



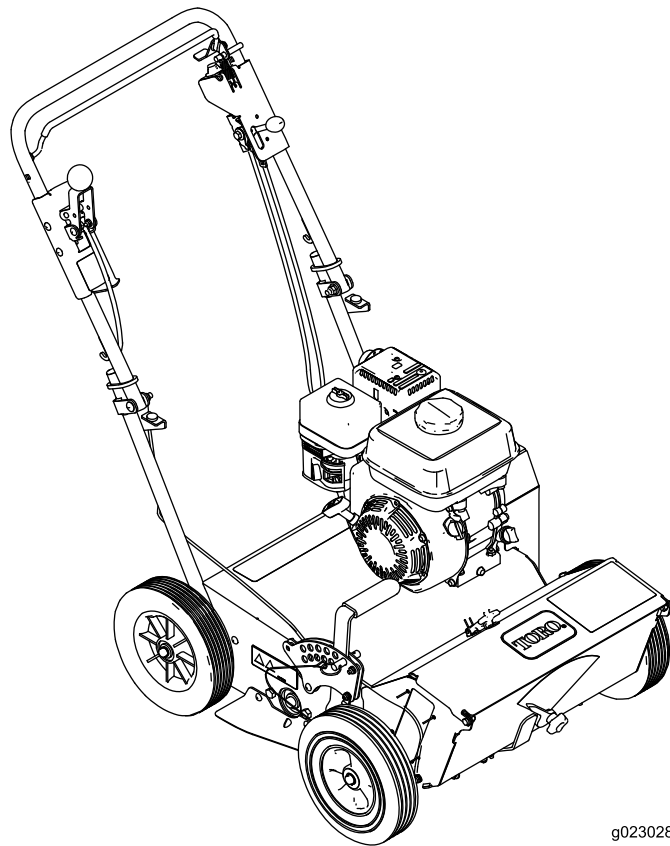
**Count on it.**

**Operator's Manual**

# 18in Turf Seeder

Model No. 23511—Serial No. 31300001 and Up

Model No. 33511—Serial No. 31300001 and Up



g023028

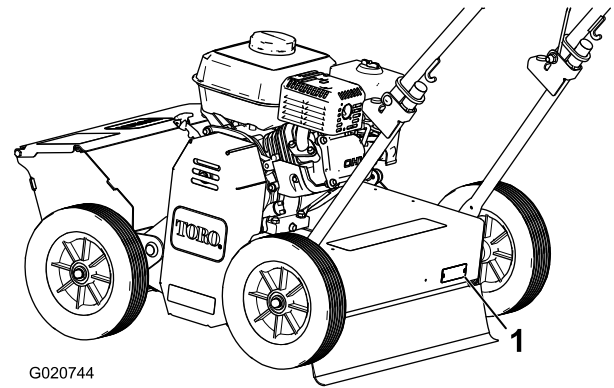


## ⚠ WARNING

### CALIFORNIA Proposition 65 Warning

This product contains a chemical or chemicals known to the State of California to cause cancer, birth defects, or reproductive harm.

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.



G020744

Figure 1

1. Location of the model and serial numbers

This spark ignition system complies with Canadian ICES-002.

**Important:** This engine is not equipped with a spark arrester muffler. It is a violation of California Public Resource Code Section 4442 to use or operate the engine on any forest-covered, brush-covered, or grass-covered land. Other states or federal areas may have similar laws.

## Introduction

This machine seeds turf. It is intended for small- to medium-sized lawn applications in residential and commercial properties.

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

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

Whenever you need service, genuine Toro parts, or additional information, contact an Authorized Service Dealer or Toro Customer Service and have the model and serial numbers of your product ready. Figure 1 illustrates the location of the model and serial numbers on the product. Write the numbers in the space provided.

Model No. \_\_\_\_\_  
Serial No. \_\_\_\_\_

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



Figure 2

1. Safety alert symbol

This manual uses 2 words to highlight information.

**Important** calls attention to special mechanical information and **Note** emphasizes general information worthy of special attention.

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# Safety

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

## Safe Operating Practices

### Training

- Read the *Operator's Manual* and other training material. If the operator(s) or mechanic(s) cannot read English it is the owner's responsibility to explain this material to them.
- Become familiar with the safe operation of the equipment, operator controls, and safety signs.
- All operators and mechanics should be trained. The owner is responsible for training the users.
- Never let children or untrained people operate or service the equipment. Local regulations may restrict the age of the operator.
- The owner/user can prevent and is responsible for accidents or injuries occurring to people, or damage to property.

### Preparation

- Evaluate the terrain to determine what accessories and attachments are needed to properly and safely perform the job. Only use accessories and attachments approved by the manufacturer.
- Wear appropriate clothing including safety glasses and hearing protection. Long hair, loose clothing, or jewelry may get tangled in moving parts.
- Inspect the area where the equipment is to be used and remove all objects such as rocks, toys, and wire which can be contacted by the machine.
- Use extra care when handling gasoline and other fuels. They are flammable and vapors are explosive.
  - Use only an approved container.
  - Never remove the gas cap or add fuel with the engine running.
  - Allow the engine to cool before refueling.
  - Do not smoke.
  - Never refuel or drain the machine indoors.
- Check that the operator presence controls, safety switches, and shields are attached and functioning properly. Do not operate the machine unless it is functioning properly.

## Operation

- Never run an engine in an enclosed area.
- Only operate in good light, keeping away from holes and hidden hazards.
- Start the engine only from the operator's position.
- Never operate without the shields, covers, or other guards securely in place. Be sure all interlocks are functioning properly.
- Do not change the engine governor setting or overspeed the engine.
- Raise the cutting blades, stop the machine, and stop the engine before leaving the operator's position for any reason.
- Stop the equipment and inspect the cutting blades after striking an object or if an abnormal vibration occurs. Make necessary repairs before resuming operation.
- Keep hands and feet away from the cutting blade area.
- Never carry passengers, and keep pets and bystanders away.
- Be alert, slow down, and use caution when making turns. Look behind and to the side before changing directions.
- Slow down and use caution when crossing roads and sidewalks.
- Do not operate the machine while under the influence of alcohol or drugs.
- Lightning can cause severe injury or death. If lightning is seen or thunder is heard in the area, do not operate the machine; seek shelter.
- Use extreme care when loading or unloading the machine into a trailer or truck.
- Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.
- Always be aware of obstacles that may be in the area of operation. Plan your path to avoid contact with any obstacle by you or the machine.

## Slope Operation

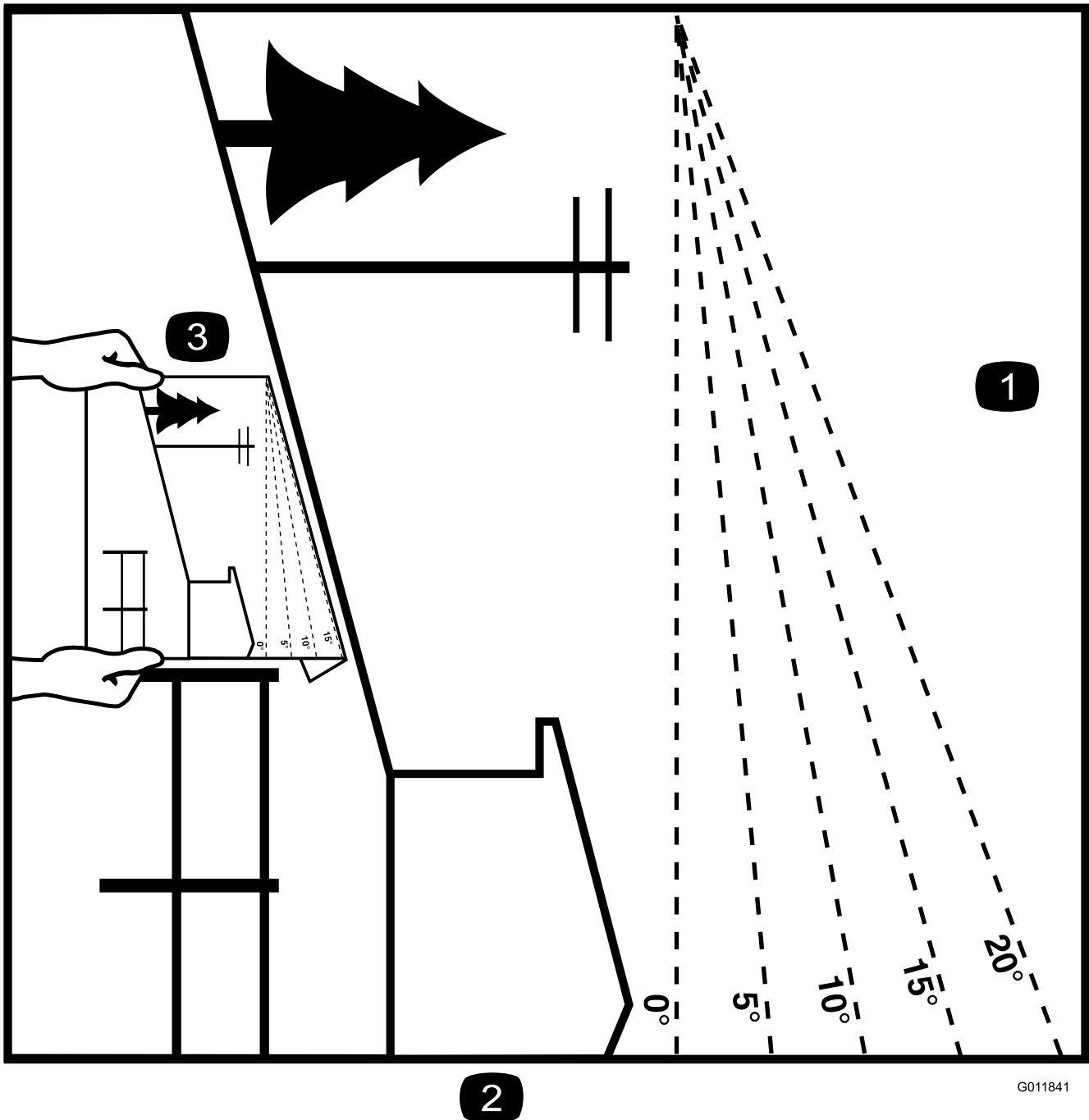
- Do not operate near drop-offs, ditches, steep banks, or water. Wheels dropping over edges can cause rollovers, which may result in serious injury or death.
- Do not operate on slopes when grass is wet. Slippery conditions reduce traction and could cause sliding and loss of control.
- Do not make sudden turns or rapid speed changes.
- Reduce speed and use extreme caution on slopes.
- Do not operate on a slope greater than 20 degrees.
- Remove or mark obstacles such as rocks, tree limbs, etc. from the operating area. Tall grass can hide obstacles.

