Form No. 3397-877 Rev C

TORO®

Count on it.

Operator's Manual

18in and 21in, 11- and 14-Blade Cutting Unit

Greensmaster® Flex™/eFlex® 1820 and 2120 Traction Unit

Model No. 04289—Serial No. 316000001 and Up
Model No. 04290—Serial No. 316000001 and Up
Model No. 04291—Serial No. 316000001 and Up
Model No. 04292—Serial No. 316000001 and Up

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

CE

3397-877 C

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

⚠ WARNING

CALIFORNIA
Proposition 65 Warning

Use of this product may cause exposure to chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

Model No. _____

Serial No. _____

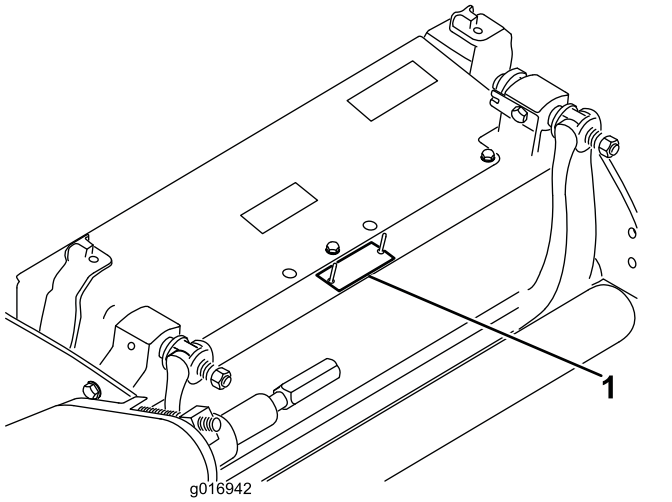
Introduction

This cutting unit is designed for cutting turf on greens and small fairways of golf courses.

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

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.

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.



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Figure 1

1. Location of the model and serial numbers

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.

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Safety

This machine has been designed in accordance with EN ISO 5395:2013 and ANSI B71.4-2017.

General Safety

This product is capable of amputating hands and feet and of throwing objects. Always follow all safety instructions to avoid serious personal injury.

Using this product for purposes other than its intended use could prove dangerous to you and bystanders.

- Read and understand the contents of this *Operator's Manual* before starting the engine.
- Do not put your hands or feet near moving components of the machine.
- Do not operate the machine without all guards and other safety protective devices in place and working on the machine.
- Keep clear of any discharge opening. Keep bystanders and pets a safe distance away from the machine.
- Keep children out of the operating area. Never allow children to operate the machine.
- Park the machine on a level surface, lower the cutting units, disengage the drives, engage the parking brake (if provided), shut off the engine, and remove the key before leaving the operator's position for any reason.

Improperly using or maintaining this machine can result in injury. To reduce the potential for injury, comply with these safety instructions and always pay attention to the safety-alert symbol (Figure 2), which means Caution, Warning, or Danger—personal safety instruction. Failure to comply with these instructions may result in personal injury or death.

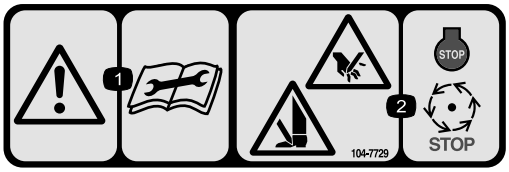
You can find additional safety information where needed throughout this *Operator's Manual*.

Safe Operating Practices

- Read the *Operator's Manual* for the traction unit and other training material carefully. Be familiar with the controls, safety signs, and the proper use of the equipment. If the operator or mechanic cannot read the language of this manual, it is the owner's responsibility to explain this material to them.
- Become familiar with the safe operation of the equipment, operator controls, and safety signs.
- The owner/operator can prevent and is responsible for accidents that may cause personal injury or property damage.
- Wear appropriate clothing, including eye protection; substantial, slip-resistant footwear; long pants, and hearing protection. Tie back long hair and do not wear loose jewelry.
- Inspect the area where the equipment is to be used and remove all objects, such as rocks, toys, and wire, that the machine can throw.
- Check that operator's presence controls, safety switches, and shields are attached and functioning properly. Do not operate the machine unless they are functioning properly.
- Stop the machine, remove the key, and wait for all moving parts to stop before inspecting the attachment after striking an object or if there is an abnormal vibration in the machine. Make all necessary repairs before resuming operation.
- Keep your hands and feet away from the cutting units.
- Keep all parts in good working condition and all hardware tightened. Replace all worn or damaged decals.
- A worn or damaged blade can break, and a piece of the blade could be thrown toward you or bystanders, resulting in serious personal injury or death.
- Inspect the blade periodically for wear or damage.
- Use care when checking the blades. Wrap the blades or wear gloves, and use caution when servicing the blades. Only replace or sharpen the blades; never straighten or weld them.
- On multi-bladed machines, take care as rotating 1 blade can cause other blades to rotate.

Safety and Instructional Decals

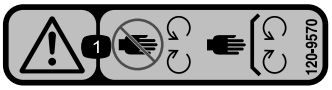
Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or missing.



decal104-7729

104–7729

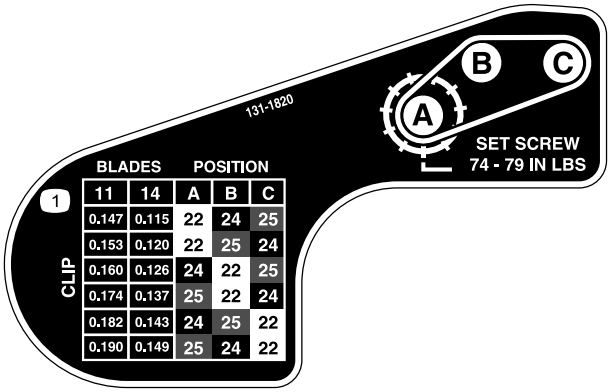
1. Warning—read the instructions before servicing or performing maintenance.
2. Cutting/dismemberment hazard; hand or foot—stop the engine and wait for moving parts to stop.



decal120-9570

120-9570

1. Warning—stay away from moving parts, keep all guards and shields in place.



decal131-1820

131-1820

1. Cutting-unit clip chart

Setup

Media and Additional Parts

Description	Qty.	Use
Operator's Manual	1	Read this before installing and operating cutting unit.
Parts catalog	1	Use this to reference part numbers.

Installing the Roller

The cutting unit is shipped without a front roller. Obtain a roller from your dealer and install it on the cutting unit, as follows:

1. Remove the plow bolt, washer, and flange nut securing one of the height-of-cut arms to the cutting unit side plate (Figure 3).

