



THE RICHMOND HAM

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January 2019

THE RICHMOND AMATEUR RADIO CLUB will meet Friday, January 11th 2018, 7:00PM, at the Bon Air United Methodist Church, 1645 Buford Road.

Coming Events:

RARC VE Testing Session. January 12th 2019.

Frostfest February 2nd!!!

This Month's Program:

I have wanted to give a presentation on privacy and security for quite some time; it seemed like every time I was ready to present - someone else had a MUCH better presentation and was ready to go! With the new year in place and a new calendar of presentations, I finally have my chance!!!

I had a couple of goals in mind when I developed this presentation.

First - I wanted to bring awareness to the choices we make daily with our digital identities. I believe it's important for people to understand the risks and implications of our choices as we use technology. Whether we acknowledge it or not, we are engaged with corporations, governments, and even criminal organizations whose primary objectives are gaining information about us and making money, influencing our decisions, or stealing our assets (identity, money, etc.) We are most likely not even aware of the involvement of these agents in our digital presence.

Second - I wanted to share some basic means of protecting yourself. The majority of criminal behavior affecting individuals can be stopped simply by using LONG PASSWORDS and 2FA (Two Factor Authentication). Most people are simply unaware of the options available and, perhaps more importantly, WHY they should be used.

I know many of us hear our Dentist or Doctor - Hey, you'd better floss those teeth - You better get on the treadmill and start moving - you know, advice that tends to fall on deaf ears I hope my advice provides some information you find useful - useful in a way that changes your personal

behavior and gives you some protection in the crazy digital world!

I look forward to seeing you on Friday night!

73 de K8OI

p.s. This is not a review of a LOT of different products and I will be sharing those solutions which I am convinced are world class/top of the line - balanced with a ham's "wallet" (meaning, I go for free most of the time - but NOT all the time!)

December 2019 RARC Meeting Minutes

December's meeting minutes will be read for consideration and approval at the January meeting.

From The Prez

I hope that everyone had a great holiday season, and that Santa fulfilled everyone's equipment wishes.

For those who were not present at the December meeting, I wanted to let you know that the board has come to the decision that we will again be offering handheld transceivers to new licensees who join our organization. The program had been put on hold temporarily because of FCC concerns about whether the radios could be operated on frequencies that were not covered under amateur licenses, however, since the issue did not directly affect us, we will continue the program until the current inventory of radios is depleted. At that time, we will revisit the issue to see if we should purchase additional radios or discontinue the program.

I need to remind everyone about the upcoming Frostfest too. If you haven't ordered your tickets, or your table if you want to participate in the market, please be sure to do so soon. I also would like to let members know that we still have a few openings for meeting program presentations. Thanks to those who have already stepped forward in offering program suggestions. If you have anything that you believe would be of interest, please consider presenting at one of our

monthly meetings.
'73s and best wishes for a great 2019.
John DeMajo - K5HTZ

RARC VE News

FCC EXAMS EVERY OTHER MONTH

RARC offers VE Testing Sessions on the second Saturday of odd months except June to cover Field Day instead of July: Bon Air United Methodist Church, 9 AM.

The January testing session will be on the 12th at the Bon Air United Methodist Church, 9 AM.

If you have questions about a session, please see our website, www.rarclub.net or contact Allan, WA3J, at 804-399-8724, or ve@rarclub.net

Club Info...

RARC meets on the second Friday of each month at 7:00 PM, at the Bon Air United Methodist Church, 1645 Buford Road.

We offer 10-week license prep classes in September and March with exams following. Members provide VE testing sessions on odd-months during the year.

RSS – a quick summary of RARC news

Look near the top of the club web site, <http://rarclub.net/>, and on the left you see an icon that looks like something radiating a signal. Actually it is a quick way to check on new entries on the website called an "RSS feed." Click it and you get a summary of the last few posts. You can have it put as a link in your on the browser list as you see in yellow. So each day or four you click the that link and you get a quick list of the most recent posts. If one looks interesting, click it in the list and it takes you directly to it. If everything looks boring, just go back to what you were doing.

Reported by Bruce MacAlister, W4BRU

Join the Richmond Amateur Radio Club.

You don't have to have a ham license, just have a genuine interest in the hobby.

Annual Dues are:

80 and over \$0

Regular Membership \$20.00

Lots of information about the Club and our activities is available on our website, www.rarclub.net.

