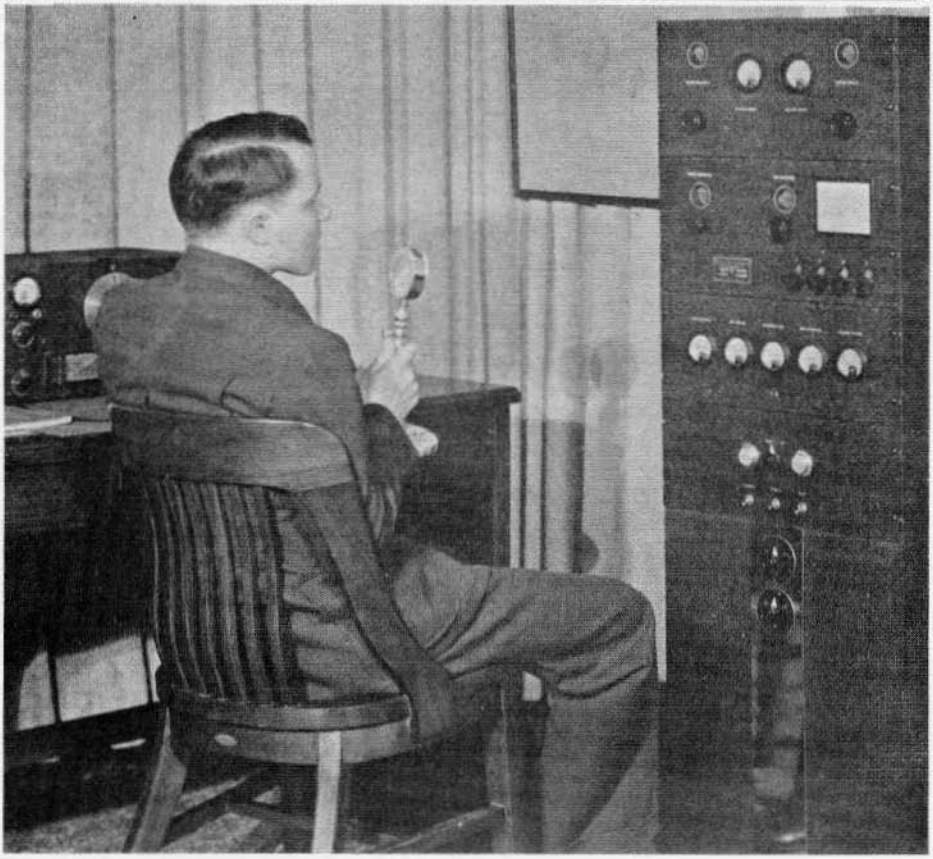
ELECTRIC RADIO

celebrating a bygone era

Number 4 AUGUST 1989



ELECTRIC RADIO

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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 C.W 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

Pick up any Ham magazine these days and chances are the editorial will deal with the no code license issue. I think that all the magazines -QST included- are in favor of some sort of a no code license above 28 mhz. The idea isn't new. In 1934 the Secretary of the League, K.B Warner proposed a no code license to the Directors. The Ham magazine R/9 published a portion of the Secretary's Letter to Directors. What follows are excerpts from the Secretary's letter with a response from the editor of R/9.

"There exists in this country today a large number of people who are fascinated by the possibilities of amateur voice communications, but to whom the present requirement of learning the code is an insurmountable obstacle. Many of these people would make amateurs of a very high type. Many of them are men of means, able to lay out money for good equipment, technically-minded and able to master the intricacies of the technique, but uninterested in telegraphy and incapable of learning the code just to get licenses. We have had no place for them. Quite properly, we have never been able to stomach the thought of permitting a phone licensee the right to roam through our bands without the knowedge of Continental Code. But thereby we have deprived

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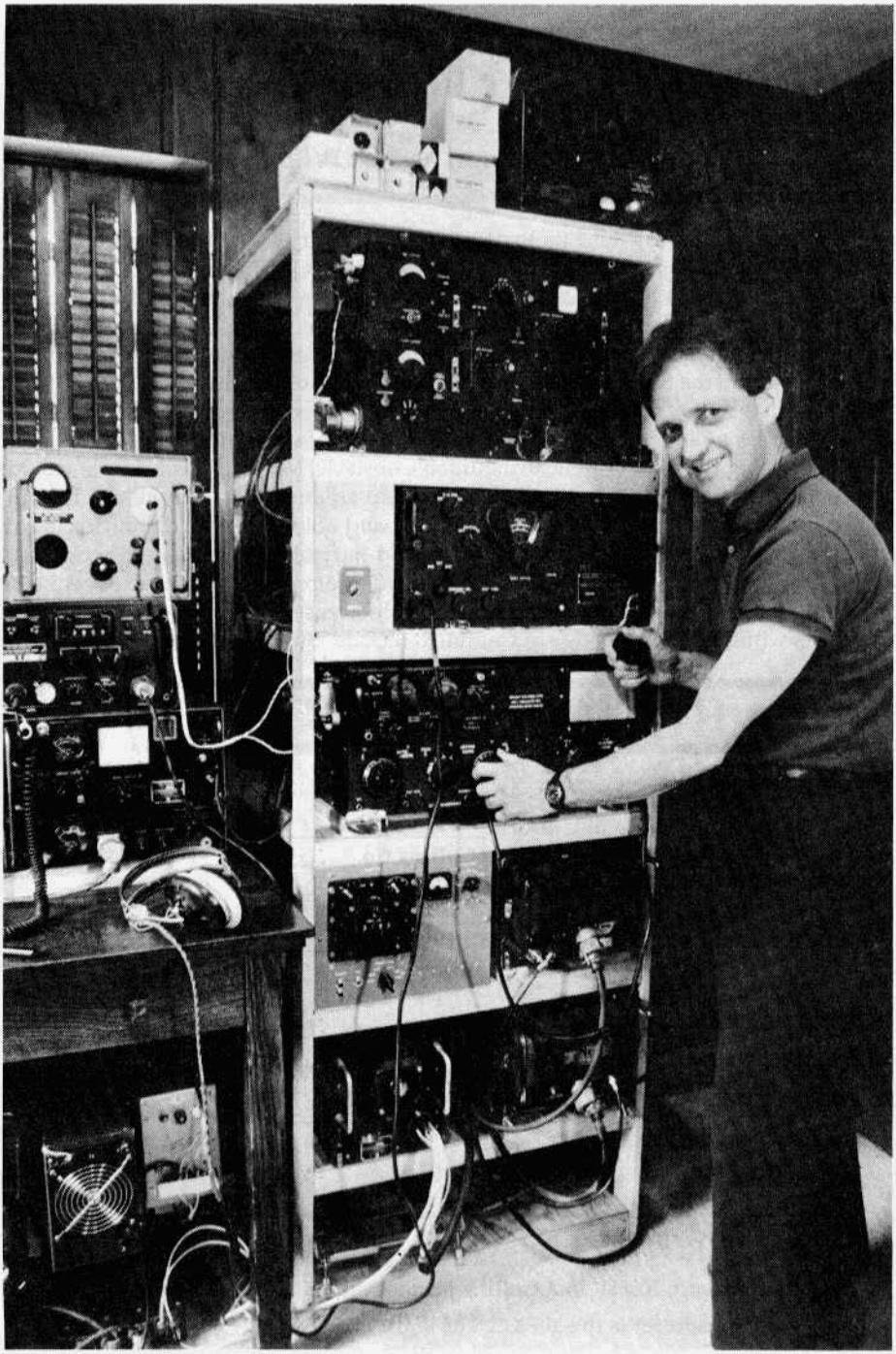
Bill Stewart, K6HV in a Collins promotional photo taken in 1936. The transmitter is the 30FXC. The story is on page 7.



Walt Hutchens, KJ4KV

ELECTRIC RADIO IN UNIFORM

An Introduction To Classic Military Radios

by Walt Hutchens, KJ4KV

You've seen at least a few at flea markets. Maybe you saw a cute little aluminum box with a dial on the front and a nameplate on the right side saying"BC-454". Or maybe it was larger —black, lots of dials on the front, and the seller told you "It's an ART-13-you can get 200 watts out of it".

What are these military radios? Can they be used on todays ham bands? What are the problems? Were they any good when they were built? How much are they worth? These are some of the questions "In Uniform" will be exploring. This month we'll look broadly at U.S. military radios of the period likely to be seen today, (roughly 1935 - 1965), and then discuss the way they were named—"nomenclature".

One of the amazing things about our military sets is how many different kinds there are. One reason is that each of our armed services insists on having (almost 100%) its own radio gear. More-over, each service operates in more than one environment—the Navy, for example, has ships, planes, and land forces — and each environment has unique communications needs.

During WW-II, one service sometimes procured several different radios at the same time for the same job. And as technology changed, new sets were procured to do the job better — one "mission" got four generations of radio sets between 1940 and 1946!

Multiplying the factors together, the number of different U.S. military radios 1935—65 is well in the hundreds, even ignoring accessories, sets that were never procured in quantity, different models of the same set, and sets too large to be practical for the ham. Perhaps one or two hundred different radios have been made in sufficient numbers to be seen occasionally at today's flea markets.

Where did todays's flea market military set come from?

Most of the older gear you see today was built during WW-II. We tend to forget that the war ended "by surprise", when Japan —which had been preparing her citizens to fight with bamboo spears — sued for peace after the dropping of the second atomic bomb.The U.S. armed forces had been gearing up for an assault on Japan itself; the scale of the preparations may be judged from the fact that we expected a million casualties.

Overnight our war plants went from full production to contract termination. Just as quickly, many thousands of radios of all types went from being essential war material to being "surplus"— say a 50 year supply (for our peacetime armed forces) of an item which would at best be obsolete in three years. Much of this equipment (especially that already in the Pacific) was dumped— used for landfill or scrapped locally. Some was sold or transferred to friendly foreign governments. But much was eventually sold by our government at a few cents on the dollar, creating within the space of a couple of years, a new industry called "war surplus".

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After WW-II the pre-war hams were eager to "fire up" again. Many thousands of returning GI's used wartime radio skills to get brand new ham licenses. But many new and reactivating hams were also buying homes and starting families; they didn't have a lot to spend. "Surplus" offered an answer. A radio which cost the government $100 three years earlier might be yours for $3.95 plus shipping. Rewire the filaments, lash together a power supply, and you were on the air! Some conversions were works of art, but many were hatchet jobs, with holes made with screwdrivers and wires twisted together without solder. All met a real need—"cheap modern radio" for an eager ham.

Moreover, surplus gave many hams access to new technology. Miniature tubes, VHF and even higher frequencies, stable VFO's, accurate frequency meters— all were either new during the war or used only by a very few hams before the war. By 1947, all were commonplace, thanks to surplus. The two meter band was "opened" by just one set —the SCR-522— many thousands of which were converted by hams of the late 40's.

Eventually, "cheap modern" surplus sets became obsolete and moved off the operating desk— first to the basement, and then, in many cases, to the county land fill. The sets reaching fleamarkets and "ham ads" today are the exceptions— often a "nice set" which the owner kept, thinking he might someday use it. Now, he's moving to an apartment in Florida — and when we are lucky — his treasure comes out of the dust and dampness to a flea market.

