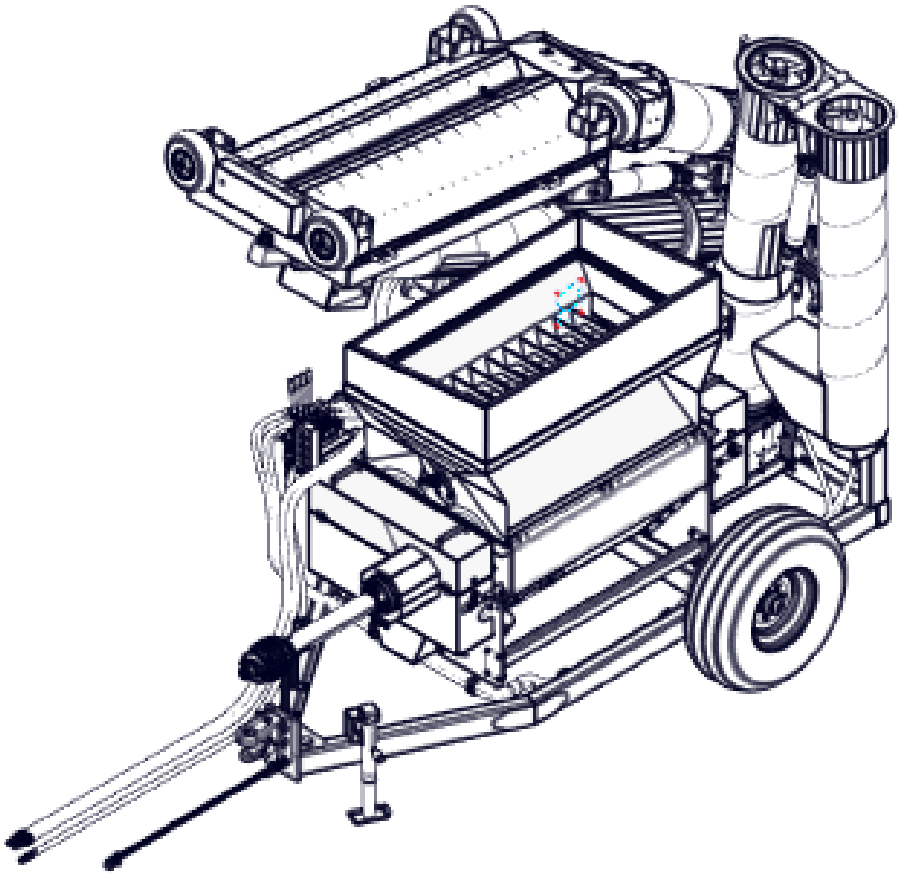
A DIVISION OF Degelman

RMC 48
Operator's & Parts Manual
P.T.O.
Model No. 914800-0435.03



RENN Mill Center LP.
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INTRODUCTION

Congratulations on your decision to purchase a Renn Roller Mill. This machine has been designed to provide you with the highest standards of quality, reliability and durability. This manual has been prepared to familiarize you with the operation and maintenance of your mill. We urge you to read the publication carefully and refer to it extensively for correct operating procedure.

The Renn Roller Mill is designed to give the operator a maximum capacity and working surface through the use of a large diameter roll. Added to this is a convenient method of roll removal and a new process of roll adjustment, giving the operator infinite control of feed quality. The unit is constructed in a solid manner, giving you value for your dollar and a mill that will last.

This manual includes a Warranty Policy, a Safety Section, and a Lubrication and Maintenance Schedule. We urge you to read through this information carefully. This will help to ensure the safe and trouble-free operation of your mill. All information, illustrations and specifications in this manual are based on the latest product information available. We, the manufacturer, reserve the right to make any changes at any time without prior notice.

LIMITED WARRANTY

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- **NEW EQUIPMENT WARRANTY**

Subject to the limitations and exclusions set out herein, RENN Mill Center LP. ("Renn") warrants that if any component or part of a machine manufactured by Renn proves to be defective in material or workmanship within

1. (1) year from the delivery date of the original sale to a purchaser who purchases the equipment for their own farming operation use; OR
2. (90) days from the delivery date of the original sale to any other purchaser.

Renn will at Renn's option either repair or replace the defective part without charge. No payments will be made in lieu of repair to the machine. This limited warranty may be enforced by the first purchaser or first consumer user; all subsequent purchasers acquire the product "as is" without any benefit of this limited warranty.

- **LIMITATIONS AND EXCLUSIONS**

This limited warranty by Renn does not extend to or include:

1. New tires - installed on the equipment which are subject to a separate warranty by the tire manufacturer—see warranty sheet included with your owners manual. All warranty claims must be submitted to the tire manufacturer for approval and payment.
2. Used tires
3. Drive Belts
4. Drive Chains

This limited warranty covers defects in material and workmanship in the parts manufactured by Renn except:

1. Damage resulting from accident, misuse, abuse, neglect or from other than normal and ordinary use of the equipment.
2. Damage resulting from failure to clean or use the product in accordance with the manufacturer's instructions.
3. Renn reserves the manufacturer's right to determine the responsibility for damage as detailed in 1 and 2 above.

Renn shall, as to each defect, be released from all obligations and liabilities under this warranty if;

1. The equipment shall have been operated with any accessory, equipment, component or part not manufactured by Renn or not approved for use by Renn.
2. The equipment shall have been repaired, altered or modified without Renn's approval or if the equipment shall have been operated subsequent to its involvement in an accident or breakdown unless the purchaser furnishes reasonable evidence that such repair, modification or operation subsequent to its involvement in an accident or breakdown was not the cause of the defect;
3. If the purchaser or consumer does not , within 30 days from the date of discovery of the defect, return the defective machine, accessory, equipment component or part at the purchaser's or users expense to an authorized dealer, purchaser shall be responsible for submission of reasonable evidence or proof of date of discovery of subsequent defect.

- **WARRANTY AND PARTS REPLACED BY WARRANTY**

Renn further warrants that if any genuine Renn part or component utilized by authorized Renn dealers in accordance with this limited warranty proves to be defective in material or workmanship within 90 days of such utilization, Renn will, at Renn's option either repair or replace the defective part without charge. Purchaser shall be responsible for any shipping charges including freight to and from the place where the warranty work is done or performed .

- **WHAT YOU MUST DO TO ENFORCE THIS WARRANTY**

1. Warranty services must be performed by a dealer authorized by Renn. The purchaser must , at the purchaser's expense, deliver, mail or ship the defective part to any duly authorized dealer in the purchasers area. If the purchaser is unable to locate a dealer in the purchaser's area, please contact Renn. Renn will either refer you to an authorized dealer or instruct you where to return the product. Do not return the product to Renn, without Renn's prior authorization
2. Purchaser must pay any postage, shipping charges, insurance costs, freight and other expenses to and from the place where the warranty work is done or performed if required to return equipment or any component or part to an authorized dealer or as directed by Renn. Purchaser shall be obligated to pay any premium payable for overtime labour if overtime is incurred as a result of a request by the purchaser.

- **UNAPPROVED SERVICE OR MODIFICATION**

All obligations of Renn under this warranty shall be terminated:

1. If service is performed by someone other than a dealer authorized by Renn or,
2. If equipment is altered or modified in ways not approved by Renn.

Accidents and normal maintenance

This warranty covers only defective material and workmanship. It does not cover depreciation or damage caused by normal wear, accident, improper maintenance, improper protection in storage or improper use. The cost of normal maintenance and replacement of service items, oil filters, cutting parts, tires, bearings, chains, sprockets or brake parts shall be paid for by the purchaser.

- **NO REPRESENTATION OR IMPLIED WARRANTY**

1. Where permitted by law, neither Renn nor any company affiliated with it makes any warranties, representation or promises expressed or implied as to the quality or performance of its products other than those set forth above.
2. Renn makes no warranty of merchantability or fitness for a particular purpose.

- **IMPROVEMENTS OR CHANGES**

Renn reserves the right to make improvements or changes in design and specifications at any time without incurring any obligation to owners of previously sold units.

- **WARRANTY CLAIM PROCEDURE**

Warranty Claim Form must be delivered to Renn within 60 days after the warranty work was performed. Defective parts must be held for inspection for 90 days after the work was performed. Renn may request that parts be returned to the Renn factory for inspection. If approved. Renn will issue a credit within 60 days of receiving the warranty claim.

- **ACKNOWLEDGEMENT REQUIRED**

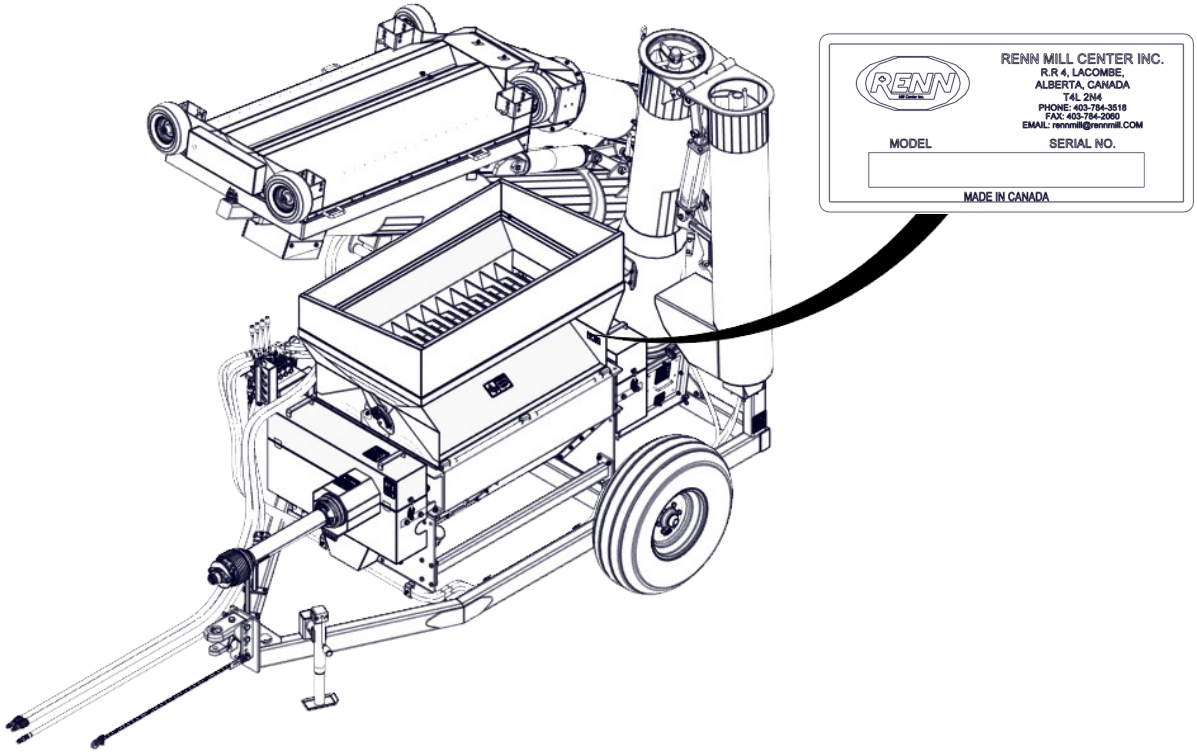
Renn shall have no obligation under this warranty unless the "Warranty Registration" included with your owners manual signed by purchaser and dealer is delivered to Renn within 30 days from the date of sale.

IMPORTANT NOTICE

To activate warranty coverage, the owner / dealer must complete the Warranty Registration form that can be found online and return to Renn Mill Center LP. R.R. 4, Lacombe, Alberta , Canada, T4L 2N4 within 30 days of retail sale.

SERIAL NUMBER LOCATION

The serial number plate is located on the inside face of the back panel of the top hopper, on the driver's side of the machine.



IMPORTANT: For fast, correct service when ordering parts, supply the following information to your local Renn Dealer:

1) The model number
2) The serial number

This information is essential when ordering parts for your Renn Roller Mill.

Safety Alert Symbol

This Safety Alert symbol means

ATTENTION!
BE ALERT!
YOUR SAFETY IS INVOLVED!

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

Why is SAFETY important to you?

3 Big Reasons

Accidents Disable and Kill

Accidents Cost

Accidents Can Be Avoided

SIGNAL WORDS:

Note the use of the signal words **DANGER**, **WARNING**, and **CAUTION** with the safety messages. The appropriate signal word for each message has been selected using the following guidelines:

DANGER -
Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations, typically for machine components that, for functional purposes, cannot be guarded.

WARNING -
Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION -
Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

2 SAFETY

You are responsible for the SAFE operation and maintenance of your Renn Roller Mill. YOU must ensure that you and anyone else who is going to operate, maintain or work around the mill be familiar with the operating and maintenance procedures and related SAFETY information contained in this manual. This manual will take you step-by-step through your working day and will alert you to all good safety practices that should be adhered to while operating the mill.

Remember, YOU are the key to safety. Good safety practices not only protect you but also the people around you. Make these practices a working part of your safety program. Be certain that EVERYONE operating this equipment is familiar with the recommended operating and maintenance procedures and follows all of the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- Mill owners must give operating instructions to operators or employees before allowing them to operate the mill, and at least annually thereafter per OSHA regulation 1928.57.
- The most important safety device on this equipment is a SAFE operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow them. All accidents can be avoided.
- A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible serious injury or death.
- Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.
- Think SAFETY! Work SAFELY!

2.1 General Safety

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining or adjusting the Mill.
2. Only trained, competent persons should operate the mill. An untrained operator is not qualified to operate the machine.
3. Have a first-aid kit available for use, should the need arise, and know how to use it.
4. Have a fire extinguisher available for use, should the need arise, and know how to use it.
5. Wear appropriate protective gear. This list includes but is not limited to:
   - A hard hat
   - Protective shoes with slip resistant soles
   - Protective goggles
   - Hearing protection
5. Review safety related items with all personnel annually.

2.2 Operating Safety

1. Read and understand the Operator's Manual and all safety signs before using the machine.
2. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
3. Do not allow riders on the mill or tractor during operation or transportation.
4. Clear the area of all bystanders, especially children, before starting.
5. Be aware of overhead power lines at all times.
6. Attach any necessary flags and signs to the mill before transporting.
7. Attach securely to the towing unit using a hardened pin with a retainer and a safety chain. The pin should be the maximum allowable size possible.
8. The mill is designed to mill GRAIN. It is not suggested to use the mill for other materials without receiving consent from the factory to do so. Failure to heed this warning will result in forfeiture of warranty.
9. Ensure that the lighting is adequate when operating at night.
10. Use caution while using machine on uneven terrain.
11. Never unhook the mill while it is in use.
12. Minimum distance from the mill hitch to the tractor PTO must be **18 inches**, otherwise damage may occur to the tractor or mill.
13. Review safety instructions annually.

2.3 Maintenance Safety

1. Place all controls in neutral, stop the engine, set the parking brake, remove the ignition key, wait for all moving parts to stop and disengage the PTO before servicing, adjusting, repairing or unplugging.
2. Perform a lock out tag out (LOTO) procedure if required.
3. Relieve pressure from the hydraulic circuit before servicing or disconnecting from the tractor.
4. Place stands or blocks under the frame before working beneath the machine or when changing tires.
5. Only use tools, jacks and hoists appropriate for the job.
6. Install and secure all guards and shields before resuming operation.

2.4 Hydraulic Safety

1. Always place all tractor hydraulic controls in neutral before dismounting.
2. Make sure that all components in the hydraulic system are kept in good condition and replace any worn, cut, abraded, flattened or crimped hoses.
3. Wear proper hand and eye protection when searching for a high pressure hydraulic leak. Use a piece of wood or cardboard, rather than your hands, as a shield to isolate and identify a leak.
4. If injured, seek medical attention immediately. Serious infection or reaction can develop from hydraulic fluid piercing the skin.
5. Before pressurizing the system, make sure that all components are tight and that hoses, fittings and couplings are in good condition.

2.5 Storage Safety

1. Store the unit in an area away from human activity.
2. Do not permit children to play on or around the stored mill.

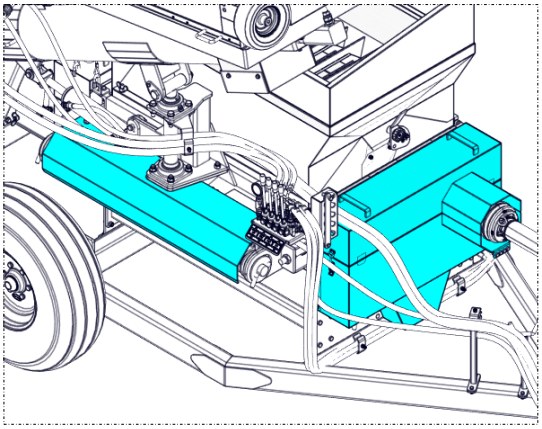
2.6 Safety Decals

1. Keep safety decals clean and legible at all times.
2. Replace safety decals that are missing or have become illegible.
3. Replaced parts that displayed a safety decal should also display the same decal.
4. Safety decals are available through your authorized Renn Dealer.

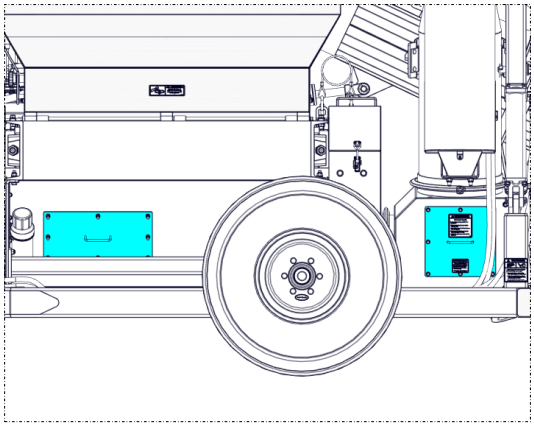
2.7 Safety Shield Placement

After servicing or maintenance, these shields should be back in place.

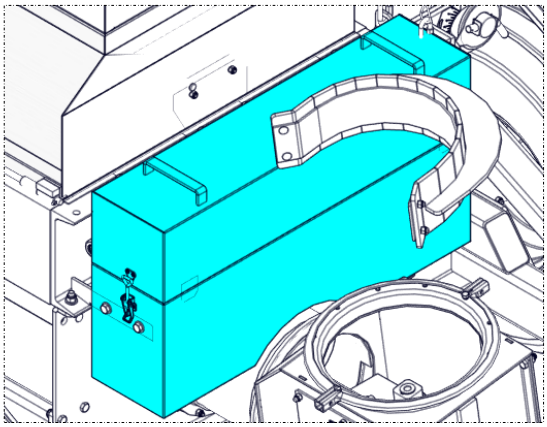
PTO/Front Bearing and Cam Shield



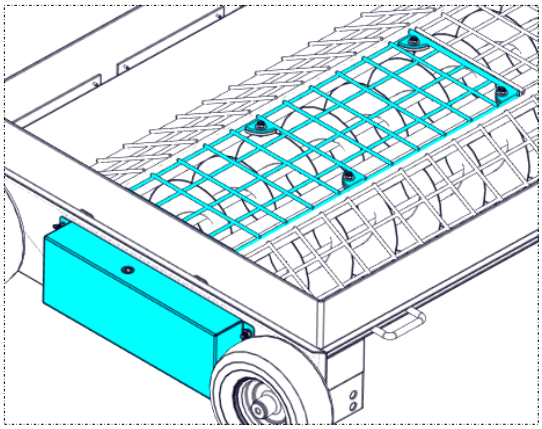
Inspection Plate & gearbox door



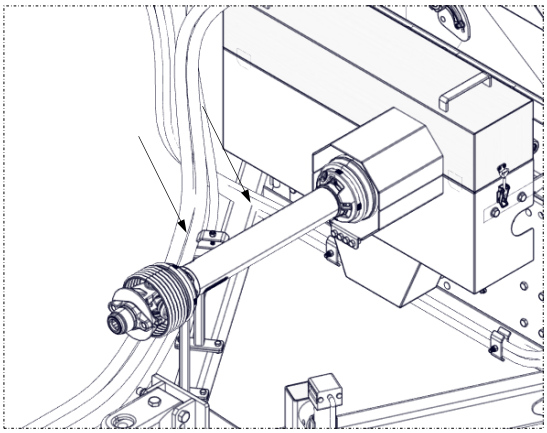
Rear Shield



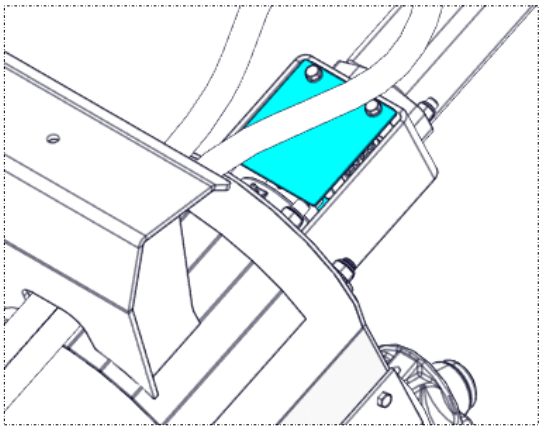
Transfer Auger shield and mesh



PTO: Front and Rear Covers



Transfer auger gearbox shield



2.8 Sign-off Form

Anyone operating and/or maintaining the mill must read and clearly understand ALL of the Safety, Operating, and Maintenance information presented in this manual.

Do not operate or allow anyone else to operate this equipment until such information has been reviewed. Review this information annually, before the season start-up.

Make these periodic reviews of SAFETY and OPERATION a standard practice for all of your equipment. We feel that an untrained operator is unqualified to operate this machine. A sign-off sheet is provided for your record keeping to show that all personnel who will be working with the equipment have read and understood the information in the Operator's Manual and have been instructed in the operation of the equipment.

Sign-off Form

DATE	*EMPLOYEE SIGNATURE*	*EMPLOYER SIGNATURE*

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3.1 Safety Decal Locations

The types of safety decals and locations on the equipment are shown in the following illustrations. Good safety requires that you familiarize yourself with the various safety decals, the type of warning and the area, or particular function related to that area, that requires your SAFETY AWARENESS.

- THINK SAFETY!!, WORK SAFELY!!

148000-0105

148000-0166

148000-0406

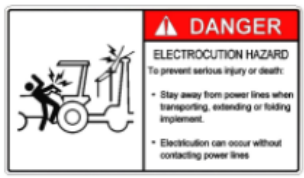
148000-0700

148100-0005

148900-0067

148000-0108

148000-0103

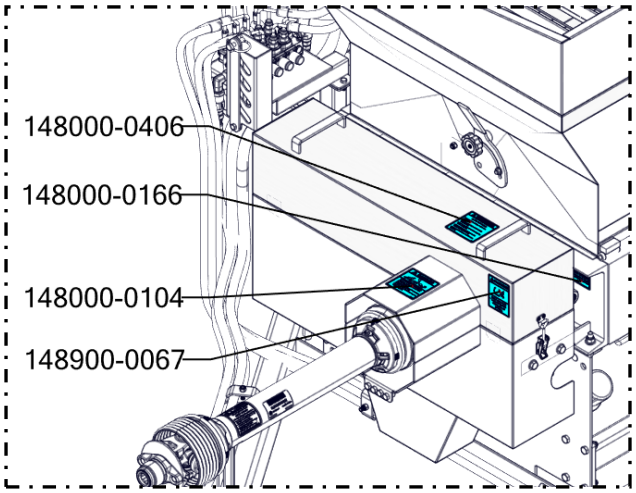


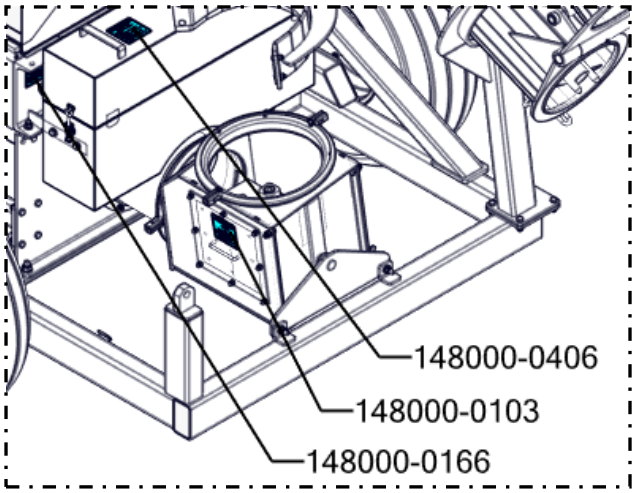
148000-0102

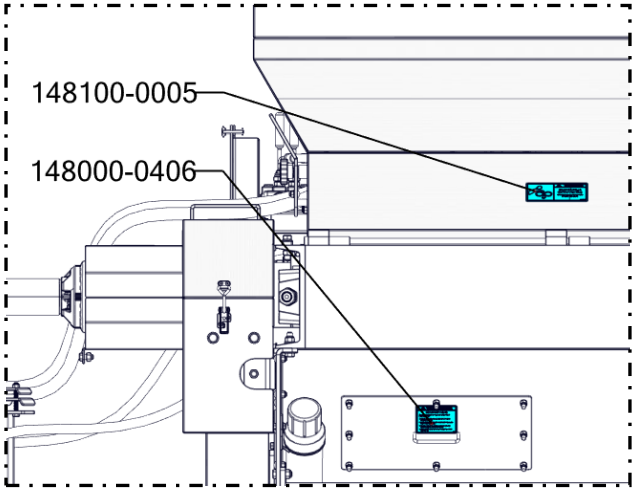
REMEMBER - If safety decals have been damaged, removed, or become illegible, or if parts have been replaced that previously displayed safety decals but do not currently contain safety decals, new decals must be applied. New safety decals are available from your authorized dealer.

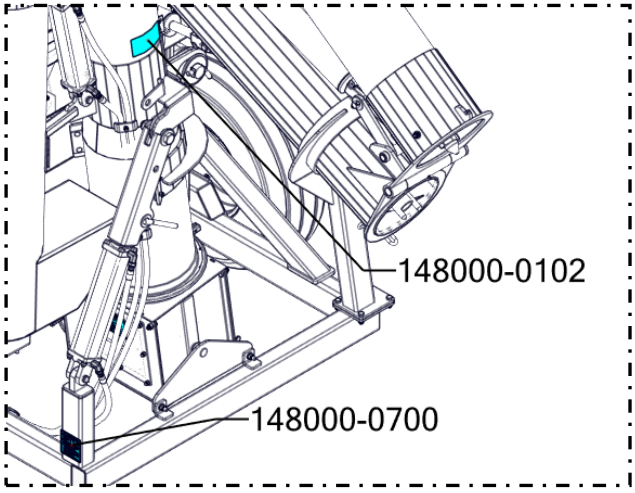
3 DECAL LOCATIONS

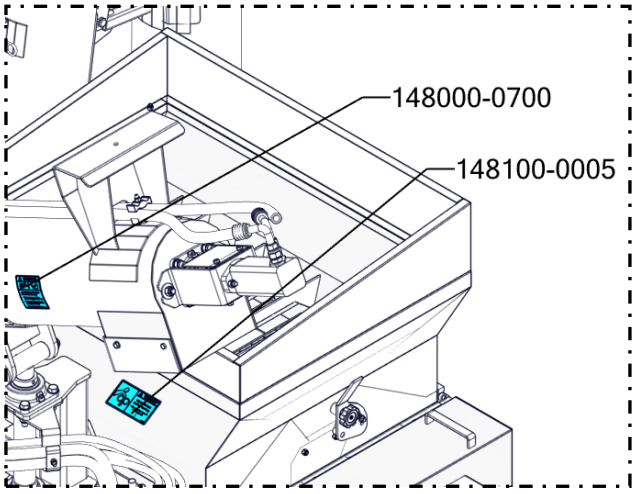
3.1 Safety Decal Locations

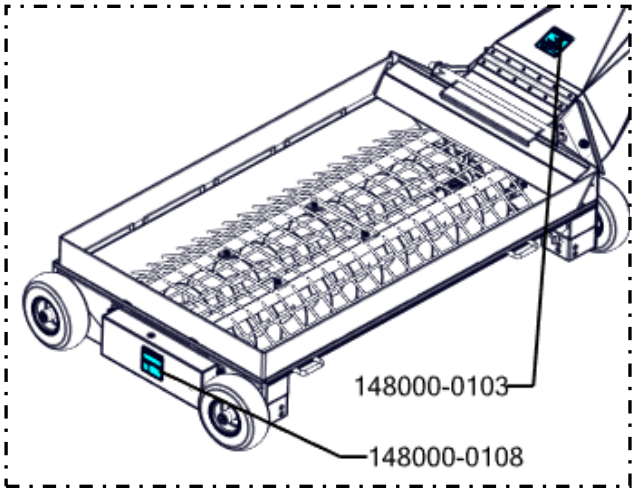








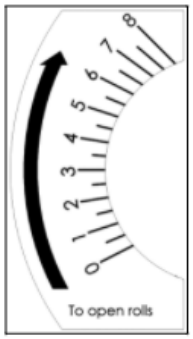




3.2 Information Decal Locations

The types of informational and operational decals and locations on the equipment are shown in the following illustrations. Good operation requires that you familiarize yourself with the various operational decals, the type of warning and the area, or particular function related to that area, that requires your AWARENESS.

- WORK SAFELY!!



