



# Safety

This machine has been designed in accordance with ANSI B71.1-2012.

## General Safety

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

Using this product for purposes other than its intended use could prove dangerous to you and bystanders.

- Read, understand, and follow the instructions and warnings in this *Operator's Manual* and on the machine and attachments before starting the engine.
- Do not put your hands or feet near moving parts of or under the machine. Keep clear of any discharge opening.
- Do not operate the machine without all guards and other safety protective devices in place and working on the machine.
- Keep bystanders and children a safe distance away from the machine. 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.
- Stop the machine, shut off the engine, and wait for all moving parts to stop before servicing, fueling, or unclogging the machine.

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.

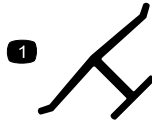
You can find additional safety information where needed throughout this manual.

Safety and Instructional Decals .....	3
Setup .....	5
1 Assembling and Unfolding the Handle .....	5
2 Installing the Recoil-starter Rope in the Rope Guide .....	5
3 Filling the Engine with Oil .....	6
4 Assembling the Grass Bag .....	6
Product Overview .....	8
Operation .....	8
Before Operation .....	8
Before Operation Safety .....	8
Filling the Fuel Tank .....	9
Checking the Engine-Oil Level .....	10
Adjusting the Handle Height .....	10
Adjusting the Cutting Height .....	11
During Operation .....	11
During Operation Safety .....	11
Starting the Engine .....	12
Using the Self-Propel Drive .....	12
Shutting Off the Engine .....	12
Recycling the Clippings .....	12
Bagging the Clippings .....	13
Side-Discharging the Clippings .....	13
Operating Tips .....	14
After Operation .....	14
After Operation Safety .....	14
Cleaning under the Machine .....	14
Folding the Handle .....	15
Maintenance .....	16
Recommended Maintenance Schedule(s) .....	16
Maintenance Safety .....	16
Preparing for Maintenance .....	16
Servicing the Air Filter .....	17
Changing the Engine Oil .....	17
Replacing the Blade .....	18
Adjusting the Self-Propel Drive .....	19
Storage .....	20
Preparing the Machine for Storage .....	20
Removing the Machine from Storage .....	20

# 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.



decaloemmark

## Manufacturer's Mark

1. This mark indicates that the blade is identified as a part from the original machine manufacturer.



decal94-8072

94-8072

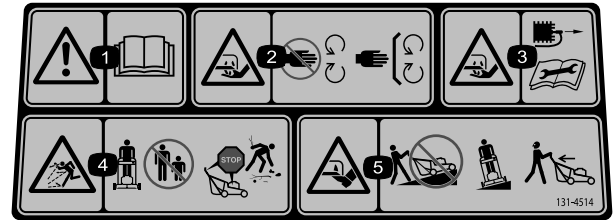
## CALIFORNIA SPARK ARRESTER WARNING

Operation of this equipment may create sparks that can start fires around dry vegetation. A spark arrester may be required. The operator should contact local fire agencies for laws or regulations relating to fire prevention requirements.

117-2718

decal117-2718

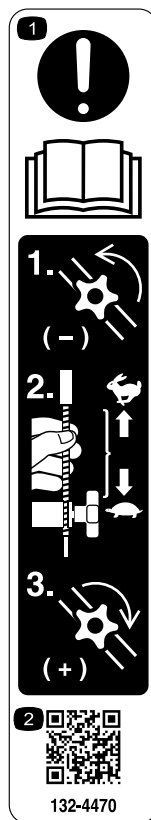
117-2718



decal131-4514b

131-4514

1. Warning—read the *Operator's Manual*.
2. Cutting/dismemberment hazard of hand, mower blade—stay away from moving parts; keep all guards and shields in place.
3. Cutting/dismemberment hazard of hand, mower blade—disconnect the spark-plug wire and read the instructions before servicing or performing maintenance.
4. Thrown object hazard—keep bystanders a safe distance away from the machine; shut off the engine before leaving the operating position; pick up any debris before mowing.
5. Cutting/dismemberment hazard of foot, mower blade—do not operate up and down slopes; operate side to side on slopes; look behind you when backing up.

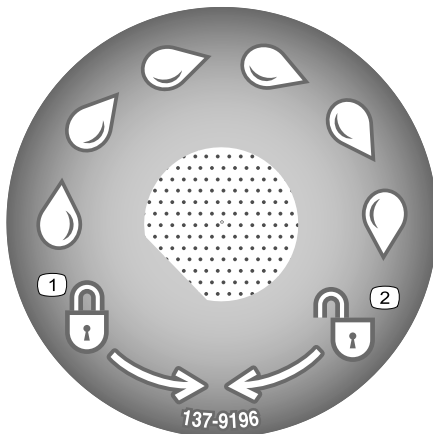


decal132-4470

### 132-4470

#### Traction Adjustment

1. Attention; read the *Operator's Manual*—1) Loosen the knob by turning it counterclockwise; 2) Pull the cable(s) away from the engine to decrease the traction, or push the cable(s) toward the engine to increase the traction; 3) Tighten the knob by turning it clockwise.
2. Scan the QR code for more information on traction adjustment.



decal137-9196

### 137-9196

1. Lock
2. Unlock

# Setup

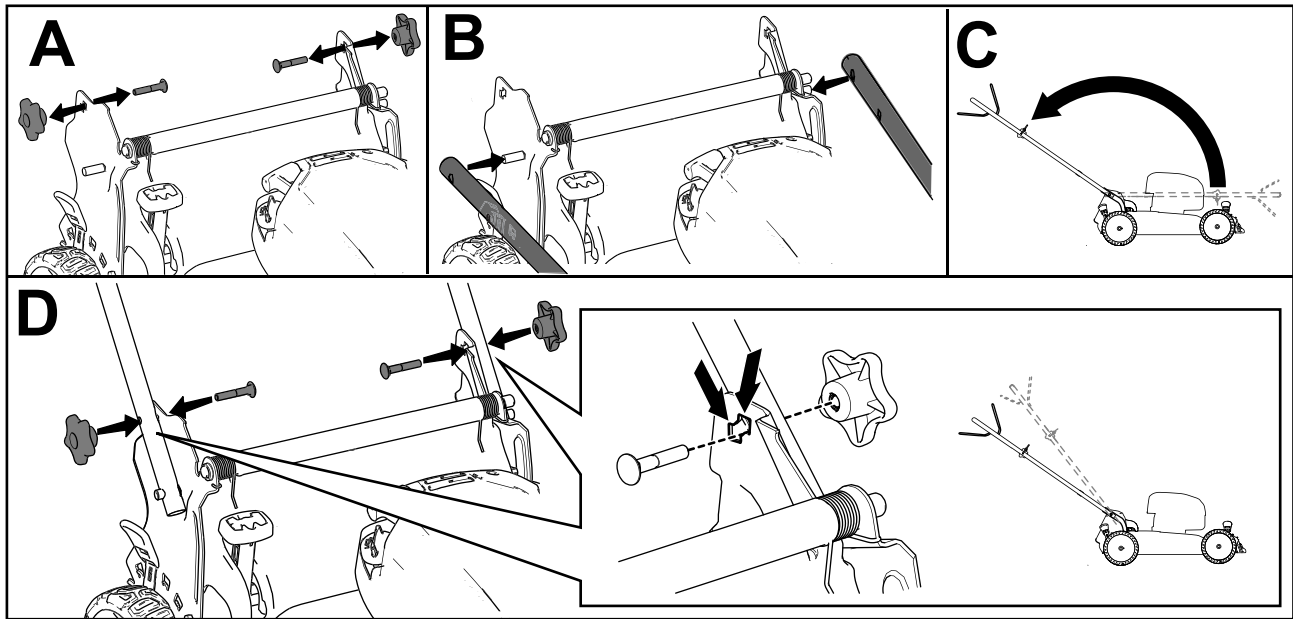
**Important:** Remove and discard the protective plastic sheet that covers the engine and any other plastic or wrapping on the machine.

