



OWNER'S MANUAL

Model TMAX-6A-1B Single Bank Charger
Model TMAX-12A-1B Single Bank Charger
Model TMAX-25AS-2BM 2 Bank Sequencing Battery Charger
For 12 Volt Trolling Thunder™ Batteries

TROLLING Thunder™ Ultimizer™

CAUTION:

Read all Safety Rules and Operating Instructions,
and follow them with each use of this product.



Warrensburg, MO 64093 USA

Please call Customer Service at 800-964-2837 for
instructions on returning the charger.

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**This Owner's Manual is for Models TMAX-6A-1B, TMAX-12A-1B, TMAX-25AS-2BM
SAVE THIS OWNER'S MANUAL AND READ BEFORE EACH USE.**

This device offers features to accommodate the needs for home or light commercial use. This manual will explain how to use the charger safely and effectively. Please read and follow these instructions and precautions carefully.

Models TMAX- 6A-1B and TMAX-12A-1B only.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio technician for help.

IMPORTANT SAFETY INSTRUCTIONS

WARNING – RISK OF EXPLOSIVE GASES

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

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

SAVE THESE INSTRUCTIONS

This manual contains important safety and operating instructions for battery charger Models TMAX-6A-1B, TMAX-12A-1B, TMAX-25AS-2BM.

- **WARNING:** Handling the cord on this product or cords associated with accessories sold with this product, may expose you to lead, a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. ***Wash hands after handling.***
- Read all instructions and cautions printed on the battery charger, battery, and vehicle or equipment using battery.
- Use charger only on TROLLING THUNDER™ batteries. If you wish to use this charger with other lead acid batteries, please verify with that battery's manufacturer that this charger will not damage their battery. This charger is not intended to supply power to a low voltage electrical system other than in a starter-motor application.
- **Never** use charger for charging dry cell batteries that are commonly used with home appliances like radios, stereos, remote controls, etc. These batteries may burst and cause personal injury.
- Do not disassemble charger. Take it to a qualified service professional if service or repair is required. Incorrect assembly may result in fire or electrical shock.
- To reduce risk of electrical shock, unplug the charger from the outlet before attempting any maintenance or cleaning.
- Always charge battery in a well-ventilated area.
- **WARNING:** Battery chargers get hot during operation and must have proper ventilation. Air needs to flow around entire charger. Do not set charger on flammable materials like carpeting, upholstery, paper, cardboard, etc. Charger may damage leather, plastic and rubber.

HELP US HELP YOU —

Remember:

Place charger as far away from the battery being charged as the charger cables will permit.

Do not expose charger to rain or snow.

Never charge a frozen battery. If battery fluid (electrolyte) becomes frozen, bring battery into a warm area to allow battery to thaw before you begin charging.

Never allow battery acid to drip on charger when reading specific gravity or filling battery.

Never set a battery on top of charger.

Never place charger directly above battery being charged. The gases from the battery will corrode and damage the charger.

Never touch the battery clamps together when the charger is on. You could cause a spark.

Never operate charger if it has received a hard blow, been dropped, or otherwise

damaged. Take it to a qualified professional for inspection and repair.

Be sure to position the charger power cord to prevent it from being stepped on, tripped over, or damaged.

Never pull out the plug by the cord when unplugging the charger. Pulling on the

cord may cause damage to the cord or the plug.

Do not operate the charger if it has a damaged power cord or plug. Have the cord replaced.

PERSONAL SAFETY PRECAUTIONS

- **Wear complete eye and clothing protection** when working with lead-acid batteries.
- **Make sure** that someone is within range of your voice to come to your aid if needed while you work with or are near a lead-acid battery.
- **Have plenty of fresh water and soap** nearby for use in case battery acid contacts your eyes, skin, or clothing. If this happens, wash immediately with soap and water. Then get medical attention.
- **Avoid touching your eyes** while working with a battery. Acid particles (corrosion) may get into your eyes. If this occurs, flush eyes immediately with running cold water for at least 10 minutes. Then immediately get medical attention.
- **Never** charge a frozen battery.
- **Remove all personal metal items** from your body such as rings, bracelets, necklaces and watches, while working with a lead-acid battery. A battery can

produce a short circuit current high enough to weld a ring (or the like) to metal, causing a severe burn.

- **Take care** not to drop any metal tool or metal object onto the battery. This may result in a spark or short circuit across the battery or another electrical device that may cause an explosion.
- **Always** operate the battery charger in an open, well-ventilated area.
- **Never** smoke or allow a spark or flame in the vicinity of the battery or engine. Batteries generate explosive gases.
- **Neutralize** any acid spills thoroughly with baking soda before attempting to clean up.

