

TORO[®]

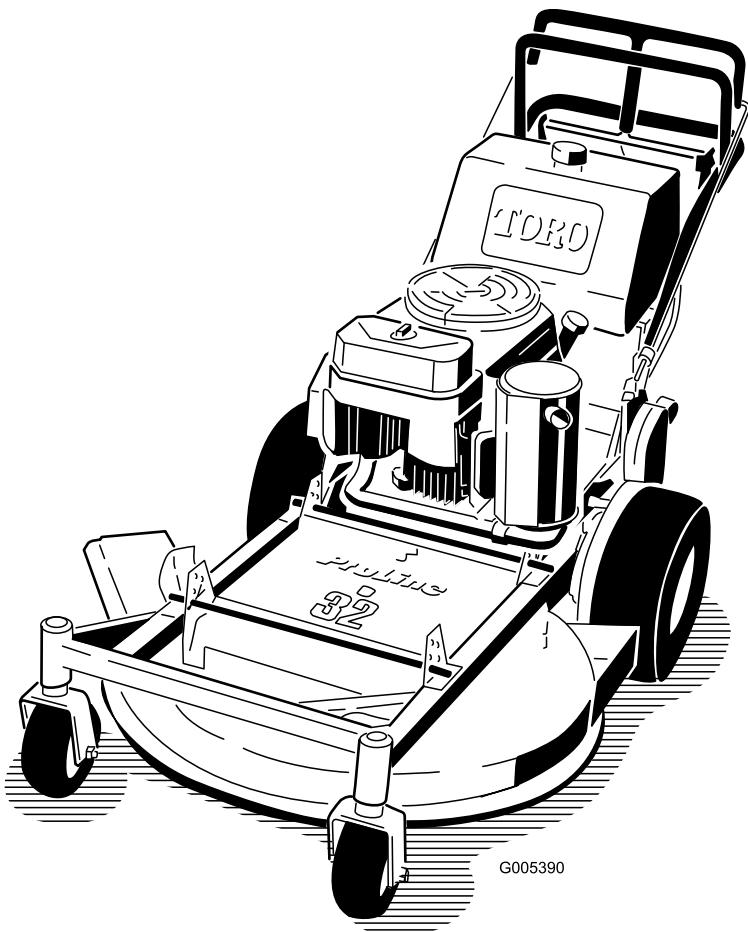
Count on it.

Operator's Manual

Commercial Walk-Behind Mower

Floating Deck, T-Bar, Gear with 32in Cutting Unit

Model No. 30092—Serial No. 290000001 and Up



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.

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.

The enclosed *Engine Owner's Manual* is supplied for information regarding the US Environmental Protection Agency (EPA) and the California Emission Control Regulation of emission systems, maintenance, and warranty. Replacements may be ordered through the engine manufacturer.

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 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.

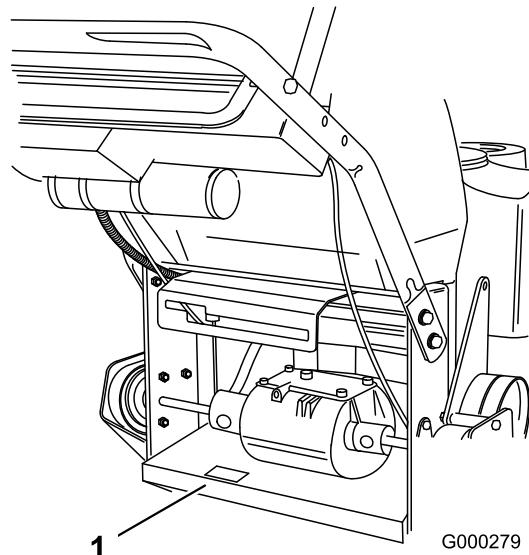


Figure 1

1. Model and serial number location

Model No. _____
Serial No. _____

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



1. Safety alert symbol

This manual uses 2 other 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

Note: The addition of attachments made by other manufacturers that do not meet American National Standards Institute certification will cause noncompliance of this machine.

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

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

Training

- Read the Operator's Manual and other training material. If the operator(s) or mechanic(s) can not read English it is the owners 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 himself or herself, other people or 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 hard hat, 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 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.
- Be sure all drives are in neutral and parking brake is engaged before starting engine. Only start engine from the operator's position.
- Be sure of your footing while using this machine, 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.
- Slow down and use caution when making turns and when changing directions on slopes.
- Never raise deck with the blades running.
- Never operate with the PTO shield, or other guards not securely in place. Be sure all interlocks are attached, adjusted properly, and functioning properly.
- Never operate with the discharge deflector raised, removed or altered, unless using a grass catcher.
- Do not change the engine governor setting or overspeed the engine.
- Stop on level ground, disengage drives, engage parking brake (if provided), shut off engine before leaving the operator's position for any reason including emptying the catchers or unclogging the chute.
- Stop equipment and inspect blades after striking objects or if an abnormal vibration occurs. Make necessary repairs before resuming operations.
- Keep hands and feet away from the cutting unit.
- 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 making turns and crossing roads and sidewalks. Stop blades if 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 or from a trailer or truck.
- Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision.

Maintenance and storage

- Disengage drives, set parking brake, stop engine and remove key or disconnect spark plug wire. Wait for all movement to stop before adjusting, cleaning or repairing.
- Clean grass and debris from cutting unit, drives, mufflers, 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.
- Park machine on level ground. Set parking brake. Never allow untrained personnel to service machine.
- Use jack stands to support components when required.
- Carefully release pressure from components with stored energy.
- Disconnect the battery or remove spark plug wire before making any repairs. Disconnect the negative terminal first and the positive last. Reconnect the positive first and negative last.
- Use care when checking blades. Wrap the blade(s) or wear gloves, and use caution when servicing them. Only replace blades. Never straighten or weld them.
- 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.

Toro Mower Safety

The following list contains safety information specific to Toro products and other safety information you must know.

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

This product is designed for cutting and recycling grass or, when equipped with a grass bagger, for catching cut grass. Any use for purposes other than these could prove dangerous to user and bystanders.

General Operation

- Be sure the area is clear of other people before mowing. Stop the machine if anyone enters the area.
- Do not touch equipment or attachment parts which may be hot from operation. Allow to cool before attempting to maintain, adjust or service.
- Use only Toro approved attachments. Warranty may be voided if used with unapproved attachments.
- Check carefully for overhead clearances (i.e. branches, doorways, electrical wires) before operating under any objects and do not contact them.

Slope Operation

All slopes and ramps require extra caution. If you feel uneasy on a slope, do not mow it.

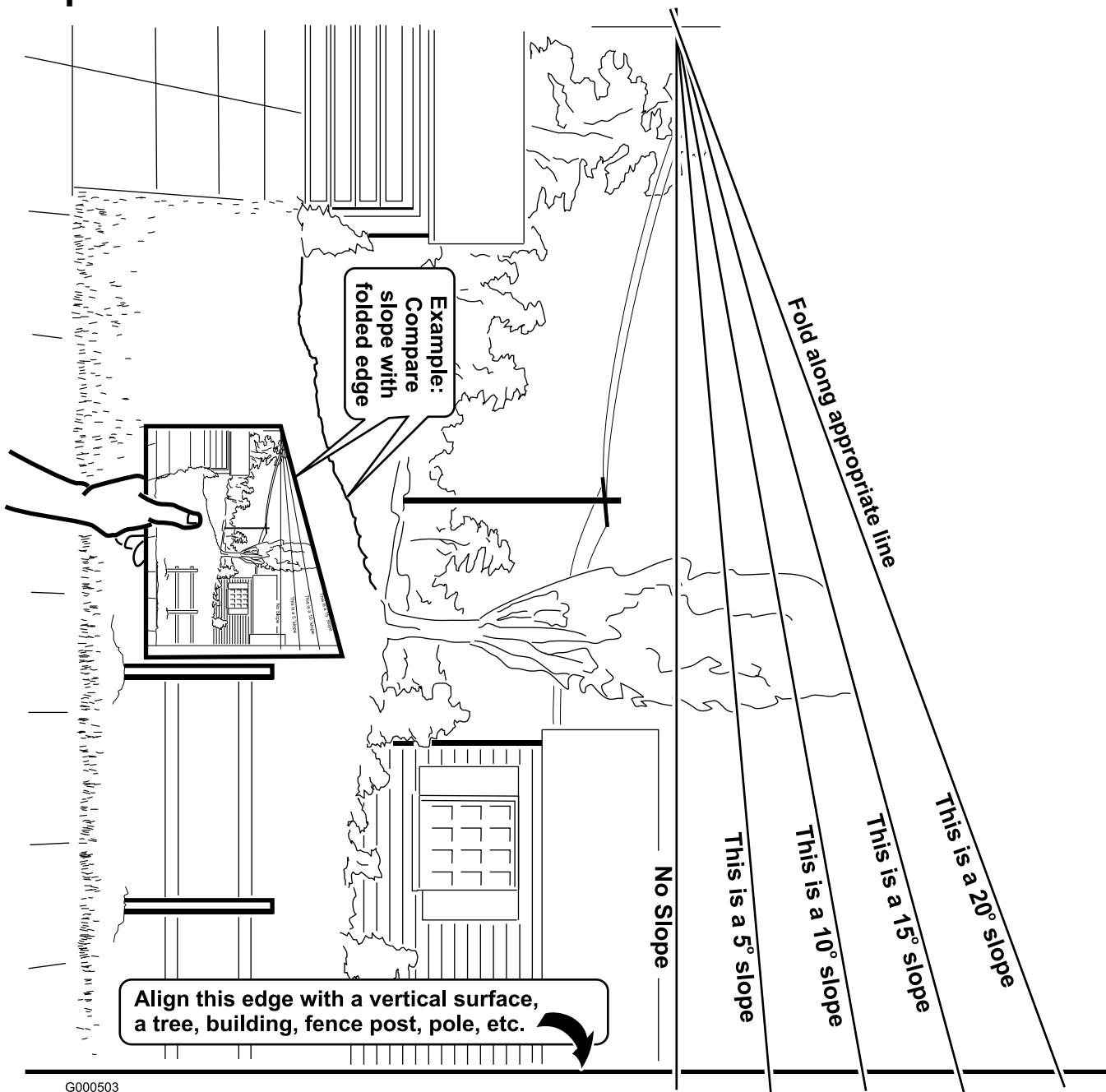
- Remove obstacles such as rocks, tree limbs, etc. from the mowing area.
- Watch for holes, ruts or bumps. Tall grass can hide obstacles.
- Use caution near drop-offs, ditches, or embankments. The machine could suddenly turn over if a wheel goes over the edge of a cliff or ditch, or if an edge caves in.
- Use extra care with grass catchers or other attachments. These can change the stability of the machine.
- Keep all movement on slopes slow and gradual. Do not make sudden changes in speed or direction.
- Mow slopes side to side.
- Do not mow slopes greater than 20 degrees.

Service

- Never store the machine or fuel container inside where there is an open flame, such as near a water heater or furnace.
- Keep nuts and bolts tight, especially the blade attachment bolts. Keep equipment in good condition.
- Never tamper with safety devices. Check safety systems for proper operation before each use.

- Use only genuine replacement parts to ensure that original standards are maintained.
- Check brake operation frequently. Adjust and service as required.

Slope Chart



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.



52-2010



66-6380



67-5360



54-0910



68-8340



54-9220



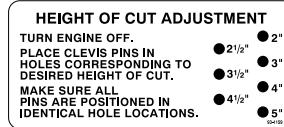
82-2280



82-2290



66-1340



93-1159



95-2814



98-0776



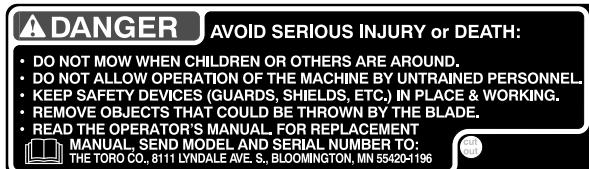
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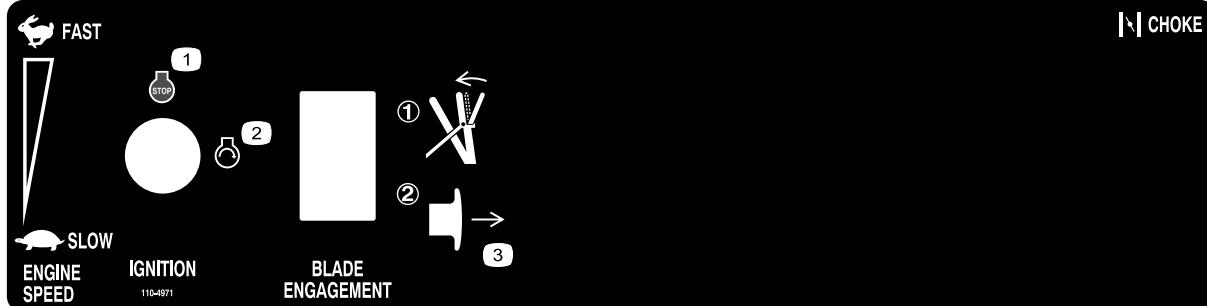
1. Warning—wear hearing protection.



105-0884



106-0699



110-4971

1. Engine—stop
2. Engine—Start
3. Engage bale then pull out on the PTO to engage the blade.

Setup

Loose Parts

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

Procedure	Description	Qty.	Use
1	Handle assembly Flanged bolt, (3/8 x 1 inch) Flange nut, (3/8 inch)	1 4 4	Install the handle assembly.
2	Fuel tank with studs installed Bolt, (5/16 x 7/8 inch) Lock nut, (5/16 inch) Washer, (5/16 inch) Hose clamp Lock washer, (5/16 inch) Spring	1 2 2 4 1 2 2	Install the fuel tank.
3	No parts required	—	Check and adjust the shift lever plate.
4	Control rods Cotter pin Clevis Pin Washer Hairpin cotter pin	2 2 2 2 2	Install the control rods.
5	Operator's Manual Engine Operator's Manual Parts Catalog Training material Registration Card	1 1 1 1 1	Read the Operator's Manual and watch the training material before operating the machine.

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



Installing the Handle Assembly

Parts needed for this procedure:

1	Handle assembly
4	Flanged bolt, (3/8 x 1 inch)
4	Flange nut, (3/8 inch)

Procedure

1. Align handle with upper mounting holes in rear frame (Figure 3).
2. Secure the handle at each upper mounting hole with a flange bolt (3/8 x 1 inch) and flange nut (3/8 inch)(Figure 3).