Since these are obsolete radios (some were even obsolete in 1940!) why would anyone want one? Well, they are interesting radios. As slices of our technological past, they tell us something about where we came from in a way no history book can. Is shoddy work by defense contractors a new problem? Were our companies more innovative 50 years ago? Is "gold plating" a problem of the 80's? How many "new ideas" of today are really new— for example, when did our military get a transceiver with one knob frequency control? Single sideband? A phase-locked loop?

Military sets are satisfying to work on, too. You almost never find a set so badly designed that it can't be repaired— I do not say, of course, that they're easy to repair! The general quality is usually excellent; after all, a $500. radio was often essentential to the survival of a $100,000. airplane or a $10,000,000. ship! And the manuals often give good explanations of the theory so you can learn a lot while you get it running!

Finally — they're fun! There are few greater thrills than firing up a top quality radio that hasn't been warm in forty years and using it to talk to a friend a thousand miles away. In a room lit by a pair of 811's modulating a single 813 you can imagine anything at all — and who can say that it's just imagination?

If you wanted to drive a 1941 car, you'd probably be willing to tolerate brakes and handling that aren't really up to 65 mph driving, no air conditioning, and balky windshield wipers. Using a 1941 radio on today's bands is much the same — you accept some limitations. Sometimes there's a small change which will make a big difference; when one of these applies, we will talk about it. In general, however, for both the car and the radio, a major change in performance means a complete re-design. Once you do that, what you have isn't "1941" — it is a curiosity.

My prejudice is that — for the most part — we should love our obsolete equipment for what it is, rather than trying to "convert" it to what it isn't. This gear can be used "as designed" (I use nothing else!), and there's plenty of technical challenge just in repairing it.

One of the problems in learning about

and collecting old military sets is the many schemes for naming them. During the years of interest to us there were six different main types of names! In the space remaining, let's talk about these.

The U.S. Army used a single system (with two types of names) from the very beginning of its use of radio in the First World War to the adoption of the modern system during WW-II. In the Army system the electronic "building blocks" of a radio system got numbers beginning "BC" for "Basic Component"; these numbers ran BC-1, BC-2.... and so on. I believe the numbers were in the 600's at the outbreak of WW-II and the highest number I've seen is BC-1366 which is a jackbox. Other parts of a radio system got different types of numbers: "FT" was used for mountings and holders, thus FT-243 is the small crystal holder of WW-II days, and FT-227 is the two transmitter shock mount for the Army version of the famous "command sets". Other codes are generally logical: "TU" for tuning units, "DM" for dynamotors, "RA" for rectifier power supplies, and so on.

A collection of building blocks forming a complete set was designated "SCR" for Signal Corps Radio. For example the complete (Army) "command set" system was made up of the BC-453 receiver, the BC-454 receiver, the BC-696 transmitter, the BC-457 transmitter, the BC-442 antenna relay, and several other transmitters, receivers, racks, junction boxes, and accessories; this equipment was designated SCR-274N and was used in most Army aircraft during WW- II.

A Basic Component could be part of more than one Signal Corps Radio. In some cases not all of the Basic Components of a Signal Corps Radio were used in any on installation. Minor modifications were designated by letter suffixes; the most common versions of the BC-348 receiver are the BC-348K, BC-348L, R, J, N, and Q. However, the definition of "minor" varies: the K, L, and R versions are quite similair (different manufacturers but same design) while the J, N, and Q are a different design — again, three different manufacturers. But — the BC-224 is a 12 volt version of the (24 volt) BC-348; there are no other significant differences!

The early Navy system had (likewise) two types of numbers. An individual unit was designated by a "Navy Type Number" consisting of two to four letters followed by a five digit number. For example, CBY-52208. The letters always begin with "C" (for "contractor") and indicate the manufacturer of the equipment; when this system started (20's perhaps?) the single letter suffixes were given out first, so "old" companies got codes like "CW" (Western Electric) and "CG" (General Electric). Later comers got three letter codes; "CBY" is Aircraft Radio Corporation, the designers of the "command sets". Still later, four letter codes were used — Leo Meyerson's company, Scientific Radio Products, was "CADG".

The first two digits of the number are the "class" — the type of equipment — except that mountings were numbered according to the class of the equipment they were used with: "52" is a transmitter or a transmitter mounting, "46" a receiver (or mounting), "40" a crystal holder, "43" a transceiver, "23" a control box and so on. The final three digits were a consecutive number for this item within its class. Thus, "CBY-52208" is the 208th Navy transmitter — an equivalent to the BC-696 3 to 4 Mcs Army command set; "CBY" says that this one was built by Aircraft Radio. The same set, being the S-C contractor code. The S-C two transmitter rack (equivalent to the Army's FT-227) is CCT-52213.

As you can see, the Navy Type Number corresponds (roughly) to the Army's BC - number. The Navy also had an equivalent to the SCR- number. This was a series of two and three letter "model

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codes" of which the first letter indicated the purpose of the equipment; "G" for aircraft transmitters ("GF", "GP"). "R" for receivers ("RU"), "L" for frequency meters, and others. Just before WW-II, perhaps because of the exhaustion of two letter codes, three letter codes were introduced; aircraft transmitters became "ATx" (for example, "ATA") and receivers became"ARx" (such as "ARA"). If any reader understands the details of this change, I would be pleased to hear from him or her.

The letter code was followed by a number indicating the model — "LM 16", (17, 18...), for the standard Navy hetrodyne frequency meter during the war.

Nameplates of these radios usually have both the Navy Type Number and the model code; the wording will be something like: "TYPE CBY-52232" and "A UNIT OF MODEL ATA AIRCRAFT RADIO EQUIPMENT". Because of the very large number of combinations, it is hard to identify a set from the type number; one can more easily remember the common model codes. For some reason, however, when you run an ad for military gear and the phone rings at 2 AM, the party at the other end will always (after he asks if this is a good time to call!) tell you he has a CBY-52232 rather than an ATA unit.

Another system cropped up during the war on a few pieces of Navy equipment; this is a Navy type number with letters replacing the final three digits — "CJP-23ADY", or "CAY-46ACE"; these are a control box and the receiver from the ASB-7 bombing radar. The only other equipment which I know of which uses this system are the glide bomb TV sets, ATJ/ARJ and ATK/ARK.

The "AN" ("ARMY/NAVY") system was phased in during WW-II and is still in use today. In this system, there is a component code like "RT-298", "RT-77", or "T-47"; "RT" is a transceiver, and "R" and "T" have the obvious meanings. Smaller items also have codes: "MT" for a mounting, "DY" for a dynamotor, "PP" for a power supply.

Equipments (usually made up of more than one component) have a three letter code followed by a consecutive number: ARC-2A, GRC-9 and ART-13 contain the three radios mentioned above. The first letters tells you the "platform" ("A" for aircraft, "G" for ground, transportable, "S" for shipboard, "U" for utility — this means "heavy, could be either shipboard or fixed station use". The second letter is the type of unit; "R" for radio, "S" for sonar, "P" for pulse (radar, etc.), "I" for intercom equipment, "L" for countermeasures. The third letter says what the set does: "T" for transmitting,"C" for communications (receiving and transmitting), and so on. So — "ARC"is aircraft radio communications, "GRC" is ground radio communications, "ART" is aircraft radio transmitting.

EDITOR: Walt became interested in military surplus while in the 7th grade. He was first licensed in 1953 while in high school; a stint in the Navy and training as an EE followed. He let his license lapse in the 60's with the intent of skipping sideband and solid state. In 1985 he returned to amateur radio and obtained his present license. He has collected military radios seriously for more than five years and currently has over 70 different sets. He can often be found on the AM frequencies of 80, 40 and 20 meters, where he enjoys operating military sets exclusively.

Walt is planning more "In Uniform" articles and would like to hear from readers who were involved with the design of military radios or who have wartime experiences (WW-II through Vietnam) with their use. His address is: Walt Hutchens, KJ4KV, 3123 North Military Rd. Arlington, VA 22207.

CONVERSATIONS ABOUT THE COLLINS CO.

with Bill Stewart, K6HV and Roy Olson, WA6THD

by Barry Wiseman, N6CSW

It started with a letter from Dave Olsen, W6PSS:

"Last evening while operating AM I received a call from a Mr. Bill Stewart, K6HA, a former Collins employee. He is 79 years old and has been a ham for 60 years. This was his first AM QSO in many many years and he appeared electrified with the experience. After adjusting a few knobs his TS-430S began to emit a quality AM signal revealing all the excitement and tonal quality of this fine old man.

During the QSO Bill told me about joining Collins in the early 30's as an engineer and some of his experiences with that company. I told him about your magazine and mentioned your interview with the famous "Leo" (Leo Meyerson, WØGFQ-issue #1). It turned out he is a good friend of Leo's. I think it might be interesting for you to talk to Bill; I've enclosed his phone number."

I called Bill. After I told him about the magazine and what it was all about we settled in for an hour's conversation about his early days at Collins and his career generally.

He was first licensed as an amateur in 1930 at his hometown of Muskogee,OK. In 1932 he graduated from the University of Arkansas with a degree in electrical engineering.That same year he married his wife, Hazel. After graduating he worked at odd jobs (remember this was depression era) for a couple of years. One of his jobs was standing on the corner of an intersection counting cars for the department of highways. He got 25 cents an hour at this job.

In 1935 he wired Art Collins and asked for a job. This was at the suggestion of a friend,Frank Davis, W9FVM, that worked there. Art Collins wired back saying that he had a temporary job opening - probably for six weeks. The pay would be $25.00 per week. Bill went up to Cedar Rapids. His first job was testing audio equipment that was being built for broadcast stations, recording studios and so on. After the six weeks was up Bill says,"they kept paying me so I sent for my wife and stayed on".

He worked in testing about a year and then started into engineering.His first jobs there were involved with broadcast equipment. The first rig he designed was the receiver for the Collins 18M. This was a receiver/transmitter unit designed for the military in the Union of South Africa. Bill says it was a very straight-forward receiver consisting of tuned RF, a detector and a couple of audio stages. The transmitter was designed by Frank Davis,W9FVM and Don Holmes (not an amateur) designed the dynamotor that went with the unit.

The next rig he worked on was the 32RA transmitter.The original design was completed by Les Bessemer ,KE6GZ .This rig was designed for airport use. Bill's work on the rig consisted of making modifications to satisfy the Army specifications. He later upgraded it again to meet Navy requirements. At this point Bill was moved over to sales and contract dept. He spent all the war years there.

In 1946 Collins got involved in Avionics- they called it aircraft radio at that time-and Bill spent the next five years in the sales end of that division. He says there were 4 divisions at that time: Amateur, Broadcast, Aviation Radio and General Products.