- Watch for ditches, holes, rocks, dips, and rises that change the operating angle, as rough terrain could overturn the machine.
- Always avoid sudden starting or stopping on a slope. If tires lose traction, disengage the cutting blades and proceed slowly off the slope.
- Follow the recommendations for wheel weights or counterweights to improve stability.

## Maintenance and Storage

- Wait for all movement to stop before adjusting, cleaning, or repairing. Raise the cutting blades, stop the machine, stop the engine, and disconnect the spark plug wire.
- Clean grass and debris from the blades, drives, mufflers, and engine to help prevent fires. Clean up oil or fuel spills.
- Let the engine cool before storing, and do not store the machine near a flame.
- Shut off the fuel while storing or transporting the machine on trailers. Do not store fuel near flames or drain indoors.
- Park the machine on level, hard ground. Never allow untrained personnel to service it.
- Use jack stands or safety latches to support components when required.
- Carefully release pressure from components with stored energy.
- Remove the spark plug wire before making any repairs.
- Keep hands and feet away from moving parts. If possible, do not make adjustments with the engine running.
- Keep all parts in good working condition and all hardware tightened. Replace all worn or damaged decals.
- Use only Toro-approved attachments. The warranty may be voided if the machine is used with unapproved attachments.

# Slope Indicator



2

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Figure 3

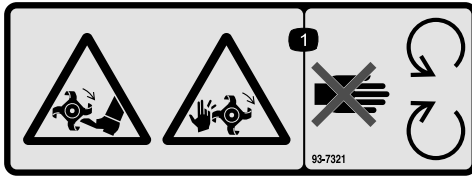
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1. The maximum slope you can safely operate the machine on is **20 degrees**. Use the slope chart to determine the degree of slope of hills before operating. **Do not operate this machine on a slope greater than 20 degrees.** Fold along the appropriate line to match the recommended slope.
2. Align this edge with a vertical surface, a tree, building, fence pole, etc.
3. Example of how to compare slope with folded edge.

# 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.



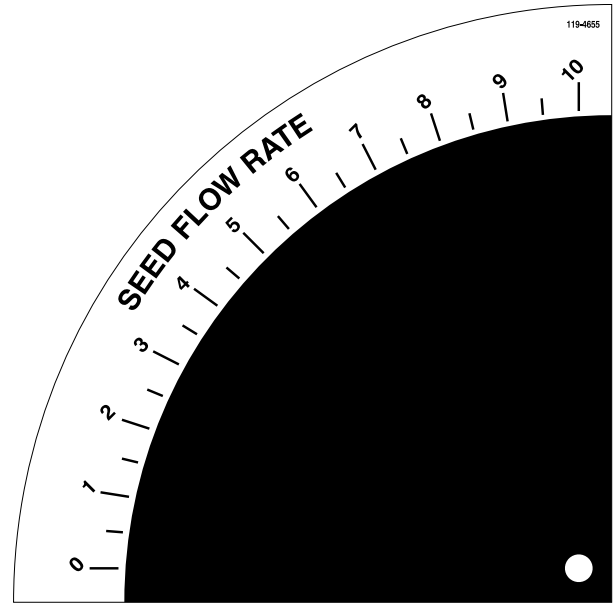
**93-7321**

1. Warning—stay away from moving parts; keep all guards in place.

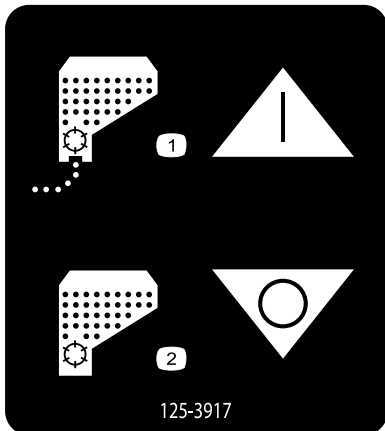


**125-3897**

1. Warning—stay away from moving parts; keep all guards and shields in place.

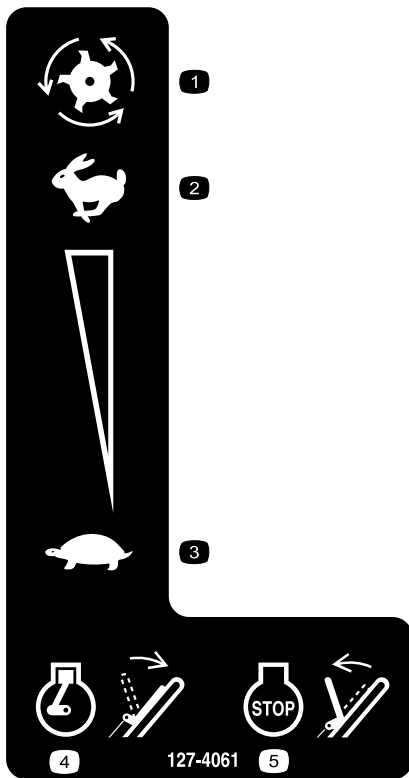


**119-4655**



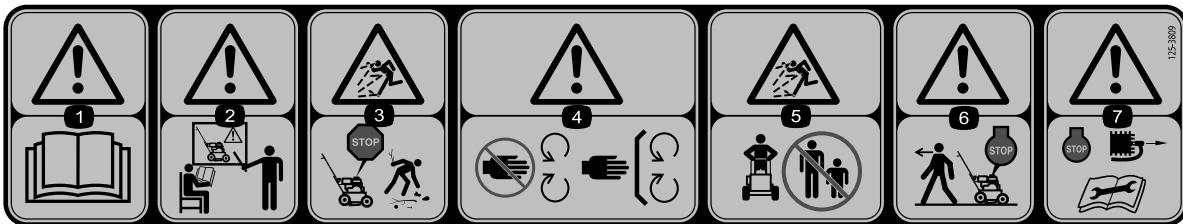
**125-3917**

1. Seeder On
2. Seeder Off



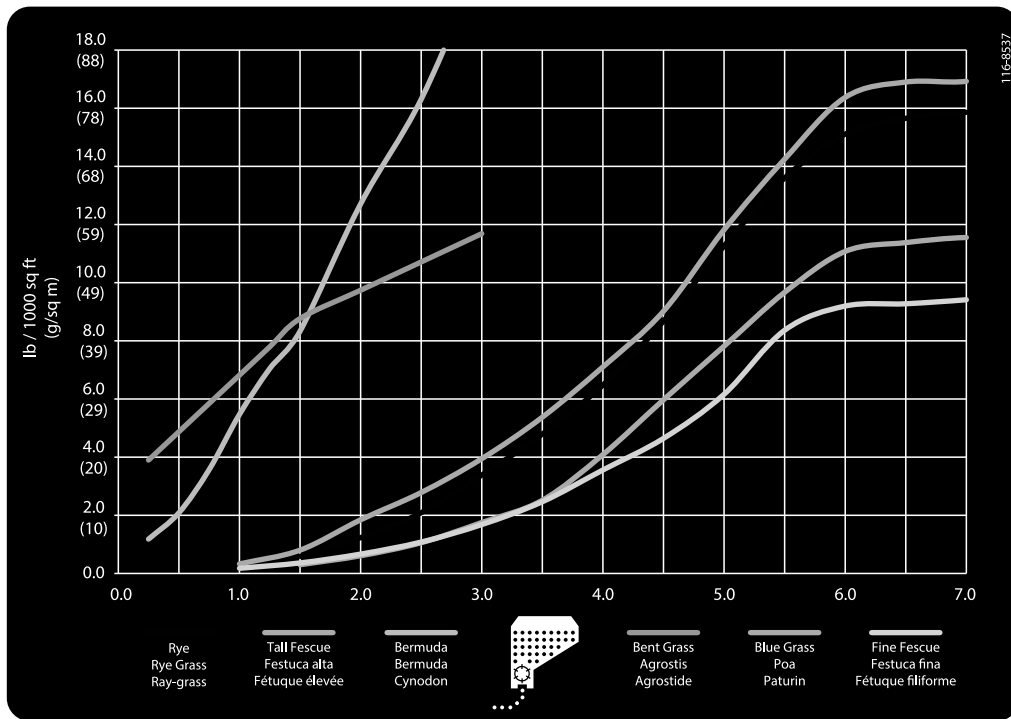
**127-4061**

- |                   |   |
|-------------------|---|
| 1. Cutting blades | 4. Hold the handle to start the engine.   |
| 2. Fast           | 5. Release the handle to stop the engine. |
| 3. Slow           |   |

