



## **Verticutter**

### **Reelmaster 5210/5410 Series Cutting Unit with 5in Reel**

**Model No. 03664—Serial No. 260000001 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 model and serial numbers are located on the side plate.

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

<b>Model No.</b> _____
<b>Serial No.</b> _____

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.

# Safety

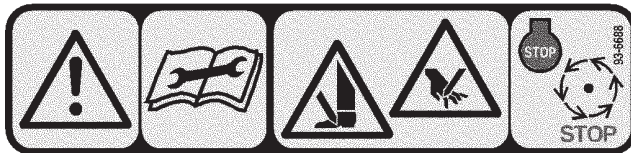
## Safe Operating Practices

- Read, understand, and follow all instructions in the traction unit operator's manual before operating the verticutters.
- Read, understand, and follow all instructions in this operator's manual before operating verticutters.
- Never allow children to operate the verticutters. Do not allow adults to operate traction unit or verticutters without proper instruction. Only trained operators who have read this manual should operate the verticutters.
- Never operate the verticutters when under the influence of drugs or alcohol.
- 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 the verticutters are in safe operating condition.
- Always wear substantial shoes. Do not operate verticutters 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.
- Remove all debris or other objects that might be picked up and thrown by the verticutter reel blades. Keep all bystanders away from the working area.
- If the verticutter blades strike a solid object or the unit vibrates abnormally, stop and shut the engine off. Check the verticutters for damaged parts. Repair any damage before restarting and operating the verticutters.
- Lower the verticutters to the ground and remove key from ignition switch whenever machine is left unattended.
- Be sure verticutters are in safe operating condition by keeping nuts, bolts and screws tight.
- Remove key from ignition switch to prevent accidental starting of the engine when servicing, adjusting or storing the machine.
- 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 Toro all TORO. **Never use "will-fit" replacement parts and accessories made by other manufacturers.** Look for the Toro logo to assure genuineness. Using unapproved replacement parts and accessories could void the warranty of The Toro Company.

## 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.



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1. Warning—read the instructions before servicing or performing maintenance
2. Cutting hazard of hand or foot—stop the engine and wait for moving parts to stop.

# Setup

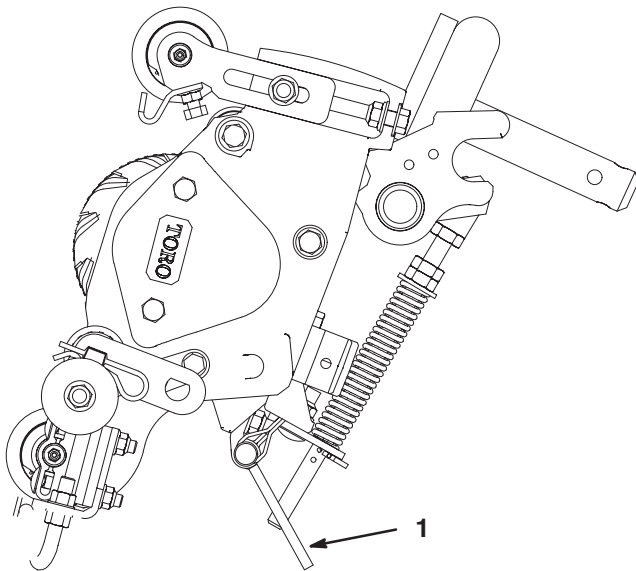
## Loose Parts

**Note:** Use this chart as a checklist to ensure that all parts have been received. Without these parts, total setup cannot be completed.

Description	Qty.	Use
Transport roller assembly	2	Use when the verticutters are lowered to the shop floor
Cotter pin	2	Use to secure transport rollers
O-ring	1	For use with reel motor bearing housing
Operator's manual	1	Read before operating.
Parts catalog	1	

**Note:** Determine the left and right sides of the machine from the normal operating position.

Whenever the cutting unit has to be tipped to expose the verticutter blades, use the cutting unit kick stand (supplied with traction unit) (Fig. 1).

