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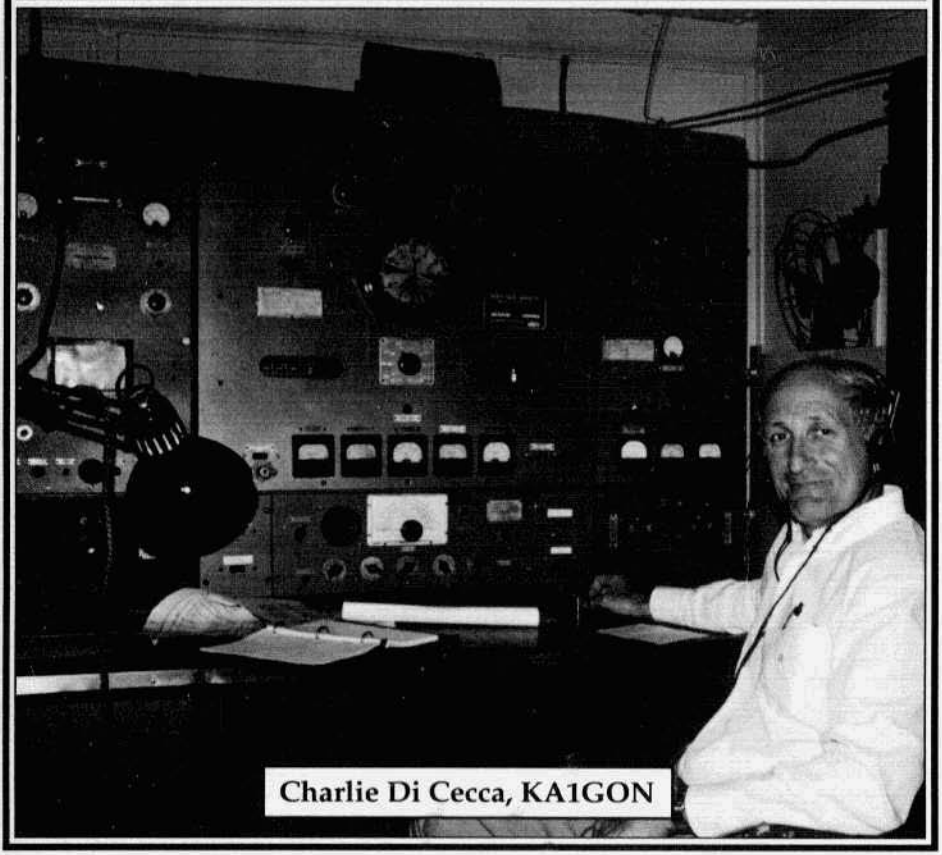
ELECTRIC RADIO

celebrating a bygone era

Number 67 November 1994



Charlie Di Cecca, KA1GON

ELECTRIC RADIO

published monthly by Barry R. Wiseman and Shirley A. Wiseman
1590 Baby Bear Rd., Durango, CO 81301

Second Class postage paid at Durango, CO. and additional offices
Authorization no. 004611
ISSN 1048-3020

Postmaster send address changes to: Electric Radio
Box 57
Hesperus, CO 81326

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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; John Staples, W6BM; Dave Ishmael, WA6VVL; Jim Hanlon, W8KGI; Chuck Penson, WA7ZZE; Jim Musgrove, K5BZH; Dennis Petrich, KØEOO; Bob Dennison, W2HBE; Dale Gagnon, KW1I; Rob Brownstein, NS6V; Dick Houston, WØPK; Andy Howard, WA4KCY; Skip Green, K7YOO; George Maier, KU1R; Albert Roehm, W2OBJ; Mike O'Brien, NØNLQ, Steve Thomason, WB4IJN; Don Meadows, N6DM; Bob Sitterley, K7POF (photos) and others.

EDITOR'S COMMENTS Barry Wiseman, N6CSW/Ø

Let's all try to remember the AMI sponsored AM Jamboree scheduled for Thanksgiving weekend, Saturday and Sunday, November 26th and 27th. The Jamboree will be on 10 and 160 meters. If 10 is dead we'll move to 15 between 21.410 and 21.435. Log transmitter, receiver, antenna and AMI number if your contact has one. Send a copy of your log to Dale Gagnon, KW1I, AMI President, at 9 Dean Ave., Bow, NH 03304. Dale says he'll compile the results for the January issue.

Something else to mark on your calendar is the special event sponsored by the AWA to commemorate the restoration of operation of Jim Millen's personal transmitter. The following information was sent in by Bob, W2ZM: " James Millen's personal 1 KW AM phone transmitter and HRO receiver have been restored to operation on the 75 meter phone band. Originally built at the National Co. in Mass. and operated at the Millen estate, W1HRX, in Malden, Mass., this fine set now resides at the AWA annex, W2AN, in Holcomb, New York.

"A special event for all amateurs to work this station is scheduled for Sunday, December 4th and the following Sunday, December 11, at 3 PM until at least 6 PM EST. A special QSL card commemorating this event is slated.

"Frequency of operation is to be 3867 kHz plus or minus 2 kHz on AM phone. However, SSB and even CW stations may also take part."

Another Jamboree/Contest to mark on your calendars is the "6th Annual ER 160 Meter AM Contest" that is held on December 26th. This year to encourage participation we're going to have small prizes for the winners. In the December issue I'll talk more about this.

Tracy Reese, WB6TMY, founder and net control of the Vintage CW net, advises me that starting Saturday, November 26th, the net will be at 1 PM Pacific time instead of its usual time of 3 PM and the frequency will change from 14.062 to 14.050...dit, dit.

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Cover: Charlie Di Cecca, KA1GON, in the radio room aboard the Liberty ship John Brown while it was in Boston harbor.

LETTERS

Dear ER

Now retired from Government Service, I have time to spend on my many hobbies which include ham radio, shortwave listening and the restoration of old radios. One thing I have learned is that most radios from the 1930's and 1940's carry a story with them and my latest project is no exception.

Several years ago I was given a receiver that was supposed to be from a WWII German tank. The serial plate bears the marking, "Ukw.Ee, Nr.67748/dnz/45." When I opened it up, I found a 7 tube radio, the tubes were "Phillips" with the Swastika stamped on each. Its construction was consistent with use in a battletank. What interested me was its frequency coverage, "26.2 MHz - 33.4 MHz." As one of my specialties is the solar cycle and its effects on HF propagation, I was particularly interested to note that between 1936 and 1940, the solar sunspot numbers were at a maximum, certainly high enough to support daytime skywave propagation over very long distances with very low power levels. Pictures of the PzKw-III and IV battletank show a nice whip antenna which would be very close to a quarterwave at these frequencies, an efficient radiator. Every ham who uses 10 meters (28-29.5 MHz) knows that 5-10 watts and a quarterwave antenna will produce very good signals over long distances.

In my studies of Churchill, I learned he was an "intell junkie." He never had enough. In the middle to late 1930's, he was known to have "an uncanny knack to know when the Germans were moving." This coupled with the generally poor understanding of how skywave propagation worked in those years or how the solar cycle influenced propagation, most users of these high frequencies took them as short range point to point tactical comm frequencies, discounting long range interception. However, during this period, Britain was leading technology development in "Very High Frequencies" and HFDF. My curiosity has gotten the best of me.

I suspect Churchill's "special means" people were intercepting German tank tactical comms between 1936 and 1940 on a regular basis. Presently I am trying to get any info I can on German wireless tactical tank comms and technical data on these radios so I can substantiate my theories. If true, it would make an interesting technical article.

I am curious whether any of the *Electric Radio* readers would have any information on WWII German tank communications or personal experiences on this subject. I would appreciate any related input data. I am easily reached on email (INTERNET/MCI ID: 541-5414) or at the callbook address.

Bob Rose, K6GKU

Are you a member of AMI? If not send $2 to AMI, Box 1500, Merrimack, NH 03054-1500. AMI promotes and protects AM; we should all be members.

Magic and Memory and Frequency Meters

by Michael Runyan, KK7F
1117 S. Fiske
Spokane, WA 99202

A few days ago I received my October 1994 *ER* in the mail. I get mine by second class which saves me a lot of money. The savings are not on postage. The savings are due to the fact that if I were to get *ER* any sooner, more of the stuff in the want ads would be available, and I would probably find myself placing orders for things I don't need, but just have to have.

But I digress. Upon thumbing through *ER*, I came across Bob Dennison's article entitled "The TRF Receiver", and found it thoroughly enjoyable. Indeed it made me think of my own experiences with such apparatus in my younger days in radio. I'm only 46 now so my younger days actually started when I was about 6. Now I know to many of you that was just yesterday, but for me it was a long time ago, but I digress.

Oh heck, let's digress! The old days. It was 1954 and I was 6 years old. To this day I don't know why, but even at that tender age, radio was in my blood. Oh we had a TV and a record player and even a couple of plastic table-top AM sets, but I really didn't care for any of them. Howdy Doody was about all that would capture my attention on TV, but Radio - wow. It was at this time that one of my uncles, who I think had some radio in his blood too, became aware of my interest and bought me a crystal radio kit for my Christmas present that year. I don't remember the make, but I do remember it was a yellow plastic box with a round plastic circle molded on the top. It had only a few parts - the box, a slider coil, a 1N34 crystal diode (not even a cat whisker), a few screws, antenna wire, and headphones. Maybe some of you out there remember these kits. They came in several versions from the very simple (like mine) to the rather complex (3 transistors or so).

My uncle was a wise man and thus realized that to turn me loose with this little and somewhat fragile collection of parts would have perhaps been "radiocide", so he patiently guided me through the assembly and then bravely climbed the tree behind our house to secure the far end of the antenna wire. He was truly brave when one considers the temperature was about 10 degrees above 0 and the tree was an old brittle mountain ash. Anyway, we ran the wire, along with another wire attached to the outside water faucet for a ground, into my bedroom and hooked the whole thing up. IT WAS AMAZING! Sound - music poured from this little plastic box.

There was one glitch to this magical experience though. In our town there were several AM radio stations. However my little radio would only pick up one - KGA at 1510 kHz. Moving the slider on the coil would make KGA louder or softer, but no matter how I tried I couldn't pick anything else up. I was not unhappy you understand, but it was a mystery to me at the time. The facts as I now know them are that KGA was (indeed still is) a 50,000 watt 24 hour clear channel station while all others were 5,000 watts or less. All the AM broadcast transmitters and antennas were located up on a prairie about 4 miles from us, so there was no practical difference in distance.

Before I forget, one further digression. In 1954, KGA was playing rock and roll. That's right - rock and roll, or what was called rock and roll in those days. Bill Haley's "Rock Around the Clock" (never liked that one much), along with Elvis and even Bobby Darin.

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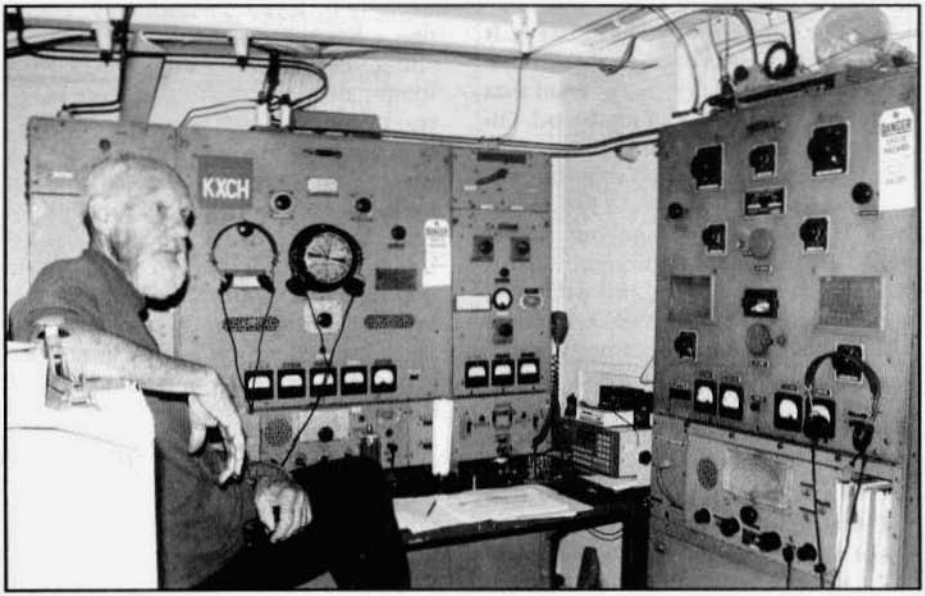
WW II Liberty Ship Radio Set FT-102

by Dale Gagnon, KW1I
9 Dean Ave.
Bow, NH 03304

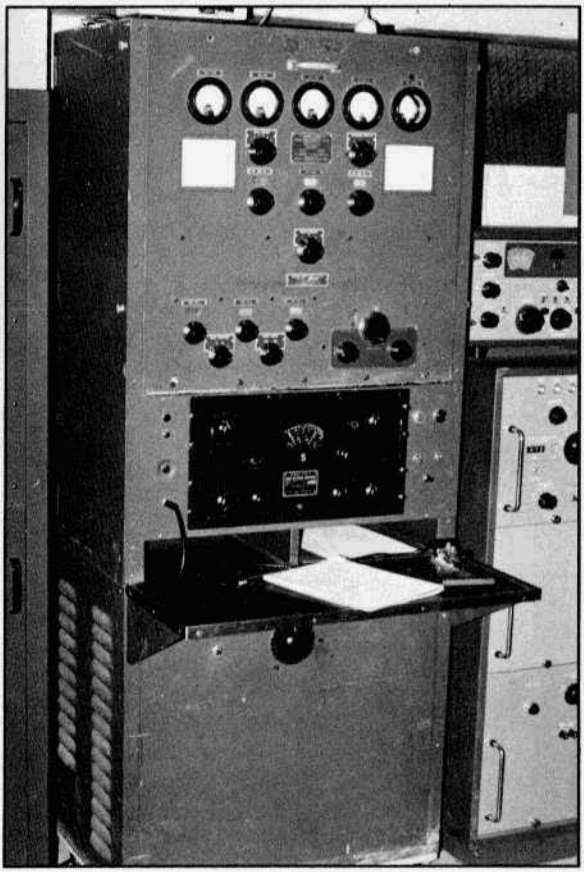
Well over a year ago I was informed about an old WW II vintage transmitter that was piled in a heap in someone's basement in Connecticut. I was told it was probably only good for parts. It was to be thrown out if someone didn't pick it up soon. There was no schematic and only the clue that the transmitter had been used in a shipboard application.

After a rescue mission to collect this radio treasure, I found it to be a Federal Telephone and Radio Corporation FT-102 Radio Set. It had been ordered by the US Maritime Commission for use on WW II Liberty Ships as the high frequency CW radio. It originally included a Mackay 167-BY transmitter and a Scott SLR-F or an RMCA Model AR-8506-B receiver. My unit had a complete Mackay transmitter but was missing the receiver. I subsequently located a SLR-F and mounted it in the FT-102 cabinet. (SLR stands for "Super Low Radiation". It was constructed to keep the local oscillator from coupling to the antenna circuits and the ship's antenna which would serve as an effective homing signal for Axis submarines).

When this radio set was removed from amateur service, wiring harnesses were cut in several places necessitating wire tracing to establish the correct connections to homebrew power supplies. Extraneous circuits added over the years were removed and the transmitter wired to original configuration. The unit is very easy to work on because the trans-



Bob Gisslow, KB6YYL, operating as W6PW aboard the Jeremiah O'Brien.



FT-102 set in KW1I's shack. To the right is a GPT-750 transmitter with a GPR-90 receiver sitting on top of it.

mitter is hinged just above the receiver compartment and swings down for servicing. Long side doors open for easy access to each side of the unit. The transmitter uses a 76 master oscillator, 6L6 multipliers and two parallel 813's in the final. Its VFO us quite stable and it also has provision for ten crystals. I have made many contacts on it. During one operating session I received a call from an amateur about 25 miles away who recognized my CW call on 4905 kHz while he was waiting for a shortwave broadcast to begin. I am currently restudying my tune up procedures and may ultimately have to run the Mackay through a tuner to suppress out of band radiation. I suspect Liberty Ship radio operators received very few RFI complaints during WW II on the North Atlantic!

When I was looking for documentation on the FT-102 I was advised to seek out the fourth edition (1950) of the "Radio Manual" by George E. Sterling. It has a section on an FT-106 Radio Set used on other cargo ships from the same period. I found the book through Interlibrary Loan and made copies of the pages that described a Mackay 167-AY transmitter. The chapter on Marine Radio Equipment also included an explanation of the function of all the radio equipment in a cargo ship radio room. The chapter highlighted both rigs from Mackay and Radio Marine Corporation of America (RMCA). The typical maritime radio room for a Liberty Ship sized vessel included: A Main and Emergency Radio Transmitter for 300-500 kHz. The Main ran about 200 watts and the Emergency ran about 50 watts from battery power. An HF Radio like the Mackay 167-AY/BY. An Auto Alarm receiver that automatically signals an alarm in the radio room and on the bridge when an international distress signal is received on 500 kHz. A 15-650 kHz receiver, an emergency 350-650 kHz receiver using a crystal detector and a shortwave receiver like the Scott SLR-F. Power was supplied from a motor-generator.

I was quite intrigued by this radio set because I was getting it back on the air just as Liberty Ships were back making news. Earlier this year, the Jeremiah

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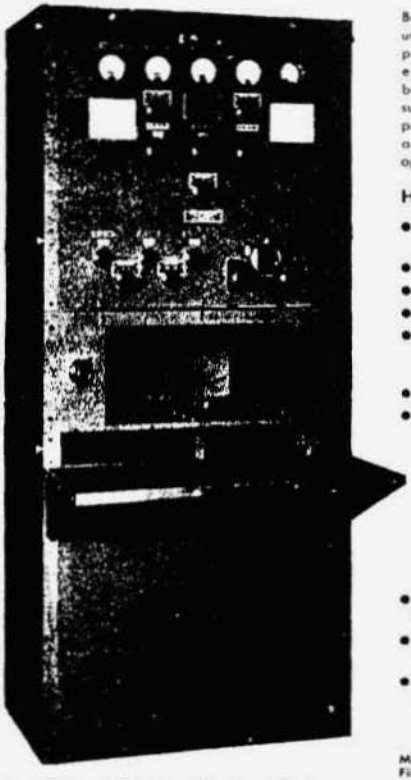
This Famous 167 BY-C.W. TRANSMITTER *is Yours for Only* $187.50

fob. New York



Overall size 69" high, 29" wide, 19" deep. Beautiful dark-grey wrinkled finish.

Be one of the lucky Hams to get a 167BY Transmitter — Order yours today! No C.O.D.'s

Built by one of the foremost transmitter manufacturers for use on Liberty ships. Brand new surplus in original export-packed, moisture-proof cases. Complete and ready to go except for power supply. Terminal strip provided for latter in bottom compartment of cabinet. Hook in your present power supply or build one from available, inexpensive surplus, and proceed to pound brass! Also ideal for narrow-band FM with addition of simple phase or reactance modulator. This is the opportunity of a Ham's lifetime!

Here are some of the Features of the 167BY . . .

- 200 Watts C.W. output from 2 to 16 mcs; 150 Watts from 16 to 24 mcs. (Conservative commercial ratings.)
- Any frequency between 2 and 24 mcs.
- Choice of 10 Xtal positions or V.F.O.
- High Stability V.F.O. with precision reset dial.
- Tube Lineup: 76 V.F.O., 6L6 buffer amp., 6L6 doubler, 6L6 doubler, 6L6 doubler-tripler, parallel 813s final amp.
- All important circuits metered.
- Pi antenna network matches impedance various antenna lengths.
- Built-in shock-mounted keying relay and key.
- Built-in filament transformer for all tubes.
- Space provided for receiver (18" wide, 19" deep, 10" high).
- Entire lower compartment of cabinet available for power supply, modulator, etc. Space 29" wide, 19" deep, 24" high.
- Demountable, chromium-edged, linoleum-covered operating shelf.
- Hinged R.F. deck. Swings down exposing all parts for easy service.
- Side doors and bottom-front of cabinet hinged providing access to interior.

FRONT PANEL CONTROLS

Multiplier Plate Meter, Amplifier Grid Meter, Amplifier Plate Meter, Filament Voltage Meter, Antenna Current Meter (All 3" bakelite model 301 Westons), Amplifier Range Selector, Antenna Coupling Switch, Antenna Coupling Control No. 1, Amplifier Tuning Control, Antenna Coupling Control No. 2, Plate Current Selector Switch, 2 Frequency Logging Charts, Multiplier Tuning Control No. 1, Multiplier Tuning Control No. 2, Multiplier Tuning Control No. 3, Multiplier Selector Switch, Frequency Check Switch, V.F.O. Tuning Dial, Oscillator Range Switch, Crystal Selector Switch (10 positions), Filament Transformer Variable Primary Control.

HERE IS WHAT YOU GET FOR YOUR MONEY:

1—167BY Transmitter as described.
2—Sets of tubes including: 2-76s, 8-6L6s, and 4-813s!
10—Mounted Crystals!
1—Transmit-Receive Switch.
1—Demountable operating shelf.
3—Boxes spare parts, wire, cable, fuses, insulators, copper tubing, lugs, misc. hardware, etc.
1—Set of V.F.O. calibration curves.
1—Complete instruction book.

Above comes packed in 3 wooden cases weighing as follows: Case No. 1-610 lbs., Case No. 2-45 lbs., Case No. 3-175 lbs.

TELEPHONE **Electronicraft** TUCKAHOE 3-0044

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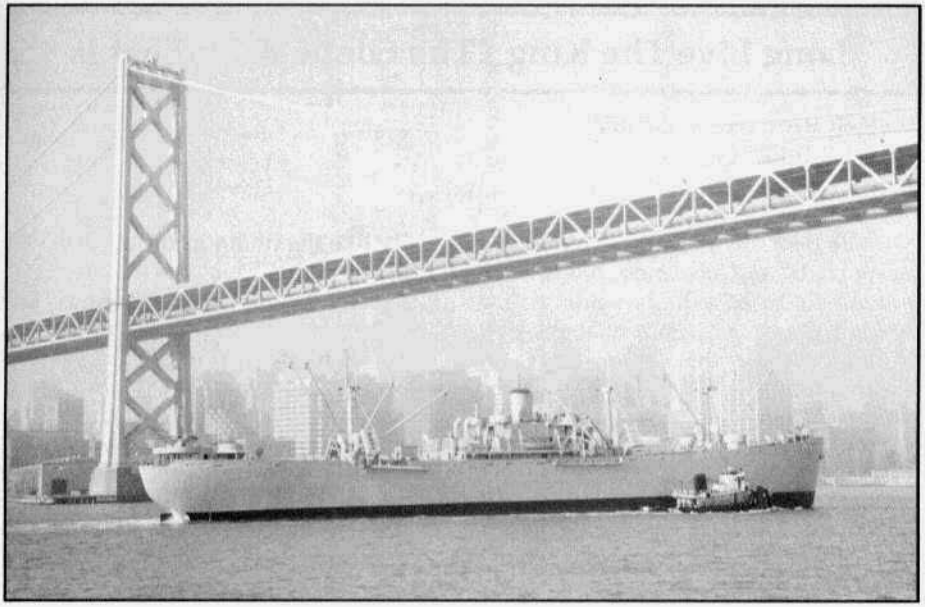

Jeremiah O'Brien, one of two surviving Liberty ships. Approximately 2700 of these ships were built during WW II.

O'Brien out of San Francisco and the John W. Brown from Baltimore, the last two existing Liberty Ships, were preparing to steam to Normandy in France for the D-Day celebration in June 1994. Unfortunately the John W. Brown could not meet Coast Guard criteria for the Atlantic crossing, but was approved for coastal sailing. The Jeremiah O'Brien did make the trip. It was reported to have been the only veteran of the original 5000 ship armada to make the celebration. Fifty years before the O'Brien made 11 runs between England and Normandy carrying supplies and troops to Omaha and Utah beaches.

