

THE HALLICRAFTERS S-38

1935 TO 1962

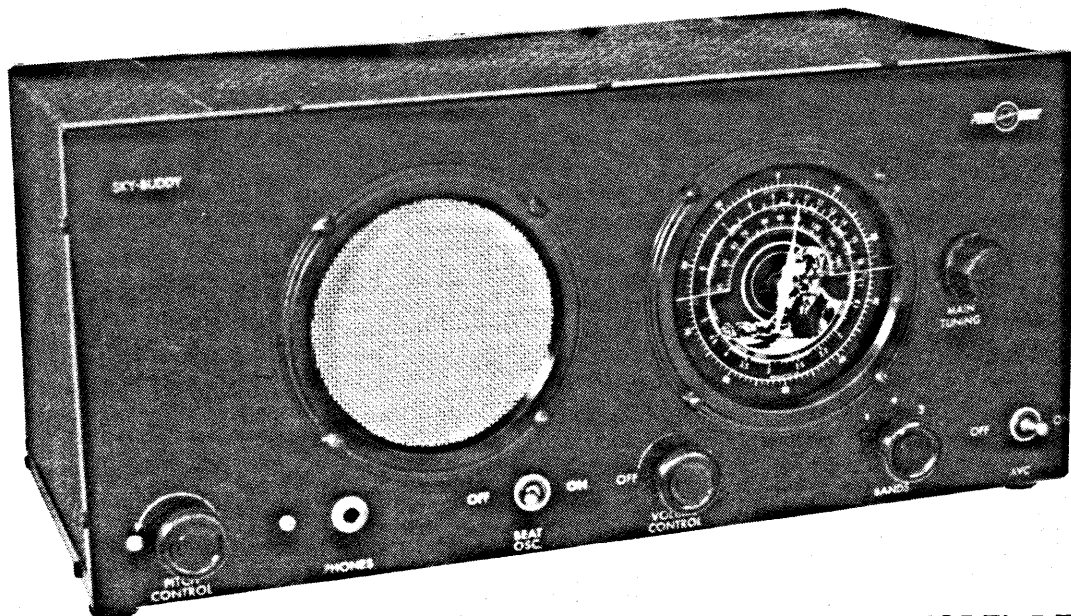
Chuck Dachis, WD5EOG

PART ONE: GENEALOGY

Wait a minute, the title of this article can't be right! Everyone knows the S-38 wasn't produced until 1946! Well technically that is correct, however Hallicrafter's idea to produce an inexpensive introductory general coverage receiver began in late 1935 with the production of the 5-T Sky Buddy.

The other communications receiver manufacturers of the time were producing high quality very expensive receivers for serious (and wealthy) Hams. Hallicrafters had its share of this market too with top end units such as the SX-9, SX-10, SX-11, and SX-12.

Bill Halligan the founder of Hallicrafters realized this practice was excluding many Hams and others interested in short wave radio who were still reeling from the effects of the Depression and couldn't afford \$100.00 plus. So Hallicrafters produced a radio for less than \$30.00, the 5-T Sky Buddy. Even though no immediate profit would be realized by producing this inexpensive introductory radio (it was actually sold at cost), the price alone would sell a lot of radios. This approach would get people hooked on short wave radio and create future costumers for the more profitable higher end units. If you didn't have \$30.00 you could buy them with time payments sending in just \$2.50 per month. At the end of 12 months your new Sky Buddy would arrive. The cash price of the 5-T was \$29.50.



