The Official Newsletter of the Gwinnett Amateur Radio Society
2021 http://www.gars.org/ Volume 31, Issue 12

The GARzette

December 2021 GARS Holiday Party

The Georgia QSO Party

SECC SOUTH EAST CONTEST CLUB

SOUTHEASTERN DX CLUB

TechFest

GARS Holiday Party – no Meeting or Workshop

President's Message

From the President…

What a year!

We were able to gather together and participate in some operating, such as Winter Field Day, GA QSO Party, Dacula Memorial Day Parade, Field Day, JOTA and more.

We began meeting again, in-person, in July while simulcasting online via Zoom, and these dual methods have worked well. We had initial technical issues to overcome with the broadcasting, however, with some tweaking in our configuration and levels adjusting, we found a workable solution. Our Workshop program also went back to in-person sessions, where we can have the 'hands-on' activities as originally intended. This set-up more readily affords individual questions for issues to be discussed and resolved.

We acquired a large inventory of donated equipment, mainly from the estate of a Silent Key. Therefore, we moved, shuffled, cataloged, took pictures, inventoried, stored, and otherwise processed and sold items much of the year. The proceeds from these sales have benefited GARS financial well-being. A major benefactor of those sales is our Scholarship Fund; those funds will continue to benefit numerous folks in their educational endeavors.

I'd like to identify and to thank those whose volunteered for that effort by literally handling and moving thousands of pounds of gear between our storage facilities, taking items to Hamfests or delivering to buyers, selling the items, and, in some cases, returning the items to the storage facility. This equates to hundreds of man hours exerted for this effort.

Donations Liquidation Team:

Joe Biddle, AD4PZ
Brian Page, N4TRB (SK Inventory Manager)
Earl Whately, AF4FG
Jamie Burns, KX4HA
Bill Cherepy, WB4WTN
Eddie Foust, WD4JEM
Dave Bruse, W4DTR

GARS Ham of the Year - If you were not at the GARS Holiday Party on December 4th, you still may have heard that Dallas Mellichamp, N4DDM was awarded the **GARS 2021 Ham of the Year.** Read more on Dallas and this award later in this newsletter.

Club Officers Elections 2022 – Earl, AF4FG, has been tasked with putting together a slate of proposed officers for 2022. **Nominations will be accepted at the January and the February meetings** where he will officially introduce a proposed slate of Officers in the February Meeting, followed by a vote. Some or all of the serving Officers may be in the running, but the following positions may be applied for nonetheless: President, Vice President, Treasurer, Secretary, and Program Manager.

If you have a desire to work with a great group of 'friends', to help lead this club into continued success, then put your name, or someone else (with their consent), in the hat for a position.

Contact information forthcoming, so look for it in our next newsletter and other communications platforms.

Techfest – January 15, 2022 is still being planned and we have a number of exhibitors signed up as well as speakers for the forums. Check gars.org or go to http://www.techfest.info/

I'd like to thank the current serving GARS Officers for their dedication and willingness to give of their time, in guiding GARS into continued success through another year. We've had obstacles and challenges along the way, but I believe we've held up the standards that the members have come to expect from their Club.

Thank you:

Vice President – Jamie Burns (KX4HA)
Treasurer – Pam Meridy (WB1AKQ)
Secretary – Bill Hawkins (WR1TR)
Program Manager – Kevin Scott (K4GTR)

I hope to continue to serve with these great folks through 2022.

Have a very Merry Christmas and a Happy, Healthy and Safe New Year!

73,

Joe Biddle, AD4PZ

Club President

GARS Meetings & Workshops

GARS Meetings and Workshops

GARS Meetings and Workshops are held in-percson at the EAA 690 Hangar. Zoom simulcast of Meeting & Workshop information will be listed on http://www.gars.org.

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

When events are available on Zoom

Zoom **login** info will be posted to http://www.gars.org prior to the meeting.

- Workshops and Meetings will be **recorded**. By participating you consent to being **recorded**.
- Please change your display name to Your **FirstName Call Sign**, e.g. **Hiram W1AW**
- **How to change Your Display Name in Zoom**
- Please stay muted until ready to speak. Your space bar works like a PTT for un-muting
- To be fair to everyone, there will be a three minute limit for each person during Q & A
- You may ask questions in chat; **please stay on topic while using chat.**

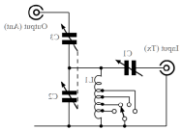
GARS Meetings Schedule (second Tuesday @ 7:00 PM):

- December - no Meeting just the GARS Holiday Party
- January 11, 2022 – Automatic Antenna Tuners – Dwayne Kincaid KD8OYB

Workshop Schedule (third Tuesday @ 7:00 PM):

- December - no Workshop just the GARS Holiday Party
- January 18, 2022 - Re-capping and tube testing to bring radios back to life - Don Woodward KD4APP
- February 15 - TBD - Your chance to be our speaker on a topic of your choice

GARS Meeting – January 11, 2022



Automatic Antenna Tuners
Dwayne Kincaid KD8OGY

For the month of January, we will have a special on-line guest from LDG Electronics, you know, the auto-tuner company. His name is Dwayne Kincaid and his call is KD8OYG. Dwayne will be reviewing the history of tuners, the reasons for an antenna tuner, the types of tuners and circuits for matching various types of antennas and where to put these tuners in your rig-to-antenna path. Design criteria for antenna tuners will be discussed as well as operational characteristics of automatic types. What is next for this industry? Join us and find out.

GARS Workshop – January 18, 2022

Re-capping and Tube Testing to Bring Radios Back to Life

Don Woodward KD4APP

This will be a Non-Zoom, In-Person, Workshop at the EAA Hangar

Don KD4APP is a General but was licensed in the nineties as a "No-code Technician" from a class taught by Jim Stafford W4QO. About 3 years ago Don and his son purchased a "vacation" home in Blairsville, which gave Don more time to pursue HF, 6M, microwave and electronics. He built a electronics workshop at his mountain home. After working on transistor era radios Don decided he wanted to try his hand at restoring tube era radios. After he re-capped his first radio, a Hallicrafters S-120, he got the bug and purchased several more tube era radios that are in various stages of completion. Don has added radio and electronics test equipment to his workshop over the years and has various test instruments including a tube tester and even a spectrum analyzer that measures up to 40GHz. Don will bring his tube tester and after the presentation, he has offered to test any tubes that anyone brings. He will also bring one of his smaller tube radios that has been re-capped.

The GARzette

Inside

GARS Communication

2 Meter Repeaters

147.075(+) MHz Tone 82.5
147.255(+) MHz Tone 107.2

1.25 Meter Repeater

224.580(-) MHz Tone 100.0, 1.6 MHz Offset

70 Cm Repeaters

444.525(+) MHz Tone 82.5
442.100(+) MHz Tone 100
442.325(+) MHz Tone 100

6 Meter Repeater

53.110 (-1 MHz) No Tone (Offline for Maintenance)

Other Resources:

APRS

144.390 -- 1200 Baud W4GR

D-STAR

WD4STR
145.060 + (1.4 MHz)
440.550 + (5 MHz)

Don't forget to support our advertisers at the back of the *GARzette*.

