



**Count on it.**

# Operator's Manual

## Commercial 53cm Lawn Mower

Model No. 22186TE—Serial No. 311000001 and Up



g015175

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



Figure 2

1. Safety alert symbol

Introduction

This rotary-blade, walk-behind lawn mower is intended to be used by residential homeowners or professional, hired operators. It is designed primarily for cutting grass on well-maintained lawns on residential or commercial properties. It is not designed for cutting brush or for agricultural uses.

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

You may contact Toro directly at [www.Toro.com](http://www.Toro.com) for machine and accessory information, help finding a dealer, or to register your machine.

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 machine ready. Figure 1 identifies the location of the model and serial numbers on the machine. Write the numbers in the space provided.

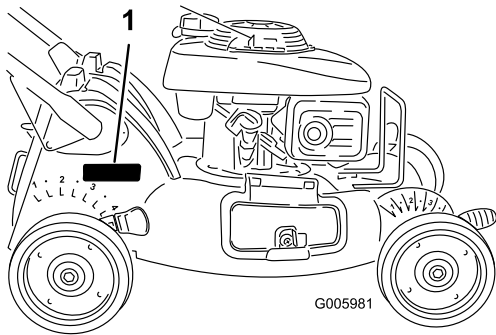


Figure 1

1. Model and serial number location

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.

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

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# Safety

**Improperly using or maintaining this machine can result in injury. To reduce the potential for injury, comply with these safety instructions.**

Toro designed and tested this machine for reasonably safe service; however, failure to comply with the following instructions may result in personal injury.

**To ensure maximum safety, best performance, and to gain knowledge of the machine, it is essential that you and any other operator of the machine read and understand the contents of this manual before the engine is ever started. Pay particular attention to the safety alert symbol (Figure 2) which means Caution, Warning, or Danger—“personal safety instruction.” Read and understand the instruction because it has to do with safety. Failure to comply with the instruction may result in personal injury.**

## General Safety

The following instructions have been adapted from the ISO standard 5395.

This cutting machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

## Training

- Read the instructions carefully. Be familiar with the controls and the proper use of the machine.
- Never allow children or people unfamiliar with these instructions to use the machine. Local regulations can restrict the age of the operator.
- Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.
- Understand explanations for all pictograms used on the machine or in the instructions.

## Gasoline

**WARNING**-Gasoline is highly flammable. Take the following precautions.

- Store fuel in containers specifically designed for this purpose.
- Refuel outdoors only and do not smoke while refueling.
- Add fuel before starting the engine. Never remove the cap of the fuel tank or add gasoline while the engine is running or when the engine is hot.

- If gasoline is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until gasoline vapors have dissipated.
- Replace all fuel tank and container caps securely.

## Preparation

- While mowing, always wear substantial footwear and long trousers. Do not operate the machine when barefoot or wearing open sandals.
- Thoroughly inspect the area where the machine is to be used and remove all stones, sticks, wires, bones and other foreign objects.
- Before using, always visually inspect to see that guards, and safety devices, such as deflectors and/or grass catchers, are in place and working correctly.
- Before using, always visually inspect to see that the blades, blade bolts and cutter assembly are not worn or damaged. Replace worn or damaged blades and bolts in sets to preserve balance.

## Starting

- Disengage all blade and drive clutches and shift into neutral before starting the engine.
- Do not tilt the machine when starting the engine or switching on the motor, unless the machine has to be tilted for starting. In this case, do not tilt it more than absolutely necessary and lift only the part, which is away from the operator.
- Start the engine or switch on the motor carefully according to instructions and with feet well away from the blade(s) and not in front of the discharge chute.

## Operation

- Never mow while people, especially children, or pets are nearby.
- Mow only in daylight or in good artificial light.
- Avoid operating the machine in wet grass, where feasible.
- Stay alert for holes in the terrain and other hidden hazards.
- Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.
- Never pick up or carry a machine while the engine is running.
- Use extreme caution when reversing or pulling a pedestrian controlled machine towards you.
- Walk, never run.
- Slopes:

- Do not mow excessively steep slopes.
- Exercise extreme caution when on slopes.
- Mow across the face of slopes, never up and down and exercise extreme caution when changing direction on slopes.
- Always be sure of your footing on slopes.

- Use low throttle settings when engaging the traction-clutch, especially in high gears. Reduce speed on slopes and in sharp turns to prevent overturning or loss of control.
- Stop the blade if the machine has to be tilted for transportation when crossing surfaces other than grass and when transporting the machine to and from the area to be mowed.
- Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.
- Stop the engine
  - whenever you leave the machine.
  - before refueling.
  - before removing the grass catcher.
  - before making height adjustment unless adjustment can be made from the operator's position.
- Stop the engine and disconnect the spark-plug wire.
  - before clearing blockages or unclogging chute.
  - before checking, cleaning or working on the machine.
  - after striking a foreign object, inspect the machine for damage and make repairs before restarting and operating the machine.
  - if the machine starts to vibrate abnormally (check immediately).
- Reduce the throttle setting during engine shut down, and close the fuel valve at the conclusion of mowing.
- Lightning can cause severe injury or death. If you see lightning or hear thunder in the area, do not operate the machine; seek shelter.
- Watch out for traffic when crossing or near roadways.

## Maintenance and Storage

- Keep all nuts, bolts and screws tight to be sure the machine is in safe working condition.
- Do not use pressure cleaning machine on machine.
- Never store the machine with gasoline in the tank and inside a building where fumes can reach an open flame or spark.
- Allow the engine to cool before storing in any enclosure.

- To reduce the fire hazard, keep the engine, silencer, battery compartment and gasoline storage free of grass, leaves, or excessive grease.
- Check grass catcher components and the discharge guard frequently and replace with manufacturer's recommended parts, when necessary.
- Replace worn or damaged parts for safety.
- Replace faulty silencers.
- If the fuel tank has to be drained, do this outdoors.
- Do not change the engine governor settings or overspeed the engine. Operating an engine at excessive speed can increase the hazard of personal injury.
- Be careful during adjustment of the machine to prevent entrapment of the fingers between moving blades and fixed parts of the machine.
- **To ensure the best performance and safety, purchase only genuine Toro replacement parts and accessories. Do not use *will fit* parts and accessories; they may cause a safety hazard.**

## Sound Pressure

This unit has a sound pressure level at the operator's ear of 90 dBA, which includes an Uncertainty Value (K) of 1 dBA. The sound pressure level was determined according to the procedures outlined in EN 836.

## Sound Power

This unit has a guaranteed sound power level of 98 dBA, which includes an Uncertainty Value (K) of 1 dBA. The sound power level was determined according to the procedures outlined in ISO 11094.

## Hand-Arm Vibration

Measured vibration level for the left hand = 4.0 m/s<sup>2</sup>

Measured vibration level for the right hand = 5.8 m/s<sup>2</sup>

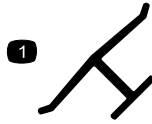
Uncertainty Value (K) = 2.3 m/s<sup>2</sup>

The measured values were determined according to the procedures outlined in EN 836.

# Safety and Instructional Decals

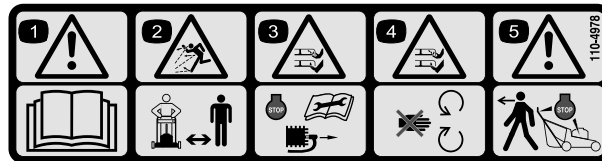


Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or lost.



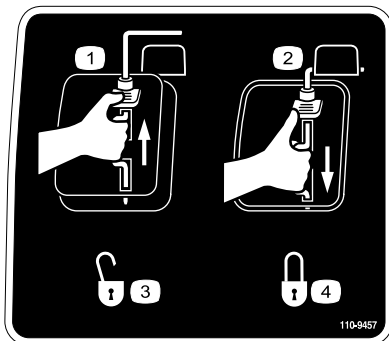
**Manufacturer's Mark**

1. Indicates the blade is identified as a part from the original machine manufacturer.



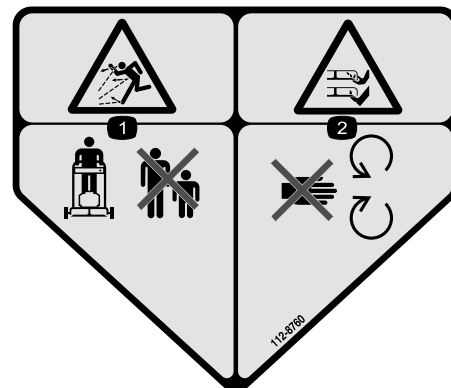
**110-4978**

1. Warning—read the *Operator's Manual*.
2. Thrown object hazard—keep bystanders a safe distance from the machine.
3. Cutting, dismemberment hazard of hand or foot—stop the engine and remove the spark plug wire before performing any maintenance on the machine.
4. Cutting, dismemberment hazard of hand or foot—stay away from moving parts.
5. Warning—stop the engine before leaving the machine.



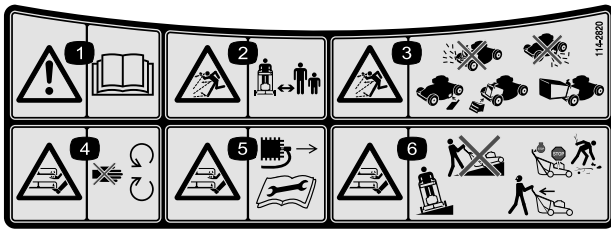
**110-9457**

1. Engine switch Off
2. Engine switch On
3. Unlocked
4. Locked



**112-8760**

1. Thrown object hazard—keep bystanders a safe distance from the machine.
2. Cutting/dismemberment of hand or foot—stay away from moving parts.



