



**72" Side Discharge Deck**  
**Groundsmaster® 3000 Traction Units**  
30373—210000001 and Up

**Operator's Manual**

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# Introduction

Read this manual carefully to learn how to operate and maintain your product properly. The information in this manual can help you and others avoid injury and product damage. Although Toro designs and produces safe products, you are responsible for operating the product properly and safely.

Whenever you need service, genuine Toro parts, or additional information, contact an Authorized Service Dealer or Toro Customer Service and have the model and serial numbers of your product ready. The two numbers are stamped into a plate on front channel of the mower deck, under cover.

Write the product model and serial numbers in the space below:

<b>Model No.</b> _____
<b>Serial No.</b> _____

This manual identifies potential hazards and has special safety messages that help you and others avoid personal injury and even death. ***Danger, Warning, and Caution*** are signal words used to identify the level of hazard. However, regardless of the hazard, be extremely careful.

***Danger*** signals an extreme hazard that *will* cause serious injury or death if you do not follow the recommended precautions.

***Warning*** signals a hazard that *may* cause serious injury or death if you do not follow the recommended precautions.

***Caution*** signals a hazard that may cause minor or moderate injury if you do not follow the recommended precautions.

This manual uses two other words to highlight information. **Important** calls attention to special mechanical information and **Note:** emphasizes general information worthy of special attention.

# Safety

**Hazard control and accident prevention are 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 of the machine can result in injury or death. To reduce the potential for injury or death, comply with the following safety instructions.**

## Before Operating

1. Read and understand the contents of this Operator's Manual before operating the machine. Become familiar with all controls and know how to stop quickly. A free replacement manual is available by sending complete Model and Serial Number to:  
The Toro Company  
8111 Lyndale Avenue South  
Minneapolis, Minnesota 55420-1196
2. Never allow children to operate the machine. Do not allow adults to operate machine without proper instruction. Only trained operators who have read this manual should operate this machine.
3. Never operate the machine when under the influence of drugs or alcohol.
4. Remove all debris or other objects that might be picked up and thrown by the cutter blades. Keep all bystanders away from the mowing area.
5. Keep all shields and safety devices in place. If a shield, safety device or decal is illegible or damaged, repair or replace it before operation is commenced. Also tighten any loose nuts, bolts and screws to ensure machine is in safe operating condition.
6. Do not operate machine while wearing sandals, tennis shoes, sneakers or shorts. Also, do not wear loose fitting clothing which could get caught in moving parts. Always wear long pants and substantial shoes. Wearing safety glasses, safety shoes and a helmet is advisable and required by some local ordinances and insurance regulations.
7. Check interlock switches daily for proper operation (Refer To Section in Traction Unit Operator's Manual on Checking Interlock Switches). 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. Interlock switches should be adjusted so:
  - A. Engine cannot be started unless traction pedal is released (neutral position) and PTO switch is DISENGAGED (off position).

- B. Engine stops if operator gets off seat when traction pedal is depressed.
  - C. Engine stops if operator gets off seat when PTO lever is ENGAGED (on position).
8. Fill fuel tank before starting the engine. Avoid spilling any fuel. Since fuel is flammable, handle it carefully.
  - A. Use an approved fuel container.
  - B. Do not fill tank while engine is hot or running.
  - C. Do not smoke while handling gasoline.
  - D. Fill fuel tank outdoors and up to about one inch from top of the tank, not the filler neck.
  - E. Wipe up any spilled gasoline.

## While Operating

9. Do not run the engine in a confined area without adequate ventilation. Exhaust fumes are hazardous and could possibly be deadly.
10. Maximum seating capacity is one person. Never carry passengers.
11. Sit on the seat when starting the engine and operating the machine.
12. 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.
13. Before starting the engine:
  - A. Engage the parking brake.
  - B. Ensure traction pedal is in neutral and PTO is in the OFF, disengaged position.
  - C. After engine is started, release parking brake and keep foot off traction pedal. Machine must not move. If movement is evident, the neutral return mechanism is adjusted incorrectly; therefore, shut engine off and adjust until machine does not move when traction pedal is released.
14. Using the machine demands attention, and to prevent loss of control:
  - A. Mow only in daylight or when there is good artificial light.
  - B. Drive slowly and watch for holes or other hidden hazards.
  - C. Do not drive close to a sand trap, ditch, creek or other hazard.

- D. Reduce speed when making sharp turns and when turning on hillsides.
  - E. Avoid sudden starts and stops.
  - F. Before backing up, look to the rear and ensure no one is behind the machine.
  - G. Watch out for traffic when near or crossing roads. Always yield the right-of-way.
15. If engine stalls or machine loses headway and cannot make it to the top of a slope, do not turn machine around. Always back slowly straight down the slope.
  16. **DON'T TAKE AN INJURY RISK!** When a person or pet appears unexpectedly in or near the mowing area, **STOP MOWING**. Careless operation, combined with terrain angles, ricochets, or improperly positioned guards can lead to thrown object injuries. Do not resume mowing until area is cleared.
  17. Never raise the cutting unit while the blades are rotating.
  18. If the cutting blades strike a solid object or the machine vibrates abnormally, disengage PTO, move throttle to SLOW, set parking brake and shut engine off. Remove key from switch to prevent possibility of accidental starting. Check cutting unit and traction unit for damage and malfunctioning parts. Repair any damage before restarting the engine and operating the cutting unit. Be sure blades are in good condition and blade bolts are tight.
  19. Cut grass slopes carefully. Do not start, stop, or turn suddenly.
  20. Do not touch engine or muffler while engine is running or soon after it is stopped. These areas could be hot enough to cause a burn.
  21. Before getting off the seat:
    - A. Move traction pedal to neutral position and remove foot from pedal.
    - B. Set the parking brake and disengage the PTO.
    - C. Shut the engine off and remove the key from the ignition switch. Wait for all movement to stop before getting off the seat.
  22. Lower the cutting unit to the ground and remove key from ignition switch whenever machine is left unattended.
  23. Perform only those maintenance instructions described in this manual. If major repairs are ever needed or assistance is desired, contact an Authorized Toro Distributor.
  24. To reduce potential fire hazard, keep the engine free of excessive grease, grass, leaves and accumulations of dirt. Never wash a warm engine or any electrical parts with water.
  25. Be sure machine is in safe operating condition by keeping nuts, bolts and screws tight. Check the blade mounting bolts and nuts frequently to be sure they are tightened to specification.
  26. Make sure all hydraulic line connectors are tight, and all hydraulic hoses and lines are in good condition before applying pressure to the system.
  27. Keep body and hands away from pin hole leaks in hydraulic lines that eject high pressure hydraulic fluid. Use cardboard or paper to find hydraulic leaks. Hydraulic fluid escaping under pressure can penetrate skin and cause injury. Fluid accidentally injected into the skin must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.
  28. Before disconnecting or performing any work on the hydraulic system, all pressure in system must be relieved by stopping engine and lowering cutting unit to the ground.
  29. If the engine must be running to perform a maintenance adjustment, keep hands, feet, clothing and other parts of the body away from the cutting unit blades and other moving parts.
  30. Do not overspeed the engine by changing governor settings. To be sure of safety and accuracy, have an Authorized TORO Distributor check maximum engine speed with a tachometer.
  31. Engine must be shut off before checking oil or adding oil to the crankcase.
  32. At the time of manufacture the cutting unit conformed to safety standards in effect for riding mowers. Therefore, to ensure optimum performance and safety, always purchase genuine TORO replacement parts and accessories to keep the Toro all TORO. NEVER USE "WILL-FIT" REPLACEMENT PARTS AND ACCESSORIES MADE BY OTHER MANUFACTURERS. Look for the TORO logo to ensure genuineness. Using unapproved replacement parts and accessories could void the warranty of The Toro Company.