Snail Mail Address:

GARS
P.O. Box 492531
Lawrenceville, GA 30049

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.

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.

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.

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
Newsletter Email: editor@gars.org Editor: Bob Hoffman, K4CQO Assistant Editor: Bill Eggers, WB2RIS

GARS HELP WANTED

Speakers Needed for GARS Workshop Presentations, 3rd Tuesday of the month – Email workshop@gars.org to volunteer. [PS— Articles to publish in the GARzette, either written by GARS members or published elsewhere, are always welcome. —Ed.]

GARS Happenings

20 Years ago in the December 2001 GARzette:

- Carol and Victor Gann were awarded the GARS 2001 Ham of the Year
- There was a push for new GARS officers for the new year
- Sandy Donahue was elected to be vice director beginning in January

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


THE GARZETTE
From the Oval Office

Health and Wellbeing – Sandy Jackson, KJ4DRO

Look for this resource on gars.org 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 seven operators who serve as the NCS for the GARS net every Monday night. In no particular order, they are:

Don – KW4AL	Ray – N4GYN	Bill – WG9NUW	David – KA4KKF
Glen – W3WWT	Russell – AB4QQ	Chuck – KK4TKJ	Charlie – WS4TOT

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 me (Chuck) at KK4TKJ@arrl.net. Sign up to help support the effort that makes GARS the great club that it is. 73 and see you on the Nets!

GARS Officers for 2022

In our January meeting, all members will have the opportunity to nominate someone for each of the elected positions. The February meeting will also have the opportunity for nominations and then we will vote on the candidates.

2021 Field Day Results

GARS came in second in 8A. Rappahannock Valley ARC finished first.

GARS Ham of the Year

Dallas Mellichamp, N4DDM – GARS 2021 Ham of the Year

After reviewing the numerous accomplishments and qualities for which Dallas was nominated, the Club Officers had an easy decision in choosing him for this award. The following lists a few of those accomplishments and qualities:

- Field Day (Summer & Winter) participates as an operator and on the setup team, including the loaning of his personal supplies & equipment.
- Attends many GARS meetings with near perfect attendance at the Executive, General, and monthly Workshop meetings.
- Generates numerous ideas for the team to consider for the betterment of Club operations and fun for its Club Members.
- Helps with the GARS Workshop operations from recruiting speakers, planning, executing the program and getting notices out.
- Provides detailed communication to membership of upcoming Programs and Workshop topics including, maintaining the web page for past GARS Programs and Workshops.
- Assembled a list of GARS Silent Keys and created the GARS Silent Key Memorial Page.
- Assists in the community. When a club member put out a plea for help to get his HF wire antenna back up, Dallas spent the day setting him back up.
- Dallas also assembles and brings drink refreshments to our Club meetings, where those donations further benefit our scholarship efforts.

Please join me in congratulating Dallas for a job well done, and 'EARNING', the **Gwinnett Amateur Radio Society's, 2021 Ham of the Year.**

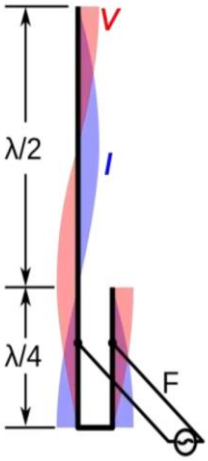
by Joe Biddle, AD4PZ

J-Pole Slim Jim Workshop

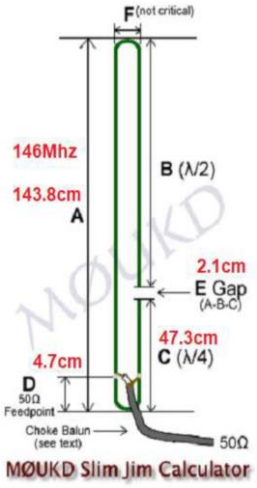
2m Antenna Construction

By Dallas N4DDM

Dallas presented a very informative workshop on building a J-Pole using ladder line for the antenna and coax for the feed line. He presented some innovative ways to get the ladder line the correct size along with adjustment tuning hints to get the J-Pole just right.



The ladder line formed the Slim Jim shown on the right side diagram. The loop at the ends was formed by removing the ladder line insulation and wrapping a few turns of bell wire across the ladder line wires at the top and bottom. The result leaves those connections adjustable until soldered.

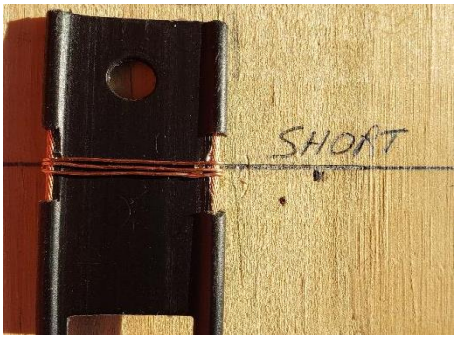


The measurements from the Slim Jim calculator were put on a 2x4 “storyboard” in order to get the ladder line “windows” (open spaces) and solid spaces in the right places. A storyboard was the perfect jig/tool to get the ladder line positioned correctly until a good match was found for the; Top Short, Gap/Notch, 50-Ohm Point, Bottom Short, and Balun Area. Trying to do this with just a tape measure and ladder line would be a headache.

Here are the calculations that were used, note the velocity factor of 0.92 for 450-ohm ladder line:

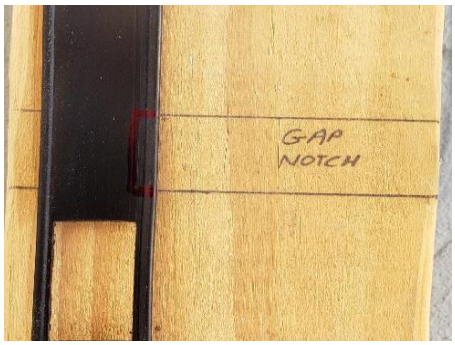
Slim Jim / J Pole antenna calculator.		
Frequency	146.0 MHz	
Velocity Factor (see text*)	0.92 vf	
Calculate my Slim Jim / J Pole!		
Actual wavelength	2.05 metres	
Wavelength considering velocity factor	1.89 metres	
A. Overall length (λ*0.75)*vf (plus gap for Slim Jim)	141.8 cm (J Pole)	
	143.8 cm (Slim Jim)	= 56.61 ins
B. Half wave radiator section (λ/2)*vf	94.5 cm	
C. Quarter wave matching section (λ/4)*vf	47.3 cm	= 18.62 ins
D. 50Ω feed point. Adjust for 1:1 SWR. (λ/40)*vf	4.7 cm	= 1.85 ins
E. Gap (λ/100)	2.1 cm	= .83 ins
F. Spacing – not critical	4.5 cm	
Clear Form		

