The GARzette

The Official Newsletter of the Gwinnett Amateur Radio Society

April 2025 http://www.gars.org/ Volume 52, Issue 4

Inside

www.GARS.org

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TechFest
Gwinnett Amateur Radio Society

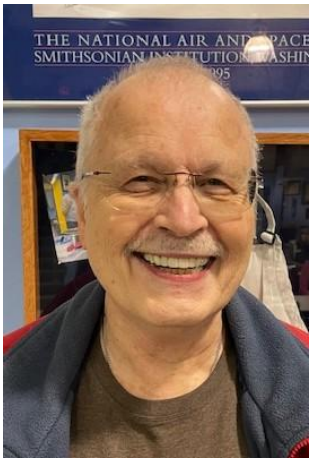
GARS January Exhibition of the Technical aspects of Amateur Radio
Held at the Gwinnett County Fairgrounds

The next TechFest is January 31, 2026

GARS Meeting: Arduino with Chuck Hardt WD9IAR
Tuesday April 8, 2025 at 7:00 PM

President's Message

From the President…



Springtime is here and as I also spend time in the yard, I am also spending more time monitoring the radio waves.

Exciting news is that after years of waiting, the GARS 6m repeater in Buford is up and running. I have always been a fan of the 6m band and now with the repeater in operation, I have the motivation to get on it again! Thanks to all who helped get it back in service.

There is a new entry in the GARZette written by Bob Schmid, WA9FBO, who also provides "The Basics" article. This is more technical and while The Basics is a monthly article, these will be included when they are available.

These are general information articles and any such articles and things of interest and happenings from the members are always appreciated.

Field Day is coming up in June and we have a new Field Day Chairman – Dallas N4DDM and we are going to meet in a different location this year. It is going to be in Yellow River Park (3232 Juhan Rd SW, Stone Mountain, GA 30087) and has the same facilities we had at Harbins Park.

GARS, in March, helped with the logistics of the Lanier International Dog Show. GARS has helped yearly and it is a fun time for the GARS members

Last Month's meeting was all about what the rolls the GARS Chairmen provide and also information about what members can do to help the Chairmen out to provide all of the things that makes GARS the group it is. If you got inspired, use the Chairman contact emails listed on our GARS.org web site.

We also have a new GARS mug maker. Will Carson is stepping up to provide mugs with the GARS logo or morse code and you can get them in 2 sizes – 11 oz and 15 oz mugs. The info is located on the last page of the GARZette – and thank you Will since we lost Joline and her mugs.

April is the month of the GA QSO and ARES Deployment Day. Look for further information in another section of the GARzette and on our web site for location information and the joint location for working the GA QSO and the ARES Deployment Day.

73,

Bob – K4CQO
Club President / GARZette Editor

GARS Repeaters and Other Communications

2 Meter Repeaters	6 Meter Repeater	
147.075(+) MHz Tone 82.5 147.255(+) MHz Tone 107.2	53.110 (-1 MHz) No Tone	6M Operational in Buford 147.075 Operational in Snellville 147.255 Operational in Snellville 224.580 Operational in Grayson 442.100 Operational at Goshen Springs Rd, Norcross 442.325 Operational in Buford 444.525 Operational in Snellville
1.25 Meter Repeater	**Other Resources:**	
224.580(-) MHz Tone 100.0, 1.6 MHz Offset	APRS	Link remote receivers being added
70 Cm Repeaters	144.390 -- 1200 Baud W4GR	
444.525(+) MHz Tone 82.5 442.100(+) MHz Tone 100 442.325(+) MHz Tone 100	D-STAR (WD4STR) 145.060 + (1.4 MHz) 440.550 + (5 MHz)	

Notable Web Links

Ham Radio Glossary: https://noji.com/hamradio/glossary.php a very comprehensive listing provided by Noji Ratzlaff KNØJI. On his site there is also a lot of information about getting started in ham radio.

Need Help – Let GARS Elmers answer your questions

Send an email to elmers@gars.org with the subject listing the area (like Antennas, Repeaters, Digital, DMR etc.) of your query to get to GARS Elmer volunteers.

About the GARzette

The *GARzette* is the official monthly newsletter of the Gwinnett Amateur Radio Society, serving its members and other persons interested in the advancement of the Amateur Radio art.

Original articles, art, and photos are invited and encouraged. Previously copyrighted submissions cannot be accepted for reprinting unless permission from the appropriate publisher is provided in writing along with the information being submitted. If reprints are from publications allowing their unrestricted use, please include a copy of the printed permission contained in the publication.

If possible, bring your articles to the monthly meeting in Microsoft Word or rich text (.rtf) or text or HTML format or by e-mail to editor@gars.org. Artwork can be accepted in most any graphics format and can be submitted via e-mail to the same address. Alternate means of submittal can be arranged when necessary.

In keeping with the Amateur Radio spirit, permission is hereby granted for the reproduction of The *GARzette* articles by other Amateur Radio club newsletters provided that proper credit is given to the individual author and *The GARzette*.

The GARzette is published each month with the assistance of Karen KI4HPP and Kyle W4KDA who print copies for distribution at meetings, etc. and Dave Bruse, W4DTR, who distributes the newsletter electronically.

Deadline for submissions is the 28th of each month for inclusion in the following month's issue.
For additional information view our Website at: http://www.gars.org [PS— Articles to publish in the GARzette, either written by GARS members or published elsewhere, are always welcome. —Ed.]
Newsletter Email: editor@gars.org Editor: Bob Hoffmann, K4CQO

GARS Meetings & Workshops

GARS Meetings and Workshops are held in-person at the EAA 690 Hangar, 690 Airport Rd, Lawrenceville, GA 30046.

Meetings and Workshops are OPEN to all, feel free to share your invite with others.

When GARS meetings are available on **Zoom** the **login** info will be posted to http://www.gars.org prior to the meeting.

GARS Meetings Schedule (second Tuesday @ 7:00 PM): (these are the presentations)

- April 8 – Arduino with Chuck Hardt WD9IAR
- May 13 – Tom Crowley KT4XN – Low-Cost HF Rigs and Kits
- June 10 – Ice Cream Social
- July 15 – Operating Etiquette – VHF/HF, Rag Chew vs Contest – Various Speakers

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Workshop Schedule (third Tuesday @ 7:00 PM): (these are the Hands-on Workshops)

- April 15 – Field Day Preps
- May 20 – Tom Crowley KT4XN – Low-Cost HF Rigs and Kits
- June 17 – Workshop
- July 22 – Operating Etiquette – VHF/HF, Rag Chew vs Contest – Various Speakers

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GARS Meeting – April 11, 2025
Arduino with Chuck Hardt WD9IAR

An introduction into the Arduino family of microprocessor IO boards.

The course will cover the following:

1) What is the Arduino (how is it different than that of a Raspberry Pi)
2) What can the Arduino can be used for?
3) An overview of some the various different versions of the Arduino
4) Writing a simple Arduino program, to perform an IO operation
5) Discussion

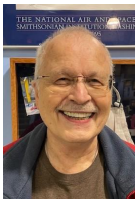
GARS Workshop – April 18, 2025

This is a GARS workshop to answer any questions about your Amateur Radio projects and adventures, and any clarifications you have about Chuck's Arduino presentation.

It is also the start of the Field Day preparations which is only 2 months away!

Feel free to bring any ham related questions you have, including equipment setup and usage. We typically have 5 or more Elmers at each Workshop.

GARS would like to thank Bob Hoffmann K4CQO for his presentation on DMR on you Cell Phone and Kevin Scott about the roles the GARS chairmen provide.



GARS Happenings

20 Years ago in the April 2005 GARzette:

- Were looking for a Field Day Chairman – how things are repeating themselves
- There is a nice picture of the Breakfast group
- If you want to know demographics of the Ham world, there is a listing of them with Occupation, Education, Income, Age, # of years as a Ham

You can always browse the GARzette archive at http://www.gars.org/newsletters. 73, Bob, K4CQO, GARzette Editor


The GARZETTE

Health and Wellbeing – Sandy Jackson, KJ4DRO

Look for this resource on Email (https://gars.org/contact/) and use it as a means to convey information about a GARS family member or Silent Key notification.

Net Managers Corner

Monday Night 2 Meter "Want, Swap, Sell, and Information Net"

GARS NEEDS MEMBERS
TO SERVE AS NET CONTROL STATIONS!

