



**Count on it.**

**Operator's Manual**

**PT21 Commercial Lawn Mower**

Model No. 22163—Serial No. 270000001 and Up

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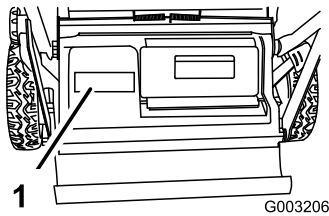


# Introduction

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 identifies the location of the model and serial numbers on the product. Write the numbers in the space provided.



**Figure 1**

1. Model and serial number plate

<b>Model No.</b> _____
<b>Serial No.</b> _____

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

This lawn mower meets or exceeds the CPSC blade safety requirements for walk-behind rotary lawn mowers and the B71.4 specifications of the American National Standards Institute in effect at the time of production.

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

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



**Engine exhaust contains carbon monoxide, an odorless, deadly poison that can kill you.**

**Do not run the engine indoors or in an enclosed area.**

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

## General Lawn Mower Safety

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

The following instructions are from the ANSI/OPEI B71.4-2004 standard.

### Training

- Read the Operator’s Manual and other training material. If the operator(s) or mechanic(s) can not 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 themselves, other people, or property.

### Preparation

- Only use accessories and attachments approved by the manufacturer.
- Wear appropriate clothing including hard hat, safety glasses, and ear 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 thrown 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 gas cap or add fuel with engine running. Allow engine to cool before refueling. Do not smoke.
  - Never refuel or drain the machine indoors.
- Check that operator’s presence controls, safety switches and shields are attached and functioning properly. Do not operate unless they are functioning properly.

### Operation

- Never run an engine in an enclosed area.
- Only operate in good light, keeping away from holes and hidden hazards.
- Only start engine from the operator’s position.
- Be sure of your footing, especially when backing up. Walk, don’t run. Never operate on wet grass. Reduced footing could cause slipping.
- Slow down and use extra care on hillsides. Be sure to travel side to side on hillsides. Turf conditions can affect the machine’s stability. Use caution while operating near drop-offs.
- Do not operate the lawn mower without either the grass catcher or the guard in place.
- Do not change the engine governor setting or overspeed the engine.
- Stop on level ground and shut off engine before leaving the operator’s position for any reason

including emptying the catcher or unclogging the chute.

- Stop equipment and inspect blade after striking objects or if an abnormal vibration occurs. Make necessary repairs before resuming operations.
- Keep hands and feet away from the cutting units.
- Look behind and down before backing up to be sure of a clear path.
- Keep pets and bystanders away.
- Slow down and use caution when crossing roads and sidewalks. Stop blade if you are not mowing.
- Be aware of the mower discharge direction and do not point it at anyone.
- Do not operate the mower under the influence of alcohol or drugs.
- Use 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.

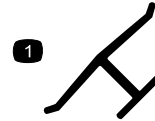
## Maintenance and Storage

- Stop engine and disconnect spark plug wire. Wait for all movement to stop before adjusting, cleaning or repairing.
- Clean grass and debris from cutting unit, drive, muffler, and engine to help prevent fires. Clean up oil or fuel spillage.
- Let engine cool before storing and do not store near flame.
- Shut off fuel while storing or transporting. Do not store fuel near flames or drain indoors.
- Never allow untrained personnel to service machine.
- Remove spark plug wire before making any repairs.
- Use care when checking blade. Wrap the blade or wear gloves, and use caution when servicing them. Only replace blade. Never straighten or weld it.
- 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.

## Safety and Instructional Decals



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



**Manufacturer's Mark**

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



**98-4387**

1. Warning—wear hearing protection.



**105-6838**



**110-4989**

# Setup

## Loose Parts

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

Procedure	Description	Qty.	Use
<b>1</b>	Oval-head bolt (Model 22163 only)	2	Install the handle.
	Oval-head bolt (Model 22164 only)	6	
	Hex head bolt (Model 22164 only)	2	
	Locknut (Model 22163 only)	2	
	Locknut (Model 22164 only)	6	
	Upper handle (Model 22164 only)	1	
	Cable tie	1	
<b>2</b>	No parts required	–	Fill the crankcase with oil.
<b>3</b>	No parts required	–	Adjust the handle height.

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

# 1

## Installing the Handle

### Parts needed for this procedure:

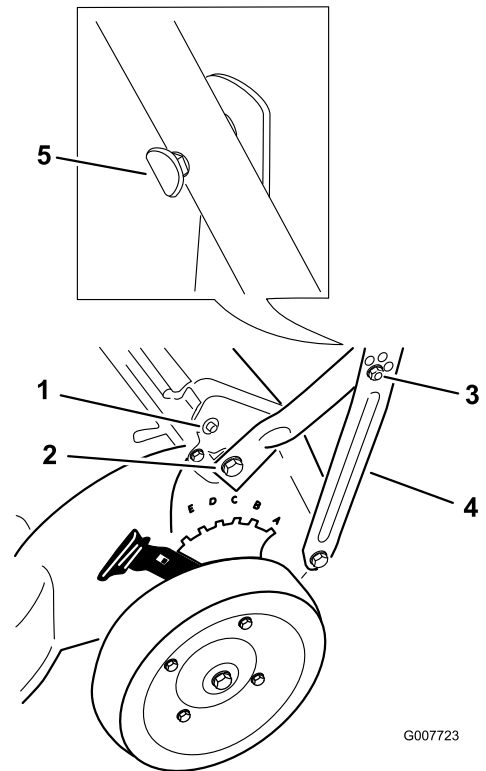
2	Oval-head bolt (Model 22163 only)
6	Oval-head bolt (Model 22164 only)
2	Hex head bolt (Model 22164 only)
2	Locknut (Model 22163 only)
6	Locknut (Model 22164 only)
1	Upper handle (Model 22164 only)
1	Cable tie

### Procedure

1. Attach the upper handle to the lower handle using 4 oval-head bolts and 4 locknuts (model 22164 only).

**Note:** Ensure that the bolt heads are to the **outside** of the handle.

2. Remove the bolts and washers from the mower housing that will hold the handle to the housing (model 22163 only).
3. Move the handle to the operating position.
4. Attach the handle to the mower housing with the bolts and washers that you removed in step 2 (model 22163 only) but do not tighten them (Figure 3).



**Figure 3**

1. End cap on rear door rod
  2. Bolt and washer (2)
  3. Locknut (2)
  4. Handle brace (2)
  5. Bolt head aligned with the handle.
- 
5. Attach the handle braces to the lower handle sides with 2 oval-head bolts and secure them finger tight using 2 locknuts (Figure 3).

**Important:** Ensure that the bolt heads are to the **inside** of the handle.

**Important:** If the handle has round holes, the square shank of the bolts will not fit into the holes in the handle at this time.

6. Secure the handle as follows:
  - If the holes in the handle are square, align and insert the square shank of the oval-head bolts into the handle so that the bolt heads are tight against the handle and tighten the locknuts (Figure 3).
  - If the holes in the handle are round, align the oval bolt heads with the handle as shown in Figure 3; then, holding the heads in that position, tighten each nut with a wrench to pull the square shank into the handle until the bolt heads are tight against the handle.
7. Tighten all the fasteners on the handle and handle braces.
8. Use the cable tie provided to secure the control cable(s) to the handle.

