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TC10TB

Owner's Manual

Xantrex Truecharge™ 10TB Multistage Battery Charger

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1.0 Introduction

Thank you for purchasing the Xantrex Truecharge™ 10TB Automatic Battery Charger. The Truecharge 10TB is part of an advanced family of battery chargers from Xantrex. It is specifically designed for charging high performance deep-cycle lead acid batteries from 25 to 200 ampere-hour capacity. Using the latest high frequency switchmode power conversion technology, the Truecharge 10TB outperforms traditional battery chargers several times its size, even under conditions of marginal AC power. Its sophisticated proprietary microprocessor charging algorithms ensure your batteries are always at maximum charge, while preventing battery damage due to overcharging.

Read this manual before installing or using the Truecharge and save it for future reference.

The following main topics are covered in this manual:

- Important safety information
- Installation and operating instructions
- General principles of operation.

2.0 Important Safety Instructions … Before You Install the Truecharge

Incorrect installation or operation of the Truecharge may result in hazardous conditions. We urge you to pay special attention to all CAUTION and WARNING statements. CAUTION statements identify conditions or practices that may result in damage to the Truecharge or to other equipment. WARNING statements identify conditions that may result in personal injury or loss of life. Failure to follow instructions in this manual may result in personal injury and/or damage to the Truecharge.

2.1 General Safety Precautions

1. Do not expose the Truecharge to rain, snow, spray or bilge water splash.
2. All wiring must comply with local and national electrical codes. Use only the wire sizes specified in the installation instructions. Xantrex recommends having the installation wired by a certified electrician.
3. The Truecharge contains shock and energy hazards. Do not disassemble. There are no user-serviceable parts inside.
4. Disconnect all AC and DC power at its source prior to cleaning or removing the wiring cover to access wiring terminals or the internal fuse.
5. Switch off AC power before connecting or disconnecting DC wiring or battery connections.
6. Charge only 12-volt lead acid batteries. Never attempt to charge other types such as Nickel-Cadmium (Ni-Cad), or Nickel-Metal Hydride (Ni-MH) batteries. Never attempt to charge any other voltage of lead acid battery such as 6-volt or 24-volt types. These batteries may burst, causing personal injury and damage.
7. The Truecharge can only be used as a power source when it is connected to a battery.
8. Using attachments not recommended or sold by Xantrex may result in risk of fire, shock or personal injury.
9. Although the Truecharge is approved as an ignition-protected device, avoid installing it in any space containing gasoline or propane tanks, a gasoline engine or associated fuel lines and fittings.
10. Do not install the Truecharge in a zero-clearance enclosure. Overheating may result. Mount correctly and maintain the clearance around the unit, as detailed in the installation instructions.

11. Ensure existing wiring is in good electrical condition, and that AC wiring size is 14 AWG or larger and less than 100 feet long. Do not operate charger with damaged or substandard wiring. This will avoid risk of fire and electric shock.
12. Do not operate the charger if it has received a sharp blow, been dropped or damaged in any way. A damaged charger must be taken to qualified service personnel for repair.

2.2 Safety Precautions for Working Around Lead Acid Batteries

WARNING! Explosion hazard.

Batteries generate explosive gases during normal operation. Follow these precautions, and those published by the battery manufacturer, to reduce the risk of explosion.

1. Never smoke or allow a spark or flame in the vicinity of a battery.
2. Ensure the battery compartment is well ventilated, in accordance with all codes applicable to the installation.
3. For flooded batteries, check acid level periodically and fill with distilled water per manufacturer's instructions, to reduce the remaining space in the cells where explosive gases can collect.
4. Never attempt to charge a frozen battery.

CAUTION! Batteries contain corrosive materials and present a safety hazard.

1. Wear eye protection and protective clothing.
2. If battery acid or corrosive by-products contact skin or clothing, wash immediately with soap and water. In the event of eye contact, immediately flush with running water for 20 minutes, then seek prompt medical attention.
3. Always ensure someone is nearby to help you in the event of an emergency.
4. Remove personal metal items such as rings, watches, bracelets etc. and be careful not to drop metal or tools on the battery. Contact to the battery terminals may result in a short circuit, causing severe burns or triggering an explosion.

3.0 Design Features

The design of the Truecharge incorporates numerous features that traditional battery charger designs cannot match. Key features and their benefits to the user are as follows.

3.1 Microprocessor Controlled 3-Stage Charging

Truecharge provides fast, complete charging without sacrificing battery life. The sophisticated 3-Stage charging algorithms executed by the Truecharge's microprocessor compensate for conditions that normally cause less sophisticated chargers to deliver an improper charge. The Truecharge's advanced design eliminates design compromises inherent in old-fashioned chargers and provides the following benefits.

