FORM NO. 3314–526 Rev. B

TORO

MODEL NO. 03516 – 10001 thru 60001 & UP

OPERATOR'S MANUAL

DETHATCHER KIT
REELMASTER 5100/5300 D

TABLE OF CONTENTS

	Page No.
SPECIFICATIONS	1
ADJUSTING DETHATCHING REEL	1
Adjusting Reel Blades for Positive Setting	2
Adjusting Reel Blades for Negative Setting	2
Adjusting Front Grass Shield	2
Adjusting Rear Grass Shield	2
Adjusting Front Roller Scraper	2
Adjusting Rear Roller Scraper	3
Installing Dethatcher Reels	3
OPERATION	4
Training Period	4
Operating Tips	4
MAINTENANCE	4
Lubrication	4
Removing Dethatcher Reel From Frame	5
Removing Dethatcher Blades From Shaft	5
Installing Dethatcher Blades	6
Reversing Dull Dethatcher Blades	6
Assemble Dethatcher Reel Assembly To Frame	6
OPTIONAL BLADE CONFIGURATIONS	7
TORO PROMISE	8

SPECIFICATIONS

Reel Construction: Blades and spacers bolted to hex shaft.

Height of Dethatching Range: 1/8" below turf to 1–3/16" above turf.

Reel Diameter: 5 in.

Power: Hydraulic motor splined to reel shaft.

Reel Bearings: Self aligning, roller ball type with cast housing and eccentric collar lock with setscrew.

Roller adjustment: Front–Fixed rear–screw adjustable with bolt clamp lock.

ADJUSTING DETHATCHING REEL

Important: Read this Operator's Manual thoroughly before operating the dethatching unit. Failure to do so may result in damage to the dethatching reel.

Note: The dethatching reel is shipped completely assembled. Two capscrews, two lockwashers, and two washers shipped loose with each dethatching unit are used to mount the reel drive motor to the dethatching unit. Retain these fasteners for later installation.

ADJUSTING REEL BLADES FOR POSITIVE SETTING (Above ground) (Fig. 1)

Note: Rear height of cut brackets are mounted to rear frame assembly.

1. Place the dethatcher reel on a level surface.

2. Loosen the (2) locknuts on carriage bolts securing rear roller brackets to dethatcher frame (Fig. 1).

3. Place a gauge bar, which has the desired height of blade above ground, under both ends of the dethatcher reel blades. Be sure bar covers full length of dethatcher reel blades.

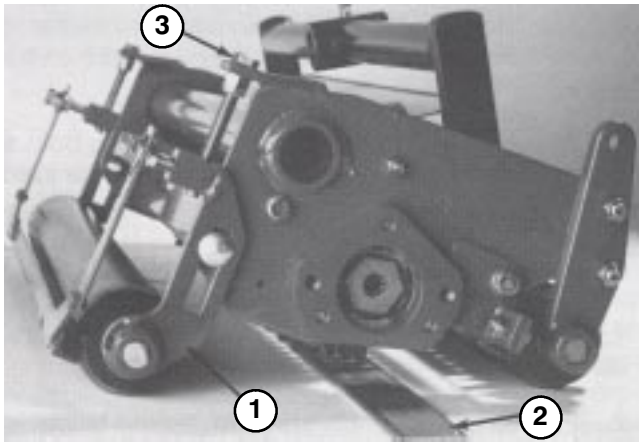

Figure 1
1. Rear roller brackets
2. Gauge bar
3. Adjusting capscrew

4. Turn the adjusting capscrew on each side of the dethatcher reel so that the rear roller bracket raises or lowers. Both front and rear rollers must be in contact with the flat surface and the reel blades must rest on the gauge bar.

© The TORO Company – 1991, Rev. 1993, 1995

ADJUSTING DETHATCHING REEL

5. Retighten the locknuts on the carriage bolts (2).

ADJUSTING DETHATCHER REEL BLADES FOR NEGATIVE SETTING (Below ground) (Fig. 2)

Note: Maximum negative setting is 1/8" deep blade penetration.

1. Place the dethatcher reel on a level surface.

2. Loosen the (2) locknuts on carriage bolts securing rear roller brackets to dethatcher frame (Fig. 2).

3. Place (2) gauge bars, which have the desired depth of blade penetration below ground, under the front and rear rollers of the dethatcher reel (Fig. 2).

