FORM NO. 3323–985

TORO®

MODEL NO. 30822 -- 200000001 & UP

OPERATOR'S MANUAL

27" ROTARY CUTTING DECK

For Groundsmaster 3500 Traction Unit

To assure maximum safety, optimum performance, and to gain knowledge of the product, it is essential that you or any other operator of the machine read and understand the contents of this manual before the engine is ever started. Pay particular attention to the SAFETY INSTRUCTIONS highlighted by this symbol —

The safety alert symbol means CAUTION, WARNING or DANGER — personal safety instruction. Failure to comply with the instruction may result in personal injury.

The Groundsmaster 3500 Traction unit with 27" Rotary Cutting decks conforms to the B71.4–1999 specifications of the American National Standards Institute's safety standards for riding mowers when rear ballast is installed per instructions in Traction Unit Operator's Manual.

TORO
THIS UNIT CONFORMS TO ANSI B71.4–1999

FOREWORD

The 27" Rotary Cutting Deck has advanced concepts in engineering, design and safety; and if maintained properly, will give excellent service.

Since this is a high–quality product, Toro is concerned about the future use of the machine and safety of the user. Therefore, read this manual to familiarize yourself with proper set–up, operation and maintenance instructions. The major sections of the manual are:

1. Safety Instructions
2. Set–up Instructions
3. Before Operating
4. Operation
5. Lubrication
6. Maintenance

Certain information in this manual is emphasized. DANGER, WARNING and CAUTION identify personal safety related information. IMPORTANT identifies mechanical information demanding special attention. Be sure to read this directive because it deals with the possibility of damaging a part or parts of the machine. NOTE identifies general information worthy of special attention.

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SAFETY INSTRUCTIONS

The Groundsmaster 3500–D with 27" Rotary Cutting Decks installed was tested and certified by TORO for compliance with the B71.4-1999 specifications of the American National Standards Institute. Although hazard control and accident prevention partially are dependent upon the design and configuration of the machine, these factors are also dependent upon the awareness, concern, and proper training of the personnel involved in the operation, transport, maintenance, and storage of the machine. Improper use or maintenance by the operator or owner of the machine can result in injury. To reduce the potential for any injury, comply with the following safety instructions.

SUPERVISOR'S RESPONSIBILITIES

1. Make sure operators are thoroughly trained and familiar with the Operator's Manual and all the labels on the machine.

2. Be sure to establish your own special procedures and work rules for unusual operating conditions (e.g. slopes to steep for machine operation. **Survey complete mowing site to determine which hills can be safely operated on.** When performing this site survey always use common sense and take into consideration the turf condition and the rollover risk.
To determine which hills or slopes may be safely operated on use the inclinometer provided with each machine. To perform a site survey, lay a 4' two by four on the slope surface and measure the angle of the slope. The 2 by 4 will average the slope but will not take into consideration dips or holes. **THE MAXIMUM SIDE HILL ANGLE SHOULD NOT BE GREATER THAN 25 DEGREES.**

BEFORE OPERATING

3. Operate the machine only after reading and understanding the contents of this manual and viewing the Operator's Training Video supplied with the machine. A free replacement manual is available by sending complete model and serial number to:

The Toro Company
8111 Lyndale Ave. S.
Bloomington, MN 55420–1196.

4. Only trained operators, skilled in slope operation and who have read this manual and viewed the Operator's Training Video should operate the machine. Never allow children to operate the machine or adults to operate it without proper instructions.

5. Become familiar with the controls and know how to stop the machine and engine quickly.

6. Do not carry passengers on the machine. Keep everyone, especially children and pets, away from the areas of operation.

7. Keep all shields, safety devices and decals in place. If a shield, safety device or decal is damaged, malfunctioning or illegible, repair or replace it before operating the machine.

8. Always wear substantial shoes. Do not operate machine while wearing sandals, tennis shoes or sneakers. Do not wear loose fitting clothing because it could get caught in moving parts and possibly cause personal injury.

9. Wearing safety glasses, safety shoes, long pants and a helmet is advisable and required by some local ordinances and insurance regulations.

10. Make sure the work area is clear of objects which might be picked up and thrown by the blades.

11. Fill fuel tank with diesel fuel before starting engine. Avoid spilling any fuel. Since fuel is highly flammable, handle it carefully.

A. Use an approved fuel container.

B. Do not remove cap from fuel tank when engine is hot or running.

C. Do not smoke while handling diesel fuel.

D. Fill fuel tank outdoors and not over one inch from the top of the tank, (bottom of the filler neck). Do not overfill.

WHILE OPERATING

12. Always wear your seat belt.

13. Do not run the engine in a confined area without adequate ventilation. Exhaust fumes are hazardous and could be deadly.

14. Sit on the seat when starting and operating the machine.

15. Check interlock switches daily for proper operation (Refer to traction unit operators manual). Do not rely entirely on safety switches -shut off engine before getting off seat. If a switch fails, replace it before operating the machine. The interlock system is for your protection, so do not bypass it. Replace all interlock switches every two years.

16. Operator must be skilled and trained in how to drive on hillsides. Failure to use caution on slopes or hills may cause vehicle to tip or roll, possibly resulting in personal injury or death.

17. Before backing up, look to the rear and assure no one is behind the machine. Watch out for traffic when near or crossing roads. Always yield the right of way.

18. Keep hands, feet and clothing away from moving parts and the mower discharge area.

SAFETY INSTRUCTIONS

19. When starting the engine:

A. Engage parking brake.

B. Be sure traction pedal is in neutral and blade drive is in disengage position.

C. After engine starts, release parking brake and keep foot off traction pedal. Machine must not move. If movement is evident, the neutral control linkage is incorrectly adjusted: therefore, shut engine off and adjust until machine does not move when traction pedal is released. Refer to Adjusting Transmission for Neutral.

20. This product may exceed noise levels of 85 dB(A) at the operator position. Ear protectors are recommended for prolonged exposure to reduce the potential of permanent hearing damage.

21. Raise the cutting decks when driving from one work area to another.

22. Do not touch engine, muffler, exhaust pipe or hydraulic tank while engine is running or soon after it has stopped because these areas could be hot enough to cause burns.

23. If a cutting deck strikes a solid object or vibrates abnormally, stop immediately. Turn engine off, wait for all motion to stop and inspect for damage.