- Full 10-amp charge is delivered for the duration of the "Bulk Charge" period, until the battery nears full charge. Traditional chargers deliver full rated current only when the battery is nearly discharged, rapidly "tapering" off to a much lower value. Because its charge current does not taper off during bulk charging, the 10-amp rated Truecharge 10TB can fully charge a battery in about half the time a traditional 10-amp rated charger would take.
- Automatic switchover to "Absorption Charge" mode as the battery nears full charge. In this mode, output voltage is held absolutely constant to ensure the battery "absorbs" its full charge. The Truecharge's microprocessor constantly monitors charging current, and signals that the battery has reached full charge when current falls to a predetermined low value. Precision control is key to ensuring full charge is delivered in minimum time, while ensuring longest possible battery life.
- Automatic switchover to "Float Charge" mode when the battery has reached 100% charge. In this mode, the Truecharge's output voltage now reduces to a level designed to ensure the battery maintains its full charge. Precision long-term control of this voltage is key to ensuring full battery charge is maintained without electrolyte loss and battery damage due to excessive gassing ("boiling") of the battery acid. The Truecharge can be left permanently connected without risk of battery damage.
- Ability to fully monitor and charge two separate batteries. The most discharged battery receives the highest charging current.
- Automatic restarting of the charging sequence when battery capacity begins to fall as loads are switched on. This ensures your battery is always at maximum charge even when power is being drawn from it.

- Automatic restarting of the charging sequence if 21 days has passed since the last charging cycle has occurred. This eliminates reduced battery capacity problems caused by normal internal battery leakage.
- Automatic restarting of the charging sequence each time AC power is reconnected.

3.2 Switchmode Power Conversion Technology

The Truecharge employs advanced high frequency switchmode power conversion circuitry resulting in these benefits.

- Much smaller size and lower weight as compared to traditional 10-amp chargers.
- Totally silent operation, without the buzz or hum traditional chargers often generate.
- High efficiency solid state circuitry, resulting in minimum heat generation.
- Full charging capability even when the AC line voltage has fallen to 90 volts, where many other chargers no longer function.
- Pure DC output without the current pulsations common to traditional chargers. This results in increased battery life and eliminates the "buzz" traditional chargers often cause on audio equipment operating from the battery.

3.3 Safety Features

These advanced safety features come built into the Truecharge.

- Isolated design. Charger output is galvanically isolated from the AC power line to eliminate electrolysis problems on boats.
- Overheat protection. The Truecharge shuts down before its internal temperature rises to dangerous levels that may be caused by poor ventilation or high ambient temperatures, and automatically restarts after cooling.
- Installer error protection. Output short circuit and reverse battery polarity protected.
- Protected against damage that could otherwise result from connecting to a 24 volt battery.

4.0 Installation Procedure

To install the Truecharge, you will need to purchase additional items to suit your particular installation, such as mounting screws, wires, and ring terminals for terminating the wires. These items are described in the instructions below.

Warning: All wiring must be done in compliance with local and national electrical codes. Xantrex recommends having the installation wired by a certified electrician.

4.1 Choosing a Location

The Truecharge is designed to be mounted permanently. The location chosen for mounting can affect its performance and influence safety. The mounting location must be:

- **Dry**. Truecharge must be located where no water or other fluids can drip or splash on it. When mounting in a boat, be sure that the Truecharge will not be exposed to bilge water splash.
- **Cool**. Do not mount in an area where ambient air temperature is commonly below 32° F (0° C), or above 105° F (40° C). Like all electronic equipment, the Truecharge will operate more efficiently if kept reasonably cool.
- **Well ventilated**. At least a 4-inch (10 cm) clearance all around the unit must be provided in order for proper cooling air flow. If mounting in a closed compartment, ventilation holes to allow free air flow must be provided.
- **Safe**. To avoid corrosion and for general safety, do not install in the same compartment as batteries. Although the Truecharge is approved as an ignition-protected device, it is sensible practice wherever possible to avoid installing it in any space containing gasoline or propane tanks, a gasoline engine or associated fuel lines and fittings.
- **Relatively close to the batteries**. The wires that connect the Truecharge output to the batteries carry high current. Long runs of the charger output wires will incur voltage loss and require much heavier wire size.
- **Accessible to the vehicle or boat's AC power system**. The best location is one that keeps both AC and DC wires to a minimum length.

Caution: Fire hazard risk. Do not install the Truecharge in a zero-clearance compartment. Ensure adequate ventilation is provided.

