

CAARA NEWS



Cape Ann Amateur Radio Association
Gloucester, Massachusetts
JUNE- 2026 EDITION



PRESIDENT'S COLUMN

By Brandon- NQ1W

Dear CAARA Members,

As we head into the finest months of the New England summer, I am incredibly proud to look back at what we have accomplished together over the spring, and even more excited for the massive events we have on the immediate horizon. Our club is firing on all cylinders, from major facility upgrades to cutting-edge historical recreations and community outreach.

The Clubhouse Transformation: Phase One Complete! If you haven't dropped by the clubhouse recently, you are in for a wonderful surprise. I am thrilled to officially announce the completion of Phase One of our accessibility renovation project.

Our facility has undergone a massive, much-needed transformation to ensure it remains a welcoming, accessible space for all members and visitors for decades to come. The visible upgrades look fantastic:

A brand-new, fully compliant wheelchair ramp and new front steps.

A beautiful, secure new front door.

A completely graded and newly paved front parking lot.

Equally important is the work you can't see from the driveway. We discovered the need for substantial structural remediation to the front supports of the clubhouse, which required a brand-new support wall to be engineered and built in the basement. Our historic building is now more structurally sound than it has been in years.

A Debt of Gratitude



Projects of this scale do not happen without immense dedication. Please join me in extending a massive thank you to two critical leaders:

Jon Cunningham (K1TP): For his tireless on-site management, project oversight, and coordination of the contractors. Jon kept the wheels turning smoothly despite the inevitable surprises an old building throws at you.

Thomas Stephenson (AA1TS): For his brilliant work putting together the original grant application and managing the complex financial coordination between the club, the contractors, and the Gloucester Community Preservation Committee (CPC).

I also want to deeply thank the membership. While the CPC grant provided the bedrock for this project, it was the overwhelming generosity of our members through personal financial donations that allowed us to cover unexpected structural costs and see this phase through to perfection. Thank you for investing in CAARA's future.

Historical Innovation: The Hammond Radiant Telephone Project

On the technical and historical front, we have a true treat in store for our upcoming June members meeting. Club member Mike Sussman will be joining us to present a live demonstration of his latest project: a working model of the Secret Radiant Telephone, built directly from the original historical designs of John Hays Hammond.

This promises to be a fascinating window into early twentieth-century wireless innovation. Looking beyond the meeting, our ultimate goal is to donate Mike's finished working model to the Hammond Castle Museum on behalf of CAARA. This will further cement our club's unique relationship with local radio history and provide museum visitors with a hands-on look at

CAARA Newsletter
Cape Ann Amateur Radio Association
6 Stanwood Street
Gloucester, MA 01930

CAARA Newsletter is a monthly publication of the Cape Ann Amateur Radio Association (CAARA).

It is the policy of the editor to publish all material submitted by the membership provided such material is in good taste, relevant to amateur radio and of interest to CAARA members, and space is available. Material is accepted on a first come, first serve basis. Articles and other materials may be submitted by internet to Jon at jpcrockport@gmail.com. If possible, material should be in Word format. Material may also be submitted as hard copy to Jon-K1TP or any Club Officer.

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Welcome to CAARA:

CAARA, an ARRL affiliated club, operates the 2 meter W1GLO repeater on 145.130 MHz with antennas located on the ATT cell tower in the Blackburn Industrial Complex in Gloucester Massachusetts. It has an average effective radius of 60 miles, and serves Eastern Massachusetts, Cape Cod, Rhode Island, Southern New Hampshire, and maritime mobile stations.

CAARA also operates the W1GLO repeater on 224.900 located at the CAARA clubhouse.

The 443.700 repeater is now on the ATT cell tower in the Blackburn Industrial Complex with greatly enhanced performance running in fusion mode and linked to 10 other repeaters in the New England area.

The Association is one of the few amateur radio clubs that has its own clubhouse. Located at 6 Stanwood Street in Gloucester, with a variety of HF stations with beam, vertical, or G5RV antennas.

Amateur radio exams are held on REQUEST at the CAARA clubhouse. Anyone who is considering a new license or an upgrade, is welcome to test with us. Currently pre-registration is necessary. Contact the head of our VE team Bill Poulin- WZ1L if you have any questions about monthly testing.

