Form No. 3443-852 Rev A

20in Turf Seeder

Model No. 23508—Serial No. 400000000 and Up

Operation and Safety Guide

In addition to this guide, please read the full *Operator's Manual*, which you can obtain from the rental center or from www.Toro.com. To download the manual from www.Toro.com, you will need the product model and serial number, listed above.

⚠ WARNING

CALIFORNIA
Proposition 65 Warning

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

Battery posts, terminals, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

Use of this product may cause exposure to chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

Safety

This machine seeds, dethatches, and power rakes turf both for revitalizing existing turf and for spreading seed. It is intended for small to medium sized lawn applications in residential and commercial properties. Using this product for purposes other than its intended use could prove dangerous to you and bystanders.

General Safety

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

- Read and understand the contents of this *Operation and Safety Guide* before starting the engine.
- Do not put your hands or feet near moving components of the machine.
- Do not operate the machine without all guards and other safety protective devices in place and working on the machine.
- Keep children and bystanders out of the operating area. Never allow children to operate the machine.
- Stop the machine and shut off the engine 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.

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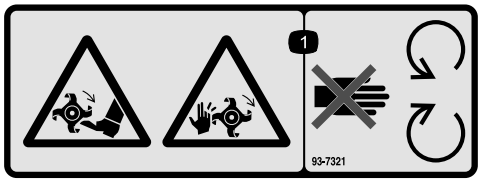
Register at www.Toro.com.

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Safety and Instructional Decals

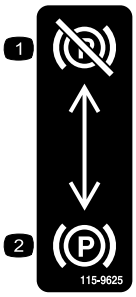
Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or missing.



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93-7321

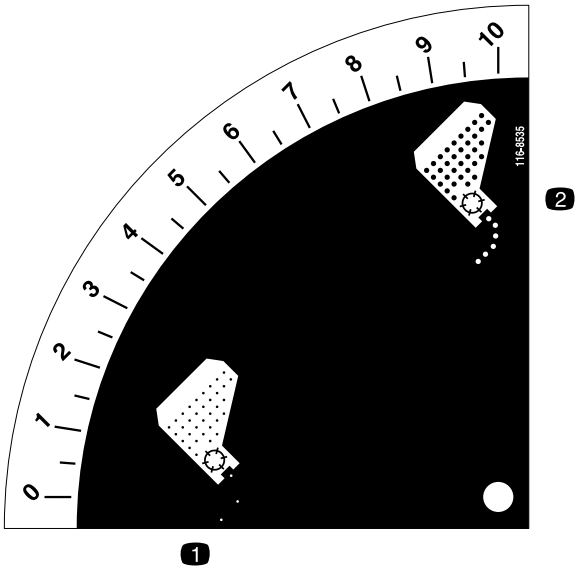
1. Cutting/dismemberment hazard of hands and feet, rotating knives/blades—stay away from moving parts.



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115-9625

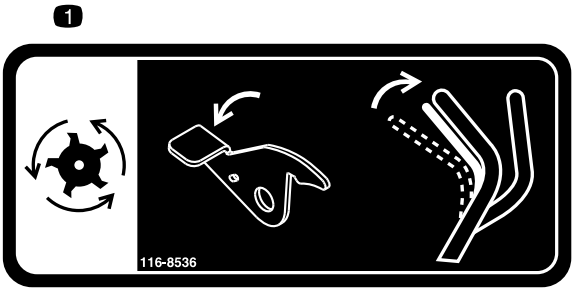
1. Parking brake—disengaged
2. Parking brake—engaged



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116-8535

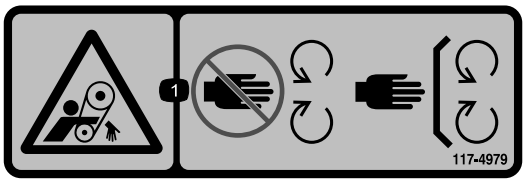
1. Lower seed flow rate
2. Higher seed flow rate



decal116-8536

116-8536

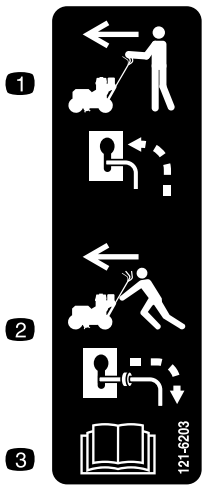
1. Cutting blades - press down on lever and pull blade control bail against the handle to engage the cutting blades.



