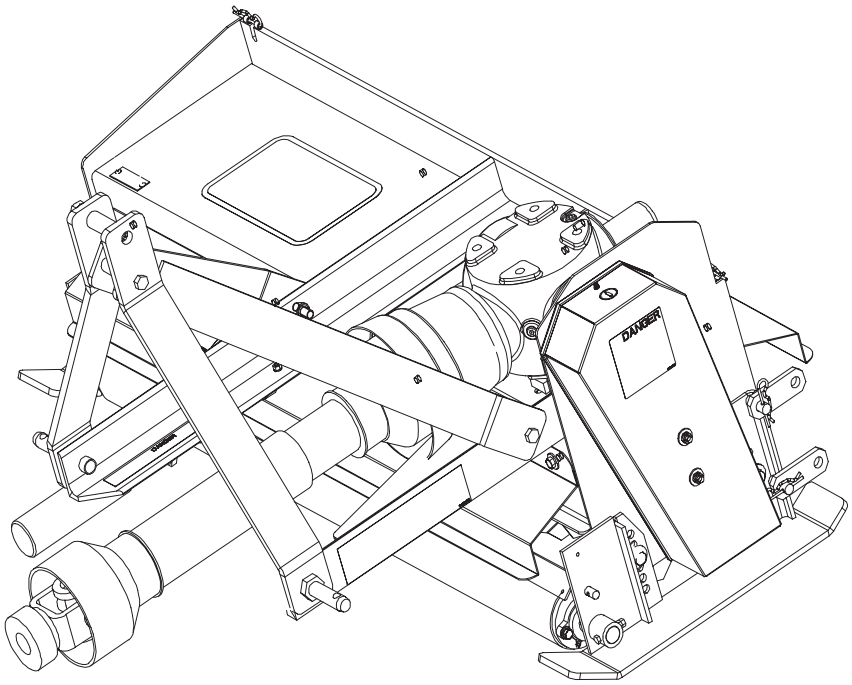
Form No. 3324–471 Rev. B

TORO®

Aerothatch 83

Model No. 44830—Serial No. 200000001 and Up



Operator's Manual

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Introduction

Read this manual carefully to learn how to operate and maintain your product properly. The information in this manual can help you and others avoid injury and product damage. Although Toro designs and produces safe products, you are responsible for operating the product properly and safely.

Whenever you need service, genuine Toro parts, or additional information, contact an Authorized Service Dealer or Toro Customer Service and have the model and serial numbers of your product ready. The two numbers are stamped on a plate which is riveted to the main arm.

Write the product model and serial numbers in the space below:

Model No. _____

Serial No. _____

This manual identifies potential hazards and has special safety messages that help you and others avoid personal injury and even death. ***Danger***, ***Warning***, and ***Caution*** are signal words used to identify the level of hazard. However, regardless of the hazard, be extremely careful.

Danger signals an extreme hazard that *will* cause serious injury or death if you do not follow the recommended precautions.

Warning signals a hazard that *may* cause serious injury or death if you do not follow the recommended precautions.

Caution signals a hazard that may cause minor or moderate injury if you do not follow the recommended precautions.

This manual uses two other words to highlight information. **Important** calls attention to special mechanical information and **Note:** emphasizes general information worthy of special attention.

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Bloomington, MN 55420-1196

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Printed in the USA

Safety

Before Operating

- Read and understand the contents of this Operator's Manual before operating the machine. Become familiar with all of the controls and know how to stop quickly. A free replacement manual is available by sending the complete Model and Serial Number to The Toro Company, 8111 Lyndale Avenue South, Bloomington, Minnesota 55420-1196.
- Never allow children to operate the machine. Do not allow adults to operate machine without proper instruction. Only trained operators who have read this manual should operate this machine.
- Never operate the machine when under the influence of drugs or alcohol.
- Keep all bystanders away from the operating area.
- Keep all shields and safety devices in place. If a shield, safety device, or decal is illegible or damaged, repair or replace it before operation is commenced. Also tighten any loose nuts, bolts, and screws to ensure that the machine is in safe operating condition.
- Before each use, be sure all bolts and nuts are tight. Check the general condition of the PTO and chain.
- Do not alter this equipment in any manner which may cause hazardous conditions.
- Do not operate the machine while wearing sandals, tennis shoes, sneakers, or shorts. Also, do not wear loose fitting clothing which could get caught in moving parts. Always wear long pants and substantial shoes. Wearing safety glasses, safety shoes, and a helmet is advisable and required by some local ordinances and insurance regulations.

While Operating

Danger

Rotating blades, discs or tines can cause serious injury.

