has been designed and constructed according to general engineering standards[a]. Other local regulations may apply and must be followed by the operator. We strongly recommend that all personnel associated with this equipment be trained in the correct operational and safety procedures required for this product. Periodic reviews of this manual with all employees should be standard practice. For your convenience, we include this sign-off sheet so you can record your periodic reviews.

Date	Employee Signature	Employer Signature

a. Standards include organizations such as the American Society of Agricultural and Biological Engineers, American National Standards Institute, Canadian Standards Association, International Organization for Standardization, EN Standards, and/or others.

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1. Introduction

Thank you for purchasing a AGI U-Trough Bin Unload System. This equipment will allow safe and efficient operation when you read and follow all of the instructions contained in this manual. With proper care, your U-Trough Bin Unload System will provide you with many years of trouble-free operation.

Keep this manual handy for frequent reference and to review with new personnel. A sign-off form is provided on the inside front cover for your convenience. If any information in this manual is not understood or if you need additional information, please contact your local distributor or dealer for assistance.

This manual should be regarded as part of the equipment. Suppliers of both new and second-hand equipment are advised to retain documentary evidence that this manual was provided with the equipment.

1.1. EQUIPMENT PURPOSE

1.1.1. GENERAL DESCRIPTION

The bin unload system is designed to unload dry, free-flowing grains from a flat bottom bin and transfer that grain into another system which moves the grain to another location. Grain is intended to be unloaded first from the center hopper, then intermediate hoppers, and finally by operating the bin sweep. The unload system is designed to be operated with all covers, guards, inspection doors, etc. installed at all times of normal operations and can be operated in any non-extreme weather.

1.1.2. INTENDED USE

This equipment is designed solely for use in customary agricultural or similar operations. Use in any other way is considered as contrary to the intended use. Compliance with and strict adherence to the conditions of operation and maintenance as specified by the manufacturer, also constitute essential elements of the intended use.

This equipment should be operated, maintained, serviced, and repaired only by persons who are familiar with its particular characteristics and who are acquainted with the relevant safety procedures.

Accident prevention regulations and all other generally recognized regulations on safety and occupational medicine must be observed at all times.

Any modifications carried out to this equipment may relieve the manufacturer of liability for any resulting damage or injury.

1.1.3. MISUSE

When operating or maintaining the bin unload system, **NEVER**:

- auger material other than dry, free-flowing grains.
- enter the bin while the unload system is operating.
- unload grain through the center hopper and intermediate hoppers at the same time or unload from the intermediate hoppers before fully unloading from the center hopper.
- empty a bin or operate a bin unload system alone (only one operator).
- fill bin with bin sweep placed in the wrong position; refer to Operation chapter.
- overfeed or overload the bin unload.
- operate the bin unload empty for extended periods of time.
- change the size of the electric motor or pulleys to alter the augering speed.
- operate the sweep with any guards or covers removed.
- modify the equipment in any way.

2. Components Overview

Throughout this manual, names are referred to of various components which together make up the Tube Bin Unload System and are identified in Table 2.1 and Figure 2.1. Only one model is shown in this Table and Figure as a representative; actual lengths/configurations of models vary.

Table 2.1 Major Components of Tube Bin Unload System

Item #	Description
1	Electric Powerhead
2	Center Hopper
3	Underfloor Auger
4	Horizontal Discharge
5	Inclined Discharge (optional)
6	Bin Sweep
7	Intermediate Hopper
8	Bin Plate Adapter and Controls
9	Control Rods (various; for hopper gates and sweep gearbox engagement)
10	Bin Wall
11	Lower Gearbox
12	Upper Gearbox
13	Emergency Sump
14	Sweep Drive

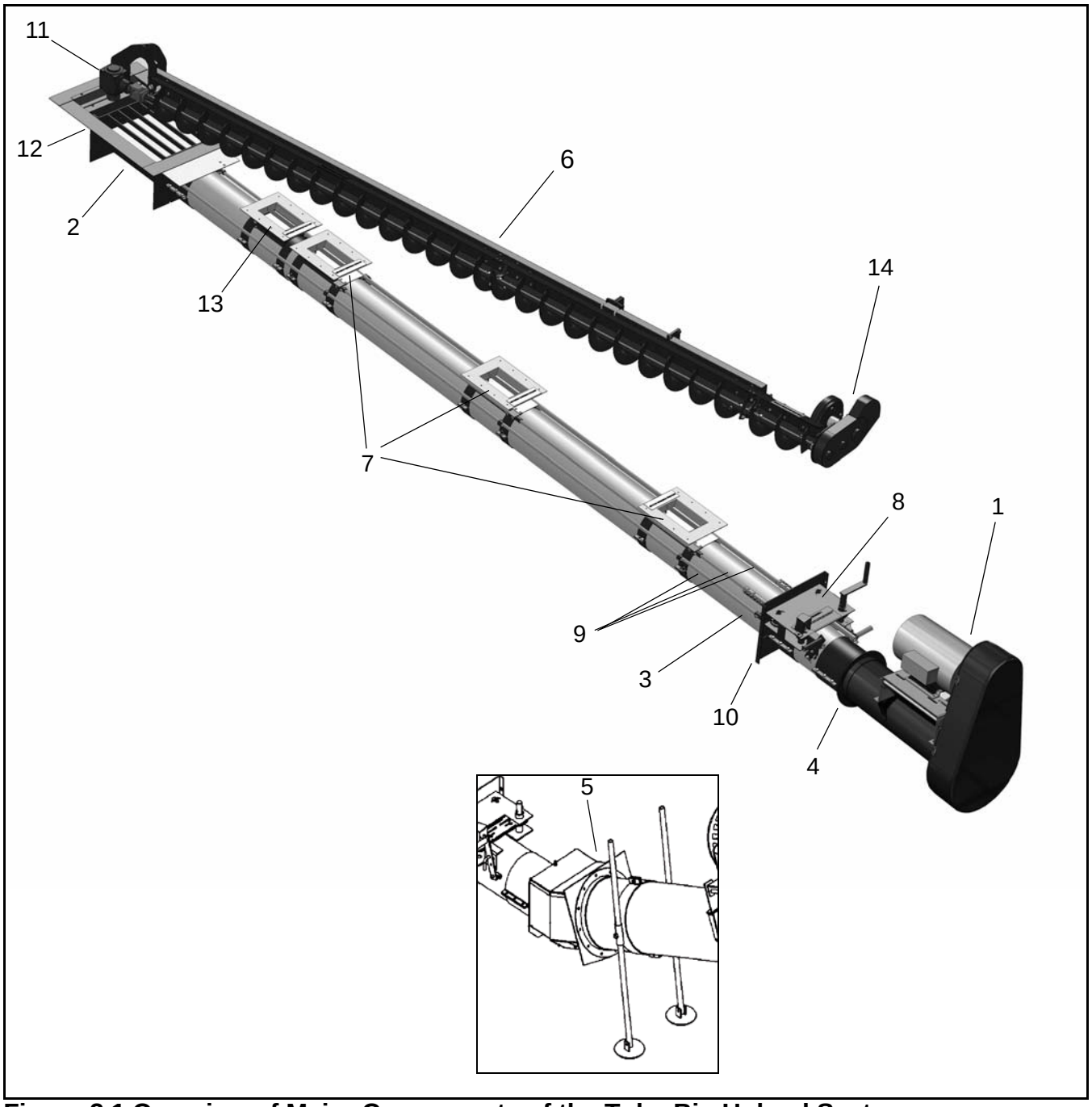


Figure 2.1 Overview of Major Components of the Tube Bin Unload System

Table 2.2 Tube Bin Unload System – Diameter Specifications

Underfloor Tube Diameter	Underfloor Flighting Diameter (Actual)	Sweep Flighting Diameter (Actual)
8”	7”	6”
10”	9”	7”

The Tube Bin Unload System is available for bin diameters 14’ – 60’.

3. Safety

3.1. GENERAL SAFETY INFORMATION

The Safety Alert symbol identifies important safety messages on the product and in the manual. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety messages.

Why is SAFETY important?

- Accidents disable and kill.
- Accidents cost.
- Accidents can be avoided.

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.

YOU are responsible for the **SAFE** use and maintenance of your equipment. **YOU** must ensure that you and anyone else who is going to work around the equipment 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.

Important: *Below are general instructions that apply to all safety practices. Any instructions specific to a certain safety practice (e.g., Operational Safety), can be found in the appropriate section. Always read the complete instructional sections and not just these safety summaries before doing anything with the equipment.*

- It is the equipment 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. All accidents can be avoided.
- Equipment owners must give instructions and review the information initially and annually with all personnel before allowing them to operate this product. Untrained users/operators expose themselves and bystanders to possible serious injury or death.
- Use this equipment for its intended purposes only.
- Do not modify the equipment 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 equipment. Any unauthorized modification of the equipment voids the warranty.
- Do not allow any unauthorized person in the work area.

3.2. OPERATIONAL & MAINTENANCE SAFETY

Operational safety means using common sense and knowing and observing the proper precautions.

- Have another person nearby who can shut down equipment in case of accident. It is good practice to always work with a second person.
- Do not operate equipment with any guard removed.
- Keep body, hair, and clothing away from all moving parts.
- Do not modify equipment in any way. Unauthorized modification may impair function and/or safety, and could affect the life of the equipment.
- Perform maintenance during normal daylight hours or in adequate ambient lighting.

When performing maintenance, understand and observe the following precautions:

- Do not replace or substitute bolts, nuts, or other hardware that is of lesser quality than the hardware supplied. Consult your dealer for proper replacements.
- After maintenance is completed, replace and secure all safety guards, safety devices, service doors, and cleanout covers.
- Do not climb ladder if damaged, wet, icy, greasy, or slippery.

- Maintain good balance by having at least two feet and one hand or two hands and one foot on ladder at all times.
- Use required safety harnesses and climbing equipment. Consult local safety authorities.

3.3. ELECTRIC MOTOR SAFETY

- To prevent serious injury or death, only qualified personnel should service electrical components.
- Keep electrical components in good repair.
- Ground electric motor before using.
- Inspect drive belts before using. Replace if frayed or damaged.

3.4. SAFETY DECALS

- 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.

3.4.1. 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.

3.4.2. SAFETY DECAL LOCATIONS AND DETAILS

Replicas of the safety decals that are attached to the equipment and their messages are shown in the figure(s) that follow. Safe operation of the equipment 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.

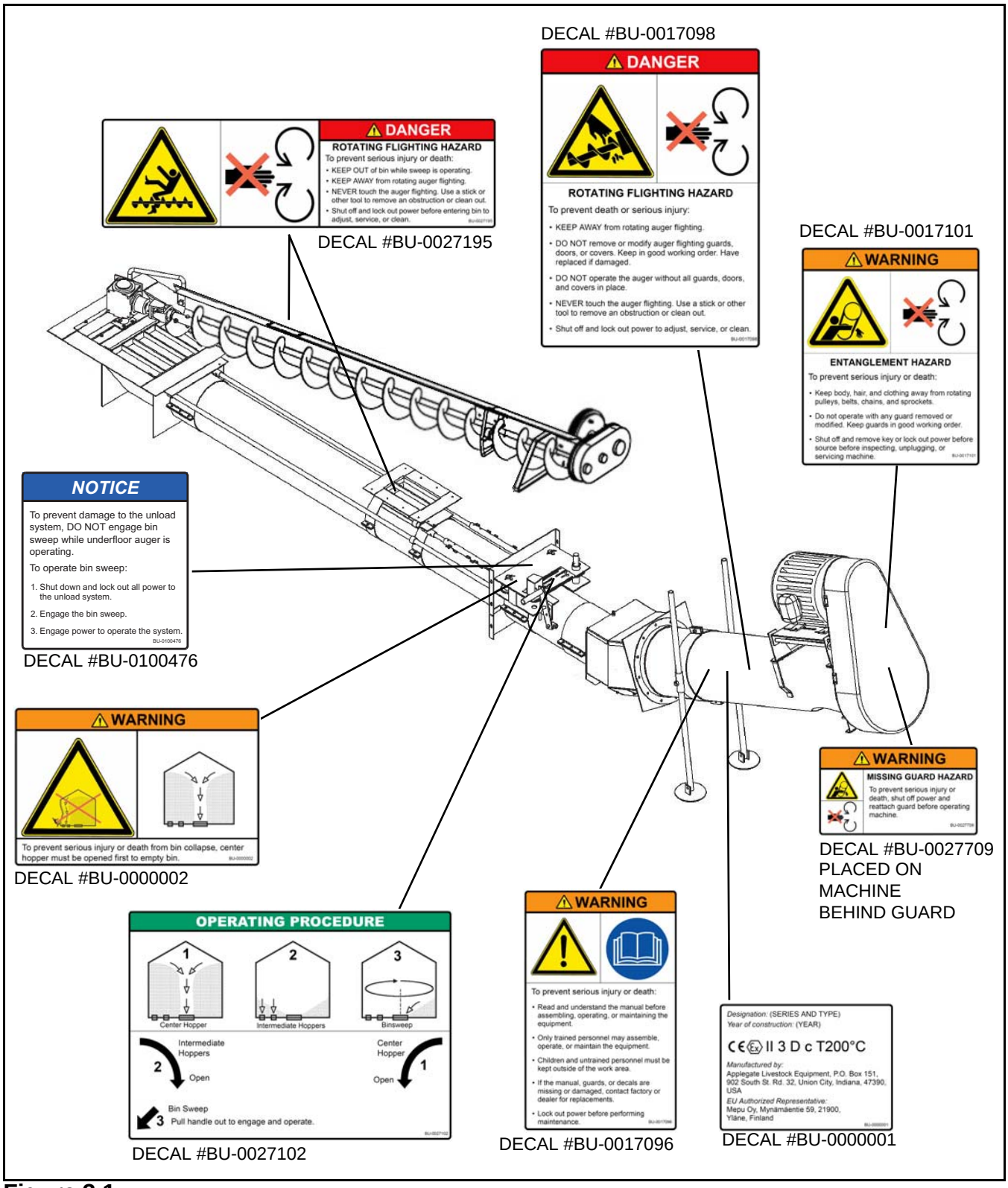
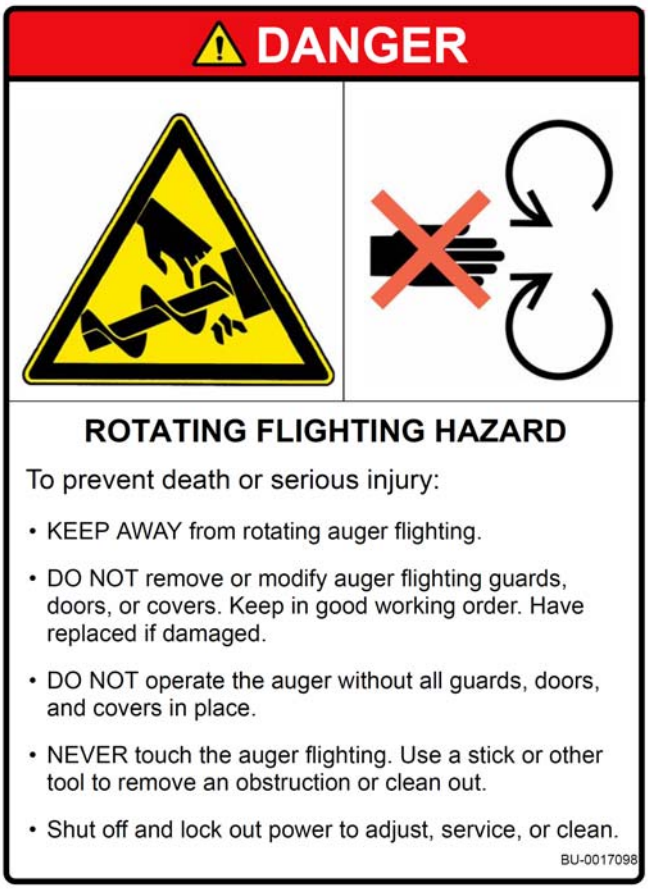

DECAL #BU-0017098
DANGER
ROTATING FLIGHTING HAZARD
To prevent death or serious injury:
• KEEP AWAY from rotating auger flighting.
• DO NOT remove or modify auger flighting guards, doors, or covers. Keep in good working order. Have replaced if damaged.
• DO NOT operate the auger without all guards, doors, and covers in place.
• NEVER touch the auger 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.
DANGER
ROTATING FLIGHTING HAZARD
To prevent serious injury or death:
• KEEP OUT of bin while sweep is operating.
• KEEP AWAY from rotating auger flighting.
• NEVER touch the auger flighting. Use a stick or other tool to remove an obstruction or clean out.
• Shut off and lock out power before entering bin to adjust, service, or clean.
DECAL #BU-0027195
DECAL #BU-0017101
WARNING
ENTANGLEMENT HAZARD
To prevent serious injury or death:
• 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 before source before inspecting, unplugging, or servicing machine.
NOTICE
To prevent damage to the unload system, DO NOT engage bin sweep while underfloor auger is operating.
To operate bin sweep:
1. Shut down and lock out all power to the unload system.
2. Engage the bin sweep.
3. Engage power to operate the system.
DECAL #BU-0100476
WARNING
To prevent serious injury or death from bin collapse, center hopper must be opened first to empty bin.
DECAL #BU-0000002
WARNING
MISSING GUARD HAZARD
To prevent serious injury or death, shut off power and reattach guard before operating machine.
DECAL #BU-0027709
PLACED ON
MACHINE
BEHIND GUARD
OPERATING PROCEDURE
1
2
3
Center Hopper
Intermediate Hoppers
Binsweep
Intermediate Hoppers
2
Open
Center Hopper
Open
1
Bin Sweep
3
Pull handle out to engage and operate.
DECAL #BU-0027102
WARNING
To prevent serious injury or death:
• Read and understand the manual before assembling, operating, or maintaining the equipment.
• Only trained personnel may assemble, operate, or maintain the equipment.
• Children and untrained personnel must be kept outside of the work area.
• If the manual, guards, or decals are missing or damaged, contact factory or dealer for replacements.
• Lock out power before performing maintenance.
DECAL #BU-0017096
Designation: (SERIES AND TYPE)
Year of construction: (YEAR)
II 3 D c T200°C
Manufactured by:
Agplegate Livestock Equipment, P.O. Box 151, 902 South St. Rd. 32, Union City, Indiana, 47390, USA
EU Authorized Representative:
Mepu Oy, Mynämäentie 59, 21900, Ylane, Finland
DECAL #BU-0000001

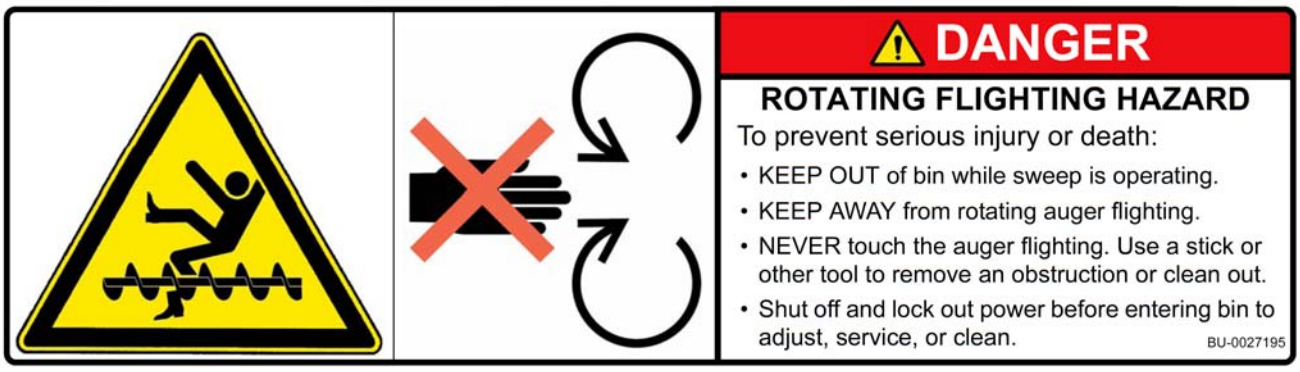
Figure 3.1



DECAL #BU-0017098

DECAL #BU-0017101

DECAL #BU-0027709



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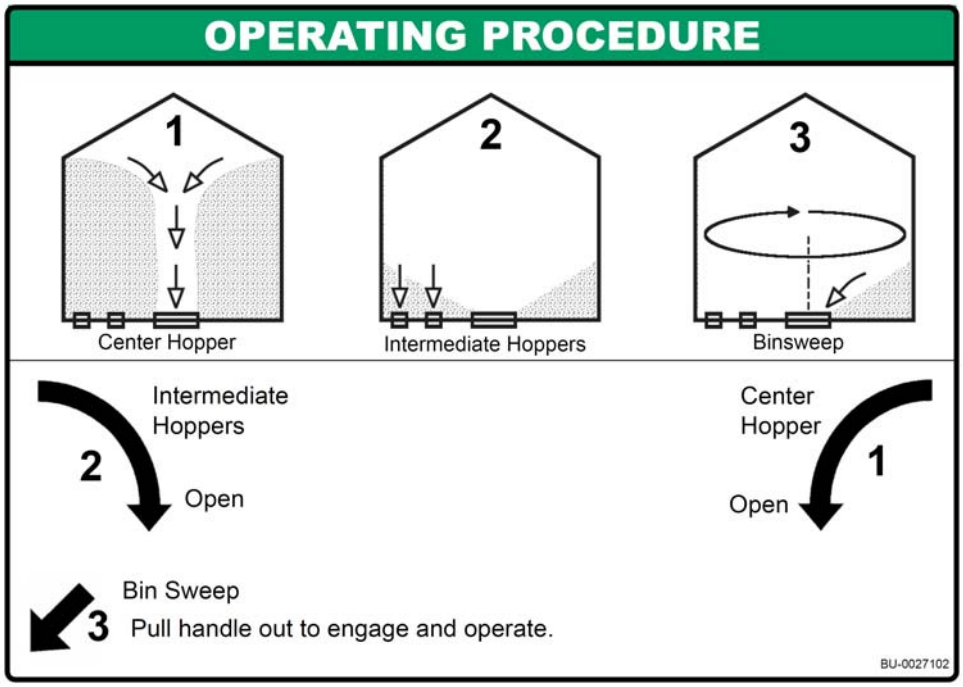
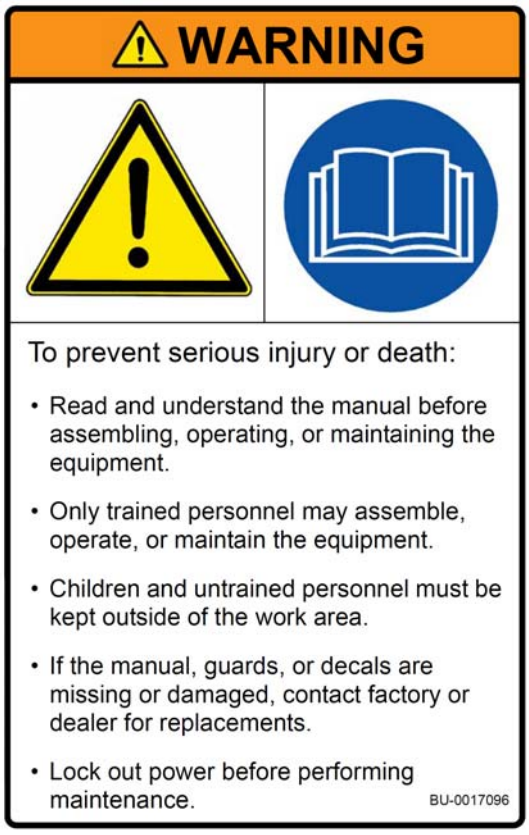
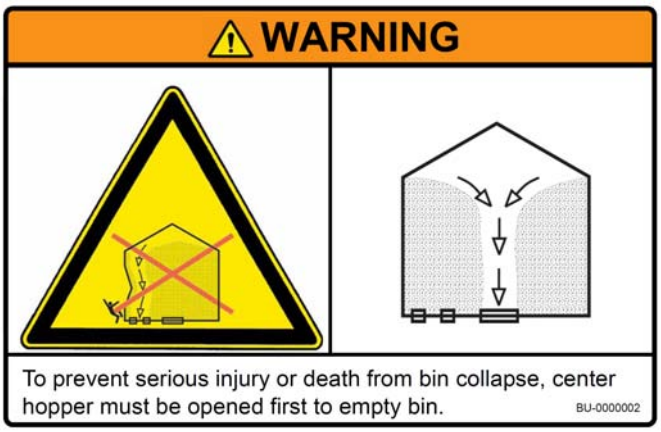


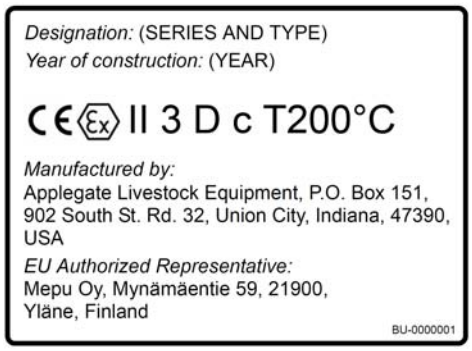
DECAL #BU-0027102



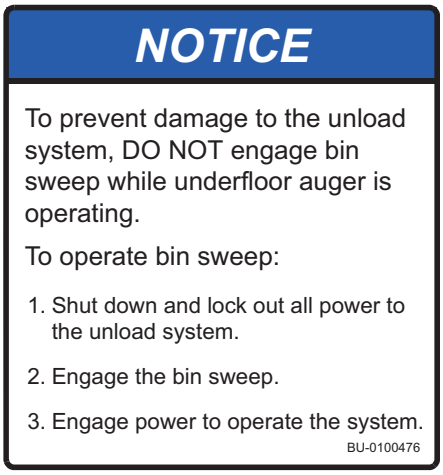
DECAL #BU-0017096



DECAL #BU-0000002



DECAL #BU-0000001



DECAL #BU-0100476

4. Assembly

WARNING *Before continuing, ensure you have read and understand the relevant information in the safety section. Safety information is provided to help prevent serious injury, death, or property damage.*

Before beginning assembly, familiarize yourself with all the sub-assemblies and hardware making up the auger. Have all parts on hand and arrange them for easy access. Carry out assembly in a large open area with a level surface.

Important: *Always have 2 or more people assembling the equipment. Because of the weight, do not attempt assembly alone.*

➡ Augers are available in various combinations. In most cases, the following instructions will apply to all augers. Where the assembly information varies, additional instructions will be included and will be indicated with an arrow.

4.1. CENTER HOPPER LAYOUT

Note: *Before starting, ensure that lower gearbox (installed on center hopper) is half full of EP90 lube oil. See page 51 for more details.*

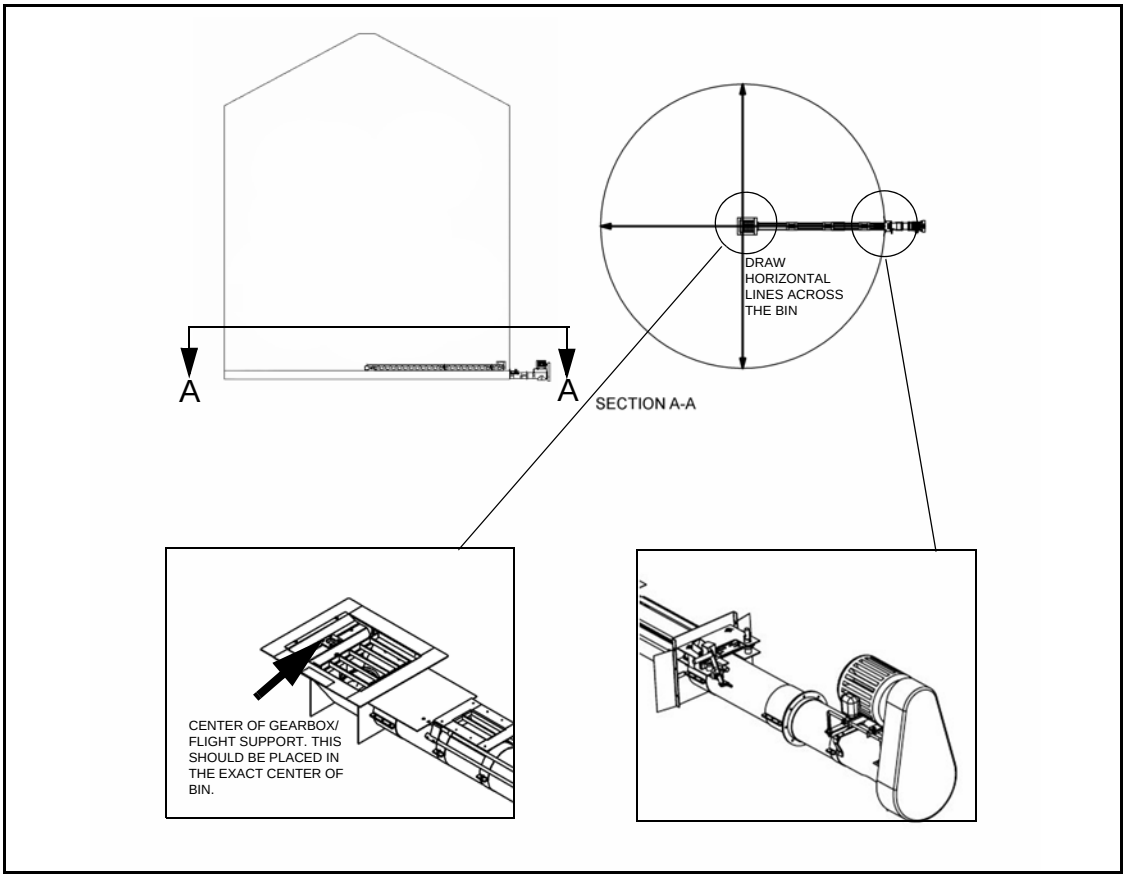


Figure 4.1

Find the exact center of the bin by measuring horizontal lines across the bin (Figure 4.1). Place the center of the gearbox shaft at the intersection of these two lines.

