ELECTRIC RADIO

celebrating a bygone era

Number 5 SEPTEMBER 1989

ELECTRIC RADIO

EDITOR/PUBLISHER Barry Wiseman N6CSW/Ø

Published Monthly

145 C.R. 123

Hesperus, Co. 81326

The Purpose of Electric Radio

Electric Radio is published for amateur radio operators and others who appreciate vintage radio equipment. It is hoped that the magazine will stimulate the collecting of, and interest in, this type of equipment.The magazine will provide information regarding the modification,repair and building of equipment. We will also work towards a greater understanding of amplitude modulation and the problems this mode faces.

Electric Radio Solicits Material

We are constantly searching for good material for the magazine. We want articles on almost anything that pertains to the older amateur equipment or AM operation. From time to time we will also have articles and stories relevant to the CW operator and the SWL. Good photos of ham shacks, home-brew equipment and AM operators (preferably in front of their equipment) are always needed. We also welcome suggestions for stories or information on unusual equipment. For additional information please write us or give us a call.

EDITORS COMMENTS

Barry Wiseman N6CSW/Ø

Somewhat inspired by Don Chester's editorial in last months AM Press/ Exchange, Electric Radio is devoting a number of pages this issue to the proposed AM power reduction due to come into effect June 2, 1990.

I solicited editorials/articles from Fred Huntley, W6RNC, Bill Kleronomos, KDØHG and Dale Gagnon, KW1I. I am in total agreement with the ideas they present and I think it might be reasonable to say that all other AM operators are as well.

A 50% reduction in the maximum power allowed is more than 3 db; it's a major step back, a major reduction of privileges. We must all do what we can to prevent this from happening. We must write letters, sign petitions, and get others to do the same.

I'm optomistic that if we all do what we can and if the ARRL comes to our aid this power reduction will not come into effect.

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Otis Nonken, K5SWK, Houston, Texas

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Reflections Down the Feedline

by Fred Huntley, W6RNC
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Nevada City, CA 95959

Just over the horizon looms June 1, 1990, the showdown date for the AM KWs at the FCC corral in Washington, D.C. Now is the time for us to start preparing our case, so as to put up a stiff opposition to cutting back AM maximium RF power output by 50% after that date.

AM without KW signals is absurd and unacceptable. Things would never be quite the same without those Collins KW-1's, Johnson Desks and big home-built transmitters going full bore over the airwaves.

The AM community should have their defence plan formulated by January 1990, so that the paperwork can wend its way through the FCC bureaucracy well in advance of the June cutoff date.

According to an FCC official at the 1988 Dayton Hamvention, the AM power regulation was made to, "level the playing field"- limit all modes to the same 1500 watts PEP maximium RF output. In actuality, this regulation is more in the nature of a bookkeeping entry that looks pretty on paper- everything neat and uniform- whereas the reality is that it puts AM operation at a gross disadvantage in various ways.

There is the old saying, "If it aint broke don't fix it" but apparently that's not the way they work in the FCC. The present maximium AM RF power output level is causing no known problems in the amateur radio service and has been in use for over 60 years. Even if all AM radio amateurs did reduce their maximium permissible RF power output to 1500 watts PEP, in all likelyhood nobody would notice the difference or derive any benefit from it.

Amateur AM radio transmitters are not that plentiful that cutting the power output in half is going to make any difference in radio conditions on the amateur bands. So, if there is no discernable difference, why can't things remain as they are, instead of changing the regulations for cosmetic reasons? The main trouble is that today the FCC is dominated by lawyers; even down through their middle management levels. It has been years and years since there was a technical man on the commission itself.

We need to enlist the support of the ARRL. The way to do this is to write letters to our section managers and division directors letting them know our feelings. If enough of us write they may help us.

Perhaps we should contact our U.S. congressman-expecially members of the committee that oversees the FCC- and complain about the irrationality of the FCC's position on reducing AM RF output. K1MAN took the AM case to court and gave it his best shot. Though the U.S. Supreme court refused to hear his appeal, that is not a reflection on the soundness of the case. It is just that it is physically impossible for the Supreme Court to hear every case.

The irrationality of the FCC position is that they set the maximium RF output for all modes at 1500 watts PEP. This gave CW a 100% increase in power output and SSB a 25% increase in power output. At the same time, the FCC holds that a reduction of AM RF output power is in accordance with the Communications Act of 1934 which requires communication using the minimium necessary power output.

The FCC completely ignores the technical reality that for equal power output levels a SSB transmitter will produce a 6 db

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Will High Power Amateur AM Operation End in 1990?

by Dale Gagnon, KW1I
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Part 97.313 (B) of the FCC Amateur Regulations states:

"No station may transmit with a transmitter power exceeding 1.5 KW PEP. Until June 2, 1990, a station transmitting emission A3E is exempt from this requirement providing the power input (both RF and direct current) to the final amplifying stage supplying RF power to the antenna feed line does not exceed 1 KW, exclusive of power for heating the cathodes of vacuum tubes."

This means that operation of KW AM transmitters will be illegal less than a year from now if this regulation takes effect.

Concerned AM operators are getting involved in the effort to influence the FCC to continue to allow the use of KW AM transmitters beyond this 1990 time limit. The effort includes development of suggested language for a new Part 97.313 and formulation of a strategy for convincing the FCC to adopt the new wording. Proposed new Part 97.313 paragraphs are under discussion now as are various approaches to the FCC. As these are firmed up they will appear in print for reader comment.

A very helpful element in this effort will be gaining ARRL support for the AM position. This support must be won from the bottom up. Members lobby with ARRL Section Managers, Section Managers get issues considered at the Division level and Division Directors bring agenda items to the ARRL Board of Directors. It is important to start now if you want to influence your ARRL field organization.

Here in New Hampshire, after discussion on this topic with our ARRL Section Manager, I was invited to put together a brief proposal on the AM position. He is requesting presentation time for this topic at a meeting of the New England Division Section Managers later this year. If the proposal is well received our New England Division Director will hopefully submit it as an agenda item for the next ARRL Board of Directors meeting in January. If this same issue is brought to the attention of Section Managers and Division Directors across the country by a multitude of AM operators, it is likely it will make the agenda.

The presentation I am planning will include a statement of the problem, the proposed solution, new Part 97.313 wording, explanation and rationale, impact on FCC and amateur community and a proposed plan of events including desired ARRL support actions. Presentation details will be based on the outcome of the discussion of this topic in print and on the air over the next few months.

A copy of the proposal (1 or 2 pages), overhead transparencies (3 or 4) and accompanying script will be available later this fall for any amateur who is willing to petition his Section Manager or Division Director on behalf of this important issue.

A CALL FOR ACTION

by Bill Kleronomos, KDØHG
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Lyons, CO 80540

The deadline of June2, 1990, after which 1 KW AM stations are to be forever silenced, is nearly upon us. As Don Chester, K4KYV, pointed out in a recent editorial in the AM Press-Exchange, if those of us in the Amateur community are to get the present "grandfather" provision exempting AM transmitters from the 1500 watt PEP output rule indefinetely extended, the time for a push on this is now.

The general feeling at this time is that our best chance for success lies with the ARRL. It is extremely important that we present our case to the Directors of the League, who set policy. My feeling is that the reason for inaction on the League's part is not due to any anti-AM bias, but because those of us in the AM community have not taken the time or made the effort to present our case to the League up to now. If we can convince the Directors of the ARRL to support us before the FCC, that will be far and away our best chance for success.

So the question arises as how to best present our case to the League. We feel that the single most important thing one can do is to write one's ARRL Director or Section Manager. Don't assume someone else will do it for you, or your letter won't make a difference - it will. If your hobby has given you hours of pleasure over the years, take the time to give something back! You are, of course, free to state the case for whatever reasons you choose, in your own words, but allow me to make some suggestions:

Be positive - Point out the positive aspects of what we are doing: AM operators are one of the few groups of hams actually homebrewing equipment, some of us are actively experimenting with advanced digital modulation and RF technologies, there are thousands of CB sets out there that someone actually took the time to convert to 10 meter AM, etc.

Don't be negative! - Many of us who love AM also operate other modes, such as sideband. I recognize that some of you don't care for Sideband in the least, and don't ever operate that mode. That's fine, but please be open minded enough to realize that everyone has a personal preference, and if you try to make AM look good by badmouthing Sideband and Sideband operators, it's gonna backfire. Your director probably is on SSB.

I am a pragmatist. I think, therefore , that a good way to reach many who don't have the gumption to write their director is to circulate a petition within as many of the League's divisions as possible. It is quite easy to get a signature on a petition circulated by hand, mail, and/or put on a table at a hamfest. I am presently circulating several such petitions within the Rocky Mountain division and plan to photocopy them late this year, add a brief cover letter, and forward the signatures to our director prior to the January ARRL board meeting. While a signature on a petition is not a replacement for a personal letter, it beats nothing, and several dozen signatures at once are visually effective and make a point. Consider taking it upon yourself to circulate such petitions within your division! A sample is on the next page.(Editor: an idea might be to photocopy the page to an enlarged size) Do not overlook those who do not operate AM, either. Many SSB operators are sympathetic to our cause, as a loss of privileges effects ALL hams, not just one group.

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PETITION FOR URGENT ACTION BY THE AMERICAN RADIO RELAY LEAGUE

To: .....Director, ARRL .....Division

The FCC has recently mandated a 50% reduction in the maximum power allowed by Amateur stations utilizing double sideband with carrier (AM radiotelephone) emissions, effective on June 2, 1990. This is yet another in a recent series of FCC actions, generated by Washington bureaucrats, that have taken away or restricted Amateur frequencies and other formerly held privileges The League has not taken any action on behalf of the Amateur community on this issue.

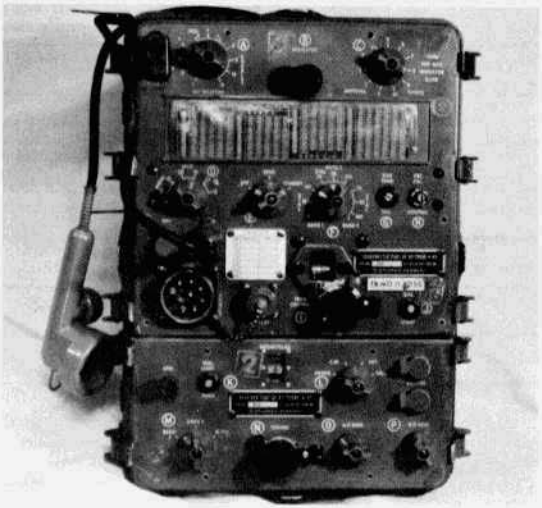
We the undersigned, request that the ARRL President and Board of Directors demonstrate their committment to representing ALL Radio Amateurs by directing the League's Legal Counsel to take whatever actions are required before the FCC or other governmental agencies to restore the AM radiotelephone power limit to 1 kilowatt DC input or 750 watts carrier output on a permanent basis.

Signature	Name (printed)	Call

Please mail or pass along to any other interested amateurs for their signature.When full, mail to your Division Director. The names and address's of all Division Directors and Section Managers are printed on page 8 of QST.

