

TORO®MODEL NO. 04460 — 00701 & UP
MODEL NO. 04465 — 00560 & UP**OPERATOR'S
MANUAL****GREENSMASTER® 3000 CUTTING UNIT**
(w/GROOMER REEL)

Since this operator's manual covers only a minimal amount of information necessary to maintain and operate your machine, we suggest that you keep this material with your Traction Unit Operator's Manual so that both may be referred to for instructions concerning safe operation and proper maintenance procedures.

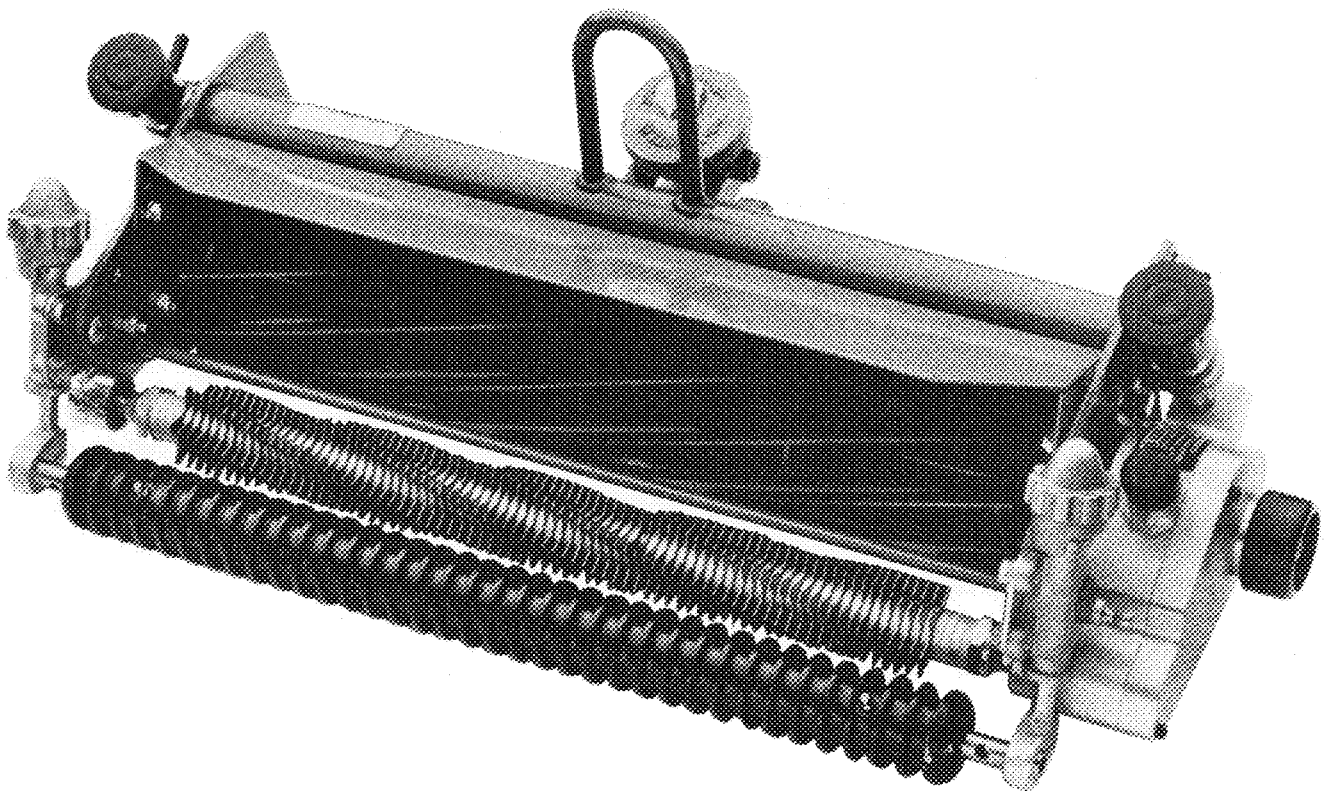


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LOOSE PARTS

DESCRIPTION	QTY.	USE
Flange Locknut	2	Mount Reel Drive motor to Cutting Unit.
Shipment Trace Card	1	
Registration Card	1	

SPECIFICATIONS

CUTTING UNIT

Height Of Cut: 3/32 (.094) in. to 3/4 in. (.75).

Power: Hydraulic motor splined to reel shaft.

Roller Adjustment:

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

Rear: Roller brackets allow adjustment for different height of cuts. Offset pivot bolt adjustment to ease in leveling.

Bearings: Timken tapered roller.

Bedknife & Bedbar: Single edge high carbon steel knife attached to a cast iron bedbar; single screw adjustment with eccentric bedbar leveling.

Bedknife To Reel Adjustment: Bedknife adjusts against reel, with positive adjustment control knob located at center of bedbar. Adjustment knob contains detent with .001 inch movement of bedknife for each indexed position.

Groomer Reel: Has forty-one (41) 2.125" diameter, 0.028" thick heat treated spring steel blades @ .50" spacing operating at 3200 rpm. Groomer reel has hydraulically powered cog belt drive with a cam actuated pin clutch. Clutch easily engaged with a snubber button on top left gear case. Depth can be adjusted to maximum of 0.18" below height of cut with "quick up, quick down" actuating feature that raises reel 5/16".

OPTIONS:

Swaged Roller Kit: Model No. 04414.

Full Roller Kit: Model No. 04412.

Wiehle Roller Kit: Model No. 04424.

Low Height of Cut Bedknife: Part No. 63-8470.

High Cut Bedknife: Part No. 62-2500.

Tournament Bedknife: Part No. 63-8560.

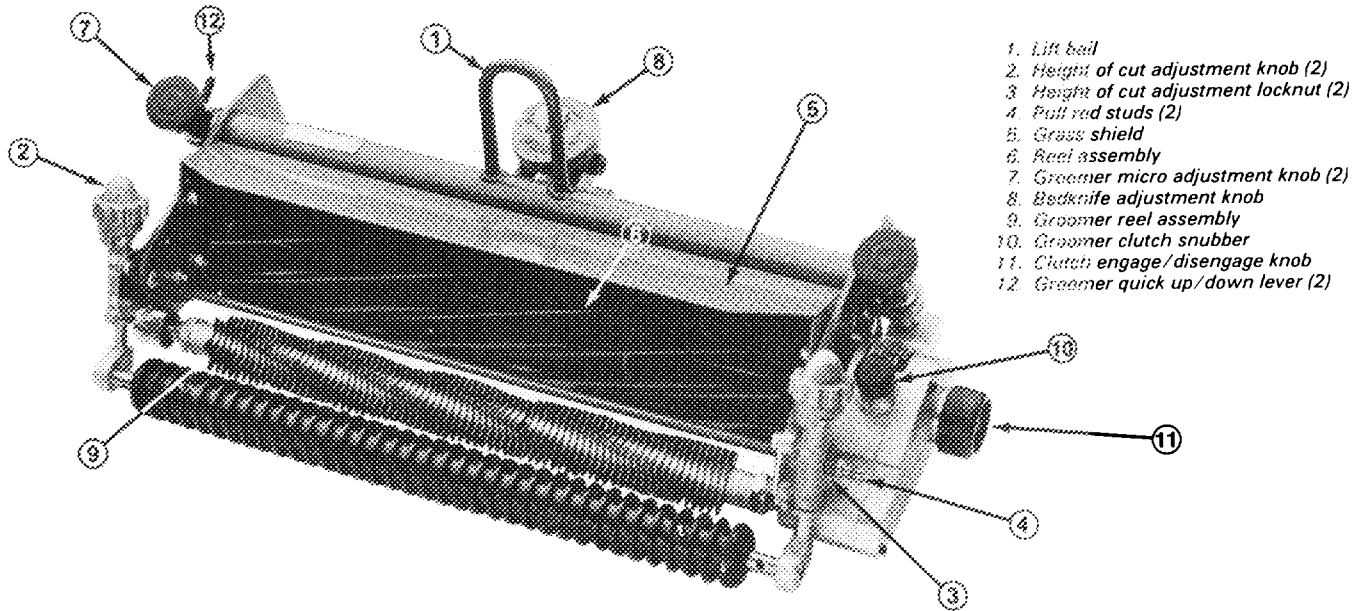
Fairway Bedknife: Part No. 63-8600.