4.2. FLIGHT SUPPORT (OPTIONAL)

See Figure 4.2.

1. Remove the 2 self-tapping screws and access cover from center hopper.
2. Place support tube inside of flight support base. Secure with a 5/16” x 1-3/4” bolt and locknut. Tighten securely.
3. Reinstall access cover on center hopper and secure with 2 self-tapping screws (removed previously).

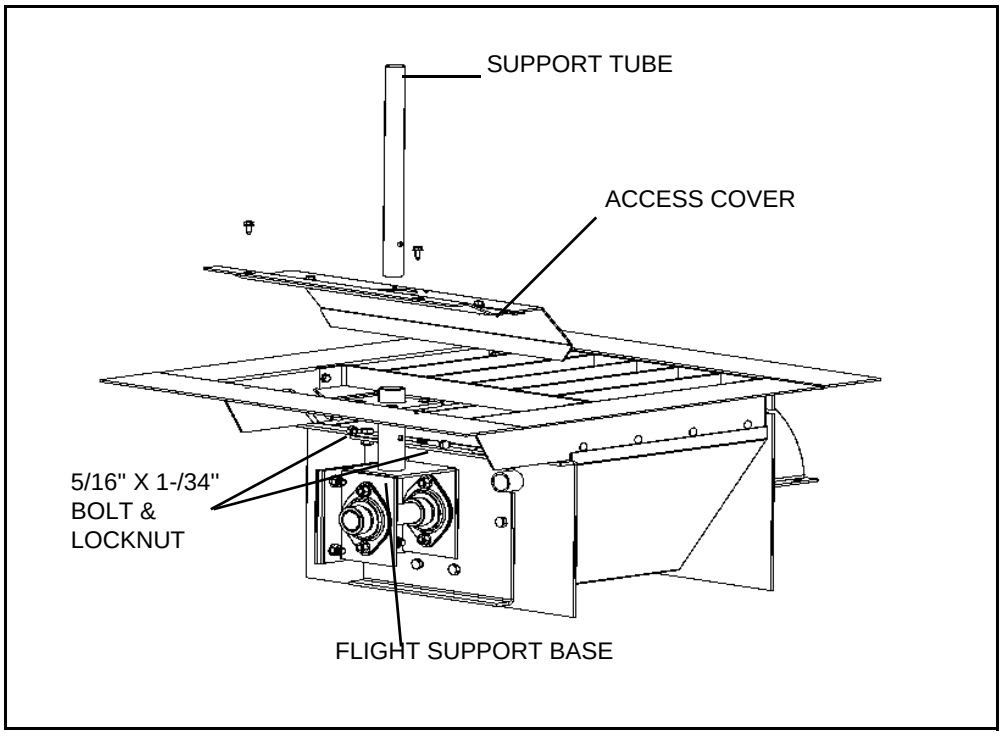


Figure 4.2

WARNING	
	Do not drop. Damage to equipment or serious personal injury will result.

4.3. UNLOAD TUBE

Note: *Remove flighting before installing galvanized tube section for better handling and ease of assembly.*

1. Install galvanized tube section as seen in Figure 4.15 to 4.19. Match the tube configurations to the figure corresponding to your bin diameter.

Important: *When installing galvanized tube section, ensure that tube weld seam faces up. Failure to do so will result in excessive tube wear.*

2. Cut hole in the bin wall at location designated for discharge spout. Hole should measure approximately 11" wide x 11" high (Figure 4.3).

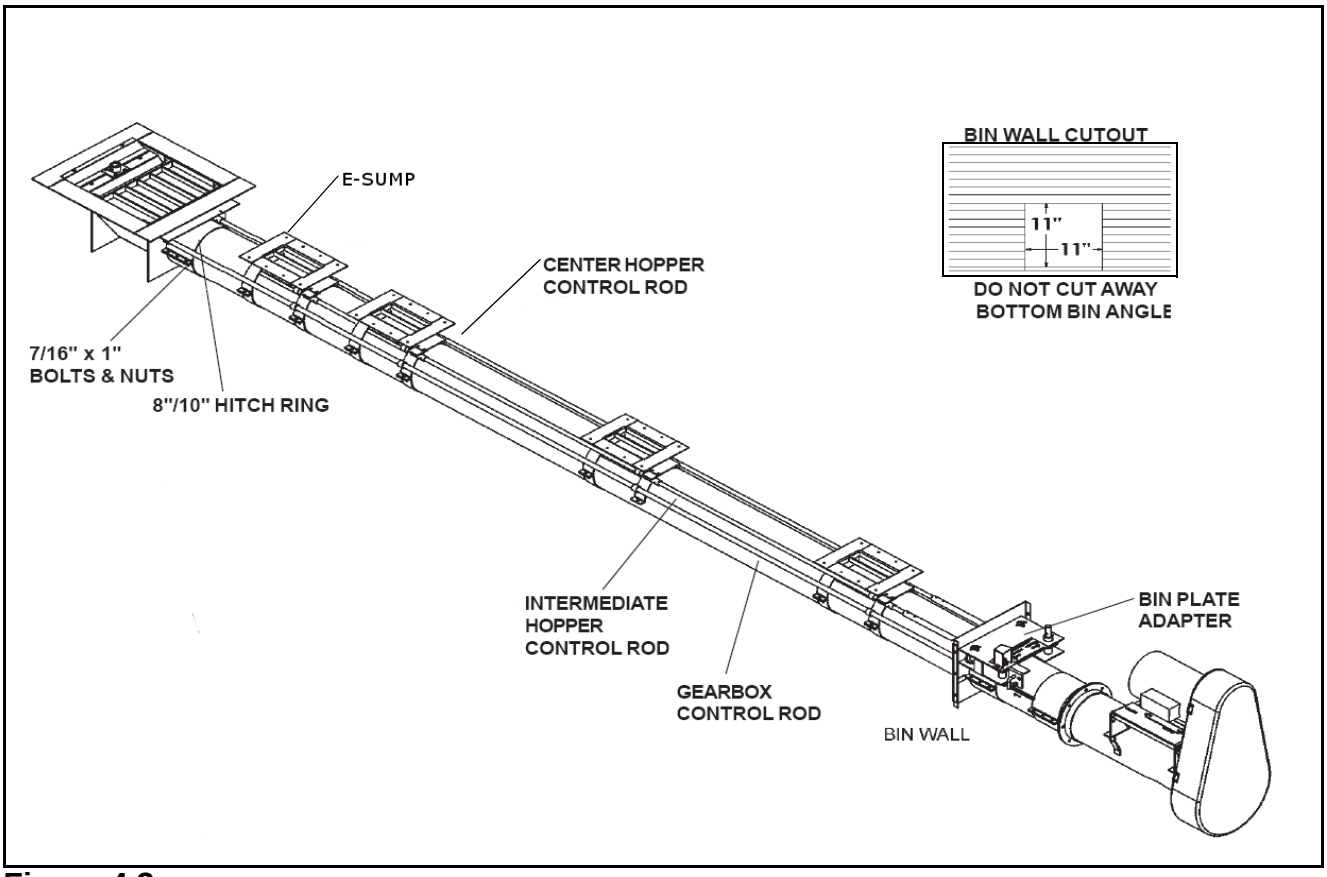


Figure 4.3

3. Place galvanized tube section inside the bin and make sure that the tube end with “DISCHARGE” written on it is facing towards the outside of bin (Figure 4.15 to 4.19).
   - Connect the opposite tube end to the center hopper.
   - The end of the tube section should fit flush with inside of center hopper.
4. Secure tube using 8"/10" hitch ring supplied (Figure 4.3) and six 7/16” x 1" bolts and whiznuts. Tighten securely.

NOTICE

Ensure that center hopper, E-Sump (when installed), intermediate hoppers, and bin plate adapter are all level with each other during installation.

5. Tube sections should be leveled and if necessary use shims (not supplied) every 10’ of the tube assembly to ensure level variation is not more than 1/4” per 10’ span or not more than 1/2” for whole tube assembly.

4.4. BIN PLATE ADAPTER

1. Adjust the top bin plate adapter along the tube until it is even with the bin wall.
2. Clamp the bottom bin plate adapter to the top bin plate adapter using six 7/16" x 1" bolts and whiznuts. Leave clamp loose for further adjustment.
3. Assemble gearbox shifter as shown in Figure 4.4. Attach it to top bin plate adapter using a 7/16" x 1" bolt as a pivot. Do not tighten locknut completely, just snug enough to allow free movement of the gearbox shifter.

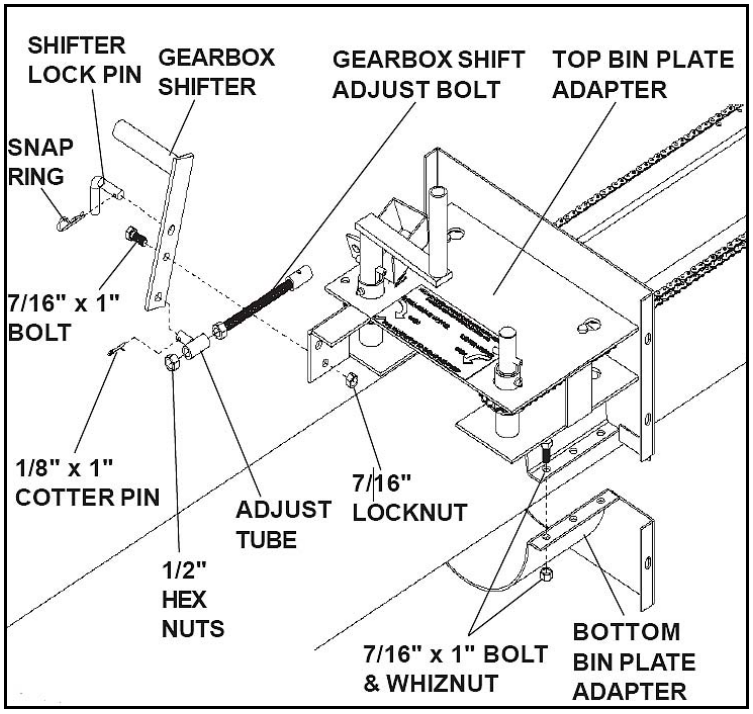


Figure 4.4

4. Assemble adjust tube to gearbox shifter as shown in Figure 4.4. Secure adjust tube with a 1/8" x 1" cotter pin.
5. Thread a 1/2" hex nut onto gearbox shift adjust bolt; then slide adjust bolt through the adjust tube. Thread remaining 1/2" hex nut onto adjust bolt. Leave adjust tube loose for later adjustment.
6. Lock gearbox shifter into position with shifter lock pin. Secure this pin using supplied snap ring.

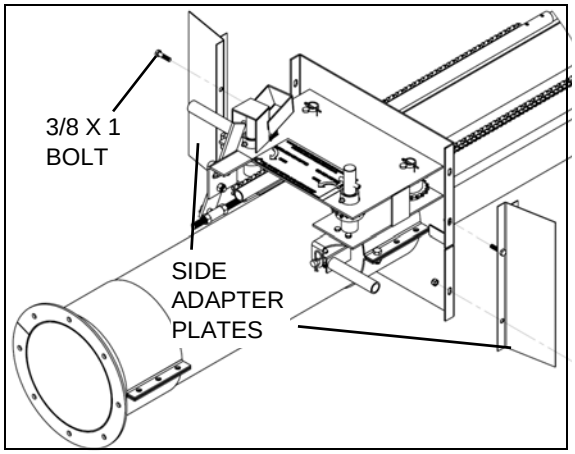


Figure 4.5

7. Using the four 3/8 x 1” bolts and nuts, secure the side adapter plates (not provided) as shown in Figure 4.5.
8. Tighten bolts and whiznuts on clamps connecting top and bottom bin plate adapters.

4.5. CONTROL ROD

Important: *The bin unload system comes with 3 different sizes of control rods which are already installed on the galvanized tube bundle. It is up to you to connect them into the proper places.*

1. Undo all wires/straps on galvanized tube to allow control rods to move freely. Punched out two holes (7/8”) in the top bin plate adapter to accommodate gearbox control rod and E-Sump control rod (if provided).
2. The middle length of control rod is used for center hopper gate. Insert control rod into coupler on center hopper (Figure 4.6) and attach using two 1/4” x 1-1/2” bolts and nylock nuts. Tighten securely.

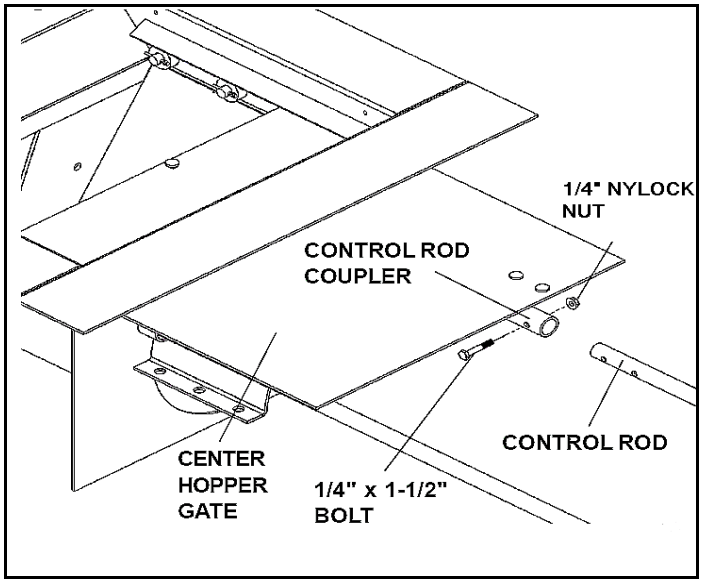


Figure 4.6

3. Close center hopper gate completely.
4. At opposite end of control rod, slide on center hopper control rod pinion (tube with chain welded on) as seen in Figure 4.7.
   - The holes on this pinion piece should be facing towards the center hopper as shown.
   - Slide this piece towards the center hopper and feed it through 7/8” hole in the bin plate adapter as far as it can go.

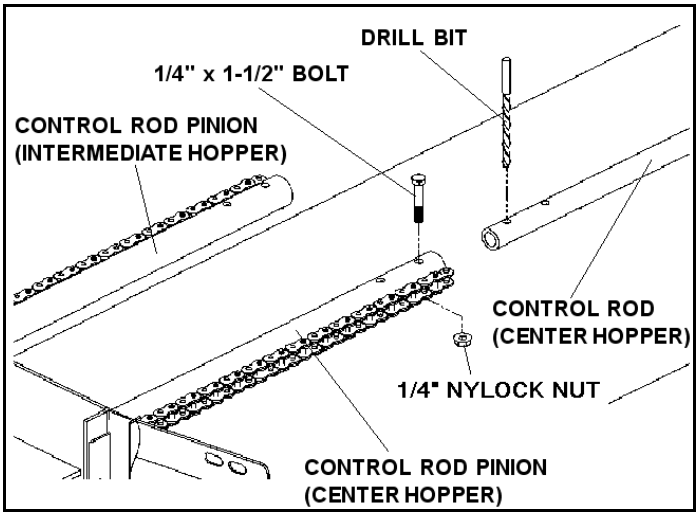


Figure 4.7

5. Make sure center hopper gate is still closed. Using the two holes in the control rod pinion as guides, drill two holes (using a drill bit large enough to accommodate a 1/4" size bolt, such as 17/64") through the control rod.
6. Attach using two 1/4" x 1-1/2" bolts and nylock nuts. Tighten securely.
7. The shortest length of control rod has been installed into the intermediate hoppers by the manufacturer. Close all intermediate hopper lids completely.

8. Repeat steps 4.-6. for the intermediate hopper control rod, using opposite side of bin plate adapter.
9. The longest length of control rod is for the lower gearbox (on center hopper).
   - Insert control rod into gearbox coupler (on gearbox) and attach using 1/4” x 1-1/2” bolt and nylock nut. Tighten securely (Figure 4.8).

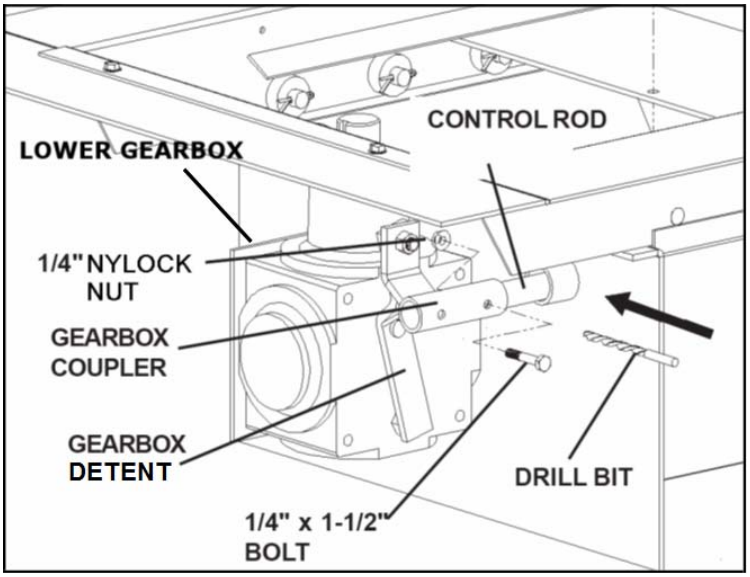


Figure 4.8

Note: *Even if flight support option has been purchased, please install the gearbox control rod; it may be needed at a later date.*

10. Move gearbox detent to its forward position - this is the “engaged” position, where bottom gearbox shaft is engaged into top gearbox shaft on bin set up.
11. At opposite end of control rod, using the first hole in control rod coupler as a guide, drill a hole (3/4” from end of control rod) through the control rod. Attach the control rod into coupler, using a 1/4” x 1-1/2” bolt and nylock nut (Figure 4.9). Tighten securely.
12. Insert gearbox shift adjust bolt into opposite end of control rod coupler, and tighten securely with a 1/4” x 1-1/2” bolt and nylock nut (Figure 4.9).
13. With gearbox shift lever locked in “engaged” position (lever handle is pulled back away from bin wall), tighten shift adjust tube into place using two 1/2” hex nuts on either side.

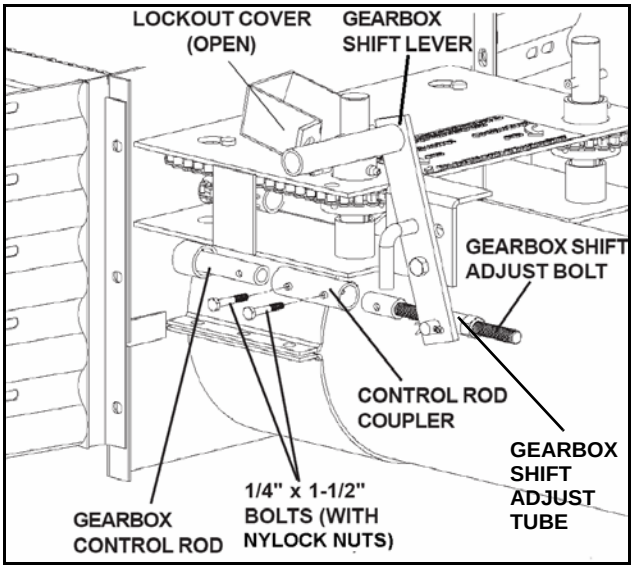


Figure 4.9

Important: *During assembly, the shift adjust tube must be properly adjusted so that during operation, the lower gearbox detent remains firmly in position. To do this, adjust the shift adjust tube so that **slight** force (exerted by operator pulling on the handle) is required to lock the gearbox shift lever into the “engaged” position with the locking pin. Pinning the control rod under this compressive force helps prevent the gearbox detent from disengaging during operation.*

14. Remove the lock pin and try shifting the gearbox between “disengaged” and “engaged”, ensuring smooth operation.

NOTICE

Lock gearbox shift lever into engaged or disengaged position at all times during operation. Failure to do so will result in damage to gearbox.

➡ *Only continue with the following steps if there is E-Sump to assemble. If not, continue to step 19.*

15. Slide the E-Sump control rod through the 7/8” hole in the top bin plate adapter, through the control rod brackets and until the pre-drilled holes in the E-Sump control rod line up with the holes in the E-Sump gate coupler (Figure 4.10 and 4.11). Attach the E-Sump control rod to the gate coupler using two 1/4” x 1-1/2” bolts and locknuts.

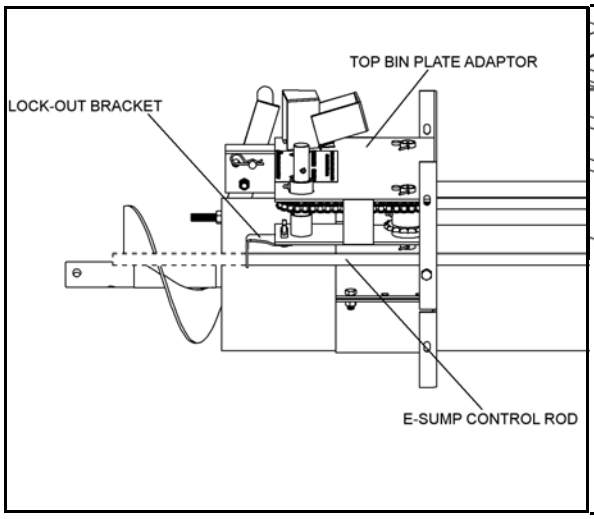


Figure 4.10

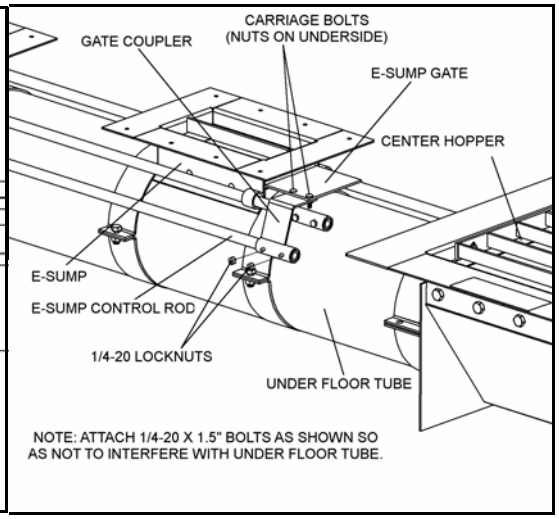


Figure 4.11

16. Insert the handle support rod through the lock-out bracket and the E-Sump control rod. Attach the hitch pin clip through the hole in the handle support rod (Figure 4.12).
17. Secure handle assembly through the handle support rod and E-Sump control rod using two 1/4” x 1-1/2” bolts and locknuts provided (Figure 4.13).

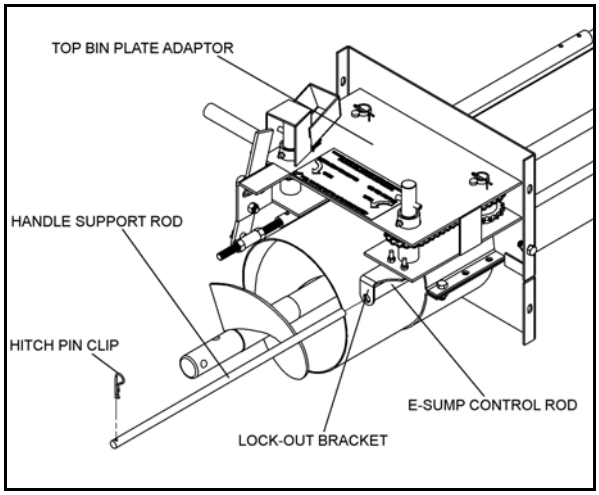


Figure 4.12

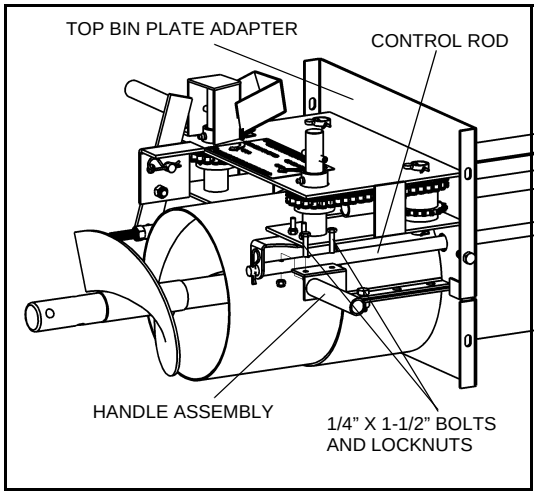


Figure 4.13

18. Check the E-Sump performance by removing the hitch pin clip and sliding the E-Sump handle assembly in and out. Check for interferences and make sure the E-Sump opens and closes completely

Note: *The E-Sump is designed to work as a back-up or alternate unloading system for 36' and up models. It cannot be opened when the center hopper gate is open. This should be confirmed during installation.*

19. Now you can finish installing the aeration floor.
    - Floor planks should run perpendicular to the tube and auger.

Note: *Tighten all bolts and nuts before the aeration floor planks are completely laid in. Check the function of the center hopper gate and intermediate hopper gates as well as lower gearbox engagement periodically during floor installation to ensure no control mechanisms interfere with the floor supports.*

20. Once aeration floor installation is finished, use the self-tapping screws provided and screw the top plates of each hopper and E-Sump (if installed) to the bin floor.

4.6. INTERMEDIATE HOPPER—LOCKOUT PROCEDURES

1. Once the underfloor tube installation is finished, close all the intermediate hopper lids completely. Flip the lockout cover over the shaft and lockout the cover to the bin plate adapter with a padlock (supplied by customer) (Figure 4.9 and 4.14).
2. Keep the key to the padlock in a safe place. You will need to unlock the padlock for your operation of the bin unload system (Section 5.3. Break-In and Normal Unload Operating Procedure When Emptying Bin on page 46).

