



On-board
BATTERY CHARGER



model no. 011-1985-4

IMPORTANT:

Please read this manual carefully before running this battery charger and save it for reference.

**INSTRUCTION
MANUAL**

model no. 011-1985-4 | contact us 1-888-942-6686

**IF ANY PARTS ARE MISSING OR DAMAGED, OR IF YOU HAVE ANY QUESTIONS,
PLEASE CALL OUR TOLL-FREE HELPLINE AT 1-888-942-6686.**



Read and understand this instruction manual thoroughly before using the product. It contains important information for your safety as well as operating and maintenance advice.

Keep this instruction manual for future use. Should this product be passed on to a third party, this instruction manual must be included.



This MotoMaster® product carries a three (3) year warranty against defects in workmanship and materials. At its discretion, MotoMaster® Canada agrees to have any defective part(s) repaired or replaced free of charge, within the stated warranty period, when returned by the original purchaser with proof of purchase. This product is not guaranteed against wear or breakage due to misuse and/or abuse.



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SAVE THESE INSTRUCTIONS

This manual contains important safety and operating instructions.
Read all instructions and follow them with use of this product.

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INTRODUCTION

This MotoMaster® Nautilus™ Battery Charger features advanced microprocessor technology making battery charging faster, easier, and safer than ever before. This manual will explain how to use the charger safely and effectively. Please read and follow these instructions and precautions carefully.

SAFETY INFORMATION

SAVE THESE INSTRUCTIONS.

This manual contains important safety and operating instructions.

- This charger is not intended for use by children.
- Use of an attachment not recommended or sold by the battery charger manufacturer may result in a risk of fire, electric shock or injury to persons.
- To reduce the risk of damage to electric plug and cord, pull by the plug rather than the cord when disconnecting charger.
- Use of an improper extension cord could result in a risk of fire and electric shock. If an extension cord must be used, make sure:
 - The pins on plug of extension cord are the same number, size and shape as those of plug on charger.
 - The extension cord is properly wired and in good electrical condition.

- The wire size is large enough for AC ampere rating of charger as specified in Using An Extension Cord.
- When using an extension cord, make the AC connection to the charger outside of the battery compartment as far away as practical, to reduce the risk of a spark igniting gases in the compartment.
- **DO NOT** operate charger with damaged cord or plug – replace the cord or plug immediately.
- **DO NOT** operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified serviceman.
- **DO NOT** disassemble charger; take it to a qualified service facility when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.
- To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.

PERSONAL SAFETY INSTRUCTIONS

- Consider having someone close enough by to come to your aid when you work near a lead-acid battery.
- Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.



WARNING!

Handling the cord on this product or objects associated with the use of this product may expose you to lead. Wash hands after handling.

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 your charger, you read and follow the instructions provided exactly. To reduce risk of battery explosion, follow these instructions and those published by the battery manufacturer.



- Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.
- If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters eye, immediately flood eye 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 battery or engine.
- Be extra cautious to reduce risk of dropping a metal tool onto battery. It might spark or short-circuit battery or other electrical part that may cause 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 to metal, causing a severe burn.
- Use charger for charging only 12 V LEAD-ACID (STD, AGM, gel or deep-cycle) rechargeable batteries. It is not intended to supply power to a low voltage electrical system other than in a starter-motor application. Do not use battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.
- **NEVER** charge a frozen battery.

AC ELECTRICAL CONNECTIONS

PLUGGING CHARGER IN

This battery charger is for use on a nominal 120 V circuit. The plug must be plugged into an outlet that is properly installed and grounded in accordance with all local codes and ordinances. The plug pins must fit the receptacle (outlet). Do not use with an ungrounded system.

USING AN EXTENSION CORD

If an extension cord must be used, follow these guidelines:

- Make sure that the pins on the charger's power cord fit firmly into the extension cord and that the extension cord fits firmly into the receptacle.
- 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 of the charger, as specified in the chart below.

MINIMUM RECOMMENDED EXTENSION CORD

Length of Cord, Metres (Feet)	AWG* Size of Cord
7.6 (25)	18
15.2 (50)	18
30.5 (100)	16
45.6 (150)	—

*AWG = American Wire Gauge



WARNING!

DO NOT operate the charger if it has a damaged power cord or plug. Have the cord replaced.

WARNING! RISK OF EXPLOSIVE GASES

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PREPARING TO CHARGE

CHARGER LOCATION

- Locate charger as far away from battery as DC cables permit.
- **NEVER** place charger directly above battery being charged; gases from battery will corrode and damage charger.
- **NEVER** allow battery acid to drip on charger when reading electrolyte specific gravity or filling battery.
- **DO NOT** operate charger in a closed-in area or restrict ventilation in any way.
- When using an extension cord, make the AC connection to the charger outside of the battery compartment as far away as practical, to reduce the risk of a spark igniting gases in the compartment.
- **DO NOT** set a battery on top of charger.