GARS is a great Amateur Radio service club with the membership and awards to prove it. Our club is very busy and active, and we use the Monday night net to get timely information out to our members. Weekly participation is needed to make our net function well. There is only a small group of very dedicated people who make the net happen each week, and we need more members to volunteer to serve as Net Control Stations (NCS) on a rotating basis.

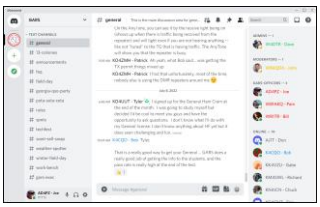
Out of almost 300 members, there are only five operators who serve as the NCS for the GARS net every Monday night. In no particular order, they are:

Ray – N4GYN David – KA4KKF Kevin – W4KIB Bill - WD4AMC Chuck – KK4TKJ

As GARS Net Manager (Chuck KK4TKJ), I would like to have more volunteers to fill NCS positions. I do plan and post the schedule months in advance. Any conditions will be accommodated that you as a rotating NCS need to place on the scheduling of your duties. If your plans change, I can make adjustments for the schedule to work, and I will make those changes happen as soon as I am notified of a problem. As Net Manager, I also send out reminders each week to let the NCS scheduled know he or she is NCS for the next Monday night net. In short, serving as a rotating NCS is a small duty but a great contribution to the club. The "Want, Swap, Sell Information Net" begins promptly at 19:30 every Monday night and runs about 30 minutes. As a scheduled NCS, you will request the assistance of a volunteer alternate NCS each time you have Net Control. Your simple duties will be to tune in to the GARS repeater, read the script, take a few notes and forward the information to me for record keeping.

Please lend a hand and contact (Chuck) via Email (Click Here to Email our Net Manager) to help support the effort that makes GARS the great club that it is. See you on the Nets!

Don't forget about our Discord utility for GARS announcements, news, activity spotting and more. See http://www.gars.org top of the home page. This is a sample of Discord. →



A New Ham's Journey to Amateur Extra

By Edwin Henderson W4BSR

I've enjoyed experimenting with electronic circuits since the early 70's. My technically oriented Uncle gave me an AM radio kit and taught me how to solder it all together when I was about 8 years old. His loaned, heavy Weller soldering gun put out way more heat than I needed, but when I was done, the joints were solid, and nothing was melted. I fitted it into its little blue project box, ran an antenna, and plugged in the 9-volt battery with anticipation. Everything worked; I had a radio!

Here I am over 50 years later, learning how to work with radio frequencies to do more than just listen. I got my Technician License just over a year ago, and have spent a lot of time trying to build antenna components and accessories. Some worked well, and others, not so much. I started out with an end fed random wire for my SDR receiver in the attic, but wanted to build a fan dipole in anticipation of a license upgrade. I built a center device out of some PVC pipe and a little hardware, and measured out the wires. I threw some bank line over tree limbs, hoisted it up, hooked up the coax, and voila! I had a dipole. If this saga sounds familiar to you, then you know that more complex projects are soon to follow.

Now that I upgraded my license to General, I've made contacts all over the southern US, and across the Gulf, into South America. This was good, but I didn't get the longer distance signals I hoped for. I spent time relocating, raising, and moving the antenna to get the most I could out of it, but then I began to think about common mode, re-tuning the antenna, and the effects of SWR. I decided I was building a transformer, but "what kind?" I wondered. A simple coax-wound common mode choke was easy enough, but I decided on a bifilar device inside a plastic box to replace my center connector. I thought this might be a little longer lasting protected inside a box, and help me keep my RF where I need it.

YouTube and Google are good for gathering information, but anything crowd-sourced is destined to give many (many!) different opinions, questionable facts, and ideas. I needed more. I went to the ARRL Handbook, Chapter 21, and found that even this (reputable?) source conflicted with its own text. I found a website, electricalengineering123.com and they have a page dedicated to understanding these devices. (https://electricalengineering123.com/balun/) This was the most useful place I found so far. In simple terms, it explained what a balun and a unun do, why they do it, then gave me examples with a schematic drawing, and a visual drawing for each. During this time, I gave it a try. I built a 1:1 transformer with a ferrite core and some enameled wire, and brought it to a club workshop. I hooked up a 50-ohm dummy load and it was tested on a vector network analyzer, and in my bands of choice (40M, 20M, and 15M) the SWR was decent. We discussed whether it was a balun or an unun, whether I had wrapped it correctly or not, and how to improve it.

The next steps are based on the load impedance of my dipole antenna, theoretically about 73 -ohms for a straight wire, but which should be around 50-ohms for my inverted-V Dipole, with the ends much closer to the ground. A basic antenna analyzer like the MFJ I own, will be able to tell me what my inductive reactance is at my target frequencies, and a vector network analyzer will give me more information across a full spectrum of frequencies, all at once. For the next phase of testing, I'll be using my analyzer and looking for an inductive reactance that is about 10 times the load impedance at the lowest frequency of operation. Some adjustments will follow, and maybe even re-winding the entire coil.

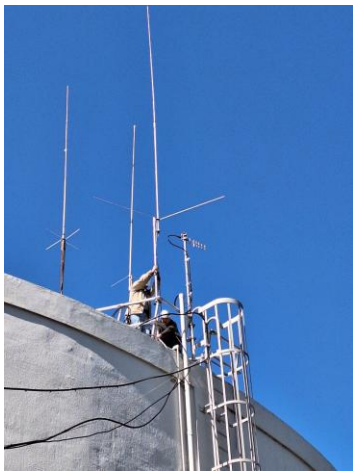
Next month, we'll dig deeper into ferrite core toroids, bifilar windings, and see what the results are after adjusting and retesting the device both on an analyzer, as well as in the field with the wires attached. I hope you read on and learn with me as I go.

GARS 6m Repeater is BACK!

Pictures provided by Richard Kitz KM4SWL & Glen Wendt W3WWT

The GARS 6m repeater was put back in service on Saturday, March 22. It was a group effort that returned the GARS 6m repeater after being off-line for more than 5 years.

From **Edwin Henderson**



As with any well planned party, we had good fellowship, a few laughs, a little drink (cold coffee from a thermos, for me), and a little bit of fancy food from the round shaped pastry store. (Thanks to whomever brought the donuts.)

We did also get the 6m antenna up; Performed a remount on the 440 antenna due to some rusted U-bolts, and all got back down safely.

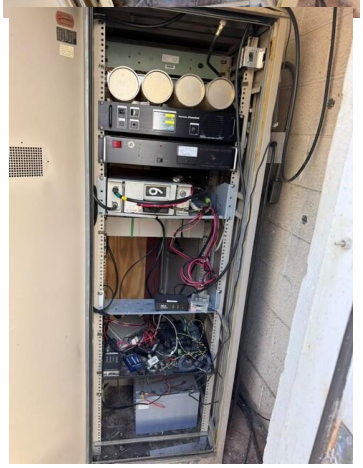
David is finishing up the last few details, and I don't think it'll be much longer before it's on the air.

Just the observations of a humble helper…

From **Kevin Scott K4GTR**

A big thanks to Ed "the climber" Henderson. I was an amateur compared to him. 6 meter antenna is up and VSWR is 1.2:1. We also put new clamps on the left vertical as the old ones were weak and rusty. Some broke as Ed was trying to unscrew the bolts so this avoided a future trip for a fallen antenna. Just need the controller and it should be back on the air.

Thanks to David and all helpers.



Dog Show Recap

Volunteering with GARS at Lake Lanier Dog Show: Fun, Dogs, and Community!

I'm a newly licensed ham and joined GARS as soon as I had the opportunity to. While I haven't yet had the opportunity to attend a meeting due to scheduling issues, I was excited to meet some of the club members by volunteering to help at the Lake Lanier Dog Show. Verdict: what a great way to participate, meet club members, pet dogs, get some sunshine, and help out the club.

The work is easy! Most of my time was spent sitting in my camp chair and chatting with my fellow team members. We were set up at various points across fairgrounds to direct traffic and guide attendees. I volunteered for two days, second shift. Lunch was provided each day, giving me even more opportunity to chat with club members. I learned about jazz concerts in Suwanee and the ISS chat with Woodward Mill Elementary. I got to meet and pet Julius and his sisters, three Afghan hounds that were on their way to their beauty parlor appointment.

The best thing I learned is that GARS receives a donation from the Dog Show for providing our volunteer services. This money supports club efforts, such as purchasing equipment.