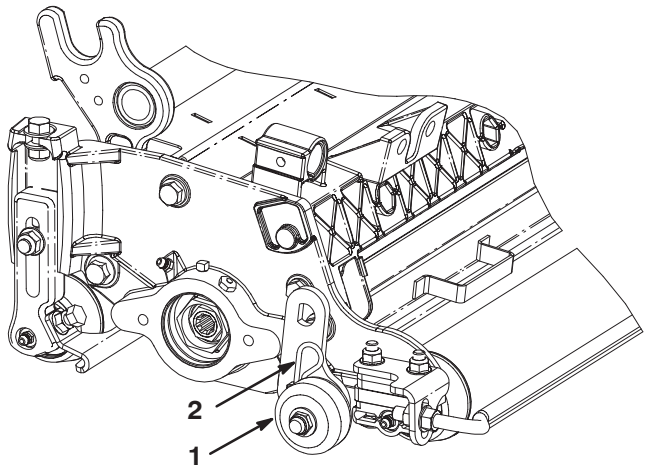


**Figure 1**

1. Cutting unit kick stand

## Install Transport Rollers

Secure a transport roller bracket to each sideplate pin with a cotter pin (Fig. 2). The roller should be positioned to the rear of the verticutter.



**Figure 2**

1. Transport roller assembly
2. Cotter pin

## Inspection

After the cutting unit is unboxed, inspect the following:

1. Check each end of the reel for grease. Grease should be visibly evident in the reel bearings and internal splines of the reel shaft.
2. Ensure that all nuts and bolts are securely tightened.
3. Make sure the carrier frame suspension operates freely and does not bind when moved back and forth.

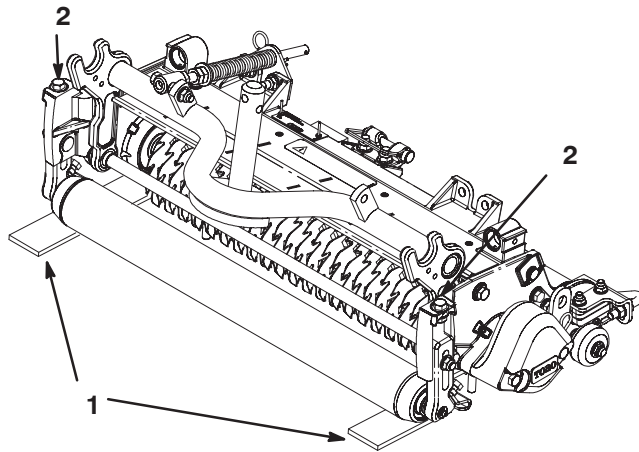
## Adjusting the Blade Depth

**Note:** The maximum recommended setting is 1/8 in. (3 mm) deep blade penetration.

1. Place the verticutter reel on a level surface.
2. Place 2 gauge bars, which have the desired depth of blade penetration below the ground, under the front and rear rollers of the verticutter reel (on each end of the reel) (Fig. 3).

**Note:** The verticutter blades must not touch the gauge bars.

3. Turn the adjusting bolt on each height-of-cut bracket (Fig. 3) so that the reel blades come in contact with the level surface on both ends.