Monthly member meetings are held on the second Saturday of each month at noon except for July and August.

Each Sunday evening at 7:00 PM, the club operates a 2 meter fm net on 145.130. This is an open and informal net which disseminates club news and prepares operators for emergency communications work. All are invited to check into the net as club membership is not a requirement.

The club is open every Wednesday from 10- Noon for CAARA members and interested parties to stop by and socialize, as well as use the extensive collection of ham radio gear.

This newsletter is published under the auspices of the Cape Ann Amateur Radio Association (CAARA), However, all content is the work of individual contributors and may contain ideas, opinions or views not necessarily shared or supported by the CAARA Board of Directors or the membership.

the roots of secure communication. You won't want to miss this meeting!

The Elmer Corps is Ready for Action

We recently put out a call for volunteer Hams to step up and man our newly revitalized Elmer Corps program, and the response was nothing short of spectacular.

Whether you are a newly licensed technician looking for guidance on your first HT, or an experienced operator wanting to learn the ropes of a new digital mode, the Elmer Corps is being designed to bridge that gap. We have a stellar group of experienced club members ready to mentor. A meeting time will be announced shortly to officially launch the endeavor and begin pairing up our Elmers with anyone looking for a helping hand. Stay tuned!

Looking Ahead: SummerQuest at the Crane Estate (Late July)

Mark your calendars for a very special two-day event at the end of July. CAARA has been invited to set up a special event station at the historic Crane Estate (Castle Hill).

This is a premier public relations and outreach opportunity. As part of the activation, we will be working closely with the SummerQuest day campers, introducing a whole new generation of kids to the magic of amateur radio, basic electronics, and global communication. More detailed information on logistics, callsigns, and schedules will follow soon.

All Hands on Deck: ARRL Field Day 2026!

Finally, the big one is right around the corner. ARRL Field Day 2026 takes place at the end of June, and we need you!

Field Day is the absolute highlight of the amateur radio calendar—part emergency exercise, part public outreach, and a whole lot of fun. To make this year a resounding success, we need participants and volunteers of all kinds!

No matter your license class or experience level, there is a place for you at the CAARA Field Day site. Please reach out to the field day committee or reply directly to get your name on the volunteer roster. Let's make 2026 our best showing yet! Our final planning session will be during the June Board of Directors meeting and Monthly Members meeting. If you are interested in

participating please attend the second Saturday in June at 11am to help us get our plan in order.

73,

Brandon Hockle, NQ1W

President, Cape Ann Amateur Radio Association

THE EMCOMM MINUTE

By Dean- KB1PGH

So I finally had a opportunity to do some portable HF ops on Sunday May 18th since the weather was good and the space weather forecast was at least ok.



So I did my usual set up with my Yaesu FT 710 and a 4 band Off Center Fed dipole and a 110 amp hour AGM battery for power feeding into the west mountain radio N8XJK battery booster. .

As you can see in the photo I set up the OCF dipole in a inverted V configuration with a Buddipole tripod and mast and the ends of the antenna 3 feet off the ground with two of those plastic electric fence posts with the spikes in the ground.

As you can see in the photo I also had a Yaesu FT D 5R handheld to monitor the UHF and VHF frequencies. So even though there were no severe solar storms the CME that just went through set off some high solar winds which affected propagation greatly. Pretty much the bands were dead. I only got 4 contacts on 40 and 20 meter and 0 contacts on 10 and 6 meters. I managed only to get a couple of POTA stations and the ECARS net on 7255 MHZ.

The bands were probably in the worst conditions that I had seen in a while. So that` was pretty much it. I was only there for a couple hours and packed up and went home. So speaking of propagation. You can always check out the band conditions at www.spaceweather.com and check out www.dxmaps.com as well to get an idea of real time qso`s. So I`ll have to wait until ARRL Field day for another shot at portable HF DX.

See you next month!

Photos on the next page



So I own a Yaesu FT 710 and it comes in two versions, the Field edition which where it does not have a forward front speaker and the AESS version which does. I purchased the AESS version where it comes with a side attaching front speaker.