114-2820

1. Warning—read the *Operator's Manual*.
2. Thrown object hazard—keep bystanders a safe distance from the machine.
3. Thrown object hazard—do not operate the mower without the rear discharge plug or bag in place; do not operate the mower without the side discharge cover or deflector in place.
4. Cutting/dismemberment hazard of hand or foot, mower blade—stay away from moving parts.
5. Cutting/dismemberment hazard of hand or foot, mower blade—remove the ignition key and read the instructions before servicing or performing maintenance.
6. Cutting/dismemberment hazard of hand or foot, mower blade—do not operate up and down slopes; operate side to side on slopes; stop the engine before leaving the operating position; and look behind you when backing up.

## Loose Parts

Use the chart below to verify that all parts have been shipped.

Procedure	Description	Qty.	Use
<b>1</b>	Oval-head bolt (5/16 x 1-1/2 inches)	2	Install the handle.
	Bolt (5/16 x 1-1/2 inches)	2	
	Spacer	2	
	Locknut (5/16 inch)	4	
	Cable tie	1	
<b>2</b>	SAE 30W detergent oil with an API service classification of SH, SJ, SL, or higher (not supplied with the mower)	20 oz. (0.55 l)	Fill the engine with oil.
<b>3</b>	No parts required	–	Install the recycle plug or grass bag.

# 1

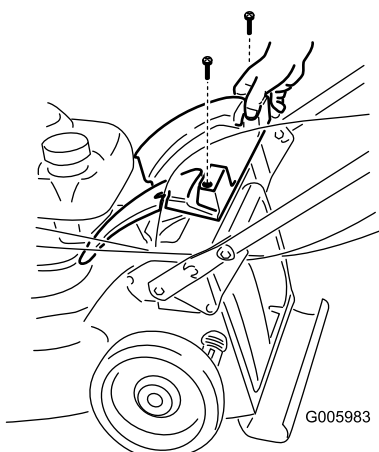
## Installing the Handle

### Parts needed for this procedure:

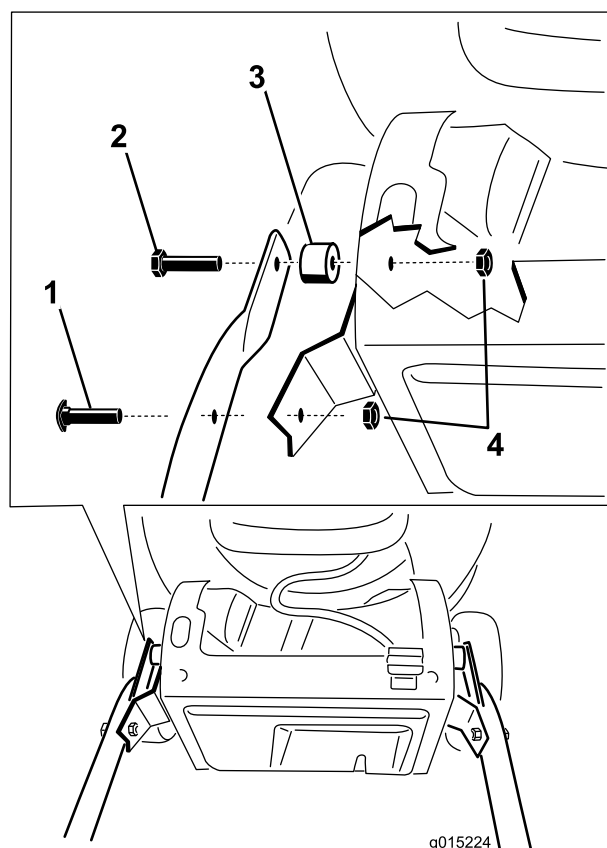
2	Oval-head bolt (5/16 x 1-1/2 inches)
2	Bolt (5/16 x 1-1/2 inches)
2	Spacer
4	Locknut (5/16 inch)
1	Cable tie

### Procedure

1. Remove the 2 screws that hold the back cover in place and remove the back cover (Figure 3).



**Figure 3**



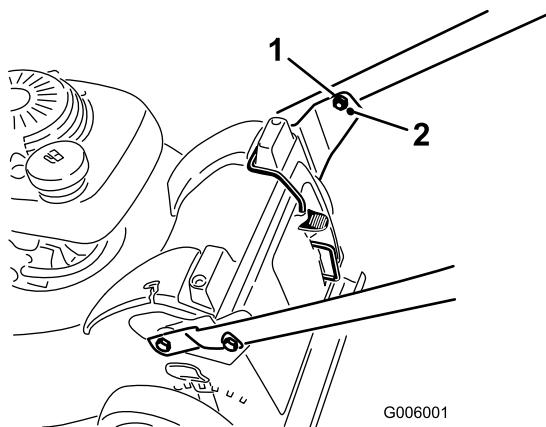
**Figure 4**

- |   |                            |
|---|----------------------------|
| 1. Oval-head bolt (5/16 x 1-1/2 inches) (2) | 3. Spacer (2)              |
| 2. Bolt (5/16 x 1-1/2 inches) (2)           | 4. Locknut (5/16 inch) (4) |

**Note:** You can set the handle height in one of two positions (Figure 5). Set the handle to a height that is comfortable for you.

2. Attach the handle to the deck of the machine (Figure 4) using the 4 bolts, 4 locknuts, and 2 spacers in the loose parts bag.



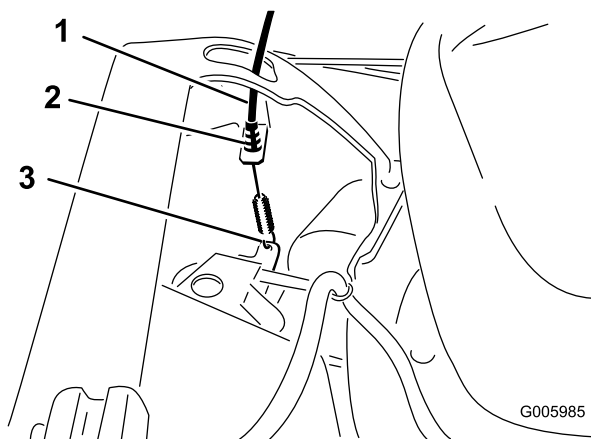


**Figure 5**

1. Higher handle position      2. Lower handle position

**Note:** Torque all bolts to 120 in-lb (13.6 N-m).

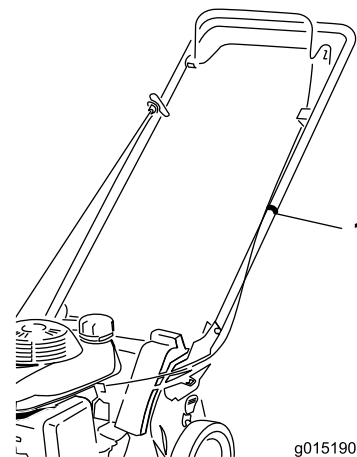
3. Route the self-propel drive cable down the inside of the handle, thread the cable through the opening on the left hand side of the housing, and attach the cable end (Figure 6).



**Figure 6**

1. Self-propel drive cable      3. Attach cable end here  
2. Insert cable jacket end here

4. Ensure that the self-propel drive is properly adjusted; refer to Adjusting the Self-propel Drive Cable (page 21).
5. Tie the loose cables to the handle (Figure 7) using the cable tie from the loose parts bag.



**Figure 7**

6. Install the back cover with the 2 screws you removed in step 1.

## 2

### Filling the Engine with Oil

#### Parts needed for this procedure:

20 oz.  
(0.55 l)

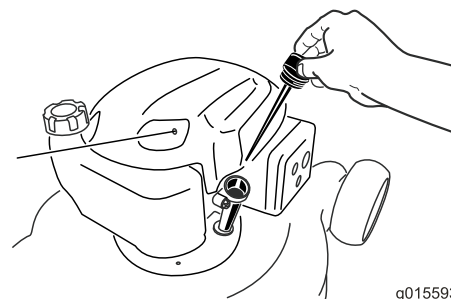
SAE 30W detergent oil with an API service classification of SH, SJ, SL, or higher (not supplied with the mower)

#### Procedure

**Important:** This machine *does not* come with oil in the engine.

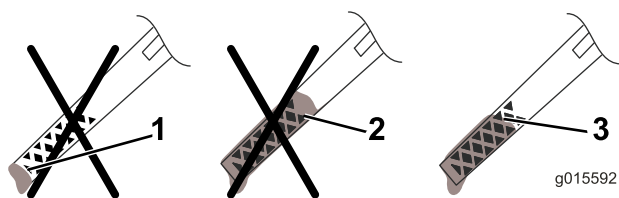
**Important:** To read the dipstick in this machine correctly, do *not* screw it in to the oil fill tube. Insert the dipstick until the threads on the cap just touch the threads in the oil fill tube.

1. Move the machine to a level surface.
2. Remove the dipstick, wipe it clean, and insert it back into the oil filler tube just until it stops **but do not screw it in** (Figure 8).



**Figure 8**

- Remove the dipstick and check the oil level.  
Figure 9 shows how to read the dipstick.