**Figure 3**

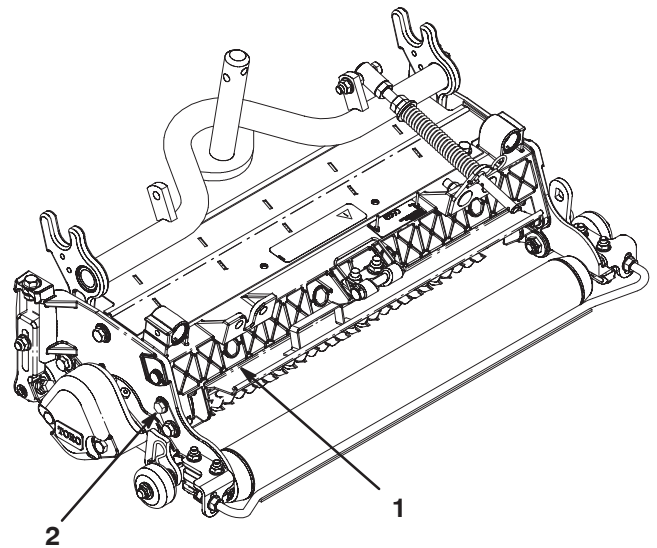
1. Gauge bar (1/8")
2. Adjusting bolt

**Note:** As the verticutter blades wear, the diameter of the reel will decrease and the depth setting will change. Check height setting periodically to insure desired setting is achieved.

## Adjust the Rear Grass Shield

**Note:** When operating in turf conditions where much debris is encountered, or unusually heavy thatch, open the rear discharge shield to help allow the debris to discharge from the reel.

1. Loosen the capscrews on the pivot of the grass shield (Fig. 4).
2. Rotate the grass shield to the desired setting and tighten the capscrews (Fig. 4).



**Figure 4**

1. Rear grass shield
2. Pivot capscrew



### Caution

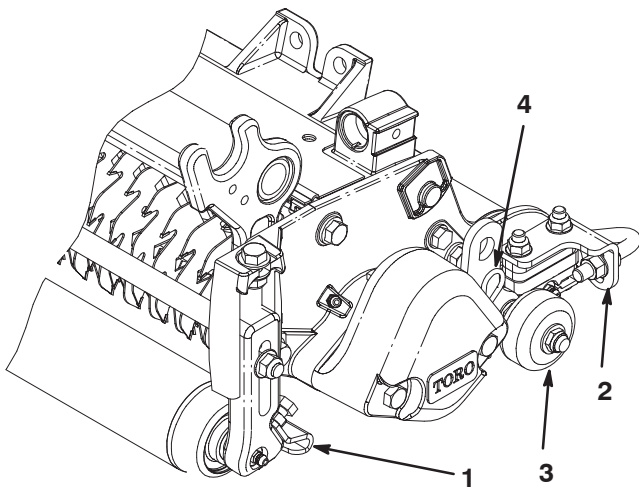


**Do not open rear shield so it is higher than level to ground**

**Thrown debris could cause personal injury**

## Adjusting the Roller Scrapers

1. Loosen flange nuts securing roller scrapers (Fig. 5).
2. Move scraper rods in or out to attain 0.0 to 0.03 in. (.0 to .75mm) clearance between the scraper and roller.
3. Ensure that the scraper rod is parallel to the roller and the level surface.
4. Tighten flange nuts to lock adjustment.



**Figure 5**

- |                         |                     |
|-------------------------|---------------------|
| 1. Front roller scraper | 3. Transport roller |
| 2. Rear roller scraper  | 4. Cotter pin       |

## Adjusting the Transport Rollers

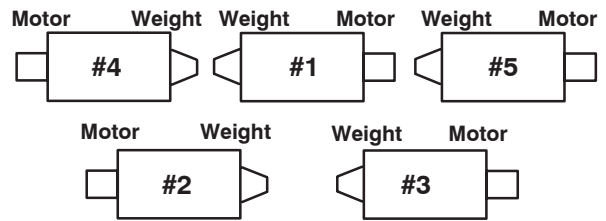
Before the verticutters are lowered to the shop floor or removed from the traction unit, lower the transport rollers (Fig. 5) to protect the blades from hard surface contact.

1. Remove the cotter pin securing the transport roller bracket to the sideplate pin.
2. Position the transport roller as follows:
  - Lower the roller bracket before the verticutter is lowered to the shop floor.
  - Raise the roller bracket after the verticutter is raised to the operating position.
3. Secure the transport roller bracket to the sideplate pin with the cotter pin.
4. Repeat the procedure on the opposite end of verticutter.

## Mount Verticutter Reel

**Important** When lowering verticutter reels, care must be taken to prevent damage to the reel blades due to contact with a concrete floor or a paved surface. Lower the transport rollers before lowering the verticutters to a concrete floor or a paved surface.

