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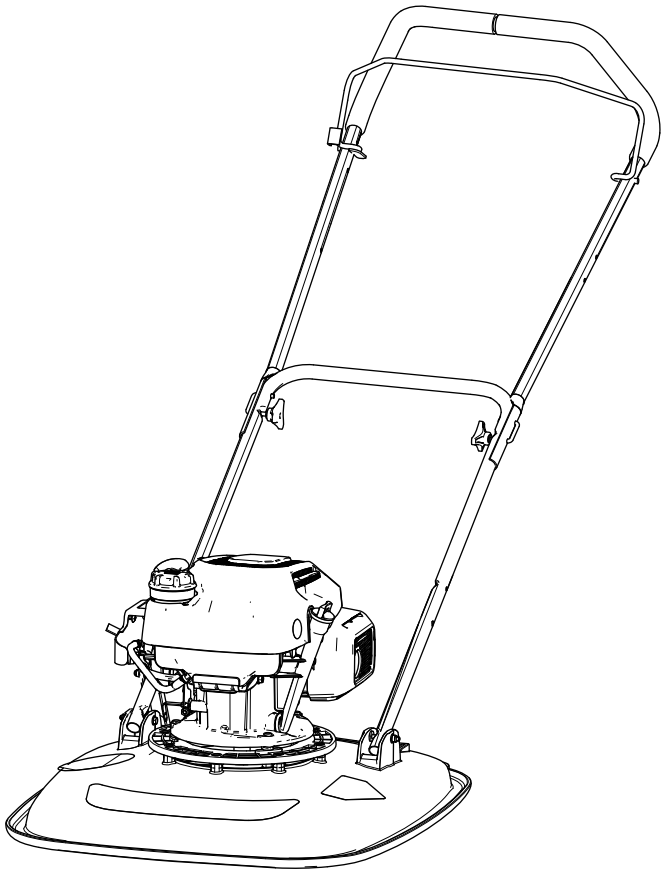
TORO®

Count on it.

Operator's Manual

HoverPro® 450 Machine

Model No. 02616—Serial No. 400000000 and Up



Register at www.Toro.com.
Original Instructions (EN)

CE UK CA

3459-573

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

Gross or Net Torque: The gross or net torque of this engine was laboratory rated by the engine manufacturer in accordance with the Society of Automotive Engineers (SAE) J1940 or J2723. As configured to meet safety, emission, and operating requirements, the actual engine torque on this class of mower will be significantly lower. Please refer to the engine manufacturer's information included with the machine.

Introduction

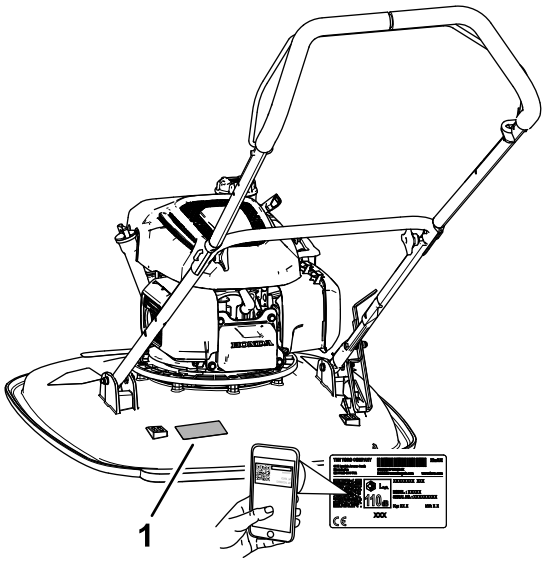
This machine is intended to be used by hired, commercial operators for maintaining turf on slopes, tight undulations, areas near water, or bunker lips. Using this product for purposes other than its intended use could prove dangerous to you and bystanders.

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.

Visit www.https://www.toro.com/en-GB for more information, including safety tips, training materials, 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. Figure 1 identifies the location of the model and serial numbers on the product. Write the numbers in the space provided.

Important: **With your mobile device, you can scan the QR code on the serial number decal (if equipped) to access warranty, parts, and other product information.**



g364631

Figure 1

1. Model and serial number location

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

Model No. _____

Serial No. _____

This manual identifies potential hazards and has safety messages identified by the safety-alert symbol (Figure 2), which signals a hazard that may cause serious injury or death if you do not follow the recommended precautions.



g000502

Figure 2

Safety-alert symbol

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

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Bloomington, MN 55420

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Safety

General Safety

Important: **Read these instructions carefully before using the machine, and keep them for future reference.**

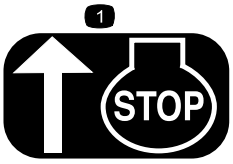
This product is capable of injuring hands and feet and of throwing objects. Always follow all safety instructions to avoid serious personal injury.

- Read and understand the contents of this *Operator's Manual* before starting the engine.
- Do not put your hands or feet near moving components of the machine.
- Do not operate the machine without all guards and other safety protective devices in place and functioning properly on the machine.
- Keep bystanders and children out of the operating area. Do not allow children to operate the machine. Allow only people who are responsible, trained, familiar with the instructions, and physically capable to operate the machine. Local regulations may restrict the age of the operator.
- Shut off the engine, remove the key (if equipped), and wait for all movement to stop before you leave the operator's position. Allow the machine to cool before adjusting, servicing, cleaning, or storing it.

Improperly using or maintaining this machine 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 these instructions may result in personal injury or death.

Safety and Instructional Decals

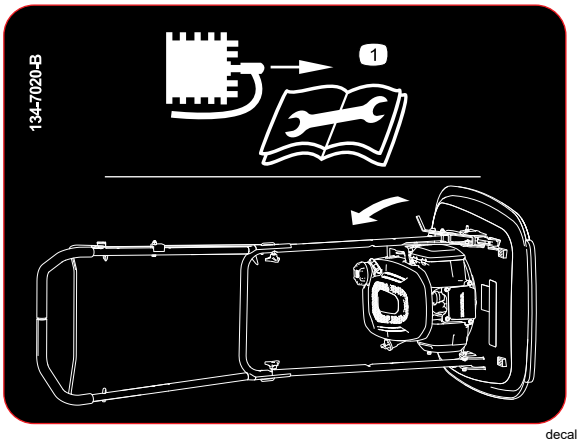
Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or missing.



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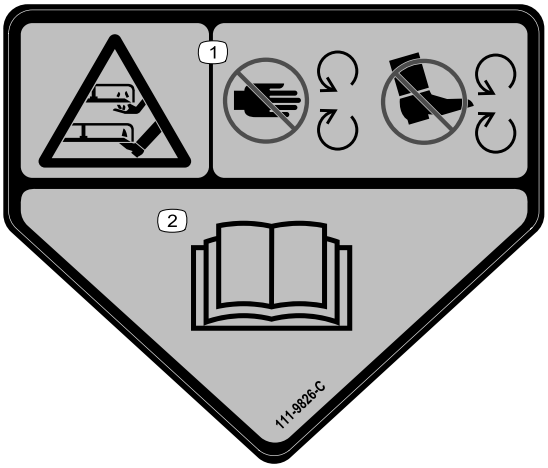
1. Engine stop



decal134-7020

134-7020

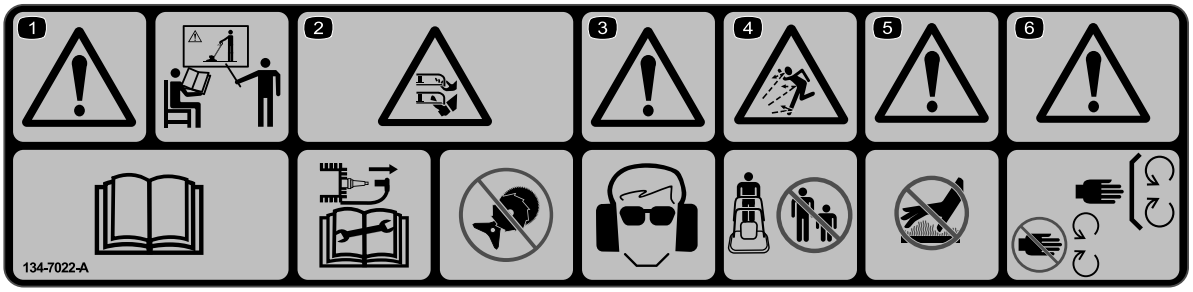
1. Before tipping the machine for service, disconnect the spark plug and read the *Operator's Manual*.



decal111-9826

111-9826

1. Cutting/dismemberment hazard of hand or foot, cutting unit—keep your hands and feet away from moving parts.
2. Read the *Operator's Manual*.



decal134-7022

134-7022

1. Warning—Receive training on the product; read the *Operator's Manual*.
2. Cutting/dismemberment hazard of hand or foot, nylon line; disconnect the wire from the spark plug before working on the machine; never fit metal cutting parts.
3. Warning—wear eye and hearing protection.
4. Thrown object hazard; keep bystanders away.
5. Warning—do not touch hot surfaces.
6. Warning—stay away from moving parts; keep guards in place.

