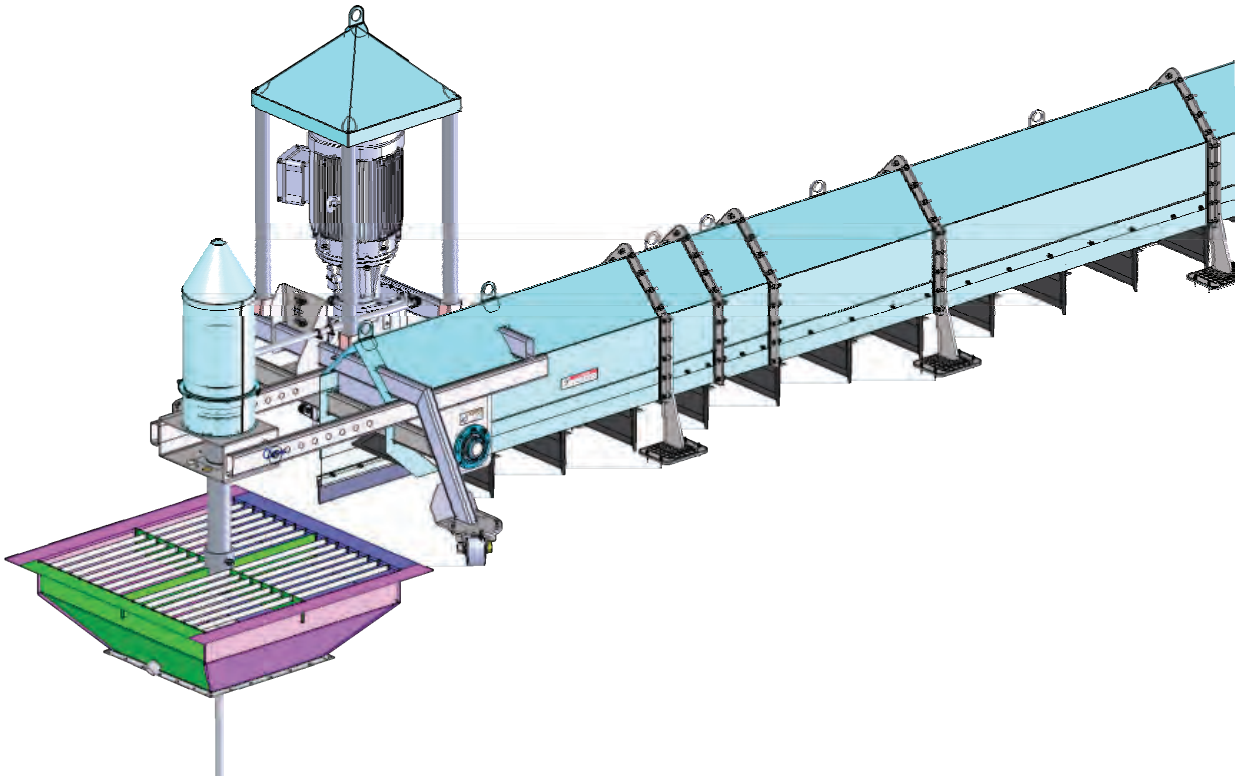
DPS 12K



DPS 12K Bin Sweep

Assembly, Operation & Maintenance Manual

Sioux Steel Company
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MANUAL NO. 770377 01/17/21

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Introduction

- **T**he Purpose of this manual is to explain the operation and maintenance of the paddle sweep. It also contains parts lists for reference, if replacement parts are needed.
- It is recommended that you read this manual in its entirety for the information available in order to provide the proper care and maintenance of the paddle sweep. The equipment is built to provide many years of dependable service when used properly. Reading this manual will also provide information on how to use the equipment correctly to prevent any accidents while using the system.
- If you have any further questions, comments, improvements or suggestions regarding the contents of any of the information provided, please see the contact information below.
- This machine is covered by one or more United States patents. Refer to www.siouxsteel.com for current patent information. Or scan this QR Code to go directly to the patent area on the website.

All safety decals are no charge from the factory.
Please replace all safety decals if damaged or missing.
Your safety is important.

WARNING! ***Anyone who will be operating or working around the equipment should first read this manual to familiarize themselves with the machinery.***

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Sioux Falls, SD 57101-1265

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Table of Contents

Chapter 4 - Table Of Contents

NOTES

Chapter 1 – Introduction to Using the Manual

1.1 General Description

This manual is a reference for the DPS 12K Bin Sweep. It is designed to provide clear and simple explanations of safety, equipment overview, operator controls, routine operating, maintenance procedures and adjustments, and repair procedures.

Use the information and procedures contained in this reference manual to operate, maintain, adjust, and repair the equipment.

1.2 What this Manual Contains

Chapter 1 – Introduction: Provides an overview of this manual.

Chapter 2 – Safety: Contains safety guidelines for operating and maintaining the DPS 12K Bin Sweep.

Chapter 3 – Component Description & Specifications: Provides a description of major components and lists miscellaneous specifications of the DPS 12K Bin Sweep.

Chapter 4 – Set Up and Installation: Provides step by step instructions on the set up and installation of the DPS 12K Bin Sweep.

Chapter 5 – Operating Instructions: Contains information on operation of the DPS 12K Sweep.

Chapter 6 – Maintenance & Lubrication: Contains information on preventive maintenance and lubrication with the DPS 12K Bin Sweep.

Chapter 7 – Trouble Shooting: Contains troubleshooting tables on issues with the DPS 12K Bin Sweep.

Chapter 8 – Adjustments & Repairs: Contains information on how to repair the DPS 12K Bin Sweep.

Chapter 9 – Exploded Views and Parts Lists: Displays exploded views & parts lists on all the components of the DPS 12K Bin Sweep.

Chapter 10 – Appendix & Reference Material: Includes any reference materials critical to operate and maintain the DPS 12K Bin Sweep.

1.3 How to Use This Manual

There are three ways to find information in this manual:

- The Header at the top of each page contains the page number.
- The Footer at the bottom of each page contains the chapter name.
- The Table of Contents lists the chapters and sections of the manual.

NOTES

Chapter 2 - Safety Instructions

This chapter contains safety guidelines for operating and maintaining the DPS 12K Bin Sweep. It describes the safety instructions included throughout this manual, lists safe practices to observe when operating or working on the equipment and describes the safety devices used on the DPS 12K BIN Sweep. Read this chapter before attempting to operate the equipment. This chapter contains the following sections:

Chapter 2 - Table Of Contents

INTRODUCTION TO SAFETY SECTION

The repair information contained in this manual is intended for use by qualified and trained technicians.
Proper training is a must! Attempting service and repairs without proper training can cause serious injury to you and others.
READ and UNDERSTAND this manual completely before attempting to use and/or repair the sweep! Failure to properly set up, operate, and perform maintenance on this sweep could result in serious injury or death to the operator or bystanders.

SAFETY INFORMATION

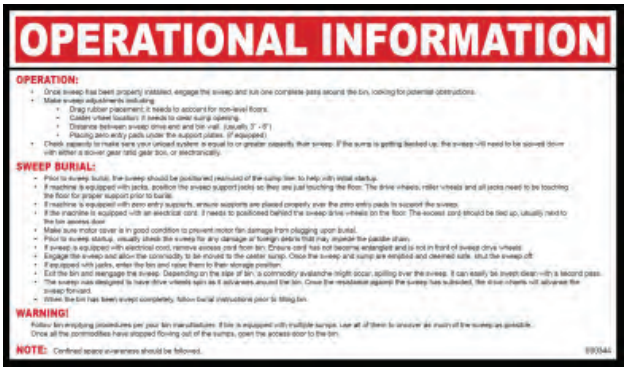
- A careful operator is the best operator. Most accidents can be avoided by observing necessary precautions. To help prevent accidents, read the following precautions before operating this equipment. Equipment should be operated only by those who are responsible and instructed to do so. Carefully review the procedures given in this manual with all operators. It is important that all operators be familiar with and follow safety precautions. Improper use of the equipment can cause serious injury or death.
- Read this manual before operating equipment.
- Only allow properly trained persons to operate the equipment.
- Keep hands and feet away from all pinch points.
- Keep bystanders away during operation. In an empty bin/silo, keep everyone rearward of the sweep during operation to validate installation or maintenance.
- Do not contact (i.e. push, stand, touch, etc.) any portion of the sweep during operation.
- The installation of this sweep takes place within a confined space. Confined space awareness should be followed. Lockout/tag out awareness should be followed.
- A licensed electrician is recommended to wire the unit in accordance with local and federal codes.
- DO NOT clean, lubricate or adjust the equipment while it is running. Disengage the machine prior to doing so.
- Install and ground the slip collector ring and the entire unit in accordance with the National Electric Code (NEC) and local codes and/or ordinances.
- Always disconnect and lockout all power sources from the collector ring before attempting to perform any service function. Follow lockout/tag out procedures as outlined in OSHA section 1910.147 where appropriate.
- An explosion proof motor is required for use in a Class II, Group E, F, G dust environment.
- Refer to the maintenance chart to check all fasteners and hardware to assure tightness.
- **CAUTION:** Too much oil will cause overheating and too little will result in gear failure. Check oil level regularly. More frequent oil changes are recommended when operating continuously, at high temperatures or under conditions of extreme dirt or dust. Check that the vent plug is clear.
- Contact the bin manufacturer for anchor design on bins over 72-feet in diameter and larger for a single pass sweep utilization. Failure to do so may cause damage to the grain bin.
- **REMEMBER:** The manufacturer includes or provides all reasonable means for accident prevention except a safe and careful operator.

SAFETY DECALS

The following safety labels are located in numerous places on the sweep. You must read and adhere to the instructions written on the decals for safe operation of the equipment.

Warning Label Part Number 686033 DANGER - Paddle chain may cause serious injury, keep hands, feet, and clothing away.

Warning Label Part Number 690344 OPERATIONAL INFORMATION



Warning Label - Part Number 688462 - DANGER - Electrical Hazard. Warning Label Part Number Turn off power and lockout before servicing.

Warning Label - Part Number 689771 - Rotating Chain can Crush and Cut. DO NOT Operate Without Guards in Place.

SAFETY ALERT SYMBOLS

The attention symbol shown below is used to call your attention to instructions concerning your personal safety. Watch for this symbol. It points out important safety precautions. It means ATTENTION! Be Alert! Your Personal Safety is Involved!

	**DANGER:** Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. The color associated with Danger is RED.
	**WARNING:** Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. The color associated with Warning is ORANGE.
	**CAUTION:** Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. The color associated with Caution is YELLOW.

SAFETY ALERTS AND SYMBOLS USED THROUGHOUT THE MANUAL

Specific safety instructions are noted throughout this manual. This text will be in bold italic text and each safety instruction will be accompanied by a unique safety symbol in the left-hand margin. Examples of these symbols and their definitions are listed below and on the next page. Some of these symbols may not be used in this specific manual but are used throughout our line of equipment. You should review these safety symbols and statements with great care and learn them before operating the equipment.

	**The "lockout" symbol** indicates a procedure that requires the electrical power and air pressure to be turned off, locked, and tagged before any cleaning or maintenance of equipment.
	**The "high voltage" symbol** indicates a potential electrical hazard. Touching or even getting near electrical components while they are energized can result in serious injury or death. Always ensure that electrical components are de-energized before performing any maintenance or repair.
	**The "pinch point" symbol** indicates that moving machinery components pose a potential hazard. Reaching into the machine or wearing loose clothing near a pinch point can cause fingers to be crushed or clothing to be pulled into the machine. Always use caution when working near pinch points. Do not attempt to bypass machine guards or other safety devices.
	**The "heavy object" symbol** indicates that lifting heavy objects, materials, or equipment poses a potential safety hazard. Serious back injury can result from improper lifting heavy objects, materials, or equipment. Do not lift heavy objects, materials, or equipment without using proper lifting techniques, using an appropriate lifting device, or obtaining the help of another person.
	**The "sharp component" symbol** indicates that sharp machinery components pose a potential hazard. Touching a sharp component can cause serious cuts. Always wear protective gloves, and use caution when working near sharp components.
	**The "hot component" symbol** indicates that hot components or materials pose a potential hazard. Contact with hot components or exposure to steam, hot water, or hot materials can cause serious burns. Always wear protective gloves and long sleeves and use caution when working near hot components.

Safety Hazards on the DPS 12K Bin Sweep

This section lists safety hazards on the DPS 12K Sweep. Specific safety precautions related to each safety hazard are noted throughout this manual with safety instructions.

General

The following safety precautions must be observed at all times:

- Read and understand the contents of this manual before attempting to operate the equipment in the work area.
- Be familiar with all safety procedures and safety devices.
- Know the location of the ON/OFF switch on the DPS 12K Bin Sweep.
- Inspect the Bin Sweep area completely before operating.
- Keep the area around the DPS 12K Bin Sweep clear of construction debris, equipment, and tools.
- Always disconnect and lockout all power sources before attempting to perform any service function. Follow lockout/tag out procedures as outlined in OSHA section 1910.147 where appropriate.
- Ensure that all personnel are clear of the equipment before any automatic or manual function is started.
- Wear the proper personal protection equipment when operating and servicing the DPS 12K Bin Sweep.

HIGH VOLTAGE DANGER: The following safety precaution must be observed at all times:

- The DPS 12K Sweep electrical disconnect must be locked in the OFF position and tagged before making any adjustments or repairs to the equipment. See “Lockout, Tagout and Try Procedures” in this chapter.

PINCH POINTS WARNING: Be aware of the following pinch point hazards on the DPS 12K Sweep:

- Pinch points between the paddles and housing.
- Pinch points between the paddle chain and sprockets.
- Always wear the appropriate protective gear, such as heavy gloves.

HEAVY OBJECTS WARNING: The following safety precautions must be observed when installing heavy machine components on the DPS 12K Bin Sweep:

- Always use the proper lifting techniques to move or lift objects that weigh 50 lbs. (22 kg) or less.
- Always use a hoist or ask for assistance when moving or lifting an object that weighs more than 50 lbs. (22 kg).

SHARP COMPONENTS CAUTION: Be aware of the following sharp components hazards on the DPS 12K Bin Sweep:

- Always wear the appropriate protective gear, such as heavy gloves when handling components with sharp edges.

ON/OFF SWITCHES

The motor starter box is located on the outside of the bin. It has 3 buttons. See Figure 2-1.

- The green ON button provides electrical power to the sweep. When pressed in the ON position, the sweep will start moving inside the bin.
- The red OFF button removes power to the sweep. When pressed in the OFF position, the sweep will stop moving inside the bin.
- The black button is the motor RESET button. The RESET button will reset the motor when a motor amperage overload has occurred. A motor overload can occur if there is a grain backup in the sweep or sump area, the paddle chain will bog down and motor amperage usage will increase. At a pre-determined amperage setting the motor will shut down. Before the motor can be started again the motor RESET button needs to be pressed to reset the motor. See Figure 2-1.

ELECTRICAL DISCONNECT

It is recommended to install a main electrical disconnect. See Figure 2-2 below. A main electrical disconnect controls the flow of electrical power to the DPS 12K Bin Sweep. Moving the electrical disconnect to the ON position would allow current to flow to the sweep. Moving the disconnect to the OFF position would stop the current flow to the sweep.

When the main electrical disconnect is locked in the OFF position, it would be impossible for anyone to turn on the sweep. The electrical disconnect should be locked and tagged out in the OFF position before making any adjustments or repairs to the sweep.

WARNING: ***Always disconnect and lockout all power sources to the DPS 12K Bin Sweep before attempting to perform any service function. Follow lockout/tag out procedures as outlined in OSHA section 910.147 where appropriate.***

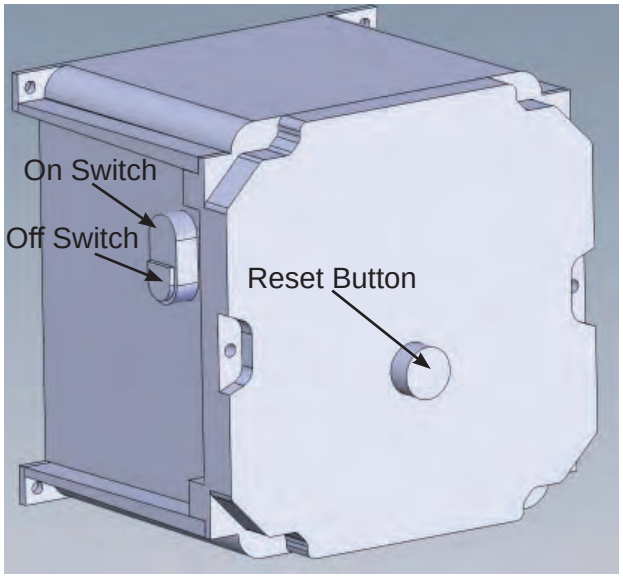


Figure 2-1: Motor Starter Box

Figure 2-2: Typical Electrical Disconnect

OPTIONAL VARIABLE FREQUENCY DRIVE (VFD)

An optional VFD is available to replace the standard motor starter box. A VFD is a type of motor drive used in Electro-Mechanical Drive Systems to vary the motor speed. The optional VFD comes with its own detailed installation and operations manual.

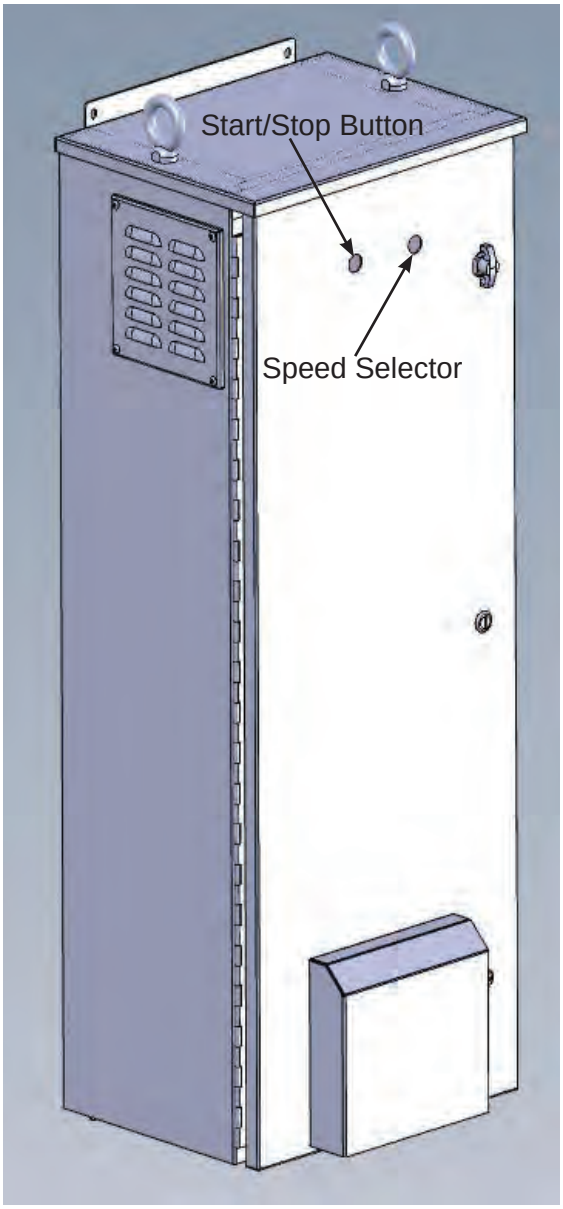


Figure 2-3: Optional Variable Frequency Drive (VFD)

LOCKOUT, TAG, AND TRY PROCEDURE

The lockout, tag and try procedure outlined below is the preferred method of isolating machines or other equipment from energy sources. Lockout protects operators from potential hazards during activities where the unexpected energizing, startup, or release of stored energy could cause injury.

Use the following procedure to disable the DPS Bin12K Sweep before performing maintenance, repairs, or other work on the sweep, where startup could cause injury to personnel or damage to the equipment.

1. Notify appropriate and/or affected personnel of the lockout.
2. Stop the sweep.
3. If installed, there is one electrical disconnect on the DPS 12K Bin Sweep. It is usually located outside the bin near the control box. When locked out in the OFF position, the electrical disconnect removes power to the sweep.
4. Fill out a lockout tag or identification card and place it on the electrical disconnect locking device. Place the lockout tag and lock on the electrical disconnect to prevent the disconnect from being moved to the ON position.
5. Verify that the unit will not start. Attempt to start the sweep. It should not start, jog, or run.

WARNING: ***Always disconnect and lock out all power sources to the DPS 12K Bin Sweep before attempting to perform any maintenance or service function. Follow lockout/tag out procedures as outlined in OSHA section 910.147 where appropriate.***

Figure 2-4: A typical electrical disconnect that is locked out in the OFF position

Chapter 3 - Component Descriptions & Specifications

This chapter contains descriptions of the major components of the DPS 12K BI Sweep. It also contains specification information and charts. This chapter contains the following sections:

Chapter 3 - Table Of Contents

INTRODUCTION

The newest sweep in the Sioux Steel family of Daay Bin Paddle Sweeps is the DPS 12K. It was developed to meet the needs of large commercial grain storage facilities. This heavy-duty sweep keeps your operation running smoothly while keeping workers safe with minimal entry into the bin.

Specifically designed for high-capacity, commercial grain storage systems, the heavy-duty DPS 12K unloads large quantities of grain in a short period of time. Designed to be fully submersed in grain and can unbury itself from a grain avalanche. The sweep is engineered to the most current specifications in the industry. There are no dangerous augers to worry about and simply moves the grain with flexible rubber paddles. Explosion proof, all-weather quick change motors and tractor tread tires are among some of the features.

FEATURES

- Support stands allow for minimal entry once the sweep has been started.
- One 3 phase explosion proof motor to operate sweep.
- Simplified drive tractors push the sweep around the bin.
- Collector ring provides constant power to the sweep motor without having to move electrical cords.
- Start/Stop control panel included.

MAJOR COMPONENTS

The major components of the DPS 12K Bin Sweep are listed below, Identified in the drawing on the next page and are described in detail on the following pages in this chapter. See Figures 3-1 & 3-2.

The Major components are:

- Head Section – Standard (See pages 3-3 and 3-4)
- Intermediate Section (See pages 3-3 and 3-5)
- Drive End (See pages 3-3 and 3-5)
- Pivot Section (See pages 3-3 and 3-6)
- Tractor Drive Section (See pages 3-3 and 3-7)
- Paddle Chain (See pages 3-3 and 3-8)
- Collector Ring (See pages 3-3, 3-8 and 3-9)
- Casters (See pages 3-3 and 3-10
- Zero Entry Kits (See pages 3-3 and 3-10)
- Motor Starter Box (See pages 3-3 and 3-11)
- Motor and Gearbox Kit -(See pages 3-3 and 3-11)

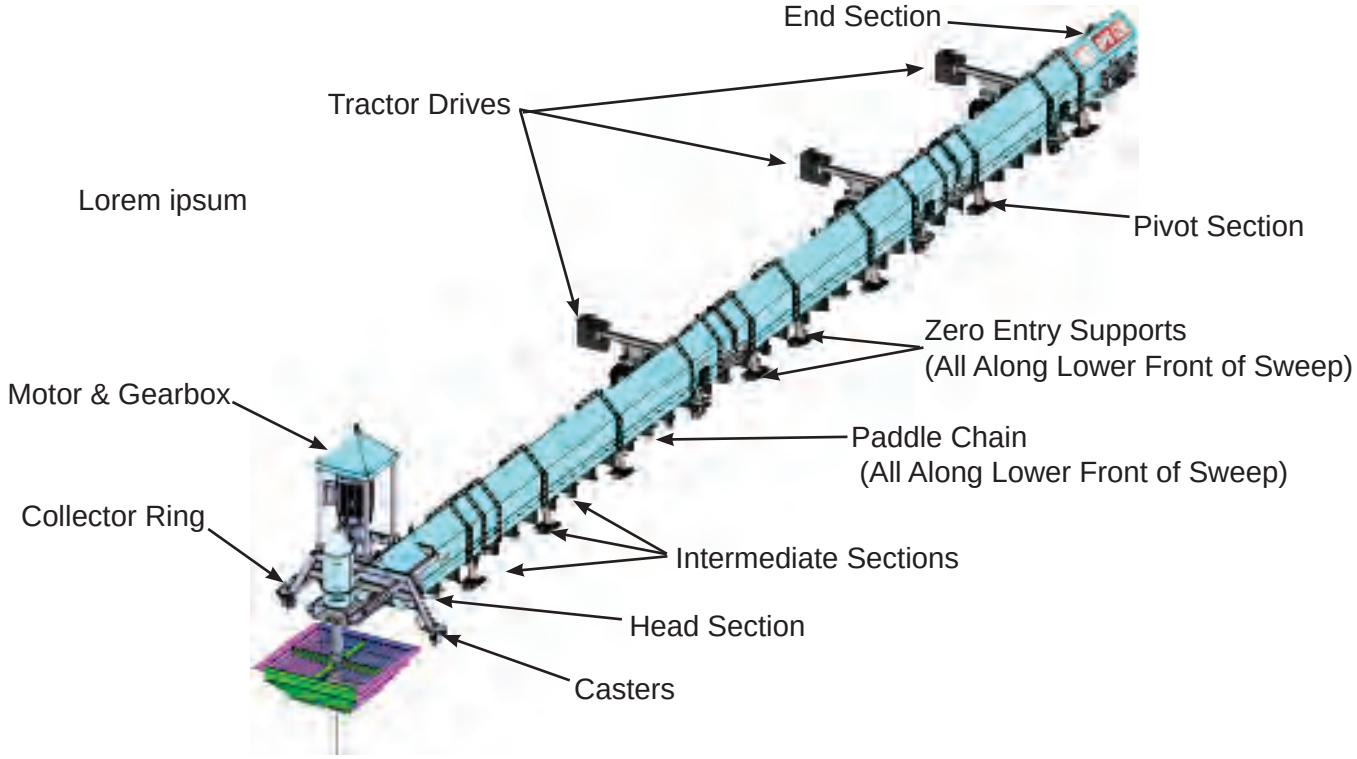


Figure 3-1: Major Components - Front Side View

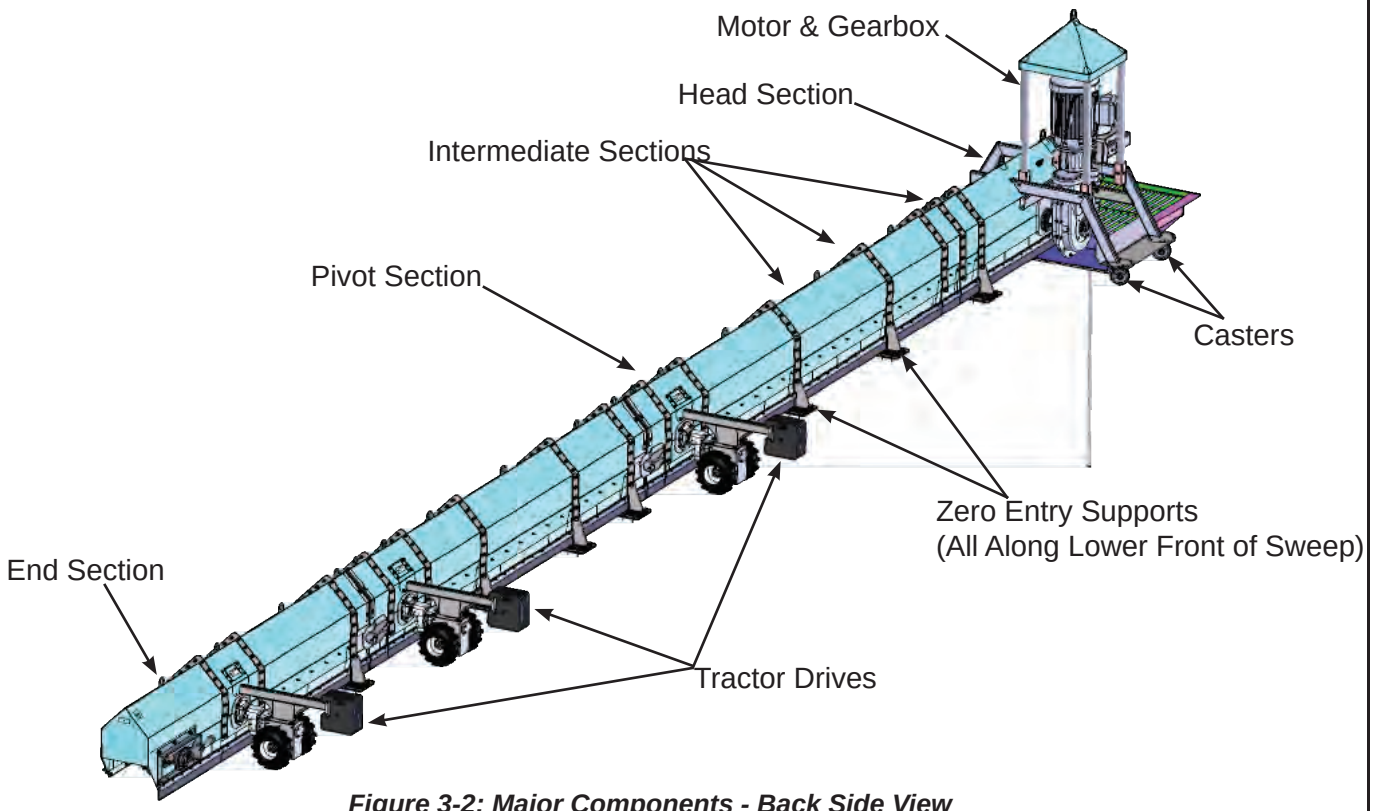


Figure 3-2: Major Components - Back Side View

HEAD SECTION

The Head Section is the section nearest the middle of the bin. See Figure 3-3. The Motor and Gearbox assemblies are installed into the Head Section. The paddle chain sweeps the grain to the Head Section and into the sump.

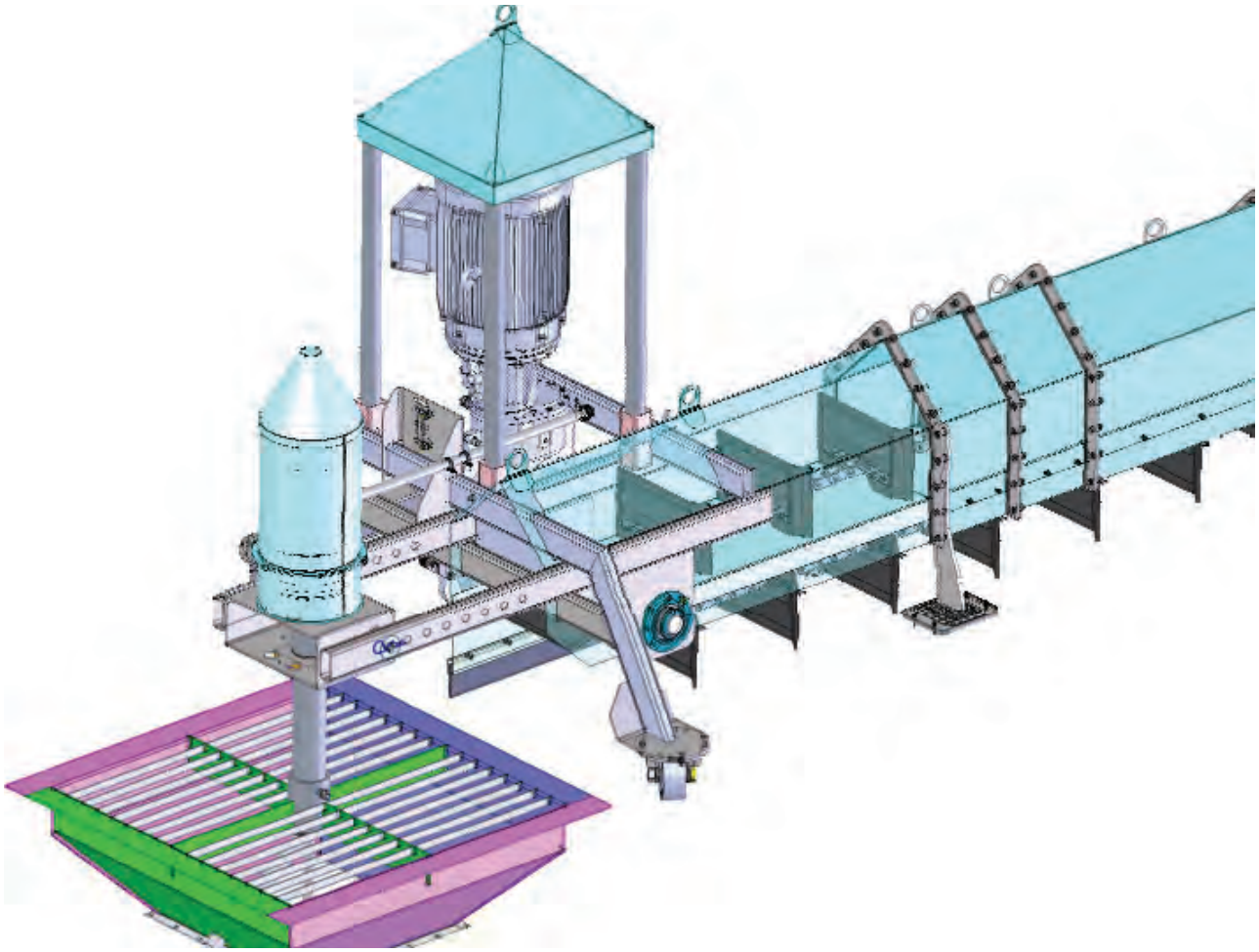


Figure 3-3: Head Section with Cover Removed

INTERMEDIATE SECTION

The Intermediate Sections are used to fill in between other sections to give the sweep its final length. See Figure 3-4. There are three different lengths of intermediate sections; a 1-foot length, a 3-foot length and a 5-foot length. The number and lengths of intermediate sections are predetermined at the factory before shipment.

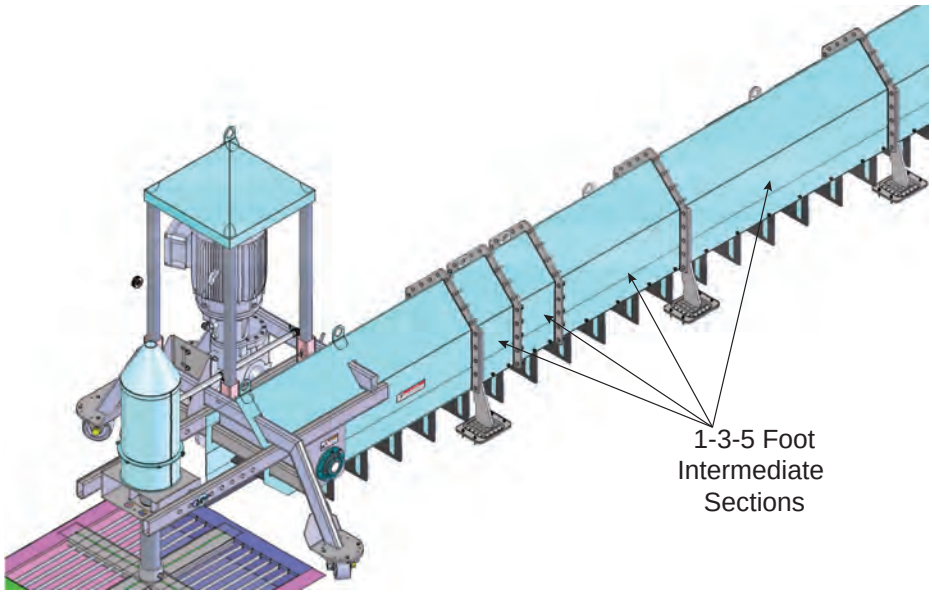


Figure 3-4: Intermediate Sections

END SECTION

The End Section is the last section nearest the outer bin wall. See Figure 3-5. It houses the paddle chain tensioner which tightens a loose paddle chain.

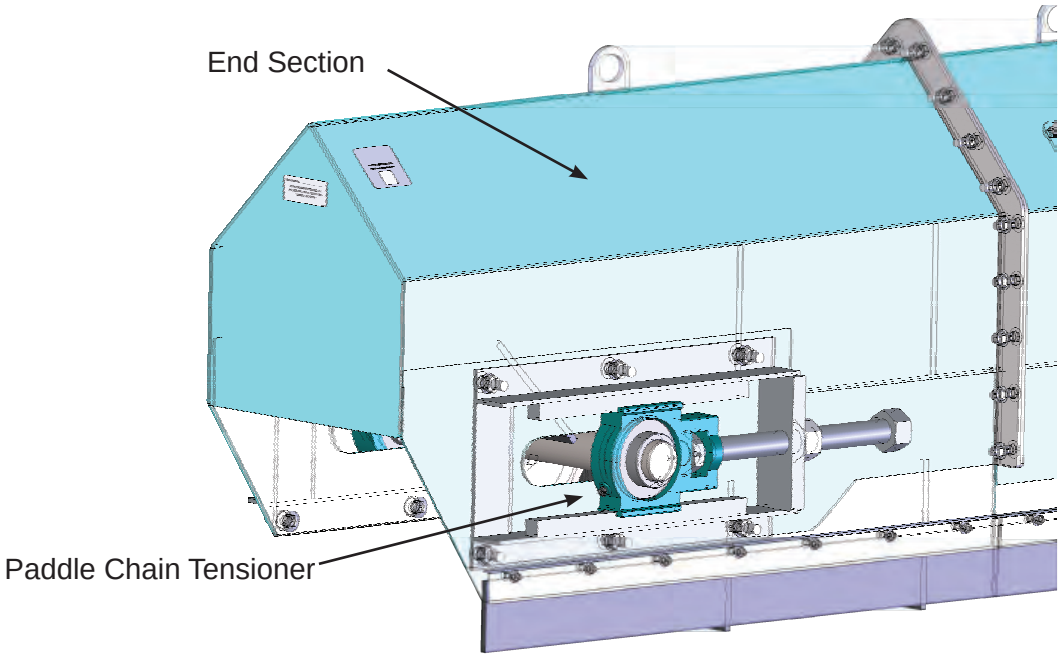


Figure 3-5: End Section

PIVOT SECTION

The Pivot Section is a 2-foot wide section that is used several times in a sweep configuration. See Figure 3-6. It is a hinged section that allows vertical movement of the sweep. This allows the sweep to adjust to the varying slope of the bin floor.

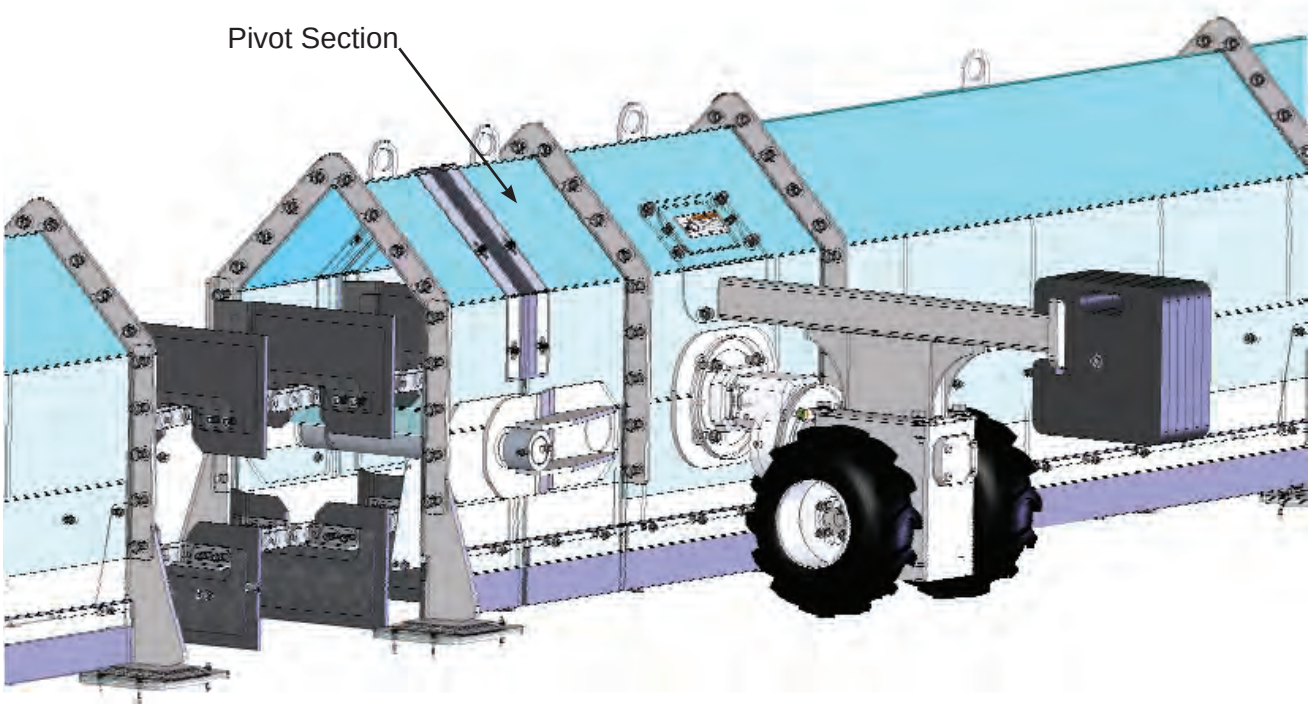


Figure 3-6: Pivot Section

TRACTOR DRIVE SECTION

The Tractor Drive Section is a 2-foot wide section that has a tractor drive built into it. See figure 3-7. Each tractor drive is made up of a set of wheels and a gearbox. The tractor wheels and gearbox work off of the main chain drive. Different sweep length configurations may have one to three tractors built into the configuration. See figure 3-8. There are three available gearbox ratios. The different gearbox ratios create different tractor speeds. The gearbox ratios are configured at the factory. Each tractor drive in a sweep configuration will have a different gearbox ratio. Combined they will drive the entire sweep length forward at the same pace. The inner tractor will have a higher gear ratio to move the tractor drive slower because of its shorter travel around the circle. The outer tractor will have a lower gear ratio to move the tractor drive faster because of its longer travel around the circle. The gear ratios are configured at the factory before shipment.