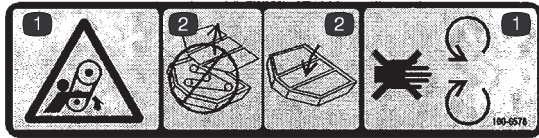
## Maintenance

23. Remove key from ignition switch to prevent accidental starting of the engine when servicing, adjusting or storing the machine.

# Safety and Instruction Decals

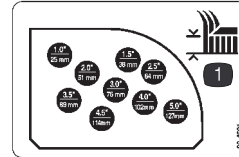


Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or lost.



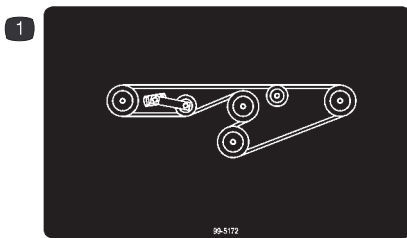
**Part No. 100-6578**

1. Stay away from moving parts
2. Do not operate with covers removed



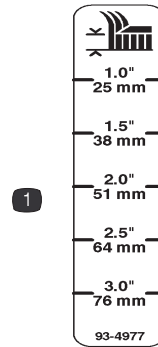
**Part No. 93-4691**

1. Height-of-cut range, rear



**Part No. 99-5172**

1. Belt Routing



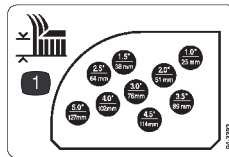
**Part No. 93-4977**

1. Height-of-cut range, anti-scalp roller



**Part No. 100-6582**

1. Danger-Rotating blades can cut hands and feet



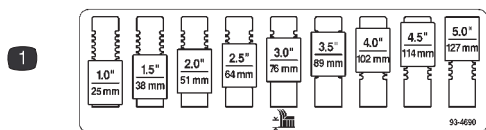
**Part No. 94-3392**

1. Height-of-cut range, rear



**Part No. 93-7824**

1. Thrown object hazard—keep bystanders away.
2. Thrown object hazard—keep deflector in place.
3. Rotating blades can cut hands and feet—stay away from moving parts.



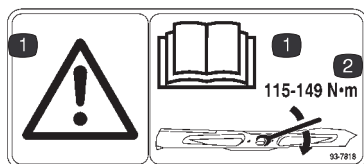
**Part No. 93-4690**

1. Height-of-cut range, front



**Part No. 100-6553**

1. Remove key and read Operator's Manual before performing maintenance
2. Thrown objects—Keep bystanders away
3. Rotating blades can cut hands and feet
4. Keep deflector in place



**Part No. 93-7818**

1. Danger—Read and understand Operator's Manual for information on blade torque.

## Specifications

**Type:** 71-5/8 in. (1.82 m) width of cut, 3 blades.

**Height Of Cut:** 1 to 4-1/2 in. (25 to 114 mm) adjustable in 1/2 in. (13 mm) increments. Front adjustment is with snapper pin and grooves in castor shaft. Rear adjustment is with hanger brackets and pin.

**Construction:** Housing is 12 gauge steel.

**Cutter Drive:** PTO driven gear box transmits power through a “BB” section hex. belt to all blade spindles.

**Blades:** Three 24.75 in. (55 mm) long, .25 in. thick, heat-treated steel.

**Suspension & Castor Wheels:** Two front castors, consisting of 10 in. (254 mm) pneumatic wheel and tire assembly with sealed ball bearings. Rear of deck is suspended from lift arms with adjustable deck rake. Hydraulic counter balance and lift system designed integral with deck for maximum flotation.

**Anti-scalp Features:** Anti-scalp cup located on each blade. Skid on left end of deck. Two adjustable gage wheels on front of deck. Four adjustable gage wheels on rear of deck.

**Deck Covers:** 14 gauge steel covers.

**Quick Attach System:** Tapered joint with over center adjustable tensioning latch.

**Weight:** Approximately 500 lb.

**Specifications and design subject to change without notice.**

## Assembly

**Note:** Determine the left and right sides of the machine from the normal operating position.

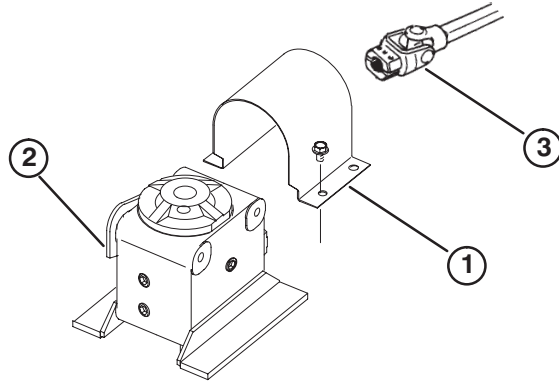
### Loose Parts

**Note:** Use this chart as a checklist to ensure that all parts have been received. Without these parts, total setup cannot be completed.

Description	Qty.	Use
Drive Shaft	1	Mount drive shaft to cutting unit.
Capscrew	2	
Locknut	2	
Roll Pin	1	
Decals	2	Apply over decal, part no. 100-6582, for ANSI compliance (2 places).
Parts Catalog	1	
Operator's Manual	1	Read before operating machine.
CE Certificate	1	
Registration Card	1	Fill out and return to Toro.

## Connect Drive Shaft to Cutting Unit

1. Remove (2) selftapping screws securing drive shaft guard to mounting plate (Fig. 1). Retain fasteners for re-installation.



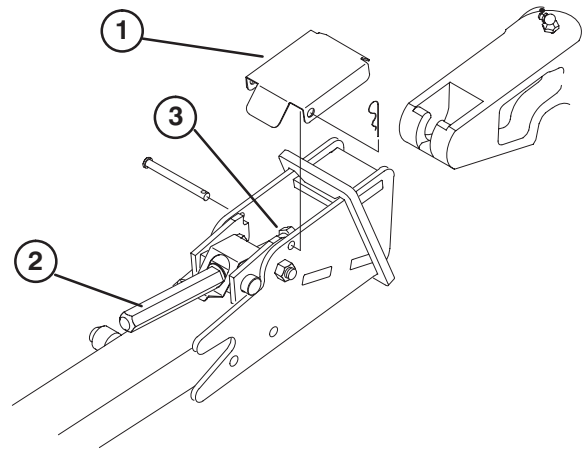
**Figure 1**

- |                      |                |
|----------------------|----------------|
| 1. Drive shaft guard | 3. Drive shaft |
| 2. Gearbox           |                |

2. Slide male drive shaft into female PTO shaft. Align mounting hole in gear case input shaft with hole in drive shaft yoke and slide together.
3. Secure yoke to shaft with roll pin.
4. Secure yoke to shaft with (2) capscrews and nuts.
5. Re-install drive shaft guard to mounting plate with (2) selftapping screws previously removed.