Setup

1

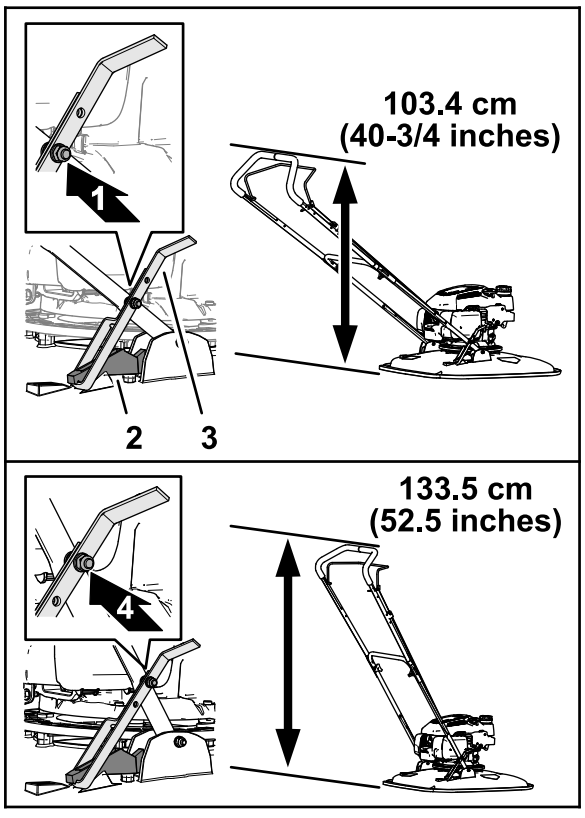
Installing the Handlebar Footstop

Parts needed for this procedure:

1	Lower handlebar
1	Footstop
1	Bolt (6 x 35 mm)
3	Washer (6 mm)
1	Locknut (6 mm)

Procedure

Note: You can only use the footstop to support the handlebar in the vertical position when you assemble the handlebar in the lower position 103.4 cm (40-3/4 inches).

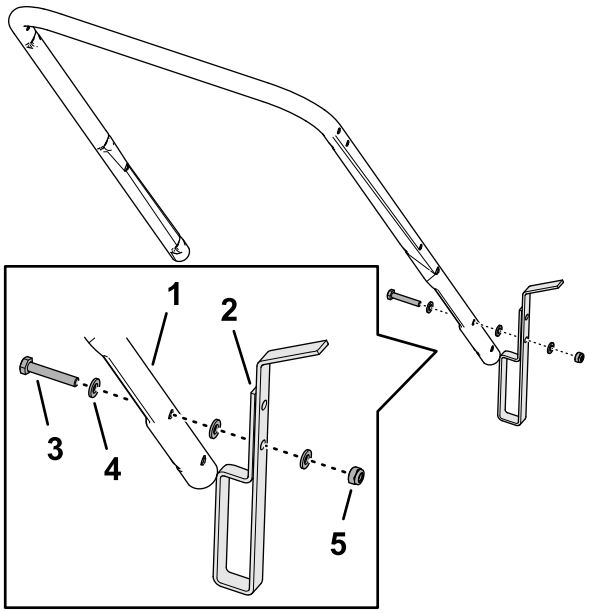


g367240

Figure 3

1. Low-handlebar position
2. Upstop bracket
3. Footstop
4. High-handlebar position

1. Determine the handlebar height when the footstop is secured to the upstop bracket (Figure 3).
2. Align the hole in the footstop with the hole in the lower handlebar (Figure 4).



g364679

Figure 4

1. Lower handlebar
2. Footstop
3. Bolt (6 x 35 mm)
4. Washer (6 mm)
5. Locknut (6 mm)

3. Assemble the footstop to the handlebar with a bolt (6 x 35 mm), 3 washers (6 mm), and locknut (6 mm).
4. Tighten the locknut and bolt.

   Note: Ensure that you can pivot the footstop.

2

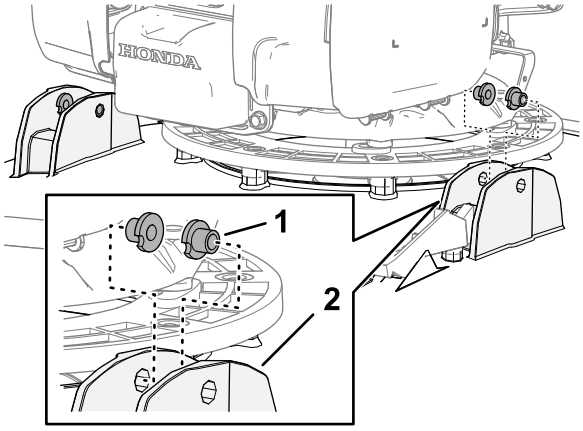
Installing the Handlebar

Parts needed for this procedure:

4	T-bushings
2	Bolt (6 x 55 mm)
6	Washer (6 mm)
2	Locknut (6 mm)
2	Knob
2	U-bolt
	Handlebar fitting
1	Upper handlebar
1	Bolt (1/4 x 1-3/4 inches)
1	Locknut (1/4 inch)

Assembling the Lower Handlebar to the Machine

1. Assemble 2 T-bushings into the handlebar flanges of the mower deck (Figure 5).

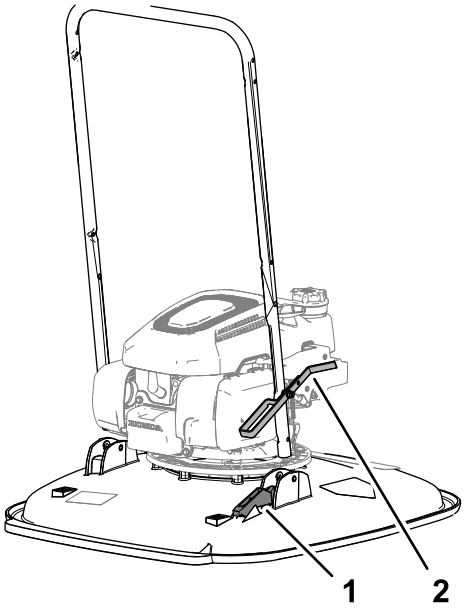


g364682

Figure 5

1. T-bushings
2. Handlebar flanges (mower deck)

2. Align the footstop of the handlebar to the up-stop bracket on the deck (Figure 6).

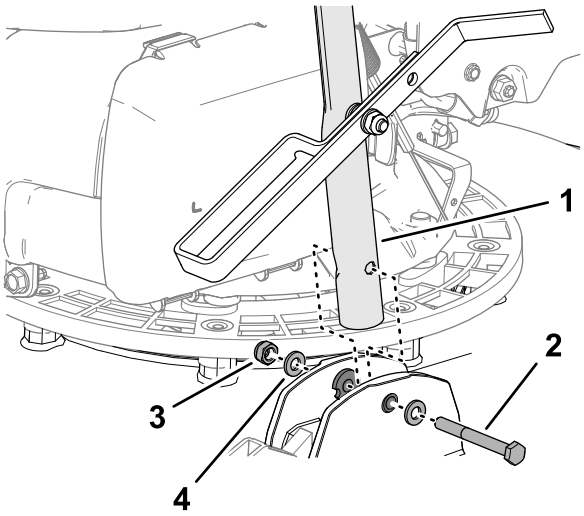


g364680

Figure 6

1. Up-stop bracket
2. Footstop

3. Align the hole in the handlebar with the holes in the bushings (Figure 7), and secure handlebar, to the machine with a bolt (6 x 55 mm), 2 washers (6 mm), and a locknut (6 mm).



g364681

Figure 7

1. Lower handlebar
2. Bolt (6 x 55 mm)
3. Washer (6 mm)
4. Locknut (6 mm)

4. Repeat step 3 at the other side of the machine.

Assembling the Upper and Lower Handlebars

1. Align the holes on the upper handlebar with the holes in the lower handlebar (Figure 8).

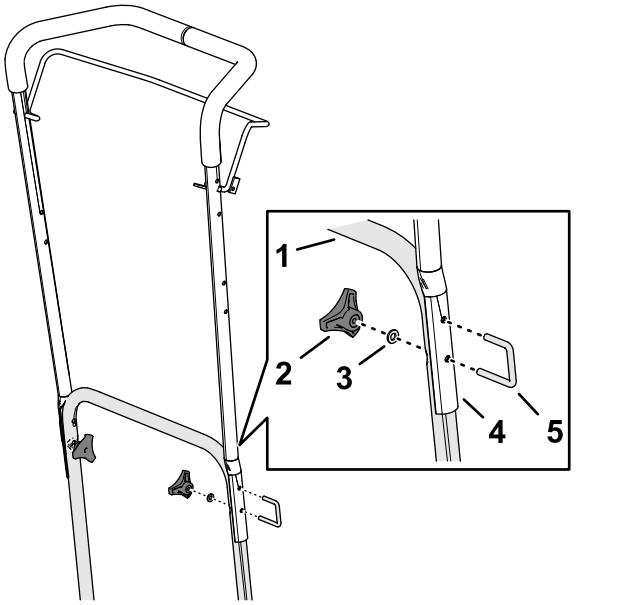


Figure 8

1. Lower handlebar
2. Knob
3. Washer (6 mm)
4. Upper handlebar
5. U-bolt

2. Assemble the upper handlebar to the lower handlebar wit the 2 U-bolts, 2 washer (6 mm), and 2 knobs.

Assembling the Cable to the Operator-Presence Bail

1. Insert the fitting at the end of the cable sheath into the upper socket of the handlebar fitting (Figure 9).

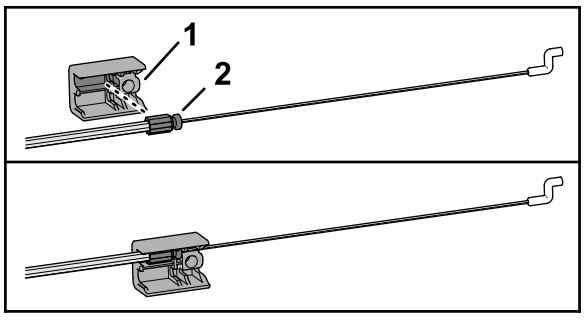


Figure 9

1. Handlebar fitting
2. Fitting (cable sheath)

2. Squeeze the leg of the operator-presence bail until you can remove it from the upper handlebar, and remove the bail from the machine (Figure 10).