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FAITHFUL REPRODUCTION

How to use an RF linear amplifier with an AM transmitter

by Bill Kleronomos, KDØHG

The kilowatt plus linear amplier might just be one of the most common accessories in the modern ham shack. The class AB or B linear amplier is the only means to amplify a single sideband transmitter to a high level, and it also can be made to work quite nicely for the AM enthusiast. In fact, many AM broadcast stations do their modulation at a low level and use a big linear amplier at the output of the transmitter.

It is unfortunate that many hams, especially those recent discoverers of the virtues of AM from the ranks of sideband operators, have difficulty in properly adjusting their linear to work with their low powered AM rig. I've heard some truly rotten signals coming from a few stations using a linear, but this is understandable as the tuning and operation of a linear amplifier, when used for AM, is completely different than for SSB operation. The most common problem appears to be tuning the linear for "maximum smoke" under carrier conditions. This works fine for sideband, but absolutely will not work for AM.

One needs to understand exactly what an AM rig puts out the antenna connector. It is important to remember that a 100 watt output AM transmitter has 400 watts peak envelope power (PEP) output when modulated 100% with the proverbial sine wave, while every sideband rig I've ever seen put out the same "peak"output power as CW output power. In other words, if you tune an SSB rig for 100 watts output with a dead carrier, when you switch to SSB, the output won't be any more than 100 watts peak, but the average power in voice service will be considerably less. It is this peak to average power ratio of SSB in voice service that is the origin of the common misconception that if a linear amplifier is capable of operating at 1KW DC input on CW, it is automatically running 2KW PEP input on sideband. The claims in the radio ads of "1KW DC, 2KW PEP" haven't helped. If your amplifier can only put out a kilowatt wide open, it sure isn't going to put out two kilowatts just because you switched to sideband from tuning up in CW.

It is a similar line of reasoning that gets many into trouble when using a linear with an AM rig. If the PEP output of an AM rig is four time that of the unmodulated carrier output, and is used to drive this 1KW output linear, then the linear's carrier output can only be 250 watts if it is to faithfully reproduce the 1KW peaks of this 250 watt carrier. Trying to run more power on the unmodulated carrier is just a recipe for trouble.

This is the main drawback of using a linear amplifier on a AM signal-poor efficiency. Your typical modern linear that is capable of putting out the 1500 watt PEP legal limit is only capable of delivering a clean AM signal with a carrier level of 375 watts (1500/4). A plate modulated AM rig, on the other hand, only needs to deliver 375 watts to have the same 1500 watt PEP output. You need much bigger tubes to run 1500 watts output at 50% efficiency than to run 375 watts at 75% efficiency.

So, just how does one properly tune up a linear amplifier for use with an AM rig? You really should use a scope and audio oscillator to make it easy, but it is possible to get very close with just an accurate wattmeter.

The first thing you need to know is how much power your linear can deliver at the saturation point. The manual for

the linear should state how much drive is required for full output, or you can get the same information from the data sheet for the tubes used. Start by gradually turning up the drive to the linear while adjusting the tuning and loading for maximum output. Note that as the drive is increased, the amplifier's loading will also need to be increased for maximum output power. At some point it will be found that increasing the drive results in little or no increase in the amplifiers output. Log this power output reading and the setting of the plate tuning and loading controls. This is the maximum saturated output available from your particular amplifier. Divide the maximum power you measured by four. This value is what the maximum unmodulated ouput power of your linear should be in AM. Key your exciter into the linear again, and reduce the exciters output power by means of the drive adjustment or loading control (or both — don't reduce the drive too much) until the linear's output power is the same as calculated. You are now properly tuned for AM operation. Note that if you significantly reduce your exciter's input from where it normally is, you'll also need to reduce the mic gain to prevent overmodulating. Do not, under any circumstances,retune the linear's loading control from where it was set during the test for maximum output! Doing so will prevent the linear from faithfully reproducing your modulation peaks. You can tweak the plate tuning a bit if you must, but leave the loading adjustment alone.

If, during the maximum output test, you find that your exciter can't drive the linear to full output, you'll need a scope and audio oscillator to find the proper amplifier loading. Connect the oscillator and scope to your exciter only and adjust the mic gain for 100% modulation. Put the linear on line and scope to its output, and switch on the exciter, modulated at 100%. You will undoubtedly see severe "flat-topping" on the positive modulation peaks. Try tuning the linear for the maximum amplitude achieveable on the modulations peaks. This will undoubtedly include increasing the loading as you peak; the plate tuning for maximum output. If the modulations peaks are flattened at any and all conditions of tuning, you're overdriving the linear. Reduce the output of your exciter by reducing its loading and/or drive pot and try again. At some proper combination of drive to the linear and tuning you should be able to get the modulations peaks nice and sharp without any visible flattening. Note the settings of your AM rig and amplifier because you're now properly tuned up. Which-ever tune up procedure you use, the goal is the same - to tune the linear for maximum undistorted power output.

While performing these tests, and when on the air, bear in mind that AM operation is rather severe duty for many commercially manufactured linear amplifiers, being especially hard on power supplies and with regard to the plate dissapation of the finals. Most SSB amplifiers just aren't designed for 15 minute continuous carrier "old buzzard" transmissions! I suggest keeping aware of how hot things get, reducing power when required. For example, my Dentron MLA-2500 is capable of putting out an easy 1500 watts peak, but the tubes (pair of 8875s) tend to overheat unless I reduce the carrier output to around 250 watts by turning down the Ranger's drive control.

On the whole, a properly tuned linear amplifier can provide a substantial boost to the output of a low power AM rig, but it takes an awfully big linear to achieve any meaningful increase in the signal of an AM rig in the 150 - 200 watts class. Hope you enjoy using your "shoes".

THE ULTIMATE SCROUNGE

by Skip Green, K7YOO

Many of us have accumulated a fair bit of valuable "stuff" over the years but collecting this treasure usually occurs a little at a time. As a young ham (age 14) I was already on my way to setting some minor records for junkbox accumulation but an event occured that irrevocably changed my life.

The event centers around the local shipyard in Bellingham, Washington that had been the launching place for new minesweepers during WW-II and the Korean war era. In the early 1960's the yard had become the final resting place for a large number of Liberty ships as they were scrapped for sale to certain Oriental concerns.

On each of these ships was a full complement of phenominal "boat anchor" type radio transmitters that apparently had no particular use to the scrap buyers. This was most likely because the units were obsolete old shipboard types that were literally built into the ships during construction. As I remembser the frequencies covered were from down below the broadcast band up to about 18 mhz. These units (about 10 of them) were left in a warehouse stacked in a haphazard array after the yard closed down.

Being the observant youngster that I was (still am) I stumbled across this treasure trove of knobs, meters, 807's, 813's etc. while helping my dad work on his fishing boat. I immediately set out to find out who owned all of this neat stuff to inquire if perhaps I could talk them out of a few bits and pieces to finish off my homebrew transmitter project. All of my inquiries were in vain and all I could do is lust for the imagined joy of owning such a trove of goodies. Months went by and I had pretty well given up on the whole thing when it was announced in the local paper that the entire shipyard contents were to be auctioned off. I frantically scanned the entire list of items to be sold and finally found a discreet paragraph describing some miscellaneous "electrical and electronic components". To my dismay I also noticed that the auction was on a weekday and I would have to figure a way to get out of school. I won't bother to describe the sort of serious arm twisting and mental gymnastics I subjected my partents to on this point, but suffice to say I got permission to go.

The big day arrived and I counted the $20. I had saved up as I rode the transit bus to my destination. It was midmorning and the auction was already underway as I registered and got my bid number. I stood around throughout the day watching lathes, prime lots of shipbuilding hardware, lumber and hundreds of other items go for prices that I could only vaguely fathom. It began to dawn on me that perhaps $20. wasn't too signifigant an amount of money and that I was a little out of my league. Maybe whoever got the stuff I was after would sell me some small bits.

The auction dragged for hours and finally about 6 pm the items in "my warehouse" were coming up for bid. The auctioneer, who by this time was pretty tired, announced that there was some electrical stuff in warehouse #3 and if anybody wanted to go look at it they would have to use a flashlight because the lights didn't work. I was doing all I could to contain myself at this point, even as most of the other bidders looked on in boredom.

He invited for bids. There was a moment of silence and then I blurted out,"buck and a quarter". Still more silence. At this point one of the scrap dealers started to speak.

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Skip Green, K7YOO

A HOME FOR HOMELESS HALLICRAFTERS

by Chuck Dachis , WD5EOG "The Hallicrafter Collector"

One might ask me "how is it that you have more duplicate Hallicrafter units than most other collectors have items in their collections"? Well — there is no simple answer. These poor things just seem to find me and say "please take me home and take care of me". I can't stand the thought of these forgotten, dirty and decrepit radios living in someone's shed or barn, or worse yet, about to go to the city dump! Whenever I am at a garage sale, flea market, swap meet or what have you and see a Hallicrafter item the "motherly" instinct comes over me and if I can afford it, I buy it, regardless that I may have a dozen others of the same model.

Some times these radios actually just appear on my door step with a note that says "give me a good home". Still others are given to me in various states of condition by people who can no longer take care of them and want to insure that they will continue to be useful and appreciated by someone.

So, you ask, what do I do with them? Well — if the radio is one that I need for the collection it goes to the emergency room (my electronic work area in the garage) where it is immediately resuscitated and given emergency restoration treatment according to the diagnoses. If it is a duplicate I will stabalize it's condition and put it aside for future restoration. If there is no possibility of economical restoration it will usually give me permission to donate it's major organs so that a more rare brother or sister in the collection may come back to life. If none of my units are in need of major organ transplants these parts are held in reserve for national distribution to bring life to other units living in different parts of the country.

As time permits I restore the duplicate units to as near original condition as possible and then will use them as trading material to other collectors, or they may be sold to people who want a specific model and have not been able to locate one after years of searching.

Recently I received a letter from a gentlemen in another state who wanted a Hallicrafters radio like the one that a high school friend had back in the mid 1930's. This radio had, for some reason, made a great impression on him. He explained that he could not afford such a radio when they were available at the local radio store, and by the time he could afford one they were no longer in production and could not be found for love or money! Not knowing the model of the radio he gave me a "picture" from memory, and asked for my assistance in finding him one. After some thought, I determined that the radio he wanted was a SX-9. I sent a photo of the SX-98 and he immediately recognized it as the set he had been looking for. I had a spare unit, which I restored and sold to him. I know that it will have a good home and give pleasure for many more years. One of the most gratifying things to me is being able to help someone else fulfill a childhood fantasy.

