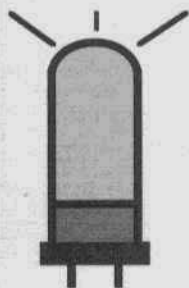


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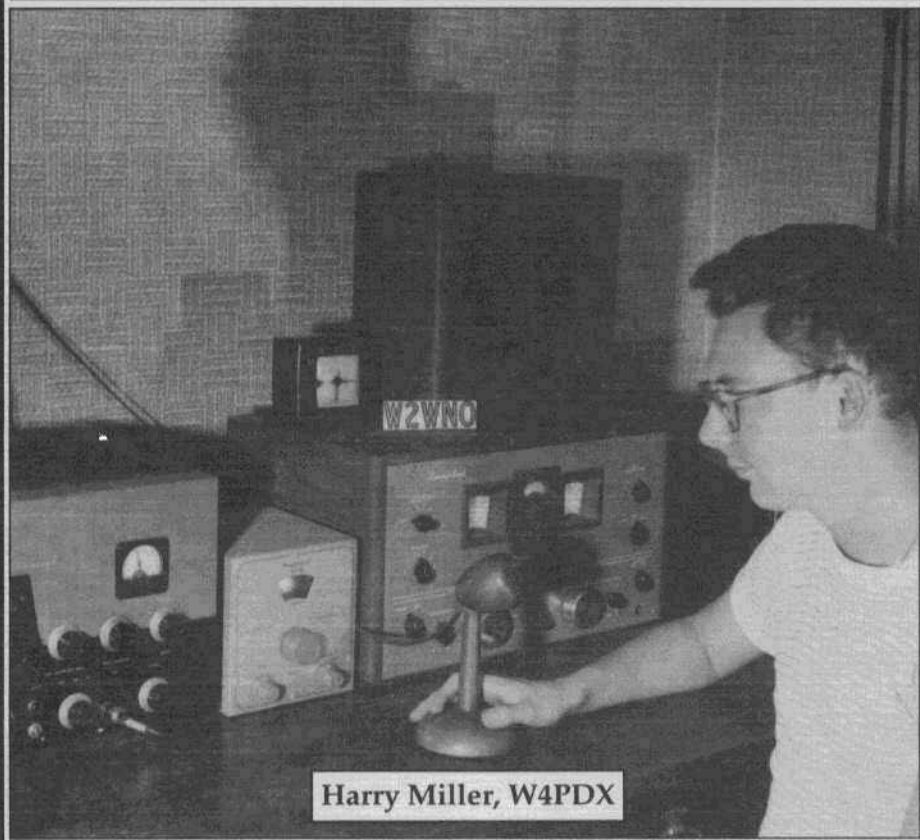


ELECTRIC RADIO

celebrating a bygone era

Number 124

August 1999



Harry Miller, W4PDX

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Electric Radio is published primarily for those who appreciate vintage gear and those who are interested in the history of radio. It is hoped that the magazine will provide inspiration and encouragement to collectors, restorers and builders.

We depend on our readers to supply material for ER. Our primary interest is in articles that pertain to vintage equipment/operating with an emphasis on AM, but articles on CW and SSB are also needed. Photos of hams in their hamshacks are always appreciated. We invite those interested in writing for ER to write or call.

Regular contributors include:

Walt Hutchens, KJ4KV; Bill Kleronomos, KDØHG; Ray Osterwald, NØDMS; Dave Ishmael, WA6VVL; Jim Hanlon, W8KGI; Chuck Penson, WA7ZZE; Dennis Petrich, KØEEO; Bob Dennison, W2HBE; Dale Gagnon, KW1I; Rob Brownstein, K6RB; Don Meadows, N6DM; Lew McCoy, W1ICP; Kurt Miska, N8WGW; Warren Bruene, W5OLY; Brian Harris, WA5UEK; Thomas Bonomo, K6AD and others.

Editor's Comments

AMI Discovery Weekend

Dale Gagnon, KW11, President of AMI, has reminded me that this year's AMI International, Discovery Weekend event is coming up. I thought it might be helpful if I reminded readers of it here. The contest/jamboree will start on Friday evening, September 10 and end Sunday evening, September 12. Participants should record the usual information in their logs: date, time, call, QTH, rig, AMI number, etc. The logs should be sent to AMI, Box 1500, Merrimack, NH 03054. Certificates will be given to everyone who submits a log. Dale will have a full report here in ER in either the October or November issues. I'd like to urge everyone to participate. This is an excellent way to increase the interest in AM/Vintage operation.

K6HQI Memorial 20-Meter AM Net

Over the last month of so I've renewed my status as a regular on the 14.286 AM net and would like to encourage others to check in too. "Ashtabula Bill", W8VYZ, is our net control now and shows up regularly at 8 PM Eastern, the net's starting time these days. Others who check in include Doug, VE4BX; Frank, VE5NT; Ozzie, W6ICM; Ned, K8BZZ, Lynn, K5LYN; Tom, K6VW and others. While 160 and 80 are awfully noisy during the summer months and there's little propagation on 15 and 10, 20M is the best bet for some good AM activity. One thing I've always enjoyed about the 20M group is that there are a minimum of "old buzzard" transmissions. No matter how large the group gets everyone gets plenty of time at the mic.

10-Meter Propagation

In the next couple of months I think we're going to see some good openings on 10. I'd like to encourage everyone to keep an eye (or rather an ear) on the 10M AM window (29.0-29.2) for any openings. Some of the more experienced 10M ops say that listening isn't enough and that we should be calling too. This could be the best fall and winter we've had on ten in years. N6CSW

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Cover: Harry Miller, W4PDX (then W2WNO) back in 1955. See page 16 for a present-day photo.

Hamfest Report Flagstaff, Arizona

by Dennis L. DuVall, W7QHO
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The Arizona State ARRL Convention, sponsored by the Amateur Radio Council of Arizona, was held at the Ft. Tuthill Fairgrounds 3 miles south of Flagstaff, AZ, on 23, 24 and 25 July. Features included a swap meet, offerings by manufacturers and dealers, exhibits, seminars and forums.

I arrived at the grounds at 11:00 o'clock on Friday and headed straight to the swap area. This was the first time I had attended this or any other major hamfest in the Southwest and I was very interested in comparing offerings and prices with those on the East Coast where I lived until recently. I am glad to report that I was very pleasantly surprised.

During a first, quick walk-by the tables I noted multiple offerings of Hallicrafters, National, Collins, Johnson and Heath equipment. Subsequent circuits turned up Harvey-Wells, Morrow, Elmac and Hammarlund examples. A good selection of large and small parts was also available.

More equipment showed up on Saturday morning including a very sad Globe King and a great pile of Heath equipment (see pictures). A BC-610 also arrived which sold before it could be unloaded from the truck. A partial list of the equipment seen over the two days is shown below.

Hallicrafters - S-40 (3), S-27, S-38 (2), SX-62 (2), SX-42, SX-71, SX-28

Hammarlund - Super Pro (2), HQ-170 (2)

National - NC-183 (2), NC-88, RAO-4, NC-33

Harvey-Wells - TBS-50 (2)

Elmac - AF-67 with two PS, A-54 with PS, PMR-7

Ecophone - EC-1

Johnson - Valiant (2), Ranger (2), Viking 1 & 2



Flea market on Saturday morning.



A pile of Heath and other equipment (Sat.)



75A-3, 32V-3, Morrow, National and other.

Heathkit - Apache, Marauder, Mohawk, Seneca (several of each), Warrior (Lin. Amp)

Collins - 75A-3 (2), 32V-3

WRL - Globe King

Military - URM-25 (2), GRC-109, BC-610

As to prices, I saw a very nice SX-42 go for \$120 and Valiants and Rangers offered for under \$200 as examples. The only disappointment I can report was a relative lack of military hardware. ER

At the Military Vehicle Preservation Association's Convention

by Paul Thekan N6FEG
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Redwood City, CA 94061

On the air with the SCR-499 at the Military Vehicle Preservation Association's (MVPA) 1999 Convention

The moment had finally come when I was able to say "operating portable here with the BC-610". I wasn't sure if I would ever be able to utter those words but a lot of luck and the help of friends made it a reality. The Military Vehicle Preservation Society is an organization dedicated to the preservation of military transport, from bikes to tanks and everything in between. The yearly convention was to be held this year in San Jose Calif., about 20 miles south of where I live. I thought a display of WW II radio gear would be appropriate at such an event and the powers that be that ran the show agreed and I was given the go ahead.

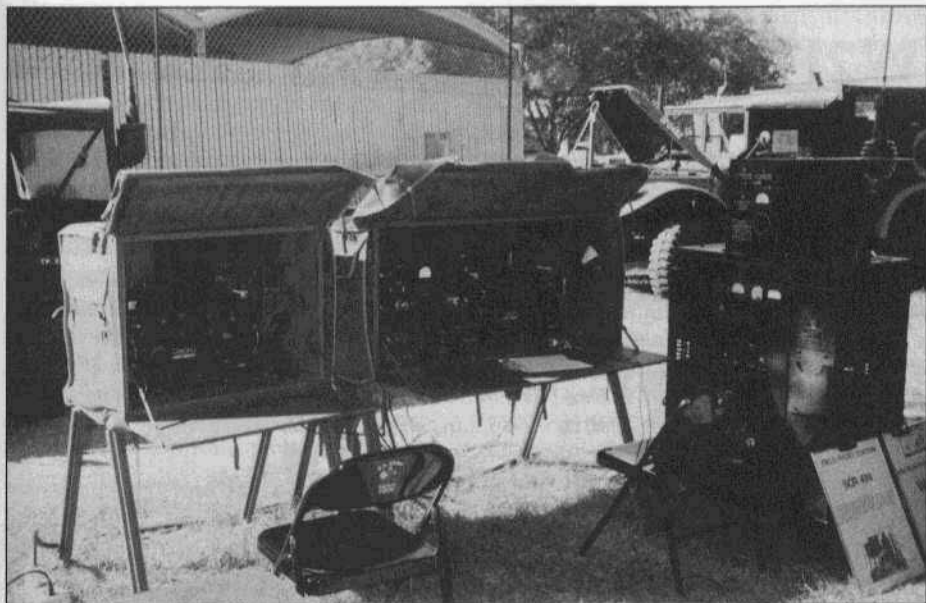
But what to bring? Most of the vehicle collectors had seen the usual military vehicle radios but I wanted to show something different. Looking through my clutter of half finished projects and projects yet to be it looked like I could put together the makings of a SCR-499 and SCR-543 and actually get them up and running at the show.

The SCR-499 was designed by the military to be able to be transported by air or other means to a desired destination. It could operate over the frequency range of 1.5 -18 mcs with 300 watts on phone and 400 watts on CW. Power was derived from a 5 KW generator, the PE-95. The major radio components were housed in two wooden chests. Chest CH-120 housed the BC-342 receiver, BC-

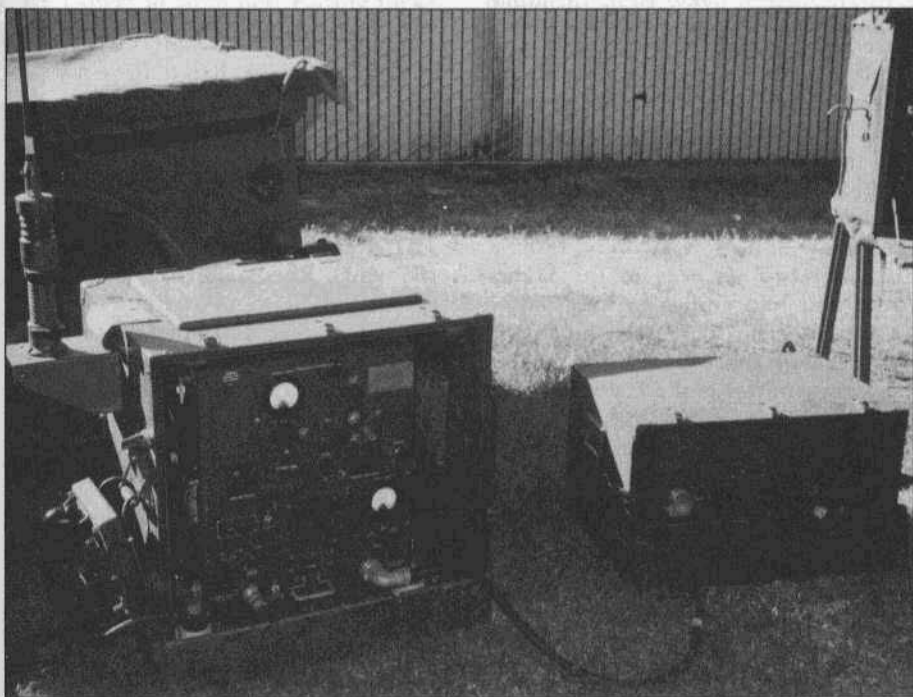
614 speech amplifier for the BC-610 and the JB-70 control box that controlled the principal radio station functions. The smaller chest, CH-121, housed the BC-312 receiver. This could be used for auxiliary operating, with the receiver running on 12 VDC. The transmitter was the venerable war horse, the BC-610E with the BC-939 antenna tuner operating into a 15-foot vertical antenna mounted on the back of the tuner.

The other "portable" radio I was going to bring was the SCR-543. That set was made up of the BC-669 transmitter/receiver, RM-21 remote, PE-110 power supply and the PE-108 gasoline generator set. This radio set covered a limited frequency range of 1.7 - 4.5 mcs. My late version BC-669 worked on phone and CW with about 45 watts of power.

For the show, I decided to run off the power mains. I have a PE-95 generator on its trailer but it looks quite literally like it took a direct hit from an artillery round. I had accumulated most of the major components for these sets over the years but now I was going to finally be able to get it all together. This proved to be more work than I had imagined. The BC-610E that I had planned to use was in such sad shape that it would take the time remaining till the show started to just get it restored and operating. It looked like it had been retrieved from San Francisco bay at low tide. Fortunately for me W6ICM, Ozzie Diaz, was



SCR-499 air transportable, high power, radio station that consists of the BC-610 transmitter, BC-614 speech amp, BC-312 receiver, BC-342 receivers, and JB-70 control box. The chests CH-120 and -121 are very rare.



The SCR-543 is made up of receiver/transmitter BC-669 and AC supply PE-110.

W2HBE Reminisces

Part 1

by Bob Dennison, W2HBE
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Bob Dennison, W2HBE, has been a major contributor to ER over the years and we've all come to appreciate his technical excellence and his clear, precise writing style. I'm sure most of you, like me, wondered about his background. Recently I came across this article that Bob put together several years ago for distribution amongst his boyhood friends. It gives a wonderful insight to what it was like for Bob and his friends growing up and getting involved in Amateur Radio back in the 30's in Salina Kansas. N6CSW

The stock market crash of December 1929 marked the beginning of the Great Depression. That same month my father died and I shared the feeling. The following year my mother bought a Philco 90 radio. I was fascinated by it and wanted to know how it worked. Over the next few years I read every book in the library on Thomas Edison, Marconi, chemistry, electricity and wireless. I built a chemistry lab in the basement and collected knife switches, batteries, telephone parts, wire, old radios and Ford coils.

I met Louie Davis when I was in fifth grade. He was three years older and lived a few houses away on N. 13th St. His older brother was in the Signal Corps and had copies of QST, some Western Electric earphones and galena crystals. With these we tried to make a spark transmitter and a crystal set using his mother's clothes lines for aerials—but results were nil. Then Mr. Flamm who lived between us gave us some old radio tubes, ERLA tuning condensers, knobs, rheostats and phone jacks.

Louie moved to E. Elm St. but we kept in touch, trading parts and discussing plans for a real radio. My mother ran a grocery store on N. 13th St. and one of her customers was Mrs. Knittle whose son, Theodore, W9BII, had gone to Coyne Electrical School in Chicago. She

gave me a grid leak and grid condenser that Ted had left behind. Louie wound a power transformer using laminations from old audio transformers. By now Louie had moved to State St. and we pooled our parts to build a three-tube receiver in his basement. I will never forget the thrill of placing the headphones on my ears and hearing the announcer say "This is KMOX - the Voice of St. Louis." I just had to have my own set.

Louie designed a set that used a 24A detector, 27 audio amplifier and an 80 that half-wave rectified the AC line voltage—no power transformer required. Two train transformers supplied the filaments. Rheostats from Mr. Flamm controlled filament current and they ran so hot you could smell the phenol in the bakelite. We used the primaries of audio transformers for filter chokes. The screen-grid bypass condenser came from a Ford coil. I paid 12¢ for a 2000 ohm carbon resistor and Mom gave me \$2 for a pair of headphones. PRAISE GOD! It worked! Everyone in the family listened to it. I took it to Phillips School and all the kids in 6th grade took turns listening. Each day I would rush home from school to listen in. One day I discovered the 160 meter ham band and heard Duane Hoisington, W9NOE, who called himself "Little Boy Blue",

chatting with Charlie Larsen, W9FEL, of Delphos, who was talking about his new ribbon mic. I was electrified to think that you could 'go on the air' and talk to other people!

During the summer I worked in my mother's grocery store so I set my radio on a card table near the front of the store. The milkman, breadman and the iceman all listened to it—one exclaiming "Hey Stan, listen to this thing, it works!"

One of my mother's customers was Emory L. Durham who lived at the corner of Park and Phillips. He had operated on 160M phone having assigned himself the call W9ELD. Then one day the FCC monitoring station in Grand Island, Nebr. sent him a 'Pink Ticket'—"Cease or go to Jail". When Emory heard I was interested in ham radio, he gave me many boxes of radio parts, copper tubing coils, tubes, hardware and dozens of copies of Short Wave Craft magazine. I spent all summer reading these magazines with their provocative editorials by Hugo Gernsback, construction articles by Clifford E. Denton, Walter C. Doerle and Wm. Shuart on how to build short wave radios, transmitters, theramins, converters, etc.

Bob Richards lived on Park St. two blocks west of me. We tried to make a spark set and a coherer receiver. His Dad had lots of good tools so we made nice looking apparatus. We filed nickels and dimes to fill the coherer. But once again the wireless set didn't work although the transmitter could be heard like a buzz-saw on Mrs. Richards' radio upstairs. After making a set of telephones which did work, we settled down to making one and two tube radios that ran off B-batteries. We sold a few of these to other kids. One morning while Bob was winding a coil, I told his mother that I had heard of a kid going cross-eyed winding coils. That was a mistake and we were out of the radio manufacturing business!

In 1934, Tom Bayne, the city building inspector, completed Salina's new police radio station, KNGV. The Salina Journal announced that the system would receive its first real test Halloween evening. Bob Richards and I were excited and decided to visit the station and watch the operation. Soon after we arrived, the chief of police came out of his office and asked us if we would like to ride in his car and see some action! As we cruised down the dark streets, the radio would crackle and direct one of the cars to "Go to Oakdale School yard—a gang of boys are taking down the swings".

One day I walked by Jack Waring's house on Ash St. while he was testing a balsa wood model airplane. We became acquainted—he showed me his menagerie of planes and I showed him my radio stuff. The bug bit him and soon his bedroom contained an elaborate homemade superhet. We enjoyed listening to short wave broadcasts from all over the world on the loudspeaker. I still remember the time we tuned in WWV and were mystified by the TOCK-TOCK-TOCK of the time signals.

Entry into high school was an exciting time. I was proud of my new suede jacket and my freshly repainted bicycle. I met my first girl friend and fell in love. It lasted until basketball season—by then I was building radios again. These included crystal sets, one and two-tube sets based on ideas I had seen in Short Wave Craft. One was built in a cigar box. During the Lindberg baby kidnapping trial, I had a two-tube battery set (32 det., 30 audio). I had come down with measles so I had a good excuse to stay in bed and listen to this famous trial. The announcer would say "This is KMA, the Earl May Seed and Nursery station in Shenandoah, Iowa—we now take you by remote-control to the Bruno Richard Hauptmann kidnapping trial in Flemington, NJ". I listened for about a week, then one sad day as I was dis-

connecting the filament battery, the wire slipped and touched the B battery terminal. Poof! My tubes were wiped out!