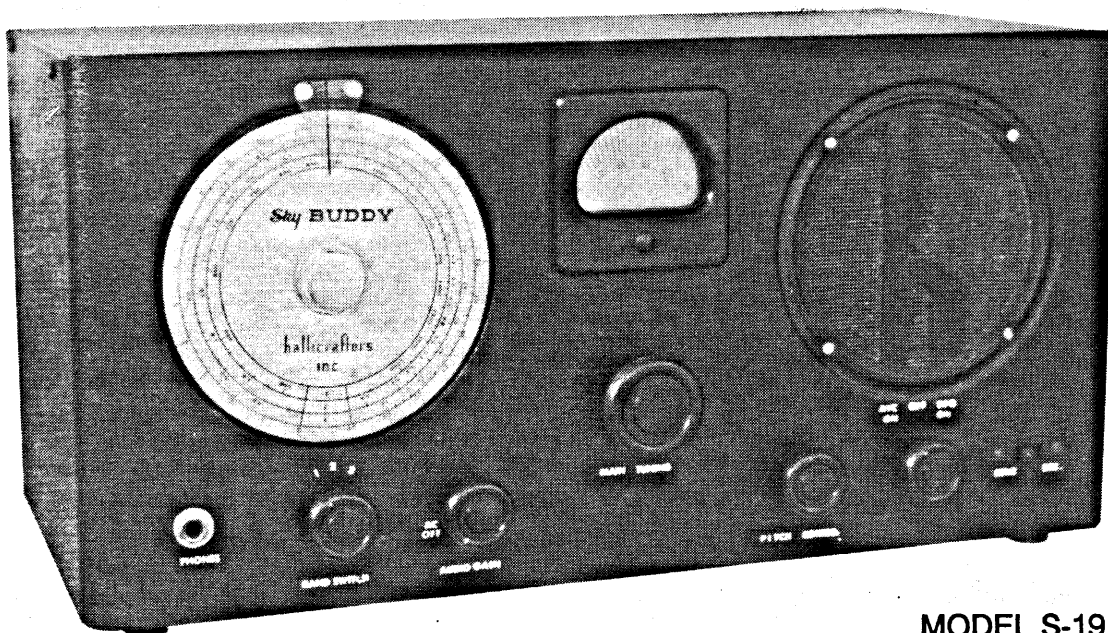
MODEL 5-T (early)
Sky Buddy



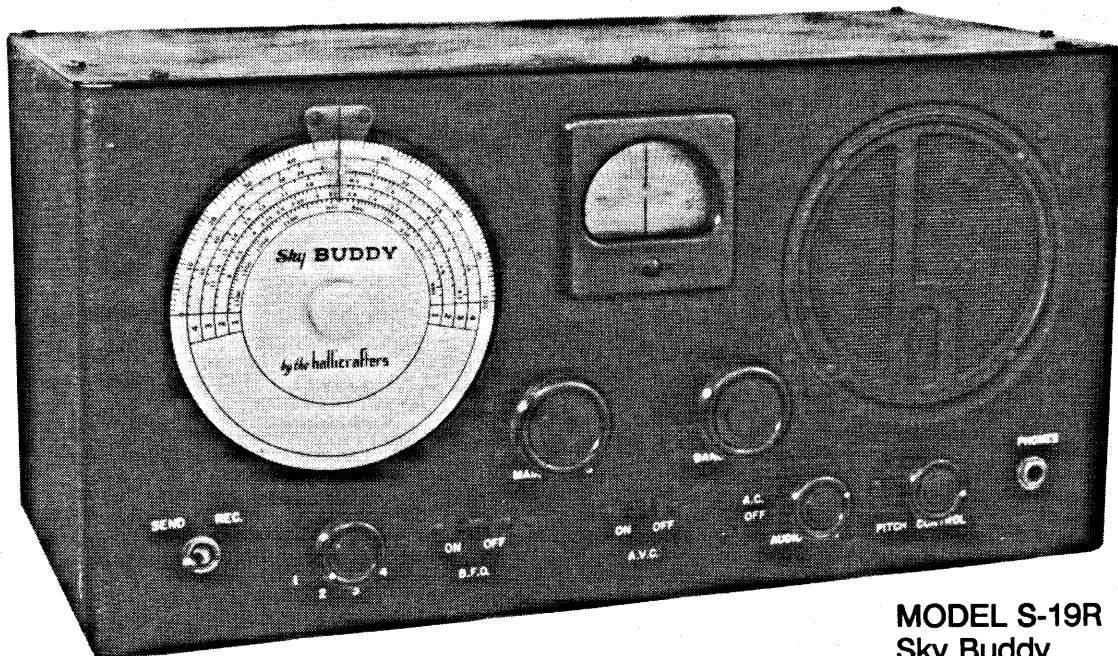
MODEL 5-T (late)
Sky Buddy

THE 5-T SKY BUDDY: (1935-1936)