Now this speaker adds an extra \$70 to the cost over the Field version. Now if you were to buy the speaker seperate the cost would be \$110.00 which kind of makes no sense. Yaesu jacks up the price an extra \$40 on the speaker if you buy it separate-whatever.

Anyhow-the side speaker on the AESS version is supposed to be involved with the (Acoustic Enhanced Sound System) to mix with the top firing speaker on the FT 710 to make a better audio sound for HF.

So does the AESS work? I have tried it and it does to a extent. The main thing that Yaesu did on the AESS is make the top speaker with low and mid sound output and the side front speaker with the higher frequency audio output and you can mix the two together for your liking.

The issue lies that the side speaker operating by itself without the AESS activated the output audio seems to sound tinny and hollow on HF. The speaker cabinet itself matches great with the look of the radio but as you can see in the photo the cabinet is completely hollow which causes the tinny sound.

Now what some have done is they have removed the speaker and replaced it with a more substantial one to improve the sound. So what I did instead is I found something else to improve the sound. I remember when I was growing up that audiophiles used to improve the sound of their bigger stereo speakers by stuffing insulation or foam inside of them.

So I looked around and I found the Phonema Phits Acoustic Modification Kits on the DXengineering website . So low and behold that they make a acoustic modification kit for the Yaesu SP 40 speaker as well as many other speakers for other Yaesu Hf rigs and Icom and Kenwood radios as well.

They also sell a universal kit for ones not listed. The kit I got was the PNE-Y40A and it cost \$59.99. So as you can see in the photo the kit comes with 3 different types of acoustic foams. So what these foams are supposed to do when installed inside the speaker is that they



eliminate reverberations, phase distortion and resonant vibrations inside the speaker. Now with the speaker housing being completely empty all the sound waves coming off the speaker are going to bounce around in there and create those problems causing the tinny sound and distortion. So on first inspection these speaker foams are the real deal. They are professional and they really high quality. So the instructions are pretty straight forward. Basically what you are doing is building an entire foam enclosure within the speaker housing. So installation went pretty smooth. It took me a half an hour to take the speaker apart ,build the foam enclosure and put it all back together.

I'll say one thing. When you are putting the foams together they go together tight within the speaker enclosure itself so you have to kind of force it in there but it's built to be tight in the enclosure anyway .Don't worry, you don't have to cut any foam to size as it is made to pre-fit specs. As you can see in the photo the top of the foam enclosure when I was finished. So I will say this. After the speaker foam is installed it definitely adds some weight to the SP 40 .

So after all that now the big question was does the Phonema Phits PNE-Y40A speaker foam kit really work in improving the sound of the Yaesu SP-40 speaker on the Yaesu FT 710 radio? The answer is YES! I took the radio out for a HF portable ops session and the SP 40 speaker now has a much fuller and richer sounds to it. the Tinny sound is gone and the audio coming from the speaker improves the SSB and CW audio to where it "POPS" out of the speaker a bit more. So was it worth the money I would say yes.

I have heard that the Phonema Foam kit also works with improving the sound on the Yaesu SP 30 speaker that goes along with the Yaesu DX 10 as well. So in

the end I would recommend the Phonema foam kits if you are looking to improve the sound of your forward facing speaker on your HF rig.



Squirrels

by Curtis- AA3JE

Everybody loves squirrels. Funny, acrobatic, fuzzy clowns that live to raid the bird feeder. Right?



Not on your life. They are the malevolent evil geniuses opposed to all that is amateur radio.

In the fall, and sometimes in the spring, evil female squirrels go hunting. Not for the nuts they buried last fall when the acorns fell. They go looking for nest material. Nice, soft, mold resistant nest material.

One of the best nest material is the insulation on my long wire.

Insulation on the long wire? Sacrilege. Long wires should be bright shiny copper, burnished bright and covered with tarnish resistant lacquer.

Good luck finding any. I used stranded insulated copper wire. Nice poly insulation.

And in my area there are trees, lots of trees. Trees which when it rains, drop soggy branches over my poor, sad antenna.

I notice this when the SWR the shortened dipole which is a solid 1.5-2.0 on dry days, goes to 3,4, and sometimes 5. So I put on my raincoat, get the ladder, and investigate the far end.