This summer I had the good fortune to run into a 40 meter Society of Wireless Pioneers Net (SWOP) and received addresses for the organizations supporting these ships. I obtained sailing schedules and planned to see both Liberty Ships when they visited New England ports this last August. I had more good fortune and found the Gallups Islanders meeting on 3920 kHz each morning. Most of the check-ins were graduates of the United States Maritime Service Resident Radio School located at Gallups Island in Boston harbor during WW II. Many of the school's 5,000 graduates served aboard Liberty ships during the war. Their net was in daily contact with amateurs on both vessels. I visited the Jeremiah O'Brien in Portland in the middle of August and met Bob Gisslow, KB6YYL who operated W6PW on board. I was able to hear Bob on the O'Brien while it was heading down the East Coast from my vacation campsite near Bar Harbor, Maine. I also made contact at the same time with W4ER, Ralph Albers on the John Brown in Halifax and heard them on their sail to Boston. Unfortunately, the historic radio equipment on board both ships, though operational, was not permitted to be used for amateur communication. Charlie, KA1GON and I visited the John Brown in Boston later in August. Ralph allowed us to enter the roped off radio room and take pictures. I was a little

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Long Live The King - The Globe King That Is

by Rob Brownstein, NS6V
3881 Winkle Ave.
Santa Cruz, CA 95065

In the 1950's there were two commercially built, self-contained, ham transmitters that offered plate-modulated AM at 500 watt power input levels - the Viking 500 and the Globe King 500. Today, both are in the rarely offered/premium priced category, but I was recently fortunate enough to get my hands on a Globe King 500.

There are significant differences between the Viking 500 and the Globe King 500. The Johnson rig is partitioned into a table-top RF deck and a separate power supply and modulator section. The Globe King is mounted in a 19-inch rack, and partitioned into three slide-in modules (the RF deck, modulator and power supply). Calling it a table-top rig would really be stretching things. It's 22 inches wide, 30 inches high and 15 inches deep - and it weighs over 250 pounds! I've got mine sitting on a mover's dolly, so I can move it around without having to remove any of its modules.

There's another significant difference between the two. The Viking 500 covers the 80 through 10 meter bands, and the Globe King 500 (as well as the A, B and C versions) covers 160 through 10. For me, the 160 meter coverage was the compelling selling point, and its "I mean business" appearance was the clincher.

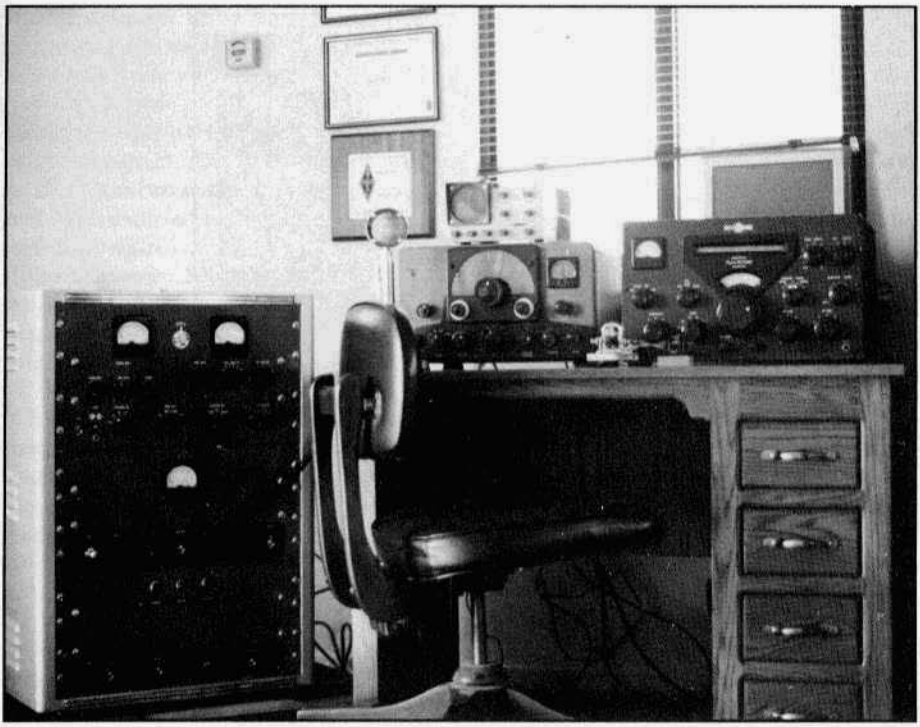
The Globe King I bought was in excellent cosmetic condition. Its previous owner - Mike, WA6KKM - had repainted the rack and replaced the panel screws with shiny new ones. The panels were virtually scratchless, the silk screening was clean and intact, and all the original knobs were there. It had no extra holes drilled anywhere, and looked exactly like the photo in the ad in a 1954 *QST* magazine.

World Radio Laboratories (WRL) built a lot of these Globe Kings. Referring to Barry's interview with Leo Meyerson, in the first issue of *Electric Radio*, Leo said WRL sold about 27,000 of them. I am presuming that total included all the versions of the Globe King 400's and 500's. And, on the subject of versions, there were lots of them. A 1954 ARRL Handbook ad shows a model called the Globe King 400C, so I am guessing there was also a 400 A and B that preceded it. An August 1954 *QST* ad shows the Globe King 500A in 1956; a 500B in 1957; and a 500C in 1959. The 500B was the first serious departure from the look of the 400's and early 500's - it had plastic meter faces and a built-in VFO. The only visible difference between the 500 and 500A is a change from four switches to three switches on the power supply module.

The RF Deck

The RF deck is the top-most module, and is very straightforward in design. A 6V6 serves as the crystal oscillator or VFO buffer, and drives a 6146 buffer, which then drives a single 4-250A final. The nominal plate voltage on the 4-250A is 1700 volts, and the specified plate current when fully loaded should be 320 mA. Thus, the power input to the final stage is 544 watts. My '500 puts out 400 watts on 75 meters, an impressive 73 percent efficiency.

There are some interesting aspects to the RF deck. First off, there are two band switches - one for the driver stage and one for the final stage. So, when changing bands, you have to remember



Globe King 500 with a Johnson Ranger and a Collins 75A-4.

to change both switches. The other interesting aspect is the tuning procedure. Both the 6V6 and 6146 have tunable, parallel resonance plate circuits, and the plate currents of both tubes are metered. So you tune each for a dip in plate current - first the oscillator, and then the buffer. Finally, reading the grid current on the 4-250A, you adjust it for 15 mA using the wire-wound potentiometer in the 6146 screen circuit.

Then you tune the final's pi network the conventional way until you get a 320 mA reading. Like the Viking Valiant and Ranger, the Globe King's pi network output section consists of a rotary switch and cascading, fixed, mica capacitors paralleled by a variable capacitor.

The RF deck also contains a 400 volt screen supply (for the 4-250A), and a fixed bias supply with a voltage divider and switch for changing the final amplifier's grid bias from class C to class B mode, in order to use it as a linear amplifier with an external SSB driver.

The Modulator

The modulator (the middle module) consists of a 6SJ7 microphone amplifier driving two sequential 6C5 speech amplifier circuits, which drive a 6L6G, then the 5514 modulator tubes in class B push-pull. The bad news is 5514's are hard to find these days, but the good news is that they are similar enough 811A's (except for the filament voltage - 7.5 volts for the 5514 versus 6.3 volts for the 811A) that they can ultimately be replaced by 811A's, if need be. Of course, the filament transformer also needs to be replaced. But that's rather easy since the modulator has its own power supply, and the filament transformer for the 5514's is a separate transformer from the others.

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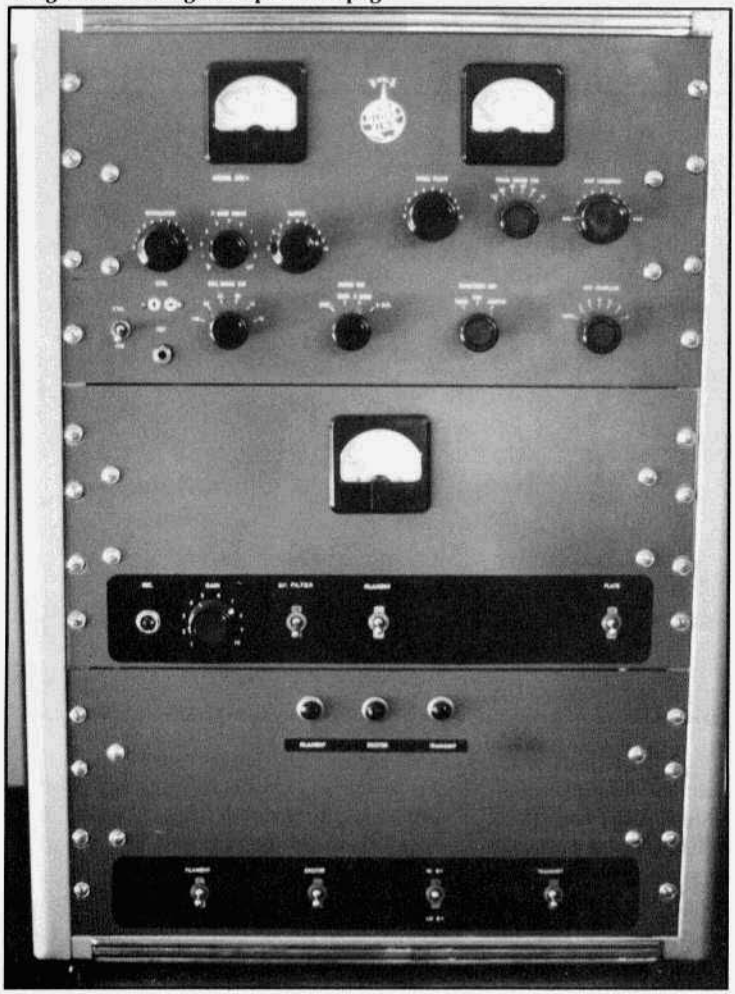
Long Live the King from previous page



The Globe King consists of three decks. The RF deck is on top, the speech amp/ modulator is in the middle and the power supply is on the bottom.

The modulator power supply uses two 816 rectifiers for full-wave, high voltage (1000 volts) for the 5514 plates, and a 5Y3 for rectifying the plate and screen voltages for the other tubes.

The modulators in the 500, 500A and 500B (and I assume the 500C, as well) all employ Centralab "couplates." These are precursors to integrated circuits, that contain encapsulated resistors and capacitors. Of course, the schematic shows no values for these internal devices, but it does show that high and low frequency roll-off capacitors are included in the circuit, and the audio of the stock 500 sounds commensurately narrow.

The Power Supply

The power supply module (the bottom slide-in module) contains the high-voltage power supply for the RF deck, plus screen and plate voltage supply (520 volt) for the 6V6 and 6146, and relays for handling the built-in push-to-talk. A 5U4G rectifier provides the B+ and screen for the 6V6 and 6146, and a pair of 866A's handle the 1700 volt supply for the 4-250A. It is also, by far, the heaviest of the modules, containing four transformers, two chokes, and three oil-filled capacitors.

Getting It Working

When I first fired up the Globe King 500, I noticed a lot of ripple on the RF envelope, and the modulator section would not exceed about 50 percent modulation. The latter problem was due to some very dry decoupling electrolyics

that had fallen in value from 8 uF to about 0.1 uF, each. When these were replaced, there was ample modulation.

The RF ripple problem I believed was due to inadequate capacitance in the high voltage choke input filter. A pair of oil-filled capacitors rated 6 uF/1500 volts are connected in series for 3 uF and 3000 volts. I paralleled this oil-filled pair with seven 100 uF/450 volt capacitors in series, with each capacitor paralleled by a 100 K-ohm, 2 watt resistor. This increased the capacitance to about 17 uF. I used a similar approach to the oil-filled capacitor in the modulator supply. Here, a single oil-filled capacitor with a value of 6 uF and 1000 volts is used. I paralleled that capacitor with five 100 uF/450 volt electrolytics, again using parallel 100 K-ohm resistors across each for voltage stabilization. That increased the capacitance to more than 25 uF. This greatly reduced the ripple.

Modifications

Now I was ready to tackle the modulator. The schematic showed three Centralab couplates in place, but this modulator only had two. It also had a speech filter and switch that was not shown in the original design. Anyway, I removed the two couplates and, using the table of values for resistance-coupled amplifiers in the 1961 ARRL Handbook, I chose a 220 K-ohm plate resistor and 1 M-ohm screen resistor for the 6SJ7. The screen is bypassed at the socket using a 0.1 uF capacitor, and the cathode resistor/capacitor combination is 2.2 K-ohm and 25 uF, respectively. A 0.1 uF capacitor couples the 6SJ7 to the grid of the first 6C5 through the 500 K-ohm gain potentiometer.

Both 6C5 stages have 1.5 K-ohm/25 uF resistor/capacitor combinations in the cathode circuits, and both have 47 K-ohm plate resistors. A 0.1 uF capacitor couples the first 6C5 to the second one's grid, and the second 6C5 has a 220 K-ohm grid resistor, as shown. The last 6C5 is coupled to the 6L6G's grid using a 0.1 uF capacitor. I disabled the speech filter circuit but left it intact, should my "widow" ever wish to sell my Globe King to a "purist" collector (only kidding!). So far, the audio reports have been good. While I haven't made any quantitative measures, the audio sounds much fuller with the couplates out of the circuit than it did with them in. The highs are brighter, and the lows are actually there now.

I will be doing some modifications to the keying later. The 6V6 is cathode keyed and drives the 6146 and 4-250A on by overriding the fixed cut-off bias. There is virtually no key shaping at all, and the edges are straight on both "make" and "break." The Globe King 500B has a grid-block/differential keying circuit added, using a 12AU7. I assume WRL's engineers took advantage of this circuit for better key shaping than they had on the Globe King 500. Anyway, I will scrounge around for a suitable choke and use the circuit shown in *ER* #62, page 33.

I Gave In

For nearly three years, now, I've resisted the temptation to run serious AM power. My "big rig" has been my trusty Viking Valiant, and all the others run about 40 watts of carrier or less. At times, I've been accused of "fibbing" on the West Coast AM net, when I tell people I'm using a Viking Ranger. But there are also those times when my Valiant doesn't cut it on a noisy, rapidly fading 160 meters. And that's when I get kidded about "when are you going to run some real power?" So, for those nights when conditions or propagation are making things difficult on 75 or 160, I'll be able to switch on the Globe King, warm up my shack, and warm up the "ether," too. Long live the King! **ER**

Spy Radios of WW II

by LTC William L. Howard
219 Harborview Ln.
Largo, FL 34640

As WW II began, the United States found itself quite unprepared in almost every aspect of military operations. Intelligence was no exception. Years of isolationism and the "Gentlemen Don't Read Other's Mail" mentality resulted in a lack of experience, equipment and doctrine, especially in the field of strategic intelligence. Within the military, all the General Staff positions were headed by Generals except intelligence which was headed by a Colonel. As a result, both our policy makers and military were dependent on information supplied by the British and other Allies.

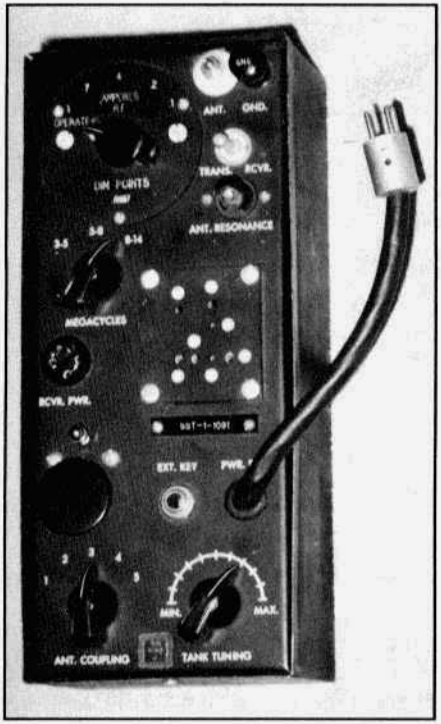
America's first attempt at a centralized intelligence effort was the establishment of the office of "The Coordinator of Information" under General William B. Donovan. In announcing this position, President Roosevelt spelled out what it was NOT but not what is was!!! The C.O.I. eventually gave way to the Office of Strategic Services, O.S.S. for short. Among the many tasks assigned to the OSS was the control of agents operating behind enemy lines. These agents needed reliable means of communication to their operational bases. Special radios were needed.

The British began the war with the Mark XV set. Housed in two wooden cases, it covered 3.5 MC to 16 MC. The transmitter used the newly developed U.S. metal tubes, using the 6F6 as an oscillator and the 6L6 as a power amplifier. The transmitter had an output of 15-20 watts but the receiver was a regenerative set.

The Mark XV set was followed by the Para set, housed in a small stainless steel case and using three tubes, a 6V6 in the transmitter and two 6SK7's in the receiver. Shortly after the outbreak of war, Prime Minister Churchill created the Special Operations Executive, S.O.E. for short. Charged with the mission of "setting Europe on fire", the SOE began to develop special radios. By August 1942, the first of these sets appeared and was designated the Mark 21 set but it was not very good. This was quickly followed by the A Mark II transceiver which used the newly developed loctal tubes. This set covered 3-9 MC and the first production sets were delivered in October 1942.

This set was followed by the Type 3 MK II B 2 set which became the main set in use from 1943 to 1945 and beyond. This set covered from 3-15.5 MC, and used EL32 and 6L6 tubes in the transmitter which provided a power output of 30 watts. The companion receiver was a four tube heterodyne set which, along with a power supply, accessories case and transmitter, fitted neatly into a small suitcase, hence the name suitcase radio. The set was also issued in two metal containers but the most commonly found sets were in suitcases.

The last set to be developed during the war was the A MK III suitcase transceiver, a much more compact set than the "B2" set. This set was completely miniaturized except for the use of U.S. loctal tubes. This set covered 3.2-9 MC, had a two tube transmitter of 5 watts power and a four tube superheterodyne receiver. The set weighed about 5-1/2 pounds. The general trend of British sets was toward smaller and lighter as well as lower power sets.



The SSTR-1 transmitter has an output of 8-15 watts and a range of 300 to 1000 miles.

In addition to the SIS and SOE sets, a whole series of radios was developed by Polish immigrants, working near Bletchly Park, site of Station X, where decoding of intercepted messages was accomplished. The best known of these sets were the BP 3 and AP4 sets but there were many others. These sets were used primarily by the British S.I.S. Highly compact and fully miniaturized, these sets today are also highly prized collectors items. For further information on these sets, the book by Pierre Lorain and Keith Melton are excellent references.

The United States relied heavily on the British sets but did produce several of their own clandestine sets. The Military Intelligence Service was responsible for the development of the AN/TRC 10, and the AN/PRC 1 and the AN/PRC 5 radios. The TRC 10 was developed for the rescue of downed pilots. Total production is supposed to have been 155 sets and only three are still known to be in existence. There was some speculation the CIA used these sets in Angola during the 1970's but this is unconfirmed. The AN/PRC 1 set was mounted in a suitcase of the period. It was replaced by the AN/PRC 5 set which was built in a wooden case that resembled a suitcase. This set resembles a set known as the AR II and was of British manufacture. Nothing has been written about these sets but I am assured that AR II's do exist. The OSS was responsible for the development of two clandestine sets that were designed specifically for use by agents.

The first of these was the SSTR 1 set which consisted of the transmitter, receiver and power supply mounted in a suitcase, but each unit was small enough to have been concealed in something else. In designing a radio for clandestine service, a different set of criteria was required. Small size, concealment, light weight and low power were more important than range and selectivity. These sets also required a power supply that could be used almost anywhere in the world. AC systems ranged from 90 VAC to 235 VAC, which meant some sort of switching for the power input. As a result the power supply became the critical factor in radio design. Most of the power supplies of the period consisted of a heavy power transformer, a rectifier and a filter system. The weight of the power transformer then became the crucial factor and determined the weight of the overall set.

Receivers were also important but their ability to pick up signals was more a function of the transmitter output than the selectivity of the receiver. A more powerful base station transmitter could be used, as size and weight were not a consideration. The important criteria then, for the clandestine set, was the

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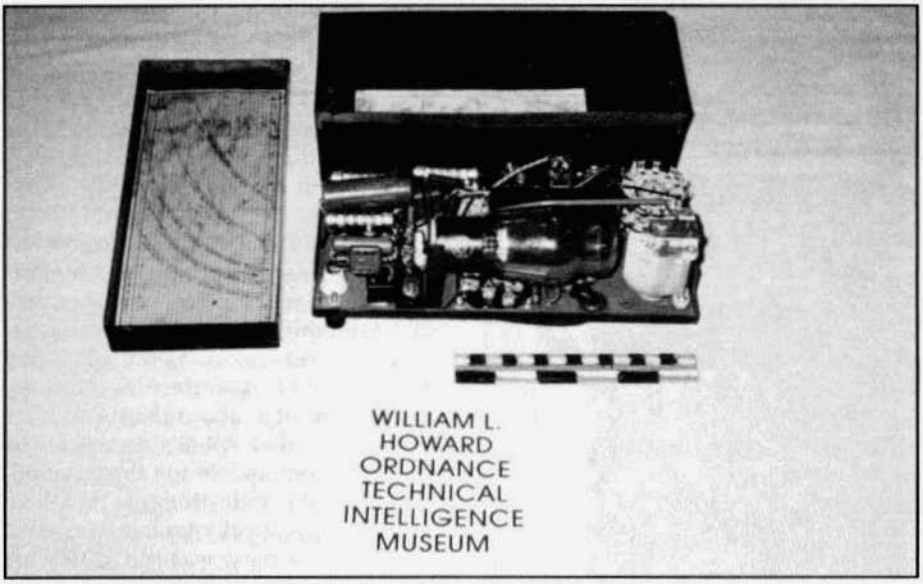


The SST-1 transmitter removed from its case.

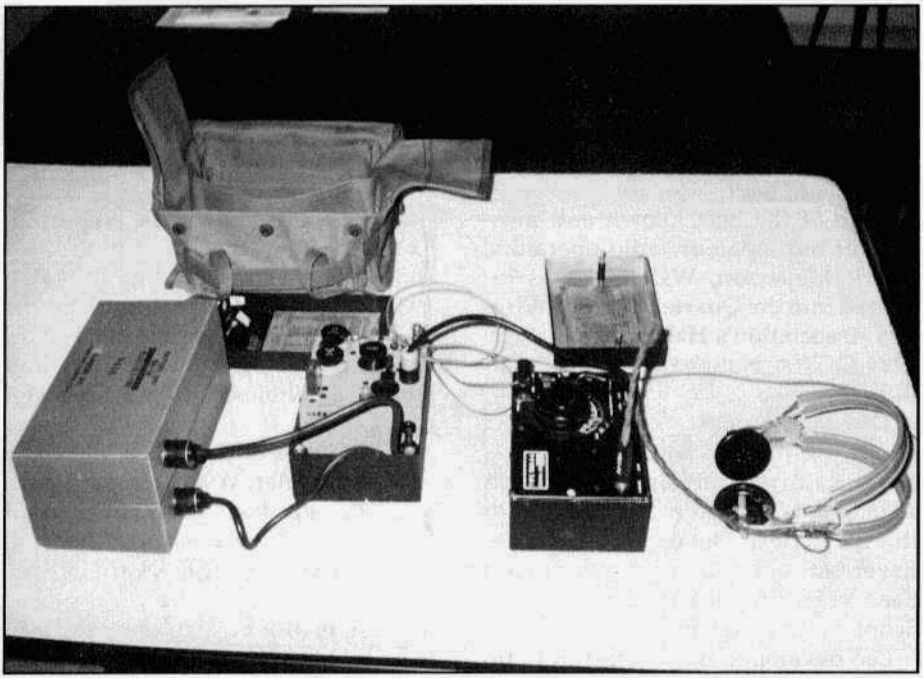
output of the transmitter. In the European theater, agents were at most 100 miles from an operating base station, usually in England or perhaps North Africa or Italy. However, in the Pacific Theater the agent might be a thousand or more miles from a base station. Such was the case with the Coast Watchers, scattered on various islands. They used a set described as portable but 16 porters were required to carry all the equipment!!!

