


TURF PRO 84 MODEL NO. 03575  
(5 BLADE)TURF PRO 84 MODEL NO. 03590  
(5 BLADE)HTM-175 MODEL NO. 01080  
(7 BLADE)

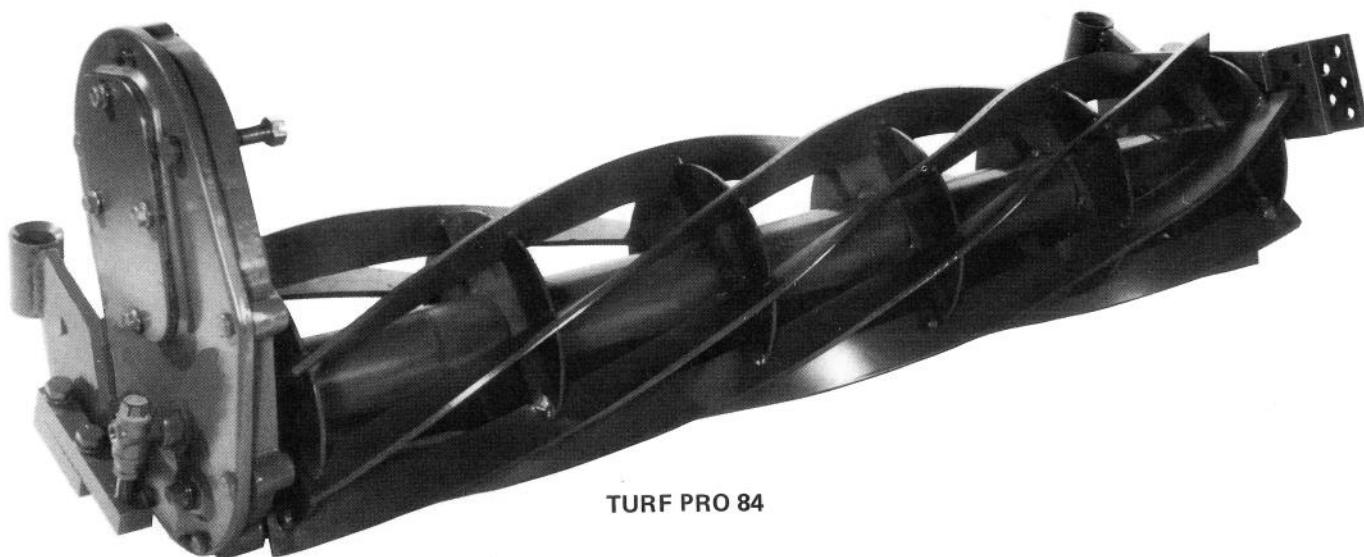
20001 &amp; UP

# OPERATOR'S MANUAL

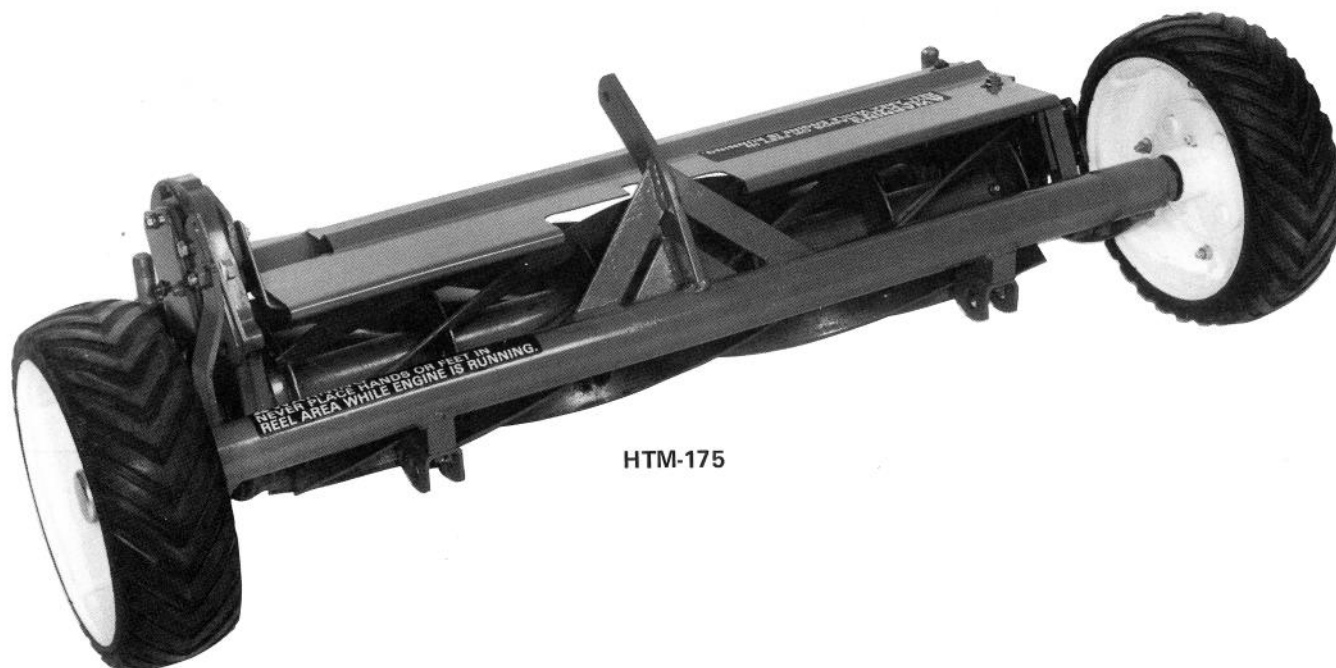
## CUTTING UNIT

(FOR TURF PRO 84® &amp; HTM-175™)

Since this instruction sheet 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 operations and proper maintenance procedures.