148800-0112

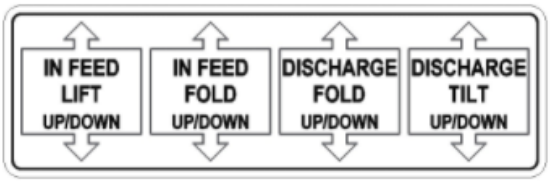
148800-0200

148800-0202

148000-0012

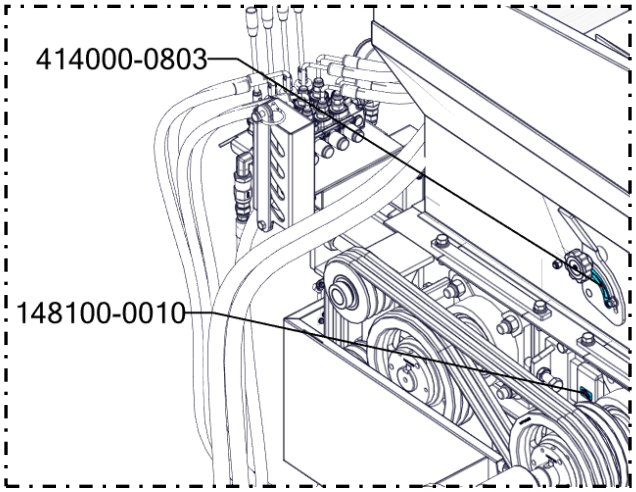
414000-0803

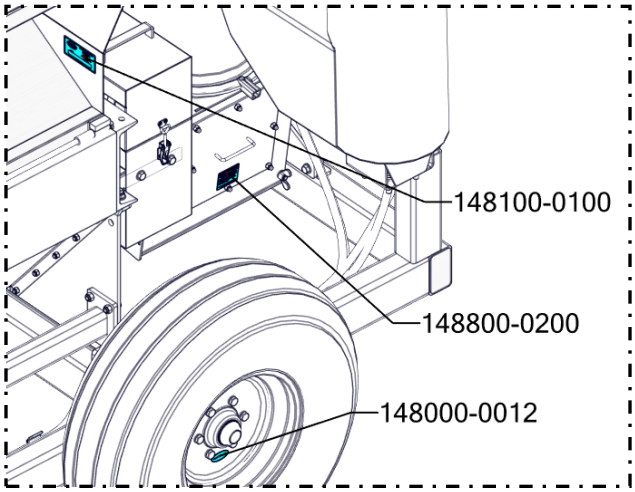
148100-0010

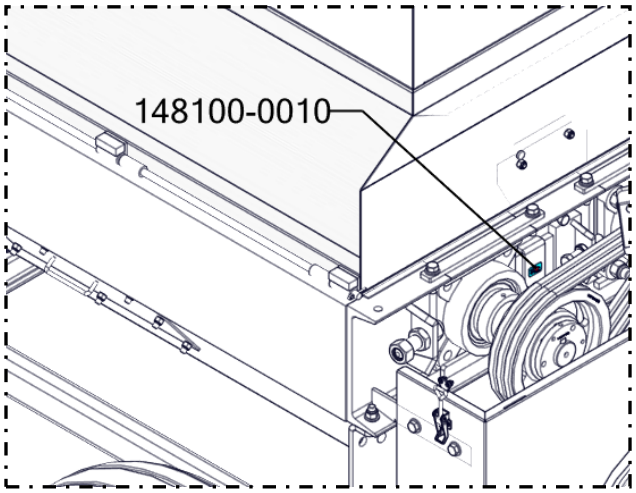


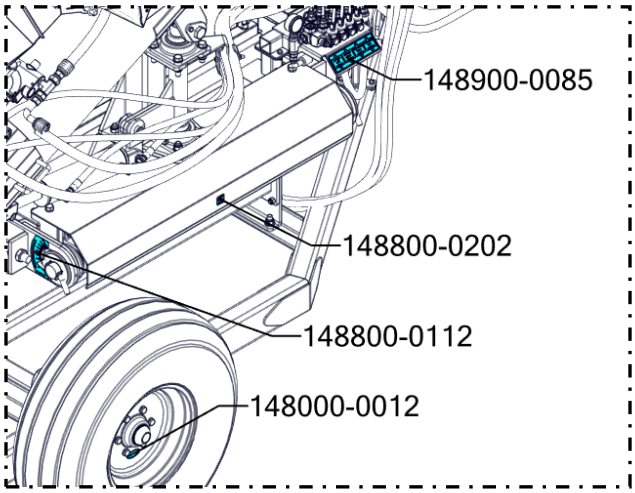
148900-0085

3.2 Information Decal Locations









4 OPERATION

4.1 To the New Operator or Owner

The Renn Mill is designed to receive dry grain from an auger, process it, and deposit it via the discharge auger. Be familiar with the machine before starting.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, and prudence of personnel involved in the operation, transportation, maintenance and storage of equipment and in the use and maintenance of facilities.

It is the responsibility of the owner or operator to read this manual and to train all other operators before they start working with the machine. Follow all safety instructions exactly. Safety is everyone's business. By following recommended procedures, a safe working environment is provided for the operator, bystanders and the area around the work site. Untrained operators are not qualified to operate the machine.

Many features incorporated into this machine are the result of suggestions made by customers like you. Read this manual carefully to learn how to operate the machine safely and efficiently. By following the operating instructions, in conjunction with a good maintenance program, your roller mill will provide you with many years of trouble-free service.

For more information, please refer to Section 2.3 & Section 5 for further maintenance directions.

4.2 Before You Begin

Read the set-up instructions completely. Decide in advance where and how much you're going to roll, and how you plan to unload the grain from the roller mill. Thinking through the process can prevent panic and frustration later. Set up your roller mill before you need it, not when you need it. Do a small trial run if this is your first time using the machine or the process.

4.3 Pre-Operational Checklist

The efficient and safe operation of the Renn Roller Mill requires that each operator read and understand the operating procedures and all related safety precautions outlined in this section. A pre-operational checklist is provided for the operator. It is important for both personal safety and for maintaining the good mechanical condition of the mill that this checklist be followed.

Before operating the mill and each time thereafter, the following areas should be checked:

1. Inspect the machine if it is the start of the season as per section 8.2.
2. Lubricate the machine per the schedule outlined in the Maintenance Section (section 5).
3. Be sure that the machine is properly attached to the tractor. Be sure that a mechanical retainer is installed through the drawbar pin and the safety chain is installed.
4. Adjust the hitch position to level the mill with the tractor.
5. Inspect all hydraulic lines, fittings and couplers.
6. Check all bearing locking collars to ensure that they are tight on the shafts and in good condition. Check that all set screws on the bearing collars are tight. Check that all bearing mounting hardware is secure.
7. Make sure all safety shields are properly installed.

4.4 Setting up the Roller Mill

4.4.1 Roll Setting

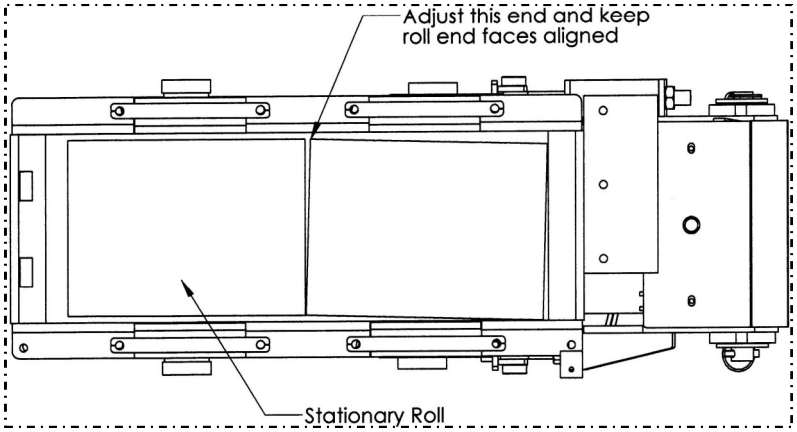


Figure 4.1

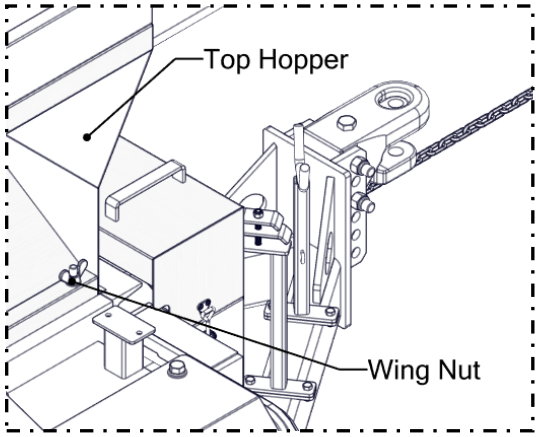


Figure 4.2

Loosen the wing nuts holding down the top hopper (Figure 4.2) and tip it over center, rotating on the hinge pin until it hits the stoppers.

If using flat rolls to roll dry grain, set the rolls a very small distance apart. Using a sheet of lined paper or feeler gauge, sweep from end to end as you reduce the gap on each end of the roll using the cam linkage adjustment nut (Figure 4.3). Ensure that the positional indicator on the spring cam is in position 1 (Figure 4.3). Turn the adjustment nuts in 1/2 turn segments (less as you near the goal) to adjust the bearing as required. Continue to adjust the roll until some resistance is felt on the paper or feeler gauge.

Turn the roll by hand to confirm that the roll has clearance all the way around. When adjustments are complete, set the jam nuts. Replace the top hopper.

For grooved rolls, the gap may vary based on the required final product. The process for this is the same but with a thicker piece of paper (or multiple pieces) or a feeler gauge.

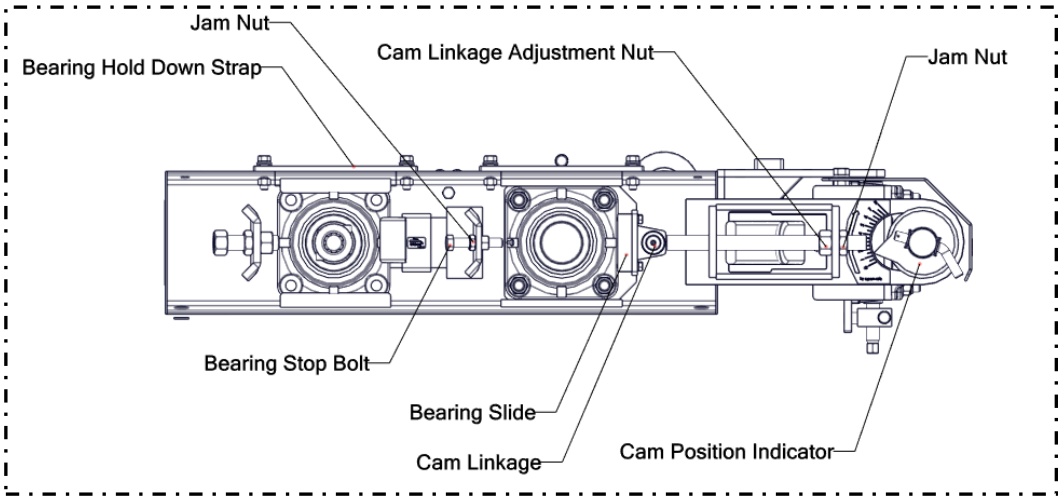


Figure 4.3

4.4.2 Roll Gap Adjustment

The cam control (Figure 4.4) serves as a mechanism to make roll gap adjustments accurately and quickly using a 3/4" wrench or socket. The cam positional indicator is set at the factory to the "1" position with 5 thousandths of clearance between the rolls. The adjustment nuts are also set at this position to maintain the minimum clearance required to keep the rolls from touching—See 4.4.1 Roll Setting.

To obtain a setting with greater roll gap, rotate the cam control in a clockwise direction after releasing the brake. The brake is released by loosening the brake cross bolt. Rotating the control by more than a half turn at a time is not advised without taking a feed sample. Once the desired setting is obtained, reset the brake to maintain the setting. The cam control may be adjusted while the machine is in operation.

To obtain a setting that delivers a smaller particle size, rotate the cam control in a counter clockwise direction (equates to lower numbers on positional indicator).

To release trapped items, or to unplug the rolls, rotate the cam control so that the positional indicator rotates clockwise and points vertically. Continue turning clockwise until it points horizontally away from the indicated scale.

This is the maximum gap attainable to release articles caught above the rolls. Larger particles should be removed from above the rolls with the machine powered down. Return the indicator to the former position to resume grinding.

Additionally, the spring pressure can be increased to control the outcome of the final product. Adjusting the spring pressure is not an exact science and may take some trial and error to achieve the desired results. To adjust the spring pressure, loosen the jam nuts on the spring push bolts and turn the spring bolts in and out until the desired pressure is reached.

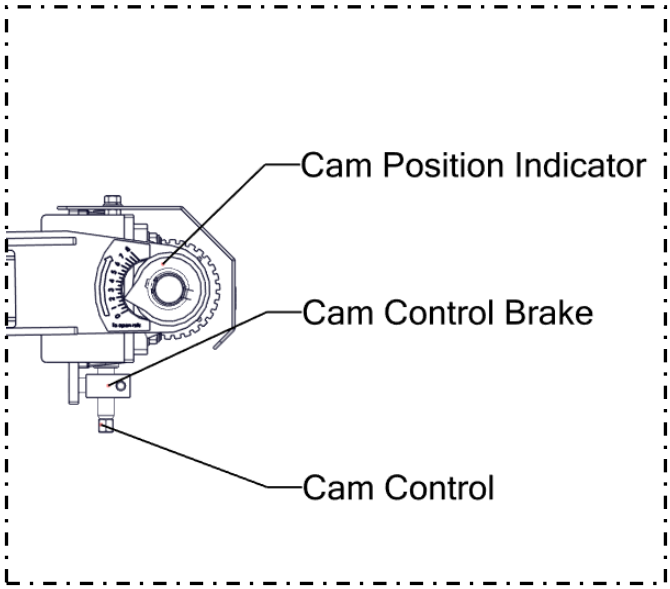


Figure 4.4

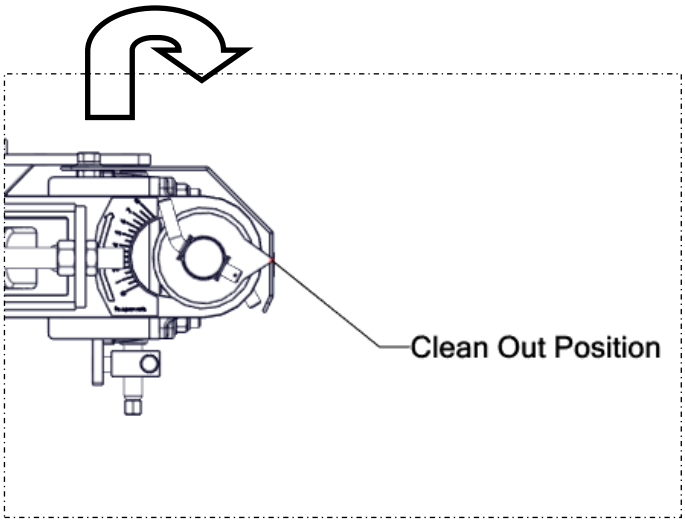


Figure 4.5

4.4.3 Feed Gate Control

Set the friction knob (Figure 4.6) so that it supports the weight of the feed gate and yet allows the gate to be opened and closed by hand. Note that the setting of the feed gate helps to spread the feeding of grain evenly across the face of the roll. The feed gate also serves to limit the overall flow of grain through the rolls.

4.4.4 Setting Wear Plates

Wear plates (Figure 4.7) are used to keep grain from escaping around the ends of the rolls. The positioning of the wear plates can be seen when the feed gate is fully open. A noise can be heard if the wear plates are contacting the rolls. To remedy this, loosen the jam nut and wear plate adjustment bolt (Figure 4.6) until the noise stops. Alternately, if the gap is excessive, turn the bolt into the plate until the plate touches the roll, then back off until the noise stops. Tighten the jam nuts when the desired setting is obtained. Be sure to maintain the position of 'UHMW "V"' (Figure 4.7) to cover the chamfer at the ends of the rolls. Replace as necessary.

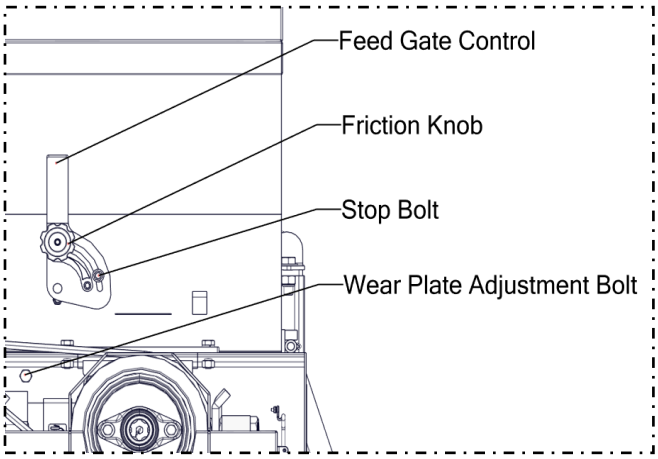


Figure 4.6

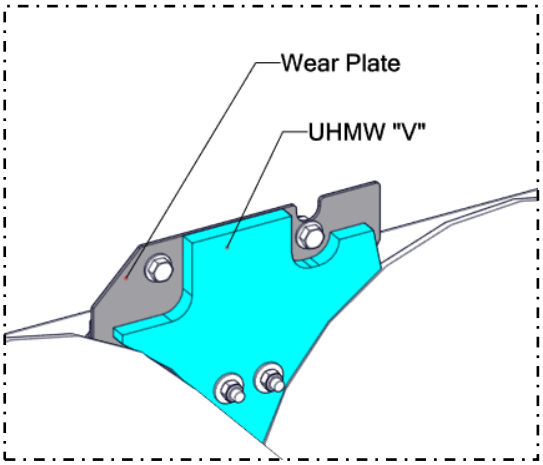


Figure 4.7

4.4.5 Grate Magnet

The grate magnet has slits on the edges (Figure 4.8). These can be removed with pliers to expand the top opening. This modification may aid in improving material flow when milling wet grain.

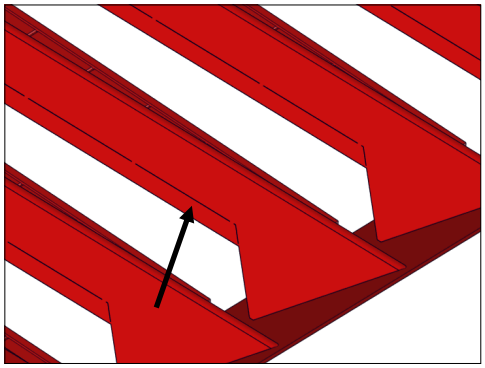


Figure 4.8

4.4.6 Roll Drive Belt Tension

To increase belt tension, loosen the jam nut and turn the tensioning bolt until approximately 15lbs of force at the center of the longest belt span causes a 3/8" deflection. Reset the jam nut to lock the adjustment bolt in place. Always leave a minimum of 1/16" of room for take-up in the coils of the spring (Figure 4.9).

4.4.7 Cross Auger Belt Tension

Follow the same steps as outlined in 4.4.5. Refer to the Cross Auger Belt Tension diagram (Figure 4.10).

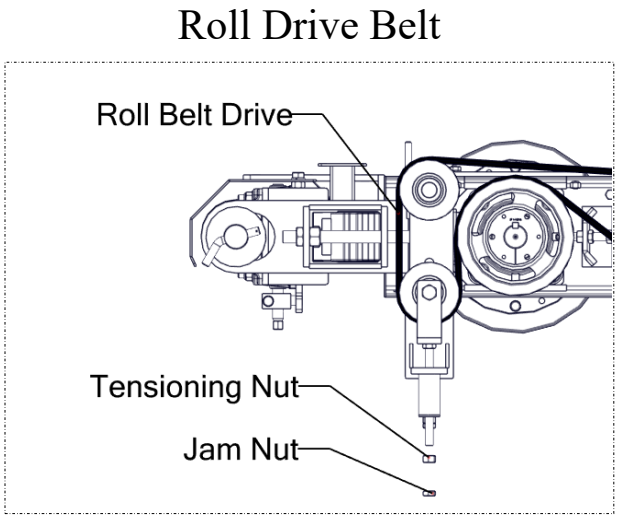


Figure 4.9

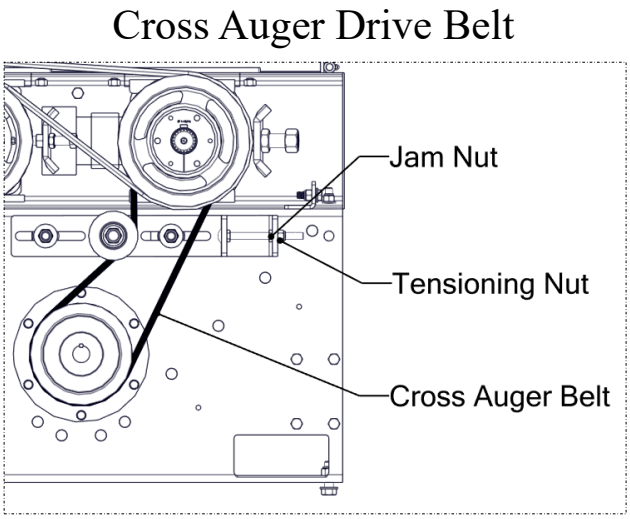


Figure 4.10

4.4.8 Spring Pressure

To increase spring pressure, loosen the jam nut and turn the spring push bolt inward a 1/4 turn at a time. Setting the pressure higher than necessary is hard on the bearings and the roll surfaces when hard particles like rocks go through the rolls. Always turn the bolts (if more than one) so that the load carried by each is the same. The factory setting for the deflection of the spring is 0.500 in and a max deflection of 0.875 in.
(Note: Figure shows top view of the mill; shield removed for illustration purposes only)

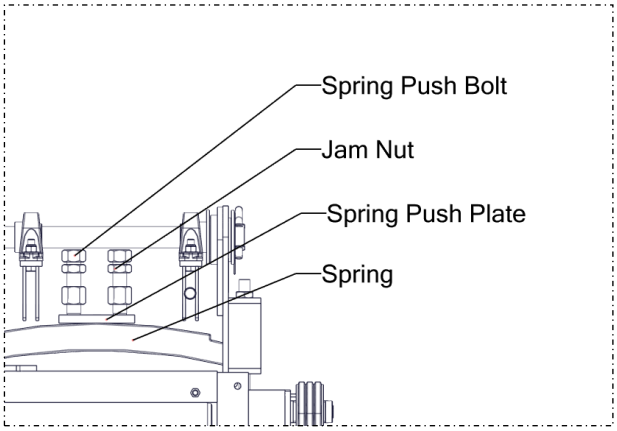


Figure 4.11

4.4.9 Transfer Auger Set Up

A) Remove the top or bottom lynch pin on the auger rest holding the transfer auger to the mill trailer (Figure 4.12).
B) Slide the auger retaining rod off the auger rest (Figure 4.13).

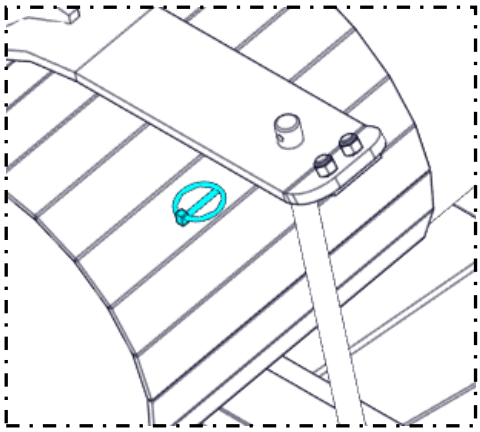


Figure 4.12

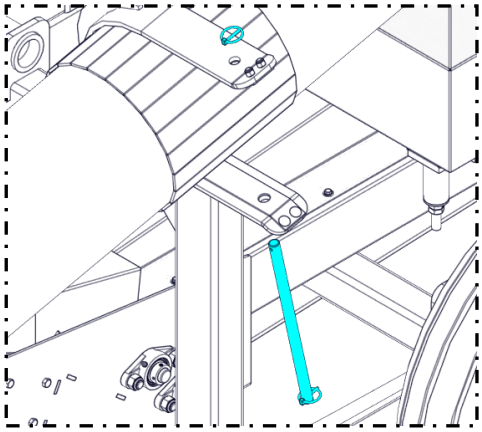


Figure 4.13

C) Once the retainer ring is removed, swing the auger out of the auger rest and use the hydraulics to lift or lower the transfer auger into the needed position (Figure 4.14).
D) The transfer auger is equipped with a free swing mechanism (Figure 4.15). This is used as a safety buffer to prevent damage to machine components unexpected forces on the lift cylinder due to over-extension on the lift cylinder.

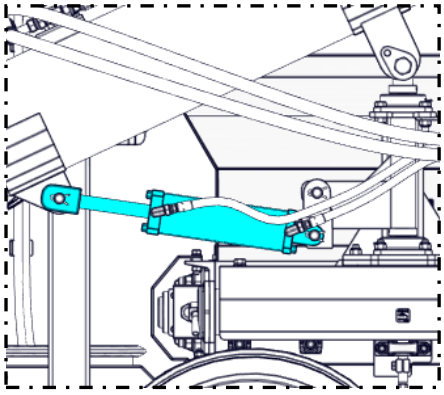


Figure 4.14

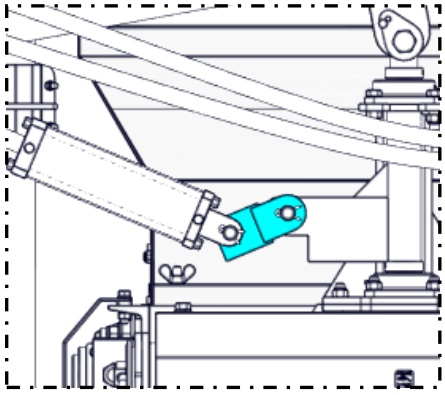


Figure 4.15

E) Use the hydraulic controls to unfold the transfer auger into the working position. Use the over center latch and safety pin to secure the two sections together.

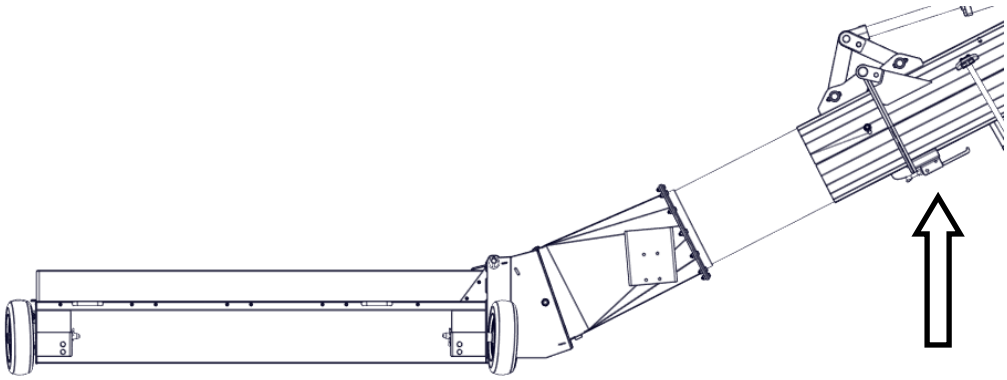


Figure 4.16

Note: When setting up the auger, use the hydraulics in a slow and steady manner, watching for any components that can get caught in between and damaged while swinging into position. Do not over-extent the cylinder.

4.4.10 Discharge Auger Set Up

A) Unfold the discharge auger (Figure 4.17) using hydraulics (Figure 4.18) and the appropriate handle on the hydraulic control valve

Figure 4.17

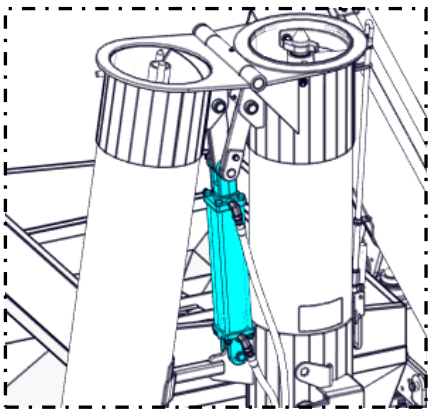


Figure 4.18

B) When unfolding the auger, check if the locking mechanism (Figure 4.19) or anything else is in the way.

C) Upon completion of unfolding the auger, use the catch assembly to clamp the auger in position (Figure 4.20)

Unlocked position

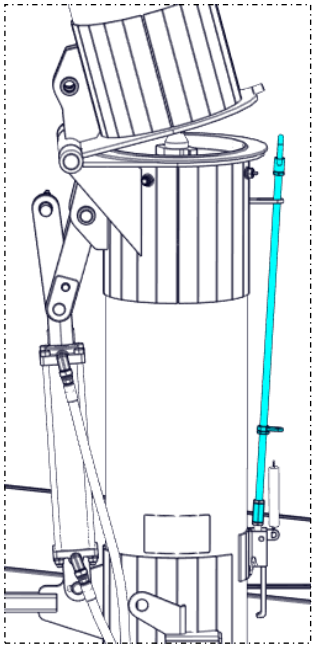


Figure 4.19

Locked position

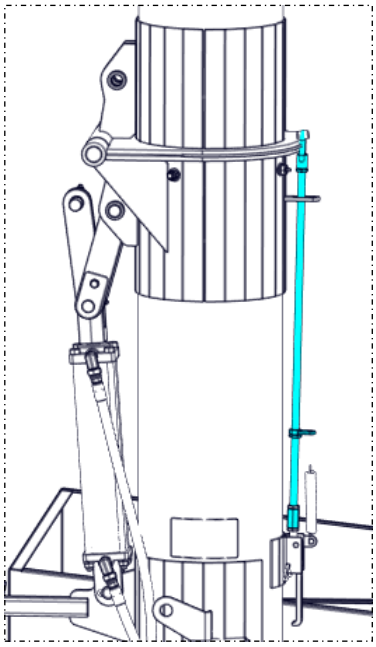


Figure 4.20

D) Remove the transport lock mechanism that holds the discharge auger in the vertical transport position. (Figure 4.21). (Do not dispose the pin since it can be used while transporting).

Locked position

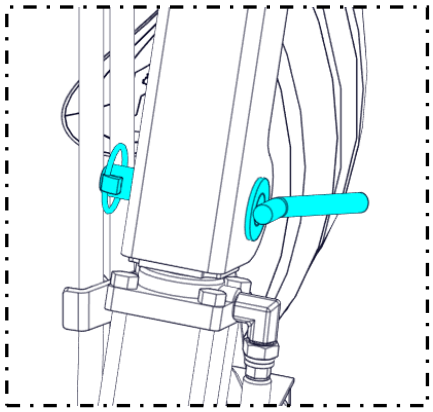


Figure 4.21

Figure 4.22

E) Hold the transport lock up along the discharge auger tube, lining up the holes in the middle of the transport lock with the tabs on the discharge auger tube (Figure 4.23).
F) Insert the lock pin and lynch pin to secure the cylinder lock to the auger tube (Figure 4.24). The angle of the discharge auger can now be adjusted using the hydraulics.

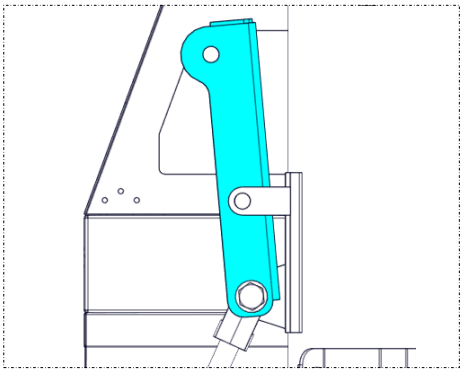


Figure 4.23

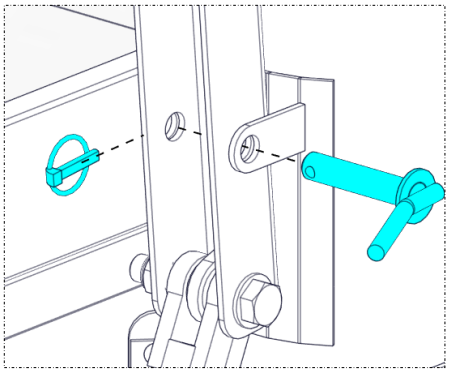


Figure 4.24

Note: When setting up the auger, use the hydraulics in a slow and steady manner, watch for any components that can get in-between and get damaged while tilting into position.

