

# Team Radio Operations

## Standard Operating Procedures

### Pre-deployment check:

1. Make sure you are familiar with the radio and all of its functions. If you need, carry the manual, or a manual "cheat sheet" in a waterproof container.
2. Make sure the radio is in good working order. Check antennas, displays, seals controls, etc.
3. Insure that any accessories are intact, and good working order.
4. Insure you have fully charged batteries, and have extra batteries available. For a mission or FTX, plan on a set of batteries per day, for normal use. You will need more batteries for cold weather, and more as a contingency. (regular use of radios for FTX's will give you realistic expectations of battery life.)
5. Make sure your radio is mounted to your gear in a way that it will not be pulled loose while moving, especially movements such as going prone, running/crawling through brush etc. Also make sure the radio controls you need are accessible, but can't accidentally be changed. Make sure your radio doesn't interfere with the operation of other equipment, such as shouldering your rifle, or accessing your trauma kit. Make sure all cables are secure, and will not get snagged on the environment. Make sure cables have enough length to allow full freedom of movement.
6. Insure you have relevant SOI information such as call signs, frequencies, codewords, authenticators, etc...
7. Perform a comms check before departing on a mission/exercise. Insure your radio can hear and be heard properly.

### On Deployment Radio procedures:

1. All exchanges on air follow a set format, with a beginning, middle and an end, and use a range of "set" words and phrases, used to achieve speed and clarity of meaning when using voice radio communications systems in the battlefield. These are known as "Prowords" which is the abbreviation of the phrase "Procedural Words"
2. One of the key principles in military radio work is the concept of COMSEC, or Communications Security. You must assume that the enemy is listening to everything that is sent, that they will attempt to insert false traffic, or simply jam you, by continuous use of a frequency.
3. C.R.A.P.S.H.O.O.T.  
To send a message use the following routine:

- COMPOSE your message in your head or if necessary write it down, and if time permits, rehearse it.

- RELAX, take a deep breath, listen to the channel, so you're not in a panic, nor are you trying to talk over someone else who is already on air; especially necessary when you, or they, are under fire.
- ACTIVATE the Push To Talk Button (PTT) on your radio, carefully and positively.
- PAUSE for one second before you talk. A common fault with excited or new operators is to talk as they begin to push the PTT button, which results in the first few words of your message being chopped off and not transmitted, requiring the other station to request that you repeat it.
- SPEAK slowly, clearly, with pauses and do not shout, so you can be easily understood. Remember NO contractions.
- "HAIL": hail the station or stations you want, by either using their CALL SIGNS twice, or alternatively use the Proword "HELLO", followed with a singular CALL SIGN. Then identify yourself with the Prowords "THIS IS" and your CALL SIGN. The double CALL SIGN or "HELLO" and CALL SIGN combination, functions as a sort of "bing-bong" pay attention people signal. This is an essential tool in the battlefield. Modern practise is no longer to use the Proword "HELLO", but to give the called stations CALL SIGN twice, as not only does it perform the job of "bing-bong", it also doubles your chance that the correct station will hear it and respond quickly to your call.
- OVER: send the content of your message, using the Proword "OVER" at the end of each transmission. OVER means that you expect or need a reply, it is sometimes defined as a "receipt" or as an "invitation" to transmit.
- OUT: use "OUT" to formally end the communications session. OUT means "I have finished talking to you, no response is required, expected or desired". Therefore never use the classic error "over and out" as a combined Proword, its a contradiction in terms, meaning "I want you to talk to me and shut up!"
- TRAFFIC: having finished, keep listening for more incoming traffic, or move on to your next batch of traffic.

