Form No. 3392-628 Rev B

TORO®

Count on it.

Operator's Manual

T4240 4-Wheel Drive 5-Plex Mower Traction Unit

Model No. 02750—Serial No. 315000001 and Up

Register at www.Toro.com.
Original Instructions (EN)

CE

3392-628 B

This product complies with all relevant European directives; for details, please see the separate product specific Declaration of Conformity (DOC) sheet.

Introduction

This machine is a ride-on, reel-blade lawn mower intended to be used by professional, hired operators in commercial applications. It is primarily designed for cutting grass on well-maintained turf. Using this product for purposes other than its intended use could prove dangerous to you and bystanders.

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.

Visit www.Toro.com for more information, including safety tips, training materials, 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. The model and serial numbers are on a plate mounted on the left side of the frame under the foot rest. Write the numbers in the space provided.

Model No. _____

Serial No. _____

This manual identifies potential hazards and has safety messages identified by the safety alert symbol (Figure 1), which signals a hazard that may cause serious injury or death if you do not follow the recommended precautions.

g000502

Figure 1

Safety-alert symbol

This manual uses 2 words to highlight information. **Important** calls attention to special mechanical information and **Note** emphasizes general information worthy of special attention.

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Printed in the UK

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Safety

This machine has been designed in accordance with EN ISO 5395.

General Safety

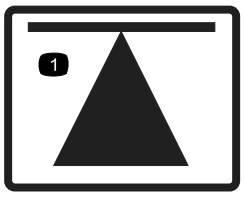
This product is capable of amputating hands and feet and of throwing objects.

- Read and understand the contents of this *Operator's Manual* before starting the engine.
- Use your full attention while operating the machine. Do not engage in any activity that causes distractions; otherwise, injury or property damage may occur.
- Do not put your hands or feet near moving components of the machine.
- Do not operate the machine without all guards and other safety protective devices in place and functioning properly on the machine.
- Keep children, bystanders, and pets out of the operating area. Never allow children to operate the machine.
- Shut off the engine, remove the key, wait for all movement to stop before you leave the operator's position. Allow the machine to cool before adjusting, servicing, cleaning, or storing it.

Improperly using or maintaining this machine can result in injury. To reduce the potential for injury, comply with these safety instructions and always pay attention to the safety-alert symbol ⚠, which means Caution, Warning, or Danger—personal safety instruction. Failure to comply with these instructions may result in personal injury or death.

Safety and Instructional Decals

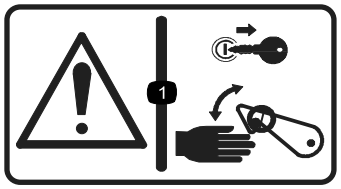
Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or missing.



decal70-13-072

70-13-072

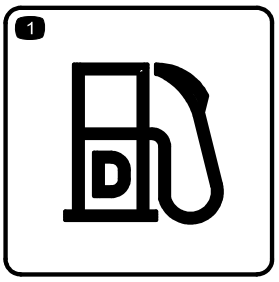
1. Jacking point



decal70-13-077

70-13-077

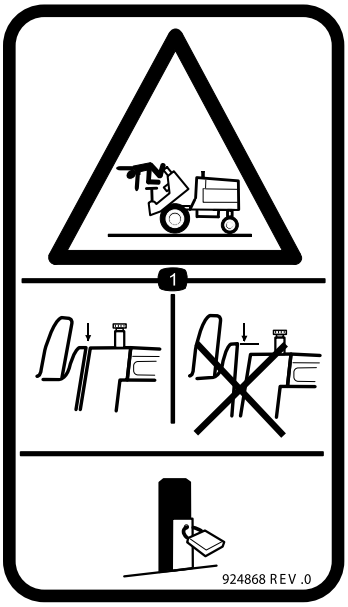
1. Warning—stop the engine and remove the ignition key before releasing or operating safety latches.



decal70-13-078

70–13–078

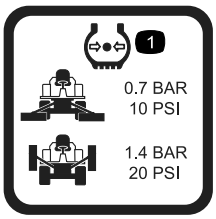
1. Diesel fuel



decal924868

924868

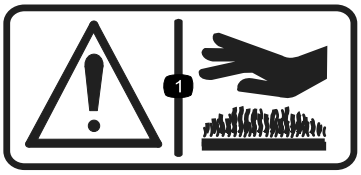
1. Tipping hazard—do not operate the machine unless the platform is correctly seated and the latch is locked in place.



decal950832

950832

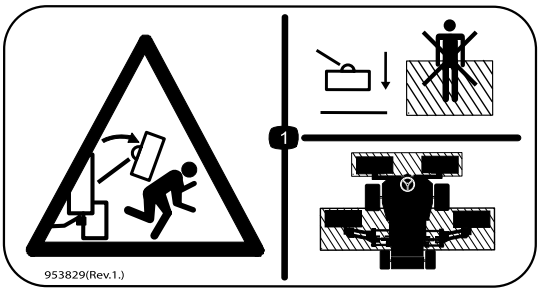
1. Tire pressure



decal950889

950889

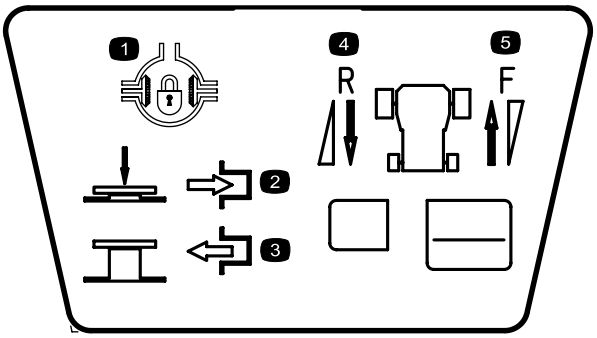
1. Warning—hot surfaces.



decal953829

953829

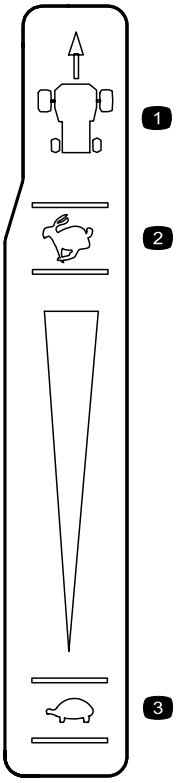
1. Crushing hazard, cutting unit—always lower the cutting units before going near them.



decal953876

953876

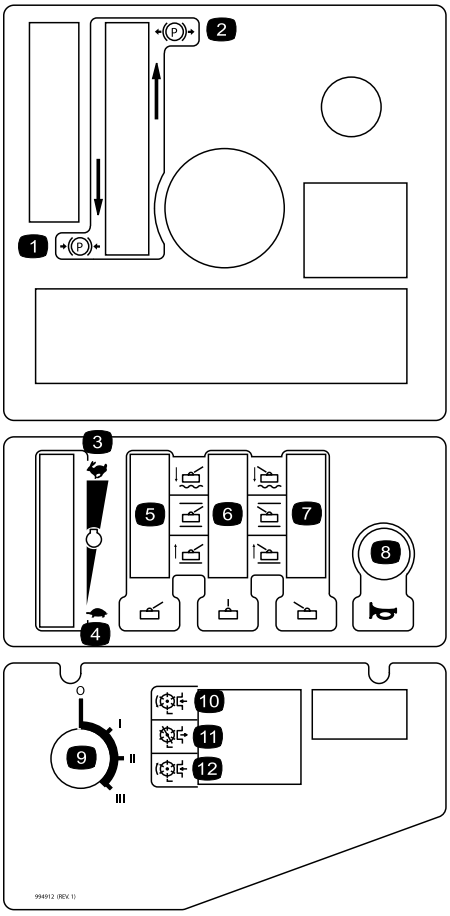
1. Differential lock
2. Push down to engage the differential lock.
3. Pull up to disengage the differential lock.
4. Reverse speed
5. Forward speed



decal953877

953877

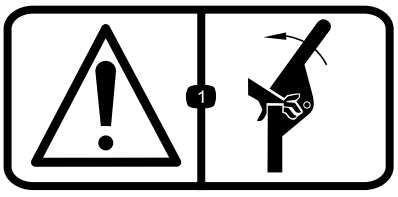
1. Forward speed
2. Fast
3. Slow



decal994912

994912

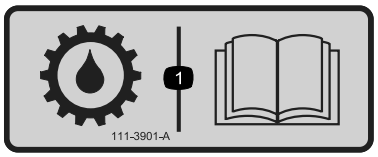
1. Engage the parking brake.
2. Disengage the parking brake.
3. Fast
4. Slow
5. Raise/lower the left cutting unit.
6. Raise/lower the center cutting unit.
7. Raise/lower the right cutting unit.
8. Horn
9. Ignition switch
10. Engage the reel.
11. Disengage the reel.
12. Engage backlapping.



decal111-0773

111-0773

1. Warning—crushing of fingers, force applied from side.



decal111-3901

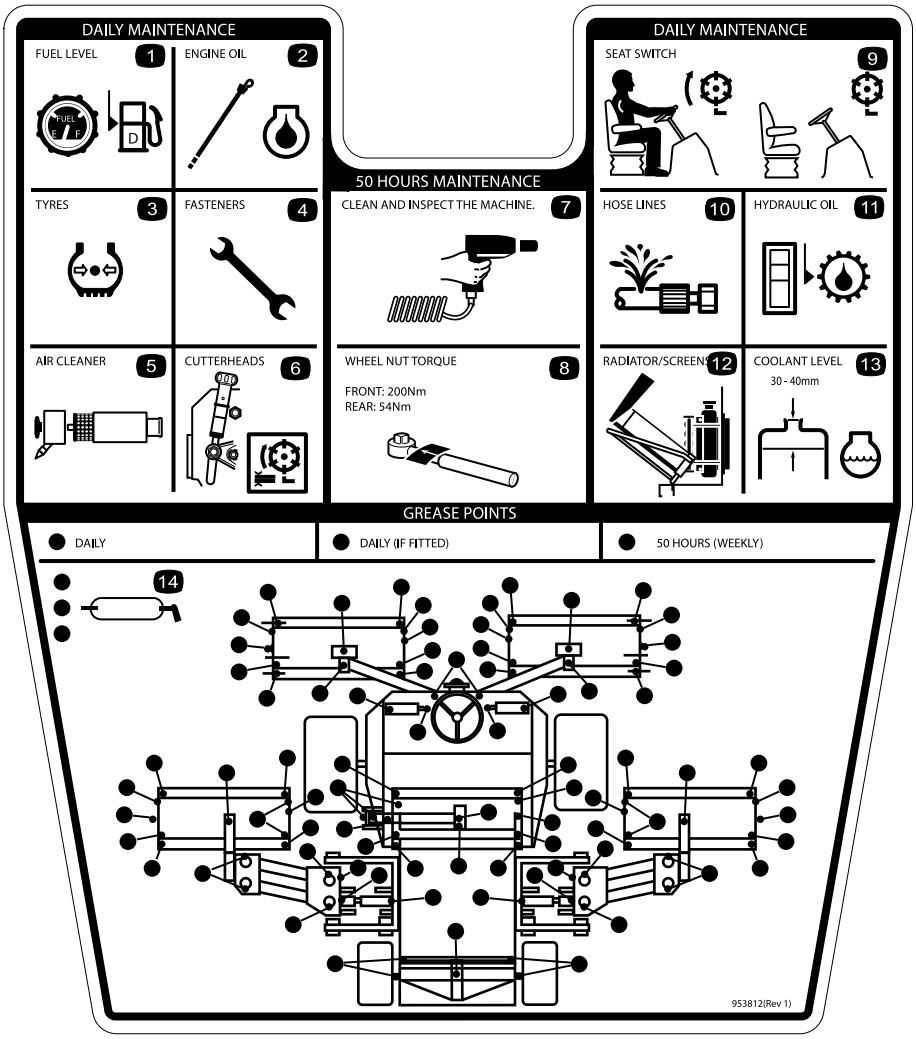
111-3901

1. Transmission fluid—read the *Operator's Manual*.

decal111-3902

111-3902

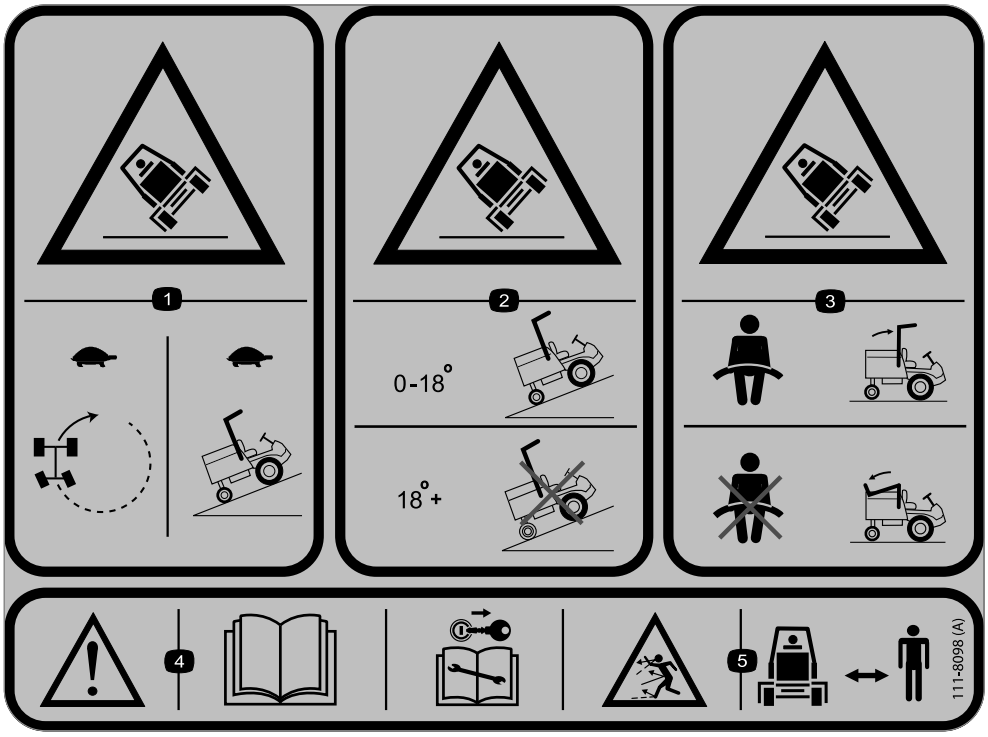
1. Your hand can be cut by the fan; warning
2. Hot surfaces; read the *Operator's Manual*.



decal953812

953812

1. Fuel level, diesel
2. Engine oil
3. Tire pressure
4. Fasteners
5. Air cleaner
6. Cutterheads
7. Clean and inspect the machine.
8. Wheel nut torque—front, 200 N·m (147 ft-lb); rear, 54 N·m (40 ft-lb)
9. Seat switch
10. Hose lines
11. Hydraulic fluid
12. Radiator/screens
13. Coolant level—30 to 40 mm (1 to 1.5 inches)
14. Grease points



decal111-8098

111-8098

Note: This machine complies with the industry standard stability test in the static lateral and longitudinal tests with the maximum recommended slope indicated on the decal. Review the instructions for operating the machine on slopes in the *Operator's Manual* as well as the conditions in which you would operate the machine to determine whether you can operate the machine in the conditions on that day and at that site. Changes in the terrain can result in a change in slope operation for the machine. If possible, keep the cutting units lowered to the ground while operating the machine on slopes. Raising the cutting units while operating on slopes can cause the machine to become unstable.

1. Tipping hazard—drive slowly when turning or going up slopes.
2. Tipping hazard—only drive up slopes that are between 0 and 18°; do not drive up slopes that are greater than 18°.
3. Tipping hazard—wear a seatbelt when the rollbar is up; do not wear a seatbelt when the rollbar is down.
4. Warning—read the *Operator's Manual*; remove the key from the ignition before servicing or performing maintenance.
5. Thrown object hazard—keep bystanders away.