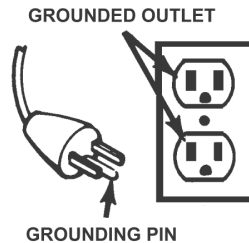
Model TMAX-25AS-2BM only:
WARNING: EXTERNAL CONNECTIONS TO CHARGER SHALL COMPLY WITH THE UNITED STATES COAST GUARD ELECTRICAL REGULATIONS (33CFR183, SUB PART1).

BEFORE USING YOUR BATTERY CHARGER

It is important to understand the charger's requirements. This section explains the charger's electrical requirements and how to prepare a battery for charging.

PLUGGING IT IN

Your charger requires a 120V AC receptacle installed according to all local codes and ordinances.



USING AN EXTENSION CORD

The use of an extension cord is not recommended. If you must use an extension cord, please make sure that you follow these guidelines:

- Make sure that pins on plug of extension cord are the same number, size, and shape as those of plug on charger.
- Check that the extension cord is properly wired and in good electrical condition.

- Make sure that the wire size is large enough for its length and for the AC ampere rating, as specified in the chart below.

MINIMUM RECOMMENDED EXTENSION CORD				
Length of Cord, in Feet	25	50	100	150
6A-1B and 12A-1B AWG* Size of Cord	18	16	12	10
25AS-2BM AWG* Size of Cord	16	14	12	10

*AWG=American Wire Gauge

PREPARING YOUR BATTERY TO BE CHARGED

It is important that you read and follow these guidelines while you are preparing to charge the battery.

- Make sure that you have a TROLLING THUNDER™ battery.
- Clean the battery terminals. Be careful to keep corrosion from getting in or around your eyes.
- Wear safety glasses. See additional “Personal Safety Precautions” on page 4.
- Take time to read all of the battery manufacturer’s specific precautions, such as removing or not removing vent caps while charging, and recommended rates of charge.
- Be sure that the area around the battery is well ventilated while it is being charged. Gas can be forcefully blown away by using a piece of cardboard or other nonmetallic material as a fan.
- If it is necessary to remove the battery from the vehicle to charge it, always remove the grounded terminal from the battery first. Turn off all vehicle accessories to avoid sparks from occurring.
- **NOTE:** A marine (boat) battery installed in a boat must be removed and charged on shore, unless model TMAX-25AS-2BM is used.

TMAX-25AS-2BM CHARGER LOCATION

For best operation, the charger should be mounted vertically to the bulkhead. If the unit must be mounted horizontally, do not restrict the airflow under the charger. Do not mount the charger next to fuel tanks or below the waterline of the boat. The charger is waterproof and is approved for mounting on the weatherdeck.

To allow for proper air circulation, a minimum of four inches of unobstructed area must be permitted on all sides of the charger.

The charger is equipped with an internal thermocouple. Choosing a location that will have the same surrounding temperature as the battery(ies) is ideal and will allow for the charger to compensate the current according to the initial temperature.

Choose a location such that the six-foot cables can reach the battery(ies). If extra length is needed, bring the ring lugs to a terminal block and extend with a minimum of 12 AWG cables. Choose larger wire for extended runs.

The charger weight is substantial. Ensure that the mounting surface is strong enough to support the charger. Choose a location that will allow for all six mounting holes to be used. Mounting with nuts, bolts and lock washers is preferable to screws.

Never place the charger directly above the battery being charged; gases may harm the charger over time. Never allow acid to drip on the charger when reading specific gravity or filling battery.

Do not set a battery or any other object on top of charger.

TMAX-25AS-2BM MOUNTING INSTRUCTIONS

The charger may be permanently mounted and connected. Six mounting holes have been provided for secure installation. Choose a location for the charger (see "CHARGER LOCATION" for proper placement). Using the charger as a template, place the charger in the selected location and mark each of the six holes with a pencil. In a well ventilated environment, drill the six holes using a #9 (7/32") drill bit for use with nuts and bolts OR with a 5/32" drill bit for use with #10 self tapping screws. Take caution of the area on the other side that you are drilling to avoid drilling into wires or other components. Using

#10 bolts, nuts and lockwashers, mount the charger with the LEDs facing up on a flat vertical surface to allow for ventilation. Route the AC and DC cords to either end and avoid pinching them under the base. A sealant may be used to waterproof the screw holes.

NOTE: Mounting the charger horizontally may not allow excess heat to rise away from the charger; if the charger must be mounted horizontally, take care to ensure there is a four inch minimum clearance around all sides of charger to provide adequate ventilation.

