Form No. 3397-167 Rev B

TORO®

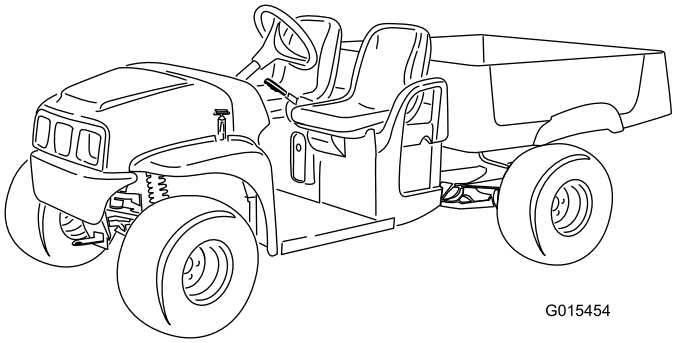
Count on it.

Operator's Manual

Workman® MDE Utility Vehicle

Model No. 07299—Serial No. 315000001 and Up

Model No. 07299TC—Serial No. 315000001 and Up



G015454

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

CE

3397-167 B

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

⚠ WARNING

CALIFORNIA
Proposition 65 Warning

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

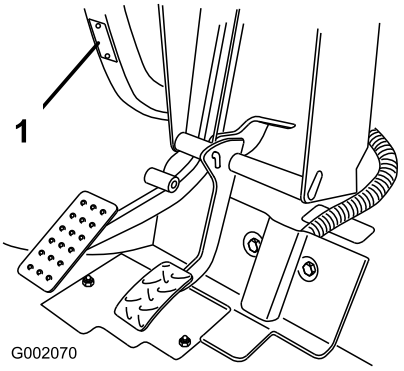


Figure 1

1. Model and serial number location

Model No. _____

Serial No. _____

Introduction

The machine is designed primarily as an off-road vehicle and is not intended for extensive use on public roads. When using the machine on public roads, follow all traffic regulations and use any additional accessories that may be required by law, such as lights, turn signals, slow moving vehicle (SMV) sign, and others as required.

This machine is a utility vehicle intended to be used by professional, hired operators in commercial applications. It is primarily designed for the transport of implements used in such applications. This vehicle allows for the safe transport of an operator and one passenger in the identified seats. The bed of this vehicle is not suitable for any riders.

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

You may contact Toro directly at www.Toro.com for product and accessory information, help finding a dealer, or to register your product.

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

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

Figure 2

1. Safety alert symbol

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

8111 Lyndale Avenue South
Bloomington, MN 55420

Contact us at www.Toro.com.
Printed in the USA

Contents

Safety

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

The machine meets the requirements of SAE J2258.

Safe Operating Practices

Important: The machine is designed primarily as an off-road vehicle and is not intended for extensive use on public roads. When using the machine on public roads, follow all traffic regulations and use any additional accessories that may be required by law, such as lights, turn signals, slow moving vehicle (SMV) sign, and others as required.

The Workman was designed and tested to offer safe service when operated and maintained properly. Although hazard control and accident prevention partially are dependent upon the design and configuration of the machine, these factors are also dependent upon the awareness, concern, and proper training of the personnel involved in the operation, maintenance and storage of the machine. Improper use or maintenance of the machine can result in injury or death.

This is a specialized utility vehicle designed for off–road use only. Its ride and handling will have a different feel than what drivers experience with passenger cars or trucks. So take time to become familiar with your Workman.

Not all of the attachments that adapt to the Workman are covered in this manual. See the specific *Operator's Manual* provided with each attachment for additional safety instructions. **Read these manuals.**

To reduce the potential for injury or death, comply with the following safety instructions:

Before Operating

- Operate the machine only after reading and understanding the contents of this manual. A replacement manual is available by sending complete model and serial number to: The Toro® Company, 8111 Lyndale Avenue South, Minneapolis, Minnesota 55420.
- Never allow children to operate the machine. Anyone who operates the machine should have a motor vehicle license.
- Never allow other adults to operate the machine without first reading and understanding the *Operator's Manual*. Only trained and authorized persons should operate this machine. Make sure that all operators are physically and mentally capable of operating the machine.
- This machine is designed to carry **only you**, the operator, and **one passenger** in the seat provided by the manufacturer. **Never** carry any other passengers on the vehicle.
- Become familiar with the controls and know how to stop the machine quickly.
- **Never** operate the machine when under the influence of drugs or alcohol. Even prescription drugs and cold medicines can cause drowsiness.
- Do not drive the machine when you are tired. Be sure to take occasional breaks. It is very important that you stay alert at all times.
- Always wear substantial shoes when operating the machine—do not operate the machine while wearing sandals. Do not wear loose fitting clothing or jewelry which could get caught in moving parts and cause personal injury.
- Wearing safety glasses, safety shoes, long pants and a helmet is advisable and required by some local safety and insurance regulations.
- Keep everyone, especially children and pets, away from the areas of operation.
- Keep all shields, safety devices, and decals in place. If a shield, safety device, or decal is malfunctioning, illegible, or damaged, repair or replace it before operating the machine.
- Avoid driving when it is dark, especially in unfamiliar areas. If you must drive when it is dark, be sure to drive cautiously, use the headlights, and even consider adding additional lights.
- Before operating the vehicle, always check all parts of the vehicle and any attachments. If something is wrong, **stop using vehicle**. Make sure the problem is corrected before vehicle or attachment is operated again.

Supervisor's Responsibilities

- Make sure that operators are thoroughly trained and familiar with the *Operator's Manual* and all labels on the machine.
- Be sure to establish your own special procedures and work rules for unusual operating conditions (e.g. slopes too steep for machine operation).

Note: This machine has a supervisor speed limit switch to allow you to limit the maximum speed that the operator can drive the machine.

Operation

- The operator and passenger should remain seated whenever the vehicle is in motion. The operator should keep both hands on the steering wheel, whenever possible, and the passenger should use the hand holds provided. Keep arms and legs within the vehicle body at all times.
- Drive slower and turn less sharply when you are carrying a passenger. Remember your passenger may not be expecting you to brake or turn and may not be ready. Never carry passengers in the box or on attachments.
- Never overload your vehicle. The name plate (located under the middle of the dash) shows the load limits for the vehicle. Never overfill attachments or exceed the vehicle maximum gross vehicle weight (GVW).
- Using the machine demands attention. Failure to operate machine safely may result in an accident, tip over of the machine, and serious injury or death. Drive carefully. To prevent tipping or loss of control, take the following precautions:
  - Use extreme caution, reduce speed, and maintain a safe distance around sand traps, ditches, creeks, ramps, any unfamiliar areas, or other hazards.
  - Watch for holes or other hidden hazards.
  - Use caution when operating the vehicle on a steep slope. Normally, travel straight up and down slopes. Reduce speed when making sharp turns or when turning on hillsides. Avoid turning on hillsides whenever possible.
  - Use extra caution when operating the machine on wet surfaces, at higher speeds, or with a full load. Stopping time will increase with a full load.
  - When loading the bed, distribute the load evenly. Use extra caution if the load exceeds the dimensions of the vehicle/bed. Operate the machine with extra caution when handling off-center loads that cannot be centered. Keep loads balanced and secure to prevent them from shifting.
  - Avoid sudden stops and starts. Do not go from reverse to forward or forward to reverse without first coming to a complete stop.
  - Do not attempt sharp turns or abrupt maneuvers or other unsafe driving actions that may cause a loss of control of the machine.
  - Do not pass another machine traveling in the same direction at intersections, blind spots, or at other dangerous locations.
  - When dumping, do not let anyone stand behind machine and do not dump the load on anyone's feet. Release the tailgate latches from the side of box, not from behind.
  - Keep all bystanders away. Before backing up, look to the rear and ensure that no one is behind the vehicle. Back up slowly.
  - Watch out for traffic when near or crossing roads. Always yield the right of way to pedestrians and other vehicles. Always signal your turns or stop early enough so other persons know what you plan to do. Obey all traffic rules and regulations.
  - Never operate the machine in or near an area where there is dust or fumes in the air which are explosive. The electrical system of the machine can produce sparks capable of igniting explosive materials.
  - Always watch out for and avoid low overhangs such as tree limbs, door jambs, over head walkways, etc. Make sure there is enough room over head to easily clear the machine and your head.
  - If you are ever unsure about the safe operation of the machine, **stop your work** and ask your supervisor.
- Before getting off the seat:
  1. Stop the movement of the machine.
  2. Set the parking brake.
  3. Turn the key to the Off position.
  4. Remove the key.

     Note: If the machine is on an incline, block the wheels after getting off of the machine.
- If the machine ever vibrates abnormally, stop immediately, wait for all motion to stop, and inspect the machine for damage. Repair all damage before commencing operation.
- Lightning can cause severe injury or death. If lightning is seen or thunder is heard in the area, do not operate the machine; seek shelter.

Braking

- Slow down before you approach an obstacle. This gives you extra time to stop or turn away. Hitting an obstacle can damage the machine and its contents. More important, it can injure you and your passenger.
- Gross machine weight (GVW) has a major impact on your ability to stop and/or turn. Heavy loads and attachments make a machine harder to stop or turn. The heavier the load, the longer it takes to stop. Refer to Loading the Cargo Box (page 24) for more information.
- Decrease the machine speed if the cargo box has been removed and there is no attachment on the machine. The braking characteristics change and fast stops may cause the rear wheels to lock up, which may affect the control of the machine.
- Turf and pavement are much more slippery when they are wet. It can take 2 to 4 times as long to stop on wet surfaces as on dry surfaces. If you drive through standing water deep enough to get the brakes wet, they will not work well until they are dry. After driving through water, you should test the brakes to make sure they work properly. If they do not, drive slowly while putting light pressure on the brake pedal. This will dry the brakes out.

Operating on Hills

⚠ WARNING

Operating the machine on a hill may cause tipping or rolling of the machine, or the batteries may run low and you could lose headway on the hill. This could result in personal injury.

- **Do not operate the machine on excessively steep slopes.**
- **Do not accelerate quickly or slam on the brakes when backing down a hill, especially with a load.**
- **If the batteries run low or you begin to lose headway while climbing a hill, gradually apply the brakes and slowly back straight down the hill.**
- **Operate the machine slowly on a hill and use caution.**
- **Avoid turning on a hill.**
- **Reduce your load and the speed of the machine.**
- **Avoid stopping on hills, especially with a load.**

These extra cautions need to be taken when operating the machine on a hill by performing the following:

- Slow down before starting up or down a hill.
- If the batteries run low or you begin to lose headway while climbing a hill, gradually apply the brakes and slowly back straight down the hill.
- Turning while traveling up or down hills can be dangerous. If you have to turn while on a hill, do it slowly and cautiously. Never make sharp or fast turns.
- Heavy loads affect stability. Reduce the weight of the load and your speed when operating on hills or if the load has a high center of gravity. Secure the load to prevent it from shifting and take extra care when hauling loads that shift easily (liquid, rock, sand, etc.).
- Avoid stopping on hills, especially with a load. Stopping while going down a hill will take longer than stopping on level ground. If the machine must be stopped, avoid sudden speed changes, which may initiate tipping or rolling of the machine. Do not slam on the brakes when rolling backward, as this may cause the machine to overturn.
- You can install an optional ROPS kit for operation on hilly terrain.

Operating on Rough Terrain

⚠ WARNING

Sudden changes in terrain may cause abrupt steering wheel movement, possibly resulting in hand and arm injuries.

- **Reduce your speed when operating on rough terrain and near curbs.**
- **Grip the steering wheel loosely around the perimeter keeping thumbs up and out of the way of the steering wheel spokes.**

Reduce the ground speed of the machine and load carried in the machine when operating on rough terrain, uneven ground, and near curbs, holes, and other sudden changes in terrain. Loads may shift, causing the machine to become unstable.

If you will be using the machine on rough terrain, you can install the optional ROPS Kit.

Loading and Dumping

⚠ WARNING

The weight of the box may be heavy. Hands or other body parts could be crushed.

- **Keep hands and other body parts clear when lowering the box.**
- **Do not dump materials on bystanders.**
- Do not exceed the rated weight capacity of the machine when operating it with a load in the cargo box, when towing a trailer, or both; refer to Loading the Cargo Box (page 24).
- Use caution when operating the machine on a hillside or on rough terrain, particularly with a load in the cargo box or when towing a trailer or both.
- Use caution when carrying tall loads in the cargo box.
- Be aware that the stability and control of the machine are reduced when the load in the cargo box is poorly distributed.
- Carrying oversized loads in the cargo box changes the stability of the machine.
- The steering, braking , and stability of the machine are affected when carrying a load where the weight of the material cannot be bound to the machine such as the liquid in a large tank.
- Never dump a loaded cargo box while the machine is sideways on a hill. The change in weight distribution may cause the machine to overturn.
- When operating with a heavy load in the cargo box, reduce your speed and allow for sufficient braking distance. Do not suddenly apply the brakes. Use extra caution on slopes.

- Be aware that heavy loads increase your stopping distance and reduce your ability to turn quickly without tipping over.
- The rear cargo space is intended for load carrying purposes only, not for passengers.
- Never overload your machine. The name plate (located under the middle of the dash) shows the load limits for the machine. Never overfill attachments or exceed the machine maximum gross machine weight (GVW); refer to Specifications (page 19).

Handling and Servicing Batteries

- To reduce the potential for fire, keep the batteries and motor area free of excessive grease, grass, leaves, and accumulation of dirt.
- Always disconnect the battery cables before servicing any electrical components; refer to Disconnecting the Batteries (page 33).

  Note: Disconnecting any battery cables will isolate power from electrical system.
- Battery electrolyte contains sulfuric acid. Sulfuric acid produces hydrogen gas which, in the right proportions, is explosive.
  - Always service, store, and charge the machine in a well-ventilated area.
  - Keep sparks and open flames away from the batteries.
  - Do not smoke near the batteries.
  - Never use an open flame to check the level or leakage of battery electrolyte.
- Use caution when handling and working around electrolyte. The sulfuric acid in electrolyte can burn skin and damage clothing. Furthermore, it can be emitted as a gas that can damage your lungs.
  - Wear proper eye, hand, and face protection.
  - Do not lean over the batteries at any time.
  - Avoid breathing in battery fumes.
  - Fill the batteries where clean water is always available for flushing the skin.
  - If you get electrolyte on your skin or eyes, flush the affected area for 20 minutes with clean water. Remove acid-soaked clothing . Seek medical attention immediately.
  - Keep children and pets away from the batteries and electrolyte.
- Electrolyte is very poisonous.
  - Do not drink the electrolyte.
  - If electrolyte has been swallowed, and the person is conscious, have them drink large quantities of water immediately to dilute the electrolyte.
  - Do not attempt to make them vomit.
  - Call Poison Control and get medical attention immediately.
- When not filling the batteries, keep the battery vent caps tight on the batteries. Never operate the machine if any of the vent caps are missing or damaged.
- When removing or installing the batteries, 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. Remove all jewelry and watches before servicing the batteries.
- Do not check a battery charge by placing a metal object across the posts. This will cause sparks which can cause an explosion.
- Always keep the battery retainers in place to protect and secure the batteries.
- Read and understand the charging instructions before charging the batteries; refer to Charging the Batteries (page 33). Also, take the following precautions and actions when charging the batteries:
  - Turn the machine On/Off switch to Off before connecting the charger to a power source.
  - Use only the battery charger supplied with the machine to charge the batteries.
  - Do not charge a damaged or frozen battery.
  - Always unplug the AC power cord from the power outlet before unplugging it from the machine charging receptacle to avoid sparks.
  - If during charging a battery gets hot, begins emitting large amounts of gasses, or spews electrolyte, immediately disconnect the charger power cord from the power outlet. Have the machine serviced by an Authorized Service Dealer before using it again.

