



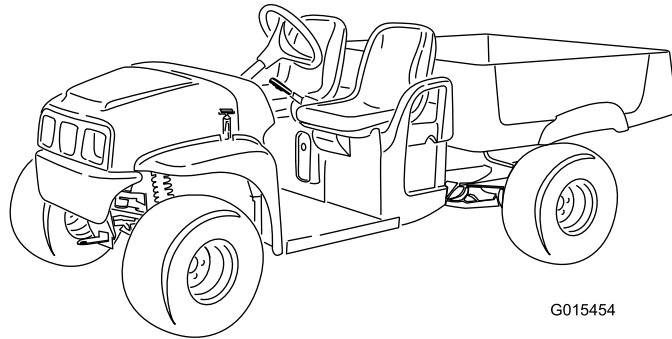
Count on it.

Operator's Manual

Workman® MDE Utility Machine

Model No. 07299—Serial No. 314000001 and Up

Model No. 07299TC—Serial No. 314000001 and Up



G015454



⚠ 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.

This machine is a utility machine 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 machine allows for the safe transport of an operator and one passenger in the identified seats. The bed of this machine is not suitable for any riders.

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

Model No. _____

Serial No. _____

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



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.

Introduction

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

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

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

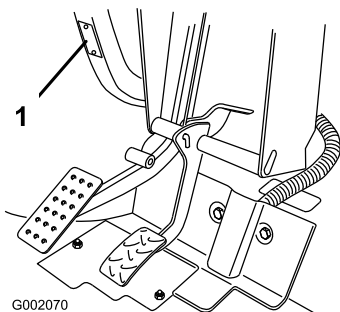


Figure 1

1. Model and serial number location

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Safety

Improper use or maintenance by the operator or owner can result in injury. To reduce potential 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.

Supervisors, operators, and service persons should be familiar with the following standards and publications (the material may be obtained from the address shown):

SAE J2258 Light Utility machine

SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001 U.S.A.

Safe Operating Practices

WARNING

The machine is an off-highway vehicle only, and is not designed, equipped, or manufactured for use on public roads. Using it on a public road may result in an accident, which could seriously injure or kill you or others.

Do not use this machine on public roads.

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.

Before Operating

- Operate the machine only after reading and understanding the contents of this manual.
- 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 machine.

- 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.
- Become familiar with the controls and know how to stop the machine quickly.
- 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.
- Always wear substantial shoes. Do not operate the machine while wearing sandals, tennis shoes or sneakers. 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.
- 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.
- Be extremely careful when operating around people. Always be aware of where bystanders might be.
- Before operating the machine, always check the designated areas of the machine that are stated in the pre-starting section of this manual. If something is wrong, do not use the machine. Make sure that the problem is corrected before the machine or attachment is operated.

Operation

- The operator and passenger should remain seated whenever the machine 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 your arms and legs within the machine 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.
- Always watch out for and avoid low overhangs such as tree limbs, door jambs, and overhead walkways. Make sure there is enough room over head to easily clear the machine and your head.
- Failure to operate the 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:
 - Use extreme caution, reduce speed, and maintain a safe distance around sand traps, ditches, creeks, ramps, unfamiliar areas, or any areas that have abrupt changes in ground conditions or elevation.

- Watch for holes or other hidden hazards.
- Use extra caution when operating the machine on wet surfaces, in adverse weather conditions, at higher speeds, or with a full load. Stopping time and distance will increase with a full load.
- Avoid sudden stops and starts. Do not go from reverse to forward or forward to reverse without first coming to a complete stop.
- Slow down before turning. Do not attempt sharp turns or abrupt maneuvers or other unsafe driving actions that may cause a loss of machine control.
- When dumping, do not let anyone stand behind the machine and do not dump the load on anyone's feet. Release the tailgate latches from the side of the box, not from behind.
- Only operate the machine when the cargo box is down and latched.
- Before backing up, look to the rear and ensure that no one is behind you. Back up slowly.
- Watch out for traffic when you are near or crossing roads. Always yield the right of way to pedestrians and other machines. This machine is not designed for use on streets or highways. Always signal your turns or stop early enough so that other people know what you plan to do. Obey all traffic rules and regulations.
- The electrical system of the machine can produce sparks capable of igniting explosive materials. Never operate the machine in or near an area where there is dust or fumes in the air which are explosive.
- If you are ever unsure about safe operation, stop work and ask your supervisor.
- 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.
- 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.
- 5. 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 21) 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

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

You can install a optional ROPS kit for operation in 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.**

Loading and Dumping

The weight and position of the cargo and passenger can change the machine center of gravity and machine handling. To avoid loss of control and personal injury, follow these guidelines:

- Do not carry loads which exceed the load limits described on the machine weight label; refer to Loading the Cargo Box (page 21) for the machine weight limits. The load rating is for level surfaces only.
- Reduce the weight of the load when operating on hills and rough terrain to avoid tipping or overturning of the machine.
- Reduce the weight of the load if the center of gravity is high. Items such as bricks, fertilizer, or landscape timbers stack higher in the box. The higher a load is stacked, the more likely the machine is to tip over. Distribute the load as low as possible, making sure that the load does not affect rear visibility.
- Position the weight of the load evenly from side to side. If you position the load toward one of the sides, the machine is more likely to tip over while turning.
- Position the weight of a load evenly from front to back. If you position the load behind the rear axle, it will reduce the weight on the front wheels. This may result in a loss of steering control or cause the machine to tip over on hills or bumpy terrain.

- Use extra caution if the load exceeds the dimensions of the box and when handling off-center loads that cannot be centered. Keep loads balanced and secure to prevent them from shifting.
- Always secure loads so that they do not shift. If a load is not secured, or you are transporting a liquid in a large container such as a sprayer, the load can shift. This shifting happens most often while turning, going up or down hills, suddenly changing speeds, or while driving over rough surfaces. Shifting loads can cause the machine to tip over.

⚠ 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.**

- 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 decal (located on the rear frame) shows load limits for the machine. Never overload the attachments or exceed the gross machine weight (GVW).

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 and remove a battery cable before servicing any electrical components.
- Disconnecting any battery cable will inhibit operation of the 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 electrolyte.
 - If electrolyte is swallowed, do not induce vomiting; instead, drink large amounts of water or milk followed by milk of magnesia, beaten raw eggs, or vegetable oil. Get medical attention immediately.
 - Keep children and pets away from the batteries and electrolyte.
- 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 27). 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

- Only qualified and authorized personnel shall be permitted to maintain, repair, adjust, or inspect the machine.
- Before servicing or making adjustments to the machine, stop the machine, set the parking brake, and remove the key to prevent someone from accidentally starting the motor.
- To make sure that the entire machine is in good condition, keep all nuts, bolts, and screws properly tightened.
- Do not use open pans of fuel or flammable cleaning fluids for cleaning parts.
- 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 that may affect machine operation, performance, durability, or its use, may result in injury or death. Such use could void the product warranty.

