



Count on it.

Form No. 3383-938 Rev B

Operator's Manual

100in Rear Discharge Mower Groundsmaster® 360 Series Traction Unit

Model No. 31101—Serial No. 314000001 and Up



This product complies with all relevant European directives, for details please see the separate product specific Declaration of Conformity (DOC) sheet.

Introduction

This rotary-blade lawn cutting deck is mounted to a ride-on machine and is intended to be used by professional, hired operators in commercial applications. It is primarily designed for cutting grass on well-maintained lawns in parks, sports fields, and on commercial grounds. It is not designed for cutting brush, mowing grass and other growth alongside highways, or for agricultural uses.

Read this information carefully to learn how to operate and maintain your product properly and to avoid injury and product damage. You are responsible for operating the product properly and safely.

You may contact Toro directly at www.Toro.com for product and accessory information, help finding a dealer, or to register your product.

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 model and serial numbers are stamped into a plate that is mounted on the mower housing. Write the numbers in the space provided.

Model No. _____

Serial No. _____

This manual identifies potential hazards and has safety messages identified by the safety alert symbol (Figure 1), which signals a hazard that may cause serious injury or death if you do not follow the recommended precautions.



Figure 1

g000502

- 1. Safety alert symbol

This manual uses 2 other words to highlight information. **Important** calls attention to special mechanical information and **Note** emphasizes general information worthy of special attention.

Contents

- Safety 3
 - Safe Operating Practices 3
 - Toro Mower Safety 4
 - Safety and Instructional Decals 6
- Setup 8
- Product Overview 8
 - Specifications 8
 - Attachments/Accessories 8
- Operation 9
 - Adjusting the Height of Cut 9
 - Adjusting the Skid(s) 10
 - Adjusting the Rollers 10
 - Leveling the Mower 10
 - Operating Tips 11
- Maintenance 13
 - Recommended Maintenance Schedule(s) 13
 - Lubrication 15
 - Servicing the Mower Deck Gear Box
 - Lubricant 16
 - Servicing the Bushings in the Castor
 - Arms 17
 - Servicing the Castor Wheels and
 - Bearings 17
 - Servicing the Cutting Blades 17
 - Adjusting the Deck-Limit Chains 20

Safety

This machine meets or exceeds CEN standard EN 836:1997, ISO standard 5395:1990, and ANSI B71.4-2012 specifications in effect at the time of production.

Improper use or maintenance by the operator or owner can result in injury. To reduce the potential for injury, comply with these safety instructions and always pay attention to the safety alert symbol, which means CAUTION, WARNING, or DANGER—"personal safety instruction." Failure to comply with the instruction may result in personal injury or death.

Safe Operating Practices

The following instructions are adapted from the CEN standard EN 836:1997, ISO standard 5395:1990, and ANSI B71.4-2012.

Training

- Read the operator's manual and other training material carefully. Be familiar with the controls, safety signs, and the proper use of the equipment. If the operator or mechanic can not read the language of this manual, it is the owner's responsibility to explain this material to them.
- Become familiar with the safe operation of the equipment, operator controls, and safety signs.
- All operators and mechanics should be trained. The owner is responsible for training the users.
- Never let children or untrained people operate or service the equipment. Local regulations may restrict the age of the operator.
- The owner/user can prevent and is responsible for accidents or injuries occurring to himself or herself, other people, or property.

Preparation

- Evaluate the terrain to determine what accessories and attachments are needed to properly and safely perform the job. Only use accessories and attachments approved by the manufacturer.
- Wear appropriate clothing including hard hat, safety glasses and ear protection. Long hair, loose clothing or jewelry may get tangled in moving parts.
- Inspect the area where the equipment is to be used and remove all objects such as rocks, toys and wire which can be thrown by the machine.
- Check that operator's presence controls, safety switches and shields are attached and functioning properly. Do not operate unless they are functioning properly.

Safe Handling of Fuels

- To avoid personal injury or property damage, use extreme care in handling gasoline. Gasoline is extremely flammable and the vapors are explosive.
- Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
- Use only an approved fuel container.
- Never remove fuel cap or add fuel with the engine running.
- Allow engine to cool before refueling.
- Never refuel the machine indoors.
- Never store the machine or fuel container where there is an open flame, spark, or pilot light such as on a water heater or on other appliances.
- Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before filling.
- Remove equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment with a portable container, rather than from a fuel dispenser nozzle.
- Keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete. Do not use a nozzle lock open device.
- If fuel is spilled on clothing, change clothing immediately.
- Never overfill fuel tank. Replace fuel cap and tighten securely.

Operation

- Never run an engine in an enclosed area.
- Only operate in good light, keeping away from holes and hidden hazards.
- Be sure all drives are in neutral and parking brake is engaged before starting engine. Only start engine from the operator's position. Always use the seat belt when the ROPS is in the raised position. Do not use the seat belt when the ROPS is in the lowered position.
- Slow down and use extra care on hillsides. Be sure to travel in the recommended direction on hillsides. Turf conditions can affect the machine's stability. Use caution while operating near drop-offs.
- Slow down and use caution when making turns and when changing directions on slopes.
- Never raise deck with the blades running.
- Never operate with guards not securely in place. Be sure all interlocks are attached, adjusted properly, and functioning properly.

- Do not change the engine governor setting or overspeed the engine.
- Stop on level ground, lower the cutting units, disengage drives, engage parking brake (if provided), shut off engine before leaving the operator's position for any reason.
- Stop equipment and inspect the blades after striking objects or if an abnormal vibration occurs. Make necessary repairs before resuming operations.
- Keep hands and feet away from the cutting units.
- Look behind and down before backing up to be sure of a clear path.
- Never carry passengers and keep pets and bystanders away.
- Slow down and use caution when making turns and crossing roads and sidewalks. Stop blades if not mowing.
- Do not operate the mower under the influence of alcohol or drugs.
- Lightning can cause severe injury or death. If lightning is seen or thunder is heard in the area, do not operate the machine; seek shelter.
- Use care when loading or unloading the machine into a trailer or truck.
- Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.
- The operator shall turn on flashing warning lights, if provided, whenever traveling on a public road, except where such use is prohibited by law.

Maintenance and Storage

- Disengage drives, lower the cutting units, move traction pedal to Neutral, set parking brake, stop engine and remove key. Wait for all movement to stop before adjusting, cleaning or repairing.
- Clean grass and debris from cutting units, drives and muffler. Let engine cool before storing and do not store near flames, and engine to help prevent fires. Clean up oil or fuel spillage.
- Let engine cool before storing and do not store near flame.
- Shut off fuel while storing or transporting. Do not store fuel near flames or drain indoors.
- Park machine on level ground. Never allow untrained personnel to service machine.
- Use jack stands to support components when required.
- Carefully release pressure from components with stored energy.
- Disconnect battery before making any repairs. Disconnect the negative terminal first and the

positive last. Reconnect positive first and negative last.

- Use care when checking blades. Wrap the blades or wear gloves, and use caution when servicing them. Only replace blades. Never straighten or weld them.
- Keep hands and feet away from moving parts. If possible, do not make adjustments with the engine running.
- Charge batteries in an open well ventilated area, away from spark and flames. Unplug charger before connecting or disconnecting from battery. Wear protective clothing and use insulated tools.
- Keep all parts in good working condition and all hardware tightened. Replace all worn or damaged decals.

Hauling

- Use care when loading or unloading the machine into a trailer or truck.
- Use full width ramps for loading machine into trailer or truck.
- Tie the machine down securely using straps, chains, cable, or ropes. Both front and rear straps should be directed down and outward from the machine

Toro Mower Safety

The following list contains safety information specific to Toro products or other safety information that you must know that is not included in the CEN, ISO, or ANSI standard.

This product is capable of amputating hands and feet and throwing objects. Always follow all safety instructions to avoid serious injury or death.

Use of this product for purposes other than its intended use could prove dangerous to user and bystanders.

- Know how to stop the engine quickly.
- Do not operate the machine while wearing tennis shoes or sneakers.
- Wearing safety shoes and long pants is advisable and required by some local ordinances and insurance regulations.
- Handle fuel carefully. Wipe up any spills.
- Check the safety interlock switches daily for proper operation. If a switch should fail, replace the switch before operating the machine.
- Using the machine demands attention. To prevent loss of control:
 - Do not drive close to sand traps, ditches, creeks, embankments, or other hazards.

- Avoid sudden stops and starts.
- When near or crossing roads, always yield the right-of-way.
- Lower the cutting unit when going down slopes.
- The grass deflector must always be installed and in the lowest position on the side discharge cutting unit. Never operate the mower without the deflector or entire grass collector.
- If the cutting unit discharge area ever plugs, shut the engine off before removing the obstruction.
- Cut grass slopes carefully. Do not start, stop, or turn suddenly.
- Do not touch the engine or muffler while the engine is running or soon after it has stopped because these areas could be hot enough to cause burns.

use only 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.