My childhood fantasy was finding a radio store that would have wall to wall and floor to ceiling used radio receivers that I could buy or otherwise own. I really never found that "store" until a few years ago when I was sitting in the "collection room" admiring all of the Hallicrafter radios I had acquired and sud-

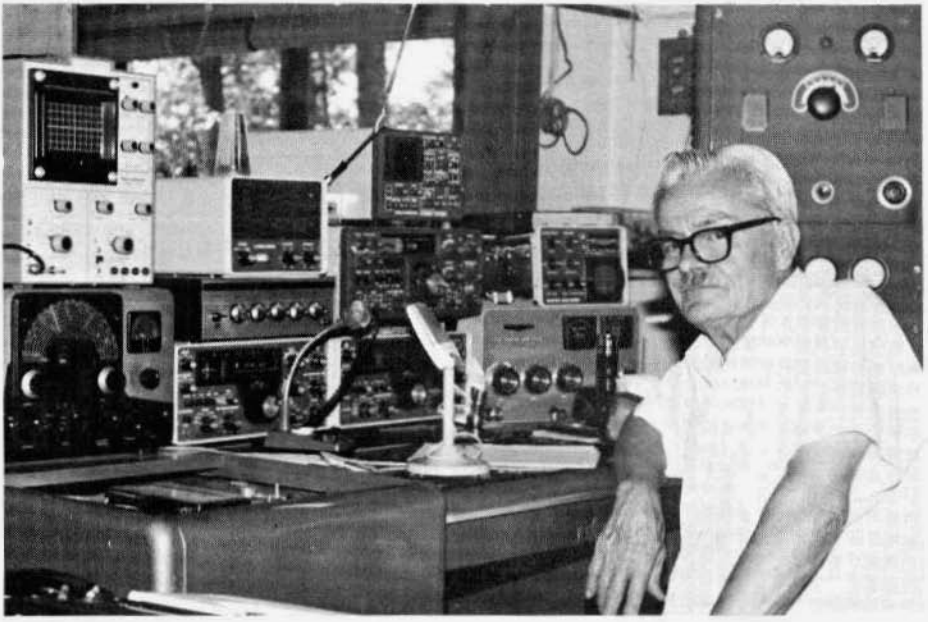
denly realized that I was sitting in the middle of my "fantasy store"!

The following list is of my current supply of duplicate units, some of which have been restored, others will be restored on a as needed basis. All of these radios are happy living with me, but they really need to be placed in a permanent home with loving operators. My doors are always open to receive new arrivals, and no Hallicrafter will ever be turned away!

Units for Sale or Trade

Model #	Item #
CA-2	264
CB-12	456
CB-3A	407
CRX-1	387
CRX-1	207
CRX-102	338
CSM-20-2	238
EC	198
HA-12	431
HA-26	166
HA-6	203
HCM-260	358
HD-1	372
HD-2	324
HT-17	341
HT-19	438
HT-20	278
HT-37	283
HT-7	119
S-120	420
S-120	421
S-120	439
S-15	350
S-19-R	382
S-19-R	353
S-19-R	452
S-19-R	422
S-20	213
S-20-R	377
S-20-R	378
S-20-R	296
S-20-R	281
S-20-R	379
S-21	266
S-22-R	280
S-22-R	216
S-22-R	279
S-26-F	344
S-27	274
S-36-A	226
S-27	274
S-36-A	226
S-38	388
S-38-A	413
S-38-D	389
S-40	347
S-40	100
S-40	457
S-41-G	265
S-47	209
S-55	284
S-77	046
S-77	423
S-94	308
S-94	447
S-95	047
SP-44	375
SX-10	354
SX-101-A	392
SX-11	257
SX-11	292
SX-133	450
SX-16	221
SX-17	352
SX-18	351
SX-23	356
SX-23	357
SX-24	355
SX-24	063
SX-25	130
SX-25	236
SX-28	282
SX-28	374
SX-28	290
SX-28	399
SX-42	386
SX-71	088
SX-73	256
SX-73	316
SX-9	361
SX-99	454

W4KYL John Martin, Montrose, PA



W9CNI Art Clouse, Nashville, IN

W8KGI Jim Hanlon, Columbus,OH

W3BPZ Chick Dressell, Allentown, PA

REFLECTIONS DOWN THE FEEDLINE
by Fred Huntley, W6RNC

At the Dayton Hamvention, SPAM re-spresentatives distributed an introductory pamphlet about AM written by Rick Ferranti, WA6NCX/1. He mentions his personal AM beginnings and the colorful characters he used to QSO on 160 meters in northern California during the 70's. He also says that he often wondered what happened to them. So, here is the rest of the story..... at least the final part.

W6EAJ and W6TYP, close friends, were the leading stations in this group that congregated on 1995 Kc. Bob Garner, W6EAJ, lived out in the wilds of the northern California coast range on Horse Mountain Ridge, 30 miles inland from the Mendocino coast. It was wild and wooly country, 10 miles from town, up a tortuous dirt road into the hills where he had his self-built qth and his own water powered generator, and where it rained 100 inches per year. W6EAJ was a professional type who like to expound on technical matters, when he wasn't telling of his trials and tribulations of living out in the wilds.

His friend, Arthur Childs W6TYP, of San Jose, had the relaxed voice of a broadcast announcer. In fact, he had at one time been a broadcast engineer. He also had been an electronics tech-rep aboard navy ships. After that he worked in Silicon Valley. On the air, he always humorously referred to his company as the"button factory". I think it was General Electric Co.

Almost every night, W6TYP presided over 1995 kc with his Elmac AF-67 and Hammarlund HQ-110. The Elmac had broadcast sounding audio, and plenty of it through the use of negative cycle loading. Not to be forgotten was Art's goniometer receiving antenna. He was always telling the other station whether the incoming signal was of vertical or horizontal polarization.

With this little station, W6TYP, worked up and down the state and beyond that at times. He was friendly and a very good conversationalist. As an informal master of ceremonies he presided over about 25 stations in the San Jose/ San Francisco area who variously participated in the nighttime 1995 kc activity.

I didn't hook into the 1995 kc group until the end of 1981. W6EAJ was still there reporting from Horse Mtn. Ridge. Toward 1983, Bob developed medical problems which necessitated him leaving his QTH for hospitalization. He also had an ongoing battle with the IRS that required his presence "downtown". W6TYP went up to Horse Mtn Ridge and cleared out he place for W6EAJ- loading up his radios and surplus stuff etc. for disposal.

W6EAJ was hospitalized near San Jose and W6TYP frequently visited him. One night I heard Art say, over the air, that, "W6EAJ would never be able to operate a ham station again, on account of his physical condition". Through one of those strange quirks of fate, it was W6TYP himself who was gone within a month, and within 2 months W6EAJ would make enough of a recovery that he was able to operate SK-W6TYP's station at Art's apartment residence.At the last W6TYP suddenly began complaining of back pains. He went to the hospital where it was diagnosed as cancer. In a weeks time it was the end.

One of the 1995 kc gang checked out Art's radio log and sent a notice of Art's passing to all the stations that he regularly worked. At Art's funeral there was a good representation of 1995 kc hams who paid their last respects to a great modulator.

Meanwhile W6EAJ made some recov-

ery in his health condition. He occupied Art's apartment and put the Elmac AF-67 and the HQ-110 on the air under his other call, W6YSK (from a southern California QTH). Bob's old call had expired while he was in the hospital and he was in a battle with the FCC to recover it.

W6YSK came on 1995 kc several times per week for a few months but the activity dimmed; then complete silence. The other stations also continued some activity for a while but that also petered out. What was missing was W6TYP. Art, by the dint of his personality had been the activating force for the frequency.

By the end of 1985, complete silence reigned on 1995 kc. It stayed that way until last year when a group of sidebanders moved onto it, after vacating 1916 kc and the beacon interference.

Thus ended an era in AM amateur radio. I never did learn what finally happened to W6YSK. The call book still lists him at Art's old QTH.

If there is a moral to this tale, it is that one man can make a difference. If there was an AM'ers Hall of Fame, Arthur Childs, W6TYP certainly would deserve a prominent place in it. He was an outstanding modulator and a great amateur radio operator.

Ultimate Scrounge from page 10

I figured I was done for, and was totally unprepared for what he said,"let the kid have it". The auctioneer paused a minute and pronounced,"sold, $1.25". I can't begin to describe my elation, surprise (and relief) as those words were spoken.

The aftermath of this great purchase kept me busy for nearly 6 months dismantling the units on the weekends. My dad would drop me off on Saturday mornings with my toolbox and pick me up in the evenings with a whole pickup load of goodies. We made numerous trips to the local scrap buyer to sell the monster motor generators, heavy cables, and frames from the units. It turned out that most of the frames were solid copper or brass and I ended up collecting two or three hundred dollars from the scrap metal alone!

Needless to say my homebrew rig got finished in fine form and the garage got filled with literally tons of parts. Over the years the parts have been used in a variety of projects, given away, and yes I have a few left over, even after 26 years. The old J-38 key I removed from one of the transmitter operating tables still graces my operating desk. I often wonder what kind of war story it could tell.

TECHNICAL TIPS

Last winter while doing some repair work on a rig the tip of my soldering gun broke. Not wanting the interruption and hassle of going to town for a new one I decided I'd to make a temperary tip from #12 copper wire.

It worked fine and in fact had some advantages over the regular tip: first of all it was "free", it had a nice fine point on it, and I could bend it to accommodate getting into tight spots. I also made it longer than a normal tip. I expected it to burn out after a short while but after months of use it's still working just fine.

I don't suppose this idea is entirely new but I thought it worthwhile to pass on. Barry, N6CSW

For the removal of the 6146, especially when hot, use the tube that comes in toilet tissue. Also handy for installing same in tough spots. Don, KA1KDS

We're rapidly coming up on fall and winter when we all get more involved in building and repair/restoration. If you have a tip that you think is useful please drop ER a card. I think we would all enjoy reading about it.

OPERATING NEWS

GOOD NEWS: Les, K6HQI, should be back in CA now after spending most of the summer on the road; Florida, Kentucky etcetera. We've missed his big signal as the westcoast anchor on 14.286; although Sam, W6HDU has done a good job of filling in. Les has checked in almost nightly on SSB with his mobile rig.

Bob Sitterley, K7POF sent in a report on the Flagstaff Hamfest: he said there wasn't much in the way of vintage gear there again this year; a couple of Hammurlund receivers, a couple of Viking 2's and that was about it. K7BDY bought a DX-100 for $10. Bob says that after Martin bought the rig he put a sign on it, " Sold, $300.".I imagine that sign got a few double takes. Others at the hamfest included: K7OBB, WC7O, K7RLL, K7VZP, KDØXN, K7CMS, W7BNN, W7WFY, and WR7A.

Barry Simms,W7JKY is reported to have a Gonset 76, with a 3 element antenna on the air and is looking for action on 6 meters.

Sam, W6HDU, has his Collins TDO Navy transmitter in operation. Now he's working on restoring another recent acquisition ; a 30k-5.

K6PVC, Los Angeles has his Viking 2 set up to go on the 17 meter band. Look for him on 18.150 Khz.

K6HLO is back on the air after a long absence while he extensively overhauled his Johnson KW.

Jack Wheeler, KH6CC is back in Hawaii after his month long trip to the mainland. Jack says he spent a month up in British Columbia and in the Pacific Northwest. He had a little solid state 10 meter rig with him but found absolutely no action while he was over here. I've been hearing Jack on 10 meters up on 29.0 or so. I think this must mean the band is opening up.

Howie, W2NRM/4,"the chairman of the board", sent me a nice letter. He says he's operating on the lower end of 10 these days. Listen for him between 28.305 and 28.325. Howie has also given ER permission to reprint from his old publication,"Press Exchange".