## Install Cutting Unit To Traction Unit

1. Loosen the ball joint jam nuts on the cutting unit.
2. Secure the lift arm assemblies to the traction unit as follows (Fig. 2):
  - A. With engine off, raise seat and open needle valve. This allows lift arms to float freely.
  - B. Remove hairpin cotter and clevis pin securing latch cover to lift arm.
  - C. Pivot release lever upward.
  - D. Slide cutting unit lift arms onto traction unit lift arms, inserting shaft latch into slot in traction unit lift arms.
  - E. Pivot release lever downward and hand tighten by rotating clockwise.



**Figure 2**

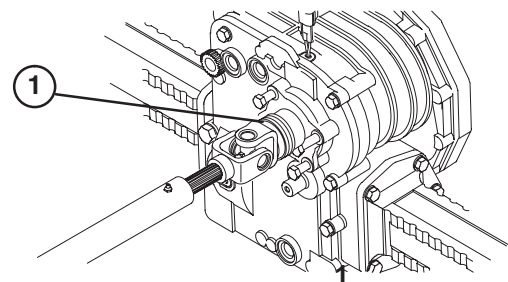
- |                  |                |
|------------------|----------------|
| 1. Latch cover   | 3. Shaft latch |
| 2. Release lever |                |

3. Tighten the ball joint jam nuts.
4. Tighten the release lever with a 3/4 in. wrench.
5. Install the latch cover to the lift arm with the clevis pin and hairpin cotter previously removed.
6. Close the needle valve and lower the seat.

## Connect Drive Shaft To Traction Unit

**Important** The drive shaft yokes must be exactly in line.

1. Rotate drive shaft until splines line up. To rotate drive shaft, insert screw driver into universal joint.
2. Slide coupler onto tractor PTO shaft until it clicks (Fig. 3).



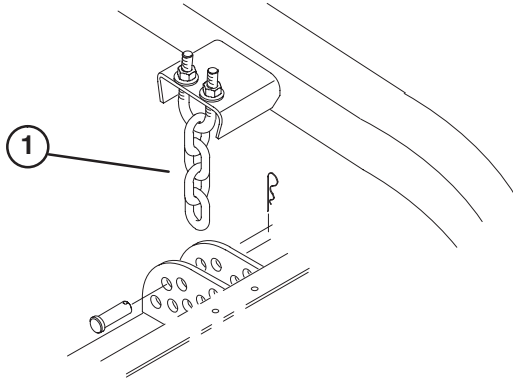
**Figure 3**

1. Drive shaft coupler



## Mount Height-of-Cut Chains

1. Remove hairpin cotter and clevis pin from height-of-cut chains (Fig. 4).



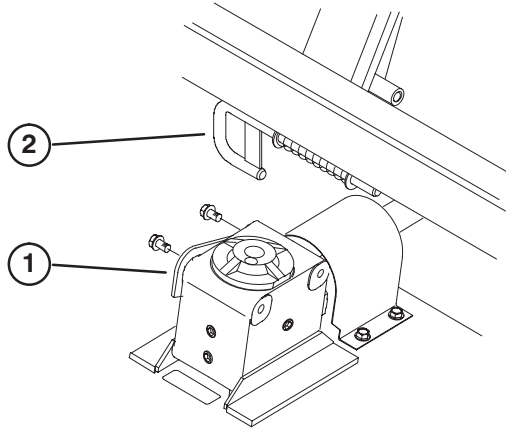
**Figure 4**

1. Height-of-cut chain

2. Start tractor and raise deck to highest possible position and turn off engine.
3. Align height-of-cut chain with hole for desired height-of-cut, install clevis pin and secure with hairpin cotter.

## Adjust Transport Latch

1. Start tractor and raise deck to highest possible position and turn off engine.
2. Loosen (2) flange head capscrews securing latch plate to side of gearbox (Fig. 5).



**Figure 5**

1. Latch plate
2. Latch rod

3. Rotate latch rod downward from front of traction unit.
4. Insert latch rod into rear hole (transport position) in latch plate.

5. Rotate front of deck upward and insert latch rod into front hole (service position) in latch plate.
6. Loosen latch plate flange head capscrews and adjust latch plate position if required.
7. Tighten flange head capscrews securing latch plate to gearbox.
8. Remove hairpin cotters and clevis pins securing height-of-cut chains to rear of deck.
9. Remove latch rod from rear hole in latch plate.

## Grease Cutting Unit

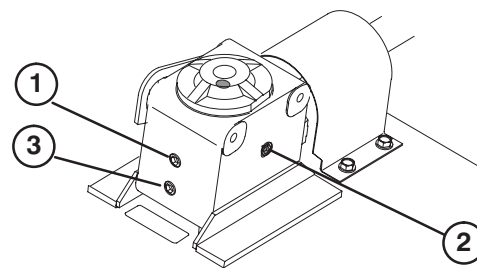
Before the cutting unit is operated, it must be greased to ensure proper lubricating characteristics: refer to Lubrication section of manual. Failure to properly grease the cutting unit will result in premature failure of critical parts.

## Before Operating

### Check Lubricant In Gear Box

The gear box is designed to operate with SAE 80–90 EP gear lube. Although the gear box is shipped with lubricant from the factory, check the level before operating the cutting unit.

1. Position the machine and cutting unit on a level surface.
2. Remove check plug from side of gear box and make sure lubricant is up to bottom of hole (Fig. 6). If level of lubricant is low, remove fill plug on end of gear case and add enough lubricant to bring it up to bottom of hole in side.



**Figure 6**

1. Filler plug
2. Check plug
3. Drain plug



## Adjusting Height-of-Cut

The height-of-cut is adjustable from 1 to 5 inches in 1/2 inch increments.

1. Start engine and raise cutting unit. Stop engine after cutting unit is raised.
2. Remove front snapper pins from castor arms and slide castor wheel assembly up or down (Fig. 8).
3. Insert snapper pin into castor arm and through groove in castor shaft to get desired height-of-cut (Fig. 7).