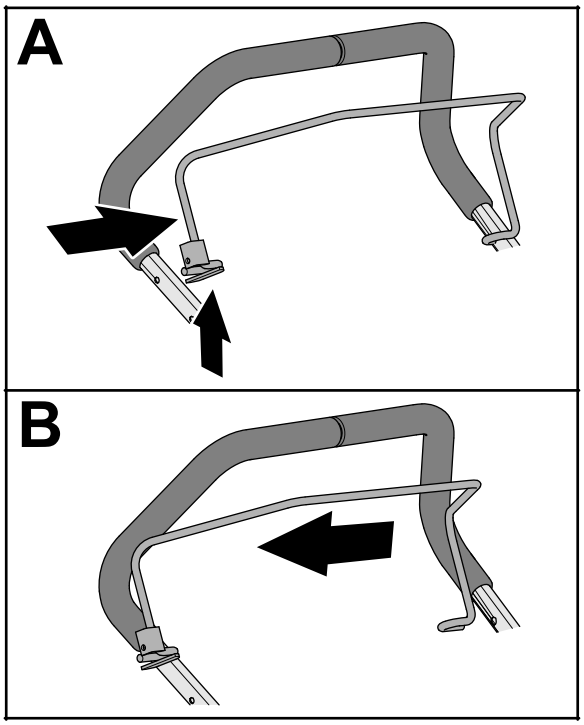


Figure 10

3. Insert the cable fitting through the hole in the bracket of the operator-presence bail as shown in Figure 11.

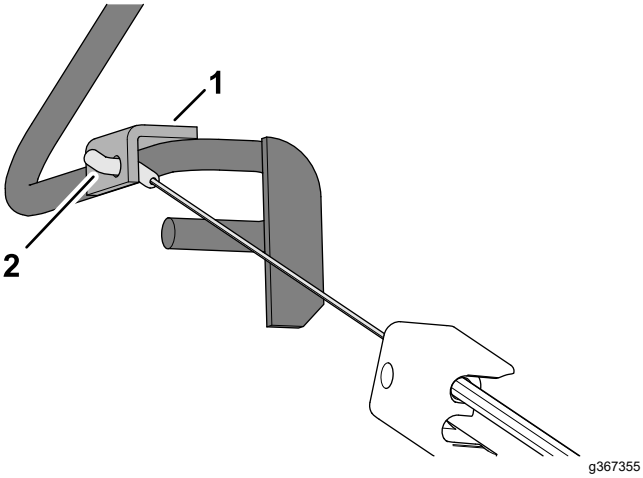
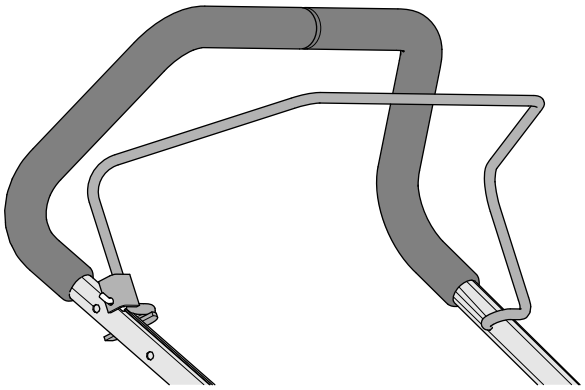


Figure 11

1. Bracket (operator-presence bail)
2. Cable fitting

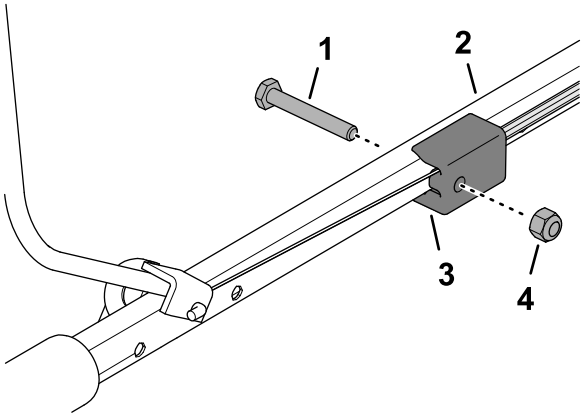
4. Insert the end of the operator-presence bail into the handlebar, squeeze the other leg of bail slightly, and insert the bail into the handlebar (Figure 13).



g367358

Figure 12

5. Secure the handlebar fitting to the upper handlebar (Figure 14) with the bolt (1/4 x 1-3/4 inches) and locknut (1/4 inch).



g367354

Figure 13

1. Bolt (1/4 x 1-3/4 inches)
2. Upper handlebar
3. Handlebar fitting
4. Locknut (1/4 inch)

3

Adding Oil to the Engine

No Parts Required

Procedure

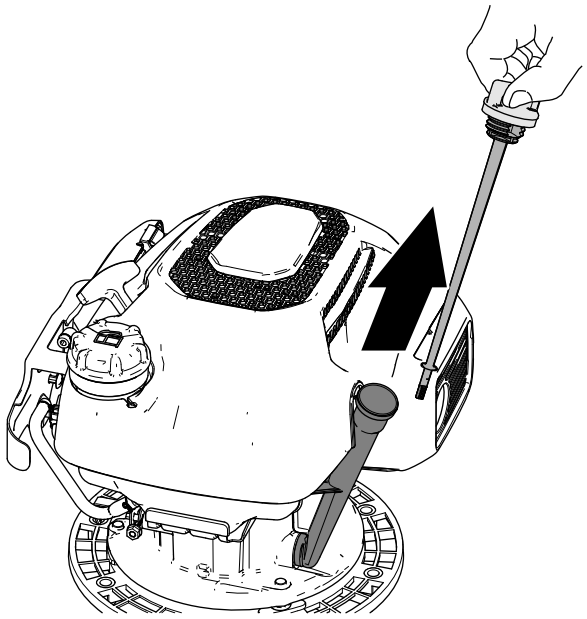
Important: **Your machine does not come with oil in the engine. Before starting the engine, add oil to the engine.**

API Service Classification: SJ or higher

Oil Viscosity: 10W-30 oil

Oil Capacity: 0.40 L (13.5 oz)

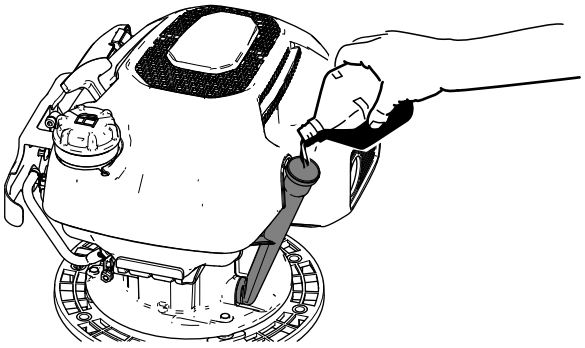
1. Move the machine to a level surface.
2. Remove the dipstick from the oil-filler neck and wipe the dipstick with a clean rag (Figure 14).



g364715

Figure 14

3. Slowly pour the specified engine oil into the oil-filler neck (Figure 15), and wait 3 minutes.

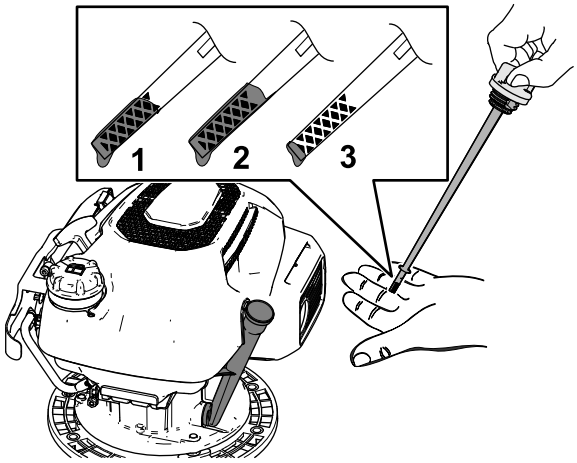


g364716

Figure 15

4. Insert the dipstick into the oil-filler neck, then remove the dipstick.
5. Check the oil level on the dipstick (Figure 16).

   Note: If you overfill the engine with oil, drain the excess oil; refer to Draining the Engine Oil (page 20).



