Form No. 3391-981 Rev B

TORO®

Count on it.

Operator's Manual

8- or 11-Blade DPA Cutting Unit with 7in Reel

Reelmaster® 5510/5610 Series Traction Unit

Model No. 03693—Serial No. 315000001 and Up
Model No. 03696—Serial No. 315000001 and Up
Model No. 03697—Serial No. 315000001 and Up

Register at www.Toro.com.
Original Instructions (EN)

CE

3391-981 B

⚠ WARNING

CALIFORNIA
Proposition 65 Warning

This product contains a chemical or chemicals known to the State of California to cause cancer, birth defects, or reproductive harm.

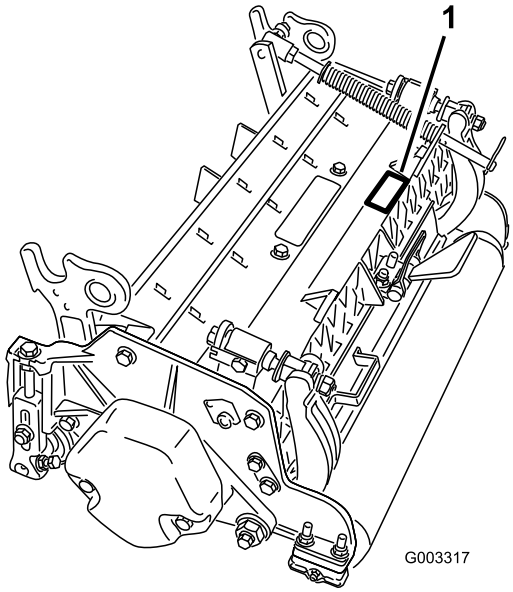
This product complies with all relevant European directives. For details, please see the Declaration of Incorporation (DOI) at the back of this publication.

Introduction

Read this information carefully to learn how to operate and maintain your product properly and to avoid injury and product damage. You are responsible for operating the product properly and safely.

You may contact Toro directly at www.Toro.com for product safety and operation training materials, accessory information, help finding a dealer, or to register your product.

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 identifies the location of the model and serial numbers on the product. Write the numbers in the space provided.



g003317

Figure 1

1. Location of the model and serial numbers

Model No. _____

Serial No. _____

This manual identifies potential hazards and has safety messages identified by the safety alert symbol (Figure 2), which signals a hazard that may cause serious injury or death if you do not follow the recommended precautions.



g000502

Figure 2

1. Safety alert symbol

This manual uses 2 words to highlight information. **Important** calls attention to special mechanical information and **Note** emphasizes general information worthy of special attention.

© 2017—The Toro® Company
8111 Lyndale Avenue South
Bloomington, MN 55420

Contact us at www.Toro.com.
Printed in the USA
All Rights Reserved

Contents

Safety 3
Safety and Instructional Decals 4
Setup 5
1 Inspecting the Cutting Unit 5
2 Using the Cutting Unit Kickstand 5
3 Adjusting the Rear Shield 6
4 Mounting the Counter Weights 6
Product Overview 7
Specifications 7
Cutting Unit Accessories and Kits 7
Operation 8
Adjustments 8
Turf Compensation Settings 11
Height-of-Cut 11
Servicing the Bedknife 16
Maintenance 18
Lubricating the Cutting Unit 18
Adjusting the Reel Bearings 18
Servicing the Bedbar 19
Servicing the HD Dual Point Adjusters (DPA) 20
Servicing the Roller 21

Safety

This machine has been designed in accordance with EN ISO 5395:2013.

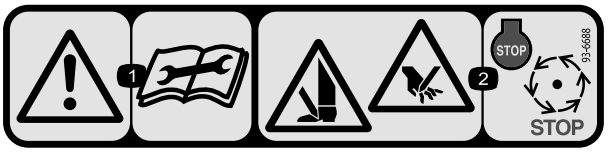
To control hazards and prevent accidents, it is essential that those who operate, transport, maintain, and store the machine be aware, concerned, and properly trained. Improperly using the machine can result in injury or death. To reduce the potential for injury or death, comply with the following safety instructions.

- Read, understand, and follow all instructions in the traction unit and the cutting unit *Operator's Manual* before operating the cutting unit.
- Never allow children to operate the traction unit or cutting units. Do not allow adults to operate traction unit or cutting units without proper instruction. Only trained operators who have read this manual should operate the traction unit or cutting units.
- Never operate the cutting units 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 operating the cutting unit. Also, tighten any loose nuts, bolts, and screws to ensure that the cutting unit is in safe operating condition.
- Always wear substantial, slip-resistant shoes. Do not operate the cutting units while wearing sandals, tennis shoes, or sneakers. Also, do not wear loose fitting clothing which could get caught in moving parts. Always wear long pants, safety glasses, and safety shoes.
- Remove all debris or other objects that might be picked up and thrown by the cutting unit reel blades. Keep all bystanders away from the working area.
- If the cutting blades strike a solid object or the unit vibrates abnormally, shut off the cutting units, park on a flat surface, set the parking brake, shut off the engine, and remove the key. Check the cutting unit for damaged parts. Repair any damage before starting and operating the cutting unit.
- Lower the cutting units to the ground, and remove key from ignition switch whenever you leave the machine unattended.
- Ensure that the cutting units are in safe operating condition by keeping nuts, bolts, and screws tight.
- Remove the key from the ignition switch to prevent the engine from accidently starting when servicing, adjusting, or storing the machine.
- Perform only those maintenance instructions described in this manual. For major repairs or assistance, contact an authorized Toro distributor.

Safety and Instructional 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 missing.

The roller Rebuild Kit, Part No. 114–5430



decal93-6688

93-6688

1. Warning—read the *Operator's Manual* before performing maintenance (no *Operator's Manual* with this prototype unit; read the *Quick Start Guide*).
2. Cutting hazard of hand or foot—shut off the engine and wait for all moving parts to stop.

Setup

Loose Parts

Use the chart below to verify that all parts have been shipped.

Procedure	Description	Qty.	Use
1	Cutting unit	1	Inspect the cutting unit.
2	No parts required	–	Use the kickstand when tipping the cutting unit.
3	No parts required	–	Adjust the rear shield.
4	No parts required	–	Mount the counter weights.

Media and Additional Parts

Description	Qty.	Use
Parts Catalog Operator's Manual	1 1	Review the material and save it in an appropriate place.
O-ring	1	Mount the reel motor to the cutting unit.
Screws	2	Mount the reel motor to the cutting unit.

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

1

Inspecting the Cutting Unit

Parts needed for this procedure:

1	Cutting unit

Procedure

1. Check each end of the reel for grease.

   Note: 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.

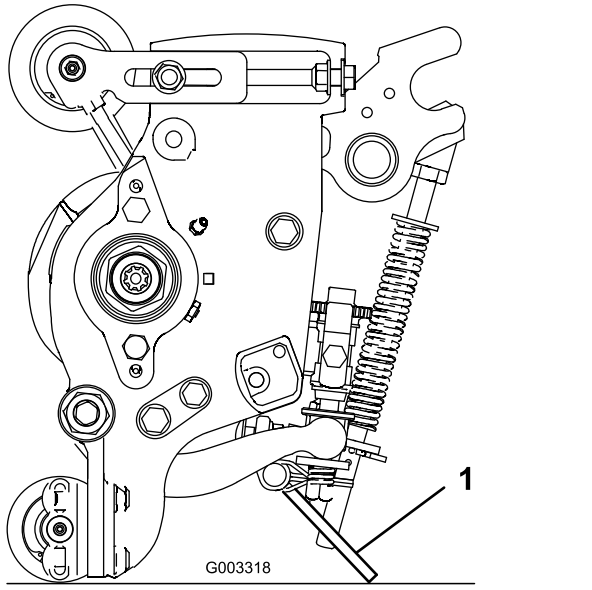
2

Using the Cutting Unit Kickstand

No Parts Required

Procedure

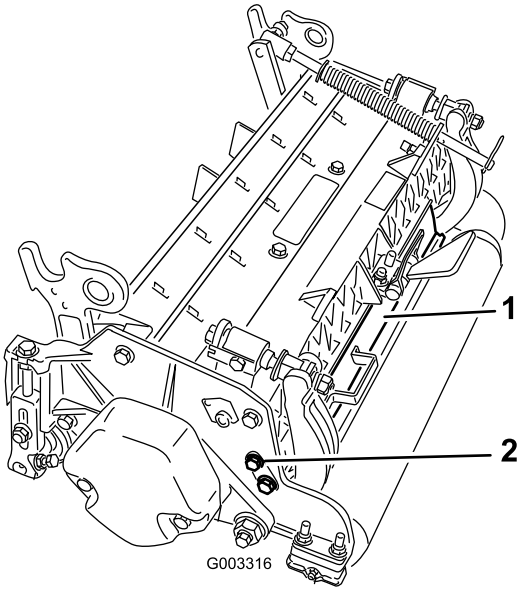
Whenever you must tip the cutting unit to expose the bedknife/reel, prop up the rear of the cutting unit with the kickstand (supplied with the traction unit) to ensure that the nuts on the back end of the bedbar adjusting screws are not resting on the work surface (Figure 3).



g003318

Figure 3

1. Cutting unit kickstand



g003316

Figure 4

1. Rear shield
2. Cap screw

3

Adjusting the Rear Shield

No Parts Required

Procedure

Under most conditions, the cutting unit produces best dispersion when you close the rear shield (front discharge). When conditions are heavy or wet, you may open the rear shield.