Yep, some mama squirrel has carefully stripped the insulation from the far end, and it was draped across a soggy branch of a friendly tree. So I trim the branch away, and lovingly wrap the wire with electrical tape. It works, sorta, getting the SWR into a range where the tuner can handle it.

I go back inside. It's all good, for two days.

I go back out, another 20 feet of insulation is stripped. I drop the antenna, replace the bare section, trim trees like mad, getting showered by wet branches, and treat the wire with BITREX, a nasty bitter substance used to keep the puppy off the chair legs.

Then I watch as the SWR wiggles all over. I look out, and see mama squirrel dangling from the antenna stripping more wire, unfazed by the taste or the RF.

I seek a higher power.

MY wife suggests I provide nest material. She has a nice box of poly pillow fill. I get out the ladder, place it at the squirrel entry point, and it disappears.

All is well till the next spring, when the cycle repeats itself.

This time I just put the stuff out, retape the antenna, and soldier on.

I have proved either that I have defeated the squirrel, or have been trained to provide nest material.

You pick.

Me? Pricing verticals.



Evolution of Ham Radio Transceivers (1950s-1980s)

1950s: All-Tube Era

Heathkit DX Series

Completely tube-based

Separate receiver and transmitter

1959: First True Transceiver

Collins KWM-2

All-tube design

Combined TX/RX functionality

1971: First Hybrid Transceiver

Yaesu FT-101

Solid-state receiver and driver

Tube-based final amplifier

Modular design

1973: Popular Hybrid Model

Kenwood TS-520

Hybrid with 6146B tube finals

Reliable and widely used

1978: Fully Solid-State Begins

Icom IC-701

One of the first all-transistor HF transceivers

1985: Digital & Solid-State Era

Icom IC-735

Compact, reliable

Digital frequency display.

Description	5/14/2025	5/18/2026
IC-705	1,349.95	1,399.95
IC-7100	899.95	849.95
IC-7300	949.95	1,039.95
IC-7300MK2		1,499.95
IC-7610 22	3,249.95	3,399.95
IC-7610 32		3,999.95
IC-7760	5999.95	6,999.95
IC-9700	1,749.95	2,099.95
ICOM IC-PW2 (AMP)	4,999.95	5,499.95
FT-991A	1,129.95	1,339.95
FTDX-101D	3,699.95	2,999.95
FTDX-101MP	3,799.95	3,999.95
FTDX-10	1,399.95	1,299.95
YAESU FTX-1 FIELD		1,299.95
YAESU FTX-1 OPTIMA		1,699.95
FT-710 Field		899.95
YAESU FT-710 AESS	899.95	999.95
FTM-510-DR	499.99	539.95
YAESU FTM-510DRASP		639.95
TS-590s	1,429.95	1,849.95
TS-990s	8,899.95	9,599.95
TH-D75A	569.95	549.95
A-1000	3,924.99	4,364.99
A-1010	3,034.99	3,376.99
A-1500	4,539.99	5,122.99
A-2100	5,114.99	5,687.98
ACOM 2000A	7,938.99	8,935.98
4O3A Power Genius XL		6,509.99
4O3A Power Genius XL 3X1		5,959.99
PALSTAR LA-1k	3,695.95	3,749.95
SEC-1235M	174.95	254.64
YAESU FP-1030A	229.95	269.95
Cobra-Ultralite-SR	190.95	189.95

Signals Without Borders

By Michael Kalter (W8CI) Xenia, Ohio

Hamvention 2026 drew a world of kindred spirits to the Greene County Fairgrounds — and reminded us that radio waves have always been humanity's most quietly miraculous language.

At a Glance

Attendees: 30,000+ (official count pending)

Countries represented: 43+

Volunteers: 600+

It is finished — and already missed. The 74th annual Dayton Hamvention, held at the Greene County Fair and Expo Center in Xenia, Ohio, came to a close this past weekend, leaving behind a fairground full of memories, friendships renewed and forged, and a quiet sense of awe at just how far a radio signal can travel.

From the moment the gates opened on Friday morning, it was clear this year's gathering was something special. Crowds poured in from across the United States and more than 43 countries around the world — engineers and experimenters, retired servicemen and curious teenagers, seasoned DX chasers and brand-new licensees. Every walk of life. Every mode of communication. All converging on a single fairground in Greene County, Ohio, united by one invisible thread: the radio wave.