https://m0ukd.com/calculators/slim-jim-and-j-pole-calculator/

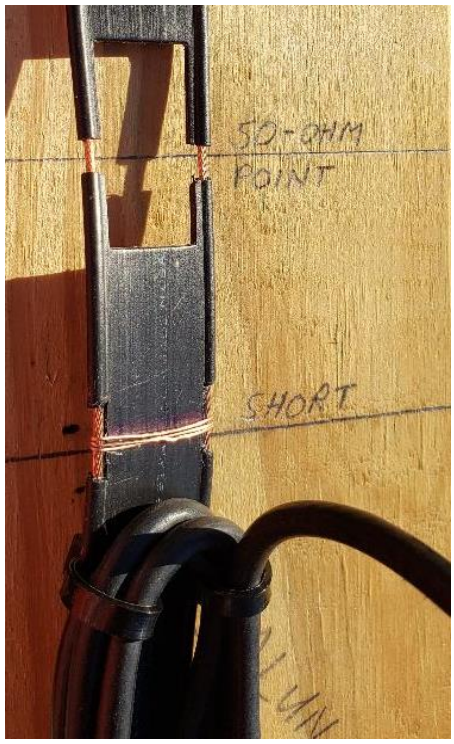


The hole at the top, it was made with a single hole paper punch to hang the antenna in a tree or attic.

The Top Short is best to be in a solid area of the ladder line. The top adjustable piece is just a few turns of bell wire wrapped around the ladder line after exposing the copper along the edges. This allows the short to be adjusted a few times before soldering it in place.



The Gap/Notch works best to be in a solid area of the ladder line so the antenna doesn't get caught on every twilight, branch, and leaf in the tree you try to put it in/get it out of.



The 50-Ohm connection point works best to be in an open window of the ladder line so you can expose the copper to solder the coax to the ladder line.

When using the storyboard to get the; Top Short, Gap/Notch, 50-Ohm Point and Bottom Short all to line up you might have to compromise. One option is to make your own 50-Ohm window or make an existing window a little bigger.

The Bottom Short is best to be in the solid area of the ladder line. Note the exposed area has just a few turns of bell wire wrapped around it. This lets you fine-tune the 50-Ohm impedance point.

The Balun is made of 3-4 turns of coax and cable tied to the bottom of the antenna. If there is not a "window" there, just use a single hole paper punch to make a few holes. The antenna holds the weight of the Balun and coax, not the two soldered connections.

The 50-Ohm connection point with the coax connected.

To weatherproof the antenna after tuning and soldering, the braid and all exposed copper should be covered with liquid tape or RTV.

Because we had hundreds of feet of FREE 75-ohm cable and we chose to optimize it for a near perfect VSWR we went through the below steps. If you use a 50-ohm cable none of these steps are needed. If you choose to accept the 1.5 VSWR caused by using 75-ohm cable in a 50-ohm antenna system then you can also skip the below steps.

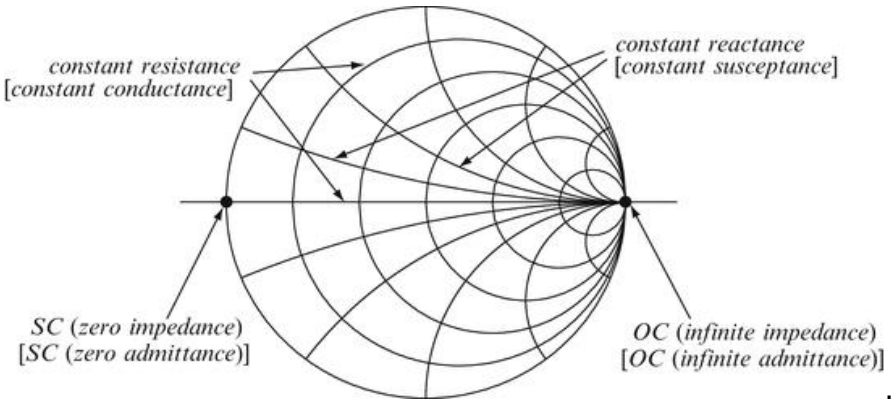
To get the rough estimate of the feed line length we use the Slim Jim and J-Pole Calculator.

- Set the Frequency to 146 MHz
- Set the Velocity Factor to 66% (0.66 vf) This info was from the Belden RG-59 datasheet.
- Select the Calculate my Slim Jim / J Pole! Button.
- Note the value B. Half Wave radiation section (lamda/2) x vf = 67.8 cm.
- Google convert cm to inches and punch in the numbers; 67.8 cm = 26.69 inches.
- We could multiply this by any whole number but 9 works out really well.
- 26.69 x 9 = 240.21 inches.
- Divide that by 12 to get feet = 20.0175.
- This gives us enough coax to make the balun and raise the antenna.
- The 50-ohm impedance point of the antenna is reflected to the end of the coax.
- Adding any additional 50-ohm cable only makes the feed line longer for taller applications.

So we cut the cable to a little over 20 feet, say 20' 6" knowing we are going to lose a little installing the coax connector and then we use the NanoVNA to adjust to the exact length needed. This adjustment takes out any minor difference between your measurements and manufacturing specs of the cable's velocity factor.

With the NanoVNA setup to display a Smith Chart at 146MHz the open-ended feed line impedance was displayed on the screen.

Each snip of the coax removed would instantly show the change in impedance. A few snips later we should see an infinite impedance on the Smith Chart which should be a multiple of the 26.69 inches we calculated earlier.



ANTENNA ADJUSTMENTS

Using an Antenna Analyzer or NanoVNA should simplify the tuning of the antenna. The antenna should be hung outdoors away from metal objects. We had issues being in the hangar.

The adjustment of the Bottom Short tweaks the 50-Ohm Point but also affects the overall length of the antenna. So the top adjustment point will need to be tweaked. After about 3 adjustments of the bottom and then the top adjustment you should be ready to solder the connections.

See the GARS Previous Presentations page for Dallas' presentation in both PDF and PowerPoint format. http://www.gars.org/gars/previous-presentations/

SOTA & POTA

SOTA/POTA - A Training Ground for Emcomm Deployment

By Mark Bell - N7GRB

Summits on the Air (SOTA) and Parks on the Air (POTA) provide an excellent and fun training ground for Amateur Radio Emergency Service deployment. As ARES members or the field of emergency communications in the general case, we must be prepared to deploy ourselves and equipment to an area of need. Areas of need may be primitive with no supporting services and/or commercial power to that of an established site with services to include food and power.