To meet the criteria for use in Europe, the SSTR 1 set had a one tube transmitter with an output of 8-15 watts and a range of 300 to 1000 miles. The transmitter covered 3.0-14.0 MC in three bands and was capable of only CW transmission. The companion receiver was a five tube superheterodyne set capable of receiving voice, tone and CW with a frequency range of 2.7-17 MC in two bands.

In addition to the main power supply, this set could be powered by batteries, a hand cranked generator, and wood burning thermocouples. Again, power supplies were as varied as the conditions of their use. There was even a windmill power supply that was used to recharge storage batteries.

The transmitter was 4" x 3" x 9-1/2", the receiver was also the same size, and the power supply was 6" x 3-1/2" x 9-1/2" depending on which power supply was used. The complete set had a weight of between 20 to 44 pounds, again depending on which power supply was used. The transmitter was based on a 6L6 tube. The crystal socket was a multi-holed socket and would accept several variations of crystals. The tank coil was actually three separate coils, one covering 3-5 MC, one covering 5-8 MC and the last covering 8-14 MC. Transmitter output was fed to a series of resistors and a lamp for tuning, or directly to the antenna in the operate position. In recent years several of these transmitters have turned up but the receivers are hard to find and I am told the power supplies are impossible to find. Like others, I, too, am looking for the receiver and power supply.

As is always the case with military equipment, as soon as one item is



SSTR-5 complete setup ready to operate.

fielded, its replacement is already off the drawing board and about to enter production. The placement for the SSTR-1 would become known as the SSTR-5. As of this writing there are only three of these complete sets known to exist. In attempting to track down the developmental history of this set, I got nothing. The Signal Corps, the CIA, the NSA and the National Archives could supply no information on these sets. The only fact that seems to be definite is that they were made by the Philharmonic Radio Company. The general consensus of opinion is that when these sets were about to enter production, the war ended and so did the need for the set. The receivers, however, were built and issued to the field and saw considerable use in China and other parts of the Pacific. It is assumed that a contract was let for so many thousand of these sets and production was begun. When the war ended and the contract was cancelled, there must have been several hundred sets that were not assembled. One of the popular electronic magazines of the period had ads for a kit radio, billed as the famous "LUCY RADIO" and sold for $19.95. It had all the parts needed to assemble an SSR 5A receiver and I suspect that many of the SSR 5A receivers that can be found today started as Lucy kits!!!

Of the three SSR 5A receivers that I have had, only one came with a set of headphones and a power cable that would allow the set to be used with several batteries. Whether this was an issue item or something developed after the war for the Lucy kit is not known. It is, however, a nice item to have if you plan to work on the set or attempt to operate the set.

The SSR 5A receiver is a six tube superhetrodyne set covering 2.5 to 12 MC in two bands, designated as High and Low. The receiver is 7-1/2" x 3-1/2" x 4-5/8" and weighs 2-3/4 pounds. Controls consist of an ON/OFF switch, a

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WØGFQ Inducted Into QCWA Hall of Fame

by Jim Musgrove, K5BZH
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One of the best known and most avid of our amateur radio operators, Leo I. Meyerson, WØGFQ, was inducted into the Quarter Century Wireless Association's Hall of Fame at the 1994 QCWA National Convention in El Paso, Texas.

This man is most deserving of the honor. He has promoted amateur radio since first receiving his license in 1928 and is continuing his efforts to this very day. Meyerson, still a believer in the abilities of our youth, has been very supportive of the QCWA Scholarship Program.

Leo developed his interest in radio in 1920, at the age of nine, while listening to a guest speaker visiting his school classroom describe the value of wireless and the upcoming broadcast stations that would soon be scattering programs across the nation via the ether.

Leo and Harold Smith, a neighborhood boy, built a one tube regenerative receiver that allowed them to hear KDKA's first broadcast. Meyerson later built and experimented with several crystal sets. The youngster erected a long wire antenna that he strung down the alley behind the Meyerson home that helped "pull in" distant broadcast stations.

In 1927 the teenager, still a radio nut, started removing turns from the coils in a Grebe receiver so he could listen for stations on higher frequencies. He soon encountered his first station with a strange number in its call letters. Six months later Leo had his ham ticket with the call W9GFQ.

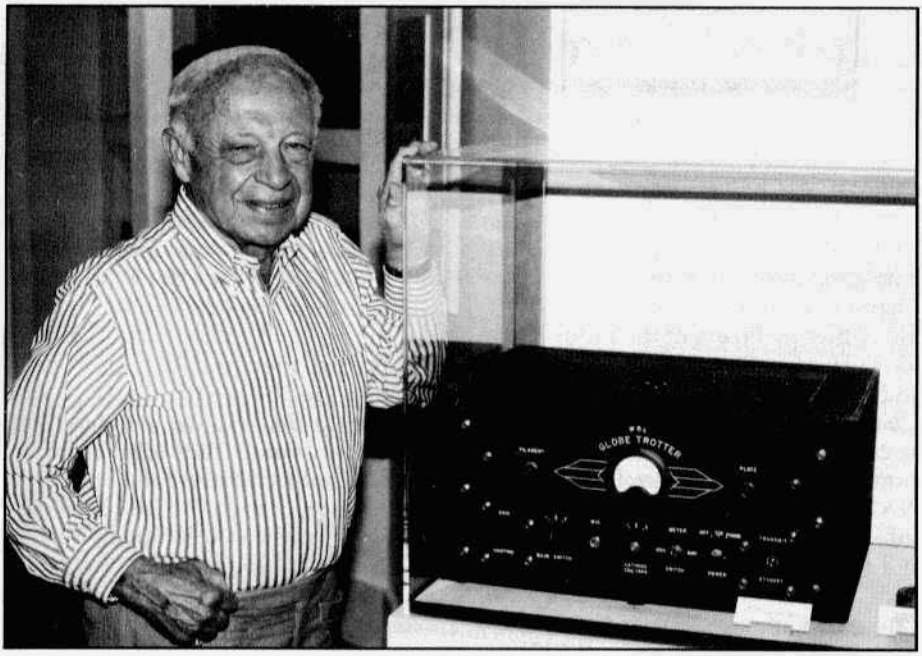
Leo operated a small grocery store in Council Bluffs, Iowa that he opened shortly before his wedding in March 1933. When forced to close the store due to losing his lease in 1935, he borrowed $1000 from his father and launched Wholesale Radio Laboratories.

During World War II Leo Meyerson and Al Shideler, W9IFI formed Scientific Radio Products and manufactured crystals for the war effort. This firm won the Army-Navy E Award in 1943. At the close of the war Leo sold his interest in the crystal company and focused his attention on WRL which he soon renamed World Radio Laboratories.

Leo's son, Larry Meyerson, became president of World Radio in 1971 and Leo served as chairman of the board until his retirement in 1977. Larry converted World Radio into a very successful consumer products operation and remained president until selling the operation in 1988.

Throughout the years Leo has helped provide public service with his hobby. In 1952, when Council Bluffs was threatened with the possibility of a severe flood, their Disaster Committee asked Meyerson to establish a communications system to assist the city police department.

He accepted and with the help of some 200 ham operators, helped prevent the looting of evacuated homes. All amateurs involved received certificates of appreciation and Meyerson's participation won him the Edison Award.



Leo Meyerson, WØGFQ, with one of his first transmitters, the Globe Trotter. This photo was taken by the author at Western Heritage Museum in July of this year.

Like other hams, Leo's amateur activities have included many fun events. He joined several other hams in the British Honduras for a DX-pedition in 1965 during an ARRL DX contest. They operated under the call VP1GFQ and provided many contacts for hams throughout the world.

Meyerson, having attended over 500 radio conventions, continues to be a familiar sight at many of today's conventions, often playing the piano or organ for sing-a-longs.

Leo Meyerson is a life member of the American Radio Relay League, Old Timers Club, and Society of Wireless Pioneers.

One of Leo's proudest moments was being inducted into his high school Hall of Fame at Abraham Lincoln High School in 1976. In 1980 Leo was elected a fellow of the Radio Club of America, formed in 1909 and one of the most prestigious radio clubs in America.

Throughout his life Leo Meyerson has been associated with numerous civic organizations. He was president of his local Kiwanis. He served as the vice-president of directors at Mercy Hospital. Other associations include B'Nai B'rith, Chamber of Commerce, Elks, Masons, Red Cross, Shriners, United Way, YMCA, plus many more.

Currently Leo spends a great deal of time with the amateur radio exhibit at the Western Heritage Museum at Omaha, Nebraska. This display is one that projects a positive image of ham radio and is toured by thousands of people each month.

We are grateful for having Mr. Meyerson as an avid supporter of amateur radio and recognize that he has helped make the world a better place to live. Our thanks go to him for his many years of service and we extend our congratulations for his new honor.

ER

Globe Champion QSO

by Jack French, N7QDG
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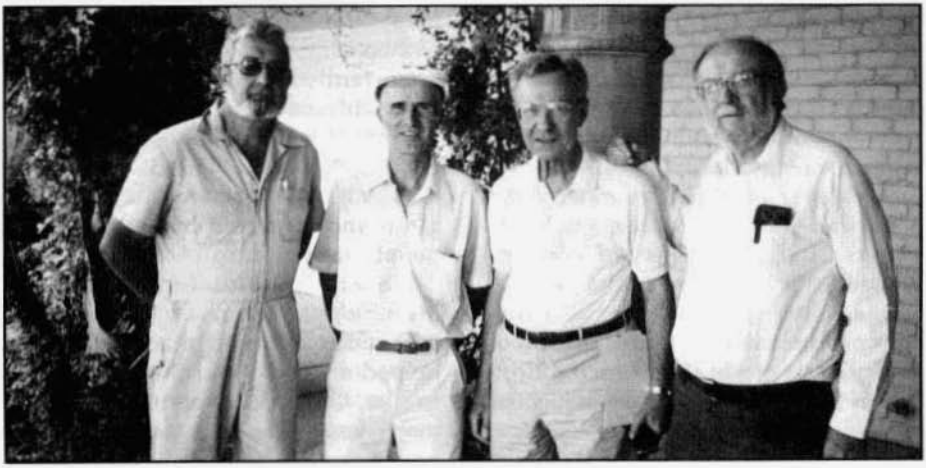
Tucson, AZ 85741

Clyde Sakir, N7IOK said, "Wouldn't it be great to put all four Tucson Globe Champions on the air tonight!" So we did. Other members of the group were Joe Furfaro, W7ISJ, Ed Geiser, KC7DF and Jack French, N7QDG. We had a pleasant and interesting QSO starting at 2:55 UTC August 6, 1994. We were joined by vintage AM'er Randy Best, WA7CPA of Phoenix and we discussed subjects such as small receiving loops and the fine sound of the Globe transmitters. All four Champs were accompanied by vintage receivers. N7IOK was using a Collins R-388, W7ISJ a Hallicrafters SX-101, KC7DF an English Racal RA17C and N7QDG a National NC-300.

The Globe Champion 300 was introduced in 1957 with a price of $349 for the kit and $449 complete. (That year Fords and Chevrolets started at about $1900.) The Champ weighs in at 105 pounds and uses 19 tubes. It was built in Council Bluffs, Iowa. Maximum input power 350 watts on CW and 275 watts on AM. Standby requires 150 watts and AM transmission requires 700 watts power from the wall. Earlier Globe transmitters used plug-in coils, but the 300 and future models used a band switch to go from 10 to 160 meters.

When the 350 was reviewed in the February 1958 *QST* the company had changed its name from WRL Electronics to Globe Electronics. The 350 brought only minor changes in circuitry and shielding, but was accompanied by an extensively revised manual. Single sideband operation was possible with an external exciter. In this mode, the 300 was rated at 300 watts PEP which was raised to 400 PEP when the 350 came along.

We are on the air several times a week, on 160 meters as well as 80, with fellow AMers in our part of the country. All in all the four Globe Champion owners in Tucson are enjoying these fine old machines! Please join us - especially if you are running a Globe transmitter. ER



Left to right: Clyde Sakir, N7IOK; Joe Furfaro, W7ISJ; Jack French, N7QDG and Ed Geiser, KC7DF.

VINTAGE NETS

Westcoast AM Net: Meets informally, nightly on 3870 at 9:30 PT. Wednesday at 9:00 PM PT they have their formal AM net which includes a swap session. Net control rotates.
California Early Bird Net: Wednesday nights at 8 PM PT 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: Recently started by Pat, K7YIR, this net is on 3875, Mondays and Fridays at 9:30 PT. 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.
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 is Les, K6HQI.
Arizona AM Net: Meets Sundays at 3 PM MT on 3860. 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 3875 Monday, Wednesday and Friday mornings at 7AM MT.
DX-60 Net: This net meets on 7290 at 2 PM ET, Sundays. Net control is Jim, N8LUV. This net is all about entry-level AM rigs like the Heath DX-60.
Military Net: It isn't necessary to check in with military gear but that is what this net is all about. Net control is usually Walt, KJ4KV, but sometimes it rotates to other ops. It starts at 5 AM ET Saturday mornings on 3885.
Westcoast Military Radio Collectors Net: Meets Sat. at 2300 local on 3885 and Sun. at 1600 local on 3885. Night net control is Andy, KD6TKX, and daytime net control is Tom, WA6OPE. AM is the mode used at present. It is not necessary to check in with military gear.
Grey Hair Net: The oldest (or one of the oldest) 160-meter AM nets. It meets on Tuesday nights on 1945 at 8 PM in the winter and 9 PM ET in the summer.
Vintage CW Net: For CW ops who enjoy using vintage equipment.This is not a traffic net; speed is not important. The net meets on 14.050, Saturdays at 1 PM PT. Net control is Tracy, WB6TMY.
Vintage SSB Net: Net control is Chuck, N5SWO. The group meets on 14.293 at 1 PM CT, Sunday afternoons.
Collins Users Net: The oldest of the 'users nets'. It meets on 14.263 Sunday afternoons at 2 PM CT. The net control revolves. This group also gets together for an informal ragchew on 3805 Tuesday evenings at 7 PM CT.
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.
Heath Users Net: A new net started by Marty, WB2FOU/5. Net control is shared by Fred, AA5LW. It meets on 14.275 at 4 PM CT Sundays. Check in on either AM or SSB.
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 has been meeting since 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 '50's. Most members are using vintage or homebrew gear.
Westcoast Broadcast Equipment Net: Tuesdays on 1959 at 9 PM PT. Anybody is invited to join the group, but the emphasis will be on broadcast equipment. Moderator is Mike, W6THW.

One SX-88's Story

by Walt Novinger
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I had a week's vacation scheduled to coincide with the anticipated arrival of a "new" Hallicrafters SX-88 receiver. My XYL, Terry, and I figured that the first day after the receiver arrived would be consumed with the normal cleaning and tweaking we find a reason to do on nearly every radio we buy, and the rest of the week would be spent listening to this supposed paragon of Hallicrafters design. UPS dropped the -88 off on Tuesday, in a pristine carton that showed no signs of its journey across several states in the Big Brown Trucks. Imagine, then, our chagrin when I opened the top of the receiver's cabinet and discovered the aluminum can for an IF transformer wedged between the chassis and the side of the cabinet, and the IF coil doing a Leaning Tower of Pisa imitation. Thus began an intense three-day rescue effort sparked by the question: "Can we fix it ourselves?Can we find the parts? Will it ever work as well as it once did? Should we return it for a refund, which we were hoping to rule out because we wanted the old girl." Ambivolence reigned as we tried to answer these questions.

After moving the radio to my shop and taking my time looking it over, the following symptoms were discovered:

° In addition to the severely damaged IF transformer, one mounting bolt had pulled loose from another IF can on the main chassis and from one of the cans on the IF/converter sub-chassis. According to a couple of folks, this is a fairly common problem with -88's, caused by rolling the heavy chassis to turn it upside down.

° The AC fuse holder body was broken and would need to be replaced.

° The dial belt was broken.

° The 160M (1.69-3.0 MHz) band was inoperative.

° The rubber isolation mounts at the rear of the tuning and bandspread capacitors were dried and broken, with big pieces missing altogether.

° There was a moderate 60 Hz hum in the audio.

° There was a really loud mechanical hum emanating from the power supply (it nearly shook my fillings when I put the rig in a rack cabinet and the six-foot sides started resonating in sympathy!).

° The round "h" logo that covers the S-meter adjusting screw was missing.

° The center inserts in the tuning knobs had been painted gray and were flaking.

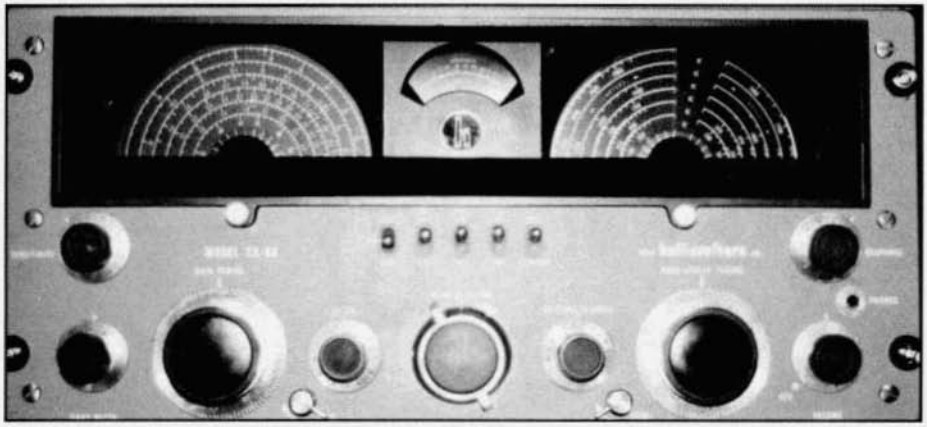
° The dial glass on the main tuning dial was cracked, and both glasses had been lightly etched by drops of some liquid.

° Finally, the radio needed a complete cleaning.

In the radio's favor, the underside is one of the cleanest I have ever seen, with *no* modifications at all; the speaker terminal strip has been replaced with a barrier strip, but this is the only repair. In addition, all the knobs are original and in excellent condition, the dials are pristine, the front panel is excellent, and the cabinet is mechanically excellent though neatly repainted. Since the radio seemed to be a good candidate for restoration, Terry and I decided to tackle the job.

The Easy Stuff

First, I replaced the fuse holder with a new one from Radio Shack. I also replaced the rubber-insulated two-wire line cord with a three-wire cord and plug for safety's sake. Next, the isolation bushings on the tuning capacitors were re-



The SX-88; one of the rarest of Hallicrafters receivers.

placed with snug-fitting vinyl grommets. An SO-239 jack was added to the rear chassis apron using the factory punched holes (was Hallicrafters that close to their pricing goal that this connector was left off?). The tuning knob inserts were sanded to the bare metal with 400-grit emery paper and spray painted flat black to match the originals. One of the 30 mFd sections in the filter capacitor was bypassed with a 100 mFd electrolytic to eliminate the 30 V ripple on the 275 V supply that was causing the audio hum. Finally, all switches and pots were treated with Deoxit (described in ER #65. . .thanks, N2AQS!) and tuner cleaner/lubricant.

The mechanically transmitted hum was eliminated in two ways. First, the power supply filter choke's mounting bolts were just slightly loose, allowing it to vibrate. Of course, because the filter is seeing full-wave-rectified DC, it's vibrating at 120 Hz; since the hum was primarily 60 Hz, this was only a relatively small component of the problem. Because the only other component capable of vibrating at 60 Hz is the power transformer, I turned there next. The -88's transformer has a removable cover that exposes the transformer's windings when removed. The windings are secured to the laminated core using wooden shims inserted from each side of the windings. With AC applied to the receiver, I gently tapped the shims together to make sure they were tight; after three taps, the hum disappeared completely.

While I was occupied with soldering iron, hammer, and 'scope, Terry was busy cleaning the knobs and front panel, and making telephone calls to every corner of the country looking for replacements for the IF transformers. The front panel cleaned up beautifully with Dow Bathroom Cleaner (of Scrubbing Bubbles fame. . .thanks to Rick Valentine, N1SQJ, for this tip); this cleaner is excellent and hasn't affected any paints or lettering on any gear we've tried it on . . .highly recommended. Another highly recommended cleaner, used on the -88 to polish the metal tuning dial index disks and the toggle switch levers, is Nevr-Dull; this is available at most hardware stores and does a superb job on nearly any metal parts, although it may attack paint and lettering. Be sure to rinse parts cleaned with Nevr-Dull, as it does leave a slight film.

As swimmingly as the cosmetic cleaning went, Terry's success locating the 50 kHz IF transformers was less successful. Several folks suggested that we could use a 50 kHz transformer from one of the other Halli's (e.g., the SX-101), but that the Q of these coils would be considerably lower, possibly affecting performance. A quick call to Barry Wiseman

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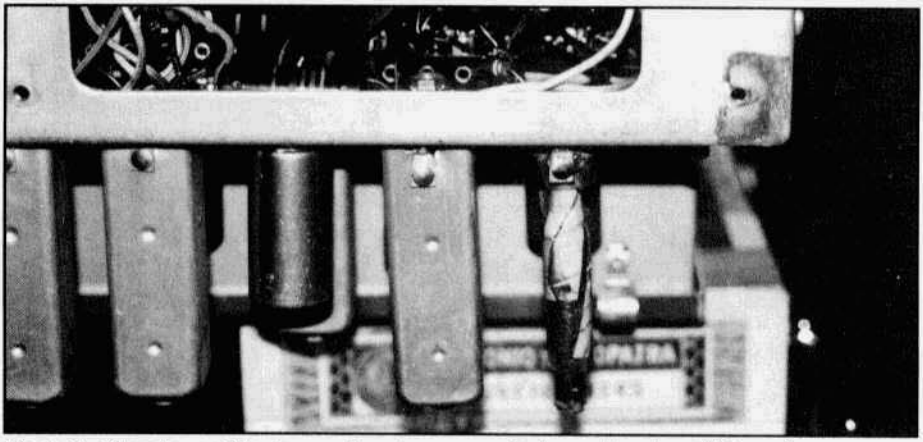

Photo 1. Chassis upside-down showing access hole and broken IF transformer.

revealed that there are no -88s on the ER Parts Unit Directory (thanks for the encouragement, though, Barry!), and no one else Terry or I spoke with had a parts unit. Thus, it became apparent that unless I could fix the broken can, it might be a long time until a parts unit showed up, or until I gave up and used a less than satisfactory substitute.

Now For The Tough Stuff

Photo 1 shows the upside-down chassis with the side brace removed; this exposes the access hole thoughtfully supplied by Hallicrafters. Note the cigar box under the tuning capacitor cover used to support the radio's IF cans well above the bench. The broken IF transformer core is at the right side of the photo. Using a 30 W pencil iron, I was able to unsolder the wires from the can's pins, allowing the remains of the transformer to be removed for surgery. Because all the bands were dead, it was obvious that at least one wire in the transformer had broken during shipment.