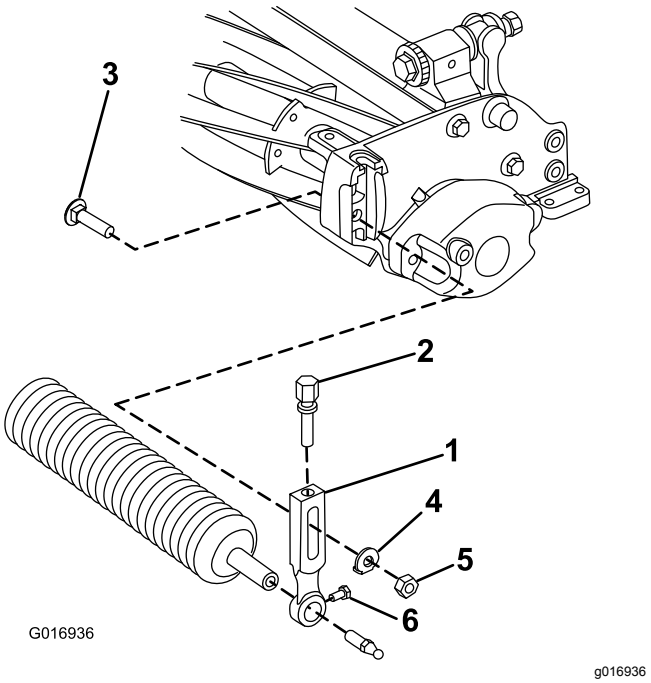


Figure 3

1. Height-of-cut arm
2. Adjusting screw
3. Plow bolt
4. Washer
5. Flange nut
6. Roller-mounting screw

2. Loosen the roller-mounting screws in the height-of-cut arms.
3. Slide the roller shaft into the height-of-cut arm on the opposite end of the cutting unit.
4. Slide the height-of-cut arm onto the roller shaft.
5. Loosely secure the roller to the cutting unit with the height-of-cut arm and fasteners previously removed.
6. Center the roller between the height-of-cut arms.
7. Tighten the roller-mounting screws.
8. Adjust to the desired height-of-cut and tighten the height-of-cut arm mounting fasteners.

Preparing the Cutting Unit for Use on an eFlex Machine

Installing the Target Plate

If you will be using the cutting unit on an eFlex traction unit, install the provided target plate, then adjust the machine sensors as described in the *eFlex Traction Unit Operator's Manual*. If you will be using the cutting unit on gasoline-powered machines, you do not need the target plate. If you will be using the cutting unit on both gasoline-powered units and the eFlex machines, you can install the target plate and leave it installed regardless of which machine you use it on.

1. Remove the center, grass-shield bolt (Figure 4).
2. Install the target plate to the top of the cutting unit using the bolt that you removed previously (Figure 4).

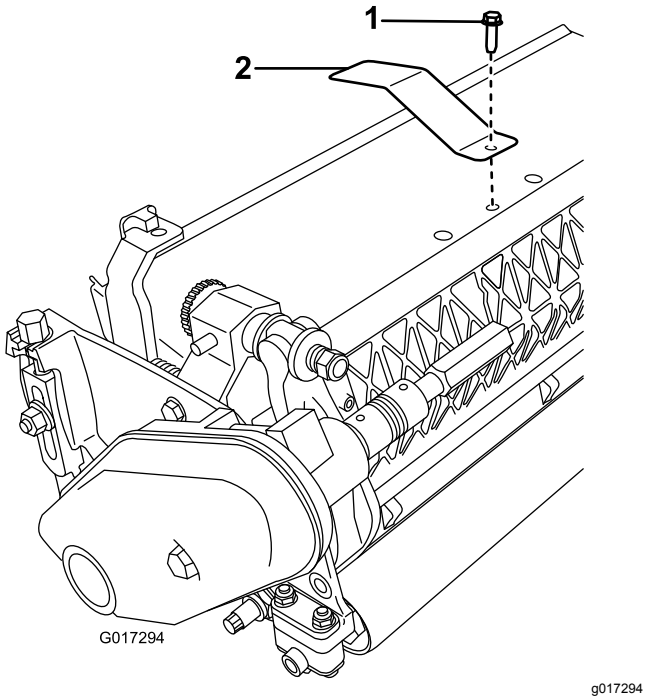


Figure 4

1. Center, grass-shield bolt
2. Target plate

Installing the Weight Rod

1. Enlarge the lower hole on the right side of the cutting unit using a 9 mm (23/64 inch) drill bit (Figure 5).

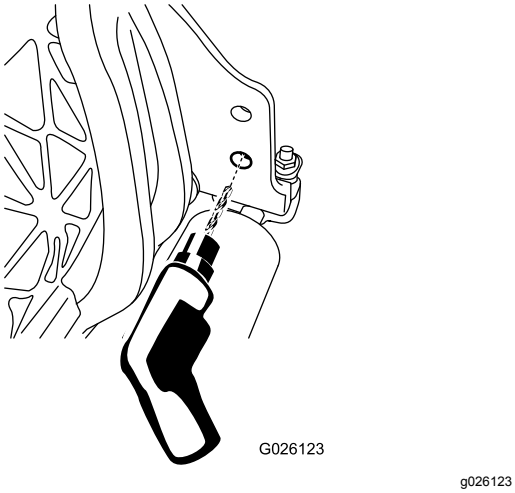


Figure 5

2. Lubricate the O-ring on the weight rod.
3. Insert the O-ring end of the weight rod into the previously drilled hole.
4. Secure the threaded end of the weight rod to the frame using a flange-head bolt (Figure 6).

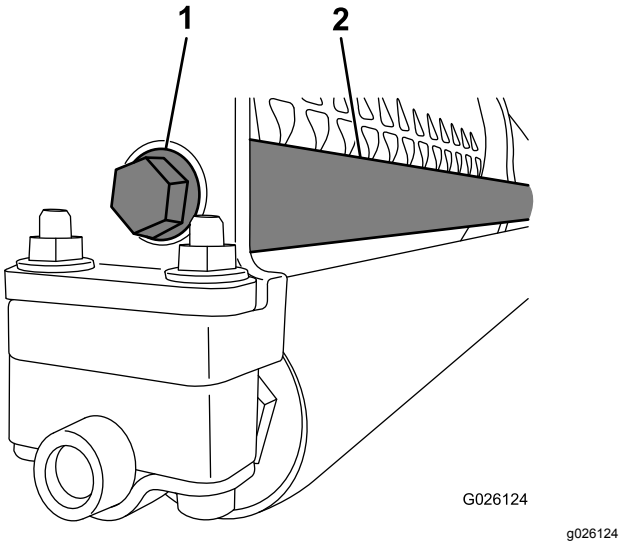


Figure 6

1. Flange-head bolt
2. Weight rod

Installing the Push Nut (CE Only)

1. Loosen the flange bolt securing the belt cover and remove the belt cover.
2. Slide the push nut onto the belt cover plug (Figure 7).