At this time, I decided to build an all electric set so I would be free of the problems due to fragile and microphonic tubes and the need to periodically replace costly B batteries. My new set used the new dome-shaped 56 and 57 tubes. Um-modern! I went to Archie Hazen's sheet metal shop and bought two pieces of tin-clad sheet iron for the chassis and panel. Archie was a nice man and he cut and bent the metal at no extra charge. An old screw driver was used as a chisel to cut out the tube socket holes. The wafer sockets neatly covered the rough edges. I sent off to Allied Radio in Chicago for new resistors, condensers, an RF choke and a 98¢ power transformer. A 45¢ Kurz-Kusch vernier dial on the front panel made my set look so beautiful it could have gone right on the front cover of Short Wave Craft. That summer I spent hours trying to learn the code by copying amateurs, but to no avail, they all sent much too fast for me.

On Saturdays I was now going to St. John's Lutheran church for catechism study in preparation for confirmation. Rev. Lantz taught us in his office. A few years later I would be caddying for him at the Country Club golf course and on the way home would spend a hard-earned quarter for a copy of QST magazine. But now on my way home I would stop at Louie's house and he taught me radio theory. He would get out his RCA tube manual and show me how to draw a load-line, select an operating point and calculate the value of the cathode-bias resistor. He was at that time visiting Joe Morris, W9POM, who was teaching him the code. Later that fall Louie passed the exam and became W9VWV—the World's Ninth Very Vain Wonder. A year later with almost no money in his pocket, he hitchhiked to Kansas City and took the class A exam.

Earlier that fall (1935) the Salina Journal carried an exciting bit of news—the 130th F.A. of the National Guard was offering a free course in radio theory and code practice on Monday nights at the Armory on N. Santa Fe Ave. This was a landmark experience for me; here I met everyone in Salina who had any interest in ham radio. The first half of the evening was devoted to code practice—usually taught by Jean Seymour, W9JDY. The rest of the evening was spent studying radio theory. Around Christmas time, Fred Gemmill, W9FRU, home from college, gave an excellent lecture on antennas.

At the rear of the armory was a room housing the N.G. amateur radio station, W9CIE. One evening I noticed charred paper in the bottom of the transmitter. When I asked Jean about this, he said "I was here early this morning to work DX and it was very cold so I burned a piece of newspaper to warm the mercury-vapor rectifiers".

In the spring of 1936, several fellows took the radio exam and soon several new calls appeared on the air: W9YAH, W9YAK, W9YAO, W9YBC, W9YCL and W9YFA.

The N.G. radio school was a failure in one sense. Its real purpose was to teach the code to the guardsmen but most of them were interested only in their pay. As a result, Sgt. Crockett asked several students if they would like to go to the annual N.G. encampment at Camp Funston, Ft. Riley, KS. Louie, Bernie and I volunteered to go. We visited the quartermaster and he outfitted us with uniforms; leggings, boots, hats, caps, belts, mess-kits, canteens, etc. My mother had an awful time trying to take in the shirts and pants so they would fit me.

The day of our departure for camp, I was up long before sunrise. The 65-mile trip in the back of a canvas covered truck was rough but I didn't mind—I felt elated that I was going to camp to

operate radio equipment. The first day was spent setting up a radio repair room, getting settled into our tent, visiting the PX and becoming acquainted with army chow, taps and sleeping on a cot.

During the next two weeks I operated several stations. One was an antique WWI rig mounted in the back of a truck and powered by a motor-generator set. The receiver was a long-wave set but it would tune to the broadcast band and I would listen to WIBW until a message had to be sent. Another set was the portable SCR-131. This was powered by a hand-cranked generator. If the message was long and the operator sent slowly, the man doing the cranking would suffer intense muscular pain as he labored to keep the generator turning. The SCR-131 opened like a suitcase. The upper-half contained a three-tube regenerative receiver and a one-tube self-controlled transmitter employing a VT-2 (UX-210) tube. The lower half of the case contained batteries and headphones. I sent my first radio message on this set. We were beginning an all-night maneuver and our forces were proceeding toward a gunnery range. Suddenly the convoy stopped and Lt. Hoyne hurried back and ordered us to set up the SCR-131 and send this message—"Sighted convoy of lighted trucks headed north on route 77. Taking alternate route." The next day I sat in the back of Col. Rexroad's command car, a spiffy wood-trimmed Chevie station wagon handling messages on a 160M transceiver built by Andy Crockett and Duane Hoisington. Between messages I enjoyed watching the artillery units firing 37, 75 and the giant 155 mm canons. Great clouds of blue smoke filled the air. Around noon a major, puffing on his pipe, came along and asked me "Son, how come you don't salute your superiors?" I replied, "Because I'm not in the National Guard." He almost swallowed his pipe, growled and sauntered off muttering to himself. Louie was older

and bigger so he had a title—he was Capt. Morgenstern's orderly.

Sgt. Crockett loved iced tea and nearly every day he gave money to the cooks and told them to go into Junction City and buy more tea. I developed a taste for tea and still drink it every day. One day Jean and Ralph went into town and came back with the August 1936 QST which announced that the FCC had raised the code speed requirement from 10 to 13 words per minute—effective immediately.

When we got home from camp, Louie and Bernie gave me two weeks of intensive code practice. Late in August I took the exam at Jean's house. His shack was on the second floor. A table against the wall held his three-tube tuned RF receiver, headphones and Vibroplex bug. The rig was a plywood rack and panel affair about six feet tall with a beautiful 852 tube in the final. Jean fired up the 47 crystal oscillator, tuned it in on the receiver, moved the weights on the bug way back, and sent a few words. Looking over my shoulder he said "You passed!" Then I took the written test—ten essay type questions on theory and law. Jean looked over my answers and said he was sure I passed that part also. About a week after school started (my freshman year at Lincoln High school) my license arrived in the mail—I was now W9YRQ.

Next day I took my new license to school to show it to my friend Jack Waring. On my way home from school I stopped at the Simplex Shop (a radio repair shop on S. 7th St.) to show my license to Dan Middlekauf, the chief radio repairman. A minute later John Pyle, the proprietor, had hired me to work after school and on Saturdays. Radio was beginning to pay off!

My first big purchase with my new funds was a three-tube TRF receiver. This set had been built by Fred Gemmill, W9FRU, and his father Earl (Doc), W9STC, from plans in the January 1933

QST. It was a well-built set with coils for all bands from 10 to 160 meters. The 10M coils were wound on steatite forms. I paid \$10 for the set—nearly three weeks wages. Wages were low during the depression. Dan received \$21 a week and he had a wife and seven year old daughter to support. But prices were low—a microphone could be had for \$2.95, a 57 tube cost 60¢ and a Cozy Inn hamburger was 5¢ or six for a quarter. A cowboy movie at the Royal cost 10¢, a Saturday serial at the Strand was 15¢ and the top-of-the-line Fox-Watson charged 35¢ for all but Hollywood's most stupendous productions and on Monday night they gave out free dishes!

I slowly pieced together a ham radio station. At first I tried a 2A5 crystal oscillator on 80 meters. My antenna was so poor that Bernie could hardly hear me two miles away on Gypsum Ave. Next I tried 40 meters. Now he could work me. Then one marvelous day I worked W9VEL in Dodge City and received my first QSL—it showed a Silver Eagle overprinted on blue call letters. Somehow you never forget the first one! Gradually I added cards from the closer states - Nebr, Iowa, Missouri, etc. I discovered that if I got up at 4 am there were fewer stations on the air and I could work Utah, Nevada and California. Later I tried 20 meters and had my first taste of DX—Australia, New Zealand, Alaska, Hawaii, etc.

I hooked a neon bulb to my antenna as a lightning arrestor and it would flash on and flicker during rain storms. When I told John Pyle about this he said he would have to see it to believe it. The next time it rained, Johnny came out in his service truck to see it blink and stayed to look over my ham station. He was a self-taught expert on radios and automobiles. I respected him like a father. He worked longer and harder than anyone I ever met and was always cheerful and ready to tackle another job. He had the only public address system in

town—built into a big black hearse. He loved to cruise up and down the streets playing snappy John Philip Sousa records while announcing some coming event such as an indoor circus at Memorial Hall.

A few months later Jack Waring got his license—W9ZFS. He progressed quickly and soon had the finest station in town with an Eimac 100TH in the final. Every Christmas vacation we would engage in a contest to see who could work the most states or ARRL sections. He always won but I did get lots of QSL cards so it was fun. Jack had a homemade bug and he could send faster than anyone in town. He really excelled at DX. He bought a crystal ground to 7002 kc so he could work near the edge of the band where the DX was located. He learned this trick from Jean, who claimed his frequency was 7000-1/4 kc. In those days before frequency counters the FCC probably went nuts trying to decide whether he was IN or OUT of the band! Jack's shack was plastered with QSLs from Japan, Estonia, Tasmania and other exotic places. Every so often Jack would let me borrow his magic crystal and I would frantically try to work some DX before it was time to trudge two miles through the snow to return it. But it was worth the trip as Jack's mother thought I looked too thin and she always invited me to have some ice cream and cake.

Don Drawbaugh moved to Salina from K.C. about 1933-34. Bernie and I met him at the Simplex Shop. Don was building an O1A set in a Kraft cheese box and we told him he should forget that idea and build a breadboard set where it's easy to get at the parts. Soon he had three O1As perking using a storage battery for the filaments and a B eliminator his dad bought for him at Carlisle's radio shop. Don also went to the N.G. radio school and a year later he got his license, W9ZEU, while in 8th grade, which made him the youngest

ham in town. As a result, Bernie gave him such appellations as 'Squirt' and the 'Zesty Egotistical Upstart'. Don retorted that YBC meant 'Yes, Bernie's Crazy!' Don had a sister, Betty, and Bernie had his eye on her so that was one of the reasons we visited Don so often.

Don set his heart on building the three-tube TRF set in the 1936 Handbook. He went to Maupin's junk yard and cut some large pieces of sheet aluminum from the back end of an old car. Paint remover took off the black paint and Drano was used to give it a nice velvety appearance. Archie Hazen cut and bent the pieces—free as usual. Don found the 57 tubes in the 'Old Faithful' trash can behind McKelvey's Philco shop. His first rig used a 59 crystal oscillator which grew until there were three 59s and a pair of 10s.

In the summer of 1938 Don and I went to N.G. camp to be operators. Scott, W9YCL, was also there that year. I had experienced the pangs of homesickness in 1936—now it was Don's turn and I did my best to cheer him up. Scott wasn't much fun—he was drunk most of the time.

I don't remember when but Don and I went to Kansas City, MO and visited the experimental TV station of Midland TV school at the top of the Power & Light Bldg.

Don went on to earn a doctorate in physics and is now retired. Earlier this year he and his wife enjoyed a trip to England.

Duane Hoisington had a good friend Charlie Larsen, W9FEL, who helped him get his license, W9DWH in Jan. 1930. Duane got on the air using a 112A Hartley osc Heising modulated by another 112A with 180 volts from a B eliminator. Duane had a friend named Harry Balaun who bootlegged on 160 meters. One day Harry called CQ and Duane heard him on his regenerative receiver. Naughty Little Boy Blue quickly con-

nected a carbon mic into the antenna lead—turned up the regeneration—and gave Harry a long call signing as a W5. Harry talked to Duane for half an hour, never once recognizing his voice. After the QSO Harry called Duane on the phone and told him about his great luck working a W5 in Oklahoma!

On Saturday night, March 23, 1932, Duane and another friend thought it would be fun to rebroadcast the dance band music coming in from WMAQ in Chicago. They moved the frequency of his rig to 1540 kc and broadcast until about 1 am. Meanwhile at the hotel, two GE engineers tuned in and decided it didn't sound like broadcast quality. They knew Theodore Knittle and got him out of bed. Ted listened and said "That's Hoisy, he's the only 160 meter station in Salina." Next day Ted reported the incident to the Grand Island monitoring station and Duane was off the air for one year. Band conditions must have been good that night—Hoisy received 33 reports of reception from such points as Pokeepsie, NY, Denver, Beaumont, Texas, etc!

Hoisy was dating Ralph Lewis' sister at the time so he moved his gear to Ralph's house, got Ralph a license (W9HIE) and operation continued! Jean Seymour also got a license (W9JDY) and also operated from Ralph's place.

Ralph and Jean obtained a discarded pop stand from the old Salina airport on the east side of town and moved it to an empty lot next door to Ralph's folk's house at 128 S. 12th St. They converted it to a hamshack and began to knock off the DX. Ralph's father was a telegrapher at the Union Pacific station and when he came home late one night the house lights were blinking like crazy so he came out to the shack to see what the guys were up to!

Ralph's father worked for a Mr. Wynne who was chief dispatcher for the Union Pacific RR in Salina. Mr. Wynne's son Jack, W9ATN, was a ham

The Last Day of Morse

by Dick Dillman, W6AWO
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The end came yesterday. We knew it had to come. But the end had been predicted so many times for so many years while Morse soldiered on, paying no attention, providing good, reliable service for decades after it was declared dead... maybe some of thought the day would never come. But when KPH/KFS signed off the air for the last time yesterday it was the end of commercial Morse in North America.

It was a sad day but one I knew I couldn't miss.

Tom Horsfall, WA6OPE and I were invited along with many others to be present at the Half Moon Bay master station of Globe Wireless from which the final messages would be sent. I held in my hand two messages I hoped to have transmitted. They were messages of greeting and farewell from the Maritime Radio Historical Society and the San Francisco Maritime Historical Park -typed of course with a mill on historically correct Mackay Radio radiogram blanks. I secretly dared hope that I myself might be permitted to send these messages. I brought along my favorite straight key in its carrying case and my radiotelegraph license just in case.

I have visited KFS many times over the years. On my first visit the operating room had nothing but Morse positions. Over the years the number of computers steadily advanced as the Morse positions retreated to the west end of the building. When we walked in yesterday both sides of the operating room were lined with racks holding sleek black computers and monitors. And way down at the end was the one

remaining Morse operating position.

Tom spotted him first... Paul Zell, the morse operator on duty. We knew him by his green eye shade. All real radiotelegraph operators seem to wear green eye shades. Pictures I have taken at KFS and KPH decades ago show men in green eye shades at the key or the Kleinschmidt. Pictures taken at those stations decades before that show the same thing. I am convinced that there is a secret ceremony of the green eye shade in which the distinctive headgear is carefully placed upon the head of the operator newly welcomed into the fraternity. This is of course a ceremony we have not been permitted to witness, a ceremony that will never again take place.

I sat down next to Paul Zell as we listened to Russian and Cuban ships calling their respective coast stations. I realized that true to its nature, Morse will carry on in other parts of the world even after the keys in North America are finally silent. I had to ask Paul the question... "How are you feeling about today?" An impossible question to answer but he answered it. "CW was my life," he said and turned back to the receiver.

More people started to arrive, a surprising number of reporters among them. But the real dignitaries in my eyes were the radio men and women who knew they had to be there on this day. Jack Martini, manager of KPH when it shut down (he intentionally left the receivers on when he left). Ray Smith, the operator who sent the farewell message when KPH at Bolinas/Pt. Reyes shut down. John Brundage, manager of KFS in its golden age of Morse. Denise, the first female coast station operator on the west coast. Rex Patterson, chief engineer at KFS in its glory years. And many more. We swapped stories and I showed them my photo album. We ate from the delicious spread of food provided by Peter Kierans of Globe Wireless. But our eyes

kept glancing at the clock. It was now less than two hours to the end.

I finally screwed my courage to the sticking place and asked Tim Gorman, Director of Operations, if my messages might be sent and if, perhaps, I might be permitted to send them. Tim had met me only that day. I might be a fumble-fisted lid for all he knew. And he was busy with the press and with all the details of the ceremony. "We'll see...", he said. And that was enough for me.

Now the final transmissions from WCC/WNU began. We copied them off the air. The room fell silent. I noticed one man in particular. He was probably the oldest person there but had a presence that we used to call "spry". He had a quick laugh and twinkling eye. I watched him now. He stood leaning forward, eyes closed, as the sound washed over him.... drinking in... the Morse. He was a pioneer operator, the genuine article, no doubt about it. I wanted to meet him, to ask his name at least. But of course I couldn't possibly interrupt his reverie.

Paul Zell sent the first of the KFS/KPH sign off messages from the local position. Again we were all silent and when he finished... there was a round of applause! Applause for a radiotelegraph operator! Well deserved applause, deserved by every radiotelegraph operator everywhere, applause unheard for 80 years. Paul made a small, embarrassed nod of his head, accepting the tribute for himself and for all the operators on all the ships and at all the coast stations over the years.

Then he copied the last commercial message KFS would receive, from the Liberty ship Jeremiah O'Brien/KXCH on 500kc. The op on the O'Brien said he would standby until 15 past the hour. Zell replied "better make that 18 past, OM." The operator on the O'Brien understood and said that yes, he would observe the silent period—which of course is no longer required by regula-

tion but is absolutely required by tradition. Then Paul said that he'd standby "on 600". The crowd got a big kick out of that—600 meters instead of 500kc. Subtle, but all the more meaningful for that.

I saw Tim approaching me across the room. "Get your key...", he said. Get your key! Holy mackerel, they were going to let me do it! So I got out the key, gathered up my messages, and plugged in. But then I realized: the best Morse operators in the country... the best Morse operators in the world, probably... would be listening to every dot and dash I sent! They would be too polite to say anything if I flubbed it of course... but they and I and everyone else in the room and all the ships at sea would know! My palms started to sweat at that thought but there was no turning back now. I took Paul Zell's seat. I sent a couple of Vs to see if there was side tone in the 'phones. The knob on the key was loose! I tightened that up... and began to send.

I sent the first message from the Maritime Radio Historical Society and all went well. Then I signed the station calls.. "de KPH/KFS". Tom and a few others noticed that I sent KPH first and understood why. Then the second message from the San Francisco Maritime Historical Park. And the calls again... followed by my "sine"... and K. I had gotten through it! And there was a round of applause for me! Thoroughly undeserved but very much appreciated. Someone even said, "Nice fist". High praise indeed in that crowd.

Then the final messages from KFS/KPH began. Paul Zell sent the first ones. Then Tim Gorman sat down and proved himself to be much more than just a competent manager. He sent the final message in meticulous Morse using the chrome-plated Vibroplex, signed off with "What hath God wrought"... then SK... and it was over.

There were wet eyes in that room,

Old Letter Exchange

Dear Barry:

While cleaning out some old files to make room for the upcoming year records, I stumbled upon the enclosed exchange between a ham customer and Ernie Pappenfus. At the time this was fairly widely circulated. It's possible you have already seen it. It sheds a little light on Ernie's sense of humor.

I'm sure Ernie wouldn't mind this being published, if you think it of interest to your readership. Again, the picture comes to mind of an editor staring at blank paper with a deadline coming up. Maybe this could be a little backup. Fred Johnson

29 April 1960
P.O. Box 8014
WPAFB, Ohio

Mr. E. W. Pappenfus
Collins Radio Co,
Cedar Rapids, Iowa

Dear Mr. Pappenfus:

I would like to render an unsatisfactory report on the atrocious performance of your KWS-1.

For the past several months, I have noticed that something was happening to the grid drive on certain frequencies. During these occasions I found that many of my clever sayings and sage observations did not in fact go on the air.

You can well imagine the mental anguish resulting from this, together with the hardship imposed upon my listeners.

Usually, rapid snapping of the bandswitch, kicking on the front door, or, in especially severe cases, lifting one corner of the power supply about 6 inches and letting it drop, would permit resumption of operation.

Finally, it happened. Repeated combinations and permutations of the foregoing were to no avail. I lifted the lid. In horror I viewed the myriads of screwdriver adjustments and with a massive mental effort dispelled the ghastly image of the forest of components that must be lurking beneath the chassis.

Several hours later I was able to locate the instruction book which I had never seen since unpacking the transmitter. Quickly scanning the pages I found it to be completely unintelligible, as presumed, so this approach was discarded.

Now in despair, I concluded that a completely unorthodox approach was my only hope. After carefully placing all screwdrivers out of reach, I again lifted the lid, having deduced that if one of the tubes did not light this could very well be the malfunction. Alas they all were lit.