Andy, WA4KCY, sent me a picture of his homebrew KW using 813's. I think it is the nicest homebrew rig I have ever seen. I have also heard it on the air and it sounds as good as it looks. In the September issue Andy will have an article on his transmitter.

Bill Klerenomos, KDØHG, a regular contributor to ER is also building a homebrew KW. That should be another big story. Bill's says it shouldn't be too long before he's on the air with it. The problems he had were similiar to what Andy described to me: finding the parts.

Recently I had a long land-line QSO with Mike Linger, WA5MOE. Mike says there's a growing interest in vintage RTTY, using Teletype machines and vintage transmitters and receivers. He uses a T-368 as his transmitter. I think this is a very interesting development and would like to hear more from others that are involved in this.

Howard Mills,W3HM wrote me and updated me on his status after the change of QTH's. As of a couple of weeks ago he didn't have any antennas up and his gear was still in boxes. He also told me his store " Amateur Radio Center" is a big success and keeping him busy. I hope Howard is "activated" by the time 10 meters opens up as we have enjoyed many interesting QSO's with him.

"Ashtibula Bill", W8VYZ has just recently completed the installation of a 120 ft. tower at his QTH. Bill says he's going to install a 160 meter dipole on the tower. He will use this antenna on 75 and 40 meters as well. Before winter he also plans to repair his tri-band beam which he says will stay on a shorter tower.

continued on page 21

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 8or 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.

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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 **15 meter SPAM AM JAMBOREE** coming up the third weekend of September. Plan to participate. It should be a lot of fun and contribute to getting more AM activity on this band

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SOME NOTES ON THE RANGER-1 TRANSMITTER

by Edward Peter Swynar, VE3CUI

The Johnson Viking Ranger-1 transmitter, with its very fine- sounding audio characteristics, seems to have grown considerably in popularity over the past 15 years or so, evolving in status from that of "main rig" in many Novice shacks around the country, to "restoration project" for countless numbers of devotees of vintage amplitude modulated phone gear.

I purchased my old Ranger 2nd or 3rd-hand (well, it was definetely used, anyway!) in the Autumn of 1973, for the grand sum of $90.Canadian, a princely amount at the time for a third-year university student! This rig served as my mainstay transmitter until such time as I graduated to SSB, in mid-1975. Despite the acquisition of my sideband rig, I had the foresight to NOT sell the Ranger, and now, with my recent and delightful"rediscovery" of AM, I am about to undertake the clean-up and realignment of this handsome example of classic 1950's Ham gear.

It's funny how seemingly forgotten memories drift back when an old friend like the Ranger-1 looks back at your from the operating desk; several "fixes" which I had originally put in place on the rig returned to me in this way. These same repairs/cautions/hints/kinks just might prove to be of some use to both old and new friends of the Ranger contemplating the restoration of their "jewel" to operating condition. At any rate, for what they may be worth, here they are....

1) The final output frequency and the v.f.o. frequency are exactly the same on 40 meters; for this reason, an undesirable feedback path from the 6146 amplifier stage back to the oscillator could (and does !) occur if the screws of the v.f.o. case are not tight. These tend to loosen over the years because of the great amount of heat generated inside the rig; I discovered this after considerable anguish, and quite by accident I might add, when the final output frequency of my keyed rig dropped some 10-15 khz from the actual v.f.o."spotting" frequency— in this condition, too, the tone was something less than "T-9". By simply tightening all the screws of the v.f.o. case, the problem completely disappeared;

2) Should you ever require a pair of replacement 1614 tubes for the modulator, don't despair; a set of 6L6's will do nicely as direct substitutes, with no adverse effects upon that beautiful AM audio (in fact, my Ranger had a pair of 6L6's already installed when I bought it— I've had no reason whatsoever to replace them);

3)The technical staff of the ARRL once advised me the "mushiness" in the final keyed CW signal of some Rangers could be alleviated to a degree by directly replacing the 6AU6 oscillator tube with a 6AH6; curiousity alone compelled me to try this mod with my particular rig — the only thing that resulted in my case was a shift of several khz in the calibration of the v.f.o. dial... so I simply went back to the original 6AU6, leaving well enough alone;

4) It might have been sound engineering practive back in the 1950's, but my Ranger had the frame of the final pi-network plate tuning capacitor insulated above ground by means of fiber washers (I can not recall just now if the loading capacitor was similairly mounted or not - at any rate, it most certainly was not when I recently opened-up the rig for a physical inspection); a wire connected the capacitor frame to a ground point right at the 6146 socket, by way of a hole drilled through the chassis surface. Back in 1975, when I esperienced a terrible TVI

problem on 20 meters CW, I remember grid-dipping (per guidelines - the TVI chapter of the 1969 ARRL Handbook) the various leads of the 6146 final stage - with an old Eico dip-meter of dubious repute, mind you - and finding several resonances in the channel-2 and 4 frequency bands. Needless to say, I grounded the capacitor directly to the chassis by simply rmoving the fiber washers. The TVI was abated considerably on channel-2, but the trouble persisted off-and -on on channel-4. Today, I believe the latter was caused more by a simple case of fundamental overload, my signal being picked up and coupled back to the TV by way of the outside braid of the TV lead in;

5) The prudent amateur who maintains a good collection of dated QST magazines (and who doesn't fall into this category?!) would do well to check the contents of the vintage issues from the 50's and 60's on some rainy afternoon, for various descriptions of modifications and repairs to the Ranger-1. These include everything from how to reduce the output power of the rig efficiently, to getting it set-up on the 6 meter band. I have found the old "Hints and Kinks" of QST particularly invaluable in this respect (but don't bother writing to the League with new ideas for publication on vintage gear, even for " Hints and Kinks" - I don't wish to give the impression of "League-bashing ", but they'll simply reject your submission on the basis of it having too narrow an appeal to the general cross-section of Amateurs).

The Ranger- 1 is a timeless piece of gear which, happily, is enjoying quite a comeback in Amateur radio. Surely, even in this day of compact digital i.c. electronics, the fact that a hollow-state battleship-construction rig like the Ranger-1 continues to be a "hit" with so many different Hams is a sound tribute to those early designers/engineers who knew then what it took to satisfy the desires and needs of more than one generation of Amateur radio operators. Use your Ranger, and enjoy it - scores of others do.

Operating News from page 17

K1KV, Bill has just recently completed his homebrew 3 element beam. It seems to be doing an admirable job ; 40 over at this QTH in Southwest Colorado.

I recently had a long conversation with George Sellati who along with his brother Philip, owns and operates Fair Radio Sales in Lima, Ohio. The business was started by their father in 1947. It's probably the oldest surplus store in the country. I asked George about the availability now, and in the future, of surplus military gear. He tells me that there isn't much of the classic stuff around like the BC-610's, ART-13's and the T-368's. Although they have about (8) T-368's in stock he doesn't expect anymore to be available soon. He says surplus comes on the market now in "ones and two's". He doesn't think that the government has much of the real desirable WW-II surplus left. I asked George what group comprised his customer base. I expected him to say the U.S. amateur but what he told me was that the Japanese are his best customers. He says,"they have a lot of patience to restore the gear and they really appreciate it, particularly the Collins stuff". I hope they'll get this gear on the air. It would be nice to have more AM activity from other countries.

Everyday we are all hearing new calls on the AM frequencies. I think this is great. The way we welcome these newcomers speaks well for the AM fraternity and encourages growth in our aspect of the hobby.

I think this fall when 10 meters opens and the other bands improve we are going to see a tremendous increase in AM activity.

LETTERS TO THE EDITOR

Dear Barry:

You have struck a cord that has been in the back of my head for a long time; the vintage radios that we've all come to know and love, and the people behind them.

A friend of mine, and a genuinely dedicated radio collector, NI4Q, wrote to me in glowing terms about your publication. It had also been mentioned by some of the guys around here that hang out on 3885 Khz. When your sample arrived, I knew I had to subscribe. When issues 2 nd 3 arrived to-gether, it was pure delight. I'm very pleased to see that you have done what I always felt should have been done; you have captured the essence of our history and blended it with thought and ideas from todays world.

I've been licensed since 1958 (KN1GXT) and have spent many hours on AM, and as many, or more on SSB. Frankly, I'm a little confounded by the rift that seems to develop between the two groups, or even why there is two groups; we're all hams after all. People seem to generalize a bit too much about "typical SSB operators", or "typical AM operators". They're both wonderful modes of communication, and I've had equal benefit and joy from each. If anything, better education is needed on both sides of the issue. The worst thing we can do is throw barbs at each other just because some don't understand.

I think Electric Radio will certainly help in this cause. People respect a Model T driving down the street because its' owner has preserved a way of life. The same respect is due a person operating a vintage ham station for the same reason. A part of our history is being preserved.

Best 73's and sincere wishes for continued success.

George Maier KU1R ex. KB1KQ, N6FGQ, K1GXT

Dear Barry:

Glad to get the latest issue of Electric Radio. You would be very surprised to know how helpful your publication has been for me. I've been collecting vintage receivers and transmitters for years. While I work with (and appreciate) modern high-tech electronics on the job, I find it very relaxing to "play" with the old tube stuff in the shack. Besides, digital readouts just don't do for me what the old backlit yellow celluloid dials of 50 years ago do.

Until Electric Radio my appliance-jockey buddies saved their best hoots of derision for me. They picked on everything they could about my gear: size, weight, power consumption, and lack of modern conveniences."It's a good thing",they said ,"that this stuff is so easy to fix, because you'll be fixing it a lot". I couldn't even with points for the fact that tube equipment is considered more survivable than anything containing silicon in a nuclear war— they just said all I'd accomplish is to give the enemy a good to target to lob that last nuke at.

Anyway, having seen a few issues of your magazine, my buddies have realized that there are lots of people interested in owning, preserving, and operating vintage ham radio equipment. What's more, they are beginning to see that the skill and ambition required to put early equipment on the air and keep it there is way above that required to take an appliance out of a box and plug it in.

They aren't giving up their appliances for antiques just yet, but that's okay with me. Old radio equipment belongs in the hands of people who appreciate and understand it, and more importantly, will take good care of it. But at least I'm getting a little respect these days!

Keep up the good work.

73

Christopher Bacon, KA2IQB

Dear Barry:

Your July issue arrived today and it is surpassing the previous two issues in quality! What great reading! I do not miss a word. I relived fond memories of carrying home my "boat anchors" with Tony Wheeler's (K9BBA) "Ultimate Boat Anchor ". He can't be in too much hot water with his XYL, the picture looks like he has a pretty decent room to himself at his QTH. I especially find helpful the listings of AM frequencies in use on the bands. I have used this resource to find the activity on 20 meters. I would have never known where the AM'ers on 20 were without you publishing the freq's.