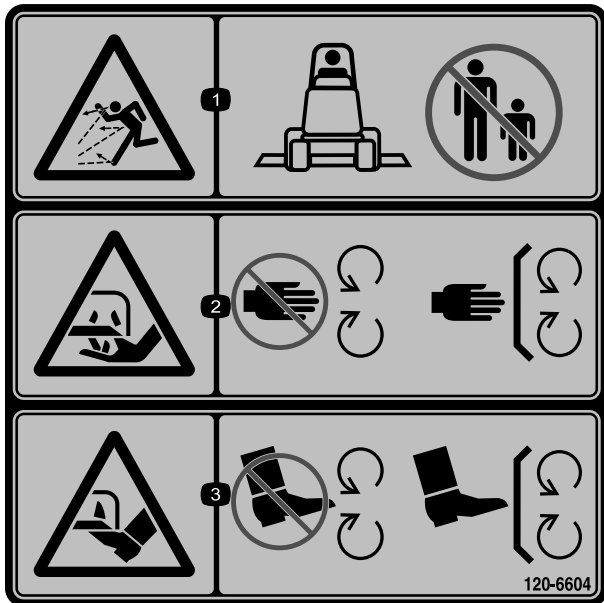
Maintenance and Storage

- Check the blade mounting bolts frequently to be sure that they are tightened to specification.
- Make sure that all hydraulic line connectors are tight and all hydraulic hoses and lines are in good condition before applying pressure to the system.
- Keep your body and hands away from pin hole leaks or nozzles that eject hydraulic fluid under high pressure. Use paper or cardboard, not your hands, to search for leaks. Hydraulic fluid escaping under pressure can have sufficient force to penetrate the skin and cause serious injury.
- Before disconnecting or performing any work on the hydraulic system, all pressure in the system must be relieved by stopping the engine and lowering the cutting units to the ground.
- If the engine must be running to perform a maintenance adjustment, keep hands, feet, clothing, and any parts of the body away from the cutting units, attachments, and any moving parts. Keep everyone away.
- Do not overspeed the engine by changing governor settings. To ensure safety and accuracy, have an Authorized Toro Distributor check the maximum engine speed with a tachometer.
- The engine must be shut off before checking the oil or adding oil to the crankcase.
- Make sure that the mower fuel tank is empty if the machine is to be stored in excess of 30 days. Do not store the mower near any open flame or where gasoline fumes may be ignited by a spark.
- Perform only those maintenance instructions described in this manual. If major repairs are ever needed or if assistance is desired, contact an Authorized Toro Distributor.
- To make sure of optimum performance and continued safety certification of the machine,

Safety and Instructional 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.



120-6604

decal120-6604

1. Thrown object hazard—keep bystanders away from the machine.
2. Cutting/dismemberment hazard of hand, mower blade—stay away from moving parts, keep all guards and shields in place.
3. Cutting/dismemberment hazard of foot, mower blade—stay away from moving parts, keep all guards and shields in place.



93-6696

decal93-6696

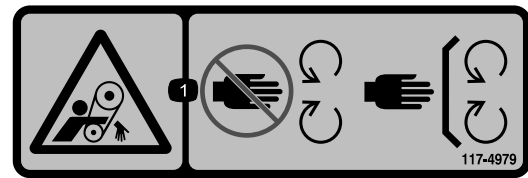
1. Stored energy hazard—read the *Operator's Manual*.



119-6807

decal119-6807

1. Warning—no step



117-4979

decal117-4979

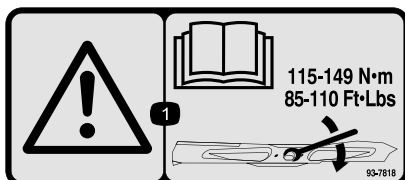
1. Rotating belt — Keep guard in place



93-6697

decal93-6697

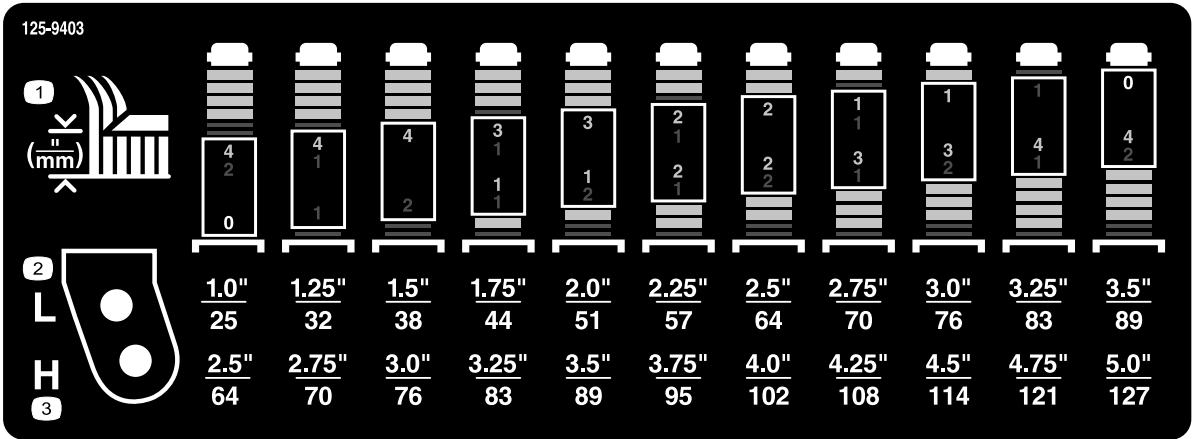
1. Read the *Operator's Manual*.
2. Add SAE 80w-90 (API GL-5) oil every 50 hours.



93-7818

decal93-7818

1. Warning—read the *Operator's Manual* for instructions on torquing the blade bolt/nut to 115 to 149 N·m (85 to 110 ft-lb).



decal125-9403

125-9403

- 1. Height-of-cut
- 2. Low

- 3. High

Setup

Media and Additional Parts

Description	Qty.	Use
Operator's Manual	1	Review the material and save in an appropriate place
Parts Catalog	1	Use to reference part numbers

⚠ WARNING

If you leave the key in the ignition switch, someone could accidentally start the engine and seriously injure you or other bystanders.

Remove the key from the ignition switch before you do any maintenance.

⚠ DANGER

If the engine is started and the PTO shaft is allowed to rotate, serious injury could result.

Do not start the engine and engage the PTO switch when the PTO shaft is not connected to the gear box on the cutting unit.

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

Note: The 100in Rear Discharge Mower must be used in conjunction with one of the following adapter kits:

- Adapter Kit, Model 31102 is for non-cab Groundsmaster® 360 Series Traction Units with model and serial numbers in the following ranges:

31223–314000101 thru 314000104

30536–314000101 thru 314000105

30539–314000101 thru 314000116

- Adapter Kit, Model 31103 is for Groundsmaster® 360 Series Traction Units with model and serial numbers in the following ranges:

31223–314000105 and Up

30536–314000106 and up

30539–314000117 and up

Product Overview

Specifications

Note: Specifications and design are subject to change without notice.

Width of Cut	2.54 m (100 inches)
Height of Cut	Adjustable from 25 to 127 mm (1 to 5 inches) in 6 mm (1/4 inch) increments
Net Weight	358 kg (790 lb.)

Attachments/Accessories

A selection of Toro approved attachments and accessories is available for use with the machine to enhance and expand its capabilities. Contact your Authorized Service Dealer or Distributor or go to www.Toro.com for a list of all approved attachments and accessories.

Operation

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

⚠ CAUTION

If you leave the key in the ignition switch, someone could accidentally start the engine and seriously injure you or other bystanders.

Remove the key from the ignition before you do any maintenance.

Adjusting the Height of Cut

The height of cut can be adjusted from 25 to 127 mm (1 to 5 inches) in 6 mm (1/4 inch) increments.

Center Deck

The height of cut on the center deck is achieved by moving the stop pin into different hole locations.

1. With the engine running, push back on the mower lift switch until the mower is fully raised and **release the switch immediately**.
2. To adjust, rotate the stop pin until the nub on it lines up with the slots in the holes in the height-of-cut bracket and remove it (Figure 2).

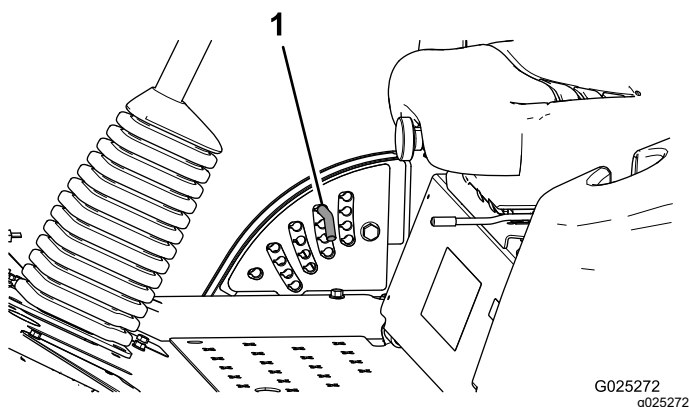


Figure 2

1. Stop pin

3. Select a hole in the height-of-cut bracket corresponding to the height-of-cut desired, insert the pin, and rotate it down to lock it in place (Figure 2).

Note: There are 4 rows of hole positions (Figure 2). The top row gives you the height of cut listed above the pin. The second row down gives you the height listed plus 6 mm (1/4 inch). The third row down gives you the height listed plus 12 mm (1/2 inch). The bottom row gives you the height listed plus 18 mm (3/4 inch). For the 127 mm (5

inch) position there is only one hole, located in the second row. This does not add 6 mm (1/4 inch) to the 127 mm (5 inch) position.

4. Adjust the anti-scalp rollers and skids as required.

Wing Decks

The height-of-cut on the wing decks is achieved by positioning the castor wheel axles in the upper or lower holes of the castor forks, add or remove an equal number of spacers from the castor forks and secure the height of cut collar to the desired holes in the height of cut rod.