Maintenance

- Before servicing or making adjustments to the machine, move the machine to a level surface, stop the engine, set the parking brake, and remove the key from On/Off switch to prevent accidental moving the machine.
- To make sure the entire machine is in good condition, keep all nuts, bolts, and screws properly tightened.
- To reduce the potential fire hazard, keep the motor area free of excessive grease, grass, leaves, and accumulation of dirt.
- If the motor must be running to perform a maintenance adjustment, keep hands, feet, clothing, and any parts of the body away from the motor and any moving parts. Keep everyone away.
- If major repairs are ever needed or assistance is required, contact an Authorized Toro Distributor.
- To be sure of optimum performance and safety, always purchase genuine Toro replacement parts and accessories. Replacement parts and accessories made by other

manufacturers could be dangerous. Altering this machine in any manner may affect the operation, performance, durability of the machine, or its use may result in injury or death. Such use could void the product warranty of The Toro® Company.

- This machine should not be modified without authorization from The Toro® Company. Direct any inquiries to The Toro® Company, Commercial Division, Vehicle Engineering Dept., 8111 Lyndale Ave. So., Bloomington, Minnesota 55420–1196 USA.

Sound Pressure

This unit has a sound pressure level at the operator's ear of 68 dBA, which includes the Uncertainty Value (K) of 1 dBA.

Hand-arm Vibration

Measured vibration level for right hand = 0.43 m/s^2

Measured vibration level for left hand = 0.38 m/s^2

Uncertainty Value (K) = 0.5 m/s^2

Measured values were determined according to the procedures outlined in EN 1032.

Whole-body Vibration

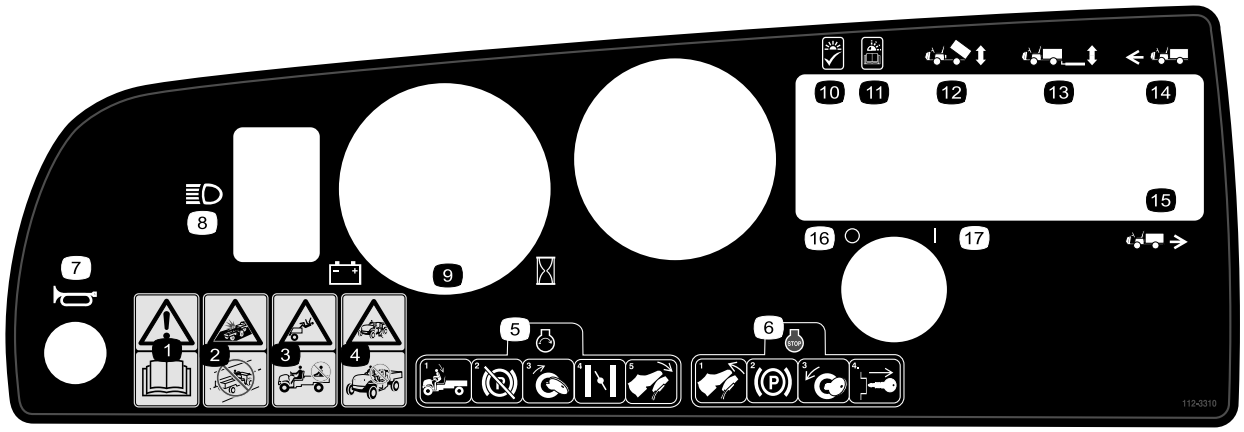
Measured vibration level = 0.2 m/s^2

Uncertainty Value (K) = 0.5 m/s^2

Measured values were determined according to the procedures outlined in EN 1032.

Safety and Instructional Decals

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

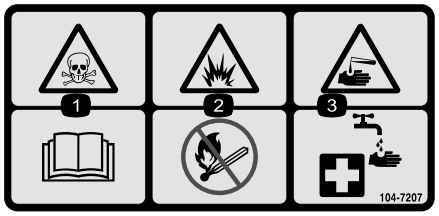


112-3310

1. Warning—read the *Operator's Manual*.
2. Collision hazard—do not operate the vehicle on public streets, roads, or highways.
3. Falling hazard—do not carry passengers in the cargo bed.
4. Falling hazard—do not allow children to operate the vehicle.
5. To start the motor, sit on the operator's seat, release the parking brake, turn the power key on, and press the accelerator pedal.
6. To stop the motor, release the accelerator pedal, set the parking brake, turn the power key off, and remove the power key.
7. Horn
8. Headlights
9. Battery/hour meter
10. Light on, OK
11. Light blinking, read the *Operator's Manual.*
12. Cargo bed lift
13. Rear lift
14. Forward
15. Reverse
16. Power—Off
17. Power—On

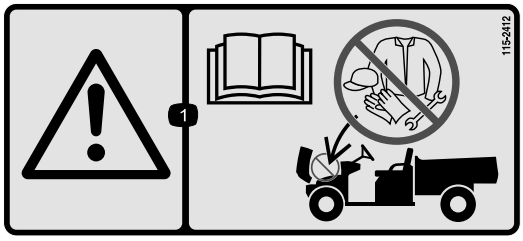
104-7215

1. Warning—read the *Operator's Manual.*
2. Explosion hazard—no fire, open flames, or smoking around batteries.
3. Warning—do not operate this machine unless you are trained.
4. Tipping hazard—use caution and drive slowly while on slopes; drive slowly when turning, keep the vehicle speed under 16 mph (26 km/h) when carrying a full or heavy load and when driving on rough terrain.
5. Falling and arm/leg injury hazards—do not carry passengers in the cargo bed and keep arms and legs inside of the vehicle at all times.



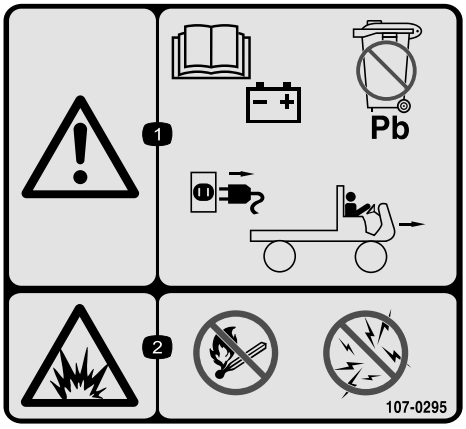
104-7207

1. Poison hazard—read the *Operator's Manual.*
2. Explosion hazard—no fire, open flames, or smoking.
3. Caustic liquid/chemical burn hazard—to perform first aid, flush with water.



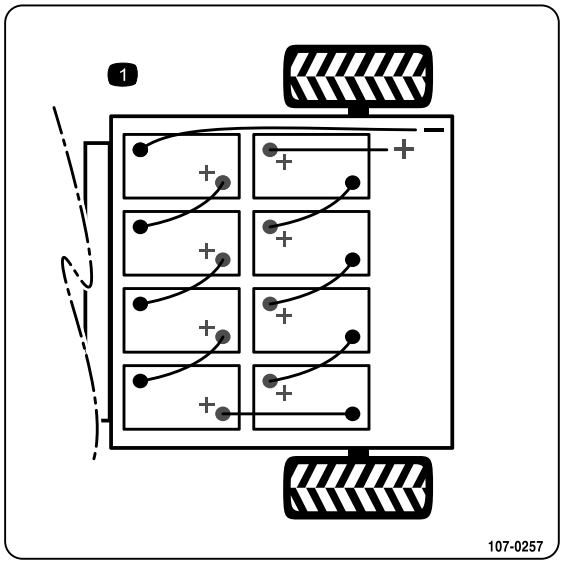
115-2412

1. Warning—read the *Operator's Manual*; no storage.



107-0295

1. Warning—read the *Operator's Manual* for more information on batteries; batteries contain lead, do not discard; disconnect the power cord from power source before driving vehicle.
2. Explosion hazard—no fire, open flames, or smoking; avoid sparks.

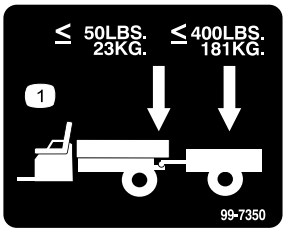


107-0257

1. Battery schematic

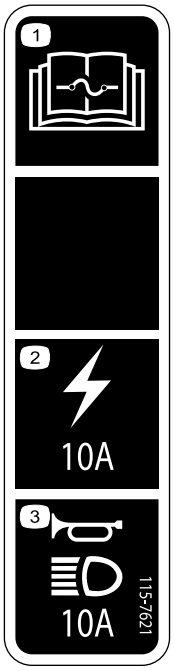
107-0356

1. Warning—do not touch moving objects, fan; do not touch the hot surfaces; read the *Operator's Manual.*



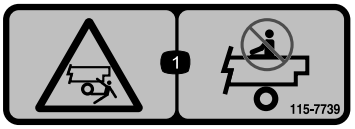
99-7350

1. Maximum tongue weight is 23 kg (50 lb); maximum trailer weight is 181 kg (400 lb).



115–7621

1. Read the *Operator's Manual* for information on fuses.
2. Electrical power/accessories — 10A
3. Horn and lights — 10A



115-7739

1. Falling, crushing hazard, bystanders—no riders on machine.

Battery Symbols

Some or all of these symbols are on your battery

1. Explosion hazard
2. No fire, open flame, or smoking.
3. Caustic liquid/chemical burn hazard
4. Wear eye protection
5. Read the *Operator's Manual.*
6. Keep bystanders a safe distance from the battery.
7. Wear eye protection; explosive gases can cause blindness and other injuries
8. Battery acid can cause blindness or severe burns.
9. Flush eyes immediately with water and get medical help fast.
10. Contains lead; do not discard.

Setup

Loose Parts

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

Procedure	Description	Qty.	Use
1	Steering wheel	1	Install the steering wheel (model 07299TC).
2	Battery hold down Battery hold-down rod Battery cables Battery-tray pads Battery pad Flange nut (3/8 inch) Battery-terminal-protector spray	2 2 7 4 1 2 1	Install the batteries (model 07299TC).
3	No parts required	–	Set the charger voltage (model 07299TC only).
4	No parts required	–	Check the fluid levels and tire air pressure.
5	Operator's Manual Parts Catalog Safety training material Registration card Predelivery Inspection Form Certificate of Quality Key	1 1 1 1 1 1 2	Read the Operator's Manual and view the training material before operating the machine.

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

1

Installing the Steering Wheel

Model 07299TC

Parts needed for this procedure:

1	Steering wheel

Procedure

1. Through the openings in the back of the steering wheel, release the lock tabs of the center cover and remove the cover from the wheel (Figure 3).

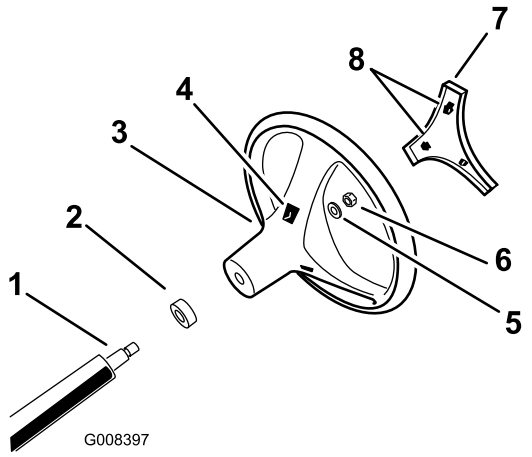


Figure 3

1. Steering shaft
2. Dust cover
3. Steering wheel
4. Tab slots in wheel
5. Washer
6. Lock nut
7. Center cover
8. Opening (for access to the steering wheel tabs)

2. Remove the lock nut and washer from the steering shaft (Figure 3).
3. Align the steering wheel onto the splines of the steering shaft (Figure 3).

Note: Position the steering wheel on the shaft so that when the tires of the machine are pointed straight ahead, the cross beam of the steering wheel is horizontal and the thicker spoke of the steering wheel is pointing down.

4. Assemble the washer and lock nut threads of the steering shaft (Figure 3).
5. Torque the nut to 24-29 N-m (18-22 ft-lb).
6. Align the lock tabs of the center cover to the openings in the steering wheel and press the cover into the wheel until the locks tabs snap into place (Figure 3).

2

Installing the Batteries

Model 07299TC

Parts needed for this procedure:

2	Battery hold down
2	Battery hold-down rod
7	Battery cables
4	Battery-tray pads
1	Battery pad
2	Flange nut (3/8 inch)
1	Battery-terminal-protector spray

Procedure

Battery type: Trojan T105 or T145, or US Battery US2200 or US145.

Battery Specification: 6V 225AH @ 20hr rate
Dimensions: (L x W x H) 26.4 x 18.1 x 26.5 cm (10-3/8 x 7-1/8 x 10-7/16 inches)

1. Turn the key switch to the Off position and remove the key.
2. Install the battery-tray pads into the rear-frame assembly (Figure 4).

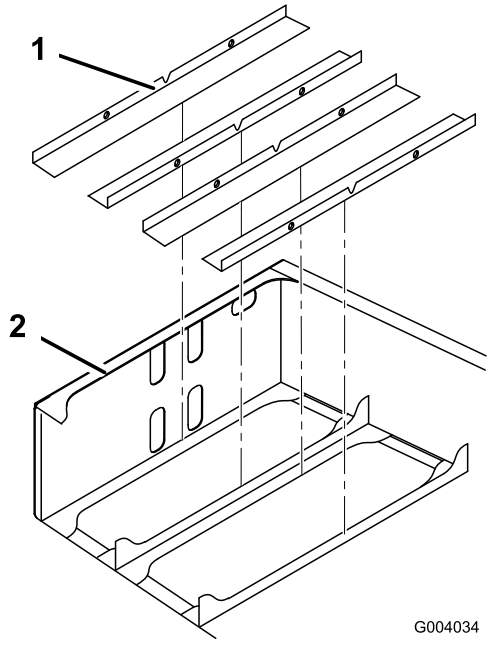


Figure 4

1. Battery-tray pads
2. Rear-frame assembly

3. Remove the adhesive strip from the back of the battery pad and install it onto the front inside face of the rear frame (Figure 5).

Note: The pad should be approximately 6 mm (1/4 inch) below the bottom edge of the upper set of cutout holes (Figure 5).

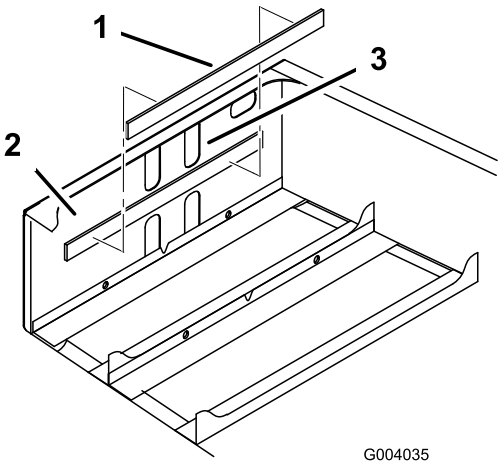


Figure 5

1. Battery pad
2. Front inside face
3. Upper cutout holes

4. Install the batteries (Figure 6).

Note: Pay attention to the battery polarity when installing the new batteries (Figure 6).

⚠ 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 ensure the battery polarity when making connections.

⚠ CAUTION

Batteries can give you a powerful electrical shock.