- **Keep hands and feet out of blades, discs or tines while the engine is running.**
- **Keep bystanders out of the area of operation.**
- **Stop engine before servicing machine.**

- Using the machine demands attention. To prevent loss of control:
  - Operate only in daylight or when there is good artificial light.
  - Drive slowly and watch for holes or other hidden hazards.
  - Do not drive close to a sand trap, ditch, creek, or other hazard.
  - Reduce your speed when making sharp turns and when turning on hillsides.
  - Avoid sudden starts and stops.
- **Do not take an injury risk!** When a person or pet appears unexpectedly in or near the operating area, **stop operation**. Careless operation, combined with terrain angles, ricochets, or improperly positioned guards can lead to thrown object injuries. Do not resume operation until the area is cleared.
- Operator must be skilled and trained in how to drive on hillsides. Failure to use caution on slopes or hills may cause loss of control possibly resulting in personal injury or death.
- If tractor engine stalls or machine loses headway and cannot make it to the top of a slope, do not turn machine around. Always back slowly straight down the slope.
- Do not carry passengers on the machine or tractor and keep everyone away from the areas of operation.
- Before getting off the tractor seat:
  - Place the tractor in neutral position and put the engine in idle position.
  - Set the parking brake and disengage the PTO.
  - Shut the engine off and remove key from ignition switch. Wait for all movement to stop before getting off seat.
- ALWAYS follow all safety precautions in the tractor's or towing vehicles operator manual pertaining to attachments.

Maintenance

- Remove the key from the tractor's ignition switch to prevent accidental starting of the engine when servicing, adjusting or storing the machine.
- Be sure that the machine is in safe operating condition by keeping nuts, bolts, and screws tight.
- Make sure that all hydraulic line connectors are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system.
- Keep your body and hands away from pin hole leaks in hydraulic lines that eject high pressure hydraulic fluid. Use cardboard or paper to find hydraulic leaks. Hydraulic fluid escaping under pressure can penetrate skin and cause injury. Fluid accidentally injected into

the skin must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.

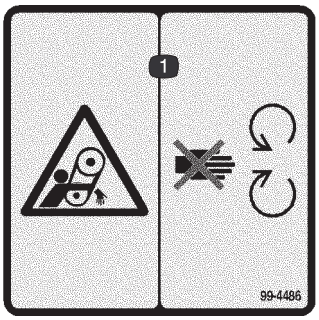
- Before disconnecting or performing any work on the hydraulic system, all pressure in the system must be relieved by stopping the engine and lowering the blower to the ground.
- Perform only those maintenance instructions described in this manual. If major repairs are ever needed or assistance is desired, contact an Authorized Toro Distributor.
- To ensure optimum performance and safety, always purchase genuine Toro replacement parts and accessories to keep the machine all Toro. **Never use "will-fit" replacement parts and accessories made by other manufacturers.** Look for the Toro logo to ensure genuineness. Using unapproved replacement parts and accessories could void the warranty.

Safety and Instruction Decals

Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or lost.



ON CHAIN GUARDS
(Part No. 01–506–0050)



ON MAIN FRAME
(Part No. 99-4486)



NEAR BEARINGS & GREASE POINTS
(Part No. 58-6520)



ON MAIN FRAME
(Part No. 01–506–0160)



ON MAIN FRAME & ROLLER SHIELDS
(Part No. 104–0332)



ON HITCH ARM
(Part No. 01–506–0130)

Specifications

Note: Specifications and design subject to change without notice.

General Specifications

Tractor Requirements	The tractor should be 30 HP or over and a PTO speed of 540 RPM.
Aerating/Thatch Swath	48”, blade tip to blade tip. Offset mounting covers the tire tread
Hitch	Standard 3 point hitch.
Drive	PTO to gearbox, sealed bearing and sprocket, #H80 chain to blade shaft.
Gearbox	Heavy duty 90 HP rated gearbox features right angle drive with extended output shaft, reverse blade operation can be achieved by reverse mounting of the gearbox. Gearbox capacity is 1.7 l of SAE 90 EP API GLS transmission oil
Bearings	1–1/4”, High speed, sealed and self aligning.
Blades	3” center – (16) 12 ga. 10 pt.
Blade Shaft	1–1/2” sq., high carbon steel.
Blade Depth	0–3” in 1/4” increments.
Guards	Safety shield in front and rear of blades, standard.
Frame	All welded steel construction.
Skid Shoes	Steel with 1/4” plate iron brace and gussets.
Roller	Full width, 3–1/2” diameter roller with sealed bearings. Roller is integral with the skid shoes, also, incorporates a spring loaded wiper for full width of roller.
Dimensions	Width – 60” Length – 57” Height – 36” (with 3 pt. hitch)
Shipping Weight	550 lbs.

