Form No. 3328–789 Rev. A

TORO®

8 and 11 Blade DPA Reel Mowers

Greensmaster® 3000 Series

Model No. 04610—Serial No. 230000001 and Up

Model No. 04611—Serial No. 230000001 and Up

Operator's Manual

CE

English (EN, GB)

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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. Figure 1 illustrates the location of the model and serial numbers on the product.

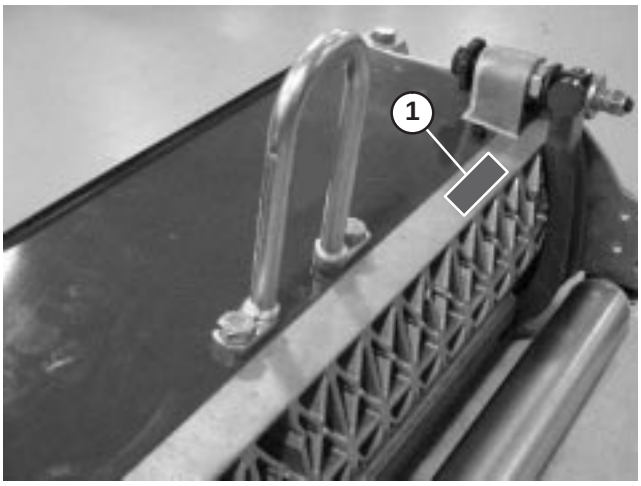

Figure 1

1. Location of the model and serial numbers

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.

8111 Lyndale Avenue South
Bloomington, MN 55420-1196

Specifications

General Specifications

Tractors	These cutting units will mount on the Greensmaster 3000, Greensmaster 3000–D, Greensmaster 3050, Greensmaster 3100, Greensmaster 3150, and Greensmaster 3250–D.
Height of Cut	Cutting height is adjusted on the front roller by two vertical screws and held by two locking capscrews.
Height Of Cut Range	Standard bench height of cut range is .062 inch (1.6 mm) to .375 inches (9.5 mm). Bench height of cut range with the High Height of Cut Kit installed is .285 inch (7 mm) to 1 inch (25 mm). Effective HOC may vary depending on turf conditions, type of bedknife, rollers and attachments installed.
Reel Weldment	Reels are 5 inches (13 cm.) in diameter, 21 inches (53.3 cm.) in length. High strength low alloy steel blades are thru hardened and impact resistant.
Reel Bearings	Two double row self–aligning ball bearings, 30 +/–.1 mm inside diameter slip fit onto reel shaft with lock nut. Additional inboard and outboard seals for added protection. Reel position maintained by a wave washer with no adjusting nut.
Reel Drive	The reel weldment shaft is a 1.375 inch diameter tube with drive inserts permanently pressed in both ends. A replaceable floating coupler with an internal eight tooth spline is factory installed on the right end, and held in place by a snap ring. The floating coupler may be moved to the other end when the cutting unit is used on the Greensmaster 3250–D right front position.
Frame	Die cast aluminum cross member with two bolt–on die–cast aluminum side plates.
Rear Roller	Steel full, 2 inch (5.1 cm.) diameter with sealed bearings and through–shaft. The rear roller has two positions, allowing user to change the cutting unit attitude and the behind center distance of bedknife from reel center line.
Bedknife	Replaceable single edged, high carbon steel bedknife is fastened to a machined cast iron bedbar with 13 screws. Tournament bedknife is standard.
Bedknife Adjustment	Dual screw adjustment to the reel; detents corresponding to .0007 inch (.018 mm) bedknife movement for each indexed position.
Grass Shield	Non–adjustable shield with adjustable cut–off bar to improve grass discharge from reel in wet conditions.
Counterweight	A cast iron weight mounted opposite to the drive motor balances the cutting unit.
Maximum Reel Speed	2200 RPM.
Weight	8 Blade 72 lb. (32 kg) 11 Blade 75 lb. (34 kg)