The first production run of the 5-T had a picture of a boy sitting at a desk with a set of head phones on his head and his hand on a telegraph key as part of the artwork on the celluloid dial. The story goes that Bill had a neighbor who's young son was very interested in short wave radio but couldn't afford an expensive commercial set. The boy's name was Buddy. Bill dedicated this first introductory radio to him naming it "Sky Buddy". Buddy may have also been the inspiration of the idea to produce beginners radios, a practice that Hallicrafters would continue through the years. The 5-T was produced just before Hallicrafters obtained its own license to built radios under RCA patents and may actually may have been manufactured by The Howard Radio Co. I believe the S-14 Sky Chief, the Super Seven, and the S-8A were also produced by Howard.



MODEL S-19
Sky Buddy



MODEL S-19R
Sky Buddy

THE S-19 AND S-19R SKY BUDDY: (1938-1941)

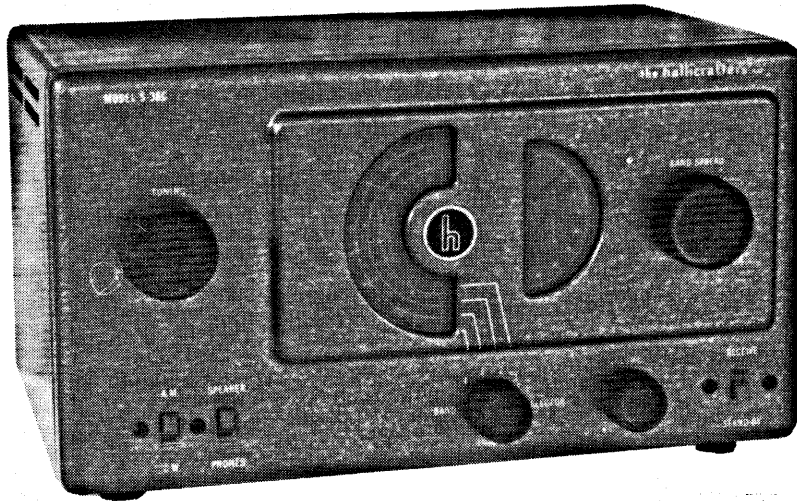
Those of us who got started in ham radio just prior to the Second World War may remember the S-19 Sky Buddy, which was a repackaging of the 5-T using octal tubes. The S-19 was produced for a short time in late 1938 and is quite rare today. More will likely remember the S-19R which was introduced in 1939. Similar in appearance to the S-19, it was a totally re-designed radio with expanded frequency coverage and band spread. The S-19R receiver is what most of us think of when talking about the Sky Buddy. It had a large production run, kept a lot of us in-tune with world events during the War and is still common today. The selling price of the S-19 and S-19R was also \$29.50.



