ERSKINE®

ATTACHMENTS LLC

Operator's Manual

Set-Up Assembly and

Parts Information

WOOD CHIPPER 5"

FOR

SKID STEER LOADERS

Do not use or operate this machine until this manual has been read and understood.

Read the Operation & Maintenance Manual entirely. When you see this symbol, the subsequent instructions and warnings are serious – follow without exception. Your life and the lives of others depend on it!

IMPORTANT

If this machine is used by an employee or is loaned or rented to others, make certain that the operator(s) prior to operating:

- **Is instructed in safe and proper use.**
- **Reviews and understands the operation and maintenance manual(s) pertaining to the machine.**

Remember, the operator is responsible for the safe operation

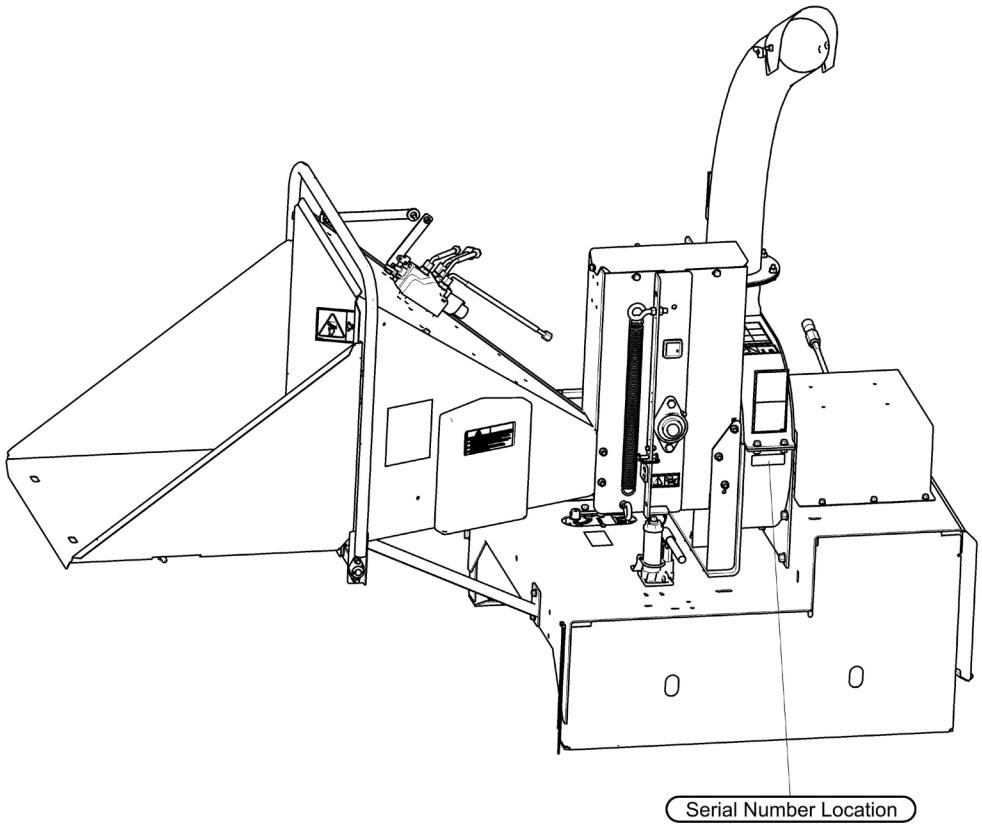
and maintenance of the machine. Most accidents can be prevented. Good safety practices not only protect you, but also the people around you.

NOTE: *Erskine Attachments LLC reserves the right to make improvements in design or changes in specifications at any time without notice and without incurring any obligations to install them on units previously sold.*

REFERENCE INFORMATION

Write the serial number for your attachment in the spaces below.
Always refer to this serial number when calling for service or parts.

Serial Number: _____



YOUR ATTACHMENT DEALER	
ADDRESS	
PHONE NUMBER	
CONTACT	

TABLE OF CONTENTS

1 SAFETY

1.1 SAFETY ALERT SYMBOL

The Owner/Operator's manual uses this symbol to alert you of potential hazards. Whenever you see this symbol, read and obey the safety message that follows it. Failure to obey the safety message could result in personal injury, death or property damage.

WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

DANGER

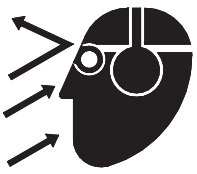
Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.

1.2 BEFORE OPERATING

1. Read and understand this owner's manual. Be completely familiar with the controls and the proper use of this equipment.
2. Familiarize yourself with all of the safety and operating decals on this equipment and on any of its attachments or accessories.
3. Keep safety decals clean and legible. Replace missing or illegible safety decals.
4. Obtain and wear safety glasses and use hearing protection at all times when operating this machine.

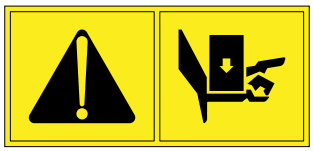


5. Avoid wearing loose fitted clothing. Never operate this machine while wearing clothing with drawstrings that could wrap around or get caught in the machine.
6. Do not operate this machine if you are under the influence of alcohol, medications, or substances that can affect your vision, balance or judgement. Do not operate if tired or ill. You must be in good health to operate this machine safely.
7. Do not operate this equipment in the vicinity of bystanders. Keep the area of operation clear of all persons, particularly small children. It is recommended that bystanders keep at least 50 feet (15 meters) away from the area of operation.
8. Do not allow children to operate this equipment.
9. Use only in daylight or good artificial light.
10. Do not fill fuel tank indoors. Keep open flames, sparks, smoking materials and other sources of combustion away from fuel.
11. Do not operate machine without shields in place. Failure to do so may cause serious injury or death.
12. Keep all guards, deflectors, and shields in good working condition.
13. Before inspecting or servicing any part of this machine, shut off the machine and make sure all moving parts have come to a complete stop.
14. Check that all screws, nuts, bolts, and other fasteners are secured, tightened and in proper working condition before starting the machine.
15. Do not transport or move machine while it is operating or running.

1.3 OPERATION SAFETY

1. Always stand clear of discharge area when operating this machine. Keep face and body away from feed and discharge openings.
2. Keep hands and feet out of feed and discharge openings while machine is operating to avoid serious personal injury. Stop and allow machine to come to a complete stop before clearing obstructions.
3. Set up your work site so you are not endangering traffic and the public. Take great care to provide adequate warnings.
4. Do not climb on machine when operating. Keep proper balance and footing at all times.
5. Check cutting chamber to verify it is empty before starting the machine.
6. The rotor will continue to rotate after being disengaged. Shut off the machine and make sure all moving parts have come to a complete stop before inspecting or servicing any part of the machine.
7. Do not insert branches with a diameter larger than the max chipper capacity into machine or machine damage may occur.
8. When feeding material into machine, do not allow metal, rocks, bottles, cans or any other foreign material to be fed into the machine.
9. Ensure debris does not blow into traffic, parked cars, or pedestrians.
10. Keep the machine clear of debris and other accumulations.
11. Do not allow processed material to build up in the discharge area. This may prevent proper discharge and can result in kickback of material through the feed opening.
12. If the machine becomes clogged, the cutting mechanism strikes any foreign object, or the machine starts vibrating or making an unusual noise, shut off machine immediately and make sure all moving parts have come to a complete stop. After the machine stops: A) Inspect for damage, B) Replace or repair any damaged parts, and C) Check for and tighten any loose parts.
13. Check blade bolts for proper torque after every 8 hours of operation. Check blades and rotate or resharpen daily or as required to keep blades sharp. Failure to do so may cause poor performance, damage or personal injury and will void the machine warranty.

1.4 FEED ROLLER SAFETY



1. The feed roller can cause serious injury or death. Keep hands, feet and clothing away from the feed roller and chipper rotor blades.
2. Never climb onto the feed chute when the unit is operating or running.
3. Do not overreach. Keep proper balance and footing at all times.
4. Never allow anyone to sit on the feed chute.
5. When feeding material into the feed roller wear eye, face and hearing protection.
6. Stand to side of feed chute when feeding material and release material quickly.
7. When inspecting or servicing the feed roller, secure the feed roller in the raised position using the lock pin, if applicable.

1.5 MAINTENANCE/STORAGE SAFETY

1. Before inspecting, servicing, storing, or changing an accessory, shut off the machine and make sure all moving parts have come to a complete stop.
2. Replace any missing or unreadable safety decals. Refer to the safety decal section for part numbers.
3. Allow machine to cool before storing in an enclosure.
4. Store the machine out of reach of children.

1.6 SAFETY DECALS

The decals listed below correspond with the numbers in the Safety Decal Locations section. Familiarize yourself with all of the safety and operating decals on the machine and the associated hazards. See the engine owner's manual or contact the engine manufacturer for engine safety instructions and decals.

1 P/N: 12169

Keep hands and feet out of inlet and discharge openings while machine is operating to avoid serious personal injury. Stop and allow machine to come to a complete stop before clearing obstructions.

3 P/N: 12173

Do not operate this equipment in the vicinity of bystanders. Do not allow children to operate this equipment. Always stand clear of discharge area when operating this machine. Keep face and body away from discharge areas.

4 P/N: 12174

Do not operate machine without shields in place. Failure to do so may cause serious injury or death.

5 P/N: 12175

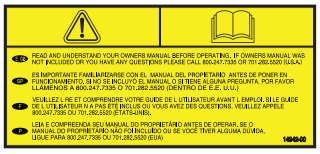
Keep hands and feet out of inlet and discharge openings while machine is operating to avoid serious personal injury. Stop and allow machine to come to a complete stop before clearing obstructions.

6 P/N: 12250

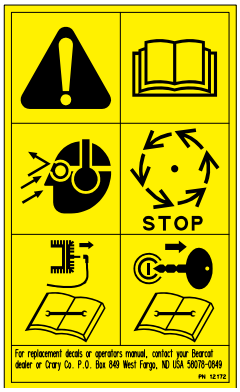
Check blade bolts for proper torque after every 8 hours of operation. Check blades and rotate or resharpen daily or as required to keep blades sharp. Refer to owners manual for instructions. Failure to do so may cause poor performance, damage or personal injury and will void the machine warranty.

7 P/N: 14942-00

Read and understand your owners manual before operating. If owners manual was not included or you have any questions, please call 800-247-7335 or 701-282-5520 (U.S.A.).



2 P/N: 12172

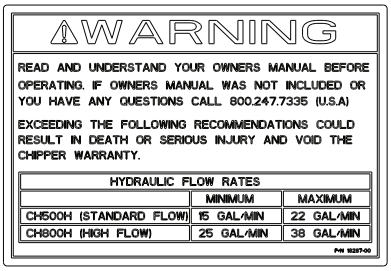


Read and understand this owner/operators manual. Be completely familiar with the controls and the proper use of this equipment.

Obtain and wear safety glasses and use hearing protection at all times when operating this machine.

Before inspecting or servicing any part of this machine, shut off power source, remove the key, disconnect spark plug wire from spark plug and make sure all moving parts have come to a complete stop.

8 P/N: 18287-00



WARNING

READ AND UNDERSTAND YOUR OWNERS MANUAL BEFORE OPERATING. IF OWNERS MANUAL WAS NOT INCLUDED OR YOU HAVE ANY QUESTIONS CALL 800.247.7335 (U.S.A)

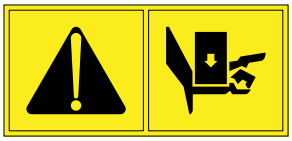
EXCEEDING THE FOLLOWING RECOMMENDATIONS COULD RESULT IN DEATH OR SERIOUS INJURY AND VOID THE CHIPPER WARRANTY.

HYDRAULIC FLOW RATES		
	MINIMUM	MAXIMUM
CH500H (STANDARD FLOW)	15 GAL/MIN	22 GAL/MIN
CH800H (HIGH FLOW)	25 GAL/MIN	38 GAL/MIN

P/N 18287-00

9 P/N: 18983-00

Feed roller support must be secured in the up position prior to servicing chipper feed area. The feed roller can fall and cause severe bodily harm. Consult owners manual for proper method of securing feed roller support. Lower feed roller before operating chipper.

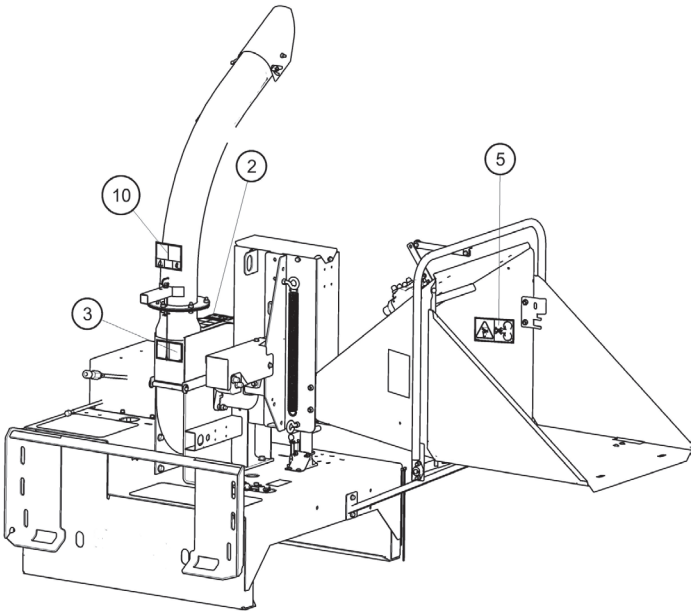


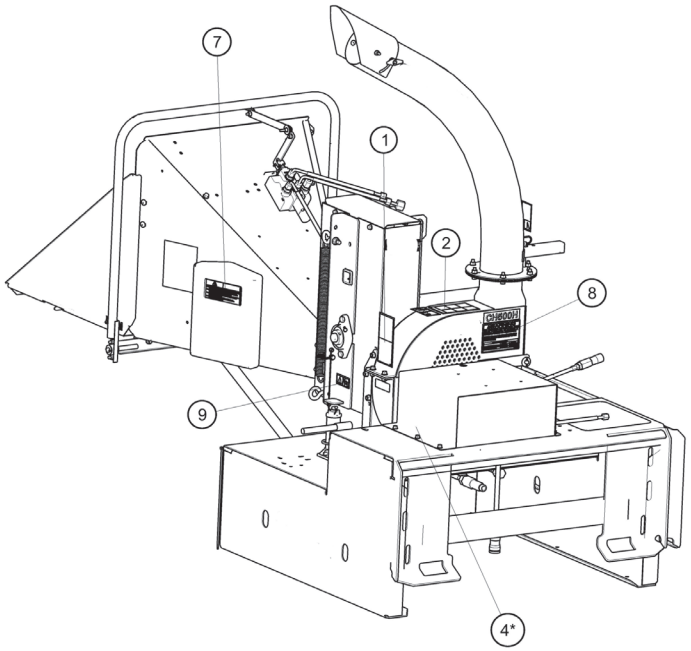
10 P/N: 32109-00

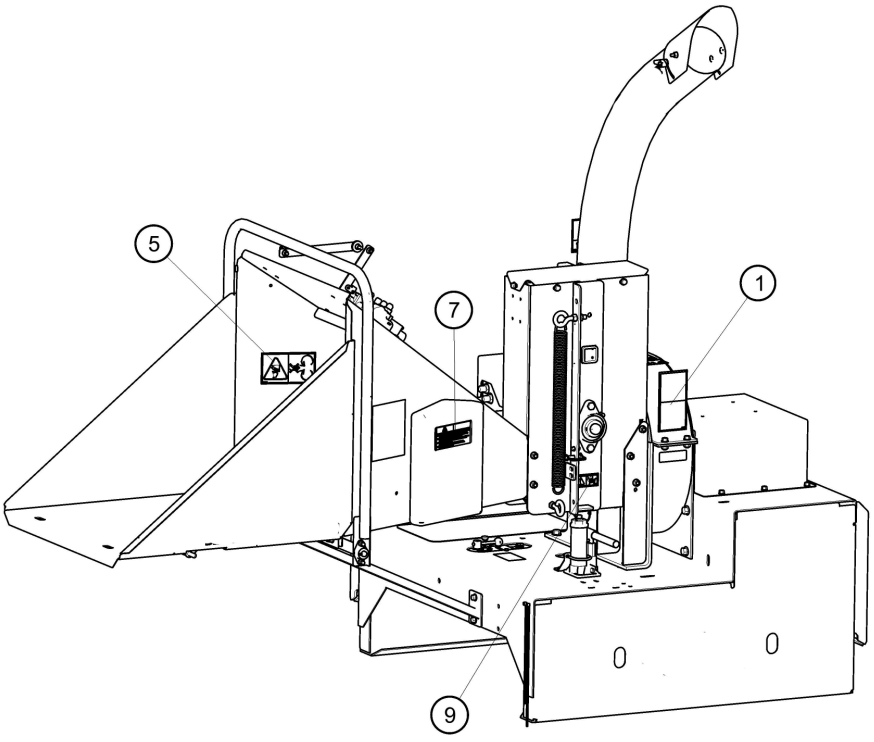
Do not operate this equipment in the vicinity of bystanders. Do not allow children to operate this equipment. Always stand clear of discharge area when operating this machine. Keep face and body away from discharge areas. Rotate the discharge tube over the hitch before towing and lock securely in place.

1.7 SAFETY DECAL LOCATIONS

The numbers below correspond to the decals listed in the Safety Decals section. Make certain that all safety and operating decals on this machine are kept clean and in good condition. Decals that need replacement must be applied to their original locations.







*Decal located on base

2 ASSEMBLY

WARNING

If any bolts or nuts are dropped in the machine, be sure to remove them before starting the machine.

2.1 ATTACH DISCHARGE TUBE

1. Attach one clamping ring (1) and one spacer ring (2) to discharge tube base (3) using three 3/8" × 1-1/4" bolts (4) and nylock nuts (5). Tighten leaving 1/16" gap to assist in mounting to flange. See Figure 2.1.1.
2. Slide the tube onto the mounting flange on the chipper frame. The discharge clamp (1) should slide underneath the lip of the flange. Tighten the bolts to secure it.
3. Install the second half of the spacer (2) and clamp ring (1) on the discharge tube with 3/8" × 1-1/4" bolts (4) and nylock nuts (5).
4. Attach lanyard with discharge pin (6) as shown in Figure 2.1.2. Loop on lanyard installed below nut located under discharge handle.
5. Lubricate the tube by applying grease to the grease zerk at the base of the tube. Rotate the tube and apply grease until the tube rotates freely.
6. Rotate the tube 360 degrees and lock it in place with the lock pin to make sure it is mounted correctly.