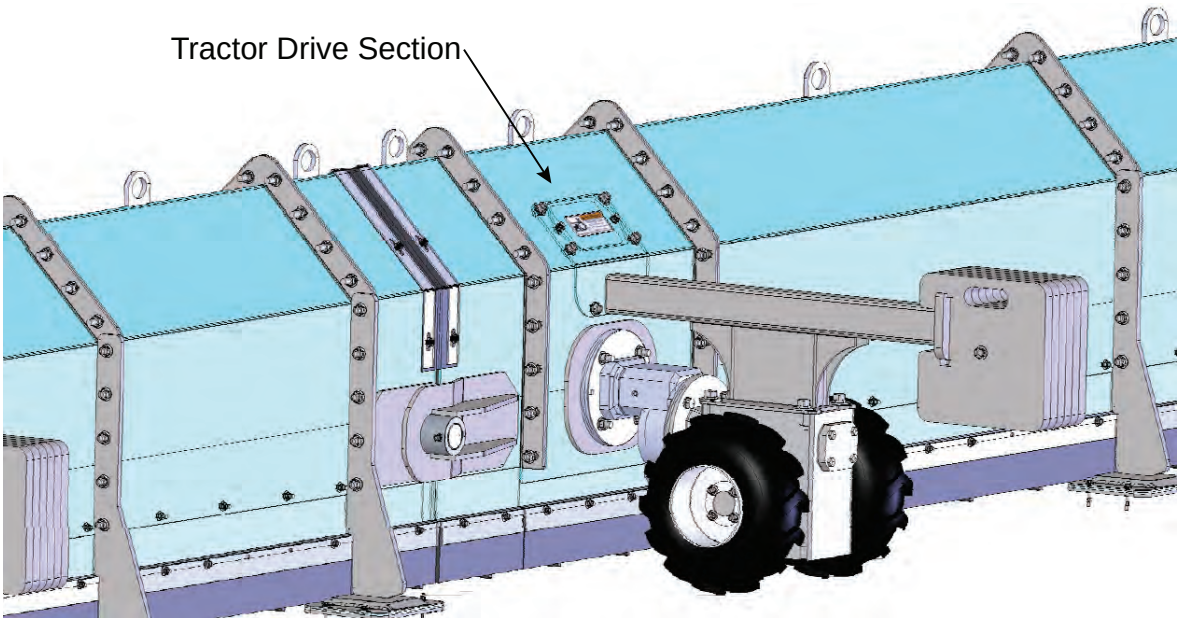


Figure 3-7: Tractor Drive

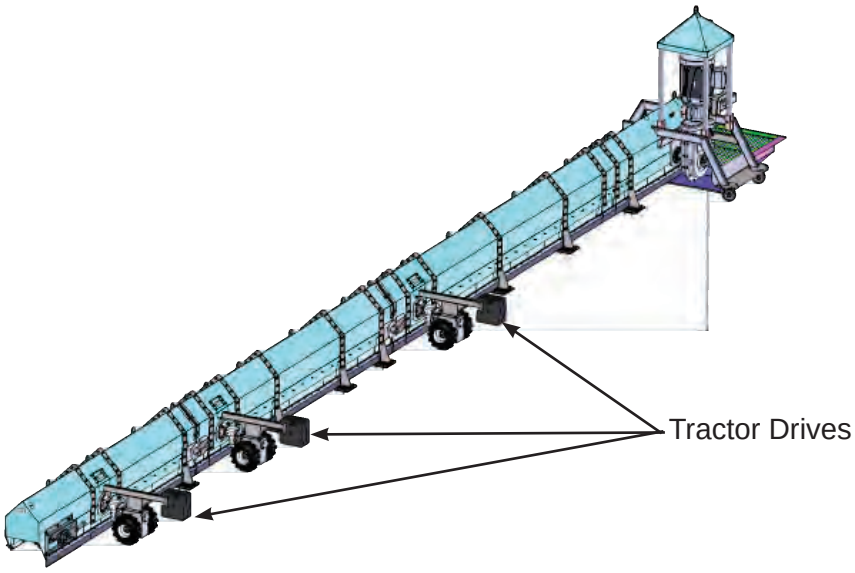


Figure 3-8: Tractor Drives

PADDLE CHAIN ASSEMBLY

The Paddle Chain Assembly runs the complete length of the sweep. See Figures 3-9, 3-10 and 3-11. The Paddle Chain Assembly is mounted on sprockets in a continuous loop and is propelled by the motor and gearbox. Rubber paddles are connected to the chain. As the tractor drives propel the sweep around the circle, the rubber paddles sweep the grain back to the sump area.

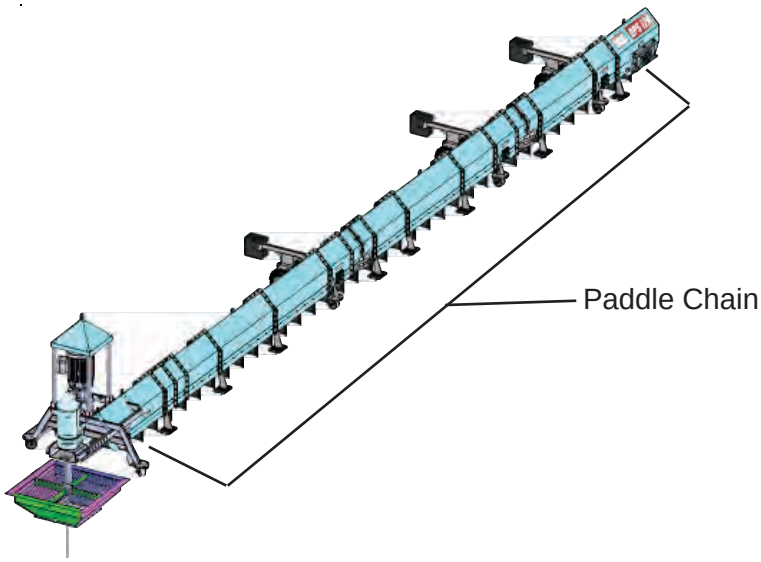


Figure 3-9: Paddle Chain Assembly

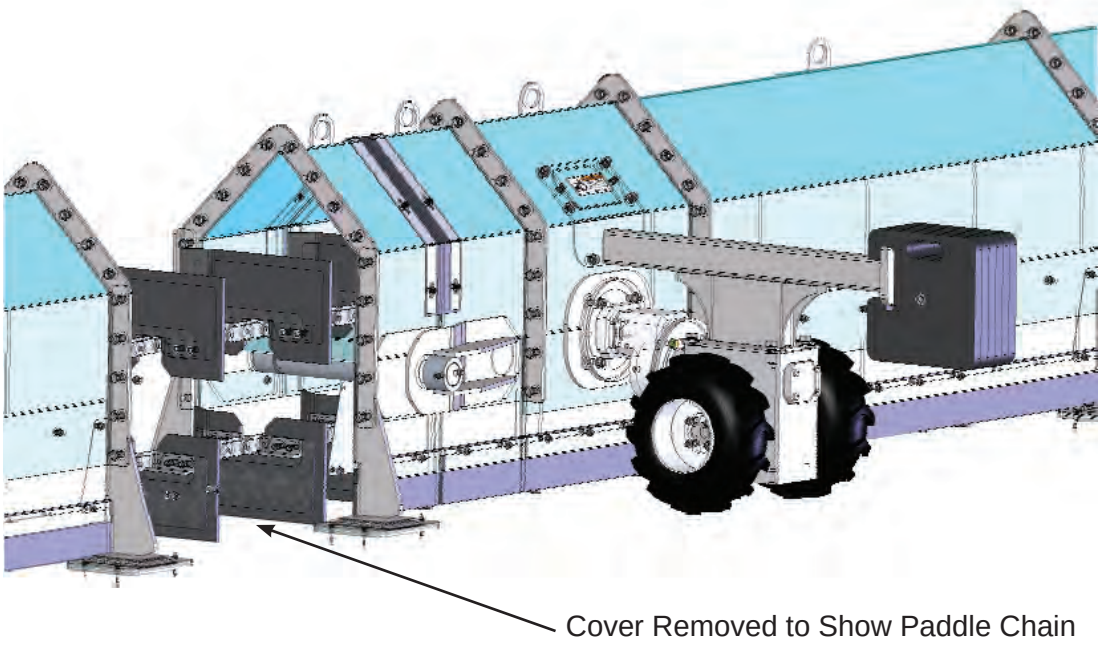


Figure 3-10: Paddle Chain Assembly shown with Section Cover Removed

PADDLE CHAIN ASSEMBLY (continued)

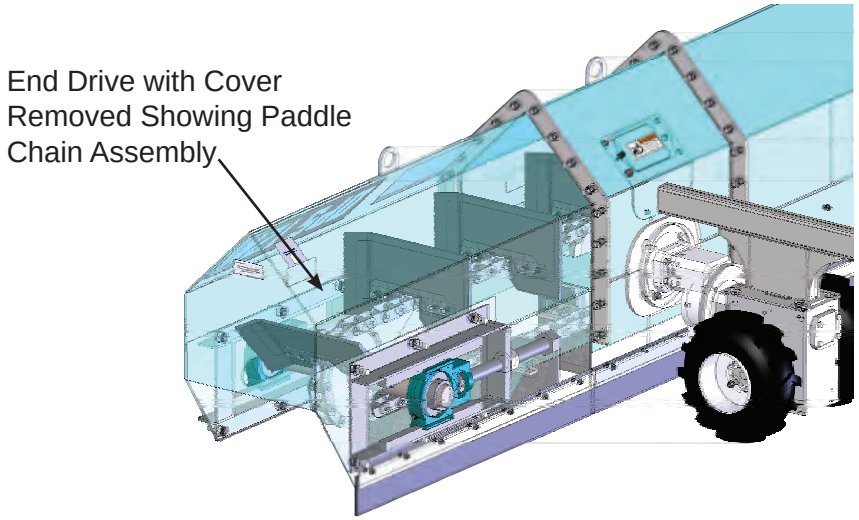


Figure 3-11: Paddle Chain Assembly with the Drive End Cover Removed

COLLECTOR RING

The Collector Ring transfers electrical current from the outside power source to the motor and gearbox. Most bins have a tunnel beneath the floor of the bin that runs from the control box area outside of the bin to the center sump area. Electrical wiring in conduit is run through this tunnel connecting the control box to the center sump area. The wiring in conduit is run up to the collector ring. The collector ring allows rotation of the sweep without twisting of the wiring. See Figure 3-12. The wiring in conduit is connected from the collector ring to the motor and gearbox.
See Figure 3-12.

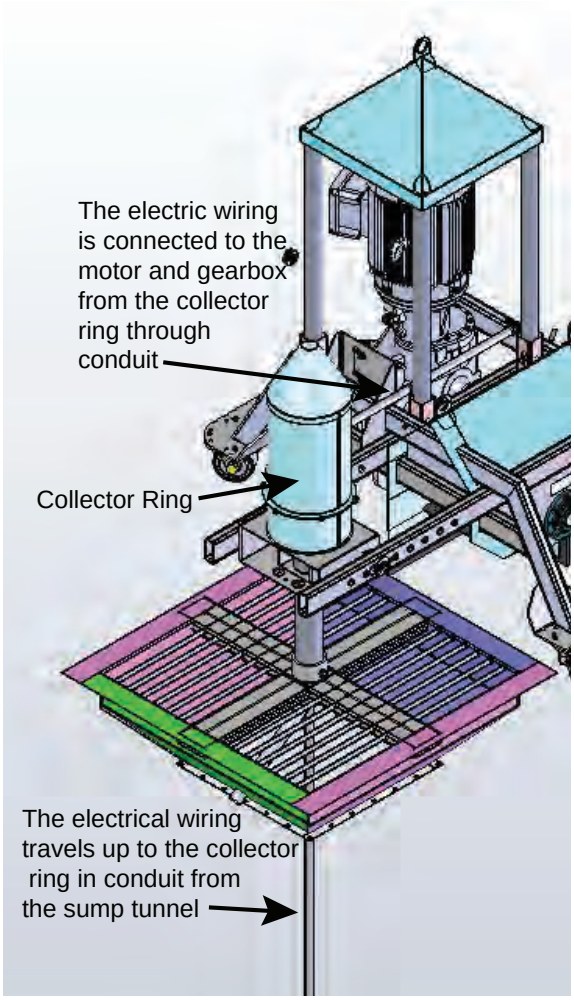


Figure 3-12: Collector Ring

CASTERS

The Casters provide rolling support for the Head Section and other sections. On the DPS 12K, the head section has 3 casters mounted at the factory. An additional caster is placed on one of the Intermediate Sections depending on the length of the configuration. Exploded view drawings in the back of the manual will indicate the location of the additional caster.

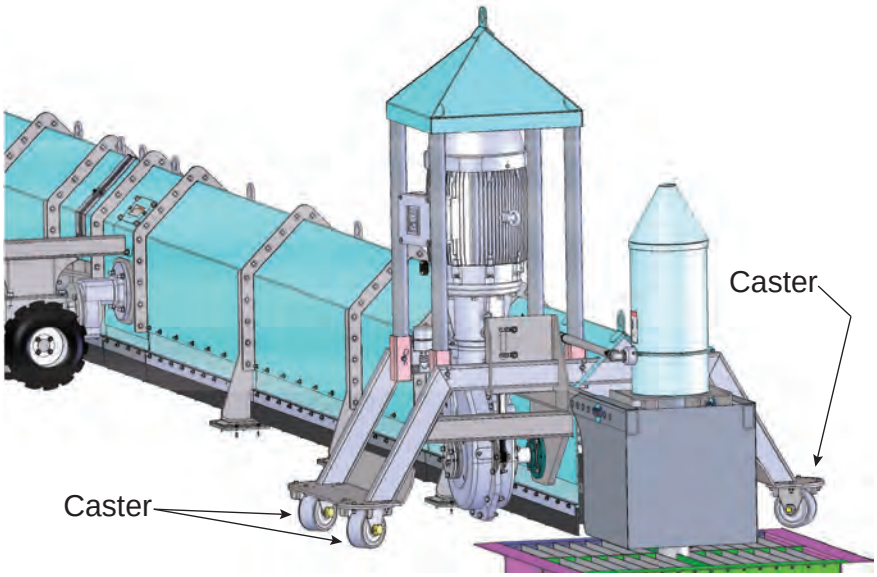


Figure 3-13: Casters

ZERO ENTRY SUPPORT STANDS

Zero Entry occurs when the sweep is positioned in its home position. The support beams are resting on the support pads. The support pads are anchored to the floor.

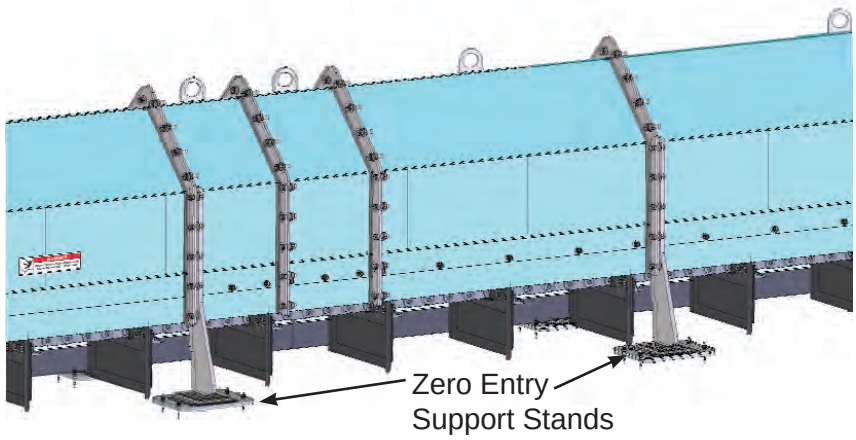


Figure 3-14: Zero Entry

MOTOR STARTER BOX

The Motor Starter Box is located outside the bin entrance. The Motor Starter Box contains 3 switches. A red OFF switch. A green ON switch and a black RESET switch. The ON/OFF switch starts and stops the rotation of the sweep. The RESET switch resets the sweep after an emergency stop due to amperage overload. See page 2-6 for detailed information on the RESET Switch.

OPTIONAL VARIABLE FREQUENCY DRIVE (VFD)

An optional VFD is available to replace the standard motor starter box. A VFD is a type of motor drive used in Electro-Mechanical Drive Systems to vary the motor speed. The optional VFD comes with its own detailed installation and operations manual.

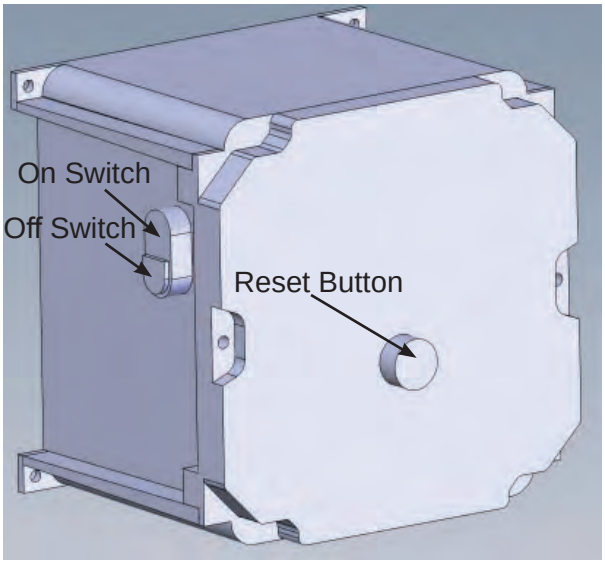


Figure 3-15 A: Motor Starter Box

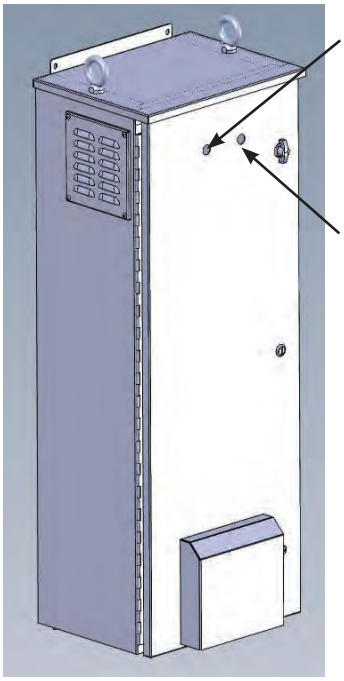


Figure 3-15 B: Optional Variable Frequency Drive (VFD)

MOTOR & GEARBOX KIT

The Motor and Gearbox Kits come in several different sizes. Refer to the exploded views and parts list for detailed breakdown. The motor and gearbox are shipped separately and assembled together in the field.

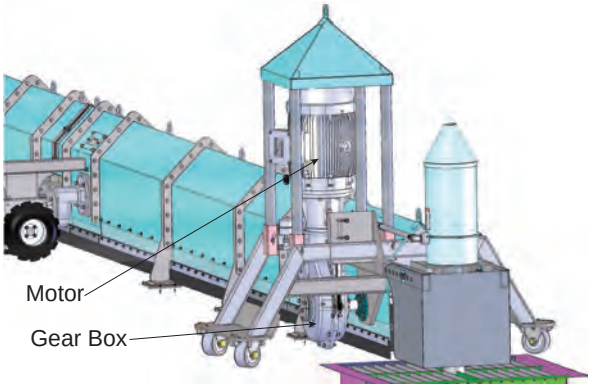
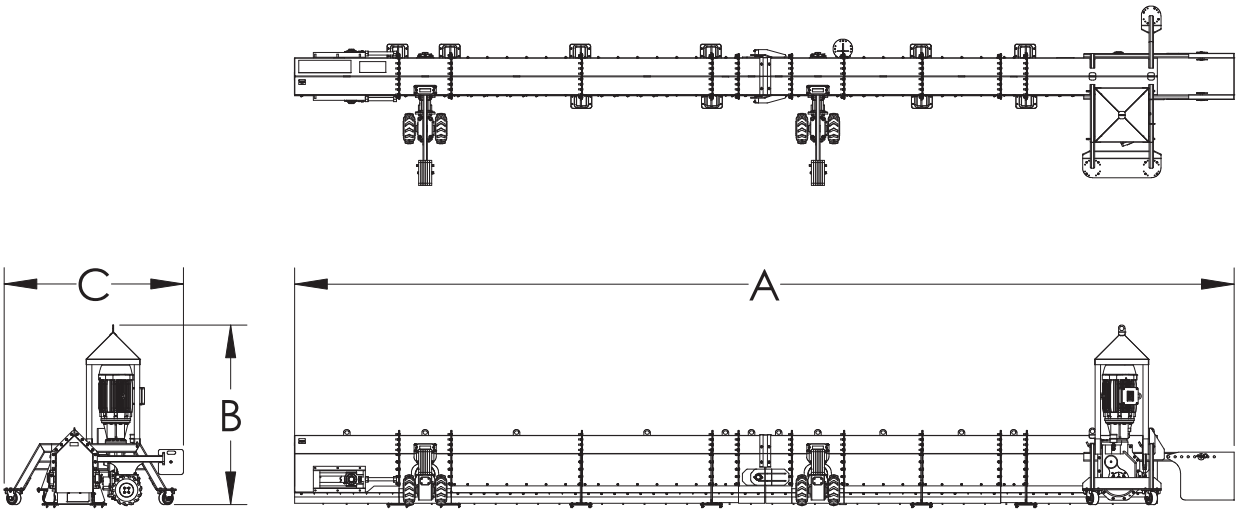


Figure 3-16: Motor and Gearbox Kit

SPECIFICATIONS FOR DPS 12K BIN SWEEP

Specifications are subject to change without notice and without liability.



Sweep Unit For Bin Size	Length (Dimension A)	Height (Dimension B)	Width (Dimension C)	Unit Weight (lbs)
48’	24’	83”	83”	4265
54’	27’			4517
60’	30’			4739
66’	33’			5561
72’	36’			5828
75’	37’			5868
78’	40’			6089
90’	45’			7352
105’	53’			8065
116’	58’			8695
124’	62’			9033
132’	66’			9236
135’	67’			9503
139’	70’			9679

Figure 3-16 DPS 12K Dimensions

Burial Depth Chart

MAX. EAVE HEIGHT/BURIAL DEPTH CHART FOR PADDLE SWEEPS

Sweep Model	Bin/Silo Type	Support System	Bin/Silo Diameters																											
			Floor to Eave Height																											
			15'	18'	21'	24'	27'	30'	33'	36'	42'	48'	54'	60'	66'	72'	75'	78'	90'	105'	116'	124'	132'	135'	139'
Daay Power Farm	Corrugated Bin	Jacks	70'				40'						35'		30'	NA									
Daay Power Farm	Corrugated Bin	Zero Entry	70'				40'						35'		30'	NA									
Daay Power Farm	Corrugated Bin	Zero Entry-Deep Burial	NA				70'							60'		NA									
Interceptor	Corrugated Bin	Jacks	70'				40'						35'			NA									
Interceptor	Corrugated Bin	Zero Entry	70'				40'						35'			NA									
Interceptor	Corrugated Bin	Zero Entry-Deep Burial	NA				70'							60'		NA									
			Floor to Eave Height																						
Daay Bin Paddle	Corrugated Bin	Jacks	115'											105'	95'	90'		80'	75'	NA					
Daay Bin Paddle	Corrugated Bin	Zero Entry	150'													140'	135'	115'	106'	NA					
DPS 12K	Corrugated Bin	Zero Entry	NA											150'	139'	136'	125'	114'	106'	99'	95'	88'	88'	84'	
			Floor to Eave Height																						
Daay Bin Paddle	Concrete Silo	Jacks	160'											135'	115'	105'	100'	95'	85'	75'	NA				
Daay Bin Paddle	Concrete Silo	Zero Entry	160'														150'	125'	106'	NA					
DPS 12K	Concrete Silo	Zero Entry	NA											150'	139'	136'	125'	114'	106'	99'	95'	88'	88'	84'	

*If eave height is over the listed height, please contact manufacture.

REV-12/2/2020

Figure 3-16: Burial Chart for Paddle Sweeps

NOTES

Chapter 4 - Set Up & Installation Instructions

This chapter contains set up and installation procedures on the DPS 12K Bin Sweep.
This chapter contains the following sections:

Chapter 4 - Table Of Contents

PRIOR TO INSTALLATION

Aeration Flooring

We do not recommend this sweep be used on full aeration floors. We recommend the use of steel track pathways on any portion of aeration floor that the steel wheels contact.

Sump Locations

It is critical when locating the sump locations in the bin foundation to consider where the wheel paths are going to be located. Below and on the next page are a chart and illustration of these paths to match to your sweep model.

NOTE: If the sweep wheel path does interfere with a sump location the sump will need to be grated or covered to allow the wheel to cross without falling into the sump.

DPS 12K - Wheel Paths

DPS 12K - Wheel Paths

Nominal Bin Dia.	Sweep Length	Actual Bin Radius	First Roller Wheels Path Between Dim's (Head Section)		Second Roller Wheel Path Between Dim's		Inner Drive Wheel Path Between Dim's		Middle Drive Wheel Path Between Dim's		Outer Drive Wheel Path Between Dim's	
		A	B	C	D	E	F	G	H	I	J	K
48'	23' 6"	24'	1'-4"	6'-4"	10'-4"	12'-10"	------	------	------	------	15'-8"	19'-4"
54'	26' 6"	27'	1'-4"	6'-4"	13'-4"	15'-10"	------	------	------	------	18'-8"	22'-4"
60'	29' 6"	30"	1'-4"	6'-4"	16'-4"	18'-10"	------	------	------	------	21'-8"	25'-4"
66'	32'-6"	33'	1'-4"	6'-4"	------	------	9'-8"	13'-4"	------	------	24'-10"	28'-4"
72'	35'-6"	36'	1'-4"	6'-4"	------	------	12'-'8"	16'-4"	------	------	27'-10"	31'-4"
75'	37'	37'-6"	1'-4"	6'-4"	------	------	13'-8"	17'-4"	------	------	28'-10"	32'-4"
78'	38'-6"	39'	1'-4"	6'-4"	------	------	14'-8"	18'-4"	------	------	31'-10"	35'-4"
90'	44'-6"	45'	1'-4"	6'-4"	------	------	16'-8"	20'-4"	29'-10"	33'-4"	36'-10"	40'-5"
105'	52"	52'-6"	1'-4"	6'-4"	------	------	20'-8"	24'-4"	36'-1"	39'-7"	44'-10"	48'-5"
116'	57'-6"	58'	1'-4"	6'-4"	------	------	22'-8"	26'-4"	39'-10"	43'-4"	49'-10"	53'-4"
124'	61'-6"	62'	1'-4"	6'-4"	------	------	24'-8"	28'-4"	41'-10"	45'-4"	53'-10"	57'-5"
132'	65'-6"	66'	1'-4"	6'-4"	------	------	27'-10"	31'-5"	45'-10"	49'-4"	57'-11"	61'-6"
135'	67'	67'-6"	1'-4"	6'-4"	------	------	26'-8"	30'-4"	45'-10"	46'-5"	58'-10"	62'-5"
139'	69'	69'-6"	1'-4"	6'-4"	------	------	28'-8"	32'-4"	47'-11"	51'-5"	60'-10"	64'-5"

Revision C - BJS - 11-25-20

Figure 4-1: Wheel Paths

Warning! ***Since the installation of this sweep takes place in a confined space; confined space awareness should be followed in addition to any regulations and safety precautions.***

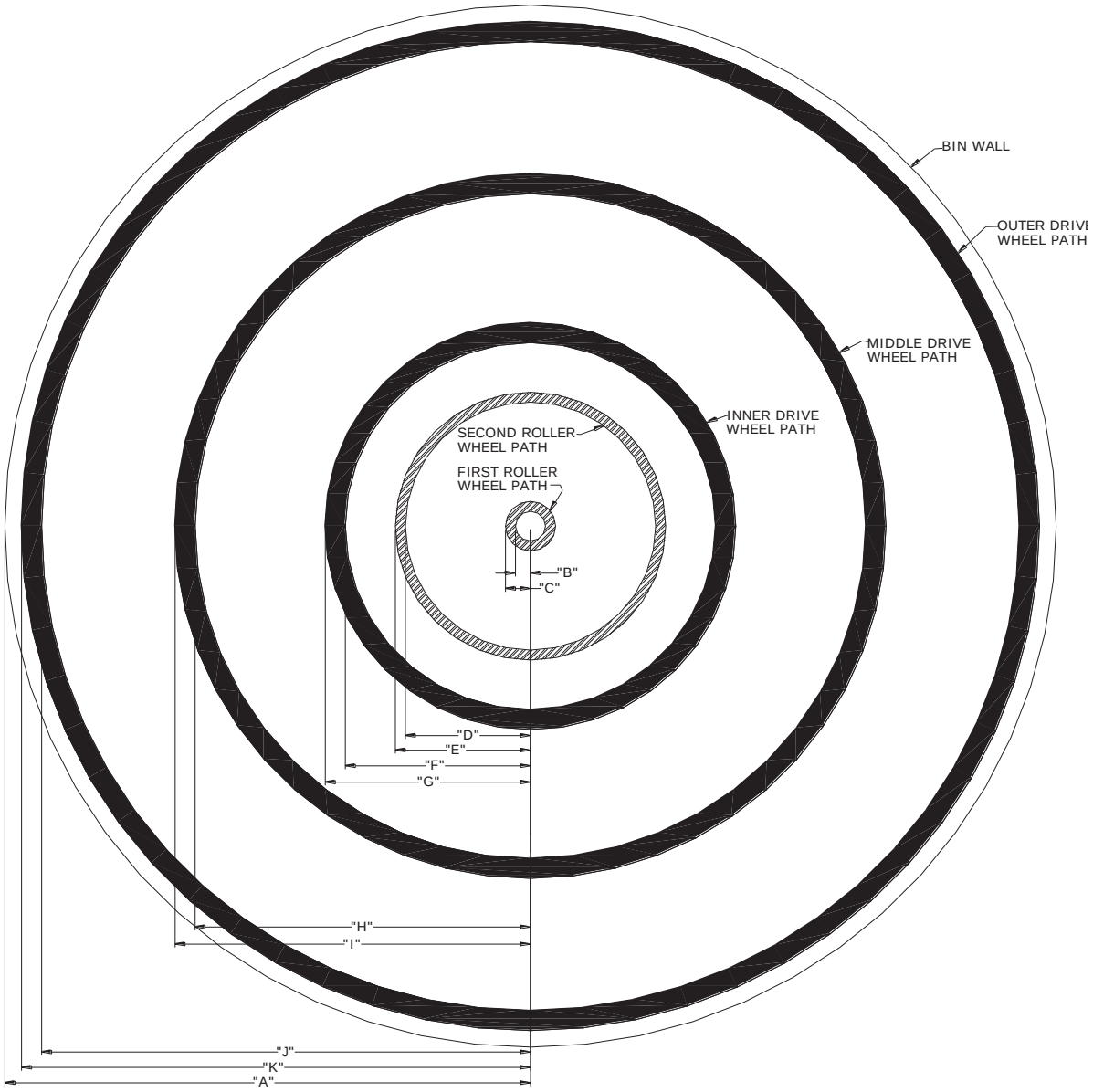


Figure 4-2: Wheel Path Diagram

- For the sweep to properly operate and not acquire unnecessary damage, the floor must be smooth with no obstructions more than 3/16” high.
- For the sweep to properly operate and not acquire unnecessary damage, the floor gradient may not change more than 1/2” in height in a 5’ span.
- The center sump of the grain bin will need to be reviewed to determine which bin center pivot section is going to be installed and what modifications may need to be made. The bin center pivot options can be viewed later in this manual.

INSTALLATION TIPS

It is recommended that the bin be empty and free of grain when the sweep is installed. If this cannot be achieved then a large enough area must be cleared that the sweep can be installed on a clean floor and free from entrapment danger.
Most of the assemblies to install are large and difficult to handle. It is recommended that proper lifting equipment capable of a 2000 lb. lifting capacity be used to install a sweep.

BIN CENTER PIVOT OPTIONS

A bin center pivot option will first need to be selected and installed. Install one of the bin center pivots outlined below.

- **Sioux Steel Sump with Collector Ring:** The Sioux Steel Sump can be ordered in advance and installed into the concrete foundation of the grain bin. These sumps offer a direct coupling to the collector ring and offer a protected route for the wiring to exit the sump. See Figure 4-3.
- **Sioux Steel Sump without Collector Ring:** If a Sioux Steel Sump is used and a collector ring is not, then this package provides an adapter to fit into the Sioux Steel Sump and provides a place to pin the head of the bin sweep. See Figure 4-4.
- **Base Pivot Kit with Collector Ring:** The Base Pivot Kit is designed to be used in bins where a pivot point does not exist or will be replaced. This kit includes a tube with a pivot collar that can be cut to fit and welded in place to route the electrical conduit out the side of the sump. See Figure 4-4. A custom steel structure will also need to be added to the Base Pivot to route the electrical conduit out the side of the sump. The collector ring then fits directly into the pivot collar. See Figure 4-5.
- **Base Pivot Kit without Collector Ring:** If the Base Pivot Kit is used and a collector ring is not, then this package provides an adapter to fit into the Base Pivot Kit and provides a place to pin the head of the sweep. See Figure 4-6.

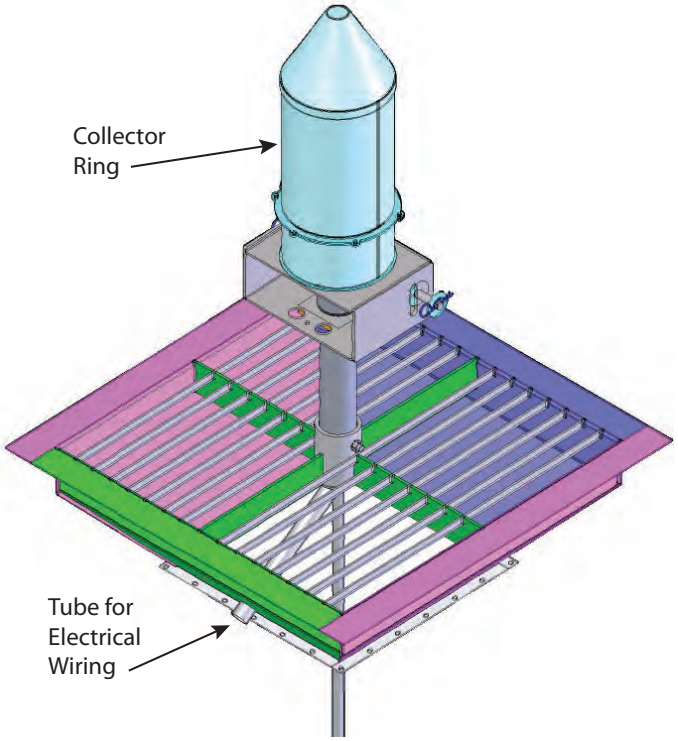


Figure 4-3: Sioux Steel Sump with Collector Ring

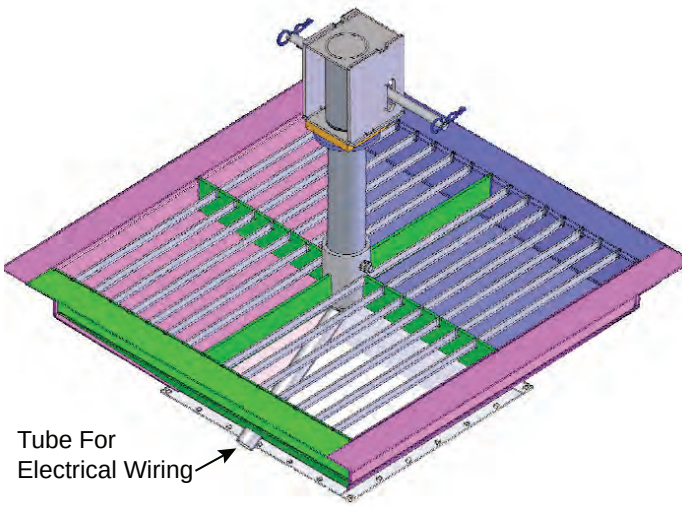


Figure 4-4: Sioux Steel Sump without Collector Ring

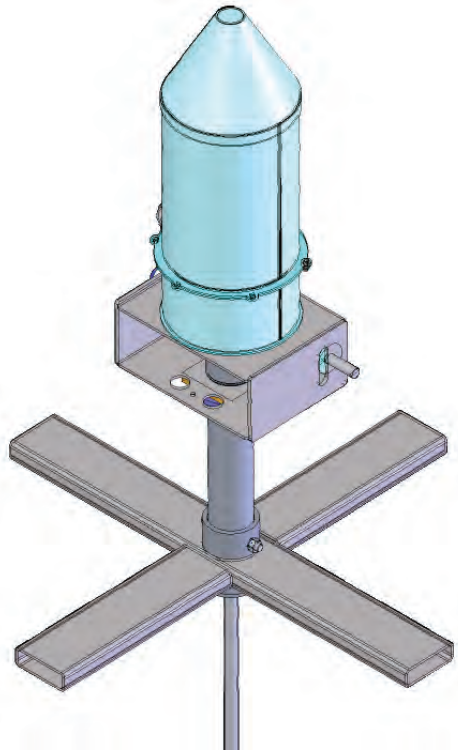


Figure 4-5: Base Pivot Kit with Collector Ring Installed

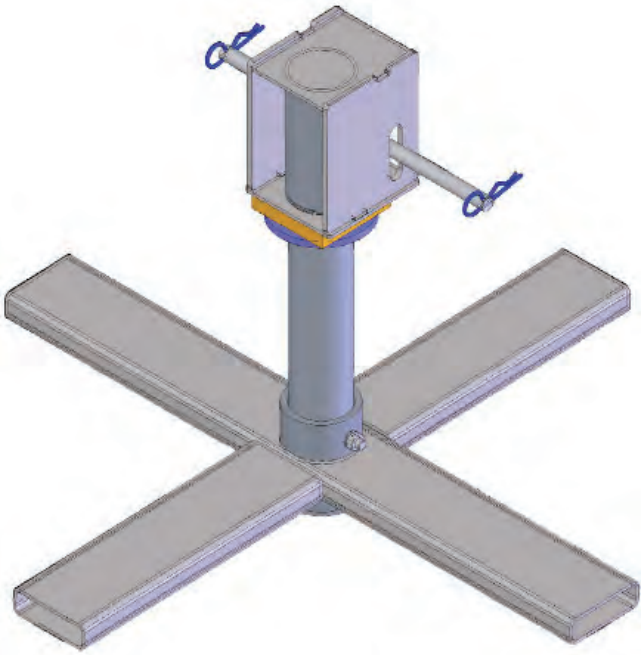


Figure 4-6: Base Pivot Kit without Collector Ring

INSTALL BIN CENTER PIVOT ASSEMBLY

Follow the steps below to assemble the Bin Center Pivot Post.

Stop Plate Measurement

No matter which bin center pivot option is chosen (see previous page) it is critical that the top of the stop plate be installed 17 3/4" from the top of the floor surface that the sweep will be moving across. See Figure 4-7. This may require raising or lowering the sump or base kit to obtain the correct height.

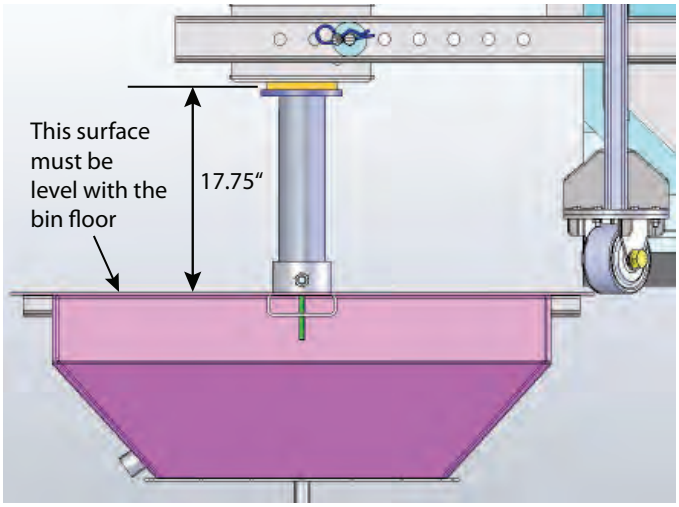


Figure 4-7: Install Bin Center Pivot Post

INSTALL COLLECTOR RING

Follow the steps below to mount the Collector Ring Assembly.

1. Review Figures 4-8, 4-9 and 4-10. The Collector Ring Assembly including the Pivot Post (#8) shown in Figure 4-10 are completely pre-assembled at the factory.
2. Lift the Collector Ring up and place the bottom of the Pivot Post (#8) into the Bin Center Pivot Assembly as shown in Figure 4-8.
3. Feed the existing Collector Ring wiring through the Pivot Post and out the Sump Tube. See Figure 4-10.
4. Install the 3/4" Mounting Bolt and Nut (# 18 and 19) and firmly tighten in place. See Figures 4-8 and 4-9.

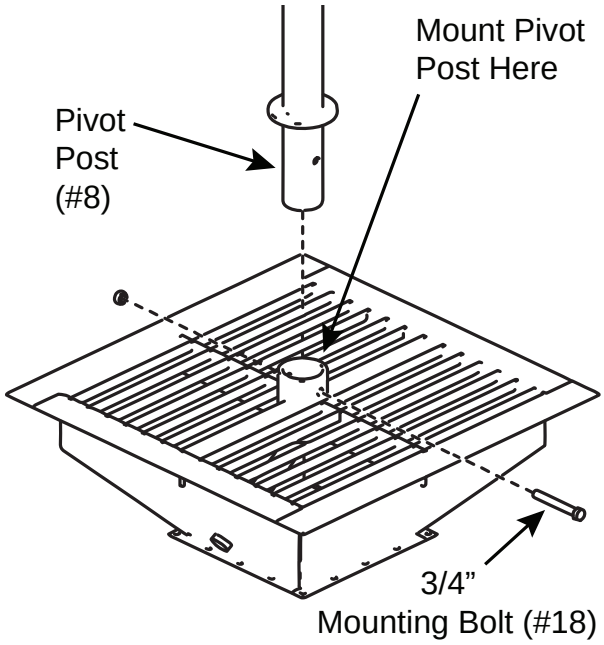


Figure 4-8: Install The Pivot Post on the Collector Ring Assembly Into the Sump as Shown Here

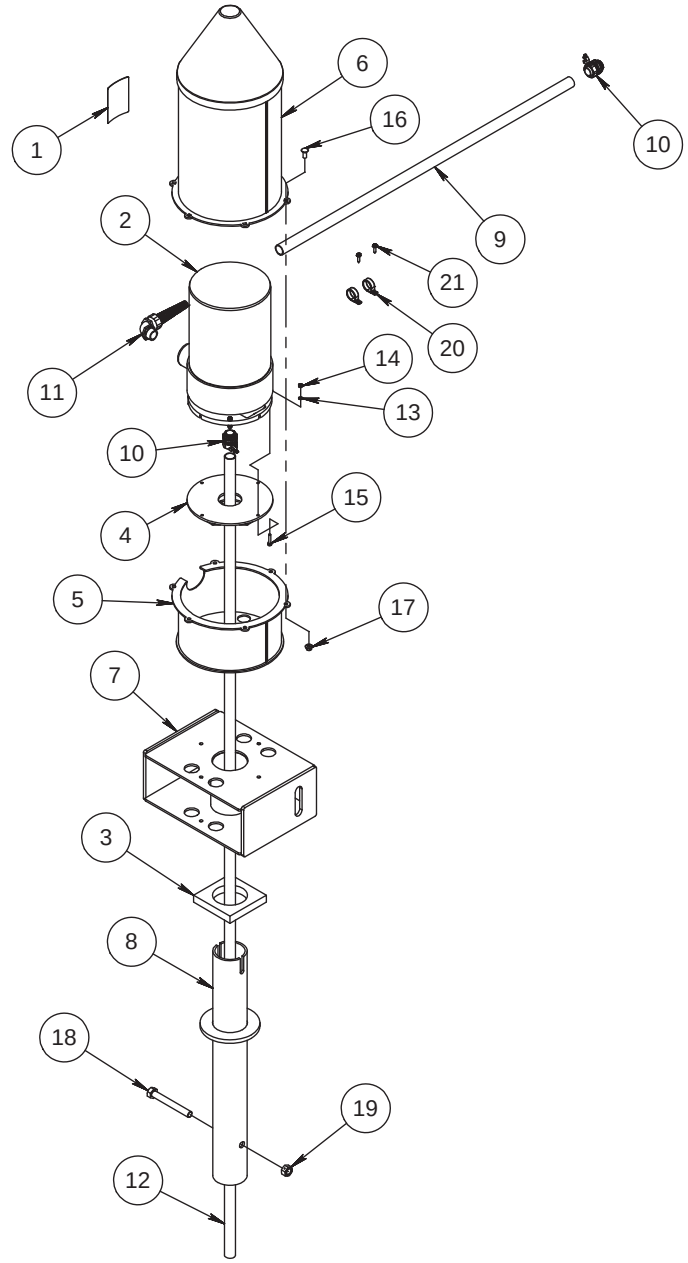


Figure 4-9: Collector Ring Exploded View

Refer to Chapter 9 for a detailed exploded view and parts list.

