The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Bill Shadid, W9MXQ (newsletter@ozaukeeradioclub.org). Permission to reprint articles published in any issue is granted provided the Author (as shown in the article) and the Ozaukee Radio Club Newsletter are fully credited in any publication.

ORC Repeaters on 146.97 (-127.3PL), 224.18 (-127.3PL), 443.75 MHz (+127.3PL) - Callsign W9CQO

Web site: **www.ozaukeeradioclub.org** **Facebook: facebook.com/orcwi**

Volume XLI	March 2023	Number 3

From the President

de: Bill Greaves, K9GN

With the January elections, Jeananne Bargholz N9VSV became your First Vice-President. Jeananne has been an active club member and, when asked by the Nominating Committee, she stood for election. She jumped right in and began working on several projects for the club. One of those is replacing our vendor (who has left the business) for ORC "swag" – personalized hats, name badges, etc. – and another is an inventory of club equipment, e.g., Field Day, Repeater, and video conferencing. Thank you, Jeananne!

Club Award nominations are due by the end of this month, March. Nomination forms for two awards, HAM of the Year and the "Turkey" Award were in the February Newsletter, available on the club website: ozaukeeradioclub.org. Please send your nominations to Ken Boston W9GA at: kboston6@wi.rr.com. (Also see pages 37 & 38 of this Newsletter for further details.)

Relatively new hams – and older ones, too – striving to become familiar with the varied aspects of amateur radio may feel overwhelmed with both the breadth and depth of the hobby. Personally, I found a book by a club member to be helpful. Gary Drasch, K9DJT has published the second edition of his book, ***Ham Radio is Alive and Well***, with contributions by several club members. The text covers a wide variety of practical topics and gives many "pearls" of advice on what works best in different situations; it's available on Amazon. My copy is completely marked up with my notes. An extensive review is included in the April 2022 Newsletter on the club website.

The Wisconsin QSO Party occurs very soon – Sunday, March 12 from 1pm until 8pm CDT. This is the first day of DST so check your clocks. ORC was fortunate to win this event last year. The Wisconsin QSO Party is sponsored by the West Allis Radio Amateur Club, WARAC. Event details are available at:

http://mail.warac.org/wqp/wqp.htm

Last month I received a response to my picture with this column that it was a bit “scary.” Sorry, but that’s my face! This month’s picture is a bit different. We’ll see how long I can keep the variety going.

See you at the club meeting, both in-person and on Zoom™, on Wednesday, March 8 at 7:30pm, with meet-n-greet at 7:00pm.

73, Bill K9GN

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A Message from the Editor
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de: Bill Shadid, W9MXQ, Newsletter Editor

Please note Club President, Bill Greaves, K9GN, on Page 1 for his first monthly message.

Special mention goes this month for long time contributor, Stan Kaplan, WB9RQR, for reaching a new milestone of delivering his 300th Computer Corner article (Pg. 21). Hats off to you, Stan. This editor is at his 68th consecutive Vintage Amateur Radio article – and since Stan nor I are going to quit anytime soon, it appears I will never catch him. Congratulations, Stan!!

Welcome new contributor, Todd Zumach, KD9QLJ, as he tells us about Winter Field Day (Pg. 9). Nice article, Todd – hopefully the first of many. And, check out returning, budding regular contributor, Tom Trethewey, KC9ONY, ORC's Repeater Vice President, as he talks about the ORC Spring Swapfest (Pg. 5). In this case he speaks as the Chairman of the Swapfest Event.

Another article by Tom, KC9ONY, addresses a challenge he put out last month about noises while driving. Check out his story (Pg. 7). At the same time, I have a short article in herein about a challenge I present last month about the early shack of our former member, Ray Brunette, W9BUJ (SK) (Pg 10)..

There are new items, including the Wisconsin QSO Party, mentioned by Bill, K9GN, in his President's Column and by Gary Sutcliffe, W9XT, in his regular On the Air Activities! Column (Pg. 13). That is one of many radio things to do in Gary's column this month. Check it out.

Don Zank, AA9WP, Ozaukee Country ARES Emergency Coordinator finishes his series of recent articles on NIMS Communication (Pg. 11). As aways, Don is our window on Emergency Communications.

Ray Totzke, W9KHH, brings us an article to remind us about the approaching Field Day, in June (Pg. 6). Ray says, Field Day Cometh – Time to Prepare!

Finally, check out Ken Boston, W9GA, and the February meeting minutes (Pg. 34). And look for a repeat for nominations for ORC Turkey of the Year and ORC Ham of the Year Awards (Pgs. 37 and 38).

Want to know about future meeting programs? Pat Volkmann, W9JI, has you covered.

Need help to get your thoughts on paper for an article? That is what the Editor does!! Let me know how I can help you. newsletter@ozaukeeradioclub.org

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Onward To the Newsletter

The ORC Spring Swapfest 2023 Coming Soon!

de: Tom Trethewey, KC9ONY
Chairman, Spring Swapfest 2023
swapfest@ozaukeeradioclub.org

The Hamfest/Swapfest 2023 season is underway in Wisconsin!

Why are some called Hamfests, and some called Swapfests? I don't know.

The Ozaukee Radio Club's 43rd Annual Spring Swapfest is coming soon as well. Once again, we will be at the Ascension Columbia St. Mary's Expo Center on the grounds of the Ozaukee County Fairgrounds in Cedarburg, Wisconsin. Saturday, April 30, 2022. 8 AM – Noon.

I'm hoping to increase the attendance over last year. Still working on sponsors and door prizes at this time. Tower Electronics will be joining us again this year, so if you need some adapters, coax, power cables, antennas, etc., this is the place to get them. Also returning are the enthusiastic kids of Cub Scout Pack 586 from West Allis, WI. Be prepared for some good food again!

To make the Spring Swapfest successful, we need volunteers like you to help with various things, both before and after the event. Please let me know if you are interested in volunteering.

I will be at the ORC March 2023 meeting where you will be able to buy advance tickets, which are double-stub for the door prizes, and order tables if selling.

I will also be at the Jefferson Hamfest on Sunday, March 19th as well as the MRAC Swapfest, Saturday, March 25, 2023, selling tickets and tables.

You can print out the flyer from our website:

https://www.ozaukeeradioclub.org/downloads/spring-swapfest/2023-ORCSpring.pdf

The Spring Swapfest Flyer also appears as the last page of this month's Newsletter.

Wisconsin QSO Party – See Page 16!!!

TIME TO PREPARE. Field Day Cometh!!!

De: Ray Totzke, W9KHH

Thanksgiving, Christmas, and New years have been observed. Good memories of family and friends will stay with us.

The Winter Solstice has also come and gone. What does that mean to the dedicated ham? It means the days are finally getting longer. Nights shorter. That means "Time To Prepare."

Prepare for what? For the greatest event in the realm of amateur radio. FIELD DAY. Only four months until "CQ FIELD DAY" or 'CQ FD" on CW or the buzz and tones of Digital modes fill the amateur radio spectrum. Watch those band edges.

Whether you plan to participate with The Club or are able, due to family, business, work, medical, or other obligations, to only give a short time to on-the-air ecstasy, do it. Contribute your efforts at home (1E or 1D) to the club score.

Radios, antennas, power sources, accessories are all a part of your plan. Do you plan to be on the air, Phone, CW, Digital?

There is never a real shortage of phone operators. The club is now in need of CW ops ready "to pound brass half the night." Years ago, there were always enough brass pounders to keep The Club on the air for 24 hours. Now, not so many. Moving away, silent keys, lack of interest have taken their toll on the CW pool in The Club.

So!!! Now is the time to prepare!!! You have four months to sharpen your CW skills. Four months to get to 13 words per minute. 15 or 18 is better and sufficient. This is not a DX contest with keyboard CW at 35-40 WPM. This is an Emergency Preparedness Exercise. Even if you cannot approach 13 WPM at least approach the key and use it regularly before the fourth weekend in June. You'll be surprised how well you can handle 4A WI or 2B SCV or 23A EPA.