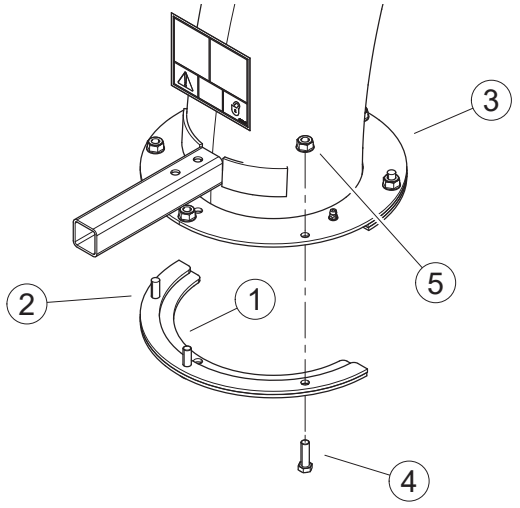


Figure 2.1.1, Attach Clamp Ring and Spacer

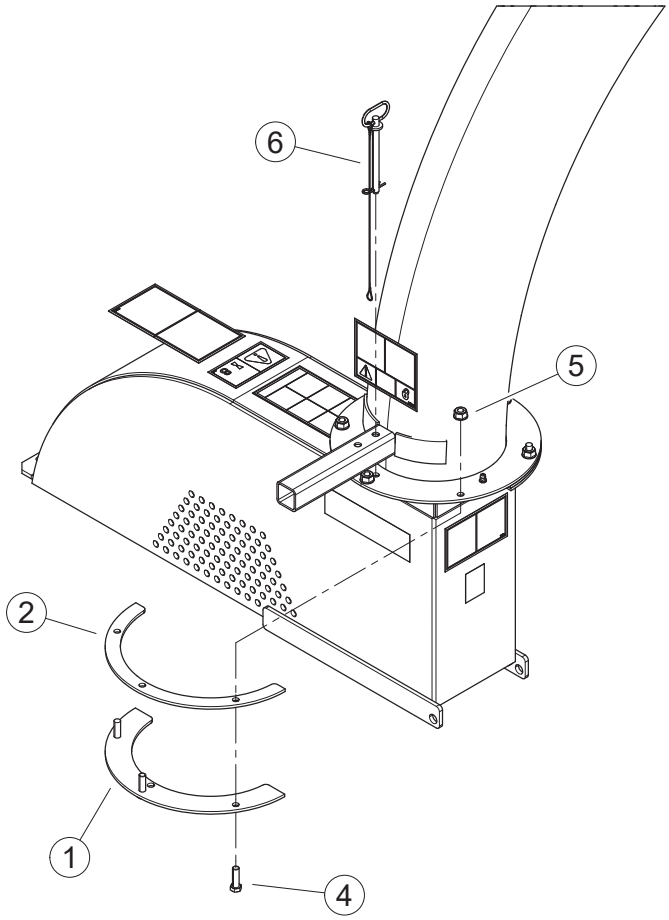


Figure 2.1.2, Attach Discharge Tube

NOTE

Keep nuts as tight as possible while allowing the discharge tube to freely turn.

7. Attach the discharge deflector (7) to the discharge tube. Connect the deflector with two 5/16" × 1-1/4" bolts (8) through the lower hole in the discharge tube. Run these bolts through the inside of the tube, 3/8" washer (12), deflector, 5/16" washer (13), and then knob (9).
8. Finish bolting the deflector to the tube with two 5/16" × 1" bolts (10) through the end hole in the discharge tube and secure with 5/16" washers and nylock nuts (11).

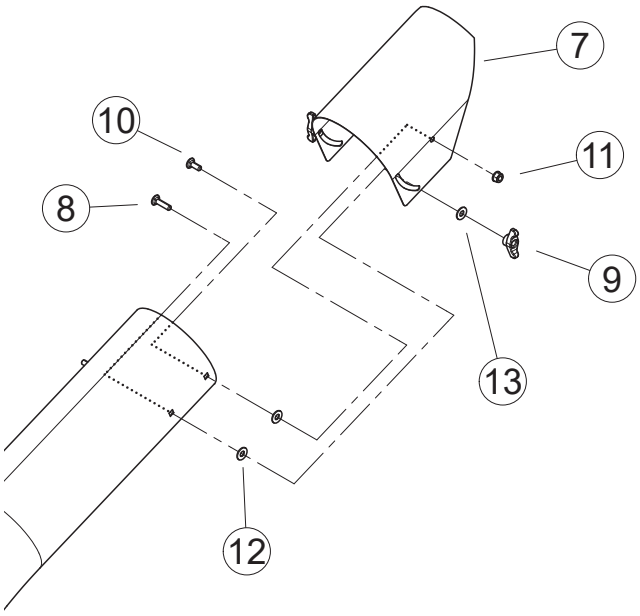


Figure 2.1.3, Attach Discharge Deflector

2.2 ATTACH CHIPPER CHUTE

WARNING

Do not operate this unit without the chipper chute correctly installed. Rotating cutting blades can cause serious personal injury.

MOUNTING CHUTE TO FEED ROLLER HOUSING

1. The chipper chute must be mounted to the feed roller housing. Both models use a chute support. See Mounting Chute Support for instructions on mounting the chute support.
2. Place the chute on the roller support weldment. Have someone assist if necessary.
3. Align the chute with the mounting holes.
4. Insert 3/8" carriage bolts into the mounting holes. It may be helpful to align the holes with a punch.
5. Place washers and nuts on the opposite side of the bolts and tighten to proper torque.

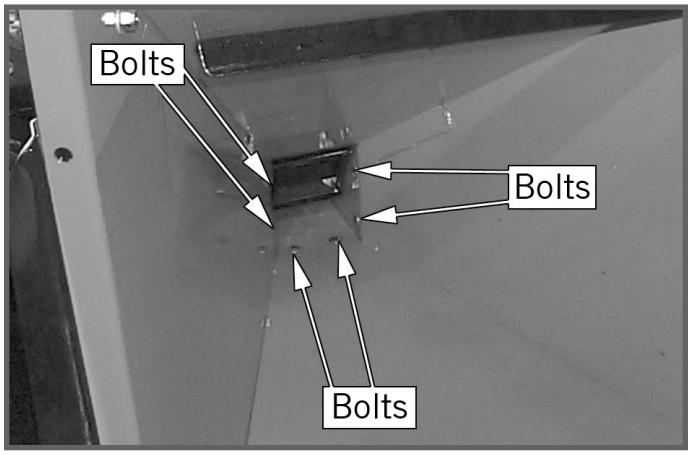


Figure 2.2.1, Mounting the Chute

MOUNTING CHUTE SUPPORT

1. Make sure the chute is mounted to the roller support weldment.
2. Place the chute support underneath the chute.
3. The side of the chute support with the two mounting holes is orientated towards the chipper base.
4. Attach the chipper chute to the base with the provided 3/8" bolts, washers, and nuts. It may help to slightly lift the chipper chute.
5. Align the other hole of the chipper chute support with the hole in the chipper chute.
6. Insert the other 3/8" bolt, washer, and nut. Tighten to proper torque.

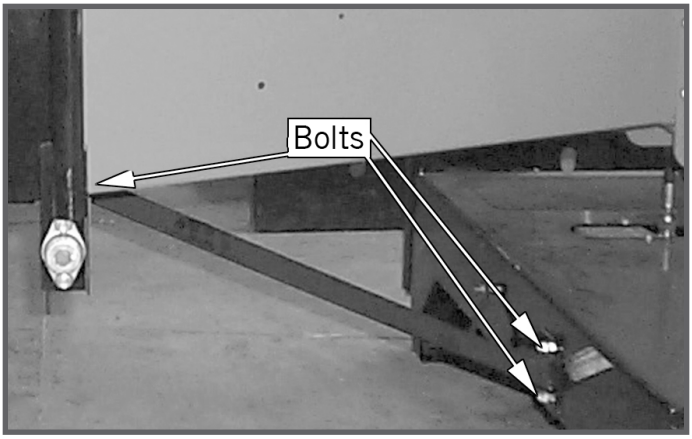


Figure 2.2.2, Mounting the Chute Support.

2.3 MOUNTING THE FOUR-POSITION VALVE

1. Place the four-position valve on the chipper chute over the three pre-drilled mounting holes.
2. From the inside of the chipper chute, using the 3/8" × 3/4" bolts and washers, thread the bolts into the four-position valve.
3. Tighten 5/16" hardware to proper torque.
4. Attach the valve control lever according to Figure 2.3.2.
5. Tighten the 5/16" bolt to the proper torque.

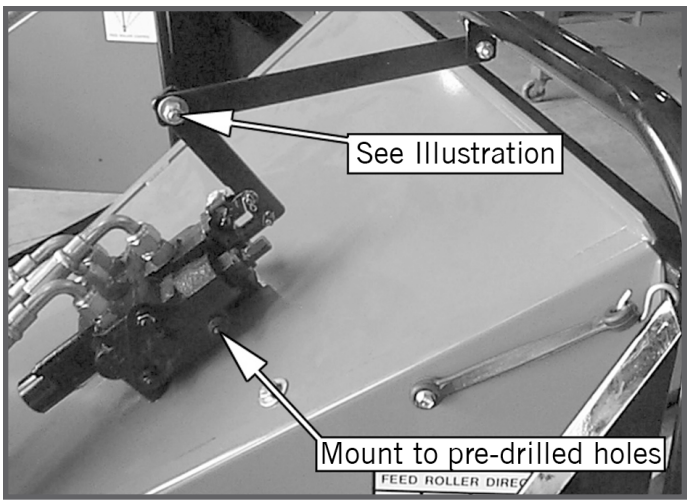


Figure 2.3.1, Mounting the Four-Position Valve.

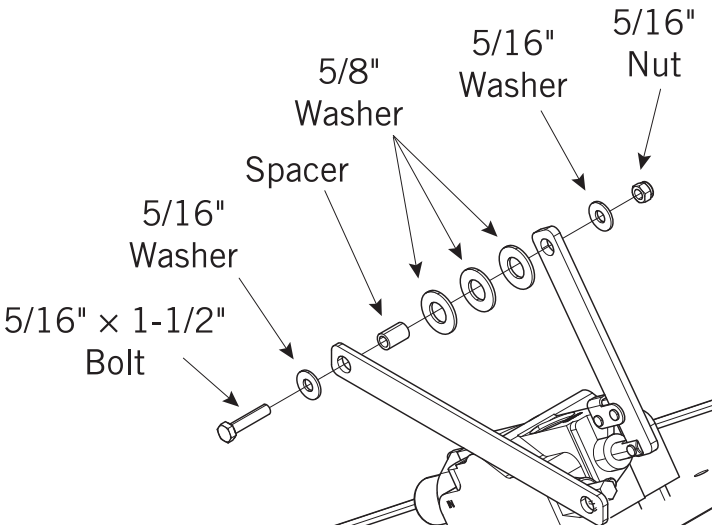


Figure 2.3.2, Connecting Valve Control Lever

3 FEATURES & CONTROLS

3.1 STANDARD FEATURES & CONTROLS

Understanding how your machine works will help you achieve the best results when using your chipper. The following descriptions define the features and controls of your machine.

1. CHUTE EXTENSION TRAY

The feed chute has an extension tray that folds down. Raise the extension tray to an upright position and secure with latch before towing the machine.

2. DISCHARGE CAP

Directs the discharge of material vertically. Adjust the discharge cap by turning the knobs located on the side. Turn knob counterclockwise to loosen discharge cap. Adjust to desired position. Turn knob clockwise to secure discharge cap.

3. DISCHARGE TUBE

Directs the discharge of chipped material horizontally. The discharge tube can be rotated 360° horizontally by removing the pin and rotating the discharge tube until the discharge faces the desired position. Replace the pin in one of the holes on the base of the discharge.

4. ROTOR ACCESS COVER

Tilts up to expose rotor.

5. ROTOR LOCK

Use the rotor lock to hold the rotor in place when doing any maintenance work. See Rotor Lock under Service & Maintenance.

6. FEED CHUTE

Materials to be chipped are fed into the feed chute, through the feed roller, to the chipper blades.

7. FEED ROLLER LIFT JACK

Used to lift the feed roller. The feed roller can be raised to inspect and service the machine and to clear a plugged rotor. Secure the feed roller in the raised position using the provided snap pin.

8. FEED ROLLER SPEED CONTROL

Adjust the feed roller speed with the hand crank located below the chipper feed table. Use a slower feed roller speed when feeding large branches into the chipper. Increase the feed roller speed when feeding small branches into the chipper. Turning the crank counter-clockwise decreases the feed roller speed. Turning the crank clockwise increases the feed roller speed.

9. MANUAL CONTAINER

Conveniently holds your manuals.

10. FEED ROLLER CONTROL ARM

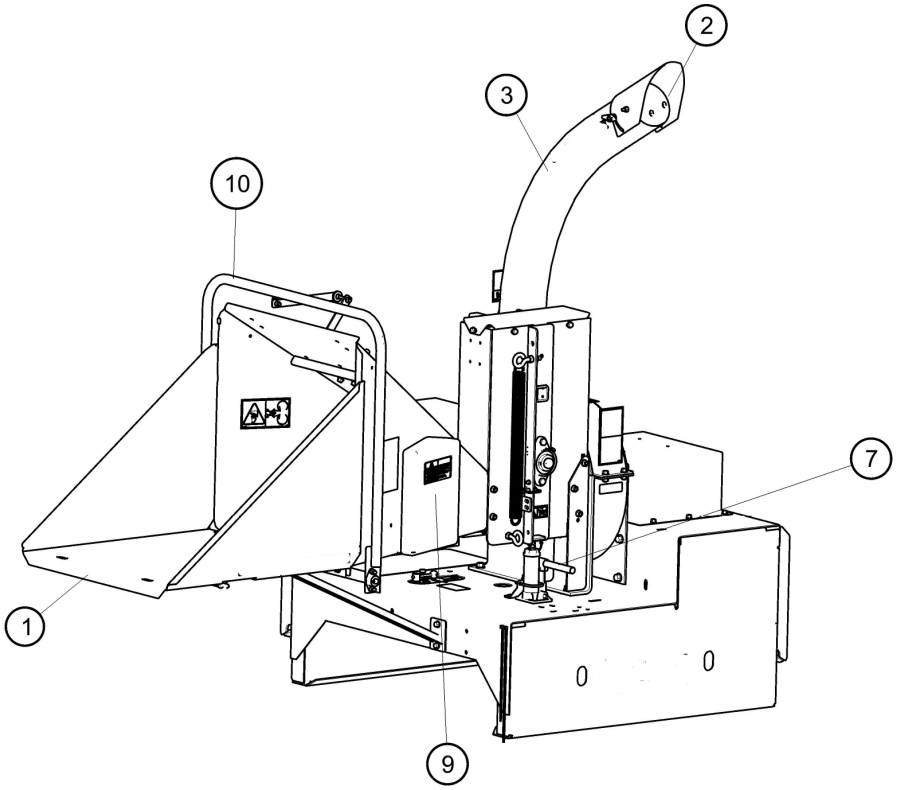
The feed roller control arm has four positions: reverse, stop, forward, reverse. Use this function to clear a plugged feed roller.

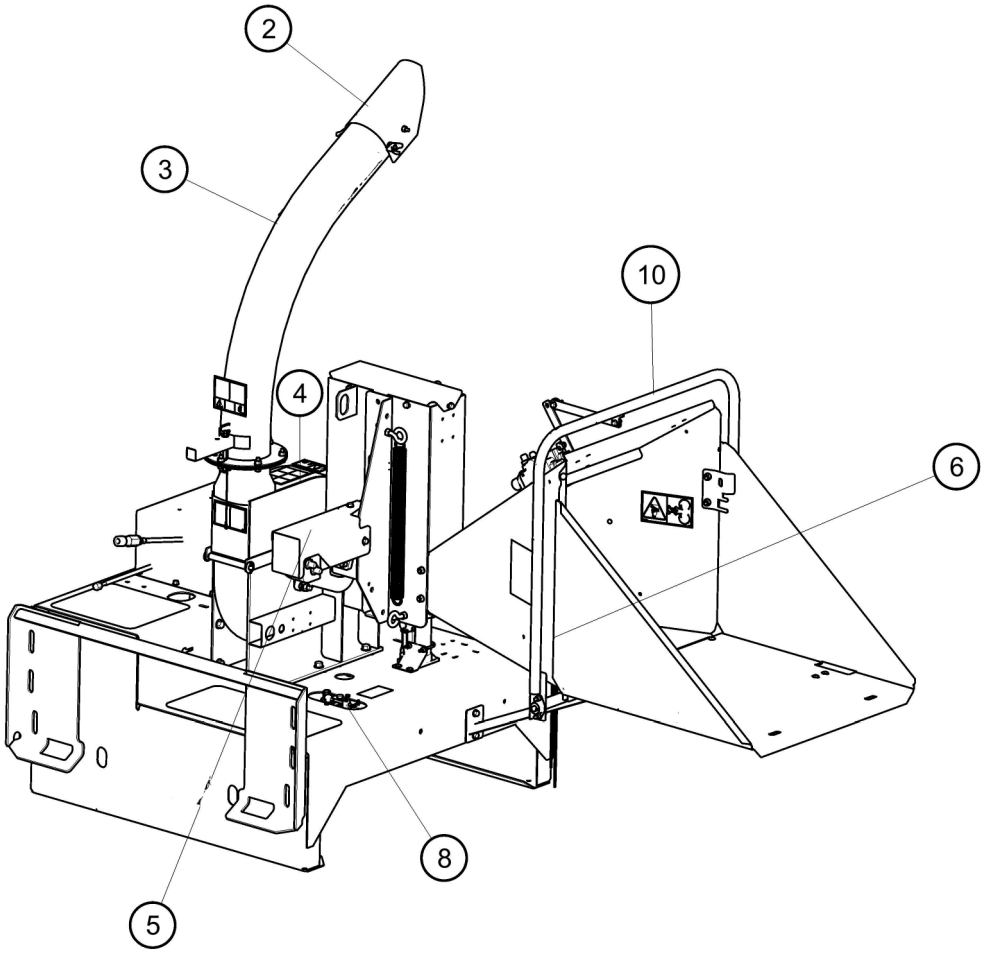
Reverse: Reverses the direction of the feed roller. Use this function to clear a plugged feed roller.

Stop: Stops the feed roller.

Forward: Engages the feed roller and pulls material into the chipper.

Reverse: Reverses the direction of the feed roller.


2
3
10
7
1
9


2
3
10
4
6
8
5

4 OPERATION

WARNING

Move machine to a clear, level area outdoors before starting. Do not operate in the vicinity of bystanders. Make sure cutting chamber is empty before starting.

CHIPPING OPERATION

The chipping operation takes place in the middle of the machine, where hardened steel chipper blades are mounted on a rotating rotor assembly. Material fed into the chipper chute is sliced into small chips and propelled out through a discharge tube.

As with any other piece of outdoor equipment, getting the feel for how your machine operates and getting to know the best techniques for particular jobs are important to overall good performance.

WARNING

Before operating your machine, be sure you read and understand all safety, controls and operating instructions in this owner's manual and on your machine. Failure to follow these instructions can result in serious injury or property damage.