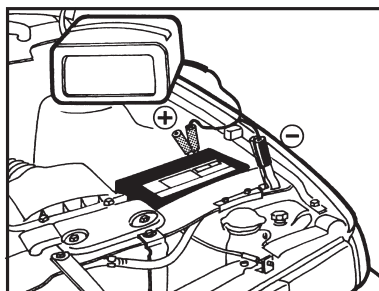
OPERATING INSTRUCTIONS

IMPORTANT: Follow all safety instructions and precautions when charging your battery. Wear complete eye protection and clothing protection. Charge your battery in a well-ventilated area.

CHARGING BATTERY IN THE VEHICLE:

1. Avoid personal injury by keeping clear of fan blades, belts, pulleys and other engine parts.
2. Avoid damaging the charger by keeping the power cord and output cords away from the hood, door or moving engine parts.
3. Note the polarity of the battery posts by checking the identification marks on the battery: POSITIVE (POS, P or +) and NEGATIVE (NEG, N or -). The positive post is usually larger than the negative post.
4. Identify which battery post is grounded or connected to the chassis. THIS IS NORMALLY THE NEGATIVE POST.
5. **Connecting to a negative-grounded system:** Connect the red (POSITIVE) output clamp or ring to the POSITIVE post of the battery. Rock and twist the clamp back and forth to be sure a solid electrical connection is made. Then connect the black (NEGATIVE) output clamp to a heavy, unpainted metal part of the chassis or engine block, away

from the battery (see figure below). DO NOT connect clamp to negative battery post, carburetor, and fuel line or sheet metal part. Connect black (NEGATIVE) output ring to the negative (NEG, N or -) battery post.



NEGATIVE GROUNDED SYSTEM

Connecting to a positive-grounded system: Connect the black (NEGATIVE) output clamp or ring to the NEGATIVE post of the battery. Rock and twist the clamp back and forth to be sure a solid electrical connection is made. Then connect the red (POSITIVE) output clamp to a heavy, unpainted metal part of the chassis or engine block, away from

the battery. DO NOT connect clamp to positive battery post, carburetor, and fuel line or sheet metal part. Connect the red (POSITIVE) output ring to the POSITIVE (POS, P or +) battery post.

6. **Models TMAX-6A-1B and TMAX-12A-1B only.** Plug power cord into an AC electrical outlet. The charger will be set to the Tester Mode. If the CHECK (red) LED is on, check for correct cable connections.

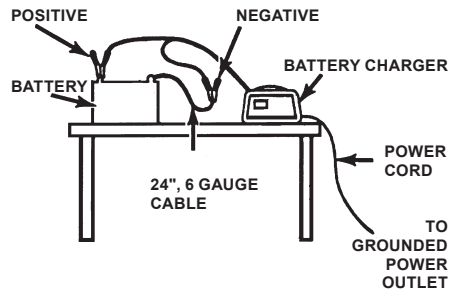
Model TMAX-25AS-2BM only. Plug power cord into an AC electrical outlet. All of the LED's will light in a special sequence and then turn off. If the red LED then blinks repeatedly for an output that has a battery connected, check for correct cable connections.

7. **Models TMAX-6A-1B and TMAX-12A-1B only.** Press the CHARGE button. The CHARGING (yellow) LED should light and the charging process should start.

Model TMAX-25AS-2BM only. The red LED for each output that has a battery connected should light continuously and the charging process should start. NOTE: if a fully charged battery is detected, the green LED will blink and the red LED won't light.

8. To disconnect the charger, unplug its power cord before attempting to disconnect the output clamps. Then, standing away from the battery, remove the output clamp from the chassis or engine block. Finally, remove the output clamp or ring from the battery post.
9. Clean and store the charger in a dry location.

CHARGING BATTERY REMOVED FROM THE VEHICLE:



1. Note the polarity of the battery posts by checking the identification marks on the battery: POSITIVE (POS, P or +) and NEGATIVE (NEG, N or -). The positive post is usually larger than the negative post.
2. Attach at least a 24-inch-long, 6-gauge (AWG), insulated battery cable to NEGATIVE (NEG, N or -) battery post. Rock and twist the clamp back and forth to be sure a solid electrical connection is made.
3. Connect the red (POSITIVE) output clamp or ring to the POSITIVE battery post. Rock and twist the clamp back and forth to be sure a solid electrical connection is made.
4. Position yourself as far away from the battery as possible, and then connect the black (NEGATIVE) output clamp or ring to the free end of the cable.
5. Plug the power cord into an AC electrical outlet. The charger will be set to the Tester Mode. If the CHECK (red) LED is on, check for correct cable connections.

Model TMAX-25AS-2BM only. Plug power cord into an AC electrical outlet. All of the LED's will light in a special sequence and then turn off. If the red LED then blinks repeatedly for an output that has a battery connected, check for correct cable connections.

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Model TMAX-25AS-2BM only. The red LED for each output that has a battery connected should light continuously and the charging process should start.

