Form No. 3374-403 Rev B

Lithium Battery Charger

Greensmaster® eFlex™® Traction Units

Model No. 119-4300

Operator's Manual

IMPORTANT SAFETY INSTRUCTIONS

DANGER—To reduce the risk of fire or electric shock, carefully follow these instructions.

SAVE THESE INSTRUCTIONS

This manual contains important safety and operating instructions for battery charger Model 119-4300.

Before using the battery charger, read all instructions and cautionary markings on battery charger, battery, and product using battery.

⚠ CAUTION

To reduce risk of injury, charge only Toro 04232 eFlex type Lithium Ion rechargeable batteries. Other types of batteries may burst, causing personal injury and damage.

Be sure the voltage selector is in correct voltage position before plugging in.

- For use in the U.S.A., the voltage selector switch must be placed in the 120 volt position. For use in countries other than the U.S.A, the voltage selector may need to be placed in other than the 120 volt position. Confirm the voltage available at each country location before using the product.
- For connection to a supply not in the U.S.A., use an attachment plug adapter of the proper configuration for the power outlet, if needed.

General

⚠This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

Improperly using or maintaining this charger could result in injury or death. To reduce this potential, comply with the all safety instructions.

⚠ CAUTION

Attempting to charge batteries other than those for the Toro eFLEX Walking Greensmower can result in excessive heat and other related product malfunctions, which can lead to property damage and/or injury.

⚠ CAUTION

Attempting to charge the TORO 04232 lithium ion battery pack with any charger other than this designated charger can lead to excessive heat and other related product malfunctions, which can lead to property damage and/or injury.

- **Failure to comply with these instructions may result in personal injury, risk of fire, or electrical shock.**
- Do not get the charger wet; keep it protected from rain and snow.
- A risk of fire, electric shock, or injury may result from the use of an accessory not recommended or sold by Toro.
- To reduce risk of a battery pack explosion, follow these instructions, those published in the *Operator's Manual* for the machine with regard to the battery, and the instructions for any equipment you intend to use in the vicinity of the battery pack charger. Review cautionary markings on these products and on their engines.

Training

- This appliance is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the lithium ion battery charger by a person responsible for their safety.
- Read, understand, and follow all instructions on the charger and in the manual(s) before operating this charger. Be thoroughly familiar with all the controls and the proper use of the charger. Know how to stop the charger and disengage the controls quickly.

⚠ CAUTION

Risk of Explosive Gases. Although rare, the battery pack could emit explosive gases if it is significantly overcharged. It is important that you comply with all instructions relating to this charger, the battery, and any equipment in operation nearby.

Preparation

- **Keep children and bystanders away**—Keep people a safe distance away from the work area.
- **Dress properly**—Do not wear loose clothing or jewelry. Wear rubber-soled shoes when operating the charger.
- Turn the ignition switch on the machine to the Off position and wait 5 seconds until the machine has completely powered down before you connect the battery pack to the charger. Failure to do this may cause an arc to occur.
- Ensure that the area is well ventilated while charging is under way.

© 2014—The Toro® Company
8111 Lyndale Avenue South
Bloomington, MN 55420

Register at www.Toro.com.

CE

Original Instructions (EN)
Printed in the USA
All Rights Reserved

3374-403 B

- Study all battery pack manufacturer's specific precautions for charging and take the steps needed to comply with them.
- This battery pack charger is for use only on nominal 120 and 240 VAC circuits, and is equipped with a grounding plug for 120 VAC operation. For use with 240 volt circuits, contact your Authorized Parts Dealer for the correct power cord.

⚠ CAUTION

Risk of fire or electric shock. Connect the battery pack charger directly to a grounding receptacle (three-prong). Do not use this charger on an ungrounded outlet, even with an adaptor.

Operation

- **General Precautions**
  - **Never** charge a frozen battery.
  - **Do not abuse the cord**—Never carry the charger by its cord or yank on the power supply cord to disconnect the charger from the receptacle. Keep the cord from heat, oil, and sharp edges.
  - Keep the case intact.
  - When carrying the charger, always be sure of your footing, and keep a firm hold on the handle. Walk; never run. Exercise caution to avoid slipping or falling.
- **Personal Precautions**

⚠ DANGER

Never alter the provided power cord or plug. If it will not fit the outlet, wait for a qualified electrician to install a proper outlet. An improper connection can cause an electric shock.