TURF PRO 84



HTM-175

PRICE \$1.00

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## KNOW YOUR CUTTING UNIT

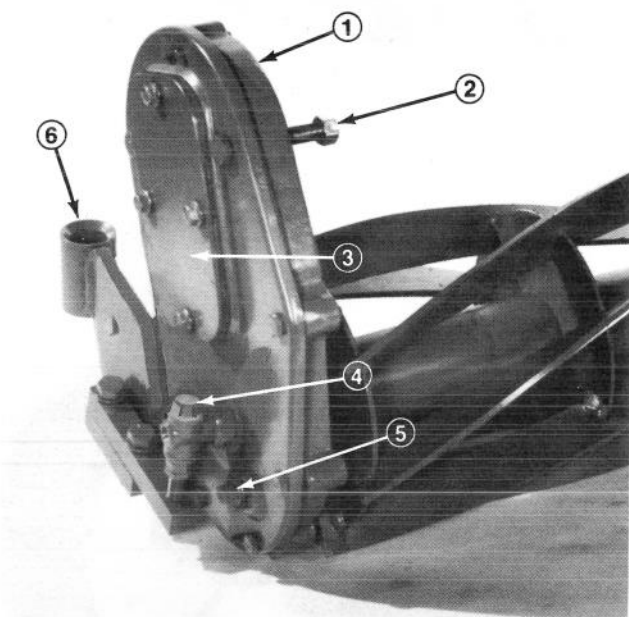


Figure 1

1. Chain case
2. Mount bolts — Hydraulic motor (2)
3. Chain case inspection cover
4. Bedknife adjustment screw assembly
5. Chaincase fill plug
6. Bedbar, bedknife assembly

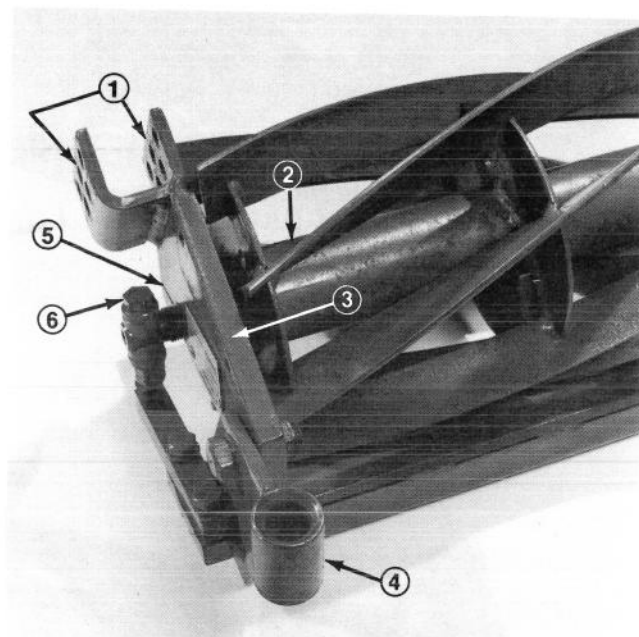


Figure 2

1. Height-of-cut adjustment holes
2. Reel bearing grease fitting
3. Reel side plate
4. Rear roller rod end mount hole
5. Side plate clamp screw
6. Bedknife adjustment screw assembly

**Note:** When installing cutting units after removal or servicing, make sure setup instructions in Turf Pro 84 Traction Unit Manual or HTM 175 Manual are followed precisely.

# MAINTENANCE

## LUBRICATION

1. Grease the reel bearing every 200 hours operation and wheel bearings (HTM-175) every 50

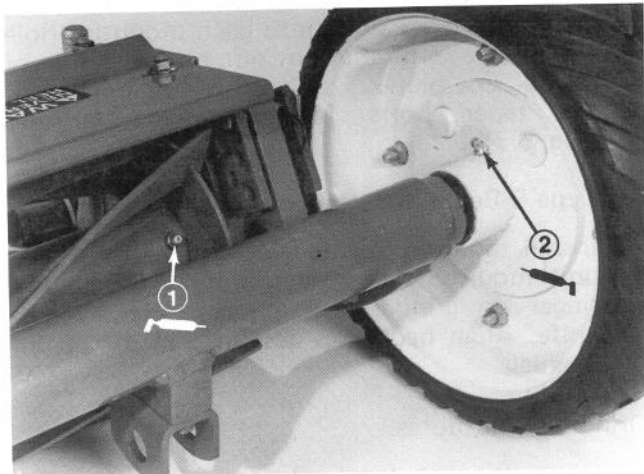


Figure 3

1. Reel bearing (3)
2. Wheel bearings (HTM-175)

hours operation, with No. 2 multi-purpose lithium base grease. Apply three or four pumps to the handle of a hand operated grease gun.

2. With the cutting units on the machine and on a level surface, raise the height of cut to the highest setting in either height of cut range by installing pin in H.O.C. bar in highest H.O.C. adjustment hole (Fig. 4) (Turf Pro 84). Remove the filler plug from the chain case and check the oil level in the case every 50 hours (approx. 2 weeks) during initial wear-in. 100 hours after oil level has stabilized and chain and sprocket wear-in has discontinued (Fig. 5). The oil should be to the bottom of the hole. Add SAE 90 oil if the level is low. Clear any metal filings off magnetic filler plug before re-installing in case.