NOTE: if a fully charged battery is detected, the green LED will blink and the red LED won't light.

7. To disconnect the charger, unplug its power cord before attempting to disconnect the charger clamps. Then, standing

away from the battery, remove the output clamp from the NEGATIVE battery post. Finally, remove the output clamp from the POSITIVE battery post.

8. Clean and store the charger in a dry location.

IMPORTANT: Follow all safety instructions and precautions when charging your battery. Wear complete eye protection and clothing protection. Charge your battery in a well-ventilated area.

CHARGER OPERATION

The Ultimizer charger is custom designed to safely and quickly charge your TROLLING THUNDER™ battery using a three-step profile. It is very important that you not use this charger with any battery other than TROLLING THUNDER™ as it can damage other lead acid batteries.

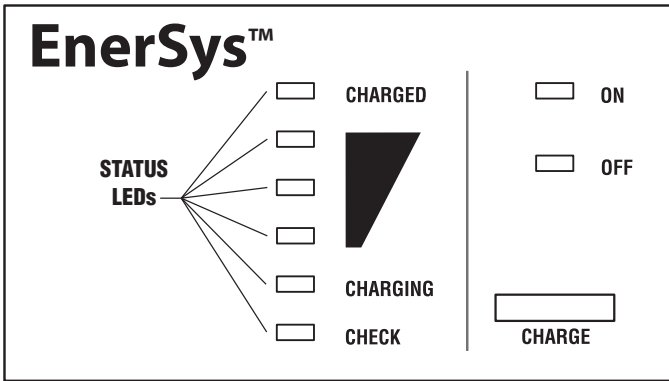
In the first step, called the *bulk phase*, the battery is charged at the nominal charge rate (6, 12, or 25 amps) until the voltage reaches about 14.7V. The charger then switches to the second step, called the *absorption phase*.

In this step the charger continues to charge the battery at about 14.7V until either the charge current drops to 100 milliamps or the charger has been in the absorption phase for 4 hours, whichever occurs first.

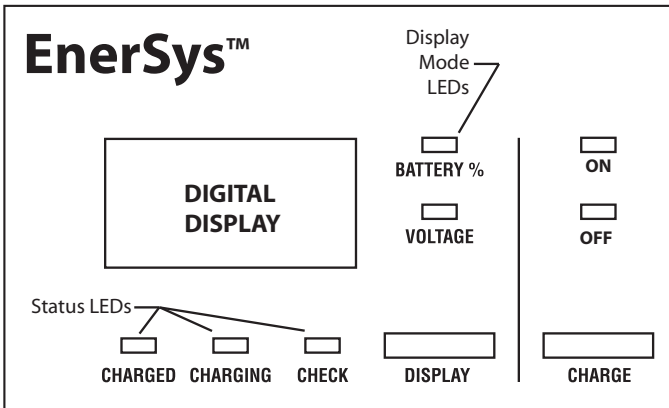
The charger then enters into the *trickle charge phase* at 13.5-13.8V. The battery can be left connected to the charger indefinitely.

The TMAX-25AS-2BM charger was designed to charge two batteries in sequence. When charging in sequence, only one of the charger's outputs is on at a time. Every few minutes, the charger will alternate which output is on and which output is off. Each output will continue to turn on and off every few minutes until charging is complete and the green light flashes. That is true even if the other output has finished charging or is not connected to a battery. Once the green light begins flashing for either output, that output will run continuously, even if the other output is still turning on and off every few minutes. If both green lights are flashing, then both outputs are running continuously.

NOTE: Since each output is on only half the time during charging, the absorption phase could last 8 hours instead of only 4 hours.



TMAX-6A-1B CONTROL PANEL



TMAX-12A-1B CONTROL PANEL

DISPLAY BUTTON

(Model TMAX-12A-1B only).

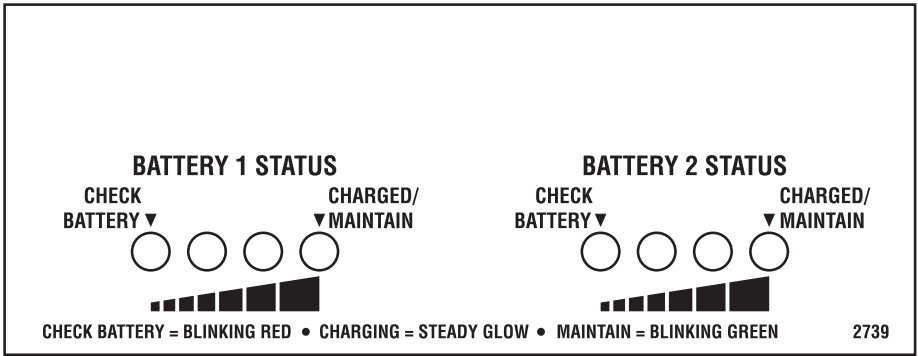
Press this button to set the function of the digital display to one of the following:

- **BATTERY %:** The digital display shows an estimate of the percent of charge of the battery connected to the charger battery clamps.
- **VOLTAGE:** The digital display shows the voltage at the charger battery clamps in DC volts.