**Note:** Attach the cable tie as low as possible on the handle to prevent the cable(s) from hooking onto the end cap on the rear door rod and interfering with the self-propel system (Figure 3).

## 2

### Filling the Crankcase with Oil

#### No Parts Required

#### Procedure

The engine crankcase is shipped without oil. You must fill it with approximately 22 ounces (0.65 liters) of oil before starting the engine. Refer to Checking the Engine Oil Level in , page for oil specifications and instructions.

## 3

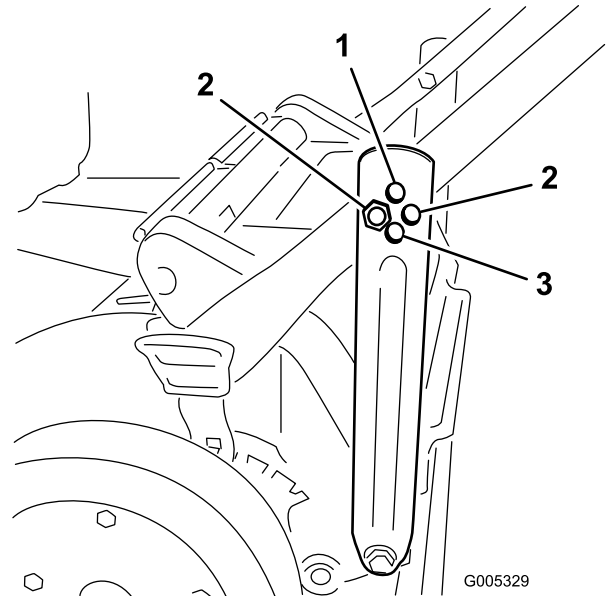
### Adjusting the Handle Height

#### No Parts Required

#### Procedure

You may raise or lower the handle to a position comfortable for you.

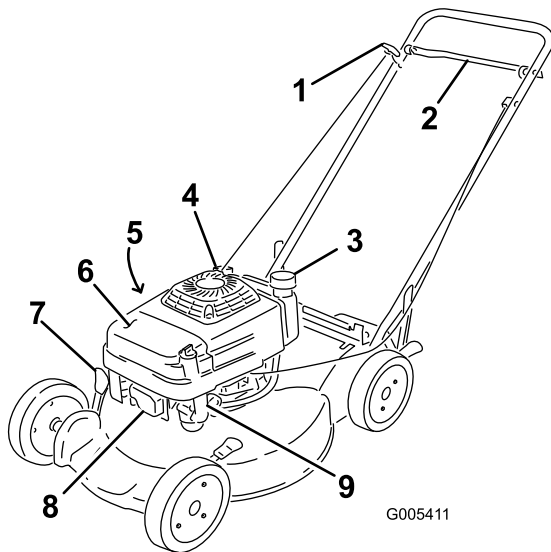
1. Remove the fastener that attaches the handle braces to the lower handle ends.
2. Insert the bolt through the hole in each of the handle braces that sets the handle to the desired position and tighten (Figure 4).



**Figure 4**

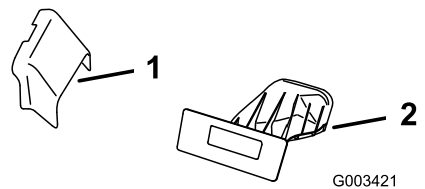
1. Highest position
2. Middle position (either hole)
3. Lowest position

# Product Overview



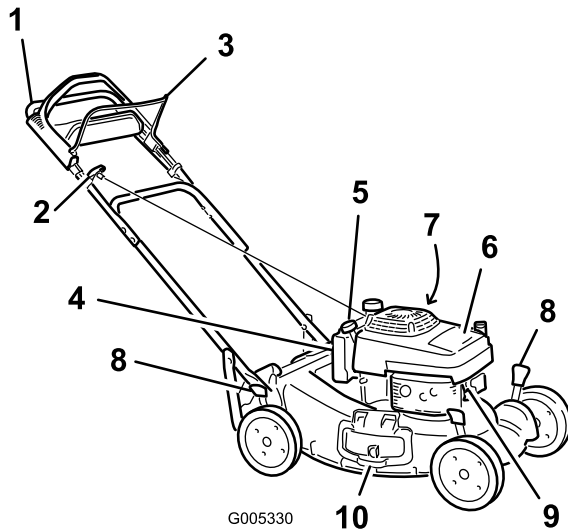
**Figure 5**  
Model 22163

- |                        |                             |
|------------------------|-----------------------------|
| 1. Recoil start handle | 6. Air filter               |
| 2. Blade control bar   | 7. Cutting height lever (4) |
| 3. Fuel tank           | 8. Spark plug               |
| 4. Oil fill/dipstick   | 9. Primer                   |
| 5. Side discharge      |                             |



**Figure 7**

- |                         |                                    |
|-------------------------|------------------------------------|
| 1. Side discharge chute | 2. Rear discharge plug (installed) |
|-------------------------|------------------------------------|



**Figure 6**  
Model 22164

- |                        |                             |
|------------------------|-----------------------------|
| 1. Upper handle        | 6. Air filter               |
| 2. Recoil start handle | 7. Primer                   |
| 3. Blade control bar   | 8. Cutting height lever (4) |
| 4. Fuel tank           | 9. Spark plug               |
| 5. Oil fill/dipstick   | 10. Side discharge          |

# Operation

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

Each time before you mow, make sure that the self-propel drive and the blade control bar operate properly. When you release the blade control bar, the blade and self-propel drive should stop. If they do not, contact an Authorized Service Dealer.



This machine produces sound levels in excess of 85dBA at the operator's ear and can cause hearing loss through extended periods of exposure.

Wear hearing protection when operating this machine.



Figure 8

1. Warning—wear hearing protection.

## Checking the Engine Oil Level

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

Initially, fill the crankcase with 22 ounces (0.65 liters) of oil. Use only high-quality SAE 30 or SAE 10W30 weight detergent oil that has the American Petroleum Institute (API) service classification SF, SG, SH, or SJ.

Before each use, ensure that the oil level is between the Add and Full marks on the dipstick (Figure 9).

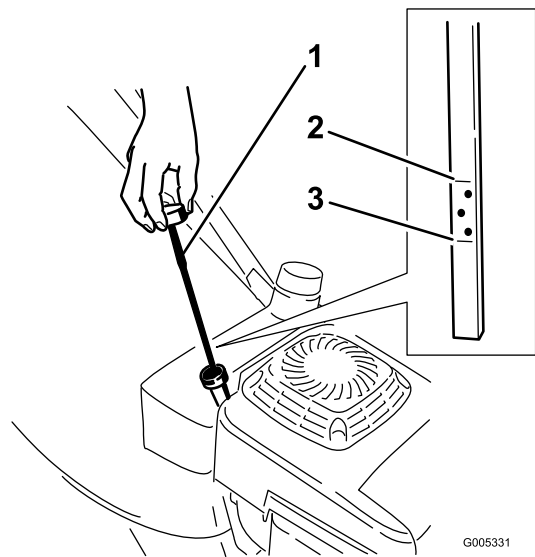


Figure 9

1. Dipstick
2. Full
3. Add

**Note:** When the crankcase is empty, pour about 3/4 of the crankcase capacity of oil in the crankcase, then follow the procedure in this section.