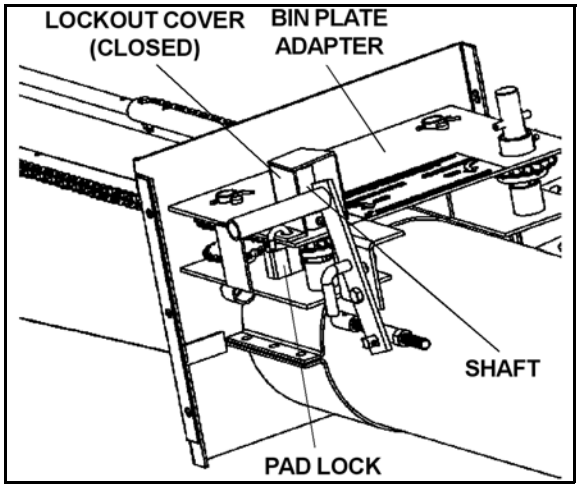


Figure 4.14

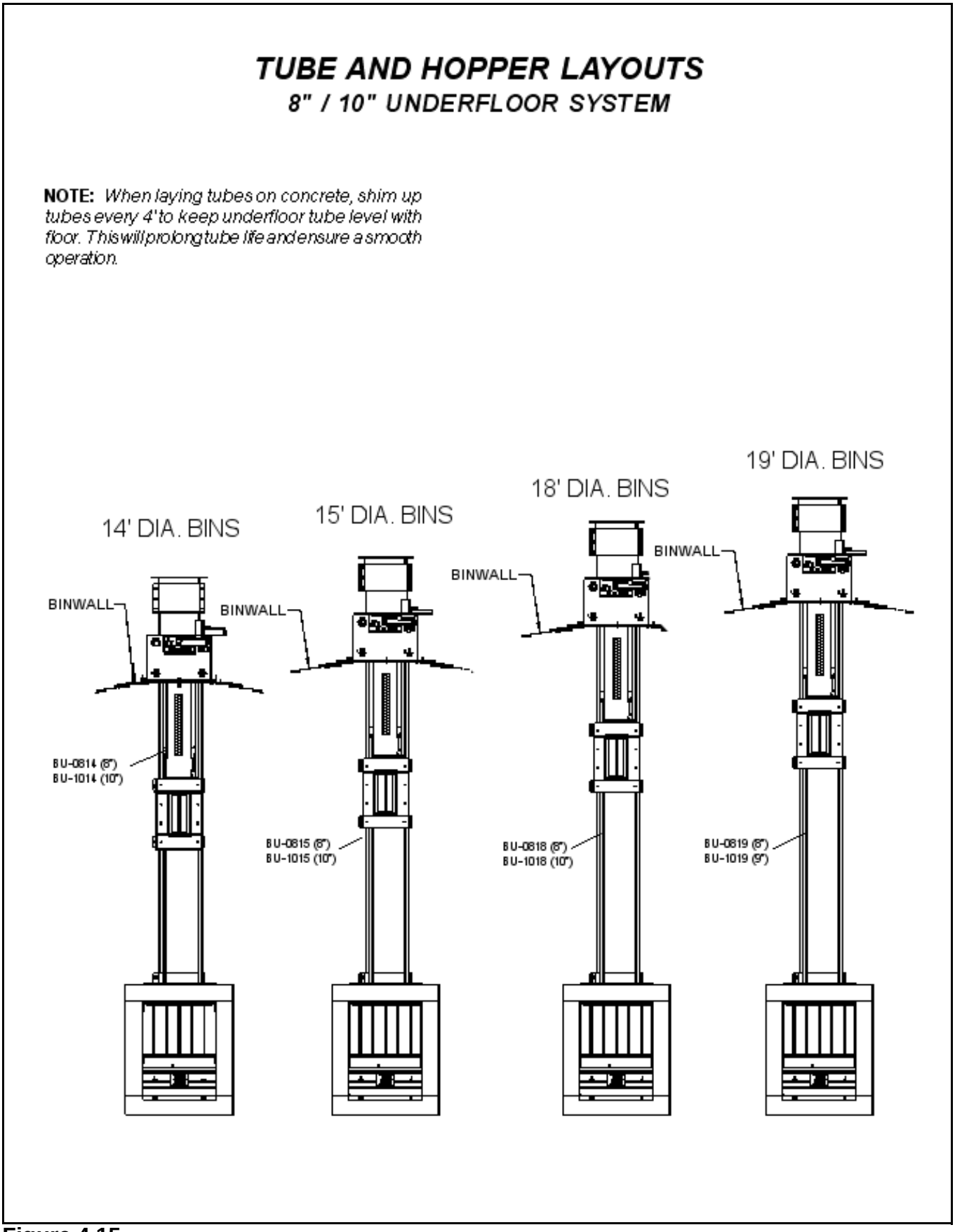

TUBE AND HOPPER LAYOUTS
8" / 10" UNDERFLOOR SYSTEM
NOTE: When laying tubes on concrete, shim up tubes every 4' to keep underfloor tube level with floor. This will prolong tube life and ensure a smooth operation.
14' DIA. BINS
15' DIA. BINS
18' DIA. BINS
19' DIA. BINS
BINWALL
BINWALL
BINWALL
BINWALL
BU-0814 (8")
BU-1014 (10")
BU-0815 (8")
BU-1015 (10")
BU-0818 (8")
BU-1018 (10")
BU-0819 (8")
BU-1019 (9")

Figure 4.15

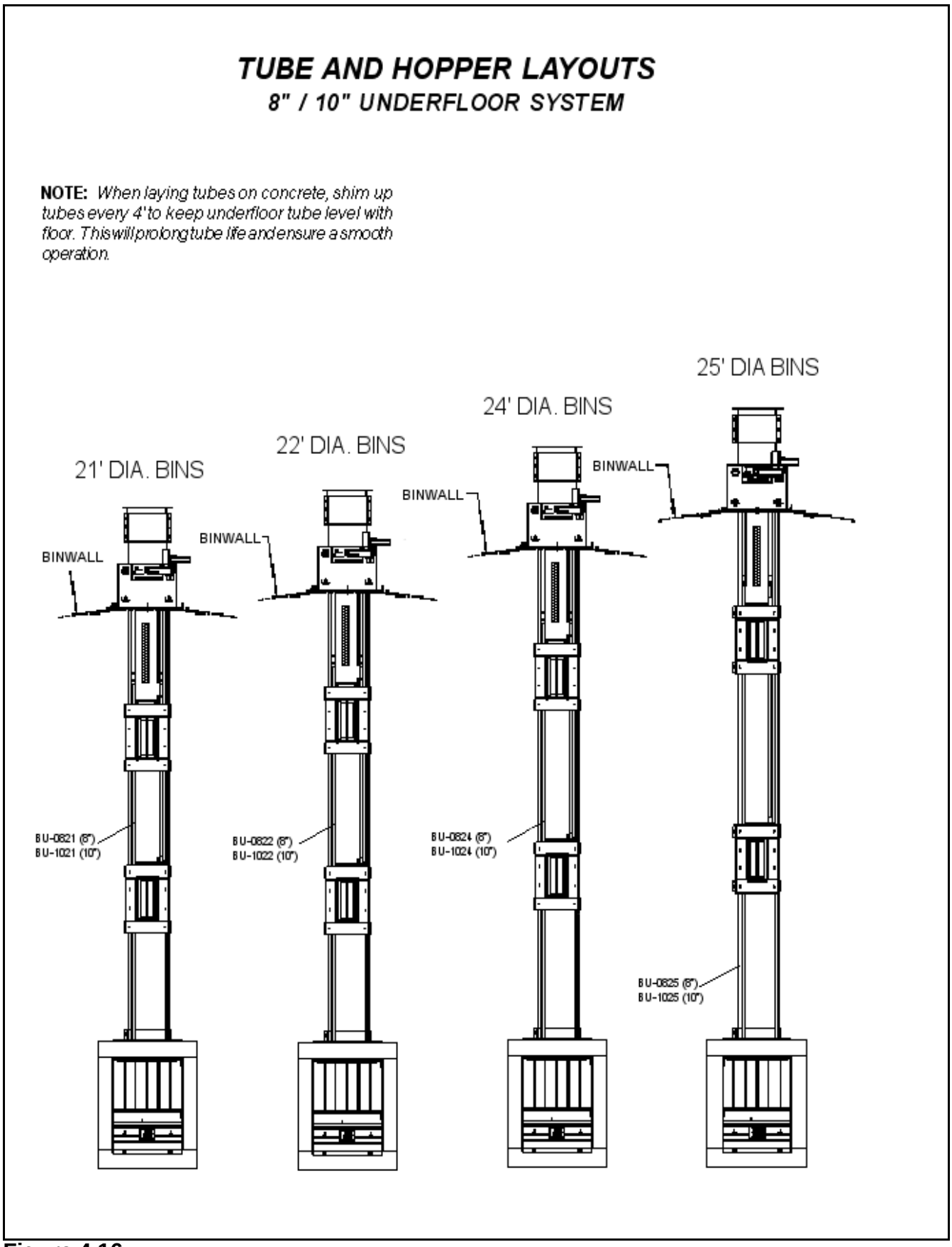

TUBE AND HOPPER LAYOUTS
8" / 10" UNDERFLOOR SYSTEM
NOTE: When laying tubes on concrete, shim up tubes every 4' to keep underfloor tube level with floor. This will prolong tube life and ensure a smooth operation.
21' DIA. BINS
22' DIA. BINS
24' DIA. BINS
25' DIA BINS
BINWALL
BINWALL
BINWALL
BINWALL
BU-0821 (8")
BU-1021 (10")
BU-0822 (8")
BU-1022 (10")
BU-0824 (8")
BU-1024 (10")
BU-0825 (8")
BU-1025 (10")

Figure 4.16

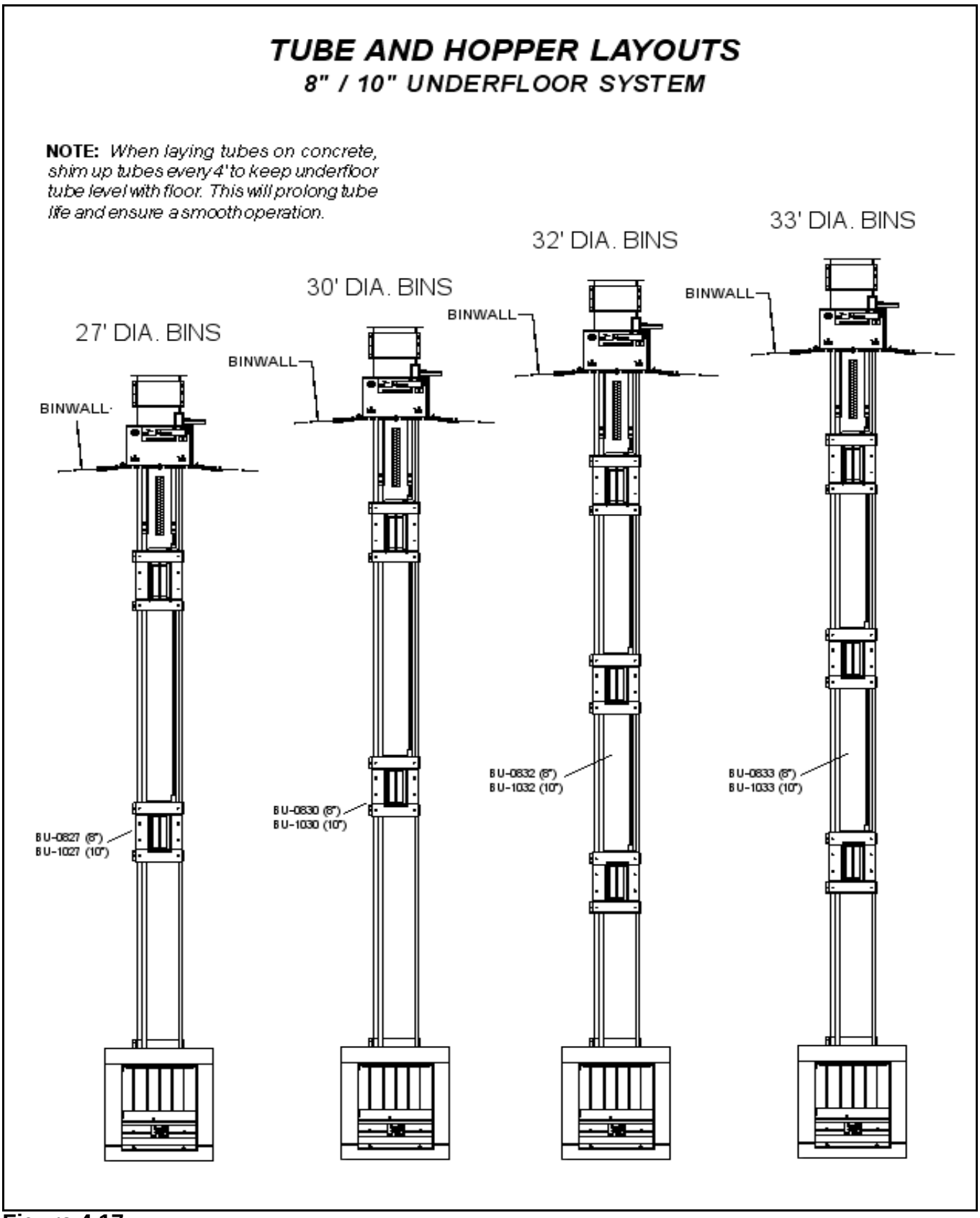

TUBE AND HOPPER LAYOUTS
8" / 10" UNDERFLOOR SYSTEM
NOTE: When laying tubes on concrete, shim up tubes every 4' to keep underfloor tube level with floor. This will prolong tube life and ensure a smooth operation.
27' DIA. BINS
30' DIA. BINS
32' DIA. BINS
33' DIA. BINS
BINWALL
BU-0627 (8")
BU-1027 (10")
BU-0630 (8")
BU-1030 (10")
BU-0632 (8")
BU-1032 (10")
BU-0633 (8")
BU-1033 (10")

Figure 4.17

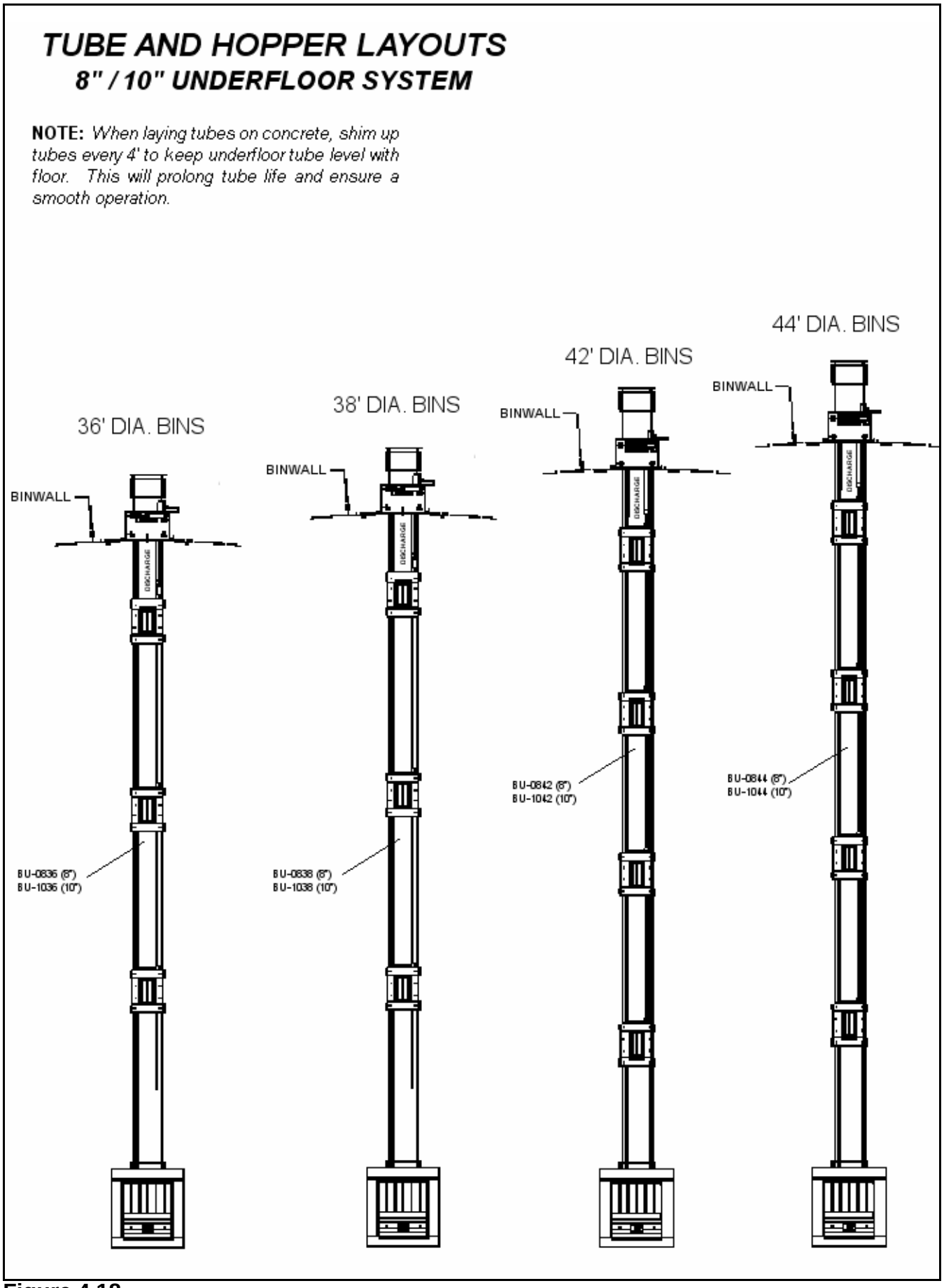

TUBE AND HOPPER LAYOUTS
8" / 10" UNDERFLOOR SYSTEM
NOTE: When laying tubes on concrete, shim up tubes every 4' to keep underfloor tube level with floor. This will prolong tube life and ensure a smooth operation.
36' DIA. BINS
BINWALL
DISCHARGE
BU-0836 (8")
BU-1036 (10")
38' DIA. BINS
BINWALL
DISCHARGE
BU-0838 (8")
BU-1038 (10")
42' DIA. BINS
BINWALL
DISCHARGE
BU-0842 (8")
BU-1042 (10")
44' DIA. BINS
BINWALL
DISCHARGE
BU-0844 (8")
BU-1044 (10")

Figure 4.18

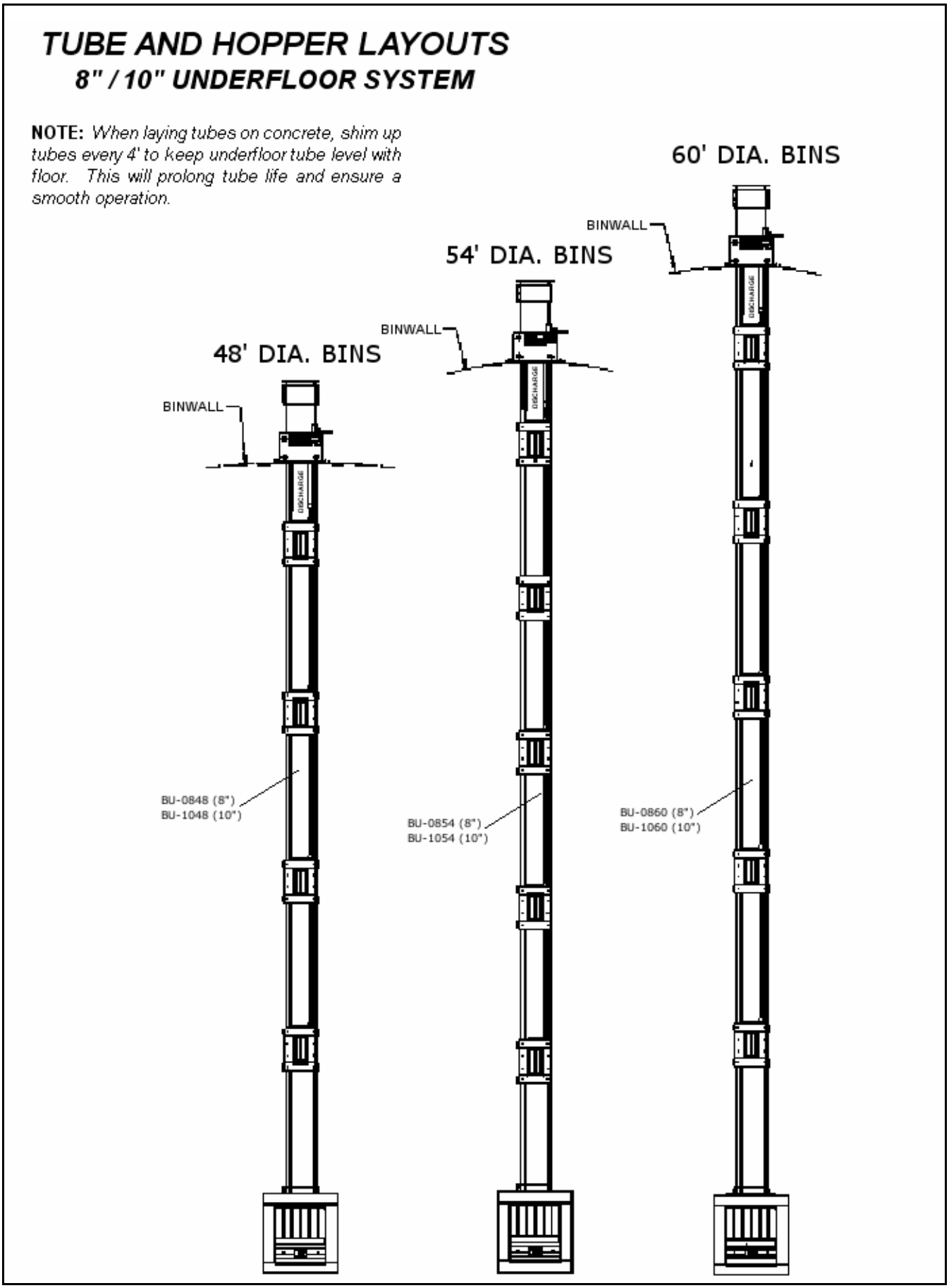

TUBE AND HOPPER LAYOUTS
8" / 10" UNDERFLOOR SYSTEM
NOTE: When laying tubes on concrete, shim up tubes every 4' to keep underfloor tube level with floor. This will prolong tube life and ensure a smooth operation.
48' DIA. BINS
BINWALL
BU-0848 (8")
BU-1048 (10")
54' DIA. BINS
BINWALL
BU-0854 (8")
BU-1054 (10")
60' DIA. BINS
BINWALL
BU-0860 (8")
BU-1060 (10")
DISCHARGE

Figure 4.19

4.7. UNDERFLOOR FLIGHTING

1. Attach the short center hopper flighting piece to the appropriate end of the underfloor flighting. As shown in Figure 4.20, slide the connector stub into the short flighting piece.
2. To ensure continuous flow, make sure the flight ends butt together and flighting spiral matches up.
3. Fasten these pieces together using two 7/16” x 2-1/4” (for 8" system) or two 1/2” x 2-3/4” bolts (for 10" system) and locknuts. Tighten securely.

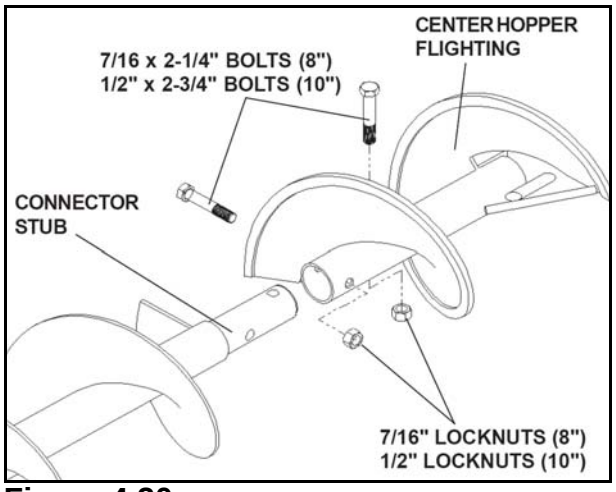


Figure 4.20

WARNING

Do not drop. Damage to equipment or serious personal injury will result.

4. Slide flighting sections into open end of galvanized underfloor tube with center hopper flighting first. Slide flighting almost all the way into center of bin, leaving only a short section sticking past the end of the tube in preparation for the installation of an underfloor discharge.

4.8. CLAMP-ON ANGLE RING

1. With clamps facing back towards the center of bin, slide clamp-on angle ring onto the end of the galvanized underfloor tube (Figure 4.21).
2. Slide ring on until the end of the angle ring is flush with the end of the tube. Secure angle ring to the tube using six 7/16” x 1" bolts and whiznuts; tighten bolts and nuts securely.

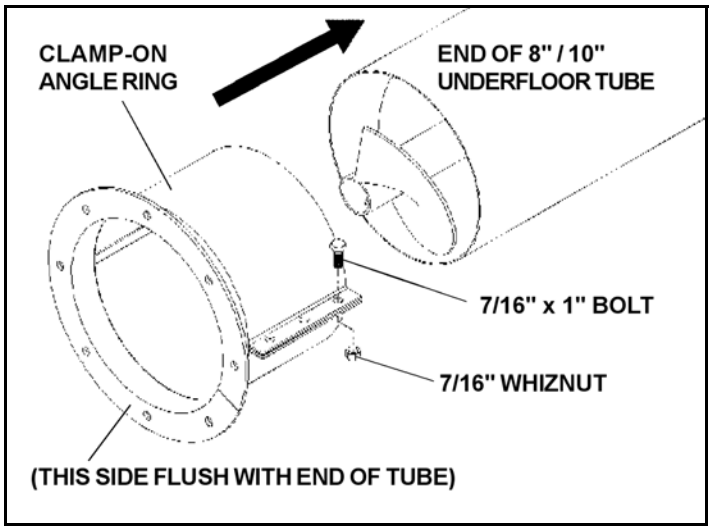


Figure 4.21

4.9. INCLINE DISCHARGE

Note: *The 8" and 10" underfloor systems each have two available powerhead options: an inclined tube discharge, or a shorter horizontal tube discharge. To install the short horizontal tube, skip ahead to* ***"Horizontal Discharge" on page 33****. To install the incline tube, continue with the following steps:*

1. Pull out underfloor flighting far enough to access the two holes in the end of flighting pipe.
2. As seen in Figure 4.22, install transition stub shaft using two 7/16" x 2-1/4" (for 8" system) or two 1/2" x 2-3/4" bolts (for 10" system) and locknuts. Tighten securely.
3. Push underfloor flighting all the way into the underfloor tubing, ensuring that opposite end of flighting is secured against the stub shaft in the center hopper.

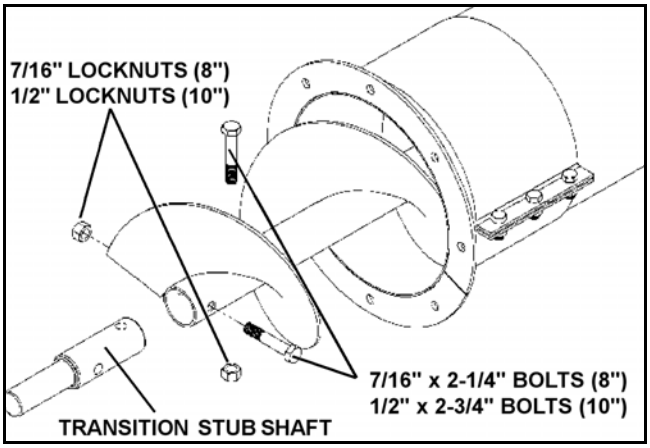


Figure 4.22

Important: *Clean shaft and bushing support of all debris before fitting together*

4. Slide bushing support (attached to transition box Figure 4.23) onto transition stub shaft.
5. Secure transition box to clamp-on angle ring using eight 7/16" x 1" bolts and locknuts (Figure 4.23). Tighten securely.
6. Slide u-joint and 1/4" square key onto remainder of transition stub shaft. Leave u-joint loose, in preparation for later adjustment.
7. Insert woodruff key into lower flight stub shaft (Figure 4.24), and then attach lower flight stub shaft onto u-joint. Secure with set screws.

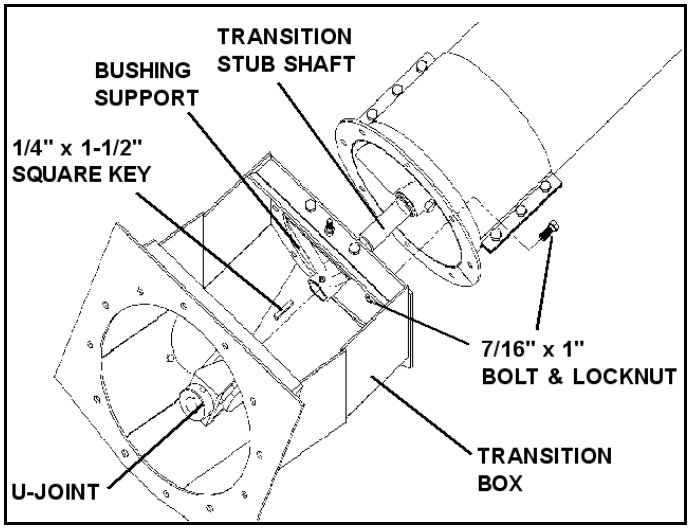


Figure 4.23

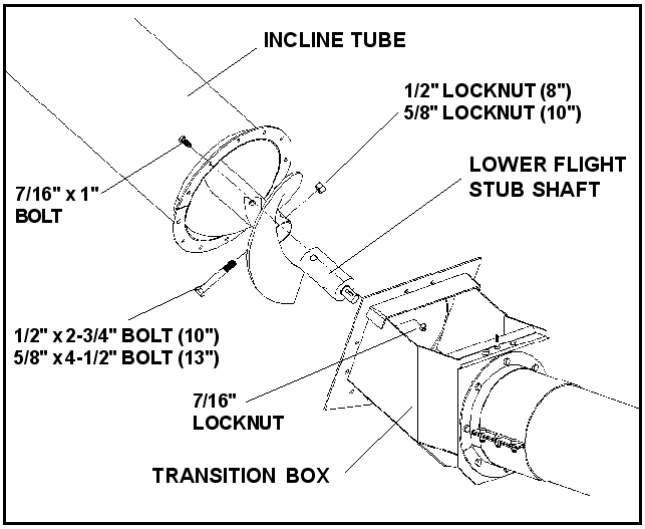


Figure 4.24

8. To attach incline tube to transition box, slide lower flight stub shaft into incline flighting tube (Figure 4.24). Line up holes and secure with two 1/2” x 2-3/4” bolts and locknuts for 10" incline, or two 5/8” x 4-1/2” bolts and locknuts for 13" incline. Finish attaching incline tube to other side of transition box using twelve 7/16” x 1" bolts and locknuts. Tighten securely.
9. Using the 3/8” locknut provided, attach transition lid to transition box as shown in Figure 4.25.
10. Once lid is in place, tighten locknut securely.
11. Install incline adjust clamps onto tube as shown in Figure 4.26. Using two 7/16” x 1-1/4” bolts and whiznuts, tighten clamps approximately halfway up the tube.

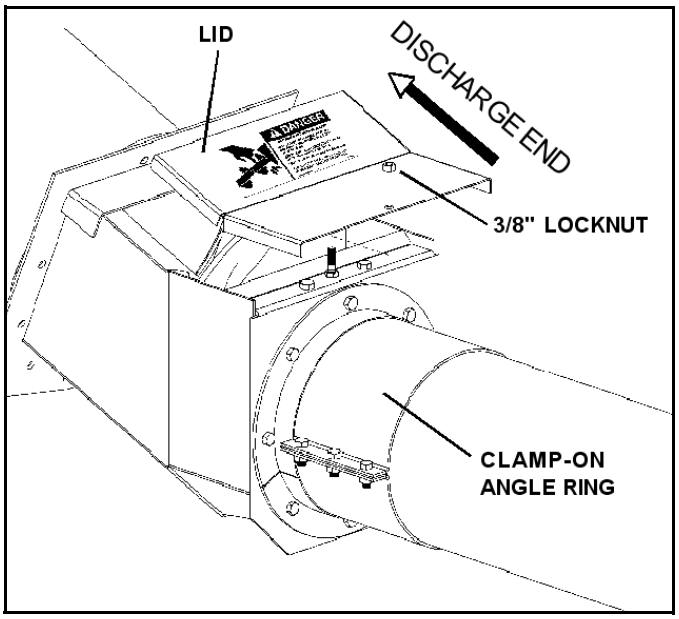


Figure 4.25

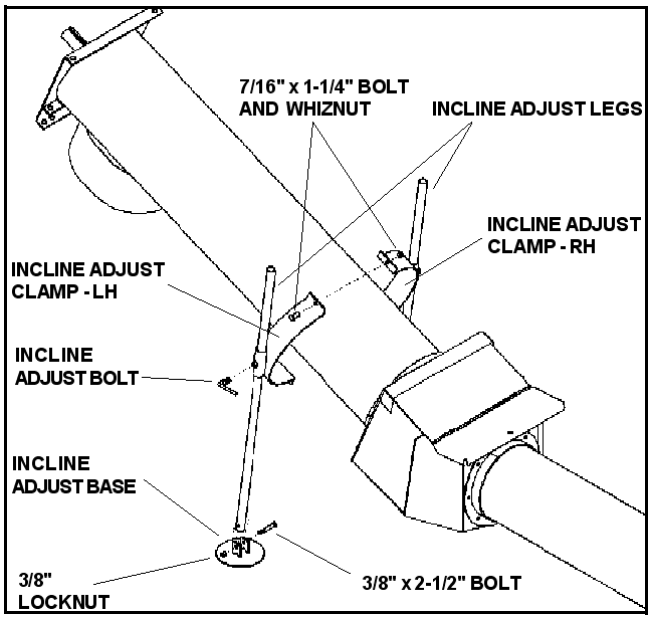


Figure 4.26

12. Insert incline adjust legs into clamps as shown in Figure 4.26. Attach incline adjust base to incline adjust leg using a 3/8” x 2-1/2” bolt and locknut. Repeat for opposite side.
13. Insert adjust incline bolts into adjust clamps, one for each side. Adjust incline adjust legs to desired height and fix in place by tightening these two bolts.