4.2 Mounting the Truecharge

Mount the Truecharge using four #8 (or M4) screws. Don't skimp on either the number or type of screws. Damage resulting from insecure mounting is not covered under warranty. Mount on a vertical surface with the terminal block end below.

4.3 Connecting the DC Wiring

If the Truecharge will be charging two batteries, check that negative terminals of both batteries have a cable connecting them together, or individually to a common DC negative bus. The Truecharge cannot be used to charge a pair of batteries that are completely isolated from each other.

Warning: To prevent accidental short circuits, sparking, and possible battery explosion, damage or personal injury, all DC wiring from the Truecharge to the battery(s) must be completed prior to connecting AC wiring (see section 4.4).

Table 1 lists wire sizes required, and the ring terminal color code required to terminate the wires. Wire length shown is total length (combined length of negative and positive wires). When charging two batteries, use only the longest positive wire and the negative wire to arrive at the "Total Wire Length" in the table.

Total DC Wire Length		**Min. Wire Size (Stranded)**		**#8 (4mm) Ring Terminal Color Code**
Feet	Meters	AWG	mm2	
0–8	0–2.5	14	2.5	Blue
8–12	2.5–3.5	12	4	Yellow
12–20	3.5–6.0	10	6	Yellow

Table 1.

To avoid polarity errors and possible damage, never use wires of only one color. Use red insulated wire(s) for positive connection(s) and black insulated wire for the negative connection.

Follow these steps, and Figure 1, to connect the DC wiring to your battery(s). Wire sizes listed in the table above are absolute minimums. If there is any doubt, always use larger wire.