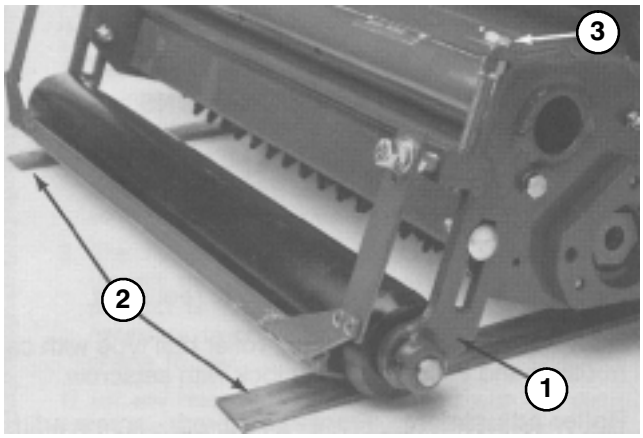

Figure 2
1. Rear roller brackets
2. Gauge bar
3. Adjusting capscrew

4. Turn the adjusting capscrew so the dethatcher reel blades come in contact with the level surface on both ends.

5. Retighten the (2) locknuts on the carriage bolts securing the rear roller brackets to the dethatcher frame.

ADJUSTING FRONT GRASS SHIELD (Fig. 3)

1. Loosen the (2) capscrews retaining the front grass shield (Fig.3).

2. Pull top of front grass shield to desired height and tighten (2) capscrews.

3. Rotate the dethatcher blades to insure the blades do not contact or interfere with the front grass shield.

Note: As the dethatcher blades wear, the diameter of the reel will decrease, and the positive or negative setting will change. Check the height setting periodically to insure the desired setting is achieved.

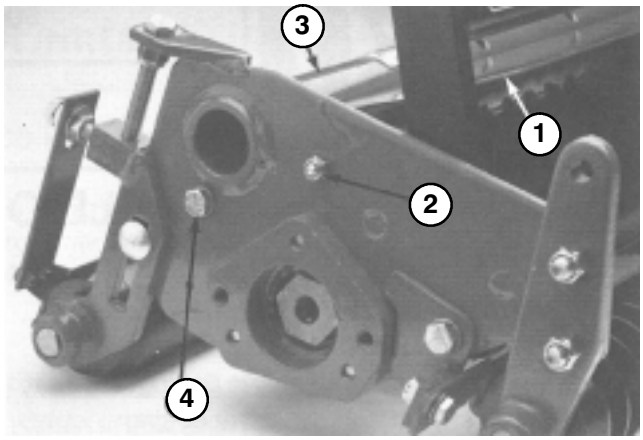

Figure 3
1. Front grass shield
2. Front grass shield screws
3. Rear grass shield
4. Rear grass shield screw

ADJUSTING REAR GRASS SHIELD (Fig. 3)

Note: When operating in turf conditions where much debris is encountered, or unusually heavy thatch, open the rear discharge shield to help allow the debris to discharge from the reel.

1. Loosen the capscrew on the right side of the dethatcher reel, located on the pivot of the rear grass shield (Fig. 3).

2. Rotate the rear grass shield to the desired setting and tighten the capscrew.

ADJUSTING FRONT ROLLER SCRAPER (Fig. 4)

1. Loosen the (2) capscrews securing front roller scraper to brackets. Slide front roller scraper to ensure the teeth of scraper are centered between the disks of the front wiehle roller (Fig. 4).

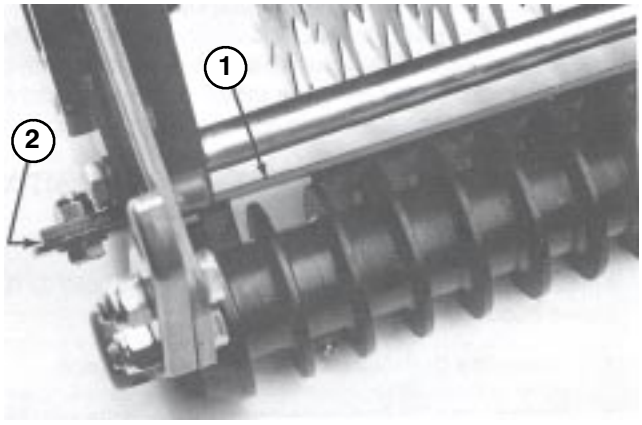

Figure 4
1. Front roller scraper
2. Roller bracket

2. Retighten capscrews securing roller scraper to front roller scraper brackets.

ADJUSTING DETHATCHING REEL

ADJUSTING REAR ROLLER SCRAPER (Fig. 5)

