FORM NO. 3323-363 Rev A

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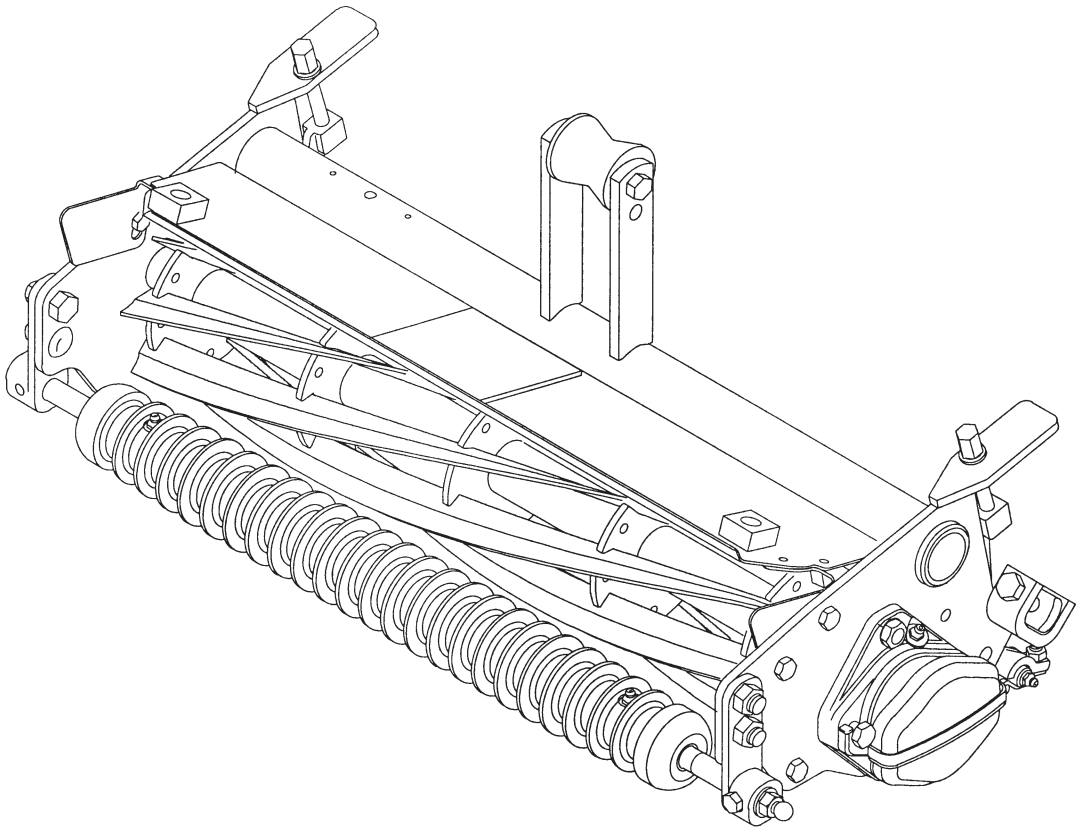
MODEL NO. 04480 200000001 & UP

MODEL NO. 04481 200000001 & UP

OPERATOR S MANUAL

8- & 11-BLADE CUTTING UNITS

(For Greensmaster® 3200)



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Specifications

Height-of-Cut: The cutting height is adjusted on rear roller by two vertical screws and held by two locking capscrews. Bench height-of-cut range is 2.4mm to 26mm. Cutting units will deliver differing effective heights of cut, depending on their configuration.In fact, effective cutting height may be influenced by the following factors; turf conditions, roller profiles, cutting unit attitude, cutting unit accessories, weight of the cutting units and bedknife profile. Therefore, bench setting a cutting unit does not equal the effective (actual) height of cut you achieve. You must determine how to adjust your cutter on the bench to achieve a comparable height of cut to a cutting unit of a different configuration, model, or brand.