To open the rear shield (Figure 4), loosen the cap screw securing the shield to the left side plate, rotate the shield to the open position and tighten the cap screw.

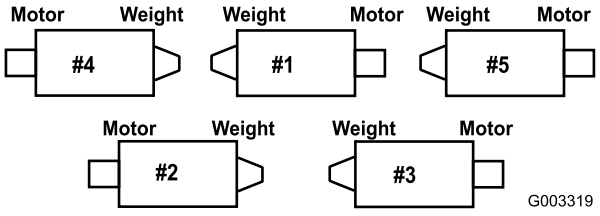
4

Mounting the Counter Weights

No Parts Required

Procedure

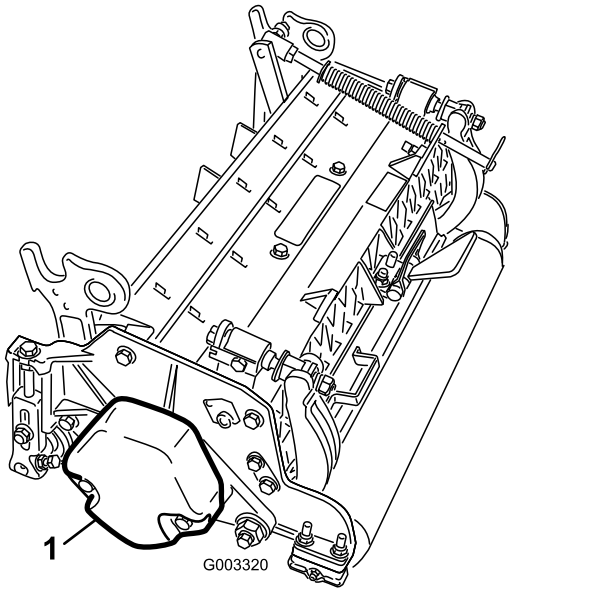
All cutting units are shipped with the counter weight mounted to the left end of the cutting unit. Use the following diagram to determine the position of the counter weights and reel motors.



g003319

Figure 5

1. On the #2 and #4 cutting units, remove the 2 cap screws securing the counter weight to the left end of the cutting unit.
2. Remove the counter weight (Figure 6).

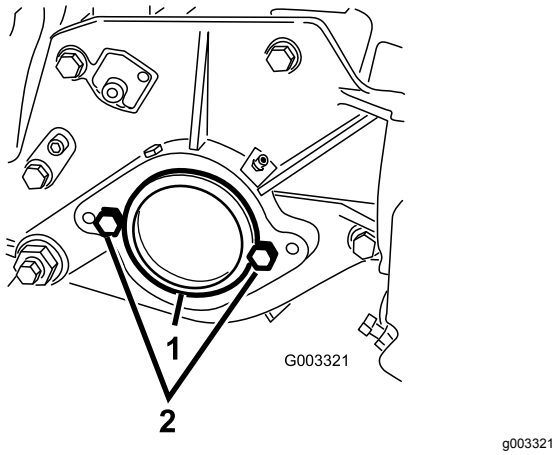


g003320

Figure 6

1. Counter weight

3. On right end of cutting unit, remove the plastic plug from the bearing housing (Figure 7).
4. Remove the 2 cap screws from the right side plate (Figure 7).



g003321

Figure 7

1. Plastic plug
2. Cap screw (2)

5. Install the counter weight to the right end of the cutting unit with the 2 screws previously removed.
6. Loosely install the 2 reel motor mounting cap screws to the left side plate of the cutting unit (Figure 7).

Product Overview

Specifications

Cutting Unit	Weight
8 Blade	67 kg (147 lb)
11 Blade	69 kg (151 lb)

Cutting Unit Accessories and Kits

To ensure optimum performance and continued safety certification of the machine, use only genuine Toro replacement parts and accessories. Replacement parts and accessories made by other manufacturers could be dangerous, and such use could void the product warranty.

Note: See the *Parts Catalog* for part numbers.

Note: All accessories and kits are 1 per cutting unit unless otherwise specified.

Grass Basket Kit: A series of clipping collection baskets attached to the front of the cutting units to collect grass clippings

Rear Lift Cylinder Kit: Collars assembled on rear cutting unit lift arm cylinders limit the height of the cutting units. This increases the area for the rear grass baskets.

Rear Roller Brush Kit: A high-speed, high-contact brush keeps the rear roller free of grass and debris, which maintains a consistent height of cut and prevents clumping. This leads to a better after-cut appearance.

Groomer Kit: Rotating blades assembled behind the front roller provide the best method for reducing grain and spongy turf by standing up the grass before cutting. The groomer also knocks off dew for decreased stickiness and clumping, opens up canopy for better grass clipping integration, and lifts grass for a clean, crisp cut. The overall design improves the quality of cut for healthier turf grass while improving the after-cut appearance.

Broomer Kit: Multiple brush strips woven into the helical groomer blades improve the effectiveness of the groomer kit. Performance of the groomer is enhanced by enabling a full width "brooming" effect of the turf while opening up the canopy for better grass-clipping integration. The combination of groomer and broomer systems optimize the quality of cut and after-cut appearance for more consistent playing conditions.

Comb/Scraper Kit: A fixed comb installed behind the front roller helps reduce grain and spongy turf by standing up the grass before cutting. A scraper for the front Wiehle roller is included in the kit.

High HOC Kit: New front roller brackets and additional spacers for the rear roller allow the cutting unit to achieve heights of cut above 25 mm (1 inch). The new front roller brackets also move the front roller out farther to improve after-cut appearance.

Shoulder Roller: Helps reduce overlap marks for warm season grasses (Bermuda, zoysia, paspalum)

Collar Kit (6 per needed per roller): Helps reduce overlap marks for warm season grasses (Bermuda, zoysia, paspalum); install this kit on the existing Wiehle roller; it is not as aggressive as the shoulder roller

Short Rear Roller: Helps reduce double roller marks for cool season grasses (bent, bluegrass, rye)

Full Front Roller: Helps produce more pronounced striping (repeated cutting in the same direction/path); however, it raises the effective height of cut and reduces the quality of cut.

Scrapers (Wiehle, Shoulder, Rear roller, Full Front Roller): Fixed scrapers for all optional rollers are available for reducing grass buildup on rollers, which can affect height-of-cut settings.

Roller Rebuild Kit: Includes all the bearings, bearing nuts, inner seals and outer seals required to rebuild a roller

Roller Rebuild Tool Kit: Includes all the tools and the installation instructions required to rebuild a roller with the roller rebuild kit

Operation

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

Adjustments

Adjusting the Bedknife to the Reel

Use this procedure to set the bedknife to the reel and to check the condition of the reel and bedknife and their interaction. After completing this procedure, always test the cutting unit performance under your field conditions. You may need to make further adjustments to obtain optimal cutting performance.

Important: **Do not overtighten the bedknife to the reel or you will damage it.**

- After backlapping the cutting unit or grinding the reel, you may need to mow with the cutting unit for a few minutes and then perform this procedure to adjust the bedknife to the reel as the reel and bedknife adjust to each other.
- You may need additional adjustments if the turf is extremely dense or your cutting height is very low.

You will need the following tools to complete this procedure:

- Shim 0.05 mm (0.002 inch)—Toro Part No. 125-5611
- Cutting performance paper—Toro Part No. 125-5610

1. Position the cutting unit on a flat, level work surface. Turn the bedbar adjusting screws counterclockwise to ensure that the bedbar does not contact the reel (Figure 8).