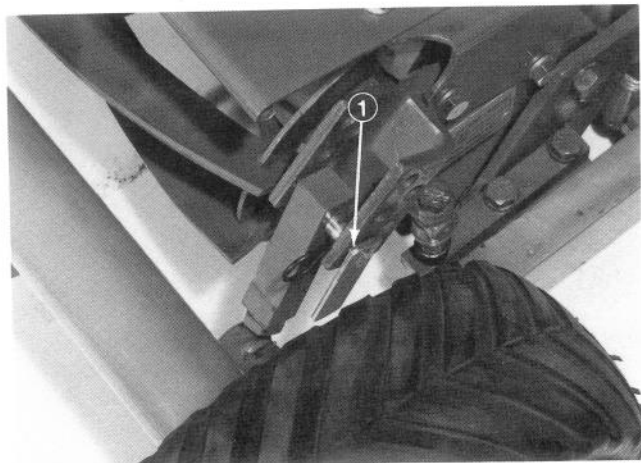


Figure 4

1. Mower in highest height-of-cut

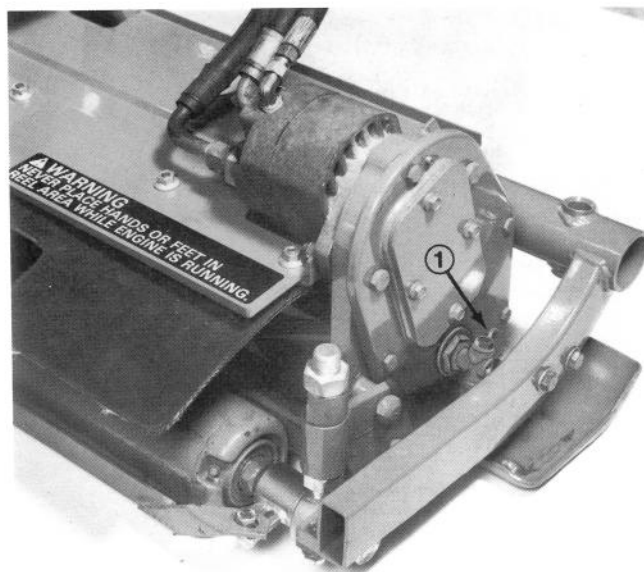


Figure 5

1. Chain case oil filler plug

## SERVICING THE BEDBAR-BEDKNIFE ASSEMBLY

1. Remove the cutting unit; refer to Cutting Unit Servicing, Turf Pro 84 traction unit manual or Cutting Unit Servicing, HTM 175 manual.
2. Remove four (4) capscrews securing bedbar to reel adjustment block (Fig. 6 and 7).

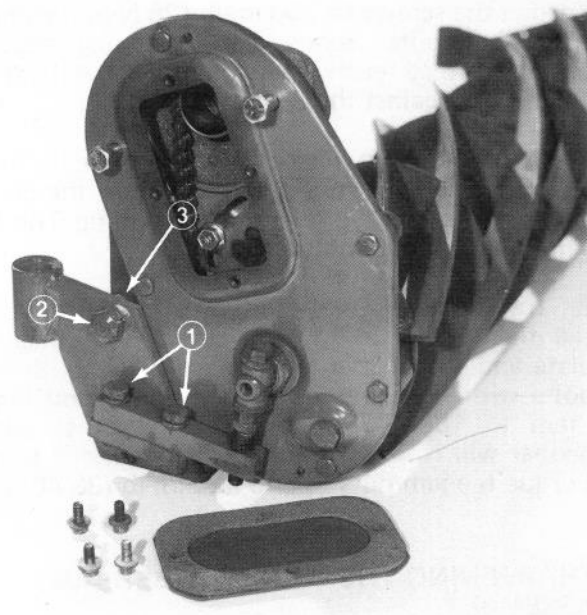


Figure 6

1. Bedbar mounting capscrews
2. Taper bolt
3. Jam nut

# MAINTENANCE

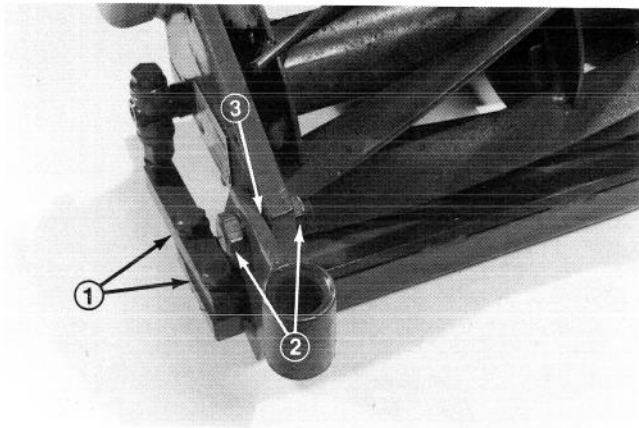


Figure 7

1. Bedbar mounting cap screws
2. Taper bolt and jam nut
3. Washer between plates

3. Remove taper bolt, washer and jam nut from reel side plate and taper bolt and jam nut from chain case and separate bedbar-bedknife from cutting unit.

4. Separate bedknife from bedbar by removing special screws. Discard the screws.

5. Thoroughly clean the bedknife mounting face of bedbar of all rust and scale. Remove any material from the bedknife mounting face which would affect a good match-up.

6. Install the bedknife. Coat the threads of the screws with "Never Seez" or any other material which will ease future disassembly.

Torque the screws to 250 in.-lb (28 N·m) beginning with the center screw and tightening alternate screws toward each end to insure the bedknife will be flat against the bedbar.

7. Grind the top face of the bedknife to assure the bedknife will more closely match the cutting unit reel assembly; refer to Sharpening The Bedknife-Bedbar Assembly below.