1. Thread jamnuts in or out on capscrews until scraper makes slight contact with roller and is parallel to roller.

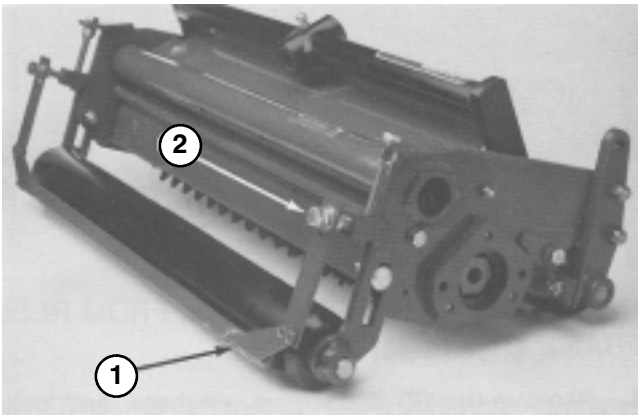

Figure 5
1. Rear roller scraper
2. Jamnuts

2. Secure scraper at desired height on roller by tightening jamnuts. Recheck setting.

Note: Adjust scraper to desired position to meet turf conditions.

INSTALLING DETHATCHER REELS (Fig. 6–7)

Important: If the dethatcher reels are set at a negative setting care must be taken to prevent damage to the reel blades due to contact with a concrete floor or a paved surface.

Note: All dethatcher reels are interchangeable, therefore, they are all installed the same way.

1. Park the machine on a level surface, lower lift arms, stop engine and set parking brake.

2. Align the horizontal shaft of the dethatching unit attaching joint with the pivot tube on the carrier frame. Insert the attaching joint into the tube (Fig. 6).

3. Secure shaft in pivot tube with a thrust washer, flatwasher, lockwasher and capscrew.

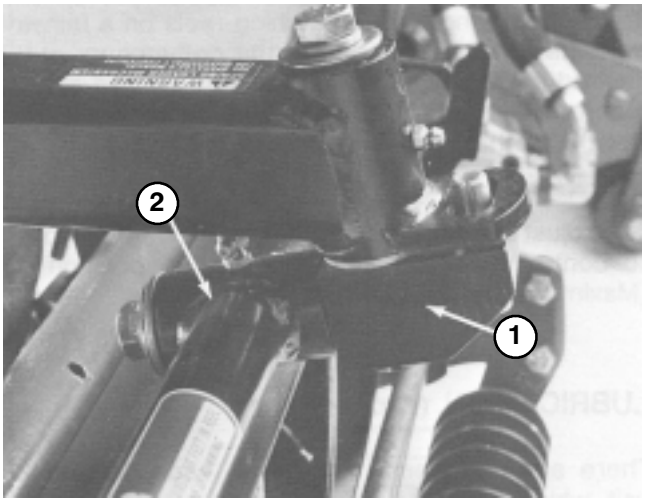

Figure 6
1. Cutting Unit Mounting Shaft
2. Carrier Frame Pivot Tube

4. Assemble the mounting capscrews, lockwashers and washers for the reel drive motor to each dethatching unit (Fig. 7). Leave approximately 1/2" of threads exposed on each mounting bolt.

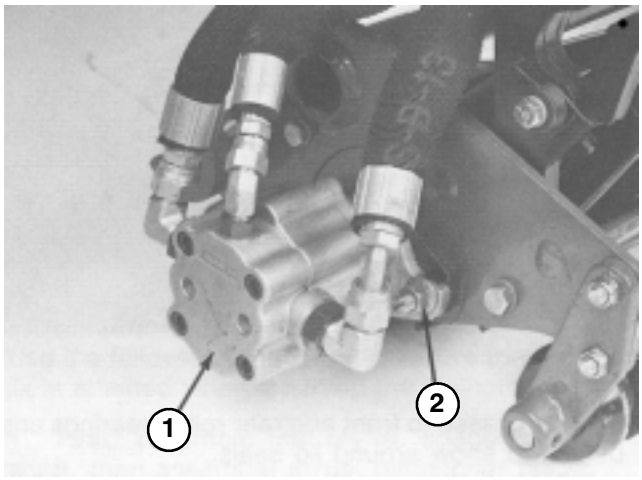

Figure 7
1. Reel Drive Motor
2. Mounting Capscrews

5. Coat the spline shaft of the motor with clean grease and install the motor by rotating the motor clockwise so the motor flanges clear the capscrews. Rotate the motor counterclockwise until the flanges encircle the capscrews and tighten the capscrews. Ensure the washers are against the capscrew heads.

