

MULTI-CROP SHREDDER OWNER'S MANUAL

Models: 180SB 180HS
 2408SB 2408HS



 **BUILDING FOR THE FUTURE**



Warranty Statement

MATHEWS COMPANY LIMITED WARRANTY FOR FLAIL EQUIPMENT

Mathews Company designs and manufactures its equipment for good performance and for reliability. It is our goal to have satisfied customers who will tell their neighbor to buy a Mathews product.

We are interested in our customer after the sale is made as well as before. We make every effort to produce a first class product, but it is possible for defective material and workmanship to pass inspection. Mathews Company will replace free of charge anytime within two years parts manufactured by us found to be defective, to the original buyer, that fail under normal use. Also, for a period of five years from the date of purchase, Mathews Company will re-balance M-C Shredder rotors free of charge to the original purchaser at our plant in Crystal Lake, provided the rotor went out of balance during normal use. This Warranty does not cover damaged rotors. Labor and shipping charges to and from the factory are the owner's responsibility. Standard knives carry a lifetime warranty against breakage, to the original buyer.

Belts are considered to be an expendable item and are used to provide a margin of protection for other more expensive components of the system. Unless a belt's failure can be attributed to defective material, or is a direct result of a failure of another component within the warranty period, no consideration can be given to its replacement under Warranty. Claims must be directed to the factory stating the exact problem and a list of the parts involved. The customer or dealer will receive a reply from the factory authorizing the return of parts. If parts are to be scrapped locally, you will be so advised. A Warranty Request Form must be completed including machine serial number and invoice number on which replacement parts were obtained.

Upon prior approval, Mathews Company will be responsible for paying any unusual labor expenses required to make repairs to new machines during the first year of ownership. We reserve the right to adjust the charge for labor and expenses in the event we feel the claim is unjust or unfair. Since there may be set-up or installation and set-up labor required, this portion is up to the dealer or customer and cannot be considered as warranty. Improper adjustments made by the dealer or customer are not under warranty. Accidental breakage, malfunctions, or any of the numerous ways that problems occur and are uncontrollable by the manufacturer, are not under warranty.

We assume no liability for special or consequential damages. This Warranty does not extend to loss of crops, losses caused by harvest delays or any expense or loss for labor, supplies, rental machinery or any other reason.

REGISTER WARRANTY IMMEDIATELY WITH MATHEWS COMPANY UPON PURCHASE OF MACHINE

Register warranty online at: <http://mathewscountry.com/shredder-warranty-registration/>

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Introduction

Before operating your Shredder, it is important to read the Set-Up, Operation, and Maintenance sections of this manual. Check all referenced items and become familiar with the adjustments required to ensure efficient, trouble free service.



This symbol is used to call your attention to instructions regarding your personal safety. Be sure to observe and follow these instructions.

Warranty Registration

It is important to send in your warranty registration card as soon as your new Shredder is delivered. Not only does the card validate your Shredder warranty, but it is also our way of knowing who has purchased MC equipment so that we can keep in touch with you.

Model and Serial Number Location

The model and serial number of your Shredder is stamped on a plate located on the left side of the body, as shown in Figure 1. For future reference, record the model and serial number in Figure 2.

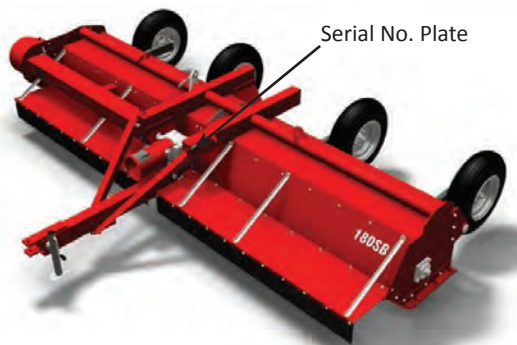


Figure 1: Serial Number Location



Figure 2: Serial Number Plate

Parts Ordering Instructions

1. Order parts from your local MC dealer or distributor.
2. Always furnish the Shredder model and serial number. This information is stamped on the serial number plate.
3. Service parts for your Shredder are listed in the "Parts" section of this manual. When ordering parts be sure to furnish the part number, description, and quantity required.
4. Inspect all shipments upon receipt. If any packages and/or boxes are missing or damaged, file a claim with the carrier immediately. Failure to do so may void a claim. Check the shipment against the packing list carefully and report any shortages to the shipper immediately.
5. Do not return parts to the Mathews Company without a "Return Goods Authorization" from the factory. All return parts shipments must be shipped prepaid (COD shipments will not be accepted). Shipments must also include the following:
 - a. A letter of explanation including the "Return Goods Authorization Number" along with your name and address.
 - b. A list of all parts being returned. List must include part numbers, descriptions, quantities, and the original invoice number.



Set-up Instructions

Before beginning to set-up your Shredder, read the set-up instructions carefully to become familiar with the machine. Check to make sure that you have received all parts listed on your packing list and/or machine order. Make claims for any shortages immediately.

RIGHT or LEFT and FRONT or REAR of the Shredder is determined by standing behind the Shredder looking toward the tractor PTO. Assemble the Shredder on a solid flat level surface to insure safety and to aid in aligning parts during assembly.

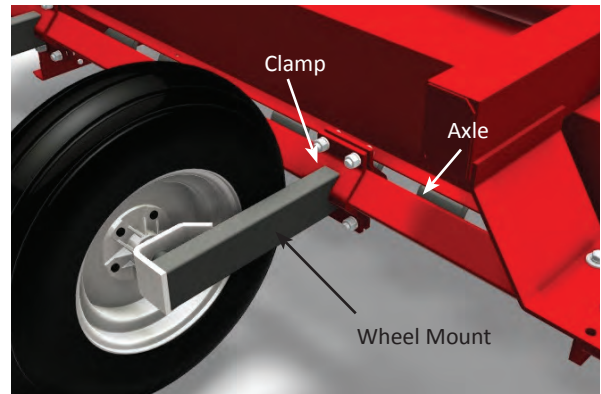


Figure 3: Wheel Mounted on Axle



CAUTION: Always use safety stands or blocking in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail.

IMPORTANT: Never lift or handle the Shredder by the rotor. Also, when shipping, never use the rotor as an anchor point to tie the Shredder down.

Cylinder Rear Mount

The cylinder rear mount with floating link is installed on the rear axle at the factory. Install the optional mechanical ram or customer supplied hydraulic ram between the cylinder front mount and the cylinder rear mount floating link.

NOTE: On some models the cylinder rear mount was moved to the outside for shipping purposes. Move it in so it is in alignment with the cylinder front mount.

Wheel Mounts and Wheels

1. Install the wheels and tires on the wheel mounts. Inflate the tires to 32 lbs. Attach a sling to the lifting eyes on the top of the shredder body and lift the Shredder with a chain hoist just high enough to install the wheel mounts and wheels. **DO NOT** lift the Shredder by the rotor.
2. **ALWAYS** position the outer wheels so that the tires are just to the inside of the end plates. This will prevent the possibility of the tires rubbing on the end plates when the Shredder is raised. This will also stabilize the Shredder to prevent scalping.
3. Position the inside wheels as close to the center of the Shredder as possible to eliminate unnecessary loads across the open span of the axle.
4. The wheel spacing on the left and right should be the same distance from the center of the Shredder for proper operation, shown in Figure 3.
5. Secure each wheel mount clamp with four 3/4" - 10 x 2 1/2" (Grade 5) hex-head cap screws, lock washers, and nuts. **Note:** If necessary, the optional mechanical or hydraulic ram can be used to rotate the axle to obtain wheel mount clamp alignment.
6. Lower the Shredder and check to see that all wheels contact the ground. If they do not, reposition the wheel mount(s) on the axle.



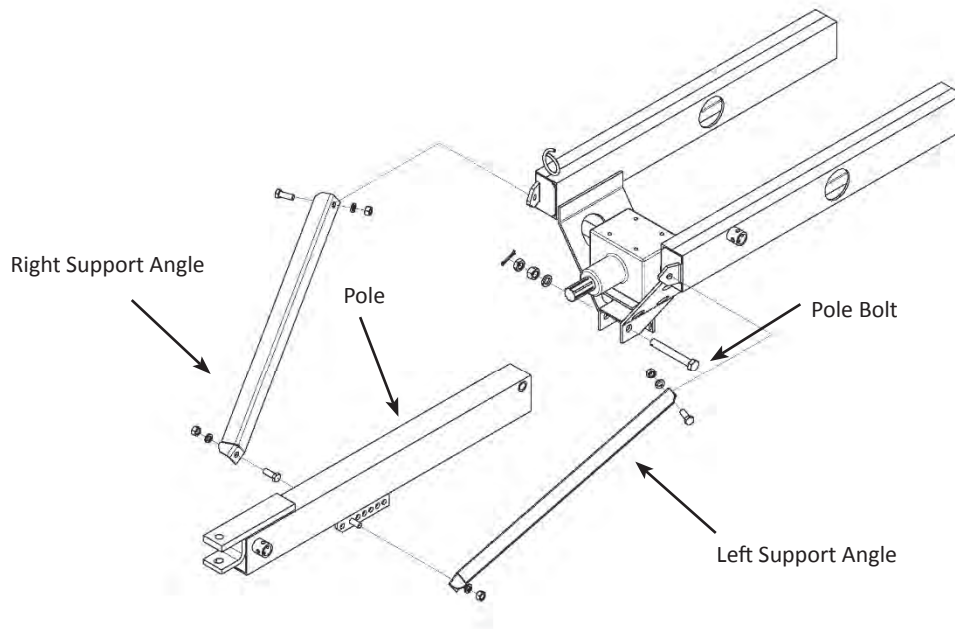


Figure 4: Pole and Support Components

Pole and Supports

1. Lift the front of the Shredder with a chain hoist and place the pole in position under the gear box and install the pole bolt, lock washer, hex nuts, and cotter pin. See Figure 4 for details.

IMPORTANT: Do not lift the Shredder by the rotor.

2. There are seven pole support angle mounting holes on each side of the pole, depicted in Figure 5. Select the position that will set the pole at the correct tractor drawbar height and keep the Shredder body as level as possible (see note). Secure the pole support angles with four $\frac{3}{4}$ " – 10 x 2" (Grade 5) hex-head cap screws, lock washers, and nuts.

NOTE: Keeping the Shredder body as level as possible, front to rear, will insure safe operation and efficient shredding. The cutting height can be adjusted to suit various crops and/or field conditions. Refer to "Cutting Height" in the "Operation" section for details.

3. Model 2408 – Install the pole brace angles using $\frac{3}{4}$ " – 10 x 2 $\frac{1}{2}$ " cap screws, lock washers, and nuts.
4. Install the jack onto its mount and insert the retaining pin. Lower the jack to transfer the weight of the Shredder to the pole and body. Remove the chain hoist.

