

Basic Team Communications and Radio Use

The radio has become an essential tool for the search and rescue volunteer and for the Nicolet Search Team, it is no different. As Bob Cowan pointed out: "The problem used to be that nobody had a radio so we couldn't communicate. Now everyone has a radio and we still can't communicate." That is to say that talking is not the same as communicating, and it is very easy to get into habits that lead to poor transfer of information; throwing more radios at the comm problem isn't the right approach. The point of this mini-lesson and its associated training is to make you aware of some of the things we think interfere with efficient and effective mission communication, and with any luck help you to be part of the solution and not part of the problem.

What is Communication?

Webster's dictionary has two interesting, but very different definitions for the word "communication:"

Main Entry: com-mu-ni-ca-tion

1. an act or instance of transmitting and [...]
- 3a. a process by which information is exchanged between individuals through a common system of symbols, signs, or behavior. *[ellipsis added]*

"3a" definition should be considered correct in the SAR context. The definition of SAR communication should be **the process by which information is exchanged** and all the rules of the road that we should live by should boil down to improving that process and making sure that the information is exchanged efficiently and accurately. So what sort of rules should we live by?

Some common Guidelines to live by in the SAR World

Listen: You have two ears and one mouth. That should mean you listen twice as much as you talk, right? Make extensive use of the "Release to Listen" button on your radio (this is often referred to as the "Push to Talk" button, but I think the other label is often more appropriate).

Be Brief and Clear: Information is not being exchanged accurately if you use confusing constructions, and it is not being exchanged efficiently if you're using ten words where one will do. So each time you key the mike, consider:

Minimize the number of words you use: There are limits to this rule, but you should be able to strike an appropriate balance between brevity and clarity. Say what you need to say, get the information across clearly, but don't clutter the frequency.

Keep irrelevant traffic off the air: "We're stopping here, our coordinates are, um, wait a second lemme get my GPS on, I'm acquiring now, ah there it is, 038745 easting 3887152 northing, ah, we need to rest because of the fact that Joe is really thirsty and has to get the 5 gallon jug of water out of the bottom of his pack, we'll be here a few minutes" can be easily conveyed more efficiently with "We're stopping to rest for a few minutes." --- if Base wants a position they'll ask, and the rest of the information isn't relevant to the mission. Remember that if you're on the primary mission frequency, everyone gets to listen to these monologues.

Never, ever, use jargon. In keeping with the "common system of symbols, signs or behavior" part of the definition, stick to plain English. Unless you're *way* out of district, this is a common system of symbols you can count on.

There is no need for 10-codes: "Ah, 10-4 base, our -20 is 375132 by 3887141, we need a -55 for the subject in about 10 minutes" will probably elicit a "huh?" more than "We copy that, base, our current coordinates are 0375132 easting 3887141 northing, we'll be in base in ten minutes and will need an ambulance for the subject." More words, yes, but *clearer*. Besides, 10-codes vary in meaning from agency to agency and under NIMS Communication Guidelines, "Clear Text" is the only communications authorized.

Q signals are for morse code: "QSL, Jim, had a bit of QRM there but I think I got it." Again, "huh?" is the response most likely if you're not talking to an old-time ham who cut his teeth on a Vibroplex bug. Furthermore, Q-signals were never intended to be used in voice modes, they were an abbreviation to make sending Morse code more efficient. While every ham should know the Q-signals pretty well, a SAR mission is no place to separate the old hams from the new --- it's about getting the message from field teams to incident management and back. "Received, Jim, there was some interference but I think I got it all" says the same thing, and doesn't require a pocket dictionary of jargon.

Keep team-specific terminology off the air: Remember that you may not be talking to a member of your own team, and explaining your own jargon to others is a waste of time and batteries. **Say it in English instead!**

Certain types of professional terminology are unavoidable, especially when transmitting medical assessments between medical providers, but that's different --- we've got a few other 'rules' below to cover that case. Saying "subject is verbal on AVPU" has meaning to the intended recipient. That's distinct from cutsie team jargon of "We have located the subject, he's FDGB" meaning "Fall Down, Go Boom."

The 'Condition Code' is an exception: Sometimes we are deliberately cryptic on the radio. The only reason for this to relay information to base that should not be made public carelessly. The classic example is the 'Condition code' to designate the status of a subject -- it would be a Very Bad Thing for a family to learn that their lost loved one is dead by hearing it from TV news reports generated because the reporters heard that information on the scanners before the IC has had a chance to talk to the family personally.