SOTA and POTA are two parts of our radio hobby many of us enjoy. But when you think about it, going to a summit, a park or wilderness area to activate a station carry many of the same elements of skill and self-support needed in emcomm deployments. When you go out for a day activity on SOTA or POTA what do you take:

- Subsidence of food, water along with clothing for the weather conditions.
- Personal hygiene and first aid kit with any personal medications needed.
- Radio, antenna, coax and a basic repair tool kit.
- A documentation kit (pens, pencils, and paper).
- A power source, typically a battery but can go beyond to solar and generator power.
- Oh, don't forget the bug juice and sunscreen.

FIGURE 1: OFF-GRID POTA OPERATION AT DON CARTER STATE PARK

In my case I was doing emcomm deployments in Gwinnett ARES exercises before I became involved in POTA. The POTA bug caught on a little over a year ago with my first park activation in August 2020. Since then, I have activated 20 "parks" varying from locations with pavilions and commercial power to wildlife management areas completely off grid with no support, no cell service.

With repetition comes experience. Over the course of my earlier emcomm drill and POTA activations, I have developed packaging for the equipment that allows for rapid deployment. The radios are in a 4U equipment case. Battery (30-amp Bioenno), coax, HF vertical (a folding Alpha antenna), a tripod for the VHF/UHF antenna plus other odds-n-ends are in a Ridgid tool cart. Tripod for the HF antenna and a dual band 2m/75cm antenna in a carry bag. Toolbox includes a gas-powered soldering iron, multimeter, hand tools to include powerpole crimper with powerpoles, extra fuses, tape and a power meter. When gear goes in my vehicle, I have developed an optimal loading arrangement. If I am going on an extend operation, I include an extra 20-amp battery, my inverter generator, folding chair and table.

Oh, my laptop takes 18 vdc. On the back of my go-box I have a 12 vdc car style socket connected to the go-box electrical distribution fuse block. A DC-to-DC converter bucks the 12 vdc up to the 18 vdc level required by the laptop.

What is different between my emcomm deployments and POTA? Well, I take an ARES hat and emergency communicator vest on emcomm. I always have ICS-213, ICS-309 and ICS-214 blanks in my documentation kit. I also have blank POTA log forms. Otherwise, the deployment skills as related to station setup are the same. Therefore, I claim that SOTA/POTA activations are in fact emcomm deployment training events in disguise!

Vintage Amateur Radio

Heathkit SB-100 Line Separates - Heathkit goes after the S-Line

de Bill Shadid, W9MXQ

I know in this series of articles I repeat my basic theme almost monthly – the concept of a table-top radio station as introduced by Collins in the late 1950's – the S-Line Separate Receivers, Transmitters and Transceivers. Last month we talked about the move by Heathkit to complete in this concept with the SB-Line. Truth be known, I was out of date order here in talking first about the SB-100 and its successors, the SB-101 and SB-102. In 1963, two years before the introduction of the SB-100, Heathkit introduced the beginning of the SB-Line of separate Receivers and Transmitters with the SB-300 Receiver. About six months after that introduction, Heathkit introduced the matching SB-400 Transmitter. So, with this article we continue the discussion of the extremely popular Heathkit "SB-Line."

Here is the operating Heathkit SB-401 Transmitter and SB-303 Receiver in operation at W9MXQ. They are shown with the SB-600 Speaker and SB-200 Linear Amplifier[1].

Heathkit SB-401 Transmitter and SB-303 Receiver

Shown with HDP-121A[2] Microphone SB-200 Linear Amplifier, and HD-1410 Keyer

(W9MXQ Shack Photo)

The SB-401 and SB-303 superseded the original SB-400 and SB-300 models. Most differences are detailed in this article. Here is how the series progressed:

Model	Function	Introduced	Discontinued	Compatible With	Technology
SB-300	Receiver	1963	1966	SB-400/401 Transmitter	Mostly Vacuum Tube
SB-301	Receiver	1966	1970		
SB-303	Receiver	1970	1976		All Solid State
SB-400	Transmitter	1964	1967	SB-300/301/303 Receiver	Mostly Vacuum Tube
SB-401	Transmitter	1966	1975		

So, just like the station you see in my personal ham shack, pictured above, the oldest receiver model could be paired for transceive use with the newest transmitter model, and vice-versa. You can also see that the first receiver preceded the arrival of the first transmitter and the last receiver was on the market longer than the last transmitter. This was common for the time. Receivers were generally a bit more popular in those days than transmitters. There were, at the time, companies like E. F. Johnson that made only transmitters – so one could assume that a buyer might buy, for instance, a Heathkit SB-301 Receiver to work with a Johnson Viking Invader[1] of the time.

Like Collins and Drake, Heathkit used a permeably tuned oscillator (PTO) for frequency control – unlike the capacitor tuned VFO used by Hallicrafters, Swan, Galaxy, National, and most other companies in the field at the time. Heathkit, however, called the PTO an LMO for Linear Master Oscillator. This was to emphasize their focus on the linearity of the oscillator circuit and associated mechanical system. As I have often mentioned as a reminder, this is a little confusing in terms of how the VFO is described. One refers to the variable frequency control system in a radio as the VFO – which is correct whether capacitor or inductor tuned. If you think this is confusing, you are right!

Like Collins, but unlike Drake and Hallicrafters, Heathkit used the same conversion scheme in their transceivers and their separate receivers and transmitters. So, an ingenious ham could use an SB-300/301/303 Receiver to work together with one of the SB-100/101/102 Transceivers to transceive on the transmitter or the receiver LMO. This did require a bit of engineering on the part of the user – but such practice was common at the time. At the end of this article I will touch on one such experience with an SB-300 Receiver and an SB-100 Transceiver.

Here is the original product offered in this line:

Heathkit SB-300 Receiver

W9MXQ Shack Photo

Heathkit GD-125 Q-Multiplier

W9MXQ Shack Photo

This is the original Heathkit SB-300 Receiver, introduced in 1963. Like the Collins 75S-1, it was devoid of any kind of interference control system. In fact, Heathkit never added any such circuits to the SB-300 series. Collins, however, added Rejection Tuning (a Q-Multiplier) beginning with the 75S-3 model. Heathkit offered compatible Q-Multiplier products like the model GD-125 and other similar models.

> Special Note: Connections to run the Heathkit GD-125 plug-n-play with the Collins KWM-2 Transceiver were on the KWM-2's chassis.

One exception to what I mention above about interference control was the unique offering of an Automatic Noise Limiter (ANL) circuit in the SB-301 Receiver only. This feature was absent from the SB-300 and the SB-303 Receivers.

The SB-300, as well as the later SB-301 and SB-303 all covered the high frequency (HF) spectrum (80 through 10 meters) in 500 kHz ranges. There were four such ranges to cover 10-meters. Since all the SB-300 and SB-400 series units were pre-WARC band units, they do not cover the 30, 17, or 12-meter bands. Unfortunately, the SB-300 lacked a way to monitor WWV to verify dial accuracy. That was corrected in the SB-301 and SB-303 with the addition of a 15.0 to 15.5 band position and resulting access to 15 MHz WWV. In my opinion this was a design error – with 10 MHz being a much better choice for more opportunity to find WWV access in a wider variety of propagation. But, Heathkit followed the design practices and features of Collins and the S-Line and its similar band position of a 14.8 to 15 MHz band position.