4.1 RECOMMENDED HYDRAULIC FLOW RATES

MINIMUM	MAXIMUM
15 gpm	22 gpm

WARNING

Exceeding the recommended flow rates can cause severe damage and void the chipper warranty!

4.2 MOUNTING CHIPPER TO SKID STEER

The chipper can be mounted to the skid steer in two locations. The recommended location is with the feed chute sitting at the front of the loader. However, if space is a concern, the unit can be mounted with the feed table sitting to the left of the machine.

1. Tilt the universal skid steer mount forward.
2. Make sure that the wedges are fully raised.
3. Drive the skid steer forward until the top edge of the coupler is completely under the top flange on the chipper.
4. Tilt the unit backward until the chipper is slightly off the ground.
5. Kill the engine and exit the machine to push down the wedges using the universal skid steer mount levers (Figures 4.2.1 and 4.2.2). On automated models, stay in the machine and engage the wedges.

WARNING

The wedges must extend through the holes in the mounting frame of the chipper to securely fasten the chipper to the universal skid steer mount. Failure to secure wedges can allow attachment to come off and cause injury or death.

Figure 4.2.1, Connecting the Skid Steer

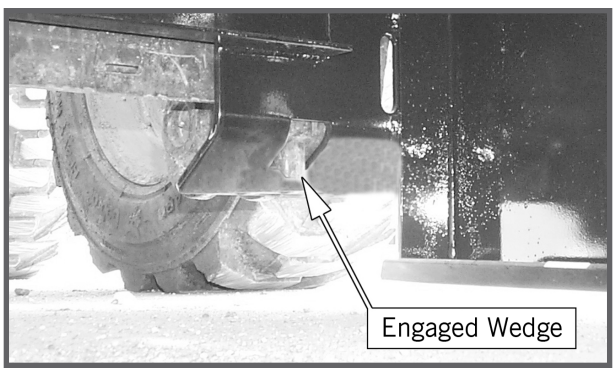


Figure 4.2.2, Securing the Wedges

4.3 CONNECTING COUPLERS

WARNING

Hydraulic lines may be under pressure due to testing done at the factory.

The skid steer chipper is equipped to attach to flush face couplers (Figure 4.3.1). The chipper is shipped with -12 sized hydraulic couplers fitted on the hoses. A tie wrap is used to indicate the pressure line. Be sure to connect the hydraulic hoses to the proper ports.

If the skid steer is fitted with anything other than -12 sized flush face couplers on the main lines, it will be necessary to replace the couplers supplied with the chipper.

The chippers are also equipped with a case drain hose. The case drain is used to eliminate pressure on the chipper's hydraulic motor. The motor is rated for 250 to 300 psi of back pressure.

Most high flow skid steer loaders are equipped with a case drain line. Standard flow skid steer loaders typically are not. **If the back pressure is over 300 psi, a case drain line will have to be added. Contact your skid steer dealer for details.**

WARNING

NOT ADDING A CASE DRAIN LINE VOIDS THE CHIPPER WARRANTY!

WARNING

Handle pressurized hydraulic fluid carefully. Escaping pressurized hydraulic fluid may penetrate your skin causing serious injury. This fluid may also be hot enough to burn. Serious infection or reactions can develop if immediate proper medical treatment is not administered.

TO CONNECT

1. Before connecting, make sure to relieve the hydraulic pressure in the skid steer using the skid steer system.
2. Remove dirt and debris from the surface of the couplers.
3. Visually check the couplers for damage; replace if damage is found.
4. Install the male coupler into the female coupler. Full connection is made when the ball release sleeve slides forward on the female coupler.
5. Turn the sleeve so that it is rotated away from the locking pin to prevent accidental disconnection.
6. Repeat the procedure for all hoses, including the smaller case drain hose.

TO DISCONNECT

1. Relieve the hydraulic pressure in the skid steer using the skid steer system.
2. Rotate the ball sleeve so the grooves are aligned with the pins in the female coupler.
3. Retract the sleeve on the female coupler until the couplers disconnect.
4. Repeat the procedure for all hoses.

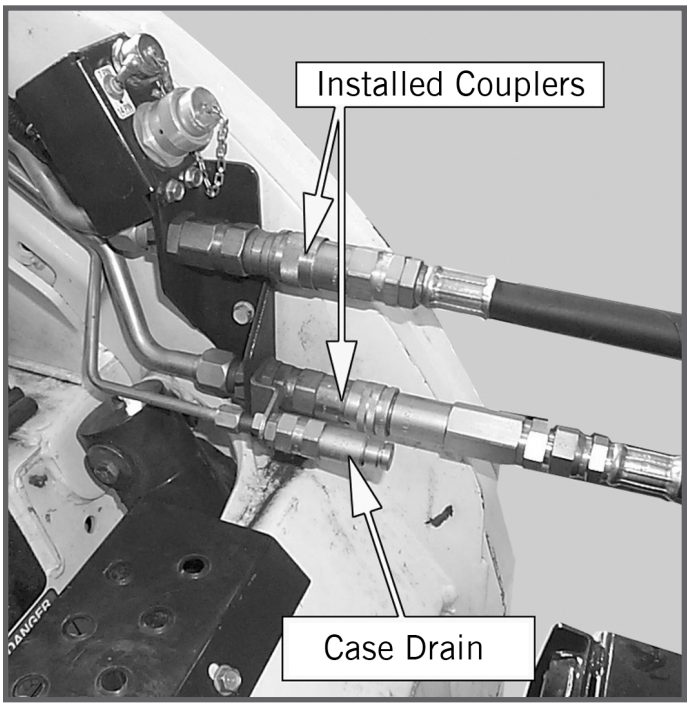


Figure 4.3.1

4.4 PRE-OPERATION

1. Wear appropriate eye, face, and hearing protection. Wear gloves that fit tight against the wrist.
2. Lower the chipper feed table.
3. Check that the feed roller is clear of material.
4. Place the feed roller control into the “stop” position.
5. Rotate discharge chute into desired position and secure with the lock pin.

WARNING

Do not attempt to bypass the safety systems of the skid steer loader.

4.5 STARTING THE CHIPPER

Running the skid steer chipper is a one- or two-man operation. If the system mandates an operator in the driveseat, two people are needed. The chipper engages with the hydraulics of the skid steer, as do most skid steer powered attachments.

1. Set parking brake.
2. Ensure the feed roller is in the neutral position.
3. Engage the hydraulics of the skid steer to supply power to the unit. The chipper will start to spin.
4. Place the feed roller in the operating position and bring the unit up to speed.
5. The chipper is ready to chip.

4.6 STOPPING THE CHIPPER

1. Disengage the feed roller after all material has been cleared from the chipper.
2. Slow down the engine of the skid steer to idle and after several seconds disengage the skid steer hydraulics.

4.7 CHIPPER OPERATION GUIDELINES

WARNING

Read and follow all safety instructions in this manual. Failure to operate the machine in accordance with the safety instructions **MAY RESULT IN PERSONAL INJURY**!

WARNING

To prevent personal injury or property damage: shut off power source and make sure that all moving parts have come to a complete stop before servicing, adjusting, or repairing machine.

The machine chips a variety of materials into a more readily decomposed or handled condition. The following guidelines will help you get started.

1. **Run unit at full operating speed** before starting to chip material.
2. **If the chipper rotor slows,** the feed roller will stop automatically to process backed up material. Feed material more evenly.
3. **If the chipper jams,** the feed roller will reverse momentarily to remove the branch. Once the branch is removed, rotate it before reinserting into the chute. Alternately insert and retract the limb or insert continuously at a rate that will not kill the engine.
4. **Sharpen the chipping blades periodically.** Check the sharpness of the blades every 5-15 hours. Refer to the Service and Maintenance section for sharpening instructions.
5. **Limbs fed in to the chipper chute must be less than 5" (12.7 cm) in diameter.** The CH500H is most effective when chipping 3-inch material. For material 4-5 inches, adjust the feed rate if the chipper starts to bog down.
6. **Alternate green or fresh cut material with dry material to lubricate the chipping blades for longer life and better performance.** Chipping dead, dry material will create heat and dull the chipping blades quicker.
7. **ALWAYS feed brush from the side of the chipper chute,** rather than from the front. Step aside to avoid being hit by the brush moving into the chipper.
8. **ALWAYS place limb, butt end first, into the chipper chute until it contacts the chipper blades.** The actual feed rate of the limb into the chipper will depend on the type of material fed and sharpness of the cutting blades.
9. **Do not use the hydraulic system to clear a plugged rotor.** Raise the feed roller with the jack. Refer to Clearing a Plugged Rotor under Service & Maintenance.
10. **NEVER** attempt to clear a plugged rotor or discharge with the engine running. **ALWAYS** shut power source OFF before servicing any part of this machine.
11. **NEVER attempt to chip pieces of metal, rock, bottles, cans or other foreign objects.**

CAUTION

- Obtain and wear safety glasses at all times when operating the machine.
- Do not wear loose fitting clothing.
- The operator should always wear heavy boots, gloves, pants and a long-sleeved shirt.
- Use common sense and practice safety to protect yourself from branches, sharp objects, and other harmful objects.

CAUTION

- **Never** lean over the chipper chute to push objects into the cutting device. Use a push stick or brush paddle.
- **Never** use shovels or forks to feed brush. They can cause extensive damage if they contact the blades. In addition, metal pieces can be ejected from the chipper chute and cause serious injury or death.
- **Never** feed brush into the chute with your feet.
- **Never** use hands or feet to clear materials that build up in the chute.

5 SERVICE & MAINTENANCE

WARNING

To prevent personal injury or property damage: shut off power source, disengage the hydraulics, open shield and make sure that all moving parts have come to a complete stop before servicing, adjusting, or repairing machine.

WARNING

Chipping blades are sharp! Use caution when working on machine to avoid injury.

5.1 SERVICE & MAINTENANCE SCHEDULE

The items listed in this service and maintenance schedule are to be checked, and if necessary, corrective action taken. This schedule is designed for units operating under normal conditions. If the unit is operating in adverse or severe conditions, it may be necessary for the items to be checked and serviced more frequently.

		FREQUENCY			
COMPONENT	MAINTENANCE REQUIRED	BEFORE EACH USE	EVERY 8 HOURS	EVERY 50 HOURS	EVERY 200 HOURS
All internal and external nuts and bolts	Check tightness	•			
Chipper anvil	Check clearance and re-torque to 75 ft-lbs. (1)		•		
Chipper blades	Check sharpness and re-torque to 25 ft-lbs. (1)		•		
Entire machine	Clean		•		
Grease zerks	Lube			•	
Hydraulic oil filter	Replace				•

(1) Perform more frequently when chipping dry or dirty wood.

As the Limited Warranty states, failure by the Owner to perform normal maintenance will void the machine's warranty. The aggressive, high-speed nature of chipping REQUIRES THE OWNER TO PERFORM THE ABOVE LISTED NORMAL MAINTENANCE. Special consideration to maintain and re-torque the CHIPPER ANVIL, CHIPPER BLADES, and ALL INTERNAL AND EXTERNAL NUTS AND BOLTS is the sole responsibility of the Owner. Failure by the Owner to do so shall be cause for denial of warranty.

WARNING

BEFORE INSPECTING OR SERVICING ANY PART OF THIS MACHINE, SHUT OFF POWER SOURCE, DISCONNECT THE SPARK PLUG WIRE FROM THE SPARK PLUG, AND MAKE SURE ALL MOVING PARTS HAVE COME TO A COMPLETE STOP.

5.2 ROTOR LOCK

WARNING

The rotor assembly has a lock mechanism. When working on the rotor assembly, use the lock mechanism at all times.

1. Insert bolt through hole on rotor and rotate the rotor until the bolt rests on the housing, preventing the rotor from moving.
2. Remove bolt when service and/or maintenance is completed.

5.3 RAISE/LOWER ACCESS COVER

Follow the steps below to raise or lower the access cover:

1. Rotate the discharge tube so it is parallel to the access cover.
2. To raise the access cover, remove the two 3/8 × 1-1/4" bolts and nuts that secure the cover to the chipper housing.
3. Lower the access cover and secure to the chipper housing using two 3/8 × 1-14" bolts and nuts.

WARNING

BEFORE INSPECTING OR SERVICING ANY PART OF THIS MACHINE, SHUT OFF POWER SOURCE, DISCONNECT THE SPARK PLUG WIRE FROM THE SPARK PLUG, AND MAKE SURE ALL MOVING PARTS HAVE COME TO A COMPLETE STOP.

5.4 CHIPPER BLADES MAINTENANCE

The chipper blades will eventually become dull, making chipping difficult and adding extra strain on the machine. **CHECK THE SHARPNESS OF THE BLADES EVERY 5-15 HOURS OF OPERATION AND SHARPEN AS NEEDED.**

Your blades need to be sharpened if:

- Machine vibrates severely when material is fed into the chipper.
- Chips discharge unevenly or have stringy tails, especially when chipping green branches.

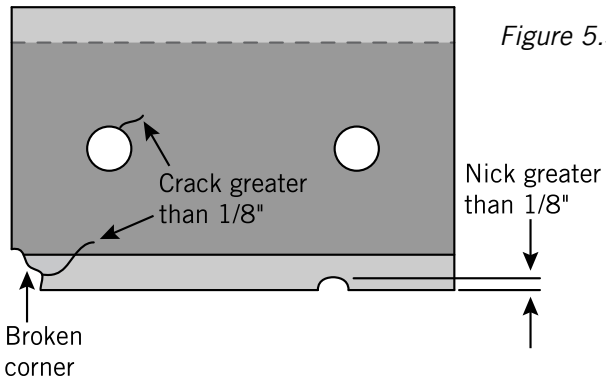


Figure 5.3.1

Before you sharpen the chipping blades, check for permanent damage. Replace the blade if:

- There are cracks, broken corners or nicks greater than 1/8" (see Figure 5.3.1).
- The base of the cutting edge is worn or has been re-sharpened so that it no longer extends past the chipping slot (see Figure 5.3.2).

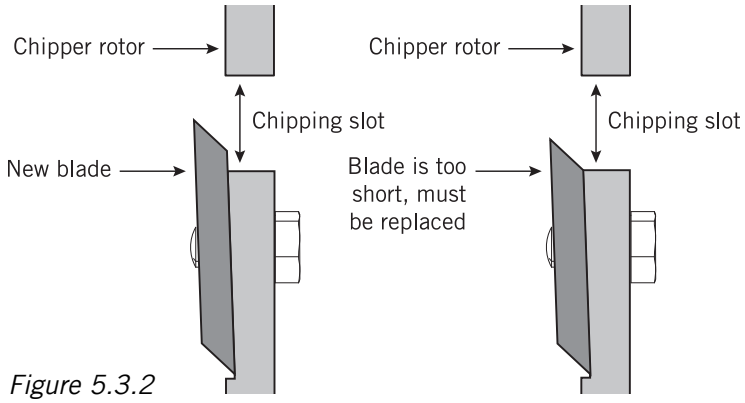


Figure 5.3.2

5.5 REMOVING THE BLADES

The blades have two edges and can be reversed one time before sharpening.

1. Remove the two 3/8" retaining bolts securing the access cover to the main frame assembly.
2. Open access cover (see Raise/Lower Access Cover) to allow access to rotor. Rotate the rotor so that the bolts holding the chipper blades are accessible.
3. Install the rotor lock (see Rotor Lock). The rotor is now restrained for removing the blades. To access the remaining blades, remove pin and reposition rotor. Return pin to the rotor lock hole.
4. Remove the two bolts that hold the blade to the rotor. The hardware can be reused. Repeat for the remaining blade.

WARNING

BEFORE INSPECTING OR SERVICING ANY PART OF THIS MACHINE, SHUT OFF POWER SOURCE, DISCONNECT THE SPARK PLUG WIRE FROM THE SPARK PLUG, AND MAKE SURE ALL MOVING PARTS HAVE COME TO A COMPLETE STOP.

5.6 SHARPENING THE BLADES

The blades can be ground on a bench grinder or by a professional.

1. Never sharpen or grind the mounting surfaces of the blades. This will cause the edge to roll and the blade will be damaged, resulting in poor chipping performance.
2. Regrind the angled edge of the chopping blades to 45 degrees (Figure 5.7.1). Use the blade angles on the anvil spacing gauge when sharpening the blades to achieve the proper angle (see Figure 5.7.2).
3. Be careful when grinding so that the blade does not become overheated and change color. This will remove the heat-treated properties.
4. Use short grinding times and cool with water or some type of liquid coolant.
5. Remove an equal amount off each blade to maintain rotor balance.
6. Small imperfections such as nicks and burrs on the flat side of the blade will not affect the chipping performance of the machine.
7. For blades that have been repeatedly sharpened, ensure that the sharpened surface extends past the chipping slot opening. If it does not extend past the opening, the blades should be replaced (see Chipper Blades Maintenance).

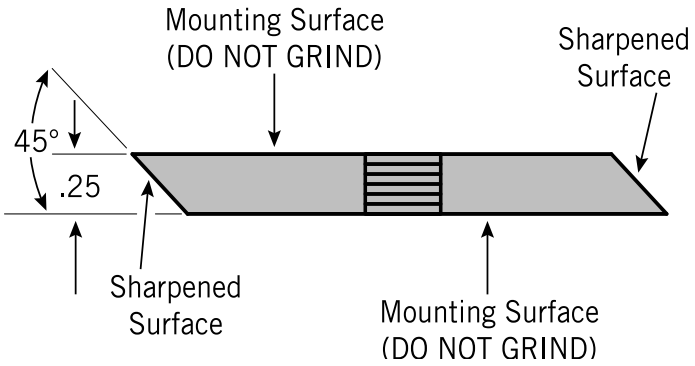


Figure 5.7.1

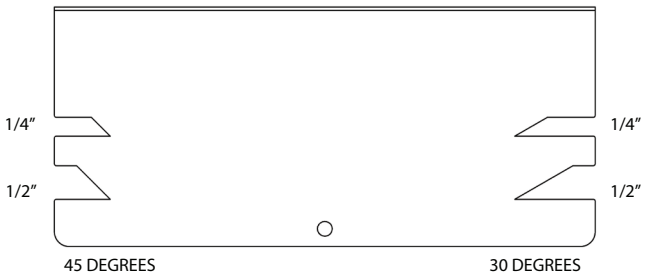


Figure 5.7.2

WARNING

BEFORE INSPECTING OR SERVICING ANY PART OF THIS MACHINE, SHUT OFF POWER SOURCE, DISCONNECT THE SPARK PLUG WIRE FROM THE SPARK PLUG, AND MAKE SURE ALL MOVING PARTS HAVE COME TO A COMPLETE STOP.

5.7 INSTALLING THE BLADES

1. Install the rotor lock (see Rotor Lock). The rotor is now restrained for installing the blades.
2. Place a blade on the rotor and attach using original hardware. Torque the bolts to 25 ft-lbs. Repeat for the remaining blades.
3. Lower the access cover (see Raise/Lower Access Cover) and secure to the chipper housing using two 3/8" retaining bolts.
4. Remove rotor lock (see Rotor Lock).