I am 35 years old and got licenced as a Junior in High School. Back then, (early 70's) AM rigs were a dime a dozen and I had my folk's basement full of all sorts of rigs that I bought cheap from the old-timers that were dumping them: Globe Kings,Rangers, Harvey Wells etc. I wish I still had them all now! My current AM collection includes many old receivers (75A3, HQ-140X, HQ-100) and a couple of restored Johnson Rangers. I run AM almost 75% of the time now while the solid state "appliance" rig is collecting dust.

You seem to be filling a great void with your publication. It is amazing how many hams are restoring or resurrecting that old AM rig. It just about blew my mind the other day when I worked a mobile station on 7295 Khz AM. He had just installed an Elmac PMR-8 and a AF-67 in his pick-up truck. He was in St. Louis. I worked him with my Ranger feeding a pair of 4-400's in a linear running 300 watts output. We talked for about 30 minutes. Now if guys are taking the trouble to install those old tube-type knee bruisers back into their modern cramped imported vehicles then all I can say is: AM is gotta be on the verge of a total out-and- out rebirth!

Keep up the great work on Electric Radio. It is now like Christmas every month anticipating the arrival of the next issue. Good luck and 73.

Pat Keogh, WB9GKZ

P.S. I thought Leo Meyerson was dead and pushing up daisies years ago. Come on Leo! Get off the golf course and get back to cranking out Globe Kings. There's another fortune to be made!!

Editor: In a recent conversation with Leo I mentioned your remarks, Pat. Leo says to tell you he's very much alive but has no plans - at this time- to get back into the transmitter business.

Dear Barry:

Your #1 issue sure made me feel good about what I have done over the years. I remember when SSB came in and I was not favorably impressed by it. I used to be a radio club member here and was ridiculed by everyone in the club because I stuck by AM. As a result I am no longer a member but I still enjoy AM.

My gear is all American. For receivers I have a NC-57, a NC-173 and an HRO-50 plus a SX-43. Recently for $1.35 I picked up a Knight Span Master and I'm having a ball with it. It's a 2 tube, 4 band regenerative receiver. My transmitter is a Ranger-2 and I also have a Navigator which is my exciter for my 813 rig. I built the 813 rig several years ago and it works great. I work mostly 160 and 75 meter phone and CW.

73, Bill,W8YJO

Editor: I enjoy and appreciate getting letters. I don't really have time to reply to all of them but I do answer all letters that have a question.

The letters I print are the letters that I think have a pertinent comment or letters that I think would be of most interest to the readers.

PRIMARY POWER

by Art Rideout, WA6IPD

Is primary power 110, 115, 117, 120, or 125 volts? If you are not quite sure don't feel bad, the engineers at the ARRL did not know until just over a year ago when I told them. They were not only referencing the wrong voltage in all of their publications (117/234) but they were also referencing the wrong receptacles. The receptacle referenced in the ARRL Handbook for higher voltages has been obsolete for over 18 years.

So what is correct? The standard nominal primary power for the United States is 120, 208, 240, 277, and 480 volts. The voltage that we normally find in our homes is 120/240 volts. Amateurs who live in large apartment complexes may find that their power is 120/208 volts.

Then what receptacle and plug (cap) should we use? One manufacturer lists 37 non-locking devices (straight blade) and 45 locking type devises (twist lock).Fortunately,just a few of these are applicable for our purposes and are shown in figures 1 (straight blade) and 2 (twist lock). You will note that the voltage rating of the devices is 125 and 250. This is the maximum rating of the device.

Everyone is familiar with the standard 125 volt, 15 ampere straight blade devices. Not everyone will be familiar with the twist lock devices. The twist lock devices tend to be expensive and are used for the most part by industry. The big advantage of using twist lock devices is the locking feature. Caps will not fall out of twist lock receptacles as is sometimes the case with straight blade devices.

You are not likely to find much of an inventory of these devices at the corner hardware store. The best place to purchase these items will be at an electrical wholesale house but, they won't talk to you without a part number. Figure 3 lists the part number of a prominent manufacturer.

To my knowedge, the ARRL now refers to 120 and 240 volts in most new publications but they have not revised their handbook to reflect the "new" (18 year old) standard receptacles and caps.

VOLTAGE		15 AMP	20 AMP	30 AMP
125V	5	5-15R 	5-20R 	5-30R 
250V	6	6-15R 	6-20R 	
125/250V	14		14-20R 	

— FIGURE ONE —

VOLTAGE		15 AMP	20 AMP	30 AMP
125V	L5	L5-15R 	L5-20R 	L5-30R 
250V	L6	L6-15R 	L6-20R 	
125/250V	L14		L14-20R 	

– FIGURE 2 –

			PART NUMBERS	
VOLTAGE	AMPS	NEMA*	STRAIGHT BLADE	TWIST LOCK
125	15	5-15R	5252	4710
125	15	5-15P	5266	4720
125	20	5-20R	5362	2310
125	20	5-20P	5366	2311
125	30	5-30R	9308	2610
125	30	5-30P	9309	2611
250	15	6-15R	5662	4560
250	15	6-15P	5666	4570
250	20	6-20R	5462	2320
250	20	6-20P	5466	2321
125/250	20	14-20R	8410	2410
125/250	20	14-20P	8411	2411

* NEMA = National Electrical Manufacturers Association
R = Receptacle
P = Plug
Locking devices have an "L" before the NEMA number.
All part numbers are Harvey Hubbell, Incorporated.

– FIGURE 3 –

Editor from page 1
ourselves of the presence in amateur radio of plenty of men capable of becoming amateurs of the highest type except with respect to telegraphing. I wonder whether the 5 meter band doesn't present an opportunity to do something very interesting and valuable in this connection, something that would come close to solving several dilemmas of the day and open up an interesting prospect for the future.

It is virtual heresy in ARRL circles to propose or even to discuss the license to engage in amateur telephony without knowledge of the code. But might it not be an excellent idea to provide such a privilege if it were restricted to the frequencies above 28,000 kc.? I have thought about this a good deal and I would like to set down the following thoughts about such a project:

1) It would enable us to take into amateur radio an excellent new type of amateur. His presence would give our hobby added strength of which we can now take advantage, because we cannot now let him into amateur radio with the right to operate on all our bands. All this will come anyway sooner or later, but it is too big a subject for any of the present officers to attempt to formulate or direct.

2) It would provide an adequate population for the 5-meter band and enable us to hold it against the endeavors of the television people eventually to take it away from us.

3) There is growing pressure from people interested only in telephony, from manufacturers interested in selling them apparatus, and from some sections of the radio press, to secure the right to engage in amateur telephony only without knowedge of the code. Some day this effort unquestionably will succeed. All the tactical advantages in this problem will lie with ARRL sponsorship. It would be better for ARRL to sponsor the move than to have the privilege ultimately wrested by other groups against our opposition.

4) If ARRL sponsors the idea, it can be confined to high frequencies, overcoming the inherent danger to our lower-frequency telegraphy that lies in any new type licence. For instance, one would have no fear of the congestion of amateur bands as a result of the broadcast programs mentioned earlier in this letter if the licensees were permitted 5-meter phone operation under a new type of license that did not require code knowledge but which forbade their operation on any lower-frequency bands.

5) Immensely interesting operating possibilities occur in the 5-meter band as soon as we have adequate population. Many of us old-time telegraphing amateurs will get a kick out of such possibilities. We sometimes wonder if we're not getting a bit blase', now that we've conquered all the DX possibilities. Here would be a new world for all of us. Short-jump relaying was real fun when it was absolutely necessary, but it has dropped in the wideness of its appeal as DX increased. Here would be real relaying all over again.

6) Such a license might permit 5-meter mobile operation on boats, for which there has been considerable demand both from amateurs and from boat-owners. It would divert this demand from our other bands.

May I suggest that this general subject is worthy of your consideration?

K.B. Warner, Secretary

The editor of R/9 responds:

"Extensive comment seems unnecessary. Once the precedent of licenses without code knowedge is established the "above 28,000 kc"restriction won't last long in our opinion. It would also appear likely that for every "desirable" new amateur brought in the game ten undesirable ones will likewise come in to

plague us, and give us all a black eye. We might also point out that our growth is already unhealthily rapid".

E.R. Editor: I think we're going to see a "no code" licence above 28 mhz in the very near future. Further down the road the code requirement will be dropped altogether. What that means for Amateur Radio only time can tell.

My personal feeling is that removing the code requirement will really mean that ham licences will be given away like CB licences. Will Amateur Radio turn into a kind of CB service?

When a "no code" licence comes about the clear "winners" are the Ham magazines and the equipment manufacturers. I expect the numbers of amateurs to increase dramatically. This will mean more subscribers and advertising revenue for the magazines and a healthy increase in sales for the manufacturers.

To sum up: I don't think the"no code" licence -and the changes it's going to bring about in Amateur Radio- are going to effect us (Am/vintage equipment operators) very much. We will carry on much as we have been: doing our own thing somewhat apart from the mainstream of amateur radio. We may even have some of these "codeless" newcomers join our ranks; who knows.

Collins from page 28

Then it went to $375 and then over $400. I think Art was very surprised at how many we sold

Collins quality:Roy said,"The 40's and 50's equipment was the ACME of quality. Every effort was made to acheive quality. There was no thought of cost saving measures like plastic cabinets or anything like that. Quality was an inherent characteristic of everything Collins did. I helped in the matter of setting those standards but Art himself was a real stickler for having the best."

After the war Roy quit Collins and went into business for himself briefly. He later worked for Motorola. He then went to Hughes aircraft as Director of Engineering, Comm.Div.The last company he worked for was Hoffman Communications. He now is retired in Yucca Valley. In a recent conversation I asked Roy what he thought of the renewed interest in vintage equipment and AM operation. He said," I think it's very interesting. In fact I built a 500 watt amplifier using Western Electric 212D's back in Osage,IA when I was going to school. Although it's no longer operable I think I may restore it and get it back on the air."

I really enjoy talking to these old "pioneer"s like Bill Stewart and Roy Olson. They have so much to share from their early days. In future editions I'll be writing more about both of these fine gentlemen and their experiences at Collins.

KW-1 Special Edition

I've started putting together a special edition that will deal exclusively with the Collins KW-1. It will replace a regular edition in a couple of months.

I think the idea of a KW-1 special edition is exciting because of just how much interest there is in this rig.

The KW-1 came out in the early 50's in a limited edition of about 150. I think about half of those are in use today. It enjoys a reputation as the "cadillac" of AM transmitters.

Sam Thompson, W6HDU is sending me the list of the KW-1 owners. I'll be contacting all of them for photos and information. I think it's going to be very interesting to see the photo's and read all about this rig.

The articles will be about the history of the rig, it's unique features, repair/restoration information and so on.

Collins from page 7

In 1951 he was asked to help start a new company in Little Rock, Arkansas-America Radio and Television Co. Bill and his wife liked the idea of returning to Arkansas (they had both graduated from university there and Bill's wife was born there) so Bill quit Collins and moved south.

About his years at Collins Bill says," I had an awfully good time there and spent some of the best years of my life working for Art. He was a very fine gentleman and a brilliant engineer".

In the course of our conversation I asked Bill about the ART-13. He said that he had seen that "aborning" too, from Art's invention of the auto-tune. If you really want to find out about the ART-13 I can put you in touch with my good friend Roy Olson, WA6THD. He was the project engineer on the ART-13.

