

## Tree Terminator Warranty

Tree Terminator, hereinafter referred to as Manufacturer, warrants each new implement to be free from defects in material and workmanship under normal use and service for a period of (2) years on all welded components and (1) year on the hydraulic system from the date of original sale.

This warranty is expressly in lieu of all other warranties and representations, expressed or implied, and all other obligations or liabilities on the part of the Manufacturer.

Manufacturer's liability and obligation is limited to repair to replacement of the product or a refund of the purchase price, at Manufacturer's option, provided the purchaser returns the claimed defective product to the Manufacturer, or authorized distributor, with transportation charges prepaid, and an examination by Manufacturer discloses the product defective.

This warranty does not cover said product that has been repaired or altered outside of the factory of Manufacturer in any way as to, in the judgment of the Manufacturer affect the stability, reliability or performance of the product. This warranty does not cover damage or product failure caused by accident, misuse, negligence, tampering, improper attachment or improper maintenance.

This warranty excludes any and all liability for consequential or incidental damages.

This warranty gives you specific legal rights providing said product is put to its proper designed use.

### **THIS CHECKLIST TO REMAIN IN OWNERS MANUAL**

#### **Dealer Preparation Check List**

1. Assembly Completed
2. All fasteners torque properly
3. All decals in place and readable
4. All guards in place and in good operating order
5. Operator's Manual has been delivered to owner
6. Owner has been instructed on the safe and proper use of the implement

Dealer Signature: \_\_\_\_\_

*It is the dealer's responsibility to complete the procedures listed above before delivery of this implement to the customer.*

## TO THE OWNER

Read this manual before using your rotary mower. This manual is provided to give you the necessary operating and maintenance instructions for keeping your rotary mower in top operating condition. Please read this manual thoroughly. Understand what each control is for and how to use it. Observe all safety signs on the machine and noted throughout the manual for safe operation of the implement. Keep this manual handy for ready reference.

Like all mechanical products, it will require cleaning and upkeep. Lubricate the mower as specified.

**Use only genuine Tree Terminator service parts. Substitute parts will void warranty and may not meet standards required for safe and satisfactory operation.**

## RETAIL CUSTOMER'S RESPONSIBILITY

It is the retail customer and/or Operator's responsibility to read the Operator's Manual, to operate, lubricate, maintain, and store the product in accordance with all instructions and safety procedures. Failure of the operator to read the Operator's Manual is a misuse of this equipment.

Its is the retail customer and/or Operator's responsibility to inspect the product and to have any part(s) repaired or replaced when continued operation would cause damage or excessive wear to other parts or cause safety hazard.

It is the retail customer and/or Operator's responsibility to deliver the product to the authorized Tree Terminator Dealer, from whom it was purchased, for service or replacement of defective parts that are covered by warranty. Repairs to be submitted for warranty consideration must be made within ninety (90) days of failure.

It is retail customer and/or Operator's responsibility for any cost incurred by the Dealer for traveling to or hauling of the product for the purpose of performing a warranty obligation or inspection.

## **CHECKLISTS**

### **DELIVERY CHECKLIST**

Inspect the mower thoroughly after assembly to be certain it is set up properly. The following checklist is a reminder of points to inspect. Check off each as it is found satisfactory or after proper adjustment is made.

Check operator's manual and familiarize the operator with all sections of it.

Check that all safety shielding is in place.

Check all bolts to be sure they are tight or adjusted properly at hinged locations.

Check all lubrication points with grease fittings have been lubricated.

Check that blades have been properly installed. Check all blade beam bolts.

Check that gearbox is properly serviced and seals are not leaking.

Check shear bolt for proper grade and installation.

Check front of input gearbox shaft and make sure that snap ring is properly installed.

Check that all safety signs (decals) are in place and readable.

### **DAILY CHECKLIST**

Check that mower is properly and securely attached to skidsteer.

Check that safety limit chain is in good condition and properly adjusted.

Check that all nuts and bolts are secure and that all safety shields are in place.

It is very important that the blade carrier nut and blade bolts are checked and tightened frequently.

Check condition of blades and security of attachment.