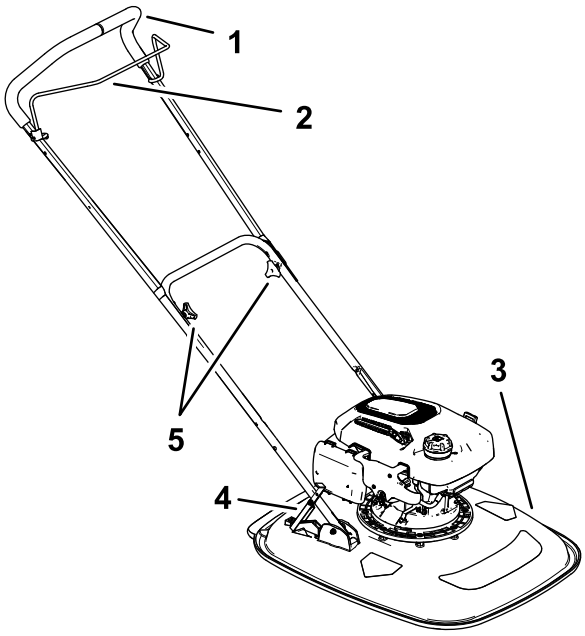
g364717

Figure 16

1. The oil level is at its maximum.
2. The oil level is too high—remove oil from the crankcase.
3. The oil level is too low—add oil to the crankcase.

6. If the oil level is below the upper limit, wipe the dipstick with a clean rag and repeat steps 3 through 5 until the engine-oil level is at the upper limit mark.
7. Insert the dipstick into the oil-filler neck and hand tighten the dipstick securely.

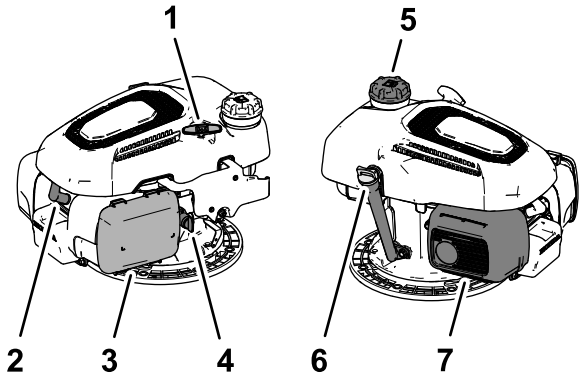
Product Overview



g364714

Figure 17

1. Handlebar
2. Operator-presence bail
3. Mower deck
4. Handlebar footstop
5. Handlebar knob



g364713

Figure 18

1. Recoil-starter grip
2. Spark plug
3. Air cleaner
4. Fuel-shutoff valve
5. Fuel cap
6. Dipstick
7. Muffler guard

Controls

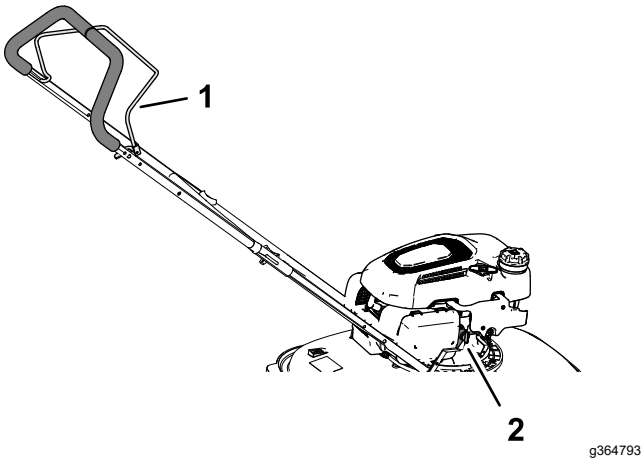


Figure 19

1. Operator-presence bail
2. Fuel-shutoff valve

Operator-Presence Bail

The operator-presence bail (Figure 19) controls the flywheel brake and ignition of the engine.

- Squeeze the bail to the handlebar to run the engine.
- Release the bail to the handlebar to shut off the engine.

Fuel-Shutoff Valve

Use the fuel-shutoff valve (Figure 19) to control the flow of fuel to the engine.

- Close the fuel-shutoff valve when you transport, maintain, or store the machine.
- Open the fuel-shutoff valve to run the engine.

Specifications

Model	Cutting width	Product width
02616	457 mm (18 inches)	574 mm (22 5/8 inches)

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 authorized Toro distributor or go to www.https://www.toro.com/en-GB for a list of all approved attachments and accessories.

To ensure optimum performance and continued safety certification of the machine, 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.

Operation

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

Before Operation

Before Operation Safety

General Safety

- Shut off the engine, remove the key (if equipped), and wait for all movement to stop before you leave the operator's position. Allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Become familiar with the safe operation of the equipment, operator controls, and safety signs.
- Check that all guards and safety devices are in place and working properly.
- Always inspect the machine to ensure that the cutting disc, bolt, spacers and retainer are not worn or damaged.
- Inspect the area where you will use the machine and remove all objects that could interfere with the operation of the machine or that the machine could throw.
- Adjusting the cutting height may bring you into contact with the moving cutting disc, causing serious injury.
- Replace a faulty muffler.

Fuel Safety

- **Fuel is extremely flammable and highly explosive.** A fire or explosion from fuel can burn you and others and can damage property.
  - To prevent a static charge from igniting the fuel, place the container and/or machine directly on the ground before filling, not in a vehicle or on an object.
  - Add or drain fuel to the fuel tank outdoors, in an open area, when the engine is cold. Wipe up any fuel that spills.
  - Fill the fuel tank outdoors, in an open area, when the engine is cold. Wipe up any fuel that spills.
  - Do not handle fuel when smoking or around an open flame or sparks.
  - Do not remove the fuel cap or add fuel to the tank while the engine is running or hot.
  - If you spill fuel, do not attempt to start the engine. Avoid creating a source of ignition until the fuel vapors have dissipated.
  - Store fuel in an approved container and keep it out of the reach of children.
  - Replace the cap on the fuel tank and all fuel containers securely.
- Fuel is harmful or fatal if swallowed. Long-term exposure to vapors can cause serious injury and illness.
  - Avoid prolonged breathing of vapors.
  - Keep your hands and face away from the nozzle and the fuel-tank opening.
  - Keep fuel away from your eyes and skin.

Fuel Specification

Type	Unleaded gasoline
Minimum octane rating	87 (US) or 91 (research octane; outside the US)
Ethanol	No more than 10% by volume
Methanol	None
MTBE (methyl tertiary butyl ether)	Less than 15% by volume
Oil	Do not add to the fuel

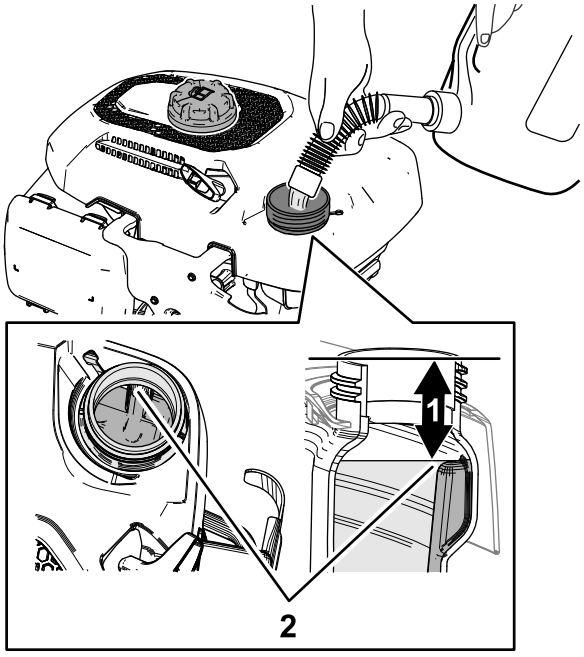
Use only clean, fresh (no more than 30 days old), fuel from a reputable source.

Important: **To reduce starting problems, add fuel stabilizer/conditioner to fresh fuel as directed by the fuel-stabilizer/conditioner manufacturer.**

Filling the Fuel Tank

Note: Refer to your engine owner's manual for additional information.

1. Clean around the fuel-tank cap and remove the cap from the tank.
2. Fill the fuel tank with the specified fuel as shown in Figure 20.



g364718

Figure 20

1. 53 mm (2 inches)
2. Upper fuel level

3. Install the cap to the fuel tank.

Checking the Engine Oil Level

Refer to Checking the Engine-Oil Level (page 20).

During Operation

During Operation Safety

General Safety

- Wear appropriate clothing, including eye protection; long pants; substantial, slip-resistant footwear; and hearing protection. Tie back long hair and do not wear loose clothing or loose jewelry.
- Use your full attention while operating the machine. Do not engage in any activity that causes distractions; otherwise, injury or property damage may occur.
- Do not operate the machine while ill, tired, or under the influence of alcohol or drugs.
- Disengage the cutting disc and all drive clutches before staring the engine.
- Start the engine according to the instructions and with your feet well away from the cutting disc.
- Do not tilt the machine more than necessary to start the engine, and lift only the part that is away from you.
- Shut off the engine, remove the key (if equipped), and wait for all movement to stop before you leave the operator's position. Allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- When you release the operator-presence control, the engine should shut off and the cutting disc should stop within 3 seconds. If not, stop using your machine immediately and contact an Authorized Service Dealer.
- Keep bystanders, especially children and pets, out of the operating area. Keep small children out of the operating area and under the watchful care of a responsible adult who is not operating the machine. Stop the machine if anyone enters the area.
- Operate the machine only in good visibility and appropriate weather conditions. Do not operate the machine when there is the risk of lightning.
- Wet grass or leaves can cause serious injury if you slip and contact the cutting disc. Avoid mowing in wet conditions if possible.
- Use extreme care when approaching blind corners, shrubs, trees, or other objects that may block your view.
- Watch for holes, ruts, bumps, rocks, or other hidden objects. Uneven terrain could cause you to lose your balance or footing.
- If the machine strikes an object or starts to vibrate, immediately shut off the engine, wait for all moving parts to stop, and disconnect the wire from the spark plug before examining the machine for damage. Make all necessary repairs before resuming operation.
- Never pick up or carry the machine while the engine is running.
- If the engine has been running, it will be hot and can severely burn you. Keep away from the hot engine.
- Engine exhaust contains carbon monoxide, which is lethal if inhaled. Do not run the engine indoors or in an enclosed area.
- Use accessories and attachments approved by Toro only.