BATTERY PREPARATION

- If necessary to remove battery from vehicle to charge, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.
- Be sure area around battery is well ventilated while battery is being charged.
- Clean battery terminals. Be careful to keep corrosion from coming in contact with eyes.
- Add distilled water in each cell until battery acid reaches level specified by battery manufacturer. Do not overfill. For a battery without removable cell caps, such as valve regulated lead acid batteries, carefully follow manufacturer's recharging instructions.
- Study all battery manufacturer's specific precautions while charging and recommended rates of charge.



WARNING

Battery chargers may get hot during operation. **DO NOT** set charger on flammable materials like carpeting, upholstery, paper, cardboard, etc. Charger may damage leather and plastic.



MOUNTING INSTRUCTIONS

- 1** The charger may be permanently mounted and connected in three different ways:
 - Flat mount (floor)
 - Wall mount, horizontal position
 - Wall mount, vertical position
- 2** When choosing a location:
 - 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 rainproof 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.
 - Choose a location such that the 6' (1.8 m) cables can reach the battery location, and that the AC power cord can reach a power source.
- 3** Four mounting holes have been provided for secure installation. Using the charger as a template, place the charger in the selected location and mark each of the four holes with a pencil. In a well ventilated environment, drill the four 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. Use caution when drilling, to avoid drilling into wires or other components. Unit can be mounted with its back against any flat surface, using #10 bolts, nuts and lockwashers. Placement should allow LEDs to be visible and allow for maximum ventilation.



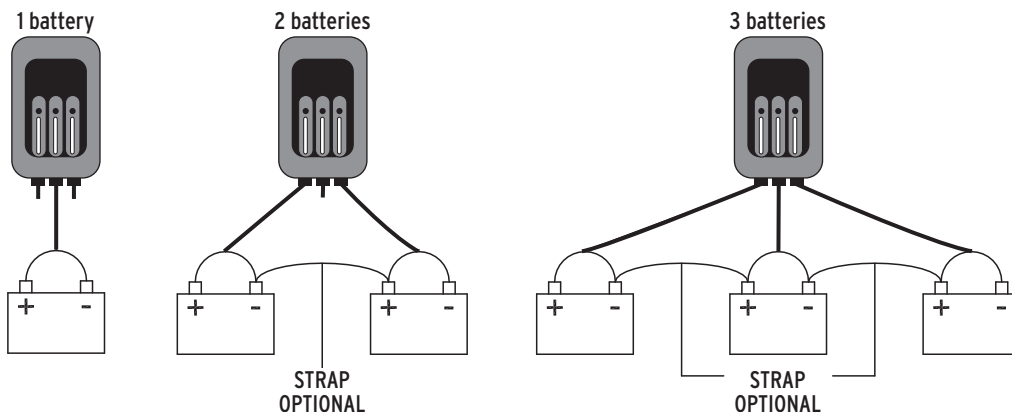
WARNING

A spark near a battery may cause a battery explosion!

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CONNECTING UP TO THREE BATTERIES

- 1 When connecting the ring terminals to the battery, remove nuts on battery posts, place the ring terminal on corresponding positive and negative posts, and replace each nut tightly to ensure a good connection. When connecting the ring terminals, connect the red lead to the positive battery post and the black lead to the negative battery post.
- 2 When connecting the charger to multiple batteries, connect the positive lead from charging bank one to the positive post of battery one. Connect the negative lead from charging bank one to the negative post of battery one. Connect the leads from charging bank two to battery two, and three to battery three in the same fashion.
NOTE: Removal of a strap between batteries in a 24 V or 36 V system is not necessary.
- 3 Connect charger AC supply cord to electric outlet. (Reverse process to remove charger.)



NOTE:

NEVER allow the ring terminals to touch each other. This may cause a spark.

Check polarity of battery posts. A positive (POS, P, +) battery post usually has a larger diameter than a negative (NEG, N, -) battery post.





WARNING

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CHARGING A BATTERY INSIDE THE BOAT

- 1 Turn off all the boat's accessories.
- 2 Clean the battery terminals.
- 3 Make sure the charger is unplugged from the AC power outlet.
- 4 Lay the AC/DC cables away from any fan blades, belts, pulleys and other moving parts.
- 5 Connect the charger to up to three batteries, following the instructions listed in section Connecting Your Battery.
- 6 Connect the charger to an electrical outlet.
- 7 The  Power LED will light and the battery type LED for the previously selected type will be lit (the factory default battery type is AGM). If the battery type is not changed, charging will start in 30 seconds, if connected to a battery.
- 8 To change the battery type, press and hold the  button for 3 seconds, and then toggle the button to select the desired battery type. The LED will flash for 3 seconds, and then turn solid.
- 9 If there is a battery connected to that bank, charging will begin automatically, and the percentage LEDs will light, to indicate charging status.
- 10 During charging, the four green LEDs will blink and then turn solid, from right to left, to indicate the progress of the charge. When the higher percentage LED is blinking, the charger is working to reach that percentage. When the lower percentage LEDs are solid on, the battery has reached that percentage of charge. When the battery is fully charged, all four LEDs will be solid.
- 11 When the battery is fully charged, the charger will go into Maintain mode.
- 12 When charging multiple batteries, the charger will cycle through each bank, one at a time, in 15-minute intervals until each battery is fully charged.
- 13 When charging is complete, disconnect the charger from the AC power. If the ring terminals are permanently mounted, there is no need for removal.