1. Start the engine and raise the cutting unit off the floor so that the height-of-cut can be changed. Stop the engine and remove the key after the cutting unit is raised.
2. Position the castor wheel axles in the same holes in both castor forks. Refer to Figure 3 to determine the correct holes for the setting.

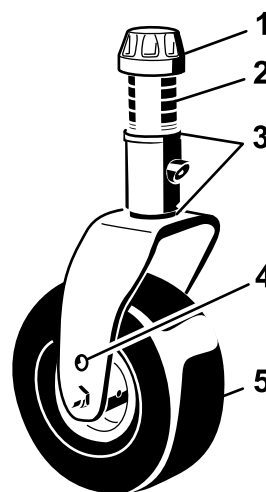


Figure 3

1. Tensioning cap
2. Spacers
3. Shims
4. Axle mounting holes
5. Castor Wheel

Note: When operating in 64 mm (2-1/2 inch) height of cut or higher, the axle bolt must be installed in the lower castor fork hole to prevent grass buildup between the wheel and the fork. When operating in height of cuts lower than 64 mm (2-1/2 inch) and grass buildup is detected, reverse the machines direction to pull any clippings away from the wheel/fork area.

3. Remove the tensioning cap from the spindle shaft (Figure 3) and slide the spindle out of the castor arm. Put the 2 shims (1/8 inch) onto the spindle shaft as they were originally installed. These shims are required to achieve a level across the entire width of the cutting units. Slide

the appropriate number of 1/2 inch spacers onto the spindle shaft to get the desired height-of-cut; then slide the washer onto the shaft.

Note: When using 25 mm (1 inch), 38 mm (1-1/2 inch), or occasionally 51 mm (2 inch) height of cut, move the skids and roller to the highest holes.

4. Secure the adjustment with the tensioning cap.

Adjusting the Skid(s)

Mount the skids in the lower position when operating in cutting heights higher than 64 mm (2-1/2 inches) and in the higher position when operating in cutting heights lower than 64 mm (2-1/2 inches).

Note: When the skids become worn, you can switch the skids to the opposite sides of the mower, flipping them over. This will allow you to use the skids longer before replacing them.

1. Disengage the PTO and set the parking brake.
2. Move the throttle lever to the Slow position, stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Loosen the screw at the front of each skid. (Figure 4).

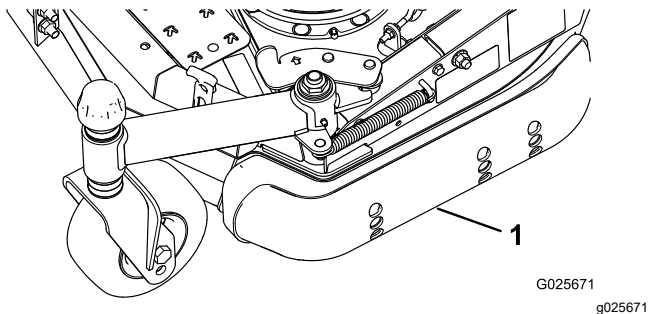


Figure 4

1. Skid

4. Remove the flange-head bolts and nuts from each skid.
5. Move each skid to the desired position and secure them with the flange-head bolts and nuts.

Note: Only use the top or center sets of holes to adjust the skids. The bottom holes are used when switching sides, at which time they become the top holes on the other side of the mower.

Adjusting the Rollers

Mount the rollers in the lower position when operating in height of cuts higher than 64 mm (2-1/2 inches) and

in the higher position when operating in height of cuts lower than 64 mm (2-1/2 inches).

1. Disengage the PTO and set the parking brake.
2. Move the throttle lever to the Slow position, stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Raise the front of the machine and support it on jack stands.
4. Remove the fasteners securing each roller on your mower and move the rollers up or down as desired (Figure 5).

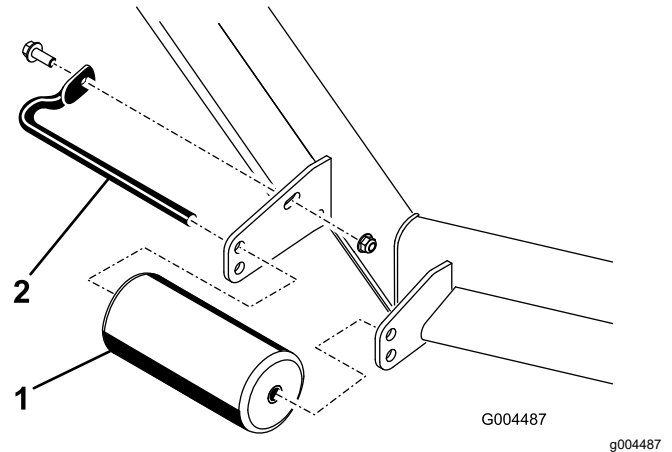


Figure 5

1. Roller
2. Roller shaft

5. Install the fasteners as illustrated.

Leveling the Mower

Leveling Front to Back

Cutting unit 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 approximately 8 to 11 mm (5/16 to 7/16 inch). This means the back of the blade plane is 8 to 11 mm (5/16 to 7/16 inch) higher than the front.

1. Position the machine on a level surface on the shop floor.
2. Set the mower to the desired height-of-cut, move the throttle lever to the Slow position, stop the engine, set the parking brake, and remove the ignition key.
3. Rotate the center blade so that it points straight forward.
4. Using a short ruler, measure from the floor to the front tip of the blade.

5. Rotate the same blade tip to the rear and measure from the floor to the tip of the blade at the rear of the mower.
6. Subtract the front dimension from the rear dimension to calculate the blade pitch.
7. Adjust the U-bolt jam nuts (Figure 6) securing the rear deck chains (Figure 7) to the mower deck to raise the rear of the mower so that the blade pitch is set to 8 to 11 mm (5/16 to 7/16 inch).

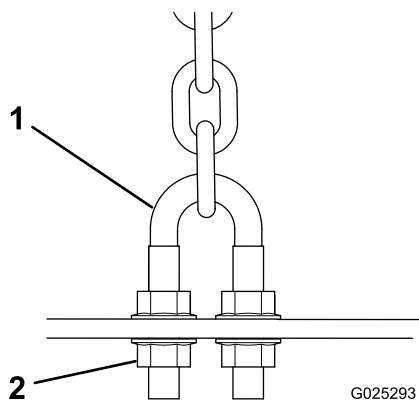


Figure 6

1. U-bolt

2. Jam nut

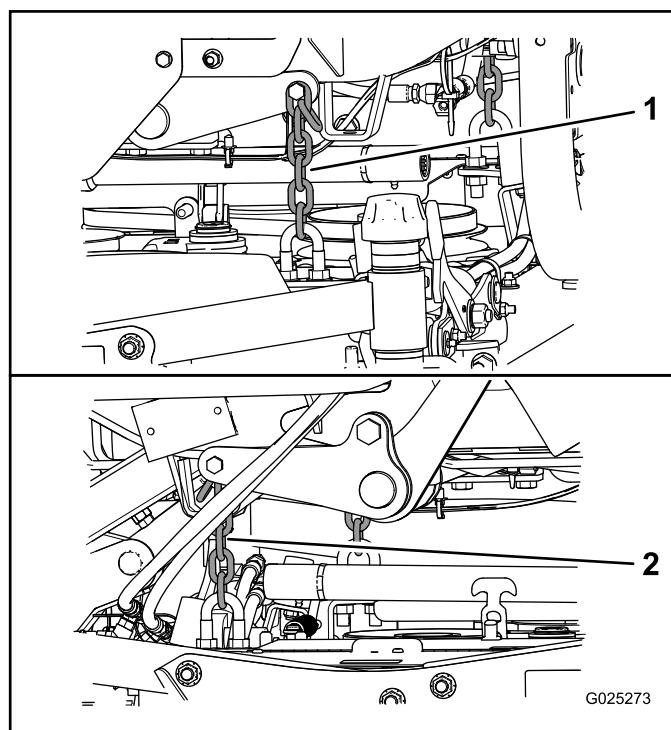


Figure 7

1. Left rear lift chain

2. Right rear lift chain

Leveling Side to Side

If the cut is uneven across the mower swath, correct it as follows:

1. Position the machine on a level surface on the shop floor
2. Set the cutting unit to the desired height of cut, move the throttle lever to the Slow position, stop the engine, set the parking brake, and remove the ignition key.
3. Check and adjust front and rear tractor tire pressure; refer to Checking Tire Pressure.
4. Check for bent blades.
5. Remove the covers from the top of the cutting units
6. Rotate the blade on each spindle until the ends face forward and backward.
7. Measure from the floor to the front tip of the cutting edge
8. Adjust the jam nuts securing the deck chains to the mower deck until the mower deck is level (Figure 7).

Operating Tips

Folding Castor Arm

To gain access to or from the operator area when the wing decks are folded up, release the castor arm latch (Figure 8) and rotate the castor arm away from the traction unit.