Clearly, no simple approach would prevail. Grimly I searched for spare tubes. The only one available was a 6BA6 that failed in the 75A-4 several years ago probably because of maldesign of that equipment.

Tube after tube was replaced without favorable results. With mounting gloom, agitated by seared neurons because of the fantastic operating temperatures to which you subject tubes, I had almost given up when the third trial restored normal operation.

I of course am saving the removed tube as it probably will work in the 75A-4. In the event it does not I will expect a warranty replacement.

Such unreliability after only 3 years of operation is inexcusable. Of course, your records will show the equipment was used three years before I purchased it, but you had ample opportunity to anticipate what might happen.

It now becomes obvious why you discontinued manufacturing the KWS-1. Heretofore I attributed your decision in this regard to an unhappy correlation

of uncontrolled madness and greed.

Sincerely,
Robert F. Bowker
Lt Colonel, USAF

Collins Radio Company
Cedar Rapids, Iowa. U.S.A.

May 11, 1960

Lt. Col. R. F. Bowker
P.O. Box 8014
Wright Patterson Air Force Base
Ohio

Dear Col. Bowker Sir:

I wish to acknowledge your unsatisfactory report on the Collins KWS-1. We, at Collins, always adhere to the philosophy that the customer is always right. However, after further discussion of this matter, I trust that you will come to the conclusion that the KWS-1 represents the acme of design.

I can best describe our design philosophy by pointing to a similar situation in the incandescent bulb industry. When Westinghouse, G. E., and other manufacturers began to produce the incandescent bulb on automatic machinery providing high vacuum, a great economy in manufacture resulted. The light output from the incandescent bulbs increased, and general good feeling permeated the industry. Unfortunately, as time went on it became apparent from market surveys that the replacement market had almost become non-existent. The Sales and Marketing people reached a horrible conclusion; the bulbs were lasting too long. You can imagine the consternation that reigned among the ranks of the light bulb engineers. They had over-designed. Drastic action had to be taken, and I can visualize crash programs at all the labs during which the engineers worked day and night to achieve that ideal engineering compromise; that is, a bulb that

lasts just long enough so that the customer forgets just when he bought it, but not one moment longer. At the conclusion of this re-design, the bulbs burned out very reliably after about six months and one day of service, the customer was happy, and so was the Sales Department.

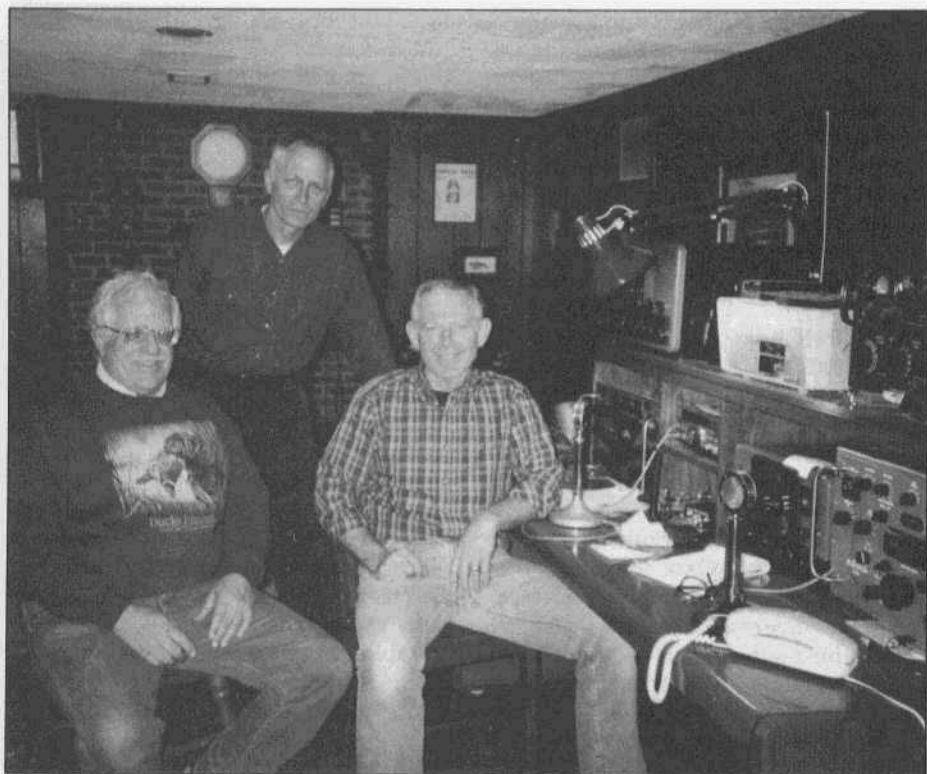
Now this is exactly what we did in our design of amateur equipment. I am very pleased that you were able to use a great amount of ingenuity to extend the life of your equipment beyond the three-year design maximum (many KWS-1's fail before three years). I must warn you that your days are numbered. The failures in your equipment will rise at an exponential rate until a service man will have to be continuously available changing tubes and components to keep the transmitter in service. In conclusion, my suggestion to you is to be reasonable! Buy new Collins equipment!
Yours very truly,
E.W. Pappenfus

Ed. For those who may be unfamiliar with the history of the Collins Radio Company, Fred Johnson was the pre-eminent mechanical engineer during the 'golden years' when the 75A series of receivers and the KWS-1 were designed, and Ernie Pappenfus was the head of engineering.

Ten-Meter Report

I was up my country home in Placer County at 4000 feet elevation. I have a DX-100 and a National NC-300 to a 5/8 wave ground plane cut to 29.040. My house roof is all metal. Anyway I was on 10 am calling CQ on the 17th of July on 29.040... no one there... at 2215 FOØMSN... that's Frank Ocean Zero MSN in French Polynesia. He came back to me about 5 by 9 both ways... nice qso... so you should check 10 meters now and then.

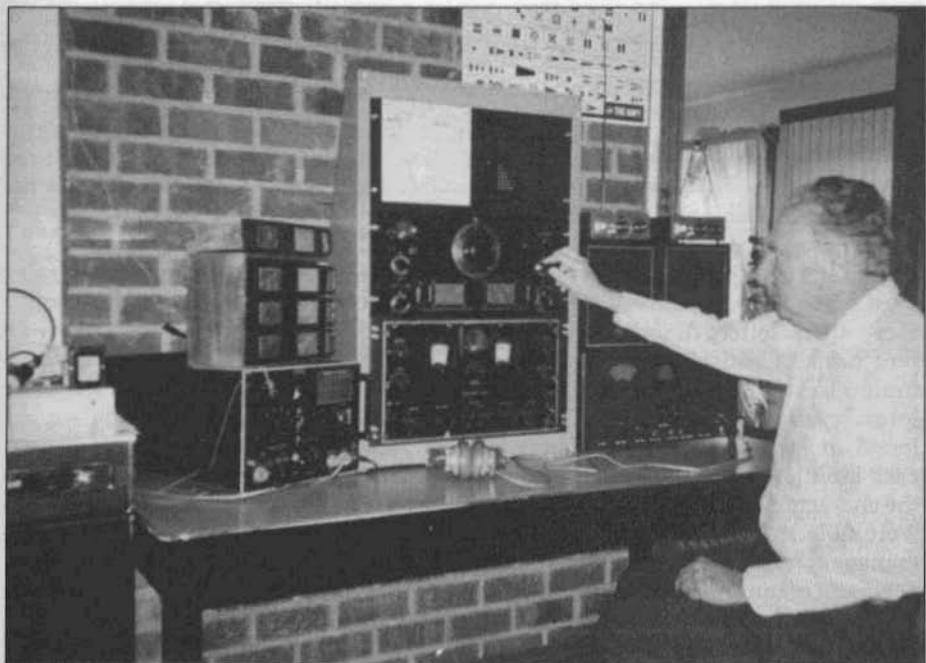
Walter, KB6BKN



The people in the picture represent over 130 years in ham radio. They are (L to R): Tom Brum, W8QYT; Jim Baxter, W8QYX; and me Bill, K8DBN. We were all from the same town in the mid 1950's. Tom and Jim got their licenses in 1954 when they were 12 years old and I got mine in 1956 when I also was 12. They were the "Big Guys" on the block and had General when I had my Novice.

The picture was taken at my house and I believe it is the first time in almost 40 years that all three of us have been together. I ran into Tom on 75 AM a few years back and could not believe it was the same W8QYT from all those years ago. I had not talked to him since I was 16 and he was 18 and left for the service. Tom and Jim would see each other now and then and Tom suggested that the three of us get together. Of course, those two look so much older—come to think of it, that is what they thought of me also. And, after looking at the picture, it would seem that we would certainly be out of place riding our Roadmaster bikes around town again!!! By the way, Jim will be getting more active on the lower AM frequencies. It is ironic that we are all active pilots and none of us knew the others were.

Bill Rieke, K8DBN



A present-day photo of Harry Miller, W4PDX with some of his vintage equipment. A photo of Harry back in 1955 when he was W2WNO is on this issue's cover.



Mike Langner, K5MGR, with some of his boatanchors. Photo by Jim Hanlon, W8KGI.

An 811-Powered UFO

by Terry Perdue, K8TP
18617 65th Ct, NE
Kenmore, WA 98028

My cousin Dan and I started tinkering with electronics at an early age. Since our families lived several hundred miles apart, we looked forward to each others' letters describing our current projects and experiments. Something else we looked forward to was John Frye's "Adventures of Carl and Jerry" in *Popular Electronics* magazine each month - I think we identified with the characters. On the occasions that we were able to get together, we always managed to find some electronic experiment of mutual interest to work on, and a few were nearly as imaginative as those that Carl and Jerry were involved in. As a case in point, I offer the following story.

In the early sixties, while I was stationed aboard the aircraft carrier *Constellation* in the Philippines, Dan moved to Seattle and stayed with our grandparents, next door to my folks. As luck would have it, my ship was scheduled for a nine month overhaul at the Naval Shipyard in Bremerton, a short ferry ride from Seattle.

While home one weekend, my clock radio woke me Saturday morning just as local rock station KJR started to play a short recording of unearthly music, over which a man was talking about recent UFO sightings:

"This message is intended for extraterrestrial beings, within our atmosphere for one reason or another. We, of earth, seriously would like to establish contact with you to exchange information and ideas. In order to accomplish this, we are vacating our carrier for a period of fifteen seconds. If you are receiving this, please reply, simplex, on 950 kilocycles. We would like to ar-

range a safe landing area for you. We have selected a site which will not be available to the general public at this time. We ask you to please tell us your requirements for soil density and clearance area required for your craft. If you can hear us, please answer on this frequency. We will be listening... as of... right... now."

Then the carrier dropped, returning fifteen seconds later with the familiar jingle, "Service comes first on channel ninety five". As I lay there, I got to thinking of how much fun it would be to transmit a response of some sort.

After breakfast, I went next door to tell my cousin what I had heard, and what I had in mind. Being a ham, I had a transmitter, but its lowest band was 80 meters. Dan reminded me of the Tesla Coil we had recently built. It used three 811s in parallel, their pins pushed into holes drilled in the plywood base, and they had raw AC on the plates. Besides using it to produce streamers, we had experimented with induction heating by removing the secondary and inserting various metal items into the primary, where they quickly became red hot.

Dan suggested that since the Tesla Coil was currently operating somewhere near the broadcast band, we should be able to tune it close enough to 950 kHz to be heard, especially with the AC plate supply. While I worked on adding a high voltage variable capacitor to the primary circuit, he got started stringing a suitable antenna. When he finished, it ran from an upstairs bedroom in our grandparent's house to the top of their flagpole, and continued down the street to a telephone pole.

The other change I made to the circuit was to add a key in series with the 811 cathodes so we could send Morse Code with it. We turned on the radio and tuned the coil for maximum buzz at 950 kHz. Then we placed a few turns of heavy wire into the primary as an out-

VINTAGE NETS

Westcoast AM Net: Meets informally, nightly on 3870 at 9:30 PT. Wednesday at 9:00 PM PT they have their informal AM net which includes a swap session. Net control rotates.

California Early Bird Net: Saturday mornings at 8 AM PST on 3870.

California Vintage SSB Net: Sunday mornings at 8 AM PST on 3835

Southeast Swap Net: Tuesday nights at 7:30 ET on 3885. Net control is Andy, WA4KCY. This same group also has a Sunday afternoon net on 3885 at 2 PM ET.

Eastern AM Swap Net: Thursday evenings on 3885 at 7:30 ET. This net is for the exchange of AM related equipment only.

Northwest AM Net: AM activity daily 3 PM - 5 PM on 3875. This same group meets on 6 meters (50.4) Sundays and Wednesdays at 8:00 PT and on 2 meters (144.4) Tuesdays and Thursdays at 8:00 PT. The formal AM net and swap session is on 3875, Sundays at 3 PM.

K6HQI Memorial Twenty Meter AM Net: This net on 14.286 has been in continuous operation for at least the last 20 years. It starts at 5:00 PM PT, 7 days a week and usually goes for about 2 hours. Net control varies with propagation.

Arizona AM Net: Meets Sundays at 3 PM MT on 3855. On 6 meters (50.4) this group meets at 8 PM MT Saturdays.

Colorado Morning Net: An informal group of AM'ers get together on 3876 Monday, Wednesday Friday, Saturday and Sunday mornings at 7AM MT.

DX-60 Net: This net meets on 3880 at 0800 AM, ET, Sundays. Net control is Jim, N8LUV, with alternates. This net is all about entry-level AM rigs like the Heath DX-60.

Eastcoast Military Net: It isn't necessary to check in with military gear but that is what this net is all about. Net control is Ted, W3PWW, Saturday mornings at 0500 ET on 3885 + or - QRM.

Westcoast Military Radio Collectors Net: Meets Saturday evenings at 2130 (PT) on 3980 + or - QRM. Net control is Dennis, W7QHO.

Gray Hair Net: The oldest (or one of the oldest - 44+ years) 160-meter AM nets. It meets on Tuesday nights on 1945 at 8:00 PM EST & 8:30 EDT. URL: <http://www.crompton.com/wa3dsp/grayhair.html>

Vintage SSB Net: Net control is Andy, WB0SNF. The Net meets on 14.293 at 1900Z Sunday and is followed by the New Heathkit Net at about 2030Z on the same freq. Net control is Don, WB6LRG.

Collins Collectors Association Nets: Technical and swap session each Sunday, 14.263 MHz, 2000Z, is a long-established net run by call areas. Informal ragchew nets meet at 0100Z Tuesday nights on 3805 and on Thursday nights on 3875.

Collins Swap and Shop Net: Meets every Tuesday at 8PM EST on 3955. Net control is Ed, WA3AMJ.

Drake Users Net: Another relatively new net. This group gets together on 3865 Saturday nights at 8 PM ET. Net controls are Criss, KB8IZX; Don, WZ8O; Rob, KE3EE and Huey, KD3UI.

Swan Users Net: This group meets on 14.250 Sunday afternoons at 4 PM CT. The net control is usually Dean, WA9AZK.

Nostalgia/Hi-Fi Net: Meets on Fridays at 7 PM PT on 1930. This net was started in 1978.

K1JCL 6-Meter AM Repeater: Located in Connecticut it operates on 50.4 in and 50.5 out.

JA AM Net: 14.190 at 0100 UTC, Saturdays and Sundays. Stan Tajima, JA1DNQ is net control.

Fort Wayne Area 6-Meter AM Net: Meets nightly at 7 PM ET on 50.58 MHz. This net has been meeting since the late '30's. Most members are using vintage or homebrew gear.

Southern California Sunday Morning 6 Meter AM Net: 10 AM Sundays on 50.4. Net control is Will, AA6DD.

Old Buzzards Net: Meets daily at 10 AM Local time on 3945. This is an informal net in the New England area. Net hosts are George, W1GAC and Paul, W1ECO.

Canadian Boatanchor Net: Meets Saturday afternoons, 3:00 PM EST on 3745. For hams who enjoy using AM, restoring and operating

Midwest Classic Radio Net: Saturday mornings on 3885 at 8AM Central time. Only AM checkins allowed. Swap/sale, hamfest info and technical help are frequent topics.

Boatanchors CW Group: Meets nightly at 0200Z on 3579.5 Mhz (7050 alternate). Listen for stations calling "CQ BA" or signing "BA" after their call signs.

Wireless Set No. 19 Net: Meets the first Sunday of every month on 7.175 +/- 5 kHz at 2000Z (3760 +/- 5 kHz alternate). Net control is Dave, VA3ORP.

Beer Town Traders Net: On 3885, 5:30 Central Daylight Time on Saturdays.

Westcoast 40M AM Net: Sunday afternoons from 3-4 PM westcoast local time until 4-5 PM on 7160 +or- QRM.

Nets that are underlined are new or have changed times or frequency since the last issue.

The National NC-57

Or

A Tale of Three Receivers

by Jim Hanlon, W8KGI
P. O. Box 581
Sandia Park, NM 87047
w8kgi@arrl.net

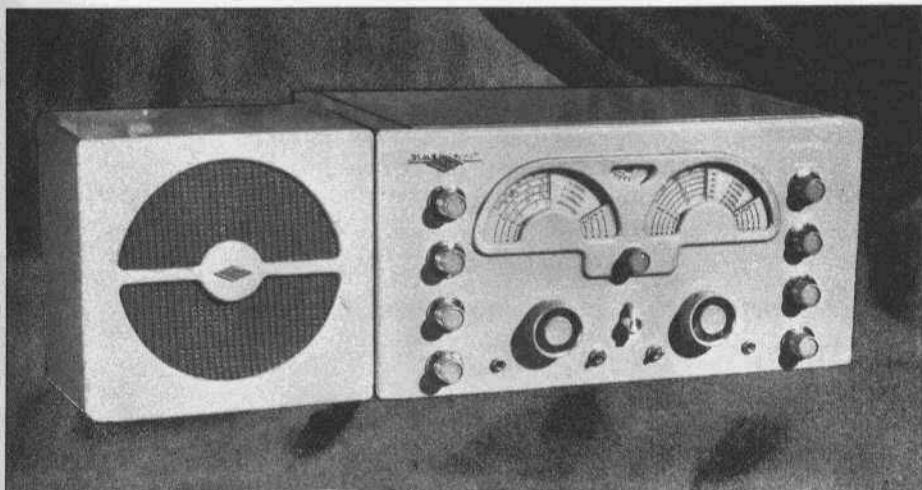
As a collector of ham radio boatanchors, I've often wondered what stories some of my radios would tell if only they could talk. After all, every one of these receivers and transmitters, however modest or primitive, was once the pride of some ham's shack, his link to the world, and perhaps an inspiration for his career.

I know only a limited amount about the NC-57 I acquired last year. But I did find two friends who had started out with their own NC-57's "a long time ago in a galaxy far, far away" and who were kind enough to share their stories with me. So this article will be in a way a tale of three NC-57's and the people they grew up with.

My own recently acquired NC-57, serial number 225 1987, is one I pulled out of a pile of equipment on the driveway of a local ham who died unexpectedly a year and a half ago. A good truckload of gear was out there, fortunately under a tarp because an inch of snow had fallen overnight, waiting for the junkman to pick it up. In addition to the NC-57, I also saved an HQ-129X, BC-348Q, Globe Meteor, Galaxy V with its power supply, a carton full of 1625's, a 500-foot reel of 300-ohm open wire twin lead, and a General Radio audio oscillator. That was all I could fit into my car. There was a lot of good home brew gear and other stuff that I left behind. This little radio's short story should be a lesson to us all. Guys and Gals, make a record of the equipment you have, in-

cluding some estimate of its worth, and tell someone in your family where that record is. Let them know what they can do to get your equipment into the hands of people who will appreciate it and preserve it should you be incapacitated or worse. Tell them to contact Barry for an ad in ER. Don't let your cherished Boatanchors be junked like this NC-57 very nearly was!

