CHAPTER 13: RADIO COMMUNICATIONS

The radio plays several different roles for the glider pilot. It enhances safety by letting you know of other aircraft near your location. It is a way of obtaining information about weather and airspace restrictions. In addition, it allows you to keep in touch with your ground crew when flying cross-country.

Radios are not required in airplanes or gliders at uncontrolled airports, or in Class E or G airspace. However, using a radio can greatly increase your safety.

In this chapter, you will learn about the different services available, how to access them, and the proper format to use when communicating on the radio.

13.1 Radio Technique

The Radio

There are many different types of radios used in gliders, from panel-mounted units to small, portable, handheld units. You should become familiar with the radio in the glider that you will be flying. This section will discuss features common to all radios.

Tuning

Aircraft radios use the frequencies between 118.000 and 136.975 MHz. (In the rest of this discussion, the designator "MHz" will be omitted.) Most modern panel-mounted radios display two frequencies at a time. One is the frequency in use; the other is the standby frequency. To switch frequencies, adjust the standby frequency, and then hit the "flip-flop" button (often labeled with a two-headed arrow).

Some radios have storage capabilities, so you can enter frequencies and later select them using a knob or buttons. Once again, it is important that you become familiar with the particular model of radio that you are using.

Squelch

Random radio signals will be heard as noise or static on a radio. To keep you from having to listen to the constant roar of static, a circuit is built in to most radios that disables the receiver when the signal-to-noise ratio gets too low. You can adjust the level at which the squelch circuit kicks in by using the squelch adjustment. On some radios, there is no adjustment, so you can only have the squelch turned on or off.

If you are having trouble receiving a weak signal on the radio, you might want to turn the squelch down or off. You may then be able to pick out the voice from among the static.

The Microphone

The microphone turns your voice into an electrical signal that the radio can transmit. The microphone will have a push-to-talk (PTT) switch that must be depressed when you are speaking, and released when you are finished, so that you can listen for a response. The radio cannot transmit and receive at the same time. Pause slightly after pressing the PTT switch to make sure that you don't cut off the first part of your transmission.

You should talk into a microphone at normal volume, neither too softly nor too loudly. It is common for students who are shy about talking on the radio to lower their voice to a point where they are inaudible. On the other hand, if you talk too loudly into the microphone, you may over-modulate it, so that your voice comes across distorted and hard to understand.

Speak directly into the microphone, not across it. Your lips should almost touch the microphone while speaking.

When you first start using the radio, you may want to have someone on the ground monitor your transmissions and let you know how you sound.

Procedure

Talking on the radio is more like speaking a foreign language than conversational English. However, with practice you should be able to become fluent at aviation "radio speak".

Listen, Then Talk

Listen before you transmit. Many times you will get the information you want simply by monitoring the frequency.

Right before you talk, make sure no one else is talking, or keying your microphone will be futile. Neither your nor the other person's transmissions will get through. If you have just changed frequencies, pause, listen, and make sure the frequency is clear.

Also, consider what has just been said. Does it require someone to respond? If so, wait for the response before you key your microphone. Otherwise, you are likely to step on the response, so that neither one of you will be heard.

Think before you talk. Make sure you know what you are going to say and how you are going to say it. You should strive to keep your transmission as short as possible. Remember that you are sharing the frequency with many other pilots.

Format

In general, the format you use when talking on the radio is to tell:

- Who you are talking to
- Who you are
- Where you are
- What you want

There are many exceptions to this basic format, but if you don't remember the exact format for a specific type of radio call, this is a good starting point. Examples of radio calls will be given later in the chapter.

Phonetic Alphabet

Numbers and letters should be communicated using the International Civil Aviation Organization (ICAO) phonetic alphabet, shown in Figure 13.1. In this alphabet, a word is used instead of a letter. Also, each individual digit is spoken, so that "23" is spoken as "two three."

Character	Phonetic	Character	Phonetic	Character	Phonetic
A	Alpha	M	Mike	Y	Yankee
B	Bravo	N	November	Z	Zulu
C	Charlie	O	Oscar	1	One
D	Delta	P	Papa	2	Two
E	Echo	Q	Quebec	3	Three
F	Foxtrot	R	Romeo	4	Four
G	Golf	S	Sierra	5	Five
H	Hotel	T	Tango	6	Six
I	India	U	Uniform	7	Seven
J	Juliett	V	Victor	8	Eight
K	Kilo	W	Wiskey	9	Niner
L	Lima	X	X-Ray	0	Zero

Figure 13.1 – ICAO phonetic alphabet

The phonetic alphabet helps to eliminate confusion between what is said and what is heard. For instance, the letters "C" and "D" can sound very similar on a radio, as could the numbers "thirty" and "forty". When spoken as "charlie" and "delta", or "three zero" and "four zero", they are much more distinct.

