The GARzette

The Official Newsletter of the Gwinnett Amateur Radio Society

June 2023 http://www.gars.org/ Volume 50, Issue 6

Inside

www.GARS.org

TechFest 25th
Gwinnett Amateur Radio Society
GARS January Exhibition of the Technical aspects of Amateur Radio
Held at the Gwinnett County Fairgrounds

CELEBRATING 50 YEARS 1973 2023

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

GARS Meeting: Ice Cream Social at Harbins Park & GARS 50th Fest
Tuesday June 13, 2023 at 7:00 PM

President's Message

From the President…

The Gwinnett County Fox Hunt was held on May 13th and it seemed everyone had a great time!

The 'first-to-find' of the off-site MAMA Fox was a Father/Daughter team and surprisingly, the 'first-to-find' of the baby fox (PUP), was a **Different** Father/Daughter team. Way to go!

I would like to thank our instructors, and guides - Jim Sorenson (KA4IIA) and Tim Lemmon (WK4U) - for providing guidance and instructions to the newer participants as well as hints to those just needing a nudge in the right direction.

I had stated in a couple of postings, that the hope is that others will take interest and coordinate their own Fox Hunts in the various counties around the Atlanta Metro area. I will make available all planning and analysis documentation to anyone desiring to put a Fox Hunt on, and utilize any aspects of this hunt event.

See more of this story and pictures in this newsletter issue along with many more photos at: **https://groups.io/g/GARS/album?id=287022**

I wonder how many folks travelled to **Dayton for Hamvention on May 19th through the 21st?** I heard numerous good things about it and I am awaiting to hear the stories and adventures you may have had. I hope to make it again myself next year.

There is nothing more rewarding than being a part of the 30th anniversary of the **Dacula Memorial Day Parade.** This memorial to those who gave the ultimate sacrifice, is something one will remember fondly if you have seen this parade, and even more so if you were a part of it. It is even more rewarding being part of the Gwinnett Amateur Radio Society Club and doing what we do, having provided this service for 30 years as well.

This service includes being a part of the planning process, as well as the coordination of setup and staging of all the participants in one central location. And finally, we start the parade itself by sending the parade participants on their way for all the on lookers to admire and enjoy as everyone reflects on the reason for this day.

Many thanks go out to club volunteers! I counted over 30 GARS volunteers in the effort. There were no Macy's balloons, but there were hundreds of people marching and making the 30th Year Anniversary of the PARADE, and the involvement of the Gwinnett Amateur Radio Society Club for 30 years as well, a great success. Many thanks to the GARS volunteers.

June 13 Ice Cream social / Celebration – this tradition of our 'Ice Cream' social, has long been a kickoff of sorts to our annual Field Day Preparedness Exercise Event. We will meet at the annual Field Day site, hold a brief business meeting, hear about the plans for this year's Field Day, and enjoy some refreshing ice cream. Additionally, this year we will take a few moments to highlight some GARS milestones over the years to recognize the 50th Anniversary of GARS. So, join us for ice cream and treats as we celebrate our birthday and share old and new stories of GARS.

Field Day 2023 - I hope to see many of you on the 23rd of this month at our annual Field Day event. I know there has been lots of discussion on the planning aspect of it and even a work session to check out and repair some of our equipment we intend to use. Remember to bring your appetite on Saturday evening for the great BBQ and fixin's we will have spread out.

See you at the event!

73,

Joe Biddle, AD4PZ

Club President

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 (Offline for Maintenance)	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
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.

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

- June 13, 2023 – Ice Cream Social – Harbins Park
- July 11, 2023 – GARS Repeaters – David Adcock KA4KKF
- August 8, 2023 – Mobile Radio Installations – Alex Kowalchuk AK4AM
- September 12, 2023 – Favorite Websites
- October 10 2023 - Show-n-Tell, Favorite Ham Projects

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

- June 20, 2023 - Field Day - Check cables, antennas, network logging laptops, etc. All Hands
- July 18, 2023 - GARS Repeaters - David Adcock KA4KKF
- August 15, 2023 - Mobile Radio Installations - Alex Kowalchuk AK4AM
- September 19, 2023 - Favorite Websites
- October 17 2023 - Show-n-Tell, Favorite Ham Projects

GARS Meeting – June 13, 2023
Annual Ice Cream Social

This is located at the Field Day site – Harbins Park. Come join us for ice cream and information about the upcoming Field Day operations.

GARS Workshop – June 20, 2023
Field Day Preparations

This is a follow up workshop to discuss cables, antennas, network logging laptops, etc. before Field Day.

In addition to the planned GARS Workshop topic we also include Q&A time for your Amateur Radio projects and adventures. Feel free to bring along your show-n-tell items and questions. We typically have 5 or more Elmers at each Workshop.

GARS would like to thank Joe Biddle, AD4PZ, and Jim Sorenson KA4IIA for their May Fox Hunt presentation and Fox Hunt that was held on the intervening weekend.

GARS Field Day

June 24 & 25

at Harbins Park

Operating as 8A with a GOTA Station and DMR Help Table

GARS Happenings

20 Years ago in the June 2003 GARzette:

- Dacula Parade in 2003 write-up
- A Field Day Humer article
- A "Smoke & Mirrors" article on kit building

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


The GARZETTE

The President's Key

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.