Photo 2 shows the condition of the coil and can as they were when removed from the chassis. Note that someone had tried to repair the damage using cellophane tape; because the tape was both brittle and yellow, I surmise that the repairs were made many years ago. Although not visible in the photo, there was glue residue on the can and the chassis, indicating that the repair included holding the can to the chassis with (I think) Duco Cement. This explains how the radio worked at the QTH of the previous owner; the glue evidently broke during shipment to me. Also not shown is that, although one mounting hole was completely torn out of the can, the other hole was in good enough condition to use to reattach the screw lug for use in remounting the transformer (more about this later).

In order to be able to perform the difficult task of reattaching the wires to the pins (two were broken, it turned out), I mounted the transformer base in a "helping hand" parts holder. I first used silicone cement, applied with a flat wooden toothpick, to glue the core securely to the base. Once the glue set, I used 400-grit emery paper to remove the varnish insulation from the wires, tinned them, and resoldered them to the appropriate pins. This operation requires a very sharp soldering iron tip and small-diameter rosin core solder (not to mention a steady hand, hi). Fortunately, the wires were long enough to permit their direct reattachment of the pins; #30 magnet wire could have been used to extend them, had this been necessary.

Once the wires were reattached and the bottom edge of the can straightened, I had to remove the snap-in retaining cap at the top of the can to allow the badly

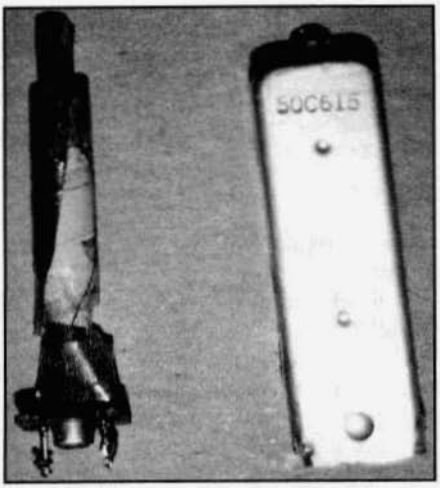

Photo 2. Closeup of broken IF coil and can.

damaged coil form to clear the hole at the top of the can; reattachment of the retaining clip proved to be impossible due to the poor condition of the coil form. The rivet was removed from one of the mounting lugs by filing its head off, and the lug was attached to the can's good hole using a 3/8" 4-40 bolt and nut. Now, I faced the problem of how to secure the two IF cans to the chassis with only a single bolt each.

Using fine steel picture hanging wire (steel so that it won't stretch with time as copper would). I formed a loop big enough to pass the retaining clip (or, in the case of the broken can, the coil form top). I then twisted the wire tightly until it was long enough to reach the lug when it was inserted halfway into the chassis. The wire was then passed through the lug's mounting hole and twisted to secure it; I soldered the twisted section to prevent it from unraveling. Finally, the lug was inserted into the hole on the chassis and the nut was tightened just enough to pull the can's bottom into snug contact with the chassis; a dab of nail polish keeps the nut from loosening.

The IF can on the sub-chassis posed the problem of not being able to get to the underside of the sub-chassis without major surgery to the radio. Because the can immediately adjacent to it was still securely bolted to the chassis, I simply used a nylon cable tie to tie the two cans together. I used a folded-cardboard shim to maintain the proper spacing between the cans.

When the surgery was completed, it was time to smoke test the patient. It's hard to describe the feeling of satisfaction Terry and I felt when the BBC came booming in. Our local AM classical station has never sounded better than it does on the -88, although our SX-42 gives the -88 a run for its money on AM.

In an effort to get even better sound, I rummaged around the basement looking for a hefty 12" speaker I remembered putting away for just such a radio. As I looked around, my eye was caught by an old S-96 Civic Patrol. . .there, as pretty as the day it was made, was the "h" logo I needed! A couple of dabs of silicone cement tacked it in place until I can find the "real thing".

What's left to do. . .

Of course, I'd love to find a dial belt to replace the broken one. I have chatted with Tom Rousseau (mentioned in Mike O'Brien's, NØNLQ, excellent article in ER #36 which inspired us to look for an '88 in the first place) about the piano wire fix he described, and may go this route. Until I decide what to do, I simply have pulled the dial lamps out of the tuning dial sockets and let the room light illuminate the dials, as the lighted segment is too confusing when it doesn't follow the bandswitch dial.

I still have to figure out why the 160 M band isn't working and fix it. Then, one of these days (probably on my next vacation a couple of years from now, hi), I'll align the radio, although it's difficult to imagine it being much better than it is. Dial calibration is excellent, easily the best of any analog receiver I have. Likewise, SSB reception, while requiring a safecracker's touch due to the relatively fast tuning, is very satisfactory...that some have reported poor SSB reception is curious.

Finally, in addition to the people al-

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A Homemade Mike Stand

by Bob Dennison, W2HBE
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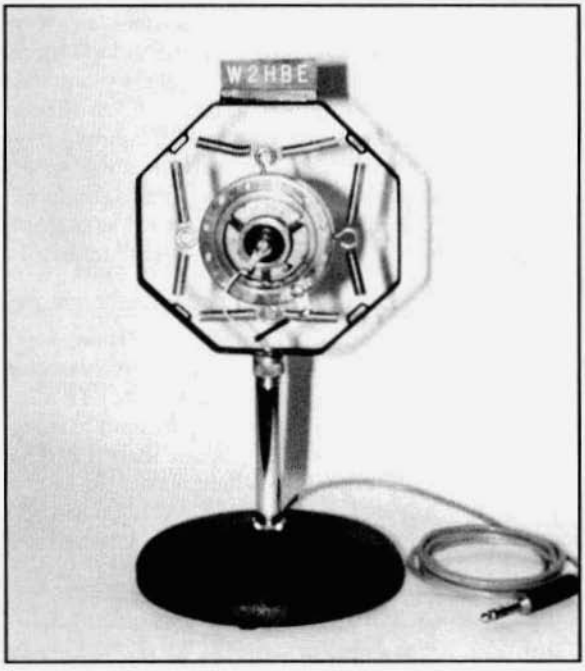
Last year I found an Ellis model 20 double button carbon microphone at a flea market. The price, incredibly, was only $3! I cleaned and polished it and then set about looking for a suitable mike stand to support it properly so that it could be used and displayed. At an antique radio meet, I saw a carbon mike with stand priced at $175 but individual mike stands apparently are extremely rare. Thus I considered the possibility of trying to make one. To assist my design efforts, I collected sketches and photos of mike stands from old radio catalogs. Then one happy day, I discovered in a corner of the basement, a piece of copper bus bar having a cross-section of .5 by .062 inches. I knew at once that this was the answer to my prayers.

I decided that it would probably be easier to form the copper bar into an octagon rather than trying to make a perfect circle. An old Allied Radio catalog showed an octagon type mike stand so that settled it. The copper bar was laid out and marked for bending and drilling as shown in Fig. 1-A. After the holes were drilled, I cut off the end pieces. These cuts pass through the centers of the 1/4 inch holes. When the bar is bent into its final octagonal shape, these two semicircles join to form a 1/4 inch hole through which the mike wires pass.



The copper bar was bent by clamping it in a vise and applying pressure to the extended end. Since the jaws on my vise are three inches long, I found it expedient to use two short pieces of angle stock to hold the copper bar just above the top surface of the jaws of the vise - see Fig. 1-B. The copper bar can now be bent by pressing a block of wood against it until the proper 45° angle is achieved. Now you can unclamp the bar, move to the next scribe line, reclamp and make the next bend. I used a 6" bubble level each time I clamped to insure that the bar was horizontal before bending. If you do a perfect job, the two 1/4 inch semicircles will meet exactly as they should. But this probably won't hap-

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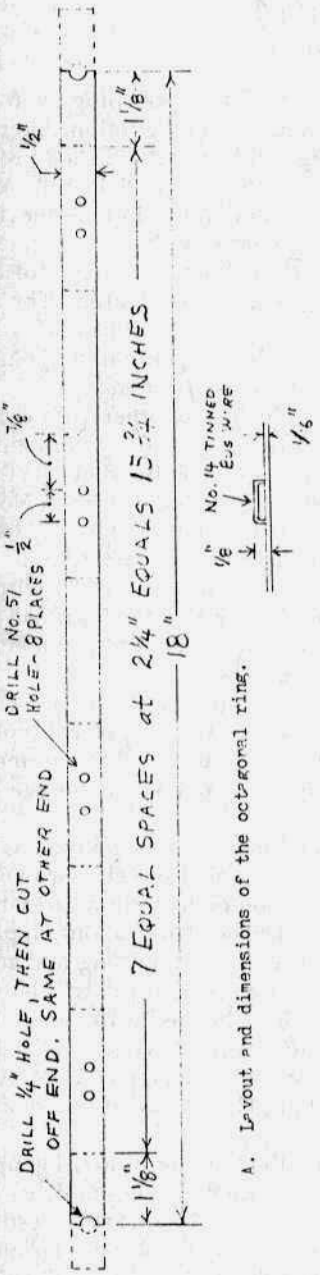
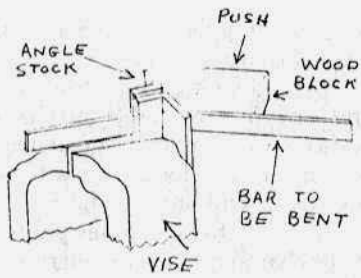


A. Layout and dimensions of the octagonal ring.

B. Method of clamping and bending the ring.



C. Assembly details.

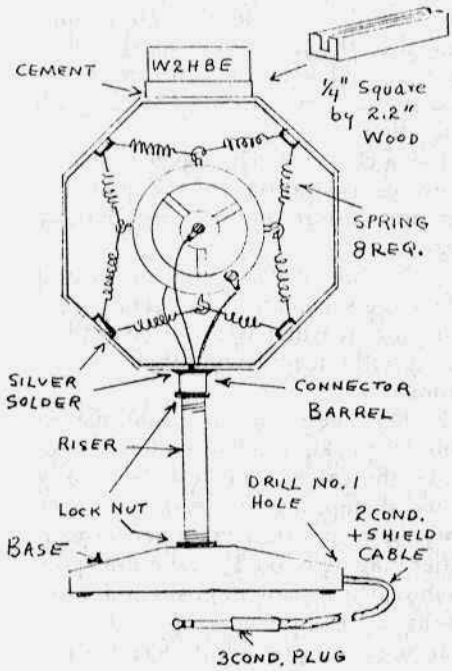


Fig. 1. Construction and assembly of microphone stand.

The SX-100 Revisited

by Art Hogrefe, N3FEB
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After reading Dave Ishmael's article in the February '94 issue of *Electric Radio* I started looking for an SX-100 and found one in reasonable mechanical shape a couple of months ago. It needed painting and now looks new after several coats of DuPont Acrylic auto lacquer. Dave's article includes photos of both the chassis and assembled receiver. The electronic problems in my set were quite interesting and may intrigue other restorers, especially if they have the product detector modification suggested in the Jan 1961 issue of *CQ* or wish to add it to enhance sensitivity and reduce noise during CW and SSB operation.

Use a checklist. This saves time and prevents frustration. The following is a fast and sure route for qualifying any gear.

1. Read all available information and check the schematic. Most sets have a quirk or two that will not be readily noted without reviewing their specifications.

2. Do a very careful visual inspection. Don't skip this! You'll have to remove the cabinet, make notes if any unusual steps are required. Your eyes are your primary test instrument, a magnifier may help too. Look for hot spots as shown by organic deposits and color. Verify all components by both their marking and if possible direct measurement. Replace as necessary. Be especially critical of the power cord, if its insulation is brittle and cracked replace it, perhaps with a three wire line cord providing chassis safety ground.

3. Perform mechanical maintenance as necessary including cleaning rotary switch contacts, removing debris, rust control and chassis polishing, shaft and gear cleanup and lubrication. After everything is lubed and polished protect surfaces with wax or "Ballistol". A really clean (new condition) under chassis can be coated with electronic grade clear Krylon which is a good moisture and fungus proofing coating. The aluminum chassis can also be buffed to a mirror finish using aluminum polish if desired; this takes patience.

Electo-clean and other proprietary sprays will remove most contamination from the chassis but don't get them on plastic, I had to polish with Novus #2 for a week while watching TV to get the crazing out of the meter face!

Use contact cleaner on all switches and pots, if they aren't noisy it will still lubricate them. Same for the wipers on the tuning capacitors.

4. If the original paper and electrolytic capacitors are still present replace them making sure the replacements have identical or greater voltage ratings.

5. The cabinet can be painted as desired, it may be just as well to wait until rework is complete and no further removal will be needed. DuPont car paint jobbers can match anything and some practice with a spray gun will let you refinish most metals to like new. Use lacquer unless you have access to a dust free paint booth. Get the DuPont "Auto Refinishing Handbook" if you're a beginner.

6. Test the tubes prior to firing up. A good tester will increase confidence levels but you will still want to try substitute tubes if there is a problem after alignment. Tap them while in the circuit to identify microphonic elements.

7. Bring up power slowly with a variac then verify every AC and DC node in the unit. This may reveal addi-

tional out of specification parts. If no variac is available wire a 40 or 60 watt lamp in series with a test power cord and check that it is dim when driving the receiver (no power short).

8. Use a signal generator sufficiently stable for the bandpass filters and start with the last IF and product detector cans, proceed toward the antenna until completed. This should agree with the manufacturer's alignment instructions. When doing the front end stages be sure to check calibration at three or more points on each band (I once aligned a receiver crosseyed - it received the desired signal at one end and the image at the other - midband was way off!). If the set provides CW and SSB reception it may be necessary to adjust the BFO frequency.

Note that the mounting of the dial glass affects calibration. If you remove these glass plates to clean them be sure to check the calibration afterwards, they easily shift horizontally a fraction of an inch.

9. Exercise all functions and operate for a few hours. Be very critical and make notes of image rejection and sensitivity. As a minimum sensitivity check note that connecting an antenna increases the noise noticeably on the highest band. You can also check stability using WWV or CHU.

10. Burn in for a few days, say a couple of hours each day, and recheck.

The SX-100 looked promising, the previous owner had made a couple of modifications and kept good notes on these changes. The CQ magazine product detector had been added and a separate continuously on filament transformer provided for the first oscillator. However both changes had been made without follow up testing and required rework. We now have the luxury of inexpensive used high quality test equipment. 100 MHz oscilloscopes make circuit evaluation easy.

Physically the receiver was typical of a valued old item, a lot of dirt and grease but thankfully no corrosion. The cabinet was scratched a bit but not dented and easy to repaint.

Most of the SX-100 mechanics were stiff and responded well to cleaning and lubing. I used oil on most bearings and a dab of moly grease on the gear trains. This set and a previously restored SX-99 had trouble with the bandspread capacitors. They are made with a nonadjustable mount bearing which binds with age and causes jerky tuning. The mount can be carefully sprung open with a couple of crescent wrenches, this takes some nerve as it springs back almost all the way. After two or three tries you should notice improvement. Work a little moly grease into the bearings. With care tuning becomes silky smooth.

The initial voltage check had a surprise, the V3 filament voltage read 9 V. V3 is the first conversion oscillator and a little filament transformer had been added permanently connected to the line cord. Reduces drift, right? Well the little transformer was marked 6 V with a pencil but it wasn't! The V3 socket looked like it had been hot for a long time. V3 (6C4) was also the only tube to check bad. The transformer was removed and filament rewired to the original schematic.

Further AC voltage checks showed a low voltage at the V7 filament. This is normal for the detector and noise limiter diode stage in both the SX-100 and SX-99. A dropping resistor is used to lower the filament voltage and change the operating curves. I think this makes a better noise limiter but would like to hear from anyone who understands the design. The remaining voltage checks were nominal.

The paper capacitors were replaced with Sprague Orange Drop mylars and the electrolytic with a new Mallory. Frequency calibration was off everywhere (used WWV and CHU for a fast check)

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Some Random Thoughts on Plug-in Coil Forms

by Donald Meadows, N6DM
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Let us first define the term. A plug-in coil form was a cylindrical entity, usually 1-1/4 to 1-1/2 inch in diameter, 3 to 3-1/2 inches lon

g (including length of pins). Sometimes it was ribbed in order to minimize wire contact with the form. Most forms were designed to mate with a standard receiving-tube socket accepting four, five, or six pins. Plug-in coil forms for octal sockets were less common. The form's composition, depending on age, ranged from bakelite, through phenolics, into the very low-loss polyethylene/polystyrene group of thermoplastics. A few forms were offered in steatite, a white porcelain-like material too hard for drilling. The manufacturer provided lines of small holes for wire insertion. All these plug-in coil forms designed to fit tube sockets were used mainly in receivers and in low-power transmitters.

Plug-in coils, including manufactured high-power transmitting versions mounted on a jack bar, were common throughout the thirties and forties. Their use probably peaked in the early fifties. Eventually, commercial coil stock prewound on air displaced plug-in coil forms in published designs. The TVI demon accelerated this displacement. Ham transmitters had to be shielded, which complicated access for coil changing by hand. Ham technology rose to the occasion. A panel switch that selected taps on a single coil replaced the human coil-changing hand (which probably saved many lives). The PI-network output circuit proved superior to link-coupled output, both in harmonic reduction and in the mechanical ease of tapped-coil bandswitching. Buffer stages, too, worked well with switched taps applies to commercial air-wound coil stock.

Plug-in coil users were expected to wind onto the form the required inductance, although some manufacturers offered prewound sets for the receivers they promoted. If one has vintage plug-in coil forms for use today in replica receivers and low-power transmitters, the ritual of winding wire on these forms can be either a new manual-dexterity experience for the younger group, or a fine nostalgia trip for old timers. There was once a standard procedure.

First, one consulted a "coil-winding calculator." This was a cardboard device in slide-rule format, once offered by both the ARRL and Allied Radio, which neatly equated the required inductance with coil length, diameter, and turns per inch. A special scale even showed the closewound space occupied by wire of a specific gauge. A handy additional scale showed the inductance and capacity required to resonate at a given frequency.

The second step with plug-in forms was to drill holes in the form to accept the wires leading to the pins. For modern users, this step may be unnecessary. Today's lucky owners of vintage plug-in coil forms will probably find the form peppered full of holes already drilled by previous users. Should a virgin coil form appear, its rarity presents the owner with a dilemma whose resolution lies beyond the scope of this discussion. Often it is easy to adjust the winding to accommodate these predrilled holes. The number of turns per inch and their spacing can reflect a wide range of inductance values within a fixed winding length.

The third step was to secure the wires in the pins. Many old forms have pins filled with solder and wire fragments left by previous users. To clear the pin for the new winding, heat it thoroughly with your soldering iron and then give the form a single, vigorous shake. Most of the molten solder will spatter onto the floor, but some may stick to your Levi's. This third step needs an emphatic qualification. Soldering wires in the pins of the old Amphenol coil forms made of transparent polystyrene was always a problem. Many of these forms were ruined on the first try. Their plastic softens well below soldering temperature.

Yesteryear's literature offered some solutions to this Amphenol coil-form problem. These solutions all involved heatsinking. My solution works well, but it requires an item probably as rare today as the Amphenol form itself. Simply plug the coil form into a Johnson ceramic tube socket before soldering. The socket holds the pins in alignment, does not cover the pin holes, and the socket's pin contacts act as heat sinks. The ceramic socket easily withstands soldering temperatures.

A fourth step, though not always necessary, was securing the finished windings on the form. Plug-in coil windings were traditionally secured with "coil dope," a quick-drying compound which smelled something like model-airplane glue. But probably no one ever got high from sniffing it. When dry, the applied dope usually was transparent. Sometimes it would turn yellow with age (like maybe after a year or so). Sometimes it would flake off and require another application. This left an annoying residue to harass the user if the winding had to be modified later on.

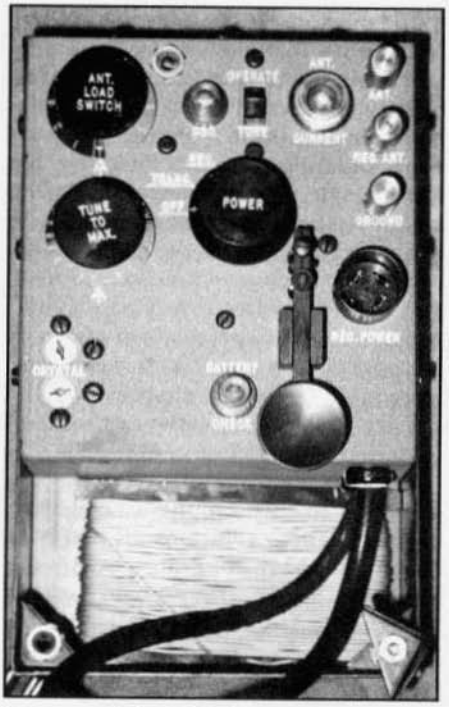
A good way to secure hand-wound wire turns on a plug-in coil form is to cover the finished winding with Teflon pipe thread tape, available in most hardware stores. If gently stretched while being wound over the turns, it will mould itself to the wire on the form. It sticks well, apparently through the bonding force of static electricity. Once moulded to the wire on the form, it tends to stay in place. It is easily removed if turn adjustments are necessary., Teflon has excellent temperature and RF characteristics. The tape's whiteness on the coil form might offend the eye of some users. But the form is rendered useful without further chemical contamination.

Vintage transmitter and receiver construction articles often devoted valuable space on the page to a "coil table." Instead of simply stating the circuit's required inductance, the text provided a separate table of instructions for winding the required plug-in coils. These instructions were detailed and precise. The builder was expected to follow these instructions carefully and not ask questions. The form's manufacturer was often specified along with the form's diameter. Then the builder read the winding specifications, often given down to the fraction of an inch or to a fraction of a turn, along with wire gauge and insulation type. Needless to say, such an authoritative mystique could intimidate the beginner. It was like a magical incantation brooking no exceptions. I recall once riding my bicycle across town to the radio store just to purchase copper wire of the prescribed type. I was working on my first homebrew regenerative receiver out of the 1945 ARRL Handbook. The coil table called for No. 32 double cotton-covered wire. I had plenty of No. 30 enameled wire on hand., But "No. 32 d.c.c." wire was called for, so that was it. I assumed that nothing else would work.

Those old plug-in coil forms, long extinct, manufactured in America by Hammarlund, National, Millen, Amphenol, Bud and some others are all collector's items. They deserve respect because they played a key role in yesteryear's ham technology. ER

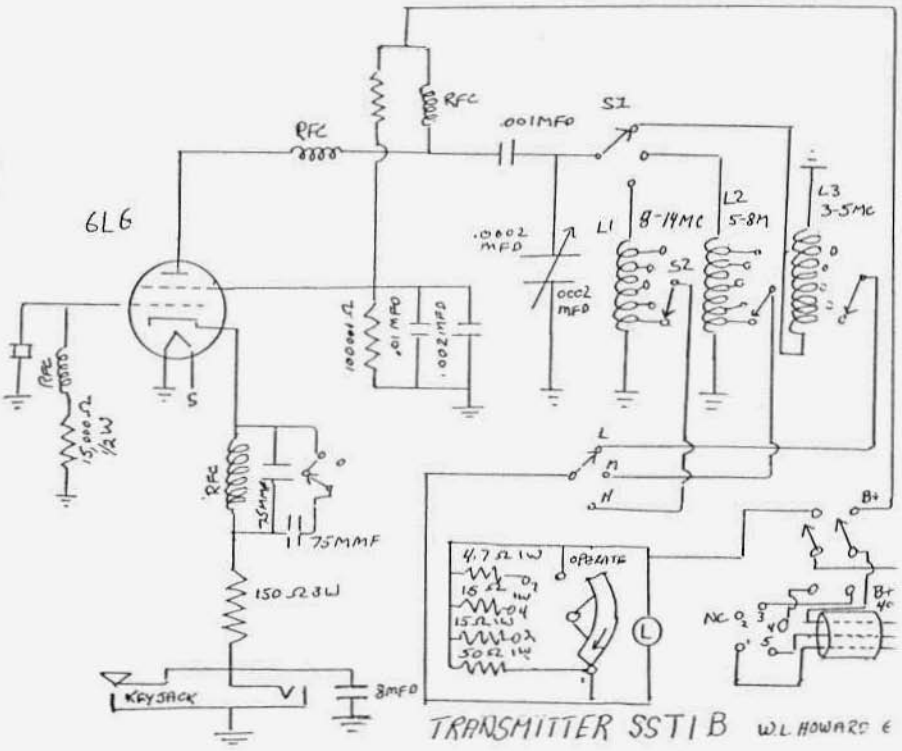
band switch, a BFO switch, a gain control and a vernier tuning dial. Two terminals provide connections for the antenna and ground leads. The power cord is fastened internally and remains with the set. It terminates in a four pin plug. The tube lineup in this set is a 1T5, 1R5, 1T5, 1S5, 1L5, and a 1T4. The power cord is designed to plug into a socket on the transmitter or the previously mentioned power cable.