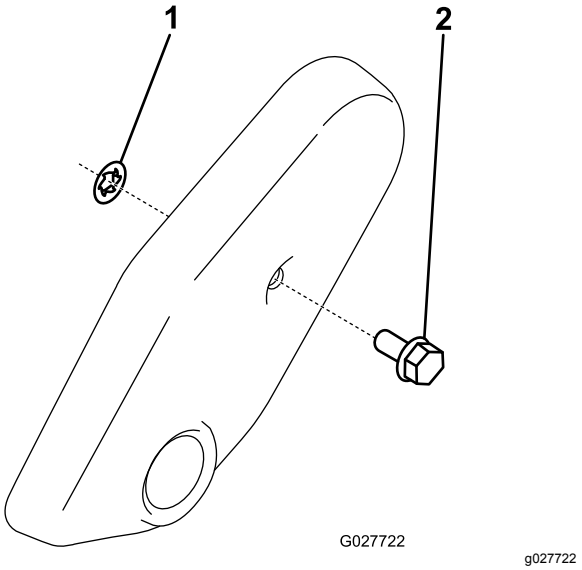


Figure 7

1. Push nut
2. Belt-cover plug

3. Install the belt cover.

Adjusting the Cutting Unit

1. Support the cutting unit; refer to Supporting the Cutting Unit (page 9).
2. Adjust the bedknife to the reel; refer to Adjusting the Bedknife to the Reel (page 10).
3. Adjust the rear roller height; refer to Adjusting the Rear-Roller Height (page 10).
4. Adjust the height of cut; refer to Adjusting the Height of Cut (page 11).
5. Adjust the cut-off bar; refer to Adjusting the Cut-Off Bar (page 13).
6. Set up and prepare the cutting unit as described in the traction unit Operator's Manual.

Product Overview

Specifications

Tractors	These cutting units mount on the appropriate size Flex and eFlex Traction Units.
Cutting width	Flex/eFlex 1820—46 cm (18 inches), Flex/eFlex 2120—53 cm (21 inches)
Height-of-cut	Adjust the front roller by 2 vertical screws and held by 2 screws and nuts.
Height-of-cut range	The standard bench height-of-cut range is 1.6 mm (0.062 inch) to 12.7 mm (0.500 inch). The bench height-of-cut range with the High Height of Cut Kit installed is 7 mm (0.285 inch) to 25 mm (1.00 inch). The effective HOC may vary depending on turf conditions, type of bedknife, rollers, and attachments installed.
Reel bearings	There are 2 sealed stainless steel, deep-groove ball bearings.
Rollers	The front roller is 6.3 cm (2.5 inches) in diameter with a variety of configurations selected by the customer. The rear roller is a 5.1 cm (2 inch) diameter aluminum full roller.
Bedknife	This machine comes standard with an EdgeMax Microcut bedknife. Optional bedknives with a variety of configurations are available. The bedknife is fastened to a machined, cast-iron bedbar with 13 screws (2120) or 11 screws (1820).
Bedknife adjustment	There is a dual-screw adjustment to the reel with detents corresponding to 0.018 mm (0.0007 inch) bedknife movement for each indexed position.
Grass shield	The non-adjustable shield with adjustable cut-off bar improves grass discharge from the reel in wet conditions.
Counterweight	A cast-iron weight mounted opposite to the drive line balances the cutting unit.
Net weight, 2120 (without front roller)	11–Blade—32.2 kg (71 lb); 14–Blade—33.5 kg (74 lb)
Net weight, 1820 (without front roller)	11–Blade—30.8 kg (68 lb); 14–Blade—32.2 kg (71 lb)

Attachments/Accessories

A selection of Toro approved attachments and accessories is available for use with the machine to enhance and expand its capabilities. Contact your Authorized Service Dealer or authorized Toro distributor or go to www.Toro.com for a list of all approved attachments and accessories.

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.

Operation

Refer to your traction unit *Operator's Manual* for detailed operation instructions. Before using the cutting unit each day, adjust the bedknife; refer to Adjusting the Bedknife Daily (page 9). Test the quality of cut by cutting a test swath before using the cutting unit on a green to ensure that the finished cut is correct.

Maintenance

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

Supporting the Cutting Unit

Whenever you need to tip the cutting unit to expose the bedknife/reel, prop up the rear of the cutting unit to ensure that the nuts on the back end of the bedbar adjusting screws are not resting on the work surface (Figure 8).

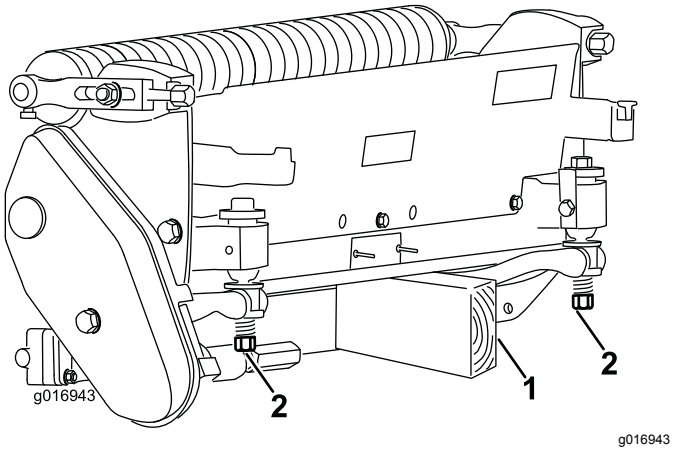


Figure 8

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

Adjusting the Bedknife-to-Reel Contact

Adjusting the Bedknife Daily

Prior to mowing each day, or as required, verify proper bedknife-to-reel contact. **Perform this procedure 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, adjust the bedknife as follows
     A. Turn the bedbar adjusting screws clockwise (Figure 9), 1 click at a time, until you feel and hear light contact.

        Note: The bedbar adjusting screws have detents corresponding to 0.018 mm (0.0007 inch) bedknife movement for each indexed position.