1. Move the lawn mower to a level surface.
  2. Clean around the dipstick (Figure 9).
  3. Remove the dipstick by rotating the cap counterclockwise and pulling it out.
  4. Wipe the dipstick clean with a clean cloth.
  5. Insert the dipstick into the filler neck, **but do not screw it in.**
  6. Remove the dipstick and read the oil level on the dipstick (Figure 9).
  7. If the oil level reading is below the Add mark on the dipstick, slowly pour only enough oil into the filler hole to raise the oil level to the Full mark on the dipstick.
- Important:** Do not overfill the crankcase with oil and run the engine; engine damage will result. Drain the excess oil until the oil level on the dipstick reads Full.
8. Insert the dipstick into the filler neck and rotate the cap clockwise until it is tight.

# Filling the Fuel Tank with Gasoline

For best results, use clean, fresh, lead-free gasoline with an octane rating of 87 or higher. To ensure freshness, purchase only the quantity of gasoline that you expect to use in 30 days. Using unleaded gasoline results in fewer combustion deposits and longer engine life. You may use leaded gasoline if unleaded gasoline is not available.

**Important:** Do not add oil to the gasoline.

**Important:** Do not use methanol, gasoline containing methanol, gasohol containing more than 10% ethanol, premium gasoline, or white gas. Using these fuels can damage the engine's fuel system.

**Important:** Do not use gasoline that has been stored since the last mowing season or longer.



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, and when the engine is cold. Wipe up any gasoline that spills.
- Do not fill the fuel tank completely full. Add gasoline to the fuel tank until the level is 1/4 to 1/2 in. (6 to 13 mm) below the bottom of the filler neck. This empty space in the tank allows the gasoline to expand.
- Never smoke when handling gasoline, and stay away from an open flame or where a spark may ignite the gasoline fumes.
- Store gasoline in an approved fuel container and keep it out of the reach of children.
- Never buy more than a 30-day supply of gasoline.



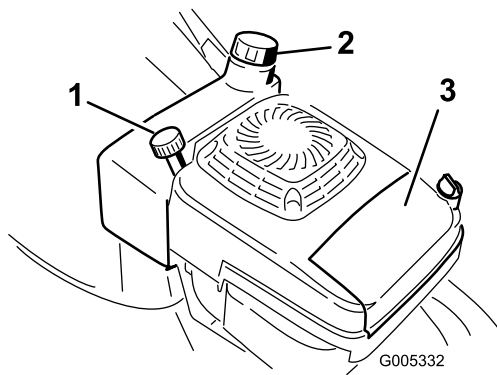
When fueling, under certain circumstances, a static charge can develop, igniting the gasoline. A fire or explosion from gasoline can burn you and others and damage property.

- Always place gasoline containers on the ground and 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 gasoline-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, not from a gasoline dispenser nozzle.
- If you must use a gasoline dispenser nozzle, keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete.

Use a fuel stabilizer/conditioner regularly during operation and storage. A stabilizer/conditioner cleans the engine during operation and prevents gum-like varnish deposits from forming in the engine during periods of storage.

**Important:** 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.

1. Clean around the fuel tank cap (Figure 10).



**Figure 10**

- 1. Oil fill/dipstick
- 2. Fuel tank cap
- 3. Air cleaner

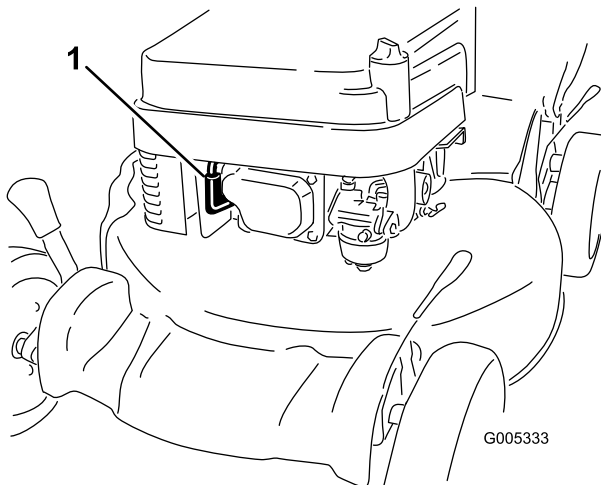
- 
- 2. Remove the cap from the tank.
  - 3. Fill the fuel tank with unleaded gasoline to within 1/4 to 1/2 inch (6 to 13 mm) from the top of the tank. **Do not fill into the filler neck.**

**Important:** Do not fill the tank more than 1/4 inch (6 mm) from the top of the tank because the gasoline must have room to expand.

- 4. Install the fuel tank cap and wipe up any spilled gasoline.

## Starting the Engine

- 1. Connect the wire to the spark plug (Figure 11).

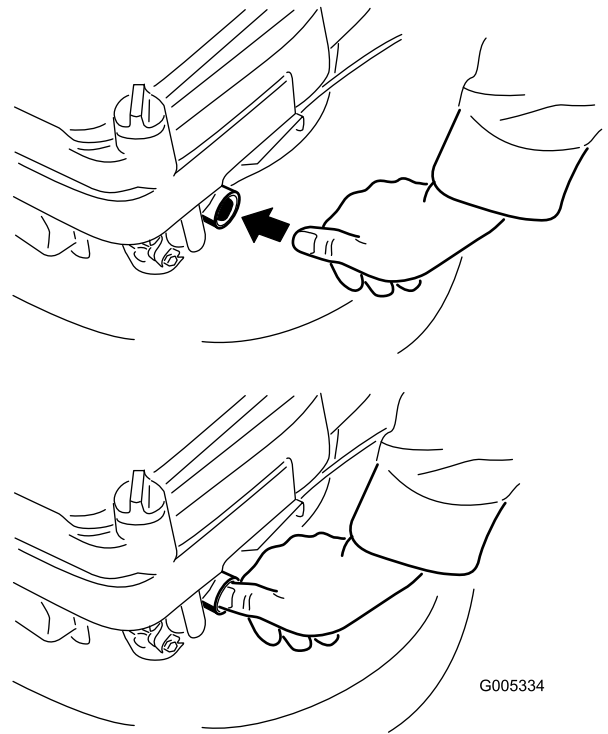


**Figure 11**

- 1. Spark-plug wire

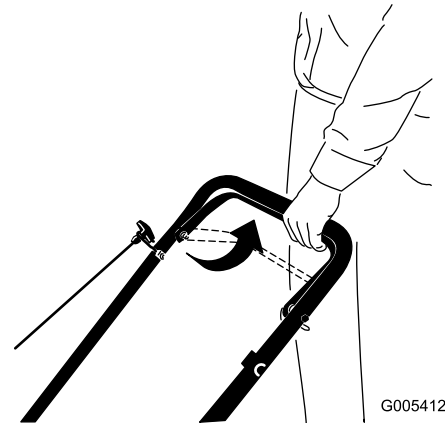
- 
- 2. Firmly push in the primer once with your thumb (Figure 12).

