

MRC-165 Amplified Speaker



Operation Manual

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Revision History

Version	Description of Change	Effective Date
REV: A	Previous revision.	MAY 00 2005
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, an Ultralife Company, for the purpose of providing the information necessary to understand and maintain the MRC-165 Amplified Speaker.

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: *This manual contains important safety and operating instructions for the MRC-165. Before using the MRC-165, read all instructions in this manual and cautionary markings, if any, on the device. Specifically:*

- *Do not operate the MRC-165 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 disassemble the MRC-165; 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 the MRC-165 from its power source before attempting any maintenance or cleaning. Turning off controls will not eliminate this risk.*
- *If there are any questions regarding maintenance or safety-of-use issues pertaining to the MRC-165, please contact our service department at:*

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

2 PRODUCT DESCRIPTION

The MRC-165 Amplified Speaker is compatible with ARC-210/RT-1747(C) and ARC-210/ RT-1851 transceiver handset interface audio connections. The MRC-165 is operational from a wide range of DC input power (12 to 36 VDC).

2.1 Equipment Provided (Cable)

MRC67A-023 DC Power Cable (See Figure 3) comes in standard 6ft. length (72 inches) but may be special ordered to virtually any required length with many optional DC input power connectors available.

2.2 Features

The MRC-165 has the following features:

- ◆ Embedded 5-watt audio amplifier
- ◆ Automatic muting when handset is keyed
- ◆ Volume controls for speaker and handset
- ◆ Power and receiver audio active LED indicators
- ◆ Wide range DC power input
- ◆ Easy to install and operate
- ◆ Adaptable to existing communication equipment
- ◆ Local handset fully functional regardless of power switch setting
- ◆ Optional cable sets for remote operation, battery operation or alternate power source connections
- ◆ On/Off power switch
- ◆ Alternate speaker mounting bracket location

2.3 Physical Description

The MRC-165 Amplified Speaker is a compact weather resistant / dustproof unit weighing less than 4 lbs. The speaker can be mounted in various installation positions in vehicles, airplanes, boats and structures by its adjustable bracket or can be easily carried in a rucksack for field use. All connections and controls are readily accessible for ease of use. The MRC-165 is equipped with a handset mount.

The MRC-165's featured controls, connectors and indicators are shown in Figure 1; its physical dimensions are shown in Figure 2.