**Figure 9**

- Oil level is too low
- Oil level is too high
- Oil level is good

- If the dipstick shows that the oil is too low, add oil to the engine.

**Important:** Use only the kind of oil listed at the start of this procedure.

**Note:** When the engine has no oil in it, you can first pour about 3/4 of the amount of oil listed at the start of this procedure into the fill tube.

**Slowly** pour small amounts of oil into the oil fill tube, wait a few minutes and check the level with the dipstick. Repeat this until the dipstick indicates that the oil level is good. **Do not overfill.**

- If the dipstick shows that the oil is too high, drain out a little oil; refer to Changing the Engine Oil (page 20).
  - If the top of the oil falls within the marked section on the dipstick, the oil level is good.
- Install the dipstick and hand tighten it securely.

**Important:** *Change the engine oil after the first 5 operating hours; change it yearly thereafter; refer to Changing the Engine Oil (page 20).*

# 3

## Install the Recycle Plug or Grass Bag

### No Parts Required

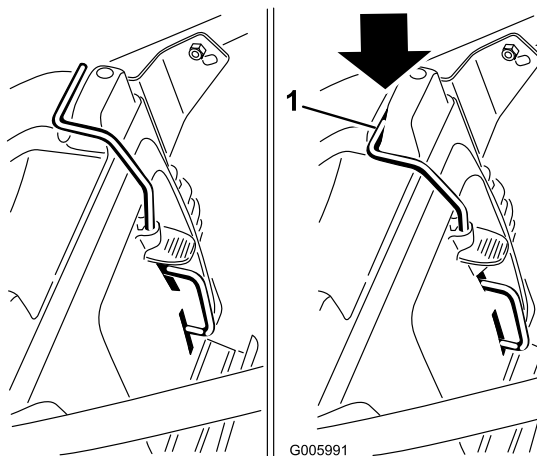
### Procedure

You must correctly install the recycle plug (for recycling or side-discharging) or grass bag (for bagging) or **the engine will not start.**

The machine has a safety switch, located at the bottom of a channel on the top, right rear of the mower, that

prevents the mower from operating without a recycle plug or grass bag. This prevents the machine from throwing debris at the operator through the rear chute.

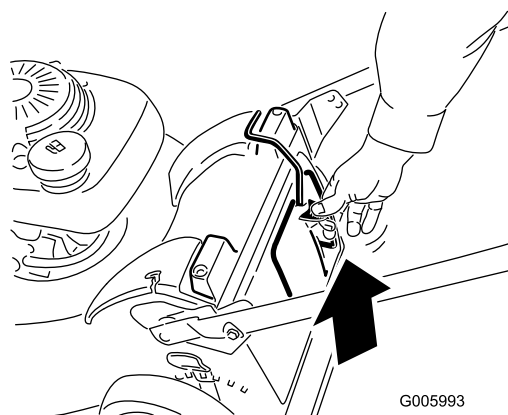
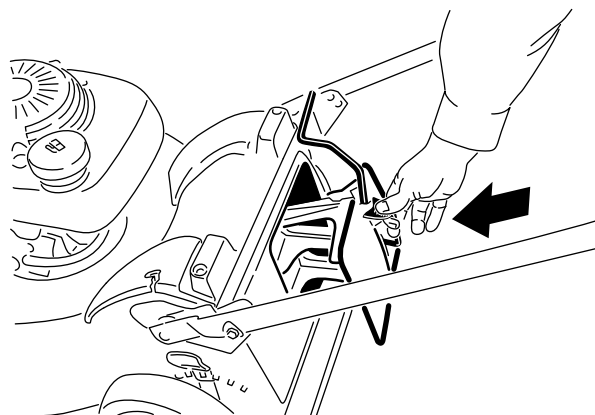
For the switch to detect the presence of the recycle plug, the top of the recycle plug lever must **lie fully** in the **bottom of the channel** (Figure 10).



**Figure 10**

- Top of recycle plug lever in switch channel

- Insert the recycle plug into the mower, if it is not already installed (Figure 11).

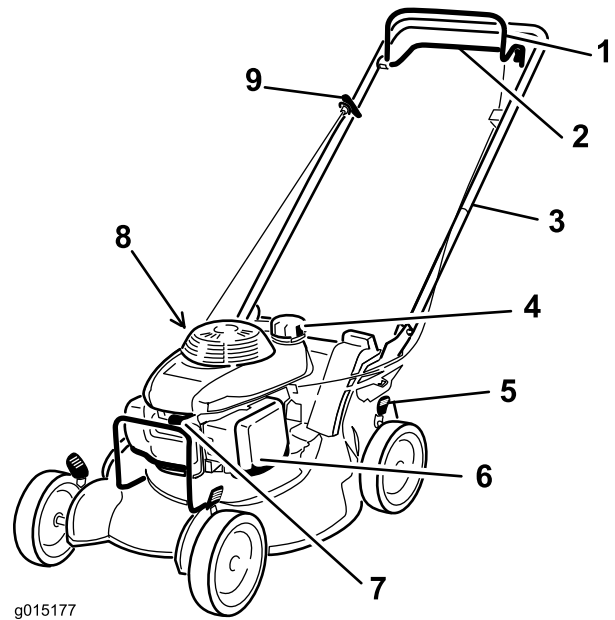


**Figure 11**

# Product Overview

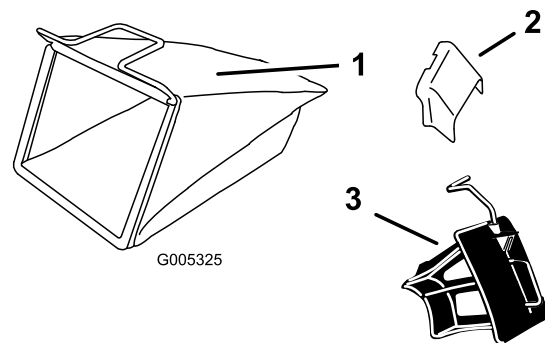
2. Squeeze the button on the lever with your thumb and fully insert the recycle plug into the opening (Figure 11).
3. Release the button on the lever and ensure that the top of the lever is lies fully in the switch channel. **If the top of the lever is not in the switch channel, your machine will not start!**

**Note:** If the lever does not latch properly, disconnect the wire from the spark plug and check for and remove any debris buildup in the tunnel.



**Figure 12**

- |                             |                                  |
|-----------------------------|----------------------------------|
| 1. Blade control bar        | 6. Air filter                    |
| 2. Self-propel drive bar    | 7. Spark plug                    |
| 3. Handle                   | 8. Oil fill/dipstick (not shown) |
| 4. Fuel tank                | 9. Starter handle                |
| 5. Cutting height lever (4) |                                  |



**Figure 13**

- |                         |                             |
|-------------------------|-----------------------------|
| 1. Grass bag            | 3. recycle plug (installed) |
| 2. Side discharge chute |                             |

## Controls

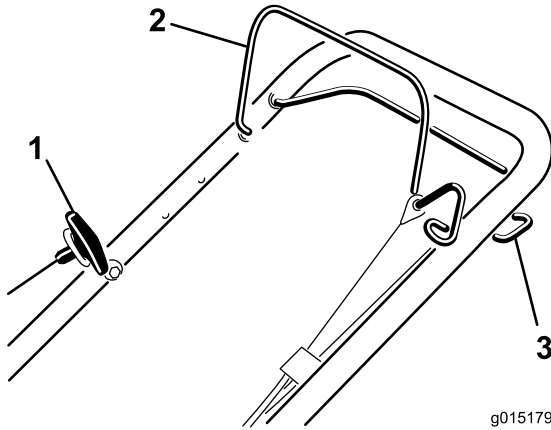


Figure 14

1. Recoil start handle
2. Blade control bar
3. Self-propel drive bar

## Operation

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

### Checking the Engine Oil Level

**Service Interval:** Before each use or daily

**Important:** To read the dipstick in this machine correctly, do *not* screw it in to the oil fill tube. Insert the dipstick until the threads on the cap just touch the threads in the oil fill tube.

1. Move the machine to a level surface.
2. Remove the dipstick, wipe it clean, and insert it into the oil filler tube just until it stops **but do not screw it in** (Figure 15).

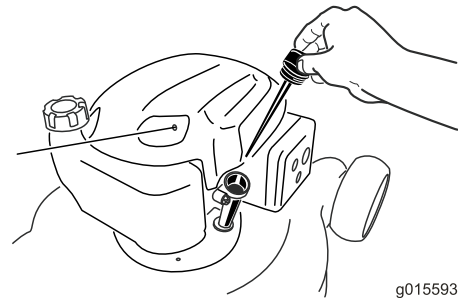


Figure 15

3. Remove the dipstick and check the oil level. Figure 16 shows how to read the dipstick.



Figure 16

1. Oil level is too low
2. Oil level is too high
3. Oil level is good

- If the dipstick shows that the oil is too low, add oil to the engine; refer to Setup, step 2 Filling the Engine with Oil (page 9).
  - If the dipstick shows that the oil is too high, drain out a little oil; refer to Changing the Engine Oil (page 20).
  - If the top of the oil falls within the marked section on the dipstick, the oil level is good.
4. Install the dipstick and hand tighten it securely.

# Filling the Fuel Tank with Gasoline

## **⚠ DANGER**

Gasoline is extremely flammable and explosive. A fire or explosion from gasoline can burn you and others.