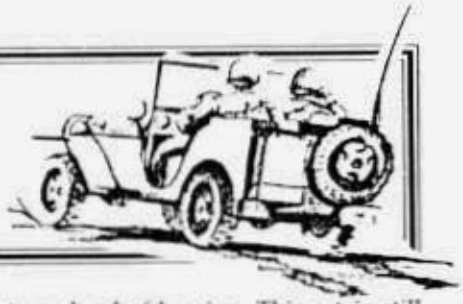
AN/ART-13

BC-348



RT-77/GRC-9

ELECTRIC RADIO IN UNIFORM



Favorite Military Radios

by Walt Huchens, KJ4KV
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Arlington, VA 22207

Many WW-II and Korean war era military radios are now rare, hard to get working, or impractical for current ham bands. This month we are going to talk about exceptions — sets which you can find and — with some work — put in operation. These are favorites of mine and I think they are a good bet for those getting started in military sets, too. Though I will be talking in terms of AM operation, these sets are also capable of CW.

AN/ART-13

This famous Navy aircraft transmitter from Collins Radio made "Autotune" a household word — at least in some house-holds. It is without question the best small HF transmitter to come out of WW-II. A compact (11x22x12 inches, HxWxD) set, weighing 67 pounds, 100 watts output (AM and CW) from 2.0 to 18.1 Mcs using an 813 final. VFO controlled but up to 10 channels can be preset and then (using the Autotune feature) selected from a rotary switch. This makes a great demo for a visiting Yaesu or Icom trained ham because the motor whirs, pawls go "click-click-click-click...", and all the knobs spin wildly.

Required voltages are 28, 400, and 1150. Or supply 28 volts (and lots of amps) and use the external dynamotor — this is practical only if your wife and cat are hard-of-hearing. This set is still seen at an occassional flea market and should be fairly easy to find by advertising in Electric Radio, Ham Trader Yellow Sheets, or QST. Prices range from $40. to $150. depending on condition and accessories. A late 30's design, the ART-13 is as stable as the best non-Collins ham transmitters of the 50's. Because of the Autotune, the knobs are stiff but you will notice that all of them can be turned with heavy flying gloves on — even when you're scared to death. (Try that on your friends Icom....) No bad habits, generally easy to get going.

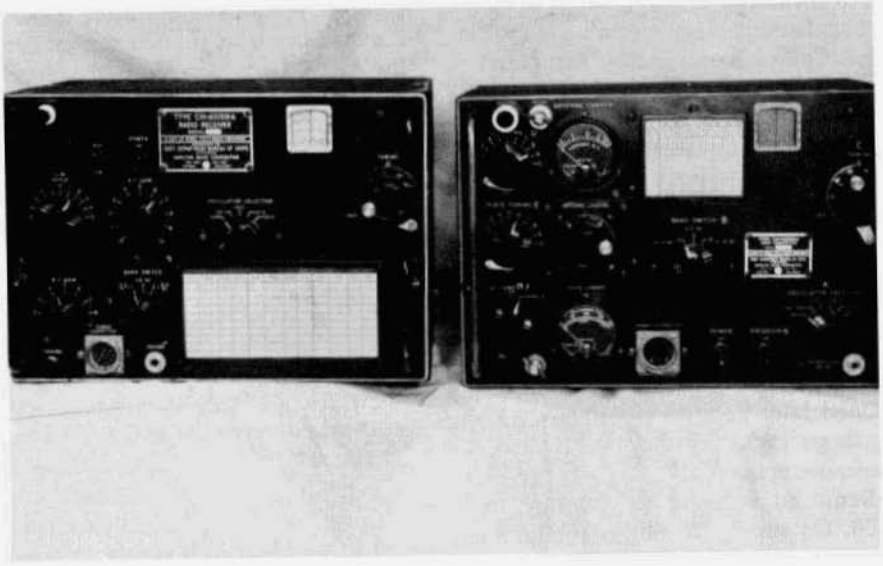
BC-348

This receiver was used by the Army Air Forces with the ART-13 in the B-29 bomber. An adequate 8 tube superhet, the BC-348 makes a good companion to the ART-13 in a ham setup. It covers 200 - 500 Kcs and 1.5 to 18 Mcs. Try to get one with the dynamotor in it and just feed it 28 volts; you won't hear more than a hum. Many of these sets use flat molded plastic (paper) capacitors; be prepared to replace most of them. The BC-224 is almost identical but runs on 12 volts.

RT-77/GRC-9

At 7 watts AM, we are talking low power here — but major fun. This transceiver was developed right at the end of WW-II for portable and vehicular use where a lightweight HF set was needed. If the case, cover, and gasket are good, it is sufficiently watertight to be floated across a stream in order to reach your

Command Sets



TCS

forward observer position. It covers 2 - 12 Mcs in three bands, has seperate transmitter and receiver units in one package which is 16x13x8 inches and weighs about 40 pounds. The transmitter is stable enough on M.O (Master Oscillator, the old term for a VFO) but it also takes FT-243 crystals at half the channel frequency. Requires 1.4, 6.3,105 and 580 volts, all DC. There is an AC supply, three different DC supplies, and a hand crank generator. This set and nearly every imaginable accessory is available from Fair Radio Sales — call (419) 227-6573 and ask for a catalog if you don't already have one. The transceiver alone is $54.50 in "used"condition from them; the units they have been selling were built by Telefunken (Germany) for NATO. U.S. manufacturers were Rauland (the best workmanship) and at least two others. Also listed in the current flyer from Mil-Comm Exchange Electronics,(904) 276-3568.

Suppressor grid modulation is used on AM; don't put this set on the air without checking the waveform on a scope. If positive peaks are clipped, try a new 2E22. If receiver sensitivity is low, check the tubes and then look for leaky paper capacitors. This radio is my number one recommendation for the ham wanting to try a military set. With such low power you need a good antenna and you will make more contacts in the winter than in the summer but I have worked all up and down the east coast with mine.

"Command Sets"

Built originally (late 30's) for plane to plane communication these were used by all services in all types of aircraft and for many purposes during WW-II and in a few cases into the 60's. There are three different military nomenclatures: ATA/ARA — the first Navy sets; SCR-274N — the Army copy of ATA/ARA; and AN/ARC-5 — an improved version, used by the Navy and perhaps other services. More of these radios were made than of any other military set in history.

A series of single band transmitters (500 to 800 Kcs, 800 to 1300 Kcs, ... 3.0 to 4.0 Mcs, etc.) covers 500 Kcs to 9.1 Mcs with outputs of 8 to 20 watts. The ARC-5 are plate modulated; the others are screen modulated. The modulator is a seperate unit and holds the transmitter dynamotor.

Receivers cover 190 Kcs to 9.1 Mcs. ARC-5 units have AVC and double tuned IF transformers on all units; the other sets have no AVC and the 7-9.1 Mc receiver has (broad) single tuned IFs. The receivers require 28 volts input if you use the dynamotor which mounts on the rear, otherwise provide external plate voltage not exceeding 250 volts.

If you find a complete set-up, these are easy to get going but because there are many seperate units, important incompatiblities between ARC-5 and earlier units and many connectors to find or substitute, a "mixed system" presents problems. It is, however, fairly easy to find a 3 - 4 Mc transmitter of any series and use it with an external modulator/power supply and a seperate receiver — "command" or otherwise. Once you are on the air, hunt for accessories; it might take you a year or two to find enough for a two transmitter - three receiver setup using the original control box and antenna relay. That's the configuration used in the B-17; when you watch documentaries of the air war over Europe, be alert for shots of the waist gunners as you can often see the two transmitters in the background.

TCS

This consists of a seperate transmitter and receiver, each 9.5x13.5x10.5 inches, total weight 90 pounds. Both units cover 1.5 to 12 Mcs in three bands, both can be crystal controlled or continuously tuned. Transmitter output is 15 - 20 watts on AM; double that on CW. Receiver

requires 12 and 225 volts; transmitter needs 12, 225, and 400 volts. This set was used on essentially every navy vessel built between 1940 (or so) and 1950. Tugboats and PT's had them a primary HF radios, ships of all sizes had them as emergency sets, for (battery powered) use if "ships service" power was lost. As you might expect, the TCS holds the all-time record for the number of different power units; units were provided for 110 VAC, 12, 24, 32, 48, and 110 VDC, and probably others.

This is probably the most straightforward of all currently available "surplus" to get on the air. The units I have "fired up" had only simple problems; transmitter is plate modulated (hence easy to adjust) and will load most any antenna. Another good bet for the ham wanting to "get his feet wet" in military gear but no dealer (that I know of) currently lists them, so it may not be easy to find one. Prices have been $15. to $60. per unit which is a heck of a bargain.

T-368/URT — Available from Fair Radio, 650 pounds, somewhat smaller than the BC-610 (which it replaced) and much more modern, stable, and powerful. 1.5 to 20 Mcs, rated at 400 watts AM. Absolutely top quality construction. Hook it up, put a brick on the key, and watch it put out 500 watts for a week or three. No power supply required — just plug it in to a 115 volts AC, 20 or 25 amp circuit. These are an absolute steal at $595. plus shipping. There are eight left....

(I have never owned this set because my rule is I only get radios I can lift, but the above is from a trusted consultant. I have "worked" several, however, and have never heard anything but praise from their owners.)

Any such list is somewhat subjective and doubtless a few readers are thinking "He should have listed the BC-... (ARC-..., or whatever)". Certainly there are other good sets. You might stumble on to one I left out because it is rare, (you lucky dog!) or find one I consider hard to get working, which is already in working order. If so — enjoy it!

There are a few types of sets which are quite difficult to put in ham band operation:

Most post-1950 HF aircraft radios: The specs may be impressive (250 watts AM, 1 Kw PEP USB/LSB, and one part per million per month frequency stability, for example!) but the complexity is hard to believe. Such factors as 50 to 150 tubes and/or transistors, 50-wire interconnection cables, 400 cps power (maybe even three phase!) forced air cooling for receivers as well as transmitters (etc.) make these sets only for the very experienced or the real fanatic.

Even when working, these are not easy to use as ham sets. Most are intended for "channelized" operation; to QSY from 3885 to 3884 you must wait up to 30 seconds for the set to retune itself from the beginning. On some sets you must set the frequency in code — for example "B1 - 2 - A - 7" for 3885 Kcs. (This is unhandy and error prone and must have been so when this set — AN/ARC-38 — was in service. If any reader knows the reason for this scheme, I'd like to hear from him or her.)

Modulated oscillator sets — The TBY, the BC-222 and 322 are all mighty cute, but all are modulated oscillators. Also in this category are the small UHF IFF sets, radars, and altimeters (APS-13, BC-645, BC-788, etc.) which were converted by hams to modulated oscillator units. Quite a few of these are turning up at flea-markets now, but a modulated oscillator is miles from meeting current stability requirements and if you do put it on the air, no one will be able to copy you.

Sets which don't cover any ham band — The BC-1000 portable FM set and MBF and TBS ship-to-ship radios come to mind. Others are the sets covering the military UHF frequencies of 225 to 400 Mcs — ARC-12, ARC-27, MAR are

examples. It is possible to convert these to cover a ham band, but the problems may be substantial, especially for the UHF units. One exception is the fix-tuned emergency portable sets such as the URC-4, 11, and 68 for which conversion of the 121.5 Mcs frequency to the amateur two meter band (or 243.0 Mcs to 1.25 meters) is practical. Now all you need is someone else running AM on the same frequency...