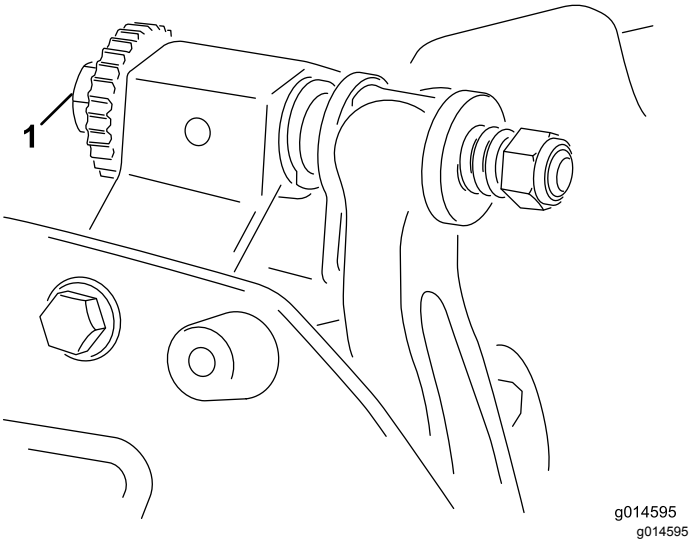


Figure 9

1. Bedbar adjusting screw

     B. Insert a long strip of cutting performance paper (Toro Part No. 125-5610) between the reel and bedknife, perpendicular to the bedknife (Figure 10), then **slowly** rotate the reel forward; it should cut the paper; if not, repeat steps A and B until it does.
   - 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 you do not maintain light contact, the bedknife/reel edges will not sufficiently self-sharpen, and dull cutting edges will result after a period of operation. If you maintain excessive contact, bedknife/reel wear will be accelerated, uneven wear can result, and the quality of cut may decline.**

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. Occasionally run a file across the front edge to remove this burr to improve cutting.

After extended running, a ridge will eventually develop 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.

Adjusting the Bedknife to the Reel

Use this procedure during initial cutting-unit setup and after grinding, backlapping, or disassembling the reel. This **is not** a daily adjustment.

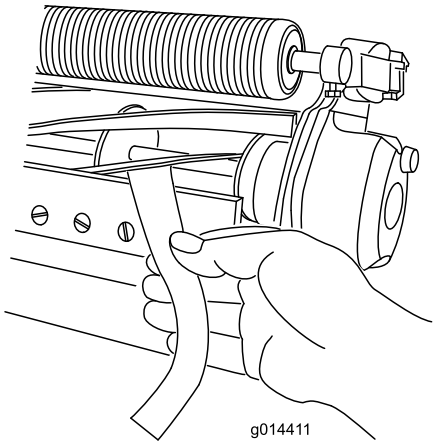
1. Position the cutting unit on a flat, level work surface.
2. Tip the cutting unit to expose the bedknife and reel.

   Note: Ensure that the nuts on the back of the bedbar adjusting screws are not resting on the work surface (Figure 8).
3. Rotate the reel so that 1 of the blades crosses the bedknife edge between the first and second bedknife screw heads located on the right side of the cutting unit.
4. Make an identifying mark on the blade where it crosses the bedknife edge.

   Note: This will make later adjustments easier.
5. Insert a 0.05 mm (0.002 inch) shim between the blade and the bedknife edge at the point marked in step 4.
6. Turn the right bedbar adjusting screw (Figure 9) until you feel light pressure on the shim when sliding it side-to-side. Remove the shim.
7. For the left side of the cutting unit, slowly rotate the reel so that the closest blade crosses the bedknife edge between the first and second screw heads.
8. Repeat steps 4 through 6 for the left side of the cutting unit and left bedbar adjusting screw.
9. Repeat steps 5 and 6 until there is light pressure at the contact points on both the left and right sides of the cutting unit.
10. To obtain light contact between the reel and bedknife, turn each bedbar adjusting screw clockwise 3 clicks.

    Note: Each click on the bedbar adjusting screw moves the bedknife 0.018 mm (0.0007 inches). **Do not over tighten the adjusting screws.**

    Turning the adjusting screw clockwise moves the bedknife edge closer to the reel. Turning the adjusting screw counterclockwise moves the bedknife edge away from the reel.
11. Insert a long strip of cutting performance paper (Toro Part No. 125-5610) between the reel and bedknife, perpendicular to the bedknife (Figure 10), then **slowly** rotate the reel forward; it should cut the paper; if not, turn each bedbar adjusting screw clockwise 1 clicks and repeat this step until it cuts the paper.



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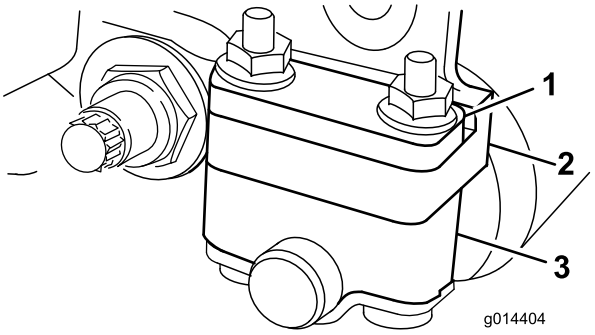
Figure 10

Note: 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).

Adjusting the Rear-Roller Height

Depending on your desired height-of-cut range, you need to adjust the rear-roller brackets (Figure 11 or Figure 12) to the low or high position:

- Position the spacer above the sideplate-mounting flange (factory setting) when the height-of-cut settings range from 1.5 mm to 6 mm (1/16 inch to 3/8 inch) as shown in Figure 11.



g014404

Figure 11

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

- Position the spacer below the sideplate-mounting flange when the height-of-cut settings range from 3 mm to 25 mm (1/8 inch to 1 inch) as shown in Figure 12.

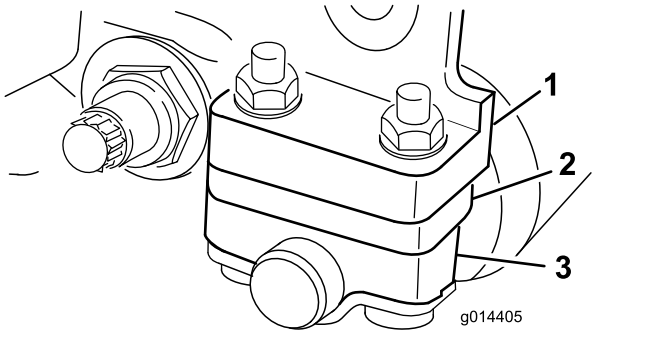


Figure 12

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

1. Raise the rear of the cutting unit and place a block under the bedknife.
2. Remove the 2 nuts securing each roller bracket and spacer to each sideplate mounting flange.
3. Lower the roller and screws from the sideplate mounting flanges and spacers.
4. Place the spacers onto the screws above or below the roller brackets, as required (Figure 11 or Figure 12).
5. Secure the roller bracket and spacers to the underside of the mounting flanges with the nuts previously removed.