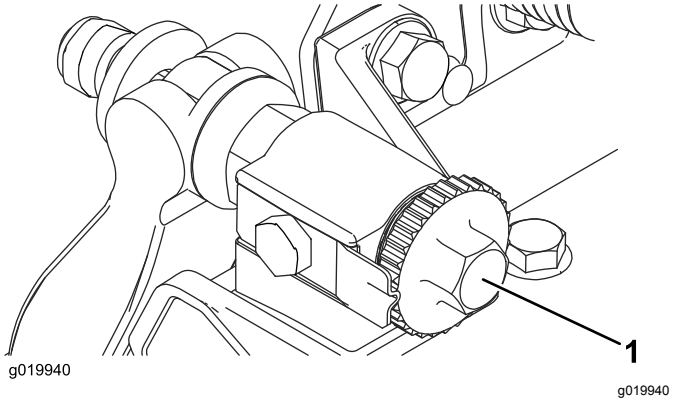


Figure 8

1. Bedbar adjusting screw

2. Tip the cutting unit to expose the bedknife and reel.

Important: **Make sure that the nuts on the back end of the bedbar adjusting screws are not resting on the work surface (Figure 9).**

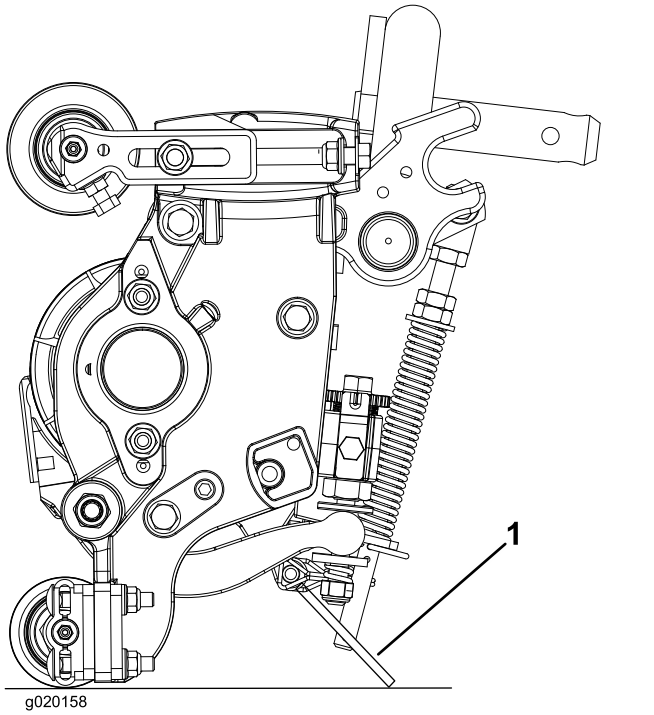


Figure 9

1. Cutting unit kickstand

3. Rotate the reel so that a blade crosses the bedknife approximately 25 mm (1 inch) in from the end of the bedknife on the right side of the cutting unit.

   Insert the 0.05 mm (0.002 inch) shim between the marked reel blade and the bedknife at the point where the blade crosses the bedknife.

   Note: Putting an identifying mark on this blade makes subsequent adjustments easier.

4. Turn the right bedbar adjuster clockwise until you feel **light** pressure (i.e., drag) on the shim, then back off the bedbar adjuster 2 clicks and remove the shim.

   Note: Since adjusting 1 side of the cutting unit affects the other side, the backing off the adjuster 2 clicks provides clearance when you adjust the other side.

   Note: If starting with a large gap, both sides should initially be drawn closer by alternately tightening the right and left sides.

5. **Slowly** rotate the reel so that the same blade that you checked on the right side is crossing the bedknife approximately 25 mm (1 inch) in from the end of the bedknife on the left side of the cutting unit.

6. Turn the left bedbar adjuster clockwise until you can slide the shim can through the reel to bedknife gap with light drag.

7. Return to the right side and adjust as necessary to get light drag on the shim between the same blade and bedknife.

8. Repeat steps 6 and 7 until you can slide the shim through both gaps with slight drag, but 1 click in on both sides prevents the shim from passing through on both sides. The bedknife is now parallel to the reel.

   Note: This procedure should not be needed on daily adjustments, but should be done after grinding or disassembly.

9. From this position (i.e., 1 click in and shim not passing through) turn the bedbar adjusters clockwise 1 click each.

   Note: Each click turned moves the bedknife 0.022 mm (0.0009 inch). **Do not overtighten the adjusting screws.**

10. Test the cutting performance by inserting a long strip of cutting performance paper (Toro Part No. 125-5610) between reel and bedknife, perpendicular to the bedknife (Figure 10).

    Note: **Slowly** rotate the reel forward; it should cut the paper.

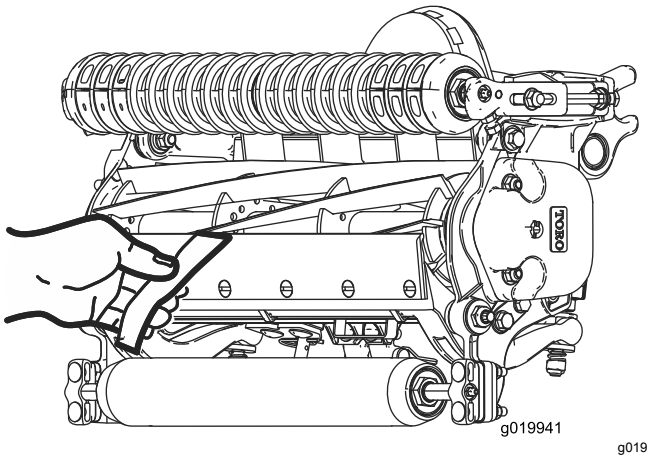
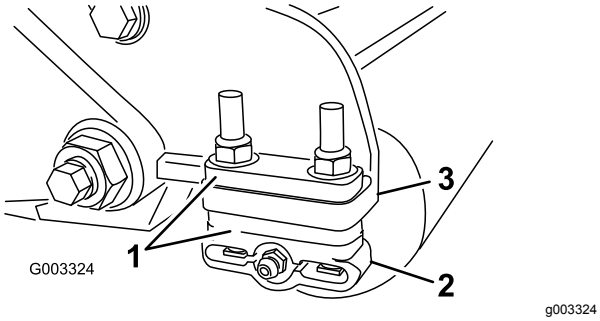


Figure 10

Note: Should excessive reel drag be evident, backlap or grind the cutting unit to achieve the sharp edges needed for precision cutting.

Adjusting the Rear Roller

1. Adjust the rear roller brackets (Figure 11) to the desired height-of-cut range by positioning the required amount of spacers below the side plate mounting flange (Figure 11) per the height-of-cut chart; refer to Height-of-Cut Chart (page 12).



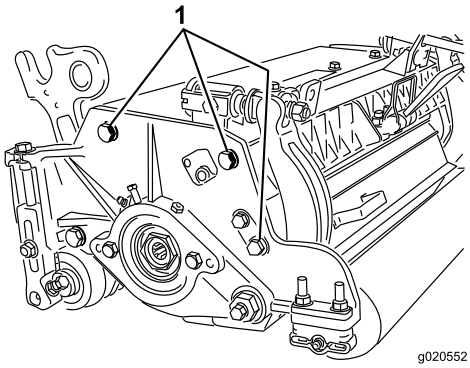
g003324

Figure 11

1. Spacer
2. Roller bracket
3. Side plate mounting flange

2. Raise the rear of cutting unit and place a block under the bedknife.
3. Remove the 2 nuts securing each roller bracket and the spacer to each side plate mounting flange.
4. Lower the roller and the screws from the side plate mounting flanges and spacers.
5. Place the spacers onto the screws on the roller brackets.
6. Secure the roller bracket and the spacers to underside of the side plate mounting flanges with the nuts previously removed.
7. Verify that the bedknife to reel contact is correct. Tip the cutting unit to expose front and rear rollers and the bedknife.

   Note: The position of the rear roller to the reel is controlled by the machining tolerances of the assembled components, and so paralleling is not required. A limited amount of adjustment is possible by setting the cutting unit on a surface plate and loosening the side plate mounting cap screws (Figure 12). Adjust and tighten the cap screws. Torque the cap screws to 27 to 36 N·m (240 to 320 ft-lb).



g020552

Figure 12

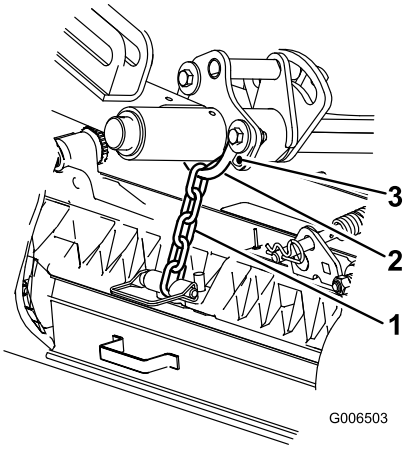
1. Side plate mounting cap screws

Adjusting the Rear Spacers

The number of rear spacers determines the aggressiveness of cut for the cutting unit. For a given height of cut, adding spacers, below the side plate mounting flange, increases the aggressiveness of the cutting unit. All cutting units on a given machine must be set to the same aggressiveness of cut (Number of rear spacers, Part No. 106-3925); otherwise, the after-cut appearance could be negatively affected (Figure 17).