**Note:** Do not push in the primer excessively to prevent flooding the engine with fuel.

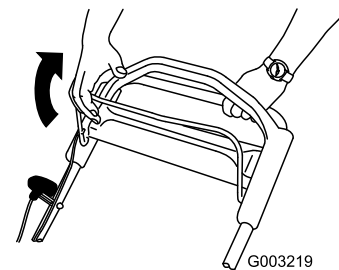


**Figure 12**

- 
- 3. Hold the blade control bar against the handle (Figure 13) or (Figure 14).

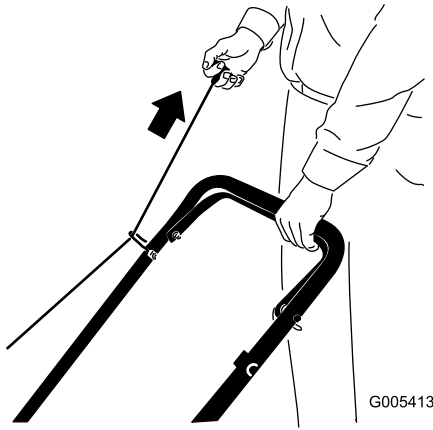


**Figure 13**  
Model 22163

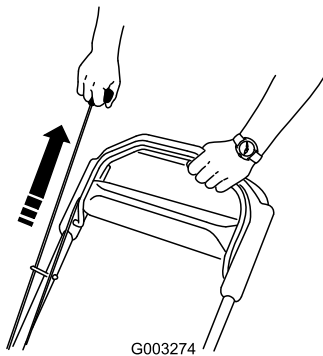


**Figure 14**  
Model 22164

- Pull the recoil starter (Figure 15) or (Figure 16).



**Figure 15**  
Model 22163



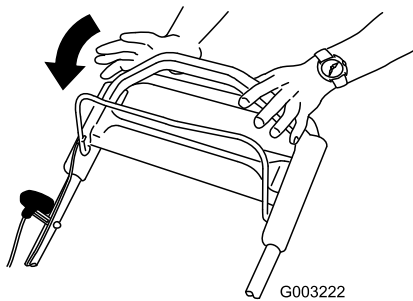
**Figure 16**  
Model 22164

- If the mower does not start in 1 or 2 pulls, press the primer button 1 or 2 times and try starting it again.

**Note:** If the mower still does not start, contact an Authorized Service Dealer.

## Stopping the Engine

- Release the blade control bar (Figure 17).



**Figure 17**

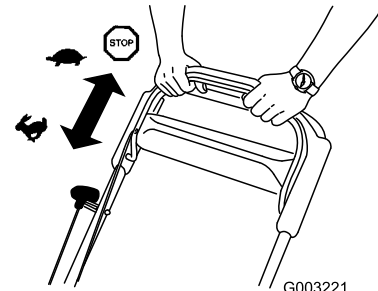
- When the engine stops, remove the ignition key when you leave the mower.

**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 mower immediately and contact an Authorized Service Dealer.

## Using the Self-propel Drive

### Model 22164 only

To operate the self-propel drive, simply walk with your hands on the upper handle and your elbows at your sides, and the mower will automatically keep pace with you (Figure 18).



**Figure 18**

## Adjusting the Cutting Height



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

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



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 four wheels to the same height.

**Note:** To raise the mower, move all 4 cutting height levers forward; to lower the mower, move them all rearward (Figure 19).

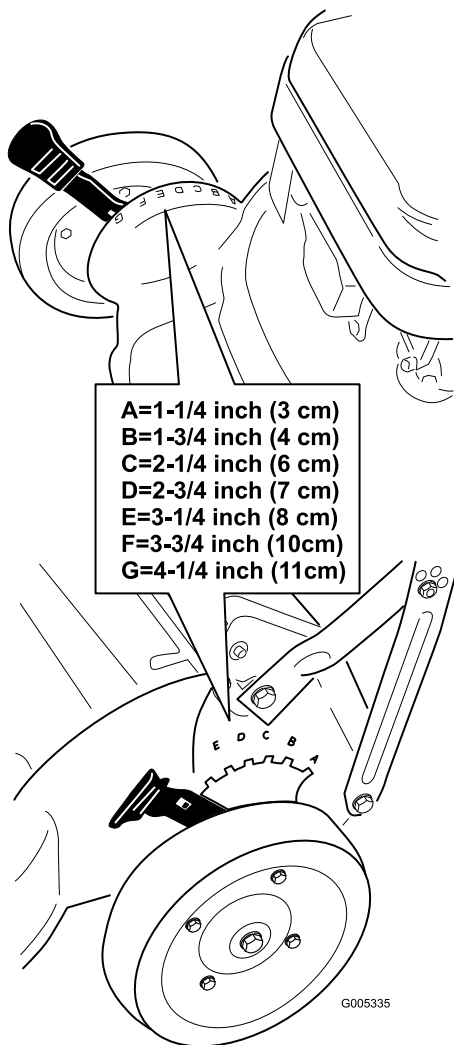


Figure 19

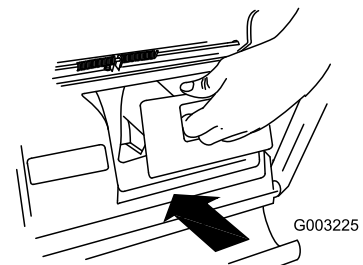


Figure 20

## Side-discharging the Clippings

Use the side discharge for cutting very tall grass.

If the bag is on the mower, remove it and insert the rear discharge plug (refer to Removing the Grass Bag) before side-discharging the clippings.