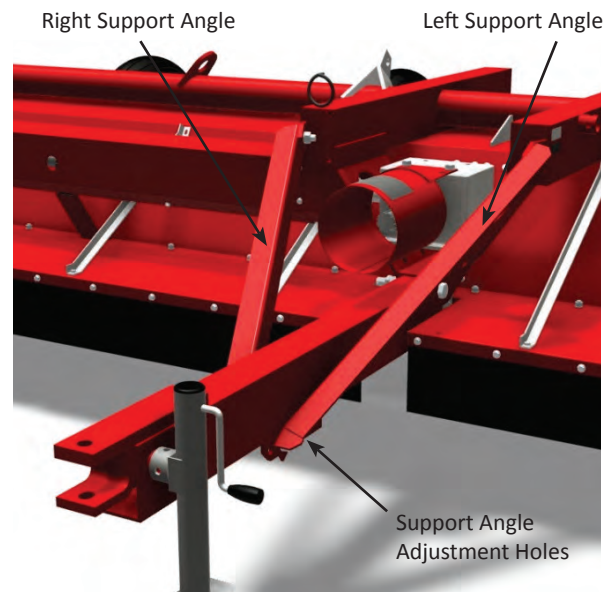


Figure 5: PTO Support and Adjustment



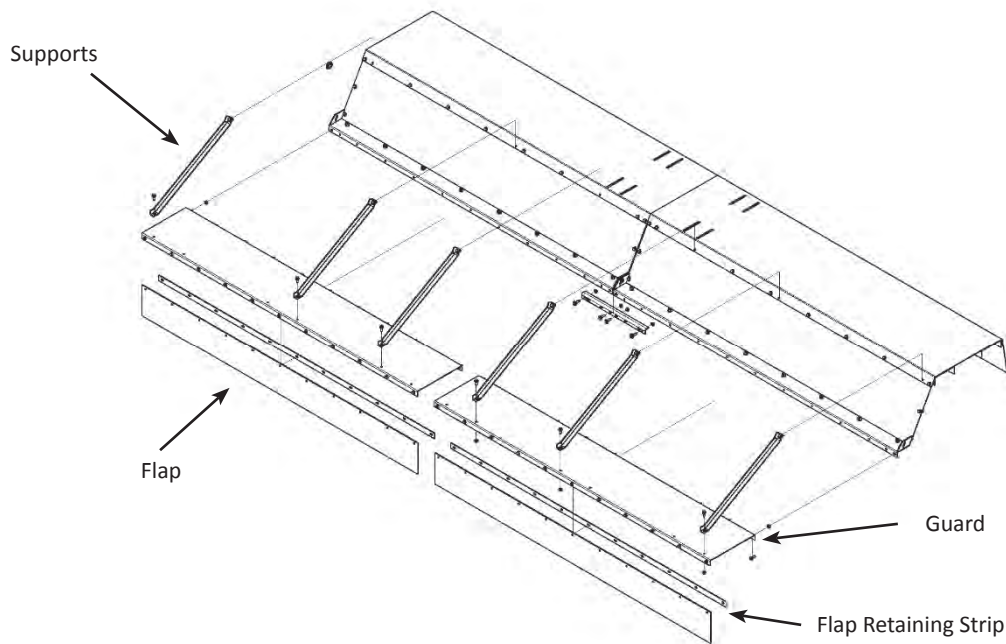


Figure 6: Stone Guard Components

PTO Shaft

1. Remove the black PTO shaft guard from its shipping position on top of the gear box.
2. Remove any paint and foreign material from the gearbox splined input shaft and from both PTO shaft yokes. Be sure the quick disconnect devices on the PTO shaft yokes are working smoothly to ease installation.
3. Apply a small amount of grease to the splines of the gear box input shaft and both PTO shaft yokes.
4. Install the six spline yoke end of the PTO shaft onto the gear box input shaft. Be sure the Saf-T-Pin is fully engaged. Slide the PTO shaft guard over the PTO shaft and attach it to the two front mounting holes in the gear box with two 5/8" – 11 x 1" (Grade 5) hex-head cap screws and lock washers.
NOTE: The PTO shaft supplied with the Shredder has a 1 3/8" – 21 spline yoke for the tractor and a six (6) spline end for the gear box. A 1 3/4" – 20 spline yoke is available for tractors with this size PTO drive.

Stone Guards

1. Assemble the stone guard flaps and retaining strips to the stone guards as shown in Figure 6. Use 3/8" – 16 x 1" (Grade 5) hex washer head cap screws and whiz locknuts.
2. Assemble the stone guard supports to the stone guards as shown in Figure 7. Use 3/8" – 16 x 1" (Grade 5) hex washer head cap screws and whiz locknuts.
3. Remove cap screws and locknuts securing the front cover to the Shredder body.
4. Install the assembled stone guards to the Shredder front covers, shown in Figure 7. Use 3/8" – 16 x 1" (Grade 5) hex washer head cap screws and whiz locknuts to secure stone guard supports to the top of the front covers. Use 3/8" – 16 x 3/4" (Grade 5) hex washer head cap screws and whiz locknuts to secure the stone guards to the bottom of the front covers.



Tractor Drawbar Adjustment

1. To get the minimum amount of vibration and prolong the life of the bearings in the PTO shaft, adjust the tractor drawbar so that the distance from the end of the tractor PTO shaft to the center of the hole in the drawbar is 17 inches for the 1 3/8" 21 spline PTO shaft and 20 inches for the 1 3/4" 20 spline PTO shaft.
2. Connect the PTO shaft to the tractor PTO. Be sure the Saf-T-Pin or Safety Slide Lock is fully engaged.

Lubrication

1. Remove the oil level plug on the side of the gear box. The oil level should be even with the bottom of the level plug. If the oil level is low, remove the bushing with vent on top of the gear box and add Mobilfluid 634 multipurpose transmission lubricant or equivalent until it just runs out of the level plug. Install the level plug. Check to be sure the vent is not plugged with paint or dirt. Install the bushing with vent.
NOTE: Mobilfluid 634 is available from MC in one pint containers (MC #1288947).
2. Lubricate all lubrication fittings on the Shredder. For fitting locations, refer to "Lubrication" in the "Operation" section. Lubricate with a hand grease gun. Do not over lubricate. Too much grease may damage the bearing seals.

IMPORTANT: NOW THAT YOUR SHREDDER IS SET UP AND ALL SAFETY EQUIPMENT IS INSTALLED, RUN IT AT A LOW RPM CHECKING TO MAKE SURE THAT ALL DRIVE LINE PARTS ARE MOVING FREELY.

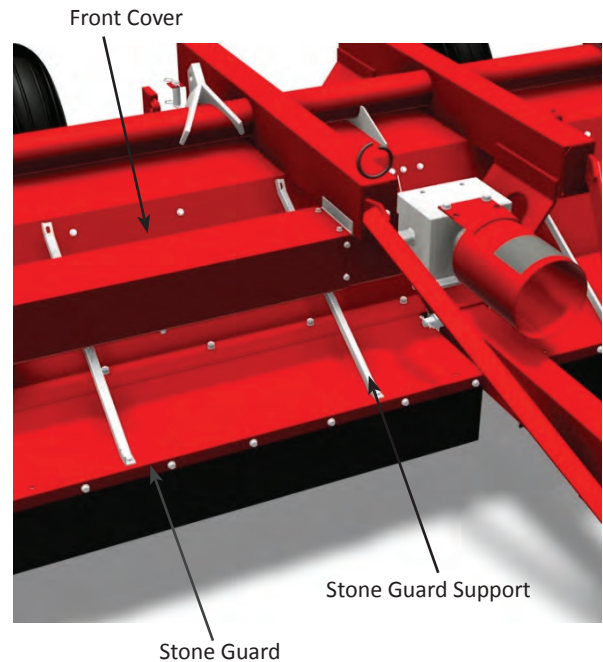


Figure 7: Guards and Covers



Operating Procedures

Safety Precautions



A safe operator is the best insurance against accidents. The precautions listed below must be observed at all times.

- Do not allow children or bystanders near the Shredder while it is operating.
- Do not operate the Shredder without all safety shields in place and secure.
- Do not operate the Shredder without the stone guard. Operating without the stone guard could cause personal injury.
- Do not make any inspections or adjustments while the Shredder is operating or while the tractor is running.

General

1. It takes approximately 10 to 15 acres of shredding to get the inside of the Shredder and knives polished to obtain the best performance. As the Shredder breaks in, performance will improve.
2. Always start and stop the Shredder slowly to prevent excessive shock loads to the belt drive assembly and rotor. Engage and disengage the tractor PTO at low engine RPM.
3. Rotor rotation is counterclockwise when standing on the right side of the Shredder looking at the belt guard cover.
4. Never operate the Shredder with missing or broken knives. If any knives are missing or broken, the rotor will be out of balance and the Shredder will vibrate. Replace missing or broken knives in sets. See “Knife Replacement” in the “Maintenance” section for more details.



CAUTION: Before attempting to make any inspection, be sure to disengage the PTO and stop the tractor engine.

5. After 6 to 10 hours of operation, check the “Drive Belt Adjustment” described in the “Maintenance” section.
6. A safety check should be made after the Shredder has been in operation for a few hours.
 - a. Tighten all cap screws and lock nuts.
 - b. Inspect all knives and knife hangers to be sure they are not damaged and are secure.
 - c. Check to be sure that all guards and shields are in place and secure.
 - d. Inspect the wheel mounts, rotor, gear box, output drive shaft, belt drive assembly, and PTO shaft for signs of unusual wear or lubrication leaks that could lead to part failure.

Tractor PTO and Ground Speed

1. The Shredder was designed to operate with a PTO speed of 1000 RPM. A ground speed of three (3) to six (6) miles per hour can be used for shredding moderate to heavy crops.
2. Horsepower requirements will vary with the weight of the crop and the type of shredding being done. All of the Shredder drive components are rated safely to 100 horsepower capacity. Tractors with higher or lower horsepower ratings may be used.
3. A lower ground speed will decrease the power requirements by reducing the amount of material being shredded. A higher ground speed will increase power requirements.



Cutting Height

1. With different crops or field conditions it may be necessary to adjust the cutting height. The Shredder body can be raised or lowered easily and quickly to the desired cutting height by rotating the Shredder axle. **IMPORTANT:** Operate with knives 2" above hill on row crops.
2. The Shredder axle can be rotated with the optional mechanical ram or an owner supplied hydraulic ram. The hydraulic ram is preferred. The operator can quickly raise and lower the Shredder body to avoid contacting the ground or other obstacles when shredding.
3. The shredder body must be kept as level as possible from front to rear to insure safe operation and proper shredding action. The Shredder can be leveled by moving the pole support angles forward or backward in the support angle adjustment holes on the lower sides of the pole, shown in Figure 4 and Figure 5 (Page 2.2).
4. Moving the angles forward will lower the cutting height and moving the angles to the rear will raise the cutting height. For best operation, the Shredder skids should be parallel to the ground. Be sure to tighten pole support angle cap screws after adjustment has been made.

Cutter Bar

1. Two adjustable cutter bars are located under the front edge of the front cover. Shredders are shipped with cutter bars in the fully retracted position. This position provides maximum clearance between the cutter bars and knives.



CAUTION: Disengage the PTO and stop the tractor engine before adjusting the cutter bars.

2. If finer shredding is desired, loosen the cap screws and nuts securing the cutter bars to the front cover. Loosen the cap screws just enough to permit the cutter bars to move in the adjusting slots.
3. Slide the cutter bars toward the back of the Shredder until the desired spacing is obtained between the knives and the cutter bars. Adjust both sides evenly. Tighten cap screws and nuts.
4. Before operating the Shredder, rotate the rotor **SLOWLY** to be sure the knives do not strike the cutter bars.



CAUTION: When checking for clearance, do not stand behind the Shredder. Stay well clear and **LISTEN** for possible interference.

Transporting the Shredder without Optional End Tow System

1. The transport lock, Figure 8, holds the body of the Shredder up so that it can be transported with the hydraulic or mechanical ram disconnected.
2. When the Shredder is to be transported, raise the body all the way up with the ram. Remove the pin from the storage bracket

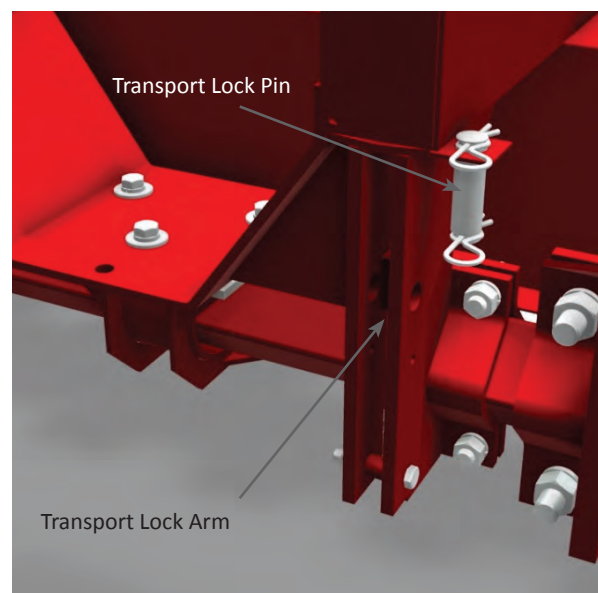


Figure 8: Transport Lock and Pin

Transporting the Shredder with Optional End Tow System

Changing from Transport to Field Position:

1. Stop the tractor engine and apply the parking break.
2. Lower the end tow jack to the ground to take the weight off of the tractor drawbar. See Figure 9 for details.
3. Remove the transport ram stop shown in Figure 10. Remove the PTO shaft support from the pole (Figure 11), put it on the mount on the left side of the Shredder and run the hydraulic hoses through it.
4. Remove the pole jack from the mount on the right side of the Shredder, put it on the pole and lower the jack to the ground. Start the tractor and lower the right side of the Shredder to the ground with the transport ram.
5. Raise the transport wheels all the way up with the transport ram and close the hand valve on the ram. Stop the tractor engine. Store the transport ram stop on the PTO shaft support.



CAUTION: The transport ram hand valve must be closed to prevent the transport wheels from drifting down while shredding.