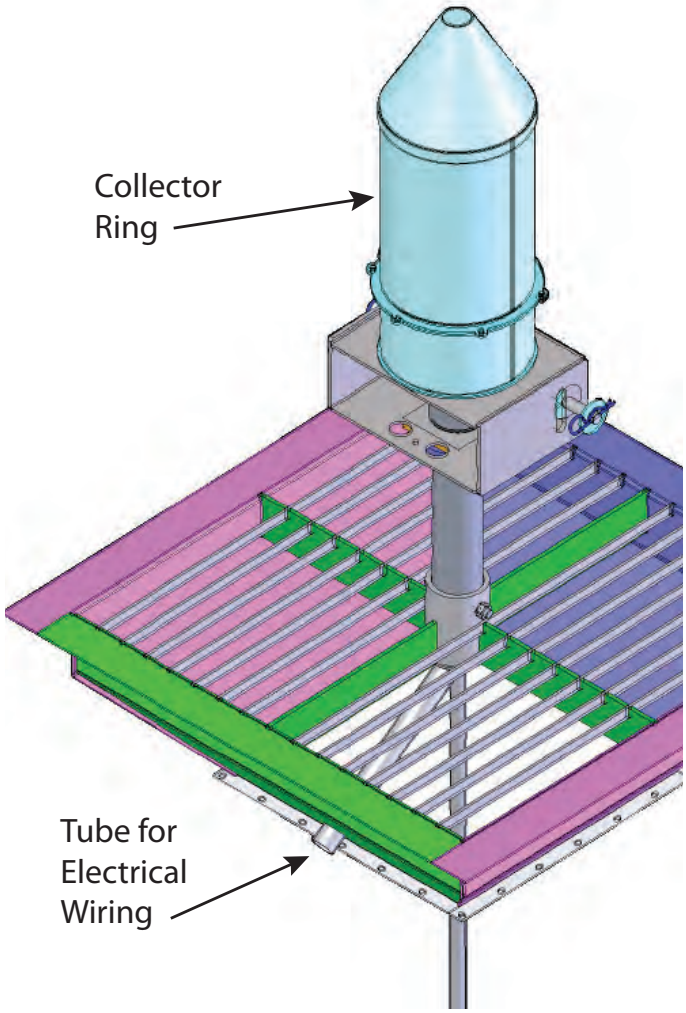


Figure 4-10: Collector Ring Exploded Vie

HEAD SECTION INSTALLATION ON A SWEEP WITHOUT A COLLECTOR RING

NOTE: If your Sweep has a Collector Ring Assembly, skip the instructions on this page and page 4-9 and refer to the instructions on pages 4-10 and 4-11 -"*Installation of a Head Section with a Collector Ring*".

The Head Section assembly is pre-assembled at the factory. The installation of the Head Section will determine the final location of the entire sweep. So planning the pin location is critical at this stage of the installation to avoid having to move the entire sweep later in the installation.

To install the Head Section without a Collector Ring complete the following steps:

1. Install the Pivot Pin in one of the hole locations on the Front Head Section Arm. See Figures 4-12 and 4-13. In this case, the drawings on these pages show it is in the first hole from the end of the arm. The Pivot Pin will go through Head Section Arm and through the Lower Mount Weldment, out the other side of the Lower Mount Weldment and through the Back Head Section Arm. The Pivot Pin is then secured on each end with a washer and cotter pin. See Figures 4-12 and 4-13.
2. Rotate the Head Section so that it is facing the innermost obstruction inside the bin. See Figure 4-11.
3. Measure from the Head Section Flange to this obstruction.
4. Review the length of the sections in your Sweep configuration. You want the Sweep to get as close to the outer bin wall as possible without touching any bin obstructions.
5. Final adjustments can then be made using the pin holes on the Head Section Arms to adjust the length of the sweep to avoid contact with the innermost bin obstruction. Once the final pin location is set, the Head Section Skirt can be installed.

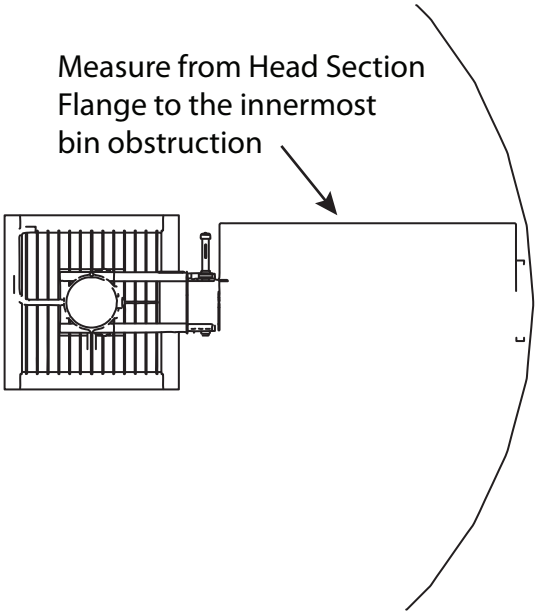


Figure 4-11: Bin Obstruction

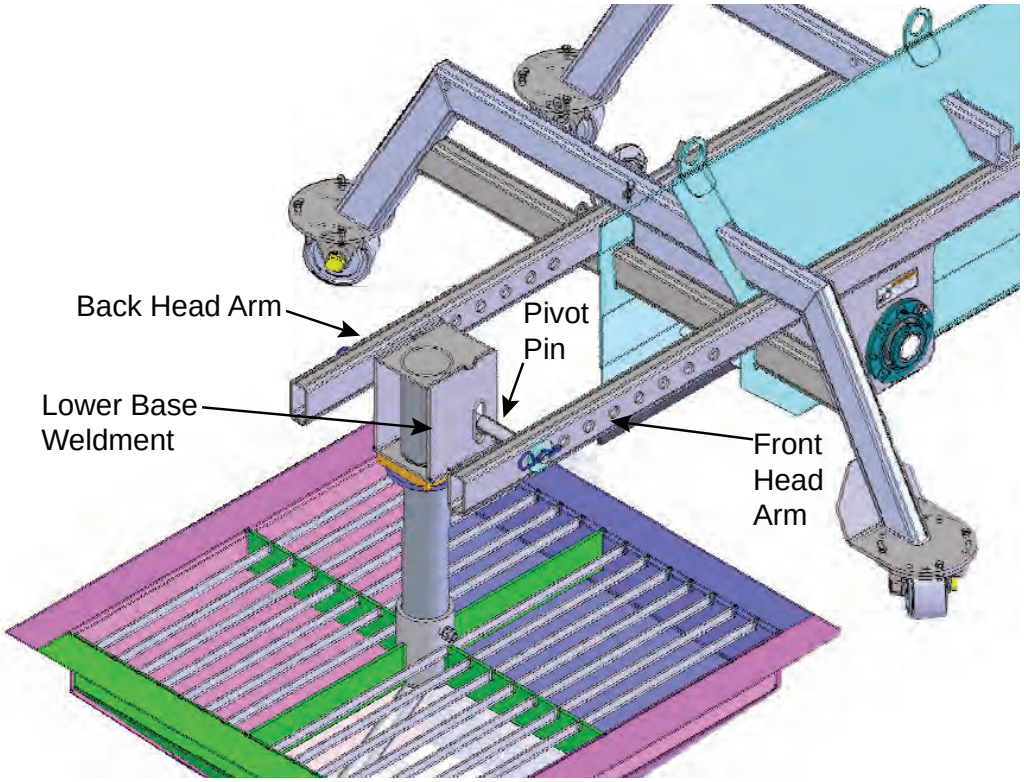


Figure 4-12: Head Section Installation On A Sweep Without A Collector Ring

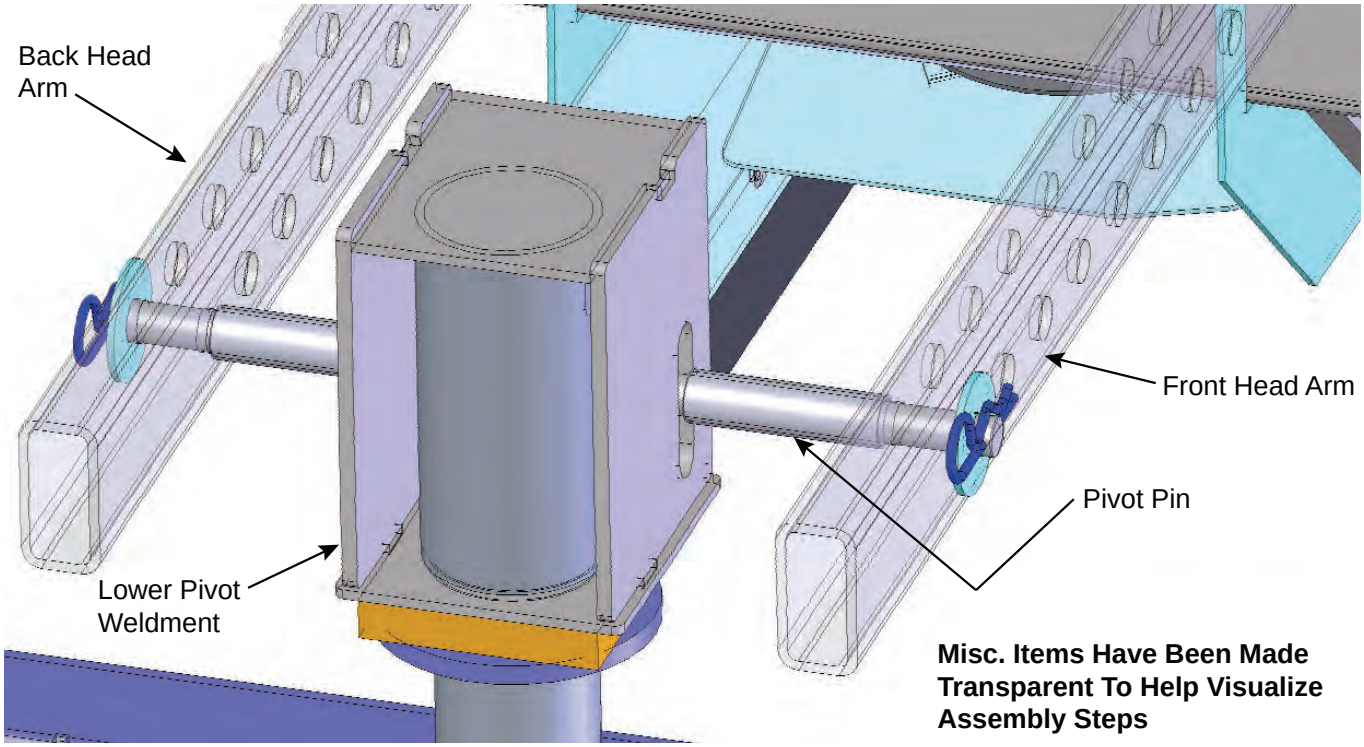


Figure 4-13: Head Section Installation On A Sweep Without A Collector Ring. Note that some items have been made transparent to help visualize assembly steps.

HEAD SECTION INSTALLATION ON A SWEEP USING A COLLECTOR RING

The Head Section assembly is pre-assembled at the factory. The installation of the Head Section will determine the final location of the entire sweep. So planning the pin location is critical at this stage of the installation to avoid having to move the entire sweep later in the installation.

To install the Head Section on a sweep using a Collector Ring complete the following steps:

1. Install one of the Pivot Pin Assemblies in one of the hole locations on the Front Head Section Arm. See Figures 4-15 and 4-16. In this case, the drawings on these pages show it is in the first hole from the end of the arm. The Pivot Pin will go through Front Head Section Arm and the first wall of the Lower Mount Weldment. It is then secured on each end with a washer and cotter pin. See Figures 4-15 and 4-16.
2. Repeat this on the Back Arm in the same first hole. See Figures 4-15 and 4-16.
3. Rotate the Head Section so that it is facing the innermost obstruction inside the bin. See Figure 4-14.
4. Measure from the Head Section Flange to this obstruction.
5. Review the length of the sections in your Sweep configuration. You want the Sweep to get as close to the outer bin wall as possible without touching any bin obstructions.
6. Final adjustments can then be made using the pin holes on the Head Section Arms to adjust the length of the sweep to avoid contact with the innermost bin obstruction. Once the final pin location is set, the Head Section Skirt can be installed.

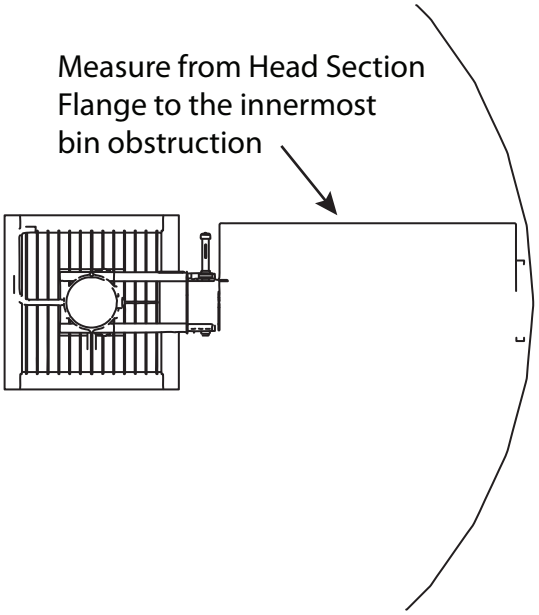


Figure 4-14: Bin Obstruction

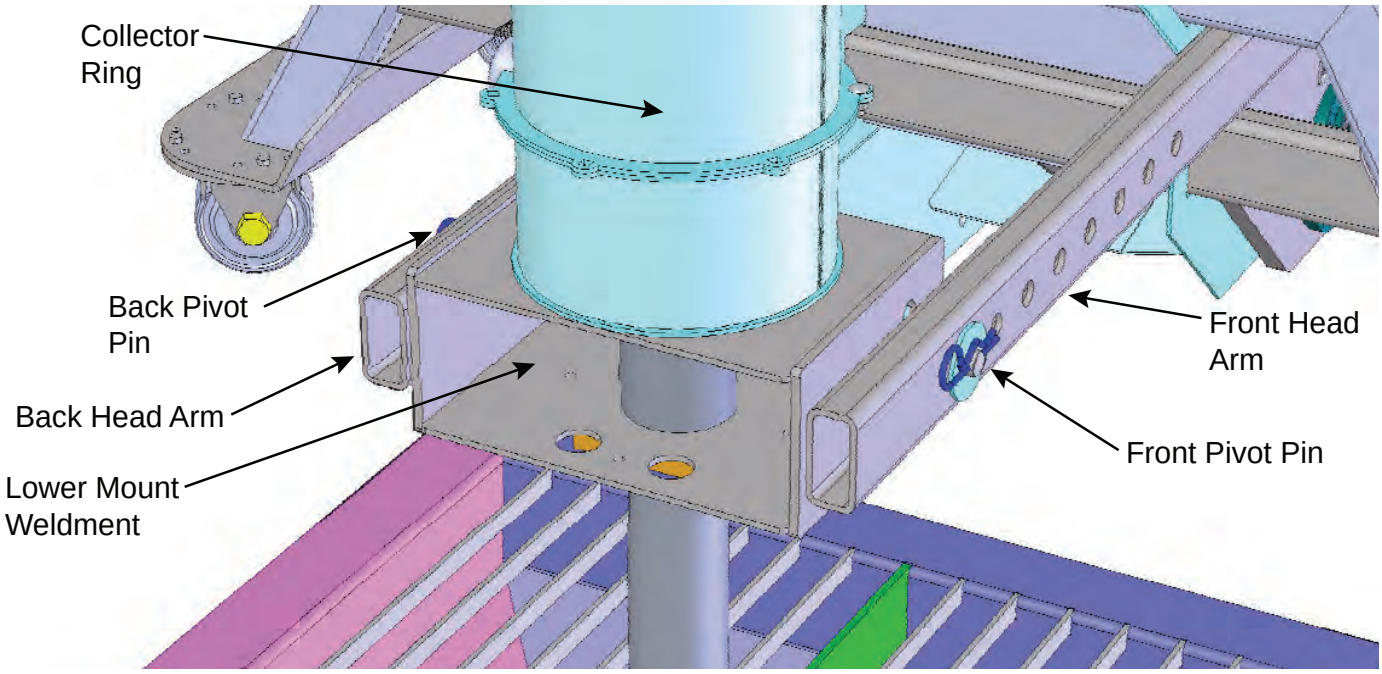


Figure 4-15: View of the Pivot Pins, Washers and Cotter Pins Mounted on the Front and Back Head Section Arms

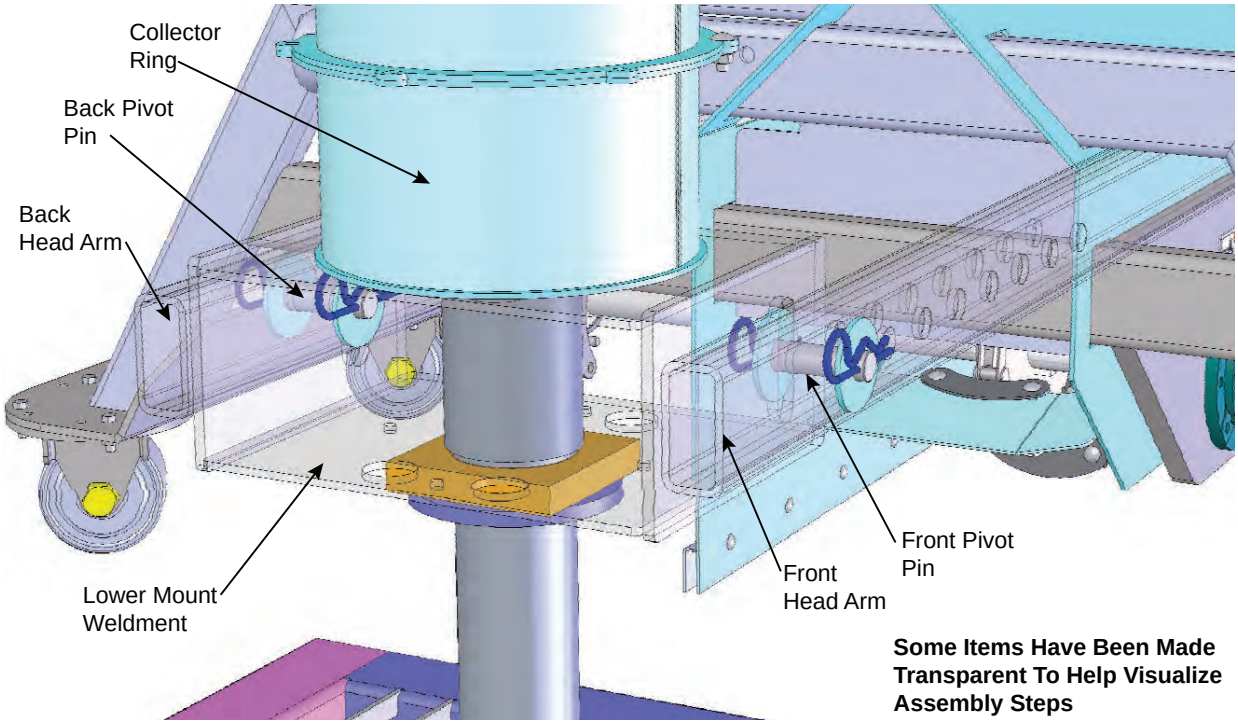


Figure 4-16: Close Up View of the Pivot Pins, Washers and Cotter Pins Mounted on the Front and Back Head Section Arms. Some Items have been made transparent to Help Visualize Assembly Steps

Paddle Chain Installation

Depending on the sweep length, you will have several 10’ lengths of Paddle Chain to install and a second length that measures to a specific length for each sweep body. The Paddle Chain comes assembled. *The paddles, reinforcement plate, backer plate and hardware are assembled on the Paddle Chain.*

Chain Tabs

The chain should be orientated such that the chain tabs will face as shown in Figure 4-18.

Install First Section of Paddle Chain

1. Feed a 10’ section of Paddle Chain through the top side of the Head Section. See Figure 4-18.
2. Feed the Paddle Chain over and around the head sprocket and back out the bottom side of the Head Section. See Figure 4-18.

Organize Base Sections to be Installed

1. Locate your base unit exploded view and parts list in Chapter 9. Layout the sections to be installed in their correct order, to the outer bin wall. See Figure 4-17.
2. Lay out the other sections of Paddle Chain to the outer wall next to your assembly.

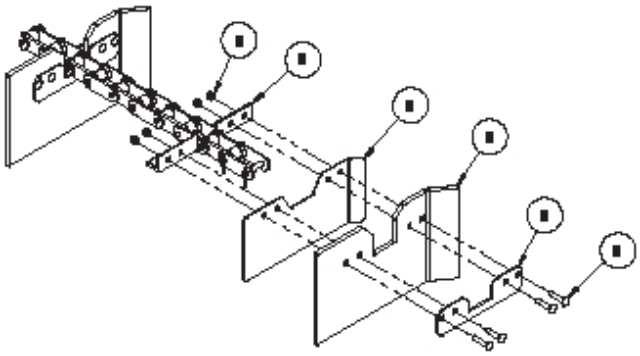
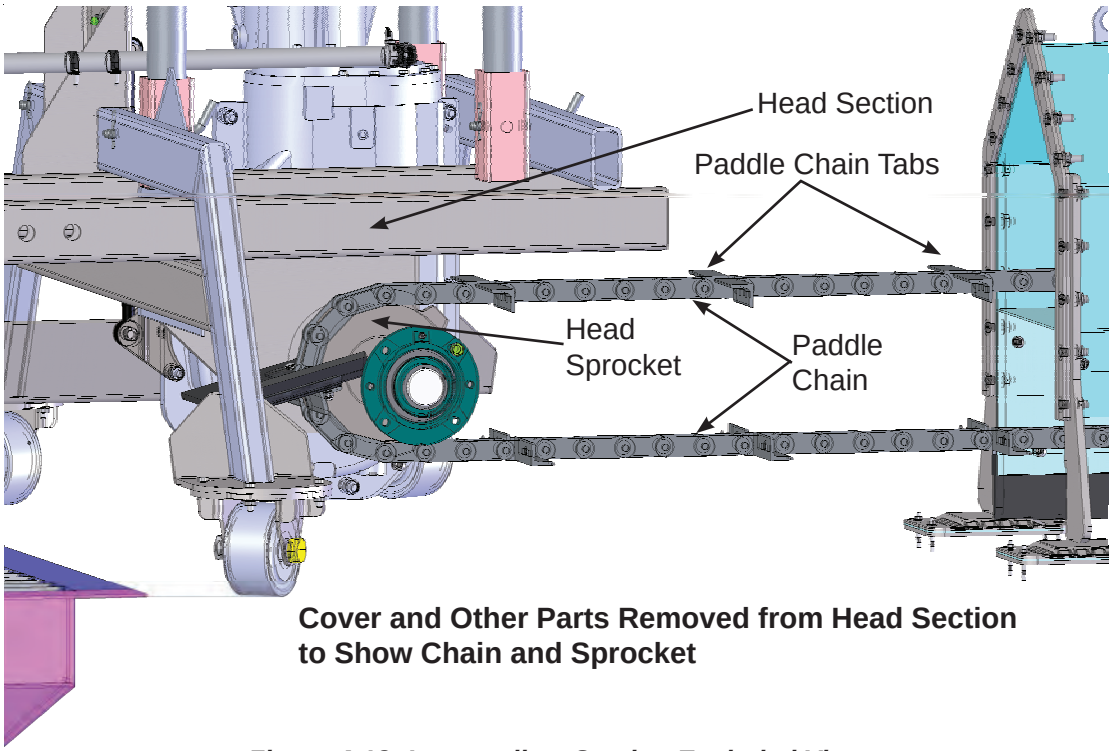


Figure 4-17: Paddle Chain

Refer to Chapter 9 for a detailed exploded view and parts list for paddle chain components.



Cover and Other Parts Removed from Head Section to Show Chain and Sprocket

Figure 4-18: Intermediate Section Exploded View

Install Second Section of Paddle Chain

1. No matter which base unit length you are installing, an Intermediate Section is next to install.
2. Review your base unit exploded view and parts list in Chapter 9 and determine the correct order of sections to install.
   NOTE: There are 3 different lengths of Intermediate Sections. Make sure you have the correct Intermediate Sections lined up in thier correct order per your base unit exploded view in Chapter 9.
3. Move that section up close to the Head Section.
4. Pull the first section of Paddle Chain out of the top part of the Head Section and feed it through the top part of the Intermediate Section.
5. Connect the 1st and 2nd sections of the Paddle Chain on the bottom side of the loop using the chain connector link attached to one end of the chain. See Figure 4-19.
6. Pull tight on both the top and bottom ends of the Paddle Chain assembly, removing any slack inside the Head and Intermediate Sections.

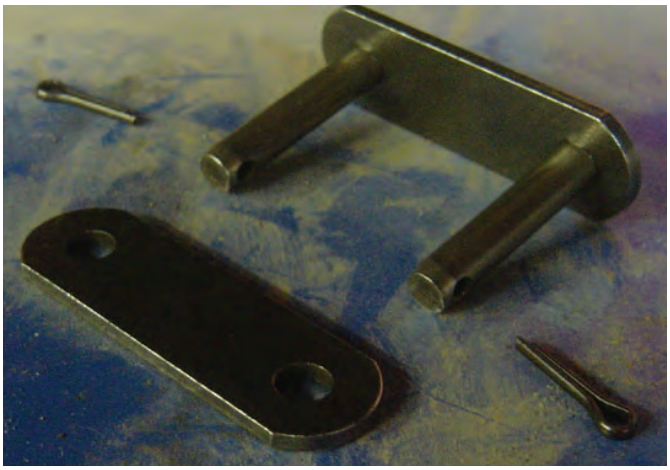


Figure 4-19: Paddle Chain Connecting Link

INTERMEDIATE SECTION INSTALLATION

Install Intermediate Sections

Install the Intermediate Sections as shown in the parts list and diagrams section of the manual according to your sweep model. Your model might differ from the drawings shown here. Use grade #8 - 1/2" section bolts provided.

Torque all 1/2" section bolts to 100 ft. lbs. without the use of an impact wrench.
Install the drag strip (#7) and drag rubber clamp plate (#1) using the hardware provided. See Figure 4-21.

Install Chain In Each Section

Continue pulling the chain through the top portion of each Intermediate Section as you assemble them.

Install Zero Entry Stands

Install Zero Entry Stands as shown in Figure 4-22. Installing Zero Entry Stands as each section is installed will assist with supporting the sweep.
See Figure 4-22.

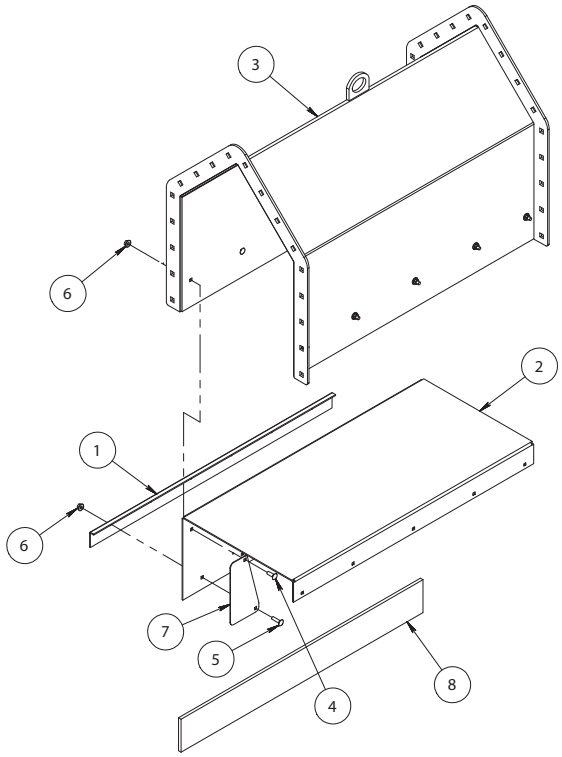


Figure 4-21: Intermediate Section Exploded View

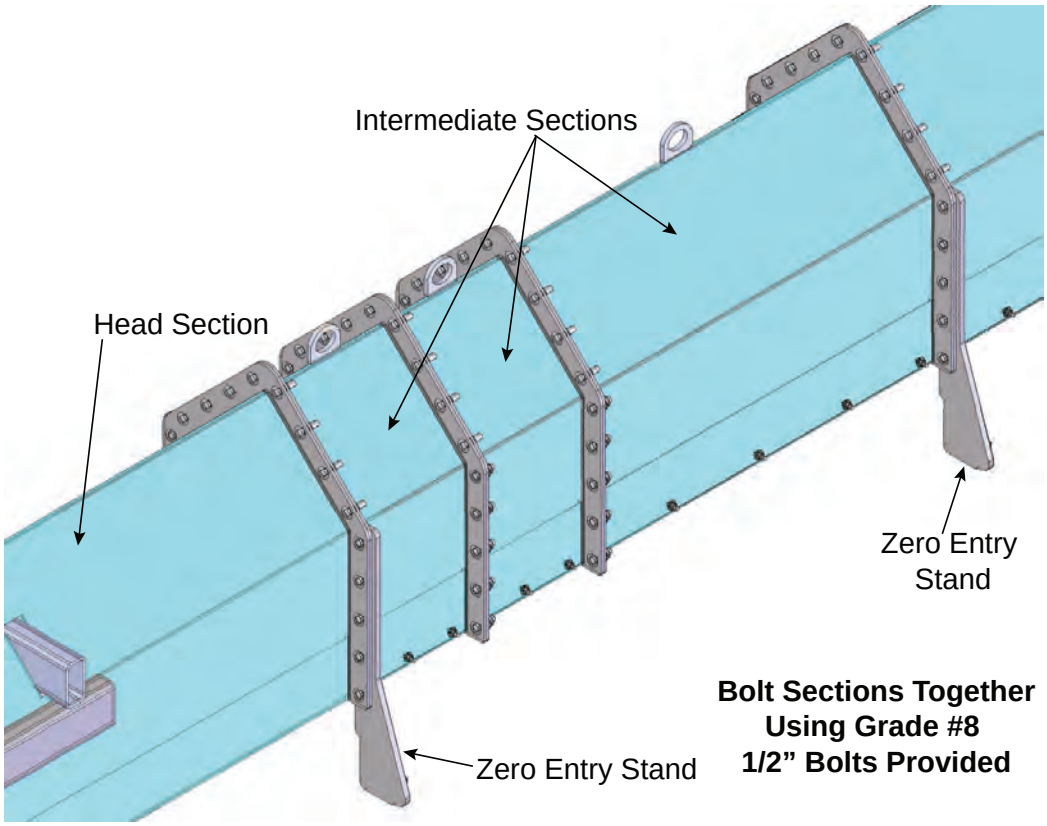


Figure 4-22: Install Intermediate Sections

TRACTOR DRIVE SECTION INSTALLATION

Install The First Tractor Drive Section

1. Review your base unit exploded view and parts list in Chapter 9 and determine which Tractor Drive (gear ratio) is installed at this time.
2. Move that Tractor Drive Section up close to the installation. It will ease installation if the gearbox is supported such that the tires are off the ground. This will allow the shaft to rotate as you pull the paddle chain across the drive sprocket.
3. Feed the sections of paddle chain from the Intermediate Section already installed, through the top and bottom areas and around the drive sprocket of the Tractor Drive Section.
4. Install the first Tractor Drive Section as shown on the following page in Figure 4-23. Also install a Castor Bracket Assembly, between the tractor Drive assembly and the Intermediate Section as you are installing the Tractor Drive Section. See Figures 4-24 and 4-25. Use Grade #8 - 1/2" section bolts provided.
5. Torque all 1/2" section bolts to 100 ft lbs. without the use of an impact wrench. See Figure 4-23.
6. Install the drag strip (#7) and drag rubber clamp plate (#1) using the hardware provided. See Figure 4-23.

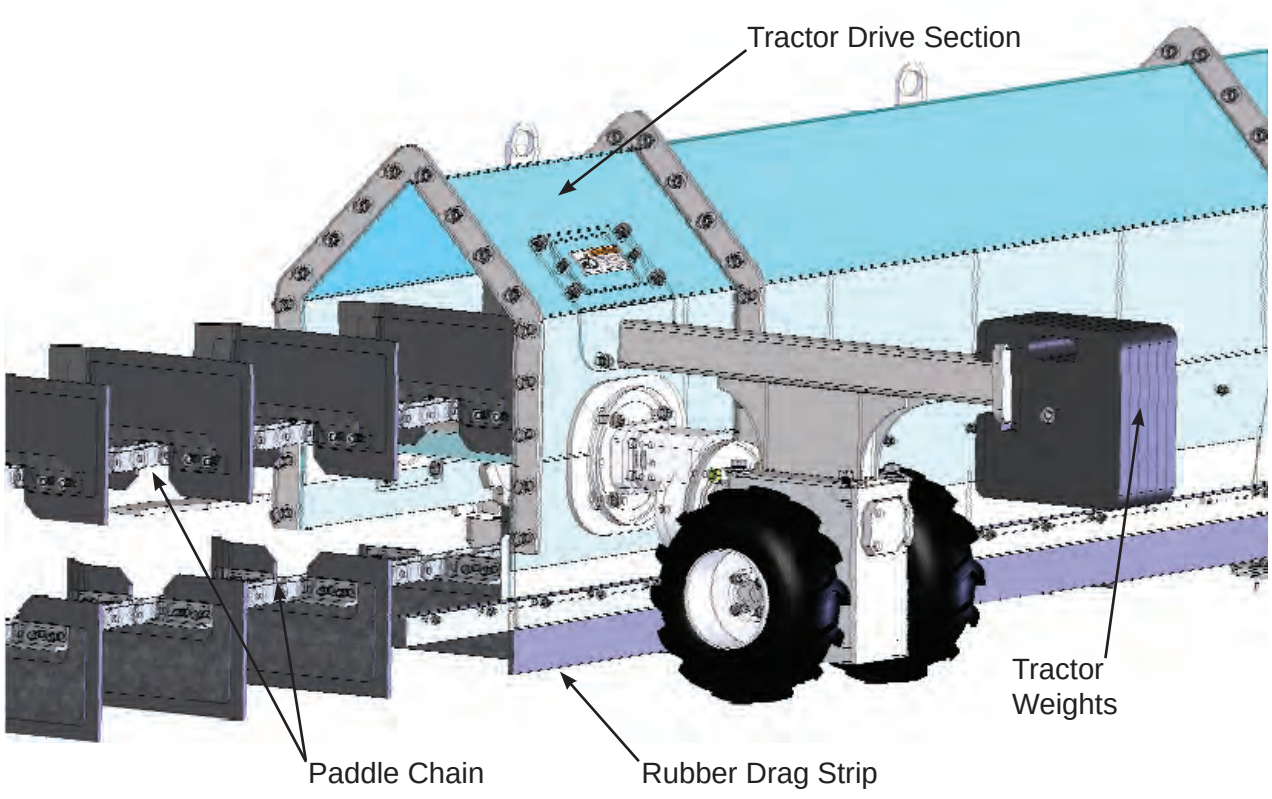


Figure 4-23: Tractor Drive Section

INSTALL CASTER BRACKET ASSEMBLY

1. Position the Caster Assembly so it is just touching the floor and firmly tighten in place using the section mounting bolts and nuts as you are assembling the sections.
2. Torque all section bolts to 100 ft lbs. without the use of an impact wrench.
3. Depending on the length of your Sweep, it can have 1, 2 or 3 Front Caster Assemblies. Refer to your sweep's exploded view in Chapter 9 and determine how many Front Caster Assemblies are to be installed on your sweep. The Front Castor Assembly is always mounted between an Intermediate Section and a Tractor Drive Section.

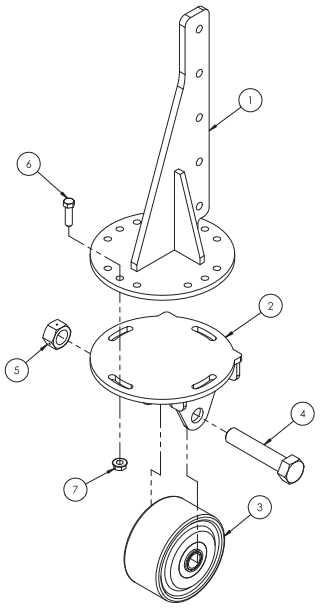


Figure 4-24: Caster Bracket Exploded View

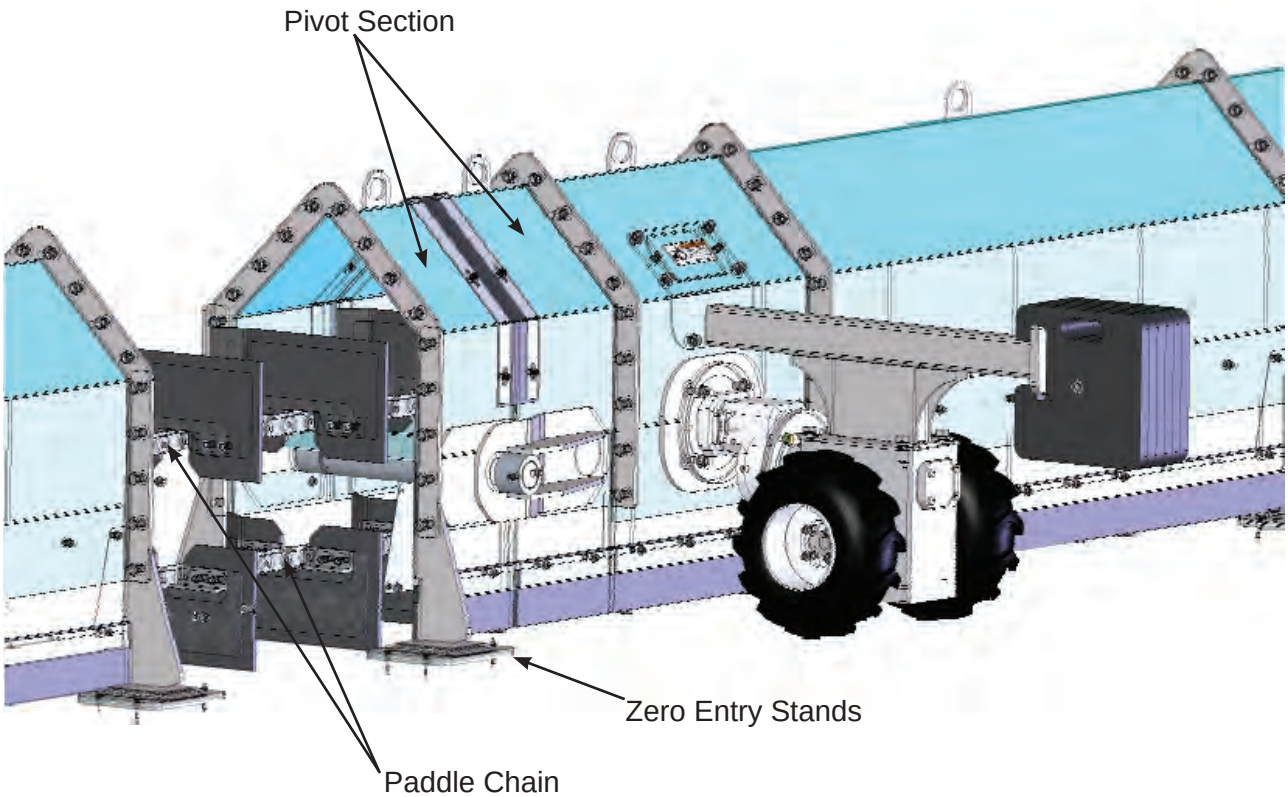


Figure 4-25: Caster Assembly Bracket Mounted Between Intermediate Section and Tractor Section

PIVOT DRIVE SECTION INSTALLATION

Install The Pivot Section

1. Review your base unit exploded view and parts list in Chapter 9 and determine a Pivot Section is to be installed at this time.
2. Move a Pivot Section up close to the installation.
3. Feed the sections of paddle chain from the intermediate Section already installed through the top and bottom areas of the Pivot Section.
4. Install the Pivot Section as shown in Figure 4-24. Use Grade #8 - 1/2" section bolts provided. Torque all 1/2" section bolts to 100 ft lbs. without the use of an impact wrench. See Figure 4-24.
5. Install the drag strip (#7) and drag rubber clamp plate (#1) using the hardware provided.

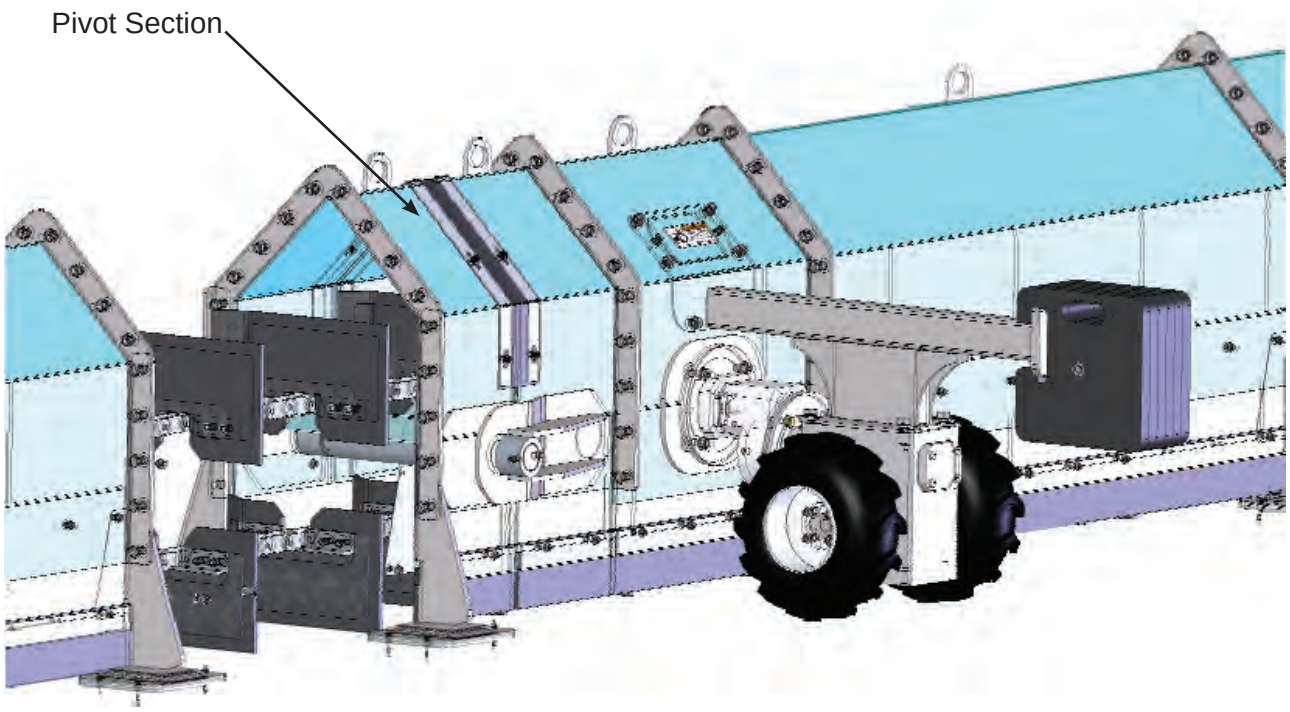


Figure 4-26: Pivot Section

INSTALL REMAINING SECTIONS

Each base unit length will have different sections remaining to be installed to achieve it's correct length. It's very important to carefully review your base unit exploded view and parts list in chapter 9 and determine which sections remain to be installed for your base unit length.

