



MODEL NO. 04407 — 90001
THRU 80001 & UP

**OPERATOR'S
MANUAL**

GREENSMASTER® 3000 CUTTING UNIT

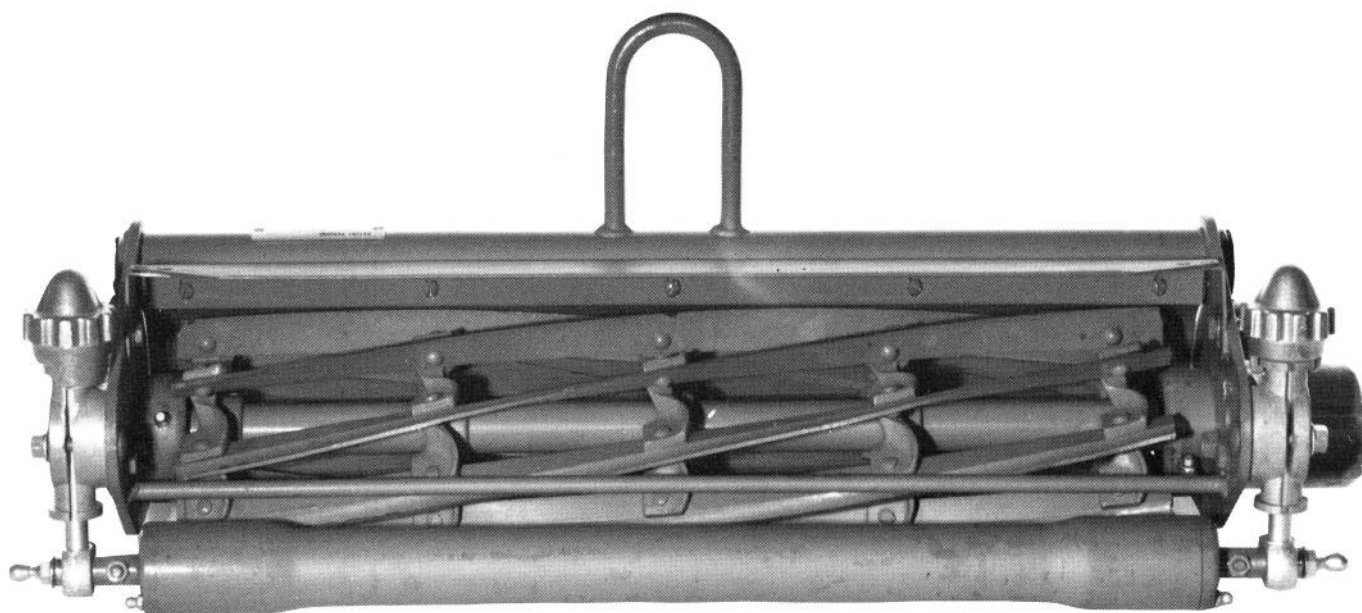


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SPECIFICATIONS

CUTTING UNIT

REEL DIAMETER: 5 in. (12.7 cm).

HEIGHT OF CUT: 3/16 in. (4.76 mm) to 11/16 in. (17 mm). 1/8 in. (3 mm) to over 1 in. (25 mm) with Part No. 19-8880 Bedknife and Model 24-9400 Variable Quick Height-of-Cut Kit.

REEL CONSTRUCTION: 8 blades riveted to 5 cast spiders.

POWER: Hydraulic motor splined to reel shaft.

ROLLER ADJUSTMENT:

Front: Micrometer hand adjustment with bolted clamp lock (1 turn = 0.025 in. (0.635 mm) height of cut change).

Rear: Pivot arm change on slot in side plate with locking screw for roller/reel parallelism.

BEARINGS: Timken tapered roller.

KNIFE ADJUSTMENT: Opposing screw.

FRONT ROLLER OPTIONS:

Offset Roller Kit: Model No. 04414. Kit includes three (3) rollers with integral bearings and shaft.

Full Roller Kit: Model No. 04412. Kit includes three (3) rollers with integral bearings and shaft. Provides greatest cutting unit flotation.

Wihle Roller Kit: Model No. 04413. Kit includes three (3) rollers with integral bearings and shaft, 1/8 in. (3 mm) wide disc spaced at 15/32 in. (12 mm). Provides greatest cutting unit penetration.

Rear Roller Cleaner: Model No. 19-9590. Kit includes three (3) scrapers and necessary hardware for mounting. Scrapers adjustable in height from ground level for optimum performance.

1/8 inch (3mm) Height-of-Cut Bedknife: Part No. 19-8880. Consists of high carbon, induction hardened steel cutting edge. Rc 50-55, capable of cutting at 1/8 inch (3 mm) height-of-cut. Total weight - 3 lb (1.36 kg). Three required per each Greensmaster 3000 traction unit.

Seat Cover Kit: Model No. 28-2090. Contains double stitched vinyl draw string cover for both seat and back for easy installation and extended seat life. Total weight - 3 lb (1.36 kg).

Basket Reinforcement Kit: Model No. 26-0900. Kit includes three cross bars, six wear plates and necessary mounting hardware.