You should generally obtain such a special code as part of your mission briefing, and you should use it appropriately to achieve the desired level of discretion. Saying 'Aw, man, we've got three red sneakers here and boy are they messed up, looks like the coyotes have been chewing on them for a few days! Better send up OMI.' would rather defeat the purpose. If you do not get a code, use the 'Echo code' system, with 'Echo Alpha' meaning the subject is uninjured, 'Echo Bravo' meaning the subject has minor injuries, 'Echo Charlie' meaning the subject has major injuries, and 'Echo Delta' meaning the subject is deceased.

Avoid contractions: Under less than ideal conditions, sometimes contractions can be misunderstood. Sometimes that could completely invert the meaning of a transmission. "Can't" and "Can" could sound exactly the same with a little static or interference.

Use ITU standard phonetics when spelling: Many letters sound the same when pronounced over the air: B,D,T,P,V may all wind up sounding like "Ee" after the radio has had its fun with them. If you need to pronounce a letter over the air, use one of the standard phonetics. Please learn them and don't make up new ones on the spot. "B as in Bravo" is very distinct from "T as in Tango" but "B as in Boy" isn't distinct from "T as in Toy". The standard phonetics were chosen so that no two of them can be confused under poor conditions. Here they are for reference:

Letter	Phonetic	Pronunciation	Letter	Phonetic	Pronunciation	Letter	Phonetic	Pronunciation
A	Alpha	AL-fah	B	Bravo	BRA-voh	C	Charlie	CHAR-lee
D	Delta	DEL-tah	E	Echo	ECK-oh	F	Foxtrot	FOKS-trot
G	Golf	GOLF	H	Hotel	HOH-tell	I	India	IN-dee-ya
J	Juliet	JU-lee-ett	K	Kilo	KEE-loh	L	Lima	LEE-mah
M	Mike	MIKE	N	November	no-VEM-ber	O	Oscar	OSS-kah
P	Papa	PAH-PAH	Q	Quebec	kay-BEK	R	Romeo	ROW-me-oh
S	Siera	SEE-air-ah	T	Tango	TANG-go	U	Uniform	YOU-ni-form
V	Victor	VIK-tah	W	Whiskey	WISS-kee	X	X-ray	ECKS-ray
Y	Yankee	YANG-kee	Z	Zulu	ZOO-loo			

Pronounce numbers individually: Read off numbers one at a time. "487" should be read "Four-Eight-Seven" not "Four eighty seven". "100" is not "One hundred" but "One-zero-zero." Pronounce 9 as "Niner" to distinguish it more from "5", pronounce "3" as "Tree" and "5" as "Fife".

Do not editorialize: This is more of the "keep irrelevant traffic off the air" stuff. Unless asked for an opinion, stick to the facts. If asked to pass traffic, pass it and don't add anything to the message.

Don't be afraid to ask for clarification: If a message is directed to you and you don't understand it, by all means don't be afraid to generate more traffic by asking for clarification.

The last rule does not apply to traffic you are being asked to relay!

If asked to relay traffic, it is not important whether you understand it or not --- it is only important that you receive it, transcribe it, and pass it on *verbatim*. If the intended recipient asks for clarification, only then should you transmit a request for it.

If, for example, base relays a message from an EMT in base to a medical provider on your team of "What is the subject's AVPU?", it is not your place to say "What's a AVPU?" but rather "Copy", ask our provider "What is the subject's AVPU"? "Stand by." and then go ask. When the provider says "AVPU is Verbal" you don't ask "what's that mean"?, you simply transmit "Base, medical provider says AVPU is Verbal".

Don't rely on convention where English will serve:

Consider this transmission:

"Nicolet Don, Nicolet Andy"

Does this mean "This is Nicolet Don calling Nicolet Andy" or "This is Nicolet Andy calling Nicolet Don"? Well, that depends on whether your background is in amateur radio, the military, law enforcement, or whatever. Hams would most likely interpret this as "Nicolet Don calling Nicolet Andy" and police would probably interpret it as "Nicolet Andy calling Nicolet Don".

Who knows how a police officer who dabbles in amateur radio would interpret it. This is one case where reducing the number of words has destroyed clarity, and it is one that is very common. Avoiding it is easy.