A few words of caution about the "favorites": While I consider these sets among the most friendly, older military sets are rarely easy to put on the air in the way that a modern (or even an older) ham set is. If you get one of these expecting to connect the power and start making contacts, you are almost sure to be disappointed. Connectors must be found or improvised, some sort of power supply will have to be built, a microphone found or made (carbon mikes are dreadful!), missing tubes replaced, — then you are ready to begin troubleshooting. Typically you will find that a few tubes are weak, switch and relay contacts are oxidized, paper capacitors leaky, one resistor has burned up and others have changed value, a former owner has "improved" the set by discarding a couple of parts and rewiring the filaments — and so on. If you are experienced in troubleshooting vacuum tube circuits you may get simple sets (such as command sets) working in a few hours. The more complex sets — post - 1948 Collins sets, for example — may take from several days to several weeks to work and should not be attempted without experience.

Nearly all vacuum tube sets use plate voltages ranging from "dangerous" to "often lethal". Non-fatal electrical shocks may cause severe injury from falls or muscle spasm. Work with exposed high voltage as little as possible; keep one hand in your pocket and avoid damp floors when you must do so. Never, ever, work with high voltage after drinking.

Errors last month:In the next-to-last paragraph page 5, the next to last sentence should read: "The same set, when built by Stromberg Carlson, was designated CCT-52208, "CCT" being the S-C contractor code." In the final paragraph of the article, the phrase "this means heavy....fixed station use" should be deleted. My mind slipped a cog on this one; there are many examples to the contrary.

Oldtimers will recall the procedure for making corrections to military manuals — "Make these changes with pen and ink, placing your initials in the margin; sign the change sheet inside the cover to indicate that you have done so "— but we won't require that! See you next month!

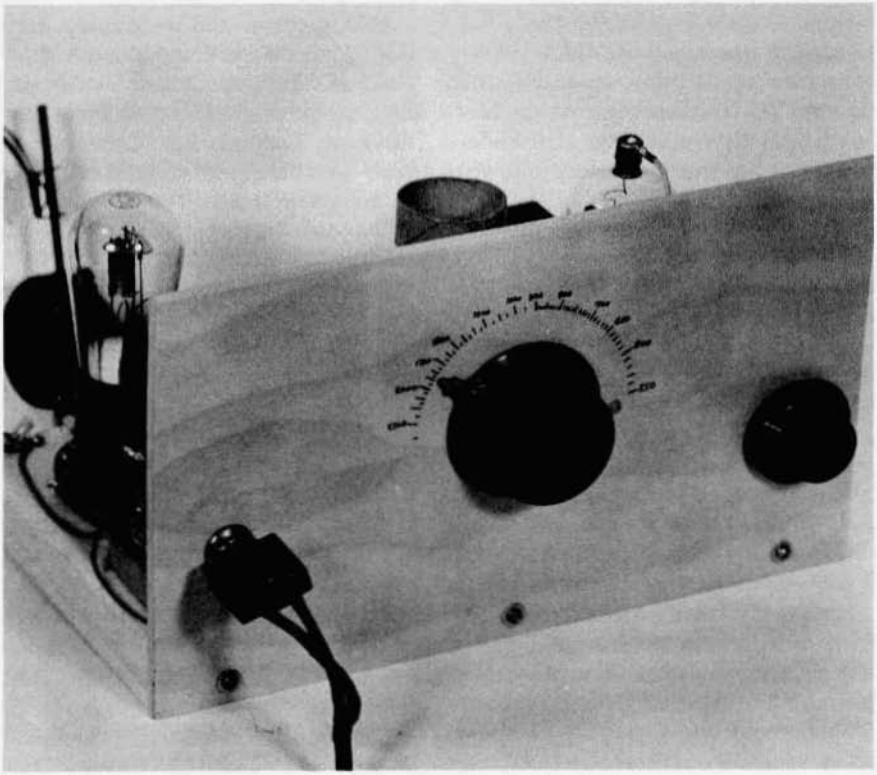
Reflections from page 2

better signal to noise ratio than an AM transmitter and when it is considered that SSB uses one half the bandwidth, the advantage increases to 9 DB. Thus, the new FCC regulation reduces AM from a position of approximate equality to a position of inferiority as regards signal to noise ratio comparison with SSB.

In all considerations the FCC totally disregards the audio characteristics of AM that make it the preferred mode of operation for discerning radio amateurs. In other words, the name of the game of amateur radio should not be just pushing intelligence through the ether. Audio quality and smooth operation has it's advantages and ought to be recognized.

It is hard to picture the FCC as backing down and revising it's AM RF power output regulation so the AM community is really up against the wall. The only way the FCC may possibly be persuaded to do so is by getting some "heat" from the ARRL and from congress.

In any event the time is NOW- not April or May 1983 - to start doing something on this issue.



THE SCHOOLBOY'S 1934 ALL-ELECTRIC RADIO

by Bob Dennison, W2HBE
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Westmont, NJ 08108

Back in 1934, when I was in 6th grade, I built my first radio set. I had only a few tools so it was not a professional job; for example, holes in the panel were drilled by means of a screwdriver. But the set worked and started me on the road to ham radio and a career in electrical engineering. To recapture the excitement of those days, I recently built a "copy" of my first radio. The copy is essentially like the original but it looks nicer since it uses finer wood, better wire and my workmanship has improved. Now, let's go back to 1933-34.

I met Louie Davis when I was in 5th grade. He was three years older and lived a few houses away on 13th St. in Salina, KS where we grew up. His older brother was in the Signal Corp and had copies of QST, some Western Electric headphones and galena crystals. I had a Ford coil and some train transformers. With these we tried to make a spark transmitter and a crystal set, using his mothers clothes lines as aerials but results were nil.

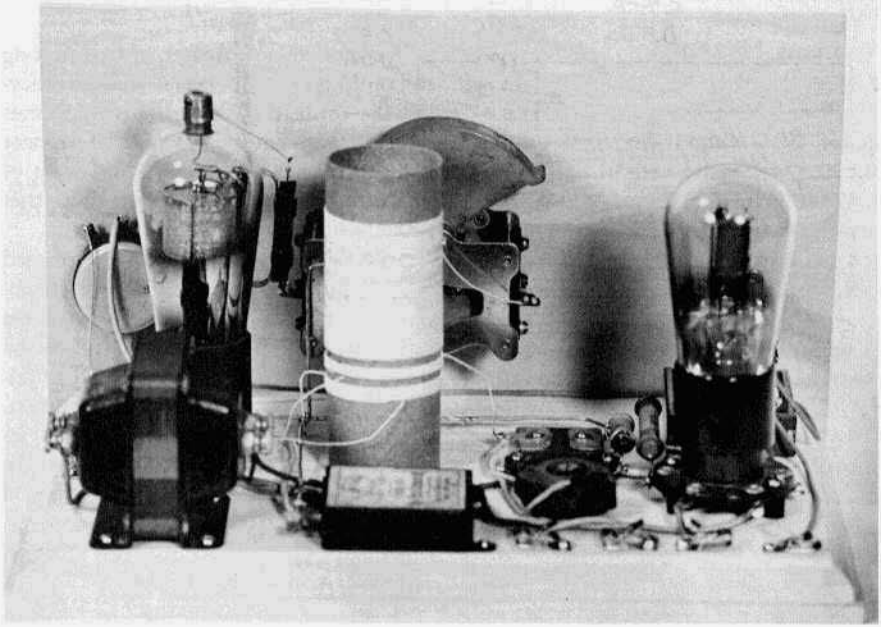
Louie moved to another neighborhood but we kept in touch and began to collect parts for a two-tube radio. Mr. Flamm, a neighbor, gave me some old tubes, Erla tuning condensors, knobs, rheostats and phone jacks. I bought an old 5 tube TRF battery set for 10 cents from a kid who had found it in the trash. From it, I salvaged the audio transformers and other components. The coils gave me a source of cotton-covered magnet wire. I also saved the bus wire and spaghetti. Meanwhile, Louie made a power transformer using laminations obtained from two audio transformers.

We pooled our parts and before long the radio was completed. I will never forget the thrill of placing the headphones over my ears and hearing the announcer proclaim,"This is KMOX- The Voice of St. Louis". I decided then and there that I had to have my own set.

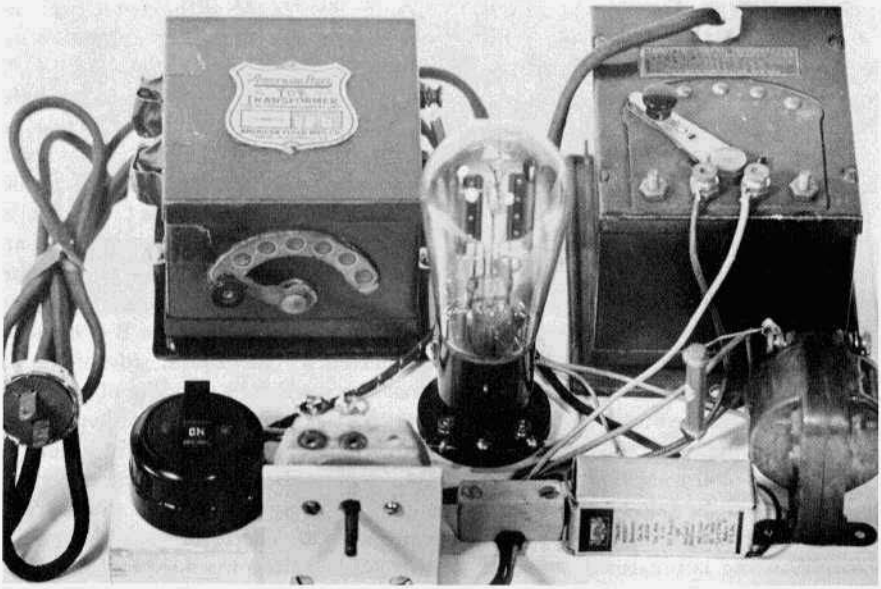
Louie designed a set for me that used a 24-A detector and a 27 audio amplifier. The front panel and baseboard were cut from a beer box. The coil was wound on a toilet paper cardboard tube. The primary and secondary windings of an audio transformer were connected in series to make a high inductance choke for use in the plate circuit of the detector. I found the regeneration control potentiometer in the trash behind the Philco radio store. The 2500 ohm cathode bias resistor was bought at a radio store for 12 cents. My mother gave me two dollars for the purchase of a pair of headphones.

The power supply was built on a square piece of wood that came from an orange crate.The train transformers were used to heat the filaments. The type 80 rectifier had both plates tied to one side of the ac line. The method of half-wave rectification of the line is like that used in AC-DC sets and gives about 90 to 130 volts DC. Since one side of the ac line is tied to the B - bus, there is danger of an electric shock. I painted one prong of the AC cord plug red so I could remember to plug the set in with the B - bus side connected to the ground side of the ac line. The secondary winding of an audio transformer was used as a filter choke. A cardboard-cased dual 4 mfd electrolytic was used as a filter condenser. Here again, scrounging in a radio store's trash can paid off. The total current drain in this set is only 4 ma so very little filter capacitance is required.