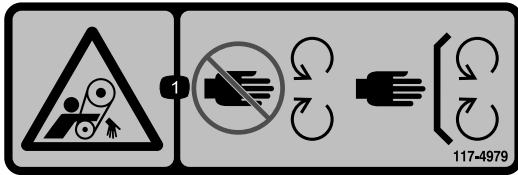


**125-3809**

- |   |   |
|---|---|
| 1. Warning—read the <i>Operator's Manual</i> .                                | 5. Thrown object hazard—keep bystanders away from the machine.  |
| 2. Warning—do not operate this machine unless you are trained.                | 6. Warning—stop the engine before walking away from the machine.  |
| 3. Thrown object hazard—stop the engine and remove any debris from your path. | 7. Warning—stop the engine and disconnect the spark plug wire before performing maintenance on the machine. |
| 4. Warning—stay away from moving parts; keep all guards in place.             |   |



116-8537



117-4979

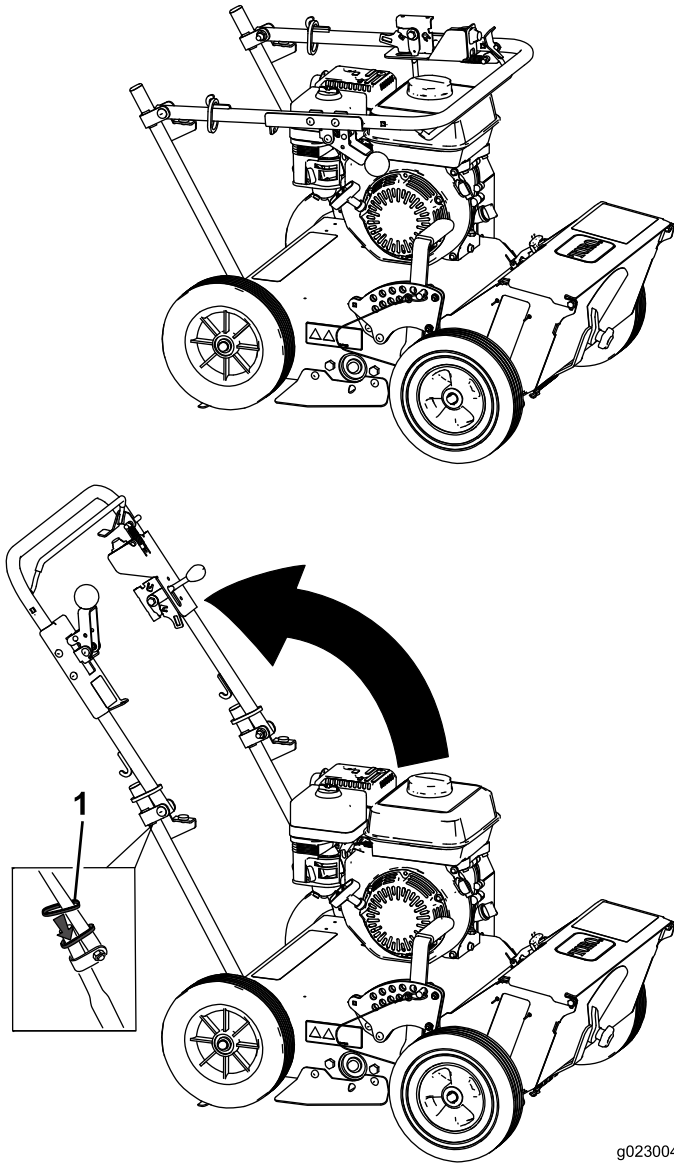
1. Entanglement hazard, belt—keep away from moving parts; keep all guards and shields in place.



# Setup

## Unfolding the Handle

1. Raise the handle to the operating position (Figure 4).



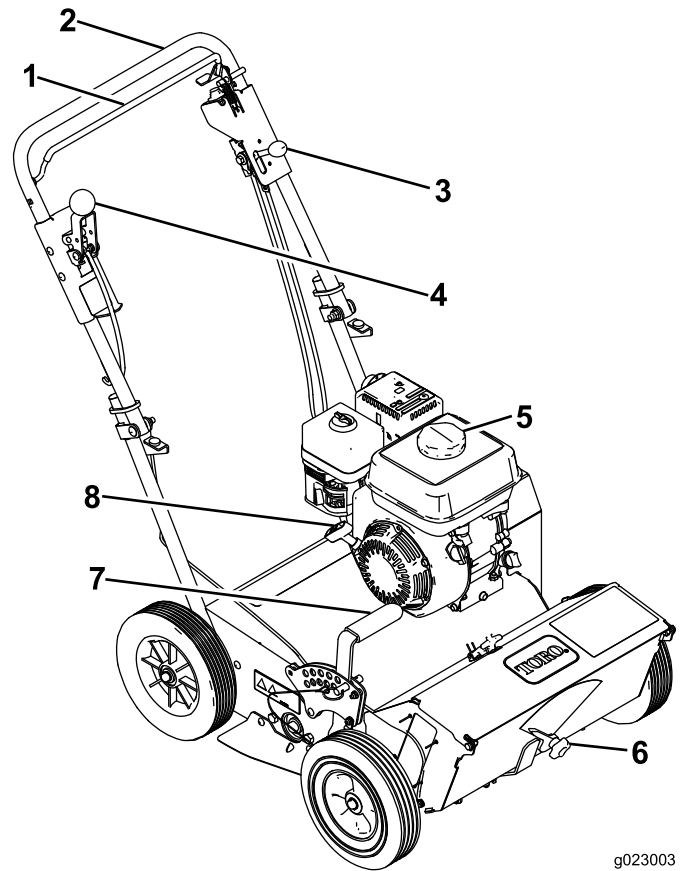
**Figure 4**

2. Slide the oval locking rings down each side of the upper handle over the lower handle (Figure 4), locking the handle sections together.

## Checking the Engine Oil Level

The machine comes from the factory with oil in the engine crankcase; however, you may need to add oil. Refer to Checking the Engine Oil Level (page 13). Add only enough oil to raise the level to the Full mark on the dipstick.

# Product Overview



**Figure 5**

- |                            |                        |
|----------------------------|------------------------|
| 1. Operator presence bail  | 5. Fuel tank           |
| 2. Handlebar               | 6. Seeding rate gauge  |
| 3. Throttle control lever  | 7. Depth control lever |
| 4. Seed gate control lever | 8. Recoil-starter rope |

# Controls

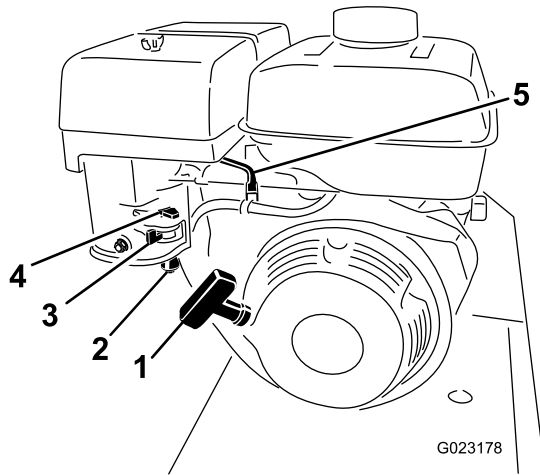


Figure 6

- |                       |                   |
|-----------------------|-------------------|
| 1. Recoil-starter     | 4. Choke lever    |
| 2. Sediment cup       | 5. Throttle lever |
| 3. Fuel shutoff valve |                   |

## Recoil-Starter

Pull the recoil-starter handle to start engine (Figure 6).

## Fuel Shutoff Valve

Close the fuel shutoff valve when transporting or storing the machine (Figure 6).

## Choke Lever

Before starting a cold engine, move the choke lever forward. After the engine starts, regulate the choke to keep the engine running smoothly. As soon as possible, move the choke lever all the way rearward.

**Note:** A warm engine requires little or no choking.

## Throttle Lever

Move the control forward to increase the engine speed and rearward to decrease speed; refer to Figure 7.