24. Before getting off the seat:

A. Move traction pedal to neutral.

B. Set the parking brake.

C. Disengage the cutting decks and wait for the blades to stop spinning.

D. Stop the engine and remove key from the ignition switch.

25. Whenever machine is left unattended, make sure, key is removed from ignition switch and parking brake is set.

MAINTENANCE

26. Before servicing or making adjustments to the machine, stop the engine and remove key from switch to prevent accidental starting of the engine.

27. Check performance of all interlock switches daily. Do not defeat interlock system. It is for your protection.

28. To ensure entire machine is in good operating condition, frequently check and keep all nuts, bolts, screws and hydraulic fittings tight.

29. Make sure all hydraulic line connectors are tight, and all hydraulic hoses and lines are in good condition before applying pressure to the system.

30. Keep body and hands away from pin hole leaks or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard, not hands, to search for leaks. Hydraulic fluid escaping under pressure can have sufficient force to penetrate skin and do serious damage. If fluid is injected into the skin it must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.

31. Before disconnecting or performing any work on the hydraulic system, all pressure in system must be relieved by stopping engine and lowering cutting decks to the ground.

32. If major repairs are ever needed or if assistance is desired, contact an Authorized Toro Distributor.

33. To reduce potential fire hazard, keep the engine area free of excessive grease, grass, leaves and accumulation of dirt.

34. If the engine must be running to perform a maintenance adjustment, keep hands, feet, clothing, and any other parts of the body away from the cutting decks and any moving parts. Keep everyone away.

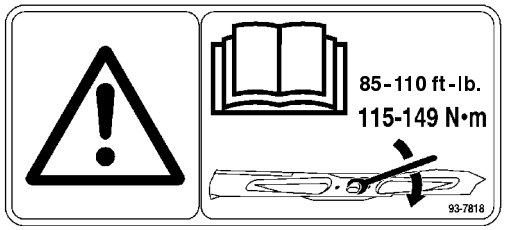
35. Do not overspeed the engine by changing governor settings. To assure safety and accuracy, have an Authorized Toro Distributor check maximum engine speed with a tachometer.

36. Engine must be shut off before checking oil or adding oil to the crankcase.

37. To insure optimum performance and safety, use genuine TORO replacement parts and accessories. Replacement parts and accessories made by other manufacturers could be dangerous, and such use could void the product warranty of The Toro Company.

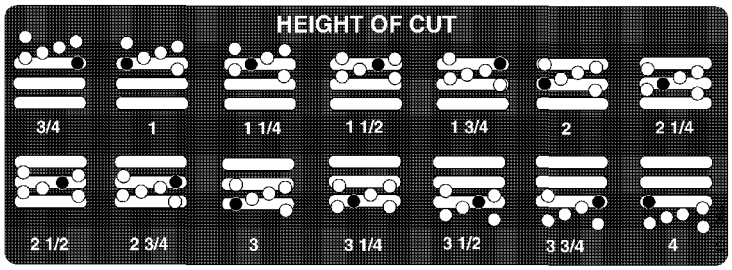
SAFETY AND INSTRUCTION DECALS

The following decals are installed on the cutting deck. If any become damaged or illegible, replace it. The decal part number is listed below and in your parts catalog. Replacements can be ordered from your Authorized Toro Distributor.



ON TOP OF CHAMBER
(Part No. 93--7818)

ON TOP OF CHAMBER
(Part No. 43--8480)
(Part No. 100--6583 for CE)



ON TOP OF CHAMBER
(Part No. 104--1086)

SPECIFICATIONS

Chamber Construction: Welded 10 GA (.1345 in.) and 12 GA (.1036 in.) steel. Spindle support is 3/16 in. high strength steel and 10 GA exterior channels, withstands multiple blade impact tests. Deck frame is welded 1–1/2 in. square tubing and 7 GA (.1793 in.) side supports, protects chamber, withstands collisions.

Blade: Heat treated steel.

Tip Speed: 16,300 ft./min. nominal.

Blade Plane: (Factory pre–set)

Height of Cut	2.00 (5.08 cm)
Right or left side	2.15 (5.46 cm)
Side to side	Within .03 in. (.08 cm) of each other
Blade rake	Approximately 5/16 in. (.79 cm)

Height of Cut: 3/4 – 4 in. (1.91 – 10.16 cm) in 1/4 in. (.64 cm) Increments.

Deck Drive: Hydraulic, closed loop, integrated relief. High efficiency press. balanced gear type pump. High efficiency press. Balanced gear type motor. Double six row single pass cooler which tilts out for cleaning. Recommended Oil is Mobil DTE 15M (Mobil EAL biodegradable compatible).

Spindles: 1–1/4 in. (3.17 cm) shaft, greaseable, tapered roller bearing, ductile iron housing which withstands multiple impact tests.

Discharge: Rear, even clipping distribution in wet or dry conditions.

Mulching Baffle (Optional): Pre–drilled mounting holes provided in decks.

Front Rollers:Two 5 in. (12.7 cm) diameter, ductile iron w/ hollow core, sealed bearings, close location to blade.

Rear Roller: One 3 in. (7.6 cm) diameter, steel, sealed bearings, exterior shaft seal, full length, close location to blade.

Anti–Scalp Cup: 6 in. (15.2 cm) standard.

Roller Scraper: 1/4 in (.64 cm) high strength square rod, located below center line, tensioned for consistent gap.

Dimensions:

Overall length	33.8 in. (85.8 cm)
Overall width	34.0 in. (86.4 cm)
Overall height	9.6 in. (24.4 cm) to carrier mount
	10.5 in. (26.7 cm) at 3/4 in. height of cut
	13.75 in. (34.9 cm) at 4 in. height of cut
Roller footprint	
Front to back	29.3 in. (74.4 cm)
Rear Roller	29.8 in. (75.7 cm) full length
Front Rollers	18.5 in. (47.0 cm) between front rollers

Suspension: Non steering carrier frame.

Weight: 190 lbs. (86 kg)

Certification: Complies with ANSI B71.4–1999 and European Community (CE) with required rear ballast.

Accessories:

Mulching baffle kit	Model No.30824
(Kit contains parts for three decks)	

Specifications and design subject to change without notice.

LOOSE PARTS

NOTE: Use this chart as a checklist to assure all parts have been received. Without these parts, total set–up cannot be completed.