Optional Equipment

7 Ga. Thatcher Blade Assembly	Part No. 104–1286
10 Ga. Thatcher Blade Assembly	Part No. 104–1285
12 Ga. Thatcher Blade Assembly	Part No. 100–7734
1” Space, 12 Ga. Thatcher Blade Assembly	Part No. 104–1287

Setup

Attach Aerothatch to Tractor

Important **The tractor should be 30 HP or over, a PTO speed of 540 RPM and have a well operating three point hitch. Do not operate at a faster speed because the blades, sprockets, gearbox and PTO will be damaged.**

1. Lower the three point hitch arms on the tractor.
2. Position the Aerothatch so that the three point hitch arms of the tractor line up with the main arms of the aerothatch.
3. Connect the two halves of the PTO and slowly slide the Aerothatch toward the tractor.
4. Line up the three point arms and the stabilizer arm of the tractor with the Aerothatch. Secure all arms with the tractor hardware.
5. Connect the PTO half (1– 3/8" splined splined Twist Lock) to the tractor. Decal on shaft denotes tractor end.

Note: When new, the spring lock lever on the end of the PTO is hard to operate. Apply grease and move the lever until it snaps in and out freely. In the correct position the lever will spring back out and lock the two shafts together.

Danger

- **The spring lever must be locked into position before operating.**
- **Failure to lock the spring lever will result in the PTO disconnecting from the tractor.**

Important A long PTO shaft is supplied with machine to accommodate large variations in the tractor's PTO and 3 point locations. For most tractors this shaft is too long and must be cut to correct length or gearbox damage may result.

6. Lower the Aerothatch until the gear box shaft is approximately the same height as the tractor PTO shaft. This is the shortest distance between the two shafts.
7. Measure the distance from the lock groove of the tractor PTO shaft to the lock groove of the Aerothatch gearbox PTO shaft. Record this dimension.
8. Fully collapse PTO shaft and measure the distance between the lock pin collars. Record this dimension.
9. At it's shortest length, the two halves of the PTO shaft must have at least 1.5 inches (37 mm) of additional clearance to collapse (Fig. 1). If the dimension in step 7 is not at least 1.5 inches (37 mm) greater than the dimension in step 8, the PTO shaft is too long, proceed to step 5. If there is enough clearance to allow PTO shaft to collapse, proceed to step 10.

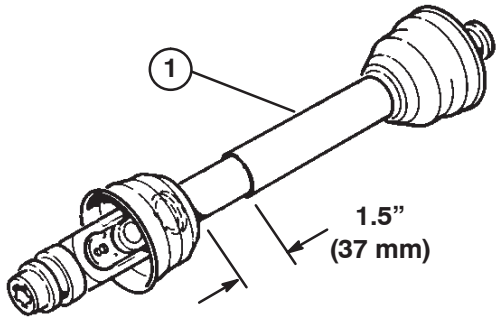


Figure 1

1. PTO shaft

10. Use the following calculation to establish how much shorter the shaft must be, when connected, to ensure a clearance of 1.5 inches (37 mm).
    A. Subtract the dimension recorded in step 7 from the dimension recorded in step 8. Record this dimension.
    B. Subtract 1.5" (37mm) from the result in step 10A. The PTO shaft must be shortened by this amount.
11. Using a hacksaw, cut the yellow guards and the steel tubes shorter by the calculated length. Cut both halves of the PTO shaft
12. Deburr ends of steel tubes internally and externally.
13. Remove all debris from tube sections.
14. Grease steel tubes liberally.
15. Assemble PTO shaft and secure to Aerothatch and tractor.
16. Measure the shaft. If not at least 1.5 inches (37 mm), repeat procedure.

Blade Depth Settings

The blade thatching depth is adjustable from 0–3 inches. Settings are made by moving the skid shoes up or down on the holes in the frame at 1/4" increments.

To Set:

1. Remove the 1/2" x 1– 1/2" bolts attaching the skids to the frame.
2. Move the skid up or down until desired depth is reached. Moving the skids up allows a deeper setting and moving them down allows a shallow setting.
3. Replace the bolts attaching the skids to the frame. Secure tightly.