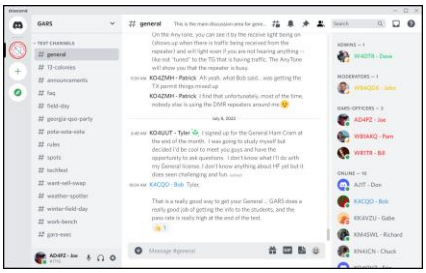
Out of almost 300 members, there are only seven operators who serve as the NCS for the GARS net every Monday night. In no particular order, they are:

Ray – N4GYN David – KA4KKF Kevin – W4KIB Fisher – W4LON Chuck – KK4TKJ

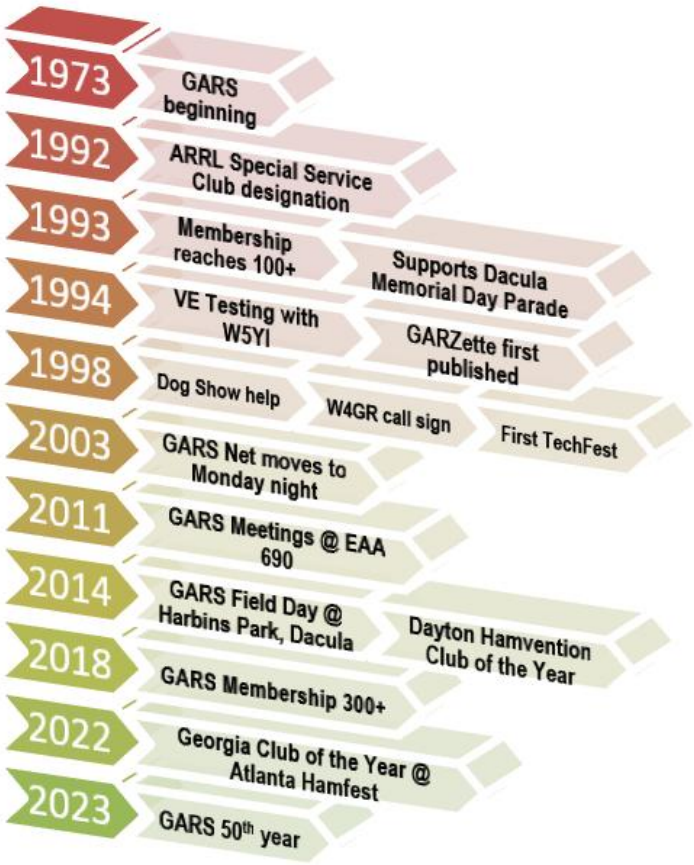
As GARS Net Manager (Chuck KK4TKJ), I would like to have more volunteers to fill NCS positions. I do plan and post the schedule months in advance. Any conditions will be accommodated that you as a rotating NCS need to place on the scheduling of your duties. If your plans change, I can make adjustments 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 (https://gars.org/contact/) 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. →



GARS 50 Years



Detail Events

1973	GARS beginning
	Field Day @ Gwinnett Antenna Range
1982	Repeater installation @ High Hope Road
1992	Meeting place – American Red Cross
	Repeater Located @ Oak Street
	ARRL Special Service Club designation
	Support for Gwinnett ARES
1993	Christmas Party beginning
	Membership reaches 100+
	Support of the Dacula Memorial Day Parade
1994	Administer Ham Radio Exams with W5YI
	GARZette publishing
	Net held on Tuesday
	Ham of the Month
	Field Day @ Rhodes Jordan Park
	CW classes
	Elementary School demos
	Ham of the Year
	440 Repeater established

1998	Starts Dog Show help
	First TechFest @ Central Baptist Church
	W4GR call sign replaces WD4JXR
1999	6m Repeater
2002	Meeting place @ First United Methodist Church
2003	Net moves to Monday night
	TechFest moves to First United Methodist Church
2005	TechFest @ St Marguerite D'youville Catholic Church
2007	VE Testing @ Gwinnett Public Library 5 Forks Branch
2010	VE Testing @Masonic Lodge
	Field Day @ Sweetwater Park
2011	Meetings @ NAMAR, Duluth
	Meetings @ EAA 690
	VE Testing @ Fire Station #5, Duluth

2012	Membership 200+
2013	TechFest @ Gwinnett Medical Resource Center
2014	Field Day @ Harbins Park, Dacula
	Dayton Hamvention Club of the Year
2015	VE Testing @ Fire Station #24, Buford
	2m Repeater moves to Snellville
2017	Workshops begin with in-person Group Mentoring
2018	Membership 300+
2021	VE Testing @ EAA 690
2022	Georgia Club of the Year @ Atlanta Hamfest
2023	GARS 50th year
2023	TechFest @ Gwinnett County Fairgrounds

GARS Education Recap

Education Committee Mid-Year Recap

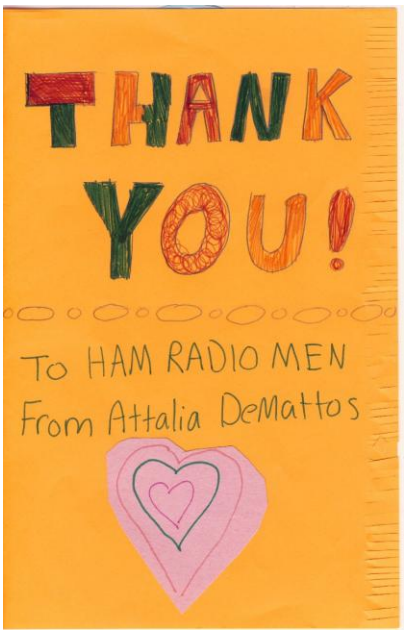
We're just a few days away from the end of the 2022-23 school year, so I thought it would be a good time to go over many of the significant events that have taken place so far this year.

HamCrams John Davis WB4QDX (co-instructor) and I are celebrating 10 years of conducting HamCrams or GARS. We've completed 26 classes during that time, instructing over 360 students. This year we conducted a Technician HamCram in March, then a General HamCram in April. We are happy to report 19 new Technicians and 15 new Generals.