Description	Qty.	Use
Decal	1	Apply to Cutting Deck for CE
Operator's Manual	1	Read Before Operating Machine.
Parts Catalog	1	
Registration Card	1	Fill Out And Return To Toro.

BEFORE OPERATING

CAUTION

To prevent accidental starting of the engine, while performing maintenance, shut engine off and remove key from ignition switch.

ADJUST CARRIER FRAME (Fig. 1)

The front and rear cutting decks require different mounting positions.

The front cutting deck has two mounting positions depending on what height–of–cut and degree of deck rotation is desired. The rear cutting deck has one mounting position for proper alignment with the sidewinder under frame.

Front Cutting Decks

1. For heights of cut in the 3/4 to 3 inch range, the front carrier frames should be mounted in the lower front mounting holes.

Note: This permits more up travel of the cutting decks relative to tractor when approaching quick uphill changes in terrain. It does however limit the clearance of the chamber to carrier when cresting sharp knolls.

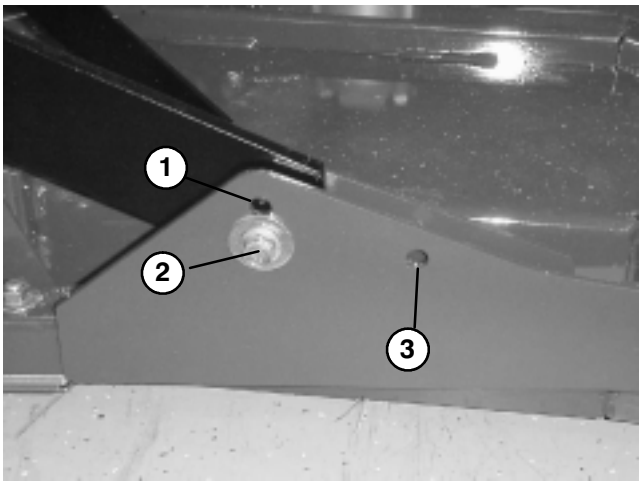


Figure 1

1. Front deck mounting hole (upper)
2. Front deck mounting hole (lower)
3. Rear deck mounting hole

2. For heights of cut in the 2–1/2 to 4 inch range, the front carrier frames should be mounted in the upper front mounting holes.

Note: This increases the chamber to carrier clearance due to the higher position of the cutting chamber, but will cause the cutting deck to reach their maximum up travel sooner.

Rear Cutting Decks

1. For all heights of cut, the rear cutting deck should be mounted in the rear mounting holes.

ADJUST HEIGHT OF CUT (Fig. 2–3)

IMPORTANT: This cutting deck often cuts approximately 1/4 inch lower than a reel cutting unit with the same bench setting. It may be necessary to have these rotary cutting deck's bench set 1/4 inch above that of reels cutting in the same area.

1. Lower cutting deck to ground, stop engine and remove key from ignition switch.

2. Loosen capscrew securing each height of cut bracket to height of cut plate (Front and each side).

3. Beginning with front adjustment, remove capscrew.

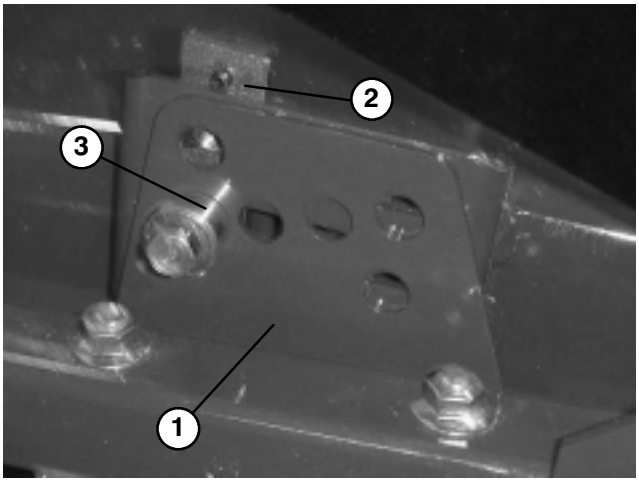


Figure 2

1. Height of cut bracket
2. Height of cut plate
3. Spacer

4. While supporting chamber, remove spacer.

5. Move chamber to desired height–of–cut, install spacer into designated height–of–cut hole and slot.

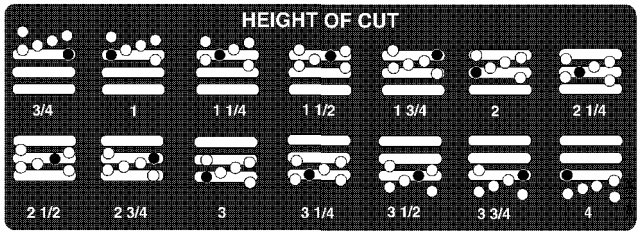


Figure 3

6. Position taped plate in line with spacer.

7. Install capscrew finger tight.

8. Repeat steps 4–7 for each side adjustment.

9. Tighten all three capscrews to 30 ft–lb. (41 N–m).

NOTE: Adjustments of more than 1–1/2 inch may require temporary assembly to an intermediate height to prevent binding (e.g. changing from 1.25" to 2.75" height–of–cut).

BEFORE OPERATING

ADJUST ROLLER SCRAPER (Fig. 4)

The rear roller scraper is designed to work best when there is an even gap of .02 – .04 inches between the scraper (square rod) and roller with relatively high tension in the rod.

1. Loosen locknut securing one end of roller scraper rod to mounting bracket (Fig. 4). There should be approximately .005 – .020" end play in loosened rod.

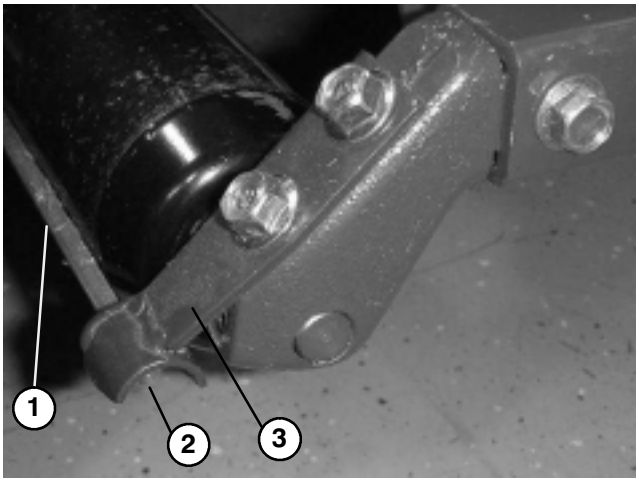


Figure 4
1. Roller scraper
2. Locknut
3. Mounting bracket

2. Loosen left and right scraper bracket mounting screws until the mounting brackets can be adjusted with a light tap.

3. Slide scraper brackets up or down until a gap of .02 – .04 inches is achieved between the rod and the roller.

4. Secure mounting screws to 30 ft–lb. (41 N–m).

5. Tighten scraper rod lock nut to 65 in–lb. (8.5 N–m).

NOTE: If one side of scraper rod becomes worn, it can be rotated in the mounting brackets 180 degrees for a new edge.

