



2958

OPERATOR & PARTS MANUAL



WARNING

READ AND UNDERSTAND THIS MANUAL BEFORE OPERATING THIS EQUIPMENT. UNSAFE OPERATION OR MAINTENANCE OF THIS EQUIPMENT CAN RESULT IN SERIOUS INJURY OR DEATH.

Revision #00

Starting Serial #R2820B0076

HSMFG0919

Part #85393

H&S MANUFACTURING CO.,INC.

MARSHFIELD, WISCONSIN 54449
(715) 387-3414 FAX (715) 384-5463

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H&S WARRANTY

H&S Manufacturing Co., Inc. ("H&S") warrants this product to be free from defect in material and workmanship. Except as noted below, this warranty term is twelve (12) months on labor, and twenty-four (24) months on parts from the date of delivery of the product to the original purchaser by an authorized H&S dealer. Under this warranty, H&S will repair or replace, at its option, any covered part which is found to be defective in material or workmanship during the applicable warranty term. In no case will the covered repair cost of a part or parts exceed the replacement cost of that part. Warranty service must be performed by H&S or a dealer authorized by H&S to sell and/or service the product involved, which will use only new or remanufactured parts or components furnished by H&S. This warranty includes approved parts and labor to fix the product but does not include, and the purchaser is responsible for, any service call and/or transportation of the product to and from the dealer's place of business, for any premium charged for overtime labor requested by the purchaser, and for any service work not directly related to any defect covered under this warranty. This warranty includes only those components of the product manufactured by H&S. Warranty for any component not manufactured by H&S including, but not limited to, engines, batteries, tires, rims, hydraulic motors, pumps, etc. are covered by the warranty, if any, provided separately by their respective manufacturers.

This warranty in all its parts, is extended solely to the original purchaser of the product, is terminated upon any subsequent transfer or sale from or by the original purchaser and extends no third party benefits or rights whatsoever.

The warranty term for any product used in any commercial, custom, for hire or rental application, is limited to six (6) months from the date of delivery of the product to the original purchaser or the first day of service, whichever comes first, by an authorized H&S dealer.

For commercial, custom for hire, or rental application, warranty is limited to 6 months from the date of delivery to the original purchaser, or the first day in service, whichever is earlier.

This warranty does not include: (1) Any product that has been altered or modified in ways not approved by H&S; (2) Depreciation or damage caused by normal wear, use for which the product was not designed, misuse, improper or insufficient maintenance, improper operation, accident or failure to follow the product Operator's Manual recommendations and product decal recommendations; (3) Normal maintenance parts and service; (4) Repairs made with parts other than those available from H&S or performed by anyone other than H&S or a dealer authorized by H&S to sell and/or service the product involved.

To secure warranty service the purchaser must report the product defect to a dealer authorized by H&S to sell and/or service the product involved within the applicable warranty term together with evidence of the warranty start date and make the product available to that dealer within a reasonable period of time.

THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE OF THIS WARRANTY. H&S and the companies affiliated with it makes no warranties, representations, or promises, express or implied, as to the performance or freedom from defect of its products other than those set forth above and **NO IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS OR FITNESS FOR A PARTICULAR PURPOSE IS MADE. IN NO EVENT WILL THE DEALER, H&S OR ANY COMPANY AFFILIATED WITH H&S BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.** The **ONLY REMEDY** the purchaser has in connection with the breach of performance of any warranty on H&S products are those set forth above.

The selling dealer has no authority to make any representation or promise on behalf of H&S, or to modify the terms or limitations of this warranty in any way.

11/14/18

WARRANTY REGISTRATION

- ❖ **Date of Purchase:** _____
 - ❖ **Purchaser Name:** _____
 - ❖ **Street Address:** _____
 - ❖ **City:** _____
 - ❖ **State:** _____ **Zip:** _____
 - ❖ **Phone Number:** _____
 - E-mail Address:** _____
 - ❖ **Product:** _____
 - ❖ **Model Number:** _____
 - ❖ **Serial Number:** _____
 - ❖ **You have received the Operators Manual for this product. Yes** ____ **No** ____
 - Interested In staying updated with what is happening at H&S? Yes** ____ **No** ____
-

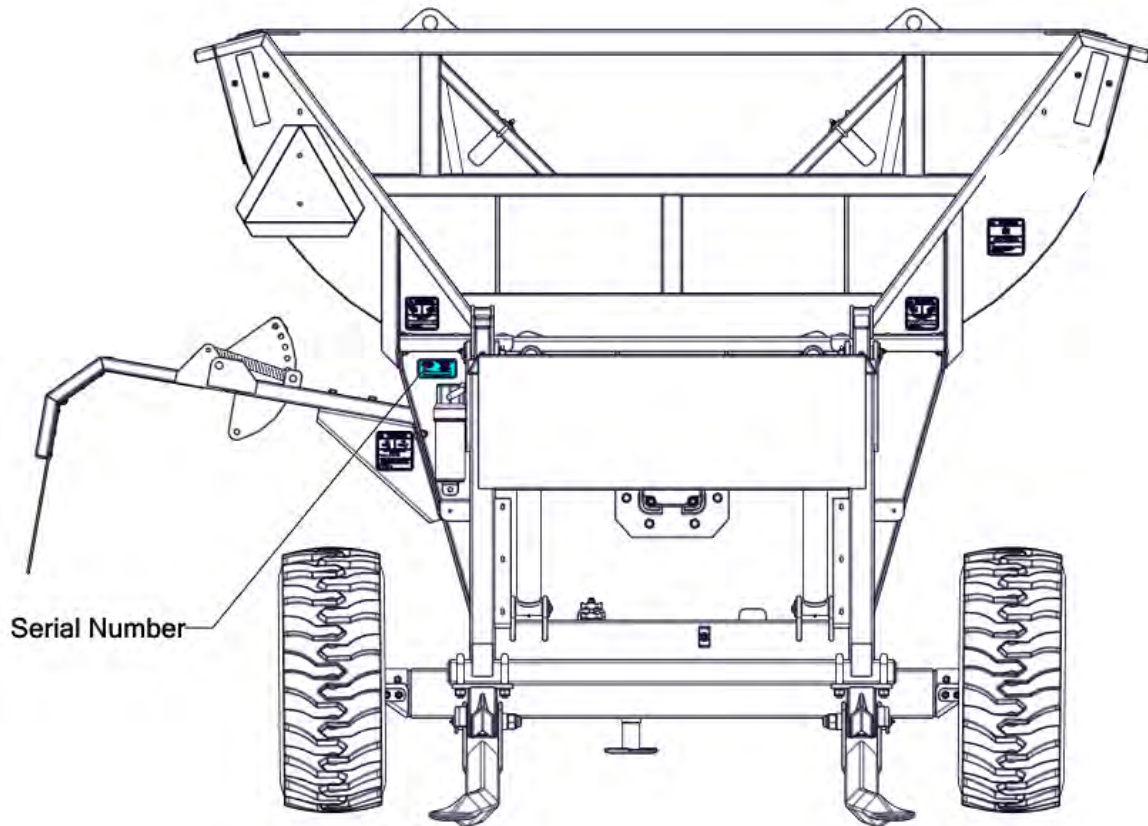
- ❖ **Dealer Name:** _____
- ❖ **Street Address:** _____
- ❖ **City:** _____
- ❖ **State:** _____ **Zip:** _____
- ❖ **Signature:** _____

❖ ***All fields must be filled out to insure prompt notification of product and/or warranty updates.***

**Please mail the completed WARRANTY REGISTRATION FORM to:
H&S Manufacturing Co., Inc.
2608 S. Hume Ave.
Marshfield, WI 54449**

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SERIAL NUMBER LOCATION



Always give your dealer the serial number of your H&S Bale Processor when ordering parts or requesting service or other information.

The serial number plate is located where indicated. **Please record the number in the space below for easy reference.**

MODEL NUMBER _____

SERIAL NUMBER _____

INTRODUCTION

1

Congratulations on your choice of a H&S Bale Processor to complement your farming operation. This equipment has been designed and manufactured to meet the needs of the discriminating buyer for the efficient shredding of forage.

Safe, efficient and trouble free operation of your Bale Processor requires that you and anyone else who will be operating or maintaining the machine, read and understand the Safety, Operation, Maintenance and Trouble Shooting information contained within the Operator's Manual.

Use the Index or Table of Contents as a guide when searching for specific information.

Keep this manual handy for frequent reference and to pass on to new operators or owners. Call your H&S Dealer if you need assistance, information or additional copies of the manual.

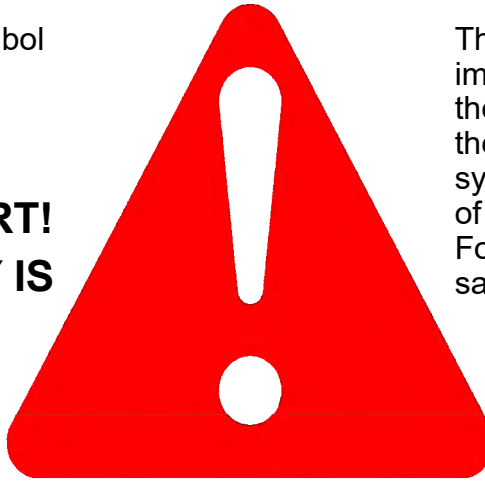
OPERATOR ORIENTATION - The directions left, right, front and rear, as mentioned throughout the manual, are as seen from the tractor driver's seat and facing in the direction of travel.

2 SAFETY

Safety Alert Symbol

This Safety Alert symbol means

**ATTENTION!
BECOME ALERT!
YOUR SAFETY IS
INVOLVED!**



The Safety Alert symbol identifies important safety messages on the H&S Bale Processor 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?

Accidents Disable and Kill

3 Big Reasons

Accidents Cost

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.

SAFETY

YOU are responsible for the SAFE operation and maintenance of your Bale Processor. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the Bale Processor 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 alerts you to all good safety practices that should be adhered to while operating the Bale Processor.

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 the safety precautions. Most accidents can be prevented. Do not risk injury or death by ignoring good safety practices.

- Bale Processor owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually thereafter per OSHA (Occupational Safety and Health Administration) 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.
- H&S feels that 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, servicing, maintaining, adjusting or unplugging the Bale Processor.
2. Only trained competent persons shall operate the Bale Processor. 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. Provide a fire extinguisher for use in case of a fire. Store in a highly visible place.
5. Do not allow riders.
6. Wear appropriate protective gear. This list includes but is not limited to:
 - A hard hat
 - Protective shoes with slip resistant soles
 - Protective goggles
 - Heavy gloves
 - Hearing protection
7. Place all controls in neutral, stop the engine, disengage PTO, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing, or unplugging.
8. Wear appropriate hearing protection when operating for long periods of time.
9. Know where overhead electrical lines are located and stay away from them. Electrocution can occur without direct contact.
10. Review safety related items annually with all personnel who will be operating or maintaining the Bale Processor.

2.2 Operating Safety

1. Read and understand the Operator's Manual and all safety signs before using.
2. Place all controls in neutral, stop the engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Do not open discharge door unless rotor has stopped turning. Keep others out.
4. Do not operate when any guards are damaged or removed. Install and secure guards before starting.
5. Keep hands, feet, clothing and hair away from all moving and/or rotating parts.
6. Do not allow riders on the Bale Processor or tractor during operation or transporting.
7. Clear the area of all bystanders, especially small children, before starting.
8. Attach securely to the tractor using a retainer on the drawbar pin and a safety chain.
9. Do not point discharge opening towards people, animals or buildings when operating.
10. Stay away from discharge path. Keep others away.
11. Stay away from bale tines when raising or lowering lift frame. Keep others away.
12. Clean reflectors, SMV signs and lights before transporting.
13. Use hazard flashers on tractor when transporting.
14. Install lift frame lock pin before transporting.
15. Before applying pressure to the hydraulic system, make sure all components are tight and that steel lines, hoses and couplings are in good condition.
16. Review safety instructions with all personnel annually.

2.3 Maintenance Safety

1. Follow ALL the operating, maintenance and safety information in the manual.
2. Support the machine with blocks or safety stands when changing tires or working beneath.
3. Follow good shop practices:
 - Keep service area clean and dry.
 - Be sure electrical outlets and tools are properly grounded.
 - Use adequate light for the job at hand.
4. Use only tools, jacks and hoists of sufficient capacity for the job.
5. Place all controls in neutral, stop the engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
6. Make sure all guards are in place and properly secured when maintenance work is completed.
7. Before applying pressure to a hydraulic system, make sure all lines, fittings and couplers are tight and in good condition.
8. Relieve pressure from hydraulic circuit before servicing or disconnecting from tractor.
9. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.
10. Place hydraulic controls in neutral and stop engine before working on Bale Processor.
11. Clear the area of bystanders, especially small children, when carrying out any maintenance and repairs or making any adjustments.

2.4 Hydraulic Safety

1. Make sure that all components in the hydraulic system are kept in good condition and are clean.
2. Replace any worn, cut, abraded, flattened or crimped hoses or metal lines immediately.
3. Relieve pressure before working on hydraulic system.
4. Do not attempt any makeshift repairs to the hydraulic fittings or hoses by using tape, clamps or cements. The hydraulic system operates under extremely high pressure. Such repairs will fail suddenly and create a hazardous and unsafe condition.
5. Wear proper hand and eye protection when searching for a high pressure hydraulic leak. Use a piece of wood or cardboard as a backstop instead of hands to isolate and identify a leak.
6. If injured by a concentrated high pressure stream of hydraulic fluid, seek medical attention **immediately**. Serious infection or toxic reaction can develop from hydraulic fluid piercing the skin surface.
7. Before applying pressure to the system, make sure all components are tight and that lines, hoses and couplings are not damaged.

2.5 Storage Safety

1. Store unit in an area away from human activity.
2. Do not permit children to play on or around the stored machine.
3. Store the unit in a dry, level area. Support the base with planks if required.

2.6 Transport Safety

1. Make sure you are in compliance with all local regulations regarding transporting equipment on public roads and highways.
2. Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.
3. Attach securely to the tractor using a retainer on the drawbar pin and a safety chain.
4. Do not allow anyone to ride on the Bale Processor or tractor during transport.
5. Install lift frame lock pin before transporting.
6. Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.
7. Stay away from overhead obstructions and power lines. Electrocutation can occur without direct contact.
8. Always use hazard warning flashers on tractor when transporting unless prohibited by law.
9. Add extra lights or use pilot vehicles when transporting during times of limited visibility.

2.7 Tire Safety

1. Failure to follow proper procedures when mounting a tire on a wheel or rim can produce an explosion which may result in serious injury or death.
2. Do not attempt to mount a tire unless you have the proper equipment and experience to do the job.
3. Have a qualified tire dealer or repair service perform required tire maintenance.

2.8 Safety Signs

1. Keep safety signs clean and legible at all times.
2. Replace safety signs that are missing or have become illegible.
3. Replaced parts that displayed a safety sign should also display the current sign.
4. Safety signs are available from your dealer, distributor or the factory.

How to Install Safety Signs:

- Be sure that the installation area is clean and dry.
- Be sure temperature is above 50°F (10°C).
- Decide on the exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the sign over the specified area and carefully press the small portion with the exposed sticky backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the sign in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of sign backing paper.

2.9 Sign-off Form

H&S follows the general Safety Standards specified by the American Society of Agricultural Engineers (ASAE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the Bale Processor must read and clearly understand ALL 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. Annually review this information with all personnel.

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 understand the information in the Operator's Manual and have been instructed in the operation of the equipment.

Sign-off Form

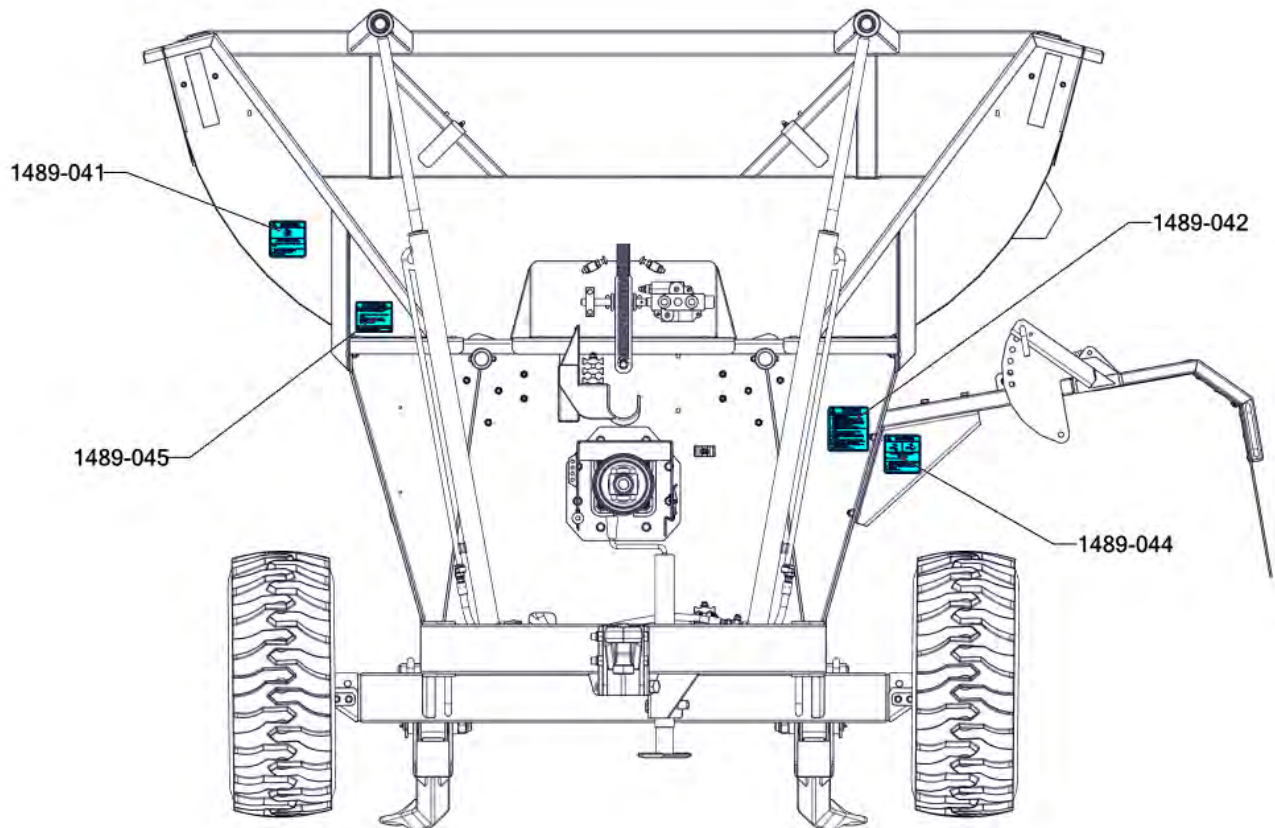
<i>DATE</i>	<i>EMPLOYEE SIGNATURE</i>	<i>EMPLOYER SIGNATURE</i>

3 DECAL LOCATIONS

3.1 Safety Sign Locations

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

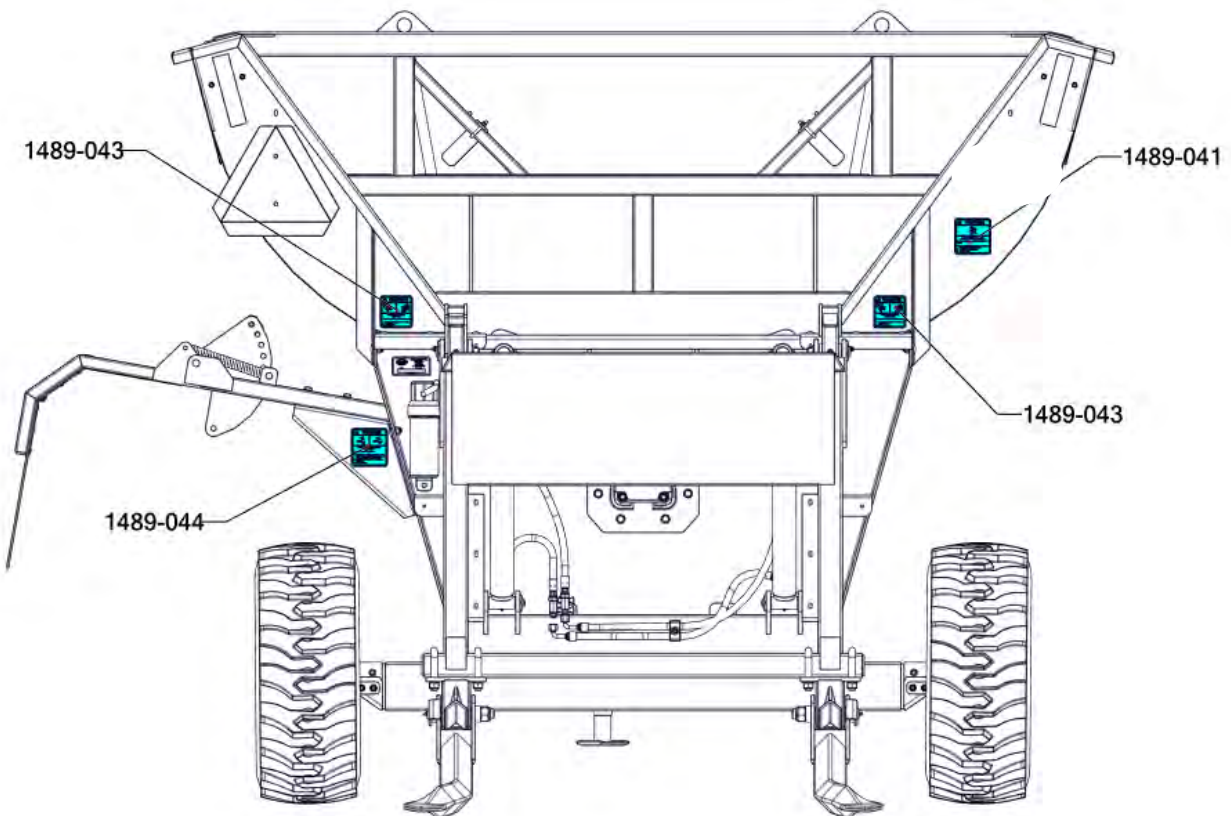
- THINK SAFETY!!, WORK SAFELY!!



