# INTRO TO USE OF RADIO

**Aim:** To gain an introduction to the use of radios in gliding operations.

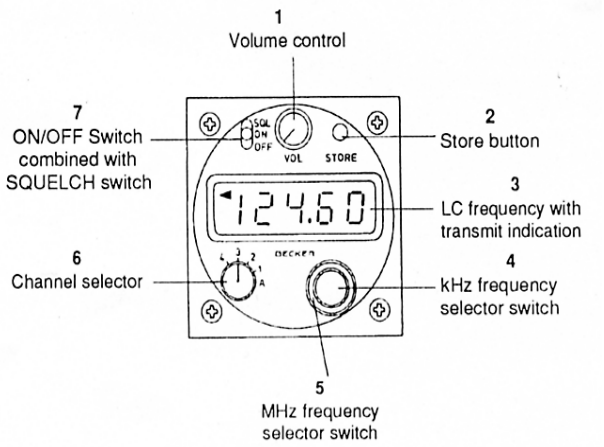
Radios provide a usefull means of communication during gliding operations. Most gliders are fitted with modern radios that allow for effective communication with ground stations and other aircraft. During your training you will be required to use radios both in the glider and at the base of operations. This module provides some basics on how to use the radio correctly and the radio "language" used for effective radio communication.

**Radios:**

The radios used are many and varied but all have a few common characteristics:

| | |
|---|---|
| On / Off Switch | Know how the radio is powered and how to turn it on and off. |
| Frequency Selector | Know how to set the required frequency; how to preselect on some models and how to programme stored frequencies if the radio has these. |
| Volume | Know how to adjust the volume; be aware that the speaker location may make the volume different for each pilot in a two seater so adjust it so both can hear okay. |
| Squelch | This feature is used to suppress unwanted background noise / interference; know how to adjust it for best reception. |

A typical radio installation




**Frequencies:**

The frequency to be used will depend on where you are operating and who you need to communicate with. This will usually be:
the club's operations base
another glider
or Air Traffic Control (ATC)

**Gliding Frequencies:**

Four VHF radio frequencies have been allocated for use in gliding operations:

| | | |
|---|---|---|
| (a) | 133.55 MHz | The primary gliding operations channel. |
| (b) | 134.00 MHz | A general sport aviation chatter channel. Probably only used when flying with other users, e.g. hang gliders, microlights etc. |
| (c) | 134.45 MHz | The secondary gliding operations channel. |
| (d) | 134.85 MHz | A channel available for communications when retrieving. |

**Standard Words and Phrases:**

Listed below is a selection of commonly used standard words and standard phrases.

| Phrase | Meaning |
|---|---|
| Acknowledge | Let me know that you have received and understood this message. |
| Affirm | Yes. |
| Approved | Permission for proposed action is granted. |
| Break | I am making a deliberate gap / separation between portions of the message. |
| Cancel | Cancel the previously transmitted clearance. |
| Check | Examine a system or procedure. (No answer is normally expected). |
| Cleared | You are authorised to proceed under the conditions specified. |
| Confirm | Have I correctly received the following . ? or Did you correctly receive this message? |
| Contact | Establish radio contact with . . . |
| Correct | That is correct. |
| Correction | An error was made in the transmission or message indicated, the correct version is…. |
| Disregard | Consider that transmission as not sent. |
| Go Ahead | Proceed with your message. |
| I say again | Repeat for clarity or emphasis. |
| Monitor | Listen out on (frequency). |
| Negative | No or Permission not granted or That is not correct. |
| Over | My transmission is ended, and I expect a response from you. (Not used very often). |
| Out | My transmission is ended, and I expect no response from you. (Not used very often). |
| Read Back | Repeat all, or the specified part, of this message back to me exactly as received. |
| Recleared | A change has been made to your last clearance and this new clearance supersedes your previous clearance or part thereof. |
| Report | Pass me the following information . . . |
| Request | I should like to know . . . or I wish to obtain . . . |
| Roger | I have received and understood all of your last transmission. |
| Say Again | "Say again all before . . . (first word satisfactorily received)" or "Say again all after . . . |
| Speak Slower | Reduce your rate of speech. Don’t hesitate to use this if ATC speak to fast for you! |
| Standby | Wait and I will call you. |
| Verify | Check and confirm with originator. |
| Wilco | I understand your message and will comply with it. |

**Check of “Readability”**

This can be done if you have difficulty hearing the station calling or if they have difficulty hearing you.

"What is the readability of my transmission?"

The readability scale is:

1. Unreadable
2. Readable now and then
3. Readable with difficulty
4. Readable
5. Perfectly readable

**Air Traffic Control callsigns:**

| | |
|---|---|
| ...Control | Area and approach control, including area and approach radar. |
| ...Approach | Approach control where provided as a separate function. |
| ...Tower | Aerodrome control or aerodrome and approach/area control when these services are provided conjointly from an aerodrome control tower. |
| ...Ground | Surface movement control. |
| ...Radar | Area or approach control radar when provided on a discrete frequency for a specific purpose. |
| ...Precision | Precision approach radar. |
| ...Flight Service | Aerodrome flight information service. |
| ...Information | Flight information service. |
| ...Radio | Air-ground service. |