4.4.11 Hose Hanger

A) Open the quick pin that is holding the lock plate and the front panel of the hose hanger (Figure 4.25).
B) Rotate the lock plate counter clockwise (Figure 4.26). If the lock plate is too tight, loosen the bolt at the bottom of the lock plate.

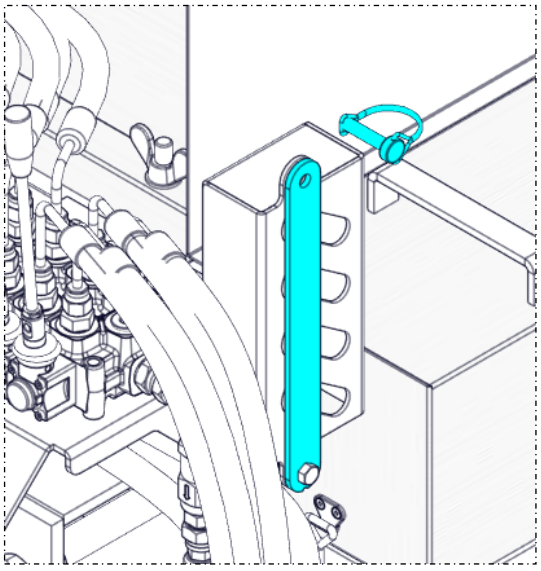


Figure 4.25

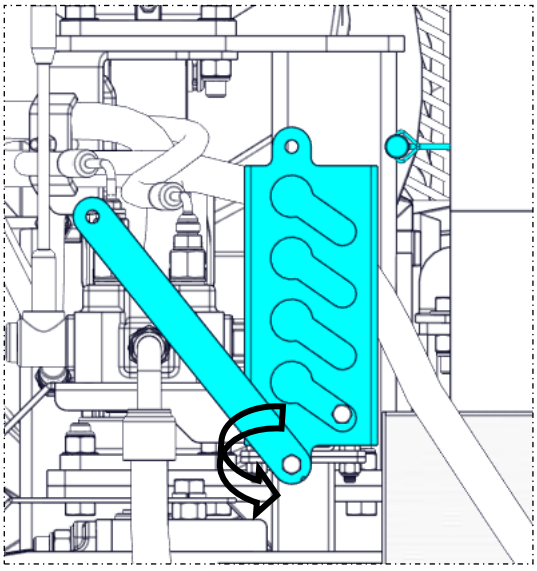


Figure 4.26

C) Hang the hoses on the hanger.

D) Place the lock plate and the pin back on.

4.5 Operating the Roller Mill

1. Make sure to read and understand all of the safety items in Section 2.
2. Ensure that the feed gate is closed (Figure 4.6) before starting the mill. Even a few grains will keep the rolls from turning. Start the rolls turning at minimum RPM and slowly increase the RPM speed to 540.
3. Check the wear plate, roll gap, and feed gate friction knob settings.
4. Open the gate slowly and increase the flow, continuing to check grain quality as you do.

Note: Rolling quality is impacted by three variables: roll speed, spring pressure, and feed rate. If grain quality is good at low feed rates, but decreases quickly as feed rate increases, the spring pressure may be too low. To increase pressure, loosen the jam nuts and turn the spring push bolts (Figure 4.11) inward a 1/2 turn at a time. Keep the pressure even on both bolts (if applicable). In difficult cases, reducing the feed rate is one more way to control feed quality.

5. Always ensure that the belt tension is adequate on the cross auger drive belt. Plugging of the mill can occur if the belts begin to slip significantly (see sections 4.4.5 & 4.4.6).
6. When finishing the rolling process, always clean the top hopper out completely and close the feed gate. Note that the feed gate stop bolt (Figure 4.6) can be used to set a consistent opening point. This maintains product consistency each time rolling is performed.
7. If not using the mill for some time, clean the grain out of the gearbox using the rear door access. Best practice is to store the mill under cover.

4.6 Roller Mill Break-in

It is recommended that the mill be run at moderate to full operational speed and at 1/2 to 2/3 capacity during the first hour of operation. This allows the frictional forces to diminish significantly within the auger tube, and allows the free flow of grain to approach acceptable levels in the system. Keep this in mind after the mill has been stored for extended periods of time as well.
It is also recommended that the following mechanical items be checked:

1. **At start up:**
   - Check wear plate settings.
   - Check roll gap settings.
   - Check operation of the feed gate; set the friction nut.

2. **After operating for a 1/2 hour:**
   - Re-torque all fasteners and hardware.
   - Lubricate all grease fittings.
   - Check operation of the feed gate; reset the friction nut as needed**.**
   - Check the roll gap setting. Due to the use of mechanical means to hold the roll in place, "settling" can occur within the system due to spring impact and other factors.
   - Check the setting of the gap between the rolls, not only for a change in gap setting, but also for gap consistency from one end of the roll to the other.

A half hour of running will take care of any inconsistencies in the roll surface, and allow an accurate setting of the roll gap. See 4.4.1 for setting of the roll gap.

3. **After 5 hours and 10 hours of operation:**
   - Re-torque all wheel bolts, fasteners and hardware.
   - Lubricate all grease fittings - do not over-grease.
   - Proceed to the normal servicing and maintenance schedule as defined in the Maintenance Section (section 5).

5.1 Servicing Record

See the Lubrication and Maintenance sections for details of service. Copy this page to continue record.

ACTION CODE: CL…….CLEAN T……...TIGHTEN
L…….LUBRICATE CH…….CHECK

	MAINTENANCE / Hours										
	Serviced By										
	8 Hours of Driveline Use										
L	U-Joint - PTO										
L	Main Bearings - Rolls										
L	Cross Auger Bearing										
L	Discharge Auger Bearing										
L	Transfer Auger Bearings										
L	U-Joint - Transfer Auger										
	50 Hours of Use										
CH	Rolls Position - Square										
L	Gear Box - Replace Oil - 200 hrs. - Check Level - 50 hrs.										
L	Cam Bearings										
L	Chain Coupling - Transfer Auger										
	Annually										
T	All Fasteners										
L	Wheel Hubs										
CL	Machine										
CH	Wear Plates										
L	Jack										

5.2 Servicing Intervals

Grease

Use an S.A.E. multi-purpose high temperature grease with extreme pressure (EP) performance. An S.A.E. multi-purpose lithium base grease is also acceptable.

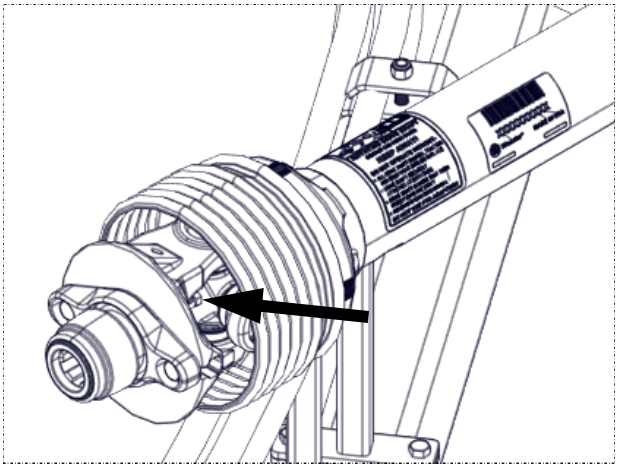
Use the Maintenance Checklist provided to keep a record of all scheduled maintenance.

1. Only use a hand-held grease gun for all greasing.
2. Wipe grease fittings with a clean cloth before greasing to avoid injecting dirt and grit.
3. Replace and repair broken fittings immediately.
4. If a fitting will not take grease, remove and clean thoroughly. Clean the lubricant passage-way also. Replace fittings as necessary.

Oil

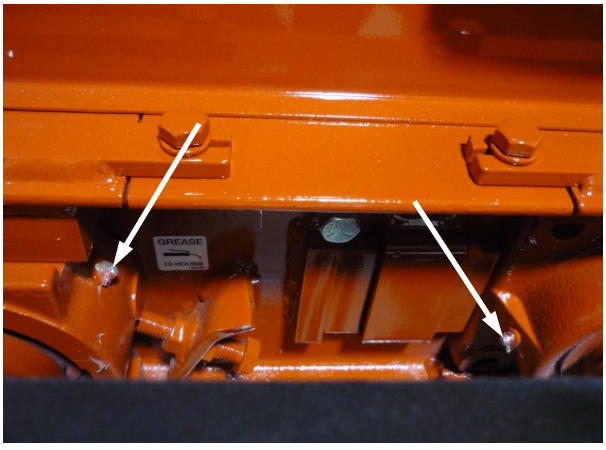
Use 80W90 oil for discharge auger gearbox.
Use the Maintenance Checklist provided to keep a record of all scheduled maintenance.

PTO, front and rear yoke: grease zerk (every 8 hours)



PTO, mid: grease zerk, extend PTO and rotate shield to find zerk (every 8 hours)

Main bearings: grease zerk front and rear (every 8 hours)

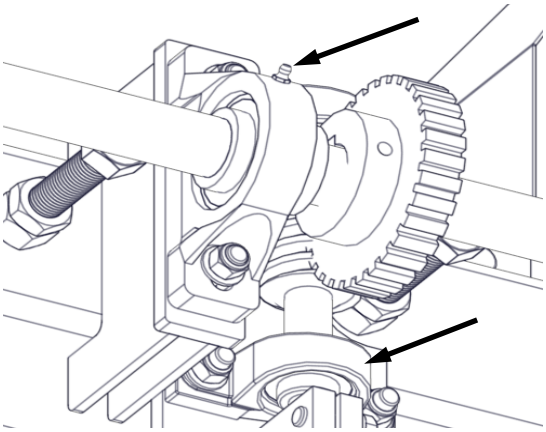


NOTE: Do not grease the Over Running Clutch when you receive the Mill as they are already greased at the factory. If you over grease the Over Running Clutch, the assembly will cease to function properly .

5 SERVICE AND MAINTENANCE

5.2 Servicing Intervals (Cont'd)

Cam adjuster bearings (grease lightly every 50 hours)



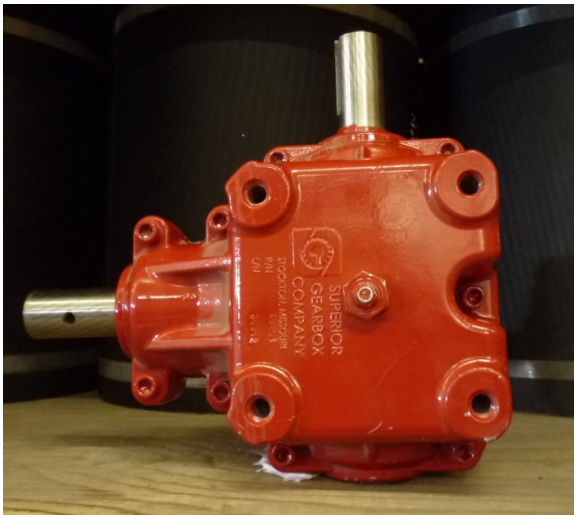
Jack: grease zerk (once per season)

Wheel hub, grease zerk and torque bolts (once per season)

Discharge Auger
(Check every 50hrs, replace every 200hrs)

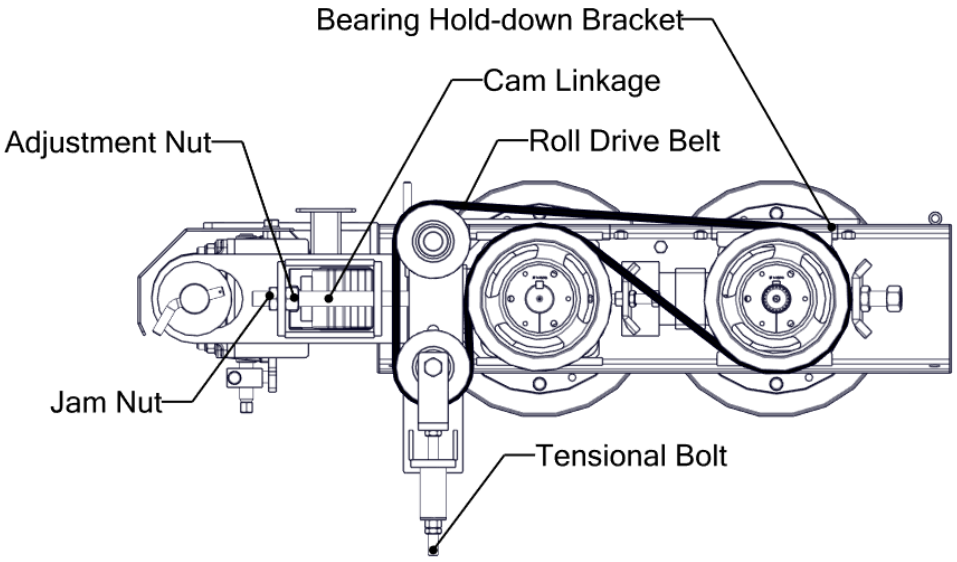
For discharge gearbox oil level check -

1. Take out the gearbox.
2. The oil check plugs are located on the sides of the gearbox.
3. Keep it in vertical position. Fill until oil trickles out of the check holes.
4. Put the gearbox back into the housing.
5. Torque the mounting bolts to spec. (75 ft.lbs).



5.3 Removal Of Rolls For Servicing

1. With the power disconnected, loosen the jam nuts on each of the spring push bolts and relieve all pressure from the spring (see section 4.4.8).
2. Relieve the tension on the roll drive belts and remove.
3. Loosen the jam nuts on the tensional bolt. Loosen and remove the belts.
   Note: To get these belts out you must remove both idler rollers. To do this, completely remove the tensioner nuts to allow the tensioner bracket to be disengaged from the upper idler roller. Release the fasteners holding the lower idler roller and remove, then remove the upper idler roller.
4. Loosen the wing nuts holding the top hopper down and lift the topper up, over center, gently setting it on the rests.
5. Loosen and remove the bearing hold-down straps.
6. Remove the bolts that tie the cam base to the bearing slide.
7. After loosening the brake, turn the cam controller to create some space between the bearing slide and the cam base.
8. Remove 1 roll at a time. *Note: Rolls are heavy, take appropriate precautions.*



TO SET DRIVE ROLLS AFTER RE-INSTALLATION

- Refer to Section 4.4.1.

OPERATION

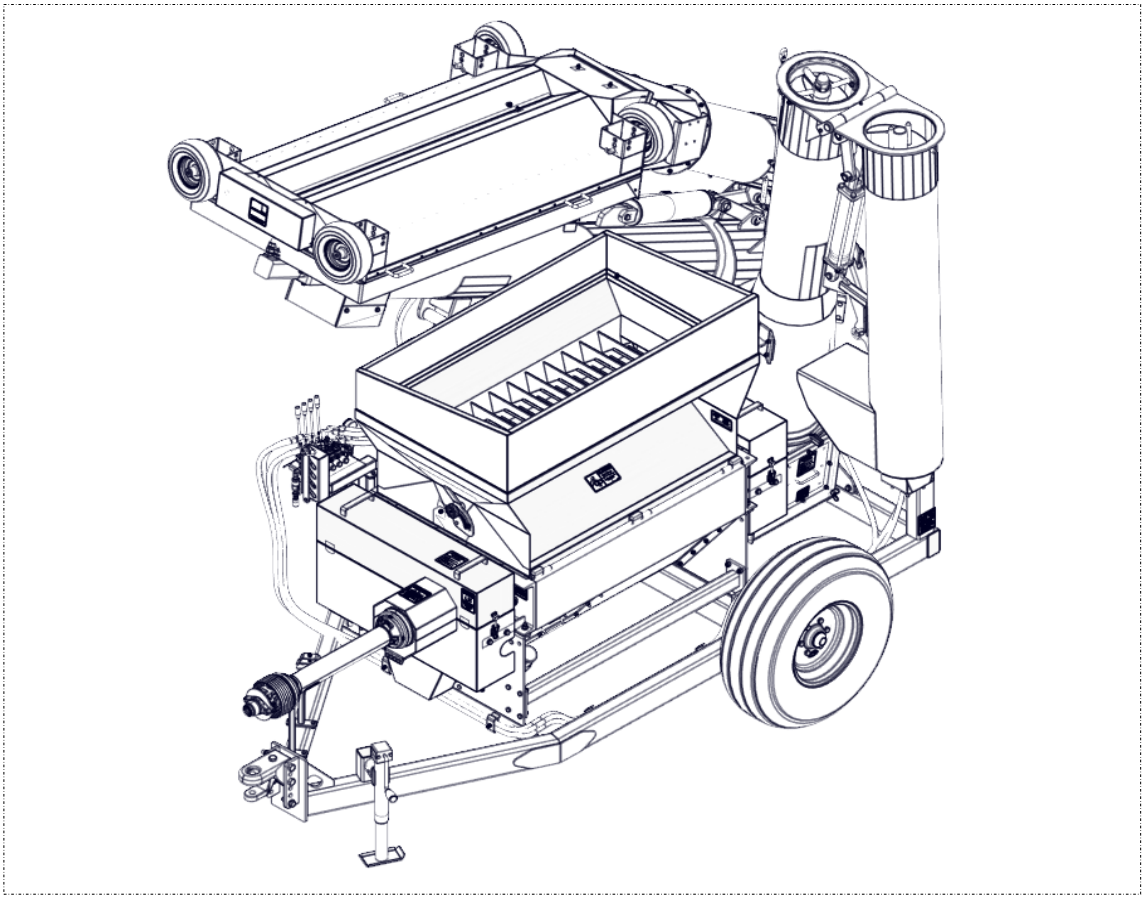
- Prior to start-up, ensure that the roll gap is preset to the desired setting by putting a 1 bushel sample through the rolls at rated speed. This will indicate what the final product will look like during normal operation. Adjust the gap and spring pressure as necessary, based on the rolled sample.
- See section 4.4.2 for roll setting procedures. When using the cam system, loosen the brake cross bolt at the base of the vertical shaft found at the center of the system, then proceed to turn the cam adjuster at the bottom of the vertical shaft to adjust the roller setting. Always tighten the brake when finished. Adjustments can be made under load without issue.

6 PDI SETUP

Your Renn Roller Mill is shipped fully assembled. Take all necessary precautions when moving and operating the equipment.

Note:

- Practice proper safety procedures when lifting heavy objects.
- All hoses should be on the hose hanger when not in use.

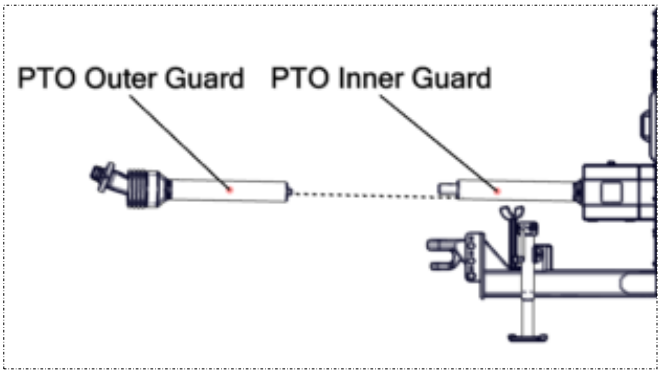


NOTE: Do not grease the Over Running Clutch when you receive the Mill as they are already greased at the factory. If you over grease the Over Running Clutch, the assembly will cease to function properly .

Note: Use correct alignment. Ensure PTO is clean and well greased.

1. Slide PTO outer guard over PTO inner guard.
2. Secure accordingly.

Note: After the PTO is installed, there is no provision for transport. The owner must secure it (or remove the front half) during transport.



IMPORTANT: Use proper safety procedures when lifting heavy objects.

7 TRANSPORTATION

1. Check with local authorities regarding mill transportation on public roads. Obey all applicable laws and regulations.
2. Always travel at a safe speed. Use caution when going around corners or meeting traffic.
3. Make sure an SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by local highway and transportation authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.
4. If possible use a light kit when transporting. Be sure all lights attached to the rear of the mill are working to safeguard against rear end collisions. Daybreak and dusk are particularly dangerous and pilot vehicles are recommended.
5. Be sure that the mill is hitched positively to the towing vehicle and a retainer is used through the drawbar pin. Always use a safety chain between the machine and the towing unit.
6. Keep to the side and yield the right-of-way to allow faster traffic to pass. Drive on the shoulder of the road if safe to do so and permitted by law.
7. Do not exceed a 25mph (40kph) travelling speed. Reduce speed on rough roads and surfaces. Reduce speed when going around tight bends and corners in the road. Be especially careful when traveling on roads with a significant center crown, or when moving to the shoulder of the road with one wheel.
8. Always use the hazard warning flashers on the tractor when transporting unless prohibited by law.
9. When transporting a mill with a conveyor or auger discharge, be aware of overhead power lines at all times.
10. Have a minimum distance of 18 inches from the machine hitch to the tractor PTO, otherwise damage may occur to the tractor or mill.

Do not transport the mill without all of the transport pins and clamps installed and fastened.

8 STORAGE

8.1 Placing in Storage

At the end of the operating season, the machine should be thoroughly inspected and prepared for storage. Repair or replace any worn or damaged components to prevent any unnecessary down time at the beginning of the next season. Follow this procedure:

1. Thoroughly clean the machine to remove all dirt, mud, debris or residue.
2. Lubricate all grease points. Make sure that all grease cavities have been filled with grease to remove any water left over from clean up.
3. Inspect all hydraulic hoses, couplers and fittings. Tighten any loose fittings. Replace any hose that is badly cut, nicked, abraded or is separating from the crimped end of a fitting.
4. Touch up all paint nicks and scratches to prevent rusting.
5. Move the machine to the storage location.
6. Select an area that is dry, level and free of debris.
7. Chock the tires, front and rear, to prevent the machine from rolling.
8. Place planks under the jack for added support if required.
9. Unhook the machine from the tractor.

8.2 Removing from Storage & Pre-Season Preparation

When removing from storage and preparing to use, follow this procedure:

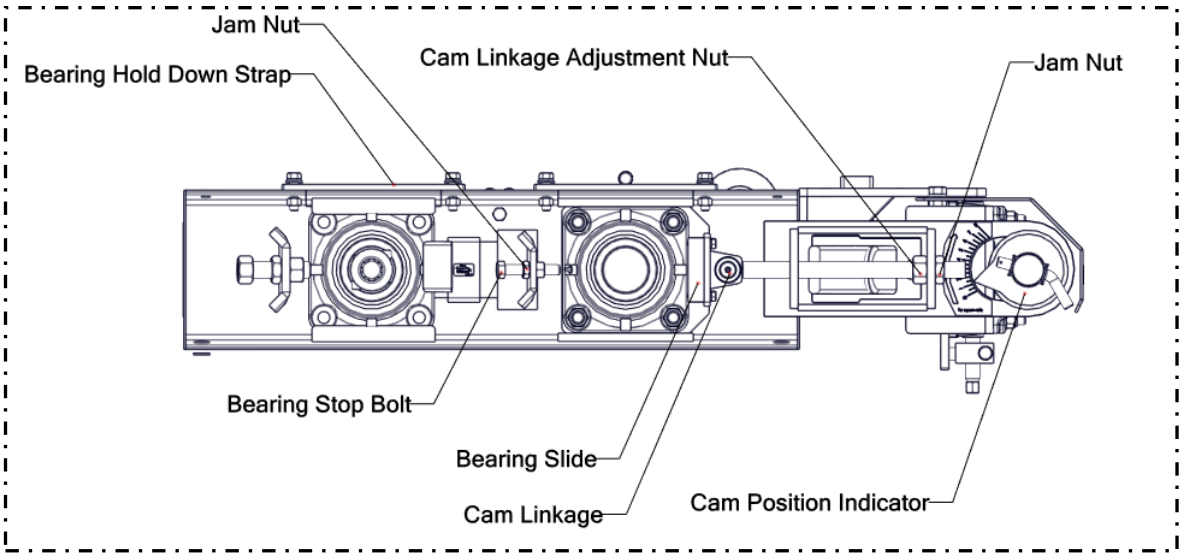
1. Clear the area of bystanders, especially small children, and remove foreign objects from the machine and the working area.
2. Remove any storage covers used to protect the machine.
3. Attach the roller mill to the tractor.
4. **INSPECTION:**
   a) Check that all hydraulic lines are seated and completely coupled.
   b) Check that all bearing locking collars on the shafts are tight and in good condition.
   c) Check that all set screws on the bearing collars are tight.
   d) Check that all bearing mounting bolts are tight.
   e) Check that all tires are inflated per the recommended pressures.
   f) Re-torque all wheel bolts.
5. Lubricate all grease fittings.
6. Replace any defective parts.
7. Go through the **Pre-Operational Checklist** (Section 4.3) before using.

9 TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	REMEDY
Whole grain in sample	Wear plate not adjusted.	With power disconnected & rolls not rotating, use a 3/4" wrench to loosen the jam nut on the wear plate adjuster. Adjust the wear plates in so that there is minimal clearance between the end of the rolls & the wear plates and tighten the jam nuts. This will prevent any whole grain from passing around the end of the rolls. Maintain the position of the poly 'V' section to cover the chamfer at the ends of the rolls. Replace as necessary.
Wear plates and poly 'V' adjusted, roll gap at desired setting, ***whole grain in sample*** when gate is opened for increased flow	Rolls are opening up when negative pressure is applied from grain going between rolls.	Decrease flow of grain by closing inlet gate or Increase spring pressure by turning the spring adjusting bolts clockwise. *NOTE : When increasing spring pressure add pressure by turning the adjusting bolts in increments of 1/2 turn inward at a time.* *i.e. (1) adjust in 1/2 turn increments (2) check sample, if not as desired repeat steps 1 & 2.*
Wear plates checked, spring pressure is sufficient, cam positional indicator adjusted to the #1 position or less, gap still too wide for desired rolling	Roll has worn or is out of adjustment.	See Sections 4.4.1 & 4.4.2 for resetting the roll gap.

9 TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	REMEDY
Wear plates and poly 'V', roll gap & spring pressure set properly, still ***whole grain in sample***	Grain smaller than the space between the grooves.	Need finer groove pattern. Rolls need re-grooving or are no longer true (badly worn).
Grain is rolled too fine	Roll gap is too narrow.	Using the cam control, release the cam brake and move the indicator toward the #2 position (or next largest number - a 1/2 turn at a time, checking a sample at each 1/2 turn).
Grain is rolled too fine, gap is set to desired setting Coarse grains (corn, peas, lupins) Small grains (wheat , oats, barley, milo)	 Roll pattern is too fine (i.e. more grooves per inch than necessary). Rolls are turning faster than through-put.	 Change roll to a coarser groove pattern. Slow the R.P.M. down. The closer the roll speed is to the grain through-put the more consistent the rolled product will be.



10 SPECIFICATIONS

10.1 General Specifications

Weight.....8305 lbs

Minimum Tractor Horsepower .....120 hp - PTO

Auger Discharge Size. ..... 12” x 12’

Transfer Auger Size. ..... 12” x 12’

Machine Capacity…….……...up to 4000 bu/hr (dry corn)*

*Capacity will change with moisture content, roll configuration and particle size desired.

10.2 Tire Specifications

Tire/Rim.....12.5L x 16IMP 16 x 10 x 6BL

Tire Pressure ..... Check Tire for Info

10.3 Bolt Torque Specifications

Wheel Bolts/Nuts.....90-120 ft.lbs.