As I gazed into the browning dials of my rescued NC-57, I remembered that one of the 10 meter gang from Cincinnati's Queen City Emergency Net back around 1951 had an NC-57 for his home station receiver. Hank Pfizenmayer, then W8IFX, was an Electrical Engineering student at the University of Cincinnati, and he drove to school in a stick-shift Ford whose gear grinding would reverberate on 10 meters since he held his T-17 mike in his right, shifting hand. Thanks to the QRZ database on the internet, and my remembering Hank's distinctive last name, I found him again now living in Phoenix as K7HP. We had a good landline ragchew when I recently visited his new hometown on a business trip. Hank has just retired from a very productive and inventive engineering career with Motorola. His first commercial receiver, not counting the Philmore crystal set that his uncle in Indianapolis bought for him in the 40's, was his NC-57. He was first licensed in Montgomery, Alabama, where he borrowed a home brew, three-tube regen



A new and versatile receiver, popularly priced, the new NC-173 has received favorable comment on the ham bands from operators who have found it stepped up their percentage of successful QSO's.

The sensitivity and stability of the NC-173 will not only increase your traffic, but will add much to your operating pleasure.

OUTSTANDING FEATURES:

- Frequency Coverage from 540 KC. to 31 MC. plus 4R-56 MC.
- Calibrated Amateur Bandsread on 6, 10-11, 20, 40 and 80 meter bands.
- 5 Position Wide Range Crystal Filter.
- Double-Diode Automatic Noise Limiter for Both Phone and C.W. Reception.
- A.V.C. for both Phone and C.W. Reception.
- S Meter with Adjustable Sensitivity for Phone and C.W.
- A.C. Powered — 110/120 or 220/240 volts, 50/60 Cycle. Amateur Net (with speaker) \$189.50

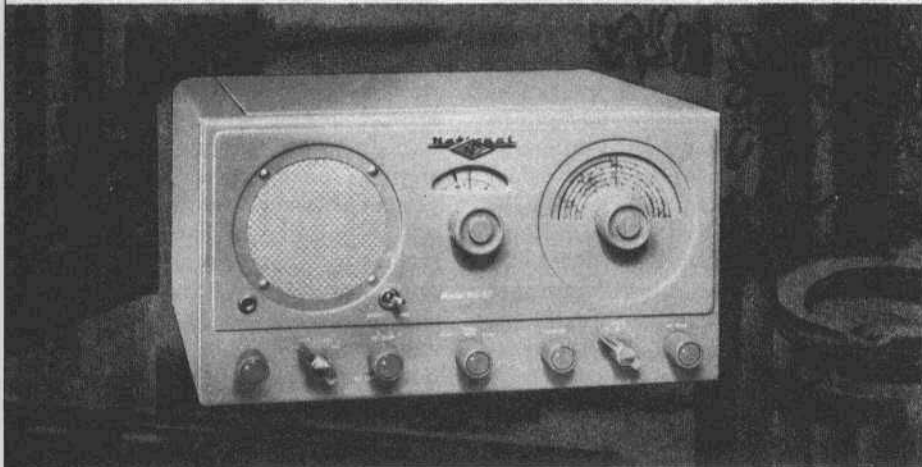


To meet the needs of the many hams who have asked for a sensitive, first-rate bandswitching receiver in the lower price bracket, complete with speaker and power supply in one cabinet, the National Company has developed the brand new NC-57.

Although moderate in price, this little receiver incorporates features usually found in the more expensive models. Excellent tone quality, sensitivity, selectivity and high signal-to-noise ratio afford a level of performance which will be appreciated by any operator. A superb receiver for the beginner, the NC-57 will be found ideal as a standby in any amateur station.

FEATURES:

1. Continuous frequency coverage from 550 kc to 55 mc. Bandswitching in 5 ranges. Bandsread tuning of any frequency.
 2. Seven tube superheterodyne (plus rectifier and voltage regulator).
 3. Automatic Noise Limiter.
 4. Built-in loudspeaker and A.C. power supply.
 5. R. F. stage with panel controlled antenna trimmer.
 6. Operates from 105-130 volts, 50-60 cycles A.C. (Provision for battery operation.)
 7. Housed in a streamlined gray cabinet.
- Amateur Net \$89.50



From the 1948 ARRL Handbook.

from neighbor L. B. Pierce, W4KIX. He graduated from that to an old automobile receiver to which he added a BFO and a 40-meter converter. His Dad, trying to help, bought an S-38 for him, which Hank describes as less than useless as a ham receiver, though Dad kept it himself for many years thereafter. Hank got his courage up and asked Dad for the best real radio that he thought he could afford, an NC-57. And to him it was a superb 40-meter CW receiver, especially after Hank made one of the IF's regenerative to improve the selectivity. He remembers that its images on 10 meters were so bad that they were about as strong as the wanted signal if he peaked the antenna trimmer on them. He also thinks he actually heard a 6-meter signal on the NC-57, well maybe once. He eventually added converters for 10 and 2 meters, using 40 for an IF frequency. All in all, I'd have to say that he got every ounce out of his NC-57. He traded it later on an HQ-129X. He liked the Hammarlund's crystal filter and calibrated bandspread of course, but he still thinks that the NC-57, with its quieter RF amplifier and mixer tubes, could hear the weak ones better. By the way, Hank still uses the Trimm Lightweight phones that came with his Philmore crystal set and the Telegraph Apparatus Corp. bug that L. B. Pierce gave him, now with Drake 7-line gear. And that's the story of NC-57 number two.

To show that good things do come in threes, I ran into my Albuquerque friend, fellow boatanchor enthusiast and ER reader, Mike Langner, K5MGR, just the other day and told him I was starting a story about the NC-57. It turns out that Mike started out in the summer of 1957 as KN4POM in Southern Pines, NC, with a borrowed NC-125. At Christmas he received his very own NC-57, acquired from a local Civil Air Patrol station "Blue Dog 404," and an HT-17 transmitter. The next year when he was in the 10th grade the family moved to

Albuquerque where Mike became KN5MGR/K5MGR and traded the HT-17 for a Knight T-50. Mike said he made no contacts for the first three months he was in Albuquerque because, as he eventually discovered, he was carefully removing the antenna from the transmitter, grounding it, and loading all of his power into the transmitter's plate choke! The T-50 had a very wide range pi-match! By April of 1960 as you can see from the photographs his station had grown to a Knight T-50, Heath VF-1 and home brew modulator, and the NC-57 receiver which by now had acquired a Heath Q-multiplier. Mike's comments about his receiver are that it was stable so long as he never turned it off or never switched it to "standby" while transmitting, and so long as the power line didn't bounce. The Q-multiplier made it fine for CW, which he ran QSK with two antennas. He also never turned off the VF-1. Eventually Mike replaced the NC-57 with an RME receiver, which drifted more than the National, then with an S-85 which he described as "worthless," and then with an HRO-60 which was a real dream. With all of this ham radio activity as a base, Mike started his career in broadcast radio. He earned his FCC First Phone license at 19 while helping a friend study for the exam—the friend didn't pass but Mike did. Mike then got a job as engineer for \$150 a month at a local, 250-watt, Spanish language station and doubled as the host of the station's only English language program. Other stops on the way included a 1 kW station in Santa Fe, a 5 kW station in Albuquerque, then owner/operator of KHFM, Albuquerque's classical music FM station, and now chief engineer for 50 kW KKOB in Albuquerque and for seven other regional Citadel Broadcasting stations. Mike is also a victim of boatanchor fever, and as you can see by his current picture he has reacquired NC-57 serial 238 8810 with a



Mike Langner's, K5MGR, reassembled first station: NC-57 with Heath QF-1 Q-Multiplier and very rare SM-57 S-meter; Knight T-50 transmitter with Heathkit VF-1 VFO and J-38 straight key.

Heath QF-1 and with the rare SM-57 accessory S-meter, and a Knight T-50 with a Heath VF-1. All of this will be on the air just as soon as he can get a little time away from his other transmitters. And that's the story of NC-57 number three.

Well, it's obvious that the NC-57 worked well enough to start at least a couple of guys into good careers in Electrical Engineering and Broadcasting. Let me give you my impressions of the orphan I scrounged off the driveway last year.

In the words of its 1948 ARRL Handbook catalog section description, "To meet the needs of the many hams who have asked for a sensitive, first-rate bandswitching receiver in the lower price bracket, complete with speaker and power supply in one cabinet, the National Company has developed the brand new NC-57. Although moderate in price, this little receiver incorporates features usually found in more expen-

sive models. Excellent tone quality, sensitivity, selectivity and high signal-to-noise ratio afford a level of performance which will be appreciated by any operator. A superb receiver for the beginner, the NC-57 will be found ideal as a standby in any amateur station."

Excusing some advertising enthusiasm, this is not too far from the mark. NC-57 features include continuous coverage from 550 kc to 55 mc, including 6 meters, bandspread tuning at any frequency, a seven tube superhet plus rectifier and voltage regulator, built-in speaker, 105 to 130 volt, 60 cycle power supply, an RF stage with panel controlled antenna trimmer, and a BFO pitch control. Its tube lineup is not unusual for the era, 6SG7's in the RF amplifier and the two IF amplifiers, a 6SB7-Y converter (especially designed for FM broadcast receivers and perhaps superior to the more commonly found 6SA7), a 6H6 second detector, AVC and ANL, a 6SL7GT first audio amplifier

and BFO, a 6V6 audio output, and a 5Y3GT rectifier. Unlike its competition it also includes a VR-150 which regulates the screen voltage for the RF and IF amplifiers and the mixer and also the bfo plate voltage. There are two octal sockets on the rear chassis wall, one, which allows substitution of batteries for the internal power supply, and the other for "accessories" such as Mike's SM-57 external S-meter, a crystal calibrator or record player. On the NC-57B that socket is wired to use the National Select-o-ject audio filter.

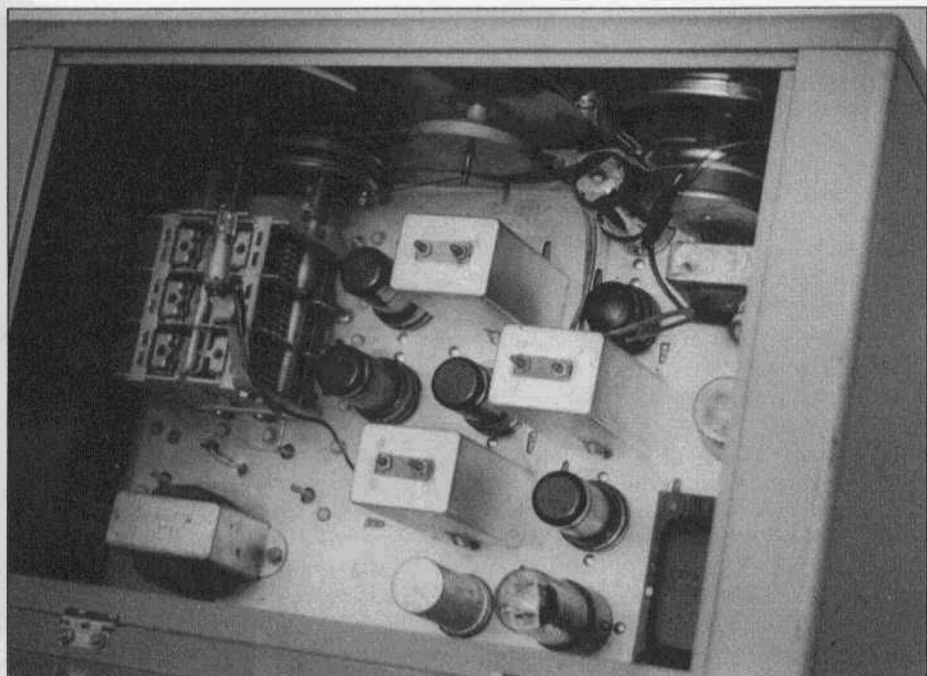
My radio came to me off the driveway in not quite perfect condition. In addition to needing a couple of tubes, it was also missing its speaker and the BFO control coupling was in pieces, all of which were fortunately still rattling around inside the chassis. It did have its audio output transformer, and there were two shock mounts behind the speaker bezel. I first removed and discarded the shock mounts and installed a deluxe, extended range, five inch auto radio speaker from my local Electronic Surplus junk shop. Upon trying it out, I was immediately greeted by copious amounts of feedback squeal when I turned up the audio gain control. Realizing that the shocks were not optional, I retrieved them and put them back in. That made things behave a whole lot better.

I have to give National points for using reliable components in this 50 plus year old NC-57. Outside of having to supply a new speaker and new 6SG7 RF amplifier and 6SB7Y mixer tubes, I have not had to replace any other components. All of the original Aerovox paper capacitors are still there and working. Even the Cornell Dublier filter capacitor is still doing a good job. That's a far cry from the "start off by recapping the receiver" advice that I hear from folks restoring other brands of radios. Also speaking of "features usually found in more expensive models,"

the IF transformers in the NC-57 look like the ones in its bigger brother, the NC-173.

In the more expensive receivers, the BFO pitch control is a variable capacitor. National, perhaps in imitation of its Hallicrafters competition, may have tried to cut a few pennies by coupling the pitch control directly to a slug tuning adjustment in the BFO coil. However in typical National design fashion, they designed a brass coupling that links the coil drive screw and the quarter inch shaft in the bfo pitch knob and also limits the rotation of the BFO knob to a little less than one full turn. It's details like this coupling and the speaker shock mounts that were typical of the National approach to solid mechanical construction, even in their lower cost radios. As I mentioned above, the coupling set screw had come loose and the parts were rattling around inside the chassis when I opened the bottom cover, but fortunately I realized what they were before I lost them and they all went back together smoothly.

There are other interesting mechanical features found in the NC-57. The main tuning and bandspread capacitors and dial drives are rather cleverly designed with a string drive vernier so that while the tuning condenser shaft rotates through 180 degrees, the associated dials go through a 330 or more degree turn. Brackets tied directly to the steel chassis support the dial drive mechanism, including the tuning knobs and shafts. They are not mechanically connected at all to the front panel, so that pushing on the panel doesn't disturb the tuning. This came to my attention because when the set first came, the front panel was misaligned just enough to cause the bandspread tuning shaft bearing to catch on the panel. This made the tuning quite sensitive to pressure on the panel until I figured it out and corrected the alignment. The tuning capacitors themselves are, surpris-



You'll find a neat, clean layout under the NC-57's lid.

ingly, not made by National but by P&C of Camden, NJ and Toronto, Canada. I don't notice any particular wobble or backlash in them, so it would appear that National finally found a satisfactory, lower cost, commercial capacitor. Readers "in the know" might recall that National had tried to use commercial tuning capacitors in the NC-80X and NC-81X receivers in the later 30's but wound up spending so much money fixing and adjusting them that they went back to building their own instead.

While I'm mentioning the panel, I should point out that the NC-57's cabinet is nicely made and finished, and it is designed for easy access to the receiver inside. National made use of their extensive, in-house metal stamping facility to give the panel a two-level, sculpted look, with recessed areas for the speaker, main tuning dial and the lower row of controls. All edges and corners, including the bandsread dial window, are

nically rounded. The swinging lid in the cabinet top and the bottom plate, held on with four screws, give ready access to all interior areas without having to remove the chassis from the cabinet. If need be, it is still relatively easy to drop the receiver chassis out of its cabinet by just removing the front panel knobs, phone jack and standby switch and removing the four feet on the bottom and a few screws on the back.

The knobs on the NC-57 are pretty, especially the two tuning knobs with their chrome circle inlays and the metal bandswitch and function knobs. Heavy, knurled nuts also accent the mounting of the phone jack and send-receive switch. Strangely, the small plastic bfo pitch knob on this receiver seems deformed, almost as though it was once melted or not properly molded.

As you can see from its picture, the NC-57 has its main tuning dial on the right and its bandsread dial in the

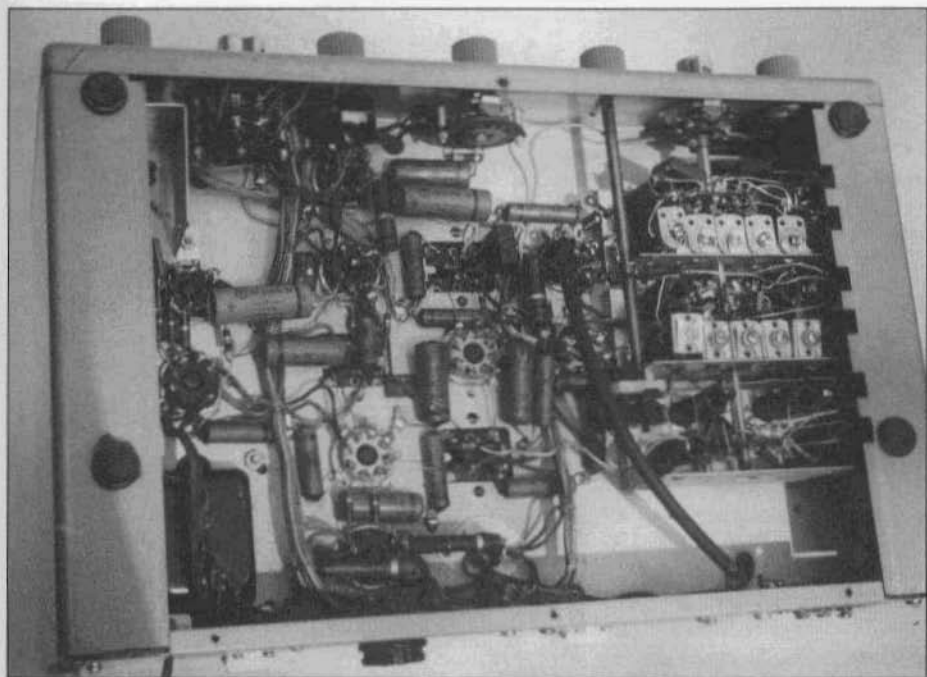
center of its panel. About three inches behind these dials there is one, lonely, hard working TS47 bulb that is expected to illuminate both of them. You'd think that a class act like National would have at least thrown in a bulb for each dial.

One mechanical design feature that could have been better planned is the placement of the RF amp, mixer and local oscillator coil tuning slug adjustments. The coils are mounted on a sub-chassis on the underside of the main chassis, in two rows on either side of the bandswitch, which is directly beneath the tuning capacitors. This makes for nice, short leads in the RF circuitry, but it also puts the slug adjustment screws for the 1.55 to 4.4 mc band mixer grid coil and for the broadcast band mixer grid and local oscillator coils underneath the plates of the bandspread capacitor when that capacitor is in its fully un-meshed, "Set" position. During alignment I would normally adjust those slugs with the bandspread capacitor fully un-meshed, so their unfortunate position does make for a few interesting deviations from my usual alignment procedure. Fortunately the NC-57's manual led me through a successful alignment procedure (fully mesh the bandspread cap, detune the main tuning cap to find the alignment signal and then peak the mixer coils at that dial setting), so the result is awkward but no real problem.

While I'm discussing alignment, I should tell you about the fun I had tuning up the B, 12 to 30 mc band. I started off just following the manual instructions, and the results were a lot less than satisfactory especially down around the 20-meter end of the dial. Even though the calibration was on the mark at the 12 and 30 mc alignment points, it was off by several hundred kilocycles around 20 meters, and the sensitivity and gain were way below levels on the lower frequency bands. The first thing I decided to do was to

align the local oscillator at 14 mc instead of 12mc. That resulted in the calibration being good across the entire dial between 14 and 30 mc but progressively worse as it went down to 12 mc. Since I care primarily about the ham bands, I decided to quit while I was ahead. Next I tried to fix the low sensitivity problem. After a few fits and starts, I got out my Millen Grid Dip Meter and found out what was really wrong. To start with, the RF amplifier grid coil, L9, was resonating at 14 mc when the main tuning dial was reading 15 mc. And yes I had the bandset capacitor fully open and the coil slug backed all the way out. That indicated that there was just too much inductance in that coil. There was no way to back the slug further out of the coil to adjust inductance, so I finally took the somewhat brute force approach of unsoldering and lengthening the ground side coil lead so that I could get a little slack into the coil itself. I then spread the ground side turn of the coil away from its brothers until the grid dipper said that the circuit resonated at 14 mc when the tuning dial was set there. Next I checked the L13 tuned circuit between the RF amplifier plate and the mixer grid. This one was resonating at 14 mc when the dial read about 14.5 mc, too much inductance here too. The manual says that there is an adjustment slug in this coil, but it was not present in my receiver or in Mike's. But there is a half-turn down inside the coil form that can be tweaked from side to side to bring the coil into resonance at the right spot. A few poke and tries later, the grid dipper finally said it was tuned properly. The overall result is that this little receiver is now hearing things reasonably well on 20, 15 and 10 meters.