A few days later I was talking with Roy Olson.

Roy Olson WA6THD is 78 years old. He got his first licence (W9GJY) in his hometown of Osage,IA in 1928 or 29. However he was active prior to that date using his brother Allert's call, 9LO. He went to work for Art Collins in 1934. He was the second engineer Art had hired.

What about the ART-13?

"The outstanding feature of the ART-13 transmitter was it's capability to tune to 11- or more in some cases - frequencies very quickly and exactly. The auto-tune was the heart of the unit. R.W. May was the principal designer of that. The ART-13 also had the first PTO that I know of."

Some of the interesting features of the ART-13 included a pressure switch that cut the power to about half (50 watts) when the aircraft it was installed in reached an altitude of 20 to 30 thousand feet.This was in the days before aircraft cabins were pressurized. Roy says the first time they took one up for high altitude testing it arched so badly that it actually burned up. Originally it was built for the Navy for use in SBD dive bombers and later the TBM. The ART-13 was not only built by Collins but by General Electric, Stewart Warner and others.

On the ART-13 audio: Roy says that there was enough gain in the amplifier to allow the use of dynamic mics but carbon mics were used mostly. One of the interesting things they encountered was the fact that the human voice gets "thin" at high altitudes so they designed the passband accordingly. They also learned that the intelligence is transmitted by the high frequency component of the human voice and very little by the low frequencies.

After the war the airlines used a version of the ART-13 that Art also designed. It was the only relatively highpower set (e.g. 100 watts) that was approved for airborne use. The Europeans all had LF tower controls. The ART-13 had LF capability built into the 11th position.

Roy says the last time he operated an ART-13 was probably in 1945 in a Collins plane on the way to California.They had one in the plane for demonstrations. That was the day the atomic bomb was dropped on Hiroshima.

After the war was over Collins started to look at the Amateur market again. One day Art Collins came to Roy and said," I want you to build a new ham receiver better than any that exists, I don't care what you have to do and I don't care what it costs. I want you to build it because it gives us the reputation in the amateur world which in turn helps us sell commercial equipment. Roy says he had "carte blanche" to do a good job.

Roy remembers Art saying,"we'll sell the 75A for $250. I don't expect we'll sell more than a 100 or so at that price. I know we won't make money on it but we'll support it with something else."

Roy says,"He put it on the market before I had even built a prototype. They had 300 orders before I even had it finished. When it came on the market it sold for $350.

concluded on page 27

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FOR SALE: Hallicrafters Super Defiant SX-25; Hallicrafters Sky Buddy; Hammarlund HQ-129-X with speaker; Hammarlund HQ-110-A; RCA BC-224-E with power supply. Best offer over $125 for all. SASE for further info. Fothe, 10 Jackson St, Sloatsburg, NY 10974.

WANTED: Info on design of a modulator using 304th's; also parts for same. WA6PBJ, "Scottsdale Dave", (602) 998-3684.

FOR SALE: Thordarson 11M77, 300 watt multi-match, mod. transformer with specs for hook-up-$100; Fifty other transformers (plate,modulation,filament) and chokes. Reasonable. Evan, NØGRM, (402) 435-4083, evenings.

WANTED: Meters for Henry 2k amp, plate & grid. Bill Jenkins, WA5MWJ, (501)646-3859.

FOR SALE: National NC- 183 receiver with manual-$125; Hallicrafters Skyrider Panoramic SP-44 with manual-$75; Superior Instrument Co. model 450 tube & condenser tester with manual & charts-$40. Ward Becht, W6IRK, 625 Tufts, Burbank, CA 91504. (818) 842-3444.

FOR SALE: Hammarlund HQ-170C receiver, needs work-$60; HT-37 transmitter-$150 + shipping. KD4AJ, (404) 396-0276.

WANTED: Unmodified ARA/ATA; SCR-274; ARC-5 equipment, especially unused; BC-946; R-148; R-24; T-16; T-17; MD-7; many ARA/ATA. Dan Greeson, KH6P, 9277 Morningstar Dr NW, Silverdale, WA 98383. (206) 692-9406.

FOR SALE: Hallicrafters HT-6 -$195. Art Rideout, WA6IPD, 2235 Gum Tree Ln, Fallbrook, CA 92028-0901.

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WANTED: Meisser Signal Shifter, model 9-1077/80 (plug in coil type) in good condition. James Schliestett, W4IMQ, PO Box 93, Cedartown, GA 30125. (404) 748-5968.

FOR SALE: HT-1-$50; NC-240D-$75; NC-300 with 6 meter converter-$125; Globe King 400 (V-70D & 5514 tubes). **WANTED:** RX-1 by Heathkit. Mel Dykstra, KB8GP, 655 E Ellis Rd, Muskegon, MI 49441. (616) 798-7743, 6pm to 9pm local time.

FREE: 80 page Electronics Parts Catalog. Send $1 to cover postage and receive a $2 off coupon for your first order. **Hosfelt Electronics Inc,** 2700 Sunset Blvd, Steubenville, OH 43952.

WANTED: Manuals or schematics for Gonset Commander, Ameco AC-1 WRL. Paul Beckwith, K2LMQ, 6843 Hommellville Rd, Saugerties, NY 12477. (914) 246-3031.

WANTED: Early National receivers, FBX, SW-4, SW-3, ACS, SW-5, SW-58, RME-9, Collins transmitter 4A. Steve, K6PFW, 848 N Silverwood, Upland, CA 91786.

FOR SALE: Matched pair Heath Two'ers (lunchbox) w/mikes, 1 DC power supply, whip antennas w/manuals-$70 for all; DX 100-$75; Johnson Vikings, excellent-$100, good-$75, fair to poor-$50. Parker, W1YG, 87 Cove Rd, Lyme, CT 06371. (203) 434-7783.

TRADE: My 1922 vintage Federal 57 receiver for pre-1937 factory built CW transmitter with ham coils. Neil Wiegand, WA5VLZ, 911 North Bend, Austin, TX 78758. (AC) (512) 837-2492.

NEW AMATEUR RADIO CENTER: BUY, SELL, TRADE new and used amateur equipment. Call for buying or sales quotes. Expert service shop available for all major brands. We locate equipment. (703) 430-5555 or PO Box 267, Sterling, VA 22170.

WANTED: Will pay premium price for a good, heavy duty 2 pole, six position bandswitch. **FOR SALE:** New 2 uf, 6kv oil filled cap-$10. **TRADE:** Have new pair 872A's, will trade for a good used or new pair 8008's. Bill, KDØHG, PO Box 1456, Lyons, CO 80540. (303) 823-6438.

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

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WANTED: UTC type 25A59 transformer; Also will purchase pre-issue #49 copies of AM P/X. John Morehead, N9HRS, 1415 Volkamer, Elk Grove, IL 60007.

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

WANTED: BC-1031 panadaptor or Hallicrafters S-35 panoramic receiver (has 5" panadaptor with SX-28). Has anyone ever seen one? Sam, W6HDU, Box 101, Alameda, CA 94501.

FOR SALE: Johnson Viking 11, Heath vfo, D104 mike, new audio circuit, manual-$200. Jack Meade, 12711 Pinebrook Ln, Hudson, FL 34667.

WANTED: SX-88 owners, former owners, enthusiasts interested in formation of a SIG for this breed and its lore and TLC, are invited to drop a line to: Bob Forman, W9RJH, Box 68, Monmouth, IL 61462.

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) 365-5594.

FOR SALE: Tubes, chokes, transformers, cabinets, send me your list. **WANTED:** Front panel for AR-88 receiver. Howard, W3HM, Rt 3 Box 712, Harpers Ferry, WV 25425.

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

FOR SALE: Pair of 813's amplifier, homebrew, but professionally made, using a B & W bandswitch unit 80-10m, complete with 3500v, 500ma power supply in cabinet-$250. Parker, W1YG, 87 Cove Rd, Lyme, CT 06371. (203) 434-7783.

BUY, SELL, COLLECT & RESTORE early tube equipment? Early receivers, tubes and telegraph gear? Join the "Antique Wireless Association" which sponsors old-time "meets" and flea markets, museum and journal with technical articles and free want ads. Membership and annual dues only $10. Write for information and Museum hours: Bruce Kelley, W2ICE, Rt3, Holcomb, NY 14469.

WANTED: Old tube HiFi components, speakers, turntables, related magazines, etc. Any condition. Most makes and models. Jack Smith, 288 Winter St, North Andover, MA 01845. (508) 686-7250.

FOR SALE: Cleaning out shack, lots of old vintage radio & test equipment. LSASE for list. Gary Cain, 1775 Grand #302, St Paul, MN 55102.

WANTED: Old magazines; Radio and R/9. John Martin, W4KYL, RFD 2 Box 171-A-1, Montrose, PA 18801.

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WANTED: Information (manual schematic) on Scout 500 amp. Who made it? Has 4-6V6's and 4-5020's. Craig Woodland, N7MCW, Box A, Corwin Springs, MT 59021. (406) 848-7441.

WANTED: National NTX-30 transmitter for restoration and to write article for the "Old Timers Bulletin" of the "Antique Wireless Assoc." William Fizette, K3ZJW, Rd 1 Box 55, Henryville, PA 18332. (717) 629-0637 evenings.

FOR SALE: Old tube tester for 4-pin antique tubes; wood box with hinged cover, single tube socket and meter on bakelite panel. Make offer. Pat Keogh, WB9GKZ, 2511 Memorial Dr, Green Bay, WI 54303.

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-WW-II equipment display. August Link, 2215 Faraday Ave Ste A, Carlsbad, CA 92008. (619) 438-4420, days/Mon-Sat.

WANTED: Any ARC- 5 receiver, plug in coil forms; mike connectors, Johnson rigs; 15-20 watt mod transformers; schematics for CG-46117 surplus (RAX-1) receiver, Heath VF-1, 75A-3 receiver. Jack Rice, 2717 Hwy 90 W, Lake City, FL 32055.

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.

"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, Conset, 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 or TRADE: Federal G1, all original, excellent shape-$750 + shipping; Bird 43 slugs new 5C, 100 & 25D-$45ea. **WANTED:** Coils for Meissner Signal shifter, National FB7 or SW-3, spark apparatus. K2OA, (914) 691-7957.

FOR SALE: Early books & 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.

WANTED: Old teletype machines, equipment, parts, tools, supplies. Will pick up any place within 250 mile radius of Central Long Island. Christopher Bacon, KA2IQB, 16 Garrity Ave, Ronkonkoma, NY 11779. (516) 981-6538.

WANTED: SW3 and/or bandspread coils, other plug-in coil ham receivers or transmitters; factory or home-brew pre WW11 vintage parts. Neil Weigand, WA5VLZ, 911 N Bend, Austin, TX 78758.

WANTED: Historian seeking data and equipment on 1930's television. Also electronics magazine of the 30's. R.Brewster, 454 Diable Dr, PGH, PA 15241.