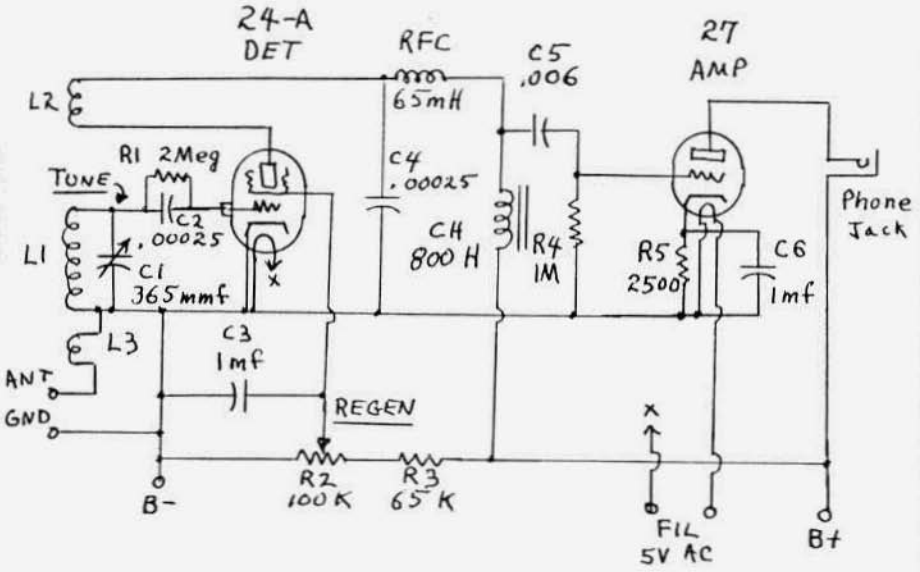
photo's and schematic next page, text page 27

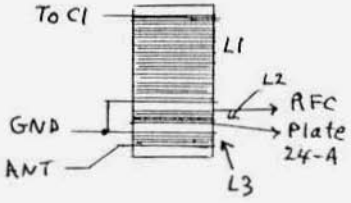


Rear View



Power Supply





COIL DETAILS

L1 - - 97 turns No. 30 DCC

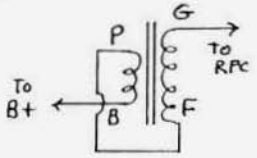
L2 - - 7 turns No. 30 DCC

L3 - - 9 turns No. 30 DCC

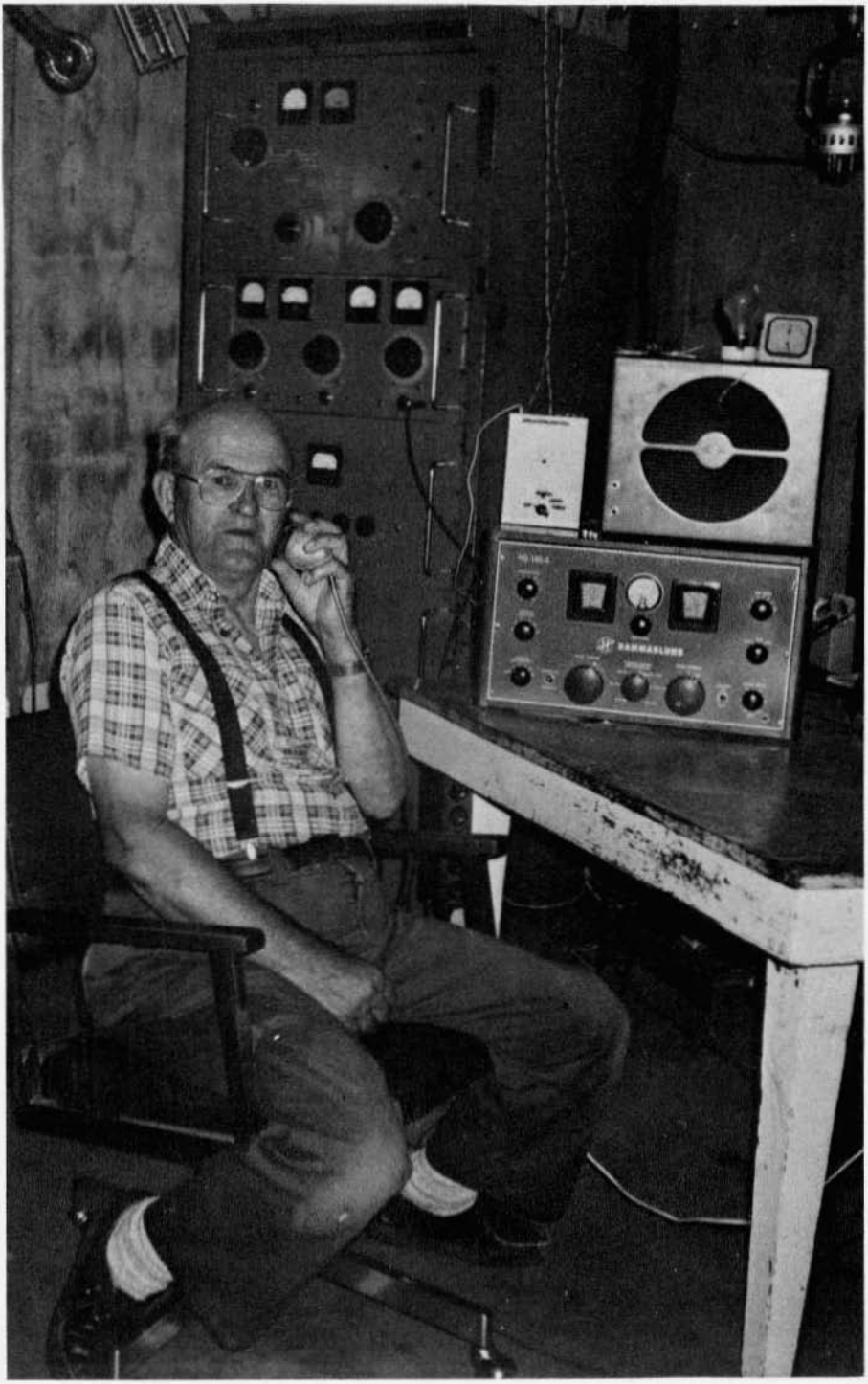
All coils close-wound. Spacing between coils is 1/8 inch.

Coil form diameter is 1.55 in.

CH - - Toledo Modern 4:1 ratio AFT , windings connected in series-aiding as shown.



WIRING DIAGRAM. - Schoolboy's 1934 radio.



VE4BX Doug Beamish

by Barry Wiseman, N6CSW/Ø

Doug Beamish, VE4BX is the "Voice of Canada" as far as AM goes. No one from that country is as loud or is heard as regularly as him. He operates all bands, 10 meters through 160. During the summer months his activity is mostly confined to the evening Spam net on 20 meters.Usually he is the first station to respond to his friend K6HQI when Les opens the net.

Doug was first licensed Oct. 2, 1967. His first rig was a single 813A modulated by a pair of 811As. This rig was put to-gether using parts from a medical diathermy machine. The machine operated like a transmitter. It had two pads that acted as the antenna. The pads were placed on either side of the body and loaded up. Doug says he tried it, putting a pad on either side of his hand. He said it was a very pleasant sensation. Since it ran on pure AC in some area of the 11 meter band he had extensive modifications to make before it could be used on the ham bands.

He has homebrewed several transmitters and has never owned or operated anything factory built other the HQ-140X receiver that he uses. From the beginning Doug says his ambition was to run 1000 watts A.M. He says he couldn't find a factory built KW rig so he undertook the project of building one.

Because of the scarcity of parts in Canada (and here in the U.S) Doug decided to build the transmitter around the parts that he had rather than from an existing schematic.

The transmitter that he finally completed consists of a pair of 4-1000s in push pull modulated by a pair of 810s. The VFO which is also homebrew uses home brew plug in coils. Doug told me the only schematic for the rig is,"in his head".

He says while building the rig his favorite "instruments" were light bulbs of various sizes; from a flashlight bulb all the way up to 300 watt bulbs in parallel.

His antenna is a 80 meter Zep up 65 feet fed with open wire feedline. His antenna tuner is also homebrew.

In a recent conversation Doug talked about the power limitation problem facing AM operators here in the U.S. He told me that Canada at one time had a lower limit (I think he said 750 or 800 watts input).KW transmitters brought into Canada from the U.S. would have to be modified and certified before they could be put on the air. After a couple of years of that the Canadian regulations were brought into line with the U.S. Now the situation will be the reverse if the power limitation that's proposed here comes into effect; Doug will still be able to run his rig at 1 KW input while everyone here will be at 500 watts.

Doug is definetily an "old timer"and one of the most well-known and well-liked AM operators.He's always friendly and easygoing. He describes himself as stricktly an AM operator. He says he gets lots of "hassle" from sideband operators but thinks there's room for all of us,"the bottom line is that we are all ham radio operators".

Doug is 68 years old and has been retired for a few years. For most of his life he was a water well driller. He says his only hobby is amateur radio. He and his wife Veva have raised three sons and one daughter and they have nine grandchildren.

OPERATING NEWS

Rick, K8MLV/Ø is back to work on his Johnson Desk KW. Norm Scott, WB6TRQ remarked(perhaps facetiously) that Rick will probably have it ready to go about June, 1990.

Everyone seems to be in agreement that we need another SPAM frequency on 20 meters. Sometimes the group gets very large (15 or 20 check-ins) which means a long wait between transmissions. And there's also the problem of many stations not hearing each other. Where this second group will go is as yet undecided. Any suggestions?

Activity is increasing on 15 meters. Those heard include W6HDU, N5JBT, K7YIR and others. The calling frequency seems to 21.380 for some and 21.385 for others. I guess it may work out that either/or is the official calling frequency. I'm disappointed that probably this issue will not be in the mail till about the time of the 15 meter SPAM Jamboree. I hope everyone remembered it from my advertisement last month and participated.

Rick, K8MLV/Ø - who doesn't miss much that's happening on the air-waves - reports having heard Howie, W2NRM/4, the "Chairman of the Board"operating on 7290 several mornings about 3 oclock Colorado time. I guess anyone wanting a chat with Howie will either have to get up early or go to bed late.

In the course of working on the KW-1 special edition (it will probably replace the December regular edition) I talked recently with the designer of the KW-1. His name is John Foster, WØYDX. Besides the KW-1 he also designed the Johnson 500. He's 79 years old and his avocation now is barbership quartet singing. He was very interesting to talk to and I think my article on him and about his work on the KW-1 will be quite informative. One remark that he made that I will pass along is Art Collins's assessment of the KW-1 after he had tried it for the first time one 20 meters. He said,"John it's a real killer". Something else that was interesting was that he had just made a trip to a radio museum with E.F. Johnson. That's **THE** E.F.Johnson.

I had a tremendous response on the article in last months issue in which I talked with Bill Stewart, K6HV and Roy Olson, WA6THD, former Collins employees. In future issues there will be more on these gentlemen. In a near future issue Walt Hutchens (ER in Uniform) will be talking to Roy about the ART-13. Sometime in the future I'll be exploring some other areas of the "Collins Story" with Bill Stewart.

The Durango Post Office really messed up the last issue, as most of you know. I visited the Postmaster here last week. He was very apologetic and mentioned that he had received some "angry" letters from my readers. He insisted that I come into the back and look at their equipment. I'm glad I did see it as now I understand how it happened. The letters are placed on a conveyor belt and pass under an inked roller that carries the cancellation information. Between letters this roller contacts the belt which gets it all inked up. Then when the roller presses on a letter the ink gets it from both sides. It seemed like a very archaic machine to me. Anyway in future I will be using pre-cancelled stamps which will totally eliminate any possibility of another disaster.

AM FREQUENCIES

2 Meters: the national calling frequency is 144.4. In the metro Boston area there is a Wed. night net starting at 8.30pm local on 145.710. Please send in information from your area.