- **Use tools with plastic handles or wrap the handles of metal tools with electrical tape.**
- **Be careful not to contact both a positive terminal and a negative terminal at the same time.**

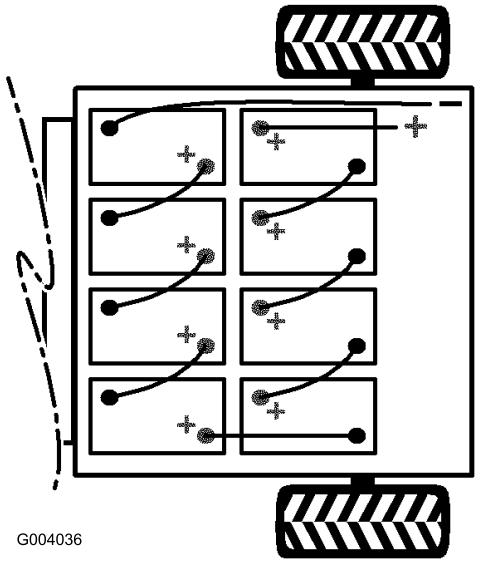


Figure 6

5. Install the battery retainers and torque the nuts to 17 to 22 N-m (150 to 200 in-lbs).
6. Connect the batteries together with the battery cables included in loose parts (Figure 6).

   Important: Check all high-current battery connections to ensure that they have been properly secured.

   Note: Ensure that the cable routing does not allow cables to contact any sharp edges.
7. Tighten the bolt and secure the other side of the clip with a new bolt (5/16 x 3/4 inch) and a flange nut (5/16 inch) (Figure 6).
8. Connect the long, red, main positive lead between the bank of batteries and the machine (Figure 6).
9. Connect the long, black, main negative lead between the bank of batteries and the machine (Figure 6).

⚠ WARNING

Loose or improperly secured battery connections could damage the machine and cables, causing sparks. Sparks can cause the battery gasses to explode, resulting in personal injury.

Always ensure the battery polarity when making connections.

10. Torque the nuts securing all battery cables to 13.5 to 21 N-m (120 to 180 in-lbs).
11. Coat the battery terminals with Toro battery-terminal protector.
12. Ensure that the rubber covers on each battery cable are securely seated over the battery terminals.

3

Setting the Charger Voltage

Model 07299TC

No Parts Required

Procedure

Important: The incorrect voltage setting on the battery charger can impair function and damage the charger.

Always make sure that the charger voltage setting matches the voltage used to power the charger.

1. Locate the voltage selector on the rear of the charger (Figure 7).
2. Adjust the voltage setting by moving the switch on the voltage selector upward or downward to change the voltage setting (Figure 7).

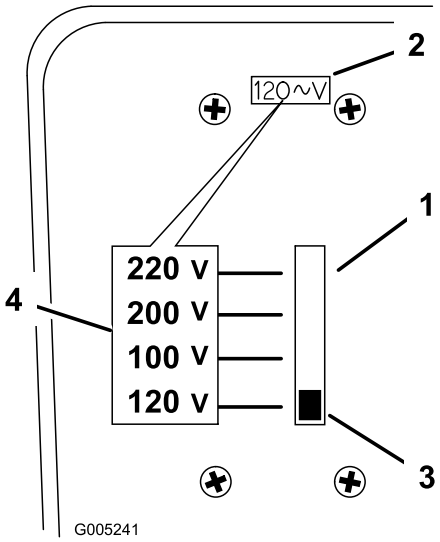


Figure 7

1. Voltage selector
2. Voltage-setting window
3. Switch
4. Voltages by switch position

Note: Always use the appropriate power cord for the power outlet of the country or region where charging will occur. Contact your Authorized Toro Dealer to obtain the correct power cord if necessary.

4

Checking the Fluid Levels and Tire Air Pressure

No Parts Required

Procedure

1. Check the brake fluid level before the engine is first operated; refer to Checking the Brake Fluid Level (page 20).
2. Check the transaxle-fluid level before the engine is first operated; refer to Checking the Transaxle-Oil Level (page 38).
3. Check the air pressure in the tires; refer to Checking the Tire Air Pressure (page 21)

5

Reading the Manual and Viewing the Safety Video

Parts needed for this procedure:

1	*Operator's Manual*
1	*Parts Catalog*
1	Safety training material
1	Registration card
1	*Predelivery Inspection Form*
1	Certificate of Quality
2	Key

Procedure

- Read the *Operator's Manual.*
- View the safety training material.
- Fill out the registration card.
- Complete the *Pre-delivery Inspection Form.*

Product Overview

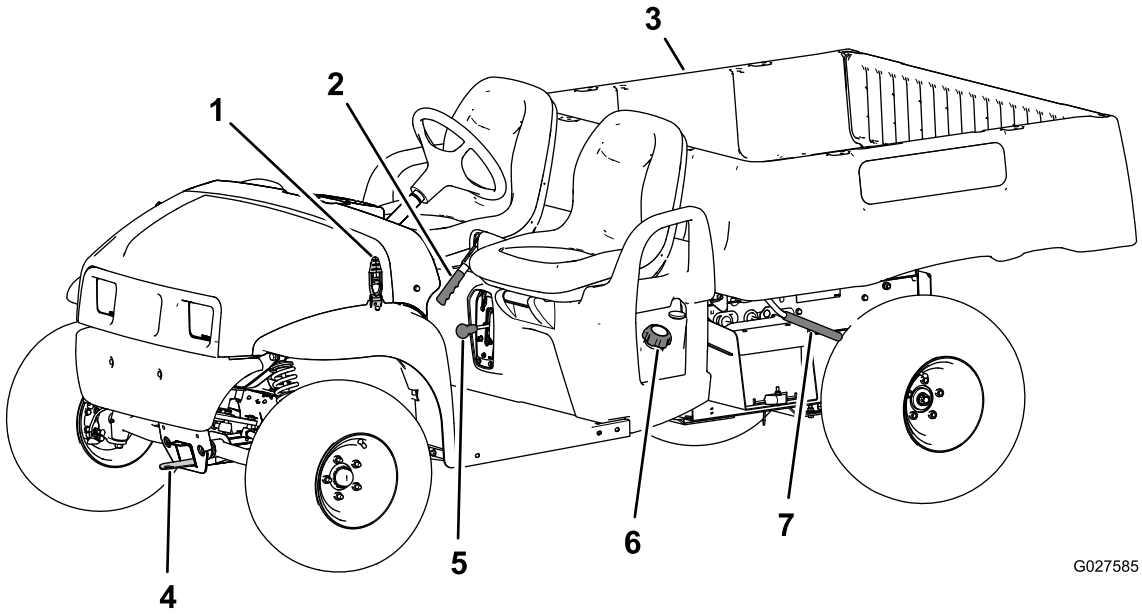


Figure 8

1. Hood latch
2. Parking brake handle
3. Cargo box
4. Towing tongue
5. Gear shift selector
6. Fuel cap
7. Cargo box lever

Controls

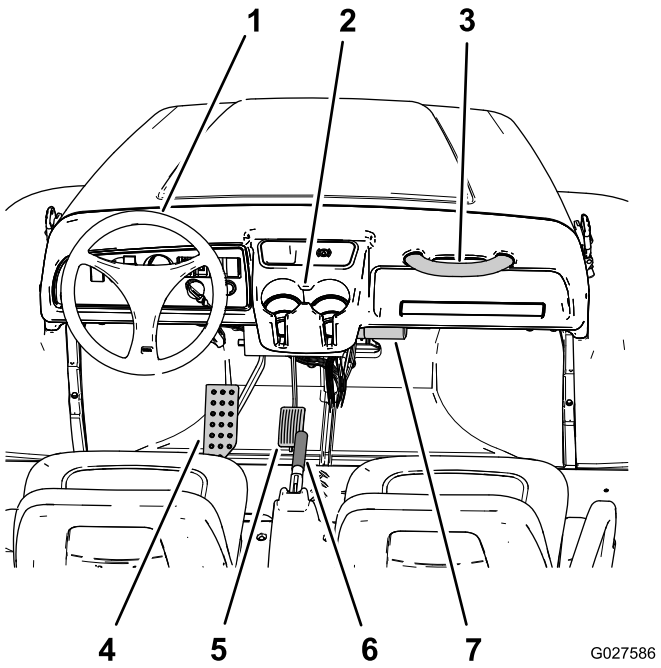


Figure 9

1. Steering wheel
2. Cup holder
3. Passenger handhold
4. Brake pedal
5. Accelerator pedal
6. Parking brake handle (center console)
7. *Operator's Manual* storage tube

Accelerator Pedal

The accelerator pedal (Figure 9) gives the operator the ability to vary the engine and ground speed of the machine when the transmission is in gear. Pressing the pedal increases the engine rpm and ground speed. Releasing the pedal decreases the engine speed and ground speed of the machine.

Brake Pedal

The brake pedal is used to apply service brakes to stop or slow the machine (Figure 9).

⚠ CAUTION

Brakes can become worn or can be incorrectly adjusted resulting in personal injury.

If the brake pedal travels to within 25 mm (1 inch) of the machine floor board, the brakes must be adjusted or repaired.

Parking Brake

The parking brake is between the seats (Figure 9). Whenever you shut off the machine, set the parking brake to prevent the machine from accidental movement. To set the parking brake, pull back the lever. To release the parking brake, push the lever forward. If the machine is parked on a steep grade, make sure that you set the parking brake.

Light Switch

The light switch is located to the left of the battery-discharge indicator (Figure 10). Use the light switch to turn the headlights on and off.

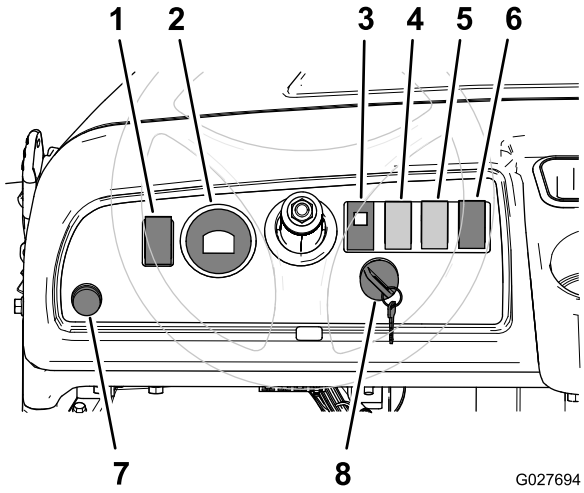


Figure 10

1. Light switch
2. Battery/hour meter
3. Machine-status light
4. Cargo bed lift switch (optional)
5. Rear lift switch (optional)
6. Machine-direction switch
7. Horn button (TC Models only)
8. On/Off switch

Battery-Discharge Indicator

The battery/hour meter is located to the left of the steering column (Figure 10). The battery/hour meter indicates of the remaining charge in the batteries (Figure 16) and the number of operating hours on the machine. The battery meter is located at the top of the LCD screen. When the machine batteries are fully charged, ten indicator bars extend from the 0 to the 1 position. As the charge is used, the indicator bars disappear starting at the right side of the meter. For detailed information on the battery meter, refer to Using the Battery System (page 22).

The hour meter is located at the bottom of the LCD screen. It logs operating hours whenever the key is in the On position and the machine is in motion.

Machine-Status Light

The machine-status light is located to the right of the steering column (Figure 16). The machine contains a computer that monitors the state of the machine electrical systems. This computer communicates the status of the machine to you through the machine-status light. Always check this light when you turn the On/Off switch to the On position. When there are no problems and the machine is operational, the light is on.

When there is a problem, the light flashes. The light flashes at various intervals for different problems and events. If the light blinks, refer to Using the Battery System (page 22) for a description of the flash codes.

Cargo Bed Lift Switch (Optional)

When the lift is electric bed lift is installed, the cargo bed lift switch is located to the right of the machine-status light (Figure 10). Use this cargo bed lift switch to raise and lower the cargo bed.

Rear Lift Switch (Optional)

When the rear electric lift is installed, the rear lift switch is located to the left of the machine direction switch (Figure 10). Use this rear lift switch to raise and lower the rear lift.

Machine-direction Switch

The machine-direction switch is located to the right of the optional rear lift switch (Figure 10). Use this switch to toggle between forward and reverse operation.

Note: If the machine-directional switch is moved to the Reverse position when the On/Off switch is in the On position, a buzzer will sound to warn the operator that the machine is set to move in the reverse direction.

Horn Button (TC Models only)

The horn button is located at the lower left corner of the dash panel (Figure 10) Press the horn button to sound the horn .

On/Off Switch

Use the On/Off switch to activate the electrical systems of the machine. Rotate the key clockwise to the On position to operate the machine and accessories. After stopping the machine, rotate the key counterclockwise to the Off position (Figure 10).

Note: Remove the key when leaving the machine.

Supervisor Speed-Limit Switch

The supervisor speed-limit switch, located under the cup holder (Figure 11) has 2 positions: On and Off. Rotate the key clockwise to the On position to limit the maximum machine speed to a factory setting of 19 kph (12 mph). Rotate the key counterclockwise to the Off position to restore the maximum speed of the machine.

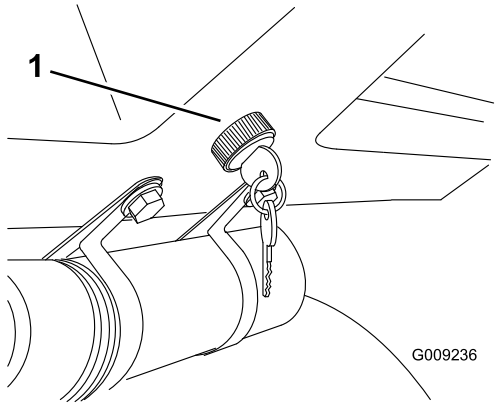


Figure 11

1. Supervisor speed-limit switch

Passenger Hand Holds

The passenger hand holds are located on the right side of the dash panel and at the outside of each seat (Figure 12).

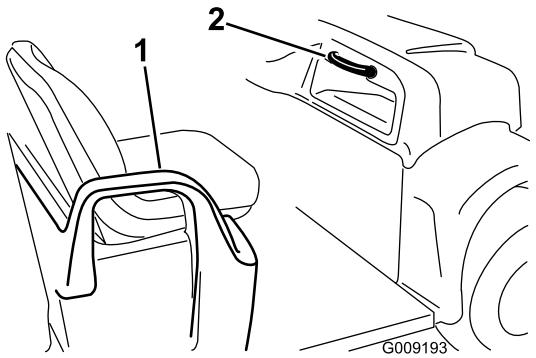


Figure 12

1. Hip restraint
2. Passenger hand hold

Specifications

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

Base weight	726 kg (1600 lb)
Base weight without Batteries	765 kg (1025 lb)
Rated capacity (on level ground)	545 kg (1200 lb) total—including a 90.7 kg (200 lbs) operator and a 90.7 kg (200 lbs) passenger, load, trailer tongue weight, gross trailer weight, accessories, and attachments
Maximum gross vehicle weight (GVW) (on level ground)	1270 kg (2800 lb) total—including all of the weights listed above
Maximum cargo capacity (on level ground)	362 kg (800 lb)* total—including trailer tongue weight and gross trailer weight
Tow capacity:	
Standard hitch	Tongue weight 23 kg (50 lb), Maximum trailer weight 182 kg (400 lb)
Heavy-duty hitch	Tongue weight 45 kg (100 lb), Maximum trailer weight 363 kg (800 lb)
Overall width	150 cm (59 inches)
Overall length	304 cm (120 inches)
Ground clearance	25 cm (10 inches) at the front with no load or operator, 18 cm (7 inches) at the rear with no load or operator
Wheel base	211 cm (83 inches)
Wheel tread (center line to center line)	125 cm (49 inches) in the front, 118 cm (46 inches) in the rear
Cargo box length	117 cm (46 inches) inside, 133 cm (52 inches) outside
Cargo box width	125 cm (49 inches) inside, 150 cm (59 inches) at the outside of the molded fenders
Cargo box height	25 cm (10 inches) inside

* Specifications listed are with Trojan T145 batteries.

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 Distributor or go to www.Toro.com for a list of all approved attachments and accessories.