REMEMBER - If safety signs have been damaged, removed, become illegible or parts replaced without safety signs, new signs must be applied. New safety signs are available from your authorized dealer.

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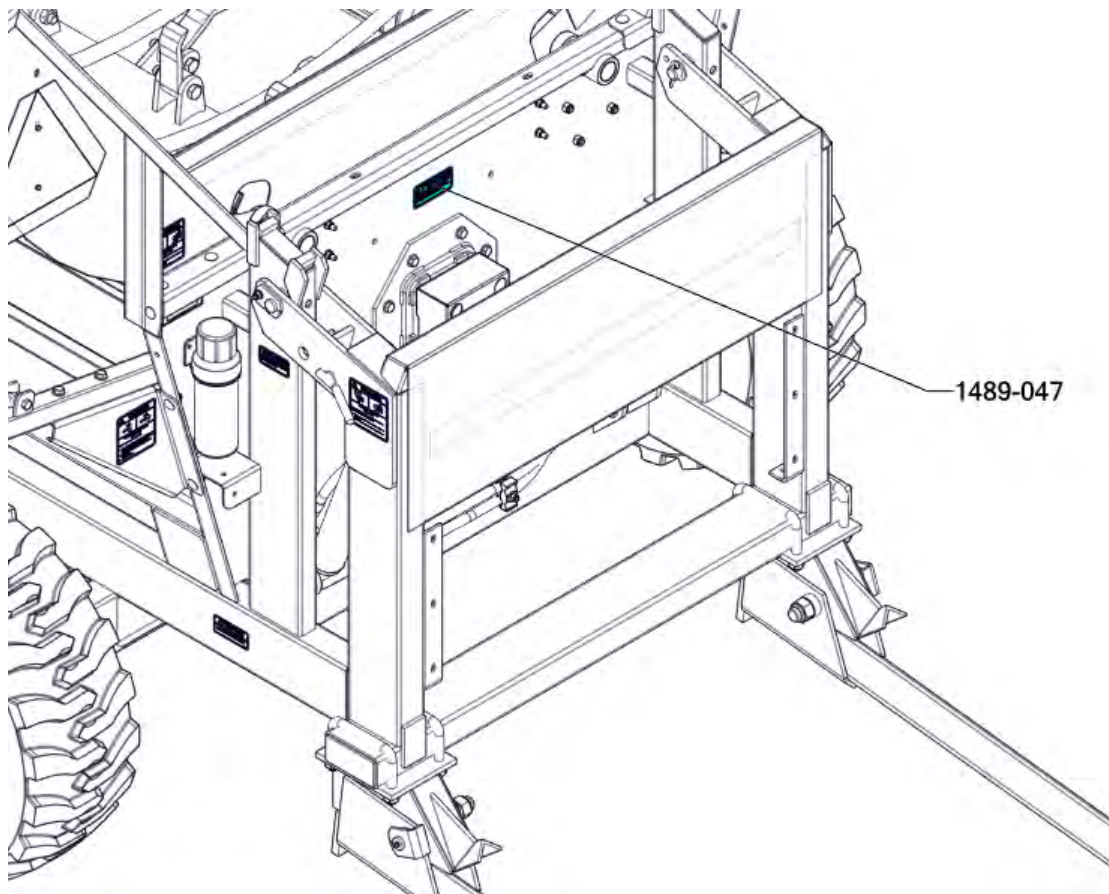
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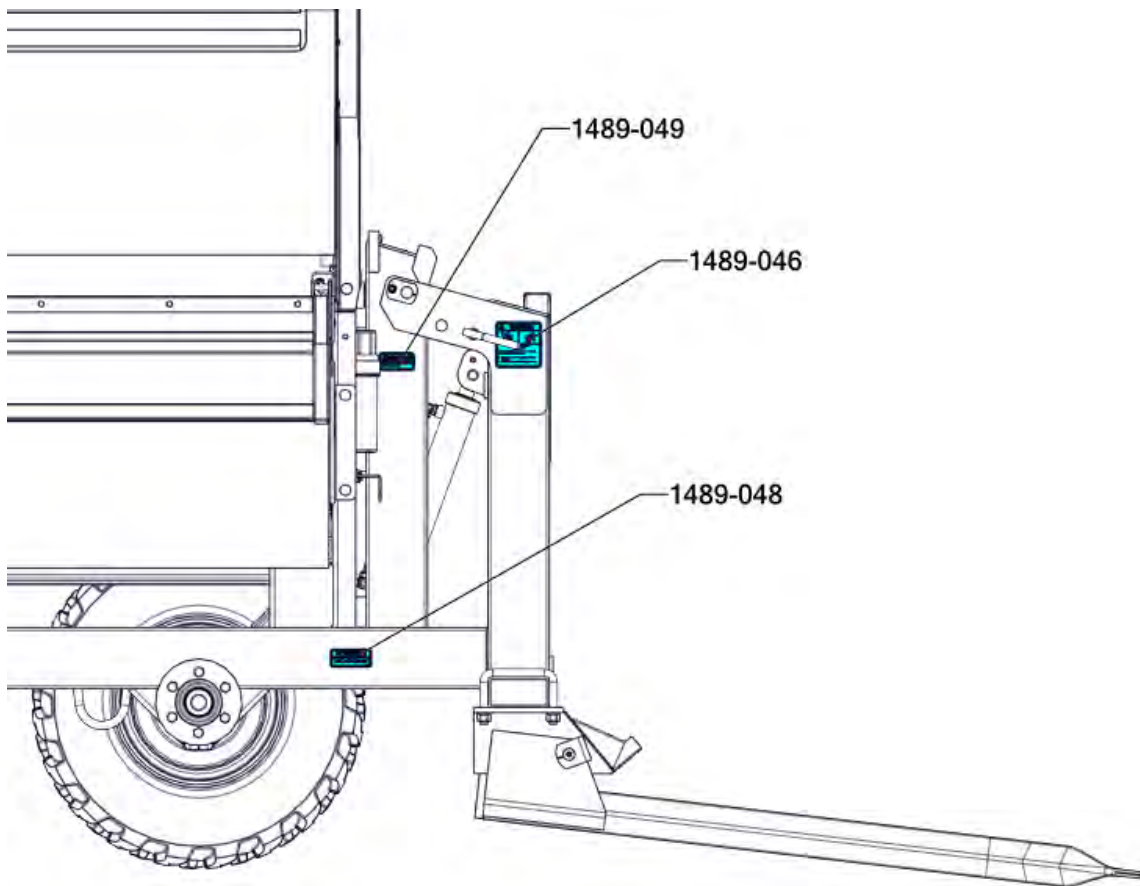
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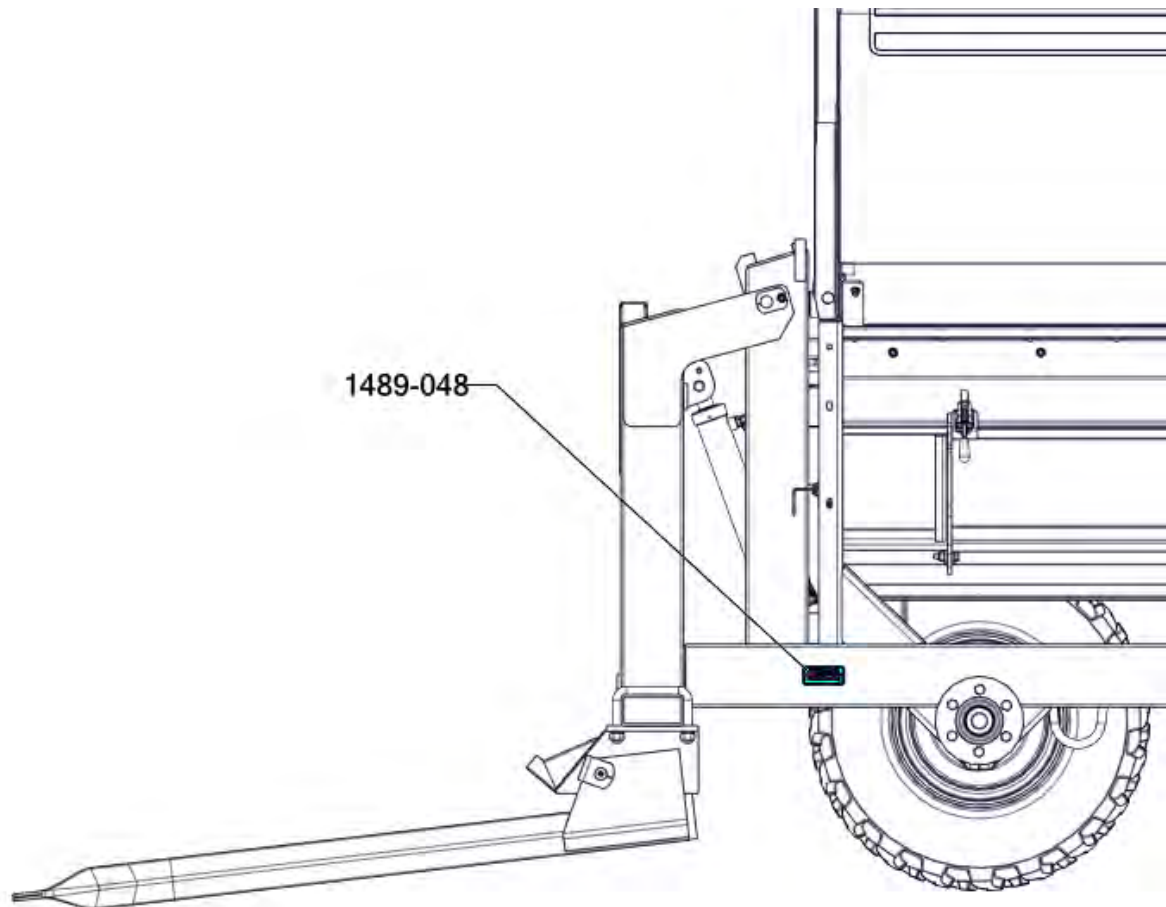
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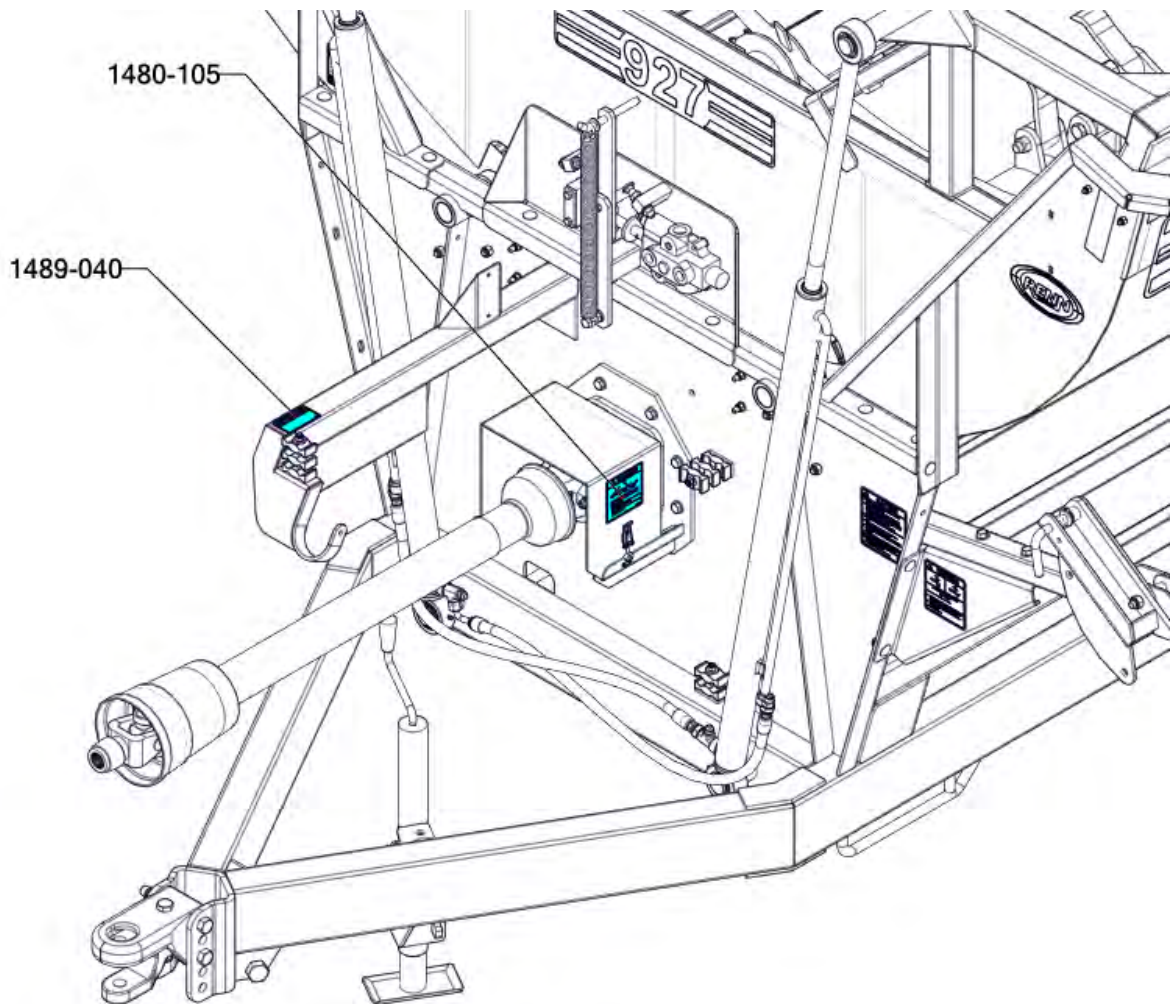
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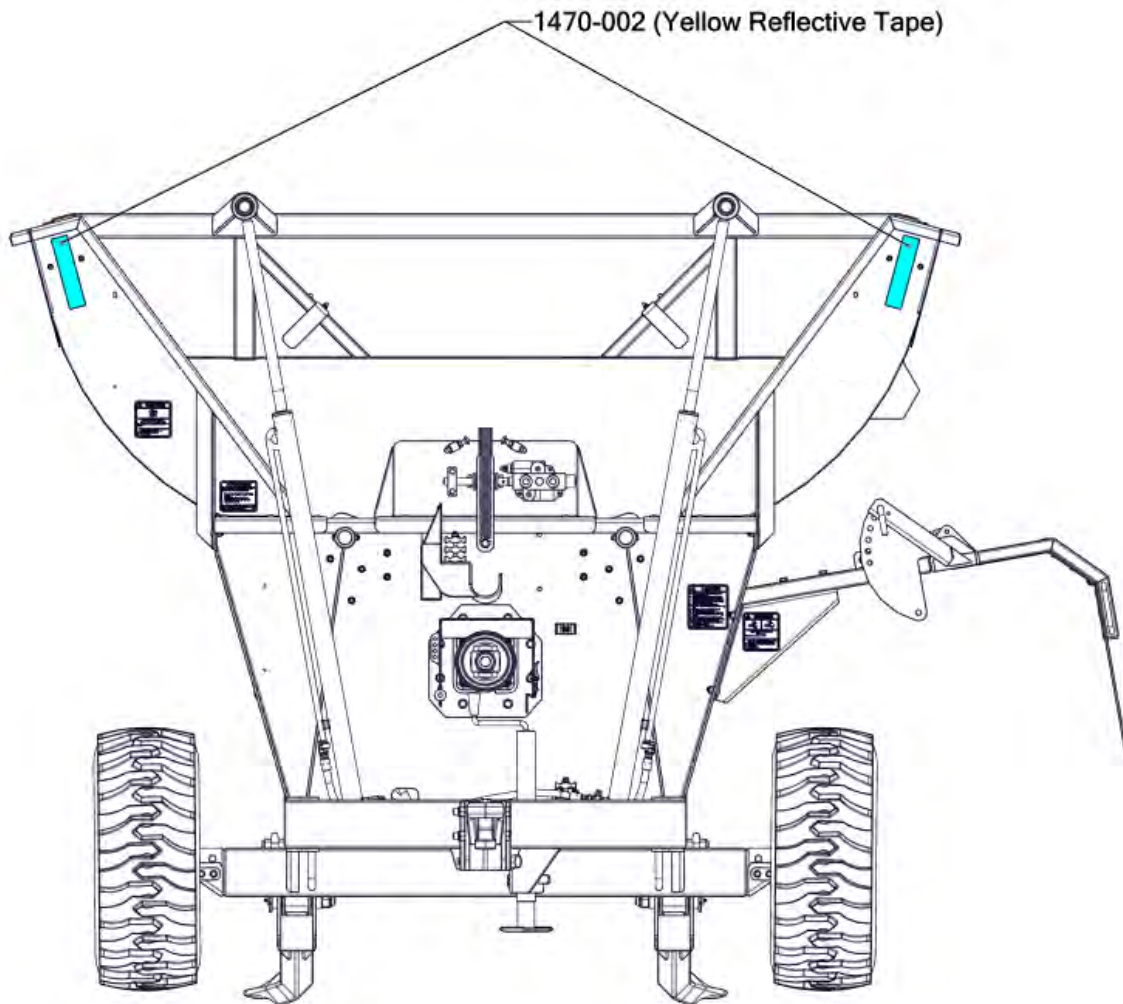
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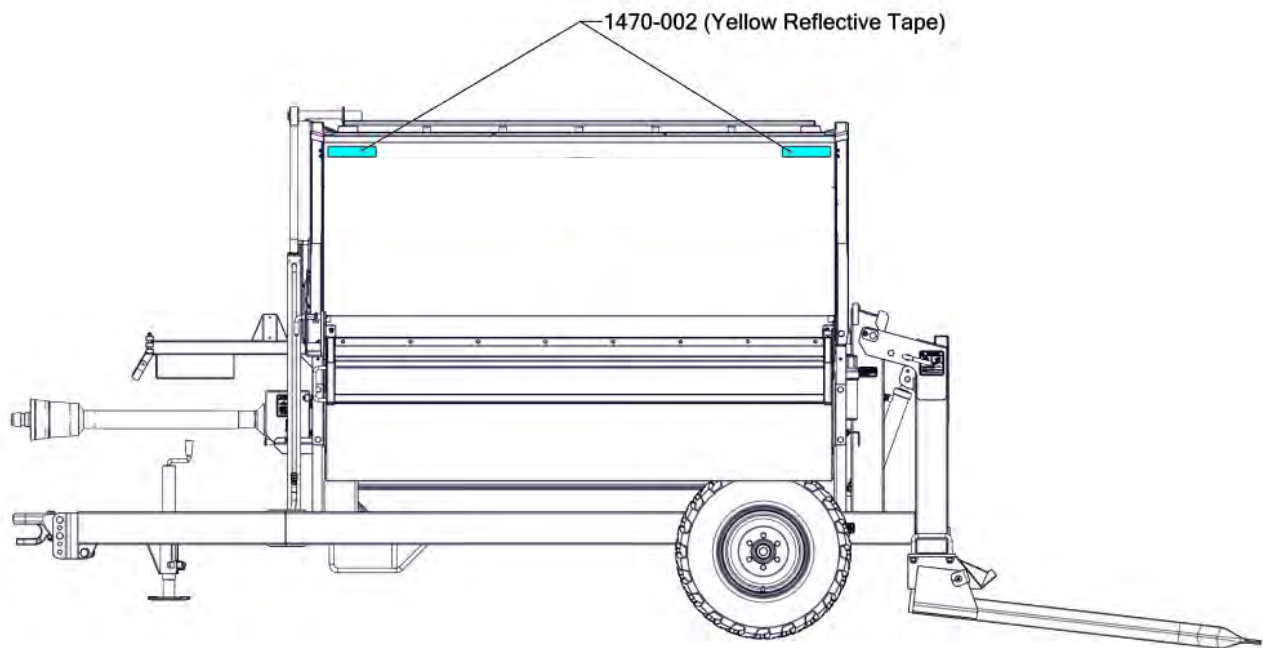
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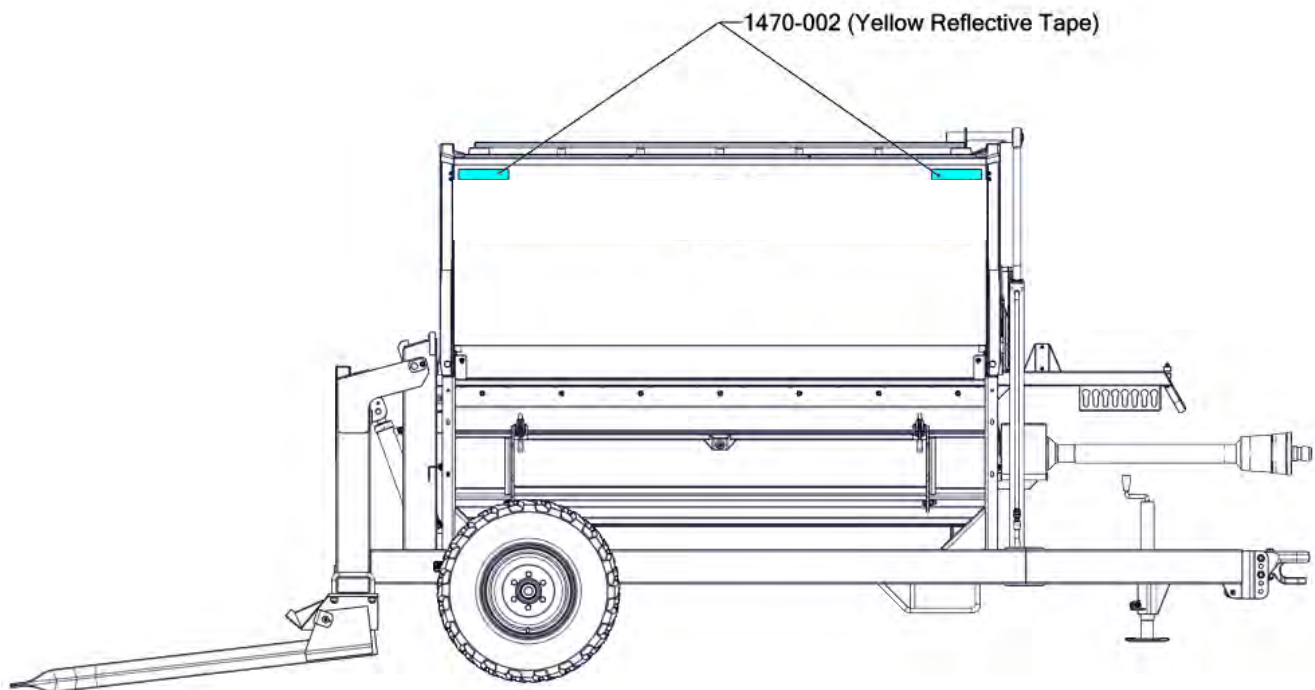
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4 OPERATION