Basket Reinforcement Kit: Model No. 26-0900.

Bearing Replacement Tool Kit: Model No. 23-8900.

Rear Roller Scraper Kit: Part No. 53-9240.

KNOW YOUR CUTTING UNIT



1. Lift bail
2. Height of cut adjustment knob
3. Height of cut adjustment locknut
4. Pull red studs
5. Grass shield
6. Reel assembly
7. Groomer micro adjustment knob
8. Bedknife adjustment knob
9. Groomer reel assembly
10. Groomer clutch snubber
11. Clutch engage/disengage knob
12. Groomer quick up/down lever

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.

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

1. The cutting unit is shipped without a front roller. Install roller using instructions included with roller.
2. Retain (2) flange nuts supplied in loose parts for mounting reel drive motor to cutting unit.
3. Check for looseness in the bearings between the end plate and reel by moving reel laterally or axially on each end of Cutting Unit. Refer to Servicing and Adjusting the Reel Bearing, page 13.
4. Check to make sure bedknife and reel are parallel. On either end of front side of cutting unit insert a long strip of newspaper between reel

blade and bedknife. Slowly rotate reel and turn bedknife adjusting knob (using a wrench) (Fig. 1) clockwise one click at a time, until paper is pinched lightly, which results in a slight drag when paper is pulled. Check opposite end for light contact using paper. If light contact is not evident at both ends, bedknife is not parallel to reel. Refer to Parallel Bedknife to Reel, page 12.

LEVELING REAR ROLLER TO REEL

1. Position Cutting Unit on a flat, level surface.
2. Assemble rear Height of Cut brackets to desired position, by loosening top capscrew and nut and removing bottom nut and bolt on right and left hand sides of cutting unit (Fig. 2).

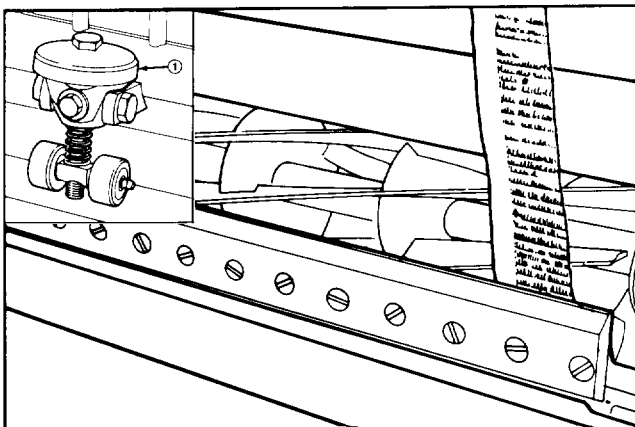


Figure 1

1. Bedknife adjusting knob

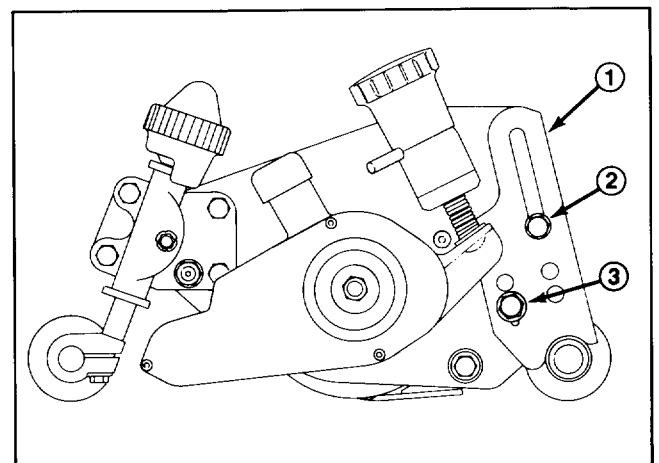


Figure 2

1. Rear height of cut bracket
2. Top capscrew and nut
3. Bottom nut

SETTING UP INSTRUCTIONS

3. Slide bolts thru each bracket until brackets can be realigned with appropriate mounting hole. See table (Fig. 3) for proper position on brackets.

Note: The various rear roller bracket positioning holes (B thru E) are designed to optimize bedknife location for different heights of cut.

To determine the correct hole setting, find the desired height of cut in the chart below and note the recommended hole position letter. The typical height of cut values can be used as a guide.

Typical Height of Cut — inch	Recommended Rear Roller Bracket Hole Positions	Height of Cut Ranges — inch
1/8* (.125)	B	3/32 - 1/4 (.094 - .250)
1/4 (.250)	C	3/16 - 3/8 (.187 - .375)
3/8 (.375)	D	1/4 - 1/2 (.250 - .500)
1/2 (.500)	E	3/8 - 3/4 (.375 - .750)

Table — Figure 3

*With appropriate bedknife

Note: The "B" hole position normally is the best rear roller location for most low (3/32" - 1/8") cutting conditions.

The height of cut ranges listed have more than one possible hole position. It may be necessary to deviate outside the above suggested ranges if grass conditions warrant.

4. After positioning into correct height-of-cut hole position, install flatwashers and nuts and securely tighten right hand rear roller bracket cap screws (Fig. 4).

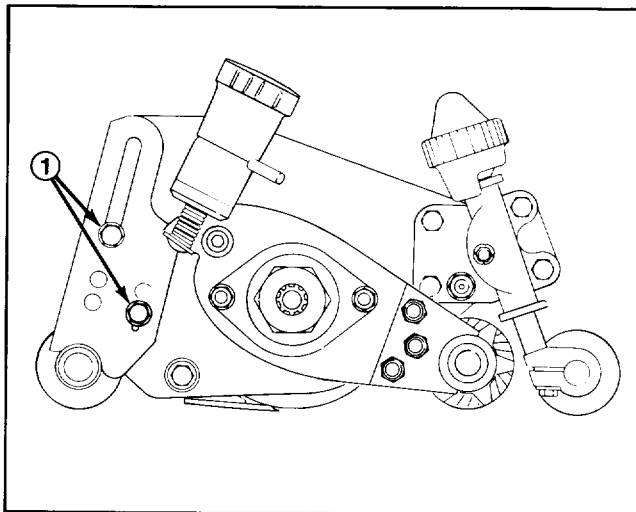


Figure 4

1. Right rear roller bracket cap screws

5. Left hand rear roller bracket cap screws are to be tightened only enough to remove excessive looseness in assembly, but allow bracket to slide freely on side plate.