## **TO THE OWNER / OPERATOR / DEALER**

All implements with moving parts are potentially hazardous. There is no substitute for a cautious, safeminded operator who recognizes the potential hazards and follows reasonable safety practices. The manufacturer has designed this implement to be used with all its safety equipment properly attached to minimize the chance of accidents.

### **BEFORE YOU START!!**

**Read all safety messages on the implement and shown in your manual.**

**Observe the rules of safety and common sense!**

**THE SAFETY ALERT SYMBOL IDENTIFIES IMPORTANT SAFETY WARNING MESSAGES. CAREFULLY READ EACH WARNING MESSAGE THAT FOLLOWS. FAILURE TO UNDERSTAND AND OBEY A SAFETY WARNING, OR RECOGNIZE A SAFETY HAZARD, COULD RESULT IN AN INJURY OR DEATH TO YOU OR OTHERS AROUND YOU. THE OPERATOR IS ULTIMATELY RESPONSIBLE FOR THE SAFETY OF HIM/HERSELF, AS WELL AS OTHERS, IN THE OPERATING AREA OF THE EQUIPMENT.**

### **UNDERSTAND SIGNAL WORDS**

A signal word – DANGER, WARNING OR CAUTION – is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER and WARNING safety signs are located near the specific hazard.

CAUTION safety signs list general precautions.

The safety-alert symbol is also used in this manual to call attention to safety messages.

### **IMPORTANT SAFETY INFORMATION!**

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

1. Reads and understands the operator's manuals.
2. Is instructed in safe and proper use.

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

Most accidents occur because of neglect or carelessness. Keep all helpers and bystanders' twenty-five feet (25') from an operating blade. Only properly trained people should operate this machine.

Always stop the skidsteer, set brake, shut off skidsteer engine, remove the skidsteer key, and lower the implement to the ground before dismounting skidsteer. Never leave skidsteer or equipment running while unattended.

Please remember it is important that you read and heed the safety signs on the implement, and the safety rules set forth. Clean or replace all safety signs if they cannot be read clearly or understood. They are there for your safety as well as the safety of others. The safe use of this machine is strictly up to you, the operator.

## **SAFETY INSTRUCTIONS (CONTINUED)**

### **EQUIPMENT SAFETY GUIDELINES**

Safety of the operator is one of the main concerns in designing and developing a new piece of equipment.

Designers and manufacturers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury, study the following precautions and insist those working with you or for you, follow them.

Replace any CAUTION, WARNING, DANGER or instruction safety sign that is not readable or is missing.

Never use alcoholic beverages or drugs, which can hinder alertness or coordination while operating this equipment. Consult your doctor about operating this machine while taking prescription medications.

Review the safety instructions with all users annually.

This equipment is dangerous to children and person unfamiliar with its operation. The operator should be a responsible adult familiar with the farm machinery and trained in this equipment's operations. **Do not allow persons to operate this unit until they have read this manual and have developed a thorough understanding of the safety precautions and how it works.**

Don not paint over, remove or deface any safety signs or warning signs on your equipment. Observe all safety signs and practice the instruction on them.

Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question **Don't try it.**

Do not modify the equipment in any way. Unauthorized modification may impair the function and/or safety and could affect the life of the equipment.

In addition to the design and configuration of this implement, including Safety Signs and Safety Equipment, hazard control and accident prevention are dependent upon the awareness, concern, prudence, and proper training of personnel involved in the operation, transport, maintenance, and storage of the machine. Refer also to safety messages and operation instruction in each of the appropriate sections of the skidsteer and mower manuals. Pay close attention to the safety signs attached to the skidsteer and mower.

Keep safety signs clean and legible at all times.

Replace safety signs that are missing or become illegible.

Replaced parts that displayed a safety sign should also display the current sign.

Safety signs are available from you Distributor or Dealer Parts Department or the Factory.

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

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

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

Train all new personnel and review instructions frequently with existing workers. A person who has not read and understood all operating and safety instructions is not qualified to operate the machine. An untrained operator exposes himself and bystanders to possible **serious injury** or **death**.

**Do not allow children to operate this machine.**

### **PREPARATION**

Never operate the skidsteer or mower until you have read and completely understand this manual, the Skidsteer Operator's Manual, and each of the Safety Messages found on the safety signs on the skidsteer and mower.

