



The

# GARzette



The Official Newsletter of the Gwinnett Amateur Radio Society

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[www.GARS.org](http://www.GARS.org)

**Don't forget to support our  
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**GARS January Exhibition of the  
Technical aspects of Amateur Radio  
Held at the Gwinnett County Fairgrounds**

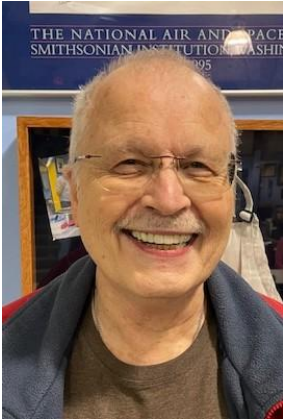
**The next TechFest is January 31, 2026**

**GARS Meeting: How to Improve Your Handheld VHF/UHF Transceiver Antenna – by  
Tom Crowley KT4XN  
Tuesday January 13, 2026 at 7:00 PM**



## President's Message

### From the President...



Welcome to 2026!

I look forward to everything GARS is going to accomplish in this new year. First is the upcoming TechFest on January 31<sup>st</sup>. There are enhancements to it this year – a People's

Choice Award for your choice of the best chili, a contest for the best radio voice, and some big raffle prizes like the new Icom 7300 MK2 with an improved receiver among other advances. TechFest is a yearly endeavor to explore the various aspects of ham radio you may be interested in or just want to see if you could be interested in. It is a great way to explore what ham radio offers.

Besides that, you can also upgrade or get a new license with the GARS sponsored exam test session. Everything except for the raffle and exam sessions are free – including the food.

In February are the officer elections. So if you want to be part of the direction of the club, put your hat in the race to be an officer. Any licensed GARS member is eligible to be an officer.

I wonder if any of you received new equipment over the holidays. I just received a new Anytone 890 HT and have spent a few days getting used to it. Getting new gear is always a new adventure learning what is new and what is different from the equipment it is replacing. Change keeps us all young at heart.

Year 2025 been an interesting year for GARS. There have been 2 surveys to understand the ideas the GARS members have for the club. As a result, the GARzette has been having articles about the members (the GARS Member Spotlight). We have also been making our meetings more inviting for our members with attempts to foster a GARS community along with the meeting agenda. We held Field Day at a different location from Harbins Park and we had a very good meal there provided by Ed W4BSR. GARS helped out at the Dacula Memorial Day parade and also with the Stone Mountain Hamfest – which we will be doing again this year. I am not forgetting the Lanier Dog show last year and it is again being planned for 2026. GARS also started a new Thursday night net thanks to Jim KQ4RNA on one of the GARS 440 repeaters. We also have our Echolink connection to our 2m repeater.

This year we are going to provide some variety to our meeting presentations – giving information for new hams along with more technical information to challenge “seasoned” hams.

I have to think about some resolutions for 2026 and can start with getting on the HF waves more and continuing my DMR work along with supporting the VE exam group.

73,

**Bob** – K4CQO

Club President / GARZette Editor

## GARS Repeaters and Other Communications

<p><u>2 Meter Repeaters</u></p> <p>147.075(+) MHz Tone 82.5 147.255(+) MHz Tone 107.2</p> <p><u>1.25 Meter Repeater</u></p> <p>224.580(-) MHz Tone 100.0, 1.6 MHz Offset</p> <p><u>70 Cm Repeaters</u></p> <p>444.525(+) MHz Tone 82.5 442.100(+) MHz Tone 100 442.325(+) MHz Tone 100</p>	<p><u>6 Meter Repeater</u></p> <p>53.110 (-1 MHz) No Tone</p> <p><b>Other Resources:</b></p> <p><u>APRS</u></p> <p>144.390 -- 1200 Baud W4GR</p>	<p>6M</p> <p>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</p> <p>Link remote receivers being added</p>
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### 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](mailto: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](mailto: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, etc., Dave Bruse, W4DTR, who distributes the newsletter electronically, and Mark Pritchard KN2TOD who delivers the GARZette to our local HRO store.

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](mailto: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 1<sup>st</sup> Tuesday of the month – send an email to the GARS President ([president@gars.org](mailto:president@gars.org)) for information to attend.

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

- January 13 – How to Improve Your Handheld VHF/UHF Transceiver Antenna

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

- January 20 – How to Improve Your Handheld VHF/UHF Transceiver Antenna

#### **GARS Meeting – January 13, 2026 How to Improve Your Handheld VHF/UHF Transceiver Antenna**

Tom Crowley, KT4XN, will demonstrate how to measure the SWR of handheld transceiver (HT) antennas and share practical ways to improve their efficiency and operating range. Many stock “rubber duck” antennas included with HTs perform poorly, often showing excessively high SWR and reduced effectiveness. Some antennas can be tuned or adjusted for better performance, while others are best replaced entirely.

#### **GARS Workshop – January 20, 2026**

Bring your HT to our Workshop meeting, and we’ll test your antenna and discuss options for improvement.

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 everyone who attended our Holiday Party and our Ham of The Year Joe Biddle AD4PZ who also joined in a song with the Up Front Barbershop Quartet.



## GARS Happenings

### 20 Years ago in the January 2006 GARzette:

- On the first page there is a table of what GARS can do in 2006
- In 2006, our 6m repeater had a PL tone
- There are links and information to get training for ARES / FEMA that still work but go to a more general page
- The 8<sup>th</sup> annual TechFest was advertised along with the Dog Show being held in February

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



### [Health and Wellbeing](#) – Sandy Jackson, KJ4DRO

Look for this resource on [Email \(https://gars.org/contact/\)](mailto: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” Thursday Night 440 Buford Repeater 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:

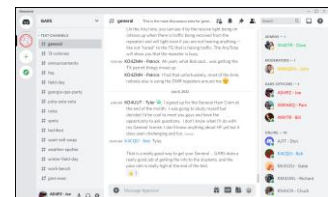
Ray – N4GYN    David – KA4KKF    Kevin – W4KIB    Bill - WD4AMC    Chuck – KK4TKJ    Ed – W4BSR

To volunteer to help as a NCS for the 440 Net contact Jim O’Brien KQ4RNA.