Positioning the Chain Links

The location at which the lift arm chain is attached determines the rear roller pitch angle (Figure 13).



g006503

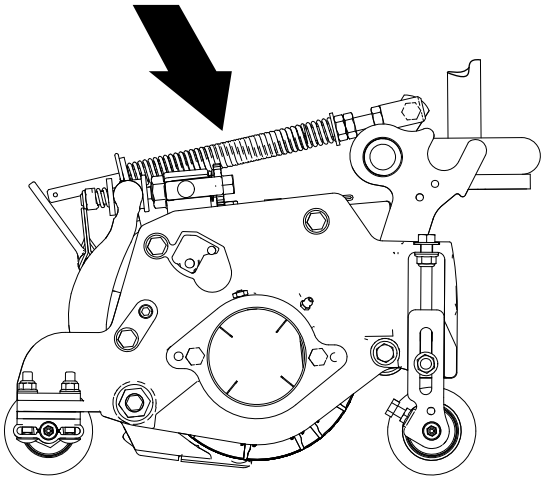
Figure 13

1. Lift chain
2. U-backet
3. Bottom hole

Turf Compensation Settings

The turf compensation spring transfers the weight from the front to the rear roller. (This helps to reduce a wave pattern in the turf, also known as marcelling or bobbing.)

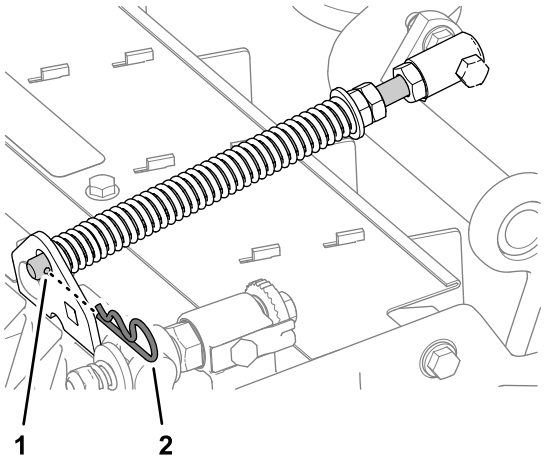
Important: **Make spring adjustments with the cutting unit mounted to the traction unit, pointing straight ahead and lowered to the shop floor.**



g220344

Figure 14

1. Lower the cutting units to the ground.
2. Ensure that the hairpin is installed in the rear hole in the spring rod (Figure 15).



g220201

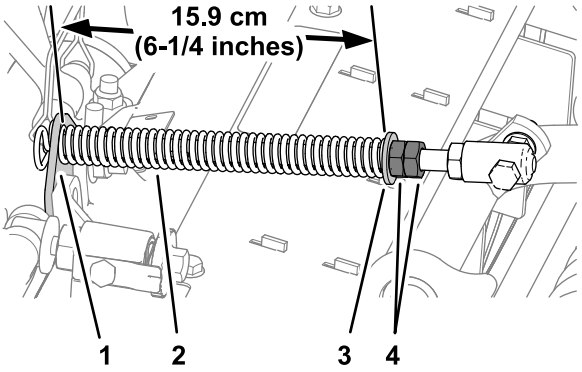
Figure 15

1. Rear hole (spring rod)
2. Hairpin

3. Tighten the hex nuts on the front end of the spring rod until the compressed length of the spring is 15.9 cm (6-1/4 inches) as shown in Figure 16.

Note: When operating the machine on rough terrain, decrease the spring length by 12.7 mm (1/2 inch).

Note: Adjust the turf compensation setting if the HOC setting or the aggressiveness of cut setting is changed.



g220200

Figure 16

1. Bracket
2. Turf compensation spring
3. Washer
4. Hex nuts

Height-of-Cut

Height-of-Cut Setting (HOC)

The desired height of cut.

Bench Set Height of Cut

The bench set height of cut is the height at which the top edge of the bedknife is set above a flat level surface that contacts the bottom of both the front and rear roller.

Effective Height of Cut

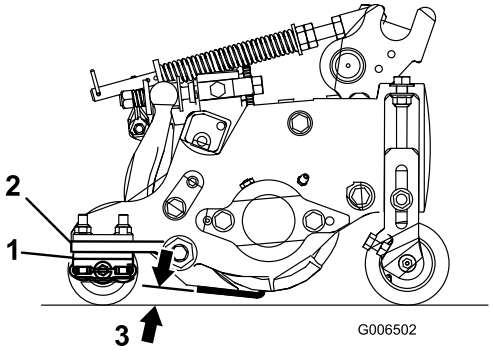
This is the actual height that the grass has been cut. For a given bench set height of cut, the actual height of cut varies depending on the type of grass, time of year, turf, and soil conditions. The cutting unit setup (aggressiveness of cut, rollers, bedknives, attachments installed, turf compensation settings, etc.) also affects the effective height of cut. Check the effective height of cut using the Turf Evaluator, Model 04399, regularly to determine the desired bench set height of cut.

Aggressiveness of Cut

Cutting unit aggressiveness of cut has a significant impact on the performance of the cutting unit. Aggressiveness of Cut refers to the angle of the bedknife relative to the ground (Figure 17).

The best cutting unit setup depends on your turf conditions and desired results. Experience with the cutting unit on your turf determines the best setting to use. You can adjust the aggressiveness of cut throughout the cutting season to allow for various turf conditions.

In general, less-to-normal aggressive settings are more appropriate for warm season grasses (Bermuda, paspalum, zoysia) while cool season grasses (bent, bluegrass, rye) may require normal to more aggressive setups. More aggressive setups cut more grass off by allowing the spinning reel to pull more grass up into the bedknife.



g006502

Figure 17

1. Rear spacers
2. Side plate mounting flange
3. Aggressiveness of cut

Height-of-Cut Chart

These are the recommended height-of-cut settings when a groomer kit is installed on the cutting unit.

Height-of-Cut Adjustment Chart

HOC Setting	Aggressiveness of Cut	No. of Rear Spacers	No. of Chain Links	With Groomer kits installed
0.64 cm (1/4 inch)	Less	0	5	Y
	Normal	0	5	Y
	More	1	5	-
0.95 cm (3/8 inch)	Less	0	5	Y
	Normal	1	5	Y
	More	2	5	-
1.27 cm (1/2 inch)	Less	0	5	Y
	Normal	1	5	Y
	More	2	5	Y
1.56 cm (5/8 inch)	Less	1	5	Y
	Normal	2	5	Y
	More	3	5	-
1.91 cm (3/4 inch)	Less	2	5	Y
	Normal	3	5	Y
	More	4	5	-
2.22 cm (7/8 inch)	Less	2	5	Y
	Normal	3	5	y
	More	4	5	-
2.54 cm (1 inch)	Less	3	5	Y
	Normal	4	5	Y
	More	5	4+	-

Height-of-Cut Adjustment Chart (cont'd.)

HOC Setting	Aggressiveness of Cut	No. of Rear Spacers	No. of Chain Links	With Groomer kits installed
2.86 cm (1-1/4 inches)	Less	4	5	-
	Normal	5	5	-
	More	6	5	-
3.18 cm (1-1/4 inches)* +	Less	4	5	-
	Normal	5	5	-
	More	6	5	-
3.49 cm (1-3/8 inches)*+	Less	4	5	-
	Normal	5	5	-
	More	6	5	-
3.81 cm (1-1/2 inches)*+	Less	5	5	-
	Normal	6	5	-
	More	7	5	-
4.13 cm (1-5/8 inches)*+	Less	6	4	-
	Normal	7	4	-
	More	8	4	-
4.44 cm (1-3/4 inches)*+	Less	6	4	-
	Normal	7	4	-
	More	8	5	-
4.76 cm (1-7/8 inches)*+	Less	7	4	-
	Normal	8	5	-
	More	9	5	-
5.08 cm (2 inches)*+	Less	7	5	-
	Normal	8	5	-
	More	0	5	-

+ Indicates that the U bracket, on lift arm, is positioned in the bottom hole (Figure 13).* You must install the High HOC Kit (Part No. 110-9600). Position the HOC bracket in the top side plate hole.