Reel Construction: Reels are 13cm in diameter, 53.3 cm in length. High-carbon steel blades are welded to 5 stamped-steel spiders. and heat treated to RC 48-54 hardness. The reel is ground for diameter, concentricity. and back grind.

Reel Bearings: Two double-row ball bearings, 30 mm internal diameter., press fit onto the reel shaft. The inverted seal is pressed onto the reel shaft. Bearing side load is maintained by a 3-½ turn wave washer, with no adjusting nut.

Reel Drive: The reel shaft is a 1.375 inch diameter tube with drive inserts permanently pressed in both ends. A replaceable floating coupler with an internal eight-tooth spline is factory installed on the right end, and held in place by a snap ring. The floating coupler may be moved to the other end when the cutting unit is used on the tractor's front right position.

Frame Construction: A single top tube is welded to two sideplates. A bolt-in cross rod acts to set the front frame width and stiffen the assembly. The lift straps have a replaceable roller that may be moved to change transport height.

Bedknife: Replaceable, 13-screw, single-edged, high carbon steel bedknife austempered to RC 48-55, fastened to a machined cast iron bedbar. Tournament bedknife is standard.

Bedknife Adjustment: Two opposing screws on each end of the bed bar are used to level and regulate the bedknife-to-reel contact.

Front Roller: The standard front roller is a 6.4 cm, diameter full-radious Weihle. The right bracket has an eccentric shoulder bolt to provide leveling. A second eccentric may be added to the left bracket for increased leveling range. The roller has a through shaft with greaseable ball bearings.

Rear Roller: The standard rear roller is a 5.2 cm diameter smooth roller. It has a through shaft with greaseable ball bearings.

Counterbalance Weight: The left end of the cutting unit has a weight with a spin flange like the reel motors for easy installation. The weight seals the bearing area and balances the reel motor's weight during cutting.

Options:

Micro-Cut bedknife	Part No. 93-4262
Lo-Cut bedknife	Part No. 93-4264
High-Cut bedknife	Part No. 94-6392
Fairway bedknife	Part No. 94-6393
5-Blade, heavy duty reel	Part No. 98-2181
8-Blade, heavy duty reel	Part No. 98-2182
High height-of-cut kit	Part No. 99-1496
Weihle rear roller	Model No. 04488

Adjusting the Cutting Unit

IMPORTANT: Read this operator's manual thoroughly before operating the cutting unit. Failure to do so may result in damage to the cutting unit.

Note: Left and right sides of the cutting unit refer to normal operating position.

After the cutting unit is unboxed, use the following procedures to assure the cutting unit is adjusted properly.

1. Check each end of the reel for grease. Grease should be visibly evident in the reel bearings.

2. Insure that all nuts and bolts are securely fastened.

3. Position the lift roller to match suspension.
   - Upper position for standard support height
   - Lower position increased support height

4. Check to make sure the bedknife and reel are parallel. Refer to *Adjusting The Bedknife To The Reel,* next.

Adjusting the Bedknife to the Reel (Fig. 1 & 2)

1. Remove the cutting units from the traction unit and position them on a level work surface.

2. Adjust the bedknife to the reel by first, loosening the bottom adjusting screw on each side of the cutting unit, then tightening the top adjusting screw on each side of the cutting unit. This adjustment will position the bedknife closer to the reel blades.

   IMPORTANT: Use only a M13 wrench, 8 to 15 cm length when adjusting the bedknife screws. A longer wrench will provide too much leverage and may distort the mounting plate for the adjustment screws.

3. After adjusting the bedknife to the reel, make sure that both the top and bottom adjusting screws are secured on both ends of the cutting unit.