Personal protection equipment including hardhat, safety glasses, safety shoes, and gloves are recommended during installation, operation, adjustment, maintaining, repairing, removal, or moving the implement. Do not allow long hair, loose cloths or jewelry to be around moving parts.

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

Skidsteers with or without Mowers attached can often be noisy enough to cause permanent, partial hearing loss. We recommend that you wear hearing protection on a full-time basis if the noise in the Operator's position exceeds 80db. Noise over 85db on a long-term basis can cause severe hearing loss. Noise over 90db adjacent to the operator over a long-term basis may cause permanent , total hearing loss. Noise over hearing loss from loud noise (from Skidsteers, chain saws, radios, and other such sources close to the ear) is cumulative over a lifetime without hope of natural recovery.

Clear area to be cut of stones, branches or other debris that might be thrown, causing injury or damage.

Operate only in daylight or good artificial light.

Ensure mower is properly mounted, adjusted and in good operating condition.

Ensure that all safety shielding and safety signs are properly installed and in good condition.

Ensure that the safety limit chain is properly adjusted so that mower can be lifted no more than 2" off of the ground.

## OPERATIONAL SAFETY

Mower operating power is supplied from the skidsteer hydraulic system.

Adjust safety limit chain so that rear of mower can be lifted no more than 2' off of the ground.

When engaging hydraulic motor, the engine RPM should always be low. Once engaged and ready to start cutting, raise RPM speed to  $\frac{3}{4}$  to full-throttle and maintain throughout cutting operation.

When stopping first throttle to low speed and then shut off.

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

Most accidents occur because of neglect or carelessness. Keep all helpers and bystanders at least several hundred feet away from an operating rotary mower. Only properly trained people should operate this machine.

When this machine is operated in populated areas or in other areas where thrown objects could injure persons or property.

The majority of accidents involve injury of bystanders by objects thrown by the rotating blades. **Accidents are most likely to occur with machines that are loaned or rented to someone who has not read the owner's manual and is not familiar with a rotary mower.**

Always stop the skidsteer, set brake, shut off skidsteer engine, remove the ignition key, lower implement to the ground and allow cutter blades to come to a complete stop before dismounting skidsteer. Never leave equipment unattached with the skidsteer running.

Never place hands or feet under mower with tractor engine running or before you are sure all motion has stopped. Stay clear of all moving parts.

Do not reach or place yourself under equipment until it is blocked securely.

Take all possible precautions when leaving unit unattended: disengage hydraulic lines, set parking brake, stop engine and remove key from ignition. Park machine in a level area.

Do not allow riders on the rotary mower or skidsteer at any time. There is no safe place for any riders.

Do not operate unless all personnel, livestock, and pets are several hundred feet away to prevent injury by thrown objects. Never direct discharge toward anyone.

Install and secure all guards and shields before starting or operating.

Keep hands, feet, hair and clothing away from moving parts.

The rotating parts of this machine have been designed and tested for rugged use. However, they could fail upon impact with heavy, solid objects such as steel guardrails, post, and concrete abutments. Such an impact could cause the broken objects to be thrown outward at very high velocities. To reduce the possibility of property-damage, serious injury, or even death, never allow the cutting blades to contact such obstacles.

Frequently check mower blades. They should be sharp, free of nicks and cracks and securely fastened.

Many varied objects, such as wire, cable, rope or chains, can become entangled in the operating parts of the mower head. These items could then swing outside the housing at greater velocities than the blades. Such a situation is extremely hazardous. Inspect the cutting area for objects before mowing. Remove any objects of this nature from mowing area. Never allow the cutting blades to contact such items.

Pick up all rocks and other debris before mowing. Enter new areas carefully. Cut material higher at first, to allow cutter to clear hidden objects. Never assume an area is clear. **Always check!**

Stop mower and skidsteer immediately upon striking an obstruction. Turn engine off, remove key, inspect and repair any damage before resuming operation.

The flaps, safety limit chain, and gearbox shields should be used and maintained in good working condition. They should be inspected carefully, at least daily. Missing, broken, or worn items must be replaced at once to reduce the possibility of injury from thrown objects or entanglement.