  - Wear complete eye protection and clothing protection.
  - Immediately wash any skin or clothing that battery pack electrolyte contacts with soap and water. Should electrolyte get in your eye, immediately flood the eye with cold running water for at least 10 minutes and immediately call for emergency medical service.
  - **Do not ever** smoke or permit a spark or flame near a battery.
  - Take extra precautions to avoid dropping a metal tool near or onto a battery. It might cause a spark or short-circuit an electrical part that could lead to an explosion.
  - Remove metal items such as rings, bracelets, necklaces, and watches from your person when working with a lithium ion battery. A lithium ion battery pack can produce enough current to cause a severe burn.
  - **Use this charger only for charging Toro lithium ion batteries for the eFLEX Walking Greensmower, as specified in the equipment's *Operator's Manual.*** Do not use it for any other purpose.
- **Location**
  - Never operate the charger without good visibility or light.
  - Operate the charger in an open area with good ventilation.
- **Output Connection Precautions**
  - The charger must always be off prior to connecting or disconnecting the battery pack to the charger, Never allow a metal object to touch the recessed pins in the end of the connector.
  - Comply with the instructions in this manual when you connect and disconnect the charger and the battery.
- **Power Connection Precautions**
  - **Grounding—**The charger should be grounded to reduce the risk of electric shock. The electric cord included with this charger will supply a ground when plugged into a properly wired grounding outlet installed in accordance with all local codes and ordinances.

⚠ CAUTION

Risk of fire or electric shock. Connect the battery pack charger directly to a grounding receptacle (three-prong). Do not use this charger on an ungrounded outlet, even with an adaptor.

  - Do not use an extension cord unless absolutely necessary. Use of an improper extension cord could increase the risk of fire and electric shock. If you must use an extension cord, make sure of the following:
    - ◊ The pins on the plug of the extension cord match the number, size, and shape of those on the plug that came with the charger.
    - ◊ The extension cord is properly wired and insulated and is in safe electrical condition.
    - ◊ The wire size large enough for the AC ampere rating of the charger as specified in the table below.

AC Input Rating		Cord Size—Minimum Wire Gauge (A.W.G.)			
		Cord Length			
Min	Max	7.6 m (25 ft)	15.2 m (50 ft)	30.5 m (100 ft)	45.6 m (150 ft)
4 A	5 A	18	18	14	12

  - Ensure that the charger is turned off prior to plugging the power supply cord into an electrical outlet.
  - If the power supply cord is damaged in any manner while it is plugged in, disconnect the cord from the wall receptacle and contact an Authorized Service Dealer for a replacement.
  - **Disconnect the charger**—Unplug the charger from the electrical outlet when not in use, before moving it to another location, or prior to servicing it.
  - Always pull the plug rather than the cord when disconnecting the power supply cord to avoid damage to the electric plug and cord.

Maintenance and Storage

⚠ CAUTION

Risk of electrical shock. Do not attempt to service this charger unless you are authorized and qualified to do so.

Store an idle charger indoors. When the charger is not in use, it should be stored indoors in a dry, secured place out of the reach of unauthorized users.

Maintain the charger with care.

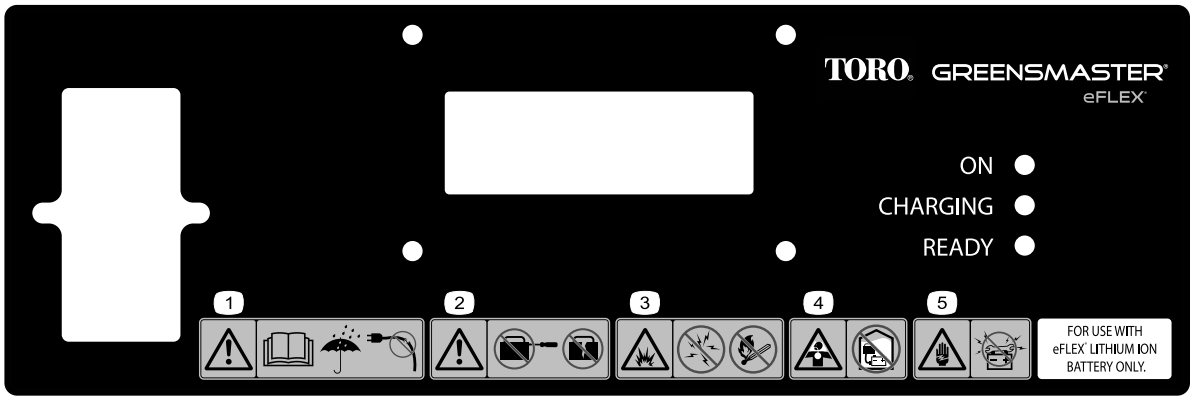
Replacement parts—When servicing the charger, use only identical replacement parts.