The SB-300 and SB-301 had factory assembled, vacuum tube LMO units included with the kits – no assembly of this critical device was required of the builder of the kit. In the last version, the SB-303, this pre-assembly practice was retained but by then the LMO was of solid-state design. The LMO design was remarkably linear with less than a 400 Hz error in linearity at any point within a 100 kHz range on

the LMO. The SB-300 and SB-301 Receivers included a 100 kHz Crystal Calibrator. The SB-303 Receiver had a calibrator as well, but it was selectable 25 kHz or 100 kHz.

> Special Note: A separate receiver would be necessary to make this alignment with the SB-300 model which had no access to WWV. This was a flaw in the SB-300 which was, as noted above, corrected in the SB-301.

In their time, the SB-300 series radios were competitively sensitive. The SB-300 and SB-301 were rated as having a better than 1uV for 15 dB signal plus noise-to-noise ratio. The SB-303, however, improved this performance greatly. It offered a better than 0.25 uV for 10 dB signal plus noise-to- noise ratio. This was in keeping with the performance improvement in a similar time frame coming from the sister SB-102 Transceiver product. It is interesting to note that while this performance still exists in a SB-303 Receiver today, an older SB-102 Transceiver may not perform as well if its 6HS6 RF Amplifier Tube has been replaced. The 6HS6 tube is almost “unobtainium”[3] today and is often replaced with the 6AU6 tube used in the RF amplifier of the original SB-100 and SB-101 Transceivers (and the SB-300 and SB-301 Receivers). The solid-state devices used in the SB-303 are most likely still functioning.

All the SB-300 series radios (SB-300, SB-301, and SB-303) were very competitive in selectivity with 8-pole crystal filters possessing an excellent shape factor. They are effective even on today’s bands. Also, Heathkit offered a variety of optional CW and AM filter bandwidths. Today, such filters are still available from third party suppliers such as INRAD[6] and others. Heathkit brand filters often appear on the used market.

The SB-300 and SB-301 radios had 6 and 2-meter converters offered that could be mounted to the back of the receivers. These were the SBA-300-3 for 6-meters and SBA-300-4 for 2-meters. These were switched into the circuit with a switch accessible through the opening top cover of the cabinet on the SB-300. They were not accessible from the front panel. The SB-301 model improved this by adding a front panel control to access the converters. The SBA-300-3 and SBA-300-4 Converters did not last into the time of the SB-303 Receiver but the access to up to two of what had to be third party converters was accommodated and switched from the receiver’s front panel. A limited amount of 15 VDC current was available from the SB-303 rear panel to power an outboard converter. The SB-303 was solid-state and therefore unable to supply plate and filament voltage to an external converter. Heathkit apparently did not feel there was enough market demand to design and market solid-state converters to support the SB-303 Receiver.

Worthy of note was the addition of a RTTY mode position on the SB-301 and SB-303 Receivers. By this time most RTTY operation was handled by AFSK (Audio Frequency Shift Keying) rather than true FSK (Frequency Shift Keying). The receiver’s passband in RTTY mode was adjusted for best offset to allow for effective audio recovery to feed an AFSK decoder.

I am always amazed by little things like the model breakdown of the SB-300, SB-301, and SB-303 models. What happened to the missing SB-302? Similarly, there was an SB-100, SB-101, and SB-102 Transceiver with the next model being the solid-state SB-104. What happened to the SB-103? I guess I assume there is a closet somewhere with those mystery models – never to go to production. I suspect that models were in transition between vacuum tube and solid-state designs. Could there have been a later version of the vacuum tube SB-301 under development as an SB-302 that never happened? Did Heathkit take the solid-state leap and bring out the SB-303 instead? We have no way to know – but it is fun to think about.

While not part of this article, it is worth mentioning that there was a Short-Wave Listener (SWL) version of the SB-300 Receiver, the SB-310 (1967 to 1972), and a similar unit parallel with the SB-303 Receiver, the SB-313 (1972 to 1975).

The other part of this article is focused on the transmitter side of this product line . . .

Heathkit SB-401 Transmitter

W9MXQ Shack Photo

SB-400/401 Differences

See text for explanation.

The SB-400/401 are matched in size to the SB-300/301 Receivers and are all identical in size to their Collins competition.

Like the Collins competition and the SB-100/101/102 Transceivers, the SB-400/401 Transmitters use a tank circuit that is set to a narrow range of antenna loading range of 50 to 75 ohms impedance – designed to feed modern coaxial cable. So, like in the earlier article about the SB-100 Transceiver, and its successors, did not work well with older Heathkit Linear Amplifiers, such as the HA-10 Warrior[1]. The final amplifier tubes used in the SB-400 and SB-401 Transmitters were two of the very popular 6146 or 6146A tetrode final amplifier tubes for an input power of 180 watts PEP SSB and CW. These radios were not really designed for AM operation[4]. Output power was a nominal 100 watts – dropping to 80 watts on 10 meters. Tuning of the driver and final amplifier stages of the transmitter section of the transceiver was relatively straight forward and easy even for today's amateur operators to master[5].

The major difference between the SB-400 and SB-401 Transmitters was the addition of convenience circuitry for switching between transceive operation and separate frequency control of the receiver and transmitter. Note in the illustrations above on the transmitter. To the right you will see the SB-401 front panel with a ganged control for MIC CW LEVEL and FREQ CONTROL (short for Frequency Control). Note the ability to switch between LOCKED (REC) and UNLOCKED. This is charted as . . .

	Frequency Control is Handled By . . .	
FREQ CONTROL Setting	**On Receive**	**On Transmit**
LOCKED (REC)	Receiver	Receiver
UNLOCKED	Receiver	Transmitter

Later in the evolution of radio convenience features, frequency could be controlled by the receiver or the transmitter or one could transceive using frequency control from either unit. These earlier radios had less flexibility.

The chart above reflects the operation of any of the three receivers (SB-300, SB-301, and SB-303) and the SB-401 Transmitter. This is not the same with the earlier SB-400 Transmitter. The SB-400 Transmitter interconnects with the receiver but lacks the front panel switch. The above shown control has no concentric FREQ CONTROL function switch on the SB-400. One much open the top cover of the SB-400 to change a jumper cable. While identical in function it was a huge difference in convenience!!

Two other differences were:

1. The SB-401 did not come with range crystals to determine band – it utilized the same crystals that were in the matching receiver. That was a move allowing a reduction in price of the SB-401 compared to the SB-400. But the crystals were offered optionally for a buyer not using the SB-300/301/303 Receiver.
2. The SB-401 added a sidetone level control to make CW monitoring more comfortable to a wider range of listeners with different preferences and hearing.