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FOR SALE: VT 136-1625-$5 ea; 304TL-$10; 807-$4; Langevin 3-A carrier loud speaker control panel-$20; All + UPS. Krantz, 100 Osage Ave, Somerdale, NJ 08083.

WANTED: My first receiver Howard 430. Also Hallicrafter HT-6; Stancor 10P, working or for parts; Thordarson kit transmitter; Collins 32V for parts. Have parts list stamp please. R. Olmsted, K4UJZ, 608 W Thompson Ln, Murfreesboro, TN 37129.

FOR SALE: Four HK-54's. Brand new in original cartons. Make offer. Need "E" band coil set for HRO 50T. Need for 160 meters. Willard Wallace, W8YJO, 2833 E Shaffer Rd Rt 11, Midland, MI 48640. (517) 689-3512.

WANTED: ARRL (or other) Amateur Handbooks, 20's thru 60's. MacKnight. WK7U, 3414 Keir Ln, Helena, MT 59601. (406) 475-3355.

WANTED: AM crystal filter for the Heath SB-301 or 300, 302, 303. Will take one out of any junked Heath rig. Marty Drift, 108 Hickory Ln, Hickory Creek, TX 76205.

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WANTED: Some old TV's including National, 7"RCA 621TS, Spanton mirror-in-the-lid, or what? Want good AR-88 with cabinet and good complete HRO-7. Still need 249B or C and 75th tubes and cabinet from SP-600. Sam, W6HDU, Box 101, Alameda, CA 94501. (415) 521-1429.

COLLINS MANUAL SALE: Mint condition, latest edition (not copies) of KWM-2A transceiver (9th edition, 15 Jan 78)-$40; 516F-2 power supply (15 Jul 74)-$15; 312B-4/5 vfo speaker wattmeter (7th edition, 15 Mar 78)-$15. Complete set of three manuals-$60. All items postpaid. Bill Mills, KC5PF, 1740 Tonys Ct, Amissville, VA 22002. Office-(703) 818-3955--Home (703) 937-4090.

FOR SALE: Original manuals for HRO-7, HRO-50-$10 ea; RME 69, RME 4350, HQ-129X, SP-400X-$6; many more including National, Hammarlund, RME, Hallicrafters. Sheldon Wheaton, KCØCW, 14708 Murray Ln, Olathe, KS 66062. (913) 764-5436.

WANTED: Collins transmitter 4A; Collins transmitter 310B; early National receivers; Patterson receiver; RME-9; early handbooks, manuals and advertisement literature. Steve Barnes, K6PFW, 848 N Silverwood, Upland, CA 91786.

WANTED: Clean GPR- 92. B.E. Harris, W7IGY, (208) 466-2803.

CLASSIFIEDS

WANTED: Globe Electronics vfo-755A 10-160m. H.W. Wilson, KA3TSB, 111 Collins Ave, Uniontown, PA 15401. (412) 439-8164, (collect).

WANTED: SX-88, HQ-180A, HQ-140X, HRO, NC-400, NC-183, plus speakers; large SX-71 knob; NOS receiving tubes. Lee Bahr, WØVT, 914 Golden Bear Ln, Kingwood, TX 77339. (713) 780-4360 wrk; (713) 359-5284 res.

WANTED: A nice Heath AT-1, Trimm "Featherweight" headphones. Herb Spivey, NF5Y, PO Box 27, Baldwyn, MS 38824. (601) 365-5594.

WANTED: Clean BC-348 receiver; Ranger 11; 75A-3; SX-88; SX-101A; SX-111A; or other Hallicrafters receivers. **FOR SALE:** 3kw roller inductor antenna tuner, HD-73 rotator (rotor new). Andy Howard, WA4KCY, 105 Sweet Bay Ln, Carrollton, GA 30117. (404) 832-0202.

HALLICRAFTERS SERVICE MANUALS: Copies $4.50 postpaid. Specify model number. **Miller Radio Services,** PO Box 6604, Erie, PA 16512.

WANTED

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WANTED: WW-II German, Japanese, Italian military radio equipment and parts, any condition. My interest is completing original systems and bringing back to life "on the air". Hugh Miller, KA7LXY, 6400 Maltby Rd, Woodinville, WA 98072-8375. (206) 487-3047 weekends.

WANTED: Hallicrafters S-29 Sky Traveler, Navy RBZ receiver, DM-33 dynamotor, National SW-3, pre-WW-II ham gear & ARRL handbooks, manuals for National HFS, NC-57, HRO-5. Sheldon Wheaton, KCØCW, 14708 Murray Ln, Olathe, KS 66062.

WANTED: All original knobs for Hammarlund BC-779 Super Pro; Also mint panel face; mint Johnson 500. Vin Tese c/o Sasson, WA2UXO, 90 Gold St #13-b, New York, NY 10038. (212) 285-2971.

FOR SALE: Ham buliding parts of 1940's- coils, switches, condensers, transformers, tubes, sockets, chassis and cabinets. Everything! F. Yonkers, 7 Old Farms Rd, Saddle River, NY 07458. (201) 825-1895.

WANTED: Two tubular electrolytic capacitors for Swan 270B, value:100mf @ 350V; also need schematic, interconnect & operating info on Millen (Variarm?) vfo model #379. Rodney Schrock, KA3NMJ, 402 Lincoln St, Somerset, PA 15501.

WANTED: SW5, SW3 or AGS National receiver. Bob Mattson, KC2LK, 10 Janewood Rd, Highland, NY 12528. (914) 691-6247.

WANTED: Meissner Signal shifter coils, pre WW11 or antique ham xmtr, FB 7 coils, spark items. K2OA, (914) 691-7957.

CLASSIFIEDS

FOR SALE: Quality crystal set radio kits w/15 page instructions-$15ppd (CA-add $.90 tx) SASE. **REGENERATION RADIO CO,** 20335 Casa Loma Rd, Grass Valley, CA 95945.

WANTED: 833A; pencil tubes; nuvistor tubes & sockets; 1930 style 7 prong sockets for 837. W6NRC, PO Box 478, Nevada City, CA 95959.

FOR SALE: Hallicrafter HT-37 transmitter, very good condition-$160+shipping.**WANTED:** Hammarlund HX-50A transmitter and a Hammarlund HQ-88 receiver. Units must look good and have no modifications. Call Charlie, KD4AJ, (404) 396-0276.

WANTED: B & W Matchmaster in good condition, model 650 or 651. Call KA1KDS collect (207) 924-3220.

WANTED: Large National speaker, SX-62A main tunning knob & escutcheon; Coils for HRO-50T1,G,H, J & AC. Steve, WA9ASZ, 1274 Londonerry Ln, Greenwood, IN 46142. (317) 882-4598.

WANTED: Early Eimac tubes and literature for collection. Also any special purpose or industrial tube manuals or pamplets. John Walker, (913) 782-6455.

FOR SALE: Globe King 400C-$175; R-808 G.C. receiver-$235; SX101A (filthy)-$75; SX-28 (twice as filthy)-$65; Globe 6 & 2 vfo-$35; 1800 CCS mod transformer-B.O.**WANTED:** GPR-92, late 75A-4, model 28 LPR, mode l 28TD; Nice clean DX-100, T-368 antenna tuning unit. Mike Linger, WA5MOE.

WANTED: Collins exciter & a Ranger. Andy Howard, WA4KCY, (404) 832-0202.

WANTED: Clean, unscratched Viking 11 front panel or junker with same. Also Collins 8R-1, 148C-1, and 270G-2. George Maier, KU1R, 64 Shadow Oak Dr, Sudbury, MA 01776. (508) 443-0960.

WANTED: Radio News 1925, all copies except Jan and Nov. Don't care about covers. A friend needs a power transformer (REC) & filter chokes. State price + UPS or postage. W.G. Eslick, KØVQY, 2607 E 13th St N, Wichita, KS 67214.

WANTED: SX-88 receiver. Mike Palmer, 16707 Creeksouth, Houston, TX 77068. (713) 444-7737.

The Horn Speaker: Tabloid newspaper. Published since 1972 for radio collectors. Total square inches-1560. Ads have 854 square inches. 10 issues yearly at $12.50. N5FSL, PO Box 1143, Mabank, TX 75147.

FOR SALE: National Radio Manuals and NCL-2000 factory parts lists. SASE. Max Fuchs, 11 Plymouth Ln, Swampscott, MA 01907.

WANTED: Looking for a National SW-3 or SW-5 w/ coils, name price; transformer 500 ohm pr to class B grids, 15w or more; spec sheets for Vari-match mod transformer INCA N-24 (300w). Albert Helzer, W6NRO, 11190 El Capitan, Madera, CA 93637.( ) 431-3970.

FOR SALE: Technical Manual for BC-610-$9. Have many other Gov't and commercial T/M's. What are you looking for? SASE. Complete TM (op, service, schematics) for Zenith Transoceanic receiver (original)-$8 each. Manual sent post-paid. Large surplus electronics catalog-$1. D. Testa, Box 9064-ER, Newark, NJ 07104.

CLASSIFIEDS

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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.

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WANTED: Low frequency coils and manual for Millen 90651 GDO. **FOR SALE:** Eico model 710 GDO, covers 400 khz to 250 mhz-$40. Scott Prather, KB9Y, 2776 S Monroe St, Denver, CO 80210. (303) 758-9381.

FOR SALE: 68 yrs collection: 10,000+ items; antiques, radios, televisions, phonos, sound, military, ham, catalogs, books, flyers, brochures. 48 page list-$1 refundable. F. Yonker, W2IBH, 7 Old Farms Rd, Saddle River, NJ 14221. (716) 634-9533.

WANTED: Military radios and reliable equipment, WW-II vintage. Need DY 43 for SCR506. Also documentary 16mm WW-II military films. Collections or single items. Charlie, KA1GON, 501 Mystic Valley Pkwy, Medford,MA 02155.

FOR SALE: National RAO-7 1945 multi-Navy rcvr with metal box spkr ; also good used tubes, ask for list. Joseph Zambri, RD4 Box 216, Towanda, PA 18848.

Wanted: Modulator deck for GPT-750, and a clean Globe King 500C. Barry Wiseman , N6CSW/Ø, (303) 247-4935.

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. plus shipping. Quantity limited. Tartan Electronics, Inc. Box 36841, Tucson, AZ 85740. (602) 577-1022

WANTED: Eico 722 vfo to complete an Eico 720/730 restoration. G.D. Van Nortwick, K8TTK, 145 N. Rocky River Dr., Berea, OH 44017. (216) 234-6324

FOR SALE: Johnson Killowatt Desk in good condition.We can deliver at reasonable rates on our truck (to most places). This unit is 1 of 400 made. Great AM type transmitter. Rod, N9IDF, 719 Arlington Ave., Des Plaines, IL 60016. (312) 824-2292.

WANTED: Manual of a Johnson Ranger. Hoppy Greilick, WA4OSK 1021 N.W. 125th Ave. Ocala FL 32675. (904) 237-4249.

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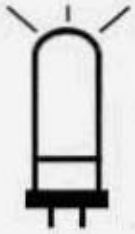

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