CHARGE BUTTON

Press this button to set the charger for one of the following settings:

- **ON:** Activates the charge process and deactivates the tester.
- **OFF:** Deactivates the charger and activates the tester.



TMAX-25AS-2BM STATUS LEDS

BATTERY STATUS LED'S

- Check Battery (red) LED: Blinks once per second if proper battery connection is not detected. Lights continuously when charging. Stays off if output is off due to sequencing (see "CHARGER OPERATION"). Blinks 7.5 times per second if charging was aborted.
- Left yellow LED: Indicates charging in process and battery is greater than 14.2V.
- Right yellow LED: Indicates charging in process and battery has reached 14.7V.
- Charged/Maintain (green) LED: Indicates charging is complete and charger is in trickle charge mode.

TMAX-6A-1B CONTROL PANEL GUIDE

CONTROL PANEL GUIDE

MODE OF OPERATION	Status LEDs				Charge LEDs			
	Check	Charging	Bottom	Middle	Top	Charged	ON	OFF
Initial power-up, battery not detected	○							○
No battery or reversed battery detected	○						User selected	
Battery tester activated								○
Battery tester with no battery (< 0.7V)	○							○
Battery tester with dead battery (0.7V ~ 12.0V)		○						○
Battery tester with weak battery (12.0V~12.4V)		○	○					○
Battery tester with low battery (12.4V~12.6V)		○	○	○				○
Battery tester with strong battery (12.6V~12.8V)		○	○	○	○			○
Battery tester with charged battery (>12.8V)						○		○
Battery charger activated								○
Battery charger with no battery	○							○
Early bulk charge phase (< 13.2V)		○						○
Middle bulk charge phase (13.2V~14.2V)		○	○					○
Late bulk charge phase (14.2V~14.7V)		○	○	○				○
Absorption charge phase (14.7V)		○	○	○	○			○
Trickle charge (13.5V ~ 13.6V)							○	○
Charge aborted	B							

○ indicates an LED that is on continuously.

B indicates an LED that blinks on and off.

TMAX-12A-1B CONTROL PANEL GUIDE

MODE OF OPERATION	Status LEDs			Display LEDs		Charge LEDs	Digital Display
	Charged	Charging	Check	Voltage		Off	
				Battery %			
Initial power-up, battery not detected			○		○		0.0
No battery or reversed battery detected			○		User selected	User selected	0% or 0.0V
Battery tester activated					○	○	0~100%
Battery tester with charged battery	○				○	○	100%
Battery tester with no battery			○				0%
Voltage meter activated					○	User selected	0.0~17.0V
Charge activated with battery detected		○			User selected	○	xx% or xx.xV
Charge complete - Trickle Charge Mode started	○				User selected	○	100% or xx.xV
Desulfation mode activated		B			User selected	○	15% or 16V
Charge aborted			B				18.8 (B)

○ indicates an LED that is on continuously.

B indicates an LED that blinks on and off.

X indicates a digit between 0 and 9.

TMAX-25AS-2BM BATTERY STATUS GUIDE

MODE OF OPERATION

Charged/
Maintain
Right Yellow
Left Yellow
Battery
Check

	*	*	*	*	*
Initial power-up					*
No battery or reversed battery detected	B				
Early bulk charge phase (<14.2V), bank on	O				
Early bulk charge phase (<14.2V), bank off					
Late bulk charge phase (>14.2V), bank on	O	O			
Late bulk charge phase (>14.2V), bank off			O		
Absorption charge phase (14.7V), bank on	O	O	O	O	
Absorption charge phase (14.7V), bank off			O	O	
Trickle charge (13.6V)					B
Charge aborted	FB				

Empty spaces indicate LEDs that are off.

O indicates an LED that is on continuously.

B indicates an LED that blinks on and off once every second.

FB indicates an LED that blinks on and off 7.5 times per second.

* All LEDs are lit in a special sequence after initial power up.

NOTE: The TMAX-25AS-2BM does not include a battery tester.

OVERVIEW

(Model TMAX-6A-1B only).

The TMAX-6A-1B uses the six Status LEDs to indicate the battery's relative charge. See the TMAX-6A-1B Control Panel Guide (page 9) for details.

(Model TMAX-12A-1B only).