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

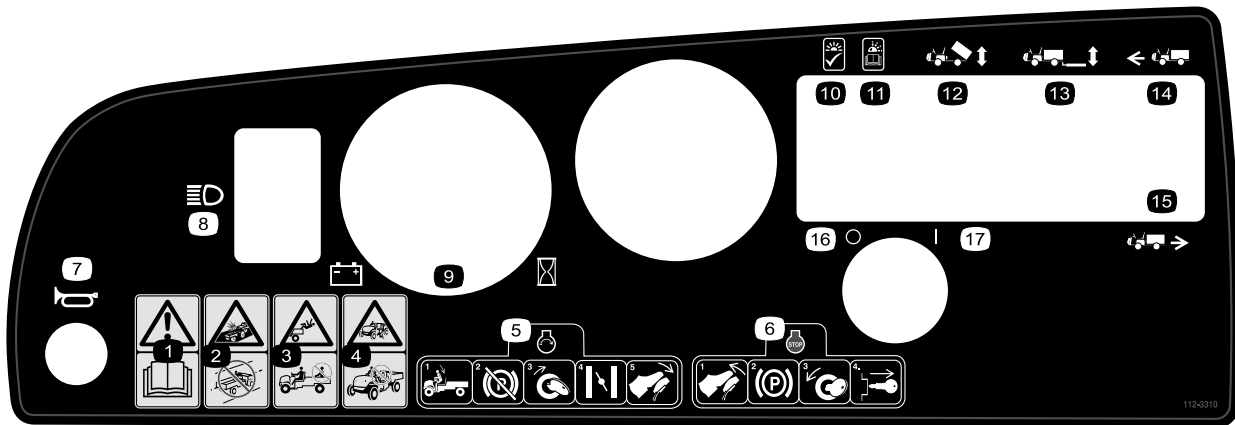
Uncertainty Value (K) = 0.5 m/s^2

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



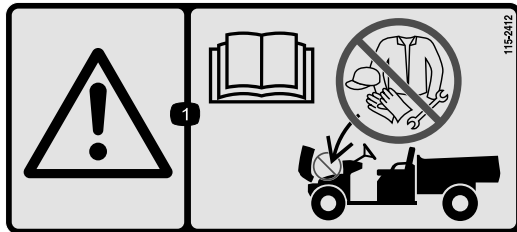
104-7215

- Warning—read the *Operator's Manual*.
- Explosion hazard—no fire, open flames, or smoking around batteries.
- Warning—do not operate this machine unless you are trained.
- 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.
- 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.



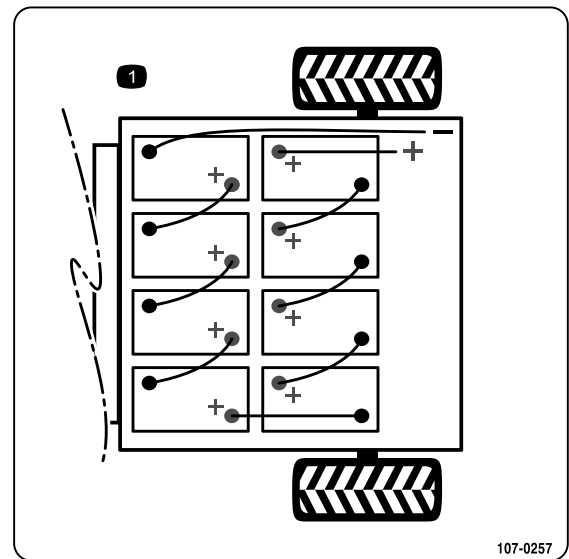
115-2412

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.



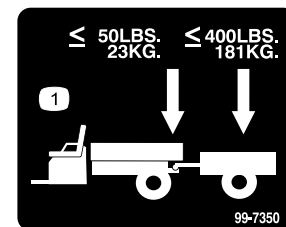
107-0257

1. Battery schematic



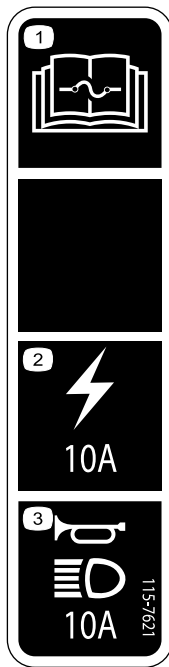
107-0356

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



115-7621

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



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 only).
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 only).
3	No parts required	–	Check the tire pressure.
4	No parts required	–	Set the charger voltage (model 07299TC only).
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

Parts needed for this procedure:

1	Steering wheel
---	----------------

Procedure

Note: This procedure is only needed for Model No. 07299TC.

1. Release the tabs on the back of the steering wheel that hold the center cover in place, and remove the cover.
2. Remove the nut and washer from the steering shaft.
3. Slide the steering wheel and washer onto the shaft.
4. Position the steering wheel on the shaft, so that the cross beam is horizontal when the tires are pointed straight ahead and the thicker spoke of the steering wheel is downward.

5. Secure the steering wheel to the shaft with the nut (Figure 3).

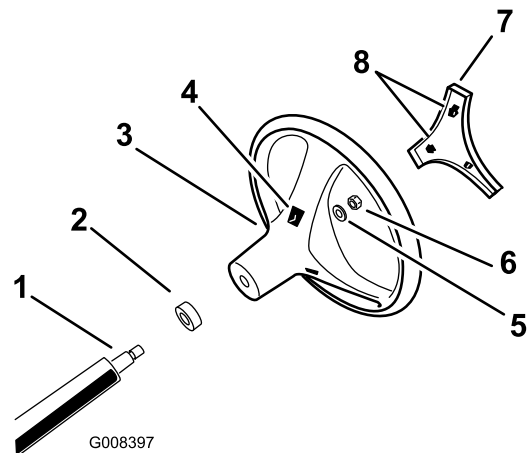


Figure 3

- | | |
|---------------------------|----------------------|
| 1. Steering shaft | 5. Washer |
| 2. Dust cover | 6. Nut |
| 3. Steering wheel | 7. Cover |
| 4. Tab slots in the wheel | 8. Tabs in the cover |

6. Torque the nut to 24 to 29 N-m (18 to 22 ft-lbs).
7. Snap the center cover into place.

2

Installing the Batteries

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

Use either 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).