Slope Safety

- Slopes are a major factor related to loss of control accidents, which can result in severe injury or death. You are responsible for safe slope operation. Operating the machine on any slope

requires extra caution. Before using the machine on a slope, do the following:

  – Review and understand the slope instructions in the manual.
  – Evaluate the site conditions of the day to determine if the slope is safe for machine operation. Use common sense and good judgment when performing this evaluation. Changes in the terrain, such as moisture, can quickly affect the operation of the machine on a slope.

- Always be sure of your footing, and keep a firm hold on the handles. Walk; never run.
- Trim across the face of slopes, never up and down.
- Exercise extreme caution when changing direction on slopes.
- Do not trim on steep slopes.
- Use extreme caution when reversing or pulling the machine toward you.
- Avoid mowing on wet grass. Poor footing could cause a slip-and-fall accident.
- Remove or mark obstacles such as ditches, holes, ruts, bumps, rocks, or other hidden hazards. Tall grass can hide obstacles.
- Mow with caution near drop-offs, ditches, or embankments.
- When using the machine, always keep both hands on the handle.
- When cutting from the top of a slope and you need a longer reach, use an approved extended handle.

Fuel Shutoff Valve

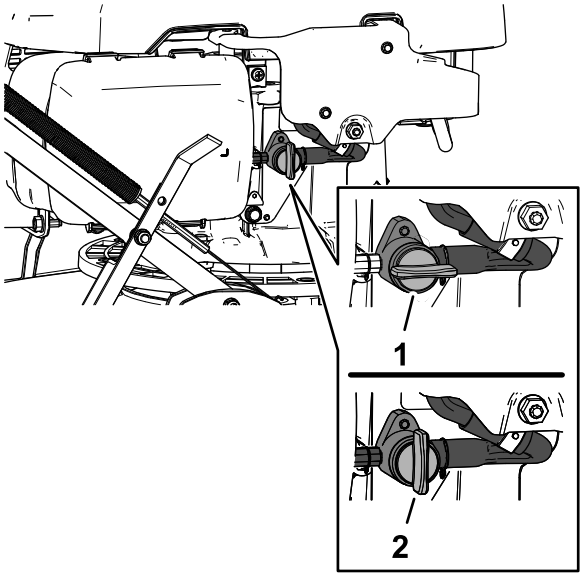


Figure 21

1. Open (fuel shutoff valve)
2. Closed (fuel shutoff valve)

- Rotate the handle of the fuel shutoff valve horizontal to open the valve.
- Rotate the handle of the fuel shutoff valve vertical to close the valve.

Starting the Engine

1. Open the fuel-shutoff valve; refer to Fuel Shutoff Valve (page 13).
2. Close the operator-presence bail against the handlebar.

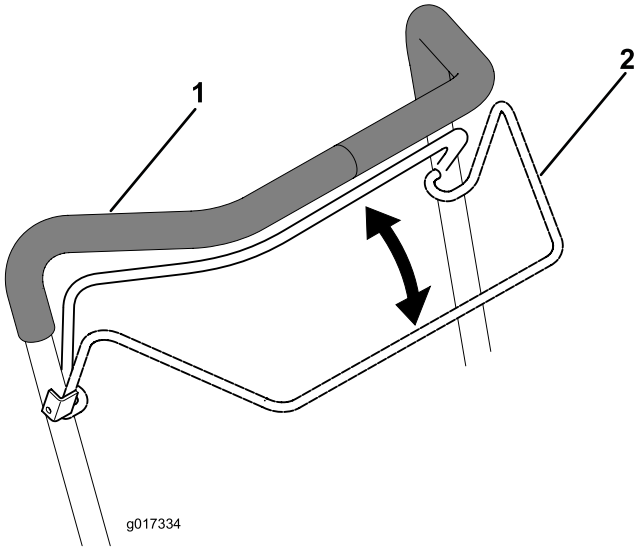


Figure 22

1. Handlebar
2. Operator-presence bail

3. Place your foot on the deck and tilt the machine toward you (Figure 23).



Figure 23

4. While holding the operator-presence bail, pull the recoil-starter grip.

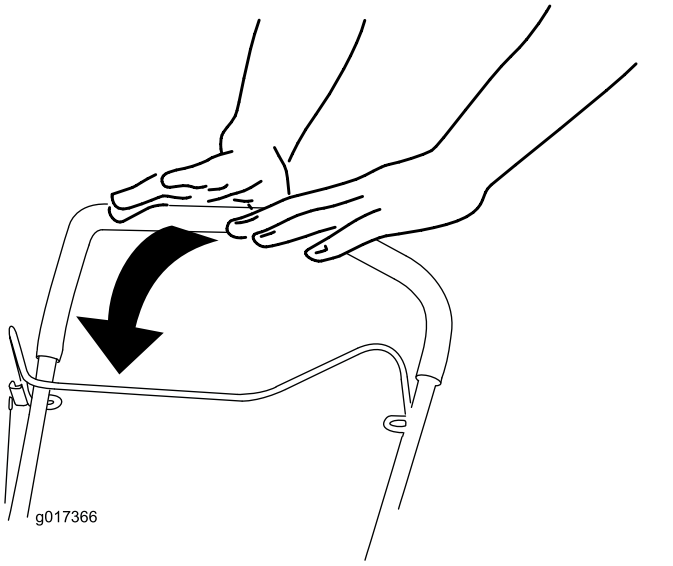
   Note: If the machine does not start after several attempts, contact an Authorized Service Dealer or authorized Toro distributor.

Shutting Off the Engine

Service Interval: Before each use or daily

To shut off the engine, release the operator-presence bail (Figure 24).

Important: **When you release the operator-presence bail, both the engine and cutting disc should stop within 3 seconds. If they do not stop properly, stop using your machine immediately and contact an Authorized Service Dealer or authorized Toro distributor.**



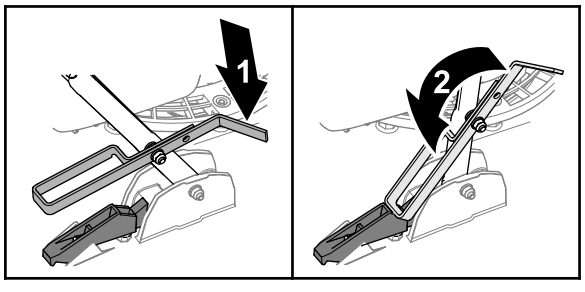
g017366

Figure 24

Supporting the Handlebar with the Footstop

Handlebar Assembled in the Lower Position

Note: If you assembled to the low-handlebar position 103.4 cm (40-3/4 inches), use the footstop to support the handlebar in the vertical position



g367257

Figure 25

1. Footstop rotated forward
2. Footstop rotated rearward

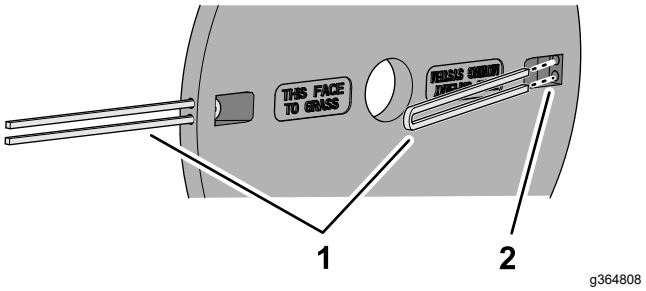
- To release the handlebar, lift the handlebar and rotate the footstop forward (Figure 25).
- To support the handlebar, position the handlebar and rotate the footstop rearward.

Replacing the Cutting Line

Service Interval: Yearly

Examine the cutting disc assembly whenever you replace the cutting line. If the cutting disc assembly is damaged, replace it immediately.

1. Remove the cutting disk, refer to Removing the Cutting Disk (page 15).
2. Replace the existing cutting lines with 2 equal lengths of new cutting line as shown in Figure 26.



g364808

Figure 26

1. Cutting line
2. Holes (cutting disc)

3. Install the cutting disk; refer to Installing the Cutting Disk (page 15).

Adjusting the Cutting Height

⚠ WARNING

Adjusting the cutting height may bring you into contact with the cutting disc, causing serious injury.

- **Shut off the engine and wait for all moving parts to stop.**
- **Wear protective gloves while handling the cutting disc.**

⚠ CAUTION

If the engine has been running, the muffler will be hot and can severely burn you.

Keep away from the hot muffler.

Examine the cutting disc assembly whenever you adjust the cutting height. If the cutting disc assembly is damaged, replace it immediately.

1. Remove the cutting disk; refer to Removing the Cutting Disk (page 15).
2. Change the position of the spacers to adjust the cutting height as shown in (Figure 27).

   Note: Each spacer changes the cutting height 6.3 mm (1/4 inch).