Operating Safety



1. Read and understand the Operator's Manual and all safety signs before using.
2. Place all controls in neutral, stop the engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Do not adjust discharge deflector unless rotor has stopped turning. Keep others out.
4. Do not operate when any guards are damaged or removed. Install and secure guards before starting.
5. Do not operate with side access door open. Install and secure side access door before starting.
6. Keep hands, feet, clothing and hair away from all moving and/or rotating parts.
7. Do not allow riders on the Bale Processor or tractor during operation or transporting.
8. Clear the area of all bystanders, especially small children, before starting.
9. Attach securely to the tractor using a retainer on the drawbar pin and a safety chain.
10. Do not point discharge opening towards people, animals or buildings when operating.
11. Stay away from discharge path. Keep others away.
12. Stay away from bale tines when raising or lowering lift frame. Keep others away.
13. Clean reflectors, SMV signs and lights before transporting.
14. Use hazard flashers on tractor when transporting.
15. Install lift frame lock pin before transporting.
16. Before applying pressure to the hydraulic system, make sure all components are tight and that steel lines, hoses and couplings are in good condition.

4.1 TO THE NEW OPERATOR OR OWNER

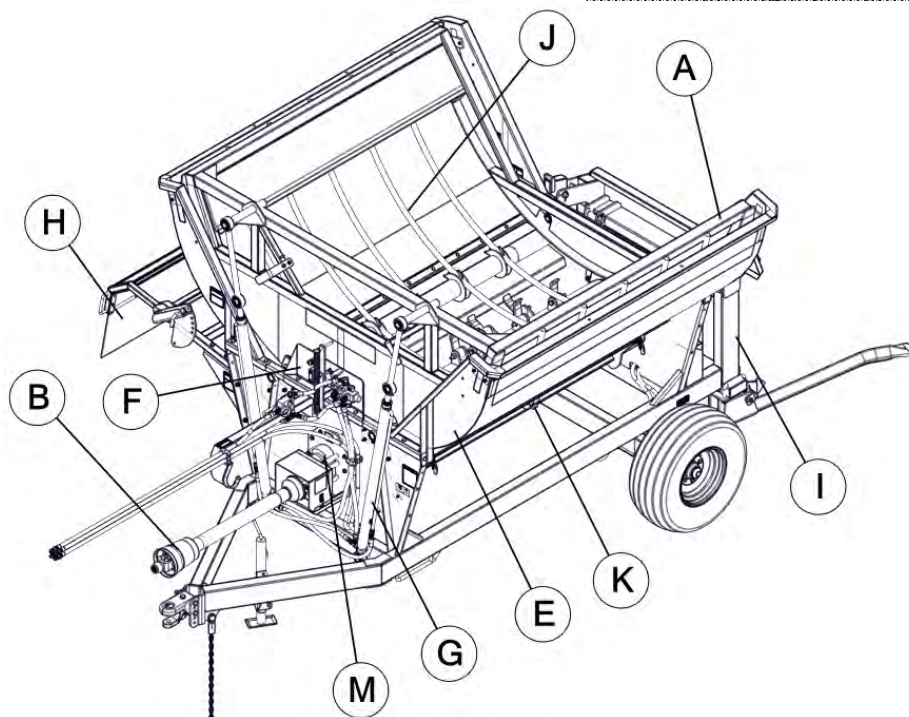
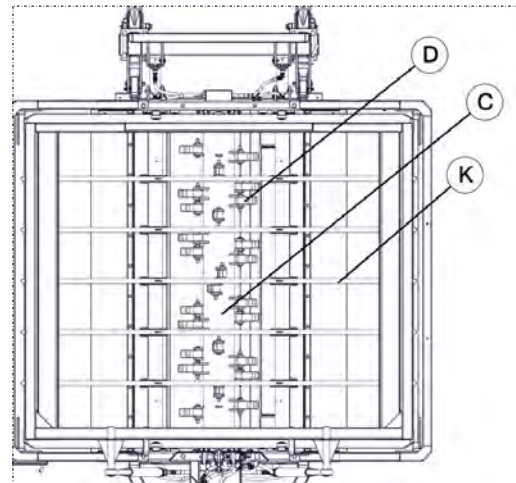
The Bale Processor is designed to shred round or square bales and place the material in a row or spread it over the ground. Be familiar with all operating and safety procedures before starting.

It is the responsibility of the owner and 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 worksite. Untrained operators are not qualified to operate the machine.

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

4.2 MACHINE COMPONENTS

- A. BALE CRADLE
- B. PTO DRIVELINE
- C. ROTOR
- D. FLAIL
- E. BODY
- F. CRADLE VALVE
- G. CRADLE CYLINDER
- H. DEFLECTOR
- I. LIFT FRAME
- J. CRADLE GUIDES
- K. SIDE ACCESS DOOR
- L. BALE CLAMP
- M. GEARBOX



The machine is designed with a PTO powered swinging-flail rotor that shreds large or small round or square bales for feeding or bedding as appropriate. The hydraulically activated tines on the rear of the frame are used to lift bales and load them into the bale cradle of the processor.

A hydraulically powered cradle in the frame moves the bales over the rotor that extends along the bottom of the machine. The rotor is equipped with swinging flails that shred the bale and expel it out the right side discharge opening.

The discharge deflector can be set in several different positions to allow placing the material in a row for feeding or spread out for bedding. An optional electric actuator or hydraulic cylinder kit can be used to position the discharge deflector.

A side access door, on the opposite side of the body to the discharge, enables the operator access to the rotor for cleanout and maintenance.

4.3 BREAK-IN

Although there are no operational restrictions on the Bale Processor when used for the first time, it is recommended that the following mechanical items be checked:

A. Before Starting:

1. Attach Bale Processor to a tractor.
2. Cycle the lift frame and cradle several times to fully charge the hydraulic cylinders with oil.
3. Top up tractor oil reservoir if required.
4. Check gearbox for any signs of leakage and check the gearbox fluid level (should be visible at the top oil plug.)

B. After operating for 1/2 hour:

1. Re-torque all the wheel bolts.
2. Re-torque all other fasteners and hardware.
3. Disconnect PTO driveline and turn rotor by hand. Be sure that it turns freely.
4. Check the rotor and flails. Remove all string, twine or other entangled material.
5. Check that no hoses are pinched, rubbing or being crimped. Re-align as required.
6. Check for oil leaks. Stop leaks before continuing.
7. Lubricate all grease fittings.
8. Check gearbox for signs of leakage or wear.

C. After operating for 5 hours and 10 hours:

1. Re-torque all wheel bolts, fasteners and hardware.
2. Check hose routing.
3. Check that rotor turns freely.
4. Check the rotor and flails. Remove all string, twine or other entangled material.
5. Check gearbox for signs of leakage or wear.
6. Follow the normal servicing and maintenance schedule as defined in the Maintenance Section.

4.4 PRE-OPERATIONAL CHECKLIST

Efficient and safe operation of the Bale Processor requires that each operator reads and understands the operating procedures and all related safety precautions outlined in this section. A pre-operation checklist is provided for the operator. It is important for both the personal safety and maintaining the good mechanical condition of the Bale Processor that this checklist is followed. Before operating the machine and each time thereafter, the following areas should be checked off:

1. Lubricate the machine per the schedule outlined in Section 5 Service and Maintenance.
2. Use only a tractor of adequate power to operate the machine.
3. Ensure that the machine is properly attached to the tractor. Be sure that the retainer is installed in the drawbar pin and the safety chain is attached.
4. Check the hydraulic system. Be sure that the hydraulic reservoir in the tractor is filled to the required specifications.
5. Inspect all hydraulic lines, hoses, fittings and couplers for tightness. Use a clean cloth to wipe any accumulated dirt from the couplers before connecting to the hydraulic system of the tractor.
6. Check the tires to be sure that they are inflated to the specified pressure.
7. Check the cradle and tilt system. Be sure it can move freely. Remove entangled material.
8. Check that the rotor turns easily and the flails swing freely. Remove all string, twine or other entangled material.
9. Check that the PTO driveline is locked to the tractor shaft.
10. Close and secure all guards.

4.5 EQUIPMENT MATCHING

The Bale Processor is designed to be used with Agricultural tractors. To insure good performance, the following list of specifications must be met:

1. Horsepower:

The Bale Processor requires a tractor with a minimum of 100 PTO horsepower to obtain the best results.

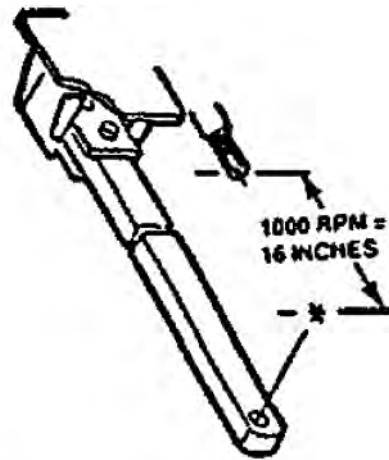
2. Drawbar Dimensions:

The tractor drawbar dimension must be 16 inches between the end of the PTO shaft and the drawbar pin hole center. This will provide sufficient clearance for turning and allow telescoping of the shaft. Consult your tractor manual for the drawbar adjustment procedure.

3. PTO Shaft:

The tractor PTO shaft must meet these specifications:

1000 RPM - 21 spline, 1 3/8 inch dia.



DRAWBAR DIMENSION

IMPORTANT

It is not recommended that shaft adaptors be used on the tractor shaft to prevent operating at the wrong RPM.

4. Hydraulic System:

The tractor must be equipped with 2 remote hydraulic outlets with 16 gpm (72 lpm) at 2000 psi (13,750 kpa). Use one for the bale lift circuit and one for the cradle tilt circuit. Use the tilt system flow divider to set the cradle tilt operating speed. Either closed-centre or open-centre systems can be used.

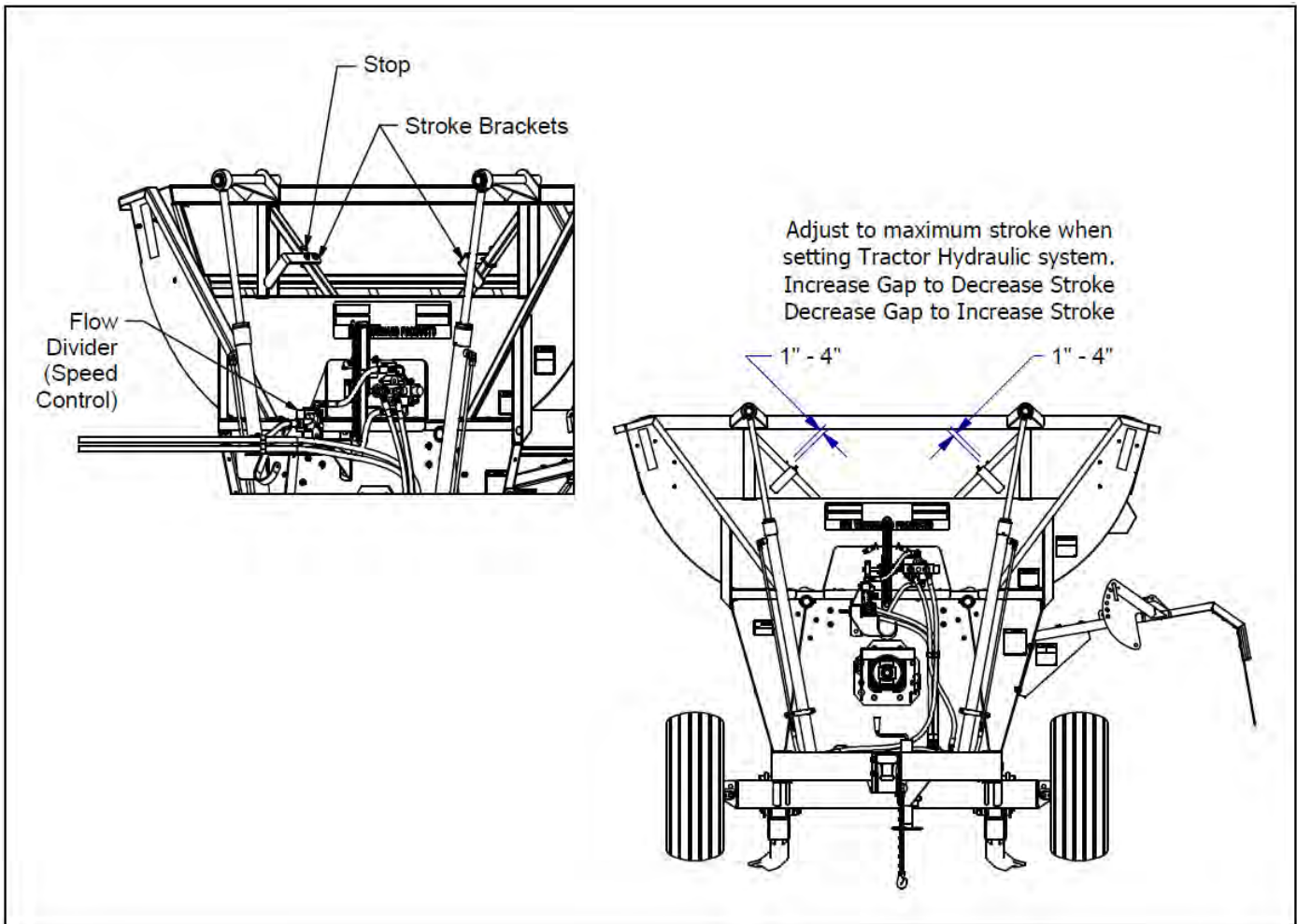
4.6 CONTROLS

It is recommended that all operators review this section of the manual to familiarize themselves with the location and function of all machine controls before starting.

1. **Deflector:**

The discharge deflector is equipped with a lock pin system to set the deflector position. Retract the lock pin and move the discharge deflector to its desired position. Secure by inserting the lock pin into the frame anchor hole.

An optional hydraulic or electric position kit is available to position the deflector from inside the cab. Contact your dealer for more information.



2. Cradle Tilt System:

The Processor is designed with a cradle inside the frame that tilts or rocks from side to side and moves the bale across the flails/rotor to prevent bridging. It is a simple self-actuating system that is adjustable for speed and stroke to accommodate any type of bale or material.

a. Speed:

A system is designed with a standard flow divider to change and set the system speed. Set at 5 for maximum speed. Move toward 0 to decrease the speed. Normally it should take 10 to 12 seconds to complete one cycle of the cradle.

b. Stroke:

Use the sliding brackets on the cradle frame to set the range of the stroke.

4.7 ATTACHING/UNHOOKING

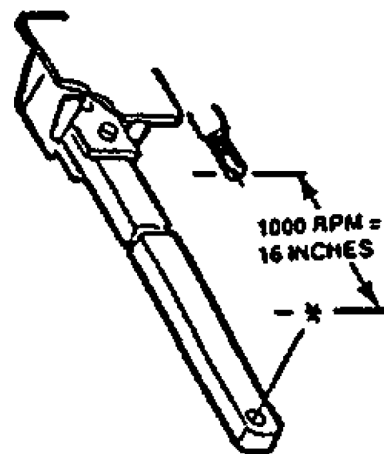
The drawbar of the Bale Processor is equipped with a two piece clevis style hitch. If the tractor is equipped with a clevis hitch, the clevis portion of the Bale Processor must be removed to prevent binding when operating on uneven terrain.

Check hitch and clevis bolts on a weekly basis to make sure that they are properly tightened.

The machine should always be parked on a level, dry area that is free of debris and foreign objects.

Follow this procedure when attaching:

1. Clear the area of bystanders and remove foreign objects from the machine and working area.
2. Adjust the length of the drawbar to give the appropriate dimension between the PTO shaft and the drawbar pin hole. (Refer to Tractor Operator's Manual)
3. Use the jack to raise or lower the hitch to align with the drawbar.
4. Make sure there is enough room to back the tractor up to the hitch point.
5. Start the tractor and slowly back it up to the hitch point.
6. Stop the tractor engine, place all controls in neutral, set park brake and remove ignition key before dismounting.
7. Install a drawbar pin with provisions for a mechanical retainer such as a Klick pin. Install the retainer.
8. Attach the safety chain between the machine and the tractor drawbar cage.



