

the Hallicrafters story

A fascinating account
of one of Amateur
Radio's great names.
How it grew,
what it produced,
and its demise in
today's Amateur market.
But is
Hallicrafters really dead?
Of course not

prologue

The unmarked car pulled up in front of the small factory. It was a sultry, humid day in Chicago in August of 1941. The driver got out of the vehicle and strode purposefully into the office of the little company. He displayed his credentials and, after a short pause, was ushered into the office of the president.

The president, young Bill Halligan (W9WZE, now W9AC), greeted his visitor and quickly found what was wanted.

"Mr. Halligan," the visitor said in self-assured voice, "we need an HT-4 transmitter."

Bill Halligan shook his head. "I'm sorry, we haven't one in the place. And we don't even have one in production now."

The visitor looked around the office and glanced

out the door to the small production line.

"How about a used one, or one that you keep for test purposes?"

"None available at all, sorry."

The visitor leaned forward across Bill's desk. "Do any of your dealers have one? I mean anywhere in the U.S.? How about sending some telegrams?"

Bill Halligan produced a wad of letters and telegrams from his desk. "It's the other way around," he replied. "They're all cleaned out and are asking for more HT-4 transmitters."

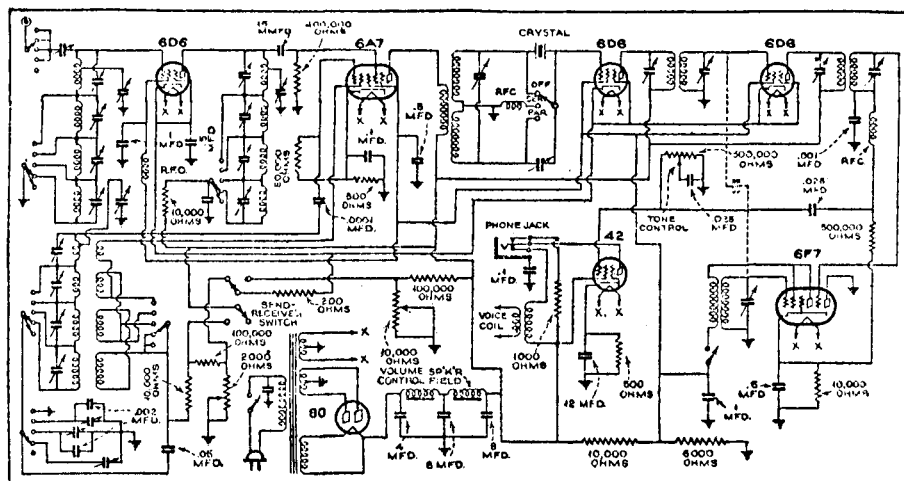
"You don't seem to understand," said the visitor. "This is important and urgent. We must have a transmitter. At once. It is of the highest priority!"

Bill sighed. "Well, how about my HT-4 transmitter? It's at home in my shack . . ."

The transmitter was immediately brought to the factory, an old red brick building on Indiana Avenue. That weekend Bill and an engineer went over the HT-4, checking it out, and on Sunday an Army bomber roared away from Chicago Municipal airport with W9WZE's supreme sacrifice aboard — his own personal HT-4 transmitter. Not even the persistent, close-lipped visitor knew of its ultimate destination, but it was bound for a rendezvous with history (see epilogue).

Bill Halligan received an early start in the world of wireless. As a high-school student before World War I, his homemade spark transmitter cut a broad swath in the 200-meter band, causing great anguish to the Navy radio operators in the Boston area. And after marine and Navy radio work in the Great War, he immediately went into radio as a profession in the Boston/New York area. But by 1931 he was a manufacturer's agent in Chicago, just in time for the depths of the depression. It was a challenging time for an energetic fellow who wanted to build high-quality ham equipment — something he'd never done but always wanted to do. Perhaps now was the time. What did he have to lose?

By William I. Orr, W6SAI, 48 Campbell Lane,
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Schematic of the Super-Skyrider, the first Hallicrafters short-wave superheterodyne receiver.