NOTE:

If no battery type is selected, the  LED and the red  LED will be lit (the bank is turned off).

If a battery type is selected and no battery is connected, the battery type LED and the red  LED will be lit.

To check the battery type setting during charging, press the Select button.



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BATTERY TYPE BUTTON

Press to select battery type or check battery type during charging.









LED INDICATORS




POWER ON (GREEN)

The charger is connected to AC power.

CHARGING STATUS/BATTERY TYPE (GREEN)

Charging status: After battery type has been selected and charging has begun, charging status is indicated from right to left, in 25% increments. The LEDs will blink and then turn solid, as charging progresses. The % LEDs of other banks which are not charging will be solid on, to show the percentage of those batteries.

100%	75%	50%	25%
			
			


Battery type: To change the battery type, press and hold the  button for 3 seconds, and then toggle the button to select the desired battery type. For a deep-cycle battery, refer to the battery manufacturer's specifications to determine the battery type. The LED will flash for 3 seconds, and then turn solid. If no battery type is selected, the  LED will light and the bank will turn off. To check the battery type setting during charging, press the  button.

(FLASHING RED)

The connections are reversed.

(SOLID RED)

The charger has detected one of the following problems:

- Aborted charge
-  is selected, the bank is OFF.
- Battery not connected or the battery voltage is too low.

See Troubleshooting for more information.

NOTE:

A charging bank will NOT begin charging if that bank's Red LED is flashing.



UNDERSTANDING CHARGE RATE TIMES

The built-in intelligent micro-processor will continuously monitor and adjust the charger to provide a fast, safe and efficient charge. Note that battery charge times will vary depending on several factors including:

- **Battery State** If a battery has been only slightly discharged, it can be charged in less than a few hours. This same battery could take up to 10 hours if very discharged.
- **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).
- **Charge Rate** The charge rate is measured in amps. A battery charged at a lower rate will take longer than a battery charged at a higher rate. However, smaller batteries can be easily damaged by charging at a rate which is too high for the capacity of the battery.
- **Temperature** Cold temperatures will affect a battery's ability to accept a charge. Charging in cold temperatures will increase the amount of time required to charge a battery.

OTHER FEATURES

MAINTENANCE MODE

When the green 100% LED is lit, the charger has started Maintain Mode. In this mode, the charger keeps the battery fully charged by delivering a small current when necessary. If the charger has to provide its maximum maintain current for a continuous 12 hour period, it will go into Abort mode. This is usually caused by a drain on the battery or the battery could be bad. Make sure there are no loads on the battery. If there are, remove them. If there are none, have the battery checked or replaced.
















INLINE FUSES

Inline fuses, located close to the ends of the red leads, protect the charger from extremely high voltage surges, lightning strikes or other high-current surges. If a fuse blows, replace only with an ATC-30 30A 32V blade fuse.

MAINTENANCE

- Clean the ring terminals any time you need to remove them (no need to remove, if permanently mounted). Wipe off any battery fluid that may have come in contact with them, to prevent corrosion.
- Occasionally cleaning the case of the charger with a soft cloth will keep the finish shiny and help prevent corrosion.
- Coil the input and output cords neatly when storing the charger. This will help prevent accidental damage to the cords and charger.
- Store the charger unplugged from the AC power outlet in an upright position.
- Store inside, in a cool, dry place. Store the ring terminals in a way that will not cause damage.

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PROBLEM	POSSIBLE CAUSE	SOLUTION
Correctly connected to battery, but not charging.	<ul style="list-style-type: none"> Battery voltage is too low. The bank is turned off (indicated by lit  and  LEDs). Bad fuse on the leads. 	<ul style="list-style-type: none"> The battery may be defective. Have the battery checked and replace if necessary. Press the  button to select battery type; charging will then start. Replace the fuse.
The red  LED is flashing.	Connections are reversed.	Reverse the connections.
The red  LED is solid; no charging status/  ,  or  battery type LED is lit.	The charger has detected a problem with the battery.	The battery may be defective. Have the battery checked and replace if necessary.
The red  LED is solid and  LED is lit.	No battery type is selected; the bank is turned off.	Press the  button to activate bank and select battery type.
The red  LED is solid and  ,  or  battery type LED is lit.	<ul style="list-style-type: none"> Battery not connected. Bad fuse on the leads. 	<ul style="list-style-type: none"> Connect the battery. Replace the fuse.

TECHNICAL SPECIFICATIONS

Input voltage	120 V AC
Input frequency	60 Hz
Input current	3.7 A
Output voltage	12 V
Output current	15 A
Ingress protection rating	IP65