6. Disconnect the transport ram hydraulic hoses from the tractor and disconnect the tractor drawbar from the transport hitch.
7. Move the tractor to the Shredder pole and connect the drawbar to the pole. Stop the tractor engine and apply the parking brake.
8. Connect the Shredder hydraulic hoses to the tractor. Lower the transport hitch with the jack. Retract the jack all the way.
9. Remove the Shredder pole jack and store it on the jack mount on the right side of the Shredder. Remove the axle stop shear bolt. Raise the Shredder with the hydraulic ram or optional mechanical ram.
10. Disconnect the transport hitch brace from the Shredder. Remove the clip from the end of the transport hitch lock pin and pull the pin out. Store the lock pin in the holder on the left side of the Shredder.
11. Slide the transport hitch assembly into the pipe and place it on the storage bracket.

Changing from Field to Transport Position:

1. Stop the tractor engine and apply the parking break.
2. Remove the pole jack from the mount on the right side of the Shredder and put it on the pole. Lower the pole jack to the ground.

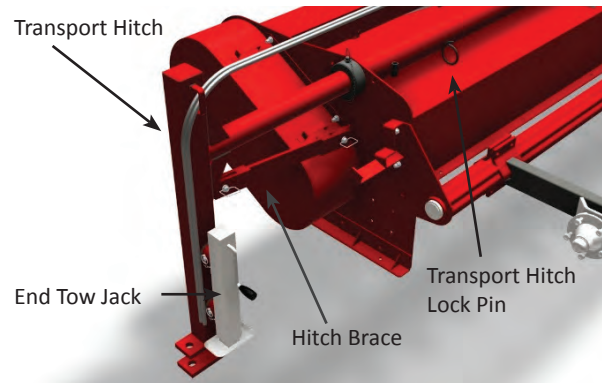


Figure 9: End Tow Components

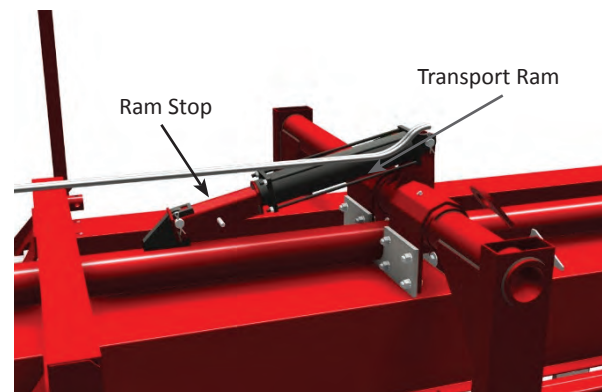


Figure 10: Ram Components

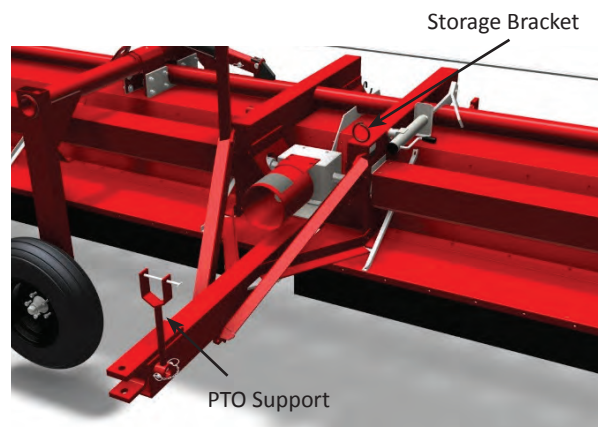


Figure 11: PTO Support



3. Pull the transport hitch assembly out and install the lock pin. Secure the lock pin with the clip. Connect the transport hitch brace to the Shredder.
4. Lower the Shredder with the hydraulic or optional mechanical ram just far enough to install the axle stop shear bolt. The shear bolt holds the Shredder axle and wheels up during transport.
5. Disconnect the Shredder hydraulic hoses and PTO shaft from the tractor. Disconnect the tractor drawbar from the Shredder pole.
6. Move the tractor to the transport hitch. Raise the transport hitch to the tractor drawbar height with the jack and connect the drawbar to the transport hitch. Stop the tractor engine and apply the parking brake.
7. Lower the transport hitch jack.
8. Connect the transport ram hydraulic hose to the tractor. Open the hand valve on the transport ram.
9. Raise the Shredder to the transport position. Put the ram stop on the transport ram.
10. Remove the pole jack and store it on the jack mount on the right side of the Shredder. Put the PTO support on the pole and place the PTO shaft on it.

Pole Jack

To prevent possible damage to tractor tires when making sharp left turns, remove the pole jack from the pole.

On Shredders without the optional end tow system, store it on the jack mount located on the left side of the body by the gear box.

On Shredders with the optional end tow system, store it on the jack mount located on the right side of the body by the gear box

Maintenance

General



CAUTION: Do not allow children or bystanders near the Shredder while it is being adjusted and/or serviced.

Periodically during the season:

1. Tighten all cap screws and lock nuts.
2. Inspect all knives and knife hangers to be sure they are not damaged and are secure.
3. Check to be sure that all guards and shields are in place and secure.
4. Inspect the wheel mounts, rotor, gear box, output drive shaft, belt drive assembly, and PTO shaft for signs of unusual wear or lubrication leaks that could lead to part failure.

Lubrication

Lubricate all fittings with a hand grease gun. Use a good grade of bearing grease. Do not over lubricate. Too much grease may damage the bearing seals.

Lubricate Every 40 Hours

1. Power take-off shaft universal joints. One fitting in each yoke. One fitting in the telescoping spline shaft.

NOTE: To locate the PTO spline shaft fitting, compress the PTO shaft until the distance from the center of one yoke to the center of the other is 40 1/4". Rotate the male and female guards until the slots in the guards are aligned, then rotate both guards together until the fitting appears in the slot.
2. Rotor bearings. One fitting on each end of the rotor(s), see Figure 12.
3. Output shaft bearings, see Figure 13.
4. Output shaft universal joint located under the output shaft guard, see Figure 14.
5. Axle on optional end tow system.

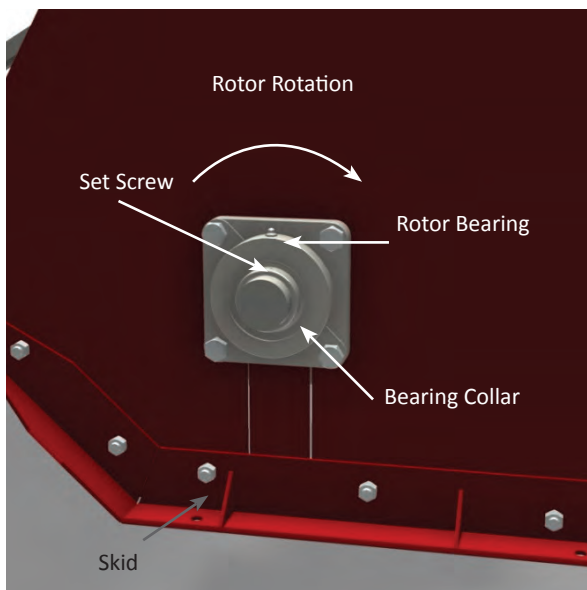


Figure 12: Rotor through Outside Wall

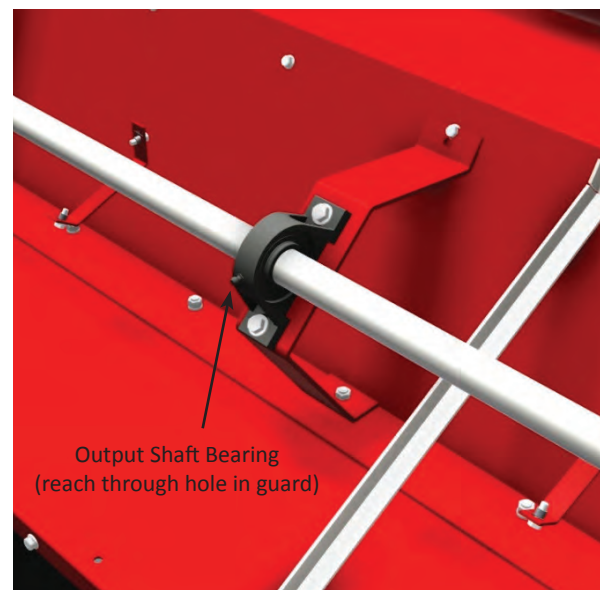


Figure 13: Output Shaft with Guard removed



Bearing Lubrication Locations

Center rotor bearing grease fitting can be reached from beneath the Shredder.

NOTE: To reach the grease fittings use a grease gun having a flexible hose, pull Shredder over a ditch or work pit, or raise the rotor and support with jacks and safety stands or blocking.



CAUTION: Always use safety stands or blocking in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail.

Every 200 Hours (or Seasonally)

1. Idler arm bushings. One fitting behind the belt guard cover (two on Model 2408).

Periodically During the Season

1. Periodically check the oil level in the gear box. Remove the oil level plug on the side of the gear box.
2. The oil level should be even with the bottom of the level plug hole. If not, remove the bushing and vent on the top of the gear box and add Mobilfluid 634 gear oil or equivalent until it just runs out of the level plug hole.
NOTE: Mobilfluid 634 is available from MC in one pint containers (MC #1288947).
3. Install the level plug and the bushing with vent. Check to be sure the vent is open.

Every 2500 Hours (or 6 Months)

1. Drain lubricant from gear box via the access hole on the bottom of the box.
2. Remove the oil level plug on the side of the gear box.
3. Remove the bushing and vent on the top of the gear box and add Mobilfluid 634 gear oil or equivalent until it just runs out of the level plug hole.

NOTE: Mobilfluid 634 is available from MC in one pint containers (MC #1288947).

IMPORTANT: In the event that Mobilfluid 634 is not available, consult the following table for equivalents:

Ambient Temperature	-20°F - 0°F	0°F - 40°F	40°F - 100°F	100°F - 150°F
Lubricant	SAE 10W/30 or 10w/40 Automotive Oil	SAE 80 Gear Oil with Anti-Foaming Agent	SAE 90 Gear Oil with Anti-Foaming Agent	SAE 140 Gear Oil with Anti-Foaming Agent

4. Install the level plug and the bushing with vent. Check to be sure the vent is open.

Knife Sharpening

1. Under normal operating conditions the knives will give you many trouble free acres of service with only occasional maintenance. The knives are mounted so they are free to swing on the rotor. This gives the knives increased cutting action and shock absorbing ability.
2. Normally it is not necessary to sharpen the knives unless the Shredder is being used to cut grass.
3. It is important to check the knives occasionally for sharpness and/or possible damage from hitting rocks or prolonged contact with the ground. Replace any damaged knives. Operating with damaged knives can cause vibration due to rotor imbalance.
4. The knives can be sharpened on the Shredder with a portable electric grinder or they can be removed

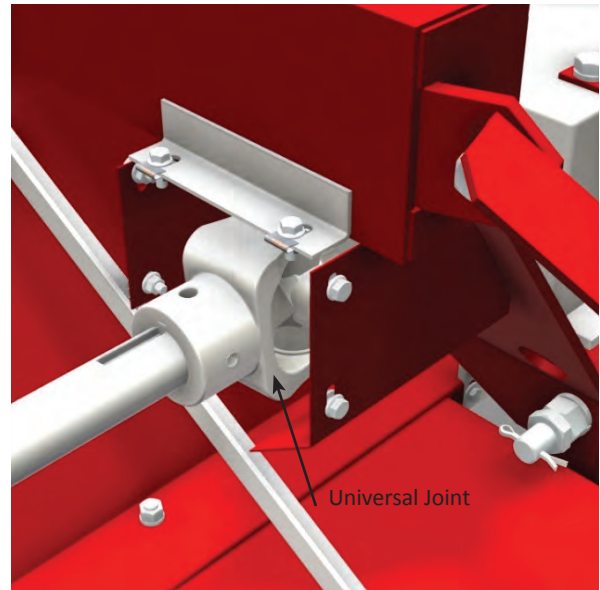


Figure 14: Output Shaft Universal Joint



(See “Knife Replacement” below) and sharpened on a bench grinder. The knives should be sharpened only on the back side. Be sure to retain the original 300 cutting angle.



CAUTION: Always wear safety glasses when sharpening knives with a grinder.

5. If the knives are to be sharpened on the Shredder, lift the back of the Shredder just high enough to provide access to the knives.