Product Overview

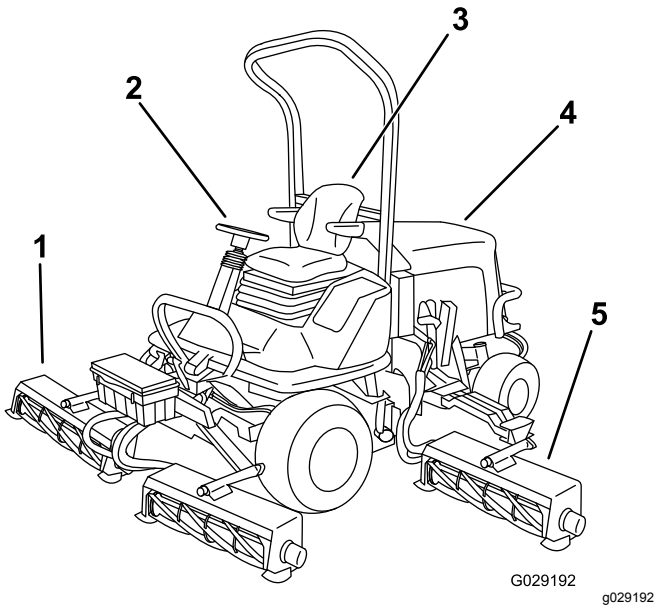


Figure 2

1. Front cutting units
2. Steering wheel
3. Operator's seat
4. Engine hood
5. Rear cutting unit

Controls

Control Panel Components

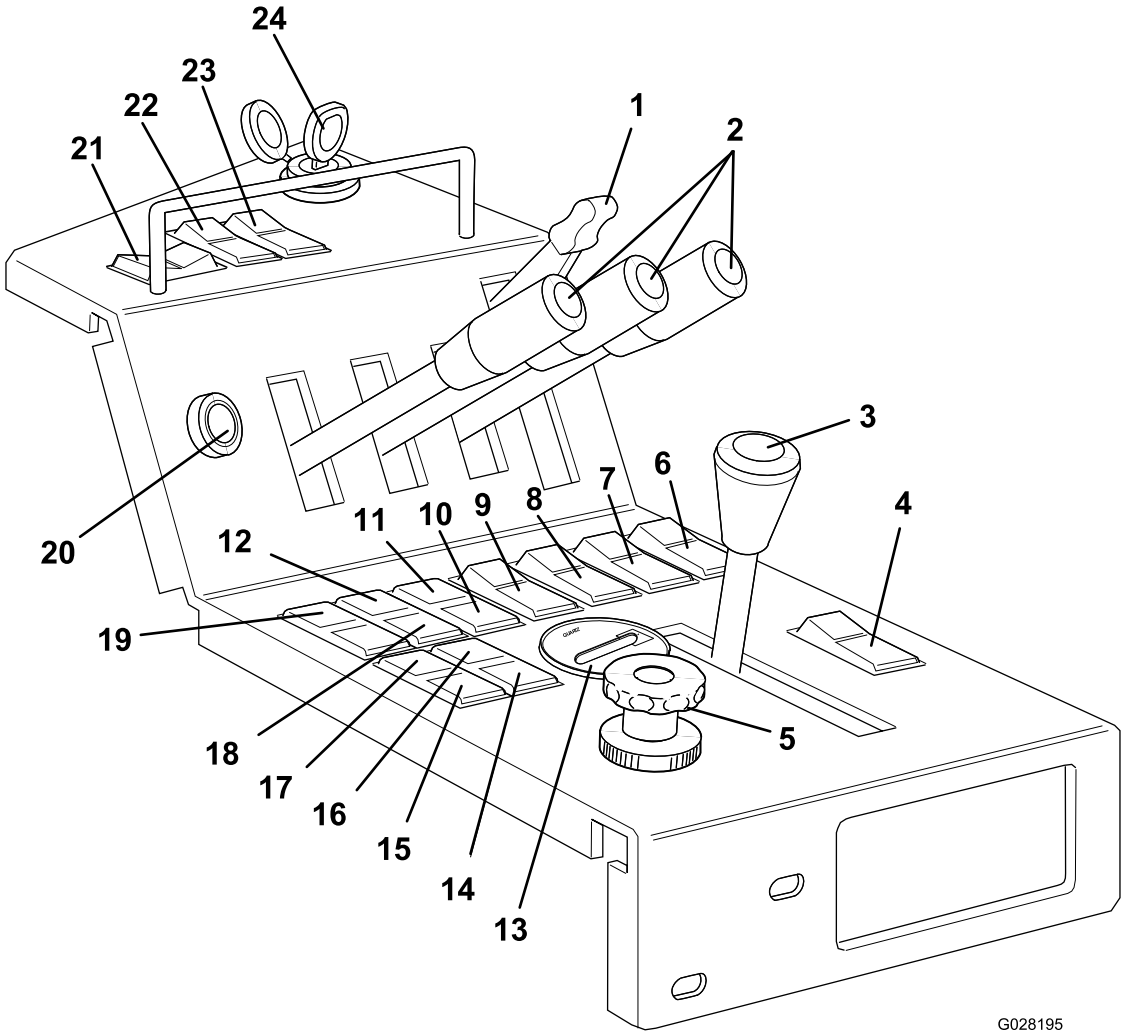


Figure 3

1. Throttle-control lever
2. Cutting-unit-position lever
3. Parking-brake lever
4. Work/Transport mode switch
5. Weight-transfer control
6. Dual lift-configuration switch
7. Lighting switch (supplied with lighting kit)
8. Warning-beacon switch (supplied with beacon kit)
9. Hazard-warning switch (supplied with lighting kit)
10. Engine temperature-warning indicator
11. Transmission-temperature indicator
12. Oil-pressure indicator
13. Hour meter
14. Transmission-neutral indicator
15. Parking-brake indicator
16. Cutting-unit drive-off indicator
17. Glow-plug indicator
18. Battery-warning indicator
19. Transmission-oil filter indicator
20. Horn button
21. Direction-indicator switch (supplied with lighting kit)
22. Dip beam/main beam light switch (supplied with lighting kit)
23. Cutting-unit drive switch
24. Ignition key

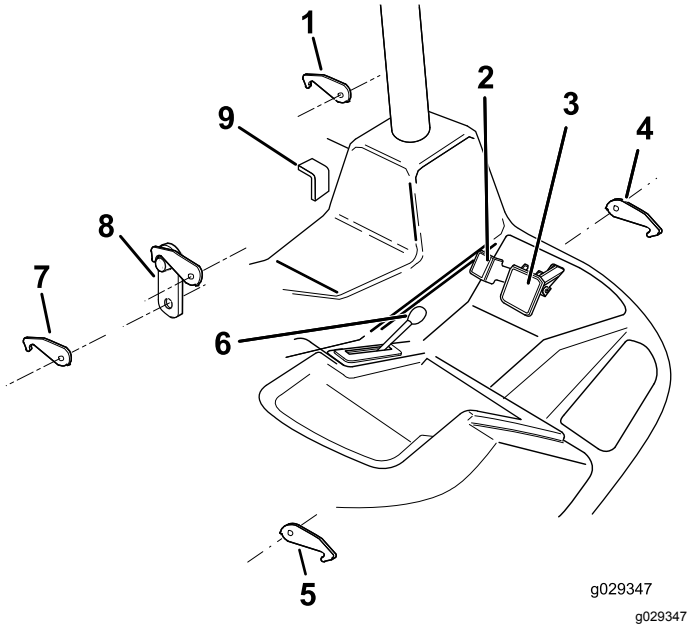


Figure 4

1. Left, front cutting-unit transport latch
2. Reverse-travel pedal
3. Forward-travel pedal
4. Right, front cutting-unit transport latch
5. Right wing-unit transport latch
6. Forward travel speed backstop lever
7. Left wing-unit transport latch
8. Center cutting-unit transport latch
9. Differential lock pedal

Braking System

Parking Brake

Move the parking brake switch to the rearward position by pressing the smaller locking button and moving the switch forward to engage the parking brake (Figure 3).

Note: Do not operate the machine with the parking brake engaged and do not engage the parking brake while the machine is moving.

This light illuminates when the parking brake is engaged and the ignition key is turned to position I.

⚠ WARNING

The parking brake operates on the front wheels only. Do not park the machine on a slope.

Service Brake

Service braking is achieved by the hydraulic transmission system. When the forward or reverse travel pedals are released or the engine speed reduced, service braking becomes effective and travel speed is automatically reduced. To increase the braking effect, push the transmission pedal into the neutral position. Service braking is effective on the front wheels only.

⚠ WARNING

The service braking system is not able to hold the mower at a standstill. Always ensure the parking brake is engaged to park the mower at a standstill.

Emergency Brake

In the event of service brake failure, turn the ignition off to bring the mower to a stand still.

⚠ WARNING

Take care when using the emergency braking. Remain seated and hold on to the steering wheel to prevent ejection from the mower caused by the front wheel brakes being applied suddenly when traveling.

Throttle Control

Operate the throttle control in a forward direction to increase the engine speed. Operate the throttle control in a rearward direction to reduce engine speed (Figure 3).

Note: The engine speed dictates the speed of the other functions, i.e. travel, cutting cylinder rotation speed and cutting unit lift speed.

Travel Pedals

Forward travel: Press the forward travel pedal to increase forward travel speed. Release the pedal to reduce speed (Figure 4).

Reverse travel: Press the reverse travel pedal to increase reverse travel speed. Release the pedal to reduce speed (Figure 4).

Stop (Neutral): Release the forward or reverse travel pedal.

Work/Transport Mode

Select WORK mode when operating the machine in poor traction conditions when you need maximum tractive performance (Figure 3). Selecting WORK mode will enable the use of the differential lock.

Select TRANSPORT mode when operating the machine in good traction condition (i.e., when traveling on public highway or mowing large, level, open areas). Selecting TRANSPORT mode in these conditions will reduce transmission system wear and tear.

Note: The differential lock is not available for use when the TRANSPORT mode is selected.

Transport Latches

Always raise the cutting units to the transport position and secure with the transport latches and safety locks when traveling between work areas (Figure 5).

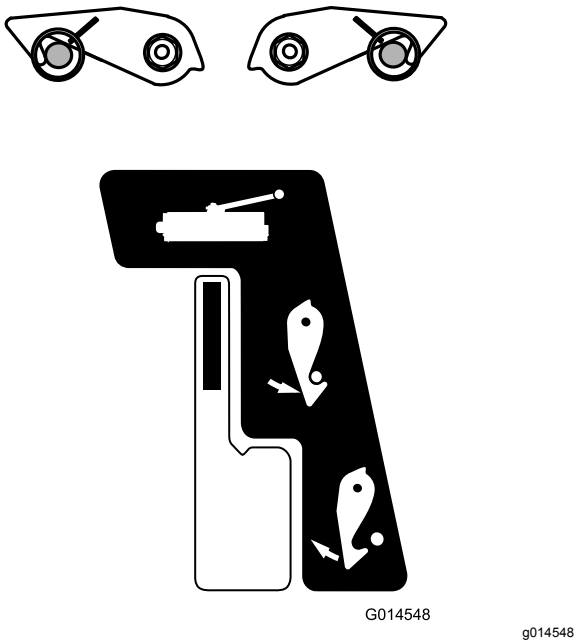


Figure 5

Differential Lock

⚠ WARNING

Do not engage the differential lock at high speed. The turning circle will increase with the differential lock engaged.

Engage the differential lock to increase tractive effort. Only engage the differential lock at slow speeds (Figure 4). It will operate while the machine is moving forward and reverse.

To engage the differential lock, press the differential lock pedal. To disengage the differential lock, release the differential lock pedal.

Note: The differential lock is effective only when WORK is selected.

Forward Travel Speed Backstop Lever

Use the backstop lever to limit the movement of the forward pedal for accurate forward travel speed and to limit the clip rate required (Figure 4).

Move the lever forward to increase the travel speed setting and rearward to decrease it.

Note: This is not a cruise-control device. Releasing the forward travel pedal will allow it to return to neutral.

Cutting Unit Drive Switch

Always put the cutting unit drive switch in the OFF position when traveling between work areas.

Adjustable Steering Column

⚠ WARNING

Never operate the machine without first checking that the steering column adjuster mechanism is in good working order and that, once adjusted and locked, the steering wheel remains securely in position.

Only adjust the steering wheel and steering column when the machine is at a standstill with the parking brake engaged.

To adjust the **angle** of the steering wheel, move the lever down, adjust the angle, and release the lever (Figure 6).

To adjust the **height** of the steering column, move the lever up, adjust the height, and release the lever (Figure 6).

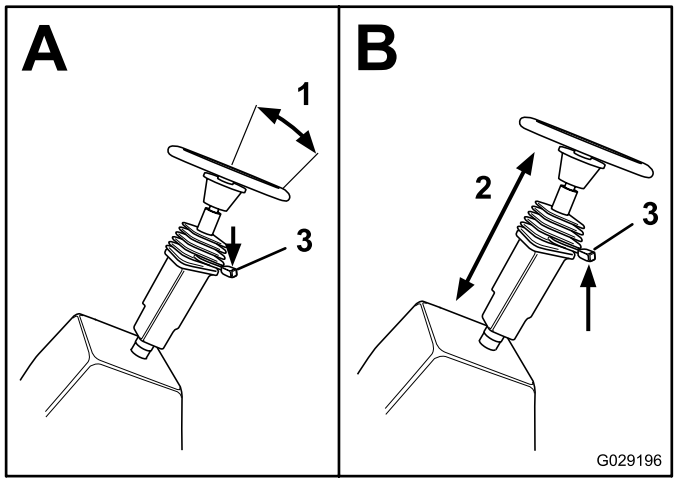


Figure 6

1. Adjust the angle of the steering wheel.
2. Adjust the height of the steering column.
3. Lever

Operator Seat

⚠ WARNING

Never operate the machine without first checking that the operator seat mechanisms are in good working order and that, once adjusted and locked, the seat remains securely in position.

Only adjust the seat mechanisms when the machine is at a standstill with the parking brake engaged.

- **Fore/Aft Adjustment:** Move the lever upward to adjust the fore/aft position of the seat. Release the lever to lock the seat in position (Figure 7).

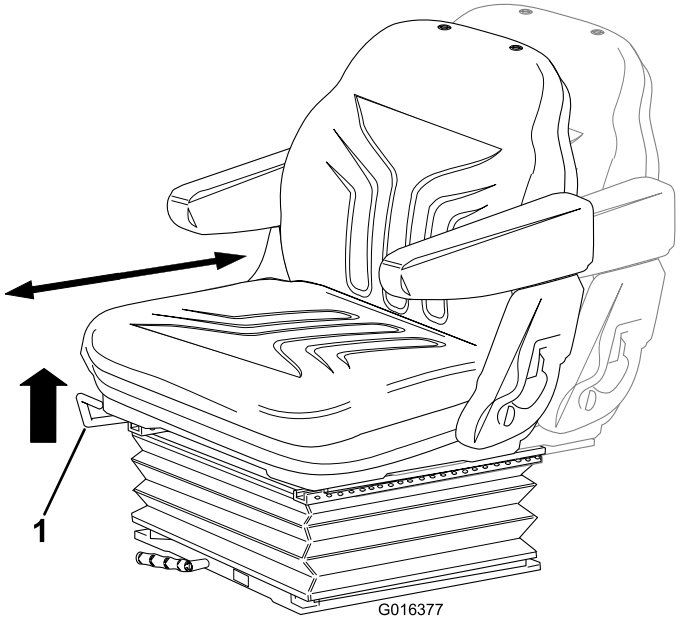


Figure 7

1. Lever

- **Operator weight adjustment:** Rotate the handle clockwise to increase suspension stiffness and counter-clockwise to decrease. The dial indicates when the optimum suspension adjustment has been set according to operator weight (Figure 8).

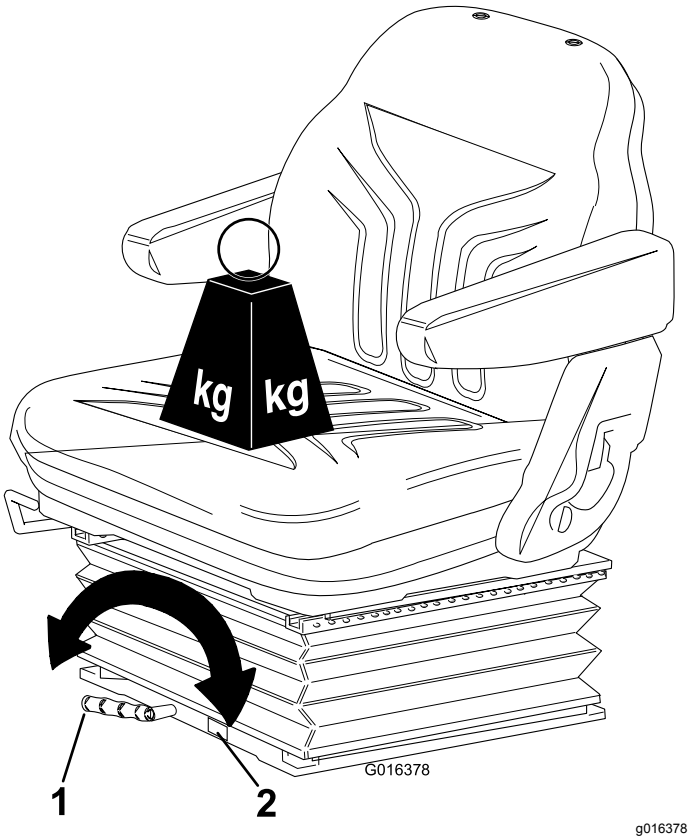


Figure 8

1. Lever
2. Dial

- **Height adjustment:** Manually lift the seat for incremental height adjustment. To lower, lift the seat beyond its highest setting, then allow it to drop to the lowest setting (Figure 9).