I'll definitely be volunteering again next year! You should give it a try, too! It's a great way to meet club members, enjoy the weather, and help the club. The bonus is all the dogs!

by Lynne Durham KR4BMV

Georgia QSO Party

GARS and Gwinnett ARES will do a combined Georgia QSO Party and ARES Deployment Day event at Peachtree Ridge Park on April 12th.

As a training event, Gwinnett ARES will set up its communications trailer, including antennas for local comms, their portable UHF repeater, and HF antennas for the GA QSO Party. Everybody is invited to watch and learn.

Peachtree Ridge Park is located at 3170 Suwanee Creek Rd, Suwanee, GA 30024

Enter the park and take the first left. We have the pavilion at the playground reserved for both events.

For the Georgia QSO Party, we have 3 station captains that have stepped up and have room for more, we just have to follow the rules for (M2X):

From the GA QSO Party website:

- **Multi Operator – Two Transmitters (M2X)** – More than one person can perform operating and logging functions. Only two transmitters operating on two different bands or modes at any given time. Multi-2 transmitters are allowed on the same band but NOT on the same MODE. Only ONE call sign is used in this category.

The plan is to be on the air from 2 PM local time until sunset, the park closes at 8 PM.

73 Dallas N4DDM
GA QSO Party Chair

For Georgia QSO rules see https://gaqsoparty.com/georgia-qso-party-rules/

The **Georgia QSO Party** is held annually the 2nd full weekend of April. There are two operating periods: **1800Z (2:00 pm EDST) Saturday until 0359Z (11:59 pm EDST) and Sunday and 1400Z (10:00 am EDST) to 2359Z. (7:59 pm EDST)**

FREQUENCIES

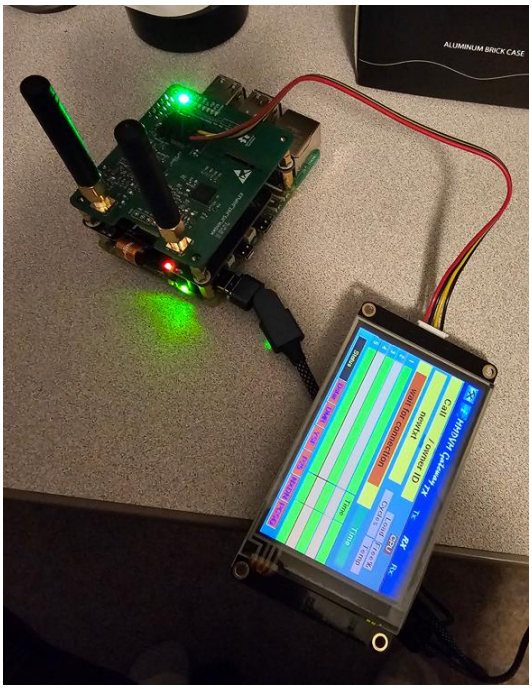
Here are the suggested frequencies where GQP activity will take place:

- **SSB**: 1.865, 3.810, 7.190, 14.250, 21.300, 28.450, 50.135.
- **CW**: 1.815, 3.545, 7.045, 14.045, 21.045, 28.045, 50.095.

Look for SSB activity on the hour and CW on the half hour.

GARS Helping Members

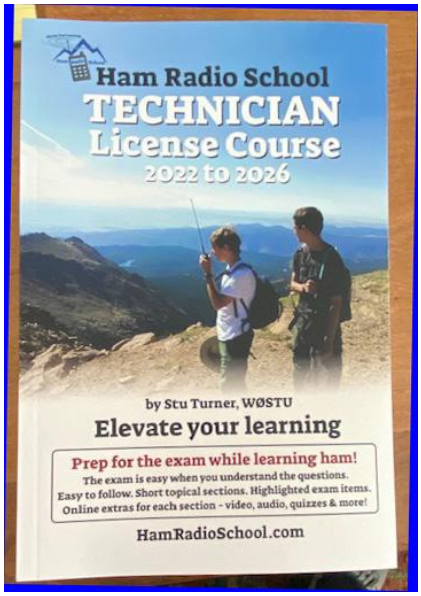
By DMR Elmers Mark Prichard KN2TOD & Bob Hoffmann K4CQO



Walter Hill, KQ4KAO, after numerous and lengthy sessions over several months with various miss steps along the way with the wrong equipment order (this is where Bob found out not all SSD drives were the same even if they fit into an M.2 Raspberry hat – the SATA ones do not work with the pi hat) Walter was finally able to complete the simple assembling task of complex pieces of technology into a working home repeater that functions very nicely on his shack's tabletop. It is running pi-star+ modified by Mark (KN2TOD) with a Raspberry pi 5, SSD drive, and duplex mmdvm board.

Congratulations, Walter for a job well done! Now for the hard part: making some QSO's!

March Technician HamCram Results



On March 29 & 30, GARS held a Technician HamCram taught by Ralph Pickwick (KJ4CNC) and John Davis (WB4QDX). GARS wishes to thank them for providing the teaching and introduction to amateur radio and including the exam session as the class completed.

The GARS VE Team had provided the exam session following the Technician Ham Cram on 30 March and resulted in 19 New Technicians:

- Joshua Cleland - KR4CUM
- Ryan Cleland - KR4CSX
- Andrew Elkins - KR4CUW
- Zacharaih Flanaganl - KR4CTC
- Natalie Goza
- Deon King - KR4CUN
- Christopher McKinley - KR4CUH
- Albert Mirabella - KR4CVE
- Joseph Morrison - KR4CUV
- Dietrua Pattillo - KR4CSY
- Jason Pattillo - KR4CTH
- Dustin Pettegrew - KR4CUI
- Romeo Reynolds - KR4CUJ
- Jeffrey Riggins - KR4CTG
- Robert Sheffield
- Mario Stewart - KR4CUK
- Michael Stewart - KR4CVF
- Johny Suarez Acosta - KR4CUL
- John Surowiec - KR4CVD

Special thanks to the Volunteer Examiners who made this exam session possible:

- N4MPC - Pat De Loe
- KQ4DWZ - Douglas Hooper
- KM4SWL - Richard Kitz
- K4CQO - Bob Hoffmann
- W4SHT - Lynn Hatker
- NG4H - Bill Beguhn
- WS3V - Bill Rudd

Thanks & 73, Chuck McCord, KK4TKJ (Co-CVE)

The Basics

Units and Symbols

de: Bob Schmid, WA9FBO

So, which is correct, ma or mA? How about kw, kW or KW? Is it db, dB, or DB? Should you capitalize “volts”? Who decides? And who cares?

Last question first: There *are* standards, so whether you’re writing for publication or simply corresponding with colleagues (or your boss), you’ll want to get it right.

Who decides? The U.S., Canada, U.K., and nearly every other country follow the International System of Units, also known as SI, in addition to their own customary systems. SI was established in 1960 and is a decimal and metric system.

Here are some of the SI rules we’re likely to encounter in hamming.

The volt, ampere, ohm, watt, hertz, farad, henry, meter, second, gram, and more are called SI *units*. They are not capitalized when spelled out. So the answer is no, we don’t capitalize the word “volt” or “ampere” or any other unit – unless it’s the first word in a sentence!

(Of course, countries have “customary units” that are not SI units. Apologies to the acre, AWG, barrel, bushel, fluid ounce, peck, shotgun gauge, tablespoon, and many more.)

Abbreviations such as V, A, Ω, W, Hz, F, H, m, s, g, etc., are SI *symbols*. A symbol is upper case if the unit is named after a person.

So, we have the symbol V for Alessandro Volta, A for André-Marie Ampère, Ω (upper case Greek omega) for Georg Ohm, W for James Watt, Hz for Heinrich Hertz (two letters to avoid confusion with the Henry), F for Michael Faraday, H for Joseph Henry. Units such as the meter, second, and gram weren’t named for people, so their symbols (m, s, and g) are lower case.

Metric prefixes are just as you learned them in ham class. The symbol for milliampere, then, is mA, and for kilowatt is kW. One-tenth of a bel is a decibel, or dB.

Are there more rules? Sure.