6. Detach chain from lift arm and secure it to cross tube on each rear dethatching unit with a capscrew, flatwasher and locknut.

Important: Make sure all hydraulic hoses are routed away from dethatching unit so when dethatching unit pivots excessive rubbing does not occur.

OPERATION

TRAINING PERIOD

Before operating the dethatching reels on a fairway, evaluate the performance of the dethatchers at the desired setting. Operate in a clear, unused area to determine if the desired results will be achieved. Adjust the dethatchers if a change is desired.

OPERATING TIPS

1. Adjust the (2) reel speed controls on the hydraulic control block beneath the seat to position 11. (Maximum reel speed)

2. Operate the Rm–223 D at full throttle and between 3–5 MPH.

3. Maximum negative setting on the dethatcher blades is 1/8" deep penetration.

4. Power requirements to operate the dethatcher units will vary with turf and soil conditions. Travel speed may need to be reduced in some conditions.

MAINTENANCE

LUBRICATION (Fig. 8–9)

There are (7) grease fittings on each dethatching unit, which must be lubricated after every 15 hours of operation. Lubricate using a #2 multipurpose lithium base grease. A hand operated grease gun is recommended for best results.

1. Wipe each grease fitting with a clean rag.

2. Apply grease to reel bearings until pressure is felt against handle.

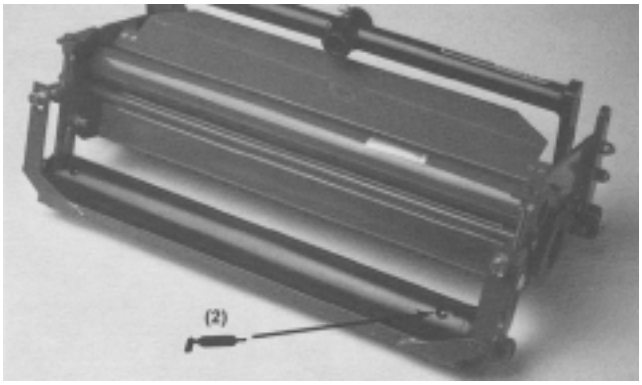

Figure 8

3. Apply grease to front and rear roller bearings until it begins to show around lip seals.

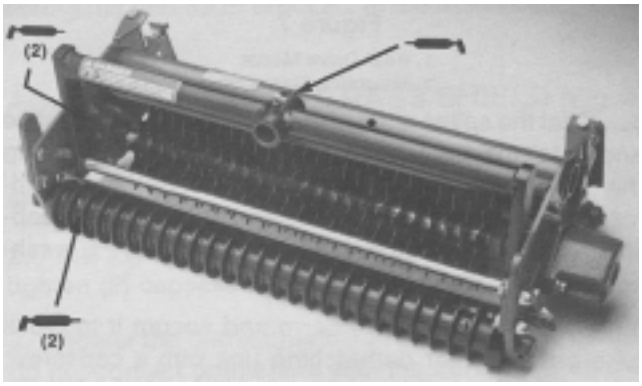

Figure 9

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

4. Apply grease to carrier frame grease fitting after assembly to traction unit and thereafter every 15 hours.

5. Wipe excess grease away.

REMOVING DETHATCHER REEL FROM REEL FRAME (Fig. 10–11)

1. Remove the (2) capscrews, washers, and lockwashers from the end cap weight on the opposite end of the dethatcher reel from the driven end. Remove the end cap weight.

2. Remove the (2) capscrews, washers, and lockwashers from the reel motor. Remove the reel motor.

3. Remove the (3) capscrews, washers, and lockwashers from the non–driven end of the dethatcher unit. Remove the end bearing plate and carefully remove the plastic bearing debris seal. Remove the (3) capscrews, washers, and lockwashers from the driven end of the unit. Remove the end bearing plate and carefully remove the other plastic bearing debris seal (Fig. 10).