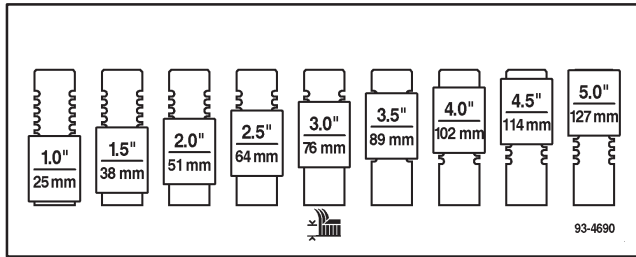


Figure 7

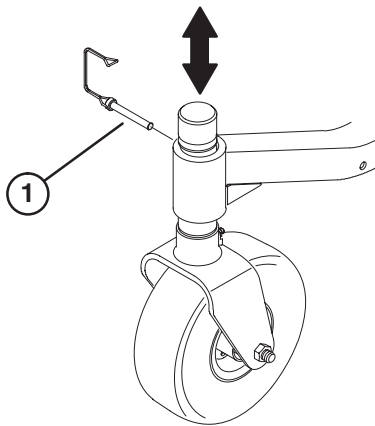


Figure 8

1. Snapper pin

4. Remove hairpin cotter and clevis pin securing height-of-cut chains to rear of deck (Fig. 9).

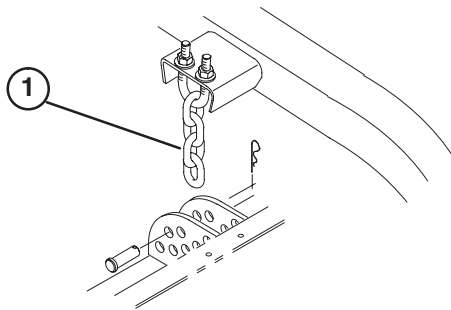


Figure 9

1. Height of cut chain

5. Mount height-of-cut chains to corresponding height-of-cut hole with clevis pin and hairpin cotter (Fig. 10).

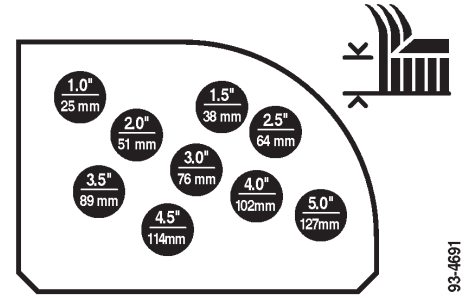


Figure 10

6. When using 1 inch height-of-cut, move skids and gage wheels to the highest holes.

## Adjusting Rollers and Gage Wheels

**Note:** If cutting unit is to be used in the 1 or 1-1/2 in. height-of-cut setting, cutting unit rollers must be positioned in the top bracket holes.

### Adjusting the Front Roller

1. Remove the bolt and nut securing the roller shaft to the cutting unit bracket (Fig. 11).
2. Slide the shaft out of the lower bracket holes, align the roller with the top holes, and install the shaft.
3. Secure the roller shaft to the cutting unit bracket with the bolt and nut.

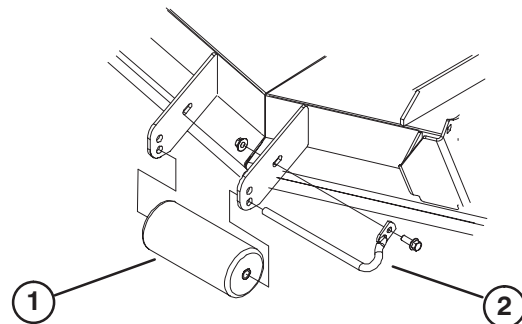


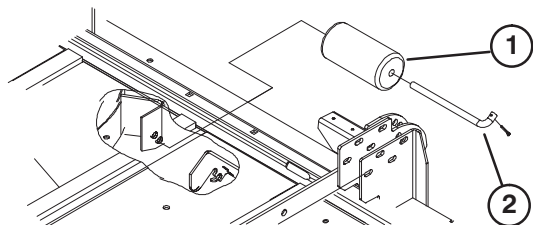
Figure 11

1. External roller
2. Roller shaft

### Adjusting the Rear (Internal) Rollers

1. Remove the cotter pin securing the roller shafts to the brackets on the underside of the deck (Fig. 12).

2. Slide the shafts out of the lower bracket holes, align the rollers with the top holes, and install the shafts.
3. Install the cotter pins to secure the assemblies.



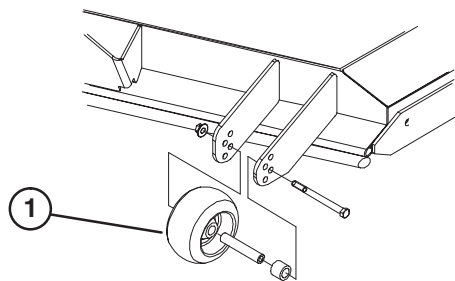
**Figure 12**

1. Internal rollers
2. Roller shaft

## Adjusting the Front Gage Wheel

**Note:** If cutting unit is to be used in the 1 in. height-of-cut setting, cutting unit gage wheels must be positioned in the highest position.

1. Remove the bolt and nut securing the gage wheel to the cutting unit brackets.



**Figure 13**

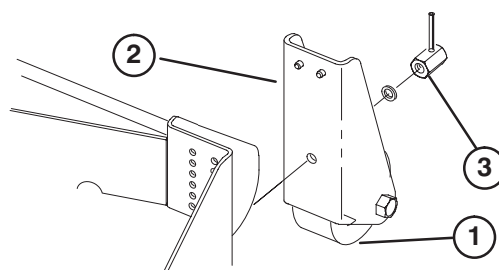
1. Gage wheel

2. Align roller, tube and spacer with top holes in brackets and secure with bolt and nut.

## Adjusting the Rear Gage Wheel

**Note:** If cutting unit is to be used in the 1 in. height-of-cut setting, cutting unit gage wheels must be positioned in the highest position.

1. Adjust gage wheels by loosening locking hub, positioning gage wheel support at desired height and re-tightening locking hub. Make sure gage wheel support pins are positioned in holes in deck.



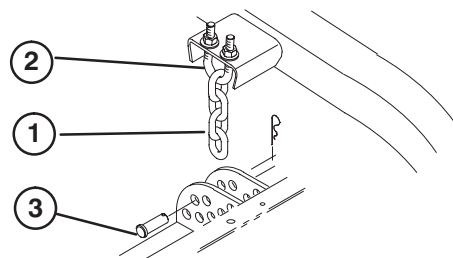
**Figure 14**

1. Gage wheel
2. Gage wheel support
3. Locking hub

## Adjusting Deck Pitch

Deck pitch is the difference in height-of-cut from the front of the blade plane to the back of the blade plane. Toro recommends a blade pitch of .25 inches. That is the back of the blade plane is .25 inches higher than the front.

1. Position machine on a level surface on shop floor.
2. Set deck to the desired height-of-cut.
3. Rotate (1) blade so it points straight forward.
4. Using a short ruler, measure from floor to front tip of blade. Then, measure from floor to rear tip of blade.
5. Subtract the front dimension from rear dimension to calculate your pitch.
6. To adjust pitch, start tractor and raise deck to highest possible position and turn off engine.
7. Loosen jam nuts on top or bottom of height-of-cut chain U-bolt (Fig. 15).



**Figure 15**

1. Height-of-cut chain
2. U-bolt
3. Rear height of cut pin



8. Adjust other set of nuts to raise or lower rear of deck and attain correct deck pitch.
9. Tighten jam nuts.
10. Lower deck.

**Note:** If desired deck pitch cannot be attained, relocate rear height of cut pins (Fig. 15) to a lower or higher setting.

# Operation

**Note:** Determine the left and right sides of the machine from the normal operating position.

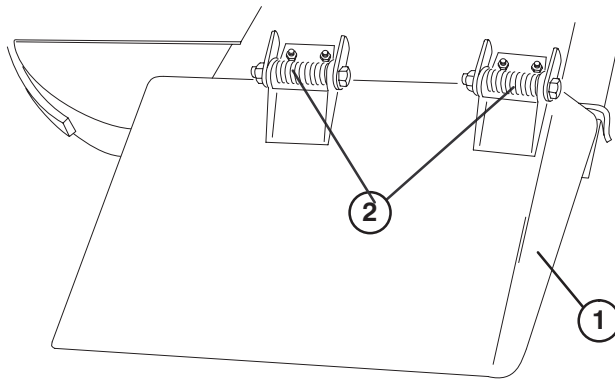
## Grass Deflector

 **Warning** 

The grass deflector (Fig. 16) is a safety device that diverts grass and other foreign objects being discharged downward. The blades could throw debris a considerable distance with sufficient force to cause personal injury or damage to property.

