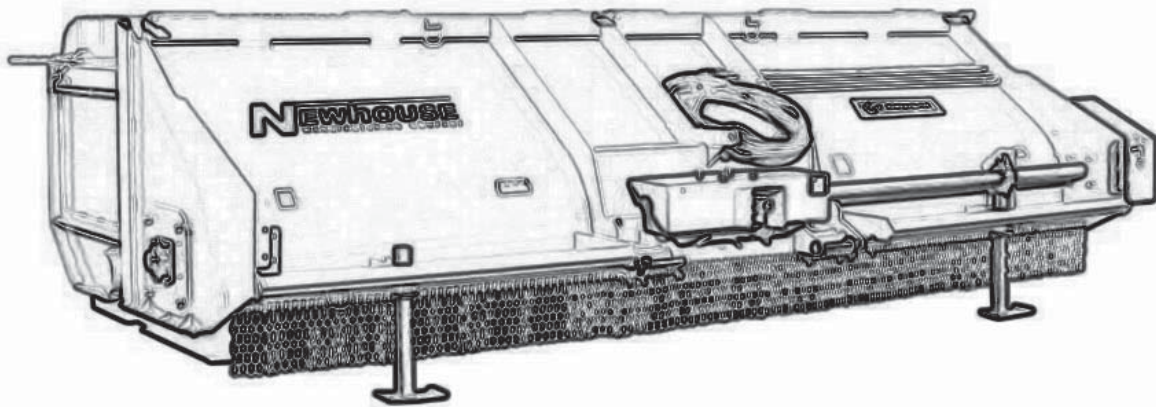


GEARMORE INC.

= NEWHOUSE =

WINDROWING FLAIL SHREDDERS



**Operation, & Parts Manual
For Models:
C1520 & C2020**

November 2011

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1 INTRODUCTION

This manual contains valuable information about your new Gearmore/Newhouse Flail Shredder. This unit has been built to give you years of trouble free operation. To ensure that this machine performs to its full potential, please take the time to thoroughly read and adhere to the instructions set forth in this manual. Proper maintenance and operation are essential to keep this machine running for its complete life expectancy. These instructions will both keep the machine running trouble free and running safely.

It is the responsibility of the owner to make sure the machine is maintained properly, that all users of this machine have read and are following the instructions set forth in this manual, is set up and adjusted properly and fulfill all warranty requirements so as not to void the warranty on this product. The warranty section is on the last page of this manual, please read this policy fully and make sure to fill out your warranty registration card.

Gearmore/Newhouse reserves the right to make improvements to the machinery and parts at any time and at our discretion.

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

1.1 PURCHASER'S RESPONSIBILITY

It is the responsibility of the purchaser and/or operator to.....

- Read and understand the information contained in this manual.
- Operate, lubricate, assemble and maintain the equipment in accordance with all instructions and safety procedures in this manual.
- Inspect the equipment and replace or repair any parts that are damaged or worn which under continued operation would cause damage, wear to other parts, or cause a safety hazard.
- Return the equipment or parts to the authorized dealer, from where it was purchased, for service or replacement of defective parts that are covered by warranty. (The factory may inspect equipment or parts before warranty claims are honored.)
- Payment of all costs incurred by the dealer for traveling to or transporting the equipment for warranty inspection and or claims.

NAME: _____

PURCHASED FROM: _____

DATE OF PURCHASE: _____

MODEL NUMBER: _____

SERIAL NUMBER: _____

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 shredder 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 guide-lines:

SI NO LEE INGLES, PIDA AYUDA A AIGUIEN QUE SI LO LEA PARA QUE LE TRADUZCA LAS MIDIDAS DE SEGURIDAD.

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 which, 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.

If you have any questions not answered in this manual or require additional copies or the manual is damaged, please contact your dealer.

2.1 GENERAL SAFETY

YOU are responsible for the **SAFE** operation and maintenance of your shredder. **YOU** must ensure that you and anyone else who is going to operate, maintain or work around the shredder 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 shredder.

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.

- Shredder owners must give operating instructions to operators or employees before allowing them to operate the machine, and at least annually there after per OSHA (Occupational Safety and Health Administration) regulation 1928.57.
- The most important safety feature 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 these. Most 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!**

1. Read and understand the Operator's Manual and all safety signs before operating, maintaining, or adjusting the shredder.



2. Have a first-aid kit available for use should the need arise and know how to use it.

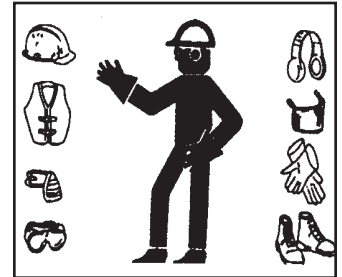


3. Have a fire extinguisher available for use should the need arise and know how to use it.



4. Wear appropriate protective gear. This list includes but is not limited to:

- A hard hat
- Protective shoes with slip resistant soles
- Protective goggles, glasses or face shield
- Heavy gloves
- Protective clothing



5. Install and secure all guards before starting.

6. **DO NOT** allow riders.

7. Wear suitable ear protection for prolonged exposure to excessive noise.



8. Place all controls in neutral, stop tractor engine, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing, or unplugging.

9. Clear the area of people, especially small children, before starting.

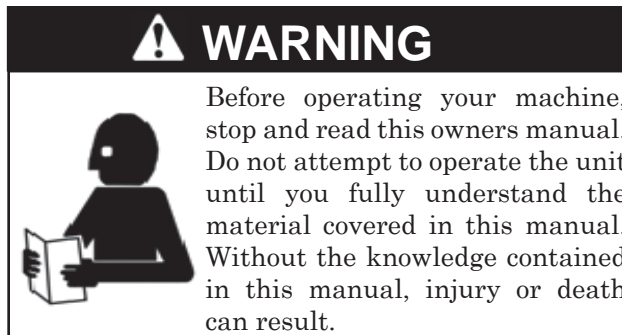
10. Review safety related items annually with all personnel who will be operating or maintaining the shredder.

2.2 EQUIPMENT SAFETY GUIDELINES

This machine causes a large amount of high speed flying debris. It is **mandatory** for all operators to be properly protected with impact resistant shielding. Gearmore/Newhouse strongly recommends a steel expanded metal cage to be constructed to cover the back window of the tractor to help protect the operator from flying rocks and debris. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury or death, study the following precautions and insist those working with you, or for you, follow them. It is the owners responsibility to provide the proper protection for any operator of this flail shredder.

FAILURE TO FOLLOW ALL SAFETY INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH!

- In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, equipment should **never** be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.
- Replace any safety sign or instruction sign that is not readable or is missing.
- **NEVER** use alcoholic beverages or drugs which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.
- **Under no circumstances should young children be allowed to work with this equipment. Do not allow persons to operate or assemble this unit until they have read this manual and have developed a thorough understanding of the safety precautions and of how it works. Review the safety instructions with all users annually.**



- This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible, properly trained and physically able person familiar with farm machinery and trained in this equipment's operations. If the elderly are assisting with farm work, their physical limitations need to be recognized and accommodated.
- Use a tractor equipped with a Roll Over Protective Structure (ROPS) and a seat belt.
- **NEVER** exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question - **DON'T TRY IT.**
- 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.
- **NEVER** operate shredder below 1000 PTO RPM. Improper shredding and damage can occur.
- When repairing or lubricating this piece of equipment, always shut off power before going near the machine.
- **DO NOT** use this product while using drugs or alcoholic beverages.

In addition to the design and configuration of this implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of the machine.

Always remember, safety first. This machine has areas that cannot be shielded due to it interfering with the operation of the machine. Always follow the instructions in this manual and always be alert and aware when operating this shredder. Use common sense and safe operating practices at all times.

Think SAFETY! Work SAFELY!

2.3 SAFETY TRAINING

Safety is a primary concern in the design and manufacture of our products. Unfortunately, our efforts to provide safe equipment can be wiped out by a single careless act of an operator or bystander.

In addition to the design and configuration of equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence and proper training of personnel involved in the operation, transport, maintenance and storage of this equipment.

It has been said, "*The best safety feature is an informed, careful operator.*" We ask you to be that kind of an operator. It is the operator's responsibility to read and understand ALL Safety and Operating instructions in the manual and to follow these. Accidents can be avoided.



Working with unfamiliar equipment can lead to careless injuries. Read this manual, and the manual for your tractor, before assembly or operating, to acquaint yourself with the machines. If this machine is used by any person other than yourself, or is loaned or rented, it is the machine owner's responsibility to make certain that the operator, prior to operating:

- a. Reads and understands the operator's manuals.
- b. Is instructed in safe and proper use.

Should ownership of the equipment be transferred, this manual must also be transferred.

Know your controls and how to stop tractor, engine and machine quickly in an emergency. Read this manual and the one provided with your tractor.

Train all new personnel and review instructions frequently with existing workers. Be certain only a properly trained and physically able person will operate the machinery. 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.

For any part of this manual that you do not understand, contact your dealer or Gearmore, Inc.

2.4 SAFETY SIGNS

Safety decals and this manual must be considered a permanent part of your equipment. Keep safety signs clean and legible at all times. **ALWAYS** observe and follow all safety instructions on the decals. Replace safety signs that are missing or have become illegible. Replaced parts that displayed a safety sign should also display the current sign.

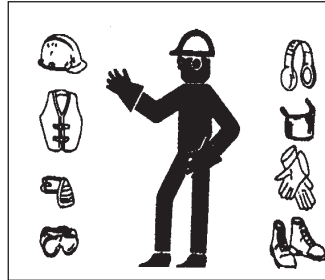
Safety signs are available from your authorized dealer or from Gearmore.

- **DO NOT** operate shredder with more than one person on the tractor.
- **DO NOT** operate close to a ditch or stream. **Drive slowly** over rough ground.
- Disengage PTO and shut off tractor before getting out of tractor or making any adjustments to shredder. **NEVER** walk or stand behind the shredder while the rotor is in operation. **ALWAYS** wait for all moving parts to come to a complete stop before leaving the tractor or attempting to work on the shredder.
- **DO NOT** work underneath the shredder without first blocking it up safely using sufficient and approved stands. **NEVER** work on shredder without first unhooking the PTO and properly blocking the shredder in place.
- **NEVER** use a steel hammer to install the PTO.
- **NEVER** operate flail shredder lower than recommended operating heights. **ALWAYS** keep flails high enough off the ground as to not come into contact with the ground.
- **NEVER** run shredder in an "out of balance" state. If excessive vibration is felt immediately shut shredder down, identify and fix the problem before operating the shredder again.
- Engage PTO slowly to prevent damage. **NEVER** engage PTO when people are close. Keep everyone clear from shredder when starting and when operating. Keep clear of all rotating parts, including driveline and drive shafts. **ALWAYS** make sure shields on driveline and drive shafts rotate freely prior to engaging PTO. **NEVER** allow PTO shaft to bottom out or extend too far apart, serious damage to PTO, tractor and gearbox can occur.

2.5 PREPARATION

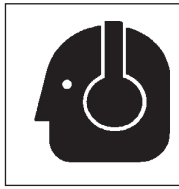
1. Never operate the tractor and machine until you have read and completely understand this manual, the Tractor Operator's Manual and each of the Safety Messages found on the safety signs on the tractor and shredder.

2. Personal protection equipment, including hard hat, safety glasses, safety shoes and gloves are recommended during assembly, installation, operation, adjustment, maintaining, repairing, removal or moving the implement. **DO NOT** allow long hair, loose fitting clothing or jewelry to be around equipment.



3. **PROLONGED EXPOSURE TO LOUD NOISE MAY CAUSE PERMANENT HEARING LOSS!**

Tractors with or without equipment attached can often be noisy enough to cause permanent, partial hearing loss. We recommend that you wear hearing protection on a full-time basis if the noise in the Operator's position exceeds 80db. Noise over 85db on a long-term basis can cause severe hearing loss. Noise over 90db adjacent to the Operator over a long-term basis may cause permanent, total hearing loss.



NOTE: Hearing loss from loud noise (from tractors, chain saws, radios, and other such sources close to the ear) is cumulative over a lifetime without hope of natural recovery.

4. Operate only in daylight or good artificial light.
5. Ensure shredder is properly mounted, adjusted and in good operating condition.
6. Ensure that all safety shielding and safety signs are properly installed and in good condition.

2.6 OPERATIONAL SAFETY

The use of this equipment is subject to certain hazards that cannot be protected against by the mechanical means or product design. All operators of this equipment must read and understand this entire manual, paying particular attention to safety and operating instructions, prior to using. If there is something in this manual you do not understand, ask your supervisor, or your dealer, to explain it to you.

Most accidents occur because of neglect or carelessness. Keep all helpers and bystanders at least several hundred feet from an operating shredder. Only properly trained people should operate this machine. When machine is operated in populated areas where thrown objects could injure persons or property, **operation must be stopped when anyone comes within several hundred feet.**

Never place hands or feet under shredder with tractor engine running or before you are sure all motion has stopped. Stay clear of all moving parts. Do not reach or place any part of your body under equipment until it is blocked securely.

Do not allow riders on the shredder or tractor at any time. There is no safe place for any riders. Do not operate unless all personnel, livestock, and pets are several hundred feet away to prevent injury by thrown objects.

2.7 TRANSPORT SAFETY

1. Comply with state and local laws governing highway safety and movement of farm machinery on public roads.
2. The use of flashing amber lights is acceptable in most localities. However, some localities prohibit their use. Local laws should be checked for all highway lighting and marking requirements.
3. At all times, when driving the tractor and equipment on the road or highway under 20 mph (32 kph) use flashing amber warning lights and a slow moving vehicle (SMV) identification emblem. Do not exceed 20 mph (32 kph). Reduce speed on rough roads and surfaces.
4. Plan your route to avoid heavy traffic.
5. Always install transport locks, pins, or brackets before transporting.
6. Do not drink and drive.
7. Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc. Watch for traffic when operating near or crossing roadways.
8. Never allow riders on either tractor or mower.

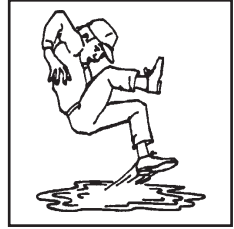
2.8 STORAGE SAFETY

1. Following operation, or when unhooking the shredder, stop the tractor, set the brakes, disengage the PTO, shut off the engine and remove the ignition keys.
2. Store the unit in an area away from human activity.
3. Do not park equipment where it can be exposed to direct contact to livestock for long periods of time. Damage and livestock injury could result.
4. Make sure all parked machines are on a hard, level surface and engage all safety devices.

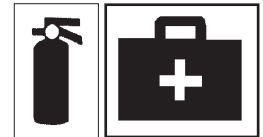
2.9 MAINTENANCE SAFETY

1. Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
2. 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.



3. Make sure there is plenty of ventilation. Never operate an engine in a closed building. The exhaust fumes may cause asphyxiation.
4. Before working on this machine, disengage PTO, shut off the engine, set the brakes, and remove the ignition key. Be certain all moving parts on attachments have come to a complete stop before attempting to perform maintenance.
5. Never work under equipment unless it is blocked securely. Do not allow debris, grease or oil to build up on any deck or platform.
6. Use personal protection devices such as eye, hand, and hearing protectors, when performing any service or maintenance work.
7. Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts **must** be used to restore your equipment to original specifications. The manufacturer will not be responsible for injuries or damages caused by use of unapproved parts and/or accessories.
8. A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment
9. Periodically tighten all bolts, nuts and screws and check that all cotter pins are properly installed to ensure unit is in a safe condition.
10. When completing a maintenance or service function, be sure all tools, parts, and service equipment are removed from shredder, and make sure all safety shields and devices are installed before placing unit in service.

