The GARzette

The Official Newsletter of the Gwinnett Amateur Radio Society

October 2025 https://www.gars.org/ Volume 52, Issue 10

Inside

www.GARS.org

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TechFest
Gwinnett Amateur Radio Society

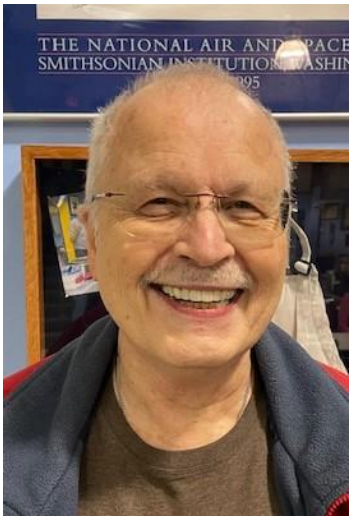
GARS January Exhibition of the Technical aspects of Amateur Radio
Held at the Gwinnett County Fairgrounds

The next TechFest is January 31, 2026

GARS Meeting: Review of Favorite Ham Radio and Related Websites and Apps – Various Speakers
Tuesday October 14, 2025 at 7:00 PM

President's Message

From the President…



It is fall and time to clean things out from the summer's activities and get ready for Fall and Winter.

We have a contest coming up quickly called Meeting the Members Contest to get everyone familiar with our repeaters and also connect other members. It last from 10/10 to 10/12 and is open to all license classes members of GARS. It is a good reason to get on the air and enjoy some conversations with other GARS members. The rules are listed in the GARzette and on our web site (GARS.org) which also has the link for the contest log.

GARS did its own fall cleaning by switching the GARS storage location. It has been going on for a while and finally completed oner the last weekend in September. That weekend was accomplished by Eddie WD4JEM, Joe AD4PZ, Ed W4BSR, Lynn W4VNA, Richard KM4SWL and myself getting most of the remaining stuff moved, and then Neil WD4NET got rid of the stuff took the remaining stuff to a junk place.

OLD EMPTY STORAGE UNIT

NEW STORAGE UNIT

The Repeater Survey is complete (thanks our VP Richard KM4SWL) and the results are listed in another section of this newsletter.

GARS runs on volunteers. There are several oportunities open for members to fill. Some of them are listed later on in the GARzette and will also be listed and explained in out monthly meetings. If you see something that you are interested in, send me a message and I will put you in contact with the right members to get you started. Most of the positions are not a "work alone" position and none of our positions are meant to be do it all by yourself. The GARS members are always available to help plan and get the things done.

This is the time to nominate the outstanding GARS members for the Ham of the Year recognition. Go to our GARS.org web page to make your entry.

73,

Bob – K4CQO
Club President / GARZette Editor

GARS Repeaters and Other Communications

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

Notable Web Links

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

Need Help – Let GARS Elmers answer your questions

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

About the GARzette

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

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

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

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

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

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

GARS Meetings & Workshops

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

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

When GARS meetings are available on **Zoom** the **login** info will be posted to http://www.gars.org prior to the meeting. Members are able to attend the GARS Executive Zoom Meeting on the 1st Tuesday of the month – send an email to the GARS President (president@gars.org) for information to attend.

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

- October 14 - Review of Favorite Ham Radio and Related Websites and Apps
- November 11 - Review of Favorite Ham Projects
- December - No Meeting - Holiday Party

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

- October 21 - Review of Favorite Ham Radio and Related Websites and Apps
- November 18 - Review of Favorite Ham Projects
- December - No Meeting - Holiday Party

GARS Meeting – October 12, 2025
Review of Favorite Ham Radio and Related Websites and Apps – Various Speakers

This has become an Annual GARS Event where members share their favorite ham radio related websites and apps.

GARS Workshop – October 19, 2025

GARS workshops provide further information about the presentation given the week before on a one-on-one basis with the various presenters and there are also Elmers present on a variety of subjects to help with any questions you may have about ham radio – including help you're your equipment that you can bring in.

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

GARS would like to thank Harold Brown KI4FPR for his presentation on Ham Raio Protocol.

GARS Happenings

20 Years ago in the October 2005 GARzette:

- The GARS newsletter (GARzette) is not available for October 2005. However, all available GARzettes from 1995 can be found and browsed for your enjoyment from the GARS website.

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

GARS
GARzette

Health and Wellbeing – Sandy Jackson, KJ4DRO

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

Net Managers Corner

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

GARS NEEDS MEMBERS TO SERVE AS NET CONTROL STATIONS!

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

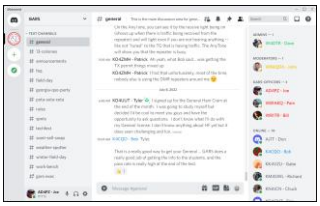
Out of almost 300 members, there are only five operators who serve as the NCS for the GARS net every Monday night. In no particular order, they are:

Ray – N4GYN David – KA4KKF Kevin – W4KIB Bill - WD4AMC Chuck – KK4TKJ Ed – W4BSR

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

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

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



Meet the Members Contest – 10/10 to 10/12

This is a GARS contest aimed at using the GARS repeaters and getting GARS members to make contacts with other members. Below are the specifics and rules for the contest.

(A contest for GARS members only)

1. Contest begins Oct 10th at 6:00 PM and ends Oct 12th at 11:59 PM
2. Only GARS members may participate
3. Bands
   UHF VHF
   2 Meters
   1.25 Meters
   70 cm
   33 cm
   23 cm
   Any amateur GHz frequency

   HF
   Any HF frequency where Tech class license is allowed to operate
4. Modes
   SSB (voice)
   FM
   Digital (CW is a digital mode)
   D-STAR (is a voice mode)
   DMR (is a voice mode)
5. Contacts may be simplex or repeater
   Any simplex frequency is allowed
6. Any station can be worked once per band per mode (Once on simplex or repeater. These are not two separate modes)
7. Exchange
   Call Sign. Old GARS member or New member - add OM or NM (ie. AF4FG/OM or KI4QCI/NM)
8. Personal Greeting.
   Since one purpose of this contest is for members to get to know each other, a face to face greeting after the contact is made should be attempted
9. Scoring
   1 point for each voice contact
   1 point for each digital contact
   1 bonus point for successful Personal Greeting

   * New members are those who have joined GARS since 10/1/24. Anyone who was a member in the past but has not been a dues paying member for at least 10 years prior to rejoining after 10/1/24 is considered a new member for purposes of this contest. (Since a new member cannot contact himself he automatically receives 1 bonus point)
10. Awards
    Top Ten scores receive a GARS hat unique to this year's contest
    All participants who turn in a log receive a GARS patch or decal
11. Logging

Log Call Sign of station contacted, NM or OM, Frequency, Mode, date of contact and Personal Greeting (yes or no)

Logs must be submitted electronically by midnight October 31, 2025 to af4fg@arrl.net

12. Suggested Simplex Frequencies

Voice	CW	Other Digital
146.505	144.03	145.07
446.00	432.075	430.45
52.525	50.050	50.530
28.345	28.050	28.150
	3538	
	7090	
	21050	
Any repeater		

13. Arranged Contacts

Times for contacts and frequencies to be used may be arranged

14. Visual Rule

Individuals cannot be within sight of each other except in the case where one or both are in a moving vehicle. Both cannot be in the same vehicle

15. Net Rule

The net control for any net may not count each check in as a contact nor may each check in count the net control as a contact

GARS Six Meter Repeater

Did You Know That GARS Has a Six Meter (6M) Repeater?
By Kevin Scott, K4GTR

I know that most of you have used our main two meter repeater on 147.075 MHz (Output or your receive frequency on your radio) with an input frequency of 147.775 MHz. In addition, you also need your radio to transmit a sub-audible tone of 82.5 Hz to trigger the repeater. This tone was first called "PL" for Private Line by Motorola (the inventor of PL). The more common acronym is CTCSS or Continuous Tone-Coded Squelch System. Either way most of the GARS repeaters require a CTCSS tone in addition to a good-enough signal to get into the repeater's receiver in order for the repeater to rebroadcast your signal. PL is also helpful to prevent another distant ham on the same input frequency from accidentally turning on our repeater when they get "in range" because of enhanced propagation conditions (cold fronts and high pressure systems) or mountaintop operation.

Enough of the VHF-High Band and UHF repeaters. Let me introduce you to our back-on-the-air VHF-Low Band repeater on Six Meters. Oh, but I don't have a mobile or handheld that operates on six meters. How can I utilize this new repeater. I have a simple answer. Use your HF rig!

A majority of HF rigs in the past 30 years or more have HF PLUS Six Meters. Most are also ALL MODE meaning that not only can they operate on CW, SSB and AM, they can also do FM. And most have TWO VFOs, which you must have for operating on a repeater. Remember, a repeater transmits on one frequency and receives on a completely different frequency.