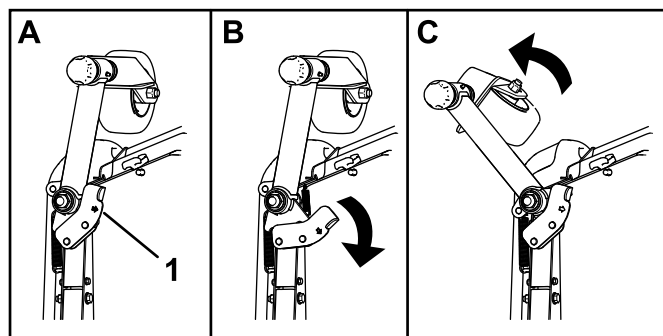


Figure 8

1. Castor arm latch

Important: Make sure to rotate the castor arm back to the traction unit before mowing.

Transport Latches

Before transporting the machine, raise the cutting units and secure the wing deck transport latches (Figure 9).

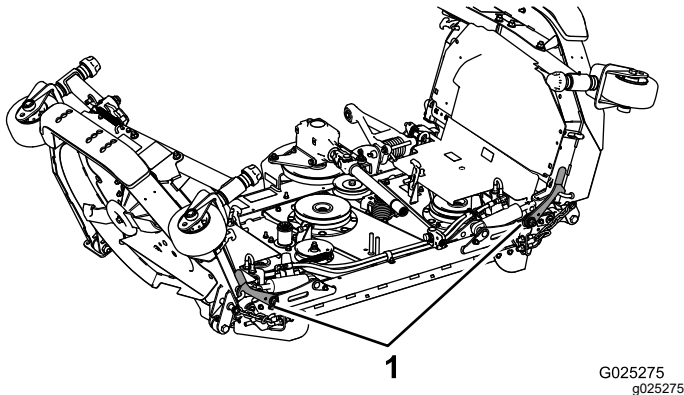


Figure 9

1. Wing deck transport latches

Fast Throttle Setting/Ground Speed

To maintain enough power for the machine and deck while mowing, operate the engine at the fast throttle position and adjust your ground speed for conditions. A good rule to follow is: decrease ground speed as the load on the cutting blades increases; and increase ground speed as load on the blades decreases.

Mowing Direction

Alternate mowing direction to avoid making ruts in the turf over time. This also helps disperse clippings which enhances decomposition and fertilization.

Cutting Speed

To improve cut quality, use a slower ground speed.

Select the Proper Height-of-Cut Setting to Suit Conditions

Remove approximately 25 mm (1 inch) or no more than 1/3 of the grass blade when cutting. In exceptionally lush and dense grass, you may have to slow down the forward speed and/or raise the height-of-cut to the next higher setting.

Long Grass

If the grass is ever allowed to grow slightly longer than normal, or if it contains a high degree of moisture, raise the cutting height higher than usual and cut the

grass at this setting. Then cut the grass again using the lower, normal setting.

Keeping the Mower Clean

Clean clippings and dirt from the underside of the mower after each use. If grass and dirt build up inside the mower, cutting quality will eventually become unsatisfactory.

To reduce the risk of fire hazard, keep the engine, muffler, battery compartment, parking brake, cutting units, and fuel storage compartment free of grass, leaves, or excessive grease. Clean up any spilled oil or fuel.

Use compressed air or a leaf blower to clean the belt drive area. Make sure to install any removed guards or covers when cleaning has been completed.

Blade Maintenance

Maintain a sharp blade throughout the cutting season because a sharp blade cuts cleanly without tearing or shredding the grass blades. Tearing and shredding turns grass brown at the edges, which slows growth and increases the chance of disease. Check the blades daily for sharpness, and for any wear or damage. Sharpen the blades as necessary. If a blade is damaged or worn, replace it immediately with a genuine Toro replacement blade. Refer to Servicing the Cutting Blades.

Maintenance

Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
After the first 2 hours	<ul style="list-style-type: none">• Tighten the castor wheel nuts
After the first 10 hours	<ul style="list-style-type: none">• Tighten the castor wheel nuts
After the first 50 hours	<ul style="list-style-type: none">• Change the mower deck gear box lubricant
Before each use or daily	<ul style="list-style-type: none">• Lubricate the castor arm bushings• Lubricate the castor wheel bearings• Check the mower blades.
Every 50 hours	<ul style="list-style-type: none">• Lubricate the grease fittings• Tighten the castor wheel nuts
Every 150 hours	<ul style="list-style-type: none">• Check the lubricant in the mower deck gear box.
Every 400 hours	<ul style="list-style-type: none">• Change the mower deck gear box lubricant

⚠ CAUTION

If you leave the key in the ignition switch, someone could accidentally start the engine and seriously injure you or other bystanders.

Remove the key from the ignition switch before you do any maintenance.

⚠ WARNING

If you raise the machine using only a jack to support it while you work under the mower deck, the jack could tip, causing the mower deck to fall, crushing you or bystanders.

Always secure the machine with at least 2 jack stands when you have the mower deck raised.

⚠ CAUTION

On the top of the mower deck are two links that connect them to the frame. Connected to these links are torsion springs that are under tension ([Figure 10](#)). If you disconnect the link the stored energy in the torsion spring will be released and could cause the links to move, damaging your hands or fingers.

Be careful when removing the mower deck from the frame and secure the links before disconnecting them from the frame.

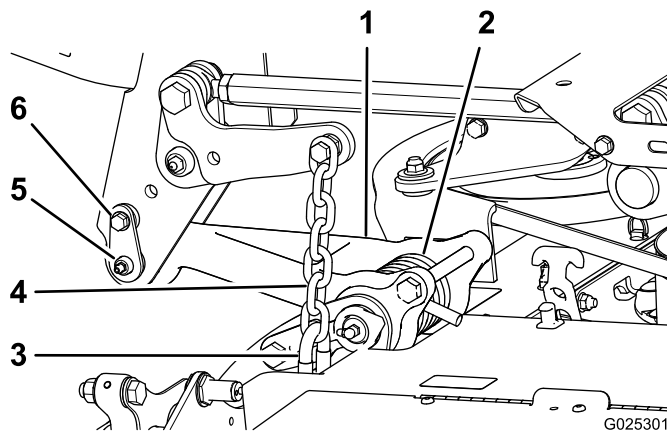


Figure 10

- | | |
|-------------------|--------------------|
| 1. Pull link | 4. Deck lift chain |
| 2. Torsion spring | 5. Retainer pin |
| 3. U-bolts | 6. Shoulder screw |

g025301

Lubrication

Service Interval: Every 50 hours

The machine has grease fittings that must be lubricated regularly with No. 2 General Purpose Lithium Base Grease. If the machine is operated under normal conditions, lubricate all bearings and bushings after every 50 hours of operation or immediately after every washing.

Lubricate the following areas:

- Castor fork shaft bushings (4) (Figure 11)

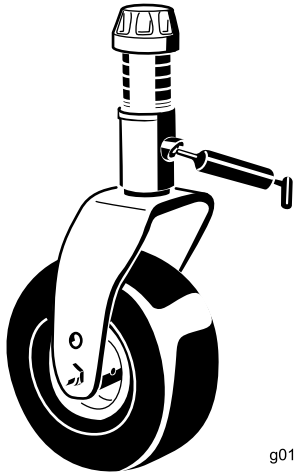


Figure 11

- Deck links (5) (Figure 12)

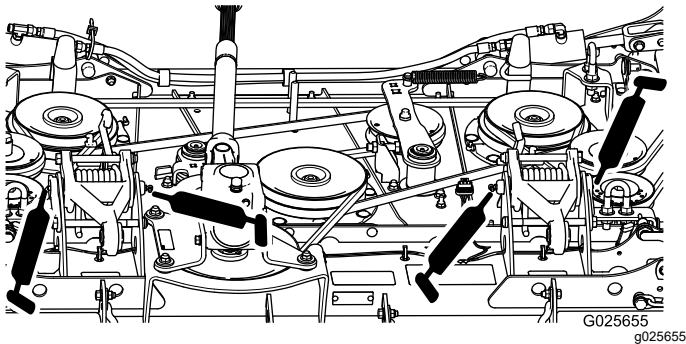


Figure 12

- Idler arm pivots (4) (Figure 13)

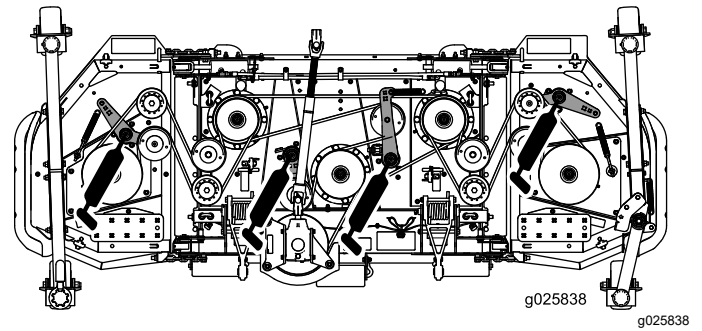


Figure 13

- Wing deck hinges (10) (Figure 14)

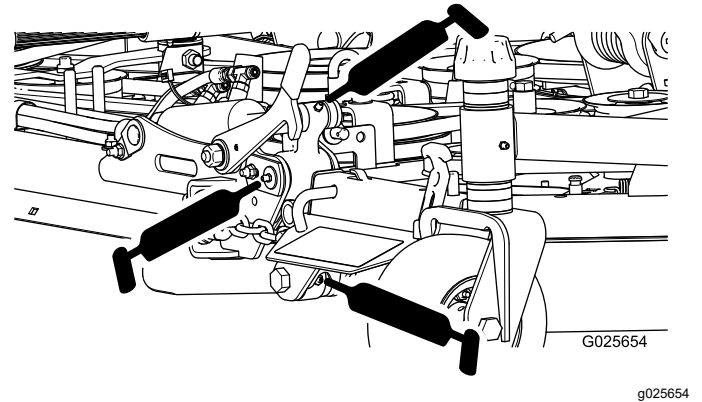


Figure 14

- Folding castor arm pivot (1) (Figure 15)