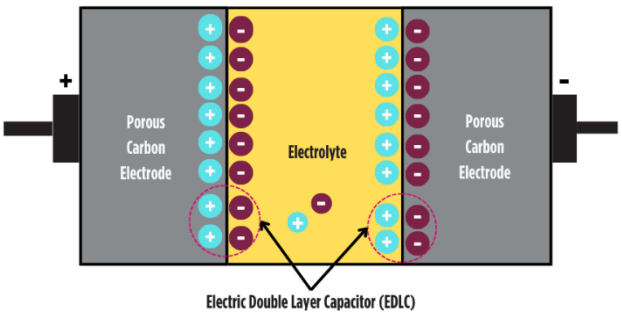
Substituting a hyphen for “to” is frowned on because it can be interpreted as a minus sign. For example, “20 °C to 30 °C” is not confusing, but “20 °C-30 °C” could be.

Oh, and while lots of folks place the numeric value up against the symbol (“3mA”), the rule is to use a space (“3 mA”). Check your QST magazine – they get it right!

Super Capacitors

Supercapacitors

de: Bob Schmid, WA9FBO



Capacitance – the ability of a material or component (like a capacitor) to store energy in the form of an electric field – is found everywhere in electronics.

Capacitance is measured in farads (F), a unit fittingly named after Michael Faraday, whose research laid the foundation for understanding electric fields and charge storage. By definition, a 1 F capacitor stores $6.24 \cdot 10^{18}$ electrons (one coulomb) when there’s one volt across it.

To get a sense of scale, capacitors used in RF are often in the picofarad (pF) range; one picofarad is $1 \cdot 10^{-12}$ F, or a millionth of a millionth of a farad.

In audio applications, capacitors are likely to be in the nanofarad (nF) range; one nanofarad is $1 \cdot 10^{-9}$ F, or a billionth of a farad.

Power supply filter caps are seen as relatively large at hundreds or thousands of microfarads (µF), but a microfarad is only $1 \cdot 10^{-6}$ F, or a millionth of a farad.

So one farad – one million microfarads – seems like a *lot* of capacitance. But today we have compact **supercapacitors** with values in the hundreds and even thousands of farads. How's it done?

Recall that a standard capacitor consists of two conductive plates separated by an insulator called a dielectric. When the plates are charged oppositely, an electric field forms in the dielectric. This electric field causes molecules in the dielectric to become polarized, enabling the capacitor to store energy. We gain capacitance by making the plates bigger, putting them closer together, and by using high-permittivity dielectric materials such as glass, ceramic, or Teflon.

The supercapacitor, patented in 1957, works differently. It stores energy by forming ***electric double layers*** *at the interfaces between conductive solid* ***electrodes*** *and a conductive liquid or gel* ***electrolyte****.*

The drawing shows a supercapacitor in its charged state.

When a voltage is applied, charges accumulate on the surface of each electrode, attracting oppositely charged ions from the electrolyte.

This forms two electric double layers, one at each electrode. At the negatively charged electrode (right), positive ions in the electrolyte form a layer opposite the electrons. At the positively charged electrode (left), negative ions in the electrolyte align with the positive charge on the electrode surface.

The electrodes are made of highly porous materials like activated carbon, which has a huge surface area due to its sponge-like structure. A teaspoon of activated carbon can have the surface area of a football field, allowing an enormous amount of charge to accumulate in the double layer.

The electrolyte allows ions to move freely and form the electric double layer. Unlike a standard capacitor's solid dielectric, a supercapacitor relies on this nanometers-thin charge separation at the electrolyte-electrode interface to store energy.

A thin insulating separator prevents electrical contact between the electrodes while allowing ion movement.

Since charge separation occurs at both electrodes, a supercap behaves as two capacitors in series. This reduces the total capacitance to half of what a single interface would provide. However, the extremely thin double layer and the massive surface area of the porous electrodes result in a capacitance thousands of times larger than that of a traditional capacitor.

While supercaps have extremely high capacitance, they also have low breakdown voltages, typically 2.5 V to 5.5 V. They can be placed in series to achieve higher voltages, but balancing circuits are needed to prevent overvoltage on individual cells.

So what can you do with all that storage? If a recharging method is available, a small supercap can maintain data in RAM or provide power to a sensor, smart meter, or other wireless device during power interruptions. Unlike a battery, a supercap doesn't have to be routinely replaced.

Large supercaps can be found in UPS units to maintain temporary power while systems are safely shut down. They're also used in regenerative braking, smoothing out fluctuations in renewable energy systems, and applications where large currents over short times are needed.

Hallicrafters SX-117 HF Receiver

Vintage Amateur Radio

de Bill Shadid, W9MXQ

Sometime ago, I wrote on the early Hallicrafters response to the ground breaking Collins S-Line. In fact, many manufacturers did the same thing in both competition for the 75S-1 Receiver and 32S-1 Receiver/Transmitter pair and/or the KWM-2 Transceiver. Hallicrafters perhaps did the most complete job in this undertaking with the SX-117 Receiver and HT-44 Transmitter pair and the SR-150 Transceiver. Both also competed with a matching desktop Linear Amplifier with the Collins 30L-1 and the Hallicrafters HT-45. These complete stations have been covered previously[1] in complete setup form but not so much in terms of the individual workhouse of any such setup – the receivers.

To start, we will chronicle the Hallicrafters SX-117 Ham Band HF Receiver that also doubles as an HF Communications Receiver.

Hallicrafters SX-117 HF Communications Receiver

W9MXQ Collection

The SX-117 dates from 1962, about three years after the main competition, the Collins 75S-1, but only about a year after the Collins 75S-3 (1961) that had a feature set most like the features of the SX-117. Collins had turned the amateur radio market upside down with the introduction of the S-Line and KWM-2[2]. Hallicrafters was not blind to this trend toward a smaller footprint for the ham station – as evidenced by their very limited production FPM-200 HF SSB/CW Transceiver from the 1950's that had a footprint only slightly larger than the much higher volume SR-150 HF Transceiver.

What was really different in the Hallicrafters SX-117 over the design of the Collins 75S-(x) series receivers was all in the i-f filter stage. Where Collins used their mechanical filters (at 455 kHz), Hallicrafters used more traditional tuned circuit, discrete component i-f filters (at 50.75 kHz). The net result was an extremely pleasant sound to the ear but also a much more limited filtering of the spectrum bandwidth being heard. Compare these bandwidth measurements[3].

RADIO	-6dB BANDWIDTH	-60dB BANDWIDTH	SHAPE FACTOR
Hallicrafters SX-117	2.5 kHz	11 kHz	4.4:1
Collins 75S-(x)*	2.1 kHz	4.2 kHz	2:1

(x)* - the Collins 75S-1, 75S-3, and 75S-3B used the same i-f Filters

Shape Factor is a measure of bandwidth effectiveness. The smaller the radio the more effective the filter is in keeping out adjacent signals – keeping them attenuated above and below the 6 dB bandwidth. So, at 60 dB down, the Mechanical Filter in the Collins Receiver is more than twice as effective. But, at the same time the sound of the Hallicrafters receiver is less restricted and therefore more pleasant to the ears of the listener. That said, the very good shape factor of the Collins receivers mentioned is the reason that the Collins radios are effective even on today's more crowded bands.

The tuned circuit bandwidth filters in the SX-117 Receiver came standard in three widths. Those included the 5 kHz position, a 2.5 kHz position, and a 500 Hz position. These other bandwidths were similarly broad at the -60 dB bandwidth measurement. Below are the three bandwidths (repeating the above comparison entry for the Hallicrafters in the 2.5 kHz position:

Hallicrafters SX-117	-6dB BANDWIDTH	-60dB BANDWIDTH	SHAPE FACTOR
5.0 kHz Position	5.0 kHz	13 kHz	2.6:1
2.5 kHz Position	2.5 kHz	11 kHz	4.4:1
0.5 Hz Position	500 Hz	3 kHz	3:1

You can find the control to access BANDWIDTH in a control by that name at the lower right-hand corner of the SX-117 Front Panel.

SX-117 was not the only receiver on the market using tuned circuit bandwidth filters. They were actually, at that time, the more dominant circuitry. The highly respected, and big brother electronically, Hallicrafters SX-115 used the same system[3]. Radios like the National NC-303, the Hammarlund HQ-110A and HQ-170A, and the Hallicrafters SX-111 and SX-101A used similar i-f bandwidth control. However, Collins 75S series with their mechanical filters and Heathkit in their SB-300 series with their crystal filters were receivers using more sophisticated and effective circuitry. Again remember, more effective at the time (and now) but not necessarily better sounding.