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](mailto: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. →





**Upcoming GARS TechFest January 31, 2026**



# TechFest

**Gwinnett Amateur Radio Society**

RAFFLE TICKETS NOW AVAILABLE

SEE Glen W3WWT or Edwin W4BSR

Tickets \$5 each or 5 for \$20



**ICOM 7300MK2**



**YAESU FTM-150RASP**

**DO YOU HAVE?**



**GWINNETT'S BEST RADIO VOICE**

**FUN COMPETITION FOR EVERYONE!**  
Sign up NOW- and find out who's the best at TechFest 2026



**TechFest**  
Gwinnett Amateur Radio Society

January 31<sup>st</sup> at Gwinnett Fairgrounds




**TechFest**  
Gwinnett Amateur Radio Society

Calling all Chili Chefs:  
It's time to show your stuff at our Chili Cook-Off



**SIGN UP NOW! FOR INFO, SCAN THE QR CODE BELOW**

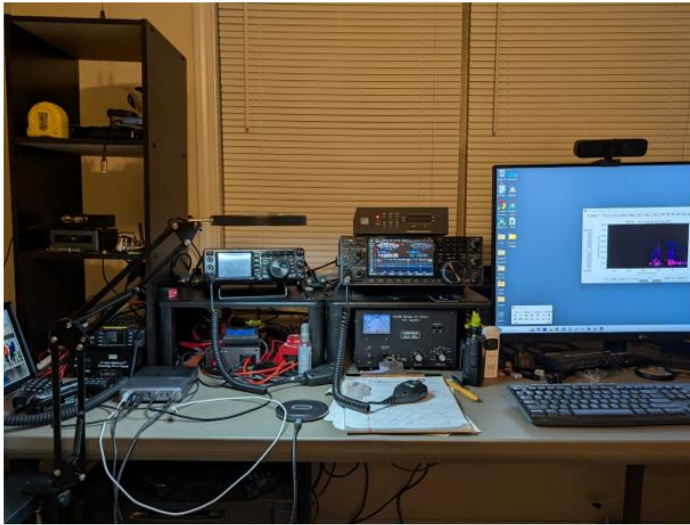
First, Second and Third Prizes  
Plus This year there will be a **PEOPLE'S CHOICE AWARD**

<http://www.techfest.info/>




## GARS Member Spotlight

Featuring **GARS** Member – WB2OGY Steve Back



**STEVE'S EQUIPMENT STACK**



**STEVE OPERATING AT JOTA**

### Six Decades on the Air and Still Building

Presented by Richard Kitz – KM4SWL – with AI assistance of Claude (Anthropic)

Some hams measure their time in the hobby by years. Steve Back, WB2OGY, measures it in callsign eras - and his spans back to 1963 when the FCC issued him WN2OGY as a Novice operator. Sixty-three years later, that same call (upgraded to WB2OGY in 1964) still identifies him on the air. "There was no good reason to change it after that," Steve says with characteristic practicality.

#### The Beginning: TV Repair and a Customer's Suggestion

Steve's path to amateur radio came through an unexpected door. "I was working fixing TVs and radios when a customer suggested I get an Amateur License," he recalls. That suggestion launched a journey that would span six decades and eventually shape his entire career.

His Elmer was Fred K2OGS - and Fred's dog Bob. "Fred was the head of Yonkers RACES," Steve remembers, reflecting the era when civil defense communications drove much of amateur radio's growth. Under Fred's guidance, Steve progressed rapidly: Novice in 1963, General in 1964, Advanced in 1967. The Extra class ticket came later, in 2000. "Couldn't copy over 13 WPM CW," Steve admits with the honesty of someone who knows his limits and worked around them anyway.

#### The Shack: Built for Purpose

Walk into Steve's shack today and you'll find a station that reflects both serious capability and practical flexibility. His main HF rig is an ICOM IC-7610 backed by an Ameritron 600-watt solid-state amplifier - a modern powerhouse that keeps him competitive on 20 meters, his favorite band. But Steve doesn't stay in one place.

His portable station centers on a YAESU FT-991A, paired with a homebrew vertical antenna using an MFJ push-up pole. "I like my portable vertical," he notes when asked about favorite equipment. For home HF work, he runs a homebrew non-resonant long wire - proof that after 63 years, he's still building his own solutions.

The VHF/UHF side of the shack shows equal diversity: DMR base and handheld rigs (Anytone AT-D578UVIII Plus and AT-D878UVII), a D-STAR ICOM ID-51A handheld, an ICOM ID-5100 mobile, and

the obligatory BaoFeng UV-82 for general knockabout work. A dual-band ground plane sits on the chimney alongside a 10-meter Hamstick dipole, and there's a homebrew J-pole for portable operations.

For test equipment, Steve keeps a NanoVNA, an SDR receiver configured as a spectrum analyzer, a signal generator, and a power meter. "My eyesight and capability have slowed down my homebrew activities," he admits, "but I still use the tools."

### **Service and Community: 25 Years with GARS**

Steve has been a GARS member for a quarter-century, serving as the club's Technical/RFI Advisor and contributing to Field Day, VE sessions, and ARES activities. "Getting to Field Day early and working with Earl to put up antennas" stands out as a favorite memory - the kind of moment that defines club culture better than any meeting agenda.

But Steve's impact extends beyond GARS. He volunteers extensively with Scouting, teaching radio to youth. "I work with many young scouts, many of which are now licensed," he says. He formerly chaired GARS-chartered Venture Crew 73, and continues mentoring the next generation of operators.

His commitment to emergency communications runs deep through his ARES membership, and he regularly checks into the GARS and ARES nets. He also maintains connection with former colleagues via a weekly HF net for ex-Motorola employees - the kind of informal network that keeps friendships alive across decades and distances.

### **Operating Style: Casual DX and Good Conversation**

Ask Steve about his operating preferences and the answer is straightforward: "Voice SSB, FM, and digital voice." He works DX and contests "for fun, not points" - the approach of someone who learned long ago that radio is about enjoyment, not competition.

Memorable contacts? "Learning that longtime friend N2BJ is one day older than I am" tops the list, though his first Australia contact remains a highlight. And there have been plenty of funny moments: "I talked to someone I knew for half an hour before I realized who it was," he laughs.

The strangest operating location? "Tooth of Time peak in New Mexico, 9,003 feet above sea level" - likely a Scouting trip that combined hiking with radio.

### **Lessons Learned and Wisdom Shared**

After 63 years, Steve has accumulated both technical knowledge and practical wisdom. His biggest "oops" moment? "Realizing I missed a step in building a kit." His most memorable antenna disaster? "After making several contacts, my wife let me know my antenna was down on the patio."

His advice to new hams is simple and sound: "Try multiple bands and modes. Learn and enjoy." When asked what he wishes he'd known when starting, his answer reveals a lifetime of learning: "How much I didn't know."

### **The Personal Side**

Amateur radio shaped Steve's professional life - he spent his career as a communications engineer, a path that began with that customer's suggestion back in the TV repair shop days. His wife "puts up with" his radio and Scouting activities, even if she doesn't share the interest. His late son Ray held the call sign KI4GRJ; his brother now carries that call sign forward.

Beyond radio, Steve enjoys working with Scouts and science fiction. His favorite on-air beverage? Coffee - the universal fuel of operators everywhere.

### **Looking Forward**

If resources were unlimited, Steve would add "a tower and some beam antennas" to his station. His next project? "I plan to play with Meshtastic" - proof that even after six decades, he's still exploring new modes and technologies.

When asked if he'd change anything about amateur radio, his answer reflects deep satisfaction with the hobby: "I like things as they are. There is something for everyone, no matter what they like."

If Steve could have a QSO with anyone in history, it would be Barry Goldwater, the Arizona senator and dedicated ham. "He was a HAM, but I never talked to him," Steve notes with a hint of regret.

### **Final Frequency**

WB2OGY represents something increasingly rare in amateur radio: a continuous presence across eras. From the days of crystal-controlled transmitters and paper QSL cards to modern digital modes and SDR technology, Steve has adapted, built, experimented, and - most importantly - helped bring new operators into the fold.

"I built and experimented more when I was young," he reflects. "Now I mainly talk to friends." After 63 years of service, that's not a step back - it's the natural evolution of a ham who's earned the right to enjoy the conversations that matter most.

