

Voice procedure

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Voice procedure includes various techniques used to clarify, simplify and standardise spoken communications over two-way radios, in use by the armed forces, in civil aviation, police and fire dispatching systems, citizens' band radio (CB), etc. Specially, for civil aviation, it used to be called aeronautical phraseology, and is also used for some railroad radio communications, such as on CSX Transportation.

Voice procedure communications are intended to maximize clarity of spoken communication and reduce misunderstanding. It consists of signalling protocol such as the use of abbreviated codes like the CB radio ten-code, Q codes in amateur radio and aviation, police codes, etc. and jargon.

Some elements of voice procedure are understood across many applications, but significant variations exist. The armed forces of the NATO countries have similar procedures in order to make cooperation easier and pseudo-military organisations often base their procedures on them, so some commonality exists there.

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Words in voice procedure

Some words with specialised meanings are used in radio communication throughout the English-speaking world, and in international radio communication, where English is the lingua franca. Note that the following list commingles incompatible terms used in different communication modes, each of which has its own terminology (e.g., no air-to-ground controller would ever use the term "10-4", a CB radio term).

- **10-4** — Message received; I understand; ok; all right
- **Affirmative** / **Affirm** — Yes.^{[1][2]}
- **Break** — Signals a pause during a long transmission to open the channel for other transmissions, especially for allowing any potential emergency traffic to get through. (Not used in British Army)
- **Break-Break** — Signals to all listeners on the frequency, the message to follow is priority. Almost always reserved for emergency traffic or in NATO forces, an urgent 9 line or Frag-O. In Aviation, it signifies the end of a transmission to one call-sign and the commencement of transmission to another, e.g., "G-WXYZ Standby. Break-Break. G-ABCD Cleared to Land Runway 17" etc.
- **Callsign-Actual/Callsign-Niner** — Sometimes an individual (generally a superior) may have a person

monitor the network for them. Saying "actual" after their callsign asserts you wish to speak to the specific person the callsign is attached to. ex: calling the callsign "Headquarters" would often get junior clerk or similar. Calling (or identifying yourself as) "Headquarters-Actual" would indicate that the commander of the headquarters detachment, and thus the entire unit to which it is attached, is requested to be spoken to, or is actually speaking. (In Canadian use, this is **Callsign-Niner**, with "9" designating a unit commander. An individual monitoring the net but is not the actual commander may use the call-sign "Niner-Zulu". As well, the codeword "Sunray" is also used to designate a unit commander.)

- **Come in** — You may begin speaking now
- **Copy (U.S.)** — I heard what you just said; ok; all right.
- **Falcon** — prefix followed by a (usually three-digit) code number for an Army creole phrase.^[3]
- **Go ahead** or **Send your traffic** — Send your transmission.
- **Mayday** — Maritime/aviation distress call. Repeated three times and at beginning of every following transmission relating to the current distress situation. Has priority over urgency and safety calls.
- **Negative** — No
- **Out** — I have finished talking to you and do not expect a reply.
- **Over** — I have finished talking and I am listening for your reply. Short for "Over to you."
- **Pan-pan** — Maritime/aviation urgency call. Repeated three times. Has priority over safety calls.
- **Reading you Five / Loud and clear** / Your signal is clear; 5×5.
- **Ready to Copy** — Write down (e.g., "Prepare to copy" - I am going to give you detailed instructions, have something ready to write them down with; or 'I am ready to write down' when used in a reply transmission).
- **Roger** — "I have received all of the last transmission" in both military and civilian aviation radio communications. This usage comes from the initial R of *received*: R was called *Roger* in the radio alphabets or spelling alphabets in use by the armed forces at the time of the invention of the radio, such as the Joint Army/Navy Phonetic Alphabet and RAF phonetic alphabet.^{[4][5]} It is also often shortened in writing to "rgr". The word *Romeo* is used for "R", rather than "Roger" in the modern international NATO phonetic alphabet.