Stay alert for holes, rocks and roots in the terrain and other hidden hazards. Keep away from drop-offs.

Use extreme care and maintain minimum ground speed when transporting on hillside, over rough ground and when operating close to ditches or fences. Be careful when turning sharp corners.

Reduce speed on slopes and sharp turns to minimize tipping or loss of control. Be careful when changing directions on slopes. Do not start or stop suddenly on slopes. Avoid operation on steep slopes.

Inspect the entire machine periodically as indicated in the Maintenance Section of this manual. Look for loose fasteners, worn or broken parts, pinched hydraulic hoses, and leaky or loose fittings. Serious injury may occur from not maintaining this machine in good working order.



Be careful when operating skidsteer and mower on uneven ground to avoid upsetting.

Avoid sudden starts and stops while traveling up or downhill.

Always cut down slopes never across the face. Avoid operation on steep slopes. Slow down on sharp turns and slopes to prevent tipping and/or loss of control.

## **TRANSPORT SAFETY**

Comply with the state and local laws governing highway safety and movement of farm machinery on public roads.

Always be sure the implement is in proper raised position for transport.

Reduce speed when transporting mounted implements to avoid bouncing and momentary loss of steering control.

Plan your route to avoid heavy traffic.

Do not drink and drive!

Watch for traffic when operating near or crossing roadway.

Use extreme care and maintain minimum ground speed when transporting on hillside, over ground and when operating close to ditches or fences. Be careful when turning sharp corners.

Never allow riders on either skidsteer or mower. Falling off can kill!

Be a safe and courteous driver. Always yield to oncoming traffic in all situations, including narrow bridges, intersections, etc.

Reduce speed on rough roads and surfaces.

## **MAINTENANCE SAFETY**

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

Follow good shop practices.

Keep service area clean and dry.

Be sure electrical outlets and tools are properly grounded.

Use adequate light for the job at hand.

Make sure there is plenty of ventilation. Never operate the engine of the towing vehicle in a closed building. The exhaust fumes may cause asphyxiation.

Be certain that all moving parts have come to a complete stop before attempting to perform maintenance.

Keep all persons away from operator control area while performing adjustments, service, or maintenance.

Always use personal protection devices such as eye, hand and hearing protectors, when performing any service or maintenance.

Openings in the skin and minor cuts are susceptible to infection from hydraulic fluid. If injured by escaping hydraulic fluid, see a doctor at once. Gangrene and/or death can result. Without immediate medical treatment, serious infection and reactions can occur.

After servicing, be sure all tools, parts and service equipment are removed.

Check to ensure all safety signs are installed and are in good condition.

Do not allow grease or oil to build up on deck or platform.

Never replace hex bolts with less than grade five bolts unless otherwise specified, i.e. shear bolts.

Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement part must be used to restore your equipment to the original specifications. The manufacturer will not claim responsibility for use of unapproved parts and/or accessories and other damages as a result of their use.

If the equipment has been altered in any way from original design, the manufacturer does not accept any liability for injury or warranty.

A fire extinguisher and first aid kit should be kept readily accessible while performing maintenance on this equipment.

## **STORAGE SAFETY**

Store unit in an area away from human activity.

Do not park equipment where it will be exposed to livestock for long periods of time. Damage and livestock injury could result.

Do not permit children to play on or around the stored unit.

Make sure all parked machines are on a hard, level surface and engage all safety devices.

If blocking is used, make sure it is solid and secure before leaving area.

## **OPERATING INSTRUCTIONS**

### **GEARBOX OIL FILL**

NOTE: The gearbox may be shipped WITHOUT lubricant, so it will be necessary to fill it before use. With the gearbox in level position, fill to the side inspection hole with a quality 90 WT. Gear oil. Check often and add lubricant if necessary.

### **GENERAL SAFETY**

Only qualified people familiar with this manual should operate this machine. Operator should wear hard hat, safety glasses, and safety shoes. Before beginning operation, clear work area of any objects that may be picked up and thrown. Check area for ditches, stumps, holes, or other obstacles that could upset or damage cutter. Always turn off skidsteer engine, set parking brake, lower cutter to the ground and allow mower blades to come to a complete stop before dismounting skidsteer.