INSTALL MULCHING BAFFLE (Fig. 5) (Optional)

1. Thoroughly clean debris from mounting holes on rear wall and left side wall of chamber.

2. Install mulching baffle in rear opening and secure with (5) flangehead screws.

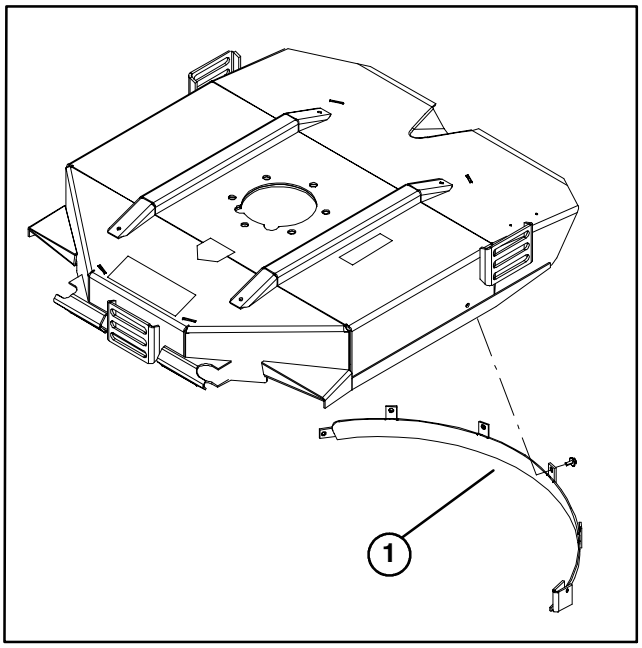


Figure 5
1. Mulching baffle

3. Verify that mulching baffle does not interfere with either tip of blade and does not protrude inside the surface of the rear chamber wall.

OPERATING INSTRUCTIONS

OPERATING TIPS

1. MOW WHEN GRASS IS DRY–Mow either in the late morning to avoid the dew, which causes grass clumping or in late afternoon to avoid the damage that can be caused by direct sunlight on the sensitive, freshly mowed grass.

2. SELECT THE PROPER HEIGHT–OF–CUT SETTING TO SUIT CONDITIONS – Remove approximately one inch or no more than 1/3 of the grass blade when cutting. In exceptionally lush and dense grass you may have to raise your height–of–cut setting another notch.

3. ALWAYS START MOWING WITH SHARP BLADES – A sharp blade cuts cleanly and without tearing or shredding the grass blades like a dull blade. Tearing and shredding causes the grass to turn brown at the edges which impairs growth and increases susceptibility to diseases. Make sure blade is in good condition and a full sail is present.

4. CHECK CONDITION OF DECK – Make sure cutting chambers are in good condition. Straighten any bends in chamber components to assure correct blade tip/chamber clearance.

CAUTION: This product may exceed noise levels of 85 dB(A) at the operator position. Ear protectors are recommended for prolonged exposure to reduce the potential of permanent hearing damage.

5. AFTER OPERATING – To assure optimum performance, clean underside of mower housing. If residue is allowed to build up in mower housing, cutting performance will decrease.

LUBRICATION

GREASE BEARINGS (Fig. 6)

Each cutting deck has two grease fittings per spindle. Either fitting can be used, which ever is more accessible. If machine is operated under normal conditions, lubricate blade spindle bearings (Fig. 6) with No. 2 general purpose lithium base grease or molybdenum base grease, after every 50 hours of operation. Pump grease into fitting until a small amount appears at bottom of spindle housing (under deck).

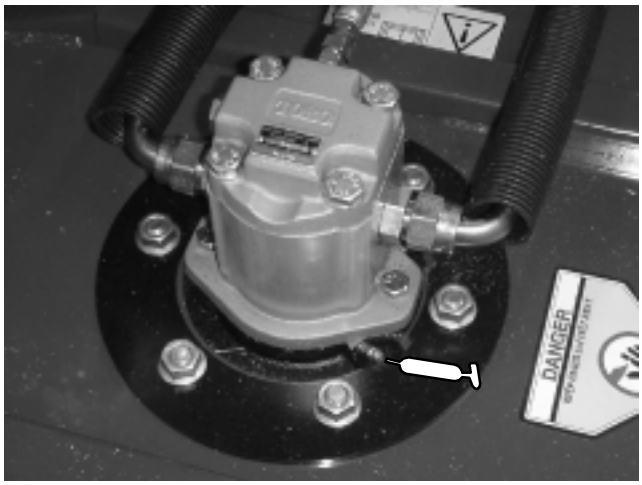


Figure 6

MAINTENANCE

CAUTION

To prevent accidental starting of the engine, while performing maintenance, shut engine off and remove key from ignition switch.

CUTTING DECK SERVICE LATCH (Fig. 7)

When servicing cutting deck's, use the service latch to prevent injury.