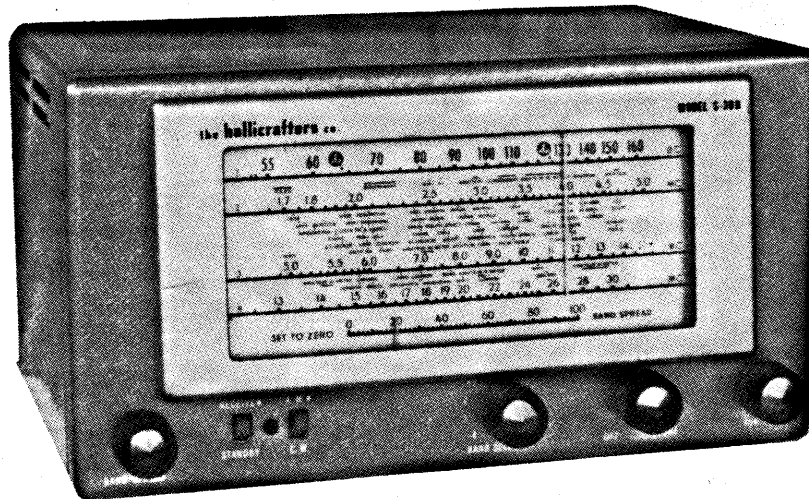
MODEL S-38

THE S-38: (1946-1961)

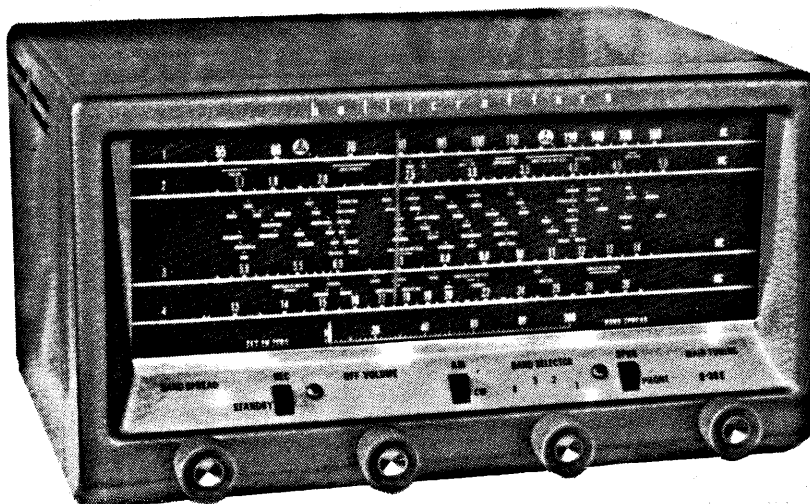
Now, finally, the War is over and it's time for the S-38 that you have been patiently waiting for me to discuss! After the War a new product line with "modern" design was needed to compete with the glut of war surplus electronics. Bill enlisted the services of Raymond Loewy to give the product line its new look. The first Loewy designed radio was the S-38, produced in 1946. It was specifically designed to replace the Sky Buddy and take its place as the beginners radio, selling for \$47.50. Most of us younger radio buffs got our start on one of the S-38 series. For me it was the S-38C in 1955. The S-38 series was produced from 1946 through 1961 starting with the S-38 and culminating with the S-38E. The price went from \$47.50 to \$59.95 in keeping with inflation.



MODEL S-38C



MODEL S-38D



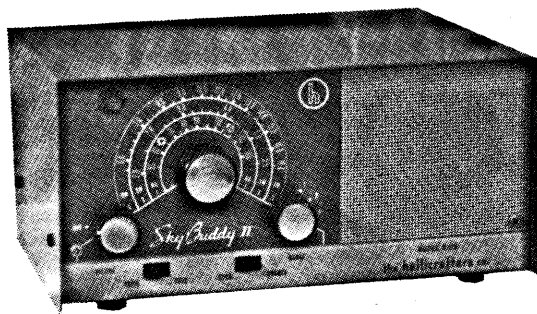
MODEL S-38E

Hallicrafters had a secondary line of beginners radios produced under the Echophone name. The EC (Echophone Commercial) and the EC-1 series were produced from 1941 through 1946. These sets were aimed at getting inexpensive short wave radios to the general population during the war years. The S-41G and S-41W (Sky Rider Jr.) were the same radio as the EC-1 and were produced in 1945 just prior to the introduction of the S-38. The EC line became known as "The Poor Mans Hallicrafters". Even though produced on the same assembly line, their price was lower because they bore the relatively unknown name of Echophone Radio Co. Between 1941 and 1946 the price went from \$19.50 to \$29.50. In 1951 the consumer electronics division of Hallicrafters produced another spin-off of the S-38 series for the general public. It was the 5R10, and 5R100. These radios are almost identical to the S-38D in appearance except for a chrome dial escutcheon, a black case, and no BFO, stand-by or speaker-phones switches and related circuitry.