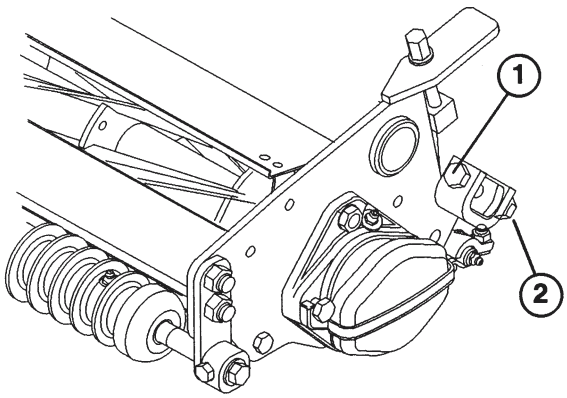


Figure 1

1. Top adjusting screw
2. Bottom adjusting screw

4. After the adjustment, check to see if the reel can pinch paper when inserted from the front and cut paper when inserted at a right angle. It should be possible to cut paper with minimum contact between the bedknife and the reel blades.

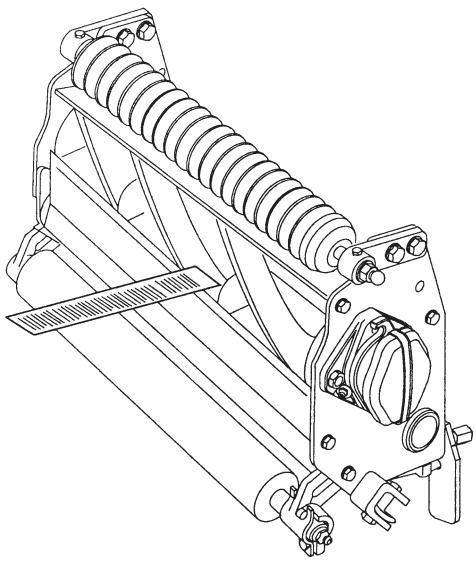


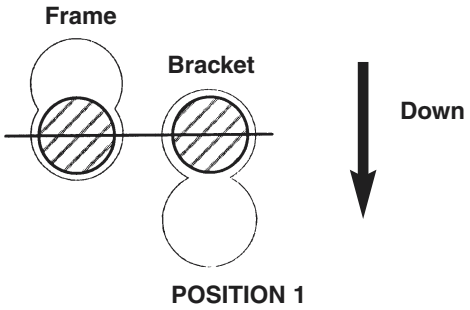
Figure 2

Choosing Cutting Unit Attitude

There are four positions for the front roller brackets.

Position 1: Least aggressive; use for very soft and tender turf.

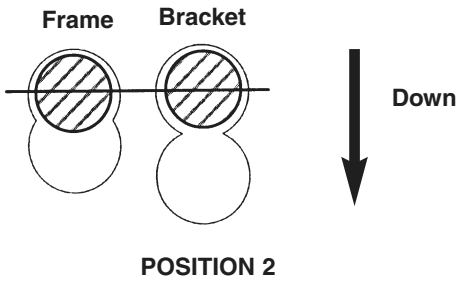
Height-of-cut range: 3.2mm–26mm



Position 2: Standard position; use for most conditions.

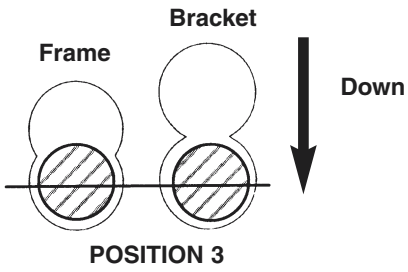
Height-of-cut range: 2.4mm–24mm

Note: The top frame hole and top bracket hole will yield position 2 (standard position).



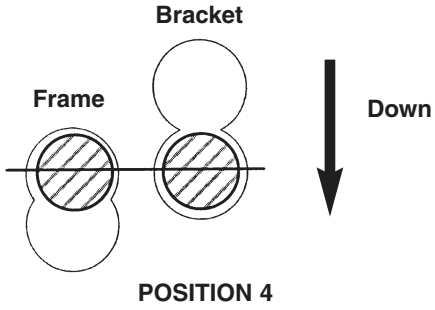
Position 3: More aggressive; use on firm turf or higher height of cuts.

