

Motorola BPR40

Motorola Mag One BPR40 VHF Two-Way Radio Instruction Manual

1. INTRODUCTION AND OVERVIEW

This manual provides essential information for the proper use and maintenance of your Motorola Mag One BPR40 VHF two-way radio. The BPR40 is a robust communication device designed for reliable performance in various professional environments. This specific model, AAH84KDS8AA1AN, operates on the VHF frequency band (150-174 MHz).

Important Note: The Motorola BPR40 radio requires programming to function correctly with specific frequencies and features. This programming is typically performed by a qualified technician or dealer to match your operational requirements. Ensure your existing radios operate on the VHF band if you intend to use them with this unit. You can verify the model number (AAH84KDS8AA1AN for VHF) by removing the battery and checking the label inside the radio unit.

2. PRODUCT FEATURES

- **8 or 16 Channel Capability:** Allows for communication across multiple groups or departments, configurable via programming.
- **2 Programmable Buttons:** Customizable for quick access to frequently used features such as scan, monitor, or power level selection.
- **Compact and Lightweight Design:** Weighs approximately 9.5 oz with a Li-Ion battery, facilitating ease of carrying and use.
- **Adjustable Squelch Levels:** Helps minimize interference from weak or unwanted signals, improving audio clarity.
- **Tricolor LED Indicator:** Provides visual status for radio operation and battery level at a glance.
- **Large, Textured Push-to-Talk (PTT) Button:** Ergonomically designed for easy and reliable transmission.
- **Single Priority Scan:** Enables continuous monitoring of a designated priority channel while scanning other active channels.
- **Large Rotary Channel Selector:** Facilitates intuitive and easy channel changes.
- **Integrated On/Off and Volume Control:** A single rotary knob manages power and audio output.

- **Adjustable Power Level:** Capable of transmitting at 1 Watt or 5 Watts, allowing optimization for battery life or extended range.
- **Rugged, Die-Cast Chassis:** Features a durable polycarbonate housing designed for enhanced protection and longevity.
- **VHF Frequency Band:** Operates within the 150-174 MHz range, suitable for various applications.

Mag One™ by Motorola BPR™ 40

Affordable and Reliable Radio for Small Business

8 or 16 Channels

Allows multiple users and groups to communicate. Organize teams into different talkgroups for improved efficiency.

Small and Lightweight

Only 4.21 inches high. And over 14% lighter with a Li-ion battery.

- 9.5 oz with Li-ion battery
- 11.08 oz with NiMH battery

Squelch Levels

Helps minimize interference from undesired weak signals and helps weak signals be heard.

Tricolor LED

Indicates radio status and battery levels at a glance.

Large, Textured Push-to-Talk Button

Easy to find and use without looking.

Single Priority Scan

Frequently scans higher priority channels.

Large Rotary Channel Selector

Allows you to change channels easily.

On/Off and Volume Control

Large size lets you adjust the volume quickly.

Adjustable Power Level

Helps save battery life. Adjusts transmit power to accommodate user environment.

Rugged, Die-Cast Chassis

Polycarbonate housing provides greater protection.

2 Programmable Buttons

Easy access to favorite features. Program up to four settings from these 12 features:

- High/Low Power
- Volume Set
- Monitor
- Sticky Monitor
- Scan
- Nuisance Channel Delete
- Repeater Talkaround
- PL/DPL
- Button Lock
- Battery Save Mode
- Squelch
- Customized Feature

Standard Package:

- Radio – Ships at 1 Watt
- 1200 mAh NiMH Battery or 1500 mAh Li-ion Battery
- Rapid-rate Charger
- 2 Inch Spring Belt Clip
- Antenna
- Operating Manual
- Safety Manual
- 1-Year Limited Radio Warranty



Mag One by Motorola BPR 40

An affordable, high-performance communication tool that is a reliable solution for your communication needs. When you equip your work force with the BPR 40, they will be able to react more efficiently. Quicker response, better customer service, saved trips, and increased safety – they all add up to better operations and a streamlined process.

The Mag One by Motorola BPR 40 two-way radio not only provides affordable communication, but also a complete assortment of tested and certified accessories to customize your radio solution. And it's backed by Motorola service and a 1-year limited radio warranty*.

*6 month limited warranty on accessories.