**The Phoenetic Alphabet:**

When aircraft registrations, proper names, service abbreviations and words of which the spelling is doubtful are passed by radio, the following alphabet is used:

| | | | | | |
|---|---|---|---|---|---|
| A | Alfa | Al Fah | N | November | No Vem Ber |
| B | Bravo | Brah Voh | O | Oscar | Oss Cah |
| C | Charlie | Char Lee (or Shar Lee) | P | Papa | Pah Pah |
| D | Delta | Dell Tah | Q | Quebec | Key Beck |
| E | Echo | Eck Oh | R | Romeo | Row Me Oh |
| F | Foxtrot | Foks Trot | S | Sierra | See Airrah |
| G | Golf | Golf | T | Tango | Tang Go |
| H | Hotel | Hoh Tell | U | Uniform | You Nee Form / OO Nee Form |
| I | India | In De Ah | V | Victor | Vik Tah |
| J | Juliett | Jew Lee Ett | W | Whiskey | Wiss key |
| K | Kilo | Key Loh | X | X-Ray | Ecks Ray |
| L | Lima | Lee Mah | Y | Yankee | Yang Key |
| M | Mike | Mike | Z | Zulu | Zoo Loo |

- The Syllables to be emphasised are underlined


"Golf Oscar Romeo" or "Glider Oscar Romeo"

All aircraft have 3 letter registrations. All glider registrations start with a "**G**".
Aircraft registration letters are painted clearly on all aircraft; ususlly on the top and underside of the wing, on the fuselage and possibly on the tail fin.

On gliders, we usually only paint the last two letters on the tail fin and sometimes on the underside of one wing.


"Golf Papa Bravo" or "Glider Papa Bravo"

**Numbers:**
That was the alphabet… how about the numbers. When transmitting figures by radio, the following pronunciation is used:

| | |
|---|---|
| O - ZE-RO | 5 - FIFE |
| 1 - WUN | 6 - SIX |
| 2 - TOO | 7 - SEV-en |
| 3 - TREE | 8 - AIT |
| 4 - FOW-er | 9 - NIN-er |
| Decimal - Day-See-Mal | Thousand – Tousand |

NOTE: The syllables printed in capital letters in the above list are to be stressed.
Eg. the two syllables in ZE-RO are given emphasis, whereas the first syllable of FOW-er is given primary emphasis.
When we call out a radio frequency we say it like this:

118.1 WUN WUN AIT DAY-SEE-MAL WUN 133.55 WUN TREE TREE DAY-SEE-MAL FIFE FIFE

**Calling Procedure…or What to say When Making a Radio Call:**
The calling procedure for a glider attempting to establish comms with another station like glider base is as follows:

1. Designation of the station called. ***"Omarama Glider Base"***
2. The words, ***"This is"***
3. Designation of the station calling, ***"Glider Golf Oscar Romeo"***
4. If the ground station monitors several frequencies the call should give the frequency which is used, ***"on 133.55".***

So when the frequency is clear our call would be:

***"Omarama Glider Base this is Glider Golf Oscar Romeo on 133 Decimal 55."***

They will come back with a reply like: ***" Glider Oscar Romeo go ahead"***

You then go ahead with your message: ***"Omarama, Oscar Romeo is overhead the Mt Horrible, Ops normal"***

Note that once they have replied to you, you do not have to use the full callsigns.

**Blind Transmissions:**

No, we aren't talking in Braille!! Often we make calls as a broadcast for others to hear that they do not need to reply to. A common example will be in the circuit at our gliding site… like this:

***"Omarama Traffic, Glider Oscar Romeo is downwind 09"***… so you have told anyone else in the area where you are and that you are intending to land on vector 09 at Omarama aerodrome.

A "blind transmission" can also be made when you can not hear anyone reply but suspect they may be able to hear you. An example might be when giving a position report:

***"Glider Base, Glider Oscar Romeo transmitting blind, ops normal over Tarras at nine thousand feet"***

**General Radio Techniques:**

The efficient use of radio depends to a large extent on the method of speaking and on the articulation of the operator. All words should be enunciated clearly and each word ended clearly to avoid running words together. Any tendency to shout, speak rapidly or raise the pitch of the voice should be avoided. On the other hand, the operator should speak firmly and with confidence into the microphone. The speed you talk at should be kept constant, neither too fast nor too slow. High pitched voices transmit better than low pitched ones. The natural rhythm of ordinary conversation should be preserved by transmitting each sentence phrase by phrase. Know how close the mike has to be to your mouth for best transmission with each type of radio / microphone installation. Avoid superfluous radio calls and bad language…and above all else… think of what you are going to say before you hit the transmit button…and take your finger off when you have finished!

**Tips:**

Practice the types of calls you need to make with another pilot on the ground while waiting to go flying. Do a simulated flight from calling for the towplane, to launching, to position reporting, an ops normal call, to joining the circuit, a downwind call. The more familiar you become with the radio jargon and the radio controls, the easier its use will become and the less of a distraction it will be during your flying.

**Need To Know:**

- How to set up and use the radio in the glider and at the glider base.
- How to make radio calls for launching, ops normal and circuit joining.

**Further Reading:**

- Flight Radio For Pilots by Trevor Thom, Aviation Theory Centre. Good info on use of radios in aircraft.


A typical hand held radio

A typical base radio set-up