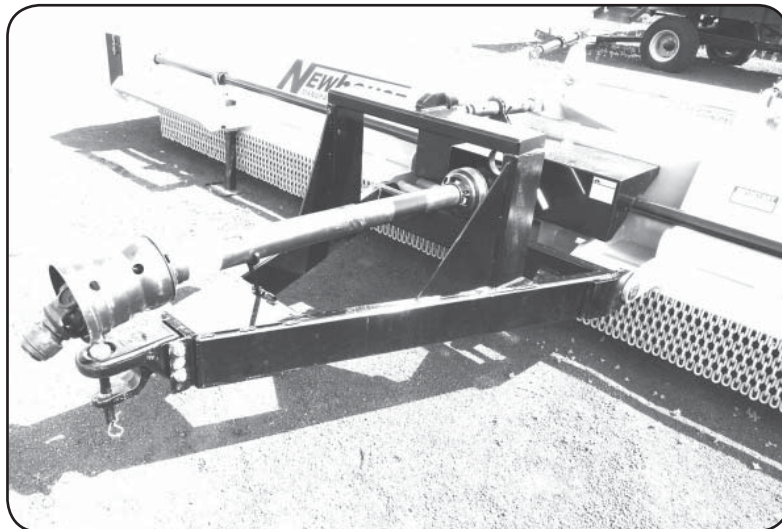


3 SET-UP & ASSEMBLY

3.1 ATTACHING PULL HITCH

This is a two person job.

- Start by making sure machine is secured on solid ground.
- Hang hitch from a hoist or forklift using an approved lifting chain or strap.
- Position hitch in place, use 1 ¼" lower mounting pins to attach hitch to lower mounts. Use flat washers provided to center hitch.
- Secure pins using provided lock pins.
- Next mount upper ratcheting turnbuckle or hydraulic cylinder (optional) to upper hitch mount. Be sure to use the provided 1 ¼" to 1" bushing to take up the slack in the upper hitch mount.
- If you have the cylinder option, run the remote hoses through the ring on the hitch to keep the hoses out of the PTO.



3.2 ATTACHING 3-PT. HITCH TO TRACTOR

This machine is set up to hook to a Cat. 3 standard or narrow tractor with a quick attach hitch installed. If you are hooking directly to the tractor without a quick attach unit, pay close attention to PTO length and you may need to use a spacer to take up excess space on the lower pins.

Before attaching make sure lower 1 7/16" pins are installed on the 3-point hitch and the locking pins are securely in place. Make sure flat spot on 1 7/16" lower pins are lined up with stops on hitch, you should not be able to spin the pin when it is correctly installed.

If you are doing a fully mounted hitch system make sure you have the upper 3-point pin installed on the 3-point hitch. If you are doing a semi mounted hitch, leave the upper pin out.

Hook tractor up, make sure all hooks and pins are fully engaged.

3.3 ATTACHING HYDRAULICS TO TRACTOR

This machine will be supplied with 2 or 3 sets of remotes depending on options.

The ½" hoses are for the conveyor and should be hooked to a remote that can be locked into the on position. There is a check valve that will only allow the conveyor to run in the forward position.

The ¾" hoses are for the rear cylinder/cylinders. These are used to raise and lower the back of the shredder for transport and height adjustment.

If you have a pull hitch and ordered the cylinder lift option for the pull hitch, you will have another set of ¾" hoses. These will be used to raise and lower the front of the machine for transport and height adjustment.

3.4 PTO ATTACHING & LENGTH DETERMINATION

Making sure you have the proper length PTO is critical to the safe operation of this shredder. Too short and it can come apart when lifting or ruin the splines on the PTO, too long and it can bottom out and potentially ruin the PTO, gearbox and/or tractor PTO shaft.



It is the owners responsibility to make sure the PTO is the proper length before operating the shredder.

PULL TYPE HITCH -

Be sure to liberally spray both splined ends of the PTO with a silicone based lubricant prior to attaching to the shredder or tractor. The PTO that is sent with this machine is set up to work with most tractors. The 1 ⅜" 21 spline pull type is set up for a 16" drawbar, the 1 ¼" 20 spline pull type is set up for a 21" drawbar. There is enough overlap in the PTO to allow for 2" variance in drawbar length.

Once the PTO is hooked up to the tractor, turn the tractor to the maximum turn each direction, watching the PTO carefully to make sure it has plenty of play. The PTO requires a minimum of 20% overlap to operate properly. **NEVER** operate PTO with less than 20% of spline overlap, serious damage can occur. Watch very closely to make sure the PTO has at least 2" off slip left in it at all times throughout the turn. Never operate the shredder if the PTO has the capability of bottoming out. This will cause serious damage to the PTO, gearbox and/or the tractor. **This will not be covered by the manufacturer's warranty.**

3.4 PTO ATTACHING & LENGTH DETERMINATION (CONTINUED)

3-POINT LIFT HITCH -

Be sure to liberally spray both splined ends of the PTO with a silicone based lubricant prior to attaching to the shredder or tractor.

This hitch is set up for use with a Cat. 3 tractor with a Cat. 3 quick attach hitch installed. The PTO length should work on most tractors with a Cat. 3 quick hitch and many without one, however due to the many different tractors out there it is impossible to make one PTO length to fit all makes and models, therefore it is the owner's responsibility to make sure the PTO will work properly with his/her tractor and hitch combination.

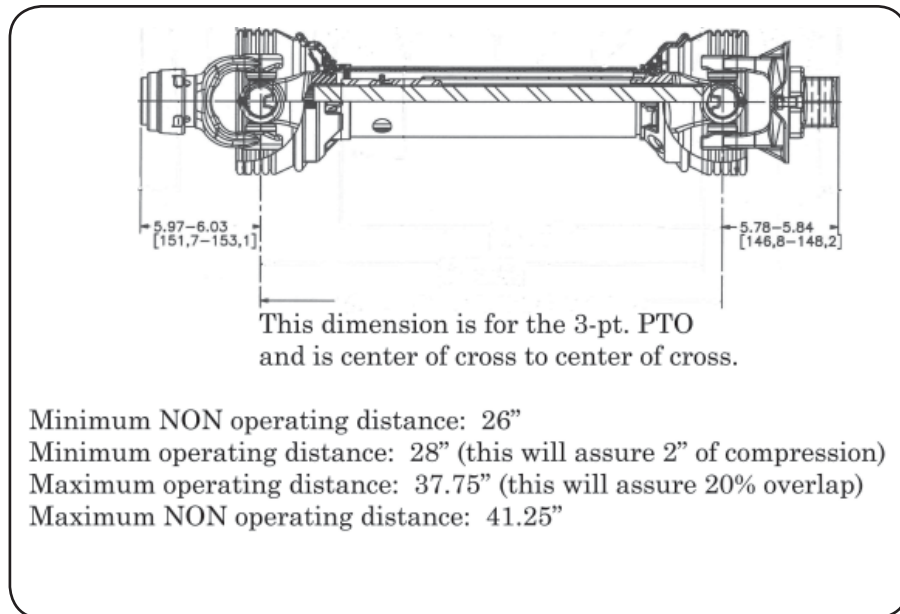
Failure to use a proper length PTO can result in serious damage to the PTO, gearbox and/or tractor. **This will not be covered by the manufacturer's warranty.**

Below is a diagram showing the minimum and maximum length the PTO must stay in throughout the full range of the 3-point lift. Take extra care checking this distance and make certain that you do not go out of this specified range.

Proper PTO length is the responsibility of the owner, not the manufacturer. If you need a shorter or longer PTO you can have the one sent with the machine changed by an approved driveline repair shop at your expense and this will not void the manufacturer's warranty. Contact your dealer for an approved place.

If you do end up needing a longer or shorter PTO remember these 2 rules:

1. Always have a minimum of 5" overlap at the operating height.
2. Always have at least 1" of movement even at its closest compression spot.



4 OPERATING INSTRUCTIONS

4.1 START UP PROCEDURE

Hook shredder up to tractor using instructions in previous section. Be sure to do a walk around inspection of the machine looking for any damage to machine, loose or missing bolts and fasteners, leaks or any other abnormal condition.

Fix or repair anything found prior to operating machine.

Do your daily maintenance routine (see maintenance section).

Make sure overrunning clutch is working properly and spins freely.

Make sure PTO is hooked up correctly and that cutting height is set according to previous section. This includes setting the max raising height to no higher than is necessary to make your turns without hitting the ground. Be sure to keep extra shear bolts in the tractor at all times, always replace them as a set.

Lower machine to a couple inches higher than the set cutting height.

Bring tractor down to an idle and engage the PTO.

Let the PTO engage fully, listen for any noises that might indicate a problem (such as a bad bearing or the flails hitting metal) also feel for excessive vibration.

If something is wrong shut down the machine, secure it safely, identify and fix the problem.

If no problems are detected slowly bring the machine to full operating speed (1000 RPM on PTO).

Again feel for excessive vibration and fix any problems prior to operating the machine.

Lower machine to set cutting height and start shredding.

Go slowly at first and gradually raise your speed until you get a good combination of acceptable shredding and ground speed.

4.2 MAKING TURNS

If your machine is equipped with a pull hitch and CV PTO then just slow down using gears and make your turns keeping the PTO engaged.

If you are using a 3-point hitch, then lift the shredder slightly, idle down the tractor, lift machine just high enough to make your turn, lower machine to cutting height and bring back to full PTO RPM.

As long as you idle down and have the lift height only high enough to make your turn it should not be necessary to shut down the PTO. The PTO can operate at a 50° angle on the yokes as long as you are at low RPM and the drum is not in contact with any material (free running). Check this by having the machine on level ground, lifting shredder to a height that is just enough to turn without contacting the ground, shutting down the tractor and locking out the PTO, then taking an angle finder and checking the angle of the PTO, if the angle exceeds 50° then you should shut the PTO off while lifting to make your turns.

If you shut the PTO down when you make your turns be sure to re-engage it at an idle and with no material against the drum. Serious damage can occur if you engage the PTO at high RPM or when material is against the drum.

4.3 SHUT DOWN PROCEDURE

Lift shredder a couple inches higher than cutting height, bring tractor down to an idle and shut off the PTO.

Let the shredder drum come to a complete stop.

You can now lift the shredder to maximum 3-point lift for transport.

When you have reached where you will store the shredder for the night, drop the parking stands down to their storage position and lower machine until they are touching the ground.

Unhook the PTO from the tractor, even if you are not disconnecting the tractor from the machine. This will assure that the PTO is greased and checked from smooth movement in and out prior to the next time you operate the machine (See Maintenance section for more details).

Clean off any dirt or material build up around the PTO and gearbox.

Check machine for any damage, loose or missing bolts and fasteners, broken or missing flails etc.

Fix anything found prior to operating the machine again.

Always pay particular attention to the two shear bolts on the PTO, keep them tight and replace them if any visible damage is evident.

4.4 END OF SEASON STORAGE

Thoroughly clean the entire shredder.

Remove any foreign material from around all shafts (particularly the drum shafts).

Lubricate the machine completely regardless of schedule.

Check gearbox oil and fill to recommended level.

Paint any parts that have missing paint (this will greatly reduce rust build up during the off season).

Unhook the PTO and store it inside, clean it and grease it, spray both spline ends liberally with a silicone based lubricant.

Put a light coating of grease on the splines of the input shaft on the gearbox.

Store the machine inside if possible.

4.5 BEGINNING OF SEASON

Review and follow your owner's manual.

Drain and refill the gearbox with 80-90W gearbox oil (see maintenance section for fill procedure).

Grease machine completely (all grease points).

Check all bolts and fasteners, tighten any loose parts and replace any missing ones.

Do a thorough inspection of the entire machine, replace any missing, worn or damaged parts.

Replace worn flails and check machine for balance, have the machine re-balanced if necessary.

Although it is not required, Gearmore/Newhouse recommends replacing the center drum bearings at least once every two seasons. As this requires partially removing the drums and because of the time this takes, it is better to replace as a preventative measure. Replacement of the outside drum bearings at this time is recommended as well.

5 SPECIFICATIONS

MODEL:	C1520	C2020
Cutting Width:	180"	239"
Overall Width:	198"	266"
Cutting Height:	2" to 10"	2" to 10"
P.T.O. RPM:	1000	1000
Drum RPM/Tip Speed:	1400/123 mph	1400/123 mph
Number of Flails:	102	136
Number of Drive Belts:	6	8
Gearbox Rating:	280 H.P.	280 H.P.
Approx. Weight:	7190#	9255#
Drum Diameter/ Thickness:	10 ¾" O.D. ½" Wall	10 ¾" O.D. ½" Wall
Drum Shaft Diameter:	2 ⅜" Alloy	2 ⅜" Alloy
No. of Flail Pins (3 Flails)	34	44
No. of Flail Pins (2 Flails)	0	0
No. of Flail Pins (1 Flail)	0	4

6 MAINTENANCE

6.1 LUBRICATION

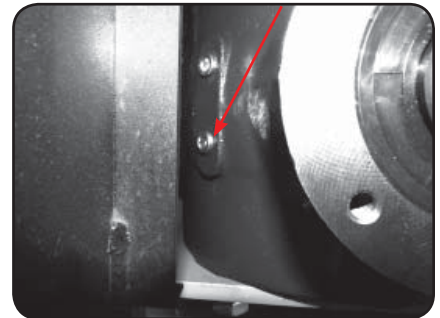
This shredder has many grease points and as with any machine the greasing is never a "set in stone" procedure.

The frequency of greasing has many variables such as conditions, length of time running between breaks and environment.

Because of this the greasing intervals are just a rough guideline and may need to change depending on each given setting.

GEARBOX:

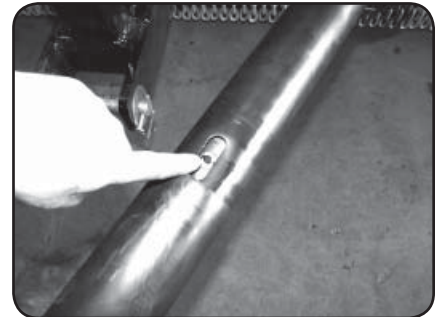
The gearbox comes from the factory with the recommended amount of oil. It should be checked after the ***first 8 hours*** and then ***every 40 hours*** after. This box uses standard **80-90W gear oil**. Fill box till oil slowly drips out of lower plug hole (see picture A). **IMPORTANT: Gearbox oil should be changed once a year.**



Picture A

PTO:

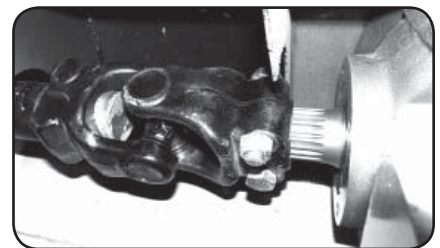
The 3-point lift hitch PTO should be greased ***every 8 hours*** of operation (see picture B). Grease PTO with a couple pumps of grease then slide the PTO in and out a few times to distribute grease. Make sure PTO slides freely, if it cannot be slid in and out by hand, pull the PTO apart and clean thoroughly with solvent and check for damaged splines or bent parts, grease and re-assemble PTO. If you still cannot slide fully in and out by hand **DO NOT USE PTO.** Take it to an authorized repair shop to have it fixed. Severe damage can be caused by using a PTO that is not operating properly. The CV PTO for the pull hitch is the same except it has **extra grease points on the CV.** All grease intervals are the same.