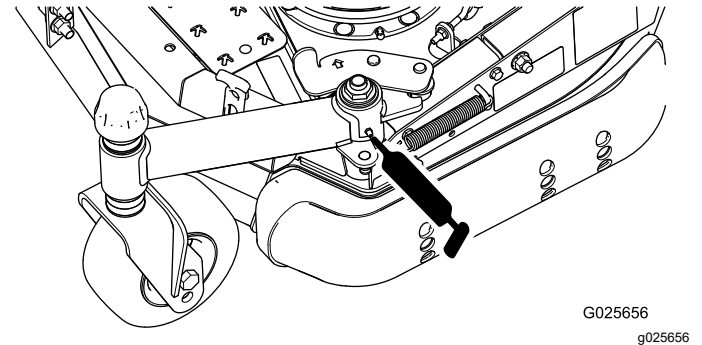


Figure 15

- PTO Drive shaft (2) (Figure 16)

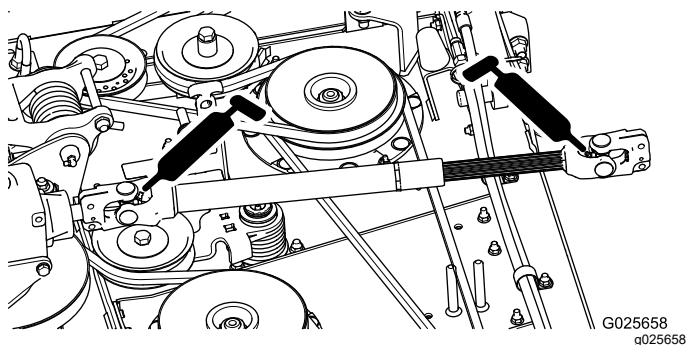


Figure 16

- Spindle shaft bearings (5) (Figure 17)

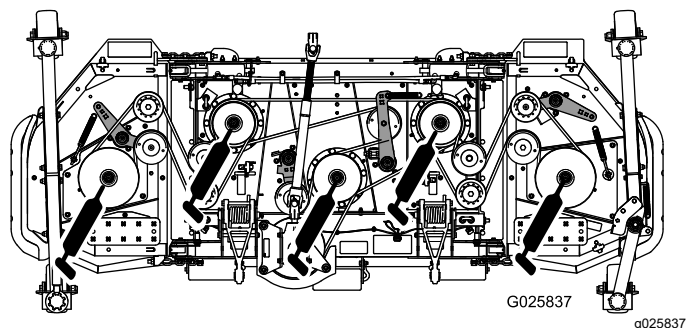


Figure 17

Servicing the Mower Deck Gear Box Lubricant

The gear box is designed to operate with SAE 80-90 gear lube. Although the gear box is shipped with lubricant from the factory, check the level before operating the cutting unit for the first time and every 150 operating hours thereafter. Change the lubricant in the gear box every 400 operating hours.

Checking the Mower Deck Gear Box Lubricant

Service Interval: Every 150 hours

1. Position the machine and cutting unit on a level surface.
2. Lower the mower deck to the 2.5 cm (1 inch) height-of-cut.
3. Disengage the PTO, release the traction pedal and set the parking brake.
4. Move the throttle lever to the Slow position, stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
5. Lift the footrest, exposing the top of the mower deck.

6. Remove the dipstick/fill plug from the top of the gear box (Figure 18) and make sure that the lubricant is between the marks on the dipstick.

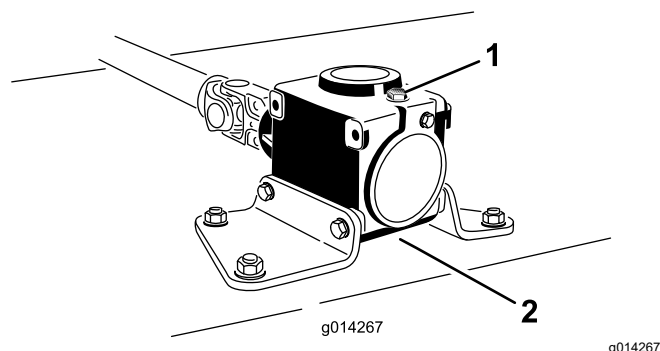


Figure 18

1. Fill plug and dipstick
2. Drain location

7. If the lubricant level is low, add enough lubricant until the level is between the marks on the dipstick.

Note: Do not over fill or the gearbox may be damaged.

Changing the Mower Deck Gear Box Lubricant

Service Interval: After the first 50 hours

Every 400 hours

1. Position the machine and cutting unit on a level surface.
2. Lower the mower deck to the 2.5 cm (1 inch) height-of-cut.
3. Disengage the PTO, release the traction pedal and set the parking brake.
4. Move the throttle lever to the Slow position, stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
5. Lift the footrest, exposing the top of the mower deck.
6. Remove the dipstick/fill plug from the top of the gear box (Figure 18).
7. Place a drain pan under the drain plug located under the front of the gear box and remove the plug, draining the lubricant into the pan.
8. Replace the drain plug.
9. Add enough lubricant, approximately 414 ml (14 ounces), until the level is between the marks on the dipstick.

Note: Do not over fill or the gearbox may be damaged.

Servicing the Bushings in the Castor Arms

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

1. Raise the cutting unit so that the wheels are off of the floor. Block the cutting unit so that it cannot accidentally fall.
2. Remove the tensioning cap, spacer(s), and thrust washer from the top of the castor spindle.
3. Pull the castor spindle out of the mounting tube. Allow the thrust washer and spacer(s) to remain on the bottom of the spindle.
4. Insert a pin punch into the top or bottom of the mounting tube and drive the bushing out of the tube (Figure 19). Also drive the other bushing out of the tube. Clean the inside of the tubes to remove dirt.

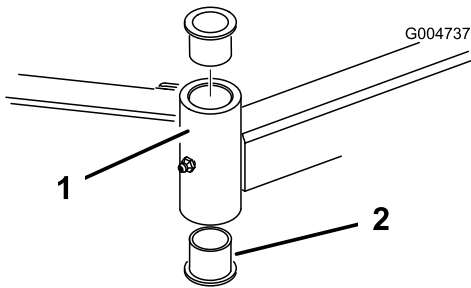


Figure 19

1. Castor arm tube
2. Bushings

5. Apply grease to the inside and outside of the new bushings. Using a hammer and flat plate, drive the bushings into the mounting tube.
6. Inspect the castor spindle for wear and replace it if damaged.
7. Push the castor spindle through the bushings and mounting tube. Slide the thrust washer and spacer(s) onto the spindle. Install the tensioning cap on the castor spindle to retain all parts in place.

Servicing the Castor Wheels and Bearings

1. Remove the locknut from the bolt holding the castor wheel assembly between the castor fork (Figure 20). Grasp the castor wheel and slide the bolt out of the fork or pivot arm.

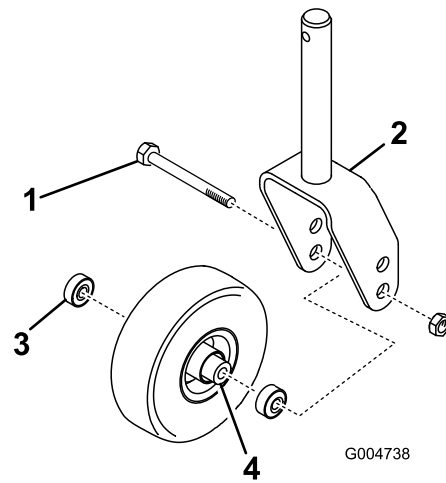


Figure 20

1. Castor wheel
2. Castor fork
3. Bearing (2)
4. Bearing spacer

2. Remove the bearing from the wheel hub and allow the bearing spacer to fall out (Figure 20). Remove the bearing from the opposite side of the wheel hub.
3. Check the bearings, spacer, and inside of the wheel hub for wear. Replace any damaged parts.
4. To assemble the castor wheel, push the bearing into the wheel hub. When installing the bearings, press on the outer race of the bearing.
5. Slide the bearing spacer into the wheel hub. Push the other bearing into the open end of the wheel hub to captivate the bearing spacer inside the wheel hub.
6. Install the castor wheel assembly between the castor fork and secure it in place with the bolt and locknut.

Servicing the Cutting Blades

Maintain sharp blades throughout the cutting season because sharp blades cut cleanly without tearing or shredding the grass blades. Tearing and shredding turns grass brown at the edges, which slows growth and increases the chance of disease.

Check the blades daily for sharpness, and for any wear or damage. Sharpen the blades as necessary. If a blade is damaged or worn, replace it immediately with a genuine Toro replacement blade.

⚠ DANGER

A worn or damaged blade can break, and a piece of the blade could be thrown into the operator's or bystander's area, resulting in serious personal injury or death.

- Inspect the blade periodically for wear or damage.
- Replace a worn or damaged blade.

Inspect and check the blades every 8 hours.

Before Inspecting or Servicing the Blades

1. Disengage the PTO, release the traction pedal and set the parking brake.
2. Move the throttle lever to the Slow position, stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.