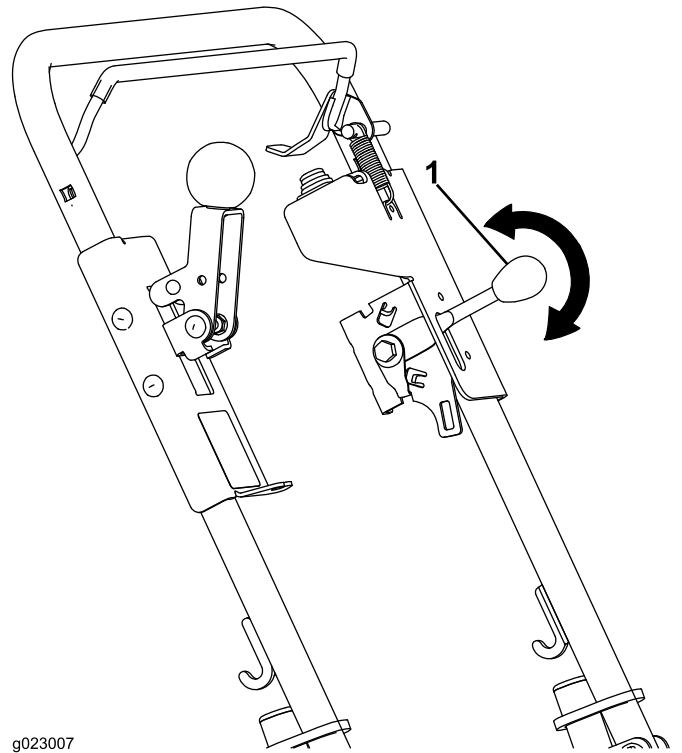


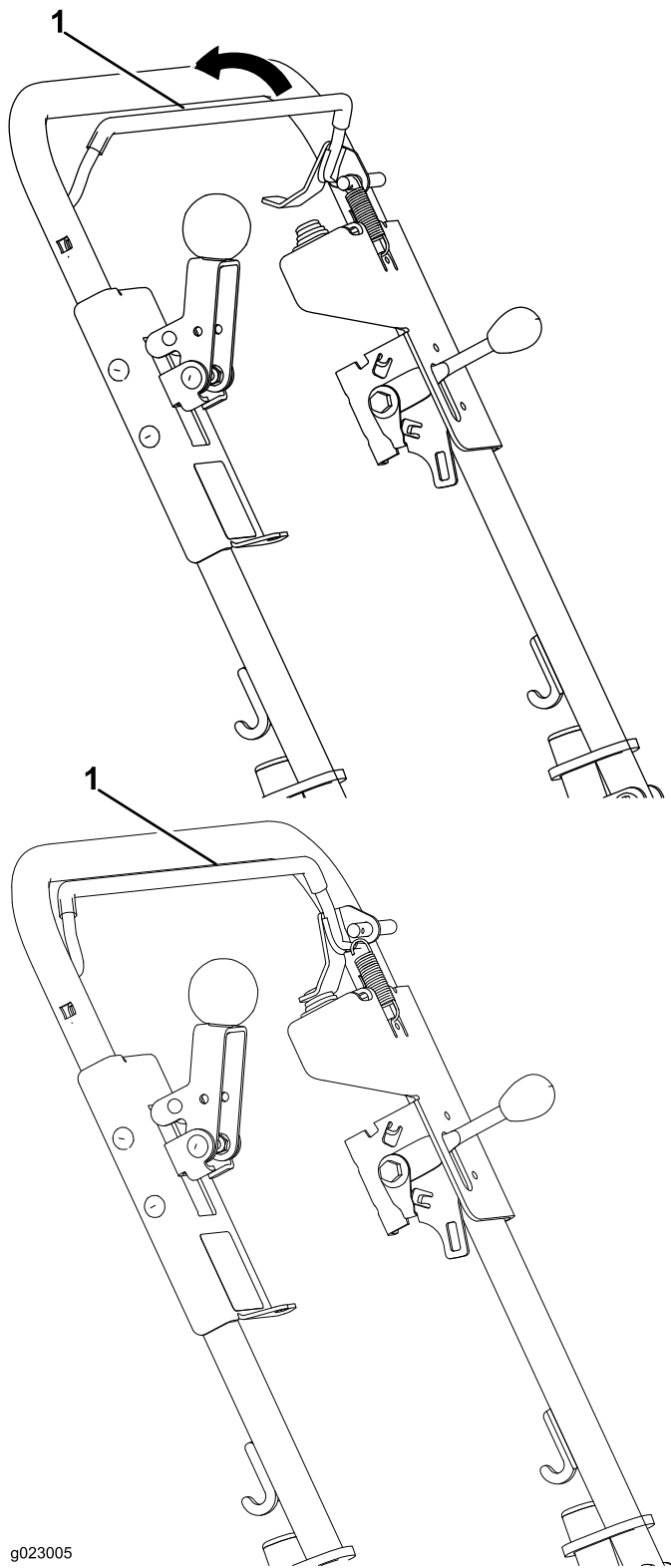
Figure 7

1. Throttle lever

## Operator Presence Bail

The operator presence bail allows the machine to start/run..

- To start the machine, hold down the operator presence bail (Figure 8). Continue to hold down the operator presence bail to allow the machine to run.



g023005

**Figure 8**

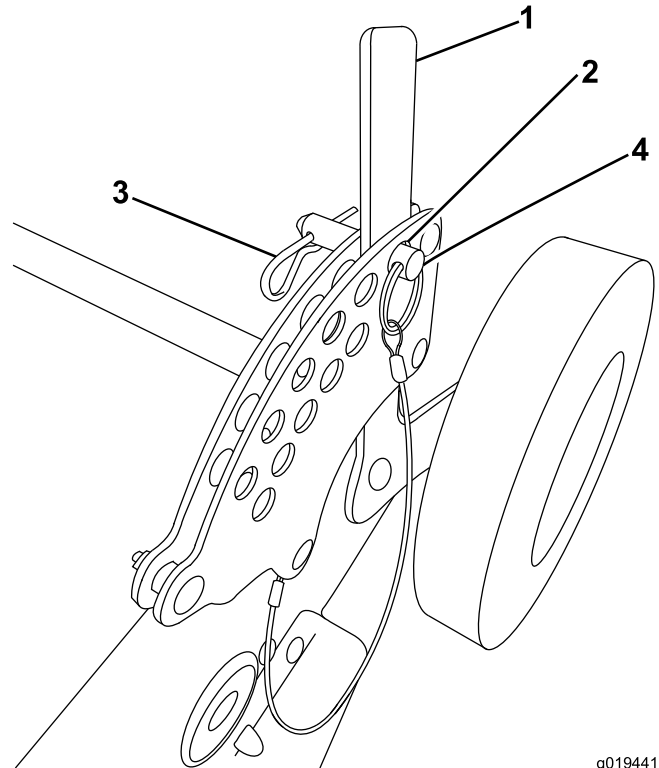
1. Operator presence bail

- To stop the cutting blades, release the operator presence bail.

## Depth Control Lever

The depth control lever allows you to set the depth of the cutting blades in 10 cutting positions along with one position for transportation. To adjust the depth, remove the hairpin cotter, pull the locking pin out, and move the lever forward or rearward to the desired depth setting (Figure 9).

**Important:** Do not pull the lever side to side as this will bend it.



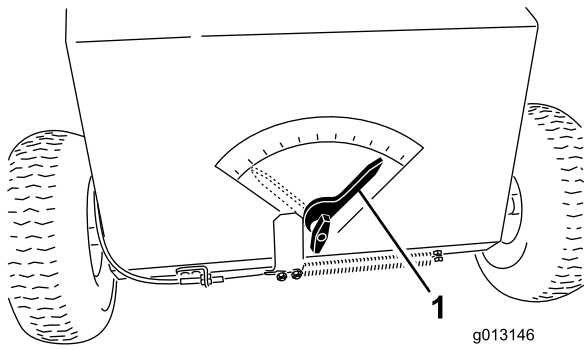
g019441

**Figure 9**

- |                            |                   |
|----------------------------|-------------------|
| 1. Depth control lever     | 3. Hairpin cotter |
| 2. Transport position hole | 4. Locking pin    |

## Seeding Rate Gauge

Use the seed rate gauge to set the seed flow rate. It is calibrated with the machine speed to give you an even seeding rate at any speed. To change the seeding rate, loosen the knob on the gauge and move the gauge pointer to the desired position, then tighten the knob to hold it in place.



**Figure 10**

## Specifications

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

Width	70 cm (27.5 inches)
Length (operating)	130 cm (51 inches)
Length (with handle stored)	96.5 cm (38 inches)
Height (operating)	94 cm (37 inches)
Height (with handle stored)	63.5 cm (25 inches)
Weight	77 kg (170 lbs)

Refer to the seeding graph located on the machine to determine the correct gauge setting for the type of grass you are planting and the thickness in which you want to plant it.