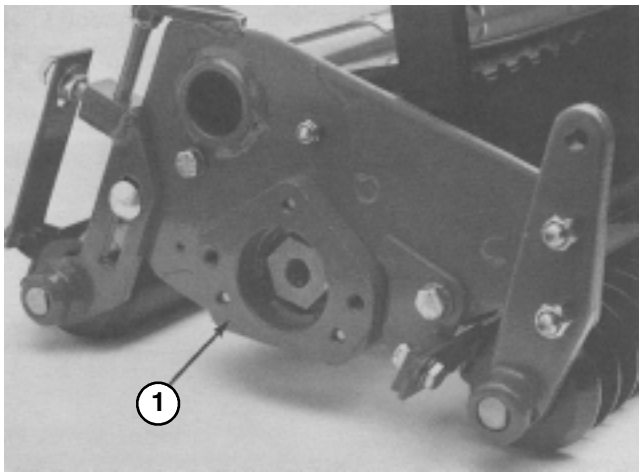

Figure 10

1. Bearing plate

4. Carefully pull the dethatching reel assembly out of the frame along with the (2) reel bearings.

5. Remove the setscrews from the locking collars on the reel bearings.

6. With a drive pin and hammer, loosen the locking collars by driving the locking collar in direction opposite to normal rotation (Fig. 11).

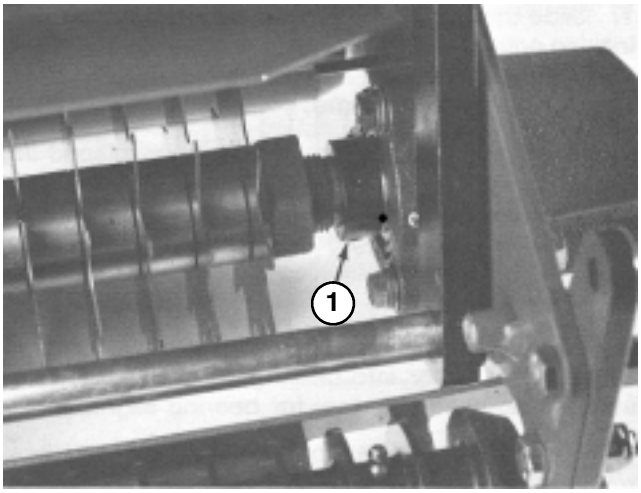

Figure 11
1. locking collars

7. Slide the bearings off of the dethatcher reel shaft.

REMOVING DETHATCHER BLADES FROM SHAFT (Fig. 12)

1. With a 1–11/16 in. wrench on each end of shaft, turn in a counter–clockwise direction.

2. Place the drive end of dethatcher shaft in a vise and secure (Fig. 12).

3. Remove the 1–1/8 in. nut from shaft and disassemble the spacers and dethatching blades.

IMPORTANT: When disassembling blades from hex shaft, pay close attention to the position of the index holes in the blades. This is very important for the reassembly of the blades.

CAUTION

Use caution when removing blades from shaft as they are extremely sharp and may have burrs that will cut your hands.

4. After blades and spacers are removed, clean and lubricate hex shaft with a light coating of grease to simplify assembly.

IMPORTANT: The two 1/4" spacers must assembled on each end of shaft. Do not invert dethatching reel blades. The order of disassembly is extremely important. Do not invert dethatching reel blades when disassembling or reverse the order when assembling. Note the thatcher blades index hole. The index hole is provided for assembly in order to obtain the PROPER HELIX FOR THE DETHATCHING REEL.

