

Nacogdoches Amateur Radio Club

Orange Box Radios

NARC has 3 'Orange Box Radios' available for use by members. The primary use of these radios is intended to be Special Events and Disaster Response.

Each Orange Box Radio is identical, and consists of the following equipment and accessories:

1. Icom IC-2720 VHF/UHF FM radio.
2. Coastal Chipworks TNC-X terminal node controller.
3. VHF ground plane antenna with tripod, telescoping mast and coax.

The user is responsible for providing an appropriate 12 volt DC power source. If Winlink operation is planned, the user is also responsible for providing a computer running Windows.

Items 1 and 2 shown above are contained in the 'Orange Box', which is a weather proof portable box. Item 3, the VHF antenna, is supplied in a separate portable bag. The user can provide a separate antenna if they wish, or the facility may have an antenna permanently installed for Amateur Radio use.

If the user wishes to use item 3, some assembly is required. The antenna screws on the top of the telescoping mast. Ground plane radials must be installed at the base of the antenna. Two separate sets of radials are fastened to the antenna base using the bolts and thumb nuts provided, giving a total of 4 radials for the antenna. These radials must be installed to avoid high SWR. Guying cords are provided with the antenna. Don't hesitate to use them to prevent the antenna from blowing over. Two lengths of coax are provided; one is approximately 30 feet in length; one is approximately 50 feet in length. Use the shortest length of coax required for your particular installation. A barrel connector is provided so you can connect the two lengths of coax together for a longer run if necessary.

Items 1, 2 and 3 are sufficient to operate voice, either simplex or duplex through repeaters. The channel assignments programmed into the radio are shown on a separate sheet.

Channel programming has been done in 4 separate “Memory Banks”, labelled A, B, C, and D.

Memory Bank A includes the primary voice frequencies, both repeaters and simplex, in the Nacogdoches/Lufkin area. This memory bank is normally assigned to the left side of the radio.

Memory Bank B includes the frequencies used with the TNC, both for APRS and for Winlink. This memory bank is normally assigned to the right side of the radio.

Memory Bank C includes all the frequencies in Bank A, and adds a few more frequencies in the Lufkin area.

Memory Bank D includes all the frequencies in Bank C, and adds repeaters in other parts of East Texas.

The normal/default condition for the radio is:

Left side set to **Memory Bank A**, selected as **Main** and used for **voice**.

Right side set to **Memory Bank B** and used for **Winlink/Packet**.

Memory Banks C or D can be assigned to the left side of the radio if needed.

To assign or change a memory bank assignment:

Push the left side **[MAIN•BAND]** button to insure the left side is selected for use. Push the left side **[M/CALL•MW]** button several times to select memory mode. Memory mode is indicated by the letter **[M]** appearing just below the frequency display. Push the left side **[MAIN•BAND]** button for 1 second to select memory bank condition. The bank initial will blink. Rotate the left side **[DIAL]** knob to select the desired bank, A to D. Push the left side **[MAIN•BAND]** button momentarily to set the bank. The bank initial will stop blinking. This procedure is covered on page 35 of the operator’s manual.

A pdf copy of the complete Operator’s Manual is on the thumb drive provided with the radio. Most basic operations are covered in this document.

VOICE OPERATION

Unlatch and open the top of the Orange Box. Remove the top tray from the box to expose RADIO/TNC board beneath.

Remove the RADIO/TNC board completely from the Orange Box and set it on your work surface.

Attach antenna coax cable to the RADIO.

Connect MIC cable to RADIO (right side of control head). Plug it in until it clicks.

Attach power cable to power supply or battery (power poles for 12 VDC).

Turn on power to RADIO (Press small green button on upper left side of radio control head display window). Radio is ON when the display window lights up. If necessary, verify power supply is turned on.

On the RADIO CONTROL HEAD, momentarily press the [MAIN•BAND] button on the left side of the display window to select the left side to use for transmitting voice. Then momentarily press the [M/CALL•MW] button on the left side of the display window to enter MEMORY mode. If you are already in MEMORY mode, pressing the [M/CALL•MW] button once will switch you to the call channel, a second push will take you to a NWS weather frequency, and a third push will take you back to MEMORY mode.

On the RADIO CONTROL HEAD, rotate the left side DIAL knob (large knob, left side bottom) to select the desired frequency. Consult the Channel Assignment list for frequencies available.

Rotate the left side SQUELCH (SQL knob, next to the left side DIAL knob) counterclockwise until a rushing sound is heard from the speaker. Then slowly rotate the SQUELCH knob clockwise until the rushing sound just stops. This is called the point of 'critical squelch' and provides maximum receive sensitivity.

Adjust the left side VOLUME (VOL knob on left side of display window) as required.

Push and hold the PUSH TO TALK lever on the microphone to TRANSMIT. Speak in a normal tone of voice directly into the microphone. Release the PUSH TO TALK lever on the microphone to receive.

Remember to identify as required by FCC regulations. Act professional at all times.

Especially if on battery power, use the lowest possible transmit power to permit desired communications. The default programming on the radio is all memories are set to LOW POWER. To change power level from the default setting, on the MICROPHONE press the #4 key for HIGH power, the #5 key for MEDIUM power, or the #6 key for LOW power. LOW is 5 watts; MEDIUM is 15 watts; HIGH is 50 watts. With a decent antenna, LOW POWER should be more than sufficient and is much easier on battery life.