5.8 CHIPPER BLADE CLEARANCE

The chipping blades should clear the anvil by 1/16" to 1/8". To adjust the blade clearance, proceed as follows:

1. Loosen the two anvil bolts located underneath the feed roller housing (see Figure 5.9.1).

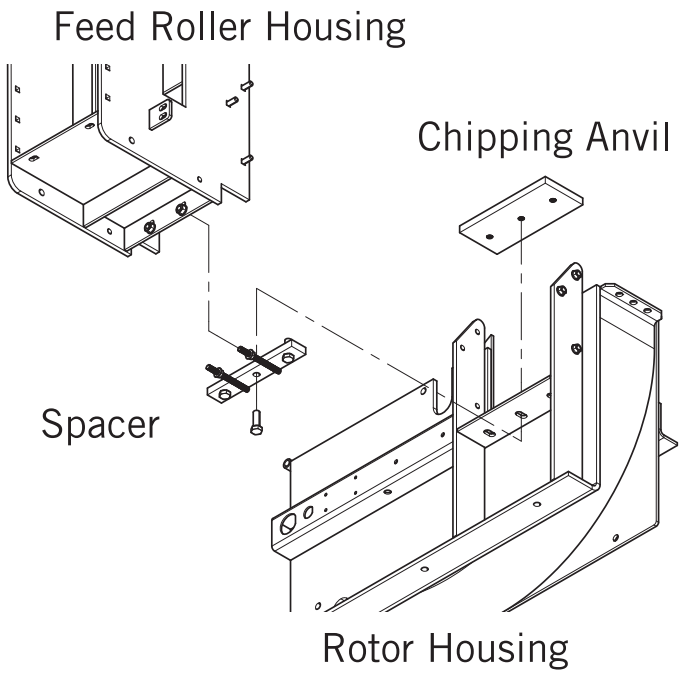


Figure 5.9.1

2. Open the chipper blade access cover to view the gap between the blades and anvil.
3. Move the anvil assembly in or out by turning the nuts on the block adjuster weldment. It is important to ensure that the minimum gap between the chipping anvil and **ALL** chipping blades is 1/16". All chipping blades should be rotated until even with the chipping anvil and then measured. Failure to do so can result in the chipping blades striking the chipping anvil causing serious injury or death.

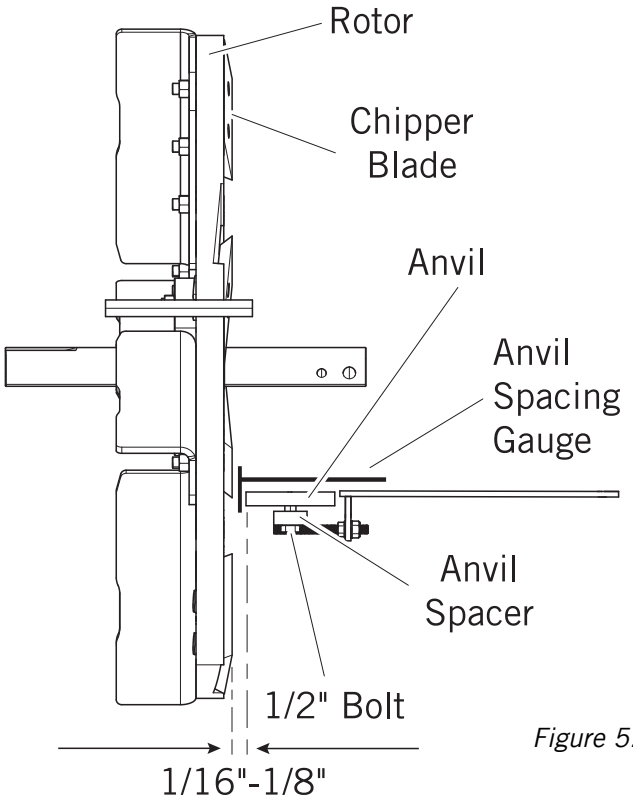


Figure 5.9.2

4. If the anvil cannot be moved to specifications due to wear, rotate the anvil or replace the anvil.
5. Secure all hardware and adjust to torque.

⚠ WARNING ⚠

BEFORE INSPECTING OR SERVICING ANY PART OF THIS MACHINE, SHUT OFF POWER SOURCE, DISCONNECT THE SPARK PLUG WIRE FROM THE SPARK PLUG, AND MAKE SURE ALL MOVING PARTS HAVE COME TO A COMPLETE STOP.

5.9 CLEARING A PLUGGED ROTOR

Feeding too large or too much material at once may plug the chipper. To clear a plugged rotor, proceed as follows:

⚠ WARNING ⚠

The feed roller must be secured in the up position prior to servicing the chipper feed area. Failure to do so can result in serious injury or death.

1. Stop skid steer engine, disengage hydraulics, and allow the machine to come to a complete stop.
2. Position the chipper chute to the side of the chipper.
3. Remove the two 3/8" retaining bolts holding the access cover to the chipper frame and lift up access cover.
4. Remove the lock pin from storage position (see Figure 5.10.1).
5. Turn check valve clockwise to engage the jack pump.
6. Pump the handle to raise the feed roller until the lock pin position aligns with one of the support bracket holes.
7. Secure the position by putting the lock pin through the support bracket and lock pin position.
8. Clean the debris away from the chipper rotor. Turn the rotor by hand to be sure it is free to rotate. Be careful to avoid the chipper blades when cleaning out the debris.
9. Remove the lock pin and put it back in storage position. **LEAVING THE LOCK PIN IN ANY OTHER POSITION MAY INTERFERE WITH FEED ROLLER OPERATION.**
10. Turn the check valve counterclockwise to disengage the pump and lower the jack.
11. Close access cover and replace bolts.
12. Follow start up procedures in Starting the Chipper under Operation.

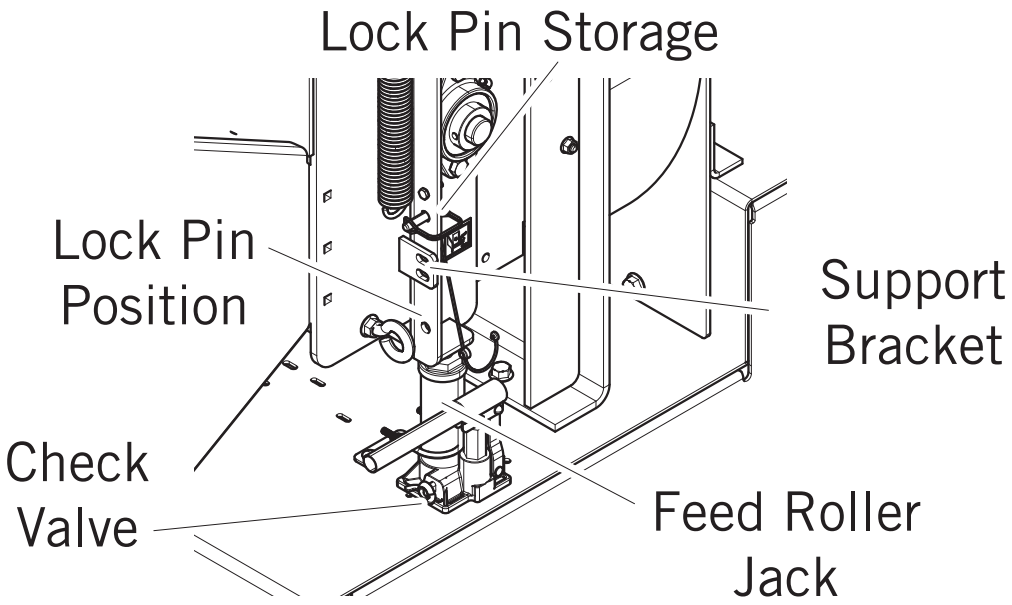


Figure 5.10.1

⚠ WARNING ⚠

BEFORE INSPECTING OR SERVICING ANY PART OF THIS MACHINE, SHUT OFF POWER SOURCE, DISCONNECT THE SPARK PLUG WIRE FROM THE SPARK PLUG, AND MAKE SURE ALL MOVING PARTS HAVE COME TO A COMPLETE STOP.

5.10 LUBRICATION

Lubricate the machine periodically with a lithium-based grease. Extreme working conditions will require more frequent greasing.

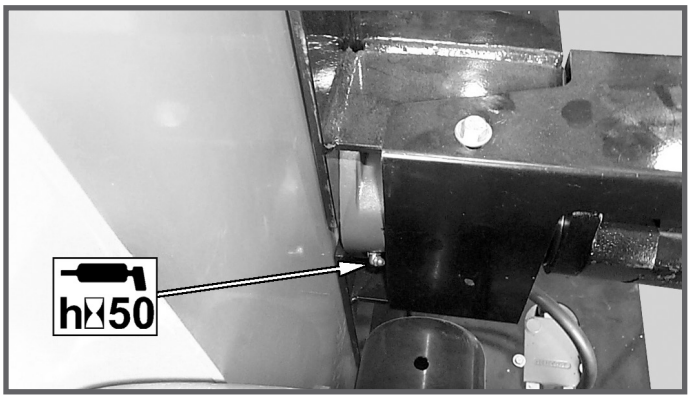
Grease the following points every 50-100 hours of operating time:

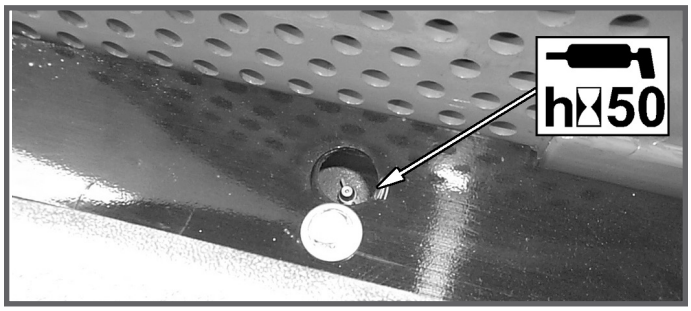
⚠ WARNING ⚠

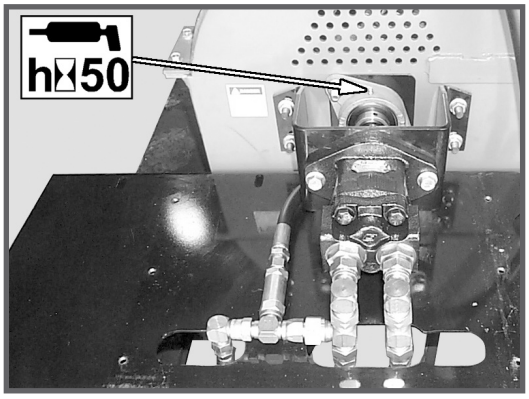
Polyurea and lithium-based greases are not compatible. Mixing the two grease types may lead to premature failure.

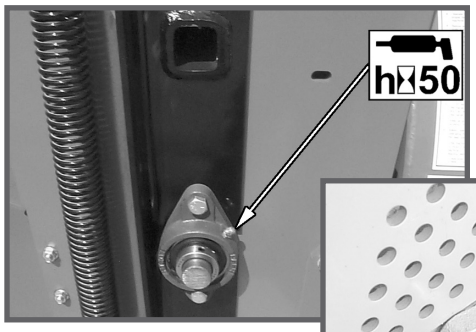
NOTE

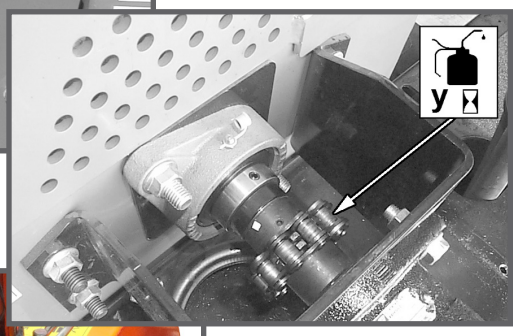
Do not over grease bearings. Overfilling can lead to excessive heat and/or unseating of the seals. Add grease slowly and under light pressure. Whenever possible, rotate bearing slowly while lubricating.

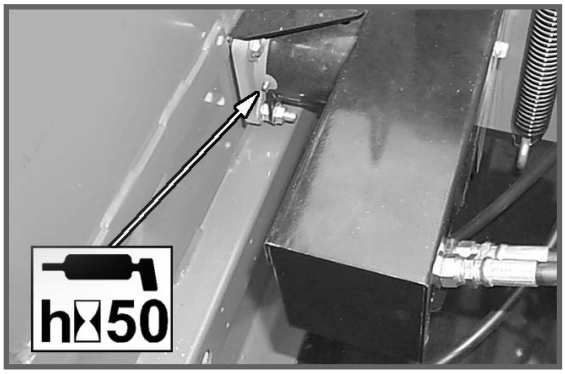












6 TROUBLESHOOTING

Before performing any of the corrections in this troubleshooting chart, refer to the appropriate information contained in this manual for the correct safety precautions and operating or maintenance procedures. Contact your dealer for service problems with the machine.

PROBLEM	POSSIBLE CAUSES	REMEDY
Hard to feed chipper	Dull chipper blades	Reverse or sharpen blades
	Obstructed discharge	Use branch or similar object to clear discharge
	Improper blade clearance	Adjust clearance between chipper block and chipper blades
Feed roller does not engage	Low hydraulic flow due to low engine RPM	Move loader engine speed to higher RPM
Excessive vibration while running	Chipper not correctly attached to skid steer	Check for correct mounting of the chipper to the skid steer
	Damaged chipper blades	Replace damaged blades
Rotor will not turn	No hydraulic flow	Check quick couplers connection. Check for damaged hose ends and fittings.
Does not discharge chips	Not enough hydraulic flow	Make sure enough flow is provided by the skid steer
Chipper does not seat properly on the skid steer	Wedges are not fully extended	Retract wedges
	Mud, dirt or stones are lodged between the chipper and the skid steer	Remove debris from between the chipper and the skid steer
Feed roller alternates between forward and reverse	Hydraulic motor is malfunctioning.	Hydraulic motor needs to be replaced.
	Pressure switch fault	Unhook the pressure switch, test for operation. If the forward feed works or the feed roller stops “ratcheting,” replace the pressure switch.

7 SPECIFICATIONS

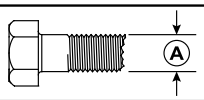
DESCRIPTION	ENGLISH	METRIC
Machine Dimensions (L×W×H)	73" × 52" × 86"	185 cm × 132 cm × 218 cm
Weight	1145 lbs.	519 kg
Maximum Chipper Capacity	5" diameter	12.7 cm diameter
Chipper Blades	4 reversible (3.125" × 2" × 0.25")	4 reversible (7.9 cm × 5 cm × 0.64 cm)
Rotor Size	20" diameter × 1.25"	51 cm diameter × 3.175 cm
Rotor Speed	2700 RPM at 15 gpm; 4000 RPM at 22 gpm	
Rotor Weight	140 lbs.	63.5 kg
Skid Steer Hydraulics	Standard or High-Flow	
Chute Size	28" × 28"	71 cm × 71 cm
Chipper Opening Size*	6" × 7"	15.2 cm × 17.8 cm
Continuous Chipping Size*	3" diameter	7.6 cm diameter
Discharge Rotation	360 degrees	

SPECIAL TORQUE REQUIREMENTS			
LOCATION	HARDWARE	TORQUE (UNIFIED INCH)	TORQUE (METRIC)
Blade mounting bolts	5/16 × 1-1/4" hex HD grade 8 bolts	25 in-lbs.	34 Nm

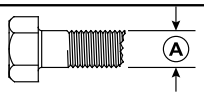
*Continuous chipping size rating refers to the suggested feeding size of limbs for normal operations. Limbs up to the chipper opening size may be fed, but decreased performance will occur.

7.1 BOLT TORQUE

The tables below are for reference purposes only and their use by anyone is entirely voluntary, unless otherwise noted. Reliance on their content for any purpose is at the sole risk of that person and any loss or damage resulting from the use of this information is the responsibility of that person.

SAE Grade and Head Markings	SAE 2	SAE 5	SAE 8	Bolt Diameter
				

BOLT DIAMETER (A)	BOLT TORQUE*					
	SAE 2		SAE 5		SAE 8	
	Nm	FT-LBS.	Nm	FT-LBS.	Nm	FT-LBS.
1/4"	7.5	5.5	11	8	16	12
5/16"	15	11	23	17	34	25
3/8"	27	20	41	30	61	45
7/16"	41	30	68	50	95	70
1/2"	68	50	102	75	149	110
9/16"	97	70	149	110	203	150
5/8"	122	90	203	150	312	230
3/4"	217	160	353	260	515	380
7/8"	230	170	542	400	814	600
1"	298	220	786	580	1220	900
1-1/8"	407	300	1085	800	1736	1280
1-1/4"	570	420	2631	1940	2468	1820

Metric Grade and Head Markings	4.8	8.8	10.9	12.9	Bolt Diameter
					

BOLT DIAMETER (A)	BOLT TORQUE*							
	4.8		8.8		10.9		12.9	
	Nm	FT-LBS.	Nm	FT-LBS.	Nm	FT-LBS.	Nm	FT-LBS.
M3	0.5	0.4	–	–	–	–	–	–
M4	3	2.2	–	–	–	–	–	–
M5	5	4	–	–	–	–	–	–
M6	6	4.5	11	8.5	17	12	19	14.5
M8	15	11	28	20	40	30	47	35
M10	29	21	55	40	80	60	95	70
M12	50	37	95	70	140	105	165	120
M14	80	60	150	110	225	165	260	190
M16	125	92	240	175	350	255	400	300
M18	175	125	330	250	475	350	560	410
M20	240	180	475	350	675	500	800	580
M22	330	250	650	475	925	675	1075	800
M24	425	310	825	600	1150	850	1350	1000
M27	625	450	1200	875	1700	1250	2000	1500

*Torque value for bolts and capscrews are identified by their head markings.

Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

LIMITED WARRANTY

Erskine Attachments, LLC warrants each new machine manufactured by us to be free from defects in material and workmanship for a period of twenty-four (24) months from date of delivery to the original purchaser.

Our obligation under this warranty is to replace free of charge, at our factory or authorized dealership, any part proven defective within the stated warranty time limit.

All parts must be returned freight prepaid and adequately packaged to prevent damage in transit.

This warranty does not cover:

1. New products which have been operated in excess of rated capacities or negligence.
2. Misuse, abuse, accidents or damage due to improperly routed hoses.
3. Machines which have been altered, modified or repaired in any manner not authorized by our company.
4. Previously owned equipment.
5. Any ground engaging tools in which natural wear is involved, i.e. tooth tips, cutting teeth, etc.
6. Normal maintenance.
7. Fork tines.
8. Hydraulic motors that have been disassembled in any manner.