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.

Adjusting the Height of Cut

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

Bedknife	Part No.	Height-of-Cut
Edgemax Micro-cut (Standard)	115-1880	1.5 to 4.7 mm (0.062 to 0.188 inch)
Edgemax Tournament (Optional)	115-1881	3.1 to 12.7 mm (0.125 to 0.500 inch)
Micro-cut (Optional)	93-4262	1.5 to 4.7 mm (0.062 to 0.188 inch)
Tournament (Optional)	93-4263	3.1 to 12.7 mm (0.125 to 0.500 inch)
Extended Micro-cut (Optional)	108-4303	1.5 to 4.7 mm (0.062 to 0.188 inch)
Extended Tournament (Optional)	108-4302	3.1 to 12.7 mm (0.125 to 0.500 inch)
Low-cut (Optional)	93-4264	4.7 to 25.4 mm (0.188 to 1.00 inch)
High-cut (Optional)	94-6392	7.9 to 25.4 mm (0.312 to 1.00 inch)
Fairway (Optional)	63-8600	9.5 to 25.4 mm (0.375 to 1.00 inch)
Fairway EdgeMax (optional)	112–7475	9.5 to 25.4 mm (0.375 to 1.00 inch)

Note: For heights of cut greater than 9.5 mm (0.375 inch), install the high-height-of-cut kit.

Adjusting the Height-of-Cut Gauge

Before adjusting the height of cut, set the height-of-cut gauge as follows:

1. Loosen the nut on the gauge bar and set the adjusting screw to the desired height of cut (Figure 13).

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

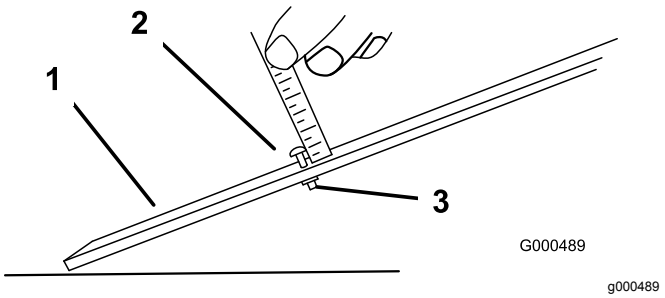


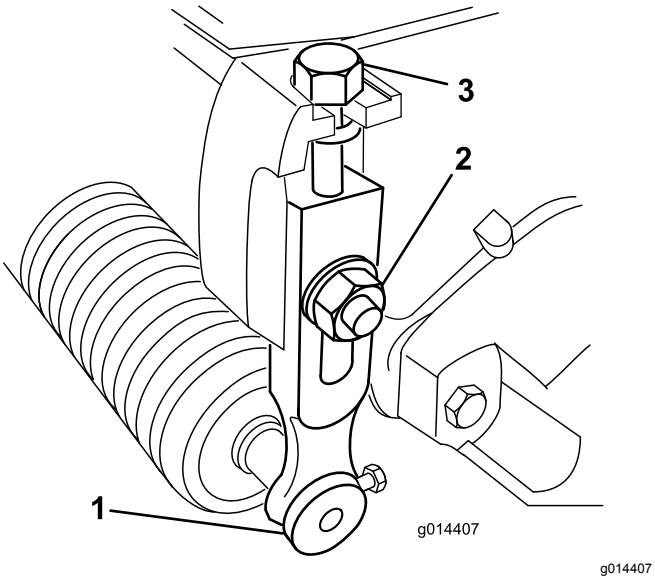
Figure 13

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

2. Tighten the nut.

Adjusting the Height of Cut

1. Loosen the locknuts securing the height-of-cut arms to the cutting-unit side plates (Figure 14).

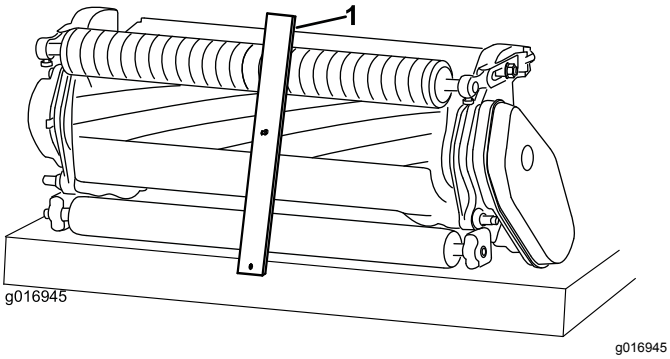


g014407

Figure 14

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

2. Hook the screw head of the height-of-cut gauge onto the right side of the cutting edge of the bedknife and rest the rear end of the bar onto the rear of the roller (Figure 15).



g016945

Figure 15

1. Gauge bar

3. Rotate the adjusting screw until the roller contacts the front of the gauge bar.
4. Repeat steps 2 and 3 for the left side.
5. Adjust both ends of the roller until the entire roller is parallel to the bedknife.

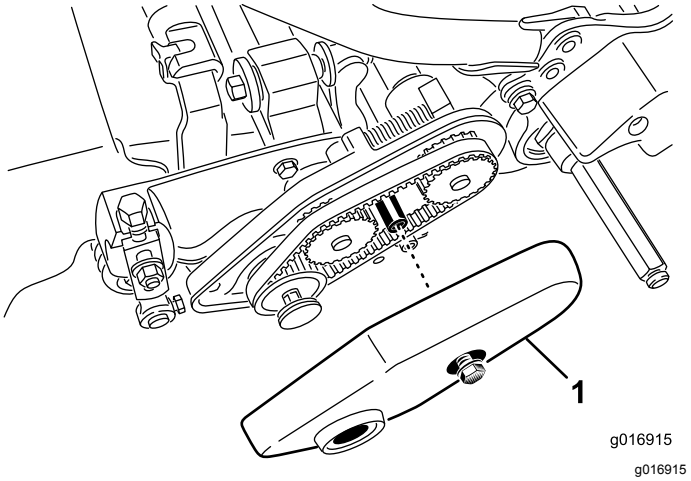
   Important: **When set properly, the rear and front rollers will contact the gauge bar and the screw will be snug against the bedknife. This ensures that the height of cut is identical at both ends of the bedknife.**

6. Tighten the nuts to secure the adjustment enough to remove play from the washer.
7. Verify that the height-of-cut setting is correct; repeat this procedure if necessary.