### **73, Steve. Here's to another decade on the air.**

*Steve Back, WB2OGY, operates from Lawrenceville, Georgia. He can often be found on 20 meters or checking into the GARS nets. If you're a new ham looking for an Elmer or a Scout interested in radio, Steve's the guy to ask.*

Photos courtesy of Steve Back WB2OGY and Fisher Londono W4LON.

# The Basics by Bob Schmid, WA9FBO

## RTV in Electronics

### What is RTV?

RTV—room-temperature-vulcanizing silicone—is a *one-component, moisture-curing sealant/adhesive* you’ve probably used for all sorts of things. In electronics it’s used to seal, protect, bond, pot, stake, and insulate components, among other jobs. For example, you can stake components in place (Fig. 1) or pot a small RF preamp for weatherproofing (Fig. 2).

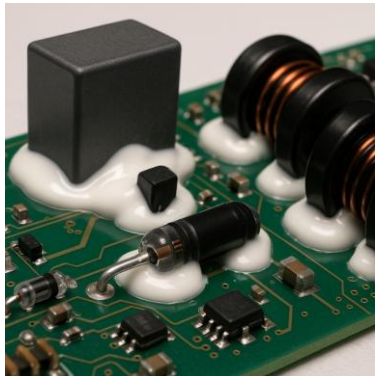


FIGURE 1 - SECURING

There are many RTV products on the market, but not all are electronics-friendly.

### The four cure types

There are four common RTV cure chemistries: acetoxy, oxime, acetone, and alkoxy. The names come from the byproduct produced during curing.

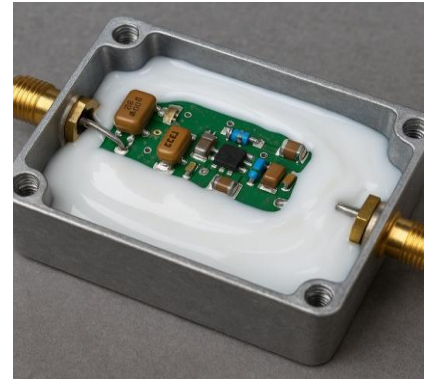


FIGURE 2 - POTTING A MODULE

- **Acetoxy cure RTV** is cheap, readily available, and cures quickly, but it releases acetic acid (that’s the vinegar odor). Examples include JB Weld Clear, Momentive (formerly GE Advanced Materials) RTV108, GE Silicone I, Dow Corning 732, Permatex 80050, and most “general purpose” RTVs. It’s best to avoid this chemistry for electronics applications because acetic acid corrodes copper, brass, and other sensitive metals. Sealing an enclosure with acetoxy cure RTV may trap fumes inside that lead to corrosion.
- **Oxime cure RTV** releases methyl ethyl ketoxime (MEKO) during the cure process. It has a moderate cure speed and is not corrosive like acetoxy cure, but it still can discolor brass and copper on contact. Examples include ASI 388, Dowsil 737, Dowsil 1080, and Loctite SI 5011CL.
- **Acetone cure RTV** releases acetone. It’s okay to use with electronics, but not with acrylics or polycarbonates. It has a good cure speed and is not corrosive. Examples include Calsil ADH 42 and CHT AS1802.
- **Alkoxy cure RTV** is best for electronics because it releases an alcohol (methanol, ethanol, or isopropanol) during the curing process. It’s more expensive and slower to cure, but it’s nonconductive and noncorrosive. Examples include Novagard 500-09x, CHT AS1700 and AS5700, Momentive RTV160/162/167, Loctite 5145, MG Chemicals 1035, and Calsil ADH 1.

### Safety

Even if an RTV is labeled non-corrosive, some cure byproducts (like MEKO) should be used with good ventilation. Always check datasheets for health and safety notes before extended use.

### Bottom line

A comparison gives the extra point to alkoxy.

Cure Type	Byproduct	Pros	Cons	Safe for Electronics?
Acetoxy	Acetic acid (vinegar odor)	Cheap, fast cure	Corrosive to copper/brass	✗ Avoid
Oxime	MEKO	Neutral-ish, not acid	Can discolor brass/copper	⚠ Sometimes
Acetone	Acetone	Good cure speed, non-corrosive	Attacks acrylic/polycarbonate	☑ With caution
Alkoxy	Alcohol (methanol/ethanol/IPA)	Noncorrosive, stable	Slower cure, pricier	☑ Best choice

## Look past the label

For electrical and electronic applications, if the RTV label lacks the cure type, look for "neutral cure (meaning non-acidic)", "electronic grade", or "noncorrosive". But those are marketing umbrella terms, and the actual cure chemistry matters for sensitive circuits.

## Rare Earth Elements

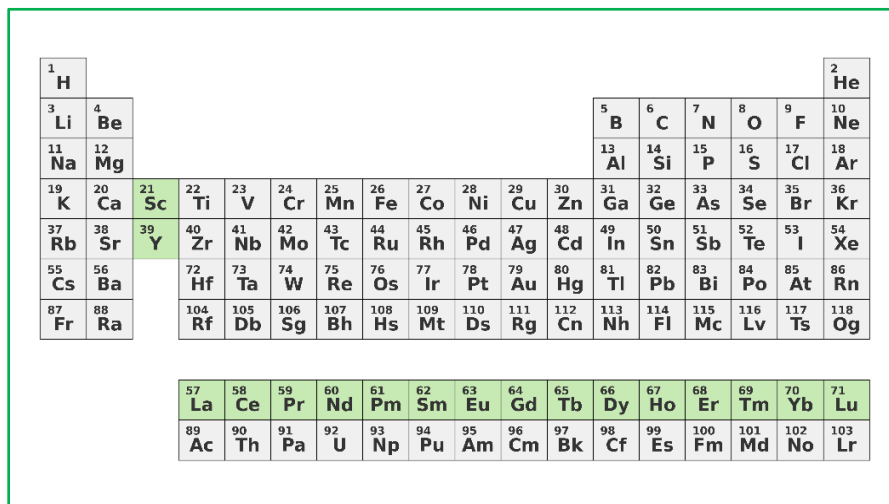
### Introduction

We don't often think about it, but some of the most exotic materials on Earth—**rare earth elements**—play a role in everything from hard drives and hybrid cars to ham gear.

Despite the name, most rare earths aren't actually rare in the Earth's crust. The term comes from the fact that they're seldom found in concentrated, mineable form. Worse, they tend to appear together, and separating them is a slow, chemically intensive process. That makes refining expensive and environmentally challenging.

### Lanthanides

Remember the Periodic Table of the Elements from chemistry class (Fig.1)? It helps make sense of where rare earth elements (green shaded) fit in. Most belong to a group called the **lanthanides**: 15 elements from lanthanum (La, atomic number 57) to lutetium (Lu, 71). They have similar properties because of their unusual electron arrangements — specifically, electrons that occupy a deep, inner layer of the atom called an **f-orbital**. This hidden structure doesn't exist in common metals like copper or iron, and it gives rare earths their unusual and valuable effects in electronics. Two more elements, scandium (Sc, 21) and yttrium (Y, 39), are usually included as well. They're found in the same ores and act chemically like the lanthanides.