**Important:** Ensure that the rear discharge plug is in place before you recycle the clippings (Figure 21).

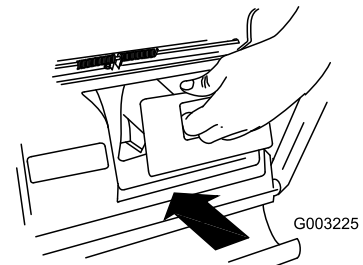


Figure 21

## Recycling the Clippings

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

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

**Important:** Ensure that the rear discharge plug is in place before you recycle the clippings (Figure 20).

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

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

## Installing the Side Discharge Chute

1. Unlock the side discharge door (Figure 22).

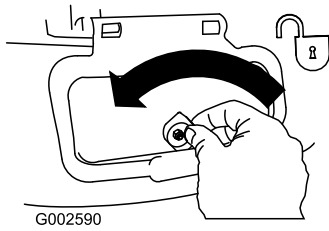


Figure 22

2. Lift open the side discharge door (Figure 23).

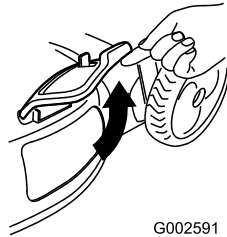


Figure 23

3. Install the side discharge chute and close the door onto the chute (Figure 24).

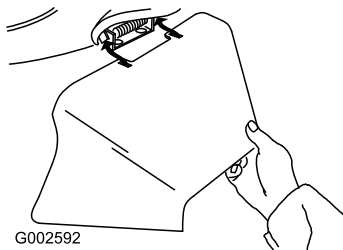


Figure 24

## Removing the Side Discharge Chute

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

**Important:** Lock the side discharge door after you close it (Figure 25).

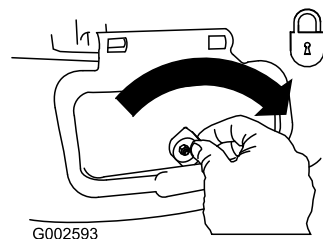


Figure 25

## Operating Tips

### General Tips

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



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

**Mow only in dry conditions.**

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



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

- Do not change the engine speed setting.
- If you suspect the engine speed is faster than normal, contact an Authorized Service Dealer.

- Clean the air filter frequently. Mulching stirs up more clippings and dust which clogs the air filter and reduces engine performance.

### Cutting Grass

- Grass grows at different rates at different times of the year. In the summer heat, it is best to cut grass at the 2-1/4 inch (57 mm), 2-3/4 inch (70 mm), or 3-1/4 inch (83 mm) cutting height settings. Cut only about a third of the grass blade at a time. Do not cut below the 2-1/4 inch (57 mm) setting unless the grass is sparse or it is late fall when grass growth begins to slow down.
- When cutting grass over 6 inches (15 cm) tall, first mow at the highest cutting height setting and walk

slower; then mow again at a lower setting for the best lawn appearance. If the grass is too long and the leaves clump on top of the lawn, the mower may plug and cause the engine to stall.

- Alternate the mowing direction. This helps disperse the clippings over the lawn for even fertilization.

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

- Sharpen the blade.
- Walk at a slower pace while mowing.
- Raise the cutting height on your mower.
- Cut the grass more frequently.
- Overlap cutting swaths instead of cutting a full swath with each pass.
- Set the cutting height on the front wheels one notch lower than the rear wheels. For example, set the front wheels at 2-1/4 inches (57 mm) and the rear wheels at 2-3/4 inches (70 mm).

## **Cutting Leaves**

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

# Maintenance

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

## ***Recommended Maintenance Schedule(s)***

Maintenance Service Interval	Maintenance Procedure
After the first 8 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>• Inspect the mower blades for wear or damage.</li><li>• Clean under the mower housing.</li></ul>
Every 25 hours	<ul style="list-style-type: none"><li>• Lubricate the rear wheel gears.</li><li>• Clean the foam pre-cleaner (more frequently in dusty conditions).</li></ul>
Every 50 hours	<ul style="list-style-type: none"><li>• Change the engine oil (more often in dusty conditions).</li></ul>
Every 100 hours	<ul style="list-style-type: none"><li>• Check the spark plug.</li></ul>
Every 300 hours	<ul style="list-style-type: none"><li>• Replace the paper air filter (more frequently in dusty conditions).</li></ul>
Yearly	<ul style="list-style-type: none"><li>• Empty the fuel tank and clean the fuel filter.</li></ul>

**Important:** Refer to your *Engine Operator's Manual* for additional maintenance procedures.



If you leave the wire on the spark plug, someone could accidentally start the engine and seriously injure you or other bystanders.

Disconnect the wire from the spark plug before you do any maintenance. Set the wire aside so that it does not accidentally contact the spark plug.

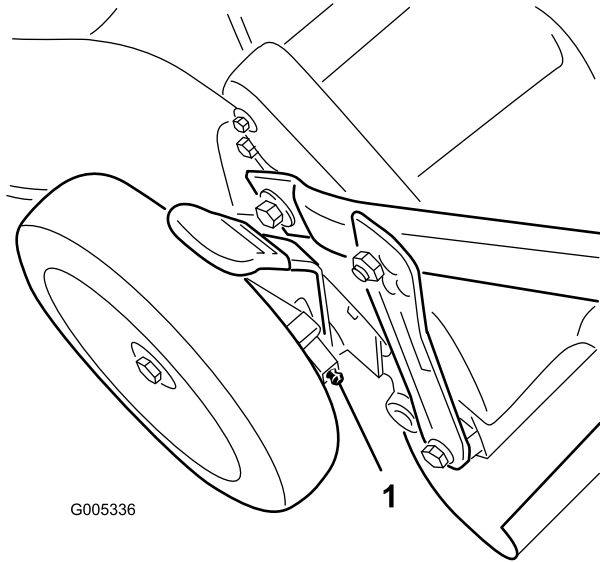
# Lubrication

## Lubricating the Wheel Gears

**Service Interval:** Every 25 hours

Lubricate each **rear** wheel with grease yearly.

1. Wipe the grease fittings just inside the rear wheels with a clean rag (Figure 26).



**Figure 26**

1. Grease fitting

2. Install a grease gun onto each fitting and gently apply 2 or 3 pumps of #2 multi-purpose lithium-base grease.

# Engine Maintenance

## Servicing the Air Filter

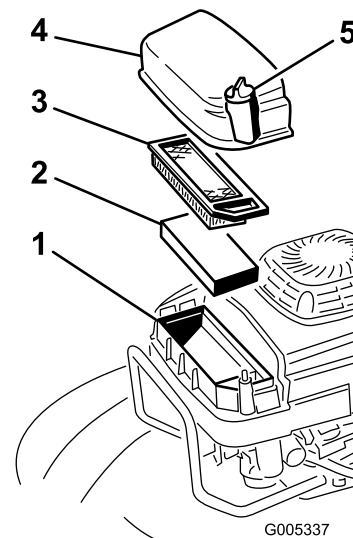
**Service Interval:** Every 25 hours

Every 300 hours

Clean the foam pre-cleaner every 25 operating hours. Replace the paper air filter once every season or every 300 operating hours; replace it more frequently in dusty 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. Remove the screw that secures the air filter cover (Figure 27).



**Figure 27**

- |                       |          |
|-----------------------|----------|
| 1. Air Filter housing | 4. Cover |
| 2. Foam pre-cleaner   | 5. Screw |
| 3. Paper air filter   |          |

3. Remove the cover and clean it thoroughly (Figure 27).
4. Remove and inspect the paper air filter (Figure 27), and discard it if it is excessively dirty.

**Important:** Do not try to clean a paper filter.

5. Remove the foam pre-cleaner and wash it with a mild detergent and water, then blot it dry.
6. Saturate the pre-cleaner with oil, then squeeze it (do not twist) to remove the excess oil.
7. Install the foam pre-cleaner.
8. Install the paper air filter.

**Note:** Install a new paper air filter if you discarded the old one.

9. Install the cover and secure it with the screw.

## Changing the Engine Oil

**Service Interval:** After the first 8 hours

Every 50 hours

Change the oil after the first 8 operating hours and then after every 50 operating hours or every season (more frequently in dusty or dirty conditions).