4.10. HORIZONTAL DISCHARGE

1. Pull out underfloor flighting far enough to obtain access to the 2 holes in the end of the flighting pipe.
2. On horizontal powerhead, remove bearing collar from the flighting shaft. As shown in Figure 4.27, slide flighting out of tube and attach stub shaft to underfloor flighting. Ensure that the two flightings overlap. Use two 7/16 x 2-1/4" (for 8") or two 1/2" x 2-3/4" (for 10") bolts and locknuts and tighten securely.

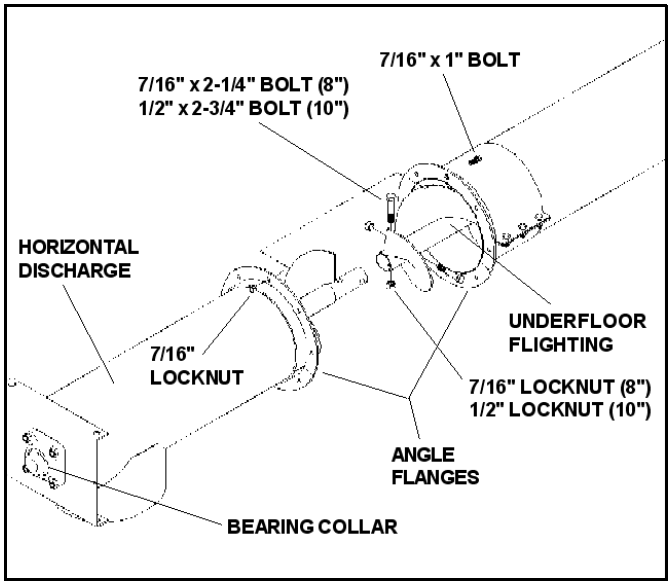


Figure 4.27

3. Push underfloor flighting all the way into the underfloor tubing, ensuring that opposite end (of flighting) is secured against the stub shaft in the center hopper.
4. Re-install flighting back into powerhead tube, and connect the two angle flanges together (Figure 4.27) using eight 7/16" x 1" bolts and locknuts. Tighten securely.
5. Replace bearing collar back onto flighting shaft.
6. Tighten securely to shaft, using set screws.

4.11. MOTOR MOUNT

See Figure 4.28 and 4.29.

1. Install front mount plate onto head plate of powerhead using two 1/2" x 1-1/2" bolts, locknuts, and 1/2" flat washers as shown. Tighten securely.
2. Place 5/8" adjust bolt through available hole in front mount plate and secure in place using two 5/8" hex nuts (one top, one bottom). Leave adjust bolt loose to allow for later adjustment.

Note: *The 5/8" nuts and adjust bolt are used to adjust belt tension (section 4.12., step 3.).*

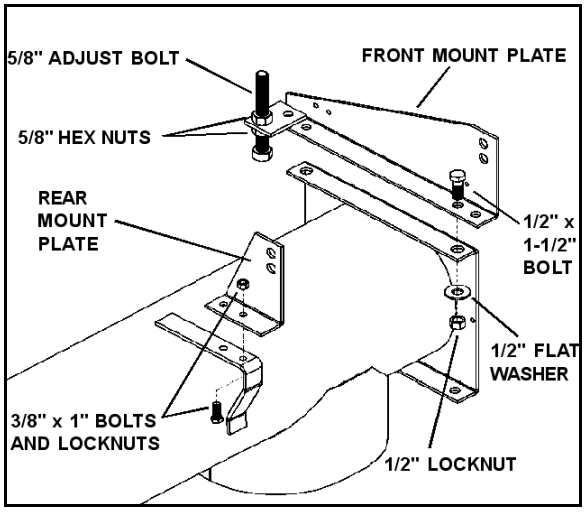


Figure 4.28

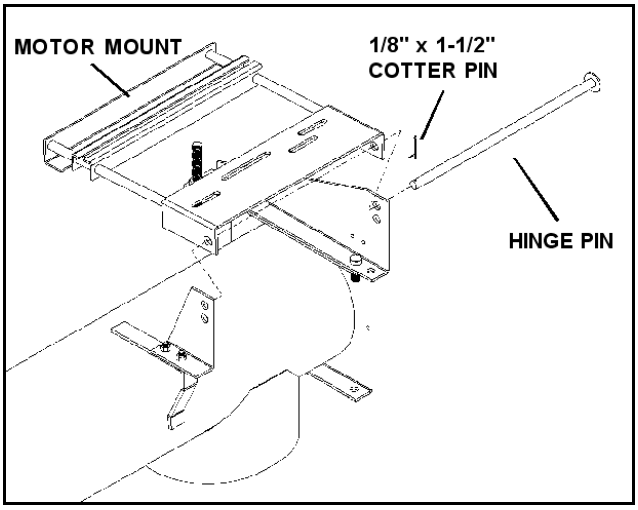


Figure 4.29

3. Secure rear mount plate onto tube bracket (Figure 4.28) with two 3/8" x 1" bolts and locknuts; tighten securely.
4. Place motor mount assembly in between the two mount plates and insert hinge rod (Figure 4.29). Secure hinge rod with a 1/8" x 1-1/2" cotter pin.

4.12. ELECTRIC MOTOR INSTALLATION & ALIGNMENT

1. Place electric motor (supplied by customer) onto motor mount and secure. Ensure that motor shaft is parallel to and centered on discharge tube before tightening adjust bolt.

When using an electric motor:

- The motor and controls should be installed by a qualified electrician in accordance with all local and national codes.
- Incorporate a magnetic starter to protect the motor.
- The motor must have a manual reset button.
- Locate reset and starter controls 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.
- A main power disconnect switch capable of being locked (in the off position only) must be provided.

Note: *See Table 4.1 for recommended pulley sizes/combinations for each discharge type.*

2. Attach the pulley guard backplate to the face of the powerhead with four 1/4" x 1/2" bolts and whiznuts. The backplate should sit flush with the head plate (Figure 4.30 and 4.31). Do not tighten bolts/nuts at this time—the pulley backplate will need to be aligned later on.

Table 4.1 PULLEY SIZES / COMBINATIONS

DISCHARGE TYPE	RECOMMENDED SIZES		
	AUGER PULLEY	MOTOR PULLEY	* FLIGHT SPEED (RPM)
8" HORIZONTAL POWERHEAD	12.7" 12.7"	3.25" 3.5"	440 475
10" POWERHEAD (INCLINE OR HORIZONTAL)	15" 15"	3.25" 3.5"	375 402
13" INCLINE POWERHEAD	16" 16"	3.25" 3.5"	350 378

*Speed is calculated using a 1725 rpm electric motor.

To determine flight speed (rpm):

Divide the speed (rpm) of the motor by the outside diameter of the large auger pulley, then multiply by the outside diameter of the small motor pulley.

Example: *1725 (rpm) ÷ 15" x 3.5" = 402 rpm*

***NOTE**: If a slower flight speed is desired, install a smaller motor pulley.*

Table 4.2 SIZES OF PULLEY DRIVE

POWERHEAD TYPE	MOTOR TYPE	8" TUBE UNLOAD		10" TUBE UNLOAD		10" TUBE UNLOAD (EXTRA CAP)	
		PULLEY DIAMETER	#GROOVES	PULLEY DIAMETER	#GROOVES	PULLEY DIAMETER	#GROOVES
HORIZONTAL	60 HZ	3.25" - 3.50"	2	3.25" - 3.50"	2	4.75" - 5.25"	2
	50 HZ	3.75" - 4.25"	2	3.75" - 4.25"	2	5.63" - 6.19"	2
INCLINE	60 HZ	3.25" - 3.50"	2	3.25" - 3.50"	3	4.75" - 5.25"	3
	50 HZ	3.75" - 4.25"	2	3.75" - 4.25"	3	5.63" - 6.19"	3
VERTICAL	60 HZ	4.25" - 4.50"	2	4.25" - 4.50"	3	N/A	N/A
	50 HZ	5.00" - 5.25"	2	5.00" - 5.25"	3	N/A	N/A

Note: *We recommend using the 3 belt and triple groove pulley option on all 13" incline powerheads.*

3. Place belts on pulleys. Adjust the 5/8" adjust bolt on front mount plate until the belts have the proper tension, with about a 1/8" deflection.

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

4. Align the two pulleys using a straight edge. Ensure that the large belt pulley is flush against the bearing collar.
5. Once belts are aligned and under tension, lock the 5/8" hex nuts and tighten pulley set screws.

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

6. Once belt alignment is complete, move the pulley backplate to a position where the motor shaft will cause the least interference. Tighten the 1/4" mount bolts securely.
7. Close and lock the plastic guard using the quickclip.

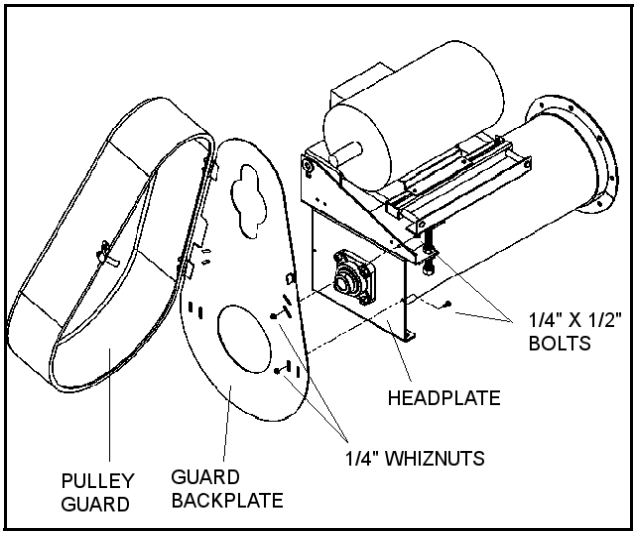


Figure 4.30

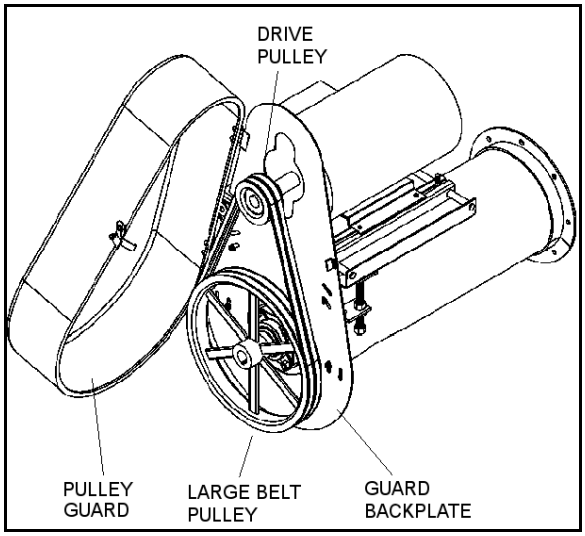


Figure 4.31

Electric Horsepower Requirements

BIN SIZE	8" TUBE UNLOADS						10" TUBE UNLOADS					
	NO SWEEP			SWEEP			NO SWEEP			SWEEP		
	HORIZONTAL	INCLINE	VERTICAL	HORIZONTAL	INCLINE	VERTICAL	HORIZONTAL	INCLINE	VERTICAL	HORIZONTAL	INCLINE	VERTICAL
14	2	3	10	3	5	10	3	5	15	5	5	15
15	2	3	10	3	5	10	3	5	15	5	5	15
18	2	5	10	3	5	10	3	5	15	5	7.5	15
19	3	5	10	5	7.5	10	5	5	15	5	7.5	15
21	3	5	10	5	7.5	10	5	5	15	7.5	7.5	15
22	3	5	10	5	7.5	10	5	5	15	7.5	7.5	15
24	3	5	10	5	7.5	10	5	7.5	15	7.5	10	15
25	3	5	10	5	7.5	10	5	7.5	15	7.5	10	15
27	3	7.5	10	5	7.5	10	5	7.5	15	7.5	10	15
30	5	7.5	10	5	7.5	10	7.5	7.5	15	7.5	10	15
32	5	7.5	10	5	7.5	10	7.5	10	15	7.5	10	15
33	5	7.5	10	5	7.5	10	7.5	10	15	7.5	10	15
36	5	7.5	10	7.5	10	10	7.5	10	15	10	15	15
38	5	7.5	10	7.5	10	10	7.5	10	15	10	15	15
42	7.5	7.5	10	7.5	10	10	7.5	10	15	10	15	15
44	7.5	10	10	10	10	10	10	10	15	15	15	15
48	7.5	10	10	10	10	10	10	15	15	15	15	15
54	10	10	10	10	15	10	10	15	15	15	20	15
60	10	15	10	10	15	10	15	15	15	15	20	15

BIN SIZE	10" TUBE UNLOADS (EXTRA CAP)					
	NO SWEEP			SWEEP		
	HORIZONTAL	INCLINE	VERTICAL	HORIZONTAL	INCLINE	VERTICAL
14	3	5	N/A	5	5	N/A
15	3	5		5	5	
18	5	5		5	7.5	
19	5	7.5		5	7.5	
21	5	7.5		7.5	7.5	
22	5	7.5		7.5	10	
24	7.5	7.5		7.5	10	
25	7.5	7.5		10	10	
27	7.5	7.5		10	10	
30	7.5	10		10	10	
32	10	10		10	15	
33	10	10		10	15	
36	10	10		10	15	
38	10	10		10	15	
42	10	10		15	15	
44	10	15		15	15	
48	15	15		15	20	
54	15	15		20	20	
60	15	15		20	20	

NOTE: With dry grain. Full tube of high-moisture grain will require additional horsepower.
Two motors are required for vertical discharge. Motor sizes shown for vertical are for the vertical powerhead only. Horizontal powerhead motors are still required.

4.13. SWEEP ASSEMBLY

For the optimum performance of the sweep assembly, it is recommended to satisfy the bin dimension requirements summarized in Table 4.3.

Table 4.3 Recommended Maximum Bin Heights for Sweep Use:

Diameter	Max. Height
60’	67’
54’	77’
48’	88’
42’ (and under)	no restriction

4.13.1. TOP GEARBOX

1. Remove the lower and upper panel sections (4 screws) from the center hopper assembly.
2. Before installing the coupler, check that the snap ring is not blocking the coupler keyway (Figure 4.32). If necessary, rotate the snap ring to free the coupler from obstruction.
3. Slip the coupler over the lower gearbox shaft and align the coupler keyway with the shaft keyway. Once aligned, insert a key to secure the attachment (see a, Figure 4.33).

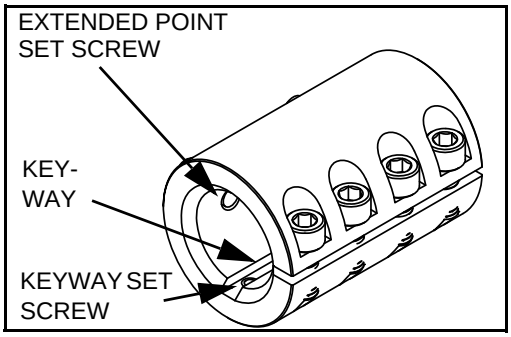


Figure 4.32

4. Insert two spring pins halfway into the holes of the lower panel and install the panel into the center hopper (see b, Figure 4.33).
5. Slip the seal in between the upper part of the coupler and two spring pins. Using the square key as guide, slide top gearbox shaft into the driveshaft coupler (see c, Figure 4.33). Make sure to **fully** engage both gearboxes into the coupler.
6. Secure the coupler by tightening the 2 inner and 2 outer bolts to 170 in·lb. Tighten the 2 keyway set screws on the coupler (Figure 4.32). Tighten the 2 extended point set screws into the cross-holes of the gearbox shafts. These bolts and screws can be accessed by forcing the rubber seal up and down.

Important: ***As each bolt is tightened, the previous bolts will loosen. Recheck the torque on all four bolts several times to fully clamp.***

7. Insert the remaining two spring pins halfway into the upper panel and reinstall the panel to the center hopper.
8. Adjust the rubber hose seal so that it fits snugly inside the spring pins and is firmly held down by the upper gearbox.

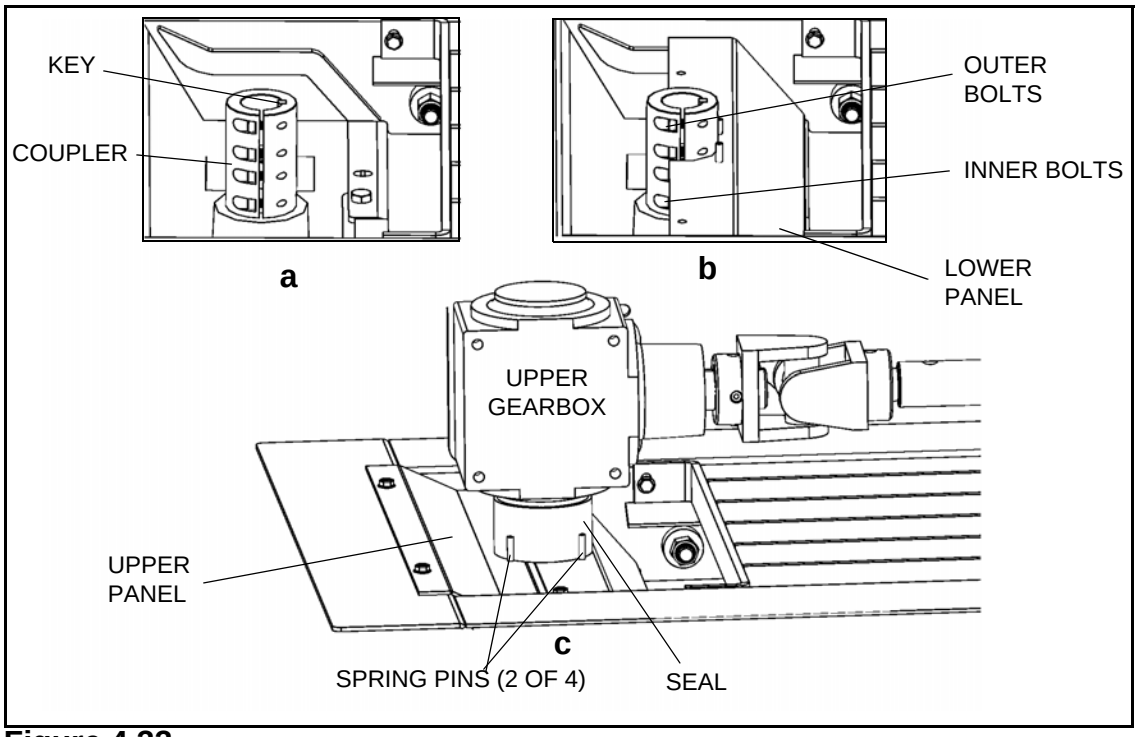


Figure 4.33

4.13.2. SWEEP FLIGHTING & BACKBOARD

1. Before beginning with sweep assembly, refer to Figure 4.41. Always begin with longest sweep section at center of the bin and work your way out.
2. Bolt the pivot arch to upper gearbox using four 3/8" x 1" bolts with lock washers. Hand tighten only at this time. The bracket holes are slotted for adjustment at the end of installation (Figure 4.34).
3. Connect sweep flighting to gearbox assembly by placing stub shaft inside flighting tube. Secure tube to shaft using two 7/16" x 2-1/4" bolts and locknuts. Tighten securely.

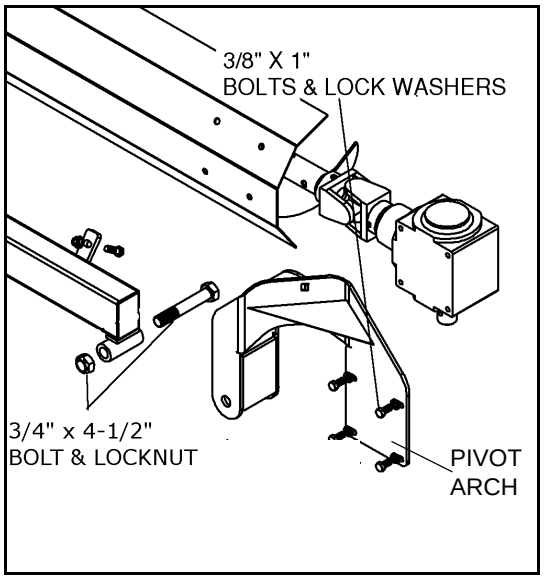


Figure 4.34

Note: *Only continue with the following steps if there are additional (more than one) sweep sections to assemble. If not, continue to next section.*

4. Install 1-1/2" plastic bushing loosely onto sweep bushing mount (as seen in Figure 4.35). This bushing remains in place while completing the following steps.

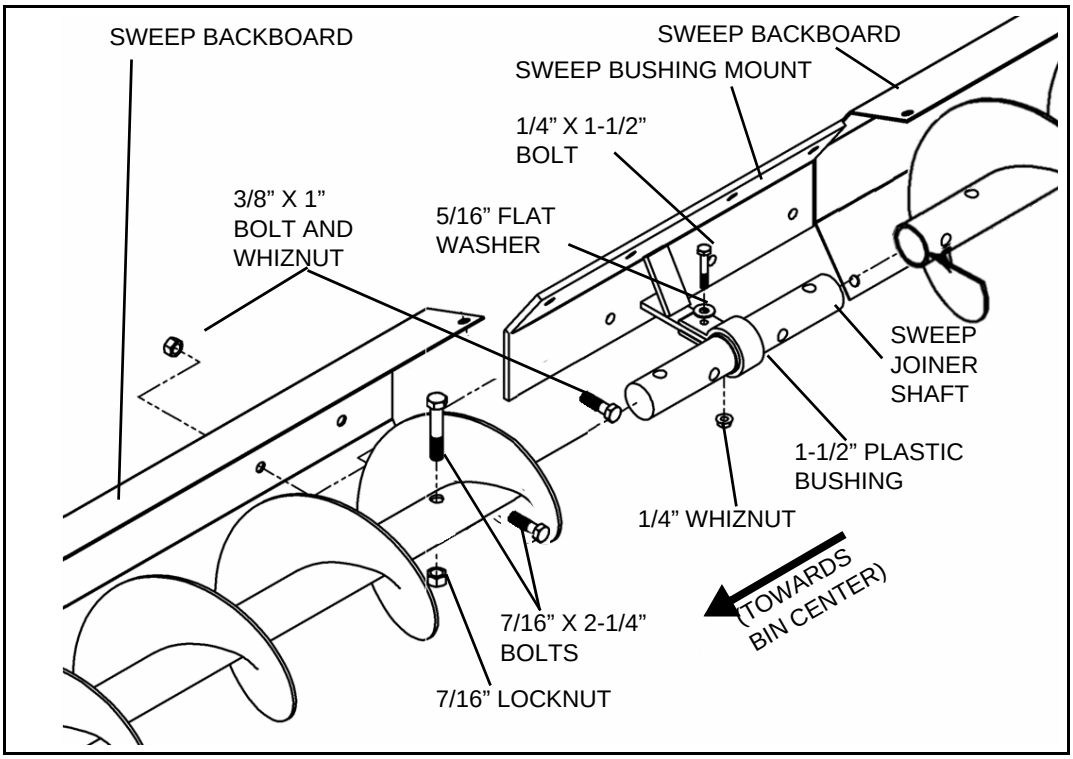


Figure 4.35

5. Place 2 sweep backboards together. Couple the sweep bushing mount and sweep backboards together using eight 3/8" x 1" bolts and whiznuts. Tighten securely.

Important: *Check flighting and ensure it does not extend pass the core pipe. If it does it must be trimmed back so it doesn't catch on the hanger bushing.*

6. Insert sweep joiner shaft through plastic bushing and into sweep flighting section. Tighten securely with two 7/16" x 2-1/4" bolts and locknuts.
7. Insert other piece of sweep flighting into opposite end of sweep joiner shaft and tighten securely with two 7/16" x 2-1/4" bolts and locknuts.
8. Attach the sweep carrier bracket to backboard using 3/8" x 1" bolts as shown in Figure 4.36.
9. Support plastic bushing properly with the sweep carrier bracket. Insert a 1/4" x 1-1/2" bolt complete with the 5/16" flat washer and 1/4" nylock nut. Tighten securely.

Note: *sweep carrier bracket is installed inside sweep backboard, directly in line with the plastic bushing.*

10. Repeat steps 4. - 7. for any additional sweep sections.

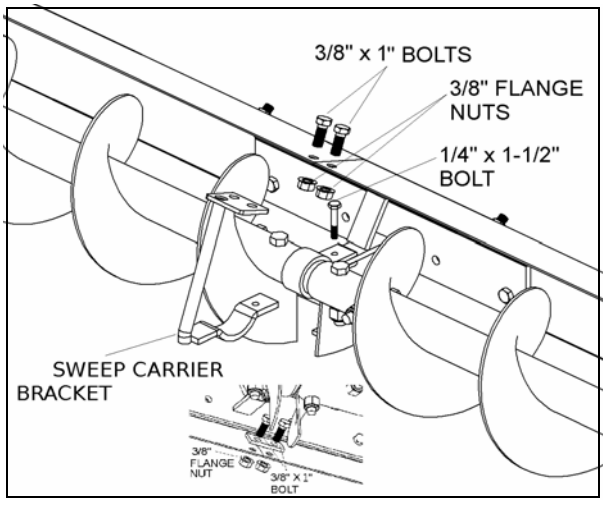


Figure 4.36

11. Hand turn the sweep to ensure the flight turns freely and does not hit the sweep roll bar or bracket.

DANGER	
	To avoid serious injury or death, do not enter bin while equipment is running.

➡ *Refer to Figure 4.37 for complete assembly of backboard stiffener.*

12. Place the first section of backboard stiffener behind backboard and secure to pivot arch with 3/4" x 4-1/2" bolt and locknut. Use 1-1/8" wrench or socket to tighten. **Do not overtighten** (Figure 4.34) so that backboard stiffener can move up or down.
13. Insert two 3/8" x 1-1/4" bolts and flange nuts to join backboard to other end of backboard stiffener. Go back and tighten all bolts (Figure 4.38).
14. Attach the backboard stiffener extension to the end of the backboard stiffener base section using connector plate, four 3/8" x 1-1/4" bolts and nylock nuts. Use shims at top of backboard stiffener as needed on 48' and larger models to prevent sagging and to ensure 1/4"-1/2" clearance above the floor (Figure 4.39).
15. For 48' and up models, install the backboard stiffener skid mount at the center of the bin sweep with two 3/8" x 3" x 2-3/4" u-bolts and 4 locknuts.
16. Adjust side-to-side alignment of pivot arch so that all plastic hanger bushing arms are centered on the jointer shafts. To facilitate the alignment:
    - remove the two bolts at the end of the sweep that holds the sweep flight to the sweep gearbox. This allows backboard and stiffener to move separately from the flight.
    - center the plastic carrier bushings and then, tighten all bolts on the center pivot arch.

Note: *Drilling through the core tube of the flight may be required to align the holes with the input shaft of the sweep drive gearbox.*

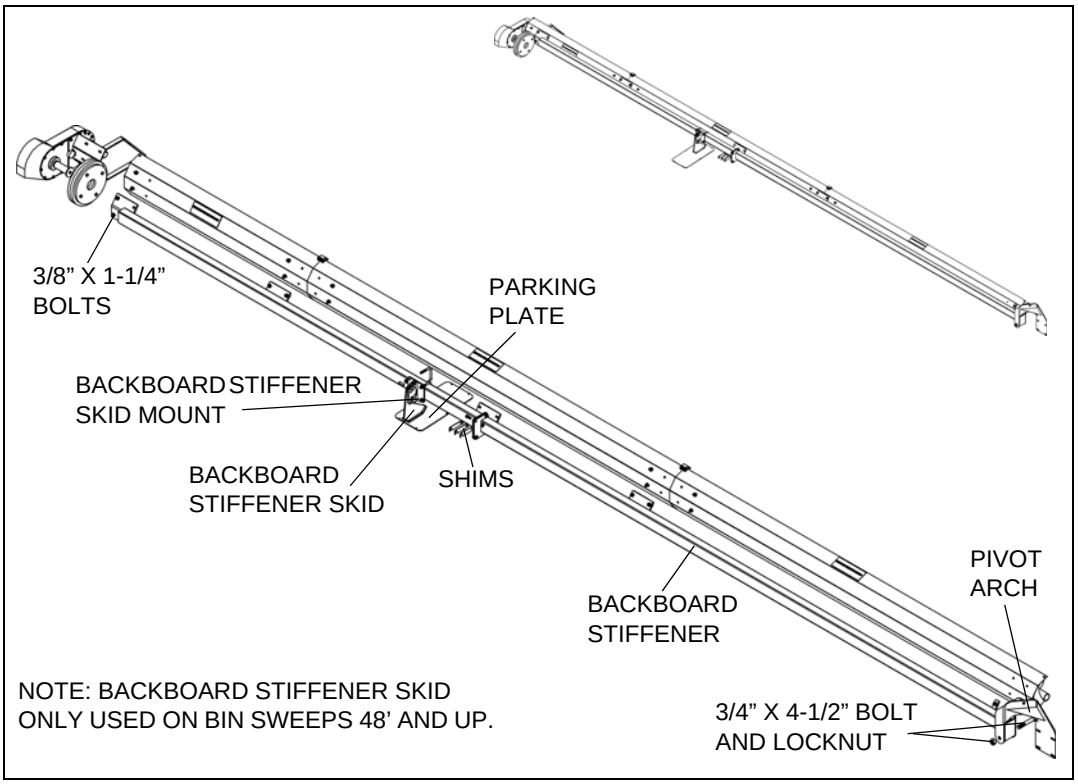


Figure 4.37

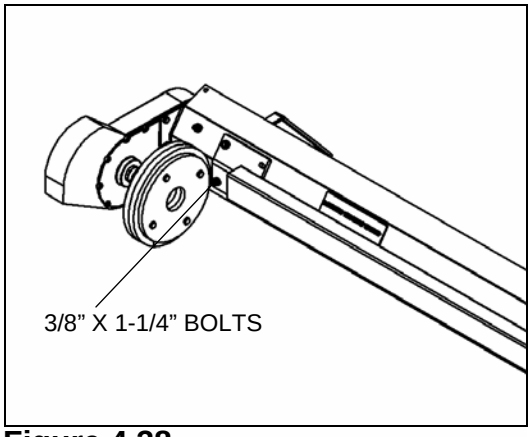


Figure 4.38

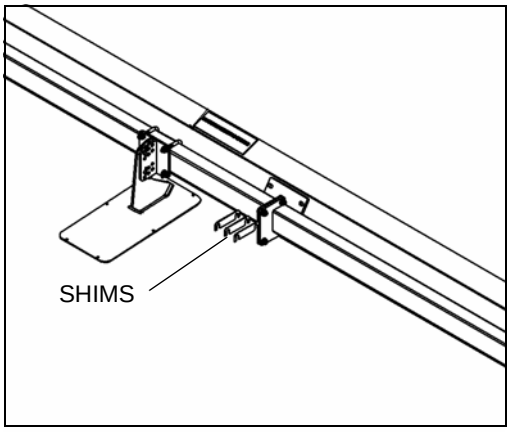


Figure 4.39

17. Install the backboard stiffener skid to the backboard stiffener skid mount with the 2 supplied pins. Secure with cotter pin (Figure 4.40).