6. Position a 1/4 inch or thicker plate under the reel blades and against the front face of the bedknife (Fig. 5).

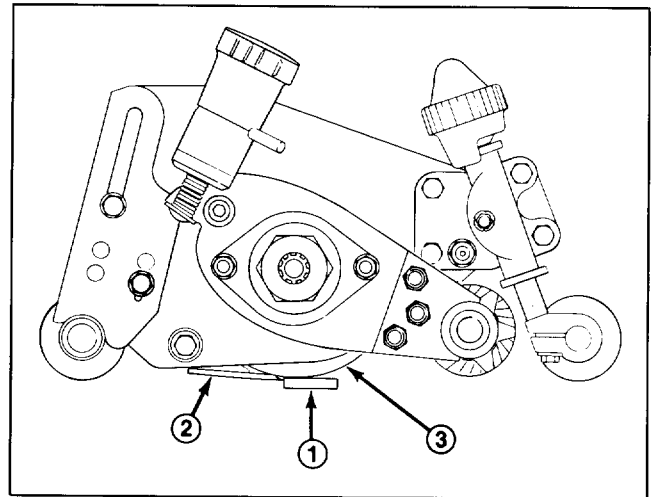


Figure 5

1. 1/4" plate
2. Bedknife
3. Reel assembly

Note: Be sure that the plate covers the full length of reel blades, and (3) blades contact plate.

7. While holding reel securely on plate, level roller by rotating lower left roller pivot bolt. The pivot bolt has an offset thread which when rotated, acts as a cam to raise or lower the roller. On the bolt head there is an identification dot (Fig. 6) which denotes the offset of the bolt. Dot indicates in which direction left end of roller moves when bolt is turned.

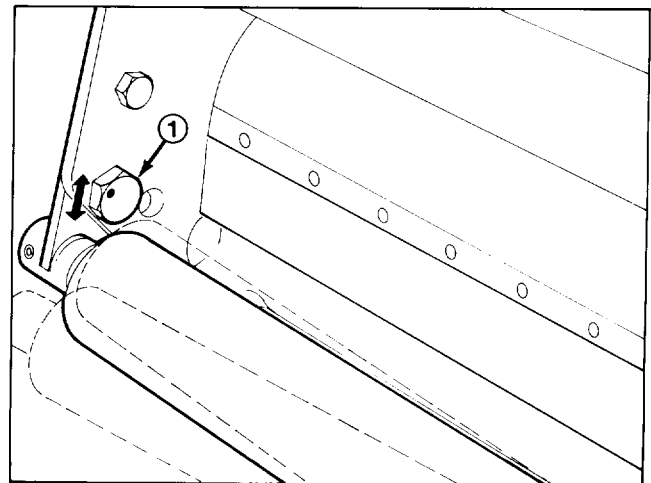


Figure 6

1. Pivot bolt

8. To verify if roller is level, try inserting a piece of paper under each end of roller.

9. When roller is level, tighten left cap screw and pivot bolt securely.

SETTING UP INSTRUCTIONS

ADJUSTING HEIGHT OF CUT

1. Verify the rear roller brackets are in the correct hole positions corresponding with desired height of cut and that rear roller is level. Also, check that bedknife to reel contact is correct. (See Table — Fig. 3).

2. Turn cutting unit over and loosen locknuts securing front roller adjusting screws to Height of Cut brackets (Fig. 7).

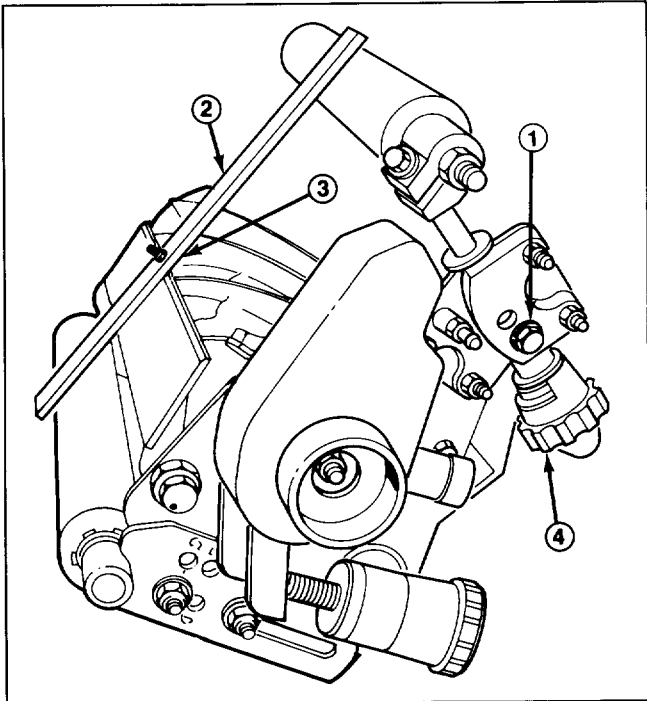


Figure 7

1. Locknuts (2)
2. Gauge bar
3. Screw head over bedknife
4. Adjustment knob (2)

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

4. Place the bar across the front and rear rollers and adjust the height of cut knob until the underside of screw head engages the bedknife cutting edge (Fig. 7).

IMPORTANT: Do procedure No. 4 on each end of bedknife and retighten height of cut adjustment locknuts on each end.

ADJUSTING SHIELD HEIGHT

Adjust shield to assure proper grass clipping discharge into basket:

1. Set cutting unit in normal cutting position and

measure distance from top of front crossbar to shield at each end of cutting unit (Fig. 8).

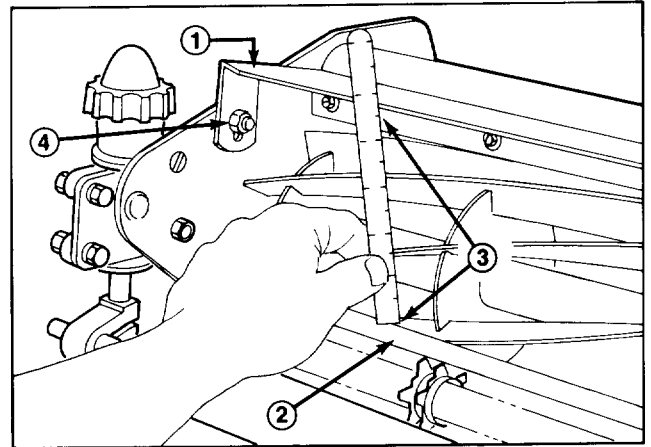


Figure 8

1. Shield
2. Front crossbar
3. 4-3/4 inches
4. Shield fasteners

2. Height of shield from crossbar for normal cutting conditions should be 4-3/4 inches. Loosen capscrews and nuts securing shield to each sideplate, adjust shield to correct height and tighten fasteners (Fig. 8).

3. Repeat adjustment on remaining cutting units and adjust top bar: refer to Adjusting Top Bar, page 5.

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:

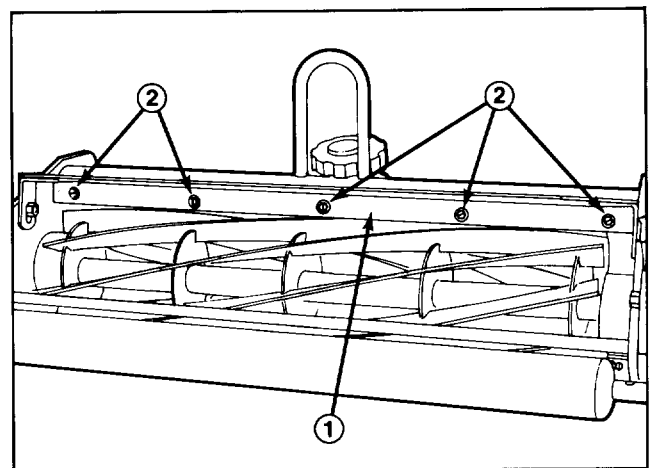


Figure 9

1. Top bar
2. Bar mounting screws

SETTING UP INSTRUCTIONS

1. Loosen screws securing top bar (Fig. 9). Insert 0.060 inch feeler gauge between top of reel and bar and tighten screws (Fig. 9). Assure bar and reel are equal distance apart across complete reel.
2. 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 GROOMER HEIGHT/DEPTH

To set height/depth of the groomer reel:

1. Make sure the rollers are clean and main reel is set to desired height of cut. Turn cutting unit over and position on work surface (Fig. 10).
2. Hold the clutch snubber down and rotate the clutch knob clockwise to disengage the clutch (Fig. 10). Then, rotate both Quick Up Levers to lower the grooming reel into grooming position (Fig. 10).
3. On one end of cutting unit, place a gauge bar across the front and rear rollers. Measure the distance from the lowest tip of a groomer blade to the gauge bar (Fig. 10). Lift and turn the micro adjustment knob (Fig. 10) to raise or lower blade tip. Each notch on the micro adjustment knob is equal to approximately .007 inch of groomer depth.