Operation

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

Think Safety First

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

Performing the Pre-Start Checks

Each day, preform the following pre-start checks before using the machine:

- Check brake fluid levels, and add the specified brake fluids as needed; refer to Checking the Brake Fluid Level (page 20).
- Check the air pressure in the tires; refer to Checking the Tire Air Pressure (page 21).
- Check the brake pedal operation.
- Check to see that the lights are working.
- Turn the steering wheel to the left and right to check steering response.
- Check for loose parts and any other noticeable malfunctions. Make sure that the machine is off and all moving parts have stopped before checking for loose parts and other wear and damage.

If any of the above items are not correct, notify your mechanic or check with your supervisor before taking the machine out for the day. Your supervisor may want you to check other items on a daily basis, so ask what your responsibilities are.

Checking the Brake Fluid Level

Service Interval: Before each use or daily Check the brake-fluid level before the motor is first used.

Brake Fluid Type: DOT 3

1. Park the machine on a level surface, set the parking brake, rotate the On/Off switch to the Off position, and remove the key..
2. Remove the rubber plug in the center and on top of the dash to gain access to the master brake cylinder and reservoir (Figure 13).

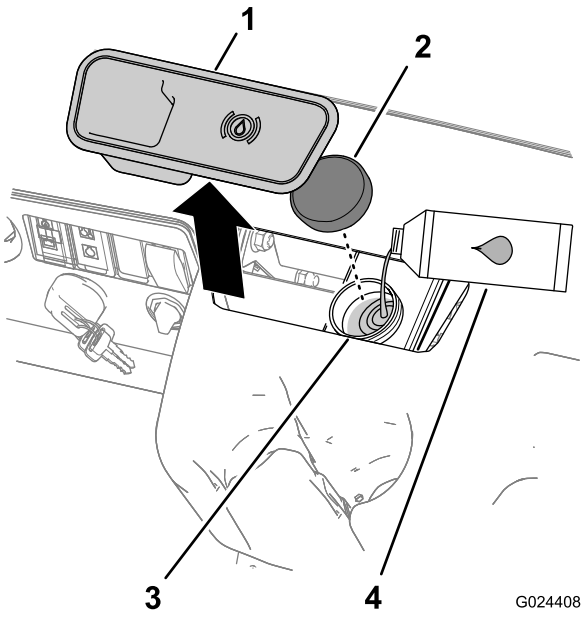


Figure 13

1. Rubber plug
2. Reservoir cap
3. Filler neck (reservoir)
4. DOT 3 brake fluid

3. Look at the outline of the fluid level at the side of the reservoir. (Figure 14).

   Note: The level should be above the Minimum line

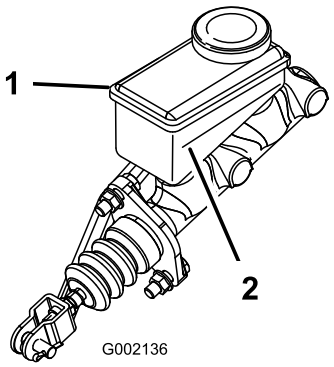


Figure 14

1. Brake-fluid reservoir
2. Minimum line

4. If the fluid level is low, perform the following:
   A. Clean the area around the reservoir cap, and remove the cap (Figure 13).
   B. Add DOT 3 brake fluid to the reservoir until the fluid level is above the Minimum line (Figure 14).

      Note: Do not overfill the reservoir with brake fluid.

   C. Install the reservoir cap (Figure 13).
5. Install the rubber plug in top of the dash (Figure 14).

Checking the Tire Air Pressure

Service Interval: Before each use or daily

Tire Air Pressure Range: 55 to 103 kPa (8 to 22 psi)

Important: Do not exceed the maximum air pressure indicated on the sidewall of the tire.

Note: The air pressure needed in the tires is determined by the payload that you intend to carry.

1. Check the air pressure in the tires.

   Note: The air pressure range in the front and rear tires is 55 to 103 kPa (8 to 22 psi).

   - Use lower air pressure in the tires for lighter payloads, for less the soil compaction, for a smoother the ride, and to minimize tire marks in the ground.
   - Use higher air pressure in the tires for carrying heavier payloads at higher speeds.

2. If needed, adjust the air pressure in the tires by adding or removing air in the tires.

Understanding and Using the Battery System

Understanding Deep-Cycle Batteries

The machine contains 8 deep cycle, lead-acid batteries which supply power to the motor and accessories. A deep-cycle battery is not the same as an automobile battery. An automobile battery is designed to provide a surge of power to start the machine and moderate power to run the lights and accessories when the motor if off or idling. The alternator then continuously charges as the automobile runs. As such, an automobile battery seldom drops below 90% of the maximum charge level.

A deep-cycle battery is designed to be a primary power source to provide a sustained output. Deep-cycle batteries are typically discharged as low as 20 to 30% of the maximum charge level. A discharge this low is considered a deep discharge.

Lead-acid batteries produce electricity through a chemical reaction between coated lead plates and sulfuric acid. Charging a battery reverses the chemical reaction, allowing the battery to once again produce electricity.

A battery is a perishable item that has a limited lifetime (Figure 15). When a battery is new, it requires a break-in period to establish efficient electrical production. This break in period usually requires 20 to 50 discharge/charge cycles.

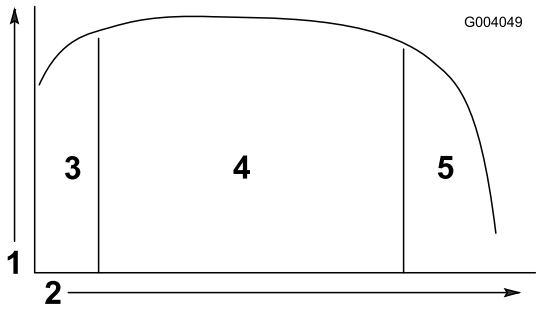


Figure 15
Battery-lifetime table

1. Battery capacity
2. Discharge/charge cycles
3. Break-in period (20 to 50 cycles)
4. Prime battery life
5. End of the battery life

After the break-in period, the battery will maintain a high capacity for many cycles. The number of cycles a battery will perform is dependant on the following:

- Battery maintenance—improper maintenance will severely reduce the life of the batteries.
- Depth of discharge between charge cycles—**the deeper the batteries are discharged on a regular basis between charges, the less life they will have.**

- Charge frequency—charge the batteries whenever they are not in use. **Fully discharging the batteries will damage them and reduce their life.**
- Low water levels—**if the lead plates become exposed, it may permanently damages the batteries.** Perform the following to maintain the electrolyte level:
  - Fill the batteries with distilled water every two weeks; refer to Adding Distilled Water to the Batteries. (page 33).
  - Before charging the batteries, fill the batteries with distilled water; refer to Charging the Batteries (page 33) and Adding Distilled Water to the Batteries. (page 33).

At the end of the battery life, the coating on the lead plates begins to deteriorate, causing the batteries to rapidly lose electric capacity.

Using the Battery System

When your batteries are fully charged, the battery meter will have 10 bars showing from left to right (Figure 16).

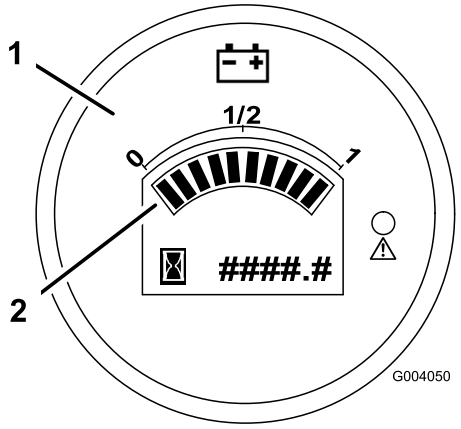


Figure 16

1. Battery/hour meter
2. Charge-indicator bars

As you use the machine, the bars will disappear as the electrical capacity of the batteries is used.

When only 2 bars are left, the red warning light on the meter will illuminate, and the battery icon will begin flashing on the screen (Figure 17). This indicates that the battery capacity is nearly drained and you should charge the batteries as soon as possible to prevent battery damage.

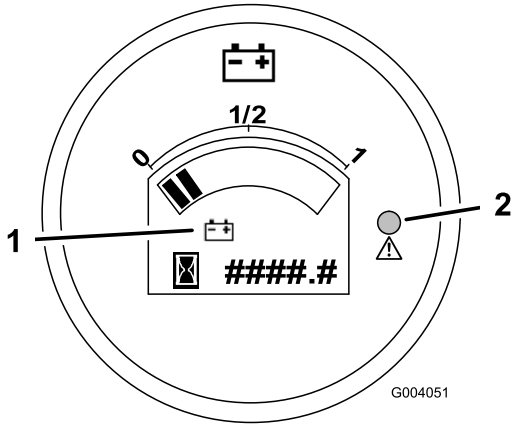


Figure 17

1. Battery icon
2. Warning light—On

When only one bar is left, the warning light will flash, and the machine will go into an energy-saving mode (Figure 18). In this mode, the machine will only drive at 3 mph. Charge the batteries immediately to prevent serious damage to them.

If the batteries become fully discharged, the machine will shut down. **Do not allow the batteries to become fully discharged.**

Important: To obtain maximum battery life, always charge the batteries when there are 2 or more bars visible on the screen. Depleting the batteries to lower than 2 bars, especially on a regular basis, will reduce the life of the batteries.

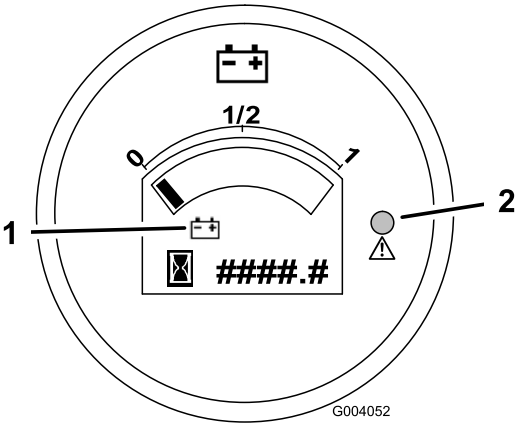


Figure 18

1. Battery icon
2. Warning light—flashing

Breaking in a New Machine

Important: Perform the following steps for the first 10 hours of machine operation:

- Avoid hard-braking situations for the first several hours of new machine break-in operation. New brake linings may not be at optimum performance until several hours of use has caused the brakes to become burnished (broken-in).
- Refer to Maintaining the Machine under Special Operating Conditions (page 28) for any special low-hour checks.
- Check the front suspension positioning and adjust it if necessary.

Operating the Machine

1. Disconnect the battery charger.
2. Sit in the operator's seat, insert the key into the On/Off switch, and rotate the key clockwise to the On position.
3. Move the machine-direction switch to the desired position.

   Note: If you move the directional switch to the Reverse position while the On/Off switch is in the On position, a buzzer sounds to warn you that the machine is set to move in the reverse direction.
4. Release the parking brake.
5. Slowly step on the accelerator pedal to drive the machine.

Stopping the Machine

Important: When stopping the machine on an incline, use the service brakes to stop the machine and set the parking brake to hold the machine in place. Using the accelerator to stall the machine on the hill can damage the machine.

1. Remove your foot from the accelerator pedal; refer to Accelerator Pedal (page 16).
2. Slowly press the brake pedal to apply the service brakes until the machine comes to a complete stop; refer to Brake Pedal (page 16).

   Note: The stopping distance may vary depending on the machine load and speed.

Parking the Machine

1. Stop the machine using the service brakes by pressing and holding the brake pedal; refer to Brake Pedal (page 16).
2. Set the parking brake by pulling up the parking-brake lever; refer to Parking Brake (page 16).
3. Rotate the key for the On/Off switch counterclockwise to the Off position; refer to On/Off Switch (page 17).
4. Remove the key from the On/Off switch.

Operating the Cargo Box

Raising the Cargo Box

⚠ WARNING

Driving the machine with the cargo box raised may cause the machine to tip or roll easier. The box structure may become damaged if you operate the machine with the box raised.

- **Only operate the machine when the cargo box is down.**
- **After emptying the cargo box, lower it.**

⚠ CAUTION

If a load is concentrated near the back of the cargo box when you release the latches, the box may unexpectedly tip open injuring you or bystanders.

- **Center loads in the cargo box if possible.**
- **Hold the cargo box down and ensure that no one is leaning over the box or standing behind it when releasing the latches.**
- **Remove all cargo from the box before lifting the box up to service the machine.**

1. Lift the latch lever that is at the either side near the forward corner of the cargo box, and lift the box up (Figure 19).
2. Secure the cargo box by pulling the prop rod into the rear detent at end of the slot that is in the left frame of the machine (Figure 19).

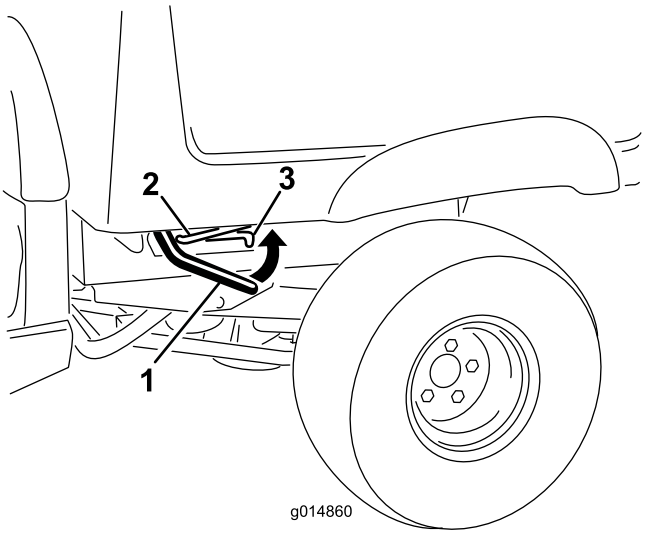


Figure 19

1. Latch lever
2. Prop rod
3. Detent slot

Lowering the Cargo Box

⚠ WARNING

The weight of the box may be heavy. Hands or other body parts could be crushed.

Keep hands and other body parts clear when lowering the box.

1. Raise the cargo box slightly by lifting up on the latch lever (Figure 19).
2. Pull the prop rod out of the detent slot (Figure 19).
3. Lower the box until it latches into securely (Figure 19).

Opening the Tailgate

1. Ensure that the cargo box is down and latched.
2. Lift up on the finger pulls at the back panel of the tail gate (Figure 20).

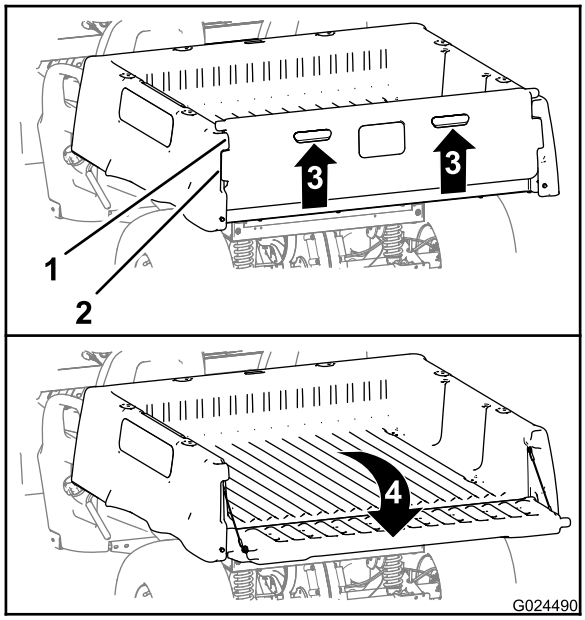


Figure 20

1. Tailgate flange (cargo box)
2. Lock flange (tailgate)
3. Lift up (finger pull)
4. Rotate rearward and down

3. Align the lock flanges of the tailgate with the openings between the tailgate flanges of the cargo box (Figure 20).
4. Rotate the tail gate rearward and down (Figure 20).