1 H																	2 He
3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
55 Cs	56 Ba																
		72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn	
87 Fr	88 Ra	104 Rf	105 Db	106 Sg	107 Bh	108 Hs	109 Mt	110 Ds	111 Rg	112 Cn	113 Nh	114 Fl	115 Mc	116 Lv	117 Ts	118 Og	
		57 La	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu	
		89 Ac	90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr	

FIGURE 3 - PERIODIC TABLE WITH RARE EARTHS HIGHLIGHTED

### Why We Care

Rare earths aren't particularly good conductors, and they're not used much for wiring. Instead, their usefulness comes from their magnetic, optical, and chemical properties. Some examples:

#### Magnets

Neodymium (Nd) and dysprosium (Dy) are used in neodymium-iron-boron (NdFeB) magnets, which make it possible to replace bulky, heavy designs with compact ones suitable for portable or mobile use. Even small NdFeB magnets can grip many times their weight in metal—far beyond what ordinary iron magnets can do. They're critical in EV motors, generators, and wind turbines, and in ham gear such as compact speakers, microphone elements, and antenna rotators.

Samarium (Sm) is used in samarium-cobalt magnets, which are more heat-resistant than neodymium—important for aerospace or harsh environments. They also resist corrosion better than many other magnet types, making them ideal for outdoor gear or long-term use without sealing or coatings.

#### Superconductors

In rare-earth barium copper oxide (REBCO) superconductors, yttrium or a similar element serves as the rare earth. Combined with barium, copper, and oxygen, it forms a crystal structure that

can carry current with zero resistance at surprisingly high temperatures. Superconductors open possibilities for ultra-low-noise receivers, highly efficient magnetic loops, and compact high-field magnets.

### **Resistors and Capacitors**

Cerium (Ce) and lanthanum (La) are used as additives in the manufacture of specialty materials for resistors and capacitors. These elements help improve stability, temperature tolerance, and long-term reliability—key features in both high-end audio equipment and precision RF circuits.

### **Phosphors in Displays**

Europium (Eu), terbium (Tb), and yttrium (Y) are key for creating phosphors that produce red, green, and blue light in LED screens, TVs, and smartphones. Without them, display colors would be dull and inaccurate—your waterfall display, spectrum analyzer, or rig's LCD would lose much of its crisp, bright look.

### **Batteries**

Lanthanum (La) is found in some high-capacity NiMH batteries for hybrid vehicles and handheld radios. These rare-earth-enhanced cells can offer better cycle life and performance in extreme temperatures compared to standard rechargeable batteries.

### **Optoelectronics**

Ytterbium (Yb) and praseodymium (Pr) are used in lasers, optical amplifiers, and fiber-optic communications. They help enable low-loss signal transmission over long distances—critical in modern telecoms and handy for ham digital and optical experiments.

### **RF and Microwaves**

Yttrium is used in YIG (yttrium iron garnet) spheres, which are found in filters and oscillators for microwave and GHz-range equipment. For hams, that means high-end spectrum analyzers, tunable RF and microwave front-ends, SDRs, and advanced receive systems. A YIG filter's precision tuning and low loss make it possible to cover wide frequency ranges without swapping hardware—perfect for lab-grade gear or contest stations.

## **Conclusion**

Rare earth elements aren't actually all that rare—the tricky part is getting them separated and purified. They're important in tech because of their unique electron setup, which gives them special magnetic and light-related properties. Copper is still the go-to metal for most electronics, but rare earths are used for specific jobs where their unique features really matter, even though they can be tough to work with.

## Hammarlund HQ-215 Receiver

### Vintage Amateur Radio

de Bill Shadid, W9MXQ

#### A new beginning for Hammarlund



As the amateur radio world was moving out of the 1960's and into the 1970's, the hobby was changing. Hammarlund Radio Company<sup>1</sup> – a pioneer in the electronics and radio business since 1911 – was trying to move from its 1950's-based product line and met the new requirements of a changing world.

Unique as a survivor that did not get involved in initial small footprint, SSB focused transceive capable receiver and transmitter pairs (“twins”) or transceivers was Hammarlund. In 1968 they came to the table with a major product line upgrade – especially when considering their current (at the time) line of radios. Here is the Hammarlund HQ-215 Amateur Radio Band Receiver.



**Hammarlund HQ-215 HF 80-10 Meter Ham Band Receiver (1969)**

**W9MXQ**

Hammarlund Radio Company was one of the largest companies making communication equipment in the 1930's and on into the 1960's in the United States, and globally. While they did make transmitters – even to the point of their late SSB / AM / CW models like the HX-500 and HX-50/HX-50A, they were primarily known for their receivers. Hammarlund to this point had been unsuccessful with the complex, overdesigned, and expensive HX-500 then did a few missteps with the less expensive and less complicated HX-50. They finally seemed to get this right with the HX-50A, correcting the errors present in the HX-50.

Stepping back a bit, Collins® Radio Company really promoted Single Sideband as the up-and-coming dominant mode with the 1955 introduction of the 75A-4 Receiver and KWS-1 Transmitter for SSB / AM / CW – with a heavy focus on SSB. Then, in 1957, came the real revolution, the KWM-1 SSB/CW Transceiver. In two more years, Collins led the way again with the introduction of the beginning of the kind of radio we see today in the S-Line Separate Receiver and Transmitter (75S-1 Receiver and 32S-1 Transmitter) for SSB and CW. Associated with the S-Line, Collins then introduced the KWM-2 Transceiver. The 75S-1 and 32S-1 introduced the new focus of allowing the receiver and transmitter to link together and transceive off the receiver VFO.

It is true that Collins led the way to SSB to small footprint SSB Receivers, Transmitters, and Transceivers. However, Hallicrafters came immediately to the table with the competing SX-117 Receiver, HT-44 Transmitter, and SR-150 Transceiver – quickly following in the shadow of the Collins S-Line. Heathkit developed and released the SB-300 Receiver, SB-400 Transmitter, and the SB-100 Transceiver. Drake was soon on the scene with the R-4 Receiver, T-4X Transmitter, and TR-3 Transceiver. Others with transceivers only were Swan (Swan 240), National (NCX-3), Galaxy (Galaxy 300), and more. More companies, major players in the market, like E. F. Johnson, did develop SSB products but never made the transition to the transceiving separate receiver and transmitter or the stand-alone transceiver. Some, such as the Johnson Avenger HF Transceiver and the Gonset GC-102 were prototyped but never put into full production.

Late in the game, Hammarlund made its move by targeting the last version of the Collins S-Line Receiver, the 75S-3C. Hammarlund provided a radio with 24, 200kHz, tuning ranges while the Collins provided for 28, 200 kHz, turning ranges. Hammarlund did that with a 24-position band switch – while Collins did their selection with two banks of 14 positions. Collins offered a less expensive model 75S-3B version that was identical but had only one 14 position selection band of 200 kHz ranges.