4. Repeat step 3 on the opposite side of the cutting unit, then recheck the height/depth setting on the original adjustment side. Readjust, if necessary.
5. Return the grooming reel to transport position and ensure the groomer clutch is disengaged.

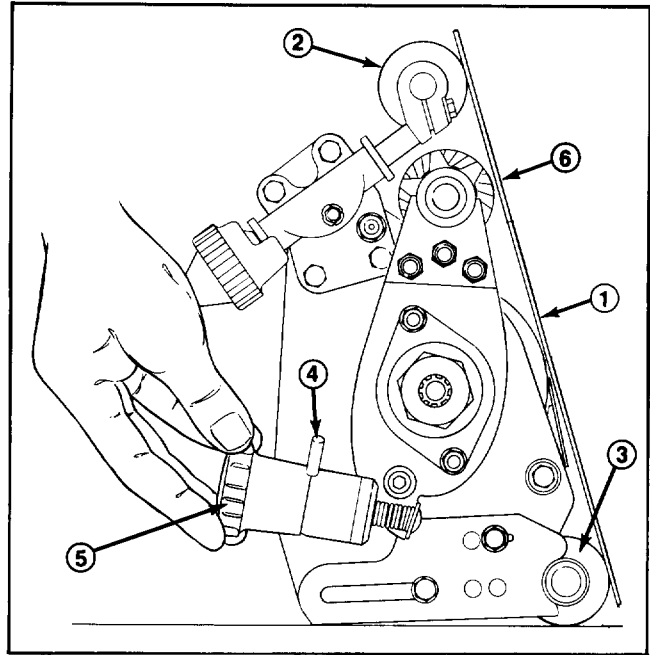


Figure 10

1. Gauge bar
2. Front roller
3. Rear roller
4. Quick up lever (2)
5. Micro adjustment knob (2)
6. Measure distance here

OPERATING INSTRUCTIONS

FUNCTIONAL CHARACTERISTICS

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

In addition, the rear roller positioning system permits optimum bedknife attitude and location for varying height-of-cuts and turf conditions.

DAILY ADJUSTMENTS

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.

1. Shut off engine and lower cutting units onto a hard surface.
2. Remove grass baskets.
3. On each cutting unit, loosen (2) flange nuts securing reel motor to cutting unit.
4. Twist motor clockwise to disengage from cutting unit and remove motor.
5. Slowly rotate reel in reverse direction listening for reel-to-bedknife contact. If no contact is evident, turn bedknife adjusting knob clockwise, one click at a time, until light contact is felt and heard.

OPERATING INSTRUCTIONS

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

7. Reassemble motor to cutting unit.

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 be accelerated, uneven wear can result, and quality of cut may be adversely affected.

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

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

GROOMER OPERATION

Grooming golf course greens is a variation of an old technique that is receiving new found popularity. It is associated with the golfer's desire for faster and truer greens. Grooming is usually performed above the soil level. Grooming promotes vertical growth of the grass by cutting runners (stolons), removing thatch and encouraging denser growth and deeper rooting (Fig. 11). This can, in effect, yield a more even grass with less "grain" for faster and truer action of the golf ball.

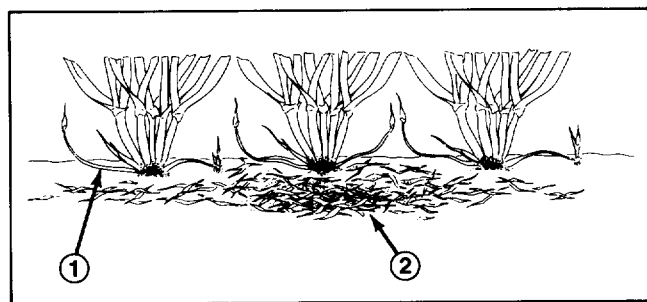


Figure 11

1. Grass runners (Stolons)
2. Thatch

Grooming is similar to verti-cutting in its runner cutting action. Grooming however, can not deeply penetrate the soil like verti-cutting. Groomer blades are spaced closer together and are used more often than verti-cutters so that they are more effective in cutting runners and removing thatch. Verti-cutters are used primarily for greens renovation while groomers are used for ongoing greens upkeep.

It is difficult to make precise recommendations on the use of grooming reels because so many variables affect the performance of grooming, including:

- A. The time of the year (i.e., the growing season) and weather pattern.
- B. The general condition of each green.
- C. The frequency of grooming/cutting — both how many cuttings per week and how many passes per cutting.
- D. The height of cut setting on the main cutting reel.
- E. The height/depth setting on the grooming reel.
- F. How long the grooming reel has been in use on this green.
- G. Type of grass on the green.
- H. The overall greens management program (i.e. irrigation, fertilizing, spraying, coring, over seeding, etc.).
- I. Traffic.
- J. Stress periods (i.e., high temperatures, high humidity, unusually high traffic.).

These factors can vary from golf course to golf course and from green to green. It is important, therefore, to inspect the greens frequently and vary the grooming practice in accordance with the need.

The groomer is set at the factory with 1/2" blade spacing. By removing spacers and adding blades the groomer can be changed to 1/4" or 3/4" spacing.

Grooming with 1/4" blade spacing is recommended for fast growth periods (spring through early summer). Grooming with 3/4" blade spacing is recommended for slower growth periods (late summer through fall and winter). During high stress periods it may be desirable to not use the grooming reel.

Note: Grooming with 1/4" blade spacing will tend to remove grass blades and thatch and cut runners. Grooming with 3/4" blade spacing primarily removes thatch and cuts runners. If grooming with 1/4" blade spacing, up to two groomings per week will probably be sufficient except during maximum growth periods.

Note: The practice of changing the direction of cut each time the green is cut should be continued when a groomer is used. This rotation will enhance the effects of the grooming.

OPERATING INSTRUCTIONS

TEST GROOMER PERFORMANCE

IMPORTANT: Improper or over aggressive use of the grooming reel (i.e., too deep or too frequent grooming) may cause unnecessary stress on the turf leading to severe greens damage. Use the groomer cautiously.



DANGER

Before making any adjustments to cutting units disengage the reels, set the parking brake, turn the engine off and remove the key.

It is important to determine the performance of the groomer before putting it into regular use on greens. Toro strongly suggests that a formal test procedure be used. The following is a practical way of determining the proper height/depth setting.