- Take the charger to an Authorized Toro Distributor when service or repair is required.
- Do not disassemble the charger; incorrect reassembly may result in a risk of electric shock or fire.

- Unplug the power cord from the outlet before starting any maintenance or cleaning to reduce risk of electric shock, Turning off the power switch will not reduce this risk.
- Check all fasteners at frequent intervals for proper tightness to ensure that the charger is in safe working condition.
- Always refer to the *Operator's Manual* for important details if the charger is to be stored for an extended period.
- Maintain or replace safety and instruction labels as needed.
- Replace a damaged cord or plug immediately. Do not operate the charger with a damaged cord or plug.
- If the charger has received a sharp blow, been dropped, or otherwise damaged in any way, do not operate it; take it to an Authorized Toro Distributor.

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.



121–4653

1. Warning—read the *Operator's Manual*; keep the machine dry; do not operate the machine with a damaged electrical cord.
2. Warning—do not remove the battery charger cover; do not break the battery charger apart.
3. Explosion hazard—avoid sparks, fire, open flames, or smoking.
4. Toxic gas inhalation hazard—do not charge the battery indoors.
5. Electric shock hazard—do not allow tools to short circuit battery posts when performing maintenance.

Setup

1

Verifying the Voltage Setting of the Charger

No Parts Required

Procedure

1. Check the orientation of the fuse tray under the power cord receptacle to determine if the current voltage setting of the charger is set to the same voltage rating of the electrical outlet you will use to power it (Figure 1).

   Note: Figure 1 illustrates the setting for 110–120 V power.

   Important: An incorrect voltage setting on the battery pack charger could damage the charger and/or battery.

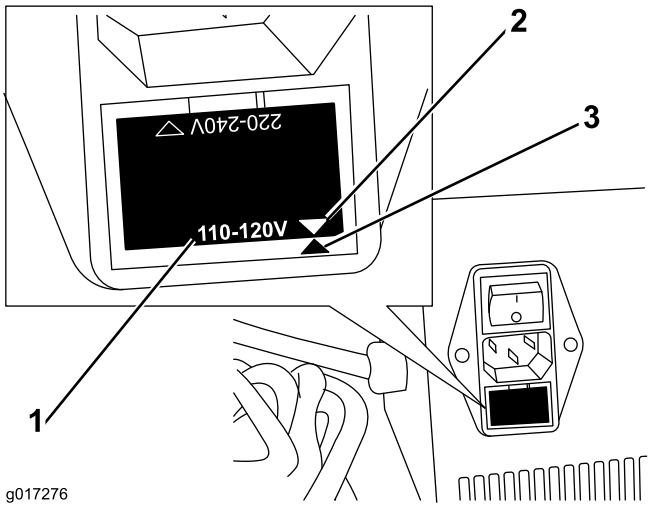


Figure 1

1. Voltage setting
2. Fuse tray voltage arrow
3. Fuse tray holder reference mark

2. If you need to change the voltage setting, remove the fuse tray using a medium-sized, flat-bladed screwdriver.

3. Turn the fuse tray over so that the voltage on the fuse tray lines up with the reference mark on the fuse tray holder (Figure 1).
4. Press the fuse tray back into the holder with slow, even pressure until it is fully seated.

2

Mounting the Charger on a Wall

No Parts Required

Procedure

You can mount the charger on a wall using the wall-mount key holes cut into the back of the unit. Obtain appropriate screws for attaching the charger to the wall. The screws should have a 6 mm (1/4 inch) diameter shaft with a head diameter of 11 mm (0.45 inch).

Important: Survey your work area and determine a location that best meets the criteria for safe and effective operation of the charger.

Operation

The charger is designed for unattended use, even for a period of months, such as winter storage.