Once aligned, the NC-57 is about what you would expect on the air. It's not all bad for listening to CW and AM and even SSB on 160 through 30 meters and



The NC-57 under chassis area is completely accessible when the bottom cover is removed.

on the AM broadcast and short wave broadcast bands so long as the frequency is not crowded. But it is about as selective as a politician in heat, and without some assistance like Mike's Q-multiplier or Hank's regenerative IF stage it doesn't do well when things get crowded. At 14 mc and above, images become conspicuous and things are a little less stable. The antenna trimmer pulls the local oscillator frequency a good bit on these higher bands. I tried putting DC on the 6SB7-Y filament, but it made absolutely no difference in received quality on any band.

Bandspread on the NC-57 is a bit tight. The Bandspread dial has 100 divisions that are traversed by 7 revolutions of the 1 3/8-inch diameter Bandspread knob. On 500 kc wide 80 meters, the entire band is covered in 80 dial divisions for an average of 6.25 kc/division. 160, 40 and 20 are not bad either, coming in at 1.2, 5, and 5.33 kc/division

respectively. But the bandspread is down to 13.5 kc/division on 15, about 40 kc/division on 10, and 66.7 kc/division on 6, all of which make for a little more holding your breath while you are tuning.

The NC-57 is about what you might expect it to be, as good as any receiver of its day in the \$90 price range with 1 RF, 2 IF's and no crystal filter. It is mechanically sound and built with good quality components. As is, it is a very decent shortwave broadcast receiver. If you are serious about using one for ham band CW, you had better locate a Q-multiplier or look in one of the 40's or 50's Handbooks and find out how to add regeneration to an IF stage. It would be a good receiver to give to a youngster in your family or neighborhood. Who knows, it might provide some inspiration for yet another generation of engineers? **ER**

Triple X 813 Homebrew Transmitter

by Sam Champie, W7XXX
105 W. McKenzie
Hermiston, OR 97838

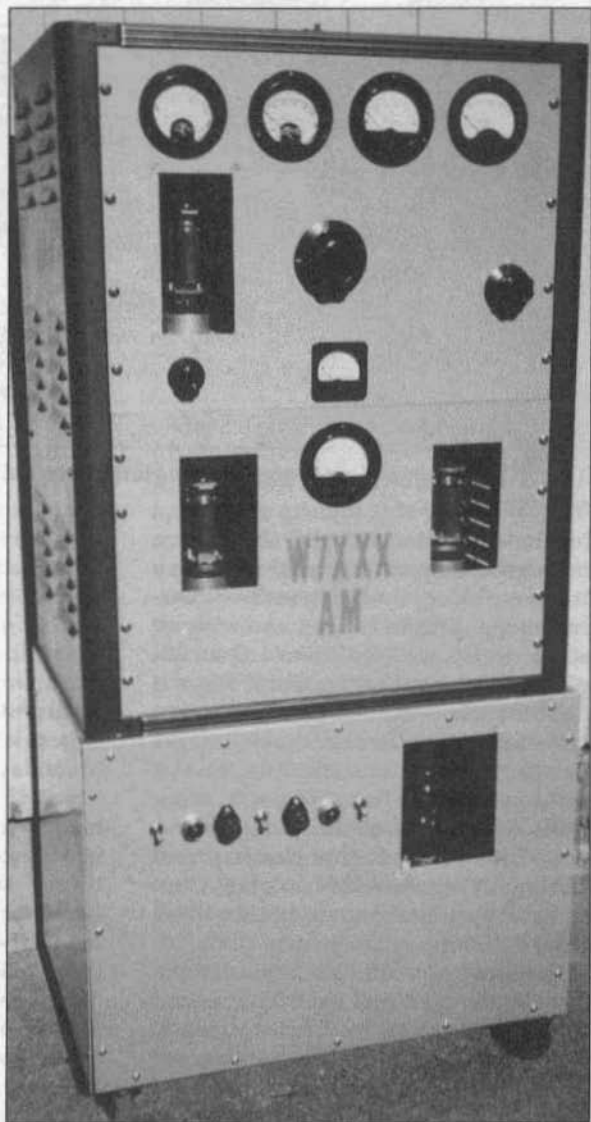
I hope the photos will reproduce good enough to tell the story better than 1000 words. I designed, engineered & constructed this transmitter myself and what a wonderful feeling when it finally came to life.

The Power Supply

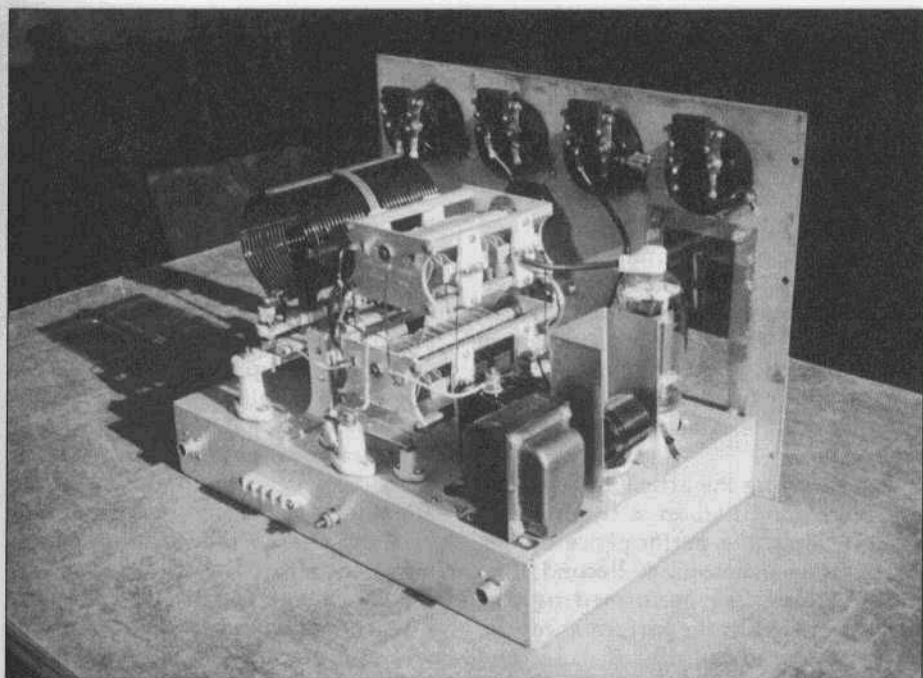
The power supply uses a BC-610 transformer, a 15 Henry choke, 8 MFd of oil filled capacitance, a 75K bleeder and is rectified by a pair of 3B28s. Under load it puts out 2 KV at 500 mA with no strain. An angle iron frame with casters houses this transmitter. All grounding was done with copper strips and soldered. The frame was tapped to ease removal of the back and side panels for repair. All switches, fuses and lights are on the front panel. An inrush current circuit was built on plywood and installed on top of the power transformer. It gives a full 2 seconds delay, which is time to shut down in case of exciter failure. Low power tune-up is done with a 600 watt heater coil in series with the transformer.

The RF Deck

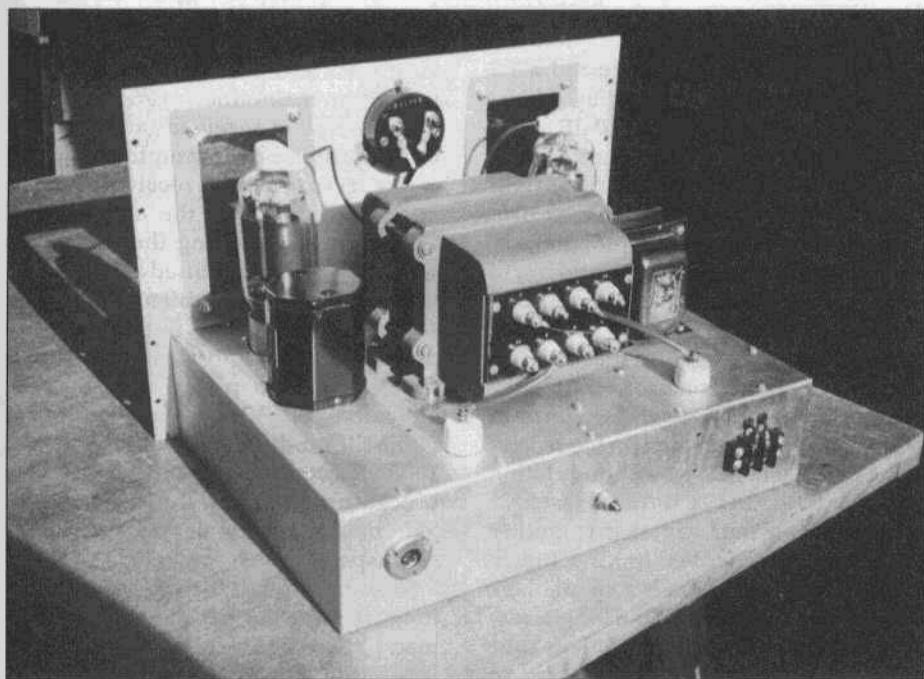
A single 813 produces 300 watts of carrier power. The screen is fed from a dropping resistor hooked to the HV at the power supply, and is dropped to 400 volts. The grid



supply is -165 volts and is mounted under the chassis. The photos don't show the variable capacitor I hooked in



Rear view of the RF deck.



Rear view of the modulator deck.

Command Set Selectivity Mod

by Hank Brown, W6DJX
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Lancaster, CA 93536

An interesting article on improving performance of the "Command" receivers appeared in the June, 1999 issue of ER by Norman Chipps, titled ARC-5 REVISITED. The plan was simple, no parts were required and the original circuit was retained. The entire modification should take less than an hour to complete.

After reading the article two receivers were modified in a three stage project. First, the performance of the receiver was measured. Second, the modification was performed as described and finally the performance was again measured.

Data and curves on the AN/ARC-5 R-26 (3 - 6 Mc) receiver are presented. The data and curves on the R-27 (6 - 9 Mc) receiver are similar.

The unmodified R-26 required a 1.1 microvolt signal modulated by 1 kc at 30% on 4 Mc to produced a 20 dB S+N/N ratio. Figure 1 is a plot of the RF curve around 4 Mc. Also, 10 microvolts of AM at 4 Mc with receiver gain at max produced 14.5 VAC output. A plot of the IF response centered on 1415 kc and out to plus/minus 15 kc was also recorded (Figure 2).

All measurements were made with a URM-25 signal generator, frequency counter and VTVM reading AF output while gain was set at max on the receivers. Signal generator 1 kc modulation was maintained at 30% for all tests.

Less than an hour was taken to modify the IF cans as described in Mr. Chipps' article. One note: there is a small black plastic tube over part of the long screw securing the IF stack in place. This tube must be cut or removed in order to interchange the long and short spacers

between the two coils. The SCR-274-N receiver long IF screws have a small nut at the top that must be removed and reinstalled on top of the small support bar. The ARC-5 long IF screws thread into the top support bar without this nut. A dab of paint on the can identifies the unit as being modified.

The same series of tests was made on each receiver after modification and alignment. The response curves indicate the simple modification is well worth the effort.

A much better 20 dB S+N/N ratio at 4 Mc (.5 microvolts) was discovered with the modified R-26 receiver. The output of the receiver was down considerably but more than enough audio for normal work is still available.

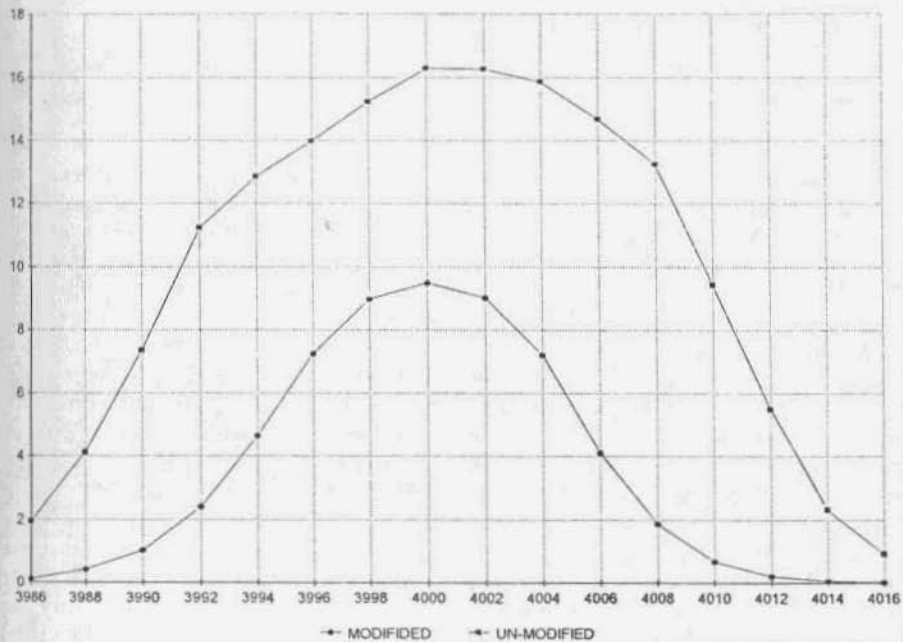
Note the two curves of the R-26 RF in Figure 1. Here, the RF input to the antenna was maintained at 75 microvolts and the loss of receiver gain is shown by the difference in amplitude of the two curves. On this receiver with 10 microvolts input to the antenna and maximum gain setting the AF output was 14.5 VAC unmodified and dropped to 5.8 VAC when modified.

Figure 2 shows the IF plot centered on 1415 kc and out to plus/minus 15 kc. The unmodified plot was made with 400 microvolts into the converter grid while the modified plot was made with 1500 microvolts to the same point. This procedure does not show the loss of gain but moves the curves a bit closer for inspection.

The simple modification does not take long, is inexpensive and will provide many hours of listening pleasure with less QRM. During on-the-air listening tests the receiver gain control was usu-

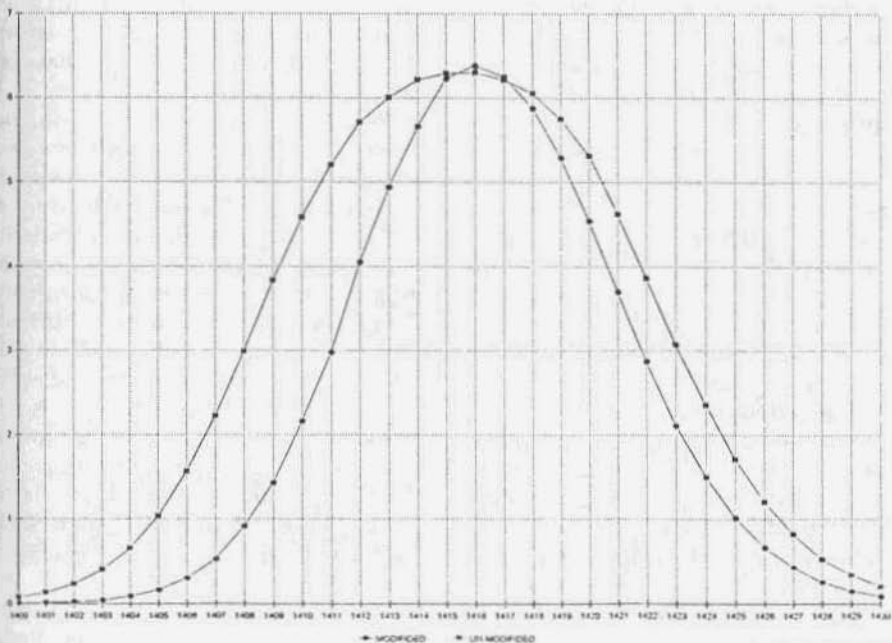
R-26 S/N 16591 RF PLOT

FIGURE 1



R-26 S/N 16591 IF PLOT

FIGURE 2



VFD Report - KB1CMR

by Roger Olsen, KB1CMR
P.O. BOX 7260-1 RR3
Rutland, VT 05701

The planning and invite phase is over. The day is upon us. Assignments and responsibilities were outlined in a rough fashion as follows: Tim Martin, WA1RGS; Gerry Guppy, no call yet; and Roger Olsen, KB1CMR will transport the Meissner 150B from Roger's shop to the mountain location.

Royal Barnard, N1HTQ, has offered the Kawasaki backup generator from his newspaper's offices. (He might also be able to locate a weather balloon for our 160 meter balloon vertical) David Shaw, N1ZSP will be "wire man". This role will gradually expand to include more arrows, bow, corn, watermelons, helium balloons, etc, etc. As there was to be a BYOB and munchies affair; the core group supplied charcoal and ice filled coolers (thanks to Gerry). Now to the assemblage of equipment as the core group and guests gradually arrive and become drafted into various projects! Equipment to be set up:

1. Meissner 150B trans and exciter
2. Hallicrafters S-76 rcvr w/matching spkr
3. BC-342 receiver
4. Hammarlund "four.20" trans, "four-II" mod
5. Hammarlund SP-400 SuperPro
6. EICO 720 trans w/VFO
7. Homebrew ant tuner
8. Heathkit SWR bridge
9. Kawasaki 2-1/2 kw generator (to be replaced on Sunday morning with Gerry's 1949 vintage Signal Corps 2 cyl Onan shielded generator!

The flagship transmitter for the event will clearly be the Meissner. We set this up on the deck of a 1960 Willys FC-150 flatbed 4wd truck. Slabs of wood, crates

for stands and old picnic tables would serve to set up the rest of the "stuff". And "stuff" there was!! We see David (wire-man) arriving with 4 helium party balloons, hanks of wire, extension cords, bow and arrows, and daughter, Laura in tow! Tim is at the controls of the S-76 with generator whirring, temporary ant rigged up, tuning around. David has assembled a balloon crew, informally consisting of himself, Laura, Shaw, Michael Bosworth, Aaron Jeromin and Rick Heyniger, WA1QFG.

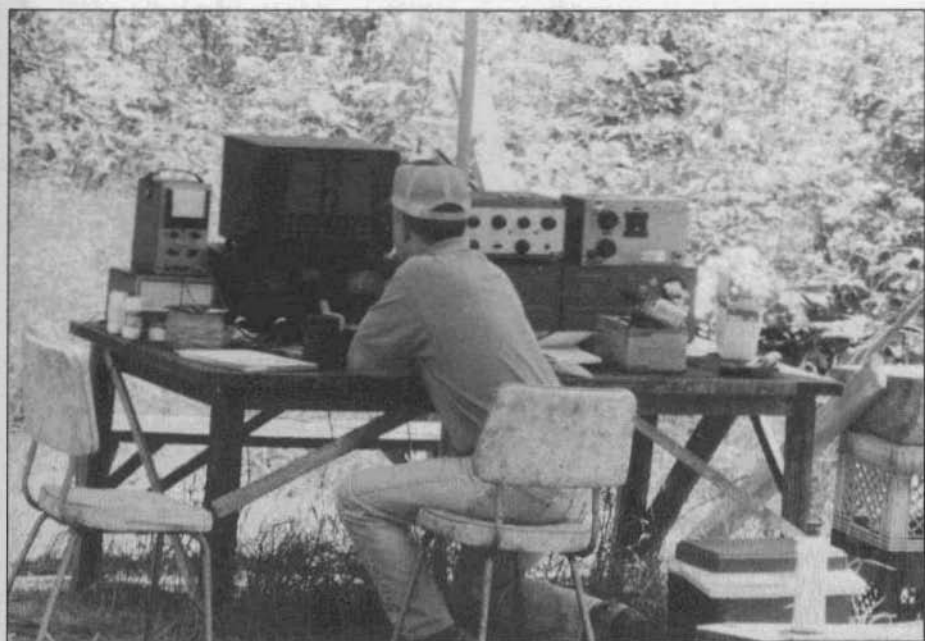
David appears to have assigned Michael, Aaron, and Rick to be the triangle forming fishing live-guy line Maestro's. Tim Martin is still trying to tune in a station! Gerry has set up the SP-400 on another table. Band conditions seem bad—where is all this noise from? The generator? Let's drive in a ground rod. No help. Well maybe when we get our real antennas up...

