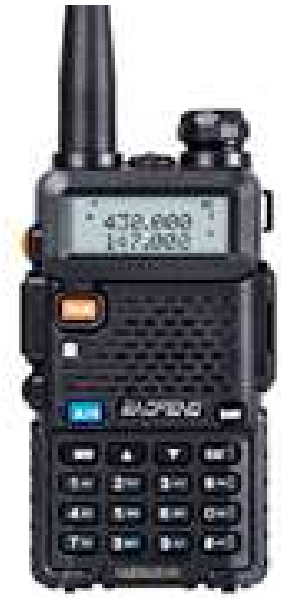
How to Program the LVRAC VHF Repeater into your Baofeng UV-5R



You just passed your Ham test and got your ticket and you bought yourself a brand new shiny Baofeng UV-5R radio to celebrate. Let me be among the first to congratulate you! Well done you!

I'm guessing that you tried to read the manual, and you watched a bunch of YouTube videos, but you're still confused on how to program your radio? It's kinda hard to use it, if you can't get it programmed. Do they mention a bunch of terms you're not familiar with? And talk about features you don't even know what they do? What are the talking about? What buttons do I freaking push? I wish someone would just show me.

Don't feel bad, you're not alone. The UV-5R is a very popular radio, but unfortunately, it is not the easiest to use, nor especially to program. It is popular because it is cheap. It is currently about $25 US. (I was able to find mine on sale for about $18). It is a basic, entry-level, workable, dual,band (UHF & VFH) amateur hand-held radio, for about $25. No wonder it is so popular. It is not the best quality, nor does it have all the features as some of the big-boy radios, it only has 128 memory channels, it has limited functionality, it is very difficult to program, but it is cheap, it works (once you get it programmed), and it gets a lot of people into ham radio. There are a lot of gotcha's when trying to program it. The manual doesn't explain it well. The YouTube videos are better, but they assume you know what they are talking about.

My advice is, buy yourself a programming cable, download the free radio programming software: Chirp (link), install it, and use that to program your radio. Doing it by hand is possible, but trying to read the badly written manual, if it is even included, is not easy, especially if you're new and have never done this before and don't know what the terms mean, or what the functions they are talking about even do. Which ones are important? Which ones don't matter? Which ones relate to others? HELP!!!!

Also, there are some features which are not possible to do from the front panel, and can only be done with the programming software, such as giving your channel a name. It will display the frequency, but if you want an alpha-character name (example: LVRAC), that can only be done with the software. But there are times when the software is not available, and being able to communicate is more important than what the channel is called. Sometimes you just got to be able to program things in the field, or on the fly, or just because you want to know how.

I will make this easy!

So, you're still with me? You are very brave and you don't scare easily. You want to know how to do this by the buttons on the front panel. Yes, it can be done. It just takes some time, and a lot of key presses. I admire your spirit. Let's *press* ahead.

Have no fear, I will explain step by step what we are doing, and what keys to press, when to press them. We will use a real world example. We will program the Las Vegas Radio Amateur Club's VHF repeater.

What we're going to program:

The Las Vegas Radio Amateur Club's VHF Repeater
Frequency: 146.940 MHz
0.6 MHz Negative Offset
CTCSS Tone 100 Hz
Save to Memory channel 001

1. **Set to FREQUENCY mode.** The UV-5R has two basic modes FREQUENCY (VFO) mode and MEMORY (MR) mode. In FREQUENCY mode you can enter frequencies. In MEMORY mode, we can choose between channels we have already programmed and saved. We need to be in the FREQUENCY mode to program the radio. Press the VFO/MR key. It toggles between FREQUENCY and MEMORY modes. See the images below. Fig. 1a shows FREQUENCY mode. Fig. 1b shows MEMORY mode. Note the small memory channel numbers after the frequency numbers (0 and 127 in Fig. 1b) in MEMORY mode. We do not want this. We need FREQUENCY mode. Press the VFO/MR key until the display looks like Fig. 1a, FREQUENCY mode.

Fig. 1a - FREQUENCY mode

Fig. 1b - MEMORY mode

2. **Select VFO A.** The UV-5R has two radios built into it. They are designated A and B. The A/B key switches between them. There is an arrow indicator to the left of the frequency in the display, which indicates which radio is active. Radio A is the upper frequency, and Radio B is the lower. In order to program the UV-5R we must be on radio A, otherwise the settings will not save properly. I know, it doens't make sense. Just go with it. Press the A/B key until the arrow points to the upper radio frequency. See the images below. Fig. 2a shows it set to radio A. This is the setting we want.