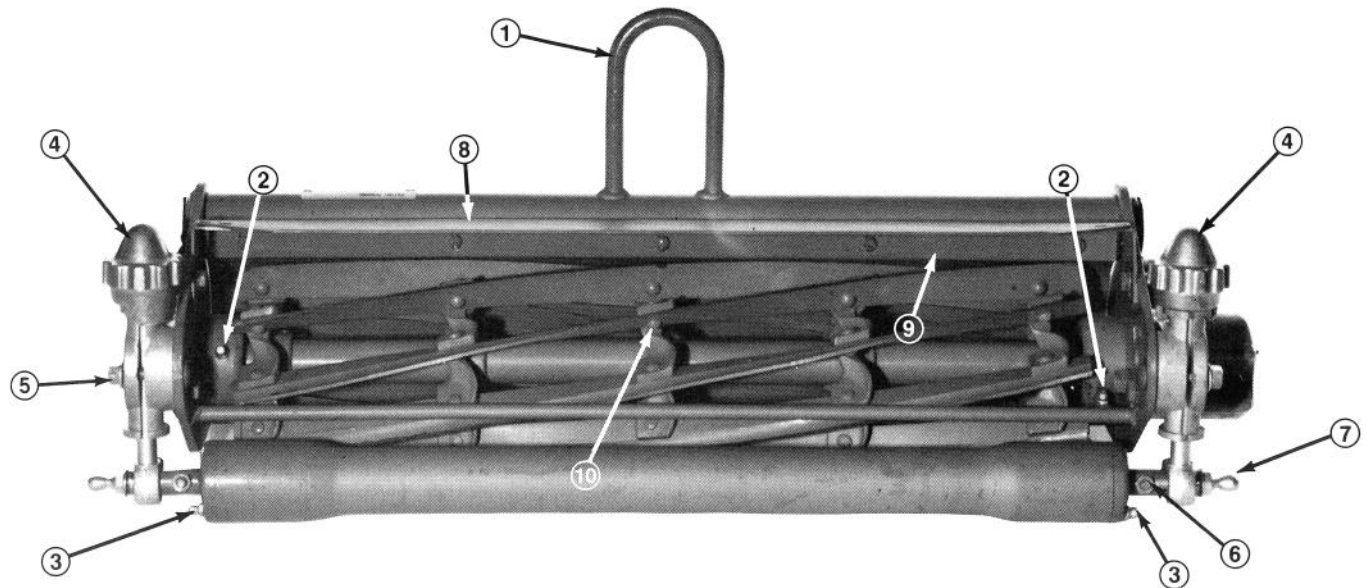
Variable Quick Height-of-Cut Kit: Model No. 24-9400. Provides easy field change of H.O.C. without tools. H.O.C. difference can be infinitely varied from a "0" difference to 5/8 inch (16 mm) difference. Total weight - 11 lb (5 kg).

Quick Height-of-Cut Kit: Model 29-5910. Provides easy field change of H.O.C. by 0.21 inches (5.33 mm) with the flip of a knob on each side of cutting unit. Total weight - 8 lb (3.6 kg).

Scraper Brush Assembly: Model No. 33-1000. Plastic bristle brush mounted in steel backing bar. Used as replacement for standard comb assembly. Total weight - 3 lb (1.36 kg). Three required per each Greensmaster 3000 traction unit.

Bearing Replacement Tool Kit: Model No. 23-8900. Contains hardware and sleeves for easy extracting and installing of cutting unit roller bearings. Total weight - 4 lb (1.8 kg).

KNOW YOUR CUTTING UNIT



- 1. Lift Bail
- 2. Grease Fittings — Reel Bearings
- 3. Grease Fittings — Roller
- 4. Height of Cut Adjustment Knob (2)

- 5. Height of Cut Adjustment Locknut
- 6. Scraper Adjusting Nut (4)
- 7. Pull Rod Studs (2)

- 8. Grass Shield
- 9. Adjustable Grass Shield Bar
- 10. Reel Assembly

SETTING UP INSTRUCTIONS

IMPORTANT

Read the Operator's Manual thoroughly for setting up instructions. Failure to do so may result in damage to the cutting unit.

The Cutting Unit is shipped completely assembled but without a front roller. It must be adjusted in order to cut properly. After the cutting unit is uncrated, use the following procedure:

1. Open loose parts bag which contains two ball studs, two lock nuts, two 3/8 in. (10 mm) flat washers, two 3/8 in. (10 mm) internal tooth washers, four 1/4 in. (6 mm) nuts, and four 1/4 in. (6 mm) internal tooth lock washers.
2. The two flat washers and lock nuts are used to mount the reel drive motor to the cutting unit. These fasteners should be saved for later installation.
3. Install front roller to cutting unit.

CHECK LIST:

1. Check for looseness in the bearings between the end plate and reel. Check looseness of bearings by moving reel laterally or axially on each end of cutting unit (see page 7, "Servicing And Adjusting The Reel Bearings").
2. Check drive end of the reel for grease. Grease to be visibly evident.
3. Insure that all nuts and bolts are securely fastened.
4. Check level of rear roller to reel: refer to Leveling Rear Roller Assembly to Reel, page 8.

ADJUSTING BEDKNIFE TO REEL

1. Adjustment of bedknife to reel is accomplished by first, loosening bottom screw on each side of cutting unit (Fig. 1), then tightening the top adjustment screw on each side of cutting unit (Fig. 2). This adjustment will position the bedknife closer to the reel blades.