PTO Shear Bolts *7/16” NC x 1” Gr.5 Shear Bolt* ..... *50 ft.lbs.*

.....*All Other Bolts—Refer to Bolt Torque Chart On Following Page*

BOLT TORQUE CHART

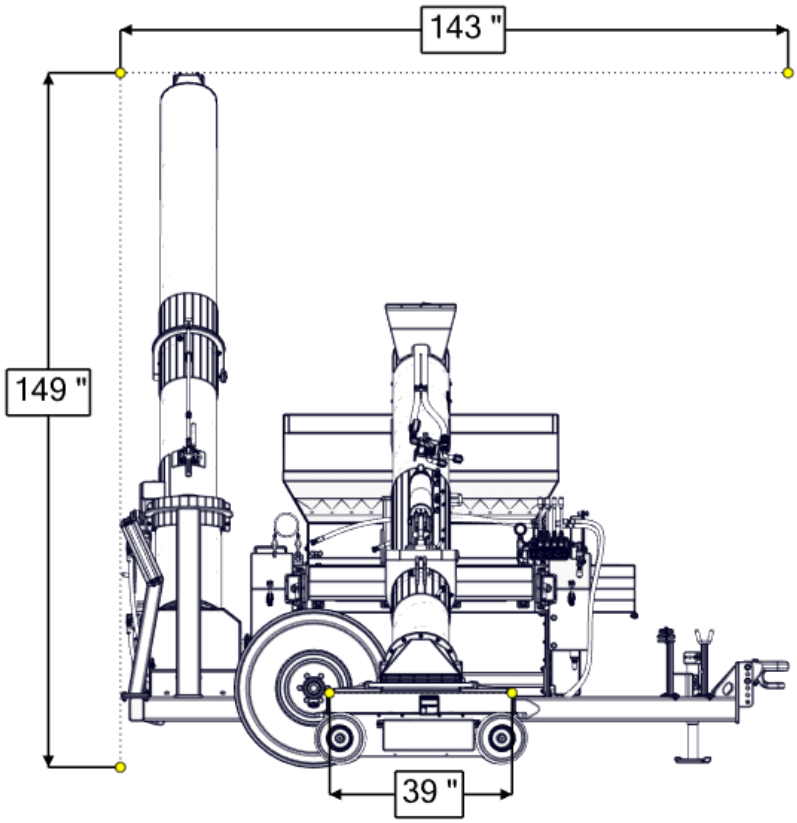
SIZE	SAE GRADE 2		SAE GRADE 5		SAE GRADE 8		L9
	ASSEMBLY TORQUE DRY	LUBRICATED	ASSEMBLY TORQUE DRY	LUBRICATED	ASSEMBLY TORQUE DRY	LUBRICATED	ASSEMBLY TORQUE LUBRICATED
1/4-20	66*	49*	8	75*	12	9	11
1/4-28	76*	56*	10	86*	14	10	13
5/16-18	11	8	17	13	20	18	21
5/16-24	12	9	19	14	25	20	23
3/8-16	20	15	30	23	45	30	33
3/8-24	23	17	35	25	50	35	38
7/16-14	30	24	50	35	70	55	60
7/16-20	35	25	55	40	80	60	65
1/2-13	50	35	75	55	110	80	95
1/2-20	55	40	90	65	120	90	105
9/16-12	65	50	110	80	150	110	140
9/16-18	75	55	120	90	170	130	150
5/8-11	90	70	150	110	220	170	185
5/8-18	100	80	180	130	240	180	205
3/4-10	160	120	260	200	380	280	290
3/4-16	180	140	300	220	420	320	355
7/8-9	190	140	400	300	600	460	505
7/8-14	210	155	440	320	660	500	585
1-8	220	160	580	440	900	680	775
1-14	240	170	640	480	1000	740	900
1 1/8-7	300	220	800	600	1280	960	1150
1 1/8-12	340	260	880	660	1440	1080	1325
1 1/4-7	420	320	1120	840	1820	1360	1600
1 1/4-12	460	360	1240	920	2000	1500	1750
1 3/8-6	560	420	1460	1100	2380	1780	—
1 3/8-12	640	460	1680	1260	2720	2040	—
1 1/2-6	740	560	1940	1460	3160	2360	3250
1 1/2-12	840	620	2200	1640	3560	2660	3650

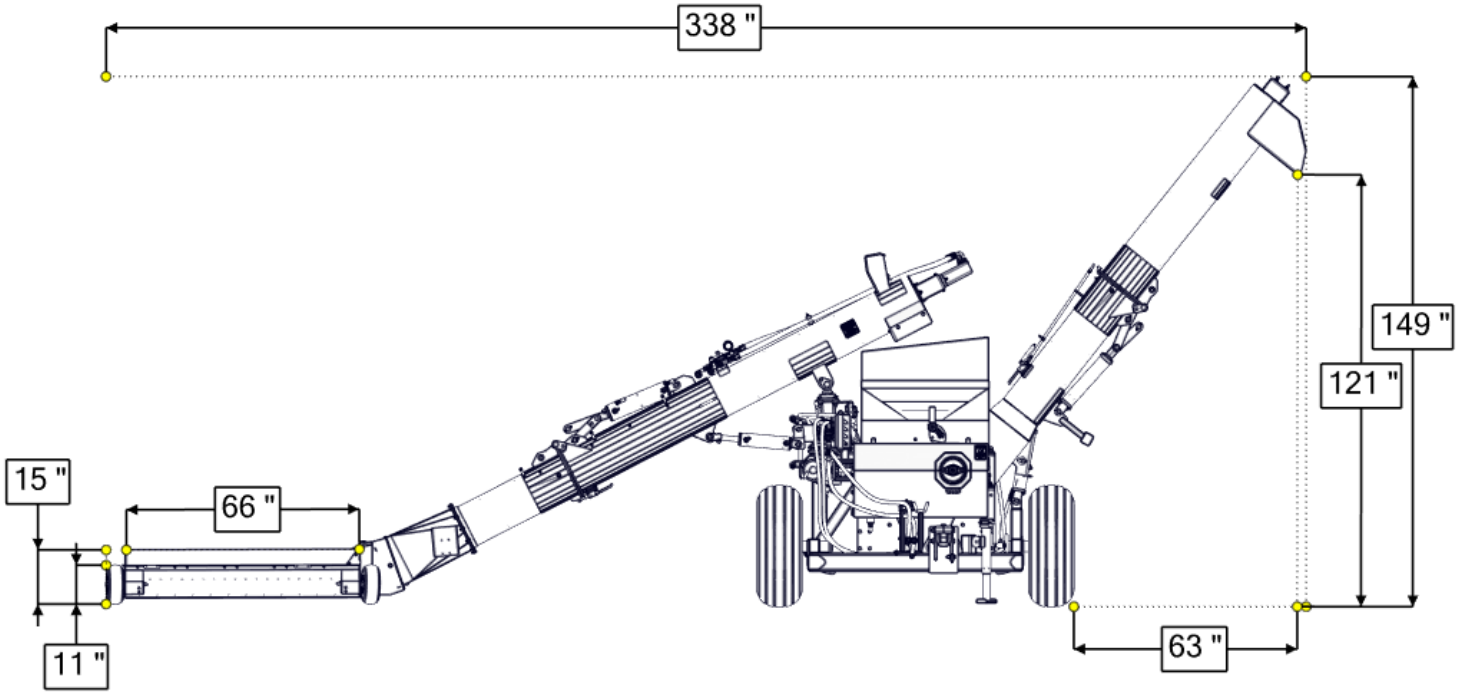
ITEMS WITH * = INCH POUNDS
ALL OTHERS = FOOT POUNDS

"LUBRICATED"
INCLUDES LUBRICANTS, LUBRIZING, PLATING, AND HARDENED WASHERS

10.4 Overall Dimensions

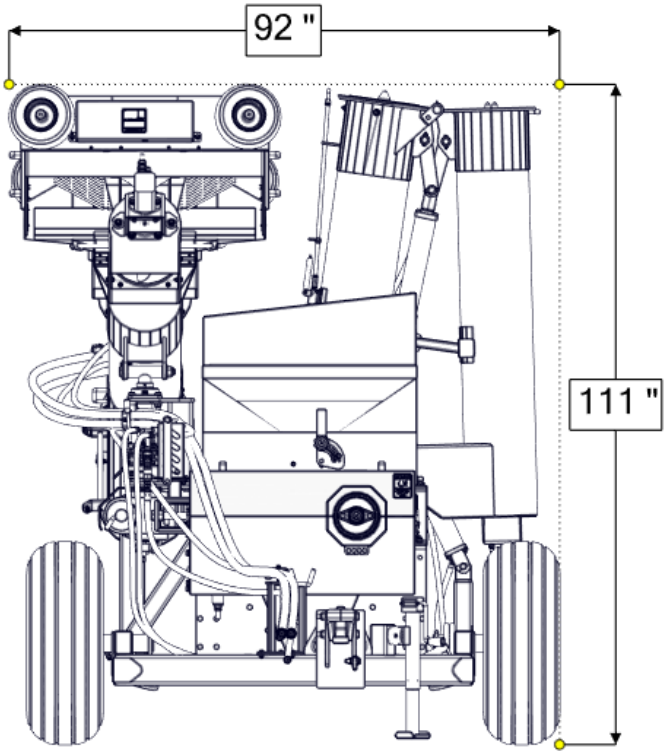
10.4.1 Working Mode

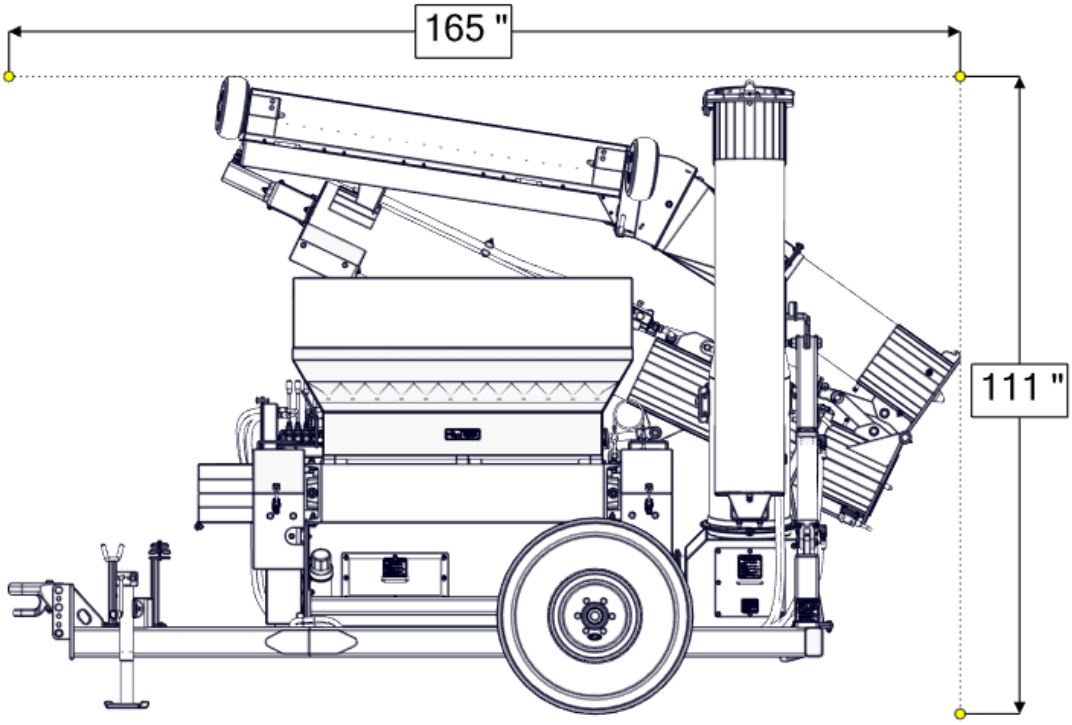




10.4 Overall Dimensions

10.4.2 Transport Mode



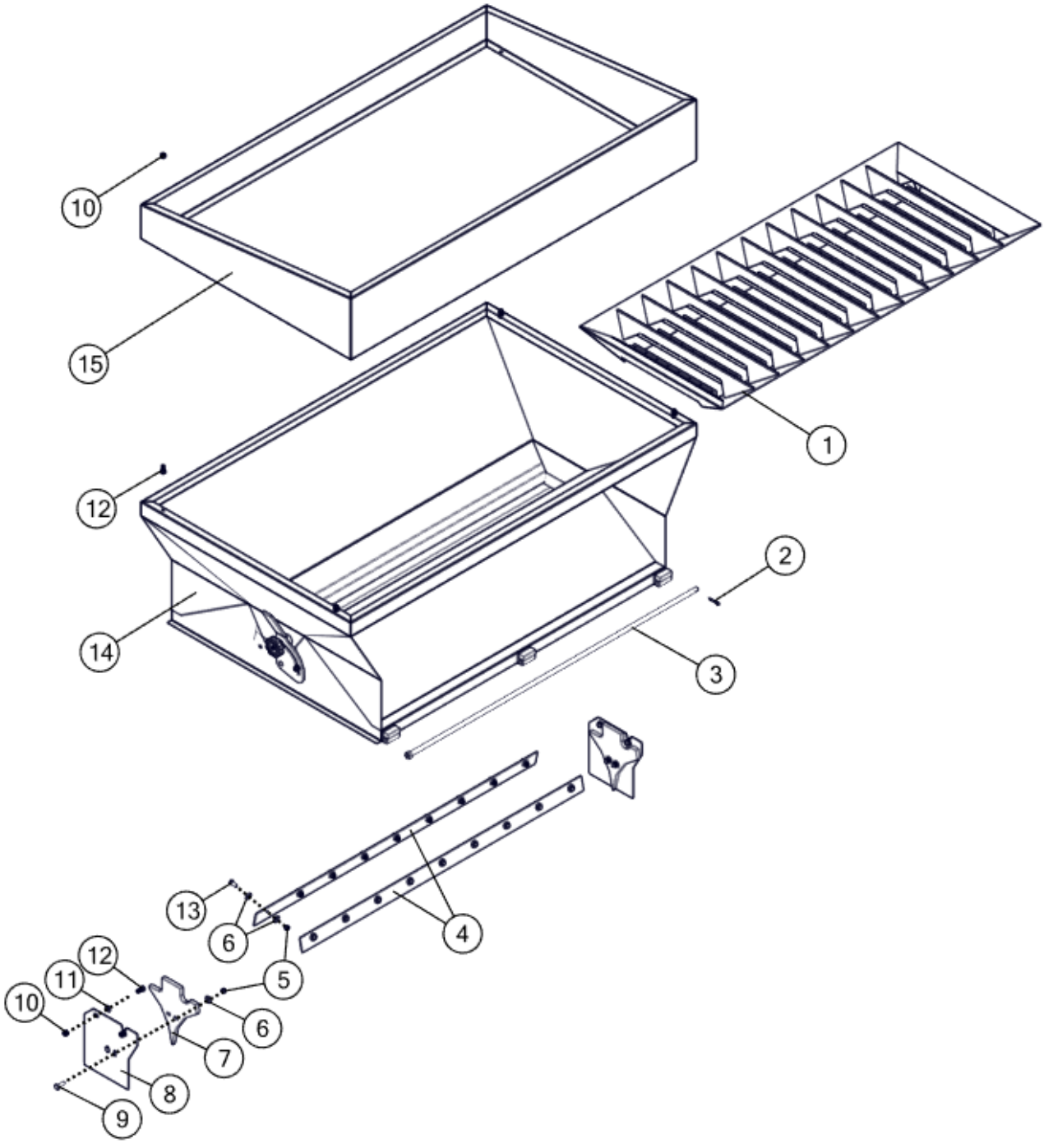


11 PARTS

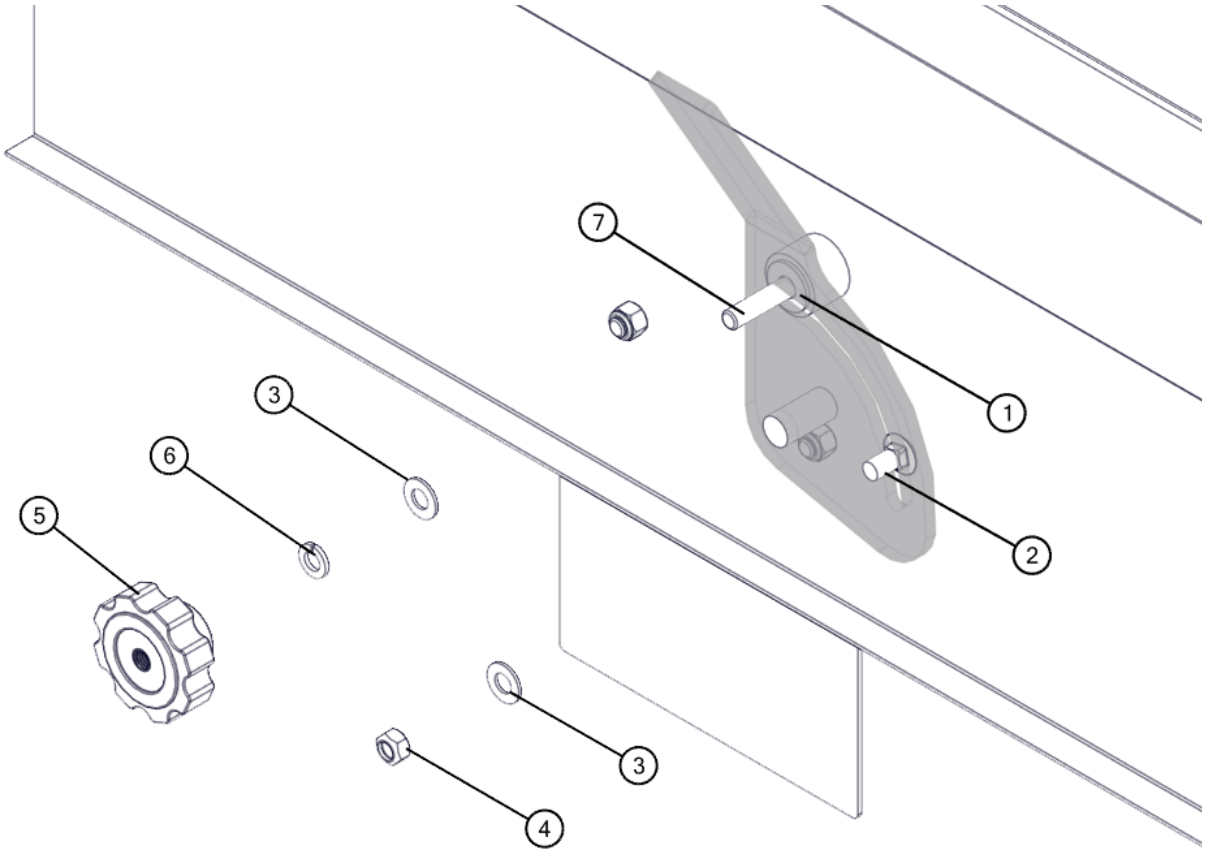
11.1 Top Hopper

REF #	PART #	DECRIPTION	QTY
1	614800-0041.00	Grate Magnet - 48" RM (Large Grain)	1
2	170000-0180	Cotter Pin - 3/16" x 1"	1
3	614800-0008.00	Hinge Pin - Top Hopper	1
4	414800-0520.00	Top Hopper Grain Containment Belt	2
5	167200-0648	Nyloc Nut - 5/16" NC Gr.5 PL	22
6	168000-0040	Flat Washer - 5/16" USS PL	40
7	147100-0288	UHMW Wear Plate Insert - 10"	2
8	411200-0832.01	Wear Plate - 10"	2
9	163000-0302	Carriage Bolt - 5/16" x 1-1/4" Gr.5 PL	4
10	167200-0652	Nyloc Nut - 3/8" NC Gr.5 PL	8
11	168000-0540	Flat Washer - 3/8" SAE	4
12	159300-0944	Hex Bolt - 3/8" NC x 3/4" Gr.5 PL	8
13	159300-0730	Hex Bolt - 5/16" NC x 3/4" Gr.5 PL	18
14	614800-0571.00	Top Hopper Weldm't - 2020	1
15	674800-0002.00	Top Hopper Extension	1

11.1 Top Hopper



11.1.1 Top Hopper (Knob)



REF #	PART #	DECRIPTION	QTY
1	168000-0049	Flat Washer - 3/8" USS PL	1
2	163000-0506	Carriage Bolt 3/8" NC x 3/4" Gr.5 PL	1
3	168000-0540	Flat Washer - 3/8" SAE	2
4	167200-0412	Lock Nut - 3/8" NC	1
5	140000-0224	Lock Knob	1
6	168600-0071	Lock Washer - 3/8" PL	1
7	159400-0004	Hex Bolt - 3/8" NC x 2-1/2" Gr.5 PL	1

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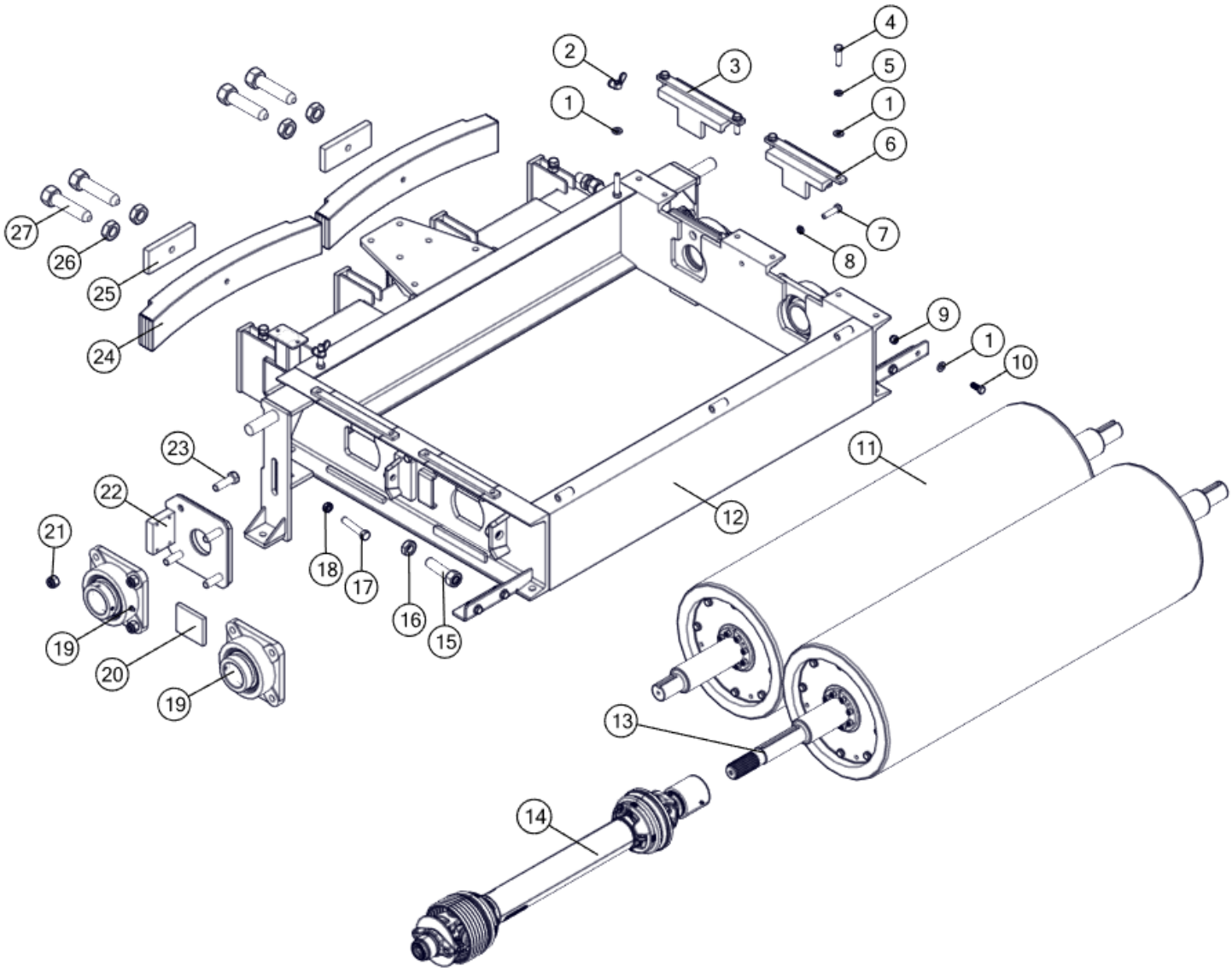
11.2 Roller Mill - Upper Half

REF #	PART #	DECRIPTION	QTY
1	168000-0544	Flat Washer - 1/2" SAE PLTD	14
2	167100-0995	Wing Nut 1/2" NC	2
3	615100-0765.00	Brg Hold-Down Bracket - Mill Frame - 2020	2
4	159400-0427	Hex Bolt - 1/2" NC x 2" Gr.5 PL	8
5	168600-0098	Lock Washer - 1/2" PL	8
6	615100-0526.00	Take Up Bearing Hold Down Bracket	2
7	159600-0420	Hex Bolt - Full Thread - 1/2" NC x 2" Gr.5 PL	2
8	167000-0650	Jam Nut - 1/2" NC Gr.5 PL	2
9	167200-0688	Nyloc Nut - 1/2" NC Gr.5 PL	4
10	159400-0401	Hex Bolt 1/2" NC x 1-1/2" Gr.5 PL	4
11	714800-0808.01	48" Idler Roll B-Loc 2-15/16" Chilled Cast Roll	1
12	614800-0037.00	48" Std. Mill Frame - Flange Brgs	1
13	714800-0803.01	48" Drive Roll B-Loc 2-15/16" Chilled Cast Roll	1
14	375000-0550	PTO Shaft Series 55 with O/R Clutch 540 RPM	1
15	614000-0229.00	Stop Bolt - 1" NF x 4-1/2" Full Thread	2
16	167000-0697	Jam Nut - 1" NF RH Gr.5 BL	2
17	159600-0535	Hex Bolt - Full Thread - 5/8" NC x 3-1/2" Gr.5 PL	2
18	167000-0658	Jam Nut - 5/8" NC Gr.5 PL	2
19	114000-0255	Bearing - 4-Bolt Flange 2-15/16"	4
20	415100-0319.00	Bearing Push Plate	2
21	167200-0692	Nyloc Nut - 3/4" NC Gr.5 PL	8
22	615100-0546.00	Bearing Slide - 2-15/16"	2
23	159400-0806	Hex Bolt - 3/4" NC x 2-1/2" Gr.5 PL	8
24	303100-0048	Leaf Spring - 5-Leaf - 48"	2
25	414800-0502.00	Spring Push Plate	2
26	167000-0705	Jam Nut - 1-1/4" NF Gr.5 PL RH	4
27	613600-0099.02	Spring Push Bolt	4

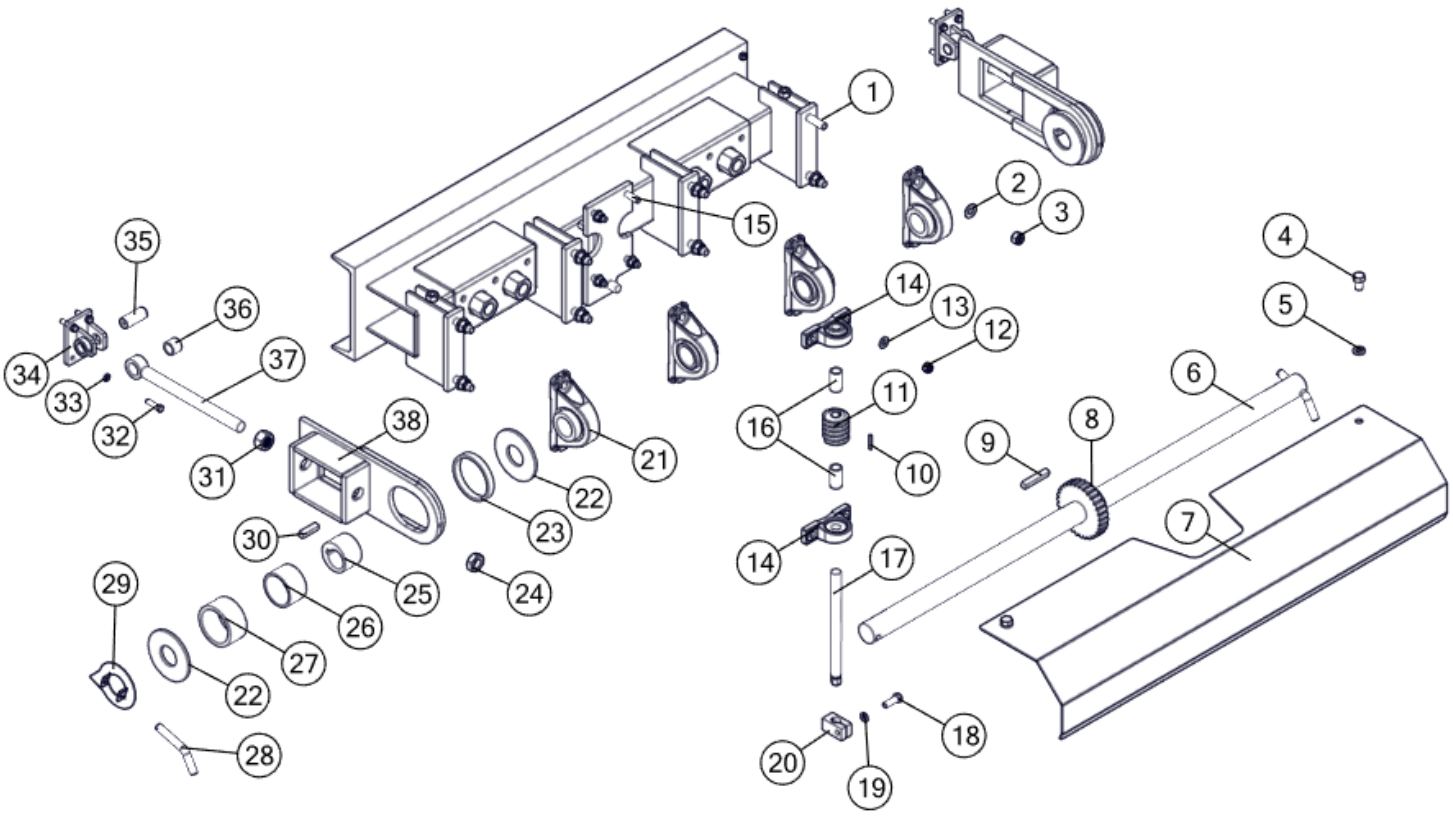
11.2 Roller Mill - Upper Half



11.3 Worm Drive Roll Adjustment

REF #	PART #	DECRIPTION	QTY
1	159400-0636	Hex Bolt - 5/8" NC x 2-1/2" Gr.5 PL	8
2	168000-0580	Flat Washer - 5/8" SAE PL	8
3	167200-0690	Nyloc Nut - 5/8" NC Gr.5 PL	8
4	159400-0580	Hex Bolt - 5/8" NC x 1" GR5 PL	2
5	168600-0120	Lock Washer - 5/8" PL	2
6	415100-0716.01	Cam Shaft	1
7	415100-0729.00	SCA Shield - Lift and Swing - HD	1
8	121000-0632	Worm Gear - 6DP - Single Start, 30 Tooth, 1-15/16" Dia	1
9	414000-0400.00	1/2" Keystock x 3"	1
10	414000-0582.00	3/16"Keystock x 1-1/2"	1
11	120000-0601	Steel Worm 6DP Single Start RH 7/8" ID	1
12	167200-0688	Nyloc Nut - 1/2" NC Gr.5 PL	4
13	168000-0544	Flat Washer - 1/2" SAE PLTD	4
14	113900-0914	7/8" Bearing - Pillow Block	2
15	159400-0427	Hex Bolt - 1/2" NC x 2" Gr.5 PL	4
16	413600-0114.00	Worm Gear Spacer	2
17	615100-0361.00	Worm Shaft - 7/8" x 11"-3/4"	1
18	159400-0401	Hex Bolt - 1/2" NC x 1-1/2" Gr.5 PL	1
19	168600-0098	Lock Washer - 1/2" PL	1
20	414000-0243.01	Worm Wheel Brake	1
21	114000-0262	Bearing - Pillow Block 1-1/516" ID NTN (UELP-1.15/16M)	4
22	415100-0525.01	Cam Shaft Capping Washer	4
23	415100-0534.00	Pipe Bushing	2
24	167000-0697	Jam Nut - 1" NF RH Gr.5 BL	2
25	415100-0533.00	Spring Cam Hub	2
26	415100-0017.00	Oilite Bushing - 2-15/16" x 3-5/16" x 2"	2
27	415100-0526.00	Oilite Bushing - 3-5/16" x 4" x 2"	2
28	161800-0010	Bent Pin - 5/8" x 3"	2
29	415100-0022.00	Cam Position Indicator	1
30	414000-0881.00	1/2" Keystock x 2"	2
31	167000-0870	Hex Nut - 1" NF Gr.5 BL RH	2
32	159300-0988	Hex Bolt - 3/8" NC x 1-1/2 Gr.5 PL	8