The charger has a built-in battery tester that displays either an accurate battery voltage or an estimate of the battery's relative charge based on the battery voltage and a scale set by the Battery Council International.

TESTING SEQUENCE

There are four basic steps required to use the charger as a battery tester.

1. Connect the charger battery clamps to the battery. Be sure to follow all of the precautions listed under "OPERATING INSTRUCTIONS".
2. Connect the charger power cord to a 120V AC electrical outlet. Again, be sure to follow all of the precautions listed under "OPERATING INSTRUCTIONS".
3. Press the DISPLAY button (if present) until the correct type is indicated.
4. Read the Status LEDs or the voltage on the digital display or press the DISPLAY button to set the tester to "Battery %" and read the battery percent.

TESTER AND CHARGER

When first turned on, the charger operates only as a tester, not as a charger. To continue to use it as only a tester, avoid pressing the CHARGE button.

POWER-UP IDLE TIME LIMIT

If no button is pressed within ten minutes after the charger is first powered up, the charger will automatically switch from tester to charger, if a battery is connected properly.

TESTER WITHOUT TIME LIMIT (Model TMAX-12A-1B only).

If the DISPLAY button is pressed within the first ten minutes after the charger is powered up, the charger will remain a tester (not a charger) indefinitely, unless the charge button is pressed.

TESTING AFTER CHARGING

After the charger has been changed from tester to charger (by selecting CHARGE), it can be changed back to tester by pressing the CHARGE button.

TESTER STATUS LEDs

When the charger is operating as a battery tester, the status LEDs light under the following conditions.

- The CHARGED (green) LED will light if a fully charged battery is tested.
- The CHARGING (yellow) LED does not light in the battery test mode. NOTE: See page 9 for Model TMAX-6A-1B.
- The CHECK (red) LED will light if a battery is not properly connected.
- When the tester display mode is set to voltage, none of the Status LEDs light. (Not available for Model TMAX-6A-1B).

INITIAL PERCENT CALCULATION (Model TMAX-12A-1B only).

When a battery % is calculated for the first time after connecting a battery, the digital meter will display three dashes (" - - -") for several seconds while the tester analyzes the battery.

NOTES FOR TESTING BATTERY % (Model TMAX-12A-1B only).

A recently charged battery could have a temporarily high voltage due to what is known as "surface charge". The voltage of such a battery will gradually drop during the period immediately after the charging system is disengaged. Consequently, the tester could display inconsistent values for such a battery. For a more accurate reading, the surface charge should be removed by temporarily creating a load on

the battery, such as by turning on lights or other accessories.

The battery % ranges from 0 to 100.

The battery tester is only designed to test 12V batteries. Testing a device with a rapidly changing voltage could yield unexpected or inaccurate results.

USING YOUR BATTERY CHARGER

OVERVIEW

Using the battery charger is very simple. First, connect the battery and AC power following the precautions listed under "OPERATING INSTRUCTIONS". Then push the CHARGE button to start the charging process. (Not necessary for the TMAX-25AS-2BM.) The charger will then do everything automatically. This section explains a few details.

CHARGING: Models TMAX-6A-1B and TMAX-12A-1B only. If the charger does not detect a properly connected battery, the CHECK (red) LED will light continuously until a battery is detected. Charging will not begin while the CHECK LED is on. When charging begins, the CHARGING LED will be lit. **Model TMAX-25AS-2BM only.** If the charger does not detect a properly connected battery, the red CHECK LED will blink. Charging will not begin while the red LED is blinking. When charging begins, the red LED will light continuously.

ABORTED CHARGE: If charging can't be completed normally, charging will be aborted. When charging is aborted, the charger's output is shut off and the red CHECK LED and digital display (if present) blink on and off. In that state, the charger ignores all buttons. To reset from after an aborted charge, either disconnect the battery or unplug the charger.

DESULFATION MODE: (Model TMAX-12A-1B only).

If a battery is left discharged for an extended period, it could become sulfated and not accept a normal charge. If the charger detects a sulfated battery, the charger will switch to a special mode of operation designed for such batteries. Activation of the special desulfation mode is indicated by blinking the CHARGING LED. If successful, normal charging will resume after the battery is desulfated. The CHARGING LED will then stop blinking and light continuously. Desulfation could take up to 10 hours. If desulfation fails, charging will be aborted and the CHECK (red) LED will blink.

COMPLETION OF CHARGING: Charge completion is indicated by the CHARGED (green) LED; when lit, the charger has stopped charging and switched to the trickle charge mode of operation.

TRICKLE CHARGE MODE: When the CHARGED (green) LED is lit, the charger has started this mode. The battery can be left connected to the charger indefinitely without hurting the battery.

GENERAL CHARGING NOTES: The voltage displayed during charging is the charging voltage and usually will be higher than the battery's resting voltage.