	<p><b>Hammarlund HQ-215 Receiver</b> W9MXQ</p>
	<p><b>Collins 75S-3C Receiver</b> isquare.com</p>

What truly set the Hammarlund HQ-215 Receiver apart from its Collins focused competition was its totally solid-state design. Every function was transistorized in the receiver. The only solid-state devices in the Collins 75S-3B and 75S-3C were two diodes in the power supply. Does solid state mean better? The interior of the HQ-215 is attractively and simply laid out. Much improved over the vacuum tube products and their point to point, very tedious, wiring:

	<p><b>Hammarlund HQ-215 Receiver</b> Top Inside View – Radio Front is toward the top of this picture. W9DYQ</p>
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At the bottom center of the radio, you can see the power supply board with the power transformer immediately to the right of the board. Note the two audio related transformers to the right of the power transformer.

To the left of the power supply board are the range crystals wired into three rows of eight crystals – netting the total potential ranges of 24, mentioned previously. The crystal sockets are not all filled in a receiver from the factory upon initial delivery.

A standard radio provided 11 ranges with 13 ranges remaining open for the installation of optional range crystals. The extra crystals had to be installed in certain sockets for certain tuning ranges. Here is a breakdown of that selection of six ranges covering the high frequency spectrum:

- Range Note 1: 3.4 to 4 MHz – Three crystals supplied.
  - Three crystals can be accommodated.
  - 3.4 to 4 MHz covered, 3.4, 3.6, 3.8 MHz supplied crystals.
  - No open range positions available.
- Range Note 2: 4.0 to 5,8 MHz
  - Three crystals can be accommodated.
  - All three range positions are available. (Positions A, B, & C)
- Range Note 3: 5.0 to 10.4 MHz
  - Five crystals can be accommodated.
  - 7.0 to 7.4 MHz. covered, 7.0 & 7.2 MHz supplied crystals.
  - Three open range positions available. (Positions D, E, & F)
- Range Note 4: 10.4 to 17.4 MHz
  - Five crystals can be accommodated.
  - 14.0 to 14.4 MHz. covered, 14.0 & 14.2 MHz supplied crystals.
  - Three open range positions available. (Positions G, H, & I)
- Range Note 5: 17.4 to 25.4 MHz
  - Five crystals can be accommodated.
  - 21.0 to 21.6 MHz covered, 21.0, 21.2, 21.4 MHz supplied crystals.
  - Two open range positions available. (Positions J & K)
- Range Note 6: 25.4 to 30.2 MHz
  - Three crystals can be accommodated.
  - 28.5 to 28.7 MHz covered, 28.5 (28A) MHz supplied crystal.
  - Two open range positions available. (Positions L & 28B)

In the top view in the previous page, you can see the BFO Adjustment Variable Capacitor to the right of the main tuning drum, on the front panel. The BFO is only adjustable in the CW mode.

The three section Variable Capacitor to the left of the main tuning drum, on the front panel, is the calibrated Preselector. To the left of the Preselector is the S-Meter.



**Hammarlund HQ-215 Receiver**  
Rear View of Radio

**W9MXQ**

The rear panel shows a an array of connections – including HF Oscillator and VFO Output access to use for transceiving with a matching partner transmitter. The three transistors mounted to the back panel (for heat dissipation) are protected from touching with fingers or metal parts. The cases of those transistors are not at ground potential. Plus, they can be hot!! The connection for access to power is the Cinch Jones 8-pin connector at the lower right. The cable plugging into that socket can supply 120 VAC, 240 VAC, or 12 VDC, depending on how the connector is wired. Note three SPARE phono connectors to the right if the Serial Number label. Those were the days when people experimented!! The main tuning readout is accomplished using a molded plastic drum with the readout printed on the edge around the circumference. The background of that lettering is black with translucent numbers and 1 kHz marks that are about 3/32” (2.4mm) from mark to mark. See more here:



Here is a center front panel view of the HQ-215. Note the visible edge of the dial drum through the opening above the main tuning knob. This frequency line markers are 1 kHz apart for good detail in reading an analog dial. The knob to the left of the window is to adjust the dial pointer for exact frequency readout. The knob to the right adjusts lamp brightness.

**W9MXQ**



The front panel is conveniently laid out and is somewhat reminiscent of the Collins 75S-3C on which its design is based. Reviewing the important controls, one can see the prominent main tuning knob. It is nice to see that this radio uses generally available open stock Raytheon knobs – present on test instruments and also on other brands of amateur radio equipment. In the upper left corner is the

adjustment of the BFO (+/- 3 Hz) controlled by the center knob. The outer knob in that position switches between FAST and SLOW AGC. In a disappointment, there is no OFF position for AGC. The dial readout opening is described above. At the lower left there is a MODE switch for CW, USB, LSB, and AM modes.

To the right of the Main Tuning Knob is the combination REJECTION TUNE and FILTER Selection concentric knobs. The top knob is the REJECTION TUNE which service to tune a notch filter giving about 40dB of rejection of an offending tone within the passband of the i-f filter. The control is also effective in reducing noise. The FILTER switch, the inside knob, controls access to one of three filter positions – occupied by up to three Collins Mechanical Filters. The radio came standard with one 2100 Hz filter. Optional filters for narrower CW and wider AM bandwidths were optional. These filters, of course, determine the i-f bandwidth of the radio. Unlike some radio designs, any filter is usable in any mode.

Paul Christensen, W9AC, has provided a lot of improvement circuits for various commercial amateur radio products over the years. For a short time (but no longer), W9AC provided an improved, lower noise, audio amplifier retrofit for the HQ-215. My own HQ-215, which I suspect may have been owned by W9AC at one time, has that audio amplifier modification. Please reference the interior picture of this HQ-215, below:



**Hammarlund HQ-215 Receiver**  
**Top Inside View – Radio Front is toward the top of this picture.**  
**Compare this picture with the earlier one credited to W9DYQ.**

**W9MXQ**

You can see that the power transformer has been moved from just to the right of the power supply board to a position to the left of that board (and a bit more toward the front panel. Removed from the chassis are the now unnecessary T701 Audio Driver and T702 Audio Output Transformers. At the lower right-hand corner of the chassis picture. That location is now occupied by the W9AC Audio Board. Even without the no longer available W9AC board, moving the power transformer may have merit in keeping its emitted field away from the audio circuitry.

Replacing the Hammarlund audio circuit also orphans two of the three power transistors on the back panel of the radio. Looking at the rear view of the back panel of the HQ-215, and the inset below, you can see which transistors are disconnected but left in place.



This view shows the lower right-hand corner of the HQ-215 Rear Panel. Note the Cinch-Jones Power Plug, the Ground Lug, the External Speaker Connector, and the three sheet Plexiglas™ isolated power transistors. Transistor Q601 is the radio's Power Supply Pass Transistor. All three transistors are RCA 40310 devices.