CAUTION: Always use safety stands or blocking in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail.

IMPORTANT: Never lift or handle the Shredder by the rotor.

Knife Replacement

1. Lift the back of the Shredder just high enough to provide access to the knives.



CAUTION: Always use safety stands or blocking in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail.

IMPORTANT: Never lift or handle the Shredder by the rotor.

2. Individual knives can be removed by removing the three carriage bolts and lock nuts securing the knife to the knife hanger, shown in Figure 15.
3. A complete set of knives and knife hangers on one rotor hanger bar can be removed as follows:

Model 180 Knife Replacement

NOTE: There is one hanger bar for each row of knives. An end locator bracket is welded to the left end of each hanger bar.

- a. Remove the left skid
- b. Turn the rotor and line up the hanger bar in the center of the slot in the left side of the body. Block the rotor in this position.
- c. Loosen the four left rotor bearing mounting bolts and remove the lower half of the anti-wrap.
- d. Remove the two cap screws and lock nuts securing the left end locator bracket to the rotor. Turn the locator bracket to a vertical position and pull the bracket and hanger bar out through the slot in the body. The knife hangers and knives will drop off as the hanger bar is pulled out.

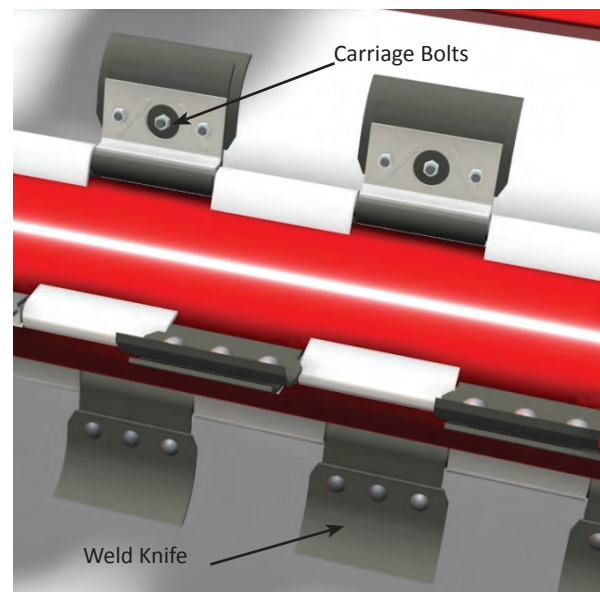


Figure 15: Standard Knife Configuration



Model 2408 Knife Replacement

- a. Remove the right and left skids and belt guard covers.
 - b. Remove the inner end locator bracket. Turn the rotor and line up the hanger bar in the 1 1/4" hole in the front of the Shredder center plate. Block the rotor in this position.
 - c. Place a 3/8" bar in the hole in the center of the outer end locator bracket. Drive the hanger bar out as far as you can.
 - d. Attach a vise grip plier to the hanger bar and pull the hanger bar out. The knife hangers and knives will drop off as the hanger bar is pulled out.
4. Installation of the knife hangers, knives, and rotor hanger bars is the reverse of the removal procedure. When reassembling pay particular attention to the following:
- a. The dished or concave side of the knives must face the front of the Shredder when hanging down and swinging freely.
 - b. The end knives must be opposite each other at each end of the rotor. The wide end of the knife faces the outside, see Figure 16.
 - c. A knife spacer bushing goes between each end locator bracket and wide knife hanger.

IMPORTANT: Whenever a knife is replaced, always replace the knife on the opposite side to maintain rotor balance.

Drive Belt Adjustment

NOTE: After installing new belts, recheck the tension after 6 to 10 hours of operation.

1. Remove the belt guard cover.
2. Correct belt tension is 3/8" upward deflection (full width of the belts) at midpoint with a force of 76-112 lbs.
3. Use a spring scale or belt tension tester to check belt deflection. Loosen or tighten the adjusting bolt until the 3/8" belt deflection is obtained.
4. Install the belt guard cover.

Drive Belt Replacement

IMPORTANT: The drive belts are a matched set. If just one belt failed, all belts must be replaced.

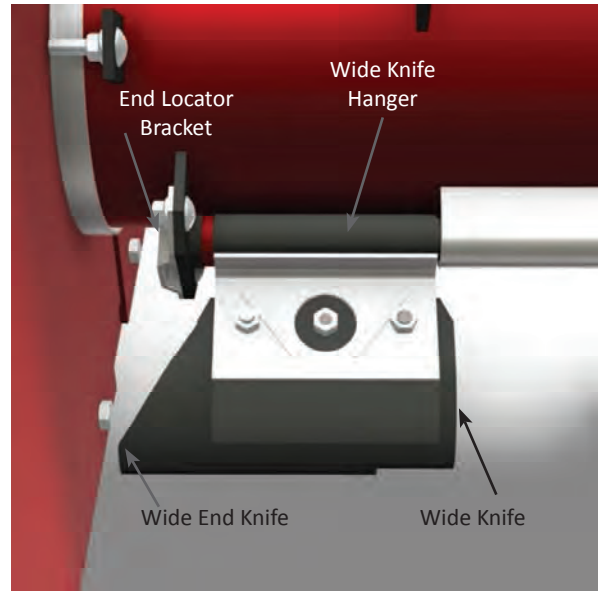
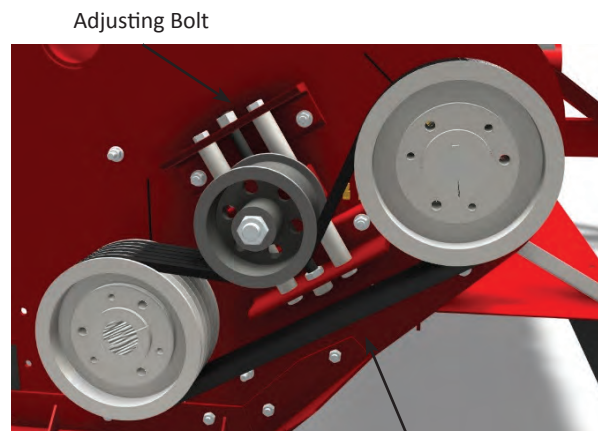


Figure 16: End Knife Configuration



3/8" Deflection (up) at Mid-Point w/ 76-112 lb. Force.

Figure 17: Idler Pulley Adjustment

1. Remove the belt guard cover.
2. Before replacing the drive belts determine what caused the belts to fail. Three common causes of belt failure are:
 - a. If a belt is broken, this indicates a severe shock load or engagement of the tractor PTO at high engine RPM. Always engage and disengage the tractor PTO at low engine RPM.
 - b. If a belt is burned in places, this indicates that the belt is slipping. Adjust belt tension, see “Drive Belt Adjustment” for details.
 - c. If a belt has one segment turned over, is frayed, or there is a great amount of powdered rubber in the belt guard, the drive and rotor pulleys are misaligned or the idler pulley is misaligned. See “Drive and Rotor Pulley Alignment” for details. To prevent another belt failure, correct the problem before installing new belts.
3. Loosen the lock nut and back off the adjusting bolt to relieve all idler tension.
4. Before installing the new belts, refer to “Drive and Rotor Pulley Alignment”.
5. Clean dirt and debris from inside the guard and in the pulley grooves. Dirt build-up in the pulley grooves can ruin the belts.
6. Install the new drive belts.
7. Adjust the drive belt tension, referring to “Drive Belt Adjustment”.

Drive and Rotor Pulley Alignment

1. Remove the belt guard cover and place a straight edge across the face of the drive and rotor pulley.
2. If the pulleys are not in alignment, loosen the lock nut and back off the adjusting bolt to relieve all idler tension.
3. Remove the output shaft guards. Adjust the output shaft bearings as follows:
 - a. If pulleys are out of alignment **vertically**, raise or lower the output shaft and bearings as required by adding or removing shims under the bearings.
 - b. If pulleys are out of alignment **horizontally**, loosen the bearing mounting cap screws and move the output shaft and bearings forward or backward as required. The bearing mounting holes are slotted for this purpose.
4. Install the output shaft guard and belt guard cover. Adjust the drive belt tension referring to “Drive Belt Adjustment” for details.

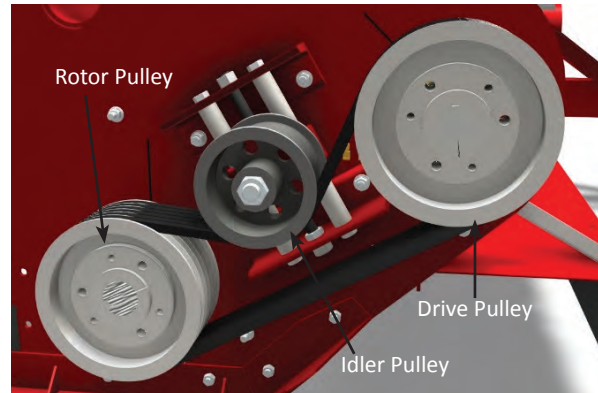


Figure 18: Pulley Descriptions

Drive and Rotor Pulley Replacement

NOTE: The drive and rotor pulleys are held on the shafts with tapered bushings. The bushings have jack screw holes that are used to remove them. **DO NOT** attempt to remove the pulleys with a gear puller as this could result in damage to the pulleys.

1. Remove the belt guard cover.
2. Remove the drive belts, refer to “Drive Belt Replacement” for details.
3. Remove the three mounting cap screws. Thread the cap screws into the three jack screw holes in the pulley. Loosen the three cap screws progressively and evenly until the pulley is loose on the bushing.
4. Remove the pulley and bushing from the shaft. If the bushing does not slip off of the shaft, wedge a screwdriver blade in the saw cut in the end or flange of the bushing (not the tapered surface) to spread the bushing.



5. Before installing the bushing and pulley thoroughly inspect the tapered bore of the pulley and the tapered surface of the bushing. Any paint, dirt, oil, or grease **MUST** be removed.
6. Place the bushing into the pulley from the back so that the bushing flange is to the inside. The bushing and the bore of the pulley are tapered. Be sure to install the bushing into the large ID of the pulley tapered bore. If the bushing is installed into the small ID of the pulley, the pulley hub will crack when the mounting cap screws are tightened.
7. Place the three cap screws through the open holes in the pulley and thread them into the bushing by hand. Do not tighten the cap screws. **IMPORTANT:** The cap screw and bushing threads must be clean and dry. Do not lubricate.
8. Install the key in the output drive and/or rotor shaft. Slide the bushing and pulley assembly onto the shaft. If the bushing is too tight on the shaft, wedge a screwdriver blade into the saw cut in the end of the bushing to spread the bushing.
9. Install the belts and move the pulley and bushing in or out until the belts are in alignment on the pulleys. Tighten the three cap screws evenly and progressively. Torque the cap screws to 50 ft. lbs. **IMPORTANT:** The tightening force on the three cap screws is multiplied many times by the wedging action of the bushing tapered surface. Do not exceed the specified torque or use a lubricant on the cap screw threads. To do so may create bursting pressures in the hub of the pulley. **NOTE:** There should be a 1/8" to 1/4" gap between the pulley hub and flange of the bushing. If the gap is closed, the shaft is undersized.
10. Check "Drive and Rotor Pulley Alignment" and adjust if necessary. Install the belt guard cover.
11. Adjust the drive belt tension, refer to "Drive Belt Adjustment" for details.

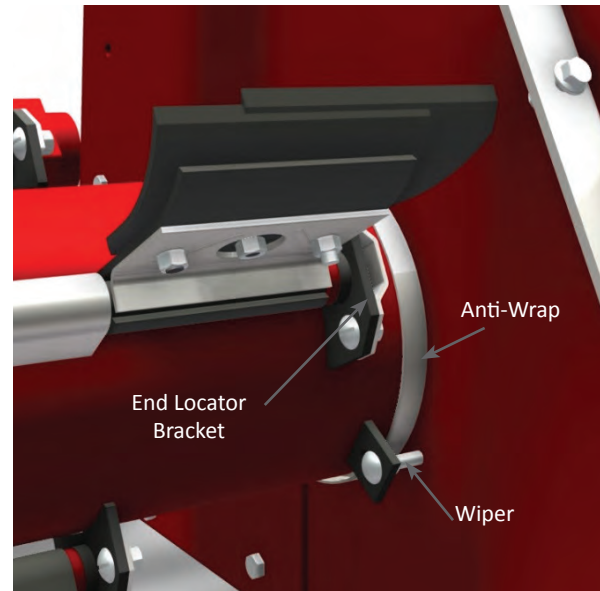


Figure 19: Bottom View of Rotor

Rotor Bearing Replacement

Model 180 Left Bearing

1. Lift the left side of the Shredder and block up the rotor so it cannot fall when the bearing is removed. **DO NOT** lift the Shredder by the rotor.