1

## Assembling and Unfolding the Handle

No Parts Required

### Procedure



g230890

Figure 3

# 2

## Installing the Recoil-starter Rope in the Rope Guide

No Parts Required

### Procedure

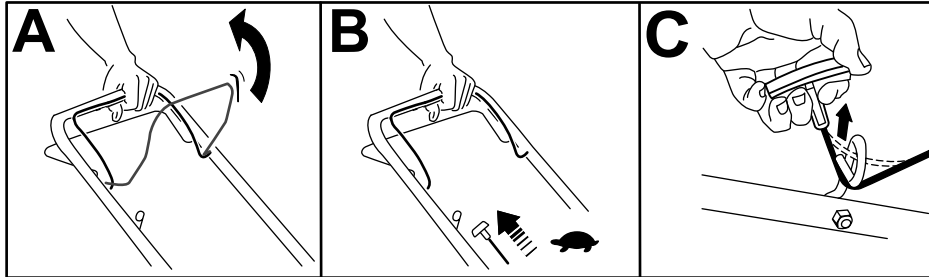


Figure 4

g230180

# 3

## Filling the Engine with Oil

No Parts Required

### Procedure

**Important:** Your machine does not come with oil in the engine, but it does come with a bottle of oil. Before starting the engine, fill the engine with oil.