Lilburn Elementary School Plans are under way to start a Ham Radio Club at the school during the fall semester. The big news, however, is that Lilburn Elementary will host an ISS contact during the spring 2024 semester. The school was 1 of 8 schools chosen nationally for this honor. Jean Delashmit KM4FVO and I participated in the school's STEM night and had a lot of interest shown during our demonstration. Thanks to Kevin W4KIB, Dan KQ4GXM and Dave W3DJS for standing by their radios and talking to the kids.

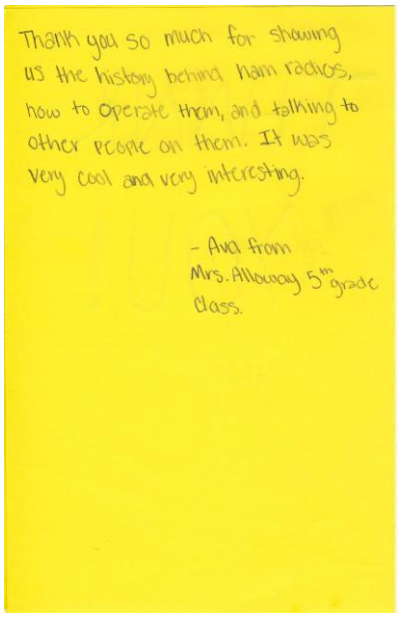
McConnell Middle School Jean and I had a full year of weekly club meetings where we taught the Technician class, built kits, and spent a lot of time on the radio. Four of the students passed their Technician exams, one passed his general. This past February we participated in ARRL's School Club Roundup. This was our most successful roundup yet scoring 16,700 points. 7th overall for middle schools and 3rd in GA. Many thanks to David Adcock KA4KKF for his help getting the club station on FT8. For our last club meeting of the year, we had our annual McConnell Middle School Field Day. We set up portable HF and VHF/UHF stations that were running on battery power and solar panel. Our version of Field Day is a picnic of sorts where the parents can attend to see what their students have been doing in the radio club over the year. We even had a visit from the principal, who has been very supportive of the club. Many thanks goes out to Earl Whatley AF4FG for his help in creating a successful day for the kids.

Paul Duke STEM School Tom Crowley KT4XN helped a student with a radio astronomy project. The student was required to build an antenna, make the necessary measurements, then write a thesis on the results. The paper was titled: "Creating a Rotation Curve of the Milky Way Using the 21cm Hydrogen Line."



Mason Elementary School Paul Kelley W4KLY, Bob Hoffman K4CQO, and I spent a day at the school helping them celebrate STEM Day. Over the course of the day we saw roughly 150 5th graders. Paul Kelley's CW display is always a hit. Bob Hoffman displayed HF and DMR, and I had the kids talking over the GARS 2M repeater. A highlight for me is the stack of personalized thank you cards we got from all of the students. (see attached) Standing by at their radios were: Philip KJ4VFO, Dave W3DJS and Mark Vogt.

Ralph Pickwick KJ4CNC
Education Committee Chairman



Gwinnett County Fox Hunt 5/13/23

This event started off on a beautiful day with nice temperatures and sunny skies in Eastern Gwinnett County.

We began with some brief introductions and to explain the objectives of the day for the Fox Hunt. I introduced our instructors: Jim Sorenson (KA4IIA) and Tim Lemmon (WK4U) who would give brief training sessions, including tips and tricks of using the various types of techniques and equipment that would be used. The goal – to find as many transmitters as possible, and above all, have fun and learn.

Once the frequencies for the initial hunt were posted on the 'Fox-o-Pole', one group stayed at ground zero (the Fox Den) at the Harbins Park Pavilion, while another group assembled and tested their equipment, then proceeding to seek out the Mama Fox which was hidden in nearby Tribble Mill Park.

There were some brief instructions given at the pavilion where the first training transmitter was located. This transmitter was not hidden, and was in full view on a tripod. The point of this was to see the fox and learn how one's equipment and various techniques behaved in relations to that transmitter. Once getting familiar with this, small groups were given the frequency of a second training transmitter, and headed for it some 300 feet Northwest.

This second training transmitter was a little more challenging as the location was in the woods, where we must now consider 'RF reflections', and the art of signal attenuating. With the instructors giving some DF'ing coaching, every last person/team found this transmitter by using their equipment and applying the various techniques to locate the small, camouflaged large pill bottle sized transmitter container laying in a small hollow tree stump.

As everyone would eventually make their way back to the Fox Den, they would see the frequency of the Pup Fox posted on the Fox-o-Pole so they in-turn could search for this one too. And those hunters returning from finding the Mama Fox (and everyone did), would return to see the Pup frequency posting where they could also go in-search for.

Note, I knew a baby fox is called a 'kit', but 'pup' sounds more familiar and universal. hi hi

The Pup Fox was not aggressively hidden in the woods and was only 20 feet from the paved trail. However, me being a Geocacher, I decorated the slightly larger container, in camouflage, complete with fake leaf material. This Pup would be a bit harder to spot visually. Attenuation here is your friend. Here again, everyone found the Pup safe and sound.

Congratulations to:

Richard (KR4OS) & Jessica (KR4JM) Matthews (father/daughter team), who were the First to Find the **Mama Fox.** (left)

Congratulations to:

Hal (W4IGE) & Hope (KO4PVM) Collier (father/daughter team), who were the First to Find the **Pup Fox.** (right)

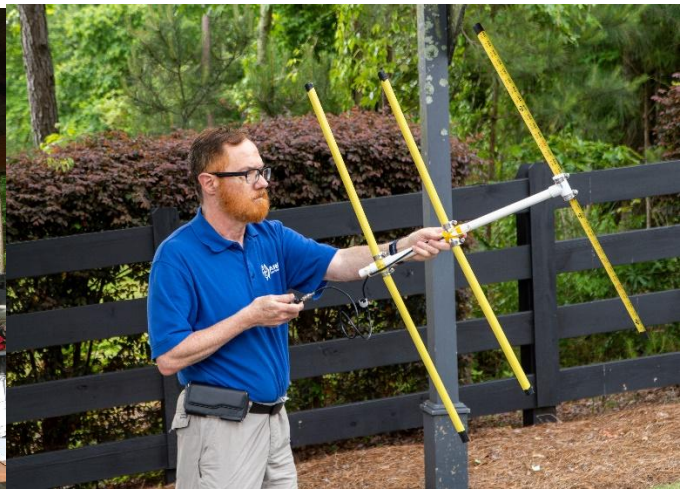
I want to thank to Earl Whatley (AF4FG) for helping with the event execution and another thanks to the event instructor guides: Jim Sorenson (KA4IIA) and Tim Lemmon (WK4U)

Additionally, many thanks to everyone else who participated in this GWINNETT COUNTY FOX HUNT 2023.