Closing the Tailgate

If you unloaded loose material such as sand, landscaping rock, or wood chips from the cargo box of the machine, some the material that you unloaded may have lodged in the hinge area of the tailgate. Perform the following before closing the tailgate.

1. Use your hands to remove as much of the material from the hinge area as possible.
2. Rotate the tailgate to approximately 45° position (Figure 21).

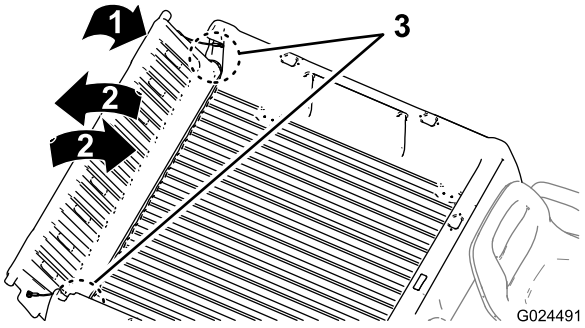


Figure 21

3. Use a short, shaking motion to rotate the tailgate back and forth several times (Figure 21).

   Note: This action will help move material away from the hinge area

4. Lower the tailgate and check for material remaining in the hinge area.
5. Repeat steps 1 through 4 until the material is removed from the hinge area.
6. Rotate the tailgate up and forward until the lock flanges of the tailgate are flush with the tailgate pocket in the cargo box (Figure 20).

   Note: Raise or lower the tailgate in order to align the lock flanges of the tailgate with the vertical openings between the tailgate flanges of the cargo box.

7. Lower the tailgate until it is seated in the back of the cargo box (Figure 20).

   Note: The lock flanges of the tailgate will be fully secured by the tailgate flanges of the cargo box.

Loading the Cargo Box

- Observe the weight capacity of the machine and limit the weight of the load that you carry in the cargo box as described in Specifications (page 19) and on the gross vehicle weight tag of the machine (Figure 22).

  Note: Note : The load rating is specified for machine operation on a level surface only.

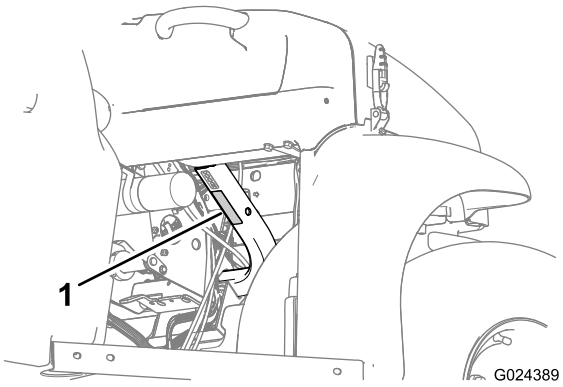


Figure 22

1. Gross machine weight decal

- Reduce the weight of the load that you carry in the cargo box when operating the machine on hills and rough terrain.
- Reduce the weight of the load that you carry when the materials are tall (and have a high center of gravity) such as a stack of bricks, landscaping timbers, or fertilizer bags. Distribute the load as low as possible, making sure that the load does not reduce your ability to see behind the machine when operating it.
- Keep loads centered by loading the cargo box as follows:
  - Evenly position the weight in the cargo box from side to side.

    Important: Tipping over is more likely to occur if the cargo box is loaded to one side.

  - Evenly position the weight in the cargo box from front to back.

    Important: Loss of steering control or the machine may tip over if you position the load behind the rear axle and the traction on the front tires is reduced.
- Use extra caution when transporting oversized loads in the cargo box, particularly when you cannot center the wight of the oversize load to the cargo box
- Whenever possible, secure the load by binding it to the cargo box so it does not shift.
- When transporting liquid in a large tank (such as a sprayer tank), use caution when driving the machine up hill or down hill, when suddenly changing speed or stopping, or when driving over tough surfaces.

The capacity of the cargo box is 0.37 m^3 (13 ft^3). The amount (volume) of material that can be placed in the box without exceeding the machine-load ratings can vary greatly depending on the density of the material. For example, a level box of wet sand weighs 680 kg (1500 lb), which greatly exceeds the load rating.

See the table below for load volume limits with various materials:

Material	Density	Maximum cargo box capacity (on level ground)
Gravel, dry	1522 kg/m^3 (95 lb/ft^3)	1/2 Full
Gravel, wet	1922 kg/m^3 (120 lb/ft^3)	1/3 Full
Sand, dry	1442 kg/m^3 (90 lb/ft^3)	1/2 Full
Sand, wet	1922 kg/m^3 (120 lb/ft^3)	1/3 Full
Wood	721 kg/m^3 (45 lb/ft^3)	Full
Bark	721 kg/m^3 (45 lb/ft^3)	Full
Earth, packed	1602 kg/m^3 (100 lb/ft^3)	1/2 Full

Transporting the Machine

For moving the machine long distances, a trailer should be used. Make sure that the machine is secured to the trailer. Refer to Figure 23 and Figure 24 for the location of the tie-down points.

⚠ CAUTION

Loose seats may fall off of the vehicle and trailer when transporting the machine, and the seats may land on another vehicle or obstruct the roadway.

Remove the seats or make sure that the seats are securely fastened to the coupling in the seat shroud.

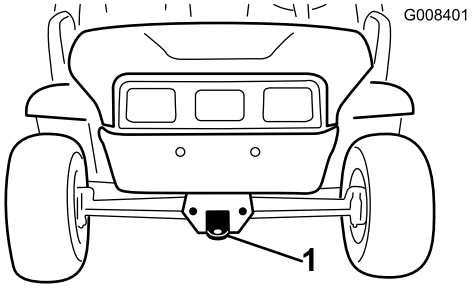


Figure 23

1. Towing tongue and tie down point (front of the machine)

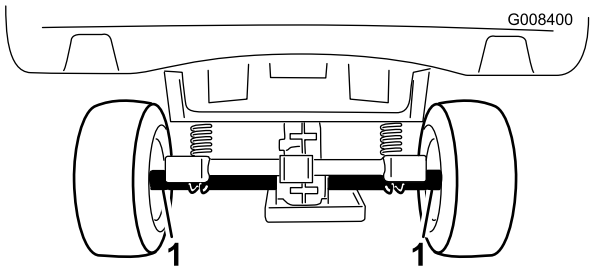


Figure 24

1. Rear axle tie-down points (back of the machine)

Towing the Machine

In case of an emergency, the machine can be towed for a short distance. However, we do not recommend this as a standard procedure.

⚠ WARNING

Towing at excessive speeds could cause a loss of steering control, resulting in personal injury.

Never tow the machine at faster than 8 km/h (5 mph).

Towing the machine is a 2-person job. If the machine must be moved a considerable distance, transport it on a truck or trailer; refer to Transporting the Machine (page 26).

1. Turn off the On/Off switch and remove the key.

   Important: If you tow the machine with the key in the On position, the electrical system may be damaged.

2. Affix a tow line to the tongue on the front of the frame (Figure 23).
3. Release the parking brake.

Towing a Trailer

The machine is capable of pulling trailers. 2 types of tow hitches are available for the machine, depending on your application. Contact your Authorized Toro Distributor for details.

When hauling cargo or towing a trailer, do not overload your machine or trailer. Overloading can cause poor performance or damage to the brakes, axle, motor, transaxle, steering, suspension, body structure, or tires. Always load a trailer with 60% of the cargo weight in the front of the trailer. This places approximately 10% of the Gross Trailer Weight (GTW) on the tow hitch of the machine.

The maximum cargo load shall not exceed 362 kg (800 lb), including the GTW. For example, if the GTW is 90 kg (200 lb) then the maximum cargo load is 272 kg (600 lb).

To provide adequate braking and traction, always load the cargo box when towing a trailer. Do not exceed the GTW or GVW limits.

Avoid parking a machine with a trailer on a hill. If you must park on a hill, set the parking brake and block the trailer tires.

Maintenance

Note: Looking for an *Electrical Schematic* or *Hydraulic Schematic* for your machine? Download a free copy of the schematic by visiting www.Toro.com and searching for your machine from the Manuals link on the home page.

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

Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
Before each use or daily	• Check the brake-fluid level. • Check the tire pressure. • Charge the batteries.
Every 25 hours	• Clean the batteries. • Add distilled water to the batteries
Every 100 hours	• Grease the bearings and bushings. • Check the condition of the tires and rims. • Torque the wheel-lug nuts. • Check the front wheel toe-in and camber. • Check the transaxle-oil level. • Inspect the brakes.
Every 200 hours	• Adjust the parking brake if needed.
Every 300 hours	• Grease the front wheel bearings.
Every 800 hours	• Change the transaxle oil.

Daily Maintenance Checklist

Duplicate this page for routine use.

Maintenance Check Item	For the week of:						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Check the brake and parking brake and adjust as needed.							
Check unusual operating noises.							
Check the tire pressure.							
Check for fluid leaks.							
Check the instrument operation.							
Check the accelerator operation.							
Lubricate all grease fittings.							
Touch up any damaged paint.							

⚠ WARNING

The bed must be raised to perform some routine maintenance.

A raised bed can fall and injure persons that are underneath it.

- **Always use the prop rod to hold the bed up before working under it.**
- **Remove any load material from the bed before working under it.**

⚠ CAUTION

If you leave the key in the On/Off switch, someone could accidently start the machine and seriously injure you or other bystanders.

Remove the key from the On/Off switch and disconnect a battery cable before you do any maintenance.

Premaintenance Procedures

Maintaining the Machine under Special Operating Conditions

If the machine is subjected to any of the conditions listed below, maintenance should be performed twice as frequently.

- Desert operation
- Cold climate operation—below 10° C (50° F)
- Trailer towing
- After extended operation in mud, sand, water, or similar dirty conditions, have your brakes inspected and cleaned as soon as possible. This will prevent any abrasive material from causing excessive wear.

Preparing to Maintain the Machine

1. Park the machine on a level surface.
2. Set the parking brake, rotate the On/Off switch to the Off position, and remove the key.

Lifting the Machine

⚠ DANGER

The machine may be unstable when using a jack. It could slip off the jack, injuring anyone beneath it.

- **Do not run the motor while the machine is on a jack.**
- **Always remove the key from the On/Off switch before getting off of the machine.**
- **Block the tires when the machine is supported by lifting equipment.**
- **Use jack stands to support the machine once you have lifted the it.**

Important: Whenever the machine is run for routine maintenance and/or motor diagnostics, the rear wheels of the machine should be 25 mm (1 inch) off the ground with the rear axle supported on jack stands.

- The lifting point at the front of the machine is on the front of the frame behind the towing tongue (Figure 25).

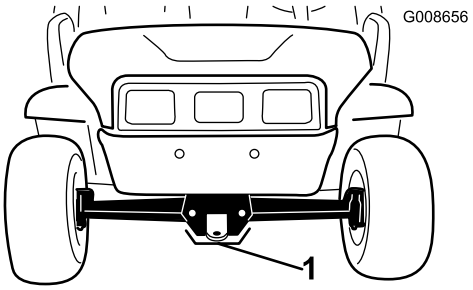


Figure 25

1. Front jacking point

- The lifting point at the rear of the machine is under the axle tubes (Figure 26).

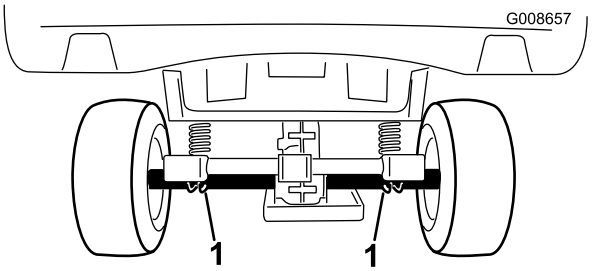


Figure 26

1. Rear jacking points

Accessing the Hood

Raising the hood

1. Lift up the handle of the rubber latches at each side of the hood (Figure 27).

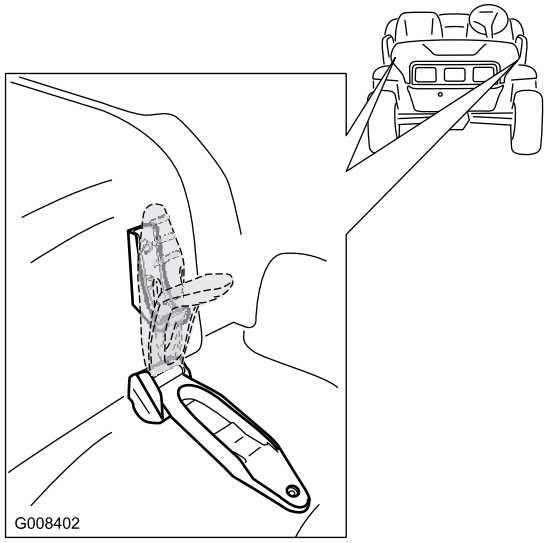


Figure 27

2. Raise the hood.

Closing the Hood

1. Gently lower the hood onto the chassis.
2. Secure the hood by aligning the rubber latches onto the latch anchors at each side of the hood (Figure 27).

Lubrication

Greasing the Machine

Service Interval: Every 100 hours/Yearly (whichever comes first)—Grease the bearings and bushings. Grease the machine more frequently when using it for heavy-duty operations.

Grease Type: Number 2 general-purpose, lithium-base grease

1. Use a rag to wipe the grease fitting clean so that foreign matter cannot be forced into the bearing or bushing.
2. With a grease gun, apply 1 or 2 pumps of grease into the grease fittings on the machine.
3. Wipe the excess grease off the machine.

The grease fittings are located at the 4 tie-rod ends (Figure 28) and the 2 king pins (Figure 29).

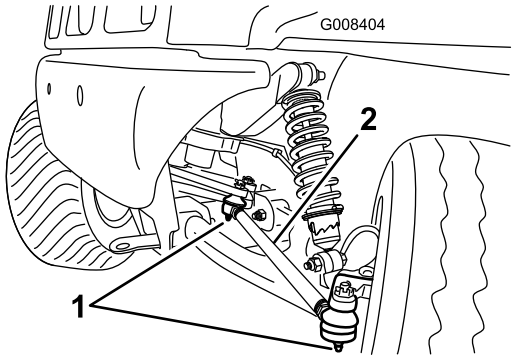


Figure 28
Left side shown

1. Grease fitting
2. Tie rod

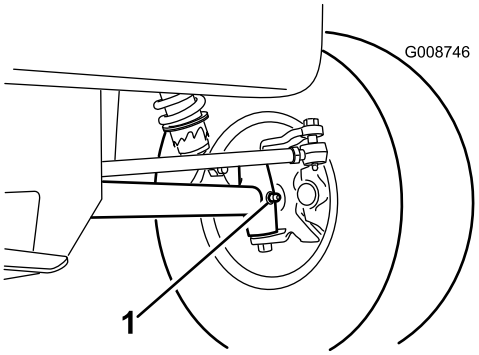


Figure 29
Left side shown

1. Grease fitting (king pin)

Greasing the Front Wheel Bearings

Service Interval: Every 300 hours

Grease specification: Mobilgrease XHP™-222

Removing the Hub and Rotor

1. Lift the front of the machine and support it with jack stands.
2. Remove the 5 lug nuts that secure the wheel to the hub (Figure 30).

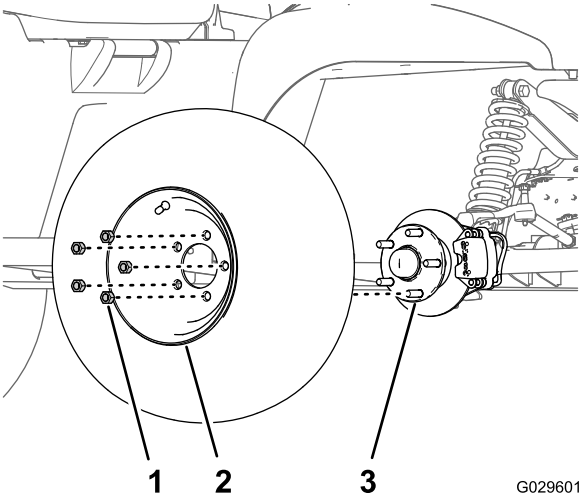


Figure 30

1. Lug nut
2. Wheel
3. Hub

3. Remove the flange-head bolts (3/8 x 1 inch) that secure the bracket for the brake assembly to the spindle and separate the brake from the spindle (Figure 31).

