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# Hallicrafters SX-110 short wave radio: basic setup and operating instructions, photos

For many years I had a Hallicrafters SX-110 short wave radio receiver and its R-48A speaker. When I sold them, I wrote the following basic step-by-step setup and operating instructions for the new owner.

Also on this page are some photos and links to Hallicrafters-related websites.

## Basic Setup and Operating Instructions

You should read these instructions once all the way through before starting.

### Setup

#### Speaker

Connect the 2 leads from the R-48A speaker to rear screw terminals labeled **G** and **3.2**. I've also tested this connection with an 8-Ohm speaker -- a 3" speaker out of a transistor radio -- and even that worked well.

#### Headphones

Although the headphone jack (0.25" full size phone jack) is mono, an old set of

Sony stereo headphones worked fine for me. Plugging them in all the way produces sound in just one ear. If you only plug them in part way, you can get sound in both.

## Antenna

For an antenna, connect a length of ***insulated*** wire to rear antenna connector **A1**. 15 feet is fine. Longer is better. String the antenna out in as straight a line as possible. Kinks, turns, and bends don't matter much, but when you reach the point where you must turn it back on itself or start creating loops, there's no point using more wire. You can coil the rest or just leave it in a bundle on the floor.

***Caution:*** Don't strip the far (loose) end of the antenna wire, and don't electrically connect the wire to anything (especially anything grounded or anything electrical), and **don't touch anything grounded while you are holding the bare wire.**

Under some circumstances, the antenna itself is technically 115 volts "hot" with respect to ground. I say "technically" because although you can measure this voltage between the antenna and a ground such as a water pipe, if you actually touch the wire to the pipe, it only makes a tiny spark that you can only see in the dark. This makes me believe that there must be a small value capacitor in the circuit that prevents any significant current from flowing. Otherwise you'd get a big spark, to say the least.

However, although the current appears to be limited (which should reduce the danger), you can get an uncomfortably tingly shock from it. I suspect this is a result of the design (or a design flaw) of this 40 year old radio.

After you've set up the antenna, you don't normally handle it any further, so I have not considered this to be a particular hazard during my own use of the equipment, and regard it as of little significance except when you're working with the antenna itself, at which time it is something to keep in mind. It could also be significant if you have small children in the house. Remember that the radio also has an open back and hot tubes inside.

The power plug is not polarized, which means you can plug it in either of two ways. One may produce quieter operation with less

background static. When the plug is plugged in using one orientation, the antenna will be hot (as described above) only when the unit's power switch is ON. Using the other orientation, the antenna will be hot only when the power switch is OFF.

## Operation

1. Make sure the antenna and speaker are connected.
2. Turn the Noise Limiter off, its normal position. When needed, the noise limiter can filter out static, ignition noise, and other electrical disturbances.
3. The power switch is on the Tone control. Turn it on, to whichever tone setting you prefer.
4. Use the Band Selector to select which band you want to listen to. The corresponding frequencies for bands 1, 2, 3, 4 are shown on the round dial above the knob.
5. Use the Tuning knob to navigate to the approximate frequency you want.
6. Turn the Antenna Trim knob until you hear the maximum amount of signal or static. This fine tunes the antenna for the frequency you are currently listening to. Only one turn of this knob is significant. Beyond that in either direction, you're only going over ground you've already covered.

### To listen to AM radio

7. Set the Sensitivity to AVC (Automatic Volume Control) ON. (The knob clicks into this position.) This helps keep the volume constant while a station's signal strength fades in and out.
8. Set the Selectivity to Normal.
9. Set the Reception mode to AM.
10. Use the tuning knob to find a station you want to hear. Use the Bandsread knob for fine tuning.
11. If a station you want to hear sounds garbled, squawky, and hard to understand, it is probably transmitting in SSB. To hear it, you need to switch to CW mode (see below).

### To listen to Morse Code (CW) or Single Side Band (SSB)

12. Set the Reception mode to CW.
13. Set the Sensitivity to any setting except AVC ON. As you turn this knob counterclockwise, weaker stations will be filtered out, so that you only hear stronger ones.
14. Set the Selectivity to the Crystal Broad setting. If two stations are too

close together, and you only want to hear one of them, you can use Crystal Sharp to tune more precisely and filter the other one out. If there's still interference, you can use Crystal Phasing to put the crystal in your receiver in phase with the carrier frequency of the one you want to listen to. Since the carrier frequencies of two transmitting stations will seldom be in phase with each other, this effectively tunes out the one you don't want. I think only one turn of the Crystal Phasing knob is significant.

15. Use the tuning knob to find a station you want to hear. Use the Bandsread knob for fine tuning.
16. The Pitch control adjusts the pitch of Morse code to whatever tone you prefer. When you're listening to a conversation transmitted in SSB, use this knob to adjust the pitch of the voices until they sound natural.

The Receive/Standby switch allows you to temporarily mute the audio without turning the radio off so that when you turn it back on you don't have to wait for it to warm up again.

There are some small round white dots (hard to find) on the round Band Selector dial (1, 2, 3, 4) that mark the tops of the amateur radio bands. If you use the Tuning knob to place the hairline over one of these dots, then the frequencies shown on the Bandsread Logging Scale (fine tuning) should be more or less accurate, but it takes some practice to figure out exactly where you are.

## Hallicrafters websites

At <http://bama.sbc.edu/hallicra.htm>, you can download an SX-110 Operations Manual, which contains operating instructions, schematics, parts lists, calibration and alignment instructions, and other antenna configurations you can use. The file's .djvu format requires LizardTech's [DjVu Browser Plug-in](#).

## Photos

Click on a thumbnail to view the full size photo. Each is about 150 KB.

SX-110 front:



R-48A front:



SX-110 back:



R-48A back:



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