CAUTION: Always use safety stands or blocking in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail.

2. Clean the end of the rotor shaft with emery cloth. Remove the two set screws in the bearing lock collar and four cap screws securing the bearing to the Shredder body and slide the bearing off of the rotor shaft.
3. Lightly polish the rotor shaft with emery cloth. Lubricate the rotor shaft with motor oil and slide the new bearing onto the shaft with the lubrication fitting facing to the rear.
4. Place the four mounting cap screws through the bearing and Shredder body. Partially thread the cap screws into the nut bars. Slide the two anti-wrap halves over the cap screws. Tighten the cap screws evenly to align the bearing on the shaft. Tighten the two set screws in the bearing lock collar.



5. Check the position of the two wipers (1800 apart) at the end of the rotor. They should be as close to the anti-wrap as possible without touching it. The wiper prevents material from building up on the anti-wrap. If necessary, loosen the wiper locknut and reposition the wiper in the adjusting slot.
6. Remove the safety stands or blocking and lower the Shredder to the ground. Lubricate the rotor bearing with a hand grease gun. Do not over lubricate. Too much grease may damage the bearing seal.

Model 180 Right Bearing

1. Lift the right side of the Shredder and block up the rotor so it cannot fall when the bearing is removed.
DO NOT lift the Shredder by the rotor.



CAUTION: Always use safety stands or blocking in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail.

2. Remove the belt guard cover, lubrication hose, and drive belts referring to “Drive Belt Replacement” for details.
3. Remove the rotor pulley, refer to “Drive and Rotor Pulley Replacement” for details.
4. Clean the end of the rotor shaft with emery cloth. Remove the two set screws in the bearing lock collar and four cap screws securing the bearing to the shredder body and slide the bearing off of the rotor shaft.
5. Lightly polish the rotor shaft with emery cloth. Lubricate the rotor shaft with motor oil and slide the new bearing onto the shaft with the lubrication fitting on top facing the rear of the Shredder.
6. Place the four mounting cap screws through the bearing and Shredder body. Partially thread the cap screws into the nut bars. Slide the two anti-wrap halves over the cap screws. Tighten the cap screws evenly to align the bearing on the shaft. Tighten the two set screws in the bearing lock collar.
7. Check the position of the two wipers (1800 apart) at the end of the rotor. They should be as close to the anti-wrap as possible without touching it. The wiper prevents material from building up on the anti-wrap. If necessary, loosen the wiper locknut and reposition the wiper in the adjusting slot.
8. Install the rotor pulley, refer to “Drive and Rotor Pulley Replacement” for details. Check “Drive and Rotor Pulley Alignment” and “Idler Pulley Alignment” and adjust if necessary.
9. Install the back belt guard, bearing lubrication hose, and belt guard cover. Remove the safety stands or blocking and lower the Shredder to the ground.
10. Lubricate the rotor bearing with a hand grease gun. Do not over lubricate. Too much grease may damage the bearing seal.
11. Adjust the drive belt tension, refer to “Drive Belt Adjustment” for details. Model 2408 Outer Bearings
The replacement procedure for the Model 2408 Outer Bearings is the same as the “Model 180 Right Bearing” procedure.

Model 2408 Outer Bearings

The replacement procedure for the Model 2408 Outer Bearings is the same as the “Model 180 Right Bearing” procedure.

Model 2408 Center Bearings

1. Support the rotor at each end with hydraulic jacks and safety stands or blocking



CAUTION: Always use safety stands or blocking in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail.

2. Remove the outer rotor bearing. Follow the procedure given in the “Model 180 Right Bearing” section. Remove the skid.



3. Remove the anti-wrap from the center rotor bearing center plate.
4. Disconnect the lubrication hose from the center bearing. Remove the four cap screws securing the center rotor bearing to the center plate.
5. Raise the rotor and remove the safety stands or blocking. Lower the rotor carefully until the center bearing clears the center plate.
6. Remove the two set screws in the bearing lock collar and slide the bearing off of the rotor shaft.
7. Lightly polish the rotor shaft with emery cloth. Lubricate the rotor shaft with motor oil and slide the new bearing onto the shaft with the lubrication fitting facing to the rear.
8. Raise the rotor into position with hydraulic jacks. Place safety stands or blocking under the rotor. **CAUTION:** Always use safety stands or blocking in conjunction with hydraulic jacks or hoists. Do not rely on the jack or hoist to carry the load, they could fail.
9. Place the four bearing mounting cap screws through the bearing and the center plate. Tighten the cap screws evenly to align the bearing on the shaft. Tighten the two set screws in the bearing lock collar.
10. Install the anti-wrap. Connect the lubrication hose to the center bearing.
11. Install the outer rotor bearing following the procedure given in the "Model 180 Right Bearing" section. Install the skid.

Output Shaft Outer Bearing Replacement

1. Remove the output shaft guard.
2. Remove the belt guard cover, lubrication hose, and top belt guard. Remove the drive belts, refer to "Drive Belt Replacement" for details.
3. Remove the drive pulley, refer to "Drive and Rotor Pulley Replacement" for details.
4. Scribe a line on the output shaft bearing mounting bracket to establish the location of the new bearing when reassembling.
5. Remove the two set screws in the bearing lock collar, two cap screws, flat washers, lock washers, and hex-nuts securing the output shaft bearing. Loosen the output shaft center bearing cap screws. Lift up on the output shaft and remove the shims from under the output shaft bearing.
6. Clean the output shaft with emery cloth. Support the output shaft and pull the bearing off of the output shaft.
7. Lightly polish the output shaft with emery cloth. Lubricate the output shaft with motor oil and slide the new bearing onto the shaft. Be sure that the lubrication fitting faces the front of the Shredder.
8. Install the drive pulley, refer to "Drive and Rotor Pulley Replacement" for details. Do not tighten the cap screws in the pulley bushing until the drive belts are installed and pulley alignment has been checked.
9. Install the drive belts.
10. Lift up on the output shaft and place the shims on the output shaft bearing mounting bracket. Install the cap screws, SAE flat washers, lock washers, and hex-nuts. Align the edge of the output shaft bearing with the mark scribed on the mounting bracket made in step 4. Tighten the output shaft bearing cap screws and two set screws in the bearing lock collar. Tighten the center bearing cap screws.

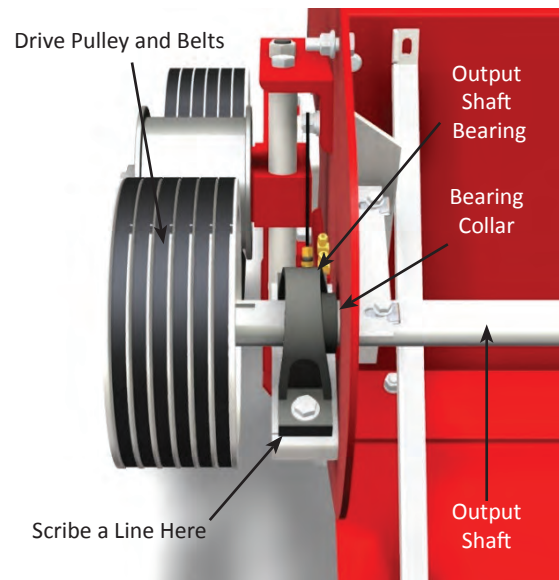


Figure 20: Output Shaft Components



11. Check drive and rotor pulley alignment, refer to "Drive and Rotor Pulley Alignment" for details. Check idler pulley alignment, refer to "Idler Pulley Alignment" for details.
12. Install the top belt guard, lubrication hose, belt guard cover, and output shaft guard.
13. Lubricate the output shaft bearing with a hand grease gun. Do not over lubricate. Too much grease may damage the bearing seal.
14. Adjust the drive belt tension, refer to "Drive Belt Adjustment" for details.

Output Shaft Center Bearing Replacement

1. Remove the output shaft guard.
2. Remove the belt guard cover and top belt guard. Remove the drive belts, refer to "Drive Belt Replacement" for details.
3. Scribe a line on the output shaft outer bearing mounting bracket to establish the location of the bearing for reassembly. Remove the two cap screws, flat washers, lock washers, and hex-nuts securing the output shaft bearing to the bearing mount.
4. Remove the two set screws in the output shaft center bearing lock collar.
5. Remove the set screw and roll pin securing the output shaft to the universal joint yoke. Pull the output shaft out of the universal joint yoke and remove the key in the end of the output shaft. Save the shim(s) that are under the output shaft outer bearing.
6. Pull the output shaft out of the center bearing. Remove the output shaft center bearing and shim(s) from the center bearing mount.
7. Place the new bearing on the center bearing mount with the lubrication fitting facing to the front. Bolt the bearing to the bearing mount loosely. Loosen the two set screws in the bearing lock collar.
8. Slide the output shaft through the bearing on the center bearing mount. Install the 3/8"x2 1/2" key in the end of the output shaft.
9. Tap the output shaft into the output shaft universal joint until the drilled hole in the output shaft lines up with the hole in the universal joint end yoke. Tighten the set screw and install the 3/8" x 3" roll pin.
10. Lift up on the output shaft and place the shim(s) that were removed in disassembly on the outer output shaft bearing mounting bracket. Install the cap screws, SAE flat washers, lock washers, and hex-nuts. Align the edge of the output shaft bearing with the mark scribed on the mounting bracket made in step 3. Tighten the output shaft bearing cap screws.
11. Check the fit of the new bearing to the center bearing mount. If there is a space between them add shims as required under the bearing. Tighten the bearing mounting cap screws and the two set screws in the bearing lock collar.
12. Install the top belt guard, belt guard cover, and output shaft guard.
13. Lubricate both output shaft bearings with a hand grease gun. Do not over lubricate. Too much grease may damage the bearing seal.
14. Adjust the drive belt tension, refer to "Drive Belt Adjustment" for details.

Idler Pulley Bearing Replacement

1. Remove the belt guard cover, top belt guard, and back belt guard.
2. Loosen the push rod lock nuts and back off the adjusting nut to relieve all idler tension. Disconnect the idler push rod at the idler arm.
3. Pull the idler push rod out of the idler spring bracket and remove the idler push rod and spring assembly.
4. Remove the three cap screws, lock washers, and hex-nuts securing the idler pivot support to the Shredder body. Remove the idler pivot support and pull the idler pulley assembly off of the idler pivot.
5. Remove the cotter pin, castellated nut, and idler bolt from the idler arm.



6. Use an internal puller to remove the bearing seals and bearing cups.
7. Pack the new bearing cones with a good grade of wheel bearing grease. Press the bearing cups into the hub. Install bearing cones and press in the bearing seals.
8. Put a hub spacer on each side of the hub assembly and place the assembly in the idler arm. Install the idler bolt and castellated nut. Tighten the nut just enough to hold the assembly together.
9. Place the idler pulley assembly on the idler pivot. Install the idler pivot support. Do not tighten the cap screws until after the idler pulley alignment has been checked.
10. Tighten the idler bolt castellated nut until it is snug to take all end play out of the bearings. Back off the nut to the next slot that lines up with the cotter pin hole.
11. Hit the end of the idler bolt with a mallet and check to see if there is any end play in the pulley. If there is none, install the cotter pin. If there is end play, repeat the procedure until all end play is taken up and install the cotter pin.
12. Lubricate the idler arm bushings. Check idler pulley alignment, refer to "Idler Pulley Alignment" for details.
13. Install the idler push rod into the idler bracket. Connect the idler push rod to the idler arm.
14. Install the back belt guard, top belt guard, and belt guard cover.

Storing the Shredder

1. When the Shredder is to be stored for an extended period of time or at the end of the season, lubricate all bearings with enough grease to eliminate any cavities where water condensation may occur and cause damage. Refer to the "Lubrication" section for locations of all grease fittings. Be sure the vent on top of the gear box is open.
IMPORTANT: Use a hand grease gun. Do not over lubricate. Too much grease may damage the bearing seals.
2. If the Shredder is equipped with the optional end tow system, lubricate the transport axle liberally to eliminate water condensation.
3. Loosen the push rod lock nuts and back off the adjustment nut to relieve the belt drive tension.
NOTE: Before next seasons use, be sure to adjust the drive belt tension, refer to "Drive Belt Adjustment" for details.
4. Coat all exposed surfaces inside the shredder with oil or grease to prevent rusting and pitting during storage.