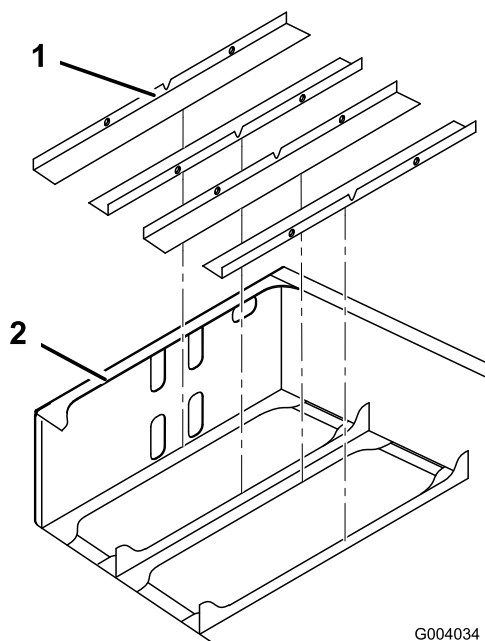


Figure 4

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).

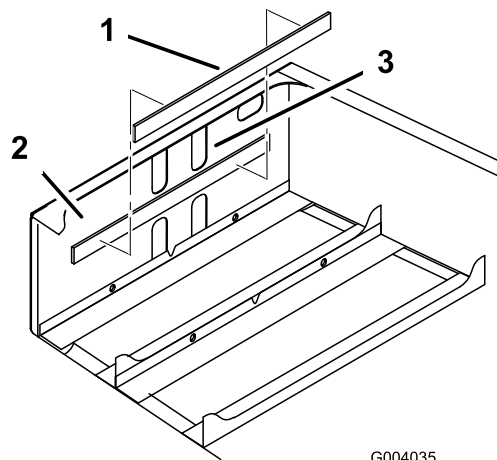


Figure 5

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.

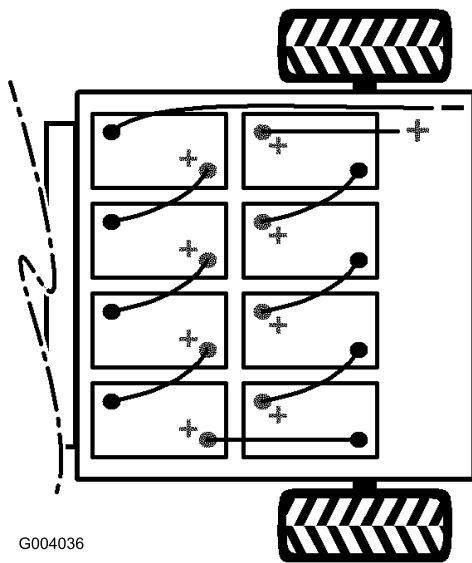


Figure 6

3

Checking the Tire Pressure

No Parts Required

Procedure

Check the tire pressure every 8 hours or daily to ensure proper levels.

The air pressure range in the front and rear tires is 55 to 152 kPa (8 to 22 psi).

The air pressure needed is determined by the payload carried. **Lower** air pressure will provide less compaction, a smoother ride, and fewer tire marks. Lower pressure should not be used for heavy payloads at high speeds.

Higher pressures should be used for heavier payloads and at higher speeds. Do not exceed the maximum pressure.

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.

4

Setting the Charger Voltage (model 07299TC only)

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).

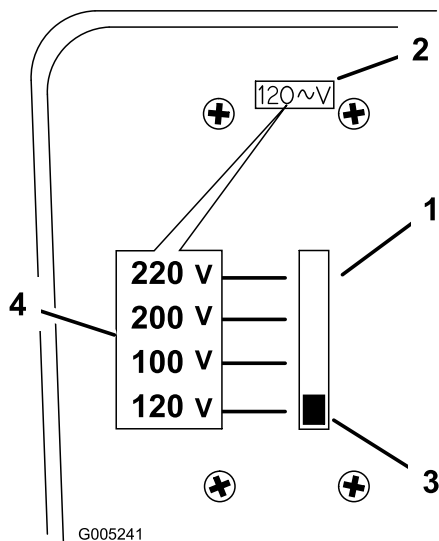


Figure 7

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

5

Reading the Manual and Viewing the Safety Video

Parts needed for this procedure:

1	<i>Operator's Manual</i>
1	<i>Parts Catalog</i>
1	Safety training material
1	Registration card
1	<i>Predelivery Inspection Form</i>
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*.

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.

Product Overview

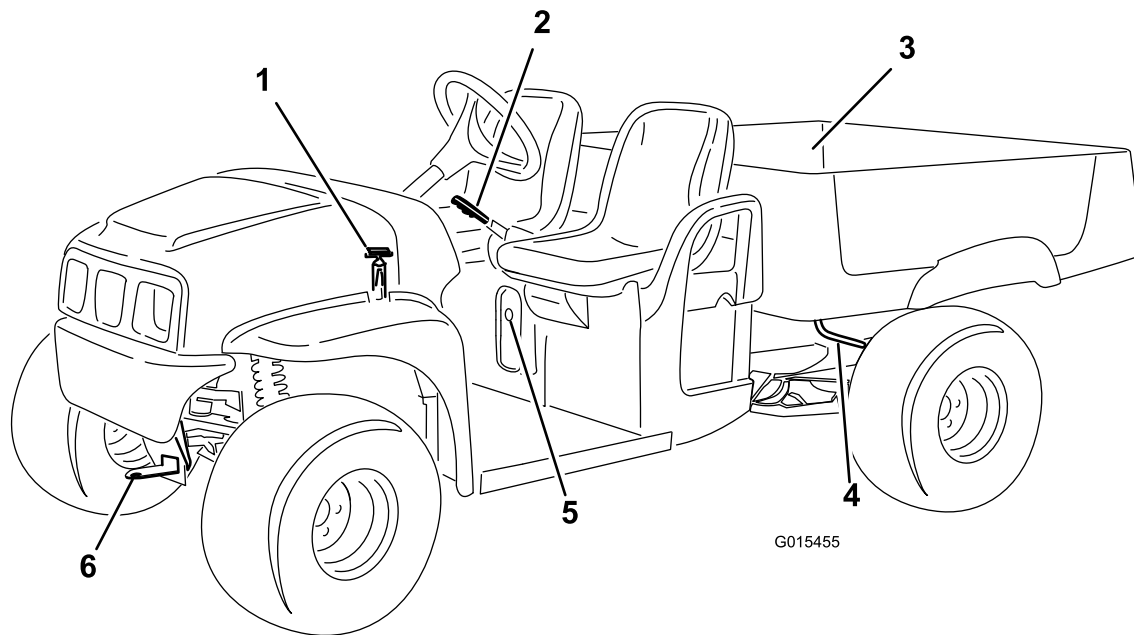


Figure 8

- | | | |
|------------------|----------------------------|------------------------|
| 1. Hood strap | 3. Cargo box | 5. Charging receptacle |
| 2. Parking brake | 4. Cargo box release lever | 6. Towing tongue |