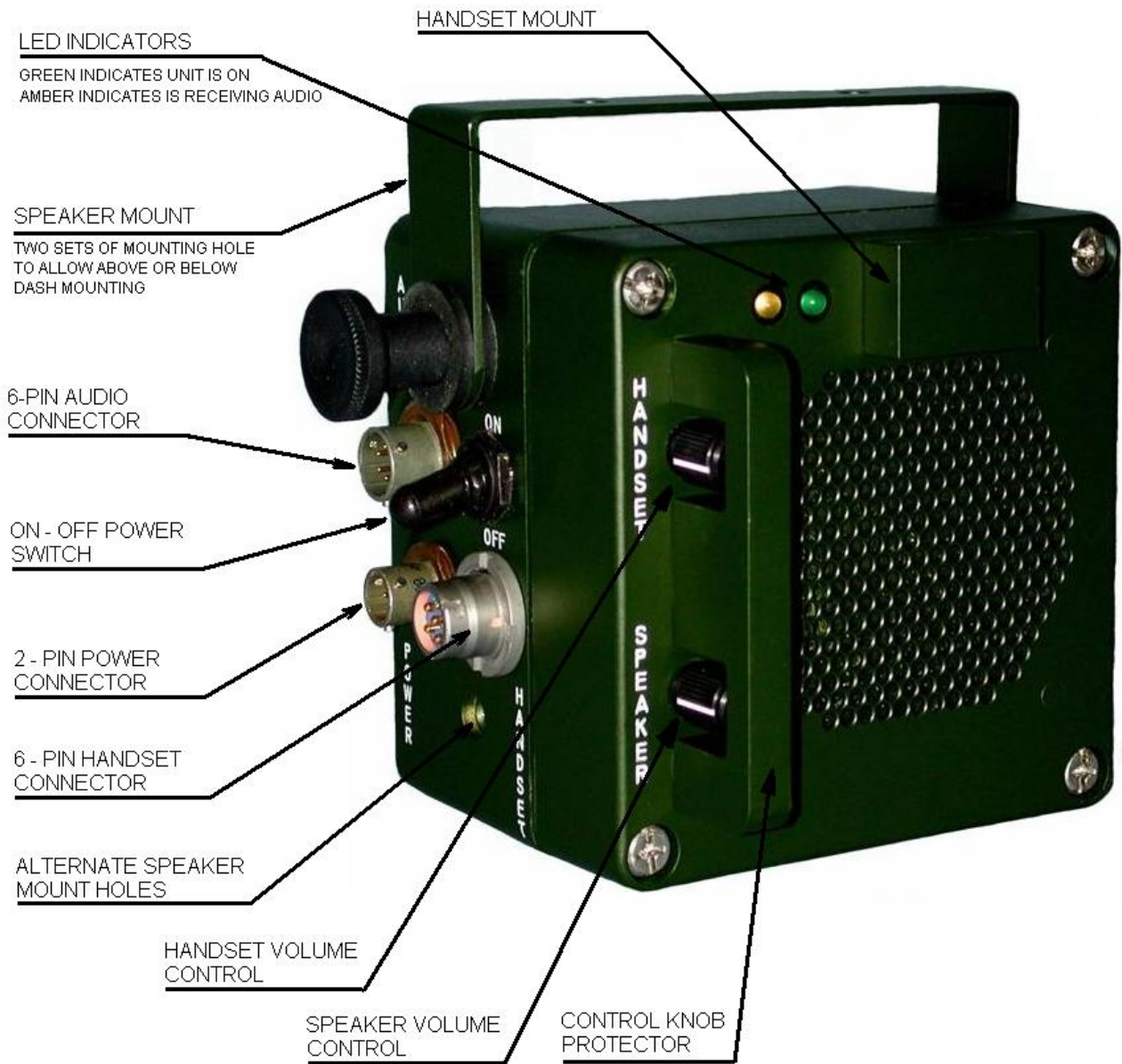


Figure 1 MRC-165 Amplified Speaker Features

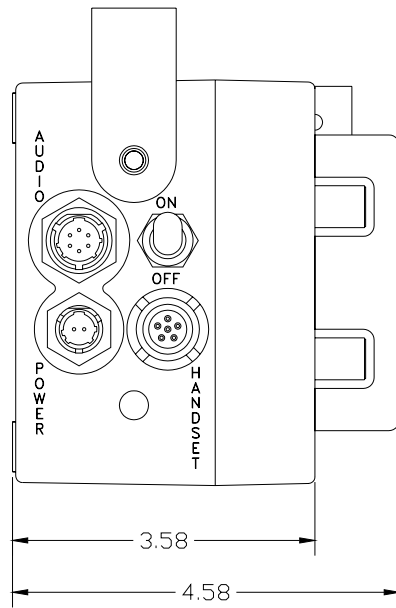
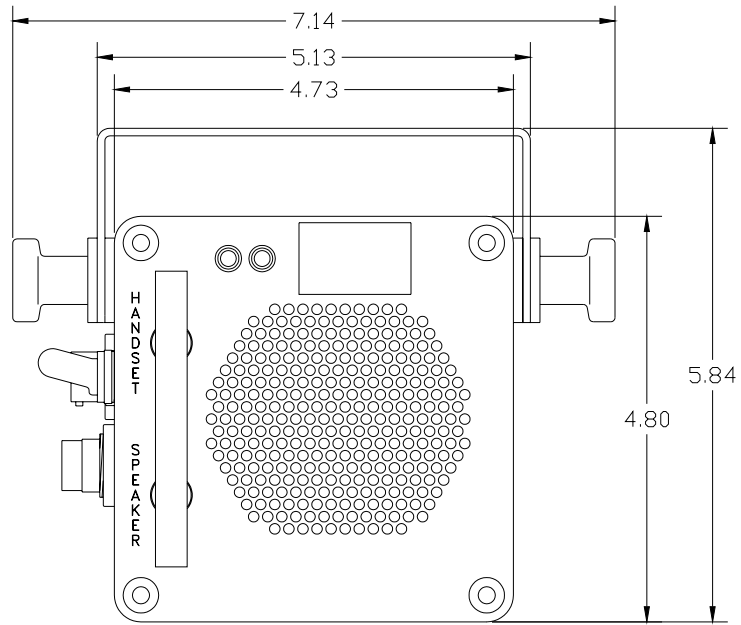