Note: *Backboard stiffener skid can be placed in several different locations on the mount. To prevent the sweep from catching on the floor, place at a location where the skid will line up with a high spot on the floor.*

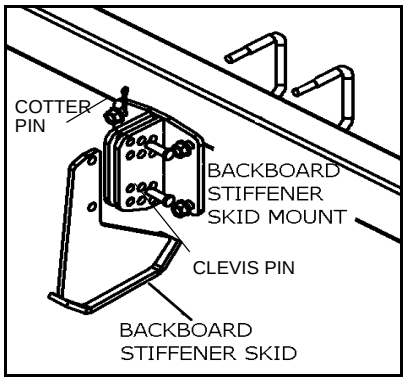


Figure 4.40

Important: *Manually turn the u-joint to ensure that the sweep auger flighting clears hanger brackets and obstructions.*

18. Place parking plate on the floor at bin loading position for backboard stiffener skid and screw in place with six #14 x 3/4" zinc plated tap screws.

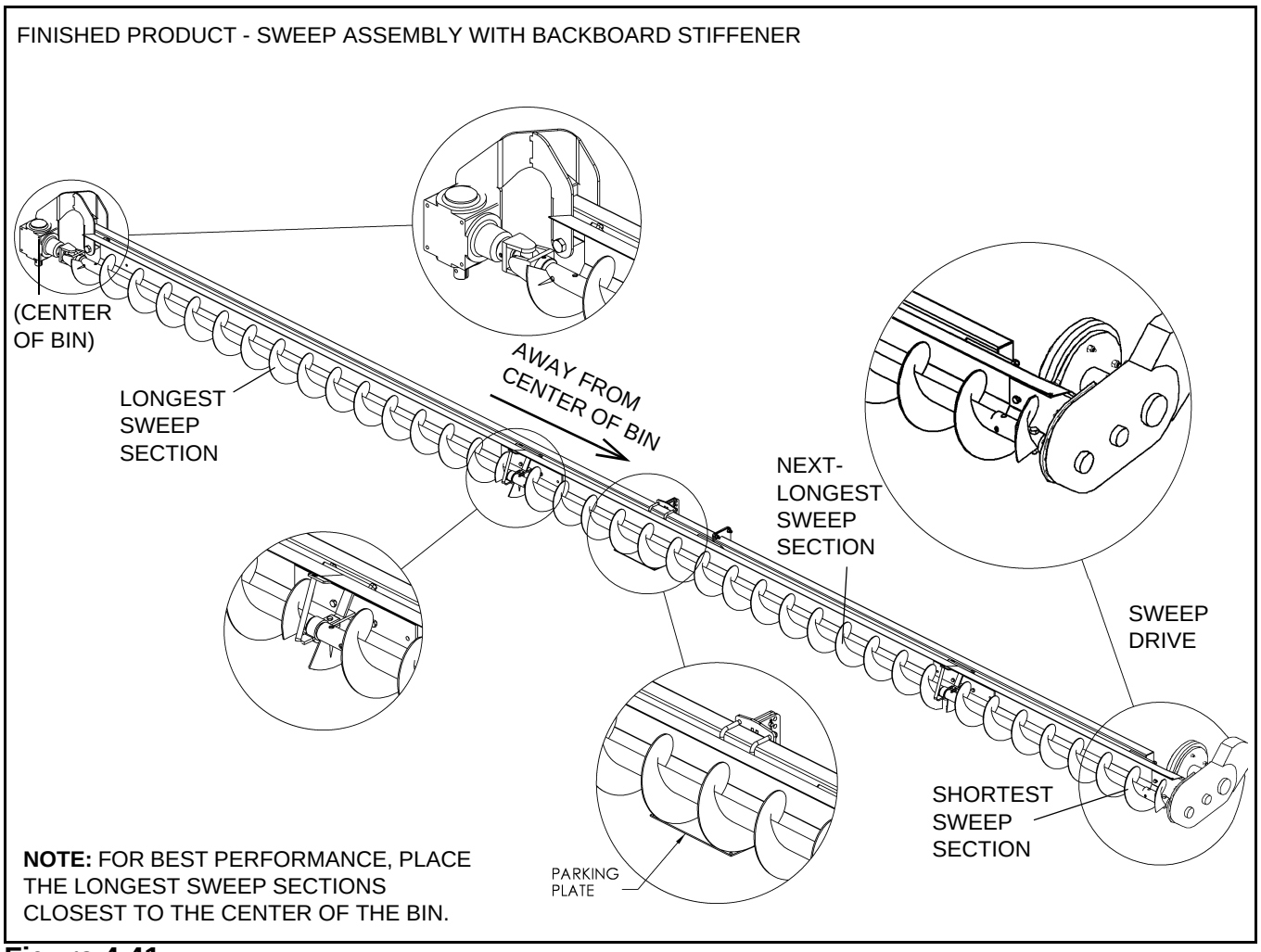


Figure 4.41

4.13.3. SWEEP DRIVE

Note: *Ensure sweep backboard does not catch on high spots on the aeration floor.*

See Figure 4.42 to install sweep drive onto the end of sweep sections.

1. Attach the sweep backboard onto the back of the sweep gearbox mount plate (as shown) using four 3/8" x 1" bolts and whiznuts. Adjust for best fit, and tighten securely.
2. At the same time, the shaft protruding from the sweep drive is inserted into the sweep flighting section. Secure this with two 7/16" x 2-1/4" bolts and locknuts. Tighten securely.

Note: *Inspect the sweep section as a whole, and ensure that the plastic bushings (between sweep sections) are not interfering with the sweep flighting. Use the adjustable slots on the pivot arch and on the upper gearbox (Figure 4.41) to ideally position the backboard and plastic bushing mounts.*

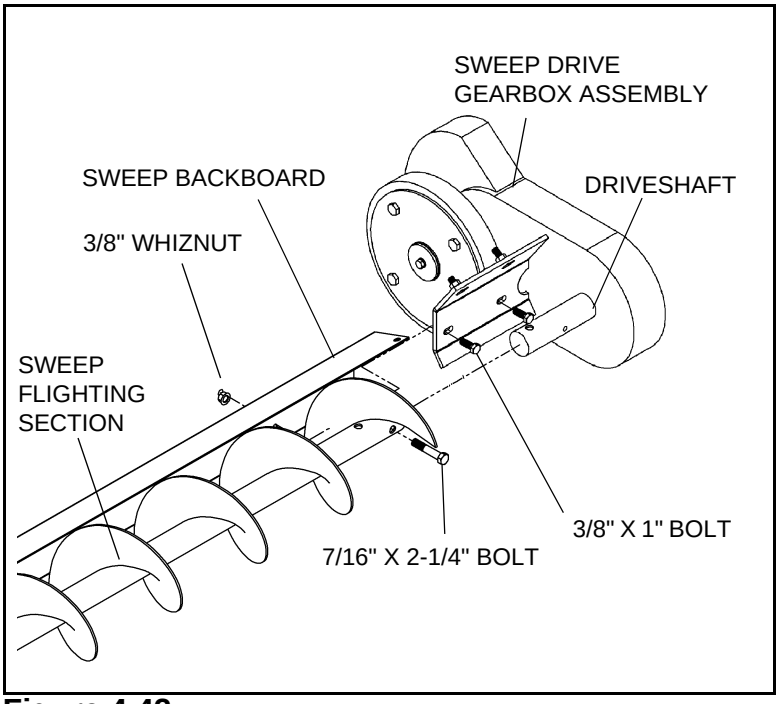


Figure 4.42

4.14. FUNCTIONAL TESTING OF LOWER GEARBOX DISENGAGEMENT

1. Ensure whole bin unload system is shut down and locked out.
2. Engage gearbox by pulling the gearbox shift lever away from the bin wall and locking in position.
3. Unlock whole bin unload system.
4. Turn on electric powerhead to bin unload system so that underfloor auger flighting is rotating and sweep flighting is rotating.
5. Disengage the gearbox shift lever (push handle to position closest to bin wall) and ensure the lower gearbox comes fully out of gear with no grinding.
6. If grinding occurs, then shut down and lock out whole bin unload system. Adjust gearbox shift adjust tube as noted in the “Control Rod” assembly section.

5. Operation

WARNING *Before continuing, ensure you have read and understand the relevant information in the safety section. Safety information is provided to help prevent serious injury, death, or property damage.*

5.1. CHECKLIST FOR UNLOAD'S PROPER USE BEFORE FILLING BIN AND AFTER EMPTYING BIN

Prior to filling the bin each time, and after emptying the bin each time, the operator must confirm the following:

- All fasteners are secure as per assembly instructions.
- Drive belt(s) are not frayed or damaged.
- Drive belt(s) are properly adjusted and aligned.
- Intake area and discharge spout are free of obstructions.
- Inspect tube supports (where applicable) frequently.
- Proper maintenance has been performed.
- All safety guards are in place and secure.
- Make sure to clean up (remove) all settled dust deposits.

Important: *Prior to filling the bin each time, run the sweep and underfloor auger to make sure these systems are functionally operating properly. Refer to the relevant aspects of Section 5.3. Break-In and Normal Unload Operating Procedure When Emptying Bin. Once proper functional operation of these systems has been verified, ensure the center hopper gate and intermediate hopper gates are closed, and shut down and lock out all power sources.*

Important: *Always park the sweep over the intermediate hoppers prior to filling the bin each time.*

NOTICE

Failure to place the sweep over the intermediate hoppers and underfloor auger could result in damage to the unload system next time the sweep is operated.

5.2. BIN UNLOAD DRIVE & LOCKOUT PROCEDURE

Drive Type	Before Operation	Lockout
Electric Motor	Before starting motor, ensure • motor is properly grounded • pulley guards are in place and secure	The electric motor should be equipped with a main power disconnect switch capable of being locked in the off-position only. The switch should be in the locked position during shutdown or whenever maintenance is performed on the auger. If reset is required, disconnect all power **before** resetting motor.

5.3. BREAK-IN AND NORMAL UNLOAD OPERATING PROCEDURE WHEN EMPTYING BIN

WARNING *Refer to your bin operation manual for operating instructions and safety information related to that specific system.*

1. Complete the checklist at the beginning of this chapter.
2. Disengage sweep gearbox (push gearbox shift handle towards bin wall to disengage sweep). Refer to Figure 5.1.

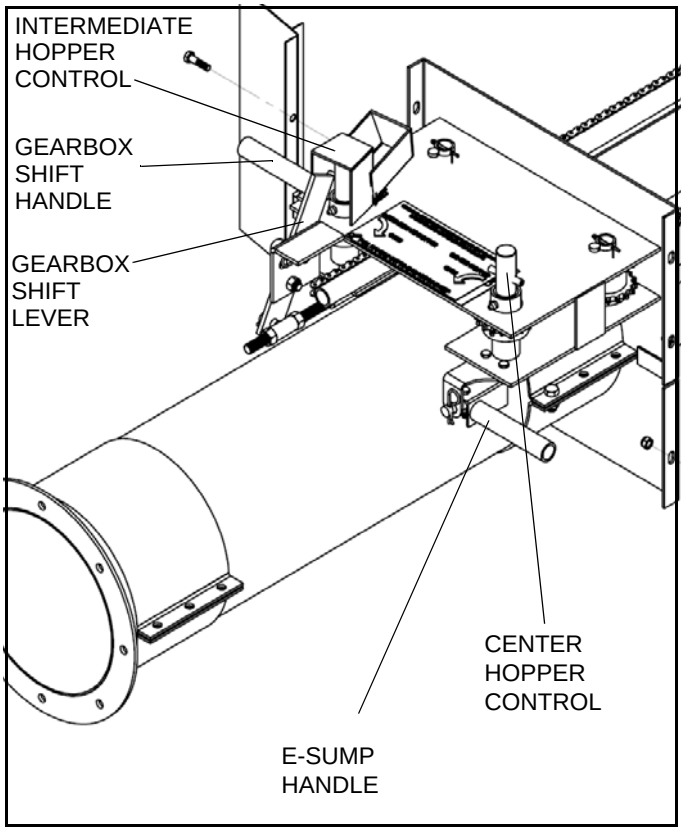


Figure 5.1

WARNING	
	To avoid the risk of bin collapse and potential damage to the sweep, grain must first be emptied from the center hopper and intermediate hoppers **before** the bin sweep is operated (see Figure 5.2).

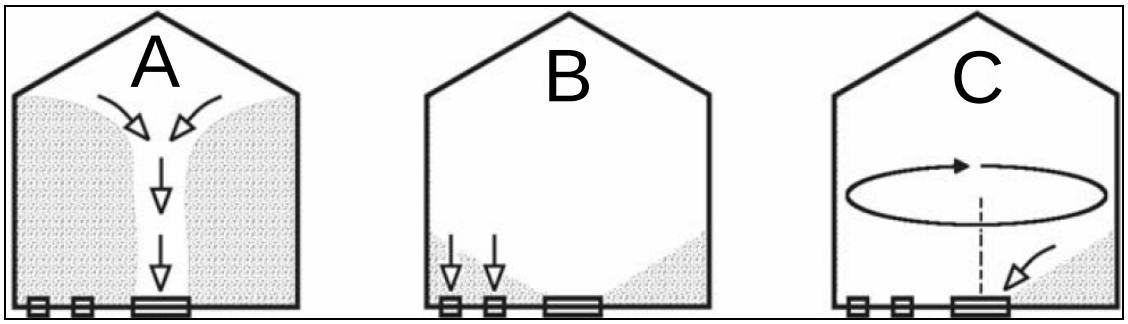


Figure 5.2 Grain Bin Overall Emptying Procedure

WARNING	
	To avoid bin collapse, DO NOT open the intermediate hoppers to allow grain to flow if the center hoppers becomes blocked with clumped grain.

Note: *Clumped grain is often caused by improper storage or wet grain. Consult your aeration fan manual on how to condition stored grain.*

3. Start system.

Important: *When starting underfloor auger for the first time, be prepared for an emergency shutdown in case of excessive vibration or noise. Note that the auger may run rough until tube is polished.*

Important: *Keep operation of empty underfloor auger to a minimum, as this results in excessive wear.*

4. Open center hopper slightly. Ensure grain flows out of discharge end at a constant rate. **For the first 30 minutes**, check that underfloor auger functions without excessive vibration.
5. Continue to open center hopper; keep in mind to look for constant grain flow at discharge end. Do this until center hopper is fully open.
6. **Bin Unloads with E-Sumps:** If grain flow slows considerably or stops while unloading, the center hopper may be blocked with clumped grain. Open the E-Sump to allow grain to continue unloading.
7. When grain flow (from discharge end) stops, unlock the padlock to open the intermediate hopper lockout cover. Open intermediate hopper(s) halfway. Monitor grain flow for consistency before opening intermediate hopper(s) any further.

8. After grain has stopped flowing into intermediate hopper(s), shut down and lock out all power to the underfloor system. Close all intermediate hopper gates.

➡ **9. Sweep:**

a. Perform a visual inspection of the sweep to ensure that operation will not cause any damage. Check that no foreign objects are in the flighting.

b. Release locking pin and engage sweep (by shifting the lever handle away from bin wall). Lock shift lever into place.

NOTICE

Lock gearbox shift lever into engaged or disengaged position at all times during operation. Failure to do so will result in damage to gearbox.

Note: *If the gearbox does not easily engage when shifting the handle away from the bin wall, it may be necessary to "bump" the electric motor (press start button intermittently and then turn off immediately to slightly rotate the underfloor flighting), and then retry engaging the gearbox with the handle.*

c. Start unload system.

WARNING

To avoid serious injury or death, do not enter bin while equipment is running.

d. **Make sure center hopper is fully open**, and maintain a constant grain flow.

Note: *While ensuring the center hopper is fully open, if the sweep is still overloading the underfloor auger (grain pile increasing at center hopper), contact your AGI dealer for gearbox options to slow down the sweep to match the underfloor auger capacity.*

e. When grain flow stops and bin is clean: allow sweep to travel around bin so that it lines up over top of the intermediate hoppers and underfloor auger.

NOTICE

Failure to place the sweep over the intermediate hoppers and underfloor auger could result in damage to the unload system next time the sweep is operated.

10. Upon completion of initial run, shut down bin unload system. Refer to "Shutdown" on page 50 for more information.
11. Lock out motor and conduct a complete inspection of bin unload system following the checklist at the beginning of this chapter.

After the initial start up and inspection, the bin unload system should be shut down and inspected at least three times during the first 10 hours of operation.

Once bin unload system is broken in, the checklist should be a part of the daily routine before operating the system.

5.3.1. OPERATING WITH A FULL LOAD

1. When operating the bin unload, always work with a second person in a position to monitor the operation and initiate a shutdown in case of emergency.
2. Monitor the bin unload during operation for abnormal noises or vibrations.
3. Shut off all power before making adjustments, servicing, or clearing the machine.

DANGER	
	Rotating Flighting Hazard! To prevent death or serious injury: • Keep away from rotating auger flighting. • Do not remove or modify auger flighting guards, doors, or covers. Keep in good working order. Have replaced if damaged. • Do not operate the auger without all guards, doors, and covers in place. • Never touch the auger 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.

5.4. SHUTDOWN

NORMAL SHUTDOWN:

1. Once auger is clear, stop motor and lock out power.
2. Clean entire work area.
3. Manually clean out grain from bin unload with a piece of wood, vacuum cleaner, or other tool. Do not use hands.

EMERGENCY SHUTDOWN / FULL-TUBE RESTART:

1. If the bin unload is shut down for an emergency or during the unloading procedure, lock out motor before correcting the problem.
   - If the problem is plugging, clear as much of the grain as possible using a piece of wood, vacuum, or other tool before restarting auger. **Do not reach in and use your hands**. (See “Bin Unload Drive & Lockout Procedure” on page 46.)

NOTICE

Starting the auger under load may result in damage to unit. Be sure there is no blockage.

2. Once obstruction is clear, disengage sweep (if applicable). Remove locking pin, shift lever towards bin wall, and lock into place.
3. Close all intermediate hopper gates and close center hopper gate.
4. Restart bin unload system and follow steps to feed grain to finish unloading your bin.

6. Maintenance

WARNING *Before continuing, ensure you have read and understand the relevant information in the safety section. Safety information is provided to help prevent serious injury, death, or property damage.*

Proper maintenance habits on the bin unload mean a longer life, better efficiency, and safer operation. Please follow the guidelines below.

6.1. GENERAL MAINTENANCE PROCEDURES

Area		Maintenance	Frequency
General		While auger is in use, observe the checklist in Section	Daily
General		Check all operating, lifting, and transport components. Replace damaged or worn parts before using auger. For replacement instructions, see Assembly Section.	Regularly
Transition Box (optional) *Remember to support incline discharge before removing or replacing any parts inside the transition box.		Open access door. Check that u-joint is working properly (has free range of motion).	Regularly
		Inspect flighting and bushing mount. Ensure set screws are tight.	Regularly
		Lubricate u-joint and bushing mount.	Every 8 hours of operation
Rack and Pinion System		Ensure opening and closing of gate system.	Regularly
		Inspect bushing, chain, and sprocket. Lubricate.	Every 8 hours of operation
Center and Intermediate Hoppers		Ensure safety mesh is installed.	Regularly
		Ensure slide gates open and close properly without interference (replace gate rollers if necessary).	Regularly
Binsweep Option	Gear-boxes	Check lower gearbox shift handle for proper engagement / disengagement.	Regularly
		Maintain oil level at half full (center of cross shaft). Gearbox should be level when checking or refilling. Use EP90 Lube Oil when filling gearboxes.	Regularly
	Universal Joint	Lubricate grease fitting in the u-joint. Check set screws and retighten if necessary.	Every 8 hours of operation

Area		Maintenance	Frequency
Drive Belt	Belt Tension	Push on center of belt span with a force of approximately 5 lb. The belts will deflect 1/4”–1/2” when properly tensioned. Move the motor base to set drive belt tension.	Regularly
	Belt Alignment	Lay a straight edge across the pulley faces to check alignment. Use pulley hub to move pulley to required position for alignment. Tighten the hub set screws to secure pulley to shaft. Check belt tension.	Regularly
	Belt Replacement	Move motor base to its loosest position. Remove old belt and replace with new one. Check pulley alignment and adjust if required.	Regularly

Note: *Use only genuine AGI replacement parts or equivalent. Replacement parts such as intake guards and pulley guards must meet ASAE standards or serious injury may result. Use of unauthorized parts will void warranty. If in doubt, contact AGI or your AGI dealer. Do not modify any bin unload system components.*

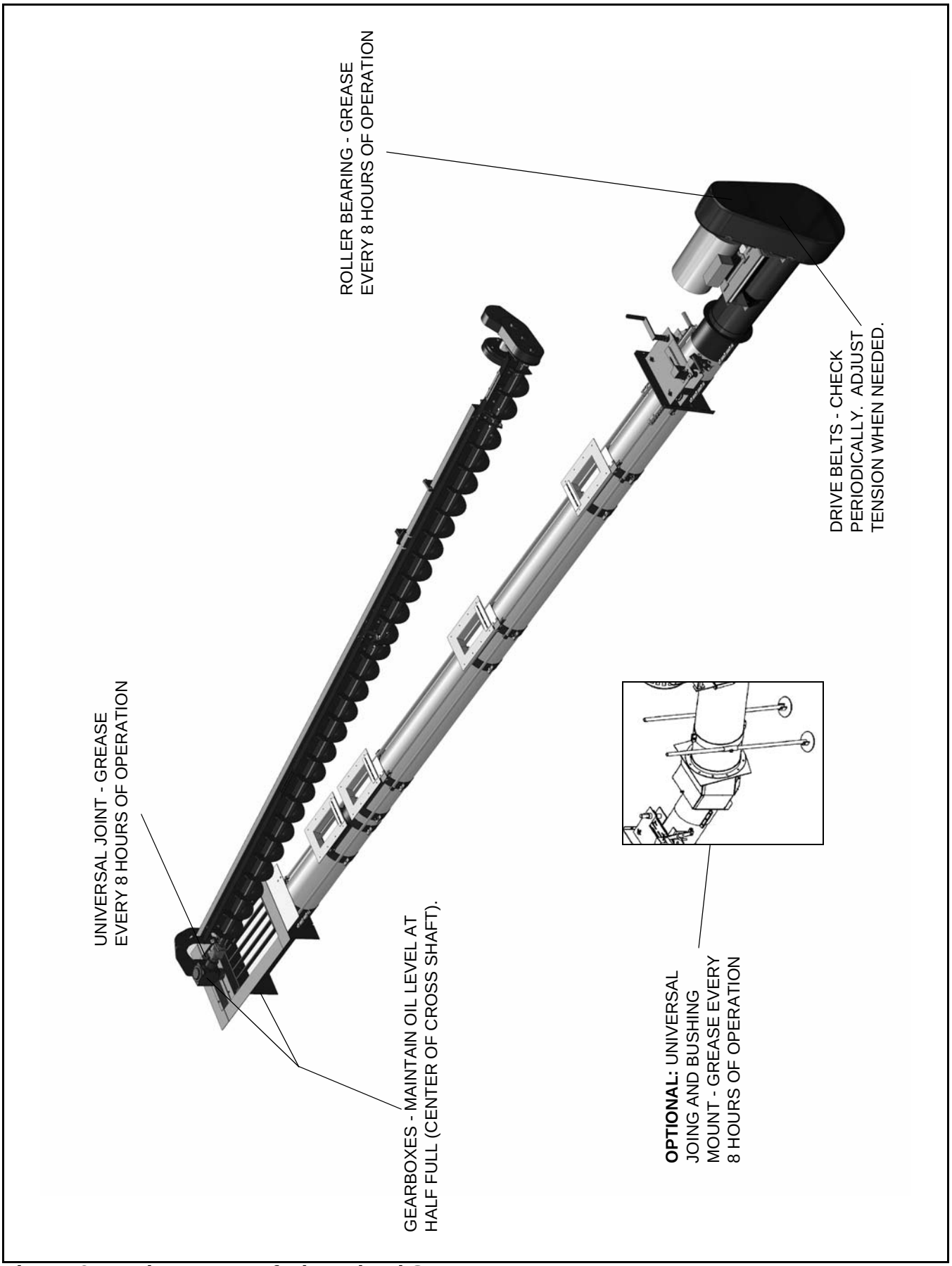


Figure 6.1 Maintenance of Bin Unload System

7. Troubleshooting

WARNING *Before continuing, ensure you have read and understand the relevant information in the safety section. Safety information is provided to help prevent serious injury, death, or property damage.*

Listed below are some causes and solutions to some of the problems you may encounter in the field.

If you encounter a problem that is difficult to solve, even after having read through this troubleshooting section, please contact your local AGI dealer or distributor. Before you contact them, please have this operation manual and the serial number from your machine ready.

WARNING

Fully disengage and lock out sweep before attempting any modifications or repairs.

Problem	Cause	Solution
Gearbox won't engage	Gearbox shift adjust bolt is not adjusted correctly.	Adjust bolt. Flighting needs to be turned so that the gears can mesh appropriately.
Gearbox won't stay engaged	Lock pin not in place.	Secure lock pin into place.
	Gearbox shift adjust bolt is not adjusted correctly.	Adjust bolt.
	Obstruction in sweep.	Remove obstruction.
Hopper slide gates are difficult to open	Hopper rollers are damaged.	Repair rollers.
	Obstruction in hopper.	Remove obstruction.
	Slide gate interference with aeration floor planking.	Level intermediate hoppers to each other.
	Control rods are binding (hoppers not level to each other).	Level intermediate hoppers to each other.
Sweep will not function	Underfloor auger not engaging lower gearbox stub.	Ensure underfloor auger flighting is fully meshing with quick attach couple on lower gearbox.
	Shift gearbox is not engaged.	Engage it.
	Obstruction in sweep.	Remove obstruction.

Problem	Cause	Solution
Underfloor auger plugs when initially starting the sweep	Intermediate hoppers aren't closed.	Close intermediate hoppers.
	Obstruction in underfloor auger.	Remove obstruction.
Sweep drive wheel doesn't function when sweep is activated	Key or pin sheared or missing in drive wheel housing.	Replace damaged part.
	Chain isn't adjusted correctly inside drive wheel housing.	Adjust chain correctly.
Sweep stops travelling around the bin	Sweep isn't adjusted correctly and is hitting a high spot in the aeration floor.	Adjust sweep in 2 places: Drive wheel and upper gearbox plate.
	Sweep drive wheel isn't fully functioning correctly (chain slipping, key missing etc...)	Check to ensure chain is functional and that all keys / roll pins are in place
	Obstruction in sweep.	Remove obstruction.
Sweep drive wheel contacts bin wall	Center hopper not centered during installation.	Shorten sweep section to allow it to travel all the way around bin.
Poor product flow from sweep	Sweep flighting is not timed correctly.	Remove bolts, rotate flighting to next set of holes and replace bolts.
	Obstruction in sweep.	Remove obstruction.
	Damaged or bent flighting.	Bend flighting back to original shape. If this doesn't work, replace flighting.
Underfloor auger is not able to move the grain that the sweep is dumping into the center hopper	Obstruction in center hopper.	Remove obstruction.
	Intermediate hoppers are open, flooding the underfloor auger.	Close intermediate hoppers.
	Flighting not timed correctly on the underfloor auger.	Pull out underfloor flighting, ensure that it is timed correctly. (Flighting must make a continuous spiral).
Grain is flowing over backboard of sweep	This is normal, and grain will be swept up on the second pass of the sweep	No solution needed. Part of normal operation.
Underfloor system stops when moving product	Electric motor belts not tight enough.	Tighten belts.
	Electric motor is not large enough to power entire system.	Replace electric motor with a larger model.
	Obstruction in underfloor auger.	Remove obstruction.
Sweep will not turn or is noisy	Check flights to ensure they're not catching.	Cut the flights back so that there is a 1/4" ((6 mm) clearance from hanger.

