

BRMRG Communications

2005 KEM, CK

Part One: Communication Techniques

Many different types of communication techniques may be available to you at a search, but the one you choose will be based upon your situation and your resources. Some of these techniques will be more useful than others, but be aware of the different types Just In Case.

Verbal

1. Talking/Shouting
2. Radio
3. Cell phone

Non-Verbal (refer to crib sheet for details)

1. Aerial flares
2. Smoke
3. Signal mirrors
4. Fires
5. Flags
6. Hand and Body Signals

Part Two: Radio Assembly and Specs

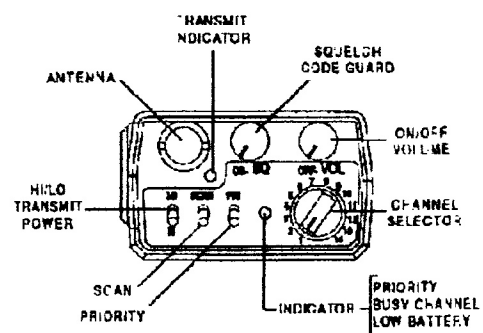
All radios have three basic components:

- 1) The Radio Itself
- 2) The Antenna
- 3) The Battery or Power Source

To assemble a radio, use **A B C**: Antenna, Battery, then Channel (turn it on). If you mess up the order, you could mess up the radio. So don't do it. Disassemble in reverse.

Most of our radios have a few additional controls you need to know:

1. **Volume**: Usually the volume knob also functions as the power switch.
2. **Channel**: The different numbered channels correspond to the transmission frequencies a radio can use (listed on the back of BRMRG's handhelds). Our main business channel is **#9: Lima-1, 151.625 MHz**.
3. **Squelch** adjusts the sensitivity of the radio. To optimize sensitivity, turn the knob until you hear static, then turn it backwards until the noise stops.
4. **Power Level** may be adjusted on some radios- toggle between low and high.



Battery Types

1. **Carbon-zinc-** The carbon-zinc cell is one of the oldest and most widely used types of dry cells. The advantage of a carbon-zinc battery is that it is durable and very inexpensive to produce. The cell voltage for this type of cell is about 1.5 volts. BRMRG does not use these types of batteries for our radios.
2. **Alkaline-** The alkaline cell is so called because it has an alkaline electrolyte of potassium hydroxide. The typical alkaline cell generates 1.5 volts. The alkaline cell has the advantage of an extended life over that of a carbon-zinc cell of the same size; however, it is usually more expensive. These are the types of batteries both the BKs and the CM-12s of the ICOMs use.
3. **Lithium-** A type of a battery composed of lithium, the lightest metal and the metal that has the highest electrochemical potential. Because of its lightness and high energy density, Lithium-Ion batteries are ideal for portable devices, such as notebook computers. The only disadvantage to Lithium-Ion batteries is that they are currently more expensive than NiCad or NiMH battery packs.
4. **Nickel-cadmium-** The nominal voltage of a nickel-cadmium cell is 1.25 volts. The nickel-cadmium battery has the advantage of being a dry cell that is a true storage battery with a reversible chemical reaction (i.e., it can be recharged). The nickel-cadmium battery is a rugged, dependable battery. It gives dependable service under extreme conditions of temperature, shock, and vibration. Due to its dependability, it is ideally suited for use in portable communications equipment. These are the batteries that the Motorola Radius Radios and the second run Motorola and ICOM radios use.

BRMRG Handheld Radios can be first-run or second-run.

1. **BKs (Bendix-King)-** use “clam-shell” battery casing that houses 9 alkaline batteries.
2. **Motorola Radius** radios – use rechargeable Ni-Cd batteries that are inside the radio. Batteries are recharged by wall charger. To assemble, simply attach antenna and turn on.
3. **2nd run ICOMs-** use both rechargeable and single-use batteries. Rechargeable batteries are the CM-8 Ni-Cd batteries that must be recharged through wall chargers. CM-12 batteries are like the batteries that the BKs use, clam-shells.
4. **2nd run Motorolas-** use rechargeable Ni-Cd batteries. Batteries recharged through use of wall chargers or quick chargers.

