MANUAL NO. 703625 6/2/2017

OWNERS MANUAL

DUAL-ARM PADDLE SWEEP

Introduction

- The purpose of this manual is to explain the operation and maintenance of the paddle sweep. It also contains a parts list 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 manuals provided, please see the contact information below.
- This machine is covered by one or more United States patents.
    - Patent #6499930
    - Patent #8967937
    - Patent #9190807
    - Other patents may be pending.

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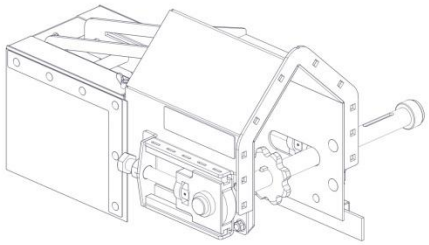
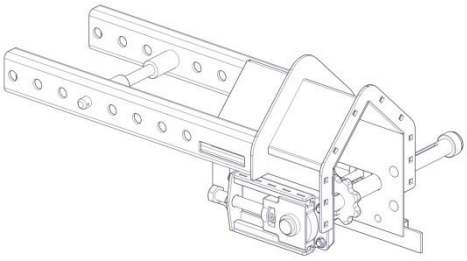
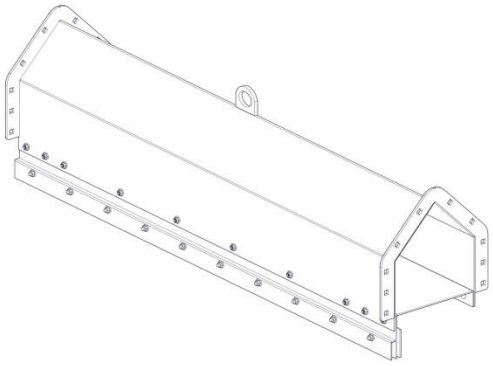
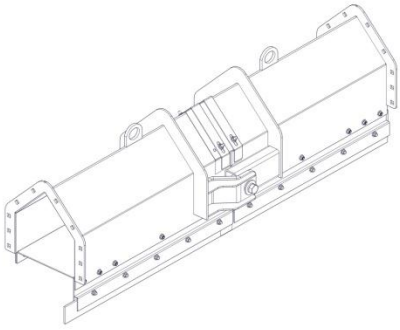
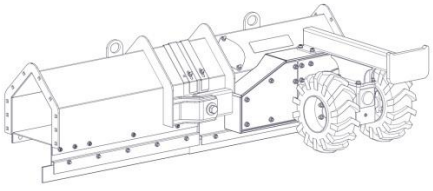
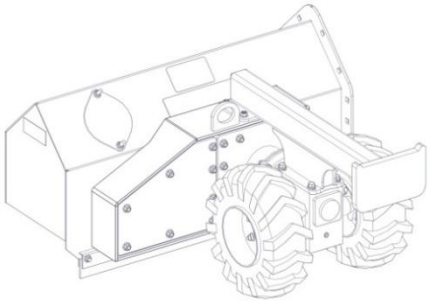
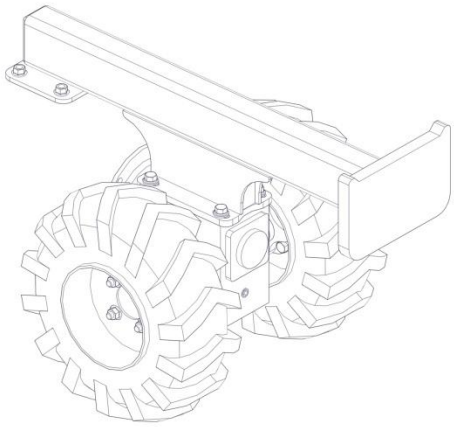
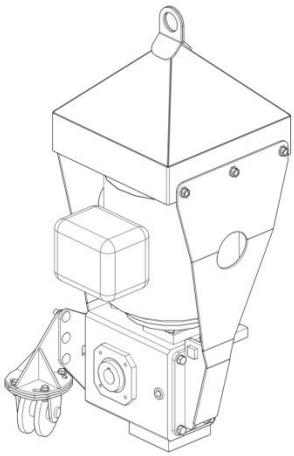
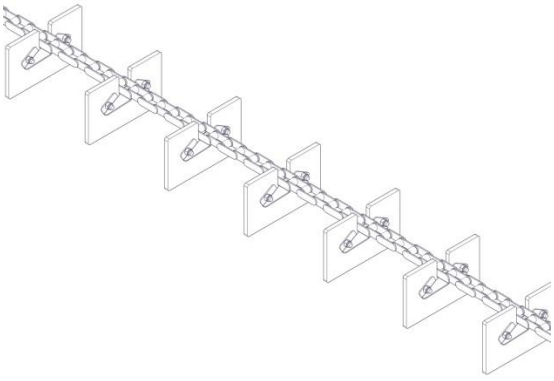
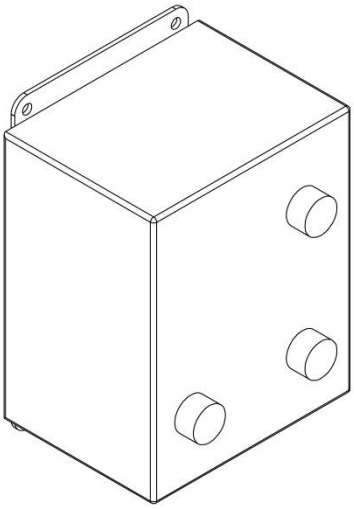
ALL safety decals are no charge from the factory. Please replace all safety decals if damaged or missing. Your safety is important

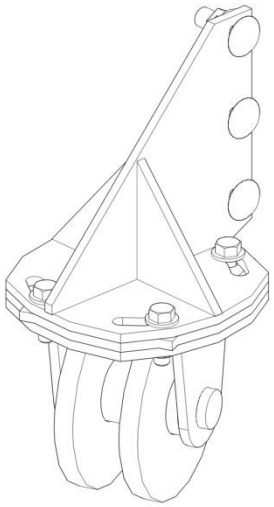
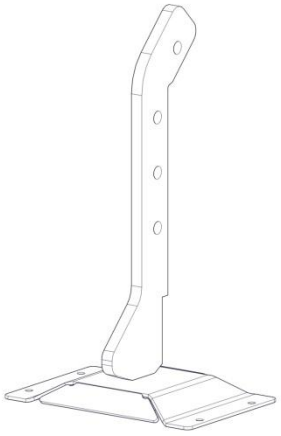
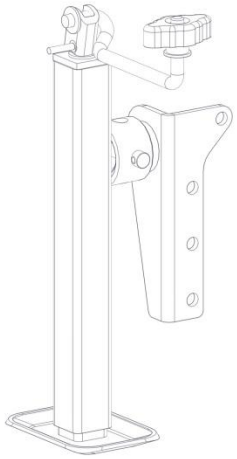
WARNING! Anyone who will be operating or working around the equipment should first read this manual to familiarize themselves with the machinery.

Contents

1 Sweep Terminology

Head Section – Standard 	Head Section – High Flow 
Intermediate Section 	Pivot Section 
Pivot Section w/Tractor Drive 	Drive End 

Tractor Drive 	Motor/Gearbox Assembly 
Paddle Chain 	Motor Starter Box 
Collector Ring 	Slip Ring 

Caster 	Zero Entry 
Jack 	

2 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 follows safety precautions. Improper use of the equipment can cause serious injury or death.
- Read the operator's 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.
- Since the installation of this sweep takes place with in a confine space. Confine 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 federal codes.
- **DO NOT** clean, lubricate or adjust the equipment while it is running. Disengage the machine prior to doing so.
- Install and ground slip collector ring and the entire unit in accordance with the National Electric Code (NEC) and local codes and/or ordinances.
- Always disconnect and lock out 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 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 grain bins 72 feet in diameter and larger for 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.**

2.1 Safety Alert Symbols

- The 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.

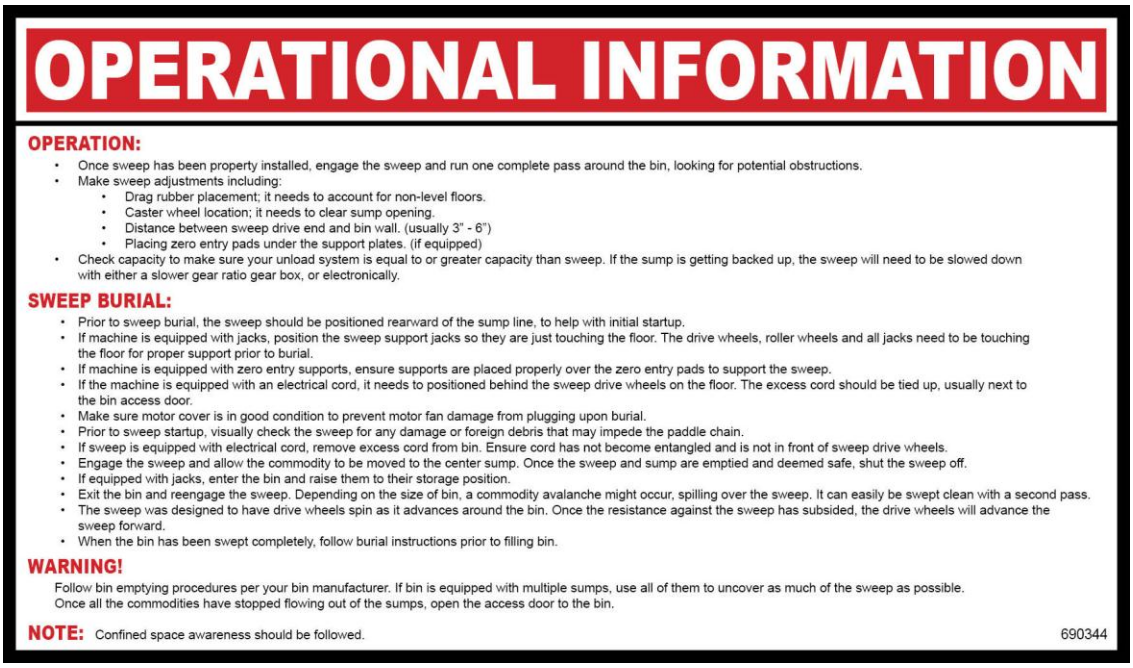
WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. The color associated with Warning is ORANGE.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. The color associated with Caution is YELLOW.

2.2 Safety & Logo Decals

- 686033 DANGER - PADDLE CHAIN WILL CAUSE SERIOUS INJURY KEEP HANDS, FEET, AND CLOTHING AWAY

- 690344 OPERATION INFORMATION



- 688462 DANGER - Electrical Hazard. Turn off power and lock out before servicing.

- 689771 WARNING - Rotating Chain can Crush and Cut. DO NOT Operate Without Guards in Place.

3 Specifications

(Specifications are subject to change without notice and without liability)

3.1 Features

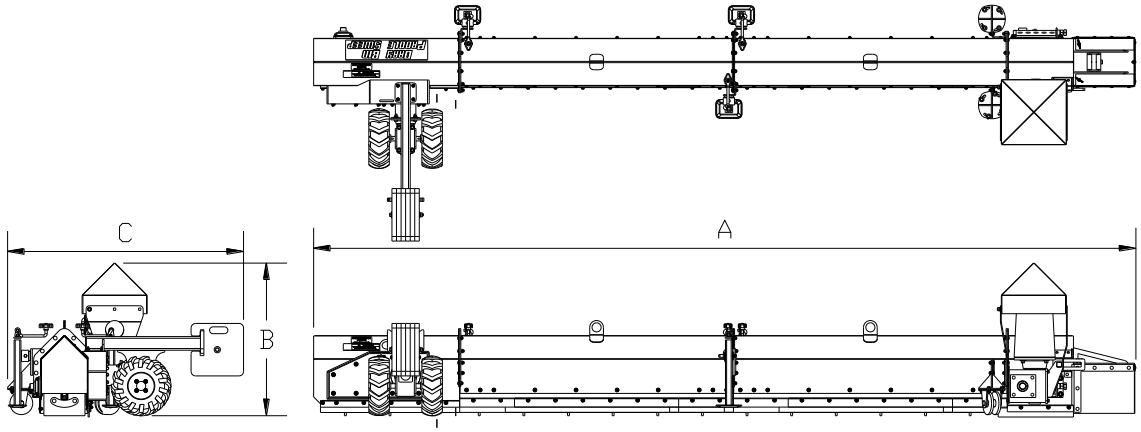
- **Commercial**
  - Capacity 1,000 bu/hr min to 5,500 bu/hr max
  - Drive tire size: 13 x 5.00-6 Super Lug (foam filled)
  - Designed to be fully submersed in grain
  - Housing is made out of 10 ga. Steel
  - 2 to 15 HP Explosion proof motor
  - Adjustable chain and motor mounts
  - Rubber drag to clean the floor for less sweeping

- **Farm Series**
  - Capacity: 5000 bu/hr @ 350 rpm tensioner shaft speed
  - Drive tire size: 5" x 8" -15" height segmented wheel
  - Drive wheel powered by a gearbox off the paddle chain.
  - Designed to be fully submersed in grain
  - Housing is made out of 12 ga. Steel
  - Adjustable chain mount
  - Flexible pivot joint allows sweep to move independently from gearbox to allow for variations in the bin floor
  - Adjustable stabilizer arms to accommodate variations in bin size and out of roundness
  - Rubber drag to clean the floor for less sweeping

3.2 Burial Depth Chart

MAX. EAVE HEIGHT/BURIAL DEPTH CHART FOR PADDLE SWEEPS																			
			Bin/Silo Diameters																
Sweep Model	**Bin/Silo Type**	**Support System**	**15'**	**18'**	**21'**	**24'**	**27'**	**30'**	**33'**	**36'**	**42'**	**48'**	**54'**	**60'**	**66'**	**72'**	**75'**	**78'**	**90'**	**105'**
			Eave Height																
Daay Power Farm	Corrugated Bin	Jacks	40'	40'	40'	40'	40'	40'	40'	40'	40'	40'	35'	35'	30'	N/A	N/A	N/A	N/A	N/A
Daay Power Farm	Corrugated Bin	Zero Entry	40'	40'	40'	40'	40'	40'	40'	40'	40'	40'	35'	35'	30'	N/A	N/A	N/A	N/A	N/A
Daay Power Farm	Corrugated Bin	Jacks-Deep Burial	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	70'	70'	60'	60'	N/A	N/A	N/A	N/A	N/A
Daay Power Farm	Corrugated Bin	Zero Entry-Deep Burial	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	70'	70'	60'	60'	N/A	N/A	N/A	N/A	N/A
Interceptor	Corrugated Bin	Jacks	40'	40'	40'	40'	40'	40'	40'	40'	40'	40'	35'	35'	N/A	N/A	N/A	N/A	N/A	N/A
Interceptor	Corrugated Bin	Zero Entry	40'	40'	40'	40'	40'	40'	40'	40'	40'	40'	35'	35'	N/A	N/A	N/A	N/A	N/A	N/A
			Eave Height																
Commercial	Corrugated Bin	Jacks	115'	115'	115'	115'	115'	115'	115'	115'	115'	115'	115'	115'	105'	95'	90'	90'	80'	75'
Commercial	Corrugated Bin	Zero Entry	150'	150'	150'	150'	150'	150'	150'	150'	150'	150'	150'	150'	150'	150'	140'	135'	115'	105'
			Burial Depth																
Commercial	Concrete Silo	Jacks	160'	160'	160'	160'	160'	160'	160'	160'	160'	160'	160'	135'	115'	105'	100'	95'	85'	75'
Commercial	Concrete Silo	Zero Entry	160'	160'	160'	160'	160'	160'	160'	160'	160'	160'	160'	160'	160'	160'	160'	150'	125'	105'

3.3 Overall Dimensions & Weights



Sweep Unit for Bin Size	Length (Dim A)	Height (Dim B)	Width (Dim C)	Unit Weight (lbs)
15’	8’	34”	52”	700
18’	9’			750
21’	11’			800
24’	12’			850
27’	13’			900
30’	15’			950
33’	16’			1000
36’	18’			1050
42’	21’			1150
48’	24’			1300
54’	27’			1400
60’	30’			1550
66’	33’	35”		2000
72’	36’			2100
75’	38’			2200
78’	39’			2250
90’	45’			2450
105’	52’	43”		3050

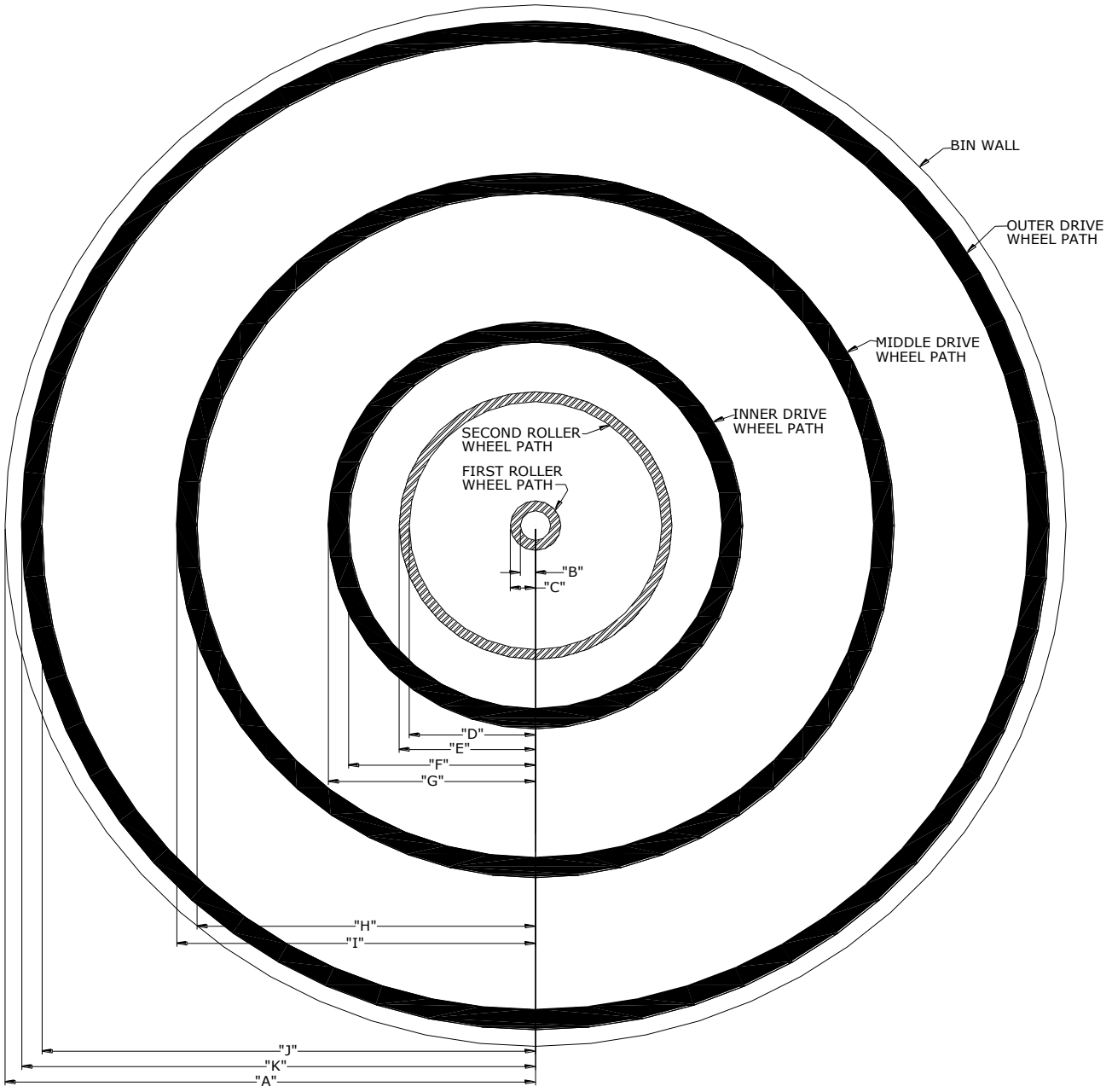
4 Setup

4.1 Prior to installation

- Wheel paths
- When locating the sump locations in the bin foundation it is critical to consider where the wheel paths are going to be located. Below is a chart and illustration of these paths to match to your sweep model.
- 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.
- Wheel Paths Chart

Paddle Sweep - Wheel Paths												
Nomi-nal Bin Dia.	Sweep Length	Actual Bin Dia.	Frist Roller Wheel Path Between Dim's		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
Paddle Sweep with Standard Head Section - Wheel Paths												
15'	7'-6"	14'-11"	1'-4"	2'-7"	------	------	------	------	------	------	4'-8"	6'-9"
18'	8'-6"	17'-11"	1'-4"	2'-7"	------	------	------	------	------	------	5'-8"	7'-9"
21'	10'-6"	20'-11"	1'-4"	2'-7"	------	------	------	------	------	------	7'-8"	9'-9"
24'	11'-6"	23'-10"	1'-4"	2'-7"	------	------	------	------	------	------	8'-8"	10'-9"
27'	12'-6"	26'-10"	1'-4"	2'-7"	------	------	------	------	------	------	9'-8"	11'-9"
30'	14'-6"	29'-10"	1'-4"	2'-7"	------	------	------	------	------	------	11'-8"	13'-9"
33'	15'-6"	32'-10"	1'-4"	2'-7"	------	------	------	------	------	------	12'-8"	14'-9"
36'	17'-6"	35'-10"	1'-4"	2'-7"	------	------	------	------	------	------	14'-8"	16'-9"
42'	20'-6"	41'-9"	1'-4"	2'-7"	------	------	------	------	------	------	17'-8"	19'-9"
48'	23'-6"	47'-9"	1'-4"	2'-7"	------	------	------	------	------	------	20'-8"	22'-9"
54'	26'-6"	53'-8"	1'-4"	2'-7"	12'-1"	13'-4"	------	------	------	------	23'-8"	25'-9"
60'	29'-6"	59'-8"	1'-4"	2'-7"	11'-1"	12'-4"	------	------	------	------	26'-8"	28'-9"
66'	32'-6"	65'-8"	1'-4"	2'-7"	14'-1"	15'-4"	14'-4"	16'-5"	------	------	29'-8"	31'-9"
72'	35'-6"	71'-7"	1'-4"	2'-7"	17'-1"	18'-4"	17'-4"	19'-5"	------	------	32'-8"	34'-9"
75'	37'-6"	74'-7"	1'-4"	2'-7"	19'-1"	20'-4"	19'-4"	21'-5"	------	------	34'-8"	36'-9"
78'	38'-6"	77'-7"	1'-4"	2'-7"	20'-1"	21'-4"	20'-4"	22'-5"	------	------	35'-8"	37'-9"
90'	44'-6"	89'-6"	1'-4"	2'-7"	21'-1"	22'-4"	21'-4"	23'-5"	31'-4"	33'-5"	41'-8"	43'-9"
105'	51'-6"	104'-6"	1'-4"	2'-7"	18'-1"	19'-4"	18'-4"	20'-5"	33'-4"	35'-5"	48'-8"	50'-9"
Paddle Sweep with High Flow Head Section - Wheel Paths												
42'	20'-6"	41'-9"	1'-4"	3'-7"	------	------	------	------	------	------	17'-1"	20'-4"
48'	23'-6"	47'-9"	1'-4"	3'-7"	------	------	------	------	------	------	20'-1"	23'-4"
54'	26'-6"	53'-8"	1'-4"	3'-7"	11'-7"	13'-10"	------	------	------	------	23'-1"	26'-4"
60'	29'-6"	59'-8"	1'-4"	3'-7"	10'-7"	12'-10"	------	------	------	------	26'-1"	29'-4"
66'	32'-6"	65'-8"	1'-4"	3'-7"	13'-7"	15'-10"	13'-9"	16'-11"	------	------	29'-1"	32'-4"
72'	35'-6"	71'-7"	1'-4"	3'-7"	16'-7"	18'-10"	16'-9"	19'-11"	------	------	32'-1"	35'-4"
75'	37'-6"	74'-7"	1'-4"	3'-7"	18'-7"	20'-10"	18'-9"	21'-11"	------	------	34'-1"	37'-4"
78'	38'-6"	77'-7"	1'-4"	3'-7"	19'-7"	21'-10"	19'-9"	22'-11"	------	------	35'-1"	38'-4"
90'	44'-6"	89'-6"	1'-4"	3'-7"	20'-7"	22'-10"	20'-9"	23'-11"	30'-9"	33'-11"	41'-1"	44'-4"
105'	51'-6"	104'-6"	1'-4"	3'-7"	17'-7"	19'-10"	17'-9"	20'-11"	32'-9"	35'-11"	48'-1"	51'-4"
Revision C-BJS-12-5-16												

- 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”.
- For the sweep to properly operate and not acquire unnecessary damage the floor gradient may not change more the ½” 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.
- 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.