- Make sure the deflector is in the normal operating position whenever the cutting unit is engaged.
- Never operate the cutting unit with the deflector removed from the cutting unit or it tied/blocked in a raised position.
- If the grass deflector is damaged, repair or replace the affected part(s).

**Note:** The deflector is spring loaded into its downward normal operating position, but the operator can temporarily swing it out of the way to facilitate loading in a trailer or when otherwise necessary.





**Figure 16**

1. Grass deflector                      2. Springs

## Operating Tips

For best results, the following tips are recommended:

- **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.
- **Mow At Proper Intervals**—Under most normal conditions you'll need to mow approximately every 4–5 days. But remember, grass grows at different rates at different times. This means that in order to maintain the same height-of-cut, which is a good practice, you'll need to cut more frequently in early spring; as the grass growth rate slows in mid summer, cut only every 8–10 days. If you are unable to mow for an extended period due to weather conditions or other reasons, mow first with the height-of-cut at a high level; then mow again 2–3 days later with a lower height setting.
- **Always Mow 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.

 **Caution** 

This machine produces sound levels in excess of 85dBA at the operators ear and can cause hearing loss through extended periods of exposure.

**Wear hearing protection when operating this machine.**

- **Transporting**—Use transport latch when transporting over long distances or rough terrain.
- **Trailer**—loading or unloading machine from a trailer, remove rear height-of-cut hanger pins, to allow maximum deck rotation.
- **After Operating**—To ensure optimum performance, clean underside of mower housing after each use. If residue is allowed to build up in mower housing cutting performance will decrease.
- **Deck Pitch**—Toro recommends a blade pitch of .25 inches. A pitch larger than .25 inches will result in less power required, larger clippings and a poorer quality of cut. A pitch less than .25 inches will result in more power required, smaller clippings and a better quality of cut.

# Lubrication

## Grease Bearings, Bushings And Gear Box

The cutting unit must be lubricated regularly. If machine is operated under normal conditions, lubricate castor bearings and bushings with No. 2 general purpose lithium base grease or molybdenum base grease, after every 8 hours of operation or daily, whichever comes first. Lubricate fittings immediately after every washing, regardless of the interval listed.

1. The cutting unit has bearings and bushings that must be lubricated, and these lubrication points are: front castor shaft bushings (2) (Fig. 17), blade spindle bearings (3) (Fig. 18), gage wheel (Fig. 19), right and left push arm ball joints (Fig. 20).

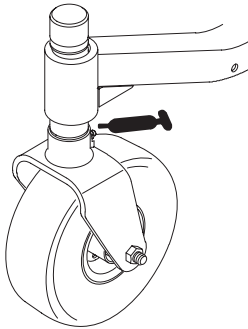


Figure 17

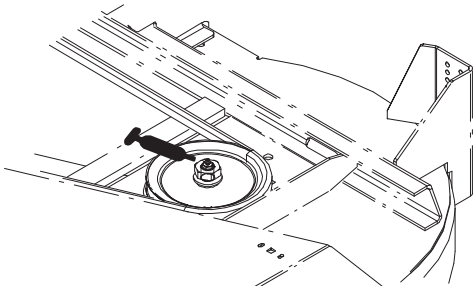


Figure 18

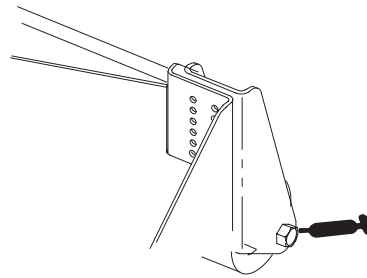


Figure 19

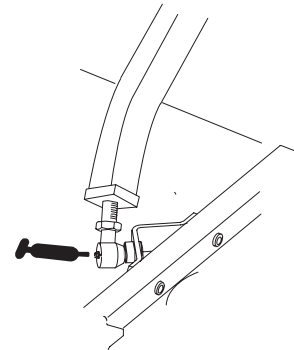


Figure 20

2. Position the machine and cutting unit on a level surface and lower cutting unit. Remove check plug from side of gear box and make sure lubricant is up to bottom of hole. If level of lubricant is low, remove fill plug on top of gear case and add SAE 80–90 EP gear lube until level is up to bottom of hole in side.

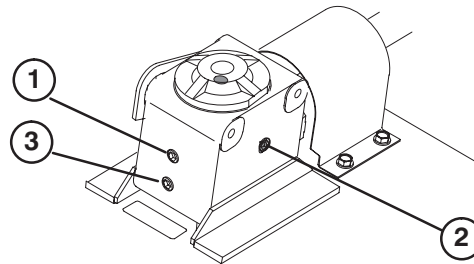


Figure 21

1. Fill plug
2. Check plug
3. Drain plug

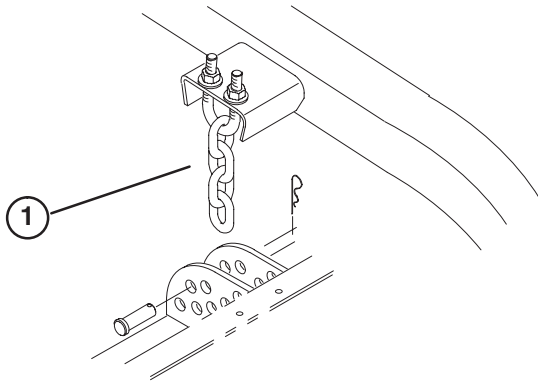
# Maintenance

**Note:** Determine the left and right sides of the machine from the normal operating position.

## Disconnect Cutting Unit From Traction Unit

**Note:** Implements are heavy and may require two people to handle.

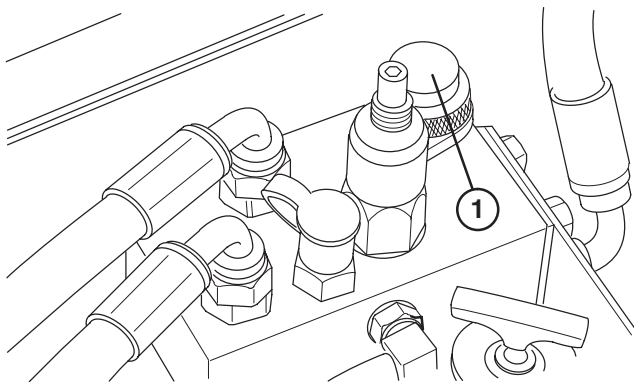
1. Start tractor and raise deck to highest possible position and turn off engine.
2. Remove hairpin cotter and clevis pin securing height-of-cut chains to rear height-of-cut brackets (Fig. 22).



**Figure 22**

1. Height-of-cut chain

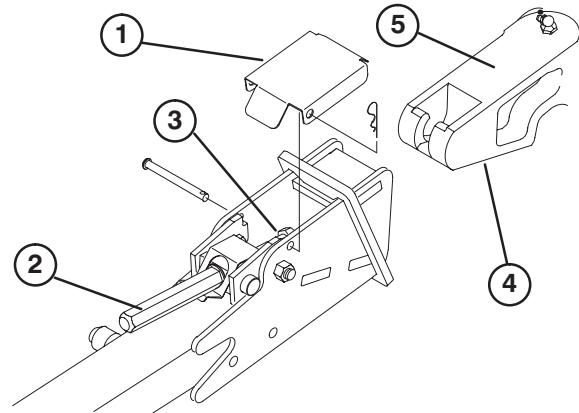
3. Rotate ignition key to run position and move lift lever forward to lower cutting unit.
4. Raise seat and open needle valve (Fig. 23). This allows lift arms to float freely.