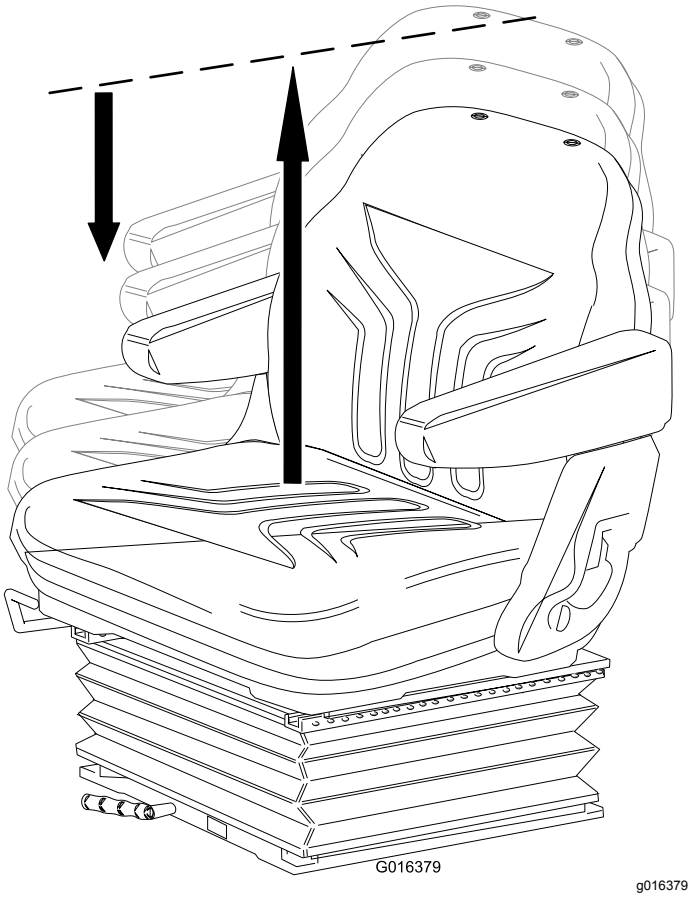


Figure 9

- **Backrest adjustment:** Pull the handle outward to adjust the seat backrest angle. Release the handle to lock the seat backrest in position.

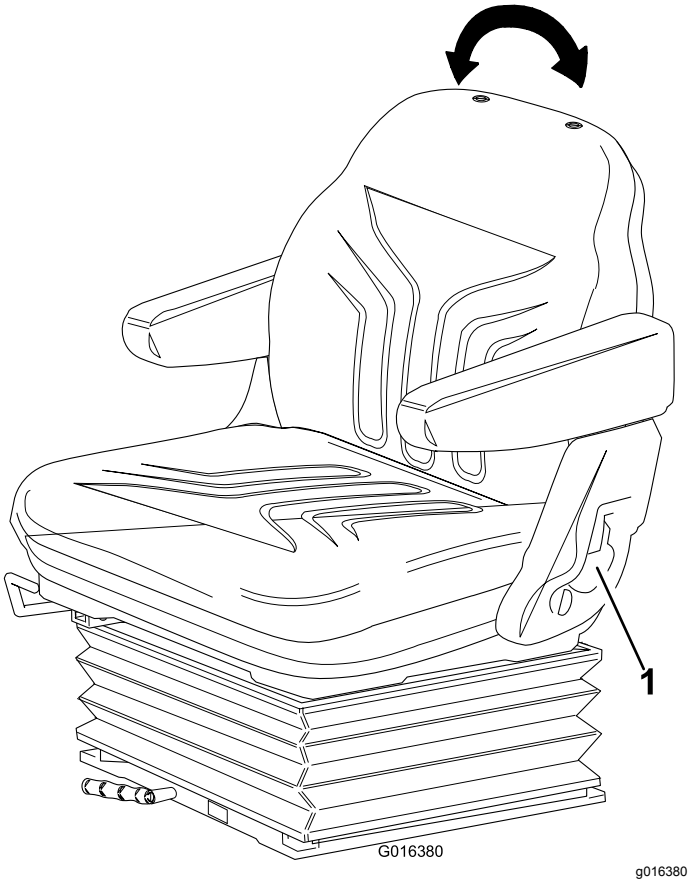


Figure 10

1. Handle

Warning Systems

Engine-Coolant Overheating Warning

The engine-coolant warning light (Figure 11) illuminates and the horn sounds if the engine coolant overheats.

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g029201

Figure 11

Hydraulic Oil Overheating Warning Light

The hydraulic-oil warning light (Figure 12) illuminates and the horn sounds when the hydraulic oil in the reservoir exceeds 95°C (203°F).

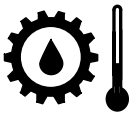

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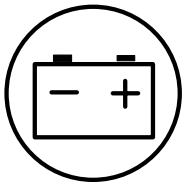
Figure 12

Low Battery Charge Warning Light

The battery-charge warning light (Figure 13) illuminates when the battery charge is low.



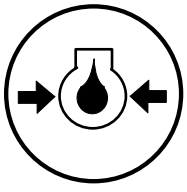
g029207

g029207

Figure 13

Low Engine-Oil Pressure Warning Light

The engine-oil pressure warning light (Figure 14) illuminates when the oil pressure is too low.



g029208

g029208

Figure 14

Audible Warning Horn

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

Press the HORN button (Figure 15) to provide an audible warning.

Important: **The horn automatically sounds when an engine coolant or hydraulic fluid overheat condition occurs. Shut off the engine immediately and fix the machine before starting.**

g029209

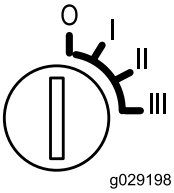
g029209

Figure 15

Ignition Key

The ignition key positions are as follows:

0 = Engine off
I = Engine run/auxiliary on
II = Engine pre-heat
III = Engine start



g029198

g029198

Figure 16

⚠ WARNING

Always remove the ignition key when the machine is not in use.

Important: **Always install the protective cap when the ignition key is removed to prevent ingress of dirt and moisture damaging the mechanism.**

Fuel Gauge

The fuel gauge shows the amount of fuel in the tank (Figure 17).

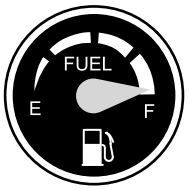


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Figure 17

Hour Meter

The hour meter shows the total hours that the machine has been operated (Figure 3).

Indicator Lights

Engine Pre-Heat Indicator Light

Turn the ignition key to position II. The engine preheat indicator light will illuminate (Figure 18) and heat the glow plugs.

Important: **Attempting to start a cold engine before using the pre-heat can cause unnecessary wear to the battery.**

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Figure 18

Transmission-Neutral-Indicator Light

The transmission-neutral-indicator light (Figure 19) illuminates when the travel control pedal is in the NEUTRAL position and the ignition key is turned to position I.

Note: The parking brake must be engaged for the transmission neutral indicator light to illuminate.

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Figure 19

Cutting-Unit-Drive-Switch Indicator Light

The cutting-unit-drive-switch indicator light (Figure 20) illuminates when the cutting unit drive switch is in the OFF position and the ignition key is turned to position I.

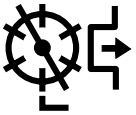

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Figure 20

Parking-Brake-Indicator Light

The parking-brake-indicator light (Figure 21) illuminates when the parking brake is engaged and the ignition key is turned to position I.

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Figure 21

Hydraulic-Transmission-Filter-Indicator Light

The hydraulic-transmission-filter-indicator light (Figure 22) illuminates when the transmission filter element is blocked.

Note: The engine must be running for the indicator light to illuminate. The indicator light may illuminate briefly when the hydraulic oil is cold.

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Figure 22

Specifications

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

Specification	Model 02750
Transport Width	1890 mm (74.5 inches)
Width of cut	3460 mm (136.2 inches)
Length	2930 mm (115.0 inches)
Height	1775 mm (70.0 inches) with ROPS folded 2385 mm (94.0 inches) with ROPS in the vertical operating position
Weight (with 2-post ROPS, 8-inch/6-blade cutting units, and fluids)	1870 kg (4123 lb)
Engine	Kubota 35.3 kw (47.3 hp) @ 2800 rpm DIN 70020 V2203 diesel 4 cylinders in line
Fuel tank capacity	70 L (18.5 US gallons)
Travel speed	0 to 24 km/h (0 to 15 mph)
Recommended maximum mowing speed	11 km/h (6.85 mph)
Hydraulic system capacity	77 L (20.3 US gallons)

Attachments/Accessories

A selection of Toro approved attachments and accessories is available for use with the machine to enhance and expand its capabilities. Contact your Authorized Service Dealer or authorized Toro distributor or go to www.Toro.com for a list of all approved attachments and accessories.

To ensure optimum performance and continued safety certification of the machine, use only genuine Toro replacement parts and accessories. Replacement parts and accessories made by other manufacturers could be dangerous, and such use could void the product warranty.

Operation

Before Operation

Before Operation Safety

General Safety

- Never allow children or untrained people to operate or service the machine. Local regulations may restrict the age of the operator. The owner is responsible for training all operators and mechanics.
- Become familiar with the safe operation of the equipment, operator controls, and safety signs.
- Shut off the engine, remove the key (if equipped), and wait for all movement to stop before you leave the operator's position. Allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Know how to stop the machine and shut off the engine quickly.
- Do not operate the machine without all guards and other safety protective devices in place and functioning properly on the machine.

- Before mowing, always inspect the machine to ensure that the cutting units are in good working condition.
- Inspect the area where you will use the machine and remove all objects that the machine could throw.

Fuel Safety

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

Performing Daily Maintenance

Service Interval: Before each use or daily

Before starting the machine each day, perform the Each Use/Daily procedures listed in Maintenance (page 29).

Filling the Fuel Tank

Fuel Tank Capacity

70 L (18.5 US gallons)

Fuel Specification

Failure to observe the following cautions may damage the engine.

- Never use kerosene or gasoline instead of diesel fuel.
- Never mix kerosene or used engine oil with the diesel fuel.
- Never keep fuel in containers with zinc plating on the inside.
- Do not use fuel additives.

Petroleum Diesel

Use only clean, fresh diesel fuel or biodiesel fuels with low (<500 ppm) or ultra-low (<15 ppm) sulfur content.

The minimum cetane rating should be 40. Purchase fuel in quantities that can be used within 180 days to ensure fuel freshness.

Use summer-grade diesel fuel (Number 2-D) at temperatures above -7°C (20°F) and winter-grade diesel fuel (Number 1-D or Number 1-D/2-D blend) below -7°C (20°F). Using winter-grade fuel at lower temperatures provides a lower flash point and cold-flow characteristics, which will ease starting and reduce fuel-filter plugging.

Using summer-grade fuel above -7°C (20°F) will contribute toward longer fuel-pump life and increased power compared to winter-grade fuel.

Adding Fuel

1. Park the machine on a level surface.
2. Using a clean rag, clean area around the fuel-tank cap.
3. Remove the cap from the fuel tank.
4. Fill the tank until the level is to the bottom of the filler neck with diesel fuel.
5. Install fuel-tank cap tightly after filling tank.

   Note: If possible, fill the fuel tank after each use. This will minimize possible buildup of condensation inside the fuel tank.

During Operation

During Operation Safety

General Safety

- The owner/operator can prevent and is responsible for accidents that may cause personal injury or property damage.
- Wear appropriate clothing, including eye protection; long trousers; substantial, slip-resistant footwear; and hearing protection. Tie back long hair and do not wear loose clothing or loose jewelry.
- Do not operate the machine while ill, tired, or under the influence of alcohol or drugs.
- Use your full attention while operating the machine. Do not engage in any activity that causes distractions; otherwise, injury or property damage may occur.
- Before you start the engine, ensure that all drives are in neutral, the parking brake is engaged, and you are in the operating position.
- Do not carry passengers on the machine and keep bystanders and children out of the operating area.

- Operate the machine only in good visibility to avoid holes or hidden hazards.
- Avoid mowing on wet grass. Reduced traction could cause the machine to slide.
- Keep your hands and feet away from the cutting units.
- Look behind and down before backing up to be sure of a clear path.
- Use care when approaching blind corners, shrubs, trees, or other objects that may obscure your vision.
- Stop the cutting units whenever you are not mowing.
- Slow down and use caution when making turns and crossing roads and sidewalks with the machine. Always yield the right-of-way.
- Operate the engine only in well-ventilated areas. Exhaust gases contain carbon monoxide, which is lethal if inhaled.
- Do not leave a running machine unattended.
- Before you leave the operator's position, do the following:
  - Park the machine on a level surface.
  - Disengage the cutting unit(s) and lower the attachments.
  - Engage the parking brake.
  - Shut off the engine and remove the key (if equipped).
  - Wait for all movement to stop.
- Operate the machine only in good visibility and appropriate weather conditions. Do not operate the machine when there is the risk of lightning.

Rollover Protection System (ROPS) Safety

- **Do not** remove the ROPS from the machine.
- Ensure that the seat belt is attached and that you can release it quickly in an emergency.
- Check carefully for overhead obstructions and do not contact them.
- Keep the ROPS in safe operating condition by thoroughly inspecting it periodically for damage and keeping all the mounting fasteners tight.
- Replace a damaged ROPS. Do not repair or alter it.

Machines with a Foldable Roll Bar

- Always use the seat belt with the roll bar in the raised position.
- The ROPS is an integral safety device. Keep a folding roll bar in the raised and locked position, and use the seat belt when operating the machine with the roll bar in the raised position.
- Lower a folding roll bar temporarily only when necessary. Do not wear the seat belt when the roll bar is folded down.
- Be aware that there is no rollover protection when a folded roll bar is in the down position.
- Check the area that you will be mowing and never fold down a folding roll bar in areas where there are slopes, drop-offs, or water.

Slope Safety

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

cutting unit(s) while operating on slopes can cause the machine to become unstable.

- Use extreme caution with grass collection systems or other attachments. These can change the stability of the machine and cause a loss of control.

Using the Operator Platform Latching Mechanism

⚠ WARNING

Never operate the machine without first checking that the operator platform latching mechanism is fully engaged and in good working order.

Releasing the Platform

1. Ensure that the front 2 cutting units are lowered to the ground.
2. Release and remove the tool tray from the left side of the platform (Figure 23).
3. Release the padlock securing the locking latch handle with the key provided.
4. Move the locking latch handle toward the front of the machine until the latch hooks clear the locking bar and raise the platform (Figure 23).

   Note: The gas spring will provide assistance.

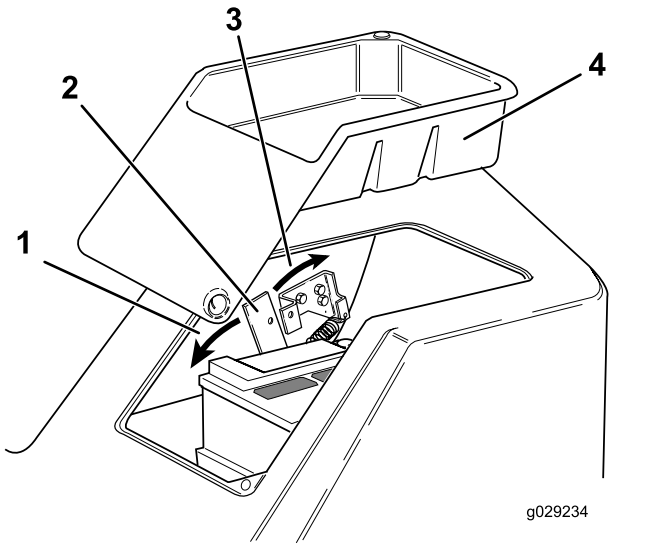

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Figure 23

1. Toward front of the machine
2. Locking latch handle
3. Toward rear of machine
4. Tool tray

Securing the Platform

1. Lower the platform carefully.

   Note: The gas spring will provide assistance.
2. Move the locking latch handle toward the front of the machine as the platform nears the fully lowered position (Figure 23).

   Note: This will ensure that the latch hooks clear the locking bar.
3. Fully lower the platform and move the locking latch handle toward the rear of the machine until the latch hooks fully engage the locking bar (Figure 23).
4. Install the padlock to secure the locking latch handle in place.

Understanding the Operator Presence Controls

Note: The engine stops if the operator leaves the seat without engaging the parking brake.

Engine Start Lockout: The engine can only be started when the forward/reverse travel pedal is in the NEUTRAL position, the cutting unit drive switch is in the OFF position and the parking brake is engaged. When these circumstances are satisfied, switches are activated, permitting the engine to be started.

Engine Run Interlock: After starting the engine, you must be seated before releasing the parking brake for the engine to continue to run.

Cutting Cylinder Drive Lockout: The drive to the cutting cylinders is only possible when you are seated. If you raise off the seat for a period of more than 1 second, a switch activates and the drive to the cutting cylinders automatically disengages. To engage drive to the cutting cylinders, return to the seat, then operate the cutting unit drive switch to the OFF position before moving it back to the ON position. If you rise off the seat for a brief moment during normal work, drive to the cutting cylinders is not affected.