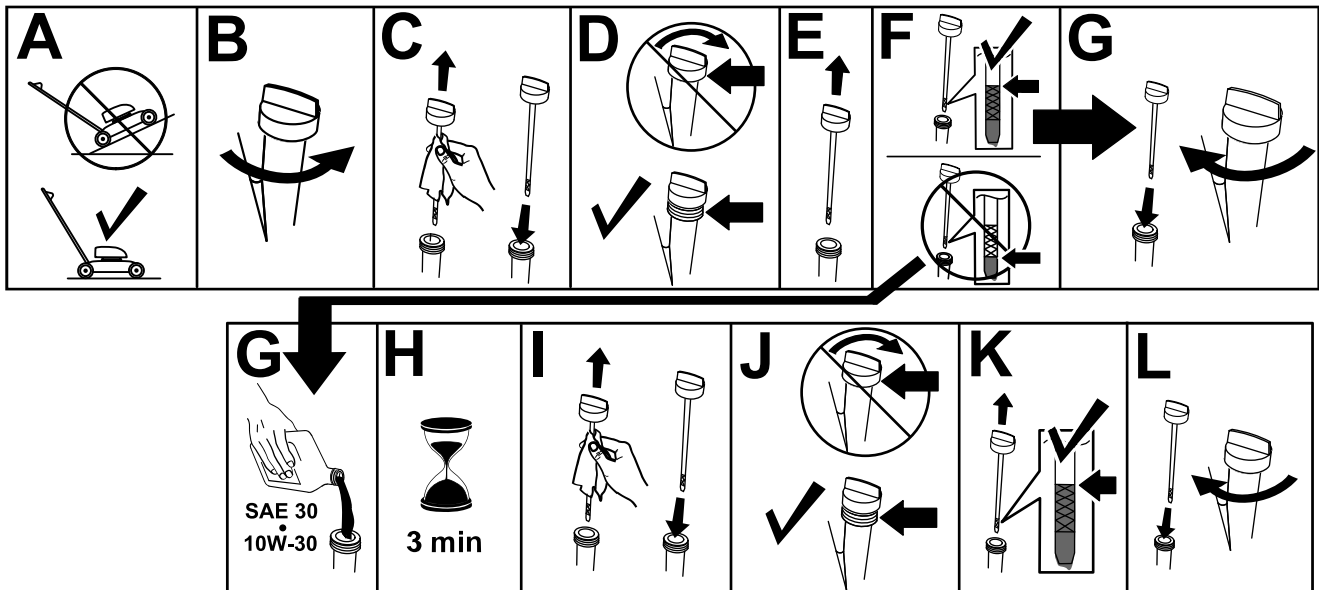


Figure 5

g235721

# 4

## Assembling the Grass Bag

No Parts Required

### Procedure

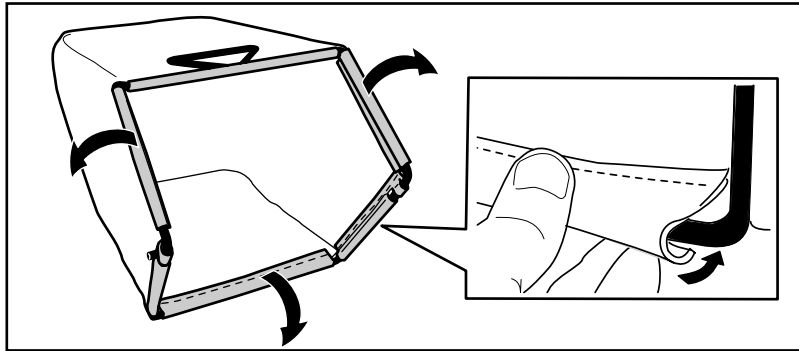


Figure 6

g234032

# Product Overview

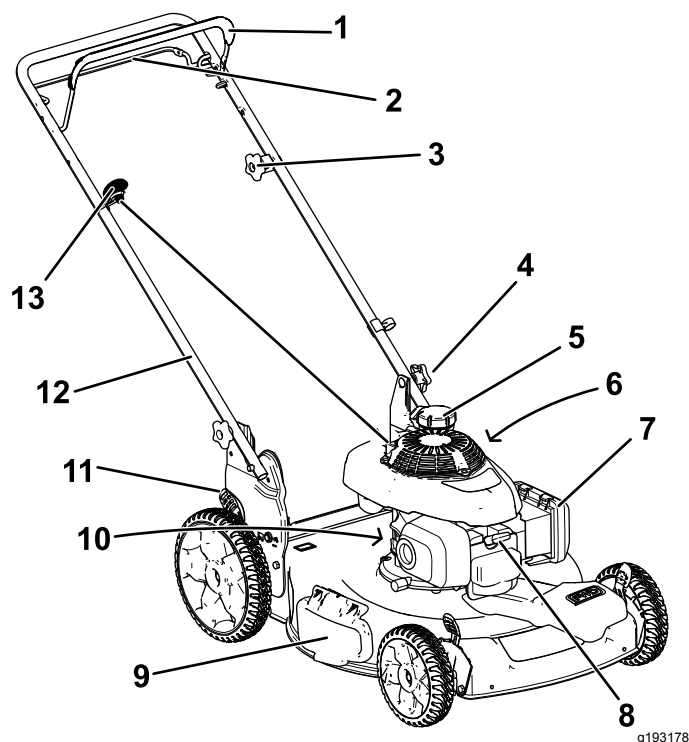


Figure 7

- |  |                                   |
|--|-----------------------------------|
| 1. Blade-control bar                         | 8. Spark plug                     |
| 2. Self-propel-drive bar                     | 9. Side-discharge deflector       |
| 3. Adjustment knob for the self-propel drive | 10. Oil fill/dipstick (not shown) |
| 4. Handle knob (2)                           | 11. Cutting-height lever (4)      |
| 5. Fuel-tank cap                             | 12. Handle                        |
| 6. Washout port (not shown)                  | 13. Recoil-start handle           |
| 7. Air filter                                |                                   |

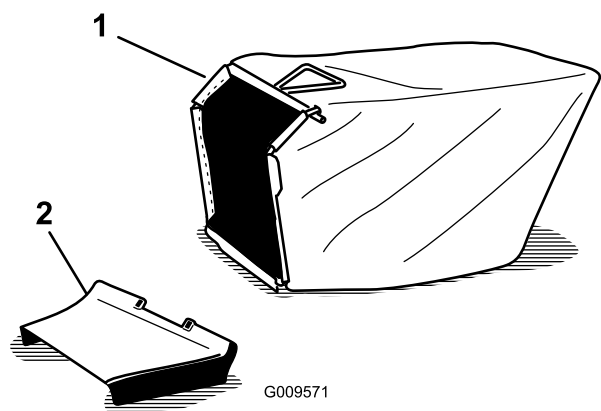


Figure 8

- |              |                         |
|--------------|-------------------------|
| 1. Grass bag | 2. Side-discharge chute |
|--------------|-------------------------|

# Operation

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

## Before Operation

### Before Operation Safety

#### General Safety

- Become familiar with the safe operation of the equipment, operator controls, and safety signs.
- Check that all guards and safety devices, such as deflectors and/or grass catcher, are in place and working properly.
- Always inspect the machine to ensure that the blades, blade bolts, and cutting assembly 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 blade, causing serious injury.
  - Shut off the engine, remove the ignition key (electric-start model only), and wait for all moving parts to stop.
  - Do not put your fingers under the housing when adjusting the cutting height.

#### 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.
  - 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.
- 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.

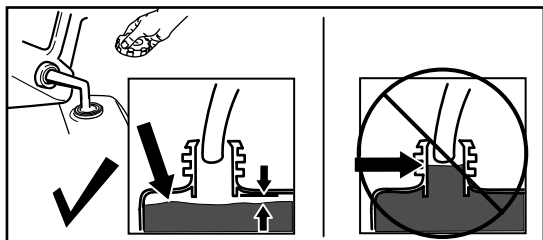
## Filling the Fuel Tank

- For best results, use only clean, fresh, unleaded gasoline with an octane rating of 87 or higher ((R+M)/2 rating method).
- Oxygenated fuel with up to 10% ethanol or 15% MTBE by volume is acceptable.
- **Do not** use ethanol blends of gasoline, such as E15 or E85, with more than 10% ethanol by volume. Performance problems and/or engine damage may result, which may not be covered under warranty.
- **Do not** use gasoline containing methanol.
- **Do not** store fuel either in the fuel tank or in fuel containers over the winter unless fuel stabilizer has been added to the fuel.
- **Do not** add oil to gasoline.

Fill the fuel tank with fresh unleaded regular gasoline from a major name-brand service station ([Figure 9](#)).

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

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



g230458

Figure 9

# Checking the Engine-Oil Level

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

**Important:** If the oil level in the crankcase is too low or too high and you run the engine, you may damage the engine.

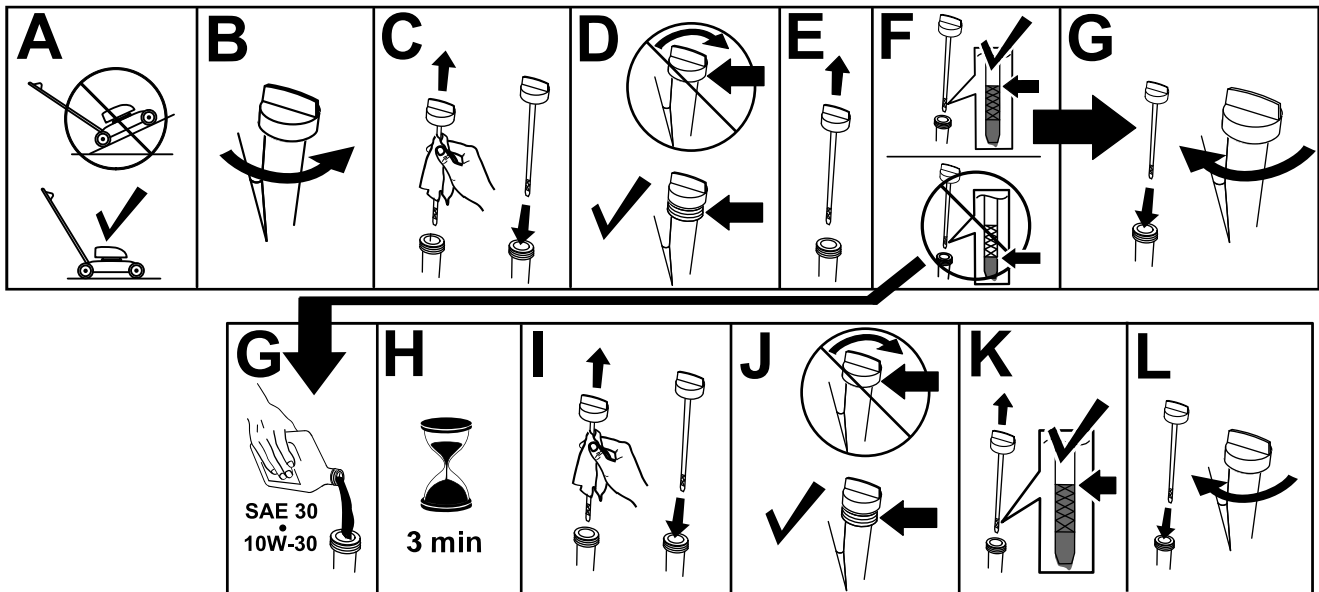


Figure 10

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## Adjusting the Handle Height

You can raise or lower the handle in 1 of 2 positions that is more comfortable for you (Figure 11).