Let me give you a few tips about six meter operation:

1) Six meters is called the "Magic Band". Currently, we are at a Sunspot Maximum. Who cares about sunspots? Well, we hams do. An active sun with a lot of sunspots emits more radiation that energizes the upper layers of our atmosphere, known as the ionosphere. One layer that is responsible for much of the six meter band (and 10 meters, too) openings (those times when your radio signals skip off of the ionosphere and go 1000 km or more) is call the "E" layer. E-skip or Sporatic E is one such phenomenon that carries your signal far beyond the typical horizon and allows you to communicate with another station several states away and sometimes on the Pacific coast. It is called Sporatic because it typically doesn't last long and is random. Sometimes, it can last a few minutes and other times it can last for hours but it typically dies down after local sunset. It is fun while it lasts and thus the "Magic" and typically does not require much power for success. I have worked states from Texas to the Great Plains and northward with 10 Watts into a Ground Plane antenna.
    a. On very rare occasions, the F2 layer will get so reflective that it was bounce six meter signals even farther than the E layer. As well, I have experienced E-skip on two meters but this didn't last long at all. That was really impressive.
2) The lower you go in frequency, the more the radio waves "bend" around the horizon. UHF is very much line of sight although it can be susceptible to weather phenomenon such as Tropospheric Ducting whereas VHF-Low Band (6 meters) tends to go beyond the horizon regularly.
3) Compared to HF antennas, six meter antennas are relatively small. Not as small as two meters or especially UHF but quite manageable

Now, onto our GARS Six Meter Repeater.

This repeater is located in northern Gwinnett County and mounted on the top of the Buford Water Tank. It is about 70 feet above the ground on one of the highest locations in Gwinnett County. I have already worked a ham from Blairsville, GA so its range is quite good. Another difference with this repeater, compared to the other GARS repeaters is that it does NOT require a CTCSS tone to trigger it. You only need to have a signal strong enough to get into the "machine". The antenna is vertically polarized

so for maximum signal transfer, you should also be using a vertically polarized antenna. With enough power and a close-enough distance to the repeater, you might trigger it while running horizontally using your six meter beam, Moxon or other HF antenna but go vertical if you can. A simple Ground Plane antenna works great (that is what I have in my attic). Or you can make a J-Pole or Slim Jim vertical antenna. https://m0ukd.com/calculators/slim-jim-and-j-pole-calculator/

Now, onto programming the settings of your HF rig. It must have the following minimum capabilities:

- Transmit and receive on Six Meters (50 – 54 MHz)
- FM Modulation
- Dual VFOs (A & B)
- Split Operation

Other factors to consider are transmitter output power (prefer 25 Watts, typical) and memory channel capability (this is not required but a "nice to have" feature).

Here are the steps for setting up your HF rig:

1) Set MODE to FM
2) Set VFO A to 53.110 MHz (my picture shows VFO B but it can VFO A instead)
3) Press the A/B function key to change to VFO B
4) Set VFO B to 52.110 MHz
5) Press the "SPLIT" key
6) Go back to VFO A on the display.
    a. This is your repeater receive frequency of 53.110 MHz
7) Ensure that your TX power is set to maximum or at least 25 Watts.
    a. You can turn this power to a lower level once you are confident that you have a strong signal into the repeater
8) If you have memory channel capability, you can save these frequencies into the radio's memory

You do not need to program the CTCSS tone into the radio. If your rig doesn't have CTCSS built-in, well, it doesn't matter.

Turn down the squelch until you hear noise and then adjust the audio level to a comfortable volume. Then, turn up the squelch to get rid of that white noise.

Now, you are ready to work others on this resurrected repeater.

I hope to hear one of you. Give me a call.

73,

Kevin Scott
K4GTR

Set to FM Mode


Set First Frequency to 53.110, VFO A preferred (ignore VFO B shown in picture)

Press the A/B key to switch to VFO B


Enter 52.110 into VFO B (ignore VFO A in picture)

Set to Split Frequency Mode for repeater operation

Set the TX power to maximum


Go back to VFO A (ignore VFO B in the picture)

Set to FM Mode

GARS Repeater Survey Results

Summary of GARS Repeater Survey

- **Participation**: Most respondents use the **147.075+ (Snellville)** repeater; a smaller group also uses **442.100 (Norcross)**, **442.325 (Buford)**, and others.
- **Usage patterns**:
  - Main activities: **GARS Monday Net, ARES Net, rag chews, listening, and testing antennas**.
  - Access: Mostly via **base stations and handhelds**, plus some mobile radios.
  - Locations: Primarily **home use**, with some **highway mobile**.
- **Satisfaction**:
  - Many rated the repeaters **Good to Excellent**.
  - A few reported **Fair or Poor**, usually tied to coverage gaps or audio quality.
- **Issues**:
  - Top problems: **Coverage gaps, poor audio, lack of traffic, interference, frequent outages**.
  - Several noted **repeaters being down for long periods**.
- **Reporting**:
  - Many do **not report problems** or “don’t know how.”
  - Those who do often contact the **repeater chair or email leadership**.
  - Resolution speed: ranges from **days to months**, sometimes still unresolved.
- **Improvements requested**:
  - **Better coverage / additional repeater sites**
  - **Digital modes (DMR, Fusion, D-STAR)**
  - **Repeater linking**
  - **Clearer reporting process & regular status updates**
  - **Repeater nets/activities to increase traffic**

Overall:
People value the repeaters but want **better reliability, clearer communications on status/issues, more linked coverage, and digital options**. A large portion don’t know how or don’t bother to report problems.

GARS Member Spotlight

Featuring GARS Member – Ray Bailey N4GYN
Presented By Richard Kitz, [KM4SWL] with AI-assistance

Ray Bailey: Member Spotlight — A Passion for Radio, Community, and Lifelong Learning

FIGURE 1 - RAY BAILEY AT HIS STATION IN AUGUST 2025

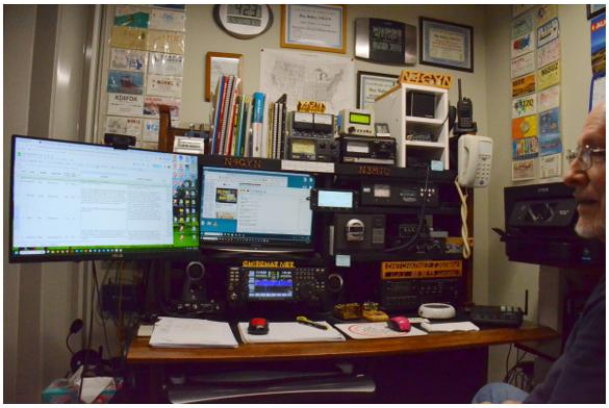


FIGURE 2 - RAY'S STATION WHILE WE CHATTED

Introduction & Background

Ray Bailey, a longtime fixture in the amateur radio community, shares his story of passion, persistence, and service. Licensed since 1965, Ray credits early inspiration from CB radio and close friends, with a first license callsign WN3GAI (Novice), upgraded to General Class a year later as WA3GAI after intensive CW practice. Ray moved to N.H. around 1970 and became WA1NYY. Then he moved to Reston, VA in 1975 and became WB4BZQ. (This was in the days of FCC keeping call signs in the number region.) Ray became inactive for about 5 years and renewed at last minute, becoming N4GYN. His initial equipment was humble—antennas strung on downspouts and trees—but his spirit reached across the globe, making contacts from the North Pole to the South Pole

Equipment & Station Setup

Ray's main rig is an Elecraft K4D paired with the KPA1500 amplifier—favored for its elegant integration and ease of operation, avoiding complex interface gear. He contrasts this with the Kenwood TS-590S his 97-year-old friend uses, praising the latter's robustness but finding Kenwood's menu system less intuitive. Ray maintains a backup station, scattered gear, and a strong technical interest in software tools for noise reduction and remote operation.

Professional Life and Transition

Ray retired in 2008 and relocated to Buford, Georgia after a starting a career in Broadcast Radio at WFMZ in Allentown, PA, then moving to work at the Applied Physics Laboratory in Laurel, MD (Johns Hopkins). His deep computing background informs his approach to radio and the adoption of computer tools to assist in his shack and managing workflow.

Club Involvement and Leadership

Active in the Georgia Amateur Radio Society (GARS) since 2008, Ray had been the editor of the Garzette from October of 2010 thru July of 2016. He participates in field day, tech fest, and other GARS activities.

Digital and Remote Radio Innovations

Ray is an evangelist for digital modes and remote operation. He utilizes software like RM Noise Client for signal clarity far beyond standard radio noise reduction and controls his station remotely via RCForb Remote Client and Virtual Audio Cable systems. His excitement for technology is balanced with a practical approach to troubleshooting and supporting others in digital setups [transcript]. His station is available 24/7 to anyone on the internet for remote operation.

Memorable QSOs and Ham Radio Stories

Among Ray's most cherished memories is communicating with K3KMO, a motorcycle mobile CW operator who traversed from New Hampshire to Alaska—all while riding. He treasures the legacy and QSL cards associated with such unique ops. His on-air memories are vast, covering contacts across continents and the camaraderie of club gatherings and nets.

Mentorship and Outreach

Mentoring new hams like his brother David (KF4ZPN), Ray encourages newcomers to join clubs, attend meetings, and learn from seasoned operators. He aids others in setting up digital modes and navigating licensing procedures in the modern, online VE testing world. Ray's approach blends technical know-how with personable support.

Personal Reflections: Family, Health, and Spirituality

Ray openly shares struggles with health, including the loss of his private pilot medical and visual migraines that led him to retire from flying. He balances these hardships with strong family ties and faith, having served as chaplain for his Masonic lodge for over a decade. Although no longer ambitious for higher lodge office due to memorization demands, Ray finds fulfillment in serving others and upholding tradition.