Optional Equipment

High Cut Bedknife	Part No. 94–6392
Low Cut Bedknife	Part No. 93–4264
Micro–Cut Bedknife	Part No. 93–4262
Fairway Bedknife	Part No. 63–8600
Full Roller (Set of three)	Model No. 04620
Close–spaced Wiehle Roller (Set of three)	Model No 04621
Wide–spaced Wiehle Roller (Set of three)	Model No. 04622
Rear Wiehle Roller (Set of three)	Model No. 04424
Groomer for Greensmaster 3050/3100/3150 (Set of three)	Model No. 04630
Groomer for Greensmaster 3250 (Set of three)	Model No. 04631
Powered Roller Brush for Greensmaster 3050/3100/3150 (Set of three)	Model No. 04640
Powered Roller Brush for Greensmaster 3250 (Set of three)	Model No. 04641
Close Wiehle Scraper Kit (One scraper)	Part No. 106–4661
Wide Wiehle Scraper Kit (One scraper)	Part No. 106–4662
Full Roller Scraper Kit (One scraper)	Part No. 106–4663
Rear Roller Scraper Kit (One scraper)	Part No. 106–2649
High Height Of Cut Kit (One kit per cutting unit)	Part No. 106–4699
5 Blade Heavy Duty Reel (One reel weld assembly)	Part No. 106–2626
Groomer Brush Assembly (One brush)	Part No. 106–2616

Note: Specifications and design subject to change without notice.

Setup

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

Loose Parts Chart

Note: Use this chart as a checklist to ensure all parts necessary for assembly have been shipped. If any of these parts are missing, total setup cannot be completed.

Description	Qty.	Use
Lift link (hoop)	1	Mount to cutting unit
Lift link (chain link) Mounting bracket	1 1	Mount to cutting unit
Capscrews	2	Use to mount lift link to cutting unit
Ball stud	2	Mount to roller
Operator's manual	1	Read before operating the machine.
Parts catalog	1	
Certificate of compliance	1	
Registration cards	2	Fill out and return to Toro.

1. The cutting unit is shipped without a front roller. Install the roller using the loose parts supplied with the cutting unit and installation instructions included with the roller.
2. Ensure that all nuts and bolts are securely fastened.
3. Install the proper lift link to match the suspension.
   - Hoop link (Fig. 2) for Greensmaster 3000, 3000–D, 3050, 3100 and 3150 traction units. Install hoop link to top of cutting unit with (2) capscrews. Torque capscrews to 25–30 ft–lbs. (34–40 N·m).

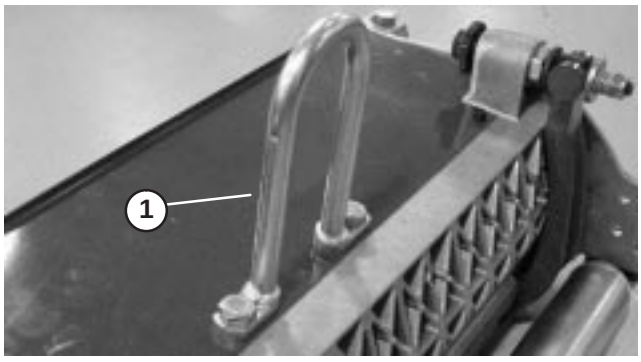

Figure 2

1. Hoop link

   - Chain link (Fig. 3) for Greensmaster 3250–D traction unit. Install chain link to top of cutting unit with mounting bracket and (2) capscrews. Torque capscrews to 25–30 ft–lbs. (34–40 N·m). Large end of link to hook on traction unit suspension.

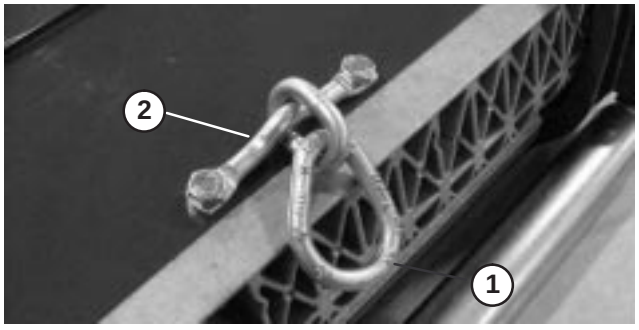

Figure 3

1. Chain link
2. Mounting bracket

Important Whenever the cutting unit has to be tipped to expose bedknife/reel, prop up rear of cutting unit to make sure nuts on back end of bedbar adjusting screws are not resting on work surface (Fig. 4).