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6 Meters: the national calling frequency is 50.4. Lots of activity lately with reports of good openings.

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10 Meters: the AM window here is 29.0 to 29.2. The calling frequency is 29.0. We should remember to move off the calling frequency once contact is made with another station. There is also activity at the bottom of the band between 28.304 and 28.325. Listen for Bill, W8VYZ and Howie, W2NRM/4.

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15 Meters: a number of operators are attempting to revive AM activity on this band. The calling frequency (according to SPAM president, Norm Scott , WB6TRQ) is 21.385. I think we should all attempt to use this band more as an alternative to 10 and 20 meters.

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20 Meters: almost all the activity here occurs on 14.286. The SPAM 20 meter net starts about 5.30 westcoast time every evening and carries on until about 8 or 9 usually. The net welcomes check-ins.

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40 Meters: the 40 meter westcoast SPAM net happens every Sunday afternoon starting at about 4pm westcoast time. According to Fred, W6RNC there are usually 10 or 12 check-ins. Late night activity around the country usually occurs on 7160, 7195 or 7290. On the eastcoast -mostly on week-ends- the activity is on 7285, 7290, and 7295.

---

80 Meters: nationwide the activity is concentrated between 3870 and 3890, mostly in the late evening. The westcoast SPAM group meets on 3870 every Wednesday night at 9pm CA time. The northeast SPAM group meets on 3885 at 7.30 local, Thurday evenings.

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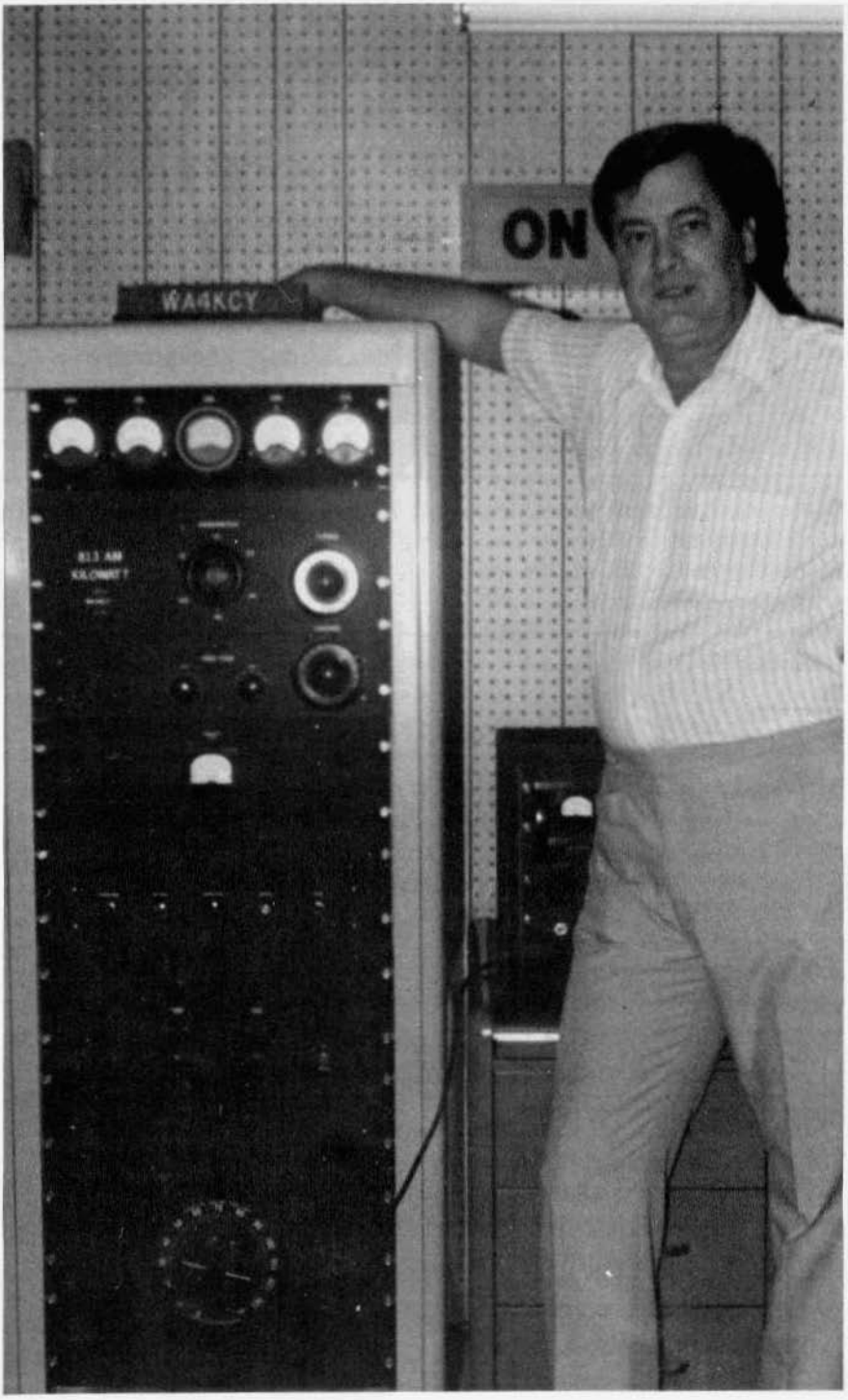
160 Meters: 1885, 1895, 1990, 1995. Nightly activity on these frequencies and others across the country. Summer activity is somewhat curtailed by thunderstorm noise. This is the band where you'll hear the old broadcast transmitters.

Don't forget the 160 meter SPAM Jamboree coming up Thanksgiving weekend. Plan to participate. It will be a four day marathon.


ON
WA4KCY

AN AM KILOWATT USING 813s 1989 STYLE

by Andy Howard, WA4KCY
105 Sweet Bay Ln.
Carrollton, GA 30117

My desire to build and put an AM transmitter on the air had probably been lurking somewhere in the back of my mind for a number of years. Getting back on AM a few years is what really got the fire ignited again. It had been several years since I had built anything of signifigance except the power supply for an old ART-13 which I had been using on AM. With this rig I could really relive old memories. I had spent many happy hours with an ART-13 when first licenced in 1962.

One of the AM operators that I had been working was Jim Taylor, W4PNM, over in Augusta, GA. We agreed to meet when I attended the Augusta hamfest. Jim invited me over to his house to see his homebrew kilowatt. Jim's rig uses 4-400s in the final and let me tell you it was love at first sight. What an impressive rig! I resolved then and there to build my own kilowatt transmitter.

After deciding on 813s for the finals and modulators Jim agreed to put some of his ideas on paper and mail them to me. I had been putting 813s aside as spares for the two ART-13's and had a number on hand. I also knew that 813s were still fairly plentiful at flea markets and even if you had to buy them new they were only twenty dollars each. I don't know of any other tubes that will run a kilowatt for that kind of investment. And of course triode connected 813s make excellent modulators.

When the schematics arrived from Jim I began to collect parts in earnest. My friends even joked that if you wanted to find WA4KCY at a hamfest, all you had to do was look under the tables. I found many needed parts in the old junk boxes that could be used in the rig. Parts like a plate choke, plate blocking capacitor and modulation transformer were a bit harder to locate. Finally a plate choke arrived courtesy of W6HDU, a plate blocking capacitor from K6HQI, and a plate transformer from K4JBJ. I located a 500 watt modulation transformer in the AM Press/Exchange and sent away for it. It was a 500 watt Thordarson Multi-Match and just what was needed. After applying a fresh coat of paint it was set back on the shelf.

Some T-368 power supply parts worked great in the plate supply for the final. The supply furnishes 2100 volts at up to 500 ma. Screen voltage for the finals is obtained through a screen dropping resistor consisting of six 30 watt resistors totallying 21,000 ohms. The modulator supply is seperate and furnishes 2100 volts at 300 ma. 3B28s are used in the RF supply since it is capacitor input and I chose 866As for the modulator supply which is choke input. I was lucky enough to have a couple of heavy steel chassis' for the power supplies. I couldn't imagine trying to use the lightweight aluminum ones for such heavy transformers and chokes. A 25 amp auto-transformer reduces plate voltage for tuning the final.

The RF deck uses 813s in parallel with a pi-network consisting of a B&W 850A inductor and a 200 pf air variable. The loading capacitor is also an air variable. In the event that I wish to operate any higher than 20 meters I will have to add a vacuum variable for tuning the final. The 813's are sub-mounted down to the

beam forming plates. This eliminates the need for neutralization. The final is fully metered with five matching meters at the top of the transmitter. This makes tuning and monitoring very simple. A 32V3 is used as an RF exciter.

The modulator also uses 813s. However, these are operated as triodes with the grids tied together. I have been receiving very good audio reports but unfortunately I can't take the credit. The speech amplifier was built by W4PNM with his special design using a series limiter and audio filter. 6B4Gs drive the 813s to around 600 watts input. After several experiments with different microphones a D-104 ceramic was chosen to give the best all-around performance and audio.

The control circuitry is pretty conventional. I can key the exciter without keying the transmitter by having a seperate high voltage breaker on the front of the rig. I use a 24 volt power supply to key a 24 volt plug in relay. This in turn keys the 110 volt contactor for the plate and modulator supplies as well as my "On Air" light. I can key the rig using several remote configurations. I plan to draw a schematic of the control circuitry to file away with the other transmitter information.

My greatest find besides the modulation transformer came while attending the Birmingham hamfest this year. I located a pair of rack cabinets that were 5.5 ft. tall, 24 inches deep and have adjustable angle shelves to support the chassis. This is really great when you think about how heavy a modulator really can be. Anyway, for the both of them I only spent thirty dollars. The one I chose for my rig even had a back door with lock and keys. I shudder to think about what they would cost if purchased new. Probably much more than the entire transmitter.

In putting the rig on the air the only real problem encountered was a pair of used 813s that would not draw current. Loaded to 1,000 watts input the output is 735 watts and this is with used tubes in the final. The audio is run at 600 watts input to the modulators. It is a great, if not trying experience, to build a kilowatt in 1989. From start to finish it took eight months. I am wondering now what the next project might be. Perhaps a homebrew exciter but I am still hopeful that I will find a Collins RF exciter. This will allow me to again use the 32V3 on 10 meters.

I want to thank all those who assisted with advice and much needed parts.

A Call for Action from page 4

Let me wrap this letter up by saying that even though many of us don't own an AM kilowatt, this issue affects all of us that use AM. If this direct assault by the FCC on our favored mode of operation is greeted by deafening silence to the League, I guarantee you that we'll have to work twice as hard to save the mode when the next move to ban AM surfaces. And at the very least, it'll be a sad night on 160 and 80 if those big booming kilowatt AM signals are finally silenced. After over half a century, we'll all miss them. But if we all work at it, maybe it doesn't have to end just yet.

K5SWK Otis Nonken

by Mike Palmer, K5FZ
16707 Creeksouth
Houston, TX 77068

Otis Nonken, K5SWK was born Febuary, 1923 in San Antonio,Texas. He first discovered Ham radio on a one tube regenerative receiver he constructed at the age of twelve. He says,"I'll never forget that first call sign I heard; it was W5GMT, Joe in San Antonio."At age fifteen he constructed his first transmitter for Gene, W5HQJ. Starting out so early has made Otis a firm believer in homebrewing one's own equipment."That's what amateur radio has been and should be all about; experimenting and creating your own gear".