Controls

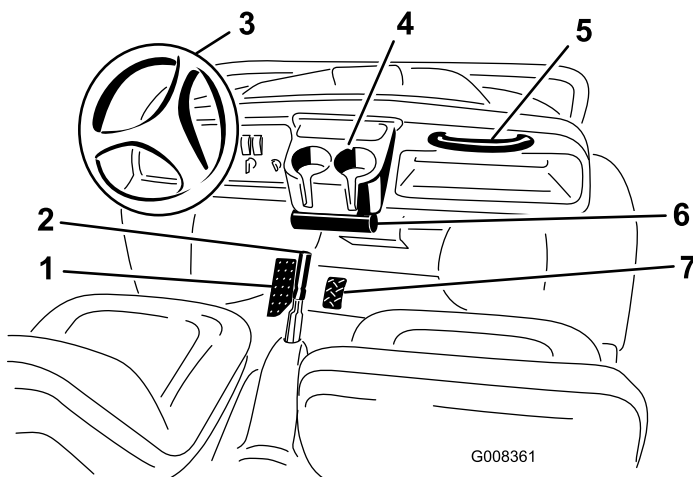


Figure 9

- | | |
|---------------------------------|--|
| 1. Brake pedal | 5. Passenger hand hold |
| 2. Parking brake/center console | 6. <i>Operator's Manual</i> tube console |
| 3. Steering wheel | 7. Accelerator pedal |
| 4. Cup holder | |

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.

On/Off Switch

The On/Off switch (Figure 10), used to activate the electrical systems of the machine, has 2 positions: On and Off. 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. Remove the key when leaving the machine.

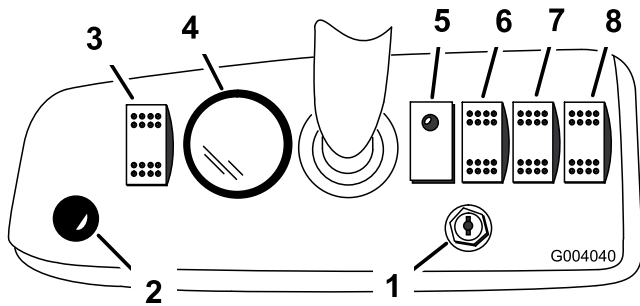


Figure 10

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

Horn Button (TC Models only)

Press the horn button to sound the horn (Figure 10).

Battery-discharge Indicator

The battery/hour meter provides you with an indication of how much charge is contained in the batteries (Figure 10 and Figure 14) 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 bars extend from the 0 to the 1 position. As the charge is used, bars disappear starting on the right side. For detailed information on the battery meter, refer to Understanding and Using the Battery System (page 18).

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-direction Switch

Use this switch (Figure 10) 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.

Machine-status Light

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 (Figure 14). 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 Understanding and Using the Battery System (page 18) for a description of the flash codes.

Light Switch

Use this switch to turn the headlights on and off (Figure 10).

Cargo Bed Lift Switch (Optional)

Use this switch to raise and lower the cargo bed (Figure 10).

Rear Lift Switch (Optional)

Use this switch to raise and lower the rear lift (Figure 10).

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.

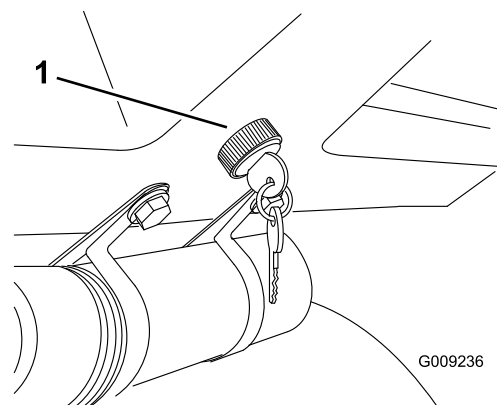


Figure 11

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).

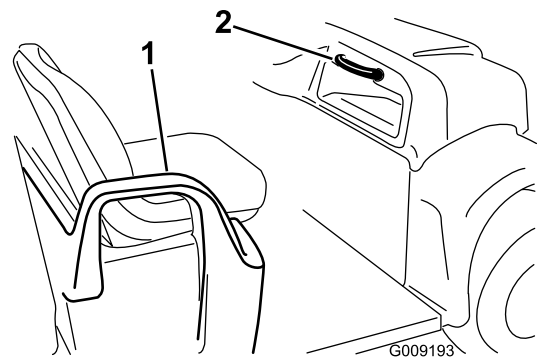


Figure 12

1. Hip restraint

2. Passenger hand hold

Specifications

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

Base weight	726 kg (1600 lbs)
Base weight without Batteries	765 kg (1025 lbs)
Rated capacity (on level ground)	545 kg (1200 lbs) 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 machine weight (GMW) (on level ground)	1270 kg (2800 lbs) total—including all of the weights listed above
Maximum cargo capacity (on level ground)	362 kg (800 lbs)* total—including trailer tongue weight and gross trailer weight
Tow capacity:	
Standard hitch	Tongue weight 23 kg (50 lbs), Maximum trailer weight 182 kg (400 lbs)
Heavy-duty hitch	Tongue weight 45 kg (100 lbs), Maximum trailer weight 363 kg (800 lbs)
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 Pre-starting Checks

Check the following items each time you begin using the machine for the day:

- Check the tire pressure.
- 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 malfunctions.

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 Tire Pressure

Service Interval: Before each use or daily

Check the tire pressure every 8 hours or daily to ensure proper levels.

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

Note: Inflating the tires at a lower pressure reduces compaction, creates a smoother ride, and minimizes tire marks. Do not inflate the tires at a lower pressure when operating the machine with heavy payloads at high speeds. Inflate the tires at higher pressures when operating the machine with heavier payloads at high speeds.

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 brake to stop the machine, and the parking brake to hold it in place. Using the accelerator to stall the machine can damage the machine.

To stop the machine, remove your foot from the accelerator pedal and slowly press the brake pedal.

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

Parking the Machine

1. Set the parking brake and rotate the On/Off key to the Off position.
2. Remove the key from the switch to prevent accidental starting.

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 is 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 13). 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.

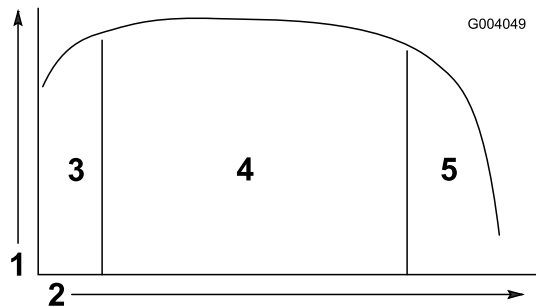


Figure 13
Battery-lifetime table

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

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.**

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 14).