4.2 Installation

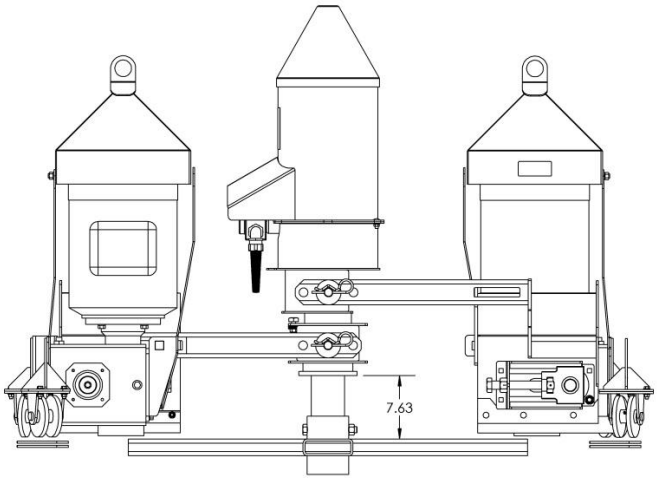
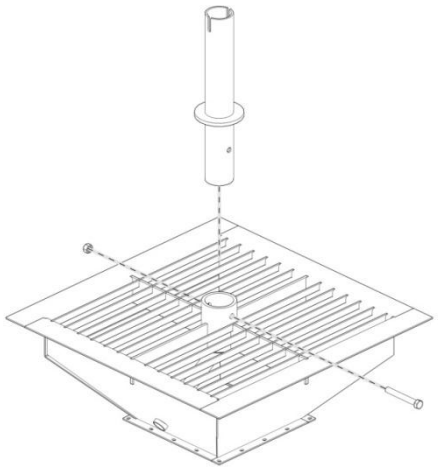
- It is recommended that the bin be empty and free of grain when the sweep is installed. If this can't be achieved then a large enough area must be cleared that the sweep can be installed on a clean floor and free from entrapment danger.
- It is recommended that at least three people be available to install a sweep as the parts can be large and difficult to handle.
- A tripod kit is available to assist in lifting components and moving them across the bin floor. The tripod can be collapsed to fit though any size door.
- Tools Needed
  - Cordless Driver
  - Ratchet
  - 1/2", 9/16", 5/8" & 3/4" shallow socket
  - 1/2" & 9/16" deep socket
  - (1) 5/8" wrench
  - (1) 11/16" wrench
  - (2) 1 1/8" wrench (for tightening paddle chain)
  - (2) Alignment punches
  - Battery powered/Explosion proof light
  - Pliers/Needle Nose
  - 10' of wire (for pulling paddle chain thru)
  - Standard Allen wrench set
  - Gloves
  - Hammer

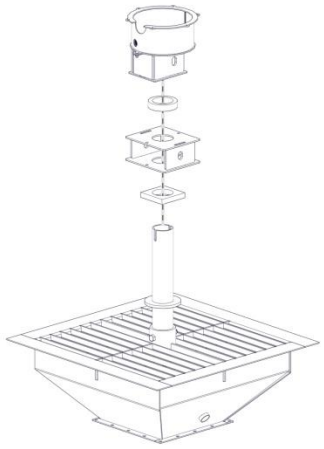
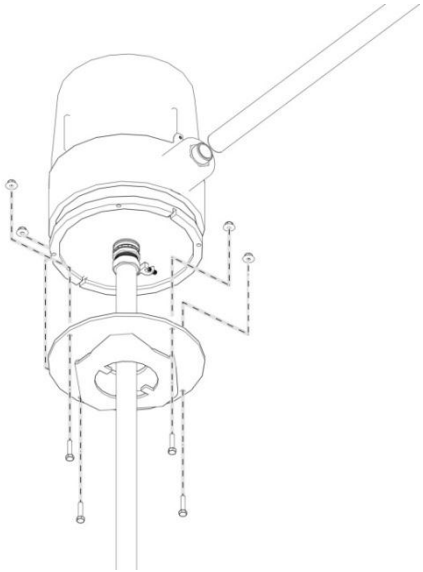
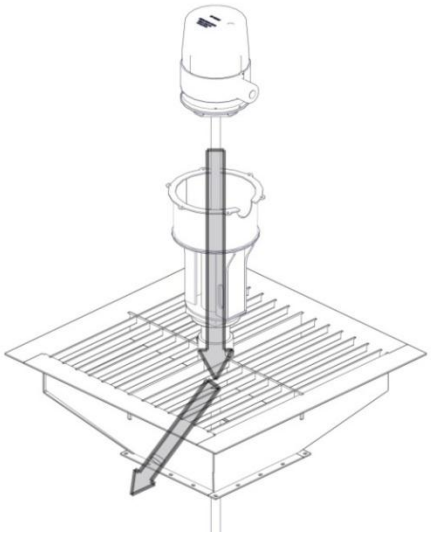
4.3 Bin Center Pivot Options

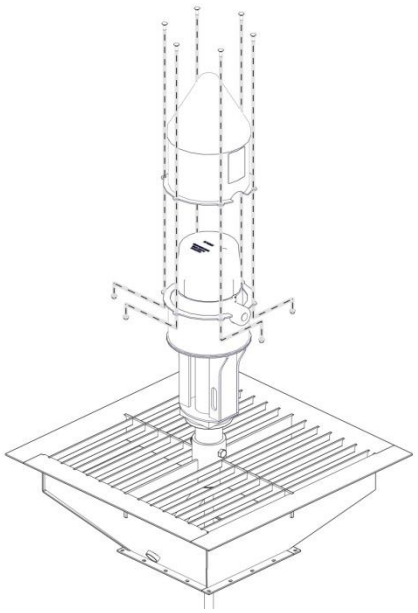
- Sioux Steel sump with collector ring
  - The Sioux Steel sump can be ordered in advance and installed into the concrete foundation of the grain bin. Two options are available at 34"x34" and 42"x42". These sumps offer a direct coupling to the collector ring and offer a protected route for the wiring to exit the sump.
- Sioux Steel Sump without a collector ring
  - If a Sioux Steel sump is used and a collector ring is not, then this package provides two adaptors to fit into the Sioux Steel sump and provides a place to pin the head of the bin sweep.
- 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. The collector ring then fits directly into the pivot collar.
- Base pivot kit without collector ring
  - If the base pivot kit is used and a collector ring is not then this package provides two adaptors to fit into the base pivot kit and provides a place to pin the head of the sweep.
- Universal Pivot Kit
  - If a pivot point is existing inside the bin and a collector ring is not used, then this kit offers a variety of options to create a place to pin the center of the sweep to. This kit may also require modification of the existing sump.

4.4 Collector Ring for Daay Paddle Sweep

Overview – If your sweep model is equipped with a collector ring, it will be delivered preassembled. If disassembly is not required to ease installation the pivot post may simply slide into the pivot collar and secured with the ¾" bolt. If disassembly is required; the following steps outline how to re-assemble the collector ring.

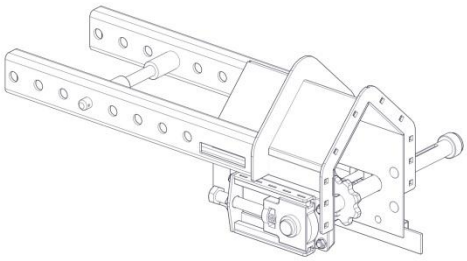
	A bin center pivot option will first need to be selected and installed. No matter what option is chosen it is critical that the top of the stop plate for the collector ring be installed 7 5/8" from the top of the floor surface that the sweep will be moving across. This may require raising or lowering the sump or base kit to obtain the correct height.
	Install the pivot post by sliding it into the bin center pivot and securing it with the supplied ¾" bolt and nut.

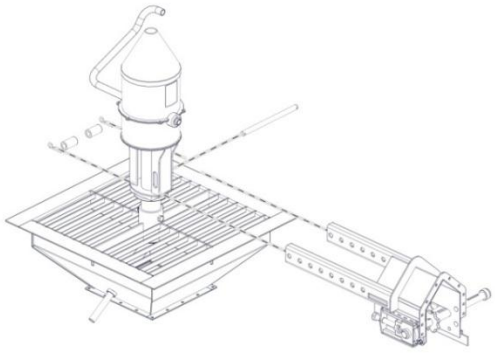
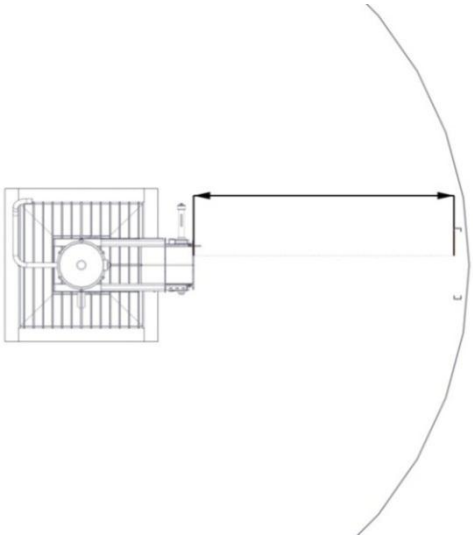
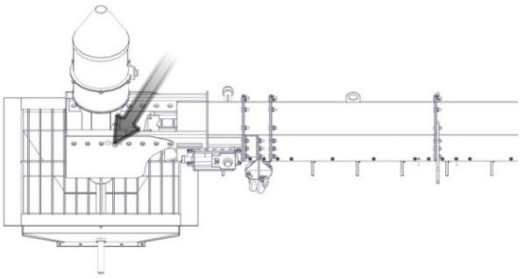
	Install the four piece pivot bushing by first sliding on the UHMW block that will rest on the stop plate. The first bushing assembly then slides onto the pivot post and reset on the UHMW block. Next, the second UHMW block slides onto the pivot post and then rests on the first bushing assembly. Finally, the second bushing assembly slides onto the pivot post and rests on the UHMW block.
	Before installing the slip ring to the collector ring assembly; bolt on the alignment plate as shown.
	Slide the slip ring, with attached alignment plate, into the lower slip ring casing. Feed the slip ring bottom exiting conduit & wiring through the pivot post and out the sump tube. If not using a Sioux Steel sump the conduit must be protected by a metal tube. (not supplied) The alignment plate tabs will engage with the pivot post.

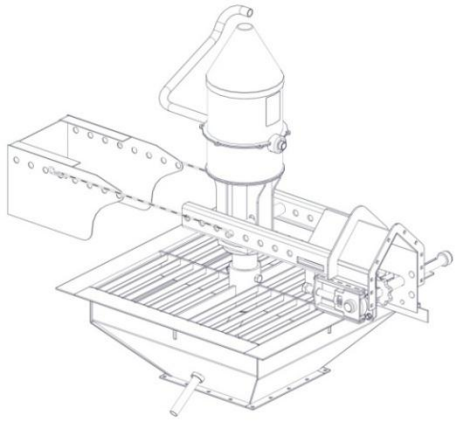
	Fasten the upper slip ring casing to the lower slip ring casing as shown.

4.5 Head Section Assembly – Daay Paddle Sweep

Overview – The head section assembly will deliver preassembled. The installation of the head section will determine the final location of the sweep so planning the pin location is critical to avoid having to move the entire sweep.

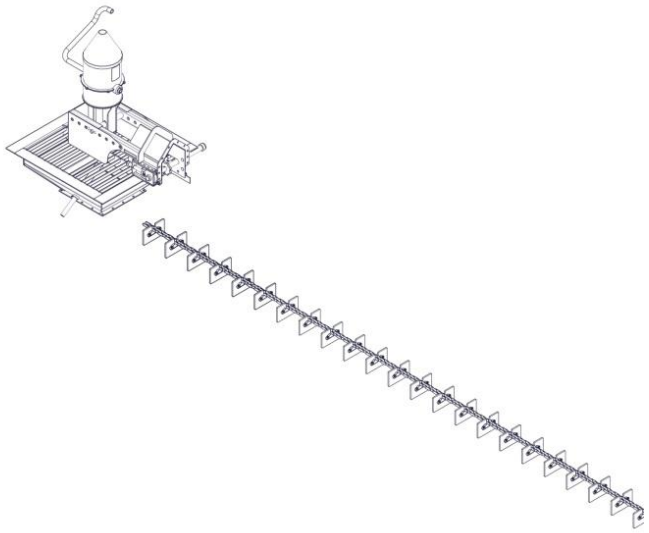
Head Section 

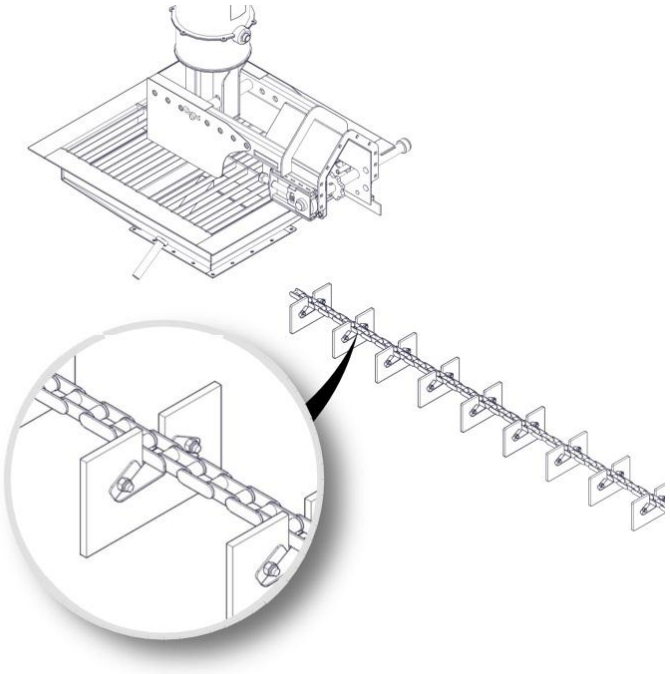
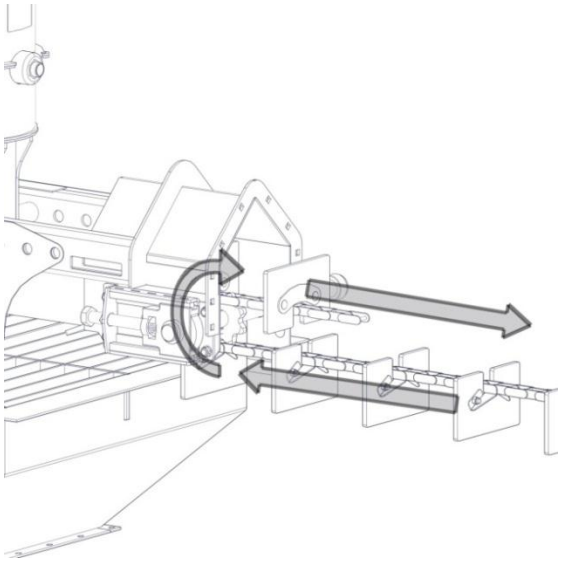
	Pin the head section to the pivot at the outermost hole location. One pin will go through both tubes, or plates on the head section as well as two spacers and the pivot bushing. The pin is then secured with two cotter pins. The high flow and standard head sections are slightly different, however, they attach in a similar manner.
	Rotate the head section so that it is facing the innermost obstruction inside the bin. Measure from the flange of the head section to this obstruction.
	Using that dimension determine which 6” or 12” sections are needed so that the sweep is short of the obstruction. Final adjustments can then be made using the pin holes on the head section to avoid contact with the innermost bin obstruction.

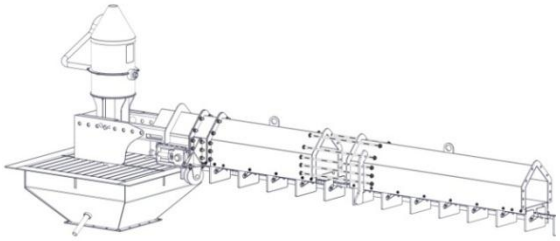
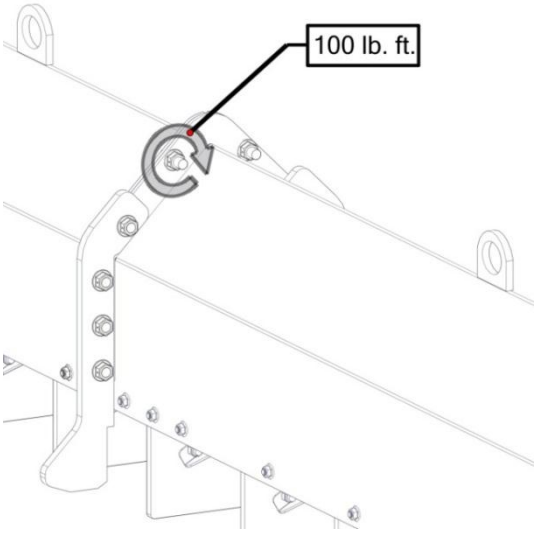
	Once the final pin location is set the head section skirt can be installed. Standard head sections utilize wing nuts to attach the skirt to the head section. High flow head sections will require that the cotter pins be removed from the attachment pin and the skirt frame fit over the pin.

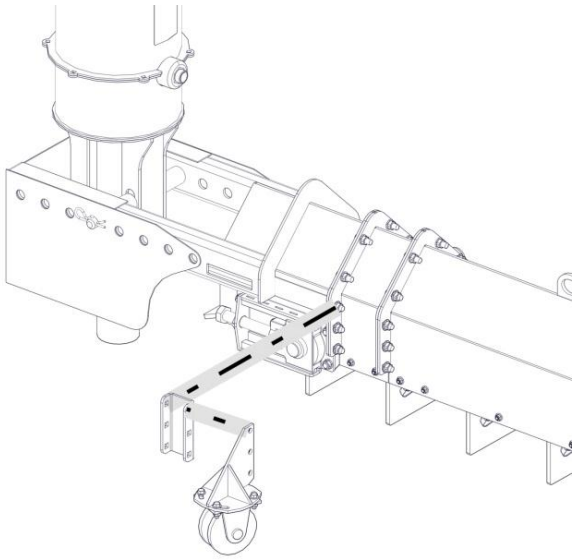
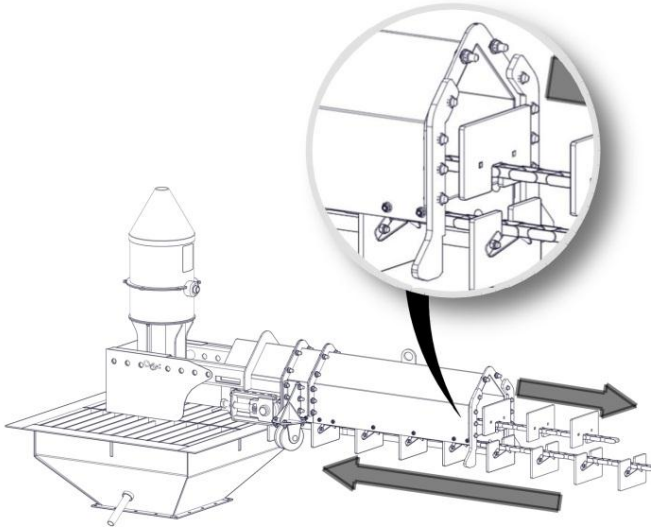
4.6 Intermediate Sections and Paddle Chain Installation

Overview – Locate the parts diagram for your sweep model in the back of this manual to determine the order of intermediate section and their locations. Setting the sections on the ground in the order of installation can aid in the assembly process. Note: do not install the zero entry pads until noted to do so in this manual.

	Lay the paddle chain on the floor from the head section out to the bin wall.

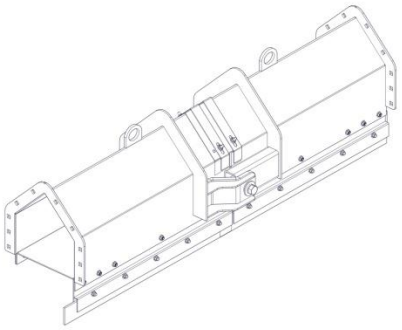
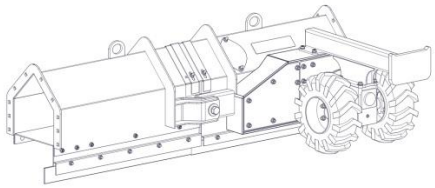
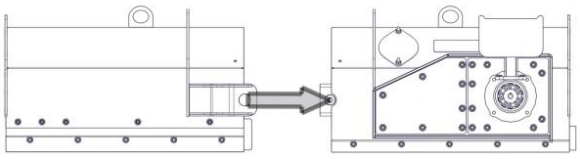
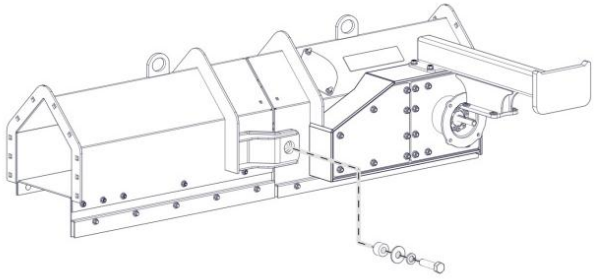
	The chain should be orientated such that the chain tabs are on the bin wall side of the rubber paddles.
	Feed the chain through the bottom of the head section. Then over the sprocket and out the top.

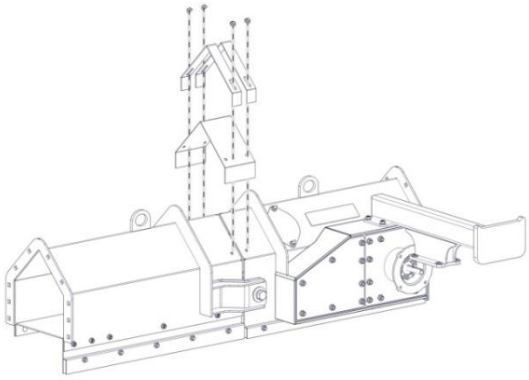
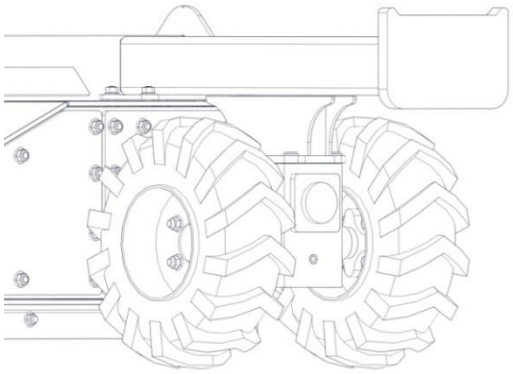
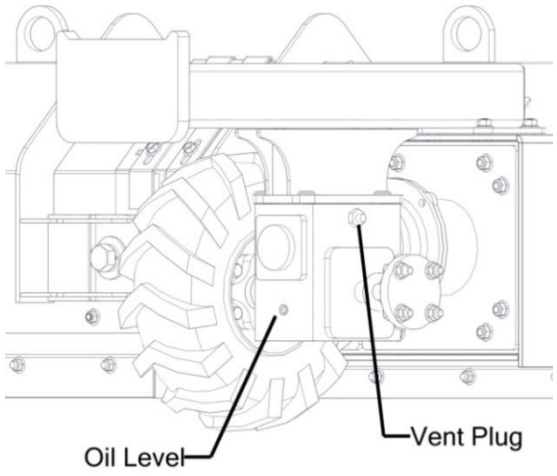
	Begin installing the intermediate sections as shown in the parts list and diagrams section of the manual according to your sweep model.
	All sweep section bolts (1/2” Grade 8) should be torqued to 100 lb. ft. without the use of an impact wrench.

	After the first section is installed the front caster can be installed. The caster and bracket are shipped loose. The caster rotation can be set to the approximate path it will be traveling using the multiple bolt holes and slots available.
	Continue pulling the chain through the top portion of each section as you assemble them. Installing the jacks or zero entry stands as each section is installed will assist with supporting the sweep. Tip: Be sure that the paddles do not get pinched between the flanges when bolting them together.

4.7 Pivot Section Installation

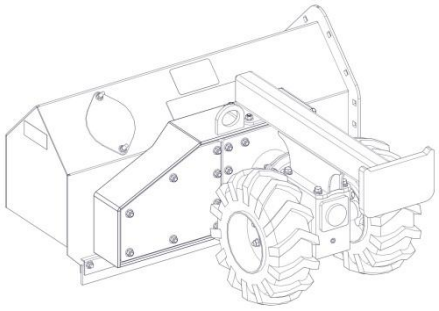
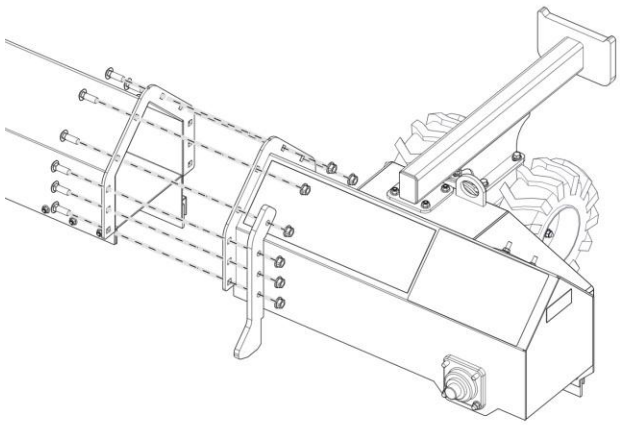
Overview – Pivot sections can be equipped with or without a drive unit. The pivot sections will ship preassembled; however, they can be difficult to move into an existing bin. If the pivot section is does not need to be disassembled please skip to the next installation step.

Pivot Section 	Pivot Section w/Tractor Drive 
	To connect the pivot sections you will overlap the two sections and align the pivot bushings.
	Install the ¾" bolts, washers and bushings connecting the two sections.

	Overlay the rubber cover between the sections and secure with the clamping plates.
	If the pivot contains a drive section 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.
	When installing a pivot section with a drive unit be sure to check the vent plug location and oil level.

4.8 End Drive Section Installation

Overview - The end drive will deliver preassembled. Disassembly may be required to move into an existing bin.

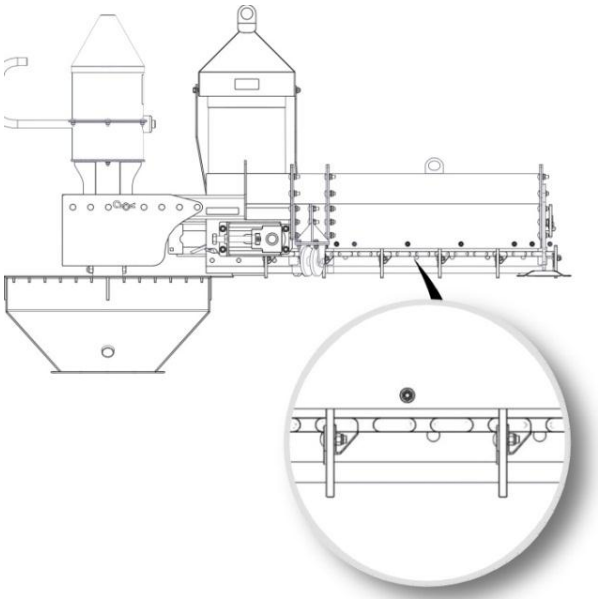
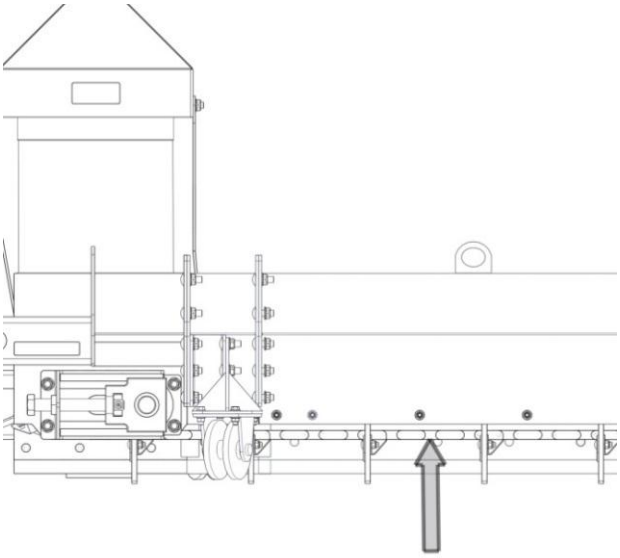
<table>
<tr><td colspan="2">Drive End
  </td></tr>
<tr><td>  </td><td>Once the end drive section is reached it can be bolted on.

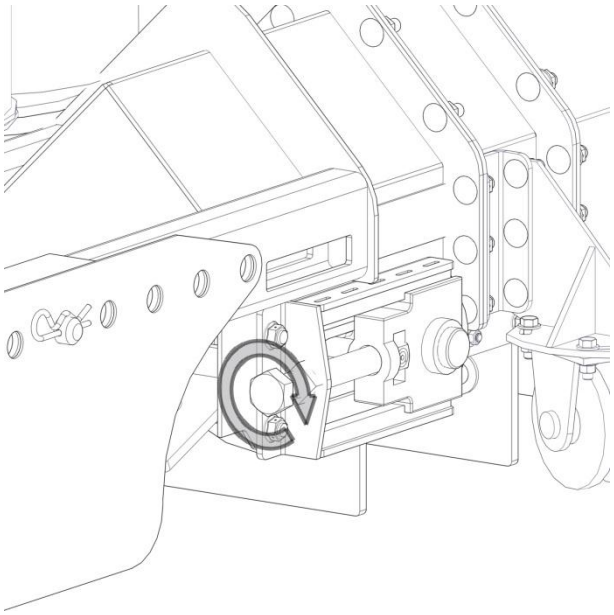
Continue to feed the paddle chain through the top of the section and around the sprocket.

Connect the paddle chain using the supplied connecting link.</td></tr>
</table>

4.9 Paddle chain tensioning

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

	Access the chain via the front opening area where material enters.
	At a link between two paddles, apply moderate upward pressure. The chain should deflect approximately ¾", 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 at the head of the bin sweep.

Loosen the locking nuts on the adjuster bolt.

Turn the adjuster bolt clockwise to increase chain tension or counterclockwise to reduce chain tension.

Ensure that both adjusters are equally adjusted to maintain proper sprocket and chain engagement.

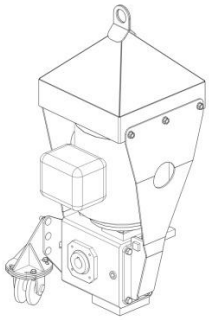
Once the sweep is assembled and ready for operation, run the sweep for 5 minutes.