It doesn't matter where you're from — we can still have fun, talk on the radio, talk around the world, and just be friends. — Hazel Everetts, Assistant General Chairperson, Hamvention 2026

A gathering unlike any other

Hamvention is often called the world's largest amateur radio convention, and the numbers bear that out. Thousands of attendees filled the exhibit halls, forums, and the sprawling flea market tucked inside the fairground's horse track infield — with official final attendance figures still being tallied at the time of this writing. Over 350 vendor booths offered everything from brand-new transceivers to decades-old components, with 162 vendors representing the full spectrum of the hobby

But statistics tell only part of the story. Walk through any aisle of the flea market, sit in on any forum, and you quickly understand that Hamvention is less about equipment and more about people. Friendships maintained year after year over the same crowded tables. Mentors passing knowledge to newcomers who didn't know, six months ago, what a feedline was. Young operators discovering that this hobby has no ceiling.

Hamvention is the annual pinnacle event of our hobby. It is an honor to work with a great team to make this a successful event. Each year we work on improving the event. It takes a team of dedicated volunteers who share the passion and love of Amateur Radio. I encourage everyone that loves this hobby to get involved! — Jack Gerbs, WB8SCT · Hamvention 2026 Executive Committee

The next generation takes the stage

Among the most inspiring moments of the entire weekend was the Radio Club of America Youth Forum — a Saturday morning tradition that has run for more than three decades, and one that never fails to silence a room full of seasoned operators with nothing more than the enthusiasm of a ten-year-old at a microphone.

Founded and guided for many years by legendary amateur radio educator Carole Perry, WB2MGP — a Fellow and Director of the Radio Club of America, past Hamvention Ham of the Year, and ARRL Instructor of the Year — the RCA Youth Forum brought together carefully selected young ham radio operators, some barely out of elementary school, to deliver polished and passionate presentations on their work within the hobby. Topics ranged across the full breadth of amateur radio: satellite communications, high-altitude ballooning, antenna construction, digital modes, emergency preparedness, and the inspiring mission of bringing ham radio into schools and communities across the globe.

SPOTLIGHT — RCA Youth Forum

Each year, seven to eleven young operators — some as young as nine or ten — take the Hamvention stage to share their experiments, achievements, and passion for the hobby. The forum is consistently one of the most well-attended and warmly received events of the entire weekend.

The audience was captivated. Here were young people who had built their own antennas, chased DX across continents, bounced signals off the moon, and worked satellites passing hundreds of miles overhead — presenting their accomplishments not as hobbies, but as serious scientific and technical endeavors. The room was packed, and the applause was genuine.

The forum reached a remarkable crescendo when an astronaut took the stage to address the young presenters directly — urging them to dream bigger, reach farther, and recognize that the skills they were developing in amateur radio were the same skills that take human beings beyond the atmosphere. It was a moment that drew the connection between radio waves and space exploration into vivid, personal focus: a person who had orbited the Earth, looking out at a room of young operators who might one day follow a similar path.

The next generation of operators is already here — already curious, already building, already calling CQ.

For many in the audience, it was the single most memorable moment of Hamvention 2026. For the young presenters themselves, it may well have been the moment that set the trajectory of a lifetime.

The invisible world we inhabit

There is a particular joy in belonging to a community that understands what most people walk past without a second thought: that the air around us is alive with signals. Radio waves propagate through walls, across oceans, off the ionosphere, and out beyond the atmosphere entirely. Amateur radio operators don't just use this invisible world — they know it, in a way that is almost devotional.

Every mode of amateur communication was on display at this year's event. CW operators tapped out Morse code. Digital enthusiasts demonstrated FT8 contacts spanning continents on a fraction of a watt. Satellite operators tracked overhead passes. EME enthusiasts — moonbouncers — described reflecting signals off the lunar surface and catching the echo nearly three seconds later. The hobby, in its full breadth, is staggering.

From Xenia to interstellar space

No reflection on amateur radio and the wonder of electromagnetic communication would be complete without a thought toward the Voyager spacecraft. Launched in 1977 — the same era that shaped a

generation of today's operators — Voyager 1 is now more than 15.8 billion miles from Earth, deep in interstellar space, beyond the heliosphere, beyond the solar system itself. And yet we are still talking to it.