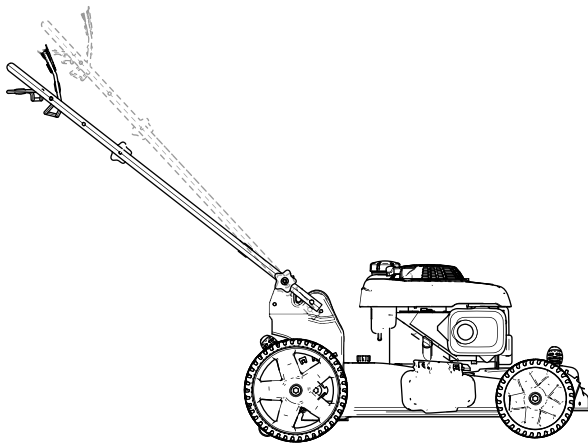


Figure 11

g193180

4. Pull the knobs until the square edges of each carriage bolt fits into its related square hole.
5. Tighten the handle knobs as tight as you can.

1. Loosen both handle knobs until you can push the square edges of the carriage bolts out of the square holes in the handle brackets.
2. Push the knobs until they are loose.
3. Move the handle to the upper or lower height position.

# Adjusting the Cutting Height

## ⚠ CAUTION

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

Keep away from the hot muffler.

Adjust the cutting height as desired. Set all the cutting-height levers to the same height.

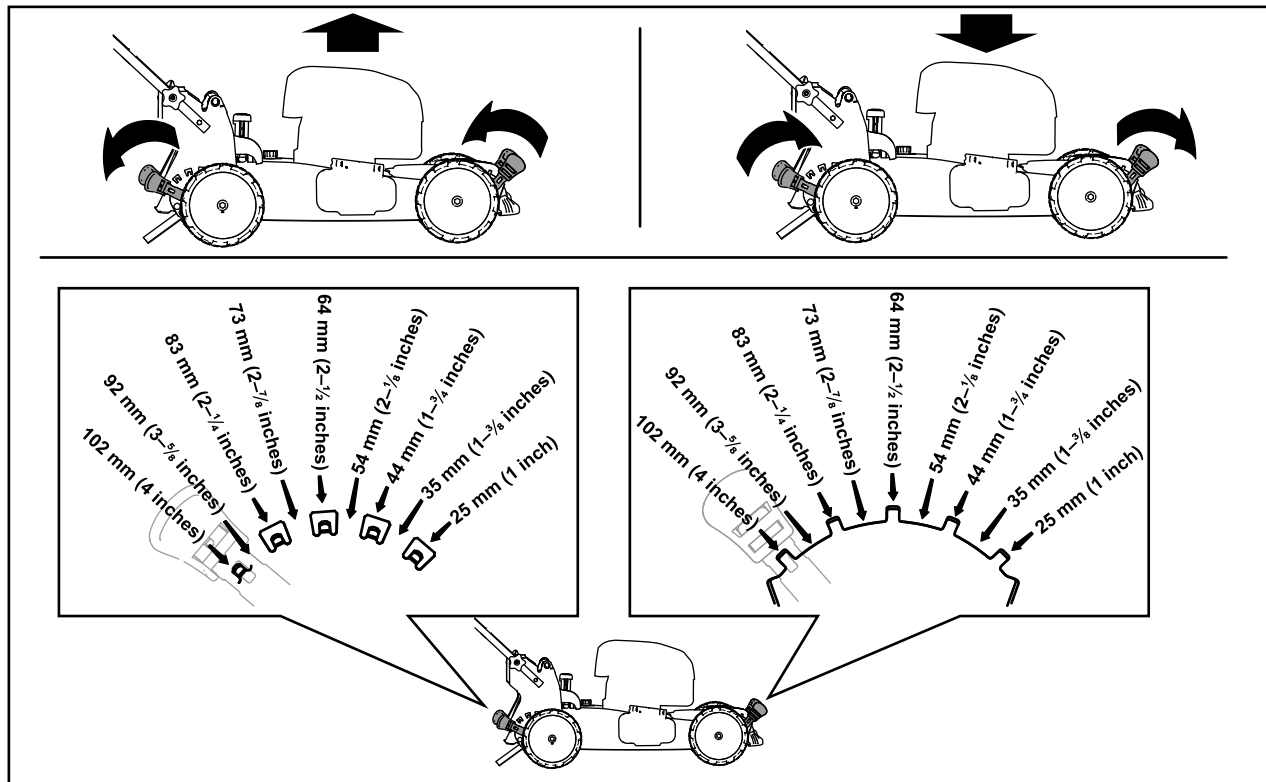


Figure 12

g230847

## During Operation

## During Operation Safety

### General Safety

- Wear appropriate clothing, including eye protection; long pants; slip-resistant, substantial footwear; and hearing protection. Tie back long hair, secure loose clothing, and do not wear loose jewelry.
- Do not operate the machine while ill, tired, or under the influence of alcohol or drugs.
- The blade is sharp; contacting the blade can result in serious personal injury. Shut off the engine, remove the ignition key (electric-start model only), and wait for all moving parts to stop before leaving the operating position.
- When you release the blade-control bar, the engine should shut off and the blade should stop within 3 seconds. If not, stop using your machine immediately and contact an Authorized Service Dealer.
- Keep bystanders, especially small children, out of the operating area. Stop the machine if anyone enters the area.
- Always look down and behind you before moving the machine in reverse.
- Operate the machine only in good visibility and appropriate weather conditions. Do not operate the machine when there is the risk of lighting.
- Wet grass or leaves can cause serious injury if you slip and contact the blade. Avoid mowing in wet conditions.
- 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 the machine to overturn or cause you to lose your balance or footing.
- If the machine strikes an object or starts to vibrate, immediately shut off the engine, remove the key (if equipped), 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.
- Before leaving the operating position, shut off the engine, remove the ignition key (electric-start model only), and wait for all moving parts to stop.
- If the engine has been running the muffler will be hot and can severely burn you. Keep away from the hot muffler.
- Check the grass catcher components and the discharge chute frequently for any wear or deterioration and replace them with the manufacturer's recommended parts when necessary.
- Use accessories and attachments approved by The Toro® Company only.