It is far better to say "Nicolet Andy, this is Nicolet Don" or "Nicolet Don to Nicolet Andy" --- it doesn't matter who listens to either of these, the intent is clear.

Using the radio

Well, you turn it on, set the volume and squelch, pick a frequency, and key the mike. Nothing to it, right?

Well, almost. Turning it on is usually a no-brainer for most radios, but how do you set the volume and squelch? The easiest way is to do a radio check with another member on a side channel other than the command channel.

Pick a frequency? Well, that depends on your mission. Odds are good that you'll use the channel selector knob to set your frequency based on the incidents communication plan and passed on to you by the Operations Section before you head out on your mission.

Sometimes you have to stick your radio somewhere where it will be exposed to bumps and random button presses. Be sure to check periodically to make sure that nothing has bumped any of the knobs and changed your frequency while walking.

Last, but not least

If you are trying to reach base camp and no one is answering you, do one of three things;

1. Make sure the radio is turned on AND the volume is ***TURNED UP***.
2. Make sure the radio is on the right frequency.
3. When you push the PTT button, you see a green light on top indicating that the radio is transmitting.

TK-260G Kenwood Handheld Radios - (Team Radios)

What does this button do?

You should familiarize yourself with all the features of our team radios before you come to rely on it as a tool for use on missions. This is especially true of features that you could activate with a button-press or two without knowing it. Learn to recognize the behavior of your radio under pathological circumstances so you know how to get it back to the right state for use in the field.

Power switch / Volume Control:

This is combined with the volume knob, shutting the radio off when the knob is turned to the extreme low end of the volume range. Some radios, however, have a separate power button. Know which one yours uses, because the radio's of little use if you can't turn it on.

VFO or channel selector knob:

This will switch your operating frequency between 1 of 8 channels that our team uses.

Side 1 Key RF Power Lo: Press the **RF Power Lo** key to toggle the output

power of a channel between high and low. This can only be used for channels that have been programmed with high power. Pressing **RF Power Lo** while using a channel programmed with low power causes an error tone to sound. (When changing a channel from high to low power, all channels programmed with high power are changed to low.) Use Lo Power when at all possible to save on battery life or when using the FEMA AA Alkaline Battery Packs. By default, the radios are programmed for all channels to High Power. Turning the radio off, then on, will reset all the defaults back to high power.

Side 2 Key Monitor A (Monitor Unmute-Momentary): Press and hold the **Monitor** key to hear background noise. Release the key to return to normal operation. Use this key if you are a long ways from base camp or have difficulty hearing transmissions.

• TK-260G

Channel selector
Rotate to select a channel (1 ~ 8).

Power switch/ Volume control
Turn clockwise to switch ON the transceiver. Rotate to adjust the volume. To switch OFF the transceiver, turn counterclockwise fully.

Antenna
LED indicator
Lights red while transmitting. Lights green while receiving. Flashes orange while receiving a 2-Tone or DTMF signal that matches the one set up in your transceiver. Flashes red when the battery power is low while transmitting.

Microphone

Speaker

PTT (Push-to-Talk) switch
Press this switch, then speak into the microphone to call a station.

Side 1 key
Press to activate its programmable function.

Side 2 key
Press to activate its programmable function.

SP/MIC jacks
Connect an optional speaker/ microphone here.

The transceiver is shown with the optional KNB-14 battery pack.

Power source: In the field we use batteries. Batteries can hold a certain amount of charge, measured in "amp-hours" or "milliamp hours." That means that a given battery can supply a given current (measured in amps or milliamps) for a certain period of time. The rechargeable NiCad batteries supply the most power, but take time to recharge. We do have FEMA battery packs that allow you to load AA batteries and use in place of the NiCad. The problem is that you need to use the radio in the Lo Power Setting when using the AA's. Short time use of the AA's on Hi Power will not hurt the radio, but will drain the batteries very quickly.

Battery Warning: This transceiver has a battery warning feature. If low voltage is detected during transmission, the transceiver warns you by a flashing red "LED". When the voltage is detected to be even lower during transmission, the transceiver stops transmission and warns you by a flashing red "LED" and a beep. Please notice "indication" for the battery exchange, charging time by flashing red LED and beep.

Be sure to keep track of your radio when in the field as it is easy to loose in the dark of night and rough terrain. If you have to, attach a cord to it and also to your pack. Remember, you are responsible for it.