After the start of WW-II he joined the Texas National Guard in San Antonio and became a radio operator. In Febuary of 1943 he joined the U.S. Army and became Communications Chief for the 87th Cavalry Recon Troop and later the 28th Cavalry Troop. He was in the Battle of the Bulge.

After the war Otis was a pilot for San Antonio Aviation, a sales and charter flight company. He was also a pitman for racecar driver A.J. Foyt.

In June, 1957 Otis obtained his present callsign K5SWK and in 1962 upgraded to extra class. In 1960 he completed his present rig. He says he has made few changes on it over the years. The big transmitter is an 833 modulated by a pair of 833s. The exciter is homebrew with a Collins PTO and dial. Employing AF inverse feedback, the high fidelity and strong signal we hear is something that should make Otis very proud.

During the late 1950's and through the 1960's he constructed many transmitters and receiving converters (for use with AM broadcast band receivers) for local amateurs. AM mobile operation was very popular and many of the rigs heard were built in the K5SWK ham shack.

Otis has never operated sideband. He says a friend gave him an HT-37 as an encouragment for him to try that mode, but he says he never did. The HT-37 sat under his desk for a while and he used it for a footstool. The newest piece of equipment in Otis's shack is his Hammarlund HQ-180. He likes the old "hernia making " radios. He says they look great and they work great.

Otis and his wife Scarlett have two sons; one age 30, another age 20 and a 16 year old daughter. He recently moved 40 miles north of Houston and has 11 acres to enjoy. His new home is under construction.

Otis owns Delta Plaza Electronics a company which leases 2-way radio equipment to oil companies locally.

Otis is on the air almost nightly. He can be found on 3885 usually in the company of his good friend Koby, K5MZH.

Editor: If I were to compile a list of the really great AM transmitters I have heard, K5SWK's would be there somewhere near the top.

He is always loud here in Southwest Colorado and his audio is as good as anything from the local broadcast stations.

COLLECTING/RESTORATION/REPAIR TIPS

A NEW MONTHLY COLUMN

Very appropriately - I think- the first article in this first monthly column is on packing radio gear for shipment. It has been provided by Walt Hutchens a major collector of military gear. Recently I received a shipment from Walt and I can say that Walt really "practices what he preaches".

Packing Radio Sets for Shipping

When you are sending a radio by parcel post, UPS, etc. packing it properly is about 98% of the battle to get it there safely. The materials you need are cheap and little extra time is needed.

Pack in a large corrugated cardboard box. Unless the item is so strong (some army field radios, for example) that it can't be dented, leave at least a couple of inches all around. Four or five inches isn't too much for the front panel. The strongest "smooth" side (i.e. not the front panel) should face down.

Strengthen the bottom of the box by putting a few drops of white glue ("Elmers",etc.) under each flap. If the item weighs more than a few pounds, glue another layer of cardboard on top of the flaps. If the item could be damaged by shock ("G" or larger tubes, meters) put at least two inches of cushioning on the bottom of the box, then use one or two layers of cardboard which are large enough to just fit, to form a"platform" under the item.

Put cushioning material snugly all around the item. If one or more sides are open or easily damaged, cover them with a piece of cardboard before putting the item in the box. The front panel should always be protected with cardboard. If there are long shafts or other projections, fit soft packing around them, and cover with cardboard. The panel side should have several inches of packing over this protective cover.

Newspaper is very poor packing; because it often "crushes" and leaves your item to slam around in the packing box. The expanded plastic beads you get in many mail order packages can be saved in plastic garbage bags. To use them for packing equipment, fill a plastic grocery bag about 1/3 full and tie the tops; use these as pads where ever soft packing is called for – under the bottom platform, on all sides, and on top.

Before closing the top of the box, (if the item is heavy) put a piece of cardboard in. Glue the end flaps to it and the side flaps to the end flaps. Put fibrous strapping tape all the way around the box near each end; seal the top flaps with 2" sealing tape. Put the "to" address near the center of the top and the "from" address at the upper left. These must be clearly written (on a white label or glued piece of paper is best) and they must be covered with clear tape to prevent the information being smeared or rubbed off.

For very heavy items, glue additional cardboard inside the box and be sure the padding is packed in tightly – it should be tight enough to make the box bulge slightly on all sides. Use at least two bands of strapping tape around each dimension of the box; more if the box is large.

Never ship fragile items (large tubes, for example) in the same container with a heavy item. 813s and larger should be packed in a strong seperate box with several inches of soft padding all around.

Editor: If you have a "Tip" that you think is worth passing along please send it to us.

1989 Fall Classic and Homebrew Radio Exchange

2000 UTC Sunday, September 24 to 0400 UTC Monday, September 25. Our object is to restore, operate and enjoy older and homebrew equipment of any vintage with like-minded hams. A Classic Radio is any equipment at least ten years old. Homebrew solid state gear is "age rated" for scoring at 25 years old plus age of a similair design article. Homebrew tube gear age is established as the actual year of such an article.

Operating this type gear is a scoring advantage but is NOT required to operate in the exchange. YOU CAN USE ANYTHING. Exchange your name, RST,QTH, receiver and transmitter type (homebrew - send final amp. transistor or tube) and other interesting conversation. The same station may be worked for credit with different equipment combinations on each band and each mode. CW call "CQCX", on phone call "CQ Classic Exchange". Non-participants may be worked for credit. Suggested frequencies: CW up 60 Khz from low band edges; phone 3880,7290,14280,21380,28580. Novice/Tech; 3720,7120,21120,28120,28320.

Scoring: Multiply total QSOs (all bands) by total number of different receivers plus transmitters plus states/provinces/countries worked on each band and mode. Multiply that total by your Classic Multiplier: total years old of all receivers and transmitters used, three QSOs minimum per unit. If equipment is a transceiver, multiply age by two. If equipment if homebrew, age it as described above.

Certificates and appropriate memorabilia are awarded every now and then for the highest score, the longest DX, exotic equipment, and other unusual acheivements. Send logs, comments, anecdotes, pictures to Jim Hanlon,W8KGI, 5560 Linworth Road, Worthington, OH 43085. Include SASE for Newsletter.

Schoolboy's radio from page 13

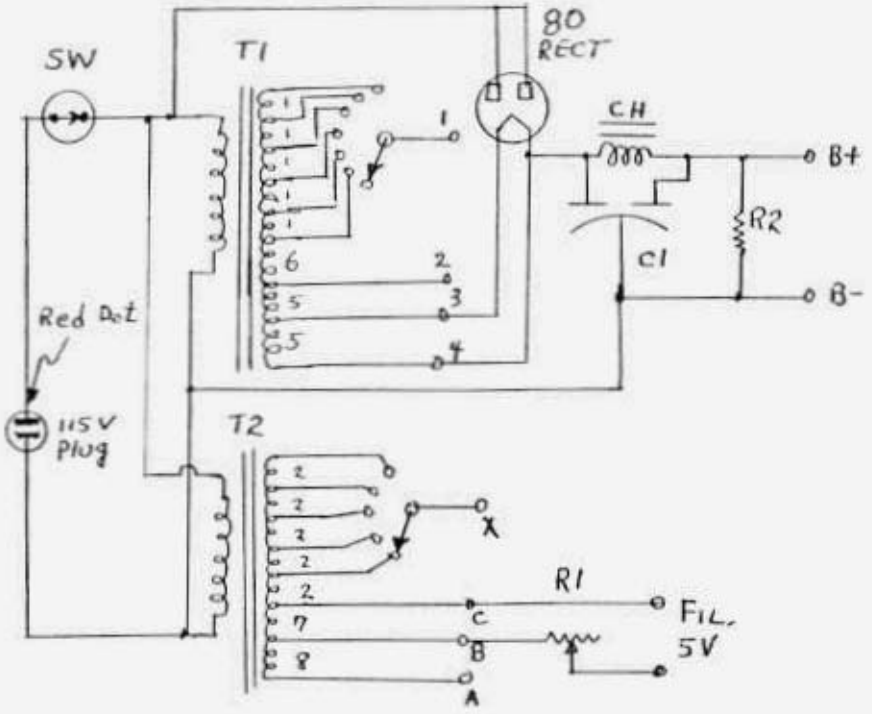
The set worked beautifully and brought in stations from Salt Lake City to Chicago. I took it to the Phillips school and all the kids in 6th grade enjoyed listening to it. Each day, I would rush home from school to listen-in. One day I discovered the 160 meter ham band and heard Duane Hoisington, W9NOE, who referred to himself as "Little Boy Blue". Nearly fifty years later, when I joined the Society for the Promotion of Amplitude Modulation, I rediscovered Don Hoisington - now W4CJL- he was the founder of SPAM!

The "copy" set works just as well as the original. I had lots of fun looking for the components. I found both of the train transformers at the Berlin, NJ flea market-both on the same day. The Erla tuning condenser and the audio transformer were found at one of the annual flea markets held by the Antique Wireless Association in Canandaigua, NY. Tubes and other small parts were found at local hamfests and flea markets. Maybe this article will inspire you to build a copy of your first radio. It can be a challenging project that brings back a lot of memories of the "good old days."

Editor: The power supply schematic is on the following page

Congratulations Bill !

My good friend and a faithful supporter of ER, Bill Kleronomos, KD0HG got married September 16 in Boulder Colorado. Although I've never met Bill in person I feel like we are very good friends. From the beginning of ER Bill has been a major supporter. Not only has he contributed several excellent articles but he's also been a good "sounding board" and technical consultant. We wish Bill and his "XYL", Janice many years of wedded bliss.



R1 - - 5 ohm porcelain rheostat.

R2 - - 250 K, 1 W carbon.

SW - - SPST switch, surface mounting type.

T1 - - Train transformer, American Flyer No. 1250.

T2 - - Train transformer, Lionel type B.

CH - - Secondary winding of Feldstern-McCusker 5:1 audio Trans., approx. 8 K ohms.

C1 - - Dual 4 mfd, 450 V electrolytic condenser, paper case.

WIRING DIAGRAM - Power Supply for Schoolboy's 1934 radio.

CLASSIFIEDS

Free Classified Ads

For Subscribers: 20 to 30 words

Non subscribers and addition ads for subscribers

$3., per 20 to 30 word ad

VINTAGE EQUIPMENT ONLY

E.R.
Box 139
Durango, CO. 81302

Phone: 303-247-4935

DEADLINE FOR THE OCT. ISSUE: OCT. 7

FOR SALE: Signal Corps I-157A test sets (Precision Model 920P tube and set tester); wood case with accessories, spares, manual, still in gov't packing; 35 lbs, unused but due to age may need repair-$45 + shipping. Quantity limited. **Tartan Electronics, Inc.**, PO Box 36841, Tucson, AZ 85740. (602) 577-1022.

WANTED: 3" RF ammeter; schematic for Capehart console radio model 114N2 (about 1946); cabinet from SP-600, no substitution; tubes, 845, 249C or B, 75th; BC-939 antenna tuner for BC-610; heavy microphone table stand for RCA 44BX microphone; '30s-'50's commercial broadcast publications and transmitter catalogs. Sam, W6HUD, Box 101, Alameda, CA 94501. (415) 521-1429.

WANTED: SX28/SX28A Super Sky Rider. Hoping to find a nice one with noise blanker. WB6TMY, Box 4694, Santa Rosa, CA 95402. (707) 527-8124.