The transmitter is built on an "L" shaped bracket which is then mounted into a case the same size as the receiver, which leaves a small storage space in half the case for the antenna, crystals, or whatever. The transmitter uses two 3S4 tubes, wired in tandem, and protected by metal tube shields. These appear to be both smaller and sturdier than the predecessor's 6L6 tube. With two tubes in tandem, the set should operate with one tube dead, a definite advantage behind enemy lines where replacement tubes are hard to find!!! The circuit is reasonably simple, a crystal controlled oscillator with a tuned tank circuit.



Closeup of the SST-5 transmitter.

The controls consist of an OPERATE/TUNE switch which puts a series of resistors and a lamp into the antenna circuit for tuning. Tuning is accomplished by two controls, a tuning control which is a variable capacitor and a tap switch connected to taps on the tank coil. Two neon lamps monitor the oscillator and the condition of the batteries. In addition to these controls, a key is mounted on the chassis and a power connection socket is provided for the power cord from the receiver. Three binding posts provide connections for the main antenna and connections to the receiver antenna and ground. The final control, mounted in the center of the chassis, is a three-position rotary switch which switches power and antenna/ground connections from the transmitter to the receiver. Two power cords come out from the base of the set and connect to two BA 48 dry cell batteries, which provide 1.5 volts for the

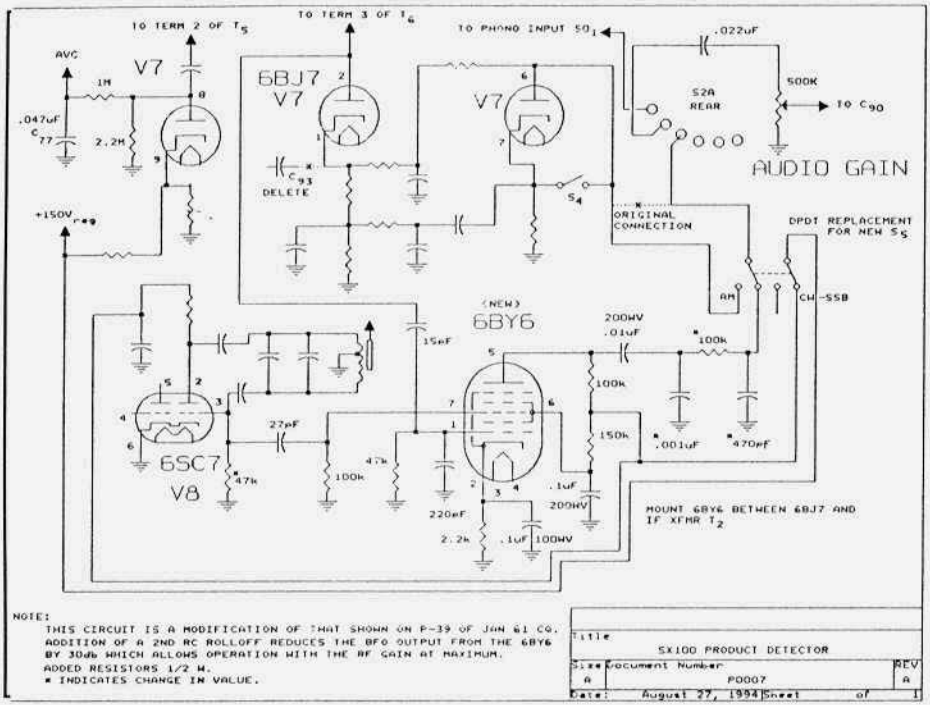


filaments and 90 volts plate supply. The receiver uses one battery and in the transmit position both batteries are in series to provide 180 volts plate supply.

Two additional sets were recently located and these sets came in a canvas bag that had space for the transmitter and receiver only. There must have been a second bag that was used to hold the two batteries, headphones and any other accessories such as spare crystals. No such bag or container has been located so it is doubtful if any were ever made. Since specifications and design history appear to be nonexistent, we can only speculate.

With the end of the war, these sets seem to have disappeared. The OSS was disbanded and in 1947 its successor, the Central Intelligence Agency, was established. The first set adopted by the CIA was the RS 1 which bears no resemblance to the SSTR 5 or the SSTR 1. The RS 1 was adopted by the military, with some modifications, and designated as the AN/GRC 109 and can still be bought from Fair Radio in Lima, Ohio. The other post WW II clandestine set to be used was the RS 6 set which was designed to be used by B-47 aircraft crews that may have been downed behind enemy lines. Some of these sets turn up now and again.

This article has scratched the surface of clandestine radio development and it is hoped that anyone with a knowledge of the development of the SSTR 1 and especially the SSTR 5 sets will share this information. **ER**


TO TERM 2 OF T5
TO TERM 3 OF T4
TO PHONO INPUT SO1
.022uF
AVC
V7
1M
.047uF
C77
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V7
V7
S2A
REAR
500K
TO C90
AUDIO GAIN
C93
DELETE
S4
ORIGINAL
CONNECTION
DPDT REPLACEMENT
FOR NEW S5
+150V
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CW-SSB
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15pF
100k
27pF
6SC7
V8
47k
100k
47k
150k
.001uF
470pF
.1uF
200WV
220pF
2.2k
.1uF 100WV
MOUNT 6BY6 BETWEEN 6BJ7 AND
IF XFMR T2
NOTE:
THIS CIRCUIT IS A MODIFICATION OF THAT SHOWN ON P-39 OF JAN 61 CQ.
ADDITION OF A 2ND RC ROLLOFF REDUCES THE BFO OUTPUT FROM THE 6BY6
BY 30db WHICH ALLOWS OPERATION WITH THE AF GAIN AT MAXIMUM.
ADDED RESISTORS 1/2 W.
* INDICATES CHANGE IN VALUE.
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SX100 PRODUCT DETECTOR
Size A
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REV A
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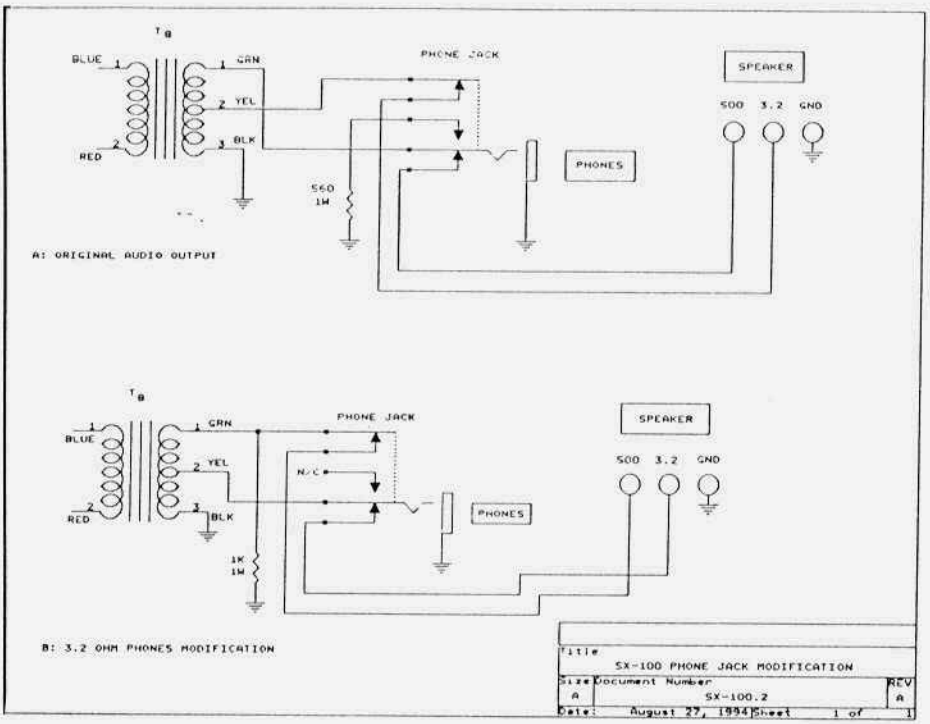
T8
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The SX-100 Revisited from page 27

and the audio wasn't bad. However, turning the BFO ON required reduction of the RF gain below half rotation to obtain undistorted audio. Some detective work was definitely in order.

The added product detector circuit was from the 1961 January issue of CQ. There was a copy of the article attached to the owner's manual and the circuitry was properly installed. Time to pull out the oscilloscope.

The CQ product detector provides about 30 dB additional gain as well as reducing the noise and intermods. This is useful on the highest band especially on SSB and CW at narrow bandwidths. However it is not a balanced mixer and the 50.5 kHz at its output was 20 dB greater than the desired audio signal. The first audio amplifier had almost no headroom and distorted severely until the RF gain was turned way down.

The original CQ circuit has a single high frequency rolloff at about 5 kHz between its plate and the following audio amplifier. With the BFO at 49.5 or 51.5 kHz (dual conversion receiver with the second IF at 50.5 kHz) the BFO response is only reduced 20 dB. The detector BFO output is big, this type of mixer switches the output current ON and OFF at the BFO rate, with the output current containing mostly the BFO component.

A bit of adjustment in the product detector output circuit with the addition of a 2nd RC rolloff cleans everything up.See the schematic for the final circuit. Now the RF gain can be used as desired and operation on CW or SSB with AGC ON is possible. The modification requires one change in capacitor value and two additional components. They are shown in the schematic as a pi section filter to the right of the 6BY6 detector, the original 470 pF capacitor is increased to .001 uF and a 100 k and 470 pF capacitor are added. There is a 3 dB loss in operating gain which is trivial. The smooth rolloff filter has nice audio characteristics.

If you do a lot of CW or sideband operation you may want to increase the AGC time constant; parallel C77 with .1 or .2 uFd as a start. This can be switched with an added SPST or left in at all times, just tune slowly while band cruising. I like the effect as the tuning rate sets the background noise level.

These older sets tend to overdrive modern earphones and it's worthwhile rewiring the output jack to the 3.2 ohm instead of the 500 ohm audio transformer lead. Put a 1 kohm resistor permanently across the 500 ohm to ground connection to save the output stage if the speaker gets disconnected.

The SX-100 is a dual conversion receiver with the second IF at 50.5 kHz. Stability, image rejection and selectivity are excellent for an all wave receiver making it a nice unit for both short wave listening and communications. Tuning AM is unique, for maximum audio bandwidth (needed especially for music) tune either sideband, don't center the tuning for maximum carrier. You can check this quickly by turning the BFO ON and tuning for zero beat, then select either sideband with the BFO OFF. Note the front panel BFO adjustment (labeled Pitch Control) should be set to provide zero beat with the carrier when rotated to zero. This can easily be verified with an AM station by switching the Response knob between Upper and Lower sideband and confirming zero beat for both positions.

It took lots of TLC to reclaim the SX-100 and was well worth it. With the extra gain of the product detector stage and the original antenna tuning control it doesn't require a long outside antenna for casual use and it's much more tolerant of nearby computer operations than some solid state sets. It seems to tune to golden oldies and baseball games a lot as well as short wave stations. Definitely one of the best of breed. **ER**

As we all know, a crystal radio is only "off" when it's disconnected and I never ever disconnected mine. So 24 hours a day, KGA sent into my pillow (where I kept the headphone) rock and roll. I don't know if this is an advertisement for subliminal learning, but somehow, to this day, I know the words and melodies to every rock and roll song played from 1954 onward. Again AMAZING!

Now to un-digress. Although the performance of my crystal radio was abominable compared to what else was available for me to use, I preferred it. Indeed I loved it. The years went by and I graduated to the one tube regen kits and then to two tubes. At the age of 9 in 1958 I got my first transistor radio thanks again to the same uncle. It was an Admiral 7 transistor and used 4 AA batteries. By this time I had explored local AM radio and was ready for some growth, and this little radio provided it. I would lie awake at night with the Admiral under my ear so as not to wake my brother who shared the room with me, and I would ever so slowly tune the dial until I got a faint station. I would then wait for however long it took for them to transmit their station ID which usually came just as the station faded. If I got a good one I would get so excited I would just have to run downstairs and tell my parents, which was not at all bright as they had hours earlier told me to "turn it off and get to sleep!"

After a while, even AM DX (as I now know it's called) was losing its fascination. But once again something happened to save the day. One evening I was lying on the floor, fiddling with a portable electric heater that I had brought into my room. It was one of those old types with a glass plate on either side. The glass plates had metal channels deposited on them and when electricity was applied they got, "hotter than hell!" Pardon my language, but by today's standards this heater would be considered a fire hazard and a potential flesh melter. I had my little Admiral on the floor next to the heater and it was between stations just emitting a low hiss. I turned the thermostat on the heater so that the neon pilot light would come on and when it did, some strange sounds started coming from the Admiral. My eyes bugged out as I stared in awe at the little black radio. I then started experimenting. On-off with the thermostat, turning the heater side to side, moving the radio closer to the elements. I finally found the best combination of all those factors and started to tune. There were strange code-like sounds (radio teletype), voices that sounded like they were coming out of tin cans (ship to shore radio), and many other sounds. And once again, IT WAS AMAZING!

But what is amazing at one time becomes understood in another. What was happening is that my little Admiral had one tuned circuit before the mixer and that was the loop antenna and a section of the main tuning capacitor. As we all know, if there is enough RF available in the image region, it will squeak through. While my little Admiral tuned about 550 to 1700 kHz, and considering its local osc operated 455 kHz above the received signal, the image range was about 1000 kHz to 2150 kHz. And in those days the area of the spectrum just above the AM band was a busy one. My "radio appetite" had now been changed from local and DX AM to shortwave and I embarked on what I'll call my "Goodwill Tour."

Shortwave! What an amazing word. It still sends shivers down my spine, just like Bobby Darin's "Dream Lover" does. However to get into this game I realized that I needed to find something cheap and immediate if I was going to successfully gratify my compulsion. But where to go? What to buy? Soon my prayers were answered.

In the late '50's and early '60's people were throwing things away even when

they were not old or worn out. "Style" was the buzz word and people were changing styles as fast as they could to "keep up with the Jones's". For example, this meant that the average family owned a car for only 3 years, and then bought a new one. Along with this rapid change came the discarding of millions of old radios across the country. I remember at the local Goodwill store they kept them in an old storage shed out back because they were basically worthless - they could hardly give them away! In those days the people who frequented such places didn't shop for antiques, they shopped for necessities, and if they had the money they would much rather shop at the retail stores.

But I digress. Again our local Goodwill was overflowing with old radios of every description, and starting in 1960, if I got a buck or two for Christmas or for my birthday I would grab my wagon and drag it the 4 miles to the Goodwill in hopes of finding and hauling a good one home. I did this many times and brought home many radios which to my current and eternal sadness, ended up as parts in drawers in the basement. It is at this point that I must confess to having no foresight whatsoever. Midwests, Zeniths, RCAs, Philcos, you name it. I had at least one of each. But through all this transportation, reception, and eventual carnage, I listened to a lot of shortwave and got to know the "lay of the bands" so to speak.

As we all know, time relentlessly marches on as this article has seemed to do, and with the passage of time I became a teenager, then an adult, and as my wife might say, "at times a teenager again." I became proficient at fixing radios and TVs and with 3 years of technical school I came to understand the mystery that is radio. However, there is a catch 22 here. When I was a child, radio was magic, which motivated me to learn its secrets. Once I did, that magic was lost and to be honest I miss it. I miss being filled with wonder and awe. Wiser, but sadder if you know what I mean.

But I have digressed way too far afield so let me return to the reason I'm writing in the first place. Reading Bob's TRF article was interesting and indeed brought back some of the magic, but when I looked at the schematic, I was a bit disturbed. Oh nothing seemed electrically wrong you understand, but again something was disturbing in a "familiar" sort of way. I looked at the schematic again. I looked at the parts list. I re-read the article, and then I sat back and said to myself, "where in the hell is anyone going to find a 300 Henry audio choke!?" I'd never seen one - or had I? And then the memory came back to me. A junk box memory - the kind that creeps up and then hits you between the eyes. Sure I'd seen one - a choke even bigger than that! After a few minutes of intense mental processing I had the answer. I now knew what was disturbing me and why. The circuitry and some of the components in Bob's TRF seem to bear an uncanny resemblance to those in an LM frequency meter. So I got out my books and went to work.

First of all, the LM uses a 600 Henry choke while Bob lists a 300 Henry. I think in this case, more is not better, but more won't hurt either. Second, Bob lists an output transformer as an asset to keep B+ off the headphones. Well guess what! The LM uses a 20,000 ohm to 600 ohm output transformer and Bob has listed the plate resistor for the triode 56 output tube as 22,000 ohms. Coincidence or what! Third, the tubes in Bob's TRF have 2.5 volt filaments, but according to a couple of my tube characteristics manuals, the type 56 (2.5 volt fil.) is identical in its triode characteristics to the type 76 (6.3 volt fil.) which is what is used in the LM. Fourth, Bob uses two NE bulbs for voltage regulation in the power supply. Well lo and

continued next page

Magic and Memory from previous page

behold, the LM uses two NE bulbs - I think they're 991's - in bayonet sockets for voltage regulation. Fifth, there is a right angle drive pictured in Bob's article and again the LM has a right angle drive also. There are other similarities, and I swear that if someone were really willing to do it, Bob's TRF could be built on the chassis of an LM. Most of the big necessary stuff is there.

But what has this got to do with my early days in radio? Well, Bob's little TRF, and all of its ilk, by today's performance standards are not much better than two tin cans and a string. BUT it has something that nothing else except those of its ilk have - magic. And there is no mathematical constant or law that I know of which requires that magic must - perform.

They say you can never go back, but thanks to Bob and his article I did go back - if just for a bit, and will continue to go back on a regular basis as long as *ER* gets to my mailbox. So for me this article has been about going back. Back to my past, back before that to the days of the TRF and LM and back to that old black wrinkle-painted magic we all love so well. ER

Radio Set FT-102 from page 7

disappointed that both ships were equipped with RMCA gear. I would have liked to see a duplicate of my FT-102 in service. As I was sitting in the radio room listening to the old RMCA shortwave receiver I couldn't help imagining what it must have been like to have been on convoy duty wondering if there was a torpedo in the water with my ship's name on it!

There must have been a few of these transmitters in amateur service. A February 1948 QST ad for the FT-102 offered it for $187.50 complete with spares. Ted Bracco, WØNZW has just acquired one and was kind enough to copy the FT-102 manual for me. Jack Shutt, N9GT has a similar table top version of this Mackay transmitter.

Approximately 2700 Liberty Ships were built with assembly line techniques during the war. Construction averaged 58 days per ship. One was built in the record time of 4 days and 15 hours by Kaiser Shipyards. The ships were 441 feet long and could carry 9000 tons of cargo (equivalent to 300 railroad boxcars). Some were fitted out to carry as many as 500 troops. During the war 200 of them were sunk and 200 were lost to marine casualties. Two thirds of all the cargo that left the United States during the war was shipped in Liberty Ships. Our ability to produce shipping faster than the enemy could sink it was an important component in the ultimate Allied victory.

Both the Jeremiah O'Brien and the John W. Brown have periodic short cruises and I am looking forward to sailing on both some day. ER

One SX-88's Story from page 23

ready mentioned, we want to say a special "Thanks" to Jim Jorgensen, K9RJ, who helped educate us about the -88 and what to look for, and to Dr. Roy Luxembourg, N5QQM, who spent considerable time on the phone helping me and providing encouragement. Boatanchor people are almost universally the most unselfish people we've ever met, ready to share tips and ideas with complete strangers who call them in desperation when their radios don't work. Thanks to all! ER

A Homemade Mike Stand from page 24

pen. You may need to adjust one or more angles to achieve a perfect octagon and exact closure.

After you succeed in getting proper closure of the octagon, you may solder the connector barrel in place - see Fig. 1-C. This barrel should have 5/8-27 threads so that it will couple to the riser of the mike stand. I found a headphone plug with a shield cover having these threads. Most phone plugs have this thread as do also the Amphenol mike connectors. I used silver solder here to ensure adaquate strength. At this time you should also solder in the four loops to which the mike support springs will be hooked. These loops were made of ordinary No. 14 tinned bus wire. Sand or file all solder joints till smooth.

Now you can paint your mike stand. I made a temporary stand out of a scrap of wood and a piece of doweling. This supports the mike ring during painting and baking. Mask the connector barrel to keep it paint free. Apply a primer undercoat, let it dry overnight then bake for several hours at about 200°F. For the final coat, I used Plasti-Kote wrinkle finish, No. 217 Black. Follow the instructions on the can and you will get a professional looking finish.

Drill a No. 1 drill size hole in the base of the mike stand (Radio Shack 33-370) for the mike cable (R-S 278-514). Assemble as shown in Fig. 1-C. The mike is supported by eight one-inch springs. You can add your personal or station ID tag as shown. I cut a 1/16 inch slot in a small piece of wood to hold the engraved plastic name-plate. This was painted black and then epoxied on to the mike ring. Now you have a handsome mike stand that you will be happy to own and display. **ER**

THAT'S THE LAST OF THE GEAR--- NOW MAYBE I BETTER CHECK AND SEE IF MY MOTHER-IN-LAW MADE IT OUT

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FOR SALE: Repair and restoration on all vintage equipment; 35 years experience. Barney Wooters,W5KSO, 8303 E. Mansfield Ave., Denver, CO 80237. (303) 770-5314

FOR SALE: Knight Ocean Hopper, all coils, orig. manual, exc. condx - $125; Hallicrafters SX-73/R274 (PU only) - $500; Heath SB-10 - $50; Gates Solidstatesman - $100. Steve, KA9QLF, Jacksonville, IL (217) 243-3920

WANTED: All types of military electronics, especially RDF and radar items, manuals too. Also need URD2 antenna. William Van Lennep, POB 211 Pepperell, MA 01463. (508) 433-6031

FOR SALE: Collins 3.1 kc filter fits 75S3B/C - $60. **WANTED:** Cabinets - 51S1, KWM2, GPR90; inner lever knob for Hallicrafters SR-type xcvrs. Bill, KE7KK, 6712 Lake Dr., Grand Forks, ND 58201. (701) 772-6531

WANTED: Nice Collins S-line station and amp. Please call and mention Collins. Joseph Falcone, 3000 Town Center, Ste. 2370, Southfield, MI 48075. (800) 436-7026. Leave message.

FOR SALE: Hammarlund Outercom FM50A portable VHF xcvr - $40; TS-175C/U VHF freq. meter - $30. Ken Johnson, N5US, POB 10063, Austin, TX 78766.

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 22075. (703) 822-5643

FOR SALE: Lafayette HE73 converter/preselector; Johnson 1 KW low-pass filter; Drake QX'er #583 - $22 each + shpg. Henry Mohr, 1005 Wyoming St., Allentown, PA 18103.