## Slope Safety

- Mow across the face of slopes; never up and down. Use extreme caution when changing direction on slopes.
- Do not mow on excessively steep slopes. Poor footing could cause a slip-and-fall accident.
- Mow with caution near drop-offs, ditches, or embankments.

## Starting the Engine

1. Hold the blade-control bar against the handle (A of [Figure 13](#)).
2. Pull the recoil-start handle lightly until you feel resistance, then pull it sharply, and allow it to return to the rope guide on the handle slowly (B of [Figure 13](#))

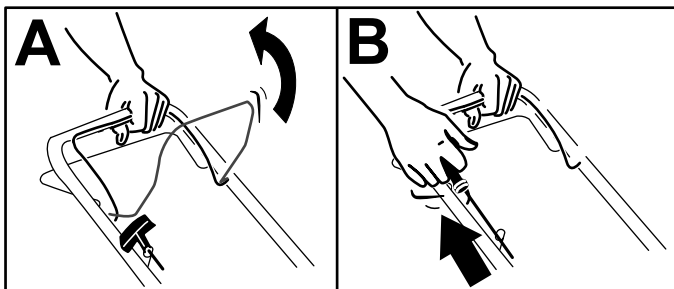


Figure 13

g233069

**Note:** If the machine does not start after several attempts, contact an Authorized Service Dealer.

## Using the Self-Propel Drive

- **To engage the self-propel drive:** Squeeze the self-propel-drive bar against the handle and hold it ([Figure 14](#)).

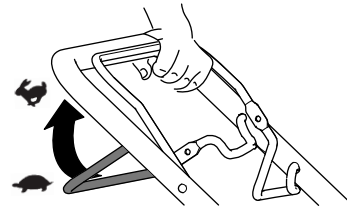


Figure 14

g233170

**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.

- **To disengage the self-propel-drive:** release the self-propel-drive bar.

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

## Shutting Off the Engine

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

To shut off the engine, release the blade-control bar.

**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 your machine immediately and contact an Authorized Service Dealer.

## 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 \(page 13\)](#). If the side-discharge chute is on the machine, remove it; refer to [Removing the Side-Discharge Chute \(page 13\)](#).

# 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; refer to [Removing the Side-Discharge Chute \(page 13\)](#).

## Installing the Grass Bag

1. Raise and hold up the rear deflector (A of [Figure 15](#)).
2. Install the grass bag, ensuring that the pins on the bag rest in the notches on the handle (B of [Figure 15](#)).
3. Lower the rear deflector.

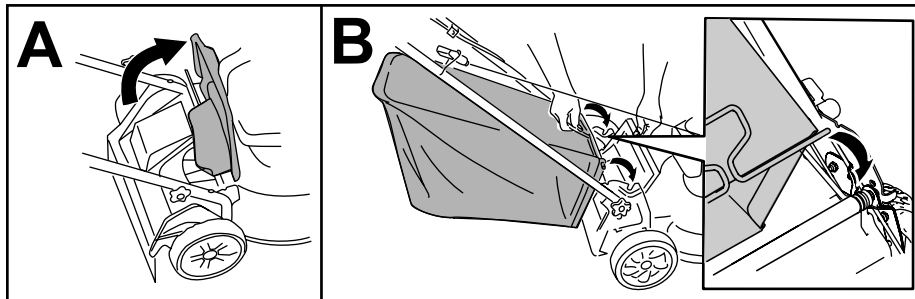


Figure 15

g238579

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## Removing the Grass Bag

To remove the bag, reverse the steps in [Installing the Grass Bag \(page 13\)](#).

## Side-Discharging the Clippings

Use side discharging for cutting very tall grass.

If the grass bag is on the machine, remove it; refer to [Removing the Grass Bag \(page 13\)](#).

## Installing the Side-Discharge Chute

Lift up the side deflector and install the side-discharge chute ([Figure 16](#)).

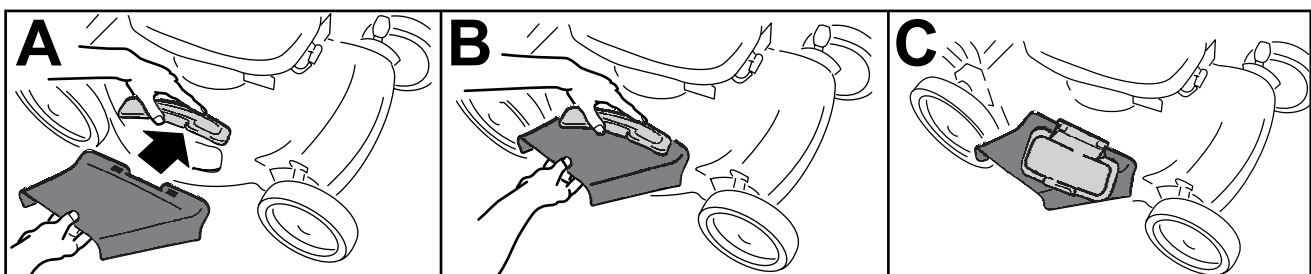


Figure 16

g233435

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## Removing the Side-Discharge Chute

To remove the side-discharge chute, lift up the side deflector, remove the side-discharge chute, and lower the side deflector.

# Operating Tips

## General Mowing Tips

- Inspect the area where you will use the machine and remove all objects that the machine could throw.
- Avoid striking solid objects with the blade. Never deliberately mow over any object.
- If the machine strikes an object or starts to vibrate, immediately shut off the engine, remove the key (if equipped), disconnect the wire from the spark plug, and examine the machine for damage.
- For best performance, install a new blade before the cutting season begins.
- Replace the blade when necessary with a Toro replacement blade.

## Cutting Grass

- Cut only about a third of the grass blade at a time. Do not cut below 51 mm (2 inches) unless the grass is sparse or it is late fall when grass growth begins to slow down.
- When cutting grass over 15 cm (6 inches) tall, 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, the machine may plug and cause the engine to stall.
- Wet grass and leaves tend to clump on the yard and can cause the machine to plug or the engine to stall. Avoid mowing in wet conditions.
- 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.
- Alternate the mowing direction. This helps disperse the clippings over the lawn for even fertilization.
- If the finished lawn appearance is unsatisfactory, try 1 or more of the following:
  - Replace the blade or have it sharpened.
  - 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.

- If there are more than 13 cm (5 inches) of leaves on the lawn, mow at a higher cutting height and then again at the desired cutting height.
- Slow down your mowing speed if the machine does not cut the leaves finely enough.