3. Select the low position for the lower mounting hole (Figure 3).
4. Secure the handle at each lower mounting hole with a flange bolt (3/8 x 1 inch) and flange nut (3/8 inch)(Figure 3).

Note: The handle position can be adjusted to match the operator's height preference.

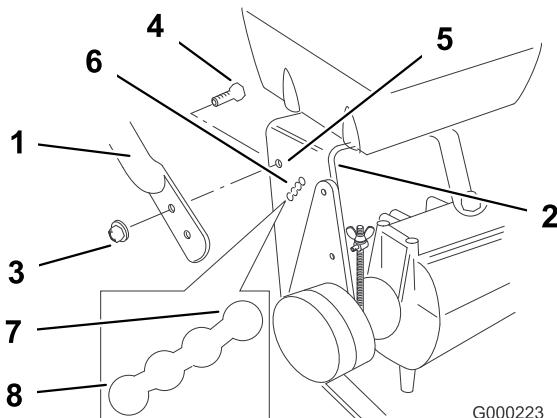


Figure 3

- 1. Upper handle
- 2. Rear frame
- 3. Flange nut, (3/8 inch)
- 4. Flange bolt, (3/8 x 1 inch)
- 5. Upper mounting hole
- 6. Lower mounting holes
- 7. Low position
- 8. High position

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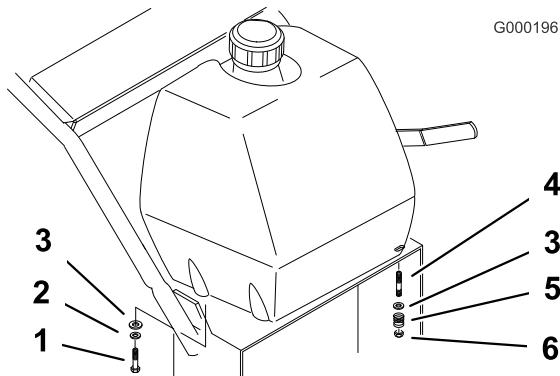


Figure 4

- 1. Bolt, 5/16 x 7/8 inch
- 2. Lock washer, (5/16 inch)
- 3. Washer, (5/16 inch)
- 4. Stud
- 5. Spring
- 6. Locknut

Note: Handle assembly must be installed before fuel tank is installed.

2

Installing the Fuel Tank

Parts needed for this procedure:

1	Fuel tank with studs installed
2	Bolt, (5/16 x 7/8 inch)
2	Lock nut, (5/16 inch)
4	Washer, (5/16 inch)
1	Hose clamp
2	Lock washer, (5/16 inch)
2	Spring

Procedure

1. Align the fuel tank with the top of the rear frame (Figure 4).
2. Secure the right side of the fuel tank to the rear frame with 2 bolts (5/16 x 7/8 inch), lock washers (5/16 inch) and washers (5/16 inch) (Figure 4).
3. Secure the left side of the fuel tank to the rear frame with 2 studs, washers (5/16 inch), springs, and locknuts (5/16 inch) (Figure 4).

Note: Tighten left side of the fuel tank until it is completely tight and then unscrew locknut one full turn. This will allow the spring to work.

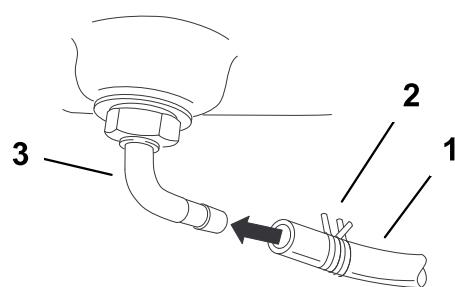


Figure 5

- 1. Fuel line
- 2. Hose clamp
- 3. Fuel fitting

3

Checking and Adjusting the Shift Lever Plate

No Parts Required

Procedure

1. Shift lever to second gear and check alignment of lever in slot of shift lever plate. The clearance between top and bottom of the shift lever should be equal (Figure 6).

2. If clearance is not correct, remove lever and bend it slightly to adjust (Figure 6).

Note: Do not bend lever while it is attached to the transmission shaft or damage may occur.

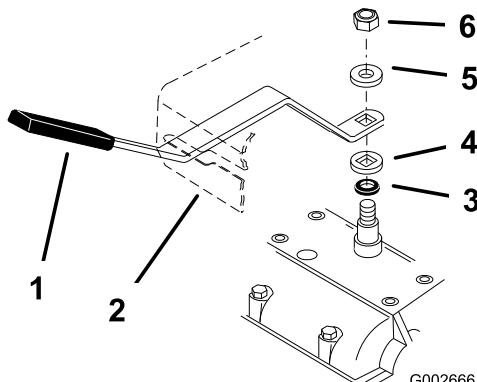


Figure 6

1. Shift lever	4. Square hole washer
2. Shift lever plate	5. Spring washer
3. Rubber seal washer	6. Locknut, (3/8 inch)

3. Shift lever to neutral and check alignment of lever in slot of shift lever plate. The clearance on the sides of shift lever should be equal (Figure 6).
4. If clearance is not correct, loosen shift lever plate and adjust it side-to-side. Tighten the shift lever plate.

Note: Tighten left side of the fuel tank until it is completely tight and then unscrew locknut one full turn. This will allow the spring to work.

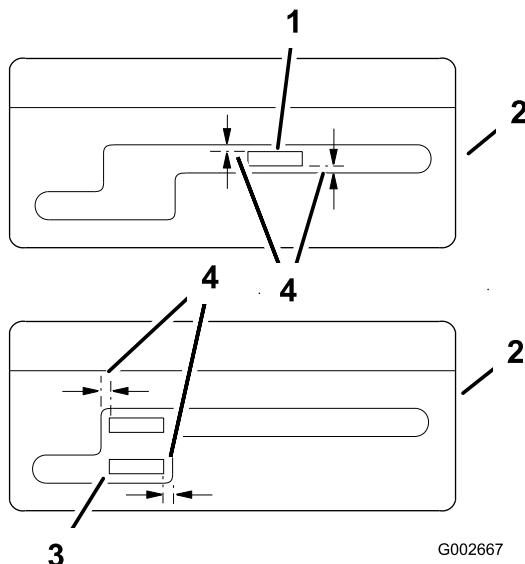


Figure 7

1. Shift lever in 2nd gear	3. Shift lever in neutral position
2. Shift lever plate	4. Equal distance

4

Installing the Control Rods

Parts needed for this procedure:

2	Control rods
2	Cotter pin
2	Clevis Pin
2	Washer
2	Hairpin cotter pin

Procedure

1. Install the control rods into the upper control bar and the blade control bail. Secure the control rods with 2 cotter pins (Figure 8).

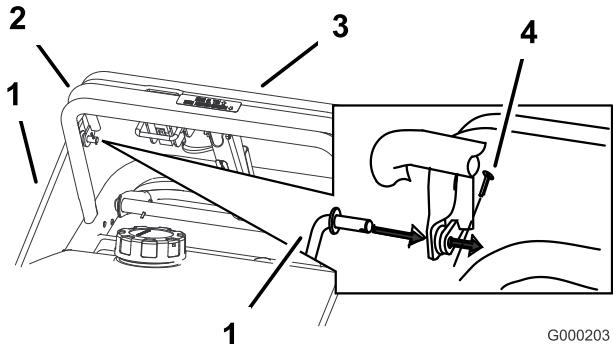


Figure 8

1. Control rod	3. Blade control bail
2. Upper control bar	4. Cotter pin

2. Make sure the rod fittings are equal distance onto each control rod. The rod fittings should be approximately 3-1/2 inch (89 mm) from the start of the threads for the handles lowest position (Figure 9).
3. Slide clevis pins through rod fittings and mounting holes in idler brackets (from outside) (Figure 9). Secure with washers and hairpin cotters (Figure 9).

Note: Make sure brake rod is installed in front (F) mounting hole in idler bracket.

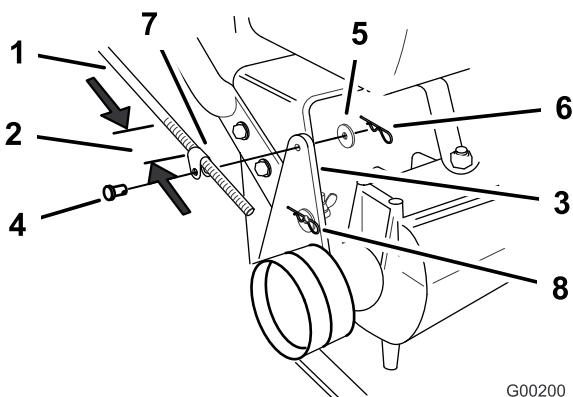


Figure 9

1. Control rod and fitting
2. 3-1/2 inch (89 mm)
3. Idler bracket
4. Clevis pin
5. Washer
6. Hairpin cotter pin
7. Rod fitting
8. Hole F

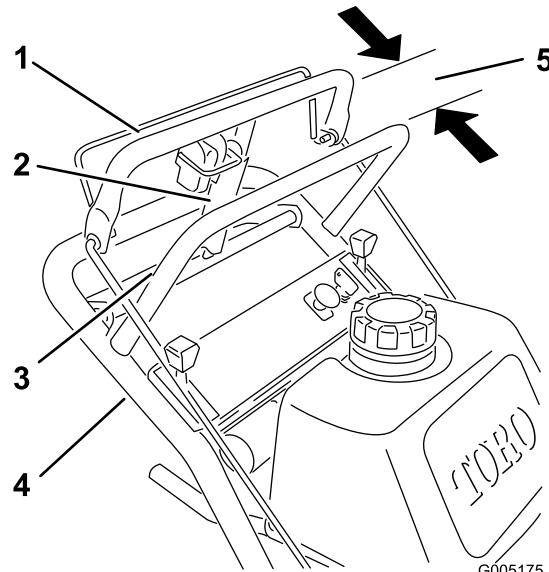


Figure 10

4. Check the gap between upper control bar and fixed bar with wheel drive fully engaged. Gap should be approximately 1 to 1-1/4 inch (25-32 mm) (Figure 10).

Note: The upper control bar and fixed bar must be parallel when the upper control bar is in the engaged, drive, neutral, or brake positions.

5. Check the operation. If adjustment is required, remove hairpin cotter, washer and clevis pin securing control rod fitting to idler bracket.
6. Thread fitting up or down on rod until proper position is attained and install the fitting into the idler bracket with clevis pin, washer and hairpin cotter.

1. Control rod
2. Fixed control bar
3. Parking brake lever
4. Upper control bar
5. 1 to 1-1/4 inch (25-32 mm) gap

7. Check the parking brake adjustment. Refer to Checking the Brakes in Brake Maintenance.

5

Reading the Manual and Viewing the Training Material

Parts needed for this procedure:

1	Operator's Manual
1	Engine Operator's Manual
1	Parts Catalog
1	Training material
1	Registration Card

Procedure

- Read the Operator's Manual.
- View the training material.
- Fill out the registration card and mail it in or register online at www.Toro.com.
- Use the oil drain hose when changing the engine oil.

Product Overview

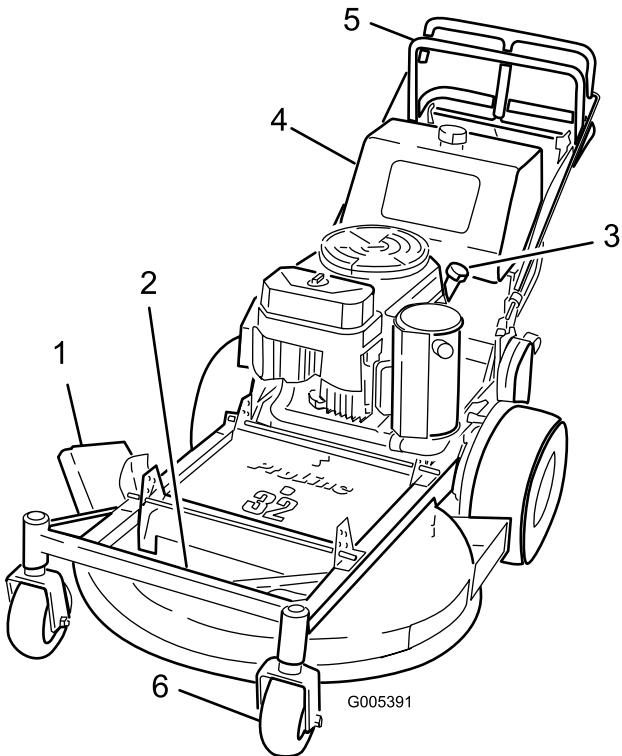


Figure 11

- 1. Side discharge chute
- 2. Mower deck
- 3. Engine
- 4. Gas tank
- 5. Controls
- 6. Front caster wheel

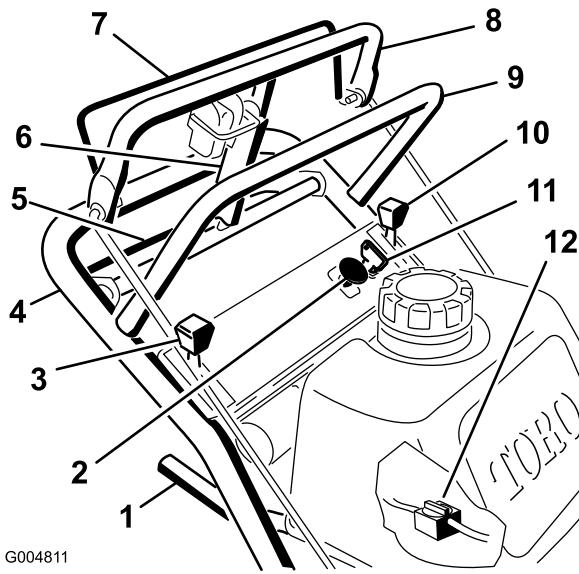


Figure 12

- 1. Gear shift lever
- 2. Power take off switch (PTO)
- 3. Choke control
- 4. Lower handle
- 5. Lower control bar
- 6. Parking brake lever-released position
- 7. Blade control bail
- 8. Upper control bar
- 9. Upper handle
- 10. Throttle control
- 11. Ignition switch
- 12. Fuel shut off valve

Controls

Become familiar with all the controls (Figure 12) before you start the engine and operate the machine.