In no event will the Sales Representative, Dealership, Erskine Attachments, LLC, or any other company affiliated with it or them be liable for incidental or consequential damages or injuries, including but not limited to the loss of profit, rental or substitute equipment or other commercial loss. Purchaser's sole and exclusive remedy being as provided here in above.

Erskine Attachments, LLC must receive immediate notification of defect and no allowance will be made for repairs without our consent or approval.

This warranty is in lieu of all other warranties, express or implied by law or otherwise, and there is no warranty of merchantability or fitness purpose.

No agent, employee, or representative of Erskine Attachments, LLC has any authority to bind Erskine Attachments, LLC to any warranty except as specifically set forth herein. Any of these limitations excluded by local law shall be deemed deleted from this warranty; all other terms apply.

This warranty may not be enlarged or modified in any manner except in writing signed by an executive officer of Erskine Attachments, LLC to improve its products whenever it is possible and practical to do so. Erskine Attachments, LLC reserves the right to make changes and or add improvements at any time without incurring any obligation to make such changes or add such improvements to products previously sold.

Erskine Attachments, LLC
P.O. Box 1083 Alexandria, MN 56308
Phone (218) 435-4045

ERSKINE®

ATTACHMENTS LLC

P/N 320634
Erskine Attachments LLC
Erskine, MN 56535

Printed in U.S.A.

ERSKINE®

ATTACHMENTS LLC

Operator's Manual

Set-Up Assembly and

Parts Information

WOOD CHIPPER 9"

FOR

SKID STEER LOADERS

Do not use or operate this machine until this manual has been read and understood.

Read the Operation & Maintenance Manual entirely. When you see this symbol, the subsequent instructions and warnings are serious – follow without exception. Your life and the lives of others depend on it!

IMPORTANT

If this machine is used by an employee or is loaned or rented to others, make certain that the operator(s) prior to operating:

- **Is instructed in safe and proper use.**
- **Reviews and understands the operation and maintenance manual(s) pertaining to the machine.**

Remember, the operator is responsible for the safe operation

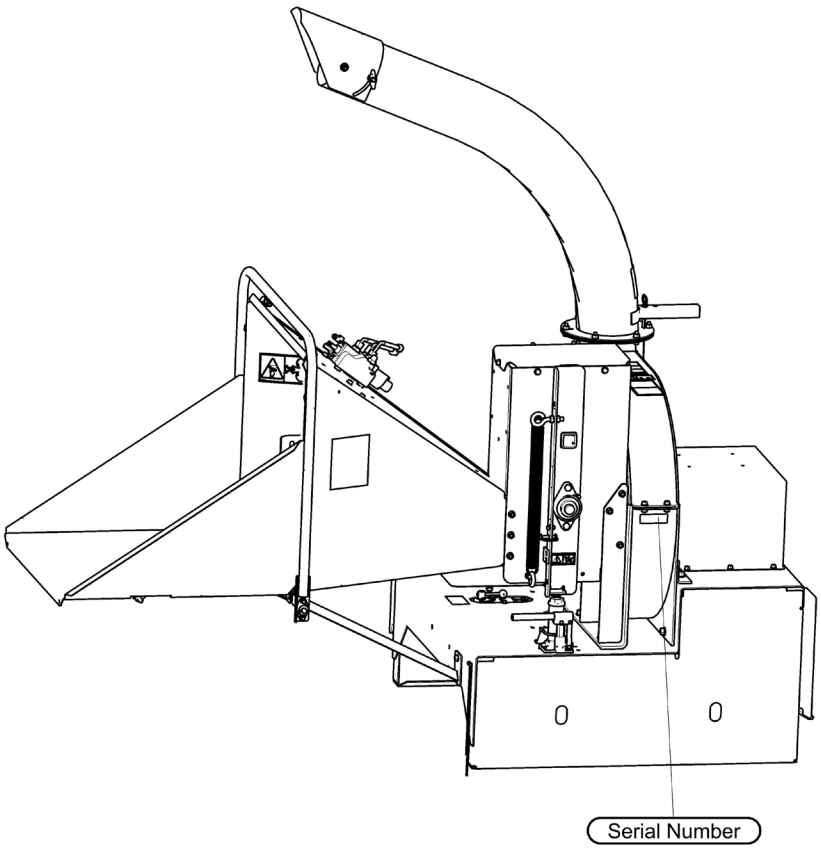
and maintenance of the machine. Most accidents can be prevented. Good safety practices not only protect you, but also the people around you.

NOTE: *Erskine Attachments LLC reserves the right to make improvements in design or changes in specifications at any time without notice and without incurring any obligations to install them on units previously sold.*

REFERENCE INFORMATION

Write the serial number for your attachment in the spaces below.
Always refer to this serial number when calling for service or parts.

Serial Number: _____



YOUR ATTACHMENT DEALER	
ADDRESS	
PHONE NUMBER	
CONTACT	

TABLE OF CONTENTS

1 SAFETY

1.1 SAFETY ALERT SYMBOL

The Owner/Operator's manual uses this symbol to alert you of potential hazards. Whenever you see this symbol, read and obey the safety message that follows it. Failure to obey the safety message could result in personal injury, death or property damage.

WARNING

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.

DANGER

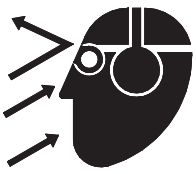
Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.

1.2 BEFORE OPERATING

1. Read and understand this owner's manual. Be completely familiar with the controls and the proper use of this equipment.
2. Familiarize yourself with all of the safety and operating decals on this equipment and on any of its attachments or accessories.
3. Keep safety decals clean and legible. Replace missing or illegible safety decals.
4. Obtain and wear safety glasses and use hearing protection at all times when operating this machine.

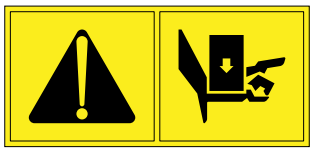


5. Avoid wearing loose fitted clothing. Never operate this machine while wearing clothing with drawstrings that could wrap around or get caught in the machine.
6. Do not operate this machine if you are under the influence of alcohol, medications, or substances that can affect your vision, balance or judgement. Do not operate if tired or ill. You must be in good health to operate this machine safely.
7. Do not operate this equipment in the vicinity of bystanders. Keep the area of operation clear of all persons, particularly small children. It is recommended that bystanders keep at least 50 feet (15 meters) away from the area of operation.
8. Do not allow children to operate this equipment.
9. Use only in daylight or good artificial light.
10. Do not fill fuel tank indoors. Keep open flames, sparks, smoking materials and other sources of combustion away from fuel.
11. Do not operate machine without shields in place. Failure to do so may cause serious injury or death.
12. Keep all guards, deflectors, and shields in good working condition.
13. Before inspecting or servicing any part of this machine, shut off the machine and make sure all moving parts have come to a complete stop.
14. Check that all screws, nuts, bolts, and other fasteners are secured, tightened and in proper working condition before starting the machine.
15. Do not transport or move machine while it is operating or running.

1.3 OPERATION SAFETY

1. Always stand clear of discharge area when operating this machine. Keep face and body away from feed and discharge openings.
2. Keep hands and feet out of feed and discharge openings while machine is operating to avoid serious personal injury. Stop and allow machine to come to a complete stop before clearing obstructions.
3. Set up your work site so you are not endangering traffic and the public. Take great care to provide adequate warnings.
4. Do not climb on machine when operating. Keep proper balance and footing at all times.
5. Check cutting chamber to verify it is empty before starting the machine.
6. The rotor will continue to rotate after being disengaged. Shut off the machine and make sure all moving parts have come to a complete stop before inspecting or servicing any part of the machine.
7. Do not insert branches with a diameter larger than the max chipper capacity into machine or machine damage may occur.
8. When feeding material into machine, do not allow metal, rocks, bottles, cans or any other foreign material to be fed into the machine.
9. Ensure debris does not blow into traffic, parked cars, or pedestrians.
10. Keep the machine clear of debris and other accumulations.
11. Do not allow processed material to build up in the discharge area. This may prevent proper discharge and can result in kickback of material through the feed opening.
12. If the machine becomes clogged, the cutting mechanism strikes any foreign object, or the machine starts vibrating or making an unusual noise, shut off machine immediately and make sure all moving parts have come to a complete stop. After the machine stops: A) Inspect for damage, B) Replace or repair any damaged parts, and C) Check for and tighten any loose parts.
13. Check blade bolts for proper torque after every 8 hours of operation. Check blades and rotate or resharpen daily or as required to keep blades sharp. Failure to do so may cause poor performance, damage or personal injury and will void the machine warranty.

1.4 FEED ROLLER SAFETY



1. The feed roller can cause serious injury or death. Keep hands, feet and clothing away from the feed roller and chipper rotor blades.
2. Never climb onto the feed chute when the unit is operating or running.
3. Do not overreach. Keep proper balance and footing at all times.
4. Never allow anyone to sit on the feed chute.
5. When feeding material into the feed roller wear eye, face and hearing protection.
6. Stand to side of feed chute when feeding material and release material quickly.
7. When inspecting or servicing the feed roller, secure the feed roller in the raised position using the lock pin, if applicable.

1.5 MAINTENANCE/STORAGE SAFETY

1. Before inspecting, servicing, storing, or changing an accessory, shut off the machine and make sure all moving parts have come to a complete stop.
2. Replace any missing or unreadable safety decals. Refer to the safety decal section for part numbers.
3. Allow machine to cool before storing in an enclosure.
4. Store the machine out of reach of children.

1.6 SAFETY DECALS

The decals listed below correspond with the numbers in the Safety Decal Locations section. Familiarize yourself with all of the safety and operating decals on the machine and the associated hazards. See the engine owner's manual or contact the engine manufacturer for engine safety instructions and decals.

1 P/N: 12169

Keep hands and feet out of inlet and discharge openings while machine is operating to avoid serious personal injury. Stop and allow machine to come to a complete stop before clearing obstructions.

3 P/N: 12173

Do not operate this equipment in the vicinity of bystanders. Do not allow children to operate this equipment. Always stand clear of discharge area when operating this machine. Keep face and body away from discharge areas.

4 P/N: 12174

Do not operate machine without shields in place. Failure to do so may cause serious injury or death.

5 P/N: 12175

Keep hands and feet out of inlet and discharge openings while machine is operating to avoid serious personal injury. Stop and allow machine to come to a complete stop before clearing obstructions.

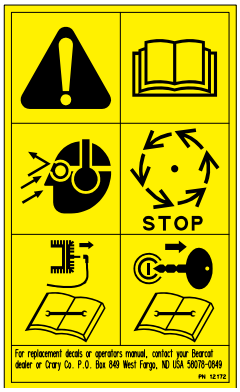
6 P/N: 12250

Check blade bolts for proper torque after every 8 hours of operation. Check blades and rotate or resharpen daily or as required to keep blades sharp. Refer to owners manual for instructions. Failure to do so may cause poor performance, damage or personal injury and will void the machine warranty.

7 P/N: 14942-00

Read and understand your owners manual before operating. If owners manual was not included or you have any questions, please call 800-247-7335 or 701-282-5520 (U.S.A.).

2 P/N: 12172

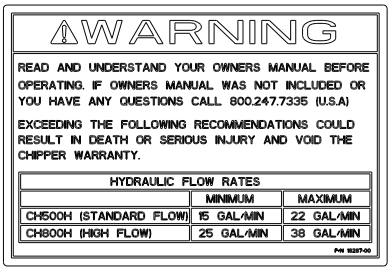


Read and understand this owner/operators manual. Be completely familiar with the controls and the proper use of this equipment.

Obtain and wear safety glasses and use hearing protection at all times when operating this machine.

Before inspecting or servicing any part of this machine, shut off power source, remove the key, disconnect spark plug wire from spark plug and make sure all moving parts have come to a complete stop.

8 P/N: 18287-00



WARNING

READ AND UNDERSTAND YOUR OWNERS MANUAL BEFORE OPERATING. IF OWNERS MANUAL WAS NOT INCLUDED OR YOU HAVE ANY QUESTIONS CALL 800.247.7335 (U.S.A)

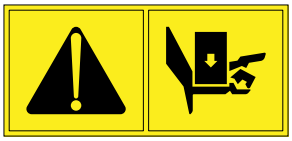
EXCEEDING THE FOLLOWING RECOMMENDATIONS COULD RESULT IN DEATH OR SERIOUS INJURY AND VOID THE CHIPPER WARRANTY.

HYDRAULIC FLOW RATES		
	MINIMUM	MAXIMUM
CH500H (STANDARD FLOW)	15 GAL/MIN	22 GAL/MIN
CH800H (HIGH FLOW)	25 GAL/MIN	38 GAL/MIN

P/N 18287-00

9 P/N: 18983-00

Feed roller support must be secured in the up position prior to servicing chipper feed area. The feed roller can fall and cause severe bodily harm. Consult owners manual for proper method of securing feed roller support. Lower feed roller before operating chipper.

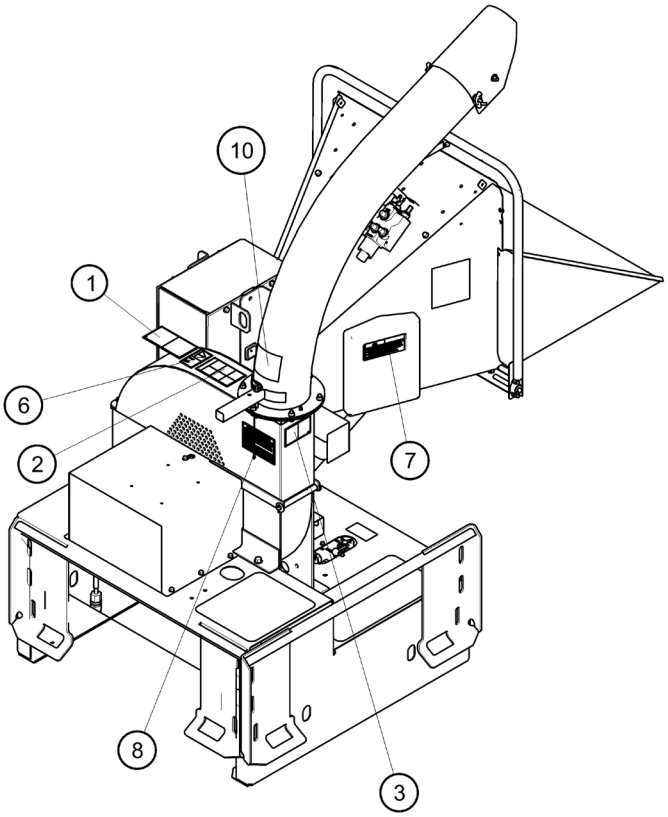


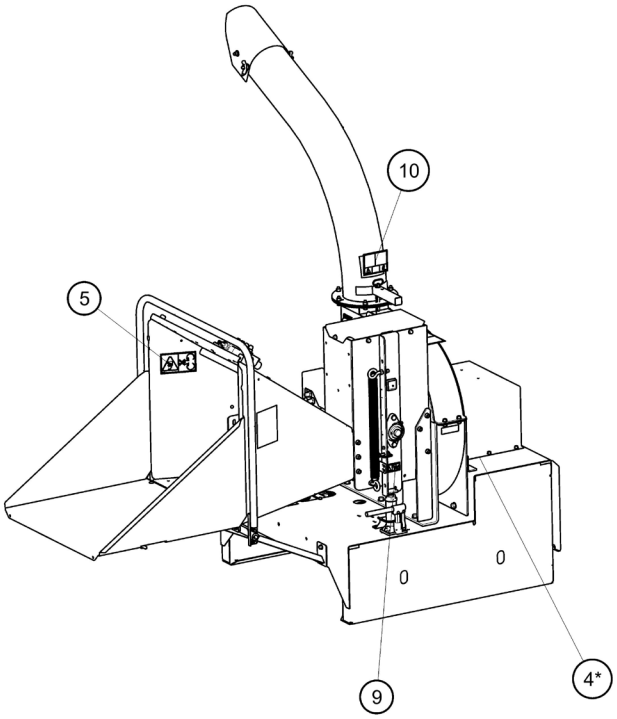
10 P/N: 32109-00

Do not operate this equipment in the vicinity of bystanders. Do not allow children to operate this equipment. Always stand clear of discharge area when operating this machine. Keep face and body away from discharge areas. Rotate the discharge tube over the hitch before towing and lock securely in place.

1.7 SAFETY DECAL LOCATIONS

The numbers below correspond to the decals listed in the Safety Decals section. Make certain that all safety and operating decals on this machine are kept clean and in good condition. Decals that need replacement must be applied to their original locations.





*Decal located on base

2 ASSEMBLY

WARNING

If any bolts or nuts are dropped in the machine, be sure to remove them before starting the machine.

2.1 ATTACH DISCHARGE TUBE

1. Attach one clamping ring (1) and one spacer ring (2) to discharge tube base (3) using three 3/8" × 1-1/4" bolts (4) and nylock nuts (5). Tighten leaving 1/16" gap to assist in mounting to flange. See Figure 2.1.1.
2. Slide the tube onto the mounting flange on the chipper frame. The discharge clamp (1) should slide underneath the lip of the flange. Tighten the bolts to secure it.
3. Install the second half of the spacer (2) and clamp ring (1) on the discharge tube with 3/8" × 1-1/4" bolts (4) and nylock nuts (5).
4. Attach lanyard with discharge pin (6) as shown in Figure 2.1.2. Loop on lanyard installed below nut located under discharge handle.
5. Lubricate the tube by applying grease to the grease zerk at the base of the tube. Rotate the tube and apply grease until the tube rotates freely.
6. Rotate the tube 360 degrees and lock it in place with the lock pin to make sure it is mounted correctly.