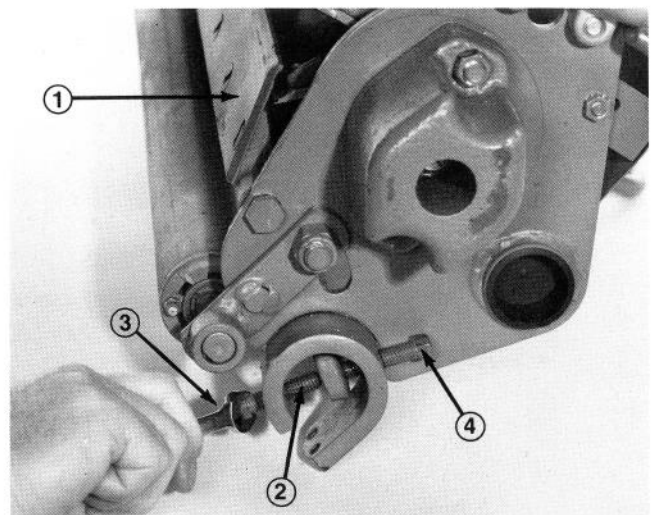


Figure 1

- 1. Bedknife
- 2. Bottom Adjustment Screw
- 3. 3/8 Inch Wrench
- 4. Top Adjustment Screw

SETTING UP INSTRUCTIONS

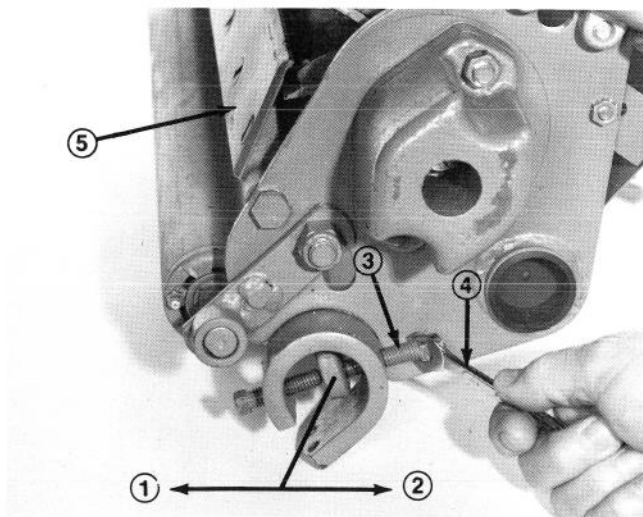


Figure 2

- | | |
|-------------------------------|--------------------|
| 1. Bedknife Closer To Reel | 4. 3/8 Inch Wrench |
| 2. Bedknife Further From Reel | 5. Bedknife |
| 3. Top Adjustment Screw | |

IMPORTANT: Use only a 3/8 open end wrench 3 in. to 6 in. (7.6 to 15.2 cm) in length for adjusting bedknife to reel. A longer wrench will provide too much leverage and may cause distortion of the mounting plate for the adjustment screws.

- After adjusting bedknife to reel, make sure that both the top and the bottom adjustment screws are secured on both ends of the cutting unit (Fig. 1, 2).
- After the adjustment is accomplished, check to see if reel can pinch paper when inserted from the front and cut paper when inserted at a right angle (Fig. 3). It should be possible to cut paper with minimum contact between the bedknife and the reel blades. Should excessive reel drag be evident (more than 7 inch pounds [0.8 N•m]) it will be necessary to either back lap or regrind the cutting unit to achieve the sharp edges needed for precision cutting (see Toro reel sharpening manual).

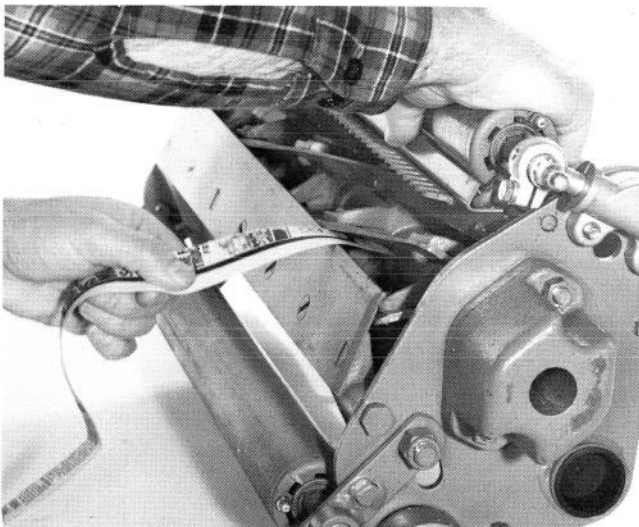


Figure 3

ADJUSTING SHIELD HEIGHT

Adjust shield to assure proper grass clipping discharge into basket:

- Set cutting unit in normal cutting position and measure distance from top of front crossbar to shield at each end of cutting unit (Fig. 4).