WANTED: Manuals for Hammarlund SP-600. Also, wish to purchase Hammarlund SPC-10 converter. Bob Bakinowski, 1524 Saint Tropaz, Tucson, AZ 85713. (602) 624-8029

FOR SALE: Johnson Adventurer - $75 + shpg; Johnson TR switch - $35 + shpg. Richard Cohen, 11802 Willow Pt. Way, Tampa, FL 33624. (813) 962-2460

WANTED: Paying up to $75 each for KT-88 and 300B tubes. Frank, AF9T, 8968 W. Forest Home, #4, Greenfield, WI 53228. (414) 529-9395

FOR SALE: Conar Twins, models 500 rcvr & 400 xmtr, unbuilt kits - $100 for pair; Tektronix T-932 dual trace scope, 35 MHz - $175 + UPS. Bob Zimmer, NV1X, 205 Brigham Hill Rd., Milton, VT 05468. (802) 879-7235

FOR SALE: Collins KWM-2 w/Waters; 51J4; Drake TR4CW/RIT; National 697 Doghouse pwr sply; Swan 500. Joel, (516) 757-7641

WANTED: Drake TR-6 xcvr w/acc.; also Tecraft gear. Clem, W8VO, (810) 795-4670

FOR SALE: Vacuum tubes - new, 27, 45, 811, 837, 2050, 250TL, 4-125A and 7203/4CX250B. Make offer. Panel meters SASE for list. Frank, W8SET, (304) 343-0415

FOR SALE: Collins 75S-3B, exc., reconditioned - $475 + shpg; guaranteed. Cory Hine, N2AQS, 1000 E. 14th St., Bldg 178, Plano, TX 75074-6249. (214) 751-7535, FAX 751-7520

FOR SALE: Power up your new treasures gently. Control line voltage for improved tube life. G.E. and Powersat continuously variable AC xfmrs. Double gang 120 volts in, zero to 140 out, 10 amps per section. Has ventilated cover. Use both gangs for 240 volt applications. Also single gang 120 in, zero to 140 out, 18 amp unit. Double gang - $175, single - $125. Plus shpg. Nearly half catalog price and all are NIB with paperwork and knobs. Very limited supply. Jerry, (216) 534-1394

WANTED: Drake R7/A service manual #7805; card extender kit #7307; RRM7 range modules; R7/A to TR7/A cable kit #1548; TR7-A. Phil Burton, K8EGU, 3939 Hall St., SW, Grand Rapids, MI 49504.

WANTED: SC-101; SC-301; KW-1; 30K-1 thru 5; 302C1; 75A thru 75A-4 rcvrs and spkrs, any condx. Purchase entire estates, pick up 48 states and top $ paid. Rick, (800) 462-2972

FOR SALE: Replica Ocean Hopper front panels - $20 ppd, limited qty. available. Includes copy of Ocean Hopper manual. DWI Engineering, POB 3611, Costa Mesa, CA 92628-3611.

FOR SALE: WRL VFO 755A - $45; Galaxy III rcvr, no pwr sply - $75; National NCX3 xcvr, no pwr sply - $75. Both PU only. **WANTED:** Manual or copy for Heath C3 cap checker. Howard Hood, WA7QQI, 5670 SW 44th St., Port Orchard, WA 98366. (206) 674-2179

WANTED: Test cables CG-62204 thru CG-62210 for Navy TDZ xmtr. These have big wide connectors. William Donzelli, 304 South Chester, Park Ridge, IL 60068. (708) 825-2630

FOR SALE: BC-306A antenna tuner for BC-375 - $45; SCR-522 - $25; CY979A/URR shock mounted cabinet for R-390A - $150; BC-610 tuning units and coils (no 160) - $50 a set; Ranger II - $175; Heath DX-40 and VF-1, w/manuals - $65; Hallicrafters S-38A w/manual - $50; RME VHF 152A - $35; 2 EX and 1 Deluxe Meissner Signal Shifters, w/manuals - $45 each; Collins 75A-1 w/spkr - $350. **WANTED:** NX-128/ART-13 dummy LFO kit; ART-13 antenna shunt cap and loading coils. Jack, K4LKD, Boise, Idaho, (208) 345-0187

WANTED: S-meter for Hallicrafter SX-24 or trashed SX-24 with good S-meter; VFO for Globe Scout 65A. Bob, K6GKU, (619) 792-8227

WANTED: T-368 xmtr; info on Viking Invader 2000 or Invader 200; any AM xmtrs to build AM ham station. Mark, KA9FBX, (708) 551-9889

FOR SALE: Lil Lulu 6M xmtr, mint, orig. box w/manual copy - $50 + shpg. Mike, WB3CTC, (717) 656-8746

FOR SALE: 1933 ARRL Handbooks (2) - $50 each; Collins 75A-4 manuals (2) - $30 each, old photocopy - $6. Paul Mezzapelle, WA6NLJ, (916) 481-0145

FOR SALE: Books - RCA TV Schematics 1950-'51 TV's - $12; Beitman 1960 TV's - $6. All items ppd. R.J. Eastwick, N2AWC, 224 Chestnut St., Haddonfield, NJ 08033. (609) 429-2477

FOR SALE: Receiving tubes, new and used; multi-section twistlock electrolytic caps to 500-VDC; SAMS photofacts. Send stamp for lists. Turner Electronics, 16701 Main St., Ste. 121, Hesperia, CA 92345.

FOR SALE: Crystal radio kits, complete with face panel, base board, variable capacitor, prewound coil and many parts for old style radio. Remit $22.50. Carl & Grace Ent., 5636 Romeyn, Detroit, MI 48209.

WANTED: Johnson Viking 500, Globe King 500 or other 500W class AM HF xmtr. No junk please. Lock, KB7TQ, (602) 870-2871 (d), 581-2778 (n)

FOR SALE: SS5R5A 'spy' rcvr; Techcraft TR-20-144 2 meter xmtr with it's pwr sply; wavemeters - General Radio 247W and 566A and Silver. Van, W2OQI, 17 Inwood, Center Moriches, NY 11934. (516) 878-1591

FOR SALE: Hallicrafters S-108 - $85; SX-110, R-48A spkr - $140; Gonset G-50 6M xcvr - $85; Tempo 2020 xcvr - $200. All exc. condx. **WANTED:** Manual for Johnson Ranger I, copy OK. Burt Ostby, 2424 F-30, Mikado, MI 48745. (517) 736-8020

FOR SALE: Radio tubes; repair and restoration of all vintage amateur and commercial radios, 25 years experience. Herbert Stark, 321 N. Thompson St., Hemet, CA 92543. (714) 658-3444

FOR SALE: ARC-5 connectors; ART-13 manuals and J-48A keys for BC-654. Steve Finelli, N3NNC, 37 Stonecroft Dr., Easton, PA 18045. (610) 252-8211

WANTED: 1930-1950 Popular Mechanics magazines for radio projects; G-410 or G-415 or G-521 temple portable. State prices. Harry L. McCall, KB4CSY, Rt 1, Box 244, Ennice, NC 28623-9641. (910) 657-8248

WANTED: National plug-in crystal for HRO version two IF filter; dog house pwr sply 2.5V filament; plug-in coil for 0.9-2 Mc. All top dollar paid. Please send details. Stan Tajima, JA1DNQ, c/o Mr. Nakagawa, 21141 Canada Rd., Apt. 11F, Lake Forest, CA 92630.

WANTED: Spinner knob and gear assembly for 75A-4, AM filter F-455J-60, also looking for clean KWS-1. Don Gies, K4GIT, Box 2790, Rt 2, Melrose, FL 32666. (904) 475-3306

FOR SALE or TRADE: Original Hallicrafters manuals - The following are $15 each: HT40-Mark I, S29, S36, S36A, S39, S40, SP44, SR34, SR150, SR400, SX101-Mark III, CR44, HA1, HA4. The following are $5 each: FM1000, WR3000, WR3100, WR3200. + shpg. Lee Shumway, WB8ZEY, 2820 Yankee Springs Rd., Middleville, MI 49333. (616) 795-3255

WANTED: Collins - Amateur catalogs, sales lit., manuals, promotional items & Signal's. Richard, KD6CPE, POB 992, El Toro, CA 92630-0992. (714) 855-4689

FOR SALE: BC-654 (SCR-284) legs - $34/set; GN-4x generator legs - $28/set; GN-4x generator handles - $12/pr.; RBZ HF rcvr, walkie-talkie style, battery box, AC sply, spares - $209; DAG-1 WW II RDF, 2 sets left - $229 each; TBX radios, one TBX-8 and one TBX-6, very nice - $209 each; GRR-5 spares kits, brand new - $59 each; GRR-5 radio/pwr sply - $129/set, w/case; BC-611 crystal/coil sets in BX-49, near-mint - $149 each; spy radio station RS-6, very good - $369/set; RS-6 spares kit, brand new, rare find! - $175 each; BC-652 rcvr, modified, worth restoring - $79; RBM-5 dynamotor sply, unused - $99. Don, N3RHT, (412) 234-8819

FOR SALE: ART-13 parts & other interesting stuff. SASE for "The Bone Yard List." elKay electronics, 231 Shenandoah Trail, Warner Robins, GA 31088-6289.

WANTED: Stock tickertape machine and/or pedastal; also Dow, Melihan Valiant, Mac bugs; Marconi Atlanta rcvr; marine station code apparatus. Joe Kramer, K3ES, POB 8102, Pittsburgh, PA 15217. (412) 621-3977

FOR SALE: Johnson Ranger II, exc. w/manual - $250; Swan 500CX w/117XC spkr/sply, mike, manual, mint - $325; ElectroVoice 636 hi/lo Z mike, w/box, mint - $45. Bob Needleman, KD4ZN/3, 395 Meadowbrook Rd., North Wales, PA 19454. (215) 661-9283

WANTED: Geloso rcvr model G 209-R; also Drake 6 kHz AM filter. John Leer, KF9XH, 5202 Bean Rd., Eau Claire, WI 54703. (715) 835-5752

WANTED: Very early Hallicrafters and Hallicrafters/Silver Marshall equipment including Skyriders with entire front panel dull aluminum color, S-30 radio compass, S-33 Skytrainer, S-35 panadaptor, wood console speakers - R-8 & R-12, HT-2, HT-3, BC-939 antenna tuner, parts, advertising signs, paper memorabilia of Hallicrafters. Also want RCA model AVR-11 airport tower receiver. Chuck Dachis, WD5EOG, "The Hallicrafters Collector", 4500 Russell Dr., Austin, TX 78745. (512) 443-5027

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

FOR SALE: Swans - 500CX w/8950's - $300; 500C/X - $250; 400 w/406 VFO - $190; 410 VFO w/22; VX-1; 14C; 510X; 6005P; more! HT-17 w/10-80 coils, w/boxes! - $100. All excellent. Dean, KO6IJ, (714) 643-7930

FOR SALE: Frequency dials for Collins KWM-2/S-Line, unused in orig. boxes - $50 each; used Collins MP-1, 12VDC input mobile pwr splies (without cables) - $50 each; one only, used Collins 516E-2, 28 VDC input mobile pwr sply (without cables) - $75; Bird Quick-Change connectors for Bird 43's etc., all new or like new, female and male "N", BNC and TNC, - $15/set of two (2), mix or match; used Collins directional coupler (looks identical to coupler used in Collins 312B-4 wattmeter) with square RF wattmeter meter, scales 0-100 watts and 0-1000 watts. Add a switch (like in the 312B-4) to read both ranges forward and reverse - $40 each; used Collins coaxial relays, similar to standard Dow-Key coaxial relay, 28 VDC coil, female "N" connector input, female BNC connector on normally closed (receive) and female "N" connector on normally open (transmit) - $10 each; Eimac SK-660 ceramic sockets for 4CX250B's, etc, pulls in exc. condx, some mounted in small aluminum plates suitable for inclusion in amplifier - $7.50 each. Plus shpg. Derek, KI6O, callbook address, (916) 965-4904

WANTED: Johnson catalog #250-40 speech amp./screen modulator for a Viking Adventurer xmtr. Dave Himeisen, N3GKB, 109 Apple Blossom Circle, Lititz, PA 17543. (717) 627-1639

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FOR SALE: E.F. Johnson collection, 11 xmtrs, including Viking 500, 1 VFO, 2 junkers, manuals. MO, (816) 524-1541

WANTED: All items in WW II B-26 radio compartment, BC-461 antenna control box, clock lamps, oxygen, chair, etc. Greg Greenwood, WB6FZH, Box 1325, Weaverville, CA 96093. Msg. (707) 523-9122

FOR SALE: Repair! Radio repair, tube or solid state, reasonable rates. Jim Rupe, AB7DR, Western Amateur Radio Repair Co., (WARRC), POB 697, North Cove, WA 98547. (206) 267-4011

FOR SALE: Harvey Wells TBS-50D, cosmetically/mechanically near mint condx, electrically ?. Has factory VFO - $140; Hammarlund HQ-129X - $120. Marc, WC1X, (401) 846-6325

WANTED: Schematics - Heath TS-3, Precision E200C, RCA WV-49B sig. gen.; Knight R55A rcvr; Ballantine 300H, RCA WV-77C, WV-97A VTVM. Jack, WA4CSM, 8109 N.W. 58 Court, Tamarac, FL 33321.

FOR SALE: Tube testers - TV-2B/U, exc. - $150; TV-7B/U, exc. - $80; TV-7B/U, VG - $65. New tubes - Eimac 4-400A - $120 each, 250TH - $125 each, 4-65A - $50, 3B28 - $10 each, Eimac 4-125A/4D21 - $80; 810 - $90; 8121 - $90 each, 6528A - $50. Sig. Gen. - classic Boonton Measurements 80, VG cosmetics - $80. Plus UPS. Joe Bunyard, 1601 Lexington St., Waco, TX 76711-1701. (817) 753-1605

WANTED: VFO unit for DX-100 or junker DX-100; audio driver xfmr and 20K bleeder resistor for Viking II. Norm Roscoe, W1CIX, POB 402, West Bridgewater, MA 02379. (508) 583-8349

FOR SALE: Drake TR3, RV3, AC3, new finals installed - $190 plus UPS. Peter Harband, 5140 Gates Rd., Santa Rosa, CA 95404. (707) 537-1120

WANTED: QST's. All issues before 1930. Feb., July 1951; July 1952; Sept. 1956; Feb. 1958; Jan. thru May 1960; Aug., Dec., 1961. Howard Weinstein, 15 Lakeside Dr., Malton, NJ 08053. (609) 596-3304

FOR SALE: Used Jennings vacuum variable caps, CVCH-1000-5N885, 7-1000 pF @ 5000V, 1/2" drive shaft - $40 each; new in orig. boxes, J-45 knee (leg) telegraph keys, complete w/ cord and PL-55 plug - $30 each; military tunable VHF bandpass filters, model F-1451GRC, 116 MHz to 150 MHz, dimensions 3-1/2" H x 6"W x 13-1/4" D. A pair will work very well for the cavities of a 2-M repeater; electrolytic caps (unused) - 1200uF @ 400 VDC (standard computer configuration) - $3 each; 2900 uF @ 50 VDC - 2/$1; new 1N3293 stud-mount diodes, cathode case, 600 PIV, 150 A - $5/each. Plus shpg. Derek, KI6O, callbook address, (916) 965-4904

FOR SALE: Vintage parts. Send stamp and request "Vintage Flyer". USA only. 40 years of mail order electronics. Bigelow Electronics, P.O. Box 125, Bluffton, OH 45817.

WANTED: Hallicrafters HT-20. Still looking: E-V 664 mic, HT-20 xmtr unmodified, have all knobs, decent front panel. Roy, N5QQM, (504) 272-2563, FAX 272-4913

FOR SALE or TRADE: Teletype model 33 ASR machine, or stand, complete, good condx, w/ all manuals and drawings - $25. PU only. Fred Clinger, 417 Beechwood Dr., Galion, OH 44833. (419) 468-6117

AM Broadcast:
Used AGC's, limiters, mixers, consoles, EQ's, mics & tube mic preamps. U-fix-ums to total rebuilds. Send for current availability.
Presley Travis, KA4NNN, Electronic Workshop, Rt 4, Box 36-B, Louisa, VA 23093. (703) 894-0406

WANTED: Intelligence museum wants German, Japanese, Italian, Russian and Chinese communication equipment and any British or U.S. spy radios. LTC William Howard, 219 Harborview Lane, Largo, FL 34640. (813) 585-7756

FOR SALE: Hallicrafters SX-71, orig. manual - $125; Heath HW12 w/manual and mic, HP23 - $40 each, pair $70. Dave Roscoe, W1DWZ, 49 Cedar St., East Bridgewater, MA 02333. (508) 378-3619

WANTED: Schematics for Heath HD-10 keyer, Allied Knight Kit R55A rcvr, Ballantine 300H ACVTVM. Jack, WA4CSM, 8109 N.W. 58 Court, Tamarac, FL 33321. (305) 721-2337

WANTED: Hallicrafters SX-15. Robert Braza, N1PRS, 23 Harvard St., Pawtucket, RI 02860. (401) 723-1603

FOR SALE: Just received large amount of rcvg, xmtg, military, industrial tubes pulled from U.S.S. Hornet. Also a few 1943 telephones. Write or call. Bill Hanks, Box 1004, Salome, AZ 85348. (602) 859-3797

Photofacts and Parts for Collectors
Electrolytics, high voltage capacitors, power resistors, plugs, switches and more. Free catalog. **A.G. Tannenbaum, WA2BTB, P.O.Box 110, East Rockaway, NY 11518. (516) 887-0057, FAX 599-6523**

FOR SALE: Tubes, capacitors, sockets, NOS and reproduction parts for antique radios and TV's. Large SASE for tube list or $2 for 20 page catalog refundable with 1st order. Vintage TV-Radio, 3498 West 105 St., Cleveland, OH 44111.

WANTED: McIntosh and Thordarson amplifiers any condx. Marcus Frisch, WA9IXP, Box 28803, Greenfield, WI 53228-0803. (414) 545-5237

FOR SALE: Webster Bandspanner - $85; TS-175/U, I-95BM - $10 each; TS-382, TS-452C - $25 each; Heath SB-630 station control - $35; HP-20 - $25; AA-80 PA amp - $15; TMC GPT-750D2, no room, gotta go, make offer over $750 or trade; R-388 parts unit - $55. U-ship. WA7HDL, (208) 756-4147 after 1730 MST

WANTED: Squire-Sanders SS-IBS international broadcast rcvr & SS-1V panadaptor. H.A. Weber, 4845 W. 107th St., Oak Lawn, IL 60453-5252

FOR SALE: Collins meatball lapel pin - $5.95 + $.75 S & H. George Pugsley, W6ZZ, 1362 Via Rancho Prky, Escondido, CA 92029.

BOOKS FROM ER

McElroy, world's champion radio telegrapher by Tom French $19.95

The First Fifty Years: A History of the Collins Radio Company and the Collins Divisions of Rockwell International $49.95

Fixing Up Nice Old Radios by Ed Romney.....$25

Wireless Communication in the United States by Thorn L. Mayes.....$29.95

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by Raymond S. Moore.....3rd Edition $19.95

Don C. Wallace, W6AM, Amateur Radio's Pioneer by Jan D. Perkins....$29.95

Oscilloscopes, Selecting and Restoring a Classic by Stan Griffiths.....$19.95

The 1994 Amateur Radio Mail Order Catalog and Resource Directory.....$16.95

Please add $3 per book for shipping. Colorado residents please add sales tax. Money back guarantee!

Electric Radio, P.O. Box 57, Hesperus, CO 81326

WANTED

Collins promotional literature, catalogs and manuals for the period 1933-1993. Jim Stitzinger, WA3CEX, 23800 Via Irana, Valencia, CA 91355. (805) 259-2011. FAX (805) 259-3830

WANTED: To buy, borrow or copy a maint. manual for UHF rcvr R-266A/URR-13A. Dave Sundheimer, WØNBZ, 13020 Lakeview, Burnsville, MN 55337. (612) 890-1844

FOR SALE: Heath Mohican, near mint - $119; Hallicrafters SX-15 w/spkr, slight mod - $229; Hallicrafters HT-18, very good - $99; matching S-53 - $69 or both - $149; Palco Bantam w/ modulator, fine - $299; HQ-170C, scratched - $90; RCA AVR-104 1950's aircraft VLF beacon rcvr, NIB - $69. Military - RBM-4 rcvr, very good - $109; matching dynamotor sply, unused - $99; #19 Mark II, needs work - $59; BC-314G, unmodified, w/shockmount - $129; RT-70/AM-65, w/dogbone, handset, manual - $89; ARC-5 ZB-3 homing accessory, NIB - $35; SRR-13a, not working - $99. Don, N3RHT, (412) 234-8819

FOR SALE: Repair & restoration of all classic & vintage radio equipment, reasonable rates, prompt turn around, 25 yrs experience. Mike McKean, N3HJQ, 726 McClellan St., Philadelphia, PA 19148. (215) 336-6111

WANTED: Collins 75A-4 spinner knob; National NC-300 matching spkr. Dave, WB2TBB, 611 Burtis St., Brick, NJ 08723. (908) 920-9611

FOR SALE: Collins 651S1 w/manuals, exc. condx - $1200 U.S. Will accept KWM1/516F1 in good condx on trade. Lorne, VE7BOX, (604) 587-6305

WANTED: Swan 600S spkr or 600SP spkr patch; Galaxy R530 rcvr; World Radio Labs V-10 VFO; any-all Swan or Galaxy considered. Eric, KBØXP, Box 98, Stanton, IA 51573. (712) 829-2446

FOR SALE: Parting out operating Hallicrafters SX-101 Mark 3 rcvr. Joe, AB5LL, (501) 257-2567

FOR SALE: A.F.T.O. 33A1-1-13 Listing of Electronic Test Equipment 1957, 1500 pages, picture description, tubes used, no diagrams - $20 + shpg. Jim, (614) 927-2592

WANTED: Nice original NC-100X w/spkr; also need HRO coil boxes and orig. cover for HRO-60 pwr xfmr. Greg Gore, 11528 Watermoss Ln., Charlotte, NC 28262. (704) 549-4719

WANTED: Johnson gear, all models, any condition. Also parts and literature. Please state condition and shipped price. Wen Turner, AD7Z, Box 451ER, Cal-Nev-Ari, NV 89039.

FOR SALE: NOS tubes. SASE for list; TS-382 - $65. **WANTED:** Manuals for RT-113/PRC-68, SG-1144, AM-6669 and ARC-58. Joseph Pinner, KC5UD, 201 Ruthwood Dr., Lafayette, LA 70503. (318) 981-7766

FOR SALE: Racal RA-17C classic HF rcvr for sale. Physical & electrical condx excellent - $400. Gary Gleicher, Box 427, Little Neck, NY 11363. (718) 423-1911 eves

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FOR SALE: Eight pin octal sockets for your Collins 516F-2. Exact replacements that fit the socket and mounting holes - $4 each shpd. Rich, (702) 222-0442

FOR SALE: Allied SX-190 rcvr, w/manuals, VGC - $95. **WANTED:** Manual for HP 5300B/5308A counter (copy OK); calibrator and NB for Drake 2-C rcvr. John Keil, 4618 Norwalk St., Union City, CA 94587. (510) 471-4838

FOR SALE: Service manuals. Most photocopies $5, shpg $.50 each. Hallicrafters, Heath, Johnson, others. SASE for list. DSM Diversified (formally Miller Radio), 909 Walnut St., Erie, PA 16502.

FOR SALE: Swan 500CX/ps, G - $220; NC-300, G - $120; homebrew KW 20M amp, VG - $200; Heath O-12 scope, G - $15; Heath IT-17 tubetester, VG - $80; D-104, F - $20; Triplett sig. gen., works - $15; Bud cabinet 19x12x15, G - $30; TS175AU, VG - $30; Variac 120V-25A, VG - $90. All prices include UPS. Hammarlund Super-Pro, chopped - free, U-ship. Chuck, N5SWO, (915) 837-5249, call late

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WANTED: Need copy of G-66, G-77 AC and DC pwr splies circuit diagram. W1JZ, 111 Glen Ave., Upton, MA 01568.