A not so well remembered feature of the Hallicrafters SX-117 Receiver was its ability to be a Communications Receiver – as opposed to a ham bands only receiver. This feature was shared by the competing Collins 75S Series Receivers and only slightly better documented. The SX-117 could cover from roughly 85 kHz to 30 MHz in 500 kHz segments. The limitation was that only four switched 500 kHz segments could be accommodated at any one time – since the CRYSTAL SELECTOR switch (left

center on the front panel had only four positions (plus a position that accessed the regular ham radio bands. Coverage from 85 kHz to 3.5 MHz required the external HA-10 Preselector for proper operation.

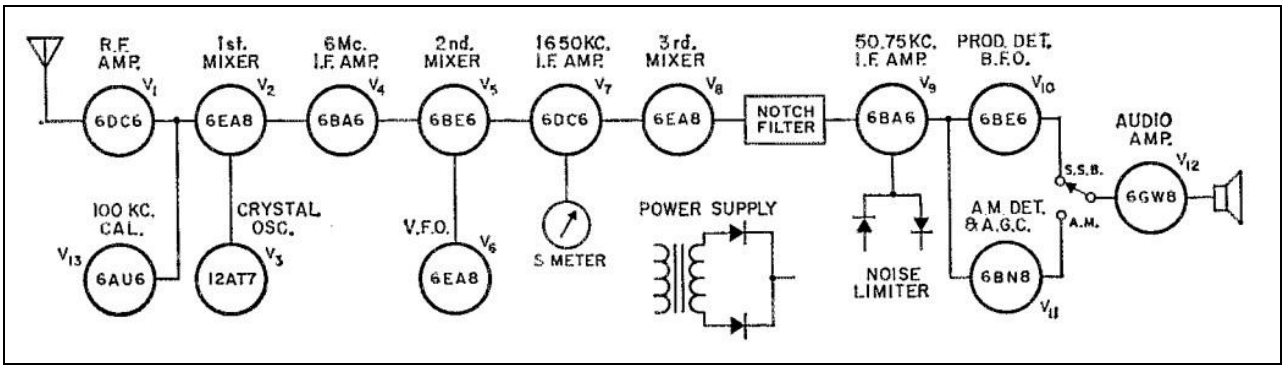
Hallicrafters HA-10 LF/MF Tuner

W9MXQ Collection

The little HA-10 was designed to sit on top of the SX-117. See it in a picture of the SX-117 and her associated station mate units in a picture toward the end of this article.

The SX-117 Receiver ushered the way for more compact desktop radios that the market first saw with the Collins S-Line. The SX-117 was an impressively compact mechanical design. The package was in a 7-3/4" x 15" x 14-1/2" (HWD) package that weighed only 18-1/2 pounds. Its AC power supply (105-125 VAC@70 watts) was internal. As was typical of the day, exact performance specifications were very conservative in printed documentation – showing a receiver performance of "less than 1/2 microvolt." Reality in comparison (subjective, I have to say) against modern radios show it to be the equal of modern radios in sensitivity. In the QST Review of the Hallicrafters SX-117[4],

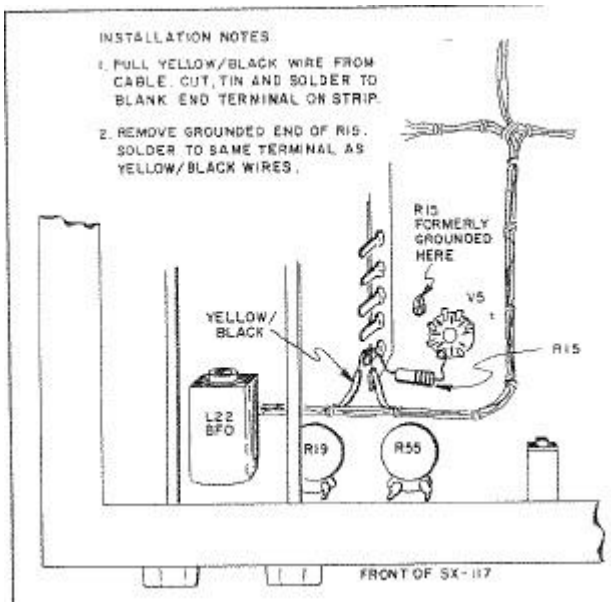
A Block Diagram of the SX-117 appeared in the aforementioned QST Review:



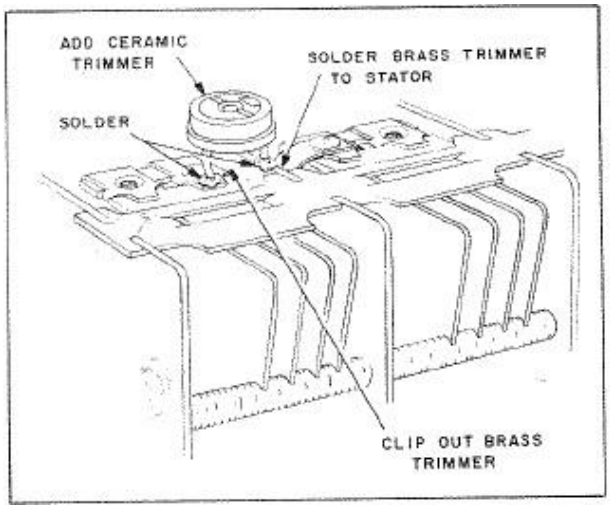
The triple conversion design of the SX-117 is evident here. The presence of the Notch Filter in the SX-117 design is an interference tool that remains appropriate even on today's bands. By the time of the SX-117, the Product Detector, as shown in the block diagram was becoming universal in SSB receivers. The SX-117 was no exception. I can say as well that the radios smooth AGC is a pleasure to use on SSB and even on CW. (Purists of the time, and yet today, tend to use manipulation of the RF Gain control and rely less on the internal AGC.)

Hallicrafters designed the SX-117 to have an operating partner in the form of the lookalike HT-44 Transmitter. In reality, the HT-44 lagged the 1962 release of SX-117 buy about a year. The SX-117 was in production from 1962-1966 while the HT-44 was in production from 1963-1965[5]. The reason for the delay of the complete "system" is the subject of a lot of conjecture in 2022 as this is written – some 60 years ago by now. But one thing that is evident to an early buyer of the SX-117 was that there had to be some reason for the VFO OUTPUT and CRYSTAL OSCILLATOR OUTPUT connectors on the rear panel. The previously mentioned 1963 review in ***QST Magazine*** identified the connectors but failed to even guess at their potential use. When the HT-44 did appear on the market, there were some important modifications necessary to the SX-117 to make things work properly. That is to say, they would work but the results would be less than satisfactory in terms of stability. Who knows when Hallicrafters first noticed the flaw in the SX-117 that needed to be corrected?

The modifications to the SX-117 Receiver were pretty straight forward other than some soldering difficulties for the ceramic trimmer in the right view, below. Details were on pages 14 and 15 of the Hallicrafters Operating and Service Instructions for the HT-44 Transmitter. These changes were incorporated into SX-117 Receiver production units after serial numbers shown in the illustrations taken from the HT-44 Manual.

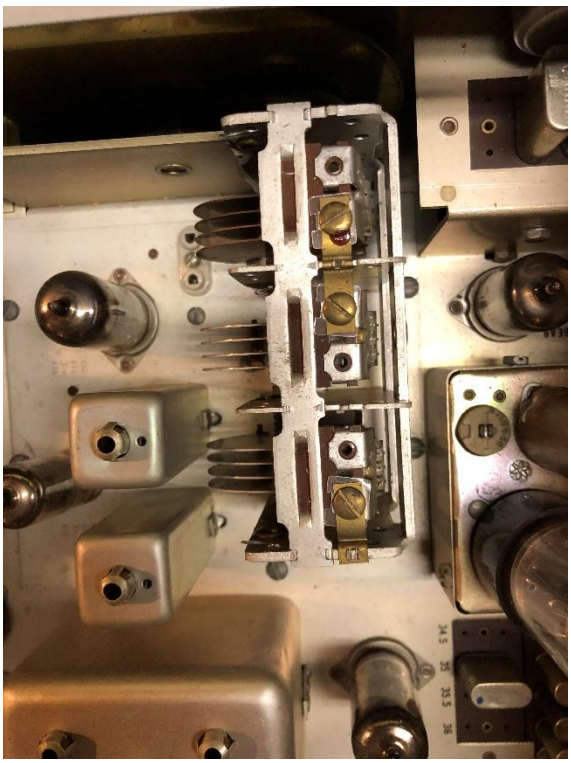


R15 Cathode Resistor modification for V5 in SX-117 Receivers before Serial Number 117001.