A radio signal sent from Earth today takes nearly 23.5 hours to reach Voyager 1. By November 15th of this year, the probe will cross a historic threshold: it will be a full light-day away — the first human-made object ever to reach that distance. A signal sent in the morning will arrive the following morning. A reply will not return until the day after that.

This is radio at its most humbling. The same fundamental principle — an oscillating electromagnetic field propagating through space — that lets a ham in Xenia, Ohio contact a counterpart in Tokyo is the very thing keeping humanity tethered to its most distant ambassador. The physics does not change. Only the distance grows.

Distance to Voyager 1: 15.8 billion miles

Signal travel time: 23.5 hours one-way

In continuous operation: 49 years

600 volunteers, one community

None of this happens without the people who make it happen. More than 600 volunteers gave their time, their expertise, and their energy to produce Hamvention 2026 — directing traffic, staffing forums, manning information booths, setting up equipment, and doing the thousand invisible tasks that keep an event of this scale moving smoothly. They did it harmoniously, enthusiastically, and without any apparent desire for credit. That, too, is very much in the spirit of amateur radio.

The event also made a meaningful impact on the surrounding community. Hamvention generates an estimated \$35 million in regional economic activity each year, filling hotels and restaurants and creating a visible surge of energy throughout Greene County. For the Miami Valley, this is not just a radio convention. It is an annual affirmation that Xenia, Ohio is, for one weekend in May, the center of a global conversation.

Until next year

The fairgrounds are quiet now. The vendors have packed their tables, the forums have ended, and operators from

dozens of countries are making their way home — by plane, by car, by train — many of them already looking forward to May 2027, when Hamvention will return for its 75th year.

In the meantime, the radios will keep humming. Signals will keep traveling. Somewhere in the darkness between the stars, Voyager 1 will keep moving outward at 38,000 miles per hour, faithfully answering every call we send its way.

And somewhere in that audience at the RCA Youth Forum, a ten-year-old who just heard an astronaut tell them to reach for the stars is already thinking about what comes next.

We are a remarkable species. We built something that crossed into interstellar space, and we still talk to it every day. We gather by the tens of thousands to celebrate the art of sending a signal into the unknown. We do it peacefully. We do it joyfully. We do it together.

73, and we'll see you in Xenia next May.





The day the project started.











Handicap- Parking Lot Project Complete

Friday July 3rd Gloucester Horribles Parade public service call out

Hello to all members, We are looking for volunteers to help us out in providing public safety communication for the Gloucester Horribles Parade which will be held on Friday July 3rd at 6 PM.

We need at least 10 amateur radio operators to man points along the parade route. Any help would be greatly appreciated. I you can help out please email Dean Burgess KB1PGH at dburg101@aol.com , thanks and 73

Dean



WE NEED YOU

HOME BREW ANTENNA

Still working out the literal kinks in this fan dipole for 17/15/12 meters. Lobes are east-west, just fits my narrow lot.

Tuning is close on first try, will take it down and put it up etc tomorrow.

Mike KC1WQK, Gloucester!



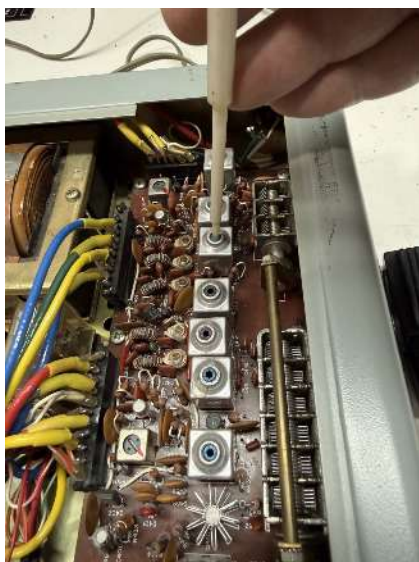
From the Workbench - The FT-620B - (Maurice N1UV)

Six meters has always been an interest of mine and when I was first licensed, rigs like the Clegg Venus and Yaesu FT-620 (original and "B" version) were some of the go-to monoband radios. I never did acquire any of these at the time. Fast forward five decades (just saying that hurts!!), I was perusing the ads on swap.qth.com for something else and to my surprise, an FT-620B was listed for sale. The ad mentioned that it was in good cosmetic condition for its age and, yes, the ad included the dreaded "It worked the last time it was used...". OK, how bad could it be? We negotiated a price and a week later, I received the radio.