Adjusting the Clip Setting

There are 6 clip settings on the cutting unit that you can set to match your turf conditions. Start out setting the clip to match the height of cut, but then test the cutting unit and adjust the clip to obtain the quality of cut that you desire.

1. Shut off the machine as follows:
   - Gas units: Shut off the engine and disconnect the spark-plug wire.
   - Electric units: Turn off the machine and disconnect the battery connector (T-handle).
2. Loosen the flange bolt securing the belt cover and remove the belt cover to expose the belt (Figure 16).

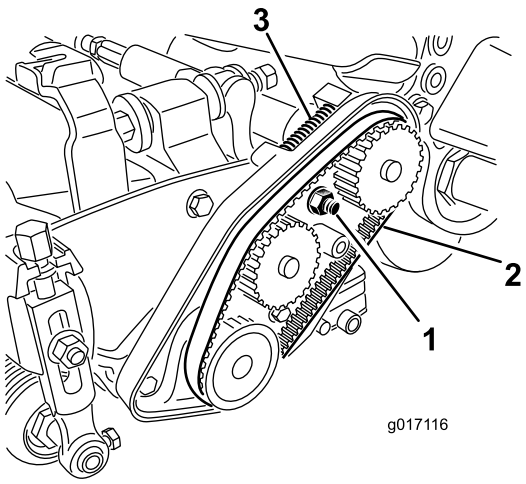


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Figure 16

1. Belt cover

3. Loosen the bearing-housing nut (Figure 17).



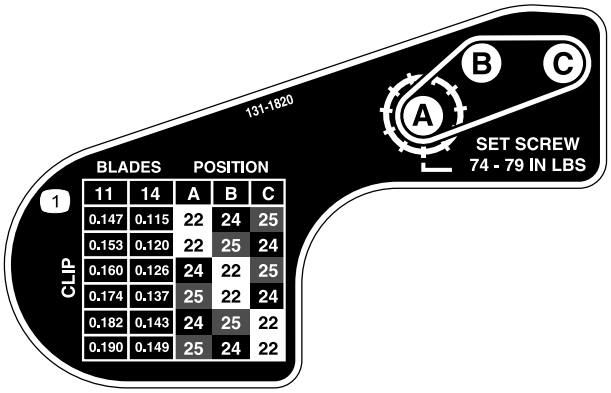
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Figure 17

1. Bearing-housing nut
2. Reel drive belt
3. Compression spring

4. Using a 16 mm (5/8 inch) wrench, rotate the bearing housing to make sure it operates freely.
5. Remove the belt (Figure 17).
6. Using the chart shown on the decal in Figure 18, determine the clip setting you want and which pulleys you will need to move.

   Note: Each pulley is numbered (22, 24, and 25). Move the pulleys to the positions indicated in the chart for your clip setting.



decal131-1820

Figure 18

7. Loosen the 2 set screws on each pulley you need to move using a hex wrench.
8. Remove each pulley.
9. Install each pulley in the new configuration as indicated on the decal (Figure 18).

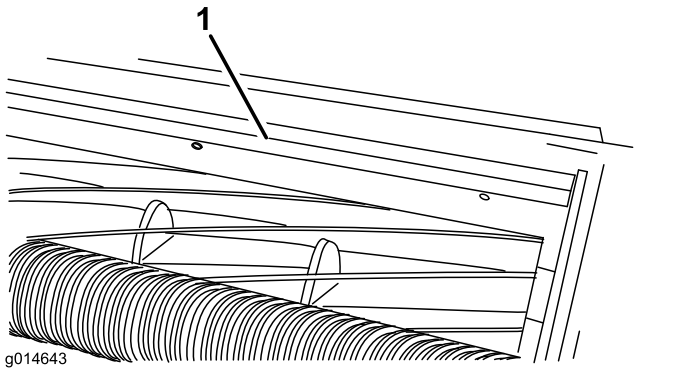
   Note: Ensure that the setscrews on each pulley are positioned to align with the key and flat area on the shaft.
10. Torque the setscrews to 8.3 to 8.9 N·m (74 to 79 in-lb).
11. Install the belt.
12. Ensure that the compression spring is applying tension to the belt (Figure 17).
13. Tighten the bearing-housing nut.
14. Install the belt cover.

Adjusting the Cut-Off Bar

Adjust the cut-off bar to ensure that the clippings are cleanly discharged from the reel area, as follows:

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

1. Loosen the screws securing the top bar (Figure 19) to the cutting unit.



g014643

Figure 19

1. Cut-off bar

2. Insert a 1.5 mm (0.060 inch) feeler gauge between the top of the reel and the bar then tighten the screws.

   Important: **Ensure that the bar and reel are equal distance apart across the complete reel.**

   Note: Adjust the gap as needed for your turf conditions.

Servicing the Bedbar

Only a properly trained mechanic should service the bedbar and bedknife to prevent damage to the reel, bedbar, or bedknife. Ideally, take the cutting unit to your Authorized Toro Distributor for service. Refer to the *Service Manual* for your traction unit for complete instructions, special tools, and diagrams for servicing the bedknife. Should you ever need to remove

or assemble the bedbar yourself, instructions are provided below, as are the specifications for servicing the bedknife.

Important: **Always follow the bedknife procedures detailed in your *Service Manual* when servicing the bedknife. Failure to install and grind the bed knife correctly can lead to damage to the reel, bedbar, or bedknife.**

Removing the Bedbar

1. Turn the bedbar adjusting screw, counterclockwise, to back the bedknife away from the reel (Figure 20).

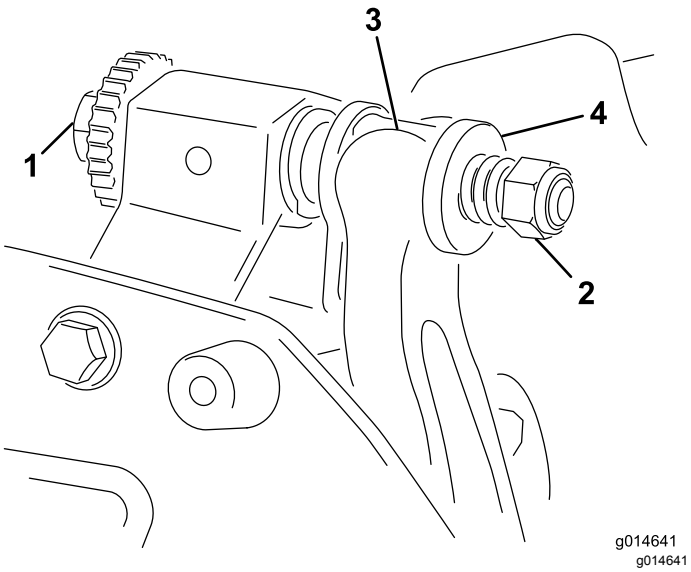


Figure 20

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 20).
3. On each side of the machine, loosen the locknut securing the bedbar bolt (Figure 21).