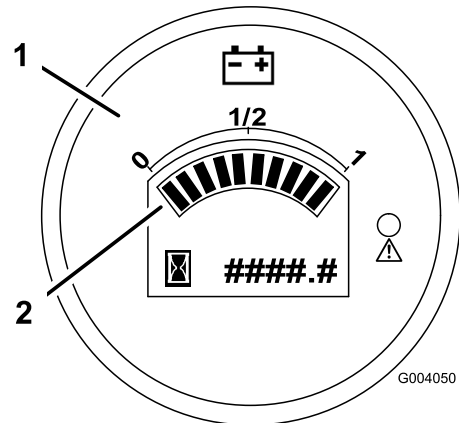


Figure 14

- | | |
|-----------------------|--------------------------|
| 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 15). This indicates that the battery capacity is nearly drained and you should charge the batteries as soon as possible to prevent battery damage.

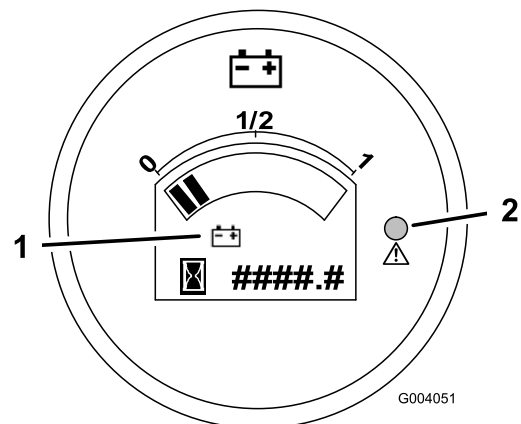


Figure 15

- | | |
|-----------------|---------------------|
| 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 16). 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.

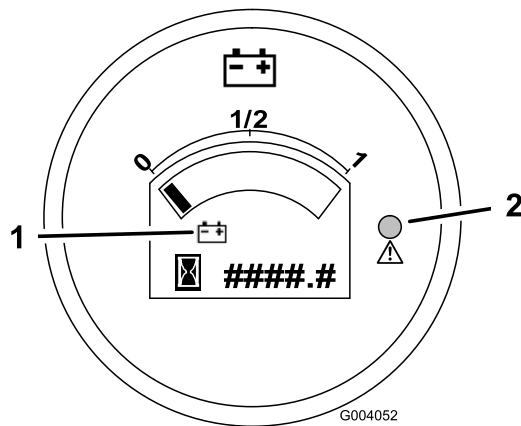


Figure 16

1. Battery icon
2. Warning light—flashing

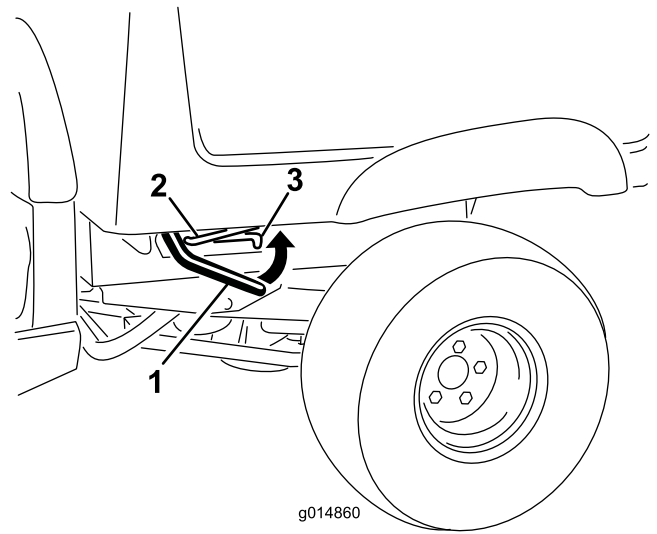


Figure 17

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

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 17).
 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 17).

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 17).
2. Pull the prop rod out of the detent slot (Figure 17).
3. Lower the box until it latches into securely (Figure 17).

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 18).

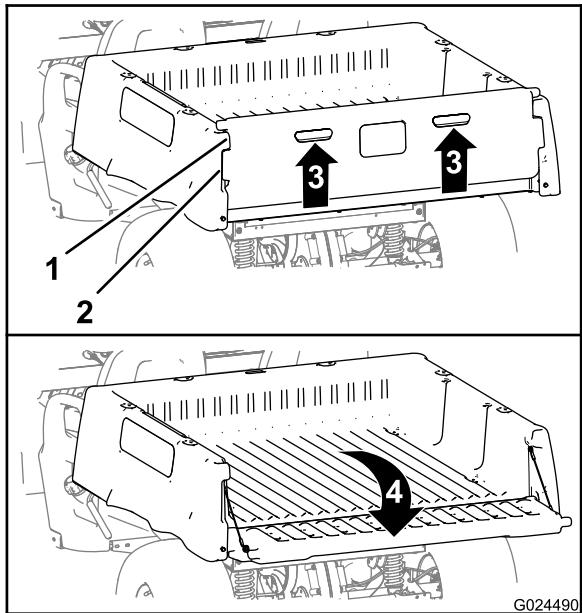


Figure 18

- 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 18).
4. Rotate the tail gate rearward and down (Figure 18).

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 19).

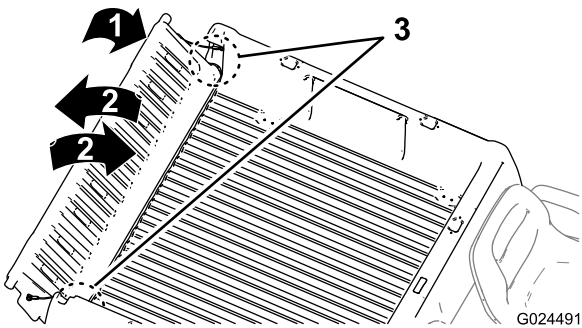


Figure 19

3. Using a short, shaking motion to rotate the tailgate back and forth several times (Figure 19).
- Note:** This action will help move material away from the hinge area
4. Lower the tailgate and check the hinge areas for remaining material that is 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 18).
- 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 18).
- Note:** The lock flanges of the tailgate will be fully secured by the tailgate flanges of the cargo box.

Loading the Cargo Box

The capacity of the cargo box is 0.37 m³ (13 ft³). 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 lbs), 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

Adjusting the Box Latches

If the box latch does not latch tightly, vibrating up and down as you drive the machine, you can adjust the latch posts to make the latches fit snugly.

1. Loosen the nut on the end of the latch post (Figure 20).

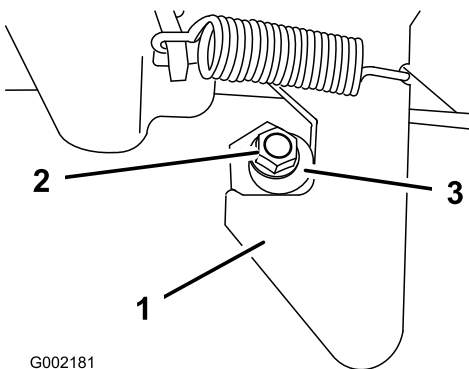


Figure 20

1. Latch
2. Nut
3. Latch post

2. Turn the latch post clockwise until it is snug against the latch and then tighten the nut (Figure 20).
3. Repeat this procedure for the latch on the other side of the machine.