Throttle Control

The throttle control has two positions: **Fast** and **Slow**.

Choke

Use the choke to start a cold engine.

Blade Control Bail

The bail is used in conjunction with the blade control switch (PTO) to engage the clutch to drive the mower blade. Release the mower control bail to disengage the mower blade.

Blade Control Switch (PTO)

This pull switch is used in conjunction with the blade control bail to engage the clutch to drive the mower blade.

Gear Shift Lever

The transmission has five forward speeds, neutral and reverse, and has an in-line shift pattern.

Important: Do not shift while unit is moving, as transmission damage may occur.

Upper Control Bar

Shift to the desired gear and push forward on the upper control bar to engage forward traction operation and pull back to brake forward movement. Pull back on right side of upper control bar to turn right and left side to turn left.

Lower Control Bar

Shift transmission to reverse and squeeze the lower control bar and handle together to engage rearward traction assist operation.

Parking Brake Lever

Pull back on upper control bar and swing brake lever up against the upper handle (Figure 12).

Ignition Switch

This switch is used in conjunction with recoil starter and has two positions: **Run** and **Off**.

Recoil Starter

Pull recoil starter handle to start engine (not shown in Figure 12).

Fuel Shut Off Valve

Close the fuel shut off valve when transporting or storing mower.

Operation

Adding Fuel

Use **Unleaded** Regular Gasoline suitable for automotive use (85 pump octane minimum). Leaded regular gasoline may be used if unleaded regular is not available.

Important: Never use methanol, gasoline containing methanol, or gasohol containing more than 10% ethanol because the fuel system could be damaged. Do not mix oil with gasoline.



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 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 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.



Gasoline is harmful or fatal if swallowed. Long-term exposure to vapors can cause serious injury and illness.

- Avoid prolonged breathing of vapors.
- Keep face away from nozzle and gas tank or conditioner opening.
- Keep gas away from eyes and skin.

Using Stabilizer/Conditioner

Use a fuel stabilizer/conditioner in the machine to provide the following benefits:

- Keeps gasoline fresh during storage of 90 days or less. For longer storage it is recommended that the fuel tank be drained.
- Cleans the engine while it runs
- Eliminates gum-like varnish buildup in the fuel system, which causes hard starting

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 the chance of varnish deposits in the fuel system, use fuel stabilizer at all times.

Filling the Fuel Tank

1. Shut the engine off and set the parking brake.
2. Clean around fuel tank cap and remove the cap. Add unleaded regular gasoline to fuel tank, until the level is 1/4 to 1/2 inch (6 to 13 mm) below the bottom of the filler neck. This space in the tank allows gasoline to expand. Do not fill the fuel tank completely full.
3. Install fuel tank cap securely. Wipe up any gasoline that may have spilled.

Checking the Engine Oil Level

Before you start the engine and use the machine, check the oil level in the engine crankcase; refer to Checking the Engine Oil Level in Maintenance.

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

Think Safety First

Carefully read all the safety instructions and decals in the safety section. Knowing this information could help you or any bystanders avoid injury.

The use of protective equipment for eyes, hearing, feet and head is recommended.



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

Wear hearing protection when operating this machine.



Figure 13

1. Warning—wear hearing protection.

Operating the Parking Brake

Stop on level ground, disengage drives, engage parking brake, shut off engine and remove key. Always set the parking brake when you stop the machine or leave it unattended.

Setting the Parking Brake

1. Pull the upper control bar (Figure 14) rearward and hold it in this position.
2. Lift the parking brake lock (Figure 14) up and gradually release the upper control bar. The brake lock should stay in the set (locked) position.

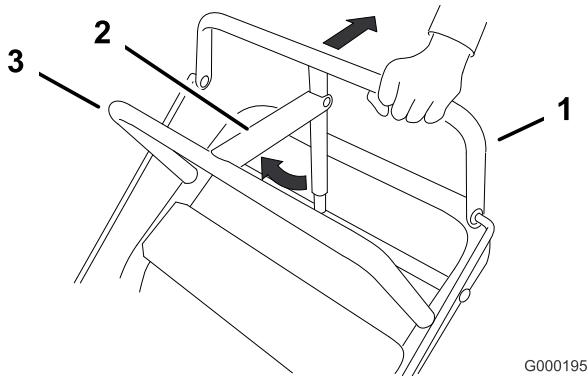


Figure 14

1. Upper control bar
2. Parking brake lever-set position
3. Upper handle

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Releasing the Parking Brake

1. Pull rearward on the upper control bar. Lower the parking brake lock to the released position.
2. Gradually release the upper control bar (Figure 14).

Starting and Stopping the Engine

Starting the Engine

1. Make sure spark plug wire(s) are installed on spark plug(s) and fuel valve is open.

2. Move the shift lever to neutral, set the parking brake and turn ignition key to run.

3. Move the throttle control to fast and move the choke lever to the on position before starting a cold engine.

Note: A warm or hot engine usually does not require any choking. To start a warm engine, move throttle control to the **fast** position.

4. Grasp recoil starter handle firmly and pull out until positive engagement results; then pull handle vigorously to start engine and allow rope to recoil slowly.

Important: Do not pull recoil rope to its limit or let go of the starter handle when rope is pulled out because rope may break or recoil assembly may be damaged.

5. Move the choke lever to the off position.

Stopping the Engine

1. Move the throttle lever to the **slow** position (Figure 15).
2. Let engine idle for 30 to 60 seconds before turning the ignition key to **off**.
3. Turn the ignition key to **off** (Figure 15).

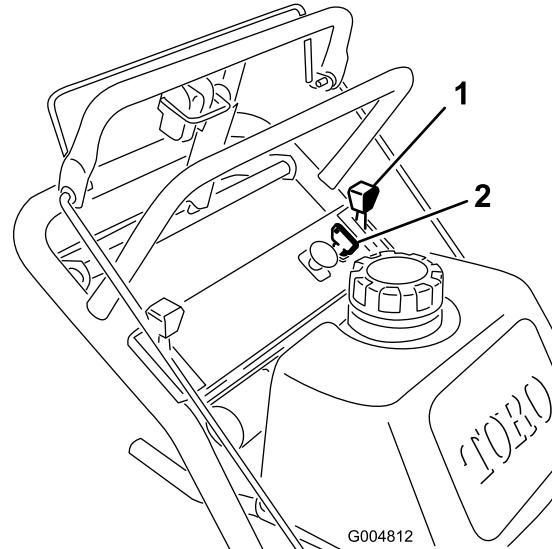


Figure 15

1. Throttle lever
2. Ignition key
4. Set the parking brake and remove key.
5. Pull wire off spark plug(s) to prevent possibility of accidental starting before storing machine.
6. Close the fuel shut off valve before storing machine.

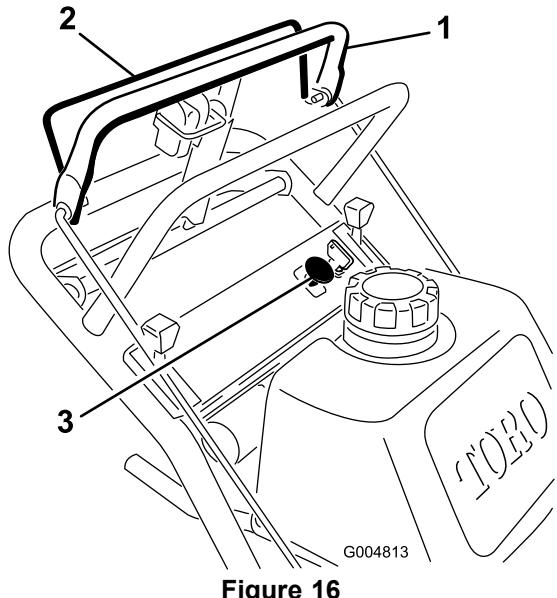
Important: Make sure fuel shut off valve is closed before transporting or storing machine, as fuel leakage may occur.

Operating the Blade Control Switch (PTO)

The blade control switch (PTO) in conjunction with the blade control bail engages and disengages power to the electric clutch and mower blades.

Engaging the Mower Blades (PTO)

1. Release the upper control bar to stop the machine (Figure 16).
2. To engage blade, squeeze blade control bail against the upper control bar (Figure 16).
3. Pull the blade control switch (PTO) up and release. Hold the blade control bail against the upper control bar while operating.
4. Repeat the procedure to engage the mower blades if the blade control bail is released.



1. Upper control bar
2. Blade control bail
3. Power take off switch (PTO)

Disengaging the Mower Blades (PTO)

Release the blade control bail to disengage the blades (Figure 16).

The Safety Interlock System



If safety interlock switches are disconnected or damaged the machine could operate unexpectedly causing personal injury.

- Do not tamper with the interlock switches.
- Check the operation of the interlock switches daily and replace any damaged switches before operating the machine.

Understanding the Safety Interlock System

The safety interlock system is designed to prevent the mower blades from rotating unless:

- The control bail is depressed.
- The blade control switch (PTO) is pulled on.

The safety interlock system is designed to stop the mower blades if you release the blade control bail.

Testing the Safety Interlock System

Service Interval: Before each use or daily

Test the safety interlock system before you use the machine each time.

Note: If the safety system does not operate as described below, have an Authorized Service Dealer repair the safety system immediately.

1. Set the parking brake and start the engine; refer to Starting and Stopping the Engine in , page .
2. Squeeze the blade control bail against upper control bar. **The blades should not rotate.**
3. Then continue holding the blade control bail and pull up on the blade control switch and release. The clutch should engage and the mower blades begin rotating.
4. Release the blade control bail. **The blades should stop rotating.**
5. With the engine running, pull up the blade control switch (PTO) and release without holding the blade control bail. **The blades should not rotate.**

Driving Forward or Backward

The throttle control regulates the engine speed as measured in RPM (revolutions per minute). Place the throttle control in the **fast** position for best mowing performance.

Driving Forward

1. To go forward, move the shift lever to a forward gear (Figure 17).
2. Release the parking brake; refer to Releasing the Parking Brake in , page .
3. Slowly press on the upper control bar to move forward (Figure 17).

To go straight, apply equal pressure to both ends of the upper control bar (Figure 17).

To turn, release pressure on the upper control bar side in the direction you want to turn (Figure 17).

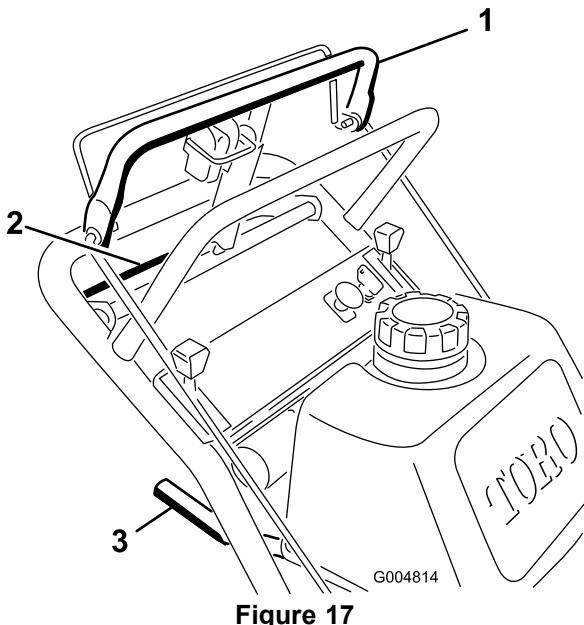


Figure 17

1. Upper control bar
2. Lower control bar
3. Shift lever

Driving Backward

1. To go backward, move the shift lever to reverse gear.
2. Release the parking brake; refer to Releasing the Parking Brake in , page .
3. Slowly squeeze the lower control bar and lower handle together to move rearward (Figure 17).

Using the Lower Control Bar

This procedure is for driving up a curb. This can be performed while driving forward or backward.

Note: Some curbs do not allow the rear drive tires to contact the curb. If this happens, drive the machine up the curb at an angle.



A blade can be bent or damaged when driving up a curb. Pieces of blade that may be thrown could seriously injure or kill you or bystanders.

Do not run blades while driving up a curb forward or backward.

Driving Forward Up a Curb

1. Disengage the mower blades.
2. Select first gear to drive the machine.
3. Drive machine until the castor wheels contact curb (Figure 18).
4. Lift the front of the machine by pushing down on the lower handle (Figure 18).
5. Drive the machine until drive wheels contact the curb (Figure 18).
6. Lower the front of the machine (Figure 18).

Note: Both drive wheels should contact the curb and caster wheels straight.

7. At the same time engage the lower control bar and lift up on the lower handle to drive over the curb (Figure 17 and Figure 18).

Note: Lifting up on the lower handle will assist driving the machine up a curb and not spin the drive wheels.

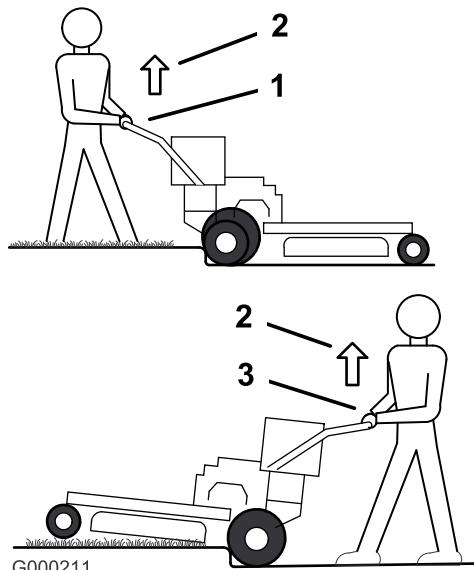


Figure 18

1. Lower Control Bar engaged and mower in reverse.
2. Pull up to assist machine
3. Lower Control Bar engaged and mower going forward.

Driving Backward Up a Curb

1. Disengage the mower blades.
2. Select reverse to drive machine.
3. Drive the machine until drive wheels contact curb (Figure 18).

Note: Both drive wheels should contact the curb and caster wheels straight.

4. At the same time engage lower control bar and lift up on the lower handle (Figure 17 and Figure 18).

Note: Lifting up on the lower handle will assist driving the machine up a curb and not spin the drive wheels.

Stopping the Machine

To stop the machine, pull back on the upper control bar, release the blade control bail, and turn the ignition key to off. Also set the parking brake if you leave the machine unattended; refer to Setting the Parking Brake in , page . Remember to remove the key from the ignition switch.



Children or bystanders may be injured if they move or attempt to operate the machine while it is unattended.