- To prevent a static charge from igniting the gasoline, place the container and/or mower directly on the ground before filling, not in a vehicle or on an object.
- Fill the tank outdoors when the engine is cold. Wipe up spills.
- Do not handle gasoline when smoking or around an open flame or sparks.
- Store gasoline in an approved fuel container, out of the reach of children.

Fill the fuel tank with fresh unleaded regular gasoline from a major name-brand service station (Figure 17).

**Important:** To reduce starting problems, add fuel stabilizer to the fuel all season, mixing it with gasoline less than 30 days old.

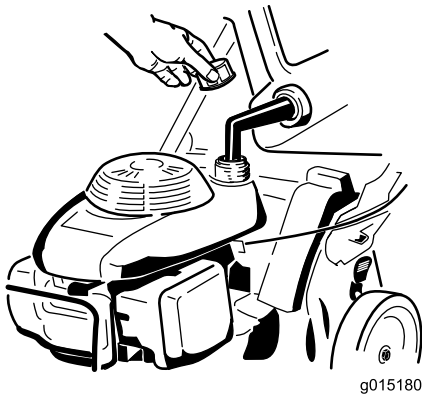


Figure 17

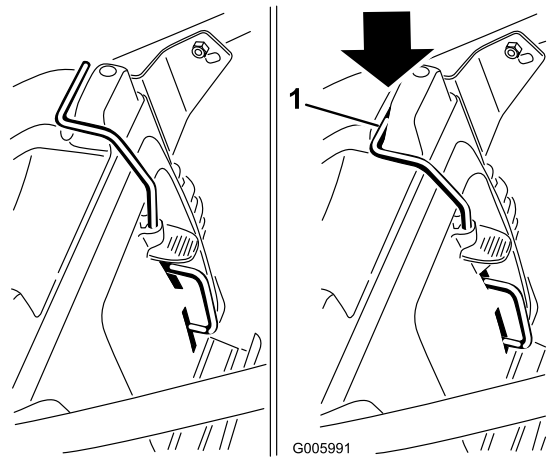


Figure 18

1. Top of recycle plug lever in switch channel

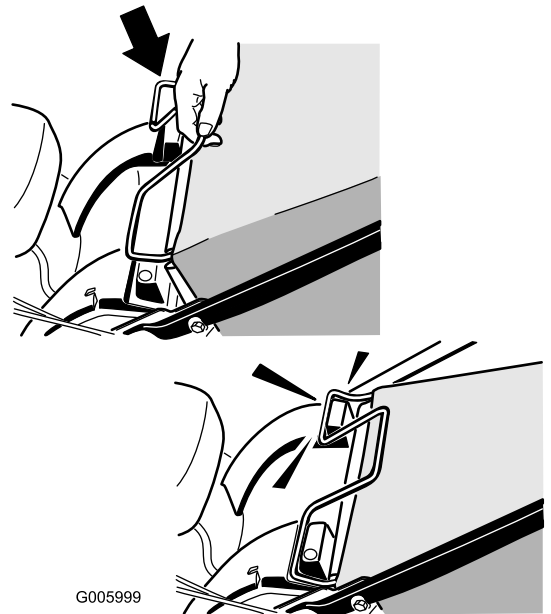


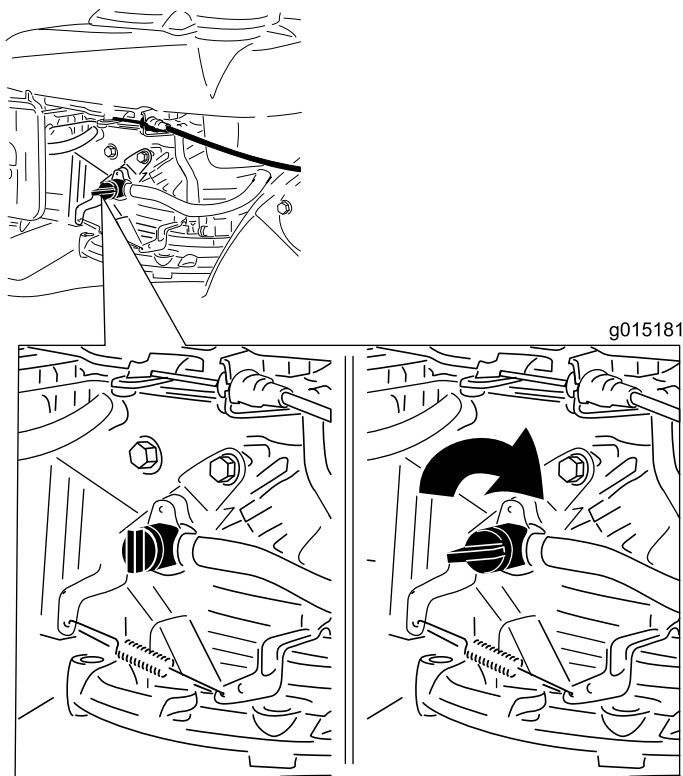
Figure 19

2. Turn the fuel valve lever to the On position (Figure 20).

## Starting the Engine

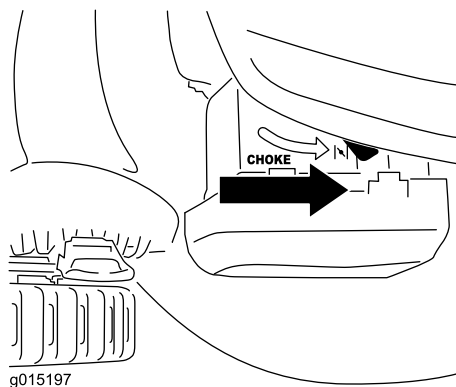
**Important:** A safety switch prevents the machine from starting unless the recycle plug or the grass bag is securely installed.

1. Install the recycle plug (Figure 18) or the grass bag (Figure 19) on the machine.



**Figure 20**

- When the engine is cold, move the choke lever to the Choke position (Figure 21). Do not use the choke when the engine is warm.

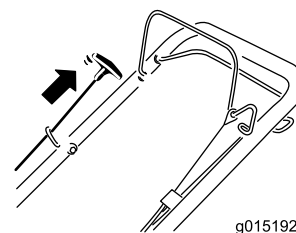


**Figure 21**

- Hold the blade control bar against the handle and pull the recoil starter (Figure 22).

**Note:** If the choke is engaged, it will automatically turn off about 3 seconds after the blade control bar is held against the handle.

**Note:** Pull the recoil start handle lightly until you feel resistance, then pull it briskly.



**Figure 22**

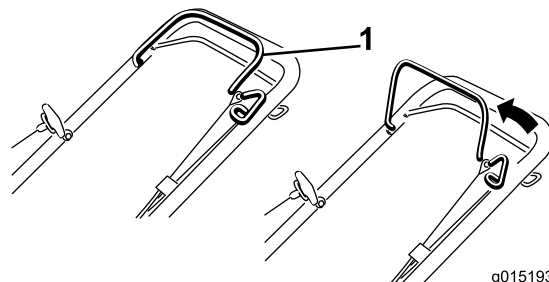
- Recoil start handle
- 
- If the machine does not start in 1 or 2 pulls, repeat steps 3 and 4.
- Note:** If the machine still does not start, contact an Authorized Service Dealer.

## Stopping the Engine

**Service Interval:** Before each use or daily

To stop the engine, release the blade control bar (Figure 23).

**Important:** When you release the blade control bar, both the engine and blade should stop within 3 seconds. If they do not stop properly, stop using the machine immediately and contact an Authorized Service Dealer.

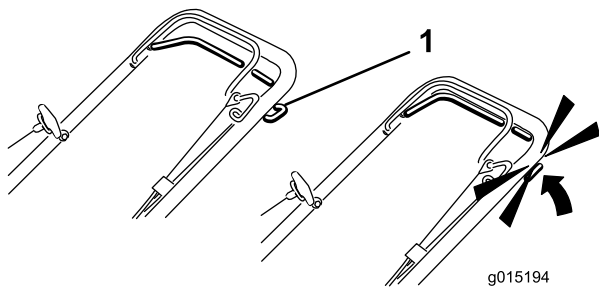


**Figure 23**

- Blade control bar
- 

## Operating the Self-propel Drive

- To operate the self-propel drive, squeeze the self-propel drive bar against the handle and hold it (Figure 24).



**Figure 24**

1. Self-propel drive bar

**Note:** The maximum self-propel drive speed is fixed. To reduce the speed, increase the space between the self-propel drive bar and the handle.

2. To disengage the self-propel drive, release the self-propel drive bar.

**Note:** The machine comes with freewheeling clutches which make it easier to pull the machine rearward. To disengage the clutches, you may need to push the machine forward 1 inch (2.5 cm) or more after you release the self-propel drive bar.

## Adjusting the Cutting Height

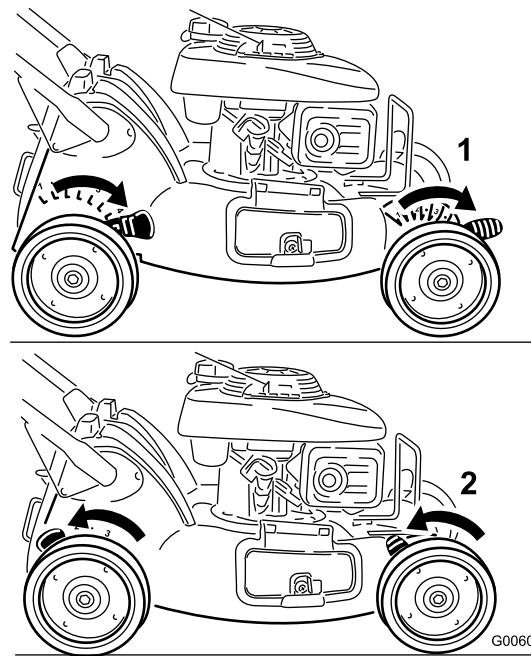
Cutting heights are from 1 inch (25 mm) to 4-1/2 inches (114 mm) in 1/2-inch (13 mm) increments.