9. Connect the PTO shaft:

a. Check that the PTO driveline telescopes easily and that the shield rotates freely.

b. Attach the driveline to the tractor by retracting the locking sleeve, slide the yoke over the shaft and push on the yoke until the lock sleeve clicks into position. Pull on the yoke to be sure the driveline is locked on the shaft.



10. Connect the hydraulics:

a. Use a clean cloth or paper towel to clean the couplers on the ends of the hoses. Also clean the area around the couplers on the tractor.

b. Remove the plastic plugs from the couplers and isolate the hoses for the lift arm circuit from the hoses for the cradle tilt circuit.

c. Match the appropriate hoses with the desired control lever in the tractor for ease of operation. Insert the male ends of the hoses into the female couplers on the tractor.



11. Route the hoses along the hitch and secure in position to prevent entanglement with any moving parts.

12. Lower the hitch jack and rotate it 90° to place in its stowed position.

13. When unhooking from the tractor, reverse the above procedure. Use a plank under jack if ground conditions are soft.



4.8 FIELD OPERATION

Operating Safety



1. Read and understand the Operator's Manual and all safety signs before using.
2. Place all controls in neutral, stop the engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
3. Do not adjust discharge deflector unless rotor has stopped turning. Keep others out.
4. Do not operate when any guards are damaged or removed. Install and secure guards before starting.
5. Do not operate with side access door open. Install and secure side access door before starting.
6. Keep hands, feet, clothing and hair away from all moving and/or rotating parts.
7. Do not allow riders on the Bale Processor or tractor during operation or transporting.
8. Clear the area of all bystanders, especially small children, before starting.
9. Attach securely to the tractor using a retainer on the drawbar pin and a safety chain.
10. Do not point discharge opening towards people, animals or buildings when operating.
11. Stay away from discharge path. Keep others away.
12. Stay away from bale tines when raising or lowering lift frame. Keep others away.
13. Clean reflectors, SMV signs and lights before transporting.
14. Use hazard flashers on tractor when transporting.
15. Install lift frame lock pin before transporting.
16. Before applying pressure to the hydraulic system, make sure all components are tight and that steel lines, hoses and couplings are in good condition.

Follow this procedure when using the Bale Processor:

1. Attach Bale Processor to the Tractor (see Section 4.7)
2. Review and follow the Pre-Operation checklist (see Section 4.4)
3. Review the location and function of all controls (see Section 4.6)
4. Transport the machine to the bale storage area (see Section 4.10)

5. Loading Bale:

- a. Lower bale tines to ground.
- b. Back Bale Processor up with the bale tines sliding under the bale.
- c. Slowly raise the tines until the bale clears the ground.

Important: When the second bale is loaded on the bale tines, make sure that the loaded bale does not interfere with the cradle operation.

Otherwise will cause damage to the cradle.



6. Remove the strings, twine or wrapping from the bale.
7. Raise the bale tines and tip the bale into the machine.
8. At this time another bale can be picked up on the forks and brought to the feeding area if desired.
9. **Starting Machine:**
 - a. Set the discharge deflector at the desired position.
 - b. Start the tractor and run at idle.
 - c. Drive to the desired unloading location.
 - d. With the tractor at idle, slowly engage PTO.

IMPORTANT

The Bale Processor is equipped with an 80° constant velocity drive line. When operating the Bale Processor, keep the PTO drive line as straight as possible to have the universal joint angles as small as possible. Avoid sharp turns with the PTO engaged. If a sharp turn is unavoidable, disengage PTO. Operating at more than 80° will damage the CV joint and will void warranty.

- e. Increase engine RPM to rated PTO speed.
- f. Engage cradle tilt hydraulic circuit.

10.Stopping:

- a. Disengage cradle tilt hydraulic circuit.
- b. Allow rotor to run until no more material comes out of discharge opening.
- c. Slowly decrease engine RPM to idle.
- d. Disengage PTO drive and wait for rotor to stop turning.

IMPORTANT

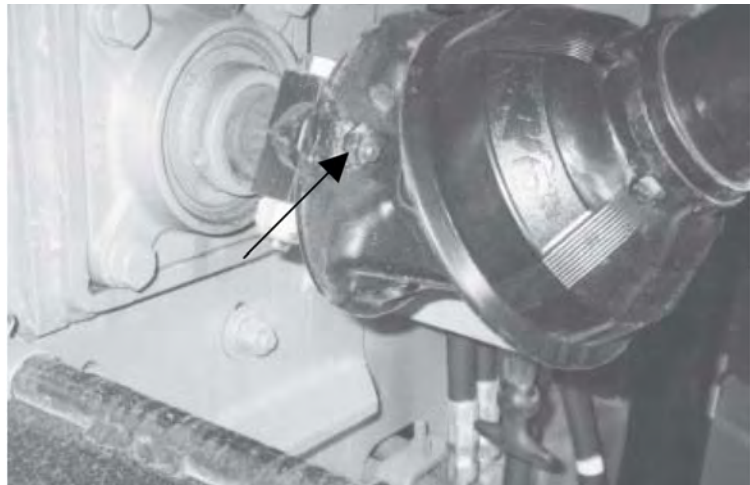
Disengage PTO clutch and wait until rotor stops turning before pushing the PTO clutch lever into its off detent if the PTO drive system on your tractor is designed with a brake that will top the PTO shaft in less than one revolution. Stopping this

11.Discharge Deflector:

The Bale Processor is designed with a discharge deflector that can be set in several positions to allow placing the shredded material in rows for feeding or fully up for bedding. Place the anchor pin in the desired hole for your application.

12.Rotor Cleaning:

The string or twine from the bales does get tangled around the rotor as the bales are shredded. Check every few bales and remove/clean as required. Twine can prevent the flails from swinging and affect function or rotor balance. Access the rotor through the side access door on the side opposite to the discharge opening. Always stop engine and remove ignition key before cleaning rotor.



13.Shear Bolt:

Each input drive line is designed with a shear bolt to protect the machine from shock impact loads. If the shear bolt breaks, remove the broken pieces and replace with genuine H&S replacement parts. Remove all material from the processor before restarting the machine.



14. Cradle Tilt:

The machine is designed with a cradle inside the frame that moves the material from side-to-side across the rotating flails. It is designed to tilt the bale to one side until it is just ready to roll and then it tilts to the other side. The best results are obtained when a full cycle takes 10 to 12 seconds to complete. Use the flow dividers on the tractor and on the front of the Bale Processor to set the speed of the cradle. Refer to the Maintenance section for the detailed setting procedure.

15. Flail Backslap:

The rotor is designed with swinging flails that shred the material as the cradle moves the bale across the rotor. Each flail is held in the extended position by the centrifugal force from the rotor rotation. Each flail must be free to swing as the material moves across the rotor. If you hear the flails backslapping against the rotor:

- a. Repair or replace any damaged or broken parts.
- b. Slow the cradle tilt speed. Backslap can occur if the material is being moved into the rotor too fast. Slowing the tilt speed moves less material into the flail and they will not have to swing back out of the way.
- c. Clean the rotor. Entangled material can affect how the flails swing and contribute to backslap.

16. Bale Tines:

It is recommended that the bale tines be raised into the vertical position when operating in and around livestock to prevent inadvertent injury to the animals.

17. Operating hints:

- a. Keep the PTO driveline as straight as possible to minimize universal joint angles.
- b. Disengage PTO when making sharp turns. Never exceed a universal joint angle of 80°.
- c. Always try to remove the twine, string or wrapping from the bale before tipping into the machine to reduce rotor wrapping.
- d. Do not store bales or other material in the machine overnight in cold weather. Material can freeze to the frame cradle and jam the rotor.
- e. Always stop engine, remove ignition key, disconnect hydraulic lines and remove PTO shaft before working on machine.
- f. Do not point the discharge at people, animals or buildings. Material can be thrown out fast enough to injure someone.
- g. Slowly raise the arms to tilt the bale into the machine. The machine will hold an entire round bale. Large square bales may have to be broken in pieces. Be sure to remove strings, twine or wrapping before loading.
- h. Engage the cradle tilt circuit after the rotor has been brought to full or rated speed. This will move the material across the rotor for even feeding and shredding.

4.9 TRANSPORTING

Transport Safety



1. Make sure you are in compliance with all local regulations regarding transporting equipment on public roads and highways.
2. Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.
3. Attach securely to the tractor using a retainer on the drawbar pin and a safety chain.
4. Do not allow anyone to ride on the Bale Processor or tractor during transport.
5. Install lift frame lock pin before transporting.
6. Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.
7. Stay away from overhead obstructions and power lines. Electrocutation can occur without direct contact.
8. Always use hazard warning flashers on the tractor when transporting unless prohibited by law.

Bale Processors are designed to be easily and conveniently moved from location to location.

When transporting, follow this procedure:

1. Be sure all bystanders are clear of the machine.
2. Be sure that the unit is hitched positively to the towing vehicle. Always use a retainer in the drawbar pin and a safety chain between the machine and the tractor.

NOTE

Use two safety chains transporting by truck and cross under the hitch when connecting. As shown in picture to right.



3. Keep to the right and yield the right-of-way to allow faster traffic to pass.
4. Make sure the SMV (Slow Moving Vehicle) emblem and all the lights and reflectors that are required by the local highway and transport authorities are in place, are clean and can be seen clearly by all overtaking and oncoming traffic.
5. If transporting with a tractor, install a SMV (Slow Moving Vehicle) emblem in the bracket provided.



6. Raise lift frame and install the transport lock pin. Install retainer in lock pin. As shown in picture to right.
7. Do not allow riders on the machine or tractor.
8. Use pilot vehicles or add extra lights to the machine.
9. Always use hazard flashers on the tractor when transporting unless prohibited by law.
10. Take special care and precautions when transporting during time of limited visibility such as rain, fog, snow, dusk or at night. Use pilot vehicles or add extra lights to the machine. It may be difficult for oncoming and overtaking traffic to see the unit. It is recommended that you wait for a more appropriate time to move the machine.
11. It is not recommended that the machine be transported faster than 20 mph (32kph). Table 1 gives the acceptable transport speed as the ratio of tractor weight to machine weight.
12. Never transport faster than the road or terrain conditions will allow you to do safely.
13. Check with the local authorities on the rules and regulations governing the transporting of Agricultural Equipment on highways before starting. Always comply with these ordinances and regulations.
14. Use highway rated tires when transporting unit regularly on roads. Implement tires are rated at maximum 30 mph (50 kph).



It is recommended that you wait for a more appropriate time to move the machine.

TABLE 1 - SPEED VS WEIGHT RATIO	
Road Speed	Weight of fully equipped or loaded implement(s) relative to weight of machine
Up to 32 kph (20 mph)	1 to 1, or less
Up to 16 kph (10 mph)	2 to 1, or less
Do not tow	More than 2 to 1

4.10 STORAGE

Storage Safety



1. Store unit in area away from human activity.
2. Do not permit children to play on or around the stored machine.
3. Store the unit in a dry, level area. Support the base/jack with planks if required.

At the end of the 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 start of the next season.

Follow this procedure:

1. Wash the entire machine thoroughly using a water hose or pressure washer to remove all dirt, mud, debris or residue.
2. Inspect all drives and moving parts. Remove any string, twine or other material that has become entangled in the rotor, flails, cradle components or shafts. Be sure all components are clean and can move freely.
3. Inspect all hydraulic hoses, fittings, lines, couplers and valves. Tighten any loose fittings. Replace any hose that is badly cut, nicked or abraded or is separating from the crimped end of the fitting.
4. Inspect rotor and flails for damaged or broken components. Repair or replace components as required.
5. Lubricate all grease points. Make sure all grease cavities have been filled with grease to remove any water residue from the washing.
6. Raise lift arms to their fully up position and install lock pin.
7. Apply "never seize" or grease to PTO input shaft and cylinder rams.
8. Touch up all paint nicks and scratches to prevent rusting.
9. Move the machine to its storage location.
10. Select an area that is dry, level and free of debris.
11. Place planks under the jack for added support if required.
12. Unhook the machine from the tractor (Refer to Section 4.7)
13. Cover the machine with a tarpaulin if the machine is not stored inside.

5 SERVICE AND MAINTENANCE.

Maintenance Safety



1. Follow ALL the operating, maintenance and safety information in this manual.
2. Support the machine with blocks or safety stands when changing tires or working beneath.
3. Follow good shop practices:
 - Keep service area clean and dry.
 - Be sure electrical outlets and tools are properly grounded.
 - Use adequate light for the job at hand.
4. Use only tools, jacks and hoists of sufficient capacity for the job.
5. Place all controls in neutral, stop the engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing or unplugging.
6. Make sure all guards are in place and are properly secured when maintenance work is completed.
7. Before applying pressure to a hydraulic system, make sure all lines, fittings and couplers are tight and in good condition.
8. Relieve pressure from hydraulic circuit before servicing or disconnection from the tractor.
9. Keep hands, feet, hair and clothing away from all moving and/or rotating parts.

5.1 SERVICE

5.1.1 FLUIDS AND LUBRICANTS

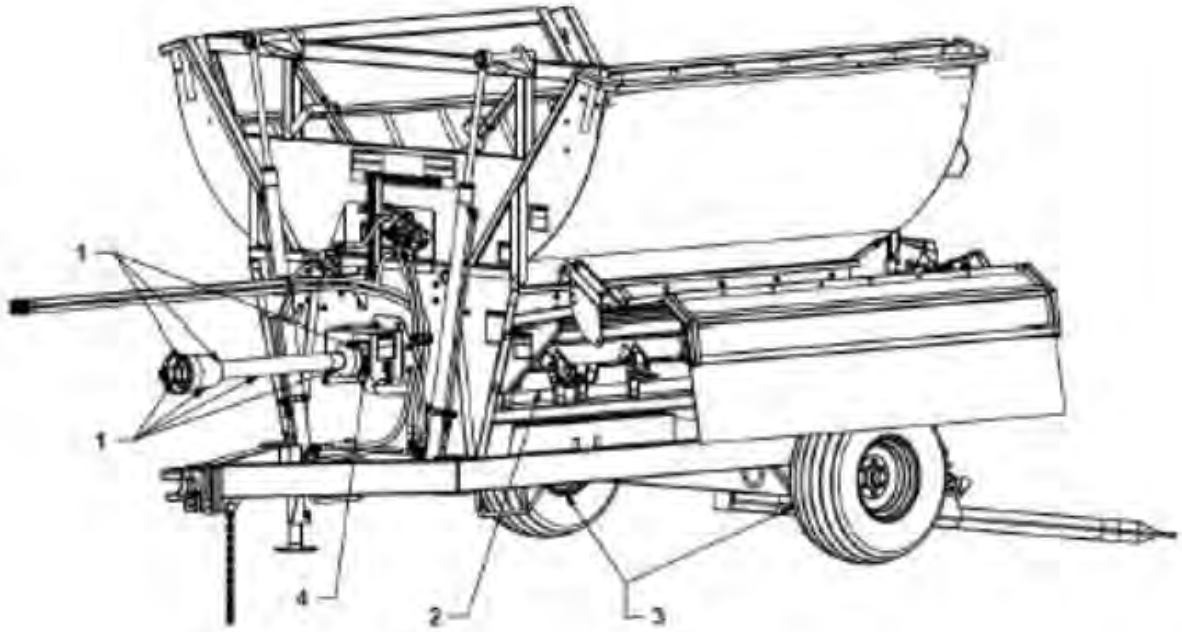
1. **Grease:** Use a SAE multi-purpose high temperature grease with extreme pressure (EP) characteristics. Also acceptable is an SAE multipurpose lithium based grease.
2. **Lubricants:** Your unit can operate at top efficiency only if clean lubricants are used. Use clean containers to handle all lubricants. Store them in an area protected from dust, moisture and other contaminants. Gearbox takes 300ml of SAE 80W-90 Gear Oil.

5.1.2 GREASING

Refer to Section 5.1.1 for recommended grease. Use the Service Record checklist provided to keep a record of all scheduled servicing.

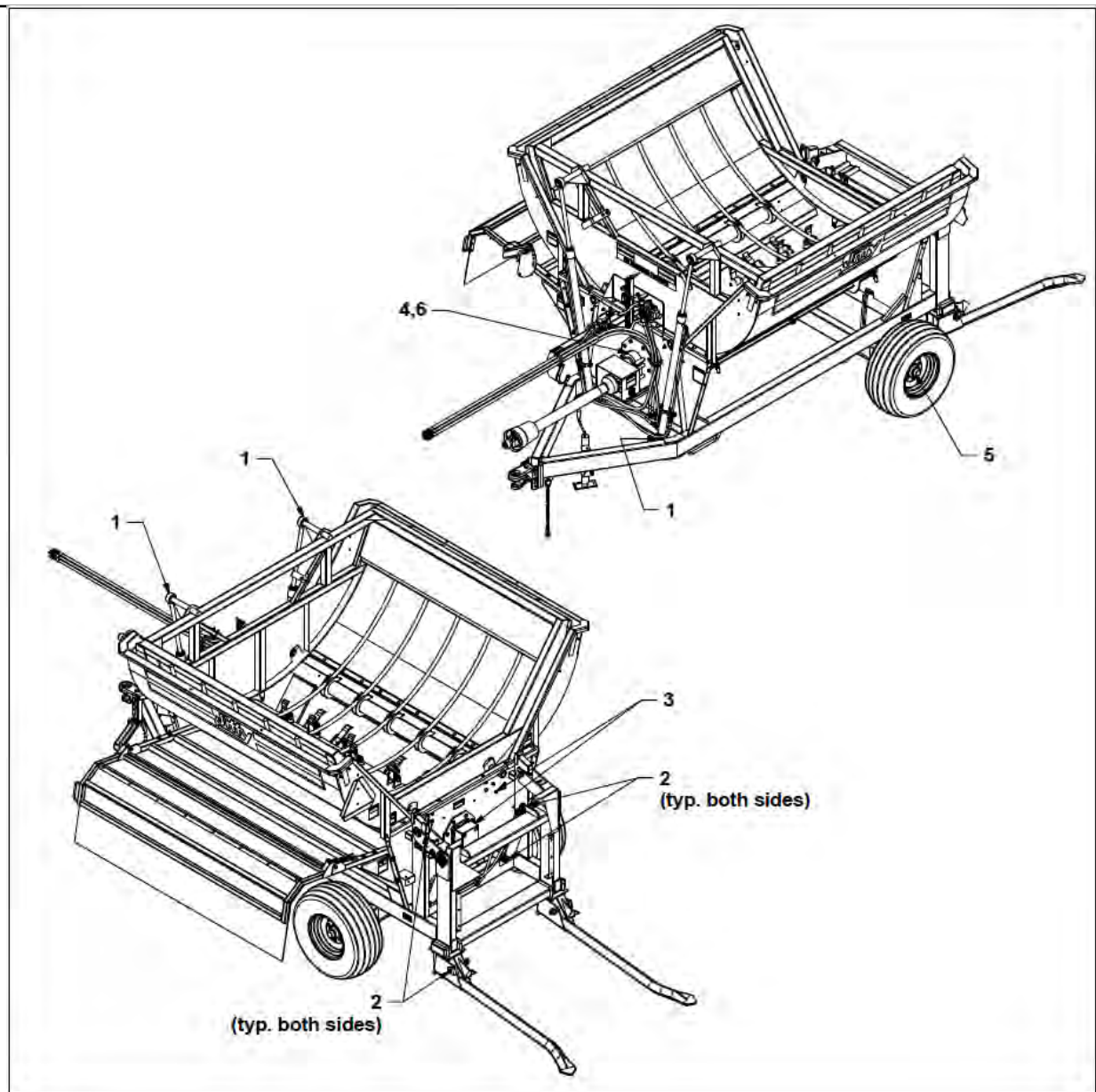
1. Use a hand-held grease gun for all greasing.
2. Wipe grease fitting with a clean cloth before greasing to avoid injecting dirt and grit.
3. Replace and repair broken fittings immediately.
4. If fittings will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

5.1.3 SERVICING INTERVALS



8 Hours, Daily or Every 10 Bales:

1. Lubricate the PTO shaft (eight locations). See Lubrication Procedure from Weasler (following page 5.3). Follow **Standard Interval** Schedule.
2. Check the conditions of the rotor and flails. Remove all entangled material. Repair damaged components. Replace broken components.
3. Check wheel bearings. Remove twine or other entangled material.
4. Check shear bolt. Tighten if loose. Replace if broken or damaged.