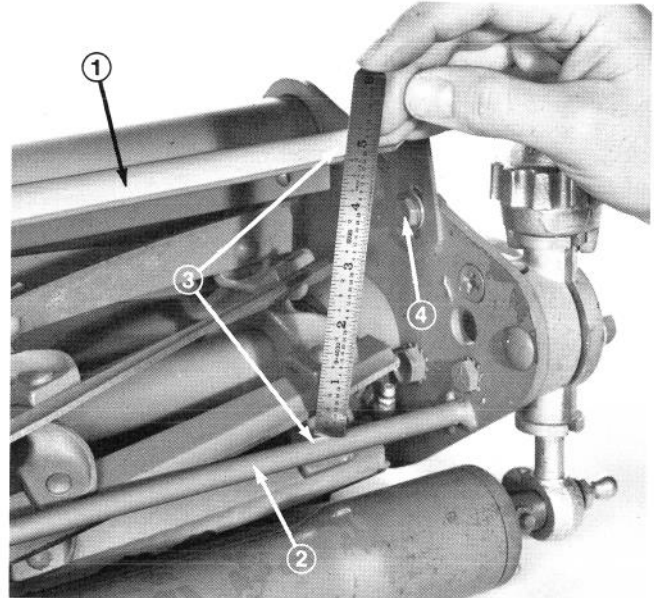


Figure 4

- | | |
|-------------------|---------------------------|
| 1. Shield | 3. 4-3/4 Inches (12.1 cm) |
| 2. Front Crossbar | 4. Shield Fasteners |

- Height of shield from crossbar for normal cutting conditions should be 4-3/4 inches (12.1 cm). Loosen cap-screws and nuts securing shield to each side-plate, adjust shield to correct height and tighten fasteners (Fig. 4).
- Repeat adjustment on remaining cutting units and adjust top bar: refer to Adjusting Top Bar, page 4.

NOTE: Shield can be lowered in dry grass conditions (clippings fly over top of baskets) or raised to allow for heavy wet grass conditions (clippings build up on rear edge of baskets).

ADJUSTING TOP BAR

Adjust top bar to assure clippings are cleanly discharged from reel area:

- Loosen screws securing top bar (Fig. 5). Insert 0.060 inch (1.5 mm) feeler gauge between top of reel and bar and tighten screws (Fig. 5). Assure bar and reel are equal distance apart across complete reel.
- Repeat settings on remaining cutting units.

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

SETTING UP INSTRUCTIONS

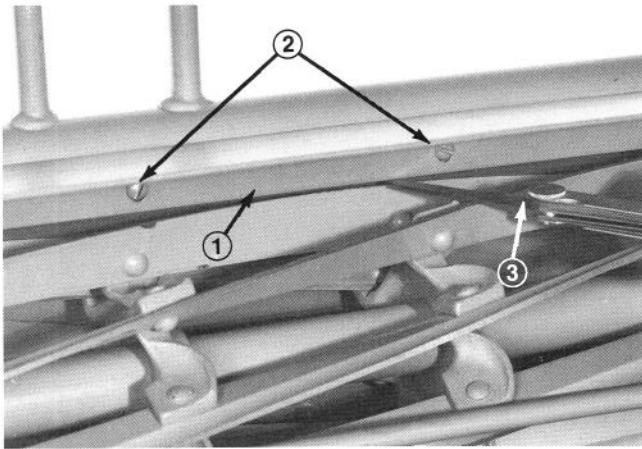


Figure 5

1. Top Bar
2. Bar Mounting Screws
3. Feeler Gauge

ADJUSTING HEIGHT OF CUT

1. For adjusting cutting unit height-of-cut 1/4 in. (6 mm) or below, set rear roller in the lowest height-of-cut position: refer to Levelling Rear Roller Assembly To Reel, page 8. To adjust the height of cut, the cutting

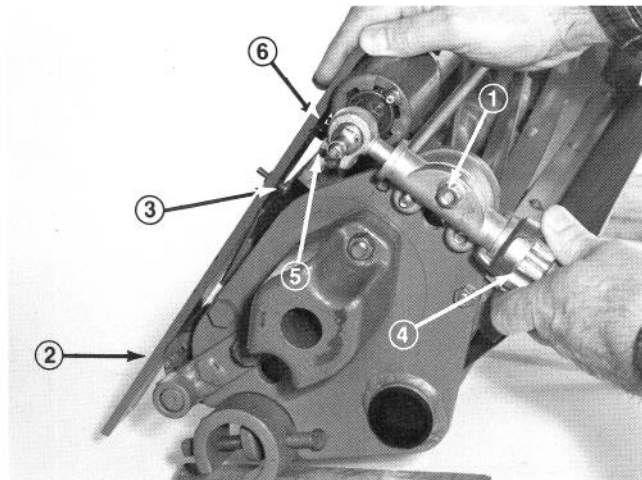


Figure 6

- | | |
|-------------------------------|----------------------------|
| 1. Height of Cut Knob Locknut | 4. Height of Cut Knob |
| 2. Gauge Bar (1-8789) | 5. Roller Shaft Clamp Bolt |
| 3. Gauge Bar Screwhead | 6. Comb Assembly |

unit should be turned over and the locknuts on each end of the cutting unit securing the height of cut adjusting knob loosened (Fig. 6).

2. Set the head of the screw on the Part No. 1-8789 gauge bar to the desired height of cut, making this measurement from the bar face to underside of screw head.
3. 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 (Fig. 6).

IMPORTANT: Do procedure No. 3 on each end of the bedknife. Retighten height of cut adjustment locknuts on both ends.

ADJUSTING COMB ASSEMBLY

To adjust the comb assembly, proceed as follows:

1. Assure rear roller is in the desired height-of-cut position. Loosen the bolts anchoring the front roller shaft. Rotate the shaft (Fig. 6).
2. To adjust the aggressiveness of the comb teeth, proceed as follows:
 - A. Teeth touching the adjusting gauge bar gives you an aggressive setting (Fig. 6).
 - B. Adjustment of the comb assembly so it is midway between the adjusting gauge bar and the cutting edge of the bedknife will provide a medium setting.
 - C. Adjusting the comb assembly so it is even with the cutting edge of the bedknife will provide a light setting.