Prepare now!!! Field Day Cometh!!!

Field Day
25 – 25 June
2023

Fun On the Interstate...the Answer

de: Tom Trethewey, KC9ONY

In the February 2023 ORC Newsletter, I wrote a short article about some fun on the interstate. To recap, Loren N9ENR and I were traveling back to Wisconsin from a hamfest in Illinois. We were in two cars on I-94/I-294 and talking via D-STAR simplex, when I heard some horn honking somewhere around me.

What was that honking? 8 beeps….or rather two sets of 4 beeps.

Beep...beep, beep, beep and beep, beep...beep, beep. Then a long pause and beep...beep, beep, beep and beep, beep...beep, beep.

I told Loren I heard some horn beeping, which sounded familiar. I attempted to replicate the sound over the microphone to Loren. After a moment, Loren said, “that sounds like CQ” Sure enough, after he said that it did sound like CQ!

It’s hard to put into writing:

Beeeep, beep, beeeep, beep….beeeep, beeeep, beep, beeeep.
Dah, dit, dah, dit...dah, dah, dit, dah

I’m a no-code Extra, so I don’t know Morse Code other than SOS and Tom. Loren figured that someone saw my Amateur Radio call sign plates, antenna, and me talking on a microphone and decided to send out that message. Still not sure which vehicle it was coming from, so I couldn’t even wave.

Guess I should try and learn Morse Code so I could have responded somehow. Perhaps at least learn 73...what do you think the response should be in such a situation on the interstate?

Jeananne N9VSV reached out to me after reading the article with a suggested answer my question. After I replied that she was correct she replied:

“For years, that’s how Gary WI9M signaled the start of Field Day – on his car horn! Loved the article, btw. I promise I won’t say a word.

I, too, am a no-code Ham. I always wanted to learn it, though. Had a wonderful program in the early days of Apple (do you remember the Apple IIc?) and learned about half of the alphabet. Then it totally crashed and never worked again. No program or app since has helped me to learn more.
So, that story and a program we had at the MRC years ago – a real, live, operating spark gap generator and discussion about it. When the owner actually showed how it worked, he tapped out “CQ” it was loud and it sparked and smoked so much I thought the fire alarm was going to go off, LOL! Emblazoned in my mind, forever.

Same club also had a group of hams that actually learned how to quilt and made a quilt to raffle off as a fund raiser. I was so moved that a few women and a lot of men actually pulled it off and made the quilt that I designed a thimble for each of them. One side of the thimble has the group name, and the other side has a tower with the morse code spelling "CQ" coming out of the top of the tower. Thankfully, I proofread and checked before I placed the order. I guess for years, I thought CQ was dah-dit-dah-dah dah-dah-dit-dah. That's what I remember hearing through the spark gap generator. The correct version (dah-dit-dah-dit dah-dah-dit-dah) went to the thimble company. Whew! If I remember, I'll bring the thimble tomorrow night.

Guess my hearing was never fine-tuned for code."

I'd be interested in hearing from other club members with their stories or thoughts on learning Morse Code these days.

As Gary Sutcliffe, W9XT, reminds us . . .
Daylight Saving Time begins on 12 March 2023
"Spring Forward"

Wisconsin QSO Party – See Page 16!!!

Winter Field Day 2023

de: Todd Zumach, KD9QLJ

January 28, 2023, may have been the first day this year with significant snowfall, but that didn't stop local amateur radio enthusiasts from participating in Winter Field Day.

Members of the Ozaukee chapter of the Amateur Radio Emergency Service (OZARES) participated in a field exercise intended to test their ability to set up communications equipment and contact individuals around the country and perhaps the world. OZARES volunteers practice HAM radio operations so they can support local government organizations in times of emergencies.

Winter Field Day has been around for 13 years. It brings HAMs from around the country together to practice portable emergency communications in adverse weather conditions. This is the first time the OZARES group has participated. Roland Chaloupka, (KB9TMB), organized the event by coordinating with Scott Ziegler, (KC9IIZ), the Ozaukee County Emergency Government Director. Scott offered the OZARES team the support of John Stulmacher, from Ozaukee County Emergency Government and the use of the emergency government incident response command center. The command center allowed two people to operate in relative comfort, while two others were set up in an SUV.

Todd Zumach (KD9QLJ), Tony Schneider (AD9BR), Dave Flowers (KD9JYL), Joe Bettencourt (KD9RAQ) and John Archer (NO9X), faced the windy, cold, and snowy conditions to set up multiple antennas and operate four stations making contact on HF, and VHF/UHF bands. They were joined by another HAM operator, Dan Reed, (K0DSC) who recently moved to the area from New Mexico.

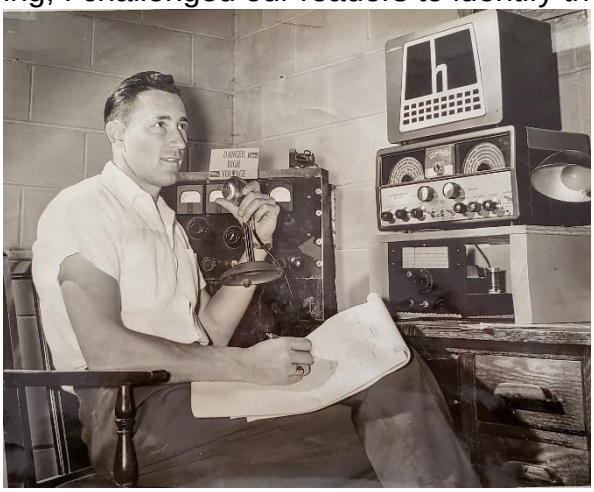
The group enjoyed the camaraderie of working together to set up the mobile operation and look forward to participating again next year.

Wisconsin QSO Party – See Page 16!!

February Editorial Challenge – Shack of Ray Brunette, K9DUJ (SK)

de: Bill Shadid, W9MXQ

As reported last month, one of our very early ORC members, Ray Brunette, K9DUJ, died this past December. Recall that in the information published last month about Ray's passing, I challenged our readers to identify the equipment.



I was able to identify all commercial equipment as did several readers from other locations. None of us were able to identify what appears to be a lot of home brew equipment. Such equipment usually was identified by its tube lineup – that is, something like "6CL6 Oscillator, 6CL6 Buffer, and a pair of 807's in the final amplifier."

But that aside, we know that Ray was running a Hallicrafters SX-96 Receiver with a Hallicrafters R-46B Speaker. Ray was holding a Turner 22C Desk Microphone. You can see in front of him, under the receiver, what appears to be a home brew VFO that was driving a home brew transmitter and modulator to his left. Note the Caution High Voltage tag.

Note the goose neck lamp at the right edge. Those have memories for me as my uncle, also named Bill, who passed away in 1952, had one of those same lamps next to his SWL Receiver – a Howard Receiver which I have to this day. I remember that lamp and receiver like it was yesterday. To help date the picture, the SX-96 was available from 1954 to 1956. It was part of the Hallicrafters SX-96 Receiver, HT-30 Transmitter, HT-31 Linear Amplifier package for a very short time until the much more capable SX-100 Receiver was introduced in 1955.

We have an SX-96 among us. I had one from about 1970 which I sold to Ed Fischer, KC9LRJ (SK). Upon Ed's passing, I handled his estate and sold the radio to fellow ORC member, Bill Schnell, AC9JV. I have a Hallicrafters SX-100 Receiver from that time. When I had that SX-96, I was only the second owner, having received it from the original buyer, a friend from Quincy, Illinois, and my Gates Radio Days. Hiram, that original owner, bought it new in 1954. He had added (and later removed) an additional tube in an unsuccessful attempt to convert the circuit to that of the SX-100.