The engine can only be started with the cutting-unit drive switch in the OFF position.

⚠ WARNING

Do not operate the turf machine if the operator presence controls are malfunctioning in any way. *Always* replace damaged or worn parts and check that they function correctly before operating the machine.

⚠ CAUTION

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.**

Starting the Engine

Important: **You must bleed the fuel system before starting the engine if you are starting the engine for the first time, the engine has stopped due to lack of fuel, or you have performed maintenance on the fuel system; refer to Bleeding the Fuel System (page 36).**

Important: **This machine is fitted with an engine start lockout; refer to Understanding the Operator Presence Controls (page 20).**

1. Sit on the seat, keep your foot off the traction pedals so that it is in NEUTRAL, ensure that the cutting unit drive switch is off, engage the parking brake, and set the throttle to the 70 percent full-throttle position.
2. Turn the key to the on position I and check that the engine oil pressure and battery charge warning lights illuminate.
3. If the engine is cold, turn the key to the preheat position II so that the pre-heat indicator light is on (Figure 18). Hold it for 5 seconds to heat the glow plugs.
4. After preheating the glow plugs or if the engine is already warm, turn the key to the start position III and hold it there to crank the engine.

   Crank the engine for no longer than 15 seconds. Release the key back to position I when the engine starts.
5. Run the engine at low idle speed until it warms up.

Important: **When the engine is operating all warning lights should be off. If a warning light illuminates, shut off the engine immediately and fix the issue before starting the engine.**

Shutting Off the Engine

⚠ WARNING

Keep hands clear of moving objects and hot engine parts while the engine is running.

1. Move all controls to NEUTRAL, engage the parking brake, move the throttle to the low idle position and allow the engine to reach low idle speed.

   Important: **Allow the engine to idle for 5 minutes before shutting it off after a full load operation. Failure to do so may lead to trouble on a turbo-charged engine.**
2. Let the engine idle for 5 minutes.
3. Turn the key to position 0.

   If the engine fails to shut off when the key is turned to 0, operate the engine shutoff lever in the forward direction (Figure 24).

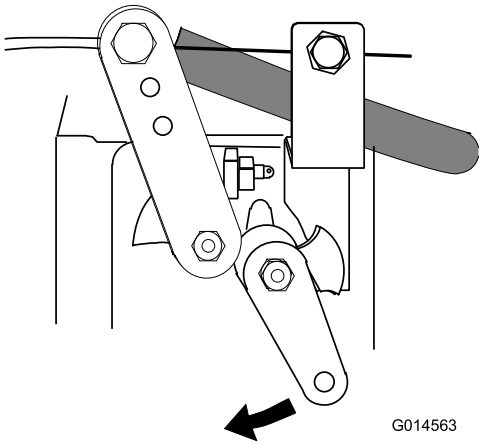

Figure 24

Folding the Roll Bar

You can fold the roll bar down to allow access into areas of restricted height.

⚠ WARNING

The machine does not have a rollover protection system (ROPS) when the roll bar is folded down and should not be considered a ROPS.

Do not wear a seatbelt when the roll bar is lowered.

1. Park the machine on a level surface, lower the cutting units, engage the parking brake, shut off the engine, and remove the key.

2. Support the weight of the upper frame of the roll bar while removing the snap pins and clevis pins from the pivot brackets (Figure 25).

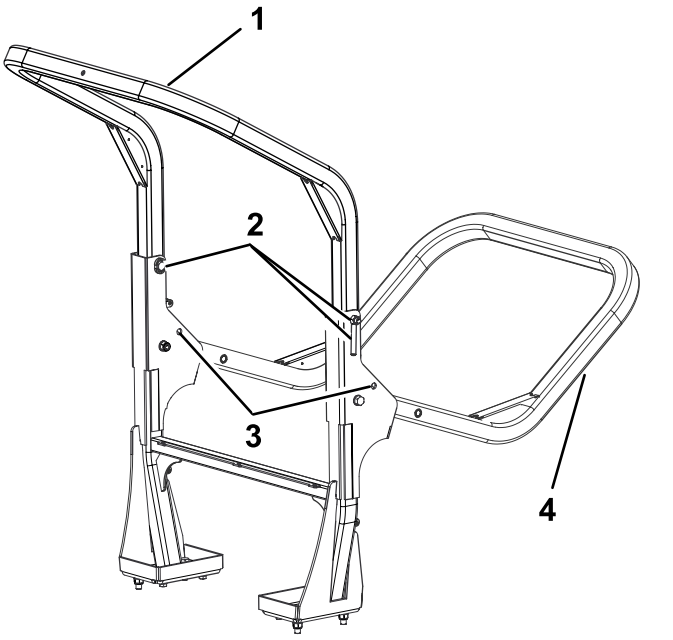

Figure 25

1. Upper frame in raised position
2. Clevis pins and snap pins
3. Lower holes
4. Upper frame in lowered position

3. Carefully lower the frame downward until it rests on the stops.
4. Insert the clevis pins in the lower holes and secure them with the snap pins to support the upper frame in its lowered position.
5. To raise the frame, follow these instructions in reverse order.

⚠ WARNING

The ROPS protection system may not be effective if the ROPS retaining bolt assemblies are loose, which may cause serious injury or even death in the event of a rollover.

When in the raised position, both retaining bolt assemblies must be installed and fully tightened to ensure full ROPS protection.

⚠ WARNING

When lowering and raising the roll bar, fingers may get pinched between the machine and the roll bar.

Use caution when lowering and raising the roll bar to prevent entrapment of fingers between the fixed part and the pivot part of the structure.

- Keep all nuts, bolts, and screws correctly torqued ensure that the equipment is in safe working condition.
- Replace worn or damaged parts for safety.
- Ensure that the seat belt and mountings are in safe working order.
- Wear the seat belt when the roll bar is raised and no seat belt when the roll bar is lowered.

Important: **The roll bar is an integral safety device. Keep the roll bar in the raised position when operating the mower. Lower the roll bar temporarily only when absolutely necessary.**

Checking the Interlock Switches

Checking the Forward/Reverse Travel Pedal Action

With the engine switched off, operate the forward and reverse travel pedals through the full range of articulation and ensure that the mechanism returns freely to the NEUTRAL position.

Checking the Operator-Presence Seat Switch

Service Interval: Before each use or daily

1. Sit on the operator seat and start the engine.
2. Lower the cutting units to the ground.
3. Engage the cutting unit drive in the forward direction.
4. Rise from the operator seat and check that the cutting units come to a stop after an initial 1 to 2 second delay.
5. Repeat the procedure with the cutting units running in reverse.

Checking the Cutter Drive Interlock Switch

1. Shut off the engine.
2. Operate the cutting unit drive switch to the OFF position and turn the key to position I. The cutting unit drive switch indicator light should not illuminate.
3. Operate the switch to the forward position.

   Note: The indicator light should not illuminate and the engine should not start when the ignition key is turned. Repeat for the reverse position.

Checking the Parking Brake Interlock Switch

1. Shut off the engine.
2. Engage the parking brake.
3. Turn the key to position I. The parking brake indicator light should illuminate.
4. Disengage the parking brake. The indicator light should go out and the engine should not start when the key is turned.
5. Engage the parking brake, sit on the operator seat, and start the engine.
6. Release the parking brake.
7. Rise from the operator seat and check that the engine shuts off.

Checking the Transmission Neutral Interlock Switch

1. Shut off the engine.
2. Remove your foot from the forward/reverse travel pedals.
3. Turn the key to position I and the transmission neutral indicator light should illuminate.
4. Apply light pressure to the travel pedals in a forward and reverse direction to check that the indicator light turns off.

Note: Take extreme care to ensure that the area around the machine is clear before checking that the engine does not start under this condition.

Checking the Diverter Valves

1. Sit on the operator seat and start the engine.
2. Engage the cutting-unit drive switch in the forward direction.
3. Lower the cutting units to the ground.

   Note: The cylinder drive will engage when the cutting units are approximately 300 mm (12 inches) above ground level.
4. Raise the cutting units.

   Note: The cylinder drive will disengage when the cutting units are approximately 300 mm (12 inches) above ground level.

If the diverter valves are not operating correctly, contact your authorized Toro distributor.

Adjusting the Height of Cut

Refer to the cutting unit *Operator's Manual* for information about adjusting the height of cut.

Controlling the Position of an Individual Cutting Unit

The cutting units may be raised or lowered independently using the bank of 3 lift-control levers.

1. To lower the cutting units, operate the lift-control levers in a downward direction and release (Figure 26).

   Note: The cylinder drive will engage when the cutting units are approximately 300 mm (11.8 inches) above ground level. The cutting units are now in 'float' mode and will follow the ground contours.

   Important: **The lift-control levers must be locked in position 1 while moving. Do not mow with the lift control levers in position 2.**

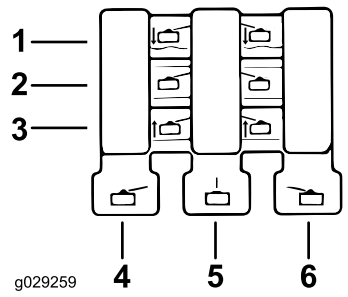

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Figure 26

1. Position 1—down/float
2. Position 2—neutral
3. Position 3—raise
4. Left lift lever
5. Center lift lever
6. Right lift lever

   Note: The lift levers will control different cutting units depending on the lift configuration mode; refer to Dual Lift Configuration Control (page 24).
2. To raise the cutting units, operate the lift-control levers in an upward direction and hold in position 3.

Note: If the cutting unit drive switch is in the ON position, the cylinder drive will disengage when the cutting units are approximately 300 mm (11.8 inches) above ground level.

3. Release the lift-control switches when the cutting units are at the required height.

   Note: The control switches will automatically return to position 2 and the arms are hydraulically locked into position.

Dual Lift Configuration Control

The dual lift configuration control function enables the lift controls to be used in the following ways (Figure 27):

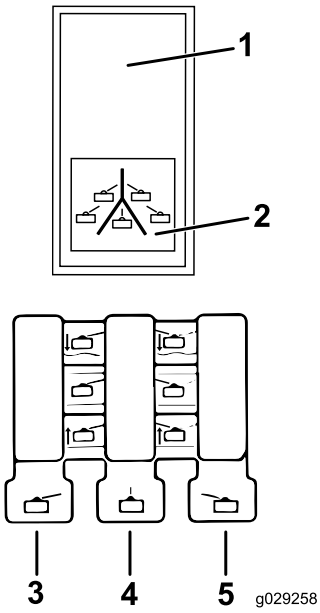

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Figure 27

1. 5-gang mode
2. 3/5-gang mode
3. Left lift lever
4. Center lift lever
5. Right lift lever

5-gang mode:

- The left lift lever controls the left wing cutting unit.
- The center lift lever controls the left front, center, and right front cutting units.
- The right lift lever controls the right wing cutting unit.

3/5-gang mode:

- The left lift lever controls the left wing and left front cutting units.
- The center lift lever controls the center cutting unit.
- The right lift lever controls the right wing and right front cutting units.

3/5-gang mode with left and right wing cutting units locked in transport position:

- The left lift lever controls the left front cutting unit.
- The center lift lever controls the center cutting unit.
- The right lift lever controls the right front cutting unit.

Engaging the Cutting Unit Drive

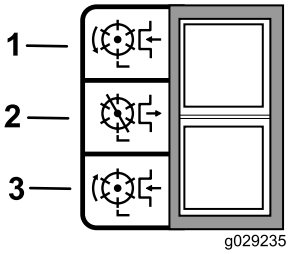

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Figure 28

1. Forward
2. Off
3. Reverse

You can engage the cutting unit drive onlywhen you are seated correctly, refer to Understanding the Operator Presence Controls (page 20).

Forward rotation cutting unit drive engagement: Press the top of the cutting unit drive switch to the FORWARD position.

⚠ WARNING

Only operate the forward cutting unit rotation, once the reels have completely stopped, otherwise machine damage could occur.

Reverse rotation cutting unit drive engagement: Press the bottom of the cutting unit drive switch to the REVERSE position.

⚠ WARNING

Only operate the reverse cutting unit rotation, once reels have completely stopped, otherwise machine damage could occur.

All cutting unit drives disengagement: Set the switch to the middle position.

To lower the cutting unit: Operate the lift-control lever in a downward direction. The cylinder will drive when the cutting units are approximately 300 mm (11.8 inches) above ground level.

Using the Weight-Transfer/Traction Assistance

A variable hydraulic weight transfer system is provided for improving tire grip with the grass surface - traction assistance.

Hydraulic pressure in the cutting units lift system provides a lifting force which reduces the cutting units' weight on the ground and transfers the weight as a downward force onto the tires of the machine. This action is known as weight transfer.

To engage weight transfer: You can vary the amount of weight transfer to suit operating conditions by rotating the weight transfer hand wheel as follows:

1. Release the valve locknut 1/2 turn anti-clockwise and hold.
2. Rotate the valve hand wheel.
   - Anti-clockwise to reduce weight transfer.
   - Clockwise to increase weight transfer.
3. Tighten the nut.

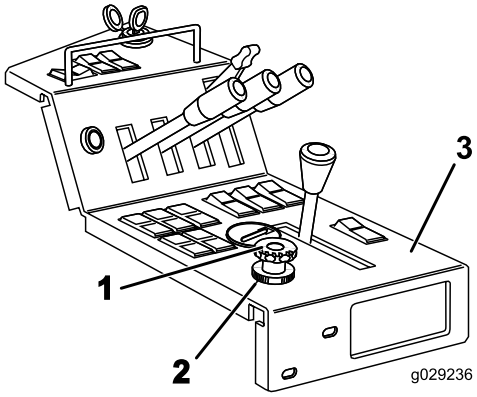

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Figure 29

1. Weight-transfer wheel
2. Lock wheel
3. Control panel

Clearing Debris from the Cutting Units

⚠ WARNING

Never attempt to rotate the cutting cylinders by hand.

- **There may be some residual pressure in the hydraulic system which could cause injury through sudden movement of the cylinder(s) when the blockage is released.**
- **Always wear protective gloves and use a suitable strong wooden instrument.**
- **Ensure that the wooden instrument will fit between the blades and through the cylinder and is long enough to provide sufficient leverage to release the blockage.**

1. Park the machine on a level surface, lower the cutting units, engage the parking brake, shut off the engine, and remove the key.
2. Disengage all drives.
3. Check that all power sources are stopped.
4. Release all stored energy devices.
5. Check that all moving parts are stationary.
6. Using a suitable strong wooden instrument, remove the blockage. Make sure that the wooden instrument is properly supported in the cylinder and avoid the use of excessive force to prevent damage.
7. Ensure that the wooden instrument is removed from the cutting cylinder before starting the power source.
8. Repair or adjust the cutting unit if required.

Operating Tips

Becoming Familiar with the Machine

Before mowing grass, practice operating the machine in an open area. Start and stop the engine. Operate in forward and reverse. Lower and raise the cutting units and engage and disengage the cutting units. When you feel familiar with the machine, practice operating up and down slopes at different speeds.

Understanding the Warning System

If a warning light comes on during operation, stop the machine immediately and correct the problem before

continuing operation. Serious damage could occur if you operate the machine with a malfunction.

Mowing Grass

The rotational speed of the cutting cylinders should always be kept as high as possible in order to maintain the highest quality of cut. This in turn requires that the engine speed be kept as high as possible.

Cutting performance is best when cutting against the lie of the grass. In order to take advantage of this fact, the operator should attempt to alternate the direction of mowing between cuts.

Take care not to leave uncut strips of grass at the overlap points between adjacent cutting units by avoiding tight turns.

Maximizing the Quality of Cut

The quality of cut will deteriorate if the forward speed is excessive. Always balance the quality of cut with the work rate required and set the forward speed accordingly.

Maximizing Engine Efficiency

Do not let the engine labor. If you notice that the engine starts to labor, reduce the forward speed or increase the height of cut. Check that the cutting cylinders are not in heavy contact with their bottom blades.

Driving the Machine in Transport Mode

Always disengage the cutting unit drive when traveling across un-grassed areas. Grass will lubricate the cutting edges whilst mowing. Excessive heat will build up if the cutting cylinders are run when not mowing and this will cause rapid wear to take place. For this reason it is also wise to reduce cutting speed when mowing lightly grassed areas or when the grass is dry. Be careful when driving between objects so that you do not accidentally damage the machine or the cutting units.

⚠ WARNING

Take care when traveling over obstacles such as roadside curbs. Always travel at slow speed over obstacles to prevent damage to the tires, wheels, and steering system. Ensure that the tires are inflated to the recommended pressures.

Operating the Machine on Slopes

Use extra care when operating the machine on slopes. Drive slowly and avoid sharp turns on slopes to prevent rollovers. Lower the cutting units for steering control when going downhill.

Using the Rear Roller Scrapers

It is generally wise to remove rear roller scrapers where conditions allow, as optimum grass discharge is achieved without them. Install the scrapers when conditions are such that mud and grass start to build up on the rollers. When installing the scraper wires, ensure that they are correctly tensioned.