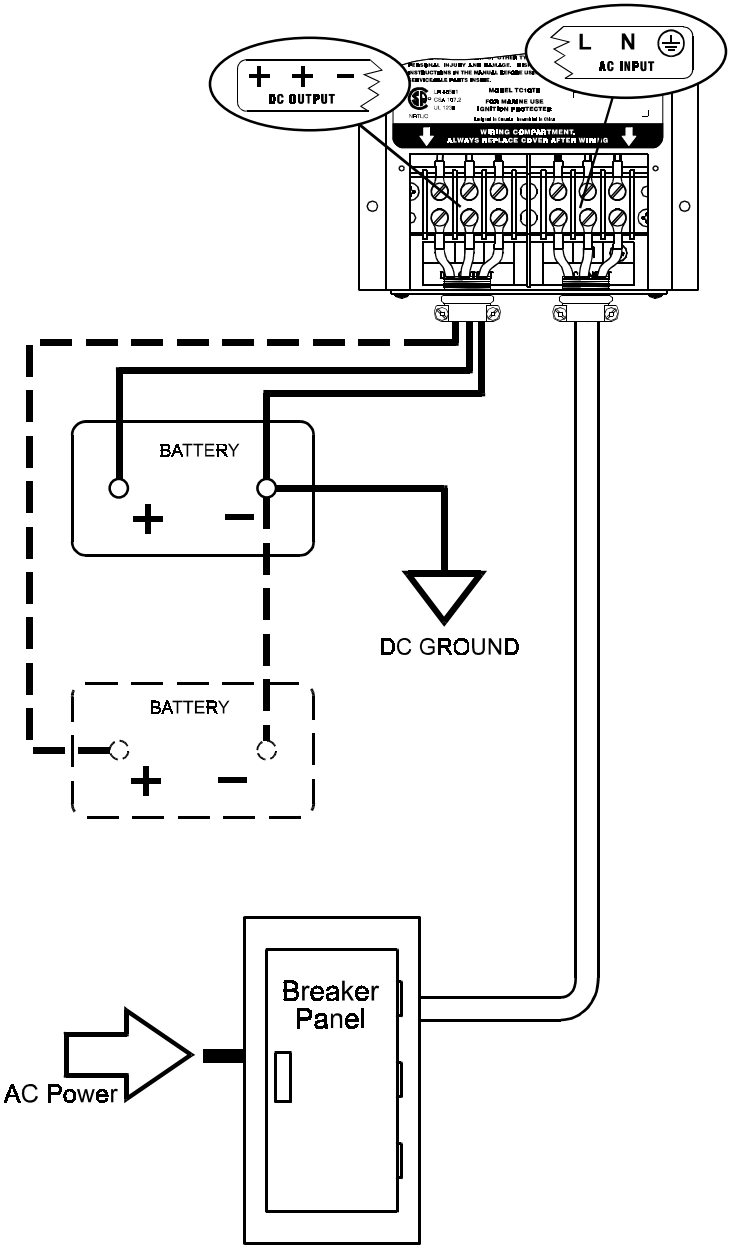


Figure 1. AC and DC Connections

1. Run 2 (or 3) wires from the Truecharge to the battery(s), and fasten neatly along their length. Do not connect wires yet. For a single battery system, use one black wire for the negative connection and one red wire for the positive connection. For a two battery system, add a second red wire. Follow local code(s) regarding the use of conduit, wire loom or other wiring protection.
2. Insert both wire clamps supplied into the two holes in the lower end of the Truecharge and tighten their locknuts securely. Only one wire clamp will be used for DC wiring, and the other will be used later in step 4.4 to clamp the AC wiring.
3. Insert the DC wires through the left hand wire clamp and trim the wires so about 6" (15 cm) of length protrudes inside the Truecharge wiring compartment.
4. Strip 5/16" (8 mm) of insulation from wire ends, and crimp a ring terminal to each wire using the correct crimping tool recommended by the crimp terminal manufacturer. Use the correct size (color code) of ring terminal specified in Table 1.
5. Remove the 3 unused terminal block screws in the "DC Output" compartment. Using these screws, fasten the ring terminal attached to the black wire to the (**-**) terminal, and the ring terminal attached to the red wire to either of the (**+**) terminals. For a two-battery system, connect the second red wire to the unused (**+**) terminal. Terminal screws must be fully tight. For a single battery system, one of the two (**+**) terminals will be unused.
6. Tighten the wire clamp firmly around the wires.
7. Xantrex recommends, and most local installation codes require, installation of a DC fuse connected to the positive battery terminal of each battery. Fuse size must not exceed 15 amps.
8. Using suitable battery terminal post connectors (typically, ring terminals connected through the battery terminal's clamp bolt), first connect the red wire to the positive (**+**) battery post. As a last step, connect the black wire to the negative (**-**) battery post. If two batteries are being connected, connect one red wire to one battery's (**+**) post (or battery fuse, if installed in step 7), and the second red wire to the second battery's (**+**) post (or battery fuse). It doesn't matter which wire is connected to which battery. As a last step, connect the black wire to the nearest negative battery post.

Caution: Battery connections must be made direct to the battery(s) or to the battery fuses (if installed), and must never be made to a DC distribution panel or to a battery isolator or similar device.

4.4 Connecting the AC Wiring

Warning: Shock hazard. AC wiring must be disconnected from all electrical sources before handling. All AC wiring must be installed according to local and national electrical wiring codes. Xantrex recommends having the installation wired by a certified electrician.

The following table lists the standard AC wire color codes and the ring terminal color code required to terminate the wires inside the Truecharge. Use only wire that meets local and national AC wiring codes. The Truecharge is designed to operate from a grounded (3-wire) 120 volt AC circuit. The circuit must be protected by a 15 ampere circuit breaker, and any switch placed in series to switch AC power to the Truecharge must be in the "line" side of the circuit and must be rated for a minimum of 3 amperes.

Connect the AC wiring as follows. Refer also to Figure 1.

AC Circuit Designation	14 AWG Stranded Wire Color	#8 (4mm) Ring Terminal Color Code
Line, or Hot	Black	Blue
Neutral	White	Blue
Ground, or Earth	Green or Green with Yellow stripe	Blue

Table 2.

1. Run three 14 or 16 AWG wires, one of each color listed in Table 2, or an approved jacketed cable from the charger to the AC power source or AC distribution panel, and fasten neatly in place. Do not connect wires yet. Follow local code(s) regarding the use of conduit, wire loom or other wiring protection.
2. Insert the AC wires through the right hand wire clamp (previously installed in step 2, Section 4.3) and trim the wires so about 6" (15 cm) of length protrudes inside the Truecharge wiring compartment.
3. Strip 5/16" (8 mm) of insulation from wire ends, and crimp a ring terminal to each wire using the correct crimping tool recommended by the crimp terminal manufacturer. Use the correct size (color code) of ring terminal specified in Table 2.
4. Remove the 3 unused terminal block screws in the "AC Input" compartment. Using these screws, fasten the ring terminals attached to the Black "hot" wire to the "**L**" terminal, the White "neutral" wire to the

"**N**" terminal and the Green "ground" wire to the ⏚ terminal. Terminal screws must be fully tight.

5. Tighten the wire clamp firmly around the wires. If a jacketed 3-wire cable was used, tighten the wire clamp around the end of the cable jacket, not the individual wires. The cable jacket must protrude slightly past the wire clamp.
6. Connect the opposite end of the AC power cable or wires, to the AC power source, again using appropriate connecting terminals. The green wire connects to the distribution panel "ground", the white wire to the system "neutral" and the black wire to the output terminal of a 15-ampere circuit breaker.