Inspecting the Blades

Service Interval: Before each use or daily

1. Inspect the cutting edges (Figure 21). If the edges are not sharp or have nicks, remove and sharpen the blades. Refer to Sharpening the Blades.
2. Inspect the blades, especially the sail area (Figure 21). If you notice any damage, wear, or a slot forming in this area (Figure 21), immediately install a new blade.

⚠ DANGER

If you allow the blade to wear, a slot will form between the sail and flat part of the blade. Eventually a piece of the blade may break off and be thrown from under the housing, possibly resulting in serious injury or death to you or bystanders.

- Inspect the blade periodically for wear or damage.
- Never try to straighten a blade that is bent or weld a broken or cracked blade.
- Replace a worn or damaged blade.

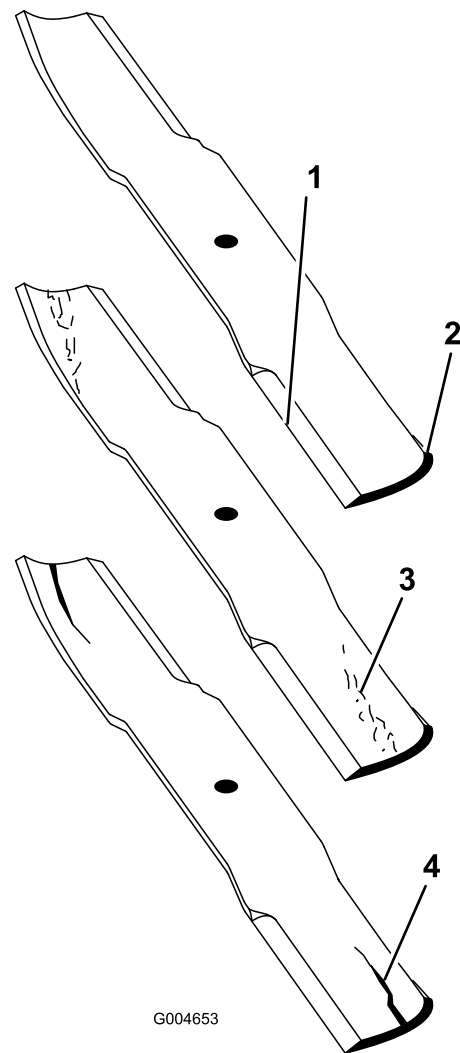


Figure 21

- | | |
|-----------------|----------------------|
| 1. Cutting Edge | 3. Wear/slot Forming |
| 2. Sail Area | 4. Crack |

Checking for Bent Blades

1. Disengage the PTO, release the traction pedal and set the parking brake.
2. Move the throttle lever to the Slow position, stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Rotate the blades until the ends face forward and backward (Figure 22). Measure from a level surface to the cutting edge, position A, of the blades (Figure 22). Note this dimension.

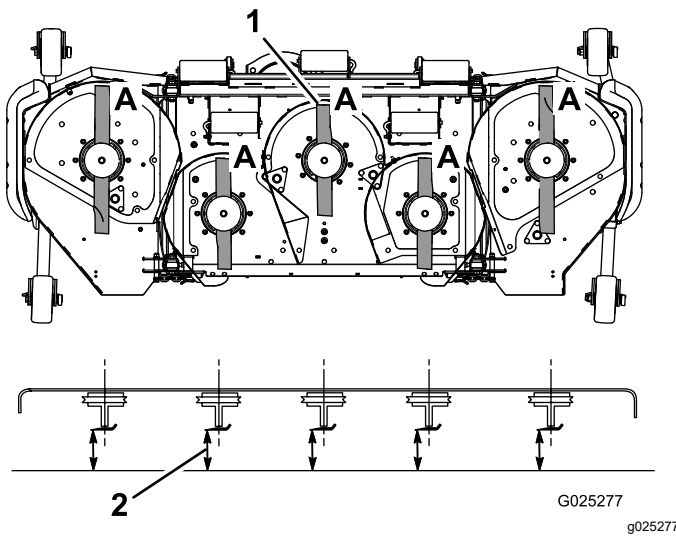


Figure 22

1. Position A
2. Measure here from blade to hard surface

4. Rotate the opposite ends of the blades forward.
5. Measure from a level surface to the cutting edge of the blades at the same position as in step 3 above. The difference between the dimensions obtained in steps 3 and 4 must not exceed 3 mm (1/8 inch). If this dimension exceeds 3 mm (1/8 inch), the blade is bent and must be replaced; refer to Removing the Blades and Installing the Blades.

⚠ WARNING

A blade that is bent or damaged could break apart and could seriously injure or kill you or bystanders.

- Always replace bent or damaged blade with a new blade.
- Never file or create sharp notches in the edges or surfaces of blade.

Removing the Blades

Blades must be replaced if a solid object is hit, if the blade is out of balance or is bent. To ensure optimum performance and continued safety conformance of the machine, use genuine Toro replacement blades. Replacement blades made by other manufacturers may result in non-conformance with safety standards.

⚠ WARNING

Contact with a sharp blade can cause serious injury.

Wear gloves or wrap sharp edges of the blade with a rag.

1. Hold the blade end using a rag or thickly-padded glove.
2. Remove the blade bolt, anti-scalp plate, and blade from the spindle shaft (Figure 25).

Sharpening the Blades

⚠ WARNING

When sharpening blade, pieces of blade could be thrown and cause serious injury.

Wear proper eye protection when sharpening blades.

1. Sharpen the cutting edge at both ends of the blade (Figure 23). Maintain the original angle. The blade retains its balance if the same amount of material is removed from both cutting edges.

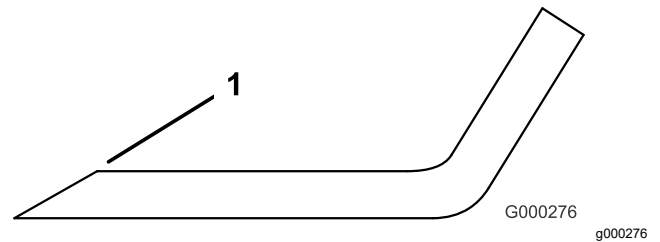


Figure 23

1. Sharpen at original angle

2. Check the balance of the blade by putting it on a blade balancer (Figure 24). If the blade stays in a horizontal position, the blade is balanced and can be used. If the blade is not balanced, file some metal off the end of the sail area only (Figure 25). Repeat this procedure until the blade is balanced.

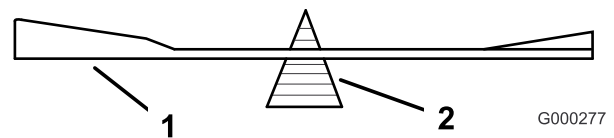


Figure 24

1. Blade
2. Balancer

Installing the Blades

Note: The 2 wing deck blades are not the same as the 3 center blades.

1. Install the blade onto the spindle shaft (Figure 25).

Important: The curved part of the blade must be pointing upward toward the inside of the mower to ensure proper cutting.

2. Install the anti-scalp plate and blade bolt (Figure 25).

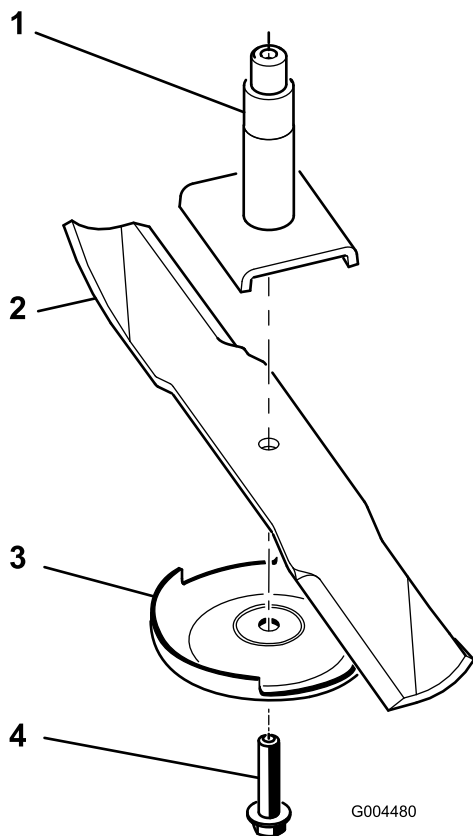


Figure 25

- | | |
|-----------------------|---------------------|
| 1. Spindle | 3. Anti-scalp plate |
| 2. Sail Area of Blade | 4. Blade Bolt |

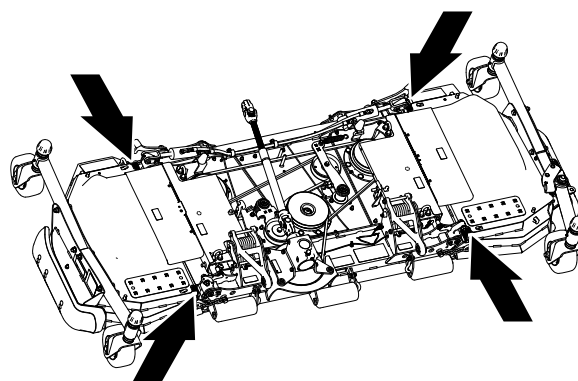
3. Torque the blade bolt to 115-150 N·m (85-110 ft-lb).