**Figure 23**

1. Needle valve

5. Remove hairpin cotter and clevis pin securing latch cover to lift arm (Fig. 24).
6. Loosen release lever by rotating it counterclockwise.
7. Pivot release lever upward and remove shaft latch from slot in traction unit lift arm.



**Figure 24**

- |                  |                           |
|------------------|---------------------------|
| 1. Latch cover   | 4. Traction unit lift arm |
| 2. Release lever | 5. Machined surface       |
| 3. Shaft latch   |                           |

8. Pull rearward on lock collar to release drive shaft coupler from tractor.
9. Stay clear of lift arms and move deck away from tractor allowing lift arms to fall.
10. Secure hairpin cotter and clevis pin to height-of-cut chains for storage.
11. Close needle valve.

## Connect Cutting Unit To Traction Unit

1. Center traction unit in front of cutting unit on any flat hard surface.
2. Raise seat and open needle valve (Fig. 23). This allows lift arms to float freely.
3. Adjust lift arms heights making sure that the machined surface on top of each traction unit lift arm is parallel to ground (Fig. 24). (Raise or lower lift arm casting by pushing up or down from behind the front tires or using wrench in front of tractor)
4. Check for dirt and debris on mating parts and clean as required.
5. Turn castor wheels so they point straight forward.
6. Secure first lift arm assembly to traction unit as follows:

- A. Remove hairpin cotter and clevis pin securing latch cover to lift arm (Fig. 24).
- B. Pivot release lever upward (Fig. 24).
- C. Slide cutting unit lift arm onto traction unit lift arm, inserting shaft latch into slot in traction unit lift arm (Fig. 24).

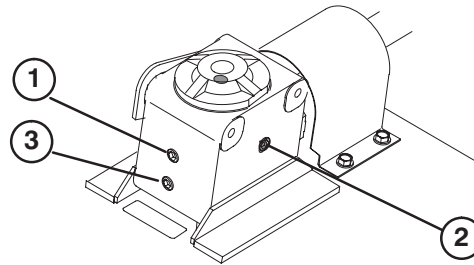
**Note:** If latch does not fall into slot in traction unit lift arm, raise or lower lift arm casting by pushing up or down from behind the front tires.

- D. Pivot release lever downward and tighten securely by rotating clockwise (Fig. 24).
7. Install other lift arm on tractor by rotating deck towards tractor, aligning lift arm to tractor arm and repeating step 5. If latch does not fall into slot in traction unit lift arm the arms are not lined up.
    - A. If lift arms on traction unit are not at the correct height for deck arms to slide on, push up or down on lift arm castings from behind the front tires until deck arm lines up and slides on.
    - B. If lift arms on deck do not line up side to side. Rotate castor wheels side ways so deck moves side to side easier. Move deck side to side until lift arms line up and slide on.
  8. Move deck from side to side to check for tightness and re-tighten latches, if required.
  9. Install latch covers to lift arms and secure with clevis pins and hairpin cottes (Fig. 24).
  10. Connect drive shaft to traction unit.
  11. Close needle valve (Fig. 23) and lower seat.
  12. Start tractor and raise deck to highest possible position and turn off engine.
  13. Align height-of-cut chains with hole for desired height-of-cut, install clevis pin, and secure with hairpin cotter.

## Changing Gear Box Lubricant

The gear box lubricant must be changed initially, after the first 400 hours of operation, and thereafter every 1600 hours of operation.

1. Position the machine and cutting unit on a level surface.
2. Loosen 2 nuts securing the idler plate and rotate the arm counterclockwise to remove belt tension.
3. Remove 4 locknuts securing gearbox mount plate to deck.
4. Remove belt from pulley.
5. Remove drain plug from end of gear box (Fig. 25) and tip gear box assembly allowing lubricant to drain from gear box.



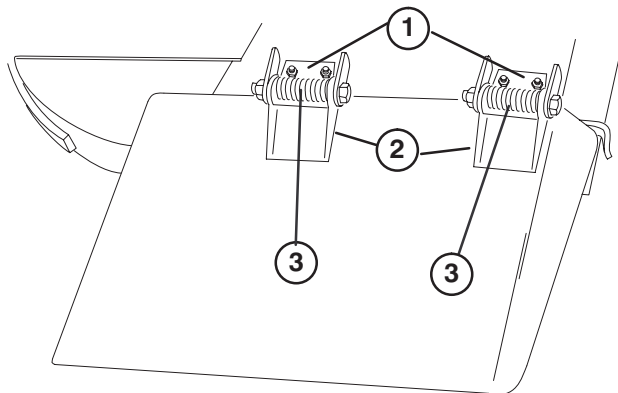
**Figure 25**

- |               |               |
|---------------|---------------|
| 1. Fill plug  | 3. Drain plug |
| 2. Check plug |               |
- 
6. Reinstall belt to pulley.
  7. Reinstall gear box assembly to deck
  8. Remove fill plug on end of gear case and check plug from side of gear case. Add SAE 80–90 EP gear lube until level is up to bottom of hole in side.
  9. Reinstall check plug to side of gear box and fill plug to end of gear case.
  10. Re-tension belt; refer to Replacing Drive Belt, page 15.



## Replacing Grass Deflector

1. Position machine on a level surface, raise cutting unit, engage parking brake, be sure traction pedal is in neutral position, PTO lever in OFF position, shut engine OFF and remove key from switch. Block cutting unit to prevent it from falling accidentally.
2. Remove two capscrews, locknuts and springs securing deflector mounts to pivot brackets (Fig. 26).



**Figure 26**

1. Deflector mounts
2. Pivot brackets
3. Pivot springs

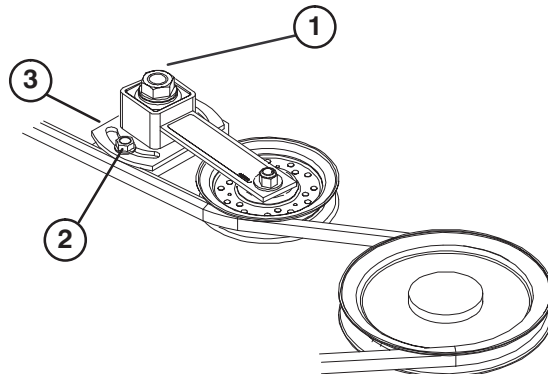
3. To remove the pivot brackets, remove carriage bolts and nuts.
4. Reinstall pivot brackets on top of discharge opening with carriage bolts and nuts. Head of carriage bolts must be on inside of cutting unit.
5. Position deflector mounts on pivot brackets and secure parts together with capscrews, locknuts and springs (Fig. 26). Both locknuts must face each other. Tighten locknuts until they are flush against deflector pivots.
6. Lift deflector and allow it to drop to check spring tension. Deflector must be held firmly in full downward position by spring tension. Correct if necessary.

## Adjusting Idler Pulley

The idler pulley applies force against the belt so power can be transmitted to the blade pulleys. If the idler is not tensioned against the belt with sufficient force, maximum power will not be transmitted to the pulleys. Tension on the belt requires 40 to 50 ft.-lb. of torque on the large nut, which applies force against the belt. If the idler is not adjusted to these specifications, adjustment is necessary.