### **⚠ WARNING**

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

- Stop the engine and wait for all moving parts to stop.
- Do not put your fingers under the housing when adjusting the cutting height.

Adjust the cutting height as desired (Figure 25). Set all four wheels to the same height.



**Figure 25**

1. Highest height-of-cut position (levers forward)
2. Lowest height-of-cut position (levers rearward)

**Note:** To raise the mower, move all 4 cutting height levers forward; to lower the mower, move them rearward.

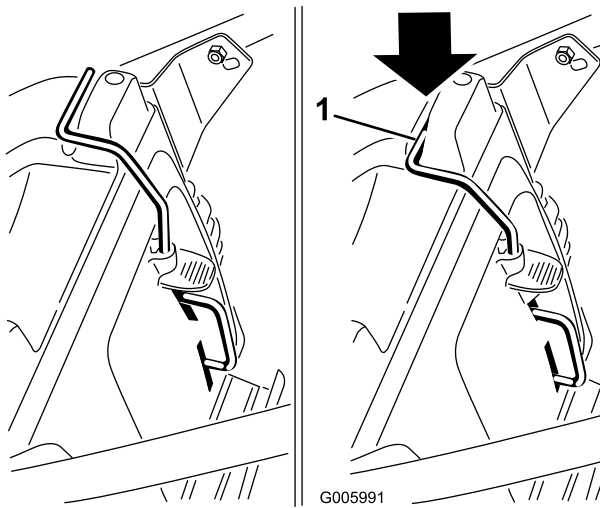
## Recycling the Clippings

Your machine comes from the factory ready to recycle the grass and leaf clippings back into the lawn.

If the grass bag is on the machine, remove it (refer to Removing the Grass Bag (page 16)) before recycling the clippings. If the side discharge chute is on the machine, remove it and lock the side discharge door (refer to Removing the Side Discharge Chute (page 17)) before recycling the clippings.

**Important:** A safety switch prevents the machine from starting unless the recycle plug is securely installed (Figure 26).

Install the recycle plug as illustrated in Figure 26.



**Figure 26**

1. Top of recycle plug lever in switch channel

## Bagging the Clippings

Use the grass bag when you want to collect grass and leaf clippings from the lawn.

If the side discharge chute is on the machine, remove it and lock the side discharge door (refer to Removing the Side Discharge Chute (page 17)) before bagging the clippings.

### **⚠ WARNING**

A worn grass bag could allow small stones and other similar debris to be thrown in the operator's or bystander's direction and result in serious personal injury or death to the operator or bystanders.

Check the grass bag frequently. If it is damaged, install a new Toro replacement bag.

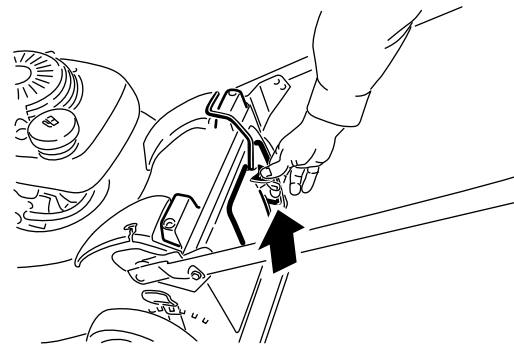
### **⚠ WARNING**

The blade is sharp; contacting the blade can result in serious personal injury.

Stop the engine and wait for all moving parts to stop before leaving the operating position.

## Installing the Grass Bag

1. Remove the recycle plug (Figure 27).



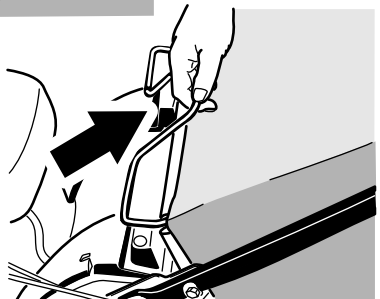
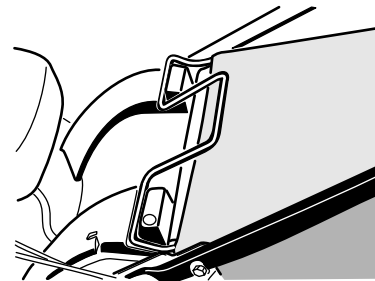
**Figure 27**

2. Insert the grass bag handle into the grooves at the top of the machine.

**Important:** A safety switch prevents the machine from starting unless the recycle plug is securely installed.

## Removing the Grass Bag

1. Lift the grass bag handle out from the grooves at the top of the machine and remove the bag (Figure 28).



**Figure 28**

2. Insert the recycle plug (Figure 29).



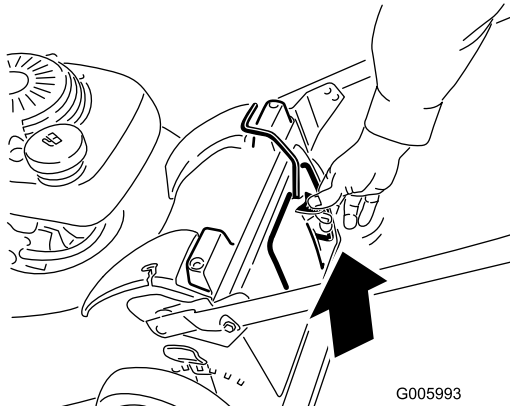
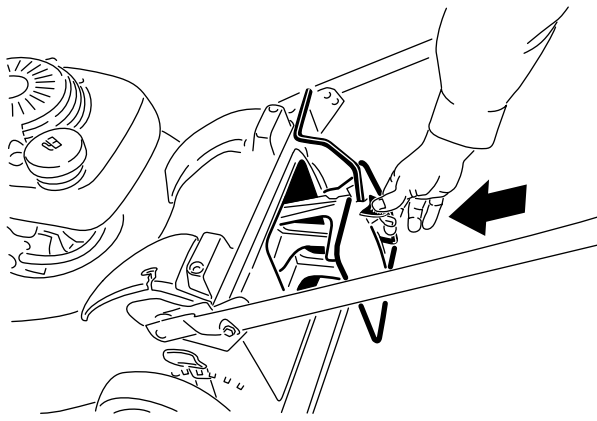


Figure 29

G005993

## Side-discharging the Clippings

Use the side discharge for cutting very tall grass.

If the bag is on the machine, remove it and insert the recycle plug before side-discharging the clippings; refer to Recycling the Clippings (page 15).

**Important:** A safety switch prevents the machine from starting unless the recycle plug is securely installed.

### Installing the Side Discharge Chute

1. Unlock the side discharge door (Figure 30).

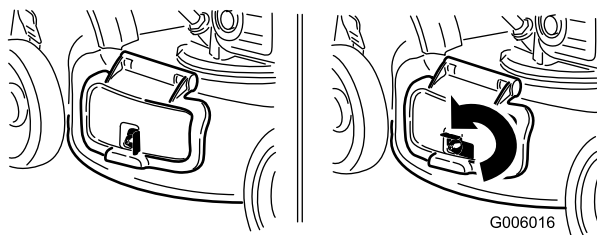
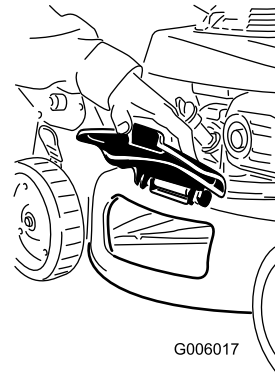


Figure 30

G006016

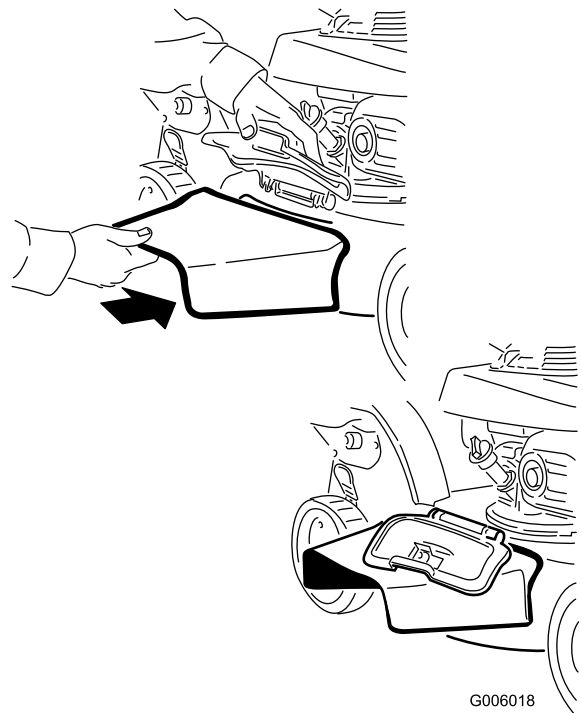
2. Lift open the side discharge door (Figure 31).