Important: See the traction unit and battery *Operator's Manual* for temperature restrictions on the battery pack.

Product Overview

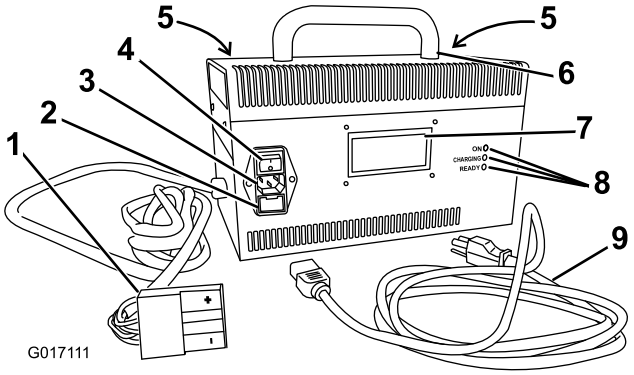


Figure 2

1. Output connector and cord
2. Fuse tray
3. Input power socket
4. Power switch
5. Wall mount key holes
6. Handle
7. LCD message display
8. LED status lights
9. Power-supply cord

Connecting to a Power Source

To reduce the risk of electric shock, this charger has a 3-prong grounded plug. If the plug does not fit into the wall receptacle, contact a qualified electrician to install the proper outlet. Do not change the charger or the power supply cord plug in any way.

⚠ DANGER

Contact with water while operating the machine could cause electric shock, causing injury or death. Don't handle the plug or the charger with wet hands or while standing in water.

Important: Check the power supply cord periodically for holes or cracks in the insulation. Do not use a damaged cord. Do not run the cord through standing water or wet grass.

1. Make sure that the charger is turned off (Figure 3).

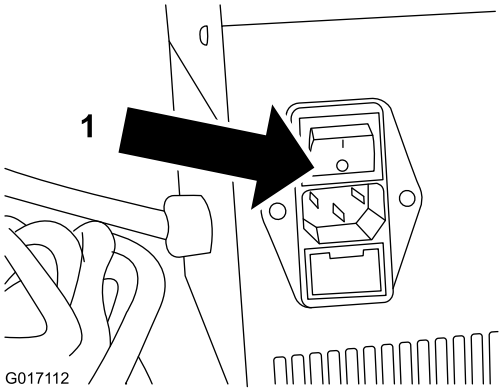


Figure 3

1. Press the power switch to turn it off.

2. Insert the charger plug on the power supply cord into the matching input power socket on the charger.

⚠ WARNING

A damaged charger cord can cause an electrical shock or a fire.

Thoroughly inspect the power supply cord before using the charger. If the cord is damaged, do not operate the charger until you obtain a replacement.

3. Insert the wall plug end of the power supply cord into a grounded electrical outlet.

Charging the Battery

⚠ DANGER

Battery charging is dangerous when done improperly. Do not allow untrained people to operate this equipment. Thoroughly review the safety instructions at the start of this manual before you operate this equipment. Keep this manual with the charger at all times.

1. Park the eFlex walk greensmower in the location designated for overnight charging.
2. Set the parking brake (Figure 4).

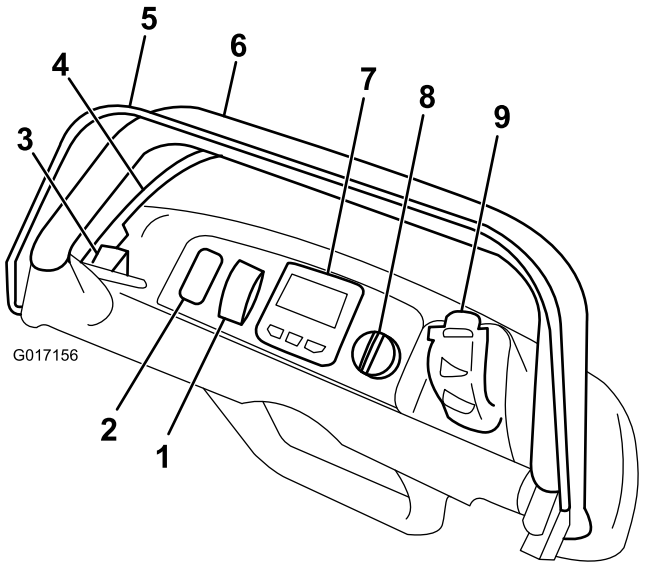


Figure 4

1. EZ-Turn switch
2. Open space for operational lights
3. Parking break latch
4. Service brake
5. Operator presence control
6. Handle
7. InfoCenter LCD display
8. Key switch
9. Speed control

