

## REPEATER OPERATION, PROCEDURES AND COURTESY and OPERATING TIPS IN GENERAL

### REPEATERS

A repeater is a duplex device, that is, it transmits on one frequency while simultaneously listening on another. It uses “duplexers” to separate the incoming and outgoing signals, that way it can use one antenna for both. It is line of sight communications, therefore the antenna is installed as high as possible to give the maximum coverage which can range from 20 miles up to 50 miles radius.

The receiving and transmitting frequencies are separated by an amount known as the “shift”. On two meters this is 600 KHz down (-) for frequencies below 147.00 Mhz and up (+) for frequencies above 147.00 Mhz. As an example, the 148.88 repeater receives on 146.28 Mhz and transmits on 146.88 Mhz. On 440 Mhz, the shift is 5000 KHz, always positive (+). On most modern FM radios, these shifts are preprogrammed as default.

If you are close enough for “radio to radio” line of sight communications, you can go to simplex, that is to send and receive on the same frequency, that way you won’t tie up the repeater unnecessarily. Common simplex frequencies are 146.52 and 146.46 Mhz. Make sure you enable simplex and don’t have a shift programmed. It is a good idea to have these frequencies preprogrammed just like you have the repeaters preprogrammed.

When you hear someone refer to the 88 repeater or the 88 machine, they are referring to the 146.88 repeater. Likewise the 147.06 is the 06 machine, and so on.

If you are listening to one of the repeaters and no one is talking, you can announce your presence by giving your call only, or giving your call plus “listening” or “monitoring”, plus you may add “on 06” or “on 88” or what ever repeater you are on. That way if someone is listening on a scanner, he will know where to find you. As an example you may say “ K5CNZ, listening 06”. Do not use “BREAK”. This is reserved for emergency traffic. If someone is carrying on a conversation and you want to get into the conversation or need to use the repeater urgently, simply give your call between transmissions. The hams using the repeater will usually let you in. It is always good courtesy to leave a second or two between transmissions. The repeaters have a courtesy tone; wait until it sounds and a second or so more. Don’t be a “Quick Keyer”, allow other stations a chance to get in.

You should keep your transmissions fairly short, if you get too long winded, no one else can get in, plus you might time out the repeater, which could and should be embarrassing. I think the time-out for the 06 is three minutes, the 08 doesn’t appear to have one. I don’t know about the others.

All of the area repeaters are “open”, that is open to all amateurs, although most use tone squelch, which is an audio tone super imposed on the transmission. The repeater recognizes this tone and allows your signal to “bring up” or “key up” the repeater. These tones are standard, and for the STARC and other area repeaters we use 107.2 Hz. The main reason we use these tones is to avoid inter-modulation interference with other type radios (such as pagers) and to keep remote repeaters on the same frequency from coming in during skip conditions and keying up our repeaters. Sometimes you tail end on a conversation and get into the repeater without using a tone before it un-keys, but then when you un-key and try to key up again, you can’t because you have no tone programmed.

A signal report on a repeater doesn’t mean much. It is not the strength of the station you are hearing, but the repeater signal located on a high tower. However, the signal may be “scratchy” or not “full-quieting” etc., but a 5-9+ signal report doesn’t tell the station you are working very much about his signal strength.

A good number of hams only have a handheld (HT) radio to use on the repeaters. The short antennas on these units and low power make them marginal under many conditions, but if you connect them to an outside antenna, they will hit the repeaters quite well. You can buy a simple 5/8 wave outside antenna or make a ¼ wave one out of a little wire and a SO-239 connector and greatly improve the range of your HT. You can also get an inexpensive 12-vdc power supply and use it on the HT to keep from discharging the batteries too frequently. These two fairly simple items will convert an HT to a low power base station.

## **OPERATING JARGON**

Stop, Look and Listen! Do you ever think about how you sound to others on the air? Have you really thought about the example you are setting? A few examples:

“K5\*\*\* for ID” Of course “for ID” is redundant. If you give your call, you have identified

I have “destinated”. There is no such word.

“Anywho” Cute, but it falls in the same category as “whatever”.

“What’s your QTH”. The Q-signal QTH means, “what is your location?” or “My location is”

“Back to you for your final final” or maybe final final final final final, etc.

“73’s” 73 is a phrase. Adding “s” means you say “goodbye” twice or more. Same goes for others such as 88.

Likewise, CB phrases such as “Good Buddy”, “ 10-40 and other 10 codes ” etc. should be avoided.

I’m sure all of us are guilty of some of these.

## **IDENTIFICATION**

By FCC rules, you have to ID only every 10 minutes or when you leave the air. Don’t over ID and waste time by using superfluous call signs, especially with full phonetics every time you turn the call over to the other station. Once you establish contact and know whom you are talking to, you can use shortened or tactical calls or just your names when you turn over to the other station, or if there are only two of you, just “over” or “back to you”.

## **CHECK-IN TO NETS**

If the net is a directed net, and most are, give your call when requested by net control and in the manner specified, i.e.: “with full phonetics” or “by area”. If you feel that the net control is not hearing you, and you have called several times, you might say “relay” quickly in between transmissions. Usually if someone hears that, they will advise net control, who will then authorize that station to “pick you up” and check you in. If something is being discussed and you have pertinent information, you might state “info” between transmissions so you can be recognized to pass along this information. On emergency nets, such as those activated by ARES for a hurricane or other major disaster, don’t check-in “just for the count” unless requested to do so. For these nets, just listen unless you have proper traffic. If they need you, they will put out a call. If you occupy the net unnecessarily, you might cover up a very weak station that may be trying to get in with priority traffic. Never use “Break-Break-Break” unless it is a real emergency or a life and death situation. You can just state “Emergency Traffic” in between transmissions. Advise the Net Control if you are leaving the net.

Speak slowly, distinctly and clearly. A common fault of traffic handling is talking too fast. Talk across the face of your mike. This makes communications more understandable. In other words, hold the face at almost a right angle to your face. Listen before transmitting. Know what you are going to say ahead of time. Engage the brain before the mouth. Hold down the PTT about a second before talking so as not to cut off the first part of your message. It is a good idea to keep a pencil and pad handy while you are in a net, and write down pertinent information, phone numbers, call signs, etc. as you hear them. This would help in the event you had to assist the net control, as you would already have a lot of pertinent information you might need

On spelling words in a message, if the name/word is easily understood you can just state, “common spelling” instead of spelling it out. For example “Smith” would not need to be spelled, but “Smyth” would need to be spelled out with phonetics. However be sure that the word is real common as it might be common to you but not to others.

Jab Murray K5CNZ (revised 10-26-06)