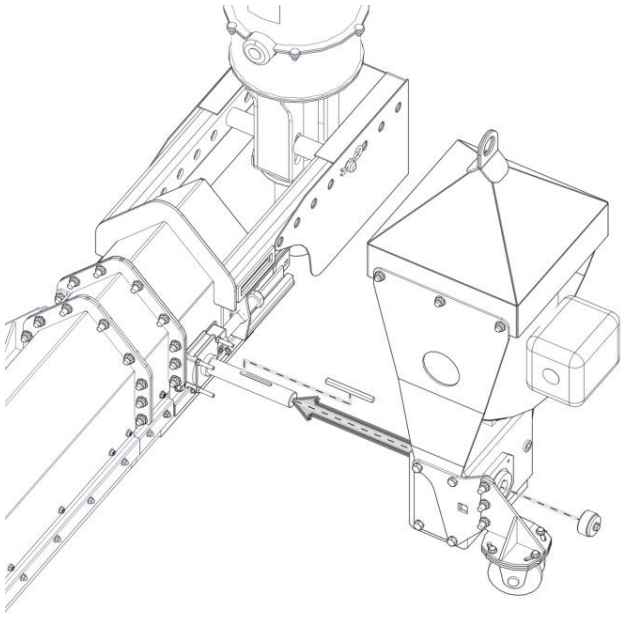
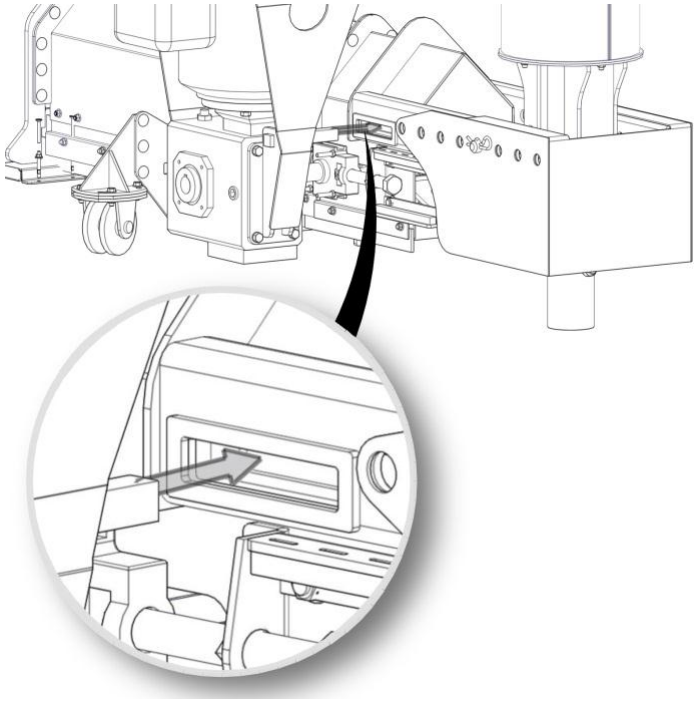
Check the chain tension again and adjust as needed to achieve ¾" of deflection.

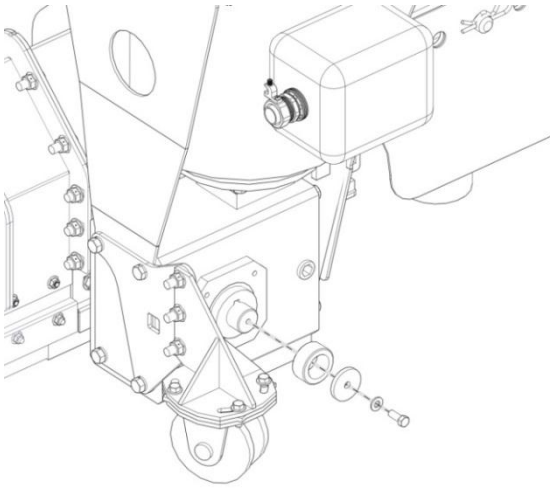
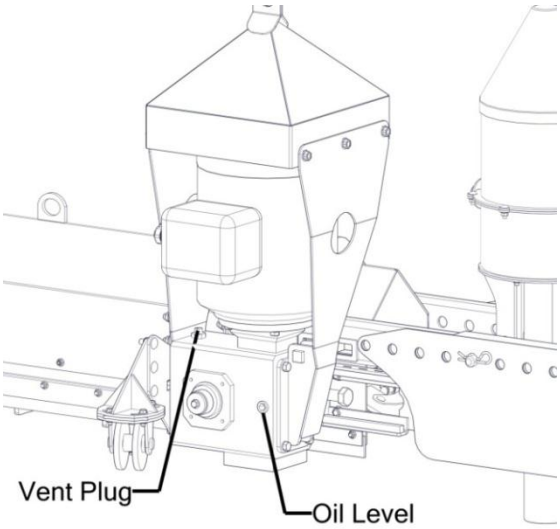
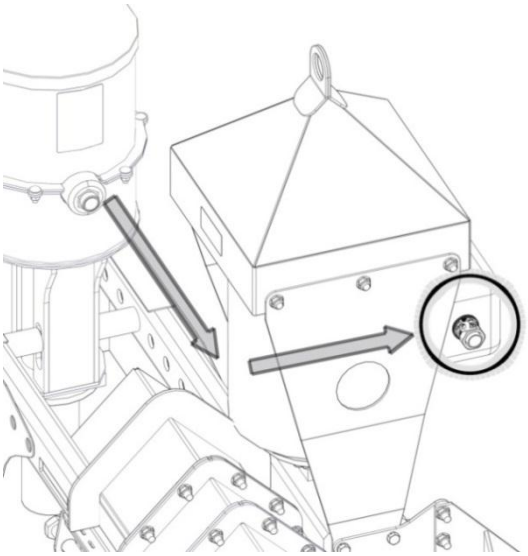
4.10 Motor and Gearbox Installation

Overview – The motor and gearbox will deliver preassembled. Disassembly may be required to move into an existing bin.

Motor/Gearbox Assembly

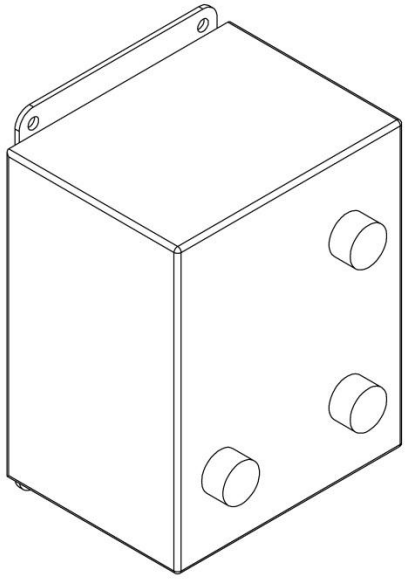
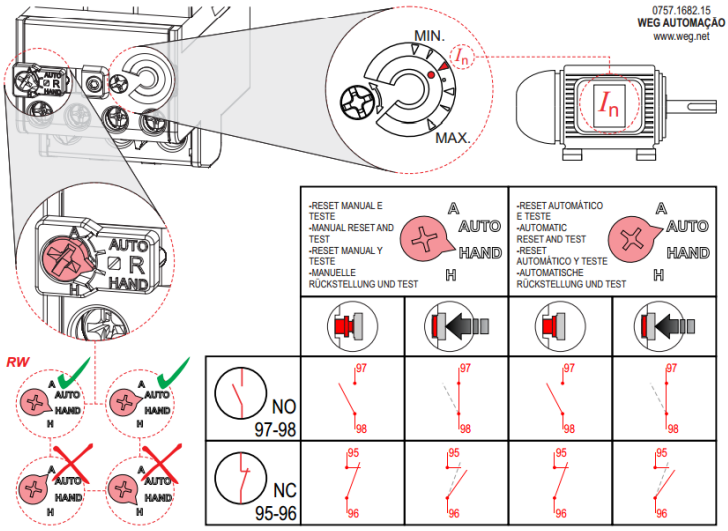


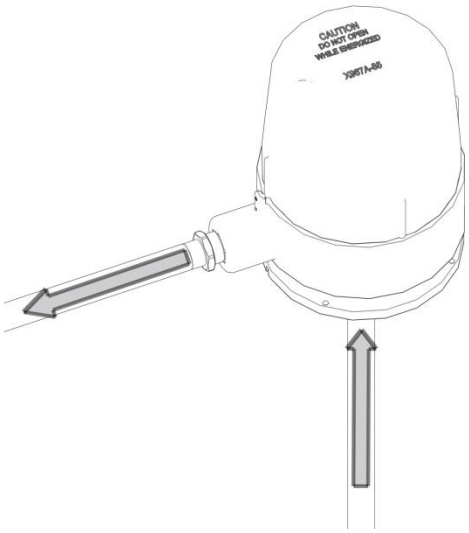
	Utilizing the supplied key, slide the gearbox onto the head section shaft.
	Ensure that the torque arm engages into the torque arm slot to keep the assembly pinned in position.

	Secure the motor and gearbox assembly using the bump stop and bolt threaded into the end of the head shaft. Note: The bump stop is not utilized on every sweep model. Then tighten the set screws on each side of the gearbox.
	Ensure the gearbox vent plug is in the proper location and that the gearbox has the correct amount of oil.
	Route the conduit and wiring from the collector ring across the top of the sweep housing or along the motor cover toward the J-box on the motor. Using the supplied fittings secure the conduit into the j-box on the motor. Secure the conduit using the supplied clamps and self-tapping screws. Final electrical termination will be covered in the electrical section of this manual.

4.11 Electrical Installation

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

	Motor starter panels are available to be purchased with the bin sweep. These panels offer Start, Stop, and Reset functionality. The panel includes overload adjustment to protect the motor and other components of the sweep.
	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.

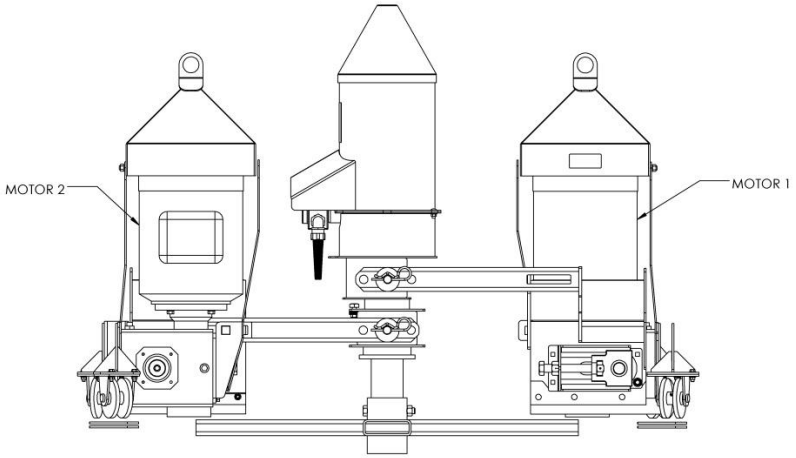
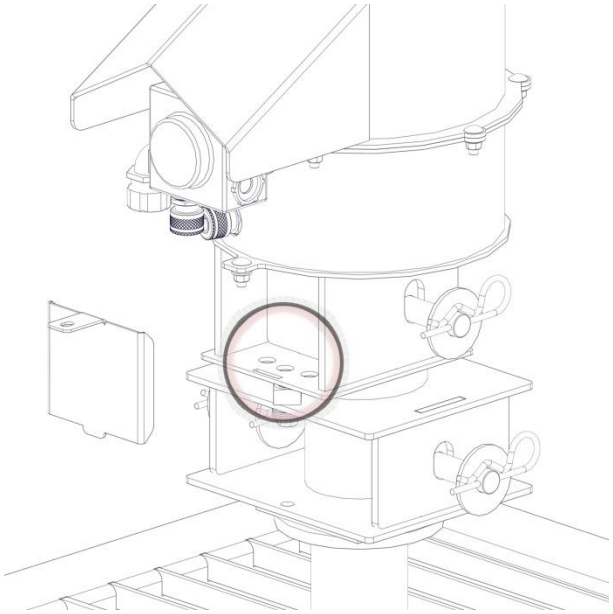
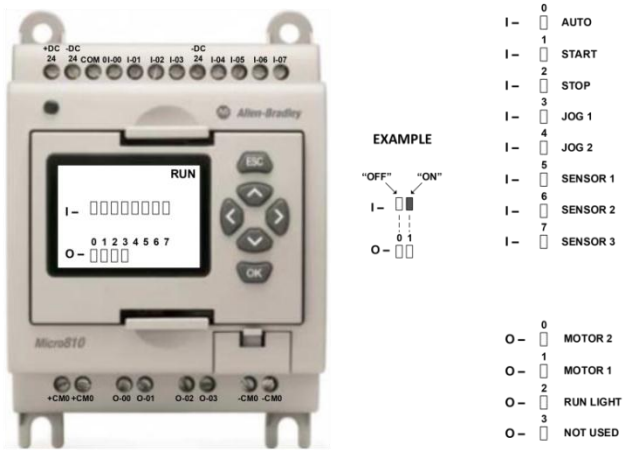


The wiring to the motor will pass through the collector ring to allow rotation without twisting of the wiring.

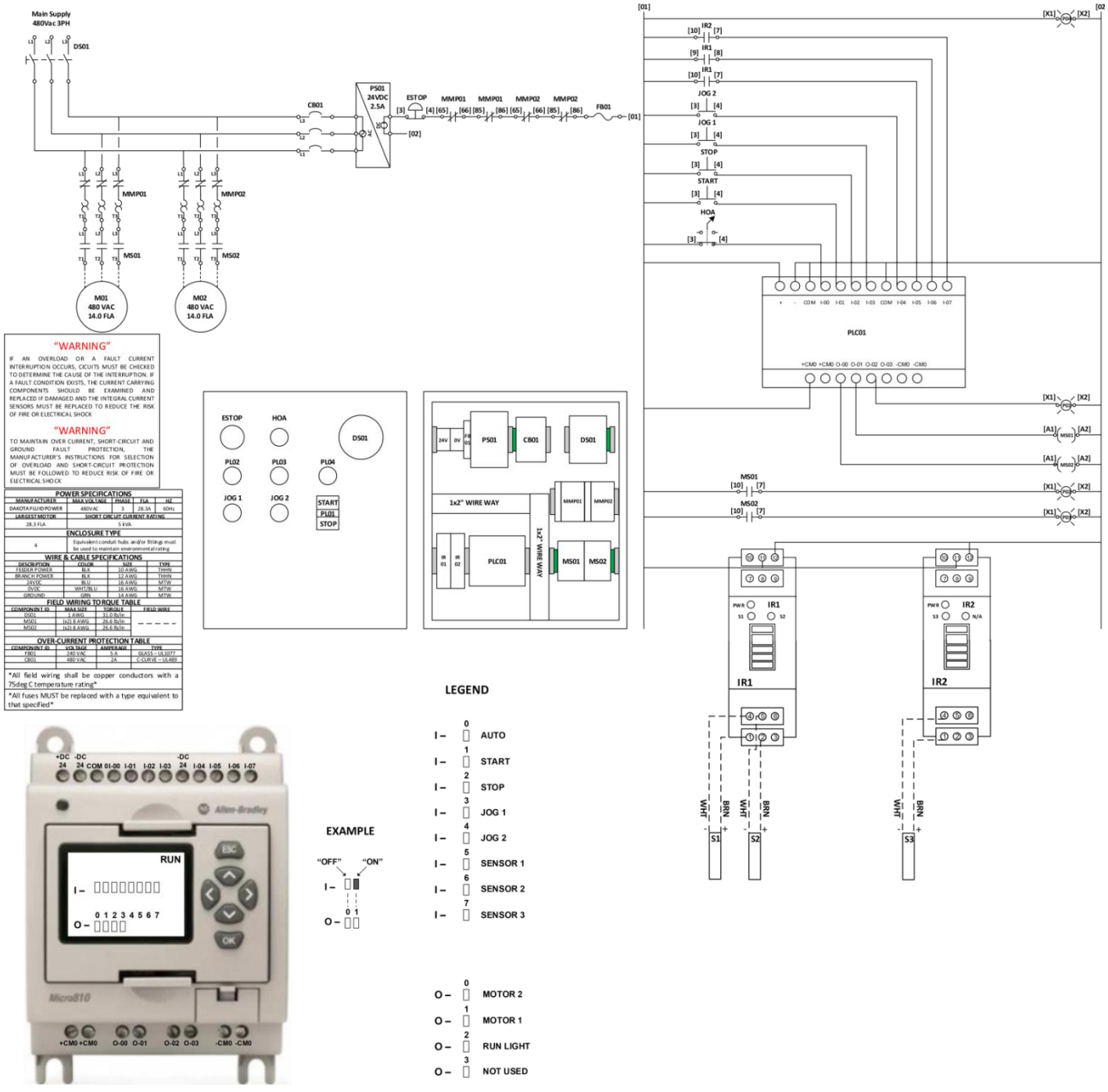
The collector ring is provided as a pre-wired unit with leads out of both sides labeled 1 through 18.

Sensor 1, Brown wire	→	Wire 1
Sensor 1, White Wire	→	Wire 2
Sensor 2, Brown wire	→	Wire 3
Sensor 2, White Wire	→	Wire 4
Sensor 3, Brown wire	→	Wire 5
Sensor 3, White Wire	→	Wire 6
Motor 1, Leg 1	→	Wire 9
Motor 1, Leg 2	→	Wire 10
Motor 1, Leg 3	→	Wire 11
Motor 1 Ground	→	Wire 12
Motor 2, Leg 1	→	Wire 14
Motor 2, Leg 2	→	Wire 15
Motor 2, Leg 3	→	Wire 16
Motor 2 Ground	→	Wire 17

This chart displays which wires of the collector ring are to be used for the appropriate sensors and motors.

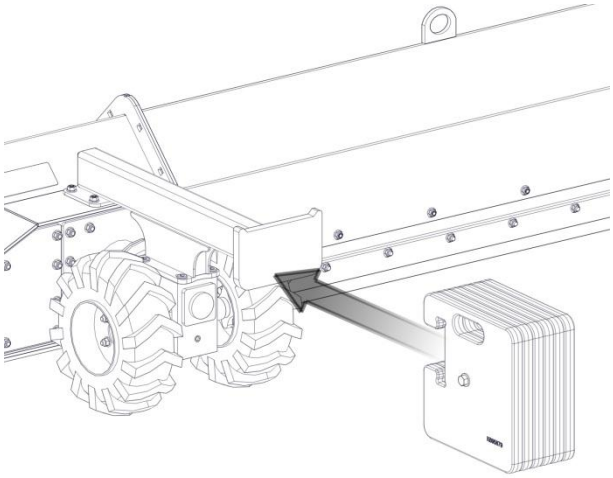
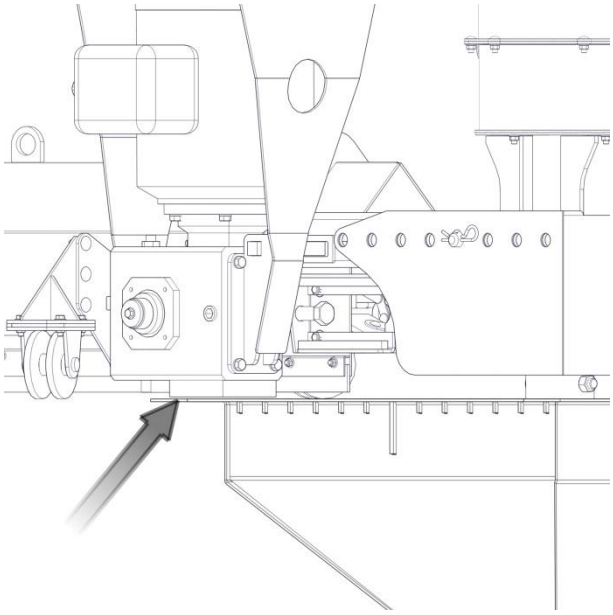
	Motor 1 of the sweep will always be the motor connected to the upper pivot arm and Motor 2 will always be the motor connected to the lower pivot arm. This is important so that the correct sweep arms start and stop when necessary.
	The sensors are located below the collector ring under a cover. The sensors will always be positioned such that sensor 1 is on the left and sensor 3 is on the right with sensor 2 in the middle.
	If the sweep will not start in auto mode it is likely that none of the sensors are indicating and therefore the sweep will not start. Open the panel and on the top row of the PLC one of the Input lights (5,6,7) need to be lit. If they are not, move the sweep into manual mode and operate the sweep arms to bring them into alignment. Once any of the sensor lights is indicated the sweep can be started in auto mode.

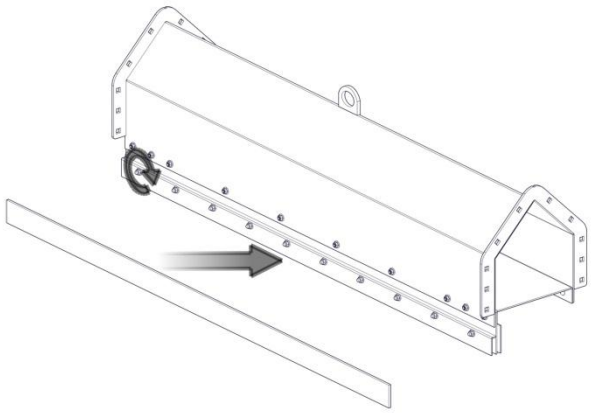
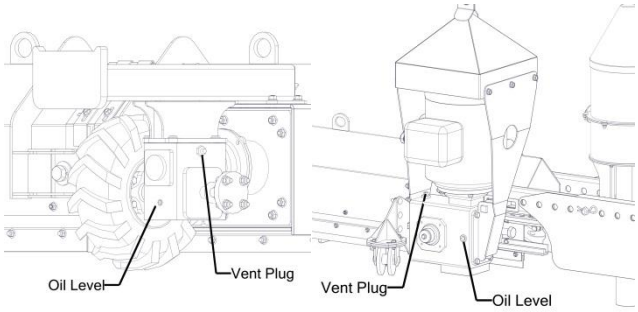
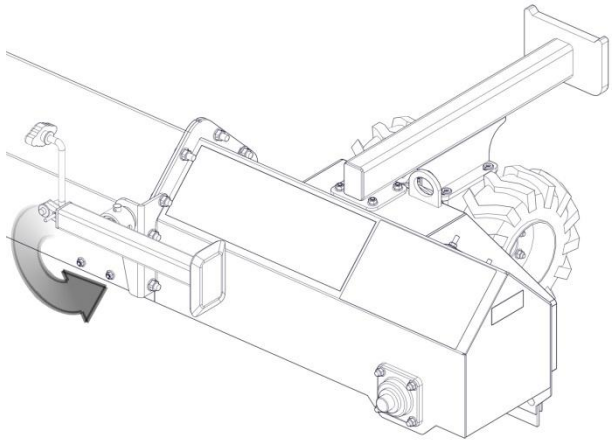
Complete Wiring Diagram



4.12 Final Check

Overview – 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 the weight kits to each tractor drive. These weights are in place to balance the sweep.
	On 15 HP models the gearbox clearance to the floor must be checked. If the gearbox is in contact with the floor or sump frame it will need to be elevated. To do so add shims to the casters as needed to raise the gearbox from the floor.

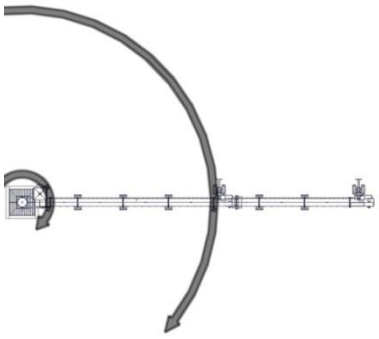
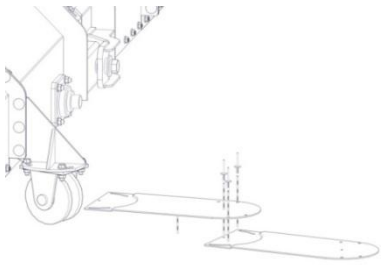
	Install the drag rubber on the back side of the sweep such that it lightly contacts the ground.
	Ensure that gearbox oil level and vent plug locations have been checked. Ensure that all electrical connections are secure and that boxes and panels are sealed.
	If equipped with jacks ensure that they are off of the ground and rotated out of the way.

4.13 Initial Operation

- Overview – During initial operation in an empty bin, personal will have to be inside of the bin. It is critical that persons stay on the back side of the sweep and do not sit on, walk, stand or touch the sweep as it is operating.
- READ FIRST - If track paths are being utilized please refer to the track path 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 that 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.

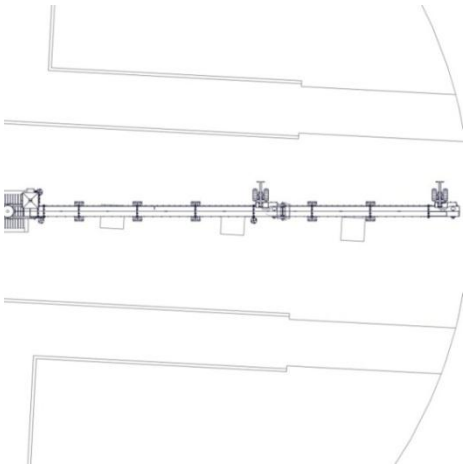
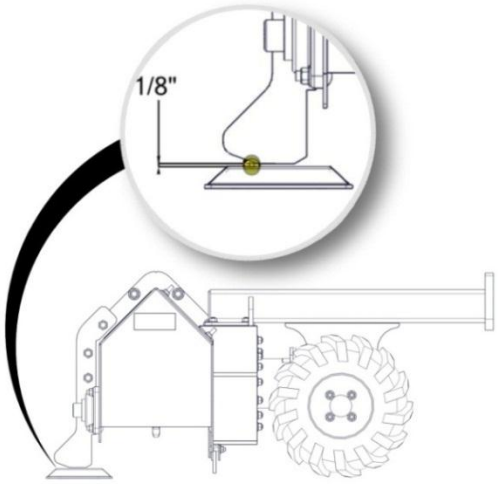
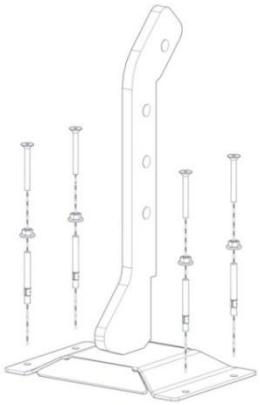
4.14 Track Pathway Installation

Overview –If your floor is a full aeration floor or has aeration tunnels, track pathways are available to protect them 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 location of the track pathways it is recommended that the sweep is operated to find the path. While the sweep is operating around an empty bin, follow the caster and mark the floor with paint or a marker.
	After the path is marked you can install the pathways in an overlapping fashion. Anchor the pathways down with the supplied rivets. The final pathway may have to be cut to fit properly.