BATTERY PERCENT AND CHARGE TIME

This charger adjusts the charging time in order to charge the battery completely, efficiently and safely. The microprocessor automatically makes the necessary decisions. However, this section includes guidelines that can be used to estimate charging times.

The duration of the charging process depends on three factors:

1. **Battery State** – If a battery has only been slightly discharged, it can be charged in less than a few hours. The same battery could take up to 10 hours if very weak. The battery state can be estimated by using the built-in tester (see page 14). The lower the reading the longer charging will take.
2. **Battery rating** – A higher rated battery will take longer to charge than a lower rated battery under the same conditions. A battery is rated in ampere-hours (AH), reserve capacity (RC) and cold cranking amps (CCA). The lower the rating the faster the battery will be charged.
3. **Charge rate** – The charge rate is measured in amps. After the charging process has started, the digital display can be used to determine charging progress by selecting the BATTERY % mode. (Model TMAX-12A-1B only.) **NOTE:** For the TMAX-6A-1B and TMAX-25AS-2BM, the Status LEDs can be used to determine the charging progress.

There are some important facts to keep in mind when charging a battery.

NOTE: Model TMAX-6A-1B only.

- When the top yellow Status LED is lit, the battery has already been charged at least as much as by most other battery chargers.

NOTE: Model TMAX-25AS-2BM only.

- When the right (second) yellow status LED is lit, the battery has already been charged at least as much as by most other battery chargers.

NOTE: Model TMAX-12A-1B only.

- When the digital display indicates 77% charged, the battery has been charged enough to start most vehicles and has already been charged as much as by many other battery chargers.
- When the digital display indicates 85% charged, the battery has already been charged at least as much as by most other battery chargers.
- The battery % shown in tester mode is an estimate based on the battery voltage and a scale set by the Battery Council International. The battery % shown in charger mode is an estimate of the relative charge in the battery compared to the charge it should have if the charging process is allowed to complete.
- The battery % shown in tester mode can be used to estimate the relative charge time. The lower the % shown, the longer the charge time for a given battery.
- The battery % shown in charger mode is an indication of the relative progress of the charging process. The higher the battery % displayed, the less charge time remains.
- The more a battery is discharged, the faster it absorbs charge from a charger. That means that the battery % increases faster at the beginning of the charging process than at the end. In other words, it takes longer for the battery to absorb the last few percent of charge than the first several percent.

KNOW YOUR CHARGER

Read this entire manual before using your charger. The item below is additional feature of your charger.

Models TMAX-6A-1B and TMAX-12A-1B only.

Relay: Your charger is equipped with a relay. This device turns the charge current on and off to the battery. It is normal to occasionally hear a clicking sound when the relay is turned on or off.

Model TMAX-25AS-2BM only.

Thermocouple: This charger has an internal thermocouple. If the unit gets too hot, the current will be reduced to allow the charger to cool to normal operating temperatures and restart. If the unit does not cool, the charger will temporarily shut off until normal temperatures are obtained.

CHARGING TIPS

Read this entire manual before using your charger. The tips below serve only as a guide for specific situations. **NOTE: Model TMAX-12A-1B only.**

Reviving your battery: If you only wish to charge your battery enough to operate your vehicle; you don't need to wait for the entire charging process to be completed. When the charger displays a battery % of 77 or more (see page 13), the battery has usually been charged enough for the vehicle to start and operate normally.

Completing an interrupted charge: If the charging process has been interrupted and restarted after the charger displays a battery % of 85 or more, the charger may enter trickle charge (see page 12).

MAINTENANCE AND CARE

A minimal amount of care can keep your battery charger working properly for years.

1. Clean the clamps each time you are finished charging. Wipe off any battery fluid that may have come in contact with the clamps to prevent corrosion.
2. Coil the input and output cords neatly when storing the charger. This will help prevent accidental damage to the cords and charger.
3. Occasional cleaning of the case of the charger with a soft cloth will keep the finish shiny and help prevent corrosion.
4. Store the battery charger in a clean and dry location.

TROUBLESHOOTING

Performance problems often can be corrected by the user. Please completely read this chart for possible solutions to common problems.

MODEL: TMAX-6A-1B

PROBLEM	POSSIBLE CAUSE	SOLUTION
The CHECK (red) light is flashing.	Charger in abort mode. Battery may be bad.	See "USING YOUR BATTERY CHARGER." Reset the charger by unplugging it and plugging it in again.

MODEL: TMAX-12A-1B

PROBLEM	POSSIBLE CAUSE	SOLUTION
The CHECK (red) LED and Digital Display are flashing.	Charger in abort mode. Battery may be bad.	See "USING YOUR BATTERY CHARGER."