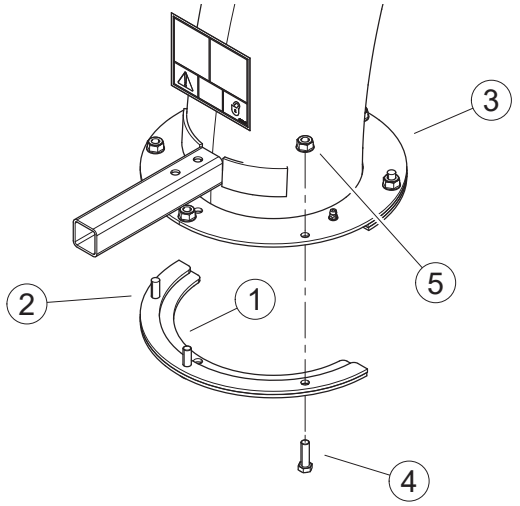


Figure 2.1.1, Attach Clamp Ring and Spacer

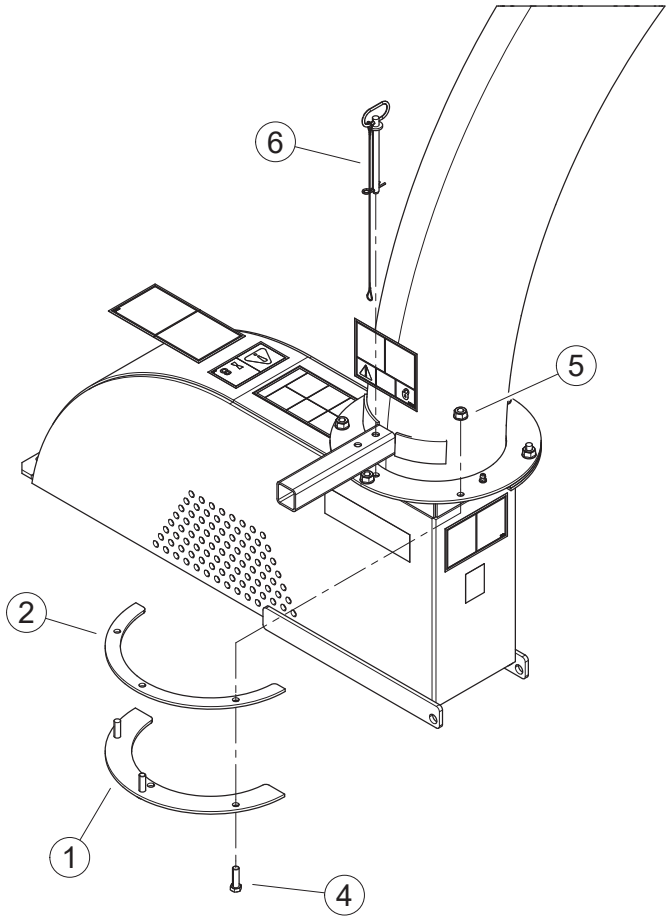


Figure 2.1.2, Attach Discharge Tube

NOTE

Keep nuts as tight as possible while allowing the discharge tube to freely turn.

7. Attach the discharge deflector (7) to the discharge tube. Connect the deflector with two 3/8" × 1-1/2" bolts (8) through the lower hole in the discharge tube. Run these bolts through the inside of the tube, 1/2" washer (12), deflector, 3/8" washer (13), and then knob (9).
8. Finish bolting the deflector to the tube with two 3/8" × 1" bolts (10) through the end hole in the discharge tube and secure with 3/8" washers and nylock nuts (11).

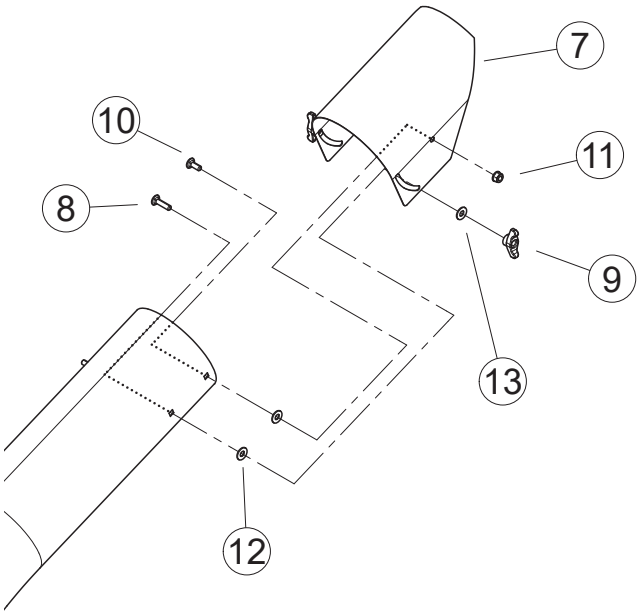


Figure 2.1.3, Attach Discharge Deflector

2.2 ATTACH CHIPPER CHUTE

WARNING

Do not operate this unit without the chipper chute correctly installed. Rotating cutting blades can cause serious personal injury.

MOUNTING CHUTE TO FEED ROLLER HOUSING

1. The chipper chute must be mounted to the feed roller housing. Both models use a chute support. See Mounting Chute Support for instructions on mounting the chute support.
2. Place the chute on the roller support weldment. Have someone assist if necessary.
3. Align the chute with the mounting holes.
4. Insert 3/8" carriage bolts into the mounting holes. It may be helpful to align the holes with a punch.
5. Place washers and nuts on the opposite side of the bolts and tighten to proper torque.

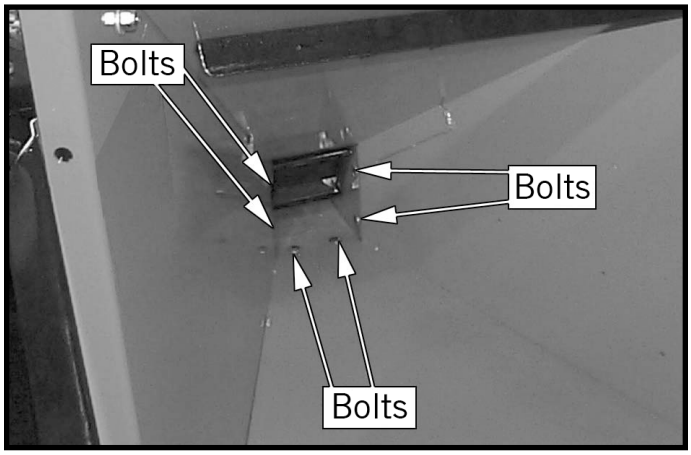


Figure 2.2.1, Mounting the Chute

MOUNTING CHUTE SUPPORT

1. Make sure the chute is mounted to the roller support weldment.
2. Place the chute support underneath the chute.
3. The side of the chute support with the two mounting holes is orientated towards the chipper base.
4. Attach the chipper chute to the base with the provided 3/8" bolts, washers, and nuts. It may help to slightly lift the chipper chute.
5. Align the other hole of the chipper chute support with the hole in the chipper chute.
6. Insert the other 3/8" bolt, washer, and nut. Tighten to proper torque.

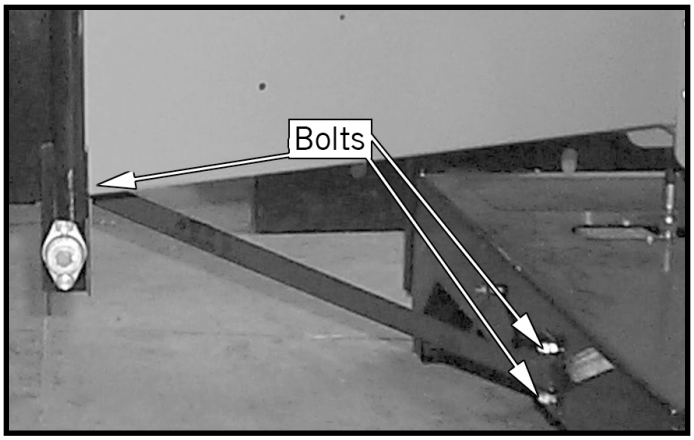


Figure 2.2.2, Mounting the Chute Support.

2.3 MOUNTING THE FOUR-POSITION VALVE

1. Place the four-position valve on the chipper chute over the three pre-drilled mounting holes.
2. From the inside of the chipper chute, using the 3/8" × 3/4" bolts and washers, thread the bolts into the four-position valve.
3. Tighten 5/16" hardware to proper torque.
4. Attach the valve control lever according to Figure 2.3.2.
5. Tighten the 5/16" bolt to the proper torque.

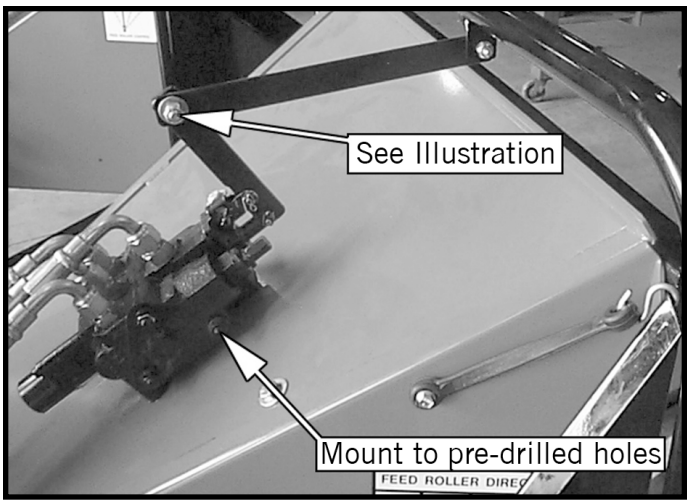


Figure 2.3.1, Mounting the Four-Position Valve.

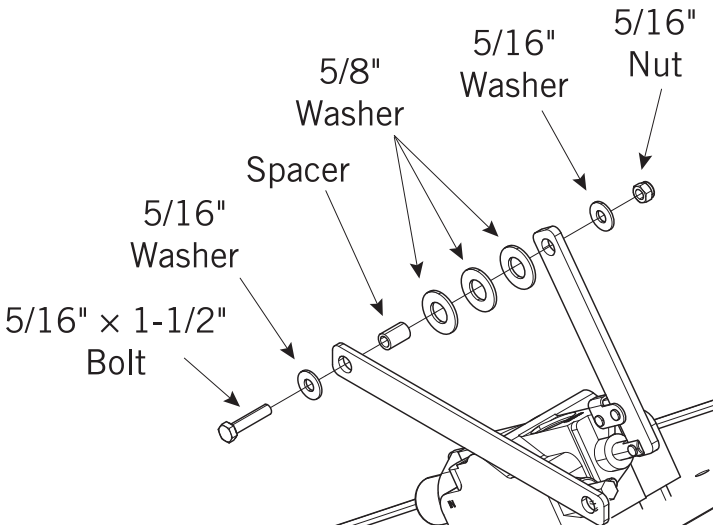


Figure 2.3.2, Connecting Valve Control Lever

3 FEATURES & CONTROLS

3.1 STANDARD FEATURES & CONTROLS

Understanding how your machine works will help you achieve the best results when using your chipper. The following descriptions define the features and controls of your machine.

1. CHUTE EXTENSION TRAY

The feed chute has an extension tray that folds down. Raise the extension tray to an upright position and secure with latch before towing the machine.

2. DISCHARGE CAP

Directs the discharge of material vertically. Adjust the discharge cap by turning the knobs located on the side. Turn knob counterclockwise to loosen discharge cap. Adjust to desired position. Turn knob clockwise to secure discharge cap.

3. DISCHARGE TUBE

Directs the discharge of chipped material horizontally. The discharge tube can be rotated 360° horizontally by removing the pin and rotating the discharge tube until the discharge faces the desired position. Replace the pin in one of the holes on the base of the discharge.

4. ROTOR ACCESS COVER

Tilts up to expose rotor.

5. ROTOR LOCK

Use the rotor lock to hold the rotor in place when doing any maintenance work. See Rotor Lock under Service & Maintenance.

6. FEED CHUTE

Materials to be chipped are fed into the feed chute, through the feed roller, to the chipper blades.

7. FEED ROLLER LIFT JACK

Used to lift the feed roller. The feed roller can be raised to inspect and service the machine and to clear a plugged rotor. Secure the feed roller in the raised position using the provided snap pin.

8. FEED ROLLER SPEED CONTROL

Adjust the feed roller speed with the hand crank located below the chipper feed table. Use a slower feed roller speed when feeding large branches into the chipper. Increase the feed roller speed when feeding small branches into the chipper. Turning the crank counter-clockwise decreases the feed roller speed. Turning the crank clockwise increases the feed roller speed.

9. MANUAL CONTAINER

Conveniently holds your manuals.

10. FEED ROLLER CONTROL ARM

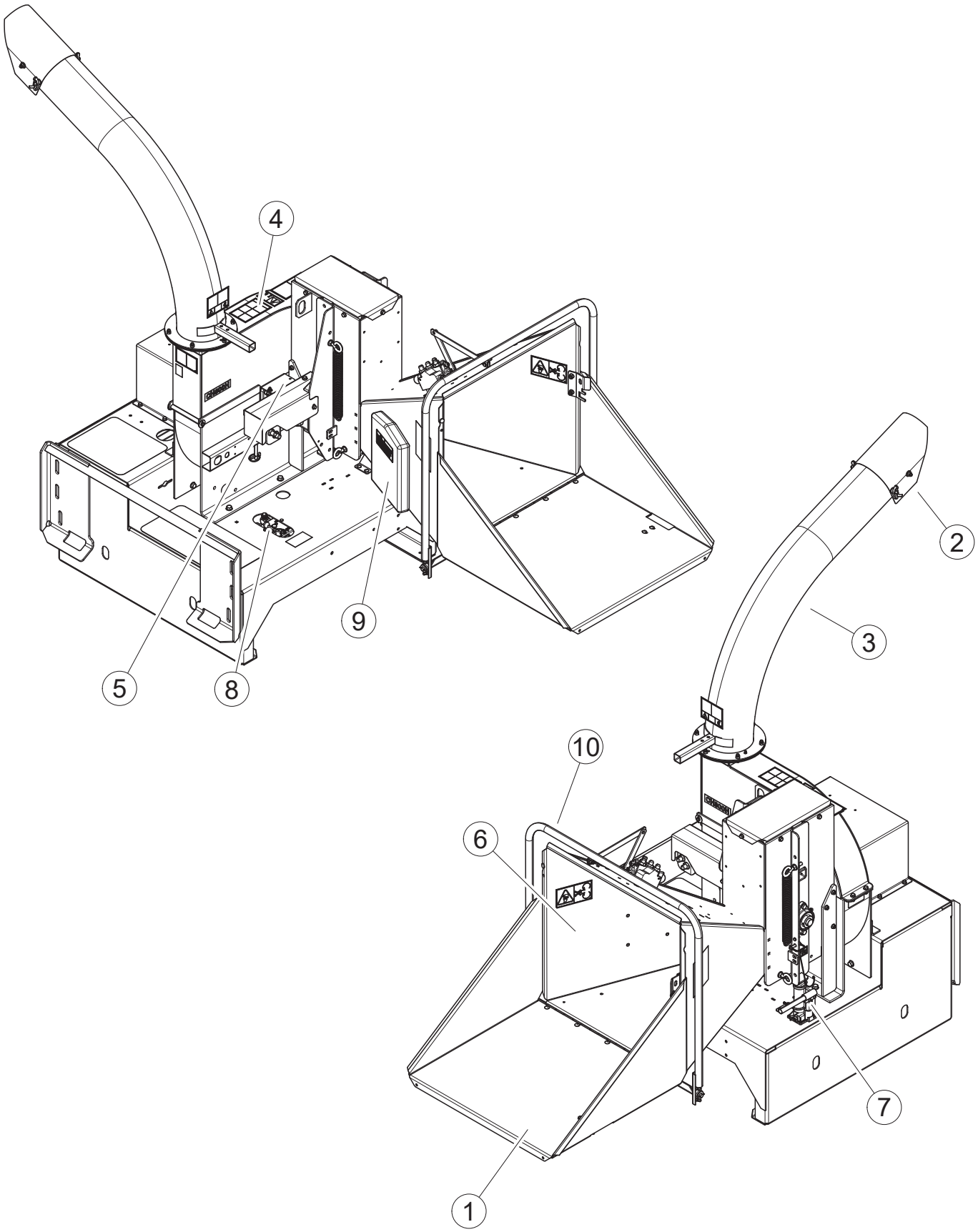
The feed roller control arm has four positions: reverse, stop, forward, reverse.

Reverse: Reverses the direction of the feed roller. Use this function to clear a plugged feed roller.

Stop: Stops the feed roller.

Forward: Engages the feed roller and pulls material into the chipper.

Reverse: Reverses the direction of the feed roller.


4
5
8
9
2
3
10
6
7
1

4 OPERATION

WARNING

Move machine to a clear, level area outdoors before starting. Do not operate in the vicinity of bystanders. Make sure cutting chamber is empty before starting.

CHIPPING OPERATION

The chipping operation takes place in the middle of the machine, where hardened steel chipper blades are mounted on a rotating rotor assembly. Material fed into the chipper chute is sliced into small chips and propelled out through a discharge tube.

As with any other piece of outdoor equipment, getting the feel for how your machine operates and getting to know the best techniques for particular jobs are important to overall good performance.

WARNING

Before operating your machine, be sure you read and understand all safety, controls and operating instructions in this owner's manual and on your machine. Failure to follow these instructions can result in serious injury or property damage.

4.1 RECOMMENDED HYDRAULIC FLOW RATES

MINIMUM	MAXIMUM
25 gpm	38 gpm

WARNING

Exceeding the recommended flow rates can cause severe damage and void the chipper warranty!

4.2 MOUNTING CHIPPER TO SKID STEER

The chipper can be mounted to the skid steer in two locations. The recommended location is with the feed chute sitting at the front of the loader. However, if space is a concern, the unit can be mounted with the feed table sitting to the left of the machine.

1. Tilt the universal skid steer mount forward.
2. Make sure that the wedges are fully raised.
3. Drive the skid steer forward until the top edge of the coupler is completely under the top flange on the chipper.
4. Tilt the unit backward until the chipper is slightly off the ground.
5. Kill the engine and exit the machine to push down the wedges using the universal skid steer mount levers (Figures 4.2.1 and 4.2.2). On automated models, stay in the machine and engage the wedges.

WARNING

The wedges must extend through the holes in the mounting frame of the chipper to securely fasten the chipper to the universal skid steer mount. Failure to secure wedges can allow attachment to come off and cause injury or death.

Figure 4.2.1, Connecting the Skid Steer

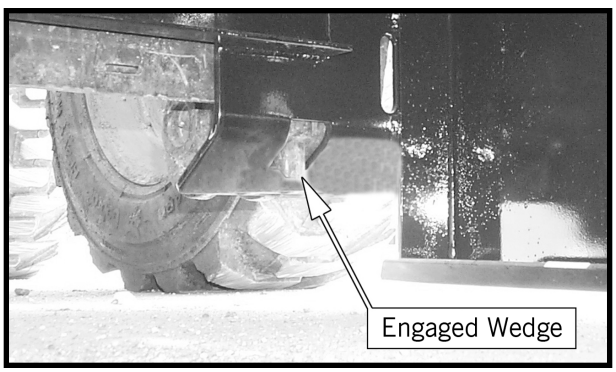


Figure 4.2.2, Securing the Wedges

4.3 CONNECTING COUPLERS

WARNING

Hydraulic lines may be under pressure due to testing done at the factory.

The skid steer chipper is equipped to attach to flush face couplers (Figure 4.3.1). The chipper is shipped with -12 sized hydraulic couplers fitted on the hoses. A tie wrap is used to indicate the pressure line. Be sure to connect the hydraulic hoses to the proper ports.

If the skid steer is fitted with anything other than -12 sized flush face couplers on the main lines, it will be necessary to replace the couplers supplied with the chipper.

The chippers are also equipped with a case drain hose. The case drain is used to eliminate pressure on the chipper's hydraulic motor. The motor is rated for 250 to 300 psi of back pressure.