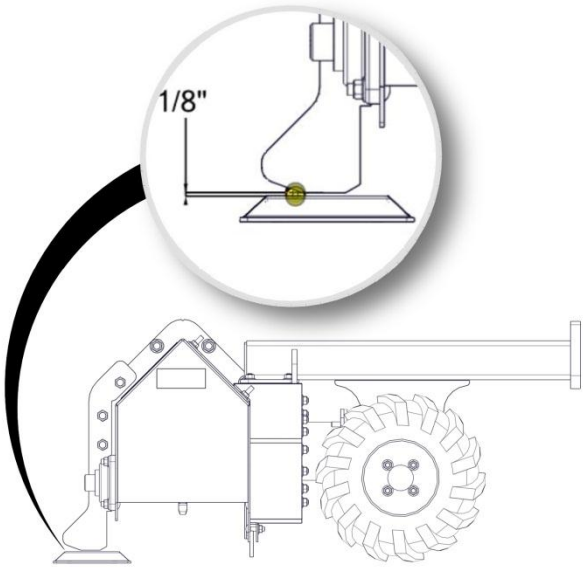
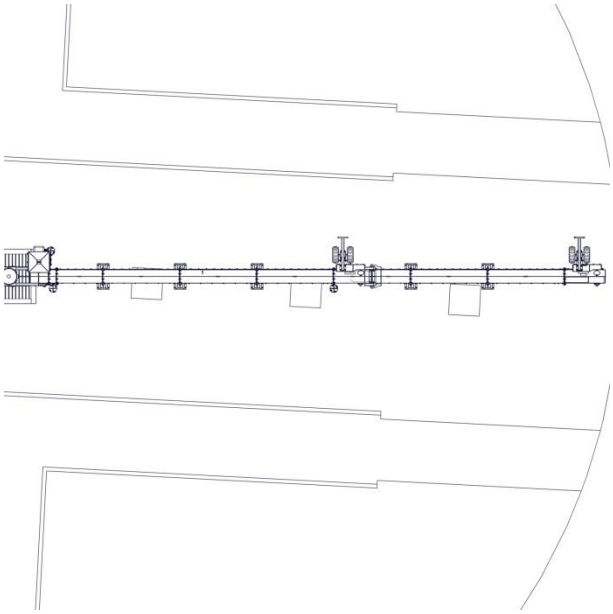
4.15 Zero Entry Pad Installation

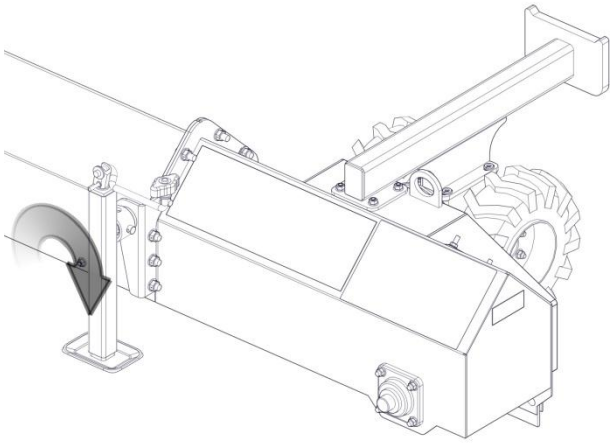
Overview - Zero Entry pad installation should not occur until after the sweep has made at least one pass around the bin as the locations can change slightly. It is critical that the stands repeatedly land on the pads as not doing so can cause major damage to the sweep when buried.

	After the first pass to check operation is completed the sweep can be stopped in the burial location. The burial location should be such that the sump locations are just in front of the sweep and that 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.
	Using the shims that are provided, elevate the pad so that each one has a 1/8” gap to the stand. If there is not enough room 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.
	While keeping track of each pad and shim location, move the shims to the rear of the sweep. Advance the sweep forward to gain access to all of the pad locations that have been marked. Secure each pad and shim stack to the floor using the provided hardware.

4.16 Setting the sweep for burial

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

	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. Failing to do so may result in major damage to the sweep.
	If using jacks, advance the sweep until it is located such that the sump locations are just in front of the sweep and that none of the jacks are above a sump hole location.

	Rotate the jacks down. Adjust the jacks downward so that the pad is making light contact with the floor. The jack pad should be touching the floor but should not be bearing so much weight that the pad does not have free play when pushed on.
	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 that it can be reached after the bin has been emptied.

5 Operation

- **Before Startup**
  - The paddle sweeps are 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.

- **First Pass**
  - 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.
  - If the sweep is equipped with jacks the sweep will need to be ran long enough to remove the sweep from the grain pile before entry is made to move the jacks to the operating position.
  - 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 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 user 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**
  - Because the sweep must remain asset distance from the wall of the bin, a small amount of grain will remain on the outer wall. If desired, this grain can be moved away from the wall before the second pass begins.
  - 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 lock out and bin entry procedures when entering the bin.
  - Again, moving this 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.

- **Additional Sweeping**
  - Depending on the level of grain removal desired, additional passes can be run.

- **Burial**
  - Refer to the earlier section for the procedure of setting the sweep for burial.

6 Preventive Maintenance

- Grease fittings after each use.
  - Head section
    - Take-up bearings
    - Driving pivot section
  - Front bearing holder (paddle chain shaft)
  - Rear bearing holder (paddle chain shaft)
  - Rear bearing holder (shaft to gearbox)
    - End drive
  - Front bearing holder (paddle chain shaft)
  - Rear bearing holder (paddle chain shaft)
  - Rear bearing holder (shaft to gearbox)
    - Caster wheels
    - Front and Rear
- Periodically check all bolts for looseness and re-torque if necessary.
  - Section fasteners
  - Split sprockets and set screws
  - Wheel hubs
  - Nuts on ratchet drives (spring compression = 2.0”)
  - SAE Recommended Torque Settings

	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

- Paddle conveyor chain
- Tractor drive chain
- Check all external electric wiring or conduit for damage. A licensed electrician is recommended for repairs
- Check drag rubber for damage or adjustment.
- Clean any excess debris off of electric motor.
- Gearbox Oil Level

  If low use specified oil listed below or equivalent for proper gearbox. Synthetic lubricant should be change every 6,000 hours of operation or every two years, whichever comes first. Refer to the installation section for level and vent plug location.

Make	Gearbox #	Oil Capacity (oz)	Recommended gear lube
Grove	GR826	48.0	Mobile Glygoyle 460 (Part # 688413)
Grove	GR830	72.0	
Grove	GR832	92.0	
Grove	GR842	128.0	
Hub City	214	24.0	
Worldwide	WWE206	19.4	Mobile SHC 634
Worldwide	WWE237	24.1	
Worldwide	WWE262	41.1	

- **CAUTION:** Too much oil will cause overheating and too little will result in gear failure. More frequent oil changes are recommended when operating continuously, at high temperatures or under conditions of extreme dirt or dust. Check that vent plug is clear.

- 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
Grease Fittings		X	X
Adjust Drag Rubber			X
Clean off excess debris			X
Change oil in gearboxes			X

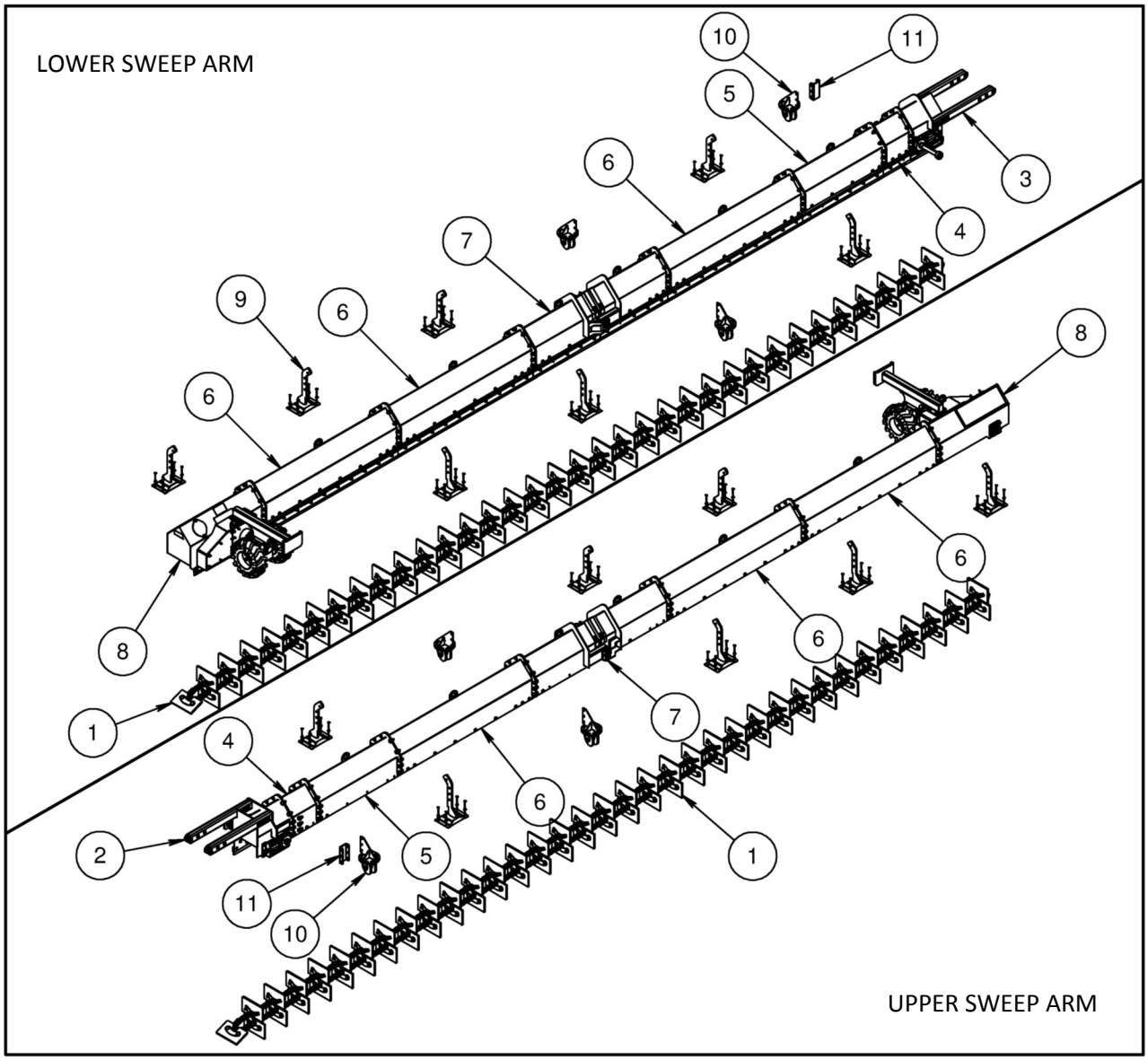
7 Troubleshooting

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 in 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 tighten 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 keyway, 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 leave 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. Jack failed	Jack is to be set, so that it just touches the floor. Do not jack sweep up into air, as the caster and tractor drive wheels need to be touching the floor.
17. 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.
18. Front caster wheel falls into sump opening.	Move caster wheel to a different flange mount either inward or outward.
19. Gearbox is low on oil	See maintenance section for proper level and oil.
20. Conveyor/paddle chain do not clog correctly over sprocket on driving pivot sections	Loosen paddle chain tension.

8
Parts Lists and Diagrams

SWEEP FOR 60’ BIN

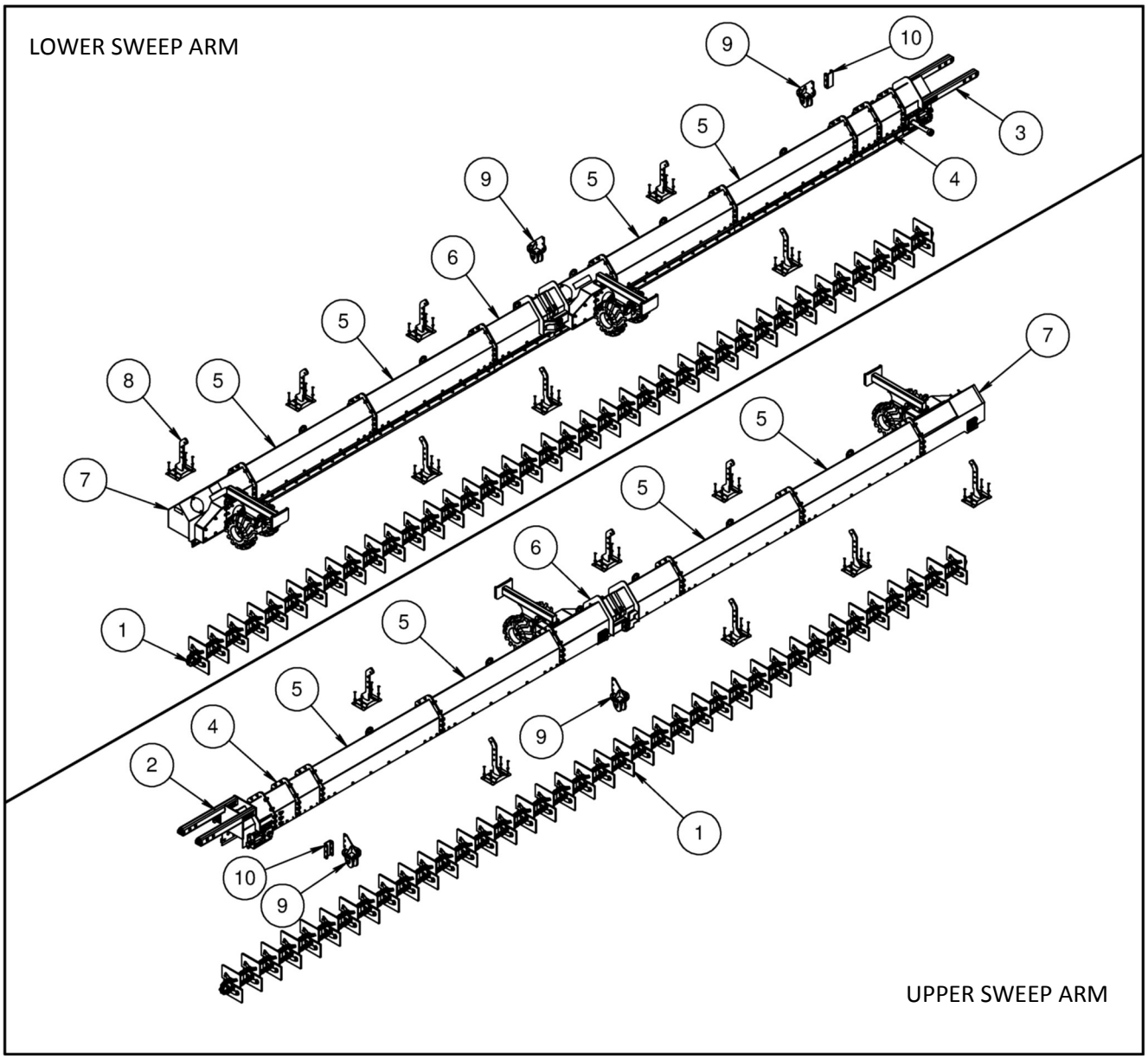
ITEM	PART #	DESCRIPTION	QTY.
1	686156	PADDLE CHAIN	2
2	701416	HEAD SECTION-UPPER	1
3	701417	HEAD SECTION-LOWER	1
4	701402	INTERMEDIATE SECTION-1’	2
5	701403	INTERMEDIATE SECTION-3’	2
6	701404	INTERMEDIATE SECTION-5’	6
7	701422	PIVOT SECTION	2
8	701405	DRIVE END	2
9	701412	ZERO ENTRY SUPPORT KIT	14
10	702692	CASTER	6
11	701494	CASTER SPACER BRACKET	2
NA	701425	HARDWARE BAG-INTERMEDIATE SECTION	12
NA	701426	HARDWARE BAG-HEAD SECTION	2



PARTS DIAGRAM & LIST

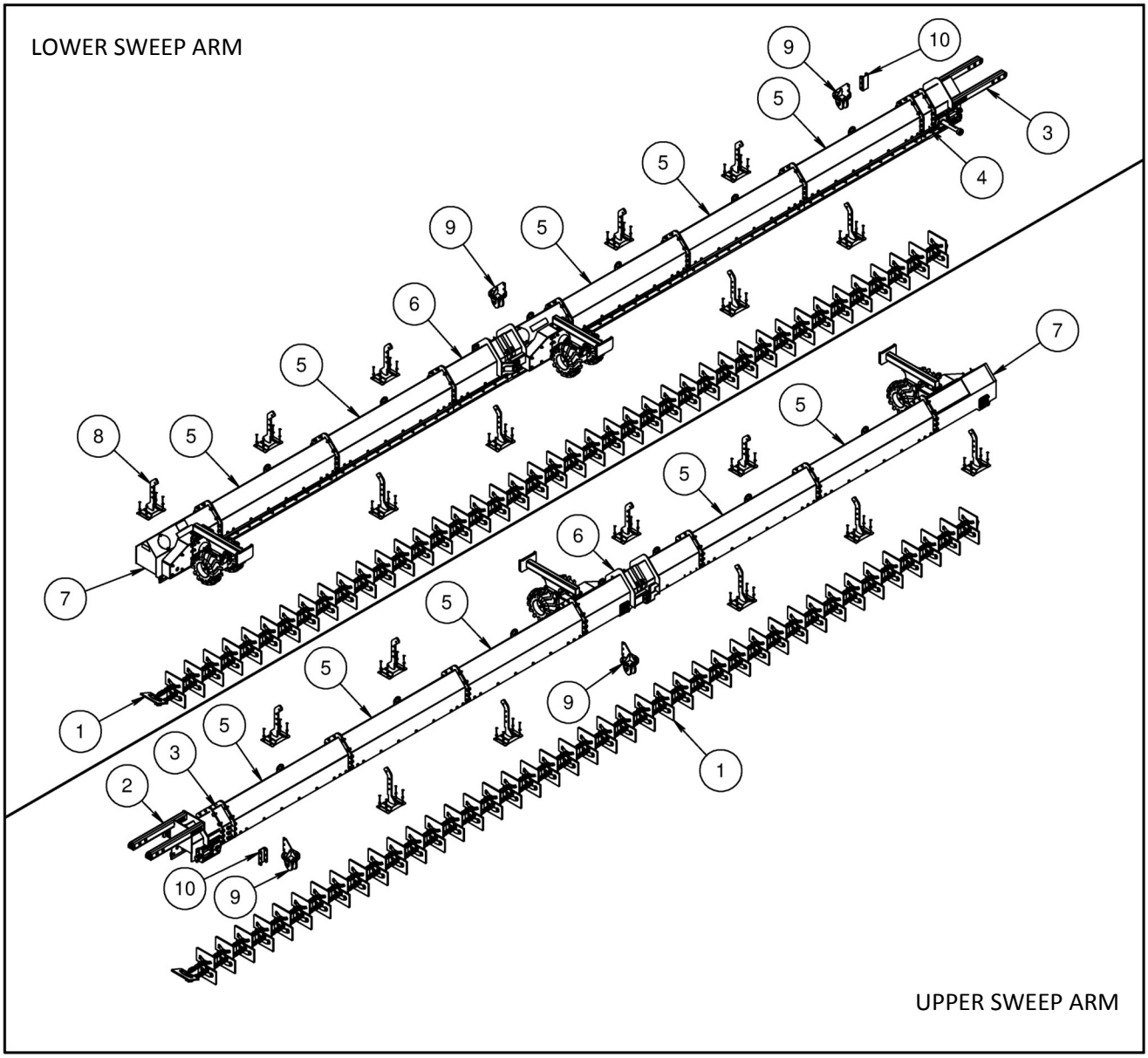
SWEEP FOR 66’ BIN

ITEM	PART #	DESCRIPTION	QTY.
1	685902	PADDLE CHAIN	2
2	701416	HEAD SECTION-UPPER	1
3	701417	HEAD SECTION-LOWER	1
4	701402	INTERMEDIATE SECTION-1’	4
5	701404	INTERMEDIATE SECTION-5’	8
6	701420	PIVOT SECTION W/TRACTOR DRIVE	2
7	701464	DRIVE END	2
8	701412	ZERO ENTRY SUPPORT KIT	14
9	702692	CASTER	4
10	701494	CASTER SPACER BRACKET	2
NA	701425	HARDWARE BAG-INTERMEDIATE SECTION	14
NA	701426	HARDWARE BAG-HEAD SECTION	2



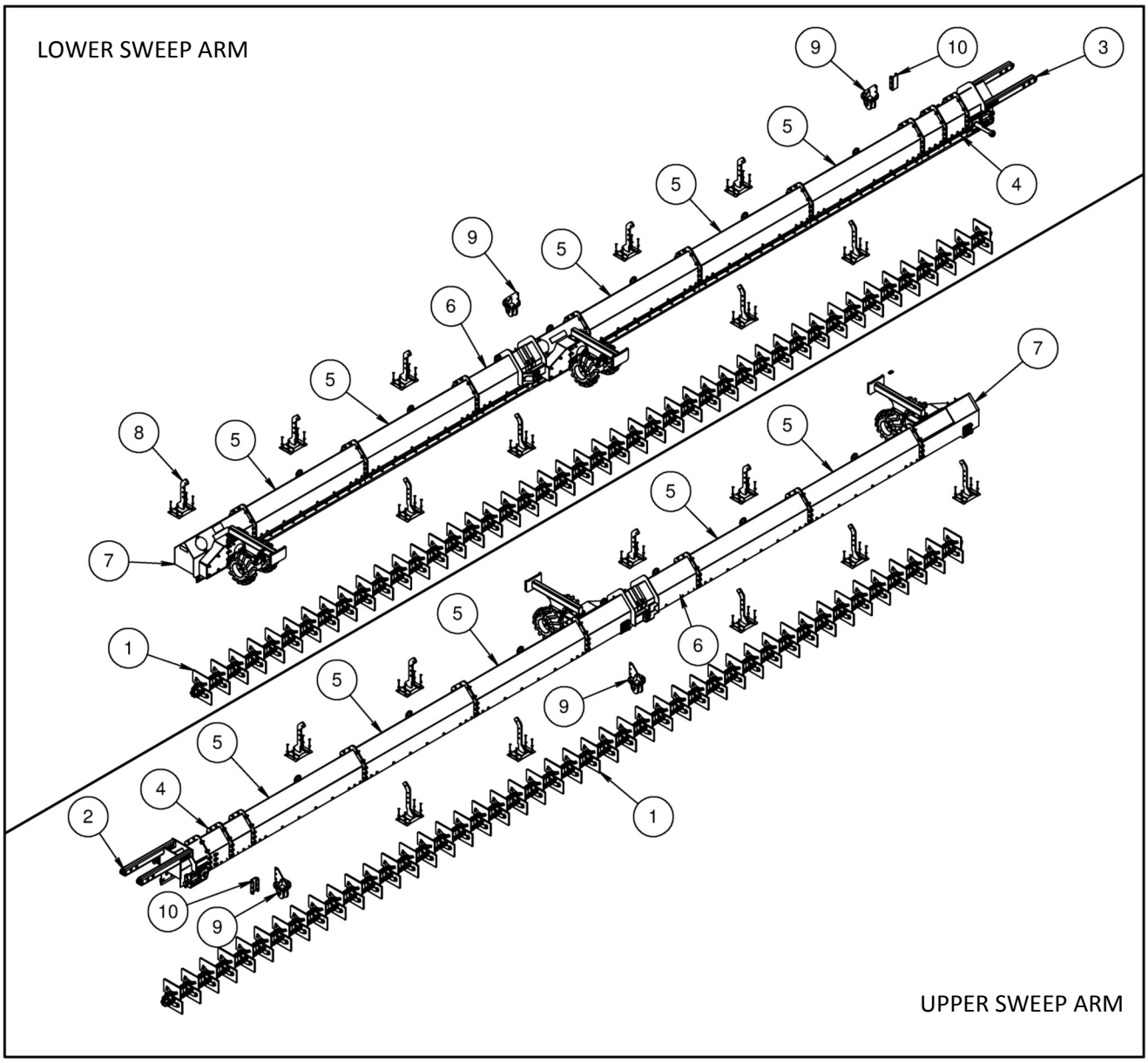
SWEEP FOR 72’ BIN

ITEM	PART #	DESCRIPTION	QTY.
1	685904	PADDLE CHAIN	2
2	701416	HEAD SECTION-UPPER	1
3	701417	HEAD SECTION-LOWER	1
4	701401	INTERMEDIATE SECTION-6”	2
5	701404	INTERMEDIATE SECTION-5’	10
6	701420	PIVOT SECTION W/TRACTOR DRIVE	2
7	701463	DRIVE END	2
8	701412	ZERO ENTRY SUPPORT KIT	18
9	702692	CASTER	4
10	701494	CASTER SPACER BRACKET	2
NA	701425	HARDWARE BAG-INTERMEDIATE SECTION	14
NA	701426	HARDWARE BAG-HEAD SECTION	2



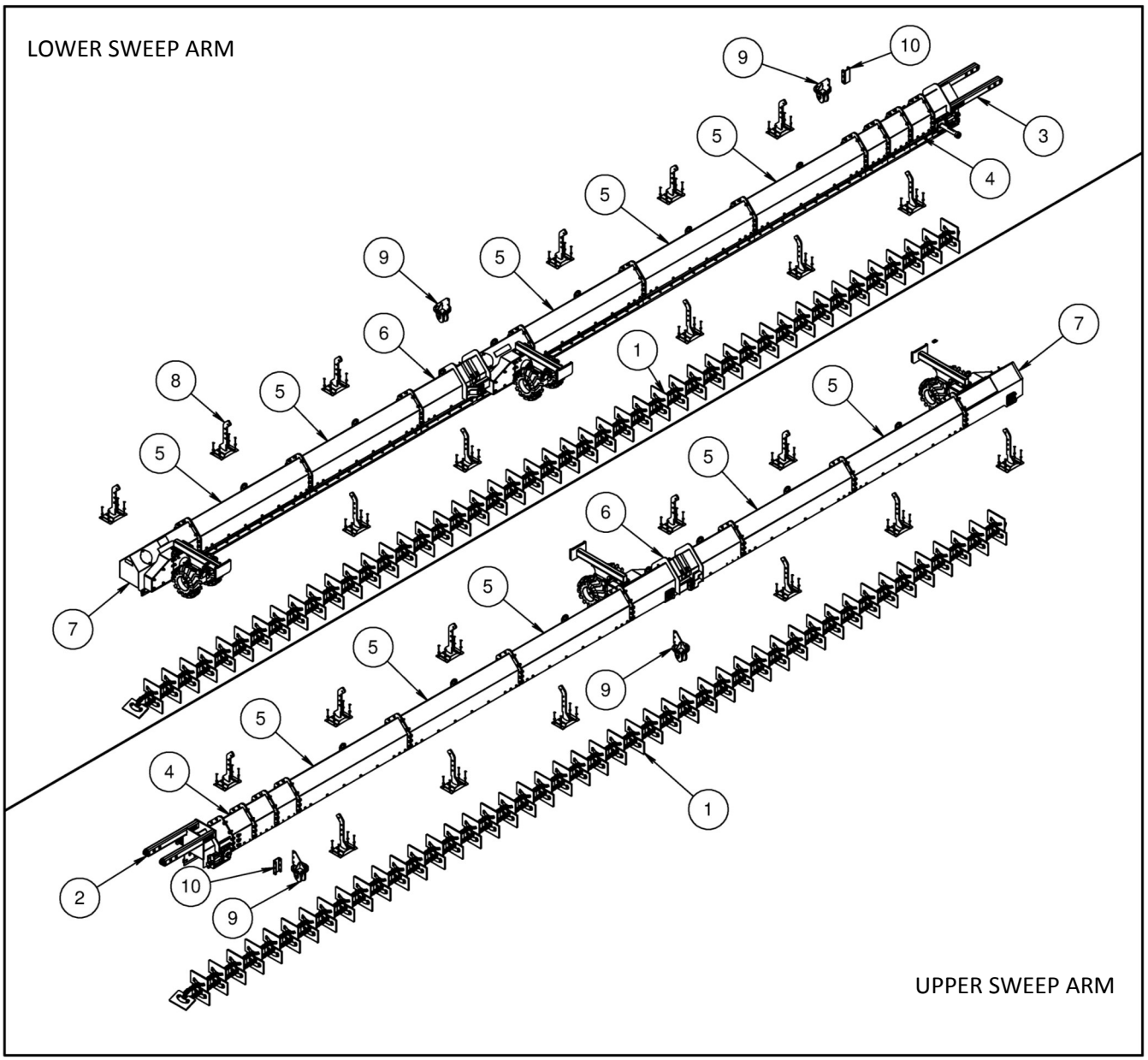
SWEEP FOR 75’ BIN

ITEM	PART #	DESCRIPTION	QTY.
1	685906	PADDLE CHAIN	2
2	701416	HEAD SECTION-UPPPER	1
3	701417	HEAD SECTION-LOWER	1
4	701402	INTERMEDIATE SECTION-1’	4
5	701404	INTERMEDIATE SECTION-5’	10
6	701420	PIVOT SECTION W/TRACTOR DRIVE	2
7	701465	DRIVE END	2
8	701412	ZERO ENTRY SUPPORT KIT	18
9	702692	CASTER	4
10	701494	CASTER SPACER BRACKET	2
NA	701425	HARDWARE BAG-INTERMEDIATE SECTION	16
NA	701426	HARDWARE BAG-HEAD SECTION	2