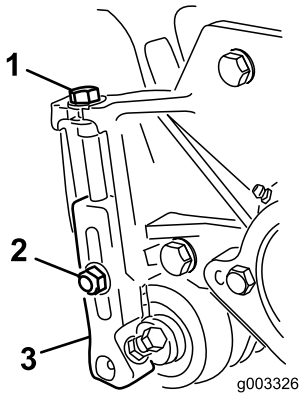
Note: Changing 1 chain link changes the rear roller pitch angle movement by 4.5°.

Note: Changing the U-bracket, on the lift arm, to the bottom hole adds 2.3° to the rear roller pitch angle.

Adjusting the Height of Cut

Note: For heights of cut greater than 2.54 cm (1 inch), install the High Height-of-Cut Kit.

1. Loosen the locknuts securing the height-of-cut arms to the cutting unit side plates (Figure 18).



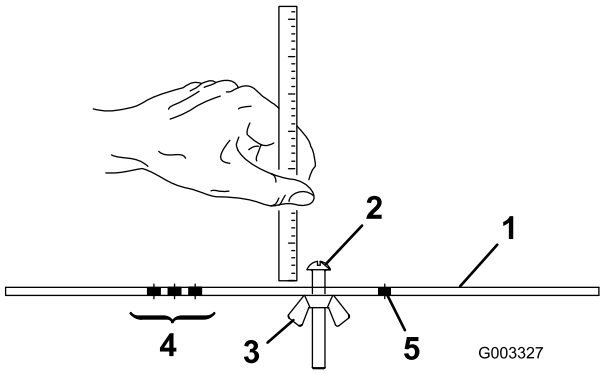
g003326

Figure 18

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

2. Loosen the nut on the gauge bar (Figure 19) and set the adjusting screw to the desired height of cut.

   Note: The distance between the bottom of the screw head and the face of the gauge bar is the height of cut.



g003327

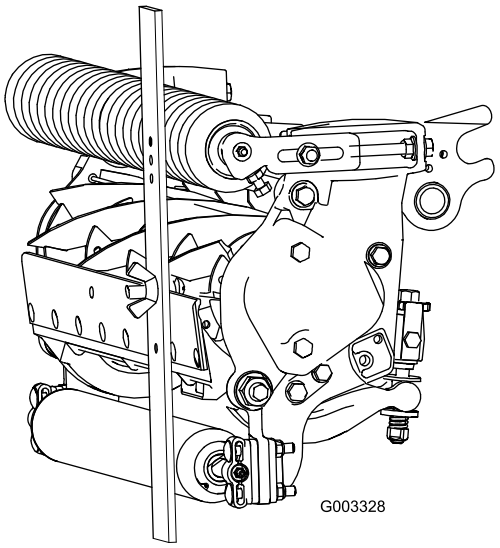
Figure 19

1. Gauge bar
2. Height adjusting screw
3. Nut
4. Holes used for setting Groomer HOC
5. Hole not used

3. Hook the screw head on the cutting edge of the bedknife and rest the rear end of the bar on the rear roller (Figure 20).

4. Rotate the adjusting screw until the front roller contacts the gauge bar (Figure 20). Adjust both ends of the roller until the entire roller is parallel to the bedknife.

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



g003328

Figure 20

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

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

Bedknife/Height-of-Cut Chart

Bedknife	Part No.	Bedknife Lip Height*	Height of Cut
Low HOC (Optional)	110-4084	5.6 mm (0.220 inch)	6.4–12.7 mm (0.250 to 0.500 inch)
Extended Low HOC (Optional)	120-1640	5.6 mm (0.220 inch)	6.4–12.7 mm (0.250 to 0.500 inch)

Bedknife/Height-of-Cut Chart (cont'd.)

Bedknife	Part No.	Bedknife Lip Height*	Height of Cut
EdgeMax® Low HOC (Production for Model 03693)	127-7132	5.6 mm (0.220 inch)	6.4–12.7 mm (0.250 to 0.500 inch)
Extended Low HOC EdgeMax® (Optional)	119-4280	5.6 mm(0.220 inch) (0.270 inch)	6.4–12.7 mm (0.250 to 0.500 inch)
EdgeMax® (Production for Models 03696 and 03697)	108-9095	6.9 mm (0.270 inch)	9.5–38.1 mm (0.375 to 1.50 inches)
Standard (Optional)	108-9096	6.9 mm (0.270 inch)	9.5–50.8 mm (0.375 to 2.0 inches)
Heavy Duty (Optional)	110-4074	9.3 mm (0.370 inch)	6.4–50.8 mm (0.500 to 2.0 inches)

*Warm season grasses may require the low HOC bedknife for 12.7 mm (0.500 inches) and below.

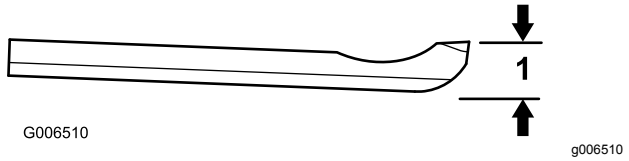


Figure 21

1. Bedknife lip height*

Checking and Adjusting the Cutting Unit

The dual knob bedknife-to-reel adjustment system in this cutting unit simplifies the adjustment procedure. 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 back lapping.

Prior to mowing each day, or as required, check each cutting unit to verify proper bedknife-to-reel contact. **Perform this procedure even though the 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, 1 click at a time, until light contact is felt and heard.

   Note: The reel must cut 1 sheet of paper, when inserted at a right angle to the bedknife, at both ends and the center of the reel.

   Note: The adjustment knobs have detentes corresponding to 0.022 mm (0.0009 inch) bedknife movement for each indexed position.
3. If excessive contact/reel drag is evident backlap, reface the front of the bedknife, or grind the cutting unit to achieve the sharp edges needed for precision cutting (Refer to the Toro Manual for Sharpening Reel and Rotary Mowers, Form No. 09168SL).

   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 appears on the front cutting edge surface along the full length of the bedknife. You can remove burrs and improve cutting by occasionally running a file across the front edge.

   After extended running, a ridge eventually develops at both ends of the bedknife. Round off these notches or file them flush with the cutting edge of the bedknife to ensure smooth operation.

   Note: Over time, the chamfer (Figure 22) requires grinding, as it is designed to last only 40% of the bedknife life.

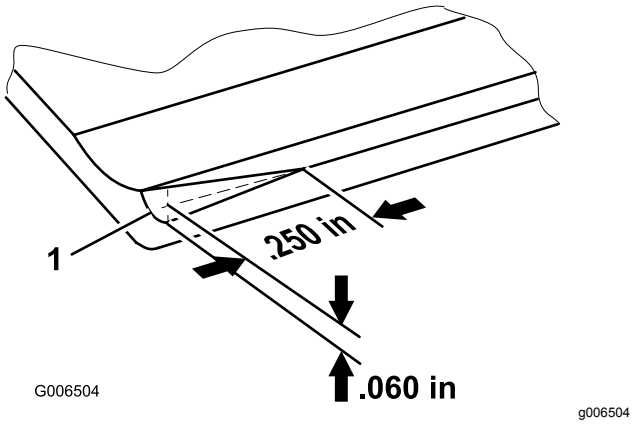


Figure 22

1. Lead-in chamfer on right end of bedknife

Note: Do not make the lead-in chamfer too large as it may cause turf tufting.

Servicing the Bedknife

Bedknife Chart

The bedknife service limits and grind angles are listed in the following chart.

Important: **Operating the cutting unit with the bedknife below the service limit may result in poor after-cut appearance and reduce the structural integrity of the bedknife for impacts.**

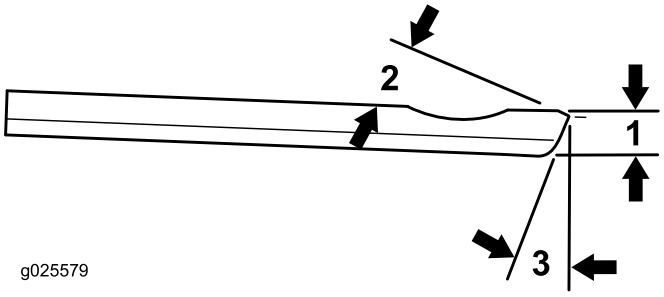
Bedknife Dimension and Grind Angle Chart

Bedknife	Part No.	Bedknife Lip Height *	Service Limit*	Grind Angles
				Top/Front Angles
Low HOC (Optional)	110-4084	5.6 mm (0.220 inch)	4.8 mm (0.190 inch)	5°/5°
Extended Low HOC (Optional)	120-1640	5.6 mm (0.220 inch)	4.8 mm (0.190 inch)	7°/10°
Extended Low HOC EdgeMax® (Optional)	119-4280	5.6 mm (0.220 inch)	4.8 mm (0.190 inch)	7°/10°
EdgeMax® Low HOC (Production for Model 03693)	127-7132	5.6 mm (0.220 inch)	4.8 mm (0.190 inch)	10°/5°
EdgeMax® (Production for Models 03696 and 03697)	108-9095	6.9 mm (0.270 inch)	4.8 mm (0.190 inch)	5°/5°
Standard (Optional)	108-9096	6.9 mm (0.270 inch)	4.8 mm (0.190 inch)	5°/5°
Heavy Duty (Optional)	110-4074	9.3 mm (0.370 inch)	4.8 mm (0.190 inch)	5°/5°

*Warm season grasses may require the low HOC bedknife for 12.7 mm (0.500 inches) and below.