1. Review your base unit exploded view and parts list carefully and layout the sections to be installed in their correct order.
2. Stretch out the remaining paddle chain section(s) along side of the sections to be installed.
3. Once organized, proceed with the next section and refer back to that particular section's installation instructions, on previous pages, to correctly install that section.

Locate your base unit exploded view and parts list in Chapter 9 and review carefully to determine the remaining sections to install.

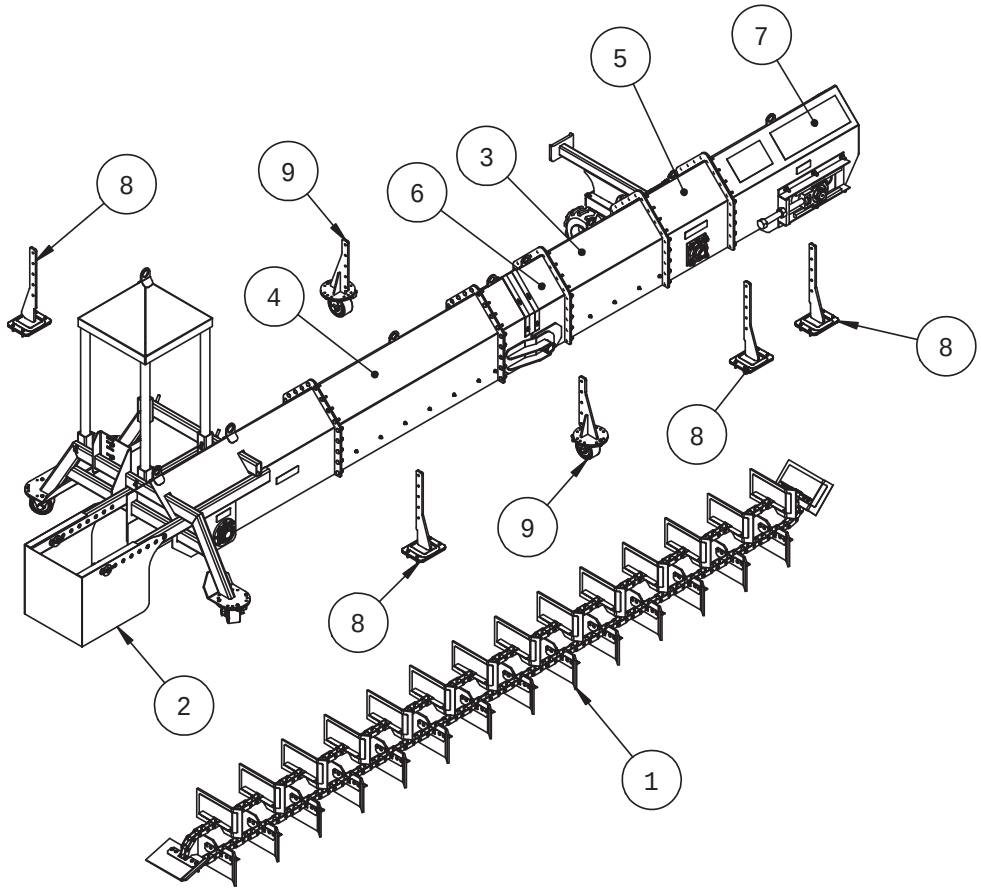


Figure 4-27: Locate Your Base Unit Exploded View and Parts List in Chapter 9

DRIVE END SECTION INSTALLATION

Install The Drive End Section

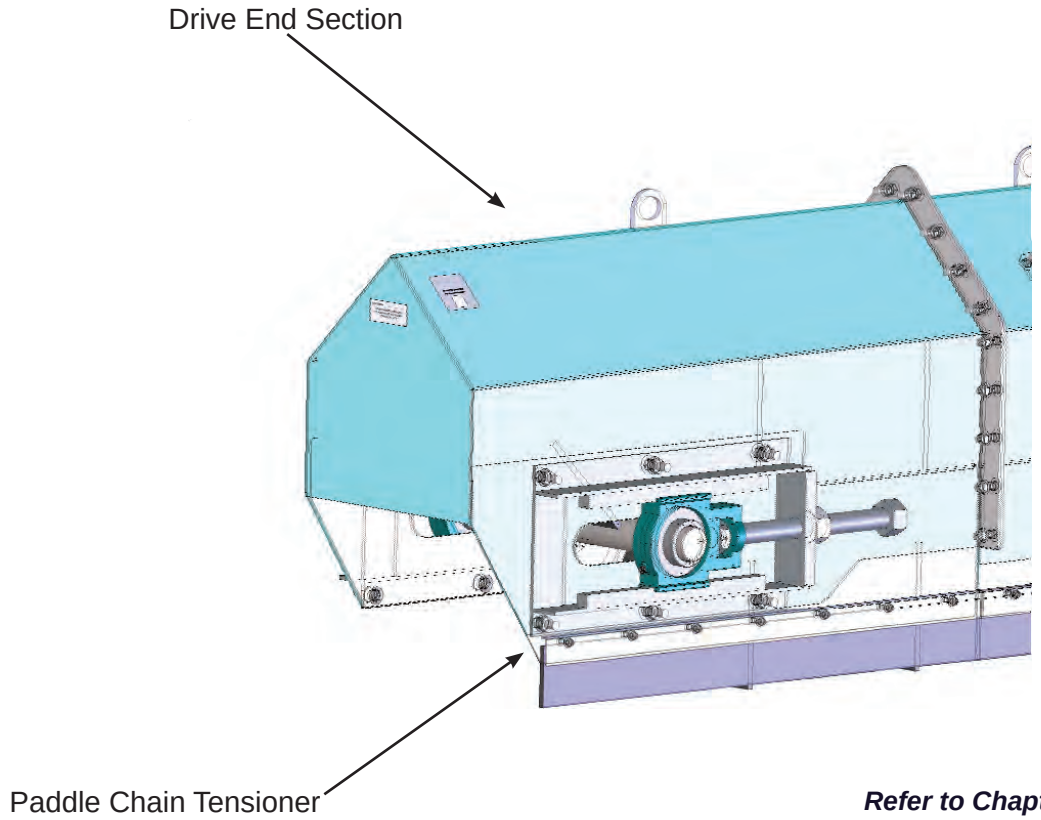
1. Move the Drive End Section close to the installation.

2. Feed the sections of paddle chain from the installed section through the top and bottom areas of the Drive End Section and around the end sprocket.

3. Connect the paddle chain using the supplied connecting link. See Figure 4-20.

4. Install the Drive End Section as shown in Figure 4-28. Use the Grade #8 - 1/2” section bolts provided. Torque all 1/2” section bolts to 100 ft lbs. without the use of an impact wrench. See Figure 4-28.

5. Install the drag strip (#7) and drag rubber clamp plate (#1) using the hardware provided. See Figure 4-28.



Refer to Chapter 9 for a detailed exploded view and parts list.

Figure 4-28: Drive End Section

INSTALL PADDLE CHAIN COMPONENTS

Install the Paddle Chain Components onto the paddle chain tabs as shown in Figure 4-29.

1. Refer to the Paddle Chain Assembly in Chapter 9 for detailed part identification.
2. Attach the toed backer plate, rubber paddle, reinforcement plate, along with the 3/8" carriage bolts and lock-nuts to the each chain tab on the paddle chain. See drawing for sequence.
3. Continue to attach these items on the paddle chain until the bottom of the chain is full.
4. We recommend to manually turn the tail or head section shaft to cycle the paddle chain around, to gain access to the remaining paddle chain, contained in the return side (covered side) of the sweep.

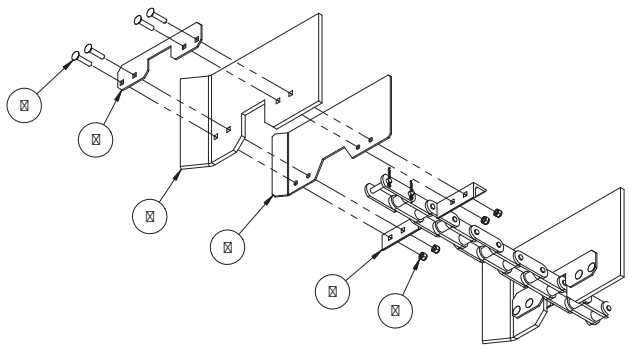


Figure 4-29: Install Paddle Assemblies

Refer to Chapter 9 for a detailed exploded view and parts list.

PADDLE CHAIN TENSIONING

The paddle chain will need to be tensioned twice before installation is complete. The initial tensioning will be prior to operation and the tension must be checked again after operation. This will ensure proper tension upon startup under load.

The chain should deflect approximately 3/4", or half of the thickness of the chain. Less deflection indicates that the chain is too tight; more deflection indicates that the chain is too loose. The chain must not lift high enough to contact the sweep housing.

To adjust the chain tension use the two take-up assemblies located in the Drive End Section. See Figure 4-30.

1. Loosen the locking nuts on the adjuster bolt. See Figure 4-30.
   Turn the adjuster bolt clockwise to increase the chain tension or counterclockwise to reduce the chain tension. See Figure 4-30.
2. Ensure that both adjusters are equally adjusted to maintain proper sprocket and chain engagement.
3. Once the sweep is assembled and ready for operation, run the sweep fro 5 minutes.
4. Check the chain tension again and adjust as needed to achieve 3/4" of deflection.

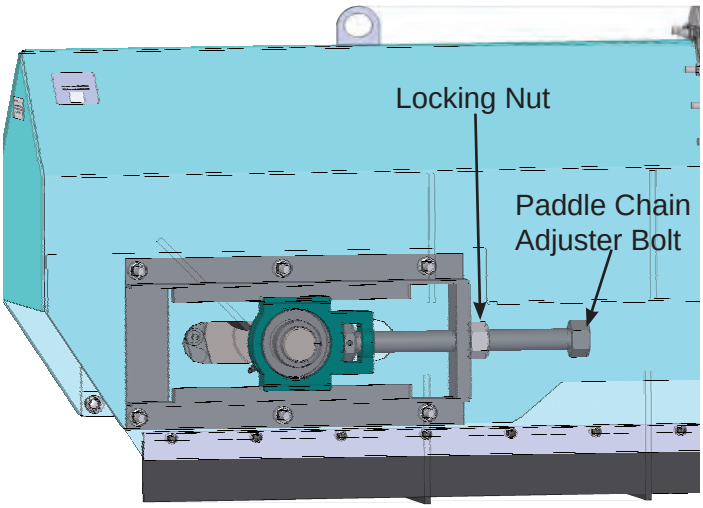


Figure 4-30: Paddle Tension Adjustment

Refer to Chapter 9 for a detailed exploded view and parts list.

MOTOR AND GEARBOX INSTALLATION

The Motor and Gearbox are shipped separately and assembled in the field. The Gearbox is shipped less the gearbox oil. (dry gearbox).

Assemble the Motor and Gearbox as described below.

Tapor Lock Kit

1. Locate the Gearbox. See Figures 4-31.
2. Locate the Taper Lock Kit.
   See Figure 4-31, 32, 33 and 34.
   This kit consists of two each of the following parts: bolt plate, snap ring, taper lock & hardware, along with a key.
3. Pre-assemble the bolt plate and snap ring onto each side of the Gearbox hollow bore. Using the hardware (3 bolts & lock washers)
   See Figure 4-31, 32, 33 and 34. Loosely attach each Taper Lock to the bolt plate on both sides.
   NOTE: These will need to be adjusted after the gearbox is installed onto the Head Shaft.

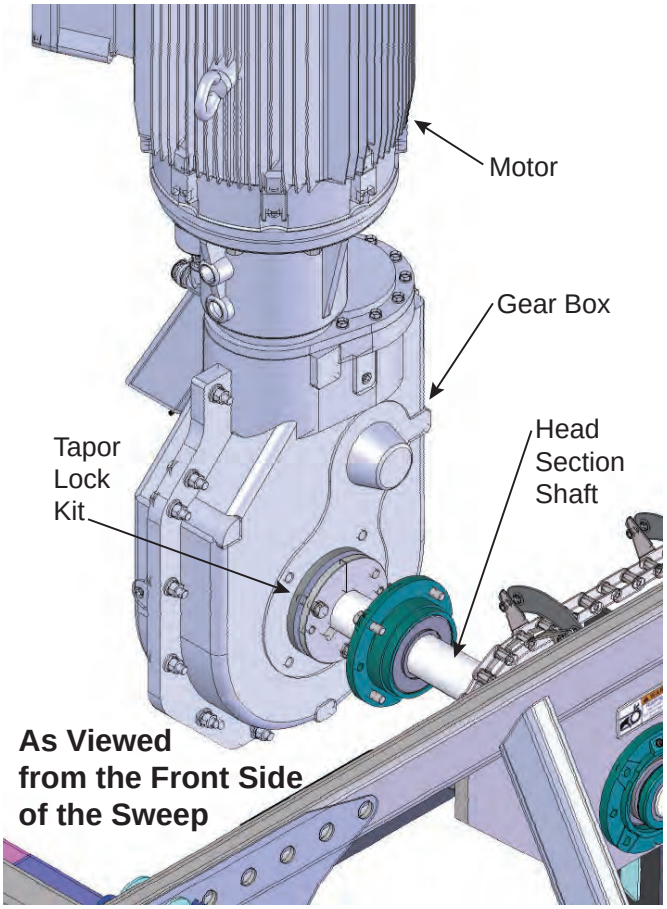


Figure 4-31 Gearbox Frontside View

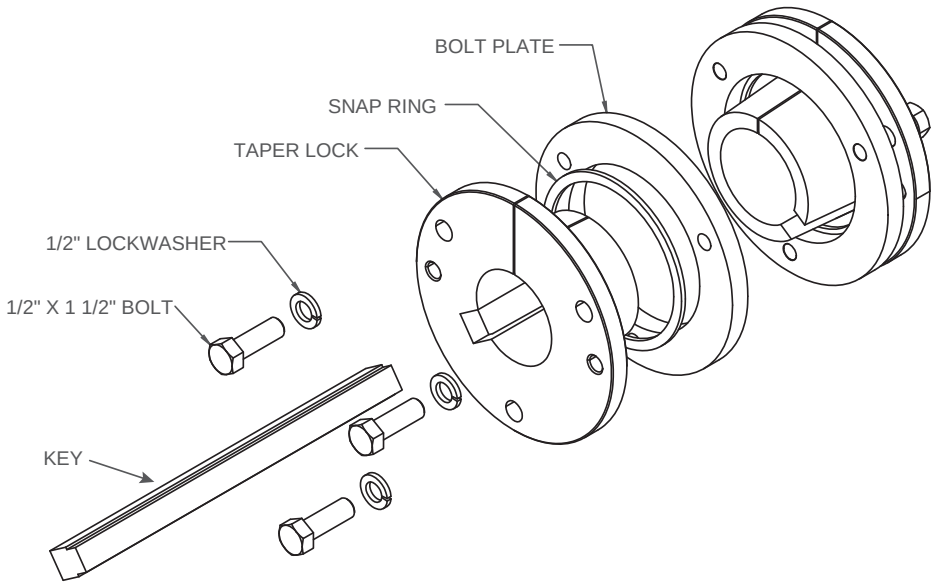


Figure 4-32 Taper Lock Kit.

Torque Arm Kit

Before assembly the Torque Arm Kit will require a slight modification to allow it to fit between the Head Section Frame and Gearbox. See Figure 4-33. Approximately 2 ½" will need to be cut off of each threaded shank to allow the torque arm to fit the space that is required to hold the Gearbox vertically to the Head Section Frame. See Figure 4-34.

1. Assemble the Torque Arm Kit as shown. See Figure 4-34.
2. Attach the lower half of the Torque Arm Kit to the seam of the Gearbox casing. See Figure 4-34.

Install Gearbox Onto Head Shaft

3. Slide the Gearbox Assembly onto the Head Shaft, along with the key. We recommend removing any rust or imperfections from the Head Shaft with an emery cloth. We also recommend using a lubricant to ease the Gearbox Assembly onto the Head Shaft.
4. Roughly center the Gearbox on the Head Shaft to allow the hookup of the top portion of the Torque Arm to the Head Section Frame. Adjust the Torque Arm to keep the Gearbox in as vertical a position as possible. Tighten securely. See Figure 4-34.
5. Then tighten the taper locks evenly from side to side to securely fasten the gearbox assembly to the head shaft. It is important to keep the Torque Arm straight up and down, not at an angle. See Figure 4-34.

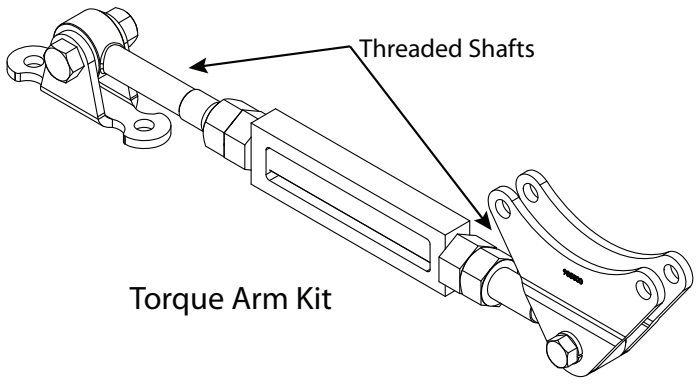
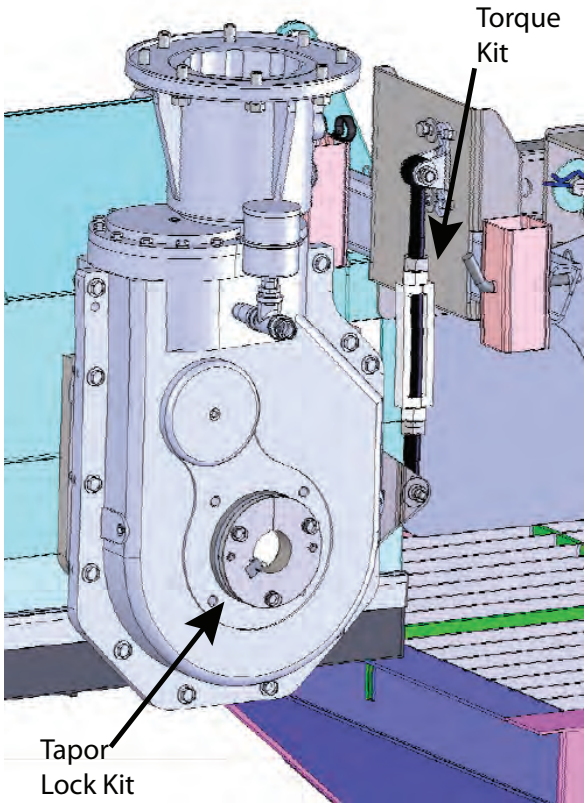


Figure 4-33: Torque Arm Kit



Figur*e 4-34: Torque Arm Kit and Taper Lock Kit Backside View*

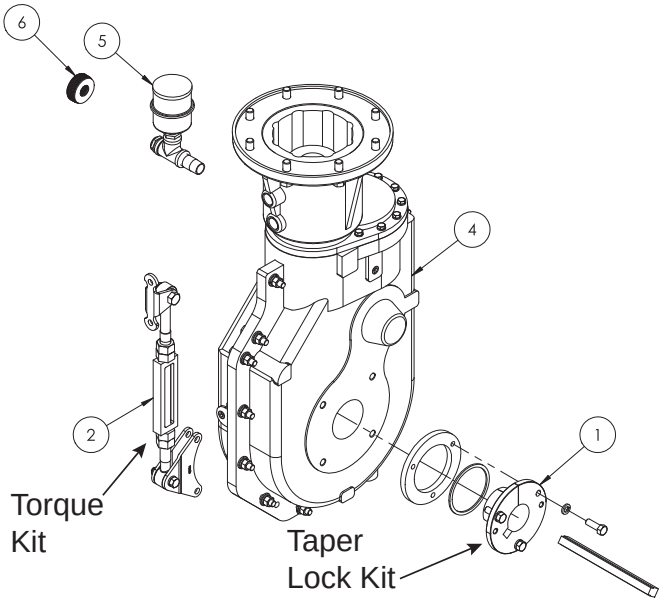


Figure 4-35 Torque Arm Kit and Taper Lock Kit Backside View

MOTOR AND GEARBOX INSTALLATION (Continued)

Install Breather Kit

Install the Breather Kit onto the Gearbox as shown. See Figure 4-36 and Figure 4-39.

Install Gearbox Motor

Install the Gearbox Motor onto the Gearbox using the hardware supplied. See Figure 4-37.

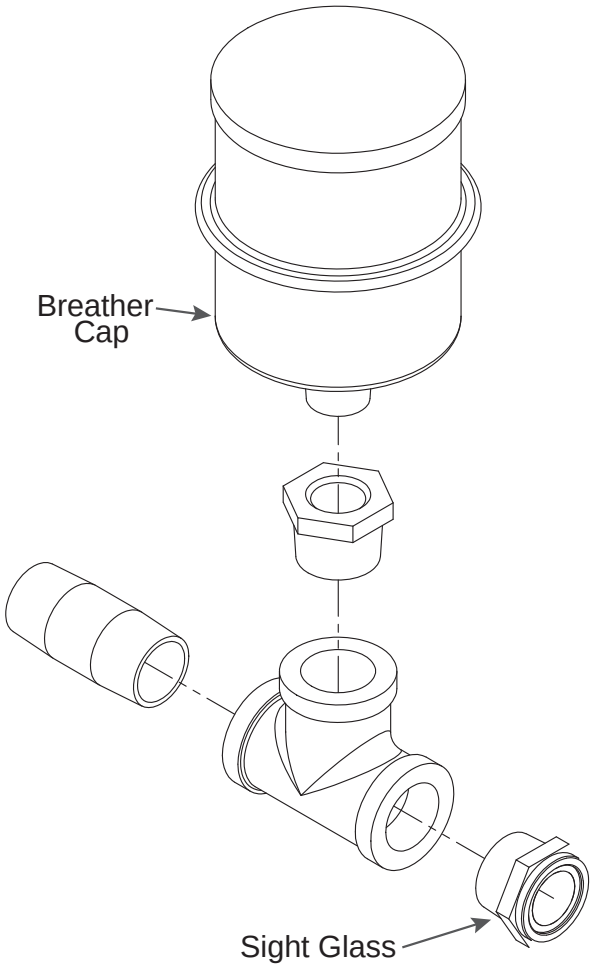


Figure 4-36: Gearbox Breather Kit

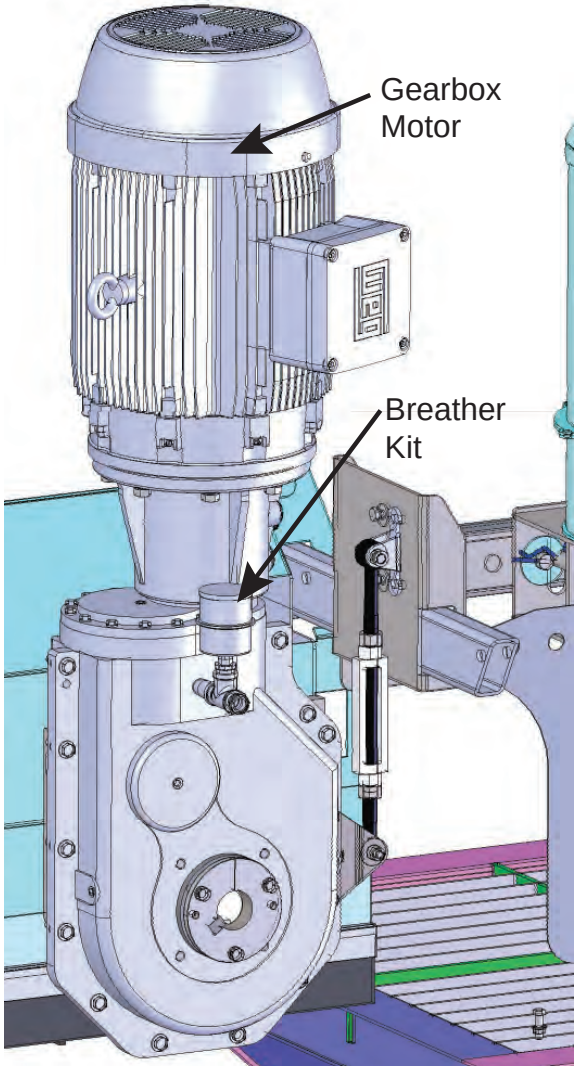


Figure 4-37 Gearbox Motor and Breather Kit

Fill Motor Gearbox with Oil

The main Gearbox is shipped dry (without oil). 21 quarts of SHC630 synthetic oil is supplied and required to fill the MTA5 gearbox to the appropriate level.

13 1/8 quarts (672 oz.) of SHC630 synthetic oil is supplied and required to fill the MTA4 gearbox to the appropriate level.

To fill the Gearbox reservoir complete the following steps:

1. Remove the Gearbox Fill Port Plug. See Figures 4-38.
2. Fill the Gearbox with the supplied SHC630 synthetic oil until it shows in the site glass See Figures 4-38.
3. Re-Install the Gearbox Fill Port Plug and tighten in place. See Figure 4-38.

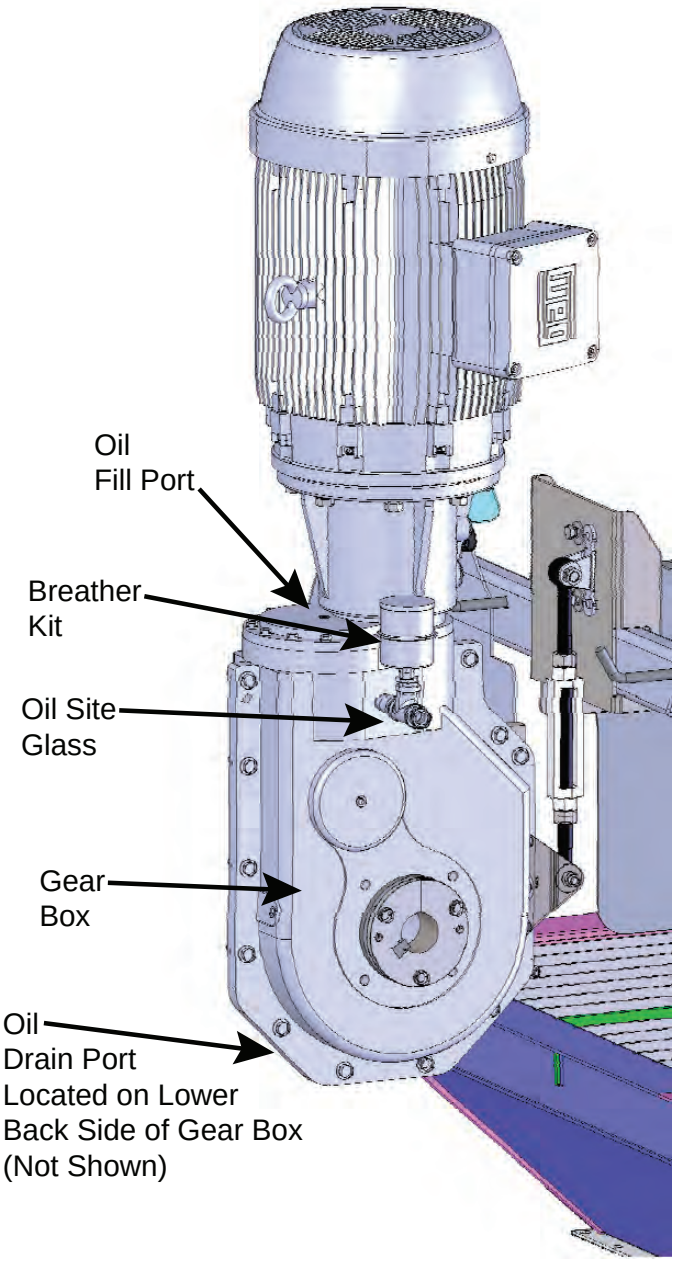


Figure 4-38 Gearbox Components

ELECTRICAL INSTALLATION

All electrical installation should be completed by a certified electrician and should comply with local codes and regulations. Any electrical equipment not provided is the responsibility of the installer.

Electrical Installation

Motor Control Boxes are available for purchase with the sweep. These panels offer Start, Stop, and Reset functionality. See Figure 4-40.

The Control Box includes overload adjustment to protect the motor and other components of the sweep. See Figure 4-41.

Two settings can be adjusted in the starter panel. Setting the overload reset to Auto will allow the overload relay to automatically reset when the unit is ready after an overload event.

To the right of the overload relay is a dial to adjust the overload amperage setting. This should be adjusted to match the FLA on the motor provided with the sweep. See Figure 4-41.

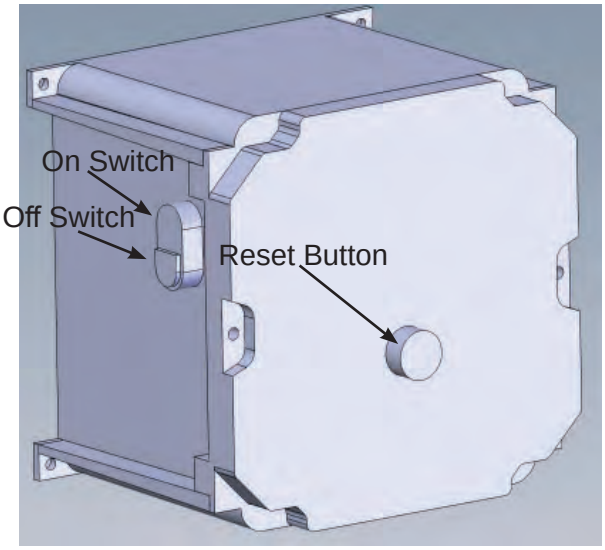


Figure 4-40: Motor Control Box

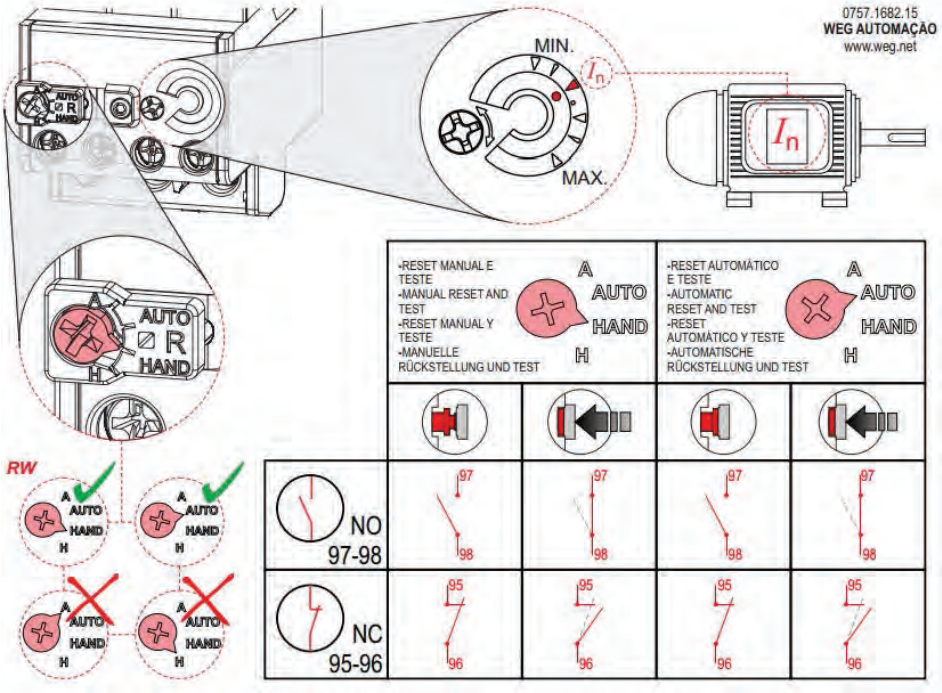


Figure 4-41 Overload Relay Settings

Electrical Wiring Diagram

See wiring diagram for incoming and outgoing wiring terminations. The start, stop, and reset controls are pre-wired in the panel.

Collector Ring

The wiring to the motor will pass through the Collector Ring to allow rotation without twisting the wiring. The Collector Ring is provided as a pre-wired unit with leads out of both sides labeled 1 through 4. Any of the leads may be used for any motor wires providing that they are matched on each end of the Collector Ring. See Figure 4-42.

Route Electrical Wiring

Route the conduit and wiring from the Collector Ring along the Head Section Frame toward the J-box on the motor.

Use the supplied fittings to secure the conduit into the J-box on the motor.

Secure the conduit using the supplied clamps and self-tapping screws. See Figure 4-43.

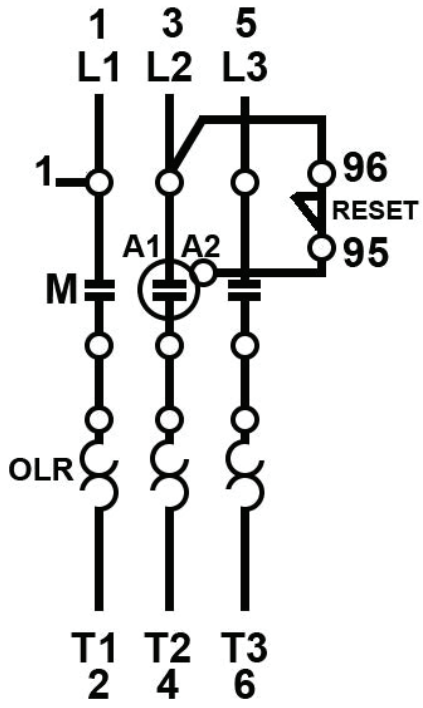


Figure 4-42: Motor Starter Box Wiring Diagram

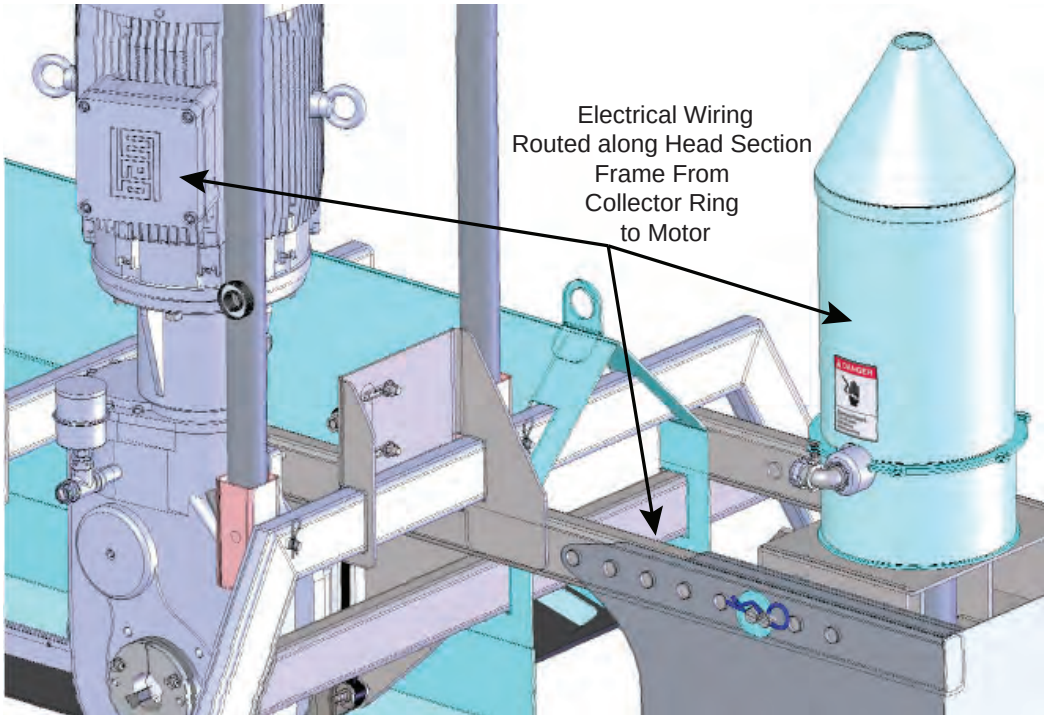


Figure 4-43: Wiring from Collector Ring to the Motor

FINAL CHECK

The final check is to complete installation and ensure the sweep is ready for operation.
Checking these items is critical before an initial operation.

Add Weight Kits

Add the Weight Kits to each Tractor Drive. These weights are in place to balance the sweep and add traction. See Figure 4-44.

Adjust Drag Rubber

Adjust the Drag Rubber on the back side of the sweep such that it lightly contacts the bin floor. See Figure 4-45.

Check Gearbox Oil Level Vents

Check that the Motor and Tractor Gearbox oil levels are at proper levels. Check that the vent plugs are clear. Refer to Gearbox Fill instructions in Chapter 6 - Maintenance and Lubrication for deatiled steps.

Check all electrical Connections

Ensure that all electrical connections are secure and that boxes and panels are sealed.

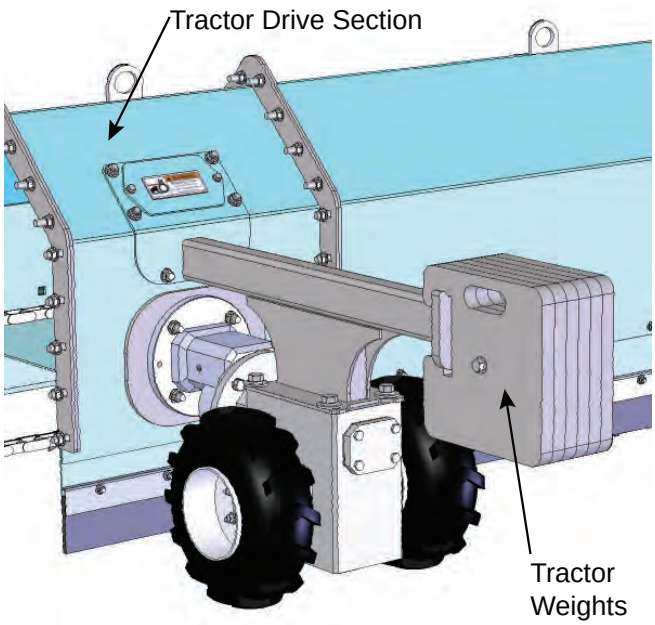


Figure 4-44: Add Weight Kits

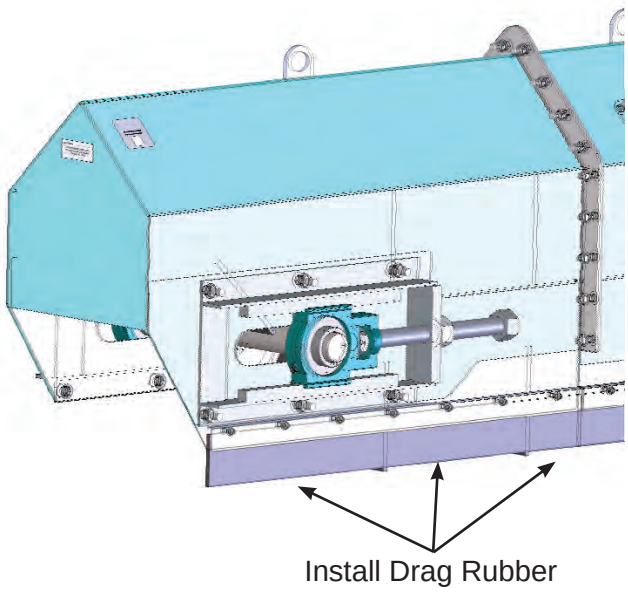


Figure 4-45: Install Drag Rubber Strips

TRACK PATHWAYS INSTALLATION

If the floor is a full aeration floor or has aeration tunnels, track pathways are available to protect the floor from damage from the caster wheels. The track pathways are critical to preventing floor damage when the sweep is operated under load.

To determine the track pathways location complete the following steps:

1. To determine the location of the track pathways it is recommended to tie a string to the center pivot post. Then use this string to measure the distance the casters are located from the Center Pivot Post. See Figure 4-46.
2. Using this string method, measure and mark the floor with paint or a marker where the track pathways will be installed. See Figure 4-46.
3. After the path is marked you may install the pathways in an end to end fashion. See Figure 4-47.
4. Anchor down the pathways with the supplied self tapping screws. See Figure 4-47.
5. The first and final pathway may have to be cut to fit properly.