G006017

Figure 31

3. Install the side discharge chute and close the door onto the chute (Figure 32).



G006018

Figure 32

### Removing the Side Discharge Chute

To remove the side discharge chute, reverse the steps above.

**Important:** Lock the side discharge door after you close it (Figure 33).

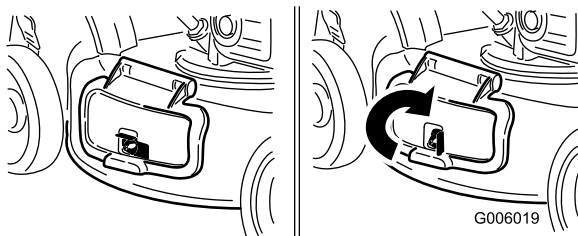


Figure 33

## Operating Tips

### General Tips

- Maintain a sharp blade throughout the cutting season. Periodically file down nicks on the blade.
- Replace the blade when necessary with an original Toro replacement blade.
- Mow only dry grass or leaves where feasible. Wet grass and leaves tend to clump on the yard and can cause the mower to plug or the engine to stall.

#### **⚠ WARNING**

**Wet grass or leaves can cause serious injury if you slip and contact the blade.**

**Mow only in dry conditions where feasible.**

- Clean under the mower housing after each mowing. See Cleaning under the Mower Housing.
- Keep the engine in good running condition.
- Set the engine speed to the fastest position for the best cutting results.

#### **⚠ WARNING**

**Operating a mower with its engine running at a speed greater than the factory setting can cause the mower to throw a part of the blade or engine into the operator's or bystander's area and result in serious personal injury or death.**

- **Do not change the engine speed setting.**
- **If you suspect the engine speed is faster than normal, contact an Authorized Service Dealer.**
- Clean the air filter frequently. recycling stirs up more clippings and dust which clogs the air filter and reduces engine performance.

### Cutting Grass

- Grass grows at different rates at different times of the year. In the summer heat, it is best to cut grass

at the 2- inch (51 mm), 2-1/2 inch (64 mm), or 3-inch (76 mm) cutting height settings. Cut only about a third of the grass blade at a time. Do not cut below the 2-1/2 inch (64 mm) setting unless the grass is sparse or it is late fall when grass growth begins to slow down.

- When cutting grass over 6 inches (15 cm) tall, first mow at the highest cutting height setting and walk slower; then mow again at a lower setting for the best lawn appearance. If the grass is too long and the leaves clump on top of the lawn, the mower may plug and cause the engine to stall.
- Alternate the mowing direction. This helps disperse the clippings over the lawn for even fertilization.

If the finished lawn appearance is unsatisfactory, try one or more of the following:

- Sharpen the blade.
- Walk at a slower pace while mowing.
- Raise the cutting height on your mower.
- Cut the grass more frequently.
- Overlap cutting swaths instead of cutting a full swath with each pass.
- Set the cutting height on the front wheels one notch lower than the rear wheels.

### 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 one pass over the leaves.
- For light leaf coverage, set all the wheels at the same cutting height setting.
- If there are more than 5 inches (12.7 cm) of leaves on the lawn, set the front cutting height 1 or 2 notches higher than the rear cutting height. This makes it easier to feed the leaves under the mower housing.
- Slow down your mowing speed if the mower does not cut the leaves finely enough.
- If you mow over oak leaves, you can add lime to the grass in the spring to reduce the acidity of the oak leaves.

# Maintenance

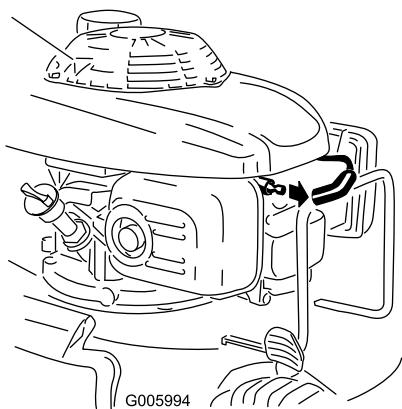
## *Recommended Maintenance Schedule(s)*

Maintenance Service Interval	Maintenance Procedure
After the first 5 hours	<ul style="list-style-type: none"><li>• Change the engine oil.</li></ul>
Before each use or daily	<ul style="list-style-type: none"><li>• Check the engine oil level.</li><li>• Ensure that the engine stops within 3 seconds after releasing the blade control bar.</li><li>• Check the air cleaner for dirt and/or damage and clean or replace it if necessary.</li><li>• Clean grass clippings and dirt from under the machine.</li></ul>
Every 100 hours	<ul style="list-style-type: none"><li>• Check the spark plug.</li></ul>
Every 200 hours	<ul style="list-style-type: none"><li>• Replace the spark plug.</li></ul>
Before storage	<ul style="list-style-type: none"><li>• Empty the fuel tank before repairs as directed and before annual storage.</li></ul>
Yearly	<ul style="list-style-type: none"><li>• Clean the air filter (more frequently in dusty operating conditions).</li><li>• Change the engine oil.</li><li>• Replace the blade or have it sharpened (more frequently if the edge dulls quickly).</li></ul>

## *Premaintenance Procedures*

### Preparing for Maintenance

1. Stop the engine and wait for all moving parts to stop.
2. Disconnect the spark plug wire from the spark plug (Figure 34) before performing any maintenance procedure.



**Figure 34**

hand fuel pump to remove the fuel. Always tip the mower onto its side with the air filter up.

#### **⚠ WARNING**

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

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

3. After performing the maintenance procedure(s), connect the spark plug wire to the spark plug.

**Important:** Before tipping the mower to change the oil or replace the blade, allow the fuel tank to run dry through normal usage. If you must tip the mower prior to running out of fuel, use a

# Engine Maintenance

## Servicing the Air Cleaner

**Service Interval:** Before each use or daily

Yearly

1. Press down on the latch tabs on top of the air cleaner cover and remove the cover (Figure 35).

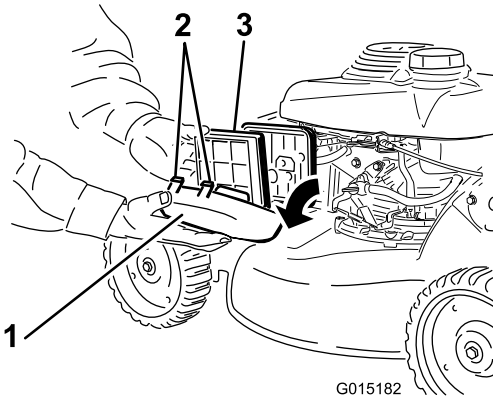


Figure 35

1. Air cleaner cover
2. Latch tab (2)
3. Air filter

2. Remove the air filter (Figure 35).
  3. If the air filter is damaged or is wet with oil or fuel, replace it.
  4. If the air filter is dirty, tap it on a hard surface several times or blow compressed air less than 30 psi (207 kPa) 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. Remove dirt from the air cleaner body and cover using a moist rag. **Do not wipe dirt into the air duct.**
  6. Install the filter into the air cleaner.
  7. Close the cover.

## Changing the Engine Oil

**Service Interval:** After the first 5 hours

Yearly

**Note:** Run the engine a few minutes before changing the oil to warm it. Warm oil flows better and carries more contaminants out of the engine.

1. Perform the pre-maintenance procedures; refer to Preparing for Maintenance (page 19).
2. Remove the dipstick (Figure 36).

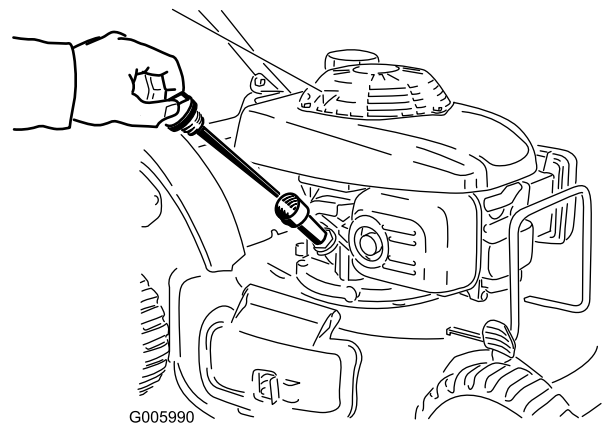


Figure 36

3. Tip the machine onto its side, with oil fill tube down, to drain the used oil out through the oil fill tube into a pan (Figure 37).

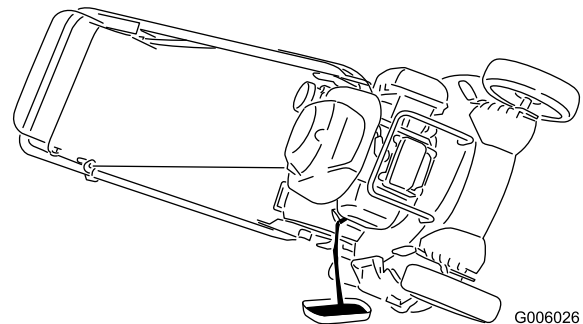


Figure 37

4. Fill the engine with oil; refer to Setup, step 2 Filling the Engine with Oil (page 9).
5. Install the dipstick and hand tighten it securely.
6. Dispose of the used oil at a local recycling center.