A Philosophical Angle on Learning and Aging

Returning to studying in his 70s, Ray studies digital media and reflects on the challenges of deep reading in the digital age, referring to Nicholas Carr's *The Shallows* and the neuroplasticity of the brain. He credits ongoing dialogues, like this interview, as brain exercise helping stave off decline. His lifelong learner spirit permeates personal and club life.

Aviation Anecdotes

Ray regales with tales of aviation heroes such as Jimmy Doolittle and Bob Hoover and shares fond memories of his own and his father's connections to flying, linking them to his technical mindset and discipline in radio and life.

Closing and Future Outlook

Despite his age and slowing pace, Ray remains a vibrant part of amateur radio and his community. He hopes for more involvement from younger operators and continues to mentor, innovate, and contribute. His story is one of personal resilience, technical mastery, and heartfelt community spirit.

To access Ray's web page, use this URL: https://n4gyn-ray.com/.

GARS Support for ARES

Police, Fire, EMS Hazmat Exercise

On Saturday, September 13th, Gwinnett County ARES was invited to participate in a Fall Training Exercise for the Gwinnett County Sheriff's Office Court Services Division in conjunction with the Fire Department. For this 3-hour exercise, we had the opportunity to role-play as victims and inmates at the Juvenile Justice Center in Lawrenceville.

The victims were broken into two groups: Those in need of medical attention by EMS and those needing a Hazmat washdown performed by local Fire and Rescue after being exposed to an unknown chemical agent. The rest simulated being inmates who were evacuated from the courtroom holding cells and placed in inmate buses.

The event began and concluded with a Safety Briefing in one of the courtrooms. For this exercise, we did not utilize our 2-way radio communication skills, but we did have the opportunity to work, train, and exercise with members of the Gwinnett County Sheriff's Department, Lawrence Fire, Rescue, and EMS.

Public Safety Fall Festival

Gwinnett ARES staffed a table at the Public Safety Fall Festival on Saturday, September 27 at Coolray Field in Lawrenceville from 10:00 AM to 2:00 PM. There were hundreds, maybe a thousand first responders on site enjoying food, giveaways, demonstrations, displays, and the Motorcycle Training Challenge with multiple police agencies showcasing the best of their motorcycle skills. 5 of us staffed a table to showcase Amateur Radio and we passed out pamphlets and information about Amateur Radio, ARES, Skywarn, and TechFest.

Our display table was staffed by: Pam KJ4RYV, Harold KI4FPR, Glen W3WWT, Dallas N4DDM, and Ryan KJ4DRN.

Gwinnett ARES Simulated Emergency Test (SET)

Saturday, October 4th, Gwinnett ARES participated in their annual Simulated Emergency Test (SET) at Peachtree Ridge Park in Suwannee. This year, the focus was on a Winter Weather SET. We started setting up around 9:00 AM, and wrapped up around noon. At the park, we set up 3 stations to simulate staffing the EOC at 800 High Hope Rd in Lawrenceville. A second station was simulated at the Gwinnett West Precinct Police Station to pass HF WinLink Communication as needed. A 3rd station simulated being at a Lawrenceville Supply Warehouse. Other simulated sites were a Duluth Warming Shelter at the Duluth High School and a Buford Warming Shelter at Buford High School.

We had at least 11 members on the air for the event: Hal W4IGE, Kevin W4KIB, Steve WB2OGY, Jeff AB4HF, Mark N7GRB, Dallas N4DDM, Deon KR4CUN, Mario KR4CUK, Michael KR4CVF, Tchenevia KR4GKY, and Glen W3WWT

AI and Ham Radio, a Continuing Investigation

AI and Amateur Radio: Tools in the Shack

By Richard Kitz [KM4SWL] with AI collaboration

Amateur radio operators know the value of good tools in the shack—whether it's a reliable SWR meter or logging software. Artificial Intelligence (AI) is emerging as another handy addition, acting like a smart assistant for tasks like propagation prediction or learning new modes. AI analyzes patterns in data to provide quick insights, much like how we tune an antenna for optimal performance. Let's explore how AI can assist hams in practical ways, without replacing the human touch that makes our hobby special.

Propagation Prediction and Band Selection

One of AI's strongest suits is forecasting HF propagation. Tools like those powered by machine learning can process solar data, ionospheric conditions, and historical trends to suggest the best bands and times for DX contacts. For example, input your location and target, and AI might recommend 20 meters for Europe at dusk, based on real-time space weather. This saves time scanning bands and helps avoid frustration during poor conditions—think of it as an upgraded VOACAP, but faster and more intuitive for daily use.

Logging and QSL Management

AI can streamline logging by automatically transcribing voice notes from QSOs or generating QSL card confirmations. Upload a log file, and it can spot patterns like frequent DXCC entities or suggest missing awards. For eQSL or LoTW uploads, AI might flag errors or even draft polite follow-up emails for unconfirmed contacts. It's like having a shack notebook that organizes itself, freeing you to focus on operating rather than paperwork.

Learning and Training Modes

New to digital modes like FT8 or DMR? AI acts as a patient tutor, explaining protocols step by step or simulating setups. Ask "How do I configure WSJT-X for FT8?" and get a clear guide with screenshots or commands. For license upgrades, AI can quiz you on exam questions or explain concepts like antenna polarization. It's especially useful for visual learners, generating diagrams of Yagi designs or Smith charts on the fly.

Emergency Comms and Net Support

In ARES or Skywarn scenarios, AI can parse weather alerts or traffic reports to highlight critical info for nets. It might summarize NWS updates or suggest efficient message formats. For net control, AI could draft scripts or track check-ins from voice recordings, helping maintain order during busy events. Remember, AI supports preparation—human judgment handles the real-time decisions.

Troubleshooting and Shack Optimization

Stuck with rig issues? Describe symptoms like "weak signal on 40m," and AI suggests checks: ground loops, coax faults, or interference sources. It can model antenna patterns or calculate feedline losses, aiding homebrew projects. For SDR setups, AI helps with software configs, like optimizing RTL-SDR for weak signals.

Of course, AI isn't perfect—it can misinterpret data or give outdated advice, so always verify with trusted sources like the ARRL Handbook. It can't climb towers or solder connectors, and ethical use is key: no automating spots or logs to game awards.

What's next in this series? We'll dive into more of what AI can do for us. Try an AI tool yourself—start with a simple propagation query. Questions or ideas? Contact me at [vicepresident@gars.org] or at the next GARS meeting. 73!

This article was developed in collaboration with Grok AI, demonstrating how AI can assist with drafting and research while keeping the ham focus.

Richard Kitz [KM4SWL] is a retired IT professional, current Georgia Gwinnett College student, and GARS member who enjoys exploring the intersection of traditional amateur radio and emerging technologies.

Technician HamCram October 25 and 26

WHEN: 2-Day, Saturday and Sunday; 8:00am to 4:00pm each day, exams start at 4:00pm Sunday (this is a CLOSED exam session, only open to registered students of the class).

WHERE: EAA 690 Hangar, Gwinnett County Airport – Briscoe Field, 690 Airport Rd, Lawrenceville, GA 30046

COST: $25.00 non-refundable fee covers the class and lunch both days, and the exam fee for the exam given Sunday at 4:00pm. Pizza will be brought in to save time.

To register for our 2-day HamCram Class, use our registration form on the home page. No Walk-ins accepted. This fee is non-refundable. Lunch will be brought in both days to save time.

We will be using the Ham Radio School Technician License Study Guide for this class. You can purchase the study guide locally at Ham Radio Outlet in Doraville, or purchase the book online at HamRadioSchool.com. We encourage you to at least look over the material in a study book and take some practice tests. We will go over every question in the question pool during the class, but remember that the test will only be 35 multiple choice questions. If you get 26 out of the 35 questions correct, you will pass the test. We suggest that you take some practice tests prior to the class to familiarize yourself with the question format and some of the material. Go to our exam page for sample online tests towards the bottom.

EXAM SESSION: This exam session is a closed exam session only available to those students who sign up for the class. Exams will begin 4:00pm on Sunday after the class is done.

QUESTIONS: Questions about the class or the exam session — **click here** to email the instructors.

Scouting Jamboree On The Air (JOTA)

October 18th, Saturday
09:00 to 16:00
VFW Post 5255, 368 Grayson Highway, Lawrenceville, GA 30046

This is a free event that is open to all Cub Scouts, Scouts BSA, Venturers, Sea Scouts, Girl Scouts & the general public. Come learn and have fun at JOTA 2025. JOTA is an annual Scouting event that uses amateur radio to link Scouts around the world, around the nation, and in our own community. Scouts of any age can participate, from Cub Scouts to Boy Scouts, Ventures and Girl Scouts. This is the official JOTA site of the Northeast Georgia Council Amateur Radio Club KK4BSA.

For Scouts BSA interested in the Radio Merit Badge, we will be signing off on requirement 9(a). You can either bring a Blue Card or we will provide a signed certificate which can be brought to the Apalachee Advance-A-Rama where the other Merit Badge requirements will be covered.

For information contact Steve Back WB2OGY sb@sback.org.

We will have 2-3 HF stations and one VHF/UHF station. Volunteers, Elmers, and Control Station Operators, please email Steve for more information on where you can help.

Mark's Activation Transition in POTA

… or *How I moved to the POTA Dark Side*

In August of 2020 the POTA activation bug bit leading to my first activation held at Fort Yargo State Park. I was already doing field setups as a function of Gwinnett ARES participation using my own equipment. This equipment formed the basis of my early activations. It was great for an emergency communications setup allowing for communications redundancy (dual radios) and parallel operation on HF and VHF/UHF. It's an over-kill for POTA.