"I've just the name for you," said Lloyd Back, Bill's good friend in a local advertising agency. "Why don't you call your new company The Hallicrafters? I got the idea from an outfit called the Roycrafters, a printing company in New York that produces fine printing under the leadership of Elbert Hubbard. You'll be the artisans of the new science of radio communications. How do you like that?"

the coveted RCA license

The whole idea caught fire like wet leaves. It was 1933, and hams were broke too. No one seemed interested in the simple *Sky Rider* receiver that Bill had designed. Another serious problem was also at hand: The little company was unable to secure a license to manufacture sets under patents held by the Radio Corporation of America. RCA was virtually a patent pool, holding patents on almost every basic radio circuit that existed. True, a licensing system existed for those well-heeled outfits that could pay the price. But it was too high for Hallicrafters. The company went into low gear, and Bill Halligan had to go to Silver-Marshall Company — a licensed competitor — to produce sets of his own design.

It was a tough road. Bill would take a briefcase full of wiring diagrams, drawings, and photographs to ham dealers and secure orders for nonexistent receivers. When he had 50 or 100 orders, he'd deposit the orders with Silver-Marshall and the sets would be produced — for cash only.

"I've got to get an RCA license of my own," Bill told his wife. He knew that security and a future depended upon an RCA license. And he was going to get one.

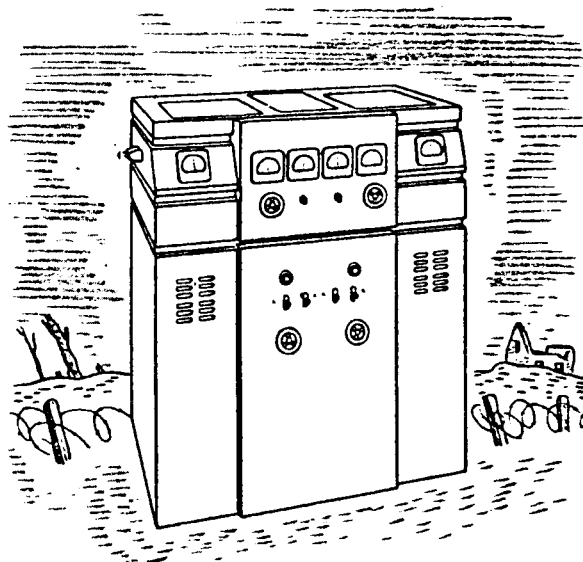
harsh days in Chicago

Difficult days were ahead for Bill Halligan. He finally heard of a new, ultra-modern radio factory in

Marion, Indiana, which was closing for lack of business. It had an RCA license! Hurrying to Marion, he sold the Hallicrafters' idea to the owner. Shortly thereafter the Hallicrafters' name appeared above the factory entrance. But the two partners lacked the money to produce anything, and the grim specter of bankruptcy loomed on the horizon. Both partners were deep in debt. Bill now had the RCA license, but he could do nothing with it!

By one of those fascinating turns of fate, Bill Hali-gan chanced to meet Ray Durst. Ray was the credit manager for the Ecophone Company in Chicago, which has a large account with the plant in Marion. Ray felt that if he could collect the debt Marion owed to Ecophone, he might not be fired by that company.

Bill and Ray got together to see if they could solve their immediate problems. The upshot of these discussions was that Bill and his partner agreed to dis-

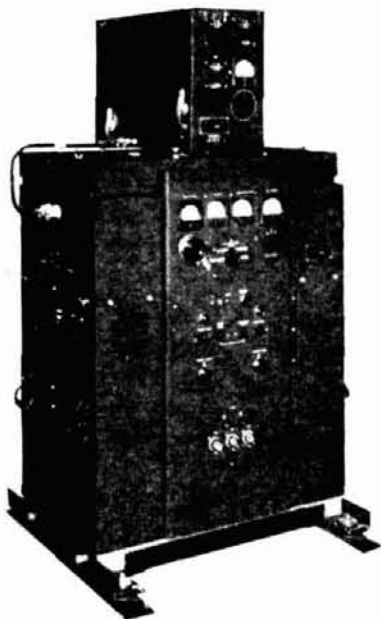


The Hallicrafters HT-4 transmitter.

HALLICRAFTERS BC-610 Xmtr

450 WATTS C.W.
325 WATTS PHONE

now available to the amateur!



NET PRICE complete \$500.00

This high-power transmitter, famed for its performance in the SCR-299 mobile radio station, is ready now for YOU. Includes all regular features of the familiar HT-4E . . . plus battle-tested improvements that make it better than ever. Furnished complete with speech amplifier, tubes, 3 sets of coils (1.5 to 18 mc.), and simple modification instructions for operation on 10 meters. Like new — used only slightly. Fully guaranteed.