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

It has been said, "the best safety device is an informed, careful operator". We ask you to be that kind of an operator.

The designed and tested safety of this machine depends on it being operated within the limitations as explained in this manual. Be familiar with and follow all safety rules in this manual, on the mower and on the skidsteer.

The safe operation of this machine is the responsibility of the owner/operator. The operator should be familiar with the mower and skidsteer and all safety practices before starting operation.

### **ADJUST FOR WORK**

The mower should be operated at the highest position, which will give desired cutting results. This will help prevent the blades from striking the ground, reducing blade wear and undo strain on the machine. For best results always tilt the mower slightly lower in the back. This tilt decreases horsepower requirements. When fine shredding is desired, adjust mower deck level or slightly lower. This will keep foliage until mower until thoroughly shredded. More power is required for shredding.

The cutting height is adjustable from 1-7 inches. To adjust, proceed as follows:

1. Raise mower off ground to desired cutting height using skidsteer lift arms. Turn off skidsteer engine, disengage hydraulic lines, set parking brake, and remove ignition key.
2. **SECURELY BLOCK MOWER**
3. Remove bolt securing tail wheel.
4. Adjust tail wheel to desired position. Replace bolt, lock washer, and hex nut and tighten.
5. Lower mower to work position.
6. Adjust skidsteer arms so mower deck is level when the mower is raised from cutting position. The floating hitch should have a small amount of slack when the mower is lowered to cutting position to allow motor deck to float during operation.
7. Make sure that safety limit chain limits the height the rear of the mower can be raised to a maximum of 2' off of the ground.

## **PRE-OPERATION CHECKLIST**

(OWNER RESPONSIBILITY)

Review and follow all safety rules and safety signs in this manual.

Check that mower is properly and securely attached to skidsteer.

Lubricate all grease fitting locations.

Check to be sure that gear lube runs out the small check plug on the side of gearbox.

Check that all hardware is properly installed.

Check to ensure that blades are sharp and secure.

Check that all shields are guards are properly installed and are in good condition.

Check cutting height, front to rear altitude. This is done by the skidsteer lift arms and front wheel adjustments.

Check that safety limit chain is properly installed and attached.

Inspect area to be cut and removes stones, branches or other hard objects that might be thrown, causing injury or damage.

### **IMPORTANT**

**Vibration tends to loosen bolts during operation. All hardware should be checked regularly to maintain proper torque. It is good practice to check mower before each operation to ensure all hardware is secure.**

## **OPERATING TECHNIQUE**

Power for operating mower is supplied by the skidsteer hydraulic system. Know how to stop skidsteer and mower quickly in case of emergency.

Engage hydraulics at a low engine rpm to minimize stress on the drive system and gearbox. Advance skidsteer throttle to  $\frac{3}{4}$  to full and proceed forward. Skidsteer forward speed should be controlled by hand levers, not engine speed. For maximum cutting efficiency, forward speed should allow mower to maintain a constant, maximum blade speed. If mower stalls or bogs, disengage hydraulics. Before re-engaging hydraulics, position mower in a cut area and reduce skidsteer throttle to idle. If mower continuously stalls, decrease forward speed and/or increase cutting height.

Blade rotation is bi-directional causing cut material to discharge to the left or right side of mower forming a windrow. To shred and dissipate this windrow, skidsteer should be driven in a counterclockwise direction throwing material to the uncut area. The windrowed material will be re-cut on each new pass. Larger brush should be cut in the center of mower. Always cut up and down the face of slopes, never across. Proper ground speed will depend upon the terrain, the height, type and density of the material to be cut.

Blade direction can be changed by disconnecting hydraulic house quick couplers at the hydraulic motor and switching to the opposite side.

Normally, ground speed will range from two to five MPH. Tall dense material should be cut at a low speed, thin medium-height material can be cut at a faster ground speed.

When engaging or disengaging the hydraulics, the engine speed should always be low. Once the hydraulics are engaged and ready to start cutting, raise the engine speed to  $\frac{3}{4}$  to full throttle and maintain throughout mowing operation. This is necessary to maintain proper blade speed to obtain a clean cut.