   Note: Support the brake assembly before proceeding to the next step.

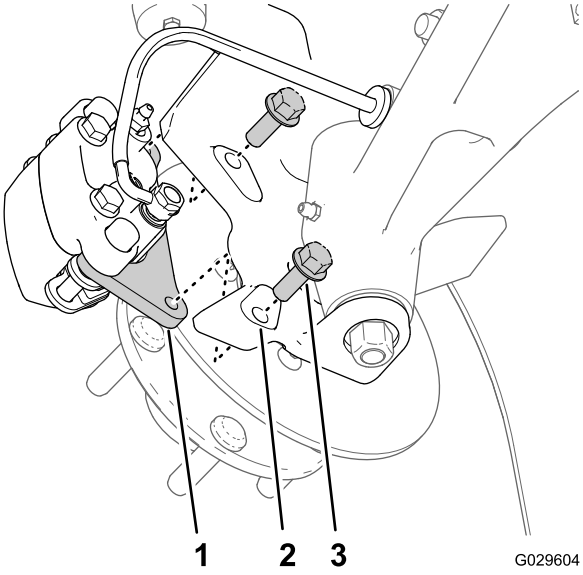


Figure 31

1. Caliper bracket (brake assembly)
2. Spindle
3. Flange-head bolts (3/8 x 1 inch)

4. Remove the dust cap from the hub (Figure 32).

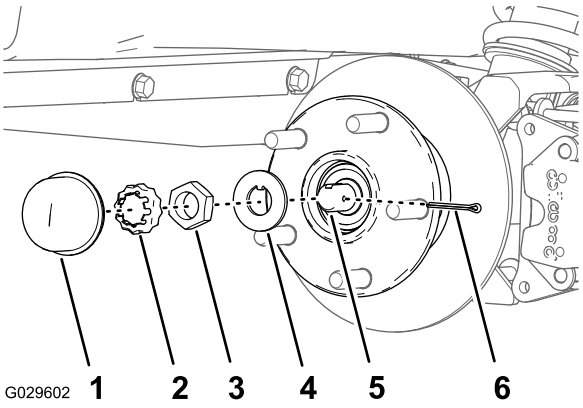


Figure 32

1. Dust cap
2. Nut retainer
3. Spindle nut
4. Tab washer
5. Spindle
6. Cotter pin

5. Remove the cotter pin and hut retainer from the spindle and spindle nut (Figure 32).
6. Remove the spindle nut from the spindle, and separate the hub and rotor assembly from the spindle (Figure 32 and Figure 33).

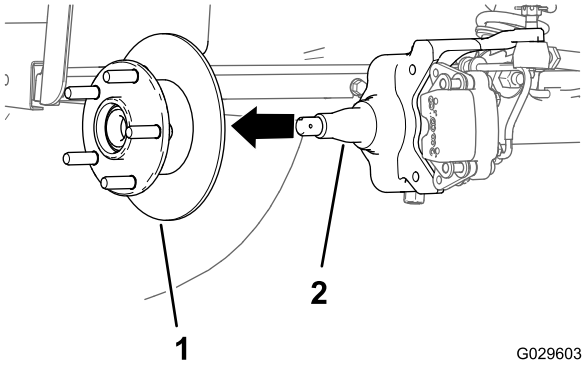


Figure 33

1. Hub and rotor assembly
2. Spindle

7. Wipe clean the spindle with a rag.
8. Repeat steps 1 through 7 to the hub and rotor at the other side of the machine.

Greasing the Wheel Bearings

1. Remove the outboard bearing and bearing race from the hub (Figure 34).

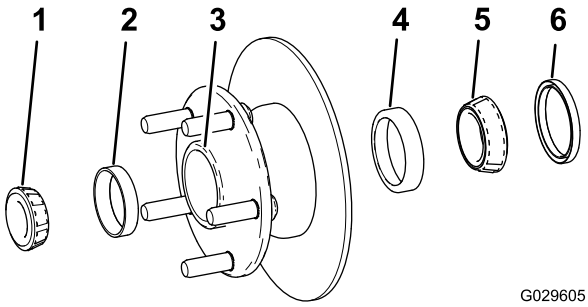


Figure 34

1. Outboard bearing
2. Outboard-bearing race
3. Bearing cavity (hub)
4. Inboard-bearing race
5. Inboard bearing
6. Seal

2. Remove the seal, inboard bearing and bearing race from the hub (Figure 34).
3. Wipe clean the seal and check for wear and damage.

   Note: Do not use cleaning solvent to clean the seal. Replace the seal if it is worn or damaged.
4. Clean the bearings and races, and check these parts for wear and damage.

   Note: Replace all worn or damaged parts. Ensure that the bearings and races are clean and dry.
5. Clean the cavity of the hub of all grease, dirt, and debris (Figure 34).
6. Pack the bearings with the specified grease.
7. Install the inboard and outboard bearing races into the hub (Figure 34).

   Note: Ensure that the races are fully seated in the bores of the hub.
8. Fill the cavity of hub 50 to 80% full of the specified grease (Figure 34).
9. Assemble the inboard bearing onto the race at the inboard side of the hub and install the seal (Figure 34).
10. Repeat steps 1 through 9 to the bearings for the other hub.

Installing the Hub and Rotor

1. Apply a light coat of the specified grease to the spindle (Figure 35).

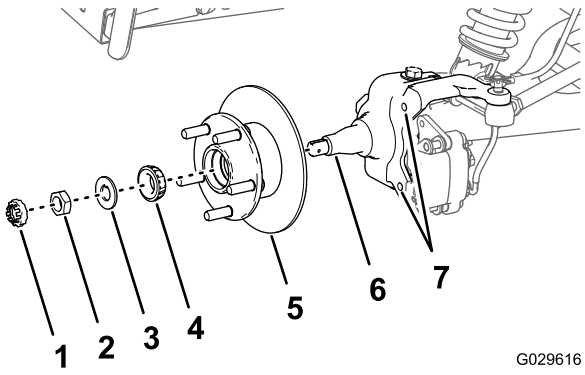


Figure 35

1. Retainer
2. Spindle nut
3. Tab washer
4. Outer bearing
5. Hub, rotor, inner bearing, race, and seal
6. Spindle
7. Holes (brake mount of the spindle frame)

2. Assemble the hub and rotor onto the spindle with the rotor inboard (Figure 35).
3. Assemble the outboard bearing onto the spindle and seat the bearing to the outboard race (Figure 35).
4. Assemble the tab washer onto the spindle (Figure 35).
5. Thread the spindle nut onto the spindle and tighten the nut while rotating the hub (Figure 35).

   Note: Tighten the nut and rotate the spindle until the bearings are fully seated and the hub has no linear-end movement.
6. Loosen the spindle nut until the hub rotates freely.
7. Torque the spindle nut to 170 N-cm (15 in-lb) while rotating the hub.
8. Install the retainer over the nut and check the alignment of the slot in the retainer and the hole in the spindle for the cotter pin (Figure 36).

   Note: If the slot in the retainer and the hole in the spindle are not aligned, tighten the spindle nut to align the slot and hole to a maximum torque of 226 N-cm (20 in-lb) on the nut.

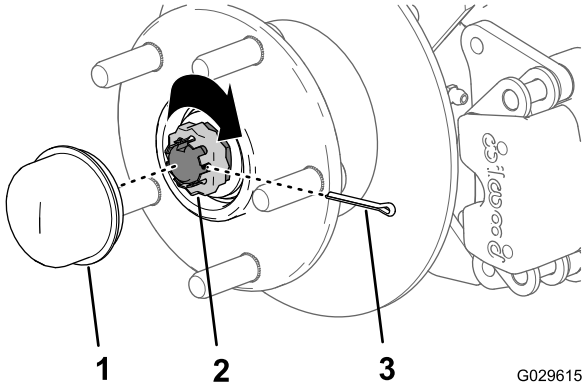


Figure 36

1. Dust cap
2. Nut retainer
3. Cotter pin

9. Install the cotter pin and bend each legs around the retainer (Figure 36).
10. Install the dust cap onto the hub (Figure 36).
11. Repeat steps 1 through 10 for the hub and rotor at the other side of the machine.

Installing the Brakes and Wheels

1. Clean the 2 flange-head bolts (3/8 x 1 inch) and apply a coat for anti-seize compound to the threads of the bolts.
2. Align the brake pads to either side of the rotor (Figure 31) and the holes in the caliper bracket with the holes in the brake mount of the spindle frame (Figure 35).
3. Assemble caliper bracket to the spindle frame (Figure 31) with the 2 flange-head bolts (3/8 x 1 inch), and torque the bolts 47 to 54 N-cm (35 to 40 ft-lb).
4. Align the holes in the wheel to the studs of the hub and assemble the wheel to the hub with the valve stem outward (Figure 30).

   Note: Ensure the mounting surface of the wheel is flush with the hub.
5. Secure the wheel to the hub with the lug nuts (Figure 30), and torque the nuts to 108 to 122 N-m (80 to 90 ft-lb).
6. Repeat steps 1 through 5 for the brake and wheel at the other side of the machine.

Electrical System Maintenance

Maintaining the Batteries

⚠ 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.

⚠ WARNING

Battery terminals or metal tools could short against metal 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.**
- **Always keep the battery retainers in place to protect and secure the batteries.**

Cleaning the Batteries

Service Interval: Every 25 hours

1. Ensure that all of the battery caps are tight.
2. Use a paper towel to clean the batteries.
3. If the battery terminals are corroded, clean them with a solution of 4 parts water and one part baking soda. Also, clean the posts and cable clamps with a post and clamp cleaner.

   Note: The posts and clamps should have a bright metallic shine.
4. Apply a light coating of Toro battery-terminal protector.

Charging the Batteries

Service Interval: Before each use or daily

A charger is supplied with the machine. Always keep the charger in a dry location. For maximum battery life, charge the batteries whenever you are not using the machine. Depending on how discharged the batteries are, it may take up to 16 hours to charge the batteries to full capacity.

Important: Lead-acid batteries do not develop a charge memory and do not need to be fully discharged before charging them. *Fully discharging the batteries may damage them.* Charge the batteries any time the machine is not in use.

⚠ WARNING

Charging the battery produces gasses that can explode.

Never smoke near the batteries and keep sparks and flames away from them.

1. Position the machine in a well-ventilated area near a suitable power outlet.
2. Check the electrolyte level of the batteries.

   Note: Add distilled water to the batteries as needed; refer to Adding Distilled Water to the Batteries. (page 33).
3. Connect the charger cord to the charging receptacle on the machine (located on the panel between the seats).

   Note: Ensure that the charger voltage setting matches the voltage at the power outlet being used.
4. Plug the charger power cord into the power outlet.

   Note: While the batteries are charging, the green light on the charger will blink on and off. When the batteries are fully charged, the green light stops blinking and stays on.
5. Disconnect the cord from the power outlet.
6. Disconnect the charger from the machine.

Important: Do not carry the charger on the machine. Excessive or prolonged jarring may damage it.

Adding Distilled Water to the Batteries.

Service Interval: Every 25 hours/Every 2 weeks (whichever comes first)

Use only clean, distilled water to fill the batteries.

1. Raise the cargo bed, turn the key off, and remove it.
2. Remove the filler caps from each battery.
3. If the electrolyte is not over the top of the plates in each battery cell, add just enough distilled water to cover the plates.
4. Replace the filler caps on all batteries.
5. Charge the batteries until a full charge is achieved; refer to Charging the Batteries (page 33).
6. Once the batteries are fully charged, remove the filler caps from each battery.
7. Add just enough distilled water to bring the electrolyte level to 3 mm (1/8 inch) below the bottom of each fill well (Figure 37).

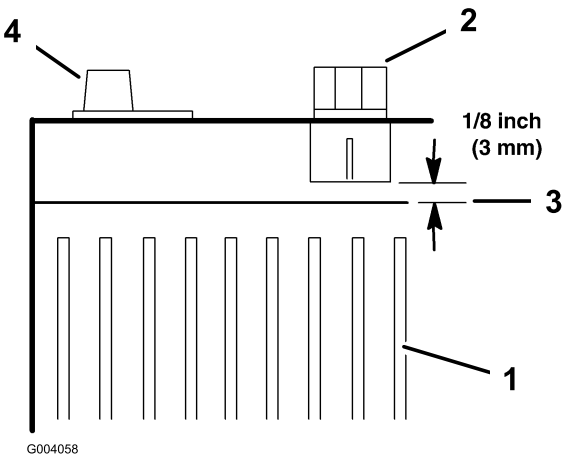


Figure 37

1. Battery plates
2. Filler cap
3. Electrolyte level
4. Battery terminal

Important: Do not overfill the battery. Electrolyte will overflow onto other parts of the machine and severe corrosion and deterioration may result. Also, overfilling the battery will reduce the life of the battery.

8. Replace the filler caps on all batteries.

Changing the Batteries

When the machine begins to lose operating range or when the length of time to discharge or charge the battery is significantly reduced, the batteries are probably wearing and losing their ability to hold a charge. Take the machine to an Authorized Service Dealer and have them test the batteries to determine whether the batteries need to be replaced. The dealer can then replace the batteries for you. If you wish to replace the batteries yourself, use the following procedures:

Disconnecting the Batteries

1. Raise the cargo bed, turn the KEY SWITCH to the OFF position, and remove the key.
2. Disconnect the main negative-battery cable (black) that connects the bank of batteries to the ground point of the machine (Figure 38).

   Note: The main battery cables are long when compared to battery-interconnect cables.

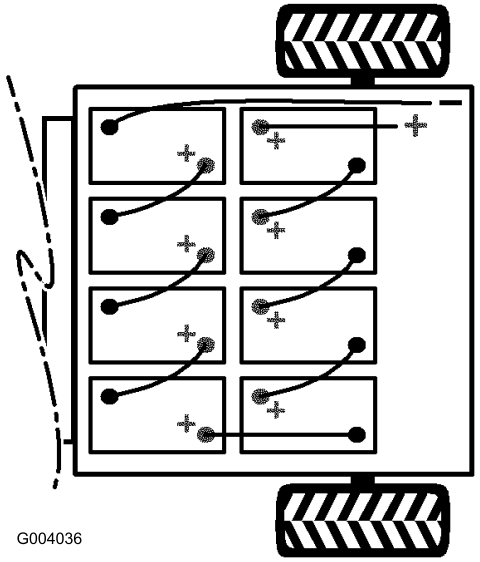


Figure 38

3. Disconnect the main positive-battery cable (red) that connects the bank of batteries to the main fuse of the machine (Figure 38).

Replacing the Batteries

1. Remove all of the battery-interconnect cables from the batteries.
2. Remove the battery retainers located between the batteries.
3. Remove all of the batteries and recycle them according to your local codes.
4. Assemble new batteries into the machine at the locations from where you removed batteries in step 3.

   Note: Pay attention to the battery polarity when installing the new batteries (Figure 38).
5. Install the battery retainers and torque the nuts to 17 to 22 N-m (150 to 200 in-lb).
6. Connect the batteries together as shown in Figure 38 with the battery-interconnect cables that you removed in step 1.