NOTE: Securing one end of the comb assembly at a time simplifies the above procedure.

3. Tighten the roller shaft bolts (Fig. 6).

FRONT ROLLER SCRAPER ADJUSTMENT

The front roller scraper should be adjusted so there is a clearance of approximately 1/32 of an inch (0.8 mm) between the scraper and roller.

LUBRICATION

There are six (6) grease fittings on each cutting unit (Fig. 7, 8). Which should be greased at least once every two weeks. Lubricate using a No. 2 multi-purpose lithium base grease. A hand operated grease gun is recommended for best results.

1. Wipe each grease fitting with a clean rag.
2. Grease reel bearings as follows:
 - A. Hydraulic motor end; apply grease until pressure is felt against handle.

- B. Counterbalance end; apply grease until it starts to come through seal inside counter balance hole.

3. Apply grease to front and rear roller bearings until it begins to show around seal lips.

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

4. Wipe excess grease away.

LUBRICATION

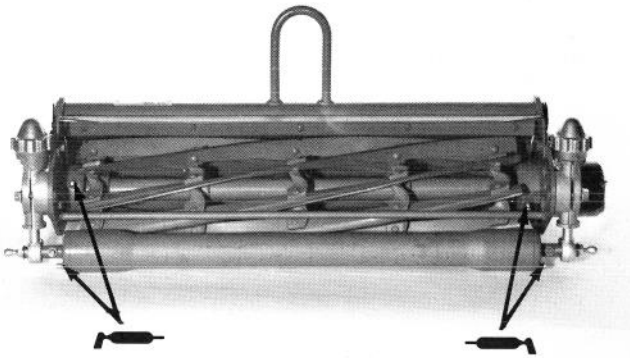


Figure 7

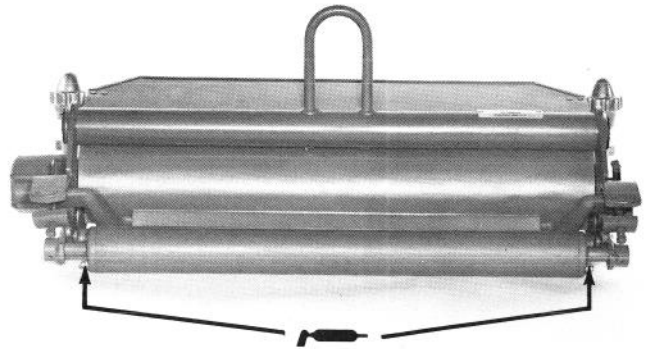


Figure 8

MAINTENANCE & ADJUSTMENTS

IMPORTANT: Reel motors must be removed before removing the cutting units to prevent hose damage due to twisting, bending, and kinking.

REEL LAPPING

Connect a lapping machine to the cutting unit with an extension coupler, and a 9/16 socket. The 9/16 socket can be positioned onto the cap screw on the reel shaft inside the counter-balance weight on the end of the cutting unit (Fig. 9). Backlap according to procedures in the TORO Sharpening Reel & Rotary Mowers Manual Form No. 80-300PT.

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



CAUTION

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

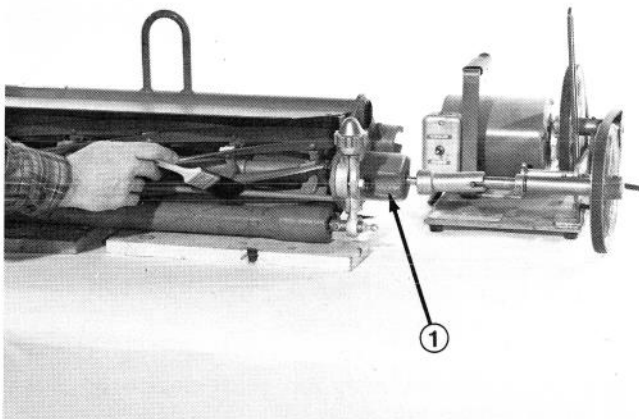


Figure 9

1. Counter Balance Weight

REMOVING BEDKNIFE FOR GRINDING

IMPORTANT: Before removing cutting unit, remove reel motors to prevent damaging hydraulic hoses.

The rear roller assembly must be removed in order to remove the bedknife assembly for sharpening. To remove the rear roller proceed as follows:

1. Remove cap screw and nut anchoring the rear roller height-of-cut bracket to the side plate on both ends of the cutting unit (Fig. 10).

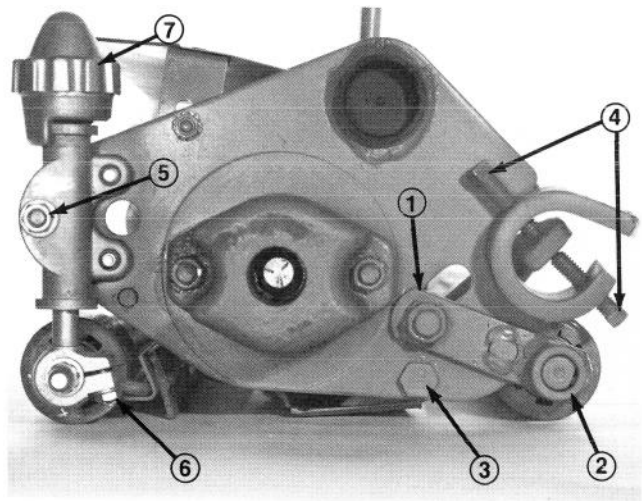


Figure 10

1. Rear Roller Height of Cut Bracket
2. Allen Set Screw
3. Bedbar Mounting Bolts
4. Bedknife Adjusting Screws
5. Height of Cut Rod Locknuts
6. Roller Shaft Clamp Bolts
7. Height of Cut Adjustment Knob

2. Loosen Allen set screws anchoring the roller shaft (Fig. 10).

MAINTENANCE & ADJUSTMENTS (Cont'd.)