MODEL: TMAX-25AS-2BM

PROBLEM	POSSIBLE CAUSE	SOLUTION
Batteries are connected and the charger is on, but no LEDs for one bank are lit.	The outputs are being turned on and off in sequence and the other bank of the charger is on (see CHARGER OPERATION).	This is normal operation. Wait 5 minutes and at least one of the LEDs for the bank should come on (see BATTERY STATUS LEDs).
The CHECK (red) light is flashing rapidly (several times per second).	Charger is in abort mode. Battery may be bad.	See "USING YOUR BATTERY CHARGER." Reset the charger by unplugging it and plugging it in again.
Indicator lights are lit in an erratic manner not explained in the "Using Your Battery Charger" section.	The charger was just turned on and is performing its normal startup routine. The charger may be defective.	No problem, this is a normal condition (see OPERATING INSTRUCTIONS). Return to place of purchase for replacement.
The CHECK (red) light always flashes rapidly before the battery is completely charged.	This will happen if the battery did not reach full charge within 24 hours. May be due to a very large battery or a bank of batteries requiring more power than the charger can deliver in 24 hours. Battery may also be faulty.	Reset the charger by briefly unplugging it and starting the charge cycle again. Reset the charger by briefly disconnecting the battery and starting the charge cycle again.
CHECK (red) light is flashing once per second.	The battery is not connected correctly. The battery is less than one volt.	Connect or adjust rings. Check for correct polarity. Replace the battery or try using a manual charger to bring above 1V.

MODELS: TMAX-6A-1B, TMAX-12A-1B

PROBLEM	POSSIBLE CAUSE	SOLUTION
The CHECK (red) light is on.	The battery is not connected correctly. The battery is less than one volt.	Connect or adjust clips or rings. Check for correct polarity. Replace the battery or try using a manual charger to bring above 1V.
The battery is connected and the charger is on, but it isn't charging.	The charger is not in charging mode.	Press CHARGE button until ON light comes on.
Indicator lights are lit in an erratic manner not explained in the "Using Your Battery Charger" section.	A button may have been pressed as the charger was plugged in. The charger may be defective.	Make sure nothing is touching the control panel, then unplug the charger and plug it in again. Return to place of purchase for replacement.
The charger is making an audible clicking sound.	The charger has a relay that turns the current on and off to the battery.	No problem, this is a normal condition.
The CHECK (red) light always flashes before the battery is completely charged.	This will happen if the battery did not reach full charge within 24 hours. May be due to a very large battery or a bank of batteries requiring more power than the charger can deliver in 24 hours. Battery may also be faulty.	Reset the charger by briefly unplugging it and starting the charge cycle again. Reset the charger by briefly disconnecting the battery and starting the charge cycle again.

MODELS: TMAX-6A-1B, TMAX-12A-1B, TMAX-25AS-2BM

PROBLEM	POSSIBLE CAUSE	SOLUTION
The green CHARGED light turns on a few minutes after connecting to the battery.	The battery may be fully charged or recently charged, leaving the battery voltage high enough to appear to be fully charged.	If the battery is in a vehicle, turn the headlights on for a few minutes to reduce the battery voltage and try charging again.
The measured current is much lower than what was selected.	The charger reached the maximum voltage and is reducing the current. The charger detected an over-temperature condition and has reduced the current to allow the charger to cool.	No problem, this is a normal condition. Make sure the charger does not have the side ventilation holes blocked. Move charger out of the sun and into the shade.
The charger was unplugged from the wall but the display is still on.	The battery is supplying the power to the display.	Disconnect the battery charger cables from the battery.

LIMITED WARRANTY

ENERSYS

617 N. RIDGEVIEW DRIVE
WARRENSBURG, MO 64093

MAKES THIS LIMITED WARRANTY TO THE ORIGINAL PURCHASER AT RETAIL OF THIS PRODUCT. THIS LIMITED WARRANTY IS NOT TRANSFERABLE.

EnerSys warrants this battery charger for five years from date of purchase at retail against defective material or workmanship. If such should occur, the charger will be repaired or replaced at the option of the manufacturer. It is the obligation of the purchaser to forward the charger together with proof of purchase, transportation and/or mailing charges prepaid to the manufacturer or its authorized representative.

This limited warranty is void if the product is misused, subjected to careless handling, or repaired by anyone other than the manufacturer or its authorized representative.

The manufacturer makes no warranty other than this limited warranty and expressly excludes any implied warranty including any warranty for consequential damages.

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SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LENGTH OF IMPLIED WARRANTY SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE.

WARRANTY VALIDATION: The enclosed "Warranty Validation Card" must be completed and mailed within 10 days of product purchase to activate this limited warranty.