

BATTERY CHARGER

MODEL NO: **906546**



OWNER'S MANUAL AND INSTALLATION GUIDE

09/09

69467 Rev. B

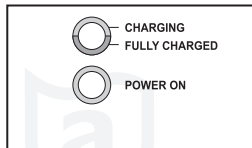
FEATURES:

- The unit is designed for charging / maintaining a DC 12V/2-15Ah LEAD-ACID battery only
- Input: CA 120 / 240 V, 60Hz, 0,4 A
- Output: DC 12V, 1.5Amp
- For maintenance charging RVs, specialty vehicles, marine deep cycle batteries and more
- Built-in circuit protection guards against overcharging or short circuit
- Water resistant with epoxy potted interior space parts
- Shockproof with strong ABS material and compact design
- Convenient, color-coded ring terminals for easy, correct installation
- Fully automatic: powers on when needed, powers off when battery is fully-charged or topped-off
- LED charging indicator: *(LED charge indicator changes from Red to Green as battery reaches full charge)* see Figure 1.

Red - connection correct and charging
Green - fully charged

- Power on indicator
- ETL-Listed for safety

Figura 1



IMPORTANT NOTICE

PLEASE READ AND SAVE THESE INSTRUCTIONS. THIS MANUAL CONTAINS IMPORTANT SAFETY AND OPERATING INSTRUCTIONS, TO REDUCE THE RISK OF INJURY, PLEASE FOLLOW THESE INSTRUCTIONS AND THOSE PUBLISHED BY THE BATTERY MANUFACTURER AND MANUFACTURER OF ANY EQUIPMENT YOU INTEND TO USE WITH THIS UNIT.

⚠ WARNING:

READ ALL INSTRUCTIONS BEFORE OPERATING PRODUCT. FAILURE TO FOLLOW ALL INSTRUCTIONS LISTED BELOW MAY RESULT IN ELECTRIC SHOCK, FIRE AND/OR SERIOUS INJURY.

KEEP CHILDREN AWAY: THIS UNIT IS NOT FOR USE BY CHILDREN AND SHOULD ONLY BE OPERATED BY ADULTS. ALL VISITORS SHOULD BE KEPT AT A DISTANCE FROM WORK AREA.

GENERAL SAFETY INSTRUCTIONS

This equipment employs parts that produce arcs or sparks. Therefore, if used in a garage or enclosed area, the unit **MUST** be placed not less than 18 inches above the floor.

Before connecting your batteries or AC power, read all instructions and cautionary markings on the battery charger and batteries.

Use of attachments not recommended or sold by Tonny Corporation may result in a risk of fire, electrical shock or personal injury.

Do not operate the charger if it has received a sharp blow, direct hit of force, dropped or otherwise damaged in any way.

Do not operate this unit in a closed area or restrict ventilation in any way.

Do not disassemble the charger. Incorrect assembly could result in electrical shock or fire.

Never allow battery acid to come in contact with this unit.

To reduce risk of electrical shock, remove AC power from the charger prior to any maintenance or cleaning. Pull cord by plug rather than cord when disconnecting the unit from the power source. Never carry appliance by cord or yank it to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.

To reduce risk of explosion, follow these instructions and those published by the battery manufacture, and any equipment you intend to use in the vicinity of the battery. Review all cautionary markings and labels.

When not in use, store indoors in dry, and high or locked-up place – out of reach of children.

Do not use the charger for any job except that for which it is intended.

NEVER submerge this unit in water; do not expose it to rain, snow or use when wet.

To reduce risk of electric shock, disconnect the unit from any power source before attempting maintenance or cleaning.

⚠ WARNING:

RISK OF EXPLOSIVE GASES: WORKING IN THE VICINITY OF A LEAD ACID BATTERY IS DANGEROUS. BATTERIES GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS OF THE UTMOST IMPORTANCE THAT EACH TIME BEFORE USING THE BATTERY MAINTAINER YOU READ THIS MANUAL AND FOLLOW INSTRUCTIONS.

To reduce the risk of battery explosion, follow these instructions and those published by the battery manufacturer and manufacturer of any equipment you intend to use in the vicinity of the battery. Review all cautionary markings and labels.

PERSONAL SAFETY PRECAUTIONS

Someone should be within the range of your voice or close enough to come to your aid when working near a lead acid battery.

Have plenty of water and soap nearby in case battery acid comes in contact with skin, clothes or eyes, contact with battery acid may cause blindness and/or severe burns. Be aware of first aid procedures in case of accidental contact with battery acid

Wear complete eye protection and clothing protection, Avoid touching eyes while working with a battery.

If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters the eye(s) flood eye(s) with running cold water for at least 10 minutes and get medical attention immediately.

Never smoke or allow a spark or flame in vicinity of vehicle battery, engine or battery maintainer.

Be extra cautious to reduce risk of dropping a metal tool onto a battery. It may spark or short circuit the battery or other electrical parts that may cause an explosion.

Remove personal metal items such as rings, bracelets, necklaces and watches when working with a lead acid battery. A lead acid battery can produce a short circuit current high enough to weld a ring, or the like of a metal, causing a severe burn.