The BC-610 was a three-stage transmitter using plug-in coils. Tube line up was: 6V6 crystal oscillator, parallel 807s buffer, and 250TH final amplifier. The modulator used p-p 100THs. A separate speech amplifier and antenna tuner were a part of the transmitter package. Pre-war ham price was about \$750. Post-war surplus price was \$500. The BC-610 was a popular ham transmitter up to 1948 when it was killed off because of excessive TVI. Tuning units and coils for this famous transmitter are occasionally found on the surplus market today.

solve their contract. Bill and Ray then went to Chicago. There Bill met Clem Wade, the inventor of the *Eskimo Pie* ice cream stick and sole owner of the Ecophone Company's equally frozen assets. Would it be possible that some kind of agreement could be reached whereby Bill could make use of the facilities at Ecophone? Perhaps some kind of cross-licensing?

Yes, it was possible. After a tangle of lawsuits with creditors, contracts, licensing agreements, incorpor-

ations, and expensive paperwork, Bill Halligan and Ray Durst emerged with a company. Now, perhaps, the Hallicrafters dream would come true.

before Pearl Harbor

Hallicrafters was in business. It made radio receivers and phonograph combinations for Capehart, Magnavox, and other Chicago radio companies. And it wasn't long before handmade Hallicrafters shortwave receivers were being made. At long last, Bill Halligan had his factory and was in the ham radio business.

Hallicrafters entered the ham market like a rocket. The *Super Sky Rider* receiver was announced in early 1935. Modern marketing techniques and joint advertising with distributors was tried — a new approach to the staid market of Amateur Radio. Bill Halligan's earlier work as a manufacturer's agent began to pay off. Within months Hallicrafters was a household word in Amateur Radio. Hallicrafters fielded a whole series of radio receivers and probably had more models on the market than all the other receiver manufacturers combined. Yearly model changes were made, high-style cabinets and attractive panels were used, and the massive volume of receiver production held the costs low — a Hallicrafters receiver existed for every purse. *

the Hallicrafters

HT-4 transmitter

"Why not build a modern ham transmitter," Bill Halligan asked himself one day. With the aid of Bob Samuelson, the design for a powerful ham transmitter was drawn up — target price: less than \$800.00.



Bill Halligan and wife, Katie, with the very first model Sky Rider receiver of long ago. Receiver was a trf job, soon to be supplanted by the Super Skyrider, a superheterodyne.

Bill hoped that the Radio Amateur, now accustomed to buying a receiver rather than building it himself, might be ready for a factory-assembled rig.

The ham transmitter of 1938 was a sight to behold. The ham kilowatt then was a massive and awesome contrivance that towered in one or more relay racks to a height of six or seven feet — and with all the mobility of a grand piano.



Early Hallicrafters television receivers are a collector's item now. This model had a push-button tuner that included TV channel 1, now the Amateur 6-meter band.

Starting with a typical high-power transmitter design, Bob Samuelson and his engineers spent months over wiring diagrams and layouts, reducing the design to a height of 37 inches and decreasing the conventional seven power supplies to three. Complex switching circuits were simplified. Plug-in tuning assemblies were designed. The heavy steel relay rack construction was scrapped for a light steel frame using the "stressed skin" technique developed for airplane fuselages. Transmitter weight was reduced from over a ton to about 500 pounds!

The final design was a 450-watt phone and CW transmitter that contained no aluminum. It was made of automobile sheet steel, and, with the exception of the heavy transformers, it was easy and inexpensive to produce.

mass production — a real problem

Bill Halligan had no way of knowing that a war was about to start and that his HT-4 transmitter would be a mainstay for World War II communications. After all, he had built only twenty of them by the fall of 1940. He was soon to be surprised. Suppose Ameri-

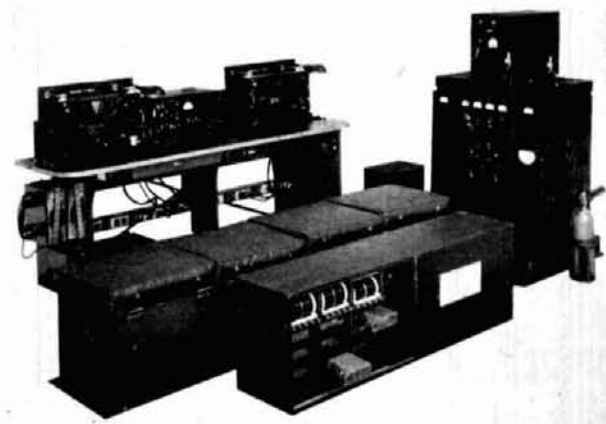
ca got into the war? Would anyone be interested in the HT-4? Could production be stepped up to the unheard-of rate of one a day? What if someone wanted more?