Nets

RARC has the first and only D-STAR digital repeater in the area. 147.255 (+ 600), 443.7125 (+ 5) and now 1284.0000 (-20). In addition to our Wednesday local D Star net (below), we link the D Star VHF module for the National Capital Region D Star Net on Wednesday nights at 9pm. On Tuesday nights at 9pm, we link our VHF module to the

North Carolina D Star Net, and on Sunday nights at 9pm to the South Eastern D Star Weather Net.

Beginning on March 5, 2014, the RARC D Star Net which meets on Wednesday nights at 8:00pm will be accessible on our three D Star modules, all of which will be linked.

You can use any of the three frequencies, 2 meters, 70 cm or 23 cm, and you should hear and be heard by everyone.

If you participate in the net via DVAP or DV Dongle, you must link your device to Ref 062D rather than to any of our modules. Since the W4FJ stack will all be linked to Ref 062D, anyone linked to that reflector will be connected to the net.

Sunday	7:00 pm	50.135	USB
	7:30 pm	52.525	FM
Wednesday	7:00 pm	28.475	USB
	8:00 pm	147.255	D-Star Rptr
	8:15 pm	145.730	Packet

MRA

Interested in information or support of the **Metropolitan Repeater Association (MRA)?**

Call Ed, KG4SNK, at 804-513-1947. The sole business of the MRA is to own, operate and maintain the 145.430 repeater.

Show and Tell!

If you have an item, idea, latest and greatest, or whatever gizmo; please bring it to the RARC meeting. We have a table (usually) set up near the front where you can place your item and share/discuss it with others as they arrive. We also have a section of the agenda set aside for members to discuss their "Show and Tell" item(s). No need to be tentative; we are INTERESTED in what you are doing, how you are doing it and, in true Ham fashion, how much it costs!

THE STORY OF THE "BIG RIG"

by John DeMajo, K5HTZ

In today's world where tabletop Japanese manufactured transceivers dominate the HF landscape, I occasionally think back to the days when the equipment in a typical shack was not quite as neat and compact. Of course in that pre-transistor era from the 1930s to the 1950s, even medium powered HF equipment required tubes the size of soda bottles, transformers that often outweighed their owners, and metal protective cabinets adorned with black wrinkle paint. With the minimal electrical services in homes of that era, the real test of transmitter power, was whether the neighborhood street lights dimmed when you were on the air. Then too, there was that alluring aroma of hot varnish insulation, ionized air, and warm metal that defined most mid-century shacks.

Now everyone in that time did not have the luxury or means to operate a Frankensteinian rig, and many of

us who were young and entering the hobby, were delighted just to have a crystal controlled 6L6 running 20 watts on CW. On the other hand, in an era when it was still quite possible to build one's own equipment, many hams were able to achieve that dream rig by way of their own construction talents and ingenuity.

Prior to the end of World War II, commercially built ham transmitters were scarce and pricey. Consequently, mid-century ham publications were full of do-it-yourself construction projects for almost any type and size of equipment. A year ago, I found myself reflecting on those days-gone-by as I acquired, and began to thumb through a collection of old ARRL handbooks. Realizing that it might be fun to go back in time and retrace what was actually necessary to construct a pre-war medium power HF rig, I set out on a year long project toward that end.

The obvious first hurdle one faces in trying to accurately recreate something that was made eighty years ago, is obtaining the necessary vintage components. Technology and evolution have long since deleted items like huge plate transformers, soda bottle size transmitting tubes, and hand wired chassis parts from today's mail order and web based electronics catalogs. A simple Google search, and one quickly discovers that most of the parts used in 1938 vintage equipment have not been manufactured for over a half century. Occasionally though, ancient parts can be found at ham fests and on auction sites such as Ebay. This is not without risk, however, since many sellers of vintage equipment are simply liquidating the estates of silent keys, and they are not able to speak to the actual condition of the components that they are offering. The buyer is left to take his or her chances on whether the item can still function reliably, or end up in a pile of ashes once power is applied. It is therefore necessary to assume that some purchases will be a waste of money. It is also advisable to verify the condition of parts that you plan to use, prior cutting or drilling panels or chassis, only to find that the part you were intending to install is defective and can't be used.

Before any purchases are made, the first task is determining a design and preferably a schematic to follow. I found my ideal design in a 1938 version of a publication titled "Radio Handbook." "Radio Handbook" was published annually between 1933 and 1940, and its content followed the same pattern as the yearly handbooks published by the ARRL. I settled on an article for a 250 watt CW/Phone transmitter that employed pair of 811 tubes as the RF final, Push-Pull 807s as modulators, and 866 mercury vapor rectifiers to produce the 1100 volts plate voltage required.