Weekly or Every 50 Bales:

1. Grease the bale cradle bushings (four locations).
2. Grease the bale lift system bushings (eight locations).
3. Grease roller and rotor bearing (six locations).
 - a. Rollers
 - b. Rotor
4. Check gearbox for signs of wear or leakage

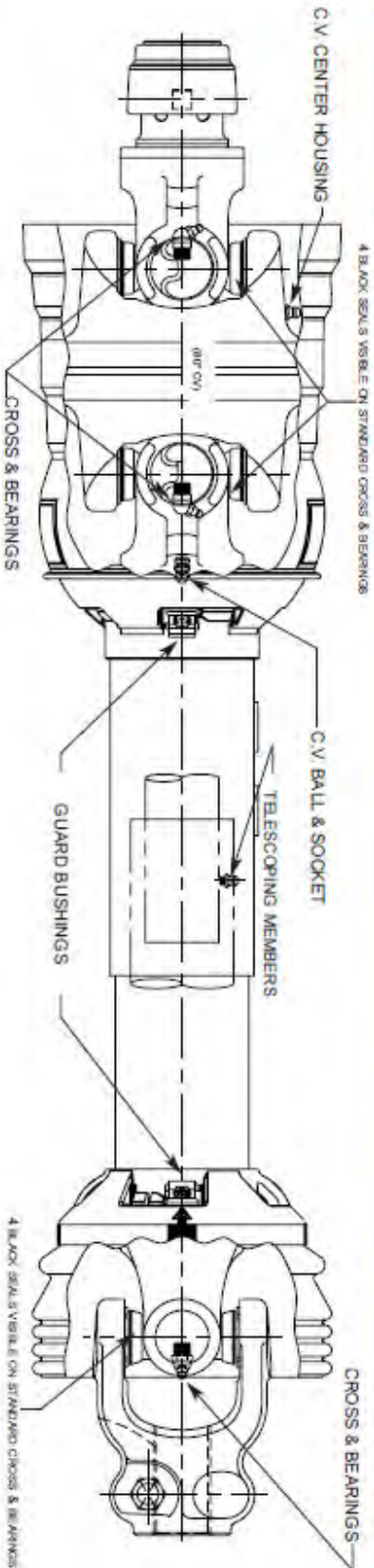
Annually Or 3000 Bales:

5. Repack wheel bearings.
6. Change oil in gear box (300ml SAE 80W-90 Gear Oil)
7. Wash and clean machine.



Weasler®

**RECOMMENDED CUSTOMER LUBRICATION PROCEDURE
FOR 80° CV DRIVELINES**



LUBRICATE ALL FITTINGS WITH A GOOD QUALITY LITHIUM SOAP COMPATIBLE E.P. GREASE MEETING THE N.L.G.I. #2 SPECIFICATIONS AND CONTAINING NO MORE THAN 1% MOLYBDENUM DISULFIDE.

AN E.P. GREASE MEETING THE N.L.G.I. #2 SPECIFICATIONS AND CONTAINING 3% MOLYBDENUM DISULFIDE MAY BE SUBSTITUTED IN THE TELESCOPING MEMBERS ONLY.

LOCATION	STANDARD INTERVAL	EXTENDED LUBE INTERVAL	LEVER ACTION PUMPS
CROSS & BEARINGS	*8 HRS.	50 HRS.	2-3
TELESCOPING MEMBERS	8 HRS.	50 HRS.	8-10
CV BALL & SOCKET	*8 HRS.	50 HRS.	4-6
CV CENTER HOUSING	24 HRS.	50 HRS.	12-15
CE & NON-ROTATING GUARD BUSHINGS (1000 RPM MAX.)	8 HRS.	50 HRS.	2

ROTATING GUARD BUSHINGS SHOULD BE LUBRICATED UPON REPLACEMENT

*CONSTANT ANGLE APPLICATIONS MAY REQUIRE A LUBE INTERVAL OF 4 HOURS

CAUTION!! REPLACEMENT PARTS ARE NOT LUBRICATED

REPLACEMENT PARTS MUST BE LUBRICATED AT TIME OF ASSEMBLY AND DURING USE PER THE LUBE RECOMMENDATIONS

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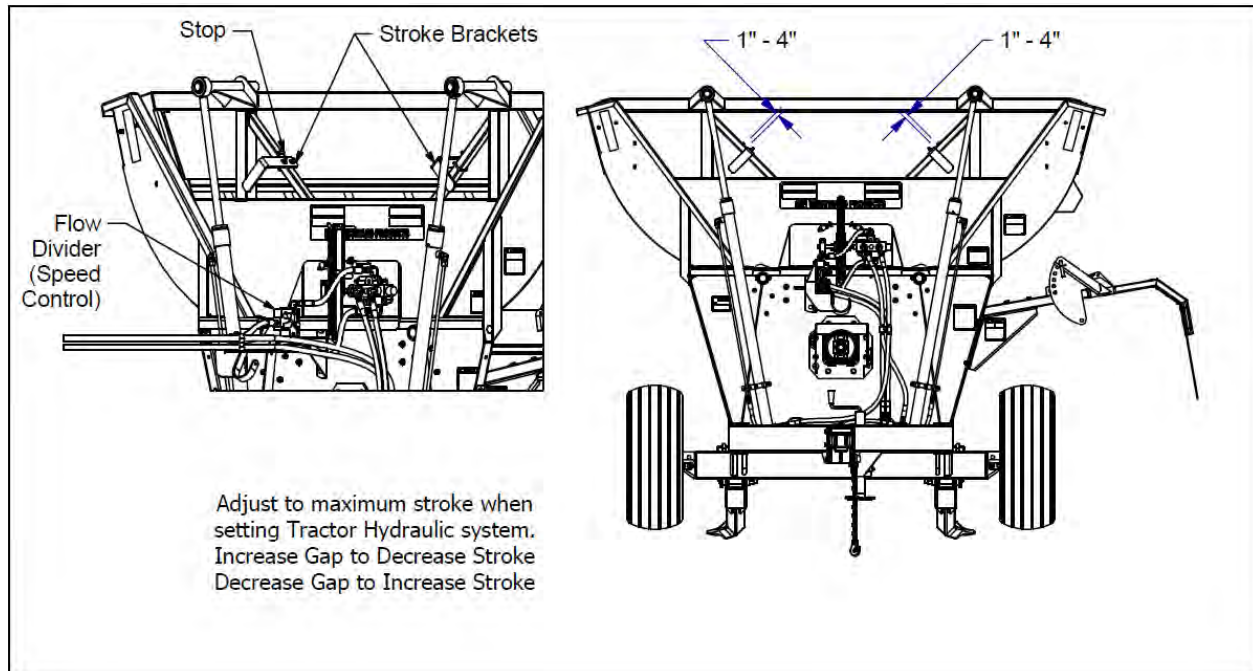
5.1.4 SERVICING RECORD

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

MAINTENANCE	Hours																		
	Serviced By																		
8 Hours, Daily or 10 Bales																			
L	PTO Shaft (8)																		
I	Rotor and Flails																		
I	Wheel Bearings																		
I	Shear Bolts																		
Weekly or 50 Bales																			
G	Bale Cradle Bushings (4)																		
G	Bale Lift Bushing Bushings (8)																		
G	Rotor/Roller Bearings (6)																		
G	Gearbox																		
Annually or 3000 Bales																			
G	Wheel Bearings																		
L	Gearbox																		
W	Machine																		

Action Code: L = Lubricate G = Grease W = Wash I = Inspect

5.2 MAINTENANCE & ADJUSTMENTS



By following a careful service and maintenance program for your machine you will enjoy many years of trouble-free operation.

5.2.1 CRADLE TILT SYSTEM:

The Bale Processor is designed with a system that automatically reverses the cradle direction during operation to evenly move the bale over the rotor for shredding. When maintaining the cradle system, follow this procedure:

1. Stroke:

The cradle is designed to tilt from side to side during operation to prevent bridging over the rotor and flails. Its objective is to tilt to one side until the bale is almost ready to roll and then tilt to the other side.

- Move the actuator bars on the frame to set the stroke.
- Move the arm up to increase the stroke and down to decrease.
- The factory setting will provide the best overall performance and is set at 1 1/2".

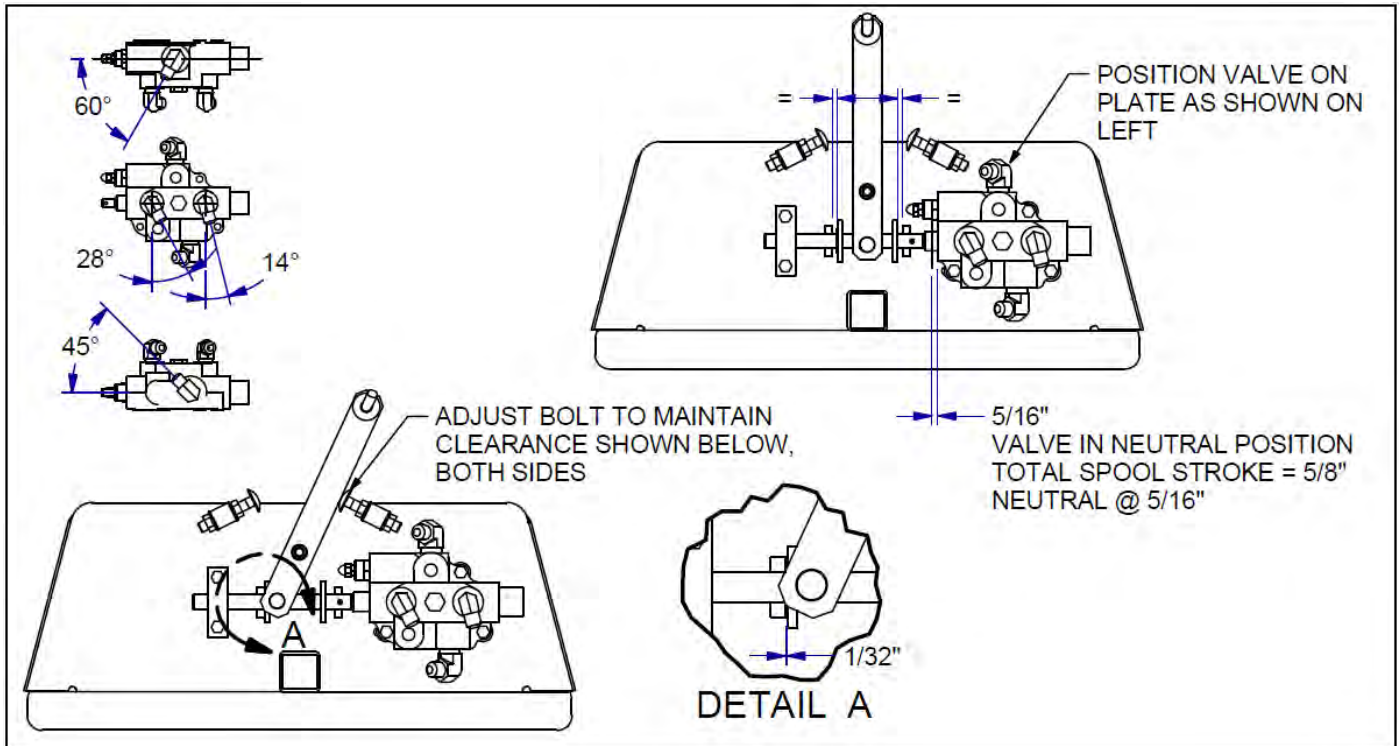
NOTE: In general, soft, wet bales require more stroke than hard, well formed bales. The type of material being processed will also affect the adjustment of the total stroke.

2. Speed:

Use the tractor hydraulic system and cradle flow divider to set the tilting speed.

- Set the cradle frame actuator arms to provide maximum stroke.
- Set the tractor hydraulic system flow control in its 1/4 flow position.
- Set the Bale Processor flow at maximum (7 on scale).
- Start engine and engage cradle tilt circuit.
- Time a full cycle. It should not be less than 8 seconds.
- Use the tractor flow divider to set the cycle speed.
- Use the Bale Processor flow control to set the speed if the tractor is not equipped with a flow control.

NOTE: The best results are obtained when it takes 10 to 12 seconds to go through one complete cycle.



3. Cradle Shifting Valve:

The cradle shifting valve mechanism has been adjusted at the factory and should not require adjustment during normal use of the machine. If, however, the valve or other components need to be serviced, the following guideline should be used to position the valve properly on its mounting plate:

- a. Assemble the shift spool to the valve body.
- b. Position valve on the mounting plate and install mounting bolts. Tighten bolts finger tight to allow moving if required.
- c. Slide the valve spool to its neutral position (5/16" extended).
- d. Slide the valve assembly until it is centered between stops. Tighten mounting bolts to their specified torque.
- e. Adjust the stop bolt so that when the valve shift lever is touching the stop bolt there is approximately 1/32 inch clearance between the shift spool flange and the stop welded to the valve plate.
- f. Move the shift lever to the other side and adjust the other stop bolt in the same manner.
- g. Check that the shifting action is smooth and that no binding occurs.
- h. Install spring and reconnect hoses.

4. Flail Backslap:

Regardless of the type of bale, persistent hammer backslap is detrimental to Bale Processor operation. Hammer backslap at start-up is normal and disappears once the rotor is up to speed. If your Bale Processor experiences frequent hammer backslap, the cause should be investigated and rectified. In most cases reducing the cradle speed will correct the problem.

5.2.2 ROTOR MAINTENANCE:

Each machine is designed with a rotor that is equipped with swinging flails for shredding material. Remove entangled material to allow the flails to swing freely.

To maintain rotor, follow this procedure:

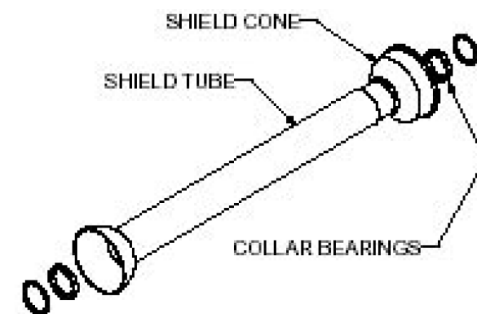
1. Clear the area of bystanders, especially small children.
2. Place all controls in neutral, stop engine, set park brake, remove ignition key, disconnect PTO shaft and remove hydraulic hoses.
3. Use a knife, snips or other device to remove string, twine or other entangled material. Be sure to remove everything by the flail mounting bolts to allow them to swing freely. Access rotor from the side access door, on the side opposite to the discharge opening.
4. Keep flails in good condition. Replace if chipped, bent or damaged in any way. Always use a prevailing torque nut or jam nut on the flail bolt to prevent coming apart.



5.2.3 PTO SAFETY SHIELD

It is important that the shield components rotate freely over the PTO shaft. Lubricating both the shield bearings and also periodic cleaning will ensure safe operation of the rotating shields.

1. Press the cone down and release the collar catches with a screw driver.
2. Spread the collar bearing and remove from the tube.
3. Clean the collar and the yoke bearing groove. After cleaning thoroughly, apply a good coat of grease to the bearing groove.
4. Fit the collar bearing into the groove and the tube ensuring that the collar catches are centered over the matching holes. The tube and bearing must rotate freely in the bearing groove.
5. Fasten the cone by lining up the cone grease fitting over the grease filing hole on the collar bearing. Make sure that all catches are fastened and that the shield turns freely over the shaft.



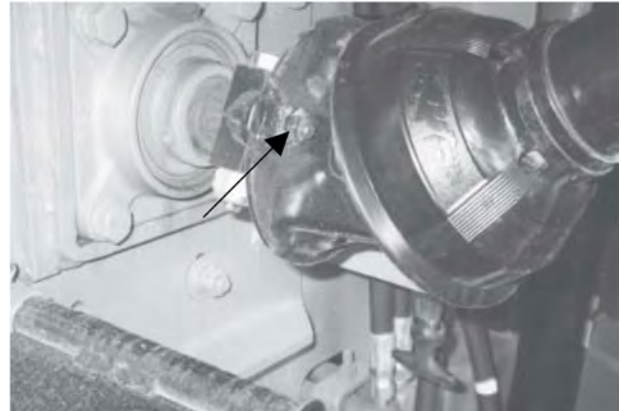
Safety Shield Components

5.2.4 SHEAR BOLT:

Each PTO driveline is equipped with a shear bolt on the implement end of the driveline. It is used to protect the Bale Processor from jamming, plugging or overloading.

When replacing the shear bolt follow this procedure:

1. Clear the area of bystanders, especially small children.
2. Place all controls in neutral, stop engine, set park brake, remove ignition key and wait for all moving parts to stop before dismounting.
3. Remove any remaining bolt parts from the yoke assembly. It may be necessary to use a hammer and punch to remove the old parts.
4. Install genuine replacement parts.
5. Only use Grade 8 bolts as replacement parts.

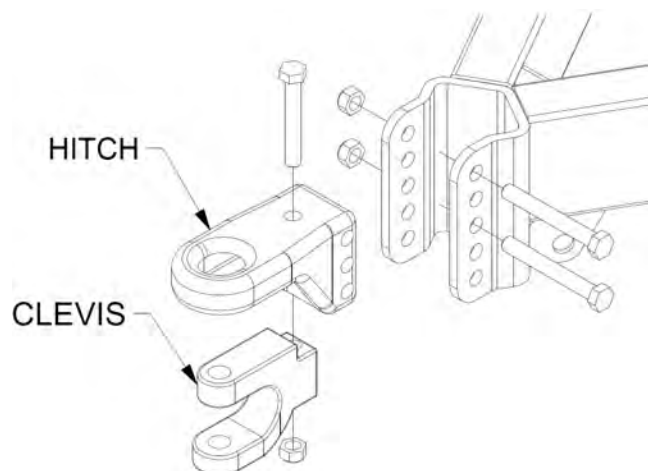


5.2.5 DRAWBAR

The Bale Processor is equipped with an adjustable clevis style hitch. It is a two piece design and is to be installed as shown. Do not use the hitch with the clevis on top as it does not have sufficient strength to support the vertical loads imposed by the Processor. Do not remove the clevis section unless the tractor drawbar is equipped with a clevis. The clevis is required to counter the uplifting forces that can be encountered under some circumstances. Adjust the height of the hitch so that the Processor is level when connected to the tractor.

On tractors equipped with a clevis style drawbar, the clevis on the Processor must be removed to prevent binding when turning or on uneven terrain.

Check hitch and clevis bolts on a weekly basis to make sure they are properly tightened.



6 TROUBLESHOOTING

The Bale Processor is designed to pick up bales and load them in the cradle where they are moved into a high speed rotor for shredding. It is a simple and reliable system that requires minimum maintenance.

In the following section we have listed potential problems, causes and solutions to the problems you may encounter.

If you encounter a problem that is difficult to solve, even after having read through this troubleshooting section, please call your dealer or distributor. Before you call, please have this Operator's Manual and the serial number from your machine ready.

<u>PROBLEM</u>	<u>CAUSE</u>	<u>SOLUTION</u>
Machine Vibrates	Rotor out of balance	Check rotor, remove entangled material. Be sure all flails swing freely. Check rotor. Replace any bent, damaged or missing flails.
	Lift frame lifts slowly	Insufficient oil flow. Cold Temperatures. Warm machine before operating. Check hydraulic oil type in tractor.
Shear Bolt Failure	Rotor does not turn freely.	Determine and correct cause of hard turning. Rotor must turn freely. Remove entangled material from rotor, flails, shaft and bearings. Replace shear bolts.
	PTO engaged too quickly.	Engage PTO slowly. See tractor operator's manual.
	PTO disengaged at high RPM	Reduce tractor speed to idle before disengaging
		Check to see that PTO brake (If equipped on tractor) is not engaging prior to rotor stopping.