On opening the box, I noticed the seller was accurate in the cosmetic condition department. Just a little grime here and there; the paint work was still in good shape; the front panel was not scratched; and the knobs weren't too worn. Nothing that a little elbow grease couldn't shine up. Now onto the bench to fire it up.



Not knowing when the "It worked the last time it was used..." occurred, I decided to use a dim-bulb tester to make sure there were no shorts anywhere (especially in the transformer and power supply electrolytics) and then a Variac to slowly bring the voltage up. To my surprise, all looked good. Joy! Well, all the lamps were blown, but that's an easy fix.



Sadly, that joy didn't last long. First thing I noticed was a hint of hiss coming out of the speaker, but touching the antenna input with a screwdriver didn't produce any changes in audio. Could just be an alignment issue. Connecting a dummy load and keying it up (both on CW and SSB) produced no RF out. Still could be an alignment issue. This is not the first radio I've worked on that someone used a golden screwdriver on.

Time to take the covers off and perform an alignment.

I found the operating manual online; the manual also contained guidance on aligning the various sections of the radio. Starting with the receive section, it was obvious that the front end was blown. This basically comprises of a dual-gate MOSFET; one gate is used for the receive signal input, the other for AGC. Measuring the AGC voltage indicated that the MOSFET should be running at full gain. According to some added notes found at the end the manual that came from SMIRK, it's recommended that the front end and second mixer MOSFET's be changed to 3N201's for

greater gain. Rather than looking for modern substitutions, I found a seller that had a bunch of these as NOS. I bought four just in case, as they are static sensitive.

Interestingly, I have a suspicion that Yaesu must have anticipated the front end of the FT-620B might be susceptible to damage from front-end overload. Accordingly, rather than just soldering the MOSFET to the board, it's actually mounted in a 4-pin socket! See Figure 1. That way, it's an easy fix should something happen.

The rest of the receiver alignment was routine. The sensitivity was measured at about 0.55uV for a 10dB (S+N)/N - close enough to the 0.5uV called for in the manual.

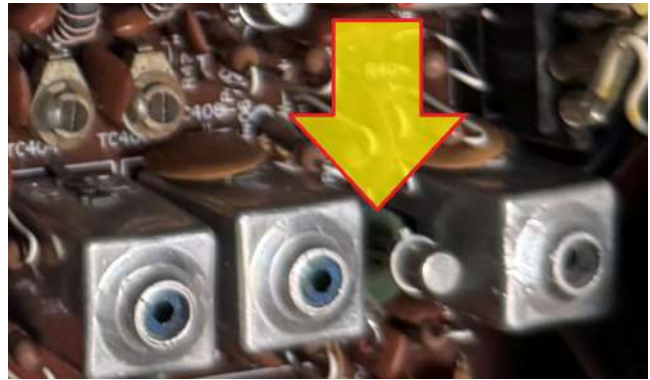


Figure 1



Turning my attention to the transmitter side of things, I started the alignment in CW mode. Everything was tuning fine up until the driver stage. Zero gain. Since the finals' cage is painful to remove, I decided to test the power amplifier transistor as well in-situ by injecting RF at the base. Yep, you guessed it - it was blown too. These two transistors were commonly used in CB radios, so are easy to come by. I ordered two pairs, again, one as a spare set.

After much cussing, the transistors were swapped out and everything reinstalled. The rest of the finals' alignment was straightforward, including the finals' protection set-point. A nice and clean 11 watts was measured. Spurious emissions were -63dB below carrier - excellent!

Time to plug the microphone in. Nothing. Well, to cut a long story short, I found that the first three transistors in the microphone amplification stage were blown, as well as two of the diodes in the balanced modulator. To this day, I am still scratching my head on how this could have happened. Did a previous owner accidentally send a high voltage down the microphone plug? If these components were damaged, could other components around these also be bad?