Never attempt to jump start or charge a frozen battery.

Do NOT operate charger near flammable liquids or in gaseous or explosive atmospheres.

⚠ WARNING: BURST HAZARD

DO NOT USE THE UNIT FOR CHARGING DRY-CELL BATTERIES THAT ARE COMMONLY USED WITH HOME APPLIANCES. THESE BATTERIES MAY BURST AND CAUSE INJURY TO PERSONS AND DAMAGE PROPERTY. USE THE UNIT FOR CHARGING/MAINTAINING A LEAD-ACID (LEAD ACID, SEALED LEAD ACID, GEL CELL AND AGM) BATTERY ONLY.

OPERATING INSTRUCTIONS

Safety Precautions Prior to Charging Batteries

NOTE: ALWAYS disconnect the AC power cord from the AC power outlet before connecting (or disconnecting) the charger to (or from) the battery.

If battery needs to be removed from vehicle to charge, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off, as not to cause an arc.

Be sure the area around the charger and batteries is well ventilated while the batteries are being charged. Gases can be forcefully blown away using a piece of cardboard or other nonmetallic material as a fan.

Add distilled water in each cell until electrolyte reaches levels specified by the battery manufacturer. This helps purge excessive gases from cells. Do not overfill. For batteries without caps, carefully follow manufacturer's recharging instructions.

Study all manufacturers' specific precautions, such as removing or not removing cell caps while charging, in addition to rates of charge.

Always make your extension cord connection on the charger side first. After connecting the extension cord to the charger then proceed to plug the extension cord to a nearby 120 VAC GFCI (Ground Fault Circuit Interrupt) protected outlet.

Always remove the extension cord from the 120 VAC outlet first when charging is completed followed by unplugging the charger.

If extension cord must be used, insure that cord is industrial grade / heavy duty U.L. approved and grounded. Check extension cord before use for damage, bent prongs and cuts. Replace if damaged.

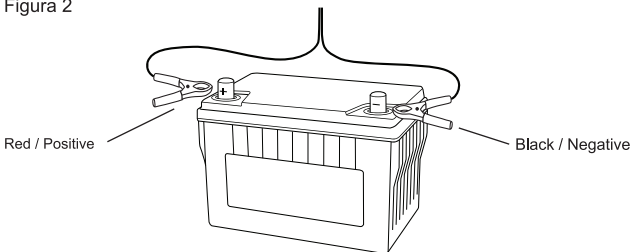
GENERAL OPERATION

Install your Tonny Battery Charger / Maintainer to the guidelines within this manual.

Make sure your charger and batteries are properly vented. Connect your AC power plug to a nearby 120 VAC GFCI (Ground Fault Circuit Interrupt) protected outlet. With your Tonny battery charger / maintainer plugged in properly, it will automatically charge and maintain at full charge and extend the performance of your battery.

Connecting the battery clamps directly to the corresponding connectors on the battery posts. Position the RED clamp on the POSITIVE post connector. Position the BLACK clamp on the NEGATIVE post connector. See Figure 2.

Figura 2



CHARGING BATTERIES

1. Open all battery compartments and ventilate for at least 15 minutes before applying AC power to your charger. While charging your batteries, make sure to keep your battery compartment open allowing for free air ventilation.
2. Make sure all DC battery connections are tight and clean. Follow battery manufacturer's recommendations for battery cell caps, (loosen caps if applicable).

3. Connect a heavy duty U.L. approved extension cord to the charger first. After connecting the extension cord to the charger, then proceed to plug the extension cord to a nearby 120 VAC GFCI (Ground Fault Circuit Interrupt) protected outlet.

4. Observe the LED indicators for a solid green (power on) and red (charging) indication. This will tell you the batteries are in the charging process.

5. Charge your batteries until both lights are green. This indicates that the charging process is complete and your batteries are fully charged and now being maintained on a float mode. The Tonny battery charger / maintainer can be left on indefinitely and will never overcharge your batteries.

6. When you are ready to use your vehicle, unplug extension cord (if used) from the 120 VAC power outlet first, followed by unplugging your charger.

ON BOARD INSTALLATION

The Tonny Battery Charger is designed to be permanently mounted on-board, or utilized as a portable unit.

Always mount your Tonny Battery Charger in a compartment area that can be properly ventilated during use.

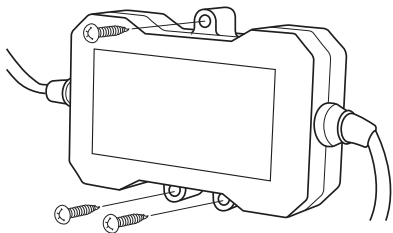
Do NOT mix battery types on-board. All batteries should be of the same age and in good operating condition.