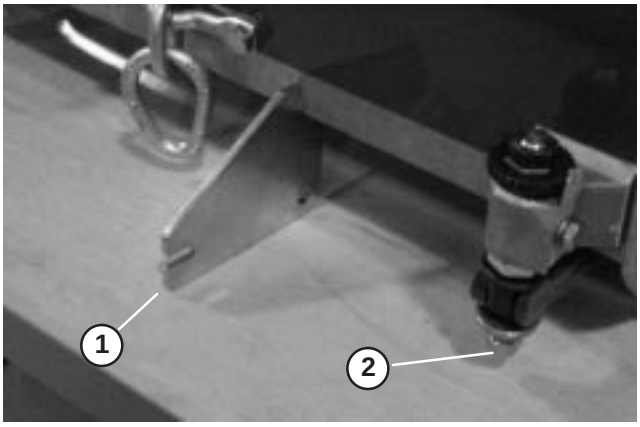

Figure 4

1. Prop (not provided)
2. Bedknife adjusting screw nut (2)

4. All cutting units are shipped with the counter weight mounted to the left end and the motor mount and drive coupler mounted to the right end of the cutting unit. To mount the cutting unit in the right front position, on the Greensmaster 3250–D proceed as follows:

A. Remove the 2 capscrews securing the counter weight to the left end of the cutting unit. Remove the counter weight (Fig. 5).

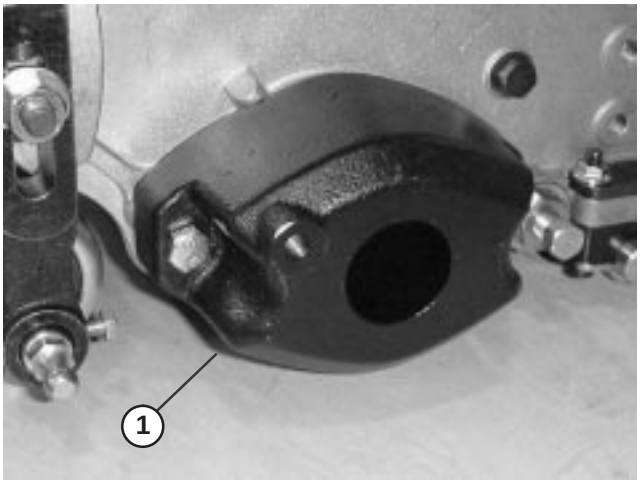

Figure 5

1. Counter weight

B. On right end of cutting unit, remove plastic plug from bearing housing (Fig. 6).

C. Remove the 2 allen head screws securing the motor mount to the right end of the cutting unit. Remove the motor mount (Fig. 6).