Phraseology

For clarity, altitudes should be stated in thousands and hundreds of feet. For example, 15,500 feet should be stated as "one five thousand, five hundred".

Headings and winds are assumed magnetic unless stated otherwise. For instance, "heading three two zero" indicates a magnetic heading of 320°.

Single-syllable words are easier to confuse than multi-syllable words. Therefore, you should use "affirmative" instead of "yes" and "negative" instead of "no".

If you do not understand a radio transmission, use the phrase "say again". This indicates that the person transmitting needs to repeat the last transmission.

You should use the word "glider" and your full registration number (omitting the leading "N," since that is common to all U.S. aircraft) to identify yourself. For instance, a glider with the registration number N336CF would be identified as "glider three three six charlie foxtrot."

In glider-to-glider and glider-to-crew communications, a glider pilot often uses the glider's "contest number" issued by the Soaring Society of America (SSA) instead of the registration number. However, when communicating with any official FAA service or other non-glider traffic, you should use your registration number.

If an air traffic controller abbreviates your call sign, for instance, calling N336CF "glider charlie foxtrot," you may then refer to yourself in the same way.

When communicating face-to-face, you can usually tell if the other person has understood what you said by watching their facial expression. Clearly, on the radio this is not possible. Instead, when important information is conveyed on the radio, it is standard procedure to repeat back the information for verification.

13.2 Who Are You Talking To?

Now that we have covered how to talk, we need to figure out who we want to talk to. Of course, you may want to communicate with your crew or with other glider pilots. You may also want to access services provided by the FAA. This section will introduce the different agencies that provide these services. The next section will explain when it is appropriate to use these facilities.

Common Traffic Advisory Frequency (CTAF)

At uncontrolled airports, pilots self-announce their position to let other pilots know where they are and what they are doing. The frequency used for this is the CTAF. The CTAF is indicated in the airport information on a sectional by the letter "C" in a magenta circle next to the frequency. In the example shown in Figure 13.2, the CTAF frequency is 122.7.

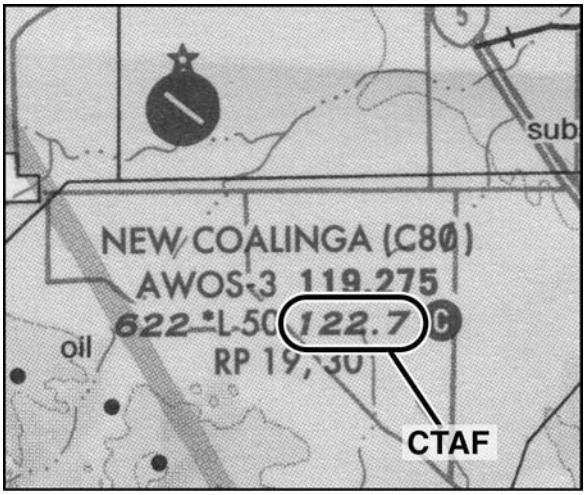

Figure 13.2 – Common Traffic Advisory Frequency (CTAF) as indicated on a sectional

When using a CTAF frequency to announce your position, you are talking to other traffic using the same airport. Therefore, your call would be addressed to the airport name followed by the word "traffic". For example, if you were flying out of the airport shown in Figure 13.2, you would address your call to "New Coalinga Traffic".

UNICOM

A UNICOM is a non-government radio communication station that may provide airport information at public use airports where there is no tower or FSS. On pilot request, UNICOM stations may provide weather information, wind direction, recommended runway, and other information. A UNICOM station may also be able to relay information or make a phone call to let someone know your whereabouts.

The UNICOM station is usually manned by an employee of a fixed base operator (FBO) at the airport. As such, it is not always possible to get someone on this frequency since they may be out to lunch, pumping gas, or just away from the radio.

At uncontrolled airports, the UNICOM frequency is the same as the CTAF. You only address your calls to UNICOM when requesting something from the ground station. Otherwise, you address your calls to "traffic".

If an airport does not have a UNICOM station, then the frequency 122.9, called MULTICOM, is used as the CTAF.

Air Traffic Control (ATC)

ATC is responsible for monitoring and controlling the separation of air traffic in controlled airspace. The duties of ATC are divided between three different entities, each designed to provide services during a distinct phase of flight.