Seems old radios have history, like family.

OZARES: Ozaukee Amateur Radio Emergency Services

de: Don Zank AA9WP, OZARES Emergency Coordinator, aa9wp@arrl.net

National Incident Management System (NIMS) Communication

This month we will finish our examination of the requirements from the National Incident Management System or NIMS. Last month we covered Reliability, Scalability, and Portability. This month we wrap it up by looking at Resilient, Redundant, and Secure communication systems.

Their brief definitions are:

Resilient -able to perform despite damaged or lost infrastructure
Redundant- able to use alternate communications methods when primary systems go out
Secure-able to protect sensitive or classified information from those without a need to know

As you can imagine, a resilient system requires redundancy built into the system. The Emergency Communications Division of the Cybersecurity and Infrastructure Security Agency (CISA), part of the Department of Homeland Security (DHS), helps support organizations to create resilient and redundant communication systems. Basically "always available" or reliable communications.

https://www.cisa.gov/emergency-communications-division

They list three important requirements needed for "...a network's ability to withstand damages, thereby minimizing the likelihood of a service outage." From their Resiliency Fact Sheet:

1. Route Diversity— Communications routing between two points over more than one geographic or physical path with no common points
2, Redundancy— Additional or duplicate communications assets share the load or provide back-up to the primary asset
3. Protective/Restorative Measures—Protective measures decrease the likelihood that a threat will affect the network, while restorative measures, such as ECD's Telecommunications Service Priority, enable rapid restoration if services are damaged or destroyed

While the Emergency Communications Division focuses on the routing of IP cables or other infrastructure, the OZARES operators focus on the diversity of radio communications systems and their support structures.

An example of route diversity can be seen in the WINLINK communication system. By having several gateway options available, email communications can be maintained. In Ozaukee County, we have the WI9OZ-10 established at the Justice Center EOC and WI9OZ-11 at the Saukville Village Hall. Both operate on 145.610 and are available as packet or VARA-FM. There are several strong FM WINLINK gateways available in the Milwaukee area as well. Then there are the HF gateways, mostly running VARA, that are available outside of our local area.

We have redundancy in the repeater communication system by having access to several repeater systems. (Thank You Ozaukee Amateur Radio Club). Redundancy in digital communications is reached by having CW, WINLINK, or NBEMS available. Then the supporting infrastructure such as emergency power with the use of batteries and solar panels. Spare radios, antennas, and sound cards help create a resilient communication system.

But, in my opinion, the most important element for a strong, resilient communication system are well trained operators. Operators who are familiar with the ICS system and supporting forms, using various modes of operations, comfortable with building, installing, and repairing antennas, and can keep calm when systems break down and think on their feet. This is the vital element for an efficient, well-running communication system.

73,
Don
AA9WP

OZARES Repeaters:
147.330, + 127.3
443.525 + 114.8

Practice Nets: First and second Thursdays 7 pm Labor Day to Memorial Day; 8 pm Memorial Day to Labor Day
Monthly meeting: Third Thursday of the month at 7 pm
Training Net: Last Tuesday of the month 7 pm

ORC Repeaters are On the Air – Awaiting Your Call . . .

- 146.97 MHz (- Shift) (127.3 PL)
- 224.18 MHz (- Shift) (127.3 PL)
- 443.75 MHz (+ Shift) (127.3 PL

On The Air Activities!

de Gary Sutcliffe, W9XT

We went on a wild ride with the sun in February. The ARRL DX CW contest was coming up. We were looking forward to the best conditions in seven or eight years. Then a few days before the contest, we had a solar flare. The charged particles were due to hit about the same time the contest started. The forecast was for severe to major geomagnetic storms that evening. That would have shut down the polar paths to Europe and Japan.

Then a couple of hours before the contest we had a huge flare. The burst of X-rays wiped out the bands up to 10 meters for about half the country for an hour or more. So, things were not looking good for the contest.

The solar flux jumped from about 165 to an astounding 343 at the start of the contest. As a result, I decided to do a low power single-band 10 Meter effort. There was little point in operating a major portion of the weekend if the bands were closed.

But the conditions were incredible. Ten meters stayed open for an hour after the start, close to two hours after sunset. I worked countries like China, Indonesia, and Viet Nam that I have not worked on 10 meters in many years. Several Japanese calls entered the log as well.

The next morning the band opened to Europe. Signals were strong, and I could call CQ much more effectively than is ordinarily possible with low power. At times I had five or six stations calling, and it was difficult to pull out the calls.

DX stations send their power level. The number of stations sending five watts was surprising. Many had excellent signals. The log had several QRP JA contacts logged later.

Sunday was not quite as good as Saturday, but it produced good country and QSO totals. Based on the scores I have seen, I will place second in the world and set a new record for W9 in my class. Those are the kinds of contests you live for.

With such a high solar flux number, I hoped we might get some nice 6 Meter openings. I checked the PSKReporter site from time to time. There were some excellent openings between South America and Europe and South America to Europe. Asia had some good openings to Australia, but North America seemed to be cut out of the action.

We had another couple of large flares and, on February 27, had a 6M DX opening that afternoon. Gary, K9DJT, a couple of other 6 area meter ops, and I spent about an hour and a half chasing them. The DX we heard was mostly the Caribbean and South America, but there were several loud stations out of Hawaii. I decoded at least a dozen DX countries. At times the number of stations decoded with FT8 in a single sequence approached fifty.

But we could not work any of them! Well, one guy up near Port Washington worked a couple of stations. I got shut out, and I think Gary did too. I called a few KH6 stations. The others tried too. It was weird because they faded out if you pointed your antenna toward Hawaii. They were peaking south! Afterward, I checked PSK Reporter for the previous two hours. None of the nine reporting KH6 stations on PSK Reporter made a single decode of any of the four of us!

I was watching the stations that the DX was working. They worked very few W9s, and the ones they did were mostly big guns out of IL. One way propagation? Sometimes propagation is hard to understand and frequently very frustrating.

Recent DX

Two big DXpeditions happened in the last month or so. One was to Bouvet Island, 3Y0J. They arrived but had a lot of trouble getting operators and equipment on shore. Instead of five stations with beams and KW amps, they got a couple of radios, small antennas, and a few ops. They didn't get the big diesel generators or amps ashore. Electricity was from a small gas generator that was intended to supply power for set up, not running the rigs. They didn't even have a tent the first night. The ops had to sleep out in the Antarctic elements.

To get to shore they had to float the last distance in their cold-water survival suits because their Zodiac boat got shredded. Once they had a tent, there were no chairs or tables. They sat on the floor, and the radios sat on upside-down buckets. The operation was scaled way back to low power on a few bands. Twenty-two days with five high power stations was reduced to two stations for eight days with small antennas.

To make things worse for us, there was a big mountain in our direction. Most of the stations from around here who got through did it by working long path, the signal going the long way around the world to get there.

Fred, W9KEY, was disappointed not to work them. He didn't even hear them. I did not try the first five days or so. They were asking those who already had worked Bovet not to work them to give everyone a chance to get at least one contact with the island. I worked Bouvet back in 1990. By the end of the week, I jumped in. We had a reasonably decent opening on the second to last day, and I tried for several hours but was unsuccessful.

What they went through was amazing. You have to give them a lot of credit for enduring the hardships to give out a few contacts. At least they did get on the island and gave out contacts, something the last two attempts failed at.

But I think they really fell down in one area. It seems they never were serious about using FT8, expecting to concentrate on CW and SSB with big stations. For about a day and a half it was chaos. For FT8 to work properly, the PC clock of the DX station has to be within about 1 second of the correct time. Furthermore, when using the Fox/Hound mode, the DX station always transmits on the first sequence.