11.3 Worm Drive Roll Adjustment



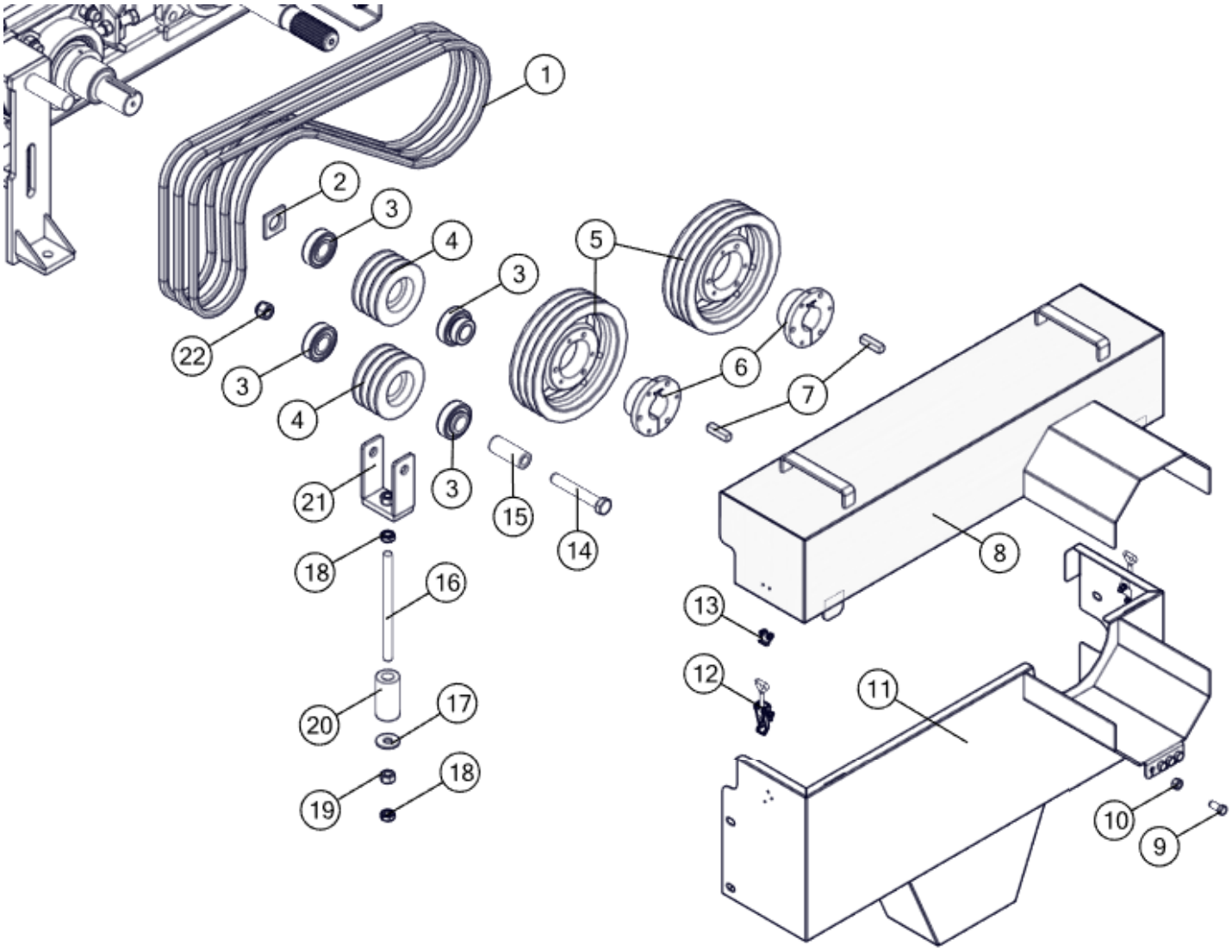
33	168600-0071	Lock Washer - 3/8" PL	8
34	615100-0527.00	Bearing Cam Base	2
35	414000-0239.00	Cam Pivot Pin - 1" x 2-1/2"	2
36	113500-0126	Oilite Bushing - 1" x 1-1/4" x 1"	2
37	615100-0705.02	Pivot Eye Rod	2
38	615100-0704.02	Main Adjuster Arm	2

11.4 Roll Drive - Front

REF #	PART #	DECRIPTION	QTY
1	144000-0685	Double V-Belt - BB85	3
2	414000-0653.02	Spacer Plate	1
3	114100-0021	1-1/4" Bearing - Cylindrical 72mm OD	4
4	124000-0016	5" x 72mm 3-Groove Pulley	2
5	143300-0097	Pulley - 3 Groove 9.75" x SF Bushing	2
***	124000-0095	9.75" OD SK Bushing 3 'B' Groove Pulley	
6	142000-0115	SF Bushing - 1-15/16"	2
***	142300-0115	Q-D Bushing SK x 1-15/16"	
7	414000-0881.00	1/2" Keystock x 2"	2
8	673600-0129.00	Shield Assembly - Top Section	1
9	159400-0110	Hex Bolt 7/16" NC x 1"	4
10	167200-0414	Top Lock Nut 7/16" NC	4
11	673600-0131.00	Shield Assembly - Bottom Section - SCA	1
12	154000-0140	Overcenter Latch - 4.7"	2
**	159300-0520	Stove Bolt - #10-24 x 1/2"	6
**	167000-0520	Hex Nut - #10-24 PL	6
13	154000-0141	Catch - Overcenter Latch - 4.7"	2
**	159300-0520	Stove Bolt - #10-24 x 1/2"	4
**	167000-0520	Hex Nut - #10-24 PL	4
14	159400-0815	Hex Bolt - 3/4" NC x 5" Gr.5 PL	1
15	414000-0598.00	Spacer Bushing	1
16	414000-0608.01	Tensioner Bolt	1
17	168000-0080	Flat Washer - 5/8" USS PL	1
18	167000-0658	Jam Nut - 5/8" NC Gr.5 PL	2
19	167000-0827	Hex Nut - 5/8" NC Gr.5 PL	1
20	303100-0204	Compression Spring - 1.75" OD x 3.41" Long	1
21	614800-0019.00	Tensioner Pulley Weldment	1
22	167200-0692	Nyloc Nut - 3/4" NC Gr.5 PL	1

***Check the Pully and Bushing before placing an order.

11.4 Roll Drive - Front

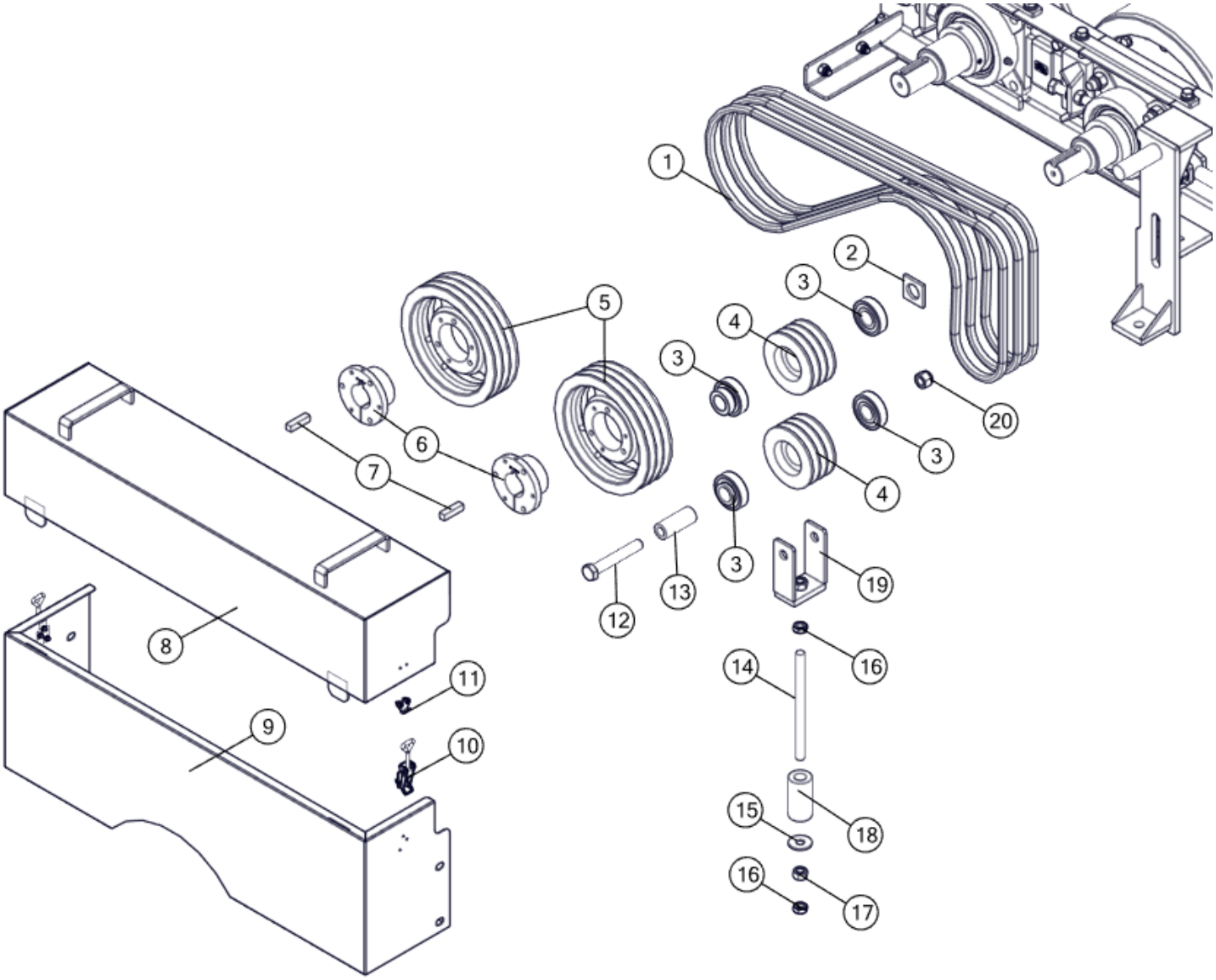


11.5 Roll Drive - Rear

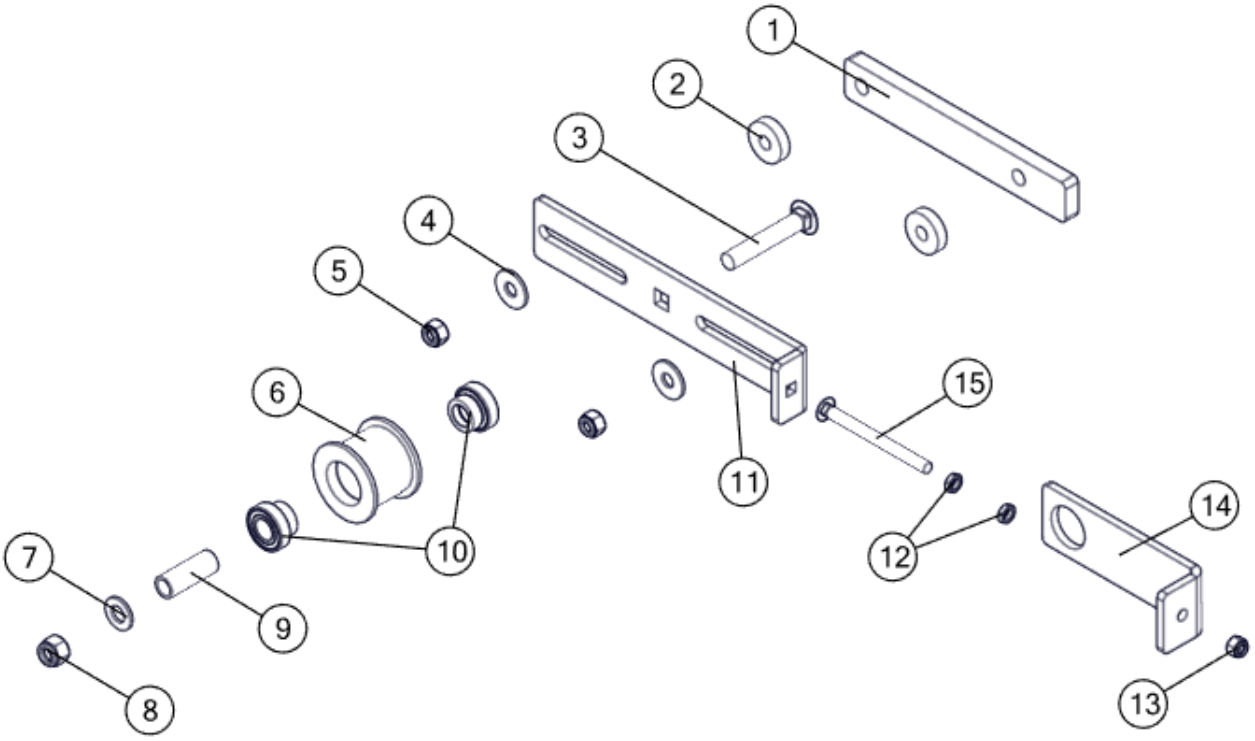
REF #	PART #	DECRIPTION	QTY
1	144000-0685	Double V-Belt - BB85	3
2	414000-0653.02	Spacer Plate	1
3	114100-0021	1-1/4" Bearing - Cylindrical 72mm OD	4
4	124000-0016	5" x 72mm 3-Groove Pulley	2
5	143300-0097	Pulley - 3 Groove 9.75" x SF Bushing	2
***	124000-0095	9.75" OD SK Bushing 3 'B' Groove Pulley	
6	142000-0115	SF Bushing - 1-15/16"	2
***	142300-0115	Q-D Bushing SK x 1-15/16"	
7	414000-0881.00	1/2" Keystock x 2"	2
8	673600-0108.00	Shield Assembly - Top Section - SCA	1
9	414800-0559.00	Bottom Rear Sheild	1
10	154000-0140	Overcenter Latch - 4.7"	2
**	159300-0520	Stove Bolt - #10-24 x 1/2"	6
**	167000-0520	Hex Nut - #10-24 PL	6
11	154000-0141	Catch - Overcenter Latch - 4.7"	2
**	159300-0520	Stove Bolt - #10-24 x 1/2"	4
**	167000-0520	Hex Nut - #10-24 PL	4
12	159400-0815	Hex Bolt - 3/4" NC x 5" Gr.5 PL	1
13	414000-0598.00	Spacer Bushing	1
14	414000-0608.01	Tensioner Bolt	1
15	168000-0080	Flat Washer - 5/8" USS PL	1
16	167000-0658	Jam Nut - 5/8" NC Gr.5 PL	2
17	167000-0827	Hex Nut - 5/8" NC Gr.5 PL	1
18	303100-0204	Compression Spring - 1.75" OD x 3.41" Long	1
19	614800-0019.00	Tensioner Pulley Weldment	1
20	167200-0692	Nyloc Nut - 3/4" NC Gr.5 PL	1

***Check the Pully and Bushing before placing an order.

11.5 Roll Drive - Rear

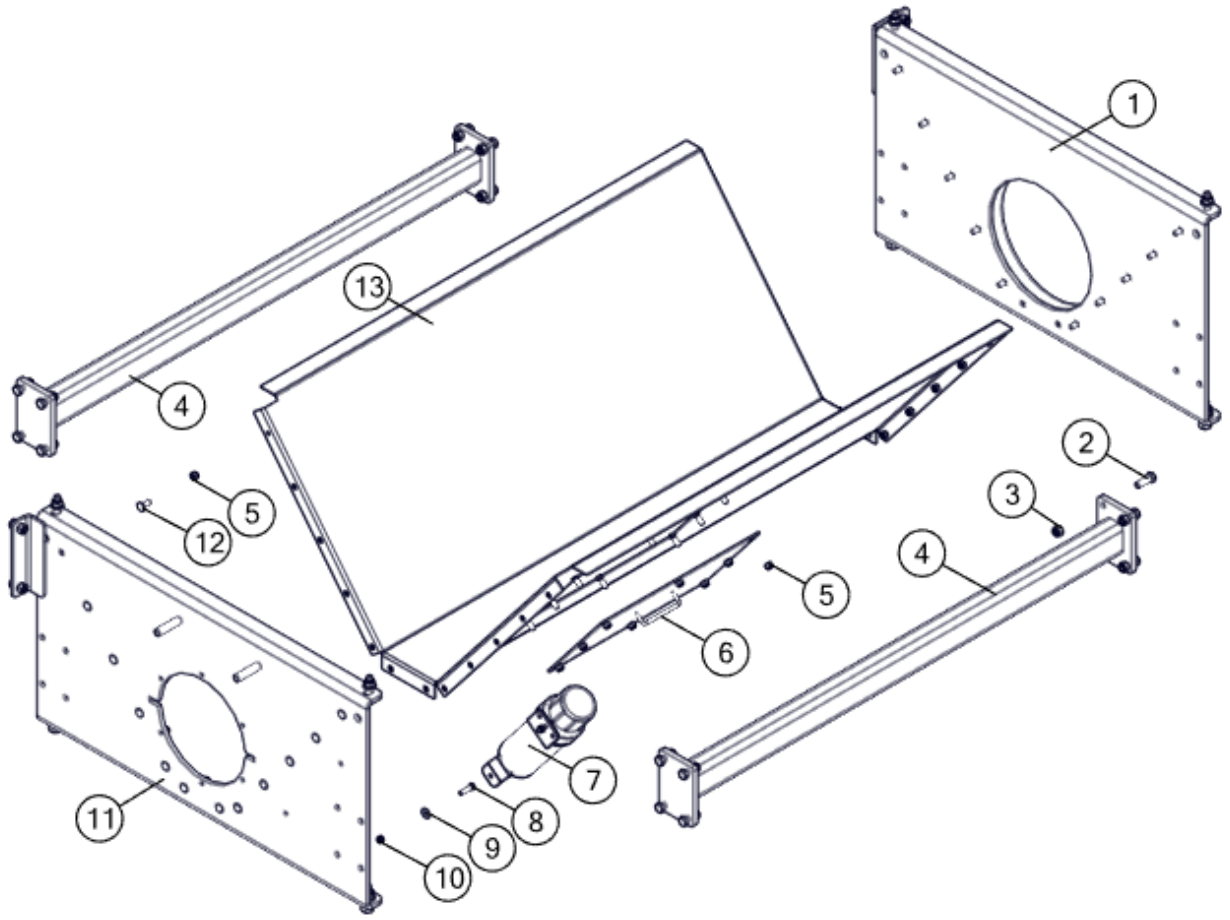


11.6 Pulley Tensioner Assembly



REF #	PART #	DECRIPTION	QTY
1	415400-0015.00	0.75" Spacer Bar - Idler Assembly	1
2	412400-0518.04	1/2" Spacer - Idler Tensioner	2
3	163100-0145	Carriage Bolt - 3/4" NC x 4-1/2" Gr.5 PL	1
4	168000-0080	Flat Washer - 5/8" USS PL	2
5	167200-0690	Nyloc Nut - 5/8" NC Gr.5 PL	2
6	124000-0017	Idler Pulley - 3-5/8" OD x 52mm Bore	1
7	168000-0587	Flat Washer - 3/4" SAE PL	1
8	167200-0692	Nyloc Nut - 3/4" NC Gr.5 PL	1
9	415400-0141.03	Sleeve - 3-1/2" Triple Idler Pulley	1
10	114100-0016	1" Bearing - 52mm Cylindrical OD	2
11	412400-0517.03	Tensioner Bracket	1
12	167000-0650	Jam Nut - 1/2" NC Gr.5 PL	2
13	167200-0688	Nyloc Nut - 1/2" NC Gr.5 PL	1
14	412400-0532.02	Tensioner Bracket	1
15	163100-0120	Carriage Bolt - 1/2" NC x 6" Gr.5 BL	1

11.7 Bottom Hopper

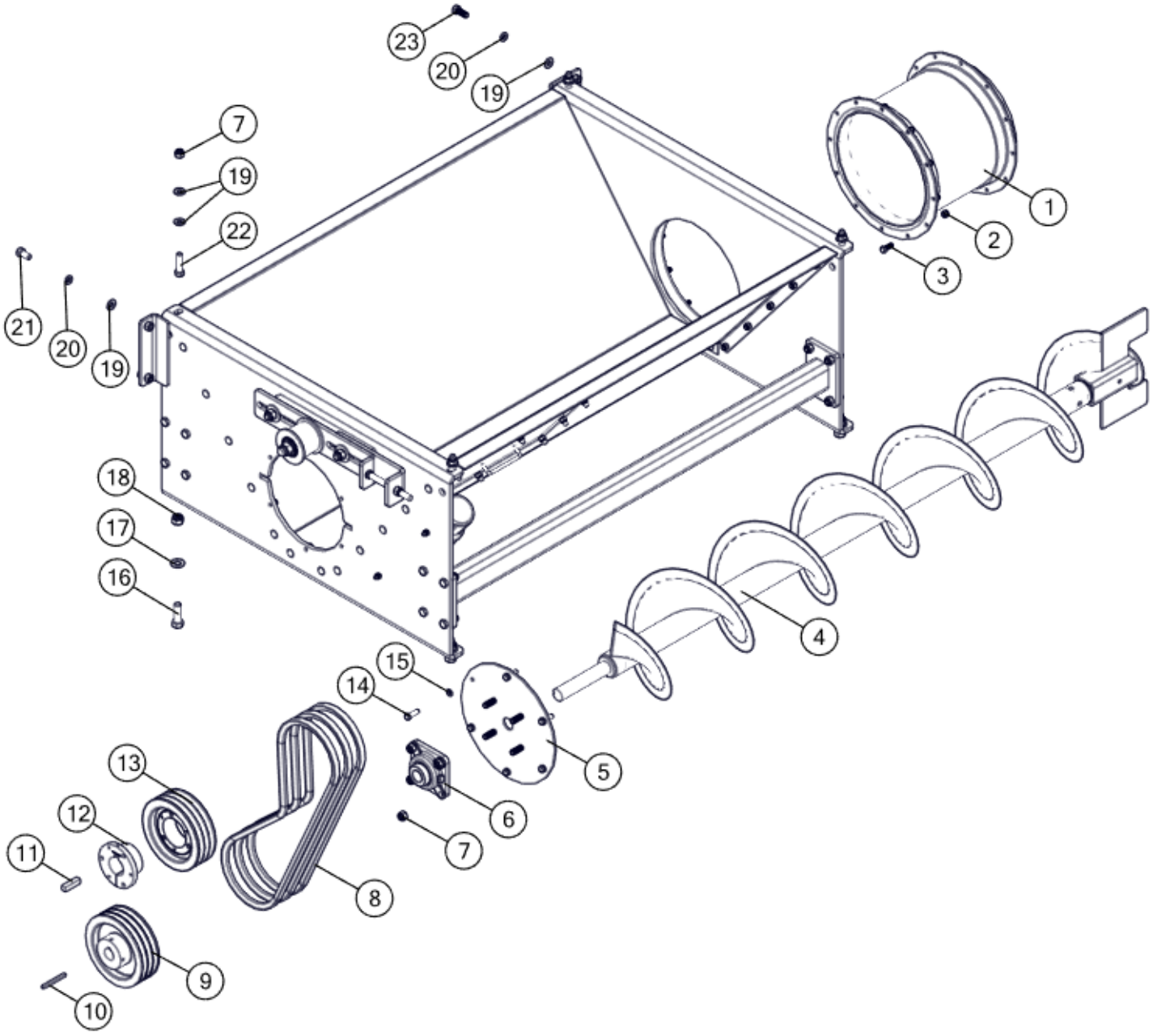


REF #	PART #	DECRIPTION	QTY
1	614800-0518.00	Rear Panel Weldment - 12"	1
2	159400-0401	Hex Bolt - 1/2" NC x 1-1/2" Gr.5 PL	16
3	167200-0688	Nyloc Nut - 1/2" NC Gr.5 PL	16
4	674800-0024.00	Strut Assembly - 48"	2
5	167200-0652	Nyloc Nut - 3/8" NC Gr.5 PL	32
6	615400-0060.00	Bottom Hopper Inspection Plate	1
7	147000-0010	Manual Canister	1
8	159300-0736	Hex Bolt - 5/16" NC x 1-1/4" Gr.5 PL	2
9	168000-0040	Flat Washer - 5/16" USS PL	2
10	167200-0648	Nyloc Nut - 5/16" NC Gr.5 PL	2
11	614800-0545.00	Front Panel Weldment - 12" Cross Auger	1
12	163000-0507	Carriage Bolt - 3/8" NC x 1" Gr.5 PL	24
13	614800-0519.00	Wrap 48" - Bottom Hopper - 12" Cross Auger	1

11.8 Cross Auger Assembly

REF #	PART #	DECRIPTION	QTY
1	670000-0131.00	Transition Tube - Cross Auger - 12"	1
2	167200-0652	Nyloc Nut - 3/8" NC Gr.5 PL	12
3	159300-0961	Hex Bolt - 3/8" NC x 1" Gr.5 PL	12
4	674800-0064.00	12" Cross Auger - 90deg Gbx - Non-diff	1
5	674800-0098.00	1-1/4" Bearing Mount - 12" Cross Auger	1
6	114000-0320	1-1/4" - 4-Bolt Flange Bearing	1
7	167200-0688	Nyloc Nut - 1/2" NC Gr.5 PL	8
8	144400-0630	V-Belt - 5VX630	3
9	470000-0204.00	Pulley - 3 Groove 7.4" x 1-1/4" ID	1
10	414000-0399.00	1/4" Keystock x 3"	1
11	414000-0881.00	1/2" Keystock x 2"	1
12	142000-0115	SF Bushing - 1-15/16"	1
13	143300-0073	Pulley - 3 Groove 7.53" - SF	1
14	159300-0979	Hex Bolt - 3/8" NC x 1-1/4" Gr.5 PL	6
15	168600-0071	Lock Washer - 3/8" PL	6
16	159400-0628	Hex Bolt - 5/8" NC x 2" Gr.5	4
17	168000-0580	Flat Washer - 5/8" SAE PL	4
18	167200-0690	Nyloc Nut - 5/8" NC Gr.5 PL	4
19	168000-0544	Flat Washer - 1/2" SAE PLTD	12
20	168600-0098	Lock Washer - 1/2" PL	4
21	159400-0390	Hex Bolt - 1/2" NC x 1" Gr.5 PL	2
22	159400-0427	Hex Bolt - 1/2" NC x 2" Gr.5 PL	4
23	159400-0395	Hex Bolt - 1/2" NC x 1-1/4" Gr.5 PL	2

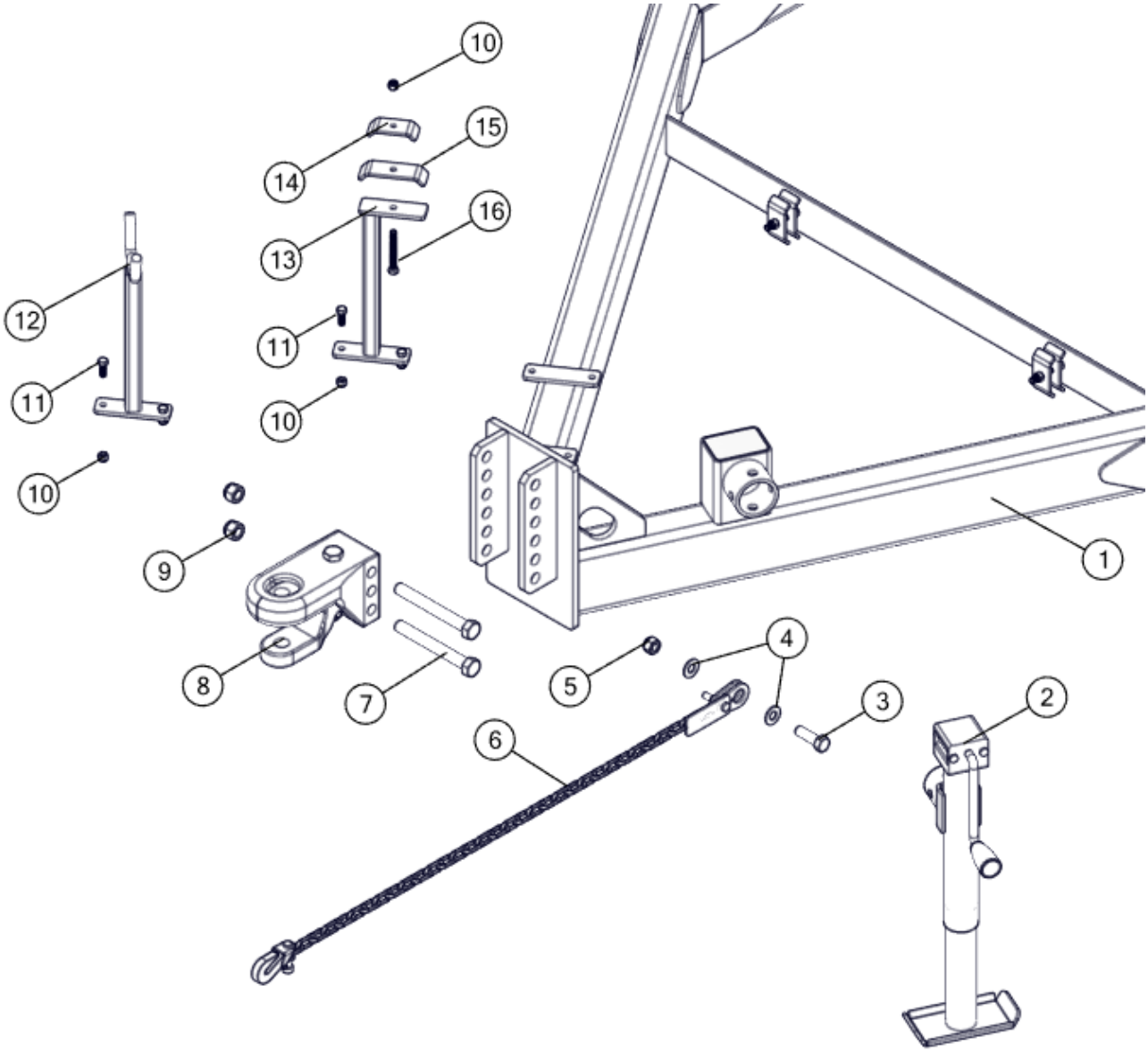
11.8 Cross Auger Assembly



11.9 Hitch Assembly

REF #	PART #	DECRIPTION	QTY
1	614800-0586.00	SAC Spec, 48" 1:1 Drive Non-aux, Mech w/ Hyd Tilt - HD	1
2	341100-0050	Jack - 7000lb x 10" - Side Wind	1
3	159400-0628	Hex Bolt - 5/8" NC x 2" Gr.5	1
4	168000-0580	Flat Washer - 5/8" SAE PL	2
5	167200-0690	Nyloc Nut - 5/8" NC Gr.5 PL	1
6	140000-0490	Safety Chain	1
7	159400-0819	Hex Bolt - 3/4" NC x 6-1/2" Gr.5 PL	2
8	343000-0299	Base Hitch/Clevis Assembly Cat. 2	1
9	167200-0692	Nyloc Nut - 3/4" NC Gr.5 PL	2
10	167200-0652	Nyloc Nut - 3/8" NC Gr.5 PL	5
11	159300-0961	Hex Bolt - 3/8" NC x 1" Gr.5 PL	4
12	614000-0301.00	PTO Stand	1
13	670000-0525.00	Hydraulic Hose Stand	1
14	480100-0722.01	Hose Clamp	1
15	480100-0710.01	Hose Clamp	1
16	159600-0330	Hex Bolt 3/8" NC x 3" Full Thread	1