## **OPERATING TIPS**

### **SHREDDING**

For shredding, it is better to set the mower lower at the rear. How much lower depends on the material to be shredded. Determine the best setting for your situation by experimenting. **Inspect area to be cut and remove stones, branches, or other hard objects that might be thrown, causing injury or damage.** Extremely tall material should be cut twice. Set cutter at a higher height for the first pass. Then cut at desired height at 90 degrees to the first pass. Remember that sharp blades produce cleaner cuts and require less power. Analyze area to be cut to determine the best procedure. Consider height and type of grass and terrain type, hilly, level or rough. Plan your mowing pattern to travel straight-forward whenever possible. Mow clockwise around fields when necessary to minimize streaking on corners.

### **UNEVEN TERRAIN**

**Do not operate on steep slopes.**

**Do not stop, start or change directions suddenly on slopes.**

**Use extreme care and reduce ground speed on slopes and rough terrain.**

**Watch for hidden hazards on the terrain during operation.**

Pass diagonally through sharp dips and avoid sharp drops to prevent "hanging up" skidsteer or mower. Practice will improve your skills in maneuvering rough terrain.

### **BLADES**

The blades will last a long time cutting grass, but will wear rapidly when contacting the ground. If they are clipping into the ground, they will have to be sharpened frequently.

The cutting action of the blade will be much cleaner, create less shock loads and require less power if the blades are kept sharp. That is with a flat or blunt edge that is not over 1/32" thick. Putting a knife-sharp edge (where both sides come to a sharp point) on the blades will not help, as a sharp edge will round off very quickly and doing so will reduce the total life of the blades.

### **REMOVING THE MOWER FROM SKIDSTEER**

Disengage skidsteer hydraulics.

Store mower to prevent ground contact. Place blocks under mower side-skids. Lower mower onto blocks, disconnect mower from skidsteer and carefully drive skidsteer away from mower.

## **OWNER SERVICE**

The information in this section is written for operators who possess basic mechanical skills. Should you need help, contact a qualified service technician or the factory. For your protection, read and follow all safety information in this manual.

**Lower mower to ground or block securely, turn skidsteer engine off, remove key and disconnect mower hydraulic hoses from skidsteer before performing any service or maintenance.**

**Before working underneath, raise mower and block securely. Hydraulic system leak-down and failure of mechanical or hydraulic system can cause equipment to drop.**

**Keep all persons away from operator control area while performing adjustments, service or maintenance.**

## **ROUTINE MAINTENANCE**

### **DAILY CHECKS:**

1. Check that all bolts, nuts, and screws are tight. Checking the bolts and nuts on the blade beam assembly is particularly important.
2. Check daily the level of the gearbox oil and top up to the correct level. Check for gearbox oil leaks. It should be noted that no warranty claim can be submitted on a gearbox that has run dry. It is essential that the gearbox is kept correctly filled with gearbox oil.
3. Check the wear on the blades. Sharpen them routinely with an angle grinder or replace when worn down to far. You should keep at least two sets of blades, bolts, and nuts as spares for your mower.
4. Check all hydraulic fittings for leaks.

### **AT THE END OF YOUR CUTTING SEASON:**

1. Drain and change the oil in your gearbox.
2. Check and replace, where necessary, blades, bolts, nuts, and bushings, on the machine.
3. Clean machine and touch up any rust spots that may have appeared.
4. Replace any safety signs if damaged.
5. Store mower in clean dry location.
6. Change any damaged or leaking hydraulic hoses.

## **LUBRICATION INFORMATION**

Severe or unusual conditions may require more frequent lubrication.

Do not let excess grease or oil collect on or around parts, particularly when operating in sandy areas. Use 80/90-gear oil in gearbox.

Use lithium grease of NO.2 consistency with a MOLY (molybdenum disulfide) additive for all locations.

Be sure to clean fittings thoroughly before attaching grease gun. Do not over grease.

## **BLADE SERVICING**

### **BLADE REMOVAL**

Disconnect hydraulic hoses from skidsteer. It will be necessary to gain access to the bottom side of mower from blade removal. Raise mower and block securely. Align blade bolt with access hole in mower deck. Remove nut and lock washer then carefully drive bolt out of crossbar.