WANTED: F & G coils for HRO-60; 480-560 kc and 180-430 kc also dials for G and H coils. Joe, WA9LAE, (708) 795-6761

ELECTRIC RADIO PARTS UNIT DIRECTORY

If you need a part for a vintage restoration send $2 and an SASE (.52 postage) for a 7 page list of parts units. If you have a parts unit, consider putting it on the list. Your dead unit can help bring others to life!

WANTED: Condenser, carbon and other early broadcast microphones; cash or trade. James Steele, Box 620, Kingsland, GA 31548. (912) 729-2242

WANTED: Beginning collector needs anything Vibroplex. Send me your bug and key list. Mitch, WA4OSR, 11 Midtown Park, E., Mobile, AL 36606. (205) 476-4100, 342-7259

FOR SALE: Modulation xfmr, pr 811A's to ? - BO; TCS-13 rcvr - $50; VF-1 - $25; Astron RS-20A ps - $65; 4 Millen wavemeters - $20; ARC-5 rcvr rack, some mods - $20; 8 ARC-5 xmtrs w/some mods - $85; Gonset 3-30 conv. - $15; Viking 500 - BO over $750, as-is; 51S1 RE - BO over $850; parting S-40A; SX-28, as-is - BO or part. **WANTED:** Mint SX-96 front panel; IF xfmr from S40B, SX-99 or S-85. Joe Sloss, K7MKS, (206) 747-5349

WANTED: WW II German and clandestine sets. **FOR TRADE:** BC-322, BC-655, AVQ-9, BC-306 A.T.U. AN/PRC-10,Warzaw-pact sets, crypto gear. Rag Otterstad, OZ8RO, Hosterkobvej 10. DK-3460 Birkerod. FAX 011-45-4468 1514, Tel. 011-45-4281-5205

FOR SALE: NOS TV and radio tubes, parts, SAMS, mostly from '60's and '70's. Send large SASE for list. Charles Preston, K4LJH, 48 N. Ivandale St., Hamilton, VA 22068. (703) 338-4152

FOR SALE: Rare Heath GP11 12V vibrator pwr sply for Sixer and Twoer. Very good except for small chip in paint on cover, works - $30. Also see my ad, page 50, Oct. ER. David Crowell, KA1EDP, 40 Briarwood Rd., North Scituate, RI 02857-2805.

FOR SALE: New Ranger I, Valiant I and Navigator plastic dials, 160-10, freq. numbers in green, w/all holes, like original - $17.50 ppd. Bruce Kryder, 4003 Laurawood Ln., Franklin, TN 37064. (615) 794-9692

FOR SALE: Military radio GRR-24, AM UHF rcvr, 225 MHz to 399.975 MHz, solid state, AC & DC, used - $95. Bob, WB6EZK, POB 1081, Sausalito, CA 94966. (415) 332-3905

FOR SALE: Hammarlund SP600 with silver panel - $250; cabinet available at extra cost. Tracy Reese, WB6TMY, Box 4694, Santa Rosa, CA 95402. (707) 527-8124

WANTED: Manual, accessories for Stoddart NM-40A (AN/URM-41) 30MHz-15 kHz rcvr; manuals for Jefferson-Travis JT-350, Heath HW-32A. Clare Owens, N2RJB, 7635 Arnold Dr., N. Tonawanda, NY 14120. (716) 692-8832

WANTED: Military radios. U.S. RT-136/GRC-13, Soviet R (P)-112, R (P)-113. Leroy E. Sparks, W6SYC, 924 W. McFadden Ave., Santa Ana, CA 92707-1114. (714) 540-8123

FOR SALE: 42 pcs. ARC-5, 274N, ATA, ARA racks, dyno, all unmodified - $2250 for lot. Send SASE for list. Steve Bartkowski, 4923 W. 28 St., Cicero, IL 60650.

WANTED: Manual for SX-100; coils F1/F2 and E1/E2 for National 1-10 UHF rcvr. R. Jones, 6003 Myrtle Hill Rd., Valley City, OH 44280. (216) 483-3201

WANTED: CQ magazine issues May 1945, Sept. 1945 & Feb. 1946; ARRL Antenna Handbook, 6th or 8th edition; Editors and Engineers Radio Handbook from 1950's. (800) 225-0256 ext. 14733

FOR SALE: 550 MHz freq. counter, USM-207, solid state, proportionate oven time base - $150 + UPS, 50 lbs; Collins 618T(3), 2-30 MHz synthesized in 1 kHz steps, AM, LSB, USB and CW, pair 4CX250's in final, 400 watts out, 1X10E6/mo. Time base. With new Collins 28 VDC-115AC/400Hz solid state inverter. Unit requires 28 VDC @ 35 amps (transmit). Includes conversion data for partial AC pwr and control head construction plans from common parts, and bound manual copy - $400 + UPS, radio by itself - $300 + UPS; Collins 488A-2 28 DC/115AC-400 Hz solid state inverters, approx. 200VA, new, perfect solution to the ARC-38, 618T, S, servo-amp problems - $75 + UPS, 10 lbs; Precision 5 MHz oscillators, 3X10E8 accuracy, 12-15 VDC pwr, new - $60 + 1 lb UPS. Robert M. Miller, KE6F, 9655 Appalachian Dr., Sacramento, CA 95827. (916) 362-5481, eves

WANTED: WW II Japanes TX/RX sets (and parts) for restoration to operating condx and ER articles (now restoring 94-5 three tube rcvr); manuals (or copies) for GF-11/12, PRC-14 and RA-34F. Ken Lakin, KD6B, 701 SE Salmon, Redmond, OR 97756. (503) 923-1013

FOR SALE or TRADE: Pilot AC Super Wasp, coils, supply, external amplifier, blue print, exc. - $400. Trade for mint HRO, early Collins xmtrs. Paul Christensen, N9AZ, 11142 Raley Creek South, Jacksonville, FL 32225. (904) 721-8223

FOR SALE: Collins wattmeter/transmatch for URC-32 - $150; Yaesu FLDX-400 xmtr - $250; R-390A carrier meters, NIB - $30. Clark, WØBT, 2546 S.E. Peck Rd., Topeka, KS 66605. (913) 235-2721

FOR SALE: Hammarlund PRO-310 - $650; Hammarlund HQ-129X - $129; NC-300 - $250; NC-303 - $300; Heath HM-102 - $45; MFJ-816 (NIB) - $20; long wire preset tuner for KWM2 - $75; 32V-1 - $250; Drake MS-7 spkr - $50; Harvey-Wells Z-Match antenna tuner - $150; Dentron Jr. Monitor Antenna Tuner - $35; NC-125 w/FM adaptor - $125; Waters model 374 wattmeter - $125; Millen 90651A grid dip meter w/LF/MF/HF/VHF/UHF coils in Millen steel carrying case - $200; Collins cabinets for S-Line - $75 each; Antenna-Mart 24 VDC 9-position sequential stepping coaxial switch in waterproof box - $60; Electrovoice 638 w/PTT stand - $30; Collins 516F-1 (mod for KWM2) - $50; Heath HP-23 pwr sply (mod for KWM2) - $40. I will pack, you pay shpg. Hank, W6SKC, POB 6160, Nogales, AZ 85628. (602) 281-1681, FAX 281-1684

WANTED: For Racal RA6790GM rcvr, IF filters numbers 08409, 08410, 08413. These are all 3.24 kc BP filters. Bill Crawford, Cushman Rd., Patterson, NY 12563. (914) 878-4653

WANTED: Teletypes, Teletypes, Teletypes and any other teleprinter machines, parts, literature or information from the 1940's to the 70's. Gary Ashbaugh, POB 2008, Corvallis, OR 97339. (503) 758-8006

WANTED: Manual for Heath AR-14 FM rcvr, copy OK; junker Heath AR-15 rcvr for parts. Marty Drift, POB 21, Blawenberg, NJ 08504. (908) 359-4425

FOR SALE: All exc. Drake R4B, T4XB, MS4; Atlas 210X, console, ps; Globe Deluxe VFO, 160-6 M, w/manuals. W7MXM, (208) 522-5854

FOR SALE: Restoration of vintage radios; 25 years experience. Phil Goodman, K4FXB, 217 Millbrook Farm Rd., Marietta, GA 30068. (404) 509-9493

WANTED: Telegraphic apparatus and keys by collector, not a dealer. Will pay top dollar. Pete, WB2BYQ, (201) 818-4311

WANTED: Desperately need operational National SW-3 rcvr to recreate 1936 station. Please help, thanks. C.E. Stricland, AB6YW, 155 Perkins Ave., Vallejo, CA 94590-5711. (707) 642-9842

FOR SALE: HQ-170 - $100; HW-101, spkr, sply - $100; Atlas RX-110, TX-110, QRP - $250; Regency ATC-1 - $35; tubes - write. Richard Lucchesi, WA2RQY, 941 N. Park Ave., N. Massapequa, NY 11758. (516) 798-1230

WANTED: RCA Radiomarine rcvrs, especially AR-8504 & AR 8516. Dan Mason, R. RT. 1, Box 204F, Sante Fe, NM 87501. (505) 455-3416

WANTED: Help! I have two AN/URW-15: RX/TX 400-500 MHz, 1.2 KW out. Much bigger than breadbox. Can you share info? Do you want them? Dave, AB5PF, (505) 783-4784

FOR SALE: PJ-068 mic plugs for Collins S-line/KWM-2, new gov't surplus - $8 each shpd in USA. Clint, KM6UJ, (408) 742-4582

WANTED: HQ-150; manual for Hallicrafters SR-34. Dave, AB5PF, (505) 783-4784

FOR SALE: B-29 radios, complete ART-13 outfit, incl. 2 spare ART-13's, BC-348R and 50A/28V pwr sply - $400; Johnson Viking II & VFO - $200. All items in exc. condx. Pete, WØEWQ, (215) 898-1787

WANTED: Any AN/GRC-14 components to complete a museum showpiece. AN/PRC-74 antenna and mounts, W.H.U? Nice 1.3 to 2.1 MHz ARC-5 Tx. S.C. Signal Corps Museum, 5 Rollingwood Dr., Taylors, SC 29687. (803) 244-8324

FOR SALE: Military J-36 bug, good condx - $75; BC-610 tuning charts, set of 5, new - $25. Shpg included. Abe, POB 4118, Jersey City, NJ 07304.

WANTED: Stainless strips, meter, emblem from Collins 310 series exciters; cabinet for 75A or 32V series; (2) 2-1/2" sq. RF ampmeters, 0-3 amps. Gary, K7MHE, (503) 257-6525

FOR SALE: SW-3; HQ-129X; NC-173; SX-71; NC-183D; HQ-110A; Harvey-Wells TBS-50; SX-101; HRO SR.; Howard 435. Prefer pickup or buyer pays pack & ship. **WANTED:** Pre-war National items, cash or trade. Larry Tinkler, Cerritos, Calif., (310) 860-3131

WANTED: Someone with experience repairing Hallicrafters SR 2000's who can fix mine. Will ship to someone who has the supply or deliver whole unit within 100 miles of norther Illinois. Craig, WA9HRN, (708) 367-1599

FOR SALE: Tubes - 4D32 tubes (older Collins and Johnson xmtrs), used pulls, near new condx - $25/each; nine (9) unused Eimac 8188 (4PR400A) heavy duty 4-400's - $65/each; two (2) near new Eimac 4-400A's - $50/each; nine (9) unused, in orig. boxes, Sylvania JAN CHS 807 tubes - $10/each; used (pulls) 3B28 tubes and IN2637 diode replacements for 3B28 and 866A tubes - $4/each; used ceramic plate caps for same - 2/$1; Eimac (Y-508) and Amperex (SD613A) ceramic tubes (solid anodes), similar to 4CX250B's, used pulls, used in Motorola equip. etc - $25/each. Plus shpg. **WANTED:** ARRL manual "How to Become a Radio Amateur" or copy, circa 1951-1955. Derek, KI6O, callbook address, (916) 965-4904

WANTED: KWM-2/HF380/KWM380 noise blankers, working or junkers for rework. Call Clint, KM6UJ, (408) 742-4582

WANTED: Heath Apache in VG/E condx; National NC-190 (blue cabinet), working or not. Ron, WOOIZ, 10701 W. 54th St., Shawnee, KS 66203. (913) 268-5973

WANTED: WRL-70 xmtr; HB xmtrs for display, must be museum quality; thousands of QSL cards to paper walls of Amateur display. Call Leo, (402) 392-1708, Western Heritage Museum, Omaha.

FOR SALE: 813 - $15; (2) HM-102's - $60; vacuum variables; SB-220, highly modified - $625; thrust bearing - $65; Yaesu FV-101B VFO - $165; SB-200, Cetron 572B's - $325; HP-23 - $55; Daiwa RF-440 outboard RF speech processor - $75; (3) new 4X150's - $60; (5) used 4X150's - $60; SB-630 console - $65; (3) 4CX300's - $45; (3) Eimac 4-400's - $125. Lane, KM3G, (619) 462-3857

FOR SALE: First user friendly circuit for early BC-348's. Send $2 + (3) $.29 stamps. Ray Larson, 1224-1/2 Gorham Ave., W. Los Angeles, CA 90049-5214

WANTED: LS-3 spkr, any condx. Cal, N6KYR, (805) 594-0302.

FOR SALE: Does anybody need a 12DP7 radar CRT? Victor, 7224 NE 8th, Portland, OR 97019.

FOR SALE: GP-7 Navy xmtr, needs tubes, w/ 3 tuning units & manual - $250; RME VHF 152 converter - $50. **WANTED:** BC-610 within 100 miles; manual communications typewriter; BC-603 rcvr & BC-924 xmtr; mod xfmr for T-368; TBW HF xmtr. Steve Davis, KD2NX, 705 13th Ave., Belmar, NJ 07719. (908) 280-9760

WANTED: B&K Precision model 747 tube tester. Rick, N6NVG, (510) 687-2719

FOR SALE: Collin RE 32S3, 75S3B, 312B4, 516F2, exc. - $1250; National NCL-2000 - $325; SX-101 - $75; Johnson Invader - $125; Scott RBO - BO. Michael, WM1O, (914) 834-7678

WANTED: Manuals for GLB 2 meter Channelizer and HP 180A scope. Geoff Fors, WB6NVH, POB 342, Monterey, CA 93942.

FOR SALE: Horace C. Martin Vibroplex, 1912 - offers; Weston 547 Analyzer; Santec 1200; Drake 1A; RX1 Mohawk; HM 201 VHF; RME 152; Jones 711N; Electro model battery eliminator; Drake AC4; Eico 667 tester. Big items pickup only. Bruce Walther, W9QAH, 3000 McCulloch St., Stevens Point, WI 54481. (715) 344-9099

WANTED: Any condition, Hallicrafters S-30 radio compass and S-35 panoramic adaptor as shown. Chuck Dachis, 'The Hallicrafter Collector', 4500 Russell Dr., Austin, Texas 78745. (512) 443-5027

FOR SALE: Drake RV4 remote VFO, nice condx - $100; Swan 117XC AC sply/spkr, very good condx - $100; SBE (Sideband Engineers) SBE-36 AC sply/spkr - $75; Johnson 6 and 2 meter converter, like new - $50; Galaxy/Hygain GT 550A, 550 W xcvr, w/matching AC/spkr, like new condx - make offer. Craig, WA9HRN, (708) 367-1599

FOR SALE: Tubes/semiconductors/parts/meters/phono needles/radios - LSASE for 20 page list. W.F. Horn, 13110 Marsh Rd., Bealeton, VA 22712. (703) 439-9781

WANTED: Collins 30J, 30FXB/C, other pre-1940 Collins amateur gear for my collection. John Firey, WB5HRI, 14818 Delbarton, Houston, TX 77083. (713) 5615-KW1

FOR SALE: Johnson Viking II - $200; Valiant - $300; Drake TR4/AC4 - $290; Heath DX-60 - $80; Collins KWM2 - $750; Cent. Elect. 10A - $95; C.E. 458 VFO - $60; Shure 444 mic w/ Datong RF speech proc. - $140; Heath SB-220 2 KW amp - $525; Drake 2A rcvr - $90; Dentron 160-10 Super Tuner - $75; Shure 719 comm. mic - $35; U pay shpg. Steve, WA8GLE, (216) 644-7804

WANTED: ARN127, ARN118, ARN83, ARC164, AIC18, AIC25 or manuals, control panels for same. Buy or trade. James Treherne, 11909 Chapel Rd., Clifton, VA 22024. (703) 830-6272

WANTED: Hammarlund HQ-180AC and SP-600 JX21 or 26. Also S-200 spkr. Victor, (805) 583-4026

WANTED: R-390, R-390A & R-392 rcvrs. Tom Brent, Box 1552, Sumas, WA 98295. (604) 826-4051

FOR SALE: Magnecorder PT6, make offer; Heath scope - $45; parts grabbag, 10 lbs - $10; meters, state needs. Ted Stewart, W6NPB, 2157 Braemar Rd., Oakland, CA 94602. (510) 531-7042

WANTED: ARRL Handbooks, 1st, 5th editions. **FOR SALE:** Many ARRL Handbooks. LSASE for list; Hallicrafters S-38 abcd's - $85 includes schematic & shpg; parting Viking I, S-40's, S-38's, NC-33. No Hallicrafters knobs. WA7IHN, POB 442, Aumsville, OR 97325. (503) 749-1149

FOR SALE: Used technical books - radio, electronics, mathematics, military, magazines, catalogs, handbooks, etc. $1 for big list (stamps ok). Softwave, Dept. ER, 1515 Sashabaw, Ortonville, MI 48462

FOR SALE: Ocean Hopper manual - $6 ppd, (Xerox). Send a long SASE for list of hundreds more. Low prices. David Crowell, KA1EDP, 40 Briarwood Rd., North Scituate, RI 02857-2805.

WANTED: Test equipment (IE-17E) for WW II walkie-talkies (BC-611); test unit I-135E and artificial antenna A-82A. Richard Mollberg, K6PWF, 2340 Almond Ave., Concord, CA 94520.(510) 283-6786 (n), 827-4056 (d)

FOR SALE: Service. Collins radio equipment repair and insurance appraisals. Clint Hancock, KM6UJ, 6567 Ashfield Ct., Room A, San Jose, CA 95120-4502. (408) 742-4582

FOR SALE: Knight RF sig. gens w/manuals - KG-686 - $65, KG-650 - $45. WANTED: EL 38/6CN6 tubes. Al Bernard, POB 690098, Orlando, FL 32869-0098. (407) 351-5536

WANTED: Silver Marshall radio, model 726SW. Top dollar for a good one. John Packer, W3QCL, 318 School St., Springdale, PA 15144. (412) 274-4734. Thanks.

FOR SALE: New equipment pulls, Bird 43 directional couplers w/connector and cable for meter but without quick-change connectors - $35/each; same, but with Bird surface mount - $40/each; aluminum dummy meter protector slugs for Bird 43's - $3/each; new, in orig. packing, four (4) Bird 80AS1 20-W oil filled dummy loads, w/"N" connector, black crackle finish, approx. 5"W x 4-1/4"H x 1-1/2" deep, w/holes for surface mounting, beautiful for QRP, etc - $30/each; ten (10) Tektronix 250 MHz model P6130 10X general purpose, subminiature passive probes, new in packages - $75/each. Plus shpg. Derek, callbook address, (916) 965-4904

FOR SALE: Services. To introduce you to our schematic service, we will send you one schematic of your choice for $1 cash plus stamp. Applies to radios in the 1920-1960 era, except communications receivers. Regular customers included. Offer ends Jan. 1, 1995. Joseph R. Forth, 321 Long Vue Acres, Wheeling, WV 26003. (304) 277-3154

FOR SALE: PRC47 LSB/USB kit - $40; new machined coax antenna panel - $9. All restorable. Jay Craswell, WBØVNE, 321 West 4th St., Jordan, MN 55352-1313. (612) 492-3913

FOR SALE: Lots of stuff. Heath test equipment, 13 pcs - $150; DX-60B, HR-10B, HG-10 - $100; early GR test equipment - call; CB xcvrs, 5 pcs - $100; collectable test equipment from '40's including Superior, Simpson, Triplett, Measurements, etc - call; vintage tube SSB and FM equipment (no Collins) - call; 4 different BC-221's - $50. Misc items including S19R Sky Buddy - $100; DX-100 - $100; ART-13 parts set - $40; BC-344 LF rcvr - $75; WW II surplus items - call for list. U-ship. J.B. Jenkins, W5EU, Box 5087, Red Oak, TX 75154. (214) 723-1835

FOR SALE: 3' x 5' reprint of factory schematic for Collins KW-1. Please send $25 ppd US to Tom Berry, K9ZVE, 1617 W. Highland, Chicago, IL 60660. (312) 262-5360

TRADE: MacIntosh MC-240 or MC-40's for Collins equipment. Gary, WA9MZU, 1751 Michon Dr., San Jose, CA 95124. (408) 266-2218

WANTED: Gear reducer and knob for the VFO of my Viking Ranger. Fenton Wood, 109 Shoreline Dr., S.H., Malakoff, TX 75148. (903) 489-0204

WANTED: Collins 4A or other early Collins gear and accessories; F455B08, F455C08, F455J05 mech. filters; MacElroy bug. Brian Roberts, K9VKY, 3068 Evergreen Rd., Pittsburgh, PA 15237. (412) 931-4646

WANTED: Working RF deck for R-390A. Rich, WA2TUM, 135 Richards Ave., Piscataway, NJ 08854. (908) 968-1452

WANTED: Hallicrafters SX-17, only in very good condx. Jose Cangas, EA4JL. Contact in the States Kurt Keller, (203) 431-6850

WANTED: Exc. trades or cash for Hallicrafters Sky Buddy S-19 (not-R). Please write Robert Enemark, W1EC, Box 1607, Duxbury, MA 02331.

FOR SALE: USSR issue radio sets for collecting (not to be operated) models R-105M, exc. condx, w/acc. in transmit case. $280 ea., 3 for $750. Mike Murphy, (619) 561-2726, FAX 390-8611

FOR SALE: Hallicrafters HT-5G speech amplifier for HT-4, exc. - $110; National NC-200 "25th Anniversary" rcvr, fine - $349; Gonset G-28, nice - $95; RCA ACR-136 rcvr, needs work - $110; Central Electronics MM-2 scope, unworking - $35; 1935 "All-Star Junior" rcvr (last radio listed in Moore 2nd edition), complete - $105; WRL Galaxy 300 SSB xcvr w/PSA-300 console, nice - $169. Don, N3RHT, (412) 234-8819

WANTED: Working RF deck for R-390A. Rich, WA2TUM, 135 Richards Ave., Piscataway, NJ 08854. (908) 968-1452

WANTED: Help!! Can someone help me locate the cable (with both end connectors) for BC-614 speech amplifier to BC-610 xmtr, please? Vern, WØVV, Box 187, Lehr, ND 58460.