The verticutters can be installed at any of the five locations on the traction unit. Figure 6 shows the orientation of the hydraulic drive motor for each of the locations. For any of the locations requiring the motor to be mounted on the right end of the verticutters, install a counterweight on the left end of the verticutters. For the locations requiring the motor to be mounted on the left end, install a counterweight on the right end of the verticutters.

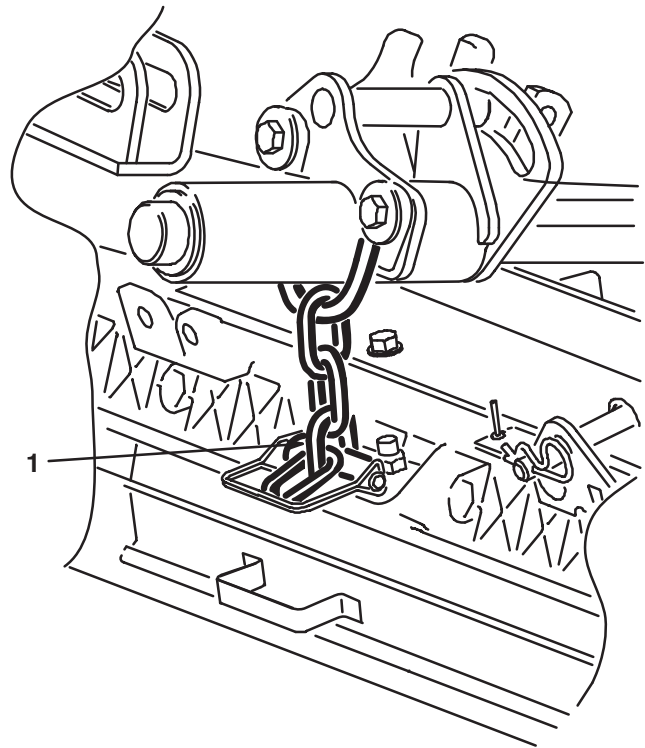


**Figure 6**

**Note:** Counterweights are shipped installed to the right end of the verticutters. The capscrews on the left end are to be used for securing the hydraulic motor.

Verticutter reels are mounted to traction unit the same way cutting units are. Refer to Traction Unit Operator's Manual for mounting instructions.

**Important** When connecting the lift arm chain to the verticutter, use the third link from the top instead of the fourth.



**Figure 7**

1. Lift arm chain third link

# Operation



## Training Period

Before operating the verticutter reels, evaluate the performance of the reel at the desired setting. Operate in a clear, unused area to determine if the desired results will be achieved. Adjust as desired.

## Operating Tips

1. Operate the traction unit at full throttle, full reel speed (setting 11) and between 3–5 MPH (5–8 Km/h).
2. The maximum recommended setting is 1/8 in. (3 mm) deep blade penetration.

3. Power requirements to operate the verticutter reels will vary with turf and soil conditions. Travel speed may need to be reduced in some conditions.
4. When operating in turf conditions where much debris is encountered, or unusually heavy thatch, open the front and rear discharge shields to help allow the debris to discharge from the reel.

	<b>Caution</b>	
<b>Do not open rear shield so it is higher than level to ground</b>		
<b>Thrown debris could cause personal injury</b>		