Problem	Cause	Solution
Sweep is knocking	Gearbox adjustment incorrect.	Check to ensure adjustment is correct and is fully engaged.
Belt is moving, motor is running, but sweep and underfloor auger not moving	Set screws and key ways on pulleys not installed or too loose.	Disengage system and check set screws and key ways to ensure they're installed and tight.
Sweep engaged, under-floor auger and motor running, but sweep flight and/or upper gearbox not turning	Under floor gearbox shift linkage is out of adjustment.	Adjust shift linkages to fully engage sweep (see Sweep Owner's Manual).
	Sheared bolt and key way in gearbox coupler.	Replace key way and bolts and check coupler for cracks.
	Roll pin and key way in center well sheared on the lower gearbox drive stub shaft.	Replace key way and roll pin.
	Sheared roll pin in gearbox shaft where it is attached to u-joint at the beginning of the sweep flight (key way may be missing).	Replace key way and roll pin and install set screw tighten.
Sweep is making a loud, distinct "squeak" noise	Center flighting tube rubbing on nylon carrier bushing.	Loosen all 4 bolts on center gearbox and tap hanger bracket with a hammer to adjust and provide adequate clearance between bushing and center tube.
Sweep engaged and running, but not advancing	Sweep catching on Tek screws (backboard or gearbox).	Ensure Tek screws are fully screwed down.
	Backboard catching on the floor.	Ensure backboard clearance is 1/4" -1/2" (6 mm - 12 mm). Tighten set screws.
	Rubber on wheel worn down.	Replace with new rubber drive wheels.
	Grain condition wet, hard-packed, moldy.	Sweep will perform poorly if grain is out of condition.
	End wheel gearbox contacting bin wall and/or bolts in bin wall.	Cut obstructive bolt ends off. Use sweep adjustments.

8. Appendix

8.1. DISCHARGE DISTANCES

For all Bin Unload Configurations

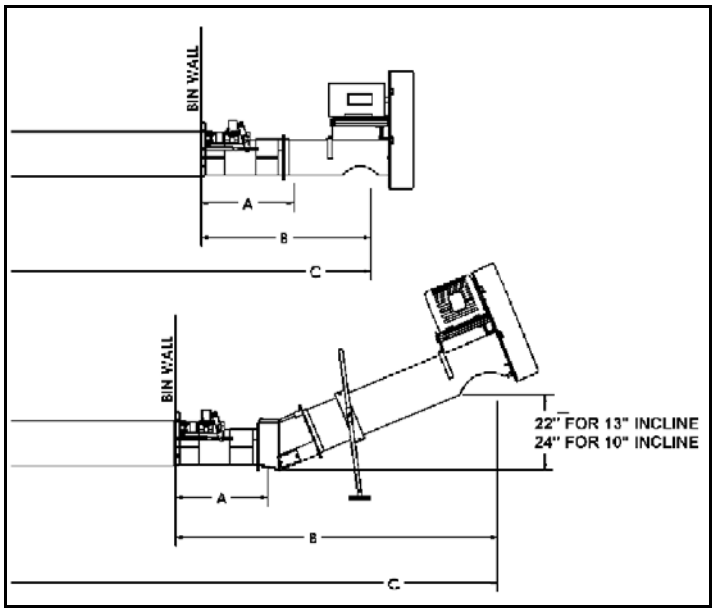


Figure 8.1

Table 8.1 Standard Capacity 8"/10" Unloads

BIN DIAMETER	TUBE DISTANCE	HORIZONTAL DISTANCE	INCLINE DISTANCE	HORIZONTAL DIST. TO BIN CENTER	INCLINE DISTANCE TO BIN CENTER
(FT)	"A"	"B"	"B"	"C"	"C"
14'	23-1/2"	45-1/2"	90"	129-1/2"	174"
15'	23-1/2"	45-1/2"	90"	135-1/2"	180"
18'	23-1/2"	45-1/2"	90"	153-1/2"	198"
19'	23-1/2"	45-1/2"	90"	165-1/2"	210"
21'	23-1/2"	45-1/2"	90"	171-1/2"	216"
22'	23-1/2"	45-1/2"	90"	183-1/2"	228"
24'	23-1/2"	45-1/2"	90"	189-1/2"	234"
25'	23-1/2"	45-1/2"	90"	201-1/2"	246"
27'	23-1/2"	45-1/2"	90"	207-1/2"	252"
30'	23-1/2"	45-1/2"	90"	225-1/2"	270"
32'	23-1/2"	45-1/2"	90"	237-1/2"	282"
33'	23-1/2"	45-1/2"	90"	243-1/2"	288"
36'	23-1/2"	45-1/2"	90"	261-1/2"	306"
38'	23-1/2"	45-1/2"	90"	279-1/2"	324"
42'	23-1/2"	45-1/2"	90"	297-1/2"	342"
44'	29-1/2"	51-1/2"	96"	315-1/2"	360"
48'	29-1/2"	51-1/2"	96"	339-1/2"	384"
54'	29-1/2"	51-1/2"	96"	375-1/2"	420"
60'	29-1/2"	51-1/2"	96"	411-1/2"	456"

Table 8.2 Extra Capacity 10" Unload

BIN DIAMETER	TUBE DISTANCE	HORIZONTAL DISTANCE	INCLINE DISTANCE	HORIZONTAL DIST. TO BIN CENTER	INCLINE DISTANCE TO BIN CENTER
(FT)	"A"	"B"	"B"	"C"	"C"
14'	33-1/2"	55-1/2"	100"	139-1/2"	184"
15'	33-1/2"	55-1/2"	100"	145-1/2"	190"
18'	33-1/2"	55-1/2"	100"	163-1/2"	208"
19'	33-1/2"	55-1/2"	100"	175-1/2"	220"
21'	33-1/2"	55-1/2"	100"	181-1/2"	226"
22'	33-1/2"	55-1/2"	100"	193-1/2"	238"
24'	33-1/2"	55-1/2"	100"	199-1/2"	244"
25'	33-1/2"	55-1/2"	100"	211-1/2"	256"
27'	33-1/2"	55-1/2"	100"	217-1/2"	262"
30'	33-1/2"	55-1/2"	100"	235-1/2"	280"
32'	33-1/2"	55-1/2"	100"	247-1/2"	292"
33'	33-1/2"	55-1/2"	100"	253-1/2"	298"
36'	33-1/2"	55-1/2"	100"	271-1/2"	316"
38'	33-1/2"	55-1/2"	100"	289-1/2"	334"
42'	33-1/2"	55-1/2"	100"	307-1/2"	352"
44'	39-1/2"	61-1/2"	106"	325-1/2"	370"
48'	39-1/2"	61-1/2"	106"	349-1/2"	394"
54'	39-1/2"	61-1/2"	106"	385-1/2"	430"
60'	39-1/2"	61-1/2"	106"	421-1/2"	466"

8.2. AVAILABLE AUGERS

Besides the Bin Unload System, AGI has Galvanized Utility Augers and Vertical Augers available. For more information, please contact AGI or AGI dealers.

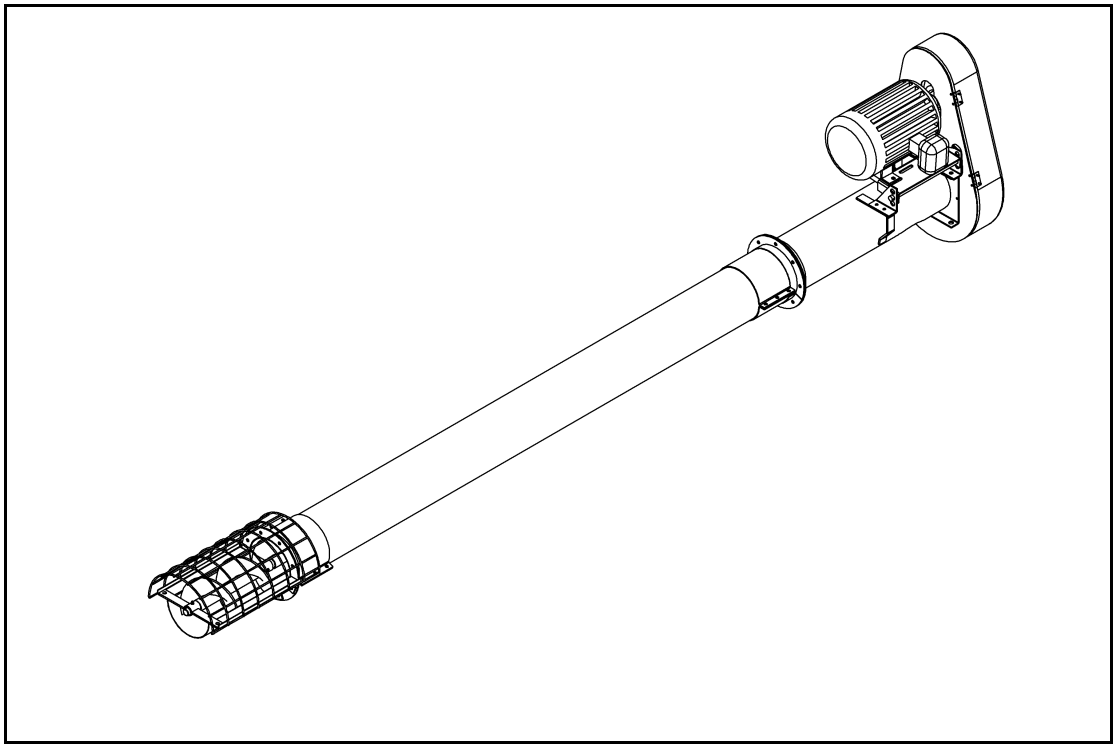


Figure 8.2 Galvanized Utility Auger

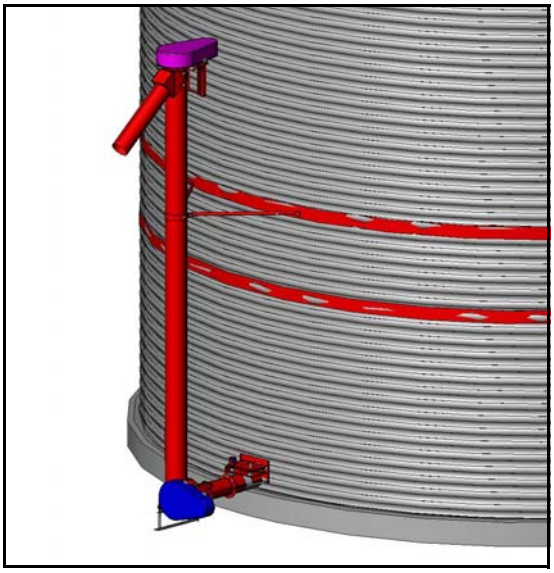


Figure 8.3 Vertical Auger

8.3. PARTS LISTING

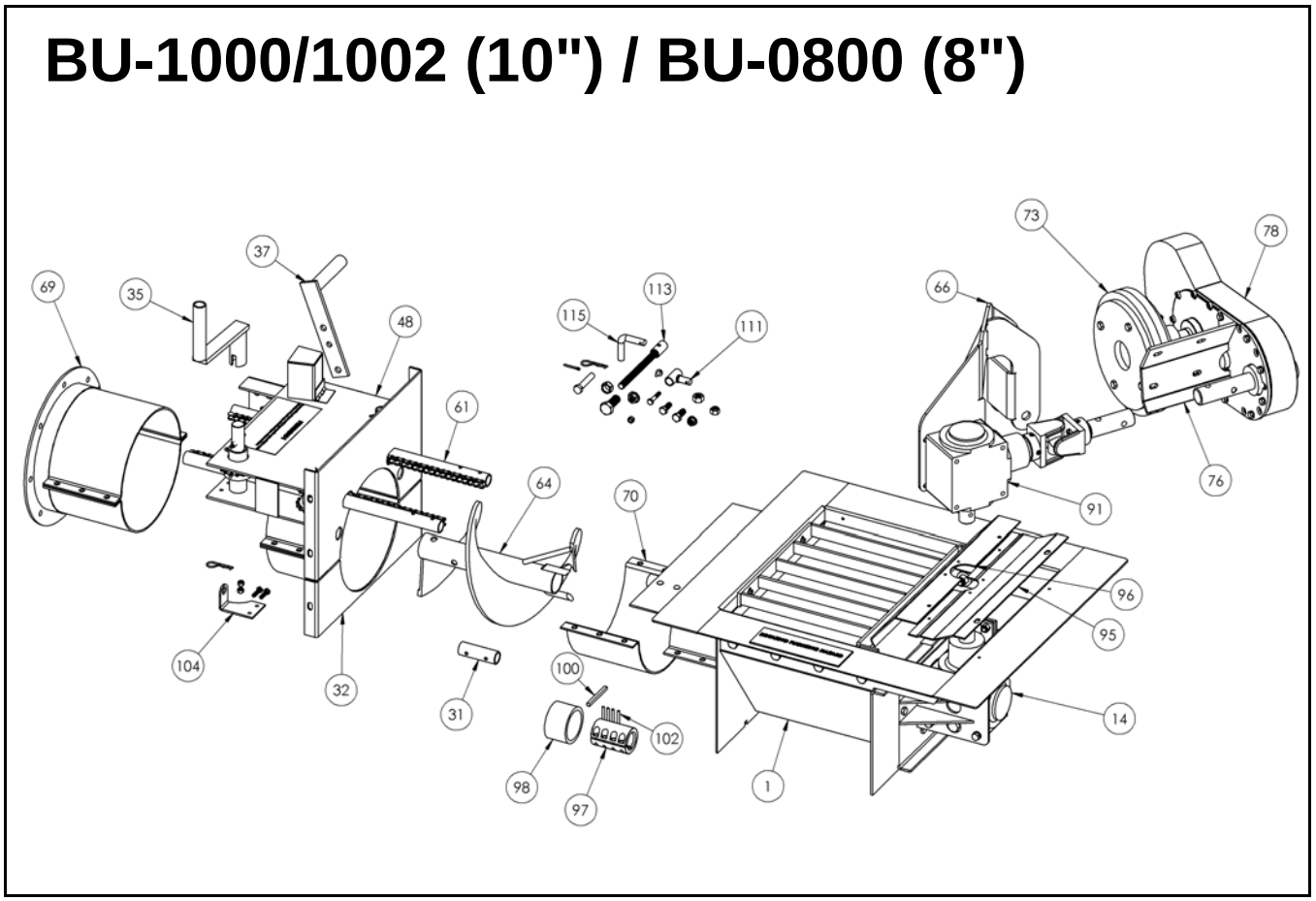


Figure 8.4 BU-0800, BU-1000 & BU-1002

ITEM NO.	PART NO.			DESCRIPTION	QTY
	BU-0800	BU-1000	BU-1002		
1	27413	27104	100226	CENTER HOPPER W/GEARBOX	1
14	27100	27100	27100	GEARBOX 90:1 1.25", BOTTOM	1
31	27110	27110	27110	CONTROL ROD COUPLER	1
32	27425	27120	27120	BOTTOM BIN PLATE ADAPTER	1
35	27124	27124	27124	BIN PLATE CRANK HANDLE	1
37	27125	27125	27125	GEARBOX SHIFTER	1
48	27424	27126	27126	TOP BIN PLATE ADAPTER	1
61	27130	27130	100231	CONTROL ROD CHAIN RACK	2
64	27441	27158	28359	CENTER HOPPER FLIGHTING	1
66	100105	100105	100105	SWEEP MOUNT, PIVOT ARCH	1
69	27222	27223	27223	CLAMP-ON ANGLE FLANGE	1

ITEM NO.	PART NO.			DESCRIPTION	QTY
	BU-0800	BU-1000	BU-1002		
70	27454	27235	27235	HITCH RING	1
73/78/76	100388	100388	100388	SWEEP DRIVE ASSEMBLY	1
73	100166	100166	100166	REPLACEMENT RUBBER ONLY	2
76	100381	100381	100381	SWEEP GRBX MOUNT WELDMENT	1
78	27782	27782	27782	SWEEP GEARBOX 10:1	1
91	100351	100234	100234	TOP GEARBOX ASSEMBLY	1
91	-	27101	27101	GEARBOX 90:1 1.25", TOP BLACK	1
91	27650	-	-	GEARBOX 90 1.35:1 1.25", TOP RED	1
95	27571	27571	27571	CH ACCESS PANEL, BTM	1
96	27570	27570	27570	CH ACCESS PANEL, TOP	1
97/98/100/102	BU-GCK-TW	BU-GCK-TW	BU-GCK-TW	GEARBOX COUPLER KIT	1
97	100316	100316	100316	GRBX CLAMP COUPLER W/SNAP RING	1
98	100334	100334	100334	REPLACEMENT RUBBER ONLY	1
100	HWP0240	HWP0241	HWP0242	KEY 1/4" X 3	"1
102	100335	100335	100335	SPRING PIN, 3/16 X 1-1/4	"4
104	100205	100205	100205	E-SUMP HANDLE LOCKOUT BRKT	1
111/113/115	14882	14882	14882	BOLT BAG BU-0800/1000/1002	1
111	27127	27127	27127	GRBX SHIFT ADJUST TUBE	1
113	27128	27128	27128	GRBX SHIFT ADJUST BOLT	1
115	27192	27192	27192	SHIFTER LOCK PIN	1

BU-1001 (10")/ BU-0801 (8")

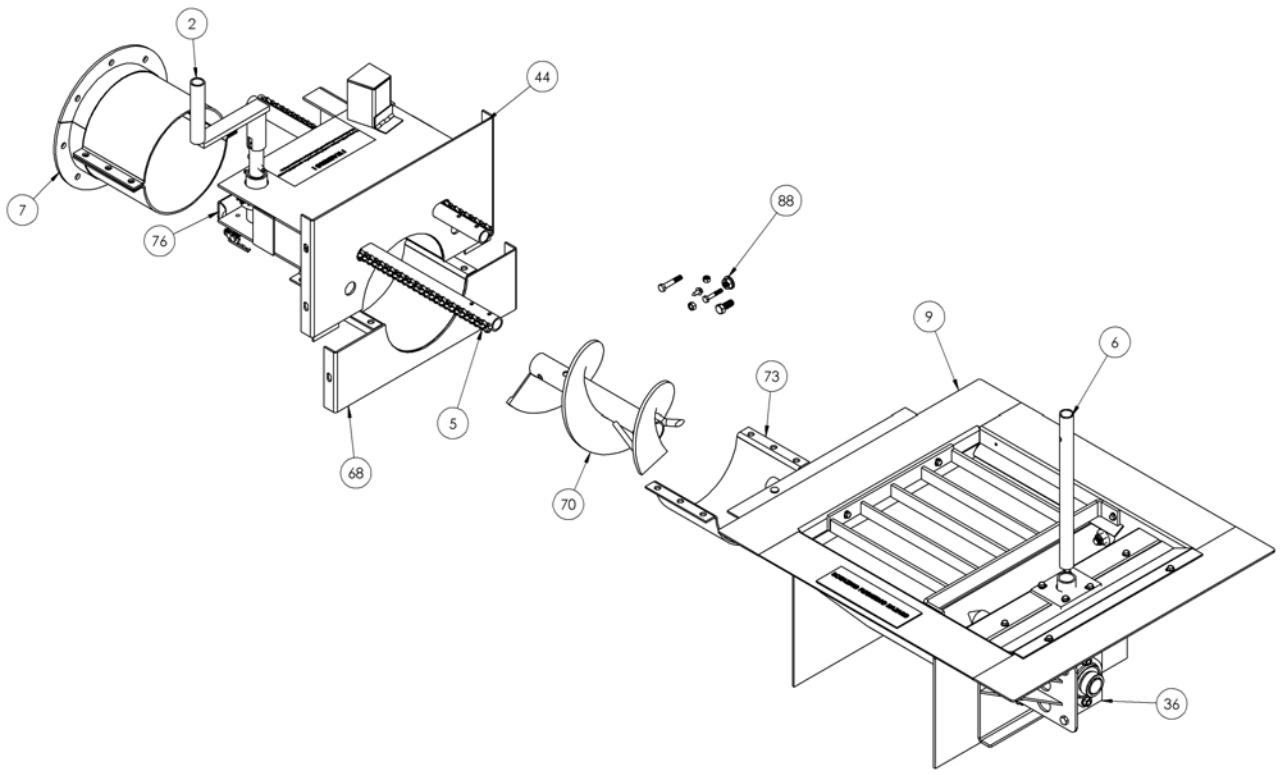


Figure 8.5

ITEM NO.	PART NO.		DESCRIPTION	QTY
	BU-0801	BU-1001		
9	27419	27199	CENTER HOPPER W/FLIGHT SUPPORT	1
73	27454	27235	HITCH RING	1
70	27441	27158	CENTER HOPPER FLIGHTING	1
44	27424	27126	TOP BIN PLATE ADAPTER	1
68	27425	27120	BOTTOM BIN PLATE ADAPTER	1
5	27139	27130	CONTROL ROD CHAIN RACK	2
2	27124	27124	BIN PLATE CRANK HANDLE	1
76	100205	100205	E-SUMP HANDLE LOCKOUT BRACKET	1
36	100331	100331	FLIGHT SUPPORT ASSY	1
6	27234	27234	SWEEP PIVOT SUPPORT TUBE	1
88	14883	14883	BOLT BAG, BU-0801/BU-1001	1
7	27222	27223	CLAMP-ON ANGLE FLANGE	1

BU-1015 (10" x 8')/BU-0815 (8" x 8')
BU-1018 (10" x 9.5')/BU-0818 (8" x 9.5')

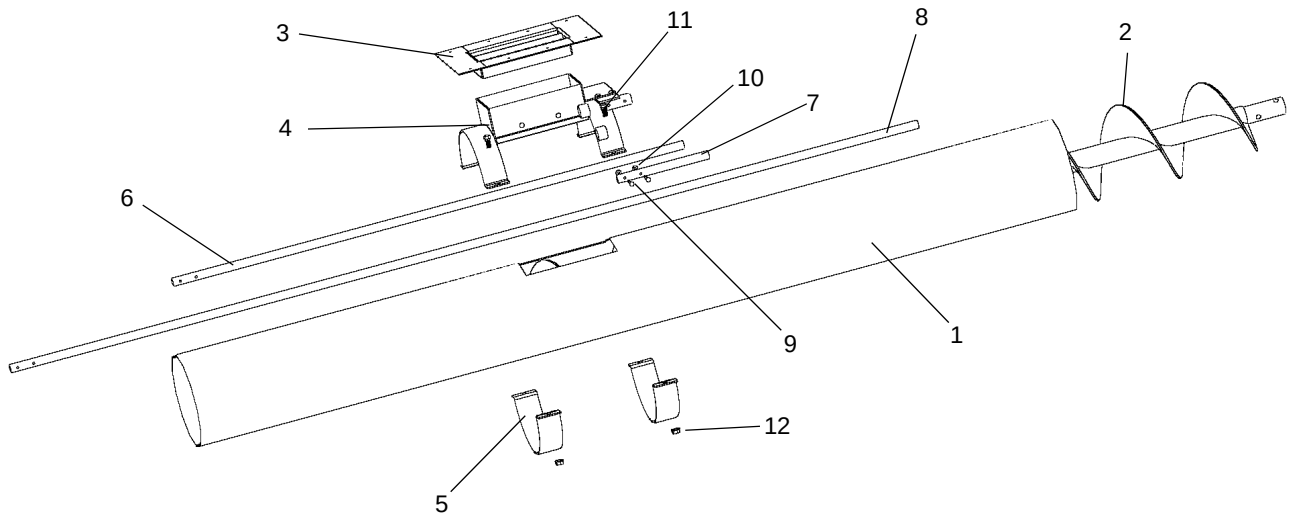


Figure 8.6

ITEM NO.	PART NO.				DESCRIPTION	QTY
	BU-1015	BU-1018	BU-0815	BU-0818		
1	27741	27742	27749	27750	GALV TUBE	1
2	27725	27726	27733	27734	FLIGHTING (W/ CONNECTOR BOLTS/NUTS)	1
3	27724	27724	27724	27724	INTERMEDIATE HOPPER TOP	1
4	27106	27106	27421	27421	INTERMEDIATE HOPPER BTM, AS SHIPPED	1
5	19801	19801	19460	19460	TUBE HALFBAND	2
6	27762	27763	27762	27763	CONTROL ROD, MIDDLE	1
7	27761	27761	27761	27761	CONTROL ROD, SHORTEST	1
8	27764	27765	27764	27765	CONTROL ROD, LONGEST	1
9	19985	19985	19985	19985	BOLT, 1/4" X 1-1/2" UNC-20 GR2 PLATED	2
10	HWP0088	HWP0088	HWP0088	HWP0088	NUT LOCK NYLON 1/4" PLATED	2
11	19542	19542	19542	19542	BOLT, 7/16" X 1" UNC-14 GR5 PLATED	4
12	19597	19597	19597	19597	FLANGE NUT, 7/16" GR2 PLATED	4

BU-1021 (10" x 11')/BU-0821 (8" x 11')
BU-1024 (10" x 12.5')/BU-0824 (8" x 12.5')
BU-1027 (10" x 14')/BU-0827 (8" x 14')
BU-1030 (10" x 15.5')/BU-0830 (8" x 15.5')

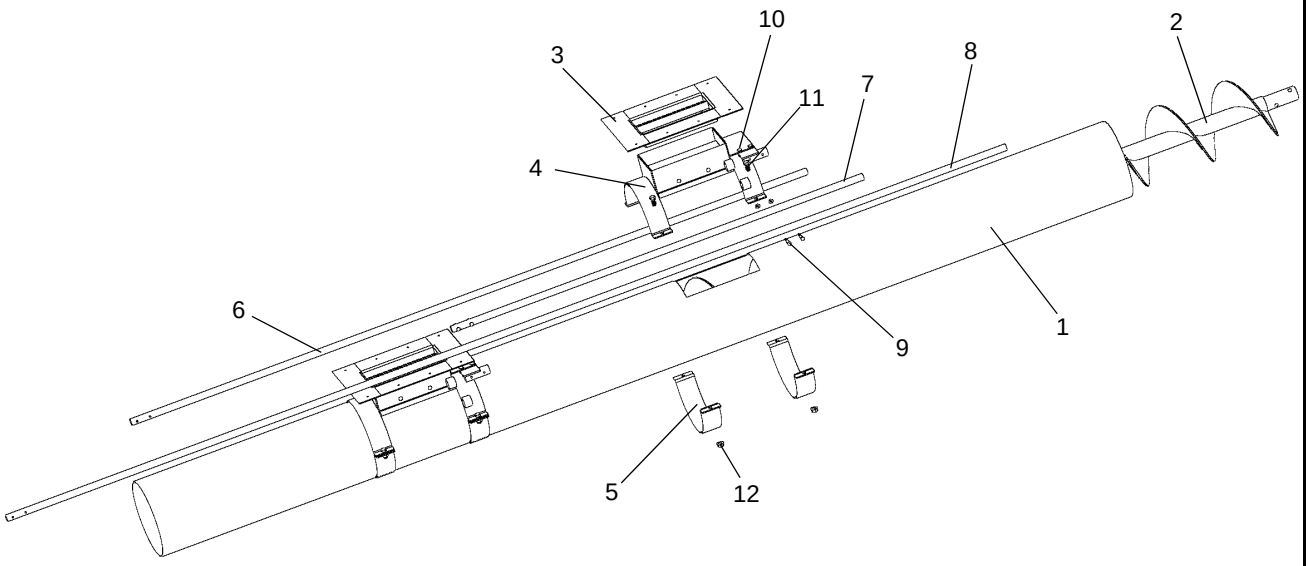


Figure 8.7

ITEM NO.	PART NO.								DESCRIPTION	QTY
	BU-1021	BU-1024	BU-1027	BU-1030	BU-0821	BU-0824	BU-0827	BU-0830		
1	27743	27809	27744	27745	27751	27810	27752	27753	GALV. TUBE	1
2	27727	27611	27728	27729	27735	27608	27736	27737	FLIGHTING (w/ CONN. BOLTS/ NUTS)	1
3	27724	27724	27724	27724	27724	27724	27724	27724	INTERM. HOPPER TOP	2
4	27106	27106	27106	27106	27421	27421	27421	27421	INTERM. HOPPER BTM, AS SHIPPED	2
5	19801	19801	19801	19801	19460	19460	19460	19460	TUBE HALFBAND	4
6	27764	27765	27766	27767	27764	27765	27766	27767	CONTROL ROD: MIDDLE	1
7	27762	27762	27763	27763	27762	27762	27763	27763	CONTROL ROD: SHORTEST	1
8	27766	27767	27769	27770	27766	27767	27769	27770	CONTROL ROD: LONGEST	1
9	19985	19985	19985	19985	19985	19985	19985	19985	BOLT, 1/4" x 1-1/2" UNC-20 GR2 PLATED	4
10	HWP0088	HWP0088	HWP0088	HWP0088	HWP0088	HWP0088	HWP0088	HWP0088	NUT LOCK NYLON, 1/4" PLATED	4
11	19542	19542	19542	19542	19542	19542	19542	19542	BOLT, 7/16" x 1" UNC-14 GR5 PLATED	8
12	19597	19597	19597	19597	19597	19597	19597	19597	FLANGE NUT, 7/16" GR 2 PLATED	8

BU-1033 (10" x 17')/BU-0833 (8" x 17')
BU-1036 (10" x 18.5')/BU-0836 (8" x 18.5')