The initial radio equipment consisted of an ICOM IC-7100 with tuner, Yaesu FTM-400XDR dual band VHF/UHF, Kantronix KPC3+ and a Samlex power supply all wedged into a 4U equipment travel case. The equipped 4U case weighed a lot and was bulky to move around. Off-grid power came from a 30AH Bioenno battery. The battery sat in the bottom of a RIDGID Tool Cart under a small shelf allowing space on top for a toolbox, coax cables, folding vertical HF antenna, a Slinky HF antenna, roll-up Slim Jim VHF/UHF antenna and a few other items. This loaded, bulky cart was almost a two-person lift. Add to this a large laptop with associated carry bag, a surveyor's tripod (vertical antenna mount) and all-in-all it consumed significant space in my Ford Edge.

Well for those of you whom don't know me, I suffer from a fairly rare muscular-skeletal disease in addition to common arthritis. It impacts my mobility and strength, significantly worsening since 2020. To continue activations in POTA a change was needed – reduce the weight, reduce the bulk. Time to downsize, drop the EMCOMM requirement and get to a basic POTA setup.

Thank you ICOM for introducing the IC-705 multiband VHF/UHF/HF with DSTAR QRP radio! I call this the dark side, moving from a 100- to a 5-watt radio. Well 10-watts on an external 12 VDC source. And yes, it is a learning experience dropping down to 5- or 10-watt operation. As an example, I do more digital (FT4/8) and less voice modes at this reduced power level.

For a short while I continued to use the RIDGID Tool Cart for its power source but in dropping the EMCOMM requirement left the toolbox with its weight at home. The cart was quickly replaced by a very portable Harbor Freight based DIY power box holding a 20AH LiFePO4 battery, an Epic PwrGate along with sockets for 12 VDC and USB A/C ports. The ICOM IC-705 with its tuner, a small tripod stand, a duplexer, short coax jumper cables and miscellaneous connectors went into luggable RIDGID Pro Organizer case with foam cutouts protecting the radio and tuner. Bulk and weight keeps dropping …

Well, there's a reason why you should not go to hamfests. While you get firsthand view of cool new stuff, your wallet may take a hit. Such was my case a few years ago at the Stone Mountain Hamfest when stopping at John's (WB4QDX) and Ed's (WA4YIH) DSTAR booth. Ed was sporting his ICOM IC-705 in a W2HVH.com enclosure. This enclosure is compact with enough room for the IC-705, the AH-705 tuner, a duplexer and a 4AH Bioenno battery. The XYL says if you want one (the enclosure) you're going to have to sell something – away goes the ICOM IC-7100 with tuner and the 4U case. (The FTM-400XDR stays behind as a base radio.) Bulk and weight keeps dropping …

This past year Marcus Roskosch, DL8MRE, introduced an app for IOS and Mac OS based devices called SDR Control. Among this app's many features it supports modes to include voice and digital FT4/8, logging along with rig control for several radios to include the ICOM IC-705. The large power-hungry laptop with it carry case now stays home, replaced by an iPad. A small Anker 4AH battery provides supplemental power for the iPad, iPhone and a USB-C powered WiFi router. (The iPad, iPhone and IC-705 tie together via WiFi.) The Harbor Freight based power box now only deploys when

I'm looking at an extended activation of a long day. Bulk and weight keeps dropping …

An investment in the very compact Elecraft AX1 Multi-Band (15, 17, 20, 30 and 40) Whip Antenna gives me the option of leaving the bulky surveyor's tripod with the 6 thru 80 vertical at home. There's a trade-off in antenna performance and band coverage for AX1's small form factor and very little weight. I'm very pleased with the AX1.

This brings us to today, September of 2025, on the dark side. I have a POTA activation kit that fits my current physical limitations. It gives me options on power source and antennas while keeping bulk and weight at a level I can manage. In its most minimalistic configuration: iPad, the IC-705 in the W2HVH enclosure and the Elecraft AX1. Exceptionally portable, low in weight and size.

Go POTA!

Mark N7GRB

The Basics

The First Semiconductor Device

de: Bob Schmid, WA9FBO

Not the transistor

The first semiconductor device wasn't the point-contact transistor of 1947 at Bell Labs. It was a diode, created much earlier.

Crystal radios

Reginald Fessenden was the first to transmit sound over radio waves when he made a broadcast using amplitude modulation (AM) in 1906. A number of stations went on the air after that, but broadcasting really grew around 1920. Because vacuum tube receivers were expensive, most listeners turned to the cheap and popular "crystal sets".

The crystal itself could be one of many natural minerals—sulphides and oxides that we recognize today as semiconductors. But galena, a cheap and plentiful form of lead sulphide, was the most widely used.

Galena and the cat's whisker

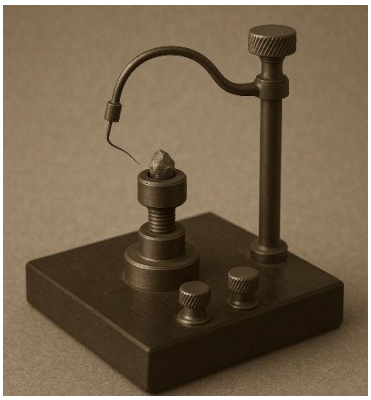


FIGURE 1 - CAT'S WHISKER

The listener used a sharp wire, called a "cat's whisker", to probe the crystal until a spot was found where signals could be heard (Fig. 1). This created a point-contact Schottky diode, the first semiconductor device.

How it works

A crystal set requires only a few parts and no power other than the transmitted signal. In Fig. 2, L1 and C1 tune in the desired station. The headphones can't respond to RF (Fig. 3a), so crystal D1 is used to recover the audio (Fig. 3b). The value of C2 is sufficient to filter out the RF in the waveform but small enough to not affect the audio. Today we call D1 and C2 a peak detector or an envelope detector.

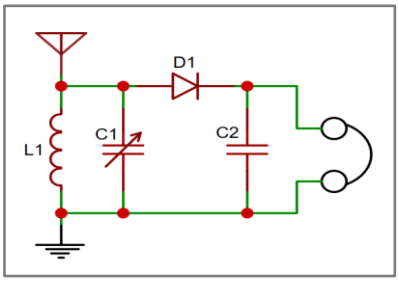


FIGURE 2 - CRYSTAL SET

Foxhole radios

During both World Wars, soldiers built receivers called "foxhole" or "razor blade" radios from scrounged parts. These receivers used blue-hardened (flame oxidized) safety razor blades in place of crystals and pencil leads in place of cat's whiskers. The dissimilar materials—the point contact of the graphite and the oxide layer on the steel—formed the diode. Only certain sites on the blade acted as diode junctions, so the soldier moved the pencil lead around the surface until the radio station was heard in the earphones.

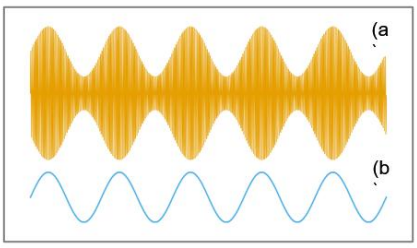


FIGURE 3 – (A) MODULATED RF WAVEFORM (B) DEMODULATED

Modern version

An easy way to make a crystal set today is to use the readily available 1N34A germanium point-contact diode in place of the crystal and cat's whisker.

Improving Logic Inputs

Connecting signals from the outside world directly to low-voltage IC inputs—like those on Arduino boards and other microcontrollers—is common practice. But without a bit of protection, it can lead to unreliable operation or even damage. Fortunately, adding a simple input buffer can improve both safety and signal integrity.

Overvoltage Protection

One important reason to buffer an input is to guard against overvoltage. For instance, a logic input rated for 3.3 V or 5 V could be damaged if its wiring comes into contact with a 12 V source. A suitable buffer can tolerate the higher voltage and keep it from reaching sensitive circuitry.

Raising the Switching Threshold

Another reason is improved noise immunity. A long wire connected to an input can act like an antenna and pick up noise, causing false triggering at the input. It's even more likely if the signal comes from a Darlington transistor, common in open-collector drivers. Darlingtons have a relatively high collector-emitter saturation voltage ($V_{CE(sat)}$)—typically 0.7 V to 1.2 V—which can leave the input voltage hovering near the logic threshold. In that region, even modest noise can push the signal across the threshold and cause the state to be misread.

Here are two straightforward buffer designs. The first addresses the above objectives, while the second handles a special case.

General Purpose Logic Input Buffer

Figure 1 illustrates a general-purpose buffer. Here's how it works.