Less than a year later these questions became real when a delegation of French and British purchasing commissioners ordered more transmitters than Bill Halligan had built in the eight years his company had been in existence. Deliveries were a matter of life and death. And how about SX-28 receivers? Did he need money? Would cash in advance help speed things up? The heat was on. It was quite a shock to realize that Hallicrafters had a sold-out factory. Now, instead of selling people on the idea of buying Hallicrafters radio equipment, Bill had to sell other people on making them!

Hallicrafters was well on the road by the time of Pearl Harbor. Production was the all-absorbing passion. The factory was geared to devise faster, more efficient assembly techniques. Three shifts were started, and by the fall of 1941, a steady stream of radio equipment was being shipped to the British (who had taken over the French commitments). On the morning of December 7, 1941, Colonel George H. Sparhawk of the Army Air Force telephoned Bill Halligan and told him that the Armed Forces were commandeering the British transmitters and that they were to be packed and out of Chicago by air that very night.

the war years the SCR-299 is born

Hitler's stunning victories in Poland, France, and the low countries revealed his secret weapons: speed, fluidity of attack, and *instantaneous commu-*



Radio equipment installed in the famous SCR-299 or SCR-399 communication truck. At the right is the BC-610 transmitter and antenna tuner. At rear is the operating desk with two BC-342 short-wave receivers, speech amplifier, and control panel for the transmitter. In the foreground are the chests that contained extra transmission coils, tuning boxes, and spare parts.

*I still have my Hallicrafters S20R, purchased with paper-route money in the 1940s. Wouldn't sell it for any price. Editor, W6NIF



Hallicrafters won five Army-Navy E awards during World War II for excellence in production. This photo shows BC-610 transmitters in final inspection before they were mounted in the communications vans in the background.

nications. The U.S. military service saw the need for a mobile radio station capable of communications over a wide range of frequencies, even while en route over rough terrain. The rough design for such a communications center was worked out at Fort Monmouth, New Jersey, under the direction of Colonel Roger B. Colton. Known as the SCR-299, the system consisted of a 1½-ton panel body truck with four-wheel drive coupled to a heavy-duty, two-wheel trailer. In the truck body was a complete short wave receivers (BC-342s). In the trailer was a gasoline-driven generator that was used to supply power for the mobile station. A rugged whip antenna was mounted onto the truck.

After long deliberation and tests, the ham-type HT-4 transmitter was selected for the SCR-299 communications truck. It was chosen because of its simplicity, small size, light weight, and ruggedness. And it had good, clear audio. Special military tuning units and handles were added to ensure quick and easy equipment removal from the truck. With some other minor changes, the ham rig was just right for military service.

the SCR-299 in military service

Production was now rolling. The SCR-299 was in service on every Allied battlefield from Alaska to China. SCR-299s were airlifted to Guadalcanal, North Africa, and Sicily. Among the first units to roll ashore at Normandy on invasion day was the SCR-299. Each SCR-299 carried a mile of telephone cable on a drum, permitting telephone lines to be set

up for communications with distant areas. This enhanced the value of the SCR-299 where mobility was limited.

the Sebald incident

Finally, there was the celebrated case in which a German-American citizen, William Sebald, helped the FBI to apprehend a ring of Nazi spies. Sebald had returned to Germany to visit his family in 1939. Through coercion and intimidation, Sebald was forced to go through the great spy school in Hamburg. When he left Germany in 1940, Sebald had instructions and authority to establish a short wave radio station in the United States for direct communications to Hamburg.