Contrary to popular belief, *Roger* does not mean or imply *both* "received" *and* "I will comply." That distinction goes to the contraction *wilco* (from, "will comply"), which is used exclusively if the speaker intends to say "received *and* will comply". The phrase "Roger Wilco" is procedurally incorrect, as it is redundant with respect to the intent to say "received".^[6]

- **Roger So Far** — Confirm you have received and understood the contents of my transmission so far. This is used during Long Message Procedure (Messages lasting over 20 seconds prefixed by the Pro-Word 'Long Message' and the initiating C/S must give a gap of five seconds after the receiving station has replied with 'Roger'. This five seconds is to allow other Stations onto the net if they have important messages.
- **Say again** repeat; Please repeat your last message (*Repeat is only used in Australian/Canadian/UK/US military radio terminology to request additional artillery fire*)
- **Sécurité** — Maritime safety call. Repeated three times. Has priority over routine calls.
- **Standby** or **Wait, out** — Pause for the next transmission. This does not usually entail staying off the air until the operator returns as they have used the word 'Out', which indicates the transmission has ended. The net is now free for other traffic to flow but users should be aware that the previous C/S may re-initiate a Call as per their 'Wait, out'. As with 'Wait', this can be appended with a number to indicate estimated number of minutes. For example: "We are on the phone with them trying to sort this out, standby five."

- **Wait, over** — I do not have the answer or information to hand, I will attempt to source the answer or information requested shortly but until then I have finished talking and do not expect a reply. Can be suffixed with a number to indicate estimated number of minutes until a reply can be expected. ex: WAIT TWO indicates "you should expect my reply in approximately two minutes."
- **Wilco** — **Will comply** (after receiving new directions, implies Roger).
- **Niner** — Used by CSX to mean "nine/9" during radio transmissions, especially by talking lineside defect detectors. It is used to avoid confusion with five, as the two numbers can easily be mixed up when there is a lot of static.^[7] The German word for no is also "nein" (pronunciation: /ˈnaɪn/) and would cause confusion with the number 9.

Each area of usage will have its own subset of prowords, usually derived from the NATO set, but sometimes from earlier Q-code and morse operator practices.

Furthermore, the use of some special prowords is tightly controlled, with that word never used on the air in other contexts within that area of usage. Examples include "repeat" (for additional artillery fire in military communications), "take off" (granting permission for aircraft take off in airfield tower communications), "rescue" (rescue in progress in surf life saving), and "mayday" (safety-of-life emergency in maritime and aeronautics).

Example usage

Aeronautical mobile procedure

The Federal Aviation Administration uses the term phraseology to describe voice procedure or communications protocols used over telecommunications circuits. An example is air traffic control radio communications. Standardised wording is used and the person receiving the message may repeat critical parts of the message back to the sender. This is especially true of safety-critical messages.^[8] Consider this example of an exchange between a controller and an aircraft:

Aircraft: Boston Tower, Warrior three five foxtrot (35F), holding short of two two right.

Tower: Warrior three five foxtrot, Boston Tower, runway two two right, cleared for immediate takeoff.

Aircraft: Roger, three five foxtrot, cleared for immediate takeoff, two two right.

On telecommunications circuits, disambiguation is a critical function of voice procedure. Due to any number of variables, including radio static, a busy or loud environment, or similarity in the phonetics of different words, a critical piece of information can be misheard or misunderstood; for instance, a pilot being ordered to *eleven* thousand as opposed to *seven* thousand. To reduce ambiguity, critical information may be broken down and read as separate letters and numbers. To avoid error or misunderstanding, pilots will often read back altitudes in the tens of thousands using both separate numbers and the single word (example: given a climb to 10,000 ft, the pilot replies "[Callsign] climbing to One zero, Ten Thousand"). However, this is usually only used to differentiate between 10,000 and 11,000 ft since these are the most common altitude deviations. The runway number read visually as eighteen, when read over a voice circuit as part of an instruction, becomes *one eight*. In some cases a spelling alphabet is used (also called a *radio alphabet* or a *phonetic alphabet*). Instead of the letters AB, the words *Alpha Bravo* are used. *Main Street* becomes *Mike Alpha India November street*, clearly separating it from *Drain Street* and *Wayne Street*. The numbers 5 and 9 are pronounced "fife" and "niner" respectively, since "five" and "nine" can sound the same over the radio. The use of 'niner' in place of 'nine' is due to German-speaking NATO allies for whom the spoken word 'nine' could be confused with the German word 'nein' or 'no'.

Over fire service radios, phraseology may include words that indicate the priority of a message, for example:^[9]

Forty Four Truck to the Bronx, Urgent!

or

San Diego, Engine Forty, Emergency traffic!