1. Center cutting deck sidewinder with the traction unit.

2. Raise cutting decks to transport position.

3. Set parking brake and turn off machine.

4. Release latch rod from front carrier frame retainer.

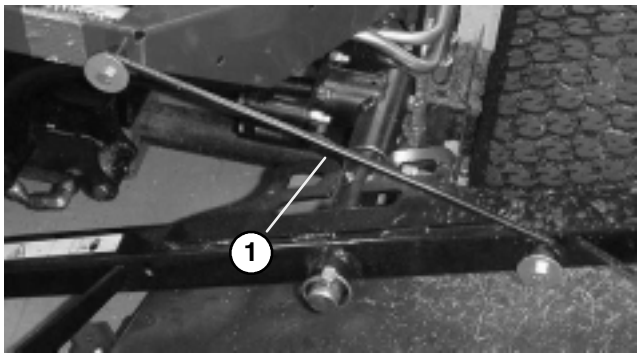


Figure 7
1. Service latch hook

5. Lift outside of front cutting decks and place latch over frame pin mounted on front of operators platform.

6. Release latch rod from rear carrier frame retainer.

7. Hook latch over frame pin on left side of machine.

8. Sit on operator seat and start traction unit.

9. Lower cutting decks to mow position.

10. Turn off machine and remove key.

11. Reverse procedure to unlatch cutting decks.

SEPARATING CUTTING DECKS FROM TRACTION UNIT (Fig. 8–9)

1. Position machine on level surface, lower cutting decks to floor, shut engine off and engage parking brake.

2. Disconnect and remove hydraulic motor from deck. Cover top of spindle to prevent contamination.

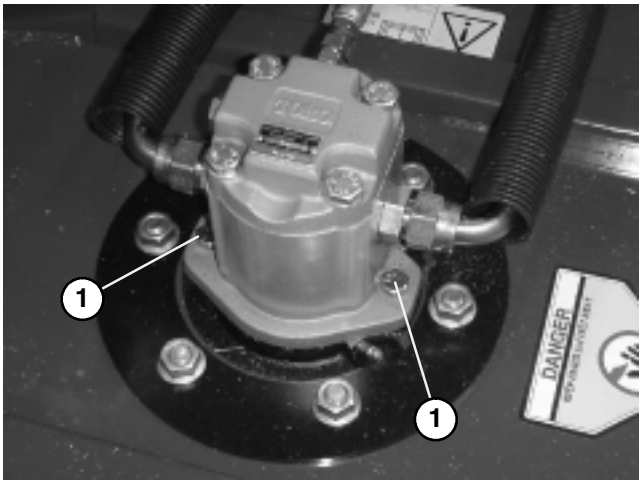


Figure 8
1. Motor mounting screws

3. Remove lynch pin securing deck carrier frame to lift arm pivot pin.

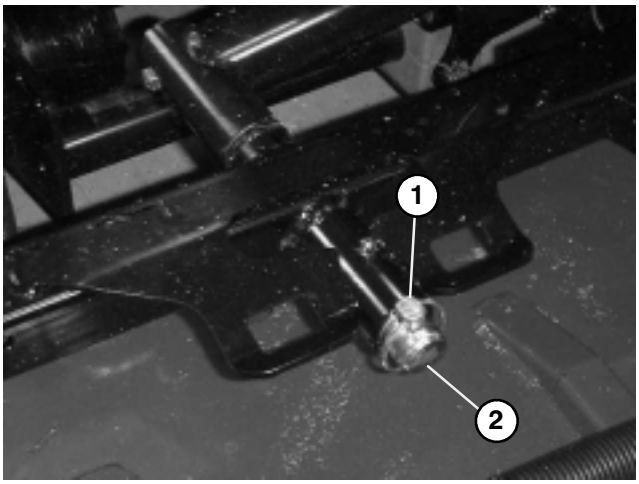


Figure 9
1. Lynch pin
2. Lift arm pivot pin

4. Roll the cutting deck away from the traction unit.

MOUNTING CUTTING DECKS TO TRACTION UNIT

1. Position machine on a level surface and shut engine off.

2. Move cutting deck into position in front of traction unit.

3. Slide deck carrier frame onto lift arm pivot pin. Secure with lynch pin.

4. Install hydraulic motor to deck. Make sure O–ring in is position and not damaged.

5. Grease spindle.

MAINTENANCE

BLADE PLANE

The rotary deck comes from the factory preset at 2.00 inch height–of–cut and blade rake of 0.31 inch. The LH and RH heights are also preset to within ± 0.03 inch of the other.

The cutting deck is designed to withstand blade impacts without deformation of the chamber. If a solid object is struck, inspect the blade for damage and blade plane for accuracy.

INSPECTING BLADE PLANE (Fig. 10)

1. Remove hydraulic motor from cutting deck and remove cutting deck from tractor.

2. Use hoist (or minimum of two people) and place cutting deck on flat table.

3. Mark one end of blade with paint pen or marker. Use this end of blade to check all heights.

4. Position cutting edge of marked end of blade at 12 o'clock (straight ahead in direction of mowing) and measure height from table to cutting edge of blade.

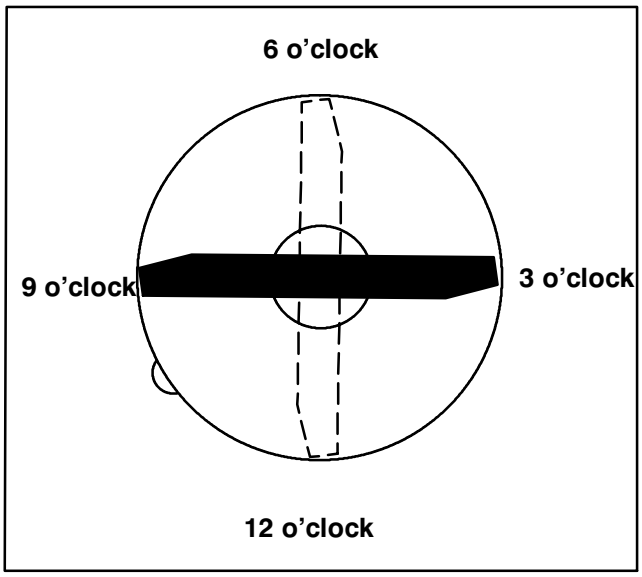


Figure 10

5. Rotate marked end of blade to the 3 and 9 o'clock positions and measure heights.

6. Compare 12 o'clock measured height to the height of cut setting. It should be within .03 inch. The 3 and 9 o'clock heights should be .15 ± .03 inch higher than the 12 o'clock setting and within .03" of each other.

If any of these measurements are not within specification, proceed to Adjusting Blade Plane, page 12.

ADJUSTING BLADE PLANE (Fig. 11)

Start with front adjustment (change one bracket at a time).