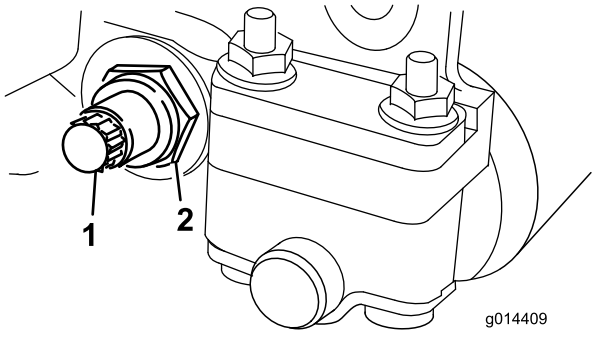


Figure 21

1. Bedbar bolt
2. Locknut

4. Remove each bedbar bolt allowing the bedbar to be pulled downward and removed from the cutting unit (Figure 21).

   Account for the 2 nylon washers and 1 steel washer on each end of the bedbar (Figure 22).

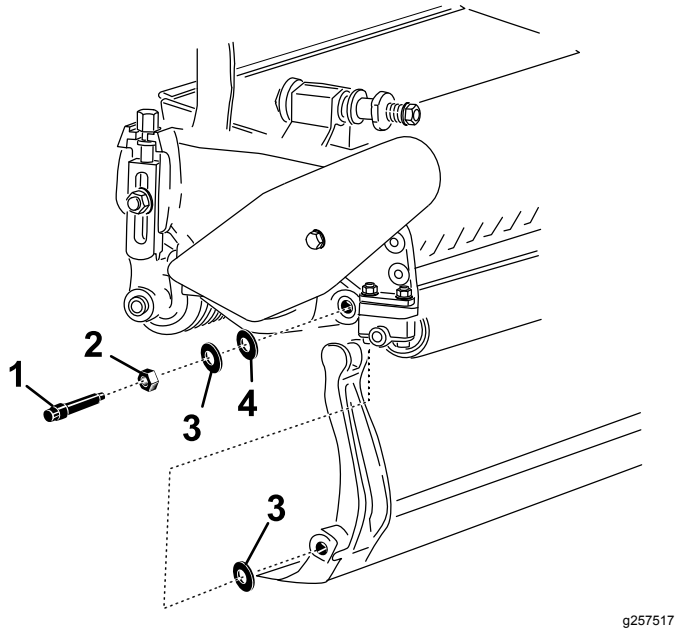


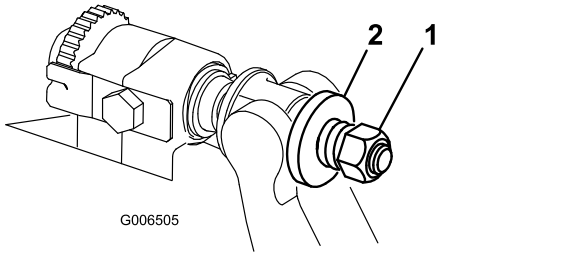
Figure 22

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

Assembling the Bedbar

1. Install the bedbar, positioning the mounting ears between the washers and the bedbar-adjusting screw (Figure 20).
2. Secure the bedbar to each side plate with the bedbar bolts (nuts on bolts) and 3 washers (6 total).
3. Position a nylon washer on each side of the side-plate boss. Place a steel washer outside each of the nylon washers (Figure 22).
4. Torque the bedbar bolts to 27 to 36 N·m (240 to 320 inch-lb).
5. Tighten the locknuts until you remove the end play from steel washers, but you are able to rotate them by hand. The washers on the inside may have a gap.

   Important: **Do not overtighten the locknuts or they will deflect the side plates.**
6. Tighten the spring tension nut until the spring is collapsed, then back it off 1/2 turn (Figure 23).



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Figure 23

1. Spring-tension nut
2. Spring

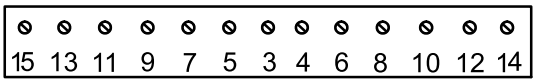
7. Adjust the bedknife to the reel; refer to Adjusting the Bedknife-to-Reel Contact (page 9).

Bedknife Specifications

Bedknife Installation

1. Use a scraper to remove all rust, scale, and corrosion from the bedbar surface.
2. Lightly oil the bedbar surface before installing the bedknife.
3. Ensure that all the bedbar screw threads are clean.
4. Install, but do not tighten new screws (5/16–18UNC–2A) to secure the bedknife to the bedbar. Apply anti-seize compound to the threads of the screws.

   Important: **Do not apply anti-seize compound to the taper of the screw heads.**
5. Using a torque wrench and the bedknife screw tool (TOR510880), tighten the 2 outer screws to 1 N·m (10 in-lb).
6. Following the order in Figure 24, tighten the screws to 25.4 N·m (225 in-lb).



g254874

Figure 24

7. Grind the bedknife after installation.

Preparing the Reel for Grinding

1. Ensure that all cutting unit components are in good condition and correct any issues before grinding.
2. Follow the reel grinder manufacturer's instructions to grind the cutting reel to the following specifications.

Reel Grinding Specifications	
New Reel Diameter	128.5 mm (5.06 inches)
Reel Diameter Service Limit	114.3 mm (4-1/2 inches)
Blade Relief Angle	30° ± 5°
Blade Land Width	1.0 mm (0.04 inches)
Blade Land Width Range	.8 to 1.2 mm (0.03 to 0.05 inches)
Reel Diameter Taper Service Limit	0.25 mm (1/100 inch)

Relief-Grinding the Reel

The new reel has a land width of 1.3 to 1.5 mm (0.050 to 0.060 inch) and a 30° relief grind.