## After Operation

## After Operation Safety

### General Safety

- Clean grass and debris from the machine to help prevent fires. Clean up oil or fuel spills.
- 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.

### Hauling Safety

- Remove the ignition key (if equipped) before loading the machine for hauling.
- Use care when loading or unloading the machine.
- Secure the machine from rolling.

## Cleaning under the Machine

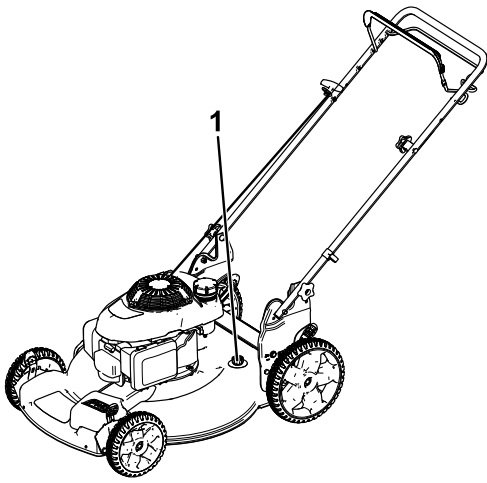
**Service Interval:** Before each use or daily

For best results, clean the machine soon after you have completed mowing.

1. Move the machine onto a flat paved surface.
2. Shut off the engine and wait for all moving parts to stop before leaving the operating position.
3. Lower the machine to its lowest cutting-height setting. Refer to [Adjusting the Cutting Height \(page 11\)](#).
4. Wash out the area under the rear door where the clippings go from the underside of the machine to the grass bag.

**Note:** Wash out the area with the bag-on-demand (if equipped) in both the fully forward and fully rearward positions.

5. Attach a garden hose that is connected to a water supply to the washout port ([Figure 17](#)).



**Figure 17**

1. Washout port

6. Turn the water on.
7. Start the engine and run it until the clippings no longer come out from under the machine.
8. Shut off the engine.
9. Shut off the water and disconnect the garden hose from the machine.
10. Start the engine and run it for a few minutes to dry the underside of the machine to prevent it from rusting.
11. Shut off the engine and allow it to cool before storing the machine in an enclosed area.

## Folding the Handle

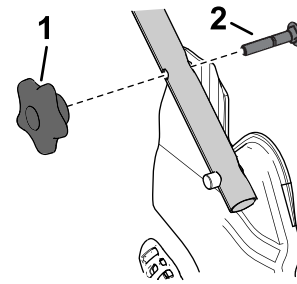
### ⚠ WARNING

Folding or unfolding the handle improperly can damage the cables, causing an unsafe operating condition.

- Do not damage the cables when folding or unfolding the handle.
- If a cable is damaged, contact an Authorized Service Dealer.

1. Remove and save the 2 handle knobs and 2 carriage bolts from the handle brackets ([Figure 18](#)).

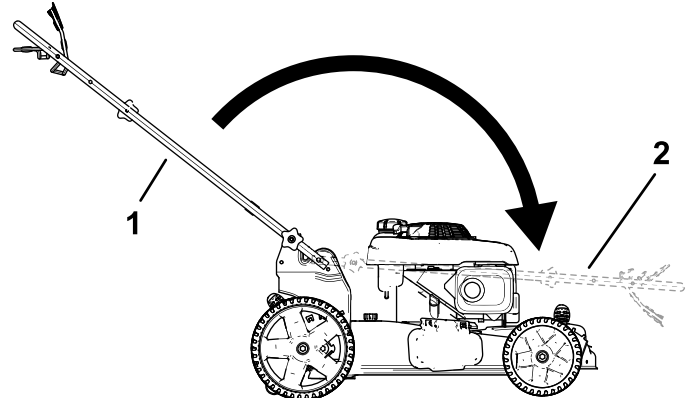
**Important:** Route the cables to the outside of the handle knobs as you fold the handle.



**Figure 18**

1. Handle knob
2. Carriage bolt

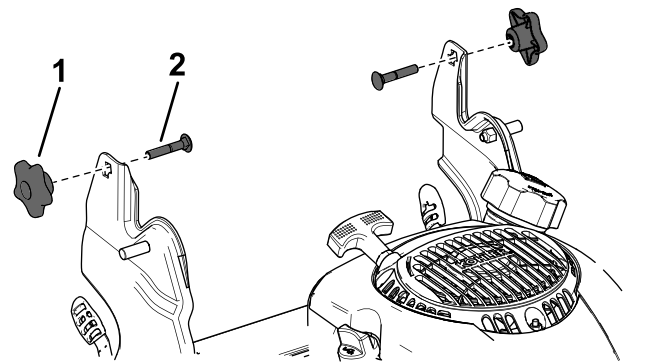
2. Fold the handle by rotating it forward ([Figure 19](#)).



**Figure 19**

1. Operating position
2. Folded position

3. Insert the carriage bolt (with the bolt head toward the inside) through the handle bracket and the upper hole in the handle end. Ensure that the square edges of each carriage bolt fits into the upper or lower square hole in its related handle bracket ([Figure 20](#)).



**Figure 20**

1. Handle knob
2. Carriage bolt

4. Loosely install the handle knobs and carriage bolts on the handle brackets.
5. To unfold the handle, refer to [1 Assembling and Unfolding the Handle](#) (page 5).



# Maintenance

Replacement parts are available from an Authorized Service Dealer or at [www.torodealer.com](http://www.torodealer.com) (US customers only).

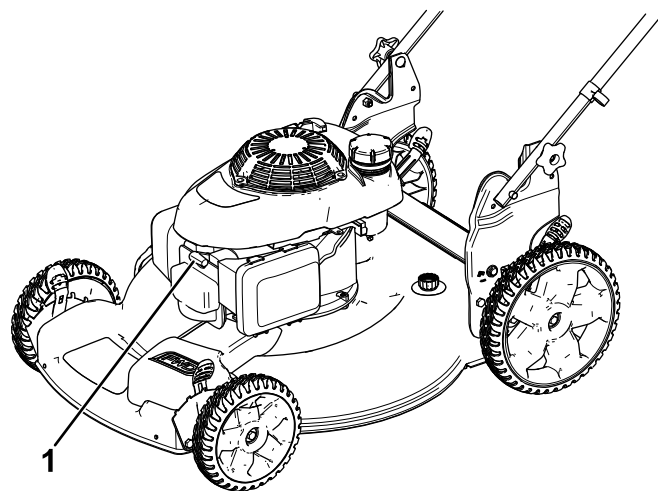
## Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
Before each use or daily	<ul style="list-style-type: none"><li>• Check the engine-oil level and add oil as needed.</li><li>• Ensure that the engine shuts off within 3 seconds after releasing the blade-control bar.</li><li>• Clean grass clippings and dirt from under the machine.</li></ul>
Yearly	<ul style="list-style-type: none"><li>• Service the air filter.</li><li>• Change the engine oil.</li><li>• Replace the blade or have it sharpened (more frequently if the edge dulls quickly).</li><li>• Clean the engine by removing dirt and debris from its top and sides; clean it more frequently in dusty operating conditions.</li></ul>
Yearly or before storage	<ul style="list-style-type: none"><li>• Empty the fuel tank before repairs as directed and before yearly storage.</li></ul>