Upon arriving in New York, Sebald went straight to the FBI, which helped him establish a secret station on Long Island, equipped with a Hallicrafters HT-4 transmitter. He did a fine job of putting carefully doctored misinformation into the hands of the spy chiefs at Hamburg.

after the war

By 1946 the war was over, and Hallicrafters turned to the future. The Hallicrafters transmitter (known by the military label BC-610, part of SCR-299) was being released on the surplus market for as little as \$500, complete with tubes, antenna tuner, and speech amplifier — only slightly more than the manufacturing cost. As far as Hallicrafters was concerned, there was no ham future in the HT-4 design.

To get peacetime production rolling, Bill Halligan brought out the S-38 and S-40 receivers (revamped



Always on the go! The SCR-399 communications truck was used to negotiate the surrender of Rommel, the "Desert Fox," in north Africa. The SCR-399 was present at the D-day invasion of Europe and accompanied General McArthur during his historic conquest of Leyte Island in the Philippines. Gasoline-powered generator is in trailer. Truck was supplied with three whip antennas for transmitting and receiving while in motion.

versions of pre-war models) and started to plan ahead. By late 1946 he proudly announced the SX-42, an advanced superheterodyne receiver that tuned from 540 kHz to 110 MHz in six bands.



The famous Hallicrafters SX-28 receiver. Over 50,000 were produced for the Allied Forces. High styling and good performance made the receiver a favorite among pre-war Amateurs. Receiver incorporated two rf stages and tuned up to 43 MHz. In 1946 it was replaced by the SX-42.

A simple television receiver was also in the works. Hallicrafters had heard about single sideband transmission. Yes, the future looked bright indeed in 1947 as Hallicrafters settled down to profitable, post-war production of modern radio equipment. They had the know-how.

More than fifty thousand SX-28 receivers had been built, and more than eighteen thousand SCR-299 (BC-610) transmitters had been built, as well as nearly ten thousand S-29 receivers. And now single sideband, television, and high-fidelity fm lay ahead, as well as CB radio on the distant horizon. The world looked good to Bill Halligan in 1947. He had really arrived in style!

The problem was conversion from a war-time to a peace-time industry. Hallicrafters was spread over fourteen plants, some as small as a garage. The first matter of business was to consolidate operations. A new facility was built, and two other locations were retained for growth.

Returning GIs remembered the name Hallicrafters. The company decided that, in addition to building ham gear, they would expand into the entertainment field. Television receivers, hi-fi equipment, and the Lowery organ were built by Hallicrafters. The company continued to build military electronic gear, particularly counter-measure equipment.

But all was not smooth sailing. The home radio and television market was cutthroat. By 1956 Bill Halligan was fed up. He couldn't compete and retain the high standards he'd set for Hallicrafters. The crisis of this uncomfortable situation was reached in the fall of 1957, when Bill Halligan sold out to the Penn-Texas Company. While Bill gave up ownership of Hallicrafters, he still retained management. This operation was even less satisfactory, and late the fol-

lowing year Bill bought the company back from Penn-Texas. Management of Hallicrafters was turned over to Bill's son, Bob Halligan. Bill remained chairman of the board.

epilogue

Over the years, Hallicrafters contributed many firsts to the electronics industry and to Amateur Radio. Some of these were the first use of silk-screened panels in place of expensive engraving, the use of smooth paint in place of black-crackle paint, the calibrated S meter, the dual-diversity receiver, the automatic noise limiter, the temperature-compensated, high-frequency oscillator, the battery-portable, all-wave receiver, the dual AVC system, the bridge-T notch filter, and commercial production of an electronic keyer.

W9AC is still active on the air, mostly on 7 and 14 MHz CW. On occasion Bill can be found on 20 meter SSB. During the summer months he's on the air from W4AK in Florida.

Keep your ears open for this pioneering Amateur! Bill's interest in Amateur Radio is as keen as ever. Even though he's not manufacturing ham radio equipment, he can still use it along with the best of today's operators.

In 1950, J. Edgar Hoover of the FBI told Bill Halligan that the HT-4 transmitter Bill had sold to the FBI agent in August, 1941, had been flown to Pearl Har-



Large numbers of the Hallicrafters S-36 (BC-787B) receiver were sold during wartime. Tuning range was from 27 MHz to 140 MHz, which included vhf communications ranges of Allied, German, and Japanese ground and air forces. Receiver worked on both a-m and fm.

lor and that it had been installed in the hills above Honolulu. It was the only active communications link to the mainland during the Japanese attack, because saboteurs had cut telephone lines in Honolulu. The old W9WZE transmitter served its country well during those painful hours of need.

ham radio