After Operation

After Operation Safety

General Safety

- Shut off the engine, remove the key (if equipped), and wait for all movement to stop before you leave the operator's position. Allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Clean grass and debris from the cutting units, drives, mufflers, cooling screens, and engine compartment to help prevent fires. Clean up oil or fuel spills.
- Shut off the fuel while storing or transporting the machine.
- Disengage the drive to the attachment whenever you are transporting or not using the machine.
- Maintain and clean the seat belt(s) as necessary.
- Do not store the machine or fuel container where there is an open flame, spark, or pilot light, such as on a water heater or on other appliances.

Identifying the Tie-Down Points

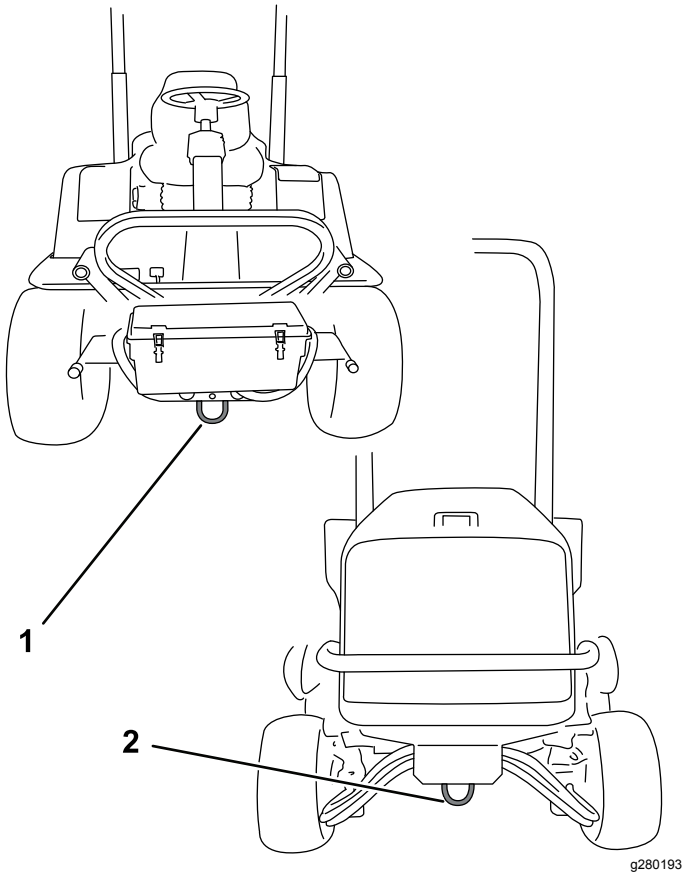

Figure 30

1. Front tie-down point
2. Rear tie-down point

Hauling the Machine

- Use full-width ramps for loading the machine onto a trailer or truck.
- Tie the machine down securely.

Jacking Points

Note: Support the machine with jack stands whenever you work under the machine.

- Front—under the front arm mount.
- Rear—rear strapping hook.

Towing the Machine

1. Apply the parking brake of the towing machine.
2. Chock the front wheels of the machine to prevent it from rolling away.
3. Connect a rigid tow bar between the towing eye on the machine and a suitable towing vehicle.

Note: Ensure that the towing vehicle specification is suited to braking the combined weight to rest while maintaining complete control at all times.

4. Remove the hex plug from the right, front wheel motor disc brake assembly (Figure 31).

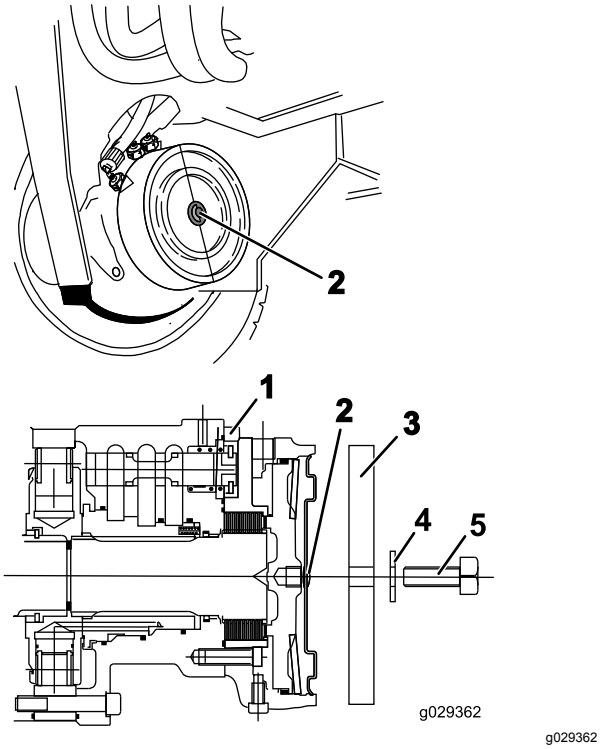

Figure 31

1. Front wheel motor
2. Hex plug
3. Brake-release bar
4. Washer (M12)
5. Setscrew (M12 x 40 mm)

5. Insert a set screw (M12 x 40 mm) and washer (M12) through the brake-release bar and into the hole in the center of the motor end plate (Figure 31).
6. Tighten the set screw into the threaded hole in the brake piston until the brake is released.
7. Repeat the steps 4 through 6 for the left, front wheel motor disc brake assembly.
8. To decommission the hydraulic service braking system, open the transmission bypass valve on top of the transmission pump as shown in Figure 32.

Important: **The valve is fully open at 3 counter-clockwise revolutions. Do not open the valve past 3 revolutions**

Note: The steering must be operated manually when the machine is being towed. The steering will feel heavy as there is no hydraulic assistance when the engine is off.

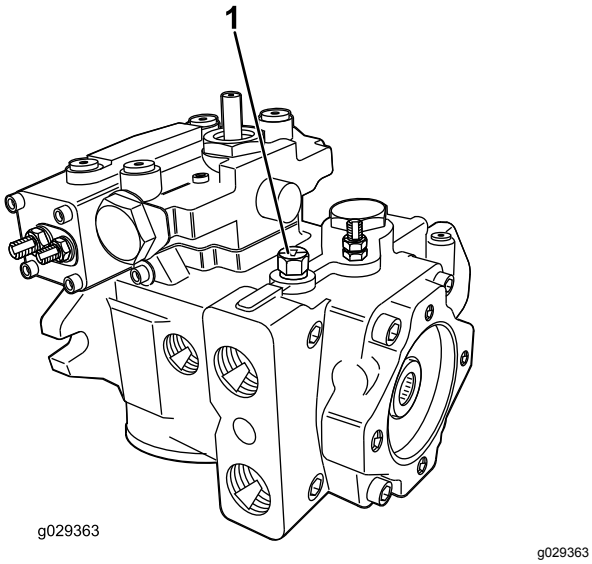

Figure 32

1. Bypass valve

9. Remove the wheel chocks before towing.

   Note: The machine is now in a freewheel condition and can be towed for a short distance at a slow speed.

Recommissioning the Machine after Towing

1. Chock the front wheels.
2. Close the transmission bypass valve (Figure 32).

   Note: Turn the valve clockwise and torque 48 N·m (30 ft-lb) to 52 N·m (50 ft-lb).
3. Remove the setscrew, washer, and brake-release bar from the right and left front wheel motor disc brake assemblies (Figure 31).
4. Install the hex plug into the motor end plate of the motor disc assemblies.
5. Store the brake release bars, washers, and setscrews for future use.
6. Remove the wheel chocks.
7. Disconnect the tow bar.

   Note: The braking system will now operate normally.

⚠ WARNING

Before using the machine, ensure that the braking system operates correctly. Carry out initial checks with the machine at slow speed.

Do not operate the machine if the braking system does not work correctly or with the brakes decommissioned.

Maintenance

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

Maintenance Safety

- Before adjusting, cleaning, servicing, or leaving the machine, do the following:
  - Park the machine on a level surface.
  - Move the throttle switch to the low-idle position.
  - Disengage the cutting units.
  - Lower the cutting units.
  - Ensure that the traction is in neutral.
  - Engage the parking brake.
  - Shut off the engine and remove the key.
  - Wait for all moving parts to stop.
  - Allow machine components to cool before performing maintenance.
- If possible, do not perform maintenance while the engine is running. Keep away from moving parts.
- Use jack stands to support the machine or components when required.
- Carefully release pressure from components with stored energy.
- Keep all parts of the machine in good working condition and all hardware tightened.
- Replace all worn or damaged decals.
- To ensure safe, optimal performance of the machine, use only genuine Toro replacement parts. Replacement parts made by other manufacturers could be dangerous, and such use could void the product warranty.

Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
After the first 50 hours	• Change the engine oil and filter. • Change the transmission-oil filter. • Change the hydraulic return filter. • Check the engine speed (idle and full throttle).
Before each use or daily	• Check the horn. • Inspect the seat belt(s) for wear, cuts, and other damage. Replace the seat belt(s) if any component does not operate properly. • Check the safety interlock system. • Check the tire pressure. • Grease the bearings, bushings, and pivots (grease them immediately after every washing regardless of the interval listed). • Check the air-filter-blockage indicator. • Check the engine-oil level. • Check the tire pressure. • Torque the wheel lug nuts. • Check the level of the coolant in the cooling system. • Remove debris from the screen, oil coolers, and radiator (more frequently in dirty operating conditions). • Check the hydraulic lines and hoses. • Check the level of the hydraulic fluid. • Check the fasteners of the machine. • Check the cutting units. • Check the forward/reverse travel pedal action.
Every 50 hours	• Grease the bearings, bushings, and pivots (grease them immediately after every washing regardless of the interval listed). • Check the condition of and clean the battery. • Check the battery cable connections.
Every 100 hours	• Inspect the cooling system hoses. • Check the condition and tension of the alternator belt.
Every 150 hours	• Change the engine oil and filter.

Maintenance Service Interval	Maintenance Procedure
Every 200 hours	• Service the air cleaner. (More frequently in extremely dirty or dusty conditions)
Every 400 hours	• Check the fuel lines and connections. • Replace the fuel filter canister. • Check the engine speed (idle and full throttle).
Every 500 hours	• Check engine overheat warning system. • Change the transmission-oil filter. • Check the rear wheel alignment. • Service the Hydraulic System • Change the hydraulic return filter. • Check hydraulic oil overheat warning system
Every 800 hours	• Drain and clean the fuel tank. • Flush and replace the cooling system fluid. • Adjust the engine valves (refer to the engine operator's manual).
Before storage	• Drain and clean the fuel tank.
Every 2 years	• Replace all moving hoses. • Replace the transmission cable.

Daily Maintenance Checklist

Duplicate this page for routine use.

Maintenance Check Item	For the week of: Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Check the safety interlock operation.							
Check the brake operation.							
Check the engine oil and fuel level.							
Check the air filter restriction indicator.							
Check the radiator and screen for debris.							
Check unusual engine noises.[1]							
Check unusual operating noises.							
Check the hydraulic system oil level.							
Check hydraulic hoses for damage.							
Check for fluid leaks.							
Check the tire pressure.							
Check the instrument operation.							
Check all grease fittings for lubrication.[2]							
Touch-up damaged paint.							
Wash the machine.							

1. Check the glow plug and injector nozzles if the engine starts hard, produces excess smoke, or runs rough.
2. Immediately after every washing, regardless of the interval listed

Notation for Areas of Concern

Inspection performed by:		
Item	**Date**	**Information**
1		
2		
3		
4		
5		
6		
7		
8		

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

Note: Download a free copy of the electrical or hydraulic schematic by visiting www.Toro.com and searching for your machine from the Manuals link on the home page.

Lubrication

Greasing the Bearings, Bushings, and Pivots

Service Interval: Before each use or daily

Every 50 hours

Lubricate all grease fittings for the bearings and bushings with No. 2 general-purpose, lithium-based grease. Lubricate bearings and bushings **immediately** after every washing, regardless of the interval listed.

Replace any damaged grease fittings.

Grease all cutting unit grease points and inject sufficient grease such that you can see clean grease escaping from the roller end caps. This provides visible evidence that the roller seals have been purged of grass and debris and will ensures maximum working life.

The grease-fitting locations and quantities are as follows:

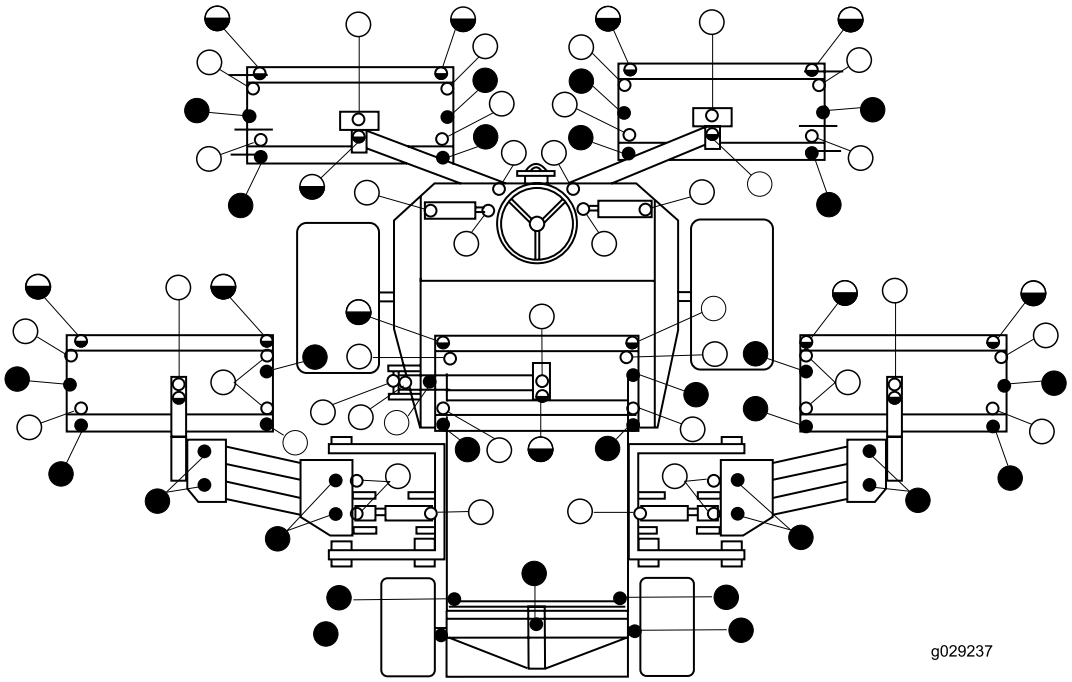

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Figure 33

1. ● – Grease daily
2. ◒ – Grease daily (if fitted)
3. ○ – Grease every 50 hours (weekly)

Engine Maintenance

Engine Safety

- Shut off the engine before checking the oil or adding oil to the crankcase.
- Do not change the governor speed or overspeed the engine.

Checking the Engine Overheat Warning System

Service Interval: Every 500 hours

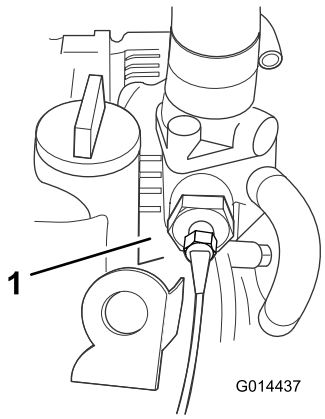

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Figure 34

1. Temperature switch

1. Turn the ignition key to the ignition on position I.
2. Disconnect the black/purple wire terminal from the engine temperature switch.
3. Touch the metal terminal of this wire onto a suitable earth point, ensuring that the metal surfaces make good contact.

The horn will sound and the engine coolant temperature warning light will illuminate to confirm correct operation. If the system is faulty, make repairs before operating the machine.

Servicing the Air Cleaner

Service Interval: Every 200 hours (More frequently in extremely dirty or dusty conditions)

Before each use or daily

Check the air cleaner body for damage which could cause an air leak. Replace if damaged. Check the whole intake system for leaks, damage or loose hose clamps.

Changing the air filter before it is necessary only increases the chance of dirt entering the engine when the filter is removed.

Important: **Be sure the cover is seated correctly and seals with the air cleaner body.**

1. Open the engine cover.
2. Release the latches securing the air cleaner cover to the air cleaner body (Figure 35).

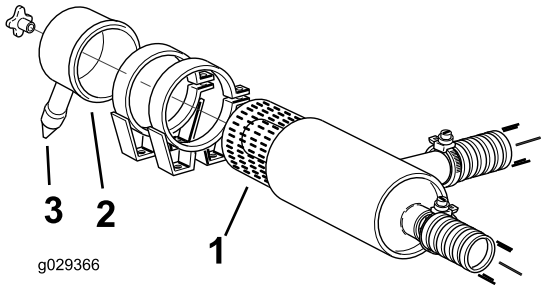

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Figure 35

1. Air cleaner body
2. Air cleaner cover
3. Rubber outlet valve

3. Remove the cover from the air cleaner body. Before removing the filter, use low pressure air (40 psi, clean and dry) to help remove large accumulations of debris packed between the outside of the filter and the canister. **Avoid using high pressure air which could force dirt through the filter into the intake tract.**

   This cleaning process prevents debris from migrating into the intake when the primary filter is removed.