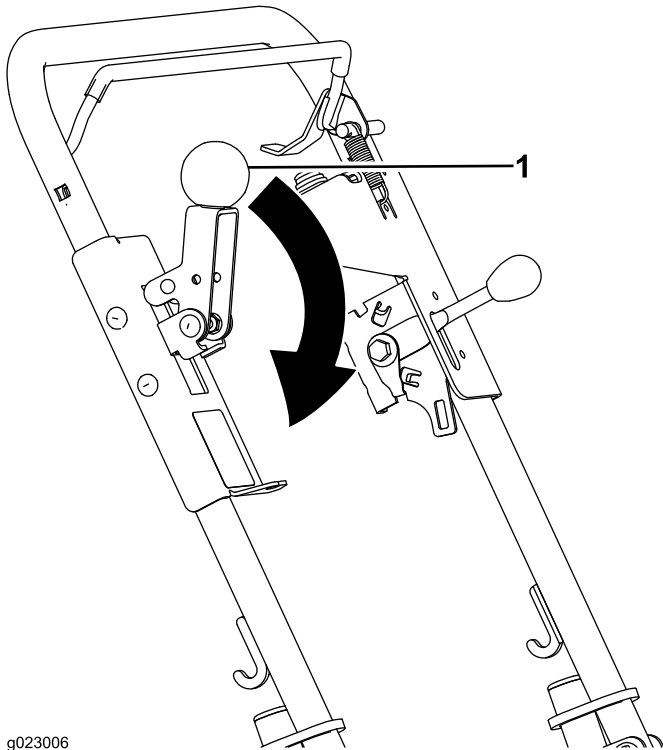
### Seed Gate Control Lever

Push the seed gate control lever (Figure 11) forward to start the seed flow, and pull it rearward to stop the seed flow.

**Note:** The machine is designed so that the seed flow slows and/or stops when you stop the machine or slow for a turn. To reduce seed loss raise the front wheels as the machine is turned. There is no need to turn the seed flow on and off for each turn.

### Attachments/Accessories

Approved attachments and accessories are available for use with the machine to enhance and expand its capabilities. Contact an Authorized Service Dealer or Distributor or go to [www.Toro.com](http://www.Toro.com) for a list of all approved attachments and accessories.



**Figure 11**

1. Seed gate control lever

# Operation

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

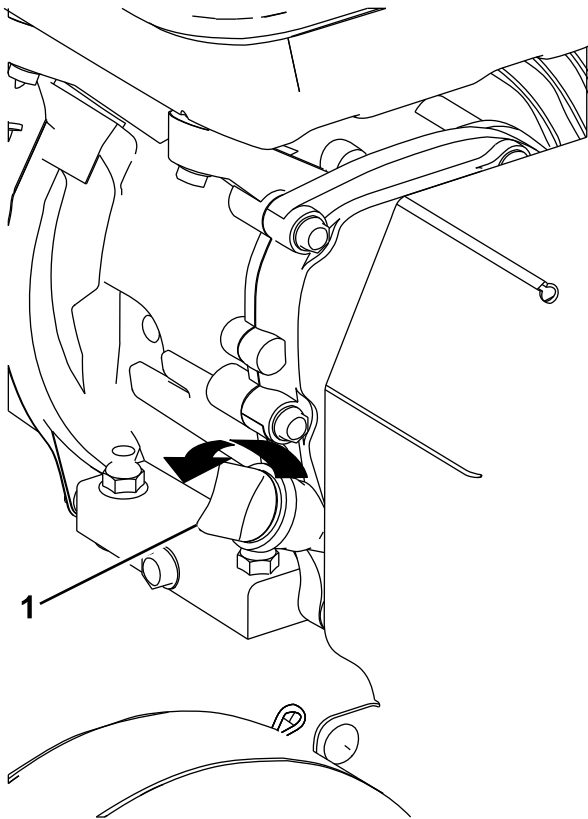
## Checking the Engine Oil Level

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

1. Stop the machine on a level surface.

**Note:** To ensure a more accurate measurement, adjust the depth control lever until the engine is also level.

2. Disengage the cutting blades, stop the engine, wait for all moving parts to stop, and turn off the engine switch.
3. Clean around the dipstick (Figure 12) so that dirt cannot fall into the filler hole and damage the engine.

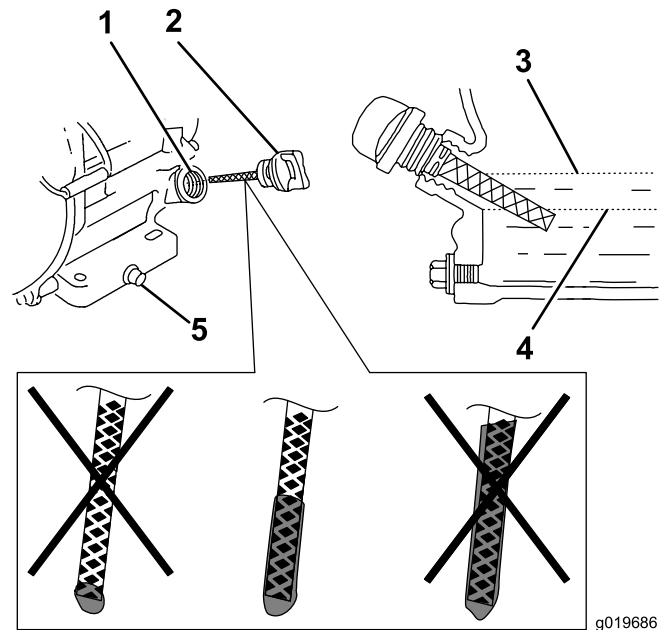


**Figure 12**

g019540

1. Dipstick

4. Unscrew the dipstick and wipe the end clean (Figure 12).
5. Insert the dipstick fully onto the filler tube. **Do not screw in.** (Figure 12).
6. Remove the dipstick again and look at the end. If the engine oil level is low, slowly pour only enough oil into the filler tube to raise the level to the middle of the dipstick (Figure 13).



g019686

**Figure 13**

1. Filler tube
2. Dipstick
3. Upper limit
4. Lower limit
5. Oil drain bolt

**Important:** Do not overfill the crankcase with engine oil and run the engine; engine damage may result.

## Cleaning Debris from the Machine

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

1. Disengage the cutting blades, stop the engine, wait for all moving parts to stop, and turn off the engine switch.
2. Brush dirt and debris away from the air cleaner and engine openings.

## Adding Fuel

- 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 fuel containers over the winter unless a fuel stabilizer is used.
- **Do not** add oil to gasoline.

## **⚠ DANGER**

In certain conditions, gasoline is extremely flammable and highly explosive. A fire or explosion from gasoline can burn you and others and can damage property.

- Fill the fuel tank outdoors, in an open area, when the engine is cold. Wipe up any gasoline that spills.
- Never fill the fuel tank inside an enclosed trailer.
- Do not fill the fuel tank completely full. Add gasoline to the fuel tank until the level is 1/4 to 1/2 inch (6 to 13 mm) below the bottom of the filler neck. This empty space in the tank allows gasoline to expand.
- Never smoke when handling gasoline, and stay away from an open flame or where gasoline fumes may be ignited by a spark.
- Store gasoline in an approved container and keep it out of the reach of children. Never buy more than a 30-day supply of gasoline.
- Do not operate without the entire exhaust system in place and in proper working condition.

## **⚠ DANGER**

In certain conditions during fueling, static electricity can be released, causing a spark which can ignite the gasoline vapors. A fire or explosion from gasoline can burn you and others and can damage property.

- Always place gasoline containers on the ground away from your vehicle before filling.
- Do not fill gasoline containers inside a vehicle or on a truck or trailer bed, because interior carpets or plastic truck bed liners may insulate the container and slow the loss of any static charge.
- When practical, remove gas-powered equipment from the truck or trailer, and refuel the equipment with its wheels on the ground.
- If this is not possible, then refuel such equipment on a truck or trailer from a portable container rather than from a gasoline dispenser nozzle.
- If a gasoline dispenser nozzle must be used, keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete.

## **Using Stabilizer/Conditioner**

Use a fuel stabilizer/conditioner in the traction unit to keep gasoline fresh during storage of 90 days or less. For longer storage drain the fuel tank.

**Important:** Do not use fuel additives containing methanol or ethanol.

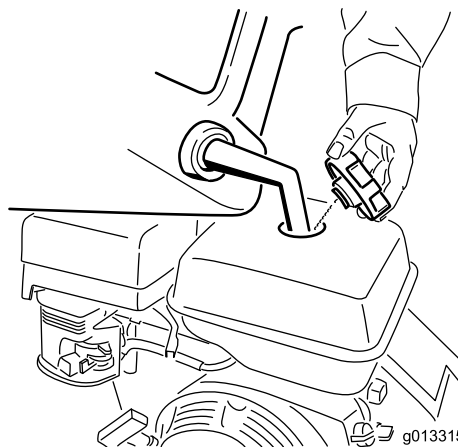
Add the correct amount of gas stabilizer/conditioner to the gas.

**Note:** A fuel stabilizer/conditioner is most effective when mixed with fresh gasoline. To minimize varnish deposits in the fuel system, use fuel stabilizer at all times.

## **Filling the Fuel Tank**

1. Disengage the cutting blades, stop the engine, wait for all moving parts to stop, and turn off the engine switch.
2. Allow the engine to cool.
3. Clean around the fuel tank cap and remove it (Figure 14).