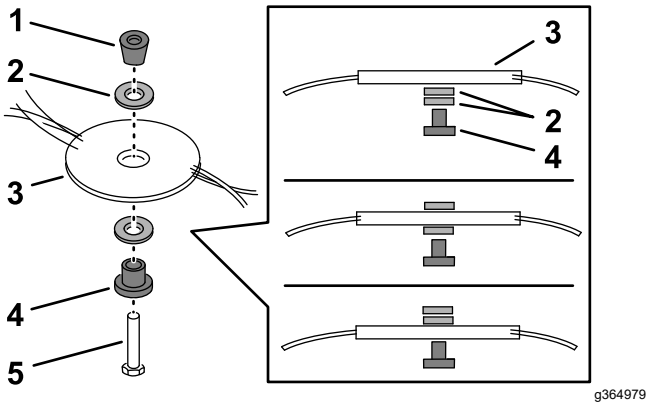


Figure 27

1. Conical spacer
2. Spacers
3. Cutting disc
4. Retainer
5. Bolt

3. Install the cutting disk; refer to Installing the Cutting Disk (page 15).

Removing the Cutting Disk

Examine the cutting disc assembly whenever you remove the cutting disk. If the cutting disc assembly is damaged, replace it immediately.

1. Close the fuel-shutoff valve; refer to Fuel-Shutoff Valve (page 10).
2. Disconnect the wire from the spark plug.
3. Tip the machine on its side, with the dipstick down.

   Important: **Always tip the machine onto its side with the dipstick aligned down. If the machine is tipped in another direction, oil may fill the valve train—requiring at least 30 minutes to drain.**

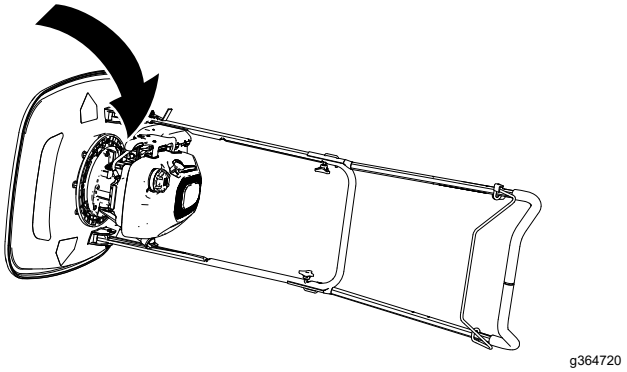


Figure 28

4. Record the position of the spacers.

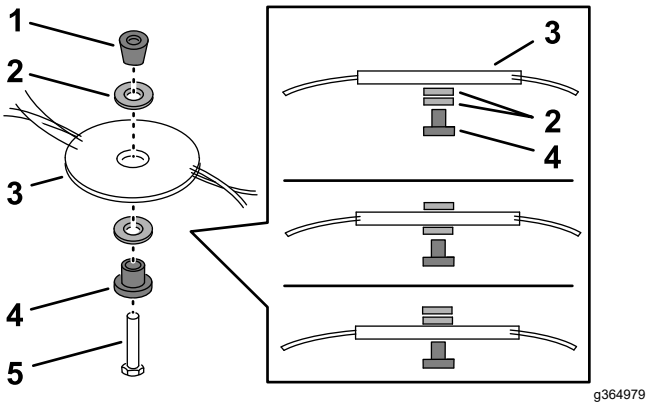


Figure 29

1. Conical spacer
2. Spacers
3. Cutting disc
4. Retainer
5. Bolt

5. Use the wrench provided with the machine to remove the cutting disc by turning the bolt counterclockwise (Figure 29), saving all the mounting hardware.

   Important: **Wear safety glasses and cut resistant gloves when removing the cutting disc.**

Installing the Cutting Disk

Important: ***You will need a torque wrench to install the cutting disc assembly properly*****. If you do not have a torque wrench or are uncomfortable performing this procedure, contact an Authorized Service Dealer or authorized Toro distributor.**

1. Assemble the retainer, cutting disc, spacers, and conical spacer to the impeller with the bolt (Figure 30).

   Important: **Always assemble the conical spacer directly below the impeller and the retainer under the head of the bolt.**

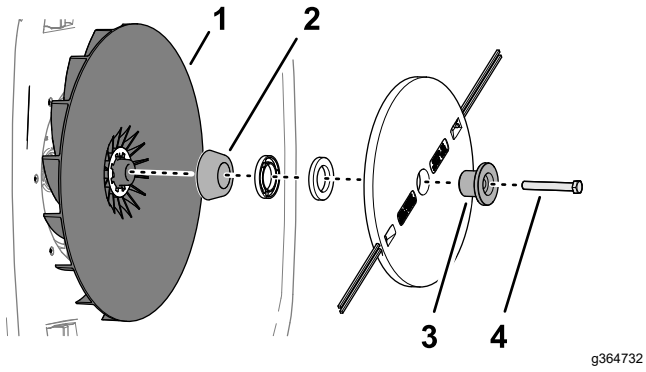


Figure 30

1. Impeller
2. Conical spacer
3. Retainer
4. Bolt

2. Torque the bolt to 25 N·m (18 ft-lb).

   Note: A bolt torqued to 25 N·m (18 ft-lb) is very tight. While holding the impeller, put your weight behind the torque wrench, and tighten the bolt.

3. Tip the machine upright, connect the spark-plug wire to the spark plug, and open the fuel-shutoff valve.

Operating Tips

General Mowing Tips

- Place the hoop of the footstop under the upstop to increase handling of the machine.

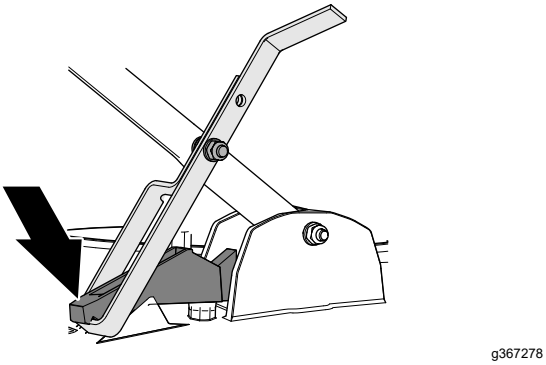


Figure 31

- Inspect the area where you will use the machine and remove all objects that the machine could throw.
- Avoid striking solid objects with the cutting line. Never deliberately mow over any object.
- If the machine strikes an object or starts to vibrate, immediately shut off the engine, disconnect the wire from the spark plug, and examine the machine for damage.
- For best performance, install new cutting lines before the cutting season begins.
- Replace the cutting line as needed with a Toro replacement cutting line.
- Ensure that the replacement cutting line is the same length as the intact cutting line.

Cutting Grass

- Cut only about a third of the grass blade at a time. Do not cut below the highest setting (30 mm or 1-1/4 inches) unless the grass is sparse, or it is late fall when grass growth begins to slow down; refer to Adjusting the Cutting Height (page 14).
- Do not mow grass over 15 cm (6 inches) long because the machine may plug or the engine may stall.
- Wet grass and leaves tend to clump on the yard and can cause the machine to plug or the engine to stall. Mow only in dry conditions if possible.

⚠ WARNING

Wet grass or leaves can cause serious injury if you slip and contact the cutting line.

Mow only in dry conditions if possible.

- Be aware of a potential fire hazard in very dry conditions, follow all local fire warnings, and keep the machine free of dry grass and leaf debris.
- If the finished lawn appearance is unsatisfactory, try 1 or more of the following:
  - Inspect the cutting unit and/or replace the cutting line.
  - Walk at a slower pace while mowing.
  - Raise the cutting height on your machine.
  - Cut the grass more frequently.
  - Overlap cutting swaths instead of cutting a full swath with each pass.

Cutting Leaves

- After cutting the lawn, ensure that half of the lawn shows through the cut leaf cover. You may need to make more than a single pass over the leaves.
- Mowing grass over 15 cm (6 inches) in length is not recommended. If the leaf cover is too thick, the machine may plug and cause the engine to stall.
- Slow down your mowing speed if the machine does not cut the leaves finely enough.

After Operation

After Operation Safety

General Safety

- Shut off the engine, remove the key (if equipped), and wait for all movement to stop before you leave the operator's position. Allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Clean grass and debris from the machine to help prevent fires. Clean up oil or fuel spills.
- 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.

Hauling Safety

- Secure the machine.
- Use care when loading and unloading the machine.

Cleaning the Machine

Service Interval: After each use

⚠ WARNING

The machine may dislodge material from under the machine housing.

- **Wear eye protection.**
- **Stay in the operating position (behind the handle).**
- **Do not allow bystanders in the area.**

1. Tip the machine on its side, with the dipstick down.

   Important: **Always tip the machine onto its side with the dipstick aligned down. If the machine is tipped in another direction, oil may fill the valve train—requiring at least 30 minutes to drain.**

2. Use a brush or compressed air to remove grass and debris from the exhaust guard, the top cowl, and the surrounding deck areas.
3. Clean the cooling system; remove grass clippings, debris, or dirt from the engine air cooling fins and starter.

   Note: Clean the cooling system more frequently in dirty or high-chaff conditions.

Maintenance

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

Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
After the first 5 hours	• Change the engine oil.
Before each use or daily	• Ensure that the engine shuts off within 3 seconds after releasing the operator-presence bail. • Check the engine-oil level.
After each use	• Clean grass clippings and dirt from the entire machine.
Every 25 hours	• Change the engine oil.
Every 100 hours	• Check the spark plug and replace it if necessary.
Yearly	• Replace the cutting line. • Replace the air filter; replace it more frequently in dusty operating conditions.