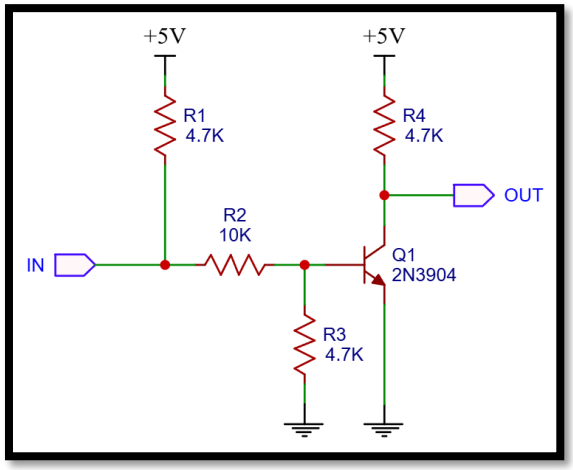


FIGURE 3 - GENERAL PURPOSE LOGIC INPUT BUFFER

Let's say the IN terminal is connected to a switch, sensor, relay contact, open collector, or similar device having two states: open and closed (shorted to ground). When the switch is open, pullup resistor R1 supplies base current to Q1, turning it on. (R1 may not be needed if the device provides a voltage output.) When Q1 is on, OUT is at a logic low level—around +0.2 V to +0.3 V.

When the switch is closed, IN is pulled to ground, cutting off the base current to Q1. Q1 turns off, causing R4 to pull the collector up to +5 V and producing a logic high level at OUT.

R2 and R3 form an approximately 3:1 voltage divider. Since Q1 turns on when there's about 0.7 V from its base to emitter, the minimum voltage needed at IN to turn Q1 on is three base-emitter drops: 3 • 0.7 V = 2.1 V. Bottom line: When IN is below +2.1 V, OUT is high. When IN is above +2.1 V, OUT is low.

We can use this circuit with a wide range of input voltages, but be mindful of the power dissipation in R1. For example, if IN is at 28 V, R1 has 23 V across it and dissipates $P = E^2 / R = (23)^2 / 4700 = 0.11$ W. Since that exceeds the safe limit for a 0.1 W 0603 surface-mount resistor, a higher power resistor is required.

How to Tell If an LED Is On

Suppose we're repurposing an old VHF or UHF mobile radio for digital or linking use. It may be helpful to derive a carrier detect signal from its "channel busy" LED. As seen in the circuitry to the left of the dashed line in Figure 2, the job is made more interesting due to the way LED1 is wired.

Assume LED1 has a forward voltage drop of 1 V. When it is off, there's +5 V on both its anode and its cathode (no current flow, so no voltage drop). When LED1 is on, there's +5 V on its anode and +4 V on its cathode.

We could detect LED activity with a circuit that decides whether the cathode is at +4 V or +5 V. But we can sense the voltage across the LED instead, making the on and off states more apparent and less affected by marginal logic thresholds.

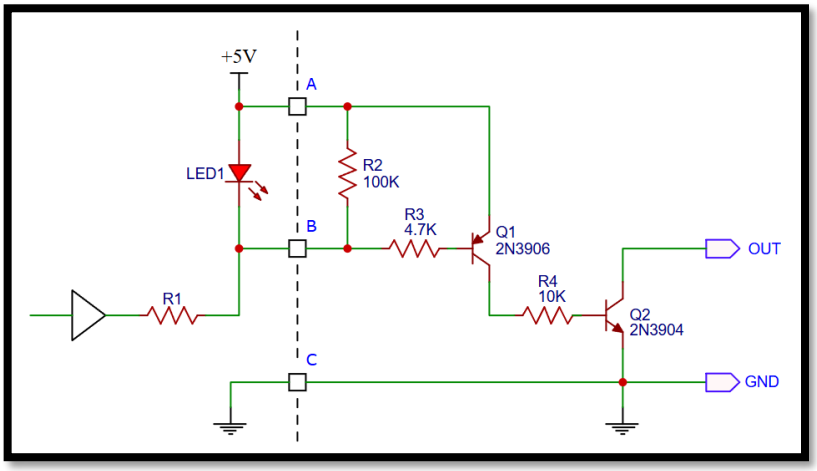


FIGURE 4 – CIRCUIT FOR SENSING LED STATUS

In Figure 2, the voltage across LED1 is monitored by Q1, a PNP transistor. When the LED is off, there's +5 V at terminals A and B (R2 helps insure they're the same). Q1 is off because its emitter and collector are at the same voltage. No current flows to NPN transistor Q2, so it is likewise off and its output is an open circuit (a pullup resistor can be added from Q2's collector to +5 V if a logic high voltage is desired).

When the LED is on, the current flowing in it creates a voltage drop. Terminal A has +5 V and terminal B has +4 V, so now the base of Q1 is more negative than its emitter by more than its turn-on voltage of 0.7 V. With Q1 on, current is sent to Q2, turning it on. The voltage at OUT is 0.2 V to 0.3 V, a logic low level.

Summary

These types of buffers are simple, inexpensive, and offer reliable signal detection in the real world.

Yaesu Hybrid Radios - FT-101Z and FT-101ZD

Vintage Amateur Radio

de Bill Shadid, W9MXQ

On the date fringe of the radios that I most enjoy collecting and restoring are the Hybrid Radios pioneered in the mass market by Sideband Engineers (SBE) (some would say, Hallicrafters[1]) and fully realized by Trio/Kenwood and Yaesu-Musen. Hybrid Radios became defined as a solid-state transceiver (or separate receiver and transmitter) where all functions, except for the power amplifier driver and power amplifier tubes being solid state.

Eventually, Sideband Engineers (SBE), Kenwood, Yaesu, Henry Radio (Tempo from Uniden), and a mass market offering from Hallicrafters fell into this description of radios offered. Kenwood had offerings early-on that were close – but with more tubes at critical circuit functions[2]. There were 20 twenty different hybrid models and/or model series that were made by five manufacturers – plus two more manufacturers known to have experimented with product offerings in this field[3].

To begin what will be a review of the various Hybrid Radios[4] made for the market the focus for the moment will be Yaesu's FT-101Z and FT-101ZD. The "Z" in the model number is the version of the FT-101 series while the "D" denotes "Digital Readout." Here is an example of this model transceiver . . .

Yaesu FT-101ZD Mark II SSB/CW/AM Transceiver

W9MXQ Collection (from KC9CI)

The FT-101ZD was introduced in 1979 and followed a very long line of original FT-101 HF Transceivers that included the FT-101, FT-101B, FT-101E Series, and the FT-101F Series. These earliest FT-101 units[5] had a different appearance but were Hybrid Radios. Here is the earlier (original) model (in version E form):

Yaesu FT-101EE SSB/CW/AM Transceiver

Here is a breakdown of the various versions of the FT-101Z models:

FT-101Z Model Breakdown and Options						
Model	**Digital Readout**	**WARC Bands**	**Cooling Fan**	**CW Filter**	**AM/FM Mode**	**Notch Filter**
FT-101Z	Optional	No	Optional	Optional	No	No
FT-101ZD	Standard	No	Optional	Optional	No	No
FT-101ZD Mk 1	Standard	No	Optional	Optional	AM	No
FT-101ZD Mk 2*	Standard	Yes	Optional	Optional	AM	No
FT-101ZD Mk 3	Standard	Yes	Optional	Optional	AM/FM	Yes

*****- *the radio model in this article*

The FT-101Z series was a single conversion design with a nominal 9 MHz i-f system. A second i-f filter is in the i-f chain as well to allow for continuously variable bandwidth in this single conversion scheme. This continuously variable bandwidth which is a nice feature and is installed in all models of the FT-101Z. Unlike earlier versions of the FT-101, the FT-101Z series models offer a Noise Blanker as a part of the main design of the radio. It is not optional.

The FT-101ZD covered here is a Mark II version of this model. It therefore had the WARC Bands and the AM Mode. It is equipped with the Cooling Fan Option. The CW filter is ready for installation – but has yet to be done. The radios from Yaesu with early versions of continuous bandwidth tuning are quite suitable for casual CW operation at narrower bandwidths. The -60dB bandwidth is wider than it would be with the specific Yaesu 600 Hz CW filter for the radio (Yaesu XF8.9HC). (Yaesu added a 350 Hz CW filter option late in the production cycle – few details of this filter seem to be available.)

In theory, the FT-101Z model (without the digital readout) was available in all forms through the Mark 3 version. In reality very few were likely imported for the North American Market. But to be sure, it was likely possible to buy an FT-101Z Mark 3, if you could find one.

The AM and FM choice shown for the Mark 3 model was a bit more complicated than shown. While the AM mode was standard on the Mark 1 and Mark 2 models, it was not standard equipment on the Mark 3 models. For that version, the user had the option to purchase either the AM or the FM module for field installation in the transceiver. Only one could be installed at a time.

The FT-101Z series had a wide range of options for use with the radio. Those included the SP-901 and SP-901P Speaker Console (the S-901P included a Phone Patch). Also, one could purchase a Remote VFO model FV-101Z or FV-901DM.

The FV-101Z Remote VFO was an analog readout unit for use with all versions of the FT-101Z and FT-101ZD. This was perhaps the only option uniquely tied to the FT-101Z series. All others where shared with the up-market FT-901 and FT-902 series Transceivers[5] that inhabited an identical cabinet and shared much in the electronics area. This view shows the readout configuration that was present on the non-digital readout FT-101Z.

Universal Radio

The FV-901DM Digital Remote VFO, intended for the FT-901 and FT-902 Transceivers also matched and worked with the FT-101Z series radios. This Remote VFO had digital features, such as 40 memories.

Universal Radio

Not shown here were items such as RTTY Interface Units (YT-901 and YK-901). and 50, 144, and 430 Band Transverter (FTV901R). However, some more common options are shown below. These items, as their model numbers denote, also supported the FT-901DM and FT-902DM product lines.

The SP-901 Speaker Console is the matching speaker for this series of radios.