4. Repeat the procedure on the opposite side.

Important **Always set both skids at the same depth. Uneven skid height will cause a variance in cutting depth across the blade shaft.**

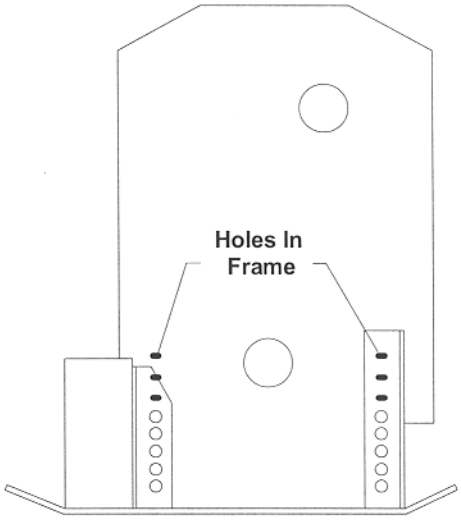


Figure 2

Operating Instructions

Important **The tractor should be 30 HP or over, a PTO speed of 540 RPM and have a well operating three point hitch. Do not operate at a faster speed because the blades, sprockets, gearbox and PTO will be damaged.**

1. Start tractor engine and run at a low RPM. Using the tractor¿s hydraulics raise the Aerothatch high enough to clear the ground.
2. With the tractor engine at idle, engage PTO and gradually increase PTO speed to 540 RPM.
3. Select tractor forward speed.
4. With tractor moving forward at 3 to 5 MPH, gradually lower the unit to cutting position.
5. If seeding, turn the remote handle to the ”ON” position.

Important **NEVER engage the PTO with the blades in the ground because the blades, chain, sprockets and PTO will be damaged.**

6. Always operate in a straight line. NEVER attempt to make turns with the unit in the cutting position.
7. When making turns, raise the unit high enough to clear the ground.
8. If extremely dry or hard soil is encountered, tractor speed and/or blade cutting depth should be reduced.

Important **3 MPH is the recommended operating speed. 5 MPH can be used if thatching depths are shallow (1/4” to 1”) or if the soil is loose and free of compaction.**

Blade Configurations

Blades should be orientated on the reel shaft so they rotate in a spiral. Each blade should be positioned 90 degrees forward, of the next blade, on the reel shaft (Fig. 3).

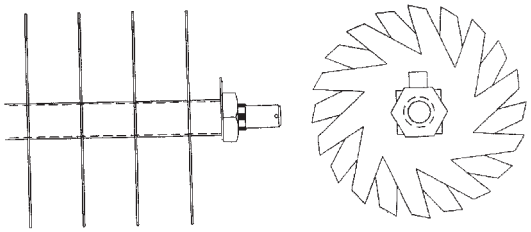
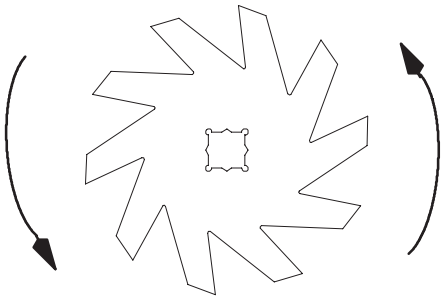


Figure 3

To obtain the best results when thatching or seeding and to help reduce blade wear, the blades should be positioned so they rotate forward when moving forward (Fig. 4).



Standard Configuration

Figure 4

Refer to page 11 & 12 for instructions to change blade configurations.

Lubrication

Bearings

The Aerothatch 83 has two self sealing bearings that must be lubricated with a No. 2 Lithium based grease (Fig. 5).

Important **Lubricate the bearings after every 40 hours of operation or weekly to maintain a slight leakage on the seals. Too much grease can cause overheating.**

Drive Chain

There is a drive chain on the blade shaft of the Aerothatch 83. Always maintain a heavy coat of grease on the drive chains (Fig. 5).

PTO

Grease the PTO fittings weekly or every 40 operating hours. Use a No. 2 Lithium based grease (Fig. 5).

Gearbox

Check lubricant level in gearbox every 40 hours of operation (Fig. 5). Add good quality transmission oil, 80–90 weight. Fill gearbox to level of side filler plug. Oil should seep from opening when plug is removed. Change oil in the gearbox after the first 100 hours of operation. Thereafter, change oil every 2500 hours or every six months which ever comes first.