Fig. 2a - VFO A

Fig. 2b - VFO B

3. **Select VHF Band.** The LVRAC repeater we are programming is a VFH repeater, and we need to set the band to VHF. When we enter the frequency later, if the band doesn't match the frequency, then the channel won't save or work. Another of those difficult Baofeng things which often mess people up. Just press the BAND key until it shows a frequency in the 136-148 MHz range. This is NOT the frequency we will transmitting or listening on, it just indicates the band.
4. **Turn OFF Dual Watch.** The UV-5R has two radios, as explained earlier. It can monitor both radios, but that messes things up when you are manually programming the radio. This setting needs to be disabled in order to program it correctly. Another crazy Baofeng thing that gets people. I told you there were a lot of gotcha's. If you need it, you can turn it back on afterwards. But I would leave it off. (If you want it back on, just follow this step again, and set it to ON, but wait until after you've programmed this channel). MENU 0 0 7 MENU ▲ ▼ OFF MENU EXIT
5. **Delete Channel 001.** Okay, we're not done with the crazy Baofeng oddities of programming yet. Here's another one. If you already have data programmed in your channel, when you try to program that channel again, only some of the data you are programming will go into that channel. To make this work, we have to delete the channel we want to program. This example uses channel 001. If you want to use another channel you will need to change channel 001 to whatever memory channel you want to use. All the channels are high-lighted in green in these instructions. Make sure they all match! MENU 0 2 8 MENU 0 0 1 MENU EXIT
6. **Enter the Frequency.** We need to enter the frequency of the repeater. That is 146.940 MHz. 1 4 6 9 4 0
7. **Set Negative Offset.** Repeaters use two freqencies. A receive frequency, and a transmit frequency. The UV-5R needs to know the direction of the offset. Simplex frequencies do not use an offset, but repeaters do. For this repeater the offset direction is negative. Press the ▲ ▼ keys until the minus shows. MENU 0 2 5 MENU ▲ ▼ - MENU EXIT
8. **Set Repeater Offset to 0.6 Mhz.** Now that we have established the offset direction, we now need to set the offset amount. This repeater uses a standard offset of 0.6 MHz. MENU 0 2 6 MENU 0 0 0 6 0 0 MENU EXIT
9. **Set CTCSS Tone.** Here's another one of those gotcha's, this time not a Baofeng specific thing, but ham radio in general. CTCSS tones are sub-audible tones (we can't hear them, the frequency is too low, but the radios can hear them). They need to be there when you transmit, because the repeater will only operate for those signals which have this tone. Think of this as the access key. This repeater (and all the LVRAC repeaters, use 100.0 Hz as their tone). Just follow the instructions below to set this. MENU 0 1 3 MENU ▲ ▼ 100.0 Hz MENU EXIT
10. **Set Transmit Power to High.** The UV-5R has two power settings. Low power is 1W. High power is 5W on VHF, and 4W on UHF. Feel free to set low power if you wish. MENU 0 0 2 MENU ▲ ▼ HIGH MENU EXIT
11. **Save Transmit Frequency.** This is the first part of saving to the memory channel. This step saves the Tx frequency. MENU 0 2 7 MENU 0 0 1 MENU EXIT
12. **Enter Rev Mode** This will display the Rx frequency. Once it is displayed, it can be saved in the next step. * Scan
13. **Save Receive Frequency.** This step saves the Rx frequency. This is another of those Baofeng programming difficulties. It has the Tx frequency, it knows the offset direction, and the offset amount. It should be able to calculate the Rx frequency, but we still for some reason, still have to put it in. Just go with it. MENU 0 2 7 MENU 0 0 1 MENU EXIT
14. **Exit Rev Mode.** This exits the reverse mode and puts the radio back into FREQUENCY display. * Scan
15. **Exit Programming.** One more keystroke and we are done. This next keystroke exists the programming system, and puts us into MEMORY mode. VFO/MR

Test it out. Key up, give your call sign. Someone should answer you.

Hopefully, everything went well, and it is working properly. If not, try going over the instructions again, do the keypresses exactly. If that still doesn't work, you can reach me by email. My information is current on QRZ.

Keypresses

1. VFO/MR (Freq)
2. A/B (A)
3. BAND (VHF)
4. MENU 0 0 7 MENU ▲ ▼ OFF MENU EXIT
5. MENU 0 2 8 MENU 0 0 1 MENU EXIT
6. 1 4 6 9 4 0
7. MENU 0 2 5 MENU ▲ ▼ - MENU EXIT
8. MENU 0 2 6 MENU 0 0 0 6 0 0 MENU EXIT
9. MENU 0 1 3 MENU ▲ ▼ 100.0 Hz MENU EXIT
10. MENU 0 0 2 MENU ▲ ▼ HIGH MENU EXIT
11. MENU 0 2 7 MENU 0 0 1 MENU EXIT
12. * Scan
13. MENU 0 2 7 MENU 0 0 1 MENU EXIT
14. * Scan
15. VFO/MR

73
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