**Important:** Refer to your engine owner's manual for additional maintenance procedures.

## Maintenance Safety

- Disconnect the spark-plug wire from the spark plug before performing any maintenance procedure.
- Wear gloves and eye protection when servicing the machine.
- The blade is sharp; contacting the blade can result in serious personal injury. Wear gloves when servicing the blade. Do not repair or alter the blade(s).
- 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.
- 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.



g193195

**Figure 21**

1. Spark-plug wire

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

**Important:** Before tipping the machine to change the oil or replace the blade, allow the fuel tank to run dry through normal usage. If you must tip the machine prior to running out of fuel, use a hand fuel pump to remove the fuel. Always tip the machine onto its side, with the dipstick down.

## Preparing for Maintenance

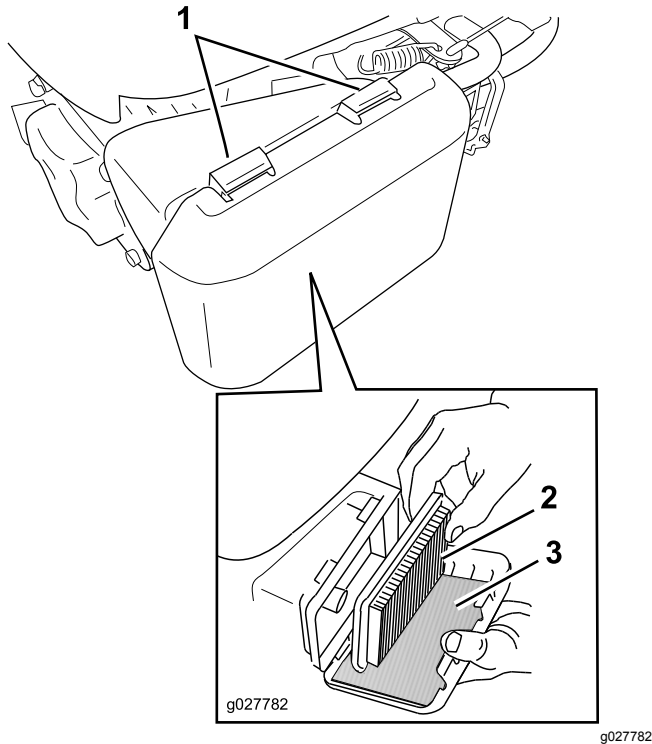
1. Shut off the engine and wait for all moving parts to stop.
2. Disconnect the spark-plug wire from the spark plug ([Figure 21](#)).



# Servicing the Air Filter

**Service Interval:** Yearly

1. Press down on the latch tabs on top of the air-filter cover ([Figure 22](#)).



**Figure 22**

1. Latch tabs
  2. Paper air filter
  3. Foam pre-filter
- 
2. Open the cover.
  3. Remove the paper air filter and the foam pre-filter ([Figure 22](#)).
  4. Inspect the foam pre-filter, and replace it if it is damaged or excessively dirty.
  5. Inspect the paper air filter.
    - If the air filter is damaged or is wet with oil or fuel, replace it.
    - If the air 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.

6. Remove the dirt from the air-filter body and the cover using a moist rag.

**Important:** Do not wipe dirt into the air duct.

7. Install the foam pre-filter and the paper air filter into the air filter.
8. Install the cover.

# Changing the Engine Oil

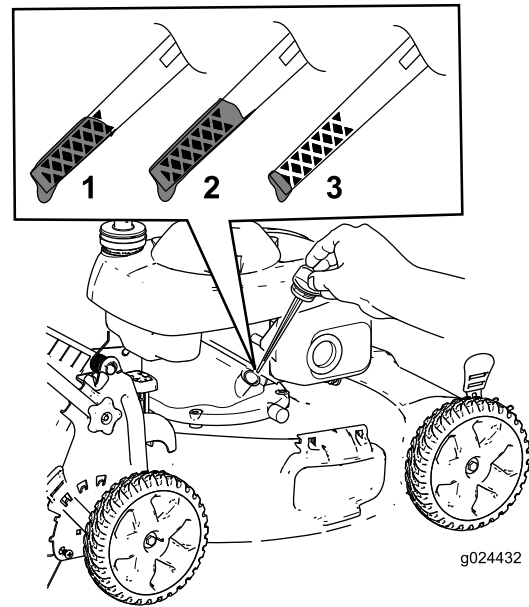
**Service Interval:** Yearly

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

## Engine Oil Specifications

Engine oil capacity	0.55 L (18.6 fl oz)
Oil viscosity	SAE 30 or SAE 10W-30 detergent oil
API service classification	SJ or higher

1. Move the machine to a level surface.
2. Refer to [Preparing for Maintenance \(page 16\)](#).
3. Remove the dipstick by rotating the cap counterclockwise and pulling it out ([Figure 23](#)).



**Figure 23**

1. Full
  2. High
  3. Low
- 
4. Tip the machine onto its side (so that the air filter is up) to drain the used oil from the oil-fill tube ([Figure 23](#)).

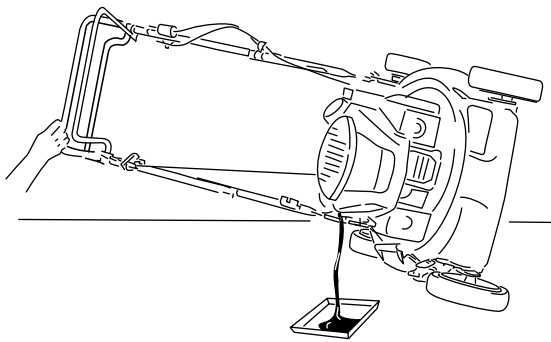


Figure 24

g188765

## Replacing the Blade

**Service Interval:** Yearly

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

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

### ⚠ WARNING

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

**Wear gloves when servicing the blade.**

1. Refer to [Preparing for Maintenance \(page 16\)](#).
2. Tip the machine onto its side with the air filter up.
3. Use a block of wood to hold the blade steady ([Figure 25](#)).