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Because I do not have the original Audio Amplifier Circuit in my HQ-215, I cannot comment on the

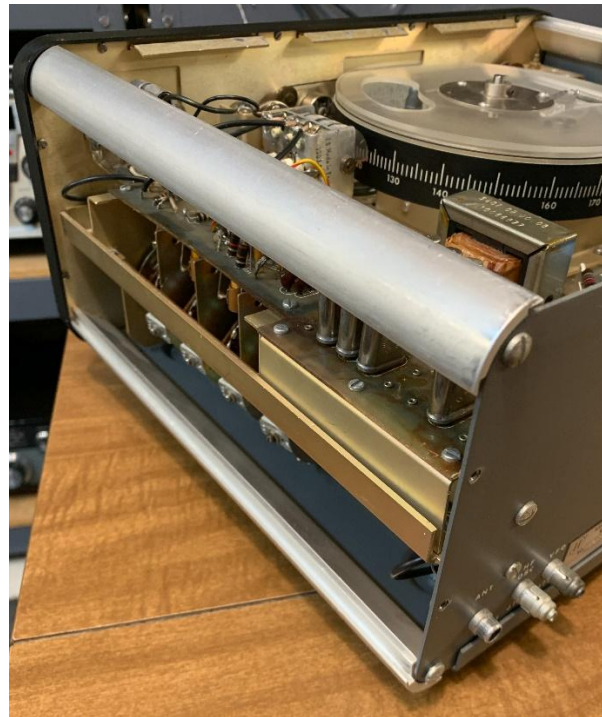
general performance of that standard amplifier from Hammarlund. My long-time friend, and proofreader of these articles, Bob Bailey, W9DYQ, owns a Hammarlund HQ-215 with the original stock audio system still in place in his radio. You will see one of his radio pictures in this article – showing how the radio looked, originally.

Before moving into the under-chassis and overall mechanical assembly of the radio, I want to provide a note of caution for those installing Optional Filters in the HQ-215. There is an error in the manual and on the main circuit board locating the two optional filter positions. The positions indicated for positions “A” and “C” as indicated on the front panel are reversed as identified on the bottom circuit board in the radio and in the manual. The radio, as supplied from the factory, had one Collins Mechanical Filter – a 2100 Hz unit in position “B.” It is correctly identified on the front panel.

The HQ-215 Receiver has a unique mechanical assembly. I have seen this in test equipment but not in amateur radio. (But I am always finding things I have yet to discover!) The radio is constructed – simply stated – as a Front Panel and Rear Panel connected by four aluminum anodized extrusions in each corner of the radio. The painted and formed steel Top, Bottom, Left Side, and Right Side slide from the back of the radio into the extrusions to spring contact strips on the Front Panel. The Panels attached with screws to the back panel – as can be seen in the Rear View of the Receiver, earlier in the article. This provides for a reasonably good box RF enclosure. The enclosure forms a 6.8” high x 15.8” wide x 14” deep box weighing in at 21 pounds. (17.3 x 40.1 x 35.6 cm and 9.5 kg) By contrast, its main competitor, the Collins 75S-3C is in a primarily aluminum enclosure forming a 7.8” high x 14.8” wide x 12.5” deep box weighing in at 20 pounds. (19.8 x 37.6 x 31.8 cm and 9.1 kg). The front and rear panels on the Hammarlund are painted steel while the Collins sheet metal parts are all aluminum. Personally, I like steel construction in radio equipment but have to admit that the Collins will last longer with less care. The example of the Hammarlund HQ-215 here is in immaculate condition, as you can see by the pictures. Here are some pictures to show the construction of the HQ-215.



**Hammarlund HQ-215 Receiver**  
Right Front Corner view with the Top Cover pulled back a few inches. See how the Panel slides into the right upper extrusion.

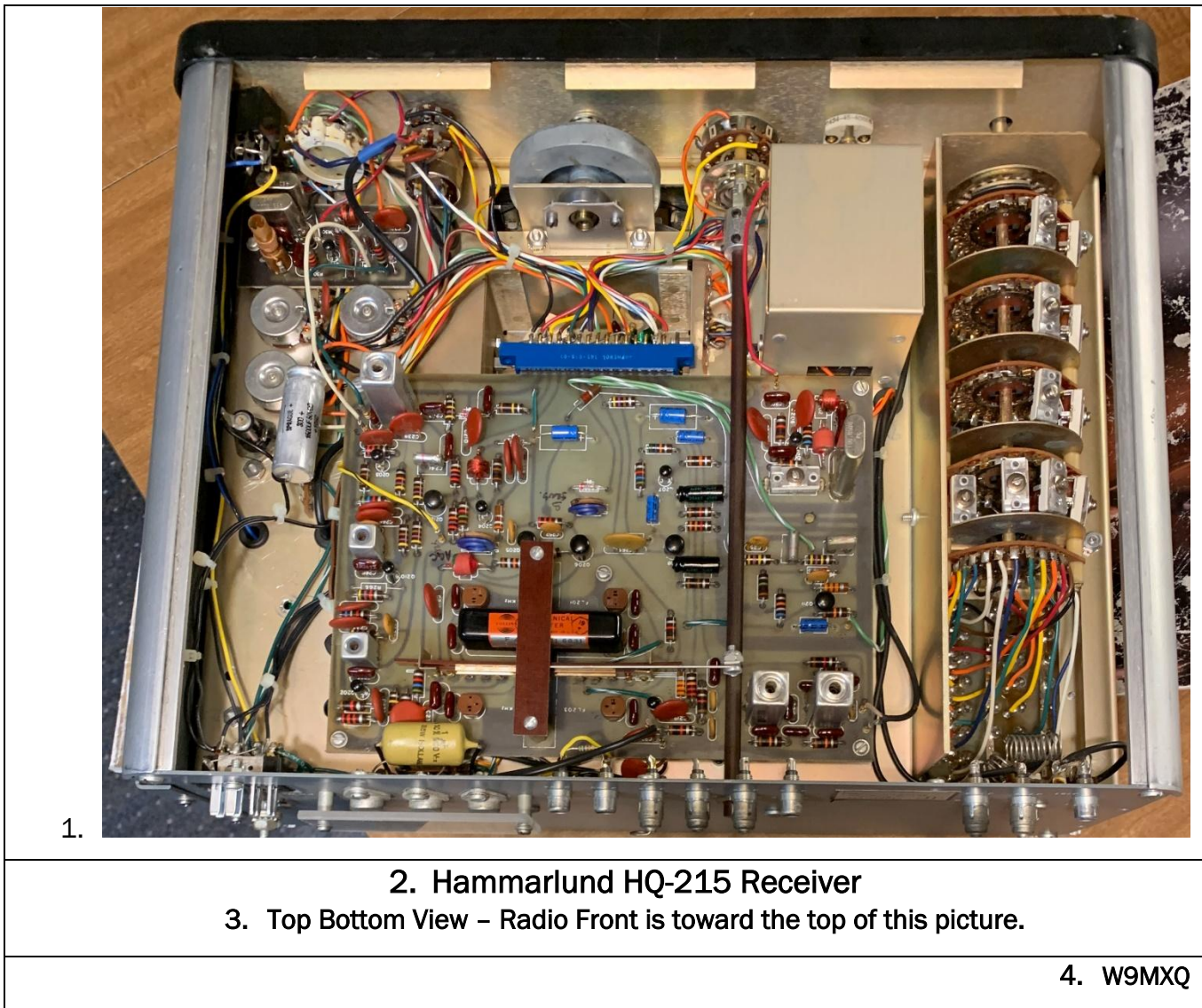


Right Rear View with the Top Panel and Right-Side Panel removed. Note open Side Panel mounting screw holes visible on the rear panel.