#### **IMPORTANT**

**If blade bolt is seized in blade beam, extreme force will be required to remove it, stabilize blade assembly to prevent gearbox damage.**

Rotate blade assembly and repeat for opposite blade. Always replace or sharpen both blades at the same time. Inspect blade bolts for nicks or gouges; replace if any are found. Insert bolt through blade. Blade should swivel on bolt with access hole in mower deck. Apply a liberal coating of thread anti-seize compound to blade bolt and blade-pan hole. Make sure blade is offset away from mower.

#### **IMPORTANT**

**Blade assembly rotation is bi-directional. Be sure to install blade with offset toward the ground or away from the mower deck.**

### **BLADE SHARPENING**

#### **IMPORTANT**

**When sharpening blades, grind each blade the same amount to maintain balance. Replace blades in pairs. Unbalanced blades will cause excessive vibration, which can damage gearbox bearings. Vibration may also cause structural cracks to mower.**

Sharpen both blades at the same time to maintain balance. Follow original sharpening pattern. Do not sharpen blade to a razor edge, but leave at least a 1/16" blunt edge.

### **BLADE PAN & GEARBOX REMOVAL**

1. Raise mower using skidsteer lift. Turn off skidsteer engine.
2. Block mower SECURELY into position.

**DO NOT GET UNDER MOWER UNLESS IT IS SECURELY BLOCKED IN POSITION.  
ACCIDENTAL FALL COULD CAUSE SERIOUS INJURY OR DEATH.**

3. Remove cotter pin and blade holder retaining the nut. Wear heavy gloves to protect hands from sharp edges.
4. Grasp blade holder and pull off shaft. If necessary, align blade bolt with access hole in top of deck and drive off with hammer and pipe. Care should be taken not to damage threads on blade bolt.
5. Remove bolt and retaining clip. Slide yoke off gearbox input shaft.
6. Remove nuts securing gearbox to deck. Remove gearbox.

## **BLADE PAN & GEARBOX INSTALLATION**

1. Wear heavy work gloves to protect hands from sharp edges.
2. Raise mower using skidsteer lift. Turn off skidsteer engine.
3. Block mower SECURELY into position.

**DO NOT GET UNDER MOWER UNLESS IT IS SECURELY BLOCKED IN POSITION. ACCIDENTAL FALL COULD CAUSE SERIOUS INJURY OR DEATH.**

4. Attach gearbox to mower deck using bolts and nuts.
5. Install blade holder onto gearbox securing with castellated nut and flat washer. Torque nut to 350ft./lbs.
6. Install cotter pin to retain nut. It may be necessary to rotate nut to install cotter pin.
7. Slide drive line onto gearbox input shaft. Install shear bolt.
8. Fill gearbox with oil to proper level.

**KEEP CHILDREN AWAY FROM DANGER ALL DAY, EVERYDAY.**

**PLEASE WORK, DRIVE, PLAY AND LIVE EACH DAY WITH CARE AND CONCERN FOR YOUR SAFETY AND THAT OF YOUR FAMILY AND FELLOW CITIZENS.**