Breaking in a New Machine

Service Interval: After the first 100 hours

- 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 Maintenance (page 24) for any special low-hour checks.
- Check the front suspension positioning and adjust it if necessary.

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 21 and Figure 22 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.

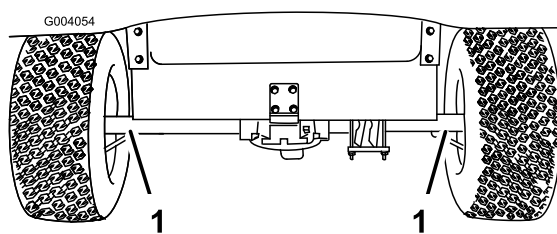


Figure 21

1. Tie-down points

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 22).

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 22).
3. Release the parking brake.

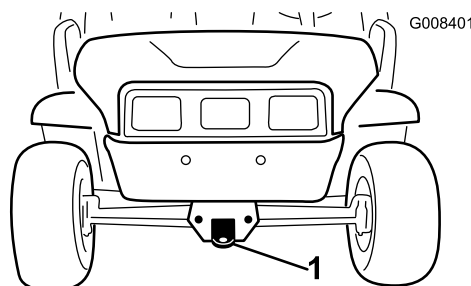


Figure 22

1. Towing tongue and tie-down point

Towing a Machine

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

Recommended Maintenance Schedule(s)

Maintenance Service Interval	Maintenance Procedure
After the first 100 hours	Perform the guidelines for breaking in a new machine guidelines.
Before each use or daily	- Check the tire pressure. - Charge the batteries. - Check the brake-fluid level.
Every 25 hours	- Clean the batteries. - Check the battery electrolyte level.
Every 100 hours	- Grease the bearings and bushings. - Inspect the condition and wear of the tires. - 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 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 accidentally 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.

Lifting the Machine

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.

⚠ DANGER

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

- Do not start the machine 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 on a jack.

The jacking point at the front of the machine is on the front of the frame behind the towing tongue (Figure 23).

The jacking point at the rear of the machine is under the axle tubes (Figure 24).

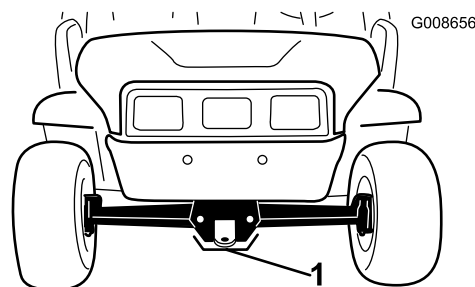


Figure 23

1. Front jacking point

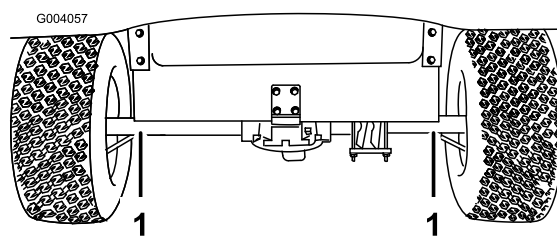


Figure 24

1. Rear jacking points

Accessing the Hood

1. Release the rubber straps on both sides of the hood (Figure 25).

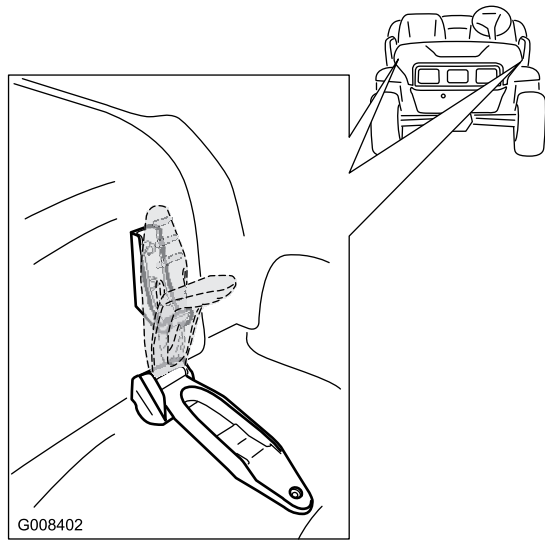


Figure 25

2. Raise the hood.
3. Lower the hood to close and use rubber retaining straps to secure the hood.

Lubrication

Lubricate all of the bearings and bushings every 100 hours or once a year, whichever occurs first. Grease them more frequently when using the machine for heavy-duty operations.

Grease Type: Number 2 General Purpose Lithium-Base Grease

Adding Grease

Service Interval: Every 100 hours

1. Wipe the grease fitting clean so foreign matter cannot be forced into the bearing or the bushing.
2. Pump grease into the bearing or bushing.
3. Wipe off any excess grease.

The grease fittings are located at the 4 tie-rod ends (Figure 26) and the 2 king pins (Figure 27).

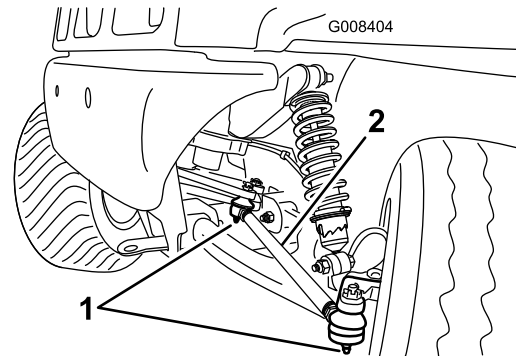


Figure 26

Left side shown

1. Grease fitting
2. Tie rod

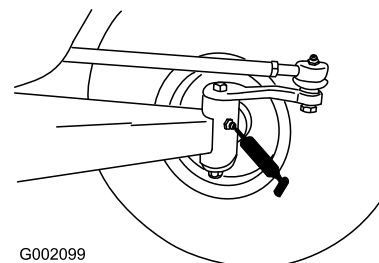


Figure 27

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. 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.

3. 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.

4. Disconnect the cord from the power outlet.
5. Disconnect the charger from the machine.

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

Adding Water to the Batteries

Service Interval: Every 25 hours/Monthly (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 27).
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 28).

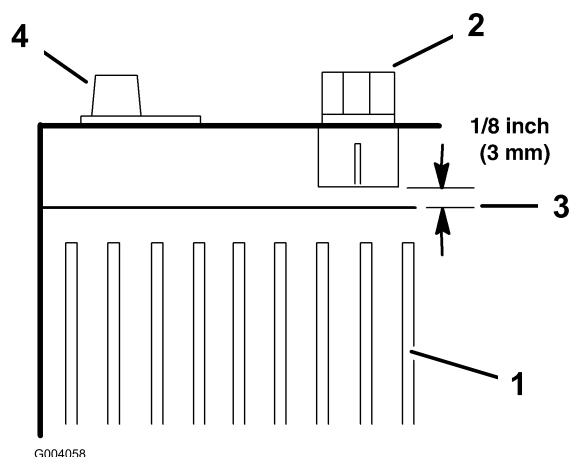


Figure 28

- | | |
|-------------------|----------------------|
| 1. Battery plates | 3. Electrolyte level |
| 2. Filler cap | 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.