Most high flow skid steer loaders are equipped with a case drain line. Standard flow skid steer loaders typically are not. **If the back pressure is over 300 psi, a case drain line will have to be added. Contact your skid steer dealer for details.**

WARNING

NOT ADDING A CASE DRAIN LINE VOIDS THE CHIPPER WARRANTY!

WARNING

Handle pressurized hydraulic fluid carefully. Escaping pressurized hydraulic fluid may penetrate your skin causing serious injury. This fluid may also be hot enough to burn. Serious infection or reactions can develop if immediate proper medical treatment is not administered.

TO CONNECT

1. Before connecting, make sure to relieve the hydraulic pressure in the skid steer using the skid steer system.
2. Remove dirt and debris from the surface of the couplers.
3. Visually check the couplers for damage; replace if damage is found.
4. Install the male coupler into the female coupler. Full connection is made when the ball release sleeve slides forward on the female coupler.
5. Turn the sleeve so that it is rotated away from the locking pin to prevent accidental disconnection.
6. Repeat the procedure for all hoses, including the smaller case drain hose.

TO DISCONNECT

1. Relieve the hydraulic pressure in the skid steer using the skid steer system.
2. Rotate the ball sleeve so the grooves are aligned with the pins in the female coupler.
3. Retract the sleeve on the female coupler until the couplers disconnect.
4. Repeat the procedure for all hoses.

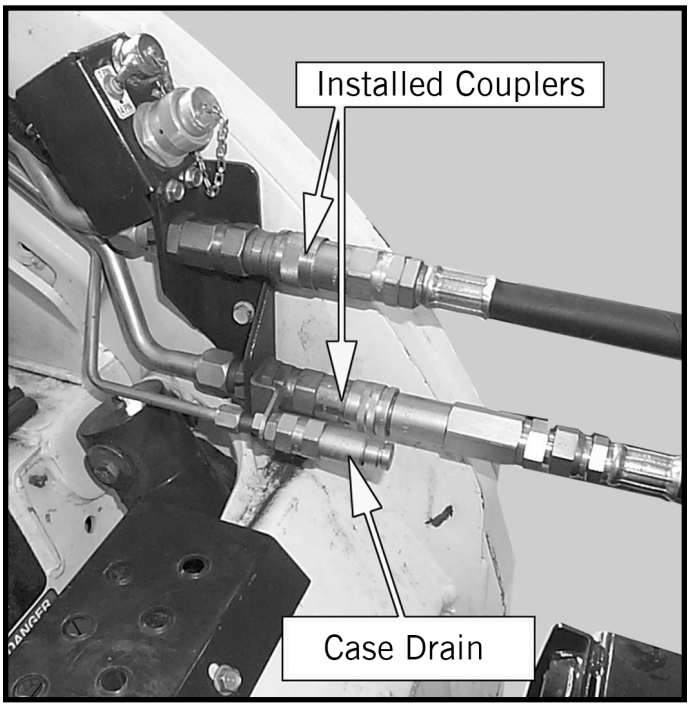


Figure 4.3.1

4.4 PRE-OPERATION

1. Wear appropriate eye, face, and hearing protection. Wear gloves that fit tight against the wrist.
2. Lower the chipper feed table.
3. Check that the feed roller is clear of material.
4. Place the feed roller control into the “stop” position.
5. Rotate discharge chute into desired position and secure with the lock pin.

WARNING

Do not attempt to bypass the safety systems of the skid steer loader.

4.5 STARTING THE CHIPPER

Running the skid steer chipper is a one- or two-man operation. If the system mandates an operator in the driveseat, two people are needed. The chipper engages with the hydraulics of the skid steer, as do most skid steer powered attachments.

1. Set parking brake.
2. Ensure the feed roller is in the neutral position.
3. Engage the hydraulics of the skid steer to supply power to the unit. The chipper will start to spin.
4. Place the feed roller in the operating position and bring the unit up to speed.
5. The chipper is ready to chip.

4.6 STOPPING THE CHIPPER

1. Disengage the feed roller after all material has been cleared from the chipper.
2. Slow down the engine of the skid steer to idle and after several seconds disengage the skid steer hydraulics.

4.7 CHIPPER OPERATION GUIDELINES

WARNING

Read and follow all safety instructions in this manual. Failure to operate the machine in accordance with the safety instructions **MAY RESULT IN PERSONAL INJURY**!

WARNING

To prevent personal injury or property damage: shut off power source and make sure that all moving parts have come to a complete stop before servicing, adjusting, or repairing machine.

The machine chips a variety of materials into a more readily decomposed or handled condition. The following guidelines will help you get started.

1. **Run unit at full operating speed** before starting to chip material.
2. **If the chipper rotor slows,** the feed roller will stop automatically to process backed up material. Feed material more evenly.
3. **If the chipper jams,** the feed roller will reverse momentarily to remove the branch. Once the branch is removed, rotate it before reinserting into the chute. Alternately insert and retract the limb or insert continuously at a rate that will not kill the engine.
4. **Sharpen the chipping blades periodically.** Check the sharpness of the blades every 5-15 hours. Refer to the Service and Maintenance section for sharpening instructions.
5. **Limbs fed in to the chipper chute must be less than 20.3 cm.**The CH800H is most effective when chipping 5-inch material. When feeding materials that are 6-8 inches in diameter, adjust the feed rate if the chipper starts to bog down
6. **Alternate green or fresh cut material with dry material to lubricate the chipping blades for longer life and better performance.** Chipping dead, dry material will create heat and dull the chipping blades quicker.
7. **ALWAYS feed brush from the side of the chipper chute,** rather than from the front. Step aside to avoid being hit by the brush moving into the chipper.
8. **ALWAYS place limb, butt end first, into the chipper chute until it contacts the chipper blades.** The actual feed rate of the limb into the chipper will depend on the type of material fed and sharpness of the cutting blades.
9. **Do not use the hydraulic system to clear a plugged rotor.** Raise the feed roller with the jack. Refer to Clearing a Plugged Rotor under Service & Maintenance.
10. **NEVER** attempt to clear a plugged rotor or discharge with the engine running. **ALWAYS** shut power source OFF before servicing any part of this machine.
11. **NEVER attempt to chip pieces of metal, rock, bottles, cans or other foreign objects.**

CAUTION

- Obtain and wear safety glasses at all times when operating the machine.
- Do not wear loose fitting clothing.
- The operator should always wear heavy boots, gloves, pants and a long-sleeved shirt.
- Use common sense and practice safety to protect yourself from branches, sharp objects, and other harmful objects.

CAUTION

- **Never** lean over the chipper chute to push objects into the cutting device. Use a push stick or brush paddle.
- **Never** use shovels or forks to feed brush. They can cause extensive damage if they contact the blades. In addition, metal pieces can be ejected from the chipper chute and cause serious injury or death.
- **Never** feed brush into the chute with your feet.
- **Never** use hands or feet to clear materials that build up in the chute.

5 SERVICE & MAINTENANCE

WARNING

To prevent personal injury or property damage: shut off power source, disengage the hydraulics, open shield and make sure that all moving parts have come to a complete stop before servicing, adjusting, or repairing machine.

WARNING

Chipping blades are sharp! Use caution when working on machine to avoid injury.

5.1 SERVICE & MAINTENANCE SCHEDULE

The items listed in this service and maintenance schedule are to be checked, and if necessary, corrective action taken. This schedule is designed for units operating under normal conditions. If the unit is operating in adverse or severe conditions, it may be necessary for the items to be checked and serviced more frequently.

		FREQUENCY			
COMPONENT	**MAINTENANCE REQUIRED**	**BEFORE EACH USE**	**EVERY 8 HOURS**	**EVERY 50 HOURS**	**EVERY 200 HOURS**
All internal and external nuts and bolts	Check tightness	•			
Chipper anvil	Check clearance and re-torque to 75 ft-lbs. (1)		•		
Chipper blades	Check sharpness and re-torque to 120 ft-lbs. (1)		•		
Entire machine	Clean		•		
Grease zerks	Lube			•	
Hydraulic oil filter	Replace				•

(1) Perform more frequently when chipping dry or dirty wood.

As the Limited Warranty states, failure by the Owner to perform normal maintenance will void the machine's warranty. The aggressive, high-speed nature of chipping REQUIRES THE OWNER TO PERFORM THE ABOVE LISTED NORMAL MAINTENANCE. Special consideration to maintain and re-torque the CHIPPER ANVIL, CHIPPER BLADES, and ALL INTERNAL AND EXTERNAL NUTS AND BOLTS is the sole responsibility of the Owner. Failure by the Owner to do so shall be cause for denial of warranty.

⚠ WARNING ⚠

BEFORE INSPECTING OR SERVICING ANY PART OF THIS MACHINE, SHUT OFF POWER SOURCE, DISCONNECT THE SPARK PLUG WIRE FROM THE SPARK PLUG, AND MAKE SURE ALL MOVING PARTS HAVE COME TO A COMPLETE STOP.

5.2 ROTOR LOCK

⚠ WARNING ⚠

The rotor assembly has a lock mechanism. When working on the rotor assembly, use the lock mechanism at all times.

1. There is a hole in the shaft cap, the rotor shaft and a matching hole in the bracket mounted to the rotor bearing.
2. Rotate the rotor assembly until the hole on the rotor shaft lines up with the holes in the rotor shaft cap and bracket.
3. Install pin into the rotor shaft cap, bracket and shaft.
4. Remove pin when service and/or maintenance is completed.

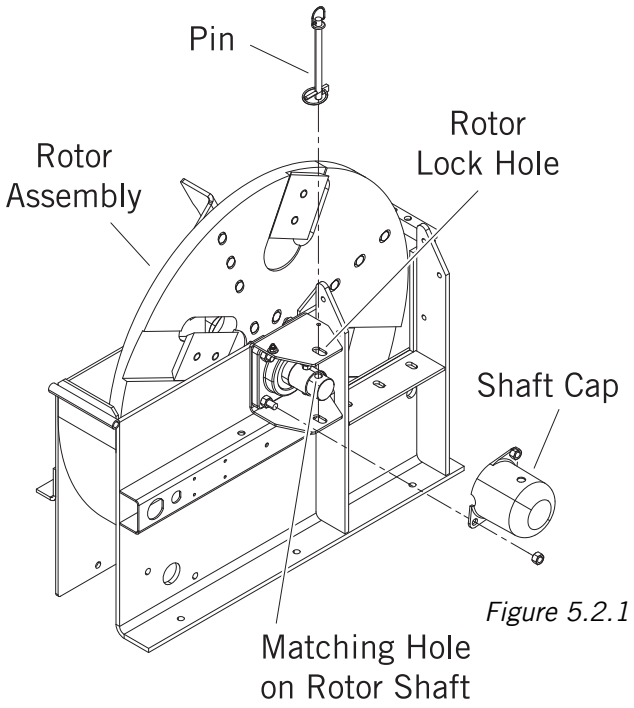


Figure 5.2.1

5.3 RAISE/LOWER ACCESS COVER

Follow the steps below to raise or lower the access cover:

1. Rotate the discharge tube so it is parallel to the access cover.
2. To raise the access cover, remove the two 3/8 × 1-1/4" bolts and nuts that secure the cover to the chipper housing.
3. Lower the access cover and secure to the chipper housing using two 3/8 × 1-14" bolts and nuts.

WARNING

BEFORE INSPECTING OR SERVICING ANY PART OF THIS MACHINE, SHUT OFF POWER SOURCE, DISCONNECT THE SPARK PLUG WIRE FROM THE SPARK PLUG, AND MAKE SURE ALL MOVING PARTS HAVE COME TO A COMPLETE STOP.

5.4 CHIPPER BLADES MAINTENANCE

The chipper blades will eventually become dull, making chipping difficult and adding extra strain on the machine. **CHECK THE SHARPNESS OF THE BLADES EVERY 5-15 HOURS OF OPERATION AND SHARPEN AS NEEDED.**

Your blades need to be sharpened if:

- Machine vibrates severely when material is fed into the chipper.
- Chips discharge unevenly or have stringy tails, especially when chipping green branches.

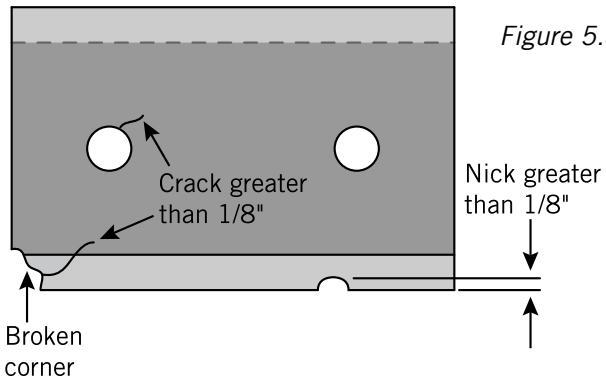


Figure 5.3.1

Before you sharpen the chipping blades, check for permanent damage. Replace the blade if:

- There are cracks, broken corners or nicks greater than 1/8" (see Figure 5.3.1).
- The base of the cutting edge is worn or has been re-sharpened so that it no longer extends past the chipping slot (see Figure 5.3.2).

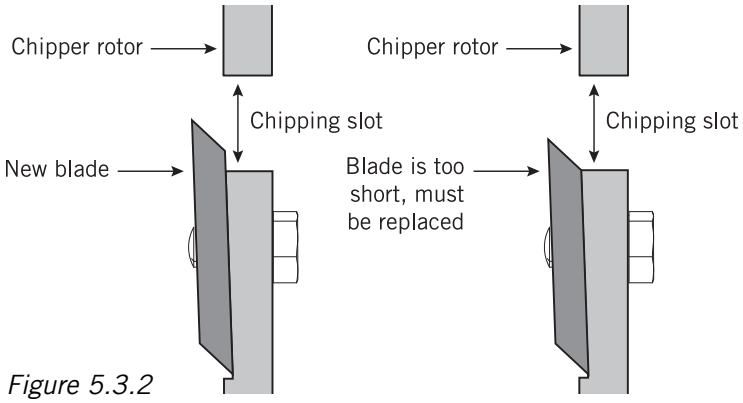


Figure 5.3.2

5.5 REMOVING THE BLADES

The blades have two edges and can be reversed one time before sharpening.

1. Remove the two 3/8" retaining bolts securing the access cover to the main frame assembly.
2. Open access cover (see Raise/Lower Access Cover) to allow access to rotor. Rotate the rotor so that the bolts holding the chipper blades are accessible.
3. Install the rotor lock (see Rotor Lock). The rotor is now restrained for removing the blades. To access the remaining blades, remove pin and reposition rotor. Return pin to the rotor lock hole.
4. Remove the two bolts that hold the blade to the rotor. The hardware can be reused. Repeat for the remaining blade.

⚠ WARNING ⚠

BEFORE INSPECTING OR SERVICING ANY PART OF THIS MACHINE, SHUT OFF POWER SOURCE, DISCONNECT THE SPARK PLUG WIRE FROM THE SPARK PLUG, AND MAKE SURE ALL MOVING PARTS HAVE COME TO A COMPLETE STOP.

5.6 SHARPENING THE BLADES

The blades can be ground on a bench grinder or by a professional.

1. Never sharpen or grind the mounting surfaces of the blades. This will cause the edge to roll and the blade will be damaged, resulting in poor chipping performance.
2. Regrind the angled edge of the chopping blades to 30 degrees (Figure 5.7.1). Use the blade angles on the anvil spacing gauge when sharpening the blades to achieve the proper angle (see Figure 5.7.2).
3. Be careful when grinding so that the blade does not become overheated and change color. This will remove the heat-treated properties.
4. Use short grinding times and cool with water or some type of liquid coolant.
5. Remove an equal amount off each blade to maintain rotor balance.
6. Small imperfections such as nicks and burrs on the flat side of the blade will not affect the chipping performance of the machine.
7. For blades that have been repeatedly sharpened, ensure that the sharpened surface extends past the chipping slot opening. If it does not extend past the opening, the blades should be replaced (see Chipper Blades Maintenance).

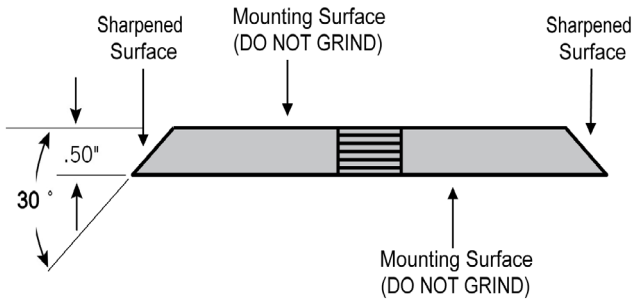


Figure 5.7.1

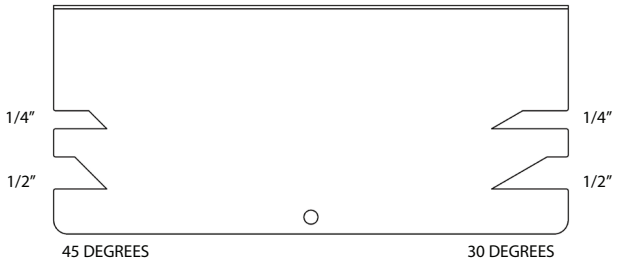


Figure 5.7.2

5.7 INSTALLING THE BLADES

1. Install the rotor lock (see Rotor Lock). The rotor is now restrained for installing the blades.
2. Place a blade on the rotor and attach using original hardware. Torque the bolts to 120 ft-lbs. Repeat for the remaining blade.
3. Lower the access cover (see Raise/Lower Access Cover) and secure to the chipper housing using two 3/8" retaining bolts.
4. Remove rotor lock (see Rotor Lock).

WARNING

BEFORE INSPECTING OR SERVICING ANY PART OF THIS MACHINE, SHUT OFF POWER SOURCE, DISCONNECT THE SPARK PLUG WIRE FROM THE SPARK PLUG, AND MAKE SURE ALL MOVING PARTS HAVE COME TO A COMPLETE STOP.