Roger has a 300 watt lite-bulb dummy load glowing on the Meissner! Jack Holding and his dad, John (guests) are giving archery lessons to Laura and Michael. Aaron launches an arrow (with AA battery taped to it) way up in the targeted cherry tree about 60 feet up. The second tree proved more difficult. Roger moved to plan "B" and launched an AA cell with his spinning rod about 60 feet up in a large white birch. Up goes the 75 meter dipole. The balloon crew is rapidly determining that they don't have quite enough lift to counter the occasional downdraft. Quite a show of fast-moving feet and barking of commands!

Roger is grumbling something about no modulation from the 150B. Royal



A vintage truck (1960 Willys) carries the vintage radio gear. The 'flagship' transmitter was the Meissner 150B shown front and center in the back of the truck.



Tim Martin, WA1RGS, with his VFD station that consisted of a Hallicrafters S-76 receiver, Hammarlund Four-20 transmitter with Four 11 modulator. The other rig is an EICO 720.

New Transmitter at VK2BA

by David Macnaughton, VK2BA

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Ed. The following information was contained in a letter from David to Bill (Smitty) Smitherman, KD4AF. Smitty forwarded the letter and photos on to me. In his cover letter he says, "Some people think 10M is dead during the summer months but David and I have been having weekly QSOs for over one year, only missing one week."

The BA-300 Transmitter

The transmitter is really a modulated amplifier as it has been designed to be driven by a solid state transceiver. At present I am using an FT-757GX with about 5 watts output to drive it. This provides a very stable VFO and the digital readout is useful.

I run the 757 in AM mode so the dial reading is accurate. Later on I intend to build up a tube VFO/exciter unit and when I do that the 757 will not be needed at all.

Although the BA-300 is on air and making contacts, there is still a lot of work to be done to complete it. Some of these tasks are:

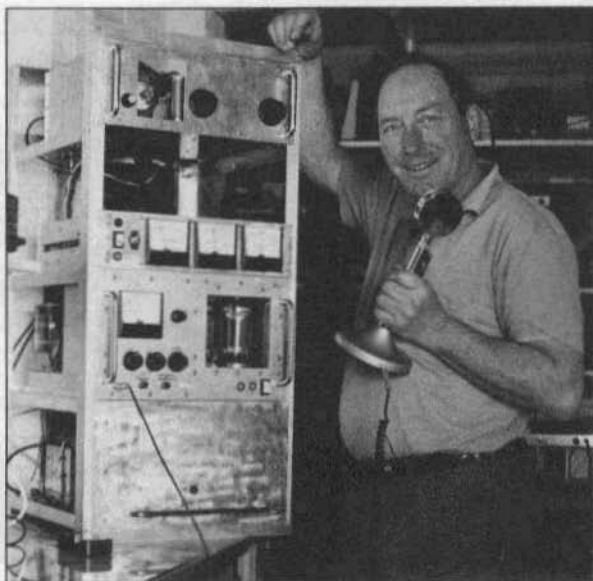
1. The second RF head covering 3.5 MHz to 21 MHz is yet to be made, although I have started on the metal work.

2. The panels will need to be taken off and taken to Coffs Harbor for professional spray painting or even powder coating. This

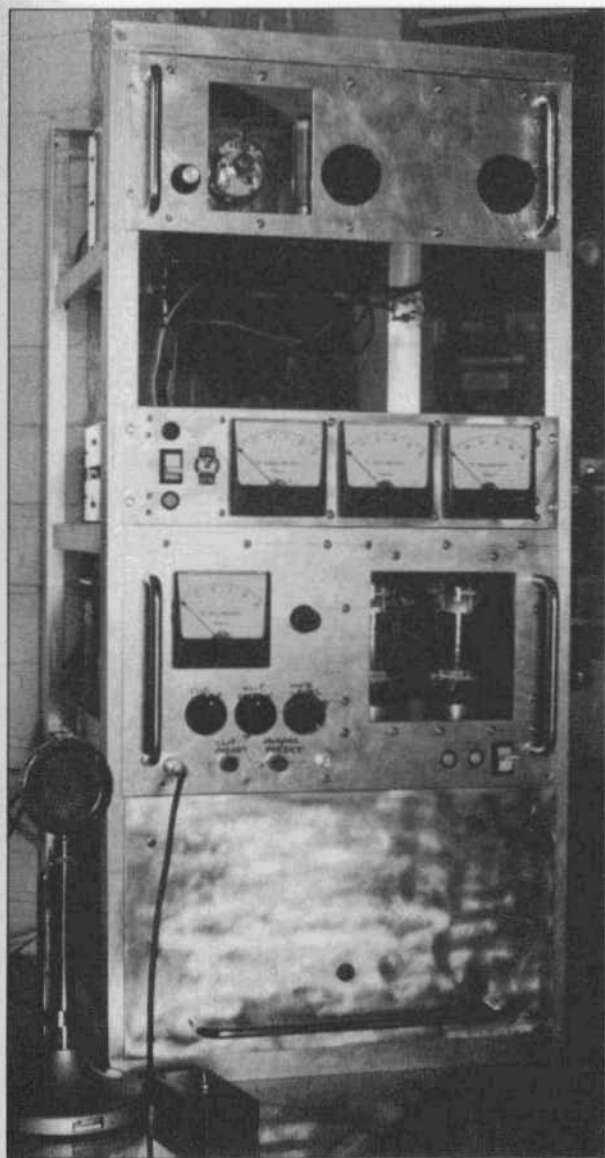
will be a most unpleasant task pulling my work to pieces, but the results will be most beneficial. I would really like to have an old-time black crackle finish put on but I don't know if anybody does that sort of thing anymore.

3. The rack still has to be fitted with sides, top and back panels, and I have an aluminum 'J' extrusion to doctor up the front edges.

4. The modulator clipper/filter still needs some work on it as the filter is rolling off too low in frequency. I need to rewind the pot cores to fix that one. The problem was that I had no way to accurately measure the required inductances when I made it but now with a new digital multimeter that has an inductance range that should be no problem. ER



VK2BA standing beside the BA-300. It measures 36 inches high by 16 inches wide.



The photo above is a close-up of the unit as it was on 8th July 1999. There are five separate units and these are (from bottom up):

1. 1400V power supply at about 1/2 amp capability.
2. Modulator unit. This uses an EF86 as a preamp with 4.7 megohm input

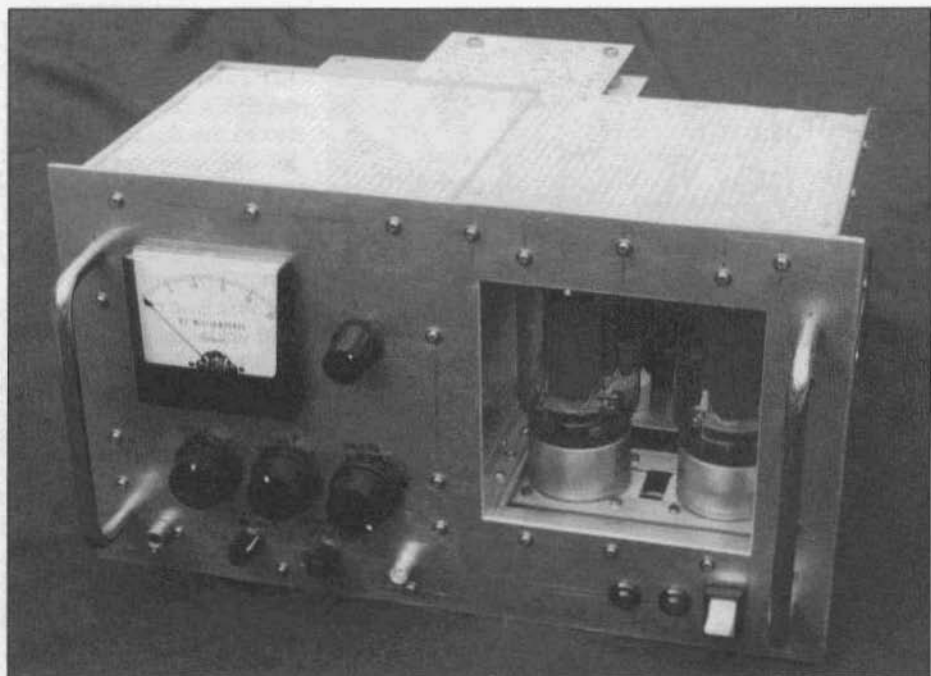
impedance to match the D-104 microphone, driving a string of 6SN7s and one 6H6. The modulator tubes are 813s driven by an old modulator transformer as a driver transformer from a WW II SCR-522 VHF transmitter. The modulation transformer is a Collins 150 watt unit. The meter can be switched to read the bias voltage on the 813 grids, or 813 cathode current.

3. The small unit in the centre is a meter panel and control unit. One of its functions is to protect the PA screen when the tube has no drive and should be cut off with bias. Four VR-150s are used to ensure the screen never goes above +600V. The unit also has a +50V supply, a +12V supply, a -105V bias supply for the PA's (the fifth regulator tube) and the 10V, 5A filament transformer for the 813s in the two RF heads. A switch on the front panel switches the 813 filament voltage from one RF head to the other, or they can both be switched off. The meters are from left to right, PA grid drive (0-25

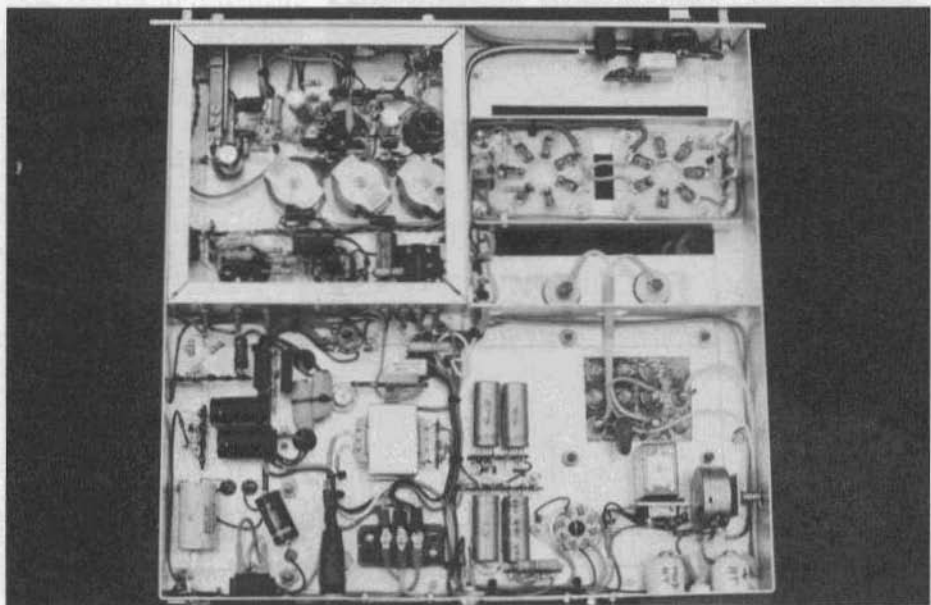
mA), PA screen (0-50 mA) and PA plate + screen (0-500 mA)

4. The big hole will house the 3.5 MHz to 21 MHz RF head when it is completed. The PA will be an 813.

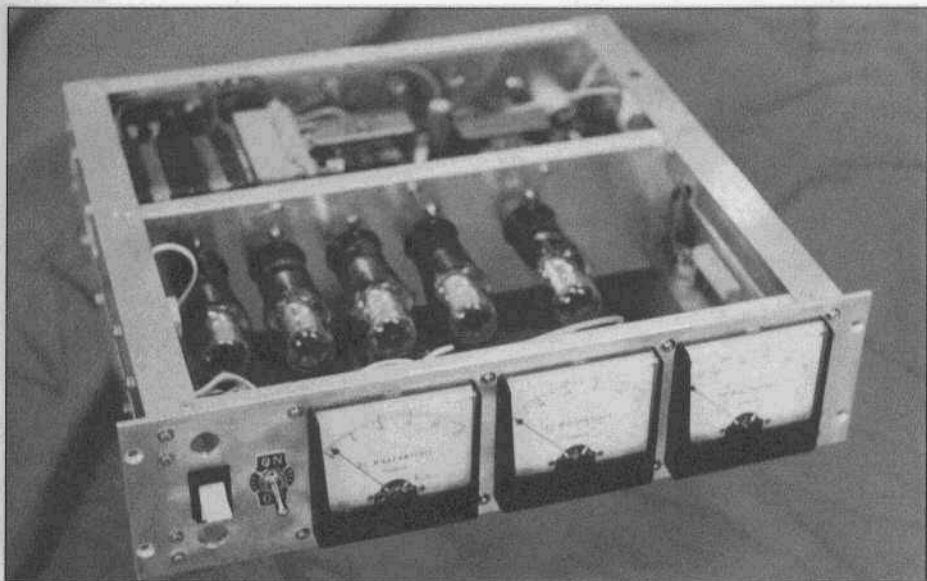
5. The top unit is the functional 29 MHz unit and uses an 813.



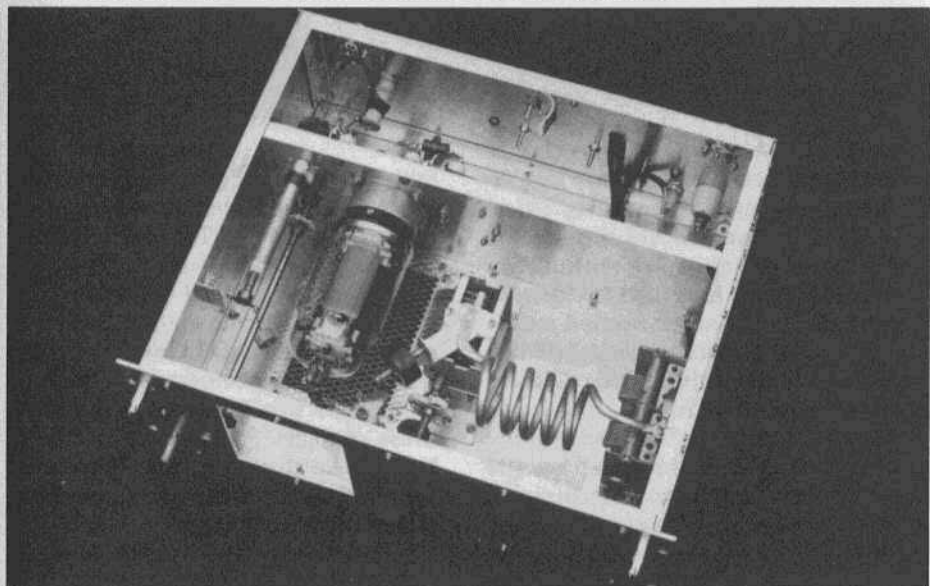
The modulator unit with its glass window. The large transformer that can be seen at the rear is the filament transformer for the 813 modulators, 10V at 10A. This makes a nice room heater on a cold morning.



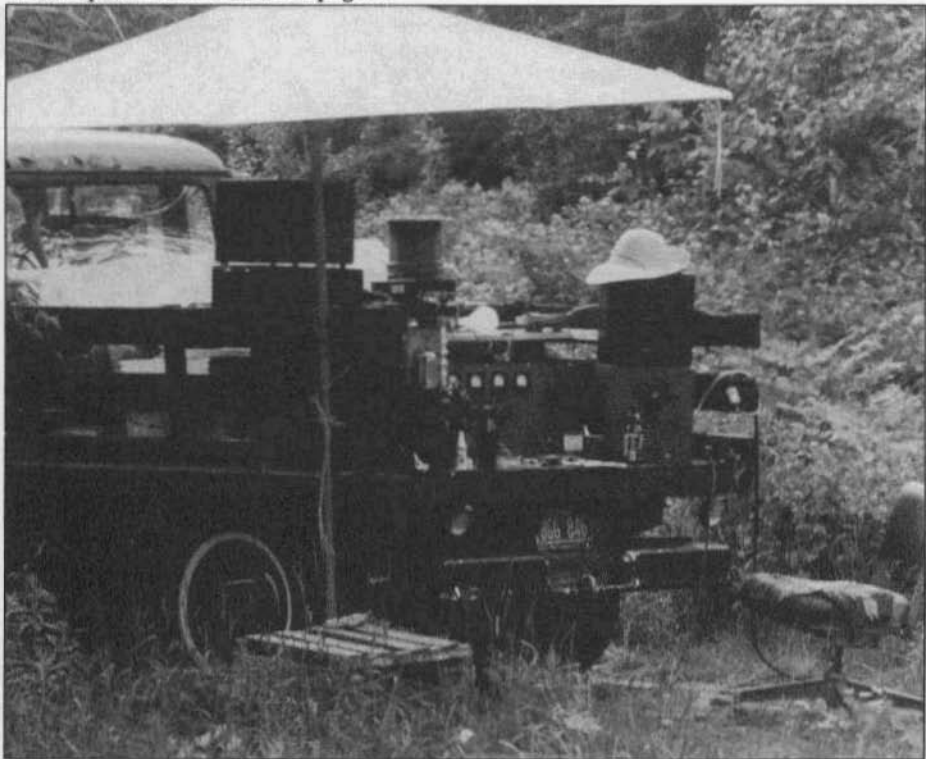
Under view of the modulator unit. Note the small plastic box on the rear panel for safe connections of the high voltages.



The meter panel and control unit. The two holes near the white switch now house jumbo LEDs. Yes, I have used some modern components!



The 29 MHz RF head. Note the neutralizing capacitors running parallel to the 813. These are a 12KV, 12 pF ceramic capacitor connected to the plate of the 813, in series with a home made coaxial Teflon variable capacitor which feeds back to the "cold" end of the grid coil. The rest of the amplifier is very standard circuitry. The unmade 3.5 MHz to 21 MHz unit will be almost identical, but will have a roller inductor in place of the big tank coil and will have a switch to select the grid input coils.



KB1CMR/1 VFD station.

has the "four.20" connected to the dipole and manages to make our first contacts on 75 meter AM despite the severe generator noise. We couldn't figure out initially how to turn off the carrier; but realized we needed a telegraph key for a R/T switch. A J-37 key with leg strap supported on 2 hamburger rolls did the trick!

As the "no-see ums" started to move in (it's getting to dusk) Roger has the Meissner schematic out, scratching his legs, severe ignition noise from the generator, a corporate decision is being made to regroup in the morning with Gerry's 200 lb shielded generator.

It turned out to be a good move. The following morning Gerry transported the generator to the site and while Gerry fine tuned the governor Roger determined the "no-mod" was caused by the mod secondary shorting relay not acti-

vating. He solved this by inserting a bamboo BBQ skewer between the contacts. We were ON THE AIR with 300 watts of plate modulated carrier! Calling "CQ Vintage Field Day". KB1CMR made close to 30 contacts that afternoon on 3885 and the clear booming audio from the S-76 receiver filled the field with some fine sounding audio from those contacts. Some new voices were heard, as well as old 75 meter friends. We thank them all and for the space and courtesy of "hogging" 3885 until 7 PM! We are thinking about doing this again in the fall. We were so busy and had so many humorous fiascos we didn't even get to pitch any horseshoes! Now for the cleanup... ER

Command Set from page 30

ally between 1/2 and 3/4 of maximum for most signals.

Capacitors in my receivers did not require attention. However, many do and one way to replace the caps and maintain original appearance is to fill the old cans with new caps and reseal the tops.

Two types of can capacitors are used. One has a mica cover on top with a roll crimp to hold everything together. First, with a sharp blade cut the mica at the edge of the can until the cover can be lifted up. Then cut the leads to the capacitors inside and remove the cover. Next, clean out the can and replace the capacitors with new units. There are a number of new caps on the market that will fit into the space. Either 400 or 600 VDC units will fit in the can space.