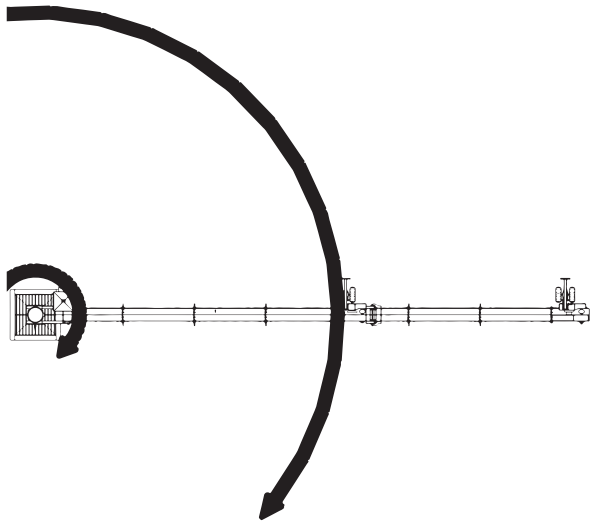


Figure 4-46: Determine Track Pathways Location

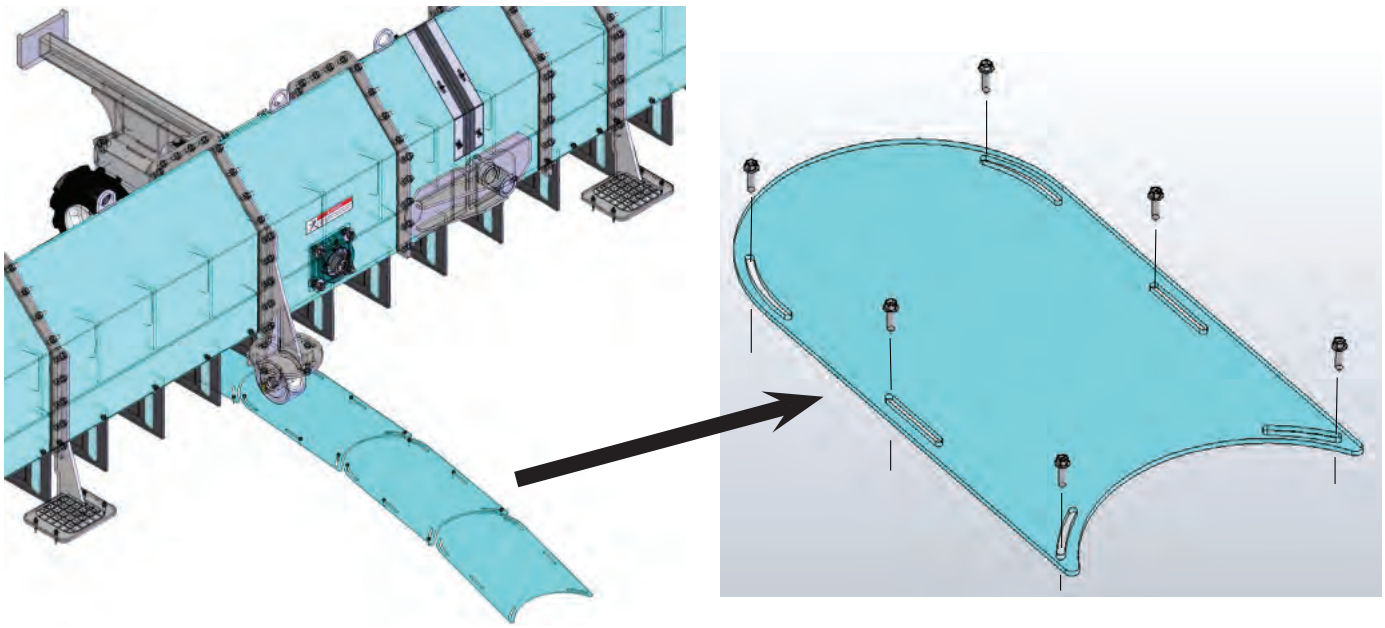


Figure 4-47: Anchor Pathway using the Six Anchor Bolts on each Pathway

INITIAL OPERATION

During initial operation in an empty bin, personnel will need to be inside the bin. It is critical that persons stay on the back side of the sweep and do not sit on, walk on, stand on, or touch the sweep as it is operating.

- READ FIRST - If track paths are being utilized, please refer to the track pathways section before operating the sweep.
- READ FIRST - If Zero Entry Stand and pads are being utilized please refer to the Zero Entry Pad Section before operating the sweep.
- The sweep will need to be operated for two complete rotations before being set for burial.
- It is highly recommended these first two passes be completed in an empty bin.
- If an empty bin is not possible, the grain pile needs to be consistent across the floor and engagement side of the sweep. An uneven grain pile can cause significant damage to the sweep.
- While operating, check for high or low spots in the floor that may cause obstructions and adjust the casters and drag rubber as necessary.
- Also, check that the End Drive Section of the sweep does not make contact with any obstructions inside the bin such as stiffeners, doors, or ladders.

WARNING! ***During initial operation in an empty bin, personnel will need to be inside the bin. It is critical that persons stay on the back side of the sweep and do not sit on, walk on, stand on, or touch the sweep as it is operating.***

ZERO ENTRY PAD INSTALLATION

Zero Entry Pad installation should not occur until after the sweep has made at least one pass around the bin as the locations may change slightly. It is critical that the stands repeatedly land on the pads as not to cause major damage to the sweep when buried.

Zero Entry Pads

After the first pass to check operation has completed the sweep can be stopped in the burial location. See Figure 4-48.

The burial location should be such that the sump locations are in front of the sweep and none of the Zero Entry Stands are above a sump hole location.

Once the sweep is set to this location. Place a Zero Entry Pad under each stand. See Figure 4-50.

Install Shims

Using the shims that are provided, elevate the pad so that each pad has a 1/8” gap to the stand. See Figure 4-49.

If there is not enough space for the pad without a shim then the Zero Entry Stand will need to be cut or ground to provide the 1/8” gap.

Center each pad under the stand in the orientation shown and mark the location on the floor. See Figure 4-49.

Secure Each Pad

Secure each pad and shim stack to the floor using the provided hardware. See Figure 4-50.

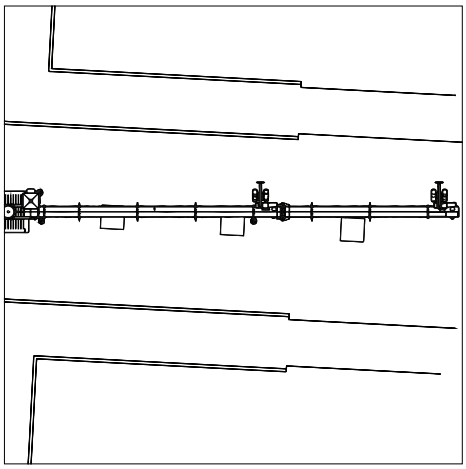


Figure 4-48: Install Zero Entry Pads

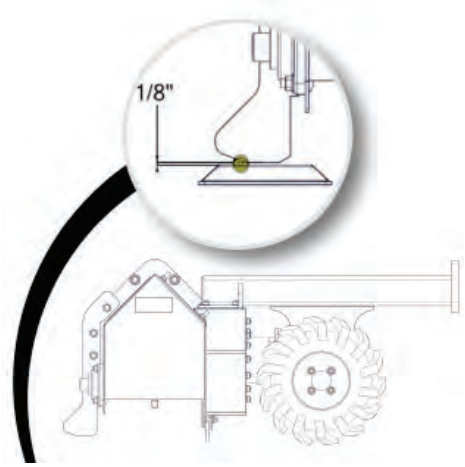


Figure 4-49: Install Shims

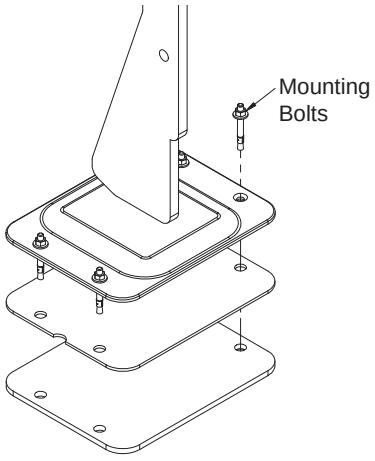


Figure 4-50: Secure Each Pad

SETTING THE SWEEP FOR BURIAL

Once the second pass is nearly complete the sweep can be set for burial. Improperly setting the sweep for burial may cause extensive damage to the sweep which will be very difficult and hazardous to repair when the bin is full of grain.

Verify Clearance

If using Zero Entry Stands, advance the sweep until the stands are centered above the Zero Entry Pads.

Verify that there is 1/8” clearance between the stand and the pad at each location. See Figure 4-51.

Failing to verify clearance may result in major damage to the sweep. See Figure 4-51.

If the sweep is equipped with an electrical cord to the motor the cord should be placed on the floor behind the sweep and tractor drive wheels.

Secure any excess cord so it may be reached after the bin has been emptied.

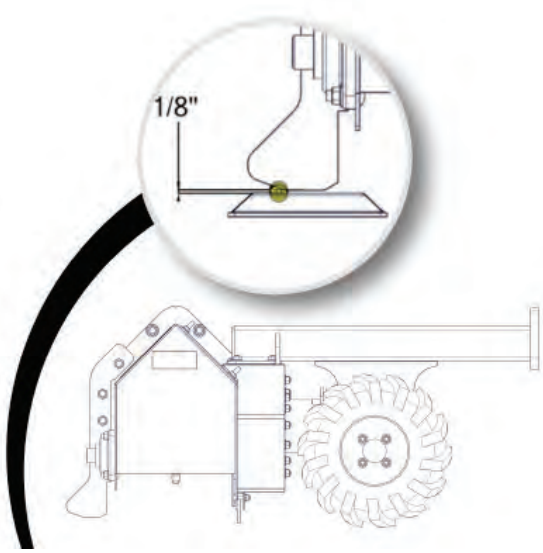


Figure 4-51: Verify Clearance

Chapter 5 - Operating Instructions

This chapter contains step-by-step procedures for starting, stopping, and operating the DPS 12K Bin Sweep. This chapter contains the following sections:

Chapter 5 - Table Of Contents

OPERATING PROCEDURES

BEFORE STARTUP

Review the following tips before operating the DPS 12K Bin Sweep:

- The DPS 12K Bin Sweep is not intended to be run if the grain bin has not been filled and drained down. The grain pile must be across the entire front of the sweep.
- Failure to have a constant grain pile across the front of the sweep will result in the sweep bending or breaking at the sections as it tries to wrap around the pile of grain.
- Prior to starting the sweep, the bin must be gravity drained as much as possible.
- All sumps must be opened and grain flow must stop prior to starting the sweep.
- Follow the bin manufacturer's grain unloading instructions. Do not start the sweep until the all the sumps have been opened.

FIRST PASS

Review the following tips before operating the DPS 12K Bin Sweep:

- After the bin has been gravity drained, the sweep should be visible in the grain pile if a man way is able to be opened.
- Once the sweep is started it will begin moving grain to the center sump. The sweep may not appear to advance until enough grain from the pile in front of the sweep is moved.
- While the sweep is running the tractor wheels will be slipping on the floor as the sweep drives into the grain pile. This is normal and is designed to provide constant pressure on the grain pile to ensure the paddles are full.
- Avalanches will occur in the grain and grain will flow over the top of the sweep leaving grain behind the sweep. This is normal on the first pass and why a second pass is recommended to empty the bin.
- During operation the operator must ensure that grain is not backing up in the sump and being carried back through the top of the sweep. If the takeaway system does not have enough capacity, the sweep will incur damage from grain backing up.

SECOND PASS

Review the following tips before operating the DPS 12K Bin Sweep:

- Because the sweep must remain a set distance from the wall of the bin, a small amount of grain will remain on the outer wall.
- Just before the first pass is completed the sweep can be stopped and grain moved away from the outer wall. Be sure to follow all lockout and bin entry procedures when entering the bin. Again, moving the grain away from the wall is optional and does require entry into the bin.
- The sweep can now be operated for a second pass. As with the first pass, the tractor drive wheels will slip on the ground as the sweep pushes into the pile.

NOTES

Chapter 6 - Maintenance & Lubrication Instructions

This chapter contains inspection and preventative maintenance instructions for the DPS 12K Bin Sweep. Performing preventive maintenance, including regular lubrications, ensures that the equipment can be run safely and efficiently. This chapter contains the following sections:

Chapter 6 - Table Of Contents

PERIODIC MAINTENANCE

It is recommended to periodically perform routine maintenance procedures on your DPS 12K Bin Sweep. Refer to the service schedule on page 6 of this chapter.

WARNING: ***Always disconnect and lockout all power sources to the DPS 12K Bin Sweep before attempting to perform any service function. Follow lockout/tag out procedures as outlined in OSHA section 910.147 where appropriate.***

Check All Fasteners for Looseness

Review the Section Fasteners in Figure 6-1. Periodically check these fasteners for looseness and re-torque if required. Refer to the torque requirements listed below. See Figure 6-3.

Inspections

Inspect the components listed in Figure 6-2. Perform repairs and adjustments as needed.

- Section fasteners
- Caster Wheels
- Take Up Frames
- Flange Bearings
- Pilot Bearings
- Weight Bracket
- Torque Arm
- Zero Entry Pads

Figure 6-1: Section Fasteners

- Section fasteners
- Caster Wheels
- Take Up Frames
- Flange Bearings

Figure 6-2: Inspections

	Grade 5				Grade 8			
	Lubricated		Dry		Lubricated		Dry	
Size	N*m	Lb-ft	N*m	Lb-ft	N*m	Lb-ft	N*m	Lb-ft
1/4"	9.5	7	12	9	13.5	10	17	12.5
5/16"	20	15	25	18	28	21	35	26
3/8"	35	26	44	33	50	36	63	46
7/16"	55	41	70	52	80	58	100	75
1/2"	85	63	110	80	120	90	150	115
9/16"	125	90	155	115	175	130	225	160
5/8"	170	125	215	160	215	160	300	225
3/4"	300	225	375	280	425	310	550	400

Figure 6-3: Torque Requirements

Grease Fittings After Each Use

It is recommended to grease the following fittings after each use.

- Head Section: 2 each Pilot Bearings.
- Head Section: 3 each Caster Wheels
- Tractor Drive(s)
- End Section: 2 each Take Up Bearings
- Front Caster Wheels

WARNING: ***Always disconnect and lockout all power sources to the DPS 12K Bin Sweep before attempting to perform any service function. Follow lockout/tag out procedures as outlined in OSHA section 910.147 where appropriate.***

Check Oil Levels on All Gearboxes

There is the main Gearbox and depending upon your base units length, up to 3 tractor Drive Gearboxes that need to have gearbox oil levels checked. See Figures 6-4 and 6-5.

All the gearboxes use SHC630 synthetic oil. synthetic lubricant should be changed every 6,000 hours of operation or every two years, whichever comes first. Refer to the instructions on the following pages for checking the miscellaneous gearbox oil levels.

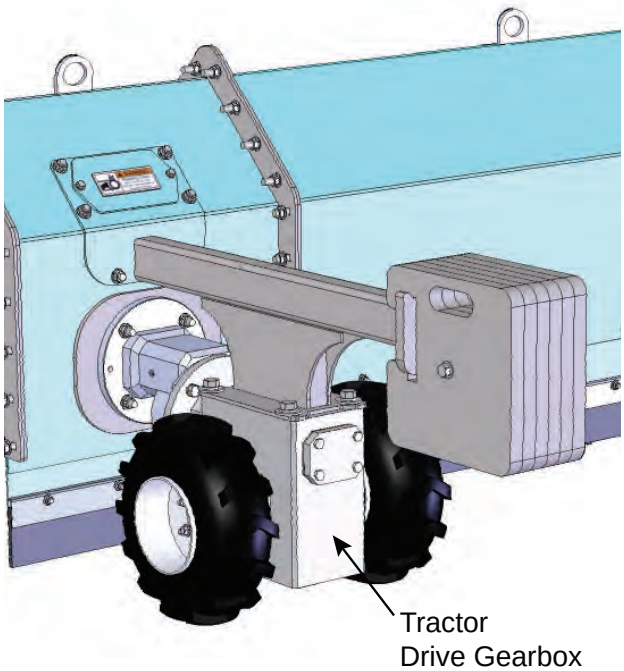


Figure 6-4: Tractor Drive Gearbox

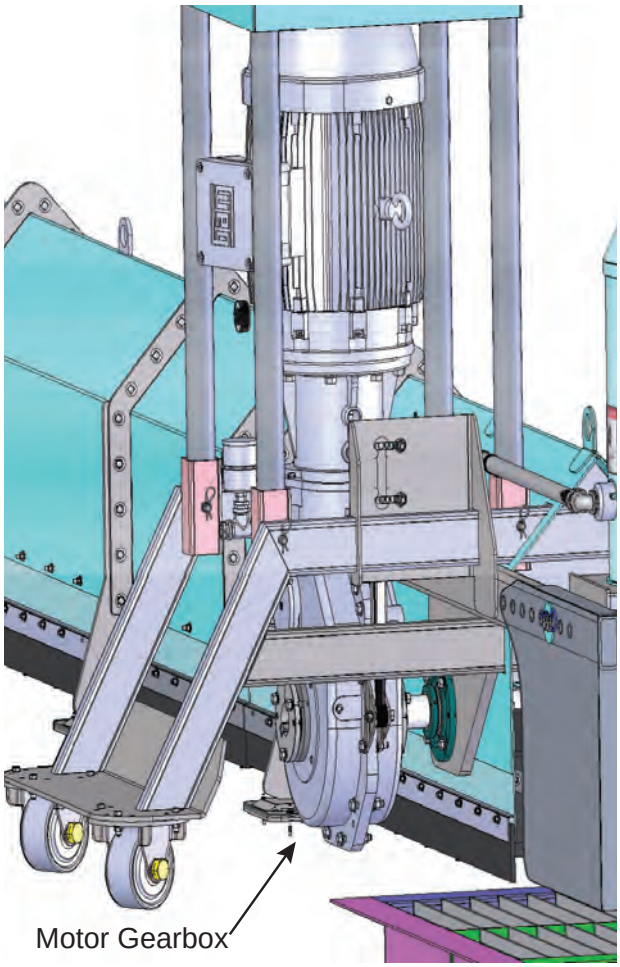


Figure 6-5: Motor Gearbox

ADD OR DRAIN OIL FROM MOTOR GEARBOX

WARNING: ***Always disconnect and lockout all power sources to the DPS 12K Bin Sweep before attempting to perform any service function. Follow lockout/tag out procedures as outlined in OSHA section 910.147 where appropriate.***

All the motor gearboxes use SHC630 Synthetic Oil. Synthetic lubricant should be changed every 6,000 hours of operation or every two years, whichever comes first.
The MTA4 gearbox capacity is 13 1/8 quarts. The MTA5 gearbox capacity is 21 quarts.

Refer to the following instructions for adding or draining the oil from the motor gearbox.

Add Oil to Motor Gearbox

To fill the gearbox reservoir complete the following steps:

1. Remove the Gearbox Fill Port Plug. See Figure 6-6.
2. Fill the Gearbox with SHC630 synthetic oil until the oil level shows in the site glass. See Figure 6-6.
3. Re-Install the Gearbox Fill Port Plug and firmly tighten in place. See Figure 6-6.

Drain the Motor Gearbox Oil

To drain the gearbox reservoir complete the following steps:

1. Place a container under the Motor Gearbox.
1. Remove the Gearbox Drain Port Plug. See Figures 6-6.
2. Drain the oil from the reservoir.
3. Re-Install the Gearbox Drain Port Plug and firmly tighten in place. See Figure 6-6.
4. Fill the Gearbox with SHC630 synthetic oil per the instructions above to ad oil to the gearbox. See Figures 6-6.

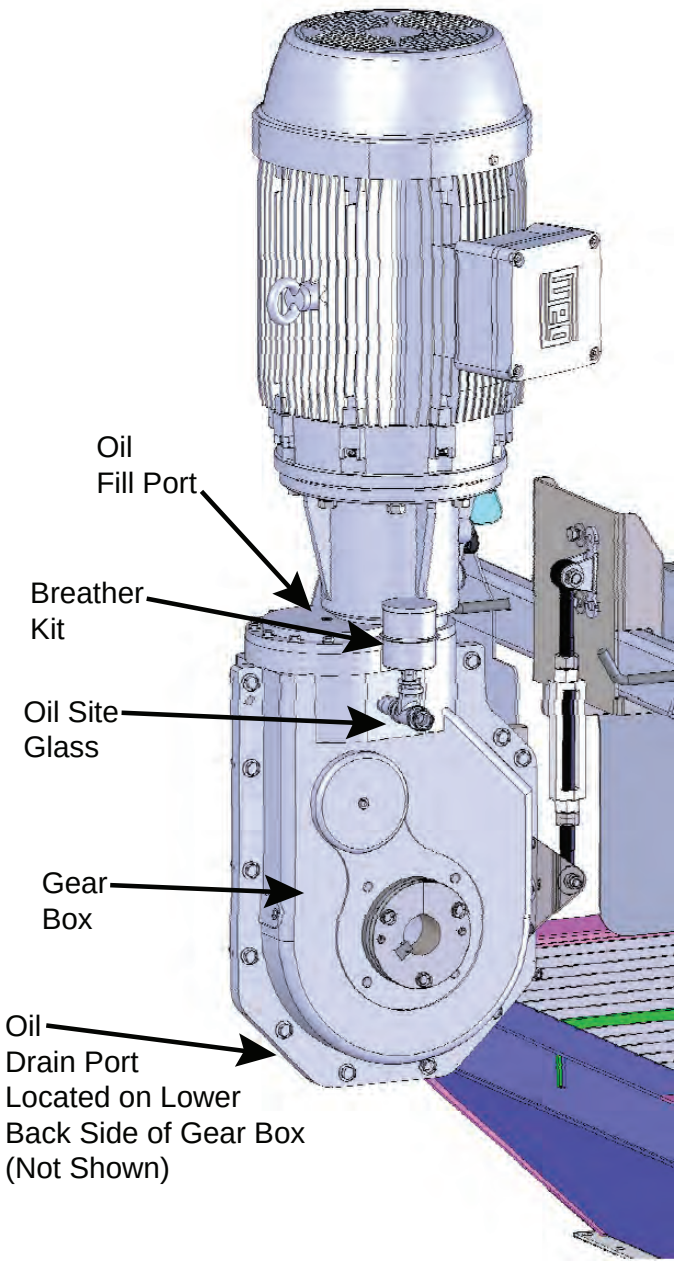


Figure 6-6 Gearbox Oil Level

ADD OR DRAIN OIL FROM TRACTOR GEARBOX

WARNING: ***Always disconnect and lockout all power sources to the DPS 12K Bin Sweep before attempting to perform any service function. Follow lockout/tag out procedures as outlined in OSHA section 910.147 where appropriate.***

Each Tractor Drive consists of a gearbox and a multiplier. Each Tractor Drive uses Glygoyle 460 Oil for both the Gearbox and the Multiplier.
The oil in each tractor drive should be changed every 6,000 hours of operation or every two years, whichever comes first.
Each Tractor Drive Gearbox capacity is 7 pints. Each Tractor Drive Multiplier capacity is 3.6 pints.

Refer to the following instructions for adding or draining the oil from the tractor drive gearbox and Multiplier.

Add Oil to Tractor Drive Gearbox

To fill the gearbox reservoir complete the following steps:

1. Remove the Gearbox Fill Port Plug. See Figure 6-8.
2. Fill the Gearbox with Glygoyle 460 Oil until the oil level comes out of the fill port. See Figure 6-8.
3. Re-Install the Gearbox Fill Port Plug and firmly tighten in place. See Figure 6-8.

Drain the Tractor Drive Multiplier Oil

To drain the gearbox reservoir complete the following steps:

1. Place a container under the Gearbox.
1. Remove the Multiplier Drain Port Plug. See Figures 6-9.
2. Drain the oil from the reservoir.
3. Re-Install the Drain Port Plug and firmly tighten in place. See Figure 6-9.
4. Fill the Multiplier with SHC630 synthetic oil per the instructions above to add oil to the gearbox. See Figures 6-9. Re-Install the Gearbox Fill Port Plug and firmly tighten in place. See Figure 6-8.

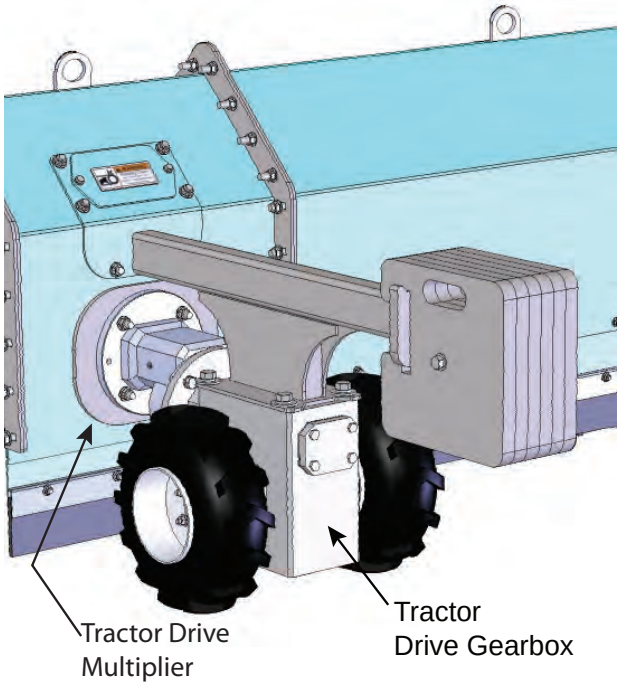


Figure 6-7: Tractor Gearbox and Multiplier

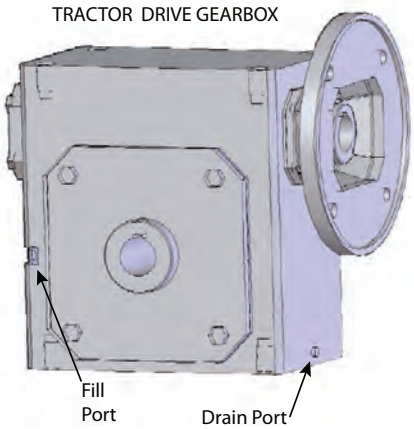


Figure 6-8: Tractor Gearbox and Multiplier

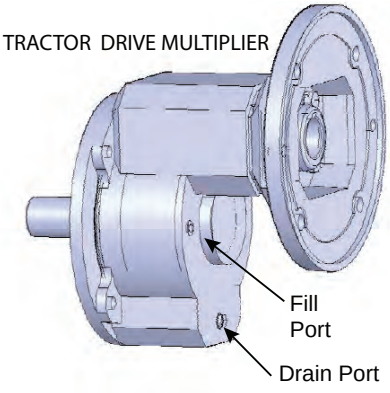


Figure: 6-9 Tractor Gearbox and Multiplier

SERVICE SCHEDULE			
Service Description	**After Initial Use**	**After 4 Operations or Every Year**	**After 12 Operations or Every 3 Years**
Check oil level in gearboxes	X	X	X
Check Hardware	X	X	X
Visually Inspect Electrical Components	X	X	X
Check Paddle Chain Tension	X	X	X
Grease Fittings		X	X
Adjust Drag Rubber			X
Clean off excess debris			X
Change oil in gearboxes			X

Chapter 7 - Trouble Shooting

This chapter contains a general trouble shooting chart for all Sweep models. It describes problems that can occur, probable causes for each problem, and lists possible solutions.

Chapter 7 - Table Of Contents

PROBLEM	CAUSE AND REMEDY
1. Motor starter trips or needs to be reset.	Overloading take away system - Need to slow down the paddle sweep.
2. Electric motor has high amp draw.	Overloading take away system - Need to slow down the paddle sweep.
3. Electric motor is hot.	Drawing too many amps. If equipped with VFD, ensure VFD is not running below 30hertz.
4. Overheating gearbox.	Overloading take away system - Need to slow down the paddle sweep or check that vent plug is installed and open.
5. Farm sweep is over running the sump.	A different sprocket combination is needed to slow the sweep down.
6. Sweep is too long or short or contacts Bin/Silo wall.	Adjust the sweep at the head section. The sweep is a modular unit consisting of intermediate sections in lengths of 6”, 1’, 3’ or 5’. 6” and 1’ extension kits are also available.
7. Damage to Head Section, Head Shaft or Motor Torque Arm.	Sump may be too large for standard head section. Rear caster wheel is not attached to Motor Gearbox for added support.
8. Damage to Head Section.	Are take-up bearings tightened evenly?
9. Breaking tail or head shafts.	Chain tension is too tight. See chain tensioning section.
10. Paddle chain will not turn.	Missing sprocket, missing key way, motor/gearbox is not engaged on head shaft.
11. Tractor drive is not turning.	Missing sprocket that cogs with paddle chain. Roller chain is loose or disconnected.
12. Sweep acts like it wants to “climb” the pile.	Center pivot/collector ring is mounted too high.
13. Sweep leaves indentations or “tracks” on aeration panels or floor.	Bin/Silo needs track pathways installed to the floor or areas with indentations.
14. After burial sweep has pushed through an aeration floor.	Additional floor supports are needed under load points of sweep during burial.
15. Bin/Silo has only single phase power.	A VFD or phase converter will need to be utilized.
16. Steel caster wheel is cutting or marking the floor.	Ensure the front and rear casters are in the appropriate position on the sweep. Also ensure the adjustment of the wheel is turned to the radius of its path.
17. Front caster wheel falls into sump opening.	Move caster wheel to a different flange mount either inward or outward.
18. Gearbox is low on oil.	See maintenance section for proper level and oil.
19. Conveyor/paddle chain do not clog correctly over sprocket on driving pivot sections.	Loosen paddle chain tension.

Chapter 8 - Adjustments & Repairs

This chapter contains the maintenance, adjustment, and repair procedures for the DPS 12K Sweep.
This chapter contains the following sections:

Chapter 8 - Table Of Contents

ADJUSTMENTS AND REPAIRS

Introduction

This chapter contains miscellaneous adjustment and repair procedures for the DPS 12K Sweep. Also refer to Chapter 6 for Maintenance and Lubrication.

WARNING: ***Always disconnect and lockout all power sources to the DPS 12K Bin Sweep before attempting to perform any service function. Follow lockout/tag out procedures as outlined in OSHA section 910.147 where appropriate.***

Drag Rubber Adjustment

Examine the drag rubber on the back side of the sweep. Adjust the drag rubber if needed, so it lightly contacts the floor of the bin**.**

Paddle Chain Tension Adjustment

Examine the paddle chain tension. There should be ¾" of deflection. If re-tensioning is required, refer to Chapter 4 Installation - Paddle Chain Tensioning instructions.

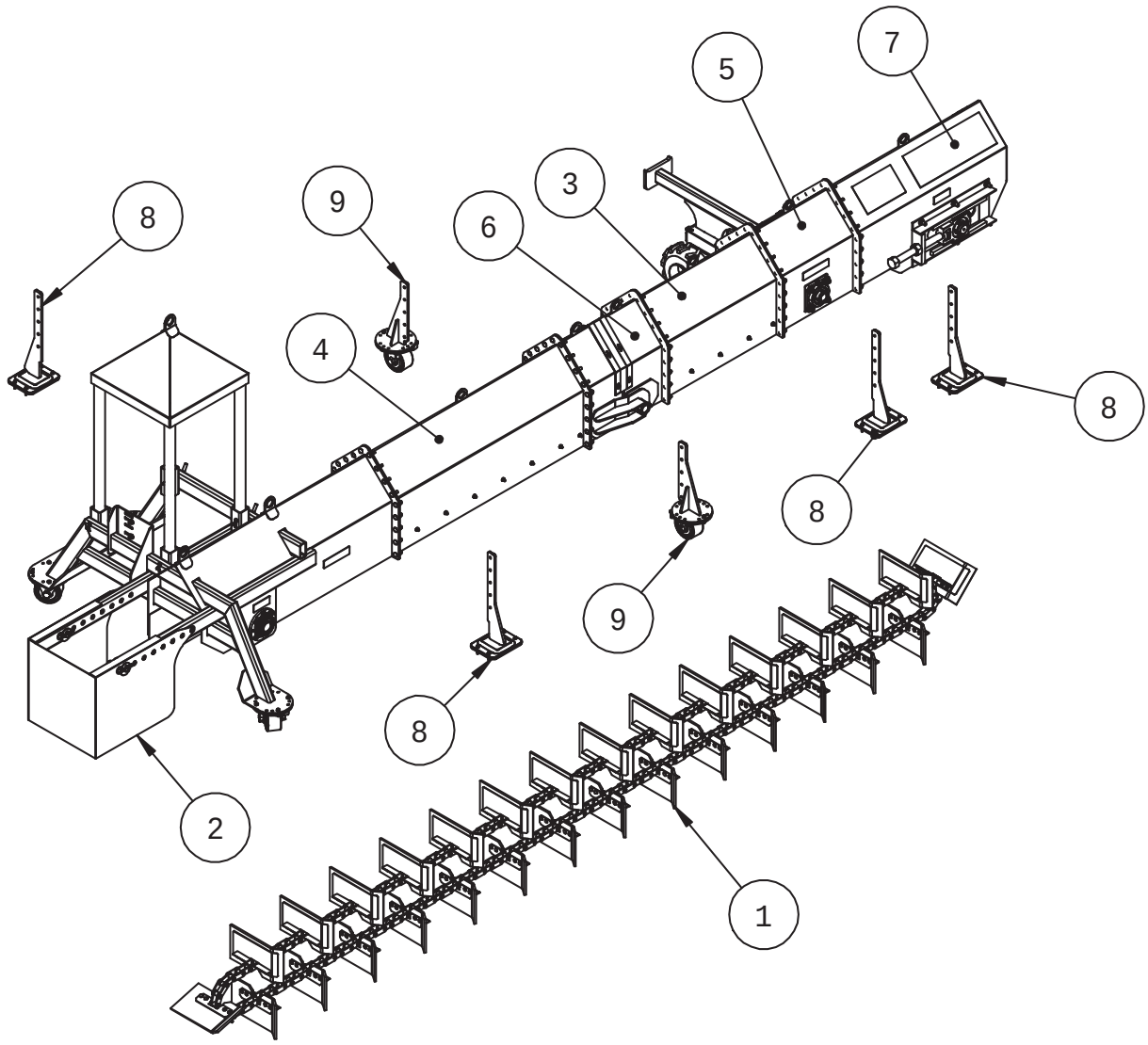
Caster Wheel Pitch

There are a total of 4 caster Wheel Assemblies on the DPS12K Sweep. Examine all 4 caster wheels and insure that the wheels are rotating normally and not skidding along on the floor. If adjustment is required, refer to the Chapter 4 - Installation - Caster Wheel Installation Instructions.

Chapter 9 - Exploded Views & Parts Lists

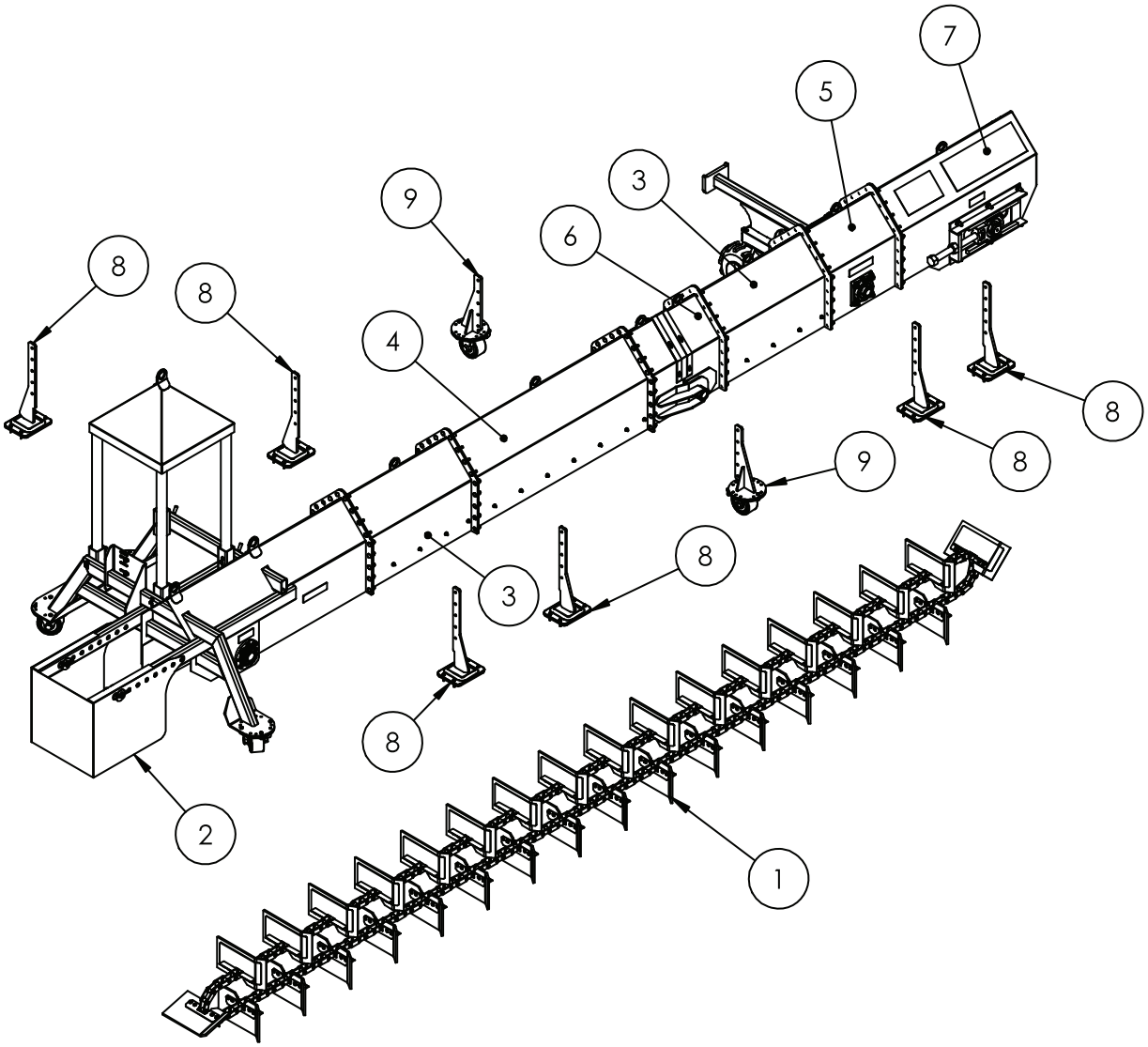
This chapter contains exploded views and parts lists for the DPS 12K Bin Sweep.
This chapter contains the following sections:

Chapter 9 - Table Of Contents



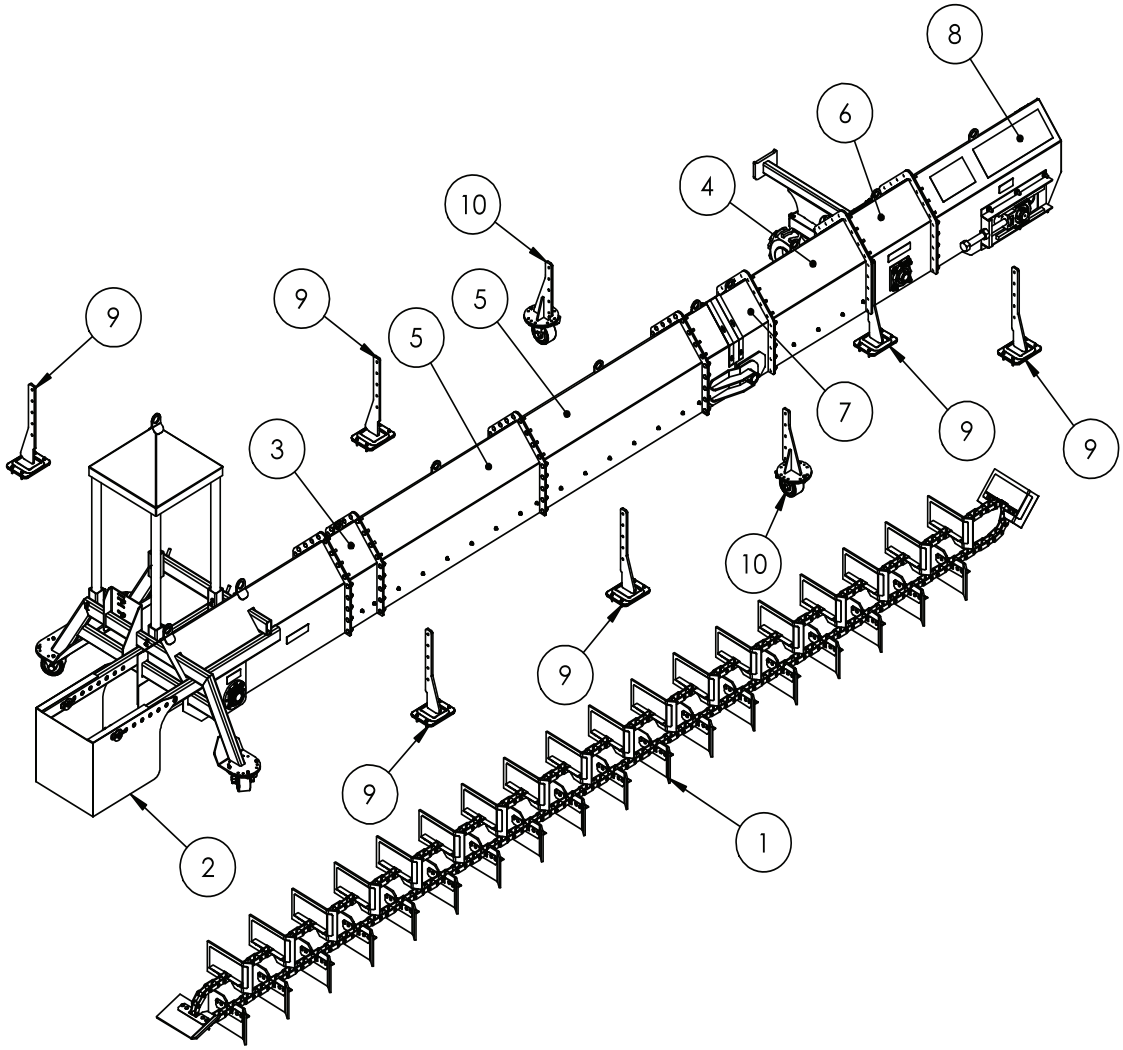
706792 - BASE UNIT 48 FOOT BIN

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	709826	PADDLE CHAIN	1
2	770068	HEAD SECTION	1
	706777	HEAD SECTION (STEPPED HEADSHAFT)	1
3	770007	INTERMEDIATE SECTION-3'	1
4	770006	INTERMEDIATE SECTION-5'	1
5	7701145	TRACTOR DRIVE SECTION-20:1	1
6	770027	PIVOT SECTION	1
7	770050	END SECTION	1
8	770349	ZERO ENTRY SUPPORT KIT	4
9	770150	FRONT CASTER WHEEL	2
	770103	HARDWARE BAG (NOT SHOWN)	5