Not everyone's cup of tea, the matching speaker is a must for me for radios that I collect.

Universal Radio

The FV-901DM Digital Remote VFO, intended for the FT-901 and FT-902 Transceivers also matched and worked with the FT-101Z series radios. This Remote VFO had digital features, such as 40 memories.

Universal Radio

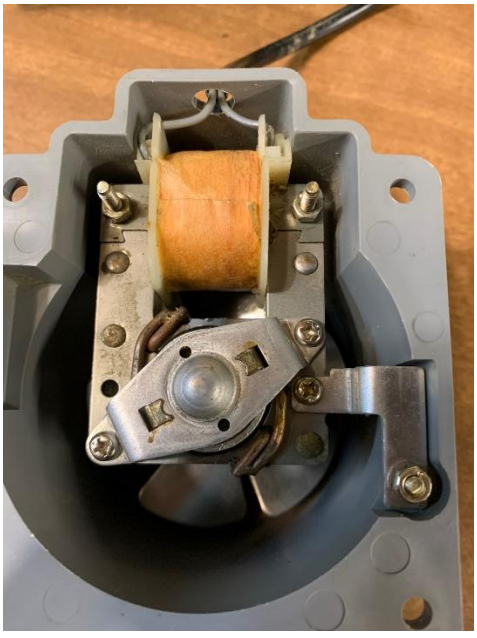
When acquiring an older radio that has been used through its life – the one in this article was purchased new in mid-1981 – it is good practice to remove the Cooling Fan and inspect it for collected dirt and to

oil its bearings. I use a product called “3-IN-ONE™ Multi-Purpose Drip Oil. 3-IN-ONE has been on the market since 1894 and is currently made and marketed by WD-40 Company. Website for the product is http://www.3InOne.com.
It is chemically not to be confused with the WD-40 product. Here are example pictures:

**Before Cleaning
FT-191ZD Rear Panel
Fan Just Removed**

**Before Cleaning
FT-101ZD Rear Panel and Fan
Showing Lint in Fan Assembly**

**After Cleaning
FT-101ZD Rear Panel and
Fan Cleaned and Fan Lubricated**



To remove the fan from its housing to clean/lubricate further, remove the three nuts at the top and lower right.

The radio was well cared for over the years. Careful initial power-up with a Variac™ showed that all was well and that the power supply was working well. Only four problems came to light (three are corrected) and these items are typical of the minimum that will be found even with very well cared for older radios that have not been in regular use.

1. The dirty fan already mentioned. This is a common problem especially with older shaded pole motor designs that heavily interfere with air flow through the assembly causing dirt (lint) to collect. The fan assembly was cleaned and lubricated. When the motor is removed from its housing (as noted above) the lubrication points at both ends of the motor frame are clearly visible as small holes in the metal surrounding the motor at both bearings (front and back). Two or three drops of oil is fine – maybe a couple more if the motor has been stored for years. The oil is stored around the bearings in felt washers. Be careful (!!) too much oil will cause it to be forced back out through the holes and attract dirt. Newer motors are sealed and require no attention. These old-shaded pole motors require some attention every year, or two.
2. Associated with the above problem the antenna relay was found to have collected a lot of the same kind of lint found in the fan. The relay was cleaned (its exterior and the contacts) and then modified a bit to shield it from any future air flow that caused it to collect dirt.
3. The bandswitch wafer that selects the band heterodyne crystals was dirty and was cleaned with DeoxIT™ contact cleaner applied through a small opening “needle” delivery tube to prevent any of the chemical getting on the switch wafer or elsewhere in the radio. Evidence of this need is shown in signals that seem to come and go (or not appear at all) or intermittent transmitter operation.
4. The illumination lamps for the analog dial (just above the main tuning dial) are both out. The photograph on the first page of this article seems to show them working but, in fact, they are illuminated with a small flashlight sitting inside the radio just for this photograph. I will replace the lamps but when the digital readout is installed, the illuminating of the analog dial is not really necessary. Because of linearity issues with the analog drive, it needs to be adjusted to be on frequency at various points on the dial. The digital readout makes that unnecessary. Many owners of these radios disconnect those lamps or do not replace them when they ultimately burn out. (For the picture shown in the first page of this article, I setup a flashlight inside the radio to illuminate the dial for the picture only. The work to remove the VFO assembly and replace the burned-out lamps remains to be done.[7])

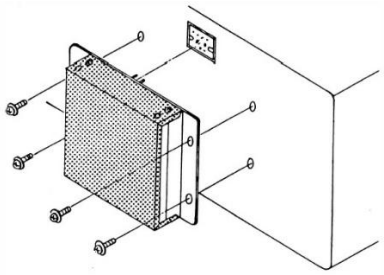
The FT-101ZD in this article was used for about 30 contacts in the CW WW DX CW Contest and it showed very satisfactory performance. It certainly does not provide the performance of my FTdx-101MP (the current holder of the “101” moniker) but the receiver performs well in the face of strong adjacent signals. Keep in mind that I am using nothing more than the standard 2.4 kHz SSB Filter with the continuously variable (down to 300 Hz) bandwidth feature. The radio performed essentially without issue and was a pleasure to use. I admit to being spoiled by QSK (full break-in CW) on more modern radios but that was not a feature of radios at the time when this radio was new. But it must be remembered that Ten-Tec’s excellent, QSK equipped Omni A was on the market for a year before we saw the semi-break-in FT-101Z series. And, the Ten-Tec Omni A had solid state finals. What is a feature of the hybrid radios and those preceding them will have to be noted as their clean, low distortion vacuum tube finals. Only now, at the time of this writing, are we seeing constructive efforts to upgrade the spectral purity of solid-state final amplifiers. Vacuum tubes with less restrictive and defined upper power limits are harder to drive into distortion.

Important note: Do not think for one moment that vacuum tubes cannot be driving to distortion. My point here is that for given 200-watt input (100-watt output) vacuum tube final amplifier, its similarly rated solid-state cousin is more prone to distortion in general ham radio operation. Watch that Microphone Gain Control and keep your eye on the ALC reading as its use is defined in the operating manual. I also do not want to confuse the issue of proper operation of solid-state power amplifiers. Operating them within proper parameters can net a clean and pleasant to hear signal.

This brings up an interesting story on the Japanese hybrid radios from the 1970's is that they heralded the beginning of the modern era of radios with quiet receivers and competitive receiver performance. In truth, other than conveniences like QSK, these radios are competitive in many ways to radios of today. Kenwood with their TS-530S and the TS-830S (single and double conversion, respectively) along with the FT-101ZD and the FT-901DM/FT-902DM (single and double conversion, respectively) were both excellent performers on the scene in the day.

Most hybrid radios (but not all of them) offered a single package operation – that is no separate accessories, such as power supply, are required. Properly optioned for DC operation, the FT-101ZD shown in this article can operate from 120/240AC Power as well as 13.6VDC – all from the one package. Even a relatively good speaker is part of that one box package. Here is the back panel of the FT-101ZD showing the standard 120/240VAC unit on the left and the installation of the added 13.6VDC Yaesu DC-1 Module on the right:

Rear Panel of the FT-101ZD
Note Optional Fan is Installed
See Tape over DC Module Connector[8]
Note Power Connector at Lower Right

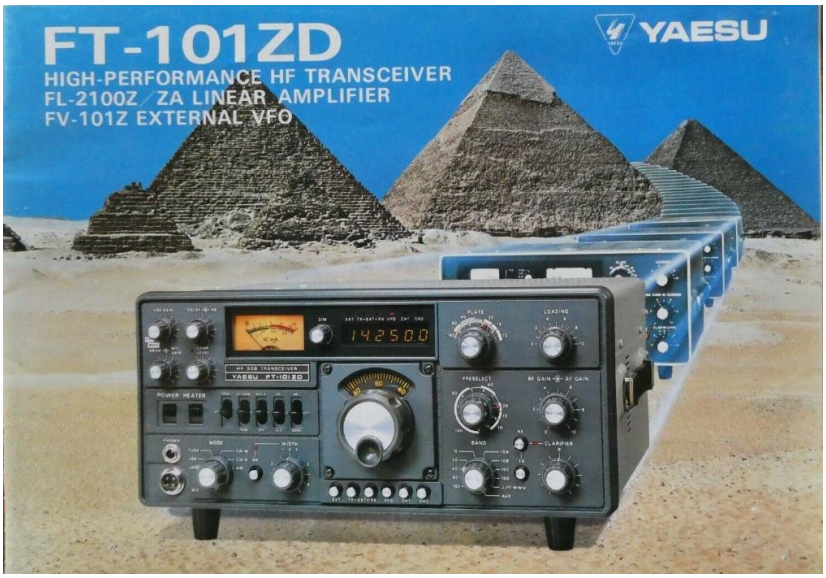


Sketch from FT-101ZD Operating Manual

Note installation of Yaesu DC-1 Module

Connector at Lower Right is wired for 120VAC, 240VAC, or 13.6VDC Operation – as appropriate. Fuse rating – Fuse Holder to the left of the Power Connector – is changed for different supply voltages.

W9MXQ **Yaesu FT-101ZD Operating Manual**



© 1979 Yaesu-Musen

Yaesu loved to tout the global nature of its go anywhere design – owning to the universal power supply capabilities of the FT-101ZD. This is the Mark 2 Version from 1979 and is a picture taken of the original brochure for this radio found on eBay™ after adding the radio to my collection. Notice the first-generation FT-101 fading into the past behind its latest new offspring. A worth successor to the original!