73 and Happy Direction Finding.

Joe Biddle (AD4PZ) Event Coordinator

Pictures by Joe (AD4PZ) and Kevin (W4KIB)



Many more photos at: https://groups.io/g/GARS/album?id=287022

2023 Dacula Memorial Day Parade

A special thanks to all of those who helped to make the Dacula Memorial Day Parade a successful event again this year. All did a great job under trying circumstances. Not only was the parade route reversed, but we parked the participants differently, moved the fallen heroes out of the staging area and reinserted them at the high school. Thanks again to those who helped.

David	KA4KKF	Bill	KQ4AGI
Kevin	W4KIB	Rick	N4XYY
Joe	AD4PZ	Bob	K4CQO
Ralph	KJ4CNC	Paul	W4KLY
Harold	KJ4FPR	Andre	W7ALS
Pam	KJ4RYV	Richard	KM4SWL
Jolie	KO4AHI	Glen	W3WWT
Pam	WB1AKQ	Yosef	KQ4HIR
Steven	KJ4MWF	Lee	KT4LS
Steve	WB2OGY	Larry	AB4NX
Dan	KQ4GXM	Rob	KN4RG
Ricardo	W4RMZ	Mark	KQ4GEL
Ryan	KJ4DRN	Kevin	KK4WOG
Geri	K4GMF	Eddie	WD4JEM

Earl AF4FG

2023 GARS Scholarship Winner

ARRL FOUNDATION

Administering Programs to Support the Amateur Radio Community

June 1, 2023

Gwinnett Amateur Radio Society
Ralph Pickwick, KJ4CNC
2694 Still Farms Place
Lawrenceville, GA 30043

Dear Friends,

On behalf of the ARRL Foundation Officers and Board, I am pleased to announce the 2023 recipient of Gwinnett Amateur Radio Scholarship in the amount of $1000.

Michael Grimsley, KF4W, of Columbia, South Carolina has been selected for The Gwinnett Amateur Radio Scholarship from an outstanding group of applicants. Scholarship recipients were recently notified of their awards, and we have already had many replies conveying their excitement and appreciation.

Scholarships through the ARRL Foundation would not be available without the support of thoughtful and generous sponsors such as you. Thank you for making The Gwinnett Amateur Radio Scholarship possible, and for aiding a student Amateur Radio operator in his/her pursuit of their higher education. I am confident that these young people will be successful in their future careers, and in representing Amateur Radio as well.

Again, many thanks for your support with this award. If you have any questions, please contact ARRL Foundation Secretary Diane Middleton, W2DLM at ARRL (dmiddleton@arrl.org).

73,

David Norris, K5UZ
President
ARRL Foundation

My name is Michael Grimsley (KF4W). I became interested in amateur radio while working at Radio Shack in Beaufort, SC. The guys would come in looking for parts and pieces to build and repair all sorts of things, and they always had time to answer my questions. I got licensed as a Technician in 2000 as KG4KOW and upgraded to General in 2001. I've been a music teacher since 2007 and recently finished my second master's degree in Education Administration to transition into a principal role. I'll be starting my Education Doctorate in Educational Practice and Innovation with a Concentration in Education Systems Improvement this fall at the University of South Carolina. I hope to study school safety, culture, and climate and how that relates to students' social and emotional education in a post-COVID world.

I am currently a Board Director for the Columbia Amateur Radio Club in Columbia, SC, and ARRL SC Section Youth Coordinator. I'm active in Parks on the Air, South Carolina QSO Party, and the 13 Colonies special event. I'm also the trustee for my school's radio club, KS4TEM at Midlands STEM Charter School.

The Inoue IC-700 Twins

Vintage Amateur Radio

de Bill Shadid, W9MXQ

Examples of rare amateur radio equipment have always been a fascination of mine. Radios that perhaps go through many years of design and development only to come to the market with the wrong timing, the wrong features, deployment or manufacturing issues, or one of many other things that can plague the process from inception to market.

Examples come to mind of a few such products. One is the Hallicrafters FPM-200 HF Transceiver. The first true hybrid radio, the FPM-200 used solid state technology for all but voltage regulators, the driver, and the two 6146 final amplifier tubes. Costs escalated for the unit and it failed on the market. I have never seen one of these transceivers, but they were illustrated in Hallicrafters advertising in the 1950's and were far ahead of their time. Hallicrafters had them in numerous special events and even a few DX-Peditions.

RigPix Photo

This is a picture of the Hallicrafters FPM-200 HF Transceiver as eventually marketed. Fewer than 100 are thought to have been made[1]. With numerous germanium transistors it would be remarkable (but not impossible) that a working unit could be found today.

Another such rare piece of equipment would be the E. F. Johnson Avenger HF Transceiver from about 1969.

RigResource Photo

This is a picture of the E. F. Johnson Avenger HF Transceiver. This radio perhaps had fewer than 20 examples made[1]. However, these do appear for sale occasionally. Note the two incorporated VFO's.