1. Set the main cutting reels to the height of cut that would normally be used without the grooming reel. Use a Wiehle roller on the front and a full roller with scrapers on the rear (a Wiehle roller can be used on the rear at height of cut settings 3/16" or below but this may result in a slightly deeper cut).
2. Set each of the grooming reels at a different setting as follows:
 - A. One groomer 1/32" above the roller level.
 - B. One groomer flush with the roller level.
 - C. One groomer disengaged and raised into the transport position.
3. Make a pass over the test green and look at the results. The reel with the groomer set at 1/32" above the roller level will have removed more grass and thatch than the reel with the groomer disengaged. The reel with the groomer set flush with the roller level will have removed significantly more grass and thatch than the other two reels.
4. Examine the test green and determine if one of the two groomed areas gives the desired results. If not, lower and engage the third groomer, increase or decrease the height/depth of the groomers and make another test pass. The amount of grass removed is a key indicator in determining the height/depth setting of the grooming reel.

Check the test green 2 or 3 days after the first grooming for general condition/damage. If the groomed areas are turning yellow/brown, and the non-groomed areas are green, then the grooming was too aggressive.

Note: The color of the grass will change when the grooming reel is used. This can be observed with the first grooming and will continue over time. Experience will allow the greens superintendent to judge by color of the turf (along with close examination) if the current grooming practice is appropriate for the particular green. Because the grooming reel stands up more grass and removes thatch, the quality of the cut will not be the same as without the groomer. This effect is most noticeable the first few times a groomer is used on a green.

Note: On multiple passes (i.e., double and triple cutting), the groomer will continue to penetrate deeper on each successive pass. Multiple passes are not recommended.

5. After testing the performance of the groomer on a test green and satisfactory results are obtained, grooming on the playing greens can begin. It is important to realize, however, that each green may respond differently to grooming. In addition, growing conditions are constantly changing. Inspect the groomed greens frequently and make adjustments to the grooming procedure as often as necessary.

CLUTCH ENGAGE/DISENGAGE



CAUTION

The clutch engagement knob rotates during normal operation of the grooming unit. Keep loose clothing, hair, etc, away.

The grooming reel should be disengaged at all times except during grooming. To operate the clutch, depress the clutch snubber and engage the clutch by turning the clutch knob counter-clockwise — turn the clutch knob clockwise to disengage the clutch (Fig. 12).

IMPORTANT: When engaging or disengaging the clutch, be sure to turn the knob all the way (it will come to a firm stop). Failure to do so could cause damage to the clutch.

TRANSPORT MODE

IMPORTANT: When transporting the traction unit be sure to disengage the groomer clutch and raise the grooming reel into its transport (raised) position. To raise the grooming reel, rotate the right and left quick up levers so they face to the rear (Fig. 12). To lower the grooming reel, turn the quick up levers forward and engage the clutch.

OPERATING INSTRUCTIONS

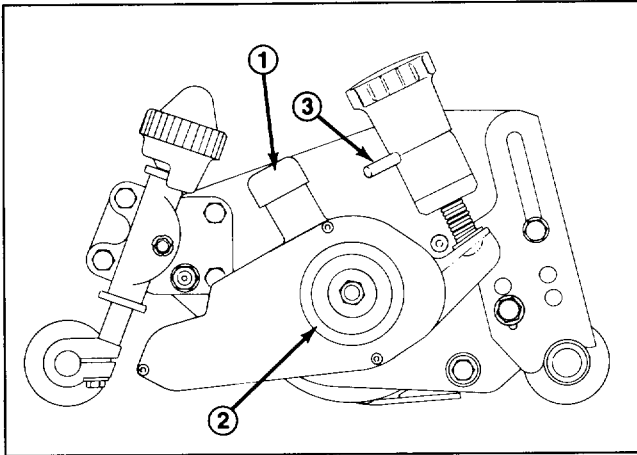


Figure 12

1. Clutch snubber
2. Clutch knob
3. Quick up lever (2)

GRASS BASKET AND ROLLERS

When using the grooming reel with grass baskets, check the gap between the basket and the grooming

reel. The reel to basket gap should be 1/4 inch. When the reel is in the fully raised (transport) position it may contact the basket and damage it if the clutch is engaged. To change the basket gap, adjust the pull arms (see procedure in the GREENMASTER Traction Unit Operator's Manual).

The grooming reel will increase the amount of grass and thatch picked up. This means the grass baskets will have to be emptied more often.

If the grooming reels are set to a negative depth relative to the rollers, the groomer will penetrate deeper than the cutting unit. Because of this, the groomer will cut into the base of the grass blade which is stickier. Grass will tend to build up on the rear roller faster than without the groomer. A rear roller scraper is strongly advised when grooming reels are used.

A Wiehle roller is recommended on the front when using a grooming reel. A Wiehle roller can also be used on the rear to avoid grass build up if the height of cut is at or below 3/16". If the height of cut is set over 3/16", then a full roller with scrapers is advised.

LUBRICATION

There are nine (9) grease fittings on each cutting unit (Fig. 13, 14), 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 bearing 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.

4. Apply only 2-3 pumps maximum to the groomer reel shaft bearings.

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

5. Apply grease to all pivot points.

6. Wipe excess grease away.

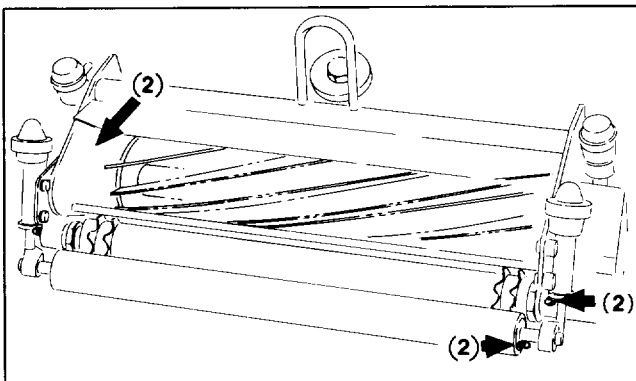


Figure 13

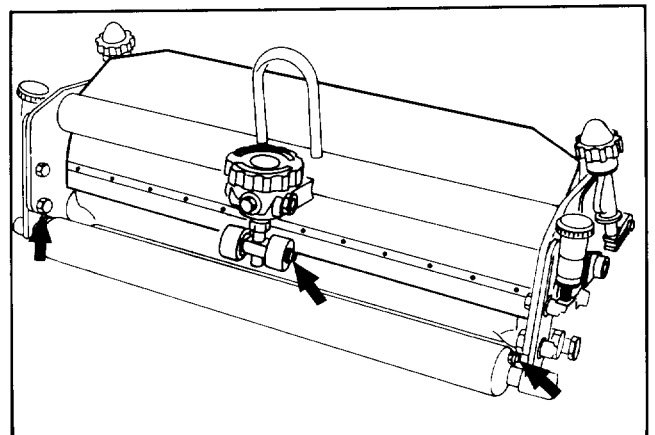


Figure 14

MAINTENANCE AND ADJUSTMENTS

CLEANING

Hose the cutting unit and groomer assembly down thoroughly after use. To prevent seal damage and contamination, do not direct the stream at the groomer bearing seals. To prevent rust, do not leave the cutting units stand in water.

GROOMER REEL BLADE INSPECTION

Inspect grooming reel blades frequently for damage and wear. Straighten bent blades with a pliers. Either replace worn blades or reverse the grooming reel shaft to put the sharpest blade edge forward (Fig. 15). During blade inspection procedures, check to ensure the right and left blade shaft end nuts are tight.