This FT-101ZD has an interesting story – as many radios that I collect happen to have. This one was owned by Phil Rebensburg, KC9CI. I met Phil in the first week after moving to Wisconsin in 1998. This radio was Phil's first radio – back when he was KA9FWN. When he traded the radio for a more modern one years later, he sold this FT-101ZD. Phil had kept track of the radio and made it available to me when he found that it had been put aside after the most recent owner made a move to a more modern rig some years ago. We found that it may have been in at least one other shack over the years. But it is home to stay, now.

Phil is very active on local nets and is a Group Commander in US Air Force MARS. MARS (Military Auxiliary Radio System) is **a United States Department of Defense sponsored program, established as a separately managed and operated program by the United States Army,** and the **United States Air Force. Phil's original crystals for fixed frequency net operations on MARS frequencies, above and below 80 meters, are still in place in the radio. The most recent owner of the FT-101ZD was also a MARS operator.**

Phil is also a Net Control Operator for the Midwest Country Cousins Net on Tuesday evenings, on 75 meters. He participates in the Thursday evening version of the same Network – same band but with a different Net Control Operator. I checked into both nets with the FT-101ZD, the first week I had it, and it was well heard with its barefoot 100 watts output all over the Midwestern United States. At least one of the operators I found via that net is a fellow vintage radio collector – and it was nice to talk to him with the FT-101ZD.

Phil is a special and long-time friend. I have assisted him over the years with maintenance and even replacing HF radios in one of the local ARES (Amateur Radio Emergency Service) operations where he provides management. I have assisted him also with his personal station at home. He could tell you stories about me helping him "MARS enable" his radios! I sincerely thank Phil for making this FT-101ZD a part of my Vintage Amateur Radio collection.

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

A special note of thanks to my proofreader, Bob Bailey, W9DYQ. Bob is a lot more than a proofreader as he often adds commentary that makes it into the article. Certainly, in an article like this, it is good to have a second person review the process.

Notes and Credits:

[1] Hallicrafters announced their FPM-200 Hybrid Transceiver in the 1950's with several publicity splashes and at least one major event that would publicize the radio. The radio was introduced but never made in volume. The transceiver used a pair of 6146 finals driven by a 12BY7. There were some regulator tubes in the power supply circuitry.

[2] Some radios listed as "hybrid" actually have more than just driver and power amplifier tubes. The Kenwood TS-511S, for instance, also has tubes in transmitter and receiver mixer circuits and at the output of the common transmitter and receiver i-f. My opinion is that those radios were so far ahead of their predecessors in solid state circuitry that they were named "hybrid."

[3] A good deal of information exists on at least development versions of a hybrid version of the Drake TR-4CW-RIT (last version of the popular TR-4 Transceiver) that was to be called the Drake TR-5 (with a "-" in the model number – the later version of this model was the TR5, no "-" in the model number). The final TR5 was preceded by the rather revolutionary solid-state TR7. So the marketed TR5 came out after the TR7. Confusing, but true.

[4] For purposes of the discussions on this series of radios. Here is the list:

1. Drake TR-5 Transceiver (never produced – but some details known)
2. Hallicrafters FPM-200 Transceiver (1959) (Seemingly only few produced)
3. Hallicrafters FPM-300 Transceiver (1972)
4. Heathkit SB-103 Transceiver (never produced – but some conjecture exists)
5. Heathkit SB-402 Transmitter (never produced – but some conjecture exists)

6. Icom IC-700R/IC-700T Receiver and Transmitter (1967) (Only a few produced)
7. Kenwood (Trio) TS-511S/TS-515S Transceiver (1971) (Several extra tubes – not totally a hybrid but widely accepted as so)
8. Kenwood TS-520 Series Transceiver (1973)
9. Kenwood TS-820 Series Transceiver (1976)
10. Kenwood TS-530S Series Transceiver (1981)
11. Kenwood TS-830 Series Transceiver (1980)
12. Kenwood TS-900 Series Transceiver (1973)
13. Kenwood R-599/T-599 Series Receiver and Transmitter (1970)
14. National Radio (Japan) with the HyGain 3750 Transceiver (1977)
15. Sideband Engineers SBE-33 Transceiver (1962)
16. Sideband Engineers SBE-34 Transceiver (1966)
17. Sideband Engineers SBE-35 Transceiver (1970)
18. Sideband Engineers SBE-36 Transceiver (1972) (Made by Robyn of Japan)
19. Uniden of Japan with the Henry Radio Tempo 2020 Transceiver (1975)
20. Yaesu FT-101, FT-101B, FT-101E Series, and FT-101F Series (1970)
21. Yaesu FR-101.FL-101 Series Receiver and Transmitter (1974)
22. Yaesu FT-101Z/FT-101ZD Transceiver (1979)
23. Yaesu FT-901/FT-902 Series Transceiver (1979)
24. Yaesu FT-102 Transceiver (1982)

[5] Subject of a future article.

[6] "WARC Bands," in this article, are defined as the 30-, 17-, and 12-Meter Bands. For this radio, and all in the list in Note 4, WARC Bands did not include the later addition of the 60-meter band.

[7] The illuminated analog dial is unnecessary when the digital readout is present. Besides, the digital is more accurate across the band – not requiring linearity caused resets for accurate readout in several points across the span of the band.

[8] The taped over DC-1 DC Power Supply is sometimes present with and without the tape. I presume that if the tape is missing but actually it may not always have been applied at the factory.

GARS Open Positions – Help Wanted

These are some of the positions that are available. If you have a background in any of these positions or want to learn them, they are available for you to fill.

- Public Information Officer
- Marketing Chair
- IT Chair
- Activities Chair – includes the following types of activities that can be sponsored by GARS
  1. Dog Show
  2. Fox Hunt
  3. GARS Operating Contests
  4. Dacula's Memorial Day parade
  5. Winter Field Day
  6. GARS Hamfest Volunteers
  7. Georgia QSO Party
- Non-Chair Activities needed:
  1. Meeting Drink handler
  2. "X" discussion handler
  3. Raffle product coordinator (given a budget to get raffle items)
  4. Holiday Party activities

GARS Membership

New Members in September

David Schakett (KB1FES)

New Members: 1

Total Members as of October 1, 2025
360

Join GARS members for our:

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

Friday weekly gatherings are held at the Chilli's at:

947 Lawrenceville Suwanee Rd
Lawrenceville, GA 30043

Saturday weekly gatherings are held at the Cracker Barrel at:

75 Celebration Dr
Suwanee, GA 30024

Birthdays in October

Larry Andrus (KB4LWT)
Ray Bailey (N4GYN)
Bill Beguhn (NG4H)
Scott Brown (KD4YDD)
Dale Burns (KI4MZO)
Bill Cohron (WD4AMC)
Jonny Dorminy (KN4LGM)
Charles Eiland (WA4RVO)
Robert Franko (KR7CPA)
Neil Gardner (KO4UHX)
Benjamin Goings (KM4RTO)
Ellen Hawkins (KM4RRW)
Bill Kirk (N4WWK)
Robert LaBerge (KC4BI)
Joel Levine (WA4HNL)
Mac McDonald (NN4K)
THOMAS MCELROY (W4SDR)
Rich McMahon (KO4PVP)
Bill Nash (KO4ZDH)
Jason Pattillo (KR4CTH)
Cathy Pierce (K1YMW)
Bob Pursley (WD4KQQ)
Michael Sheaffer (W4ANO)
Andrew Souvinette (KQ4VUL)
Allison Sullivan (KK4VLR)
Matthew Valitalo (KQ4LSZ)
Mike Weathers (ND4V)
Glen Wendt (W3WWT)
Allan Winn (KG6NKU)

Dad Carmona Stacy Henderson
Carol McDonald Catherine Perry
Kathy Kitz Hana Londono
Gaylynn Tollison

GARS MEMBERSHIP

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

Membership Chair: Karen Albritton, KI4HPP
Committee Members: Dave Bruse, W4DTR, Pam Brown, KJ4RYV, John Aguirre, KQ4EJV

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

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

GARS on Social Media

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

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

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

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

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

GARS Mail Address:

GARS
P.O. Box 492531
Lawrenceville, GA 30049

Officers

 Bob Hoffmann, President K4CQO

 Richard Kitz, Vice President KM4SWL

 Harold Brown, Secretary KI4FPR

 Glen Wendt, Treasurer W3WWT

 Kevin Scott, Program Manager K4GTR

Managers and Committee Chairs

 Karen Albritton, Membership Chair KI4HPP

 Dave Bruse, VE Team Leader W4DTR

 David Adcock, Webmaster 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 & Historian ND4V

 Chuck McCord, Net Manager KK4TKJ

 Steve Back, Technical / RFI Advisor WB2OGY

 Dallas Mellichamp, Workshop Leader, Field Day Chair N4DDM

 Sandy Jackson, Health and Wellbeing KJ4DRO

 Edwin Henderson, Multimedia Chair W4KIB

 Dallas Mellichamp, Georgia QSO Chair N4DDM

 Neil Derryberry, Elmer Manager WD4NET

 Edwin Henderson, TechFest Chair W4BSR

Open Winter Field Day Chair

Directors and Trustees

 Joe Biddle, AD4PZ

 Kyle Albritton, W4KDA

 John Davis, WB4QDX

 Bill Cherepy, WB4WTN W4GR Trustee

GARS Meeting Minutes

GARs General Meeting Minutes
September 9, 2025
1900 hrs. or 7:00pm

Opening: General Meeting information and welcome by President Bob Hoffmann

Members/Guest Present: 38

Birthdays for the month: As reported in the Newsletter

Treasury Report: Reported by Glen Wendt Club Treasurer

Secretary Report: Viewed in Newsletter

Committee Reports:

Education: Over 2000 exams have been administered. Technician Ham Cram October 25-26, 2025

Membership: 359 as of September 1, 2025

VE Team:

Technicians: 1
General: 9
Extra: 0

Apparel: Distributed at meeting.