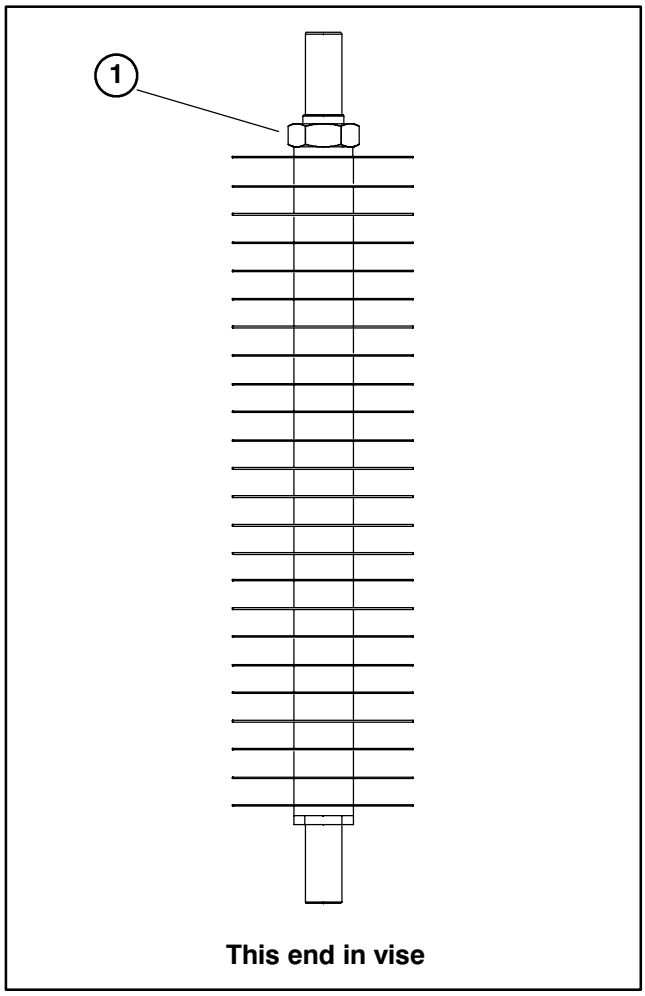

Figure 12
1. 1–1/8" nut

INSTALLING DETHATCHER BLADES

Use the following procedure to assure the proper helix is attained when installing the dethatcher blades.

1. First, assemble the 1/4 in. spacer on the reel shaft, then assemble a reel dethatcher blade.

2. Next, assemble a 3/4 in. spacer.

3. Do not invert dethatcher reel blades when reassembling on reel shaft. If the blades are inverted, the blades that are in use, (rounded) will be mixed with the sharp ends of the blades which were not in use. This will cause unsatisfactory performance in the dethatcher reel unit. Attention should always be taken when disassembling dethatching blades from reel.

4. Install the next blade counter–clockwise so the index reference hole is not aligned with the first blade hole by one hex of the shaft (Fig. 13). Continue to install spacers and blades in this manner until the full complement of blades ave been installed. When properly assembled, the blades will be staggered in such a manner to give a helix appearance.

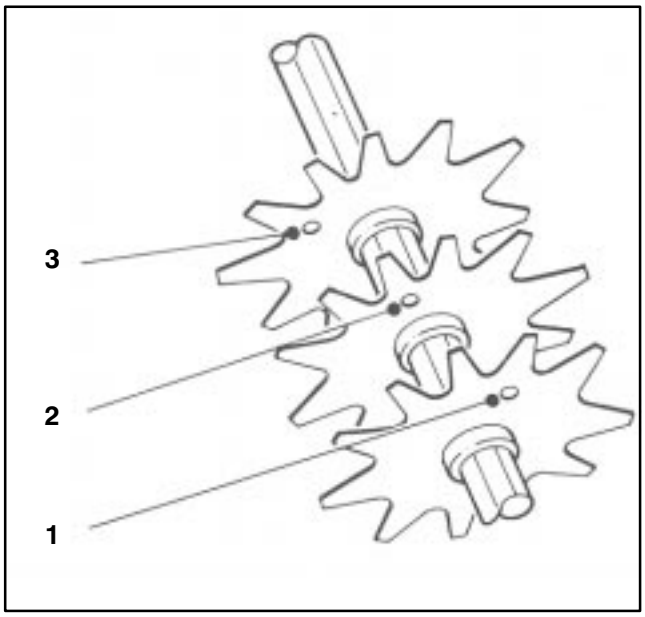

Figure 13

5. After assembly of the spacers and blades, apply Blue Loctite #242 to the 1 – 1/8 in. nut and tighten to 80 – 100 ft – lb.

6. Check positive or negative reel setting and readjust, if necessary.

7. The spline nut, on driven end, must be torqued to 40 – 60 ft – lb.

REVERSING DULL DETHATCHER BLADES

When dethatcher blades become dull grinding is not required. The dethatcher blades can be disassembled from the reel, reversed 180°, and reassembled.

Grinding of the blades is only required when both sides of the reel have become dull or rounded.

Reassemble dethatcher blades by inverting them 180° and reassembling them onto the hex shaft. This will be evident by all the sharp edges of the blades in the direction of rotation.

Check positive or negative reel setting and readjust, if necessary.

IMPORTANT: Make sure the sharp edge of the blades are in the direction of the rotation of the dethatching unit.

ASSEMBLE DETHATCHER REEL ASSEMBLY TO FRAME

1. Slide the reel bearings onto the reel shaft with the locking collars facing inward and not tightened. Orientate the grease fittings on the bearings facing up and forward on the reel frame.

2. After reel shaft assembly has been placed into the frame apply blue loctite #242 unto (6) capscrews before assembly onto (2) outside bearing plates. Install (2) plastic bearing debris seals into opening on side frame before attaching bearing plates to the dethatcher frame.