Surprisingly, BUD Industries, the leading manufacturer of 19" equipment racks used heavily in the 1930s, is still in business. Although BUD's product line, which once featured railroad passenger cars, has been reworked to reflect today's data center style racking, there is still a small remaining stock available when it came to black wrinkle finish cabinets and pre-WW-II style rack panels. While I could not locate a single 48" cabinet of the required style, I was able to create the same effect by ganging four individual rack cabinets to provide the mounting spaces I needed. With the cabinets stacked and bolted together, and a set of 2" casters installed on the base, things looked hopeful.

Next came the task of constructing the RF deck. With six months of careful daily combing of EBAY auctions under the heading of "vintage amateur radio," I was able to acquire several suitable and matching 3" round Simpson meters, a number of large tuning knobs, a first generation Bliley crystal, and the porcelain based coils needed to build the oscillator, buffer and the final. Locating a matched pair of working 811 tubes, however, was more of a challenge. Eventually I stumbled across a European firm that was liquidating a stock of old but unused transmitting tubes, and through them I was able to purchase not only the 811s, but also the 866 mercury vapor rectifiers and the 807s that I needed for the modulator. The other tubes needed for the RF front end, speech amp and inverter, mostly 6N7s and 6J5s, I already had in my stock of unused old tubes that I keep for maintenance of my antique radio collection.

As I began to assemble the RF deck, I realized that I would probably be forced to use aluminum chassis bases which would not be authentic to the era. On the other hand, steel chassis are subject to rust, and any stock I would have been able to locate would have probably been in less than ideal condition. The difference in workmanship between steel and aluminum chassis construction was about the same, so I made the decision to go with the non-authentic aluminum bases. Punching the chassis and panels was not a problem. I have a complete set of Greenlee chassis punches that I have been nursing since the 1950s, so tube socket holes were easy to create. Cutting holes for mounting the meters was a little more difficult, but I was able to locate round metal cutting hole saws that served the purpose quite well.

Now when it comes to drilling painted rack parts on a drill press, you can expect to create small scratches and blemishes on the painted surfaces. Locating black wrinkle touch-up paint from the usual sources seemed to be impossible since the ingredient that was used to create the wrinkle finish, is now banned

by the EPA. Fortunately, there is one paint manufacturer who has found a substitute for that banned substance, and wrinkle paint in various colors, is again being manufactured and sold through a Chicago auto parts wholesaler.

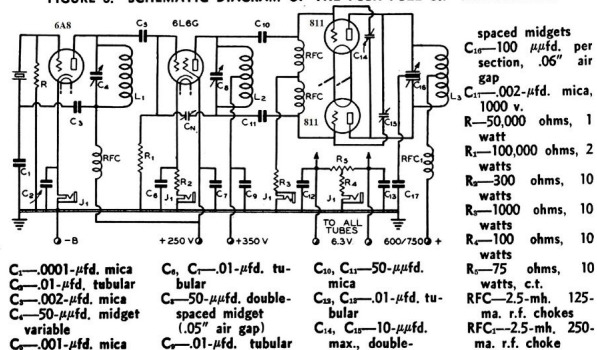
As the RF deck came together, it was time to start looking for transformers. I knew this was going to be a difficult task because I had to locate not only the large high voltage plate transformer, but also two hefty HV rated filter chokes and a modulation transformer capable of handling 125 watts of audio. Oil filled high voltage filter capacitors are also no longer manufactured, but with some searching, I located two capacitors in excellent condition that were filled with mineral oil and not the dreaded pyranol. Through a series of EBAY auctions and two ham fests, I was able to procure an 1100 volt plate transformer, two 5 henry chokes, the required modulation transformer, and two 2500 volt rated filter capacitors. With a week of on and off metal shop work, I had a working high voltage power supply ready to install in my rack.

The original design seems to be quite similar to a commercially manufactured transmitter that was offered by Thordarson Transformer Company in their 1938 catalog. Thordarson's version included an antenna tuner deck mounted above the RF deck. Having two large variable capacitors hanging around my parts locker for years, I decided to include this same feature in my transmitter as well. A large coil from a scrapped ARC-5 war surplus transmitter, worked out nicely as the inductor for the tuner assembly.