4 Use the NATO Phonetic alphabet as appropriate:

Letter	Word	Pronunciation	Letter	Word	Pronunciation
A	ALFA	<u>AL</u> FAH	N	NOVEMBER	NO <u>VEM</u> BER
B	BRAVO	<u>BRAH</u> VOH	O	OSCAR	<u>OSS</u> CAH
C	CHARLIE	<u>CHAR</u> LEE or <u>SHAR</u> LEE	P	PAPA	PAH <u>PAH</u>
D	DELTA	<u>DELL</u> TAH	Q	QUEBEC	KEH <u>BECK</u>
E	ECHO	<u>ECK</u> OH	R	ROMEO	<u>ROW</u> ME OH
F	FOXTROT	<u>FOKS</u> TROT	S	SIERRA	<u>SEE</u> AIR RAH
G	GOLF	GOLF	T	TANGO	<u>TANG</u> GO
H	HOTEL	HOH <u>TELL</u>	U	UNIFORM	<u>YOU</u> NEE FORM or <u>OO</u> NEE FORM
I	INDIA	<u>IN</u> DEE AH	V	VICTOR	<u>VIK</u> TAH
J	JULIETT	<u>JEW</u> LEE <u>ETT</u>	W	WHISKEY	<u>WISS</u> KEY
K	KILO	<u>KEY</u> LOH	X	XRAY	<u>ECKS</u> RAY
L	LIMA	<u>LEE</u> MAH	Y	YANKEE	<u>YANG</u> KEY
M	MIKE	MIKE	Z	ZULU	<u>ZOO</u> LOO

5. When giving numbers over the radio, spell them out.  
 "100" is "one zero zero" not "one hundred"

Be aware that the numbers 3, 4, 5 and 9 are especially susceptible to readability issues. For example "five" can be confused for the word "fire". Therefore with the exception of 9, each is provided with an alternate expression for when reception is poor. Thus you also get "TREE", "FLOWER" and "FIFE". Nine is always expressed as "NINER". Finally, never use "Oh" for the number 0, always use "ZERO"

The below chart lists the military preferred pronunciation for numbers. They are more understandable when spoken as listed below:

Numeral	Spoken As
0	<u>ZE</u> RO
1	WUN
2	TOO
3	TREE
4	<u>FOW</u> ER
5	FIFE
6	SIX
7	<u>SEV</u> EN
8	AIT
9	<u>NIN</u> ER

6. When speaking on the radio, especially in combat, it is very easy to shout, and for the pitch of your voice to rise. All of these things will mean that your messages will not be understood. It is vital that you speak slowly, clearly, and never use contractions like "isn't", "I'll" or "they're". Contractions can be very easily lost or misunderstood. "Can't" may sound like "can" etc.... which can have dire consequences.

7. Pro Words: The following are standard words to use in radio transmissions to reduce the chance of misunderstanding.

AFFIRMATIVE	Used in place of the word <i>yes</i> , as it can be lost in transmission.
ALL STATIONS	Used in place of an individual CALL SIGN when the signal is intended for every station on the network. For example: "ALL STATIONS, ALL STATIONS, THIS IS FOXTROT ONE, I HAVE CONTROL, I SAY AGAIN, I HAVE CONTROL, STAND BY, OUT"
ANY STATION	Used in place of an individual CALL SIGN when the signal is intended to gain a response from any other random station on the network. For example when requesting a RADIO CHECK, as in: " <b>HELLO, ANY STATION, THIS IS GOLF ONE, RADIO CHECK, OVER</b> ".
CALL SIGN	This Proword indicates that the following text is a CALL SIGN, that is the subject of the message, and that the station itself is not actually being called. For example: "KILO THREE, KILO THREE, THIS IS KILO SIX, ADVISE CALL SIGN KILO TWO, THAT THEIR RADIO IS JAMMING CHANNEL EIGHT THREE SIX, OVER"
CONTACT	Used to declare "contact" with an enemy. At this point all non-related traffic <b>MUST</b> stop to give priority to messages related to this engagement. Often repeated two or three times, replacing the more normal "HELLO", "ALL STATIONS" Prowords. If able you must provide useful intelligence, otherwise your message simply acts as a warning to other stations. Once the initial warning has been issued, either a <i>FIRE CONTROL ORDER</i> , a <i>CONTACT REPORT</i> or a <i>SITREP</i> should be given,  "CONTACT, CONTACT, CONTACT, (THIS IS HOTEL TWO ONE ), SIX O'CLOCK, TWO FIVE METRES, RIGHT SIDE OF BUILDING, SEVEN TANGOS APPROACHING FAST, ALL WEAPONS, OPEN FIRE, OUT".  Note the order in which the information is sent. It is done like this just in case the communications are cut off, giving the receiving stations their best chance of responding effectively. <ul style="list-style-type: none"> <li>• First the network gets a warning of the presence of the enemy.</li> <li>• If time permits, next should come the stations CALL SIGN, so the unit knows who sent the message. Remember the enemy may try to deceive you.</li> <li>• Then a direction in relation to the axis of march or observation, which is always 12 o'clock. Now the unit knows which way to look, in this case,</li> </ul>

