



MRC-143A Tactical Battery Charger



Operation Manual

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Revision History

Version	Description of Change	Effective Date
REV: A	Previous revision	OCT 20 2006
REV: B	This manual has been updated to reflect the new template design.	MAY 01 2008

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1 ABOUT THIS MANUAL

This manual has been prepared by McDowell Research for the purpose of providing the user information necessary to understand and maintain the MRC-143A Tactical Battery Charger.

1.1 Symbols Used

The symbols shown in this section appear throughout this manual, the first one shown being the *NOTE* symbol, below, which is self-explanatory.



NOTE: *Note statements contain important information that may affect how you use this product.*

The other symbols represent *important safety advice*, and they appear throughout this manual in the form of *WARNINGS* and *CAUTIONS* against possible hazards to people or equipment, respectively. These safety *WARNINGS* and *CAUTIONS* must be followed at all times. They are flagged by use of a triangular alert icon shown just to the left of the cautionary advice given, as shown below:



WARNING: *Warning statements mean danger. They identify practices, procedures or conditions such as high voltage that could result in injury or loss of life and which, therefore, require extreme care before proceeding.*



CAUTION: *Caution statements denote a hazard. They identify practices, procedures or conditions that could result in damage to or destruction of this product or other equipment or property.*

McDowell Research assumes no liability for the customer's failure to comply with these *WARNINGS* and *CAUTIONS*.

1.2 General Safety Instructions



WARNING: Prior to using the MRC-143A, please read the safety and caution instructions located in this section to prevent the mischarge or catastrophic destruction of a battery.

While inherently safe, misuse of the MRC-143A may result in damage to the battery and/or the MRC-143A battery charger. Specifically:

- Before using the MRC-143A battery charger, read all instructions and cautionary markings on (1) the battery charger, (2) battery, (3) product using the battery.
- To reduce the risk of injury, charge only batteries this charger is designed to charge. Attempting to charge other types of batteries may cause personal injury and/or equipment damage.
- Do not operate the MRC-143A if it has received a sharp blow, been dropped, or otherwise damaged in any way; take it to a qualified repair technician for servicing.
- Do not expose the unit to wet conditions.
- Use of an attachment not recommended or sold by the battery charger manufacturer may result in risk of fire, electric shock, or personal injury.
- To reduce risk of damage to electric plug or cord, pull by plug rather than cord when disconnecting charger.
- Make sure cord(s) is located so that it will not be stepped on, tripped over, or otherwise subjected to damage or stress.
- An extension cord should not be used unless absolutely necessary. Use of improper extension cord could result in risk of fire and electric shock.
- Do not operate the charger with damaged cord or plug—replace it immediately.
- Do not disassemble the MRC-143A; take it to a qualified repair technician 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 its power source before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.
- If there are any questions regarding maintenance or safety-of-use issues pertaining to the MRC-143A, please contact our service department at:

Service Department
McDowell Research, an Ultralife Company
(PHONE) (315) 332-7100 (FAX) (315) 331-7800
(Email) service@mcowellresearch.com

2 PRODUCT DESCRIPTION

The MRC-143A is rectangular in shape with four connectors on one end and a single connector on the other. There are three connectors under the protective Delrin lid. The lid is connected to the housing by a plastic latch.

2.1 Equipment Provided

Each unit is shipped with the following:

Equipment	Quantity
MBA-21 Operational Manual	1
MBA-21 Tactical Battery	1
DC Input Cable	1
AC Input Cable	1
Solar Input Cable	1

2.2 Physical Description

The MRC-143A dimensions are as follows:

Dimension	Measurement
Length	9.625 inches
Width	5.6875 inches
Height	4.875 inches
Weight	7.6 lbs

2.3 External Components

The MRC-143A consists of the following external components.

- ◆ One auxiliary output connector (15 VDC output)
- ◆ Three solar input connectors
- ◆ Three battery output connectors
- ◆ One AC/DC input connector
- ◆ Battery status momentary On/Off Button
- ◆ One removable Delrin protective lid

3 OPERATION

The subsequent sections will list in chronological order how to operate the battery charger safely and efficiently.