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117-4979

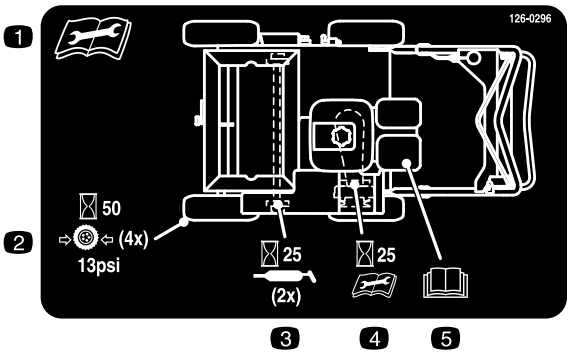
1. Entanglement hazard, belt—keep away from moving parts; keep all guards and shields in place.



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121-6203

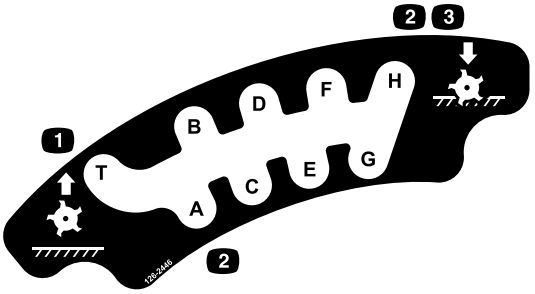
1. Bypass lever position for operating the machine
2. Bypass lever position for pushing the machine
3. Read the Operator's manual



decal126-0296

126-0296

1. Read the *Operator's Manual* before performing maintenance.
2. Check the tire pressure every 50 hours.
3. Grease every 25 hours.
4. Check the transmission belt drive tension every 25 hours; read the *Operator's Manual* for more information.
5. *Operator's Manual*