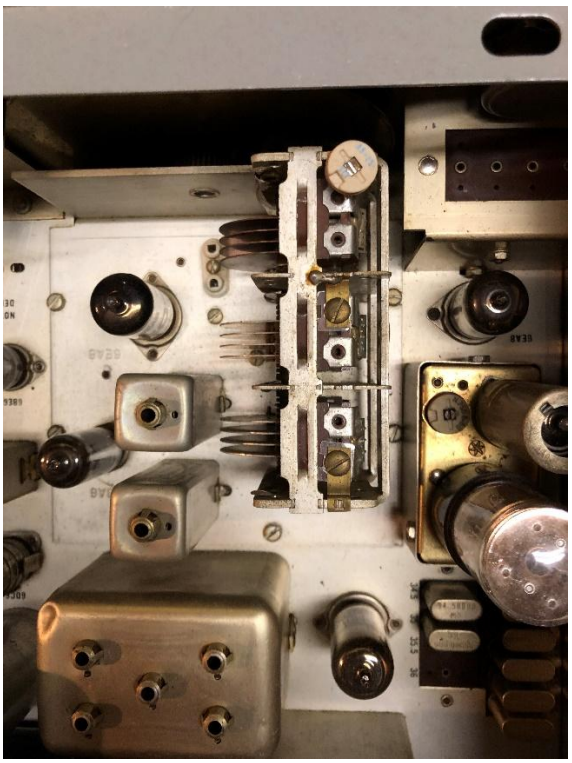
Ceramic Trimmer modification for SX-117 Receivers before Serial Number 117004.

The cathode resistor modification is merely moving the existing R15 (470 Ohm) from ground to the muting line to improve receiver cut-off in transmit. This presumably is an effective modification whether using the HT-44 Transmitter or some other model. The other modification was noted as optional. That is, as time has told us, not the case. This was an essential modification to stabilize the SX-117 Receiver and was necessary for any use of the receiver – especially with today's fixation for signal stability. Instructions further stated to "Contact Hallicrafters' Service Department, 4401 West Fifth Avenue, Chicago 24, Illinois, for the replacement VFO Trimmer." Good luck with that! Here are some pictures from Bob, W9DYQ, showing the before and after view of the trimmer installation: (Actually, these are two different SX-117 Receivers – one without the modification and another with it completed.)



Unmodified VFO Capacitor with Original Trimmer

W9DYQ Collection



Modified VFO Capacitor with new Trimmer

W9DYQ Collection

Notice in this closer view that the brass clip – that was the original compression trimmer – has been removed in the process of adding the new trimmer. This ceramic trimmer that is visible at the upper right-hand corner of the picture is the added component supplied by Hallicrafters.

The SX-117 Receiver at W9MXQ had this later version Trimmer Capacitor installed when manufactured.

That trimmer is not called out anywhere. W9DYQ feels, and I agree that 5-25 pf is likely a correct range.

W9DYQ Collection

Connecting the SX-117 to the outside world – like a transmitter, for instance – was an interesting and somewhat frustrating experience if you used the Receiver's Operating and Service Manual to identify connection points. Check this illustration from Page 5, Figure 4, of that manual:

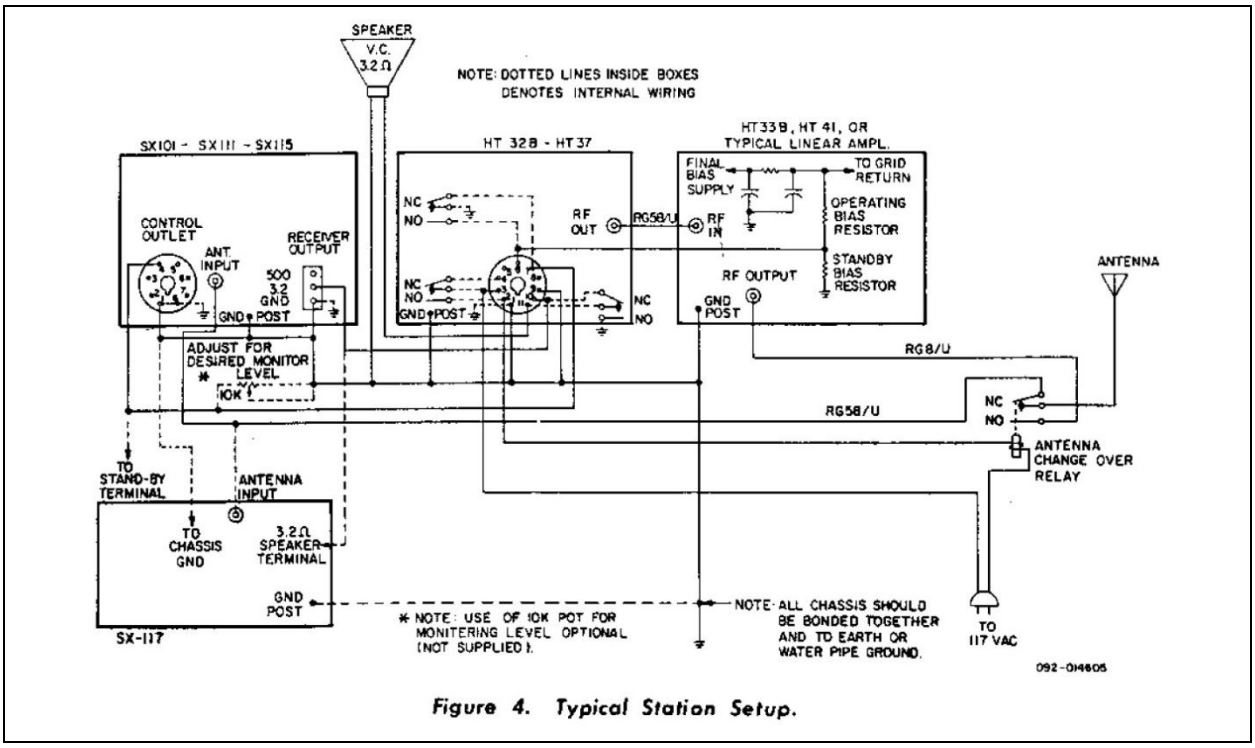


Figure 4. Typical Station Setup.

Notice the SX-117 was added almost as an afterthought below the predecessor (except for the SX-115) Receivers. And, as if that was not enough, my SX-117 manual – from very late in the life cycle of the radio – still completely fails to mention the matching HT-44 Transmitter or the HT-45 Linear Amplifier. But rest assured, even though never covered in the SX-117 Operating and Service Manual, it was more than adequately covered in the HT-44 Operating and Service Manual.

One point to be made relates to panel lettering and striping on the SX-117 (and HT-44). Just for some reference to original and later production colors on the front panel silkscreen for the SX-117 Receiver (and HT-44 Transmitter), check the early SX-117 at W9DYQ (left) and the later model HT-44 at W9DYQ (right). The lettering and stripes were light gray on the early radios but bright white on the later units. Notice the slightly bolder font on later lettering.

W9DYQ Collection

W9DYQ Collection

The “Hallicrafters Twins”

Left to Right

HT-45 Linear Amplifier, HT-44 Transmitter, SX-117 Receiver

The PS-150-120 Power Supply Speaker is between the HT-44 and SX-117.
The microphone is an Astatic D-104.
The HA-8 “Splatter Guard” is atop the HT-44.
The HA-1 Electronic Keyer is atop the PS-150-120.
The Vibroplex VibroKeyer is wired to the HA-1.
The HA-10 LF/MF Tuner is on top of the SX-117.

W9MXQ Collection

In the above picture you can clearly see the bright white trim stripes and lettering on the SX-117 and HT-44 at W9MXQ. However, you will notice the light gray trim stripes and lettering on the HT-45 Linear Amplifier, denoting its earlier manufacturing date.

I appreciate that you read my articles. Remember that I am open to questions and comments anytime at my email address, W9MXQ@TWC.com.

A special note of thanks to my proofreader, Bob Bailey, W9DYQ. Bob is a bit more than a proofreader as he often adds commentary that makes it into the article. Bob and I both own numerous pieces of our mutual favorite in ham radio, Hallicrafters. Many comments herein are subject to opinions that W9DYQ and I hold in this very interesting manufacturer. Hallicrafters was, after all, in Illinois, the state where we both were raised. The complete SX-117, HT-44, and HT-45 Station, with all accessories, are among the oldest members of my collection. I was fortunate to have been friends with one of the engineers at Hallicrafters who was involved in the design of the product line (long an SK, now). Bob, W9DYQ, has two of the “Hallicrafters Twins,” as we call them. Bob has the predecessor to the HT-45 Linear Amplifier, the Radio Industries “Loudenboomer.” Technically they differ only in cabinetry.