Adjusting the Deck-Limit Chains

Use 2 deck shims Toro Part No. 138-8243 or 2 feeler gauges—0.15 mm (0.060 inch)

Preparing the Deck

1. Start the engine, lower the left and right decks, shut off the engine, remove the key, and wait for all moving parts to stop.
2. At the outer decks, wipe clean the tab of the inner channel (Figure 26).



g321242

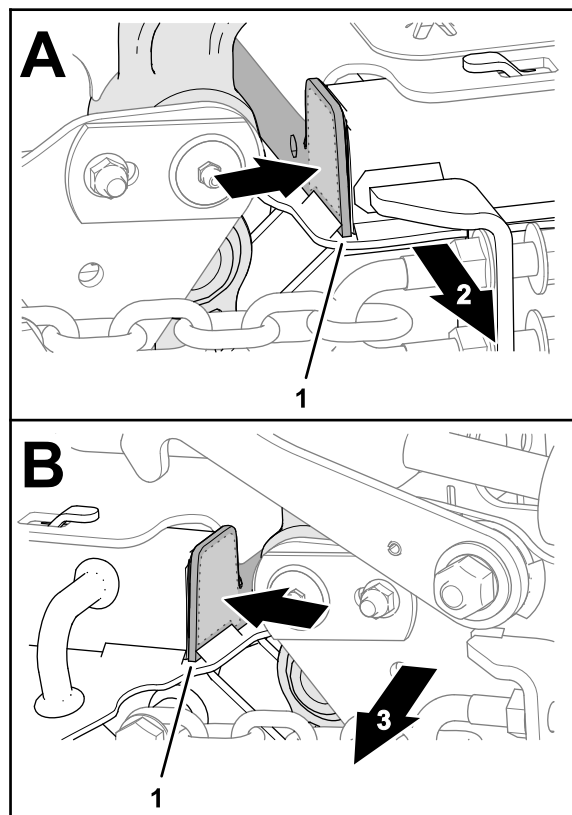
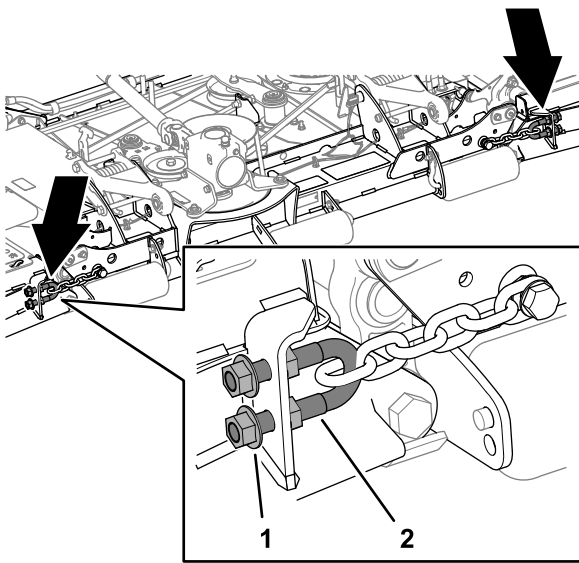


Figure 26

g321236

- | | |
|-----------------------------------|-----------------------------|
| 1. Tab (inner channel—outer deck) | 3. Back of the machine deck |
| 2. Front of the machine | |
3. At the front of the deck, fully loosen the outboard serrated-flange nuts securing the 4 U-bolts (Figure 27).

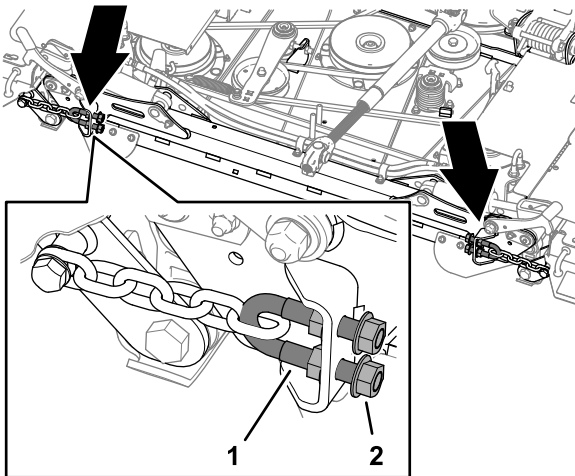


g321237

Figure 27

1. Serrated-flange nut (inboard)
2. U-bolt

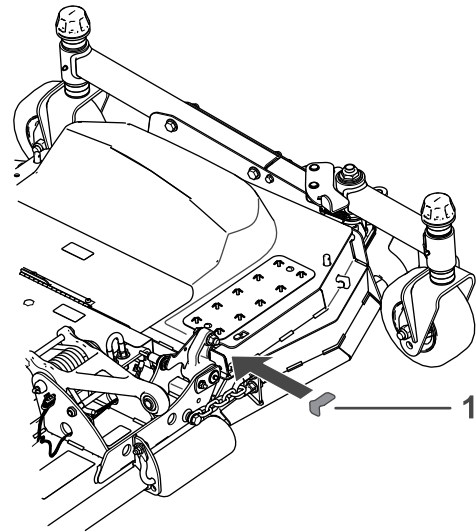
4. At the back of the deck, fully loosen the inboard serrated-flange nuts securing the 4 U-bolts ([Figure 28](#)).



g321238

Figure 28

1. U-bolt
2. Serrated-flange nut (outboard)



g321246

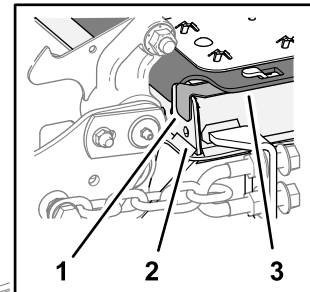


Figure 29

1. Deck shim
2. Inner-channel tab (outer deck)
3. Belt cover

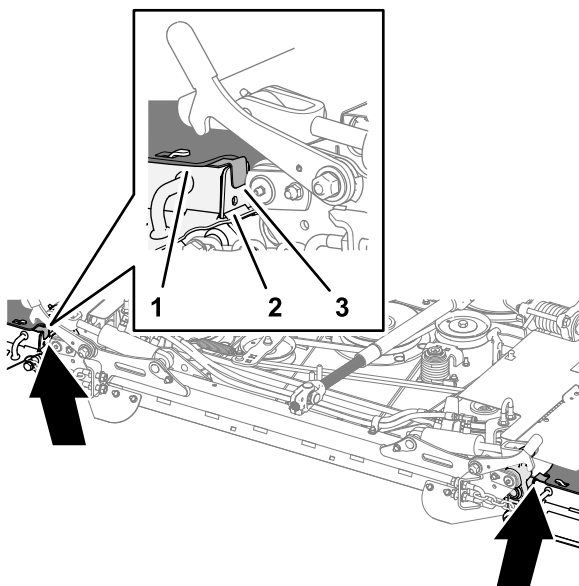
g321244

2. Install the deck shims at the front of the deck as shown in [Figure 30](#).

Assembling the Shim to the Deck

1. Install the deck shims at the front of the deck as shown in [Figure 29](#).

Note: Insert the part of the long tab of the shim under the belt cover.

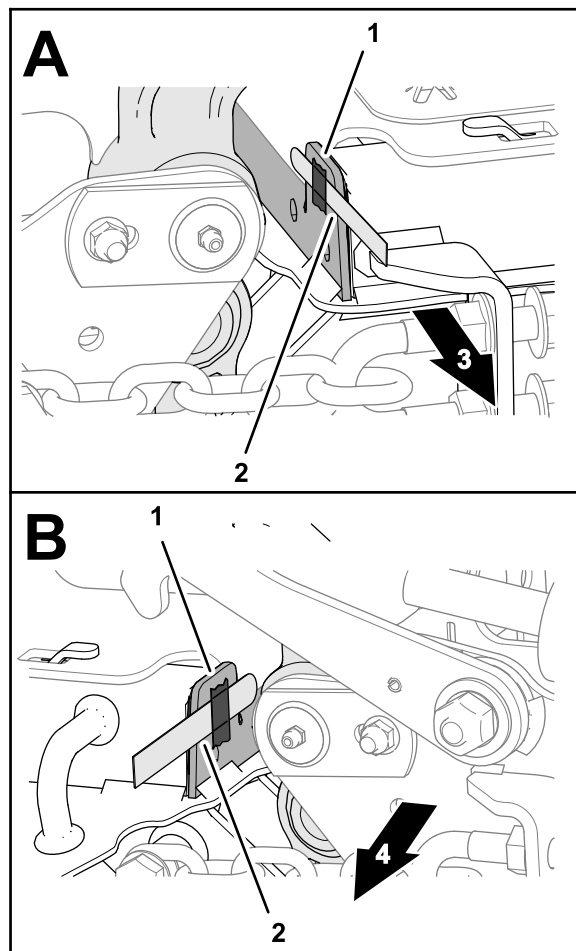


g321239

Figure 30

1. Belt cover
2. Inner-channel tab (outer deck)
3. Deck shim

Note: If you are using feeler gauges, use a piece of tape to adhere a feeler gauge—0.15 mm (0.060 inch) to the tab of the inner channel ([Figure 31](#)).