Words may be repeated to modify them from traditional use in order to describe a critical message:^[10]

Evacuate! Evacuate! Evacuate!

A similar technique may be used in aviation for critical messages. For example, this transmission might be sent to an aircraft that has just landed and has not yet cleared the runway.

Echo-Foxtrot-Charlie, Tower. I have engine out traffic on short final. Exit runway at next taxiway.
Expedite! Expedite!

Police Radios also use this technique to escalate a call that is quickly becoming an emergency.

Code 3! Code 3! Code 3!

Railroads have similar processes. When instructions are read to a locomotive engineer, they are preceded by the train or locomotive number, direction of travel and the engineer's name. This reduces the possibility that a set of instructions will be acted on by the wrong locomotive engineer:

Five Sixty Six West, Engineer Jones, okay to proceed two blocks west to Ravendale.

Phraseology on telecommunications circuits may employ special phrases like ten codes, *Sigalert*, *Quick Alert!* or road service towing abbreviations such as *T6*. This jargon may abbreviate critical data and alert listeners by identifying the priority of a message. It may also reduce errors caused by ambiguities involving rhyming, or similar-sounding, words.

Maritime mobile procedure

(Done on VHF Ch 16)

Boat "Albacore" talking to Boat "Bronwyn"

Albacore: Bronwyn, Bronwyn, Bronwyn* this is Albacore, over. (*3×1, repeating the receiver's callsign up to 3 times, and the sender's once, is proper procedure and should be used when first establishing contact,

especially over a long distance. A 1×1, i.e. 'Bronwyn this is Albacore,' or 2×1, i.e. 'Bronwyn, Bronwyn, this is Albacore,' is less proper, but acceptable especially for a subsequent contact.)^[11]

Bronwyn: Albacore, this is Bronwyn, over. (** At this point switch to a working channel as 16 is for distress and hailing only**)

Albacore: This is Albacore. Want a tow and are you OK for tea at Osbourne Bay? over.

Bronwyn: This is Bronwyn. Negative, got engine running, 1600 at clubhouse fine with us. over.

Albacore: This is Albacore, Roger, out.

"Copy that" is incorrect. COPY is used when a message has been intercepted by another station, i.e. a third station would respond:

Nonesuch: Bronwyn, this is Nonesuch. Copied your previous, will also see you there, out.

One should always use one's own callsign when transmitting.

British Army

Station C21A (charlie-two-one Alpha) talking to C33B (charlie-three-three Bravo):^[12]

C21A: C33B, this is C21A, message, over.

C33B: C33B, send, over.

C21A: Have you got C1ØD Sunray at your location?, over.

C33B: Negative, I think he is with C3ØC, over.

C21A: Roger, out.

The advantage of this sequence is that the recipient always knows who sent the message.

The downside is that the listener only knows the intended recipient from the context of the conversation. Requires moderate signal quality for the radio operator to keep track of the conversations.

However a broadcast message and response is fairly efficient.

Sunray (Lead) Charlie Charlie (Collective Call - everyone), this is Sunray. Radio check, over.

C-E-5-9: Sunray, this is Charlie Echo five niner, loud and clear, five by five over.

Y-S-7-2 Sunray, this is Yankee Sierra Seven Two, reading three by four. over.

B-G-5-2: Sunray, this is Bravo Golf Five Two, Say again. over.

E-F-2-0: Sunray, this is Echo Foxtrot Two Zero, reading Five by Four over.

Sunray: Charlie Charlie this is Sunray, out.

The "Say again" response from B-G-5-2 tells Sunray that the radio signal is not good and possibly unreadable.

Sunray can then re-initiate a Call onto B-G-5-2 and start another R/C or instruct them to relocate, change settings, etc.

So it could carry on with:

Sunray: Bravo Golf Five Two this is sunray, radio check over.

B-G-5-2: Sunray this is Bravo Golf Five Two, unclear, read you 2 by 3 over.

Sunray: Sunray copies, Relocate to Grid One Niner Zero Three Three Two for a better signal over.

B-G-5-2: Bravo Golf Five Two copies and is Oscar Mike, Bravo Golf Five Two Out.