REMOVING BEDKNIFE FOR GRINDING (Continued)

3. Remove the rear roller height-of-cut brackets from both side plates.
4. Remove the bedbar mounting bolts from each end of the cutting unit (Fig. 10). Then loosen the bedknife adjusting screws at each end of the cutting unit (Fig. 10). The bedknife assembly can then be removed by rotating it away from the reel.

IMPORTANT: When reinstalling the bedbar assembly, be sure to position the center portion of the grass shield over the rear edge of the bedbar (Fig. 11). Always recheck bearing adjustment after reassembling bedbar.

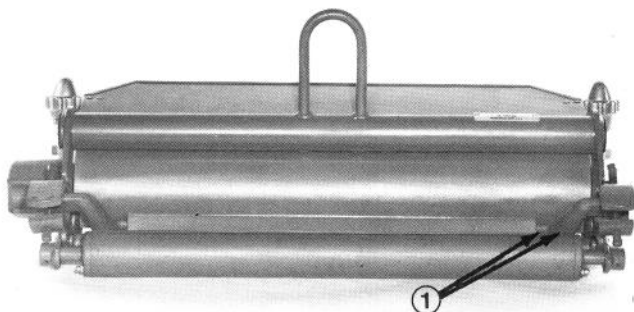


Figure 11

1. Bedbar Under Lip of Shield

NOTE: For proper grinding of bedknife, grind in accordance with procedures in the TORO Sharpening Reel & Rotary Mowers Manual Form No. 80-300PT.

PREPARING REEL FOR GRINDING

IMPORTANT: Before removing cutting unit, remove reel motors to prevent damaging hydraulic hoses.

The front roller may have to be removed so that the reel can be sharpened. To accomplish this, proceed as follows:

IMPORTANT: Some reel grinders may require that the rear roller assembly be mounted to the cutting unit for proper support in the reel grinder.

1. Loosen the locknuts securing the height of cut adjusting rods at both ends of the cutting unit and the roller shaft clamp bolts (Fig. 10).
2. Turn the height of cut adjustment knobs until they are disconnected from the height of cut adjusting rods (Fig. 10). The knobs are captivated on the upper washer face of height of cut clamp.

3. The roller assembly can then be removed from the cutting unit by pulling evenly on both sides.
4. For proper grinding of reel, grind in accordance with procedures in TORO Sharpening Reel & Rotary Mowers Form No. 80-300PT.

IMPORTANT: After grinding operation is complete, reassemble cutting unit, check bearing adjustment and adjust top shield and bar; refer to Adjusting Shield Height and Adjust Top Bar, page 4. Back lap the cutting unit to complete sharpening operation.

SERVICING AND ADJUSTING THE REEL BEARINGS

IMPORTANT: Before removing cutting unit, remove reel motors to prevent damaging hydraulic hoses.

It is recommended that a check be made periodically of the drag on the reel bearings. The reel bearings can be checked and adjusted in the following manner:

1. First, adjust the bedknife so it is not in contact with the reel.
2. The reel bearing drag should be from 10 to 20 inch pounds (1.13 to 2.26 N•m). This can be measured with a torque wrench (Fig. 12).

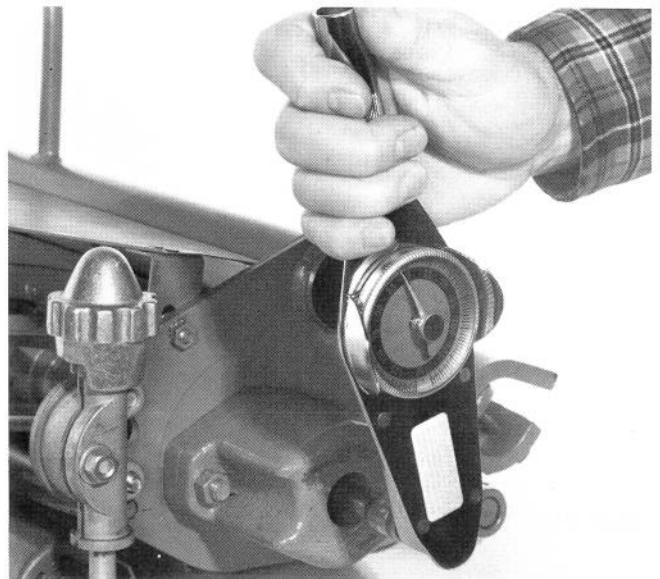


Figure 12

Should you find the bearing drag does not meet the above specification, the procedure to adjust the reel bearing drag is as follows:

1. Remove the mounting nuts from the counterbalance end cap and remove end cap from the mounting studs (Fig. 13).
2. Remove bolt mounted on the end of reel shaft. This will make it possible for a large socket wrench to be mounted on the reel bearing adjusting nut inside the side plate.