**W9MXQ**

My only concern about this radio has been – and maybe you can see from the pictures so far – that it is a tightly closed box – no openings what so ever. However, and I am happy to day that after the radio has run for a full day – over eight hours, opening the cabinet by sliding back the top cover exhibits no significant heat – even the power transformer is only marginally warm – no way is it hot. To be sure, there is not a lot of power draw here – on 120 VAC there is a 3/8 Ampere Fuse backed up by a 2 Ampere Thermal Circuit Breaker in the 12 VDC Line. Both represent about 40-50 watts. Remember, that is when the fuse blows, or the circuit breaker opens. Specifications say that in general use there is half of that consumption, or 19 watts. All in all, I would say that Hammarlund did a good job in designing the enclosure. Further, they designed an enclosure system totally different than anything in their past experience.

There are some interesting things to review in a bottom view of the radio's chassis:



First visible item inside the bottom chassis area is the large, pluggable, removable main i-f circuit board. Toward the bottom of the picture, you can see the Collins Mechanical Filter location. One of three possible filters (a 2100 Hz unit) is installed in this receiver.

At the upper left-hand corner of the picture is the BFO Oscillator board that also holds the two fixed frequency carrier frequency crystals (Y301 and Y302).

Most important for review is the right side of the bottom view. There you can clearly see the complex

24-position band switch. The “complex” word is deceiving – but was my initial feeling about the design of this radio. However, preparing to undertake a complete alignment of the radio showed me a different side to this story. First of all, the switch is complex – no doubt about that. But the placement of the alignment points on the bandswitch and the slug tuned coils in the same vicinity that appear to be a hodgepodge of access points actually are clearly laid out. The removeable Top, Bottom and Right-Side Panel allows easy access to all alignment points. Other points elsewhere in the radio are clearly marked and easily found – and accessed.

Note the large enclosure between the Main Tuning Knob flywheel and the bandswitch (upper right in the picture). That encloses the REJECTION TUNE circuitry. In that area, between the enclosure just mentioned and the Main Tuning Knob flywheel, you will see the dual FUNCTION and FILTER switch. The FILTER switch (the ready knob) shows a fiberglass shaft extending to the band panel. About 2/3 of the way to the back panel you will see a crank lever on the shaft with a mechanism connecting to an area found the filters in the lower center of the large circuit board. That is a slide switch that actually selects the desired filter. The outer FUNTION control is the radio’s STBY (Stand Bye), REC (Receive), NL (Noise Limiter), and CAL (Calibrator) switch.

The Noise Limiter, not to be confused with a Noise Blanker<sup>2</sup>, is effective at reducing electrical interference with the receiver. The Calibrator provides alignment signals at every 100 kHz intervals across the spectrum the HQ-215 covers.

With its attractive panel appearance, relatively cool circuitry where perhaps the pilot lamps were the major current draw, what else could a ham want? Well, Part 2 of this article will cover my operating interpretations of this receiver. And, I have asked my long-time friend and proofreader, Bob Bailey, W9DYQ, a fellow HQ-215 owner and nearly 100% CW aficionado, to comment with his thoughts and opinions of the radio. Also, a recently found friend as well as vintage radio collector and restorer, Clark Thompson, K9OA, to comment on his experience with the HQ-215’s nearly identical sister radio that was designed for the Short Wave Listener (SWL) market. Clark has what we both agree is the only produced example of the Hammarlund HQ-225, the general coverage sister radio to the HQ-215.

Also in the next installment, we will talk about Hammarlund’s perceived reasoning for developing and manufacturing this unabashed clone of the Collins 75S-3C. Was there a market for these radios beyond ham radio?

Finally, we will talk about the other more complete line of radios to compete with the magic of what was the Collins S-Line. We will talk about a complete line of radios that cloned the 75S-1 Receiver, 32S-1 Transmitter, 312B-4 Console, and 516F-2 Power Supply. We will follow this interesting product all the way to MARS. I kid you not, all the way to MARS.

I appreciate that you read my articles. Remember that I am open to questions and comments anytime at my email address, [W9MXQ@TWC.com](mailto: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 any technical article, it is good to have a second person review the thought process.

© **W9MXQ**

### **Notes and Comments:**

<sup>1</sup> We all have our favorites in ham radio and Hammarlund is one of mine. My first fully ham radio band dedicated receiver was a Hammarlund HQ-170AC purchased brand new in 1965 from Klaus Radio and Electric, in Peoria, Illinois. While Klaus is still in business today, their amateur radio department is long gone. Some months ago, I acquired a very nice HQ-170AC-VHF, a slightly newer feature added model from my original. An article on that receiver and its sister, the general coverage HQ-180C resides in my archives of this Newsletter. Contact me for details. It is nice to experience the use of these old receivers, and I quickly remember many long ago learned details of their features and how to make them perform at their best. .

## 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. Winter Field Day
  5. GARS Hamfest Volunteers
  6. 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

In order to offer your help with any of these, send an email to [president@gars.org](mailto:president@gars.org) or contact the President (Bob K4CQO) at one of our meetings.



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### New Members in December

Michael Mixon (W4LUN)  
 Shawnee Palmeri (KR4HPC)  
 Michel Palmeri  
 Laurie Rundqwist (KR4HQU)  
 B Magnus Rundqwist

**New Members: 5**

**Total Members as of  
 January 1, 2026  
 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 January

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 David Aguirre  
 Maritza Aguirre  
 Diane Andrus (KB4LWS)  
 Tim Brady (KJ4FHZ)  
 Donald Brant (N2VGU)  
 Jolie Brown (KO4AHI)  
 Terry Cantrell (W4WTC)  
 Eliud Carmona  
 Rick Cobb (N4XYY)  
 Angela Cohron  
 Hal Collier (W4IGE)  
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**Membership Chair:** Dave Bruse, W4DTR

**Committee Members:** Pam Brown, KJ4RYV, John Aguirre, KQ4EJV

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

### 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.





### Donating to GARS

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- 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

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Lawrenceville, GA 30049

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## **GARS Meeting Minutes**

**There were no minutes issued for the GARS  
holiday party and December did not hold a  
Workshop**



## Events – GARS and others

### ARRL CONTESTING INFO

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

#### January 2026

- 1 [Straight Key Night](#)
- 3 [Kids Day](#)
- 3-4 [RTTY Roundup](#)
- 17-19 [January VHF](#)

#### February 2026

- 9-13 [School Club Roundup](#)
- 21-22 [International DX – CW](#)

#### March 2026

- 7-8 [International DX– Phone](#)

#### April 2026

- 19 [Rookie Roundup – Phone](#)

#### May 2026 (no ARRL Contests)

#### June 2026

- 6-7 [International Digital Contest](#)
- 13-15 [June VHF](#)
- 20 [Kids Day](#)
- 27-28 [Field Day](#)

#### July 2026

- 11-12 [IARU HF World Championship](#)

#### August 2026

- 1-2 [222 MHz and Up Distance Contest](#)
- 15-17 [10 GHz & Up – Round 1](#)
- 8-9 [EME - 2.3 GHz & Up](#)
- 16 [Rookie Roundup – RTTY](#)

#### September 2026

- 12-14 [September VHF](#)
- 5-6 [EME - 2.3 GHz & Up](#)
- 19-21 [10 GHz & Up - Round 2](#)