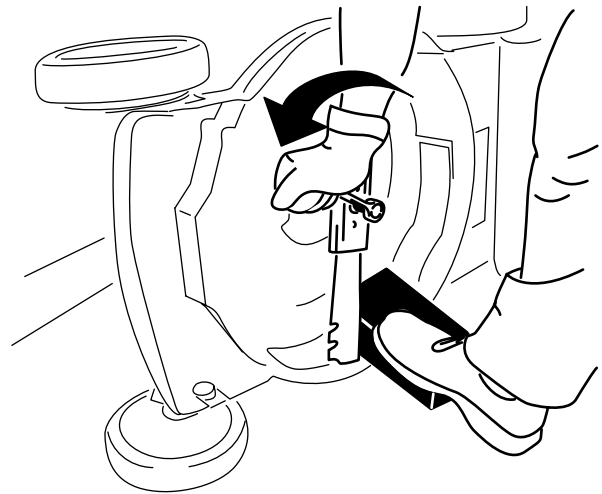


Figure 25

g231389

4. Remove the blade, saving all mounting hardware ([Figure 25](#)).
5. Install the new blade and all mounting hardware ([Figure 26](#)).

5. After draining the used oil, return the machine to the operating position.
6. Carefully pour about 3/4 of the engine capacity of oil into the oil-fill tube.
7. Wait 3 minutes for the oil to settle in the engine.
8. Wipe the dipstick clean with a clean cloth.
9. Insert the dipstick into the oil-fill tube, **but do not screw it in**, then remove the dipstick.
10. Read the oil level on the dipstick ([Figure 23](#)).
  - If the oil level on the dipstick is too low, carefully pour a small amount of oil into the oil-fill tube, wait 3 minutes, and repeat steps [8](#) through [10](#) until the oil level on the dipstick is correct.
  - If the oil level on the dipstick is too high, drain the excess oil until the oil level on the dipstick is correct.
- Important:** If the oil level in the engine is too low or too high and you run the engine, you may damage the engine.
11. Install the dipstick into the oil-fill tube securely.
12. Recycle the used oil properly.

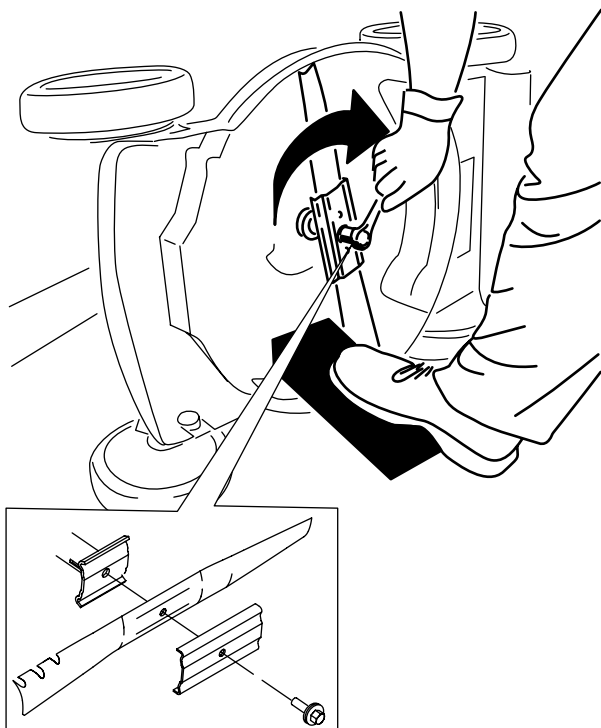


Figure 26

- 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 82 N·m (60 ft-lb).

**Important:** A bolt torqued to 82 N·m (60 ft-lb) is very tight. While holding the blade with a block of wood, put your weight behind the ratchet or wrench and tighten the bolt securely. This bolt is very difficult to overtighten.

## Adjusting the Self-Propel Drive

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

1. Turn the adjustment knob counterclockwise to loosen the cable adjustment (Figure 27).

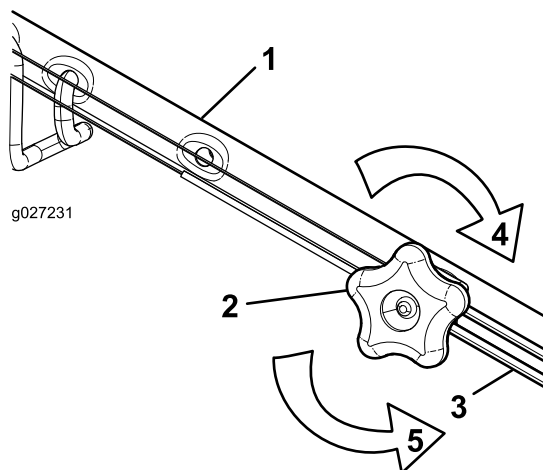


Figure 27

1. Handle (left side)
2. Adjustment knob
3. Self-propel-drive cable
4. Turn the knob clockwise to tighten the adjustment.
5. Turn the knob counterclockwise to loosen the adjustment.

2. Adjust the tension on the cable (Figure 27) by pulling it back or pushing it forward and holding that position.

**Note:** Push the cable toward the engine to increase the traction; pull the cable away from the engine to decrease the traction.

3. Turn the adjustment knob clockwise to tighten the cable adjustment.

**Note:** Tighten the knob firmly by hand.

# Storage

Store the machine in a cool, clean, dry place.

## Preparing the Machine for Storage

1. On the last refueling of the year, add fuel stabilizer (such as Toro Premium Fuel Treatment) to the fuel as directed on the label.
2. Dispose of any unused fuel properly. Recycle it according to local codes or use it in your automobile.

**Note:** Old fuel in the fuel tank is the leading cause of hard starting. Do not store fuel without fuel stabilizer more than 30 days, and do not store stabilized fuel more than 90 days.

3. Run the machine until the engine shuts off from running out of fuel.
4. Start the engine again and allow it to run until it shuts off. When you can no longer start the engine, it is sufficiently dry.
5. Disconnect the wire from the spark plug and connect the wire to the retaining post (if equipped).
6. Remove the spark plug, add 30 ml (1 fl oz) of engine oil through the spark-plug hole, and pull the starter rope slowly several times to distribute oil throughout the cylinder to prevent cylinder corrosion during the off-season.
7. Loosely install the spark plug.
8. Tighten all nuts, bolts, and screws.

## Removing the Machine from Storage

1. Check and tighten all fasteners.
2. Remove the spark plug and spin the engine rapidly by pulling the recoil-start handle to blow the excess oil from the cylinder.
3. Install the spark plug and tighten it with a torque wrench to 20 N·m (15 ft-lb).
4. Perform any maintenance procedures; refer to [Maintenance \(page 16\)](#).
5. Check the engine-oil level; refer to [Checking the Engine-Oil Level \(page 10\)](#).
6. Fill the fuel tank with fresh fuel; refer to [Filling the Fuel Tank \(page 9\)](#).
7. Connect the wire to the spark plug.