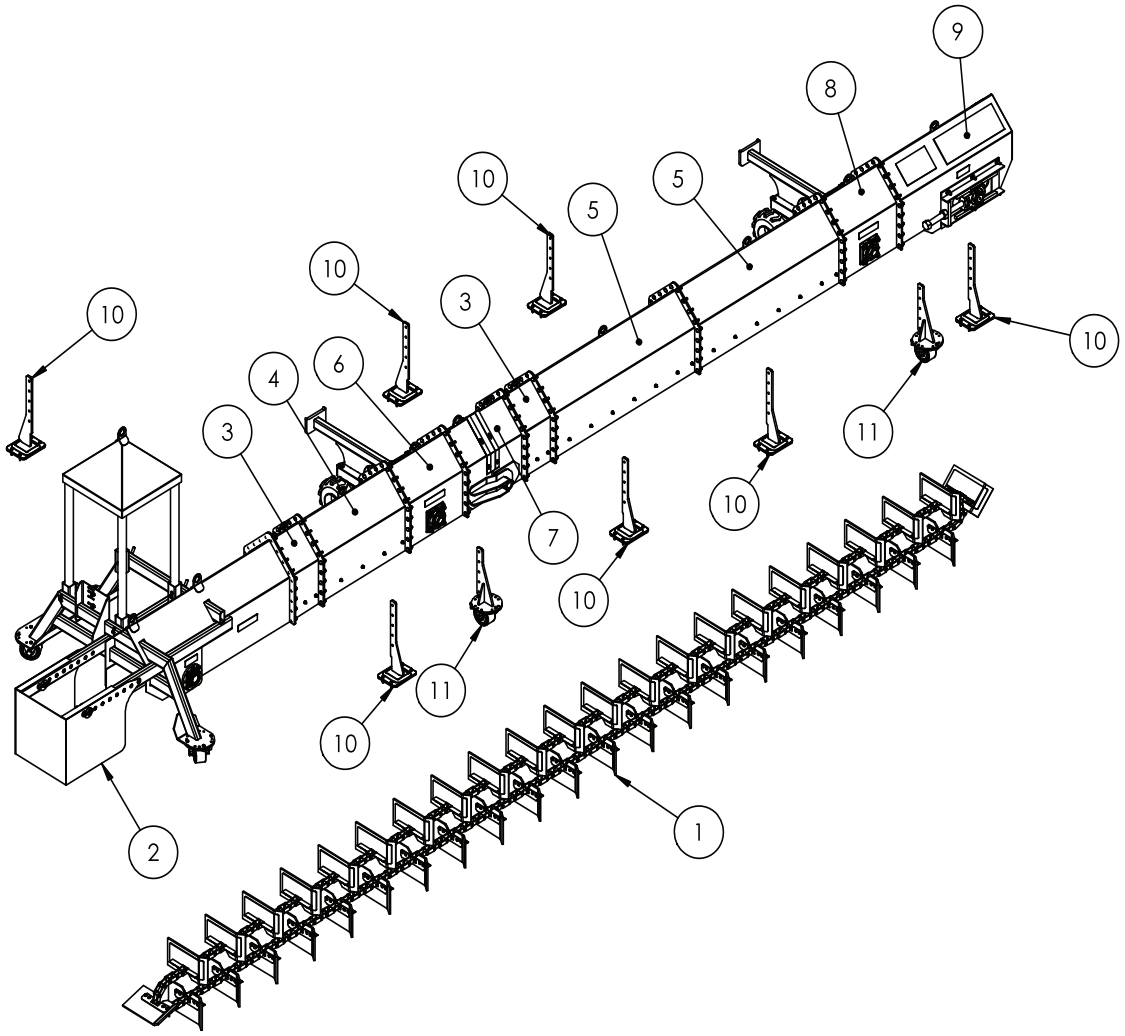
706793 - BASE UNIT 54 FOOT BIN

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	709827	PADDLE CHAIN	1
2	770068	HEAD SECTION	1
	706777	HEAD SECTION (STEPPED HEADSHAFT)	1
3	770007	INTERMEDIATE SECTION-3'	2
4	770006	INTERMEDIATE SECTION-5'	1
5	770145	TRACTOR DRIVE SECTION-20:1	1
6	770027	PIVOT SECTION	1
7	770050	END SECTION	1
8	770349	ZERO ENTRY SUPPORT KIT	6
9	770150	FRONT CASTER WHEEL	2
	770103	HARDWARE BAG (NOT SHOWN)	6



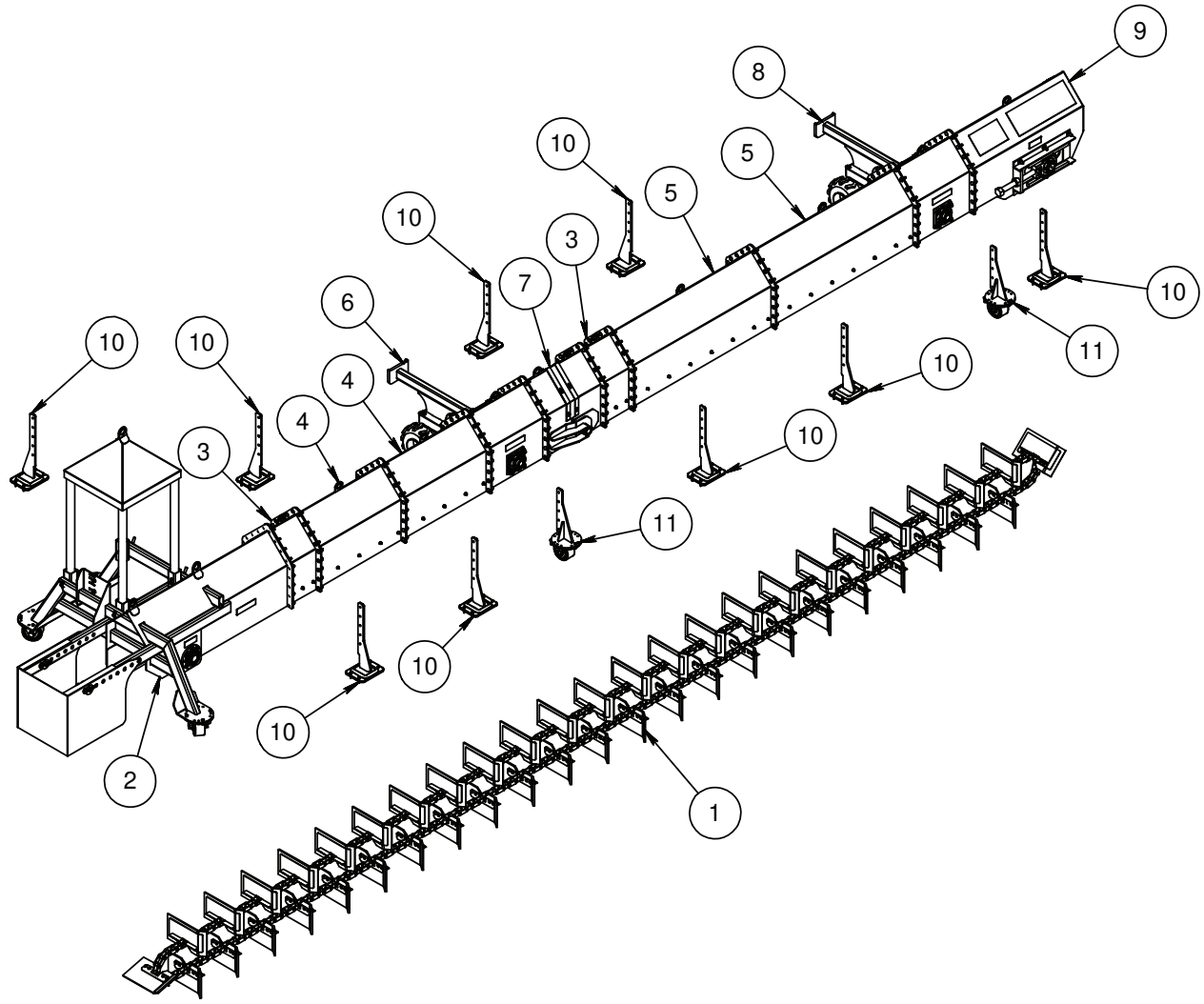
706794 - BASE UNIT 60 FOOT BIN

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	709828	PADDLE CHAIN	1
2	770068	HEAD SECTION	1
	706777	HEAD SECTION (STEPPED HEADSHAFT)	1
3	770008	INTERMEDIATE SECTION-1'	1
4	770007	INTERMEDIATE SECTION-3'	1
5	770006	INTERMEDIATE SECTION-5'	2
6	770145	TRACTOR DRIVE SECTION-20:1	1
7	770027	PIVOT SECTION	1
8	770050	END SECTION	1
9	770349	ZERO ENTRY SUPPORT KIT	6
10	770150	FRONT CASTER WHEEL	2
	770103	HARDWARE BAG (NOT SHOWN)	7



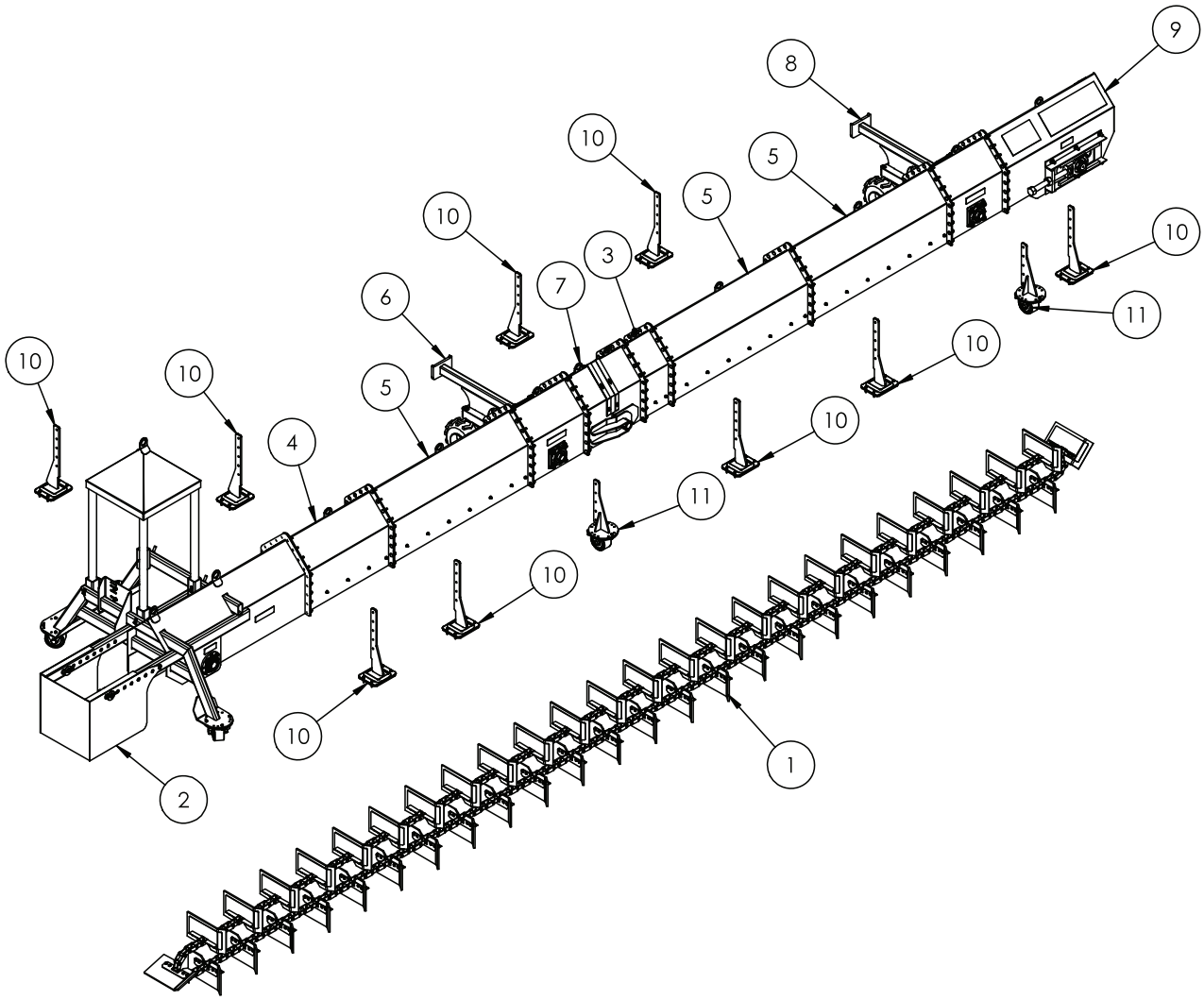
706795 - BASE UNIT 66 FOOT BIN

ITEM NUMBER	PART NUMBER	DESCRIPTION	
1	709829	PADDLE CHAIN	1
2	770068	HEAD SECTION	1
3	770008	INTERMEDIATE SECTION-1’	1
4	770007	INTERMEDIATE SECTION-3'	1
5	770006	INTERMEDIATE SECTION-5'	2
6	77016	TRACTOR DRIVE SECTION-40:1	
7	770145	TRACTOR DRIVE SECTION-20:1	1
8	770027	PIVOT SECTION	1
9	770050	END SECTION	1
10	770349	ZERO ENTRY SUPPORT KIT	6
11	770150	FRONT CASTER WHEEL	2
	770103	HARDWARE BAG (NOT SHOWN)	7



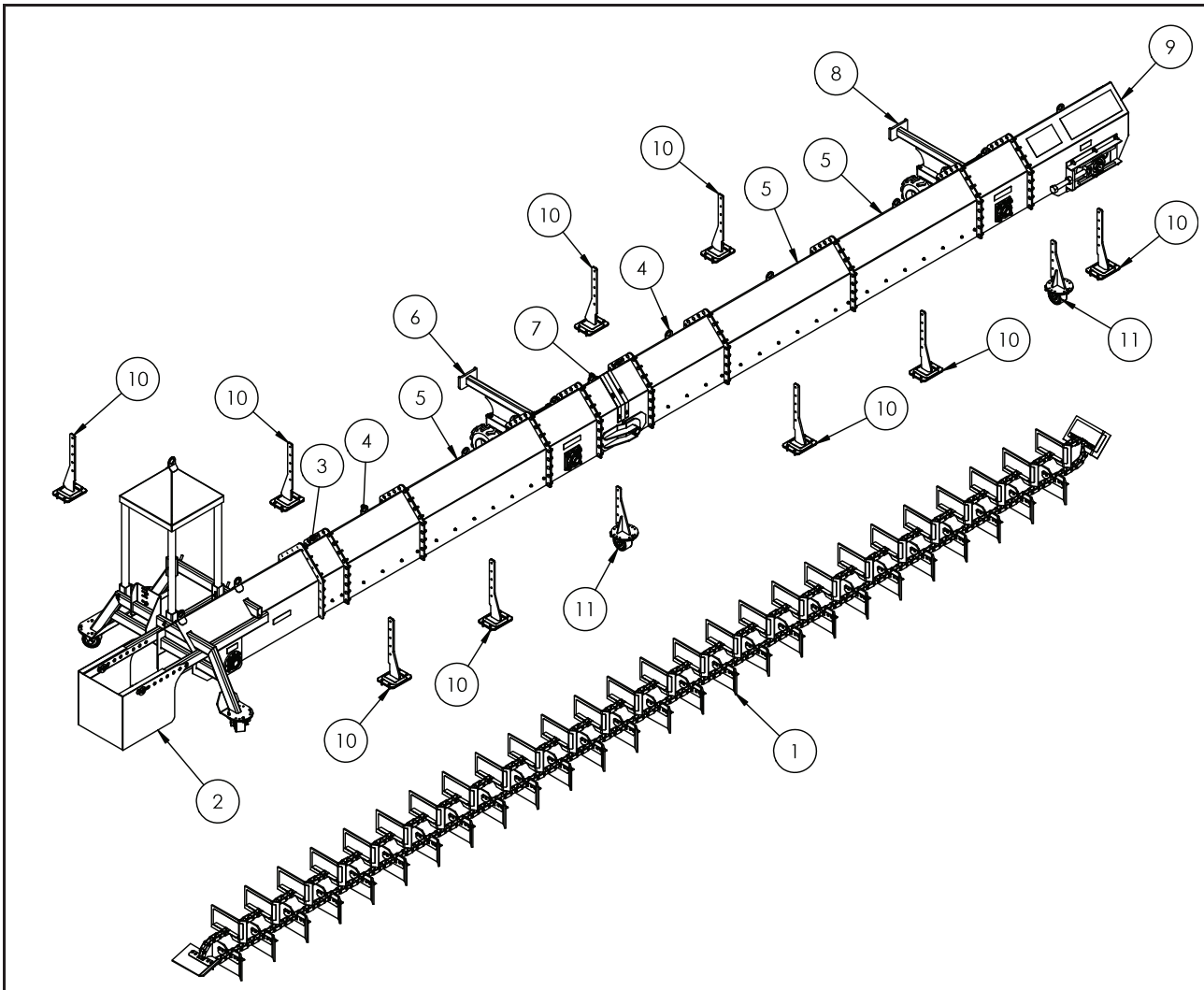
771001 - BASE UNIT 72 FOOT BIN

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	709830	PADDLE CHAIN	1
2	770068	HEAD SECTION	1
3	770008	INTERMEDIATE SECTION-1’	2
4	770007	INTERMEDIATE SECTION-3'	2
5	770006	INTERMEDIATE SECTION-5'	2
6	770160	TRACTOR DRIVE SECTION-40:1	1
7	770027	PIVOT SECTION	1
8	770145	TRACTOR DRIVE SECTION-20:1	1
9	770050	END SECTION	1
10	770349	ZERO ENTRY SUPPORT KIT	9
11	770150	FRONT CASTER WHEEL	2
	770103	HARDWARE BAG (NOT SHOWN)	10



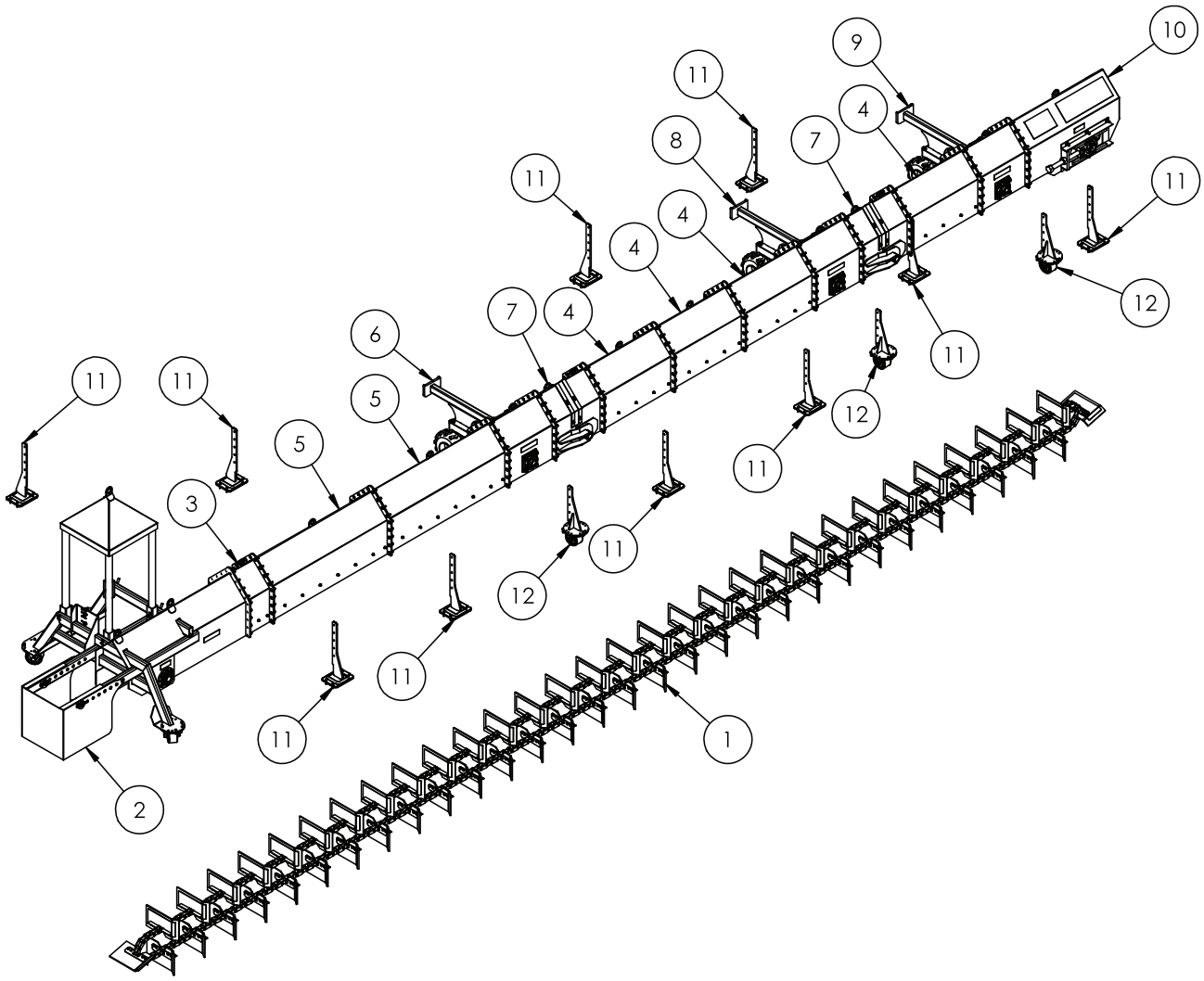
771004 - BASE UNIT 75 FOOT BIN

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	709831	PADDLE CHAIN	1
2	770068	HEAD SECTION	1
3	770008	INTERMEDIATE SECTION-1'	1
4	770007	INTERMEDIATE SECTION-3'	1
5	770006	INTERMEDIATE SECTION-5'	3
6	770160	TRACTOR DRIVE SECTION-40:1	1
7	770027	PIVOT SECTION	1
8	770145	TRACTOR DRIVE SECTION-20:1	1
9	770050	END SECTION	1
10	770349	ZERO ENTRY SUPPORT KIT	9
11	770150	FRONT CASTER WHEEL	2
	770103	HARDWARE BAG (NOT SHOWN)	9



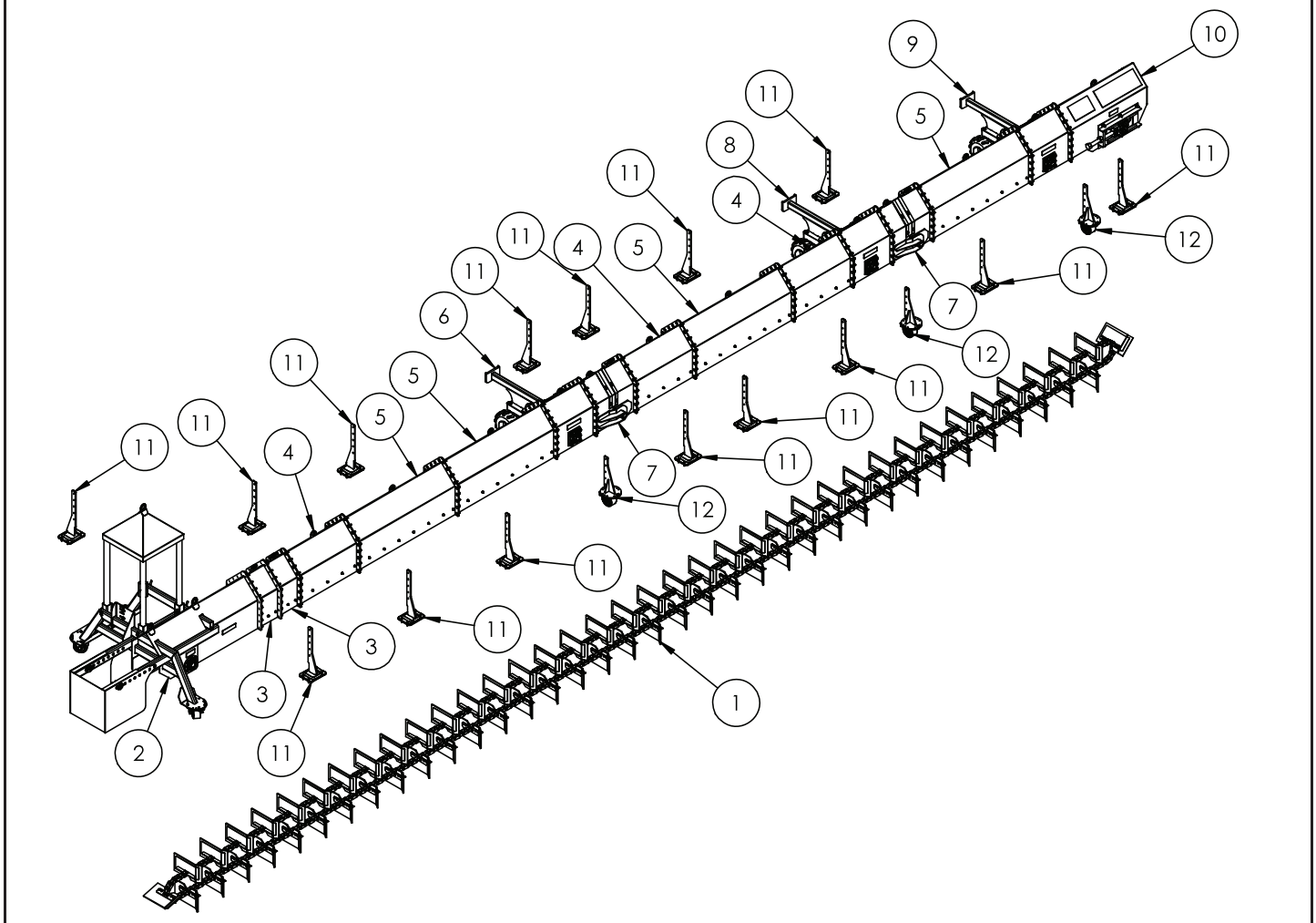
771007 - BASE UNIT 78 FOOT BIN

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	709832	PADDLE CHAIN	1
2	770068	HEAD SECTION	1
3	770008	INTERMEDIATE SECTION-1'	1
4	770007	INTERMEDIATE SECTION-3'	2
5	770006	INTERMEDIATE SECTION-5'	3
6	770160	TRACTOR DRIVE SECTION-40:1	1
7	770027	PIVOT SECTION	1
8	770145	TRACTOR DRIVE SECTION-20:1	1
9	770050	END SECTION	1
10	770349	ZERO ENTRY SUPPORT KIT	9
11	770150	FRONT CASTER WHEEL	2
	770103	HARDWARE BAG (NOT SHOWN)	10



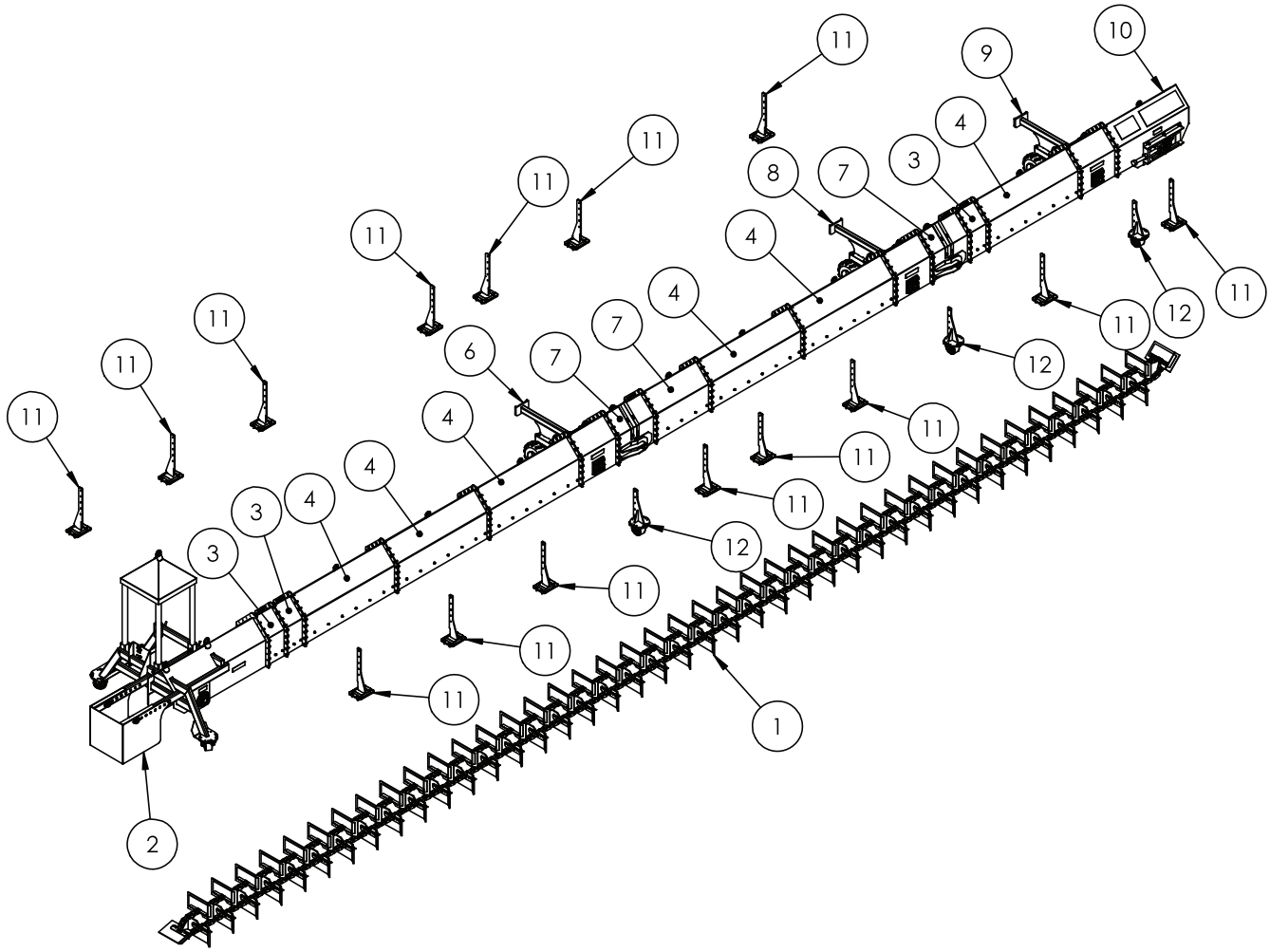
771010 - BASE UNIT 90 FOOT BIN

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	709833	PADDLE CHAIN	1
2	770068	HEAD SECTION	1
3	770008	INTERMEDIATE SECTION-1'	1
4	770007	INTERMEDIATE SECTON-3'	4
5	770006	INTERMEDIATE SECTION-5'	2
6	770160	TRACTOR DRIVE SECTION-40:1	1
7	770027	PIVOT SECTION	2
8	770041	TRACTOR DRIVE SECTION-25:1	1
9	770145	TRACTOR DRIVE SECTION-20:1	1
10	770050	END SECTION	1
11	770349	ZERO ENTRY SUPPORT KIT	10
12	770150	FRONT CASTER WHEEL	3
	770103	HARDWARE BAG (NOT SHOWN)	13



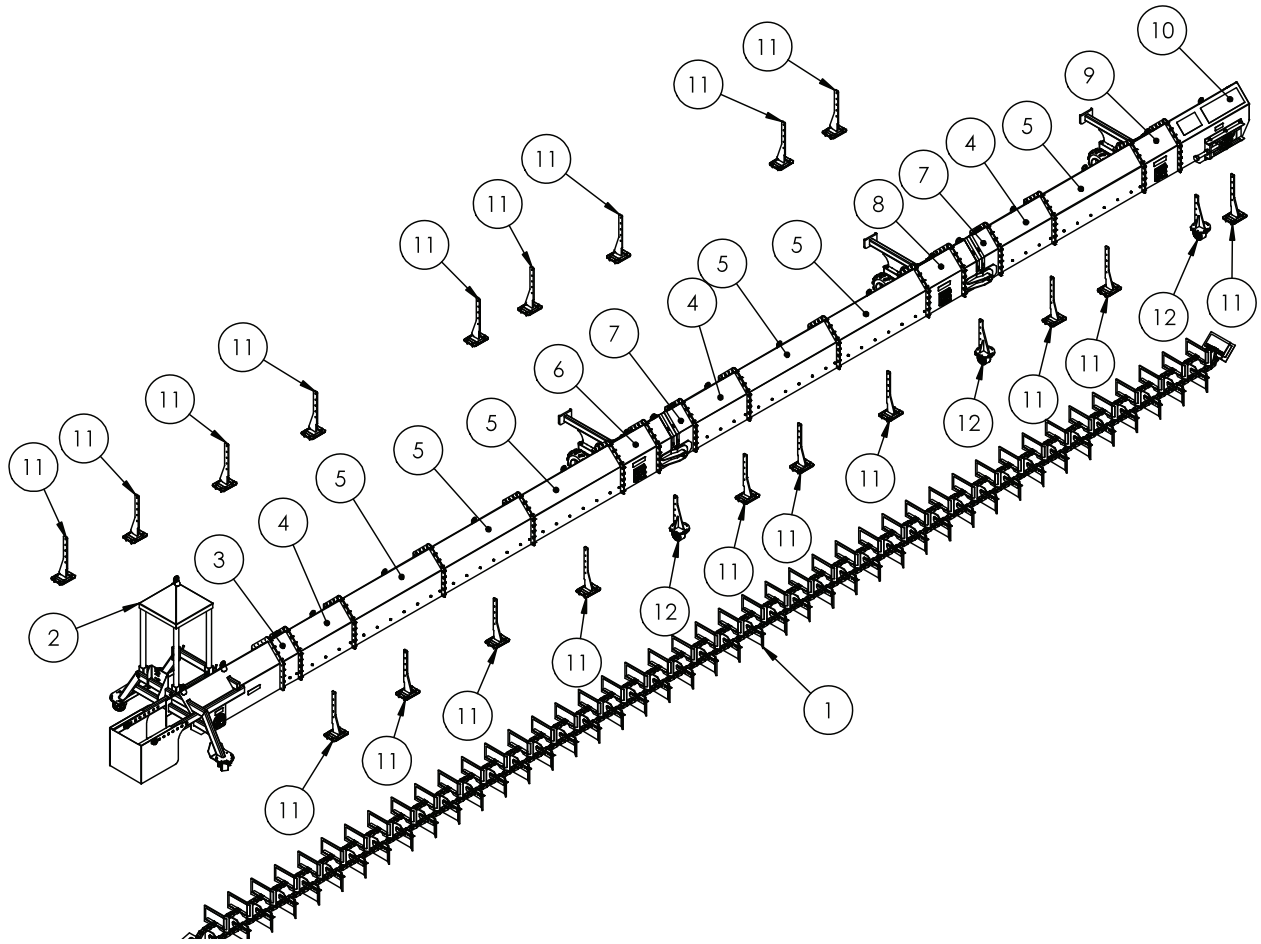
771013 - BASE UNIT 105 FOOT BIN

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	709834	PADDLE CHAIN	1
2	770068	HEAD SECTION	1
3	770008	INTERMEDIATE SECTION-1'	2
4	770007	INTERMEDIATE SECTION-3'	3
5	770006	INTERMEDIATE SECTION-5'	4
6	770160	TRACTOR DRIVE SECTION-40:1	1
7	770027	PIVOT SECTION	1
8	770041	TRACTOR DRIVE SECTION-25:1	1
9	770145	TRACTOR DRIVE SECTION-20:1	1
10	770050	END SECTION	1
11	770349	ZERO ENTRY SUPPORT KIT	15
12	770150	FRONT CASTER WHEEL	3
	770103	HARDWARE BAG (NOT SHOWN)	15



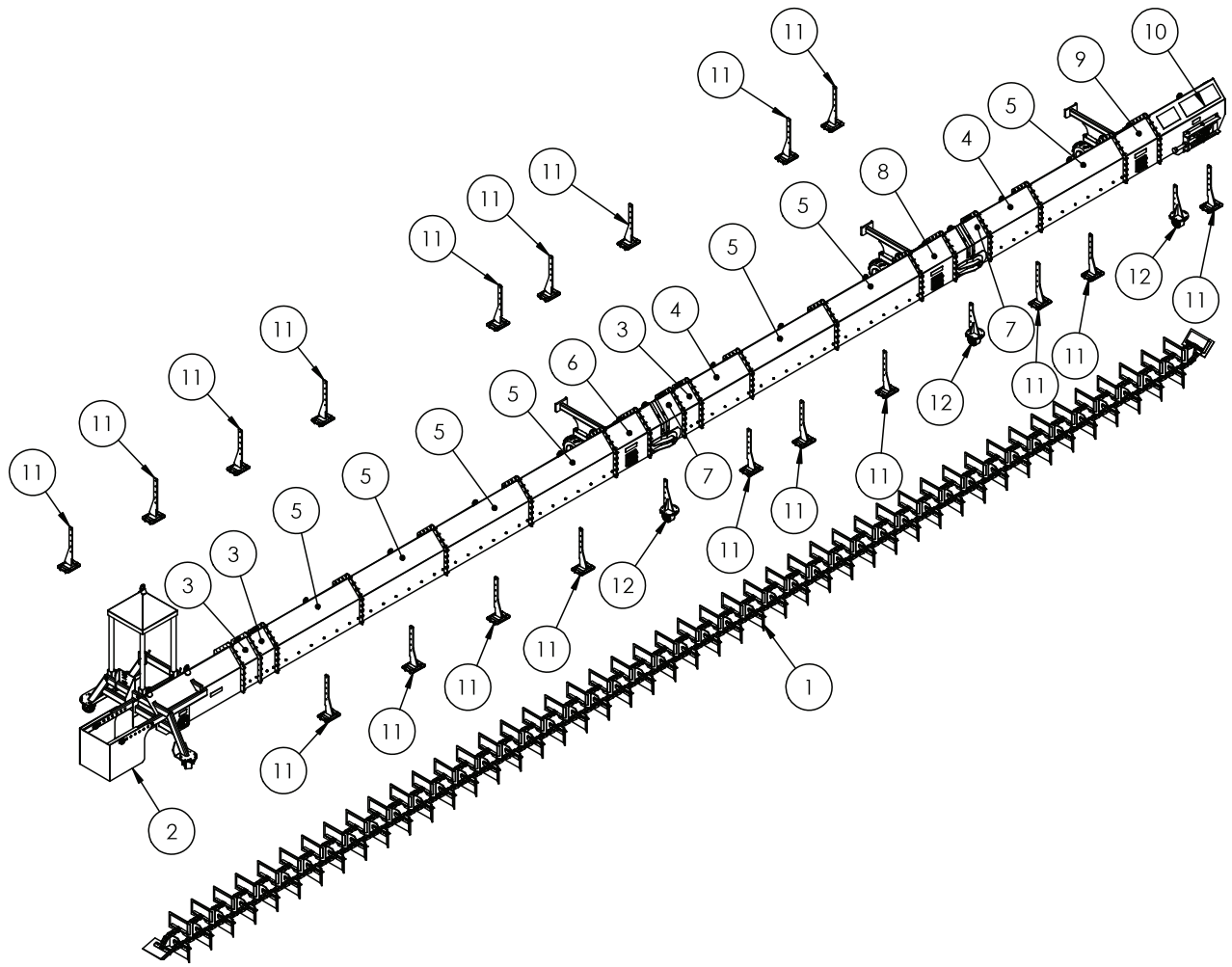
709823 - BASE UNIT 116 FOOT BIN

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	709835	PADDLE CHAIN	1
2	770068	HEAD SECTION	1
3	770008	INTERMEDIATE SECTION-1’	3
4	770007	INTERMEDIATE SECTION-3'	1
5	770006	INTERMEDIATE SECTION-5'	6
6	770160	TRACTOR DRIVE SECTION-40:1	1
7	770027	PIVOT SECTION	2
8	770041	TRACTOR DRIVE SECTION-25:1	1
9	770145	TRACTOR DRIVE SECTION-20:1	1
10	770050	END SECTION	1
11	770349	ZERO ENTRY SUPPORT KIT	15
12	770150	FRONT CASTER WHEEL	3
	770103	HARDWARE BAG (NOT SHOWN)	16



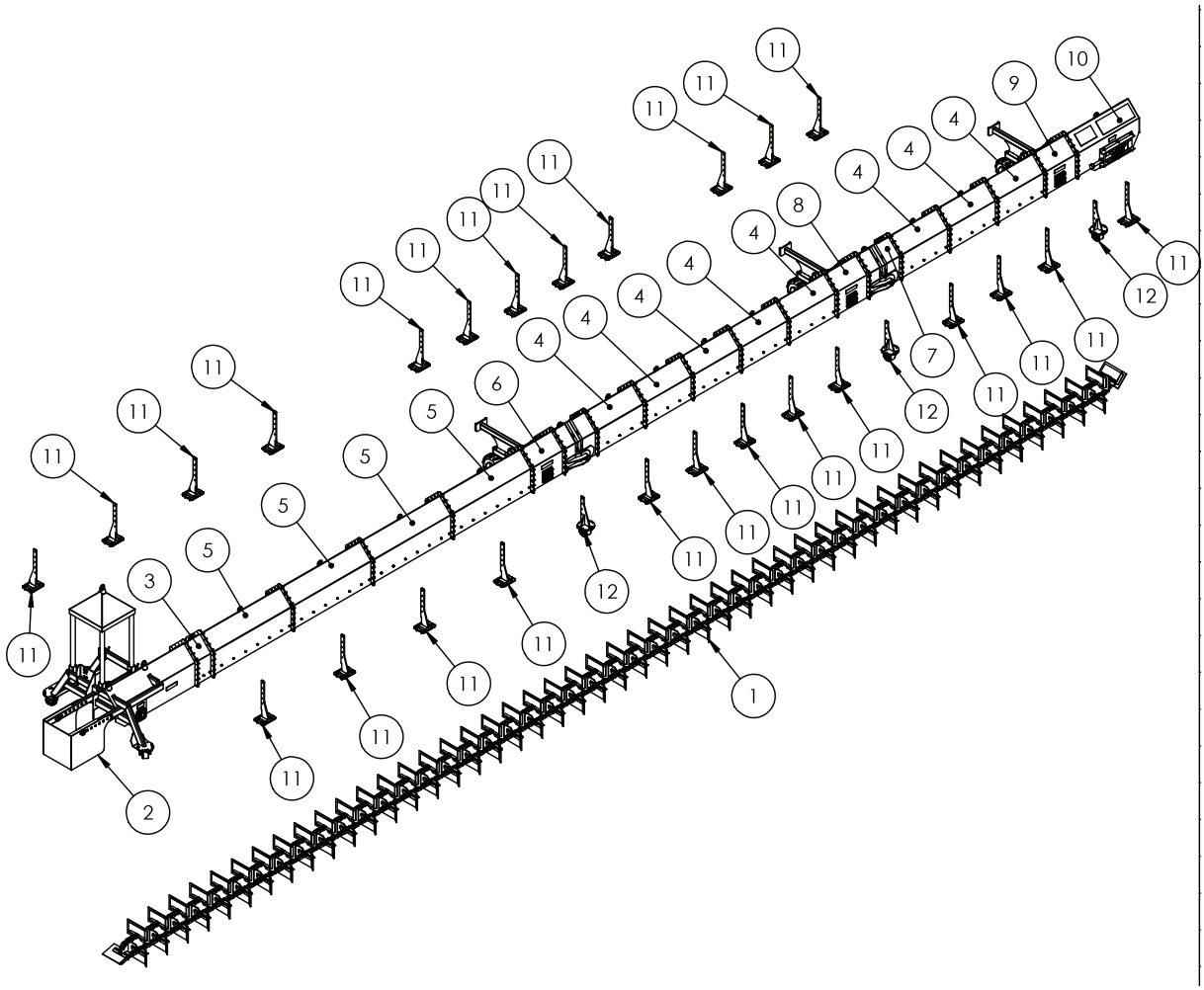
709824 - BASE UNIT 124 FOOT BIN

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	706788	PADDLE CHAIN	1
2	770068	HEAD SECTION	1
3	770008	INTERMEDIATE SECTION-1’	1
4	770007	INTERMEDIATE SECTION-3'	3
5	770006	INTERMEDIATE SECTION-5'	6
6	770160	TRACTOR DRIVE SECTION-40:1	1
7	770027	PIVOT SECTION	2
8	770041	TRACTOR DRIVE SECTION-25:1	1
9	770145	TRACTOR DRIVE SECTION-20:1	1
10	770050	END SECTION	1
11	770349	ZERO ENTRY SUPPORT KIT	19
12	770150	FRONT CASTER WHEEL	3
	770103	HARDWARE BAG (NOT SHOWN)	16