But their PC clock was off by 14 seconds. PCs drift, and you need to constantly re-set the time. So, essentially they were transmitting on the wrong sequence. FT8 forces the hounds (DX chasers) to transmit on the odd sequences. So, they decoded 3Y0J, clicked on "Enable TX" and started transmitting on the same sequence the DX was transmitting. This fiasco went on for about a day and a half. Weren’t the operators on the boat monitoring what was going on? They had "pilot" stations around the world set to monitor and let them know about unexpected openings and such. Didn't they see what was going on?

If the ops had been notified, they might have been able to use WWV or similar time station to update their clock. Or the crew on the board could have given them voice time checks via VHF radio. It is hard to understand how this continued for such a long time.

The previous operations failed to land. This one barely made it. Every QSO on this one costs about $400. Is that the end of attempts to Bouvet? Rumor has it that one of the groups that failed to land about a year ago will try again in December. We will see.

The other important operation was to Crozet Island, FT8WW. As you recall, it was a single op. He had permission to operate for three weeks, then had to QRT. He got permission to operate for three weeks, then a week off, then three more weeks. That is excellent news. During this period, he must operate on 20 meters and higher. He has made over 40,000 contacts. Not bad for a single operator!

DXers have had excellent conditions, especially on the high HF bands working new countries. W9KEY mentions working Burundi 9U4WX on 20-meter FT8. Pat, W9JI, passes on some comments on a special contact he recently had:

On a recent Friday evening I was on 160 meters checking propagation and looking for some DX. There were very few stations on the air, even on FT8. At about 10:30 I moved

up to 20 meters and found things about the same there – very few stations and no activity except FT8. The few stations that I saw, however, were DX from Eastern Europe and Africa. The unusual thing was that I didn't see any stateside stations calling them. The DX were all busy working other DX stations. One in particular caught my attention, and that was 7Q7EMH, from the northern region of Malawi. Malawi is located in the south-eastern part of the African continent.

I had never worked Malawi, so I started calling him. I didn't expect to have success as US signals didn't seem to be getting through to Europe or Africa. After a few minutes, 7Q7EMH answered me. His signal was -12 and my report was -15. I checked PSK Reporter to see where I was being heard. The stations that were picking me up were on the daylight side of the sunrise line in Europe and Africa by about an hour. I wasn't being heard in the US.

Their QRZ page says that 7Q7EMH is the "Amateur Radio Station of Embangweni Mission Hospital." Contacts are confirmed through ClubLog and LOTW. I received confirmation on LOTW within a couple of days. It always pays to call even when you think that there is very little chance of getting a reply. The only thing that guarantees not working the other guy is not calling in the first place. – de W9JI

Wisconsin QSO Party

The big event in March is the Wisconsin QSO Party (WiQP). We won the club competition last year. However, I hear a new group to our north is planning to operate to win. They have experienced contest ops, but we can beat them if we get more members to operate and send in their scores.

It starts on Sunday, March 12, at 1:00 PM and runs until 8:00 PM. But I'm sure you already marked it on your calendar like I suggested last month. You can use any band from 160 through UHF except for the WARC bands. You can run CW, SSB, FM, and RTTY. No FT8 or FT4, though. If you have a radio, you can contribute to the ORC score.
Check out the rules at https://www.warac.org/wqp/wqp.htm

I hope you will try to get on that Sunday for at least a while and contribute to the ORC effort in the WiQP.

VOTA

Back in January, I mentioned the Volunteers On The Air program the ARRL is putting on for the whole year. The program honors hams that volunteer for the ARRL and clubs by being officers and helping out.

Fred, W9KEY, mentions that he has been working W1AW/n stations. Two state groups will be authorized to use W1AW portable for their district for a week. I completely forgot Wisconsin's first week was in February and should have mentioned it last month. I was invited to be one of the operators and made 375 CW contacts as W1AW/9 that week.

Virtual Ham Events

Two online events are coming up in March. The first is the HamSCI Workshop 2023. HamSCI is an organization that brings together amateur radio operators and scientists studying the ionosphere. It is a good match. As amateurs, our activities provide data scientists can use to understand space weather better.

The event went virtual during the COVID lockdown. Last year they went to a hybrid event with the in-person venue at the University of Scranton and worldwide visitors online. This year's event will also be hybrid.

I attended the online virtual events and found them fascinating. Some of the presentations by the scientists were a bit over my head, but usually, I learned something. The ones I find most interesting are how we, as hams can get involved.

There is no charge to watch online, but you must register in advance.

https://hamsci.org/hamsci2023

The second one is the QSO Today Virtual Ham Expo. This is the fifth QSO Today event and features many presentations relating to ham radio. There are virtual exhibits by manufacturers and organizations.

I find the talks the best part. There are dozens of them on so many topics that every ham should find several that match their interests. Unfortunately, they raised the price for this to $15. It will cost me about $2 per talk to watch the ones I want to see, but that is pretty cheap, considering the cost of tickets, gas, and hotel rooms to go to conventions. In the past, I gave presentations and exhibited with my radio company, Unified Microsystems. This time I will be purely an attendee.

WWV Special Event

Last month I mentioned the WWV special event for 100 years of standard frequency transmissions. Fred, W9KEY, is the event c-chair. Look for WW0WWV. The website has an online schedule of who will be operating and what mode and band. Also, check out page 33 of the March QST. March 6-12.

Area Hamfests

The Jefferson County Hamfest is Sunday, March 19. This is the first big hamfest of the year since the one in Waukesha in early January was discontinued. It is held at the Jefferson County Fairgrounds. http://www.arrl.org/hamfests/jefferson-hamfest-2023
The 11th Annual Milwaukee Area Swapfest is on March 25. This is at the Elks Lodge on Good Hope Road, across from Ham Radio Outlet. http://www.arrl.org/hamfests/11th-annual-milwaukee-area-swapfest

Contests

There are three big contests in March. The first is the ARRL DX Phone contest on March 4-5. It was covered last month. You will have a couple of hours to prepare if you read this right after publication. Will we have a repeat of the fantastic conditions we had in the CW weekend?

The WiQP is on March 12. It is important enough to get its own section earlier in this column. So please get on for it!

The last big contest of March is the WPX phone weekend. The RTTY WPX was covered last month. The rules are basically the same. Send a signal report and serial number. Multipliers are call sign prefixes. The QSO points range from one for a contact with another US station on the higher bands to six points for an international contact on 160-40 meters. Read the rules if you plan to operate this one.

DXpeditions

Currently on the air is 3B7M from St. Brandon Island in the Indian Ocean. A group of Czech and Slovak ops puts it on. They have been active, and I have them on a couple of new band countries and a new digital country. Originally they planned to be on 6 meters as well but have decided against that. There is little chance of us making that haul, but the Europeans have been working into the Indian Ocean on 6 meters the last few days.
I got them on 12 and 17 meters for new band countries. I still need them on 10 and 160. Recent solar activity has made it tough on the higher HF bands, and they apparently have not been on 160 yet.

Sable Island off the coast of Newfoundland will be on the air from March 20-30. The call sign will be CY0S. It is a helicopter ride from Halifax to the island. There used to be an operation or two every year, but it is now a nature preserve, and access is limited. The allowed group size is smaller than they hoped. They are limited to a small area and cannot interact with the wild horses for which the island is famous.

They plan to be on 160-6 meters, CW, SSB, FT8, and RTTY. They will also try some 2 meter EME and some satellite work.

I need them on 160 and 6, plus digital. Propagation to that location is good from here, and 160-10 should be no problem. It is a bit early to expect much from the 6 meter Es season, but we can hope.

The group includes some big-time US DXpedition operators. So, I'm sure they will make a lot of contacts.

The African country of Ghana will be activated March 22-30. A group of primarily US hams will operate from a coastal resort. That is how you do a DXpedition! It sounds much more

pleasant than sitting in a cold tent on an icy island near Antarctica. The plan is to be active on 160-6M. They will be operating in the CQWW WPX Phone Contest as well.