The example rare radio for more discussion in this article are the Inoue IC-700 Twins. They take their place along with the two above – perhaps similar in volume to the Hallicrafters FPM-200 and almost certainly more than the E. F. Johnson Avenger.

In 1967, and more actively in 1968 and 1969, Inoue (say, In'-Oh-Way) attempted to market a set of twins (matching separate receiver and transmitter) of hybrid design. To start with, Inoue had been making VHF and UHF FM Transceivers for sale for some time in the North American market. Inoue in this time sold a relatively small receiver, the IC-700R, and a style matched transmitter, the IC-700T. Look at this rather unique pair and see if the package shows you a design concept that was part of these radios' design:

Inoue IC-700 Twins

IC-700T Transmitter and IC-700R Receiver
Shown with the IC-700PS AC Power Supply/Speaker Console

W9MXQ

This pair – if you notice – is absent a VFO knob on the transmitter. This radio is similar in concept to the Drake TR-44 where a Drake R-4 is in the same cabinet with a Drake T-4. The T-4 was like a Drake T-4X, but it did not have a VFO. It relied on the VFO in the R-4 to control the station frequency. Here is that Drake radio:

Rigpix Photo

These are the combined Drake R-4 Receiver and the T-4 Reciter (Transmitter without a VFO[5]) in the same cabinet – the model TR-44. To my knowledge these were not available as separate units – other than the fact that the R-4 Receiver was available as a stand-alone unit. This pair required the AC-4 Power Supply and MS-4 Speaker units. The T-4 was known as a Reciter – meaning it used the frequency established by the R-4 Receiver. This radio was updated later using the R-4B Receiver and T-4B Reciter – referred to as the model TR-44B.

The concept in the Inoue Twins was that they operated off the IC-700R Receiver. The Receiver did include RIT so there could be a slight variance (+/- 5 kHz) on Receive. No XIT (transmitter incremental tuning) was available. The Drake unit had no RIT – like the popular TR-4 Transceiver of the time.

The IC-700R Receiver is all solid-state but suffers from overloading – not untypical of Japanese receivers of the time. For as good as equipment as Japan produces now, that was not the case in the early days of solid-state when the American manufacturers produced credible solid-state designs while the Japanese were just not up to the same technical level. (To be fair in this assessment, the Japanese produced high performance vacuum tube radios in the same period – competitive in every way.)

The receiver covers 80 thru 10-meter bands (no WARC Bands). It also receives 10 MHz WWV via a special setting of the Preselector when the receiver is in the 28 MHz band position. The receiver (and therefore the transmitter) can be crystal controlled with positions for three crystals provided as a part of the bandswitch.

W9MXQ or KE9PQ Photo

This is an interior view, viewed from the rear, of the IC-700R Receiver. Note the large shielded box with the tuned circuits for the i-f system. You can also see the 9 MHz i-f filter. The power transformer is visible – see notes about that in the main text. To the right on the back panel is a seven-pin connector used with a cable to provide control connections to and from the IC-700T Transmitter. Note that some former owner marked bands near the i-f tuning adjustment ports.

The power supply built into the IC-700R is two way. It is accessed by the 8-pin octal connector on the left rear of the chassis. While the manual with the IC-700R notes that the receiver works from 12 VDC or 240 VAC. This unit meant for the North American market has an undocumented 120 VAC transformer installed in place of the 240 VAC one documented. See the octal connector at the left rear – the connector wired to that connector is wired for a 12 VDC source or a 120 VAC one. Documentation for these units is sparce and gets much more sparce after the receiver.

As noted above, the IC-700T transmitter has no included VFO, so it had to be connected to the IC-700R for transceive operation – its only option. There were two interconnections between the units. First was a coaxial cable between VFO in the receiver to the transmitter that is handled with a low loss coax connection between phone jacks on both units. Also, as mentioned above is a Control Cable that connects to a seven pin miniature socket on each chassis. This connector is a seven pin tube socket connector. The plugs are identical to the External VFO connectors used by Kenwood on their hybrid transceivers. The IC-700T Transmitter used a pair of then common 6146B tubes in the final amplifier, a 12BY7A driver tube, and a 12AU6 tube as a buffer tube feeding VFO signal from the VFO in the receiver to the transmitter circuitry.

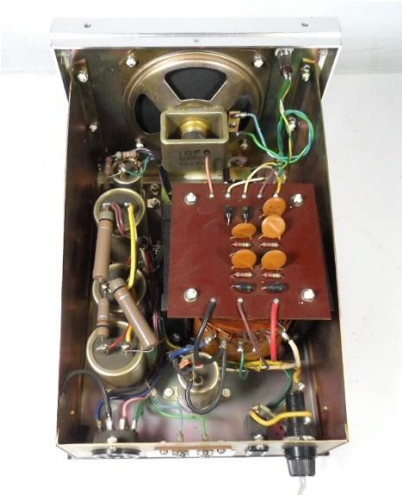
W9MXQ or KE9PQ Photo

This is an interior view, viewed from the rear, of the IC-700T Transmitter. The large shielded and ventilated box at the right rear houses the two 6146B finals and the tank circuitry. You can also see the 9 MHz i-f filter. The other two tubes are visible between the PA compartment and the front panel. Power connections are through the octal chassis plug just visible at the left side of the rear panel. You can see two SO-239 sockets – the one on the right is for the antenna connection and the one on the left is there to feed antenna signal to the receiver. There is no cooling fan for which there are some comments in the text.

The transmitter produces 150 watts input PEP on SSB and CW. This provides an output of about 70 watts – with a bit less on 10 meters. Like the receiver, the transmitter covers the 80 thru 10-meter bands – not including the WARC bands. This is lower than most radios of the time which had an input power in excess of 200 watts. However, tight physical size and the lack of a cooling fan likely put design restrictions on the transmitter.