## **TORQUES**

**Blade Bolts: 600 FT-LBS**

**Gearbox Castle Nuts:**

**High- Flow Unit (30 mm): 480 FT-LBS, then continue to tighten until next slot aligns for cotter pin.**

**Standard-Flow Unit (24 mm): 260 FT-LBS then continue to tighten until next slot aligns for cotter pin.**

**(1" – 14unc): 300 FT-LBS then continue to tighten until next slot aligns for cotter pin.**



## TROUBLESHOOTING GUIDE

Problem	Possible cause	Possible remedy
<p><b>Leaves a streak of uncut or partially cut grass.</b></p>	<ol style="list-style-type: none"> <li>1. Mower not level, side to side.</li> <li>2. Blades dull or bent.</li> <li>3. Carrier RPM too low.</li> <li>4. Ground speed too fast.</li> <li>5. Blades locked back.</li> <li>6. Blades riding up do to blade bolt wear or loose bolts.</li> <li>7. Grass is down from previous weather conditions.</li> <li>8. Possible build up of material under mower.</li> </ol>	<p>Check skidsteer hitch.</p> <p>Sharpen or replace blades.</p> <p>Use correct throttle speed.</p> <p>Reduce ground speed.</p> <p>Free blades.</p> <p>Replace blade bolts.</p> <p>Mow in only one direction.</p> <p>Clean mower.</p>
<p><b>Cut grass lower in center of swath than at edge.</b></p>	<ol style="list-style-type: none"> <li>1. Height of mower lower at rear or at front.</li> </ol>	<p>Adjust mower height so that mower rear and front are within ½" of same height.</p>
<p><b>Material discharges from mower unevenly; bunches of material along swath.</b></p>	<ol style="list-style-type: none"> <li>1. Material too high and too much material.</li> </ol>	<p>Reduce ground speed or make two passes over material. Raise mower for the first pass and lower to desired height for the second and cut at 90' to the first pass.</p> <p>Raise front of mower high enough to permit material to discharge, but not so high that conditions</p>

listed above occur.

2. Grass wet.

Allow grass to dry before mowing,  
slow ground speed of skidsteer but  
keep engine running at full throttle.  
Cutting lower will help.

3. Front of cutter too low,  
trapping material under mower.

Adjust mower height and attitude.

**Gearbox over heating.**

1. Low on lubricant.
2. Improper lubricant type.
3. Excessive trash build-up  
around gearbox.

Fill to proper level.  
Replace with proper lubricant.  
Remove trash.

**Blade is scalping ground.**

1. Mower too low.
2. Field is ridged.
3. Field is too wet.

Raise mower, reset front wheel.  
Cut field at different angle.  
Stop and wait until it is drier.

**Mower will not cut.**

1. Shear bolt sheared.
2. No hydraulic oil.

Install new shear bolt.  
Check skidsteer hydraulic oil level.

**Blade bolts.**

1. Bolts are not tight.
2. Bolt hole elongated  
or oversized.
3. Blade bolt threads are worn  
or damaged.

Tighten bolts to 350 ft./lb.  
Replace blade carrier.  
Replace blade bolt, lock washer,  
and nut.

<b>Excessive blade wear.</b>	1. Cutting in sandy conditions.	Increase cutting height.
	2. Cutting in rocky conditions.	Increase cutting height.
	3. Blades hitting ground.	Increase cutting height.
<b>Mower seems to require excessive power.</b>	1. Advancing into grass or brush too rapidly.	Reduce forward travel speed.
	2. Hitting ground.	Increase cutting height.
	3. Blades dull or worn.	Sharpen or replace blades.
	4. Skidsteer not large enough.	Use larger skidsteer.
<b>Excessive vibration.</b>	1. Check gearbox bolts.	Tighten if loose.
	2. Check for loose nuts on blade pan and blades.	Tighten if loose.
	3. Check for bent output shaft. If shaft is bent, oil will normally leak from bottom seal.	Replace shaft if bent.
	4. Blades locked into position.	Free blades so they swing free.
	5. Check for even wear on each blade tip. Were both blades changed at the same time.	Weigh each blade. Weight should be within 1 oz. always Replace both blades.
	6. Broken blade.	Replace blades, in set.
	7. Blade pan bent.	Replace blade pan.
	8. New blade or bolts matched with worn blade or bolts.	Replace blades or bolts in sets.
<b>Gearbox noisy.</b>	1. Rough gears.	Run in or change gears.
	2. Worn bearings.	Replace bearings.
	3. Low oil in gearbox.	Check level, if low add oil.

**Gearbox leaking.**

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|-------------------------------------|---|
| 1. Damaged oil seal.                | Replace seal.   |
| 2. Bent shaft.                      | Replace oil seal and shaft.                                 |
| 3. Shaft rough in oil seal area.    | Replace or repair shaft.                                    |
| 4. Oil seal installed wrong.        | Replace seal.   |
| 5. Oil seal not sealing in housing. | Replace seal or use sealant on<br>outside diameter of seal. |
| 6. Oil level too high.              | Drain oil to proper level.                                  |
| 7. Hole in gearbox.                 | Replace gearbox.  |
| 8. Gasket damaged.                  | Replace gasket.   |
| 9. Bolts loose.                     | Tighten bolts.  |