Connecting the Batteries

1. Connect the main positive-battery cable (red) that between the bank of batteries and the machine (Figure 38).
2. Connect the main negative-battery cable (black) between the bank of batteries and the machine (Figure 38).
3. Torque the nuts securing all of the battery cables to 13.5 to 21 N-m (120 to 180 in-lb).
4. Coat the battery terminals with Toro battery-terminal protector.
5. Ensure that the rubber boots on each battery cable are securely seated over the battery terminals.
6. Insert the key into the KEY SWITCH and rotate the switch to the ON position.
7. Lower the cargo box, rotate the KEY SWITCH to the OFF position, and remove the key.

Storing the Batteries

Charge the batteries fully before placing the machine into storage. Plug the charger into a wall outlet while the machine and batteries are in storage. Leave the charger plugged into a wall outlet and charging receptacle during storage to ensure that the batteries stay charged and do not freeze; otherwise, charge the batteries at least once every 3 months.

Replacing the Fuses

There are 2 fuses in the electrical system. They are located beneath the dash on the driver's side (Figure 39).

Open	10 A
Power Point	10 A
Lights and Horn	10 A

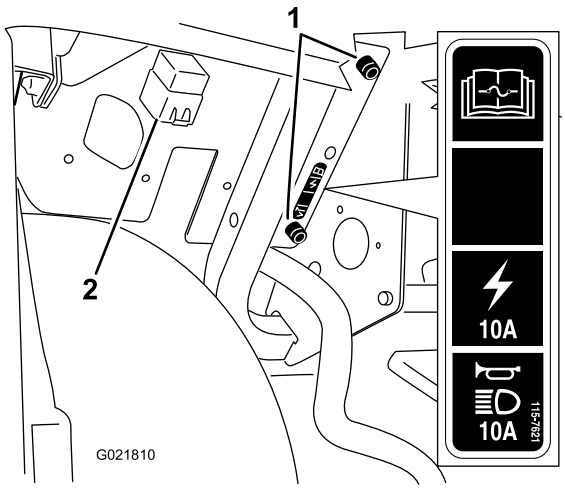


Figure 39

1. Machine fuse holder
2. Relay

Maintaining the Headlights

Replacing the Bulbs

⚠ CAUTION

The halogen bulbs become extremely hot when in operation. Handling a hot bulb can cause severe burns and personal injury.

Always all enough time to for the bulbs to cool before replacing them. Use care whenever handling the bulb.

⚠ CAUTION

Any surface contamination can damage the headlight bulb and leading to its failure or explosion creating a serious safety hazard.

Head light lamps should be handled without touching the clear quartz, either by using a clean paper towel or carefully holding the base.

Specification: See your *Parts Catalog*.

1. Disconnect the battery; refer to Disconnecting the Batteries (page 33).
2. Open the hood; refer to Raising the hood (page 29).
3. Disconnect the electrical connector for the harness from the connector of the lamp assembly at the back of the headlight housing (Figure 40).

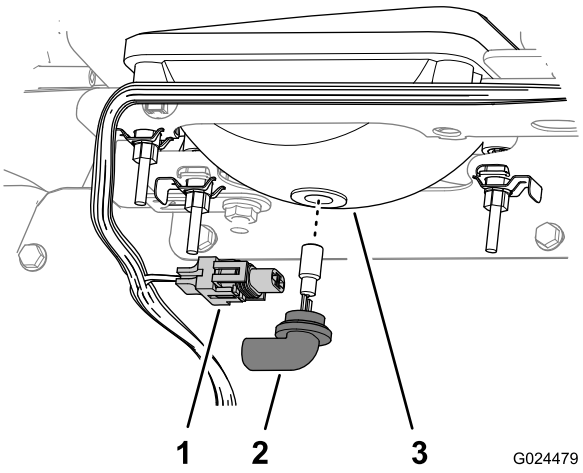


Figure 40

1. Harness-electrical connector
2. Lamp assembly
3. Headlight housing

4. Rotate the lamp assembly 1/4 turn counterclockwise and moving it rearward, out of the headlight housing (Figure 40).
5. Insert the new lamp assembly and headlight housing and align the tabs in the lamp assembly with the slots in the headlight housing (Figure 40).

   Note: Take care not to touch the halogen lamp when installing the new light bulb.
6. Secure lamp assembly by turning it 1/4 turn clockwise (Figure 40).
7. Connect the electrical connector for the harness to the connector of the new lamp assembly (Figure 40).
8. Connect the battery and close the hood; refer to Connecting the Batteries (page 34).

Replacing the Headlight

1. Disconnect the battery; refer to Disconnecting the Batteries (page 33).
2. Open the hood; refer to Closing the Hood (page 29).
3. Disconnect the electrical connector for the harness from the connector of the lamp assembly (Figure 41).

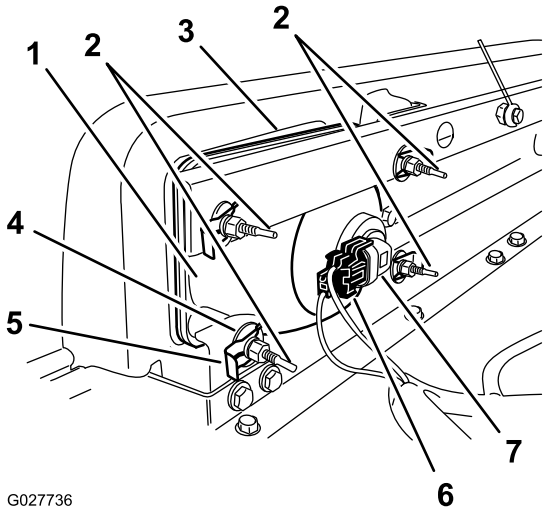


Figure 41

1. Headlight
2. Adjustment screw
3. Opening in the bumper
4. Flat washer
5. Speed clip
6. Harness-electrical connector
7. Lamp assembly

4. Remove the speed clips and washers that secure the headlight to the headlight bracket (Figure 41).

   Note: Retain all parts for installation of the new headlight.
5. Remove the headlight assembly by moving it forward through the opening in the front bumper (Figure 41).
6. Install the new headlight through the opening in the bumper (Figure 41).

   Note: Ensure the adjustment posts are lined up with the holes in the mounting bracket behind the bumper.

7. Secure the headlight assembly with the washers and speed clips that you removed in step 4.
8. Connect the electrical connector for the harness to the connector of the lamp assembly (Figure 41).
9. Adjust the headlights to direct the beams to the desired position, refer to Adjusting the Headlights (page 36).

Adjusting the Headlights

Use the following procedure to adjust the headlight beam position whenever a headlight assembly is replaced or removed.

1. Turn the key for the On/Off switch to the On position, and turn on the headlights.
2. At the back of the headlight assembly, rotate adjustment screws (Figure 41) to pivot the headlight assembly and align the position of the cast beam.
3. Connect the battery and close the hood; refer to Connecting the Batteries (page 34) and Closing the Hood (page 29).

Drive System Maintenance

Maintaining the Tires

Service Interval: Every 100 hours—Check the condition of the tires and rims.

Every 100 hours—Torque the wheel-lug nuts.

1. Inspect the tires an rims for signs of wear and damage.

   Note: Operating accidents, such as hitting curbs, can damage a tire or rim and also disrupt wheel alignment, so inspect tire condition after an accident.

2. Torque the wheel-lug nuts to 61 to 88 N-m (45 to 65 ft-lb).

Adjusting the Front Wheel Toe-in and Camber

Service Interval: Every 100 hours/Yearly (whichever comes first)—Check the front wheel toe-in and camber.

Important: You will need to obtain tool number Toro 6010 from your Toro Distributor to perform this procedure.

The toe-in should be 0 to 6 mm (0 to 1/4 inch) and the camber should be 0+1/2 degree, i.e., the bottom of the wheel rims angled in 2.3 mm (0.09 inch) more than the top, with the following parameters:

- Check the tire pressure to ensure that the front tires are inflated to 82 kPa (12 psi).
- Either, add weight to the driver's seat equal to the average operator who will run the machine, or have an operator sit on the seat. The weight or operator must remain on the seat for the duration of the procedure.
- On a level surface, roll the machine straight back 2 to 3 m (6 to 10 ft) and then straight forward to the original starting position. This will allow the suspension to settle into the operating position.
- Measure the toe-in with the wheels facing straight ahead.

1. To check the camber, place a 90 degree square on the ground with the vertical edge touching the face of the tire (Figure 42).

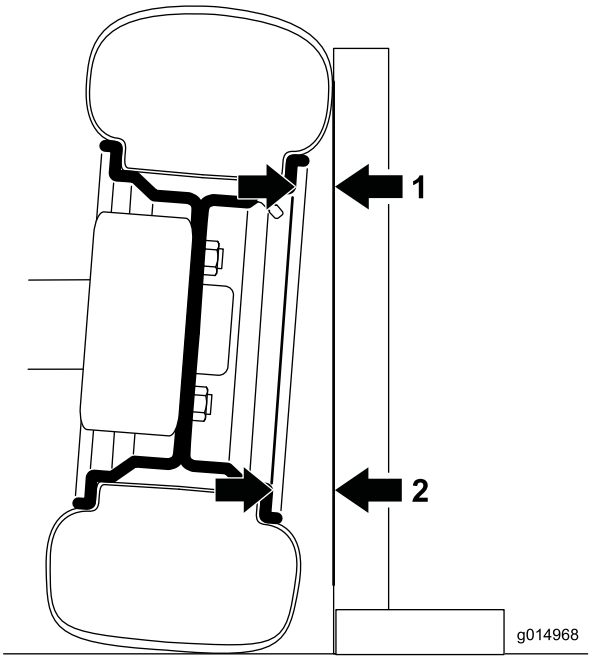


Figure 42

Left, front wheel shown from the front; the angle is exaggerated for illustrative purposes

1. Measure here
2. Measure here—should be 2.3 mm (0.09 inch) larger than the measurement at 1

2. Measure from the same part of the rim on the top and bottom of the tire to the square (Figure 42).

   Note: The distance of the bottom measurement should be 2.3 mm (0.09 inch) larger than the top measurement. Complete the measurement on both front tires before adjusting.

   Complete the following procedure for each tire that needs adjusting:

3. Using tool Toro 6010, rotate the collar on the shock absorber to change the length of the spring (Figure 43).

   - If the bottom measurement was too short, reduce the length of the spring.
   - If the bottom measurement was too long, increase the length of the spring.

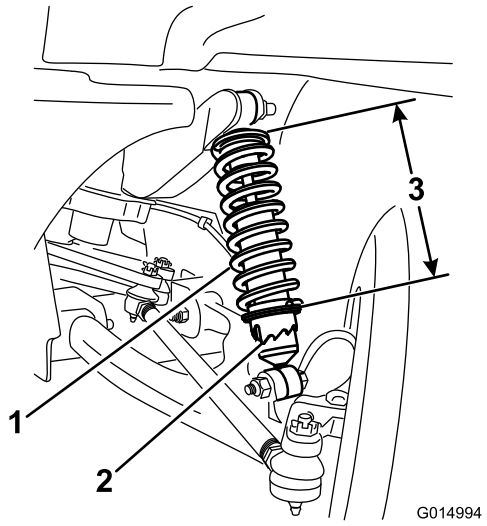


Figure 43

1. Shock-absorber spring
2. Collar
3. Spring length

4. On a level surface, roll the machine straight back 2 to 3 m (6 to 10 ft) and then straight forward to the original starting position.
5. Repeat this procedure, starting with step 1 until the camber is set correctly for both front wheels.
6. Measure the distance between both of the front tires at the axle height at both the front and rear of the front tires (Figure 44).

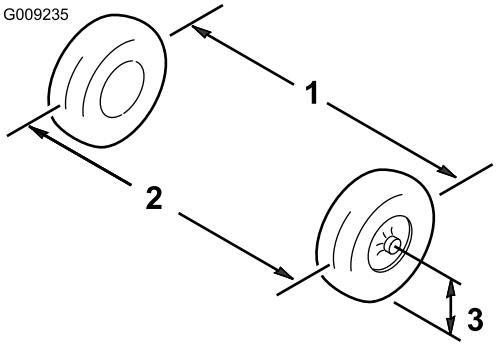


Figure 44

1. Tire center line—back
2. Tire center line—front
3. Axle center line

7. If the measurement does not fall within 0 to 6 mm (0 to 1/4 inch), loosen the jam nuts at both ends of the tie rods (Figure 45).

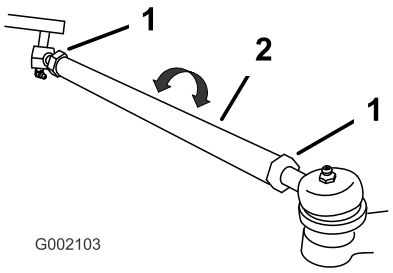


Figure 45

1. Jam nut
2. Tie rod

8. Rotate both tie rods to move the front of the tire inward or outward.
9. Tighten the tie rod jam nuts when the adjustment is correct.
10. Ensure that there is full travel of the steering wheel in both directions.

Checking the Transaxle-Oil Level

Service Interval: Every 100 hours

Oil type: 10W30 (SAE SJ or higher)

1. Park the machine on a level surface, set the parking brake, and turn off and remove the key.
2. Remove the fill plug on the transaxle (Figure 46).

   Note: The oil level should be even with the bottom of the fill plug.

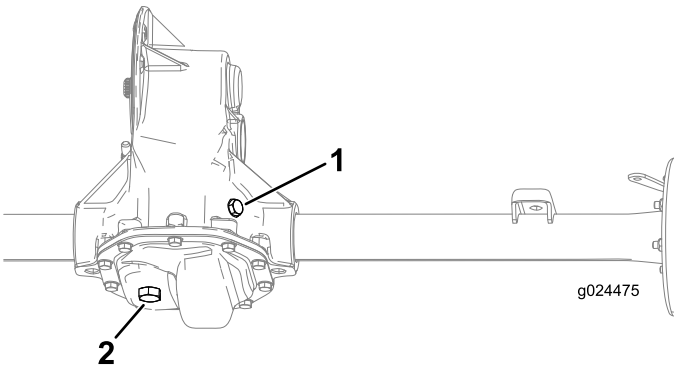


Figure 46

1. Fill plug
2. Drain plug

3. If the oil level is low, remove the fill plug and add the specified oil until it runs out of the hole (Figure 46).
4. Replace the fill plug and torque it to 20 to 27 N-m (15 to 20 ft-lb).

Changing the Transaxle Oil

Service Interval: Every 800 hours

Oil type: 10W30 (SAE SJ or higher)

Oil capacity: 1.9 L (2 US qt)

1. Align a drain pan under the drain plug (Figure 46).
2. Remove the fill plug and the seal (Figure 46).

   Note: Retain the fill plug and seal for installation in step 6.
3. Remove the drain plug and the seal, and allow the oil to drain completely (Figure 46).

   Note: Retain the drain plug and seal for installation in step 4.
4. Install the drain plug and seal, and torque it to 20 to 27 N-m (15 to 20 ft-lb).
5. Fill the transaxle with the specified oil until it runs out of the fill hole.
6. Install the fill plug and seal, and torque it to 20 to 27 N-m (15 to 20 ft-lb).

Brake Maintenance

Inspecting the Brakes

Service Interval: Every 100 hours

Brakes are a critical safety component of the machine. As with all safety components, they should be closely inspected at regular intervals to ensure optimum performance and safety. The following inspections should be done every 100 hours:

- Inspect the brake shoes and pads for wear or damage. If the thickness of the lining of the brake shoe or pad is less than 1.6 mm (1/16 inch), replace the brake shoe(s), pad(s), or both.
- Inspect the backing plate and other components for signs of excessive wear or deformation. If any deformation is found, the appropriate components must be replaced.
- Check the brake fluid level; refer to Checking the Brake Fluid Level (page 20).