Picture B

CROSS JOINTS ON DRIVESHAFTS:

There are yoke and u-joint assemblies clamped onto the output shafts of the gearbox. These are located underneath the gearbox shield (see picture C). Each yoke assembly has one 44 series u-joint that needs ***one pump of grease every 24 hours of operation.***

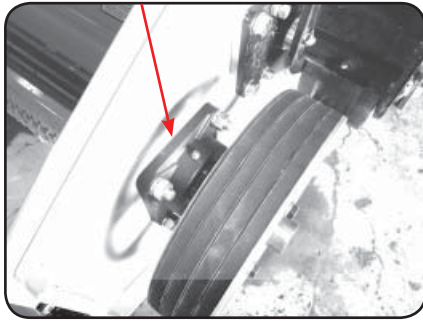


Picture C

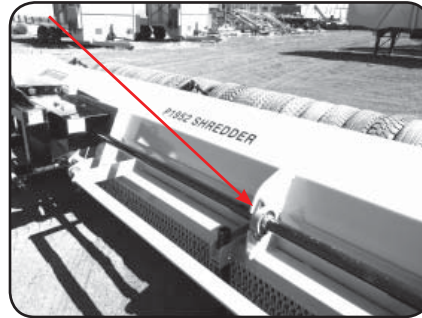
6.1 LUBRICATION (CONTINUED)

CROSS DRIVE SHAFT BEARINGS:

These bearings are the 2 bolt 2" flange bearings located between the gearbox and end plates (see picture D) and the 2" 4 bolt lock collar bearings located at the side plates underneath the removable shield (see picture E). These should be **greased every 24 hours of operation, 1 pump per bearing.**



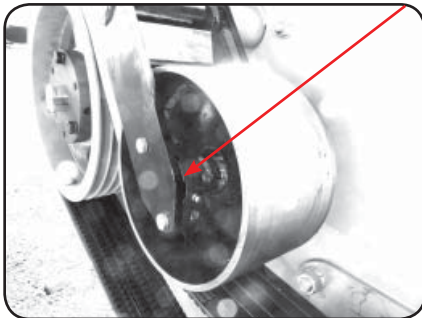
Picture D



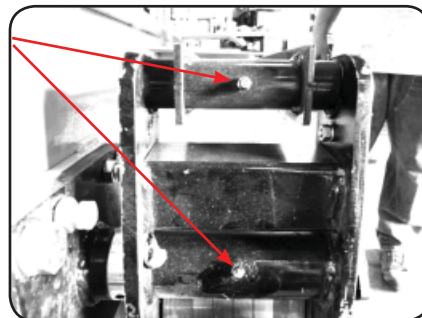
Picture E

BELT TENSIONER AND LINKAGE:

There are two 1" flange bearings that need a very small amount of grease **every 24 hours of operation.** These bearings are located on each side of the h-frame, they hold the idler wheel onto the frame (see pictures F). There are 2 grease points on the tensioner linkage, one on the pivot shaft and one on the upper spring linkage assembly (see picture G). These should be greased **every 8 hours of operation.**



Picture F



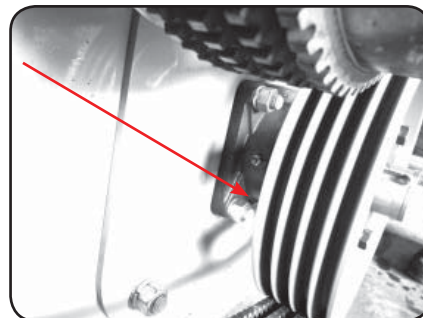
Picture G

OUTER AND INSIDE DRUM BEARINGS:

Timken® roller bearings are standard equipment that only need to be greased once **every 40 hours of operation, 2 pumps per bearing.** (see picture H)

CENTER DRUM BEARINGS:

These bearings are located in the center of the machine underneath the body. They hold up the drums in the center of the machine.



Picture H

MOLINE BEARING OPTION:

If you chose the Moline Bearing center and outside drum bearing option, the Moline Bearing only needs to be greased **once every 40 hours of operation.**

6.1 LUBRICATION (Continued)

REAR TIRE ROLLER ASSEMBLY:

If your machine is equipped with a rear tire roller assembly, there will be two 2" 4-bolt flange bearings per tire roller. These should be greased **every 24 hours of operation**.

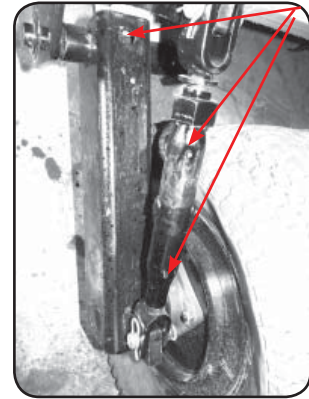
There will be 2 or 3 tire roller arms, each arm has 3 grease points, 2 on the adjustable turnbuckle and one on the pivot shaft (*see picture I*). These should be greased **every 8 hours of operation**.

RIGID ADJUSTABLE LEGS - If your machine is equipped with adjustable rigid legs, these have the same grease points as the tire roller arms shown in picture I.

The greasing intervals are the same, these rims are identified by the fact that they have hubs with 15" rims and tires on them. The wheel bearings should be checked **every 40 hours of operation** for proper tension and should be **repacked once a season**.

REAR SWIVEL LEGS - If your machine is equipped with rear swivel legs, there are the same 3 grease points as the arms listed above.

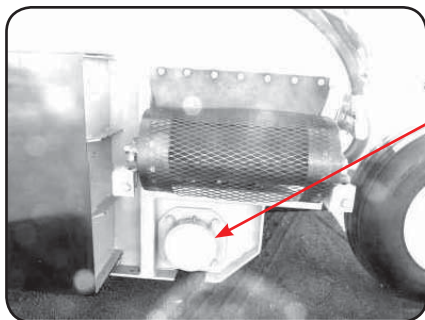
The greasing interval is the same as above. There are also 2 other grease points that are located on the round bearing pocket, these are used to grease the Timken bearings housed inside. These should be greased liberally **every 40 hours of operation**.



Picture I

CONVEYOR BEARINGS:

There are 4 bearings total on the conveyor, two pillow block units on the adjustable idler side and two 4-bolt flange bearings on the drive side. All 4 should be greased **once every 24 hours of operation (1 pump each)**.



REAR PIVOT TUBE:

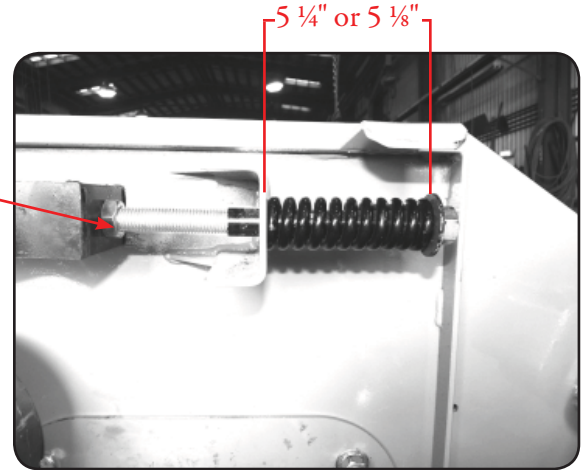
Grease the pivot point on the rear pivot tube (tire arm mounting tube) **every 8 hours of operation (2 to 3 pumps per zerk)**. Make sure to do both ends and the middle.

6.2 BELT TENSION

This machine is equipped with a spring loaded belt tensioner. It will maintain proper belt tension with only minor adjustments needed periodically. You should check belt tension ***after the first 8 hours*** of operation and then every ***24 hours of operation***. To check tension remove side shields and measure the compression of the spring, it should be compressed to 5 ¼" for 4 belts and 5 ⅝" for 6 belts from the edge of the spring to the outside of the washer.

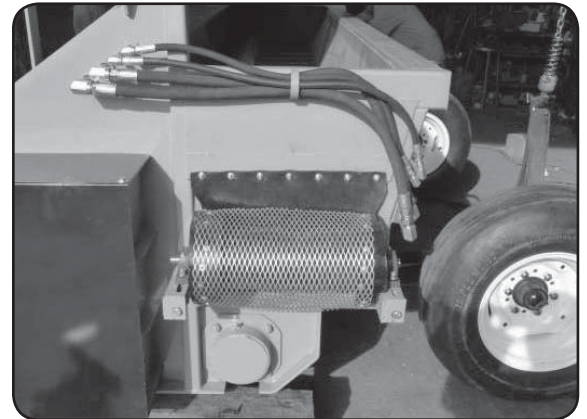
Before tightening belts check them for cracks, glazing, burnt and excessive wear. Replace belts if any of these conditions exist. Make sure to replace the belts as a set.

NOTE: Be sure to set jam nut after tensioning spring.



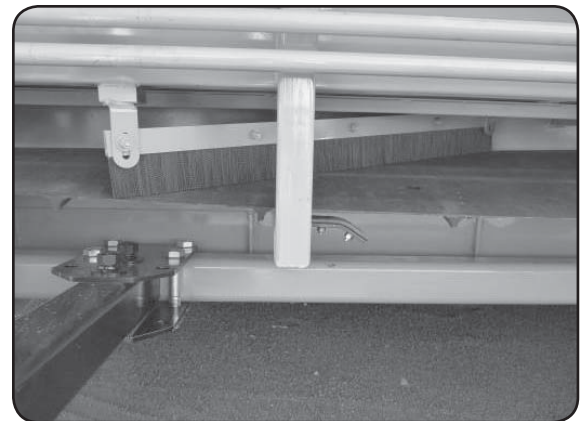
6.3 CONVEYOR BELT ADJUSTMENT

Loosen jam nut on both adjustment bolts, loosen all four bolts on pillow block bearings. Adjust each side being careful to turn each bolt the exact same amount (this will help assure proper tracking). Tension the belt to only as tight as is needed for the drive pulley not to slip on belt. This tension can vary greatly depending on conditions. Re-tighten the four bolts on the pillow block bearing and run the conveyor. If belt tracks to one side or the other, stop conveyor and adjust belt in small increments until the belt is tracking straight. If belt is tracking off on the drive pulley side, it is possible to adjust the bearing closest to the drum on the drive pulley; the holes are slotted slightly. Be very careful adjusting this bearing, as it is easy to get it out of alignment. Loosen the bolts on the bearing mounting plate (not the bearing itself) just enough to be able to move it by tapping it with a dead blow hammer. Make sure to mark its original position prior to loosening the bolts so you have a starting point to work with. Once adjustment is complete, tighten the four bolts back down.



6.4 CONVEYOR BRUSH ADJUSTMENT

Check this daily. Make sure brush stays in contact with belt. Once bristles have worn down to the end of the slotted adjustment, replace brush with one of the same type of stiffness and composition.



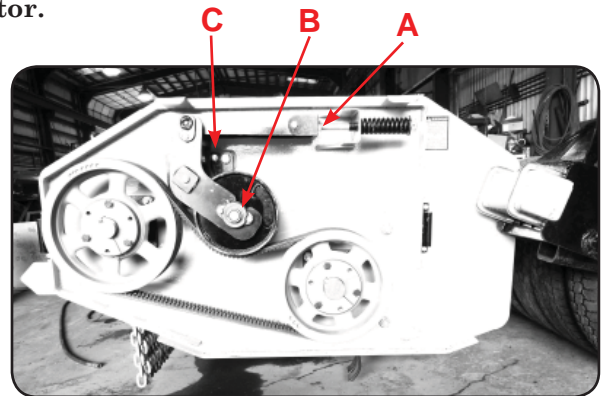
6.5 BELT REPLACEMENT

To replace belts on both 4 belt and 6 belt machines:



DANGER - Make sure machine is securely blocked into place and the PTO shaft is unhooked from the tractor.

1. Loosen jam nut on tensioner spring bolt (see ref. A).
Loosen tensioner spring until no pressure is on the belts.
2. Roll each belt off one by one until all are removed.
Check sheaves for damage.
3. Replace sheaves if any visible damage is evident.
4. Spin idler wheel by hand, the wheel should spin freely, if any roughness is evident then replace both 1" 2-bolt flange bearings on the idler wheel (see Ref. B).
5. Check to make sure idler wheel is square to the sheave using a straight edge. Adjust using the 4 set bolts on the idler base plate (see Ref. C). Be sure to lock set bolts in place using jam nuts.
6. Roll each belt onto sheaves one at a time.
7. Tighten spring down using instructions on previous page (*Belt Tension*), the initial spring compression is 5" for 4 groove and 4 7/8" for 6 groove. Switch to spring compression dimensions listed on previous page (*Belt Tension*) after 8 hours of operation.
8. Roll drum by hand several times then check spring compression again, adjust if needed.
9. Lock jam nut.
10. Check belt tension ***after first 8 hours*** of operation, then ***every 24 hours*** after.



6.6 FLAIL REPLACEMENT

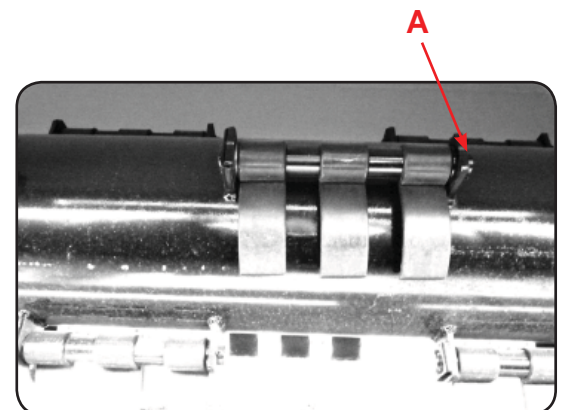
Disconnect PTO from tractor. Block machine up to a sufficient height as to have safe access to flails.

NOTE: Always replace flails in sets. If you replace a flail make sure to replace the flail that is 180° apart from it. This is to help maintain proper drum balance.

Use a small punch or a 1/4" bolt to knock out the 1/4" spiral roll pin (see Ref. A). Pull flail pin out of mounts until you can remove old flail. Replace flail or flails making sure to keep both pipe spacers and both 1" heavy machine washers in place. Make sure curved part of flails are cupped towards the front of the machine. Install a new 1/4" spiral roll pin into flail pin, make sure spiral pin fits tightly, if it does not, replace flail pin.

Replace flails 180 degrees around using the same procedure.

Once all worn out flails are replaced, test run machine to check for vibration. If excessive vibration is evident the drum will need to be dynamically balanced.



NOTE: When replacing flails this is an excellent time to check the inside of the machine out. Look for any damage, including the flails, vine guards, drum, bearings, and welds. Rotate drum checking for any roughness or noise from bearings. Replace any damaged parts and weld any cracks before running machine. Thoroughly clean out from around the bearings and drum shafts at this time.

6.7 GENERAL MAINTENANCE

The following is a list of general things to watch for while operating this shredder. Replace or repair anything you may find damaged before operating machine.