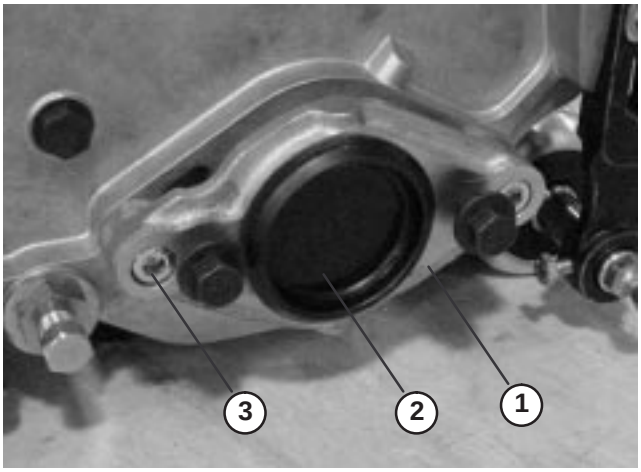

Figure 6

1. Motor mount
2. Plastic plug
3. Allen head screw (2)

D. Remove the snap ring securing the drive coupler in the reel tube (Fig. 7). Remove the drive coupler.

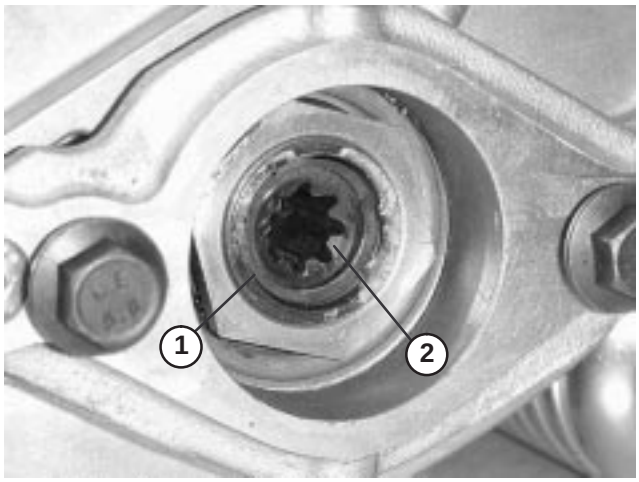

Figure 7

1. Snap ring
2. Drive coupler

E. Apply grease to the inside diameter of the drive coupler. Install the drive coupler to the left end of the cutting unit reel tube with a snap ring (Fig. 5).

F. Install the motor mount to the left end of the cutting unit with the (2) allen head screws previously removed (Fig. 6). Torque screws to 12–15 ft–lbs. (16–20 N·m).

G. Install the counter weight to the right end of the cutting unit with the screws previously removed.

Adjustments

After the cutting unit is unboxed, use the following procedures to ensure that the cutting units are adjusted properly.

Adjusting the Bedknife to the Reel

Bedknife to reel adjustment is accomplished by loosening or tightening bedbar adjusting screws, located on top of mower.

1. Position machine on a flat, level work surface. Make sure reel contact is removed by turning bedbar adjusting screws counterclockwise (Fig. 8).

Figure 8

1. Bedbar adjusting screw

2. Tilt mower on back to expose bedknife and reel.

Important Make sure nuts on back end of bedbar adjusting screws are not resting on work surface (Fig. 4).

3. At one end of reel, insert a long strip of newspaper between reel and bedknife (Fig. 9). While slowly rotating reel forward, turn bedbar adjusting screw clockwise (on same end of reel, one click at a time, until paper is pinched lightly, when inserted from the front, parallel to the bedknife. A slight drag will be noted as the paper is pulled.

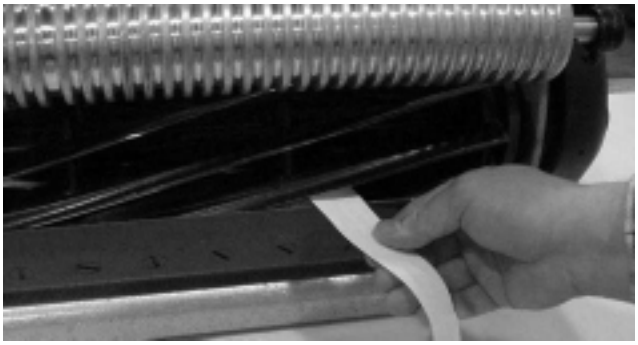

Figure 9

Note: Each time adjusting screw is rotated one click clockwise, bedknife moves .0007 in. closer to reel. **Do not overtighten the adjusting screws.**

4. Check for light contact at other end of reel using paper and adjust as required.

5. After adjustment is accomplished, check to see if reel can pinch paper when inserted from the front and cut paper when inserted at a right angle to the bedknife (Fig. 9). It should be possible to cut paper with minimum contact between the bedknife and the reel blades. Should excessive reel drag be evident it will be either necessary to backlap or regrind the cutting unit to achieve the sharp edges needed for precision cutting (see Toro reel sharpening manual).