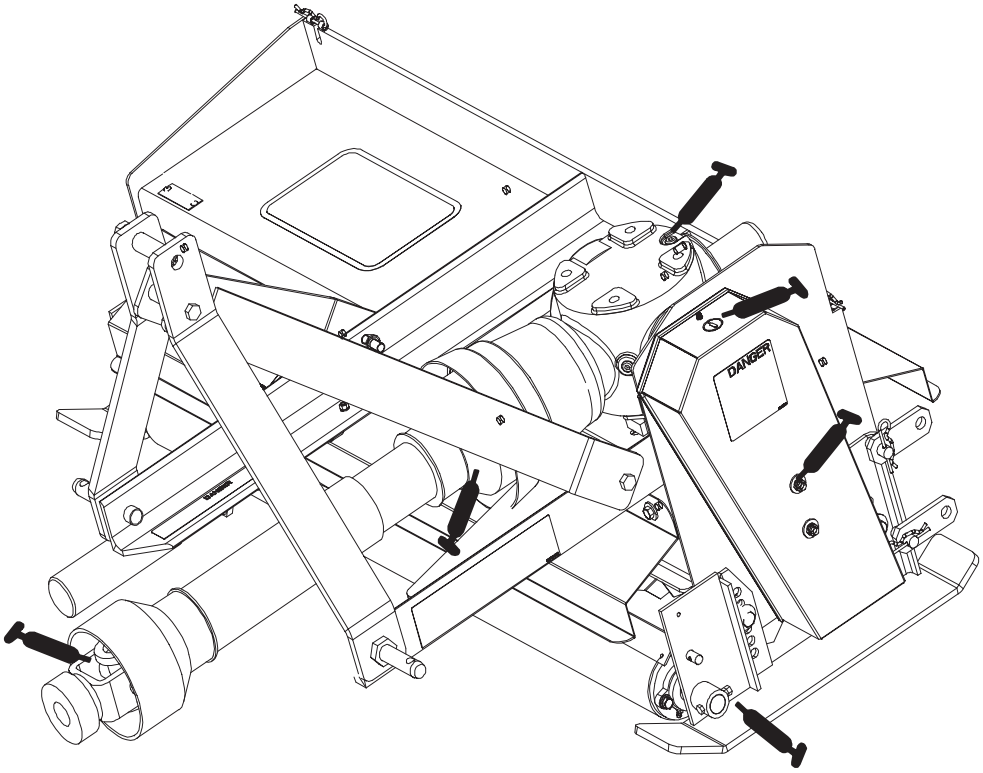


Figure 5

Maintenance

Drive Chain Adjustment

The drive chain (Fig. 6) is adjusted to allow a 1/4" deflection. Do not over tighten the chain because it will wear rapidly. If chain is to loose, the sprocket will wear.

1. Remove the chain guard.
2. Loosen the nuts on the bolts connecting the gearbox to the frame.
3. Turn the adjustment bolt to adjust the chain. Turn clockwise to tighten, counterclockwise to loosen.
4. Tighten the four bolts and the nuts on the gearbox.

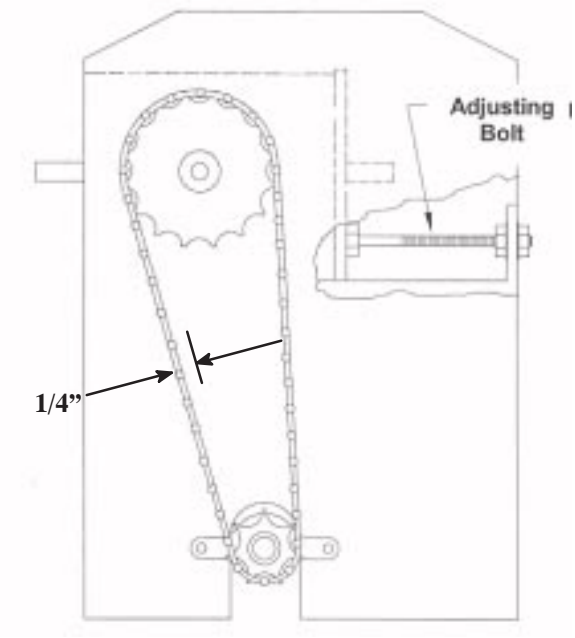


Figure 6

Blade/Disc Alignment

When replacing the blade or disc shaft, use the dimensions shown as a reference to keep the disc shaft in line with the blade shaft (Fig. 7).

This is very important when seeding, allowing the seed to fall into the blade groove for maximum germination.

When aligning the two shafts, it is much easier to try and line the blade shaft up with the disc shaft.

Always use the proper blade spacer with blade thickness 12 ga., 10 ga. or 7 ga. The effective 3 inch spacing is then maintained. Use skid connector link spacers and adjust 93 seeder and 83 Aerothatch.

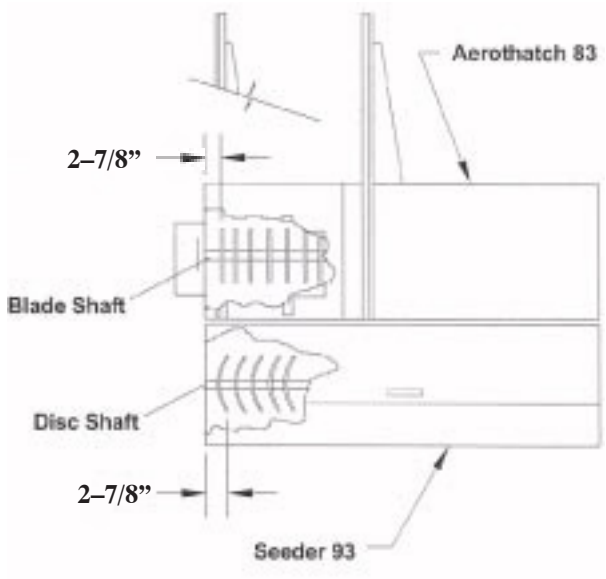


Figure 7

Changing Blade Configuration

Replace thatcher blades when they are worn to less than 10 inch diameter.