#### October 2026

- TBD [Collegiate QSO Party](#)
- 31-Nov 1 [EME - 50 to 1296 MHz](#)
- 19-23 [School Club Roundup](#)

#### November 2026

- 7-9 [Nov Sweepstakes–CW](#)
- 28-29 [EME - 50 to 1296 MHz](#)
- 21-23 [Nov Sweepstakes–Phone](#)

#### December 2026

- 4-6 [160 Meter](#)
- 12-13 [10 Meter](#)
- 20 [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]

**01/16/2026 - 01/17/2026** - [SW FL Regional Hamfest 2026 \(Fort Myers\), ARRL Southern Florida Section Convention](#)

**Location:** Fort Myers, FL  
**Type:** ARRL Convention  
**Sponsor:** Fort Myers Amateur Radio Club, Inc.  
**Website:** <https://swflhamfest.com/>

**02/13/2026 - 02/15/2026** - [Orlando HamCation, ARRL SW Division Convention](#)

**Location:** Orlando, FL  
**Type:** ARRL Convention  
**Sponsor:** Orlando Amateur Radio Club  
**Website:** <http://www.hamcation.com>

**02/21/2026** - [Hernando County Amateur Radio Association Hamfest](#)

**Location:** Brooksville, FL  
**Type:** ARRL Hamfest  
**Sponsor:** H.C.A.R.A.  
**Website:** <http://www.hcara.org>

**02/28/2026** - [Dalton Hamfest](#)

**Location:** Dalton, GA  
**Type:** ARRL Hamfest  
**Sponsor:** Dalton Amateur Radio Club, Inc. W4DRC  
**Website:** <https://www.qrz.com/db/W4DRC>

**03/14/2026** - [MARCIFest](#)

**Location:** Bradenton, FL  
**Type:** ARRL Hamfest  
**Sponsor:** Manatee Amateur Radio Club, Inc.  
**Website:** <http://manatee-arc.org>

**03/21/2026** - [Stuart Hamfest](#)

**Location:** Stuart, FL  
**Type:** ARRL Hamfest  
**Sponsor:** Martin County Amateur Radio Association  
**Website:** <http://www.mcaraweb.com>

**04/25/2026** - [Wiregrass ARC - Spring Tailgate](#)

**Location:** Headland, AL  
**Type:** ARRL Hamfest  
**Sponsor:** Wiregrass Amateur Radio Club  
**Website:** <http://w4dhn.org>

**10/26/2026** - [Wiregrass ARC - Fall Tailgate](#)

**Location:** Headland, AL  
**Type:** ARRL Hamfest  
**Sponsor:** Wiregrass ARC  
**Website:** <http://w4dhn.org>

For more information: [www.arrl.org/hamfests-and-conventions-calendar](http://www.arrl.org/hamfests-and-conventions-calendar)

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



GARS Events Calendar for 2026		GARS Recurring Calendar	
<a href="#">TechFest</a> Winter Field Day Dog Show Fundraiser Spring Technician HamCram <a href="#">Georgia QSO Party</a> North metro area Fox Hunt <a href="#">Memorial Day Parade</a> <a href="#">ARC/KARC Hamfest</a> <a href="#">Field Day</a> Summer General HamCram Fall Technician HamCram <a href="#">JOTA</a> <a href="#">Stone Mt. Hamfest</a> Holiday Party	January 31 2026 January 24-25 2026 March 25-29, 2026 March 2026 April 11-12 2026 April 2026 May 25 2026 June 6 2026 June 27-28 2026 August 2026 October 2026 October 2026 November 6-7 2026 December 2026	<ul style="list-style-type: none"> <li>• 2nd Tuesday of the month at 7 pm (except December)              Monthly Club Meeting              690 Airport Rd, Lawrenceville, GA 30046</li> <li>• 3rd Tuesday of the month at 7 pm (except December)              Monthly Workshop              690 Airport Rd, Lawrenceville, GA 30046</li> <li>• 3rd Sunday of the Month at 3 pm  <a href="#">GARS Ham Exam Session</a>              690 Airport Rd              Lawrenceville, GA 30046</li> <li>• Every Monday at 7:30 pm: GARS Want, Swap, Sell, and Information Net on the GARS 147.075 MHz repeater</li> <li>• Every Monday at 8:30 pm: ARES Training on the GARS 147.075 MHz repeater</li> <li>• Every Thursday at 7:30 pm: GARS 440 Net on the GARS 442.325 MHz repeater</li> <li>• Every Friday at 11:30 am, GARS Lunch at Chili's</li> <li>• Every Saturday at 8:00 am GARS Breakfast at Cracker Barrel</li> </ul>	

GARS Calendar for January 2026						
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
				1	2	3
					11:30 AM Lunch at Chili's	8:00 AM Breakfast at Cracker Barrel
4	5	6	7	8	9	10
	7:30 PM 2M Net 147.075(+) MHz Tone 82.5	7:00 PM Exec Meeting		7:30 PM 70cm Net 442.325(+) MHz Tone 100	11:30 AM Lunch at Chili's	8:00 AM Breakfast at Cracker Barrel
11	12	13	14	15	16	17
	7:30 PM 2M Net 147.075(+) MHz Tone 82.5	7:00 PM Meeting EAA 690 Hangar		7:30 PM 70cm Net 442.325(+) MHz Tone 100	11:30 AM Lunch at Chili's	8:00 AM Breakfast at Cracker Barrel
18	19	20	21	22	23	24
3:00 PM Ham Radio Exams, EAA 690 Hangar	7:30 PM 2M Net 147.075(+) MHz Tone 82.5	7:00 PM Workshop Meeting EAA 690 Hangar		7:30 PM 70cm Net 442.325(+) MHz Tone 100	11:30 AM Lunch at Chili's	8:00 AM Breakfast at Cracker Barrel
25	26	27	28	29	30	31
	7:30 PM 2M Net 147.075(+) MHz Tone 82.5			7:30 PM 70cm Net 442.325(+) MHz Tone 100	11:30 AM Lunch at Chili's	8:00 AM Breakfast at Cracker Barrel  TechFest at Gwinnett Fair Grounds

## Local Ham Radio Exams & Meetings

### GARS Ham Radio Exams

**GARS Exam Sessions are held the 3<sup>rd</sup> 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](mailto:exams@gars.org).



### December 2026 Results

The GARS VE Team exam session results from December 21<sup>st</sup>:

1 new Technician:

- Seth K Pratt – KR4INB

2 new Generals:

- ROBERT P FRANKO – KR7CPA
- JAMES T HENDRICKS – KR4IMC (who is getting back into ham radio after an absence)

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

KM4SWL - Richard Kitz

WS3V – Bill Rudd

W4DTR – Dave Bruse

NG4H – Bill Beguhn

K4CQO – Bob Hoffmann

Thanks & 73, Dave Bruse W4DTR (Team Lead)

#### Local Ham Radio Exams

In order to find an exam session near you, please visit

[http://www.arrl.org/exam\\_sessions/](http://www.arrl.org/exam_sessions/).

Contact the information in the listing for further information.



#### 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.

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**Ready to take your Ham Radio Exam?**

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