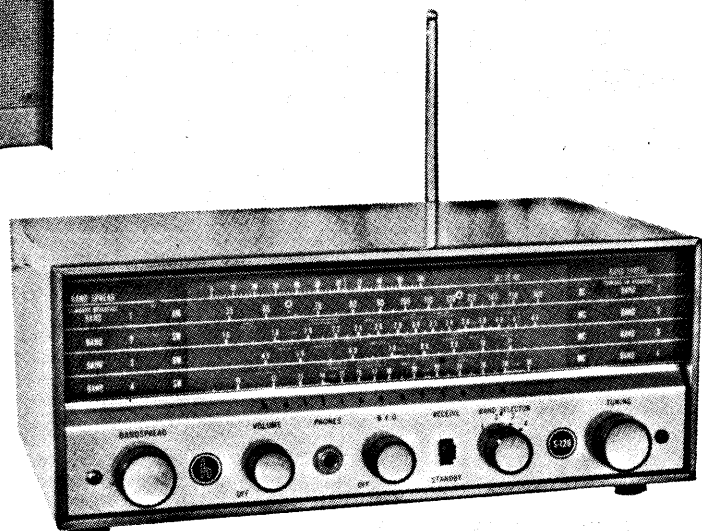


MODEL 5R10

In 1961 the model number next in line for production use was S-119. For whatever reason, possibly that this number was the 100th model since the S-19, The S-119 was termed a commemorative radio and was given the name of Sky Buddy II. It sold as a kit for \$39.95, or wired for \$49.95. Production also began in 1961 on the S-120 which was a direct replacement for the S-38 series and sold for \$69.95. This ends the genealogy of the S-38.



MODEL S-119



MODEL S-120

PART TWO: THE TECHNICAL STORY

For those interested in specific tube functions, the following is a list of tubes used in these models, their functions, and type of construction. If you are not interested in this issue you may skip the next four paragraphs!

Tube construction has changed numerous times since radio tubes were first invented. From 1935 to 1961 there were three basic styles. The first being the "prong" type [P]. These tubes had hollow "prongs" ranging from 1/16th inch to 1/8th inch in diameter and 5/8th inch in length, mounted in a Bakelite base. Each prong was connected to a separate element inside the tube. Depending on the number of elements in the tube they may have from 4 to 8 prongs. The tube sockets had the exact number of "holes" of proper diameters to accept a particular tube in only one orientation. You could not put a 4 prong tube in a 6 hole socket, and you could not install the tube so that the wrong prongs were in the wrong holes.

The second style was the "octal" type [O]. These tubes had hollow pins of smaller diameter than the prong type. They were all the same diameter and were mounted around the periphery of a Bakelite base with a quarter inch diameter "key" in the center. Again the number of pins was determined by the number of elements. The tube sockets were all uniform having 8 equally spaced holes of the same diameter, and a quarter inch diameter center hole that was keyed to accept the key of the tube for proper orientation.

The third style was the "miniature" type [M] which had either 7 or 9 solid pins of smaller diameter than the octal type. These pins extend directly from the glass envelope of the tube in a circular arrangement with one pin missing to form a "flat" spot in the circle for orientation. There was no Bakelite or plastic base. The sockets were either 7 or 9 hole in the same arrangement.