Currently there are 5 BKs, 4 Radius, 4 ICOMs, and 2 2nd run Motorola radios in service.

When you acquire a radio for your team at a search, sign it out and grab a spare battery. To help prevent radio problems in the field, perform a **radio check** before leaving base to ensure that you don't have a broken radio, dead battery, or are on a different frequency from base. When you finish your task and return to base, don't forget to place a yellow “used” sticker on any batteries you used in the field.

Radios in the field operate on a **line-of-sight** basis. That means that if there is large object between you and base, like a mountain, you may not be able to communicate. If you find yourself in a situation where your radio queries produce no response:

1. Check your radio- readjust the settings and **change batteries**.
2. Ask for another team to **relay** your information.
3. Seek out **higher ground** or traverse obstacles.

A **repeater** may be used to extend range or provide coverage to a blind spot- this device will receive all incoming radio traffic and transmit it again on a different frequency. A good place for a repeater would be the top of a large hill or mountain.

BRMRG's Base Radio operates just like the handhelds, but with a 30-foot antenna and an electric plug instead of a battery- **A B C** still applies. When assembling the base radio mast, remember to:

- 1) Put the pieces in order- they're numbered.
- 2) Use duct tape to secure the antenna in addition to the screws provided.
- 3) Put a loop in the coax cable at the top of the mast in case the cable is pulled.

Also be aware that the base radio system we use **is not grounded**: do not operate or stand nearby when lightning is observed.

Take care of BRMRG's radios! Protect them from the wet and cold, or they will not work, you will be cut off from the net, and the commo officer will hurt you.

Part Three: Radio Protocols

The **Federal Communications Commission** is the agency that licenses groups (like BRMRG!) and individuals to broadcast on certain frequencies. The FCC can monitor our radio traffic, and could revoke our license if we break the **THREE BIG RULES**:

DO NOT SING, CURSE, OR USE BRAND NAMES on the radio.

General Guidelines:

- Think before you speak: plan what you are going to say and try to predict what information base will need from you.
- Be clear: your goal is to relay information- ensure that your target can understand what you are saying.
- Be concise: another team may have important information and need to use the net. Don't cut in on other conversations unless you *clear the net* (see below).
- Be professional: remember that you are representing the ASRC and BRMRG.
- Preserve confidentiality. Don't use the subject's name!
- If you get confused about standard radio-speak, don't be afraid to say it plain. If your message is important, use whatever means necessary to communicate.

The ASRC and other organizations use a number of standard phrases over the radio- refer to the ASRC Radio SOP Crib Sheet. A sample radio conversation might go like this:

- Team Whiskey to Base.
- *This is Base- go ahead, Whiskey..*
- We are beginning task.
- *Understood, Whiskey is beginning task. What is your location, over?*
- Standby... Our location is Alpha- one- six- two- four.
- *Understood, your location is Alpha- one- six- two- four. Is this correct?*

- Affirmative. Whiskey Clear.
- *Base Clear.*

Important Phrases and Tips:

- **The Net** at a search consists of all of the radios operating on one frequency, including a radio for each team in the field and the base radio. If you have important information but another team is using the net, you can **CLEAR THE NET** to establish priority. If your team makes a find, you must first **SECURE THE NET** before announcing that information. YOUR VERY FIRST WORDS to base should be "Secure the Net." Do not identify your team until after you say "secure the net" and base replies that the net is secure. If you hear "secure the net" on your radio, turn the volume down and step away from any press or family members present.
- Use the **status codes** at all times- the entire reason for using the status codes is to keep sensitive information private.
- Use **CLEAR**, not OUT. Clear means that you are finished with your conversation- Out signifies that you are turning off your radio.
- If you're asked for information that you don't have readily available or you need to attend to something else for a **short** period of time, say **STANDBY**- a period of unexplained silence during your conversation could mean any number of things.
- All communication in the field must go through base- one field team cannot radio another field team unless base gives them permission to **GO DIRECT** with that team. Examples of team-team communication include relaying for a team out of radio contact with base and arranging a rendezvous between teams.
- Familiarize yourself with the phonetic alphabet- we use it for team identifiers and spelling things out over the radio. Avoid using "yes" and "no"- try Affirmative and Negative instead.