Part of the operations is to help local hams get on the air, and they plan to leave a 6M antenna with a local club for the upcoming Es season.

A group of primarily Australian hams will be on from Norfolk Island March 17-31 using VK9NT. They will use the call sign VJ9N in the WPX contest.

Norfolk used to be common when VK9NS was active. He was on all the time. When Jim died in 2009, it became somewhat rare. There is one active station there right now, but he has been monetizing operating. He charges for LoTW confirmations that cost him nothing. I refuse to support such activities. I'm happy to pay for a needed QSL to cover postage, etc., but not for LoTW.

So, if you need Norfolk, I suggest you look for VK9NT.

With the ARRL DX Phone and CQWW WPX contests this month, there will be many contest DXpedition operations. They are often on a few days before and after the contests.

Wrap up

That wraps up March. It is going to be a hectic month! Thanks to Pat, W9JI, and Fred, W9KEY, for passing on some tidbits on what operating they have been doing. If you did something interesting on the air or plan to be involved with some radio activity, pass it on to me so I can share it with the whole club.

Radio activity usually slows down in April, so March is a good time to spend on radio activities before our thoughts turn to spring. Don't forget the Wisconsin QSO Party on March 12!

See the Operating Tips on the Next Page . . .

W9XT's Contest, Operating, DXpedition, and Special Event Picks for February and Early March 2023

W9XT's DXpedition picks for March and early April 2023					
QTH	**Dates**	**Call**	**Bands**	**Mode**	**Link/notes**
Agalega & St. Brandon	To Mar 5	3B7M	160-10	C/S/D	http://3b7m.com/
Ogasawara	Mar 9-24	JD8BON JD1BOI	160-6	C/S/D	
Norfolk Is	Mar 17-31	VK9NT	160-6	C/S/D	VJ9N during the WPX contest
Sable Island	Mar 20-30	CY0S	160-6 + 2M EME	C/S/D	https:/t-rexsoftware.com/cy0s/
Ghana	Mar 22-30	9G4X		160-6	https://www.qrz.com/db/9G4X

Modes: C = CW, S = SSB, D = Digital (may include RTTY)

W9XT's contest picks for March and early April 2023					
Name	**Start**	**Length**	**Bands**	**Mode**	**Link**
ARRL DX	0000Z Mar 4	48 hours	160-10	SSB	http://www.arrl.org/arrl-dx
WIQP	1800Z Mar 12	7	160-UHF	CW, voice, RTTY	https://www.wa-rac.org/wqp/wqp.htm
CQ WPX	0000Z March 25	48 Work 36 max	160-10	SSB	https://cqwpx.com/rules.htm

Dates/Times in UTC. Subtract 6 hours from UTC to get local (CST). HF = 80, 40, 20, 15, 10 Meters

W9XT's operating & event picks for March and early April 2023			
Event	**Dates**	**Details**	**Link/notes**
WWV Special Event	March 6-12	WW0WWV	https://www.qrz.com/db/WW0WWV
HamSCI Work-shop 2023	March 17-18		https://hamsci.org/ham-sci2023
Jefferson Ham-fest	March 19	Jefferson County Fairgrounds	http://www.arrl.org/ham-fests/jefferson-hamfest-2023
QSO Today Virtual Ham Expo	March 23-25	On line	https://www.qsoto-dayhamexpo.com/

Wisconsin QSO Party – See Page 16!!

THE COMPUTER CORNER
No. 300: LINUX: THE FILE SYSTEM

de: Stan Kaplan, WB9RQR, 715 N. Dries Street, Saukville, WI 53080-1664
wb9rqr@gmail.com

Before computing even existed, the term ***file system*** was used to describe storing and retrieving paper documents. After the early 1960's, it began to also be applied to computerized filing. The term then grew to describe a series of rules that dictates how a computer operating system (OS) will store and retrieve data. The FAT file system was used in the DOS and early Windows OS, and later NTFS (New Technology File System) took over for the more recent releases of Windows, including Windows 10 and 11.

Linux supports a number of file systems. However, the most current Linux Mint Cinnamon Version 21.1 (nickname "Vera") uses the **ext4** file system, as do other versions of Linux since 2008. Even Google now uses ext 4 on its Android OS.

Ext4 can handle single files up to 16 tebibytes in size (1 tebibyte = 1024^4 bytes in the binary system or 1 terabyte = 1000^4 bytes in the metric system). It can also deal with volumes (directories) up to 1 exbibyte (1024^6 bytes binary, 1000^6 bytes metric). So, we have a file system that can handle huge files and huge volumes of files. The block mapping (extants) is also new, which improves large file performance and reduces fragmentation.

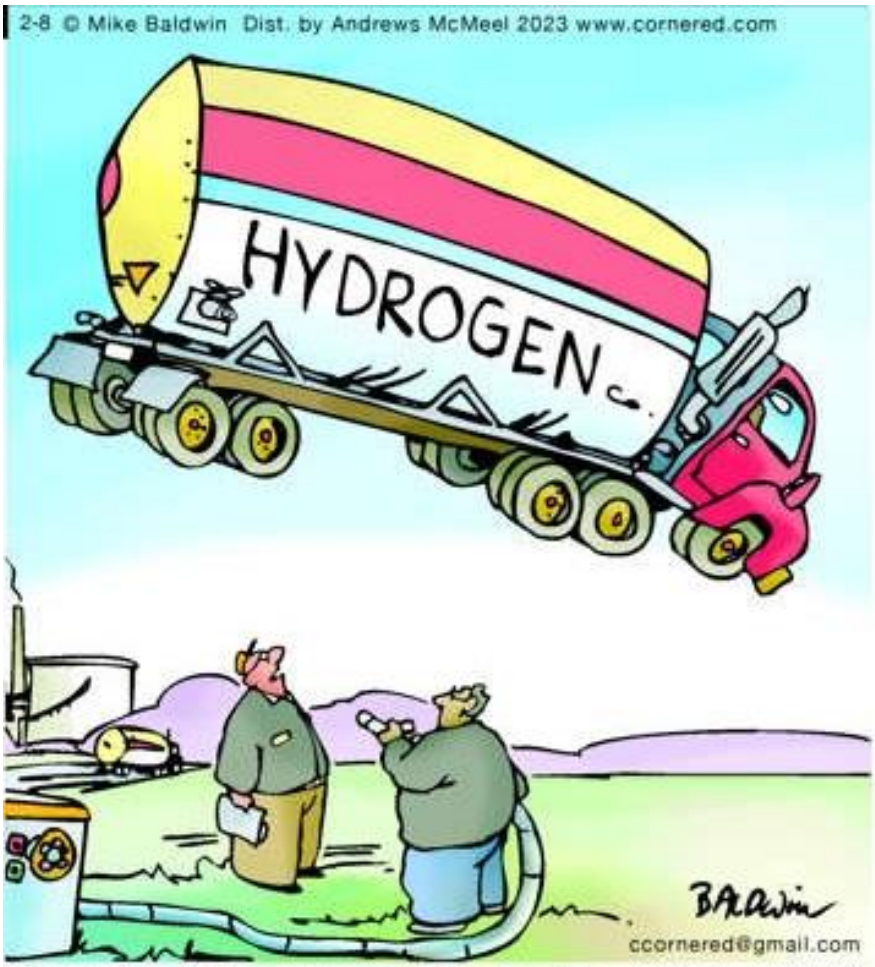
Ext4 is backward-compatible with earlier Linux ext3 and ext2 file systems. There is now no limitation on the number of subdirectories except for size limitations as noted earlier, so you can create up to about 10-12 million subdirectories in a directory, should you be so moved! There are other improvements, as well. Faster file-system checking, fancier ways of allocating data to buffers and groups of blocks, all improve handling of data and reducing fragmentation on disk. It seems likely that defragmenter software will be needed less and less; already some experts say don't even bother since file fragmentation is so low. Another new development is based on the fact that second-based timestamps are no longer sufficient for mission-critical applications, so ext4 provides timestamps measured in *nano*seconds. They also added a couple of bits to the seconds field of the timestamps; this delays a problem destined to rear its ugly head in the year 2038 for an additional 408 years(!!!).