Also, it is important to say that the SB-400 and SB-401, unlike their competition, had internal power supplies. The SB-100, SB-101, and SB-102 Transceivers had an HP-23 model Power Supply usually tucked away inside the SB-600 Speaker. That speaker cabinet was empty (or unnecessary) when used with an SB-400/401 equipped station.

As I related in the article on the SB-100/101/102 Transceivers, the Heathkit SB-Line radios, when carefully built, were the equal of, or were superior to, any of the fully assembled competitive units on the market at the time – including the Collins S-Line.

Remember earlier in this article that I told you about a personal experience with an SB-100 Transceiver with an SB-300 Receiver? Some years ago, I owned an SB-100 Transceiver and an SB-300 Receiver. I did not have an SB-640 External VFO for the SB-100. The LMO in the SB-100, the SB-300, and the SB-640 External VFO were identical. So, to me it seemed that using the SB-300 Receiver as a separate VFO for the SB-100 Transceiver was feasible. I developed an external box that brought the SB-100 and SB-300 LMO output to a common point and routed the signals through a switch circuit that allowed:

1. Transceive with the Receiver LMO.
2. Transceive with the Transmitter LMO.
3. Receive with the Receiver LMO and Transmit with the Transmitter LMO.

There was also other switching involved for muting the receiver during transmit and the development of a system of a lighted pushbutton select switch bank and associated relays (rather than a rotary switch) to make this switching convenient. It worked for me for several years. I wonder if that switch box is still working out there somewhere??!!

The SB-Line internal circuitry allows many ideas to be applied to how the radios are used to suit one's own special needs. For a while I even toyed with dual receive with such a system. But, at the time, I could not master the mixing circuitry required.

Heathkit provided a complete line of accessories for the SB-Series Radios. The most popular accessories for the receivers and transmitters appear in the pictures, below:

SB-200 1.2-Kilowatt Linear Amplifier[1]

SB-220 2-Kilowatt Linear Amplifier[1]

SB-600 Speaker Console

SB-610 Monitor Scope

SB-620 Spectrum Scope

SB-500 Two-Meter Transverter
(Heathkit Catalog)

SB-630 Station Console

HD-1410 Electronic Keyer

SB-650 Digital Readout
(for SB-Series Radios)
(Heathkit Catalog)

(Pictures, unless otherwise noted, are from W9MXQ Photographs)

These accessories have been used by Heathkit and other brand users for years and continue to be popular in ham stations to this day.

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 also the previous owner of several of my pieces of Heathkit equipment.

Credits and Comments:

[1] Subject of a future article.

[2] The HDP-121A used at W9MXQ is a bit later than the vintage of the radios in this article. You can see this in the beige color of the microphone body – a later color scheme used by Heathkit. The HDP-121 (without the "A" suffix) is green like the series of equipment covered here.

[3] "unobtainium" is a word used by collectors – in radio and other areas of interest – to indicate that there is no supply of the item left to find – or at least very, very difficult to locate. Collectors measure their success in their ability to find things that are called, "unobtainium." I have several items in my collection that others would call, "unobtainium.

[4] AM operation was not accommodated in the SB-400 and SB-401 Transmitter but was accommodated in the SB-300/301/303 Receivers. (AM mode on the SB-400/401 was covered in third-party modifications.) AM on the receivers supported the idea that the receivers were purchased by hams using other brands or models of transmitters – some of those were earlier Heathkit transmitters that did operate AM.

[5] Most ham radio operators of today are accustomed to solid-state final amplifiers. These radios do not require tuning of the tank circuit.

[6] INRAD, a part of Vibroplex Corporation, can be reached at http://www.inrad.net on the internet.

The entire article is available on-line, see

http://www.gars.org/newsletters/2021_12_GARZETTE.pdf

GARS Membership

New Members List in October

Bobby Anderson (KO4UOY)
Tom Crowley (KT4XN)
Lynn Crowley (KJ4RTE)
Skip Kazmarek (K4EAK)
George Lieb (KO4UIH)
Jon Ryll (KO4UIC)
Justin Wood (KO4OYD)

New Members: 7

Total Members as of December 1, 2021
360

Join GARS members for our weekly breakfast gathering at
7:30 AM most Saturdays
Now at
Cracker Barrel Restaurant
75 Celebration Dr.
Suwanee, GA 30024

Birthdays in December

David Adcock (KA4KKF)
Richard Atkin (KJ4ZTY)
Steve Back (WB2OGY)
Joe Biddle (AD4PZ)
Kelian Carreras
Jackson Chauvin (KN4WBJ)
Jonathan Dickenson (KE7PQL)
Paul England (KA4PQL)
Barry Greene (KM4RVY)
Franklin Haynes (KV4SP)
Lin Holcomb (NI4Y)
Adrienne Holcomb (W4FHL)
David Johnston (KM4UVI)
Margier Langston
John Longo (W5BMW)
Mitch Matteau (N0DIM)
Chuck McCord (KK4TKJ)
Pam Meridy (WB1AKQ)
Alan Murray (WH7Q)
Hiroko Ortiz (KO4JWM)
Jeff Pere (KN4NQQ)
Jack Perry (K6JLP)
Ralph Pickwick (KJ4CNC)
Zachary Pratt (KO4NZB)
Eric Rice (KO4OVZ)
Grace Roberts
John Roeder (KK6UNS)
Jon Ryll (KO4UIC)
Jere Sandidge (K4FUM)
Norman Schklar (WA4ZXV)
Dave Slotter (W3DJS)
Susan Swiderski (AF4FO)
Thomas Whalen (KE4UXW)
Walter Wharton (KM4OND)
Amy Woodrick (KE4IKF)

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—http://www.gars.org. To make changes to your GARS membership (moved, new e-mail address, new phone number, etc.), please e-mail the Membership Committee - membership@gars.org. You can renew or update your Amateur Radio license information with the FCC at their website for free http://wireless.fcc.gov/uls/index.htm?job=home. To update your ARRL information, please visit their website - http://www.arrl.org. Membership Chair: Karen Albritton, KI4HPP Committee Members: Dave Bruse, W4DTR

Repeater Status

6M	Currently down
147.075	Operational in Snellville
147.255	Operational in Snellville
224.580	Operational in Grayson
442.100	Operational at Goshen Springs
442.325	Operational in Buford
444.525	Operational in Snellville

Link remote receivers being added

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):

- Amazon Smiles;
- 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 Twitter:
http://gars.org/twitter

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

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Joe Biddle, President AD4PZ


Jamie Burns, Vice President KX4HA


Bill Hawkins, Secretary WR1TR


Pam Meridy, Treasurer WB1AKQ


Kevin Scott, Program Manager K4GTR

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Karen Albritton, Membership Chair KI4HPP


Dave Bruse, VE Team Leader W4DTR


David Adcock, Webmaster and Field Day Chair KA4KKF


Ralph Pickwick, Apparel Manager and Education Chair KJ4CNC


Glen Wendt, TechFest Chai W3WWT


Bob Hoffmann, GARzette Editor K4CQO


Eddie Foust, Repeater Chair WD4JEM


Mike Weathers, WAS / DXCC QSL Card Checker and Historian ND4V


Chuck McCord, Net Manager KK4TKJ


Steve Back, Technical / RFI Advisor WB2OGY


Kyle Albritton, Multimedia Chair W4KDA


Don Stewart, Elmer Manager KW4AL


Sandy Jackson, Health and Wellbeing KJ4DRO

Open Winter Field Day Chair
Open Georgia QSO Chair
Open Workshop Leader

Directors and Trustees


John Davis, WB4QDX


Rick Cobb, N4XYY


Mike Weathers, ND4V


Bill Cherepy, WB4WTN W4GR Trustee

GARS Meeting Minutes

Gwinnett Amateur Radio Society – GENERAL MEETING MINUTES

11/9/2021

In person and online meeting.