1. Position machine on a level surface, lower cutting unit, engage parking brake, be sure traction pedal is in neutral position, PTO lever in OFF position, shut engine OFF and remove key from switch.

2. Remove deck covers.
3. Loosen two nuts securing idler plate in place. Using a socket and torque wrench, tighten the idler adjusting nut to 40–50 ft.-lb. (Fig. 27).



**Figure 27**

1. Idler adjusting nut
2. Nuts (2)
3. Idler plate

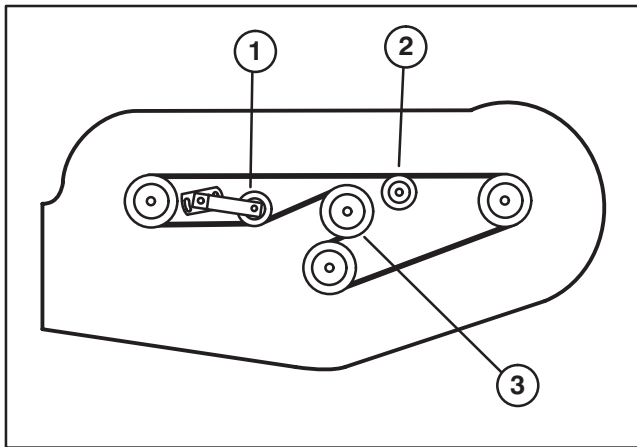
4. Hold the torque against the belt and tighten the two nuts so idler plate is held securely in place (Fig. 27). Release the idler adjusting nut. Install cover.

## Replacing Drive Belt

The blade drive belt, tensioned by the adjustable idler, is very durable. However, after many hours of use, the belt will show signs of wear. Signs of a worn belt are: squealing when belt is rotating, blades slipping when cutting grass, frayed edges, burn marks and cracks. Replace the belt if any of these conditions are evident.

1. Position machine on a level surface, lower cutting unit, engage parking brake, be sure traction pedal is in neutral position, PTO switch in OFF position, shut engine OFF and remove key from switch.
2. Remove deck covers.
3. Loosen two nuts securing idler plate in place and remove old belt from pulleys.
4. To install new belt, the gear box base must be removed. To do this, remove four carriage bolts and locknuts holding gear box base.
5. Install new belt around gear box pulley, spindle pulleys, stationary idler pulley and adjustable idler pulley.
6. Install gear box base with carriage bolts and locknuts.
7. Using a torque wrench, adjust tension of idler pulley against the belt; refer to Adjusting Idler Pulley, page 15.
8. Reinstall covers.





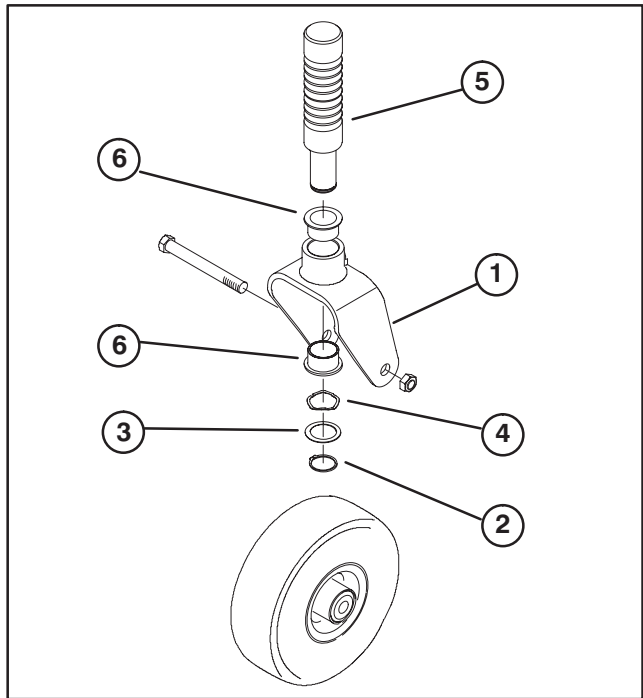
**Figure 28**

- 1. Adjustable Idler Pulley
- 2. Stationary Idler Pulley
- 3. Gear Box Pulley

## Servicing Front Bushings In Castor Forks

The castor forks have bushings pressed into the top and bottom of the casting and after many hours of operation, the bushings will wear. To check the bushings, move castor fork back and forth and from side to side. If castor spindle is loose around the bushings, bushings are worn and must be replaced.

1. Start tractor and raise deck to highest possible position and turn off engine.
2. Remove front snapper pins from castor arms and slide castor wheel assembly out of castor arm tube.
3. Remove locknut from capscrew holding castor wheel assembly between castor fork (Fig. 29). Grasp castor wheel and slide capscrew out of fork.



**Figure 29**

- 1. Front Castor Fork
- 2. Retaining Ring
- 3. Washer
- 4. Wavey Washer
- 5. Castor Shaft
- 6. Bushings

4. Remove retaining ring, washer and wavey washer securing castor shaft to castor fork. Remove shaft from fork.
5. Insert pin punch into top or bottom of castor fork and drive bushing out of fork. Repeat for other bushing. Clean inside of forks to remove dirt.
6. Apply grease to inside and outside of new bushings. Using a hammer and flat plate, drive bushings into fork.
7. Inspect castor shaft and fork for wear and replace if damaged.
8. Push castor shaft through bushings and fork and secure with wavey washer, washer and retaining ring.
9. Insert snapper pin into castor arm and through groove in castor shaft at desired height-of-cut.

## Servicing Castor Wheels And Bearings

The castor wheel rotates on a high-quality roller bearing. Even after many hours of use, provided that the bearing was kept well lubricated, bearing wear will be minimal. However, failure to keep bearing lubricated will cause rapid wear. A wobbly castor wheel usually indicates a worn bearing.

1. Remove locknut from capscrew holding castor wheel assembly between castor fork. Grasp castor wheel and slide capscrew out of fork.
2. Remove bearing from wheel hub and allow spacer to fall out (Fig. 30). Remove bearing from opposite side of wheel hub.
3. Check the bearings, spacer and inside of wheel hub for wear. Replace defective parts as required.
4. To assemble the castor wheel, push bearing into wheel hub. Slide spacer into wheel hub. Push other bearing into open end of wheel hub to captivate the spacer inside the wheel hub (Fig. 30).
5. Install castor wheel assembly between castor forks and secure in place with capscrew and locknut.

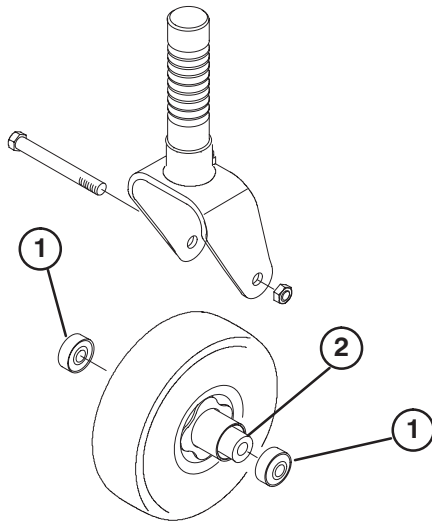


Figure 30

1. Bearing
2. Spacer

## Removing Cutter Blade

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 unit to highest position, shut the engine off, and engage the parking brake.
2. Remove hairpin cotters and clevis pins securing height-of-cut chains to rear of deck.
3. Rotate front of deck upward and insert latch rod into front hole (service position) in latch plate.
4. Grasp end of blade using a rag or thickly padded glove. Remove blade bolt, anti-scalp cup, and blade from spindle shaft (Fig. 31).