Always remove the ignition key and set the parking brake when leaving the machine unattended, even if just for a few minutes.

Transporting Machines

Use a heavy-duty trailer or truck to transport the machine. Ensure that the trailer or truck has all necessary lighting and marking as required by law. Please carefully read all the safety instructions. Knowing this information could help you, your family, pets or bystanders avoid injury.

To transport the machine:

1. Stop the engine, remove the key, lock the brake, close the fuel valve and block the wheels.
2. Securely fasten the machine to the trailer or truck with straps, chains, cable, or ropes.
3. If using a trailer, secure the trailer to the towing vehicle and secure it with safety chains.
4. If applicable, connect the trailer brakes.

Using the Side Discharge

This mower has a hinged grass deflector that disperses clippings to the side and down toward the turf.



Without the grass deflector, discharge cover, or complete grass catcher assembly mounted in place, you and others are exposed to blade contact and thrown debris. Contact with rotating mower blade(s) and thrown debris will cause injury or death.

- Never remove the grass deflector from the mower because the grass deflector routes material down toward the turf. If the grass deflector is ever damaged, replace it immediately.
- Never put your hands or feet under the mower.
- Never try to clear discharge area or mower blades unless you release the bail and the blade control switch (PTO) is off. Rotate the ignition key to Off. Also remove the key and pull the wire off the spark plug(s).

Adjusting the Height-of-Cut

The height-of-cut is adjustable from 2 to 5 inches (51 to 127 mm) and is adjustable in 1/2 inch (13 mm) increments.

1. Stop the engine before adjusting the height-of-cut.
2. Remove the hairpin cotters and relocate the support rods in different hole locations in the brackets at each corner of the mower (Figure 19).

Note: Both support rods must be in the same hole location for even cutting.

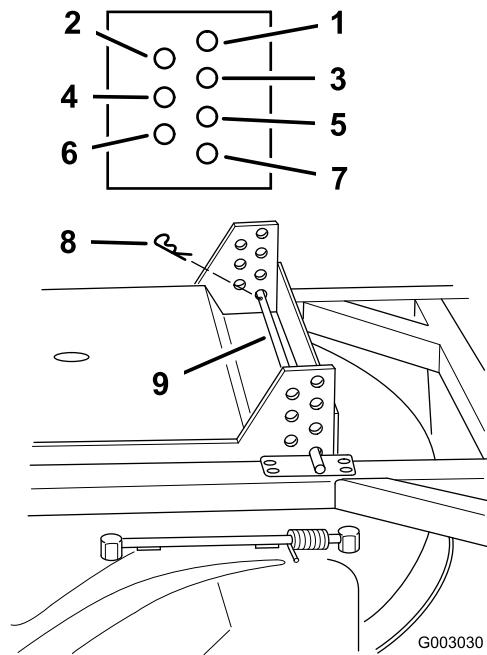


Figure 19

1. 2 inch (51 mm) height-of-cut (HOC)
2. 2-1/2 inch (64 mm) HOC
3. 3 inch (76 mm) HOC
4. 3-1/2 inch (89 mm) HOC
5. 4 inch (102 mm) HOC
6. 4-1/2 inch (114 mm) HOC
7. 5 inch (127 mm) HOC
8. Hairpin cotter pin
9. Support rod

2. Loosen the upper flange bolts (3/8 x 1 inch) and flange nut securing handle to rear frame (Figure 21).

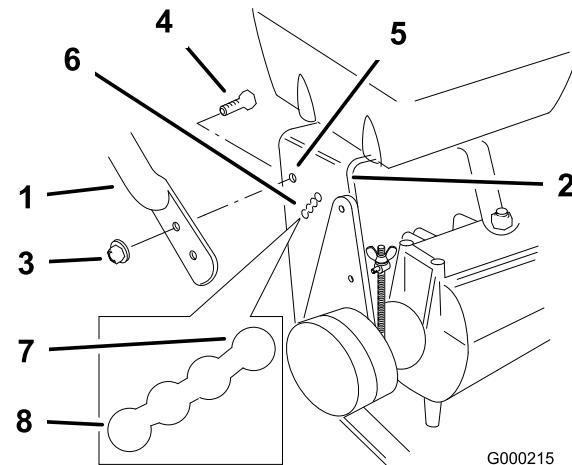


Figure 21

1. Upper handle	5. Upper mounting hole
2. Rear frame	6. Lower mounting holes
3. Flange nut, 3/8 inch	7. Low position
4. Flange bolt, 3/8 x 1 inch	8. High position

3. Remove the lower flange bolts (3/8 x 1 inch) and flange nuts securing handle to rear frame (Figure 21).
4. Pivot handle to desired operating position and install lower flange bolts (3/8 x 1 inch) and flange nuts into mounting holes. Tighten all flange bolts.
5. Thread rod fitting up or down on rod until proper position is attained and install into fitting to idler bracket with clevis pin, washer and hairpin cotter. Refer to [Installing the Control Rods](#) in , page .
6. Check the parking brake adjustment. Refer to [Checking the Brakes](#) in , page .

Adjusting the Handle Height

The handle position can be adjusted to match the operator's height preference.

1. Remove hairpin cotter, washer and clevis pin securing control rod fitting to idler bracket (Figure 20).

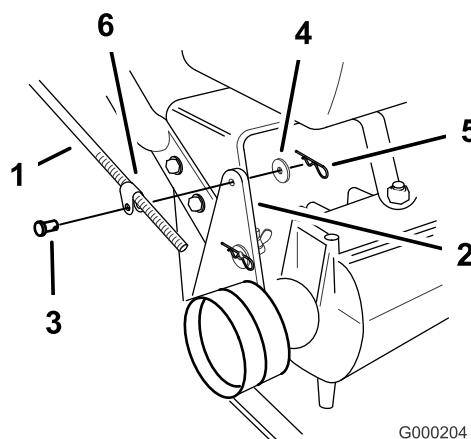


Figure 20

1. Control rod and fitting
2. Idler bracket
3. Clevis pin
4. Washer
5. Hairpin cotter pin
6. Rod fitting

Using the Side Discharge

The mower has a hinged grass deflector that disperses clippings to the side and down toward the turf.



Without the grass deflector, discharge cover, or complete grass catcher assembly mounted in place, you and others are exposed to blade contact and thrown debris. Contact with rotating mower blade(s) and thrown debris will cause injury or death.

- Never remove the grass deflector from the mower because the grass deflector routes material down toward the turf. If the grass deflector is ever damaged, replace it immediately.
- Never put your hands or feet under the mower.
- Never try to clear the discharge area or mower blades unless you move the blade control switch (PTO) to the off position, rotate the ignition key to off and remove the key.
- Make sure the grass deflector is in the down position.

Mowing Direction

Alternate mowing direction to keep the grass standing straight. This also helps disperse clippings which enhances decomposition and fertilization.

Mow at Correct Intervals

Normally, mow every four days. But remember, grass grows at different rates at different times. So to maintain the same cutting height, which is a good practice, mow more often in early spring. As the grass growth rate slows in mid summer, mow less frequently. If you cannot mow for an extended period, first mow at a high cutting height; then mow again two days later at a lower height setting.

Cutting Speed

To improve cut quality, use a slower ground speed in certain conditions.

Avoid Cutting Too Low

If the cutting width of the mower is wider than the mower you previously used, raise the cutting height to ensure that uneven turf is not cut too short.

Long Grass

If the grass is ever allowed to grow slightly longer than normal, or if it contains a high degree of moisture, raise the cutting height higher than usual and cut the grass at this setting. Then cut the grass again using the lower, normal setting.

When Stopping

If the machine's forward motion must be stopped while mowing, a clump of grass clippings may drop onto your lawn. To avoid this, move onto a previously cut area with the blades engaged.

Keep the Underside of the Mower Clean

Clean clippings and dirt from the underside of the mower after each use. If grass and dirt build up inside the mower, cutting quality will eventually become unsatisfactory.

Blade Maintenance

Maintain a sharp blade throughout the cutting season because a sharp blade cuts cleanly without tearing or shredding the grass blades. Tearing and shredding turns grass brown at the edges, which slows growth and

Operating Tips

Fast Throttle Setting

For best mowing and maximum air circulation, operate the engine at the fast throttle position. Air is required to thoroughly cut grass clippings, so do not set the height-of-cut so low as to totally surround the mower by uncut grass. Always try to have one side of the mower free from uncut grass, which allows air to be drawn into the mower.

Cutting a Lawn for the First Time

Cut grass slightly longer than normal to ensure the cutting height of the mower does not scalp any uneven ground. However, the cutting height used in the past is generally the best one to use. When cutting grass longer than 6 inches (152 mm) tall, you may want to cut the lawn twice to ensure an acceptable quality of cut.

Cut 1/3 of the Grass Blade

It is best to cut only about 1/3 of the grass blade. Cutting more than that is not recommended unless grass is sparse, or it is late fall when grass grows more slowly.

increases the chance of disease. Check the cutter blades daily for sharpness, and for any wear or damage. File down any nicks and sharpen the blades as necessary. If a blade is damaged or worn, replace it immediately with a genuine Toro replacement blade.

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">Change the engine oil.
Before each use or daily	<ul style="list-style-type: none">Check the safety interlock system.Grease the caster wheels and caster pivot.Check the engine oil level.Clean the air intake screen.Check the brakes.Inspect the blades.
Every 25 hours	<ul style="list-style-type: none">Clean foam air cleaner element.
Every 50 hours	<ul style="list-style-type: none">Check the paper air cleaner element.Check the tire pressure.Inspect the traction drive belt.Inspect the transmission belt.Inspect the mower belt.
Every 100 hours	<ul style="list-style-type: none">Change the engine oil.Check the spark plugs.Adjust the electric clutch.
Every 200 hours	<ul style="list-style-type: none">Replace the paper air cleaner element.Change the oil filterReplace the fuel filter.
Every 250 hours	<ul style="list-style-type: none">Grease the transmission couplers (more often in dirty or dusty conditions).
Every 400 hours	<ul style="list-style-type: none">Grease the wheel bearings (more often in dirty or dusty conditions).
Before storage	<ul style="list-style-type: none">Paint chipped surfaces.Perform all maintenance procedures listed above before storage.

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



If you leave the key in the ignition switch, someone could accidentally start the engine and seriously injure you or other bystanders.

Remove the key from the ignition and disconnect the spark plug wire from the spark plug(s) before you do any maintenance. Set the wire aside so that it does not accidentally contact the spark plug.

Lubrication

Grease with No. 2 general purpose lithium base or molybdenum base grease.

How to Grease

1. Disengage the PTO and set the parking brake.

2. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Clean the grease fittings with a rag. Make sure to scrape any paint off the front of the fitting(s).

4. Connect a grease gun to the fitting. Pump grease into the fittings until grease begins to ooze out of the bearings.
5. Wipe up any excess grease.

Lubricating the Caster and Wheel Bearings

Service Interval: Before each use or daily

Every 400 hours

Lubricate the wheel bearings and front spindles (Figure 22).

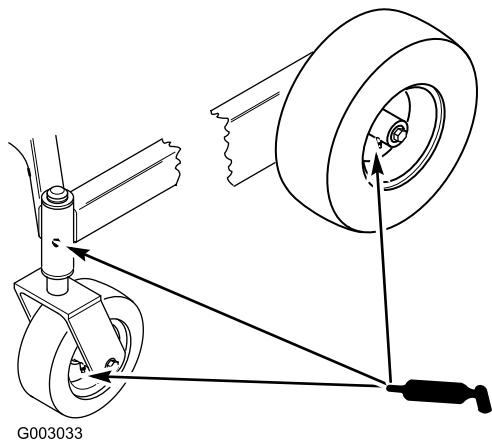


Figure 22

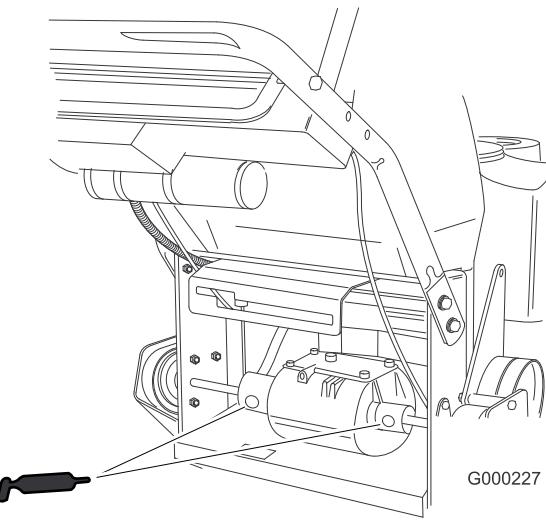


Figure 23

Greasing the Transmission Couplers

Service Interval: Every 250 hours

Lubricate the transmission couplers located in the back of the machine (Figure 23).

Engine Maintenance

Servicing the Air Cleaner

Service Interval/Specification

Service Interval: Every 25 hours—Clean foam air cleaner element.

Every 50 hours—Check the paper air cleaner element.

Every 200 hours/Yearly (whichever comes first)—Replace the paper air cleaner element.

Note: Service the air cleaner more frequently (every few operating hours) if the operating conditions are extremely dusty or sandy.

Important: Do not oil the foam or paper element.

Removing the Foam and Paper Elements

1. Disengage the PTO and set the parking brake.
2. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Clean around the air cleaner to prevent dirt from getting into the engine and causing damage (Figure 24).
4. Unscrew the cover knob and remove the air cleaner cover (Figure 24).
5. Remove the 2 wing nuts and remove the air cleaner assembly (Figure 24).
6. Carefully pull the foam element off the paper element (Figure 24).

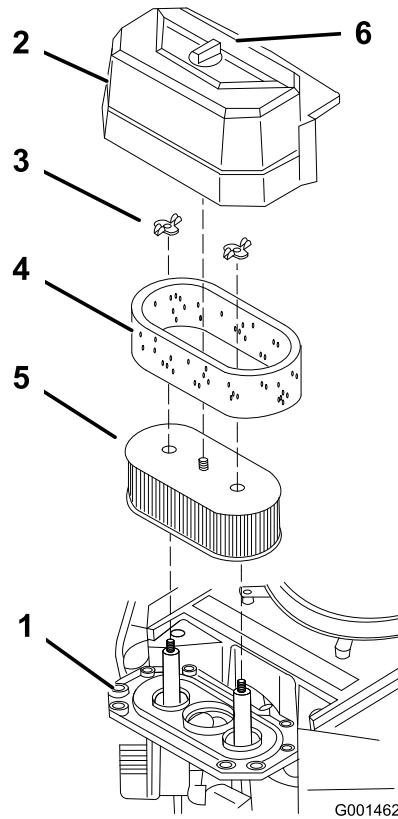


Figure 24

1. Engine	4. Foam element
2. Cover	5. Paper element
3. Wing nut	6. Cover knob

Cleaning the Foam Air Cleaner Element

1. Wash the foam element in liquid soap and warm water. When the element is clean, rinse it thoroughly.
2. Dry the element by squeezing it in a clean cloth.