4.5 Selecting the Correct Battery Type

The Truecharge is designed to properly charge all types of lead acid batteries. A battery selector switch located inside the wiring compartment, directly under the lower right corner of the front panel label, must be set to match the type of batteries being charged. The switch is recessed behind the inner wiring compartment panel to guard against inadvertent changes. A pointed object such as a ballpoint pen will be needed to reach through a small access hole to move the switch lever.

Important: The battery selector switch must be set correctly. An incorrect setting may seriously affect battery life.

- If "Flooded" battery(s) are being charged, slide the switch to the right in the direction of the "F" stamped into the metal switch panel. Flooded-type batteries are those that have removable caps for water addition.
- If "Sealed" battery(s) are being charged, slide the switch toward the center of the Truecharge (to the left), in the direction of the "G" stamped into the metal switch panel. There are two types of sealed batteries: "Gel" and "Starved-Electrolyte" (or "AGM"). Both types are identified by having no removable caps where water can be added. Both Gel and AGM batteries require the switch set to the "G" position.

4.6 Completing the Installation

The Truecharge is now almost ready to begin charging. Prior to switching on AC power, first double check that the above installation has been performed correctly, then follow these final steps.

1. Securely attach the metal wiring compartment cover using the four self-tapping screws supplied.

2. Review any literature that was supplied with the batteries regarding battery-specific charging requirements.
3. For "Flooded" batteries, top up the electrolyte level with distilled water.
4. Switch on AC power to the charger, and switch on the 15-amp breaker installed in section 4.4. Also, switch on the power switch if this optional item was installed.
5. The "Bulk" status light will switch on, indicating that the Truecharge has begun charging in bulk charging mode.
6. Read section 5.0 to familiarize yourself with the various modes of operation of the Truecharge as it brings the battery(s) up to full charge.

5.0 Operation

5.1 Automatic Charging Sequence

1. When AC power is first switched on, an initialization procedure begins. The microprocessor checks for excessive voltage at the battery. It then checks to ensure the internal charger temperature is not greater than 175°F (80°C). If both these conditions are met, and the battery voltage is lower than the "absorption" voltage (see step 4), the Truecharge begins "bulk" charging, delivering a full charge to the battery or batteries. During this charging phase, the majority, or bulk of the charge is returned to the battery.
2. After approximately 10 seconds, the microprocessor rechecks battery voltage, to determine if the battery is responding to being charged. If the battery is not responding, charging is terminated and the initialization procedure in step 1 is restarted.
3. If the battery is responding, bulk charging at a full 10 amps continues until the battery voltage rises to just below the point where destructive battery "gassing" can begin. When this threshold is reached, typically 14.2 to 14.4 volts, depending on battery type and position of the battery selector switch, the Truecharge enters its absorption charge mode.
4. When the battery voltage under full bulk charge approaches the point where battery "gassing" can begin, the Truecharge switches over to "absorption" mode. During this final charging phase, current is progressively reduced to hold the battery voltage absolutely constant at 14.2 to 14.4 volts (depending on battery type selected).
5. When charging current drops below 1 amp, this signals that the battery is fully charged. If a Gel or AGM battery type is being charged, the Truecharge now switches immediately into its "float" charge mode. If the battery being charged is a Flooded type, the Truecharge continues the absorption charge mode for one additional hour, then switches into float charge mode.
6. Once in float charge mode, the Truecharge reduces its charging voltage to the precision-controlled "float" voltage value. This maintains the battery indefinitely at 100% charge, yet creates negligible gassing or electrolyte loss.
7. If the microprocessor detects the charger has been in absorption mode for more than 8 hours, it automatically switches into float mode. This feature protects the battery against situations where a light load connected to the battery prevents the charger current from dropping

below the 1-amp threshold that would normally trigger the transition to float mode.

5.2 Charging Sequence Initiation

The Truecharge always begins, or restarts, the above charging sequence by initiating a bulk charge. If the battery is only slightly discharged, the Truecharge will quickly switch into absorption mode, then eventually enter float mode once fully charged. The conditions that will cause the Truecharge to start, or restart high current bulk charging are as follows.

1. If, due to an external load consuming current or due to internal battery leakage, the battery terminal voltage falls to 12.5 volts for more than 15 minutes, a new charging cycle will begin.
2. If 21 days have passed since the last charging cycle, a new charging cycle is automatically begun. This protects against slowly diminishing capacity that can occur due to normal internal battery leakage.
3. Each time AC power is connected or reconnected, the charging sequence is restarted.