Credits and Comments:

[1] Here is the related article breakdown in the Ozaukee Radio Club Newsletter for the original S-Line/KWM-2 and subsequent Hallicrafters competitors.

- https://www.ozaukeeradioclub.org/index.php/newsletters :
  - Collins S-Line Receiver and Transmitter – December 2017
  - Collins KWM-2 Transceiver – January 2018
  - Hallicrafters SR-150 Transceiver – February 2018
  - Hallicrafters SX-117/HT-44 Receiver and Transmitter – March 2018
    (This one was more focused in general on the SX-117/HT-44 station)
  - Hallicrafters HT-45 Linear Amplifier – April 2018
  - Collins 30L-1 Linear Amplifier – subject for a future article

No one other than Hallicrafters and Heathkit in the amateur radio market so completely duplicated the Collins S-Line/KWM-2 concept – in a nearly identical product line.

[2] There is some confusion here – the Collins KWM-2 is actually a part of the S-Line product but is often held up separately. The KWM-2 is very similar to a Collins 75S-1 Receiver and 32S-1 Transmitter put into a single cabinet. That is an opinion shared by this author and by Bob, W9DYQ, a fellow Collins Collector. Your opinions on that subject may differ and we both know that the actual process was a bit more complicated than this mere statement!

[3] The much touted at the time, and now, receiver in the same time frame was the Hallicrafters SX-115. Much circuitry was common with the SX-117. The SX-115 is the subject of a future article.

[4] The review of the SX-117 Receiver appeared in the May 1963 issue of ***QST Magazine***.

[5] The sources for my introduction and production dates are as follows:

Communications Receivers, the Vacuum Tube Era 1932-1981,
Raymond Moore, 4th Edition ©1997
Transmitters – Exciters & Power Amplifiers 1930-1980,
Raymond Moore, 1st Edition ©1996
Radios by Hallicrafters,
Chuck Dachis, 1999 Revision, ©1999

[6] A detailed review of the Hallicrafters HT-44 Transmitter (and some of its idiosyncrasies) is the subject of a soon to be authored article.

Hallicrafters Big Iron

Hallicrafters Advertising from 1960

GARS Membership

New Members in March

James Baxter (KQ4TLC)
Jesse Haney (KY4MOM)

New Members: 2

Total Members as of April 1, 2025 336

Join GARS members for our:

- weekly lunch bunch at 11:30 AM most Fridays
- weekly breakfast gathering at 8:00 AM most Saturdays

Friday weekly gatherings are held at the Chilli's at:
947 Lawrenceville Suwanee Rd
Lawrenceville, GA 30043

Saturday weekly gatherings are held at the Cracker Barrel at:

75 Celebration Dr
Suwanee, GA 30024

Birthdays in April

Angelo Bione (WB9RWL)
Jim Boyd (KJ4YN)
Paul Branson (KA4YZR)
Charles Burts (K4CHB)
Johana Cuello
Scott Deitchman (WB8ICQ)
Chet Dickenson (KM4FMO)
Ana Luz Dominguez (KF4UOC)
Lisa Fischer
Emma Guidry (K4ECG)
JoAnn Heath
Walter Hill (KQ4KAO)
Janette Janssen
Stan McDonald (KI4H)
Ricardo Medina (W4RMZ)
Richard Morris (KG4BVU)
Gemarl Perry
Russell Prevost (AB4QQ)
Patricia Schroder (KT4CAT)
Linda Tcimpidis (W6LWT)
Isi Thanthiriwatte (KQ4BKD)
Randy Tonne (KN4DY)
Kathleen Vogt
Keith Wells (WA8B)
Evelyn Whalen (KE4PLW)

GARS MEMBERSHIP

Your current GARS membership status is shown in the monthly newsletter e-mail towards the bottom of the message. To become a GARS member, or to renew your GARS membership, please visit our website – www.gars.org/gars/membership/. To make changes to your GARS membership (moved, new e-mail address, new phone number, etc.), please contact the Membership Chair at Email (https://gars.org/contact/) with any changes to your Membership information.

Membership Chair: Karen Albritton, KI4HPP **Committee Members**: Dave Bruse, W4DTR

ARRL MEMBERSHIP

To update your ARRL membership information, please visit their website - http://www.arrl.org.

MAINTAIN YOUR LICENSE

You can update your Amateur Radio license information with the FCC at their website for free - https://www.fcc.gov/wireless/universal-licensing-system. License renewal is subject to the $35 FCC fee.

Donating to GARS

Your GARS donation can be used for a certain purpose by donating to one of these funds:

- GARS SK Memorial Fund for Education (to remember and honor Silent Keys);
- GARS Scholarship Fund (Administered by the ARRL for awarding scholarships);
- GARS General Fund (any club purpose).

GARS has joined these rewards programs (a portion of every purchase you make through these merchants may be donated to GARS):

- Kroger Community Rewards program.

For more information on how to sign up for these rewards programs, or to donate to GARS, visit

http://gars.org/gars/donations-to-the-club

GARS on Social Media

Discord Request:
http://gars.org/discord

Groups.io:
http://gars.org/groups.io

Visit GARS on Facebook:
http://gars.org/facebook

Follow GARS on X:
https://x.com/GARS_Hams

Join GARS on YouTube:
http://gars.org/youtube

GARS Mail Address:

GARS
P.O. Box 492531
Lawrenceville, GA 30049

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 Kevin Igarashi-Ball, Multimedia Chair W4KIB

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GARS Meeting Minutes

GARS – MEETING 3/11/2025

Opening Meeting: 1900 or 7:00 PM By President Bob Hoffman. All safety and important information on facilities and emergency exit from building. Welcome all visitors and new members.

Treasurer Report: Treasurer Glenn Wendt absent, report given By President Bob Hoffmann. $50,397.50.

Membership Report: Chairperson absent 339 members as of 3-1-2025 report given by President Bob Hoffmann. 33 Members present.

Programs: Our President Bob Hoffman gave a talk on DMR on your cell Phone. Kevin Scott. Presented committee chairpersons gave a short description of their duties and solicited volunteers.

Committees/Chairperson
Membership - Karen Albritton - Absent.
Apparel – Earl Whatley Absent presented by Ralph Pickwick
Net Manager – Chuck McCord - Absent.
VE Team Leader – Dave Bruse on Zoom.
Web Master – David Adcock.
Education – Ralph Pickwick.
GARzette Editor – Bob Hoffmann.
Repeater – Eddie Foust.
Technical – Steve Back.
Workshop Leader – Dallas Mellichamp.
Georgia QSO – Dallas Mellichamp.
Health and Well being – Sandy Jackson - Absent.
Multimedia – Kevin Igarashi-Ball – Absent.
Elmer Manager – Neil Derryberry.
Exam Team – Dave Bruse.
Tech Fest – Edwin Henderson.
Winter Field Day – Open.
Field Day – Open.
Dog Show – David Adcock.

Education: Ralph Pickwick Technician Ham Cram March 29-30, ARISS info.

Upcoming Events: Dog Show March, 26-30 QSO Party April 13-14, 2025, Field Day June 28-29,2025,

New Business: None

Closing: 2100hrs or 9pm.

Workshop Minutes – March 18, 2025

Attendance: 13

Workshop Topic: DMR on Your Cell Phone

Presenter: Bob Hoffmann K4CQO

Brief Summary: As a follow-up to Bob's presentation at the last GARS meeting, he was available to assist anybody with how to install and configure the DMR app on their cell phone. Steve WB2OGY and Dallas N4DDM assisted with the FT-100 again. After replacing the mic cord, the radio exhibited the same issue of transmitting intermittently when the microphone was connected. Kevin K4GTR noticed one problem was that VOX was turned on, but turning that off didn't fix the issue. The radio performed correctly with a test microphone Kevin supplied. One of Steve's Scouts brought in his 2m mobile that was not working correctly. After a few tests, Steve decided to take the radio home for more diagnostics. Dallas worked on a Cost Reduced 3-Element Tape Measure Yagi (Future Presentation and Antenna Build Project).

