Three 1960's Vintage Communications Receivers

The following is a comparison of three vintage tube type receivers. They are a Trio/Kenwood model 9R-59D, a Hallicrafters SX-122 and a Hammarlund HQ 145A. All are general coverage HF receivers with band-spread for the period ham bands (non WARC). Band-spread is excluded on 160 meters for all three. From what I can find they were all manufactured starting in the second half of the 1960's.

The **Trio/Kenwood 9R-59D** I acquired a number of years ago and more recently I acquired the other two from a friend. I did a brief review on the Trio/Kenwood a while ago and it can be found by clicking on the ODDS & ENDS Tab or at http://www.ve6kq.com/9r-59d.pdf

The receiver is a single conversion with a 455KHz IF. It has 8 or 9 tubes. The regulator tube was optional. It also includes a product detector. It uses silicon diodes as a power rectifier.

It covers from .55 MHz to 30 MHz in 4 bands.

The **Hallicrafters SX-122** has 11 tubes excluding the optional crystal calibrator. It is dual conversion with the IF's at 1650 KHz and 50 KHz. It has a product detector. The rectifier is a 5Y3 tube. The coverage is from .54 MHz to 34 MHz in four bands except between 1.6 and 1.75 MHz where the first IF falls.

The **Hammarlund HQ 145A** has 10 tubes excluding the optional crystal calibrator.

It is dual conversion above 10 MHz with IF's at 3035 and 455 KHz. It uses silicon diodes as a power rectifier. No product detector is included. It covers .54 MHz to 30 MHz in four bands plus the 20 meter amateur band has a special band spread position.

For the comparison between the three receivers I am not going to include the 9R-59D here as there is information about the 9R-59D in the wright up mentioned earlier. Both the Hammarlund and the Hallicrafters have seriously better performance over the 9R-59D in my opinion.

This is not going to be a very detailed comparison between the SX-122 and the HQ 145A as I did not delve deeply into either receiver. Other than cleaning some switches and pots, both receivers work well when I got them. All receivers were physically in good condition and in this part of the country we do not get rust on the chassis by high humidity as you might see elsewhere.

I found both receivers quite stable for their age even after they are first turned on. Certainly not like most modern radio but better than I expected. Below is a drift table comparing both of them.

For both receivers a crystal calibrator was optional. These receivers shown did not come with one although they would be a worthwhile option.

The Hammarlund has five crystal selectivity positions and the Hallicrafters has three. No selectivity numbers are published in the Hammarlund manual but the selectivity curves seem to indicate that it varies between about 6 KHz and 400 Hz. The Hallicrafters selectivity positions are 5, 2.5 and 0.5 KHz at the 6 dB points. The Hammarlund has a notch filter and crystal phasing while the Hallicrafters does not. Both receivers have an S Meter zeroing pot on the back of the radios. The Hallicrafter requires more frequent adjustments. The S Meter on the Hammarlund does not work on SSB or CW, it is not intended to, does not have a product detector and the AVC is non-functional in these modes. This does not apply to the Hallicrafters.

I checked the drift characteristics of both receivers on 10 MHz. This was done after a 5 minute warm up and using an SDR (RSP1A) and sampling the local oscillators of both the HQ 145A and the SX-122 at the antenna connector of each receiver.

Measurements were done over a 2 hour and 30 minute period. Worst case drift during the measurement windows were 1050 Hz for the SX-122 and 2100 Hz for the HQ 145A.

The table shows the drift characteristics of the two receivers. Line voltage and room temperature variations may have had an effect also.

TIME After 5 Min. Warm Up	HQ 145A Drift in Hz	SX-122 Drift in Hz
+10 (Minutes)	-1200	-200
+20	-1800	-40
+30	-2000	+220
+40	-2100	+400
+50	-2000	+400
+60	-1900	+420
+70	-1700	+460
+80	-1450	+420
+90	-1375	+460
+100	-1350	+520
+110	-1200	+580
+120	-950	+650
+130	-850	+730
+140	-750	+800
+150	-700	+850

I like the appearance of the SX-122 better than the HQ 145A but the HQ 145A looks and feels more professional. They both have weighted tuning controls but the HQ 145A has a more positive feel than the SX-122. The SX-122 uses dial cords and the HQ 145A has a more direct connection to the tuning capacitors (pinch wheels).

I did a side by side comparison between the two receivers connected to a single antenna through a 3 dB splitter. Tuning in a CW signal on 40 meters the SX-122 LO frequency is pulled when the R.F gain is adjusted. On the HQ 145A, the Antenna control pulls the LO. They are not pulled by much. I assume this happens on other bands also and probably gets worse as you go up in frequency but I did not check this.

The SX-122 is Ok as an SSB receiver but the HQ-145A is not. The HQ 145A's AVC is disabled on SSB and so is the S meter and you have to ride the sensitivity control to keep the distortion down. It does not have a product detector. The SX-122's AVC and S meter works on SSB and it has a product detector.

I do receive 10 MHz WWV with the HQ 145A on two frequencies. The other frequency is on 9.090 MHz so there is an image issue but it's not too bad. WWV has to be really strong. It can be reduced if the Antenna capacitor on the front panel is adjusted properly to 10 MHz. As mentioned earlier it's single conversion below 10 MHz.

Overall the Hammarlund has better dial calibration tracking but that just might be an alignment issue with the Hallicrafters.

I have found that the Hammarlund overloads much easier than the Hallicrafters on the broadcast band when they are connect to a decent outdoor antenna.

As mentioned earlier, the HQ 145A has a notch filter and crystal phasing while the Hallicrafters does not. I tested the notch filter on AM with a 2 MHz source. The S meter went from an S6 to an S1 indicating a notch depth of 30 dB assuming the S meter reading is accurate. The notch depth is adjustable and the reading was taken with the deepest notch setting. Not sure how useful a variable notch depth would be.

Everything considered the performance of the two seems similar except for the SSB reception. Choosing between the two I prefer the SX-122 and that is mainly due to the much better SSB performance.

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