3. Procure reel motor assembly (75 – 1400) and assemble reel motor into bearing plate. This is to be used as an assembly tool for bearing alignment.

4. Tighten the (3) capscrews, washers, and lockwashers to 170 – 220 in – lbs on the driven side of the dethatcher reel assembly with the reel motor acting as pilot for the bearing assembly.

5. Tighten the (3) capscrews, washers, and lockwashers to 170 – 220 in – lbs on the other end of the reel assembly. Remove reel motor.

6. Position the reel shaft assembly so that the spline nut is .50 inward from the outside surface of the bearing plate (Fig. 14)

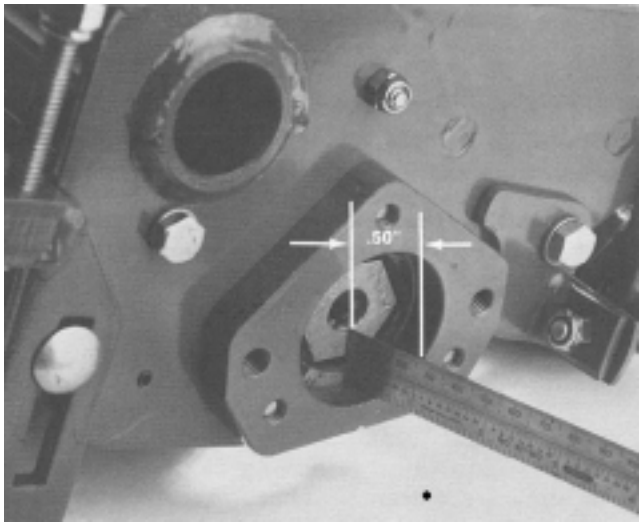

Figure 14

7. Use a drive pin and hammer to tighten the locking collars on the reel shaft bearings. Tighten in direction of rotation. Tighten setscrews (2).

OPTIONAL BLADE CONFIGURATIONS

The dethatching reel is shipped from the factory with 3/4" spacing between blades. Three additional kits are available for other spacing options if desired. Kits are listed and configurations are shown below.

1/2" spacing, Kit Part No. 82–7000 – Includes (9) Blades (part no. 17–1590) and (66) 1/4" Thick Spacers (part no. 17–1600) (Fig. 15).

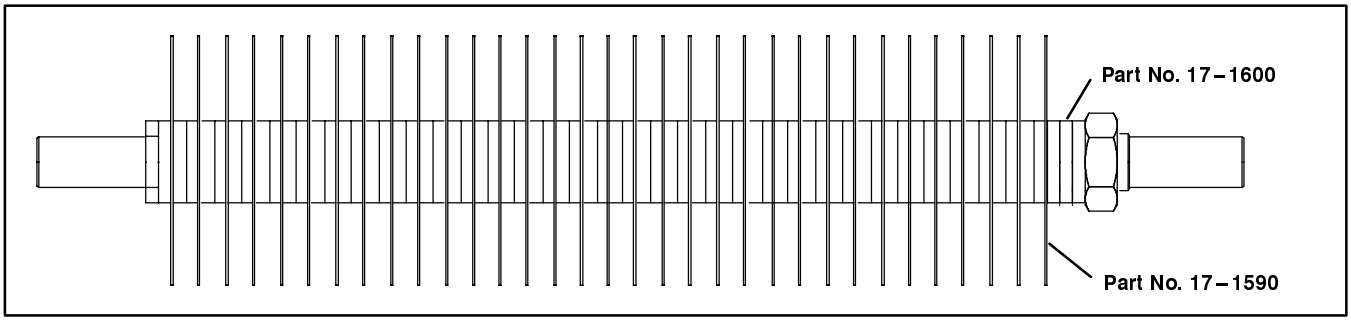

Figure 15

3/4" Spacing, (Standard) – Includes (24) Blades (part no.17–1590) (2) 1/4" Thick Spacers (part no.17–1600) (23) 3/4" Thick Spacers (82–6600)(Fig. 16).