7 SPECIFICATION

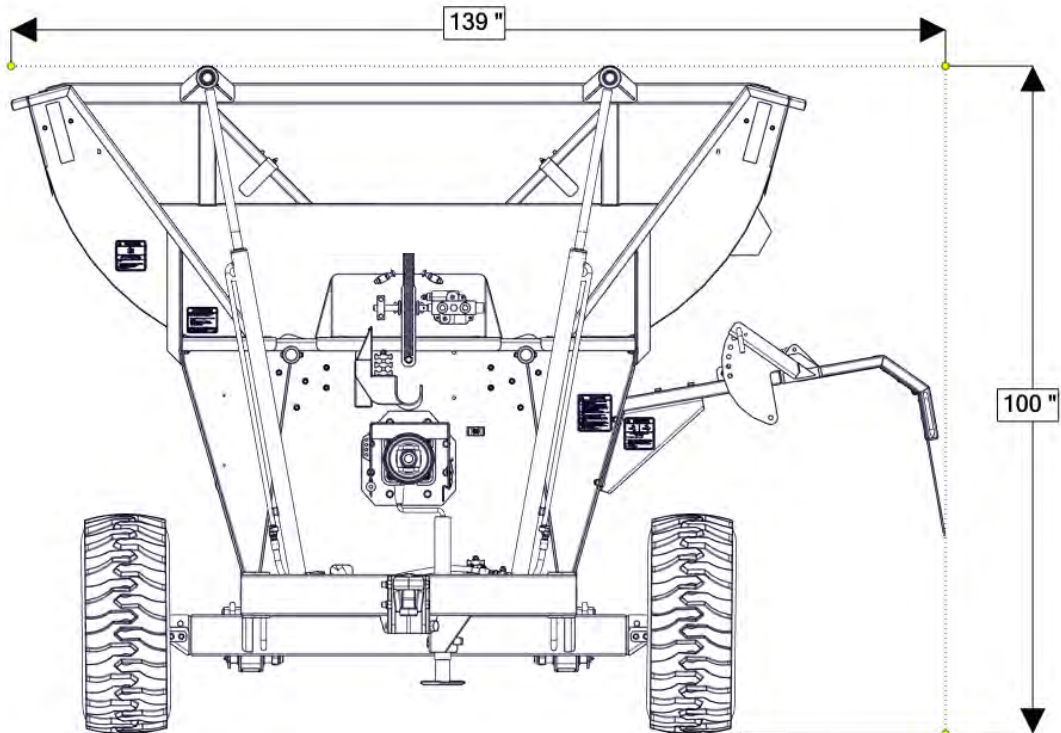
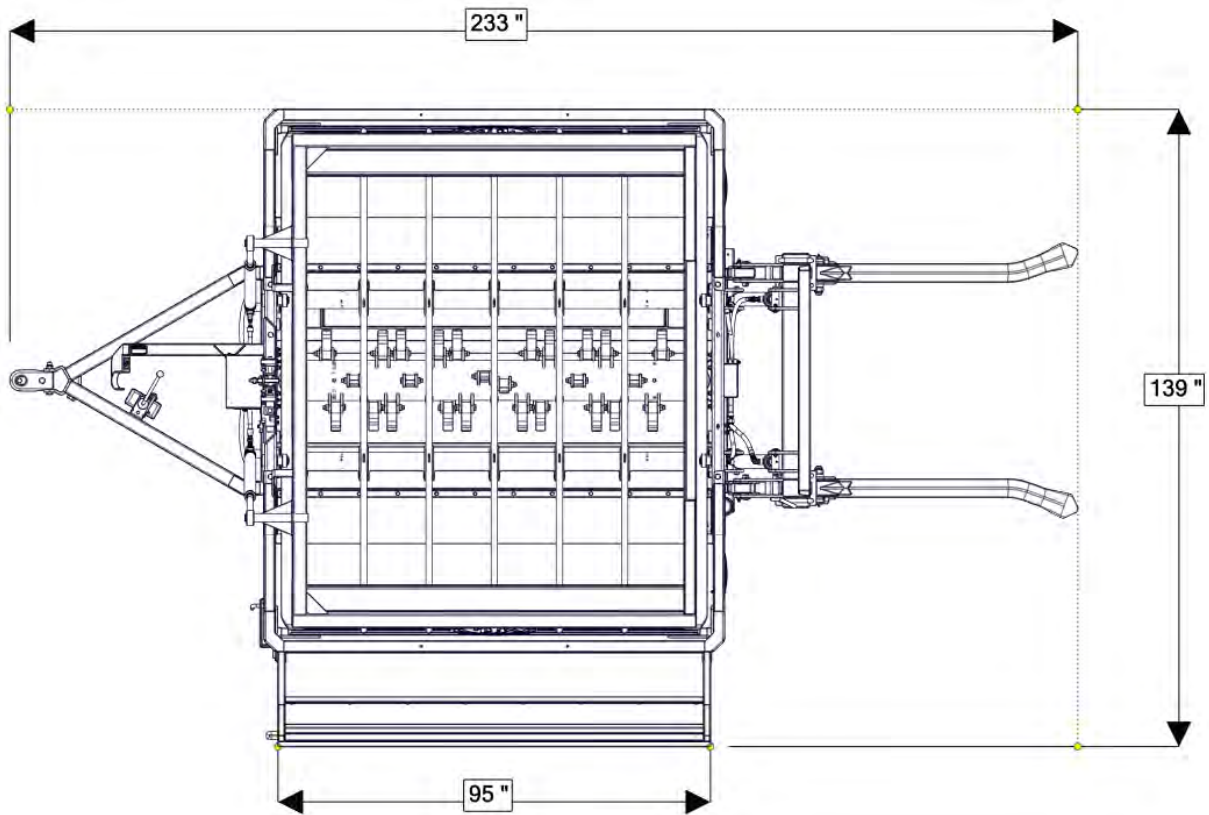
7.1 MECHANICAL

Empty Weight	6300 lbs
Drawbar Weight	1300lbs.
PTO	1 3/8-21.1000RPMCV
Chamber Length	83"
No. of Hammers	32
Hammer Size	1/2 x 2 x 5 3/4
Rotor Swing Diameter	25 1/8"
Discharge Direction	Left
Minimum Power Required	100 HP

Shear Bolt Size : 2" x 3/8" Grade 8





SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

7.2 OVERALL DIMENSIONS



7.3 BOLT TORQUE

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	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

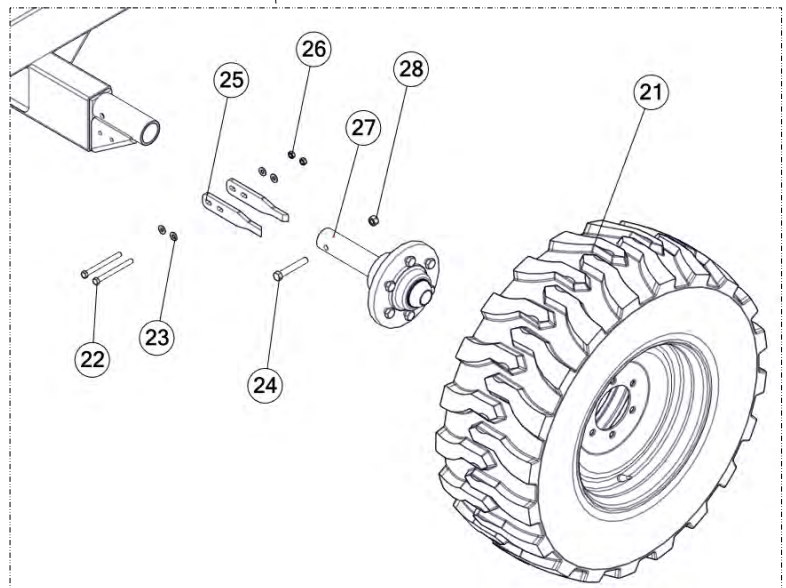
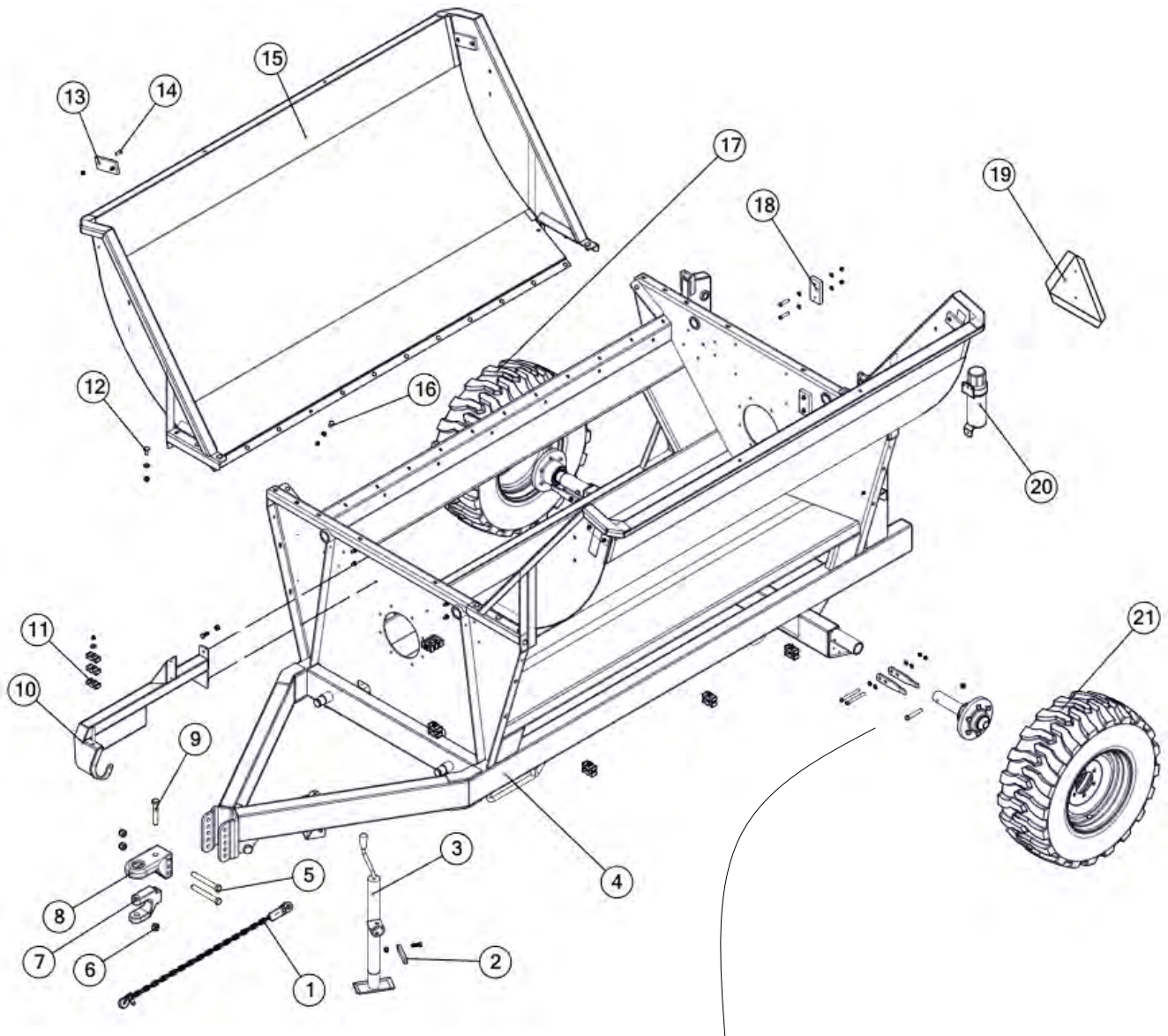
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8 Parts

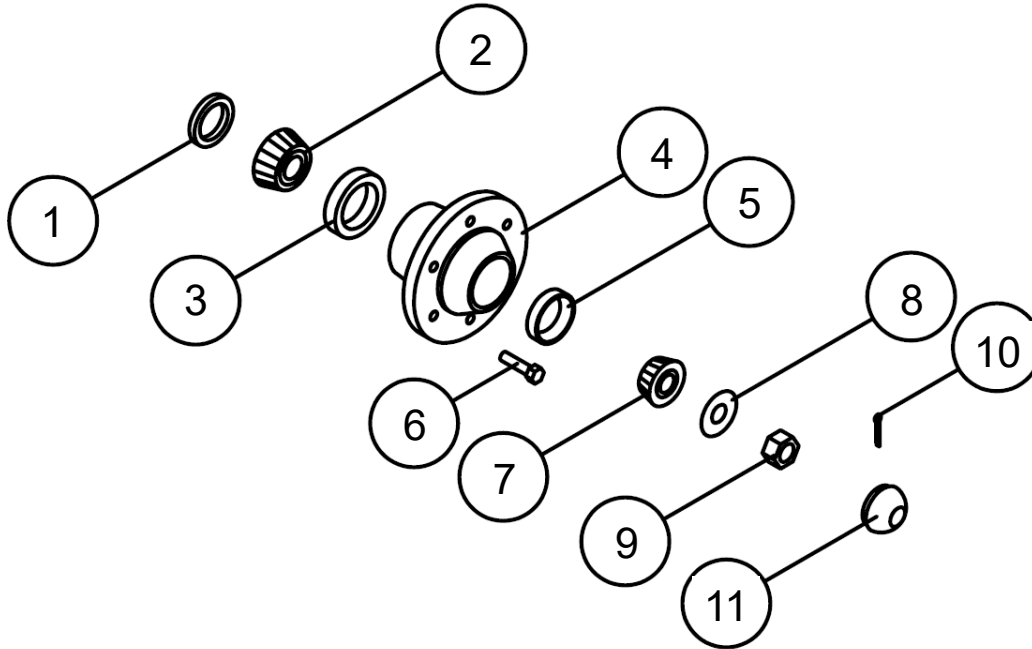
8.1 Frame Assembly

REF #	PART #	DESCRIPTION	QUANTITY
1	1400-490	5/16" Safety Chain - Assemble for Towing	1
2	J400-213	Jack Lock	1
3	3411-056	Jack 5000lb x 15" - Top Wind	1
4	J627-010	Body Weldment, LH - 2016	1
5	1594-819	Bolt - Hex 3/4NC x 6-1/2 Gr5 PLT	2
6	1672-692	Nut - Nylock 3/4" NC PLT	3
7	3430-206	Clevis - Cat.2 Hitch	1
8	3430-237	Base Hitch - Cat.2 65-125 hp	1
9	1594-815	Bolt - Hex 3/4NC x 5 Gr5 PLT	1
10	J658-083	Drive Line Support Weldment, Long	1
11	0700-601	193550 Plastic Holder	20
12	1631-110	Bolt - Carriage 1/2NC x 1-1/4"	16
13	1471-291	Cradle Guide	4
14	1603-020	Flat Head Cap Screw 3/8 x 1-1/4" NC	8
15	J628-021	Shroud Weldment	2
16	1630-507	Bolt - Carriage 3/8NC x 1	42
17	1001-702	12-16.5 6 Bolt RH Tire/Rim	1
18	1471-290	Wear Pad	4
19	1470-004	Slow Moving Sign	1
20	1470-010	Canister - Manual Holder	1
21	1001-703	12-16.5 6 Bolt LH Tire/Rim	1
22	1594-015	Bolt - Hex 3/8NC x 4-1/2 GR5 PLT	4
23	1680-540	Washer - Flat 3/8" SAE PLT	8
24	1594-485	Bolt - Hex 1/2NC x 3-1/2 Gr5 PLT	2
25	J400-052	Hub Scraper	4
26	1672-412	3/8" Top Lock nut	4
27	3410-615	614 Hub and Spindle Complete	2
*	3405-514	Spindle 1.625"x14 w/ Nut and Washer	2
*	3408-615	Hub 6 Bolt c/w Cups, Cones 5K - 614	2
28	1672-416	1/2" Top Lock Nut	2