Recommended Top and Front Bedknife Grind Angles

Refer to Figure 23 and the dimensions and angles listed in the Bedknife Chart (page 16).



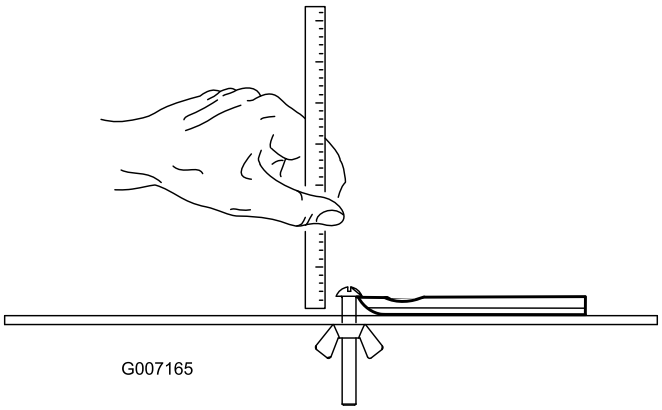
g025579

Figure 23

1. Bedknife Service Limit*
2. Top grind angle
3. Front grind angle

Measuring the Bedknife Service Limit

Note: All bedknife service limit measurements reference the bottom of the bedknife, refer to the Figure 24 and dimensions listed in the Bedknife Chart (page 16).



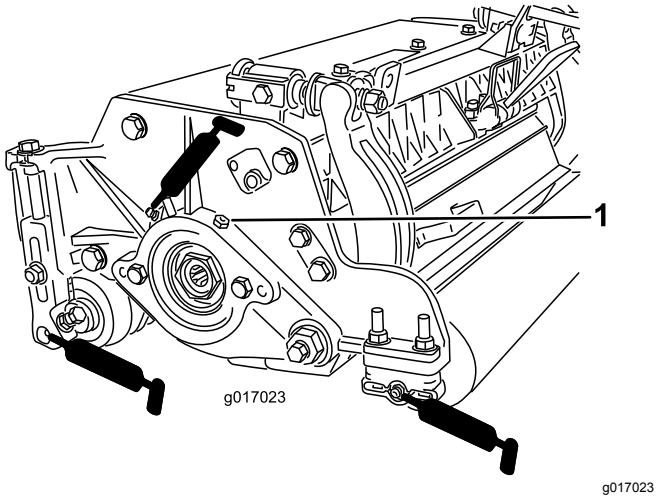
g007165

Figure 24

Maintenance

Lubricating the Cutting Unit

Each cutting unit has 6 grease fittings (Figure 25) that must be lubricated regularly with No. 2 lithium grease.



g017023

Figure 25

1. Relief valve

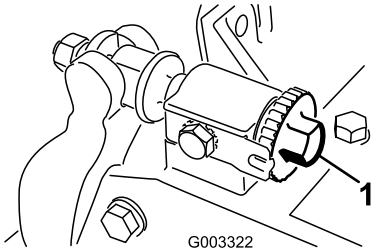
Note: Lubricating cutting units immediately after washing helps purge water out of bearings and increases bearing life.

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.

Adjusting the Reel Bearings

To ensure long life of the reel bearings, periodically check if reel end play exists.

1. Loosen reel to bedknife contact by turning the bedknife adjusting knobs (Figure 26) counterclockwise until no contact exists.

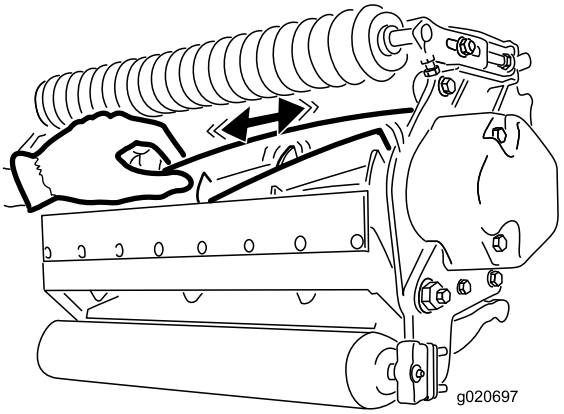


g003322

Figure 26

1. Bedknife adjusting knob

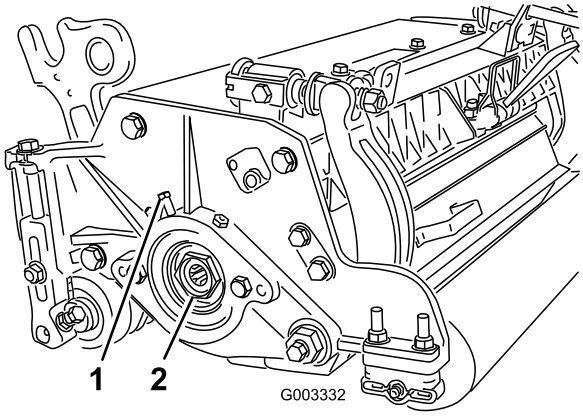
2. Using a rag or thickly padded glove, hold on to the reel blade and try to move the reel assembly side to side (Figure 27).



g020697

Figure 27

3. If end play exists, proceeded as follows:
   A. Loosen external set screw securing bearing adjusting nut to bearing housing located on the left side of the cutting unit (Figure 28).



g003332

Figure 28

1. Set screw
2. Nut

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

   Note: Reel bearings do not require preload. Overtightening the reel bearing adjuster nut will damage reel bearings.

4. Tighten the set screw securing bearing adjusting nut to the bearing housing. Torque the set screw to 1.4 to 1.7 N·m (12 to 15 in-lb).

Servicing the Bedbar

Removing the Bedbar

1. Turn bedbar adjuster screws counterclockwise to back the bedknife away from the reel (Figure 29).

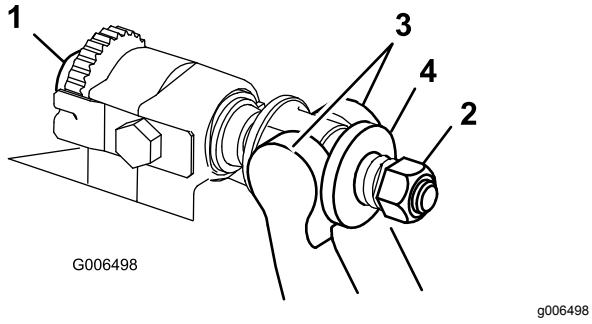


Figure 29

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

2. Back out the spring tension nut, until the washer is no longer tensioned against the bedbar (Figure 29).
3. On each side of the machine, loosen the locknut securing the bedbar bolt (Figure 30).

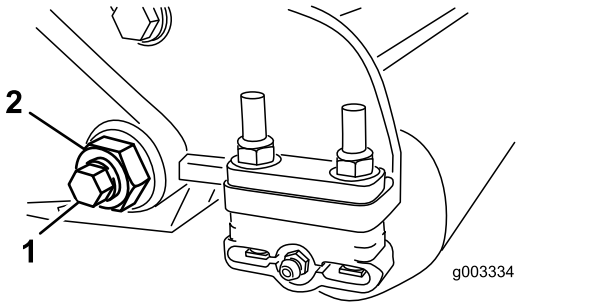


Figure 30

1. Bedbar bolt
2. Lock nut

4. Remove each bedbar bolt allowing bedbar to be pulled downward and removed from machine bolt (Figure 30).

   Note: Account for 2 nylon and 1 stamped steel washers on each end of bedbar (Figure 31).

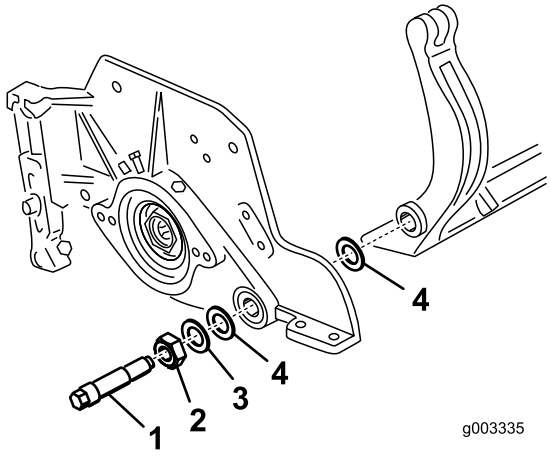


Figure 31

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

Assembling the Bedbar

1. Install the bedbar, positioning the mounting ears between the washer and bedbar adjuster.
2. Secure the bedbar to each side plate with the bedbar bolts (nuts on bolts) and the 6 washers.