It's a little radio with a big list of features:

- 8 or 16 channels for wider group coverage
- 2 programmable buttons for easy access to frequently used features
- 12 programmable features to choose from including a customized feature of your choice
- Small size and lightweight
- High/Low power settings for varied situations
- Affordably priced
- Designed for education, hospitality, retail and light construction markets
- Mag One accessories enhance the value and effectiveness of your radio
- Backed by Motorola service and a one-year limited warranty

Image: Overview of Motorola Mag One BPR40 features, highlighting its compact design, programmable buttons, and rugged construction.

3. PACKAGE CONTENTS

The standard package for the Motorola Mag One BPR40 VHF radio typically includes the following components:

- Motorola BPR40 VHF Radio Unit
- Antenna
- Lithium-Ion Battery (1500 mAh) or NiMH Battery (1200 mAh)
- Rapid-Rate Charger
- 2-inch Spring Belt Clip
- Operating Manual (this document)
- Safety Manual
- Microphone

4. SETUP

4.1. Battery Installation

1. Ensure the radio is powered off by rotating the On/Off/Volume knob fully counter-clockwise.
2. Align the battery with the grooves on the back of the radio unit.
3. Slide the battery upwards until it clicks securely into place.
4. To remove the battery, press the battery release latch (if present, typically at the bottom of the battery) and slide the battery downwards.

4.2. Initial Battery Charging

1. Place the radio with the installed battery into the rapid-rate charger.
2. Ensure the charger's LED indicator shows the charging status (typically red for charging, green for fully charged).
3. Charge the battery for a minimum of 12-16 hours before initial use to ensure it reaches full capacity. Subsequent charges will typically be completed in a shorter timeframe.

4.3. Radio Programming

The Motorola BPR40 requires programming to configure specific frequencies, channels, squelch codes, and the functions of its programmable buttons. This process is essential for the radio to operate effectively within your communication system.

- It is recommended to contact your authorized Motorola dealer or a qualified radio technician for programming services.
- Provide them with your desired operating frequencies, privacy codes (if applicable), and any specific feature configurations you require.



Image: Front view of the Motorola Mag One BPR40 VHF two-way radio, showing the speaker, microphone, PTT button, and channel selector.

5. OPERATING INSTRUCTIONS

5.1. Power On/Off and Volume Control

Rotate the On/Off/Volume knob (located on the top of the radio) clockwise to power on the radio. Continue rotating clockwise to increase the audio volume. Rotate the knob counter-clockwise to decrease volume and to power off the radio.

5.2. Channel Selection

Rotate the Channel Selector knob (located on the top of the radio, typically adjacent to the On/Off/Volume knob) to select the desired communication channel. The radio supports 8 or 16 channels, depending on its

programming configuration.

5.3. Transmitting (Sending a Message)

1. Select the desired channel using the Channel Selector knob.
2. Press and hold the Push-to-Talk (PTT) button (located on the side of the radio). The LED indicator may illuminate to confirm transmission.
3. Speak clearly and concisely into the microphone, holding the radio approximately 1 to 2 inches from your mouth.
4. Release the PTT button to stop transmitting and listen for a response.

5.4. Receiving (Listening to a Message)

When the radio is powered on and set to an active channel, it will automatically receive incoming transmissions. Adjust the volume knob for comfortable listening levels.

5.5. Using Programmable Buttons

Your radio may feature one or more programmable buttons (e.g., side buttons). The specific functions assigned to these buttons are determined during the radio's programming. Common functions include:

- **Scan On/Off:** Activates or deactivates channel scanning.
- **Monitor:** Temporarily disables squelch to listen for weak signals or activity on a channel.
- **High/Low Power Select:** Toggles between 1 Watt and 5 Watts transmit power.
- **Nuisance Channel Delete:** Temporarily removes an unwanted channel from the scan list.

Refer to your radio's programming details for the exact functions of your specific unit's programmable buttons.

6. MAINTENANCE

6.1. Cleaning the Radio

Clean the radio's exterior surfaces with a soft, damp cloth. Do not use harsh chemicals, solvents, or abrasive cleaners, as these can damage the radio's casing or internal components. Ensure the radio is powered off and the battery is removed before cleaning.