5.3 Front Panel Indicators

Three front panel charging status lights are provided to allow monitoring of battery charging status. Referring to charging modes described in section 5.1, the status light functions are as follows.

- Sequential flashing of all three lights for several seconds, when AC power is first switched on, indicate the automatic initialization procedure is in progress.
- Yellow "Bulk" status light. Indicates the bulk charging mode is in progress. Charging current is 8 to 10 amps.
- Yellow "Absorption" status light. Indicates the Truecharge has switched into absorption mode. Current is 1 to 8 amps.
- Green "Float/Ready" status light. Indicates that batteries are fully charged, and the Truecharge has switched into float mode. Charging current drops to a maintenance level of less than 1 amp.

In addition, the status lights also report an automatic safety shutdown code.

- Both "Ready/Float" and "Bulk" lights flash simultaneously. This indicates that the battery voltage is dangerously high and the Truecharge has shut down. This condition is generally caused by a poorly regulated engine alternator, or generator, simultaneously charging the battery.
- "Bulk" light only flashes. This indicates the Truecharge has shut down due to overheating caused by poor ventilation.

6.0 Charging Times

The time taken for the Truecharge to fully recharge the battery(s) connected to it depends on many factors such as, the size (capacity in amp hours) of the battery (or total capacity if two batteries are connected), and how deeply the battery(s) are discharged. The following simple formula can be used to establish the approximate expected charging time.

$$\text{Approx. Charging time in hrs} = \frac{\text{Total Ah of Battery(s) x Depth of Discharge}}{900}$$

Where "Depth of Discharge" is the percentage of charge that has been used (0% is fully charged, and 100% is completely discharged).

As an example, for a Group 27 size battery with a rated capacity of 80 amp hours that is 75% discharged, the formula becomes:

$$\text{Approx. Charging time in hrs} = \frac{80 \times 75}{900} = 6.7 \text{ Hours}$$

7.0 Care and Maintenance

The Truecharge requires very little care and essentially no maintenance. Provided the location and mounting instructions have been followed, and the Truecharge is not exposed to corrosive fumes from batteries, water or similar liquids, it will continue to function indefinitely with no additional maintenance. Should any of the above liquids contact the Truecharge, immediately switch off and disconnect the AC power and wipe the unit thoroughly with a damp cloth. Dry the unit with a dry cloth then let it sit for several hours to allow residual water to evaporate before reconnecting AC power.

Warning: Do not disassemble the Truecharge for cleaning, or to attempt repair. There are no user-serviceable parts inside.

8.0 Output Protection Fuse Replacement

The Truecharge has two built-in 15 amp, 32 volt rated, automotive blade-type output protection fuses. Their function is to protect the unit against reverse battery polarity caused by incorrect installation. Should one or both fuses be blown, replace as follows.

1. Disconnect AC power to the Truecharge and disconnect the DC cables at the battery(s).
2. Remove the wiring compartment cover by removing the 4 screws that attach it to the Truecharge.
3. Locate the fuses just inside the upper left corner of the wiring compartment.
4. Pull each fuse directly toward the Truecharge's mounting surface to remove them from their fuseholders. Never pull towards the lower end of the unit, or wiggle the fuses back and forth to remove them.
5. Replace any blown fuse with an identical 15 amp, 32 volt rated, automotive blade-type fuse. Never substitute with any other type or rating, or damage to the Truecharge may result.
6. Find and correct the problem that caused the fuse(s) to blow. Generally this will be reversed battery polarity.
7. Replace the wiring compartment cover and reconnect AC and DC power.

9.0 Troubleshooting

Problem: Indicator lights do not turn on.

Possible Cause	Suggested Remedy
No AC Power.	Check to ensure AC connections are correct, and breaker is switched on.
Blown internal AC fuse in charger.	Have AC fuse replaced by qualified service person.
Battery not properly connected.	Verify battery connections. Replace output protection fuse if unit was subjected to reverse battery polarity (see Section 8.0).

Problem: Sequential flashing of all three lights occurs for 2 to 3 seconds, then repeats every 10 seconds.

Possible Cause	Suggested Remedy
Battery is not responding to initial charging current.	Leave battery connected for several hours. If continuous flashing still continues, the battery is most likely damaged and cannot accept a charge. Replace battery.
A 6 Volt battery is installed.	The Truecharge can only charge 12 Volt lead acid batteries.

Problem: "Ready/Float" light and "Bulk" light flash simultaneously (the Truecharge is detecting excessive battery voltage).