Maintenance Safety

- Shut off the engine, remove the key (if equipped), and wait for all movement to stop before you leave the operator's position. Allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Disconnect the spark-plug wire from the spark plug before performing any maintenance procedure.
- Wear gloves and eye protection when servicing the machine.
- Examine the machine regularly and replace any worn or damaged parts. Use only the cutting elements that are suitable for use at the operating speed of the machine.
- Never tamper with safety devices. Check their proper operation regularly.
- Tipping the machine may cause the fuel to leak. Fuel is flammable and explosive, and can cause personal injury. Run the engine dry or remove the fuel with a hand pump; never siphon the fuel.
- Keep all fasteners tight to ensure that the machine is in safe working condition.
- Do not change the engine governor setting or overspeed the engine.
- To ensure optimum performance of the machine, 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.

Preparing for Maintenance

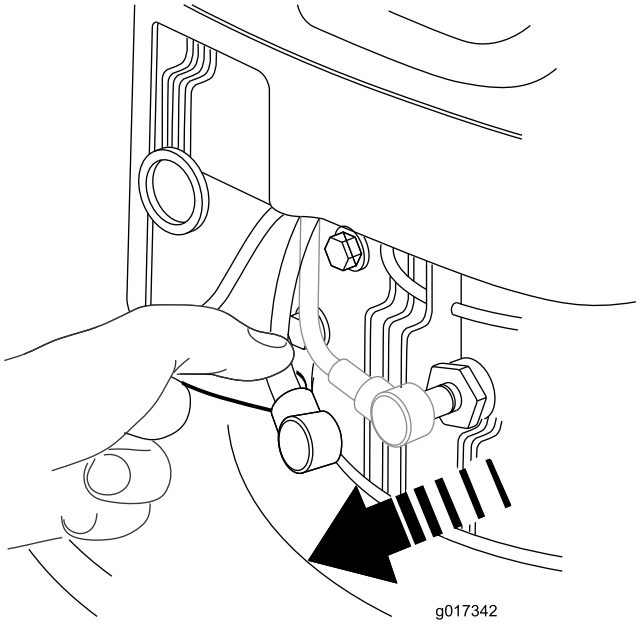
⚠ WARNING

Tipping the machine may cause the fuel to leak. Fuel is flammable, explosive and can cause personal injury.

Run the engine dry or remove the fuel with a hand pump; never siphon.

Important: **Always tip the machine onto its side with the dipstick aligned down. If the machine is tipped with the dipstick aligned up, oil may fill the valve train—requiring at least 30 minutes to drain.**

1. Shut off the engine and wait for all moving parts to stop.
2. Move the machine to a level surface.
3. Disconnect the spark-plug wire from the spark plug (Figure 32).



g017342

Figure 32

4. Close the fuel-shutoff valve; refer to Fuel Shutoff Valve (page 13).

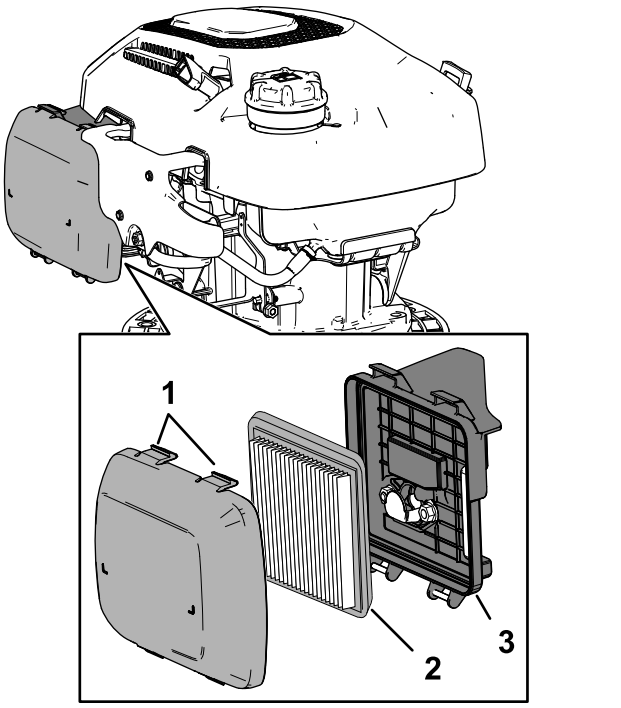
   Important: **If you are repairing the machine, empty the fuel tank.**

5. After performing the maintenance procedure(s), open the fuel valve and connect the spark-plug wire to the spark plug.

Replacing the Air Cleaner

Service Interval: Yearly

1. Press down on the latch tabs at top of the air-filter cover (Figure 33).



g364771

Figure 33

1. Latch tabs (air-filter cover)
2. Filter element
3. Air-filter base

2. Remove the cover.
3. Remove the filter element (Figure 33).
4. Inspect the paper air filter.
   A. If the filter damaged, wet with oil or fuel, and excessively dirty, replace it.
   B. If the filter is dirty, tap it on a hard surface several times or blow compressed air less than 207 kPa (30 psi) through the side of the filter that faces the engine.

   Note: Do not brush the dirt off the filter; brushing forces dirt into the fibers.
5. Clean the air-filter base and cover using a moist rag. **Do not wipe dirt into the air duct.**
6. Insert the filter into the filter base.
7. Install the cover.

Engine Oil Specification

API Service Classification: SJ or higher

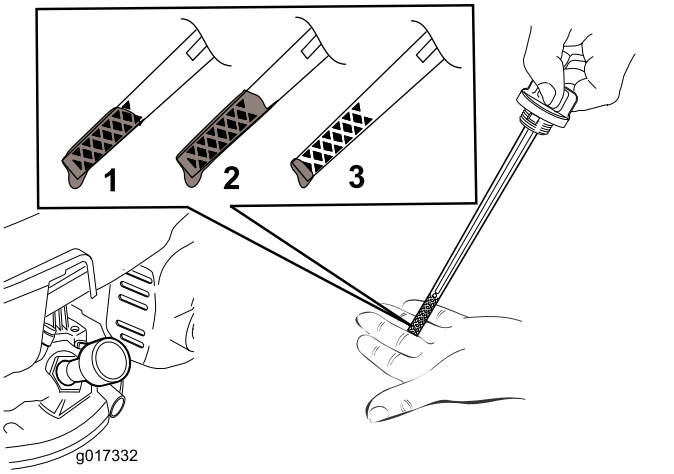
Oil Viscosity: 10W-30 oil

Checking the Engine-Oil Level

Service Interval: Before each use or daily

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 18).
2. Remove the dipstick from the oil-filler neck and wipe the dipstick with a clean rag.
3. Insert the dipstick into the oil-filler neck, then remove the dipstick.

   Important: **Do not thread the dipstick into the filler neck.**
4. Check the oil level on the dipstick.

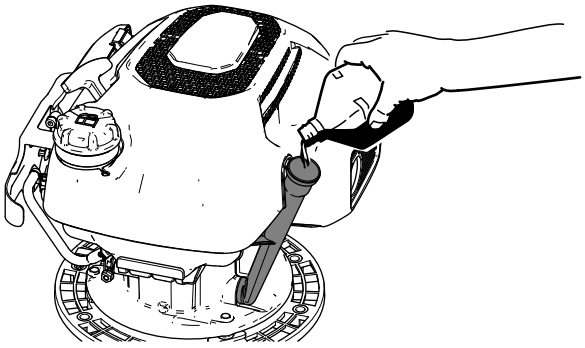


g017332

Figure 34

1. The oil level is at its maximum.
2. The oil level is too high—remove oil from the crankcase.
3. The oil level is too low—add oil to the crankcase.

5. If the oil level is near or below the lower limit mark on the dipstick (Figure 34), slowly pour the specified engine oil into the oil-filler neck (Figure 35) and wait 3 minutes.



g364716

Figure 35

6. Wipe the dipstick with a clean rag and repeat steps 3 through 5 until the engine-oil level is at the upper limit mark.
7. Insert the dipstick into the oil-filler neck and hand tighten the dipstick securely.

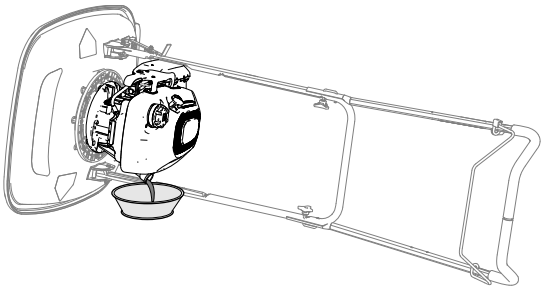
Changing the Engine Oil

Service Interval: After the first 5 hours

Every 25 hours

Draining the Engine Oil

1. If the engine is cold, run it 1 to 2 minutes to warm the oil.
2. Ensure that the fuel tank contains little or no fuel so that the fuel does not leak when you tip the machine onto its side.
3. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 18).
4. Remove the dipstick from the oil-filler neck and wipe the dipstick with a clean rag.
5. Align a drain pan next to the deck at the oil-filler neck side of the machine and on the ground (Figure 35).



g364772

Figure 36

6. Tip the machine onto its side with the oil-filler neck down to drain the oil out the filler neck.

   Important: **Always tip the machine onto its side with the dipstick aligned down. If the**

machine is tipped in another direction, oil may fill the valve train—requiring at least 30 minutes to drain.