## Servicing the Spark Plug

**Service Interval:** Every 100 hours

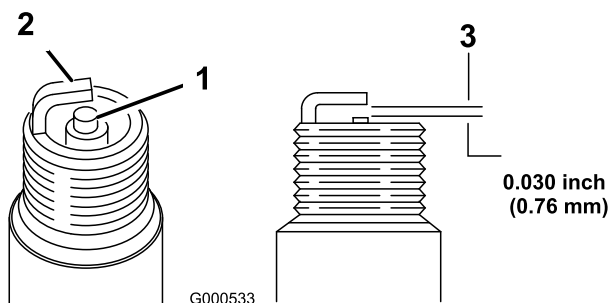
Every 200 hours

Use an **NGK BPR6ES** spark plug or equivalent.

1. Stop the engine and wait for all moving parts to stop.
2. Disconnect the wire from the spark plug (Figure 34).
3. Clean around the spark plug.
4. Remove the spark plug from the cylinder head.

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

5. Set the gap on the plug to 0.030 in. (0.76 mm) (Figure 38).



**Figure 38**

1. Center electrode insulator
2. Side electrode
3. Air gap (not to scale)

6. Install the spark plug and the gasket seal by hand.
7. Tighten the plug 1/2 turn after the spark plug seats to compress the washer.

**Note:** When installing the original spark plug again, tighten 1/8 to 1/4 turn after the spark plug seats to compress the washer.

**Note:** Under-tightening the spark plug can cause the plug to become very hot and can damage the engine. Overtightening the spark plug can damage the threads in the engine cylinder head.

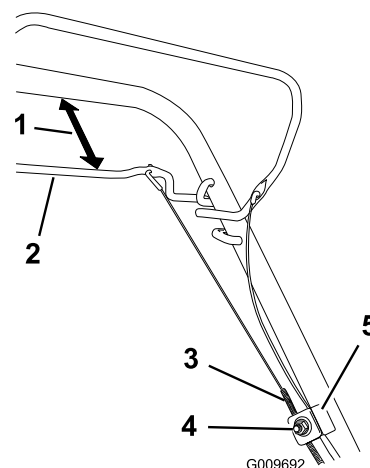
8. Connect the wire to the spark plug.

## Drive System Maintenance

### Adjusting the Self-propel Drive Cable

Whenever you install a new self-propel cable or if the self-propel drive is out of adjustment, adjust the self-propel drive cable.

1. Loosen the cable support nut (Figure 39).



**Figure 39**

1. 1 to 1-1/2 inches (25 to 38 mm)
2. Self-propel drive bar
3. Cable jacket
4. Cable support nut
5. Cable support

2. Hold the self-propel bail 1 to 1-1/2 inches (25 to 38 mm) from the handle (Figure 39).
3. Pull down the cable jacket (toward the mower) until there is no slack in the cable (Figure 39).
4. Tighten the nut on the cable support.
5. Release the self-propel drive bar and ensure that the cable is loose.

**Note:** The cable must be loose with the self-propel drive bar in the released position; otherwise, the machine may creep when you disengage the bar.

# Blade Maintenance

## Maintaining the Cutting Blade

**Service Interval:** Yearly

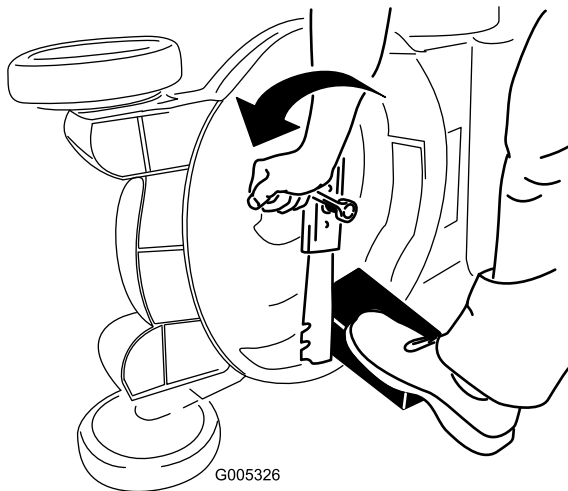
Examine the blade whenever you run out of gasoline. If the blade is damaged or cracked, replace it immediately. If the blade edge is dull or nicked, have it sharpened or replace it.

### **⚠ WARNING**

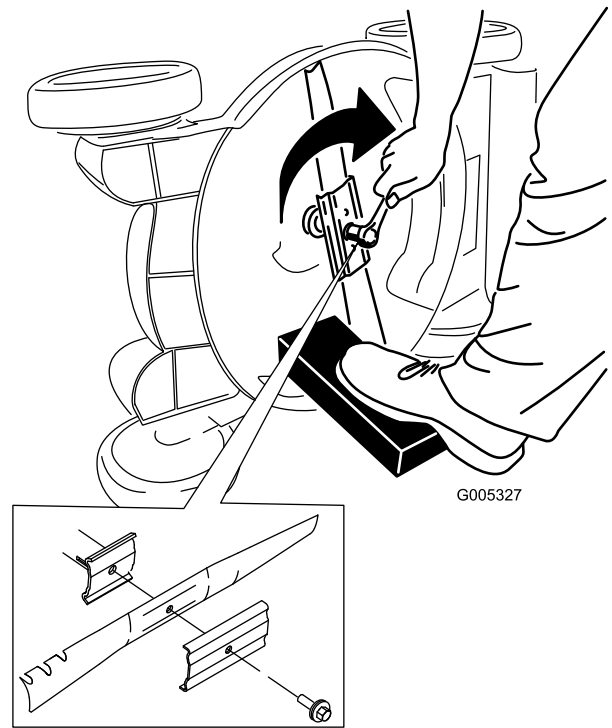
The blade is sharp; contacting the blade can result in serious personal injury.

Wear gloves when servicing the blade.

1. Disconnect the spark plug wire from the spark plug; refer to Preparing for Maintenance.
2. Tip the machine onto its side, with the air filter up.
3. Use a block of wood to hold the blade steady (Figure 40).



**Figure 40**



**Figure 41**

**Important:** Position the curved ends of the blade to point toward the machine housing.

6. Use a torque wrench to tighten the blade bolt to 40 to 50 ft-lb (54 to 68 N·m).

4. Remove the blade, saving all mounting hardware (Figure 40).
5. Install the new blade and all mounting hardware (Figure 41).

# Cleaning

## Cleaning under the Machine

**Service Interval:** Before each use or daily

### ⚠ WARNING

The mower may dislodge material from under the mower housing.

- Wear eye protection.
  - Stay in the operating position (behind the handle).
  - Do not allow bystanders in the area.
1. With the engine running on a flat paved surface, spray a stream of water in front of the **right** rear wheel (Figure 42).

The water will splash into the path of the blade, cleaning out the clippings.



**Figure 42**

- 
2. When no more clippings come out, stop the water and move the machine to a dry area.
  3. Run the engine for a few minutes to dry the housing to prevent it from rusting.

# Storage

To prepare the machine for off-season storage, perform the recommended maintenance procedures; refer to Maintenance.

Store the machine in a cool, clean, dry place. Cover the machine to keep it clean and protected.

## Preparing the Fuel System

### ⚠ WARNING

Gasoline can vaporize if you store it over long periods of time and explode if it comes into contact with an open flame.

- Do not store gasoline over long periods of time.
- Do not store the mower with gasoline in the fuel tank or the carburetor in an enclosure with an open flame. (For example, a furnace or a water heater pilot light.)
- Allow the engine to cool before storing it in any enclosure.

Empty the fuel tank when mowing the last time before storing the mower.

1. Run the machine until the engine stops from running out of fuel.
2. Prime the engine and start it again.
3. Allow the engine to run until it stops. When you can no longer start the engine, it is sufficiently dry.

## Preparing the Engine

1. While the engine is still warm, change the oil from the crankcase. Refer to Changing the Engine Oil.
2. Remove the spark plug.
3. Using an oil can, add about one tablespoon of oil to the crankcase through the spark plug hole.
4. Slowly rotate the engine several times, using the starter rope, to distribute the oil.
5. Install the spark plug but do not connect the wire to the spark plug.

## General Information

1. Clean under the machine; refer to Cleaning under the Machine (page 23).
2. Clean any dirt and chaff from the cylinder, cylinder head fins, and blower housing.
3. Remove grass clippings, dirt, and grime from the external parts of the engine, the shrouding, and the top of the machine.
4. Check the condition of the blade; refer to Maintaining the Cutting Blade (page 22).
5. Service the air filter; refer to Servicing the Air Cleaner (page 20).
6. Tighten all nuts, bolts, and screws.
7. Touch up all rusted or chipped paint surfaces with paint available from an Authorized Service Dealer.

## Removing the Machine from Storage

1. Check and tighten all fasteners.
2. Remove the spark plug and spin the engine rapidly using the starter to blow excess oil from the cylinder.
3. Clean the spark plug or replace it if it is cracked, broken, or if the electrodes are worn.
4. Install the spark plug and tighten 1/8 to 1/4 turn after the spark plug seats to compress the washer.
5. Perform any needed maintenance procedures; refer to Maintenance (page 19).
6. Fill the fuel in the fuel tank with fresh gasoline.
7. Check the engine oil level.
8. Connect the wire to the spark plug.