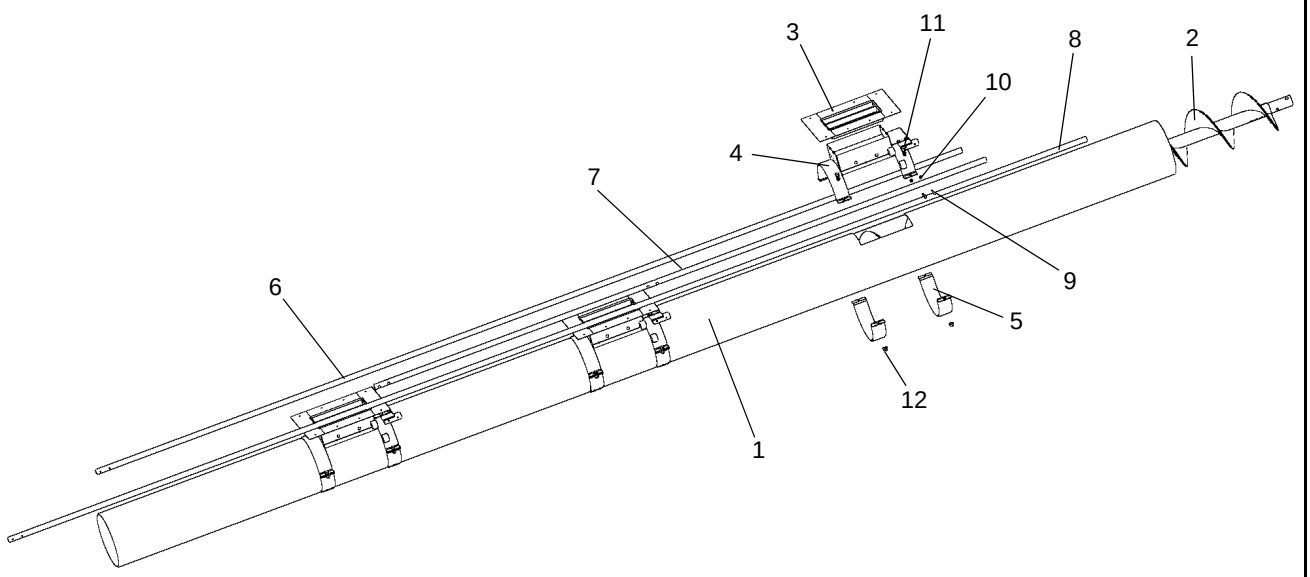


Figure 8.8

ITEM NO.	PART NO.				DESCRIPTION	QTY
	BU-1033	BU-1036	BU-0833	BU-0836		
1	27746	27747	27754	27755	GALV. TUBE	1
2	27730	27731	27738	27739	FLIGHTING (w/ CONNECTOR BOLTS/NUTS)	1
3	27724	27724	27724	27724	INTERMEDIATE HOPPER TOP	3
4	27106	27106	27421	27421	INTERMEDIATE HOPPER BTM, AS SHIPPED	3
5	19801	19801	19460	19460	TUBE HALFBAND	6
6	27768	27770	27768	27770	CONTROL ROD: MIDDLE	1
7	27765	27766	27765	27766	CONTROL ROD: SHORTEST	1
8	27771	27772	27771	27772	CONTROL ROD: LONGEST	1
9	19985	19985	19985	19985	BOLT, 1/4" x 1-1/2" UNC-20 GR2 PLATED	6
10	HWP0088	HWP0088	HWP0088	HWP0088	NUT LOCK NYLON, 1/4" PLATED	6
11	19542	19542	19542	19542	BOLT, 7/16" x 1" UNC-14 GR5 PLATED	12
12	19597	19597	19597	19597	FLANGE NUT, 7/16" GR 2 PLATED	12

BU-1042 (10" x 21.5')/BU-0842 (8" x 21.5')
BU-1048 (10" x 25')/BU-0848 (8" x 25')

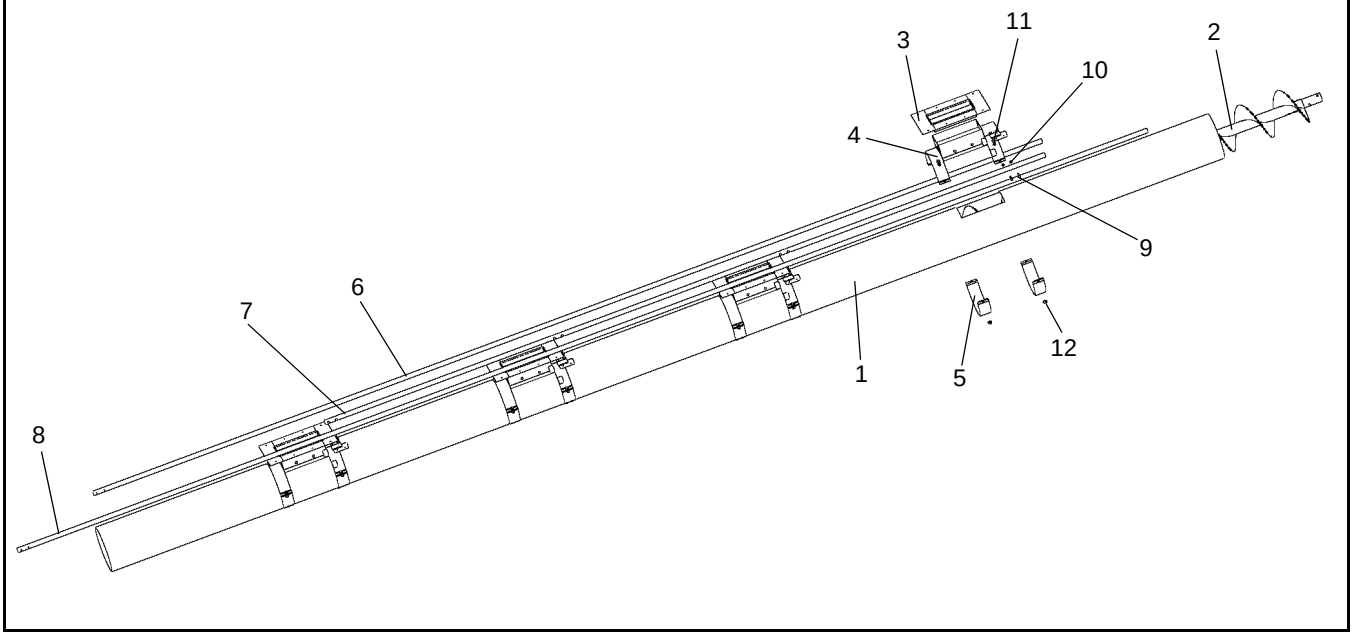


Figure 8.9

ITEM NO.	PART NO.				DESCRIPTION	QTY
	BU-1042	BU-1048	BU-0842	BU-0848		
1	27748	27625	27756	27619	GALV. TUBE	1
2	27732	27321	27740	27319	FLIGHTING (w/ CONNEC. BOLTS/NUTS)	1
3	27724	27724	27724	27724	INTERMEDIATE HOPPER TOP	4
4	27106	27106	27421	27421	INTERM. HOPPER BTM, AS SHIPPED	4
5	19801	19801	19460	19460	TUBE HALFBAND	8
6	27772	27774	27772	27774	CONTROL ROD: MIDDLE	1
7	27768	27771	27768	27771	CONTROL ROD: SHORTEST	1
8	27774	27776	27774	27776	CONTROL ROD: LONGEST	1
9	19985	19985	19985	19985	BOLT, 1/4" x 1-1/2" UNC-20 GR2 PLATED	8
10	HWP0088	HWP0088	HWP0088	HWP0088	NUT LOCK NYLON, 1/4" PLATED	8
11	19542	19542	19542	19542	BOLT, 7/16" x 1" UNC-14 GR5 PLATED	16
12	19597	19597	19597	19597	FLANGE NUT, 7/16" GR 2 PLATED	16

BU-1054 (10" x 28')/BU-0854 (8" x 28')
BU-1060 (10" x 31')/BU-0860 (8" x 31')

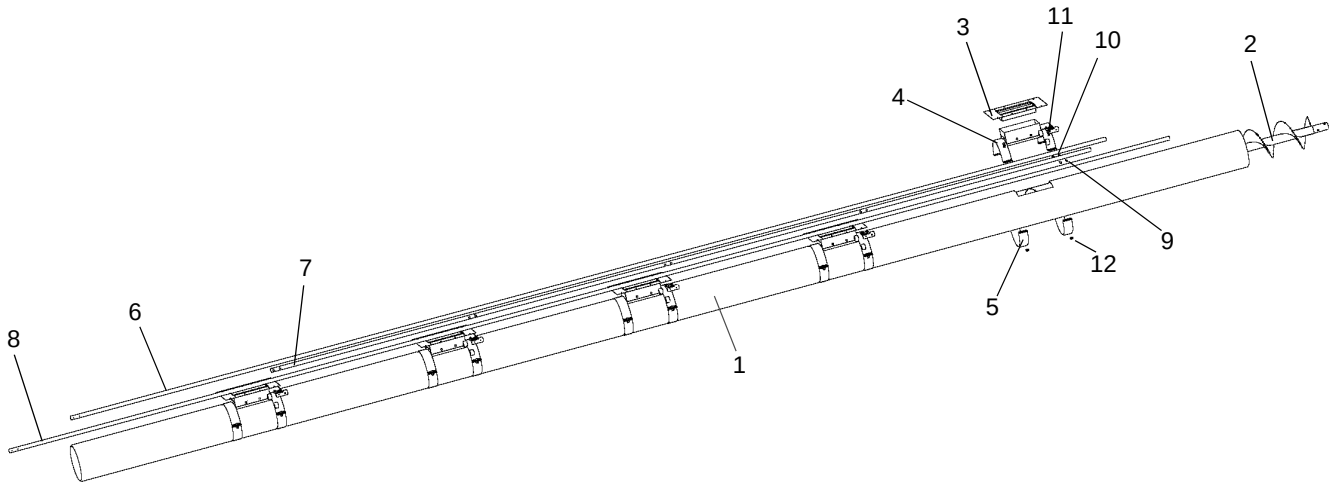


Figure 8.10

ITEM NO.	PART NO.				DESCRIPTION	QTY
	BU-0854	BU-0860	BU-1054	BU-1060		
1	27757	27758	27759	27760	GALV. TUBE	1
2	27736	-	27728	-	FLIGHTING (w/CONNEC. BOLTS/NUTS)	2
		27736		27728	- UF FLIGHT 8"/10" X 31' (1 X 14')	1
		27738		27730	- UF FLIGHT 8"/10" X 31' (1 X 17')	1
3	27724	27724	27724	27724	INTERMEDIATE HOPPER TOP	5
4	27421	27421	27106	27106	INTERM. HOPPER BTM, AS SHIPPED	5
5	19460	19460	19801	19801	TUBE HALFBAND	10
6	27776	27777	27776	27777	CONTROL ROD: MIDDLE	1
7	27773	27775	27773	27775	CONTROL ROD: SHORTEST	1
8	27777	27778	27777	27778	CONTROL ROD: LONGEST	1
9	19985	19985	19985	19985	BOLT HEX, 1/4" X 1-1/2" UNC-20 GR2 PLATED	10
10	HWP0088	HWP0088	HWP0088	HWP0088	NUT LOCK NYLON 1/4" PLATED	10
11	19542	19542	19542	19542	BOLT, 7/16" X 1" UNC-14 GR5 PLATED	20
12	19597	19597	19597	19597	FLANGE NUT SERR, 7/16" PLATED	20

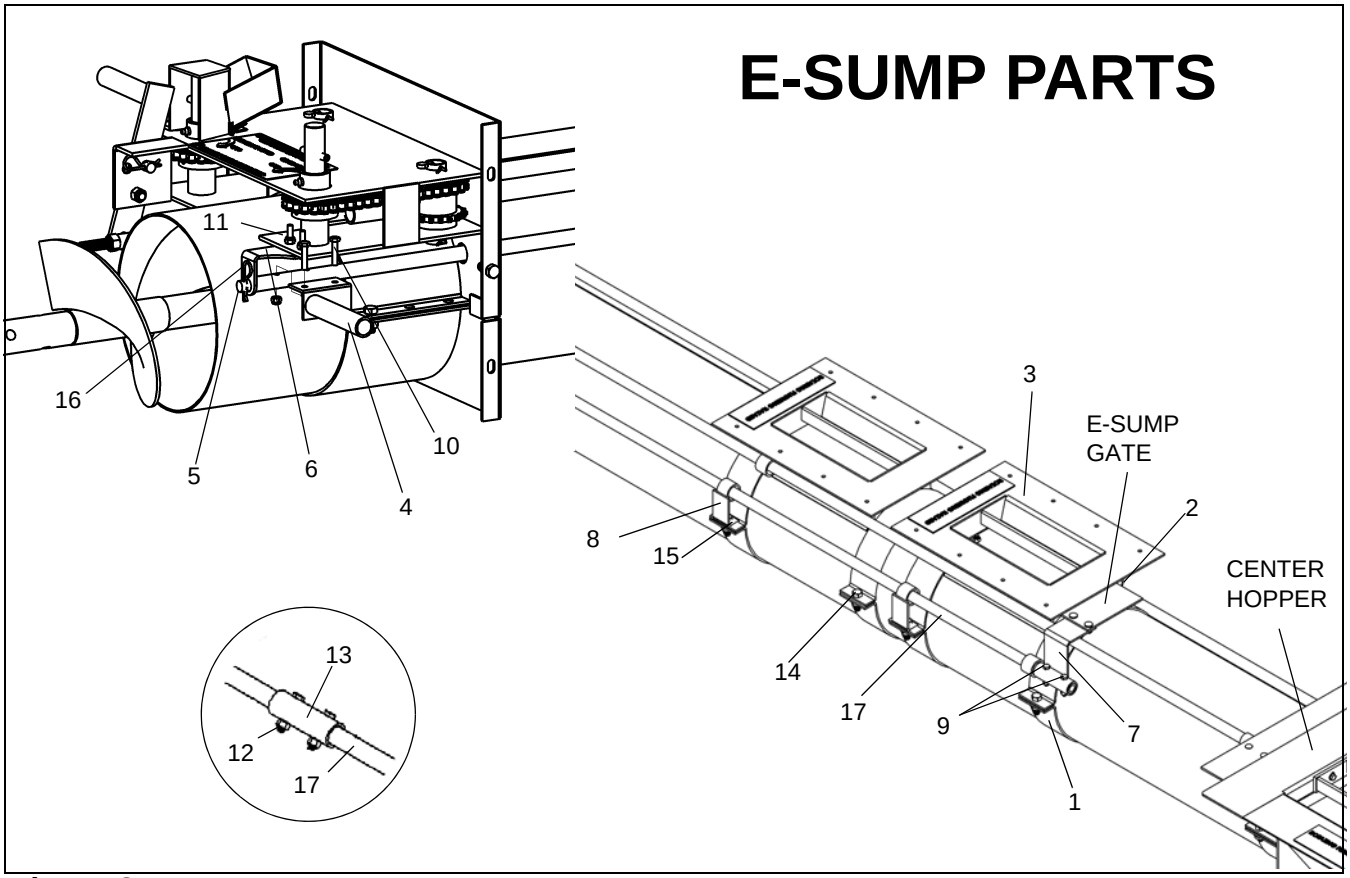


Figure 8.11

BU-ESK-08 8" Tube Parts List

ITEM NO.	DESCRIPTION		PART NO.	QTY
BU-308				
1	LOWER TUBE CLAMPS		BU-0019460	2
2	E-SUMP BOTTOM ASSEMBLY		BU-0100208	1
3	IH TOP ASSEMBLY		BU-0027724	1
4	PUSH/PULL HANDLE		BU-0100202	1
5	HANDLE SUPPORT ROD		BU-0100204	1
6	HANDLE LOCKOUT BRACKET		BU-0100205	1
7	E-SUMP BRACKET ASSEMBLY		BU-0100200	1
8	CONTROL ROD BRACKET		BU-0100206	5
9	GATE BRACKET ROD NUTS	1/4-20 NYLON LOCKNUT, PLATED	HWP0088	2
9	GATE BRACKET ROD BOLTS	1/4-20 x 1.5" HEX BOLT, GR2, PLATED	HWP0203	2
10	HANDLE NUTS	1/4-20 NYLON LOCKNUT, PLATED	HWP0088	2
10	HANDLE BOLTS	1/4-20 x 1.5" HEX BOLT, GR2, PLATED	HWP0203	2
11	HANDLE LOCKOUT BRACKET NUTS	1/4-20 NYLON LOCKNUT, PLATED	HWP0088	2
11	HANDLE LOCKOUT BRACKET BOLTS	1/4-20 x 1" HEX BOLT, GR2, PLATED	HWP0258	2
12	COUPLER NUTS	1/4-20 NYLON LOCKNUT, PLATED	HWP0088	2
12	COUPLER BOLTS	1/4-20 x 1.5" HEX BOLT, GR2, PLATED	HWP0203	2
13	CONTROL ROD COUPLER		BU-0012775	1
14	CLAMP BOLTS	7/16-14 x 1" HEX BOLT, GR5, PLATED	HWP0210	4
14	CLAMP NUTS	7/16-14 SERR FLANGE NUT, PLATED	HWP0233	4
15	CONTROL ROD BRACKET NUTS	7/16-14 SERR FLANGE NUT, PLATED	HWP0233	5
15	CONTROL ROD BRACKET BOLTS	7/16-14 x 1.25" HEX BOLT, GR5, PLATED	HWP0271	5
16	LOCKOUT CLIP	HITCH PIN CLIP 210	HWP19463	1
17	CONTROL ROD (BU-309)		BU-0027770	2

BU-ESK-10 10" Tube Parts List

ITEM NO.	DESCRIPTION		PART NO.	QTY
BU-310				
1	LOWER TUBE CLAMPS		BU-0019801	2
2	E-SUMP BOTTOM ASSEMBLY		BU-0100209	1
3	IH TOP ASSEMBLY		BU-0027724	1
4	PUSH/PULL HANDLE		BU-0100202	1
5	HANDLE SUPPORT ROD		BU-0100204	1
6	HANDLE LOCKOUT BRACKET		BU-0100205	1
7	E-SUMP BRACKET ASSEMBLY		BU-0100200	1
8	CONTROL ROD BRACKET		BU-0100206	5
9	GATE BRACKET ROD NUTS	1/4-20 NYLON LOCKNUT, PLATED	HWP0088	2
9	GATE BRACKET ROD BOLTS	1/4-20 x 1.5" HEX BOLT, GR2, PLATED	HWP0203	2
10	HANDLE NUTS	1/4-20 NYLON LOCKNUT, PLATED	HWP0088	2
10	HANDLE BOLTS	1/4-20 x 1.5" HEX BOLT, GR2, PLATED	HWP0203	2
11	HANDLE LOCKOUT BRACKET NUTS	1/4-20 NYLON LOCKNUT, PLATED	HWP0088	2
11	HANDLE LOCKOUT BRACKET BOLTS	1/4-20 x 1" HEX BOLT, GR2, PLATED	HWP0258	2
12	COUPLER NUTS	1/4-20 NYLON LOCKNUT, PLATED	HWP0088	2
12	COUPLER BOLTS	1/4-20 x 1.5" HEX BOLT, GR2, PLATED	HWP0203	2
13	CONTROL ROD COUPLER		BU-0012775	1
14	CLAMP BOLTS	7/16-14 x 1" HEX BOLT, GR5, PLATED	HWP0210	4
14	CLAMP NUTS	7/16-14 SERR FLANGE NUT, PLATED	HWP0233	4
15	CONTROL ROD BRACKET NUTS	7/16-14 SERR FLANGE NUT, PLATED	HWP0233	5
15	CONTROL ROD BRACKET BOLTS	7/16-14 x 1.25" HEX BOLT, GR5, PLATED	HWP0271	5
16	LOCKOUT CLIP	HITCH PIN CLIP 210	HWP19463	1
17	CONTROL ROD (BU-309)		BU-0027770	2

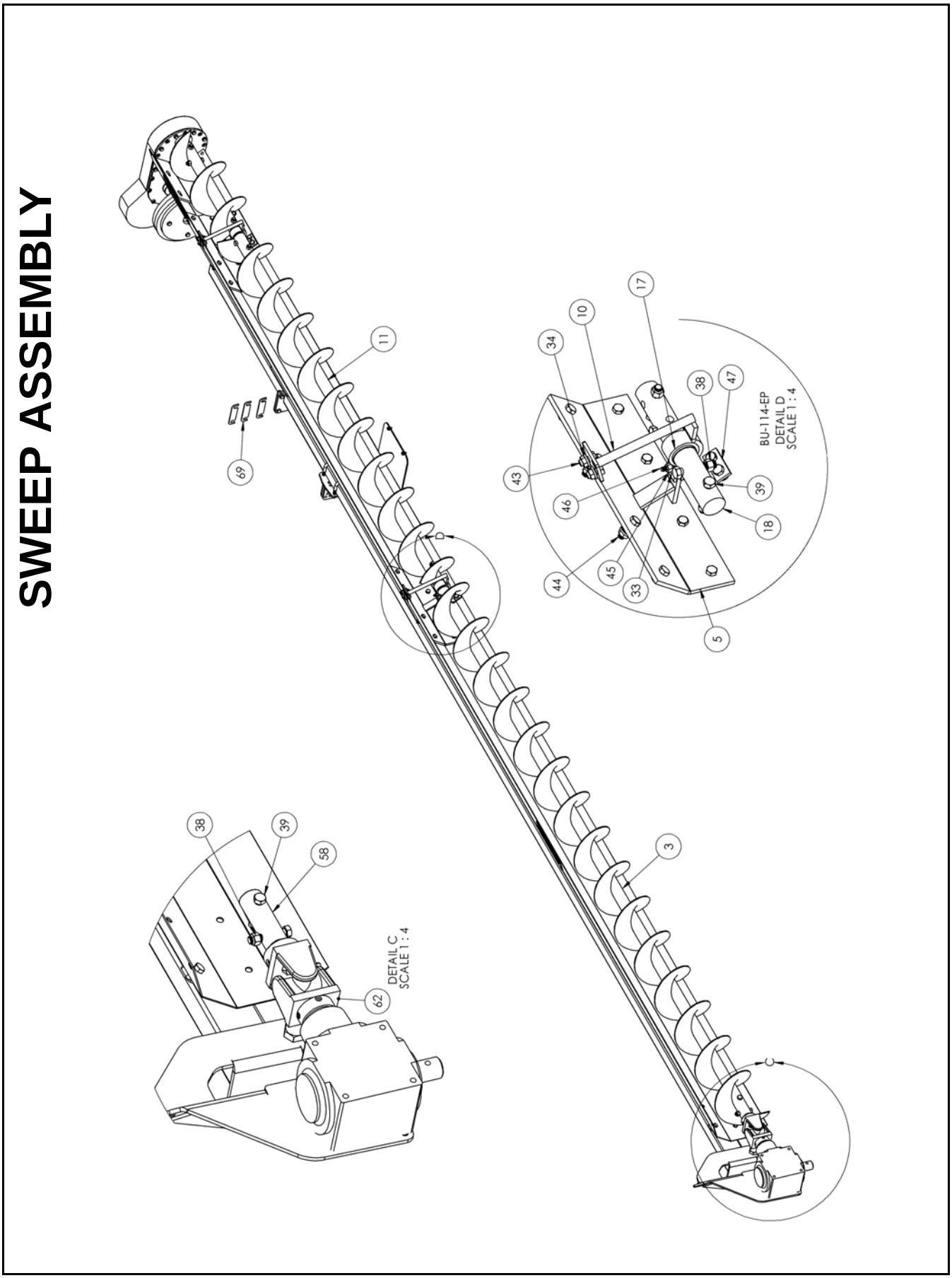

SWEEP ASSEMBLY
11
69
17
10
34
38
47
43
46
39
18
44
45
33
5
BU-114-EP
DETAIL D
SCALE 1 : 4
3
38
39
58
62
DETAIL C
SCALE 1 : 4

Figure 8.12

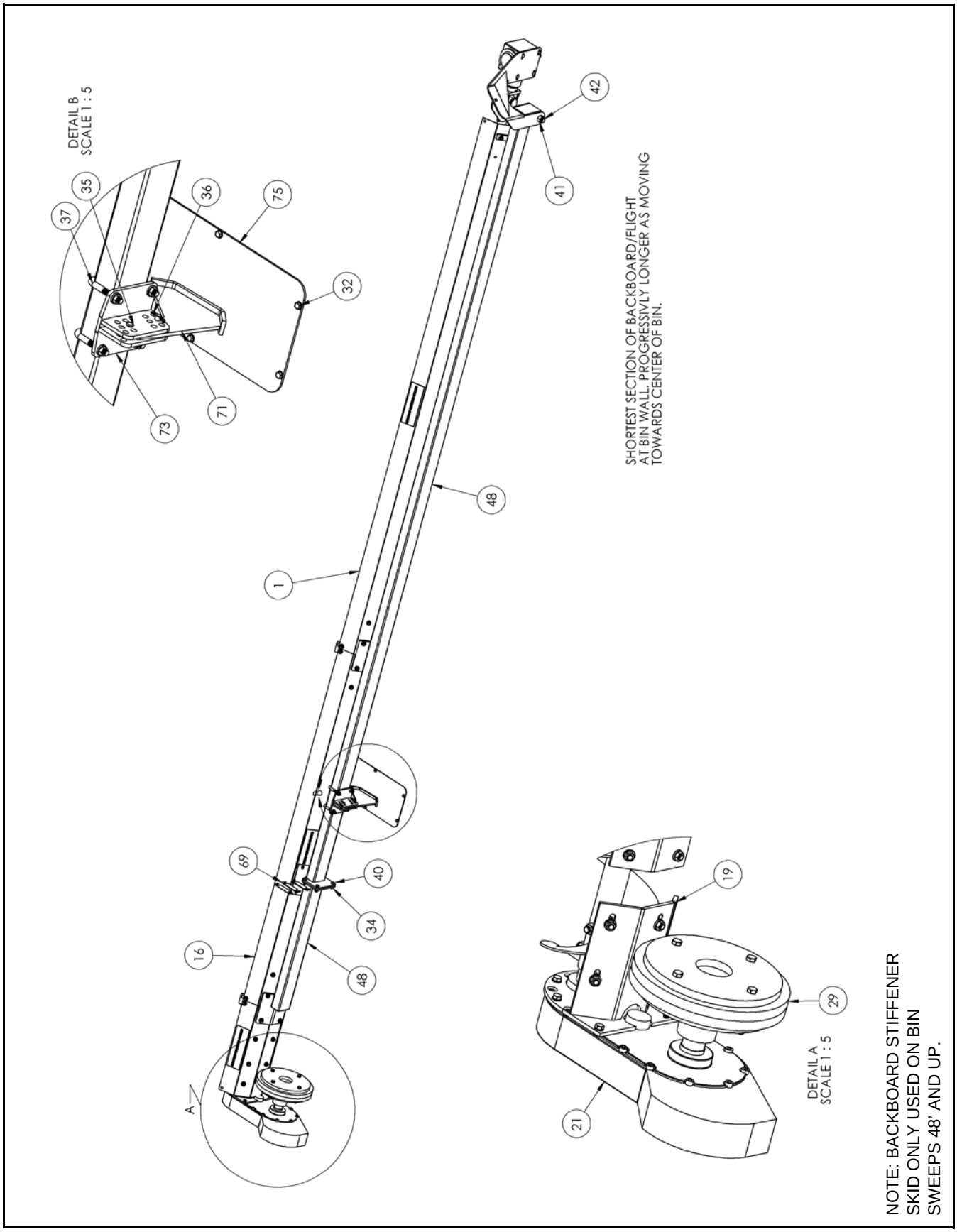

DETAIL B
SCALE 1 : 5
37
35
36
75
32
73
71
42
41
SHORTEST SECTION OF BACKBOARD/FLIGHT
AT BIN WALL. PROGRESSIVLY LONGER AS MOVING
TOWARDS CENTER OF BIN.
48
1
69
40
34
16
48
A
A
19
29
21
DETAIL A
SCALE 1 : 5
NOTE: BACKBOARD STIFFENER
SKID ONLY USED ON BIN
SWEEPS 48' AND UP.