Important: Replace the foam element if it is torn or worn.

Servicing the Paper Air Cleaner Element

1. Do not clean the paper filter, replace it (Figure 24).
2. Inspect the element for tears, an oily film, or damage to the rubber seal.
3. Replace the paper element if it is damaged.

Installing the Foam and Paper Elements

Important: To prevent engine damage, always operate the engine with the complete foam and paper air cleaner assembly installed.

1. Carefully slide the foam element onto the paper air cleaner element (Figure 24).

2. Place the air cleaner assembly onto the air cleaner base and secure it with the 2 wing nuts (Figure 24).
3. Place the air cleaner cover into position and tighten the cover knob (Figure 24).

Servicing the Engine Oil

Service Interval/Specification

Service Interval: Before each use or daily—Check the engine oil level.

After the first 8 hours—Change the engine oil.

Every 100 hours—Change the engine oil.

Every 200 hours—Change the oil filter or every other oil change.

Note: Change the oil more frequently when the operating conditions are extremely dusty or sandy.

Oil Type: Detergent oil (API service SF, SG, SH, or SJ)

Crankcase Capacity: 58 ounces (1.7 liter) with the filter removed; 51 ounces (1.5 liter) without the filter removed

Viscosity: Refer to the table (Figure 25).

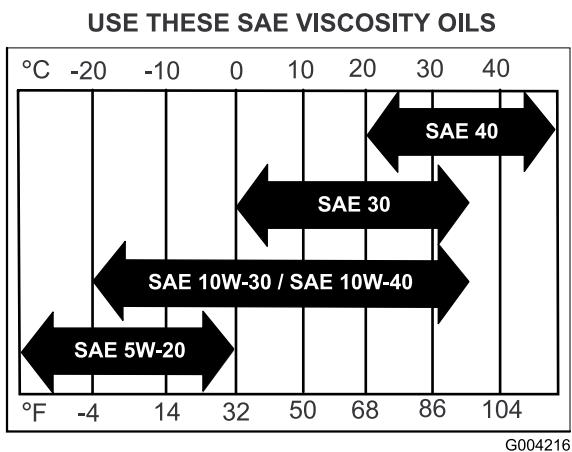


Figure 25

Checking the Engine Oil Level

1. Park the machine on a level surface.
2. Disengage the PTO and set the parking brake.
3. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
4. Clean around the oil dipstick (Figure 26) so that dirt cannot fall into the filler hole and damage the engine.

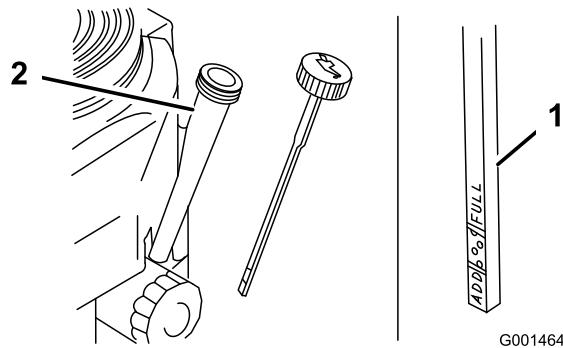


Figure 26

1. Oil dipstick
2. Filler tube

5. Unscrew the oil dipstick and wipe the end clean (Figure 26).
6. Slide the oil dipstick fully into the filler tube, but do not thread onto tube (Figure 26).
7. Pull the dipstick out and look at the end. If the oil level is low, slowly pour only enough oil into the filler tube to raise the level to the Full mark.

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

Changing the Oil

1. Start the engine and let it run five minutes. This warms the oil so it drains better.
2. Park the machine so that the drain side is slightly lower than the opposite side to assure the oil drains completely.
3. Disengage the PTO and set the parking brake.
4. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
5. Slide the drain hose over the oil drain valve.
6. Place a pan below the drain hose. Rotate oil drain valve to allow oil to drain (Figure 27).
7. When oil has drained completely, close the drain valve.
8. Remove the drain hose (Figure 27).

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

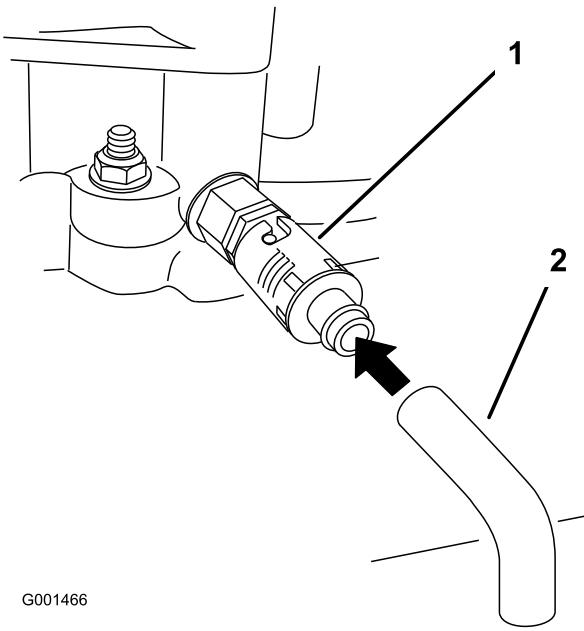


Figure 27

1. Oil drain valve 2. Oil drain hose

9. Slowly pour approximately 80% of the specified oil into the filler tube (Figure 26).
10. Check the oil level; refer to Checking the Engine Oil Level.
11. Slowly add the additional oil to bring it to the **Full** mark.

Changing the Oil Filter

Note: Change the oil filter more frequently when the operating conditions are extremely dusty or sandy.

1. Drain the oil from the engine; refer to Changing the Engine Oil.
2. Remove the old filter (Figure 28).

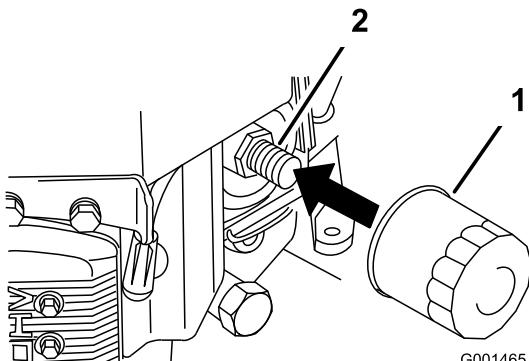


Figure 28

1. Oil filter 2. Adapter

3. Apply a thin coat of new oil to the rubber gasket on the replacement filter (Figure 28).

4. Install the replacement oil filter to the filter adapter, turn the oil filter clockwise until the rubber gasket contacts the filter adapter, then tighten the filter an additional 3/4 turn (Figure 28).
5. Fill the crankcase with the proper type of new oil; refer to Servicing the Engine Oil.
6. Run the engine for about 3 minutes, stop the engine, and check for oil leaks around the oil filter and drain valve.
7. Check the engine oil level and add oil if needed.
8. Wipe up any spilled oil.

Servicing the Spark Plugs

Service Interval: Every 100 hours—Check the spark plugs.

Ensure that the air gap between the center and side electrodes is correct before installing the spark plug. Use a spark plug wrench for removing and installing the spark plugs and a gapping tool/feeler gauge to check and adjust the air gap. Install a new spark plugs if necessary.

Type: Champion® RCJ8Y or equivalent

Air Gap: 0.030 inch (0.75 mm)

Removing the Spark Plugs

1. Disengage the PTO and set the parking brake.
2. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Disconnect the wires from the spark plugs (Figure 29).

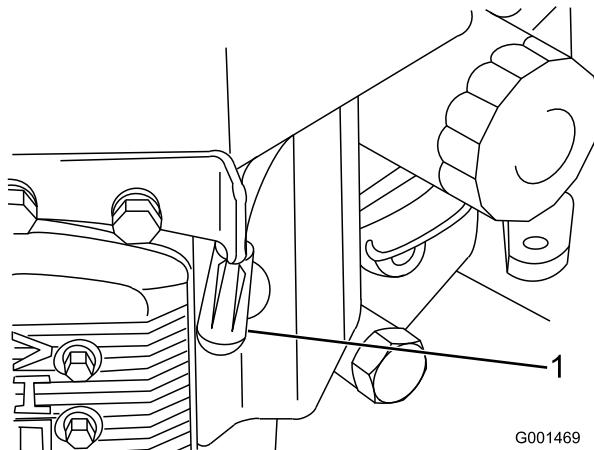


Figure 29

1. Spark-plug wire/spark plug

- Clean around the spark plugs to prevent dirt from falling into the engine and potentially causing damage.
- Remove the spark plugs and the metal washers.

Checking the Spark Plugs

- Look at the center of the spark plugs (Figure 30). If you see light brown or gray on the insulator, the engine is operating properly. A black coating on the insulator usually means that the air cleaner is dirty.
- If needed, clean the spark plug with a wire brush to remove carbon deposits.

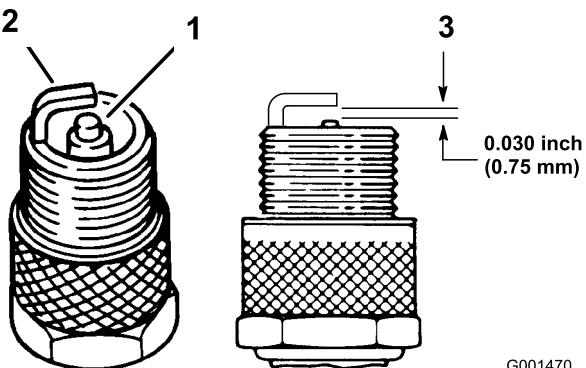


Figure 30

- Center electrode insulator
- Side electrode
- Air gap (not to scale)

Important: Always replace the spark plugs when it has worn electrodes, an oily film on it, or has cracks in the porcelain.

- Check the gap between the center and side electrodes (Figure 30). Bend the side electrode (Figure 30) if the gap is not correct.

Installing the Spark Plugs

- Install the spark plugs and the metal washer. Ensure that the air gap is set correctly.
- Tighten the spark plugs to 16 ft-lb (22 N-m).
- Connect the wires to the spark plugs (Figure 30).

Fuel System Maintenance

Servicing the Fuel Tank



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.

- Drain gasoline from the fuel tank when the engine is cold. Do this outdoors in an open area. Wipe up any gasoline that spills.
- Never smoke when draining gasoline, and stay away from an open flame or where a spark may ignite the gasoline fumes.

Draining the Fuel Tank

- Park the machine on a level surface, to assure fuel tank drains completely. Then disengage the blade control switch (PTO), set the parking brake, and turn the ignition key to off. Remove the key.
- Close the fuel shut off valve at the fuel tank (Figure 31).
- Squeeze the ends of the hose clamp together and slide it up the fuel line away from fuel filter (Figure 31).
- Pull the fuel line off the fuel filter (Figure 31). Open the fuel shut off valve and allow the gasoline to drain into a gas can or drain pan.

Note: Now is the best time to install a new fuel filter because the fuel tank is empty. Refer to Replacing the Fuel Filter.

- Install the fuel line onto the fuel filter. Slide the hose clamp close to the valve to secure the fuel line.

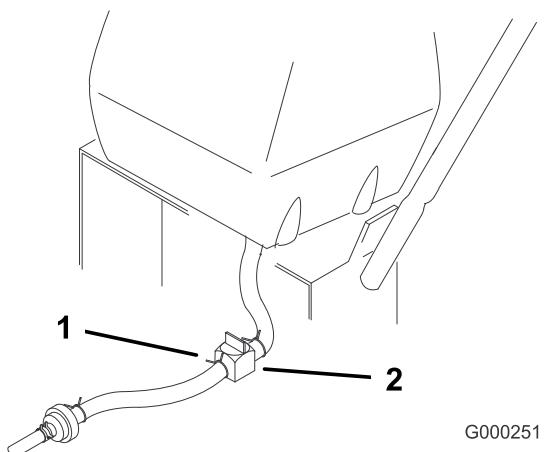


Figure 31

1. Fuel shut off valve 2. Clamp

G000251

Replacing the Fuel Filter

Service Interval: Every 200 hours/Yearly (whichever comes first)

Never install a dirty filter if it is removed from the fuel line.

Note: Remember how the fuel filter is installed.

Note: Wipe up any spilled fuel.

1. Disengage the PTO, stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
2. Close fuel shut off valve at the fuel tank (Figure 31).
3. Squeeze the ends of the hose clamps together and slide them away from the filter (Figure 32).

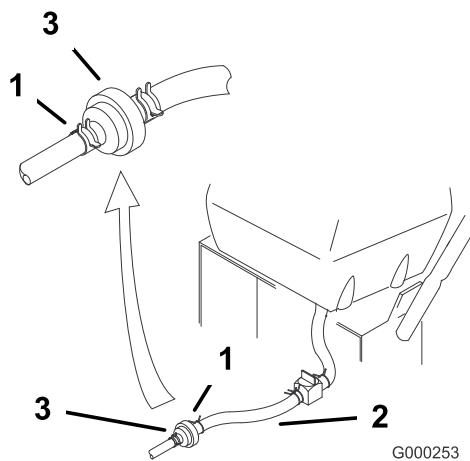


Figure 32

1. Hose clamp 3. Filter
2. Fuel line

4. Remove the filter from the fuel lines.

5. Install a new filter and move the hose clamps close to the filter.
6. Open fuel shut off valve at fuel tank (Figure 31).
7. Check for fuel leaks and repair if needed.

Electrical System Maintenance

Servicing the Fuse

The electrical system is protected by a fuse. It requires no maintenance. If the fuse blows check component or circuit for malfunction or short. To replace fuse pull out on the fuse (Figure 33) to remove or replace it.