6.2. Battery Care

- **Charging:** Always use the Motorola-approved rapid-rate charger provided with your radio. Avoid overcharging or leaving the battery on the charger for extended periods after it has reached full charge.
- **Storage:** If storing the radio for an extended period (more than 30 days), remove the battery from the radio. Store batteries in a cool, dry place, ideally at approximately 50% charge, to prolong their lifespan.
- **Disposal:** Dispose of depleted or damaged batteries responsibly according to local environmental regulations. Do not incinerate batteries.

6.3. Antenna Care

Do not operate the radio without an antenna securely attached. Avoid bending, twisting, or otherwise damaging the antenna, as this can significantly affect radio performance, range, and potentially damage the radio's antenna port.

7. TROUBLESHOOTING

If you encounter operational issues with your Motorola BPR40 radio, consider the following common troubleshooting steps:

- **No Power:** Verify that the battery is properly installed and fully charged. Ensure the On/Off/Volume knob is rotated clockwise to the 'on' position.
- **Cannot Transmit or Receive:** Confirm that the radio is set to the correct channel. Check that the antenna is securely attached. Ensure the radio has been programmed correctly for your communication system.
- **Poor Audio Quality:** Adjust the volume level. Inspect the microphone and speaker for any obstructions. Confirm you are within the effective communication range of other radios or repeaters.
- **Short Battery Life:** Ensure the battery is fully charged before use. Consider operating in low power mode if maximum range is not required. Note that batteries have a finite number of charge cycles and may require replacement over time.
- **Interference:** If experiencing unwanted noise or interference, try adjusting the squelch level (if programmable). Changing to a different channel may also resolve the issue.

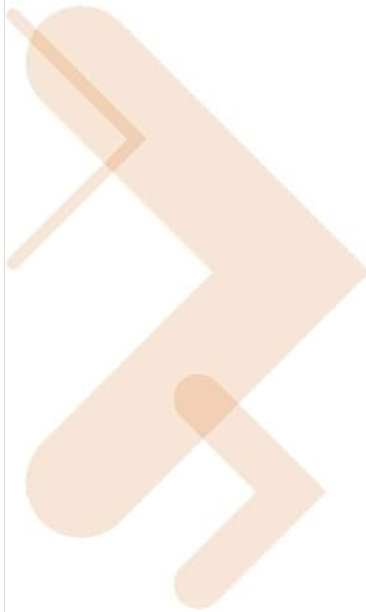
For persistent or complex issues, it is recommended to contact your authorized Motorola dealer or a qualified radio technician for further assistance.

8. SPECIFICATIONS

| Motorola Mag One BPR40 VHF Radio Specifications | |
|---|---|
| Feature | Specification |
| Model Number | AAH84KDS8AA1AN |
| Frequency Range | VHF 150-174 MHz |
| Number of Channels | 8 (or 16, programmable) |
| Power Output | 1 Watt / 5 Watts (selectable) |
| Battery Type | Lithium Ion (included) |
| Dimensions (H x W x D) | Approximately 10.94 x 9.33 x 2.91 inches (radio only) |
| Weight (with battery) | Approximately 3.09 pounds |
| Water Resistance Level | Water Resistant |
| Operating Temperature | -30°C to +60°C (-22°F to +140°F) |
| Storage Temperature | -40°C to +85°C (-40°F to +185°F) |
| Shock & Vibration | MIL-STD 810 C, D, E, F, G compliant |
| Dust & Humidity | Weather-resistant housing, EIA 603B |

SPECIFICATION SHEET

BPR 40 Two-Way Portable Radio Typical Specifications



GENERAL SPECIFICATIONS

| | VHF | UHF |
|--|--|-----------------|
| Channel Capacity | 8 or 16 | 8 or 16 |
| Model Numbers (8 channel) | AAH84KDS8AA1_N | AAH84KDS8AA1_N |
| Model Numbers (16 channel) | AAH84KDJ8AA1_N | AAH84RCJ8AA1_N |
| FCC Designation | AZ489FT3810 | AZ489FT4873 |
| FCC Emissions Designators | 11K0F3E/16K0F3E | 11K0F3E/16K0F3E |
| Dimensions (H x W x L) | 4.21 x 2.28 x 1.46 inches (107 x 58 x 37 mm) | |
| Weight (with NiMH/Li-ion) | 11.08 ounces (314 g)/9.52 ounces (270 g) | |
| Average Battery Life @ 56-90 Duty Cycle ¹ | Up to 8 hours Up to 11 hours | |
| High Power (5W/4W) | | |
| Low Power (1W) | | |