Adjusting the Rear Roller

1. Adjust rear roller brackets (Fig. 10 & 11) to low or high position depending on desired height of cut range.

   - Position the spacer above the sideplate mounting flange (factory setting) when height of cut settings range from 1/16 to 1/4” (Fig. 10).

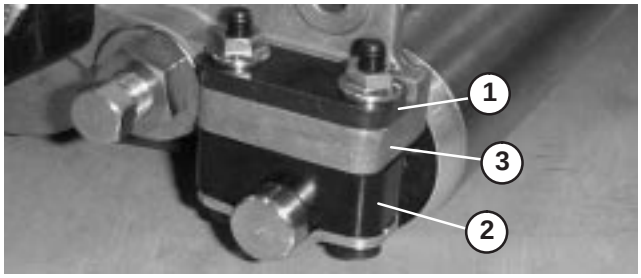

Figure 10

1. Spacer
2. Roller bracket
3. Sideplate mounting flange

   - Position the spacer below the sideplate mounting flange when height of cut settings range from 1/8” to 1” (Fig. 11).

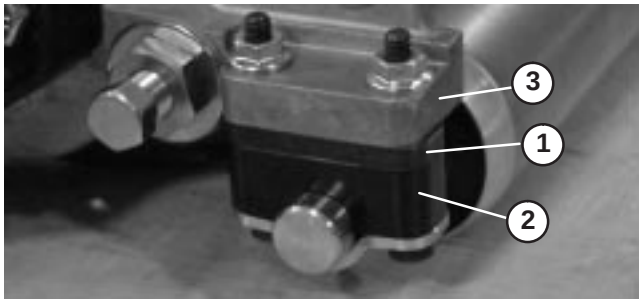

Figure 11

1. Spacer
2. Roller bracket
3. Sideplate mounting flange

2. To adjust rear roller proceed as follows:

   - Raise rear of cutting unit and place a block under bedknife.
   - Remove (2) nuts securing each roller bracket and spacer to each sideplate mounting flange.
   - Lower roller and screws from sideplate mounting flanges and spacers.
   - Place spacers onto screws on roller brackets.
   - Re–secure roller bracket and spacers to underside of sideplate mounting flanges with nuts previously removed.

3. Verify that bedknife to reel contact is correct. Tip mower to expose front and rear rollers and bedknife.

Note: The position of the rear roller to the reel is controlled by the machining tolerances of the assembled components and paralleling is not required. A limited amount of adjustment is possible by setting the cutting unit on a surface plate and loosening the sideplate mounting capscrews (Fig. 12). Adjust and re–tighten capscrews.

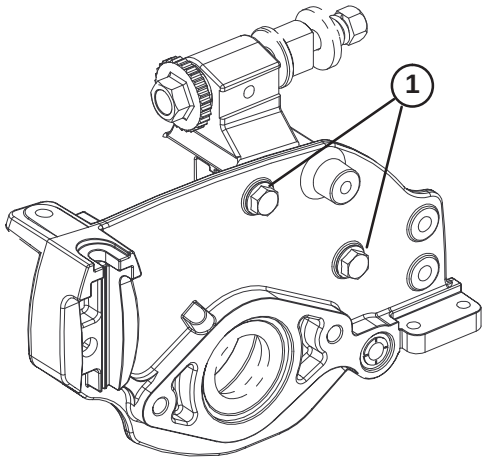

Figure 12

1. Sideplate mounting capscrews

Important Whenever the cutting unit has to be tipped to expose bedknife/reel, prop up rear of cutting unit to make sure nuts on back end of bedbar adjusting screws are not resting on work surface (Fig. 4).