Elmers are always present at the GARS Workshops. Feel free to bring your questions to the Workshop. If your project is small enough to bring to the meeting, let us know in advance so we can bring tools, test gear, etc.

Events – GARS and others

ARRL CONTESTING INFO

From ARRL Contest Calendar

> For more information click the links <

January 2025
1 Straight Key Night
4 Kids Day
4-5 RTTY Roundup
18-20 January VHF

February 2025
10-14 School Club Roundup
15-16 International DX – CW

March 2025
1-2 International DX– Phone

April 2025
13 Rookie Roundup – Phone

May 2025 (no ARRL Contests)

June 2025
7-8 International Digital Contest
14-16 June VHF
21 Kids Day
28-29 Field Day

July 2025
12-13 IARU HF World Championship

August 2025
2-3 222 MHz and Up Distance Contest
16-18 10 GHz & Up – Round 1
16-17 EME - 2.3 GHz & Up
17 Rookie Roundup – RTTY

September 2025
13-15 September VHF
13-14 EME - 2.3 GHz & Up
20-22 10 GHz & Up - Round 2

October 2025
TBD Collegiate QSO Party
11-12 EME - 50 to 1296 MHz
20-24 School Club Roundup

November 2025
1-3 Nov Sweepstakes–CW
8-9 EME - 50 to 1296 MHz
15-17 Nov Sweepstakes–Phone

December 2025
5-7 160 Meter
13-14 10 Meter
21 Rookie Roundup–CW

For more information:
http://www.arrl.org/contest-calendar

HAMFEST CALENDAR

[Please confirm the status of a Hamfest before making plans to attend]

04/05/2025 - Daleville Area Hamfest
Location: Daleville , AL
Type: ARRL Hamfest
Sponsor: Daleville Area Amateur Radio Service
Website: https://daleville.us/daleville-area-hamfest

04/05/2025 - Wakulla County Amateur Radio Club Tailgate
Location: Crawfordville, FL
Type: ARRL Hamfest
Sponsor: Wakulla County Amateur Radio Club
Website: www.K4WAK.com

04/12/2025 - NW Georgia Hamfest & Tailgate
Location: Lindale, GA
Type: ARRL Hamfest
Sponsor: NW Georgia ARC
Website: http://www.w4vo.org

04/12/2025 - TarcFest
Location: Tampa, FL
Type: ARRL Hamfest
Sponsor: Tampa Amateur Radio Club
Website: http://www.hamclub.org

04/26/2025 - Calhoun Hamfest
Location: Resaca, GA
Type: ARRL Hamfest
Sponsor: Cherokee Captial Amateur Radio Society
Website: http://www.k4woc.com

04/26/2025 - Wiregrass ARC - Spring Tailgate
Location: Headland, AL
Type: ARRL Hamfest
Sponsor: Wiregrass Amateur Radio Club
Website: http://w4dhn.org

05/10/2025 - EPARS Hamfest
Location: Dade City, FL
Type: ARRL Hamfest
Sponsor: East Pasco Amateur Radio Society
Website: http://eparsonline.org

05/10/2025 - Forsyth Georgia Tailgate & Swap Meet
Location: Forsyth, GA
Type: ARRL Hamfest
Sponsor: Put on for Amateurs by Amateurs
Website: http://barnesvillega.net

08/16/2025 - 08/17/2025 Huntsville Hamfest, ARRL Alabama State Convention
Location: Huntsville, AL
Type: ARRL Convention
Sponsor: Huntsville Hamfest, Inc
Website: http://hamfest.org

08/23/2025 - TarcFest
Location: Tampa, FL
Type: ARRL Hamfest
Sponsor: Tampa Amateur Radio Coub
Website: http://www.hamclub.org

For more information: www.arrl.org/hamfests-and-conventions-calendar

When searching by division, remember some states adjacent to GA are in different divisions: Southeastern: GA, AL, FL Delta: TN Roanoke: NC, SC

GARS Events Calendar for 2025

TechFest	February 1 2025
Winter Field Day	January 25-26 2025
Dog Show Fundraiser	March 26-30, 2025
Spring Technician HamCram	March 29-30, 2025
Georgia QSO Party	April 12-13 2025
North metro area Fox Hunt	April 2025
Memorial Day Parade	May 26 2025
ARC/KARC Hamfest	June 7 2025
Field Day	June 28-29 2025
Summer General HamCram	July 2025
Fall Technician HamCram	September 2025
JOTA	October 2025
Stone Mt. Hamfest	November 1-2 2025
Holiday Party	December 2025

GARS Recurring Calendar

- 2nd Tuesday of the month at 7 pm (except December)
  Monthly Club Meeting
  690 Airport Rd, Lawrenceville, GA 30046
- 3rd Tuesday of the month at 7 pm (except December)
  Monthly Workshop
  690 Airport Rd, Lawrenceville, GA 30046
- 3rd Sunday of the Month at 3 pm
  GARS Ham Exam Session
  690 Airport Rd
  Lawrenceville, GA 30046
- Every Monday at 7:30 pm: GARS Want, Swap, Sell, and Information Net on the GARS 147.075 MHz repeater
- Every Monday at 8:30 pm: ARES Training on the GARS 147.075 MHz repeater
- Every Friday at 11:30 am, GARS Lunch at Chilli's
- Every Saturday at 8:00 am GARS Breakfast at Cracker Barrell

GARS Calendar for April 2025

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
		1 **7:00 PM Exec Meeting**	2	3	4 **11:30 AM Lunch at Chillis**	5 **8:00 AM Breakfast at Cracker Barrel**
6	7 **7:30 PM 2M Net 147.075(+) MHz Tone 82.5**	8 **7:00 PM Meeting EAA 690 Hangar**	9	10	11 **11:30 AM Lunch at Chillis**	12 **8:00 AM Breakfast at Cracker Barrel**
13	14 **7:30 PM 2M Net 147.075(+) MHz Tone 82.5**	15 **7:00 PM Workshop Meeting EAA 690 Hangar**	16	17	18 **11:30 AM Lunch at Chillis**	19 **8:00 AM Breakfast at Cracker Barrel**
20 **3:00 PM Ham Radio Exams, EAA 690 Hangar**	21 **7:30 PM 2M Net 147.075(+) MHz Tone 82.5**	22	23	24	25 **11:30 AM Lunch at Chillis**	26 **8:00 AM Breakfast at Cracker Barrel**
27	28 **7:30 PM 2M Net 147.075(+) MHz Tone 82.5**	29	30			

Local Ham Radio Exams & Meetings

GARS Ham Radio Exams

GARS Exam Sessions are held the 3rd Sunday of the month

Preregistration is REQUIRED
Doors open at 2:45pm, exams start promptly by 3:00pm
For more information and to preregister, please visit https://gars.org/exams/

GARS VE-Team
VEC: W5YI-VEC
EAA 690 Hangar
690 Airport Rd
Lawrenceville, GA 30046

GARS VE Team Leaders
E-mail: exams@gars.org.

March 2025 Results

The GARS VE Team exam session results from March 16th.

2 New Technician:

- Nasser Nasab - KR4CKV
- Frank M Settle - KR4CIV

2 Upgrade to General:

- Brian Anderson - KR4CIU (passed both Technician and General exams)
- RAMEY L NUBERN - KQ4WLJ

Special thanks to the Volunteer Examiners who made this exam session possible:

W4DTR – David Bruse
K4CQO – Bob Hoffmann
KM4SWL - Richard Kitz
NG4H - William Beguhn
W4SHT - Lynn Hatker
WS3V - William Rudd
KQ4DWZ – Douglas Hooper
N4MPC – Pat De Loe

Thanks & 73, Chuck Mc Cord KK4TKJ (Co-CVE)

Local Ham Radio Exams

In order to find an exam session near you, please visit http://www.arrl.org/exam_sessions/. Contact the information in the listing for further information.

Local Ham Radio Meetings

In order to find a local Ham Radio Club meeting near you, please visit http://www.arrl.org/find-a-club. Contact the club for meeting information.

GARS Supporters

Mugs provided by Will Carson KZ4HV -- $9.99 for 11 oz, $11.99 for 15 oz.

In order to have your ad included, contact editor@gars.org. Current ad prices per year are:

Business Card	$50
1/4 page	$125
1/2 page	$150
Full page	$200

For swap items, post and see items on GARS groups.io (https://groups.io/g/GARS).

Ready to take your Ham Radio Exam?

Go to https://GARS.org/exams/ to learn more, and to register for an upcoming exam session.