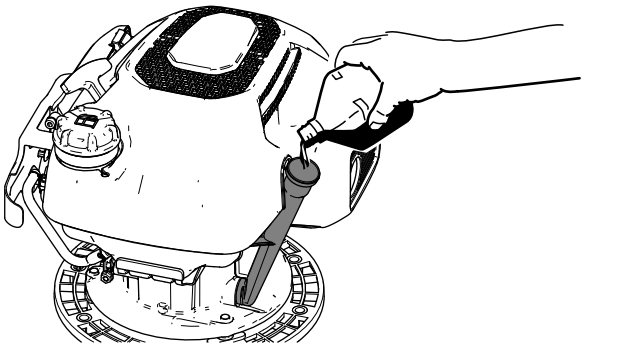
7. Return the machine to the operating position.
8. Clean spilled oil from the machine.

Note: Dispose of the used oil properly at a local recycling center.

Adding Oil to the Engine

Oil Capacity: 0.40 L (13.5 oz)

1. Slowly pour the specified engine oil into the oil-filler neck (Figure 35) and wait 3 minutes.



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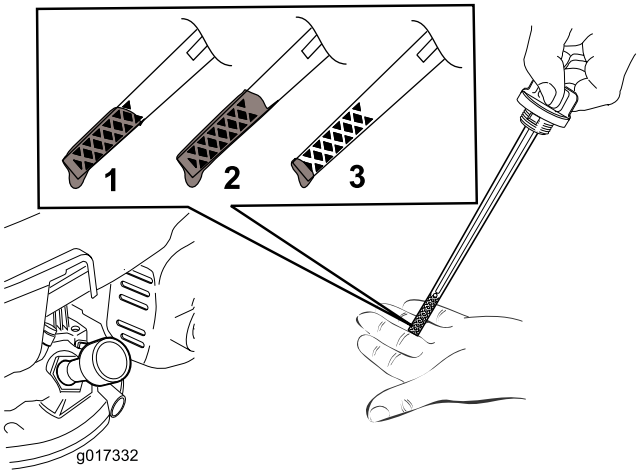
Figure 37

2. Insert the dipstick into the oil-filler neck, then remove the dipstick.

   Important: **Do not thread the dipstick into the filler neck.**

3. Check the oil level on the dipstick (Figure 38).

   Note: If you overfill the engine with oil, drain the excess oil; refer to Draining the Engine Oil (page 20).



g017332

Figure 38

1. The oil level is at its maximum.
2. The oil level is too high—remove oil from the crankcase.
3. The oil level is too low—add oil to the crankcase.

4. If the oil level is below the upper limit, wipe the dipstick with a clean rag and repeat steps 1 through 3 until the engine-oil level is at the upper limit mark.
5. Insert the dipstick into the oil-filler neck and hand tighten the dipstick securely.

Servicing the Spark Plug

Service Interval: Every 100 hours

Spark Plug Specification: Champion RN9YC or equivalent.

1. Prepare the machine for maintenance; refer to Preparing for Maintenance (page 18).
2. Clean around the spark plug.
3. Remove the spark plug from the cylinder head.

   Important: **Replace a worn, damaged, or dirty spark plug. Do not clean the electrodes because grit entering the cylinder can damage the engine.**

4. Adjust the air gap (Figure 39) between the center electrode and side electrode to 0.76 mm (0.030 inch).

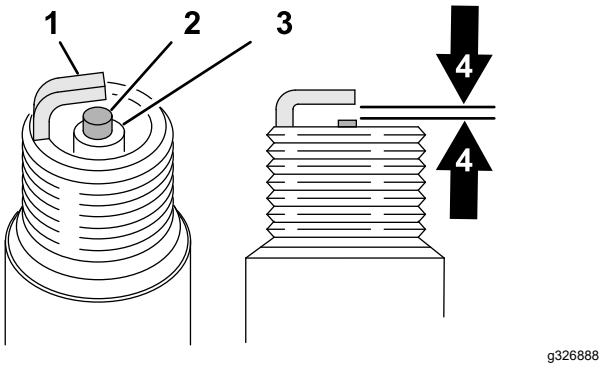


Figure 39

1. Center-electrode insulator
2. Side electrode
3. Insulator
4. Air gap—0.76 mm (0.030 inch)

5. Install the spark plug and gasket.
6. Torque the plug to 20 N·m (15 ft-lb).
7. Connect the wire to the spark plug.

Storage

Storage Safety

- Shut off the engine, remove the key (if equipped), and wait for all movement to stop before you leave the operator's position. Allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Allow the engine to cool before storing the machine in any enclosure.
- Allow the engine to cool before storing the machine in any enclosure.
- 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.
- Remove grass, leaves, and debris from the muffler and engine compartment to help prevent fires.

Preparing the Machine for Storage

⚠ WARNING

Fuel vapors can explode.

- **Do not store fuel more than 30 days.**
- **Do not store the machine in an enclosure near an open flame.**
- **Allow the engine to cool before storing it.**

1. On the last refueling of the year, add fuel stabilizer to the fuel as directed by the engine manufacturer.
2. Run the machine until the engine shuts off from running out of fuel.
3. Start the engine again and allow it to run until it shuts off. When you can no longer start the engine, the fuel system is empty.
4. Disconnect the wire from the spark plug.
5. Remove the spark plug, add 30 ml (1 fl oz) of oil through the spark-plug hole, and pull the recoil-starter grip slowly several times to distribute oil throughout the cylinder.
6. Install the spark plug and torque it to 20 N·m (15 ft-lb).
7. Check the cutting disk for wear or damage. If the cutting disk is damaged or the trim line is worn, replace it.
8. Tighten all nuts, bolts, and screws.
9. Store the machine in a cool, clean, dry place.

Troubleshooting

Problem	Possible Cause	Corrective Action
The engine does not start.	1. The wire is not connected to the spark plug. 2. The hole in the fuel-cap vent is plugged. 3. The spark plug is pitted, fouled, or the gap is incorrect. 4. The fuel tank is empty or the fuel system contains stale fuel.	1. Connect the wire to the spark plug. 2. Clean the hole in the fuel-cap vent or replace the fuel cap. 3. Check the spark plug and adjust the gap if necessary. Replace the spark plug if it is pitted, fouled, or cracked. 4. Drain and/or fill the fuel tank with fresh gasoline. If the problem persists, contact an Authorized Service Dealer or authorized Toro distributor.
The engine starts hard or loses power.	1. The hole in the fuel-cap vent is plugged. 2. The air filter element is dirty and is restricting the air flow. 3. The underside of the machine housing contains clippings and debris. 4. The spark plug is pitted, fouled, or the gap is incorrect. 5. The engine oil level is too low, too high, or excessively dirty. 6. The fuel tank contains stale fuel.	1. Clean the hole in the fuel cap vent or replace the fuel cap. 2. Clean the air filter pre-cleaner and/or replace the paper air filter. 3. Clean under the machine housing. 4. Check the spark plug and adjust the gap if necessary. Replace the spark plug if it is pitted, fouled, or cracked. 5. Check the engine oil. Change the oil if it is dirty; add or drain the oil to adjust the oil level to the Full mark on the dipstick. 6. Drain and fill the fuel tank with fresh gasoline.
The engine runs rough.	1. The wire is not connected to the spark plug. 2. The spark plug is pitted, fouled, or the gap is incorrect. 3. The air filter element is dirty and is restricting the air flow.	1. Connect the wire to the spark plug. 2. Check the spark plug and adjust the gap if necessary. Replace the spark plug if it is pitted, fouled, or cracked. 3. Clean the air filter pre-cleaner and/or replace the paper air filter.
The machine or engine vibrates excessively.	1. The underside of the machine housing contains clippings and debris. 2. The engine mounting bolts are loose. 3. The cutting unit bolt is loose.	1. Clean under the machine housing. 2. Tighten the engine mounting bolts. 3. Tighten the cutting unit bolt.
There is an uneven cutting pattern.	1. You are cutting in the same pattern repeatedly. 2. The underside of the machine housing contains clippings and debris.	1. Change the cutting pattern. 2. Clean under the machine housing.

The Toro Warranty

Two-Year or 1,500 Hours Limited Warranty

Conditions and Products Covered

The Toro Company warrants your Toro Commercial product (“Product”) to be free from defects in materials or workmanship for 2 years or 1,500 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
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*. Repairs for product issues caused by failure to perform required maintenance and adjustments are not covered under this warranty.

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.
- Product failures which result from failure to perform recommended maintenance and/or adjustments.
- Product failures which result from operating the Product in an abusive, negligent, or reckless manner.
- Parts consumed through use that are not 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, flow meters, and check valves.
- Failures caused by outside influence, including, but not limited to, weather, storage practices, contamination, use of unapproved fuels, coolants, lubricants, additives, fertilizers, water, or chemicals.
- 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.

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.
Note: (Lithium-Ion battery only): Refer to the battery warranty for additional information.

Lifetime Crankshaft Warranty (ProStripe 02657 Model Only)

The Prostripe which is fitted with a genuine Toro Friction Disc and Crank-Safe Blade Brake Clutch (integrated Blade Brake Clutch (BBC) + Friction Disc assembly) as original equipment and used by the original purchaser in accordance with recommended operating and maintenance procedures, are covered by a Lifetime Warranty against engine crankshaft bending. Machines fitted with friction washers, Blade Brake Clutch (BBC) units and other such devices are not covered by the Lifetime Crankshaft Warranty.

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.

The Toro Company is not 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 Emissions 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.

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 your Authorized Toro Service Center.