Adjusting the Height of Cut

Note: For heights of cut greater than .375“, the high height of cut kit must be installed

1. Loosen locknuts securing height-of-cut arms to cutting unit side plates (Fig. 13).

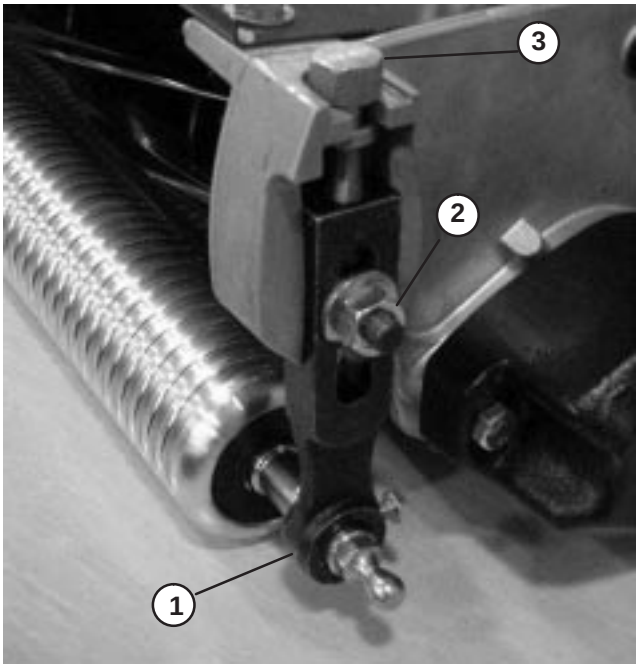

Figure 13

1. Height-of-cut arm
2. Locknut
3. Adjusting screw

2. Loosen nut on gauge bar (Fig. 14) and set adjusting screw to desired height-of-cut. Distance between bottom of screw head and face of bar is height-of-cut.

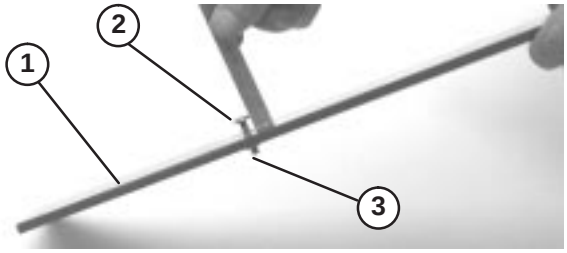

Figure 14

1. Gauge bar
2. Height adjusting screw
3. Nut

3. Hook screw head on cutting edge of bedknife and rest rear end of bar on rear roller (Fig. 15).

Figure 15

4. Rotate adjusting screw until roller contacts front of gauge bar. Adjust both ends of roller until entire roller is parallel to the bedknife.

Important When set properly, the rear and front rollers will contact the gauge bar and the screw will be snug against the bedknife. This ensures that the height-of-cut is identical at both ends of the bedknife.

5. Tighten nuts to secure adjustment. Do not overtighten nut. Tighten enough to remove play from washer.

Note: Use the following chart to determine which bedknife is best suited for the desired height of cut.

Recommended Bedknife/Height of Cut Chart

Bedknife	Part No.	Height of Cut
Micro–cut (Optional)	93–4262	.062–.188”
Tournament (Standard)	93–4263	.125–.375”
Low–cut (Optional)	93–4264	.188–1.00”
High–cut (Optional)	94–6392	.312–1.00”
Fairway (Optional)	63–8600	.375–1.00”

Adjusting the Cut-Off Bar

Adjust cut–off bar to assure clippings are cleanly discharged from the reel area:

1. Loosen screws securing top bar (Fig. 16) to cutting unit.

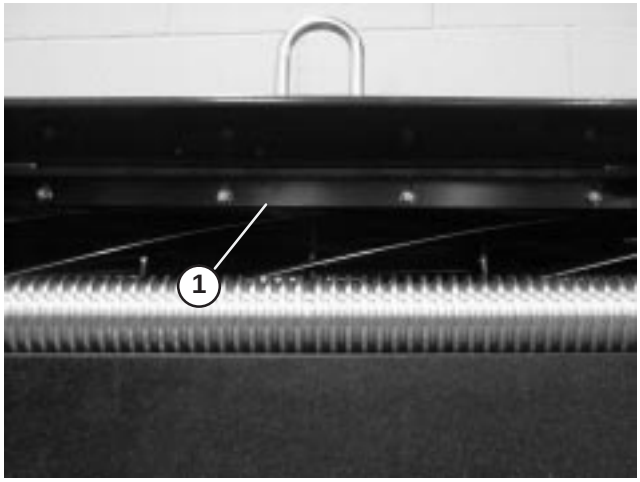

Figure 16

1. Cut-off bar

2. Insert .060 inch feeler gauge between top of reel and bar and tighten screws. Ensure bar and reel are equal distance apart across complete reel.