3.1 Connections and Start-up for Power Input

Refer to Figures below (and their callouts numbered 1 through 5) while following the listed directions.

1. First secure the proper power cable to the power source and then to an input connector(s). There are three solar input connectors (see callout 1) and 1 AC/DC input connector (see callout 3).
2. Remove the Delrin lid (see callout 2) by unsnapping the plastic latch (see callout 4).

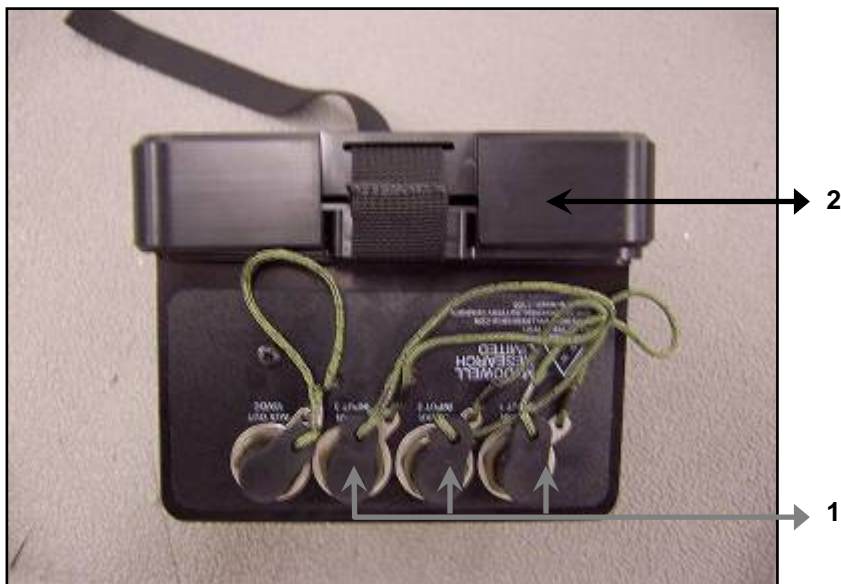


Figure 1 MRC-143A Solar Input Connectors

3. Place one to three BB-390, BB-2590, MRC rechargeable battery adapters (See Figure 3) or a combination of all batteries/adapters to the output connectors under the lid.
4. The battery status switch (see callout 5) will turn the LED's on or off; however, the batteries will charge until removed or fully charged.

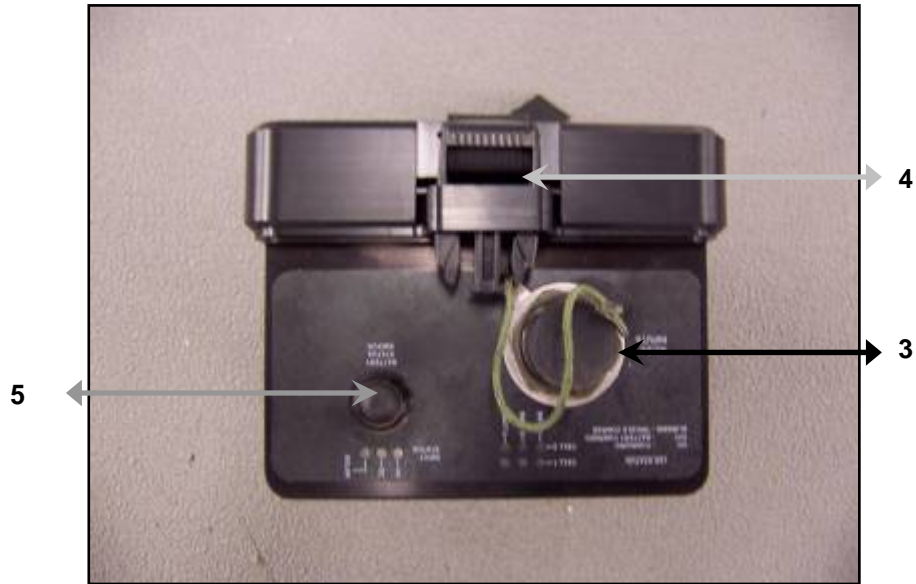


Figure 2 MRC-143A AC/DC Input and Battery Status Switch



Figure 3 MRC-171 MBITR Battery Charger Adapter

3.2 Controls and Indicators

MRC-143A controls and indicators are described in the following subsections.