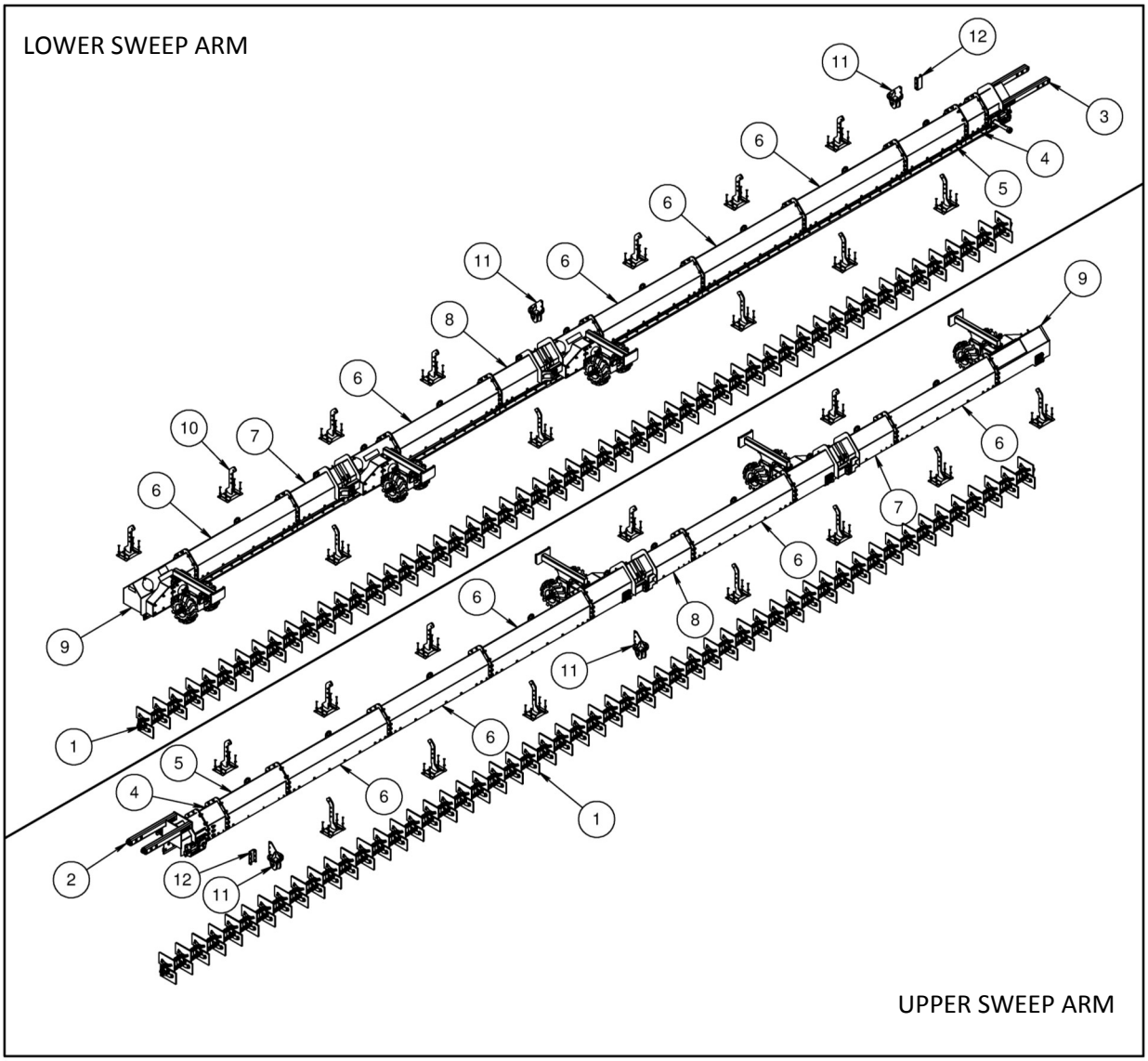
SWEEP FOR 78’ BIN

ITEM	PART #	DESCRIPTION	QTY.
1	686320	PADDLE CHAIN	2
2	701416	HEAD SECTION-UPPER	1
3	701417	HEAD SECTION-LOWER	1
4	701402	INTERMEDIATE SECTION-1’	6
5	701404	INTERMEDIATE SECTION-5’	10
6	701420	PIVOT SECTION W/TRACTOR DRIVE	2
7	701465	DRIVE END	2
8	701412	ZERO ENTRY SUPPORT KIT	22
9	702692	CASTER	4
10	701494	CASTER SPACER BRACKET	2
NA	701425	HARDWARE BAG-INTERMEDIATE SECTION	18
NA	701426	HARDWARE BAG-HEAD SECTION	2



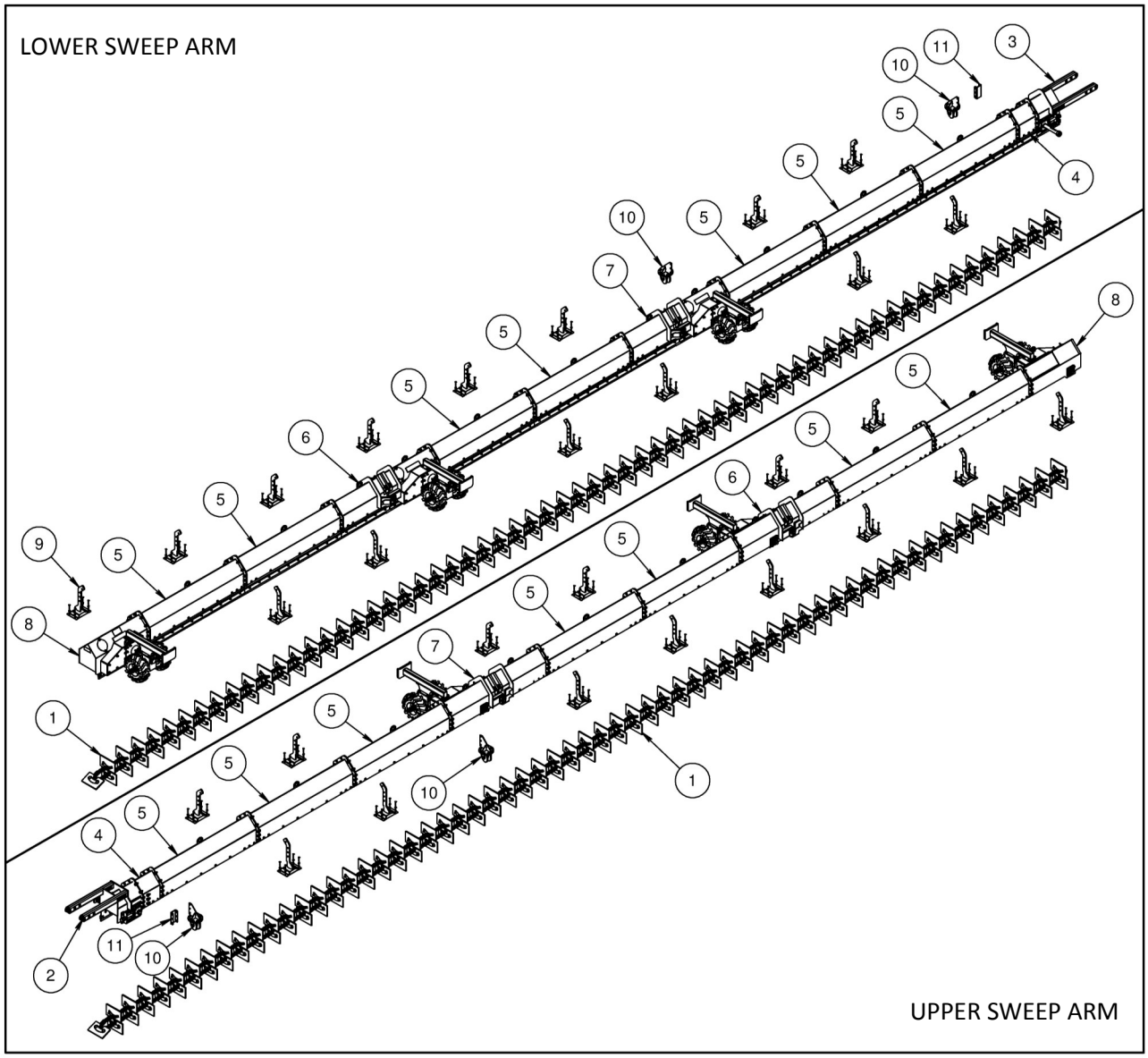
SWEEP FOR 90’ BIN

ITEM	PART #	DESCRIPTION	QTY.
1	686224	PADDLE CHAIN	2
2	701416	HEAD SECTION-UPPER	1
3	701417	HEAD SECTION-LOWER	1
4	701402	INTERMEDIATE SECTION-1’	2
5	701403	INTERMEDIATE SECTION-3’	2
6	701404	INTERMEDIATE SECTION-5’	10
7	701421	PIVOT SECTION W/TRACTOR DRIVE	2
8	701419	PIVOT SECTION W/TRACTOR DRIVE	2
9	701466	DRIVE END	2
10	701412	ZERO ENTRY SUPPORT KIT	24
11	702692	CASTER	4
12	701494	CASTER SPACER BRACKET	2
NA	701425	HARDWARE BAG-INTERMEDIATE SECTION	10
NA	701426	HARDWARE BAG-HEAD SECTON	1



SWEEP FOR 105’ BIN

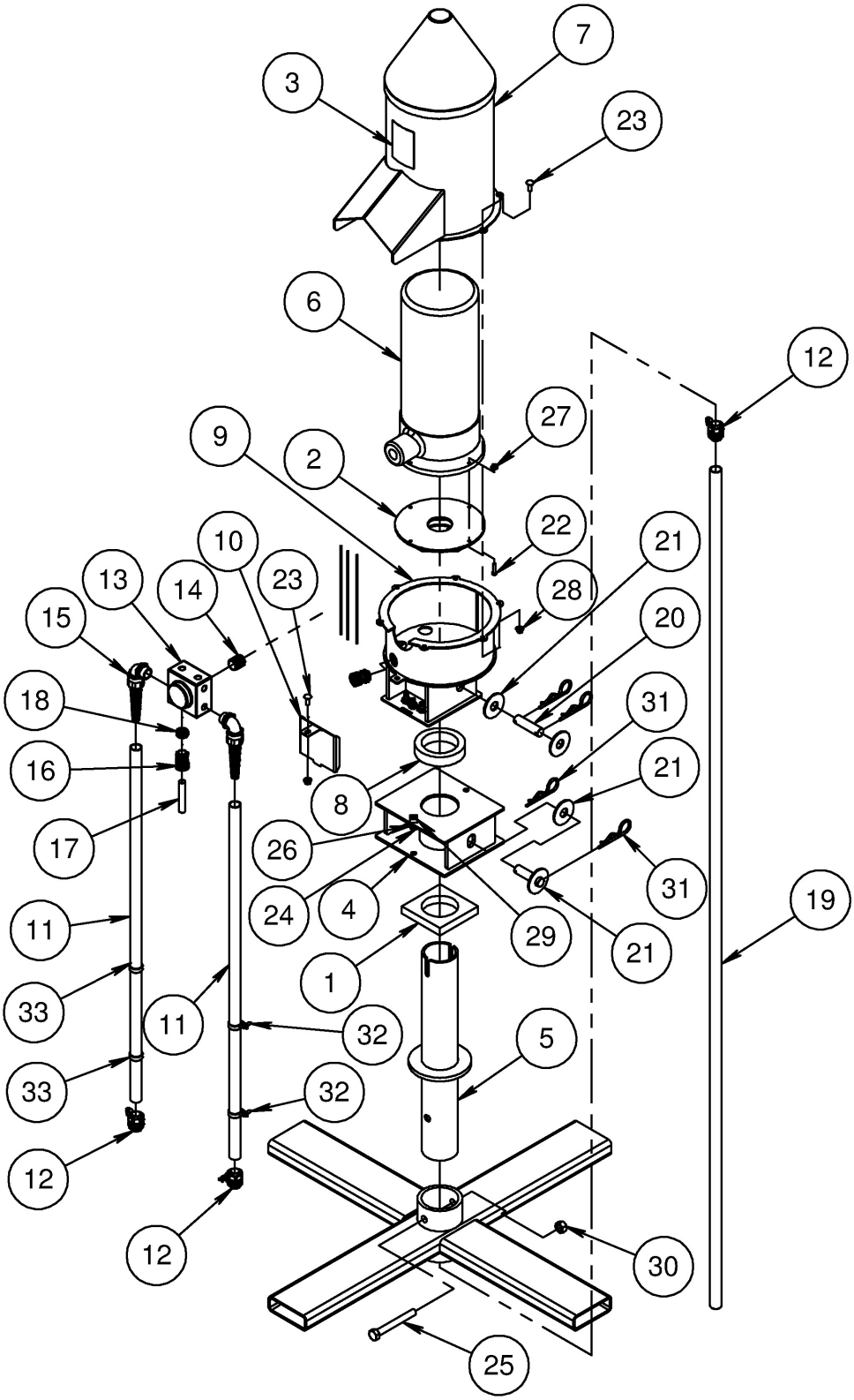
ITEM	PART #	DESCRIPTION	QTY.
1	686395	PADDLE CHAIN	2
2	701416	HEAD SECTION-UPPER	1
3	701417	HEAD SECTION-LOWER	1
4	701402	INTERMEDIATE SECTION-1’	2
5	701404	INTERMEDIATE SECTION-5’	14
6	701418	PIVOT SECTION W/TRACTOR DRIVE	2
7	701419	PIVOT SECTION W/TRACTOR DRIVE	2
8	701423	DRIVE END	2
9	701412	ZERO ENTRY SUPPORT KIT	28
10	702692	CASTER	4
11	701494	CASTER SPACER BRACKET	2
NA	701425	HARDWARE BAG-INTERMEDIATE SECTION	20
NA	701426	HARDWARE BAG-HEAD SECTION	2



(701860) COLLECTOR RING KIT

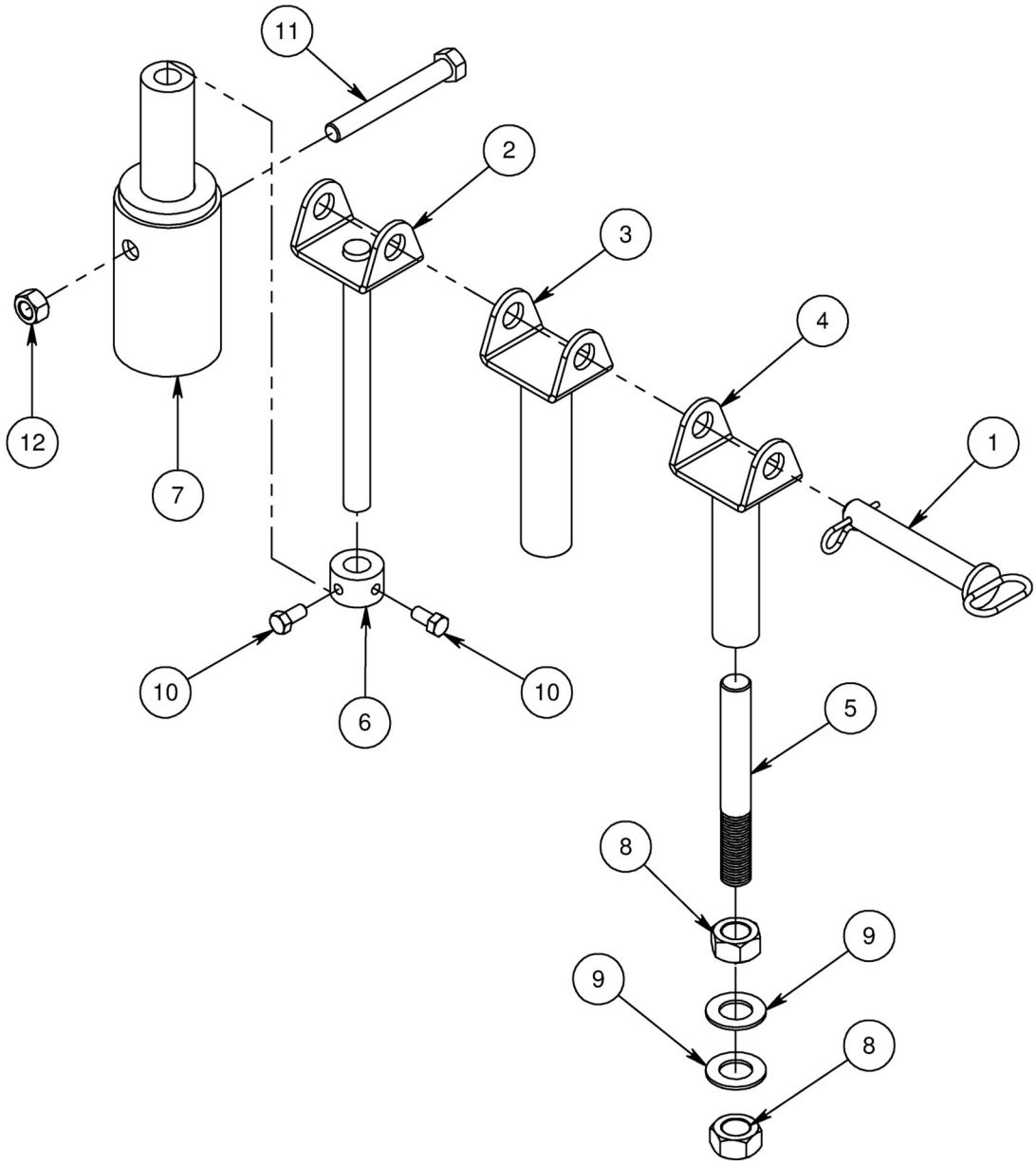
ITEM	PART #	DESCRIPTION	QTY
1	688306	BUSHING	1
2	688307	LOCKING PLATE	1
3	688462	SAFETY DECAL	1
4	690327	LOWER MOUNT	1
5	693138	COLLECTOR RING MOUNT	1
6	693167	COLLECTOR RING	1
7	693168	TOP CASING	1
8	693204	PLASTIC BUSHING	1
9	695190	LOWER CASING	1
10	702685	COLLECTOR RING PLATE	1
11	695210	1” FLEXIBLE METAL CONDUIT; 48”	2
12	695211	LIQUIDTIGHT STRAIGHT CONNECTOR; 1”	3
13	701047	ELECTRICAL OUTLET BOX	1
14	701594	NIPPLE; 1” NPT	1
15	701354	LIQUIDTIGHT 90 DEGREE FITTING W/MESH; 1”	2
16	702702	LIQUIDTIGHT CORD GRIP FITTING	2
17	702703	ELECTRICAL INSULATING VINYL SLEEVING	1
18	702704	REDUCER BUSHING	1
19	701365	1” FLEXIBLE METAL CONDUIT; 114”	1
20	690410	PIVOT PIN	4
21	690411	WASHER PLATE	8
22	654751	HH CAP SCREW; 1/4” X 1 1/4”	4
23	640030	CARRIAGE BOLT; 3/8” X 1”	7
24	640057	HH TAP SCREW; 1/2” X 1”	1
25	640109	HH CAP SCREW; 3/4” X 6”	1
26	640156	FLATWASHER; 7/16”	5
27	682523	FLANGE NUT; 1/4”	4
28	701182	CENTERLOCK FLANGE NUT; 3/8”	7
29	698482	SQUARE NUT; 1/2”	1
30	640146	HEXNUT; 3/4”	1
31	660006	HITCH PIN	8
32	682441	SELF TAPPING SCREW; 1/4” X 1”	4
33	702673	LOOP CLAMP	2

COLLECTOR RING



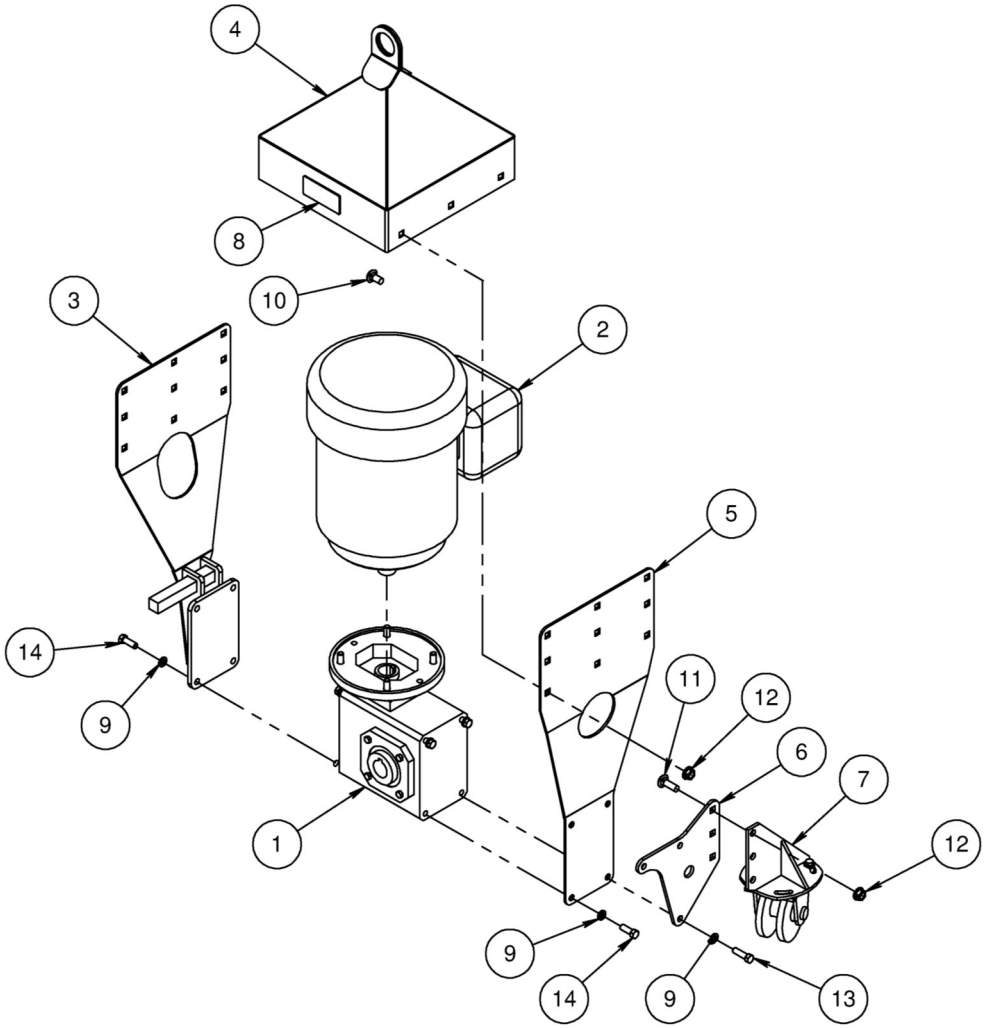
(688568) UNIVERSAL PIVOT PIN KIT

ITEM	PART #	DESCRIPTION	QTY
1	680144	PIVOT PIN W/HITCH PIN CLIP	1
2	686065	1.00” SHAFT PIVOT	1
3	686226	1.61” SLEEVE PIVOT	1
4	686282	1.19” SLEEVE PIVOT	1
5	686399	1.13” THREADED SHAFT	1
6	686093	SHAFT CENTER PIVOT STOP	1
7	695223	CENTER PIVOT (COMPATIBLE WITH SIOUX STEEL SUMP)	1
8	685976	HEXNUT; 1 1/8”	2
9	668137	FLATWASHER; 1 1/8”	2
10	640057	HHT SCREW; 1/2” X 1.00”	2
11	640109	HHC SCREW; 3/4” X 6.00”	1
12	640146	HEXNUT; 3/4”	1



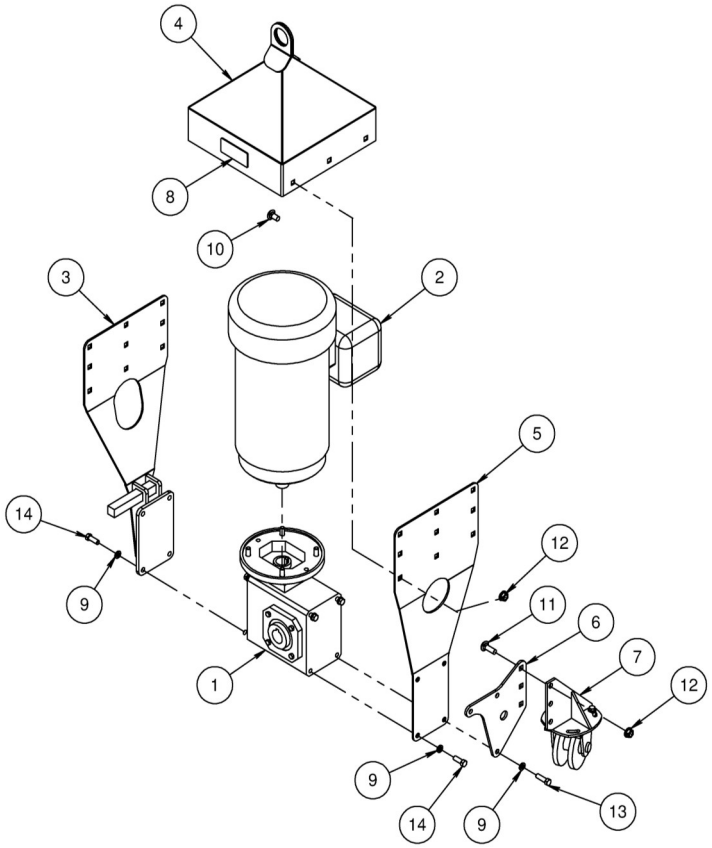
7.5 HP MOTOR & GEARBOX

ITEM	PART #	DESCRIPTION	QTY
1	686245	GEARBOX; 5:1	1
	685987	GEARBOX; 10:1	1
2	686246	ELECTRIC MOTOR; 7.5 HP-230-460v	1
	689285	ELECTRIC MOTOR; 7.5 HP-575v	1
3	686287	TORQUE ARM PLATE	1
4	686315	ROOF COVER	1
5	686318	FRONT SUPPORT PLATE	1
6	701447	ADAPTER PLATE	1
7	702692	CASTER	1
8	688358	DECAL; IMPORTANT	1
9	640155	LOCKWASHER; 7/16”	8
10	683931	CARRIAGE BOLT; 1/2” X 1”	6
11	701181	CARRIAGE BOLT; 1/2” X 1 1/2”	3
12	699010	CENTERLOCK FLANGE NUT; 1/2”	9
13	640050	HH CAP SCREW; 7/16” X 1 1/2”	3
14	640049	HH CAP SCREW; 7/16” X 1 1/4”	5
NA	698483	VENT PLUG	