TUBES USED IN THE 5-T THROUGH THE S-120:

TUBE TYPE:	FUNCTION:	CONSTRUCTION:
6A7, 6K8, 12SA7, 6BE6, 12BE6	Oscillator/Mixer/1st Detector	P, O, O, M, M
6F7, 6L7	IF Amp/BFO	P, O
6K7, 12SK7, 6BA6, 12BA6	IF Amp	O, O, M, M
6CM8	IF AMP/DET/AUDIO	M
75, 6Q7, 6SQ7, 12SQ7, 12AV6	2nd Det/AVC/1st Audio	P, O, O, O, M
76	BFO	P
41, 42, 6K6, 35L6, 50L6, 50C5	Audio power output	P, P, O, O, O, M
80, 35Z5, 35W4	Rectifier	P, O, M

THE 5-T SKY BUDDY: (1935)

The model number "5-T" was probably derived from this being a 5 tube set. It was produced just before the "S" line of numbers was firmly in place. It had a BFO (Beat Frequency Oscillator for code reception), built-in speaker, and "airplane" dial. The frequency coverage was .55 Mhz to 16 Mhz in three bands. Its tube complement was a 6A7, 6F7, 75, 42, and 80, all "prong" type tubes.

THE S-19 SKY BUDDY: (1938)

There were a number of significant differences in the S-19 but it was basically a re-packaged 5-T. The S-19 also had 5 tubes, the same frequency coverage as the 5-T, with BFO and built-in speaker. The significant differences were the use of octal tubes rather than prong type (except for the 80), a different chassis layout, and a new cabinet design with the exterior "silver" dial. The tube complement was a 6K8, 6L7, 6Q7, 6K6, and 80. The cabinet design was the first of a new appearance that would be used on several models over the next few years.

THE S-19-R SKY BUDDY: (1939)

The S-19R was a completely different radio having 6 tubes, a frequency coverage of .55 Mhz to 46 Mhz in 4 bands, and electrical band spread. The cabinet style and dial was the same as the S-19, but the chassis was painted black and an integral part of the cabinet, not separate as with the S-T, S-19 and most other models. This "unitized" painted chassis, panel and cabinet was used on only one other Hallicrafters model, the SX-23.

There were two production runs of the S-19R using different tubes. The first run used a 6K8, 6K7, 6Q7, 76, 41, and 80. The second run used a 6SK7 in-place of the 6K7 and a 6SQ7 in-place of the 6Q7. Both runs had the strange mixture of prong and octal style tubes. The mixture of prong and octal tubes seems a step backwards, but is understandable. The octal tubes (introduced in 1935) were the latest advance in tube construction, the prong type were being phased out and were much less expensive. I theorize the prong tubes were used to keep the ever increasing cost of production down enabling the end price to remain lower.

THE S-38: (1946)

The S-38 was a 6 tube radio with a variable pitch BFO, audio noise limiter (ANL), electrical band spread, and built-in speaker. Its frequency coverage was .55 Mhz to 30.0 Mhz in 4 bands. To cut costs it had an AC-DC power supply rather than the familiar transformer operated AC supplies of the S-T, S-19, and S-19R. The tube complement was a 12SA7, 12SK7, two 12SQ7s, 35L6, and 35Z5. The tube filaments were series wired. The smooth finish charcoal gray cabinet was smaller than the earlier Sky Buddies and esthetically pleasing. The two green "half moon" dials with black lettering and red dial pointers and the well balanced control panel were impressive and would set the style for the next several years.

The S-38A (1946-47) was a 5 tube radio with fixed frequency BFO and no ANL. Its other features and appearance were the same as the S-38 except it had no BFO pitch control or ANL switch. The tube complement was a 12SA7, 12SK7, 12SQ7, 50L6, and 35Z5. Varying the pitch of an incoming CW signal was accomplished by de-tuning the set to one side or the other of the incoming signal rather than varying the frequency of the BFO as in the S-38.

The S-38B (1947-53) was virtually the same radio as the S-38A with exception of the cabinet finish which was a grainy textured flat black. There were also some minor electrical differences including an interlock on the AC line cord.

The S-38C (1953-55) was again the same radio as the S-38A with a "hammertone" gray finish and a black dial with white lettering rather than the green with black lettering. It was also the last of the traditional styling of the S-38. The S-38D would have many changes.