MAINTENANCE & ADJUSTMENTS (Cont'd.)

SERVICING AND ADJUSTING THE REEL BEARINGS (Continued)

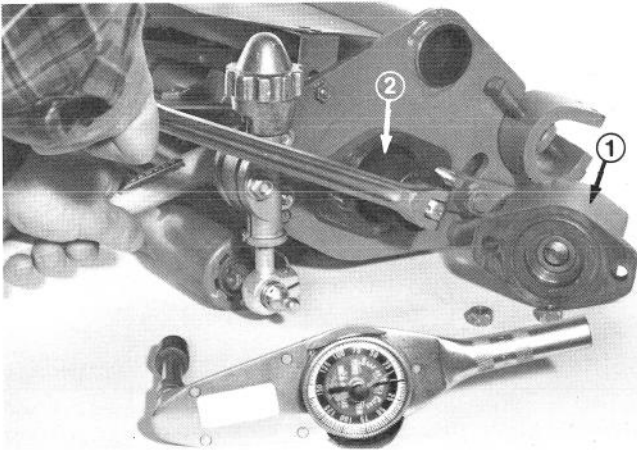


Figure 13

1. Counterbalance End Cap
2. Reel Bearing Adjustment Nut

3. With the wrench mounted, hold the reel and tighten the large reel bearing adjustment nut (Fig. 13). Tighten until the drag on the reel meets 10 to 20 inch-pound (1.13 to 2.26 N·m) specification.
4. Reinstall bolt into end of the reel shaft and check the torque with an inch/pound (N·m) torque wrench (Fig. 14).

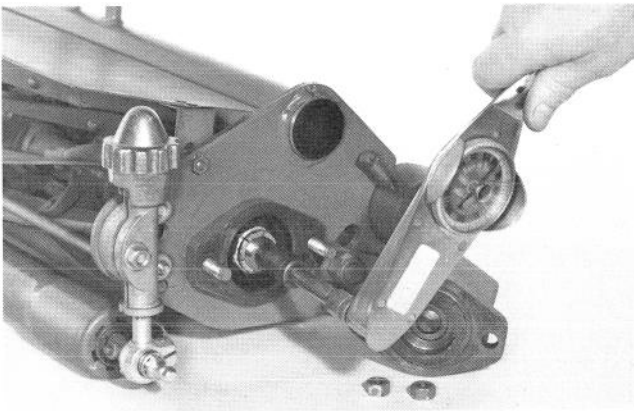


Figure 14

REMOVAL OF REEL ASSEMBLY

IMPORTANT: Before removing cutting unit, remove reel motors to prevent damaging hydraulic hoses.

To remove the reel assembly, proceed as follows:

1. Remove the front and rear roller assembly.
2. Remove counterbalance End Cap (Fig. 13).
3. Remove the large bearing adjustment nut from one end of the reel shaft (Fig. 13) and the special spline nut at the opposite end of the reel shaft.
4. Remove the mounting bolts from the bearing housing; both ends of cutting unit.

IMPORTANT: Remove grease fittings from the bearing housing at each end of the cutting unit. Note that the straight fitting is on the right end, and the 90° fitting at the left end (when viewed in the direction of travel).

5. Using a plastic headed hammer, rotate bearing housing slightly, install bearing housing bolts from outside housing, turn bolts alternately against side plate and use this method to remove bearing housing (Fig. 15).

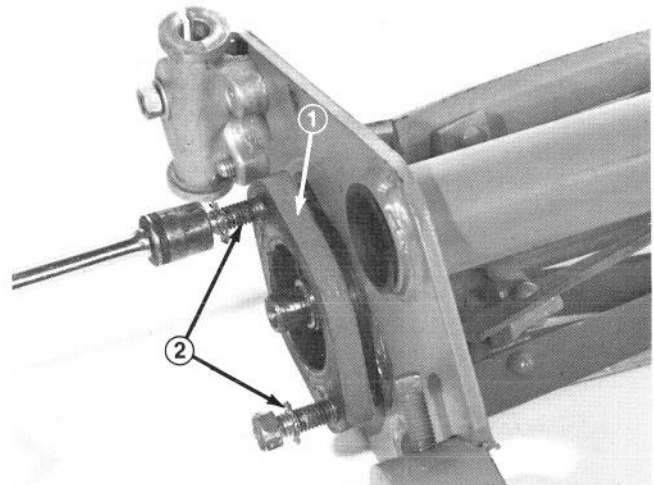


Figure 15

1. Bearing Housing - Rotate Slightly
2. Bearing Housing Mount Bolts - Thread Against Side Plate to Remove Housing

6. The bearing housing will slip out of the side plates and the reel assembly can be removed as soon as the bearing housings are disassembled from the side plates.

LEVELING REAR ROLLER ASSEMBLY TO REEL

1. Mount rear roller and height-of-cut brackets onto cutting unit. For height-of-cut settings 1/4 inch (6 mm) or below, set one bracket in the side plate to 1/8 inch (3 mm) from bottom of the slot and tighten nut on the capscrew. Leave bracket on the other side mounted loosely (Fig. 16). Above 1/4 inch (6 mm) height-of-cut, center bracket in slot and tighten nut.