**Note:** The cap is tethered to the fuel tank.



**Figure 14**

4. Add unleaded gasoline to the fuel tank until the level is just inside the mesh filter basket.

**Important:** This space in the tank allows gasoline to expand. Do not fill the fuel tank completely full.

5. Install the fuel tank cap securely.
6. Wipe up any spilled gasoline.

## **Starting and Stopping the Engine**

### **Starting the Engine**

1. Move the choke lever to the left if you are starting a cold engine.
2. Move the throttle lever midway between the slow (turtle) and fast (rabbit) positions.

**Note:** A warm or hot engine may not require choking.

3. Hold down the operator presence bail with one hand.
4. Pull the recoil handle sharply to start the engine.
5. After the engine starts, gradually move the choke to the right.

**Note:** If the engine stalls or hesitates, move the choke left again until the engine warms up.

6. Move the throttle lever to the desired setting.

## Stopping the Engine

1. Release the operator presence bail.
2. Close the fuel valve.
3. Wait for all moving parts to stop.

## Operating the Machine

1. Move the depth control lever to the desired setting.
2. Start the engine.
3. Push down on the handle to raise the front wheels off the ground.
4. Pull the cutting blade control lever to the handle and slowly lower the front wheels to the ground, allowing the blades to gradually work into the grass and soil.
5. When finished, release the cutting blade control lever, stop the engine, and raise the cutting blades to the transport setting.

## Operating Tips

- As seed flow varies greatly between different seed types, fill the hopper with a minimal amount of seed and run a trial portion of the yard to ensure you have the desired seed output.
- For optimal coverage, reduce the seed flow to 1/2 the desired amount and seed the entire yard in one direction, then complete a second coverage perpendicular to the first.

## Power Seeding

- Set the cutting blades 3 to 6 mm (1/8 to 1/4 inch) into the earth (below the zero position).
- Mow the yard shorter than normal mowing length before seeding.
- Seed a lawn before prime grass growing season.
- Give lawn extra watering after seeding.

## Power Raking/Renovation

To break new ground or till an existing lawn, set the cutting blades 6 to 12 mm (1/4 to 1/2 inch) into the earth (below the zero position). Allow the machine to move at its own pace through the soil, going forward and backward over the area to be leveled, or making multiple passes from different directions.

# Maintenance

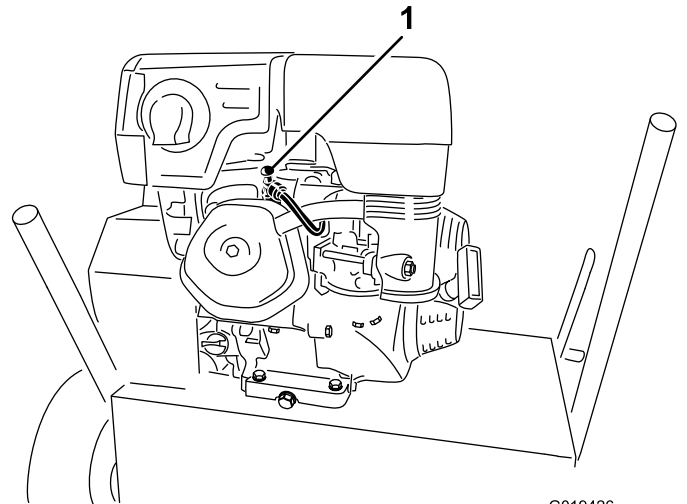
## Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
After the first 25 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>• Clean debris from the machine.</li> <li>• Inspect the air cleaner elements.</li> <li>• Check the belt tension. If the engine is working but the cutting blades seem underpowered, check the belt tension.</li> <li>• Check the cutting blades for wear or damage.</li> <li>• Check the blades for wear or damage.</li> <li>• Check for loose fasteners.</li> </ul>
Every 50 hours	<ul style="list-style-type: none"> <li>• Clean the air filter elements. Clean them more frequently in dusty operating conditions.</li> </ul>
Every 100 hours	<ul style="list-style-type: none"> <li>• Change the engine oil.</li> <li>• Clean the sediment cup.</li> <li>• Inspect, clean, and adjust the spark plug; replace it if necessary.</li> </ul>
Every 200 hours	<ul style="list-style-type: none"> <li>• Replace the spark plug.</li> </ul>
Every 300 hours	<ul style="list-style-type: none"> <li>• Replace the paper air cleaner element. Replace it more frequently in dusty operating conditions.</li> </ul>
Yearly or before storage	<ul style="list-style-type: none"> <li>• Touch up chipped paint.</li> </ul>

## Premaintenance Procedures

### Disconnecting the Spark Plug Wire

Before performing any maintenance on the engine, belts, or cutting blades, disconnect the spark plug wire from the spark plug (Figure 15).



G019426

**Figure 15**

1. Spark plug wire



# Engine Maintenance

## Servicing the Air Cleaner

**Service Interval:** Before each use or daily—Inspect the air cleaner elements.

Every 50 hours—Clean the air filter elements. Clean them more frequently in dusty operating conditions.

Every 300 hours/Yearly (whichever comes first)—Replace the paper air cleaner element. Replace it more frequently in dusty operating conditions.

**Important:** Do not operate the engine without the air filter assembly; extreme engine damage will occur.

1. Stop the engine and wait for all moving parts to stop.
2. Disconnect the wire from the spark plug.
3. Remove the nut that secures the cover (Figure 16).

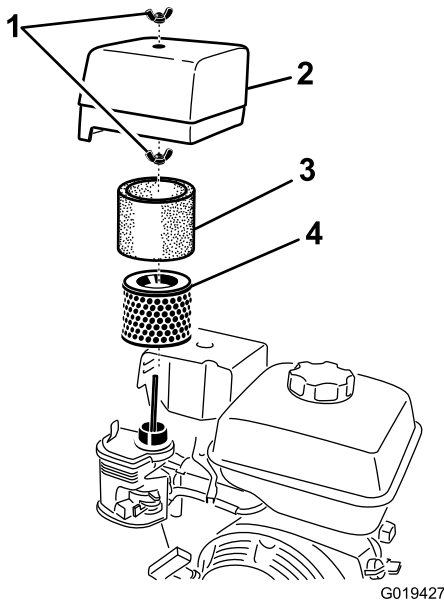


Figure 16

- |          |                  |
|----------|------------------|
| 1. Nut   | 3. Paper element |
| 2. Cover | 4. Foam element  |

4. Remove the cover.

**Note:** Be careful to prevent dirt and debris from falling into the base.

5. Remove the nut restraining air filter assembly.
6. Remove the foam and paper elements from the base (Figure 16).
7. Remove the foam element from the paper element (Figure 16).
8. Inspect the foam and paper elements, and replace them if they are damaged or excessively dirty.
9. If the paper element is excessively dirty, replace it.

**Note:** Never try to brush dirt off the paper element; brushing forces the dirt into the fibers.

10. Clean the foam element in warm, soapy water or in a **nonflammable** solvent.

**Note:** Do not use gasoline to clean the foam element because it could create a risk of fire or explosion.

11. Rinse and dry the foam element thoroughly.
12. Dip the foam element in clean engine oil, then squeeze out the excess oil.

**Note:** Excess oil in the foam element restricts the air flow through the element and may reach the paper filter and clog it.

13. Wipe dirt from the base and the cover with a moist rag.

**Note:** Be careful to prevent dirt and debris from entering the air duct leading to the carburetor.

14. Install the air cleaner elements and ensure that they are properly positioned.
15. Secure the air cleaner elements with the previously removed nut.
16. Securely install the cover with the previously removed nut.

## Servicing the Engine Oil

Oil Type: Detergent oil (API service SJ or higher)

Crankcase Capacity: 1.1 l (37 oz)