TRANSMITTER

| | VHF | UHF |
|---|-------------------|-------------------|
| Frequency Range | 150-174 MHz | 450-470 MHz |
| Channel Spacing | 12.5/25 kHz | 12.5/25 kHz |
| RF Output | 1 to 5W | 1 to 4W |
| Frequency Stability ² | ±2.5 ppm | ±2.5 ppm |
| Spurs and Harmonics | -63 dBc (-26 Bm) | -63 dBc (-27 Bm) |
| FM Hum and Noise Ratio ² (12.5/25 kHz) | 40 dB | 40 dB |
| Modulation Limiting ² (12.5/25 kHz) | ±2.5 kHz / ±5 kHz | ±2.5 kHz / ±5 kHz |
| Audio Response (0.3-3 kHz) ² | +1 to -3 dB | +1 to -3 dB |
| Audio Distortion ² | 5% | 5% |

RECEIVER

| | VHF | UHF |
|---|-------------------|--------------------|
| Frequency Range | 150-174 MHz | 450-470 MHz |
| Channel Spacing | 12.5/25 kHz | 12.5/25 kHz |
| Sensitivity ² (12 dB SINAD) | <-119 dBm (.25uV) | <-117.5 dBm (.3uV) |
| Adjacent Channel Selectivity ² (12.5/25 kHz) | -60 dB / -65 dB | -60 dB / -65 dB |
| Intermodulation ² (12.5/25 kHz) | -60 dB / -65 dB | -60 dB / -65 dB |
| Spurious Rejection ² | 65 dB | 65 dB |
| Audio Distortion ² | <5% | <5% |
| Hum and Noise Ratio ² (12.5/25 kHz) | 40 dB | 40 dB |
| Conducted Emission | -67 dBm | -67 dBm |
| Audio Output @ <5% Distortion ² | 500mW (at 24 ohm) | 500mW (at 24 ohm) |

¹ 5% receive, 5% transmit, 90% standby.
² All electrical specifications and methods refer to EIA/TIA 603 standards. Specifications shown are typical and subject to change without notice.

MILITARY STANDARDS 810 C, D, E and F

| | MIL-STD 810C | | MIL-STD 810D | | MIL-STD 810E | | MIL-STD 810F | |
|--------------------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|
| | Method | Proc./Cat. | Method | Proc./Cat. | Method | Proc./Cat. | Method | Proc./Cat. |
| High Temperature Storage | 501.1 | I | 501.2 | I | 501.3 | I | 501.4 | I |
| Low Temperature Storage | 502.1 | I | 502.2 | I, II | 502.3 | I, II | 502.4 | I, II |
| Temperature Shock | 503.1 | I | 503.2 | I | 503.3 | I | 503.4 | I |
| Solar Radiation | 506.1 | I | 506.2 | I | 506.3 | I | 506.4 | I |
| Humidity | 507.1 | II | 507.2 | II, III | 507.3 | II, III | 507.4 | III |
| Salt Fog | 509.1 | I | 509.2 | I | 509.3 | I | 509.4 | I |
| Blowing Dust | 510.1 | I | 510.2 | I | 510.3 | I | 510.4 | I |
| Vibration | 514.2 | VIII/X | 514.3 | I | 514.4 | I | 514.5 | I |

ENVIRONMENTAL

| | |
|-----------------------|--|
| Operating Temperature | -30° to +60° C (Radio Only) |
| Sealing | Passes rain testing per IPX4 |
| Shock and Vibration | Die-cast with impact resistance polycarbonate housing, passes EIA 603B |
| Dust and Humidity | Weather-resistant housing passes EIA 603B |

Specifications subject to change without notice. All specifications shown are typical. Radio meets applicable regulatory requirements.
 Version 2.09/09



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Image: Detailed specification sheet for the Motorola BPR40, outlining general, transmitter, and receiver specifications, as well as MIL-STD compliance.

9. WARRANTY AND SUPPORT

The Motorola Mag One BPR40 radio typically includes a **1-Year Limited Radio Warranty**. This warranty covers defects in materials and workmanship under normal use conditions.

For warranty claims, technical support, or programming assistance, please contact your authorized Motorola dealer or visit the official Motorola support website. It is advisable to retain your purchase receipt as proof of purchase.

Note: Unauthorized modifications, repairs, or use of non-approved accessories may void your product warranty.