Pre-Season Check

1. Inflate the tires to 32 lbs.
2. Check the oil level in the gear box and lubricate all bearings, refer to "Lubrication" for details.
3. Adjust the drive belt tension, refer to "Drive Belt Adjustment" for details.
4. Inspect for missing and/or broken knives. Replace if necessary, refer to "Knife Replacement" for details.
5. Be sure all safety shields are in place and secure.
6. Run the Shredder at low RPM checking to make sure that all drive line parts are moving freely.

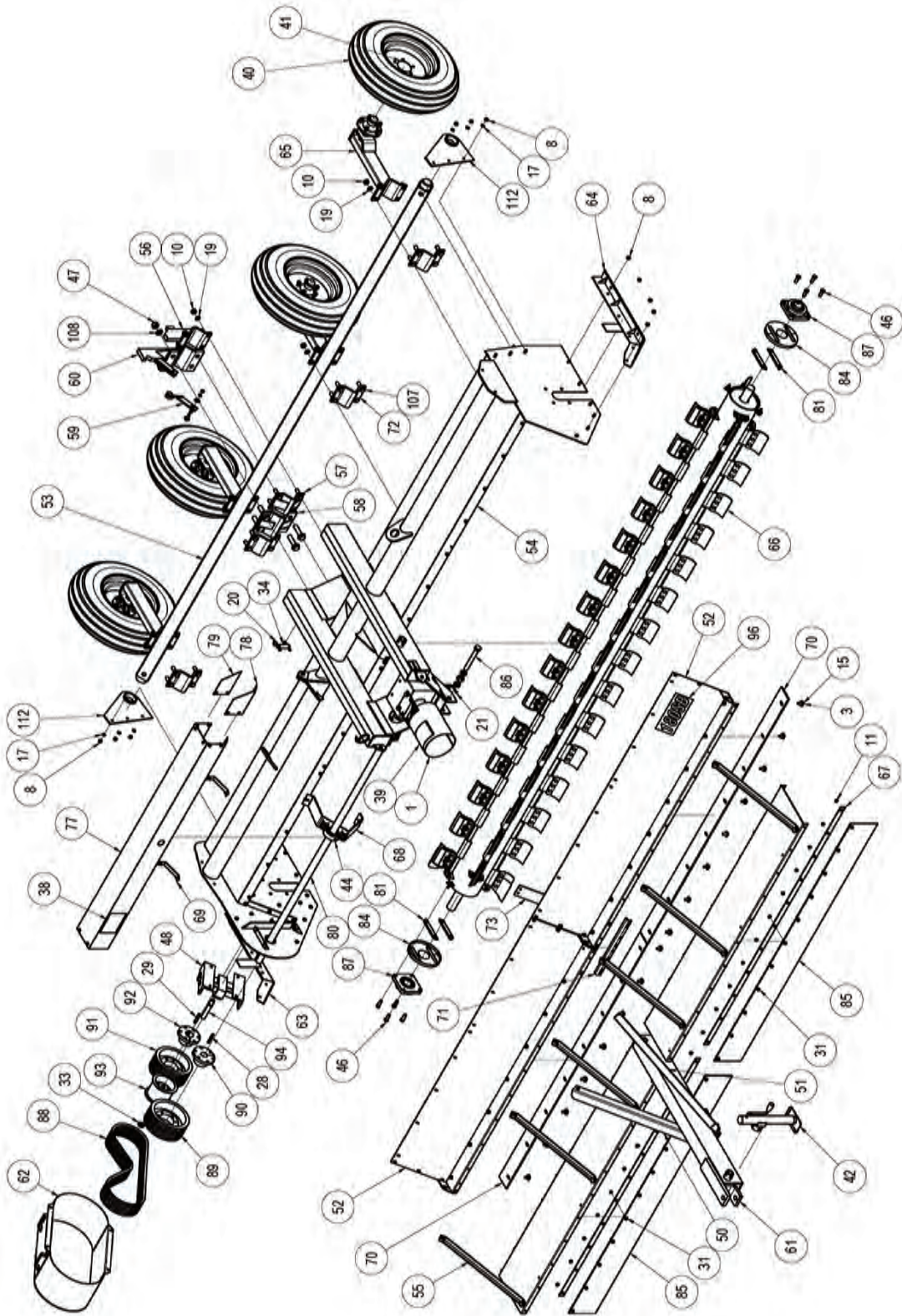


Section 5

Parts



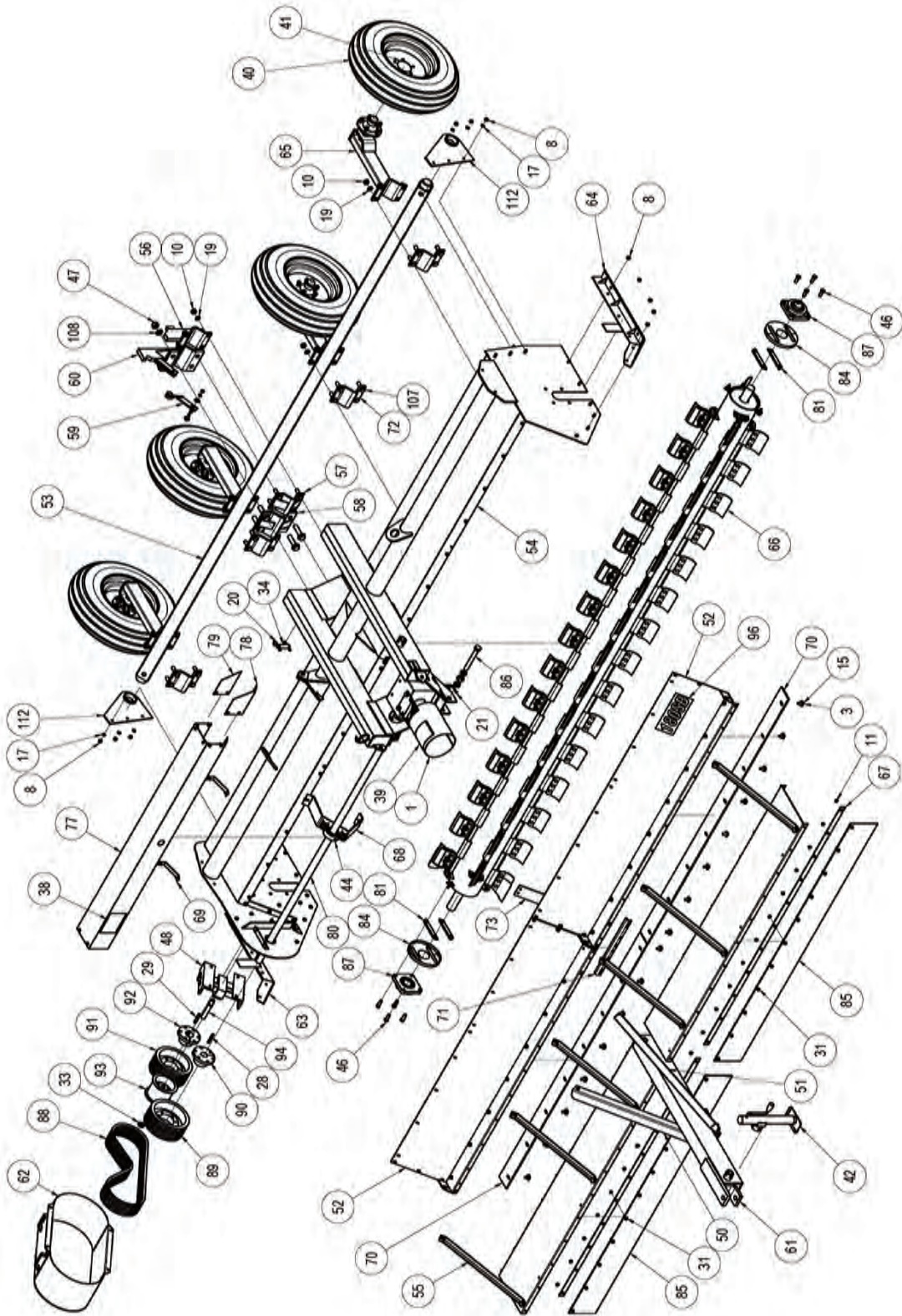
180 SB/HS



Bill of Material				Bill of Material			
Item	Qty	Part No.	Description	Item	Qty	Part No.	Description
1	1	8047	GEARBOX INPUT SHAFT GARD	36	2	0018281	3/8 X 3 ROLL PIN PF
2	10	0008135	Bolt, 1/2"-13 x 1" HHCS ZP	37	1	0018291	1-8 FIN HEX JAM NUT ZP
3	22	0008137	Bolt, 1/2"-13 x 1 1/4" HHCS ZP	38	1	0018314	DECAL SAFETY "CAUTION"
4	4	0008140	Bolt, 1/2"-13 x 2" HHCS GR5 ZP	39	1	0018316	DECAL SAFETY "DANGER"
5	1	0008143	Bolt, 1/2"-13 x 3" HHCS GR5 ZP	40	4	0018949	9.5L X 15" 6-PLY TIRE
6	2	0008145	Bolt, 5/8"-11 x 1 1/4" HHCS GR5 ZP	41	4	0018950	5 BOLT 15"RIM X 8" WHEEL
7	3	0008146	Bolt, 5/8"-11 x 1 1/2" HHCS GR5 ZP	42	1	0018986	SIDEWINDER JACK
8	41	0008163	Nut, 1/2"-13 Hex ZP	43	2	0026604	1/8" PT Straight Zerk
9	1	0008164	Nut, 5/8"-11 Hex ZP	44	2	0916001	BEARING 1 3/4 PB
10	22	0008165	Nut, 3/4"-10 Hex ZP	45	1	0916608	A-76 ASSY GEARBOX
11	86	0008168	Nut, 3/8"-16 FLNG WHIZ LKNT ZP	46	12	0918170	Bolt, 5/8"-11 x 1 3/4" HHCS GR5 NYL PEL
12	4	0008169	Nut, 5/16"-18 FLNG WHIZ LKNT ZP	47	5	0918231	NUT, 1"-8 HEX ZP
13	1	0008170	Nut, 1/2"-13 FLNG WHIZ LKNT ZP	48	1	1110104	IDLER SHREDDER DRIVE ASSY
14	4	0008174	Washer, 3/8 Flat	49	1	1110119	AXLE CENTER BEARING WELD
15	18	0008175	Washer, 1/2 Flat	50	1	1110128	POLE SUPP ANGLE WELD RT
16	3	0008176	Washer, 5/8 Flat ZP	51	1	1110129	POLE SUPP ANGLE WELD LT
17	31	0008180	Lock Washer, 1/2 Split	52	2	1110147	FRONT COVER WELDMENT-180
18	9	0008181	Lock Washer, 5/8 Split	53	1	1110149	180 SHREDDER AXLE WELD
19	22	0008182	Lock Washer, 3/4 Split	54	1	1110158	180SS/SB BODY WELDMENT
20	2	0008252	3/16 HAIR CUTTER PIN	55	6	1110162	STONE GUARD SUPPORT WELD
21	1	0008255	Pin, Cotter 1/4" x 2" Long	56	1	1110163	TRANSPORT LOCK ARM WELD
22	4	0008276	1 SAE FLATWASHER	57	1	1110183	MOUNT CLAMP REINFORCED
23	1	0008278	Bolt, 1/2"-13 x 1 3/4" HHCS ZP	58	1	1110189	MOUNT CLAMP WELD (5/8)
24	4	0008289	Bolt, 3/8"-16 x 1 1/2" HHCS GR5 ZP	59	1	1110190	FLOATING LINK WELD
25	1	0008301	DECAL SAFETY SHIELD WARNING	60	1	1110191	REAR CYLINDER MOUNT WELD
26	1	0012600	BEARING SHIM 11GA	61	1	1110192	SHREDDER POLE WELD
27	2	0015136	Key, 3/8 X 3/8 X 2 1/2" Square	62	1	1110315	SHREDDER BELT GUARD WELD
28	1	0015139	Key, 3/8 X 3/8 X 3" Square	63	1	1110317	SKID WELD RIGHT
29	1	0015147	Key, 1/2 X 1/2 X 3" Square	64	1	1110318	SKID WELD LEFT
30	8	0018111	Clip Nut, 5/16-18	65	4	1111066	WHEEL MOUNT AND HUB ASSEMBLY
31	82	0018209	Bolt 3/8"-16 X 1" HHWH GR5 ZP	66	1	1111104	180SSB BALANCED ROTOR ASSY
32	4	0018216	Washer, 1/2 SAE ZP Type B, Series N	67	2	1112051	RETAINING STRIP 87 1/4"
33	1	0018223	1-14 NYLON INSERT GR C ZP	68	1	1113399	SOLID SHAFT CNTR BRG MNT
34	1	0018248	1" TRANSPORT LOCK PIN	69	2	1113404	OUTPUT SHAFT GUARD BRACE
35	4	0018257	1/2 SAE FLATWASHER	70	2	1113483	180 SHREDDER CUTTER BAR