At this point, I decided to put the FT-620B back on the shelf and try to source a parts-radio. My plan was to hopefully source the board that contained this part of the circuit. See Figure 2. The microphone amplifier circuits and balanced modulator are contained in the top two-thirds of the board.

As luck would have it, I found another FT620B that was purported to be functional, but in poor cosmetic condition. I took a chance on buying it. When I physically saw the radio, I could confirm that it was pretty sad! But, I wasn't interested in that side of things. I was only interested in this board (the PB-1420 Mic Amp, Mod and Carrier Unit to be exact).

A little bit of surgery later, I had the board swapped out. Time to cross my fingers. Ugh. I could not adjust the USB carrier oscillator to 9001.5kHz as required - the trimmer cap simply did not have the range. However, the LSB frequency was able to be adjusted nicely.

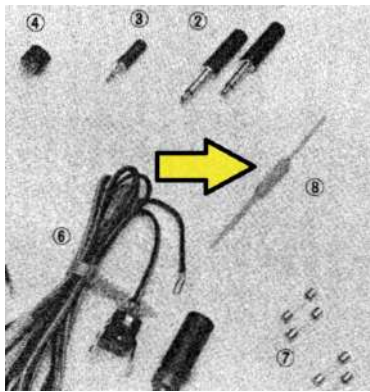


Figure 2

I decided to at least continue on. I'll worry about USB later. With the mic plugged in and the gain control advanced to the 12-o'clock position, a quick check showed that RF was being produced up to the 11W level. Tuning a nearby radio to the same frequency showed that the audio sounded good.

Turning my attention back to the USB side of things, my suspicion was that either the trimmer cap was out of spec, or that the crystal had drifted, both due to age. Since I still had the old board, I decided to swap the crystal rather than the trimmer cap as it was easier to do. A quick check showed that I was now able to set the frequency correctly. An audio check on USB confirmed that all was working well now.

An on-air check with a couple of local(ish) stations confirmed all was working well. However, even though the receiver was working to spec, it could still be considered a little deaf, at least compared to more modern radios. So, I decided that the FT-620B would benefit from adding a pre-amp to it. As of writing this article, I have a 6M pHEMT-based pre-amp board on order from Down East Microwave. Installing the board should be trivial as there is plenty of room inside the chassis and the antenna change-over relay contacts are easy to get to.



As an aside, when looking through the manual, I noticed that the list of items supplied when purchasing the radio new included the usual things like power cables, fuses, plugs, etc. One item caught my attention. It also included an alignment tool. You don't see that very often!

Overall, I am extremely happy how the radio turned out. Sensitivity and power out are to spec. The transmitted and received SSB audio is good; CW is clean; however, the AM quality is so-so (to be expected). While it doesn't have all the bells and whistles of newer rigs (eg, IF shift, scanning, a narrow CW filter, higher power, etc), it's a nice piece of nostalgia that brings me back to yesteryear.

Senator Ted Cruz Praises Amateur Radio Volunteers for Emergency Preparedness

Senator Ted Cruz, in a strong pre-Memorial Day message, publicly highlighted the critical role that Amateur Radio Service volunteers play during disasters, praising and thanking ham radio operators who provide essential communications when storms and emergencies knock out power and cellular networks and communities are cut off. Sen. Cruz observed that in these emergencies it is ham radio operators who step forward, bringing with them the tools, expertise, and the commitment to reconnect people when it matters most. He noted this dedication was clearly demonstrated in 2017 when Hurricane Harvey's catastrophic flooding devastated communities across Texas and that it was demonstrated again more recently in the horrific Camp Mystic floods. He emphasized that as the Nation prepares for yet another summer storm season, ham radio's role remains just as vital as ever.

Watch video now at youtu.be/4ZNeMXyCQ7Y

Stating that while future emergencies will come, Sen. Cruz pointed out that so would Amateur Radio — ready to respond, ready to serve, and to make a difference. He ended his statements, thanking ham radio for its courage and commitment, noting that Amateur Radio's work strengthens our communities.

Senator Cruz is Chairman of the Senate Committee on Commerce, Science, and Transportation. His comments align with the ARRL's ongoing efforts to strengthen and protect Amateur Radio's role in emergency preparedness and public service communications.