Interestingly, the receiver bandswitch for 10 meters had three positions while the transmitter covered all three of those positions with one position. That is understandable.

The IC-700R Receiver and the IC-700T Transmitter are setup with the IC-700PS AC Power Supply/Speaker Console, pictured in the center of the pair in the station picture, earlier in the article. The interior of the unit is as shown here:



W9MXQ or KE9PQ Photo

This is an interior view, viewed from the rear, of the IC-700PS AC Power Supply/Speaker Console. You can see the voltage doubling rectifier board for the nominal 500 VDC high voltage used by the final amplifier tubes and the nominal 250 VDC "low high voltage" produced for the tubes other than the final amplifier tubes. This is mounted over the North American version power transformer. Also provided were bias voltage for the final amplifier tubes, filament voltage for the transmitter vacuum tubes, and 12 VDC for the solid-state stages. There is a 120 VAC convenience outlet for the IC-700R Receiver.

Here is a rear panel picture of all three units in the IC-700 Station:

IC-700T Transmitter **IC-700PS Power Supply** **IC-700R Receiver**

IC-700 Station Rear Panel Views

W9MXQ or KE9PQ Photos

For interconnections – and somewhat repetitive from above – there are three octal connectors present for power distribution within the setup. The octal connector on the transmitter is to connect power from the one octal connector on the power supply. The one octal connector on the receiver determines (by its wiring) the power supply used (12 VDC or 120 VAC). If 120 VAC, then it can be plugged into the convenience outlet present on the back of the power supply (next to the fuse and AC cord). The control cable connects between the 7-pin miniature sockets at the left side of the transmitter and the right side of the receiver. The VFO feed cable from the receiver to the transmitter is connected to the phono sockets seen at just left of center on the receiver and to the right on the transmitter. Finally, there is the terminal strip on the back of the power supply for connection to its integrated speaker. That speaker line comes out of a 1/8" speaker connector on the receiver rear panel, right side.

For some panel specifics, please note the two illustrations, below:

W9MXQ or KE9PQ Photo

IC-700R Receiver:

Note upper center BAND SELECT switch and see the “28-10” position. When in that position and with the PRE SELECT control can be tuned to 10 MHz for receipt of 10 MHz WWV. The BAND SELECT has the A, B, and C crystal positions. The receiver includes AM and AM with Automatic Noise Limiting plus SSB and CW. The RIT controls +/- 5 kHz excursions from the indicated dial position (receiver only). The ring on the back of the TUNING knob can be turned to adjust for dial calibration. The main dial (above the TIUNING knob) shows rough calibration in 50 kHz segments while the adjustable ring indicates kHz either 0-50 or 50-100, depending on main dial starting point.

W9MXQ or KE9PQ Photo

IC-700T Transmitter:

Immediately can be seen the lack of a VFO knob – depending on the receiver frequency. Since no information or manuals seem to exist on this radio, one must use caution and known techniques for tuning a tube final amplifier. Current should be held to (dipped at) 200 mA, at the most. Note that FUNCTION does not include AM mode even though the receiver does include that mode. VOX GAIN must be moved to the off, or PTT position to allow the transmitter to work on PTT operation. The microphone (MIC) connector is an odd (but readily available) three pin model. Transmitters like the IC-700T require extreme care in tuning. They are delicate, close to the edge on power capability, and easily damaged if the user is careless or inexperienced.

The IC-700PS is shown between the IC-700T Transmitter and the IC-700R Receiver in the complete station setup earlier in this article. Here is a closeup view of the front panel:

W9MXQ or KE9PQ Photo

IC-700PS AC Power Supply/Speaker Console:

This power supply in the North American market came with a 120 VAC (only) power transformer and a fixed two wire AC Cord. Unlike radios today which accommodate 100 VAC (Japan), 120 VAC (North America), 220 VAC Center Tap (many areas) and 240 VAC non-Center Tap (also many areas). Likely with the low volumes the power supplies were custom made for market being supplied. Note the neon pilot light and the push/push on-off switch. That switch did not control the utility outlet on the rear panel intended to supply the IC-700R Receiver with AC power.

Icom also provided a 12 VDC Power Supply for the IC-700T Transmitter, it was a model IC-700PSDC. Recalling that the IC-700R Receiver was capable of 12 VDC operation as connector option, the IC-700PSDC would allow the complete station to operate mobile or portable on battery power. Here are some pictures of the IC-700PSDC – the only information I have on this unit:

Rigpix Photo

IC-700DCPS DC Power Supply:

This power supply augmented the IC-700PS AC Power Supply when operation from 12 VDC was desired. The three views here are of the cable, the assembled power supply, and the connections available.

Inoue, known to all of us, today, as Icom (see details, below) produces much more sophisticated radios. And, yet, as a long-term user of many Icom HF radios[2], I can "hear the IC-700R" in every one of them.

In the early 1970's, Inoue (In'-oh-way) changed their name to Icom. Inoue was the name of the founder of what became Icom. The company had been a well-known producer of VHF FM equipment (and continue to be into the present time). Inoue, now Icom, was founded in 1954 by Tokuzo Inoue,[3] who remains as leader of the company. Asian companies at times do change their names to a more global format – that is perceived to be a positive for their marketing organizations. Here is the progression:

Inoue Logo

Most often this was red or silver, but also, blue. The logo often included the text, "Inoue Communications Equipment" or "I.C.E." adjacent to the logo. Check the red Inoue logo on the front panels of the IC-700R and IC-700T.

Early Icom Logo

Current Icom Logo

The logo change for Icom from the Inoue logo with the word, "Icom," changed during the production cycle of some radios. For instance, all Icom IC-751 Transceivers have the Early Icom Logo and so do early IC-751A models. Late IC-751A models, however, carry the Current Icom Logo.