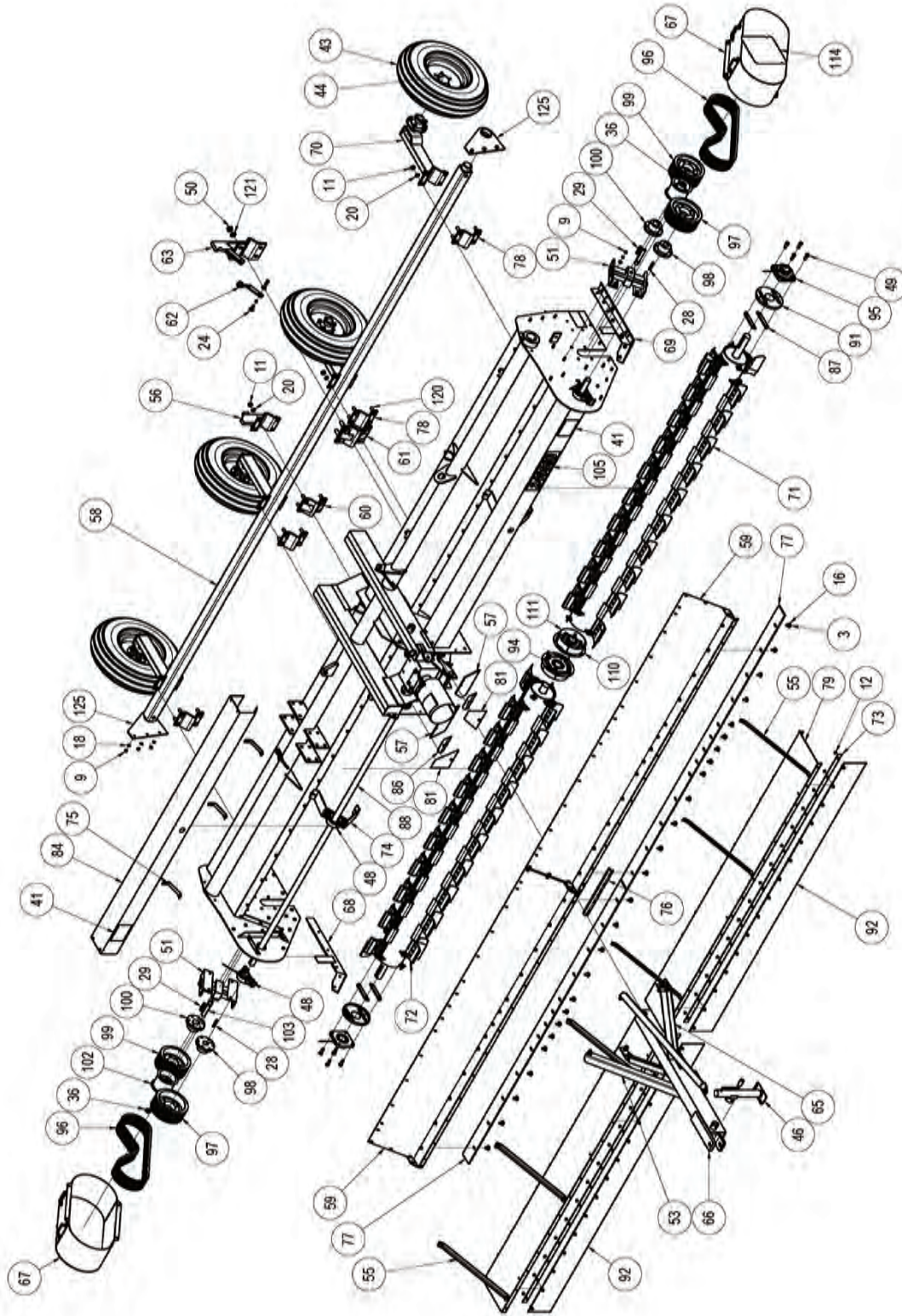
180 SB/HS



Bill of Material				Bill of Material			
Item	Qty	Part No.	Description	Item	Qty	Part No.	Description
71	1	1113496	COVER SUPPORT ANGLE	106	2	1288195	Bolt, 3/4"-10 x 2" HHCS ZP
72	4	1113590	MOUNT CLAMP	107	20	1288196	Bolt, 3/4"-10 x 2 1/2" HHCS ZP
73	1	1114446	Front Cover Splice	108	5	1288231	1" LOCKWASHER
74	2	1114457	180 STONE GUARD	109	6	1288947	SCR GEAR BOX OIL MOBIL#SHC634
75	1	1114653	SHREDDER FRONT COVER SHIM 14GA	110	1	1318980	SERIAL NUMBER PLATE
76	1	1114718	SHREDDER FRONT COVER SHIM 16GA	111	4	1338161	Bolt, 1/2"-13 x 1 1/2" HHCS ZP
77	1	1114791	OUTPUT SHAFT GUARD - 180	112	2	1410018	AXLE MOUNT WELDMENT
78	1	1114792	OUTPUT SHAFT GUARD EXT F	113	12	837524	Bolt 5/16"-18 X 3/4" HWHCS WHIZ GR5 ZP
79	1	1114793	OUTPUT SHAFT GUARD EXT R				
80	1	1115064	160 OUTPUT DRIVE SHAFT				
81	4	1115182	NUT BAR				
82	1	1115410	STOP BAR - SPACER				
83	1	1115560	LINK ARM BUSHING				
84	4	1115709	ANTI-WRAP HALF				
85	2	1115715	RUBBER FLAP 87 1/4"				
86	1	1115721	SHREDDER POLE BOLT				
87	2	1116003	BEARING 2 3/16 4-BOLT FLANGE				
88	1	1116101	DRIVE BELT (MISMATCHED SET)				
89	1	1116202	65V/10.9"E SHEAVE				
90	1	1116205	E' BUSHING 1 3/4" BORE				
91	1	1116208	65V/10.3"E SHEAVE				
92	1	1116211	E' BUSHING 2 3/16" BORE				
93	1	1116630	IDLER SHREDDER DRIVE PULLEY				
94	1	1116631	IDLER SHREDDER PULLEY ROD				
95	4	1118230	Bolt, 1"-8 x 4" HHCS ZP				
96	1	1118402	DECAL "180SB" 180 SHREDDER				
97	2	1118700	1/8" Male Connector				
98	1.333 ft	1118701	1/8" OD Nylon Tubing				
99	2	1118703	1/8" MALE CONNECTOR - 90 DEGREE				
100	1	1118998	LP UNIVERSAL JOINT				
101	1	1216310	Decal, Made in U.S.A.				
102	2	1237503	1/8" Galv Pipe Coupling				
103	1	1248308	DECAL - 12X12" M2 LOGO				
104	2	1252918	BEARING SHIM 16GA				
105	2	1273404	GEAR BOX MOUNT STIFFENER				