8. Install the assembly to the cutting unit. Be sure the flat washer is installed between the reel side plate and the bedbar (Fig. 7). Lubricate both taper bolts with "Never Seez" or equivalent and torque them to 180-240 in.-lb (20-27 N·m) to ensure bedbar will rotate while adjusting bedknife to reel. Torque the jam nuts to 340-420 in.-lb (38-48 N·m).

## SHARPENING THE BEDKNIFE-BEDBAR ASSEMBLY

**Note:** Use procedures outlined in the Toro Sharpening Reel and Rotary Mowers manual, Form No. 80-300-PT.

### Set Up:

#### A. Type A Bedknife Grinder

Mount bedbar-bedknife as outlined in Toro manual. To align bedknife with grinding wheel, install the taper bolts into each mounting hole and secure with the jam nut on other side of bedbar side plates. Use the threaded portion of the taper bolts for alignment purposes (Fig. 6-7).

#### B. Type B Bedknife Grinder

Install mounting centers of grinder into taper bolt mount holes in side plates. Use support finger on grinder to support center of bedknife. Align bedbar as described in sharpening manual.

### Grinding Procedures

Grind the top face only to a 5° angle. The front face need not be ground.

## SERVICING THE CHAIN CASE

### Disassembly:

1. Remove the cutting unit; refer to Cutting Unit Servicing, Turf Pro 84 traction unit manual and Cutting Unit Servicing, HTM-175 traction unit manual.

2. Remove the bedbar; refer to Servicing the Bedbar-Bedknife Assembly, page 3.

3. Remove the fill plug and drain the oil from case (Fig. 8).

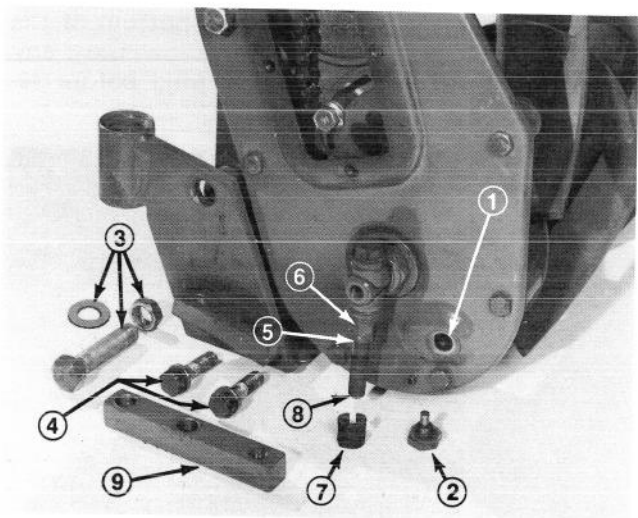


Figure 8

- |                                   |                               |
|-----------------------------------|-------------------------------|
| 1. Fill plug hole                 | 6. Full nut                   |
| 2. Fill plug                      | 7. Adjustment screw protector |
| 3. Taper bolt, washer and jam nut | 8. Reel adjustment screw      |
| 4. Bedbar mounting cap screws     | 9. Reel adjustment block      |
| 5. Jam nut                        |                               |

# MAINTENANCE

4. Loosen jam nut and full nut securing adjustment screw (Fig. 8), thread adjustment screw out of reel adjustment block and remove screw and assembled parts from reel shaft (Fig. 8, 9).

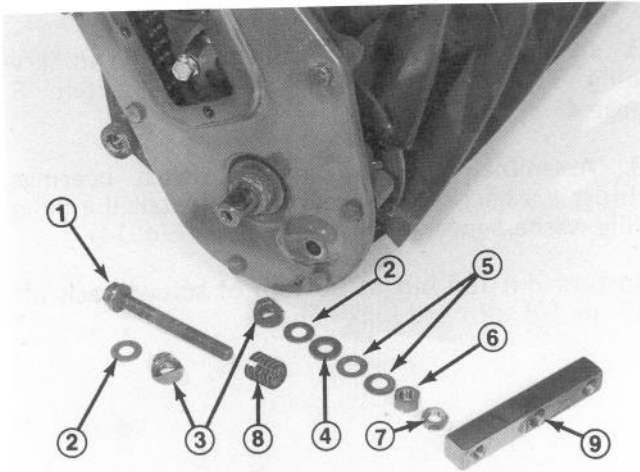


Figure 9

- |                          |                               |
|--------------------------|-------------------------------|
| 1. Reel adjustment screw | 6. Nut                        |
| 2. Thrust bearings       | 7. Jam nut                    |
| 3. Thrust washers        | 8. Adjustment screw protector |
| 4. Washer                | 9. Reel adjustment block      |
| 5. Belleville washers    |                               |

5. Remove shipping cover (Fig. 10). Disassemble locknut, O-ring washer and O-ring from reel shaft and remove chain case cover capscrews, motor mount bolts and cover, taking care not to distort chain case cover (Fig. 10).

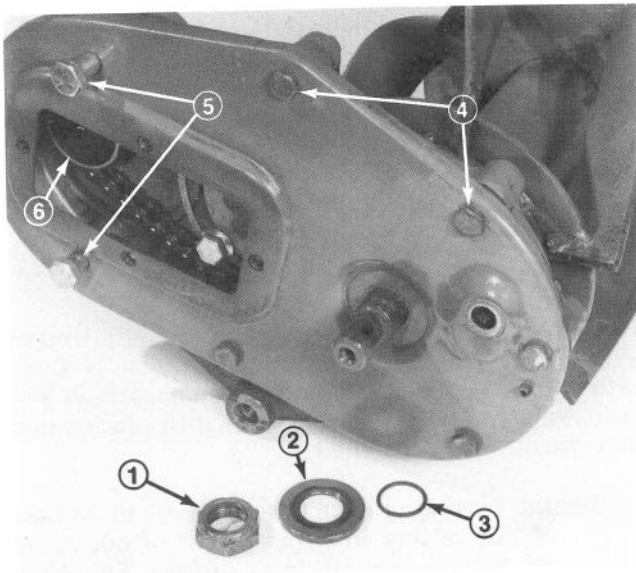


Figure 10

- |                  |                                 |
|------------------|---------------------------------|
| 1. Locknut       | 4. Cover mounting capscrews (6) |
| 2. O-ring washer | 5. Motor mount bolts            |
| 3. O-ring        | 6. Shipping cover               |

6. Disassemble chain from idler and driven sprocket, drive locking tabs away from driven sprocket capscrews and remove capscrews, locking clip and sprocket (Fig. 11).