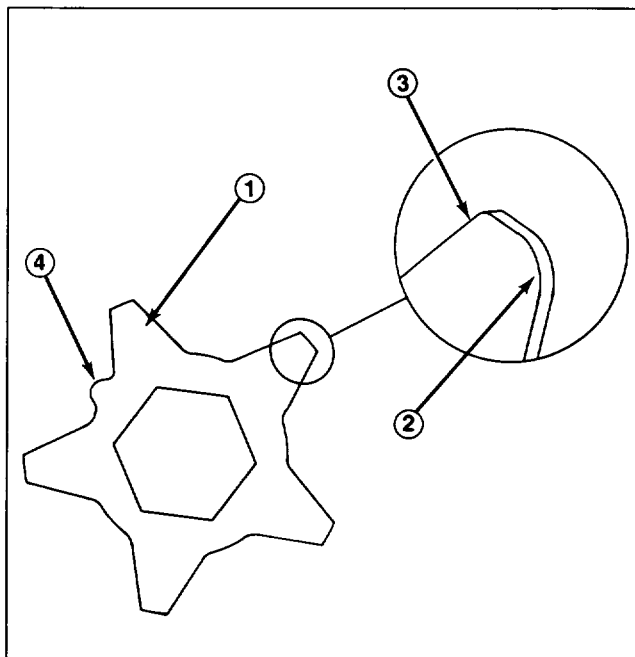


Figure 15

1. Grooming blade
2. Dull rounded edge
3. Sharp edge
4. Location mark

Note: Because the groomer may introduce more debris (i.e., dirt and sand) into the cutting unit than normal, the bedknife and main reel should be inspected for wear more frequently. This is especially important in sandy soil and/or when the groomer is adjusted for penetration.

GROOMING REEL REPLACEMENT

To replace individual groomer blades, or to reverse or replace the shaft, proceed as follows:

1. Remove the left side grooming reel housing cover (Fig. 16). Loosen the idler pulley and remove the drive belt (Fig. 17).

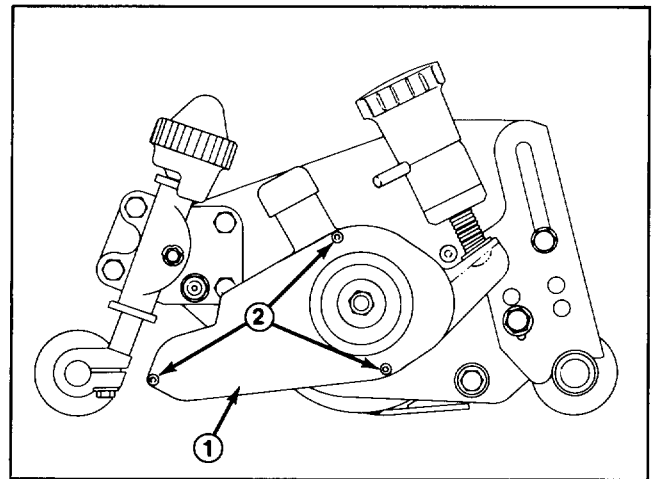


Figure 16

1. Grooming reel cover
2. Cover screws and washers

2. Remove the grooming reel drive pulley (left hand thread) (Fig. 17). then, remove the locknut securing the grooming reel to the right housing bracket.

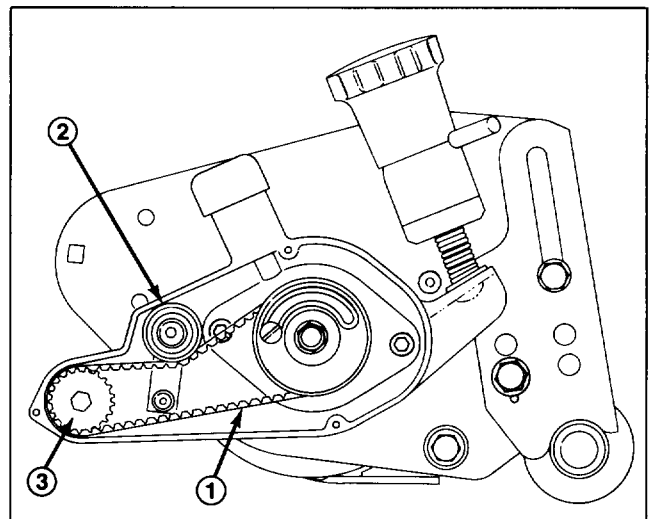


Figure 17

1. Drive belt
2. Drive belt idler pulley
3. Grooming reel drive pulley

3. Unfasten three bolts and nuts securing the bearing bracket to the right side and remove the grooming reel shaft assembly.

4. Assemble the shaft in reverse order. Using the location marks on each blade as a guide, assemble each blade so the location mark is offset one flat on the hexagonal shaft.

Note: The location marks on each blade are offset so they can be used to achieve proper grooming reel setup. Stack the blades and match the location marks before installing them on the groomer reel shaft.

MAINTENANCE AND ADJUSTMENTS

Torque the drive pulley and locknut (left hand thread) to 29-35 ft-lb (Fig. 17). Check drive belt tension. There should be 1/4 inch deflection when a force of 5-10 lb is applied midway between the drive and driven pulleys (Fig. 17). To adjust belt tension, loosen the backside idler pivot screw and pivot the idler to achieve proper tension. Torque the pivot screw to 7-10 ft-lb.

5. Using a hand pump grease gun, lubricate the grooming reel shaft bearings. Pump only 2-3 pumps maximum to avoid permanent damage to the grease seals.

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

REEL LAPPING

Backlap with the use of a length of 3/8" square stock into the center hole in the reel shaft on the reel drive motor end of the cutting unit. Attach a socket, extension and backlapper and backlap according to procedure in the TORO Sharpening Reel & Rotary Mowers Manual, Form No. 80-300 PT.

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.

REMOVING BEDKNIFE

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

1. Remove spring arm retaining capscrew and washer from pivot assembly. Loosen pivot screws securing bedknife pivot assembly to reel frame supports (Fig. 18).

2. Rotate adjustment knob and pivot assembly clockwise (left hand thread) until it separates from bedbar pivot (Fig. 18).

3. Loosen jam nuts retaining right and left bedbar pivot bolts. Remove pivot bolts (Fig. 18).

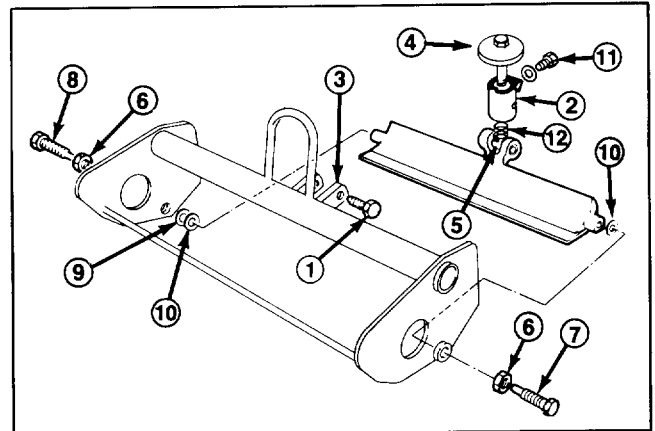


Figure 18

- | | |
|----------------------------|-----------------------------------|
| 1. Pivot screw | 7. Left bedbar pivot bolt |
| 2. Bedknife pivot assembly | 8. Right bedbar pivot bolt |
| 3. Reel frame supports | 9. Steel washer |
| 4. Adjustment knob | 10. Plastic washer |
| 5. Bedbar pivot | 11. Spring arm retaining capscrew |
| 6. Jam nuts | 12. Compression spring |

IMPORTANT: Note position of plastic washer and steel washer on right end of bedbar, and plastic washer on left end of bedbar for reinstallation.