3.2.1 Battery Status Switch

The MRC-143A has a battery status switch clearly marked on the housing. This button will relay the status of the batteries by illuminating the indicators on the housing.

3.2.2 LED Status Indicators

When the MRC-143A is turned on, the LED indicators on the MRC-143A will be ON. When the switch is in the off position, the LED indicators will be OFF.

The LED indicators below the battery status switch relay the power source information, such as whether the user is drawing on AC/DC power or using solar panels.

The LED indicators below the AC/DC input connector relay charging status, as follows:

- ◆ When the LED lights are ON, the battery is charging.
- ◆ When the indicators are OFF, the battery is charged.
- ◆ When the indicators are blinking, the batteries are being trickle charged.

4 MAINTENANCE

Maintenance for the MRC-143A is described in the following sections.

4.1 Serviceable Parts

The MRC-143A has NO user serviceable parts. Units requiring repair should be sent to a qualified service depot for repair, or follow instructions in the maintenance chapter of this manual.

4.2 Cleaning

Cleaning of the MRC-143A is described in the following sections.

4.2.1 Dirt and Dust

All external components to the MRC-143A can be cleaned with a water dampened non-abrasive cloth and allowed to air dry or wipe dry with a clean dry non-abrasive cloth.

4.2.2 Oils and Grease

All external components of the MRC-143A can be cleaned with a mild soap/water solution dampened non-abrasive cloth once the power source has been removed. Rinse with water dampened non-abrasive cloth and allowed to air dry or wipe dry with a clean dry non-abrasive cloth.

4.3 Corrective Maintenance

The MRC-143A has NO user serviceable parts. Units requiring corrective maintenance should be sent to McDowell Research for repair. Contact information is provided in the next chapter.

5 CUSTOMER ASSISTANCE

5.1 Warranty Information

Warranty Statement

4 years for equipment shipped after May 1, 2004.

3 years for equipment shipped prior to May 1, 2004.

McDowell Research warrants to its customers that the products it manufactures and sells will be free from defects in materials and workmanship for a period of four (4) years for equipment shipped after May 1, 2004.

This warranty shall not apply to any defect, failure or damage caused by improper use or inadequate maintenance and care. McDowell shall not be obligated to provide service under this warranty to repair, service, or modify these products.

In order to obtain service under this warranty, customers must return a failed unit to McDowell with a description of the failure, contact information (in case questions arise and to speed up processing of guarantee claims) and finally a return shipping address. McDowell will return any failed unit at McDowell's cost.



NOTE: This warranty does not apply to batteries supplied by McDowell Research. All batteries supplied by McDowell Research are warranted for 90 days from date of shipment.

5.2 Contact/Return Information

Please call (315) 332-7100 to obtain an RMA number prior to returning any failed unit(s) to:

McDowell Research, an Ultralife Company
2000 Technology Parkway
Dock "X"
Newark, New York 14513
Phone: (315) 332-7100
Fax: (315) 331-7800

Online RMA requests can be located and submitted at:
http://www.mcdowellresearch.com/rma_form.php or
service@mcdowellresearch.com

6 SPECIFICATIONS

Table 1: Physical Characteristics

Dimension	Measurement
Width	5.6875 inches
Length	9.625 inches
Height	4.875 inches
Weight	7.6 lbs.
LED Indicators	Battery Type, Charging, Discharge, 90% Charge

Table 2: Environmental Characteristics

Dimension	Measurement
Storage Temperature	-50° C to +65° C
Charging Temperature	-0° C to +45° C
Relative Humidity	95%
Storage Altitude	55,000 ft.
Operating Altitude	27,000 ft.

Table 3: Electrical Characteristics

Dimension	Measurement
DC Input Range	11-36 VDC
AC Input Range	95 TO 265 VAC, 47 TO 440 HZ
Solar Input	UP TO 6 EA 55W PANELS