4. Remove and replace the primary filter.

   Cleaning of the used element is not recommended due to the possibility of damage to the filter media. Inspect the new filter for shipping damage, checking the sealing end of the filter and the body. **Do not use a damaged element.** Insert the new filter by applying pressure to the outer rim of the element to seat it in the canister. **Do not apply pressure to the flexible center of the filter.**

5. Clean the dirt ejection port located in the removable cover. Remove the rubber outlet valve from the cover, clean the cavity and replace the outlet valve.
6. Install the cover orienting the rubber outlet valve in a downward position—between approximately 5 o'clock to 7 o'clock when viewed from the end.

Checking the Engine-Oil Level

Service Interval: Before each use or daily

Crankcase capacity: approximately 7.6 L (8 US qt) with the filter

Use high-quality engine oil that meets the following specifications:

- API Classification Level Required: CH-4, CI-4 or higher
- Preferred oil: SAE 15W-40 (above 32°C (0°F))
- Alternate oil: SAE 10W-30 or 5W-30 (all temperatures)

Toro Premium Engine oil is available from your distributor in either 15W-40 or 10W-30 viscosity.

1. Park the machine on a level surface, lower the cutting units, engage the parking brake, shut off the engine, and remove the key.
2. Release the engine cover latch and open the hood.
3. Remove the dipstick, wipe it clean, and install it (Figure 36).

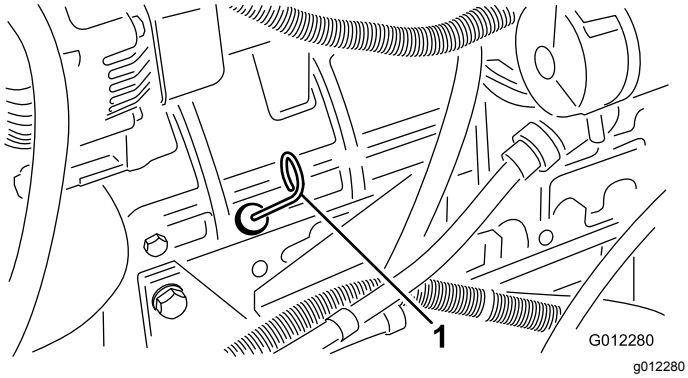

Figure 36

1. Dipstick

4. Remove dipstick and check oil level on dipstick.

   The oil level should be up to the FULL mark.
5. If the oil level is below the FULL mark, remove the fill cap (Figure 37) and add oil until level reaches the FULL mark on dipstick.

   Important: **Do not overfill.**

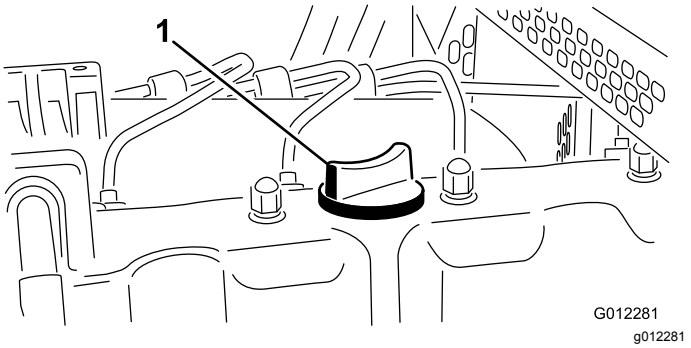

Figure 37

1. Oil fill cap

   Important: **Be sure to keep the engine oil level between the upper and lower limits on the oil gauge. Engine failure may occur as a result of over filling or under filling the engine oil.**
6. Install the oil fill cap.
7. Close engine cover and secure with the latches.

Changing the Engine Oil and Filter

Service Interval: After the first 50 hours

Every 150 hours

1. Remove the drain plug (Figure 38) and let the oil flow into a drain pan.

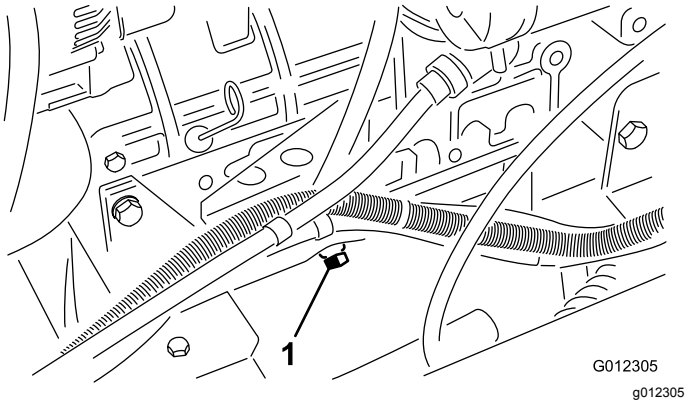

Figure 38

1. Oil drain plug

2. When the oil stops, install the drain plug.
3. Remove the oil filter (Figure 39).

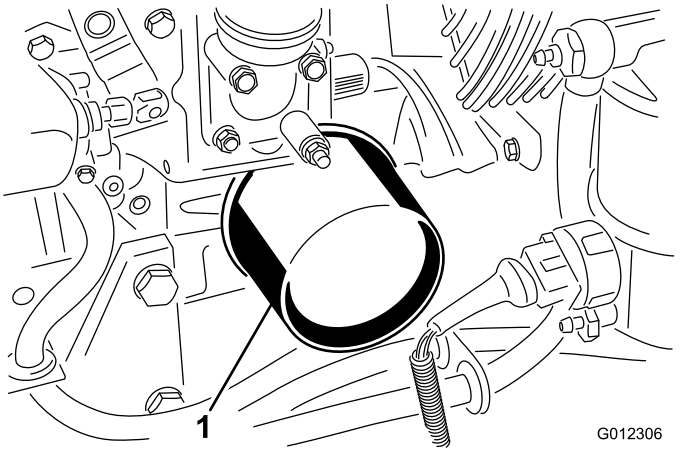

Figure 39

1. Oil filter

4. Apply a light coat of clean oil to the new filter seal.
5. 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 1/2 turn.

   Important: **Do not overtighten the filter.**
6. Add oil to the crankcase; refer to Checking the Engine-Oil Level (page 34).

Fuel System Maintenance

⚠ DANGER

Under certain conditions, fuel and fuel vapors are highly flammable and explosive. A fire or explosion from fuel can burn you and others and can cause property damage.

- **Fill the fuel tank outdoors, in an open area, when the engine is off and is cold. Wipe up any fuel that spills.**
- **Do not fill the fuel tank completely full. Add fuel to the fuel tank until the level is 25 mm (1 inch) below the top of the tank, not the filler neck. This empty space in the tank allows the fuel to expand.**
- **Never smoke when handling fuel, and stay away from an open flame or where fuel fumes may be ignited by a spark.**
- **Store fuel in a clean, safety-approved container and keep the cap in place.**

Draining the Fuel Tank

Service Interval: Every 800 hours
Before storage

Drain and clean the fuel tank if the fuel system becomes contaminated or if the machine is to be stored for an extended period. Use clean fuel to flush out the tank.

Checking the Fuel Lines and Connections

Service Interval: Every 400 hours/Yearly (whichever comes first)

Check the fuel lines and connections. Inspect them for deterioration, damage, or loose connections.

Replacing the Fuel Filter Canister

Service Interval: Every 400 hours

1. Clean the area where the filter canister mounts.
2. Remove the filter canister and clean the mounting surface.
3. Lubricate the gasket on the filter canister with clean oil.

4. Install the new filter canister by hand until the gasket contacts mounting surface, then rotate it an additional 1/2 turn.

Bleeding the Fuel System

You must bleed the fuel system before starting the engine after any of the following situations:

- Initial start up of a new machine
- Engine has ceased running due to lack of fuel
- Maintenance has been performed upon fuel system components (i.e., replaced filter, serviced separator, etc.)

⚠ DANGER

Under certain conditions, diesel fuel and fuel vapors are highly flammable and explosive. A fire or explosion from fuel can burn you and others and can cause property damage.

- **Use a funnel and fill the fuel tank outdoors, in an open area, when the engine is off and is cold. Wipe up any fuel that spills.**
- **Do not fill the fuel tank completely full. Add fuel to the fuel tank until the level is 6 to 13 mm (1/4 to 1/2 inches) below the bottom of the filler neck. This empty space in the tank allows the fuel to expand.**
- **Never smoke when handling fuel, and stay away from an open flame or where fuel fumes may be ignited by a spark.**
- **Store fuel in a clean, safety-approved container and keep the cap in place.**

1. Park the machine on a level surface and ensure that the fuel tank is at least half full.
2. Open the hood.
3. Turn the key in the ignition switch to the ON position and crank the engine.

   Note: The mechanical pump will suck fuel out of the tank, fill the fuel filter and fuel hose and force the air into the engine. This could take some time to fully purge all the air out of the system and the engine might fire erratically until all air is purged out. When all air is purged and the engine is running smoothly, it should be run for a few minutes to ensure that it is fully purged.

Bleeding Air from the Fuel Injectors

Note: Only use this procedure if the fuel system has been purged of air through normal priming procedures and the engine will not start; refer to Bleeding the Fuel System (page 36).

1. Loosen the pipe connection to the No. 1 nozzle and holder assembly (Figure 40).

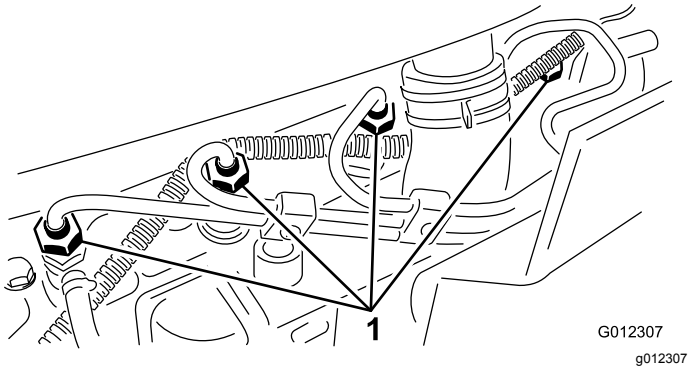

Figure 40

1. Fuel injectors

2. Move throttle to the FAST position.
3. Turn the key in the key switch to the START position and watch the fuel flow around the connector.

   Note: The engine will crank.
4. When you observe a solid flow of fuel, turn the key to the OFF position.
5. Tighten the pipe connector securely.
6. Repeat steps 1 through 5 on the remaining nozzles.

Electrical System Maintenance

Electrical System Safety

- Disconnect the battery before repairing the machine. Disconnect the negative terminal first and the positive last. Connect the positive terminal first and the negative last.
- Charge the battery in an open, well-ventilated area, away from sparks and flames. Unplug the charger before connecting or disconnecting the battery. Wear protective clothing and use insulated tools.

Servicing the Battery

WARNING

CALIFORNIA
Proposition 65 Warning

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

⚠ DANGER

Battery electrolyte contains sulfuric acid which is a deadly poison and causes severe burns.

- **Do not drink electrolyte and avoid contact with skin, eyes, or clothing. Wear safety glasses to shield your eyes and rubber gloves to protect your hands.**
- **Fill the battery where clean water is always available for flushing the skin.**

⚠ WARNING

Charging the battery produces gasses that can explode.

Never smoke near the battery and keep sparks and flames away from it.

⚠ WARNING

Battery terminals or metal tools could short against metal tractor components causing sparks. Sparks can cause the battery gasses to explode, resulting in personal injury.

- **When removing or installing the battery, do not allow the battery terminals to touch any metal parts of the machine.**
- **Do not allow metal tools to short between the battery terminals and metal parts of the machine.**

⚠ WARNING

Incorrect battery cable routing could damage the machine and cables causing sparks. Sparks can cause the battery gasses to explode, resulting in personal injury.

- **Always *disconnect* the negative (black) battery cable before disconnecting the positive (red) cable.**
- **Always *connect* the positive (red) battery cable before connecting the negative (black) cable.**

Check the battery condition weekly or after every 50 hours of operation. Keep the terminals and the entire battery case clean because a dirty battery will discharge slowly. To clean the battery, wash the entire case with a solution of baking soda and water. Rinse it with clear water. Coat the battery posts and cable connectors with Grafo 112X (skin-over) grease (Toro Part No. 505-47) or petroleum jelly to prevent corrosion.

Drive System Maintenance

Checking the Tire Pressure

Service Interval: Before each use or daily

Check the air pressure in the front and rear tires. Refer to the chart below for the correct pressure.

Important: **Maintain correct tire pressure in all tires to ensure correct contact with the turf.**

Tires	Tire Type	Recommended Tire Pressures		
		Turf Conditions	Road Conditions	Maximum Pressure
Front Axle	26 x 12 - 12, 4 ply	0.7 bar (10 psi)	1.4 bar (20 psi)	1.7 bar (25 psi)
Rear Axle	20 x 10 - 8, 4 ply	0.7 bar (10 psi)	1.4 bar (20 psi)	1.7 bar (25 psi)

Checking the Torque of the Wheel Nuts

Service Interval: Before each use or daily

Torque the wheel nuts to 200 N·m (148 ft-lb) for the front axle, and 54 N·m (40 ft-lb) for the rear axle.

⚠ WARNING

Failure to maintain proper torque of the wheel nuts could result in personal injury.

Ensure that the wheel nuts are torqued properly.

Changing the Transmission-Oil Filter

Service Interval: After the first 50 hours

Every 500 hours

1. Unscrew and remove the bottom of the transmission-oil filter housing.
2. Withdraw the filter element and discard it.
3. Refit a new filter element.
4. Install the housing.

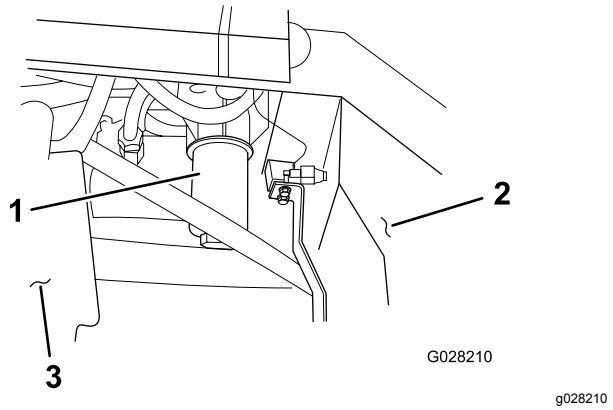

Figure 41

1. Transmission-oil filter
2. Center cutting unit
3. Hydraulic-oil tank

Checking the Rear Wheel Alignment

Service Interval: Every 500 hours

To prevent excessive tire wear and ensure safe machine operation, the rear wheels must be correctly aligned to 3 to 8 mm (0.12 to 0.31 inches).

1. Set the rear wheels in the straight ahead position.
2. Measure and compare the distance between the front sidewalls and the rear sidewalls at the wheel center height (Figure 42).

   Note: The distance between the front sidewalls must be set 3 to 8 mm (0.12 to 0.31 inches) less than the distance between the rear sidewalls.

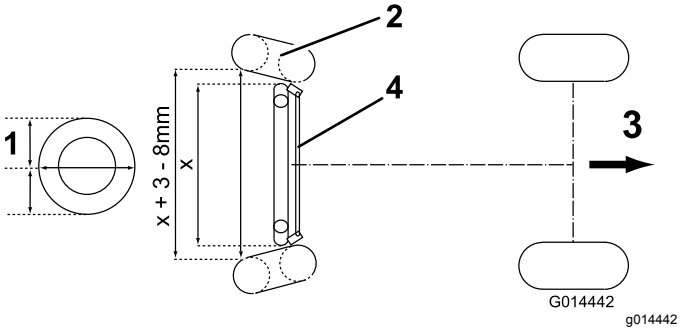

Figure 42

1. Wheel center height
2. Tire
3. Direction of forward travel
4. Track-rod assembly

3. To adjust the alignment of the rear wheels, back off the left and right locknuts on the track rod assembly.

   Note: The left locknut is a left thread.

4. Rotate the track rod to achieve the correct distance as described above and tighten the locknuts securely.

Cooling System Maintenance

Cooling System Safety

- Swallowing engine coolant can cause poisoning; keep out of reach from children and pets.
- Discharge of hot, pressurized coolant or touching a hot radiator and surrounding parts can cause severe burns.
  - Always allow the engine to cool at least 15 minutes before removing the radiator cap.
  - Use a rag when opening the radiator cap, and open the cap slowly to allow steam to escape.

Checking the Cooling System

Service Interval: Before each use or daily

Capacity of system is 14 L (3.7 US gallons).