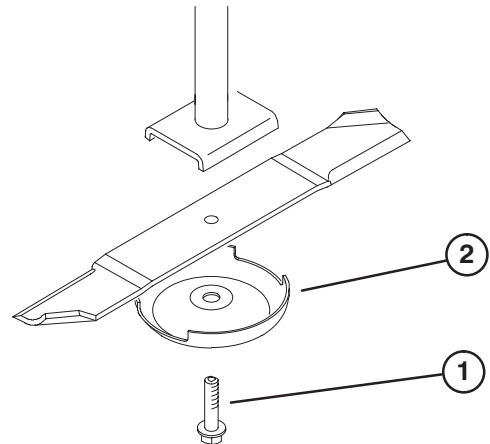


Figure 31

1. Blade bolt
2. Anti-scalp cup

5. Install blade—sail facing (up) toward cutting unit—with anti-scalp cup and blade bolt (Fig. 31). Tighten blade bolt to 85–110 ft.-lb.



### 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 ensure continued safety certification of the product.**

## Inspecting And Sharpening Blade

1. Raise cutting unit to highest position, shut the engine off, and engage the parking brake.
2. Remove hairpin cotters and clevis pins securing height-of-cut chains to rear of deck.
3. Rotate front of deck upward and insert latch rod into front hole (service position) in latch plate.
4. Examine cutting ends of the blade carefully, especially where the flat and curved parts of the blade meet (Fig. 32-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. 32-B), replace the blade: refer to Removing Cutter Blade.

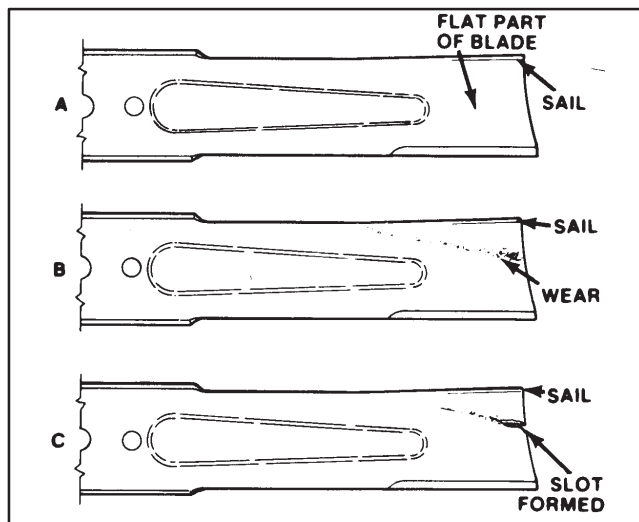


Figure 32



### Danger



If blade is allowed to wear, a slot will form between the sail and flat part of the blade (Fig. 32-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 a bystander.

5. 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 for best performance (Fig. 33). Make sure blade is balanced after sharpening.

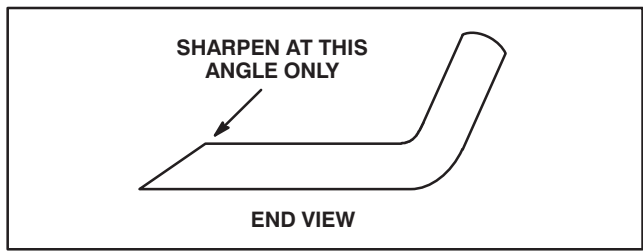


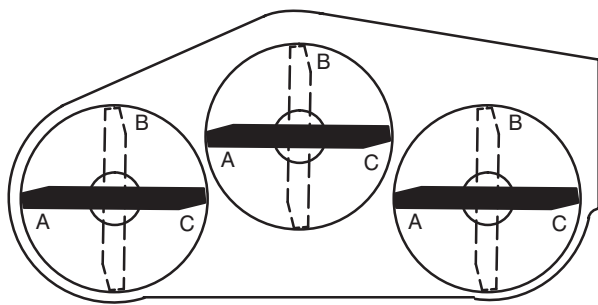
Figure 33

6. 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.
7. Install blade—sail facing (up) toward cutting unit—with anti-scalp cup and blade bolt. Tighten blade bolt to 85–110 ft.-lb.

## Correcting Cutting Unit Mismatch

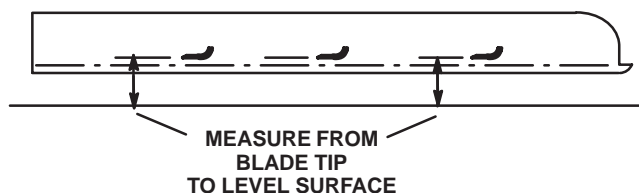
If one cutter blade cuts lower than the others, correct as follows:

1. Lower cutting unit onto a level surface, engage parking brake, be sure traction pedal is in neutral position, PTO switch in OFF, shut engine OFF, remove key from switch and disconnect wires from spark plugs. Make sure tire pressure is equal on all tires.
2. Raise height-of-cut to the 4 in. position; refer to Adjusting Height-of-Cut, page 9.
3. Rotate blades so tips line up with one another. Tips of the adjacent blades must be within 1/8 in. of each other. If tips are not within 1/8 in. of each other, proceed to step 8 and add shims between spindle housing and bottom of cutting unit.
4. Position all three blades in the “A” position (Fig. 34) and measure from level surface to the bottom of the tip end of each blade (Fig. 35).



**Figure 34**

5. Note measurement attained at "A", rotate blades to "B" position (Fig. 34), measure distance of all blades to level surface and note dimensions (Fig. 35).



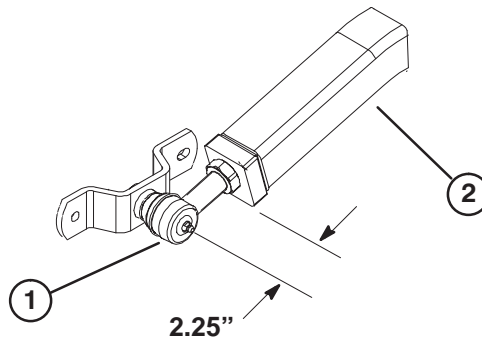
**Figure 35**

6. Rotate blades to "C" position, measure and note distance measured (Fig. 34, 35).
7. Compare measurements at various positions. All dimensions must be equal within 1/4 in. from any two adjacent blades. The difference between dimensions of all three blades must not exceed 3/8 in. If difference exceeds specifications proceed to step 8.
8. Remove capscrews, flat washers and locknuts from outer spindle in the area where shims must be added. To raise or lower the blade, add a shim, Part No. 3256-24, between spindle housing and bottom of cutting unit. Continue checking alignment of blades and adding shims until tips of blades are within the required dimension.

## Lift Arm Adjustment

If lift arms are ever disconnected from cutting unit, adjust as follows, before installation.

Adjust ball joint in each lift arm assembly until a dimension of 2.25 inches from end of lift arm to center of ball joint is attained (Fig. 36).



**Figure 36**

1. Ball joint
2. Lift arm



## 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  
952-888-8801 or 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 the following:

- 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.