Viscosity: See table below

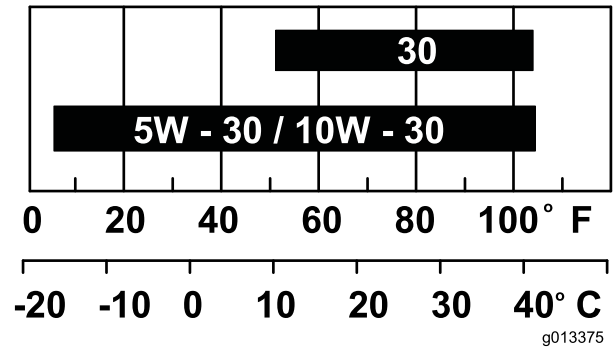


Figure 17

## Changing the Engine Oil

**Service Interval:** After the first 25 hours

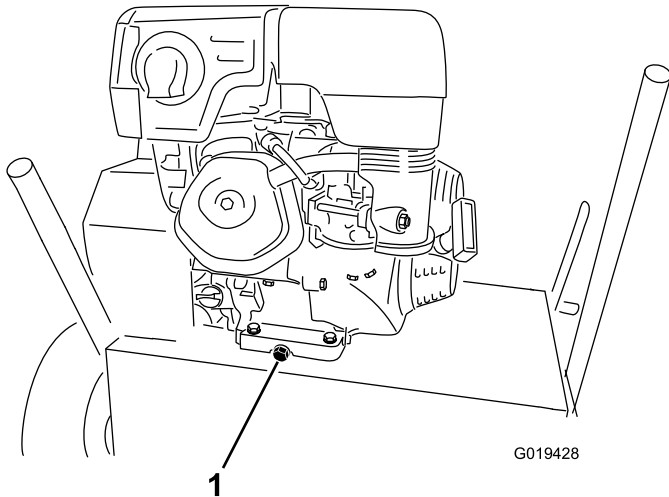
Every 100 hours

### ⚠ WARNING

**Oil may be hot after the engine has been run, and contact with hot oil can cause severe personal injury.**

**Avoid contacting the hot engine oil when you drain it.**

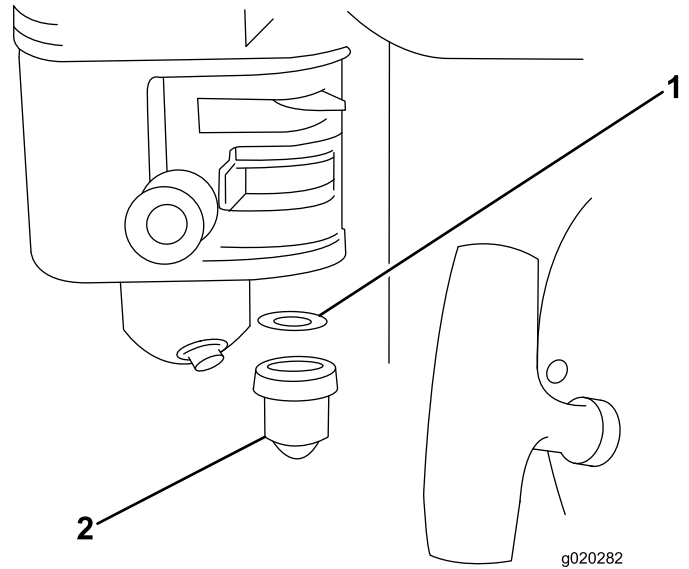
1. Disengage the cutting blades, stop the engine by releasing the operator presence bail, and wait for all moving parts to stop.
2. Disconnect the wire from the spark plug.
3. Raise the front wheels a few inches off the ground, and place a pan under the drain plug to catch the oil.
4. Remove the drain plug (Figure 18).



**Figure 18**

1. Drain plug

1. Stop the engine and wait for all moving parts to stop.
2. Disconnect the wire from the spark plug.
3. Move the fuel shutoff valve to the Off position.
4. Remove the sediment cup and O-ring (Figure 19).



**Figure 19**

1. O-ring
2. Sediment cup

5. When the oil has drained completely, lower the front wheels to the ground, replace the drain plug, and torque to 13 ft-lbs.

**Note:** Dispose of the used oil at a certified recycling center.

6. Remove the dipstick and slowly pour oil into the filler hole until the oil level reaches the middle of the dipstick (Figure 13).
7. Replace and secure the dipstick.
8. Wipe up any spilled oil.
9. Connect the wire to the spark plug.

## Cleaning the Sediment Cup

**Service Interval:** Every 100 hours

### **⚠ DANGER**

In certain conditions, gasoline is extremely flammable and highly explosive. A fire or explosion from gasoline can burn you and others and can damage property.

- Stop the engine and keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Wipe up spills immediately.
- Do not smoke while handling fuel.

5. Wash the sediment cup in a nonflammable solvent and dry it thoroughly.
  6. Place the O-ring in the fuel valve and install the sediment cup, tightening it securely.
  7. Move the fuel shutoff lever to the On position.
- If any fuel leaks, repeat this procedure and replace the O-ring.

## Servicing the Spark Plug

**Service Interval:** Every 100 hours—Inspect, clean, and adjust the spark plug; replace it if necessary.

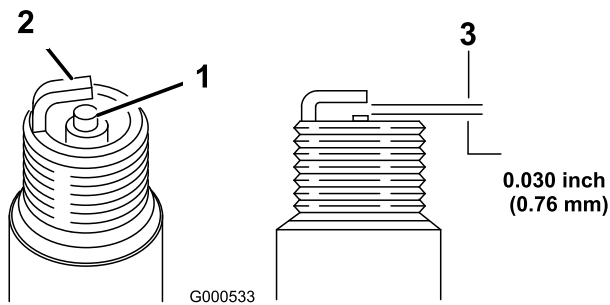
Every 200 hours—Replace the spark plug.

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.
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 0.76 mm (0.030 inch) (Figure 20).



**Figure 20**

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

6. Carefully install the spark plug by hand (to avoid cross threading) until it is hand tight.
7. Tighten the spark plug an additional 1/2 turn if it is new; otherwise, tighten it an additional 1/8 to 1/4 turn.

**Important:** A loose spark plug can become very hot and can damage the engine; overtightening a spark plug may damage the threads in the cylinder head.

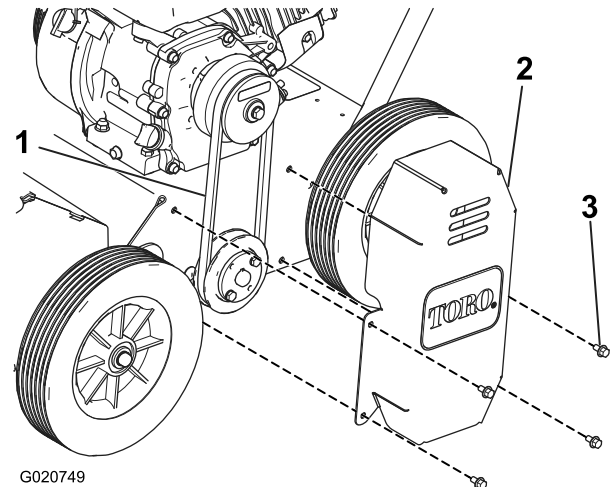
8. Connect the wire to the spark plug.

# Belt Maintenance

## Checking the Belt Tension

**Service Interval:** Before each use or daily—Check the belt tension. If the engine is working but the cutting blades seem underpowered, check the belt tension.

1. Stop the machine on a level surface, stop the engine by releasing the operator presence bail, disconnect the spark plug wire, and raise the cutting blades to the transport position.
2. Remove the 4 bolts securing the belt cover to the left side of the machine and remove the cover (Figure 21).



**Figure 21**

1. Belt
2. Cover
3. Bolts

3. Check the tension of the belt (Figure 21).

**Note:** The belt should not flex more than a 12 mm (1/2 inch) with moderate finger pressure applied to the span just above the machine frame.

4. If the belt tension is loose, refer to Adjusting the Belt Tension (page 20).
5. Install the belt cover before operating the machine.

## Adjusting the Belt Tension

1. To tighten the belt, loosen the 4 mounting nuts securing the engine to the frame.

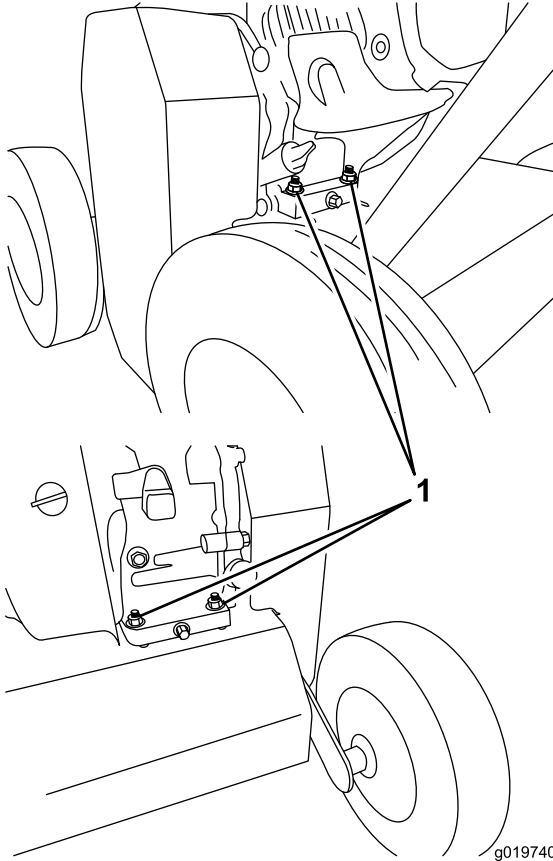


Figure 22

1. Mounting nuts

2. Move the engine to tighten the belt to the proper tension.
3. Secure the 4 mounting nuts and bolts.

**Note:** Torque the bolts that secure the engine to the frame 271 N-m (200 in-lb).

## Maintaining the Cutting Blades

### Inspecting the Cutting Blades

**Service Interval:** Before each use or daily—Check the cutting blades for wear or damage.

When the cutting blades are worn down and are no longer functioning properly; refer to Replacing Worn Cutting Blades (page 20).