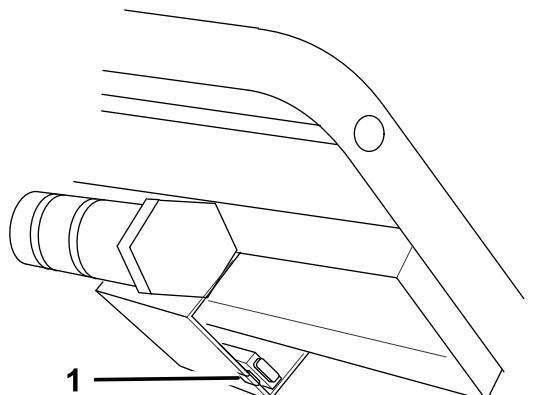


Figure 33

1. Fuse, 7.5 amp, blade type

Drive System Maintenance

Checking the Tire Pressure

Service Interval: Every 50 hours/Monthly (whichever comes first)

Check the pressure at the valve stem (Figure 34).

Maintain the air pressure in the rear tires at 12-14 psi (83-97 kPa). Uneven tire pressure can cause an uneven cut.

Note: The front tires are semi-pneumatic tires and do not require air pressure maintenance.

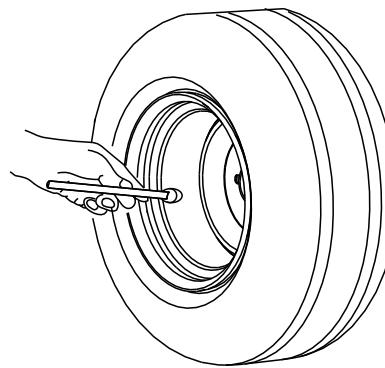


Figure 34

Replacing the Caster Wheel Fork Bushings

The caster wheel forks are mounted in bushings pressed into the top and bottom of the carrier frame mounting tubes. To check the bushings, move the caster forks back and forth and side-to-side. If a caster fork is loose, the bushings are worn and must be replaced.

1. Disengage the blade control (PTO), set the parking brake, stop the engine, remove the key, and disconnect the spark plug wire from the spark plug.
2. Raise the cutting unit so the castor wheels are off the floor, then block up the front of the mower with jack stands.
3. Remove the retaining ring and thrust washer(s) from the top of the castor wheel fork (Figure 35).

- Pull the castor wheel fork out of the mounting tube, leaving the spacer and thrust washer(s) on the bottom of the fork.

Remember the location of the thrust washers and spacer on each fork to ensure correct installation and to maintain a level mower.

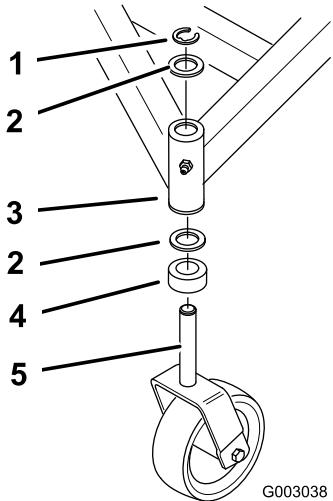


Figure 35

1. Retaining ring	4. Spacer
2. Thrust washer (locate as required)	5. Caster wheel fork
3. Carrier frame mounting tube	

- Insert a pin punch into the mounting tube and carefully drive out the bushings (Figure 36). Clean the inside of the mounting tube.

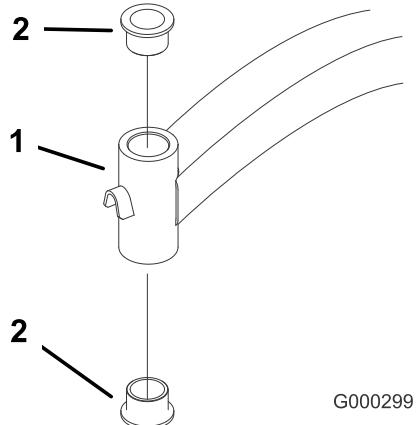


Figure 36

1. Mounting Tube	2. Bushing
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- Clean the inside of the mounting tube.
- Grease the inside and outside of the new bushings.
- Use a hammer and flat plate to carefully drive the bushings into the mounting tube.
- Inspect the castor wheel fork for wear and replace if necessary (Figure 35).

- Slide the castor wheel fork through the bushings in the mounting tube. Replace the spacer(s) onto the fork and secure with the retaining ring (Figure 35).

Important: The inside diameter of the bushings may collapse slightly when installed. If the castor wheel fork does not slide into the new bushings, ream both bushings to an inside diameter of 1.126 inch (29 mm).

- Grease the fitting on the carrier frame mounting tube using No. 2 general purpose lithium base or molybdenum base grease.

Servicing the Caster Wheel and Bearings

The caster wheels rotate on a roller bearing supported by a spanner bushing. If the bearing is kept well lubricated, wear will be minimal. Failure to keep the bearing well lubricated will cause rapid wear. A wobbly caster wheel usually indicates a worn bearing.

- Remove the locknut and wheel bolt holding the caster wheel to the caster fork (Figure 37).

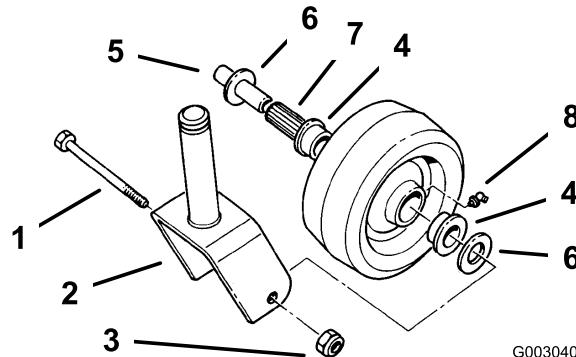


Figure 37

1. Wheel Bolt	5. Spanner Bushing
2. Caster fork	6. Wheel spacer
3. Locknut	7. Roller Bearing
4. Bushing	8. Grease fitting

- Remove one bushing, then pull the spanner bushing and roller bearing out of the wheel hub (Figure 37).
- Remove the other bushing from the wheel hub and clean any grease and dirt from the wheel hub (Figure 37).
- Inspect the roller bearing, bushings, spanner bushing and inside of the wheel hub for wear. Replace any defective or worn parts (Figure 37).
- To assemble, place one bushing into the wheel hub. Grease the roller bearing and spanner bushing and slide them into the wheel hub. Place the second bushing into the wheel hub (Figure 37).

6. Install the caster wheel into the caster fork and secure with the wheel bolt and locknut. Tighten the locknut until the spanner bushing bottoms against the inside of the caster forks (Figure 37).
7. Grease the fitting on the caster wheel.

Adjusting the Electric Clutch

Service Interval: Every 100 hours

The clutch is adjustable to ensure proper engagement and proper braking.

1. To adjust the clutch, tighten or loosen the lock nuts on the flange studs (Figure 38).

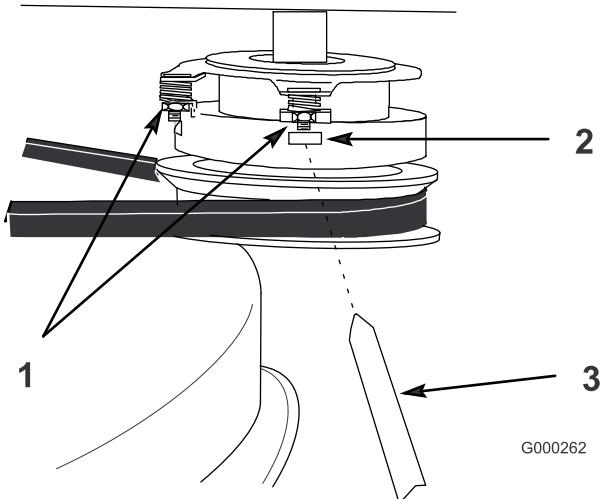


Figure 38

1. Adjusting nut	3. Feeler gauge
2. Slot	

2. Check adjustment by inserting a feeler gauge through the slots next to the studs (Figure 38).
3. The proper disengaged clearance between the clutch plates is 0.012-0.024 inch (0.30-0.60 mm). It will be necessary to check this clearance at each of the three slots to ensure the plates are parallel to each other.

Cooling System Maintenance

Cleaning the Air Intake Screen

Service Interval: Before each use or daily

Before each use remove any build up of grass, dirt or other debris from the cylinder and cylinder head cooling fins, air intake screen on flywheel end, and carburetor-governor levers and linkage. This will help insure adequate cooling and correct engine speed and will reduce the possibility of overheating and mechanical damage to the engine.

Brake Maintenance

Servicing the Brakes

Service Interval: Before each use or daily—Check the brakes.

Check brakes on both a level surface and slope.

Always set the parking brake when you stop the machine or leave it unattended. If the parking brake does not hold securely, an adjustment is required.

Checking the Brakes

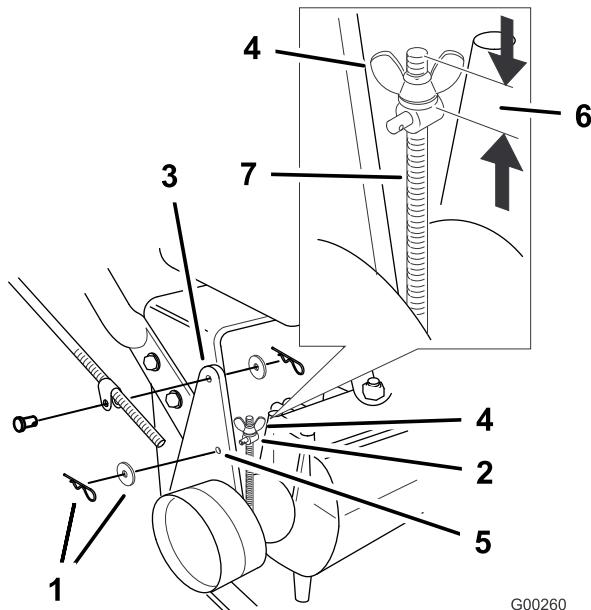
1. Park the machine on a level surface, disengage the PTO and set the parking brake.
2. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Apply the parking brake. The wheels must lock when you try to push the machine forward.
4. If the wheels do not lock, adjust the brakes. Refer to Adjusting the Brakes.
5. Release the brake and press upper control bar very lightly, approximately 1/2 inch (13 mm). The wheels should rotate freely, if not; refer to Adjusting the Brakes.

Adjusting the Brakes

The brake lever is on the upper control bar. If the parking brake does not hold securely, an adjustment is required.

Note: For the initial adjustment, adjust the wing nut until it is 1-1/4 inches from the top of the rod (Figure 39).

1. Park the machine on a level surface, disengage the PTO, and set the parking brake.
2. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Check the brake before you adjust it; refer to Checking the Brakes.
4. Release the parking brake; refer to Releasing the Parking Brake in , page .
5. To adjust the brake, remove the hair pin cotter and washer from the brake lever and trunnion (Figure 39).



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Figure 39

1. Hairpin cotter and washer	5. Hole F
2. Trunnion	6. Initial adjustment- 1-1/4 inch (32 mm)
3. Brake lever	7. Rod
4. Wing nut	

6. Rotate the wing nut clockwise to increase the braking pressure.
7. Rotate the wing nut counterclockwise to decrease the braking pressure.
8. Install the trunnion into hole F (Figure 39). Tighten the wing nut.
9. Secure trunnion to brake lever with washer and hair pin cotter (Figure 39).
10. Check the brake operation again; refer to Checking the Brakes.

Important: With the parking brake released, the rear wheels must rotate freely when you push the mower. If brake action and free wheel rotation cannot be achieved contact your service dealer immediately.

Belt Maintenance

Inspecting the Belts

Service Interval: Every 50 hours—Inspect the traction drive belt.

Every 50 hours—Inspect the transmission belt.

Every 50 hours—Inspect the mower belt.

Squealing when the belt is rotating, blades slipping when cutting grass, check the belts for cracks, frayed edges, burn marks or any other damage. Replace the belt if any of these conditions are evident.

Replacing the Traction Drive Belt

1. Remove the top capscrew securing idler support and idler bracket to rear frame (Figure 40).

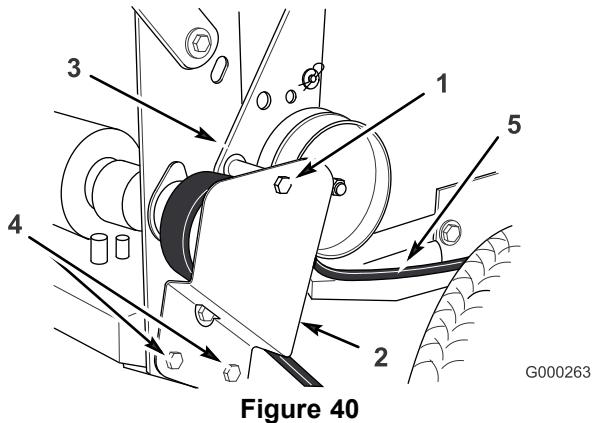


Figure 40

1. Top capscrew
2. Idler bracket
3. Idler support
4. Bottom capscrew
5. Traction drive belt

2. Loosen bottom two mounting screws enough to allow belt to pass between drive pulley and idler support (Figure 40).
3. Raise the wheel off the ground, to allow the belt to be removed, and remove the belt.
4. Install a new belt.
5. Install the top capscrew securing the idler support and idler bracket to the rear frame (Figure 40).
6. Tighten the bottom two mounting screws enough to allow the belt to pass between the drive pulley and idler support (Figure 40).

Replacing the Transmission Belt

1. Disengage the PTO and set the parking brake.
2. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Raise the front of the machine and hold it with jack stands.
4. Check the belt for wear.
5. Disconnect clutch wire connector from wire harness.
6. Remove mower belt. Refer to Replacing the Mower Belt.
7. Remove the left front engine mounting bolt which secures the clutch retainer to the frame.
8. Unhook the clutch retainer from the clutch and remove the retainer (Figure 41).