1. Remove height–of–cut bracket, (front, left or right) from deck frame.

2. Adjust .06" shims and/or .03" shim between the deck frame and bracket to achieve the desired height setting.

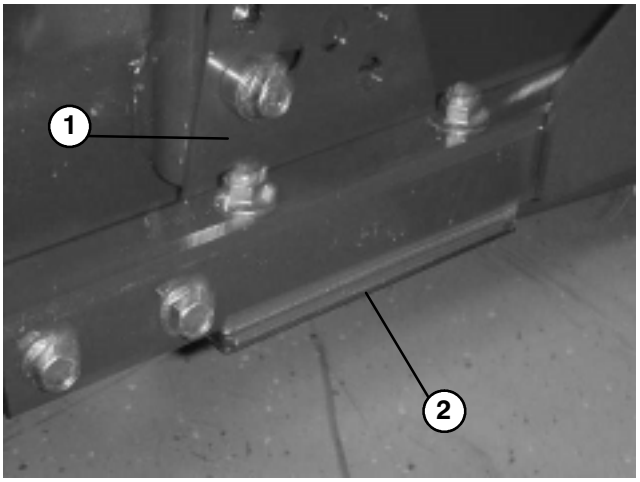


Figure 11
1. Height of cut bracket
2. Shims

3. Install height–of–cut bracket to deck frame with remaining shims assembled below the height–of–cut bracket.

4. Secure socket head bolt/spacer and flange nut.

NOTE: Socket head bolt/spacer are held together with Loctite to prevent spacer from falling inside the deck frame.

5. Verify 12 o'clock height and re–adjust if needed.

6. Determine if only one or both (RH and LH) height–of–cut brackets need to be adjusted. If the 3 or 9 o'clock side is .15 ±.03 higher than the new front height then no adjustment is needed for that side. Adjust other side to within ± .03" of correct side.

7. Adjust right and/or left height–of–cut brackets by repeating steps 1 thru 3.

8. Secure carriage bolts and flange nuts.

9. Again, verify 12, 3, and 9 o'clock heights.

REMOVING CUTTER BLADE (Fig. 12)

The blade must be replaced if a solid object is hit, the blade is out–of–balance or if the blade is bent. Always use genuine TORO replacement blades to be sure of safety and optimum performance. Never use replacement blades made by other manufacturers because they could be dangerous.

1. Raise cutting deck to highest position, shut the engine off and engage the parking brake. Block cutting deck to prevent it from falling accidentally.

2. Grasp end of blade using a rag or thickly padded glove. Remove blade bolt, anti–scalp cup and blade from spindle shaft.

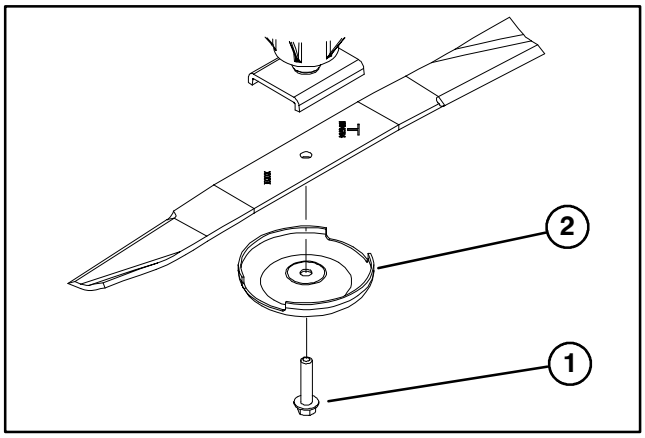


Figure 12

1. Blade bolt
2. Anti–Scalp Cup

10. Install blade—sail facing toward cutting deck with anti–scalp cup and blade bolt. Tighten blade bolt to 85–110 ft–lb (115–149 N–m).

WARNING

Do not try to straighten a blade that is bent, and never weld a broken or cracked blade. Always use a new blade to assure continued safety certification of the product.

INSPECTING AND SHARPENING BLADE

(Fig. 13–14)

1. Raise cutting deck to highest position, shut the engine off and engage the parking brake. Block cutting deck to prevent it from falling accidentally.

2. Examine cutting ends of the blade carefully, especially where the flat and curved parts of the blade meet (Fig. 13–A). Since sand and abrasive material can wear away the metal that connects the flat and curved parts of the blade, check the blade before using the machine. If wear is noticed (Fig. 13–B), replace the blade: refer to Removing Cutter Blade.

DANGER

If blade is allowed to wear, a slot will form between the sail and flat part of the blade (Fig. 13–C). Eventually a piece of the blade may break off and be thrown from under the housing, possibly resulting in serious injury to yourself or bystander.

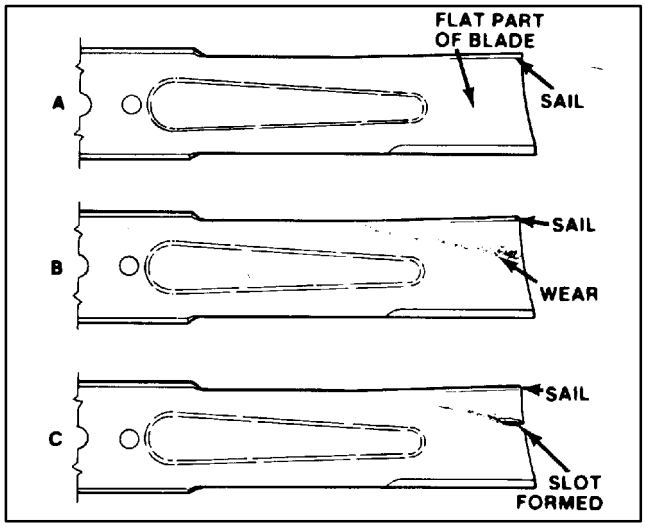


Figure 13

11. Inspect cutting edges of all blades. Sharpen the cutting edges if they are dull or nicked. Sharpen only the top of the cutting edge and maintain the original cutting angle to make sure of sharpness (Fig. 27). The blade will remain balanced if same amount of metal is removed from both cutting edges.

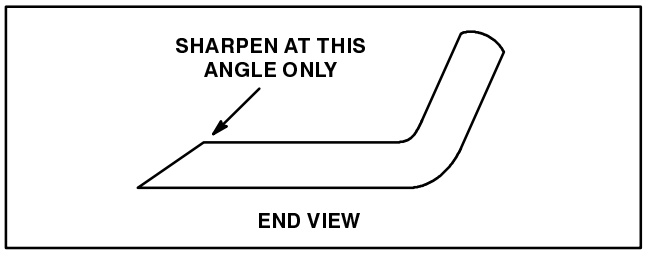


Figure 14

4. To check blade for being straight and parallel, lay blade on a level surface and check its ends. Ends of blade must be slightly lower than the center, and cutting edge must be lower than the heel of the blade. This blade will produce good quality of cut and require minimal power from the engine. By contrast a blade that is higher at the ends than the center, or if cutting edge is higher than the heel, the blade is bent or warped and must be replaced.