Blades should be orientated, on the reel shaft, so they rotate in a spiral. Each blade should be positioned 90 degrees forward, of the next blade, on the reel shaft (Fig. 8).

Whenever the blade and shaft assembly is disassembled, make sure to re–torque the nut to 450 ft.–lb and bend the locking tab over the nut.

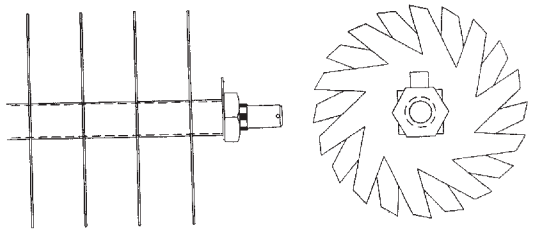


Figure 8

Reverse blade operation, can be achieved, by reversing the mounting of the gearbox. Always re–install cover to unused shaft.

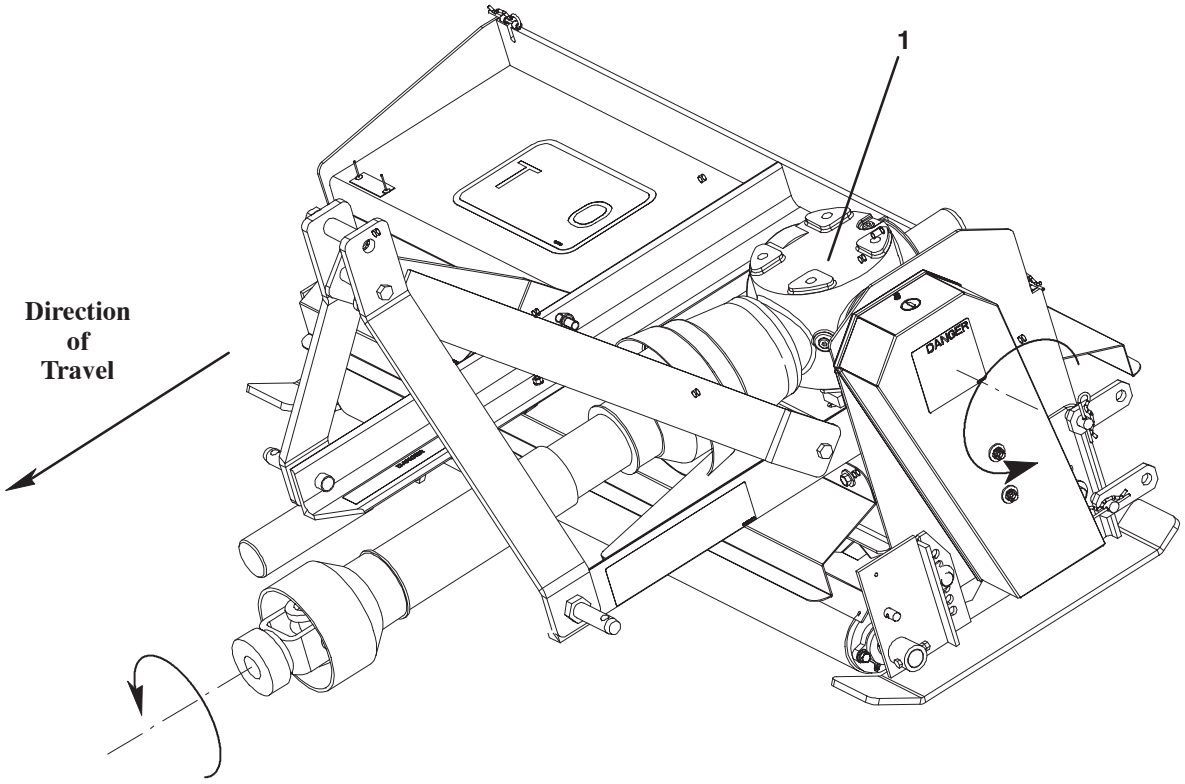


Figure 9

1. Gearbox

Thatching and Seeding

Thatcher is set up from the factory this way.