5.8 CHIPPER BLADE CLEARANCE

The chipping blades should clear the anvil by 1/16" to 1/8". To adjust the blade clearance, proceed as follows:

1. Loosen the three anvil bolts located underneath the feed roller housing (see Figure 5.9.1).

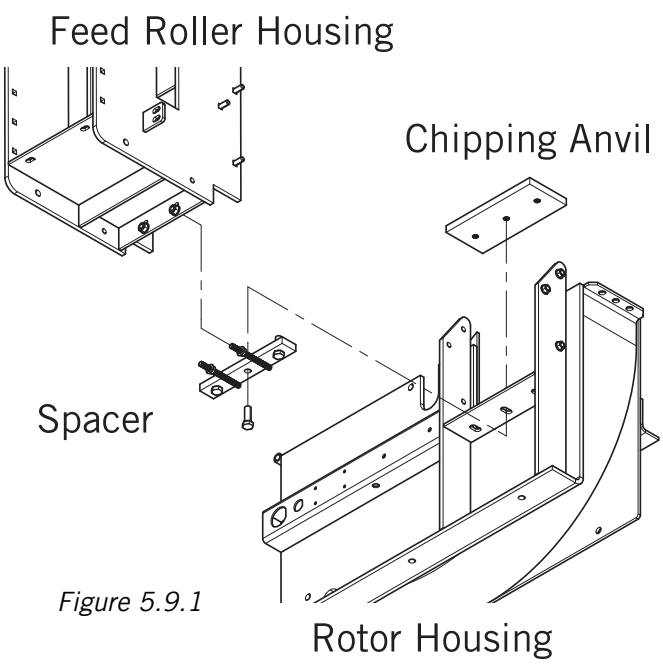


Figure 5.9.1

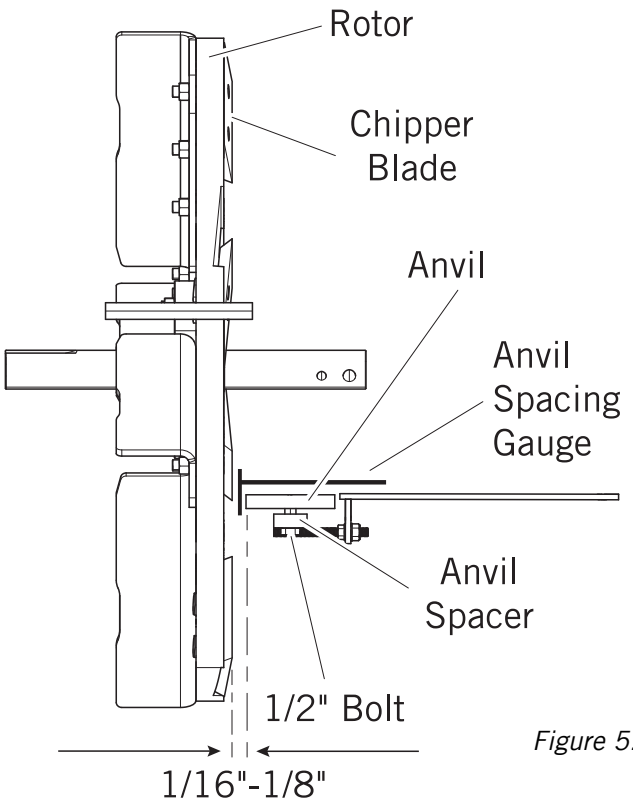


Figure 5.9.2

2. Open the chipper blade access cover to view the gap between the blades and anvil.
3. Move the anvil assembly in or out by turning the nuts on the block adjuster weldment.
4. It is important to ensure that the minimum gap between the chipping anvil and **ALL** chipping blades is 1/16". All chipping blades should be rotated until even with the chipping anvil and then measured. Failure to do so can result in the chipping blades striking the chipping anvil causing serious injury or death.
5. If the anvil cannot be moved to specifications due to wear, rotate the anvil or replace the anvil.
6. Secure all hardware and adjust to torque.

WARNING

BEFORE INSPECTING OR SERVICING ANY PART OF THIS MACHINE, SHUT OFF POWER SOURCE, DISCONNECT THE SPARK PLUG WIRE FROM THE SPARK PLUG, AND MAKE SURE ALL MOVING PARTS HAVE COME TO A COMPLETE STOP.

5.9 CLEARING A PLUGGED ROTOR

Feeding too large or too much material at once may plug the chipper. To clear a plugged rotor, proceed as follows:

WARNING

The feed roller must be secured in the up position prior to servicing the chipper feed area. Failure to do so can result in serious injury or death.

1. Stop skid steer engine, disengage hydraulics, and allow the machine to come to a complete stop.
2. Position the chipper chute to the side of the chipper.
3. Remove the two 3/8" retaining bolts holding the access cover to the chipper frame and lift up access cover.
4. Remove the lock pin from storage position (see Figure 5.10.1).
5. Turn check valve clockwise to engage the jack pump.
6. Pump the handle to raise the feed roller until the lock pin position aligns with one of the support bracket holes.
7. Secure the position by putting the lock pin through the support bracket and lock pin position.
8. Clean the debris away from the chipper rotor. Turn the rotor by hand to be sure it is free to rotate. Be careful to avoid the chipper blades when cleaning out the debris.
9. Remove the lock pin and put it back in storage position. **LEAVING THE LOCK PIN IN ANY OTHER POSITION MAY INTERFERE WITH FEED ROLLER OPERATION.**
10. Turn the check valve counterclockwise to disengage the pump and lower the jack.
11. Close access cover and replace bolts.
12. Follow start up procedures in Starting the Chipper under Operation.

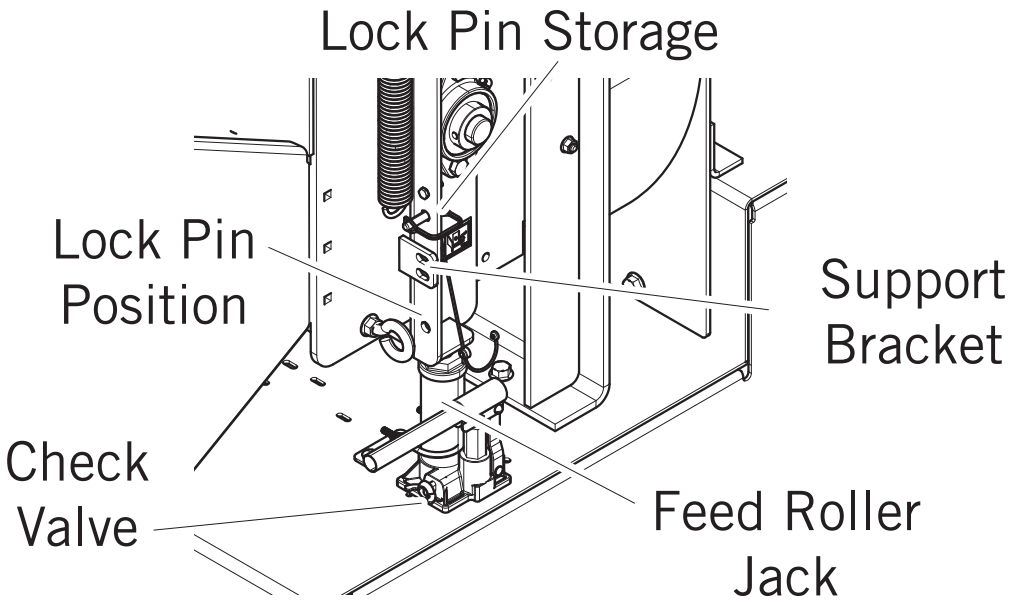


Figure 5.10.1

WARNING

BEFORE INSPECTING OR SERVICING ANY PART OF THIS MACHINE, SHUT OFF POWER SOURCE, DISCONNECT THE SPARK PLUG WIRE FROM THE SPARK PLUG, AND MAKE SURE ALL MOVING PARTS HAVE COME TO A COMPLETE STOP.

5.10 LUBRICATION

Lubricate the machine periodically with a lithium-based grease. Extreme working conditions will require more frequent greasing.

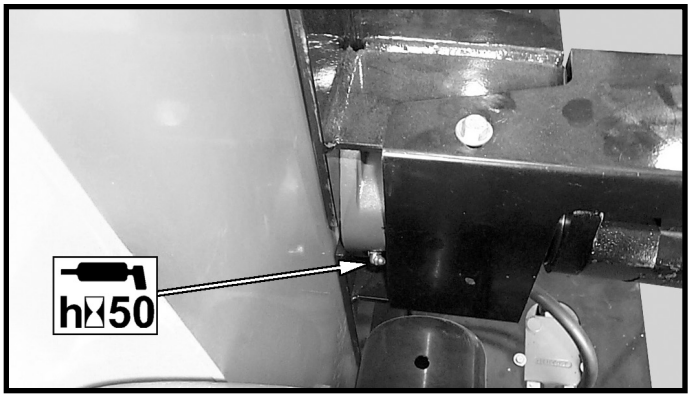
Grease the following points every 50-100 hours of operating time:

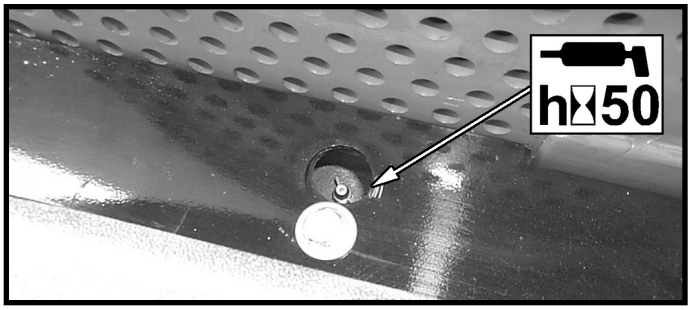
WARNING

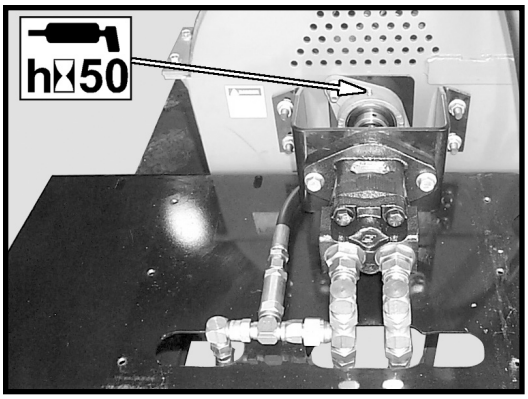
Polyurea and lithium-based greases are not compatible. Mixing the two grease types may lead to premature failure.

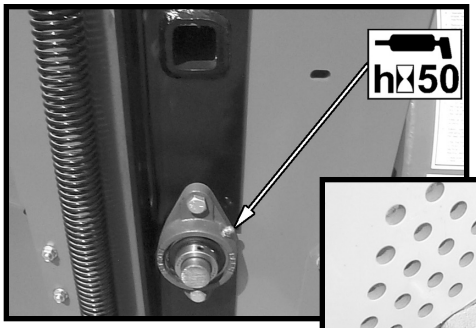
NOTE

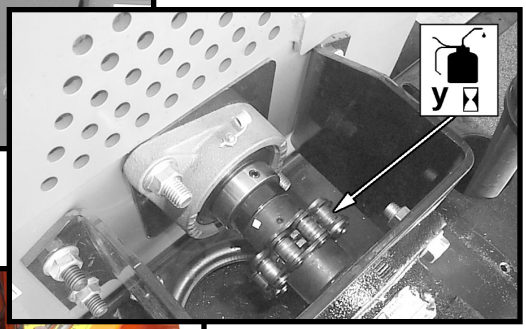
Do not over grease bearings. Overfilling can lead to excessive heat and/or unseating of the seals. Add grease slowly and under light pressure. Whenever possible, rotate bearing slowly while lubricating.

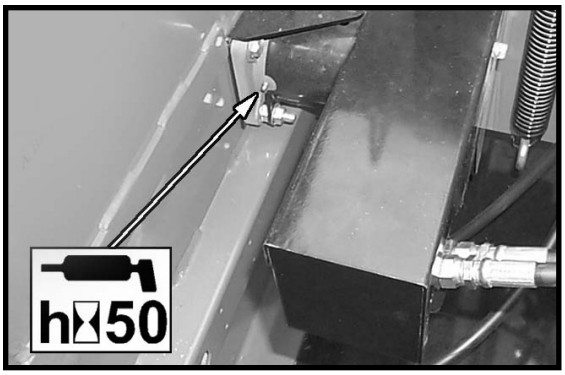












6 TROUBLESHOOTING

Before performing any of the corrections in this troubleshooting chart, refer to the appropriate information contained in this manual for the correct safety precautions and operating or maintenance procedures. Contact your dealer for service problems with the machine.

PROBLEM	POSSIBLE CAUSES	REMEDY
Hard to feed chipper	Dull chipper blades	Reverse or sharpen blades
	Obstructed discharge	Use branch or similar object to clear discharge
	Improper blade clearance	Adjust clearance between chipper block and chipper blades
Feed roller does not engage	Low hydraulic flow due to low engine RPM	Move loader engine speed to higher RPM
Excessive vibration while running	Chipper not correctly attached to skid steer	Check for correct mounting of the chipper to the skid steer
	Damaged chipper blades	Replace damaged blades
Rotor will not turn	No hydraulic flow	Check quick couplers connection. Check for damaged hose ends and fittings.
Does not discharge chips	Not enough hydraulic flow	Make sure enough flow is provided by the skid steer
Chipper does not seat properly on the skid steer	Wedges are not fully extended	Retract wedges
	Mud, dirt or stones are lodged between the chipper and the skid steer	Remove debris from between the chipper and the skid steer
Feed roller alternates between forward and reverse	Hydraulic motor is malfunctioning.	Hydraulic motor needs to be replaced.
	Pressure switch fault	Unhook the pressure switch, test for operation. If the forward feed works or the feed roller stops “ratcheting,” replace the pressure switch.

7 SPECIFICATIONS

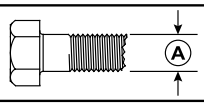
DESCRIPTION	ENGLISH	METRIC
Machine Dimensions (L×W×H)	74" × 60" × 94"	188 cm × 152 cm × 239 cm
Weight	1525 lbs.	692 kg
Maximum Chipper Capacity	8" diameter	20.3 cm diameter
Chipper Blades	4 reversible (5" × 4" × 0.5")	4 reversible (12.7 cm × 10.2 cm × 1.3 cm)
Rotor Size	30" diameter × 1.25"	76 cm diameter × 3.2 cm
Rotor Speed	1600 RPM at 25 gpm; 2500 RPM at 38 gpm	
Rotor Weight	275 lbs.	125 kg
Skid Steer Hydraulics	High-Flow	
Chute Size	31" × 31"	79 cm × 79 cm
Chipper Opening Size*	9" × 9"	22.9 cm × 22.9 cm
Continuous Chipping Size*	5" diameter	12.7 cm diameter
Discharge Rotation	360 degrees	

SPECIAL TORQUE REQUIREMENTS			
LOCATION	HARDWARE	TORQUE (UNIFIED INCH)	TORQUE (METRIC)
Blade mounting bolts	1/2 × 2-1/2" flat HD skt.	120 ft-lbs.	162 Nm

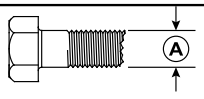
*Continuous chipping size rating refers to the suggested feeding size of limbs for normal operations. Limbs up to the chipper opening size may be fed, but decreased performance will occur.

7.1 BOLT TORQUE

The tables below are for reference purposes only and their use by anyone is entirely voluntary, unless otherwise noted. Reliance on their content for any purpose is at the sole risk of that person and any loss or damage resulting from the use of this information is the responsibility of that person.

SAE Grade and Head Markings	SAE 2	SAE 5	SAE 8	Bolt Diameter
				

BOLT DIAMETER (A)	BOLT TORQUE*					
	SAE 2		SAE 5		SAE 8	
	Nm	FT-LBS.	Nm	FT-LBS.	Nm	FT-LBS.
1/4"	7.5	5.5	11	8	16	12
5/16"	15	11	23	17	34	25
3/8"	27	20	41	30	61	45
7/16"	41	30	68	50	95	70
1/2"	68	50	102	75	149	110
9/16"	97	70	149	110	203	150
5/8"	122	90	203	150	312	230
3/4"	217	160	353	260	515	380
7/8"	230	170	542	400	814	600
1"	298	220	786	580	1220	900
1-1/8"	407	300	1085	800	1736	1280
1-1/4"	570	420	2631	1940	2468	1820

Metric Grade and Head Markings	4.8	8.8	10.9	12.9	Bolt Diameter
					

BOLT DIAMETER (A)	BOLT TORQUE*							
	4.8		8.8		10.9		12.9	
	Nm	FT-LBS.	Nm	FT-LBS.	Nm	FT-LBS.	Nm	FT-LBS.
M3	0.5	0.4	–	–	–	–	–	–
M4	3	2.2	–	–	–	–	–	–
M5	5	4	–	–	–	–	–	–
M6	6	4.5	11	8.5	17	12	19	14.5
M8	15	11	28	20	40	30	47	35
M10	29	21	55	40	80	60	95	70
M12	50	37	95	70	140	105	165	120
M14	80	60	150	110	225	165	260	190
M16	125	92	240	175	350	255	400	300
M18	175	125	330	250	475	350	560	410
M20	240	180	475	350	675	500	800	580
M22	330	250	650	475	925	675	1075	800
M24	425	310	825	600	1150	850	1350	1000
M27	625	450	1200	875	1700	1250	2000	1500

*Torque value for bolts and capscrews are identified by their head markings.

Torque figures indicated above are valid for non-greased or non-oiled threads and heads unless otherwise specified. Therefore, do not grease or oil bolts or capscrews unless otherwise specified in this manual. When using locking elements, increase torque values by 5%.

LIMITED WARRANTY

Erskine Attachments, LLC warrants each new machine manufactured by us to be free from defects in material and workmanship for a period of twenty-four (24) months from date of delivery to the original purchaser.

Our obligation under this warranty is to replace free of charge, at our factory or authorized dealership, any part proven defective within the stated warranty time limit.

All parts must be returned freight prepaid and adequately packaged to prevent damage in transit.

This warranty does not cover:

1. New products which have been operated in excess of rated capacities or negligence.
2. Misuse, abuse, accidents or damage due to improperly routed hoses.
3. Machines which have been altered, modified or repaired in any manner not authorized by our company.
4. Previously owned equipment.
5. Any ground engaging tools in which natural wear is involved, i.e. tooth tips, cutting teeth, etc.
6. Normal maintenance.
7. Fork tines.
8. Hydraulic motors that have been disassembled in any manner.

In no event will the Sales Representative, Dealership, Erskine Attachments, LLC, or any other company affiliated with it or them be liable for incidental or consequential damages or injuries, including but not limited to the loss of profit, rental or substitute equipment or other commercial loss. Purchaser's sole and exclusive remedy being as provided here in above.

Erskine Attachments, LLC must receive immediate notification of defect and no allowance will be made for repairs without our consent or approval.

This warranty is in lieu of all other warranties, express or implied by law or otherwise, and there is no warranty of merchantability or fitness purpose.

No agent, employee, or representative of Erskine Attachments, LLC has any authority to bind Erskine Attachments, LLC to any warranty except as specifically set forth herein. Any of these limitations excluded by local law shall be deemed deleted from this warranty; all other terms apply.

This warranty may not be enlarged or modified in any manner except in writing signed by an executive officer of Erskine Attachments, LLC to improve its products whenever it is possible and practical to do so. Erskine Attachments, LLC reserves the right to make changes and or add improvements at any time without incurring any obligation to make such changes or add such improvements to products previously sold.

Erskine Attachments, LLC
P.O. Box 1083 Alexandria, MN 56308
Phone (218) 435-4045

ERSKINE®

ATTACHMENTS LLC

P/N 320634
Erskine Attachments LLC
Erskine, MN 56535

Printed in U.S.A.