Note: The bar is adjustable to compensate for changes in turf conditions. The bar should be adjusted closer to reel when turf is extremely dry. By contrast, adjust bar further away from reel when turf conditions are wet. The bar should be parallel to reel to ensure optimum performance and should be adjusted whenever reel is sharpened on a reel grinder.

Operation

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

Cutting Unit Characteristics

The dual knob bedknife-to-reel adjustment system incorporated in this cutting unit simplifies the adjustment procedure needed to deliver optimum mowing performance. The precise adjustment possible with the dual knob/bedbar design gives the necessary control to provide a continual self-sharpening action—thus maintaining sharp cutting edges, ensuring good quality-of-cut, and greatly reducing the need for routine backlapping.

Daily Adjustments of Cutting Unit

Prior to mowing each day, or as required, each cutting unit must be checked to verify proper bedknife-to-reel contact. **This must be performed even though quality of cut is acceptable.**

1. Lower the cutting units onto a hard surface, shut off the engine, and remove the ignition key.
2. Slowly rotate the reel in a reverse direction, listening for reel-to-bedknife contact. If no contact is evident, turn the bedknife adjusting knobs clockwise, one click at a time, until light contact is felt and heard.

Note: The adjustment knobs have detents corresponding to 0.0007 in. (0.018 mm) bedknife movement for each indexed position.

3. If excessive contact is felt, turn the bedknife adjusting knobs counterclockwise, one click at a time until no contact is evident. Then turn the bedknife adjusting knobs one click at a time clockwise, until light contact is felt and heard.

Important Light contact is preferred at all times. If light contact is not maintained, the bedknife/reel edges will not sufficiently self-sharpen and dull cutting edges will result after a period of operation. If excessive contact is maintained, bedknife/reel wear will be accelerated, uneven wear can result, and quality of cut may be adversely affected.

Note: As the reel blades continue to run against the bedknife, a slight burr will appear on the front cutting edge surface along the full length of the bedknife. If a file is occasionally run across the front edge to remove this burr, improved cutting can be obtained.

After extended running, a ridge will eventually develop at both ends of the bedknife. These notches must be rounded off or filed flush with the cutting edge of the bedknife to ensure smooth operation.

Maintenance

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

Servicing the Bedbar

Removing the Bedbar

1. Turn bedbar adjuster screw, counterclockwise, to back bedknife away from reel (Fig. 17).

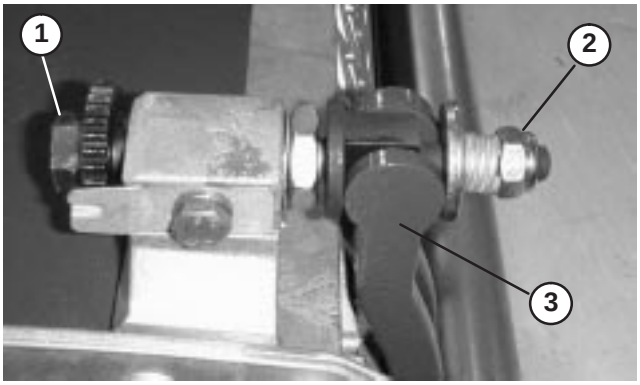

Figure 17

1. Bedbar adjusting screw
2. Spring tension nut
3. Bedbar

2. Back out the spring tension nut, until the washer is no longer tensioned against the bedbar (Fig. 17).
3. On each side of the machine, loosen the nut securing the bedbar bolt (Fig. 18).