Replacing Used Batteries

When the machine begins to show a loss of range or when the length of the discharge/charge cycle is significantly reduced, the batteries are probably getting old 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 procedure:

1. Raise the cargo bed, turn the key off, and remove it.
2. Disconnect the long, black, main negative lead running from the bank of batteries to the machine from the battery post (Figure 29).

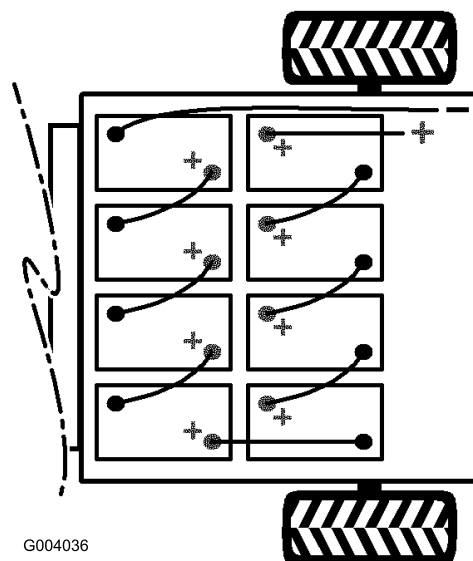


Figure 29

3. Remove the long, red, main positive lead running from the bank of batteries to the machine from the battery post (Figure 29).
4. Disconnect all of the battery leads from the batteries.
5. Remove the battery retainers located between the batteries.
6. Remove all of the batteries and recycle them according to your local codes.
7. Install new batteries in the places vacated by the old batteries

Note: Pay attention to the battery polarity when installing the new batteries (Figure 29).

8. Install the battery retainers and torque the nuts to 17 to 22 N-m (150 to 200 in-lb).
9. Connect the batteries together with the battery cables removed previously, as shown in Figure 29.
10. Connect the long, red, main positive lead between the bank of batteries and the machine (Figure 29).
11. Connect the long, black, main negative lead between the bank of batteries and the machine (Figure 29).
12. Torque the nuts securing all of the battery cables to 13.5 to 21 N-m (120 to 180 in-lb).
13. Coat the battery terminals with Toro battery-terminal protector.
14. Ensure that the rubber boots on each battery cable are securely seated over the battery terminals.

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 30).

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

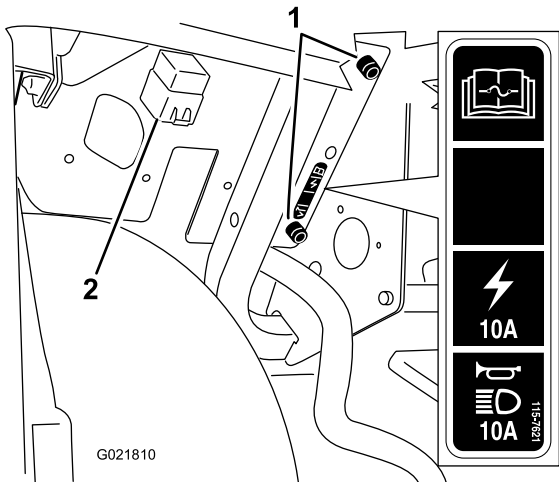


Figure 30

1. Machine fuse holder 2. Relay

Replacing the Headlights

Before performing any maintenance set the parking brake, turn the On/Off switch to Off, and remove the key.

Release the retaining straps on the hood and raise the hood to access 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 allow 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 electrical harness from the bulb housing on the back of the lamp.
2. Remove the protective rubber boot (Figure 31).

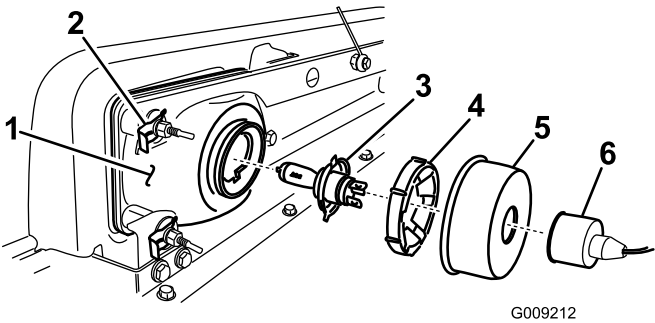


Figure 31

- | | |
|-------------------------------|--------------------------------------|
| 1. Headlight | 4. Retaining ring |
| 2. Speed clip and flat washer | 5. Rubber boot |
| 3. Headlight bulb | 6. Headlight bulb harness connection |

3. Release the plastic retaining ring by turning it 1/4 turn counterclockwise.
4. Remove the ring.
5. Remove the bulb assembly by moving it rearward, out of the lamp housing.
6. Install a new bulb into the lamp housing.

Note: Use a paper towel to grasp the new bulb with handling it to avoid contaminating the surface.

7. Secure the bulb in place by installing the retaining ring.
- Note:** Turn the ring 1/4 turn clockwise to lock it in place.
8. Install the rubber boot over the ring and bulb.
9. Connect the bulb to the electrical harness.

Replacing the Headlight

When removing or replacing the headlight assembly, disconnect the wiring harness to the bulb assembly if the bulb is to be removed with the lamp.

1. Remove the speed clips and washers securing the headlight in place.
Note: Retain all of the parts.
2. Remove the headlight assembly by moving it forward through the opening in the front bumper (Figure 31).
3. Install the new headlight through the opening in the bumper (Figure 31).
4. Ensure that the adjustment posts are lined up with the holes in the mounting bracket in the bumper.
5. Secure the headlight assembly with the washers and speed clips removed previously.
6. Attach the headlight to the wire harness removed previously.
7. Adjust the headlights to direct the beams to the desired position.

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 to the On position and turn on the headlights.
2. At the headlight assembly, use the fasteners to pivot the headlight assembly and affect the cast-beam position.

Drive System Maintenance

Inspecting the Tires

Service Interval: Every 100 hours

Every 100 hours

Check the tire condition at least every 100 hours of operation. Operating accidents, such as hitting curbs, can damage a tire or rim and also disrupt wheel alignment, so inspect tire condition after an accident.

Check the wheels to ensure that they are mounted securely. Torque the 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 32).