Figure 2 MRC-165 Physical Dimensions

2.4 Functional Description

The MRC-165 amplifies the audio output from the handset by .5 – 1.25 vrms for input into the transceiver. The MRC-165 has an embedded 5-watt audio amplifier with volume controls for speaker and handset, automatic muting when handset is keyed, and is equipped with power and receiver audio active LED indicators. The amplified speaker is capable of accepting a wide range of DC input power.

3 OPERATION

This section provides a basic operational description of the MRC-165 amplified speaker.

3.1 Controls and Indicators

There are three operator controls and two LED indicators on the MRC-165. The operator controls consist of the power On-Off switch, the Handset Volume Control and the Speaker Volume Control. The LED indicators (on the front of the speaker) consist of a green LED to indicate input power on/off, and a yellow LED to indicate the speaker is receiving audio.

3.2 Required Connections (Cables)

Be sure to make all necessary connections as described in the following subsections before proceeding to apply power.



CAUTION: *The MRC-165 is designed to operate with ARC-210/RT-1747(C) and ARC-210/RT-1851 transceivers. Do not connect to any other transceivers, as the amplified audio output to the radio audio connector could cause damage to the input circuitry of the transceiver.*

1. Connect the input power cable shown in Figure 3 to the 2-pin power connector on the speaker. This source can be the output of a MRC power adaptor's auxiliary output using a MRC67A-023 DC power cable.
2. Connect the audio cable to the audio connector on the speaker and the other end of the cable to the Audio connector on the transceiver.
3. Toggle the power switch to the on position and the green LED illuminates. Adjust the speaker volume to the desired level.



Figure 3 MRC67-023 DC Power Cable



NOTE: *The power cable shown in Figure 3 is for use with MRC-50, MRC-82, MRC-92, MRC-93, MRC-99-01 and MRC-9902 power supply auxiliary output connectors.*

3.3 Optional Cables

If it is necessary to mount the speaker in a remote location, and AC power is available, the MRC67-012 (see Figure 4) optional AC power supply can be used. It has 95 to 270 VAC input and 24 VDC output at 50 Watts.

Another option for remote operation is the battery power cable, MRC67A-030 (see Figure 5), for use with BB-390, BB-490, BB-590, BB-2590 and BA-5590 type batteries.

An optional DC power cable, with banana plug and alligator clips, MRC67A-026 (shown in Figure 6), is also available.



Figure 4 MRC67-012 DC Power Cable



Figure 5 MRC-67-030 Battery Cable



Figure 6 MRC67-026 DC Power Cable

4 MAINTENANCE

Maintenance for the MIK-165 is described in the following sections.

4.1 Cleaning

Cleaning of the MIK-165 is described in the following sections.

4.1.1 Dirt and Dust

All external components to the MIK-165 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.

4.1.2 Oils and Grease

All external components of the MIK-165 can be cleaned with a mild soap/water solution dampened non-abrasive cloth. Rinse with water dampened non-abrasive cloth and allowed to air dry or wipe dry with a clean dry non-abrasive cloth.

4.2 Corrective Maintenance

The MIK-165 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

Parameter	Measurement
DC Input Range	12 to 36 VDC, MIL-STD-1275
Power Indicator	Green LED
Receiver Audio Annunciation	Yellow LED
Audio Input	1.6V RMS (2.3 V P-P)
Audio Output	5 Watts Maximum
Mic Audio Output	0.5 - 1.25 vrms
Audio Band Pass	300 Hz to 3000 Hz
Size	4.80"L x 3.58"W x 4.73"D
Weight	3.75 lbs.
Operating Temperature	-30° C to +55° C
Operating Altitude	45,000 ft.
Humidity	100% relative