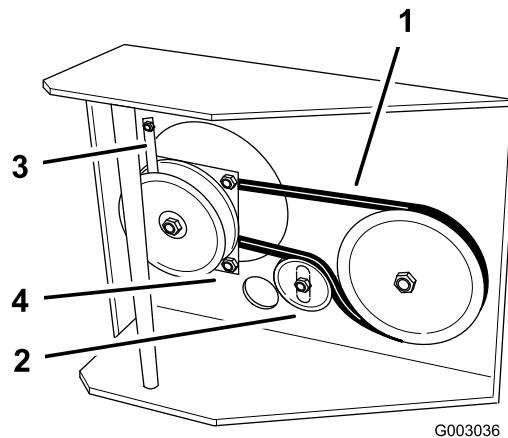


Figure 41

1. Traction belt
2. Idler pulley
3. Clutch retainer
4. Adjusting nut

9. Loosen the idler mounting bolt enough to move the idler pulley and remove the traction belt from the drive pulley and clutch (Figure 41).
10. Install new belt around clutch and drive pulley.
11. Hook the clutch retainer into the clutch and secure it to the frame with the engine mounting bolt (Figure 41).
12. Torque pivot bolt to 170-220 in-lb (19-24 N·m) (Figure 41).
13. Connect the clutch wire connector to wire harness.
14. Install mower drive belt.

Replacing the Mower Belt

Squealing when the belt is rotating, blades slipping when cutting grass, frayed belt edges, burn marks and cracks

are signs of a worn deck belt. Replace the deck belt if any of these conditions are evident.

1. Disengage the PTO and set the parking brake.
2. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Remove the knobs/rubber washers holding the mower cover and remove the mower cover.

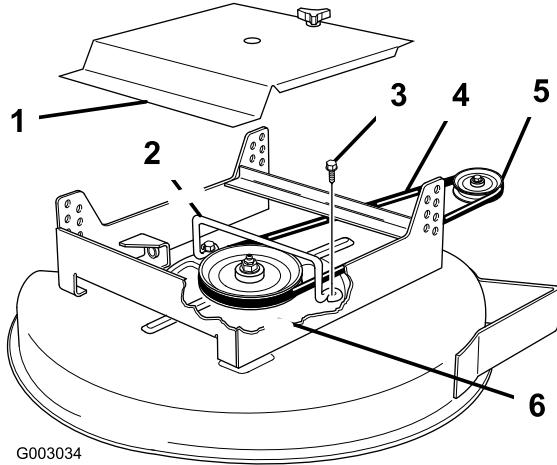


Figure 42

1. Mower cover	4. Drive Belt
2. Belt guide	5. Traction unit pulley
3. Flange head bolt	6. Spindle pulley

4. Remove the two flange-head bolts holding the belt guide to the top of the mower and remove the belt guide (Figure 42).
5. Loosen the jam nuts on the adjusting shafts to relieve the tension on the drive belt, then remove the worn drive belt from the pulleys (Figure 43).

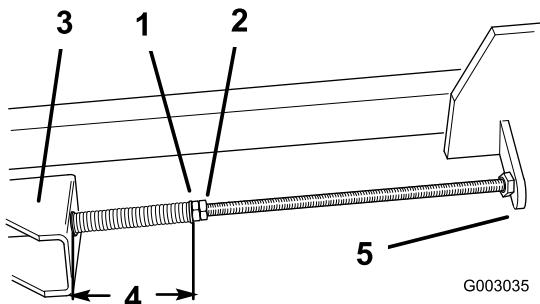


Figure 43

1. Front jam nut	4. 4-3/4 inches (12 cm) between the washer and bushing, minus one turn
2. Rear jam nut	5. Carrier frame mounting tab
3. Mower mounting bracket	

6. Install the replacement drive belt around the drive pulley on the traction unit and the spindle pulley (Figure 42).

7. Install the belt guide on the mower with the two flange-head bolts. Ensure that the formed loops face toward the rear of the mower (Figure 42).
8. Tighten the front jam nut on each adjusting shaft until the springs are completely compressed, approximately 4-3/4 inch (12 cm) measured between the washer and the bushing, then back the front jam nuts off one turn (Figure 43).

Important: Do not overtighten the jam nuts after the springs are fully compressed, as this can damage the drive belt.

9. Tighten the rear jam nuts (Figure 43).
10. Install the mower cover onto the cutting unit, then tighten the hand knob (Figure 42).

Mower Deck Maintenance

Servicing the Cutting Blades

To ensure a superior quality of cut, keep the blades sharp. For convenient sharpening and replacement, you may want to keep extra blades on hand.



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.

Before Inspecting or Servicing the Blades

Park the machine on a level surface, disengage the blade control bail and set the parking brake. Turn the ignition key to off. Remove the key and disconnect the spark plug wire(s) from the spark plug(s).

Inspecting the Blades

Service Interval: Before each use or daily

1. Inspect the cutting edges (Figure 44). If the edges are not sharp or have nicks, remove and sharpen the blades. Refer to Sharpening the Blades.

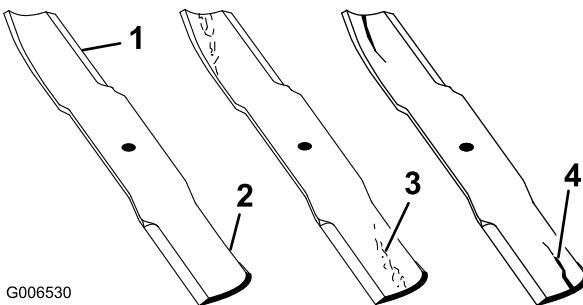


Figure 44

1. Cutting Edge
2. Curved Area
3. Wear/slot Forming
4. Crack

2. Inspect the blades, especially the curved area (Figure 44). If you notice any damage, wear, or a slot forming in this area immediately install a new blade.

Checking for Bent Blades

1. Rotate the blade until the ends face forward and backward (Figure 45).

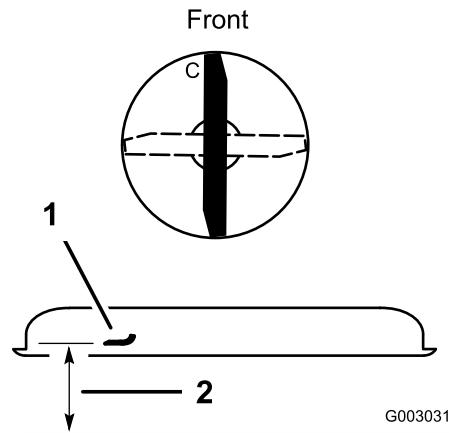


Figure 45

1. Blade
2. Measure from cutting edge to level surface

2. Measure from a level surface to the cutting edge, position **C**, of the blade (Figure 45). Note this dimension.
3. Rotate the opposite ends of the blade forward.
4. Measure from a level surface to the cutting edge of the blade at the same position as in step 1. The difference between the dimensions obtained in steps 1 and 2 must not exceed 1/8 inch (3 mm). If this dimension exceeds 1/8 inch (3 mm), the blade is bent and must be replaced. Refer to Removing the blade and Installing the blade.



A blade that is bent or damaged could break apart and could seriously injure or kill you or bystanders.

- Always replace bent or damaged blade with a new blade.
- Never file or create sharp notches in the edges or surfaces of blade.

Removing the Blade

The blade must be replaced if a solid object is hit, if the blade is out of balance or is bent. To ensure optimum performance and continued safety conformance of the machine, use genuine Toro replacement blades. A replacement blade made by other manufacturers may result in non-conformance with safety standards.

1. Hold the blade end using a rag or thickly-padded glove.
2. Remove the blade bolt, blade stiffener, washer, and blade from the spindle shaft (Figure 46).

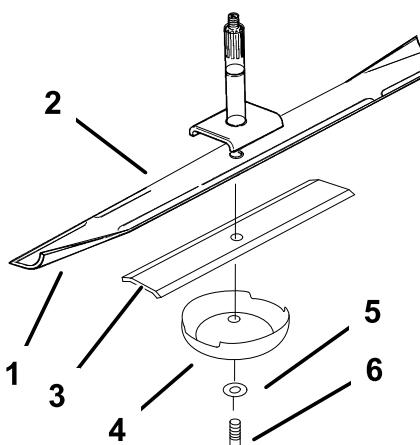


Figure 46

1. Sail Area of Blade	4. Anti-scalp cup
2. Blade	5. Lock washer
3. Spacer	6. Blade Bolt

Installing the Blade

1. Install the blade onto the spindle shaft (Figure 46).
- Important:** The sail part of the blade must be pointing upward, toward the inside of the mower to ensure proper cutting (Figure 46).
2. Install the blade stiffener, flat washer and blade bolt (Figure 46).
3. Torque the blade bolt to 85-110 ft-lb (115-140 N·m).

Correcting the Mower Quality of Cut

Note: Tire air pressure is critical in these procedures. Make sure all tires have correct pressure.

If one side of the mower cuts lower than the other, correct it as follows:

1. Disengage the PTO and set the parking brake.
2. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Adjust the tire pressure in the traction unit tires to specifications.
4. Check that the blades are not bent; refer to Checking for a Bent Blade.
5. Set the height-of-cut to the 2-1/2 inch (64 mm) position; refer to Adjusting the Height-of-Cut.
6. Ensure that the mower support rods are resting on the frame cushions.

Checking the Mower Deck Front-to-Rear Pitch

1. Check the tire pressure on both deck and traction unit.
2. Position one blade front-to-rear (Figure 49). Measure at **C** and **D** locations from a level surface to the cutting edge of the blade tips (Figure 49).
3. The mower should be 1/8 to 5/8 inch (3 to 16 mm) lower at **C** than in the rear at **D**.

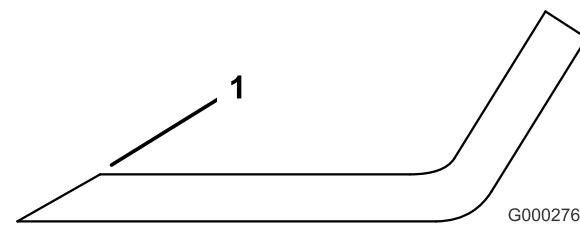


Figure 47

1. Sharpen at original angle
2. Check the balance of the blade by putting it on a blade balancer (Figure 48). If the blade stays in a horizontal position, the blade is balanced and can be used. If the blade is not balanced, file some metal off the end of the sail area only (Figure 46). Repeat this procedure until the blade is balanced.

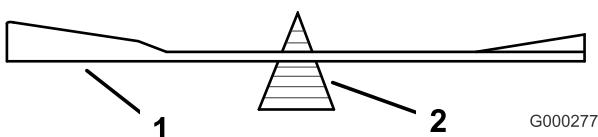


Figure 48

1. Blade
2. Balancer

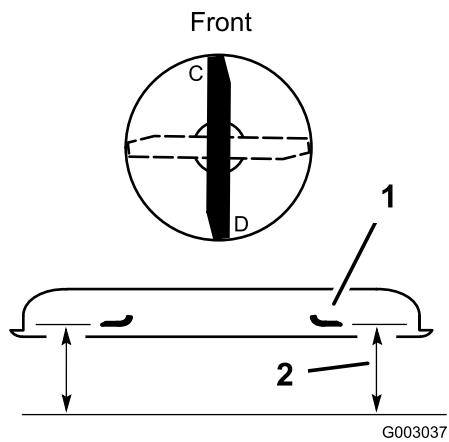


Figure 49

1. Blade
2. Measure from cutting edge to level surface

4. If an adjustment is necessary, move an equal number of thrust washers on both castor wheel forks. Move the thrust washers from the top of the carrier frame mounting tube to the bottom to raise the front of the mower. Move the thrust washers from the bottom of the mounting tube to the top to lower the front of the mower (Figure 50).
5. Check the side-to-side setting of the mower deck.

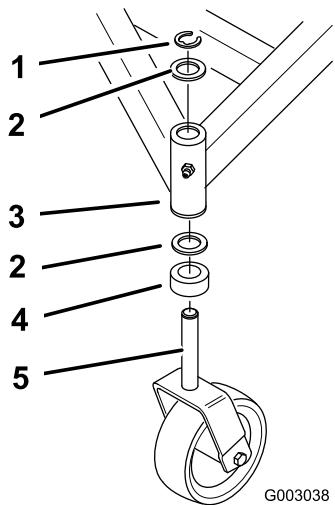


Figure 50

1. Retaining ring
2. Thrust washer (locate as required)
3. Carrier frame mounting tube
4. Spacer
5. Caster wheel fork

Checking the Deck Side-to-Side Measurements

1. Check the tire pressure on both deck and traction unit.

2. Position the blade side-to-side (Figure 51). Measure at **A** and **B** locations (Figure 51) from a level surface to the cutting edge of blade tips (Figure 51).

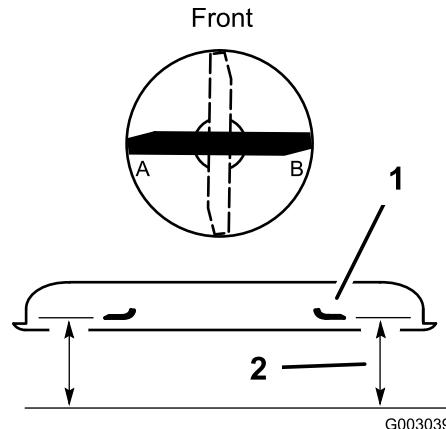


Figure 51

1. Blade
2. Measure from cutting edge to level surface

3. The difference between measurements **A** and **B** should be no more than 1/4 inch (6 mm).
4. To change the side-to-side leveling, move the thrust washers on one castor wheel fork only. Move the thrust washer(s) from the top of the carrier frame mounting tube to the bottom to raise the corresponding side of the mower. Move the thrust washer(s) from the bottom of the mounting tube to the top to lower the corresponding side of the mower. (Figure 50).
5. Check the front-to-rear pitch of the cutting unit.

Removing the Discharge Cover

1. Disengage the PTO and set the parking brake.
2. Stop the engine, remove the key, and wait for all moving parts to stop before leaving the operating position.
3. Thoroughly clean the mower.
4. Raise the grass deflector and remove the chute pin on the front of the discharge cover (Figure 52).
5. Remove the locknut, flat washer, and bolt (5/16 x 1-1/4 inches) holding the top of the discharge cover to the top of the mower (Figure 52).
6. Remove the locknut, flat washer, and bolt (5/16 x 2-1/4 inches) holding the loop on the rear of the discharge cover to the deck ring (Figure 52).