1. Run the engine to warm the engine oil.

**Note:** Warm oil flows better and carries more contaminants.



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

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

2. Stop the engine and wait for all moving parts to stop.
3. Disconnect the wire from the spark plug (Figure 11).
4. Place a suitable drain pan under the right side of the mower.
5. Remove the dipstick by rotating the cap counterclockwise and pulling it out.
6. Tip the mower onto its **right** side to drain the oil into the drain pan.  
**Note:** You can also remove the oil from the crankcase using an oil extractor.
7. Return the mower to its operating position.
8. Insert the dipstick into the filler neck and rotate the cap clockwise until it is tight.
9. Recycle the used oil according to local codes.
10. Fill the crankcase to the Full line on the dipstick with fresh oil. Refer to the Filling the Crankcase with Oil.
11. Wipe up any spilled oil.

## Servicing the Spark Plug

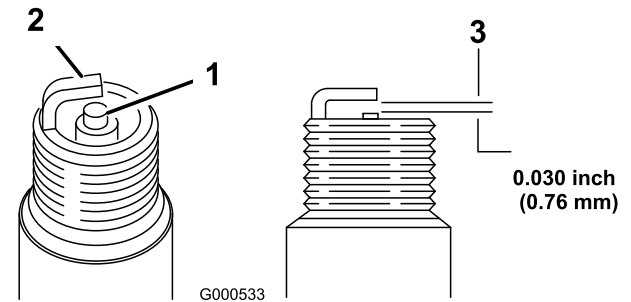
**Service Interval:** Every 100 hours

Check the spark plug after every 100 operating hours. Use an **NGK BPR5ES** spark plug or equivalent.

1. Stop the engine and wait for all moving parts to stop.
2. Disconnect the wire from the spark plug (Figure 11).
3. Clean around the spark plug.
4. Remove the spark plug from the cylinder head.

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

5. Set the gap on the plug to 0.030 in. (0.76 mm) (Figure 28).



**Figure 28**

1. Center electrode insulator
  2. Side electrode
  3. Air gap (not to scale)
- 
6. Install the spark plug and the gasket seal.
  7. Torque the plug to 17 ft-lb (23 N·m).
  8. Connect the wire to the spark plug.

# Fuel System Maintenance

## Emptying the Fuel Tank and Cleaning the Fuel Filter

**Service Interval:** Yearly

The fuel filter (screen) element is located inside the fuel tank. Clean the fuel filter element yearly.

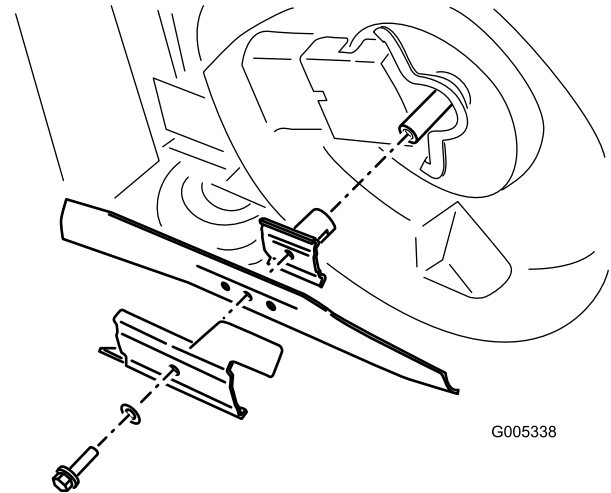
1. Stop the engine and wait for it to cool down.  
**Note:** Drain gasoline from a cold engine only.
2. Disconnect the wire from the spark plug (Figure 11).
3. Disconnect the fuel line by loosening the tube clamp at the carburetor.
4. Open the fuel valve.
5. Drain the gasoline completely from the tank and fuel line into an approved fuel container.
6. Remove the fuel tank from the mower.
7. Pour a small amount of fuel in the fuel tank, move the fuel around in the tank, and pour it out into an approved fuel container.
8. Install the fuel tank and fuel line; refer to Installing the Fuel Tank and the Fuel Line.

# Blade Maintenance

## Maintaining the Cutting Blade

Always mow with a sharp blade. A sharp blade cuts cleanly and without tearing or shredding the grass blades.

1. Stop the engine and wait for all moving parts to stop.
2. Disconnect the wire from the spark plug (Figure 11).
3. Drain the gasoline from the fuel tank; refer to Emptying the Fuel Tank and Cleaning the Fuel Filter.
4. Tip the mower onto its side with the air filter up (Figure 29).

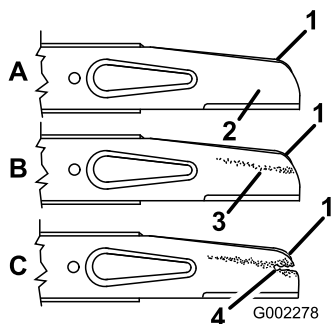


**Figure 29**

## Inspecting the Blade

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

Carefully examine the blade for sharpness and wear, especially where the flat and the curved parts meet (Figure 30A). Because sand and abrasive material can wear away the metal that connects the flat and curved parts of the blade, check the blade before using the mower. If you notice a slot or wear (Figure 30B and Figure 30C), replace the blade; refer to Removing the Blade.



**Figure 30**

- |                           |                |
|---------------------------|----------------|
| 1. Sail                   | 3. Wear        |
| 2. Flat part of the blade | 4. Slot formed |

**Note:** For the best performance, install a new blade before the cutting season begins. During the year, file down any small nicks to maintain the cutting edge.



**A worn or damaged blade can break, and a piece of the blade could be thrown into the operator's or bystander's area, resulting in serious personal injury or death.**

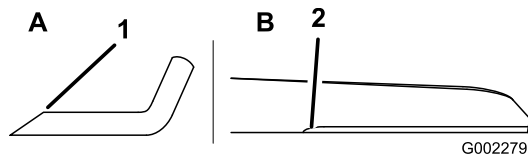
- Inspect the blade periodically for wear or damage.
- Replace a worn or damaged blade.

## Removing the Blade

Grasp the end of the blade using a rag or a thickly padded glove. Remove the blade bolt, accelerator, and the blade (Figure 29).

## Sharpening the Blade

File the top side of the blade to maintain its original cutting angle (Figure 31A) and inner cutting edge radius (Figure 31B). The blade will remain balanced if you remove the same amount of material from both cutting edges.

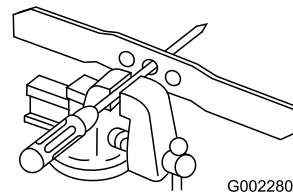


**Figure 31**

- |                                |                                       |
|--------------------------------|---------------------------------------|
| 1. Sharpen at this angle only. | 2. Maintain the original radius here. |
|--------------------------------|---------------------------------------|

## Balancing the Blade

1. Check the balance of the blade by placing the center hole of the blade over a nail or screwdriver shank clamped horizontally in a vise (Figure 32).