Frequency control

In public radio, voice procedure controls the behaviour and use of the frequency between each operator. Deregulated frequencies, such as Family Radio Service has no voice procedure, but due to the limited range of transmission it is unlikely a transmission will be heard outside of a single party. On signals open to the public with broader reception, such as citizens band, there is only enough protocol to allow operators to speak one at a time or allow emergency traffic to go through. Otherwise, there is no prioritisation or rules to the communication outside of following local and federal laws regarding communication. Other stations requiring licensure such as amateur radio bands or MARS users (which includes civilian amateur radio operators) have strict usage and transmission rules that operators are trained on (as part of their licensing process) that allows authorised users to communicate. Regulated Radio frequencies often have unlicensed users who are unaware of the protocol on a certain channel and are asked to sign off if they fail to identify a callsign as a licensed operator, or are reported by licensed operators to the licensing body for possible advisement or citation. Amateur radio frequencies also may have assigned functions that may allow or disallow certain traffic including voice, such as continuous wave (see Morse code) transmission or data-only transmission frequencies.

Structured use is seen in voice procedure for government, military and disaster command usage. In police and public safety use, voice procedure follows a protocol that governs who can speak on a frequency and when. Since modern police frequencies are on a restricted bandwidth it is unlikely that an unlicensed party will interrupt communication; all operators on a frequency are assumed to be authorised to utilise a channel unless proven otherwise. Licensed radios in law enforcement often utilise trunking, or multiple frequencies selected by a control tower at random, which prevents single-channel scanners from picking up a transmission. A frequency may be dispatch controlled (or controlled net), which is controlled by one control station and any parties wishing to use the frequency must direct all calls to the control station who routes calls as needed to necessary parties. A tactical frequency (or tactical net) has no control station, and is intended to be used on an ad-hoc basis for situations, such as multiple units attempting an arrest who surround a single property. Tactical frequencies may or may not be trunked and may be susceptible to single-channel scanner reception.

See also

- Five by five
- ICAO spelling alphabet
- List of international common standards
- Mayday
- Military slang
- Procedure word

- Station identification

Notes

1. "Pilot-Controller Glossary". Federal Aviation Administration.
2. "Radiotelephony Manual" (PDF). Civil Aeronautics Authority. p. 5.
3. "Falcon Codes". *Fighter Pilot University*. Retrieved 22 January 2015.
4. "Roger" was the U.S. military designation for the letter *R* (as in received) from 1927 to 1957.
5. SDSTAFF Robin and Straight Dope Science Advisory Board (2007-02-27). "Why do pilots say "roger" on the radio?". The Straight Dope. Archived from the original on 2008-01-29.
6. *ACP 125(F), Communication Instructions Radiotelephone Procedure* (PDF), Combined Communication Electronics Board (published 5 September 2001), September 2001, pp. 3–14 (page 46 of the pdf), retrieved 2012-02-20
7. Eastern Railroad Discussion. "Defect Detector near Callahan, FL". *Trainorders.com*. Retrieved 20 January 2016.
8. See: "Section 2: Radio Communications Phraseology and Techniques", *Aeronautical Information Manual*, US Department of Transportation, Federal Aviation Administration. Any year *AIM* will serve as an example. Another example is "Completing the Loop: Two-Way Communication", *Special Report: Improving Firefighter Communications*, USFA-TR-099/January 1999, (Emmitsburg, Maryland: U.S. Fire Administration, 1999) p. 27.
9. See, "Problem Reporting", *Special Report: Improving Firefighter Communications*, USFA-TR-099/January 1999, (Emmitsburg, Maryland: U.S. Fire Administration, 1999) pp. 25-26. FDNY has implemented these ideas and they were observed on publicly released FDNY 9-11-01 logging recorder audio CDs. Portions of these CDs were broadcast on news programs.
10. For an example of fire procedures, look at "Communications Procedures", XII-A-4.JH.970314, (Los Gatos, California, Santa Clara County Fire Department, Training Division, 03/14/1997).
11. "VHF Radio Basics". sailonline.com. Retrieved Apr 13, 2015.
12. Cannon, Mike (1994). *Eavesdropping on the British Military*. Dublin: Cara Press. pp. 85–85.

External links

- Origins of Hamspeak (<http://www.ac6v.com/73.htm>)

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| Oral communication

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