decal126-2446

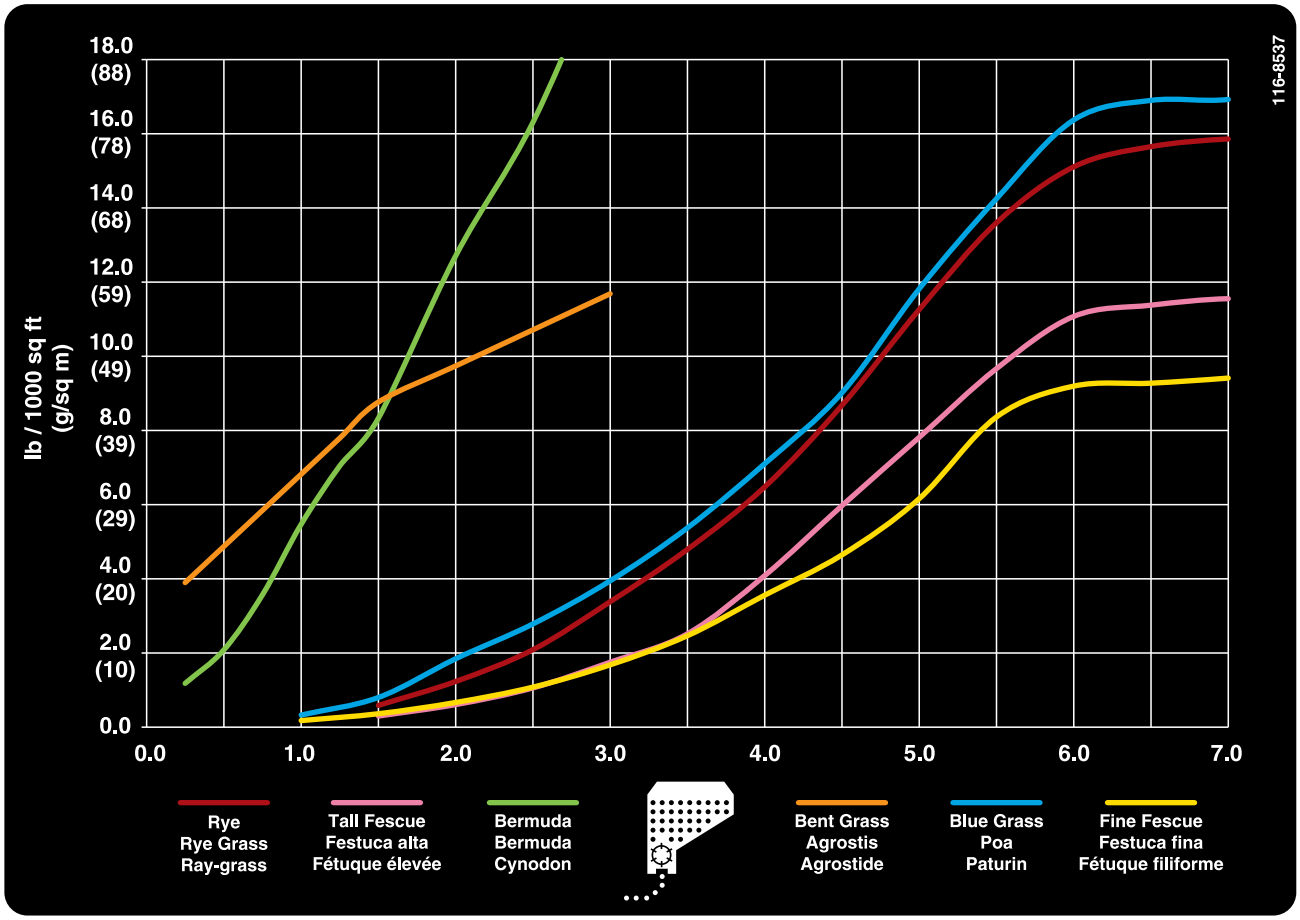
126-2446

1. Blade up; "T" = Transport position
2. "A" through "H" increasing depth settings
3. "H" = deepest blade setting; blade down



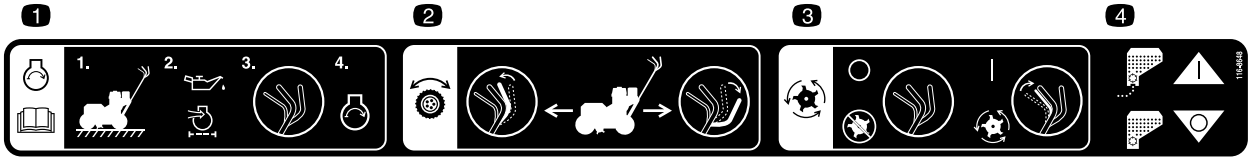
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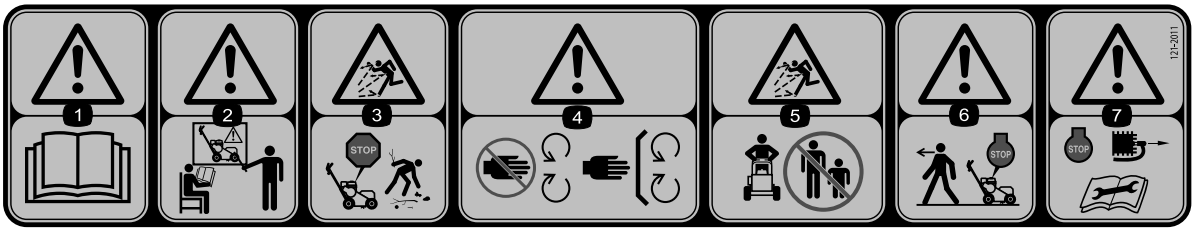
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decal116-8648

116-8648

1. To start the engine, read the *Operator's Manual* - (1) Park the machine on a level surface (2) Fill the engine with oil (3) Move the control bars to a neutral position (4) Start the engine.
2. Self-propel drive - push the self-propel drive bail forward to move the machine forward; pull the self-propel drive bail downward to move the machine backward.
3. Cutting blades - release the blade control bail (neutral position) to disengage the cutting blades; hold the blade control bail against the handle to engage the cutting blades.
4. Seed hopper on; seed hopper off.



decal121-2011

121–2011

1. Warning—read the *Operator's Manual.*
2. Warning—do not operate this machine unless you are trained.
3. Thrown object hazard; pick up debris before operating.
4. Warning—keep hands away from moving parts, keep all guards and shields in place.
5. Thrown object hazard—keep bystanders away.
6. Warning—stop the engine before leaving the machine.
7. Warning—stop the engine and remove the spark plug wire before performing any maintenance on the machine.