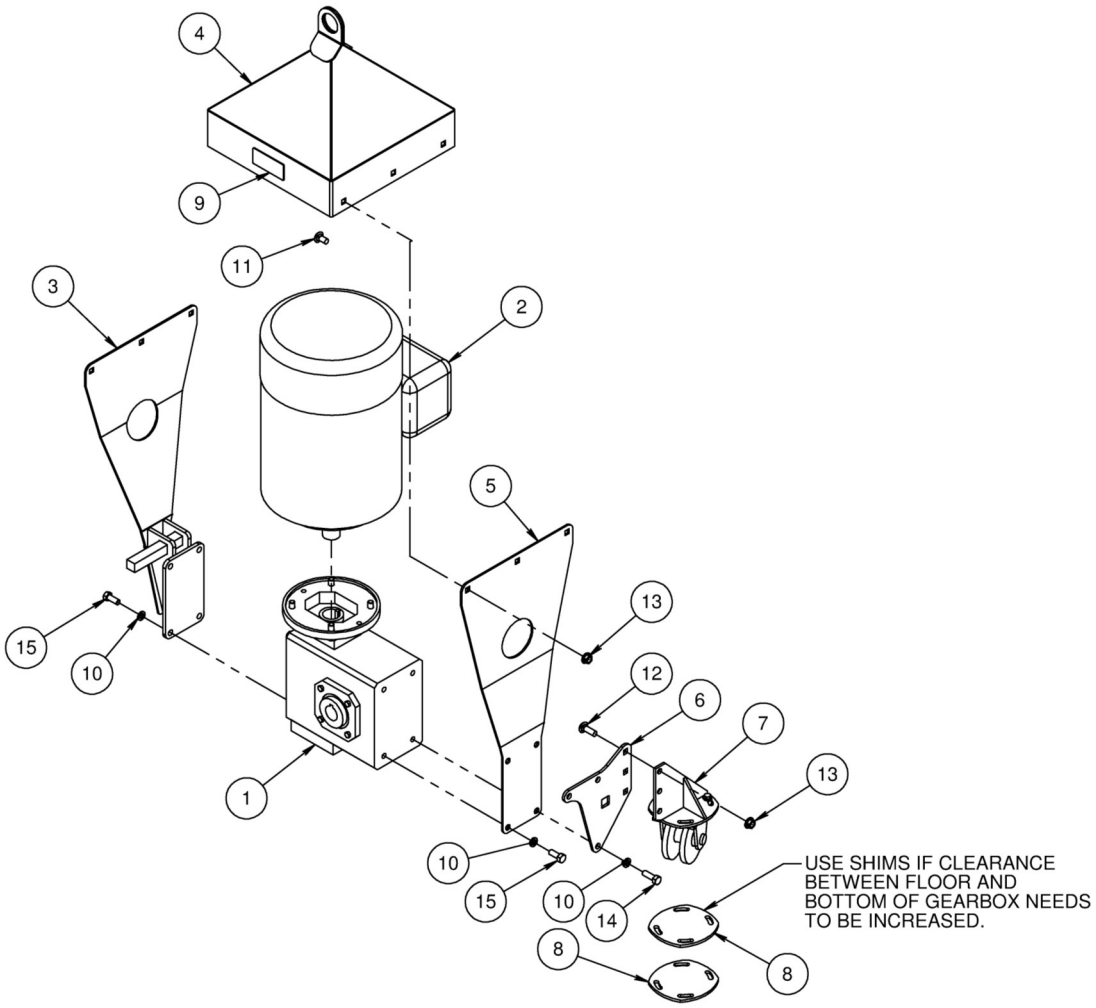
10 HP MOTOR & GEARBOX

ITEM	PART #	DESCRIPTION	QTY
1	685951	GEARBOX; 5:1 (HOLE PATTERN-4” x 7 1/2”)	1
	686245	GEARBOX; 5:1 (HOLE PATTERN-4” x 7”)	1
	687969	GEARBOX; 7.5:1 (HOLE PATTERN-4” x 7 1/2”)	1
	688294	GEARBOX; 10:1 (HOLE PATTERN-4” x 7 1/2”)	1
	704026	GEARBOX; 15:1 (HOLE PATTERN-4” x 7 1/2”)	1
2	685952	ELECTRIC MOTOR; 10 HP-230-460v	1
	688481	ELECTRIC MOTOR; 10 HP-575v	1
3	686287	TORQUE ARM (HOLE PATTERN-4” X 7”)	1
	687922	TORQUE ARM (HOLE PATTERN-4” X 7 1/2”)	1
4	686315	ROOF COVER	1
5	686318	FRONT SUPPORT PLATE (HOLE PATTERN-4” X 7”)	1
	687921	FRONT SUPPORT PLATE (HOLE PATTERN-4” X 7 1/2”)	1
6	701447	ADAPTER PLATE (HOLE PATTERN-4” X 7”)	1
	701448	ADAPTER PLATE (HOLE PATTERN-4” X 7 1/2”)	1
7	702692	CASTER	1
8	688358	DECAL; IMPORTANT	1
9	640155	LOCKWASHER; 7/16”	8
10	683931	CARRIAGE BOLT; 1/2” X 1”	6
11	701181	CARRIAGE BOLT; 1/2” X 1 1/2”	3
12	699010	CENTERLOCK FLANGE NUT; 1/2”	9
13	640050	FLANGE BOLT; 7/16” X 1 1/2”	3
14	640049	HH CAP SCREW; 7/16” X 1 1/4”	5
NA	698483	VENT PLUG	



15 HP MOTOR & GEARBOX

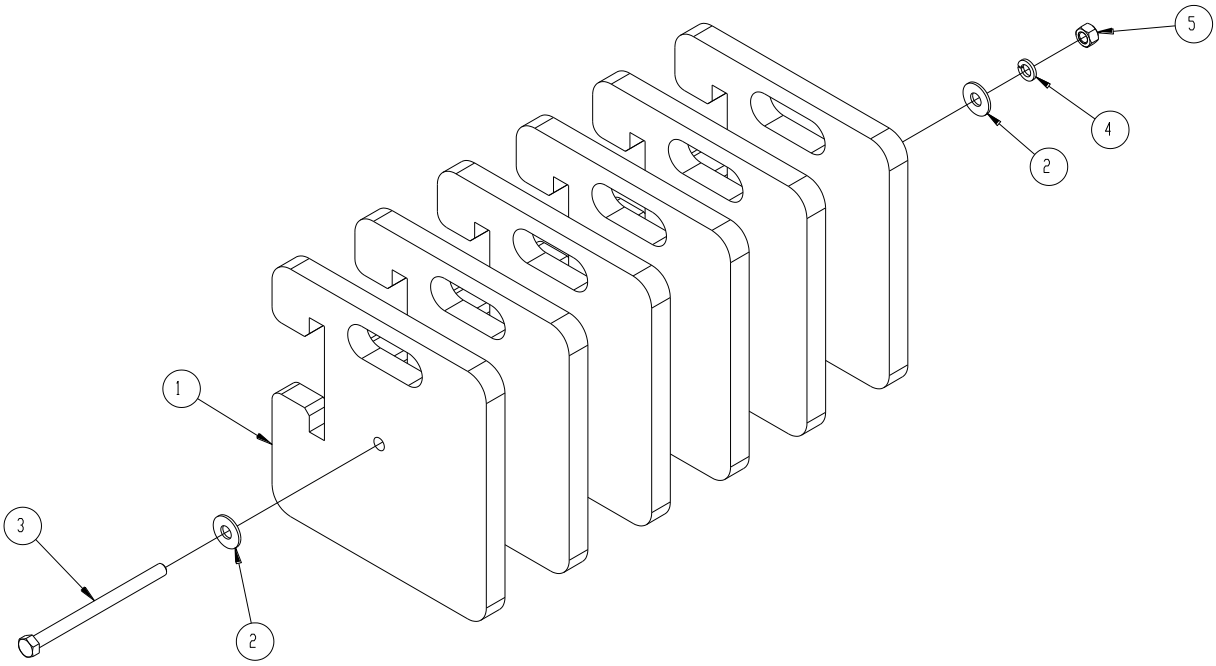
ITEM	PART #	DESCRIPTION	QTY
1	687989	GEARBOX; 5:1	1
	688298	GEARBOX; 7.5:1	1
2	687991	ELECTRIC MOTOR; 15 HP-230-460v	1
	689289	ELECTRIC MOTOR; 15 HP-575v	1
3	687955	TORQUE ARM	1
4	687956	ROOF COVER	1
5	687951	FRONT SUPPORT PLATE	1
6	701449	ADAPTER PLATE	1
7	702692	CASTER	1
8	701458	SPACER PLATE	2
9	688358	DECAL; IMPORTANT	1
10	640157	LOCKWASHER; 1/2”	8
11	683931	CARRIAGE BOLT; 1/2” X 1”	6
12	701181	CARRIAGE BOLT; 1/2” X 1 1/2”	3
13	689010	CENTERLOCK FLANGE NUT; 1/2”	9
14	640059	HH CAP SCREW; 1/2” X 1 1/2”	3
15	640058	HH CAP SCREW; 1/2” X 1 1/4”	5
	698483	VENT PLUG	



PARTS DIAGRAM & LIST

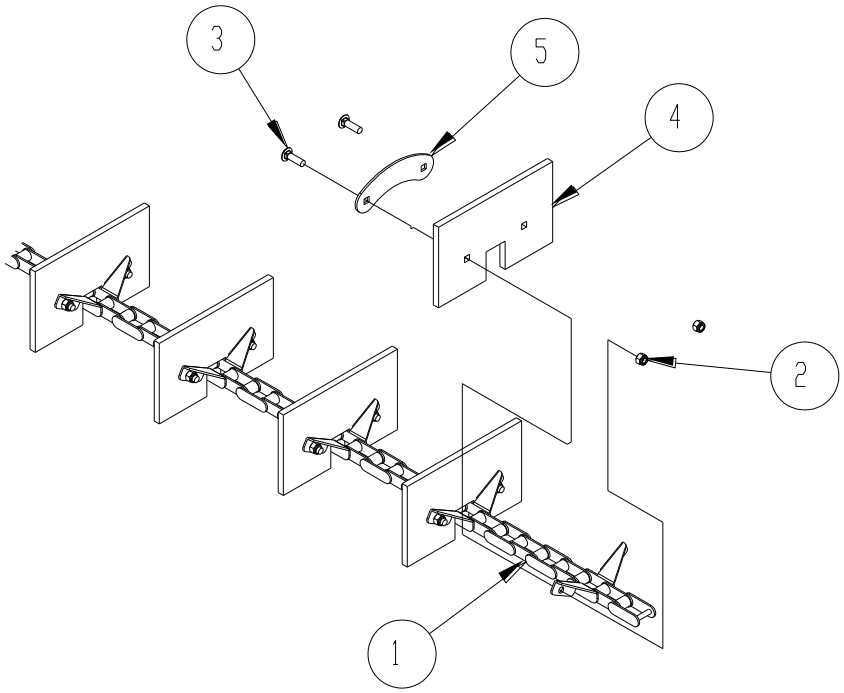
(686268) 200 LB WEIGHT KIT

ITEM	PART #	DESCRIPTION	QTY
1	686267	WEIGHT	6
2	640158	FLATWASHER; 1/2”	2
3	652173	HH CAP SCREW; 1/2” X 7”	1
4	640157	LOCKWASHER; 1/2”	1
5	640139	HEXNUT; 1/2”	1



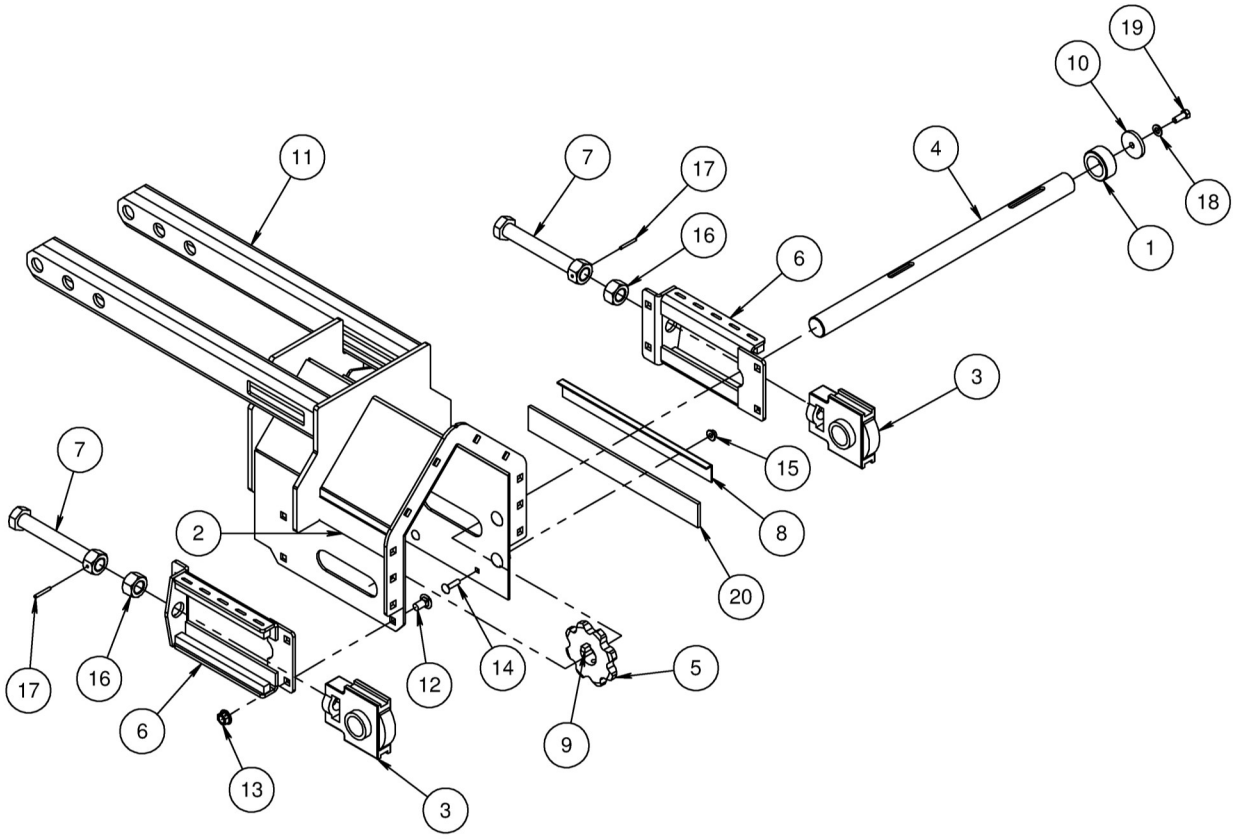
PADDLE CHAIN

ITEM	PART #	DESCRIPTION	QTY
1	688591	PADDLE CHAIN-CA550	50 FT
2	654121	LOCKNUT NYLON; 3/8”	
3	680140	CARRIAGE BOLT; 3/8” x 1 1/4”	
4	686081	RUBBER PADDLE	
5	686111	PADDLE BACKING PLATE	
NA	688376	#550 HALF LINK	
NA	686010	MALE CONNECTOR LINK	
		*FOR COMPLETE PADDLE CHAIN ASSEMBLY REFER TO SWEEP SIZE PARTS DIAGRAM & LIST	



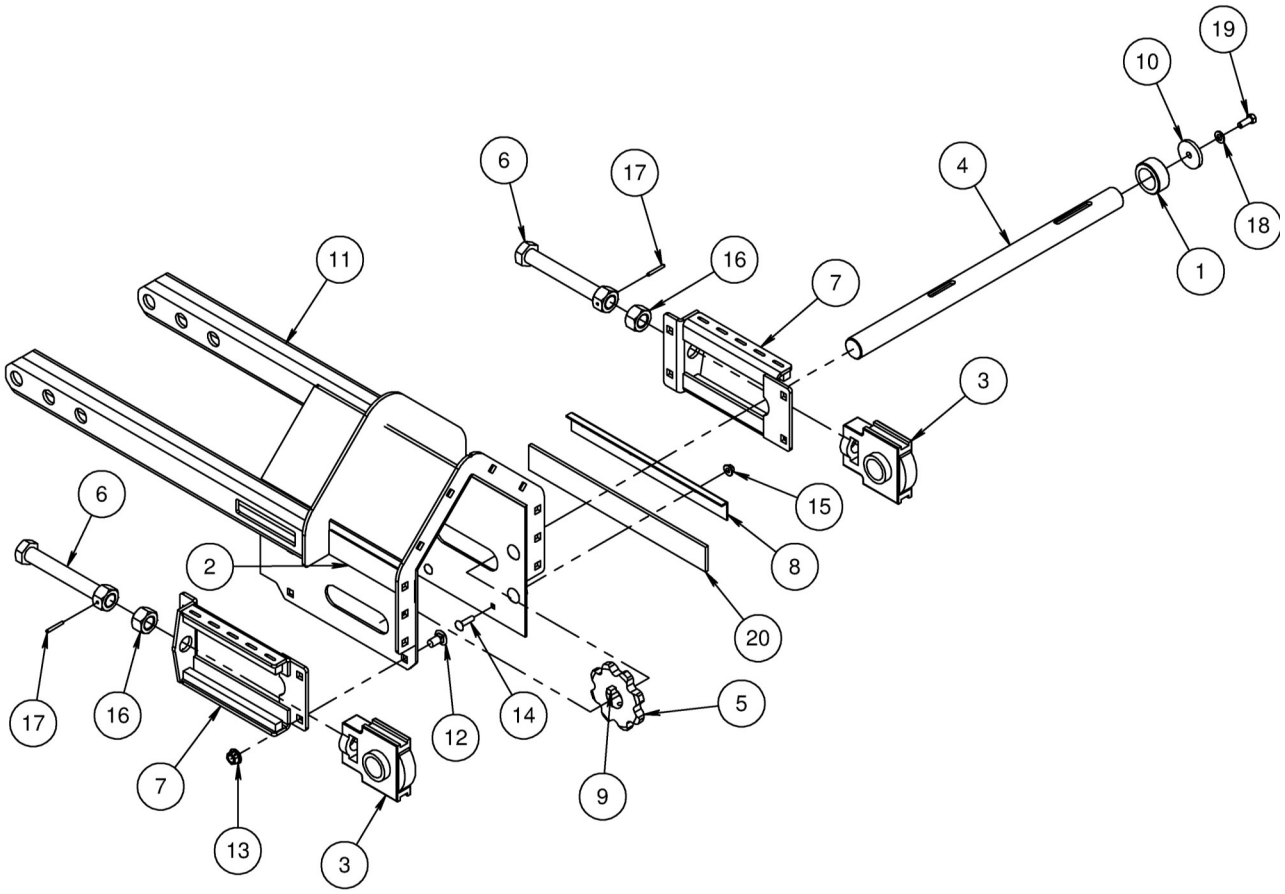
(701416) UPPER HEAD SECTION

ITEM	PART #	DESCRIPTION	QTY
1	701459	COLLAR	1
2	686033	DECAL; DANGER	1
3	686230	TAKE UP BEARING	2
4	686247	HEAD SHAFT	1
5	686248	8 TOOTH SPROCKET	1
6	686254	TAKE UP RAIL	2
7	686258	CHAIN TIGHTNER BOLT	2
8	686269	DRAG RUBBER CLAMP	1
9	686985	KEY; 3/8" X 2"	1
10	695897	FLATWASHER; 3/8"	1
11	701477	UPPER HEAD SECTION WELDMENT	1
12	683931	CARRIAGE BOLT; 1/2" X 1"	8
13	699010	CENTERLOCK FLANGE NUT; 1/2"	8
14	686183	CARRIAGE BOLT; 5/16" X 1 1/4"	3
15	701467	CENTERLOCK FLANGE NUT; 5/16"	3
16	686606	HEXNUT; 1"	2
17	659679	ROLL PIN; 3/16" X 1 1/2"	2
18	640154	FLATWASHER; 3/8"	1
19	640028	HH CAP SCREW; 3/8" X 1"	1
20	686274	DRAG RUBBER	1



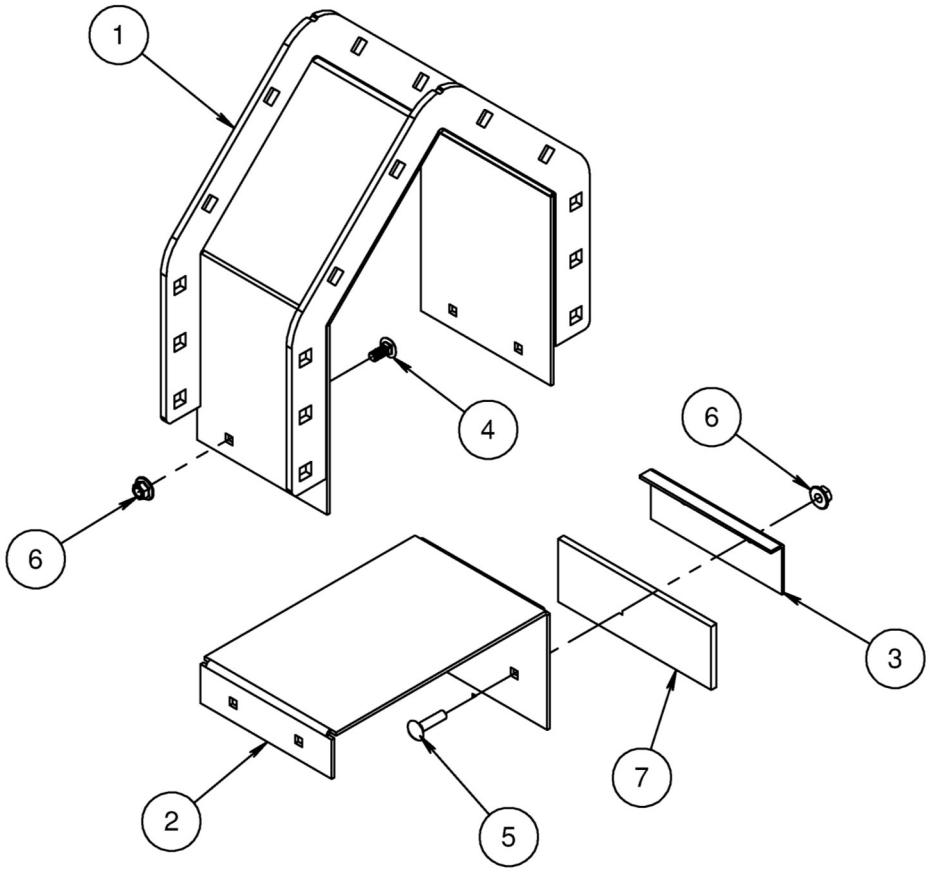
(701417) LOWER HEAD SECTION

ITEM	PART #	DESCRIPTION	QTY
1	701459	COLLAR	1
2	686033	DECAL; DANGER	1
3	686230	TAKE UP BEARING	2
4	686247	HEAD SHAFT	1
5	686248	8 TOOTH SPROCKET	1
6	686258	CHAIN TIGHTNER BOLT	2
7	686254	TAKE UP RAIL	2
8	686269	DRAG RUBBER CLAMP	1
9	686985	KEY; 3/8" X 2"	1
10	695897	FLATWASHER; 3/8"	1
11	701476	LOWER HEAD SECTION WELDMENT	1
12	683931	CARRIAGE BOLT; 1/2" X 1"	8
13	699010	CENTERLOCK FLANGE NUT; 1/2"	8
14	686183	CARRIAGE BOLT; 5/16" X 1 1/4"	3
15	701467	CENTERLOCK FLANGE NUT; 5/16"	3
16	686606	HEXNUT; 1"	2
17	659679	ROLL PIN; 3/16" X 1 1/2"	2
18	640154	FLATWASHER; 3/8"	1
19	640028	HH CAP SCREW; 3/8" X 1"	1
20	686274	DRAG RUBBER	1



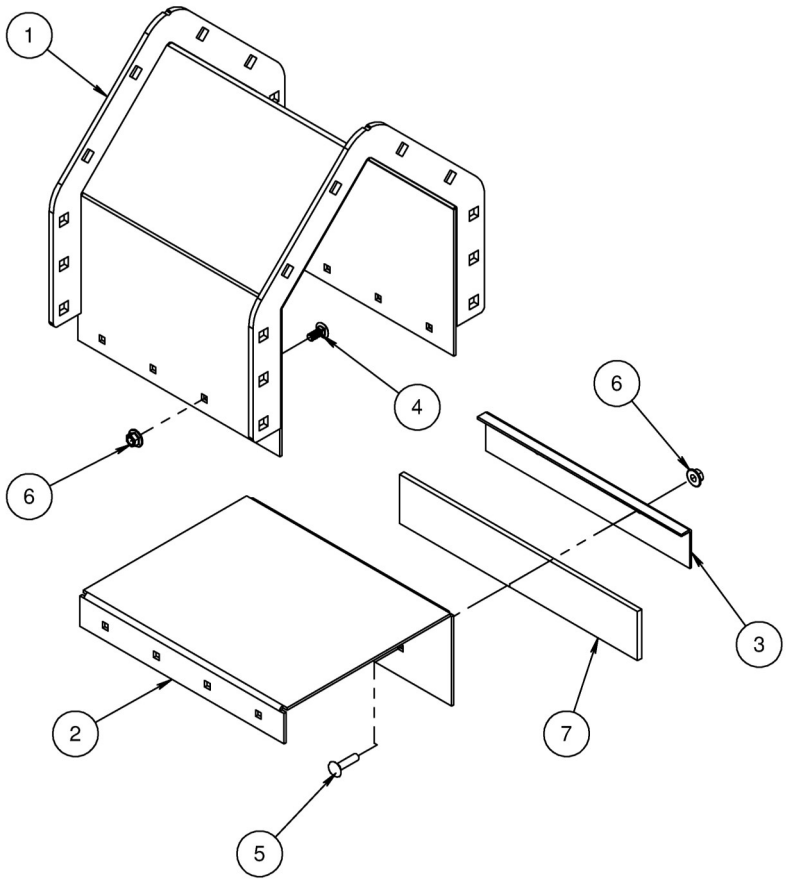
(701401) 6” INTERMEDIATE SECTION

ITEM	PART #	DESCRIPTION	QTY
1	701487	COVER	1
2	690432	DIVIDER	1
3	690435	DRAG RUBBER CLAMP	1
4	683943	CARRIAGE BOLT; 5/16” X 3/4”	4
5	686183	CARRIAGE BOLT; 5/16” X 1 1/4”	2
6	701467	CENTERLOCK FLANGE NUT; 5/16”	6
7	690436	DRAG RUBBER	1



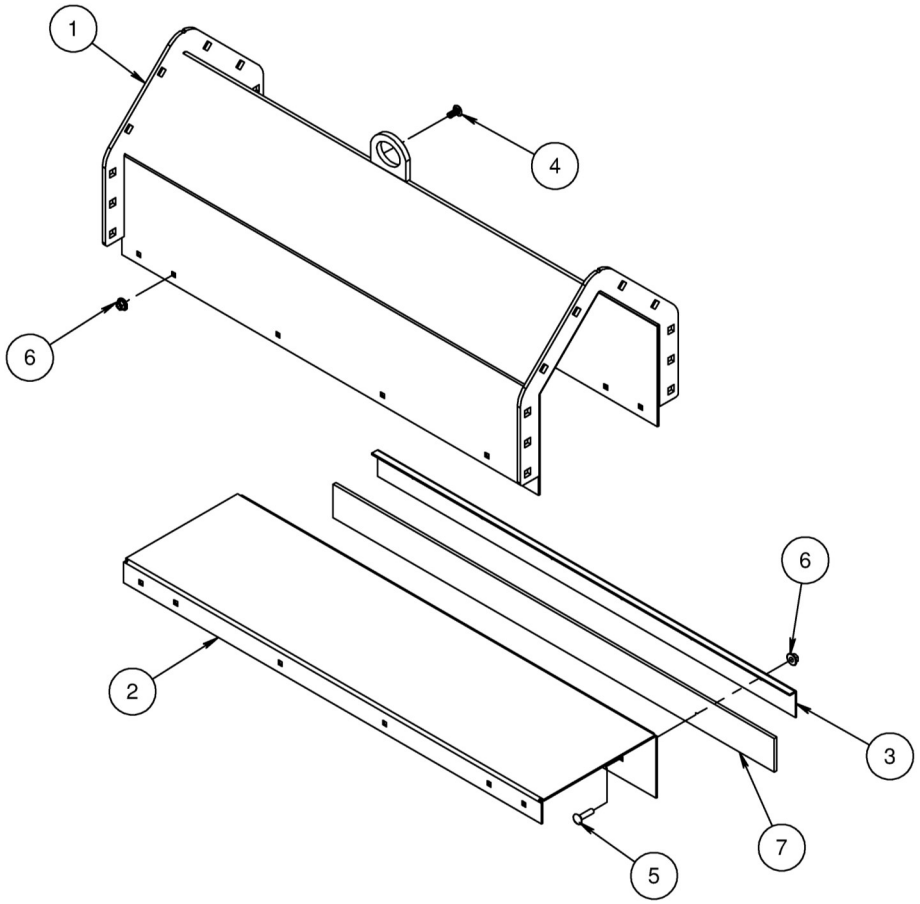
(701402) 1’ INTERMEDIATE SECTION

ITEM	PART #	DESCRIPTION	QTY
1	701488	COVER	1
2	686234	DIVIDER	1
3	686270	DRAG RUBBER CLAMP	1
4	683943	CARRIAGE BOLT; 5/16” X 3/4”	8
5	686183	CARRIAGE BOLT; 5/16” X 1 1/4”	2
6	701467	CENTERLOCK FLANGE NUT; 5/16”	10
7	686275	DRAG RUBBER	1