President Joe Biddle (AD4PZ) opened the meeting at 7:00pm and closed the meeting at approximately 9:00pm

Participants: 31 in person – 22 Online

Treasurer's Report: Pam (WB1AKQ)

New hams and visitors: Joe (AD4PZ)

- New hams and members introduced

Membership: Karen (KI4HPP)

- Karen reported 351 members

SK Sale Update:

- Joe (AD4PZ) Special thanks and recognition of Susan Swiderski (Present at meeting) for her generosity to the scholarship fund and assistance
- Paul (W4KLY) Presented a check to the scholarship fund for the other SK sale.

Education and GARS wear: Ralph (KJ4CNC)

- All 10 Hamcram participants passed and are now licenced.
- Thank you to participants in the in the Middle School Roundup.
- New GARS light jacket available.

TechFest: Glenn (W3WWT)

- TechFest date Jan 15, 9:00 am
- We appear to have a backup location for Techfest.

Programs: Kevin (K4GTR)

- December – Christmas/holiday party
- January – LDG electronics on antenna tuners
- Kevin is still looking for a February presenter.

Workshop: Dallas (N4DDN)

- November – Roll up J-pole with Dallas

Other Business:

- Steve (WB2OGY) thanked participants for assisting with JOTA.
- Dave (W4DTR) - The VE team will be testing this Sunday.
- Joe (AD4PZ) - Ham of the year will be announced at the Holiday Party
- Joe (AD4PZ) – Help needed for these positions: Zoom admin, Workshop chairman, Winter Field Day chair.
- HamJam 2021 is coming Saturday November 13th.
- Our December meeting will be the holiday party.

Program: Dr. Frissell Presented on the HamSci project.

Minutes by Bill Hawkins (WR1TR) Club Secretary.

Workshop Minutes – Nov 16, 2021

Number in Attendance: 12

Workshop Topic: 2m Roll-up J-Pole Antenna

Presenter: Dallas N4DDM

Brief Summary: Dallas touched on the parts of a J-Pole antenna; the 1/4 wave matching stub, the 50-ohm impedance point, the 1/2 wave antenna element, the purpose of a balun, and his twist (pun intended) on how to make the 50-ohm impedance point adjustable and to tune the length of the antenna.

All of those attending learned something from Dallas' construction techniques. The use of a 2x4 with all the dimensions on it made it easy work to mark where to make and optimize the connections to the window line. There were plenty of Elmers on site with tools, antenna analyzers, and a VNA to help.

Generous donations of window line, coax, and connectors made this a fun project for all.

Submitted by: Dallas N4DDM

Events – GARS and others

ARRL CONTESTING INFO

From ARRL Contest Calendar
> For more information click the links <

December 2021

3-5 160 Meter
11-12 10 Meter
19 Rookie Roundup–CW
18-19 EME - 50 to 1296 MHz

January 2022

1 Straight Key Night
1 Kid's Day
8-9 RTTY Roundup

15-17 January VHF Contest

February 2022

14-18 School Club Roundup
19-20 International DX – CW

March 2022

5-6 DX Contest -- SSB

April 2022

10 Rookie Roundup – Phone

May 2022

No planned contests

June 2021

11-13 June VHF
18 Kid's Day
25-26 Field Day

July 2022

9-10 IARU HF World Championship

August 2022

6-7 222 MHz and Up Distance Contest
21-22 10 GHz & Up – Round 1
21 Rookie Roundup – RTTY

September 2022

10-12 September VHF
17-18 EME - 2.3 GHz & Up – Round 2
17-18 10 GHz & Up – Wknd 1

October 2022

17-21 School Club Roundup
TBD EME - 50 to 1296 MHz – Wknd 2

November 2022

5-7 Nov. Sweepstakes - CW
19-21 Nov. Sweepstakes - Phone
12-13 EME - 50 to 1296 MHz

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

HAMFEST CALENDAR

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

12/04/2021 - Silver Springs Radio Club 2021 Hamfest
Location: Ocala, FL
Type: ARRL Hamfest
Sponsor: Silver Springs Radio Club
Website: http://k4gso.us

12/10/2021 - 12/11/2021
Tampa Bay Hamfest, ARRL West Central Florida Section Convention
Location: Plant City, FL
Type: ARRL Convention
Sponsor: Florida Gulf Coast Amateur Radio Council
Website: http://www.fgcarc.org/

01/08/2022 - BCARC Freezefest
Location: Locust Fork, AL
Type: ARRL Hamfest
Sponsor: Blount County Amateur Radio Club
Website: http://w4blt.org

01/08/2022 - K4KDI Winter Tailgate 2022
Location: Orlando, FL
Type: ARRL Hamfest
Sponsor: South Conway Baptist Church
Website: http://k4kdi.org

01/08/2022 - TARCFest
Location: Tampa, FL
Type: ARRL Hamfest
Sponsor: Tampa Amateur Radio Club
Website: http://www.hamclub.org

01/08/2022 - WF4X Presents "Coffee, Donuts & Dogs" Tail 'gator
Location: DeFuniak Springs , FL
Type: ARRL Hamfest
Sponsor: WF4X Welcomes all to a Free Tail 'gator. Come buy, trade, sell, swap or just ragchew!
Website: https://wf4x.wordpress.com/

01/15/2022 - Gulf Coast Amateur Radio Club
Location: New Port Richey, FL
Type: ARRL Hamfest
Sponsor: Gulf Coast Amateur Radio Club

01/21/2022 - 01/22/2022 Southwest Florida Regional Hamfest
Location: Fort Myers, FL
Type: ARRL Hamfest
Sponsor: Fort Myers Amateur Radio Club
Website: https://swflhamfest.info/

01/29/2022 - DeSoto County Hamfest
Location: Arcadia , FL
Type: ARRL Hamfest
Sponsor: DeSoto Amateur Radio Club, INC.
Website: http://desotoarc.org

For more information: http://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 2021