Product Overview

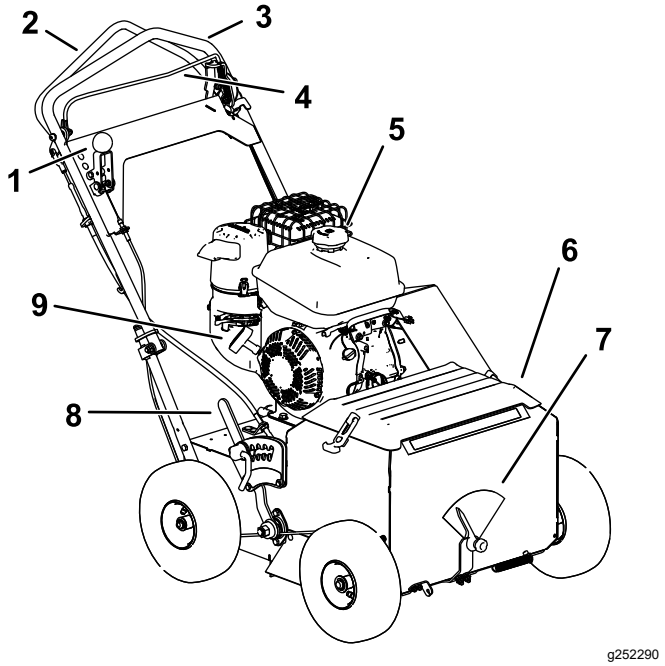


Figure 1

1. Seeder-control lever
2. Self-propel drive bail
3. Handle
4. Blade-control bail
5. Fuel-tank cap
6. Seed hopper and cover
7. Seeding-rate gauge
8. Depth-control lever
9. Recoil-start handle

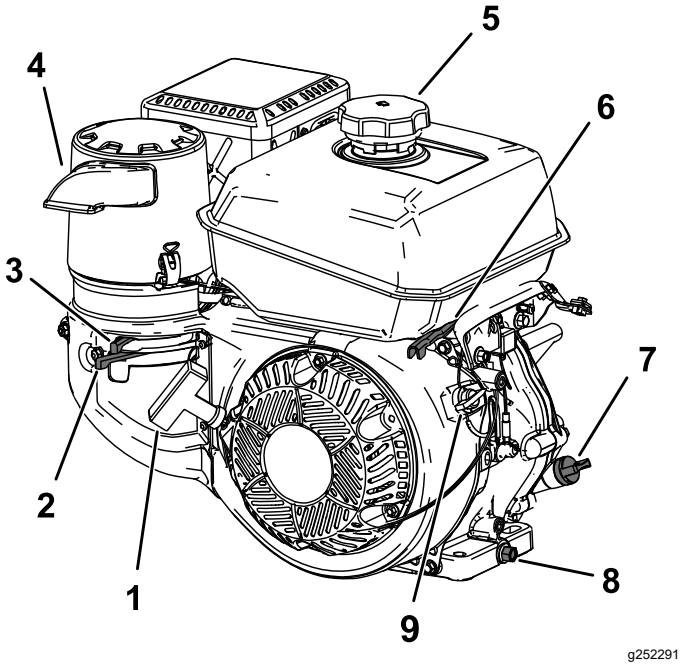


Figure 2

1. Recoil-start handle
2. Fuel-shutoff valve
3. Choke lever
4. Air-cleaner
5. Fuel-tank cap
6. Throttle lever
7. Dipstick
8. Oil-drain plug
9. On/Off switch

Operation

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

Before Operation

Before Operation Safety

General Safety

- Never allow children or untrained people to operate or service the machine. Local regulations may restrict the age of the operator. The owner is responsible for training all operators and mechanics.
- Become familiar with the safe operation of the equipment, operator controls, and safety signs.
- Know how to stop the machine and shut off the engine quickly.
- Check that operator-presence controls, safety switches, and shields are attached and functioning

properly. Do not operate the machine unless they are functioning properly.