8.1 Frame Assembly

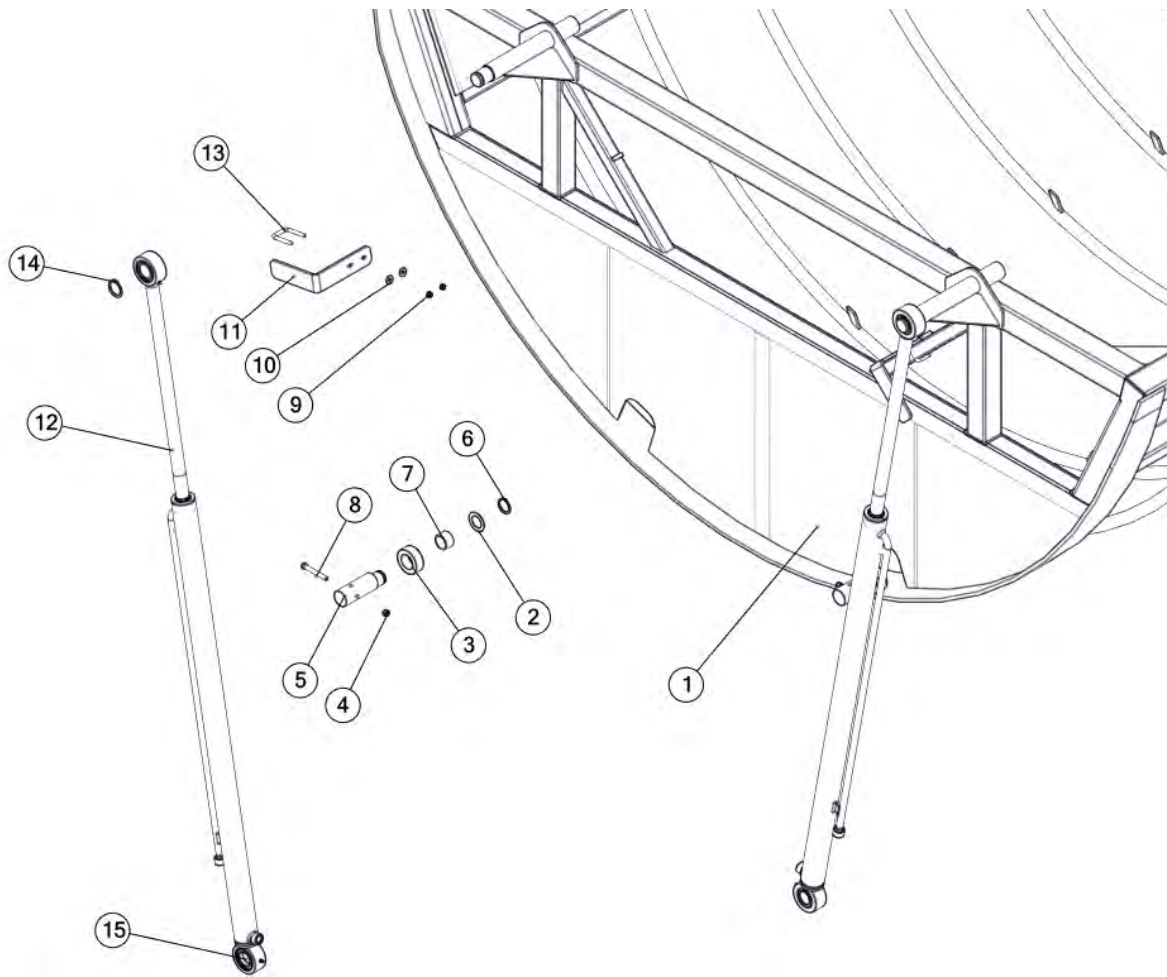


8.2 614 Hub Assembly



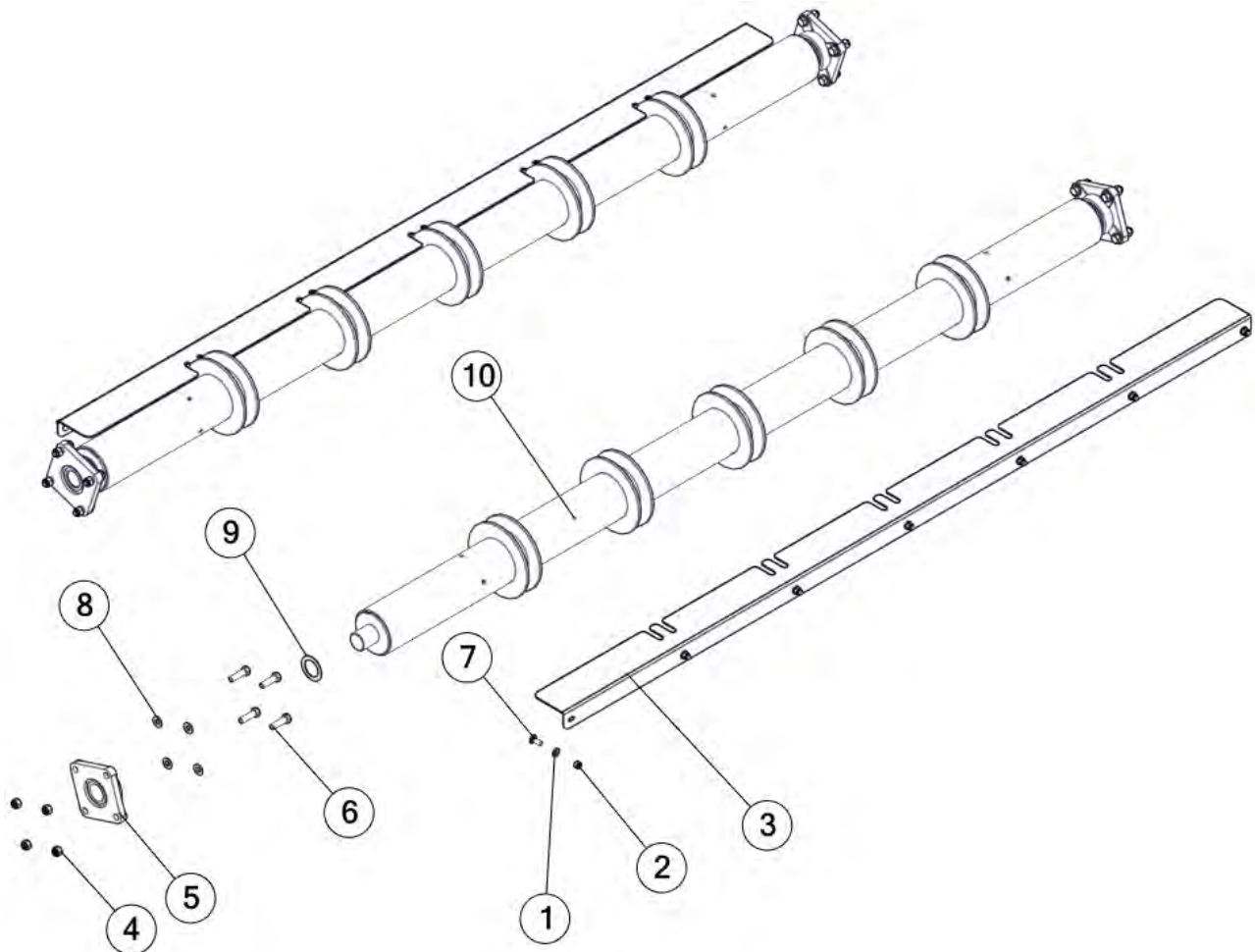
REF #	PART #	DESCRIPTION	QUANTITY
1	3401-016	Seal 2 x 3.63 x0.250 SE-16	1
2	1145-135	Bearing Cone - 1.78 ID LM 603049	1
3	1150-026	Bearing Cup - INN.H614 LM603011	1
4	3408-615	Hub 6 Bolt c/w Cups, Cones 5K - 614	1
5	1150-027	Bearing Cup - LM48510	1
6	3403-012	Wheel Bolt 9/16-18 UNF x 1-1/4	6
7	1145-022	Bearing Cone - 1.37"ID LM48548	1
8	3407-517	SP. Washer 1.031x 2.00"x .187"	1
9	3407-033	Spindle Nut 1" -14 UNF WB33	1
10	1700-190	Pin - Cotter 3/16 x 1-1/2" PLT	1
11	3402-015	Dust Cap 2.72x1.45 CTD #DC15	1

8.3 Bale Cradle Assembly



REF #	PART #	DESCRIPTION	QUANTITY
1	J628-031	Bale Cradle Weldment	1
2	1680-626	Machinery Bushing- 1-3/8" ID x 2-1/8" OD 14GA	2
3	0661-009	2-3/4" Cradle Roller	2
4	1672-652	Nut - Nylock 3/8" NC PLT	2
5	0661-005	Pin - Bale Cradle Bearing	2
6	1139-513	1-3/8" ID External Snap Ring - Heavy Duty	2
7	1137-001	Composite Bearing - 1-3/8" ID x 1-5/8" OD X 1" Long	2
8	1594-005	Bolt - Hex 3/8NC x 3 Gr5 PLT	2
9	1672-648	Nut - Nylock 5/16" NC PLT	4
10	1680-040	Washer - Flat 5/16" USS PLT	4
11	J400-177	Stroke Control	2
12	1070-202	Star - Hydraulic Cradle Cylinder 2" x 46.25"	2
*	1070-500	Star Cylinder Seal Kit - Cradle Cylinder	*
13	1590-402	5/16" x 1-1/2" U-Bolt 138602	2
14	1139-514	Snap Ring, 1 1/2 ID External - Heavy Duty	4
15	1140-063	Cradle Bearing GEZ108ES	4

8.4 Cradle Roller Assembly



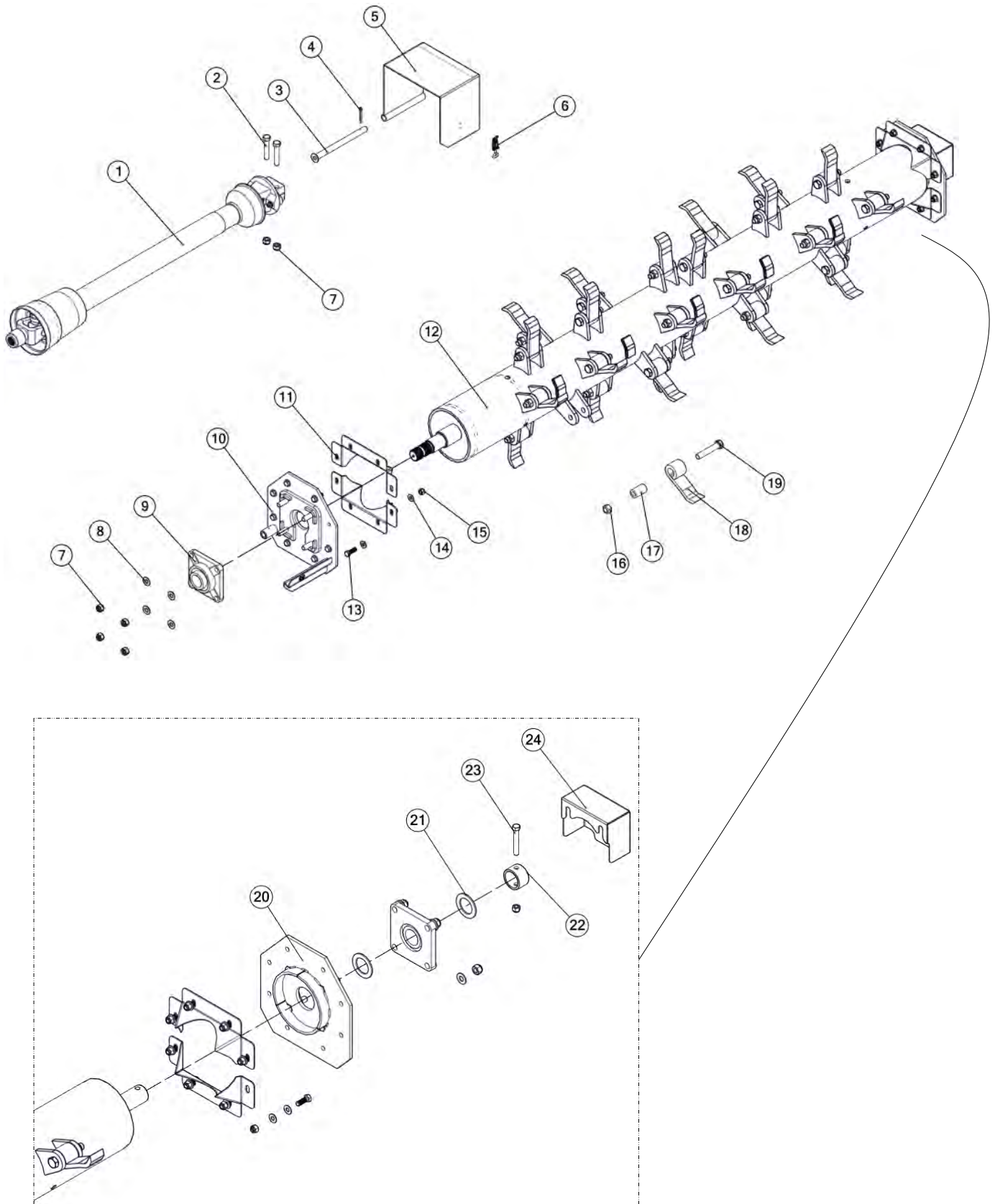
REF #	PART #	DESCRIPTION	QUANTITY
1	1680-540	Washer - Flat 3/8" SAE PLT	14
2	1672-652	Nut - Nylock 3/8" NC PLT	14
3	J400-088	Shield, Cradle Roller	2
4	1672-688	Nut - Nylock 1/2" NC PLT	16
5	1140-060	QJZ 1-3/4" Flange Block Bearing	4
6	1594-410	Bolt - Hex 1/2NC x 1-3/4 Gr5 PLT	16
7	1630-507	Bolt - Carriage 3/8NC x 1	14
8	1680-544	Washer - Flat 1/2" SAE PLT	16
9	1680-631	Machinery Bushing - 1-3/4" ID x 2-1/2" 14GA	4
10	J628-019	Cradle Roller Weldment	2

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8.5 Drive/Rotor Assembly

REF #	PART #	DESCRIPTION	QUANTITY
1	3751-001	Cat 4 CV PTO	1
2	1594-700	Bolt - Hex 5/8NC x 3-1/2 Gr5 PLT	2
3	0661-008	Pin - PTO Shield	1
4	1700-200	Pin - Cotter 3/16 x 2" PLT	1
5	J628-048	Shield Weldment	1
6	1540-142	3.5" Long Catch	1
7	1672-690	Nut - Nylock 5/8" NC PLT	10
8	1680-580	Washer - Flat 5/8" SAE PLT	8
9	1140-062	QJZ 2" Flange Block Bearing	2
10	J627-011	Rotor Mount Weldment, Front	1
11	J400-069	Twine Shield	4
12	J627-002	JSB439 LH Rotor	1
13	1594-401	Bolt - Hex 1/2NC x 1-1/2 Gr5 PLT	16
14	1680-066	Washer - Flat 1/2" GR 8	32
15	1672-688	Nut - Nylock 1/2" NC PLT	16
16	1672-422	3/4" Top Lock Nut	32
17	1133-001	Hardened Hammer Bushing	32
18	3450-001	5-3/4" Long Hammer	32
19	1594-813	Bolt - Hex 3/4NC x 4-1/4 Gr5 PLT	32
20	J628-014	Rotor Mount Weldment, Rear	1
21	1680-630	Machinery Bushing - 2" ID x 3" OD 10GA	2
22	J400-074	Lock Collar	1
23	1594-485	Bolt - Hex 1/2NC x 3-1/2 Gr5 PLT	1
24	J400-070	Shaft Guard	1

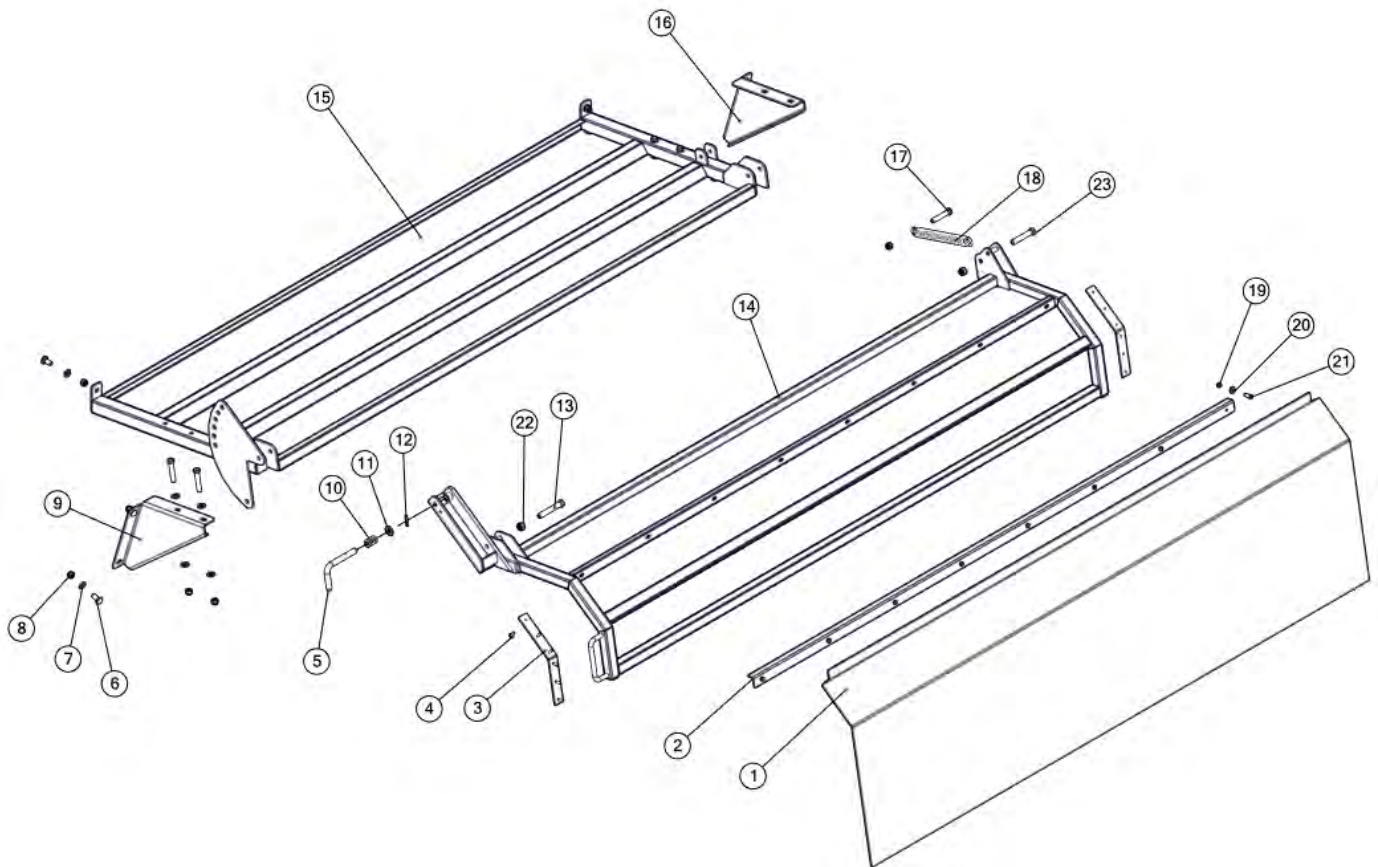
8.5 Drive/Rotor Assembly



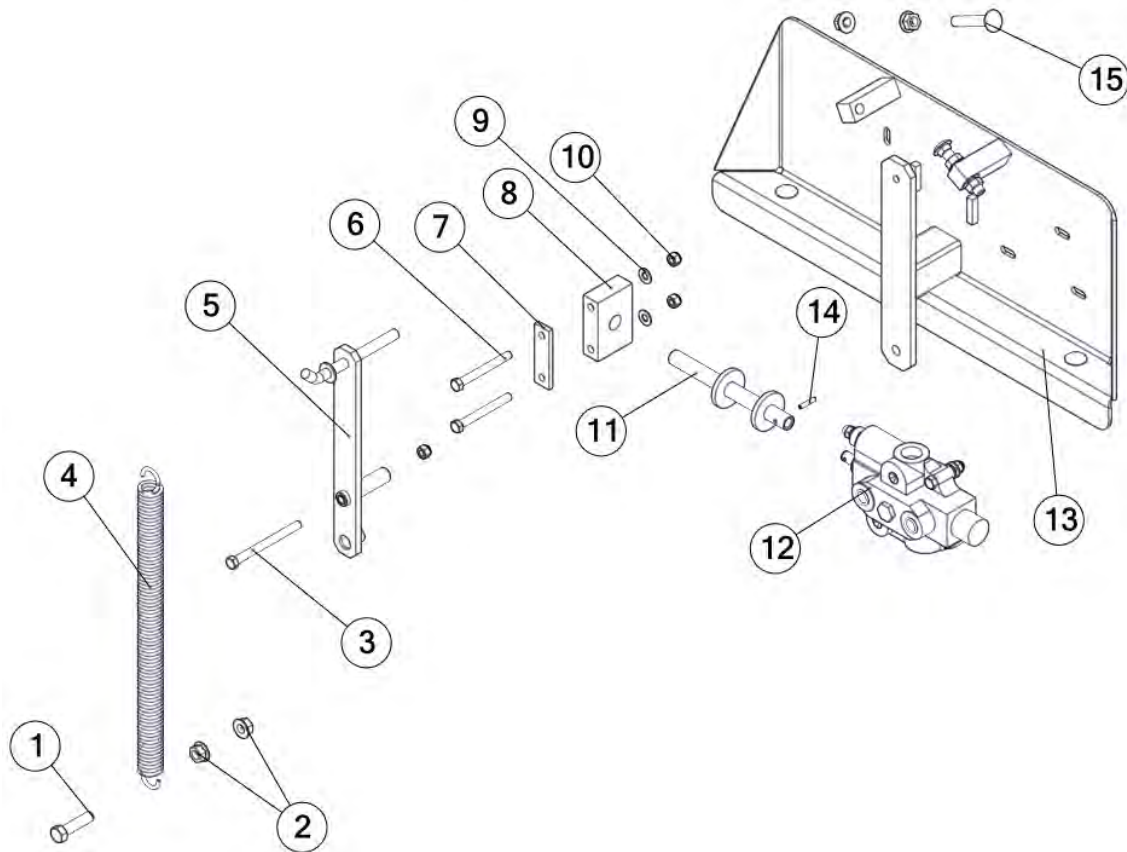
8.6 Deflector Assembly

REF #	PART #	DESCRIPTION	QUANTITY
1	1450-015	Deflector Belt 30" x 94-1/2"	1
2	J400-143	Clamp Angle	1
3	J400-142	Clamp Plate, Inner	2
4	1571-800	Screw, 10-24 x 1-1/4" Wafer Tek	12
5	0661-006	Deflector Lock Pin	1
6	1631-110	Bolt - Carriage 1/2NC x 1-1/4"	4
7	1680-544	Washer - Flat 1/2" SAE PLT	14
8	1672-688	Nut - Nylock 1/2" NC PLT	11
9	J400-121	Table Gusset, Left	1
10	3031-119	Comp. Spring .080W x.9375 x 2	1
11	1680-580	Washer - Flat 5/8" SAE PLT	1
12	1722-780	Pin - Spring 1/4" x 1-1/2"	1
13	1594-543	Bolt - Hex 9/16NC x 4 Gr5 PLT	1
14	J627-007	Deflector Frame Weldment, LH	1
15	J627-006	Deflector Table Weldment, Left	1
16	J400-122	Table Gusset, Right	1
17	1594-460	Bolt - Hex 1/2NC x 3 Gr5 PLT	5
18	3032-048	7-1/2" Extension Spring	1
19	1672-648	Nut - Nylock 5/16" NC PLT	8
20	1680-040	Washer - Flat 5/16" USS PLT	8
21	1593-735	Bolt - Hex 5/16NC x 1 Gr5 PLT	8
22	1672-689	Nut - Nylock 9/16" NC PLT	2
23	1594-540	Bolt - Hex 9/16NC x 3-1/2 Gr5 PLT	1