1. Carefully remove the radiator cap and expansion tank cap (Figure 43).

   ⚠ CAUTION

   If the engine has been running, the pressurized, hot coolant can escape and cause burns.

   - **Do not open the radiator cap when the engine is running.**
   - **Use a rag when opening the radiator cap, and open the cap slowly to allow steam to escape.**

2. Check level of coolant in radiator when the coolant is cold. Radiator should be filled to the top of the filler neck and the expansion tank filled between the marks on its side (Figure 43).

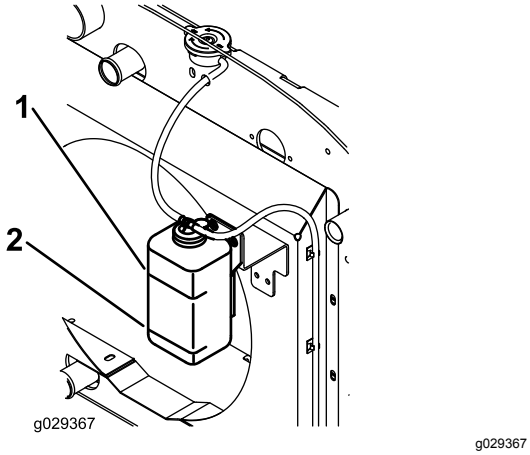

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Figure 43
Expansion tank

1. Full line
2. Low line

3. If the coolant level is low, add a 50/50 mixture of water and ethylene glycol anti–freeze. **Do not overfill.**

   Important: **Do not use water only or alcohol/methanol base coolants.**

4. Install the radiator and expansion tank caps.

Removing Debris from the Cooling System

Service Interval: Before each use or daily—Remove debris from the screen, oil coolers, and radiator (more frequently in dirty operating conditions).

1. Turn the engine off and remove the key from the ignition switch.
2. Release the front engine cover latches and raise the engine cover.
3. Thoroughly clean all debris out of the engine area.
4. Clean both sides of the oil cooler, radiator and rear engine area thoroughly with compressed air.
5. Lower the engine cover and secure the latches.

Belt Maintenance

Check the condition and tension of the alternator belt after the first day of operation and every 100 operating hours thereafter.

Checking the Condition and Tension of the Alternator Belt

Service Interval: Every 100 hours

- Proper tension will allow a 10 mm (3/8 inch) deflection when a force of 4.5 kg (10 lb) is applied on the belt midway between the pulleys.
- If the deflection is not 10 mm (3/8 inch), loosen the alternator mounting bolts (Figure 44). Increase or decrease the alternator belt tension and tighten the bolts.

  Note: Check deflection of belt again to ensure that the tension is correct.

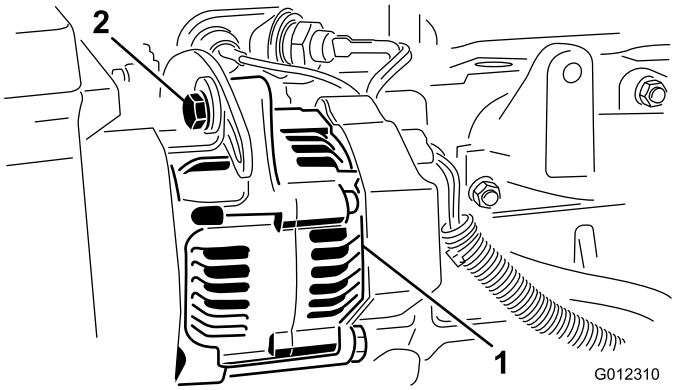

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Figure 44

1. Alternator
2. Mounting bolt

Hydraulic System Maintenance

Hydraulic System Safety

- Seek immediate medical attention if fluid is injected into skin. Injected fluid must be surgically removed within a few hours by a doctor.
- Ensure that all hydraulic-fluid hoses and lines are in good condition and all hydraulic connections and fittings are tight before applying pressure to the hydraulic system.
- Keep your body and hands away from pinhole leaks or nozzles that eject high-pressure hydraulic fluid.
- Use cardboard or paper to find hydraulic leaks.
- Safely relieve all pressure in the hydraulic system before performing any work on the hydraulic system.

Checking the Hydraulic Lines and Hoses

Service Interval: Before each use or daily

Check the hydraulic lines and hoses for leaks, kinked lines, loose mounting supports, wear, loose fittings, weather deterioration, and chemical deterioration. Make all necessary repairs before operating.

Servicing the Hydraulic System

Service Interval: Every 500 hours

Note: Keep water away from electrical components. Use a dry cloth or brush to clean such areas.

This procedure is best carried out when the hydraulic oil is warm (not hot). Lower the cutting units to the ground and drain the hydraulic system.

1. Remove the oil tank filler flange to gain access to the suction strainer.
2. Unscrew and remove the strainer and clean with paraffin or petrol before installing.
3. Install the return line oil filter element.
4. Install the transmission oil filter element.
5. Fill the hydraulic tank with fresh clean hydraulic oil of the recommended grade.
6. Run the machine and operate all hydraulic systems until the hydraulic oil is warm.
7. Check the oil level and top up as necessary to the upper mark on the sight level gauge.

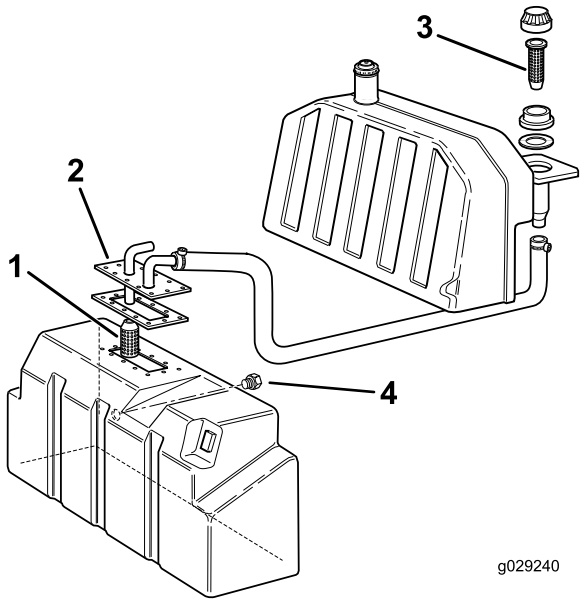

Figure 45

1. Suction strainer
2. Oil tank suction flange
3. Filler strainer
4. Drain plug

Hydraulic Fluid Capacity

77 L (20.3 US gallons)

Checking the Hydraulic Fluid

The reservoir is filled at the factory with high-quality hydraulic fluid. Check the level of the hydraulic fluid before first starting the engine and daily thereafter.

The recommended replacement fluid is **Toro Premium All Season Hydraulic Fluid**—available in 19 L (5 US gallon) pails or 208 L (55 US gallon) drums.

Alternative fluids: If the Toro fluid is not available, other conventional, petroleum-based fluids may be used, provided that they meet all the following material properties and industry specifications. Check with your hydraulic fluid supplier to see whether the fluid meets these specifications.

Note: Toro will not assume responsibility for damage caused by improper substitutions, so use only products from reputable manufacturers who will stand behind their recommendation.

High Viscosity Index/Low Pour Point Antiwear Hydraulic Fluid, ISO VG 46 Multigrade

Material Properties:

Viscosity, ASTM D445	cSt @ 40°C (104°F) 44 to 50 cSt @ 100°C (212°F) 7.9 to 9.1

Viscosity index, ASTM D2270	140 or higher (high viscosity index indicates a multiweight fluid)
Pour point, ASTM D97	-37°C to -45°C (-34°F to -49°F)
FZG, fail stage	11 or better
Water content (new fluid)	500 ppm (maximum)

Industry Specifications:

Vickers I-286-S, Vickers M-2950-S, Denison HF-0, Vickers 35 VQ 25 (Eaton ATS373-C)

The proper hydraulic fluids must be specified for mobile machinery (as opposed to industrial plant usage), multiweight-type, with ZnDTP or ZDDP anti-wear additive package (not an ashless-type fluid).

Important: **The ISO VG 46 Multigrade fluid has been found to offer optimal performance in a wide range of temperature conditions. For operation in consistently high ambient temperatures, 18°C (65°F) to 49°C (120°F), ISO VG 68 hydraulic fluid may offer improved performance.**

Premium Biodegradable Hydraulic Fluid-Mobil EAL EnviroSyn 46H

Important: **Mobil EAL EnviroSyn 46H is the only synthetic biodegradable fluid approved by Toro. This fluid is compatible with the elastomers used in Toro hydraulic systems and is suitable for a wide range of temperature conditions. This fluid is compatible with conventional fluids, but for maximum biodegradability and performance, the hydraulic system should be thoroughly flushed of conventional fluid. The fluid is available in 19 L (5 US gallon) containers or 208 L (55 US gallon) drums from your Mobil distributor.**

Important: **Many hydraulic fluids are almost colorless, making it difficult to spot leaks. A red dye additive for the hydraulic fluid is available in 20 ml (2/3 fl oz) bottles. A bottle is sufficient for 15 to 22 L (4 to 6 US gallons) of hydraulic fluid. Order Part No. 44-2500 from your authorized Toro distributor.**

Alternative fluids:

- Mobil EAL Envirosyn H 46 (US)
- Mobil EAL Hydraulic Oil 46 (International)

1. Park the machine on a level surface, lower the cutting units, engage the parking brake, shut off the engine, and remove the key.
2. Check the sight level gauge on the side of the tank. The level needs to be at the upper mark.
3. If hydraulic oil is needed, clean area around the cap of hydraulic tank (Figure 46). Remove cap from the tank.

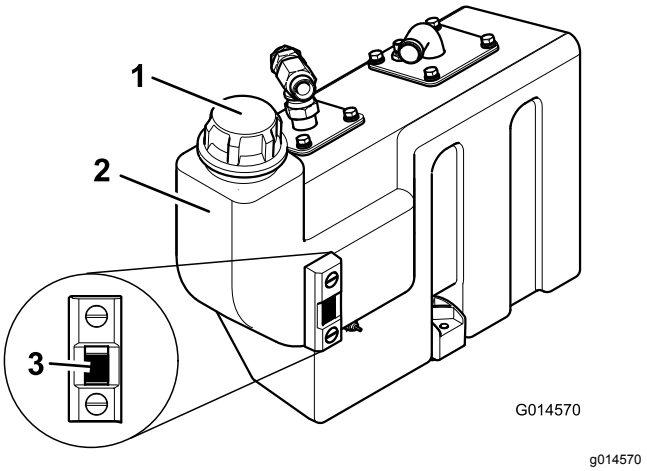

Figure 46

1. Hydraulic-tank cap
2. Oil tank
3. Sight-level gauge

4. Remove the cap and fill the tank to the upper mark on the sight level gauge.

   Note: Do not overfill the hydraulic system.
5. Install the cap onto the tank.

Changing the Hydraulic Oil Return Filter

Service Interval: After the first 50 hours

Every 500 hours

1. Remove the return filter.
2. Wipe oil onto the new return filter gasket.
3. Install the new return filter to the machine.

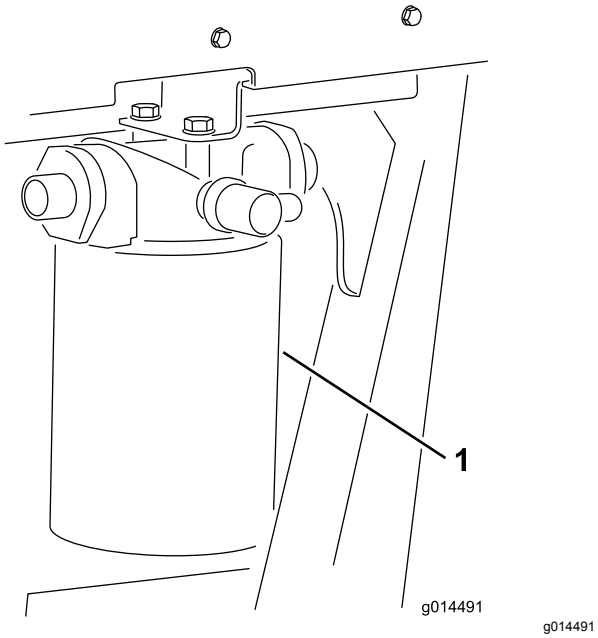

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Figure 47

1. Hydraulic oil return filter

Checking the Hydraulic Oil Overheat Warning System

Service Interval: Every 500 hours

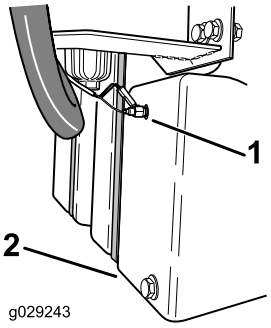

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Figure 48

1. Temperature switch
2. Hydraulic oil tank

1. Turn the ignition key to the ignition on position I.
2. Disconnect the red/blue wire terminal from the hydraulic tank temperature switch.
3. Touch the metal terminal of the wire onto a suitable earth point, ensuring that the metal surfaces make good contact.

Note: The horn will sound and the hydraulic oil temperature warning light will illuminate to confirm correct operation. If necessary, make repairs before operating the machine.

Cutting Unit Maintenance

Refer to the cutting unit *Operator's Manual* for maintenance procedures.

Blade Safety

- A worn or damaged blade or bedknife can break, and a piece could be thrown toward you or bystanders, resulting in serious personal injury or death.
- Inspect the cutting units periodically for excessive wear or damage.
- Use care when checking the cutting units. Wrap the blades or wear gloves, and use caution when servicing the reels and bedknives. Only replace or sharpen the reels and bedknives; never straighten or weld them.
- On machines with multiple cutting units, take care when rotating a reel; it can cause the reels in the other cutting units to rotate.

Cleaning

Washing the Machine

Wash the machine as needed using water alone or with a mild detergent. You may use a rag when washing the machine.

Important: **Do not use brackish or reclaimed water to clean the machine.**

Important: **Do not use power-washing equipment to wash the machine. Power-washing equipment may damage the electrical system, loosen important decals, or wash away necessary grease at friction points. Avoid excessive use of water near the control panel, engine, and battery.**

Important: **Do not wash the machine with the engine running. Washing the machine with the engine running may result in internal engine damage.**

Storage

Storage Safety

- Shut off the engine, remove the key, wait for all movement to stop before you leave the operator's position. Allow the machine to cool before adjusting, servicing, cleaning, or storing it.
- Do not store the machine or fuel container where there is an open flame, spark, or pilot light, such as on a water heater or on other appliances.

Preparing the Traction Unit

1. Park the machine on a level surface, lower the cutting units, engage the parking brake, shut off the engine, and remove the key.
2. Thoroughly clean the traction unit, cutting units, and the engine.
3. Check the tire pressure; refer to Checking the Tire Pressure (page 38).
4. Check all fasteners for looseness; tighten them as necessary.
5. Grease or oil all grease fittings and pivot points. Wipe up any excess lubricant.
6. Lightly sand and use touch-up paint on painted areas that are scratched, chipped, or rusted. Repair any dents in the metal body.
7. Service the battery and cables as follows; refer to Electrical System Safety (page 37):
   A. Remove the battery terminals from the battery posts.
   B. Clean the battery, terminals, and posts with a wire brush and baking-soda solution.
   C. Coat the cable terminals and battery posts with Grafo 112X skin-over grease (Toro Part No. 505-47) or petroleum jelly to prevent corrosion.
   D. Slowly charge the battery every 60 days for 24 hours to prevent lead sulfation of the battery.

Preparing the Engine

1. Drain the engine oil from the oil pan and install the drain plug.
2. Remove and discard the oil filter. Install a new oil filter.
3. Fill the engine with specified motor oil.
4. Start the engine and run it at idle speed for approximately 2 minutes.
5. Shut off the engine and remove the key.
6. Flush the fuel tank with fresh, clean fuel.
7. Secure all of the fuel-system fittings.
8. Thoroughly clean and service the air-cleaner assembly.
9. Seal the air-cleaner inlet and the exhaust outlet with weatherproof tape.
10. Check the antifreeze protection and add a 50/50 solution of water and ethylene glycol antifreeze as needed for the expected minimum temperature in your area.