	<p>behind them! This is always done first, as it significantly reduces the possible locations for the enemy, especially at short range, where time is critical.</p> <ul style="list-style-type: none"> <li>• This is followed by a range estimation in metres, so the unit knows how far out the enemy is, here its twenty five metres.</li> <li>• Then a brief description of where, what, how many, and their activity, so now the unit knows what to look for.</li> <li>• Next is the order identifying which unit or units should shoot, in this case all of them.</li> <li>• Then we have the actual order to shoot. This can be delayed with EXECUTE TO FOLLOW, STAND BY or WAIT ONE.</li> <li>• And finally we have OUT, meaning I have finished, no need to respond, I'm busy.</li> </ul> <p>Again if time permits, a commander may ask "...ENEMY SEEN, NOT SEEN?..." Meaning has everybody in the unit spotted the enemy, to which other stations, will respond with either "AFFIRMATIVE, ENEMY SEEN, CALL SIGN OUT" or "NEGATIVE, ENEMY NOT SEEN, CALL SIGN OVER". You should then provide further information to help the others find the enemy. Wherever possible, you should give as much detail as you can, including, TANGO Type#, weapons, antennas, uniforms and insignia, and attitude: relaxed, cautious, performing a particular tactical manoeuvre, like <i>flanking right</i> - it all helps prioritise the targets.</p>
CORRECTION	<p>an error has been made in this transmission. Transmission will continue with the last word or specified portion correctly transmitted, for example: "ALPHA FOUR ONE, THIS IS UNIFORM THREE TWO, MY CORRECTION IS..."</p>
DECIMAL	<p>Used to verbally marked the decimal point in a number to prevent confusion, for example: ""...SEVEN, SIX, DECIMAL, TWO, ONE..."</p>
DISREGARD	<p>"DISREGARD (THIS) (TRANSMISSION), OUT" This transmission is in error. Disregard it. This Proword shall not be used to cancel any message that has been completely transmitted and for which an acknowledgement has been received. It is always ended with the "OUT" proword to close the message. For example: "...BELIEVE ENEMY IS NEAR YOUR POSITION, DISREGARD, OUT"</p>
DO NOT ANSWER	<p>An instruction to one or more stations NOT to transmit or respond to a message for their own safety. "WARLOCK FIVE, WARLOCK FIVE, THIS IS WARLOCK SIX, DO NOT ANSWER, EIGHT TANGOS AT POSITION SIERRA, OUT" Often used by a Commander sending orders "in the blind", which is usually supported by a prearranged Authentication code.</p>
ENDEX	<p>"End Exercise" - The signal that is sent to end a military exercise. All units should acknowledge this message. The word "ENDEX" is often repeated two or three times before saying "OVER", for example: "ENDEX, ENDEX, ENDEX, ALL STATIONS ACKNOWLEDGE, OVER"</p>