# Troubleshooting

Problem	Possible Cause	Corrective Action
Engine does not start	<ol style="list-style-type: none"> <li>1. The fuel tank is empty or the fuel system contains stale fuel.</li> <li>2. The engine is cold and the choke was not used.</li> <li>3. The wire is not connected to the spark plug.</li> <li>4. The spark plug is pitted, fouled, or the gap is incorrect.</li> </ol>	<ol style="list-style-type: none"> <li>1. Drain and/or fill the fuel tank with fresh gasoline. If the problem persists, contact an Authorized Service Dealer.</li> <li>2. Move the choke lever to the Choke position.</li> <li>3. Connect the wire to the spark plug.</li> <li>4. Check the spark plug and adjust the gap if necessary. Replace the spark plug if it is pitted, fouled, or cracked.</li> </ol>
The engine starts hard or loses power	<ol style="list-style-type: none"> <li>1. The primer has not been pressed.</li> <li>2. The fuel cap vent hole is plugged.</li> <li>3. The air filter element is dirty and is restricting the air flow.</li> <li>4. The underside of the machine contains clippings and debris.</li> <li>5. The spark plug is pitted, fouled, or the gap is incorrect.</li> <li>6. The engine oil level is too low, too high, or excessively dirty.</li> <li>7. The fuel tank contains stale fuel.</li> </ol>	<ol style="list-style-type: none"> <li>1. Press the primer 3 times.</li> <li>2. Clean the fuel cap vent hole or replace the fuel cap.</li> <li>3. Clean the air filter pre-cleaner and/or replace the paper air filter.</li> <li>4. Clean under the machine.</li> <li>5. Check the spark plug and adjust the gap if necessary. Replace the spark plug if it is pitted, fouled, or cracked.</li> <li>6. 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.</li> <li>7. Drain and fill the fuel tank with fresh gasoline.</li> </ol>
Engine runs rough	<ol style="list-style-type: none"> <li>1. The wire is not connected to the spark plug.</li> <li>2. The spark plug is pitted, fouled, or the gap is incorrect.</li> <li>3. The air filter element is dirty and is restricting the air flow.</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect the wire to the spark plug.</li> <li>2. Check the spark plug and adjust the gap if necessary. Replace the spark plug if it is pitted, fouled, or cracked.</li> <li>3. Clean the air filter pre-cleaner and/or replace the paper air filter.</li> </ol>
The machine or the engine vibrates excessively	<ol style="list-style-type: none"> <li>1. The blade is bent or is out of balance.</li> <li>2. The blade mounting nuts are loose.</li> <li>3. The underside of the machine contains clippings and debris.</li> <li>4. The engine mounting bolts are loose.</li> </ol>	<ol style="list-style-type: none"> <li>1. Balance the blade. If the blade is bent, replace it.</li> <li>2. Tighten the blade mounting nuts.</li> <li>3. Clean under the machine.</li> <li>4. Tighten the engine mounting bolts.</li> </ol>
Uneven cutting pattern	<ol style="list-style-type: none"> <li>1. All 4 wheels are not at the same height.</li> <li>2. The blade is dull.</li> <li>3. You are mowing in the same pattern repeatedly.</li> <li>4. The underside of the machine contains clippings and debris.</li> </ol>	<ol style="list-style-type: none"> <li>1. Place all 4 wheels at the same height.</li> <li>2. Sharpen and balance the blade.</li> <li>3. Change the mowing pattern.</li> <li>4. Clean under the machine.</li> </ol>
Discharge chute plugs	<ol style="list-style-type: none"> <li>1. The cutting height is too low.</li> <li>2. You are mowing too fast.</li> <li>3. The grass is wet.</li> <li>4. The underside of the machine contains clippings and debris.</li> </ol>	<ol style="list-style-type: none"> <li>1. Raise the cutting height.</li> <li>2. Slow down.</li> <li>3. Allow the grass to dry before mowing.</li> <li>4. Clean the underside of the machine.</li> </ol>

Problem	Possible Cause	Corrective Action
Mower does not self-propel	<ol style="list-style-type: none"> <li>1. The self-propel drive cable is out of adjustment or is damaged.</li> <li>2. There is debris under the belt cover.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust the self-propel drive cable. Replace the cable if necessary.</li> <li>2. Clean the debris from under the belt cover.</li> </ol>

## International Distributor List

<b>Distributor:</b>	<b>Country:</b>	<b>Phone Number:</b>
Atlantis Su ve Sulama Sisstemleri Lt	Turkey	90 216 344 86 74
Balama Prima Engineering Equip.	Hong Kong	852 2155 2163
B-Ray Corporation	Korea	82 32 551 2076
Casco Sales Company	Puerto Rico	787 788 8383
Ceres S.A.	Costa Rica	506 239 1138
CSSC Turf Equipment (pvt) Ltd.	Sri Lanka	94 11 2746100
Cyril Johnston & Co.	Northern Ireland	44 2890 813 121
Equivier	Mexico	52 55 539 95444
Femco S.A.	Guatemala	502 442 3277
G.Y.K. Company Ltd.	Japan	81 726 325 861
Geomechaniki of Athens	Greece	30 10 935 0054
Guandong Golden Star	China	86 20 876 51338
Hako Ground and Garden	Sweden	46 35 10 0000
Hako Ground and Garden	Norway	47 22 90 7760
Hayter Limited (U.K.)	United Kingdom	44 1279 723 444
Hydroturf Int. Co Dubai	United Arab Emirates	97 14 347 9479
Hydroturf Egypt LLC	Egypt	202 519 4308
Ibea S.P.A.	Italy	39 0331 853611
Irriamc	Portugal	351 21 238 8260
Irrigation Products Int'l Pvt Ltd.	India	86 22 83960789
Jean Heybroek b.v.	Netherlands	31 30 639 4611
Lely (U.K.) Limited	United Kingdom	44 1480 226 800
Maquiver S.A.	Colombia	57 1 236 4079
Maruyama Mfg. Co. Inc.	Japan	81 3 3252 2285
Metra Kft	Hungary	36 1 326 3880
Mountfield a.s.	Czech Republic	420 255 704 220
Munditol S.A.	Argentina	54 11 4 821 9999
Oslinger Turf Equipment SA	Ecuador	593 4 239 6970
Oy Hako Ground and Garden Ab	Finland	358 987 00733
Parkland Products Ltd.	New Zealand	64 3 34 93760
Prochaska & Cie	Austria	43 1 278 5100
RT Cohen 2004 Ltd.	Israel	972 986 17979
Riversa	Spain	34 9 52 83 7500
Sc Svend Carlsen A/S	Denmark	45 66 109 200
Solvert S.A.S.	France	33 1 30 81 77 00
Spypros Stavrinides Limited	Cyprus	357 22 434131
Surge Systems India Limited	India	91 1 292299901
T-Markt Logistics Ltd.	Hungary	36 26 525 500
Toro Australia	Australia	61 3 9580 7355
Toro Europe BVBA	Belgium	32 14 562 960



## The Toro Warranty

### Conditions and Products Covered

The Toro® Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly promise to repair the Toro Product listed below if used for residential purposes\* if defective in materials or workmanship.

The following time periods apply from the date of purchase:

Products	Warranty Period
Walk Power Mowers	2 year limited warranty
Rear Engine Riders	2 year limited warranty
Lawn & Garden Tractors	2 year limited warranty
Electric Hand Held Products	2 year limited warranty
Snowthrowers	2 year limited warranty
Consumer Zero Turn	2 year limited warranty

\*Original Purchaser means the person who originally purchased the Toro Product

\*Residential purposes means use of the product on the same lot as your home. Use at more than one location, or institutional or rental use, is considered commercial use, and the commercial use warranty would apply.

### Limited Warranty for Commercial Use

Toro Consumer Products and attachments used for commercial, institutional, or rental use, are warranted against defects in materials or workmanship for the following time periods from the date of original purchase:

Products	Warranty Period
Walk Power Mowers	90 day warranty
Rear Engine Riders	90 day warranty
Lawn & Garden Tractors	90 day warranty
Electric Hand Held Products	90 day warranty
Snowthrowers	90 day warranty
Consumer Zero Turn	45 day warranty

### Instructions for Obtaining Warranty Service

If you think that your Toro Product contains a defect in materials or workmanship, follow this procedure:

1. Contact your seller to arrange service of the product. If for any reason it is impossible for you to contact your seller, you may contact any Toro Authorized Distributor to arrange service.
2. Bring the product and your proof of purchase (sales receipt) to the Service Dealer. If for any reason you are dissatisfied with the Service Dealer's analysis or with the assistance provided, contact us at:

Customer Care Department, Consumer Division  
The Toro Company  
8111 Lyndale Avenue South  
Bloomington, MN 55420-1196  
Manager: Technical Product Support: 001-952-887-8248

See attached Distributor List

### Owner Responsibilities

You must maintain your Toro Product by following the maintenance procedures described in the *Operator's Manual*. Such routine maintenance, whether performed by a dealer or by you, is at your expense.

### Items and Conditions Not Covered

This express warranty does not cover the following:

- Cost of regular maintenance service or wear parts, such as rotor blades (paddles), scraper blades, belts, fuel, lubricants, oil changes, spark plugs, cable/linkage or brake adjustments
- Any product or part which has been altered or misused and requires replacement or repair due to accidents or lack of proper maintenance
- Repairs necessary due to failure to use fresh fuel (less than one month old), or failure to properly prepare the unit prior to any period of non-use over one month
- Engine and transmission. These are covered by the appropriate manufacturer's guarantees with separate terms and conditions

All repairs covered by these warranties must be performed by an Authorized Toro Service Dealer using Toro approved replacement parts.

### General Conditions

The purchaser is covered by the national laws of each country. The rights to which the purchaser is entitled with the support of these laws are not restricted by this warranty.