Adjusting the Parking-Brake Handle

Service Interval: Every 200 hours

1. Remove the hand grip from the parking-brake lever (Figure 47).

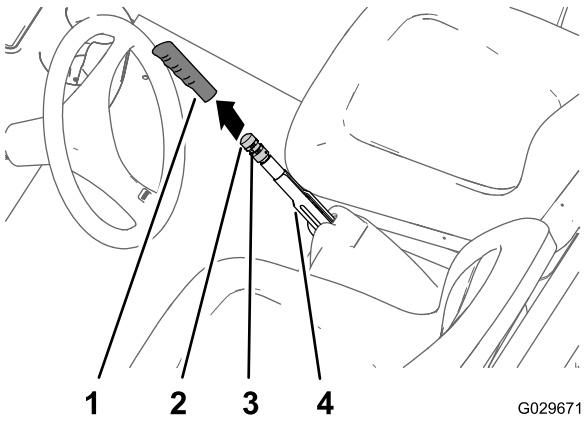


Figure 47

1. Hand grip
2. Brake-adjustment knob
3. Set screw
4. Parking-brake lever

2. Loosen the set screw securing the brake-adjustment knob to the parking-brake lever (Figure 47).
3. Rotate the brake-adjustment knob until a brake-lever force of 133 to 156 N-m (30 to 35 ft-lb) is required to set the parking-brake lever (Figure 47).

   Note: If you rotated the brake-adjustment knob the full travel of the adjuster and cannot attain the lever force of 133 to 156 N-m (30 to 35 ft-lb) that is required to set the parking-brake lever, perform the procedure for adjusting the brake cables; refer to Adjusting the Brake Cables (page 39).

4. Tighten the set screw and install the hand grip (Figure 47).

Adjusting the Brake Cables

1. Remove the hand grip from the parking brake (Figure 47).
2. Loosen the set screw (Figure 47) securing the brake-adjustment knob to the parking-brake lever, release the parking brake, and loosen the brake-adjustment knob.
3. At the bottom of the machine, loosen the rear-jam nut for the threaded adjuster of the parking-brake cable 4 turns (Figure 48).

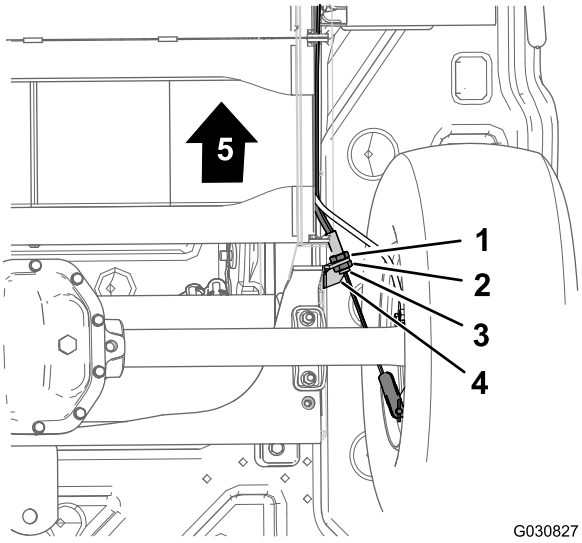


Figure 48

1. Forward-jam nut
2. Rear-jam nut
3. Brake-cable bracket
4. Threaded adjuster (parking-brake cable)
5. Front of the machine

4. Tighten the forward jam nut (Figure 48).
5. Rotate the brake-adjustment knob (Figure 47) until a force of 133 to 156 N-m (30 to 35 ft-lb) is required to set the parking-brake lever.
   - If you cannot adjust the brake-adjustment knob by **loosening** it and set the parking-brake lever with a a force of 133 to 156 N-m (30 to 35 ft-lb); perform the following:
     A. Loosen the forward-jam nut (Figure 48) for the threaded adjuster of the parking-brake cable 1 turn.
     B. Tighten the rear jam nut (Figure 48).
     C. Rotate the brake-adjustment knob (Figure 47) until a force of 133 to 156 N-m (30 to 35 ft-lb) is required to set the parking-brake lever.
     D. Repeat steps A through C up to 2 more times to attain the parking brake force between 133 to 156 N-m (30 to 35 ft-lb).

- If you cannot adjust the brake-adjustment knob by **tightening** it and set the parking-brake lever with a a force of 133 to 156 N-m (30 to 35 ft-lb); perform the following:

  A. Loosen the rear-jam nut (Figure 48) for the threaded adjuster of the parking-brake cable 1 turn.

  B. Tighten the forward jam nut (Figure 48).

  C. Rotate the brake-adjustment knob (Figure 47) until a force of 133 to 156 N-m (30 to 35 ft-lb) is required to set the parking-brake lever.

  D. Repeat steps A through C up to 3 more times to attain the parking brake force between 133 to 156 N-m (30 to 35 ft-lb).

  Note: If you cannot adjust the parking-brake cable enough to get the brake-adjustment knob within its adjustment range, check the brake pads for excessive wear.

- Tighten the set screw and install the hand grip (Figure 47).

Chassis Maintenance

Adjusting the Cargo-Box Latches

If the cargo-box latch is out of adjustment, the cargo box vibrates up and down as you drive the vehicle. You can adjust the latch posts to make the latches hold the cargo box snugly to the chassis.

1. Loosen the locknut on the end of the latch post (Figure 49).

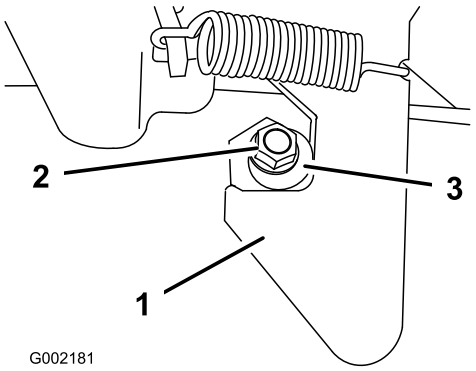


Figure 49

1. Latch
2. Locknut
3. Latch post

2. Rotate the latch post clockwise until it is snug against the hook portion of the latch (Figure 49).
3. Torque the locknut to 19.7 to 25.4 N-m (175 to 225 in-lb).
4. Repeat this steps 1 through 3 for the latch on the other side of the vehicle.

Cleaning

Washing the Machine

Wash the machine as needed. Use water alone or with a mild detergent. A rag may be used, however the hood will loose some of its luster.

Important: Pressurized water is not recommended when washing the machine. It may damage the electrical system, loosen important decals, or wash away necessary grease at friction points. Avoid excessive use of water, especially near the control panel, motor, and batteries.

Storage

1. Position the machine on a level surface, set the parking brake, stop the machine, and remove the key.
2. Clean dirt and grime from the entire machine, including the outside of the motor housing.

   Important: You can wash the machine with mild detergent and water. Do not use high pressure water to wash the machine. Pressure washing may damage the electrical system or wash away necessary grease at friction points. Avoid excessive use of water, especially near the control panel, lights, motor, and the battery.
3. Inspect the brakes; refer to Inspecting the Brakes (page 39).
4. Grease the machine; refer to Greasing the Machine (page 29).
5. Check the tire pressure; refer to .
6. Charge the batteries fully before placing the machine into storage; refer to Charging the Batteries (page 33). Plug the charger into a wall outlet while the machine and batteries are in storage. Leave the charger plugged into a wall outlet and charging receptacle during storage to ensure that the batteries stay charged and do not freeze; otherwise, charge the batteries at least once every 3 months.
7. Check and tighten all bolts, nuts, and screws. Repair or replace any part that is damaged.
8. Paint all scratched or bare metal surfaces.

   Note: Paint is available from your Authorized Service Dealer.
9. Store the machine in a clean, dry garage or storage area.
10. Remove the key and put it in a safe place out of the reach of children.
11. Cover the machine to protect it and keep it clean.

Troubleshooting

Machine Status Light Flash Pattern

Problem	Possible Cause	Corrective Action
The machine status light is always illuminated.	1. The system is functioning properly.	1. None
The machine status light flashed 1 time.	1. The computer programming personality is out of range.	1. Turn the On/Off key to the Off position, wait a few seconds, and turn the On/Off key to the On position. If the condition continues, refer to your Authorized Service Dealer.
The machine status light flashed 2 times.	1. The accelerator pedal was pressed when the On/Off key was turned.	1. Turn the On/Off key to the Off position, release the accelerator pedal, and turn the On/Off key to the On position.
The machine status light flashed 3 times.	1. The power block has a short circuit (MOSFET S/C). 2. There is a poor batter or power cable connection.	1. Turn the On/Off key to the Off position, wait a few seconds, and turn the On/Off key to the On position. Check all batteries and high current controller connections If the condition continues, refer to your Authorized Service Dealer. 2. Turn the On/Off key to the Off position, wait a few seconds, and turn the On/Off key to the On position. Check all batteries and high current controller connections If the condition continues, refer to your Authorized Service Dealer.
The machine status light flashed 4 times.	1. The line contactor is not responding to commands.	1. Turn the On/Off key to the Off position, wait a few seconds, and turn the On/Off key to the On position. If the condition continues, refer to your Authorized Service Dealer.
The machine status light flashed 5 times.	1. The charger interlock switch is active.	1. Turn the On/Off key to the Off position, disconnect the charger, and turn the On/Off key to the On position.
The machine status light flashed 6 times.	1. Accelerator potentiometer is out of adjustment.	1. Refer to your Authorized Service Dealer.
The machine status light flashed 7 times.	1. The battery voltage is out of range. 2. There is an over voltage error code caused by rotating motor of the machine too fast when traveling down a steep hill.	1. Refer to your Authorized Service Dealer. 2. Cycle the pedal to clear fault, if it does not clear the fault, refer to your Authorized Service Dealer to have the batteries tested and replaced if necessary.
The machine status light flashed 8 times.	1. The controller is overheated.	1. The machine will continue to run, but at a reduced power until the controller cools down.
The machine status light flashed 9 times.	1. The motor is over heated or the battery is nearly discharged (the machine will go into the energy-saving mode).	1. If the batter meter displays more than one bar, stop the machine, and allow the motor to cool before operating it again. If the battery meter displays only one bar, charge the machine immediately.
The machine status light is not illuminated.	1. There is either no power to the controller or the controller has failed.	1. Refer to your Authorized Service Dealer.

International Distributor List

Distributor:	Country:	Phone Number:	Distributor:	Country:	Phone Number:
Agrolanc Kft	Hungary	36 27 539 640	Maquiver S.A.	Colombia	57 1 236 4079
Balama Prima Engineering Equip.	Hong Kong	852 2155 2163	Maruyama Mfg. Co. Inc.	Japan	81 3 3252 2285
B-Ray Corporation	Korea	82 32 551 2076	Mountfield a.s.	Czech Republic	420 255 704 220
Casco Sales Company	Puerto Rico	787 788 8383	Mountfield a.s.	Slovakia	420 255 704 220
Ceres S.A.	Costa Rica	506 239 1138	Munditol S.A.	Argentina	54 11 4 821 9999
CSSC Turf Equipment (pvt) Ltd.	Sri Lanka	94 11 2746100	Norma Garden	Russia	7 495 411 61 20
Cyril Johnston & Co.	Northern Ireland	44 2890 813 121	Oslinger Turf Equipment SA	Ecuador	593 4 239 6970
Cyril Johnston & Co.	Republic of Ireland	44 2890 813 121	Oy Hako Ground and Garden Ab	Finland	358 987 00733
Equiver	Mexico	52 55 539 95444	Parkland Products Ltd.	New Zealand	64 3 34 93760
Femco S.A.	Guatemala	502 442 3277	Perfetto	Poland	48 61 8 208 416
ForGarder OU	Estonia	372 384 6060	Pratoverde SRL.	Italy	39 049 9128 128
G.Y.K. Company Ltd.	Japan	81 726 325 861	Prochaska & Cie	Austria	43 1 278 5100
Geomechaniki of Athens	Greece	30 10 935 0054	RT Cohen 2004 Ltd.	Israel	972 986 17979
Golf international Turizm	Turkey	90 216 336 5993	Riversa	Spain	34 9 52 83 7500
Guandong Golden Star	China	86 20 876 51338	Lely Turfcare	Denmark	45 66 109 200
Hako Ground and Garden	Sweden	46 35 10 0000	Solvert S.A.S.	France	33 1 30 81 77 00
Hako Ground and Garden	Norway	47 22 90 7760	Spypros Stavrinides Limited	Cyprus	357 22 434131
Hayter Limited (U.K.)	United Kingdom	44 1279 723 444	Surge Systems India Limited	India	91 1 292299901
Hydroturf Int. Co Dubai	United Arab Emirates	97 14 347 9479	T-Markt Logistics Ltd.	Hungary	36 26 525 500
Hydroturf Egypt LLC	Egypt	202 519 4308	Toro Australia	Australia	61 3 9580 7355
Irrimac	Portugal	351 21 238 8260	Toro Europe NV	Belgium	32 14 562 960
Irrigation Products Int'l Pvt Ltd.	India	0091 44 2449 4387	Valtech	Morocco	212 5 3766 3636
Jean Heybroek b.v.	Netherlands	31 30 639 4611	Victus Emak	Poland	48 61 823 8369

European Privacy Notice

The Information Toro Collects
Toro Warranty Company (Toro) respects your privacy. In order to process your warranty claim and contact you in the event of a product recall, we ask you to share certain personal information with us, either directly or through your local Toro company or dealer.

The Toro warranty system is hosted on servers located within the United States where privacy law may not provide the same protection as applies in your country.

BY SHARING YOUR PERSONAL INFORMATION WITH US, YOU ARE CONSENTING TO THE PROCESSING OF YOUR PERSONAL INFORMATION AS DESCRIBED IN THIS PRIVACY NOTICE.

The Way Toro Uses Information
Toro may use your personal information to process warranty claims, to contact you in the event of a product recall and for any other purpose which we tell you about. Toro may share your information with Toro's affiliates, dealers or other business partners in connection with any of these activities. We will not sell your personal information to any other company. We reserve the right to disclose personal information in order to comply with applicable laws and with requests by the appropriate authorities, to operate our systems properly or for our own protection or that of other users.

Retention of your Personal Information
We will keep your personal information as long as we need it for the purposes for which it was originally collected or for other legitimate purposes (such as regulatory compliance), or as required by applicable law.

Toro's Commitment to Security of Your Personal Information
We take reasonable precautions in order to protect the security of your personal information. We also take steps to maintain the accuracy and current status of personal information.

Access and Correction of your Personal Information
If you would like to review or correct your personal information, please contact us by email at legal@toro.com.

Australian Consumer Law

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

The Toro General Commercial products Guarantee

A Limited Warranty

Electric
Workman

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 two years or 1500 operational hours*, whichever occurs first. 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:

Commercial Products Service Department
Toro Warranty Company
8111 Lyndale Avenue South
Bloomington, MN 55420-1196
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*. Failure to perform required maintenance and adjustments can be grounds for disallowing a warranty claim.

Items and Conditions Not Covered

Not all product failures or malfunctions that occur during the warranty period are defects in materials or workmanship. This 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. A separate warranty may be provided by the manufacturer of these items.
- Product failures which result from failure to perform recommended maintenance and/or adjustments. Failure to properly maintain your Toro product per the Recommended Maintenance listed in the *Operator's Manual* can result in claims for warranty being denied.
- Product failures which result from operating the Product in an abusive, negligent or reckless manner.
- Parts subject to consumption through use unless found to be defective. Examples of parts which are consumed, or used up, during normal Product operation include, but are not limited to, batteries, carbon brushes, brake components, tires, filters, belts, etc.
- Failures caused by outside influence. Items considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved lubricants, additives, chemicals, etc.
- Normal "wear and tear" items. 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, etc.

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.

Note Regarding Deep Cycle Battery Warranty:

Deep cycle 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. Battery replacement may be required during the normal product warranty period at 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.

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.

Countries Other than the United States or Canada

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