FOR SALE: Six (6) used (equip. pulls) sets of Jennings vacuum antenna relays, 5KW, SPDT, (2-pos.), female LC connectors, panel of two (2) relays includes four (4) male LC connectors for RG-213 etc., and T-connector - $150/set; coaxial relays, near new condx, equip. pulls, 2-SPDT, can be used to switch phased antennas, or as 2-pos. coaxial switches - $15/each; three (3) near new Variac type W10, 120 VAC, 10A, Variacs w/knobs and dial plates p $25/each. Derek, KI6O, callbook address, (916) 965-4904

FOR SALE/TRADE: Transmitting/Receiving tubes, new and used. LSASE for list. I collect old and unique tubes of any type. **WANTED:** Taylor and Heintz-Kaufman types and large tubes from the old Eimac line; 152T through 2000T for display. John H. Walker Jr., 16112 W. 125th St., Olathe, KS 66062. (913) 782-6455

FOR SALE: PRM 10 military grid dip meter (see ER in Uniform #63), new - $80; Hammarlund HQ-180A w/spkr, panel clean - $265; Heath AT-1, clean & orig. - $150; National 200 xcvr - $125; GE Progline xmtr/rcvr, looks complete - $25, PU only; plate xfmr 115/230 pri, 3450 V RMS @ .3 A sec - $35. Offers considered on above items. Franklin Albanese, 1610 Prince St., #6, Berkeley, CA 94703. (510) 845-2625

WANTED: Hallicrafters SX-122A and SX-100 rcvrs. Good to exc. please. James Geer, WB5LXZ, 1013 Overhill, Bedford, TX 76022-7206. (817) 540-4331

WANTED: TV-7 tube tester w/operating and set-up manual, clean and working. Donald Willard, 46 Burncolt Rd., Northampton, MA 01060-1054. (413) 584-1123

FOR SALE or TRADE: Hypotronics 3 KV Hi-pot tester; Walter Gulterman AT 463 spectrum analyzer, 6 kHz-18.6 MHz; Tektronix 561 scope w/3A75 amp & #67 time base; Tektronix RM 561A scope w/3A1 dual trace and 2B67 time base; Collins radio book, like new; offers or trades for Collins or Gates broadcast gear. Richard P. Robinson, POB 5055, Woodbridge, CT 06525. (203) 397-5420

FOR SALE: Collins 302C3 or DL1 case - $20; KWM2A, RE - $595; R4C - $250; T4XC - $200; J-38 key, new - $50. Ron Follmar, K5GIT, 332 Camino Real, Kerrville, TX 78028. (210) 896-8830

WANTED: Any model, shape Cosmophone; creating registry, have or know of one? Please contact w/serial/model #/info. Brian Harris, WA5UEK, 3521 Teakwood Ln., Plano, TX 75075. (214) 596-2914

FOR SALE: Hammarlund S.P.C. Super-Pro 400X w/correct pwr sply, chrome trim - $400; military rcvr mod. BC-342-D - $95; Halicrafters SX-62A - $250; Hallicrafters SX-71 - $200; Hallicrafters S-36A - $100; Heath Apache in exc. condx - $250; Collins 390A (rack mount) in exc., clean, working condx - $400; Hammarlund Super-Pro 110 w/pwr sply & spkr - $325; Johnson 6&2 Tx - $95; Hallicrafters S-20R, needs work - $75. Larry Drago, 383 Lincoln Dr., Cheshire, CT 06410. (203) 272-6030

FOR SALE: Johnson KW Matchbox, meter, coupler, dup manual - $200; Johnson KW Matchbox, dup manual but no meter - $185; Collins TCS rcvr/xmtr/pwr sply, no cables, no manual - $150; Collins KWM-380, mic, key-pad, all mods - $2600; Drake L4 amp - $700; various equipment cabinets. Howard, W3HM, (304) 876-6483 after 7 PM EST

WANTED: TR4C noise blanker; R4C 500 Hz filter; G-76 manual. John Hurst, KU6X, 2512 Euclid Crescent, E., Upland, CA 91784. (909) 981-6759

FOR SALE: BD-71 switchboard - $100; TV8/USM31 tube checker - $100; B&W 370 SSB adaptor - $75; TCS tuning cap, w/dial, NIB - $25; ID226/APR9 indicator, NIB - $50; Johnson 6N2 VFO - $50; R390A PTO, Cosmos IND - $30; BC-610 TU51 - $20; TS497C sig. gen. - $50; R109/GRC FM rcvr - $25. Mel, K2AOQ, (716) 671-0776

WANTED: Panoramic Radio Products P.R.I panadapter; also wanted Johnson KW Matchbox, w/SWR meter. Jay Spivack, 325 S. Washington Ave., Kent, WA 98031. (206) 859-2680

WANTED: Vintage tube CB's; pwr sply/modulator for Johnson 500. Send card or call with model you may have. Steve White, WB5UGT, Box 1086, Clute, TX 77531. 800-374-6477 - 9008 (leave message)

FOR SALE: TCS rcvr w/HB ps - $100; TCS xmtr, fair - $65; ARR-41rcvr w/HB ps - $125; Heath GR-81 rcvr, very good - $45; Hallicrafters Sky Buddy S-41G - $65; Heath HW-101 w/ps, spkr & mic - $225; Heath HW-16 - $75; HW-9 xcvr w/ps, transmatch & QRP wattmeter - $225; Hallicrafters S-94 VHF rcvr - $25; Swan 240, needs work - $45; Knight Spacespanner - $45; Heath HW-12 singlebander - $50; BC-221 freq. meters w/AC sply, cal. book - $30; ARC-32 VHF rig - $50; T-368 exciter, no 6000 tube - $35. All plus shpg. John Devon, KI6DQ, (818) 441-5523 S. Pasadena, Calif.

FOR SALE: "Introduction to Key Collecting" 64 page softcover illustrated guide, $11.95 ppd USA. Start now in this fascinating hobby. Artifax Books, Box 88-E, Maynard, MA 01754.

WANTED: Signal/One radios, accessories, parts, literature, reminisces, etc. Bill Turini, KA4GAV, 29926 SE 408th St., Enumclaw, WA 98022. (206) 825-1167

WANTED: Panadaptor, BC 1031C (455 kc IF) & manual. John, Colo. (719) 481-4564 (4th ring answering machine.

FOR SALE: Ameco 6&2 - $60; S-38D - $40; Eico 324 - $25; Gonset Super 12 - $20. Gary, W7FG, (918) 333-7893

WANTED: Collecting early Heathkit gear 1940's-'50's; early Heath catalogs and literature; Heath mics, spkrs, supplies, access.; any parts units. Byron, WA5THJ, 1215 Fresa Rd., Pasadena, TX 77502-5017. (713) 941-3631

FOR SALE: New, 20' RG-58 50-ohm coaxial lines, w/factory installed crimped BNC connectors on each end - $5/each; new six (6) each 100' Times milspec 50-ohm coaxial cables, 11/16" dia. (larger than RG-213), factory installed weather sealed LC connectors each end, 1.7 dB total loss at 400 MHz per factory spec sheet, exc. for UHF-VHF antennas - $100/each; tube base adaptor/extenders, unused in small army-green metal boxes, sets of 3, 7-pin, 9-pin and 8-pin octal - $15/set; twelve (12) new Belden 500' rolls of 8279 75-ohm precision video cable, black jacket - $50/roll; unused 60" 3-conductor (blk-wht-grn) cables (black jacket) with lugs on one end, great for keyer paddle leads - $1/each. Derek, KI6O, callbook address, (916) 965-4904

WANTED: CQ Feb 1946; Radio Handbook 21st edition. FOR SALE: Excellent Drake C-line, I ship CONUS - $525. Lynn Stolz, N8AJ, 2461 Bean Oller Rd., Delaware, OH 43015. (614) 369-9777

FOR SALE: WRL Galaxy V MK2 HF xcvr (80-10 meters, VOX, CW filter) w/matching accessory remote VFO, deluxe station console (w/built-in SWR bridge & clock), model 2000 1KW amp., AC& DC pwr splies, all manuals, very orig, exc. condx - $650 including UPS. Harry Ober, WB6CGZ, POB 174, Palmdale, CA 93590. (805) 285-9700

WANTED: CE 100V or 200V xmtr; SX-111 rcvr; Turner 454X mic; coil for NC-300 (T18, part # B14910. K8BKB, (616) 685-5792 eves

WANTED: SX-115; NC-400; SX-42 cabinet. Exc. to mint condx only. Top $ paid. Tom Scherer, WB2IIS, (716) 634-2545 (d), 741-9574 (n)

FOR SALE: PRC 74 manuals, OPS and depot maintainance, complete repros - $50. **WANTED:** Info on Communications Associates Inc., CR17, 6-channel transistorized rcvr. Mel, K2AOQ, (716) 671-0776

WANTED: Help. Can anyone help with a mic plug for dynamic input on BC-614? Also need manual/info on Sylvania X-7018 modulation monitor. Vern, WØVV, Box 187, Lehr, ND 58460.

FOR SALE: ATR-4 radar rcvr w/TM-3B tuning unit - $125; Sierra model 121 wave analyzer, 20-500 kcs - $40; Sprague model 500 interference locator, 550-220 Mcs - $45. John Richardson, 1163 Highland Pl., Dubuque, IA 52001. (319) 556-5504

FOR SALE: Viking 500, RF deck looks okay, ps/mod needs to be reworked - $390, PU only. Don Hilliard, WØPW, Route 5, Box 219, Neosho, MO 64850. (417) 451-5892

FOR SALE: Half-price "scratch and dent" sale! One Super Audio chassis for R-390A with a cosmetic injury available for $80 ppd. Call or write Longmont Audio Lab, see above.

R-390A Sales-Service-Parts

SASE for info

Miltronix, POB 3541

Toledo, OH 43608

FOR SALE: Tower guys. Unused Phillystran RF transparent guy cable. Orig. type HPTG 27000 (27,000 lbs. rated capacity, 5/8" dia.) with H/D cable termination ends, (8) 166-ft. lengths - $150/each; (8) 341ft. lengths - $300/each; (10) 166ft. lengths w/o cable termination ends - $75 each. Will consider package offer. New in boxes, military guy cables, approx. 3/32" dia., 62' long, stainless steel, w/hook and tightener fixture for bottom end, $10/each, same but 98' long - $15/each. Derek, KI6O, callbook address, (916) 965-4904.

WANTED: Drake R4C rcvr; (Hickok, etc.) mutual conductance tube tester; Kenwood T-599 xmtr; Radio Shack DX-400; Uniden CR 2021; RCA model CRM R6A; Heath SB-610 monitor scope. Rick, K8MLV/Ø, 1802 W. 17th St., Pueblo, CO 81003. (719) 543-2459

FREE: Send 2-stamp LSASE for Olde Tyme Radio's latest flyer, No. 194A to: Olde Tyme Radio Company, 2445 Lyttonsville Rd., Ste. 317, Silver Spring, MD 20910

FOR SALE: 42 Collins xtals in five plexiglass cases - $75; Collins DL-1 dummy load - $75. Plus shpg. Bill Jenkins, WA5MWJ, 11916 Donahoe Bend, Fort Smith, AR 72916. (501) 646-3859.

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FOR SALE: RCA 7094 xmtg tubes, one new, one used and one dud - offers. Roger Faulstick, KD4AS, 210 Mariah Ct., Merrit Island, FL 32953. (407) 453-3313, FAX 453-2258.

FOR SALE: Collins 30K5, rare xmtr; 32V3 xmtr; 75S2 rare rcvr; 32S1 xmtr; 516F2 ps; portable dipoles, new & used; A.T.D xmtr, complete system N.I.B.; Hammarlund SP-600 rcvr & HXL linear; Drake teletype 7000E N.I.B.; SPR-4 rcvr; Atlas R-110 rcvr, + VFO, #206; ART-13 shocks & components; HRO-500's & NCX-1000 brand new. Rick, WA1DEJ, (617) 233-1414 late eves or lve message

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WANTED: Orig. manuals for: B&K scope model 1472 (copy OK), Heath RX1, R100/URR, R390, SP600, SX24, SX28, NC101X, NC88; main tuning knobs for SP600 & Heath RX1; ER back issues vols 1-54; R390 cabinet; SX28 parts; old Hallicrafters spkr. Lee Shumway, WB8ZEY, 2820 Yankee Springs Rd., Middleville, MI 49333. (616) 795-3255

FOR SALE: Heathkit lives on in historical anecdotes by employees. Quality 124-page illustrated book. $9.95 postpaid. Heath Nostalgia, 4320 196th S.W., Suite B-111, Lynnwood, WA 98036-6754

WANTED: Tube amplifiers and xfmrs by UTC, Acro, Western, Peerless, Thordarson, Audio Development Co., Hadley, Jensen and JBL spkrs. Mike Somers, 2432 W. Fargo, Chicago, IL 60645. (312) 338-0153

VINTAGE ANTHOLOGY - BOOK 1

A collection of 29 articles written for ER by Dave Ishmael, WA6VVL. 8-1/2" x 11" spiral-bound, 139 pgs. $14.95 plus $2 4th-class postage or $4 1st-class postage. CA residents please add 7.75% tax ($1.16). Write for details.

DWI Engineering, P.O. Box 3611, Costa Mesa, CA 92628-3611

FOR SALE: New, in orig. boxes, 60" military red/black test-lead sets, metal tips 1/16" by 1/2", plus two (2) rubber covered alligator clips for either end of test leads - $2.50/set; unused military PL-55 1/4" key plugs w/27" black cord - $.75/each; Variacs, equip. pulls, 0-240 VAC, 20 A, w/knobs but without dial plates - $30/each, same, but 30A - $40/each, 210-250 VAC - $20/each. Plus shpg. Derek, KI6O, callbook address, (916) 965-4904

FOR SALE or TRADE: Vintage CB's, list - LSASE. **WANTED:** "Fleet Courier" 30B and linear amps by ECI, Courier, Browning. Charles Zafonte, RFD 1, Box 75, Fort Kent, ME 04743. (207) 834-6273 eves

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FOR SALE or TRADE: R1051, R1051B's, gtd. good electrically & physically - $295 plus UPS. **WANTED:** Looking for any type military RF electronics, radio, radar, desperately need manuals for military equip., especially WLR-6 submarine intercept rcvr, ASQ-19 and GRC-144. Please call if you have leads on these or other military manuals. Tony Snider, 512 Princess Anne Rd., Virginia Beach, VA 23457. (804) 721-7129

FOR SALE: Tubes, tested, clean, boxed, lowest prices, good selection. Business size SASE for list. Bill McCombs, WB0WNQ, 10532 Bartlett Ct., Wichita, KS 67212-1212

WANTED: Drake T-4 exciter; Drake RV-4 remote VFO to match B-Line; Drake HS-1 headset. Frank, WB4AYJ, 11780 NW 24th St., Plantation, FL 33323. (305) 472-9474

WANTED: National HRO-500TS spkr in mint condx; National NCL-2000. Sam Macy, N9WAF, 486 Glenwood Trail, Elgin, IL 60120. (708) 695-0218

Expert Radio Repair

Ex-Collins Service Division trained tech will professionally repair your Collins or other classics. References available. Very reasonable rates. Bob Mattson, KC2LK, Highland, NY 12528. (914) 691-6247

FOR SALE: Ameco TX-62 w/matching VFO 621. Exc. orig. condx. - $100 including UPS. Harry Ober, WB6CGZ, POB 174, Palmdale, CA 93590. (805) 285-9700

WANTED: Modulation reactor, approx. 40 Hy, 500 mA. Dewey Angerhofer, WØZUS, POB 540, Edgemont, SD 57735. (605) 662-7692

FOR SALE: Heath RF sig. gen. model SG-8 & audio sig. gen. model AG-9A. Mint condx, w/orig. manuals - $100 for both including UPS. Harry Ober, WB6CGZ, POB 174, Palmdale, CA 93590. (805) 285-9700

FOR SALE: HQ-110C, manual - $150; SX-100 Mark 2, calibrator, manual, plays weak - $85; S53A Mark 2B - $75; Heath CW filter (SB series) - $50. Richard Prester, 131 Ridge Rd., West Milford, NJ 07480. (201) 728-2454

FOR SALE: Repair of TV-7 tube testers and calibration: I will fix and then verify calibration of your TV-7 tube tester for $45 plus shpg or return it no charge. Unit must be repairable and not a basket case. Daniel Nelson, 1025 E. Desert Lane, Phoenix, AZ 85040. (602) 243-7421 eves

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WANTED: Plastic dial for SB-310; LSB xtal 3393.6. Del, K9FCM, (407) 336-1455

WANTED: Heath TX-1 Apache in any condx. Chris Horne, AC4RM, (919) 985-2863

FOR SALE: HX-50. **WANTED:** Skirted knobs (audio gain, CW Osc.) for older HRO. Carter Elliott, WD4AYS, 1460 Pinedale Rd., Charlottesville, VA 22901. (804) 979-7383

FOR SALE: R1051 rcvrs, exc. condx, cleaned, completely checked, various models to choose from. Call Shawn Daniels, (314) 343-5263

WANTED: KWM-2 or 2A, immaculate to mint only; also Hammarlund HQ-180AC. VE5JD, Box 306, La Ronge, SK S0J 1L0. Phone/FAX (306) 425-2057

Electric Radio Back Issues

All back issues are available at $30 per year or $3 for individual copies. Buy the entire 5 years (#1-#60) for $125 and save $25. This price includes delivery in the U.S. and Canada. Foreign orders please enquire.

While they last - the first five years in a nice white box (glued shut) with label. These were put together for Dayton. Will be shipped in another box to arrive pristine - $135 delivered.

FOR SALE: Antenna materials: New, in orig. packing, stainless steel replacement tapes for Hy-Gain MD-1 and Collins HD-1 adjustable dipoles - $25/each, two (2) for $40; VHF whip antennas, pulls from Calif. Highway Patrol cruisers, with 1/8" by 16-1/2" non-tapered whips, 1/4" steel ball on top, 4" tapered spring mount, antenna adjustable from 18-7/8" to 20" (shorter if whip is shortened), NMO type mount. Great for 2-M 1/4 wave antennas - $6/each; new in boxes, military center insulators, model IL-4/GRA4, with female "N" connectors, (superior to most commercial models) - $10/each; new ceramic antenna insulators, 1" round by 7" long and rectangular 3/4" by 1" by 7-3/4"long - $1.50/each; small ceramic egg insulators, new - 3/$1; new large ceramic insulators used on telephone poles, 3-1/4" by 5-5/8", choice of either grey or brown - $4/each; new in packages, 6" military spreader insulators for open-wire line, h/d clear glass with integral brass wire clamps on each end, $2/each; unused turnbuckles, h/d galvanized, in new condx, 1/2" shafts, adjustable from 14-1/4" to 20-1/4" - $10/each, 3/4" shafts, adjustable from 31" to 48" - $20/each; new antenna wire, bare tinned #14 stranded - $.12/foot, $100/1000 foot roll. Derek, KI6O, callbook address, (916) 965-4904

WANTED: 2/6 meter AM rigs, amps, converters, etc. Gonset, Clegg, Lafayette, whatever? Scott Swanson, K6PYP, 210 Mantor Rd., Pacific Palisades, CA 90272.

FOR SALE: Ex Collins WE 30L-1 w/new Pride 811A's, pick-up only - $695; pristine BC-348-J, FT-154-J, DM-28-J, pwr conn. and orig. pkg slip, filaments converted to 6.3 VAC but no mech. mods, pickup only - $250; VG HA-1 keyer - $60; Heath IP-32 pwr sply, needs cur meter - $30. Dave Ishmael, WA6VVL, 1118 Paularino Ave., Costa Mesa, CA 92626. (714) 979-5858

FOR SALE: Tested tubes w/warranty: Buy those spare tubes for your tube radio, audio, ham and electronic gear. Prices are about 30% of new for tubes with a warranty, many about $1. Most are used. I have bunches of octal, older, 7 and 9 pin tubes. All tested on TV/7 tester and boxed. I give a 30 day warranty. Send wants or SASE with TWO stamps for list. Daniel Nelson, 1025 E. Desert Ln., Phoenix, AZ 85040. (602) 243-7421 eves

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FOR SALE: Hammarlund HQ-160 - $250; HQ-170 - $175; other radios - please enquire. Gene Peroni, KA6NNR, POB 58003, Philadelphia, PA 19102. (215) 665-6182 (days)

FOR SALE: Hammarlund Collectors! I have acquired the first HX-50, serial # 101,(serial #'s for these units started at 100 with 101 being the first). Sometime after the HX-50A, this unit was then factory updated to an 'A'. Condition is approx. 8-9. Also I have an HX-50 prototype - a 20 meter mono-bander. It looks like a regular HX-50 except it was not set up for bandswitching (not even silkscreened for it), no coils, nothing except 20 meters. Cabinet needs refinishing, face plate approx. 8-8.5. This is your chance to own a truly unique piece of equipment. I also have an HXL-One factory prototype. This transmitter uses a single 8163. It's condx is 8.5-9. I will accept the best offer (for all or seperately) I receive on these three units. But I reserve the right to refuse any or all offers if I feel they are not reasonable. So give your best bid on 1 or all 3 units. Robert Fowle, Amateur Radio Surplus, 1215 Winifred, Jackson, MI 49202-1946. (517) 789-6721

FOR SALE: Hammarlund 4-20 xmtr and 4-11 modulator, 1947 vintage. Rare, rough, but restorable - $50 plus shpg; Collins 75A-1 & 32V-2 - $400 plus shpg. Gary, KG8LB, (810) 731-6094 after 6 PM EST

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 03031.

WANTED: Collins 516F1 pwr sply for KWM-1, 312B-1 or 312B-2 spkr console; HA-5 VFO; R9 rcvr. Bob Nickels, 1444 S. Rotzler, Freeport, IL 61032. (815) 232-7142

WANTED: R-390A service manual; crystal for 11-12 Mc band; dial lock assembly; spare parts radio; somebody to fix up and align. Wes, WV5I, (903) 838-0569

FOR SALE: (1) T-58 Kenyon interstage audio xfmr, 3 windings - $7; (2) spinner knobs, new, pge 5, ER86, for HQ-129X - $7 each; pwr xfmrs, chokes, fil. xfmrs - fair prices, call. Joe, W6CAS, (916) 731-8261

WANTED: Any information on Navy panadapter IP-206/URR built 1960/'65 by Panoramic Radio. Or any information on similar general purpose military radio panadapters built by Panoramic 1950-1965; Cubic (Swan) Astro 150A SSB xcvr, maintainance manual or copy; information on electronic bias switching for high power grid driven linear amplifiers. I will cheerfully pay for the above information. Roger Faulstick, KD4AS, 210 Mariah Ct., Merritt Island, FL 32953. (407) 453-3313, FAX 453-2258

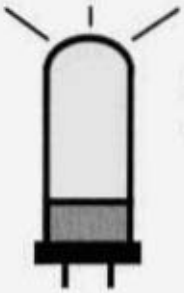
WANTED: WW II Japanese military radio equip. of any kind; Japanese made shirt pocket transistor radios; miniature, subminiature and hybrid portable radios. Takashi Doi, 1-21-4, Minamidai, Yokohama, Japan.

FOR SALE: Gonset GSB-100 xmtr, GSB-101 linear; Hallicrafters HT-37; Hammarlund HQ-180C; Heath AT-1, AR-3, HW-16; National NC-300; Collins Red Label plug-in mech. filter, F-455-Q-6. Steve, WB4IJN, (803) 873-7847 X 200 (d), 821-6931 eves

FOR SALE: Eimac SK-810 and SK-806 chimney - $50 set. **WANTED:** Johnson Desk KW; Collins 51J-4; belt for SX-88 dials. Ben Deovlet, W6FDU, 933 Robin Ln., Campbell, CA 95008. (408) 374-0372

FOR SALE: Globe King 500C. Very clean - $775. Joel, KQ4HZ, 195 Livingston Ave., Babylon, NY 11702. (516) 587-7945 eves

FOR SALE: Rare SCR-284A (BC-654A) pwr cable connectors from xmtr to GN-45 handcrank gen. or PE-103A dynamotor, set - $20, 2 sets - $30. Sam Hevener, W8KBF, 3583 Everett Rd., Richfield, OH 44286-9723. (216) 659-3244



SECOND
CLASS

ELECTRIC RADIO
145 CR 123
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