5. Install blade—sail facing toward cutting deck with anti–scalp cup, lockwasher and blade bolt. Tighten blade bolt to 85–110 ft–lb (115–149 N–m).

BLADE STOPPING TIME

The blades of the cutting deck are to come to a complete stop in approximately 5 seconds after the cutting deck engagement switch is shut down.

NOTE: Make sure the decks are lowered onto a clean section of turf or hard surface to avoid thrown dust and debris.

To verify this stopping time, have a second person stand back from the deck at least 20 feet and watch the blades on one of the cutting decks. Have the operator shut the cutting decks down and record the time it takes for the blades to come to a complete stop. If this time is greater than 7 seconds, the braking valve needs adjustment. Call your Toro Distributor for assistance in making this adjustment.

SERVICING REAR ROLLER (Fig. 15–17)

Disassembly

1. Loosen locknut securing one end of roller scraper rod to mounting bracket. There should be approximately .005 – .020" end play in loosened rod.

2. Remove mounting screws securing left and right scraper brackets to roller mounts. Remove scraper brackets.

3. Remove mounting screws securing roller mounts to rear of deck frame. Remove roller mounts.

4. Remove set screws securing each end of roller to roller mounts.

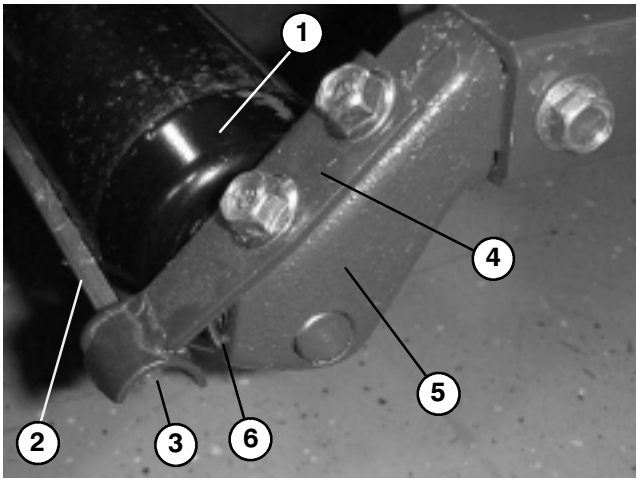


Figure 15

1. Rear roller
2. Scraper rod
3. Lock nut
4. Scraper mounting bracket
5. Roller mount
6. Set screw

Seal Removal

Using a 1/4" thick, 3" x 3" square piece of steel and the following specifications, make a seal removal tool (Fig. 16).

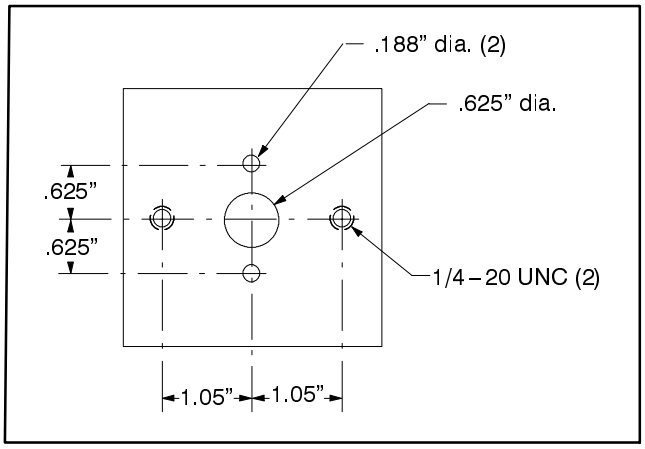


Figure 16

1. Slide Seal Tool over roller shaft.

2. Using the tool as a template, locate, mark and drill (2) 7/64" (.109") diameter holes in outer face of seal.

3. Screw (2) No. 8 (.164") diameter x .75" lg. selftapping screws into outer face of seal.

4. Install (2) 1/4–20 x 1.00" lg. capscrews into seal tool.

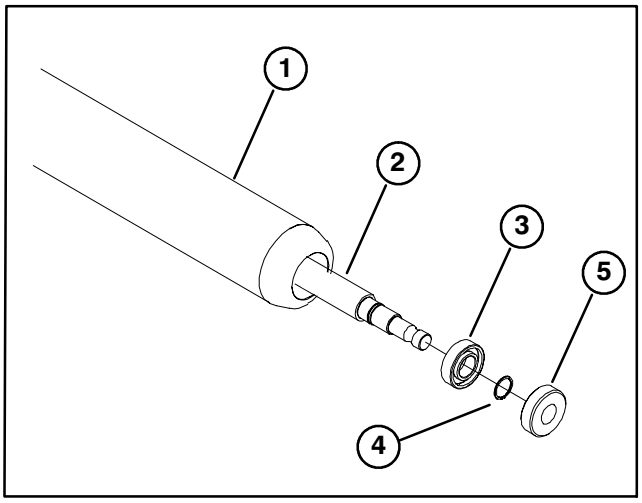


Figure 17

1. Roller
2. Roller shaft
3. Ball bearing
4. Retaining ring
5. Oil seal

4. Alternate tightening sequence of 1/4" capscrews to pull seal out of housing.

NOTE: Seal will be destroyed when servicing the rear roller. Do not attempt to re–use these seals.

Bearing Removal

Reference: The bearings are pressed on to the shaft (.0003" – .0016" interference) and loose fit to housing (.0020" – .0035" clearance).

1. Remove spiral retaining ring. Catch removal notch with pick and pull ring off shaft. Repeat on other end.

2. Loosely secure roller assembly in bench vise and lightly tap one end of roller shaft until free from housing.

3. Remove second bearing from shaft. Support bearing on inner race and tap on roller shaft.

MAINTENANCE

4. Inspect bearings, shaft, and spiral retaining ring for damage. Replace damaged components. Re–assemble roller.

Assembly

1. Press bearing onto one end of shaft. Apply pressure to inner race only.

2. Install spiral retaining ring on same end as assembled bearing.

3. Install shaft with single bearing into tube assembly.

4. Install second bearing into roller assembly. Press only on inner race. The inner race will contact shoulder of shaft before outer race contacts shoulder of housing.