   Note: Position a nylon washer on each side of the side plate boss. Place a steel washer outside each of the nylon washers (Figure 31).
3. Torque bedbar bolts to 27 to 36 N·m (240 to 320 in-lb).

   Note: Tighten the locknuts until the outside steel washer stops rotating and the end play is removed but, do not overtighten or deflect the side plates. Washers on the inside may have a gap.
4. Tighten the spring tension nut until the spring is collapsed, then back off 1/2 turn (Figure 32).

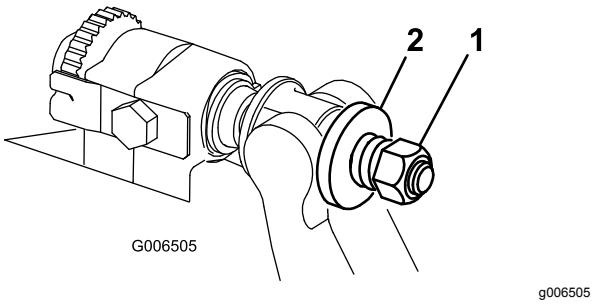


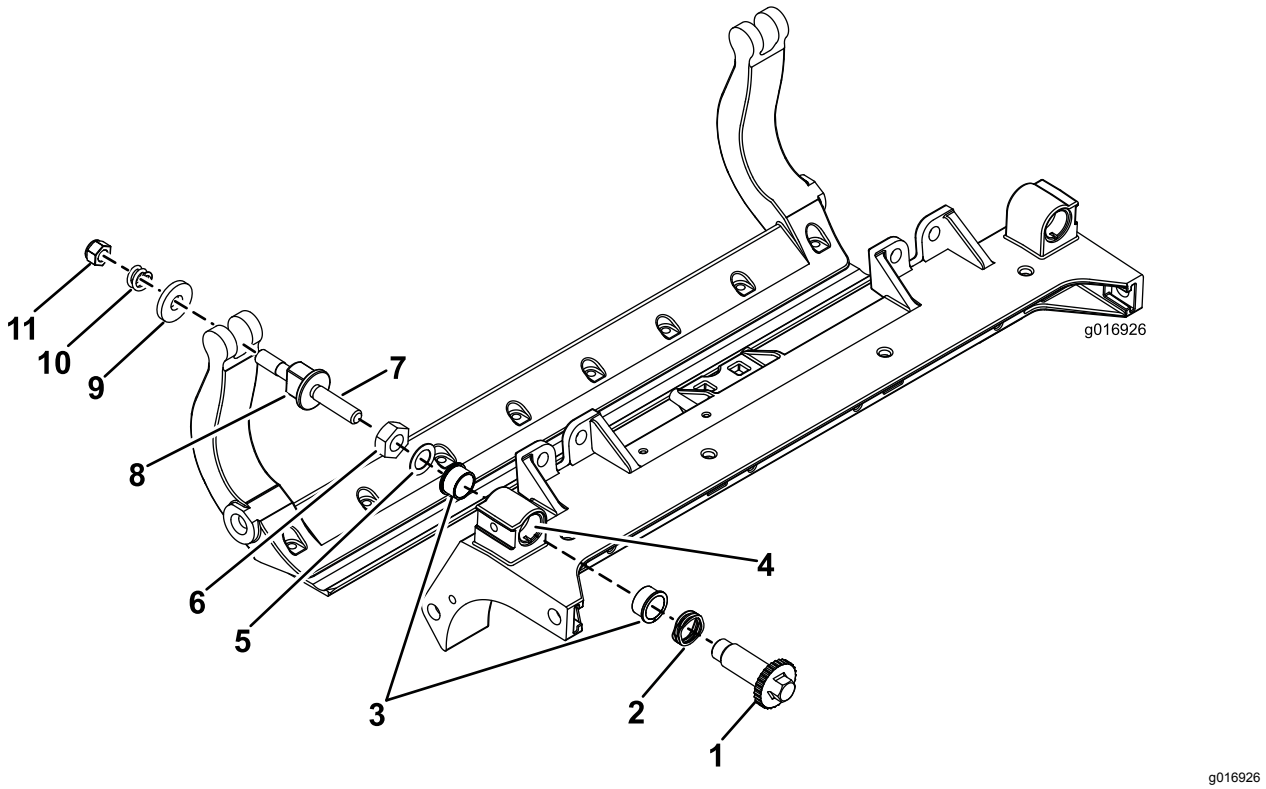
Figure 32

1. Spring tension nut
2. Spring

Servicing the HD Dual Point Adjusters (DPA)

1. Remove all parts (refer to *Installation Instructions* for HD DPA Kit Model 120-7230 and to Figure 33).
2. Apply anti-sieze compound to the inside of the bushing area on cutting unit center frame (Figure 33).
3. Align the keys on flange bushings to the slots in the frame and install the bushings (Figure 33).
4. Install a wave washer onto the adjuster shaft and slide the adjuster shaft into the flange bushings in the cutting unit frame (Figure 33).
5. Secure the adjuster shaft with a flat washer and locknut (Figure 33). Torque the lock nut to 20 to 27 N·m (15 to 20 ft-lb).

   Note: The bedbar adjuster shaft has left-hand threads.



g016926

Figure 33

1.	Shaft adjuster	4.	Apply anti-seize compound here.	7.	Apply anti-seize compound here.	10.	Compression spring
2.	Wave washer	5.	Flat washer	8.	Bedbar adjuster screw	11.	Spring tension nut
3.	Flange bushing	6.	Locknut	9.	Hardened washer		

6. Apply anti-seize compound to the threads of the bedbar adjuster screw that fit into the adjuster shaft.
7. Thread bedbar adjuster screw into the adjuster shaft.
8. Loosely install the hardened washer, spring and spring tension nut onto adjuster screw.
9. Install the bedbar, positioning the mounting ears between washer and bedbar adjuster.
10. Secure the bedbar to each side plate with the bedbar bolts (nuts on bolts) and 6 washers.

    Note: A nylon washer is to be positioned on each side of the side plate boss.
11. Place a steel washer outside each of the nylon washers (Figure 33).

    Note: Torque bedbar bolts to 27 to 36 N·m (240 to 320 ft-lb).
12. Tighten the locknuts until the outside steel washer stops rotating and end play is removed but do not overtighten or deflect the side plates.

    Note: Washers on inside may have a gap (Figure 33).
13. Tighten the nut on each bedbar adjuster assembly until the compression spring is fully compressed, then loosen the nut 1/2 turn (Figure 33).

14. Repeat this procedure on the other end of the cutting unit.
15. Adjust the bedknife to the reel.

Servicing the Roller

The roller Rebuild Kit, Part No. 114-5430 and the Roller Rebuild Tool Kit, Part No. 115-0803 (Figure 34) are available for servicing the roller. The Roller Rebuild Kit includes all the bearings, bearing nuts, inner seals and outer seals to rebuild a roller. The Roller Rebuild Tool Kit includes all the tools and the installation instructions required to rebuild a roller with the roller rebuild kit. Refer to your *Parts Catalog* or contact your Authorized Toro Distributor for assistance.