Repeaters: Echo link not working. Survey sent out concerning Repeaters.

Social Events:

Holiday Party December 6, 2025. Need someone to coordinate and help Sandy. Catering/Decorations/Activities.

Old Business: None

New Business: Areas Emergency Training October 4-5, 2025

Program: Ham Radio Etiquette part 2 by Harold Brown and Kevin Scott

November D-Star

Closing: 2050 hrs. or 8:50pm

Workshop Minutes – September 16th, 2025

Attendance: 14
Workshop Follow-up on
Presenter: None

Brief Summary: This Workshop did not follow the GARS presentation

- Ron brought in a 10m HF rig.. We discussed how a rig like that makes working the ARRL 10m contest in December simple enough that any Technician should put that on their list.
- We had discussions on using an 80m loop vs maybe a fan dipole for 40/15m, 20, and 10m
- Edwin, Glen, Bob, and Dallas worked on the AV setup and how to improve things for our meetings.
- Dallas discussed setting up 2-3 Get on the Air stations at the Stone Mountain HamFest using 1x1 Special Event Calls, N1H and N2H. The plan is to get a few clubs to

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

73 Dallas N4DDM
Workshop Chair

Events – GARS and others

ARRL CONTESTING INFO

From ARRL Contest Calendar

> For more information click the links <

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

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

March 2025
1-2 International DX– Phone

April 2025
13 Rookie Roundup – Phone

May 2025 (no ARRL Contests)

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

July 2025
12-13 IARU HF World Championship

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

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

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

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

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

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

HAMFEST CALENDAR

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

10/03/2025 - 10/04/2025 Hamfest Chattanooga 2025
Location: Ringgold , GA
Type: ARRL Hamfest
Sponsor: Chattanooga ARC & North Georgia GMRS Network

10/10/2025 - 10/11/2025 Melbourne Hamfest, ARRL Florida State Convention
Location: Melbourne, FL
Type: ARRL Convention
Sponsor: Platinum Coast Amateur Radio Society
Website: https://pcars.org/wp/melbourne-hamfest-2025/

10/10/2025 - 10/11/2025 NOARC Annual Hamfest
Location: Crestview, FL
Type: ARRL Hamfest
Sponsor: City of Crestview Florida
Website: https://w4aaz.org/noarc/hamfest-2025/

10/18/2025 - Savannah Hamfest and Swapmeet
Location: Savannah, GA
Type: ARRL Hamfest
Sponsor: Coastal Amateur Radio Society

10/25/2025 - Wiregrass ARC - Fall Tailgate
Location: Headland, AL
Type: ARRL Hamfest
Sponsor: Wiregrass Amateur Radio Club
Website: http://w4dhn.org

11/01/2025 - EPARS Tailgate/Hamfest
Location: Dade City, FL
Type: ARRL Hamfest
Sponsor: East Pasco Amateur Radio Society
Website: http://eparsonline.org

11/01/2025 - 11/02/2025
Stone Mountain Hamfest, ARRL Georgia State Convention
Location: Lawrenceville, GA
Type: ARRL Convention
Sponsor: Alford Memorial Radio Club W4BOC
Website: https://stonemountainhamfest.com

11/08/2025 - Montgomery Hamfest
Location: Montgomery, AL
Type: ARRL Hamfest
Sponsor: Montgomery Amateur Radio Club
Website: https://w4ap.org/

11/08/2025 - SPARCFest
Location: Pinellas Park, FL
Type: ARRL Hamfest
Sponsor: St. Petersburg Amateur Radio Club
Website: https://www.sparc-club.org/sparcfest/

11/15/2025 - Amateur Radio Festival & Tailgate
Location: Trenton, FL
Type: ARRL Hamfest
Sponsor: Dixie Amateur Radio Klub
Website: https://www.qsl.net/w4dak/

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

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

GARS Events Calendar for 2025

TechFest	February 1 2025
Winter Field Day	January 25-26 2025
Dog Show Fundraiser	March 26-30, 2025
Spring Technician HamCram	March 29-30, 2025
Georgia QSO Party	April 12-13 2025
North metro area Fox Hunt	April 2025
Memorial Day Parade	May 26 2025
ARC/KARC Hamfest	June 7 2025
Field Day	June 28-29 2025
Summer General HamCram	August 23-24 2025
Fall Technician HamCram	October 25-26 2025
JOTA	October 2025
Stone Mt. Hamfest	November 1-2 2025
Holiday Party	December 2025

GARS Recurring Calendar

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

GARS Calendar for October 2025

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1	2	3 **11:30 AM Lunch at Chili's**	4 **8:00 AM Breakfast at Cracker Barrel**
5	6 **7:30 PM 2M Net 147.075(+) MHz Tone 82.5**	7 **7:00 PM Exec Meeting**	8	9	10 **11:30 AM Lunch at Chili's**	11 **8:00 AM Breakfast at Cracker Barrel**
12	13 **7:30 PM 2M Net 147.075(+) MHz Tone 82.5**	14 **7:00 PM Meeting EAA 690 Hangar**	15	16	17 **11:30 AM Lunch at Chili's**	18 **8:00 AM Breakfast at Cracker Barrel JOTA 9:00 AM to 4:00 PM at VFW Post 5255**
19 **3:00 PM Ham Radio Exams, EAA 690 Hangar**	20 **7:30 PM 2M Net 147.075(+) MHz Tone 82.5**	21 **7:00 PM Workshop Meeting EAA 690 Hangar**	22	23	24 **11:30 AM Lunch at Chili's**	25 **8:00 AM Breakfast at Cracker Barrel**
26	27 **7:30 PM 2M Net 147.075(+) MHz Tone 82.5**	28	29	30	31 **11:30 AM Lunch at Chili's**	

More information about the above calendar events can be found on GARS Calendar

Local Ham Radio Exams & Meetings

GARS Ham Radio Exams

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

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

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

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

September 2025 Results

The GARS VE Team exam session results from September 21st.

3 new Technicians:

- Nathaniel Bentley – KR4GWM
- Mitchell L Davis – KR4GWB
- Timothy Morris – KR4GWC

3 Upgrades to General:

- Richard C Coakley – KR4GKM
- Charles A Everage – KO4FQF
- Robert Lehman – KR4DTZ

1 Upgrade to Extra:

- Christopher Jordan Sr – K4ZWW

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

K4CQO – Bob Hoffmann
KM4SWL - Richard Kitz
KQ4DWZ – Douglas Hooper
W4VNA – Lynn Hatker
KC2FDU – Elmer Gappi
WS3V – Bill Rudd
NG4H – Bill Beguhn
K4BYE – Jim Cheshire
W4DTR – Dave Bruse
N4MPC – Pat De Loe

Thanks & 73, Bill Rudd (Co-CVE)

Local Ham Radio Exams

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

Local Ham Radio Meetings

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

Special Results from the September Exam Session

10-year-old Nate KR4GWM passed his tech at the GARS September exam session. Nat is the son of GARS members Bill KJ4MXM and Becky KK4SWI Bentley. The entire Bentley family is also active in scouting and participated in our district Camporee September 26th - 28th. Nate made his first contact during that event and learned more about HF communications. He also was in charge of the Fox Hunt event at the Camporee. He hid the fox, explained how to find it to each team, timed the teams and at the campfire announced the winner.

Please congratulate this young man who is an asset to our community and is sure to achieve great things in the future.

73,

Steve WB2OGY

Exam Issues During FCC Shutdown

Important Licensing Announcement

The FCC databases are currently off-line due to the Government Shutdown. You will have to wait until the shutdown has ended before you can enter any address, phone number, or email address changes. If you test for a new license or upgrade during the shutdown, the paperwork will be held by the VEC's (Volunteer Examiner Coordinators) until the shutdown has ended, and then it will be submitted to the FCC and processed. Typically, it has taken a day or two for the FCC to catch up on processing the backlog of paperwork from being off-line.

If you upgrade from Technician → General during the shutdown, you will be able to use your call sign with "/AG" (temporary AG) when operating on General Class frequencies before the FCC updates your license, or if you upgrade from General → Extra, "/AE" (temporary AE) when operating on Extra Class frequencies. Your CSCE (Certificate of Successful Completion of Examination) allows you to operate with those new privileges temporarily - as long as you use the correct suffix (like /AG or /AE). Your CSCE is valid for 365 days from the date of issuance. Unfortunately, if you are newly licensed, you will have to wait to receive your call sign before you can operate.

If you have any questions regarding testing, feel free to email myself along with my Co-Leaders at https://www.gars.org/gars/ve-team/.

73 - Dave, W4DTR
GARS Exam Team Leader
https://gars.org/exams

GARS Supporters

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

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

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

Ready to take your Ham Radio Exam?

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