Possible Cause	Suggested Remedy
A battery greater than 12 Volts (such as a 24 Volt battery) is connected.	Remove the higher voltage battery and charge only 12 Volt batteries.
The battery is connected to another charging source such as a generator or alternator with poor voltage regulation.	Disconnect the other charging source or switch off the motor or generator. The battery voltage will drop to more normal values and the Truecharge will begin normal operation.

Problem: "Bulk" light (only) flashes (the Truecharge is detecting excessive internal temperature).

Possible Cause	Suggested Remedy
The Truecharge has shut down due to internal overheating.	Eliminate ventilation blockage or reduce ambient temperature to less than 105°F (40°C). The Truecharge will resume normal operation once it has cooled sufficiently.

Problem: Long charging times. "Ready/Float" light does not switch on even after 24 hours of charging.

Possible Cause	Suggested Remedy
Total battery capacity is higher than the recommended 200 Ampere-Hours.	Total battery capacity (the sum of both Ampere-Hour ratings if two batteries are installed) must be 200 Ampere-hours or less, or excessive charging times will result.
Load connected to battery is continuously operating, thus diverting the charge current directly to the load.	This is a normal situation if a load is drawing current from the battery. Once the load is switched off, normal charging will resume.
Battery has damaged cell.	Replace battery.

10.0 Limited Warranty

What does this warranty cover?
This Limited Warranty is provided by Xantrex Technology, Inc. ("Xantrex") and covers defects in workmanship and materials in your Xantrex Truecharge 10TB Battery Charger. This warranty lasts for a Warranty Period of 12 months from the date of purchase at point of sale to you, the original end user customer.

This Limited Warranty is transferable to subsequent owners but only for the unexpired portion of the Warranty Period.

What will Xantrex do?
Xantrex will, at its option, repair or replace the defective product free of charge, provided that you notify Xantrex of the product defect within the Warranty Period, and provided that Xantrex through inspection establishes the existence of such a defect and that it is covered by this Limited Warranty.

Xantrex will, at its option, use new and/or reconditioned parts in performing warranty repair and building replacement products. Xantrex reserves the right to use parts or products of original or improved design in the repair or replacement. If Xantrex repairs or replaces a product, its warranty continues for the remaining portion of the original Warranty Period or 90 days from the date of the return shipment to the customer, whichever is greater. All replaced products and all parts removed from repaired products become the property of Xantrex.

Xantrex covers both parts and labor necessary to repair the product, and return shipment to the customer via a Xantrex-selected non-expedited surface freight within the contiguous United States and Canada. Alaska and Hawaii are excluded. Contact Xantrex Customer Service for details on freight policy for return shipments outside of the contiguous United States and Canada.

How do you get service?
If your product requires troubleshooting or warranty service, contact your merchant. If you are unable to contact your merchant, or the merchant is unable to provide service, contact Xantrex directly at:

Phone: 1-800-670-0707 (toll free in North America) 1-604-422-2777 (outside of North America)
Fax: 1-604-420-2145
Email: CustomerService@xantrex.com

Direct returns may be performed according to the Xantrex Return Material Authorization Policy described in your product manual. For some products, Xantrex maintains a network of regional Authorized Service Centers. Call Xantrex or check our website to see if your product can be repaired at one of these facilities.

In any warranty claim, dated proof of purchase must accompany the product and the product must not have been disassembled or modified without prior written authorization by Xantrex.

Proof of purchase may be in any one of the following forms:

- The dated purchase receipt from the original purchase of the product at point of sale to the end user, or
- The dated dealer invoice or purchase receipt showing original equipment manufacturer (OEM) status, or
- The dated invoice or purchase receipt showing the product exchanged under warranty

What does this warranty not cover?
This Limited Warranty does not cover normal wear and tear of the product or costs related to the removal, installation, or troubleshooting of the customer's electrical systems. This warranty does not apply to and Xantrex will not be responsible for any defect in or damage to:

a) the product if it has been misused, neglected, improperly installed, physically damaged or altered, either internally or externally, or damaged from improper use or use in an unsuitable environment;

b) the product if it has been subjected to fire, water, generalized corrosion, biological infestations, or input voltage that creates operating conditions beyond the maximum or minimum limits listed in the Xantrex product specifications including high input voltage from generators and lightning strikes;

c) the product if repairs have been done to it other than by Xantrex or its authorized service centers (hereafter "ASCs");

d) the product if it is used as a component part of a product expressly warranted by another manufacturer;

e) the product if its original identification (trade-mark, serial number) markings have been defaced, altered, or removed.