When the land width gets larger than 3 mm (0.120 inch) wide, do the following:

1. Apply a 30° relief grind on all reel blades until the land width is 1.3 mm (0.050 inch) wide (Figure 25.

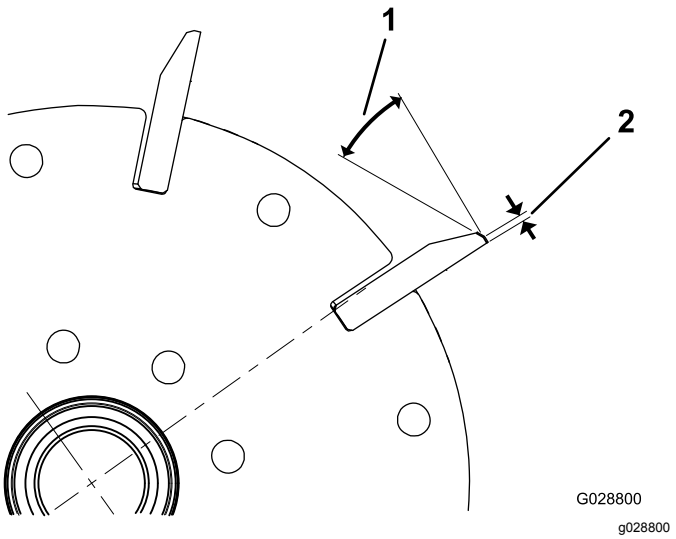


Figure 25

1. 30°
2. 1.3 mm (0.050 inch)

2. Spin grind the reel to achieve <0.025 mm (0.001 inch) reel run-out.

   Note: This causes the land width to grow slightly.

3. Adjust the cutting unit; refer to your cutting unit *Operator's Manual*.

Note: To extend the longevity of the sharpness of the edge of the reel and the bedknife—after grinding the reel and/or the bedknife—check the reel to bedknife contact again after cutting 2 faiways, as any burrs will be removed, which may create improper reel to bedknife clearance and thus accelerate wear.

Bedknife Grinding Specifications

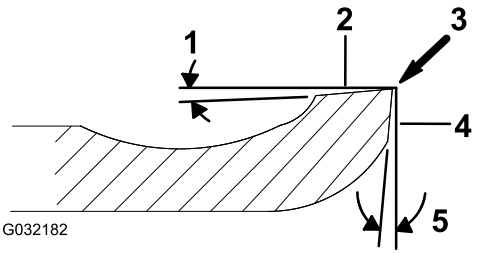


Figure 26

1. Relief angle
2. Top face
3. Remove burr
4. Front face
5. Front angle

Standard bedknife relief angle	3° minimum
Extended bedknife relief angle	7° minimum
Front Angle Range	13° to 17°

Checking the Top Grind Angle

The angle that you use to grind your bedknives is very important.

Use the angle indicator (Toro Part No. 131-6828) and the angle-indicator mount (Toro Part No. 131-6829) to check the angle that your grinder produces and then correct for any grinder inaccuracy.

1. Place the angle indicator on the bottom side of the bedknife as shown in Figure 27.

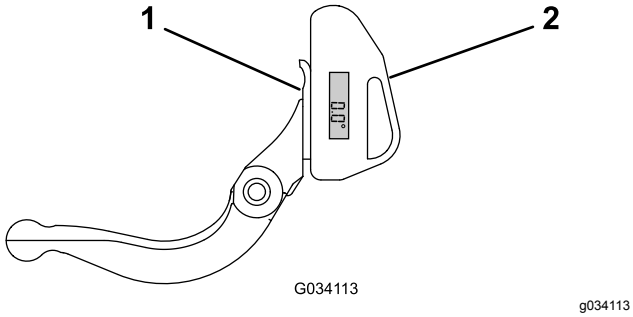


Figure 27

1. Bedknife (vertical)
2. Angle indicator

2. Press the Alt Zero button on the angle indicator.
3. Place the angle-indicator mount on the edge of the bedknife so that the edge of the magnet mates with the edge of the bedknife (Figure 28).

   Note: The digital display should be visible from the same side during this step as it was in step 1.

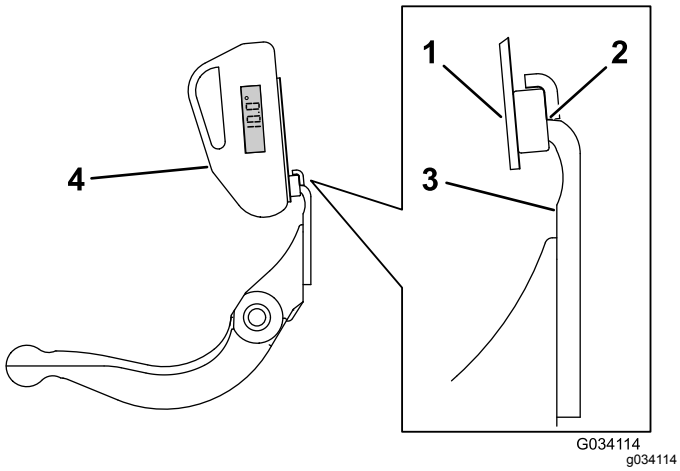


Figure 28

1. Angle-indicator mount
2. Edge of the magnet mated with the edge of the bedknife
3. Bedknife
4. Angle indicator

4. Place the angle indicator on the mount as shown in Figure 28.

   Note: This is the angle that your grinder produces, and should be within 2 degrees of the recommended top grind angle.

Backlapping the Cutting Unit

⚠ 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 inch square stock into the splined coupling in the end of the cutting unit.

   Note: Additional instructions and procedures on Backlapping are available in your traction unit *Operator's Manual* and the *Toro Sharpening Reel and Rotary Mowers Manual*, Form Number 80-300PT.

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

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
04289	316000001 and Up	18-inch 11-Blade Cutting Unit, Greensmaster Flex/eFlex 1820 Traction Unit	FLEX 11 BLADE 18 INCH CUTTING UNIT	Lawn Mower	2006/42/EC
04290	316000001 and Up	21-inch 11-Blade Cutting Unit, Greensmaster Flex/eFlex 2120 Traction Unit	FLEX 11 BLADE 21 INCH DPA CUTTING UNIT	Lawn Mower	2006/42/EC
04291	316000001 and Up	18-inch 14-Blade Cutting Unit, Greensmaster Flex/eFlex 1820 Traction Unit	FLEX 14 BLADE 18 INCH CUTTING UNIT	Lawn Mower	2006/42/EC
04292	316000001 and Up	21-inch 14-Blade Cutting Unit, Greensmaster Flex/eFlex 2120 Traction Unit	FLEX 14 BLADE 21 INCH CUTTING UNIT	Lawn Mower	2006/42/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
May 24, 2018

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