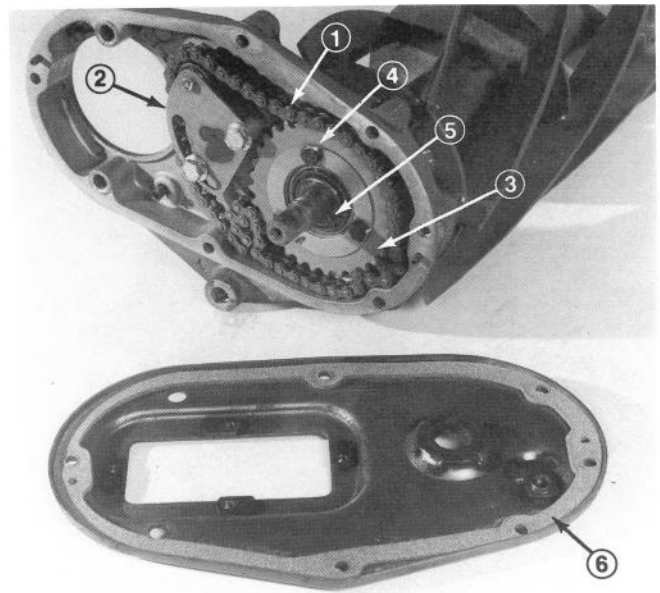


Figure 11

- |                    |                           |
|--------------------|---------------------------|
| 1. Chain           | 4. Sprocket capscrews (3) |
| 2. Idler assembly  | 5. Locking clip           |
| 3. Driven sprocket | 6. Gasket                 |

7. Remove chain case from reel and remove idler assembly, relief fitting and roll pins if case is to be replaced (Fig. 12).

8. Lay chain case, gasket side down, on flat surface and remove the seal by inserting a flat edged driver into slots in the case and impacting driver with a hammer (Fig. 12).

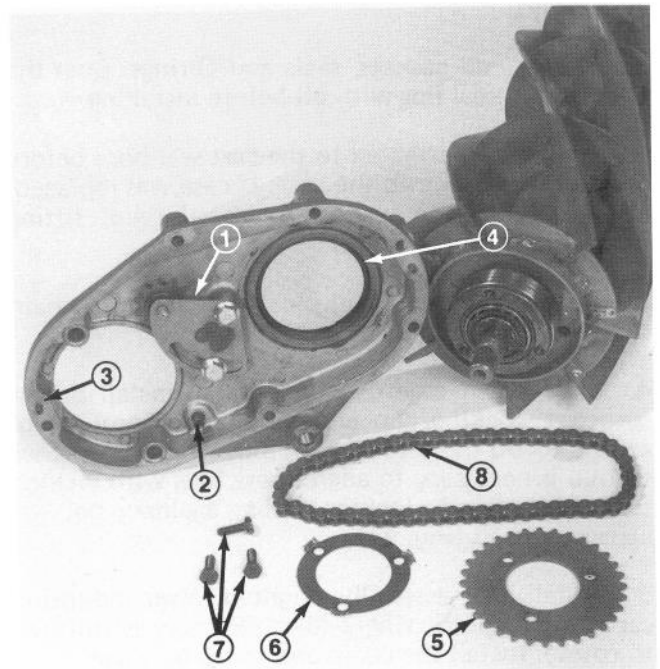


Figure 12

- |                            |                    |
|----------------------------|--------------------|
| 1. Idler assembly          | 5. Driven sprocket |
| 2. Relief fitting          | 6. Locking clip    |
| 3. Alignment roll pins (2) | 7. Capscrews       |
| 4. Seal                    | 8. Chain           |

# MAINTENANCE

9. Inspect wear ring (Fig. 13), chain and sprockets for excessive wear (wear ring is pressed onto reel). Replace, if worn.

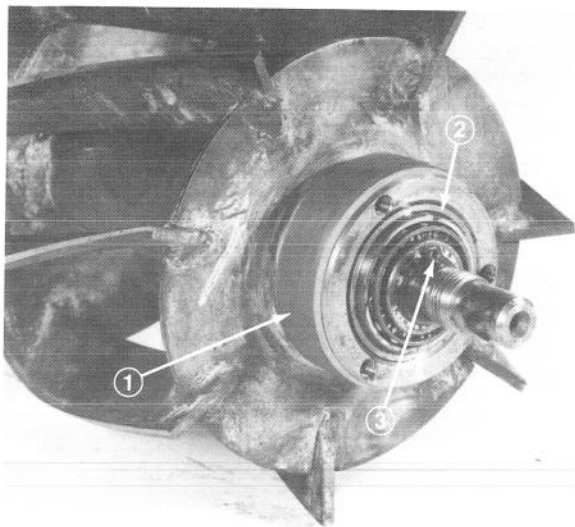


Figure 13

1. Wear ring
2. Bearing cone cup
3. Retaining ring

Replace chain and sprockets together if worn. A new chain will not fit worn sprockets, nor will new sprockets fit a worn chain. Be sure to replace the hydraulic motor sprocket if other sprockets are replaced.