The S-38D (1955-57) was again electrically the same radio as the A through C model but had a totally different front panel, dial, and control design. Its slide-rule dial behind glass covering about 80% of the front panel listed many of the countries, sites, and uses of frequencies such as Ham, police, etc. above the frequencies. The controls were across the bottom of the panel with exception of the speaker-phones switch which was moved to an inconvenient location on the back apron of the chassis. The finish of the cabinet was "hammertone" gray, and its size was the same as the A through C models. The styling of the S-38D was taken from the 5R10 mentioned earlier.

The S-38E (1957-61) was the last of the S-38 series. It incorporated several electrical changes over the earlier models, but its features were the same. It used miniature rather than octal tubes, and had a BFO "injection" control on the back apron of the chassis. This control was used to set the strength of the BFO signal input. The tube complement was a 12BE6, 12BA6, 12AV6, 50C5, and a 35W4. The front panel design was similar to the D model, but had a larger slide-rule dial covering about 90% of the panel. The controls were again across the bottom of the panel, and the speaker-phones switch was returned to the front panel where it belongs! There were three cabinet finishes to choose from; "hammertone" gray, beige, and mahogany wood grain. Each of these finishes had a different model designation. The S-38E was "hammertone" gray, the EB was beige, and the EM was mahogany.

THE S-120: (1961-1964)

The S-120 replaced the S-38 series. It was a totally different radio, although its features were the same as the S-38 series with BFO, band spread, and a frequency coverage of .55 Mhz to 30 Mhz in 4 bands. It was a 4 tube set with a selenium rectifier. The tubes used were 12BE6, 12BA6, 12AV6, and 50C5. The chassis and cabinet were sleek and of a smaller stature than the S-38 series. It had a telescoping whip antenna mounted with clips on the back panel for use on shortwave, and a built-in ferrite loop for standard broadcast. These antennas were a real improvement in convenience of operation, as was the use of a standard "shorting" phone jack on the front panel which eliminated the need for the speaker-phones switch, and an improvement over the two hole pin type phone jack of the S-38s.

THE S-119 SKY BUDDY II: (1961)

The S-119 was a 3 tube set with a selenium rectifier. The frequency coverage was the same as the 5-T and S-19 (.55 to 16 Mhz) in 3 bands. The tubes used were a 6BE6, 6BA6, and 6CM8, and it had a AC operated transformer power supply. It was smaller in size than any of the other beginners radios, and its appearance was unique. It is interesting to note that the dial of this radio was similar to the S-19 which had a rotating circular silver dial and a stationary clear plastic pointer. The S-119 had a stationary circular dial with a rotating clear plastic pointer! The set also had a BFO and provision for use of ear phones. This set did not sell well, had a limited production run and is difficult to find today.

PERFORMANCE:

Even though the 5-T through the S-120 were beginner's radios their performance has never failed to amaze me, considering the minimal parts used and type of construction. Hallicrafters always produced radios that did exactly what they were advertised to do and did it well at a reasonable cost.

I have had the opportunity to use all of these models in restored condition. What I find is they are very sensitive on the lower frequencies (.55 to 16 Mhz) receiving hundreds of stations with just a twelve foot "inverted I" antenna. From 16 to 30 Mhz the sensitivity tends to drop off, and there can be "images" of local high power broadcast stations, but I have been able to listen to CB'ers on 11 meters and amateurs on 10 meters! The audio quality is exceptional for the size speakers, and volume is ample. On CW reception the BFOs tend to be a bit unstable, but work well. The calibration of the dials is good and it is possible to "guess" the frequency of a station on the standard broadcast band with good accuracy. On the short wave bands it is more difficult because the width of the pointer can be a couple hundred KC depending on the frequency band. The band spread not being calibrated also makes frequency identification more difficult. But who cares! You can hear the world!

ACKNOWLEDGMENTS:

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