- Check machine daily for any visible damage. Do a thorough walk around before running the machine for the day. If any damage is evident fix or replace as needed before operating machine.
- Spin the gearbox output shaft several times to make sure overrunning clutch is operating smoothly.
- Always check the PTO to make sure it slides smoothly throughout its complete range of movement.
- Check all bolts and fasteners daily, tighten or replace as needed. It is particularly important to check bolts and fasteners over the first 24 hours of operation.
- Clean the machine often, keep material off of the gearbox and PTO. Keep areas around bearings as clean as possible.
- Do not over grease bearings, most bearings take very little grease to run properly, over greasing is as damaging to bearings as under greasing.
- If excessive vibration is evident, identify problem and repair immediately.
- Check bearing for damage, watch for leaking seals, replace as soon as possible. It is better to replace a worn bearing before it completely fails.
- Check for broken or missing flails and flail mounts. Replace as soon as possible to prevent additional damage from occurring.
- Check chain deflectors on the front of the machine daily. Replace any missing chains immediately. The chain is 7 links of standard $\frac{3}{8}$ " proof coil chain.
- Watch for gearbox leaks. If a leak is evident, get it repaired as soon as possible. Never let gearbox run out of oil. Never fill gearbox higher than lower plug, too much oil is as damaging as too little.
- Check mounting pins daily for visible damage, replace immediately if damaged.
- Replace any missing shields and warning decals.
- Check for hydraulic leaks and damaged hoses, replace before operating machine.
- Check conveyor belt tracking daily and adjust if needed.
- Check conveyor belt for damage, pay particular attention to the lacing, repair or replace as needed.

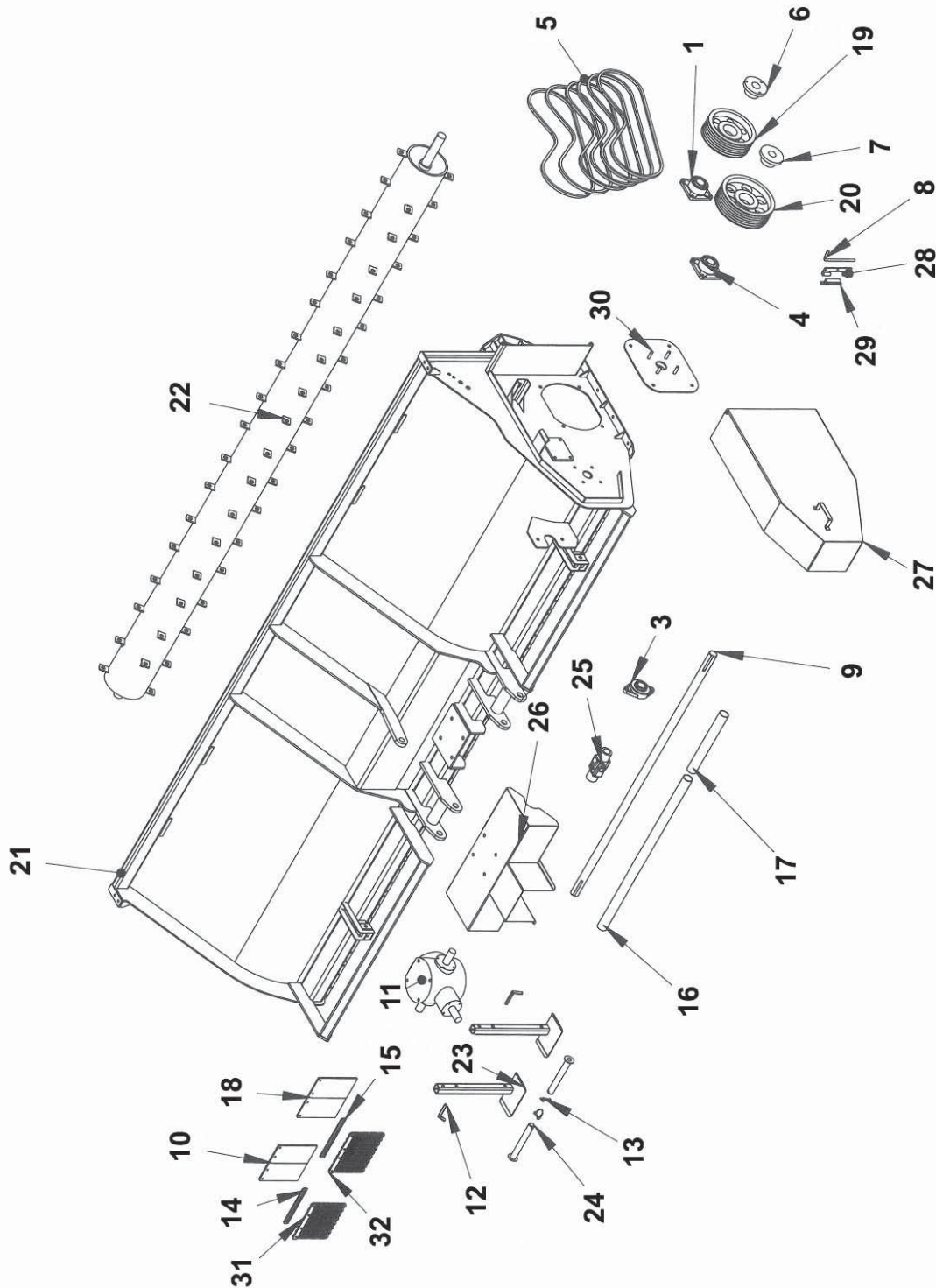
7 PARTS

7.1 ORDERING PARTS

To order a part, you can call your local Gearmore/Newhouse dealer. Please have the model number, serial number (serial number is on a tag close to the gearbox on the passenger side, it is also stamped into the frame near the tag), part number of each item needed (if known) and quantity of each item.

Make sure to inspect the parts at time of receipt and immediately call your dealer if any damage is evident. Damaged parts will only be accepted for refund if we are notified at the time of receipt of shipment.

7.2 MAIN BODY C1520

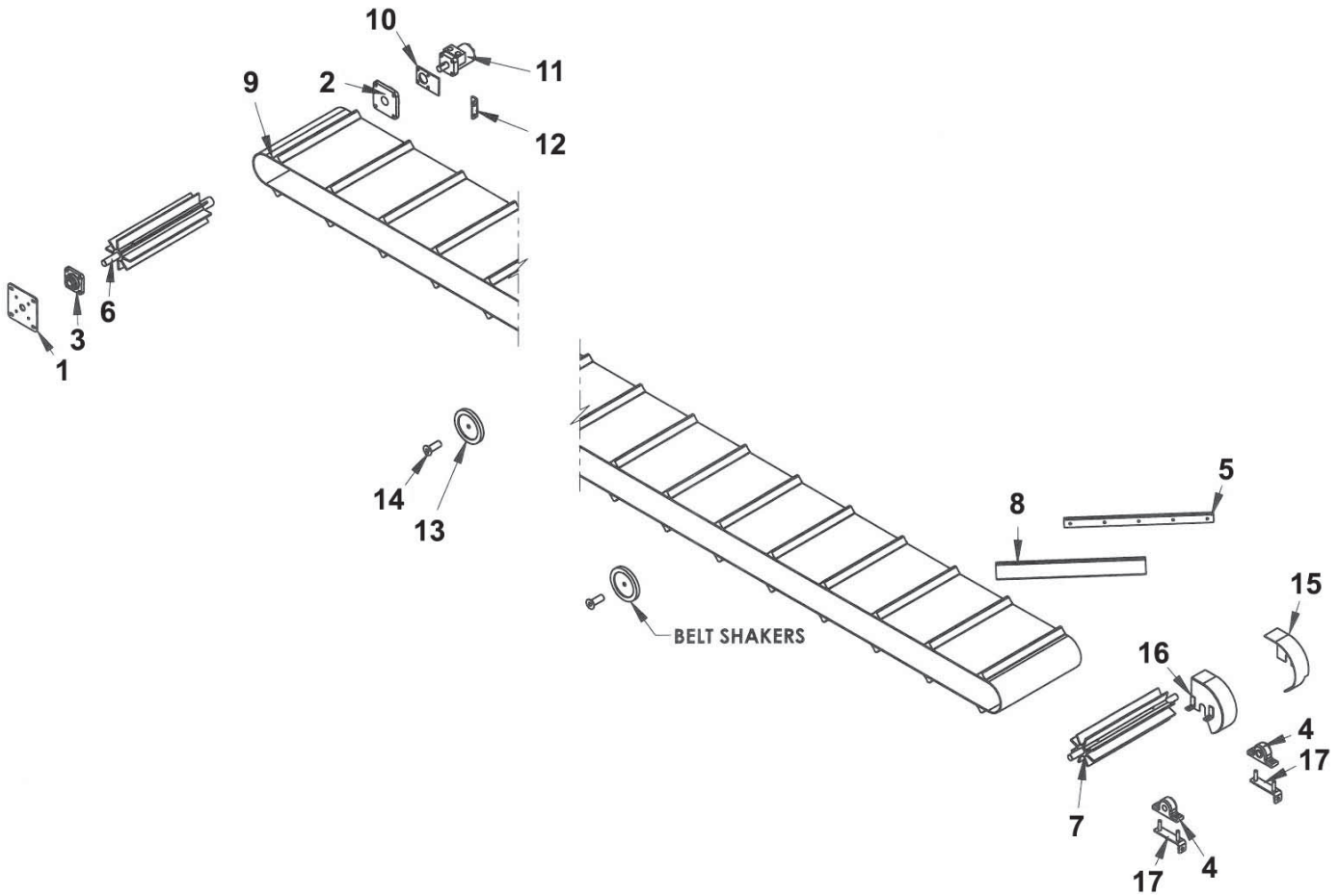


7.2 MAIN BODY C1520 WINDROW SHREDDER (PARTS LIST)

<u>REF #</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	NANF211-35	Bearing Flange, 2 3/16", 4 Bolt, Lock Collar w/L3 Seal
1*	19311203	Moline Bearing Flange, 2 3/16", 4 Bolt, Lock Collar w/L3 Seal
3	UCFL211-32	Bearing Flange, 2", 2 Bolt, Set Screw
4	NANF211-32	Bearing Flange, 2", 4 Bolt, Lock Collar
5	5VX930	Belt, Shredder Driveline
6	BUSH-2187E	Bushing, 2 3/16" E
7	BUSH-2000E	Bushing, 2" E
8	SHR-1178	Shield Pin
9	C1520-2028	Driveshaft
10	SHR-7941	Deflector Belt
11	S2155080005	Gearbox Bondioli w/Overrunning Clutch 1 to 1.25
12	HP6253WC	Pin, Hitch For Jackstand
13	P38PTL	Pin, Lock, 3/8" x 1 1/2"
14	SHR-7947	Spacer Rubber Belting SHR-7940
15	P1520-2053	Spacer Rubber Belting P1520-2051
16	C1520-2027	Driveshaft Guard, Inner
17	C1520-2029	Driveshaft Guard, Outer
18	C1520-2052	Deflector Belt
19	PU6-5V1250-E	Sheave, 6 Groove 5V 12.5" Dia.
20	PU6-5V1400-E	Sheave, 6 Groove 5V 14" Dia.
21	O1530-BODY	O1530 Body Assembly
22	C1510-0203	Drum Assembly, C1510
23	SHR-0036	Parking Stand Assembly
24	SHR-0163	3-Point Bolt Pin Assembly
25	SHR-0313	U-Joint Assembly, Bondioli Gearbox
26	SHR-0712	Shield, Gearbox, Bondioli
27	SHR-0952	Door Shield Assembly
28	SHR-0165	Shield Mount Assembly, Large
29	SHR-0316	Shield Mount Assembly
30	SHR-0221	Drum Bearing Plate Assembly
31	SHR-0867	Chain Deflector Assembly Standard
32	C1520-CHAIN	Chain Guard C1520

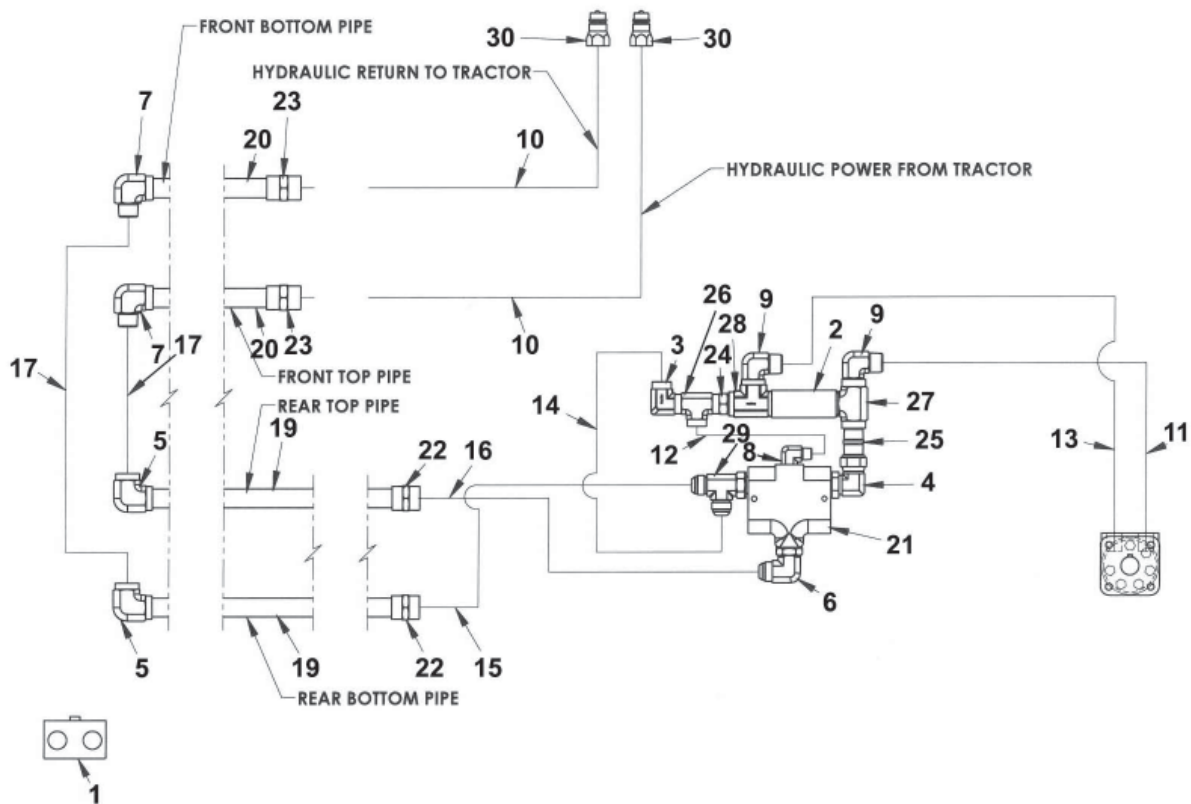
* Optional Bearing Configuration

7.3 CONVEYOR C1520



<u>REF #</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	SHR-6812	Bearing Plate, Drive Side Roller, Front
2	SBF208-24	Bearing Flange, 4 Bolt 1" Set Screw
3	UCF205-16	Bearing Flange, 4 Bolt 1" Set Screw
4	UCP205-16	Bearing Pillow Block, 1" Set Screw
5	SHR-0685	Belt Brush Assembly
6	SHR-0690	Belt Roller, Drive Side
7	SHR-0692	Belt Roller, Idler Side
8	1TCJ1	Belting Brush, 24" Long x 3" Tall
9	C1510-0210	Conveyor Belting Complete
10	SHR-6824	Hydraulic Motor Mount Plate
11	158-1013	Hydraulic Motor 12CI
12	SHR-6826	Motor Hold Down Plate
13	935R	Roller 6" Dia. x 5/8" Shaft Hole
14	825	Roller Shaft 2 3/4" Long x 5/8" Hole
15	SHR-0696	Shield Assembly, Belt Cover, Back
16	SHR-0696	Shield Assembly, Belt Cover, Front
17	SHR-0694	Slack Adjuster Assembly, Conveyor Belt