5. Install second spiral retaining ring.

6. Press new seal flush to .03" recessed into housing. Repeat for other side.

SERVICING FRONT ROLLER (Fig. 18)

Disassembly

1. Remove roller mounting bolt.

2. Insert punch through end of roller housing and drive opposite bearing out by alternating taps to opposite side of inner bearing race. There should be a 1/16" (.06") lip of inner race exposed.

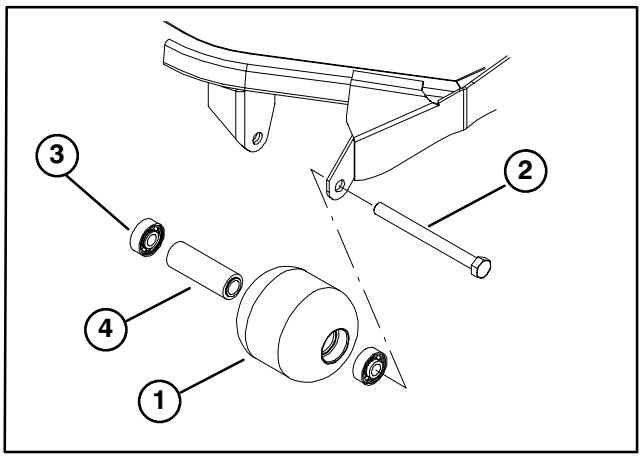


Figure 18

1. Front roller
2. Mounting bolt
3. Bearing
4. Bearing spacer

4. Push second bearing out in press.

5. Inspect roller housing, bearings, and bearing spacer for damage. Replace damaged components and re–assemble.

Assembly

1. Press first bearing into roller housing. Press on outer race only or equally on inner and outer race.

2. Insert spacer.

3. Press second bearing into roller housing pressing equally on inner and outer race until the inner race comes in contact with spacer.

4. Install roller assembly into deck frame.

NOTE: Securing roller assembly with a gap larger than .06" creates a side load on bearing and can lead to premature bearing failure.

5. Verify that there is no more than a .06" gap between roller assembly and the roller mount brackets of the deck frame. If there is a gap over .06", install enough 5/8" diameter washers to take up the slop.

6. Secure mounting bolt to 80 ft–lb. (108 N–m).

CUTTING DECK STORAGE

If cutting deck is separated from traction unit for any length of time, install spindle plug (94–2703) in top of spindle to protect spindle from dust and water.

IDENTIFICATION AND ORDERING

MODEL AND SERIAL NUMBERS

The cutting deck has two identification numbers: a model number and a serial number. The two numbers are stamped into a plate on rear of the mower deck, under cover. In any correspondence concerning the mower, supply the model and serial numbers to assure that 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 machine.

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.

The Toro General Commercial Products Warranty

A Two-Year Limited Warranty

Conditions and Products Covered

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrant your 1996 or newer Toro Commercial Product ("Product") purchased after January 1, 1997, to be free from defects in materials or workmanship for two years or 1500 operational hours*, whichever occurs first. Where a warrantable condition exists, we will repair the Product at no cost to you including diagnosis, labor, parts, and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.

* Product equipped with hour meter

Instructions for Obtaining Warranty Service

You are responsible for notifying the Commercial Products Distributor or Authorized Commercial Products Dealer from whom you purchased the Product as soon as you believe a warrantable condition exists.

If you need help locating a Commercial Products Distributor or Authorized Dealer, or if you have questions regarding your warranty rights or responsibilities, you may contact us at:

Toro Commercial Products Service Department
Toro Warranty Company
8111 Lyndale Avenue South
Bloomington, MN 55420-1196
612-888-8801
800-982-2740
E-mail: commercial.service@toro.com

Owner Responsibilities

As the Product owner, you are responsible for required maintenance and adjustments stated in your operator's manual. Failure to perform required maintenance and adjustments can be grounds for disallowing a warranty claim.

Items and Conditions Not Covered

Not all product failures or malfunctions that occur during the warranty period are defects in materials or workmanship. This express warranty does not cover:

- Product failures which result from the use of non-Toro replacement parts, or from installation and use of add-on, modified, or unapproved accessories.
- Product failures which result from failure to perform required maintenance and/or adjustments.
- Product failures which result from operating the Product in an abusive, negligent or reckless manner.
- Parts subject to consumption through use unless found to be defective. Examples of parts which are consumed, or used up, during normal Product operation include, but are not limited to, blades, reels, bedknives, tines, spark plugs, castor wheels, tires, filters, belts, etc.
- Failures caused by outside influence. Items considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved coolants, lubricants, additives, or chemicals, etc.
- Normal "wear and tear" items. Normal "wear and tear" includes, but is not limited to, damage to seats due to wear or abrasion, worn painted surfaces, scratched decals or windows, etc.

Parts

Parts scheduled for replacement as required maintenance are warranted for the period of time up to the scheduled replacement time for that part.

Parts replaced under this warranty become the property of Toro. Toro will make the final decision whether to repair any existing part or assembly or replace it. Toro may use factory remanufactured parts rather than new parts for some warranty repairs.

General Conditions

Repair by an Authorized Toro Distributor or Dealer is your sole remedy under this warranty.

Neither The Toro Company nor Toro Warranty Company is liable for indirect, incidental or consequential damages in connection with the use of the Toro Products covered by this warranty, including any cost or expense of providing substitute equipment or service during reasonable periods of malfunction or non-use pending completion of repairs under this warranty. Except for the Emissions warranty referenced below, if applicable, there is no other express warranty. All implied warranties of merchantability and fitness for use are limited to the duration of this express warranty.

Some states do not allow exclusions of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations 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.

Note regarding engine warranty: The Emissions Control System on your Product may be covered by a separate warranty meeting requirements established by the U.S. Environmental Protection Agency (EPA) and/or the California Air Resources Board (CARB). The hour limitations set forth above do not apply to the Emissions Control System Warranty. Refer to the Engine Emission Control Warranty Statement printed in your operator's manual or contained in the engine manufacturer's documentation for details.

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 Toro Warranty Company.

Rev. 12/09/1999