TechFest	Cancelled for 2021
Dog Show Fundraiser	April 1-4 2021
Georgia QSO Party	April 10-11 2021
North metro area Fox Hunt	April 2021
Spring Technician HamCram	April 2021
Memorial Day Parade	May 31 2021
ARC/KARC Hamfest	Cancelled
Field Day	June 26-27 2021
Summer General HamCram	July 24-25, 2021
Fall Technician HamCram	TBD
JOTA	October 16-17 2021
Technician HamCram	October 23-24, 2021
Maker Faire	TBD
Stone Mt. Hamfest	November 6-7 2021
Holiday Party	December 14 2021

GARS Recurring Calendar

- 2nd Tuesday of the month at 7 pm (except December): Monthly Club Meeting (in-person location 690 Airport Rd, Lawrenceville, GA 30046)
- 3rd Tuesday of the month at 7 pm (except December): Monthly Workshop (in-person location 690 Airport Rd, Lawrenceville, GA 30046)
- 2nd Sunday of the Month at 2 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
- Most Saturdays at 7:30 am :
  GARS Weekly Breakfast
  Cracker Barrel Restaurant
  75 Celebration Dr., Suwanee, GA 30024

GARS CALENDAR FOR December 2021

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2	3	4 **Breakfast at Cracker Barrel** **GARS Holiday Party**
5	6 **7:30 – 8:00 PM GARS 2M Net**	7 **7:00 PM GARS Exec Meeting (Online)**	8	9	10	11 **Breakfast at Cracker Barrel in Suwanee 7:30 AM**
12 **GARS VE Exam Session EAA 690 Hangar 2:00 PM**	13 **7:30 – 8:00 PM GARS 2M Net**	14	15	16	17	18 **Breakfast at Cracker Barrel in Suwanee 7:30 AM**
19	20 **7:30 – 8:00 PM GARS 2M Net**	21	22	23	24	25 **Breakfast at Cracker Barrel in Suwanee 7:30 AM**
26	27 **7:30 – 8:00 PM GARS 2M Net**	28	29	30	31	

Local Ham Radio Exams & Meetings

Local Ham Radio Exams

[Please check with each session contact for current status.—Ed.]

GARS publishes Metro Atlanta VE exam schedules as a service and is not responsible for errors or changes. Call and confirm schedules before going. All sessions are walk-in, unless otherwise noted. Take copies of current license and certificate of completed elements with you to all sessions. Find additional sessions online at http://www.arrl-ga.org

First Sunday, ODD Months
2 pm (Jan, Mar, May, Jul, Sep, & Nov)
VEC: WCARS
Braselton Public Utility Building
4986 Highway 53, Braselton, GA
Contact: Nat Christman K4VQ, 678-371-7103
christmans30680@gmail.com

First Sunday, EVEN Months
2 pm (Feb, Apr, Jun, Aug, Oct, Dec)
VEC: WCARS
Hall County EOC
470 Crescent Dr. Gainesville, Ga.
Contact: Perry Roper, KO4RD
(770) 536-3056

Second Saturday
10:00 AM
Alpharetta North Park, Adult Activities Center
13450 Cogburn Rd, Alpharetta, GA 30004
Contact: Ian Kahn, KM4IK
E-mail: km4ik.ian@gmail.com

Third Saturday, ODD Months
VEC: ARRL
9:30 am (Walk-ins welcome)
Stone Mountain Masonic Lodge
840 VFW Drive
Stone Mountain, GA 30083
Contact: Frank Haynes, KV4SP
Email: fhaynes@vatmom.net
(678) 467-3712

First Sunday, EVEN Months
VEC: WCARS and W5YI
2 pm @ Barrow Co. Emerg. Serv. Bldg
66 McElroy Street
Winder, GA 30680
Contact: Mike Wolcott, W4WYI
(404) 281-6581
E-mail: W4WYI@ARRL.net

Fourth Tuesday
ARRL VEC
7 pm @ United Way Service Center
6279 Fairburn Rd., Douglasville
Contact: Jessie Clower, KB4WFK
(770) 942-6466

Fourth Sunday
2:30 pm Georgia Tech
VanLeer Elec. Building
Rm. W218, 777 Atlantic Dr.
For more information go to www.w4aql.com and click on "Test Sessions"

GARS Ham Radio Exams

Second Sunday of the month

November 2021 Results

We had a successful exam session on Sunday, November 14. Five applicants tested. Two applicants earned Their Technition license and Two upgraded to General. The final applicant took and passed all thre levels in on sitting, earning his Amateur Extra Class License.

Thanks to all the VE's who made the session possible:

· Frank Haynes, KV4SP
· Earl Whatley, AF4FG
· Bill Cherepy, WB4WTN
· Donna McCord, KM4FMW
· Russell Prevost, AB4QQ
· Richard Kitz, KM4SWL

73, Chuck, KK4TKJ (Co-CVE)

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

GARS VE Website: http://gars.org/exams has location information and testing requirements.

On the 2nd Sunday
Laurel VEC
REE Amateur Radio license testing.
12:00noon
Pre-registration is preferred, but walk-ins will be accepted up to 12:30pm

Angel Flight Room at Peachtree-Dekalb Airport
2000 Airport Rd STE 227
Atlanta, GA 30341
https://www.atlantave.team

Local Meetings

[Please check with each club for meeting schedule and method (online, etc.) - Ed.]

First Tuesday
Kennehoochee ARC
Fire Station #1, Training Room
112 Haynes Street, Marietta, GA
Meeting begins at 7:00pm
Talk In 146.880(-)

First Thursday
Atlanta Radio Club
Georgia Red Cross HQ
1955 Monroe Dr., Atlanta, GA
Meeting is at 7:30pm
Talk In -146.820(-)
N.E. Georgia ARC
Commerce Public Library
1344 South Broad Street, Commerce, GA
Meeting is at 6:30pm
Talk In - 147.225(+), PL 123.0

Second Monday
Georgia Tech ARC
Room W218
Van Leer Electrical Engineering Bldg.
Georgia Tech Campus
Meeting at 7:00pm
Sawnee Amateur Radio Association
Beaver Toyota
1875 Buford Highway, Cumming, GA
Meeting at 6:30

Second Thursday
Alford Memorial Radio Club
Annistown Road Baptist Church
Annistown Rd & Spain Rd
Stone Mountain, GA
Dinner at 6:00pm, Meeting at 7:30pm
Talk In - 146.760(-)

Second Saturday
North GA QRP Club
Board Room of The Shepherd Center
2020 Peachtree Rd, NW, Atlanta, GA
at 10:00 AM

Third Tuesday
North Fulton Amateur Radio League
Alpharetta Recreation & Parks Dept.
Alpharetta Adult Activity Center
13450 Cogburn Road, Alpharetta, GA
meeting at 7:30pm
Talk In - 145.47(-)
For more information, go to:
https://nfarl.org/

GARS Supporters