Height-of-cut range: 2.4mm–21mm



Position 4: Most aggressive; use only on very firm greens or at the higher heights of cut.

Height-of-cut range: 2.4mm–19mm



Note: A more aggressive setting will increase grass removal and provide a cleaner cut, but may cause increased scalping and marking.

Note: A more aggressive setting will be required to compensate for reel wear.

Leveling the Front Roller to the Reel (Fig. 3)

1. Position the cutting unit on a flat, level surface.
2. Position a 6 mm or thicker plate under the reel blades and against the front face of the bedknife.

   Note: Be sure the plate covers the full length of the reel blades and three blades contact the plate.
3. Loosen the locknuts retaining the right-front roller bracket.

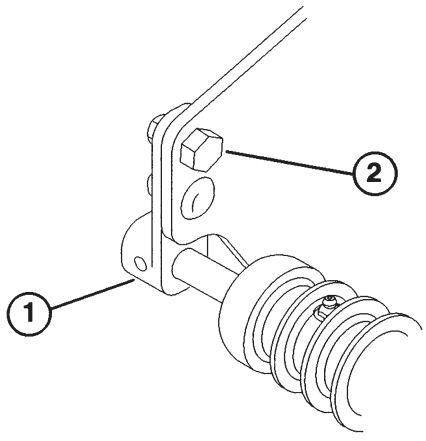


Figure 3

1. Right front roller bracket
2. Upper right roller mounting bolt

4. While holding the reel securely on the plate and maintaining pressure on the front roller, rotate

the upper right roller mounting bolt. This mounting bolt has an offset, which when rotated, acts as an eccentric (cam) to raise or lower the roller. On the bolt head there is an internal diameter dot that denotes the offset of the bolt. The dot indicates the direction in which the right end of the roller moves when the bolt is turned.

Note: If additional adjustment is required, replace one screw on the left-hand bracket with another bolt, part no. 93-2573. Make sure that both front roller brackets are in the same hole.

5. To verify whether the roller is level, try inserting a piece of paper under each end of the roller.

6. When the roller is level, tighten the nuts securely.

Adjusting the Height of the Top Shield

1. Loosen the capscrews and nuts securing the shield to each side plate.

2. Adjust the shield to the desired position and secure the fasteners

3. Repeat the procedure on the remaining cutting units and adjust the top bar.

Note: The shield can be raised for extreme wet conditions.

Adjusting the Top Bar

Adjust the top bar, under the rear shield, to assure clippings are cleanly discharged from the reel area.

1. Loosen the screws securing the top bar. Insert a 1.5mm feeler gauge between the top of the reel and the bar and tighten the screws. Assure the bar and reel are equal distance apart across the complete reel.

2. Repeat adjusting the settings on the remaining cutting units.

Note: The bar is adjustable to compensate for changes in turf conditions. It should be adjusted closer to the reel when the turf is extremely wet. By contrast, adjust the bar further away from the reel when turf conditions are dry. The bar should be adjusted whenever you change the top shield height.

Adjusting the Height of Cut (Fig. 4)