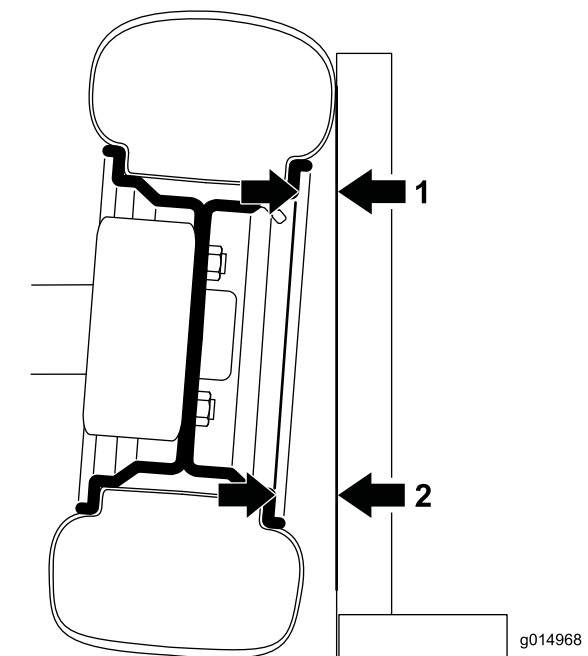


Figure 32

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 32).

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 33).
 - 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.

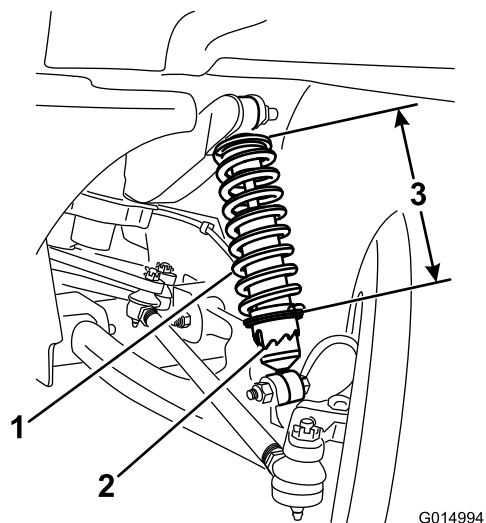


Figure 33

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 34).

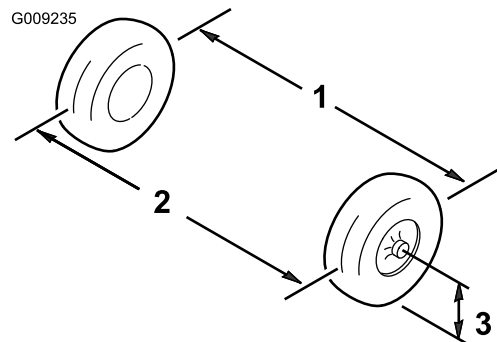


Figure 34

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 35).

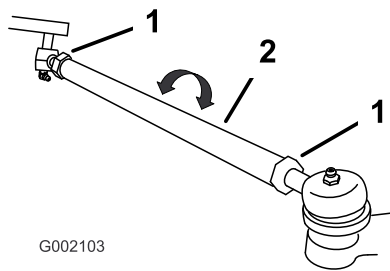


Figure 35

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 36).

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

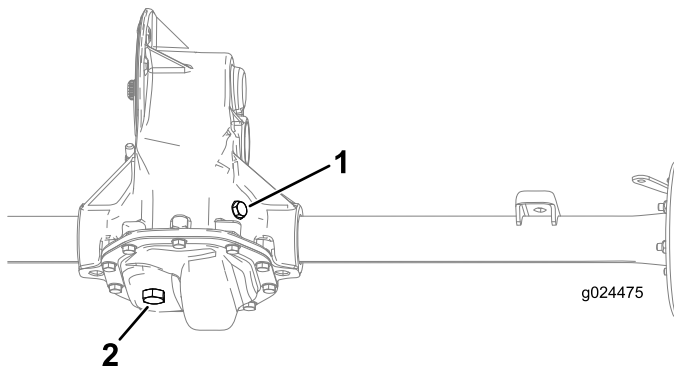


Figure 36

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 36).
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 36).
2. Remove the fill plug and the seal (Figure 36).

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 36).

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

Checking the Brake-fluid Level

Service Interval: Before each use or daily

The brake-fluid reservoir is filled and shipped from the factory with DOT 3 brake fluid. Check the level before the machine is first started and every 8 hours or daily, thereafter.

1. Park the machine on a level surface, set the parking brake, turn the On/Off switch to Off, 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.
3. Look at the side of the reservoir, and ensure that the fluid level is above the Minimum line (Figure 37).
4. If the fluid level is low, clean the area around the cap, remove the cap, and fill the reservoir to above the Minimum line. Do not overfill.

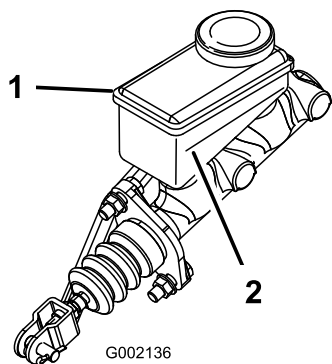


Figure 37

1. Brake-fluid reservoir
2. Minimum line

Adjusting the Parking Brake

Service Interval: Every 200 hours

1. Pry the rubber cover off the parking brake.
2. Loosen the set screw securing the knob to the parking-brake lever (Figure 38).

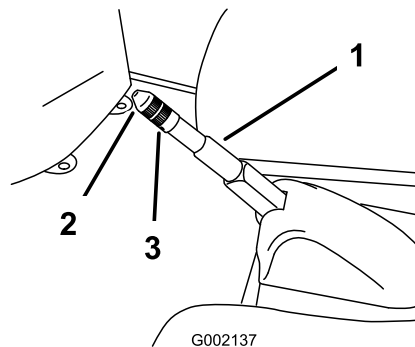


Figure 38

1. Parking-brake lever
2. Knob
3. Set screw

3. Rotate the knob until a force of 133 to 156 N-m (30 to 35 ft-lb) is required to actuate the lever.
4. Tighten the set screw and install the rubber cover.

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 for wear or damage. If the lining (brake pad) thickness is less than 1.6 mm (1/16 inch), the brake shoes should be replaced.
- 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 33).

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 lose 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 33).
4. Grease the machine; refer to Adding Grease (page 26).
5. Check the tire pressure; refer to .
6. Charge the batteries fully before placing the machine into storage; refer to Charging the Batteries (page 27). 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.
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
Always on	1. The system is functioning properly.	1. None
1 flash	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.
2 flashes	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.
3 flashes	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.
4 flashes	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.
5 flashes	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.
6 flashes	1. Accelerator potentiometer is out of adjustment.	1. Refer to your Authorized Service Dealer.
7 flashes	1. The battery voltage is out of range. 2. There is an over voltage error code caused by overspeeding 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.
8 flashes	1. The controller is overheated.	1. The machine will continue to run, but at a reduced power until the controller cools down.
9 flashes	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.
Off	1. There is either no power to the controller or the controller has failed.	1. Refer to your Authorized Service Dealer.

Notes:

Notes:

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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	Solvart 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.