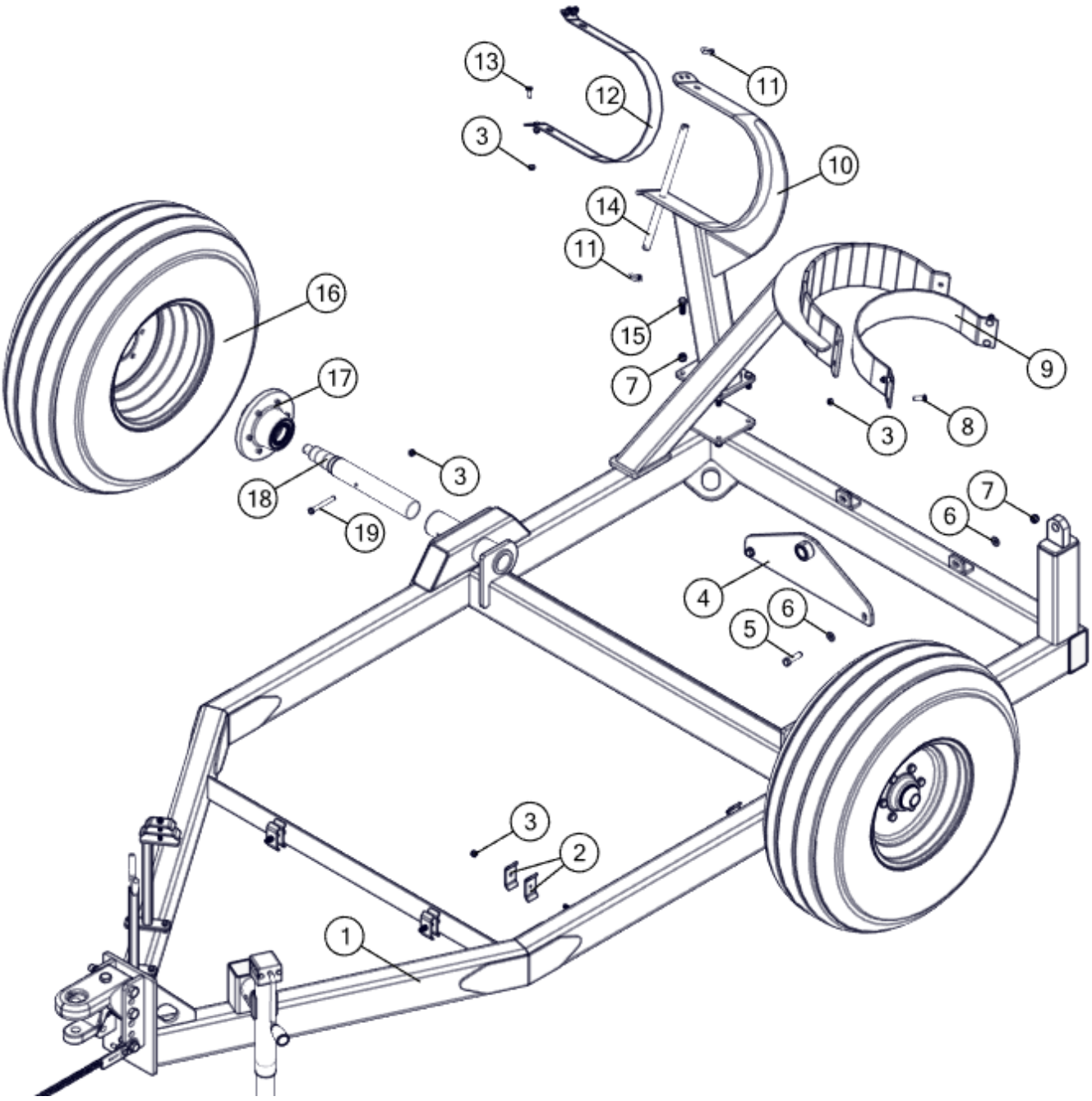
11.9 Hitch Assembly



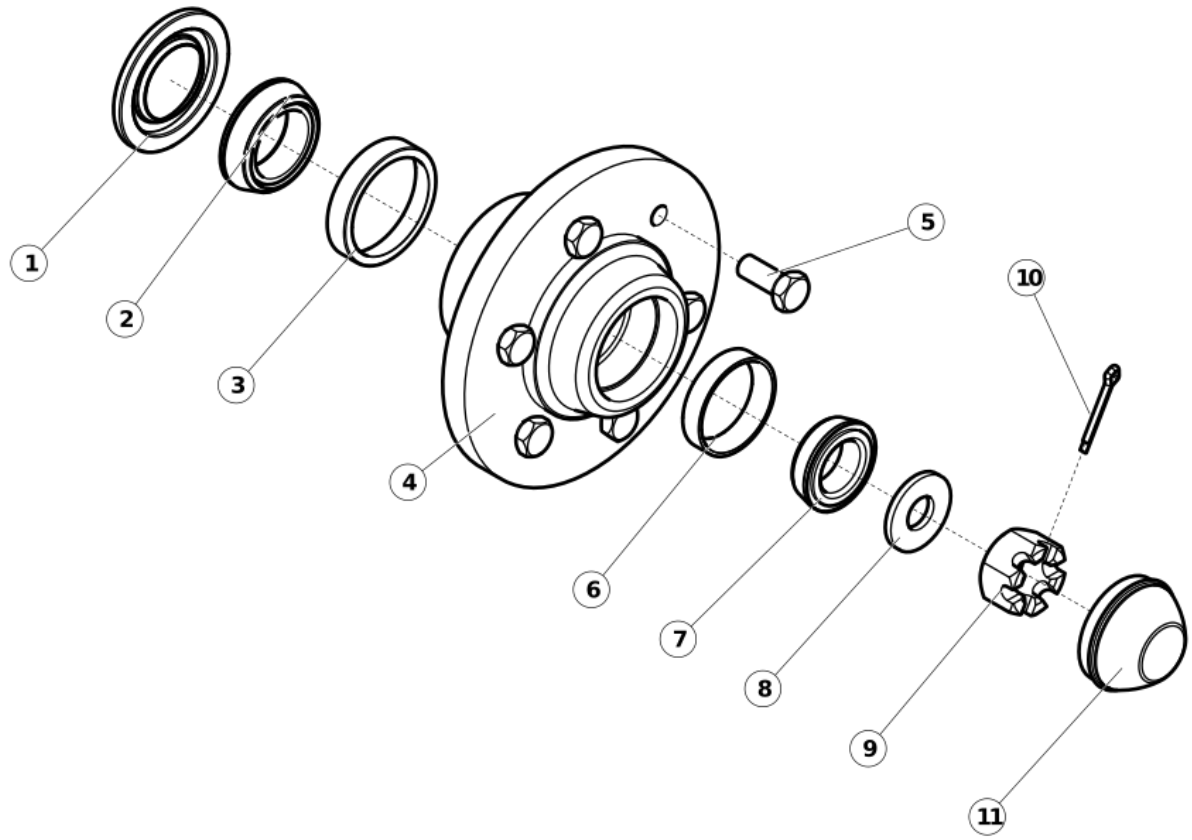
11.10 Trailer Assembly

REF #	PART #	DECRIPTION	QTY
1	614800-0586.00	SAC Spec, 48" 1:1 Drive Non-aux , Mech w/ Hyd Tilt - HD	1
2	480100-0722.01	Hose Clamp	10
3	167200-0652	Nyloc Nut - 3/8" NC Gr.5 PL	15
4	614800-0516.00	Bushing Bolt Plate - 14" Discharge Auger	1
5	159400-0427	Hex Bolt - 1/2" NC x 2" Gr.5 PL	2
6	168000-0544	Flat Washer - 1/2" SAE PLTD	4
7	167200-0688	Nyloc Nut - 1/2" NC Gr.5 PL	6
8	163000-0508	Carriage Bolt - 3/8" NC x 1-1/4" Gr.5 PL	4
9	474800-0189.00	Rubber Pad - Cradle - Discharge Auger - 14"	1
10	614800-0587.00	Auger Rest - Bolt-on - SAC	1
11	161500-0450	3/16 X 1-1/2" LYNCH PIN	2
12	470000-0885.00	Belt - Cradle Liner - SAC	1
13	163000-0507	Carriage Bolt - 3/8" NC x 1" Gr.5 PL	4
14	413600-0711.00	Auger Retaining Rod - SAC	1
15	159400-0401	Hex Bolt - 1/2" NC x 1-1/2" Gr.5 PL	4
16	100100-0600	Tire & Rim - 12.5L x 16IMP 16 x 10 x 6BL	2
17	340800-0615	Hub Assembly - 614	2
18	414800-0516.00	Spindle - 614	2
19	159400-0007	Hex Bolt - 3/8" NC x 3-1/2" NC Gr.5 PL	2

11.10 Trailer Assembly



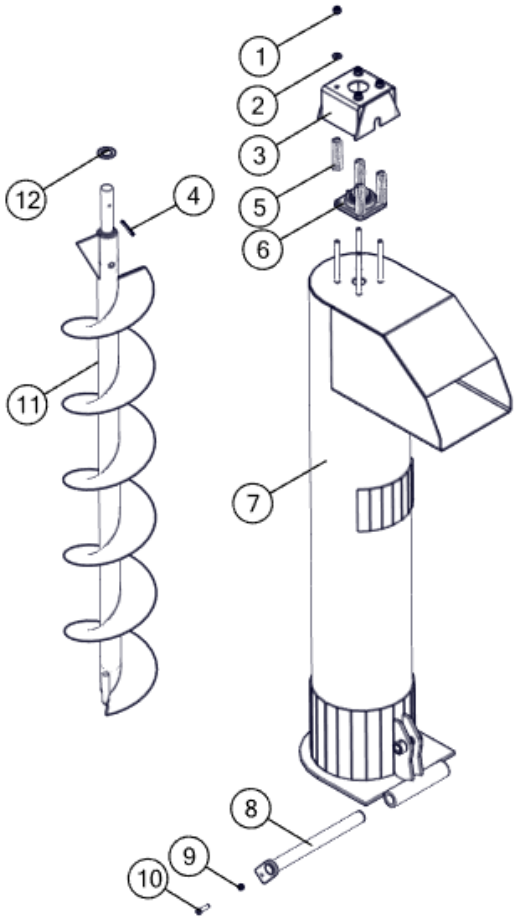
11.10.1 Hub Assembly (340800-0615)



REF #	PART #	DECRIPTION	QTY
1	340100-0016	Grease Seal - SE-16	1
2	114500-0135	Inner Cone - LM-603049	1
3	115000-0026	Inner Cup - LM-603011	1
4	340000-0614	614 Hub	1
5	340300-0012	Wheel Bolt - 9/16" - 18 NF x 1-1/4"	6
6	115000-0027	Outer Cup - LM-48510	1
7	114500-0022	Outer Cone - LM-48548	1
8	340700-0517	Spindle Washer 7/8" I.D., 2" O.D., 0.187" Thick	1
9	340700-0033	Spindle Nut - 1" x 14 UNF	1
10	170000-0190	Cotter Pin - 3/16" x 1.5"	1
11	340200-0015	Dust Cap - 2.72" x 1.45"	1

11.11 Discharge Auger

11.11.1 Discharge Auger - Upper Assembly

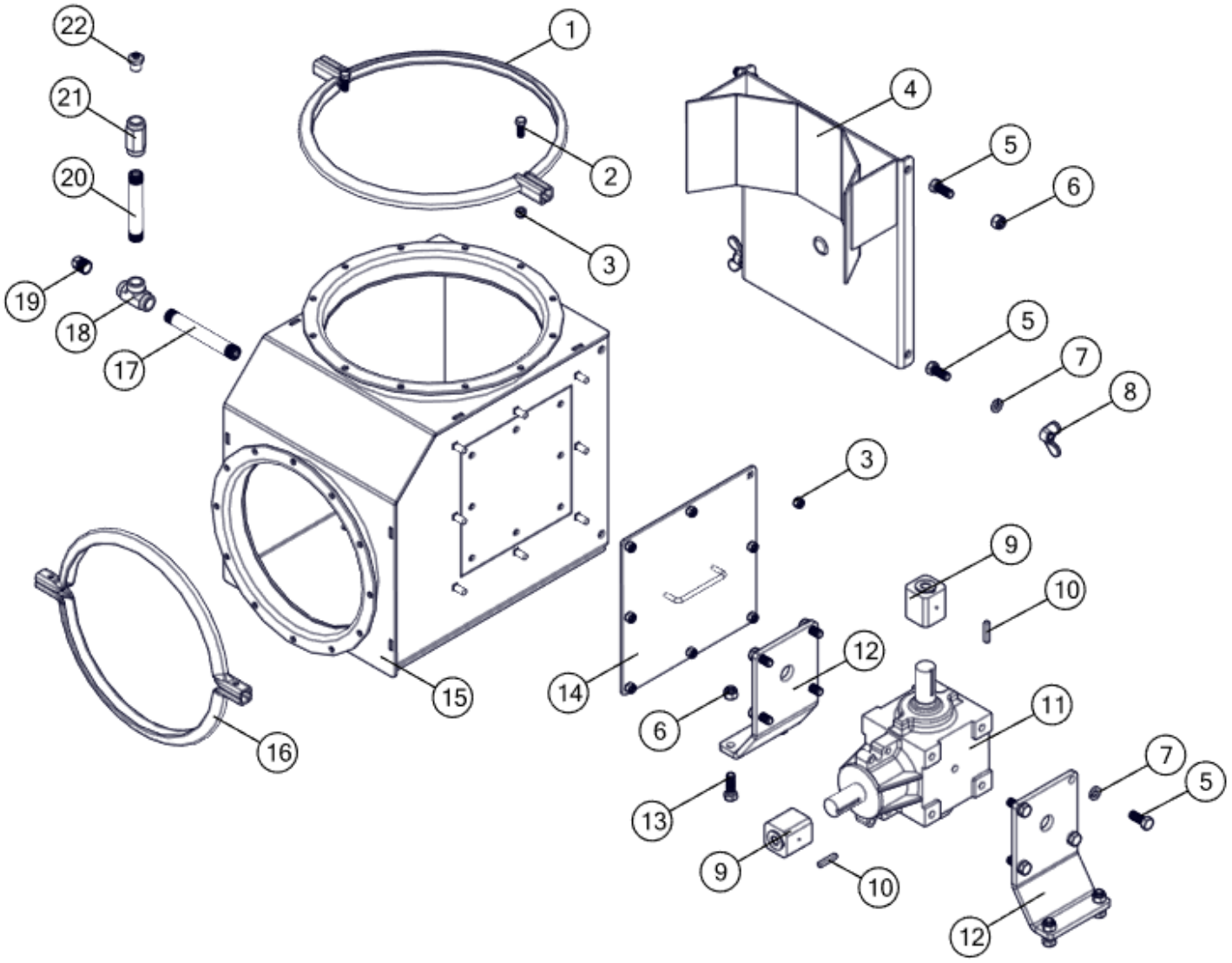


REF #	PART #	DECRIPTION	QTY
1	167200-0688	Nyloc Nut - 1/2" NC Gr.5 PL	4
2	168000-0544	Flat Washer - 1/2" SAE PLTD	4
3	671300-0465.00	Floating Bearing Mount - 10"	1
4	172200-0792	Spring Pin - 5/16" x 3"	1
5	303100-0124	Compression Spring - 1.125" OD x 4.5" Long	4
6	114000-0322	1-3/8" - 4-Bolt Flange Bearing	1
7	671300-0582.00	Discharge Auger Tube - Top - 12"	1
8	671300-0420.00	Folding Transfer Auger Main Pin Weldment	1
9	167200-0652	Nyloc Nut - 3/8" NC Gr.5 PL	1
10	159300-0988	Hex Bolt - 3/8" NC x 1-1/2 Gr.5 PL	1
11	671300-0583.00	12" x 12' Folding Dis Auger Weldment - Upper Section 6'	1
12	168000-0627	Machinery Bushing - 1-3/8" x 10ga	1

11.11.2 Discharge Auger - Gear Box

REF #	PART #	DECRIPTION	QTY
1	155500-0140	14" Band Clamp	1
2	159300-0961	Hex Bolt - 3/8" NC x 1" Gr.5 PL	2
3	167200-0652	Nyloc Nut - 3/8" NC Gr.5 PL	10
4	671300-0063.00	Clean out Door Weldment - HD - 14" Discharge	1
5	159400-0395	Hex Bolt - 1/2" NC x 1-1/4" Gr.5 PL	12
6	167200-0688	Nyloc Nut - 1/2" NC Gr.5 PL	6
7	168600-0098	Lock Washer - 1/2" PL	10
8	167100-0995	Wing Nut 1/2" NC	2
9	680900-0143.00	Square Drive - 1-1/4"	2
10	480000-0622.00	Keystock - Sweep Drive Gear Box	2
11	342100-0500	Gearbox - 500 Series 90°	1
12	471300-0336.01	Gearbox Mount Plate - 10" & 12"	2
13	159400-0401	Hex Bolt - 1/2" NC x 1-1/2" Gr.5 PL	4
14	671300-0064.00	Clean out Door - HD - 14" Discharge	1
15	671300-0068.00	12" to 14" Gearbox Assembly - P.S. GB Oil Fttings	1
16	155500-0120	Band Clamp - 12"	1
17	107600-0436	Pipe Nipple - 1/2" NPT x 6"	1
18	085700-0808	Tee - 1/2" FNPT x 1/2" FNPT x 1/2" FNPT	1
19	105000-0666	Square Pipe Plug - 1/2" NPT	1
20	107600-0435	Pipe Nipple - 1/2" NPT x 5"	1
21	080000-0808	Hex Coupler - 1/2" FNPT x 1/2" FNPT	1
22	342300-0500	Gearbox Breather	1

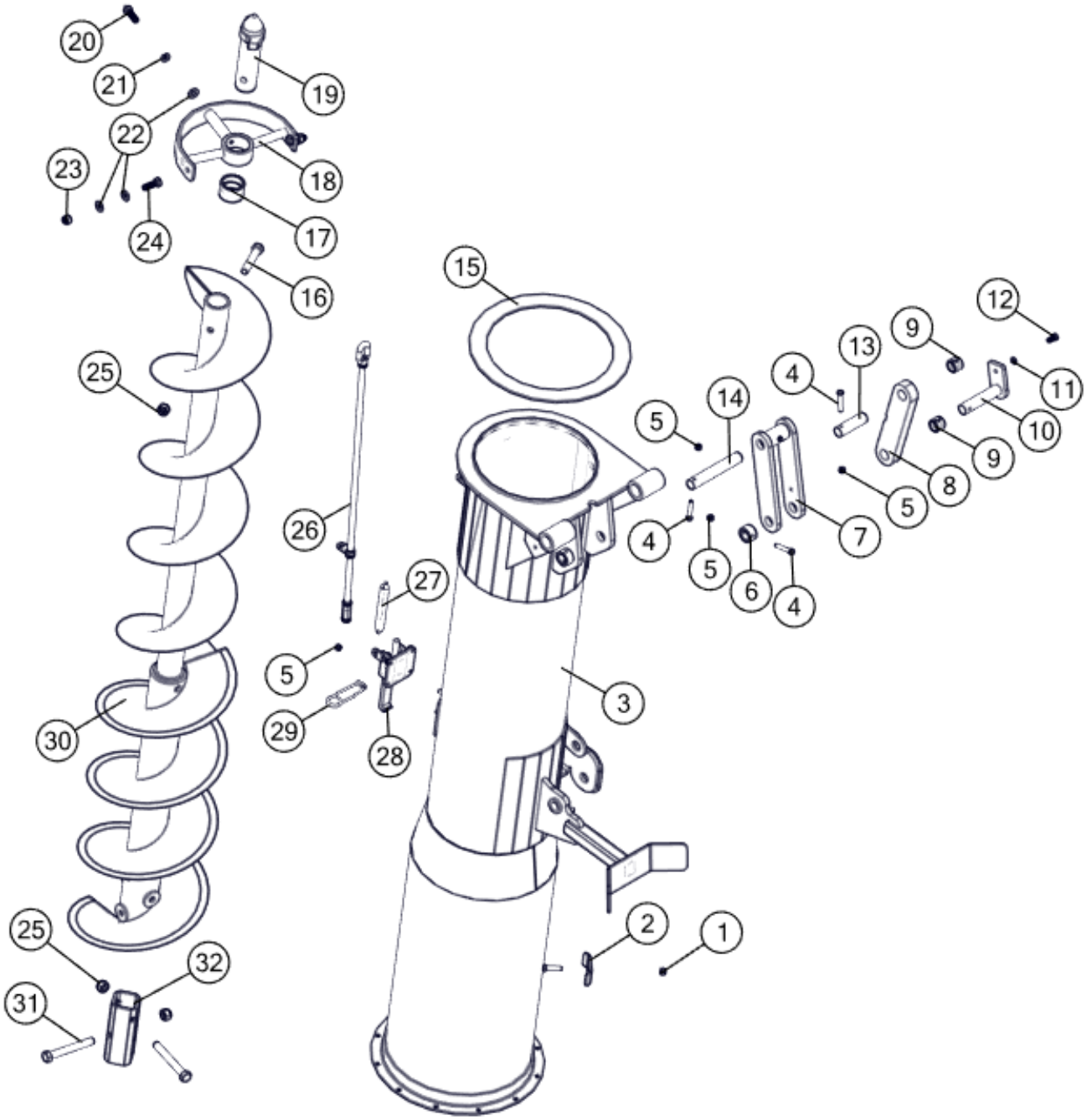
11.11.2 Discharge Auger - Gear Box



11.11.3 Discharge Auger - Lower Assembly

REF #	PART #	DECRIPTION	QTY
1	167200-0652	Nyloc Nut - 3/8" NC Gr.5 PL	2
2	480100-0722.01	Hose Clamp	2
3	671300-0600.00	Discharge Auger Tube - Lower - 12" Turbo Folding	1
4	159300-0792	Hex Bolt - 5/16" x 2" Gr5 PL	3
5	167200-0648	Nyloc Nut - 5/16" NC Gr.5 PL	7
6	471300-0478.00	cross bushing - clevis - friction fit	1
7	671300-0562.00	Pivot Weldment	1
8	471300-1677.00	Hinge Arm - Mid Push - Auger Lower Section	1
9	113200-0030	Split Spring Bushing - 1" x 1"	2
10	671300-0505.00	Transfer Augers Linkage/cylinder Pin Weldment	1
11	168600-0071	Lock Washer - 3/8" PL	1
12	159300-0944	Hex Bolt - 3/8" NC x 3/4" Gr.5 PL	1
13	413600-0746.00	Cross Pin - 3.5"	1
14	413600-0700.00	cross pin - 6"	1
15	147800-0135	12.25" I.D. x 15.5" O.D. x .1875" TH Auger Seal Gasket	1
16	159400-0700	Hex Bolt - 5/8" NC x 3-1/2"	1
17	480200-0792.00	Oilite Bushing - 1-15/16" x 2-5/16" x 1-1/2"	1
18	671300-0412.00	Auger Support Assembly - Mid	1
19	671300-0462.00	Pilot Pin Weldment	1
20	781200-0538.00	Grease Port Bolt	1
21	168600-0098	Lock Washer - 1/2" PL	1
22	168000-0544	Flat Washer - 1/2" SAE PLTD	5
23	167200-0688	Nyloc Nut - 1/2" NC Gr.5 PL	2
24	159400-0401	Hex Bolt - 1/2" NC x 1-1/2" Gr.5 PL	2
25	167200-0690	Nyloc Nut - 5/8" NC Gr.5 PL	3
26	771300-0851.00	Extended Catch Assembly - Over-center Clamp w/ 14mm Thread	1
27	303300-0432	Extension Spring 5/8" x .054" x 6-1/2" Long	1
28	671300-0686.00	Over-center Latch Weldment - Folding Auger (14mm Thread)	1
29	161500-0505	Safety Pin - 1/8"	1
30	671300-0602.00	12 Turbo lower section - DISCHARGE AUGER	1
31	159400-0730	Hex Bolt - 5/8" NC x 5" Gr.5	2
32	671300-0409.00	Auger Sqaure Drive 12" & 14"	1

11.11.3 Discharge Auger - Lower Assembly

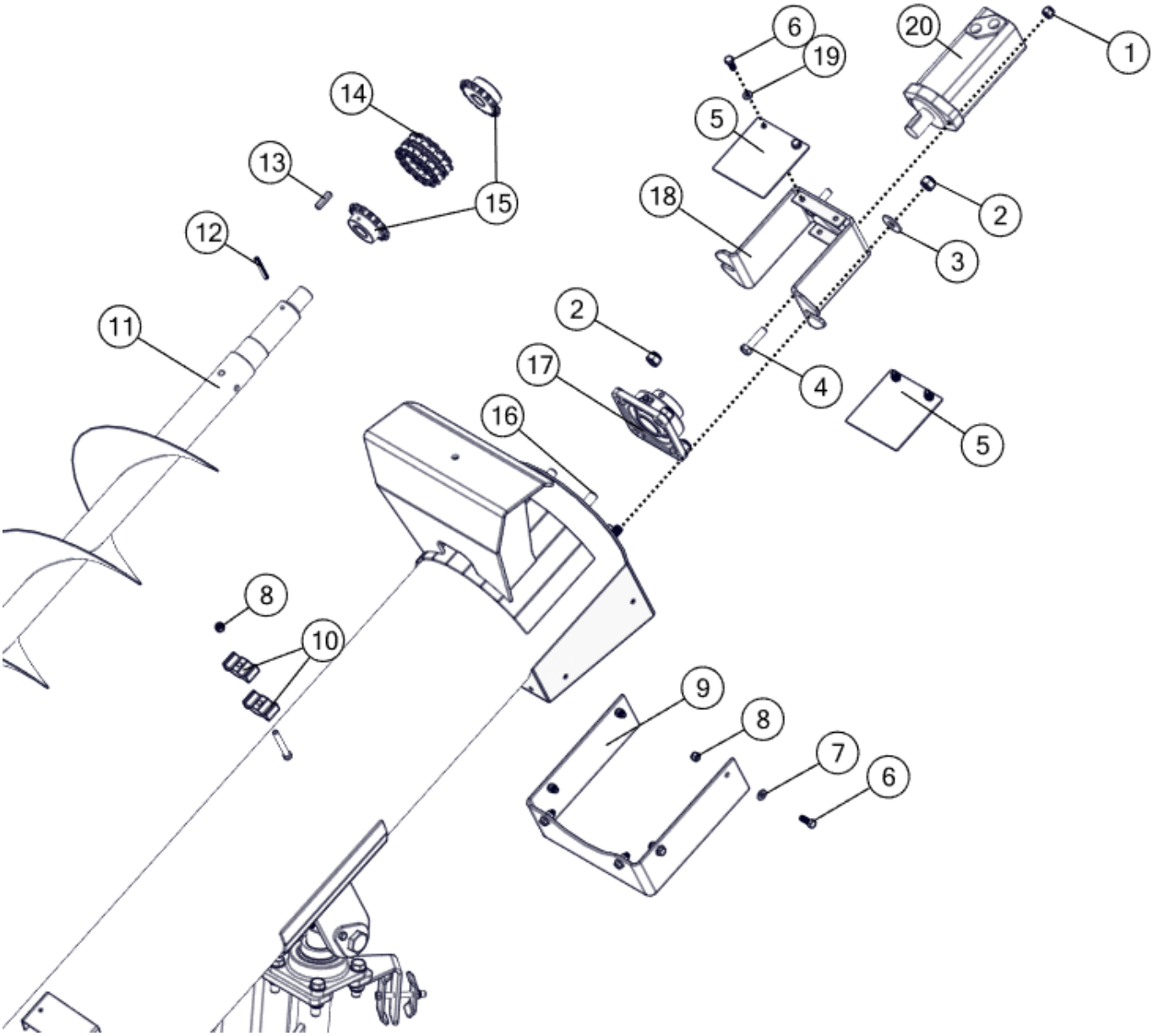


11.12 Transfer Auger

11.12.1 Transfer Auger - Upper Assembly

REF #	PART #	DECRIPTION	QTY
1	167200-0688	Nyloc Nut - 1/2" NC Gr.5 PL	2
2	167200-0690	Nyloc Nut - 5/8" NC Gr.5 PL	6
3	168000-0080	Flat Washer - 5/8" USS PL	2
4	159400-0427	Hex Bolt - 1/2" NC x 2" Gr.5 PL	2
5	471300-0293.00	Shield - 2000 Series Motor	2
6	159300-0961	Hex Bolt - 3/8" NC x 1" Gr.5 PL	10
7	168000-0540	Flat Washer - 3/8" SAE	6
8	167200-0652	Nyloc Nut - 3/8" NC Gr.5 PL	8
9	470000-0214.00	Rubber Belting - 3/16" x 4"	1
10	070000-0601	Hose Clamp Half	4
11	671300-0416.00	Auger Weldment - Upper Section - 27 Deg - SAC Fold	1
12	172200-0790	Spring Pin - 5/16 x 2-1/2"	1
13	414000-0583.00	5/16" Keystock x 1-1/2"	1
14	140100-0059	Chain - Double #60 - 14 Pins, 14 Rollers, w/ Connector	1
15	129000-0514	Sprocket - 14 Tooth #60 x 1-1/4"	2
16	159400-0628	Hex Bolt - 5/8" NC x 2" Gr.5	4
17	114000-0250	Bearing - 4-Bolt Flange 1-15/16" ID NTN (UELFU-1.15/16M)	1
18	671300-0324.00	Hydraulic Motor Mount Weldment	1
19	168600-0071	Lock Washer - 3/8" PL	4
20	111200-0026	Hydraulic Motor - 2000 Series 9.6cu.in. ORB	1