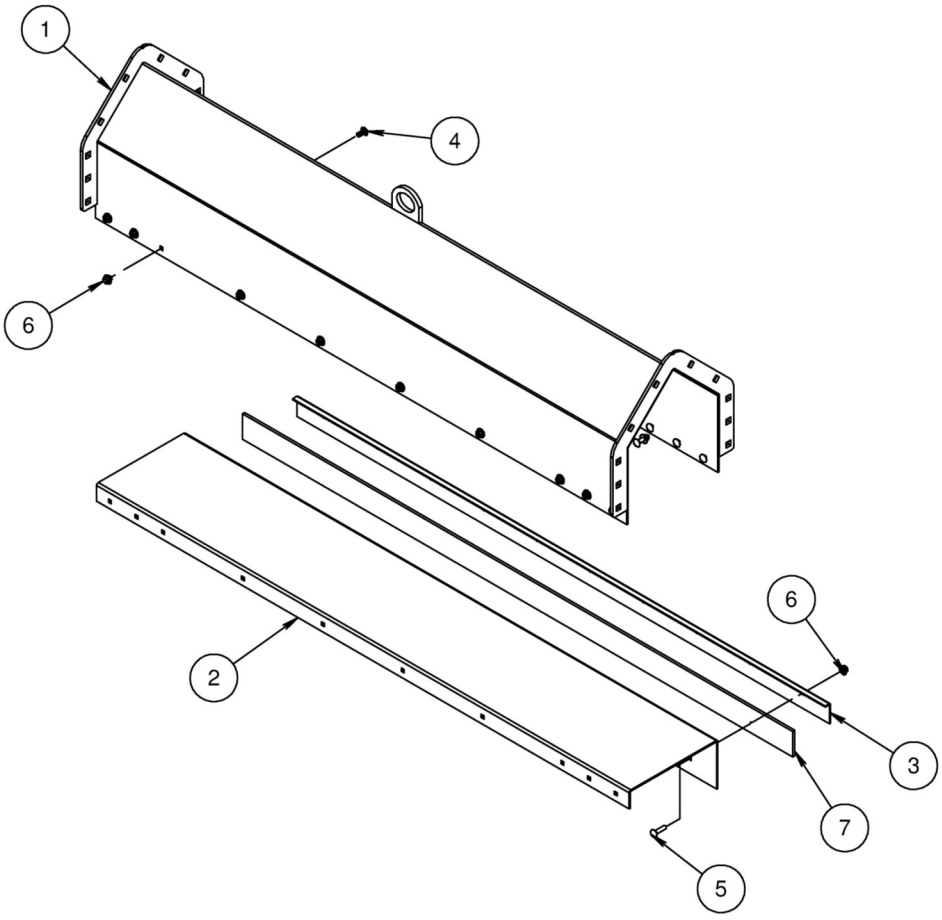
(701403) 3’ INTERMEDIATE SECTION

ITEM	PART #	DESCRIPTION	QTY
1	701489	COVER	1
2	686235	DIVIDER	1
3	686271	DRAG RUBBER CLAMP	1
4	683943	CARRIAGE BOLT; 5/16” X 3/4”	12
5	686183	CARRIAGE BOLT; 5/16” X 1 1/4”	6
6	701467	CENTERLOCK FLANGE NUT; 5/16”	18
7	686276	DRAG RUBBER	1



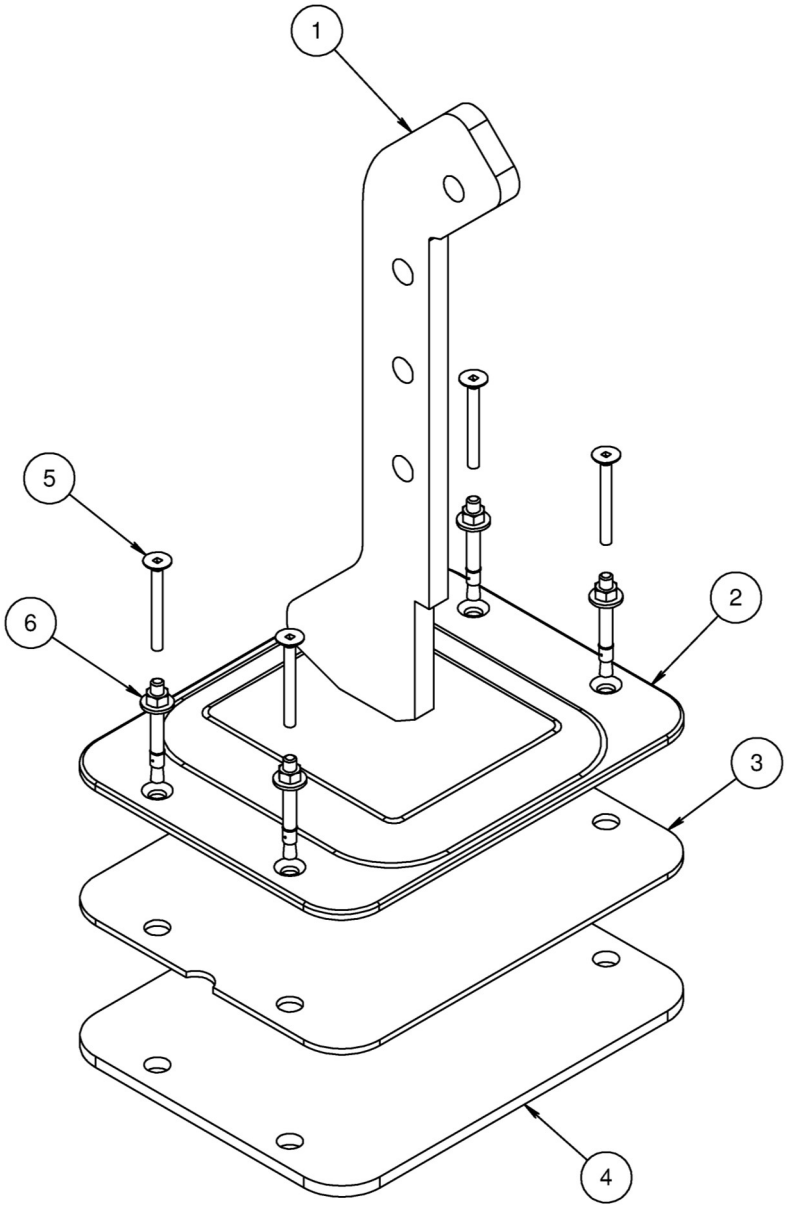
(701404) 5’ INTERMEDIATE SECTION

ITEM	PART #	DESCRIPTION	QTY
1	701490	COVER	1
2	686236	DIVIDER	1
3	686272	DRAG RUBBER CLAMP	1
4	683943	CARRIAGE BOLT; 5/16” X 3/4”	20
5	686183	CARRIAGE BOLT; 5/16” X 1 1/4”	10
6	701467	CENTERLOCK FLANGE NUT; 5/16”	30
7	686277	DRAG RUBBER	1



(701412) ZERO ENTRY KIT

ITEM	PART #	DESCRIPTION	QTY
1	701495	SUPPORT PLATE	1
2	702670	SUPPORT PAD	1
3	701329	SHIM; 1/8”	1
4	701347	SHIM; 1/4”	1
	697999	HARDWARE BAG	
3	695701	WEDGE ANCHOR; 1/4” X 2 1/4” (CONCRETE)	4
4	695702	SQUARE WAFER HEAD SELF DRILLING SCREW; #12-24 X 2” (STEEL)	4

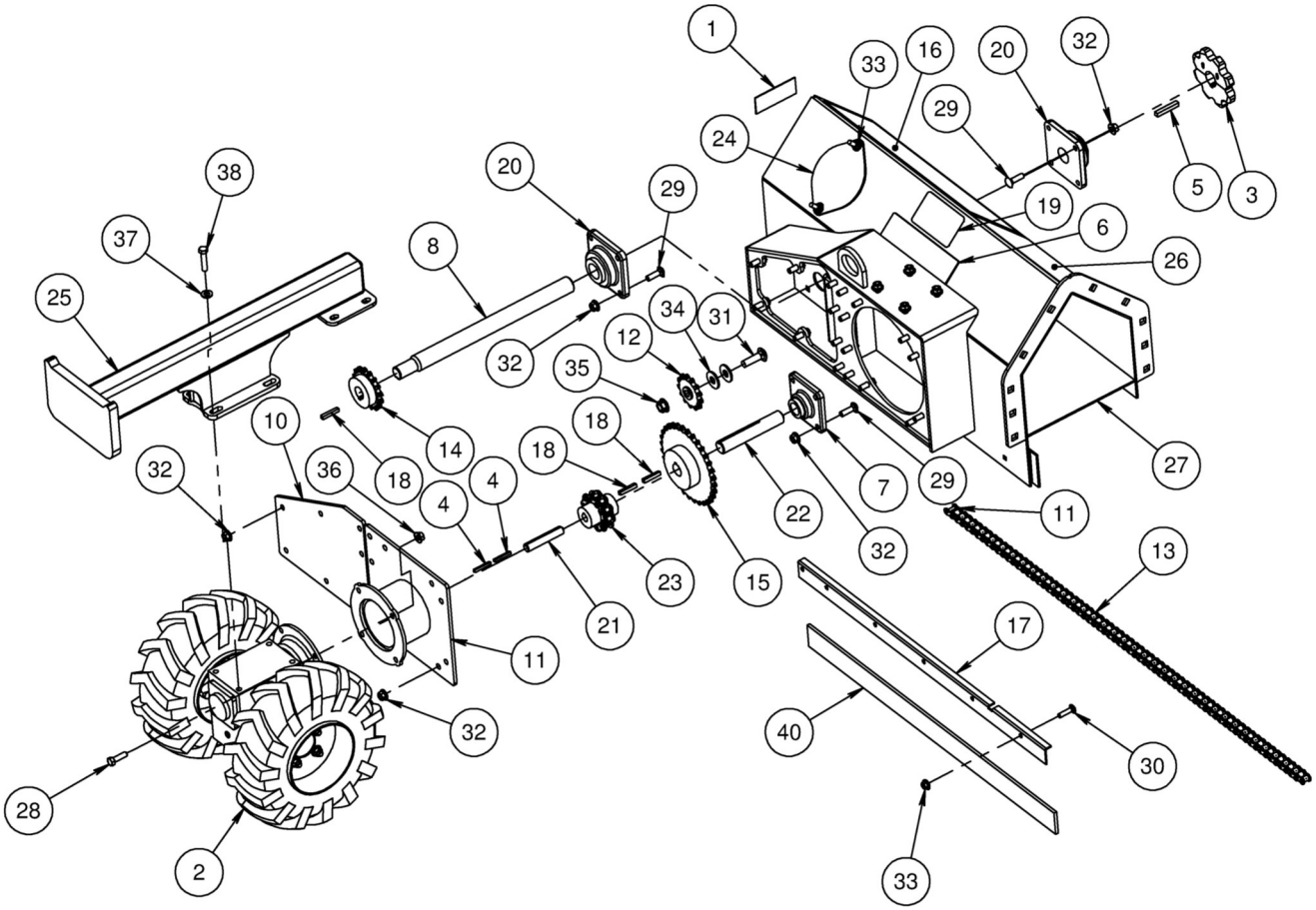


DRIVE END

ITEM	PART #	DESCRIPTION	QTY
1	666941	DECAL; SERIAL NUMBER	1
2	701369	TRACTOR DRIVE (NON-RATCHET)	1
	690045	TRACTOR DRIVE (W/RATCHETS)	1
3	686008	SPROCKET; 8 TOOTH	1
4	686026	KEY; 3/16" X 1 1/2"	2
5	686028	KEY; 5/16" X 2"	1
6	686033	DECAL; DANGER	1
7	686038	FLANGE BEARING	1
8	686040	DRIVE END SHAFT	1
9	686186	#50 CONNECTOR LINK	1
10	686125	GEAR COVER PLATE	1
11	686129	DRIVE COVER BRACKET	1
12	686197	SPROCKET; 13 TOOTH	1
13	688233	CHAIN; 36 1/4"	1
	687846	CHAIN; 38 3/4"	1
	701433	CHAIN: 40"	1
	686217	CHAIN; 43 3/4"	1
	701461	CHAIN; 47 1/2"	1
14	686379	SPROCKET; 12 TOOTH	1
	687973	SPROCKET; 14 TOOTH	1
	686218	SPROCKET; 16 TOOTH	1
	686198	SPROCKET; 20 TOOTH	1
15	686218	SPROCKET; 16 TOOTH	1
	688243	SPROCKET; 23 TOOTH	1
	685917	SPROCKET; 25 TOOTH	1
	685918	SPROCKET; 27 TOOTH	1
	686219	SPROCKET; 32 TOOTH	1
	685919	SPROCKET; 36 TOOTH	1
16	686229	DECAL; DAAY BIN PADDLE SWEEP	1
17	686273	DRAG RUBBER CLAMP	1
18	686358	KEY; 1/4" X 1 1/2"	3
19	686359	DECAL; PATENT NUMBER	1
20	686603	FLANGE BEARING	2
21	687984	GEARBOX ADAPTER SHAFT; 5/8"	1
22	687985	GEARBOX ADAPTER SHAFT; 1"	1
23	688200	CHAIN COUPLER	1
24	688219	COVER PLATE	1
25	689010	WEIGHT BRACKET	1
26	690344	DECAL; OPERATIONS	1
27	701483	DRIVE END	1
28	640049	HH CAP SCREW; 7/16" x 1 1/4"	4

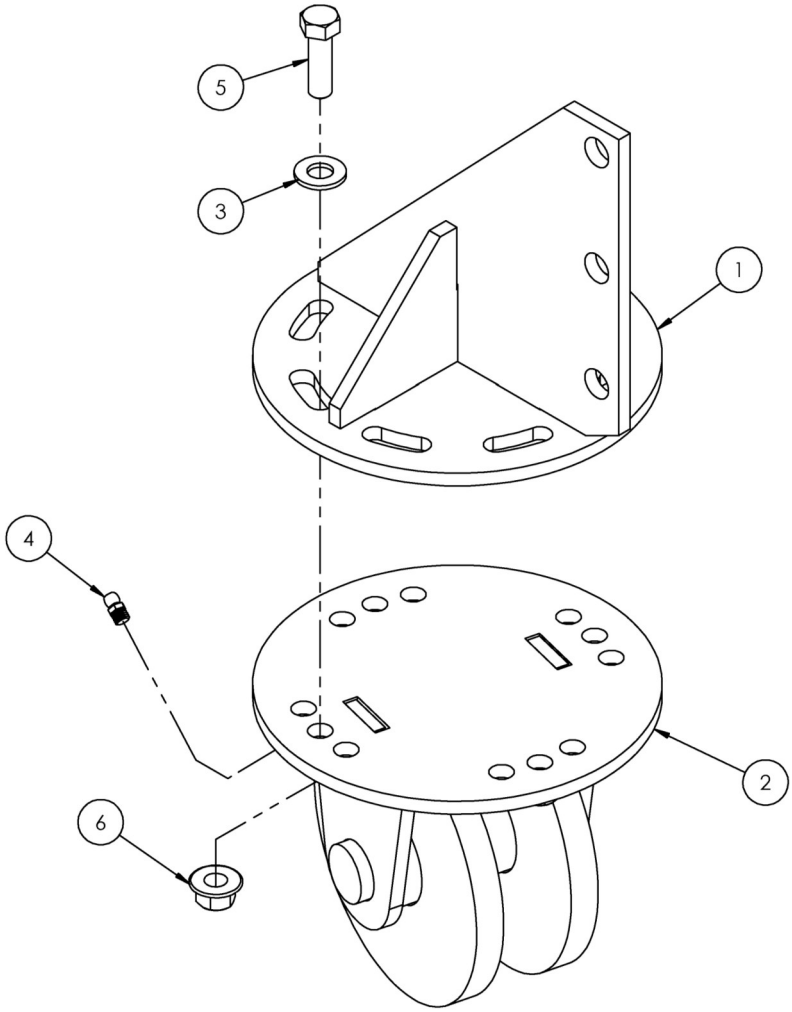
DRIVE END

ITEM	PART #	DESCRIPTION	QTY
29	680140	CARRIAGE BOLT; 3/8" x 1 1/4"	12
30	686183	CARRIAGE BOLT; 5/16" x 1 1/4"	8
31	700638	CARRIAGE BOLT; 1/2" x 1 3/4"	1
32	701182	CENTERLOCK FLANGE NUT; 3/8"	34
33	701467	CENTERLOCK FLANGE NUT; 5/16"	8
34	640158	FLATWASHER; 1/2"	2
35	699010	CENTERLOCK FLANGE NUT; 1/2"	1
36	682413	FLANGE NUT; 3/8"	4
37	640154	FLATWASHER; 3/8"	4
38	640153	LOCKWASHER; 3/8"	4
39	640035	HH CAP SCREW; 3/8" X 1 3/4"	4
40	686278	DRAG RUBBER	1
	686187	#50 HALF LINK	1



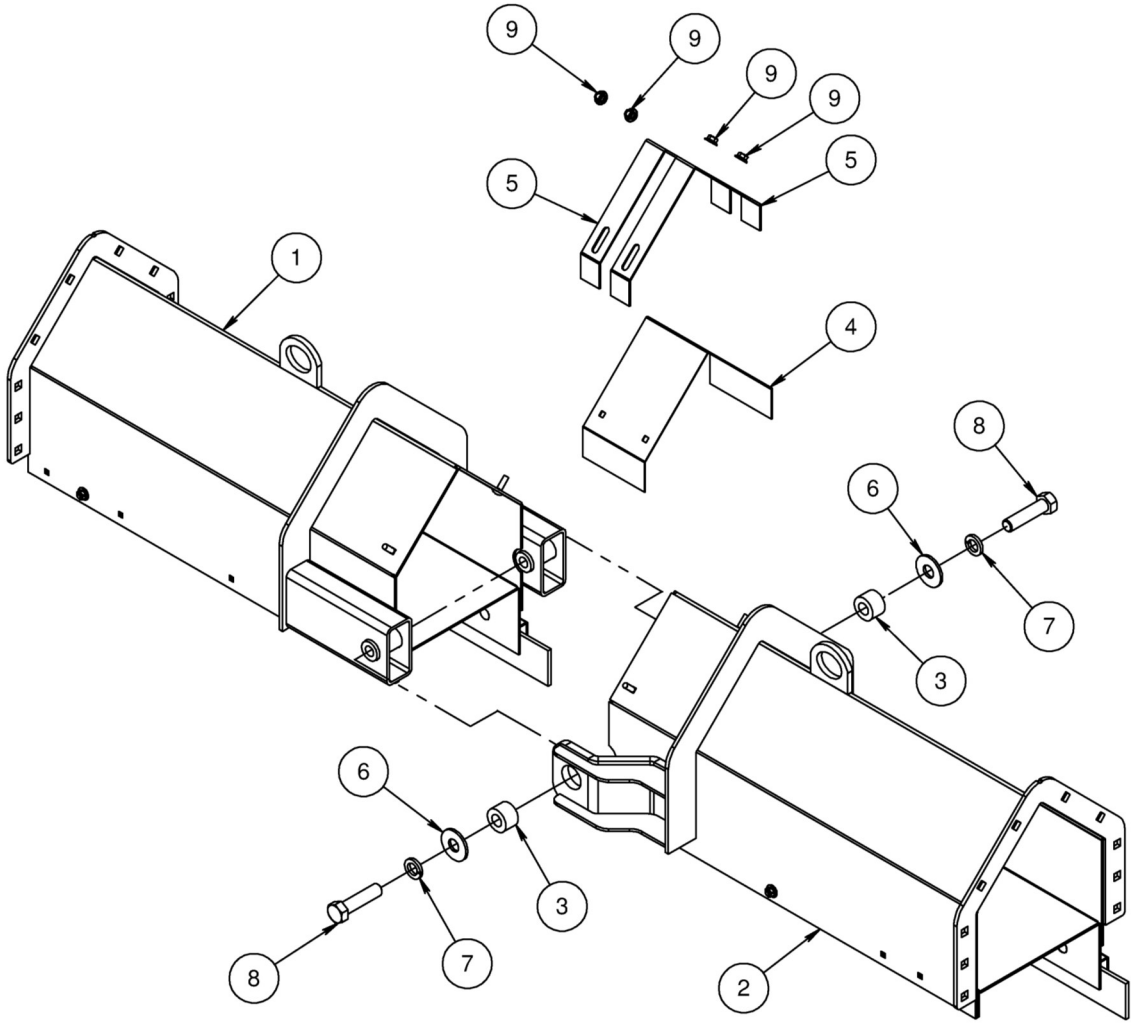
(702692) CASTER

ITEM	PART #	DESCRIPTION	QTY
1	702695	CASTER WHEEL BRACKET	1
2	702696	CASTER WHEEL	1
3	640154	FLATWASHER; 3/8”	4
4	657632	GREASE ZERK	1
5	640032	HH CAP SCREW; 3/8” x 1 1/4”	4
6	682413	SERRATED FLANGE NUT; 3/8”	4



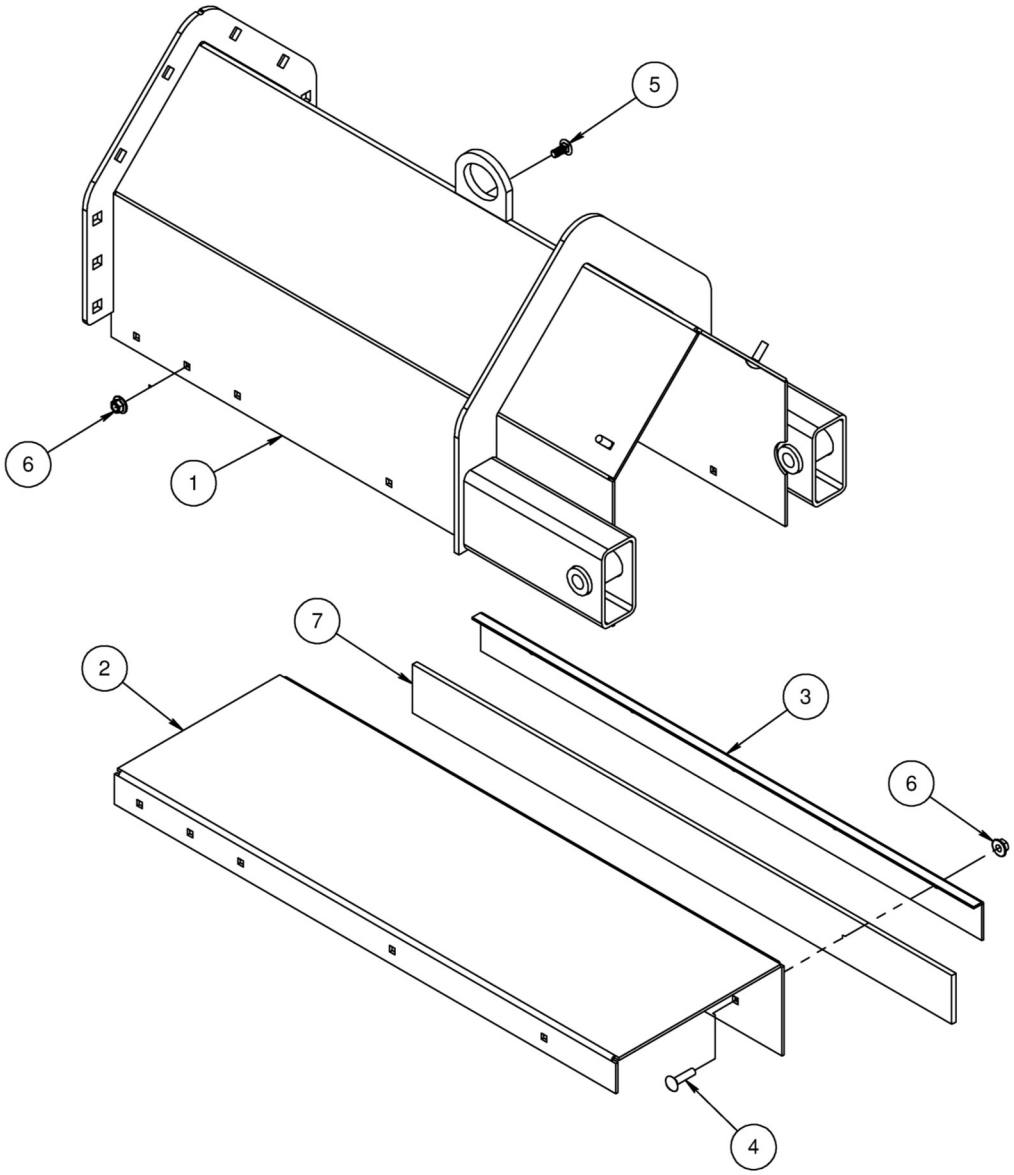
(701422) PIVOT SECTION

ITEM	PART #	DESCRIPTION	QTY
1	701469	INNER SECTION	1
2	701471	OUTER SECTION	1
3	685823	TUBE SPACER	2
4	686304	RUBBER COVER	1
5	686305	CLAMP PLATE	2
6	640922	FLATWASHER; 3/4”	2
7	640162	LOCKWASHER; 3/4”	2
8	640100	HH CAP SCREW; 3/4” X 3”	2
9	701467	FLANGE NUT; 5/16”	4