## Assembly:

1. Replace all gaskets, seals and O-rings. Coat the O-rings and seal lips with oil before installing.
2. Apply #2 permatex to the cast seal bore before pressing the seal into the case. If case was replaced, also apply permatex to threads of relief fitting before installing (Fig. 12).
3. Install alignment roll pins (Fig. 12) into chain case and cover gasket (Fig. 11) into cover.
4. Slide chain case over wear ring, install driven sprocket, locking clip and capscrews. Torque capscrews to 90 in.-lb (10 N·m), plus whatever further torque is necessary to align screw flats with locking tabs and bend locking tabs against flat of capscrew head (Fig. 11).
5. Install idler assembly. Tighten lower mounting capscrew to point where idler assembly is still free to rotate. Install the chain and shipping cover.
6. Insert motor mounting bolts into chain case cover, install O-rings, assure gasket is in place and mount cover on case. Torque cover mounting capscrews to 35-60 in.-lb (4-7 N·m).

7. Install a seal protector over reel shaft and install O ring. O RING MUST BE PAST GROOVE IN SHAFT. Remove protector and install O ring, washer, chamfered side toward O ring, and locknut. Tighten nut to 20-40 ft-lb (27-54 N·m).

8. Install bedbar-bedknife assembly; refer to Servicing The Bedbar-Bedknife Assembly, item 8, page 4.

9. Assemble adjusting screws, thrust bearings, thrust washers, etc. to reel shaft. Install the Belleville washers inverse to one another (Fig. 14).

Bottom out full nut at bottom of screw, back off 90° or 1/4 turn and lock jam nut.

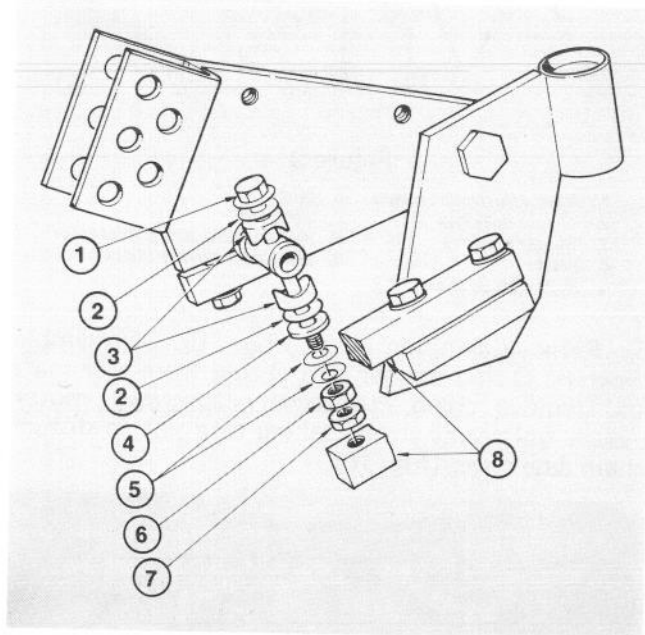


Figure 14

1. Reel adjustment screw
2. Thrust bearings (2)
3. Thrust washers (2)
4. Washer
5. Belleville washers
6. Nut
7. Jam nut
8. Reel adjustment block

10. Thread reel adjustment block on adjustment screw, rotate reel assembly until block is flush with top of bedbar plate and install capscrews and lockwashers. The parts will drop into place when they are correctly installed.

11. Mount cutting unit on machine, set to highest height of cut setting in either height of cut range and place cutting unit on level surface. Fill chain case with SAE 90W engine oil to bottom of filler plug hole and install filler plug.

12. Remove shipping cover. Prevent chain from dropping into case. Insert reel drive motor into chain case and install drive chain onto motor sprocket. Push the motor mounting bolts through the motor flange and shield and secure with locknuts.

# MAINTENANCE

13. Check chain tension (Fig. 15). Chain should have zero to 1/8 in. (0 to 3 mm) deflection when properly adjusted and should be retensioned when deflection exceeds 3/8 in. (10 mm). Rotate reel while checking to ensure all portions are within specification. If tension is correct, proceed to step 17. If tension is incorrect, proceed to step 14.

**Note:** Zero tension means chain is just to point of no deflection.

14. Loosen idler mounting capscrews (Fig. 15). Rotate the reel by hand watching for the sprocket position where the chain tension is tightest. At this point make a final Idler adjustment, for chain deflection.

15. Snug lower idler capscrew and torque exposed idler capscrew to 150-170 in.-lb (17-19 N·m).

16. Rotate reel and check tension. Chain should not exceed 1/4 in. (6 mm) total deflection, or no more than 1/8 in. (3 mm) in either direction from center line of chain. Readjust, if necessary.