As said at the beginning of this article, these are extremely rare radios. As it happens, I know of two complete sets that are available as of this writing. If you are interested, contact me and I can set up contact for you with their owner. These are true collectables and not for the casual collector to plug in and get working to make contacts on a whim. Their greatest value may well be knowing you have them!

A special thanks go to Bob, W9DYQ, for his proof reading. And, I appreciate that you read my articles. Remember that I am open to questions and comments at my email address, W9MXQ@TWC.com. Also, for this article, I owe a debt of gratitude to Mark Olson, KE9PQ, Nationwide Radio[4], for his assistance in this set of IC-700 Twins.

Notes:

[1] Estimates of radio sales volumes are difficult to determine. Suffice it to say that I have a lot of different friends in the industry and they have knowledge I do not possess. Production volume comments from the most credible sources. Some are retirees from the specific companies or otherwise not willing to be quoted specifically. However, for the IC-700R Receiver, I can, quote Fred Osterman, N8EKU, in his book, ***Shortwave Receivers Past and Present***, (Universal Shortwave Research. 4th Edition © 2014) where he lists the Inoue IC-700R as "Extremely Scarce."

[2] Equipment I have or have had (only two remain with me) from Icom were the IC-751A, the IC-775DSP, the IC-756PRO, the IC-756PROII, the IC-756PROIII, IC-706 (original), IC-746, IC-726, IC-746PRO, and the IC-7410. I am an experienced Icom user and have respect for many of their features.

[3] Credit: Wikipedia <http://www.wikipedia.com> - search for "Icom."

[4] Nationwide Radio <https://ke9pq.com/>.

[5] In this article, the term VFO is used to describe a tunable frequency control. The VFO in the IC-700T was a capacitor tuned oscillator. In the Drake R-4 and R-4B that VFO was actually a PTO, that was tuned with a variable inductor.

GARS Membership

New Members in May
Michael Bernard (KA2WTF)
New Members: 1
Total Members as of June 1, 2023 381

Join GARS members for our:

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

Both weekly gatherings are held at The 5 Spot at:

The 5 Spot restaurant
555 Progress Center Ave
Lawrenceville, GA 30043

Birthdays in June
Mark Bell (N7GRB)
Tom Brack (KQ4HHV)
Harold Brown (KI4FPR)
William Carmichael (NV4Q)
Neil Cleveland (WB4OXY)
Hope Collier (KO4PVM)
John Davis (WB4QDX)
Marty Edwards
Jacob Ernst (KQ4ECM)
Jim Gaffney (K4YNA)
Cara Guidry
James Hinkle (AG4ON)
Joseph Keyes (K3YES)
Fisher Londono (W4LON)
Jim Marchand ( )
JD Masters (KQ4ELD)
Ralph Matchette (KE4IHD)
Olivia McMahon (KO4UIB)
Rick Morris (KD4VOJ)
Lew Newlin (KM4YWK)
Brian Page (N4TRB)
Robert Pence (KM4AAP)
Michael Ray (KO4SSU)
Charles Roberts (K4HFO)
Ron Rogers (WW8RR)
Evelina Silva (KO4FQI)
Royce Stovall (KD4EXY)
Bill Van Duynhoven (KE4TVA)
Courtney Wagner (KN4GZI)
Blaine Wasden (W4SDN)
Kathy Wasden (KW4SDN)

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 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 Twitter:
http://gars.org/twitter

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

GARS Mail Address:

GARS
P.O. Box 492531
Lawrenceville, GA 30049

Officers

 Joe Biddle, President AD4PZ

 Alex Kowalchuk, Vice President AK4AM

 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, Field Day Chair, TechFest Chair KA4KKF

 Ralph Pickwick, Education Chair KJ4CNC

 Earl Whatley, Apparel Manager AF4FG

 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

 Dallas Mellichamp, Workshop Leader N4DDM

 Sandy Jackson, Health and Wellbeing KJ4DRO

 Kevin Igarashi-Ball, Multimedia Chair W4KIB

 Dallas Mellichamp, Georgia QSO Chair N4DDM

Open Winter Field Day Chair
Open Elmer Manager

Directors and Trustees

 John Davis, WB4QDX

 Rick Cobb, N4XYY

 Kyle Albritton, W4KDA

 Bill Cherepy, WB4WTN W4GR Trustee

GARS Meeting Minutes

Gwinnett Amateur Radio Society – MEETING 5/9/2023

The May minutes are not available.

Workshop Minutes - May 16, 2023

Number in Attendance: 9

Workshop Topic: Fox Hunting - After the Hunt Review

Presenter: Joe Biddle AD4PZ

Brief Summary:

Due to a massive amount of rain attendance for this Workshop was way down and since none of the Fox Hunters were present, Joe saved his After Action Review of the Harbins Park Fox Hunt for later.

David KA4KKF used this opportunity to briefly go over some Field Day planning and the building of 1/4 wave stubs to help reduce inter-station interference.

Earl AF4FG went over how the Dacula Memorial Day Parade will be different this year with the parade flowing in the opposite direction. Most of our work in the parking lot will be the same except the participants will exit the parking by the gazebo.

Earl and Dallas stepped forward to help Tom KQ4HHV program his new HT.

In addition to the planned GARS Workshop topic we also include Q&A time for Amateur Radio projects and adventures. Feel free to bring along your show-n-tell items and questions. We typically have 5 or more Elmers at each Workshop.