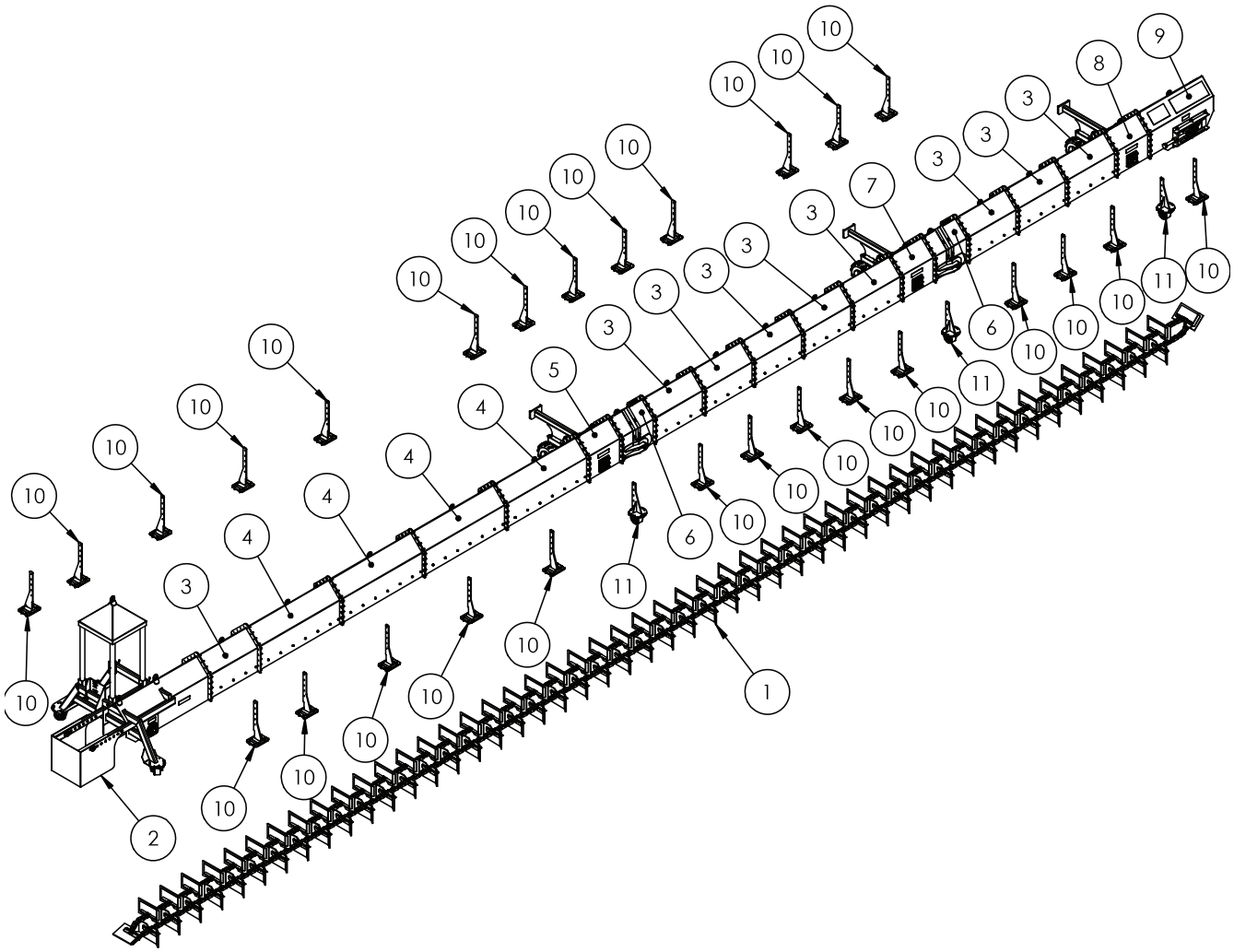
771016 - BASE UNIT 132 FOOT BIN

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	709837	PADDLE CHAIN	1
2	770068	HEAD SECTION	1
3	770008	INTERMEDIATE SECTION-1'	3
4	770007	INTERMEDIATE SECTION-3'	2
5	770006	INTERMEDIATE SECTION-5'	7
6	770160	TRACTOR DRIVE SECTION-40:1	1
7	770027	PIVOT SECTION	2
8	770041	TRACTOR DRIVE SECTION-25:1	1
9	770145	TRACTOR DRIVE SECTION-20:1	1
10	770050	END SECTION	1
11	770349	ZERO ENTRY SUPPORT KIT	19
12	770150	FRONT CASTER WHEEL	3
	770103	HARDWARE BAG (NOT SHOWN)	18



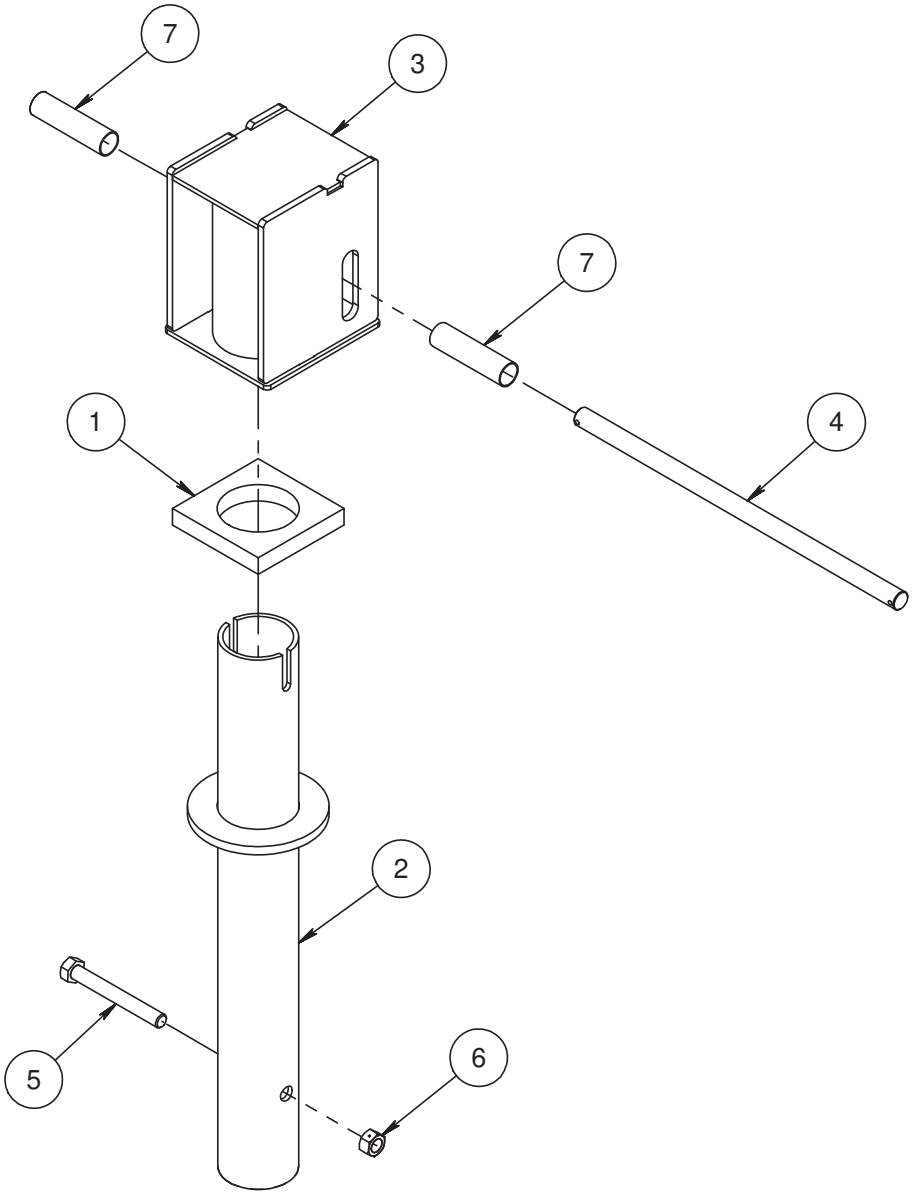
771019 - BASE UNIT 135 FOOT BIN

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	709838	PADDLE CHAIN	1
2	770068	HEAD SECTION	1
3	770008	INTERMEDIATE SECTION-1'	1
4	770007	INTERMEDIATE SECTION-3'	8
5	770006	INTERMEDIATE SECTION-5'	4
6	770160	TRACTOR DRIVE SECTION-40:1	1
7	770027	PIVOT SECTION	2
8	770041	TRACTOR DRIVE SECTION-25:1	1
9	770145	TRACTOR DRIVE SECTION-20:1	1
10	770050	END SECTION	1
11	770349	ZERO ENTRY SUPPORT KIT	25
12	770150	FRONT CASTER WHEEL	3
	770103	HARDWARE BAG (NOT SHOWN)	19



771022 - BASE UNIT 139 FOOT BIN

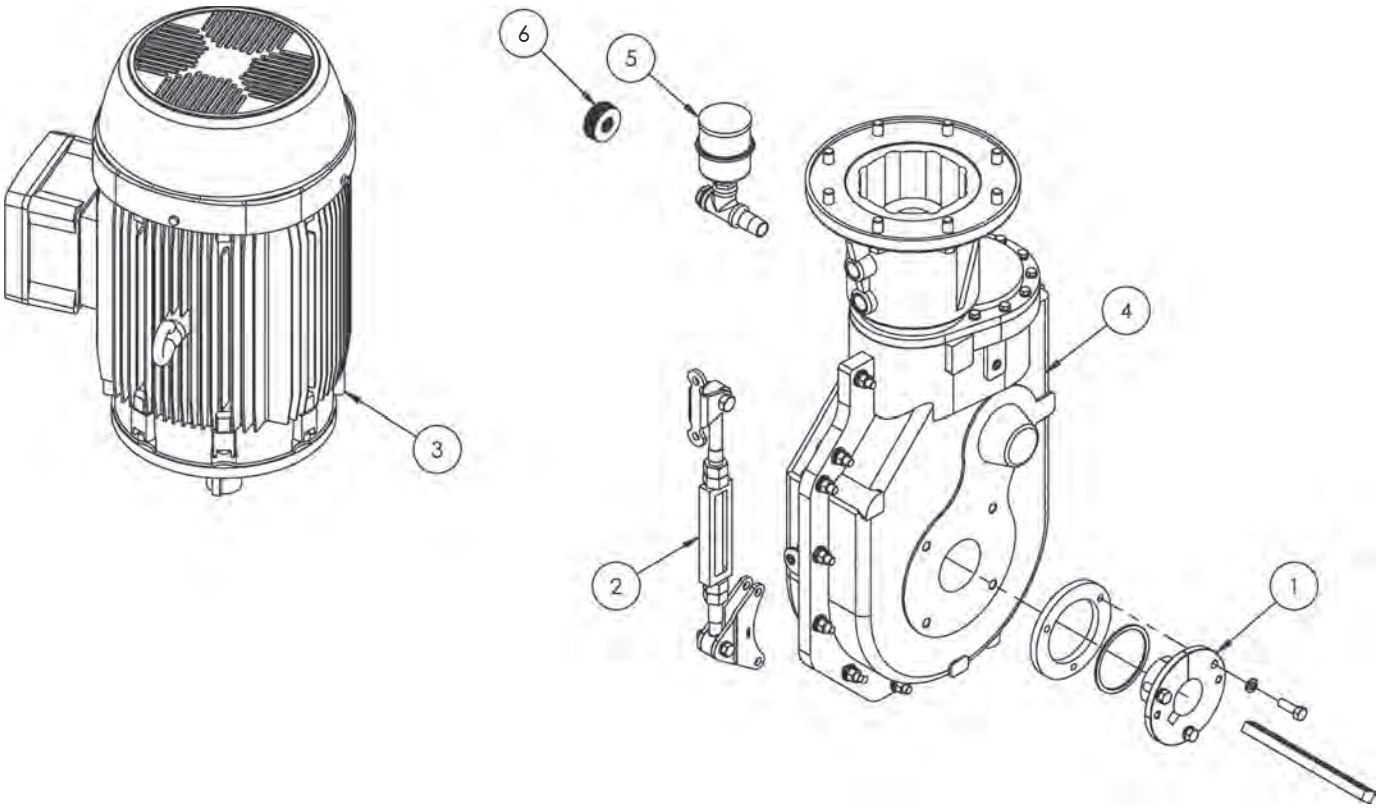
ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	709839	PADDLE CHAIN	1
2	770068	HEAD SECTION	1
3	770007	INTERMEDIATE SECTION-3'	9
4	770006	INTERMEDIATE SECTION-5'	4
5	770160	TRACTOR DRIVE SECTION-40:1	1
6	770027	PIVOT SECTION	2
7	770041	TRACTOR DRIVE SECTION-25:1	1
8	770145	TRACTOR DRIVE SECTION-20:1	1
9	770050	END SECTION	1
10	770349	ZERO ENTRY SUPPORT KIT	27
11	770150	FRONT CASTER WHEEL	3
	770103	HARDWARE BAG (NOT SHOWN)	19



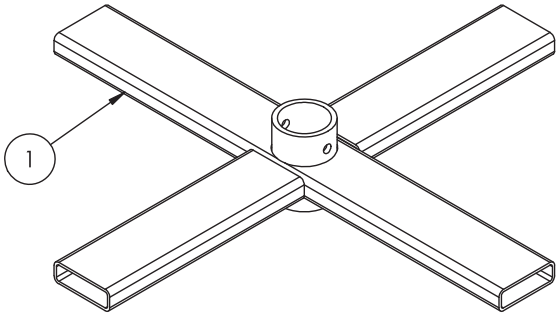
704970 PIVOT KIT DPS 12K

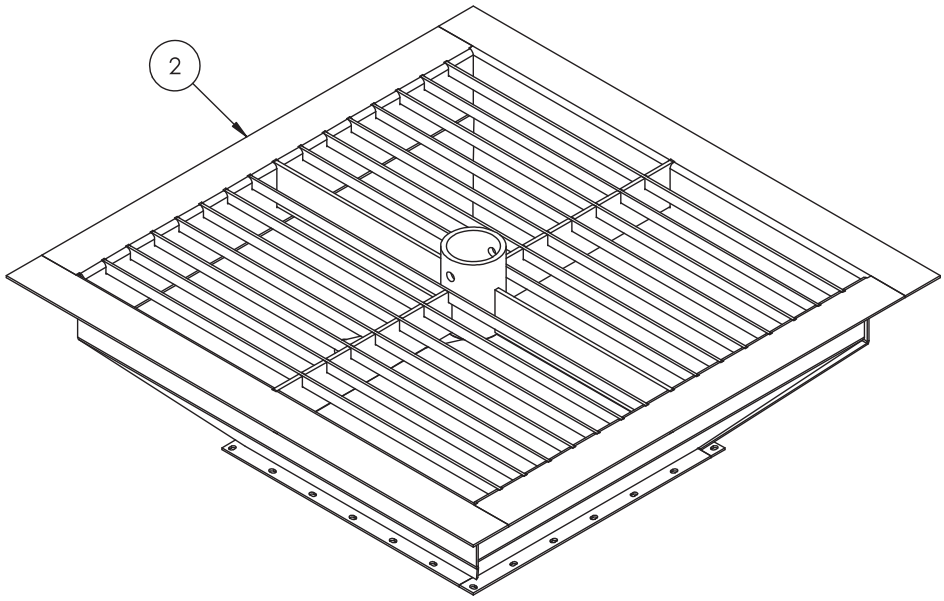
ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	688306	BUSHING	1
2	770096	PIVOT MOUNT	1
3	704968	LOWER MOUNT	1
4	704974	PIVOT PIN	1
5	640109	HH CAP SCREW - 3/4” X 6”	1
6	640144	CENTER LOCK HEX NUT 3/4”	1
7	701009	SPACER	2

MOTOR & GEARBOX



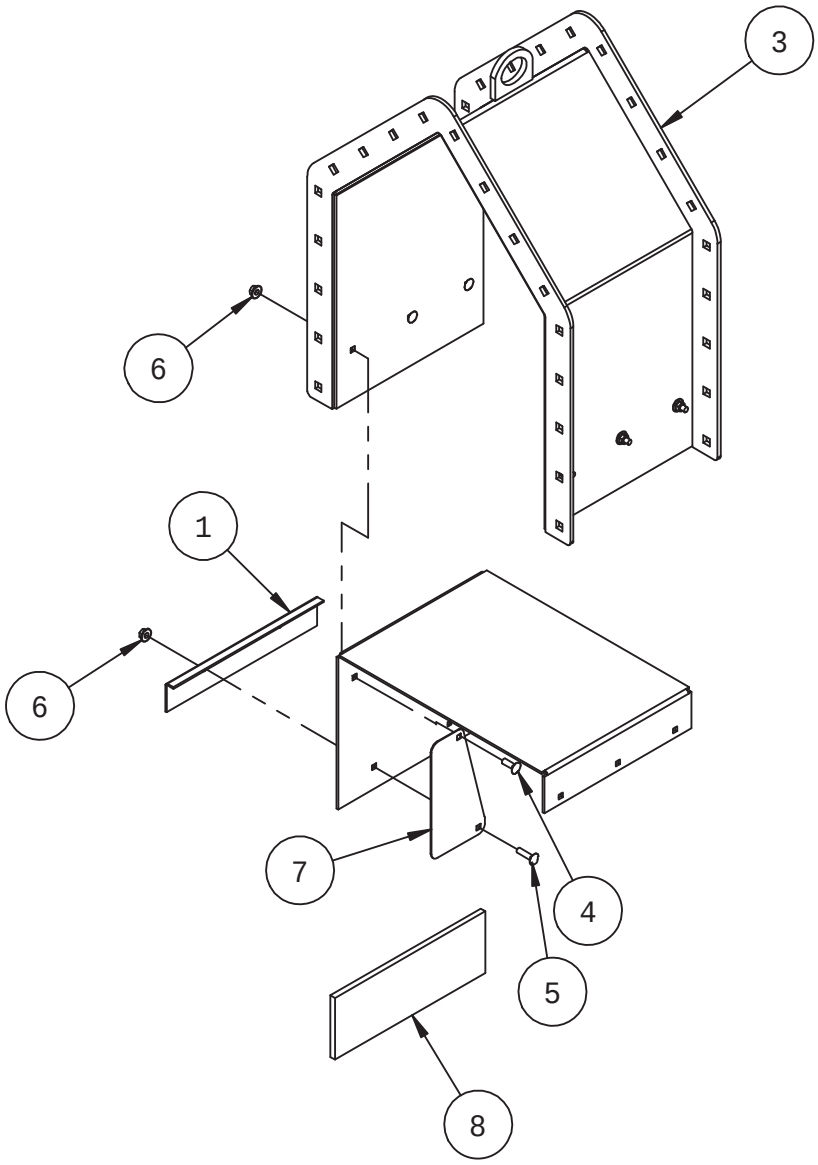
MOTOR AND GEARBOX			
ITEM NUMBER	**PART NUMBER**	**DESCRIPTION**	**QTY**
1	706749	TAPER BUSHING KIT-MTA3	1
	770357	TAPER BUSHING KIT-MTA4	1
	770343	TAPER BUSHING KIT-MTA5	1
2	706751	TORQUE ARM-MTA3	1
	770355	TORQUE ARM-MTA4	1
	770345	TORQUE ARM-MTA5	1
3	687991	ELECTRIC MOTOR: 15HP-230-460v	1
	701096	ELECTRIC MOTOR: 20HP-230-460v	1
	701097	ELECTRIC MOTOR: 25HP-230-460v	1
	770354	ELECTRIC MOTOR: 30HP-230-460v	1
	770356	ELECTRIC MOTOR: 40HP-230-460v	1
	770352	ELECTRIC MOTOR: 50HP-230-460v	1
	770358	ELECTRIC MOTOR: 60HP-230-460v	1
	689289	ELECTRIC MOTOR: 15HP-575v	1
	707378	ELECTRIC MOTOR: 20HP-575v	1
	707379	ELECTRIC MOTOR: 25HP-575v	1
	770371	ELECTRIC MOTOR: 30HP-575v	1
	770372	ELECTRIC MOTOR: 40HP-575v	1
	770373	ELECTRIC MOTOR: 50HP-575v	1
	770374	ELECTRIC MOTOR: 60HP-575v	
4			1
	770753	GEARBOX: 18.1 - MTA4-280TC	1
	770353	GEARBOX: 18.1 - MTA5-320TC	1
	770344	GEARBOX: 18:1 - MTA5-360TC	1
	706755	GEARBOX: 21:1 - MTA3-250TC	1
	770359	GEARBOX: 21:1 - MTA5-320TC	1
	770365	GEARBOX: 22:1 - MTA4-280TC	1
	706758	GEARBOX: 25:1 - MTA3-250TC	1
	770361	GEARBOX: 25:1 - MTA5-320TC	1
	770366	GEARBOX: 26:1 - MTA4-280TC	1
	706761	GEARBOX: 29:1 - MTA3-250TC	1
	706763	GEARBOX: 29:1 - MTA4-280TC	1
	770363	GEARBOX: 29:1 - MTA5-280TC	1
	706767	GEARBOX: 29:1 - MTA5-320TC	
5	770360	VERTICAL BREATHER KIT	1
6	770172	ELECTRICAL REDUCER	1
	702671	ELECTRICAL REDUCER	1





690336 BIN CENTER ATTACHMENT

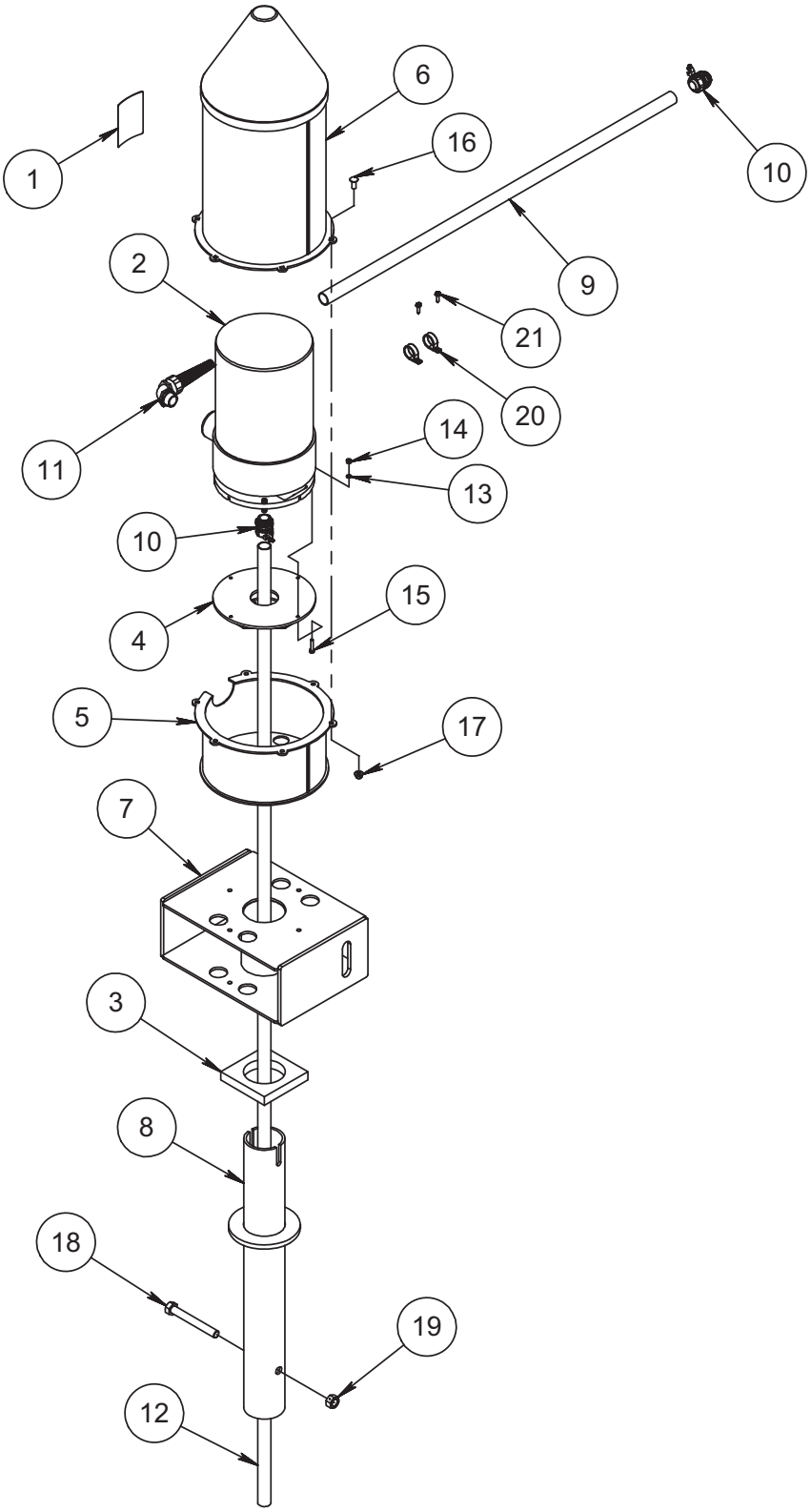
ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	690336	PIVOT BASE 48” X 48”	1
2	197110	SUMP 42” X 42” INLET - 24” X 24” OUTLET	1



770008 INTERMEDIATE SECTION 1 FOOT

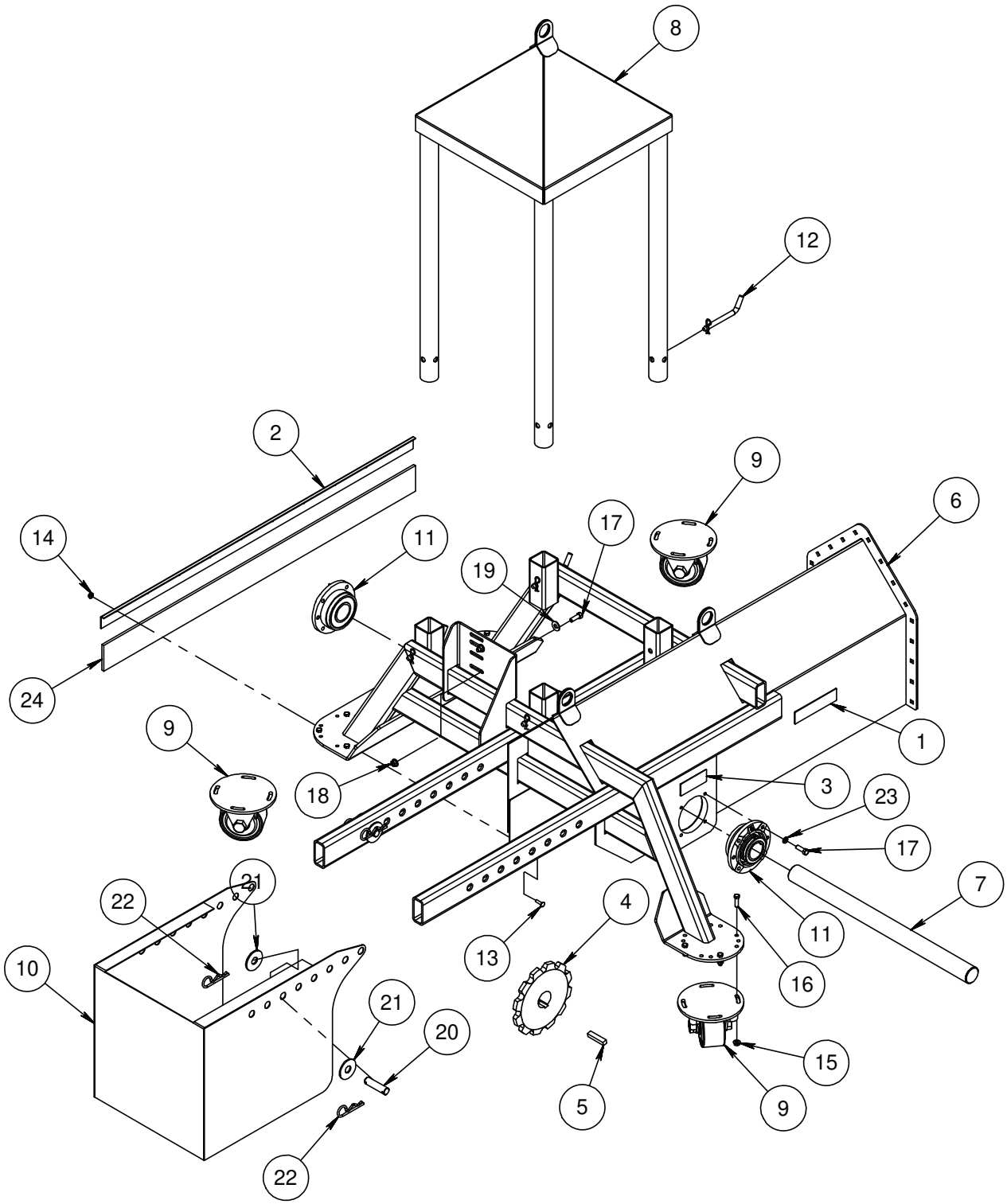
ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	686270	DRAG RUBBER CLAMP - 1' SECTION	1
2	770009	DIVIDER - 1' SECTION	1
3	770010	COVER - 1' SECTION	1
4	640018	CARRIAGE BOLT - 5/16" X 1"	6
5	686183	CARRIAGE BOLT - 5/16" X 1 1/4"	2
6	701467	CENTERLOCK FLANGE NUT - 5/16"	8
7	708024	SEAM PLATE	1
8	770134	DRAG RUBBER	1

770098 COLLECTOR RING KIT

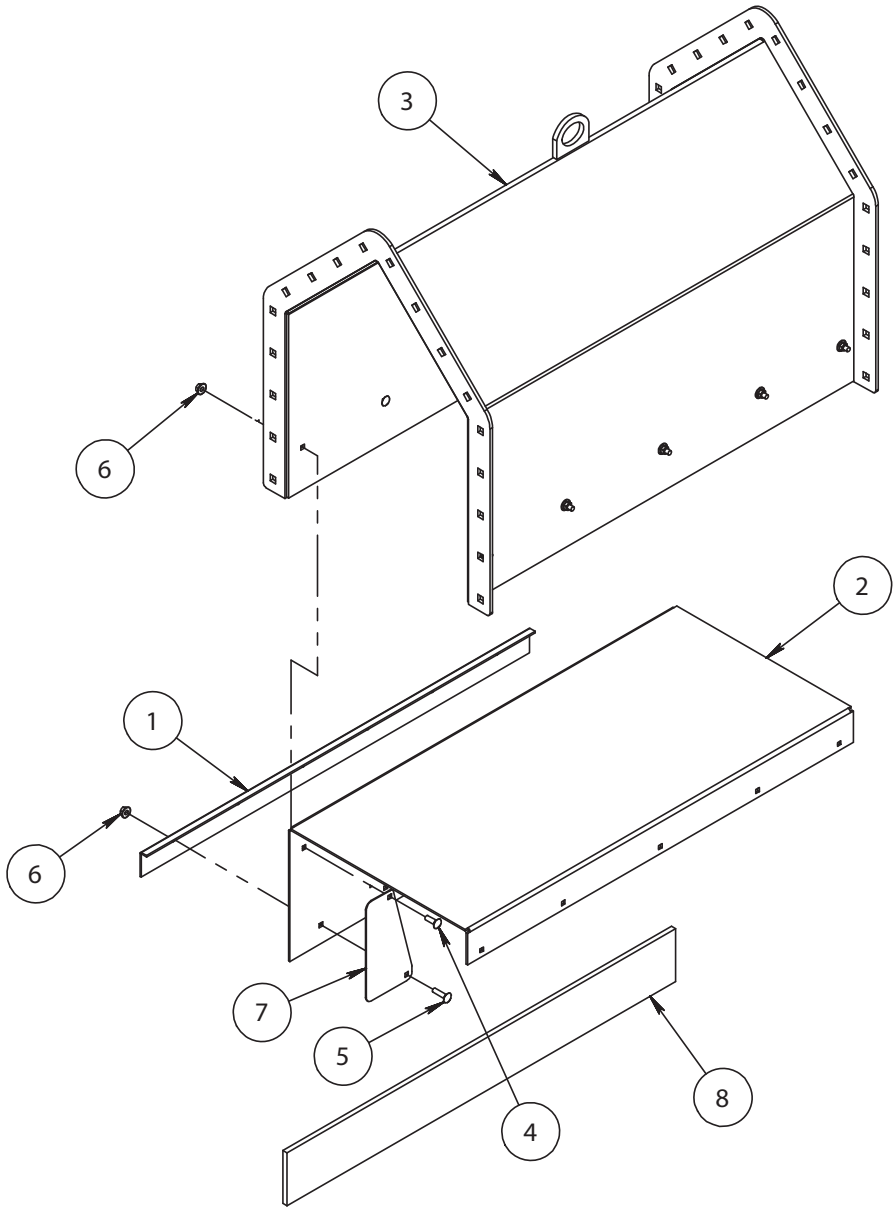


770098 COLLECTOR RING KIT			
ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	688462	SAFETY DECAL	1
2	770104	COLLECTOR RING	1
3	688306	BUSHING	1
4	688307	LOCKING PLATE	1
5	688310	LOWER CASING	1
6	770350	TOP CASING	1
7	770079	LOWER MOUNT	1
8	770096	COLLECTOR RING MOUNT	1
9	695210	1” FLEXIBLE CONDUIT - 48”	1
10	695211	LIQUID-TIGHT STRAIGHT CONNECTOR 1”	2
11	701354	LIQUID-TIGHT 90 FITTING 1” W/MESH	1
12	701365	1” FLEXIBLE CONDUIT - 114”	1
13	640149	LOCKWASHER - 1/4”	4
14	640127	HEX NUT - 1/4”	4
15	654751	HH CAP SCREW - 1/4” X 1 1/4”	4
16	640030	CARRIAGE BOLT - 3/8” X 1”	10
17	701182	CENTER LOCK FLANGE NUT - 3/8”	10
18	640109	HH CAP SCREW - 3/4” X 6”	1
19	640144	CENTER LOCK HEX NUT - 3/4”	1
20	702673	VIBRATION - DAMPING LOOP CLAMP	2
21	682441	SELF TAP SCREW - 1/4” X 1”	2

770068 HEAD SECTION ASSEMBLY

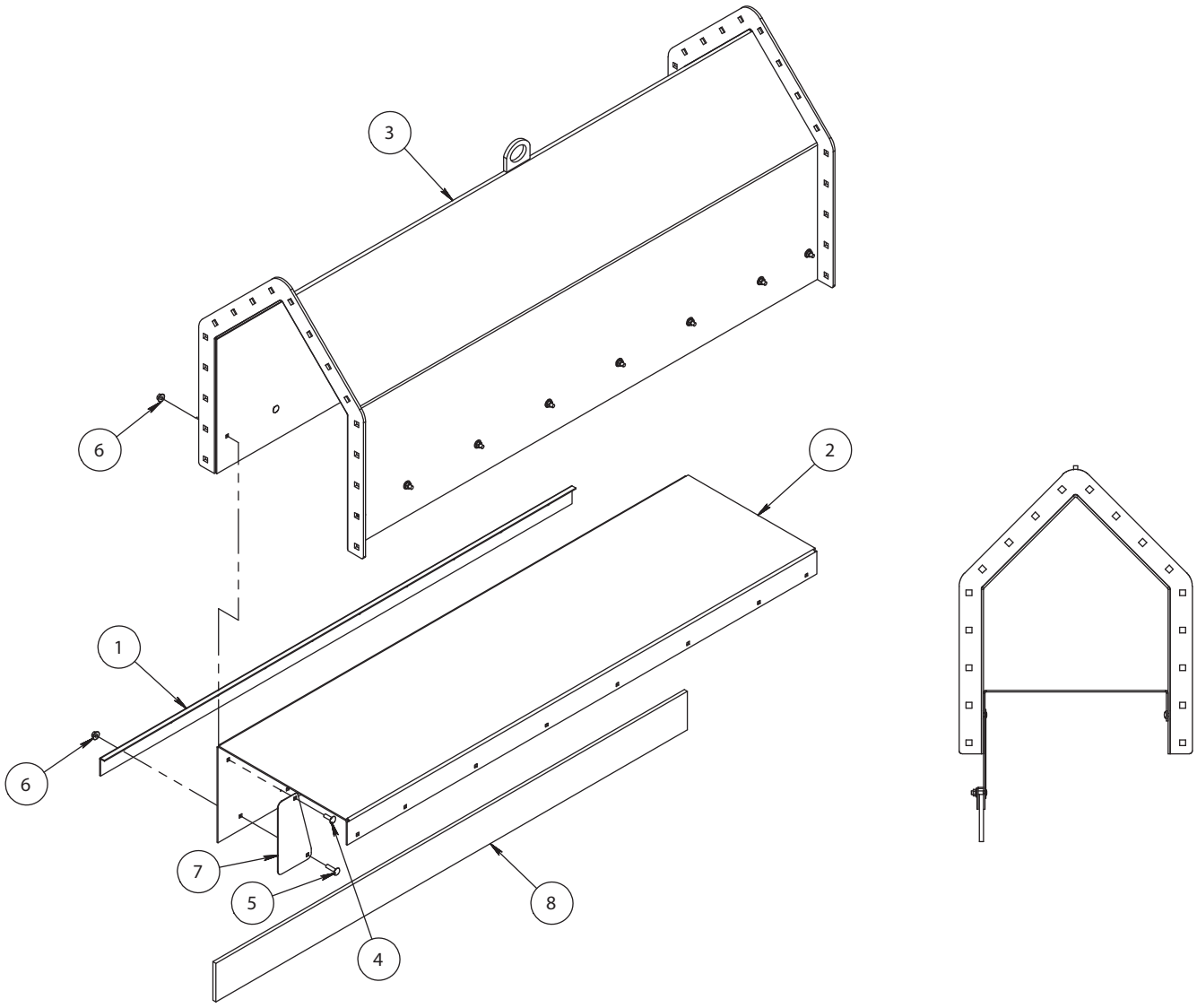


770068 HEAD SECTION ASSEMBLY			
ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	686033	DECAL - DANGER	1
2	686272	DRAG RUBBER CLAMP	1
3	689871	DECAL - DANGER	1
4	708192	SPROCKET - 12 TOOTH	1
5	701862	KEY: .625 X .625 X 3.00	1
6	770069	HEAD SECTION WELDMENT	1
7	706776	HEAD SHAFT	1
	770094	HEAD SHAFT (Stepped)	1
8	770117	ROOF COVER WELDMENT	1
9	770123	CASTER WHEEL	3
10	770147	SKIRT FRAME WELDMENT	1
11	770341	PILOTED BEARING	2
12	770342	PULL HITCH PIN	4
13	686183	CARRIAGE BOLT - 5/16” X 1 1/4”	10
14	701467	CENTER LOCK FLANGE NUT - 5/16”	10
15	682857	FLANGE NUT - 7/16”	12
16	640050	HH CAP SCREW - 7/16” X 1 1/2”	12
17	640059	HH CAP SCREW - 1/2” X 1 1/2”	10
18	683932	FLANGE NUT - 1/2”	2
19	640158	FLAT WASHER - 1/2”	2
20	690410	PIVOT PIN	2
21	690411	WASHER PLATE	4
22	660006	HITCH PIN CLIP	4
23	640157	LOCK WASHER - 1/2”	8
24	770135	DRAG RUBBER	1



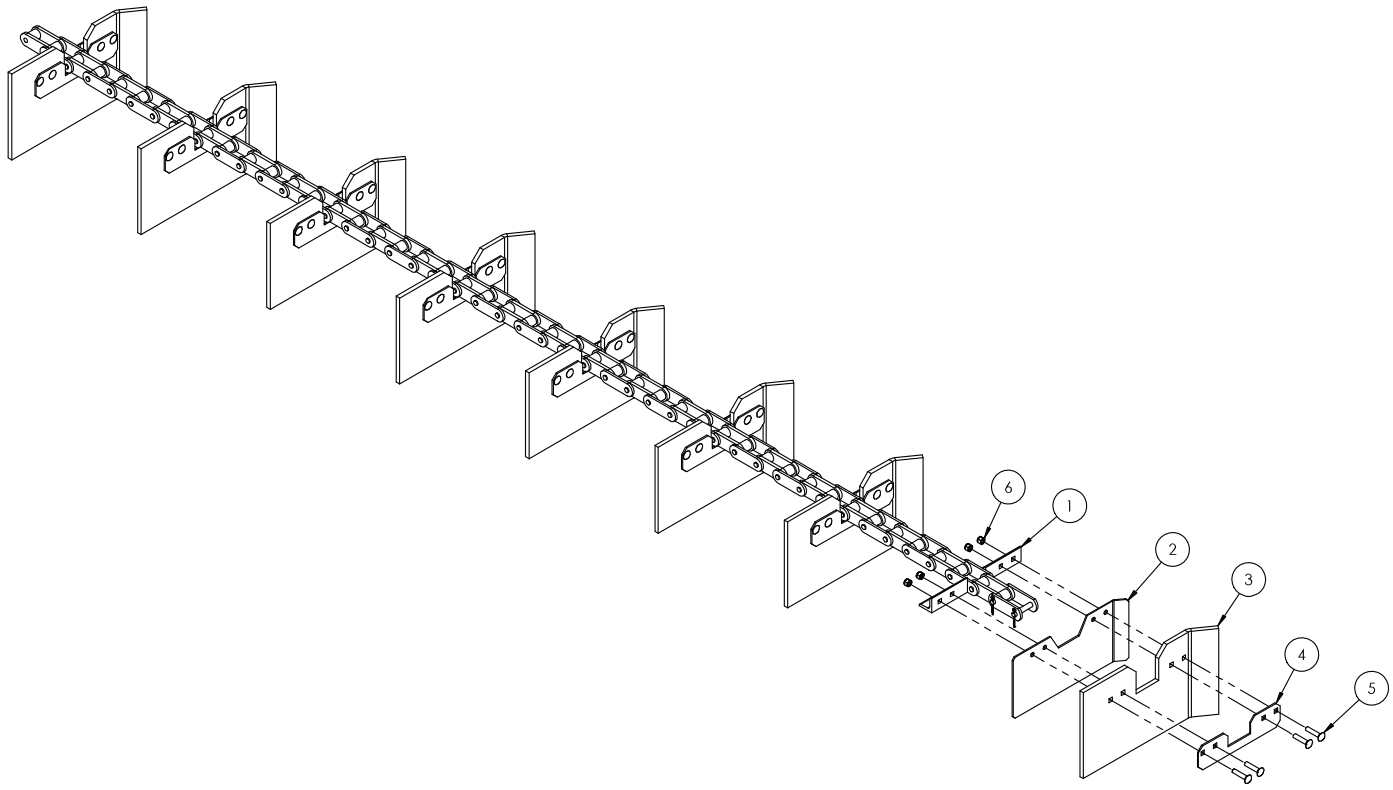
770007 INTERMEDIATE SECTION 3 FOOT

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	686271	DRAG RUBBER CLAMP - 3' SECTION	1
2	770019	DIVIDER - 3' SECTION	1
3	770020	COVER - 3' SECTION	1
4	640018	CARRIAGE BOLT - 5/16" X 1"	10
5	686183	CARRIAGE BOLT - 5/16" X 1 1/4"	6
6	701467	CENTERLOCK FLANGE NUT - 5/16"	16
7	708024	SEAM PLATE	1
8	770134	DRAG RUBBER	1