Troubleshooting

Problem	Possible Cause	Corrective Action
There are areas of uncut grass at the overlap between cutting cylinders.	1. You are turning too tightly. 2. The machine slides sideways when traveling across the face of a slope. 3. There is no ground contact on 1 end of the cutter because of poorly routed hoses or wrongly positioned hydraulic adaptors. 4. There is no ground contact on one end of the cutter because a pivot pin is seizing. 5. There is no ground contact on one end of the cutter because of grass buildup under the cutting unit.	1. Increase the turning radius. 2. Mow up/down the slope. 3. Correct the hose routing or the position of the hydraulic adaptors. 4. Release and grease the pivot points. 5. Clear the grass buildup.
There are full-width ridge lines in the cut across the direction of travel.	1. The forward speed is too high. 2. The cylinder speed is too slow. 3. The height of cut is too low.	1. Reduce forward speed. 2. Increase the machine engine speed. 3. Raise the height of cut.
There are ridge lines in the cut grass, across the direction of travel, over the cutting width of one cylinder.	1. A cylinder is running slow.	1. Check the cylinder speed; consult your authorized distributor.
There is a step in the cut grass height at the point of overlap between cutting cylinders.	1. There is an inconsistent height of cut setting on one cylinder. 2. The raise/lower position control is not in the float position. 3. There is no ground contact on one end of the cutter because of poorly routed hoses or wrongly positioned hydraulic adaptors. 4. There is no ground contact on one end of the cutter because of pivot pins seizing. 5. There is no ground contact on one end of the cutter because of grass buildup under the cutting unit	1. Check and adjust the height of cut setting. 2. Set the position control to the float position. 3. Correct the hose routing and the position of the hydraulic adaptors. 4. Release and grease the pivot points. 5. Remove the grass buildup.
There are some uncut or poorly cut strands of grass.	1. A cutting cylinder is partially out of contact with the bottom blade. 2. A cutting cylinder is in heavy contact with the bottom blade. 3. The height of cut is too high. 4. The cutting edges of the cutting cylinders/bottom blades are rounded.	1. Adjust the cutting-cylinder-to-bottom-blade contact. 2. Adjust the cutting-cylinder-to-bottom-blade contact. 3. Lower the height of cut setting. 4. Back lap or grind the edges.

Problem	Possible Cause	Corrective Action
There are lines of uncut or badly cut grass in the direction of travel.	1. There is tram lining of the cutting edges due to heavy contact caused by poor cutting-cylinder-to-bottom-blade adjustment.	1. Back lap or grind the edges.
	2. The bottom blade is in contact with the ground.	2. Raise the height of cut.
	3. The bottom blade has a nose-down attitude.	3. Adjust the cutting unit to position the bottom blade parallel to the ground.
	4. The cutting units are bouncing.	4. Reduce the forward speed and reduce the weight transfer.
	5. There are worn cylinder bearings/bearing housing pivots.	5. Replace any worn parts.
	6. There are loose components in the cutting unit.	6. Check and tighten components as necessary.
The differential lock is not operational.	1. The switch is damaged.	1. Check the switch and replace if necessary.
	2. The solenoid valve is damaged.	2. Service or replace the solenoid valve.
	3. The wiring is damaged/worn.	3. Check the wiring/connections as necessary.
There is scalping of the turf.	1. The undulations are too severe for the height of cut setting.	1. Use floating cutting units.
	2. The height of cut is too low.	2. Raise the height of cut.
There is excessive bottom blade wear.	1. The bottom blade is in heavy contact with the ground.	1. Raise the height of cut.
	2. The cutting edges of the cutting cylinder and/or bottom blade are rounded.	2. Back lap or grind the edges.
	3. The cylinder is in heavy contact with the bottom blade.	3. Adjust the cutting-cylinder-to-bottom-blade contact.
	4. There is a damaged cutting cylinder or bottom blade.	4. Grind or replace parts as necessary.
	5. There are excessively abrasive ground conditions.	5. Raise the height of cut.
The engine does not start with the ignition key.	1. The transmission neutral interlock switch is not energized.	1. Remove your foot from the forward/reverse pedals or check the setting of the transmission neutral interlock switch.
	2. The parking brake interlock switch is not energized.	2. Move the parking brake switch to the On position.
	3. The cutting unit drive interlock switch is not energized.	3. Move the cutter switch to the Off position.
	4. There is a malfunctioning electrical connection.	4. Locate and correct the fault in the electrical system.
The battery has no power.	1. A terminal connection is loose or corroded.	1. Clean and tighten the terminal connections. Charge the battery.
	2. The alternator belt is loose or worn.	2. Adjust the tension or replace the belt; refer to engine operator's manual.
	3. The battery is discharged.	3. Charge or replace the battery.
	4. There is an electrical short circuit.	4. Locate the short circuit and fix it.

Problem	Possible Cause	Corrective Action
The hydraulic oil system is overheating.	1. There is a blocked screen. 2. The oil cooler fins are dirty/blocked. 3. The engine radiator is dirty/blocked. 4. The relief valve setting is low. 5. The oil level is low. 6. The brakes are engaged. 7. The cutting cylinders tight on the bottom blades. 8. There is a malfunctioning fan or fan drive.	1. Clean the screen. 2. Clean the fins. 3. Clean the radiator. 4. Have the relief valve pressure checked. Consult your authorized distributor. 5. Fill the reservoir to the correct level. 6. Disengage the brakes. 7. Adjust the settings. 8. Check the fan operation and service it as required.
The brake system does not operate correctly.	1. There is a malfunctioning wheel motor brake assembly. 2. The brake discs are worn.	1. Consult your authorized distributor. 2. Replace the brake discs; consult your authorized distributor.
There is a lack of steering.	1. The steering valve is malfunctioning. 2. A hydraulic cylinder is malfunctioning. 3. A steering hose is damaged.	1. Service or replace the steering valve. 2. Service or replace the hydraulic cylinder. 3. Replace the hose.
There is no machine movement in forward or reverse.	1. The parking brake is engaged. 2. The oil level is low. 3. The reservoir has the wrong kind of oil. 4. The drive pedal linkage is damaged. 5. The transmission pump is damaged. 6. The transmission bypass valve is open. 7. There is a broken drive coupling. 8. The transmission filter is blocked.	1. Release the parking brake. 2. Fill the reservoir to the correct level. 3. Drain the reservoir and fill it with the correct oil. 4. Check the linkage and replace any damaged or worn parts. 5. Have the transmission pump overhauled by your authorized distributor. 6. Close the bypass valve. 7. Replace the drive coupling. 8. Replace the transmission filter.
The machine creeps forward or backward in neutral.	1. The transmission neutral adjustment is set incorrectly.	1. Adjust the transmission neutral linkage setting.
The work/transport modes are non-operational.	1. The control switch is damaged. 2. The solenoid valve is damaged. 3. The wiring is damaged/worn.	1. Check the switch and replace if necessary. 2. Service or replace the solenoid valve. 3. Check the wiring/connections.
There is excessive noise in the hydraulic system.	1. A pump is malfunctioning. 2. A motor is malfunctioning. 3. Air is leaking into the system. 4. A suction strainer is blocked or damaged. 5. The oil has excessive viscosity due to cold conditions. 6. The relief valve setting is low. 7. The hydraulic oil level is low.	1. Identify the noisy pump and service or replace it. 2. Identify the noisy motor and service or replace it. 3. Tighten or replace the hydraulic fittings, particularly in the suction lines. 4. Clean and replace the suction strainer or renew it as necessary. 5. Allow the system to warm up. 6. Have the relief valve pressure checked. Consult your authorized distributor. 7. Fill the hydraulic oil reservoir to the correct level.

Problem	Possible Cause	Corrective Action
After an initial period of satisfactory operation, the machine loses power.	1. A pump or motor is worn. 2. The hydraulic oil level is low. 3. The oil in the hydraulic system has the wrong viscosity. 4. The oil-filter element is blocked. 5. The pressure relief valve is malfunctioning. 6. The system is overheating. 7. There are leaks on the suction hose.	1. Replace parts as necessary. 2. Fill hydraulic oil tank to correct level 3. Replace the oil in the hydraulic tank with the correct viscosity-grade oil; refer to the Specifications section. 4. Change the filter element. 5. Have the relief valve cleaned and pressure checked. Consult your authorized distributor. 6. Check the cylinder-to-bottom-blade adjustment. Reduce the work rate (increase the height of cut or reduce the forward speed). 7. Check and tighten the fittings. Replace the hose if necessary.
A cylinder knocks while rotating.	1. There is a high spot on the cylinder or the bottom blade due to contact with a foreign object. 2. The cylinder bearings are worn.	1. Remove the high spot with a stone and back lap to restore the cutting edges. Severe damage will require grinding. 2. Replace the bearings as necessary.
One cylinder rotates slowly.	1. A cutting cylinder bearing is seized. 2. A motor with incorrect rotation was installed. 3. The motor integral check valve is jammed open. 4. The cutting cylinder is tight on the bottom blade. 5. The motor is worn. 6. The diverter valve is only partly open.	1. Replace the bearings as necessary. 2. Check the motor and replace it if necessary. 3. Have the check valve cleaned and checked. 4. Adjust the setting. 5. Replace the motor. 6. Free off and lubricate or replace the diverter valve as necessary.
A cutting unit fails to lift out of work.	1. There is a lift cylinder seal failure. 2. The pressure relief valve is jammed open or wrongly set. 3. There is a malfunctioning control valve. 4. There is mechanical blockage.	1. Replace the seals. 2. Have the relief valve pressure checked. Consult your authorized distributor. 3. Overhaul the control valve. 4. Remove the blockage.
The cutting units do not follow the contours of the ground.	1. The hose routing or the orientation of the hydraulic fittings is incorrect. 2. The pivot points are too tight. 3. The machine is being operated in the ‘hold’ position. 4. The weight transfer is set too high.	1. Move the cutting units throughout the extremes of movement and observe any tightness in the hoses. Correctly route the hoses and orientate the fittings as necessary. 2. Release and grease the pivot point as necessary. 3. Move the position control switch to ‘down / float’ position. 4. Reduce the weight transfer.

Problem	Possible Cause	Corrective Action
The cutting units fail to start up when lowered into work.	1. The seat sensor switch is malfunctioning.	1. Check the mechanical and electrical operation of the switch.
	2. The hydraulic-oil level is low.	2. Fill the hydraulic-oil reservoir to the correct level.
	3. A driveshaft is sheared.	3. Check the motor and cylinder driveshafts and replace them if necessary.
	4. The pressure relief valve is jammed open or wrongly set.	4. Have the relief valve pressure checked. Consult your authorized dealer.
	5. A cutting cylinder is jammed.	5. Clear any jams as necessary.
	6. A cutting cylinder is tight on the bottom blade.	6. Adjust the setting.
	7. A cutting unit control valve is in the OFF position, caused by malfunctioning control valve.	7. Overhaul the control valve.
	8. A cutting unit control valve is in the OFF position, caused by an electrical fault.	8. Have the electrical system checked for an electrical fault.
	9. The diverter valve is jammed.	9. Free off and lubricate or replace the diverter valve as necessary.
The cylinders rotate in the wrong direction.	1. The hoses are incorrectly connected .	1. Check the hydraulic circuit and connect the hoses correctly.
	2. The cutting unit drive switch is incorrectly connected.	2. Check the electrical connections of the switch.

EEA/UK Privacy Notice

Toro's Use of Your Personal Information

The Toro Company ("Toro") respects your privacy. When you purchase our products, we may collect certain personal information about you, either directly from you or through your local Toro company or dealer. Toro uses this information to fulfil contractual obligations - such as to register your warranty, process your warranty claim or to contact you in the event of a product recall - and for legitimate business purposes - such as to gauge customer satisfaction, improve our products or provide you with product information which may be of interest. Toro may share your information with our subsidiaries, affiliates, dealers or other business partners in connection these activities. We may also disclose personal information when required by law or in connection with the sale, purchase or merger of a business. We will never sell your personal information to any other company for marketing purposes.

Retention of your Personal Information

Toro will keep your personal information as long as it is relevant for the above purposes and in accordance with legal requirements. For more information about applicable retention periods please contact legal@toro.com.

Toro's Commitment to Security

Your personal information may be processed in the US or another country which may have less strict data protection laws than your country of residence. Whenever we transfer your information outside of your country of residence, we will take legally required steps to ensure that appropriate safeguards are in place to protect your information and to make sure it is treated securely.

Access and Correction

You may have the right to correct or review your personal data, or object to or restrict the processing of your data. To do so, please contact us by email at legal@toro.com. If you have concerns about the way in which Toro has handled your information, we encourage you to raise this directly with us. Please note that European residents have the right to complain to your Data Protection Authority.

The Toro Warranty

Two-Year or 1,500 Hours Limited Warranty

Conditions and Products Covered

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrant your Toro Commercial product ("Product") to be free from defects in materials or workmanship for 2 years or 1,500 operational hours*, whichever occurs first. This warranty is applicable to all products with the exception of Aerators (refer to separate warranty statements for these products). Where a warrantable condition exists, we will repair the Product at no cost to you including diagnostics, labor, parts, and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.
* Product equipped with an hour meter.

Instructions for Obtaining Warranty Service

You are responsible for notifying the Commercial Products Distributor or Authorized Commercial Products Dealer from whom you purchased the Product as soon as you believe a warrantable condition exists. If you need help locating a Commercial Products Distributor or Authorized Dealer, or if you have questions regarding your warranty rights or responsibilities, you may contact us at:

Toro Commercial Products Service Department
Toro Warranty Company
8111 Lyndale Avenue South
Bloomington, MN 55420-1196

952–888–8801 or 800–952–2740
E-mail: commercial.warranty@toro.com

Owner Responsibilities

As the product owner, you are responsible for required maintenance and adjustments stated in your *Operator's Manual*. Repairs for product issues caused by failure to perform required maintenance and adjustments are not covered under this warranty.

Items and Conditions Not Covered

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

- Product failures which result from the use of non-Toro replacement parts, or from installation and use of add-on, or modified non-Toro branded accessories and products.
- Product failures which result from failure to perform recommended maintenance and/or adjustments.
- Product failures which result from operating the Product in an abusive, negligent, or reckless manner.
- Parts consumed through use that are not defective. Examples of parts which are consumed, or used up, during normal Product operation include, but are not limited to, brake pads and linings, clutch linings, blades, reels, rollers and bearings (sealed or greasable), bed knives, spark plugs, castor wheels and bearings, tires, filters, belts, and certain sprayer components such as diaphragms, nozzles, and check valves.
- Failures caused by outside influence, including, but not limited to, weather, storage practices, contamination, use of unapproved fuels, coolants, lubricants, additives, fertilizers, water, or chemicals.
- Failure or performance issues due to the use of fuels (e.g. gasoline, diesel, or biodiesel) that do not conform to their respective industry standards.
- Normal noise, vibration, wear and tear, and deterioration. Normal "wear and tear" includes, but is not limited to, damage to seats due to wear or abrasion, worn painted surfaces, scratched decals or windows.

Parts

Parts scheduled for replacement as required maintenance are warranted for the period of time up to the scheduled replacement time for that part. Parts replaced under this warranty are covered for the duration of the original product warranty and become the property of Toro. Toro will make the final decision whether to repair any existing part or assembly or replace it. Toro may use remanufactured parts for warranty repairs.

Deep Cycle and Lithium-Ion Battery Warranty

Deep cycle and Lithium-Ion batteries have a specified total number of kilowatt-hours they can deliver during their lifetime. Operating, recharging, and maintenance techniques can extend or reduce total battery life. As the batteries in this product are consumed, the amount of useful work between charging intervals will slowly decrease until the battery is completely worn out. Replacement of worn out batteries, due to normal consumption, is the responsibility of the product owner. Note: (Lithium-Ion battery only): Pro-rated after 2 years. Refer to the battery warranty for additional information.

Lifetime Crankshaft Warranty (ProStripe 02657 Model Only)

The Prostripe which is fitted with a genuine Toro Friction Disc and Crank-Safe Blade Brake Clutch (integrated Blade Brake Clutch (BBC) + Friction Disc assembly) as original equipment and used by the original purchaser in accordance with recommended operating and maintenance procedures, are covered by a Lifetime Warranty against engine crankshaft bending. Machines fitted with friction washers, Blade Brake Clutch (BBC) units and other such devices are not covered by the Lifetime Crankshaft Warranty.

Maintenance is at Owner's Expense

Engine tune-up, lubrication, cleaning and polishing, replacement of filters, coolant, and completing recommended maintenance are some of the normal services Toro products require that are at the owner's expense.

General Conditions

Repair by an Authorized Toro Distributor or Dealer is your sole remedy under this warranty.

Neither The Toro Company nor Toro Warranty Company is liable for indirect, incidental or consequential damages in connection with the use of the Toro Products covered by this warranty, including any cost or expense of providing substitute equipment or service during reasonable periods of malfunction or non-use pending completion of repairs under this warranty. Except for the Emissions warranty referenced below, if applicable, there is no other express warranty. All implied warranties of merchantability and fitness for use are limited to the duration of this express warranty.

Some states do not allow exclusions of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above exclusions and limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Note Regarding Emissions Warranty

The Emissions Control System on your Product may be covered by a separate warranty meeting requirements established by the U.S. Environmental Protection Agency (EPA) and/or the California Air Resources Board (CARB). The hour limitations set forth above do not apply to the Emissions Control System Warranty. Refer to the Engine Emission Control Warranty Statement supplied with your product or contained in the engine manufacturer's documentation.

Countries Other than the United States or Canada

Customers who have purchased Toro products exported from the United States or Canada should contact their Toro Distributor (Dealer) to obtain guarantee policies for your country, province, or state. If for any reason you are dissatisfied with your Distributor's service or have difficulty obtaining guarantee information, contact your Authorized Toro Service Center.