I SAY AGAIN	<p>I am saying my entire transmission again, or the portion indicated.  "ALL STATIONS, ALL STATIONS, THIS IS NETWORK CONTROL, I SAY AGAIN..."</p> <p>Do NOT use the word "repeat" See also "ALL AFTER X", "ALL BEFORE X", "WORD AFTER X", "WORD BEFORE X", and "SAY AGAIN".</p>
I SPELL	<p>I shall spell the next word phonetically using the standard NATO Phonetic Code for extra clarity, for example:  "...THIS IS WARLOCK ONE, I SPELL "WITCH", WHISKY INDIA TANGO CHARLIE HOTEL, OVER"</p>
NEGATIVE	<p>Used instead of the word <i>no</i>, as this can be lost in transmission. See also "AFFIRMATIVE", "CORRECT", "ROGER" and "WRONG".</p>
OUT	<p>This is the end of my transmission to you and no answer is required or expected.  NB: never used with "OVER" as in the incorrect signal "over and out" which is a contradiction in terms, essentially "talk to me and shut up".</p>
OVER	<p>This is the end of my transmission to you and a response is necessary. Go ahead and transmit. NB: never used with "OUT" as in the incorrect signal "over and out", which is a contradiction in terms, essentially "talk to me and shut up".</p>
RADIO CHECK	<p>"Can anyone hear me?" "How loud/clear is my transmission?"</p>
ROGER (THAT)	<p>1. I have received and understood your last transmission satisfactorily.  2. Used in place of the words "that is right", to mean "yes" or "correct". The word "right" is exclusively used for giving some kind of spacial directions. For example:  "ROMEO ONE, THIS IS JULIET TWO, ROGER THAT, OUT"  NB: ROGER is never used with "WILCO", as in "roger, wilco", as the function of "ROGER" is implicit in the "WILCO" Proword.  NB: The addition of "THAT" is common practise, often being used in non-radio speech as an acknowledgement or agreement.</p>
SAY AGAIN	<p>A request to another station to send either all of their last transmission, or that portion indicated by the "ALL AFTER X", "ALL BEFORE X", "WORD AFTER X" or "WORD BEFORE X" Prowords.  "OSCAR TWO FIVE, THIS IS OSCAR ACTUAL, SAY AGAIN, OVER"  NB: do NOT say "repeat", see "REPEAT" in <a href="#">Table 3</a> below, as this is a Fire Control Proword.</p>
SIGNING OFF	<p>Sent when the station is shutting down and ceasing radio operations altogether. Used as an acknowledgement to the instruction to "CLOSE DOWN". If there is a Network Control Station, or the station is part of an operational formation in the field, it is normal to seek permission to close down from the suthorised station or commander. For example:  "HELLO NOVEMBER ACTUAL, THIS IS NOVEMBER EIGHT, REQUEST PERMISSION TO CLOSE DOWN, OVER"  "NOVEMBER EIGHT, THIS IS NOVEMBER ACTUAL, CLOSE DOWN IN FIVE MIKES, OVER"  "NOVEMBER ACTUAL, THIS IS NOVEMBER EIGHT, WILCO, OUT". And five minutes later:</p>

	"THIS IS NOVEMBER EIGHT, SIGNING OFF, OUT"
SILENCE	This Proword is repeated three or more times, and used to order the cessation of transmission on this channel/frequency immediately. Radio silence will be maintained until lifted. Used when absolute stealth is required for that network. When an authentication system is in force, the message imposing silence is to be provided with an Authentication Code. For example: "ALL STATIONS, ALL STATIONS, THIS IS NETWORK CONTROL, SILENCE, SILENCE, SILENCE, AUTHENTICATION NOVEMBER ECHO, OUT"
SILENCE LIFTED	Radio silence is lifted, proceed with normal operations. When an authentication system is in force, the transmission lifting silence is to be provided with an Authentication Code.
SIT REP	A reference to, or a request for a "Situation Report", for example: "ZULU ONE ONE, ZULU ONE ONE, SIT REP, OVER"
SPEAK SLOWER	Your transmission is at too fast a speed. Reduce speed of transmission.
SPELL X	Please spell the X word phonetically using the standard NATO Phonetic Code for extra clarity. If the word requiring spelling was unheard or unclear, use the Prowords "WORD BEFORE X" or "WORD AFTER X" to guide the operator to the required target word. For example: "VICTOR THREE, THIS IS VICTOR ACTUAL, SPELL WORD AFTER INSIDE, OVER"
STAND BY	A request for a pause in the exchange. If followed by "OVER" the other station must acknowledge the request with "STANDING BY", and usually "OUT". If the message is "STAND BY, OUT", no acknowledgement is required, but it does require the other station to remain alert for the follow up transmission. This latter is used when an incoming signal could compromise the station's security, or the operator is too busy. For example "ALPHA TWO SIX, THIS IS SIERRA THREE TWO, STAND BY, OVER" See also "WAIT" and "WAIT ONE".
STANDING BY	The acknowledgement to the request "STAND BY, OVER", always finished with "OUT", as in: "ALPHA TWO SIX, STANDING BY, OUT"
THIS IS X	This transmission is from the station whose CALL SIGN immediately follows. See also "FROM X" and "TO X".
UNKNOWN STATION	The identity of the station with whom I am attempting to establish communication is unknown. Used at the start of a transmission in place of the CALL SIGN of a known station.
WAIT	A request to suspend the conversation for a few seconds. Used as an alternative to "STAND-BY", but more urgent. The other station must NOT attempt to recontact the original signaler, and MUST wait on standby until they return, or until concern for the unit's situation becomes critical, warranting the risk of breaking the implied radio silence. It can also be used at less critical moments when the operator needs literally just a few seconds to sort something out. They will begin transmitting