11.12.1 Transfer Auger - Upper Assembly

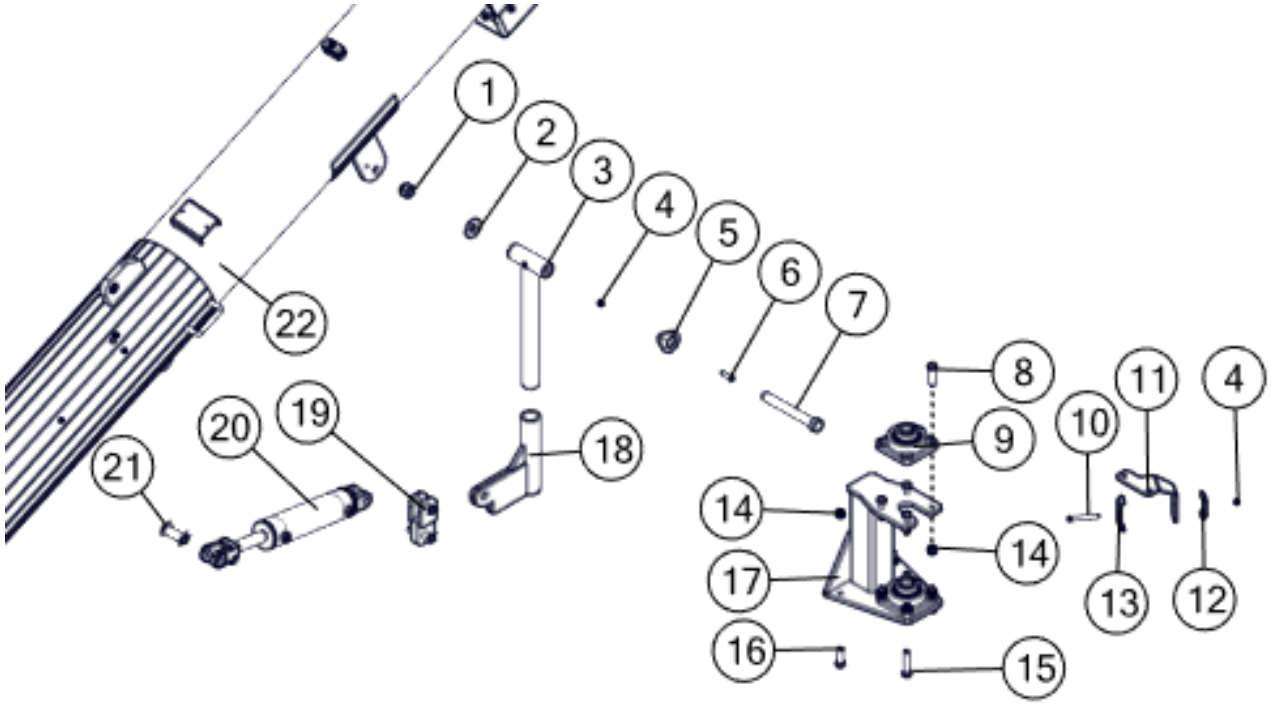


11.12.2 Transfer Auger - Lift & Swing Pedestal

REF #	PART #	DECRIPTION	QTY
1	167200-0694	Nyloc Nut - 1" NC Gr.5 PL	1
2	168000-0139	Flat Washer - 1" USS PL	1
3	670000-0523.00	Tee Post - Lift and Swing	1
**	133200-0040	Grease Nipple - 1/8" NPT	1
4	167200-0652	Nyloc Nut - 3/8" NC Gr.5 PL	2
5	471300-1471.00	Hex Bolt Locking Plate - 1"	1
6	159300-0988	Hex Bolt - 3/8" NC x 1-1/2 Gr.5 PL	1
7	159500-0080	Hex Bolt - 1" NC x 8-1/2" Gr5	1
8	159400-0636	Hex Bolt - 5/8" NC x 2-1/2" Gr.5 PL	4
9	114000-0250	Bearing - 4-Bolt Flange 1-15/16" ID NTN (UELFU-1.15/16M)	2
10	159400-0007	Hex Bolt - 3/8" NC x 3-1/2" NC Gr.5 PL	1
11	470000-0254.05	Base - Hose Clamp - Trans Auger Hyd L&S	1
12	480100-0722.01	Hose Clamp	1
13	480100-0710.01	Hose Clamp	1
14	167200-0690	Nyloc Nut - 5/8" NC Gr.5 PL	10
15	159400-0646	Hex Bolt 5/8" NC x 3" Gr.5 PL	4
16	159400-0628	Hex Bolt - 5/8" NC x 2" Gr.5	2
17	614000-0519.00	Tower Weldment - L&S Bolt-on - 36" - 60" Mill	1
18	674800-0071.01	Vertical Post Lug- HD L&S	1
19	674800-0017.00	Cylinder Lug Weldment	1
20	107700-0020	3" Bore x 10" Storke Hyd Cylinder	1
21	107000-0103	Cylinder Pin - 1" Dia x 3"	3
22	671300-0524.03	Transfer Auger Tube - Upper - SAC folding	1

****Check the Hydraulic cylinder before placing an order.**

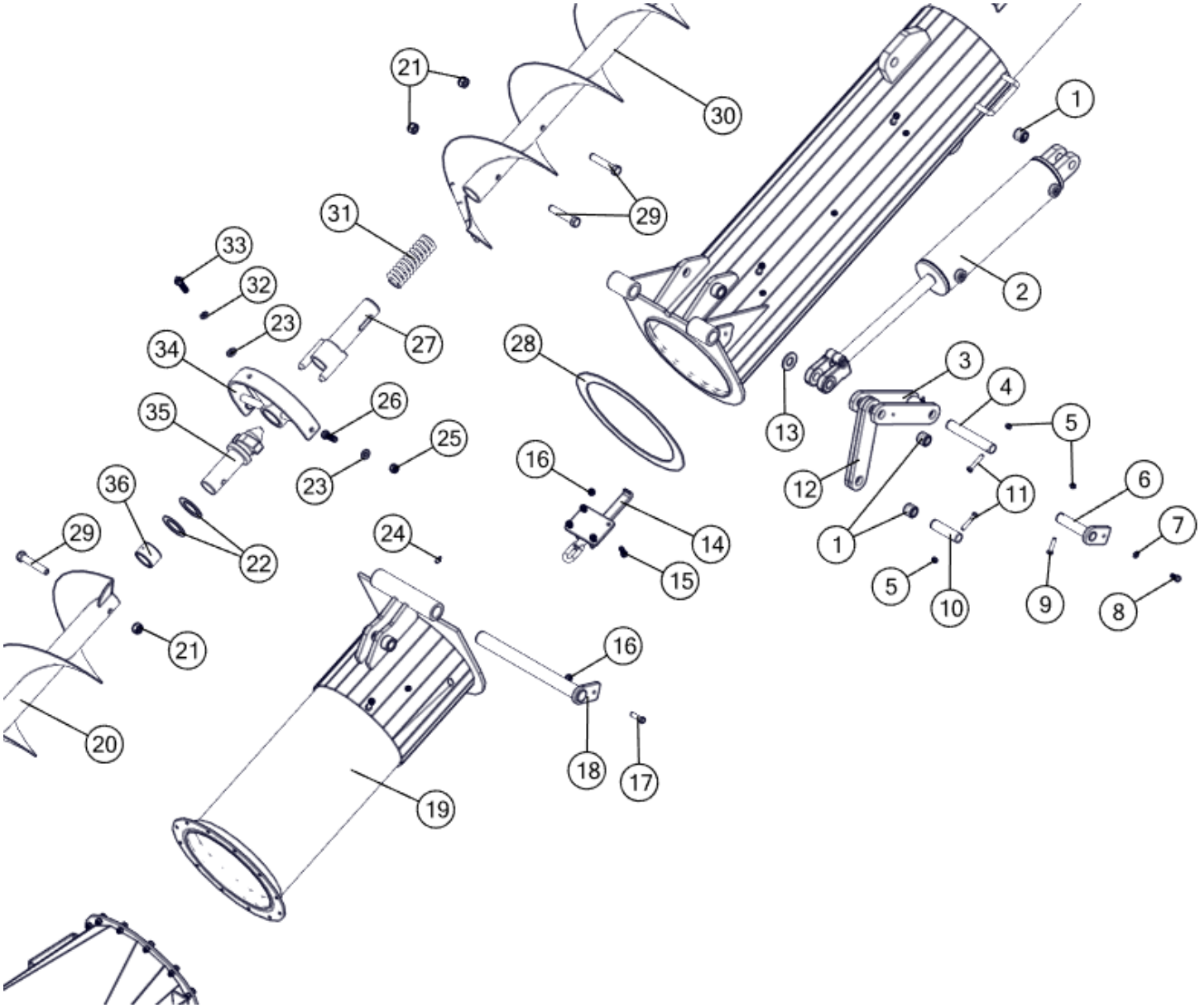
11.12.2 Transfer Auger - Lift & Swing Pedestal



11.12.3 Transfer Auger - Fold

REF #	PART #	DECRIPTION	QTY
1	113200-0030	Split Spring Bushing - 1" x 1"	3
2	107200-0539	4 x 14Cylinder	1
**	107000-0103	Cylinder Pin - 1" Dia x 3"	1
3	613600-0592.00	Pivot Weldment	1
4	413600-0700.00	Cross Pin - 6"	1
5	167200-0648	Nyloc Nut - 5/16" NC Gr.5 PL	3
6	671300-0419.00	Transfer Auger Linkage - Cylinder Pin	1
7	168600-0071	Lock Washer - 3/8" PL	1
8	159300-0944	Hex Bolt - 3/8" NC x 3/4" Gr.5 PL	1
9	159300-0737	Hex Bolt - 5/16" x 1-1/2" Gr.5 PL	1
10	413600-0701.00	Cross Pin - 3.25"	1
11	159300-0792	Hex Bolt - 5/16" x 2" Gr5 PL	2
12	471300-1711.00	Hinge Arm - Mid Push - LP Trans Auger	1
13	168000-0598	Flat Washer - 1" SAE PL	1
14	671300-0654.00	Over-center Latch Clamp Weldment	1
**	161500-0505	Safety Pin - 1/8"	1
15	159300-0961	Hex Bolt - 3/8" NC x 1" Gr.5 PL	4
16	167200-0652	Nyloc Nut - 3/8" NC Gr.5 PL	8
17	159300-0988	Hex Bolt - 3/8" NC x 1-1/2 Gr.5 PL	1
18	671300-0420.00	Folding Transfer Auger Main Pin Weldment	1
19	671300-0525.01	Transfer Auger Tube - Bottom - SAC WF Folding	1
20	671300-0413.00	Auger Weldment - Upper Section - SAC folding	1
21	167200-0690	Nyloc Nut - 5/8" NC Gr.5 PL	3
22	168000-0700	Thrust Washer - 2" I.D. x 3" O.D x .07" Thick	2
23	168000-0544	Flat Washer - 1/2" SAE PLTD	3
24	133200-0040	Grease Nipple - 1/8" NPT	2
25	167200-0688	Nyloc Nut - 1/2" NC Gr.5 PL	2
26	159400-0401	Hex Bolt - 1/2" NC x 1-1/2" Gr.5 PL	2
27	671300-0421.00	Flex drive - female	1
28	147800-0136	12.25 ID x 15 OD x .125 Gasket	1
29	159400-0700	Hex Bolt - 5/8" NC x 3-1/2"	3
30	671300-0416.00	Auger Weldment - Upper Section - 27 deg - SAC fold	1

11.12.3 Transfer Auger - Fold

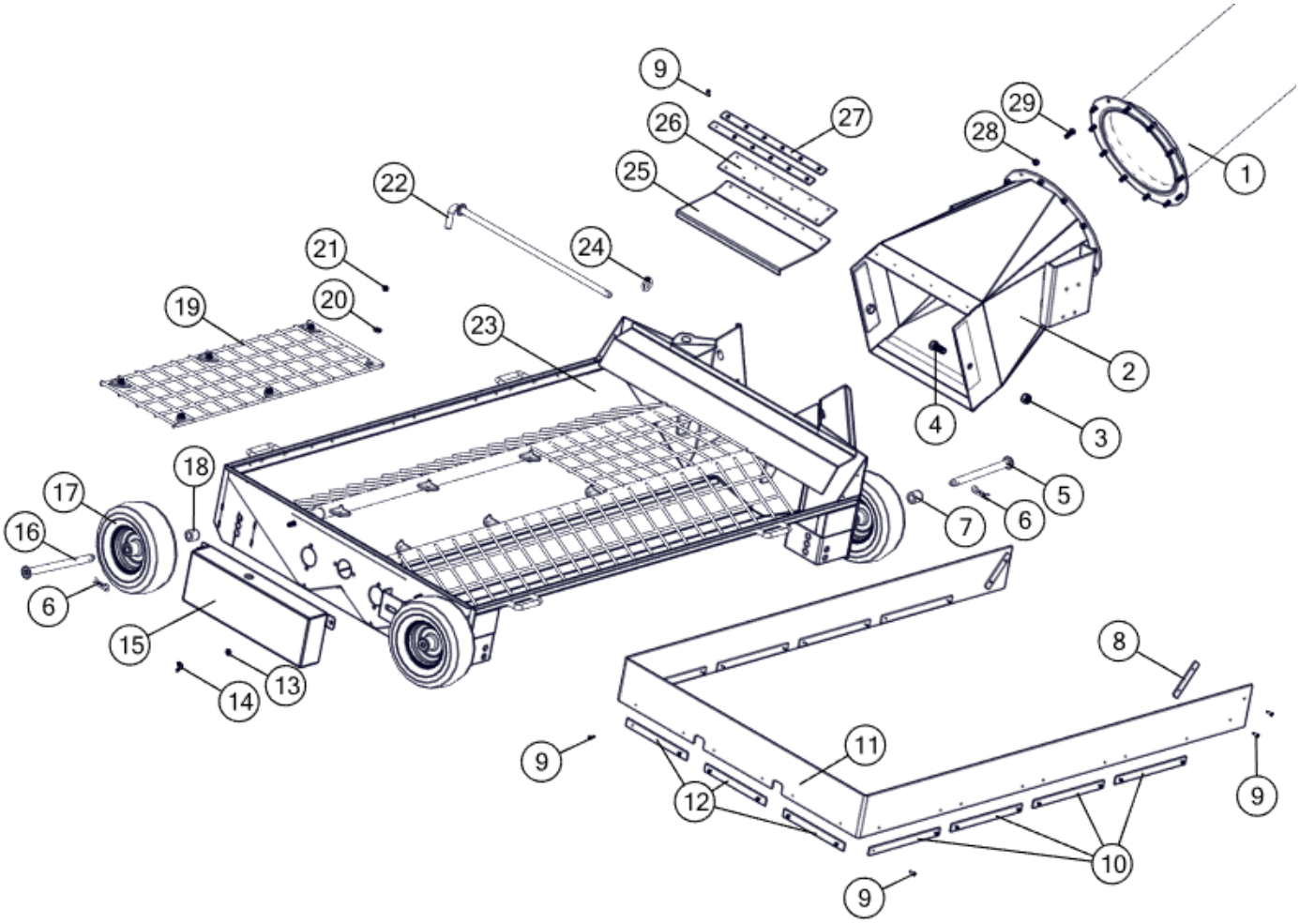


31	303100-0207	Comp. Spring .25W x 1.938" OD x 1.438" ID x 6" Long	1
32	168600-0098	Lock Washer - 1/2" PL	1
33	781200-0538.00	Grease Port Bolt	1
34	671300-0412.00	Auger Support Assembly - Mid	1
35	671300-0411.01	Pilot pin weldment	1
36	480200-0792.00	Oilite Bushing - 1-15/16" x 2-5/16" x 1-1/2"	1

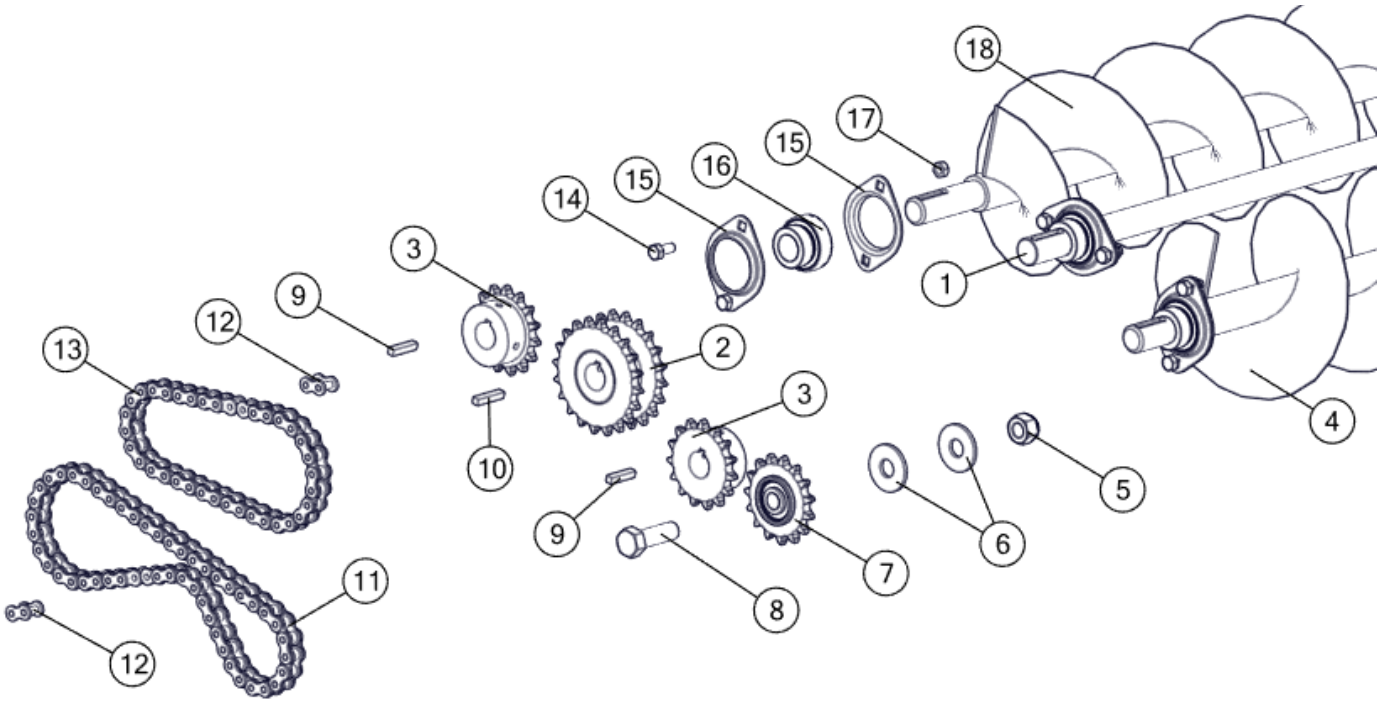
11.12.4 Transfer Auger - Hopper Body

REF #	PART #	DECRIPTION	QTY
1	671300-0525.01	Transfer Auger Tube - Bottom - SAC WF Folding	1
2	671300-0511.01	Hopper / Auger Transition Weldment	1
3	167200-0690	Nyloc Nut - 5/8" NC Gr.5 PL	2
4	159400-0594	Hex Bolt - 5/8" NC x 1-1/2" Gr.5 PL	2
5	671300-0669.00	Interior Tire Pin - 3/4" x 12"	2
6	161300-0778	PIN - HAIR 1/8" x 2-5/8" - #11	4
7	471300-1726.00	1.25" O.D. x .5625" Long - Axle Bushing - Interior Tire	2
8	471300-1130.00	Belting Strap (Short)	38
9	171000-0075	3/16" x .75" grip Pop Rivet	38
10	471300-1268.00	Belting Attach Strap (Long)	8
11	471300-1264.00	Perimeter Belt	1
12	471300-1129.00	Belting Attach Strap (Medium)	3
13	168600-0071	Lock Washer - 3/8" PL	2
14	167100-0979	Wing Nut - 3/8" NC PL	2
15	471300-1287.00	Rear Drive Shield	2
16	671300-0668.00	Exterior Tire Pin - 3/4" x 11.5"	2
17	100100-0415	4" x 11" Caster - Non-tread - Tire Only	4
18	471300-1725.00	1.25" O.D. x .3125" Long - Axle Bushing - Exterior Tire	2
19	671300-0653.00	Wire Mesh Weldment - Bolt-On	1
20	168000-0040	Flat Washer - 5/16" USS PL	6
21	167200-0648	Nyloc Nut - 5/16" NC Gr.5 PL	6
22	671300-0513.00	Lock Bar Weldment	1
23	671300-0507.02	Hopper Body - Dual Auger Hopper	1
24	161500-0450	3/16 X 1-1/2" Lynch Pin	1
25	471300-1258.01	Cover Panel - Transition	1
26	471300-1257.00	3" Rubber Belting - Cover Panel - Hopper	1
27	471300-1255.00	Clamp Plate - Rubber Belting	2
28	167200-0652	Nyloc Nut - 3/8" NC Gr.5 PL	12
29	159300-0961	Hex Bolt - 3/8" NC x 1" Gr.5 PL	12

11.12.4 Transfer Auger - Hopper Body

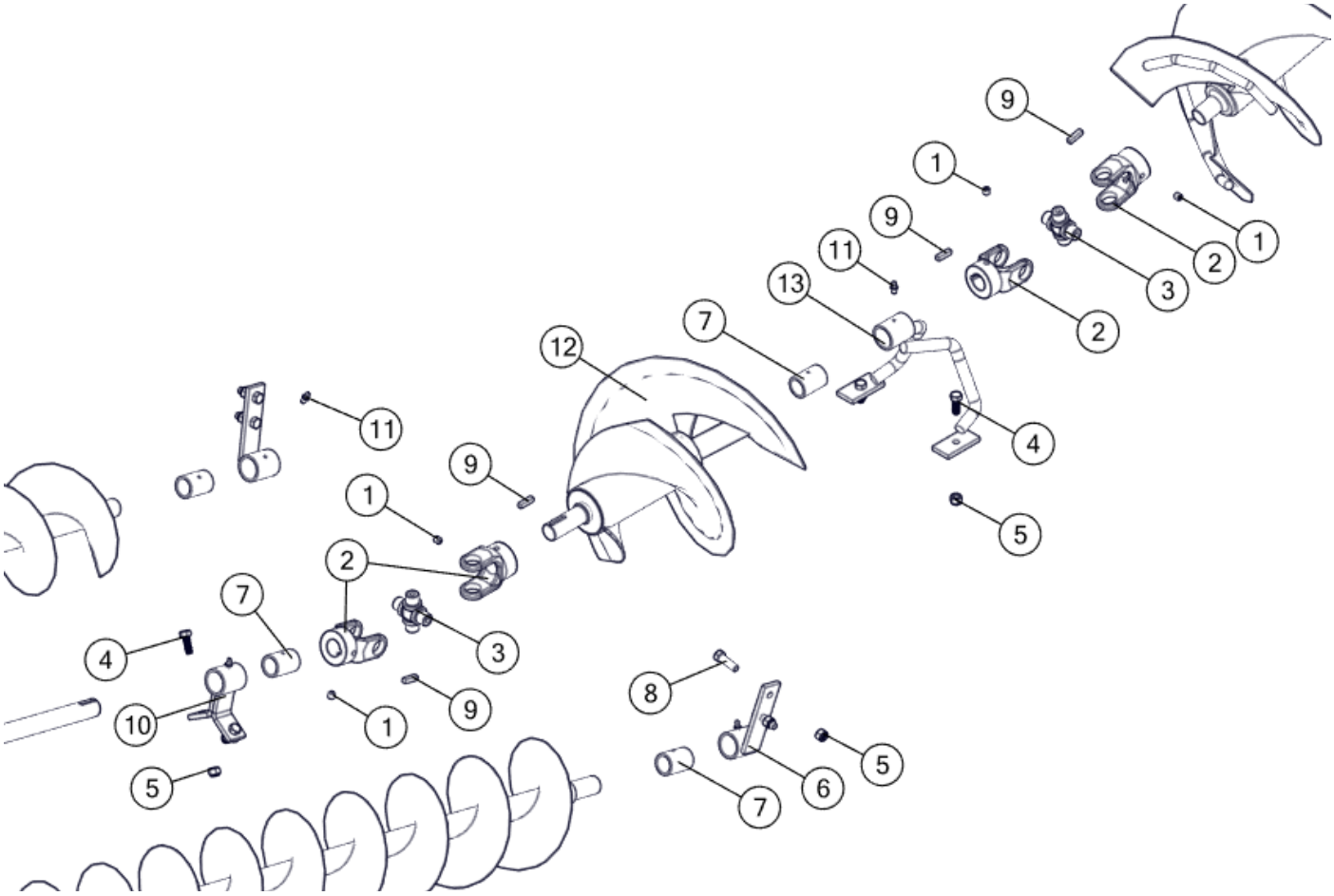


11.12.5 Transfer Auger - Bottom End



REF #	PART #	DECRIPTION	QTY
1	471300-1203.00	Center Drive Shaft	1
2	128800-0515	5020 Plate Sprocket	1
3	129000-0510	Sprocket - 15 Tooth #50 x 1"	2
4	671300-0629.00	Hopper Auger 7 x 5 x 62" LH	1
5	167200-0690	Nyloc Nut - 5/8" NC Gr.5 PL	1
6	168000-0080	Flat Washer - 5/8" USS PL	2
7	128000-0610	Sprocket - 5015 Idler	1
8	159400-0628	Hex Bolt - 5/8" NC x 2" Gr.5	1
9	471300-1261.00	1/4" Keystock x 1/4"	2
10	481000-1157.00	Double Sprocket Bush	1
11	471300-1249.01	1/4 - 1-3/8 KS	1
12	140200-0050	Connector Link - 50 Chain	2
13	471300-1248.01	Auger Chain - RH	1
14	159300-0730	Hex Bolt - 5/16" NC x 3/4" Gr.5 PL	6
15	114000-0182	Flangette - 2 Bolt 52 mm	6
16	114000-0115	1" Bearing - 52mm Cylindrical OD, Ecc. Lock	3
17	167200-0410	Lock Nut - 5/16" NC	6
18	671300-0628.00	Hopper Auger 7 x 5 x 62" RH	1

11.12.6 Transfer Auger - Transition

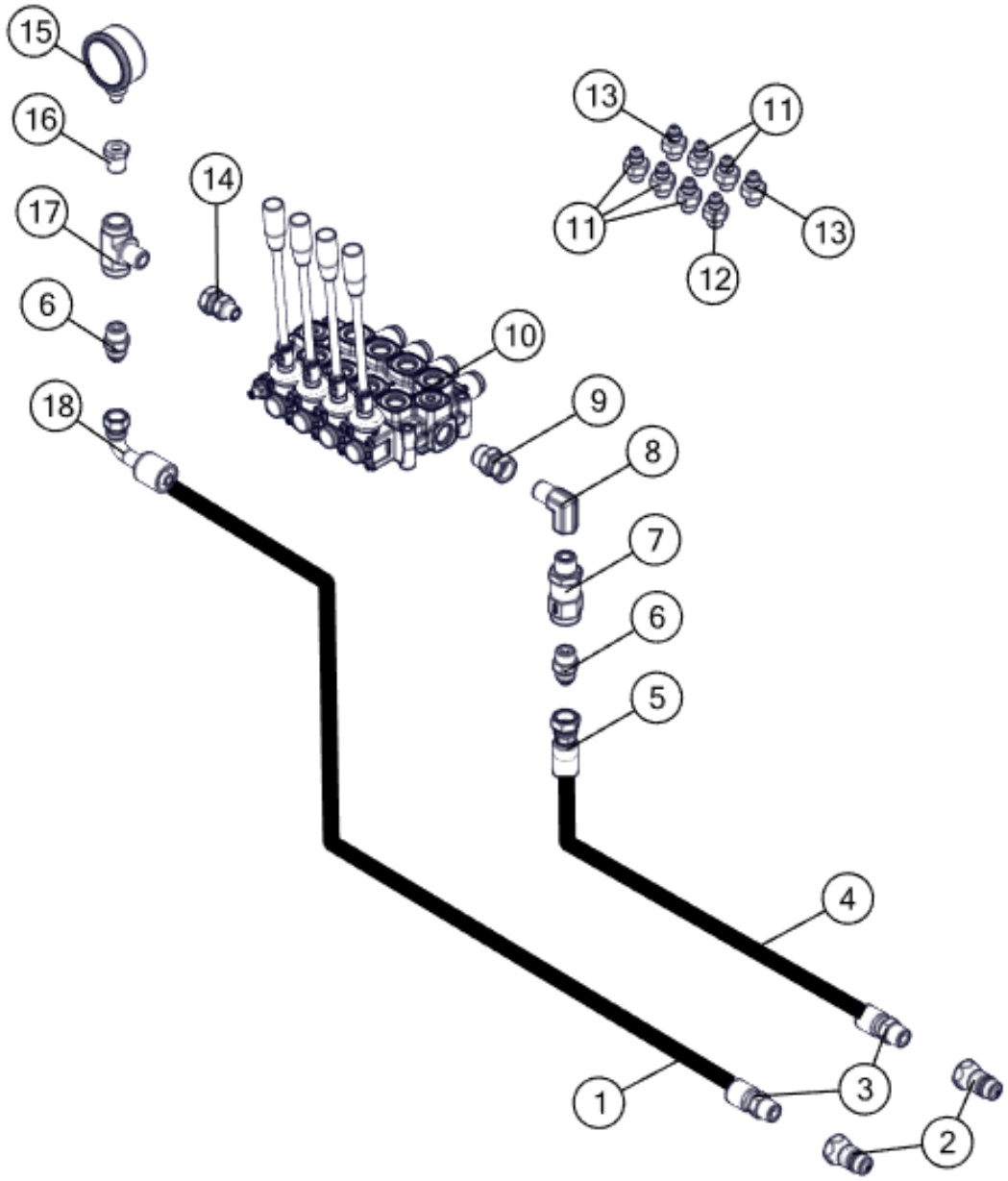


REF #	PART #	DECRIPTION	QTY
1	160200-0805	Docket Set Screw - 3/8" x 3/8' NC	4
2	471300-1296.00	End Yoke - Series 6 - Added Tapped Hole 90°	4
3	380000-0006	End Yoke Cross - 6R	2
4	159300-0961	Hex Bolt - 3/8" NC x 1" Gr.5 PL	4
5	167200-0652	Nyloc Nut - 3/8" NC Gr.5 PL	8
6	671300-0497.00	Auger Hanger - Weldment	2
7	471300-1206.00	Oilite Hanger	2
8	159300-0979	Hex Bolt - 3/8" NC x 1-1/4" Gr.5 PL	4
9	471300-1285.00	1/4" Keystock x 1"	4
10	671300-0495.00	Support Bushing - Center Drive Shaft	1
11	133200-0031	Straight Grease Fitting - 1/4" 28UNF	4
12	671300-0499.01	Turbo Auger Assembly	1
13	671300-0496.00	Spider Bushing Weldment	1