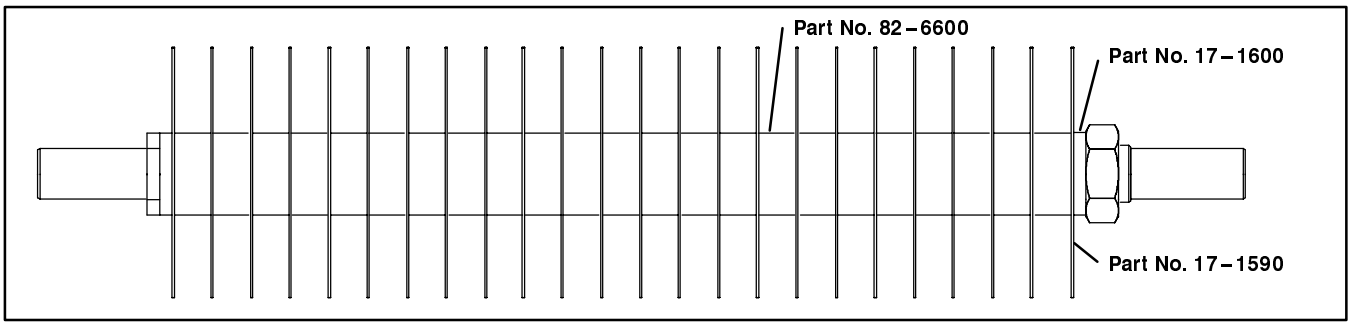

Figure 16

1" spacing, Kit Part No. 82–7001 – Includes (16) 1/4" Thick Spacers (part no.17–1600) (Fig. 17).

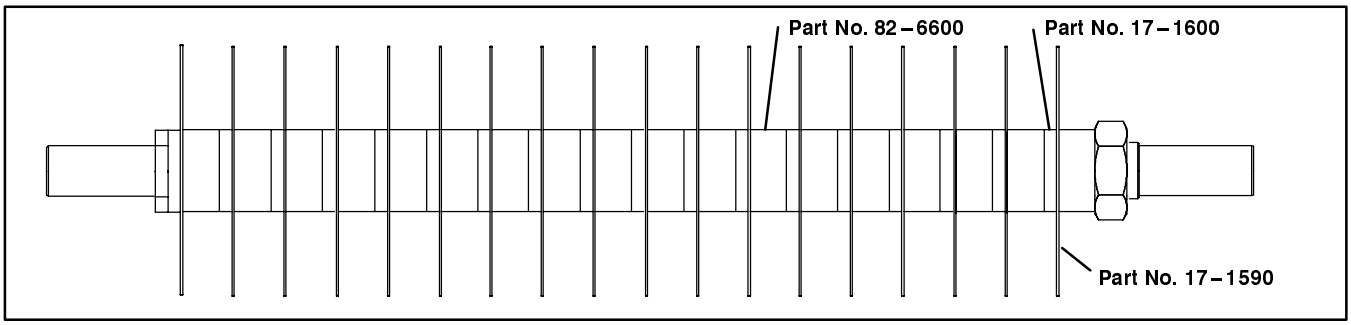

Figure 17

1–1/4" spacing, Kit Part No. 82–7002 – Includes (28) 1/4" Thick Spacers (part no.17–1600) (Fig. 18).

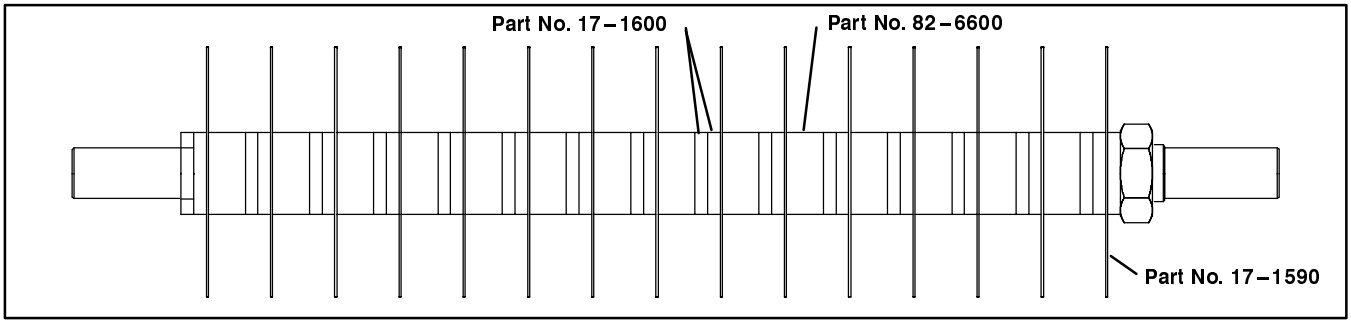

Figure 18

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 cost 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, MN 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 MERCHANTIBILITY 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 operating 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 of incidental or consequential damages, so the above 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.

Compliance with Radio Interference Regulations Certified.