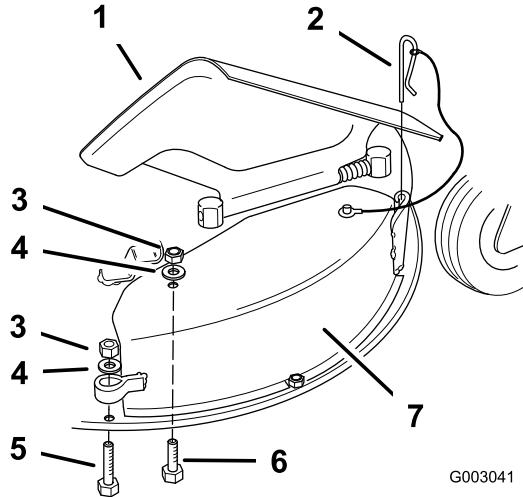
7. Remove the discharge cover from the mower (Figure 52).



Open holes in the mower could allow the mower to throw objects in the operator's or bystander's direction and result in serious injury.

Never operate the mower with open holes; install hardware in all open mounting hole when you remove the discharge cover.

8. Install the bolt (5/16 x 1-1/4 inches), flat washer, and locknut previously removed into the open hole in the top of the mower for safety.

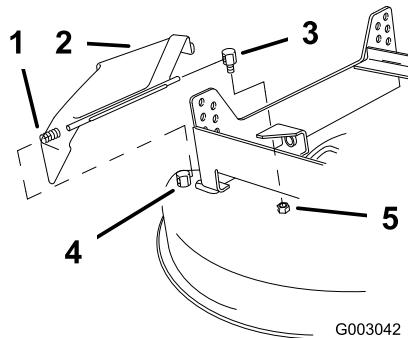


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Figure 52

1. Grass Deflector	5. Bolt, (5/16 x 2-1/4 inches)
2. Chute pin	6. Bolt, (5/16 x 1-1/4 inches)
3. Locknut, (5/16 inch)	7. Discharge cover
4. Flat washer	

1. Remove the locknut holding the rear deflector pivot post to the mower and remove the rear pivot post (Figure 53).
2. Remove the deflector assembly from the front (fixed) deflector pivot post and remove the deflector assembly from the mower (Figure 53).
3. Install the spring onto the replacement deflector assembly, then install the deflector assembly into the front deflector pivot post.
4. Ensure that the free end of the spring is positioned correctly on the top of the mower, then install the rear end of the deflector assembly into the rear deflector pivot post.
5. Install the rear deflector pivot post onto the mower and tighten the locknut (Figure 53). The grass deflector must be spring-loaded in the down position. Lift the deflector up to test that it snaps to the full down position.



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Figure 53

1. Spring	4. Front deflector pivot post
2. Deflector assembly	5. Locknut
3. Rear deflector pivot post	

Replacing the Grass Deflector



An uncovered discharge opening could allow the lawn mower to throw objects in the operator's or bystander's direction and result in serious injury. Also, contact with the blade could occur.

Never operate the lawn mower unless you install a cover plate, a mulch plate, or a grass chute and catcher.

Storage

Cleaning and Storage

1. Disengage the blade control switch (PTO), set the parking brake, and turn the ignition key to off. Remove the key.
2. Remove grass clippings, dirt, and grime from the external parts of the entire machine, especially the engine. Clean dirt and chaff from the outside of the engine's cylinder head fins and blower housing.

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 shift lever plate, and engine.

3. Check the brake; refer to Servicing the Brake in , page .
4. Service the air cleaner; refer to Servicing the Air Cleaner in , page .
5. Grease the machine; refer to Greasing and Lubrication in , page .
6. Change the crankcase oil; refer to Servicing the Engine in , page .
7. Check the tire pressure; refer to Checking the Tire Pressure in , page .
8. For long-term storage (more than 90 days) add stabilizer/conditioner additive to fuel in the tank.

- A. Run engine to distribute conditioned fuel through the fuel system (5 minutes).
- B. Stop engine, allow to cool and drain the fuel tank; refer to Servicing the Fuel Tank in , page , or operate engine until it stops.
- C. Restart engine and run until it stops. Repeat, on Choke until engine will not restart.
- D. Dispose of fuel properly. Recycle as per local codes.

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

9. Remove the spark plug(s) and check its condition; refer to Servicing the Spark Plug in , page . With the spark plug(s) removed from the engine, pour two tablespoons of engine oil into the spark plug hole. Now use the starter to crank the engine and distribute the oil inside the cylinder. Install the spark plug(s). Do not install the wire on the spark plug(s).
10. Check and tighten all bolts, nuts, and screws. Repair or replace any part that is damaged or defective.

11. Paint all scratched or bare metal surfaces. Paint is available from your Authorized Service Dealer.
12. Store the machine in a clean, dry garage or storage area. Remove the key from the ignition switch and keep it in a memorable place. Cover the machine to protect it and keep it clean.

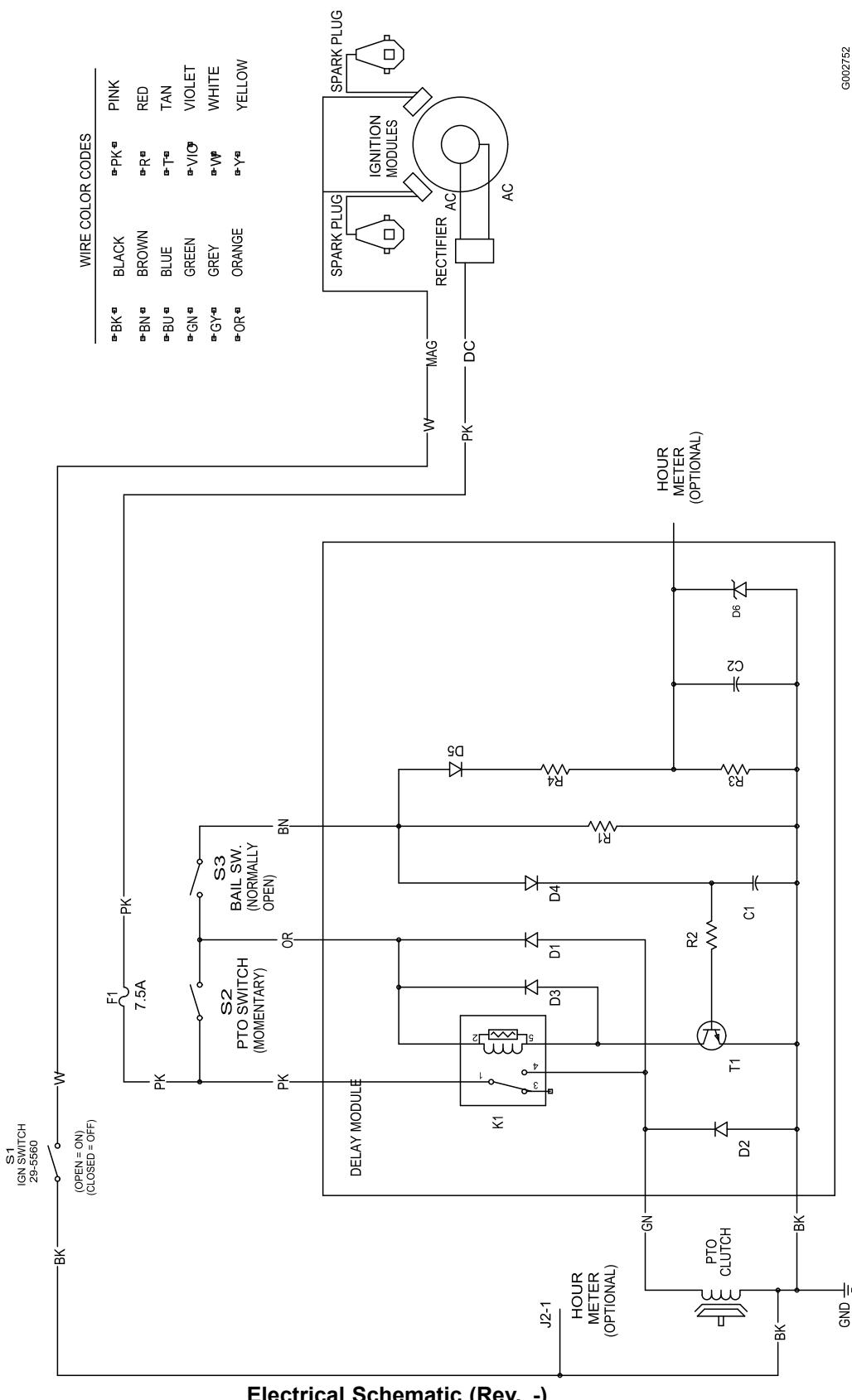
Troubleshooting

Problem	Possible Cause	Corrective Action
Engine will not start, starts hard, or fails to keep running.	<ol style="list-style-type: none"> 1. Fuel tank is empty. 2. Choke is not on. 3. Air cleaner is dirty. 4. Spark plug wire is loose or disconnected. 5. Spark plug is pitted, fouled, or the gap is incorrect. 6. Dirt in the fuel filter. 7. Dirt, water, or stale fuel is in the fuel system. 	<ol style="list-style-type: none"> 1. Fill fuel tank with gasoline. 2. Move the choke lever to choke position. 3. Clean or replace the air cleaner element. 4. Install wire on spark plug. 5. Install a new, correctly gapped spark plug. 6. Replace the fuel filter. 7. Contact an Authorized Service Dealer.
Engine loses power.	<ol style="list-style-type: none"> 1. Engine load is excessive. 2. Air cleaner is dirty. 3. Oil level in the crankcase is low. 4. Cooling fins and air passages under the engine blower housing are plugged. 5. Spark plug is pitted, fouled, or the gap is incorrect. 6. Vent hole in the fuel cap is plugged. 7. Dirt in the fuel filter. 8. Dirt, water, or stale fuel is in the fuel system. 	<ol style="list-style-type: none"> 1. Reduce the ground speed. 2. Clean the air cleaner element. 3. Add oil to the crankcase. 4. Remove the obstruction from the cooling fins and air passages. 5. Install a new, correctly gapped spark plug. 6. Clean or replace the fuel cap. 7. Replace the fuel filter. 8. Contact an Authorized Service Dealer.
Engine overheats.	<ol style="list-style-type: none"> 1. Engine load is excessive. 2. Oil level in the crankcase is low. 3. Cooling fins and air passages under the engine blower housing are plugged. 	<ol style="list-style-type: none"> 1. Reduce the ground speed. 2. Add oil to the crankcase. 3. Remove the obstruction from the cooling fins and air passages.
Machine does not drive.	<ol style="list-style-type: none"> 1. Shift lever is in neutral. 2. Traction belt is worn, loose or broken. 3. Traction belt is off a pulley. 4. Broken or missing idler spring. 	<ol style="list-style-type: none"> 1. Move shift lever to a drive gear position. 2. Change the belt. 3. Change the belt. 4. Replace the spring.
Abnormal vibration.	<ol style="list-style-type: none"> 1. Cutting blade(s) is/are bent or unbalanced. 2. Blade mounting bolt is loose. 3. Engine mounting bolts are loose. 4. Loose engine pulley, idler pulley, or blade pulley. 5. Engine pulley is damaged. 6. Blade spindle is bent. 	<ol style="list-style-type: none"> 1. Install new cutting blade(s). 2. Tighten the blade mounting bolt. 3. Tighten the engine mounting bolts. 4. Tighten the appropriate pulley. 5. Contact an Authorized Service Dealer. 6. Contact an Authorized Service Dealer.
Uneven cutting height.	<ol style="list-style-type: none"> 1. Blade(s) not sharp. 2. Cutting blade(s) is/are bent. 3. Mower is not level. 4. Underside of mower is dirty. 5. Tire pressure is not correct. 6. Blade spindle bent. 	<ol style="list-style-type: none"> 1. Sharpen the blade(s). 2. Install new cutting blade(s). 3. Level mower from side-to-side and front-to-rear. 4. Clean the underside of the mower. 5. Adjust the tire pressure. 6. Contact an Authorized Service Dealer.

Problem	Possible Cause	Corrective Action
Blade does not rotate.	1. Mower belt is worn, loose or broken. 2. Mower belt is off pulley. 3. Mower belt is worn, loose or broken. 4. Mower belt is off pulley. 5. Broken or missing idler spring.	1. Check the belt tension. 2. Install mower belt and check adjusting shafts and belt guides for correct position. 3. Install new mower belt. 4. Install mower pulley and check the idler pulley, idler arm and spring for correct position and function. 5. Replace the spring.

Schematics

KAWASAKI GEAR M.S.



GO02752

Notes:

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The Toro Total Coverage Guarantee

A Limited Warranty (see warranty periods below)

Landscape
Contractor
Equipment (LCE)

Conditions and Products Covered

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly promise to repair the listed Toro Products if defective in materials or workmanship.

The following warranty time periods apply from the date of purchase by the original owner:

Product	Warranty Period
Mid-Size Walk-Behind Mowers	2 years**
GrandStand™ Mowers	5 years or 1,200 hours* 2 years** Lifetime (original owner only)***
Z Master® Z300, Z400, Z500 Mowers	4 years or 1,200 hours* 2 years** Lifetime (original owner only)***
Z Master® G3 Mowers	5 years or 1,200 hours* 2 years** Lifetime (original owner only)***
Batteries (for above units)	1 year
Attachments (for above units)	1 year

*Whichever occurs first.

**Some engines used on Toro LCE Products are warranted by the engine manufacturer.

***Lifetime Frame Warranty - If the main frame, consisting of the parts welded together to form the tractor structure that other components such as the engine are secured to, cracks or breaks in normal use, it will be repaired or replaced under warranty at no cost for parts and labor. Frame failure due to misuse or abuse and failure or repair required due to rust or corrosion are not covered.

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

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 web site at www.Toro.com. You may also call the numbers listed in item #3 to use the 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 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 Service Department
Toro Warranty Company
8111 Lyndale Avenue South
Bloomington, MN 55420-1196
888-865-5676 (U.S. Customers)
888-865-5691 (Canada customers)

Owner Responsibilities

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

Items and Conditions Not Covered

There is no other express warranty except for special emission system and engine warranty coverage on some products.

This express warranty does not cover:

- Cost of regular maintenance service or parts, such as filters, fuel, lubricants, tune-up parts, blade sharpening, brake and clutch adjustments.
- Any product or part which has been altered or misused or required replacement or repair due to normal wear, accidents, or lack of proper maintenance.
- Repairs necessary due to improper fuel, contaminants in the fuel system, or failure to properly prepare the fuel system prior to any period of non-use over three months.
- Pickup and delivery charges.

General Conditions

All repairs covered by this warranty 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 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 (that the product is fit for ordinary use) and fitness for use (that the product is fit for a particular purpose) are limited to the duration of the 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.

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.