One improvement that helps reduce fragmentation of files involves delaying the writing of data to disks until it is time to flush the data. That delay increases the risk of data loss, should a system power loss or crash occur before the data has been completely written to disk. To avoid this, the latest versions of ext4 handle such cases the way it was done in ext3, with data flushes more often and data loss risk therefore reduced.

A big plus is that ext4 enjoys full support by other operating systems. Since 2016, Windows had the ability to access ext4, and a commercial product (Paragon's Linux File Systems for Windows) is available for earlier versions of Windows and Windows Server. MacOS can read and write ext2, ext3 and ext4 through extFS for Mac, also by Paragon.

There is no doubt that ext4 has improved features, but some experts say it is not a major advance, that it uses old technology, and is a stop-gap system. Some say to look for Btrfs ("B-tree File System" or "Better File System") for future development. Btrfs is a "copy on write" system in which a clone operation automatically produces a copy-on-write snapshot of a file. On the other hand, ext4 is a "journaling file system", in which the system keeps a journal of where files are located on disk, and other changes that are made to the disk. The latter system helps keep fragmentation of files to a minimum, while the former helps keep data loss to a minimum. Perhaps our grandchildren will be the ones to see which approach wins out! Happy Computing!

With all the talk about balloons . . .



"And that's how you know when it's too full."

Vintage Amateur Radio

de: Bill Shadid, W9MXQ

As the amateur radio world was moving out of the 1960's and into the 1970's, the hobby was changing. Hammarlund Radio Company[1] – 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.

Hammarlund HQ-215 Receiver

W9MXQ

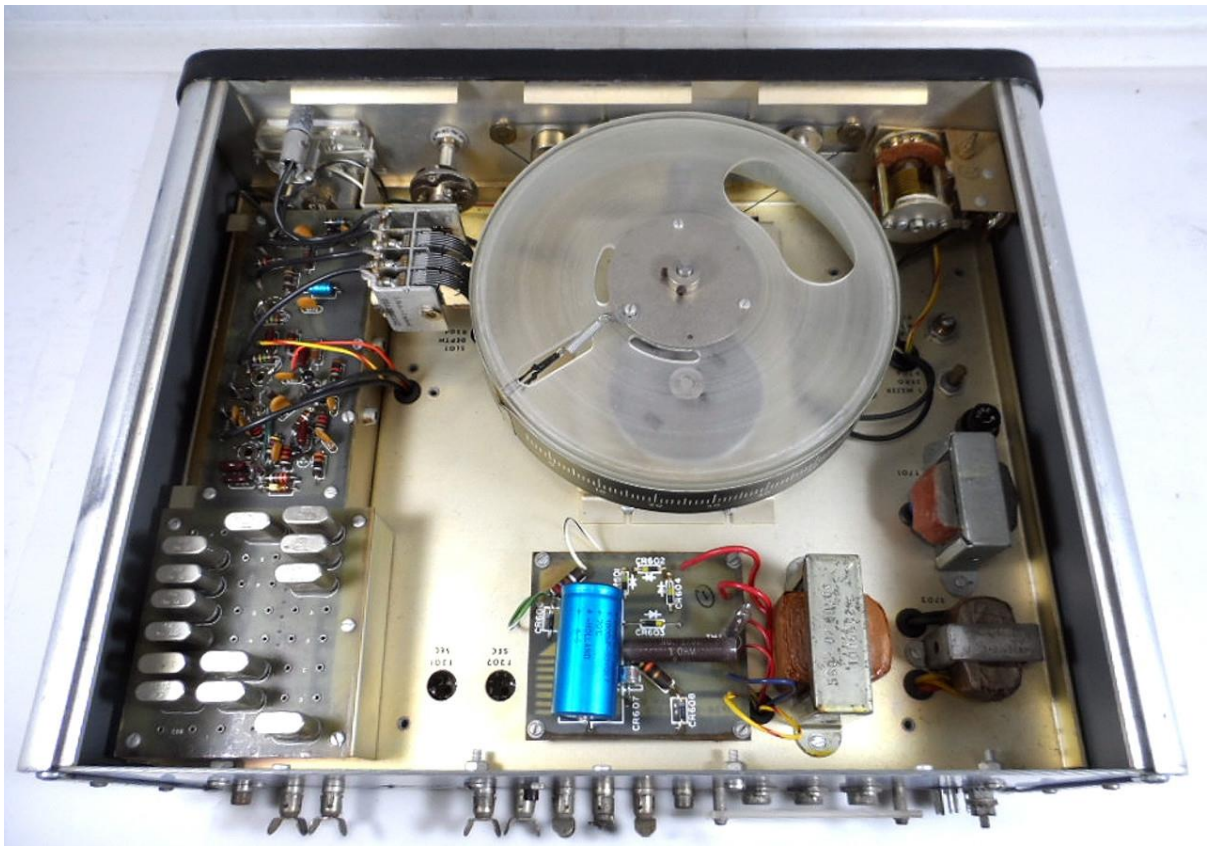
Collins 75S-3C Receiver

isquare.com

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:



Hammarlund HQ-215 Receiver
Top Inside View – Radio Front is toward the top of this picture.
W9DYQ

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 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.