# Maintenance

**Note:** Determine the left and right sides of the machine from the normal operating position.

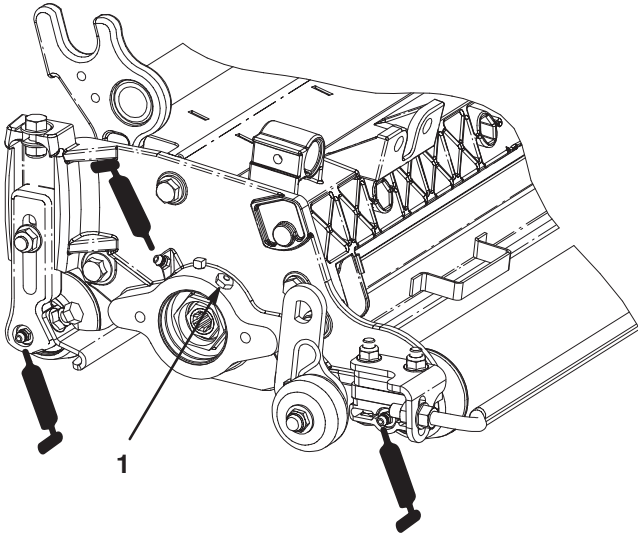
## Lubrication

Each cutting unit has (7) grease fittings (Fig. 8) that must be lubricated regularly with No. 2 General Purpose Lithium Base Grease.

The lubrication points are front roller (2), rear roller (2), reel bearing (2) and bedknife adjuster.

**Important** Lubricating cutting units immediately after washing helps purge water out of bearings and increases bearing life.

1. Wipe each grease fitting with a clean rag.
2. Apply grease until clean grease is seen coming out of roller seals and bearing relief valve.
3. Wipe excess grease away.



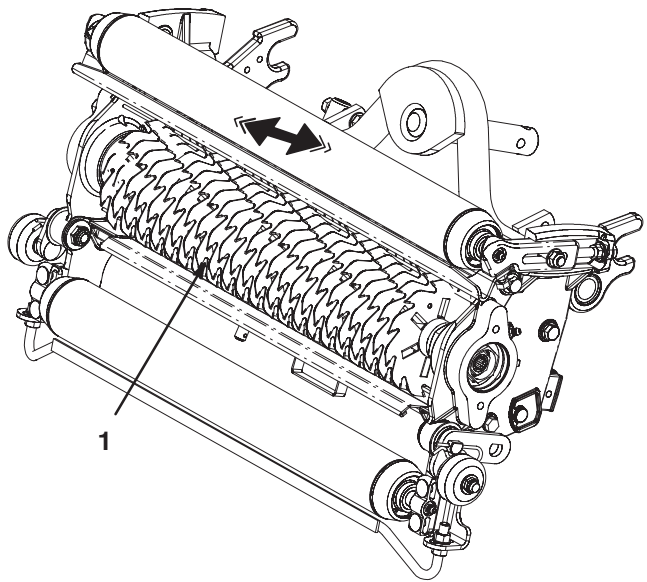
**Figure 8**

1. Relief valve

## Adjusting the Reel Bearings

To insure long life of the reel bearings, periodically check if reel end play exists. The reel bearings can be checked and adjusted as follows:

1. Hold on to the reel shaft and try to move the reel assembly side to side (Fig. 9).

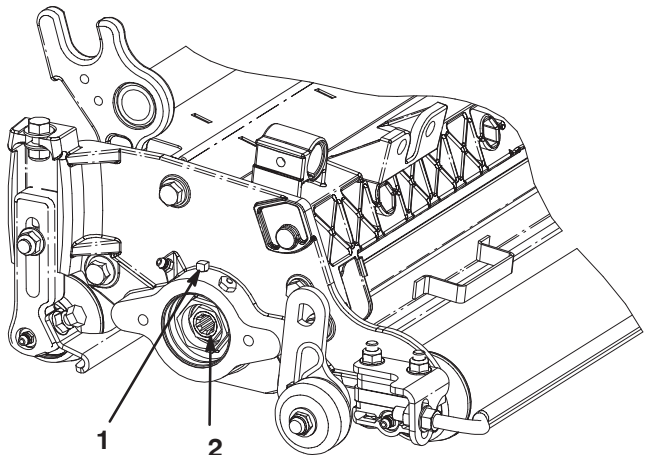


**Figure 9**

1. Reel shaft

2. If end play exists, proceed as follows:

- A. Loosen external set screw securing bearing adjusting nut to bearing housing located on the left side of the cutting unit (Fig. 10).