1. Verify that the front roller is level and the bedknife-to-reel contact is correct.

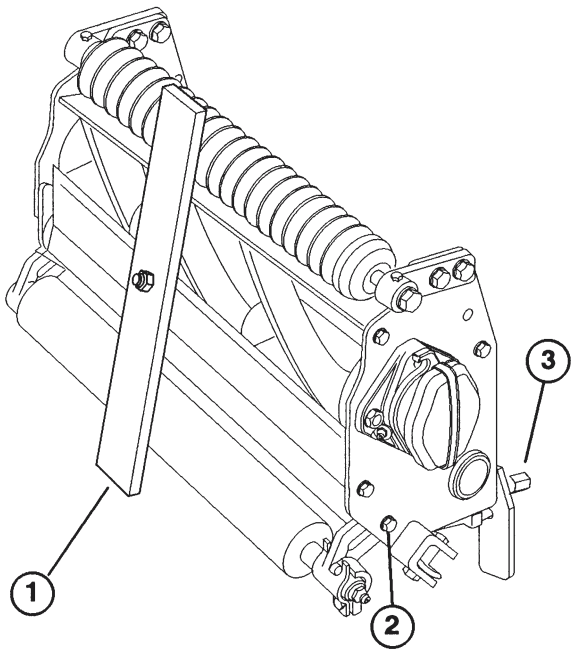


Figure 4

1. Guage bar
2. Roller bracket capscrew
3. Height-of-cut knob

2. Turn the cutting unit over (90°) and rest it on the rear roller and top rear tabs. Loosen the locknuts on the capscrews that retain the rear roller brackets.

3. On a gauge bar (Part no. 13-8199), set the head the screw to the desired height of cut. This measurement is from the bar face to the underside of the screw head.

4. Place the bar across the front and rear rollers and adjust the height-of-cut knob until the underside of the screw head engages the bedknife cutting edge.

IMPORTANT: Repeat the procedure on each end

of the bedknife and tighten locknuts that retain rear roller brackets on each end.

Note: Cutting units will deliver differing effective heights of cut, depending on their configuration.In fact, effective cutting height may be influenced by the following factors; turf conditions, roller profiles, cutting unit attitude, cutting unit accessories, weight of the cutting units and bedknife profile. Therefore, bench setting a cutting unit does not equal the effective (actual) height of cut you achieve. You must determine how to adjust your cutter on the bench to achieve a comparable height of cut to a cutting unit of a different configuration, model, or brand

Operating Instructions

Cutting Unit Daily Adjustiments

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

IMPORTANT: Light contact is preferred at all times. If light contact is not maintained, 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 accelerate, uneven wear can result, and quality of cut may be adversely affected.

Note: As the reel blades continue to run against the bedknife, a slight burr will appear on the front cutting edge surface the full length of the bedknife. Running a file across the front edge to remove this burr will improve cutting.

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

Lubrication

Greasing Bearings and Bushings

Each cutting unit has (6) grease fittings that must be lubricated regularly with No. 2 General Purpose Lithium Base Grease.

1. The grease fitting locations and quantities are: Reel bearings (2) and front and rear rollers (2 ea.) (Fig. 5).

   IMPORTANT: Lubricating the cutting units immediately after washing helps purge water from the bearings and increases bearing life.

2. Wipe each grease fitting with a clean cloth

3. Apply grease until pressure is felt against the handle.

   IMPORTANT: Do not apply too much pressure or grease seals will be permanently damaged.

4. Wipe away excess grease.

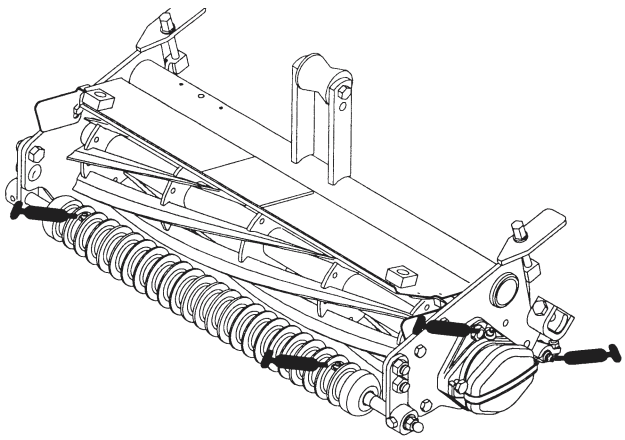


Figure 5

Backlapping the Cutting Units

CAUTION

Be careful when lapping the reel because contact with the reel or other moving parts can result in personal injury.

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

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 9mm square stock into the splined coupling at the right end of the cutting unit.

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

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


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