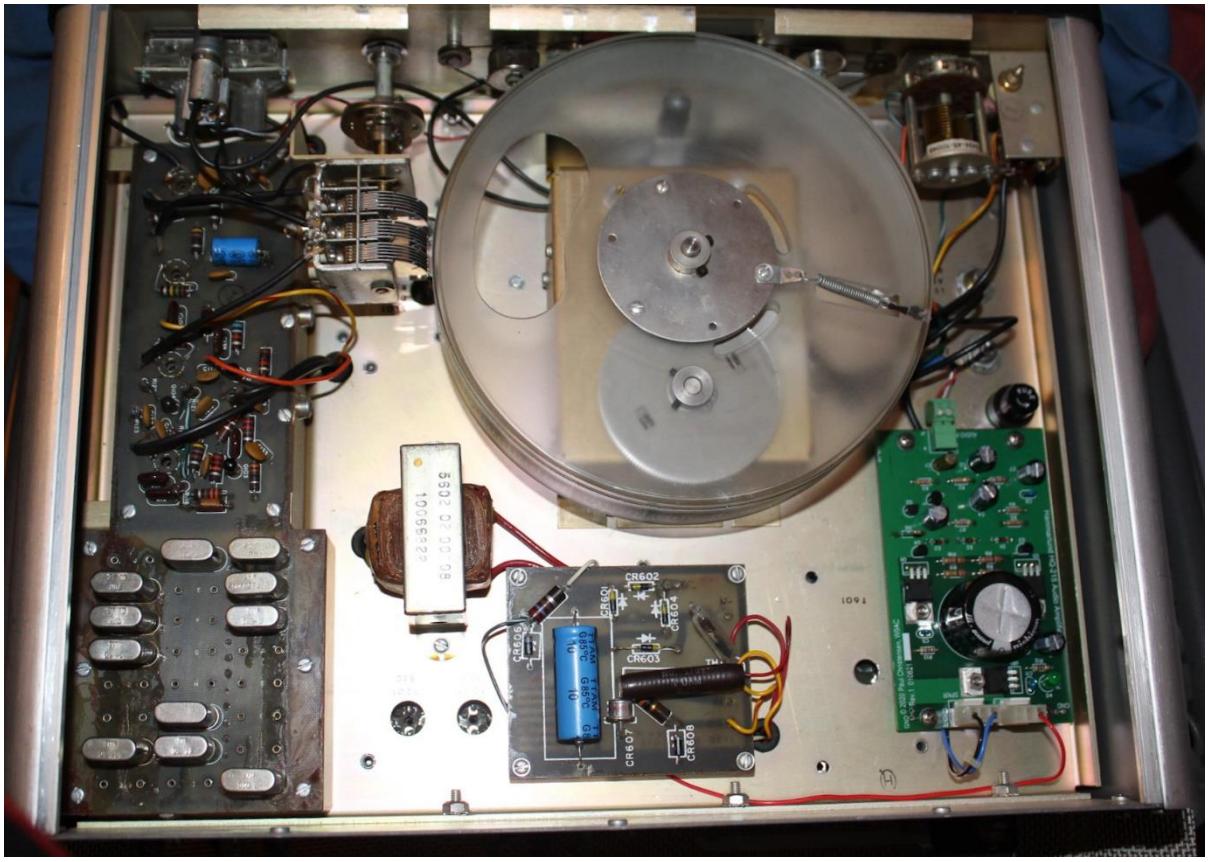
W9MXQ

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.

W9MXQ

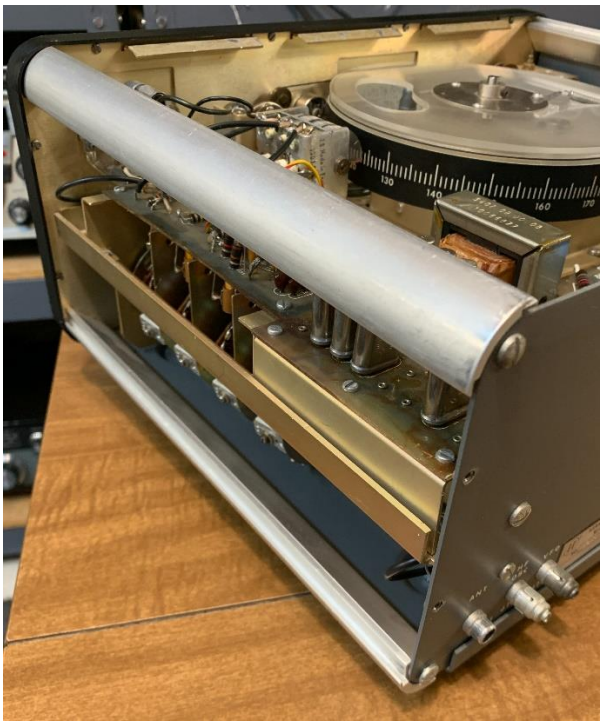
Because I do not have the original Audio Amplifier Circuit in my HQ-215, I cannot comment on the general performance of that standard amplifier from Hammarlund. My long-time friend, and proofreader of these articles, Bob Bailey, W9DYQ, owns a Hammarlund HQ-215 with the original stock audio system still 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.

Right Front Corner view with the Top Cover pulled back a few inches. See how the Panel slides into the right upper extrusion.



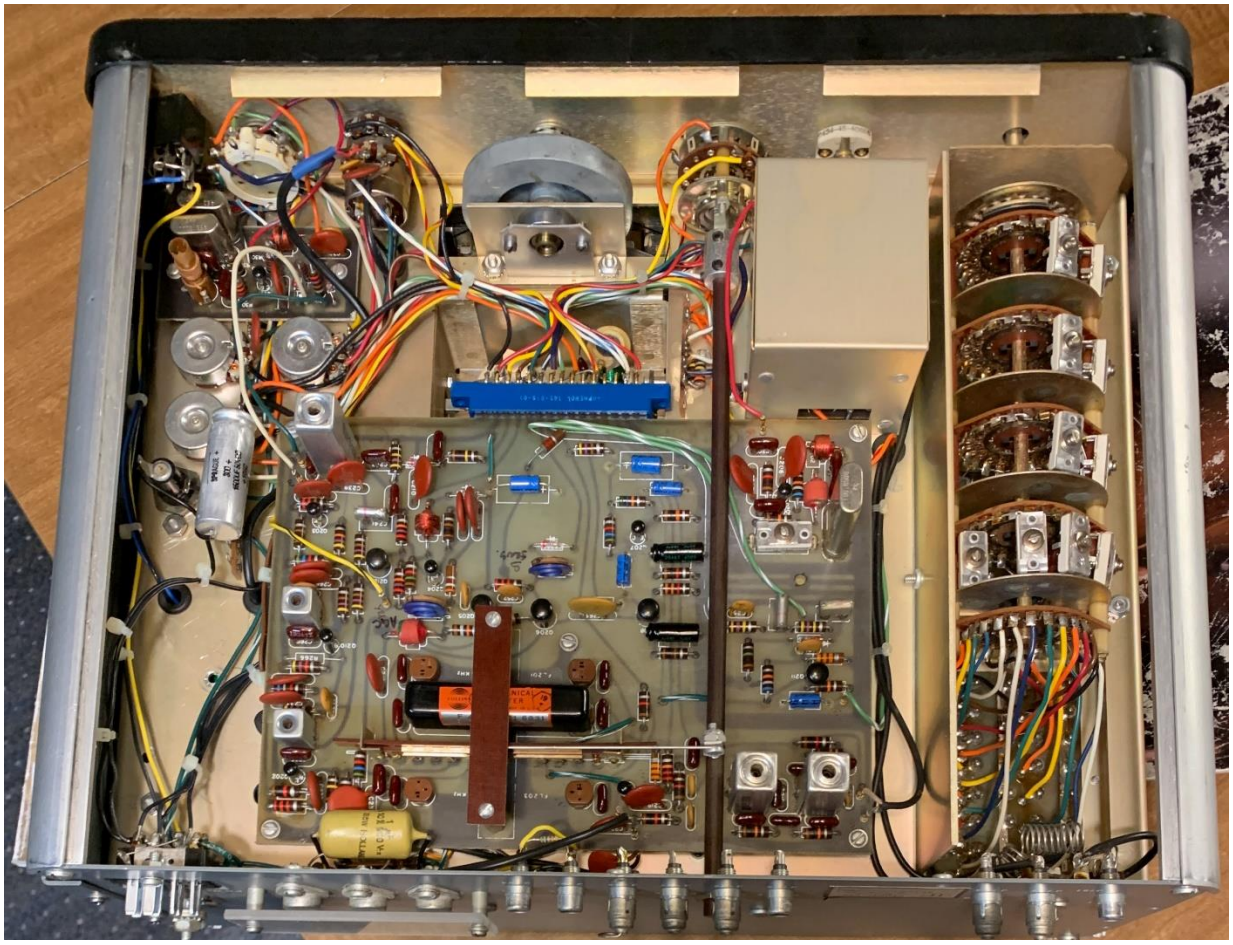
Right Rear View with the Top Panel and Right-Side Panel removed. Note open Side Panel mounting screw holes visible on the rear panel.

Hammarlund HQ-215 Receiver

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:



Hammarlund HQ-215 Receiver
Top Bottom View – Radio Front is toward the top of this picture.
W9MXQ

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[2], 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 longtime 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.

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.

Notes and Comments:

[1] 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 the archives of this Newsletter. 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.

[2] Simply stated, a Noise Limiter used a pair of reversed polarity diodes across the signal path to minimize the amplitude of the noise getting through the i-f system. By contrast, the Noise Blanker, much more complicated, actually shuts off the receiver signal path during noise peaks so they are – in most ideal operation – no longer audible. Both devices have their uses, so it is difficult to say one is better than the other.

Ozaukee Radio Club Minutes of Membership Meeting. 2/8/2023

de: Ken Boston, W9GA, Secretary

The monthly ORC meeting occurred at the senior center as we have returned to live in-person meetings, along with a streaming version held via Zoom.