3. Turn the power to the eFlex off (Figure 3).
4. Verify the charger is turned off (Figure 5).

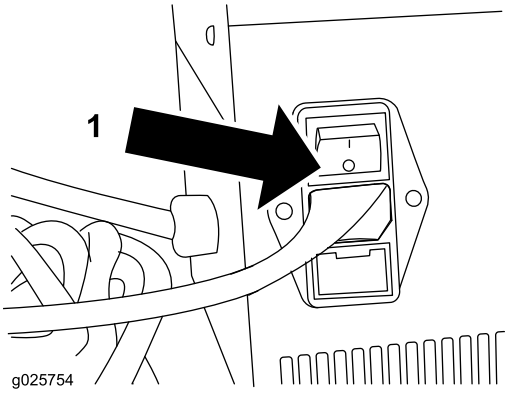


Figure 5

1. Press the power switch to turn it off.

Note: The power of the charger must be cycled off prior to attempting to charge the battery. The charger will not recognize that a battery has been connected and charging will not commence.

5. Pull the eFlex T-handle connector off the main battery power supply connector affixed to the battery tray (Figure 6).

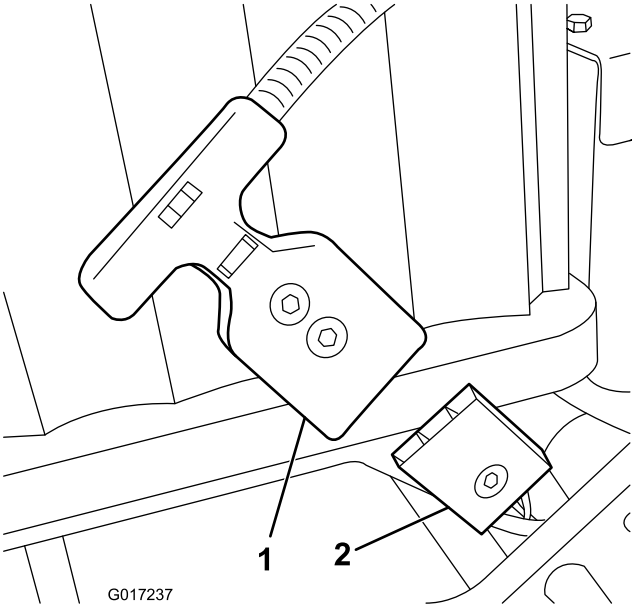


Figure 6

1. T-handle connector
2. Main power supply connector on the battery platform

6. Clean and dry both the battery pack and charger connectors.

Important: Do not use strong solvents that will degrade the strength of the connector plastic. Do not use dielectric grease on the connector or battery contacts.

7. Align the positive connectors (marked with a “+”) and push together until they lock.
8. Turn the charger on (Figure 7). The “ON” LED indicator will illuminate.

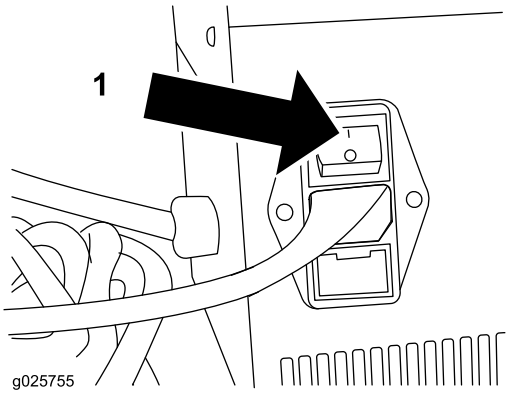


Figure 7

1. Press the power switch to turn it on.

9. Watch the LCD message display for the “Battery Accepted” message (Figure 8).



Figure 8

10. Continue to watch the LCD message display for the “State 3, CHARGING” message (Figure 9). The “Charging” LED will illuminate.

    Note: You can leave the battery pack to complete its charge at this time.