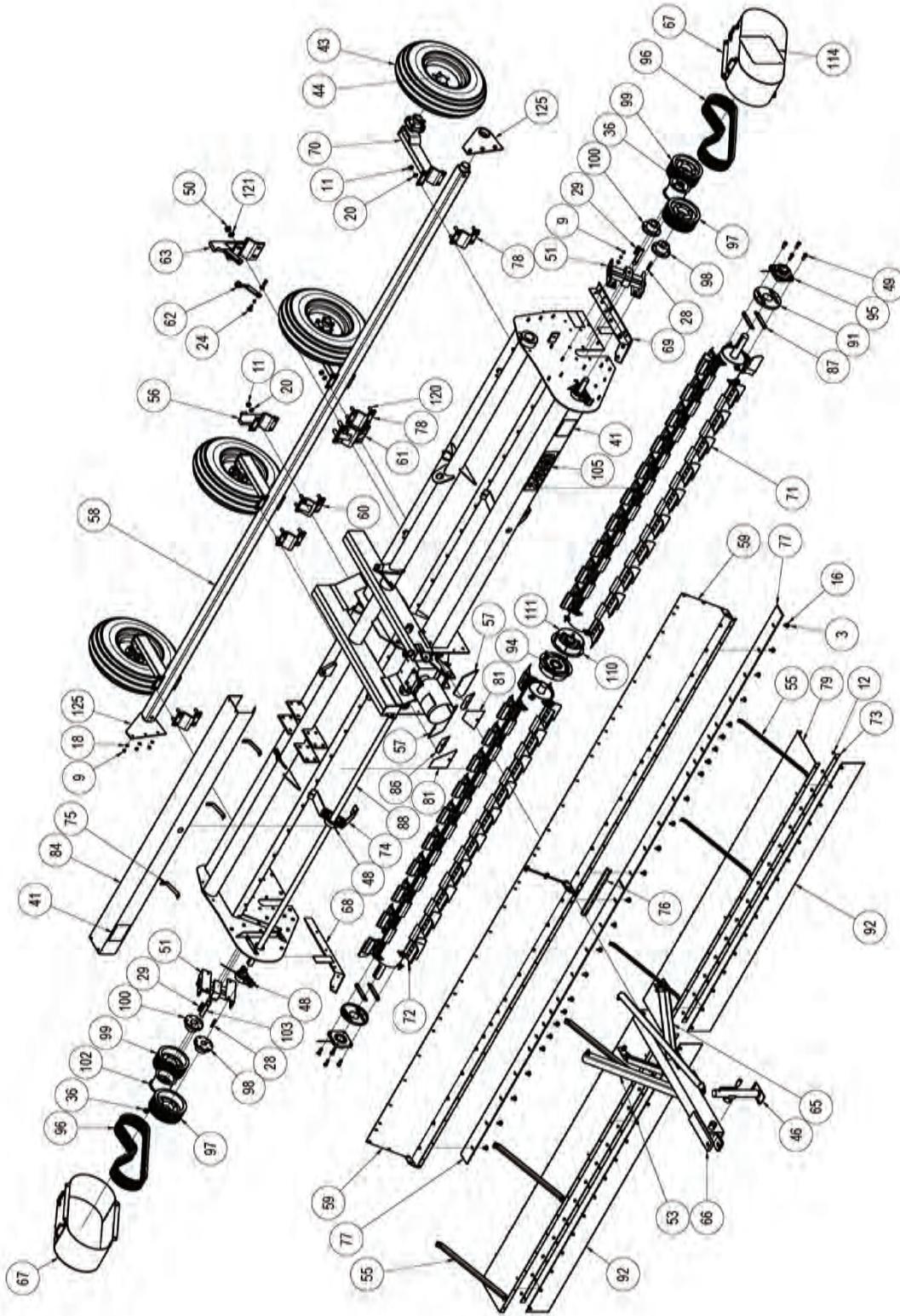
2408 SB/HS



Bill of Material				Bill of Material			
Item	Qty	Part No.	Description	Item	Qty	Part No.	Description
1	1	000807	GEARBOX INPUT SHAFT GARD	36	2	0018223	1-14 NYLON INSERT GR C ZP
2	10	0008135	Bolt, 1/2"-13 x 1" HHCS ZP	37	1	0018248	1" TRANSPORT LOCK PIN
3	32	0008137	Bolt, 1/2"-13 x 1 1/4" HHCS ZP	38	8	0018257	1/2 SAE FLATWASHER
4	8	0008140	Bolt, 1/2"-13 x 2" HHCS GR5 ZP	39	4	0018281	3/8 X 3 ROLL PIN PF
5	1	0008143	Bolt, 1/2"-13 x 3" HHCS GR5 ZP	40	1	0018291	1-8 PIN HEX JAM NUT ZP
6	2	0008145	Bolt, 5/8"-11 x 1 1/4" HHCS GR5 ZP	41	2	0018314	DECAL SAFETY "CAUTION"
7	3	0008146	Bolt, 5/8"-11 x 1 1/2" HHCS GR5 ZP	42	1	0018316	DECAL SAFETY "DANGER"
8	4	0008162	Nut, 3/8"-16 Hex ZP	43	4	0018949	9.5L X 15" 6-PLY TIRE
9	51	0008163	Nut, 1/2"-13 Hex ZP	44	4	0018950	5 BOLT 15" RIM X 8" WHEEL
10	9	0008164	Nut, 5/8"-11 Hex ZP	45	8	0018966	5/16-24 X 5/16 (K) RLD CUP PT
11	28	0008165	Nut, 3/4"-10 Hex ZP	46	1	0018966	SIDEWINDER JACK
12	104	0008168	Nut, 3/8"-16 FLNG WHIZ LKNT ZP	47	6	0028604	1.8" PT Straight Zerk
13	4	0008169	Nut, 5/16"-18 FLNG WHIZ LKNT ZP	48	4	0916001	BEARING 1 3/4 PB
14	1	0008170	Nut, 1/2"-13 FLNG WHIZ LKNT ZP	49	20	0918170	Bot, 5/8"-11 X 1 3/4" HHCS GR5 NYL PEL
15	8	0008174	Washer, 3/8 Flat	50	5	0918231	NUT, 1"-8 HEX ZP
16	28	0008175	Washer, 1/2 Flat	51	2	1110104	IDLER SHREDDER DRIVE ASSY
17	3	0008176	Washer, 5/8 Flat ZP	52	1	1110119	AXLE CENTER BEARING WELD
18	49	0008180	Lock Washer, 1/2 Split	53	1	1110128	POLE SUPP ANGLE WELD RT
19	17	0008181	Lock Washer, 5/8 Split	54	1	1110129	POLE SUPP ANGLE WELD LT
20	28	0008182	Lock Washer, 3/4 Split	55	6	1110162	STONE GUARD SUPPORT WELD
21	2	0008252	3/16 HAIR COTTER PIN	56	1	1110163	TRANSPORT LOCK ARM WELD
22	1	0008255	Pin, Cotter 1/4" X 2" Long	57	1	1110171	2408SB BODY WELDMENT
23	4	0008276	1 SAE FLATWASHER	58	1	1110172	2408 SHREDDER AXLE WELD
24	1	0008278	Bolt, 1/2"-13 x 1 3/4" HHCS ZP	59	2	1110173	FRONT COVER WELD (2408)
25	4	0008289	Bolt, 3/8"-16 x 1 1/2" HHCS GR5 ZP	60	1	1110183	MOUNT CLAMP REINFORCED
26	2	0008301	DECAL SAFETY SHIELD WARNING	61	1	1110189	MOUNT CLAMP WELD (5/8)
27	4	0015136	Key, 3/8 X 3/8 X 2 1/2" Square	62	1	1110190	FLOATING LINK WELD
28	2	0015139	Key, 3/8 X 3/8 X 3" Square	63	1	1110191	REAR CYLINDER MOUNT WELD
29	2	0015147	Key, 1/2 X 1/2 X 3" Square	64	1	1110195	POLE BRACE ANGLE RIGHT
30	20	0018111	Cup Nut, 5/16-18	65	1	1110196	POLE BRACE ANGLE LEFT
31	4	0018139	Lock Washer, 3/8 Split	66	1	1110197	2408SB POLE WELDMENT
32	8	0018180	Nut, 1/2"-13 Hex 2 Way Punch ZP	67	2	1110315	SHREDDER BELT GUARD WELD
33	88	0018209	Bolt, 3/8"-16 X 1" HWH GR5 ZP	68	1	1110317	SKID WELD RIGHT
34	16	0018212	Bolt, 3/8"-16 X 1 1/4" HWH-DS GR5 ZP	69	1	1110318	SKID WELD LEFT
35	8	0018216	Washer, 1/2 SAE ZP Type B, Series N	70	4	1111068	WHEEL MOUNT AND HUB ASSEMBLY



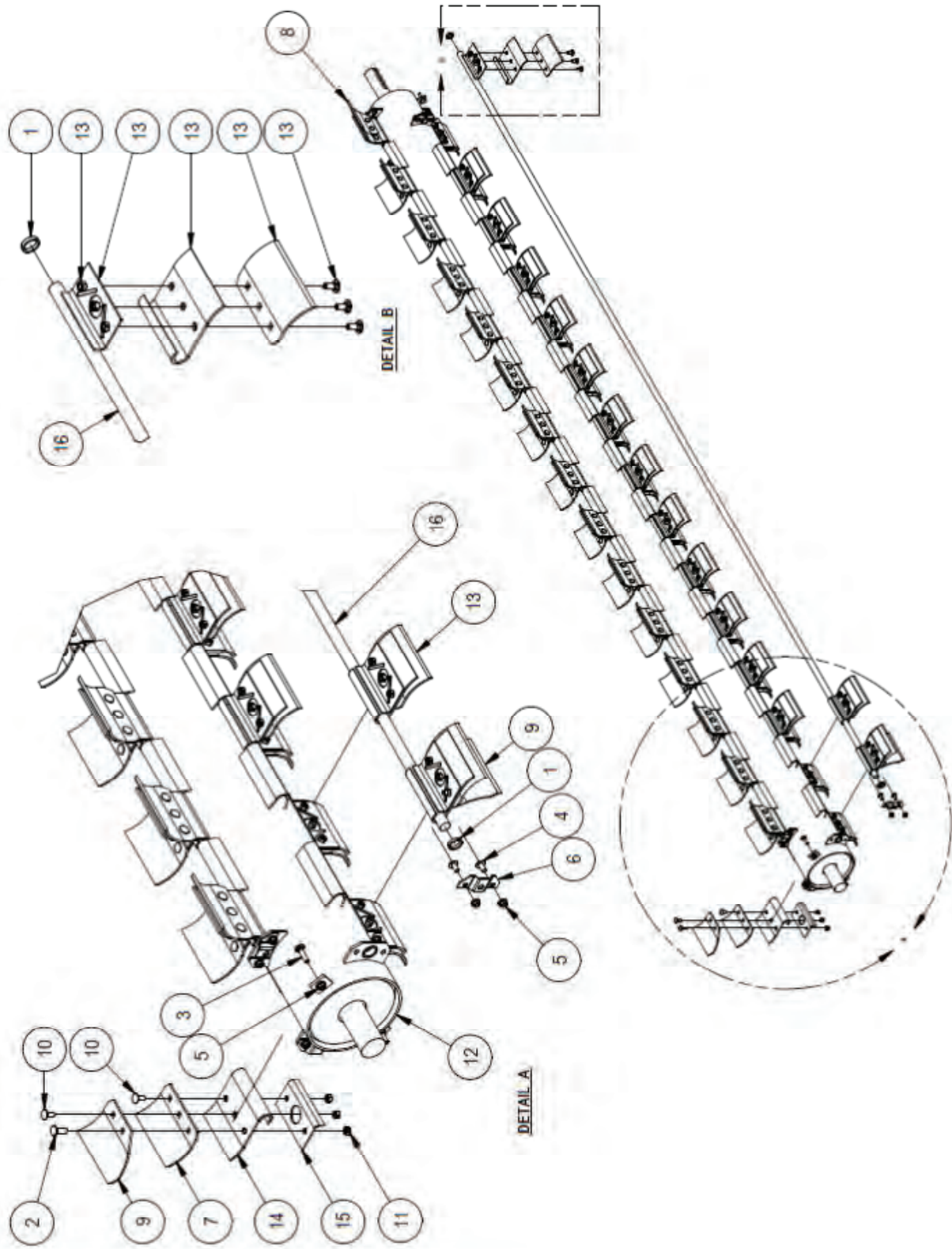
2408 SB/HS



Bill of Material				Bill of Material			
Item	Qty	Part No.	Description	Item	Qty	Part No.	Description
71	1	111107	2408SB BALANCED ROTOR LT	106	4	1118700	1/8" Male Connector
72	1	111108	2408SB BALANCED ROTOR RT	107	4.333 ft.	1118701	1/8" OD Nylon Tiesing
73	2	1112052	RETAINING STRIP 119"	108	4	1118703	1/8" MALE CONNECTOR . 90 DEGREE
74	2	1113399	SOLID SHAFT CNTR. BRG MNT.	109	2	1118988	LP UNIVERSAL JOINT
75	6	1113404	OUTPUT SHAFT GUARD BRACE	110	2	1185700	ANTI-WRAP HALF
76	1	1113496	COVER SUPPORT ANGLE	111	2	1185701	ANTI-WRAP HALF WHOLE
77	2	1113493	2408 SHREDDER CUTTER BAR	112	1	1218310	Decal. Made in U.S.A.
78	4	1113590	MOUNT CLAMP	113	6	1237503	1/8" Galv Pipe Coupling
79	2	1114466	2408 STONE GUARD	114	2	1248308	DECAL . 12"X12" MC LOGO
80	2	1114470	Front Cover - Dentier Bracket	115	2	1248322	Decal. 5" X 5" MC Logo
81	2	1114652	UNIVERSAL JOINT GUARD	116	4	1252918	BEARING SHIM 16GA
82	1	1114653	SHREDDER FRONT COVER SHIM 14GA	117	2	1273404	GEAR BOX MOUNT STIFFENER
83	1	1114718	SHREDDER FRONT COVER SHIM 16GA	118	2	1278054	1/8 X 2 GALV STD NIPL
84	1	1114798	OUTPUT SHAFT GUARD-2408RT	119	8	1288195	Bolt 3/4" x 2" HHCS ZP
85	1	1114799	OUTPUT SHAFT GUARD-2408LT	120	20	1288196	Bolt 3/4" x 2 1/2" HHCS ZP
86	2	1114818	DRIVE SHAFT GUARD	121	5	1288231	1" LOCKWASHER
87	4	1115182	NUT BAR	122	6	1288947	SCR GEAR BOX OIL MOBIL#SHC634
88	2	1115191	2408 OUTPUT DRIVE SHAFT	123	1	1316980	SERIAL NUMBER PLATE
89	1	1115410	STOP BAR - SPACER	124	6	1338161	Bolt 1/2" x 1 1/2" HHCS ZP
90	1	1115580	LINK ARM BUSHING	125	2	1410018	AXLE MOUNT WELDMENT
91	4	1115709	ANTI-WRAP HALF	126	24	537524	Bolt 5/16" 18 X 3/4" HHWCS WH Z GR5 ZP
92	2	1115720	RUBBER FLAP 119"				
93	1	1115721	SHREDDER POLE BOLT				
94	2	1116003	BEARING 2 3/16 4-BOLT FLANGE				
95	2	1116004	BEARING 2 3/16 4-BOLT CENTER				
96	2	1116101	DRIVE BELT(MATCHED SET)				
97	2	1116202	6.6V/10.9"E SHEAVE				
98	2	1116205	E' BUSHING 1.34" BORE				
99	2	1116208	6.5V/10.3"E SHEAVE				
100	2	1116211	E' BUSHING 2 3/16" BORE				
101	1	1116611	A-76 ASSY GEARBOX				
102	2	1116630	IDLER SHREDDER DRIVE PULLEY				
103	2	1116631	IDLER SHREDDER PULLEY ROD				
104	4	1116230	Bolt 1"-8 x 4" HHCS ZP				
105	1	1118403	DECAL "2408SB" 2408 SHREDDER				



Rotor



Bill of Material				Bill of Material			
Item	Qty	Part No.	Description	Item	Qty	Part No.	Description
1	8	001521	KNIFE SPACER BUSHING	9	2	0015212	HD WIDE END KNIFE RT.
2	4	0008124	Bot 3/8"-16 X 1.14" CARR. GRS ZP	10	8	0018131	BOLT 3/8"-16 X 1.78" KNF. CAR.
3	4	0008125	Bot 3/8"-16 X 1.12" CARR. GRS ZP	11	12	0018149	Nut, 3/8"-16 Hex. 2WAYSF LKMT
4	16	0008134	Bot, 3/8-16 X 3/4" Truss WHIZ ZP	12	1	1110156	180SB ROTOR WELDMENT
5	20	0008168	Nut, 3/8"-16 FLNG WHIZ LKMT ZP	13	56	1111094	STANDARD KNIFE & HANGER ASSEMBLY
6	8	0012000	END LOCATOR BRACKET	14	4	1113388	QUICK CHANGE HANGER
7	4	0015208	(HD) WIDE KNIFE BLADE	15	4	1114478	HANGER BACK STOP BRACKET
8	2	0015211	HD WIDE END KNIFE LT.	16	4	1118879	ROTOR HANGER BAR 189 1/2



Section 6

Notes



Lined area for notes, consisting of 20 horizontal black lines.





GRAIN DRYER
SPECIALISTS



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