- Inspect the area where you will use the machine and remove all objects that the machine could contact.
- Evaluate the terrain to determine the appropriate equipment and any attachments or accessories required to operate the machine properly and safely.

Fuel Safety

- Use extreme care in handling fuel. It is flammable and its vapors are explosive
- Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
- Do not remove the fuel cap or fill the fuel tank while the engine is running or hot.
- Do not add or drain the fuel in an enclosed space.
- Do not store the machine or fuel container where there is an open flame, spark, or pilot light, such as on a water heater or other appliance.
- If you spill fuel, do not attempt to start the engine; avoid creating any source of ignition until the fuel vapors have dissipated.

Adding Fuel

Capacity: 5.6 L (1.48 US gallons)

Recommended Fuel

- For best results, use only clean, fresh (less than 30 days old), unleaded fuel with an octane rating of 87 or higher ((R+M)/2 rating method).
- **Ethanol**: Fuel with up to 10% ethanol (gasohol) or 15% MTBE (methyl tertiary butyl ether) by volume is acceptable. Ethanol and MTBE are not the same. Fuel with 15% ethanol (E15) by volume is not approved for use. **Never use fuel that contains more than 10% ethanol by volume**, such as E15 (contains 15% ethanol), E20 (contains 20% ethanol), or E85 (contains up to 85% ethanol). Using unapproved fuel may cause performance problems and/or engine damage which may not be covered under warranty.
- **Do not** use fuel containing methanol.
- **Do not** store fuel either in the fuel tank or in fuel containers over the winter unless you use a fuel stabilizer.
- **Do not** add oil to fuel.

Important: **To reduce starting problems, add fuel stabilizer to the fuel all season, mixing it with fuel less than 30 days old; run the machine dry before storing it for more than 30 days.**

Do not use fuel additives other than a fuel stabilizer/conditioner. Do not use fuel stabilizers with an alcohol base such as ethanol, methanol, or isopropanol.

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

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

- Always place fuel containers on the ground away from your vehicle before filling.
- Do not fill fuel 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 fuel-powered equipment from the truck or trailer, and fuel the equipment with the 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 fuel dispenser nozzle.
- If you must use a fuel-dispenser nozzle, keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete.

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 face away from the nozzle and the fuel tank or conditioner opening.
- Keep fuel away from your eyes and skin.

Filling the Fuel Tank

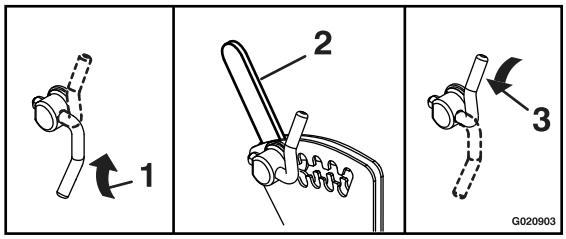
1. Disengage the cutting blades, shut off the engine, wait for all moving parts to stop, and turn the engine switch to the OFF position.
2. Allow the engine to cool.
3. Clean around the fuel-tank cap and remove it.

   Note: The cap is tethered to the fuel tank.
4. Add unleaded fuel to the fuel tank until the level is just inside the mesh filter basket.

   Important: **This space in the tank allows fuel to expand. Do not fill the fuel tank completely full.**
5. Install the fuel-tank cap securely.
6. Wipe up any spilled fuel.

Adjusting the Cutting-Blade Depth

1. Bring the machine to a full stop.
2. Disengage the cutting blades.
3. Shut off the engine and wait for all moving parts to stop before leaving the operating position. Disconnect the wire from the spark plug.
4. Unlock the cutting-blade depth handle by pulling upward.