7.4 CONVEYOR HYDRAULICS C1520



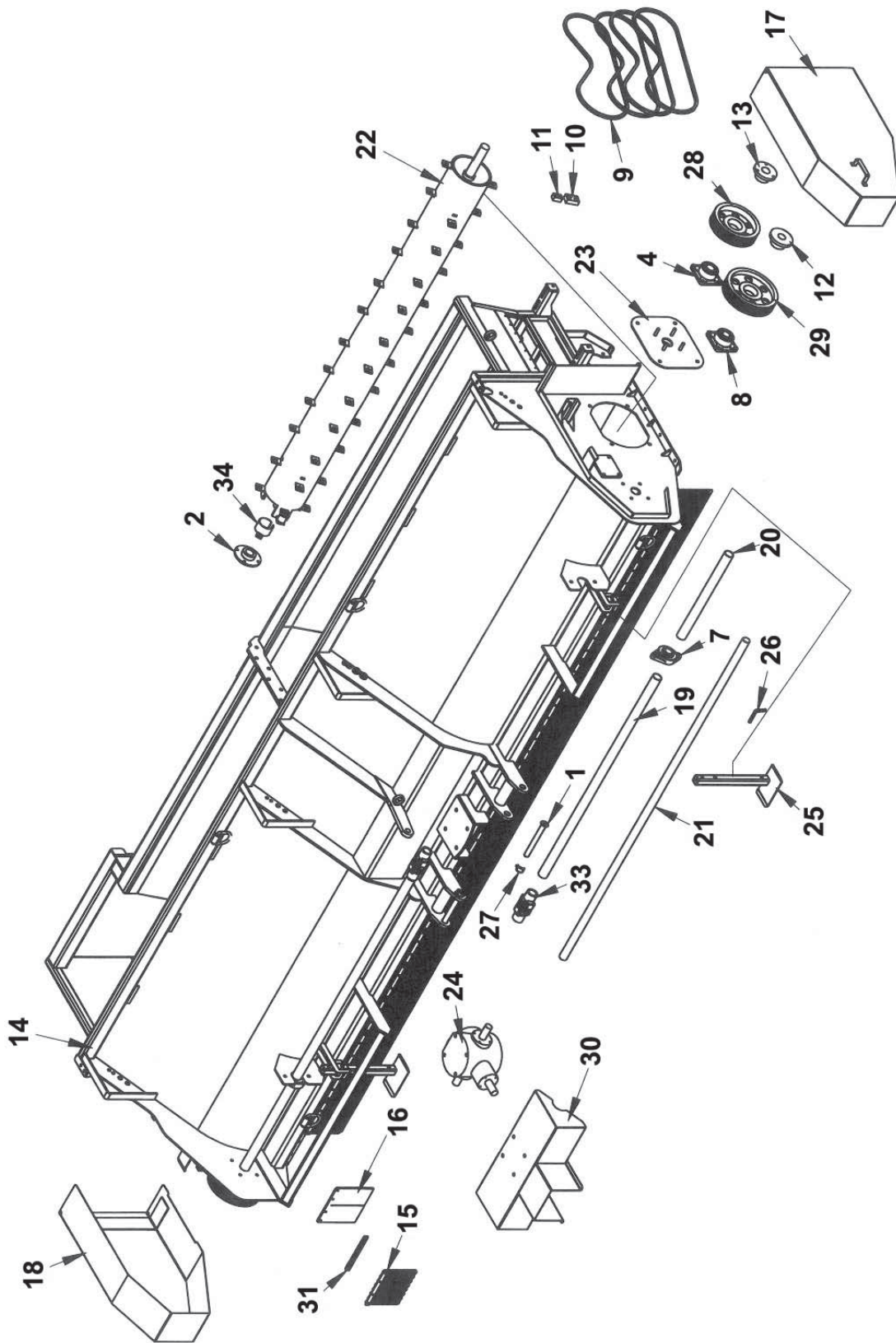
REF

PART NO.

DESCRIPTION

1	3252T12	Bracket Pipe 3-4
2	C1200S65	Hydraulic Check Valve 25 GPM - 65 PSI
3	5502-08-08	Hydraulic Elbow 90° 1/2" Male Pipe to 1/2" Female Pipe
4	6805-12-12	Hydraulic Elbow 90° 3/4" Adjustable O-Ring to 3/4" Female Pipe
5	5504-12-12	Hydraulic Elbow 90° 3/4" Female Pipe to 3/4" Female Pipe
6	6801-12-12	Hydraulic Elbow 90° 3/4" Male Tube to 3/4" Adjustable O-Ring
7	2502-12-12	Hydraulic Elbow 90° 3/4" Male Tube to 3/4" Male Pipe
8	2501-06-06	Hydraulic Elbow 90° 3/8" Male Tube to 3/8" Male Pipe
9	2501-10-12	Hydraulic Elbow 90° 5/8" Male Tube to 3/4" Male Pipe
10	SHR-0670	Hydraulic Hose 1/2" x 164", 8MP-8KW to 8MP-8KW
11	SHR-0672	Hydraulic Hose 1/2" x 18", 10-OR-8KW to 10FJ-8KW
12	SHR-0674	Hydraulic Hose 1/2" x 20", 6FJ-8KW to 8MP-8KW
13	SHR-0671	Hydraulic Hose 1/2" x 25", 10-OR-8 KW, 10FJ-8KW
14	SHR-0673	Hydraulic Hose 1/2" x 28", 12FJ-8KW to 8MP-8KW
15	SHR-0678	Hydraulic Hose 3/4" x 13" 12MP-12KW to 12FJ-12KW
16	SHR-0677	Hydraulic Hose 3/4" x 15" 12MP-12KW to 12FJ-12KW
17	SHR-0676	Hydraulic Hose 3/4" x 37" 12MP-12KW to 12FJ-12KW
18	158-1013	Hydraulic Motor 12CI
19	C1520-2051	Hydraulic Pipe 3-4 SCH40-122 1/2" Back
20	C1520-2050	Hydraulic Pipe 3-4 SCH40-69 1/2" Front
21	BG512-12SAF	Hydraulic Priority Valve Non Adjustable
22	5000-12-12	Hydraulic Straight 3/4" Female Pipe to 3/4" Female Pipe
23	5000-12-8	Hydraulic Straight 3/4" Female Pipe to 3/8" Female Pipe
24	5404-12-8	Hydraulic Straight 3/4" Male Pipe to 1/2" Male Pipe
25	5404-12-12	Hydraulic Straight 3/4" Male Pipe to 3/4" Male Pipe
26	5605-08-08-08	Hydraulic Tee 1/2" Female Pipe to 1/2" Female Pipe to 1/2" Female Pipe
27	5604-12-12-12	Hydraulic Tee 3/4" Female Pipe to 3/4" Female Pipe to 3/4" Male Pipe
28	5602-12-12-12	Hydraulic Tee 3/4" Male Pipe to 3/4" Female Pipe to 3/4" Female Pipe
29	6804-12-12-12	Hydraulic Tee 3/4" Male Tube to 3/4" Adj. O-Ring to 3/4" Male Tube
30	8010-4	Pioneer Coupler

7.5 MAIN BODY C2020

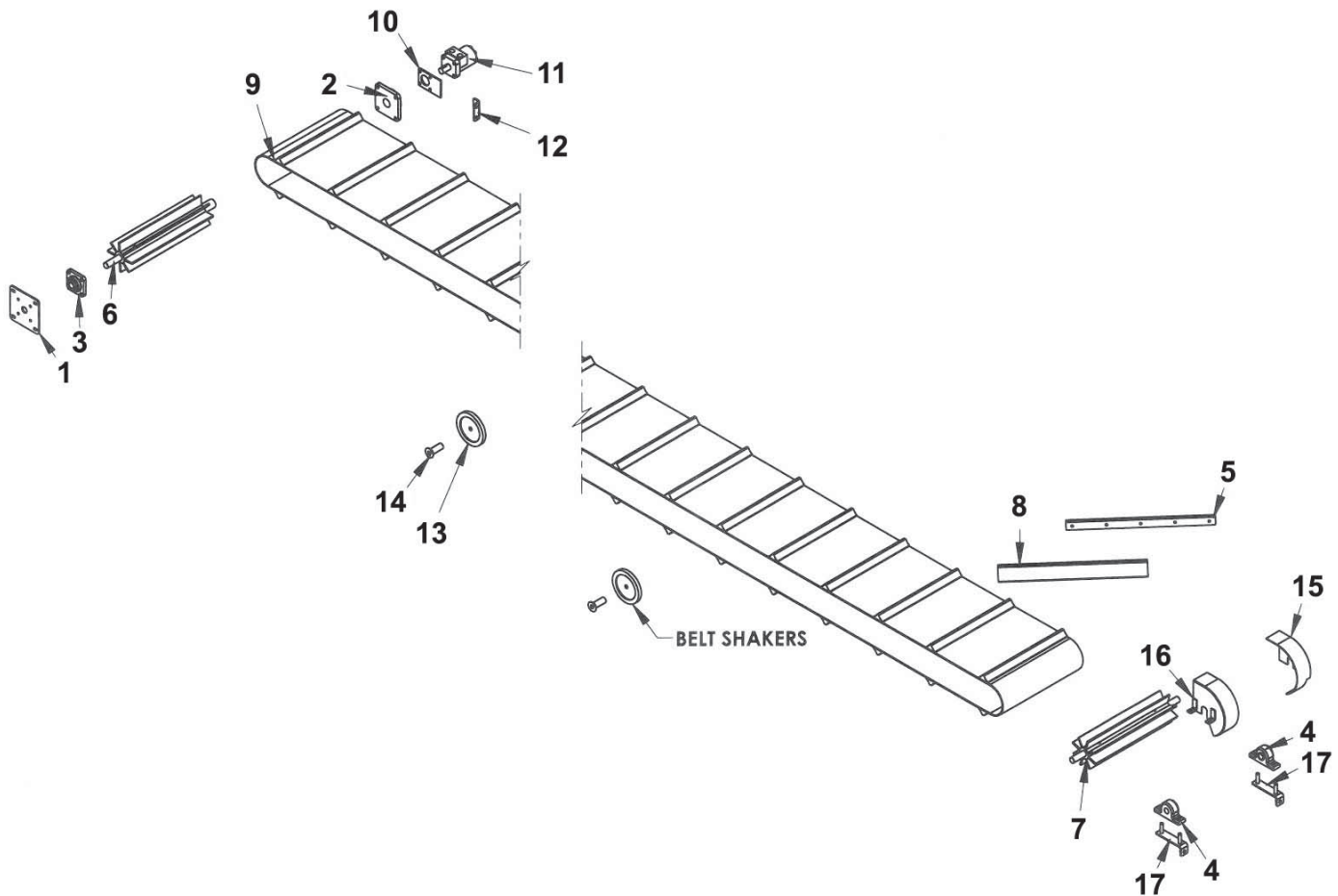


7.5 MAIN BODY C2020 (PARTS LIST)

<u>REF #</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	SHR-0163	3-Point Bolt Pin Assembly
2	UCFCF211-35L3	Bearing Flange 4-Bolt Piloted, 2 3/16" w/L3 Seal
2*	19331203	Moline Bearing Flange 4-Bolt Piloted, 2 3/16" w/L3 Seal
3	SHR-6812	Bearing Plate, Drive Side Roller, Front
4	NANF211-35L3	Bearing Flange, 2 3/16", 4-Bolt, Lockcollar w/L3 Seal
4*	19311203	Moline Bearing Flange 2 3/16", 4-Bolt, Lockcollar w/L3 Seal
7	UCFL211-32	Bearing Flange, 2", 2-Bolt Set Screw
8	NANF211-32	Bearing Flange, 2", 4-Bolt, Lockcollar
9	5VX930	Belt, Shredder Driveline
10	3252T12	Bracket Pipe 3-4
11	3252T9	Bracket Pipe 3-8
12	BUSH-2000E	Bushing 2", E
13	BUSH-2187E	Bushing 2 3/16", E
14	C2020-BODY	C2020 Body Assembly
15	SHR-0867	Chain Deflector Assembly Long
16	SHR-7941	Deflector Belt
17	SHR-0952	Door Shield Assembly, Driver Side
18	SHR-0952	Door Shield Assembly, Passenger Side
19	C2010-2025	Drive Shaft Guard, Inner
20	C2010-2024	Drive Shaft Guard, Outer
21	C2010-2018	Driveshaft C2010
22	C2010-0001	Drum Assembly C2010
23	SHR-0221	Drum Bearing Plate Assembly
24	S2155080005	Gearbox Bondioli w/Overrunning Clutch 1 to 1.25
25	SHR-0036	Parking Stand Assembly
26	HP6253WC	Pin, Hitch For Jack Stand
27	P38PTL	Pin, Lock 3/8" x 1 1/2"
28	PU45V1250E	Sheave 4 Groove 5V 12.5" Dia.
29	PU45V1400E	Sheave 4 Groove 5V 14" Dia.
30	SHR-0712	Shield, Gearbox Bondioli
31	SHR-7901	Spacer Rubber Belting SHR-7940
32	SHR-1113A	Tensioner Retainer Cap
33	SHR-0313	U-Joint Assembly, Bondioli Gearbox
34	SHR-0022	Vine Guard Assembly
35	SHR-6826	Motor Hold Down Plate