11.13 Hydraulic Control Valve

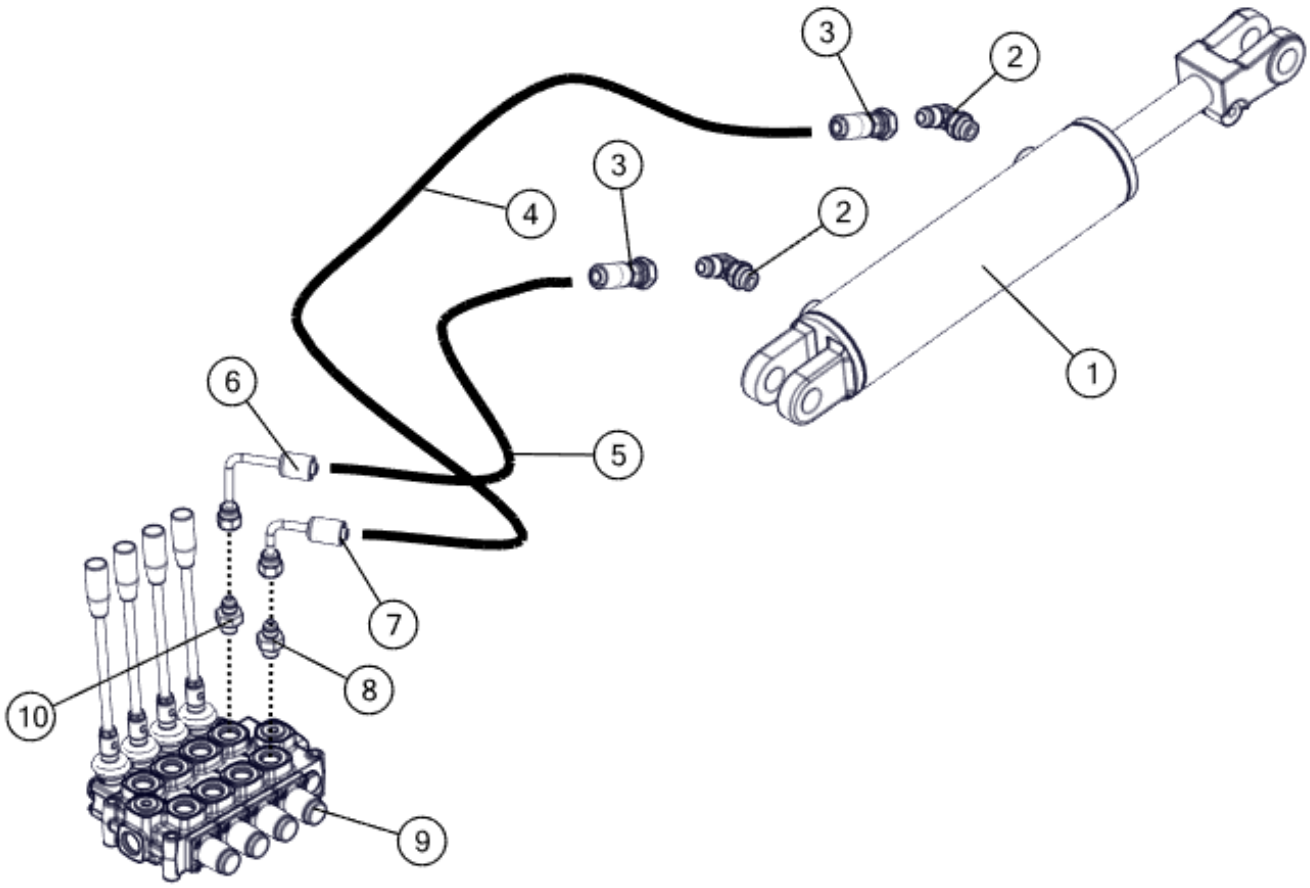
REF #	PART #	DECRIPTION	QTY
1	H50000-0074	HYD HOSE 2WB THIN COVER 1/2" X 118"	1
2	104000-0610	Hydraulic - Q/C Male Poppet 1/2" FNPT	2
3	071000-0808	Hose End - 1/2" Dia x 1/2" MNPT	2
4	H50000-0073	HYD HOSE 2WB THIN COVER 1/2" X 113"	1
5	073600-0808	Hose End - 1/2"Dia x # 8 JICF-sw	1
6	082400-0808	Hex Nipple - 1/2" MNPT x #8 JICM	2
7	111000-0204	Check Valve 1/2" MPT x 1/2" FPT	1
8	085500-0808	90deg Elbow 1/2" MPT x 1/2" FPT	1
9	086900-0810	Swivel Adapter - #10 ORB x 1/2" FNPT-sw	1
10	110100-0416	Spool Valve - Q25 4 Bank	1
11	081000-0099	Orifice Adapter - #6 ORBM to #6 JICM x.031"	5
12	081000-0100	Orifice Adapter - #6 ORBM to #6 JICM x.062"	1
13	086400-0606	Hex Nipple - #6 JICM x #6 ORBM	2
14	086900-0808	SW.ADAPTOR # 8 ORBM x 1/2 FPTsw	1
15	110300-0022	Pressure Gauge - Vertical - 0 to 3500 psi	1
16	085400-0804	Hex Reducer - 1/2" MNPT x 1/4" FNPT	1
17	085800-0808	Tee - 1/2" FNPT x 1/2" FNPT x 1/2" MNPT	1
18	073800-0808	Hose End - 1/2" Dia x #8 JICF-sw 90°	1

11.13 Hydraulic Control Valve



11.14 Transfer Auger Hydraulics

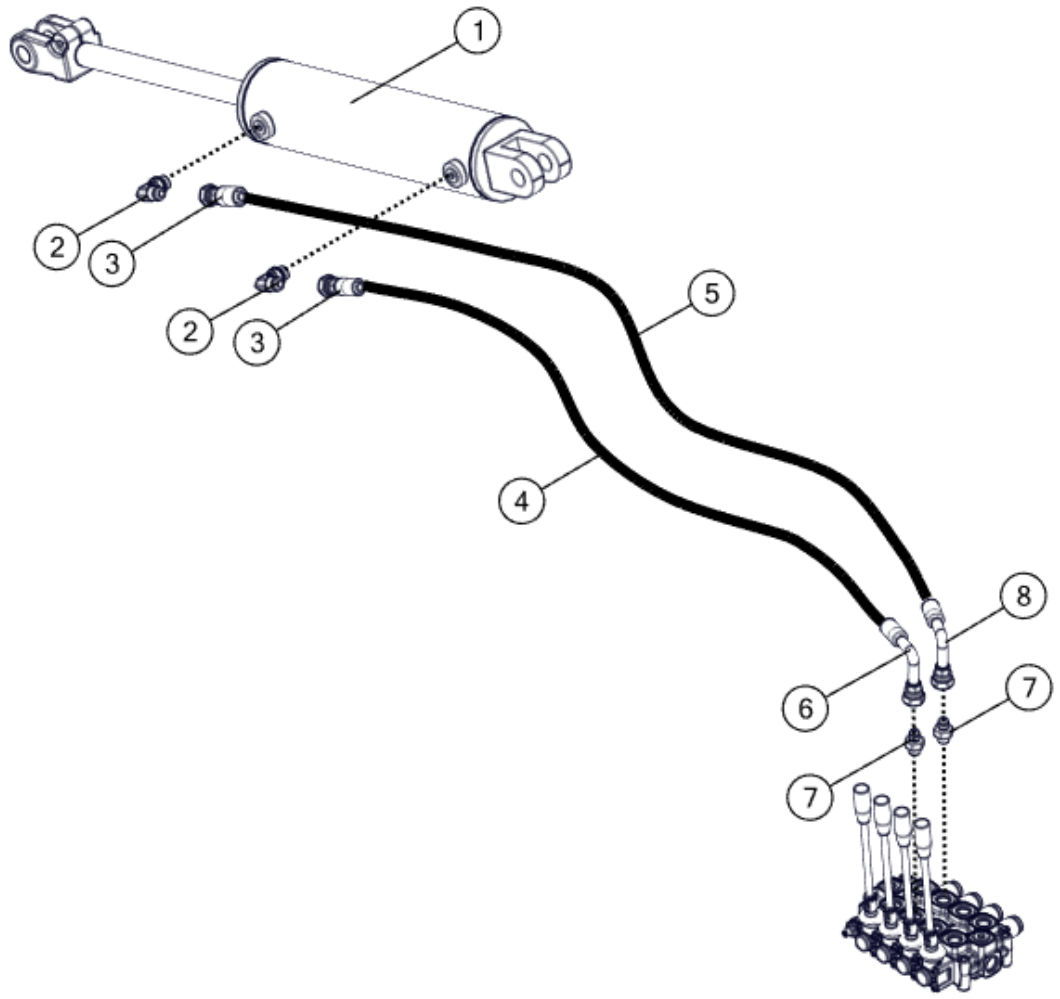
11.14.1 Transfer Auger Hydraulics - Lift



REF #	PART #	DECRIPTION	QTY
1	107700-0020	3" Bore x 10" Storke Hyd Cylinder	1
2	086800-0808	Elbow 90deg sw #8 JICM x #8 ORB	2
3	073600-0608	Hose End - 3/8"Dia x # 8 JICF-sw	2
4	H37500-0260	Hyd Hose 2WB Thin Cover 3/8" X 62"	1
5	H37500-0259	Hyd Hose 2WB Thin Cover 3/8" X 47"	1
6	071000-0607	Hose End - 3/8" Dia x #6 JICF-sw 90° Long	1
7	073800-0606	Hose End 3/8" Dia x #6 JICFsw 90deg Short	1
8	086400-0606	Hex Nipple - #6 JICM x #6 ORBM	1
9	110100-0416	Spool Valve - Q25 4 Bank	1
10	081000-0099	Orifice Adapter - #6 ORBM to #6 JICM x.031"	1

****Check the Hydraulic cylinder and ORB adapter before placing an order.**

11.14.2 Transfer Auger Hydraulics - Fold

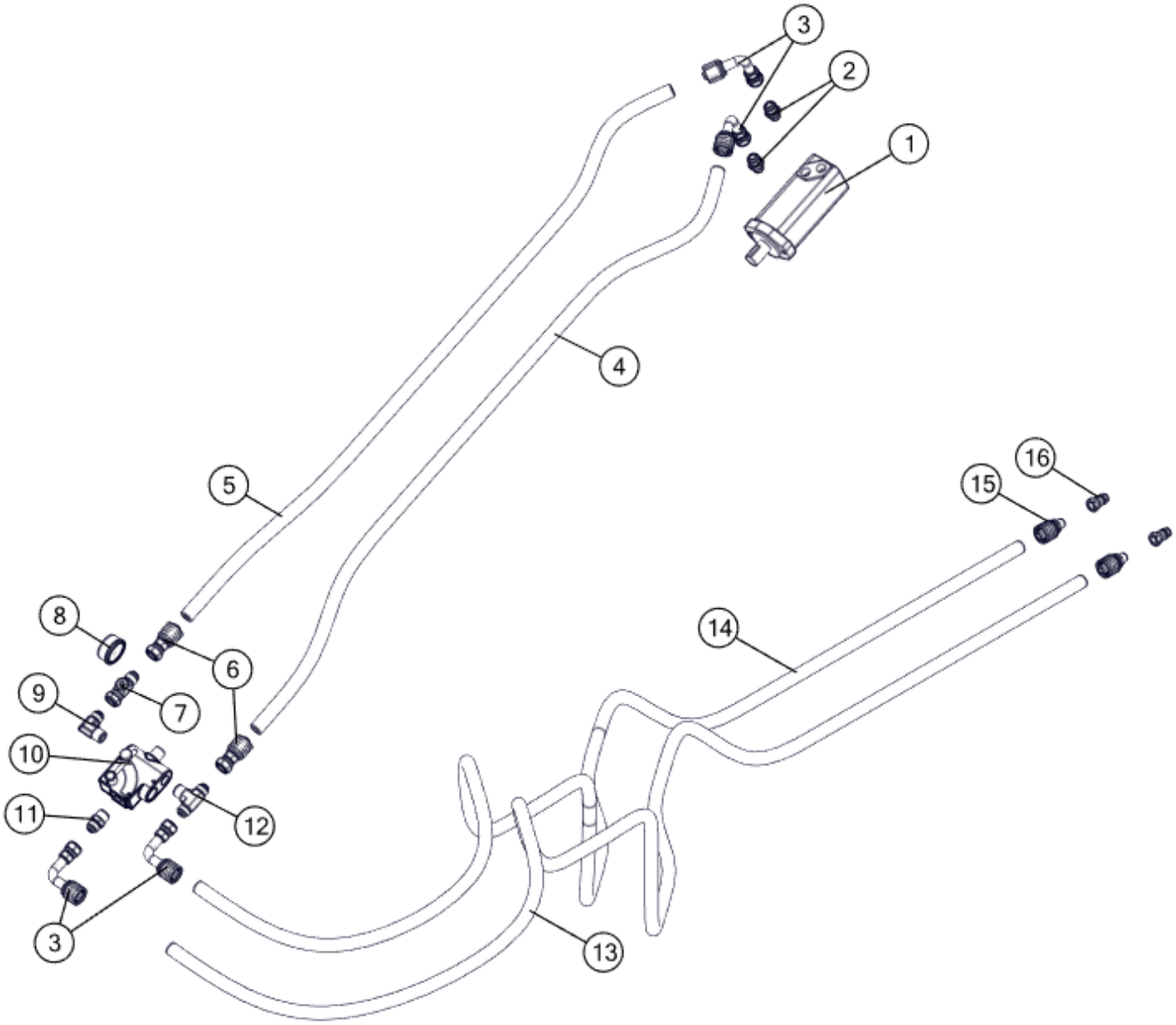


REF #	PART #	DECRIPTION	QTY
1	107200-0539	4 x 14Cylinder	1
2	086800-0808	90° Elbow - #8 ORB x #8 JICM-sw	2
3	073600-0608	Hose End 3/8"Dia x # 8 JICFsw	2
4	H37500-0262	Hyd Hose 2WB Thin Cover 3/8" X 89"	1
5	H37500-0261	Hyd Hose 2WB Thin Cover 3/8" X 105"	1
6	071000-0607	Hose End - 3/8" Dia x #6 JICF-sw 90° Long	1
7	081000-0099	Orifice Adapter - #6 ORBM to #6 JICM x.031"	2
8	073800-0606	Hose End 3/8" Dia x #6 JICFsw 90deg Short	1

11.14.3 Transfer Auger Hydraulics - Drive

REF #	PART #	DECRIPTION	QTY
1	111200-0026	Hydraulic Motor - 2000 Series 9.6cu.in. ORB	1
2	086400-0820	Hex Nipple - #10 ORBM x #12 JICM	2
3	073800-0912	Hose End - 3/4" Dia x #12 90JICFsw	4
4	H75000-0223	HYD HOSE 2WB THIN COVER 3/4" X 69"	1
5	H75000-0248	HYD HOSE 2WB THIN COVER 3/4" X 66"	1
6	073700-0212	Hose End - 3/4" Dia x #12 JICF-sw	2
7	084900-0100	Tee Port Adaptor #12 JICM x #12 JICF x 1/4" FPT	1
8	110300-0032	Pressure Gauge - Vertical - 0 to 5000 psi	1
9	082500-0825	90° Elbow - 3/4" MNPT x #12 JICM	1
10	110100-0402	Flow Control Valve - 3/4" Ports	1
11	082400-0820	Hex Nipple 3/4" MPT x #12 JICM	1
12	085100-0824	Tee - #12 JICM x #12 JICM x 3/4" MNPT	1
13	H75000-0108	HYD HOSE 2WB THIN COVER 3/4" X 203"	1
14	H75000-0107	HYD HOSE 2WB THIN COVER 3/4" X 197"	1
15	071000-0910	Hose End - 3/4" Dia x 1/2" MNPT	2
16	104000-0610	Hydraulic - Q/C Male Poppet 1/2" FNPT	2

11.14.3 Transfer Auger Hydraulics - Drive

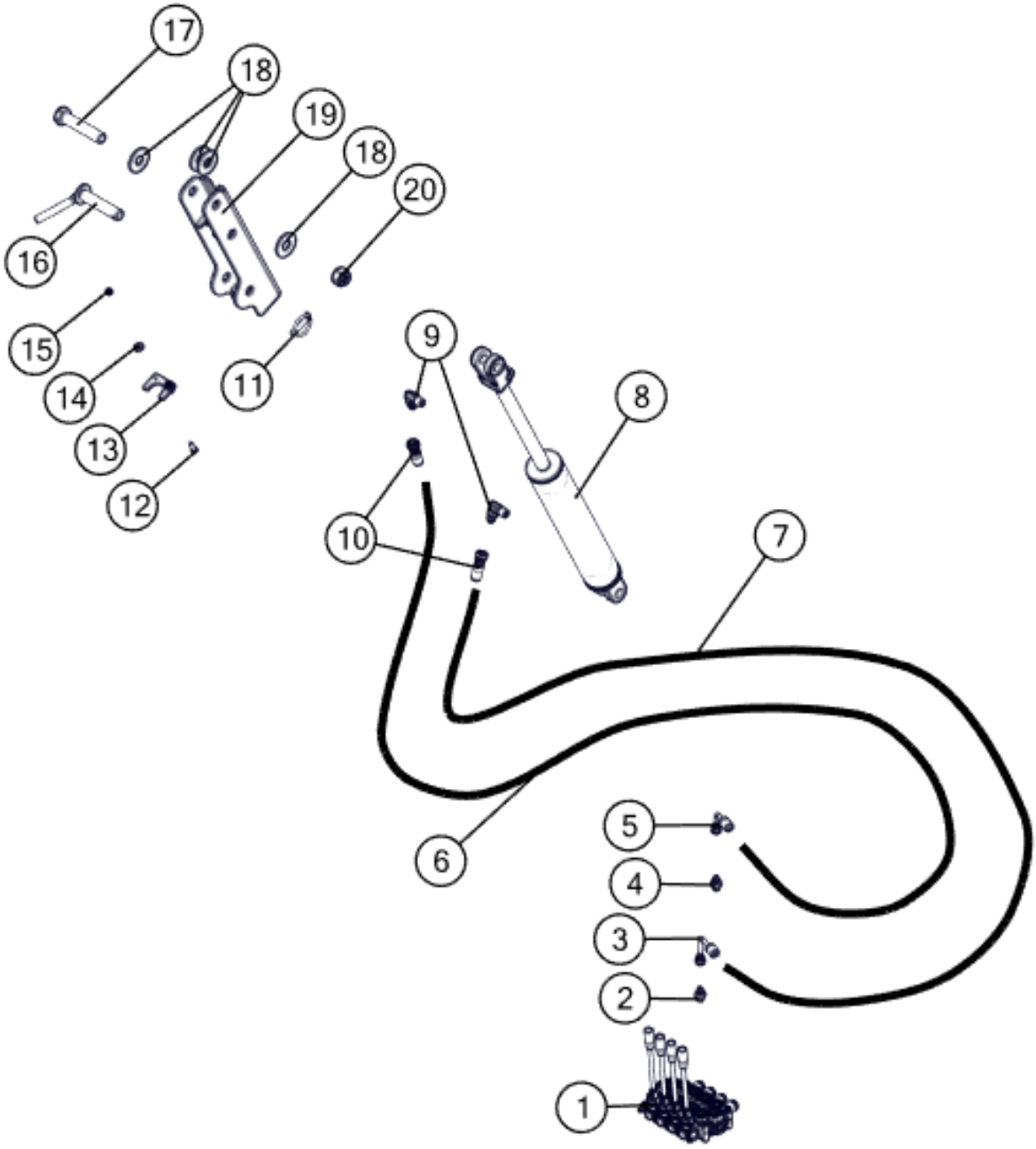


11.15 Discharge Auger Hydraulics

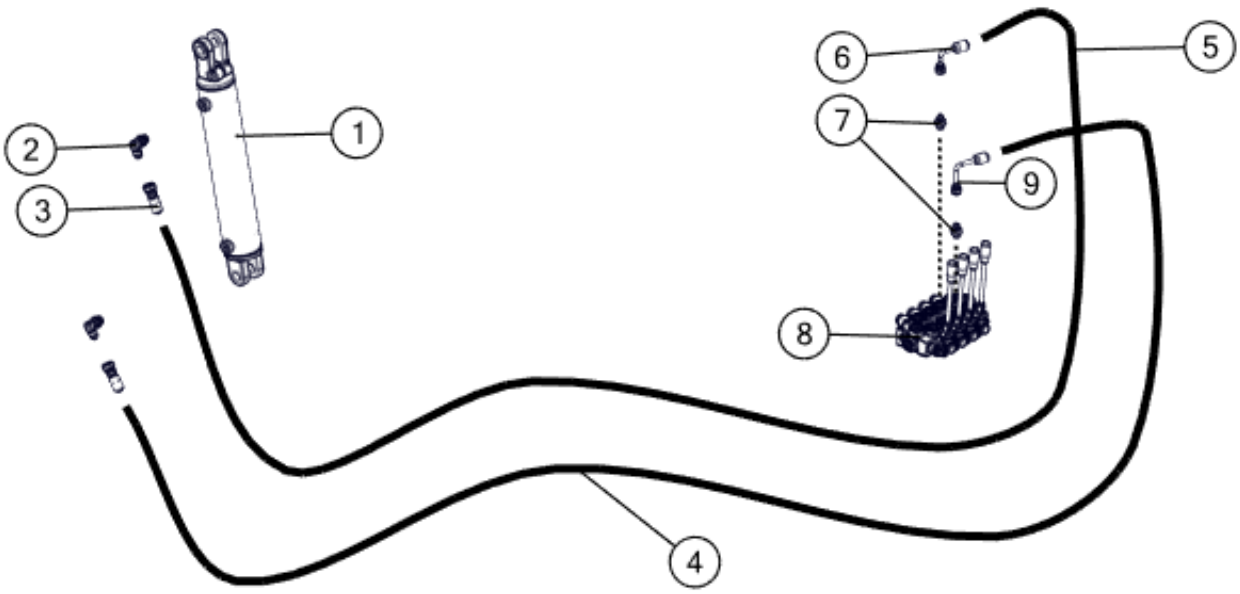
11.15.1 Discharge Auger Hydraulics - Tilt

REF #	PART #	DECRIPTION	QTY
1	110100-0416	Spool Valve - Q25 4 Bank	1
2	081000-0100	Orifice Adapter - #6 ORBM to #6 JICM x.062"	1
3	071000-0607	Hose End - 3/8" Dia x #6 JICF-sw 90° Long	1
4	086400-0606	Hex Nipple - #6 JICM x #6 ORBM	1
5	073800-0606	Hose End 3/8" Dia x #6 JICFsw 90deg Short	1
6	H37500-0265	Hyd Hose 2WB Thin Cover 3/8" X 215"	1
7	H37500-0266	Hyd Hose 2WB Thin Cover 3/8" X 201"	1
8	107700-0021	3" Bore x 14" Storke Hyd Cylinder	1
9	086800-0808	Elbow 90deg sw #8 JICM x #8 ORB	2
10	073600-0608	Hose End - 3/8"Dia x # 8 JICF-sw	2
11	161500-0455	Lynch Pin - 7/16" x 1-3/4"	1
12	159300-0735	Hex Bolt - 5/16" NC x 1" Gr.5 PL	2
13	147100-0286	Cylinder Lock - 1/4" UHMW	1
14	168000-0040	Flat Washer - 5/16" USS PL	2
15	167200-0648	Nyloc Nut - 5/16" NC Gr.5 PL	2
16	670000-0189.00	Transport Lock Pin	1
17	159500-0066	Hex Bolt 1" - NC x 5" Gr.5 PL	1
18	168000-0139	Flat Washer - 1" USS PL	4
19	671300-0623.01	Cylinder Lock - 14" Stroke w/ 1.25" dia. Rod	1
20	167200-0694	Nyloc Nut - 1" NC Gr.5 PL	1

11.15.1 Discharge Auger Hydraulics - Tilt

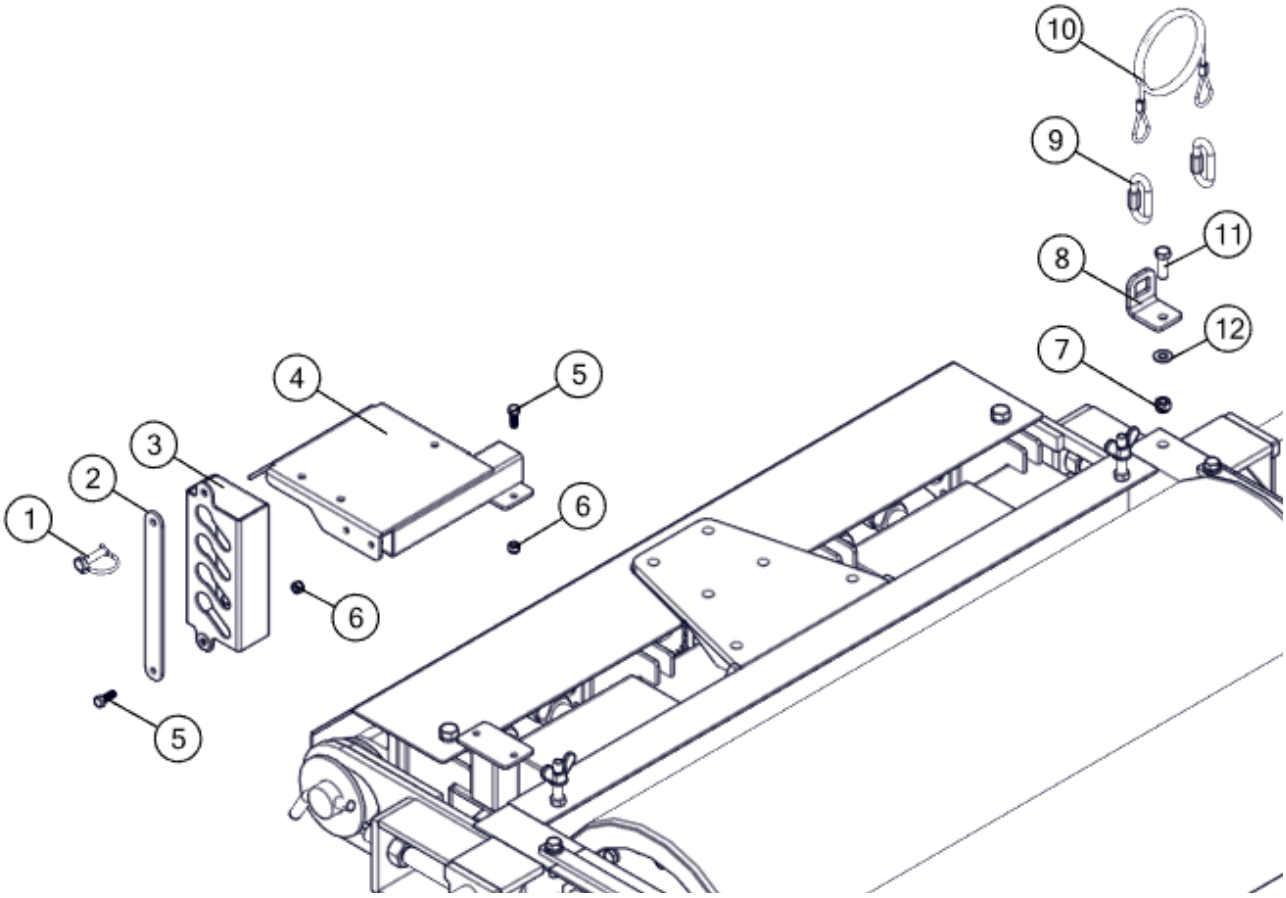


11.15.2 Discharge Auger Hydraulics - Fold



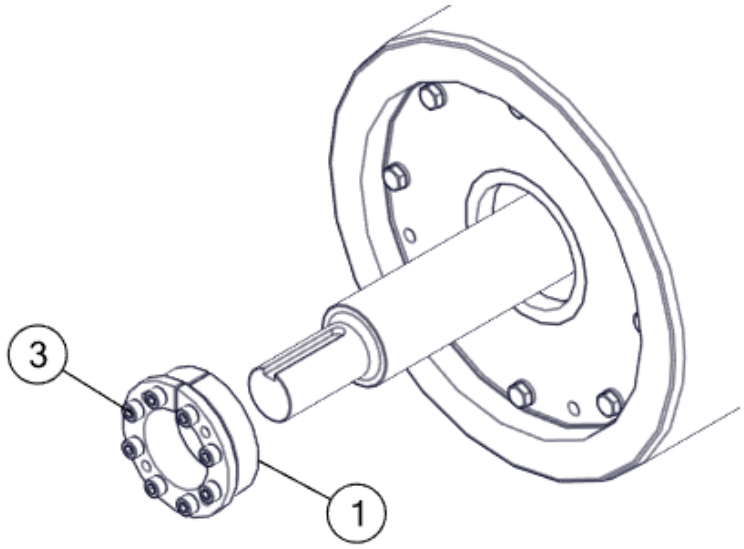
REF #	PART #	DECRIPTION	QTY
1	107700-0021	3" Bore x 14" Storke Hyd Cylinder	1
2	086800-0808	90° Elbow - #8 ORB x #8 JICM-sw	2
3	073600-0608	Hose End - 3/8"Dia x # 8 JICF-sw	2
4	H37500-0264	Hyd Hose 2WB Thin Cover 3/8" X 243"	1
5	H37500-0263	Hyd Hose 2WB Thin Cover 3/8" X 261"	1
6	073800-0606	Hose End 3/8" Dia x #6 JICFsw 90deg Short	1
7	081000-0099	Orifice Adapter - #6 ORBM to #6 JICM x.031"	2
8	071000-0607	Hose End - 3/8" Dia x #6 JICF-sw 90° Long	1
9	110100-0416	Spool Valve - Q25 4 Bank	1

11.16 Hose Hanger & Cable Clamp



REF #	PART #	DECRIPTION	QTY
1	161500-0498	Quick Pin, 3/8" x 1-5/8"	1
2	414000-1023.00	Lock Plate - Hose Hanger - 2 Sets	1
3	614000-0321.00	Hose Hanger - Vertical Mount - 2 Sets	1
4	670000-0212.00	Hydraulic Control Mounting Bracket - 4 Spool	1
5	159300-0961	Hex Bolt - 3/8" NC x 1" Gr.5 PL	5
6	167200-0652	Nyloc Nut - 3/8" NC Gr.5 PL	5
7	167200-0688	Nyloc Nut - 1/2" NC Gr.5 PL	1
8	414800-0132.01	D- Link - Folding Auger	1
9	100200-0641	Quick Link	2
10	614000-0329.00	3/16 Coated Cable x 54" Long -Crimped	1
11	159400-0401	Hex Bolt - 1/2" NC x 1-1/2" Gr.5 PL	1
12	168000-0544	Flat Washer - 1/2" SAE PLTD	1

11.17 Roll Bushing Assembly - B-Loc Bushing



Roll Size Dia. x Length	[#1] B-Loc Hub Part # & I/D	[#2] B-Loc Spacer Ring & Size	[#3] Socket Head Cap Screw (QTY) & Size	Tightening Torque (ft-lbs)
8-5/8" n x 10"	141000-0001 1-3/8"	N/A	(8) 6mm x 1.0 x 20mm	12
12 3/4"n x 12"	141000-0002 1-15/16"	N/A	(7) 8mm x 1.25 x 25mm	30
12 3/4"n x 16"	141000-0002 1-15/16"	N/A	(7) 8mm x 1.25 x 25mm	30
16" n x 12"	141000-0002 1-15/16"	N/A	(7) 8mm x 1.25 x 25mm	30
16" n x 18"	141000-0002 1-15/16"	N/A	(7) 8mm x 1.25 x 25mm	30
16" n x 24"	141000-0002 1-15/16"	N/A	(7) 8mm x 1.25 x 25mm	30
16" n x 24H	141000-0004 2-7/16"	N/A	(9) 8mm x 1.25 x 25mm	30
16" n x 30"	141000-0004 2-7/16"	N/A	(9) 8mm x 1.25 x 25mm	30
16" n x 30H	141000-0003 2-15/16"	N/A	(8) 10mm x 1.5 x 30mm	60
16" n x 36"	141000-0003 2-15/16"	N/A	(8) 10mm x 1.5 x 30mm	60
16" n x 48"	141000-0003 2-15/16"	N/A	(8) 10mm x 1.5 x 30mm	60
16" n x 60"	141000-0010 3-7/16"	N/A	(8) 10mm x 1.5 x 30mm	60

Locking screws, taper, shaft & bore contact areas should be clean and lightly oiled, all collar slits should be aligned.

DO NOT use Molybdenum Disulfide (e.g. Molykote, Never-Seize or similar lubricants) in any locking assembly.

NOTES

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