g321243

Figure 31

1. Inner-channel tab
2. Feeler gauge
3. Front of the machine
4. Back of the machine

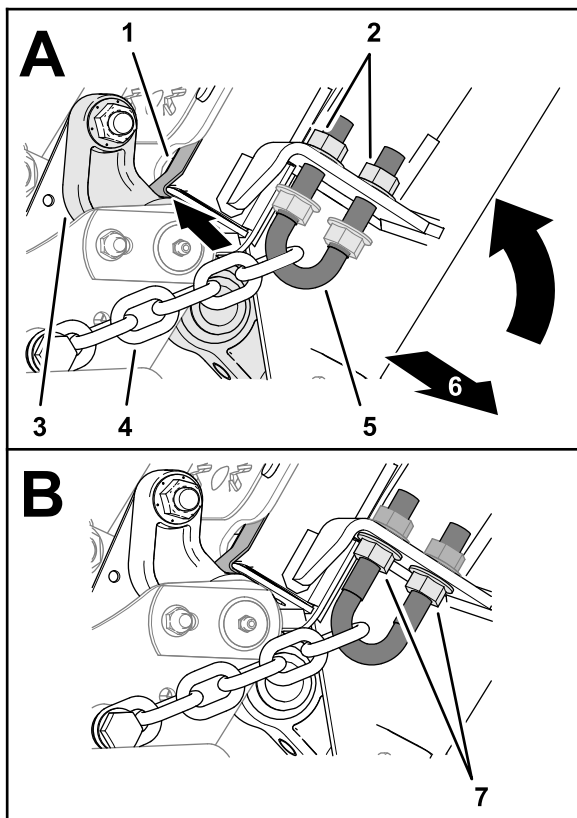
3. Start the engine, fully raise the left and right decks, shut off the engine, remove the key, and wait for all moving parts to stop.

Tensioning the Chains

1. At the front of the deck, tighten the outboard serrated-flange nuts until the chains are tensioned ([Figure 32](#)).

Note: Ensure that the deck shim (or feeler gauge) contacts then pivot link.

Important: Ensure that the upper and lower serrated-flange nut pairs are adjusted evenly.



g321234

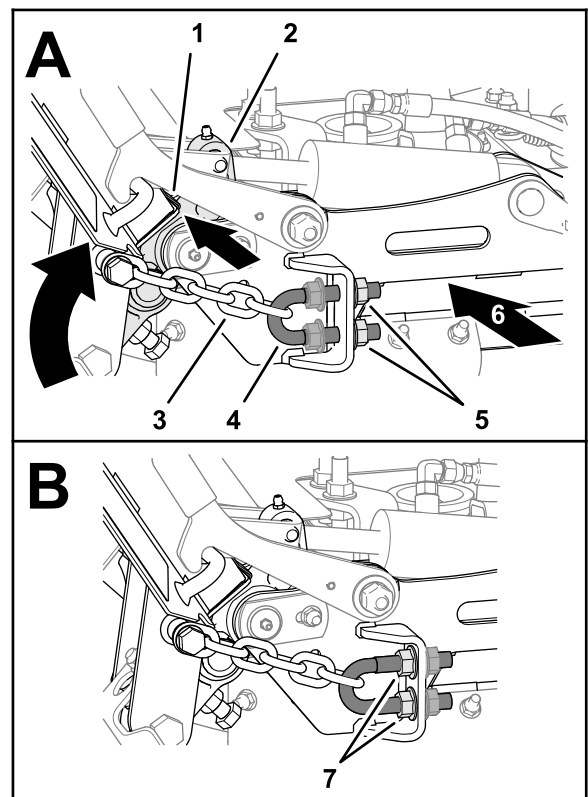
Figure 32

- | | |
|-----------------------------------|----------------------------------|
| 1. Deck shim (or feeler gauge) | 5. U-bolt |
| 2. Serrated-flange nut (outboard) | 6. Front of the machine |
| 3. Pivot link | 7. Serrated-flange nut (inboard) |
| 4. Chain (limit) | |

2. Thread the inboard serrated-flange nuts ([Figure 32](#)) and torque them to 103 to 127 N·m (76 to 94 ft-lb).
3. At the back of the deck, tighten the inboard serrated-flange nuts until the chains are tensioned ([Figure 33](#)).

Note: Ensure that the deck shim (or feeler gauge) contacts then pivot link.

Important: Ensure that the upper and lower serrated-flange nut pairs are adjusted evenly.

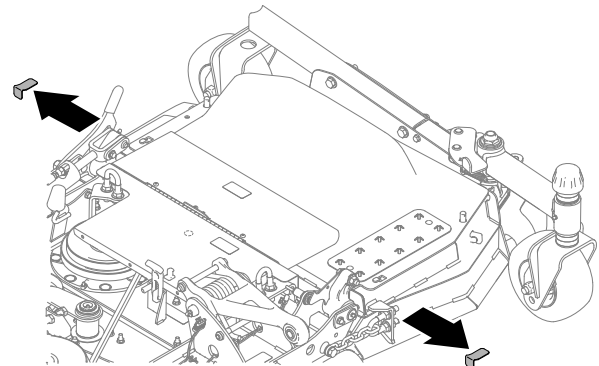


g321235

Figure 33

- | | |
|--------------------------------|-----------------------------------|
| 1. Deck shim (or feeler gauge) | 5. Serrated-flange nut (inboard) |
| 2. Pivot link | 6. Front of the machine |
| 3. Chain (limit) | 7. Serrated-flange nut (outboard) |
| 4. U-bolt | |

4. Thread the outboard serrated-flange nuts ([Figure 33](#)) and torque them to 103 to 127 N·m (76 to 94 ft-lb).
5. Start the engine, lower adjusted deck, raise the other deck, shut off the engine, remove the key, and wait for all moving parts to stop.
6. Remove the shims or feeler gauges ([Figure 34](#)).



g321240

Figure 34

7. Repeat steps in [Assembling the Shim to the Deck \(page 21\)](#) and [Tensioning the Chains \(page 22\)](#) for the other mower deck.

Notes:

Declaration of Incorporation

The Toro Company, 8111 Lyndale Ave. South, Bloomington, MN, USA declares that the following unit(s) conform(s) to the directives listed, when installed in accordance with the accompanying instructions onto certain Toro models as indicated on the relevant Declarations of Conformity.

Model No.	Serial No.	Product Description	Invoice Description	General Description	Directive
31101	314000001 and Up	100in Rear Discharge Mower	CUTTING UNIT-100 IN, GM360	100in Rear Discharge Mower	2006/42/EC, 2000/14/EC

Relevant technical documentation has been compiled as required per Part B of Annex VII of 2006/42/EC.

We will undertake to transmit, in response to requests by national authorities, relevant information on this partly completed machinery. The method of transmission shall be electronic transmittal.

This machinery shall not be put into service until incorporated into approved Toro models as indicated on the associated Declaration of Conformity and in accordance with all instructions, whereby it can be declared in conformity with all relevant Directives.

Certified:



David Klis
Sr. Engineering Manager
8111 Lyndale Ave. South
Bloomington, MN 55420, USA
September 26, 2013

Authorized Representative:

Marcel Dutrieux
Manager European Product Integrity
Toro Europe NV
Nijverheidsstraat 5
2260 Oevel
Belgium



The Toro Total Coverage Guarantee

A Limited Warranty

Conditions and Products Covered

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrant your Toro Commercial product ("Product") to be free from defects in materials or workmanship for two years or 1500 operational hours*, whichever occurs first. This warranty is applicable to all products with the exception of Aerators (refer to separate warranty statements for these products). Where a warrantable condition exists, we will repair the Product at no cost to you including diagnostics, labor, parts, and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.

* Product equipped with an 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 800-952-2740
E-mail: commercial.warranty@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 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, or modified non-Toro branded accessories and products. A separate warranty may be provided by the manufacturer of these items.
- Product failures which result from failure to perform recommended maintenance and/or adjustments. Failure to properly maintain your Toro product per the Recommended Maintenance listed in the *Operator's Manual* can result in claims for warranty being denied.
- 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, brake pads and linings, clutch linings, blades, reels, rollers and bearings (sealed or greasable), bed knives, spark plugs, castor wheels and bearings, tires, filters, belts, and certain sprayer components such as diaphragms, nozzles, and check valves, etc.
- Failures caused by outside influence. Conditions considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved fuels, coolants, lubricants, additives, fertilizers, water, or chemicals, etc.
- Failure or performance issues due to the use of fuels (e.g. gasoline, diesel, or biodiesel) that do not conform to their respective industry standards.

- Normal noise, vibration, wear and tear, and deterioration.
- 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 are covered for the duration of the original product warranty and 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 remanufactured parts for warranty repairs.

Deep Cycle and Lithium-Ion Battery Warranty:

Deep cycle and Lithium-Ion batteries have a specified total number of kilowatt-hours they can deliver during their lifetime. Operating, recharging, and maintenance techniques can extend or reduce total battery life. As the batteries in this product are consumed, the amount of useful work between charging intervals will slowly decrease until the battery is completely worn out. Replacement of worn out batteries, due to normal consumption, is the responsibility of the product owner. Battery replacement may be required during the normal product warranty period at owner's expense. Note: (Lithium-Ion battery only): A Lithium-Ion battery has a part only prorated warranty beginning year 3 through year 5 based on the time in service and kilowatt hours used. Refer to the *Operator's Manual* for additional information.

Maintenance is at Owner's Expense

Engine tune-up, lubrication, cleaning and polishing, replacement of filters, coolant, and completing recommended maintenance are some of the normal services Toro products require that are at the owner's expense.

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 supplied with your product 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.



Count on it.