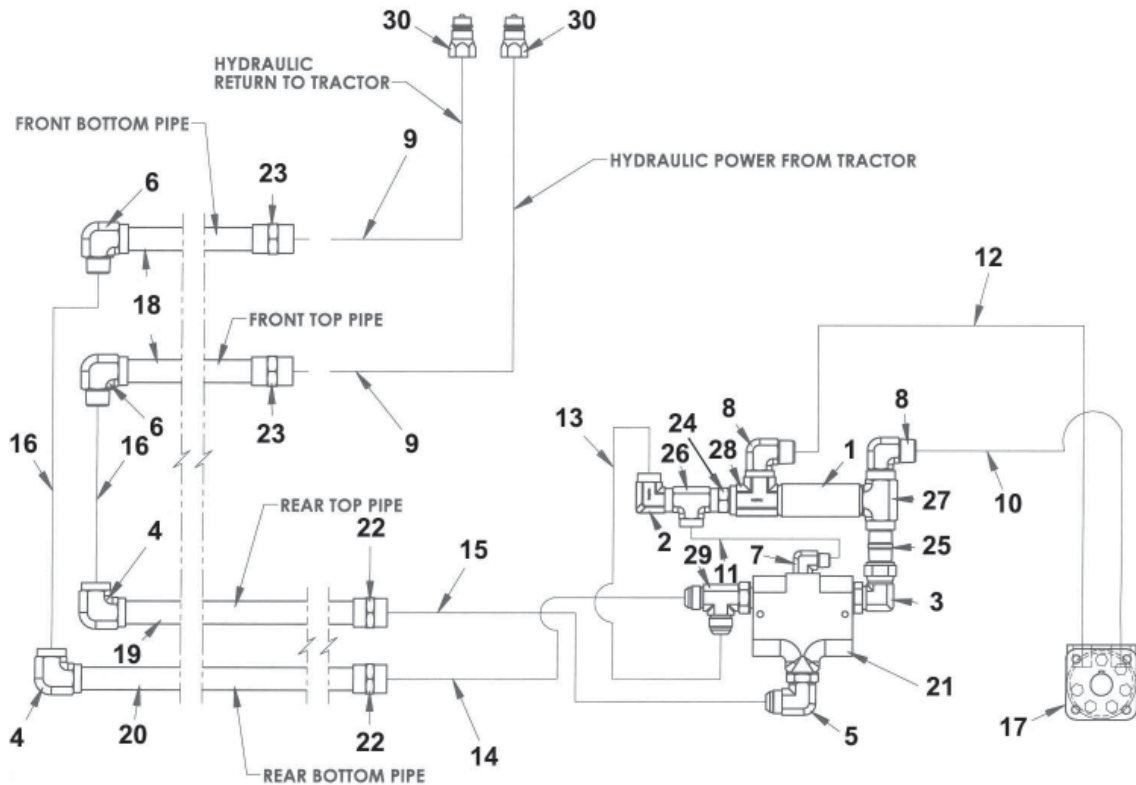
* Optional Bearing Configuration

7.6 CONVEYOR C2020



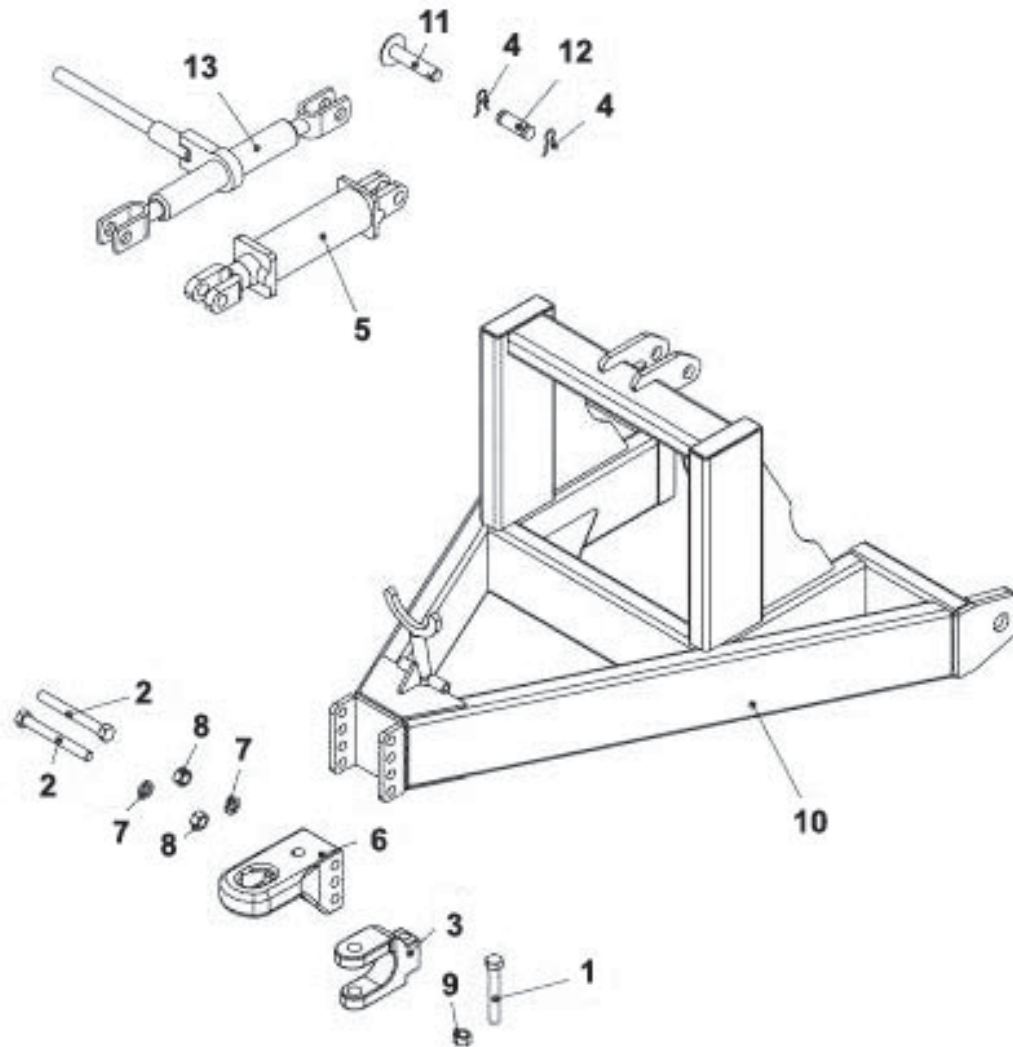
<u>REF #</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	SHR-6812	Bearing Plate, Drive Side Roller, Front
2	SBF208-24	Bearing Flange, 4 Bolt 1" Set Screw
3	UCF205-16	Bearing Flange, 4 Bolt 1" Set Screw
4	UCP205-16	Bearing Pillow Block, 1" Set Screw
5	SHR-0685	Belt Brush Assembly
6	SHR-0690	Belt Roller, Drive Side
7	SHR-0692	Belt Roller, Idler Side
8	1TCJ1	Belting Brush, 24" Long x 3" Tall
9	C2020-0210	Conveyor Belting Complete
10	SHR-6824	Hydraulic Motor Mount Plate
11	158-1013	Hydraulic Motor 12CI
12	SHR-6826	Motor Hold Down Plate
13	935R	Roller 6" Dia. x $\frac{5}{8}$ " Shaft Hole
14	825	Roller Shaft 2 $\frac{3}{4}$ " Long x $\frac{5}{8}$ " Hole
15	SHR-0696	Shield Assembly, Belt Cover, Back
16	SHR-0696	Shield Assembly, Belt Cover, Front
17	SHR-0694	Slack Adjuster Assembly, Conveyor Belt

7.7 CONVEYOR HYDRAULICS C2020



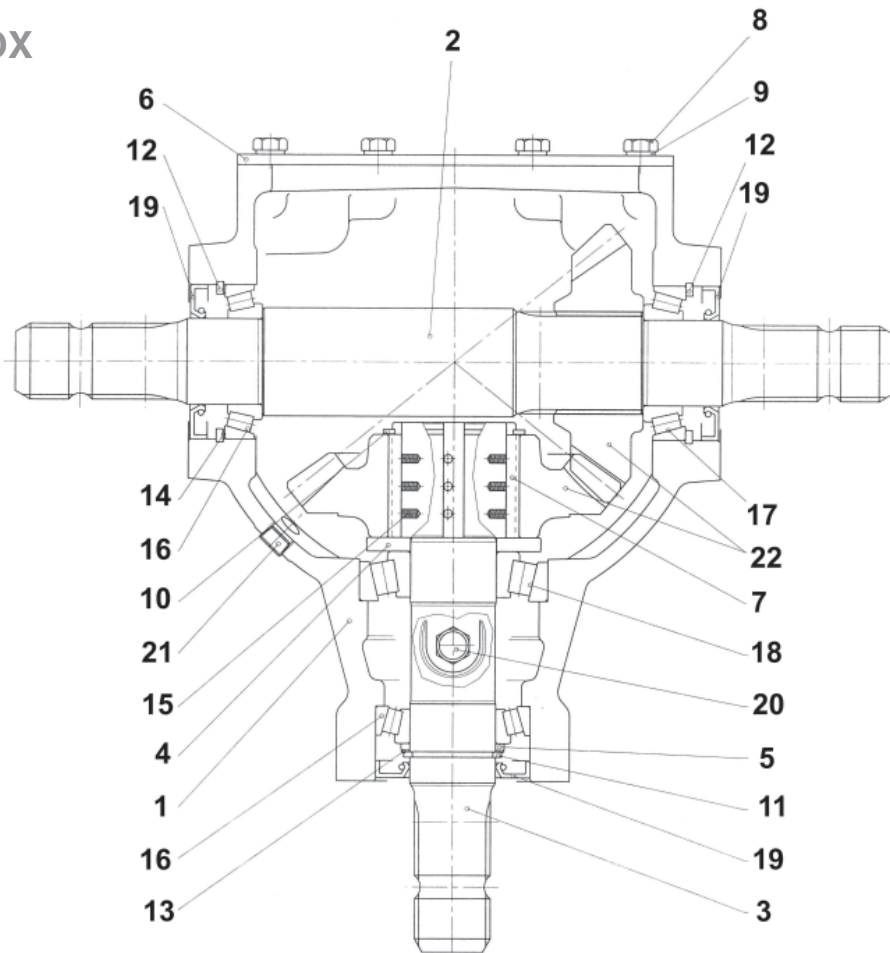
REF #	PART NO.	DESCRIPTION
1	C1200S65	Hydraulic Check Valve 25 GPM - 65 PSI
2	5502-08-08	Hydraulic Elbow 90° ½" Male Pipe to ½" Female Pipe
3	6805-12-12	Hydraulic Elbow 90° ¾" Adjustable O-Ring to ¾" Female Pipe
4	5504-12-12	Hydraulic Elbow 90° ¾" Female Pipe to ¾" Female Pipe
5	6801-12-12	Hydraulic Elbow 90° ¾" Male Tube to ¾" Adjustable O-Ring
6	2502-12-12	Hydraulic Elbow 90° ¾" Male Tube to ¾" Male Pipe
7	2501-06-06	Hydraulic Elbow 90° ⅝" Male Tube to ⅝" Male Pipe
8	2501-10-12	Hydraulic Elbow 90° ⅝" Male Tube to ¾" Male Pipe
9	SHR-0670	Hydraulic Hose ½" x 164", 8MP-8KW to 8MP-8KW
10	SHR-0672	Hydraulic Hose ½" x 18", 10-OR-8KW to 10FJ-8KW
11	SHR-0674	Hydraulic Hose ½" x 20", 6FJ-8KW to 8MP-8KW
12	SHR-0671	Hydraulic Hose ½" x 25", 10-OR-8 KW, 10FJ-8KW
13	SHR-0673	Hydraulic Hose ½" x 28", 12FJ-8KW to 8MP-8KW
14	SHR-0678	Hydraulic Hose ¾" x 13" 12MP-12KW to 12FJ-12KW
15	SHR-0677	Hydraulic Hose ¾" x 15" 12MP-12KW to 12FJ-12KW
16	SHR-0676	Hydraulic Hose ¾" x 37" 12MP-12KW to 12FJ-12KW
17	158-1013	Hydraulic Motor 12CI
18	C2020-2050	Hydraulic Pipe 3-4 SCH40-107" Front
19	C2020-2051	Hydraulic Pipe 3-4 SCH40-172" Back Upper
20	C2020-2052	Hydraulic Pipe 3-4 SCH40-174" Back Lower
21	BG512-12SAF	Hydraulic Priority Valve Non Adjustable
22	5000-12-12	Hydraulic Straight ¾" Female Pipe to ¾" Female Pipe
23	5000-12-8	Hydraulic Straight ¾" Female Pipe to ⅝" Female Pipe
24	5404-12-8	Hydraulic Straight ¾" Male Pipe to ½" Male Pipe
25	5404-12-12	Hydraulic Straight ¾" Male Pipe to ¾" Male Pipe
26	5605-08-08-08	Hydraulic Tee ½" Female Pipe to ½" Female Pipe to ½" Female Pipe
27	5604-12-12-12	Hydraulic Tee ¾" Female Pipe to ¾" Female Pipe to ¾" Male Pipe
28	5602-12-12-12	Hydraulic Tee ¾" Male Pipe to ¾" Female Pipe to ¾" Female Pipe
29	6804-12-12-12	Hydraulic Tee ¾" Male Tube to ¾" Adj. O-Ring to ¾" Male Tube
30	8010-4	Pioneer Coupler

7.8 PULL HITCH



REF #	PART NO.	DESCRIPTION
1	Z075X060C8	Bolt, 3/4" x 5" Grade 8 Coarse
2	Z075X060C5	Bolt, 3/4" x 6 1/2" Grade 5 Coarse
3	PPI-206V	Clevis, Cat. 3, For #PPI-237Vr
4	P7915	Clip For P7073600
5	CYLINDER-3X8	Hydraulic Cylinder 3" Bore x 8" Stroke
6	PPI-237VR	Implement Hitch, Cat. 3
7	Z075L	Lock Washer, 3/4"
8	Z075-C5	Nut 3/4" Grade 5 Coarse
9	Z075G-C8	Nut, 3/4" Grade 9 Coarse, Lock Nut
10	SHR-0868	Pull Hitch Assembly, Universal 2011
11	SHR-0853	Pull Hitch Bolt Pin Assembly UXX30
12	P7073600	Tie Rod Pin
13	SL1541	Turnbuckle, Ratcheting

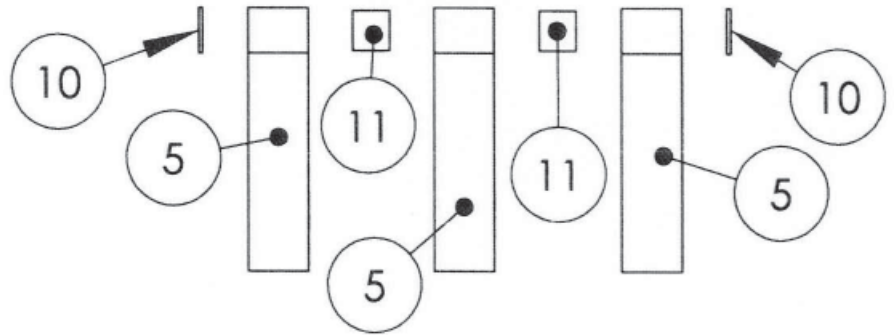
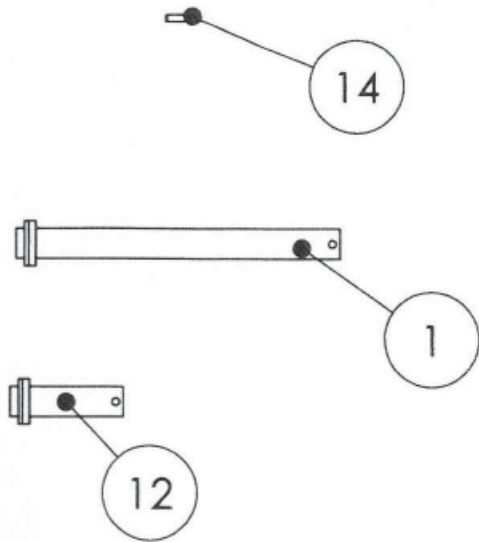
7.9 GEARBOX



<u>REF #</u>	<u>QTY.</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	1	290291303	Gearbox
2	1	295383803	2150 Gearbox XY-Shaft 1-3/4Z20
3	1	295389906	Shaft
4	1	298405005	Spacer
5	1	298405025	2155 Gearbox Spacer 50.2 x 60.3 x 4
6	1	298625400	2150 Gearbox Housing Cover
7	4	298700013	Plug
8	8	310001100	Screw
9	8	335009000	Washer
10	1	337000072	Circlip
11	1	339000050	Snap Ring E.50 DIN 471
12	2	339000090	Snap Ring I.90 x 4.0 DIN 472/2
13	1	340E05000	Ring
14	1	340I09000	Ring
15	12	351011370	2100 Gearbox RL Spring
16	2	354400050	Tapered TR Bearing 50 x 90 x 21.75 30210
17	1	354401050	TR Bearing 50 x 90 x 24.75 32210
18	1	354405050	TR Bearing 50 x 110 x 29.25 30310
19	3	355020050	Oil Seal 50 x 90 x 10
20	1	373007000	Breather Plug 3/8" BSPT
21	5	373010000	Oil Plug 3/8" BST (GAS) DIN906
22	1	448125702	Bevel Gear