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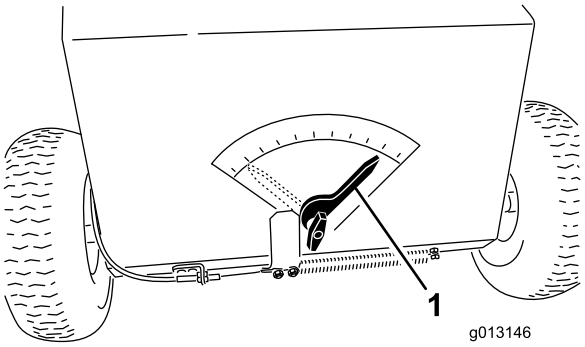
Figure 3

1. Unlock
2. Cutting-blade depth handle
3. Lock

5. Move the lever to the desired working depth slot setting. Rotate and push the handle down to lock the handle.
6. Adjust the setting down as the cutting blades wear.

Adjusting the Seeding-Rate Gauge

1. Bring the machine to a full stop.
2. Disengage the cutting blades.
3. Shut off the engine and wait for all moving parts to stop before leaving the operating position.
4. To change the seeding rate, loosen the knob on the seeding-rate gauge located on the front of the seed hopper. Move the gauge pointer to the desired position, and tighten the knob.



g013146

Figure 4

1. Gauge pointer

Note: Refer to the seeding graph, located on the machine, to determine the correct gauge setting for the type of grass and the thickness to be planted.

During Operation

During Operation Safety

General Safety

- The owner/user can prevent and is responsible for accidents or injuries occurring to people, or damage to property.
- Wear appropriate clothing, including eye protection; long pants; slip-resistant, substantial footwear; and hearing protection. Tie back long hair and do not wear loose jewelry.
- Use your full attention while operating the machine. Do not engage in any activity that causes distractions; otherwise, injury or property damage may occur.
- Do not operate the machine while ill, tired, or under the influence of alcohol or drugs.
- Never carry passengers on the machine and keep bystanders and pets away from the machine during operation.
- Operate the machine only in good visibility to avoid holes or hidden hazards.
- Avoid operating the machine on wet grass. Reduced traction could cause the machine to slide.

- Ensure that all drives are in neutral, the parking brake is engaged, and you are in the operating position before you start the engine.
- Keep your hands and feet away from the blade area.
- Look behind and down before backing up to be sure of a clear path.
- Use care when approaching blind corners, shrubs, trees, or other objects that may obscure your vision.
- Stop the blades whenever you are not operating the machine.
- Stop the machine, shut off the engine, engage the parking brake, and inspect the blades after striking an object or if there is an abnormal vibration in the machine. Make all necessary repairs before resuming operation.
- Slow down and use caution when making turns and crossing roads and sidewalks with the machine. Always yield the right-of-way.
- Shut off the engine, and disengage the cutting blades before adjusting the cutting-blade depth.
- Never run an engine in an area where exhaust gases are enclosed.
- Never leave a running machine unattended.
- Before leaving the operating position for any reason, do the following:
  - Stop the machine on level ground.
  - Shut off the engine.
  - Engage the parking brake.
  - Wait for all moving parts to stop.
  - Raise the blades.
- Do not operate the machine when there is the risk of lightning.
- Do not change the governor speed or overspeed the engine.
- Use only accessories and attachments approved by Toro.

Slope Safety

- Slopes are a major factor related to loss of control and rollover accidents, which can result in severe injury or death. You are responsible for safe slope operation. Operating the machine on any slope requires extra caution.
- Evaluate the site conditions to determine if the slope is safe for machine operation, including surveying the site. Always use common sense and good judgment when performing this survey.
- Review the slope instructions listed below for operating the machine on slopes and to determine whether you can operate the machine in the conditions on that day and at that site. Changes in the terrain can result in a change in slope operation for the machine.
- Avoid starting, stopping, or turning the machine on slopes. Avoid making sudden changes in speed or direction. Make turns slowly and gradually.
- Do not operate a machine under any conditions where traction, steering, or stability is in question.
- Remove or mark obstructions such as ditches, holes, ruts, bumps, rocks, or other hidden hazards. Tall grass can hide obstructions. Uneven terrain could overturn the machine.
- Be aware that operating the machine on wet grass, across slopes, or downhill may cause the machine to lose traction. Loss of traction to the drive wheels may result in sliding and a loss of braking and steering.
- Use extreme caution when operating the machine near drop-offs, ditches, embankments, water hazards, or other hazards. The machine could suddenly roll over if a wheel goes over the edge or the edge caves in. Establish a safety area between the machine and any hazard.
- Identify hazards at the base of the slope. If there are hazards, mow the slope with a pedestrian-controlled machine.
- If possible, keep the cutting unit(s) lowered to the ground while operating on slopes. Raising the cutting unit(s) while operating on slopes can cause the machine to become unstable.
- Use extreme caution with grass-collection systems or other attachments. These can change the stability of the machine and cause a loss of control. Always keep the machine in gear when going down slopes. Do not coast downhill (applicable only to gear-drive units).