**Figure 10**

1. Set screw
2. Bearing adjusting nut

- B. Using a 1-3/8" socket wrench, slowly tighten the reel bearing adjustment nut until no end play of the reel exists. If adjusting nut does not eliminate reel end play, replace reel bearings.

**Note:** Reel bearings **do not** require pre-load. Over tightening reel bearing adjuster nut will damage reel bearings.

3. Retighten set screw securing bearing adjusting nut to bearing housing. Torque set screw to 12-15 in-lbs.

## Removing the Verticutter Blades from the Shaft

1. Secure the end of the verticutter shaft, which has only one washer and nut, in a vise.
2. On other end of shaft, rotate nut counter-clockwise. Remove nut.

**Caution**

The blades are extremely sharp and may have burrs that will cut your hands.

Use caution when removing the blades from the shaft.

3. Remove small spacer, washer, blades and large spacers. Clean and lubricate hex shaft with a light coating of grease to simplify assembly.

**Important** Do not invert verticutter reel blades. The order of disassembly is extremely important. Do not invert verticutter reel blades when disassembling or reverse the order when assembling. Note the verticutter blades index hole. The index hole is provided for assembly in order to obtain the proper helix for the verticutter reel.

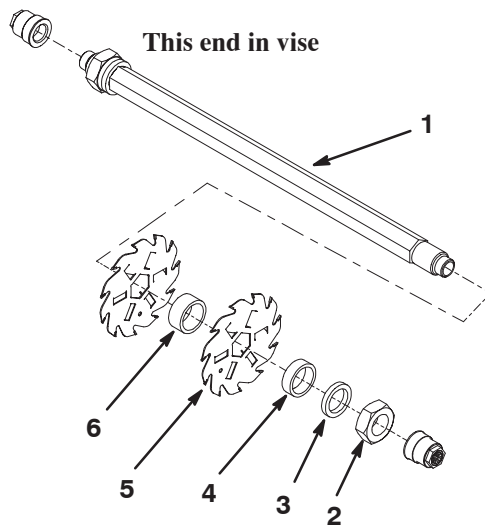


Figure 11

- |           |                      |
|-----------|----------------------|
| 1. Shaft  | 4. Small spacer      |
| 2. Nut    | 5. Blade (16)        |
| 3. Washer | 6. Large spacer (15) |

## Install Verticutter Blades

1. First, assemble a reel blade (Fig. 11).
2. Next, assemble a large spacer.
3. Do not invert reel blades when reassembling on reel shaft. If the blades are inverted, the blades that are in use, (rounded) will be mixed with the sharp ends of the blades which were not in use. This will cause unsatisfactory performance in the verticutter reel unit. Attention should always be taken when disassembling verticutter blades from reel.
4. Install the next blade clockwise so the index reference hole (Fig. 12) is not aligned with the first blade hole by one flat of the shaft. Continue to install spacers and blades in this manner until the full complement of blades have been installed. When properly assembled, the blades will be staggered in such a manner to give a helix appearance.

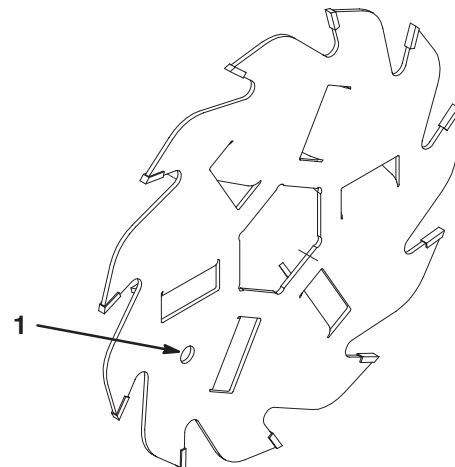


Figure 12

1. Index reference hole

5. Install small spacer to shaft.
6. Apply Blue Loctite #242 to nut. Install nut onto shaft, (machined side of nut toward spacer) and tighten to 80 –100 ft-lb.







# 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.

### 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.

- 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.