Figure 8.13

ITEM NO.	PART NO.	DESCRIPTION	QTY																		
			14	15	18	19	21	22	24	25	27	30	32	33	36	38	42	44	48	54	60
48	100113	BACKBOARD STIFFENER, BASE (158 9/16")	-	-	-	-	-	-	-	-	-	1	-	1	1	-	1	1	1	1	1
	100464	BACKBOARD STIF 14'	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	100414	BACKBOARD STIF 15' (68 5/16")	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	100441	BACKBOARD STIF 18' (86 5/16")	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	100408	BACKBOARD STIF 21' (104 5/16")	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	100382	BACBOARD STIF, 22' (105 5/16")	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	100160	BACKBOARD STIFFNER, 24' (122 9/16")	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
	100285	BACKBOARD STIF, 25' (125 1/2")	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-
	100162	BACKBOARD STIFFNER, 27' (131 9/16")	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
	100350	BACKBOARD STIF, 32' EXT (13 5/8")	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-
	100131	BACKBOARD STIFF, 33' EXT (20 3/4")	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-
	100133	BACKBOARD STIFF, 36' EXT (29 3/4")	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
	100342	BACBOARD STIF BASE 38' (118 11/16")	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-
	100120	BACKBOARD STIFF, 42' EXT (65 3/4")	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-
	100215	BACKBOARD STIFF, 44' EXT (80 1/2")	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-
	100136	BACKBOARD STIF, 48' EXT (110 7/8")	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
	100139	BACKBOARD STIFF, 54' EXT (136 7/8")	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
	100142	BACKBOARD STIFFENER, 60' EXT (182")	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
71	100124	BACKBOARD STIFFENER, SKID	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1
73	100127	BACKBOARD SKID MOUNT WELDMENT	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1
43, 40	HWP0204	BOLT HEX 3/8-16 X 1"	8	8	8	8	8	8	8	8	16	8	8	16	16	16	16	16	16	20	20
34	HWP0232	NUT SERR FLANGE 3/8-16	14	14	14	14	14	14	14	14	22	14	14	22	22	22	22	22	26	38	38
42	HWP0267	BOLT HEX 3/4-10 X 4-1/2"	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
44	HWP0268	BOLT HEX 3/8-16 X 1-1/4"	10	10	10	10	10	10	10	10	14	10	10	14	14	14	14	14	18	22	22
41	HWP0269	NUT LOCK STOVER 3/4-10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
37	HWP0276	BOLT-U SQ 3/8-16 X 3 X 2-3/4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2
35	HWP0277	PIN CLEVIS 3/8 X 15/16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2
36	HWP0278	PIN COTTER 3/32" X 1"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2	2
69	100116	SHIM 14 GA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3
	100117	SHIM 16 GA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3
	100118	SHIM 20 GA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	3	3
34	HWP0224	NUT LOCK, NYLON 3/8-16	-	-	-	-	-	-	-	-	4	-	-	4	4	4	4	4	8	8	8
75	100156	PLATE, SWEEP PARKING	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1
32	HWP0279	SCREW TAP #14 X 1/2"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6	6	6
DETAIL D	BU-114-EP	SWEEP JOINTER KIT EP	-	-	1	1	-	1	1	1	2	1	1	1	2	2	2	2	2	3	3

ITEM NO.	PART NO.	DESCRIPTION	QTY																		
			14	15	18	19	21	22	24	25	27	30	32	33	36	38	42	44	48	54	60
1,16	27161	BINSWEEP BACKBOARD, 1.5' (18")	-	-	1	1	-	-	-	-	1	-	-	-	1	-	1	-	-	1	-
	27162	BINSWEEP BACKBOARD, 4.5' (54")	-	-	-	-	-	2	1	-	1	1	-	-	-	-	-	-	1	-	1
	28578	BINSWEEP BACKBOARD, 5.5' (64")	1	-	-	-	-	-	-	2	-	-	1	-	-	1	-	1	-	-	-
	27163	BINSWEEP BACKBOARD, 6' (71")	-	1	1	1	-	-	1	-	1	-	-	1	1	2	-	1	-	1	1
	27164	BINSWEEP BACKBOARD, 9' (107")	-	-	-	-	1	-	-	-	-	1	1	1	1	-	2	1	2	2	2
3,11 600 Series	27811	BINSWEEP FLIGHT, 6" X 1.5' (16.75")	-	-	1	1	-	-	-	-	1	-	-	-	1	-	1	-	-	1	-
	27812	BINSWEEP FLIGHT, 6" X 4.5' (52.75")	-	-	-	-	-	2	1	-	1	1	-	-	-	-	-	-	1	-	1
	100392	BINSWEEP FLIGHT, 6" X 5.5' (62.75")	1	-	-	-	-	-	-	2	-	-	1	-	-	1	-	1	-	-	-
	27813	BINSWEEP FLIGHT, 6" X 6' (69.75")	-	1	1	1	-	-	1	-	1	-	-	1	1	2	-	1	-	1	1
	27814	BINSWEEP FLIGHT, 6" X 9' (105.75")	-	-	-	-	1	-	-	-	-	1	1	1	1	-	2	1	2	2	2
3,11 700 Series	27165	BINSWEEP FLIGHT, 7" X 1.5' (16.75")	-	-	1	1	-	-	-	-	1	-	-	-	1	-	1	-	-	1	-
	27166	BINSWEEP FLIGHT, 7" X 4.5' (52.75")	-	-	-	-	-	2	1	-	1	1	-	-	-	-	-	-	1	-	1
	28579	BINSWEEP FLIGHT, 7" X 5.5' (62.75")	1	-	-	-	-	-	-	2	-	-	1	-	-	1	-	1	-	-	-
	27167	BINSWEEP FLIGHT, 7" X 6' (69.75")	-	1	1	1	-	-	1	-	1	-	-	1	1	2	-	1	-	1	1
	27168	BINSWEEP FLIGHT, 7" X 9' (105.75")	-	-	-	-	1	-	-	-	-	1	1	1	1	-	2	1	2	2	2

DETAIL D		DESCRIPTION	QTY
	BU-114-EP	SWEEP JOINTER KIT (EP)	
10	100173	EP ROLL BAR	1
47	100174	LOWER BACKBOARD CONNECTOR	1
18	27173	JOINTER SHAFT	1
5	27169	BUSHING MOUNT	1
17	27149	BUSHING NYLON	1
	BU-0014619	BU-114 BOLT BAG	
46	HWP0203	BOLT HEX 1/4-20 X 1-1/2" GR2 ZP	1
42	HWP0204	BOLT HEX 3/8-16 X 1" GR5 ZP	8
43	HWP0205	BOLT HEX 3/8-16 X 3/4" GR5 ZP	4
39	HWP0211	BOLT HEX 7/16-14 X 2-1/4" GR8 ZP	4
38	HWP0227	NUT LOCK NYLON 7/16-14 ZP	4
45	HWP0088	NUT LOCK, NYLON 1/4-20 ZP	1
32,34	HWP0232	NUT SERR FLANGE 3/8-16 ZP	12
33	HWP0244	WASHER FLAT 5/16 ZP	1
DETAIL C		DESCRIPTION	QTY
62	28334	UNIVERSAL JOINT, 6R SERIES	1
58	27172	BINSWEEP GEARBOX SHAFT	1
DETAIL A		DESCRIPTION	QTY
19	100381	SWEEP GRBX MOUNT WELDMENT	1
21	27782	SWEEP GEARBOX 10:1	1
29	100166	REPLACEMENT RUBBER ONLY	2

HORIZONTAL DISCHARGE COMPONENTS

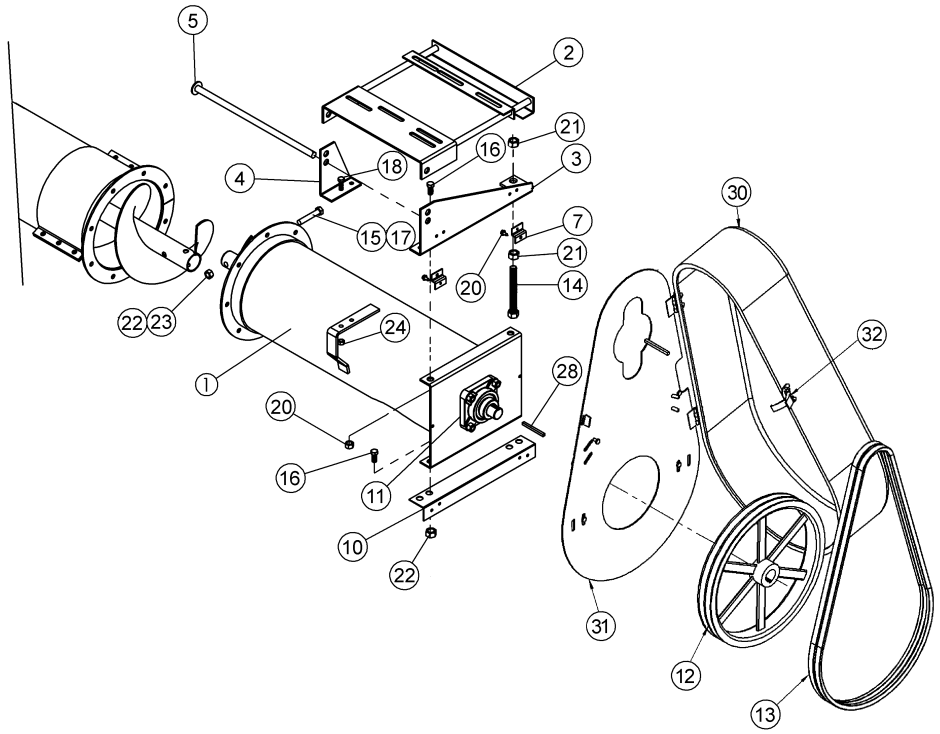


Figure 8.14

ITEM NO.	PART NO.		DESCRIPTION
	8"	10"	
1	BU-0027437	BU-0027154	HORIZONTAL TUBE, AS SHIPPED
1	BU-0027470	BU-0027471	HORIZONTAL TUBE ONLY
1	BU-0027436	BU-0027153	HORIZONTAL FLIGHTING
2	BU-0027462	---	6/7/8 MOTOR MOUNT
2	---	BU-0027467	10/13 MOTOR MOUNT
3	BU-0028426	BU-0027465	FRONT MOUNT PLATE
4	BU-0027461	BU-0027466	REAR MOUNT PLATE
5	BU-0027463	BU-0027468	HINGE ROD
6	BU-0027464	---	SHIELD STRAP (USED ONLY ON 8" PWRHD)
7	---	BU-0027469	SHIELD SPACER
8	BU-0019845	BU-0019845	2 PC PULLEY SHIELD
9	---	19930	UT-10 SHIELD EXTENSION
10	---	18245	SHIELD MOUNT LOWER
11	---	19567	1-1/4" BEARING, 4-BOLT W/ FLANGE
11	---	18852	1-1/4" BEARING, LESS FLANGE
11	19322	---	1-1/4" FLANGETTE BEARING, 2 BOLT
11	18853	---	1-1/4" BEARING, LESS FLANGES
12	---	19950	15" DOUBLE PULLEY (1-1/4" BORE)
12	19613	---	13" DOUBLE PULLEY (1" BORE)
13	19844	---	B51 BELTS
14	27249	27249	ADJUST BOLT, 5/8" X 6"
15	---	19798	BOLT, 1/2" - 13 X 2-3/4", GRADE 8

ITEM NO.	PART NO.		DESCRIPTION
	8"	10"	
16	19589	19589	BOLT, 1/2" - 13 X 1-1/2", GRADE 5
17	19545	---	BOLT, 7/16" - 14 X 2-1/4", GRADE 8
18	18955	18955	BOLT, 3/8" - 16 X 1", GRADE 5
19	19537	19537	BOLT, 1/4" - 20 X 1/2", GRADE 5
20	19274	19274	SELF-TAPPING SCREW, #14 X 5/8"
21	19864	19864	HEX NUT, 5/8" - 12
22	19599	19599	LOCKNUT, 1/2" - 13
23	19598	19598	LOCKNUT, 7/16" - 14
24	17402	17402	LOCKNUT, 3/8" - 16
25	19594	19594	WHIZ NUT, 1/4" - 20
26	17401	17401	FLAT WASHER, 1/2"
27	19271	19271	COTTER PIN, 1/8" X 1-1/2"
28	19606	---	SQUARE KEY, 1/4" X 1-1/2"
28	---	17854	SQUARE KEY, 1/4" X 2-1/2"
29	28050	---	UT6/8 PULLEY GUARD, AS SHIPPED
29	---	28052	UT10/13 PULLEY GUARD, AS SHIPPED
30	28049	---	SMALL PLASTIC PULLEY GUARD
30	---	28048	LARGE PLASTIC PULLEY GUARD
31	28044	---	UT6/8 PULLEY GUARD BACKPLATE ONLY
31	---	28046	UT10/13 PULLEY GUARD BACKPLATE ONLY
32	18168	18168	TOGGLE LATCH

INCLINED DISCHARGE COMPONENTS

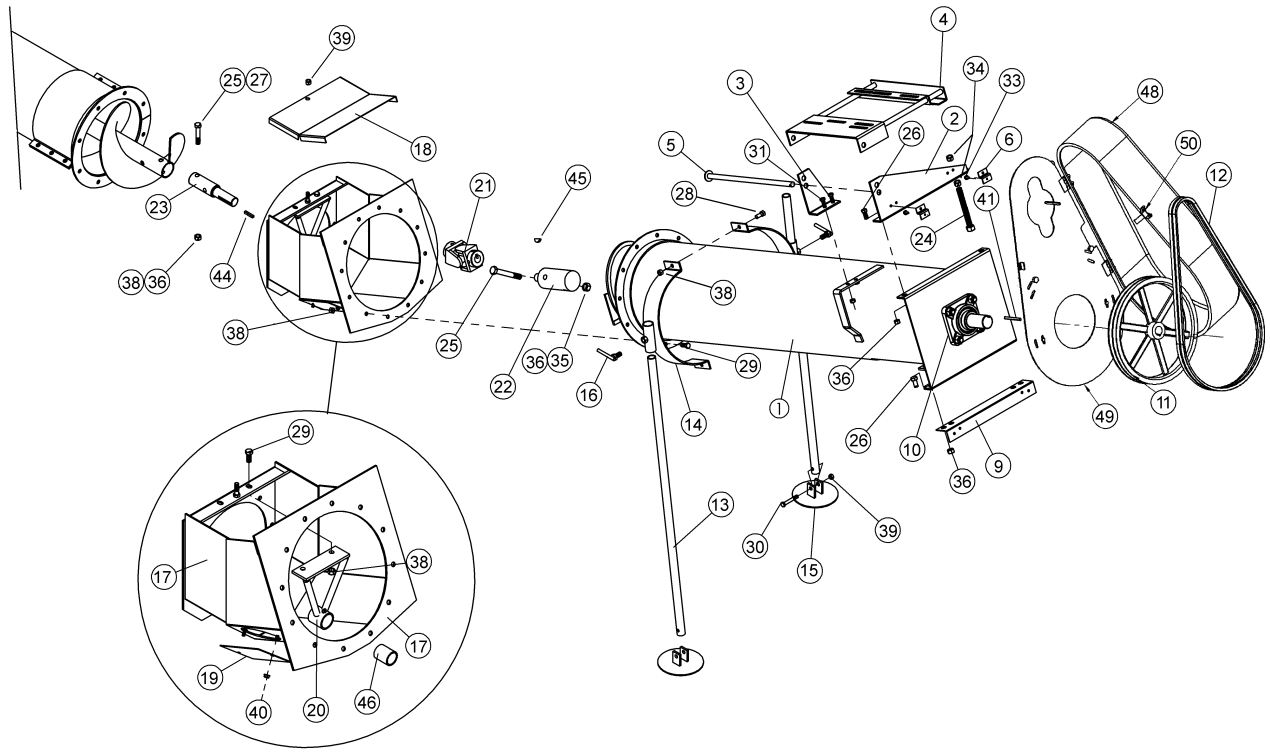


Figure 8.15

ITEM NO.	PART NO.		DESCRIPTION
	8”	10”	
1	BU-0027435	BU-0027151	INCLINE TUBE, AS SHIPPED
1	BU-0027433	BU-0027150	INCLINE TUBE ONLY
1	BU-0027434	BU-0027152	INCLINE FLIGHTING
2	BU-0027465	BU-0027465	FRONT MOUNT PLATE
3	BU-0027466	BU-0027466	REAR MOUNT PLATE
4	BU-0027467	BU-0027467	10/13 MOTOR MOUNT
5	BU-0027468	BU-0027468	HINGE ROD
6	BU-0027469	BU-0027469	SHIELD SPACER
9	BU-0018245	BU-0018245	SHIELD MOUNT LOWER
10	—	BU-0018518	1-3/4" BEARING, W/ 4 BOLT FLANGE
10	—	17527	1-3/4" BEARING, LESS FLANGE
10	19567	—	1-1/4" BEARING, W/ 4 BOLT FLANGE
10	18852	—	1-1/4" BEARING, LESS FLANGE
11	19950	—	15" DOUBLE PULLEY (1-1/4" BORE)
11	19933	—	15" TRIPLE PULLEY (1-1/4" BORE)
11	—	17396	16" TRIPLE PULLEY (1-3/4" BORE)
12	19934	—	B62 BELTS
12	—	19935	B67 BELTS
13	BU-0027184	BU-0027184	INCLINE ADJUST LEG
14	BU-0027450	BU-0027185	INCLINE ADJUST CLAMP - LH
14	BU-0027451	BU-0027186	INCLINE ADJUST CLAMP - RH
15	BU-0027183	BU-0027183	INCLINE ADJUST BASE PAD
16	BU-0027190	BU-0027190	INCLINE ADJUST BOLT
17	BU-0027429	BU-0027445	FIXED INCLINE, AS SHIPPED

ITEM NO.	PART NO.		DESCRIPTION
	8”	10”	
23	BU-0027431	BU-0027140	TRANSITION STUB SHAFT
24	BU-0027249	BU-0027249	ADJUST BOLT, 5/8” X 6”
25	—	18545	BOLT, 5/8" - 11 X 4-1/2", GRADE 8
25	19798	19798	BOLT, 1/2" - 13 X 2-3/4", GRADE 8
26	19589	19589	BOLT, 1/2" - 13 X 1-1/2", GRADE 5
27	19545	—	BOLT, 7/16" - 14 X 2-1/4", GRADE 8
28	18698	18698	BOLT, 7/16" - 14 X 1-1/4”, GRADE 5
29	19542	19542	BOLT, 7/16" - 14 X 1", GRADE 5
30	18699	18699	BOLT, 3/8" - 16 X 2-1/2", GRADE 5
31	18955	18955	BOLT, 3/8" - 16 X 1", GRADE 5
32	19537	19537	BOLT, 1/4" - 20 X 1/2", GRADE 5
33	BU-0019274	BU-0019274	SELF-TAPPING SCREW, #14 X 5/8”
34	19864	19864	HEX NUT, 5/8" - 11
35	—	19600	LOCKNUT, 5/8" - 11
36	19599	19599	LOCKNUT, 1/2" - 13
37	19597	19597	WHIZ NUT, 7/16" - 14
38	19598	19598	LOCKNUT, 7/16" - 14
39	17402	17402	LOCKNUT, 3/8" - 16
40	19594	19594	WHIZ NUT, 1/4" - 20
41	17401	17401	FLAT WASHER, 1/2”
42	19271	19271	COTTER PIN, 1/8” X 1-1/2”
43	17854	—	SQUARE KEY, 1/4" X 2-1/2"
43	—	18541	SQUARE KEY, 3/8" X 3-1/2"
44	19606	19606	SQUARE KEY, 1/4" X 1-1/2"

ITEM NO.	PART NO.		DESCRIPTION
	8"	10"	
17	BU-0027426	BU-0027444	FIXED INCLINE ONLY
18	27427	27446	FIXED INCLINE LID
19	27430	18874	ACCESS COVER
20	27428	27139	BUSHING SUPPORT
21	BU-0027141	BU-0027141	BU U-JOINT, 12R SERIES
22	BU-0027432	BU-0027409	LOWER FLIGHT STUB SHAFT

ITEM NO.	PART NO.		DESCRIPTION
	8"	10"	
45	19244	19244	WOODRUFF KEY, 1/4" X 1"
46	19776	19776	1-1/4" PRESS-IN BUSHING
47	28052	28052	UT10/13 PULLEY GUARD, AS SHIPPED
48	28048	28048	LARGE PLASTIC PULLEY GUARD ONLY
49	28046	28046	UT10/13 PULLEY GUARD BACK-PLATE ONLY
50	18168	18168	TOGGLE LATCH

LOWER GEARBOX W/SHIFTER - 8" & 10" Underfloor System

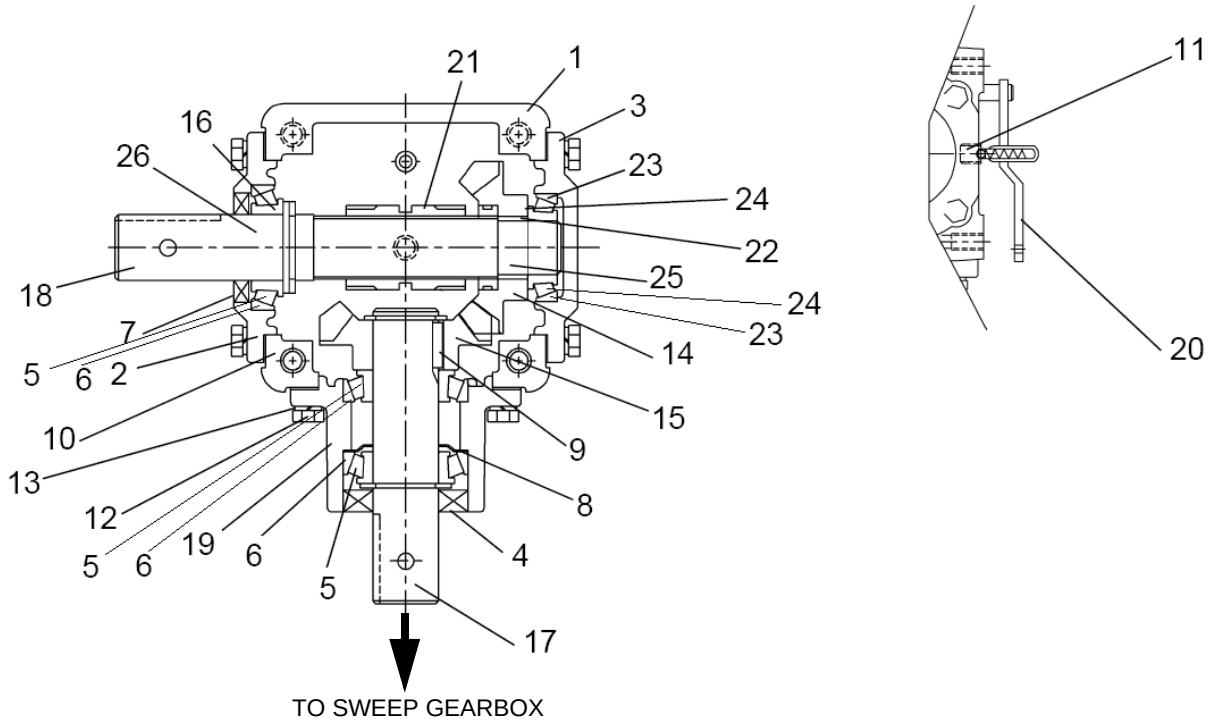


Figure 8.16

ITEM	PART NO.	DESCRIPTION
1	27808	HOUSING
2	27791	END CAP
3	27792	END CAP
4	18427	SEAL, NA T #47 1808, CR#12614
5	19265	BEARING CONE, TIMKEN #LM67048
6	19266	BEARING CUP, TIMKEN #LM67010
7	18403	SEAL, NA T#470553, CD #12458
8	18965	GREASE WASHERS
9	18380	KEY, 1/4" SQ X 3/4" LG.
10	18390	SIM, 0.05"
11	28296	PIPE PLUG, 1/4" NPT (1/4" HEX)
12	19538	CAP SCREW, 5/16" UNC X 3/4"
13	19603	LOCKWASHER, 5/16"

ITEM	PART NO.	DESCRIPTION
14	27807	GEAR NO KEYWAY, 19 TEETH
15	27797	GEAR WITH KEYWAY, 19 TEETH
16	18962	SNAP RING
17	27796	OUTPUT SHAFT
18	27806	INPUT SHAFT
19	27800	QUILL
20	27802	COMPLETE LEVER KIT
21	27803	DOG
22	27804	BRONZE BUSHING
23	18383	BEARING CONE, TIMKEN #L44643
24	18382	BEARING CUP, TIMKEN #L44610
25	18411	0.007 SIM (1.25" I.D.)
26	18426	SPACER

UPPER GEARBOX - 8" & 10" Underfloor System

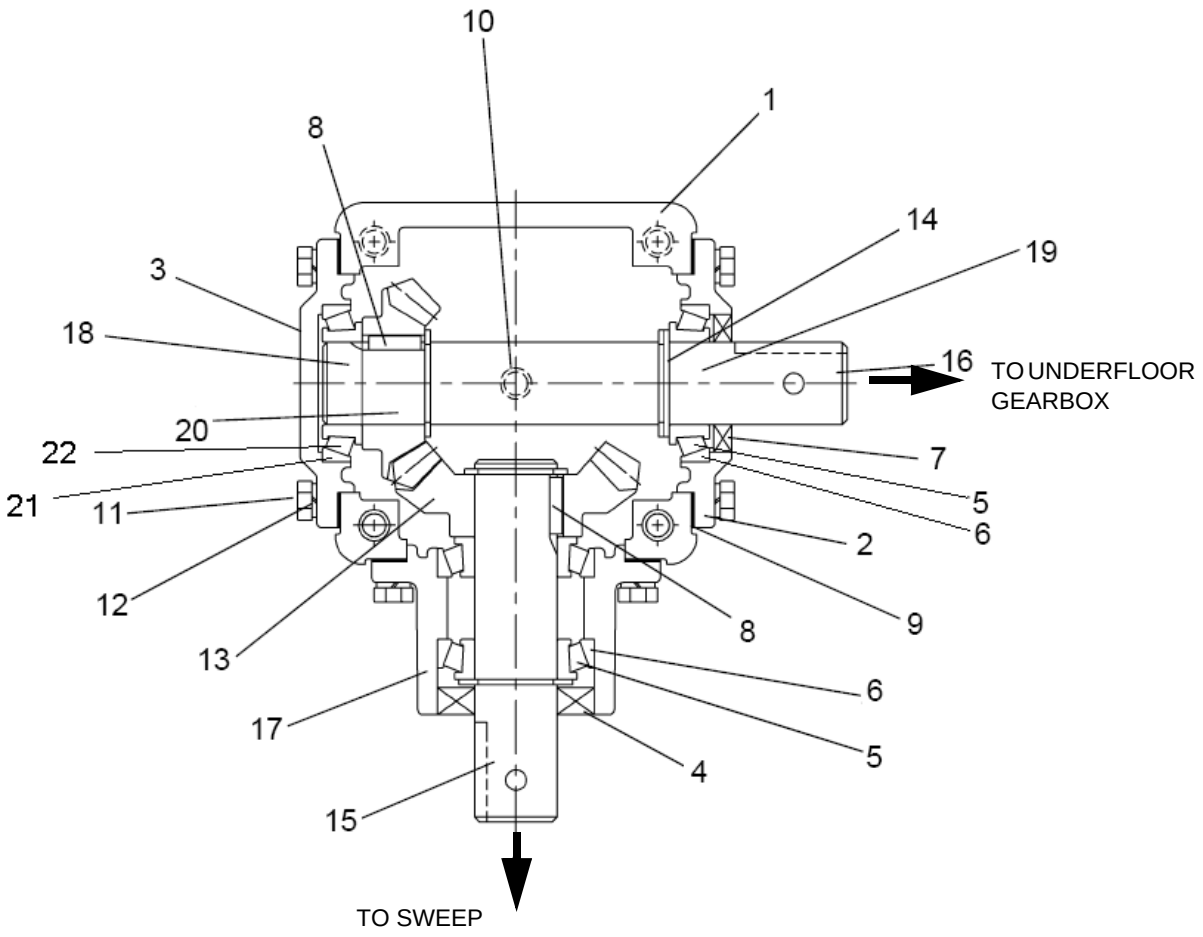


Figure 8.17

ITEM	10" SYSTEM (NO REDUCTION)	8" SYSTEM (1.35 REDUCTION)	DESCRIPTION
1	27790	27790	HOUSING
2	27791	27791	END CAP
3	27792	27792	END CAP
4	18427	18427	SEAL, NAT #471808, CR#12614
5	19265	19265	BEARING CONE, TIMKEN #LM 67048
6	19266	19266	BEARING CUP, TIMKEN #LM 67010
7	18403	18403	SEAL, NAT #470553, CR#12458
8	18380	18380	KEY 1/4" SQ X 3/4" LG.
9	18390	18390	SHIM KIT, 0.05, 0.0075, 0.20
10	28296	28296	PIPE PLUG 1/4" NPT (1/4" HEX)
11	19538	19538	CAP SCREW, 5/16" UNC X 3/4"
12	19603	19603	LOCKWASHER, 5/16"

ITEM	10" SYSTEM (NO REDUCTION)	8" SYSTEM (1.35 REDUCTION)	DESCRIPTION
13	27797	27794	GEAR, DP6, (19 TEETH 10") (23 TEETH 8")
14	18962	18962	SNAP RING
15	27798	100212	OUTPUT SHAFT
16	27799	27805	INPUT SHAFT
17	27800	27800	QUILL
18	18411	18411	0.007 SHIM (1.25" I.D.)
19	18426	18426	SPACER
20	27797	27801	10"-19 TEETH, 8"-17 TEETH
21	19266	-	CUP, BEARING TIMKEN #LM 67010
	-	18382	CUP, BEARING TIMKEN #LM 44610
22	19265	-	CONE, BEARING TIMKEN #LM 67048
	-	18383	CONE, BEARING TIMKEN #LM 44643

8.4. CERTIFICATIONS

EC Declaration of Conformity

MANUFACTURER: Applegate Livestock Equipment, a division of AGI - Grain Guard and Twister Brands
PO Box 151, 902 South St. Road 32, Union City, Indiana, 47390, USA

CONTACT IN EU FOR TECHNICAL CONSTRUCTION FILE: R&D Manager, Mepu Oy, Mynämäentie 59, 21900, Yläne, Finland

PRODUCT DESCRIPTION:

Description	For Bin Model	For Bin Diameter (FT)	For Bin Diameter (m)
U-Trough and BinSweep Models for 3" Corrugated Bins	25, 32, 38, 44	25'6", 31'10", 38'2", 44'7"	7.77, 9.7, 11.63, 13.59
Bin Unload and Sweep Models for 3" Corrugated Bins	14, 19, 22, 25, 32, 38, 44	13'9", 19', 22'3", 25'6", 31'10", 38'2", 44'7"	4.19, 5.79, 6.78, 7.77, 9.7, 11.63, 13.59
U-Trough and BinSweep Models for 4" Corrugated Bins	24, 27, 30, 33, 36, 42, 48, 60	23'10", 26'10", 29'10", 32'10", 35'10", 41'9", 47'9", 59'8"	7.28, 8.19, 9.10, 10.01, 10.91, 12.73, 14.55, 18.19
Bin Unload and Sweep Models for 4" Corrugated Bins	24, 27, 30, 33, 36, 42, 48, 60	23'10", 26'10", 29'10", 32'10", 35'10", 41'9", 47'9", 59'8"	7.28, 8.19, 9.10, 10.01, 10.91, 12.73, 14.55, 18.19

APPLICABLE EUROPEAN DIRECTIVES AND STANDARDS:

Applicable Directives	Applicable Standards	Certification Method
Machinery Directive 2006/42/EC	EN 12100, EN 618, EN 953, EN ISO 13857, ISO 3600, ISO 11684	Self Certified, per Article 12 of the Directive
ATEX Directive 94/9/EC	EN 1127-1, EN 13463-1, EN 13463-5	Self Certified, per Article 8 of the Directive

NOTIFIED BODY - Not Applicable

ATEX product marking: CE II 3 D c T200ºC

The product described in this Declaration of Conformity complies with the Applicable European Directives and relevant sections of the applicable international standards. A Technical Construction File is available for inspection by designated bodies.

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 one (1) year 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 warrantied 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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