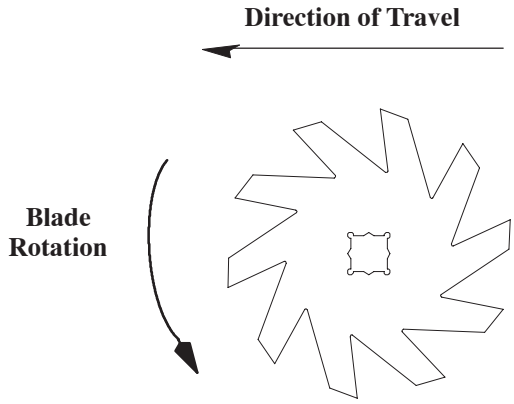


Figure 10

Heavy Thatching and Seeding

Gearbox must be turned around so output shaft is rotating clockwise (as you look at the gearbox). Thatching blades must be removed and turned around or the Optional Blade Shaft Assembly, Part No. 100–7734, must be installed.

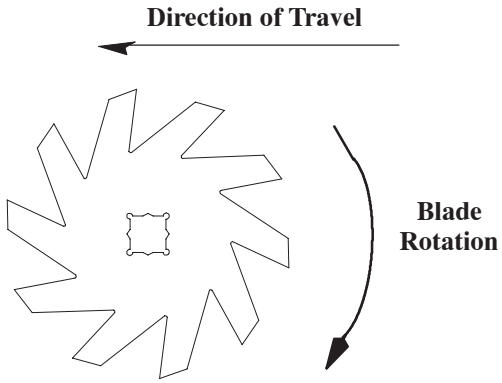


Figure 11

Seeding, Clean Groove No Thatching

Gearbox must be mounted, as shipped from the factory, so output shaft is rotating counter–clockwise (as you look at the gearbox). Thatching blades must be removed and turned around or the Optional Blade Shaft Assembly, PArt No. 100–7734, must be installed.

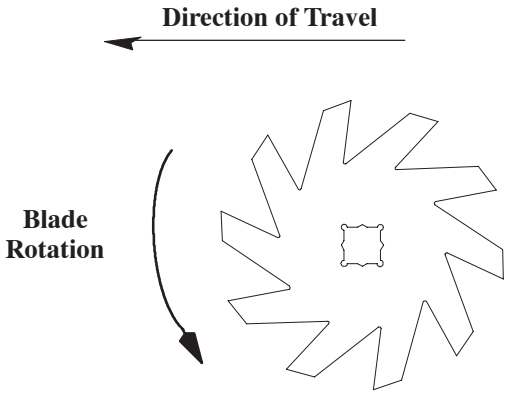


Figure 12

Seeding, Clean Groove Light Thatching

Gearbox must be turned around so output shaft is rotating clockwise (as you look at the gearbox). Thatching blades must be installed, as shipped from the factory or the Optional Blade Shaft Assembly, PArt No. 104–1288, must be installed.

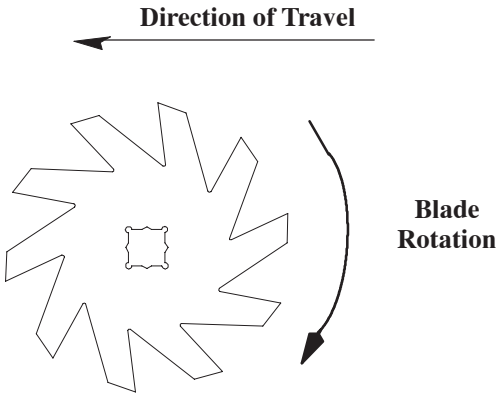


Figure 13

Trouble Shooting

Condition	Cause	Correction
Excessive Vibration	1. Blades too deep (extremely dry soil)	1. Change blade depth.
	2. PTO speed too low.	2. Bring PTO speed up 540rpm.
	3. Check for missing blades.	3. Replace blades
	4. Blade shaft bent.	4. Bring PTO speed down as low as possible and watch rotation of blade shaft for wobble or turn off Aerothatch and set on level surface then measure from floor to blade, rotate shaft to several positions, measure, compare dimensions. Replace blade shaft if necessary.
	5. Jam nut on end of blade is loose.	5. Make sure there is no damage, then tighten nut.
	6. Ground speed of tractor is too fast	6. Slow down tractor until vibration stops.
Blades Quit Turning	7. Broken chain.	7. Replace chain.
	8. Loose chain.	8. Adjust drive chain tension.
	9. Check if sprocket is turning, a key may be sheared.	9. Replace key.
	10. Check blades on shaft, they may be rounded off.	10. Replace the blades.
Gearbox Grinds	11. Check oil level. Remove side filler plug. Oil should seep from opening.	11. Fill with 80–90 weight oil.
	12. Gear teeth or bearings inside gearbox damaged.	12. Replace any worn or damaged parts.
Blades Cutting At Different Depths	13. Skid shoes adjusted incorrectly.	13. Adjust blade depth.
	14. Blades worn unevenly. Once blades are worn to a diameter of 10”, they should be replaced.	14. Replace worn blades.
	15. Check jam nut on end of shaft, it may be loose.	15. Make sure no damage has been done, then tighten nut.