4. Slide bedbar down and out from under cutting unit. Do not misplace washers.

5. Adjust reel bearings, then grind the reel to remove any taper and renew cutting edges.

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

6. To reinstall, slide bedbar into position between sideplates making sure each end of bedbar is under shield (Fig. 19).

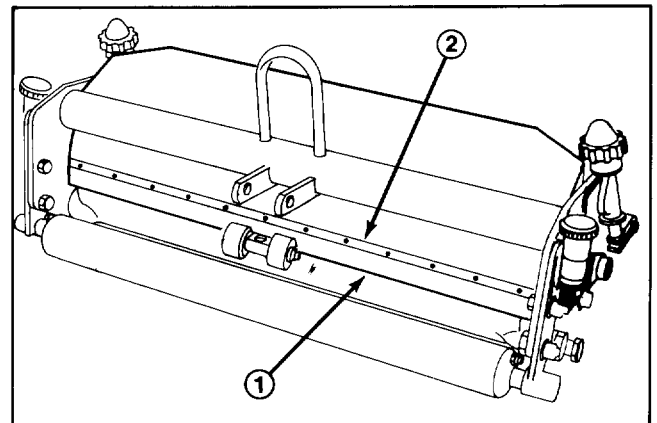


Figure 19

1. Bedbar 2. Shield

Note: To ease assembly of bedbar to sideplates, steps 7 & 8, start assembly of both ends before completing installation.

MAINTENANCE AND ADJUSTMENTS

IMPORTANT: Always use McLUBE (Toro Part No. 505-35) on bedbar pivot and pivot bolts.

7. Mount left side of bedbar to sideplate with eccentric pivot bolt, jam nut and plastic washer. Position washer between bedbar and sideplate. Thread pivot bolt into bedbar until the distance from top of pivot bolt and sideplate is 1-5/16" with identification dot positioned to rear. Do not tighten jam nut at this time (Fig. 20).

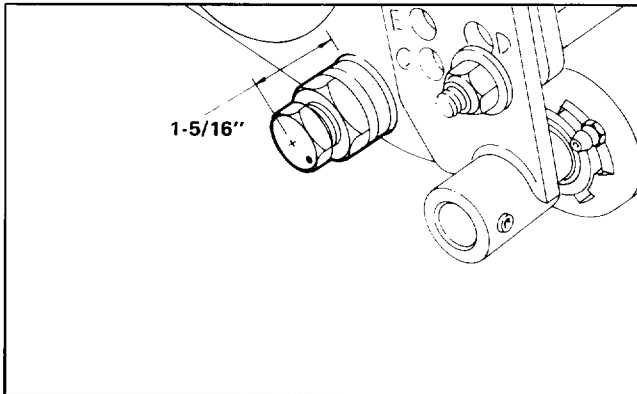


Figure 20

8. Mount right side of bedbar to sideplate with shoulder bolt, jam nut, steel washer, and plastic washer. Position washers between bedbar and sideplate with plastic washer closest to bedbar. Adjust shoulder bolt (right hand) until left end of bedbar assembly firmly seats against left side plate, clamping the plastic washer tightly — thus all end-play is removed from bedbar. Bedbar must pivot without binding, with bedknife adjusting knob and pivot assembly not installed. Tighten jam nut while holding shoulder bolt (Fig. 18).

Note: Locate identification mark on bedknife pivot assembly (dot is to be closest to compression spring).

Note: Make sure adjustment knob screw thread and flat of center bedbar pivot are properly aligned before assembly, to prevent crossthreading.

IMPORTANT: Apply NEVER-SEEZ to the threads of the handle assembly.

9. Thread adjustment knob and pivot assembly into flat side of bedbar pivot until mounting holes in pivot assembly are aligned with holes in reel frame supports and bedknife does not interfere with reel (Fig. 18).

10. Center pivot assembly between reel frame supports. Tighten pivot screws to 60 ft-lb. Secure spring arm to pivot assembly.

11. After assembly of bedbar is complete, check to make sure bedknife and reel are parallel, refer to Parallel Bedknife to Reel, page 12.

PARALLEL BEDKNIFE TO REEL

1. Remove mower from traction unit and position on a level work surface. Make sure reel contact is removed by turning bedknife adjustment knob counterclockwise.

2. On either end of front side of reel, insert a long strip of newspaper between reel and bedknife. While slowly rotating reel forward, turn bedknife adjusting knob (Fig. 21) clockwise, one click at a time, until paper is pinched lightly, which results in a slight drag when paper is pulled.

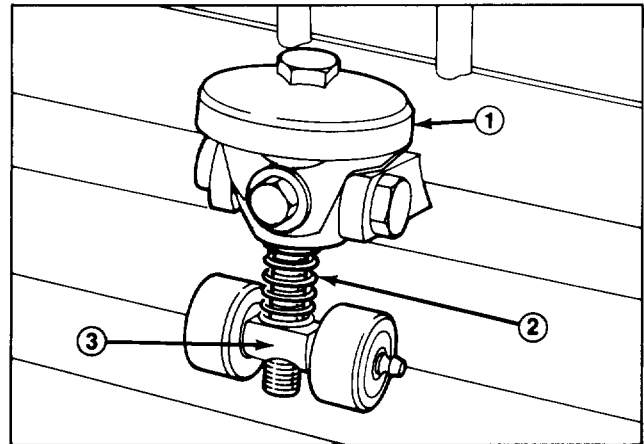


Figure 21

- 1. Bedknife adjusting knob
- 2. Compression spring
- 3. Pivot bar

3. Check for light contact at other end of reel using paper. If light contact is not evident at both ends, bedknife is not parallel to reel, proceed to step 4.

4. Loosen jam nut on left hand bedbar pivot bolt enough to ease in turning bolt. The left hand pivot bolt has an offset thread which, when rotated, acts as a cam to raise or lower the bedbar. On the bolt head there is an identification dot which denotes the offset of the bolt. When the dot is in the up position (Fig. 22) the left end of the bedbar is raised. As the bolt is turned clockwise and dot is lowered, so is the left end of the bedbar. **Identification dot is to be positioned within the rear (180°) position when adjusting.**

5. Rotate pivot bolt to raise or lower bedbar as required.

6. Check adjustments by repeating steps 1 and 2.

7. When light contact on paper is evident at each end of bedknife, tighten left hand jam nut while holding pivot bolt in position. Check to make sure pivot bolt did not become misadjusted when turning jam nut. Readjust as required.

MAINTENANCE AND ADJUSTMENTS

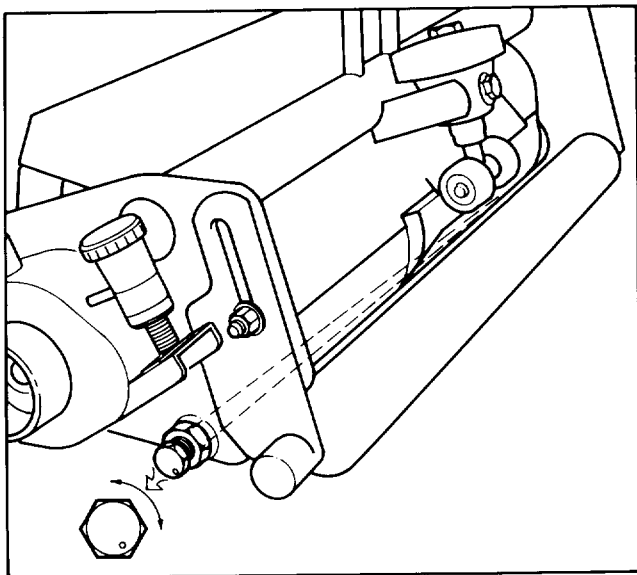


Figure 22

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. 23).