8.6 Deflector Assembly

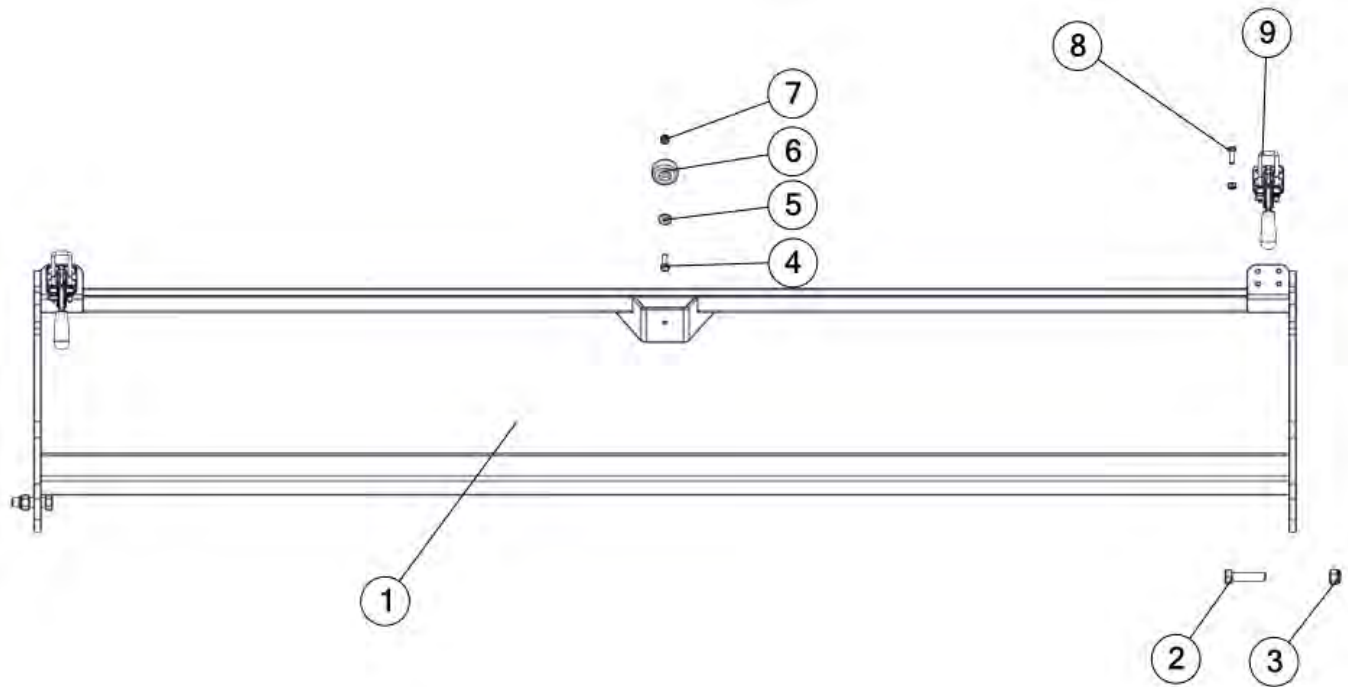


8.7 Valve Shifter



REF #	PART #	DESCRIPTION	QUANTITY
1	1594-427	Bolt - Hex 1/2NC x 2 Gr5 PLT	1
2	1672-512	1/2" Flange Nut	4
3	1594-015	Bolt - Hex 3/8NC x 4-1/2 GR5 PLT	1
4	3033-437	Extension Spring - 15" long	1
5	J628-024	Shift Lever Weldment	1
6	1594-007	Bolt - Hex 3/8NC x 3-1/2 Gr5 PLT	2
7	J400-103	Bearing Cover Plate	1
8	1471-292	Guide, Shifter Spool	1
9	1680-540	Washer - Flat 3/8" SAE PLT	2
10	1672-652	Nut - Nylock 3/8" NC PLT	2
11	0661-007	Shifter Spool	1
12	1101-424	Single Spool Valve	1
13	J628-022	Valve Plate Weldment	1
14	1722-791	Pin - Spring 3/16" x 1"	1
15	1631-200	Bolt - Carriage 1/2NC x 3" Full Thread	1

8.8 Access Door



REF #	PART #	DESCRIPTION	QUANTITY
1	J628-018	Access Door Weldment	1
2	1594-427	Bolt - Hex 1/2NC x 2 Gr5 PLT	2
3	1672-688	Nut - Nylock 1/2" NC PLT	2
4	1593-544	Bolt - Hex 1/4 NC x 1 Gr5 PLT	1
5	1680-022	Washer - Flat 1/4" USS PLT	1
6	1471-410	Round Rubber Bumper Pad	1
7	1672-642	Nut - Nylock 1/4" NC PLT	9
8	1593-543	Bolt - Hex 1/4 NC x 3/4 Gr5 PLT	8
9	1540-177	331-R Pull Action Latch	2

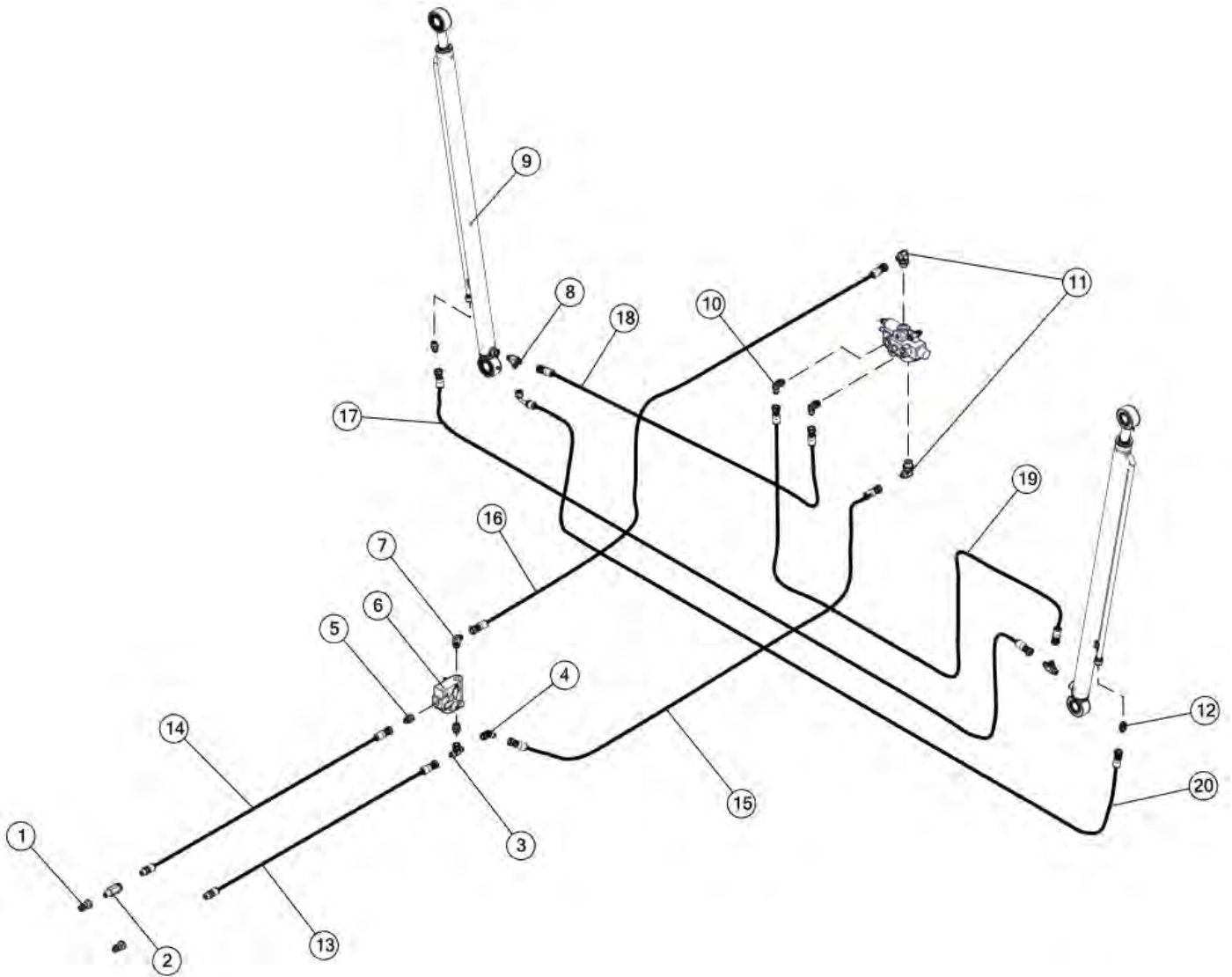
8.9 Load Frame Assembly

REF #	PART #	DESCRIPTION	QUANTITY
1	J628-041	Bale Tine Weldment, Right	1
2	0661-001	Pin - Tine Mount	2
3	1670-836	Nut - Hex 3/4" NC Gr8 PLT	8
4	1686-128	Washer - Lock 3/4" Gr8 PLT	8
5	1590-430	3/4" x 6-7/8" U - Bolt 138603	4
6	1672-695	Nut - Nylock 1-1/8" NC PLT	2
7	J628-038	Tine Mount Weldment	2
8	J628-034	Lift Frame Weldment	1
9	J628-040	Bale Tine Weldment, Left	1
10	0661-003	Pin - Lift Frame	2
11	1672-652	Nut - Nylock 3/8" NC PLT	6
12	1593-988	Bolt - Hex 3/8NC x 1-1/2 Gr5 PLT	6
13	1680-540	Washer - Flat 3/8" SAE PLT	12
14	1680-622	Machinery Bushing - 1-1/8" ID x 1-3/4" 10GA	2
15	1700-270	Pin - Cotter 1/4 x 2" PLT	2
16	0661-002	Pin - Transport Lock	1
17	1613-777	Pin - Hair 5/32" x 3-5/16" - #9	1
18	0661-004	Pin - Lift Cylinder	4
19	1073-002	JSB404 Lift Cylinder 2.50" x 17.25"	2
*	1073-106	Ram Seal Kit	*

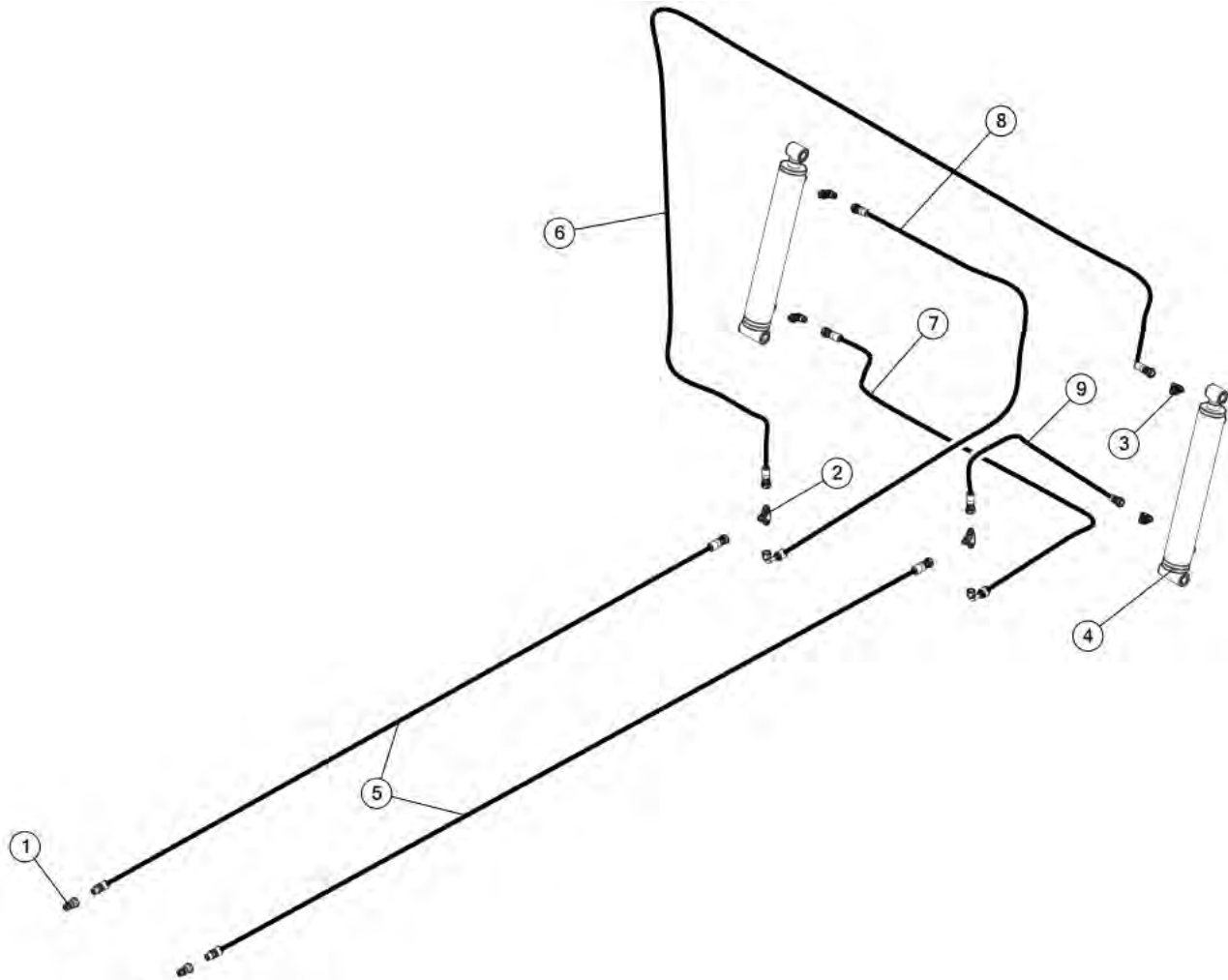
8.10 Cradle Hydraulics

REF #	PART #	DESCRIPTION	QUANTITY
1	1040-610	Hydraulic Q/C Male Poppet x 1/2FPT	2
2	1110-200	Check Valve - Ball .5"MPT-.5"FPT	1
3	0850-307	Tee # 8JICMx # 8JICMx # 8JICf	1
4	0867-908	Elbow 45 1/2"MPT to #8 JICM	1
5	0864-812	Hex Nipple #10 ORBM x #8JICM	2
6	1101-398	Flow Control Valve 3 PORT #10 ORB PORT	1
7	0868-910	Elbow 90 # 10 ORMB x # 8 JICM	1
8	0851-908	Tee # 8 ORBM x # 8 JICM x # 8 JICM Drop	2
9	1070-202	Star - Hydraulic Cradle Cylinder 2" x 46.25"	2
*	1070-500	Star Cylinder Seal Kit - Cradle Cylinder	*
10	0868-808	Elbow 90 # 8 ORBM x # 8 JICM	2
11	0868-912	Elbow 90 # 12 ORBM x # 8 JICM	2
12	0864-808	Hex Nipple #8 ORBM x # 8 JICM	2
13	3935-087	1/2" 2w x 87" x #8 JICF x 1/2" MPT	1
14	3935-084	1/2" 2w x 84" x #8 JICF x 1/2" MPT	1
15	3935-014	1/2" 2w x 14" x #8 JICF x #8 JICF	1
16	3935-013	1/2" 2w x 13" x #8 JICF x #8 JICF	1
17	3934-037	3/8" 2w x 37" x #8 JICF x #8 JICF	1
18	3935-058	1/2" 2w x 58" x #8 JICF x #8 JICF	1
19	3935-037	1/2" 2w x 37" x #8 JICF x #8 JICF	1
20	3934-038	3/8" 2w x 38" x #8 JICF x #8 JICF 90deg	1

8.10 Cradle Hydraulics

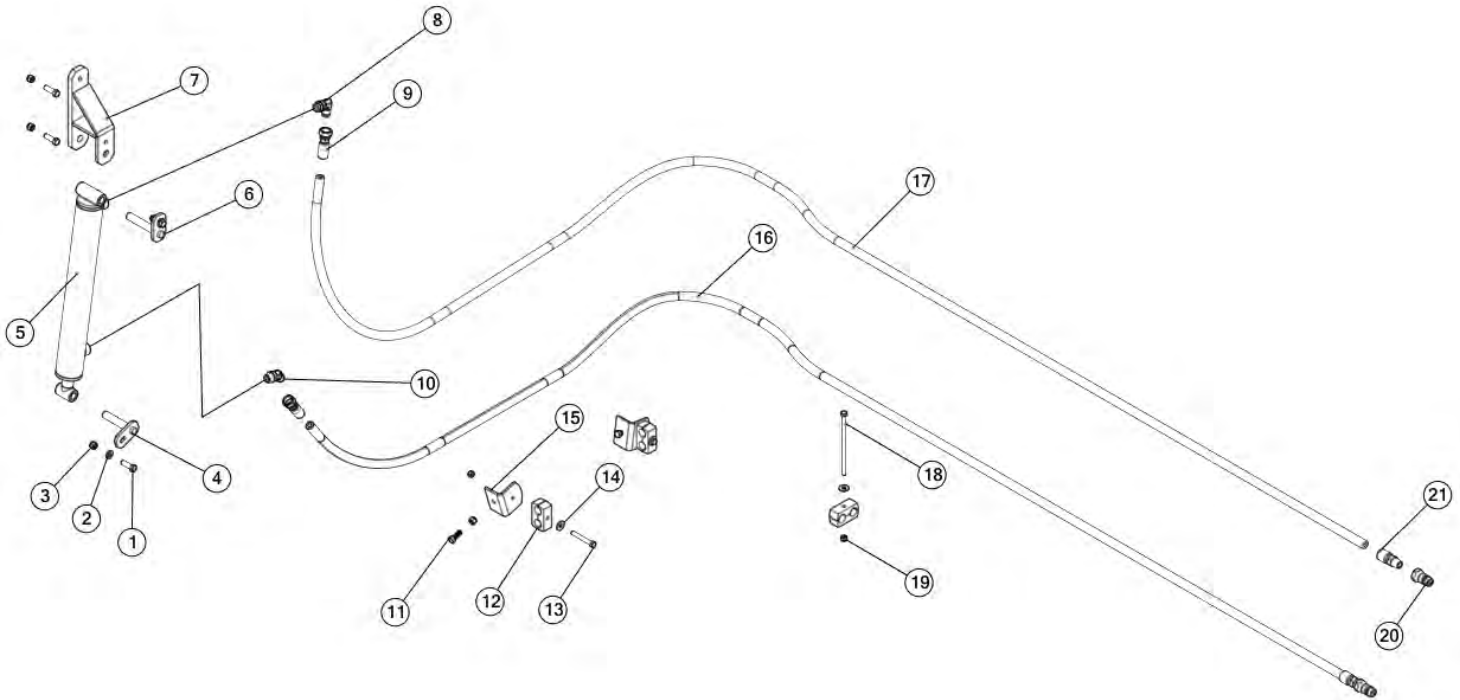


8.11 Lift Cylinder Hydraulics



REF #	PART #	DESCRIPTION	QUANTITY
1	1040-610	Hydraulic Q/C Male Poppet x 1/2FPT	2
2	0850-308	Tee # 8JICMx # 8JICMx # 8JICM	2
3	0868-808	Elbow 90 # 8 ORBM x # 8 JICM	4
4	1073-002	JSB404 Lift Cylinder 2.50" x 17.25"	2
*	1073-106	Ram Seal Kit	*
5	3935-241	1/2" 2w x 241" x #8 JICF x 1/2" MPT	2
6	3934-021	3/8" 2w x 21" x #8 JICF x #8 JICF	1
7	3934-029	3/8" 2w x 29" x #8 JICF x #8 JICF long 90deg	1
8	3934-041	3/8" 2w x 41" x #8 JICF x #8 JICF 90deg	1
9	3934-018	3/8" 2w x 18" x #8 JICF x #8 JICF	1

8.12 Hydraulic Deflector Kit (Optional)



REF #	PART #	DESCRIPTION	QUANTITY
1	1593-979	Bolt - Hex 3/8NC x 1-1/4 Gr5 PLT	4
2	1680-540	Washer - Flat 3/8" SAE PLT	2
3	1672-652	Nut - Nylock 3/8" NC PLT	6
4	J628-044	Pin, 5/8 x 3-1/4	1
5	1070-204	Star Deflector Cylinder 2 x 13.50"	1
*	1070-501	Star Cylinder Seal Kit -Deflector Cylinder	*
6	J628-045	Pin, 5/8 x 3-11/16	1
7	J628-043	Mount, Deflector Cylinder	1
8	0868-808	Elbow 90 # 8 ORBM x # 8 JICM	1
9	0736-608	Hose End 3/8"Dia x # 8 SwJICF	2
10	0867-808	Elbow 45 # 8 JICM x # 8 ORBM	1
11	1593-961	Bolt - Hex 3/8NC x 1 Gr5 PLT	2
12	0700-605	193320 Plastic Hose Holder - 1/2" hose	3
13	1593-800	Bolt - Hex 5/16NC x 2-1/2 Gr5 PLT	2
14	1680-040	Washer - Flat 5/16" USS PLT	3
15	J400-286	Hose Tab	2
16	J400-573	3/8 x 149" Hose for 958 Hydraulic Deflector Option	1
17	J400-572	3/8 x 165 Hose for 958 Deflector Option	1
18	1593-830	Bolt - Hex 5/16 NC x 6-1/2 Gr5 PLT	1
19	1672-648	Nut - Nylock 5/16" NC PLT	3
20	1040-610	Hydraulic Q/C Male Poppet x 1/2FPT	2
21	0710-608	Hose End 3/8"Dia x 1/2" MPT	2

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SEAL OF QUALITY