**Figure 32**

**Note:** You can also check the balance using a commercially manufactured blade balancer.

2. If either end of the blade rotates downward, file that end (not the cutting edge or the end near the cutting edge). The blade is properly balanced when neither end drops.

## Installing the Blade

1. Install a sharp, balanced Toro blade, the accelerator, and the blade bolt. **Torque the blade bolt to 60 ft-lb (82 N·m).**
2. Return the mower to its operating position.
3. Connect the wire to the spark plug.

# Cleaning

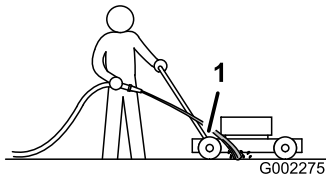
## Cleaning under the Mower Housing

To ensure the best performance, keep the underside of the mower housing clean.

### Washing Method

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

1. Position the mower on a flat concrete or asphalt surface near a garden hose.
2. Start the engine.
3. Hold the running garden hose at handle level and direct the water to flow on the ground just in front of the **right** rear wheel (Figure 33).



**Figure 33**

1. Right rear wheel

---

**Note:** The blade will splash into the path of the blade, cleaning out the clippings.

4. Stop the engine and wait for all moving parts to stop.
5. Turn off the water.
6. Start the mower and let it run for a few minutes to dry out the moisture on the mower and its components.

### Scraping Method

If washing does not remove all debris from under the mower, scrape it clean.

1. Disconnect the wire from the spark plug (Figure 11).
2. Drain the fuel from the fuel tank. Refer to Emptying the Fuel Tank and Cleaning the Fuel Filter.



Tipping the mower may cause the fuel to leak from the carburetor or the fuel tank. Gasoline is extremely flammable, highly explosive, and, under certain conditions, can cause personal injury or property damage.

Avoid fuel spills by running the engine dry or by removing the gasoline with a hand pump; never siphon.

3. Tip the mower onto its **right** side.
4. Remove the dirt and grass clippings with a hardwood scraper. Avoid burrs and sharp edges.
5. Return the mower to its operating position.
6. Fill the fuel tank.
7. Connect the wire to the spark plug.

# Storage

To prepare the mower for off-season storage, perform the recommended maintenance procedures. Refer to Maintenance.

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

## Preparing the Fuel System



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

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

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

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

## Preparing the Engine

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

## General Information

1. Clean the mower housing. Refer to Cleaning under the Mower Housing.

2. Clean any dirt and chaff from the cylinder, cylinder head fins, and blower housing.
3. Remove grass clippings, dirt, and grime from the external parts of the engine, the shrouding, and the top of the mower housing.
4. Check the condition of the blade. Refer to Maintaining the Cutting Blade.
5. Service the air filter; refer to Servicing the Air Filter.
6. Lubricate the pivot arms; refer to Lubricating the Pivot Arms.
7. Tighten all nuts, bolts, and screws.
8. Touch up all rusted or chipped paint surfaces with paint available from an Authorized Service Dealer.

## Removing the Lawn Mower from Storage

1. Check and tighten all fasteners.
2. Remove the spark plug and spin the engine rapidly using the starter to blow excess oil from the cylinder.
3. Clean the spark plug or replace it if it is cracked, broken, or if the electrodes are worn.
4. Install the spark plug and torque it to 17 ft-lb (23 N·m).
5. Perform any needed maintenance procedures; refer to Maintenance.
6. Fill the fuel in the fuel tank with fresh gasoline.
7. Check the engine oil level.
8. Connect the wire to the spark plug.

# Troubleshooting

Problem	Possible Cause	Corrective Action
Engine does not start	<ol style="list-style-type: none"> <li>1. The fuel tank is empty or the fuel system contains stale fuel.</li> <li>2. The wire is not connected to the spark plug.</li> <li>3. The spark plug is pitted, fouled, or the gap is incorrect.</li> </ol>	<ol style="list-style-type: none"> <li>1. Drain and/or fill the fuel tank with fresh gasoline. If the problem persists, contact an Authorized Service Dealer.</li> <li>2. Connect the wire to the spark plug.</li> <li>3. Check the spark plug and adjust the gap if necessary. Replace the spark plug if it is pitted, fouled, or cracked.</li> </ol>
Engine starts hard or loses power	<ol style="list-style-type: none"> <li>1. The fuel tank contains stale fuel.</li> <li>2. The fuel cap vent hole is plugged.</li> <li>3. The air filter element is dirty and is restricting the air flow.</li> <li>4. The underside of the mower housing contains clippings and debris.</li> <li>5. The spark plug is pitted, fouled, or the gap is incorrect.</li> <li>6. The engine oil level is low or the oil is dirty.</li> </ol>	<ol style="list-style-type: none"> <li>1. Drain and fill the fuel tank with fresh gasoline.</li> <li>2. Clean the fuel cap vent hole or replace the fuel cap.</li> <li>3. Clean the air filter pre-cleaner and/or replace the paper air filter.</li> <li>4. Clean under the mower housing.</li> <li>5. Check the spark plug and adjust the gap if necessary. Replace the spark plug if it is pitted, fouled, or cracked.</li> <li>6. Check the engine oil. Change the oil if it is dirty or add oil if it is low.</li> </ol>
Engine runs rough	<ol style="list-style-type: none"> <li>1. The wire is not connected to the spark plug.</li> <li>2. The spark plug is pitted, fouled, or the gap is incorrect.</li> <li>3. The throttle lever is not in the Fast position.</li> <li>4. The air filter element is dirty and is restricting the air flow.</li> </ol>	<ol style="list-style-type: none"> <li>1. Connect the wire to the spark plug.</li> <li>2. Check the spark plug and adjust the gap if necessary. Replace the spark plug if it is pitted, fouled, or cracked.</li> <li>3. Move the throttle lever to the Fast position.</li> <li>4. Clean the air filter pre-cleaner and/or replace the paper air filter.</li> </ol>
Lawn mower or engine vibrates excessively	<ol style="list-style-type: none"> <li>1. The blade is bent or is out of balance.</li> <li>2. The blade mounting nuts are loose.</li> <li>3. The underside of the mower housing contains clippings and debris.</li> <li>4. The engine mounting bolts are loose.</li> </ol>	<ol style="list-style-type: none"> <li>1. Balance the blade. If the blade is bent, replace it.</li> <li>2. Tighten the blade mounting nuts.</li> <li>3. Clean under the mower housing.</li> <li>4. Tighten the engine mounting bolts.</li> </ol>
Uneven cutting pattern	<ol style="list-style-type: none"> <li>1. All 4 wheels are not at the same height.</li> <li>2. The blade is dull.</li> <li>3. You are mowing in the same pattern repeatedly.</li> <li>4. The underside of the mower housing contains clippings and debris.</li> </ol>	<ol style="list-style-type: none"> <li>1. Place all 4 wheels at the same height.</li> <li>2. Sharpen and balance the blade.</li> <li>3. Change the mowing pattern.</li> <li>4. Clean under the mower housing.</li> </ol>
Mower does not self-propel	<ol style="list-style-type: none"> <li>1. The self-propel drive cable is out of adjustment or is damaged.</li> <li>2. There is debris under the belt cover.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust the self-propel drive cable. Replace the cable if necessary.</li> <li>2. Clean the debris from under the belt cover.</li> </ol>



## Evaporative Emission Control Warranty Statement

California Evaporative Emission Control Warranty Statement  
Your Warranty Rights and Obligations

### Introduction

The California Air Resources Board and The Toro® Company are pleased to explain the evaporative emission control system's warranty on your 2006 model year equipment. In California, new equipment that use small off-road engines must be designed, built, and equipped to meet the State's stringent anti-smog standards. The Toro® Company must warrant the evaporative emission control system on your equipment for two years provided there has been no abuse, neglect or improper maintenance of your equipment.