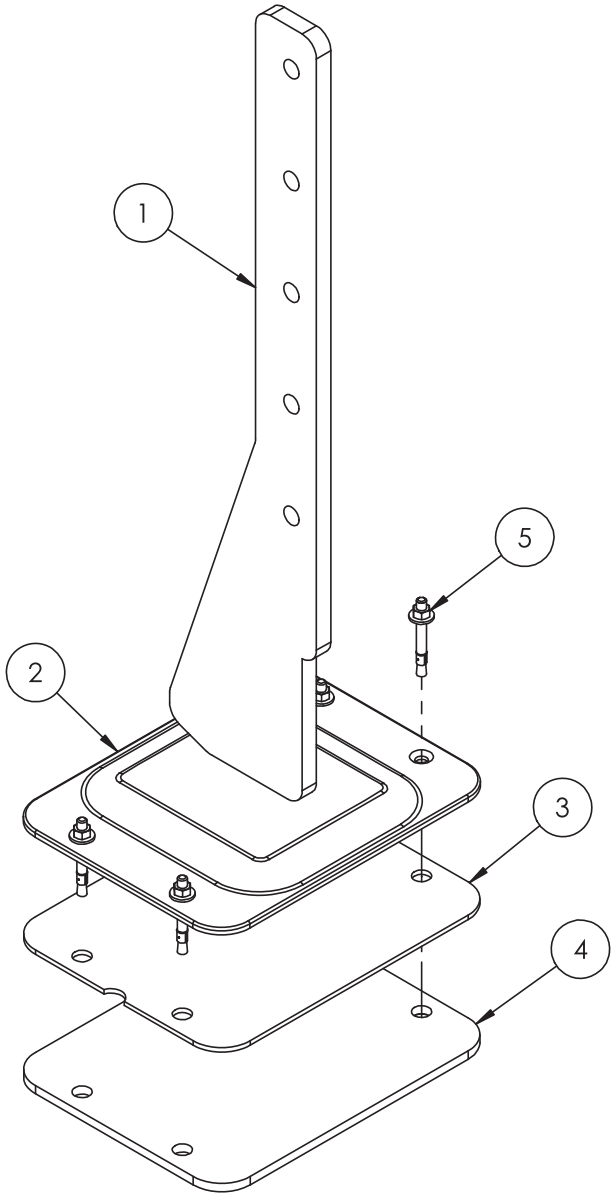
770006 INTERMEDIATE SECTION 5 FOOT

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	686272	DRAG RUBBER CLAMP - 5' SECTION	1
2	770004	DIVIDER - 5' SECTION	1
3	770005	COVER - 5' SECTION	1
4	640018	CARRIAGE BOLT - 5/16" X 1"	16
5	686183	CARRIAGE BOLT - 5/16" X 1 1/4"	10
6	701467	CENTERLOCK FLANGE NUT - 5/16"	26
7	708024	SEAM PLATE	1
8	770135	DRAG RUBBER	1



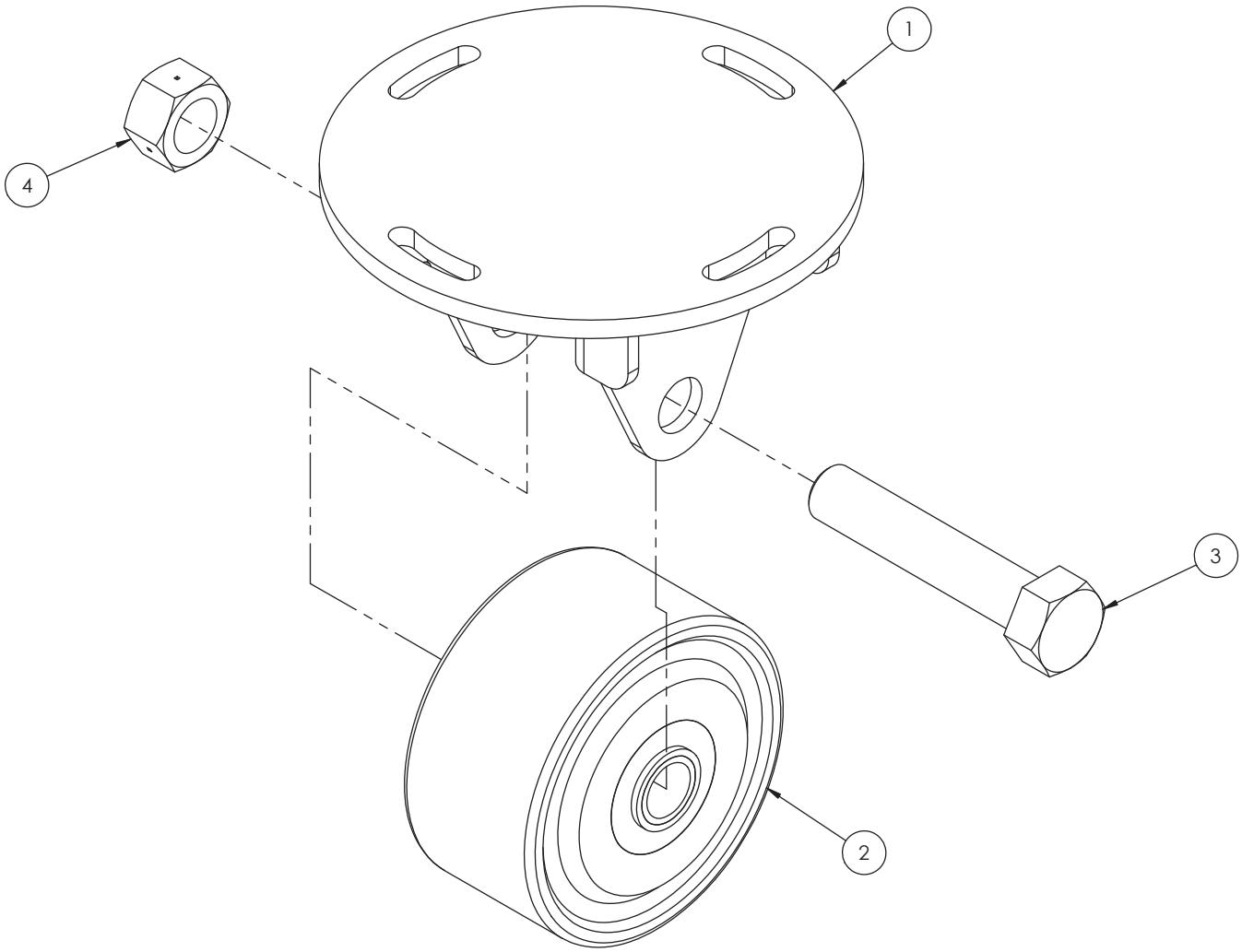
709845 PADDLE CHAIN 46 LINK

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	709846	46 LINK 81XH CHAIN	10 FT
2	709840	BACKER PLATE	8
3	709841	RUBBER PADDLE	8
4	709842	REINFORCEMENT PLATE	8
5	686527	CARRIAGE BOLT - 3/8” X 1 3/4”	32
6	654121	LOCKNUT NYLON - 3/8”	32
	709850	MALE CONNECTOR LINK	

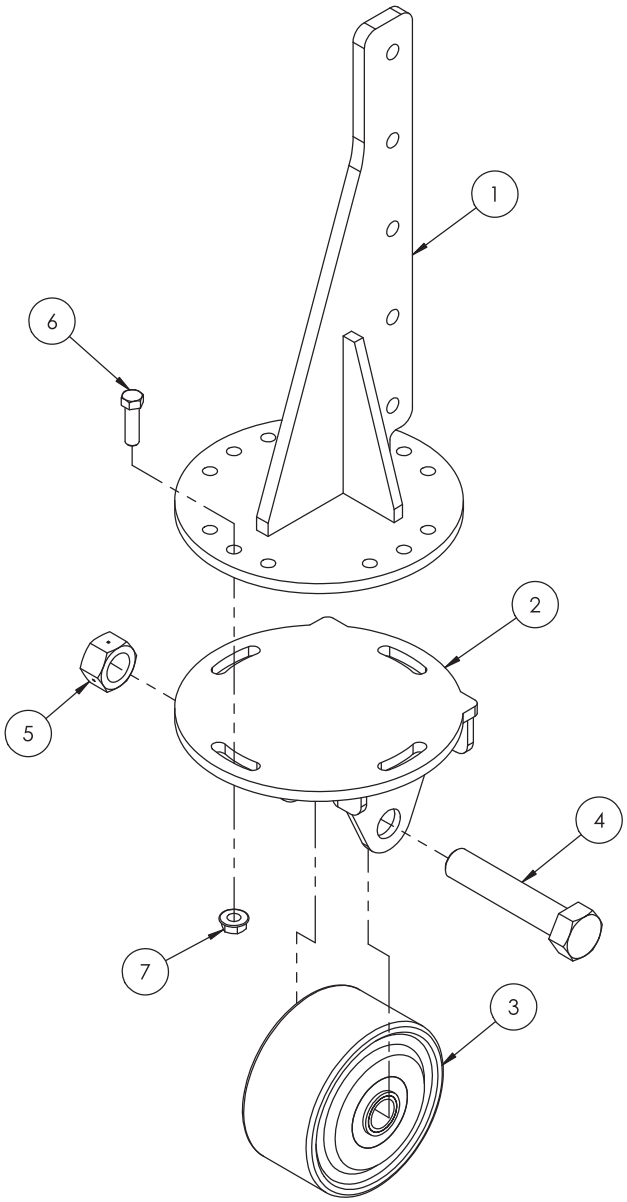


770349 ZERO ENTRY KIT

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	770100	SUPPORT PLATE	1
2	702670	SUPPORT PAD	1
3	701329	SHIM - 1/8”	1
4	701347	SHIM - 1/4”	1
	704966	HARDWARE BAG	
5	695701	WEDGE ANCHOR - 1/4” X 2 1/4” (CONCRETE)	4

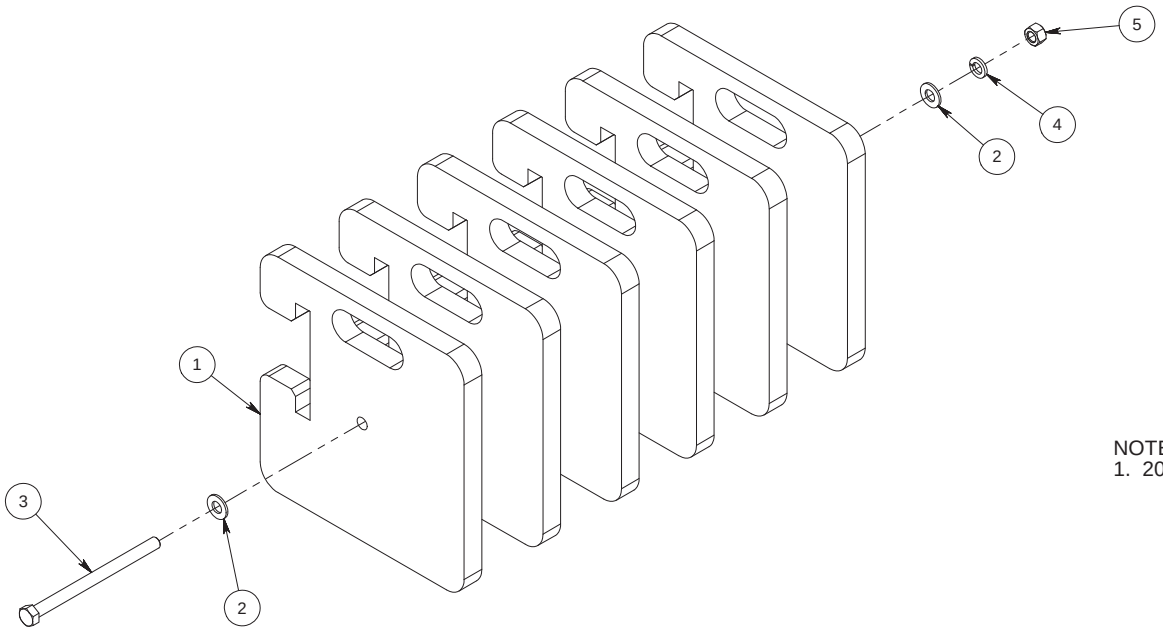


770123 CASTER WHEEL ASSEMBLY			
ITEM NUMBER	**PART NUMBER**	**DESCRIPTION**	**QTY**
1	770116	WHEEL MOUNT	1
2	770146	CASTER WHEEL	1
3	684632	HH CAP SCREW - 1” X 5”	1
4	700683	CENTERLOCK NUT - 1”	1



770150 FRONT CASTER WHEEL ASSEMBLY

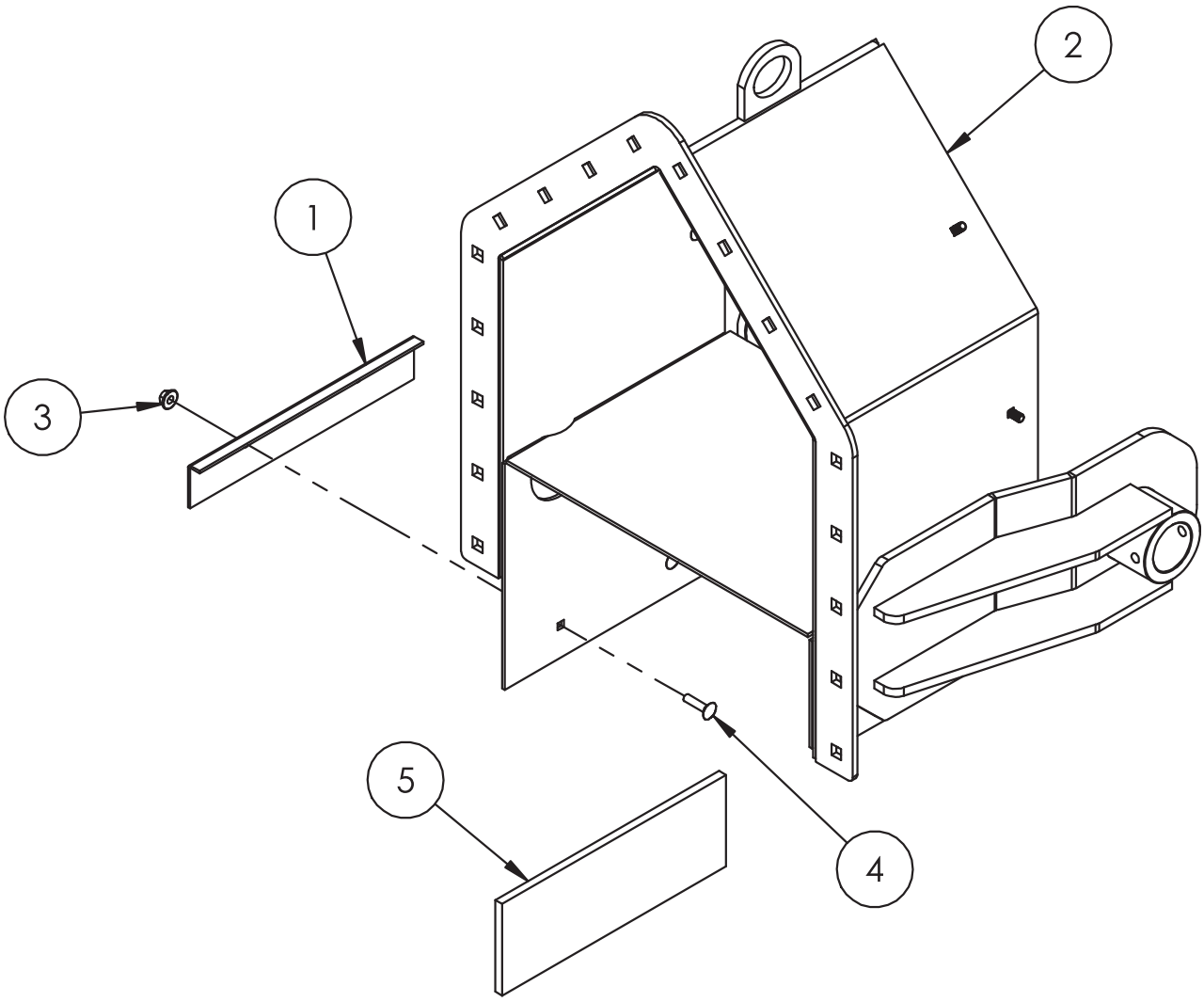
ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	770151	ADAPTER BRACKET	1
2	770156	WHEEL BRACKET	1
3	770146	CASTER WHEEL	1
4	684632	HH CAP SCREW - 1” X 5”	1
5	700683	CENTERLOCK NUT - 1”	1
6	640050	HH CAP SCREW - 7/16” X 1 1/2”	4
7	682857	FLANGE NUT - 7/16”	4



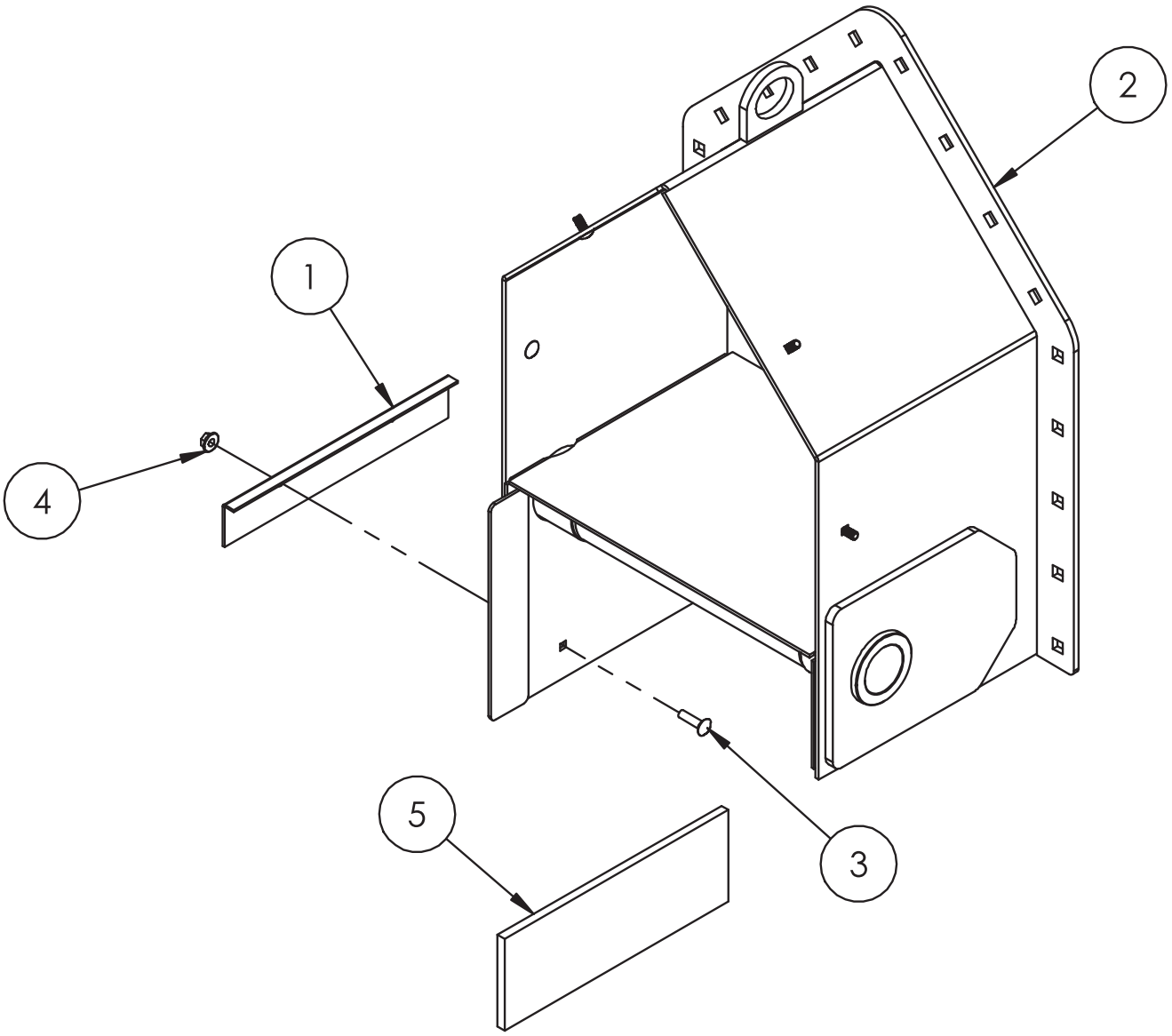
NOTE:
1. 200LBS WEIGHT KIT

686268 BIN SWEEP WEIGHT KIT (200 LB)

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	686267	WEIGHT	6
2	640158	FLAT WASHER 1/2”	2
3	652173	HH CAP SCREW 1/2” X 7”	1
4	640157	LOCK WASHER 1/2”	1
5	640139	HEX NUT 1/2”	1



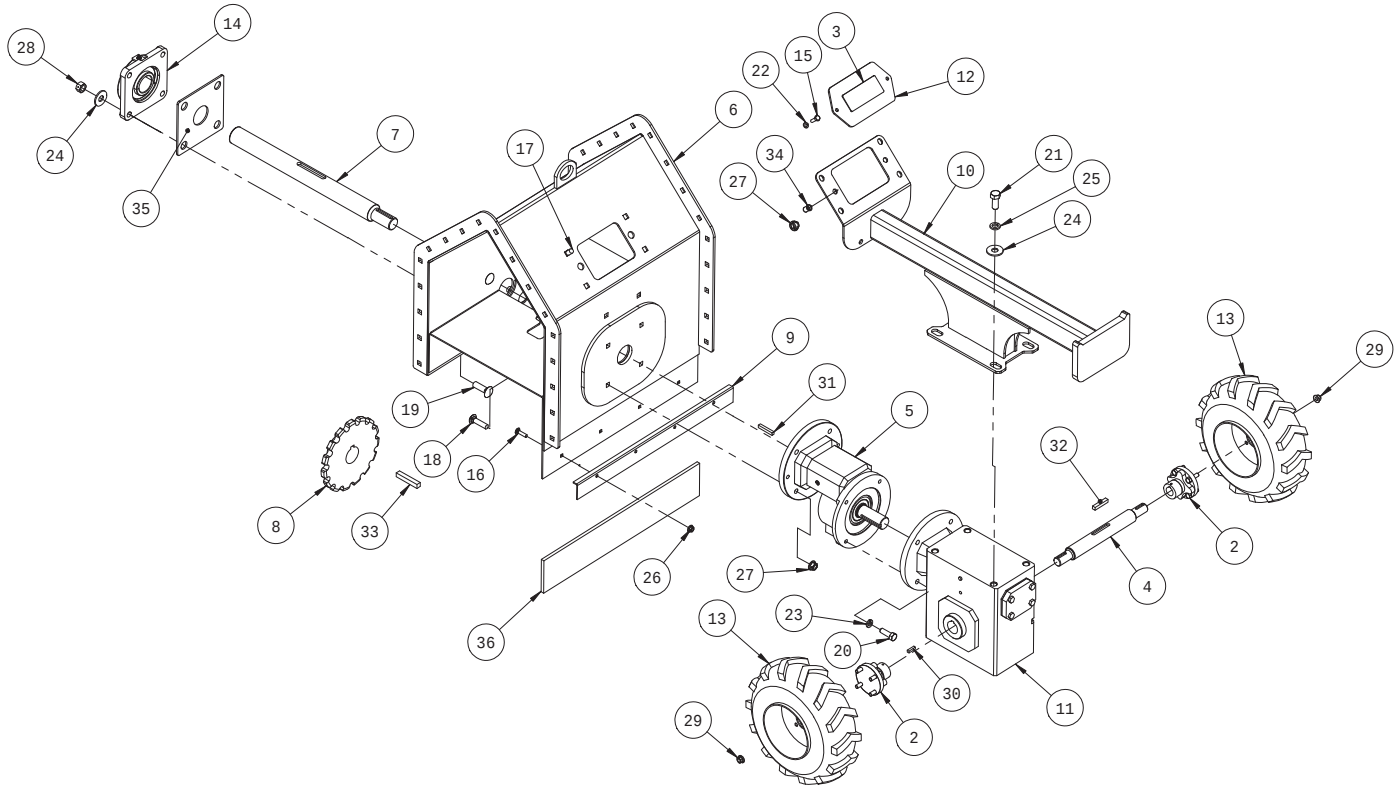
770023 INNER PIVOT SECTION			
ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	686270	DRAG COVER PLATE	1
2	770024	INNER SECTION	1
3	701467	FLANGE NUT 5/16”	2
4	686183	CARRIAGE BOLT 5/16” X 1 1/4”	2
5	770133	DRAG RUBBER	1

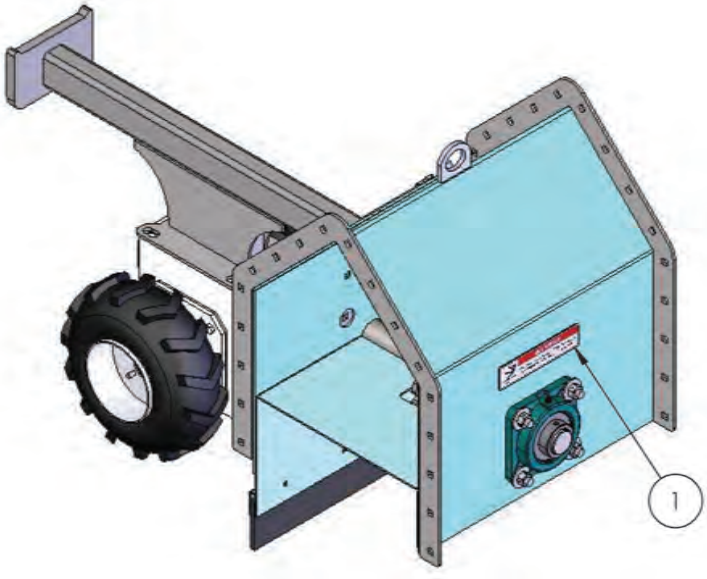


770026 OUTER PIVOT SECTION

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	686270	DRAG COVER PLATE	1
2	770025	OUTER SECTION	1
3	686183	CARRIAGE BOLT 5/16” X 1 1/4”	2
4	701467	FLANGE NUT 5/16”	2
5	770133	DRAG RUBBER	1

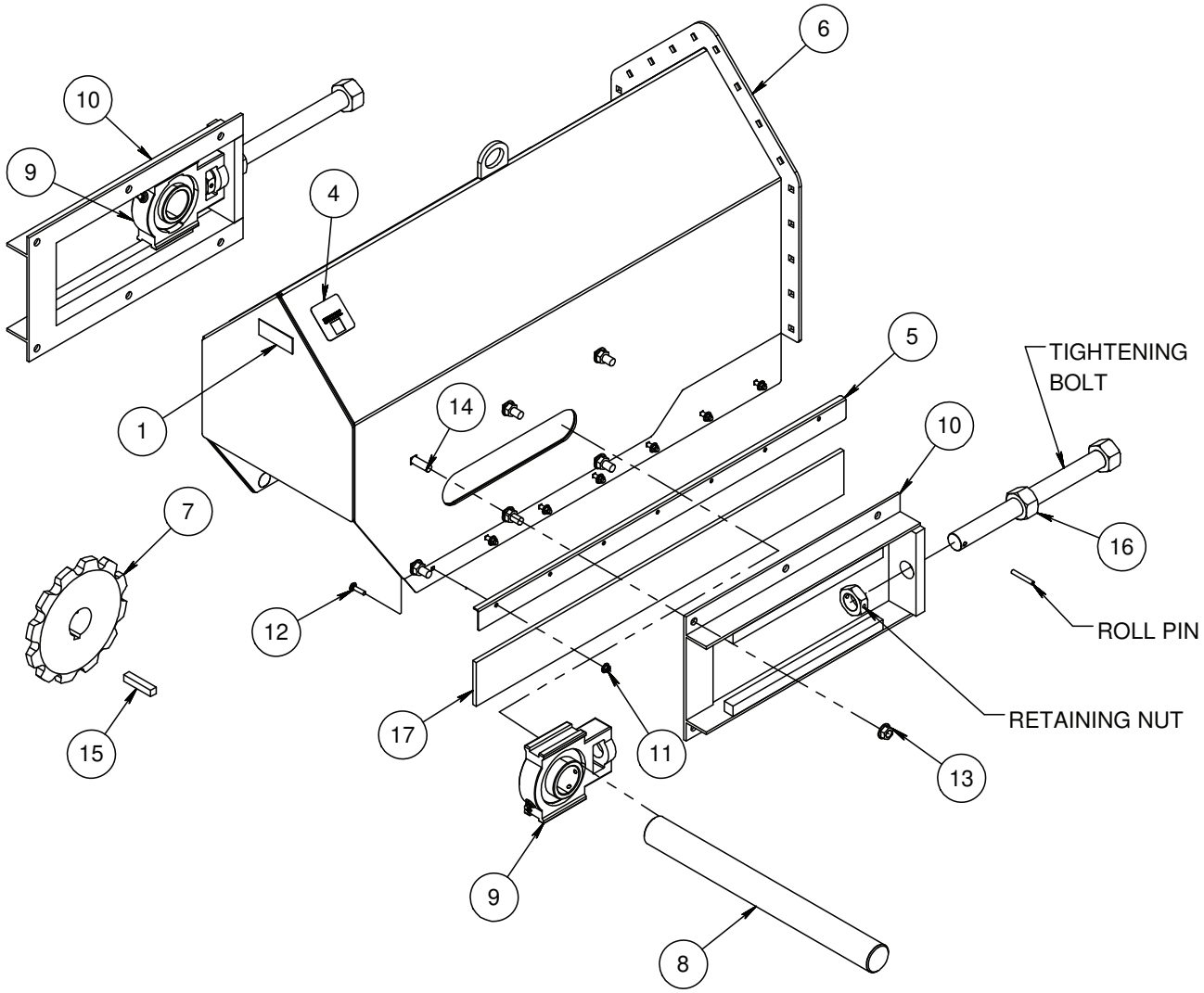
TRACTOR DRIVE SECTION





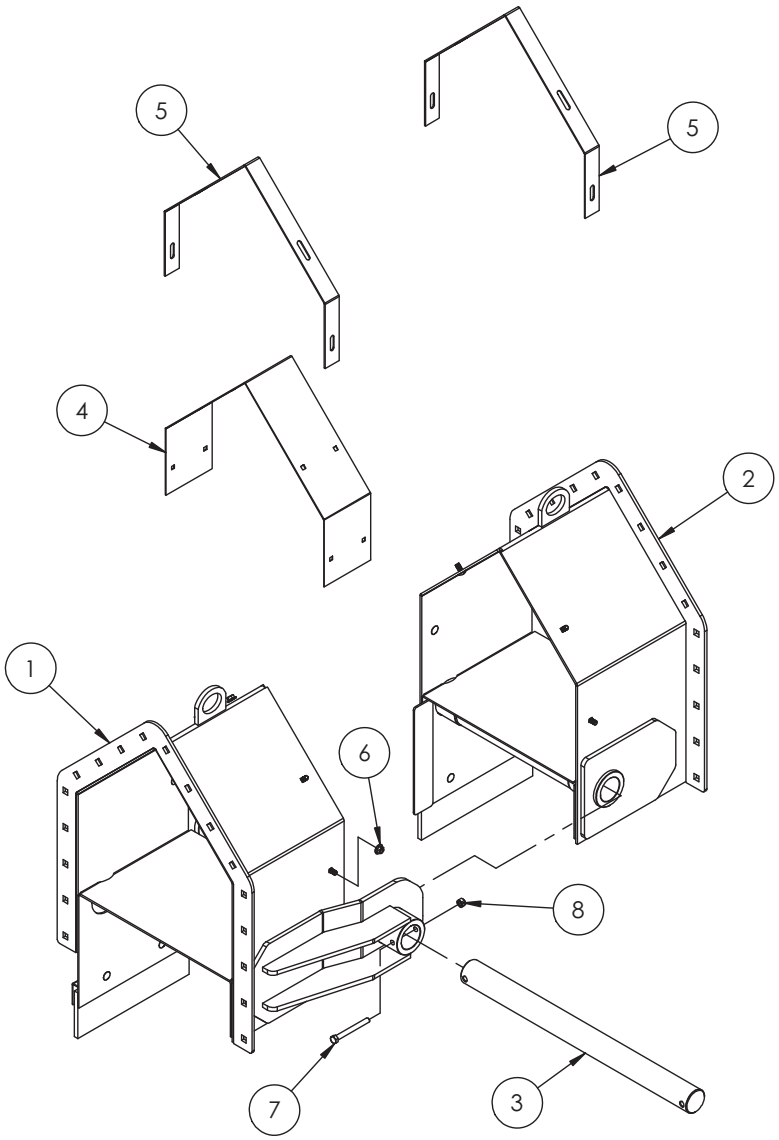
TRACTOR DRIVE SECTION			
ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	686033	DECAL - DANGER	1
2	686096	HUB	2
3	689871	DECAL - DANGER	1
4	701854	AXLE SHAFT	1
5	770033	REDUCER	1
6	770042	TRACTOR DRIVE SECTION	1
7	770043	TRACTOR DRIVE SHAFT	1
8	708191	SPROCKET: 9 TOOTH	1
9	770060	DRAG RUBBER CLAMP	1
10	770128	WEIGHT BRACKET	1
11	770161 709898 770154	GEARBOX 20:1 GEARBOX 25:1 GEARBOX 40:1	1 1 1
12	770162	COVER PLATE	1
13	770168	TIRE	2
14	770348	FLANGE BEARING	1
15	640016	HH CAP SCREW: 5/16” X 1”	2
16	686183	CARRIAGE BOLT: 5/16” X 1 1/4”	4
17	683931	CARRIAGE BOLT: 1/2” X 1”	6
18	651557	CARRIAGE BOLT: 1/2” X 2”	4
19	640080	CARRIAGE BOLT: 5/8” X 2”	4
20	640059	HH CAP SCREW: 1/2” X 1 1/2”	4
21	640074	HH CAP SCREW: 5/8” X 1 1/2”	4
22	640151	LOCKWASHER: 5/16”	2
23	640157	LOCKWASHER: 1/2”	4
24	640161	FLATWASHER: 5/8”	8
25	640159	LOCKWASHER: 5/8”	4
26	701467	FLANGE NUT: 5/16”	4
27	699010	CENTERLOCK FLANGE NUT: 1/2”	10
28	640141	CENTERLOCK NUT: 5/8”	4
29	701182	FLANGE NUT: 3/8”	8
30	161288	KEY: 1/4” X 1/4” X 1”	2
31	686028	KEY: 5/16” X 5/16” X 2”	1
32	686985	KEY: 3/8” X 3/8” X 2”	1
33	702618	KEY: 1/2” X 1/2” X 3”	1
34	687854	NUT INSERT: 5/16”	2
35	701112	SPACER PLATE	1
36	770138	DRAG RUBBER	1

770050 END SECTION



770050 END SECTION

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	666941	DECAL: SERIAL NUMBER	1
2	689871	DECAL: DANGER	1
3	690344	DECAL: OPERATIONS	1
4	704991	DECAL: PATENT NUMBER	1
5	770124	DRAG RUBBER CLAMP	1
6	770051	END SECTION	1
7	708192	SPROCKET: 12 TOOTH	1
8	770067	END SHAFT	1
9	770346	TAKE-UP BEARING	2
10	770347	TAKE-UP FRAME	2
11	701467	FLANGE NUT: 5/16”	7
12	686183	CARRIAGE BOLT: 5/16” X 1 1/4”	7
13	686974	FLANGE NUT: 5/8”	12
14	640080	CARRIAGE BOLT: 5/8” X 2”	12
15	701862	KEY: 5/8” X 5/8” X 3”	1
16	704848	HEXNUT: 1 1/2”	2
17	770139	DRAG RUBBER	1



770027 PIVOT SECTION

ITEM NUMBER	PART NUMBER	DESCRIPTION	QTY
1	770023	INNER SECTION	1
2	770026	OUTER SECTION	1
3	770032	PIVOT PIN	1
4	770037	RUBBER COVER	1
5	770038	CLAMP PLATE	2
6	701467	FLANGE NUT 5/16”	8
7	640043	HH CAP SCREW 3’8” X 3 1/2”	2
8	700560	CENTERLOCK NUT 3/8”	2

Chapter 10 - Appendix

This chapter contains misc. information associated with the DPS 12K Bin Sweep.
This chapter contains the following sections:

Chapter 10 - Table Of Contents

Sioux Steel Co.
196 1/2 East 6th Street
P.O. Box 1265
Sioux Falls, SD 57101-1265

Phone: .....(800) 557-4689
(605) 336-1750
(605) 557-4689
Sales Fax: ....(605) 357-8597
Fax: .....(605) 336-2528

NEW PRODUCT WARRANTY
GRAIN BINS

LIMITED WARRANTY FOR NEW SIOUX STEEL COMPANY PRODUCTS

A. GENERAL PROVISIONS. "Sioux Steel" means Sioux Steel Company, 196 1/2 East Sixth Street, Sioux Falls, South Dakota 57104. The warranties described below are provided by Sioux Steel to the original purchasers of new products purchased from Sioux Steel or from an authorized Sioux Steel Dealer (the "Products"). Under these warranties, Sioux Steel will, at its option, repair or replace at its factory any Product covered under these warranties which is found to be defective in material and workmanship during the applicable warranty term or refund the purchase price paid for the defective Product. Customer will be responsible for labor charges for removing the defective Product and reinstalling the repaired or replacement Product, any premium charge for overtime labor requested of Sioux Steel and shipping charges to and from Sioux Steel's factory. These warranties are not transferrable.

B. WARRANTY PERIOD. Subject to exclusions and limitations set forth herein, each new Product is warranted for the number of years specified below. Each warranty term begins from the date of purchase regardless of delay in receipt of the Product by Customer due to the time required to process, handle, ship, assemble, construct and install the Product. Customer must retain proof of the date of purchase. Replacement parts for and repairs to the Product will be warranted only for the remainder of the original warranty term. The replacement parts for or repairs to the Product will not extend the warranty term beyond the original warranty term. Products described below include all parts, components and accessories.

GRAIN BINS	
Farm Use Grain Bins	10 Years
Commercial Use Grain Bins	5 Years
Centrifugal Fans, Axial Fans and Axial Heaters	2 Years
Bin Accessories, including Bucket Elevators, Conveyors, Cage and Ladder Systems, Catwalks and Towers, Grain Dryers and Peak Walk-Arounds.	1 Year
New Daay Paddle Bin Sweep	1 Year
Daay Power Sweep	1 Year

Exclusions specific to Grain Bins: Damage or loss of any kind from (1) excessive vacuum or internal pressure from the operation of fans in an empty grain bin and from the blockage of air passages for any reason including, but not limited to, the blockage of roof vents and discharge louvers by ice and snow; (2) a failure to properly compact and engineer soils; (3) a failure to properly construct footings and foundations; and (4) exposure to conditions in excess of, or not meeting, as the case may be, the wind and snow load requirements of each grain bin model.

C. ITEMS COVERED SEPARATELY. The Sioux Steel warranties do not cover any parts, components or materials that are part of the Product, or used in conjunction with the Product, that are not manufactured by Sioux Steel. Such parts, components and materials will be subject to the warranties provided by the manufacturer, if any. Manufacturers of electric motors provide warranty service only through authorized service centers. Service center locations are identified on the World Wide Web at www.baldor.com. Sioux Steel will not be responsible for motor repair or replacement.

D. WHAT IS NOT WARRANTED. Sioux Steel does not warrant and is not responsible for the following: (1) used products; (2) modification or alteration of the Products; (3) Products that have not been properly installed or not installed in accordance with the instruction manual, improper assembly, or improper construction by any persons other than Sioux Steel employees; (4) depreciation, damage or loss caused by the use of parts, components or accessories not provided by Sioux Steel, unauthorized repairs, normal wear, lack of necessary and proper maintenance, a failure to follow operating instructions/recommendations, misuse, lack of proper protection during storage, vandalism or theft, exposure to the elements or corrosive materials, accidents or acts of nature including lightning, flooding, hail, straight winds and tornadoes; and (5) cosmetic damage or damage that does not hinder the functionality of the Products.

E. LIMITATIONS OF WARRANTIES AND CUSTOMER'S REMEDIES. To the extent permitted by law, neither Sioux Steel, the Dealer nor any person or company affiliated with either of them makes any warranties, representations, conditions or promises express or implied as to the quality, performance or freedom from defects of the Products covered by these warranties other than those set forth herein. THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NEITHER SIOUX STEEL, THE DEALER, NOR ANY PERSON OR COMPANY AFFILIATED WITH EITHER OF THEM WILL BE LIABLE FOR ANY DAMAGES, INCLUDING, BUT NOT LIMITED TO, INCIDENTAL, SPECIAL, EXEMPLARY, CONSEQUENTIAL, LOST PROFITS AND REVENUES, LOST USE OF THE PRODUCTS OR ANY OTHER PROPERTY, BODILY INJURY OR PROPERTY DAMAGE CLAIMS OF ANY PERSON, LOST COMMODITIES, REMOVAL OR STORAGE COSTS FOR THE PRODUCTS, OTHER EQUIPMENT AND COMMODITIES, DAMAGE TO THE ENVIRONMENT ARISING FROM OR IN ANY MANNER RELATED TO ANY RELEASE OF HAZARDOUS MATERIALS, AND REMEDIATION EXPENSES THEREFORE, WHETHER BASED ON CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER LEGAL BASIS, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO INSTANCE WILL SIOUX STEEL, THE DEALER OR ANY PERSON OR COMPANY AFFILIATED WITH EITHER OF THEM BE LIABLE TO CUSTOMER OR ANY PERSON IN AN AMOUNT IN EXCESS OF THE PURCHASE PRICE PAID BY CUSTOMER FOR THE PRODUCT.

F. NO DEALER WARRANTY. THE DEALER HAS NO AUTHORITY TO MAKE ANY WARRANTY, REPRESENTATION, CONDITION OR PROMISE ON BEHALF OF SIOUX STEEL, OR TO MODIFY THE TERMS OR LIMITATIONS OF THIS WARRANTY IN ANY WAY.

G. GOVERNING LAW/VENUE. These warranties, and all terms set forth herein, are governed by the laws of the State of South Dakota and, where applicable, the laws of the United States of America. Any and all disputes arising from these warranties, the purchase and use of the Products, bodily injury and property damage claims or otherwise must be venued in the South Dakota Circuit Court sitting in Minnehaha County, South Dakota. Customer agrees to such venue and waives any challenge to such court's jurisdiction based upon lack of personal jurisdiction or inconvenience.

H. SECURING WARRANTY SERVICE. In order to receive warranty services, customer must give Sioux Steel written notice of a warranty claim within 30 days of the date of discovery of the defective materials or workmanship, and Customer must complete the following steps:

(1) Obtain from Sioux Steel a Return Goods Authorization Number ("RGA Number") by calling the Customer Service Department at 1-800-557-4689, and providing the following information:
- An explanation as to why the Product is being returned.
- The name of the territory representative, Dealer or Sioux Steel salesperson from whom the Product was purchased.
- The Dealer's identification number.
- The invoice number and date of purchase.
- Customer's name, phone number, fax number, mailing address and email address.
- The date that the Product will be returned.

(2) Pay the shipping charges to ship the Product to Sioux Steel's factory, and the return shipping charges.

(3) Ship the Product to Sioux Steel at 196 1/2 East Sixth Street, Sioux Falls, South Dakota 57104.

NOTES

DPS 12K

Sioux Steel Company
196 1/2 East 6th Street Sioux Falls, SD 57101-1265
Phone: 1-800-557-4689
Email Address: www.daaybinsweep.co