17. Install inspection cover and torque capscrews to 40-50 in.-lb (4.5 - 5.6 N·m).

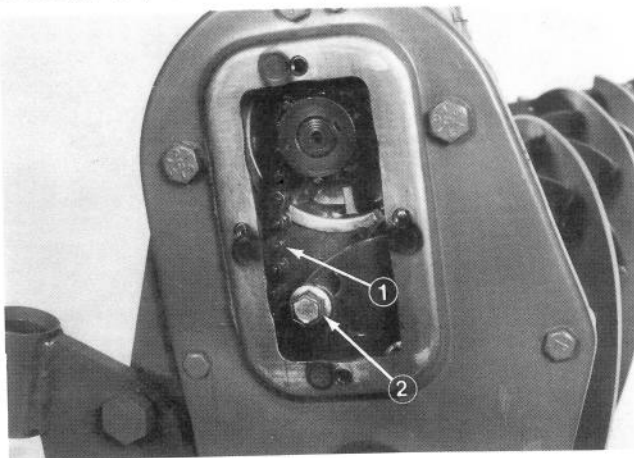


Figure 15

1. 1/8 in. (3 mm) deflection in either direction (not to exceed 1/4 in. (6 mm) total)
2. Torque capscrew to 150-170 in.-lb (17-19 N·m)

## SERVICING THE REEL ASSEMBLY

### Disassembly:

1. Remove the cutting unit; refer to Cutting Unit Servicing, Turf Pro 84 and HTM-175 traction unit manual.
2. Remove the bedbar-bedknife assembly; refer to Servicing The Bedbar-Bedknife Assembly, item 1-3, page 3-4.
3. Remove the chain case; refer to Servicing The Chain Case, page 4.
4. Disassemble adjusting screw assembly from left end of reel shaft (Fig. 14).

5. Loosen reel side plate clamp screw and thread side plate off reel shaft (Fig. 16).

6. Insert a large drift punch into hole in reel shaft and turn locknut off shaft. Remove wear sleeve, seal, bearing cone, bearing cup, grease retainer and shaft (Fig. 16).

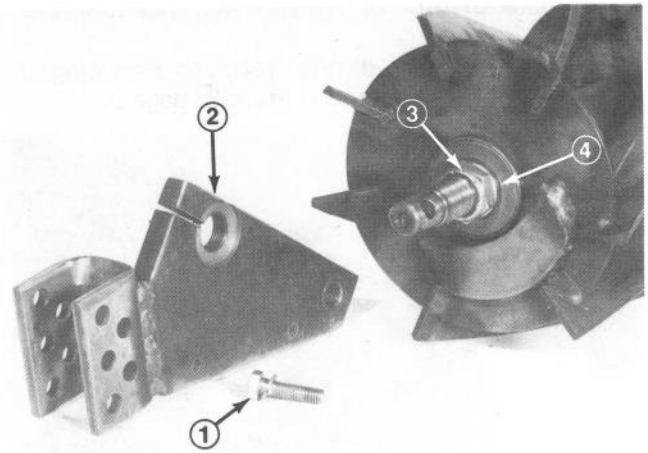


Figure 16

- |                           |                |
|---------------------------|----------------|
| 1. Side plate clamp screw | 3. Locknut     |
| 2. Reel side plate        | 4. Wear sleeve |

7. Remove retaining ring, bearing cone and bearing cup from drive end of reel shaft (Fig. 13).

8. Clean and inspect all parts. Replace any excessively worn components and all seals, gaskets, and O rings.

### Assembly:

1. Install new grease retainer and bearing cups into each end of reel.
2. Insert reel shaft, install bearing cone and retainer rings (square edge of ring toward end of shaft) on right end and bearing cup, seal, wear sleeve and locknut on left end. Oil seal lips before installing wear sleeve and pack grease into left hand bearing.
3. Tighten locknut on shaft until reel binds as it is rotated. Back locknut off 1/4 - 1/2 flat. Reel should rotate freely and no excessive end or lateral play evident.
4. Install the chain case assembly; refer to Servicing The Chain Case, Assembly Section, page 4.
5. Thread reel side plate onto shaft, insert top portion of adjusting screw assembly into reel shaft and tighten side plate clamp screw (Fig. 17). Measure from outside of side plate to taper bolt boss on chain case (Fig. 18). Re-adjust if necessary to achieve a dimension of 33-3/8 in. (84.8 cm). One full turn of the side plate equals 1/16 in. (1.6 mm).

# MAINTENANCE

**Note:** The taper bolt hole in side plate must be aligned with taper bolt hole in chain case to achieve an accurate measurement.

6. Install lower portion of adjusting screw assembly. Install the belleville washers inverse of one another, bottom the nut out on the lower end of screw, back off 90° or 1/4 turn and lock jam nut.

7. Install bedbar-bedknife; refer to Servicing the Bedbar-Bedknife Assembly, item 8, page 3.

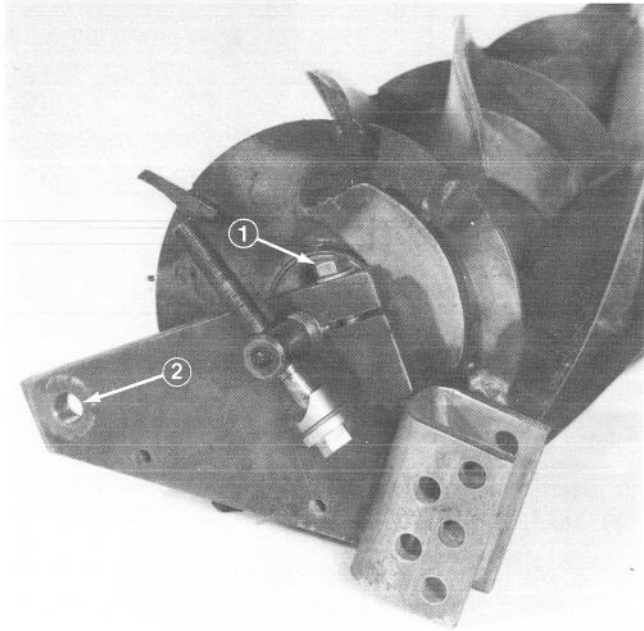


Figure 17

1. Side plate clamp screw
2. Taper bolt hole

## SHARPENING THE REEL ASSEMBLY

**Note:** Use procedures outlined in Toro Sharpening Reel and Rotary Mowers Manual, Form No. 80-300-PT.

1. Remove the cutting unit; refer to Cutting Unit Servicing, Turf Pro 84 or HTM-175 traction unit manual.

2. Use one of the shipping plates Part No. 42-4300, used to cover the mounting hole for the hydraulic motor and to hold the chain inside the case. Insert the plate, place chain over tube and secure plate firmly against case to prevent grinding dust from entering case.