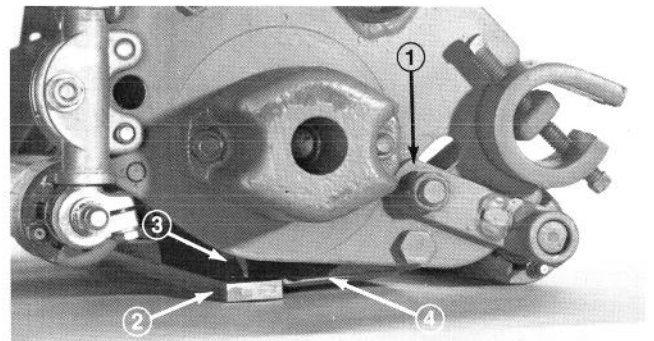


Figure 16

1. Rear Roller Bracket
2. 1/4 Inch (6 mm) Steel Plate
3. Reel Blades
4. Bedknife

MAINTENANCE & ADJUSTMENTS (Cont'd.)

LEVELING REAR ROLLER ASSEMBLY TO REEL (Cont'd)

2. Place a 1/4 inch (6 mm) or thicker plate under the reel blades and against the cutting edge of the bedknife (Fig. 16).

NOTE: Be sure the plate covers the full length of reel blades.

3. With the Cutting Unit reel blades positioned on the plate, hold Cutting Unit securely and push down on the rear roller assembly until it contacts the working surface across the full length of the roller (Fig. 17).

NOTE: This adjustment should be made on a flat working surface. If roller does not fully contact surface because bracket is bottomed out in slot, therefore hindering leveling of roller, loosen nut on roller bracket and move bracket up in slot to level roller on flat surface. Re-tighten nut and proceed to item 4.

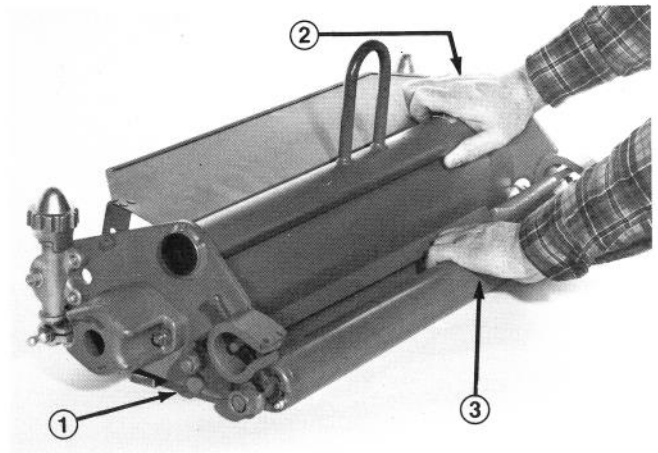


Figure 17

1. Unit on Level Surface
2. Hold Unit Securely
3. Push Down on Roller

4. Secure nut on outside of rear roller height-of-cut bracket to lock roller in place.

MAINTENANCE RECORD

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MAINTENANCE RECORD

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The Toro Promise

A ONE YEAR LIMITED WARRANTY

The Toro Company promises to repair your TORO Product if defective in materials or workmanship. The following time periods from the date of purchase apply:

Commercial Products 1 Year

The costs of parts and labor are included, but the customer pays the transportation costs on walk rotary mowers with cutting unit widths of less than 25".

If you feel your TORO product is defective and wish to rely on The Toro Promise, the following procedure is recommended:

1. Contact your Authorized TORO Distributor or Commercial Dealer (the Yellow Pages of your telephone directory is a good reference source).
2. The TORO Distributor or Commercial Dealer will advise you on the arrangements that can be made to inspect and repair your product.
3. The TORO Distributor or Commercial Dealer will inspect the product and advise you whether the product is defective and, if so, make all repairs necessary to correct the defect without an extra charge to you.

If for any reason you are dissatisfied with the distributor's analysis of the defect or the service performed, you may contact us.

Write:

TORO Commercial Products Service Department
8111 Lyndale Avenue South
Minneapolis, Minnesota 55420

The above remedy of product defects through repair by an Authorized TORO Distributor or Commercial Dealer is the purchaser's sole remedy for any defect.

THERE IS NO OTHER EXPRESS WARRANTY. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR USE ARE LIMITED TO THE DURATION OF THE EXPRESS WARRANTY.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

This Warranty applies only to parts or components which are defective and does not cover repairs necessary due to normal wear, misuse, accidents, or lack of proper maintenance. Regular, routine maintenance of the unit to keep it in proper condition is the responsibility of the owner.

All warranty repairs reimbursable under the Toro Promise must be performed by an Authorized TORO Commercial Dealer or Distributor using Toro approved replacement parts.

Repairs or attempted repairs by anyone other than an Authorized TORO Distributor or Commercial Dealer are not reimbursable under the Toro Promise. In addition, these unauthorized repair attempts may result in additional malfunctions, the correction of which is not covered by warranty.

THE TORO COMPANY IS NOT LIABLE FOR INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE USE OF THE PRODUCT INCLUDING ANY COST OR EXPENSE OF PROVIDING SUBSTITUTE EQUIPMENT OR SERVICE DURING PERIODS OF MALFUNCTION OR NON-USE.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion 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.

COUNTRIES OTHER THAN THE UNITED STATES OR CANADA

Customers who have purchased TORO products exported from the United States or Canada should contact their TORO Distributor (Dealer) to obtain guarantee policies for your country, province or state. If for any reason

you are dissatisfied with your Distributor's service or have difficulty obtaining guarantee information, contact the TORO importer. If all other remedies fail, you may contact us at The Toro Company.