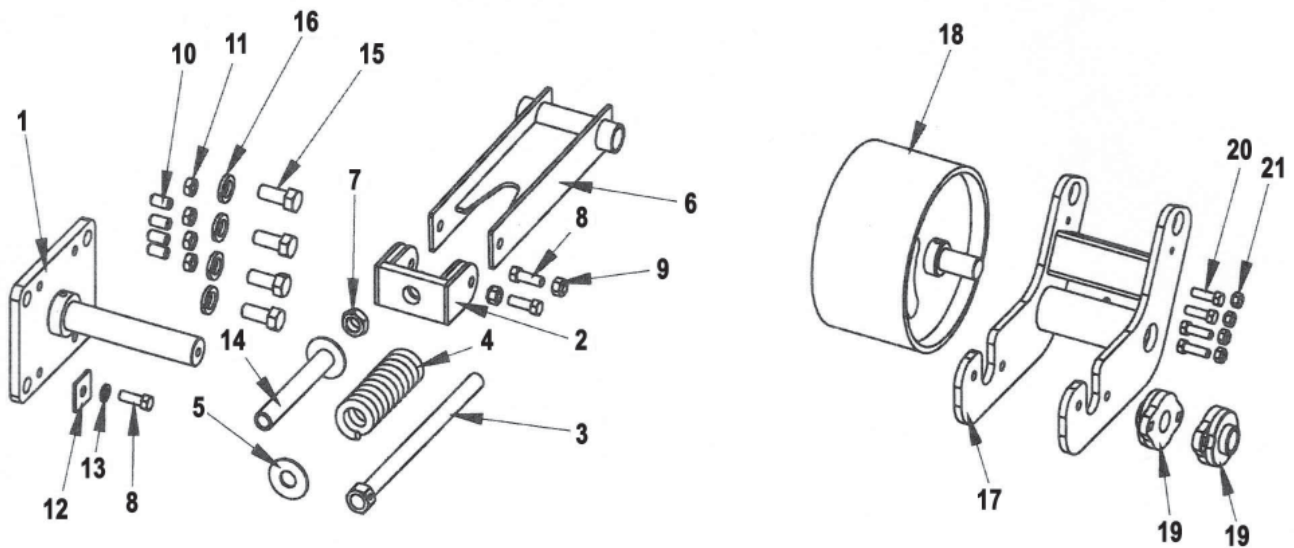
7.10 FLAILS & MOUNTING HARDWARE FOR ALL DRUMS

Shredders come standard with 8" cupped blades.



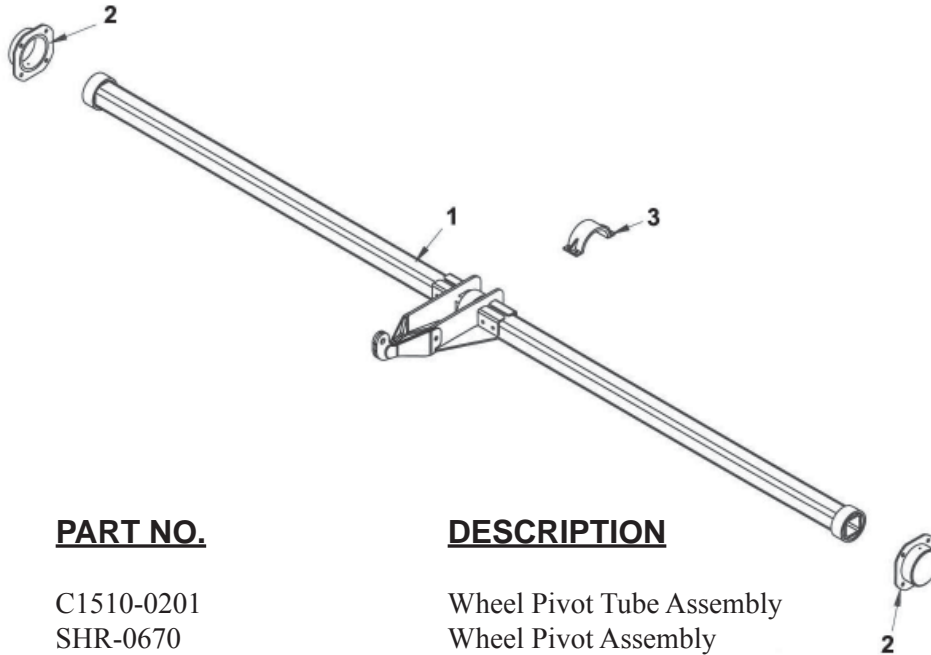
<u>REF #</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	SHR-0017	Flail Pin Assembly, For 3 Flails
5	195371	8" Flail
10	BR16H	Heavy Washer Spacer, 1"
11	SHR-1136	Pipe Flail Spacer
12	SHR-0315	Flail Pin Assembly, Single Flail
14	SM-2-250-1500	Roll Pin

7.11 BELT TENSIONER ASSEMBLY



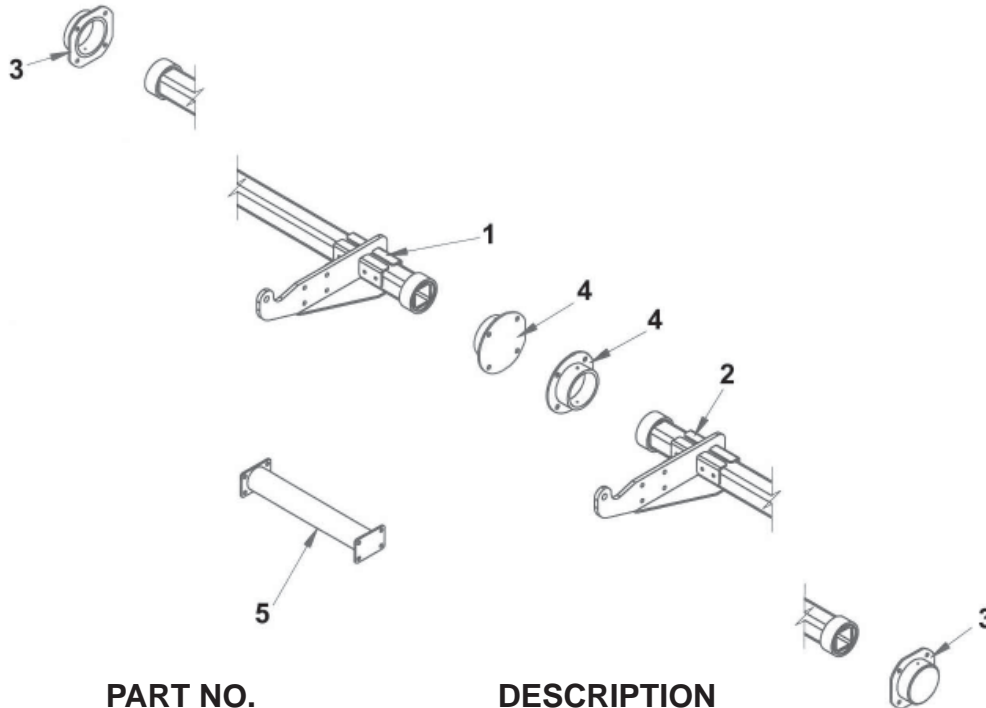
<u>REF #</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	SHR-0152	Belt Tensioner Base Assembly
2	SHR-0156	Tensioner Take-Up Bracket
3	SHR-0157	Tensioner Take-Up Bolt
4	B25724	Compression Spring For Big Chopper and Shredder
5	WASH-075	¾" Cut Flat Washer
6	SHR-0159	Tensioner Spring Linkage Assembly
7	NUTJ-075UNC	¾" UNC Jam Nut
8	BLT-043X1250-UNC-GR5	¼" x 1 ¼" UNC Grade 5 Bolt
9	NUTL-043-UNC-LC	¼" UNC Lock Nut
10	SS-050X100SS-C	½" x 1" UNC Set Screw
11	NUTJ-050UNC-JAM	½" UNC Jam Nut
12	SHR-1113A	Tensioner Retainer Cap
13	LW-043	¼" Lock Washer
14	SHR-0218	Sleeve Assembly, Tensioner Take-up
15	BLT-062X1500UNF-GR5	⅝" x 1 ½" UNF Grade 5 Bolt
16	LW-062	⅝" Lock Washer
17	SHR-0150	Tensioner Bracket Assembly
18	SHR-0153	Belt Idler Wheel Assembly
19	SBLF-205-16H4	1" 2 Blt. Set Screw Ductile Flange Bearing
20	BLT-037X1250UNC-GR5	⅜" UNC Grade 5 Bolt
21	NUTL-037-UNC-LC	⅜" UNC Lock Nut

7.12 C1520 REAR PIVOT TUBE ASSEMBLY



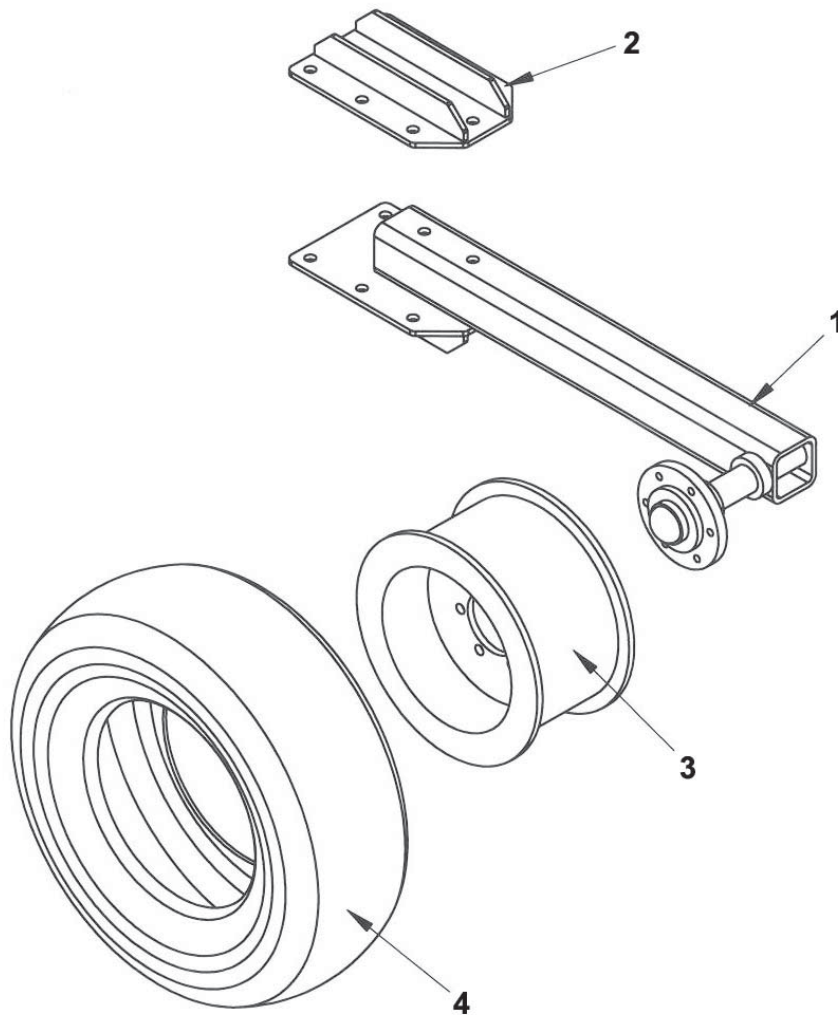
REF #	PART NO.	DESCRIPTION
1	C1510-0201	Wheel Pivot Tube Assembly
2	SHR-0670	Wheel Pivot Assembly
3	SHR-0690	Cap Assembly, Wheel Pivot Tube

7.13 C2020 REAR PIVOT TUBE ASSEMBLY



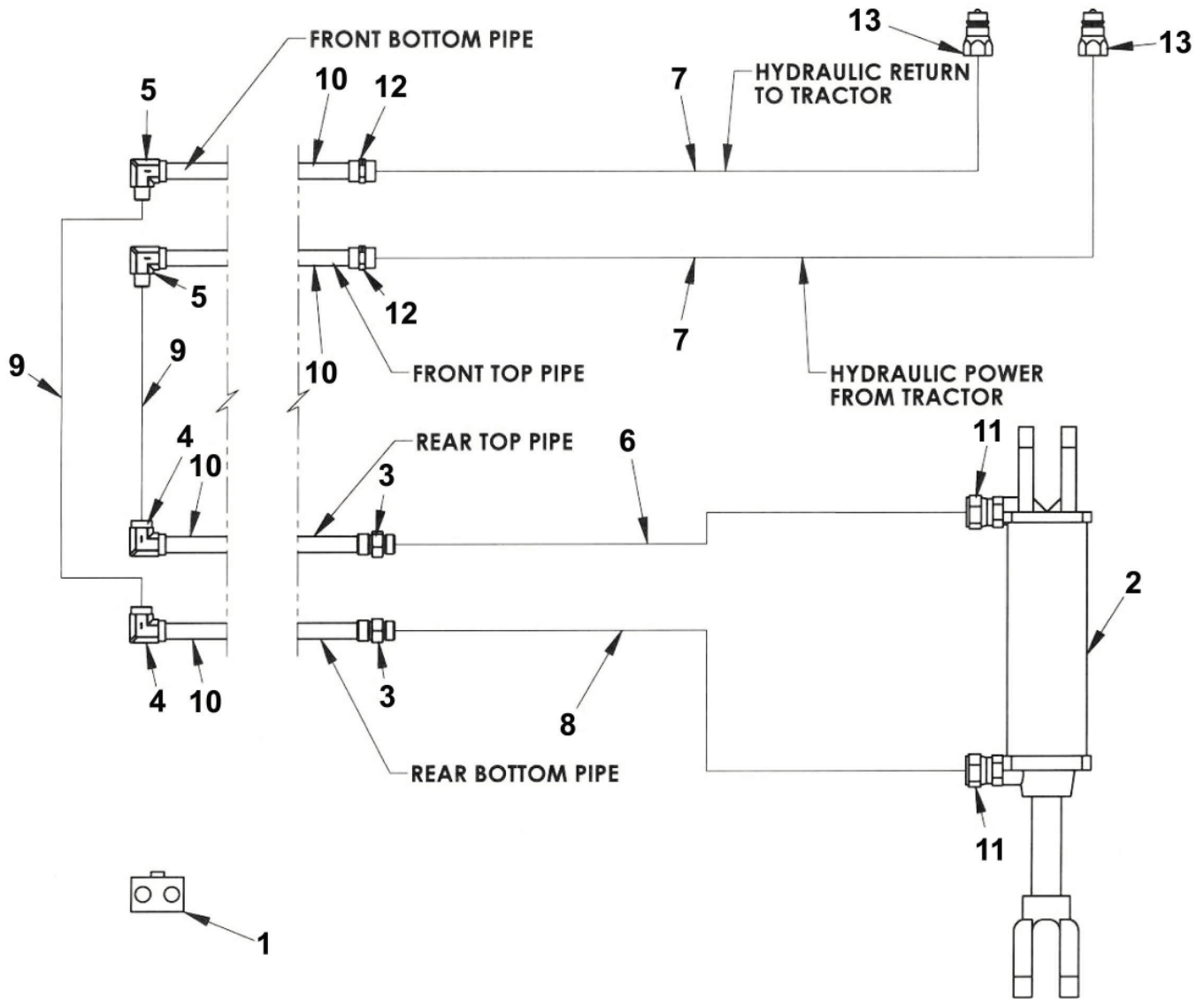
REF #	PART NO.	DESCRIPTION
1	C2010-0201	Wheel Pivot Tube Assembly, Drivers
2	C2010-0203	Wheel Pivot Tube Assembly, Passenger
3	SHR-0670	Wheel Pivot Assembly
4	SHR-0705	Rigid Wheel Tube Side Mount
5	SHR-0953	Cross Brace Assembly