Solder the bottom capacitor leads together and to a ground point inside of the can. Solder the other ends of the units to terminals on the mica cover and secure. Replace the cover on the can and seal edges with epoxy. After dry, it will be difficult to tell a repaired unit from the original.

The second type of can capacitor has a top that is solid and soldered around the edge to hold everything in place. This cover can be removed with a hot iron or torch and then resoldered with new caps in place.

Norman is correct: most of the Command Set capacitors will leak and require attention. After all, they are 55 years old!

Try this mod on your receiver. It is easy, fast and will provide you with many hours of enjoyable listening on the popular old "Command" sets. ER

W2HBE Reminisces from page 13

with a nice rig (on 75 phone, I believe).

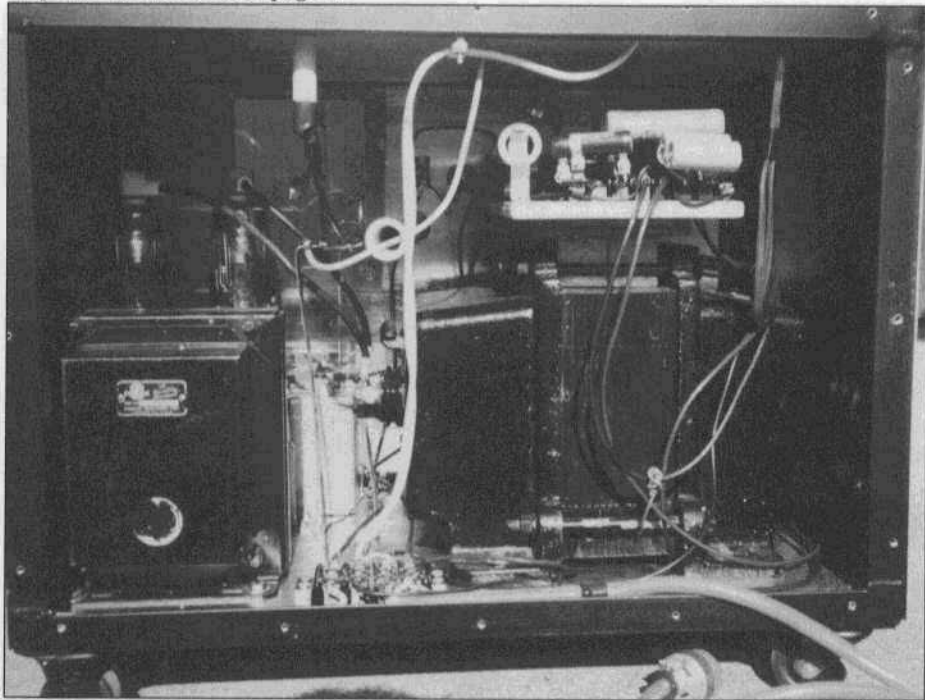
On May 18, 1937 radio station KSAL went on the air. The transmitter plant was located on State St. road (Hwy 40) about two miles west of Salina. The

studio was in the Salina Journal building. Andy Crockett, W9TV, was the manager, Newton E. (Bud) Vance was chief engineer and Jean Seymour, W9JDY, operated the transmitter, ran remotes, etc. One night Jean was doing a remote at Wesleyan Univ. Margaret Wyatt had played in the orchestra that night and missed her usual ride home so Jean offered to take her home. It was love at first sight and they were married a few years later in 1941. They still live happily together in the suburbs of Tucson. This summer they took their grandchildren to Disney World. Jean has a 100 watt rig and a mini-beam and is still knocking off DX like he did in the good old days.

Hoisy left Salina in 1934 to attend EE school at Arizona State. His father worked for the Salina Journal so when he heard they were getting KSAL he applied for the job. Crockett said he needed more experience so he attended Port Arthur College several months, where he accrued time on his ticket. Then he held chief engineer positions at a series of stations, installed a 5 KW station with directional antenna system in Dodge City and was also a sales representative for Collins and other BC suppliers. His last 20 years was spent as manager-chief engineer of WVNA AM/FM in Alabama.

Many years ago Hoisy founded SPAM - Society for the Promotion of Amplitude Modulation. He is active on the air using extremely powerful rigs employing exotic techniques to achieve high levels of performance. But he still has his 'NBC' chimes made from a toy xylophone that he used back in 1930! Hoisy's grandfather founded the town of Hoisington, KS, which is about to celebrate its 100th anniversary and Hoisy has been asked to be the Grand Marshal! I wonder if he will be using a 2-meter handy-talky to coordinate activities. ER

Ed. Part Two next month.



Rear view of the power supply.

series with the fixed link on the grid coil to bring it to resonance. All grounding was done with copper strap and all connections were soldered.

The Modulator Deck

Two 813s in class B give me 350 watts out at 2 kv on their plates. I connected the control and screen grids, grounding the suppressor grid. I used zero bias and found the match between grids and driver is more critical than expected. I use my old tube PA with variable output impedance. The grid transformer was a multimatch type. I finally got 50 mA idle current which works perfectly. 5 watts of driving power gives 300 watts of audio out and modulates the final to 125% positive peaks and 100% negative peaks by using the negative cycle loading circuit across the secondary of the modulation transformer.

The Finished 813

The Triple X 813 transmitter puts out 300 watts of RF, modulated by 300 watts

of audio on the plate. On-the-air and scope tests show this transmitter to have proper bandwidth, no splatter, and very nice well rounded audio with no noticeable distortion and lots of punch.

The construction took 10 months of weekends and the design took several evenings of reading and calculations. I was surprised that this big transmitter causes less telephone problems than my DX-100.

I apologize for not having time to answer any correspondence, but look for me on 3875 weekend mornings and some nights, and I'll give you more details. I am homebrewing a matching exciter, but it may be another year before it gets done. Yes, this beast is Y2K compliant.

So from the land of the giant river where the mighty Sturgeon still swim this is your homebrew AM amateur radio voice of the Columbia River Basin, W7XXX. ER

UFO from page 18

put link, and connected it between the antenna - with an RF ammeter in series - and ground, although I don't recall what we grounded it to.

By Sunday morning we were ready. KJR ran the recording at 6:45, 7:45 and 8:45 AM, so at the 6:45 carrier drop I nervously sent "HELLO EARTH". Then we anxiously listened for some mention on KJR, but there was only the usual programming. We soon realized that the addition of the output link must have pulled the oscillator off frequency, so we retuned it just in time to try again at 7:45. We waited again, but still nothing was mentioned on the air.

A little disappointed, I decided to go back home and work on something else until the final opportunity of the weekend an hour later. But in about a half hour Dan came running in with a portable reel-to-reel tape recorder, saying, "Terry - listen to this!".

I can't quote what was being said verbatim, as that tape has been lost, but two DJs were discussing the rash of phone calls that had just tied up their switchboard. They said people were calling in to report hearing something. No one had deciphered it; they just said they heard what sounded like "some kind of code". The DJs listed off the prefixes of some of the callers, and it was apparent that the signal had been heard over a 20 - 30 mile radius.

When I returned to the ship Sunday evening, I had a transistor radio with me. Monday morning I took it up on the flight deck and listened as the eerie invitation began. Then the carrier dropped and, plain as day, there was a loud 120 cycle "HELLO EARTH".

Dan continued to respond to the message each morning for the next week - at least the first one, as he had to be at work by 8. At some point he began sending three dots, a dash, one dot, and four dots, hoping that someone would recognize it as pi - a sure sign that it was being sent by intelligent life forms!

By the following weekend, KJR had recorded a new announcement, basically saying that they had heard the replies and had set up a landing schedule.

They suggested a time in the evening of a particular day, and gave the latitude and longitude of a skydiving field in Issaquah. A private pilot called in to say he was going to escort the craft, but changed his mind after a woman called in to warn him that she had had a dream of his plane crashing.

I don't know how many people showed up that evening, but it was reported that about fifteen of those that did, including the morning DJ, claimed to have seen a strange object overhead.

Further details have become hazy after nearly 40 years, but listening to the parts that we still have on tape reminds us of the fun we had with our electronics hobby as kids. Somehow I think that Carl and Jerry would be proud. ER

The Last Day of Morse from page 13
mine among them. I heard more than one tough-looking old timer mumble, "I didn't think it would get to me, but..." and then turn away.

I had one further item on my agenda: to get my license endorsed showing me as an operator at KFS/KPH on the last day of North American Morse. Once again Tim Gorman showed himself to be a gracious and understanding man as he took pen in hand to write "satisfactory" in the blank provided for operator evaluation on the back of the license and add his signature.

Finally it was time to go. I gathered up my key and my photos and my papers and shook hands once more with all the great men and women who were there. And finally we were heading north on highway 1 with the beautiful Pacific sunset on our left and the green coastal hills on the right. "That was one helluva day," Tom said. "Yep," I agreed. ER

selling his BC-610E and BC-614. Ozzie had whipped into shape the -610 so that it was running flawlessly. A 400 mile trip up to Ozzie's beautiful home in northern California, a wonderful home cooked meal, a good night's sleep and I was off the next morning home with the -610.

I quite literally would not have had a leg to stand on if it had not been for my friend Jan Eshuis in the Netherlands. Jan was able to locate the original WW II wooden legs that support the two wooden chests. A mutual friend, Donald Prins, heading back here to the states was able to bring me the coveted set of legs.

I was able to get everything up and running in a matter of weeks. My staging area was the living room of a house I have been working on longer than I care to admit to. No, I am not married; that's why I can get away with it.

Getting all this "portable" gear to the meet was going to be a chore. But thanks to my friend George Andrews and his beautifully restored 1942 Ford GPW jeep and trailer, my radio chests and SCR-543 set were transported to the meet in style. It was quite something to see the canvas covered chests and radios in the back of George's trailer. The -610 and other gear went in my truck. Unloading and set up at the convention went without a hitch. I had a nice shaded area outside to set up my gear and power was close by.

Getting the -610 to load into the antenna tuner and the whip took a while for me to master. I unfortunately could not operate during the show hours because I had to use a counterpoise with my antenna and the fear was someone would trip on it and injure themselves. I operated on 75 phone and enjoyed making contacts with friends and others in the evening and early morning hours. The only real problem I had was when the receiver in the BC-669 became intermittent and prevented me from

operating it. If that was the worse that Murphy could throw at me I was lucky.

The convention was great. It ran for three days and there were a lot of beautifully restored vehicles to look at as well as a large swap meet, where I found some radio goodies to haul home. But mostly for me the enjoyment came from meeting and talking with the people that came by to check out my radio display. Some were veterans who actually used the gear and others were collectors who enjoyed seeing about 1000 pounds of radio laid out. Some just wanted to tune around and listen on the BC-342. For some of these people this was the first time they had ever listened to shortwave radio.

There was a large contingent of Japanese visitors who stopped by to each have their picture taken with the T-50 mic in one hand and sitting next to the BC 610. I got a real kick out of that.

Maybe as soon as my back recovers and I forget what a chore it is to move this "portable" radio set, I'll try and get it set up and going for Vintage Field day next year. ER

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FOR SALE: Repair and restoration on all vintage equipment; 45 years experience. Barney Wooters, W5KSO, 8303 E. Mansfield Ave., Denver, CO 80237. (303) 770-5314

FOR SALE: Radio books, magazines, catalogs, manuals (copies), radios, hifi, parts. Send 2 stamp LSASE, David Crowell, KA1EDP, 40 Briarwood Rd., North Scituate, RI 02857-2805. aq253@osfn.org

FOR SALE: KWM-2 fan bracket - \$12 ppd. Dave Ishmael, WA6VVL, 2222 Sycamore Ave., Tustin CA 92780. (714) 573-0901.

FOR SALE: Small parts, transformers for projects and repairs of tube gear. Let me know your needs. Van Field, W2OQI, 17 Inwood Rd. Center, Moriches, NY 11934. (516) 878-1591 or wreck_and_rescue@juno.com

FOR SALE: NOS, UTC # F-7101 matching (600-8 ohms) xfms (2 W) - \$13 ppd/dom/USA. ABEN, POB 4118, Jersey City, NJ 07304-0118. Avidov@aol.com

FOR SALE: Two ARC-5 R-28 UHF rcvrs, rack, stals, VFO, working, exc condx - \$140. Stuart T. Carter II, W4NHC, 680 Fernwood Dr., Melbourne, FL 32904-1995. (407) 727-3015

FOR SALE: Homebrew antenna tuner w/SWR meter - \$20 + UPS. RJ Eastwick, N2AWC, Unit 109 400 N. Haddon Ave., Haddonfield, NJ 08033. (609) 429-2477. n2awc@earthlink.net

FOR SALE: Collins S-Line aluminum knob inlays: small (exciter/PA tuning) - \$1; 30L-1 - \$2; spinner/plain (main tuning) - \$3. Charlie, K3ICH, 13192 Pinnacle Lane, Leesburg, VA 20176. (540) 822-5643

FOR SALE: Hallicrafters, RME, Gonset, others. Also some military, test equipment, VHF/RFamps, more. LASE, Don Jeffrey, POB 1164, Monrovia, CA 91017.

FOR SALE: K7FF Super-List of amateur stuff via e-mail, Derek, <k7ff@inreach.com>

FOR SALE: RME 4350 rcvr, 160 thru 10, been using it on the air for 6 years, tired of looking at it, works exc. - \$225. Rick, K8MLV/O, 1802 W. 17th St., Pueblo, CO 81003. (719) 543-2459

FOR SALE: Heath grid dip meter model GD-1B, 2 to 250 Mc five coils - \$50. Bill Coolahan, 1450 Miami Dr. NE, Cedar Rapids, IA 52402-2933. (319) 393-8075

FOR SALE: Swan 350, new finals - \$125; new Swan VXI plug-in VOX control - \$50. + shpg. K2MAC, 174 Lincoln Blvd., Kenmore, NY 14217. (716) 876-3259

FOR SALE: To Ranger user: Two mint, in the box Sylvania type 7027A tubes for audio - Offer. Or will trade for J-38 military key. Wes Chatellier, W5DPM, 1950 Chevelle Dr, Baton Rouge, LA 70806. VVDL74A@Prodigy.Com

FOR SALE: Repro Nameplates, R-390A generic - \$9; 51J-3 and 51J-4 exact replicas - \$12. Tom Marcotte, N5OFF, 242 Chestnut Oak Dr., Mandeville, LA 70448. marcotte@iamerica.net

INFORMATION: Available on classic communications gear. Just look at: <http://www.geocities.com/SiliconValley/6992/index.htm>. Thanks for your visit! Jose, EB5AGV, eb5agv@amsat.org

FOR SALE: Various parts for homebrewing. List at: <http://home.earthlink.net/~af4k/trade.htm> FREE: Buy/Sell crystals at: <http://pluto.beseen.com/boardroom/b/21532/> Brian Carling, AF4K, af4k@earthlink.net

FOR SALE: Send SASE for large list of excess parts, publications, ham & test gear. K4AFW, 104 Glenwood Dr., Williamsburg, VA 23185.

FOR SALE: Panel, cabinet refinishing - Johnson Rangers. Will look better than original! \$250. set (+shipping). Yes, we still sell tubes- Visa/MC/Am-xp - Dee, W4PNT, 534 W. Main St - Waynesboro, VA 22980. (540) 249-3161; cell:(540)471-7023, w4pnt@rica.net

FOR SALE: Kenwood TS-830S, all CW filters, manuals - \$450 or trade for AM gear. Carleton Rand, W1PZL, 85 Black Hall Rd., Epsom, NH 03234. (603) 736-9695

FOR SALE: 75A4; Atwater Kent 10; SW-5; SW-3; HQ-150; SP-600; Viking II. Carter Elliott, 1460 Pinedale Rd, Charlottesville, VA 22901. (804) 979 7383, CElliott14@aol.com

FOR SALE: BC-348L; SB-10; HW-202; TSB-50D; Clegg 22'er; DC-3 PS; ARC-5s. Marvin, 2957 Gaffney Rd., Richmond, VA 23237. (804) 275-1252, wa4to@juno.com

FOR SALE: Heath DX-60 - \$75; Heath HG-10 - \$50; Heath HD-10 keyer - \$45; SB-634 station console - \$100; SB-630 - \$80; AA-100 Heath audio amp - \$125, missing one tube; Drake W4 power meter parts unit or can be restored - \$25. Marty NJ, (609) 466-4519

FOR SALE: Swan 300B with HB digital RO, extras - \$200 OBO. **WANTED:** Walt Maxwell's "Reflections." Jay, N3DQU, (724) 654-6275, n3dqu@aol.com **FOR SALE:** MFJ SWR analyzer MFJ-249 exc cond - \$130 U ship. John Snow W9MHS, 4539 N. Bartlett Ave., Shorewood, WI 53211. (414) 964-0194

FOR SALE: Johnson Viking Pacemaker xmttr/exciter & Gonset Communicator VFO, 6, 2 & 220, all reasonable. **WANTED:** Barker & Williamson 5100 xmttr reasonably priced. Will PU if not too far from Ohio. No UPS. W8JKS, 1344 McDonald Hill Rd., Frankfort, OH 45628. (740) 998-4518

FOR SALE: Johnson Invader 2000, part of personal collection for years, immaculate - \$995 + shpg. Richard Gerardi, L.L.NY, (516) 887-0738.

FOR SALE: Repair! Radio repair, tube or solid state. Reasonable charges. J. Dan Rupe, W7DDF, 998 Whipple, POB 697, Grayland, WA 98547. (360) 267-4011, w7ddf@yahoo.com

FOR SALE: RCA tube manuals, RC-15, RC-20, RC-25; ARRL Handbooks, 1965, 1968, 1972 & 1978. LSASE for list. Charles Brett, 5980 Old Ranch Rd., Colorado Springs, CO 80908. (719) 495-8660, brett3729@aol.com

FOR SALE: Collins drum overlays. 75A-2, 3, 51J#. For 75A-4 & KWS-1, specify new/old - \$8.50 ea. 2/ \$15 ppd. Correct colors. Charlie Talbot, K3ICH, 13192 Pinnacle Ln., Leesburg, VA 20176-6146. (540) 822-5643.

FOR SALE: Ten, 7 or 9-pin radio tubes - \$2, your choice if available. L. Gardner, 458 Two Mile Rd., Tonawanda, NY 14150.

FOR SALE: Large number of new & used xmtg tubes: 800 series, 1600 series, 2E series, T series, RK series, HY series. What do you need? All tested on URM-25 where possible. K4HU, NC, (828) 693-7519 or millsjr@bigfoot.com

FOR SALE: Presto Model 8-D table top record lathe, good condx. Heavy! 10 or 15 cutters, microscope, turntable. Fred Clinger, OH, (419) 468-6117 after 6 PM.

FOR SALE: Moving Sale: Drake 2-A, 2-B, 2-C, 2NT, Hallicrafters SX-100, S-20R, Johnson Navigator, Elmac AF-67, all - \$100; Heath DX-60, HG-10B, Hallicrafters TO keyer, HA-5 VFO, all - \$75; Heath HM-11 SWR, Drake W-4 wattmeter - \$50 ea. All in good condx & manuals included. U pay shpg. Dick Lucas, K4JEJ, FL, (561) 626-0136.

FOR SALE: RCA 1960 Broadcast Equip Catalog; photos, specs AM, FM, TV xmtrs, antennas, STL, mics, consoles, cameras, terminal equip, 412 pgs hardbound, price list, order blank & letter from A.R. Hopkins, Sales Manager, mint - \$85. Bob Thomas, W3NE, 216 Sunrise Ln., Philadelphia, PA 19118. (215) 247-2427

FOR SALE: Precision test equip: E200C sig/gen; E40 SWP/gen; ES500 scope - \$20 ea + shpg. H. Mohr, 1005 Wyoming, Allentown, PA 18103.

FOR SALE: Heath SB-102 w/SB-600 spkr & pwr sply - \$150. Robert Braza, W1RMB, 49 Fifth St., E Providence, RI, 02914. (401) 434-1629

FOR SALE: R390-A IF subchassis w/all good tubes except RT 510 looks & works exc - \$75 U ship. John Snow, W9MHS, 4539 N. Bartlett Ave., Shorewood, WI 53211. (414) 964-0194

FOR SALE: OEM Heath belts - \$2.50 ea., or 10+ for \$2 each shpd. Send check or money order. Roberta Hummel, 202 Midvale Dr., Marshall, WI 53559.

