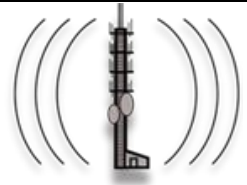


MOBILE RELAY

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Instructions for Operating My Analog Conventional Repeater Portable Radio With Talkaround

Conventional analog repeater radios are the simplest form of repeater operation. Radios talk direct to the repeater and the repeater transmits to the other subscriber radios. Therefore, if the repeater infrastructure fails, no one can speak to anyone else on the repeater channel because all transmissions are repeated by the repeater. However, the talkaround channel does not use any infrastructure so communications from one user radio to another user radio is possible over a short range provided the users are close enough to each other.

The following describes the use of a portable radio. To operate the radio:

1. Turn on the ON-OFF VOLUME control on top of the radio clockwise to turn on the radio and adjust the receive volume control to be the appropriate volume for your ambient noise condition. The volume has no effect on transmitting.
2. Turn the channel select knob on top of the radio to the proper channel for operation if you have more than one channel in the radio.
3. Press the MONITOR button to listen for co-channel users. (The MONITOR button is programmable on most radios and is usually the button below the PTT button, but it can be anywhere on the radio.) Most radios have an icon on the display that will light up to indicate you are in monitor which is typically an outline of a speaker or it will say MON. (Some radios are in monitor as long as you hold the button and some radios are PRESS to monitor and PRESS again to turn off the monitor.) If another party is using the frequency, you need to wait until they are finished before you talk on the radio.
4. Your radio will listen only to analog transmissions. You will hear the digital transmissions from NXDN (Kenwood and ICOM digital transmissions), DMR and MotoTrbo radios, but they will not be properly decoded and thus will not be understandable.
5. If the frequency is clear, press and hold the Push-To-Talk (PTT) button on the left side of the radio, wait approximately 0.3 seconds before speaking and speak in a normal voice from about 1 inch from the microphone. Release the PTT button to hear a response from the party you have called. Do not yell or scream as it will only degrade your intelligibility.
6. If you are on the repeater channel, when you release the button and if you are in range of the repeater, you will hear the response from the repeater (often referred to as a “kickback”) which

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lasts typically from 0.5-5 seconds from when you release the button. This is the repeater transmitter continuing to transmit after you release the PTT button.

7. With repeater operation, all transmissions go through the repeater. Therefore, when you talk, all the users (that are in range of the repeater) will hear your transmission with the same clarity if you are in range of the repeater. If you are not in range of the repeater, no one will hear you speaking. If you have a strong signal into the repeater, everyone will hear you clearly. As the signal gets weaker, all other users will start to hear a background hiss on your transmission. As the signal continues to degrade, all other users will hear static mixed in with your transmit audio and eventually as the signal gets weaker, there will not enough signal to understand your transmission and the repeater may stop entirely retransmitting (otherwise known as dropping out of the repeater) your signal.
8. If you are on the talkaround channel, each radio sends out its signal and the signal travels as far as it can directly to the other radios without the help from the repeater. Therefore, when you talk, some people will hear it and some will not hear you, depending upon where they are located. Typically, the people closer to you will hear you and the people further away may or may not hear you depending upon the distance and what obstructions are between you and them. As the signal gets weaker, you will start to hear a background hiss. As the signal continues to degrade, static is mixed in with the received audio and eventually there is not enough signal to understand the transmission. Typical range with portable radios is about 0.5 mile in the city and a mobile radio will be about 5 miles in the city.
9. Talkaround is the same as simplex operation with one exception. The talkaround frequency is the same as the repeater transmit frequency. This means that if someone is talking on the repeater and you are in range of the repeater, you will hear the person speaking through the repeater. You will also be able to hear someone speaking on talkaround without having to do anything to the radio such as changing channels.
10. Typical use of talkaround is to have a backup method of talking in case the repeater fails. However, the range is typically very limited compared to talking through the repeater. The repeater is typically located at a high location so it gets significantly better range than the simplex operation which is direct from radio to radio.
11. Another typical use of talkaround is to have a crew working at a specific site (i.e. a building under construction) and having the crew use the talkaround channel at the construction site. The crew will get reliable communications at the construction site to each other, yet they can still hear the office call them on the radio most of the time unless they are in a location at the construction site that is blocked from the signal from the repeater.
12. If someone is talking on the talkaround channel, the talkaround signal will override the signal from the repeater (known as signal "capture") most of the time, so you will not hear the repeater signal unless the person on the talkaround channel is far away and has a weak signal in which case the repeater will "capture" the talkaround signal. In other words, you will hear one of the two transmissions depending upon who has the stronger signal. If both signals are about the same signal strength, you will hear garbled transmissions from both at the same time and it will be difficult to understand either transmission.

Battery and charger information for portable (hand-held) radios:

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1. Some radios have a battery icon on the display to let you know the condition of the battery. If you do not have a battery icon, the radio will typically have a LED flash red whenever the battery is low. Some radios will have a different method of signaling a low battery which varies by radio model.
2. If your radio does not have a battery condition icon on the display, you need to pay more attention to how much you use the radio to have an idea of when to charge (or change) the battery.
3. Batteries that are very low can cause the radio to “reboot” whenever you press the PTT button or reboot continuously. Some radios will act very strangely and do things abnormally until the battery is charged or replaced.
4. When you are finished using the radio, turn it off and place it in the battery charger to recharge the battery. When the battery is fully charged, remove the radio from the charger if it will not be used for an extended period of time. Leaving the radio in the charger over night or over a weekend should not be a problem.
5. Most batteries have small, medium and/or large batteries which will determine the battery life for a particular radio. Typical numbers for small batteries are 8 hours use at 5-5-90 while large batteries are typically 12 hours at 10-10-80 which means 10% of the time you are transmitting, 10% of the time you are receiving a signal and 80% of the time your radio is in standby, meaning that it is turned on and awaiting for you to transmit or someone to call.
6. Transmitting takes the most power from the battery by a significant margin, so if you do not talk often, your battery will last significantly longer. Conversely, if you talk often, your battery will discharge more quickly.
7. If the radio has a HI / LOW power button, switching the radio to low power will extend the battery life, but it will reduce the range of your transmission.