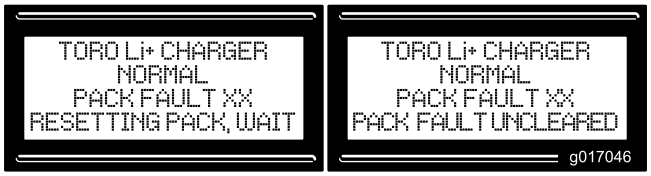


Figure 9

- XX.XV = Battery voltage
- XX.X% = State of Charge (SOC)
- X.XA = Charging Amperage

11. If any other message is displayed as shown in Figure 10, Figure 11, and Figure 12 there is likely a fault. The “Ready” LED status light will flash.
    - Go back to step 4.
    - Inspect the connector pins for debris, corrosion, and proper position (ie. bent or pushed out of position).
    - Attempt the charge process again.

    If the fault is registered again, then contact an Authorized Service Distributor for further assistance.



Figure 10



Figure 11



Figure 12

⚠ WARNING

If there are workers present while a battery pack is charging, designate a person to supervise the area and ensure compliance with all safety instructions contained in this manual. That person shall:

- **Be alert to people that come into the area and the equipment they are using.**
- **Stop any unsafe activities and prevent any unsafe conditions.**
- **Do not allow activity near the charger or battery pack that might result in either being bumped or knocked over.**
- **Do not allow the operation of any equipment that might produce a spark or flame or that could discharge water or other liquids on or around the battery pack or charger.**

Monitoring the Charging Process

The LCD status display will display messages during the course of charging. Most are routine.

Note: If there is a fault, the “Ready” LED status light will flash and one of the messages in Figure 10, Figure 11, and Figure 12 will be displayed. Contact an Authorized Service Dealer.

Completion of the Charging Process

When Charging is complete, one of two messages will be displayed. The machine is ready for use in either case.

Message “State 4, STANDBY” indicates the battery is fully charged and the charger went into a standby phase as shown in Figure 13.

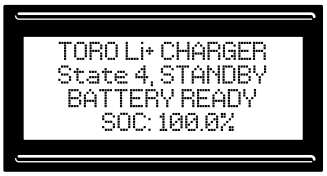


Figure 13

Message “State 4, Cell Balance/Pack OK to use” indicates that the battery is performing a cell balance process to ensure the cells maximize their capacity and attain maximum life from the battery pack. The State of Charge (SOC) may be between 98-100%.

Note: : If the battery is left on the charger for more than 24 hours:

The state displayed will change to “HIBERNATE”, indicating the charger has entered a low power state.

The battery is still ready to be put into full service when taken off the charger.

Refer to the traction unit Operator’s Manual for detailed instructions on charging during extended length of storage (greater than 10 days).

Disconnecting the Charger

1. Note the percent SOC (state of charge) on the charger LCD status display.
2. Turn off the charger.
3. Disconnect the charger T-handle connector from the main battery power supply connector affixed to the battery tray.

   Important: Do not pull on the cables
4. Place the charger T-handle and cord in a storage position that will avoid damage.
5. Ensure the eFlex T-handle and battery pack connectors are clean.
6. Connect the eFlex T-handle to the battery pack connector (Figure 14)

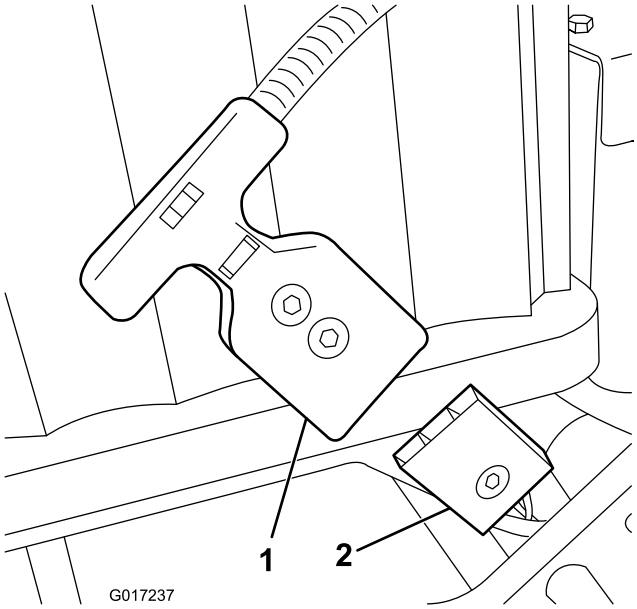


Figure 14

1. T-handle connector
2. Main power supply connector on the battery platform

7. Turn on eFlex machine power (See the Operator's Manual) and verify battery charge displayed on the InfoCenter matches that as stated on the charger LCD display prior to powering the charger down.