Do NOT make any electrical connections to the charger or batteries until the following steps are completed:

Easy-to-follow installation steps:

1. Select a mounting location that allows for free air ventilation with a minimum of 8 inches of clear, unobstructed space around and in front of the charger. Open all battery and engine compartments and ventilate for at least 15 minutes before starting the installation of the charger. Locate charger as far away from the battery as DC cable permits. Never place charger directly above battery being charged. Never allow battery acid to drip on charger when reading specific gravity or filling battery. Do not operate battery in a closed-in area or restrict ventilation in any way. Do not set battery on top of charger.
2. Confirm the selected mounting location allows for a minimum of 8 inches of free space around front and sides of the charger. Do not install charger on carpeted, upholstered, vinyl or varnished areas. Be sure to place the charger in an accessible area where all indicators are viewable. Confirm all battery cables can reach each of the batteries.
3. Using the charger as a template, use a small awl or screwdriver to mark the position of each mounting hole.
4. Using a 1/8" drill bit, drill pilot holes in the (3) marked locations as described in step 3. Apply a silicon sealer in each of the mounting locations to waterproof the screw holes.
5. Position the charger over the mounting holes and secure by installing (3) marine grade or stainless steel screws that meet your applications requirements (mounting screws not included). See Figure 3.

Figura 3



6. Prepare each battery in advance by cleaning each terminal post with a wire brush until a shiny surface is obtained.

7. Run your cables free from sharp objects and hold each of them in place with cable ties. Coil excess cable; do not cut or shorten the length of the cables.

8. Connect the DC output cables as illustrated (see Figure 2). Make sure the (black) wires are connected as illustrated to the negative side of the battery and the red wires are connected to the positive side of the battery.

9. Make sure all DC connections are tight and correct.

10. Locate the AC power cord in an open-air area of your boat at least 21 inches from the charger, batteries, and fuel fill lines.

11. Connect a heavy-duty U.L. approved extension cord to the charger first. After connecting the extension cord to the charger, then proceed to plug the extension cord to a nearby 120VAC GFCI (Ground Fault Circuit Interrupt) protected outlet. Always remove the extension cord from the 120VAC outlet first when charging is completed, followed by unplugging the charger.

You are now connected and charging your battery. View the LED indicators. Assuming your batteries are discharged, you should observe both the green "Power On" LED and the red "Charging" LED, indicating charging mode is in process. As your battery reaches full charge the "Charging LED will change from red to green.

OWNERS PERIODIC MAINTENANCE GUIDE

Item:	Battery Connections
Process:	Clean and tighten all battery connections. Follow battery manufacturer's instructions for cleaning a battery. Clean all battery terminals with a wire brush where required and tighten all battery connections.
When:	Monthly
Item:	Battery Electrolyte
Process:	Per battery manufacturer's instructions, monitor and maintain proper levels of distilled water in each battery.
When:	Monthly
Item:	DC Output Wiring
Process:	Visually inspect all wiring for cuts and abrasions.
When:	Monthly
Item:	AC Power Cord and Mounting Hardware Inspection
Process:	Process: Visually inspect the AC power cord. Confirm ground blade is present and all plug blades are in good conditions and not bent out of place. Check all mounting hardware to ensure there is no loose hardware. Tighten where required.
When:	Before each use

TROUBLE SHOOTING GUIDE

No Red or Green LED Indicator

Check AC power at the 120 VAC outlet. Make sure all connections and GFCI (Ground Fault Circuit Interrupter) has not tripped. Using a meter or 120 VAC test light, verify that AC is present at the outlet or at the end of the extension cord (if using).

Confirm all charger cables are installed with the correct polarity connections at each battery and that all connections are clean and tight.

With the AC power removed and the engine off, check the charge level of each battery with a DC meter or tester. If there is no charge level indication for a battery, check each battery with a hydrometer to determine if it has one or more bad cells. Always replace sets of batteries together and always use the same type of batteries.

After checking and validating all of the above and the indicator lights still don't operate, contact Tonny for product service.

Battery is not charging and Red and Green Indicator lights are on

Confirm all charger cables are installed correctly with the correct polarity connections at each battery, and that all connections are clean and tight.

With the charger on, read DC voltage at each battery. If any of the readings are less than 13 VDC proceed with the following:

- a. Disconnect AC power at the 120 VAC outlet.
- b. Remove charger cables from each battery.
- c. Reconnect AC power and read DC voltage across each output cable. If output voltage is approximately 13.3 VDC the charger is ok and each battery should be tested with a hydrometer with the charger and engine off to determine if one of more batteries have bad cells. When using sets of batteries, sets should always be replaced in together and of always the same type.
- d. After checks are made and it is determined that there is no DC voltage output reading or is less than 13.0 volts contact Tonny product service.

FCC CLASS A PART 15 NOTIFICATION

Your Tonny Battery Charger / Maintainer has been designed and tested to comply with FCC Class A part 15. These regulations are to provide adequate protection against harmful interference while operated in a commercial application. If in a residential setting you are encountering interference with TV and Radio reception. Simply remove AC from the charger to confirm if your battery charger is causing interference. End user can explore the following to minimize interference.

1. Chose a different AC circuit to power your Tonny Battery Charger / Maintainer
2. Make sure your outlet is properly grounded
3. Reposition receiving antenna
4. Purchase a separate AC line filter
5. Relocate charger so that it is at the furthest point from home receiving equipment (TV, radio, etc.

This product carries the standard Tonny 1-year warranty.