7.14 TIRE ARM & TIRE / WHEEL



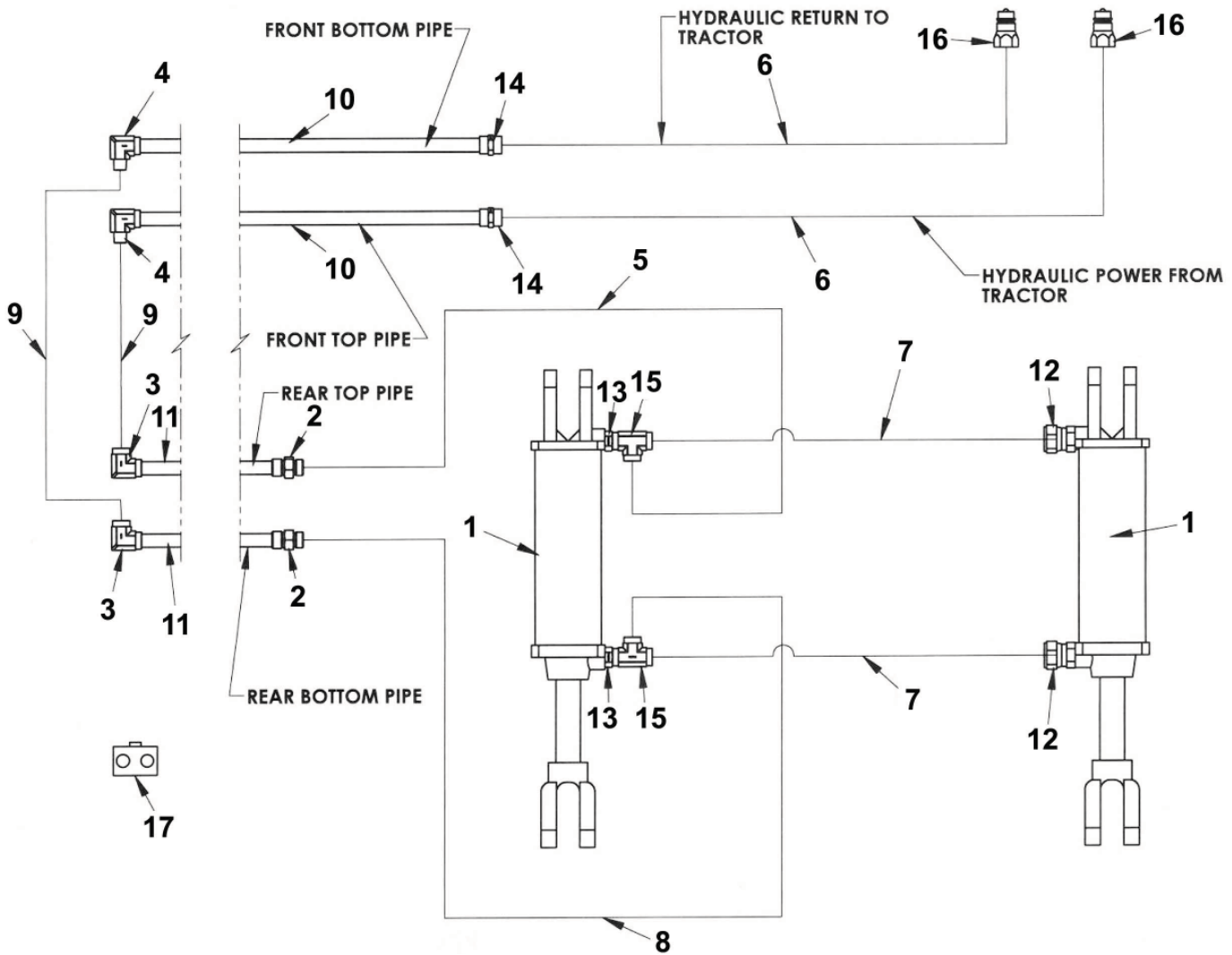
<u>REF #</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	SHR-0693	Rigid Wheel Arm Assembly
2	SHR-0699	Tire Leg Mounting Plate
3	W50229	Wheel For Shredder Tire Leg Assemblies
4	9.5L-15/8	Generic Tire

7.15 C1520 REAR CYLINDER HYDRAULICS



<u>REF #</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	3252T9	Bracket Pipe 3-8
2	CYL-30X08-ER	Cylinder Hydraulic 03 x 08 x 20 ¼" Center to Center
3	1405-06-06	Hyd. Hose Fitting ⅜" Female Pipe to ⅜" Female Pipe Swivel
4	5504-06-06	Hyd. Elbow 90° ⅜" Female Pipe to ⅜" Female Pipe
5	5502-06-06	Hyd. Elbow 90° ⅜" Male to ⅜" Female
6	SHR-0681	Hyd. Hose ⅜" x 13" 6MP-6KW to 6MP-6KW
7	SHR-0679	Hyd. Hose ⅜" x 164" 8MP-6KW to 6MP-6KW
8	SHR-0682	Hyd. Hose ⅜" x 22" 6MP-6KW to 6MP-6KW
9	SHR-0680	Hyd. Hose ⅜" x 37" 6FJ-6KW to 6MP-6KW
10	C1520-2054	Hyd. Pipe ⅜" SCH40-69 ½" In Back
11	1404-6-8	Hyd. Straight ½" Male Pipe to ⅜" Female Swivel
12	5000-STR-06-06	Hyd. Straight ⅜" Female Pipe to ⅜" Female Pipe
13	8010-4	Pioneer Coupler

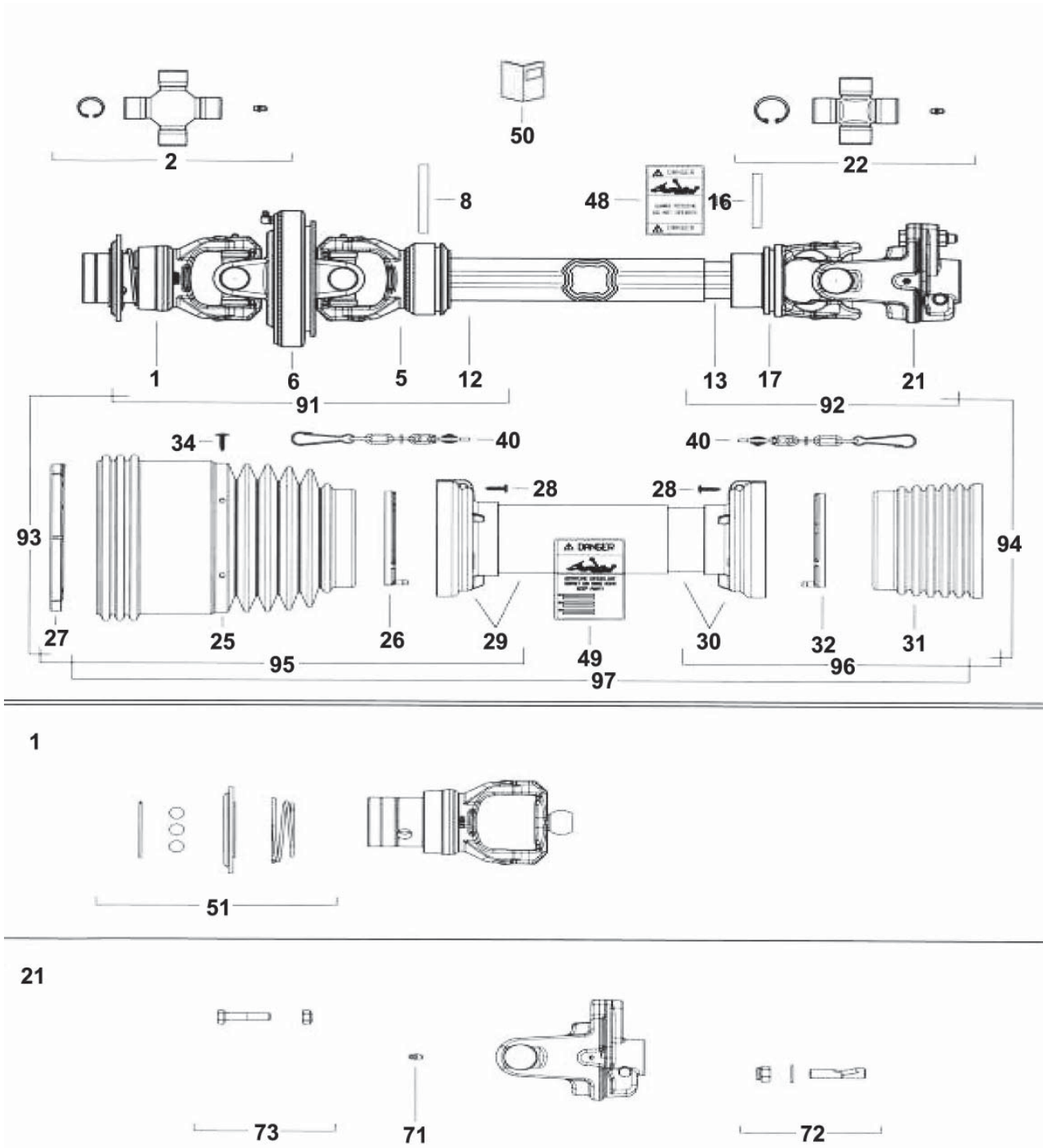
7.16 C2020 REAR CYLINDER HYDRAULICS



<u>REF #</u>	<u>PART NO.</u>	<u>DESCRIPTION</u>
1	CYL-30X08-ER	Cylinder Hydraulic 03 x 08 x 20 ¼" Center to Center
2	1405-06-06	Hyd. Hose Fitting ⅜" Female Pipe to ⅜" Female Pipe Swivel
3	5504-06-06	Hyd. Elbow 90° ⅜" Female Pipe to ⅜" Female Pipe
4	5502-06-06	Hyd. Elbow 90° ⅜" Male to ⅜" Female
5	SHR-0681	Hyd. Hose ⅜" x 13" 6MP-6KW to 6MP-6KW
6	SHR-0679	Hyd. Hose ⅜" x 164" 8MP-6KW to 6MP-6KW
7	SHR-0683	Hyd. Hose ⅜" x 20" 6MP-6KW to 6MP-6KW
8	SHR-0682	Hyd. Hose ⅜" x 22" 6MP-6KW to 6MP-6KW
9	SHR-0680	Hyd. Hose ⅜" x 37" 6FJ-6KW to 6MP-6KW
10	C2020-2053	Hyd. Pipe ⅜" SCH40-107" In Front
11	C2020-2054	Hyd. Pipe ⅜" SCH40-96" In Back
12	1404-6-8	Hyd. Straight ½" Male Pipe to ⅜" Female Swivel
13	5404-08-06	Hyd. Straight ½" Male Pipe to ⅜" Male Swivel
14	5000-STR-06-06	Hyd. Straight ⅜" Female Pipe to ⅜" Female Pipe
15	5605-06-06-06	Hyd. Tee ⅜" Female Pipe to ⅜" Female Pipe to ⅜" Female Pipe
16	8010-4	Pioneer Coupler
17	3252T9	Bracket Pipe 3-8

7.17 PTO BONDOLI PULL HITCH STYLE - 1 3/4" 20 SPLINE & 1 3/8" 21 SPLINE

Clean and grease PTO daily. Always check to make sure PTO slips in and out by hand. Never operate PTO if it does not slip freely and has a complete range of motion. Never let PTO bottom out and never let PTO operate under load with less than 20% of spline overlap.



8 LIMITED WARRANTY

GEARMORE, INC./NEWHOUSE MFG., equipment is manufactured, tested, and inspected before shipment to purchaser, and is warranted to the original purchaser of the equipment to be free from defects and workmanship when properly set up and operated in accordance with the instructions set forth in the owners manual for one (1) year from the date of delivery.

Under this warranty we are obligated to replace or repair any equipment that is deemed, by us, to be of manufacturers defects in material or workmanship under normal use and service during the one-year warranty period. We will only warranty parts that are pre-approved by us and are repaired or replaced by an authorized dealer. Under no circumstances is Gearmore/Newhouse to be held liable for any consequential damages (including but not limited to crop and livestock loss or damages). Any loss, damages, or expenses incurred from installation of equipment material defect, or defect in workmanship is not covered under this warranty.

A Warranty Registration Form must be filled out and returned to us to validate any warranty claims. All new equipment should have this form with the owners manual.

LIMITATIONS OF WARRANTY

All the following is excluded from warranty:

1. Gearmore/Newhouse equipment that has been modified without expressed written consent from us.
2. Damage from unreasonable use, including neglect of regular maintenance.
3. All components on equipment that are not manufactured or altered by us.
4. Parts not supplied by us.
5. Certain components that require replacement under normal wear and tear, determination of which components fit this requirement is at the discretion of Gearmore/Newhouse.
6. Any consequential damages from breach of this or any other warranty expressed or implied whatsoever.
7. Damage caused from running a flail shredder drum in an "out of balance" state, including but not limited to bearing failure, stress cracks, driveline failure and the failure of fasteners.
8. Failures caused from running the machine beyond the factory limits.

Gearmore/Newhouse may elect, at its discretion, to have a factory representative come out and inspect the condition of the machine before warranty is considered.

Warranty Service Requests:

A warranty claim form must be obtained, filled out and returned to us before a warranty can be accepted. All parts must be returned to us for inspection prior to warranty being accepted. This warranty does not include freight or delivery charges incurred when returning machinery or parts for servicing and/or inspection. Dealer mileage, service calls and pick-up/delivery charges are the customer's responsibility.

For warranty work or questions regarding warranty coverage contact us. Shipping of warranty work to us must be prepaid by the sender and will not be accepted if otherwise. All warranty and repair work should be sent to us.

EXCLUSIONS:

Except as otherwise expressly stated herein, Gearmore/Newhouse makes no representation or warranty of any kind, expressed or implied and makes no warranty of merchantability in respect to its machinery and makes no warranty that its machinery are fit for any particular purpose. Gearmore/Newhouse shall not be liable for any incidental or consequential damages for any breach of warranty, including but not limited to inconvenience, rental or replacement equipment, loss of profits or other commercial loss. Upon purchase the buyer assumes all liability, all personal injury and property damage resulting from the handling, possession or use of goods by the buyer.

No agent, employee or representative of Gearmore/Newhouse has any authority to bind us to any affirmation, representation or warranty concerning its machinery except as specifically set forth herein.