Doctor Marty's Heathkit Service: Looking for that old Heathkit you missed building years ago. Need a manual. Want to trade, sell, buy, parting an old rig out? Need parts? Place your needs with us and maybe we can be of help. All needs will be placed on Master List. In order to get Master List just send a large SASE to: Marty Drift, 108 Hickory Ln, Hickory Creek, TX 76205 or call (817) 497-6023. Calls will only be taken on Monday nights at 6:30pm to 7:30pm CST.

FOR SALE: Galaxy-3 transceiver w/ remote VFO-$150. Heathkit DX-60-$60. Hallicrafters S53A-$35. Johnson Matchbox antenna tuner (250W)-$90. As a pair: Heathkit Commanche model MRI-A receiver and Heathkit HX-20 SSB transmitter-$100. Burl,NW5W, (214) 736-2391

WANTED: Looking for clean Collins 310B1 and Johnson Navigator with manuals . W2IQ, (615) 397-9796.

CLASSIFIEDS

FOR SALE: WW-11 BC- 603, 684, PP-68, PE-103, RBM, RA-42, CGQ20124, CRF20331, and more. Many manuals. Buy also. Henry Engstrom, PO Box 5846, Santa Rosa, CA 95402. (707) 579-2070.

WANTED: Recently received a mint NC -10A, National regenerative receiver. Need schematic for its power supply (5886) and also need to find a matching speaker (MCS type, also made for HRO-5). Steve Sauer, WA9ASZ, 1274 Londonerry Ln, Greenwood, IN 46142. (317) 882-4598 eves after 7:00 EST.

FOR SALE: DeForest 1921 Interpanel receiver-$695; Hammarlund 129-X receiver with speaker-$85; Globe Chief transmitter-$50; D-104 Mike-$30; 30 years Ham Radio Magazine-$125; several command units, write. Paul Crum, W9LC, 6272 N Cicero Ave, Chicago, IL 60646. (312) 282-3033.

WANTED: Pilot Super Wasp, SW3, SW4, SW5 or coils. Bob Mattson, KC2LK, 10 Janewood, Highland, NY 12528.

WANTED: Socket for a 4-1000/8166. Edward Barbacow, K3ZCY, 330 Ceylon Rd, Carmichael, PA 15320-1354.

FOR SALE: HT-9-$50; RME 4350 w/ speaker-$100; USM-140A osc-$75; Lenttine 242 (6 meter AM)-$50. KB8GP, (616) 798-7743.

FOR SALE: Collins 212Y broadcast mike amplifier, boosts mike level to line level-$50. WANTED: Johnson knobs. Pat Keogh, WB9GKZ, 2511 Memorial Dr, Green Bay, WI 54303. (414) 499-1336.

WANTED: Collins KW-1. David Wilke, NK3E, 167 Kirch Rd, York, PA 17402. (717) 741-3953, Office (717) 764-5000.

WANTED: 75A-4, KWS-1, accessories. Joe Bedlovies, 241 Dover St, Bridgeport, CT 06610.

WANTED: Hallicrafter's R-46 speaker to use with mint SX-71; R-47 speaker for SX-101A; National NC-125TS speaker. Also want National, Hallicrafters, Hammarlund advertising items to hang in shack (banners, signs, etc). Steve Sauer, WA9ASZ, 1274 Londonerry Ln, Greenwood, IN 46142. (317) 882-4598 eves after 7:00 EST.

FOR SALE: WATTMETERS URM-120, 2 to 1000MHz, RF 10 to 1000w, using three plug-in couplers (like Sierra 164). Used, removed from service; with TS-1285 meter, couplers, metal case, book, 20lbs-$140 + shipping. **Tartan Electronics,Inc,** PO Box 36841, Tucson, AZ 85740. (602) 577-1022.

WANTED: Collins 148 C1 FM adaptor for 75A-2 receiver. OJ Jenkins, KØOJ, 2101 5th St, Greeley, CO 80631-1812. (303) 353-7094.

WANTED: Ranger II in good condition. Don Bishop, (913) 541-6627.

WANTED: National SW3, SW5, 30's ham transmitters, hard bound QSTs, plug-in coil ham equipment. Neil Wiegand, WA5VLZ, 911 N Bend Dr, Austin, TX 78758. (512) 837-2492.

CLASSIFIEDS

WANTED: Manuals for the Heathkit pair. MR-1, MT-1. Will pay for shipping and copying. Marty Drift, 108 Hickory Ln, Hickory Creek, TX 76205. (817) 497-6023.

WANTED: DC plug & cord for the Utica 650 transceiver. Bob Ormond, (603) 642-4693.

FOR SALE: HW-22 100w, 40 meter SSB, C/W AC & DC supply-$50; Swan 240-$50. Frank Bowden,K5RM, 407 LaVeta NE, Albuquerque, NM 87108. (505) 268-0034.

FOR SALE: Galena crystal detector assembly, precision made, dust proof-$25 ea; Galena crystals and or cat whiskers at $1 ea. L. Gardner, 458 Two Mile Creed Rd, Tonawanda, NY 14150.

WANTED: UTC transformers plate: S-49, filament: S-57, chokes: S-34, S-35, S-36. Write or call if you need specifications. James Schliestett, W4IMQ, PO Box 93, Cedartown, GA 30125. (404) 748-5968.

TRADE: Hallicrafters T.O. keyer with manual in very good condition; chrome bencher paddle, like new; Hallicrafters SR-75 transceiver to restore. I am looking for receivers, 75A-4 etc. Frank, N4SUY, (813) 871-2134.

FOR SALE: Hallicrafters HR-150, PS, full 10 meter coverage, manual, very good condition-$185; Hallicrafters HT-37, new finals, manual, works great-$150; Century 21, calibrator, manual, excellent-$185. Steve, KA4RSZ, (404) 378-1366.

FOR SALE: Receiving tubes, Power tubes, Crt's older models plus later numbers UL and CSE recognized. Donna O'Connor, 824 Main St, Belleville, NJ 07109. (201) 751-2591.

WANTED: Collins Amateur Equipment, especially need speaker and consoles for 75A & 75S series equipment. Bob, W1CNY, PO Box 834, Simsbury, CT 06070.

WANTED: Manual and parts for Panadapter PP-1; also good xtal calibrator, preferably with 10, 100 and 1000 kc outputs. Hal Butcher, 456 Huntington Ave, Hyde Park, MA 02136. (617) 361-5487.

FOR SALE: Vintage radio tubes- A limited quantity of beautiful hand made replicas of DeForest Spherical Audions and Fleming valves are available. For information send large SASE. P. Weingarten, 67-61 Alderton St, Rego Park, NY 11374.

CLASSIFIEDS

"REAL RADIO GLOWS IN THE DARK" BUMPER STICKER-$1 each with a #10 SASE. We service American made amateur radio equipment, circa 1940, 50, 60 & 70's. Collins, Drake, Swan, Hallicrafters, Hammarlunds, National, B & W, Johnson, Gonset, WRL, Millen, Technical Materials Corp, Harvey Wells and so forth. QRP to QRO. Call or write for a quote on your servicing. **CLASSIC RADIO,** PO Box 3486, Eureka, CA 95502. 24 hr phone (707) 444-3911.

FOR SALE: Junkers; Echophone EC-1, Globe Scout 65-$15 ea. WANTED: Pierson KP-81. Wayne Steiner, NØTE, Rt1 Box 114, Burlington, KS 66839. (316) 364-5353.

FOR SALE: Collins 75A-2 receiver-$130; speaker-$40; also Drake 2B & 2BQ, Swan Cygnets 260, 270, 300, offer. Jerry Boles, N5KYE, 14857 Redbud Ln, Piedmont, OK 73078. (405) 373-2228.

FOR SALE: Hallicrafters SX-43 receiver w/manual-$110; Hammarlund HQ-180-A/C receiver w/manual-$155; John Meck Industry model T-60-1 AM/CW xmitter-$40; Heath model DX-35 AM/CW xmitter-$25. Ward Becht, W6IRK, 625 Tufts Ave, Burbank, CA 91504. (818) 842-3444.

WANTED: K4UJZ still wants Hallicrafter HT-6 and Howard 430, 435, 438. Also want Stancor and Thordarson kit transmitters. Handbooks by radio engineers W6SAI and ARRL, 1920's, 30's, 40's. Also 845, 805, 27, 210 tubes or antique breadboard. Russ Olmsted, K4UJZ, 608 W Thompson Ln, Murfreesboro, TN 37129. (615) 893-5344.

WANTED: Audio driver transformer for Viking 11 transmitter; single plate 8K to Push Pull grids (807s). Howie Jack, W2NRM, 1311 NW 107th Terr, Gainsville, FL 32606.

WANTED: National ACS/X; Collins 30A/C; 12v power supply for TCH; MK2/B-19; tank coils for Collins 150; Hallicrafters HT-9; manual for BC-224. R.P. Buehlmann, 1314 Chaney Rd, Raleigh, NC 27606.

WANTED: SW-3,4,5, AG or FB National receiver and coils. Bob Mattson, KC2LK, 10 Janewood Rd, Highland, NY 12528. (914) 691-6247.

FOR SALE: Very rare Hammarlund HQ-215 rcvr-$325; HQ-180AC, near mint-$195; Johnson KW Matchbox-$100. Call Charlie, KD4AJ, (404) 396-0276.

FREE: For free flyer send legal size 2-stamp envelope to: Olde Tyme Radio Co, 2445 Lyttonsville Rd, Silver Spring, NO 20910. (301) 585-8776, 10am to 10pm local time. Vintage radios, parts and restoration service.

FOR SALE: New Cardwell condenser MT150CS-$6; Allied/Knight R/C condenser tester, xlnt-$25; as new General Radio Variac type V-5, 0-135 V, 60 cycles 5 amps-$24. Ward Becht, 625 Tufts Ave, Burbank, CA 91504. (818) 842-3444.

WANTED: 6 kc filter for Collins 75A-4. James Sears, KDØXN, RR#3 Box 154, Gallatin, MO 64640.

FOR SALE: Ham building parts of 1940's: coils, switches, condensers, transformers, tubes, sockets, chassis and cabinets. Everything! F. Yonker, 7 Old Farms Rd, Saddle River, NJ 07458.

CLASSIFIEDS

WANTED: 6 meter AM transceivers from the 1950's & 60's. Howard Sine, WB4WXE, 3207 Orion, Rome, NY 13440.

WANTED: Schematic for the Elmac PS-2V power supply. K7BDY, Box 744, Showlow, AZ 85901.

WANTED: McMurdo Silver 801 & 801B regen. receivers; also any defunct battery BC radios (1R5, 1T4, 1U5, etc.) for parts. Al Bernard, N14Q, PO Box 690098, Orlando, FL 32869-0098. (407) 351-5536.

WANTED: Instruction books USN RAO-7 receiver and 058 scope. Rodney Schrock, KA3NMJ, 402 Lincoln St, Somerset, PA 15501.

WANTED: For HRO-60: dial scale for AC band (15m bandspread), part # P136-14. Need badly! Chick, W3BPZ, 1039 N 21st St, Allentown, PA 18104. (215) 437-1608.

FOR SALE: Hallicrafter SX-42 untested-$125; RCA ARC-155, clean, works-$100, pick up only on these two items; RME pretuner HF 10-20 untested-$25; Langevin 3A carrier operated loudspeaker control panel-$20; Lavide labs microwave freq meter 375 to 725 meter-$40 + UPS. Krantz, 100 Osage Ave, Somerdale, NJ 08083.