   Note: If the power of the charger is not cycled off prior to attempting to charge the battery, it will not recognize that a battery has been re-connected and charging will not commence.

Maintenance

Important: All electrical repairs should be performed by an Authorized Service Distributor only.

The operator can perform very little maintenance other than protecting the charger from damage and weather.

Maintaining the Cords

- Clean the cords with a slightly damp cloth after each use.
- Coil the cords when not in use.
- Periodically examine the cords for damage, and replace them when necessary with Toro-approved parts.

Replacing the Fuse

If the charger stops working, check the fuse located under the cord receptacle (Figure 1). If the fuse is blown, replace it with the same rated fuse that you removed. Ensure that you insert the fuse in the orientation appropriate for your voltage.

Cleaning the Case

Clean the case with a slightly damp cloth after each use.

Service

This charger is a solid state device and should not require service under normal operating conditions and use according to these instructions. Should it need service, bring the charger to an Authorized Toro Service Distributor. Repair by service centers not operated by Toro may result in damage to connected equipment and is not covered under the warranty.

Storage

1. Complete the procedure for Disconnecting the Charger (page 7).
2. Disconnect the power supply cord from the charger and coil it securely.
3. Examine the power supply cord thoroughly for signs of wear or damage. Replace it if it is worn or damaged.
4. Examine the charger thoroughly for worn, loose, or damaged parts. To repair or replace parts, contact an Authorized Parts Dealer for assistance.
5. Store the charger with the power supply cord in a clean, dry place where it will not be bumped or damaged and not exposed to caustic fumes.

The Toro Total Coverage Guarantee

A Limited Warranty

Conditions and Products Covered

The Toro Company and its affiliate, Toro Warranty Company, pursuant to an agreement between them, jointly warrant your Toro Commercial product ("Product") to be free from defects in materials or workmanship for two years or 1500 operational hours*, whichever occurs first. This warranty is applicable to all products with the exception of Aerators (refer to separate warranty statements for these products). Where a warrantable condition exists, we will repair the Product at no cost to you including diagnostics, labor, parts, and transportation. This warranty begins on the date the Product is delivered to the original retail purchaser.
* Product equipped with an hour meter.

Instructions for Obtaining Warranty Service

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

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

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

Owner Responsibilities

As the Product owner, you are responsible for required maintenance and adjustments stated in your *Operator's Manual*. 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, brake pads and linings, clutch linings, blades, reels, rollers and bearings (sealed or greasable), bed knives, spark plugs, castor wheels and bearings, tires, filters, belts, and certain sprayer components such as diaphragms, nozzles, and check valves, etc.
- Failures caused by outside influence. Conditions considered to be outside influence include, but are not limited to, weather, storage practices, contamination, use of unapproved fuels, coolants, lubricants, additives, fertilizers, water, or chemicals, etc.
- Failure or performance issues due to the use of fuels (e.g. gasoline, diesel, or biodiesel) that do not conform to their respective industry standards.
- Normal noise, vibration, wear and tear, and deterioration.
- Normal "wear and tear" includes, but is not limited to, damage to seats due to wear or abrasion, worn painted surfaces, scratched decals or windows, 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.

Deep Cycle and Lithium-Ion Battery Warranty:

Deep cycle and Lithium-Ion batteries have a specified total number of kilowatt-hours they can deliver during their lifetime. Operating, recharging, and maintenance techniques can extend or reduce total battery life. As the batteries in this product are consumed, the amount of useful work between charging intervals will slowly decrease until the battery is completely worn out. Replacement of worn out batteries, due to normal consumption, is the responsibility of the product owner. Battery replacement may be required during the normal product warranty period at owner's expense. Note: (Lithium-Ion battery only): A Lithium-Ion battery has a part only prorated warranty beginning year 3 through year 5 based on the time in service and kilowatt hours used. Refer to the *Operator's Manual* for additional information.

Maintenance is at Owner's Expense

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

General Conditions

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

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

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

Note regarding engine warranty:

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

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.

374-0253 Rev B