Disclaimer

Product

THIS LIMITED WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY PROVIDED BY XANTREX IN CONNECTION WITH YOUR XANTREX PRODUCT AND IS, WHERE PERMITTED BY LAW, IN LIEU OF ALL OTHER WARRANTIES, CONDITIONS, GUARANTEES, REPRESENTATIONS, OBLIGATIONS AND LIABILITIES, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE IN CONNECTION WITH THE PRODUCT, HOWEVER ARISING (WHETHER BY CONTRACT, TORT, NEGLIGENCE, PRINCIPLES OF MANUFACTURER'S LIABILITY, OPERATION OF LAW, CONDUCT, STATEMENT OR OTHERWISE), INCLUDING WITHOUT RESTRICTION ANY IMPLIED WARRANTY OR CONDITION OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE TO THE EXTENT REQUIRED UNDER APPLICABLE LAW TO APPLY TO THE PRODUCT SHALL BE LIMITED IN DURATION TO THE PERIOD STIPULATED UNDER THIS LIMITED WARRANTY.

IN NO EVENT WILL XANTREX BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES, COSTS OR EXPENSES HOWEVER ARISING WHETHER IN CONTRACT OR TORT INCLUDING WITHOUT RESTRICTION ANY ECONOMIC LOSSES OF ANY KIND, ANY LOSS OR DAMAGE TO PROPERTY, ANY PERSONAL INJURY, ANY DAMAGE OR INJURY ARISING FROM OR AS A RESULT OF MISUSE OR ABUSE, OR THE INCORRECT INSTALLATION, INTEGRATION OR OPERATION OF THE PRODUCT.

Exclusions

If this product is a consumer product, federal law does not allow an exclusion of implied warranties. To the extent you are entitled to implied warranties under federal law, to the extent permitted by applicable law they are limited to the duration of this Limited Warranty. Some states and provinces do not allow limitations or exclusions on implied warranties or on the duration of an implied warranty or on the limitation or exclusion of incidental or consequential damages, so the above limitation(s) or exclusion(s) may not apply to you. This Limited Warranty gives you specific legal rights. You may have other rights which may vary from state to state or province to province.

Warning: Limitations On Use

Please refer to your product user manual for limitations on uses of the product. Specifically, please note that the Xantrex Truecharge 10TB Battery Charger is not intended for use in connection with life support systems and Xantrex makes no warranty or representation in connection with any use of the product for such purposes.

Return Material Authorization Policy

Before returning a product directly to Xantrex you must obtain a Return Material Authorization (RMA) number and the correct factory "Ship To" address. Products must also be shipped prepaid. Product shipments will be refused and returned at your expense if they are unauthorized, returned without an RMA number clearly marked on the outside of the shipping box, if they are shipped collect, or if they are shipped to the wrong location.

When you contact Xantrex to obtain service, please have your instruction manual ready for reference and be prepared to supply:

- The serial number of your product
- Information about the installation and use of the unit
- Information about the failure and/or reason for the return
- A copy of your dated proof of purchase

Return Procedure

1. Package the unit safely, preferably using the original box and packing materials. Please ensure that your product is shipped fully insured in the original packaging or equivalent. This warranty will not apply where the product is damaged due to improper packaging.

2. Include the following:
   - The RMA number supplied by Xantrex Technology Inc clearly marked on the outside of the box.
   - A return address where the unit can be shipped. Post office boxes are not acceptable.
   - A contact telephone number where you can be reached during work hours
   - A brief description of the problem

3. Ship the unit prepaid to the address provided by your Xantrex customer service representative.

If you are returning a product from outside of the USA or Canada

In addition to the above, you MUST include return freight funds and are fully responsible for all documents, duties, tariffs, and deposits.

If you are returning a product to a Xantrex Authorized Service Center (ASC)

A Xantrex return material authorization (RMA) number is not required. However, you must contact the ASC prior to returning the product or presenting the unit to verify any return procedures that may apply to that particular facility.

11.0 Specifications

Output current[1]	10 amps
Output voltage[2]	
Bulk Charge mode:	14.2–14.4 volts
Float Charge mode:	13.5–13.8 volts
Input voltage	120 VAC nominal (90–135 VAC) 50/60 Hz
Efficiency (nominal)	85%
Weight	3 lbs (1.4 kg)
Dimensions (L x W x H)	10-5/8" x 6-1/2" x 2-3/4" (270 mm x 165 mm x 70 mm)
Output fuses	15 amp, 32 volt automotive blade type
Safety approvals	CSA/NRTL approved to CSA C22.2 No. 107.2, and UL 1236, including Ignition Protection and Marine requirements.

[1] maximum continuous duty
[2] exact value dependent on battery selector switch setting
Specifications subject to change without notice

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