FOR SALE: Good used 2A3s-$5; new 872As-$15.mint condition GE Progress Line base, all hollow state on 29.6 Mhz FM-$35. **WANTED:** Good used or new 304TL's. Bill, KDØHG, POB 1456, Lyons, CO 80540. (303) 823-6438

For Sale: Eico 720,clean,unmodified, working, w/manual, $40. plus UPS. **WANTED:** nice Eico 723 w/manual. Dean, KC5NG, (817) 497-5365.

WANTED: Any ARC-5 receiver or accessories; 4 or 5 pin coil forms, 15-20w mod xformer, 1955 Handbook, schematic & PS for HRO-7, power xformer for DX35; Globe Scout 65A, any condition but complete, 110VAC Dow Relays, pair Heath Twoers, any Gonset converter, coils for Eico 710 GDO, schematic or manual Clegg, Thor 6. Jack Rich, K4GYK, 2717 Hwy 90W, Lake City, FL 32055.

WANTED: Million Radio & Television Laboratories products; test equipment and sound systems mfrd in 1930's. Sloan Million, 102 Ithaca, Colorado Springs, CO 80911. (719) 392-5605.

WANTED: Schematic or service information. Will pay for use or buy, United American Bosch model 640, AM & SW receiver. Radio is circa 1940's and company was located in Springfield, MS. Pat Adams, 2623 W 9th St, Panama City, FL 32401.

WANTED: Transformer for Viking Ranger I - (hi/med). Tim, NØJAR. (515) 792-4363.

WANTED: National and Hallicrafters 7" TVs. Also parts for the above sets. Fred Emerson, 627 Illinois Ave., Elgin, IL 60120. (312) 741-6728

FOR SALE: Amateur Radio Business (Sales & Service). Large inventory, good facilities, growing clientele in the fast growing Northern Virginia/Washington DC area. Relocation and health force sale. Send inquiries to PO Box 267, Sterling, VA 22170.

WANTED: Front panel for RCA AR-88 receiver. Top cover for Collins 51J/R-388 receiver. W3HM, RT#3, Harpers Ferry, WV 25425. (304) 876-6483

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PLUS: The names and callsigns of 3 Spam members you have worked on a.m. The names and calls will be checked against the SPAM roster and then the membership certificate will be issued.

WANTED: Communications receiver; Collins 51S1, military R-388, R-390A, R-392 or equiv. or broader coverage. I've T/Ms to cover these. DMT, POB 9064-ER, Newark, NJ 07104.

FOR SALE: Nice HT-37-$160; Near mint HQ-170A, excellent,-$150. WANTED: HX-50A Hammarlund transmitter. KD4AJ, Charlie, (404) 396-0276.

WANTED: 4 each, new 4-125A tubes. Also want a BC-457A or BC-696A or ARC-5 equiv. Don Hillard, WOPW, POB 563, Boulder, CO 80306.

WANTED: National SW-5 with or without coils. Manual or schematic for Heathkit DX-60A. Albert Helzer, W6NRO, 11190 El Capitan, Madera, CA 93637. (209) 431-3970.

WANTED: Hammarlund Comet Pro receiver or Pilot Wasp. LF coils for HRO-5. Stock factory wired Ranger. Brian Roberts, 3068 N. Evergreen Rd., Pittsburgh, PA 15237. (412) 931-4646

FOR SALE: Parting out Viking I, inquire SASE. **WANTED:** National NC-44, 45, 46, 80....Heath Mohican GC1 and Guithman U17 and U50. Henry Mohr, W3NCX, 1005 Wyoming, Allentown, PA 18103

WANTED: TCH. TU-5 tuning unit. RBM LF receiver. RBA and RBB receivers. 211 (VT-4C) tubes. FT-171B crystals for 5c'AM freq. **FOR SALE OR TRADE FOR ABOVE:** BC-939 ant. tuner-$100. BC-342 rcvr-$50. HRO-5W with coils-$125. "Surplus Steve", KD2NX, (718) 265-2390

WANTED: National Radio Equip. before 1941. Also you won't believe what I'll pay for a Harvey FT-30 transmitter-see Flick of The Switch page 257. Robert Enemark, Box 1607, Duxbury, MA 02331. (617) 934-5043

WANTED: Military radio gear; WW-II, Korean vintage. **FOR SALE:** remains of Command set collection for sale. Robert Downs, WA5CAB, 2027 Mapleton, Houston, TX 77043. (713) 467-5614

FOR SALE: Johnson KW Match Box less cabinet, meter and knobs-$75. UTC S-22, 250 watt mod. trans. with copy of spec. sheet-$35. **WANTED:** any bakelite panel ham xmtr, 4-1000A socket, 830B tubes. Parker,W1YG,87 Cove Rd. Lyme CT 06371.

FOR SALE: 4-4D32s, used-$15 ea. 3B25s, new-$10. 866s-$5. 829Bs,new-$7. Other tubes, enquire. Large assortment of meters. Variety of receivers (pick up only): Hammarlund,National,Hallicrafters,military, Collins, etc. Carl Peterson, 820 Vassar NE, Albuquerque, NM 87100. (505) 255-5100

CLASSIFIEDS

WANTED

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FOR MUSEUM

Do you have any old amateur or commercial transmitting tubes worthy of saving for posterity? If yes, help us do same. Contact:

Al Jones K6DIA
Ye Olde Transmitting Tube Museum
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FOR SALE: Teletype collectors or press wireless ops. Must sell. XYL wants car in garage. 2 model 28s. 2 model 15s. 1 freq. shift converter with scope tube. 5ft. enclosed rack made for TWX-etc. has double blower. 1 case paper. 1 teletype distributor/transmitter. 1 ribbon printer. 1 Northern Radio VU level meter, rack mount. Some like new. Trade for vintage radio gear. Must bring help and truck. I have two hernias. P.S. If serious I know of two more teletypes (working) that hams have in area. Buy mine first. Cash sale-$150. K4UJZ, 608 W. Thompson Ln. Murfreesboro, TN 37129. (615) 893-5344

FOR SALE: Manuals for: Viking Ranger-$10. TMC AN/FRR-49 rcvr-$10. TMC ant. multi-coupler AMC6-5-$10. Racal Com rcvr model RA17L-$15. Collins 75A-4, very good cond. ser. # 4092-$300. Pete, VE7FY, Maple Ridge B.C. (604) 463-4904

FOR SALE: Electron tubes, all types - microwave, transmitting, receiving, obsolete, military — Large inventory. **Daily Electronics Corp.** POB 5029, Compton, CA 90224. (213) 774-1255; (800) 346-6667

WANTED: Old or new, unusual ham or shortwave station QSL cards, shortwave pins, medals, trophies and DX certificates. John Parker, 6426 N. Silvery Ln., Dearborn Heights, MI 48127. (313) 561-6376

WANTED: Telegraph bugs, keys and old paddles for private collection. I need most models pre-1960. I also need old bugs for parts. Herb Spivey, NF5Y, Box 27, Baldwyn, MS 38824. (601) 365f-5594

WANTED: Very old or unusual Hallicrafter equipment, entire 1934 "H"&"Z" line of Silver Marshal, parts memorabilia and manuals. Chuck Dachis, "The Hallicrafter Collector", WD5EOG, 4500 Russell Dr., Austin TX 78745.

WANTED: All that old WW-II surplus equipment you bought in the 1940's, 50's and 60's and never used; receivers, transmitters, control boxes, mounts, dynamotors, cables, manuals, etc. Want new/unused in original boxes. If you are in the area stop by and see the WW-I and WW-II equipment display. August Link, 2215 Faraday Ave. Ste. A, Carlsbad, CA 92008. (619) 438-4420, days/Mon-Sat.

WANTED: Collecting National regenerative receivers, parts and accessories. Glad to correspond with other "Thrill Box" owners. Dean Showalter, WA6PJR, 36308 Panorama Dr., Yucaipa, CA 92399. (714) 797-1782

FOR SALE: Early books and magazines on radio, television, telegraphy and electricity. To get on our mailing list, please let us know what your specific wants are. New Wireless Pioneers, James Kreuzer, N2GHD, Box 398, Elma, NY 14059. (716) 681-3186

CLASSIFIEDS

Amateur Radio Center

101 E. Holly Ave. Ste. #3 Sterling, VA 22170 (703) 430-5555

H/cfters SX-62 rcvr-$60. Knight Spce/Spnr rcvr-$15. Heath EK-2A/B rcvr-$30. Heath GR-81 rcvr-$25. H/cfters S-19 Sky Buddy rcvr-$40. BC-342 rcvr-$70. Lafyte KT-135-$20. Knight Span Master-$15. Conar 500 rcvr & Conar 400 xmtr-$75. Knight R-55 rcvr-$25. Heath VF-1 VFO-$25. Heath AR-3 rcvr-$25. Heath QF-1 Q mltplr-$15. Heath HX-11 xmtr-$40. Heath GR-91 rcvr-$25. Heath GD-125 Q mltplr-$15. Knight V-44 VFO-$15. Knight Star Rmr rcvr-$30. Eico 723 xmtr-$40. Ameco TX-86 xmtr-$40. Ameco TX-86 xmtr-$40. H/cfters S-120 rcvr-$40. H/cfters S-38E rcvr-$40. Globe Scout xmtr-$30. H/cfters S-40B rcvr-$40. H/cfters S-38 rcvr-$40. Johnson Challenger xmtr-$40. Viking II xmtr-$100. National NC-300 rcvr-$80. Realistic DX-160 rcvr-$80. Realistic DX-400 rcvr-$100. Philmore CR-5AC rcvr-$15. H/cfters SX-110 rcvr-$70. Heath Mohican rcvr-$70. Heath GR-78 rcvr-$70. National NC-60 rcvr-$15. National NCX-5 xcvr-$150. National NC-190 rcvr-$80. Globe Chief Deluxe xmtr-$40. Globe Scout Deluxe xmtr-$40. Lafyte HA-350 rcvr-$80. Globe HG-303 xmtr-$40. Globe V-10 VFO Deluxe-$25. Drake R-2 rcvr-$140. Eico 720 xmtr-$50. H/cfters SX-140 rcvr-$45. Heath HG-10 VFO-$35. Heath HR-10 rcvr-$50. Gonset G-77 xmtr-$45. Gonset G-66 rcvr-$45. Mosley CM-1 rcvr-$35. Johnson Invader xmtr-$100. H/cfters SX-99 rcvr-$80. RME 4301 rcvg adaptor-$40. Knight T-150 xmtr-$65. Knight R-100A rcvr-$65. Eldico T-102 xmtr-$75. Eldico M-135 PP/SWR inc.-$45. Eldico R-104 rcvr-$75. National NCX-3 xcvr with NCX-A PS/spkr-$135. Galaxy MK-II xcvr with remote VFO and station console-$135. RME VHF-126 converter-$50. Ameco TX-62VHF xmtr-$40. **This is just a partial list. Give us a call with your wants.**

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Call Rod/N9IDF, (312) 540-9381, or send SASE for the new list--POB 2525,DesPlaines, IL 60017-2525 NOTE THE NEW ADDRESS

FOR SALE: to first caller or card via mail -- Johnson 2000, Courier Linear, Ranger, Viking I (VFO included), T-Bolt, KW Desk, 6N2 VFO. Telephone (312) 540-9381

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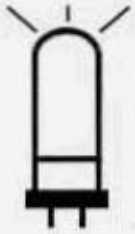

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