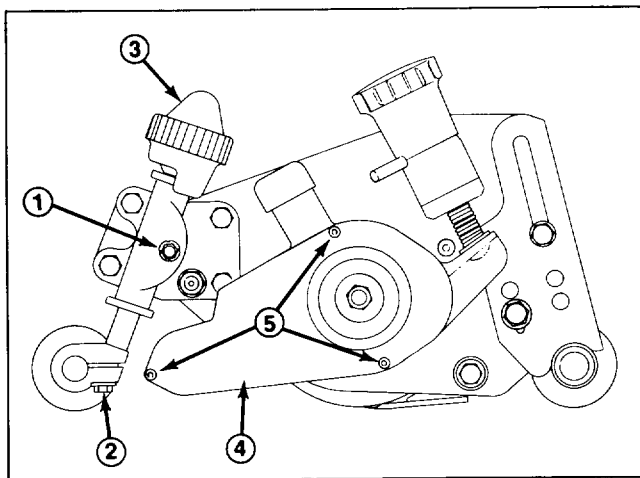


Figure 23

- | | |
|----------------------------|-----------------------------|
| 1. Height of cut locknut | 4. Grooming reel cover |
| 2. Roller shaft clamp bolt | 5. Cover screws and washers |
| 3. Height of cut knob | |

2. Turn the height of cut adjustment knobs until they disconnect from the height of cut adjusting rods (Fig. 23). 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 5. Back lap the cutting unit to complete sharpening operation.

SERVICING AND ADJUSTING REEL BEARINGS

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

Checking Reel Bearing Drag

IMPORTANT: The reel bearing drag (5 to 9 in.-lb) should be checked more often on units with the grooming reel kit. The drive belt and clutch require removal for drag measurement and adjustment.

Periodically, check the drag on the reel bearings and adjust, if necessary. Use the following procedures:

1. Rotate the bedknife adjustment knob counter-clockwise until reel to bedknife contact is removed.
2. Remove the left side grooming reel housing cover (Fig. 23). Loosen the idler pulley and remove the drive belt (Fig. 24).
3. There should be 5-9 in.-lb of drag indicated when the reel is rotated with a torque wrench.

Adjusting Reel Bearing Drag

If bearing drag does not meet the above specifications, adjust as follows:

1. Ensure reel to bedknife contact is removed. Rotate the bedknife adjustment knob counter-clockwise to achieve.
2. Remove the left side grooming reel housing cover (Fig. 23). Loosen the idler pulley and remove the drive belt (Fig. 24).

MAINTENANCE AND ADJUSTMENTS

3. Remove the grooming reel adjustment knob assembly from the belt drive housing (Fig. 24).



CAUTION

The adjustment knob assembly is spring loaded.

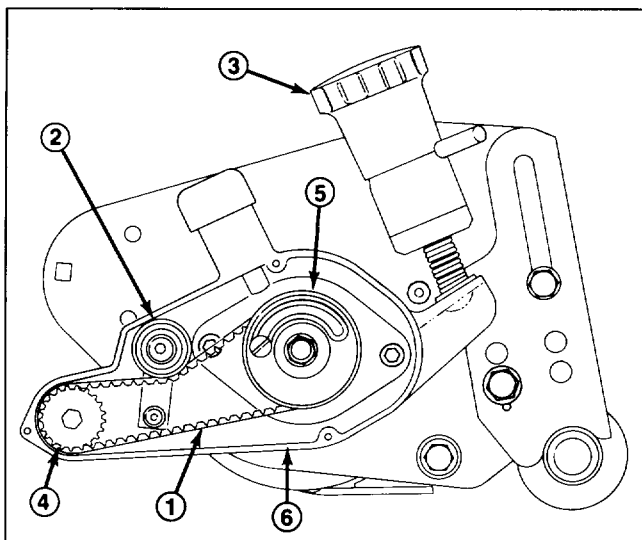


Figure 24

- | | |
|---|--------------------------|
| 1. Drive belt | 4. Groomer driven pulley |
| 2. Drive belt idler pulley | 5. Clutch assembly |
| 3. Grooming reel adjustment knob assembly | 6. Groomer reel housing |

4. Remove the groomer driven belt pulley and clutch adapter assembly from the reel shaft and remove the left side groomer reel housing (Fig. 24).

5. Mount a socket wrench on the large reel bearing adjusting nut inside the side plate. Hold the reel, tighten the nut and check reel drag. Adjust until reel drag meets the 5-9 in.-lb specification.

6. Reassemble the components onto the cutting unit. Check drive belt tension before installing the cover. There should be 1/4 inch deflection when a force of 5-10 lb is applied midway between the drive and driven pulleys (Fig. 24). To adjust belt tension, loosen the backside idler pivot screw and pivot the idler to achieve proper tension. Torque the pivot screw to 7-10 ft-lb.

REMOVAL OF REEL ASSEMBLY

To remove the reel assembly:

1. Ensure reel to bedknife contact is removed. Rotate the bedknife adjustment knob counter-clockwise to achieve.

2. Remove the left side grooming reel housing cover (Fig. 23). Loosen the idler pulley and remove the drive belt (Fig. 24).

3. Remove the grooming reel adjustment knob assembly from the belt drive housing (Fig. 24).



CAUTION

The adjustment knob assembly is spring loaded.

4. Remove the groomer driven belt pulley and clutch adapter assembly from the reel shaft and remove the left side groomer reel housing (Fig. 24).

5. Remove the large bearing adjustment nut from the reel shaft and the special spline nut at the right end of the reel shaft (Fig. 25).

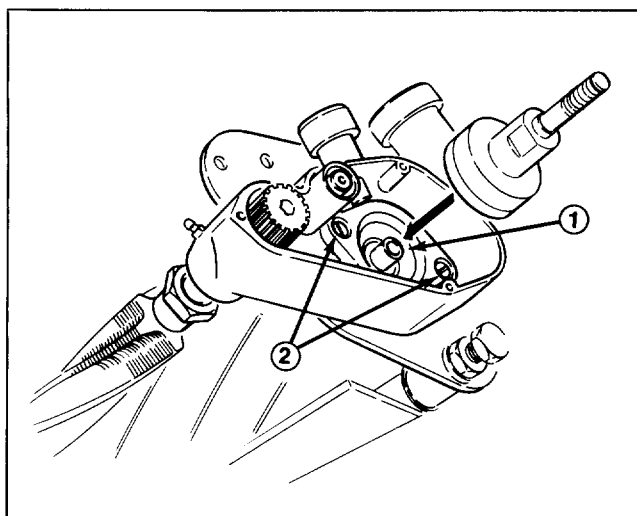


Figure 25

- | |
|-----------------------|
| 1. Special spline nut |
| 2. Studs and locknuts |

6. Remove the bearing housings on both ends. Flathead socket screws are on the left side and studs and locknuts on the right side (Fig. 25).

IMPORTANT: Remove grease fittings from the bearing housings before removing housings. Note a straight fitting is in the right housing and a 90° fitting in the left.

7. Use a plastic headed hammer to rotate the bearing housing slightly. Thread capscrews into each bearing housing mount hole. Alternately turn the capscrews against the sideplate until the bearing housings are separated from the sideplates.

8. Remove the bearing housings from the reel assembly.

MAINTENANCE RECORD

[illegible]

The Toro Promise

A ONE YEAR LIMITED WARRANTY

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".

Commercial Products 1 Year

The costs of parts and labor are included, but the customer pays the transportation costs on walk rotary mowers, trimmers and blowers.

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.

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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.