Your evaporative emission control system may include parts such as: fuel lines, fuel line fittings, and clamps.

### Manufacturer's Warranty Coverage:

This evaporative emission control system is warranted for two years. If any evaporative emission-related part on your equipment is defective, the part will be repaired or replaced by The Toro® Company.

### Owner's Warranty Responsibilities:

- As the equipment owner, you are responsible for performance of the required maintenance listed in your Operator's Manual. The Toro® Company recommends that you retain all receipts covering maintenance on your equipment, but The Toro® Company cannot deny warranty solely for the lack of receipts.
- As the equipment owner, you should however be aware that The Toro® Company may deny you warranty coverage if your emission warranty parts have failed due to abuse, neglect, or improper maintenance or unapproved modifications.
- You are responsible for presenting your equipment to an Authorized Service Dealer as soon as the problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days. If you have a question regarding your warranty coverage, you should contact The Toro® Company at 1-952-948-4027 or call us toll free at the number listed in your Toro Warranty statement.

### Defects Warranty Requirements:

1. The warranty period begins on the date the engine or equipment is delivered to an ultimate purchaser.
2. General Evaporative Emissions Warranty Coverage. The emission warranty parts must be warranted to the ultimate purchaser and any subsequent owner that the evaporative emission control system when installed was:
  - A. Designed, built, and equipped so as to conform with all applicable regulations; and
  - B. Free from defects in materials and workmanship that causes the failure of a warranted part for a period of two years.
3. The warranty on evaporative emissions-related parts will be interpreted as follows:
  - A. Any warranted part that is not scheduled for replacement as required maintenance in the written instructions must be warranted for the warranty period of two years. If any such part fails during the period of warranty coverage, it must be repaired or replaced by The Toro® Company. Any such part repaired or replaced under the warranty must be warranted for a time not less than the remaining warranty period.
  - B. Any warranted part that is scheduled only for regular inspection in the written instructions must be warranted for the warranty period of two years. A statement in such written instructions to the effect of "repair or replace as necessary" will not reduce the period of warranty coverage. Any such part repaired or replaced under warranty must be warranted for a time not less than the remaining warranty period.
  - C. Any warranted part that is scheduled for replacement as required maintenance in the written instructions must be warranted for the period of time prior to the first scheduled replacement point for that part. If the part fails prior to the first scheduled replacement, the part must be repaired or replaced by The Toro® Company. Any such part repaired or replaced under warranty must be warranted for a time not less than the remainder of the period prior to the first scheduled replacement point for the part.
  - D. Repair or replacement of any warranted part under the warranty provisions of this article must be performed at no charge to the owner at an Authorized Service Dealer.
  - E. Notwithstanding the provisions of subsection (D) above, warranty services or repairs must be provided at an Authorized Service Dealer.
  - F. The owner must not be charged for diagnostic labor that leads to the determination that a warranted part is in fact defective, provided that such diagnostic work is performed at an Authorized Service Dealer.
  - G. Throughout the evaporative emission control system's two year warranty period, The Toro® Company must maintain a supply of warranted parts sufficient to meet the expected demand for such parts.
  - H. Manufacturer approved replacement parts must be used in the performance of any warranty maintenance or repairs and must be provided without charge to the owner. Such use will not reduce the warranty obligations of The Toro® Company.
  - I. The use of any add-on or modified parts will be grounds for disallowing a warranty claim made in accordance with this article. The Toro® Company will not be liable under this Article to warrant failures of warranted parts caused by the use of an add-on or modified part.
  - J. The Toro® Company shall provide any documents that describe the warranty procedures or policies within five working days of request by the Air Resources Board.

### Emission Warranty Parts List:

The following lists includes the parts covered under this warranty:

- Fuel Lines
- Fuel Line Fittings
- Clamps



LCE PT21  
Professional  
Trim Mowers

## The Toro Total Coverage Guarantee

A One-Year Full Warranty (Limited Warranty for Commercial Use)

### Conditions and Products Covered

The Toro® Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly promise to repair any Toro product when used for residential purposes\* if defective in materials or workmanship or if it stops functioning due to the failure of a component. The following time periods apply from the date of purchase:

Products	Warranty Period
Mowers and attachments	1-year full warranty

This warranty covers the cost of parts and labor, but you must pay transportation costs. This warranty applies to all PT21 Professional Trim mowers and their attachments.

### Limited Warranty for Commercial Use

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

Products	Warranty Period
Engines	1 year limited warranty
Mowers and attachments	6 months limited warranty

Components failing due to normal wear are not covered by this warranty.

### Items and Conditions Not Covered

There is no other express warranty except for the special emission system coverage on some products. This express warranty does not cover the following:

- Cost of regular maintenance service or parts, such as filters, fuel, lubricants, oil changes, air filter, blade sharpening/worn blade on mowers, cable/linkage adjustments, or brake and clutch adjustments
- Any product or part which has been altered, misused, or requires replacement or repair due to accidents or lack of proper maintenance
- Repairs necessary due to improper battery care, failure to use fresh fuel (less than one month old), or failure to properly prepare the unit prior to any period of non-use over one month
- Operational misuse, neglect, or accidents
- Repairs or attempted repairs by anyone other than an Authorized Toro Service Dealer.
- Pickup and delivery charges

### 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.

### 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 Toro Service Dealer to arrange service at their dealership. To locate a dealer convenient to you, refer to the Yellow Pages of your telephone directory (look under "Lawn Mowers") or access our website at [www.Toro.com](http://www.Toro.com). U.S. Customers may also call the number listed in item #3 to use our 24-hour Toro dealer locator system.
2. Bring the product and your proof of purchase (sales receipt) to the Service Dealer. The dealer will diagnose the problem and determine if it is to be covered under warranty.
3. If for any reason you are dissatisfied with the Service Dealer's analysis or with the assistance provided, contact us at: LCB Customer Care Department, Toro Warranty Company, 8111 Lyndale Avenue South, Bloomington, MN 55420-1196; or call us toll free at 1-888-865-5676 (U.S. customers) or 1-888-865-5691 (Canada customers).

### General Conditions

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

**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 these warranties, including any cost or expense of providing substitute equipment or service during reasonable periods of malfunction or non-use pending completion of repairs under these warranties. Some states do not allow exclusions of incidental or consequential damages, 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.**

### Countries Other than the United States or Canada

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

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