**Important:** Perform this procedure when the fuel tank is empty or nearly empty. Tip the unit forward to keep air filter up

### Replacing Worn Cutting Blades

**Service Interval:** Before each use or daily—Check the blades for wear or damage.

When the cutting blades are worn down and no longer functioning properly, replace them, as follows:

**Important:** Perform this procedure when the fuel tank is empty or nearly empty.

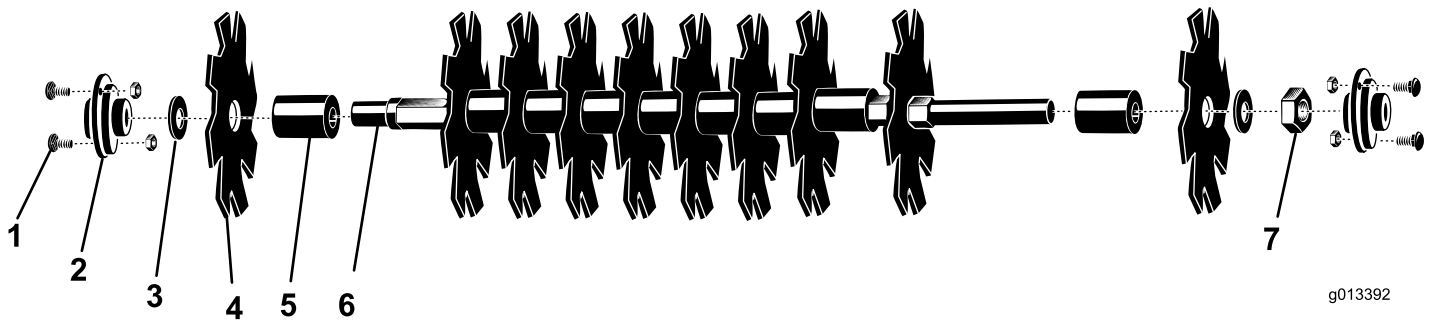
1. Stop the machine on a level surface, stop the engine by releasing the operator presence bail, disconnect the spark plug wire, and raise the cutting blades to the transport position.
2. Remove the 4 bolts and 4 nuts securing the belt cover to the left side of the machine, and remove the cover.
3. Remove the cutting blades drive belt from the machine.
4. Tilt the machine forward onto its nose, resting on a block of wood.

**Note:** It will take 2 people to tip the machine forward safely.

5. Lower the cutting blades to the lowest position.
6. Spin the cutting blade assembly manually.

**Note:** The blade assembly should spin freely. If it makes a grinding noise and is halting, the bearings are worn; replace them when you replace the blades.

7. Remove the 4 bolts and locknuts securing the cutting blade assembly (Figure 23), and remove it from the machine.



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**Figure 23**

- |            |           |
|------------|-----------|
| 1. Bolt    | 5. Spacer |
| 2. Bearing | 6. Shaft  |
| 3. Washer  | 7. Nut    |
| 4. Blade   |           |

- 
8. Loosen and remove the nut and washer from the shaft (Figure 23).
  9. Slide the spacer off the shaft (Figure 23).
  10. Carefully slide the blades off of the shaft (Figure 23) and replace them as necessary.
  11. Reverse this procedure to install the assembly.

# Storage

1. Raise the cutting blades, stop the machine, stop the engine, and disconnect the spark plug wire.
2. Remove dirt and grime from the entire machine.

**Important:** You can wash the machine with mild detergent and water. Do not pressure wash the machine. Avoid excessive use of water, especially near the engine.

3. Service the air cleaner; refer to Servicing the Air Cleaner (page 17).
4. Change the engine oil; refer to Changing the Engine Oil (page 17).
5. For storage over 30 days, prepare the traction unit as follows:
  - A. Add a petroleum based stabilizer/conditioner to fuel in the tank. Follow mixing instructions from stabilizer manufacturer (1 oz. per gallon). **Do not use an alcohol based stabilizer (ethanol or methanol).**

**Note:** A fuel stabilizer/conditioner is most effective when mixed with fresh gasoline and used at all times.

  - B. Run the engine until it stops from running out of fuel.
  - C. Choke the engine.
  - D. Start and run the engine until it will not start again.
  - E. Dispose of fuel properly. Recycle the fuel according to local codes.

**Important:** Do not store stabilizer/conditioned gasoline over 90 days.

6. Check and tighten all bolts, nuts, and screws. Repair or replace any part that is damaged.
7. Paint all scratched or bare metal surfaces with paint from an Authorized Service Dealer.
8. Store the machine in a clean, dry garage or storage area.
9. Cover the machine to protect it and keep it clean.

5. Check the engine oil level; refer to Checking the Engine Oil Level (page 13).
6. Fill the fuel tank with fresh gasoline; refer to Adding Fuel (page 13).
7. Connect the wire to the spark plug.

# Removing the Machine from Storage

1. Check and tighten all fasteners.
2. Inspect the spark plug and replace it if it is dirty, worn, or cracked; refer to the engine *Operator's Manual*.
3. Install the spark plug until it is hand-tight, then an additional 1/2 turn if it is new, otherwise, tighten it an additional 1/8 to 1/4 turn.
4. Perform any needed maintenance procedures; refer to Maintenance (page 16).

**Notes:**



# The Toro Warranty

SWS  
Turf Renovation  
and  
Tree Care

A limited warranty (see warranty periods below)

## Conditions and Products Covered

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrant your Toro Products listed below to be free from defects in materials or workmanship.

This warranty covers the cost of parts and labor, but you must pay transportation costs.

The following time periods apply from the date of purchase:

Products	Warranty Period
Turf Renovation	
Walk-Behind Aerator	1 year
• Engine	2 years
Stand-On Aerator	1 year
• Battery	90 days Parts and Labor
	1 year Parts Only
• Engine	2 years
Dethatcher	1 year
• Engine	2 years
Turf Seeder	1 year
• Engine	2 years
Tree Care	
Log Splitter	1 year
• Battery	90 days Parts and Labor
	1 year Parts Only
• Engine	2 years
Stump Grinder	1 year
• Engine	2 years
Brush Chipper	1 year
• Battery	90 days Parts and Labor
	1 year Parts Only
• Engine	3 years

Where a warrantable condition exists, we will repair the Product at no cost to you including diagnosis, labor, and parts.

## Instructions for Obtaining Warranty Service

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

1. Contact any Authorized Servicing Outlet to arrange service at their dealership. To locate one convenient to you, access our website at [www.Toro.com](http://www.Toro.com). Select "Where to Buy" and select "Contractor" under product type. You may also call our toll free number below.
2. Bring the product and your proof of purchase (sales receipt) to them.
3. If for any reason you are dissatisfied with the Service Outlet's analysis or with the assistance provided, contact us at:

SWS Customer Care Department  
Toro Warranty Company  
8111 Lyndale Avenue South  
Bloomington, MN 55420-1196  
Toll Free: 888-384-9940

\*\*Toro Authorized Rental Customers who have purchased products directly from Toro and have signed the Toro Rental Customer Agreement have the ability to perform their own warranty work. Please visit Toro's Rental Portal for electronic warranty claim filing procedures or call the toll free number above.

## 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. Parts scheduled for replacement as required maintenance ("Maintenance Parts"), are warranted for the period of time up to the scheduled replacement time for that part. Failure to perform required maintenance and adjustments can be grounds for disallowing a warranty claim.

## Items and Conditions Not Covered

Not all product failures or malfunctions that occur during the warranty period are defects in materials or workmanship. This express warranty does not cover the following:

- Product failures which result from the use of non-Toro replacement parts, or from installation and use of add-on, modified, or unapproved accessories
- Product failures which result from failure to perform required maintenance and/or adjustments
- Product failures which result from operating the product in an abusive, negligent or reckless manner
- Parts subject to consumption through use unless found to be defective. Examples of parts which are consumed, or used up, during normal product operation include, but are not limited to, belts, cutters, blades, teeth, spark plugs, tires, filters, etc.
- Failures caused by outside influence. Items considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved coolants, lubricants, additives, or chemicals, etc.
- Normal "wear and tear" items. Normal "wear and tear" includes, but is not limited to, worn painted surfaces, scratched decals, etc.
- Any component covered by a separate manufacturer's warranty
- Pickup and delivery charges

## General Conditions

Repair by an Authorized Servicing Outlet or Self-Service as an Authorized Rental Customer is your sole remedy under the warranty.

**Neither The Toro Company nor Toro Warranty Company is liable for indirect, incidental or consequential damages in connection with the use of the Toro Products covered by this warranty, including any cost or expense of providing substitute equipment or service during reasonable periods of malfunction or non-use pending completion of repairs under this warranty. All implied warranties of merchantability and fitness for use are limited to the duration of this express warranty. Some states do not allow exclusions of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you.**

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Except for the engine warranty coverage and the Emissions warranty referenced below, if applicable, there is no other express warranty. The Emissions Control System on your Product may be covered by a separate warranty meeting requirements established by the U.S. Environmental Protection Agency (EPA) or the California Air Resources Board (CARB). Refer to the California Emission Control Warranty Statement supplied with your Product or contained in the engine manufacturer's documentation for details.

## Countries Other than the United States or Canada

Customers who have purchased Toro products outside the United States or Canada should contact their Toro Distributor (Dealer) to obtain guarantee policies for your country, province, or state. If for any reason you are dissatisfied with your Distributor's service or have difficulty obtaining guarantee information, contact the Toro importer. If all other remedies fail, you may contact us at Toro Warranty Company.

**Australian Consumer Law:** Australian customers will find details relating to the Australian Consumer Law either inside the box or at your local Toro Dealer.