Events – GARS and others

ARRL CONTESTING INFO

From ARRL Contest Calendar

> For more information click the links <

2023	**January**
1	Straight Key Night
7	Kid's Day
7-8	RTTY Roundup
21-23	January VHF Contest
	February
13-17	School Club Roundup
18-19	International DX – CW
	March
4-5	DX Contest -- SSB
	April
16	Rookie Roundup – Phone
	May
	No planned contests
	June
3-4	International Digital Contest
10-12	June VHF
17	Kid's Day
24-25	Field Day
	July
8-9	IARU HF World Championship
	August
5-6	222 MHz and Up Dis Contest
19-20	10 GHz & Up – Round 1
20	Rookie Roundup – RTTY
	EME - 2.3 GHz & Up
	September
9-11	September VHF
16-17	EME - 2.3 GHz & Up – Rnd 2
9-10	10 GHz & Up – Wknd 1
	October
29-29	EME - 50 to 1296 MHz
16-20	School Club Roundup
	EME - 50 to 1296 MHz
	November
4-6	Nov. Sweepstakes - CW
25-26	EME - 50 to 1296 MHz
18-20	Nov. Sweepstakes - Phone
	December
1-3	160 Meter
9-10	10 Meter
17	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]

06/17/2023 - **Black Warrior Hamfest**
Location: Northport, AL
Type: ARRL Hamfest
Sponsor: Black Warrior Hamfest
Website: http://BlackWarriorHamfest.org

07/07/2023 - 07/08/2023 - **2023 Milton Hamfest**
Location: Milton, FL
Type: ARRL Hamfest
Sponsor: Milton Amateur Radio Club
Website: http://miltonarc.org

07/08/2023 - **K4KDI Summer Tailgate 2023**
Location: Orlando, FL
Type: ARRL Hamfest
Sponsor: Conway Baptist Church
Website: http://k4kdi.square.site

07/22/2023 - **Cullman Amateur Radio Club Hamfest**
Location: Cullman, AL
Type: ARRL Hamfest
Sponsor: Cullman Amateur Radio Club

08/19/2023 - 08/20/2023 **Huntsville Hamfest, ARRL ALState Convention**
Location: Huntsville, AL
Type: ARRL Convention
Sponsor: Huntsville Hamfest Association
Website: http://hamfest.org

08/19/2023 - **TarcFest**
Location: Tampa, FL
Type: ARRL Hamfest
Sponsor: Tampa Amateur Radio Club
Website: http://www.hamclub.org

10/13/2023 - 10/14/2023 **Melbourne Hamfest - ARRL Florida State Convention**
Location: Melbourne, FL
Type: ARRL Convention
Sponsor: Platinum Coast Amateur Radio Society
Website: http://www.pcars.org/

10/14/2023 - **Flamingo Net Flea at U. of Miami**
Location: Coral Gables, FL
Type: ARRL Hamfest
Sponsor: Flamingo Net ARC
Website: http://www. FlamingoNet.8m.net

10/14/2023 - **NOARC (W4AAZ) Annual Hamfest**
Location: Crestview, FL
Type: ARRL Hamfest
Sponsor: Live Oak Baptist Church, The City of Crestview Florida, Main Street Association Crestview
Website: https://w4aaz.org/noarc-hamfest/

10/21/2023 - **MARCIFEST 2023**
Location: Bradenton, FL
Type: ARRL Hamfest
Sponsor: Manatee Amateur Radio Club, Inc.
Website: https://www.manatee-arc.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 2023

TechFest	January 14 2023
Winter Field Day	January 28-29 2023
Spring Technician HamCram	March 25-26 2023
Dog Show Fundraiser	March 29-April 2 2023
Georgia QSO Party	April 8-9 2023
North metro area Fox Hunt	April 2023
Summer General HamCram	April 29-30 2023
Memorial Day Parade	May 29 2023
ARC/KARC Hamfest	June 3 2023
Field Day	June 24-25 2023
JOTA	October 2023
Fall Technician HamCram	October 2023
Maker Faire	TBD
Stone Mt. Hamfest	November 4-5 2023
Holiday Party	December 2 2023

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
- 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
- Every Friday at 11:30 am, GARS Lunch at The 5 Spot
- Every Saturday at 8:00 am GARS Breakfast at The 5 Spot

GARS CALENDAR FOR June 2023

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1	2 **11:30 AM Lunch at The 5 Spot**	3 **8:00 AM Breakfast at The 5 Spot**
4	5 **7:30 – 8:00 PM GARS 2M Net**	6 **7:00 PM GARS Exec Meeting**	7	8	9 **11:30 AM Lunch at The 5 Spot**	10 **8:00 AM Breakfast at The 5 Spot**
11 **2:00 PM GARS Ham Radio Exams, EAA 690 Hangar**	12 **7:30 – 8:00 PM GARS 2M Net**	13 **7:00 PM GARS Meeting Harbins Park**	14	15	16 **11:30 AM Lunch at The 5 Spot**	17 **8:00 AM Breakfast at The 5 Spot**
18	19 **7:30 – 8:00 PM GARS 2M Net**	20 **7:00 PM GARS Workshop Meeting EAA 690 Hangar**	21	22	23 **11:30 AM Lunch at The 5 Spot**	24 **8:00 AM Breakfast at The 5 Spot** **Field Day Harbins Park**
25 **Field Day Harbins Park**	26 **7:30 – 8:00 PM GARS 2M Net**	27	28	29	30 **11:30 AM Lunch at The 5 Spot**	

Local Ham Radio Exams & Meetings

GARS Ham Radio Exams

Second Sunday of the month

Doors open at 1:45pm, exams start promptly by 2:00pm

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

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

May 2023 Results

The GARS VE Team had a great exam session today.

0 New Technicians

3 Upgraded to General

1 NEW Amateur Extra (if you hear him on the air – say “hello”):

- Jason Hurst: KY4YB (Amateur Extra)

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

W4DTR - Dave (CVE)
WB4WTN - Bill
AF4FG - Earl
KM4SWL - Richard

Thanks & 73,

Dave Bruse, W4DTR (CVE)
GARS VE Team Leader

For more information and to preregister, please visit https://gars.org/exams/

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

In order to have you're your ad included, contact editor@gars.org. Current ad prices are:

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