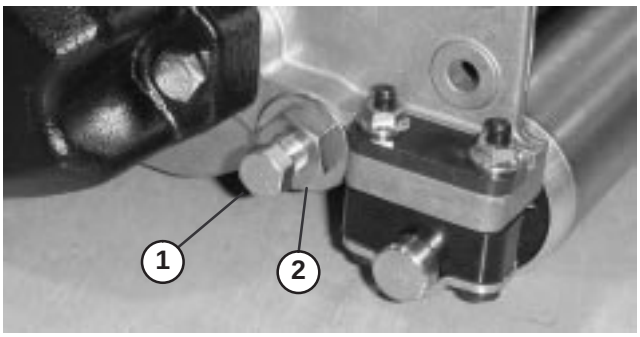

Figure 18

1. Bedbar bolt
2. Nut

4. Remove each bedbar bolt allowing bedbar to be pulled downward and removed from machine (Fig. 18). Account for 2 nylon and 2 stamped steel washers on each end of bedbar (Fig. 19).

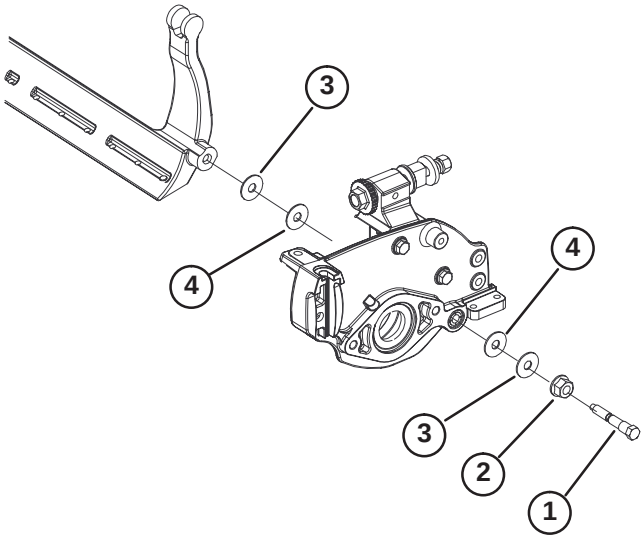

Figure 19

1. Bedbar bolt
2. Nut
3. Steel washer
4. Nylon washer

Assembling the Bedbar

1. Install bedbar, positioning mounting ears between washer and bedbar adjuster.

2. Secure bedbar to each side plate with bedbar bolts (nuts on bolts) and 8 washers. A nylon washer is to be positioned on each side of side plate boss. Place a steel washer outside each of the nylon washers (Fig. 19). Torque bolts to 240–320 in.-lb. Tighten nuts until thrust washers just rotate freely.

3. Tighten spring tension nut until spring is collapsed, then back off 1/2 turn.

4. Adjust bedbar; refer to Adjusting the Bedknife to the Reel, page 7.

Backlapping the Reel

Danger

Contact with the reel or other moving parts can result in personal injury.

Keep fingers, hands, and clothing away from the reels or other moving parts.

- **Stay away from the reel while backlapping.**
- **Never use a short handled paint brush for backlapping. Part No. 29-9100 Handle assembly complete or individual parts are available from your local Authorized Toro Distributor.**

1. Position the machine on a clean, level surface, lower the cutting units, stop the engine, engage the parking brake, and remove the ignition key.

2. Remove the reel motors from the cutting units and disconnect and remove the cutting units from the lift arms.

3. Connect the backlapping machine to the cutting unit by inserting a piece of 3/8 in. square stock into the splined coupling at the right end of the cutting unit.

Note: Additional instructions and procedures on Backlapping are available in the Toro Sharpening Reel & Rotary Mowers Manual, Form No. 80-300PT.

Note: For a better cutting edge, run a file across the front face of the bedknife when the lapping operation is completed. This will remove any burrs or rough edges that may have built up on the cutting edge.

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 1996 or newer Toro Commercial Product ("Product") purchased after January 1, 1997, 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, 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.

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