There were other miscellaneous parts required, that for reasons of space I haven't really itemized in this article. I can say that most of the items were either available through swap meets or on EBAY. The moral of the story is that, with less than a year of planning, parts procurement, and shop work, I have authentically, within reason, constructed that 1938 vintage monster transmitter that I always wanted. By using the same procedures and practices that our ancestors in the hobby would have used eighty years ago, I was able to further experience the challenges that a pre-war ham would have encountered in building such a rig. In closing, there probably will not be many AM QSOs when this transmitter is placed on the air, but I can always point to it as an accomplishment in construction, and testament to the adequacy of my home workshop. Standing in the corner of my shack, along with its companion 1938 Hallicrafters SX-28 it adds an aura of "times gone by," and a reminder of just how far the hobby of Ham Radio has taken us.

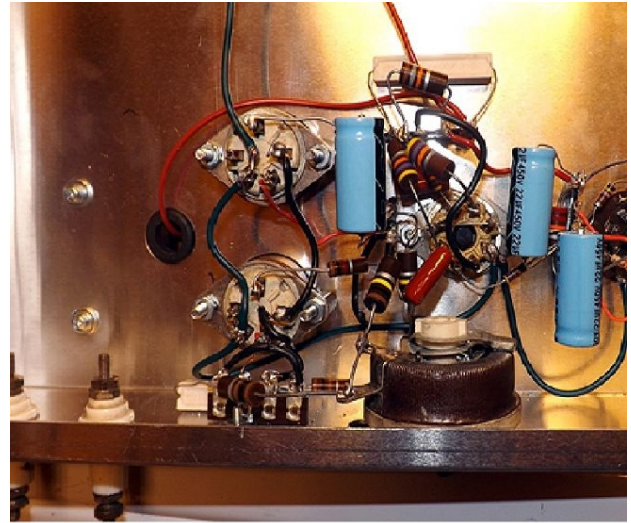


FIGURE 8. SCHEMATIC DIAGRAM OF THE PUSH-PULL 811 TRANSMITTER.





RF Deck



Modulator underchassis



Power Supply Deck

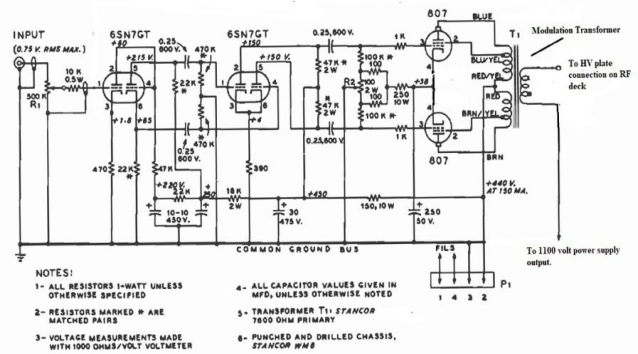
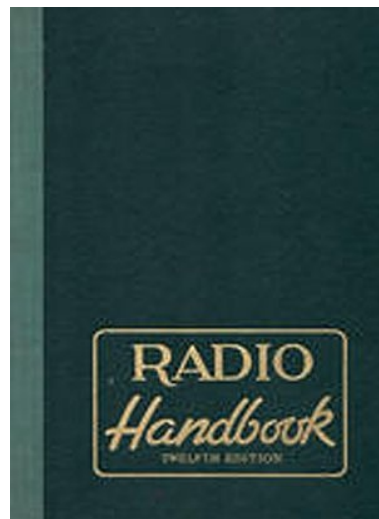


Figure 27

807 Modulator Schematic



Power Supply Deck



The SWAP SHOP

Club members may list their wares in the newsletter. Send descriptive information to Armand at wa1uqo@arrl.net, or call me at 508-838-8353. The Swap Shop is presented in the newsletter as a benefit to our members. RARC takes no responsibility for items sold or traded in this newsletter. The ad will appear three times unless extended. Interested parties will contact you directly. **You must be an RARC member to place an ad.**

Wanted

Two (2) surplus type '30 (thirty) thermionic triode valves.
Matched pair preferred.
Will buy or trade.

Contact Alexander Sahhar at 804-560-3449 agsahhar@gmail.com

A donation of an older 2 meter rig (base or mobile, it doesn't matter) that doesn't do the CTCSS (PL) tones. I want to try creating my own tone generator to make these old radios work with the local repeaters. If successful, I will share the schematics and code with the group. The radio needs to be in working condition. Thank you. Please call Dan (w4erf) 540-872-5946 or email chronobot2001@gmail.com

Drake 2NT Transmitter in reasonable condition. Maylon Pearman @ sailj24@me.com

Thought For The Day!

Nature abhors a vacuum, but not as much as a cat does.

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