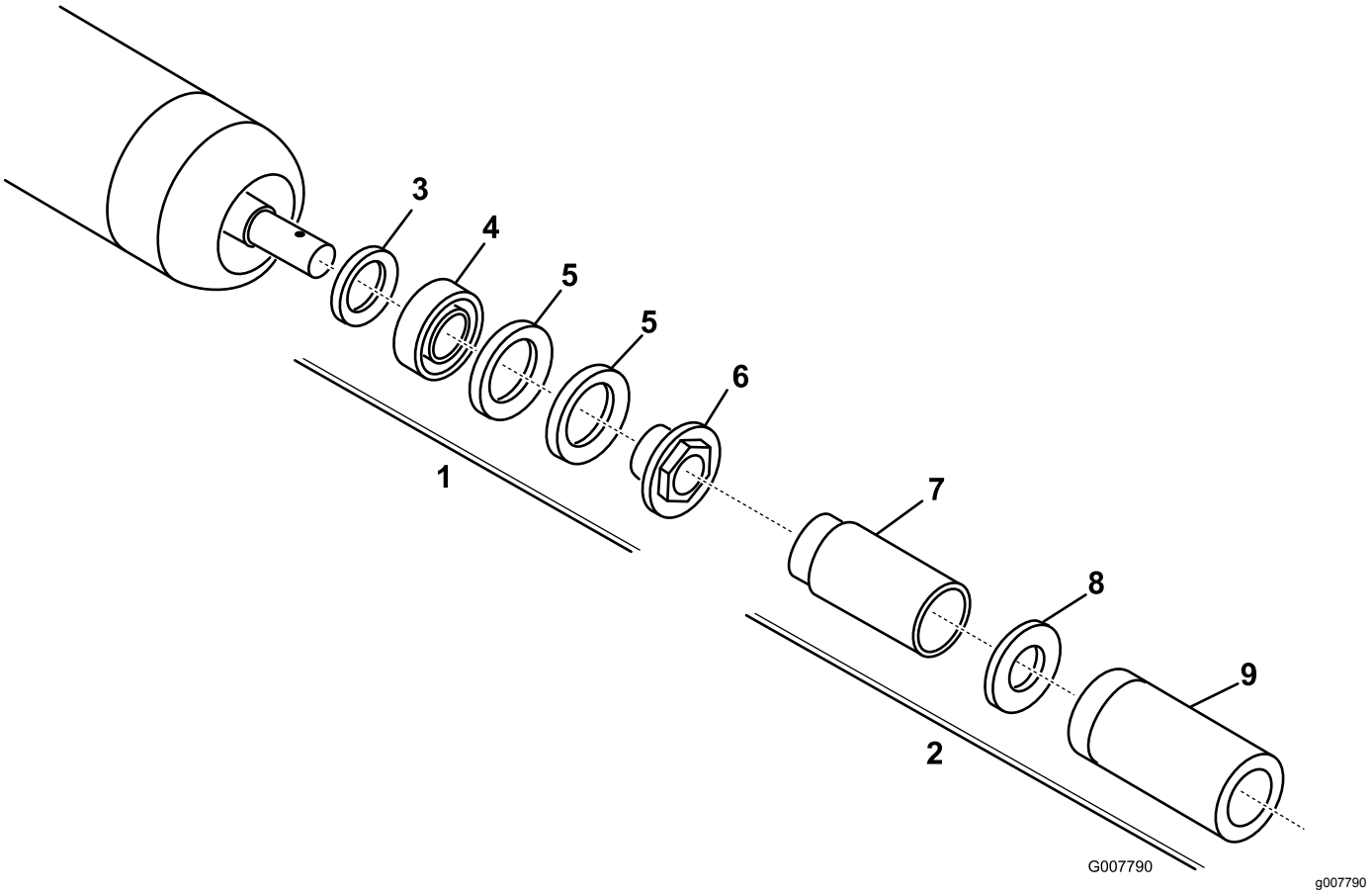


Figure 34

1. Roller Rebuild Kit (Part No. 114-5430)
2. Roller Rebuild Tool Kit (Part No. 115-0803)
3. Inner seal
4. Bearing
5. Outer seal
6. Bearing nut
7. Inner seal tool
8. Washer
9. Bearing/outer seal tool

Declaration of Incorporation

The Toro Company, 8111 Lyndale Ave. South, Bloomington, MN, USA declares that the following unit(s) conform(s) to the directives listed, when installed in accordance with the accompanying instructions onto certain Toro models as indicated on the relevant Declarations of Conformity.

Model No.	Serial No.	Product Description	Invoice Description	General Description	Directive
03693	315000001 and Up	11-Blade DPA Cutting Unit with 7in Premium Reel	7IN 11–BLADE DPA CU	11-Blade DPA Cutting Unit (R)	2006/42/EC, 2000/14/EC
03696	315000001 and Up	8-Blade DPA Cutting Unit with 7in Reel	7IN 8–BLADE DPA (RADIAL) CU	8-Blade DPA Cutting Unit (R)	2006/42/EC, 2000/14/EC
03697	315000001 and Up	11-Blade DPA Cutting Unit with 7in Reel	7IN 11–BLADE DPA (RADIAL) CU	11-Blade DPA Cutting Unit (R)	2006/42/EC, 2000/14/EC

Relevant technical documentation has been compiled as required per Part B of Annex VII of 2006/42/EC.

We will undertake to transmit, in response to requests by national authorities, relevant information on this partly completed machinery. The method of transmission shall be electronic transmittal.

This machinery shall not be put into service until incorporated into approved Toro models as indicated on the associated Declaration of Conformity and in accordance with all instructions, whereby it can be declared in conformity with all relevant Directives.

Certified:



John Heckel
Sr. Engineering Manager
8111 Lyndale Ave. South
Bloomington, MN 55420, USA
June 21, 2017

Authorized Representative:

Marcel Dutrieux
Manager European Product Integrity
Toro Europe NV
Nijverheidsstraat 5
2260 Oevel
Belgium

Tel. +32 16 386 659

European Privacy Notice

The Information Toro Collects
Toro Warranty Company (Toro) respects your privacy. In order to process your warranty claim and contact you in the event of a product recall, we ask you to share certain personal information with us, either directly or through your local Toro company or dealer.

The Toro warranty system is hosted on servers located within the United States where privacy law may not provide the same protection as applies in your country.

BY SHARING YOUR PERSONAL INFORMATION WITH US, YOU ARE CONSENTING TO THE PROCESSING OF YOUR PERSONAL INFORMATION AS DESCRIBED IN THIS PRIVACY NOTICE.

The Way Toro Uses Information
Toro may use your personal information to process warranty claims, to contact you in the event of a product recall and for any other purpose which we tell you about. Toro may share your information with Toro's affiliates, dealers or other business partners in connection with any of these activities. We will not sell your personal information to any other company. We reserve the right to disclose personal information in order to comply with applicable laws and with requests by the appropriate authorities, to operate our systems properly or for our own protection or that of other users.

Retention of your Personal Information
We will keep your personal information as long as we need it for the purposes for which it was originally collected or for other legitimate purposes (such as regulatory compliance), or as required by applicable law.

Toro's Commitment to Security of Your Personal Information
We take reasonable precautions in order to protect the security of your personal information. We also take steps to maintain the accuracy and current status of personal information.

Access and Correction of your Personal Information
If you would like to review or correct your personal information, please contact us by email at legal@toro.com.

Australian Consumer Law

Australian customers will find details relating to the Australian Consumer Law either inside the box or at your local Toro Dealer.

The Toro 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. This warranty is applicable to all products with the exception of Aerators (refer to separate warranty statements for these products). Where a warrantable condition exists, we will repair the Product at no cost to you including diagnostics, labor, parts, and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.
* Product equipped with an 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 800–952–2740
E-mail: commercial.warranty@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 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, or modified non-Toro branded accessories and products. A separate warranty may be provided by the manufacturer of these items.
- Product failures which result from failure to perform recommended maintenance and/or adjustments. Failure to properly maintain your Toro product per the Recommended Maintenance listed in the *Operator's Manual* can result in claims for warranty being denied.
- 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, brake pads and linings, clutch linings, blades, reels, rollers and bearings (sealed or greasable), bed knives, spark plugs, castor wheels and bearings, tires, filters, belts, and certain sprayer components such as diaphragms, nozzles, and check valves, etc.
- Failures caused by outside influence. Conditions considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved fuels, coolants, lubricants, additives, fertilizers, water, or chemicals, etc.
- Failure or performance issues due to the use of fuels (e.g. gasoline, diesel, or biodiesel) that do not conform to their respective industry standards.
- Normal noise, vibration, wear and tear, and deterioration.
- 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 are covered for the duration of the original product warranty and 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 remanufactured parts for warranty repairs.

Deep Cycle and Lithium-Ion Battery Warranty:

Deep cycle and Lithium-Ion batteries have a specified total number of kilowatt-hours they can deliver during their lifetime. Operating, recharging, and maintenance techniques can extend or reduce total battery life. As the batteries in this product are consumed, the amount of useful work between charging intervals will slowly decrease until the battery is completely worn out. Replacement of worn out batteries, due to normal consumption, is the responsibility of the product owner. Battery replacement may be required during the normal product warranty period at owner's expense. Note: (Lithium-Ion battery only): A Lithium-Ion battery has a part only prorated warranty beginning year 3 through year 5 based on the time in service and kilowatt hours used. Refer to the *Operator's Manual* for additional information.

Maintenance is at Owner's Expense

Engine tune-up, lubrication, cleaning and polishing, replacement of filters, coolant, and completing recommended maintenance are some of the normal services Toro products require that are at the owner's expense.

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 supplied with your product 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.

374-0253 Rev D