3. Install the inspection cover in chain case cover.

4. Inspect reel assembly and correct any reel imperfections, reel bearing adjustments, etc.

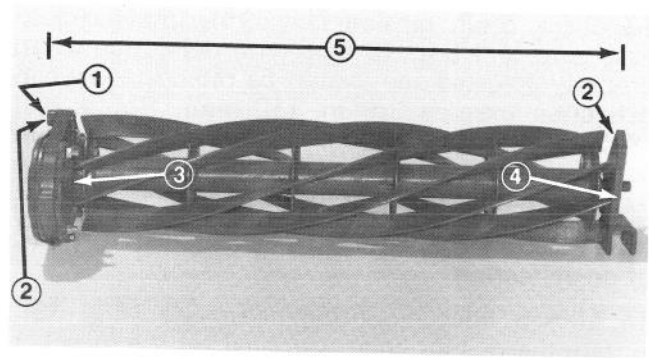


Figure 18

1. Chain case boss
2. Taper bolt mount holes
3. Chain case assembly
4. Reel side plate
5. 33-3/8 in. (84.8 cm)

5. Mount the cutting unit in grinder with mounting centers inserted into ends of reel shaft (Fig. 19 and 20).

6. Reset the bedbar onto grinder crossbar for support and adjust bedknife clear of the reel (Fig. 19).



Figure 19

1. Mounting center
2. Grinder crossbar

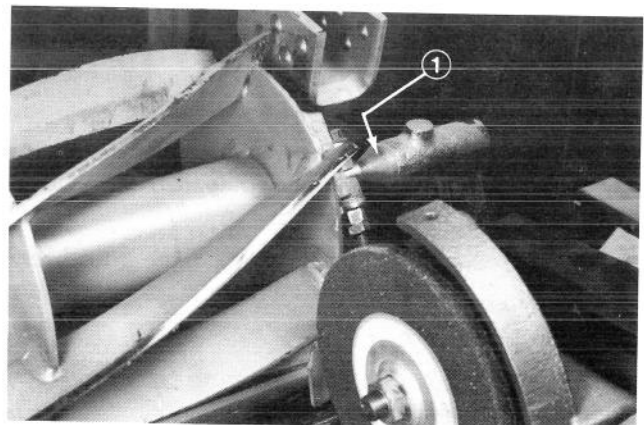


Figure 20

1. Mounting center

# MAINTENANCE

7. Align cutting unit and grind per the procedures outlined in the sharpening manual. Grind the reel blades to a  $20^{\circ} \pm 5^{\circ}$  angle.

8. Grind the bedknife to assure a parallel match-up between the reel blades and bedknife; refer to Sharpening The Bedbar-Bedknife Assembly, page 4.

9. Remove shipping plate and install the cutting unit on the machine and backlap per backlapping instructions outlined in the Turf Pro 84 or HTM-175 traction unit manual.

**Note:** A Remote Backlapping Kit, Part No. 36-2060, is available from TORO. Contact your local TORO Distributor if you wish to order.

## IDENTIFICATION AND ORDERING

### MODEL AND SERIAL NUMBERS

The cutting unit has two identification numbers: a model number and a serial number. These numbers are stamped into a plate. The cutting unit identification plate is located on the left reel side plate (Fig. 21). In any correspondence concerning the cutting unit, supply the model and serial numbers to assure correct information and replacement parts are obtained.

To order replacement parts from an authorized TORO Distributor, supply the following information:

1. Model and serial numbers of the cutting unit.
2. Part number, description and quantity of parts desired.

**Note:** Do not order by reference number if a parts catalog is being used; use the part number.

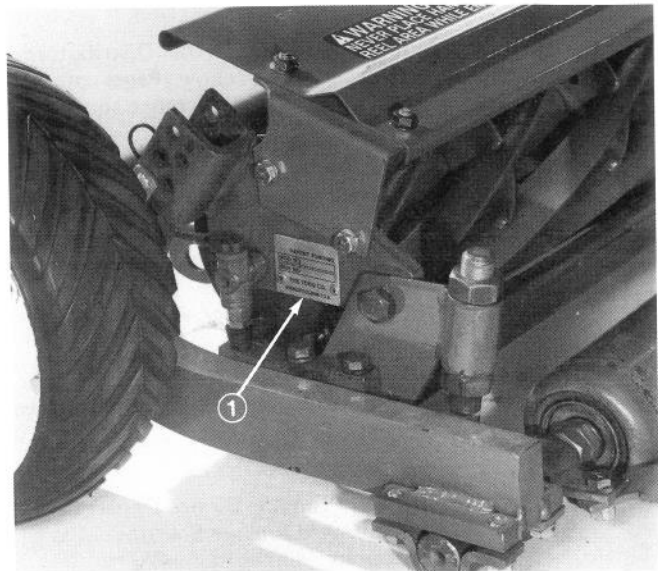


Figure 21

1. Model and serial number

# The Toro Promise

## A ONE YEAR LIMITED WARRANTY ON COMMERCIAL PRODUCTS OTHER THAN WALK ROTARY MOWERS, TRIMMERS AND BLOWERS.

*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
Hevi-Duty Walk Rotary Mowers . . . . .	90 Days

*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.

### 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.

## MAINTENANCE RECORD

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## MAINTENANCE RECORD

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