	again almost immediately. For example: "CONTACT, WAIT, OUT"
WAIT ONE	As per "WAIT", but a request to suspend the conversation for one minute rather than a few seconds. The other station may attempt to recontact the original signaler after one minute has passed. Alternative numbers can also be used, as in "WAIT FIVE".
WILCO	I have received your signal, understand it, and will comply. To be used only by the station addressed. For example: "ECHO TWO, THIS IS HOTEL SIX, WILCO, OUT" Since the meaning of "ROGER" is included in that of WILCO, the two Prowords are never used together, as in "roger, wilco". See ROGER.

More general prowords:

ACKNOWLEDGE	Used to demand and provide a response from one station to another when their operational status is in doubt. For example: "ALPHA TWO ZERO, ALPHA TWO ZERO, THIS IS BRAVO ONE ZERO, ACKNOWLEDGE, OVER." "BRAVO ONE ZERO, THIS IS ALPHA TWO ZERO, ACKNOWLEDGE, STAND BY, OUT."
ALL AFTER X	This is used to refer to a latter portion of a message. For example to request it's repetition. See also "SAY AGAIN".
ALL BEFORE X	This is used to refer to a previous portion of a message. For example to request it's repetition. See also "SAY AGAIN".
AUTHENTICATE X	A challenge to provide proof of authority to issue orders. Where "X" is the challenge. This procedure is used when the identity of the station is uncertain or suspect, and the orders or request's validity needs to be confirmed. For example: "OSCAR TWO ONE, OSCAR TWO ONE", THIS IS OSCAR TWO TWO, AUTHENTICATE X-RAY YANKEE, OVER"
AUTHENTICATION	The reply to the challenge "AUTHENTICATE", giving the correct authentication code. This procedure is used when the identity of the station is uncertain or suspect, and the orders or request's validity needs to be confirmed. For example: "... (MY) AUTHENTICATION (IS) VICTOR OVER" "... (I) AUTHENTICATE VICTOR, OVER"
CASEVAC	A request for casualty evacuation by any means. See also MEDEVAC.
CLOSE DOWN	An order to shut down and turn off your radio, immediately or at the time specified. An acknowledgement is required.
EXECUTE	Carry out the purpose of the message or signal to which this applies. For example:



	"...EXECUTE PLAN BRAVO IN TEN MIKES, OUT"
EXECUTE TO FOLLOW	Action on the message which proceeds or follows is to be carried out upon receipt of the Proword "EXECUTE". For Example: ...PREPARE TO SWITCH TO PLAN BRAVO, EXECUTE TO FOLLOW, OUT"
EXEMPT/EXCEPT	The CALL SIGNS immediately following are exempted from the collective call, as follows: "ALL STATIONS, THIS IS OVERLORD, EXEMPT, YANKEE FOUR ONE, ZULU FOUR FIVE, IMMEDIATELY EXECUTE WHINCHESTER, OUT.
GRID X	Used as a prefix to an alpha/numeric or simply a numeric string giving a map co-ordinate, where "X" is the co-ordinate. Used rather than FIGURES, so it is clear that the numbers being sent are positional data.
IMMEDIATELY EXECUTE	The action on the message or signal following is to be carried out immediately on completion of this transmission, without delay!
I VERIFY	That which follows has been verified at your request and is repeated. To be used only as a reply to "VERIFY". This is used to confirm the truth of a statement or a piece of intelligence.
MARK	Used to "mark" a precise moment in time, to ensure accuracy. Preceded by either "AT MY MARK" or "ON MY MARK", then "MARK". Used for example for synchronising watches or actions such as an attack.
MEDEVAC	A more specialised request for casualty evacuation, requiring a purpose built ambulance and medical crew. see also CASEVAC.
MINIMIZE	Please limit your transmissions to essential traffic. Emergency operational traffic is in progress. MINIMIZE is imposed by the Net Controller or by the Incident Commander.
MINIMIZE LIFTED	The "MINIMIZE" order is lifted by either the Net Controller or by the Incident Commander.
MORE TO FOLLOW/	Transmitting station has additional traffic for the receiving station, please wait.
NOTHING HEARD (OVER)	Used when no reply is received from a called station, thus alerting others to the fact that you have not heard a return signal. This is important, as another station may be in range and able to hear the called station, and relay the messages, while others may simply presume that they heard nothing because they are out of range of the station being hailed.
RELAY (TO) X	Transmit this message to all "CALL SIGNS", or to the "CALL SIGN" immediately following this Proword. When the coverage of a set of stations overlap, messages can be passed along the line, far further than one radio can do by itself.
TIME CHECK	A request for the current correct time, given in 24 hour format for the time zone of the theatre of operations. "ZULU" equals GMT, and is the default time zone. The time giver uses the "MARK" Proword to ensure accuracy, as

	<p>follows:  "...THE TIME AT MY MARK, WILL BE FOURTEEN THIRTY SIX ZULU  PRECISELY...MARK, OVER"</p>
VERIFY	<p>Verify entire message (or portion indicated) with the originator and send the correct version. Used when the receiving station has a doubt about the content of the original message.</p>
WORD AFTER X	<p>Used to refer to a word that follows the stated word in a message. See "ALL AFTER X", "ALL BEFORE X", "SAY AGAIN" and "WORD BEFORE X"</p>
WORD BEFORE	<p>Used to refer to a word that precedes the stated word in a message. See "ALL AFTER X", "ALL BEFORE X", "SAY AGAIN" and "WORD AFTER X"</p>

8. When should you communicate, and when shouldn't you?

Generally, to help preserve transmission security, you should only transmit when it is relevant to the mission, or the security of operations. Football scores are usually not relevant. Enemy seen, usually is. Sometimes there is a tendency to over report your own movement. Unless your movement to different positions triggers other units into action, don't give a play by play.

9. When the identity of a transmitting station is uncertain or suspect, and the orders, request's or information's validity needs to be confirmed, the receiving station can issue a challenge in the form of a demand that the sender AUTHENTICATE their message. Units meeting in the field, not using the same password and challenge, can also use this Authentication Code to aide in confirming friendly status. There may be a single authenticator word, 2 authenticator words or an authenticator sheet.

If the receiving stations need to maintain radio silence, or if command believes that receiving stations might not trust an urgent or unusual order, the transmitting station can "blind" authenticate a message, by sending the full authenticator, and not wait for a challenge and reply.

---(A document on authentication will be produced separately)---

10. Demobilization (de-mob)

a)At the conclusion of an operation/mission/exercise, inspect the radio and make sure it is still in good working order, clean, and dry and that it does not require any service before the next deployment.

b)Clear any memory, or encryption that may compromise COMSEC.

c) remove batteries so they do not leak and damage the radio.

d) Secure or destroy any COMSEC material as necessary.