Starting the Machine

1. Ensure that the blade-control bail is in the OFF position.
2. Move the engine switch to the ON position, and open the fuel-shutoff valve.
3. Move the choke lever to the left if you are starting a cold engine.

   Note: A warm or hot engine may not require choking.
4. Move the throttle lever midway between the SLOW (turtle) and FAST (rabbit) positions.
5. Pull the recoil-start handle sharply to start the engine.
6. 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.

7. Move the throttle lever to the desired setting.

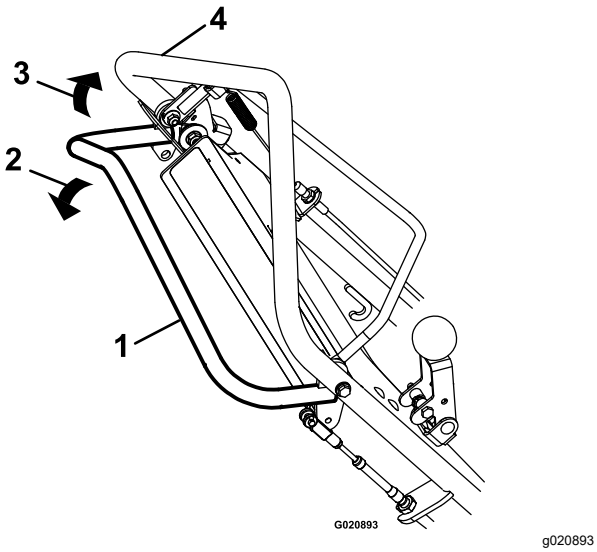
Shutting Off the Machine

1. Bring the machine to a full stop.
2. Release the blade-control bail. The blades stop, and the engine continues to run.
3. Place the throttle midway between the SLOW and FAST positions.
4. Allow the engine to run for a minimum of 15 seconds, then turn the engine on/off switch to the OFF position to shut off the engine.

   Important: **In an emergency, shut off the engine immediately.**
5. Close the fuel-shutoff valve.
6. Wait for all moving parts to stop before leaving the operator's position.

Operating the Self-Propel Drive

1. Start the engine.
2. Move the self-propel drive bail from the NEUTRAL position.
   - To move forward, squeeze the self-propel drive bail against the handle (Figure 5).



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Figure 5

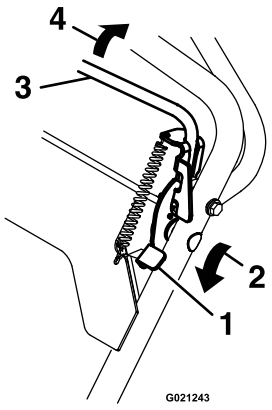
1. Self-propel drive bail (neutral position)
2. Reverse—push down and away from the handle
3. Forward—pull toward the handle
4. Handle

   Note: You can vary the ground speed by increasing or decreasing the distance between the self-propel drive bail and the handle. Lower the drive bail toward the neutral position to decrease the ground speed when making a turn or if the machine is moving too fast.

   If you release the drive bail, it returns to neutral and the machine stops moving. Squeeze the drive bail closer to the handle to increase the ground speed. When you hold the drive bail tight against the handle, the machine moves at the maximum ground speed. Release the drive bail to stop moving or whenever you leave the machine.
   - To turn left or right, decrease the speed, push down on the handles, and turn the machine in the desired direction; then resume normal operation.
   - To move in reverse, release the drive bail and allow it to return to neutral. Push the drive bail down and away from the handle. The ground speed varies as the distance increases or decreases from the neutral position.
3. To disengage the self-propel drive and place the machine into the neutral position, release the drive bail.