FOR SALE: DX40 & VFO, RAL-6, BC-348Q, BC-375E. PU only. **WANTED:** Junker BC348Q, PE-73-C. W7RBF, AZ, (602) 864-9987.

WANTED: Collins - Amateur catalogs, sales literature, manuals, promotional items & Signals. Richard Coyne, POB 2000-200, Mission Viejo, CA 92690.

WANTED: Howard radios of any type. Andy Howard, WA4KCY, 105 Sweet Bay Ln, Carrollton, GA 30116. wa4kcy@usa.net

WANTED: E. F. Johnson Co. HAMALOGs, unusual photos and information 1923-70. Bruce Hering, 41120 State Highway 13, Waseca, MN 56093. (507) 835-5619. bhering@efjohnson.com

WANTED: Top dollar paid for Winchester Radios and Winchester related items. Donald Daggett, 122 Hill Rd., Grahamsville, NY 12740. (914) 985-7249, wc2@webtv.com

WANTED: ITT Mackey marine 3010-C w/manual & Johnson AN/FRT-505. Ric, C6ANI, POB N4106, Massau NP, Bahamas.

WANTED: For purchase. Equipment & technical information related to AN/ARN-6 Radio-Compass. Jim Cavan, 6 Timberline, Norfolk, MA 02056. (508) 528-0908, jcavan56@aol.com

WANTED: Gearshift for Teletype Model 28, or complete machine with one. Ivan, WA6SWA, POB 248, Reno, NV 89504. (775) 329-7738, idh@cs.unr.edu

WANTED: SW3 #33A and #35 coils. I will trade my extra coils SW3 coils. Hank Bredehorst, 2440 Adrian St., Newbury Park, CA 91320. (805) 498-8907

WANTED: 1920-30s Army and Navy equipment, any condx, any size; also, some VT-5s. William Donzelli, 15 General MacArthur Dr., Carmel, NY 10512, aw288@osfn.org

WANTED: Parts for a TMC GPT-750 xmttr. I need the AM modulator deck and other parts to restore this unit. John, KF2JQ (716) 873-0524 jpruss@acsu.buffalo.edu

WANTED: Japanese Star or Starline made ham revr SR-500, SR-550, SR-600 and SR-700. Takashi Doi, 1-21-4, Minamidai, Seyaku, Yokohama, 246 Japan. Fax 011-8145-301-8069, taka-doi@a2.ctktv.ne.jp

WANTED: Working pair HiZ Crystal headphones like Brush Clevite. Mike, AC5P, PO Box 33, Bartlesville, OK 74005. (918) 333-2795, ac5p@ionet.net

WANTED: 1930s military electronics: BC-114, BC-115, GP-1, RAG, TAV, etc. Some boat anchor trades available. William Donzelli, 15 General MacArthur Dr., Carmel, NY 10512. (914) 225-2547, aw288@osfn.org

WANTED: Long wire ants AT101, AT102, GRC-9; DY88/105; PP327GRC9; counterpoise CP12 & 13 GRC9; BC348 pwr conn PLQ102/103. KA1ZQR, 348 N. Main St., Stonington, CT 06378.

WANTED: WW II German, Japanese, Italian, French equipment, tubes, manuals and parts. Bob Graham, 2105 NW 30th, Oklahoma City, OK 73112. (405) 525-3376, bgicc@aol.com

WANTED: Heath Gear, unassembled kits, catalogs and manuals. Bill Robbins, 5339 Chickadee Dr., Kalamazoo, MI 49009. (616) 375-7978, billrobb@met-link.net

WANTED: I wish to correspond with owners of National FB7/FBXA/AGS coil sets. Jim, KE4DSP, 108 Bayfield Dr., Brandon, FL 33511. j.c.clifford@juno.com

WANTED: Anyone having info on the Deltronic Corporation of Los Angeles, CA, please drop an email, letter or call. The company was in operation in the early 1950's. Thanks, George Maier, K1GXT, 64 Shadow Oak Dr., Sudbury, MA 01776. (978) 443-9659, gmaier@ultranet.com

WANTED: SW-3 coils any band; any early ham, spark or wireless equipment; early ARRL Handbooks. Mike Bald, WD5GLW, (918) 492-7361, radiomb@aol.com

WANTED: KZ5 Canal Zone call-letter license plates, will buy or trade HP1 plates. Marvin, 2957 Gaffney Rd, Richmond, VA 23237 (804) 275-1252 wa4toj@juno.com

WANTED: Aircraft radios, xmttrs and airport ground sets prior to WW II. James Treherne, 11909 Chapel Rd., Clifton, VA 20124. (703) 830-6272, treherne@erols.com

WANTED: National HRO-5 coil box, E & F coil sets with metal dial /frequency plates (1940's vintage), also junkers for parts. Don, (616) 451-9874.

WANTED: British, Commonwealth W.S. 62, W.S. 22, W.S. 18, W.S. 48, W.S. 46. George Rancourt, K1ANX, MA, (413) 527-4304

WANTED: Gonset G-76 accessories: 3349 pwr sply; 3269 100KHz calibrator; 3240 mobile mic; 6M band xtal. VE4UD, Winnipeg, Manitoba, (204) 489-7434, bevans@ebsys.mb.ca

WANTED: Manual for Solar Type CF Exam-eter; Sams Photofacts SD-13. Geoff Fors, WB6NVH, POB 342, Monterey, CA 93942. (831) 373-7636, wb6nvh@mbay.net

WANTED: G-133 revr, G-186B display. **FOR SALE:** Equipment, parts, manuals, books, crystals, list - \$1.00. Joe Orgero, VE7LBI, 1349 Leask Rd., Nanaimo BC V9X 1P8 Canada. (250) 722-2707 joseph@pacificcoast.net

WANTED: Drake 2B w/matching 2BQ spkr and Q-multiplier. Mac Wheeler, K4NQL, (941) 324-7134, k4nql@sprynet.com

WANTED: Will pay \$100 plus UPS for nice Collins 32V or 75A cabinet. Pete WOEWO, (612) 362-4794, peter.patton@lawson.com

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FOR SALE: Genuine new surplus: Unused R-390A cabinets #CY-979A/URR w/shock supports and misc hardware package - \$305; top and bottom cover sets - \$75. Mac McCullough, TX, (214) 324-4849, Fax - 324-4844

FOR SALE: Hallicrafter's manuals, copies starting at \$5, some Johnson, WRL, others. SASE for list. DSM Diversified, 909 Walnut St., Erie, PA 16502.

FOR SALE: Vintage radio owners, retire the variac, new solid state SoftStart available SASE. Rick Paradise, KE4OCO, 515 Wood Forest Ct. NE, Marietta, GA 30066-3519.

FOR SALE: Tube type kits for CW/AM. Vintage Radio Kit Co, 427 North Main St., Sharon, MA 02067. email us at CPCW-5@aol.com or visit our web site at: <http://www.mnsinc.com/bry/vintage.htm>

FOR SALE: Vintage radios on display, bought, sold, traded and repaired. Webpage - <http://www.tiac.net/users/hobfact>. Rick Galardi, WIDEJ, Boston, MA, (781) 485-1414, Fax 289-1717, hobfact@tiac.net

FOR SALE/TRADE: Transmitting/rcv'ng tubes, new & used. 55¢ LSASE for list. I collect old & unique tubes of any type. **WANTED:** Taylor & Heintz-Kaufman types & large tubes from the old Eimac line, 152T through 2000T for display. John H. Walker Jr., 11015 W. 126th Terr., Overland Park, KS 66213. (913) 782-6455, johnh.walker@alliedsignal.com

FREE: Encyclopedia of Amateur Radio Equipment. Hundreds of photos & descriptions spanning over 80 yrs. <http://www.aade.com/hampedia/hampedia.htm>

FOR SALE: HRO-5TA1, complete, orig w/correct spkr, coils ABCD, Doghouse pwr sply, nice condx except wear around dial, manual (copy) - \$375. Jim, W8HPL, OH, (740) 927-2592.

FOR SALE: Heath SB-600 - \$20; HS-24 - \$25; AC-1 - \$50; HO-20 - \$40; HR-10 - \$70; QF-1 - \$15; Globe Scout 65A - \$70; Collins 75S1 extra nice - \$420. All + shpg. Wm. Ernst, 16300 Campbell Rd., Comins, MI 48619. (517) 848-5002

FOR SALE: WACO-5NWX telephone filters. Just plug in. 1/\$13.95, 2/\$25, 3/\$34. Money back. Cecil Palmer, 4500 Timbercrest Ln., Waco, TX 76705. (254) 799-5931, w5mwx@juno.com

FOR SALE: Join SPAM, the society for the promotion of AM. Lifetime certificate \$1. SASE. W4CJL, 202 Baker Dr., Florence, AL 35630.

FOR SALE: Collins 30L1 owners new Cetron 811A's - \$19; 32V owners Raytheon 4D32 - \$19; major credit cards accepted. Don, W4GIT, FL, (352) 475-3306.

FOR SALE: Heath Nostalgia, 124 pg book contains history, pictures, many stories by longtime Heath employees. (See BOOKS inside back cover.) Terry Perdue, 18617 65th Ct., NE, Kenmore, WA 98028.

FOR TRADE: Two good RCA 833As for one Taylor 833A; also looking for Taylor 204A, 813, 875A. John H. Walker Jr., 11015 W. 126th Terr., Overland Park, KS 66213. (913) 782-6455, johnh.walker@alliedsignal.com

FOR SALE: KWM2/2A; new K2 & K4 plug-in relays by orig manufacture, set of two - \$73 shpd. A. Depascale, KINFE, POB M, Plainville, CT 06062. (860) 675-3333

HAMFEST: York Hamfest Foundation's annual hamfest and computer show featuring: tailgating and commercial sales; vintage and antique radios; computer equipment and supplies. Sunday, September 19, 1999. Location: York VoTech School, York, PA (Exit 6E on Interstate Rte 83). Time: Tailgating begins at 6am; Commercial exhibits and buildings open at 7:30am. Information: [HTTP://www.yorkhamfest.org](http://www.yorkhamfest.org) or Jim, W3MYK, (717) 812-0037. ARRL Affiliate

FOR SALE: Antique parts for building radios & xmtrs. Send list of needs SASE for prompt reply. S.T. Carter II, W4NHC, 680 Fernwood Dr., Melbourne, FL 32904-1995. (407) 727-3015

FOR SALE: Riders Manuals, 1-5 abridged - \$20; 3 thru 18 - \$15 ea, U ship; RCA red books Vol. 1 & Vol. 2 - \$75 ea. Will trade any or all of the above. What do you have? John Snow, W9MHS, 4539 N. Bartlett Ave., Shorewood, WI 53211. (414) 964-0194

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FOR SALE: Books, Submini tubes, send SASE. **WANTED:** Stancor PCO/PSO200, PCO/PSO150, RC8150; Altec TI401. Richard Robinson, POB 1425, Wallingford, CT 06492. (203) 949-0871, richmix@erols.com

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FOR SALE: Harmon Kardon AM/FM Madrigal Tuner - \$70; rare Customzonic loop tape machine Model CTC-60 - \$50; 1938 Delco R-1140 AM radio works - \$65; Astatic Model 335H mic less base - \$20. All + shpg. E.F. Bud Hayes, W0JFN, 3109 N. Douglas Ave, Loveland, CO 80538-2548.

FOR SALE: Sky Buddies S-19R - \$135, S-119 - \$95; parting out S20 & S20R. Robert Enemark, W1EC, POB 1607, Duxbury, MA 02331. (781) 934-5043

FOR SALE: Repair, upgrade, performance modification of tube communications & test equip. Accepting most military, all Collins & Drake designs, & the better efforts from others. Laboratory performance documentation on request. Work guaranteed. Chuck Felton, KDØZS, Felton Electronic Design, Box 187, Wheatland, WY 82201. (307) 322-5858, feltoned@coffey.com

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FOR SALE: Collins 51J series drum overlay - \$10 ea, specify which. Ron Hankins, KK4PK, 555 Seminole Woods Blvd., Geneva, FL 32732. (407) 349-9150

FOR SALE: Copies: Hard to find schematics for radios, also kit radios 1922-1950; manuals: test equip. ham gear. Contact me for prices, availability. Duane Ballew, KB7QZK, 6813 152nd St. Ct., NW, Gig Harbor, WA 98332. (206) 851-4505

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FOR SALE: Band W 5100 xmtr. Call or write for condx & price. Louis L. D'Antuono, 8802 Ridge Blvd., Brooklyn, NY 11209. (718) 748-9612 after 6 PM

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WANTED: Collins 310B3 w/ant tuner, 70E8A oscillator assembly, & Chicago 500W CMS-2, high level modulation xfmr. Jerry, W8EGD, CO, (303) 979-2323.

WANTED: Information-WW2 TCS Radio System: Design, Manufacturing & Operation for article. Any help appreciated. Thanks. Greg Greenwood, WB6FZH, POB 1325, Weaverville, CA 96093. (707) 523-9122 (message) greg6fzh@aol.com

WANTED: Tube-type Hi-Fi & guitar amplifiers by ACRO, EICO, Fender, Marantz, McIntosh, Pilot, Triad, UTC. Rob, CA, (510) 845-2625.

WANTED: Bandcoil sets for HRO-50 & HRO-60. Tom Bonomo, K6AD, CA, (650) 578-1897.

WANTED: Hallicrafters S-39 rcvr Skyranger. Bob, K1YJK, CO, (303) 768-9200, k1yjk@arrl.net

WANTED: Kleinschmidt teleprinter models: 311, 321, (AN/FGC-40, AN/GGC-16, AN/UGC-39...) Tom Kleinschmidt, 506 N. Maple St., Prospect Hts., IL 60070-1321. (847) 255-8128

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WANTED: Military survival communications equip: radios, beacons, manuals, books, historical info/photos. Daniel Cahn, 3444 Greenwood Ave., Los Angeles, CA 90066. (310) 398-7159. danielc411@aol.com

WANTED: Visitors and tubes by museum. Old and odd amateur or commercial tubes, foreign and domestic purchased, traded or donations welcome. All correspondence answered. K6DIA, Ye Olde Transmitting Tube Museum, POB 97, Crescent City, CA 95531. (707) 464-6470

WANTED: WWII Japanese, German, Italian radios & communication equip for display in intelligence museum. LTC William L. Howard, 2191 Harborview Ln., Largo, FL 33770. (813) 585-7756, wlhoward@gte.net

WANTED: RCA 140, 141, AVR5A, GE K80, K80X, K85. Any condx. James Treherne, 11909 Chapel Rd., Clifton, VA 20124. treherne@erols.com

WANTED: QSL collectors: Want W2KQZ card (wife's grandfather). Will trade other cards or pay Carl, WA1KPD cnord@snet.net 860-663-3676

WANTED: Radio collection under \$10,000 within 250 miles of Cedar Rapids, IA. Bill Coolahan, 1450 Miami Dr. NE, Cedar Rapids, IA 52402-2933. (319) 393-8075

WANTED: Collins 310B3 w/ant tuner, 70E8A oscillator assembly & Chicago 500W CMS-2 high level modulation xfmr. Jerry, W8EGD, CO, (303) 979-2323.

WANTED: Amateur Radio Callbook, 1940/41, for research project. Need not be mint, all data pages must be readable. Harry J. Miller, W4PDX, POB 66, Oilville, VA 23129. (804) 749-4770

WANTED: Tube tester, Hickok 539C or TV-2. John Snow, W9MHS, 4539 N. Bartlett Ave., Shorewood, WI 53211. (414) 964-0194

WANTED: Vibeplex Zephyr (3" base); info/diagrams for Collins PM-2; National ACS pwr splys. Brian Roberts, K9VKY, 130 Tara Dr., Fombell, PA 16123. (724) 758-2688

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WANTED: Eddystone 898 or similar multiband precision dial. Robert Harding, KC5LHR, 1321 Monte Largo Dr. NE, Albuquerque, NM 87112. (505) 291-0950, robert.harding@aib.com

WANTED: Bendix RA-1B aircraft rcvr; Soviet aircraft radio sets. Leroy Sparks, W6SYC, 924 W. McFadden Ave., Santa Ana, CA 92707-1114. (714) 540-8123, leroysparks@earthlink.net

WANTED: CNA-46161 Navy low freq rcvr manual (National RBL-2 1942). George Marts, W0TDH, 5022 Pennsylvania, St. Louis, MO 63111-2041. (314) 353-7669

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WANTED: Navy xmtrs: MQ, TCA, TCE, TCN, TCX, TDE; rcvrs: RAW, RAX, RBD, RBJ. Steve Finelli, 37 Stonecroft Dr., Easton, PA 18045. (610) 252-8211. navrad@enter.net

WANTED: Tektronix memorabilia & promotional literature or catalogs from 1946-1980. James True, N5ARW, POB 820, Hot Springs, AR 71902. (501) 318-1844, Fx 623-8783, james.true@bmn.net

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WANTED: Central Electronics 600L amplifier. Joseph Pinner, KC5JJD, 180 Circle Dr., Harriman, TN 37748. kc5jjd@sprintmail.com

WANTED: Manual & schematic for RCA Model WO-33B Oscilloscope. Thanks, Jim Alexander, KOHIP 1511 N. Jackson, Russellville, AR 72801. ealexand@cswnet.com

WANTED: Hallicrafters B42 tilt base; Galaxy 530 spkr; Sargent Streamliner '39 manual or schematic. Harry Blesy, N9CQX, 95740 Clarendon Hills Rd., Hinsdale, IL 60521. (630) 789-1793

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FOR SALE: Classic gear - SASE for list. **WANTED:** Vintage rigs. The Radio Finder, Joel Thurtell, 11803 Priscilla, Plymouth, MI 48170. Tel/Fax (734) 454-1890

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FOR SALE: Military and commercial communications items: www.maxpages.com/murphyjunk. For up to date lists: murphy@cts.com. Mike Murphy's Surplus, 401 N. Johnson Ave., El Cajon, CA 92020. (619) 444-7717

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FOR SALE: Riders manuals 5 thru 14 - \$140; Lambda regulated pwr sply model 62, 20 to 325 volts at 300 mA, all tubes including (6) 6L6G - \$100; HP VHF signal generator, 10 to 420 MHz - \$75. Sev Dvornsky, 380 Morrison Dr., Pittsburgh, PA 15216. (412) 344-6633

FOR SALE: R5GB Radio Communication Handbook, vol 1 & 2 - \$35; Viking low pass kw filter 52 ohm - \$30; Globe Chief Deluxe - \$60; coax relay DPDT - \$25; Astatic mic PTT bar model DN-HZ - \$35. Mel, W0MLT, 67750 Ridge View Dr., Montrose, CO 81401. (970) 249-1544, mgoc@dmea.net

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FOR SALE: RIT for KWM-2 and S-Line. No modifications for KWM-2. \$59.95 tested/42.95 for kit. SASE for details and order info. John Webb, W1ETC, Box 747, Amherst, NH 03001.

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FOR SALE: Echophone EC-3 w/matching spkr, excellent condx - \$175. Bill, K8BJC, (304) 842-4635

FOR SALE: Rare military R-190/FSM-1 (HRO-5R), 9 coils in orig box HBPS, manual - accepting offers. Jim, K7BTB, AZ, (520) 635-2117.

FOR SALE: Residue from my KWS-1 sale, all tubes unused: (3) Eimac 4 CS250B/7203; (1) Chatham 3B28; (3) Amperite 3TF4A; (5) RCA 12AT7; (8) Buss HVB1 HV fuses. Sell all for \$150 + UPS. Clarence Filley, W7KE, 1109 S. 2nd St., Hamilton, MT 59840. (406) 363-1946

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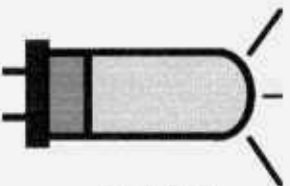
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