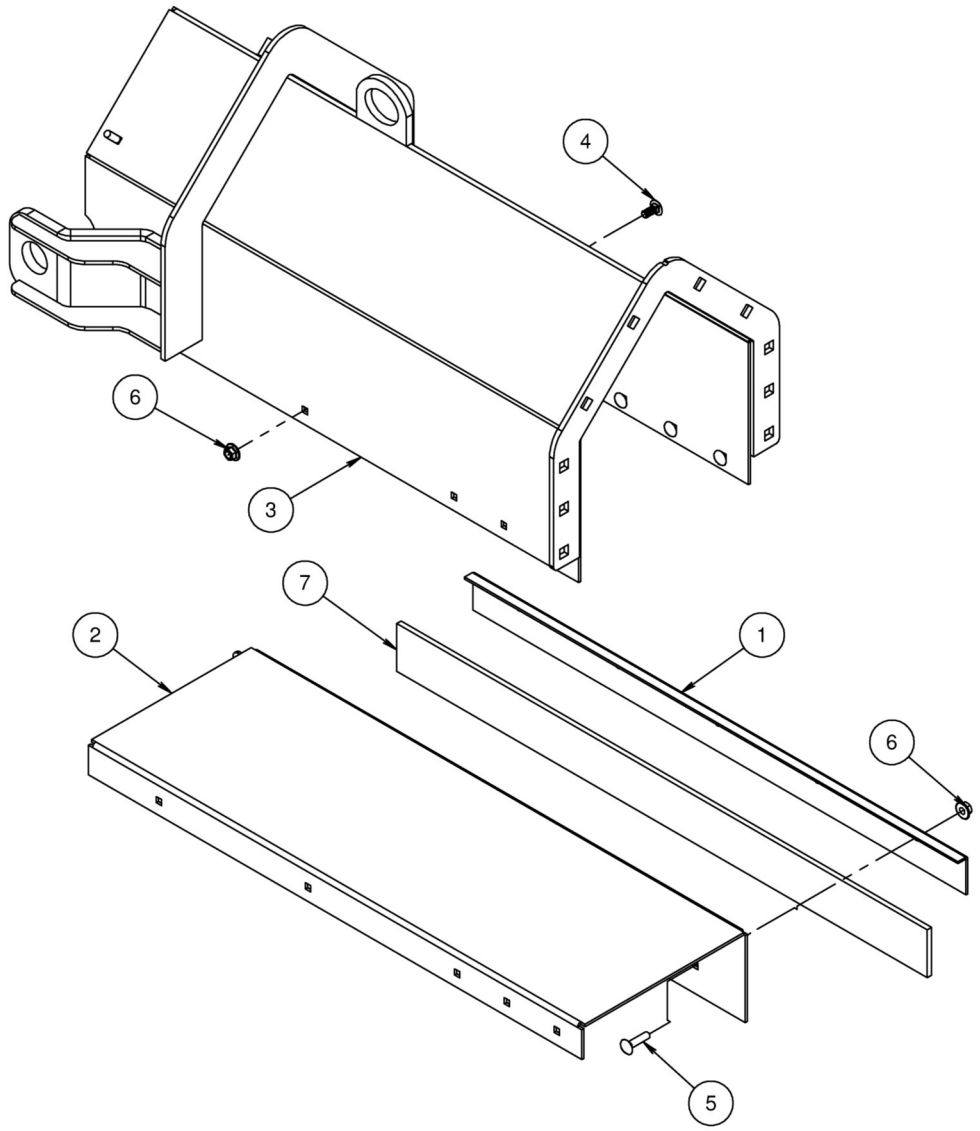
(701469) INNER PIVOT SECTION

ITEM	PART #	DESCRIPTION	QTY
1	701480	COVER	1
2	685832	DIVIDER	1
3	685835	DRAG RUBBER CLAMP	1
4	686183	CARRIAGE BOLT; 5/16” X 1 1/4”	5
5	683943	CARRIAGE BOLT; 5/16” X 3/4”	10
6	701467	FLANGE NUT; 5/16”	15
7	685830	DRAG RUBBER	1



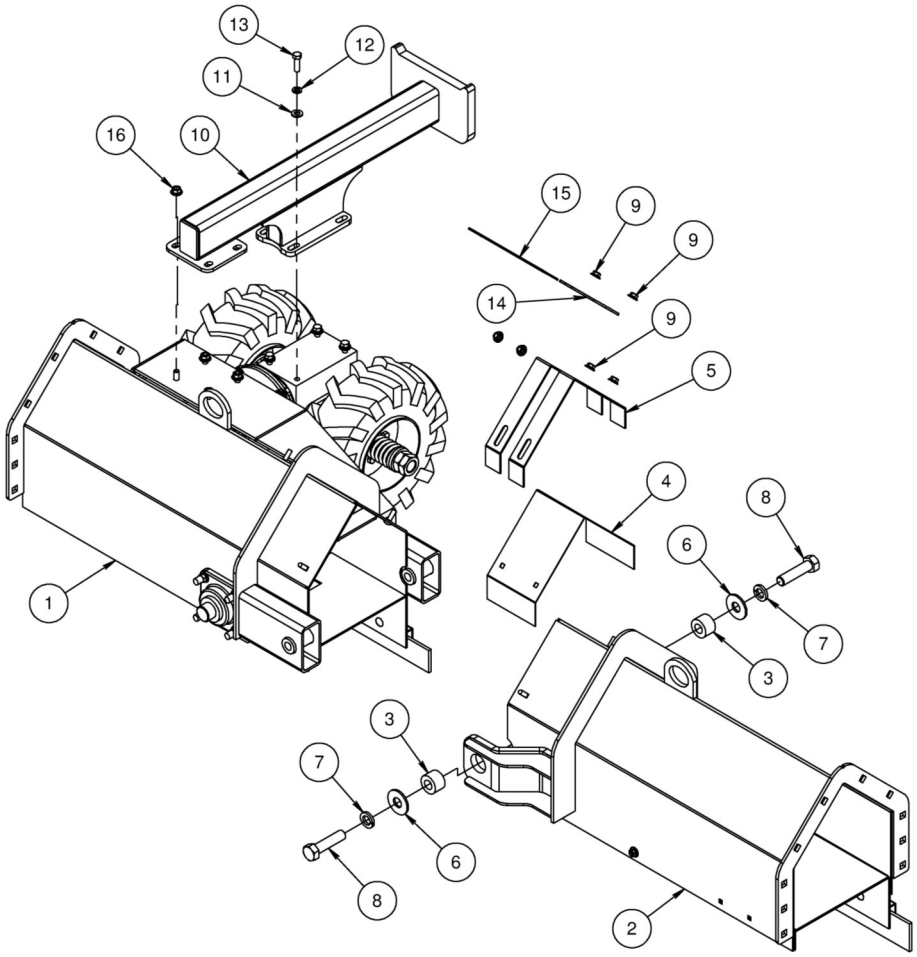
(701471) OUTER PIVOT SECTION

ITEM	PART #	DESCRIPTION	QTY
1	685831	DRAG RUBBER CLAMP	1
2	685858	DIVIDER	1
3	701482	COVER	1
4	683943	CARRIAGE BOLT; 5/16” X 3/4”	10
5	686183	CARRIAGE BOLT; 5/16” X 1 1/4”	5
6	701467	FLANGE NUT; 5/16”	15
7	685830	DRAG RUBBER	1



REAR DRIVE PIVOT SECTION

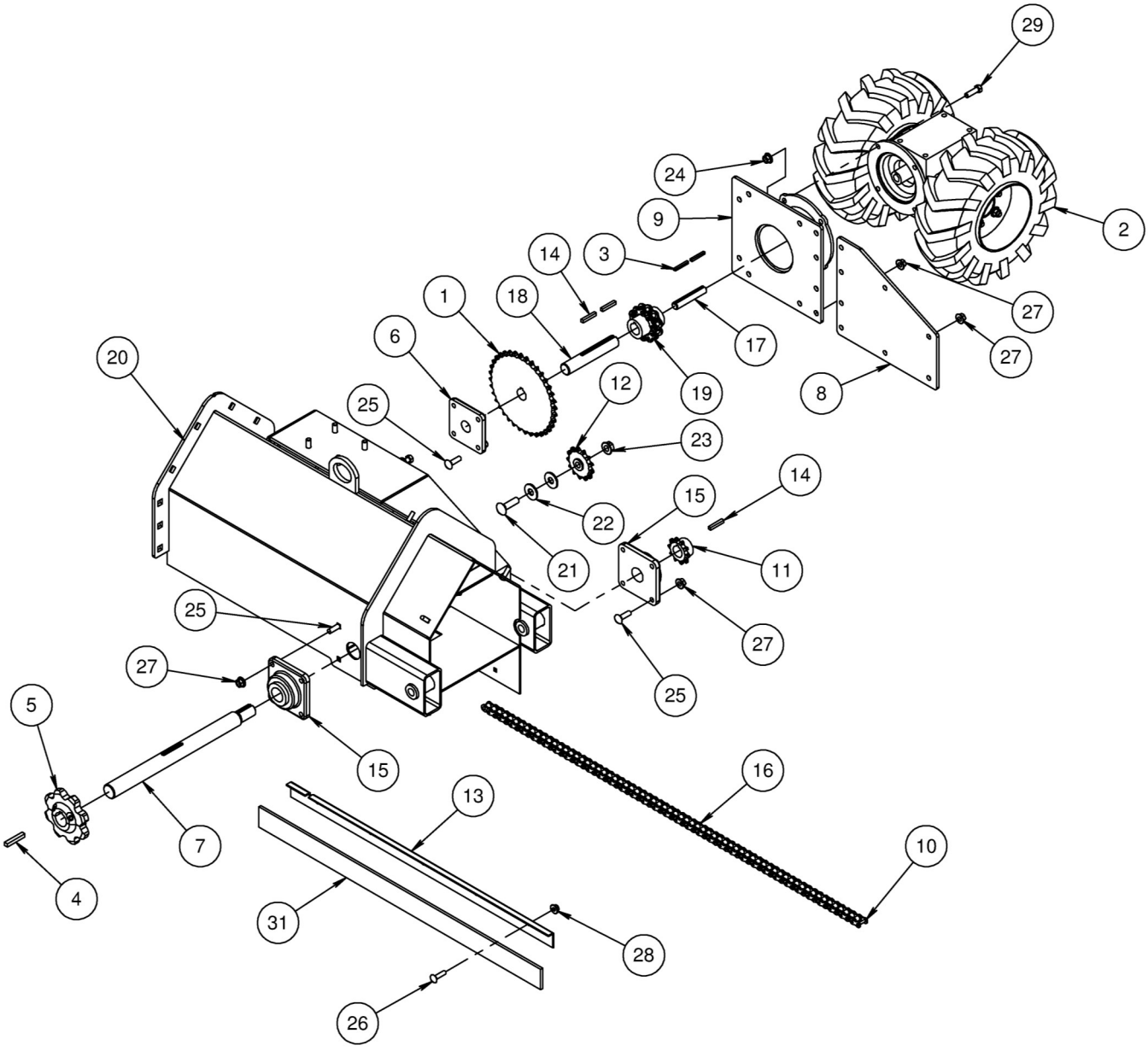
ITEM	PART #	DESCRIPTION	QTY
1	701470	REAR DRIVE SECTION; 10:20—60:1	1
	701472	REAR DRIVE SECTION; 10:36—60:1	1
	701473	REAR DRIVE SECTION; 10:36—40:1	1
	701474	REAR DRIVE SECTION; 10:25—60:1	1
2	701471	OUTER SECTION	1
3	685823	TUBE SPACER	2
4	686304	RUBBER COVER	1
5	686305	CLAMP PLATE	2
6	640922	FLATWASHER; 3/4”	2
7	640162	LOCKWASHER; 3/4”	2
8	640100	HH CAP SCREW; 3/4” X 3”	2
9	701467	CENTERLOCK FLANGE NUT; 5/16”	6
10	689010	WEIGHT BRACKET—237 GEARBOX	1
11	640154	FLATWASHER; 3/8”	4
12	640153	LOCKWASHER; 3/8”	4
13	640032	HH CAP SCREW; 3/8” X 1 1/4”	4
14	688219	COVER PLATE	1
15	686033	DECAL; DANGER	1
16	701182	CENTERLOCK FLANGE NUT; 3/8”	4



REAR DRIVE SECTION

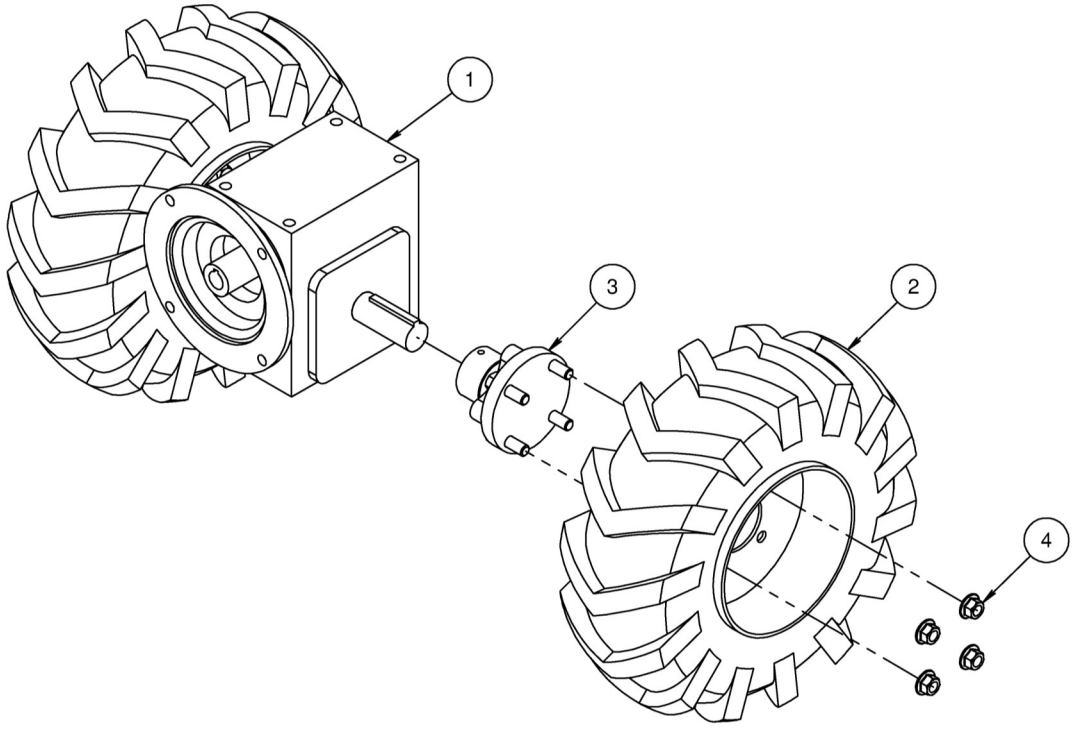
ITEM	PART #	DESCRIPTION	QTY
1	686198	SPROCKET; 20 TOOTH	1
	685917	SPROCKET; 25 TOOTH	1
	685919	SPROCKET; 36 TOOTH	1
2	701369	TRACTOR DRIVE (NON-RATCHET)	1
	690045	TRACTOR DRIVE (W/RATCHETS)	1
3	686026	KEY; 3/16” X 1 1/2”	2
4	686028	KEY; 5/16” X 1 1/2”	1
5	686008	SPROCKET; 8 TOOTH	1
6	686038	FLANGE BEARING	1
7	686040	DRIVE END SHAFT	1
8	686125	GEAR COVER PLATE	1
9	686129	GEAR COVER WELDMENT	1
10	686186	#50 CONNECTOR LINK	1
11	686195	SPROCKET; 10 TOOTH	1
12	686197	SPROCKET; 13 TOOTH	1
13	686349	DRAG RUBBER CLAMP	1
14	686358	KEY; 1/4” X 1 1/2”	3
15	686603	FLANGE BEARING	2
16	687986	CHAIN-42 1/2”	1
	687846	CHAIN-38 3/4”	1
	688232	CHAIN-37 1/2”	1
17	687984	GEAR BOX ADAPTER SHAFT 5/8”	1
18	687985	GEAR BOX ADAPTER SHAFT 1”	1
19	688200	CHAIN COUPLER	1
20	701481	REAR DRIVE WELDMENT	1
21	700638	CARRIAGE BOLT; 1/2” X 1 3/4”	1
22	640158	FLATWASHER; 1/2”	2
23	699010	CENTERLOCK FLANGE NUT; 1/2”	1
24	682413	FLANGE NUT; 3/8”	4
25	680140	CARRIAGE BOLT; 3/8” X 1 1/4”	12
26	686183	CARRIAGE BOLT; 5/16” X 1 1/4”	5
27	701182	CENTERLOCK FLANGE NUT; 3/8”	30
28	701467	CENTERLOCK FLANGE NUT; 5/16”	5
29	640032	HH CAP SCREW; 3/8” X 1 3/4”	4
30	686187	HALF LINK	1
31	686350	DRAG RUBBER	1

REAR DRIVE SECTION



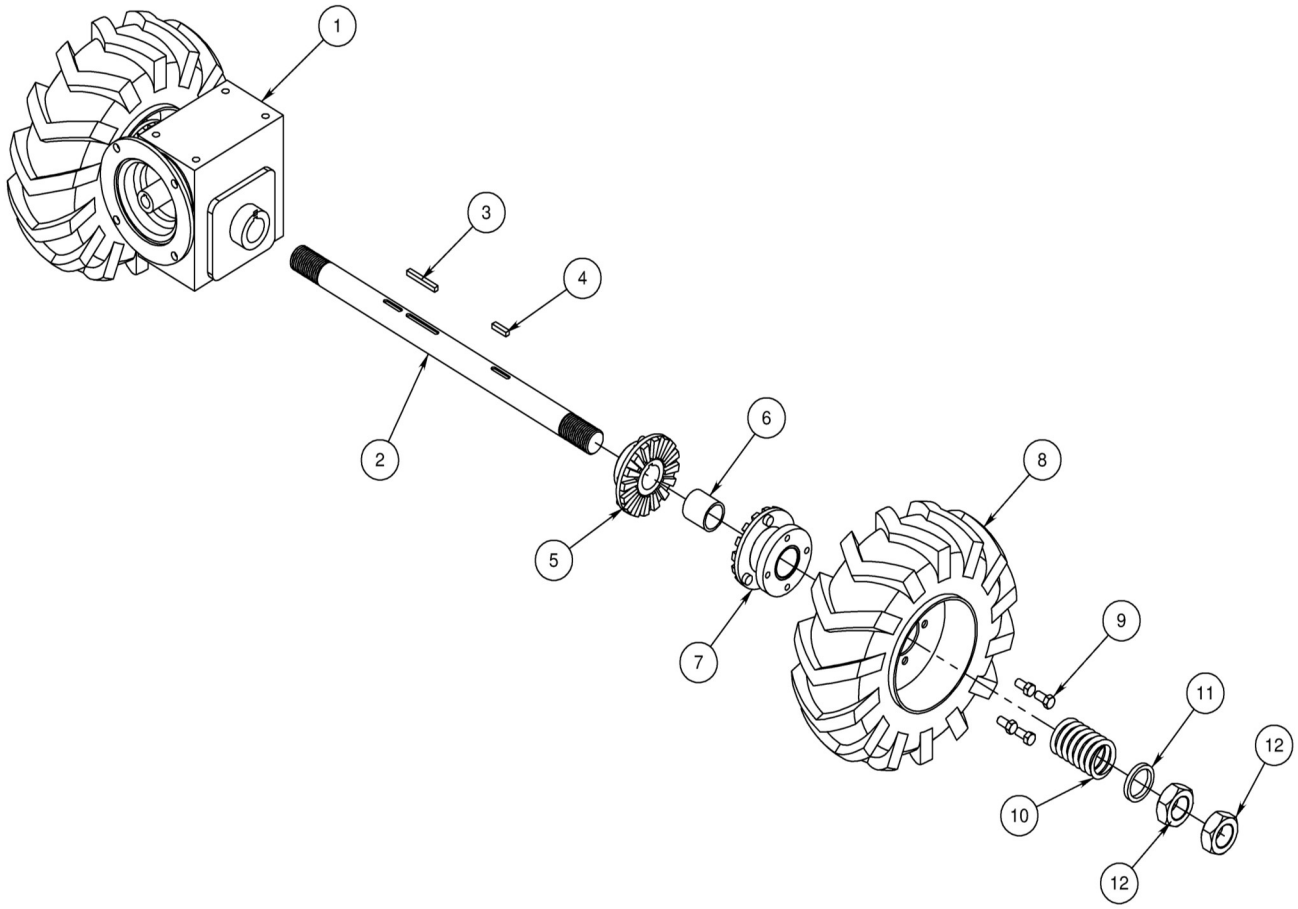
(701369) TRACTOR DRIVE (NON-RATCHET)

ITEM	PART #	DESCRIPTION	QTY
1	686003	GEARBOX	1
2	686025	TIRE	2
3	686096	HUB	2
4	701182	CENTERLOCK FLANGE NUT; 3/8”	8



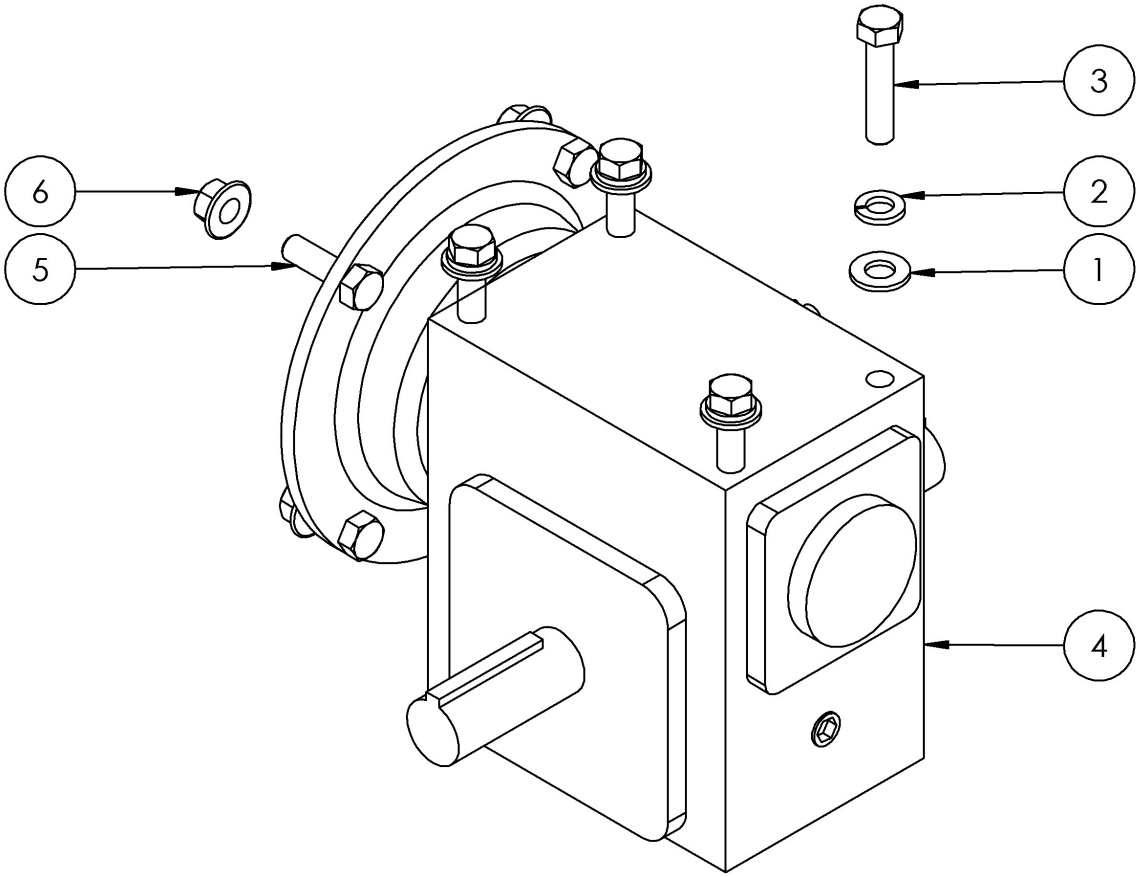
(690045) TRACTOR DRIVE (W/RATCHETS)

ITEM	PART #	DESCRIPTION	QTY
1	690038	GEARBOX	1
2	690039	DRIVE AXLE SHAFT	1
3	686027	KEY; 1/4” x 2”	1
4	161288	KEY; 1/4” x 1”	2
5	690040	INNER RATCHET JAW	2
6	690046	SLEEVE BUSHING	2
7	690041	OUTER RATCHET JAW	2
8	686025	TIRE	2
9	640025	HH CAP SCREW; 3/8” X 3/4”	8
10	690102	CLUTCH SPRING	2
11	690103	PIPE WASHER	2
12	690043	JAMNUT; 1 1/4”	4



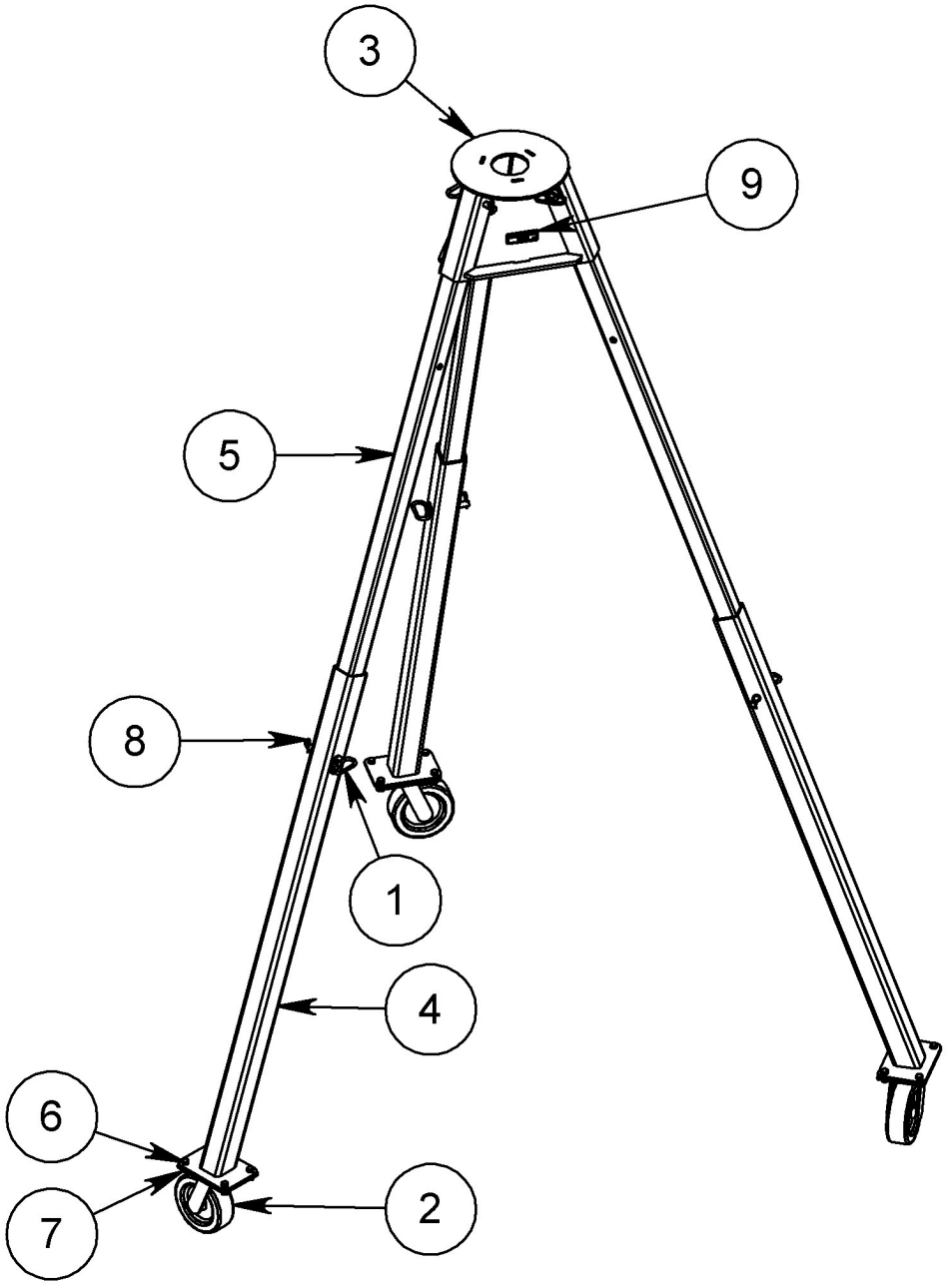
(704108) WORLDWIDE BRAND TRACTOR DRIVE REPLACEMENT KIT

ITEM	PART #	DESCRIPTION	QTY
1	640154	FLATWASHER; 3/8”	4
2	640153	LOCKWASHER; 3/8”	4
3	640035	HH CAP SCREW; 3/8” X 1 3/4”	4
4	686003	GEARBOX	1
5	640032	HH CAP SCREW; 3/8” X 1 1/4”	4
6	682413	FLANGE NUT; 3/8”	4



(690121) Tripod Lift for Sweep Assembly (500 lb maximum capacity)

ITEM	PART #	DESCRIPTION	QTY
1	641119	LOCK PIN	6
2	681287	SWIVEL CASTER	3
3	690122	TOP MOUNT	1
4	690127	BOTTOM LEG	3
5	690128	TOP LEG	3
6	640028	HH CAP SCREW; 3/8” X 1”	12
7	682413	FLANGE NUT; 3/8”	12
8	640671	HITCH PIN	6
9	690179	DECAL—MAXIMUM CAPACITY	3



GSI Group, LLC Limited Warranty

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

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

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

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

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

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

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

Conditions and Limitations:

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

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

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

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

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

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