Operating the Blade-Control Bail

1. Start the engine.
2. Push and hold the blade-control lock forward to release the blade-control bail (Figure 6).



g021243

Figure 6

1. Blade-control lock (locked position)
2. Push
3. Blade-control bail
4. Squeeze against handle

3. Squeeze the blade-control bail against the handle and release the blade-control lock; the blades engage.
4. Release the blade-control bail to disengage the blades. The blade-control lock resets to lock the blade-control bail.

Operating the Machine

⚠ DANGER

The rotating blades under the machine are dangerous. Blade contact can cause serious injury or death.

Do not put hands or feet under the machine.

⚠ DANGER

When the machine is in operation, contact with rotating or moving parts will severely injure hands and feet.

- **Before adjusting, cleaning, inspecting, troubleshooting, or repairing the machine, shut off the engine and wait for all moving parts to stop. Disconnect the wire from the spark plug and keep it away from the plug to prevent someone from accidentally starting the engine.**
- **Stay behind the handle and away from the seed mixer and cutting blades while operating the machine.**
- **Keep face, hands, feet, and any other part of your body or clothing away from concealed, moving, or rotating parts.**

1. If seeding, fill the seed hopper and set the seeding rate gauge; refer to Adjusting the Seeding-Rate Gauge (page 7).
2. Adjust the cutting-blade depth to the desired setting; refer to Adjusting the Cutting-Blade Depth (page 7).
3. Start the engine.
4. Set the engine throttle to the FAST position.
5. Push down on the handle to raise the front wheels slightly off the ground.
6. Squeeze the blade-control bail against the handle to engage the blades. Slowly lower the front wheels to the ground, allowing the blades to gradually work into the grass and soil.
7. If seeding, push the seeder-control lever forward to start the seed flow.

   Note: There is no need to turn the seeder-control lever off and on for each turn. The seed flow slows and/or stops when the machine is stopped or slowed for turning. To reduce seed loss, raise the front wheels as the machine is turned.

   Note: The machine seeds at the same rate going forward or rearward.

   Note: If there is excessive thatch, it may be necessary to remove the thatch prior to seeding.
8. Engage the self-propel drive bail to begin operating.

After Operation

After Operation Safety

General Safety

- Clean grass and debris from the machine to help prevent fires. Clean up oil or fuel spills.
- Turn off the fuel-shutoff valve before storing or transporting the machine.
- 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.
- Use extreme care when loading or unloading the machine into a trailer or truck.

Transporting the Machine

⚠ WARNING

Loading the machine onto a trailer without strong enough or properly supported ramps could be dangerous. The ramps could collapse, causing the machine to fall, which could cause injury.

- **Use proper ramps that are secured to the truck or trailer.**
- **Keep feet and legs out from under the machine when loading and unloading.**
- **If necessary, use assistance when loading.**

Be sure that the fuel shutoff valve is closed.

Securely fasten the machine to the trailer with straps, chains, cables, or ropes.

Be sure that the trailer has all necessary lighting and marking as required by law, and use safety chains.

Disengaging the Hydrostatic Drive

If you need to push the machine unpowered, you must release the hydrostatic drive. To release the drive, pull the hydrostatic-drive bypass lever (Figure 7) out and down, locking it in the out position. The front wheels now rotate freely.

To engage the drive, pull up on the bypass lever until it snaps back into the machine.

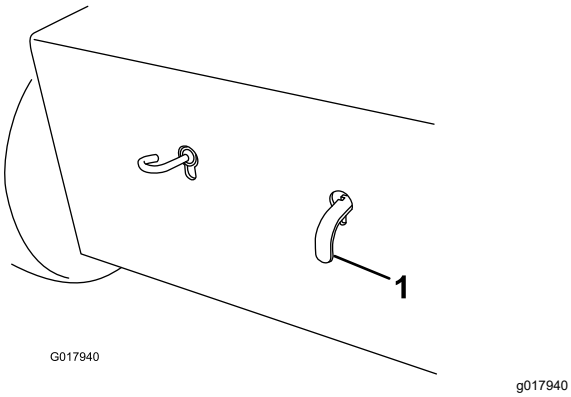


Figure 7

(Rear of machine shown)

1. Hydrostatic-drive bypass lever



Count on it.