Storage

1. Thoroughly clean the Aerothatch.
2. Check all fasteners. Tighten as necessary.
3. Grease or oil all grease fittings and bearings. Wipe off excess lubricant.
4. Check the tension and condition of the drive chains. Adjust the tension if necessary and apply a heavy coating of grease to the chains.
5. Fill the gearbox with oil. See Lubrication section.

The Toro General Commercial Products Warranty

A Two-Year Limited Warranty

Conditions and Products Covered

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrant your Toro Commercial Product ("Product") to be free from defects in materials or workmanship for two years or 1500 operational hours*, whichever occurs first. Where a warrantable condition exists, we will repair the Product at no cost to you including diagnosis, labor, parts, and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.

* Product equipped with hour meter

Instructions for Obtaining Warranty Service

You are responsible for notifying the Commercial Products Distributor or Authorized Commercial Products Dealer from whom you purchased the Product as soon as you believe a warrantable condition exists.

If you need help locating a Commercial Products Distributor or Authorized Dealer, or if you have questions regarding your warranty rights or responsibilities, you may contact us at:

Toro Commercial Products Service Department
Toro Warranty Company
8111 Lyndale Avenue South
Bloomington, MN 55420-1196
952-888-8801 or 800-982-2740
E-mail: commercial.service@toro.com

Owner Responsibilities

As the Product owner, you are responsible for required maintenance and adjustments stated in your operator's manual. Failure to perform required maintenance and adjustments can be grounds for disallowing a warranty claim.

Items and Conditions Not Covered

Not all product failures or malfunctions that occur during the warranty period are defects in materials or workmanship. This express warranty does not cover the following:

- Product failures which result from the use of non-Toro replacement parts, or from installation and use of add-on, modified, or unapproved accessories
- Product failures which result from failure to perform required maintenance and/or adjustments
- Product failures which result from operating the Product in an abusive, negligent or reckless manner
- Parts subject to consumption through use unless found to be defective. Examples of parts which are consumed, or used up, during normal Product operation include, but are not limited to, blades, reels, bedknives, tines, spark plugs, castor wheels, tires, filters, belts, and certain sprayer components such as diaphragms, nozzles, and check valves, etc.
- Failures caused by outside influence. Items considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved coolants, lubricants, additives, or chemicals, etc.
- Normal "wear and tear" items. Normal "wear and tear" includes, but is not limited to, damage to seats due to wear or abrasion, worn painted surfaces, scratched decals or windows, etc.

Parts

Parts scheduled for replacement as required maintenance are warranted for the period of time up to the scheduled replacement time for that part.

Parts replaced under this warranty become the property of Toro. Toro will make the final decision whether to repair any existing part or assembly or replace it. Toro may use factory remanufactured parts rather than new parts for some warranty repairs.

General Conditions

Repair by an Authorized Toro Distributor or Dealer is your sole remedy under this warranty.

Neither The Toro Company nor Toro Warranty Company is liable for indirect, incidental or consequential damages in connection with the use of the Toro Products covered by this warranty, including any cost or expense of providing substitute equipment or service during reasonable periods of malfunction or non-use pending completion of repairs under this warranty. Except for the Emissions warranty referenced below, if applicable, there is no other express warranty. All implied warranties of merchantability and fitness for use are limited to the duration of this express warranty.

Some states do not allow exclusions of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Note regarding engine warranty: The Emissions Control System on your Product may be covered by a separate warranty meeting requirements established by the U.S. Environmental Protection Agency (EPA) and/or the California Air Resources Board (CARB). The hour limitations set forth above do not apply to the Emissions Control System Warranty. Refer to the Engine Emission Control Warranty Statement printed in your operator's manual or contained in the engine manufacturer's documentation for details.

Countries Other than the United States or Canada

Customers who have purchased Toro products exported from the United States or Canada should contact their Toro Distributor (Dealer) to obtain guarantee policies for your country, province, or state. If for any reason you are dissatisfied with your Distributor's service or have difficulty obtaining guarantee information, contact the Toro importer. If all other remedies fail, you may contact us at Toro Warranty Company.

Part No. 374-0031 Rev. C