ORC President Bill K9GN began the meeting at 7:29, with actual members attending, a go-around was conducted. Zoom attendees were also in attendance.

Program:

Our presenter was Doug Dimmer, who has been providing a S.T.E.M. program at the local Cedarburg H.S. He briefly gave his 23-year background in industry and teaching and providing a technology base for students at his previous assignments. He stressed his philosophy of enabling students the ability to gain an education based on developing problem solving skills, particularly in the areas of Science, Technology, Engineering and Math. Doug brought into the discussion several elements of STEM development, like teaching critical thinking and the recent "makerspace" movement. He is encouraged to see our efforts at ORC to provide some backing in this area.

50/50 Raffle: This was won by Rod WB9AZH; winning an award of $15.50

Scholarship Auction:
Stan WB9RQR held a short auction: Fans and a few other items

Committee reports:

[there was no second VP report.]

1st VP: Jeananne N9VSV thanked all for voting her into office, and reports that ORC 'swag' information will be forthcoming.

RPT VP: Tom KC9ONY reports some minor issues at the Germantown site, but all the other sites are performing well.

Treasurer: Gary N9UUR set out reports, ORC now has about 111 paid members for 2023. Gary mentioned the Swapfest flyers costs, and that the new signatories for the bank account are now in place. The January treasurers' report was accepted; motion made by W9GA; 2nd by KC9VZK and carried.

Secretary: Ken W9GA reported that the Jan 2023 minutes are posted; pending some minor corrections, a motion to accept was made by N9VSV; 2nd by WB9AZH, and motion carried.

Scholarship/STEM: Bill K9GN talked about another Zoom meeting, with discussions about partnering with the Cedarburg H.S.

Tech committee: no report.

OLD business: none reported.

NEW business: W9GA reminded everyone that the awards nominations are open now. N9VSV talked about a recent Zoom meeting concerning FD, with 15 attendees. Tom W9IPR made a motion to go ahead with our fall Swapfest to be held on September 9, 2023; W9GA 2nd , motion carried. He also reported good sales for the club in past fests, over $1000 for the scholarship fund.

Adjournment: WB9RQR moved to adjourn, N9VSV 2nd, motion carried; time ending was 9:25 PM. There were 18 in-person attendees, 21 Zoom attendees.

Respectfully submitted,

Kenneth Boston, W9GA, Secretary

Turkey of the Year Award Ballot: 2023

BACKGROUND: The **Turkey of the Year** award can be awarded only once to an individual. (However, the Awards Committee erred a few years back when they failed to notice that the top vote getter had previously won under a different call sign). The criterion for this distinguished award is a club member who has helped keep the hobby fun. This person has generally promoted friendship and good will throughout the year. Past recipients and year awarded (years not indicated contain hams who are SK; those deceased members: WI9M, N9CCJ, K9CAN, KA9DDN, WJ9O, W9BCK, W9VQD, K9GCF, W9LO, KA9WRL, KA9RFM, WA9JOB):

1981 W9NHE Ted Willett
1984 WA9OHY John Strachota now W9FAD
1985 WD9FQW Mike Behlen
1986 W9DHI Gregg Lengling
1990 KA9QLP Jim Albrinck now K9QLP
1991 W9BTN Sandy Wirth
1995 N9UNR Dave Barrow
1996 (no award given)
1997 N9QQA Gabe Chido now WI9GC
1998 KB9PZL John Maybee
2000 WB9RQR Stan Kaplan
2001 W9IPR Tom Ruhlmann
2003 WI9GC Gabe Chido was N9QQA
2004 KA4UPW Jim Hilins
2005 AA9W Ed Rate
2006 KC9GDV Mike Yuhas now AB9ON
2007 KB9UKE Vic Shier now WT9Q
2008 KC9FZK Nancy Stecker
2010 AB9CD Mark Tellier
2011 N9LOO Brian Skrentny
2012 W9GA Ken Boston
2014 KC9ONY Tom Trethewey
2015 W9KR Chuck Curran
2016 K9DJT Gary Drasch
2017 KC9ZNR Zack Yatso
2018 KD9DRQ Bill Church
2019 W9MXQ Bill Shadid
2020 W9KEY Fred Schwierske
2021 K9MOI Don Lesch
2022 KC9YEP Chuck Meyer

My vote for 2023 Turkey of the Year (may **NOT** be in the Turkey of the Year list from previous years):

Please email your nomination to the awards chairman; kboston6@wi.rr.com

Nominations will be closed on March 30, 2023

Ham of the Year Awards Ballot: 2023

BACKGROUND: The **Ham-of-the-Year** award is a traveling trophy given to an amateur radio operator who has made significant contributions to the success of the club. The person may receive the award on more than one occasion, and to date several members have received it more than once (noted with an asterisk). Past recipients and year awarded (years not indicated contain hams who are SK; those deceased members; W9VLL, KA9DDN, W9WQ, W9LNL, WA9UVK, K9CAN, K9GCF, WI9M, KA9WRL, WA9JOB):

1986 *WB9RQR Stan Kaplan
1988 W9DHI Gregg Lengling
1990 WA9JMS Mark Seburn
1992 *AA9W Ed Rate
1993 *WB9RQR Stan Kaplan
1994 N9PBY Ray Meyer
1996 N9LLT Ted Heilmann
1997 AA9HR Joe Holly
1998 AA9OS Bill Raymond
2000 KG9NH Matt Singer
2001 *AA9W Ed Rate
2002 KB9SYI Jane Rediske
2005 KB9WBQ Julia Nawrot
2006 *W9IPR Tom Ruhlmann
2007 AB9CD Mark Tellier
2008 *W9IPR Tom Ruhlmann
2010 *WB9RQR Stan Kaplan
2012 K9QLP – Jim Albrinck
2013 N9UNR Dave Barrow
2014 W9GA Ken Boston
2015 *K9DJT Gary Drasch
2016 W9KR Chuck Curran
2017 N9ENR Loren Jentz
2018 *K9DJT Gary Drasch
2019 KC9ONY Tom Trethewey
2020 K9VIN Kevin Steers
2021 W9JI Pat Volkmann
2022 N9UUR Gary Bargholz

My vote for the 2023 Ham of the Year (**may** be in the Ham of the Year list from previous years):

Please email your nomination to the awards chairman; kboston6@wi.rr.com

Nominations will be closed on March 31, 2023

Upcoming ORC Monthly Meeting Programs

de: Pat Volkmann, W9JI

- March – Pat W9JI – Repairing a Classic Transmitter – the Viking Valiant
- April – Mike Harrington, KD9GCN, Operating a Remote Ham Station
- May – Bill W9MXQ & Pat W9JI – Video: "Collins: The Lost Decade" and a brief tour of a Collins collection
- June – Ken W9GA Field Day
- July - Open

We really do need some programs for the coming year. Please consider sharing some of your experiences with the rest of us. If you have an idea and would like some help putting a program together let me know.

Creating a Presentation

Many of our presenters use Microsoft's PowerPoint to organize and present their information. If you don't have access to or aren't familiar with PowerPoint, there is an alternative. The Open Office package contains Impress, which is similar to PowerPoint. Impress is easy to use and available at no charge. You can check out OpenOffice here:

http://www.openoffice.us.com/

The monthly program is the highlight of the Ozaukee Radio Club meeting. We are fortunate to have a number of very talented people in our club, many of whom have shared their knowledge through a presentation. Share your expertise and experience with the club. Programs can be on any topic that is ham radio related. Contact Pat Volkmann, W9JI, at orc_pat_w9ji@outlook.com to discuss your idea for a program.

ORC Meeting Agenda

March 8, 2023

1. 7:15 – 7:30 PM
   Check-In and Introductions
2. 7:30 PM Call to Order:
   President Bill Greaves (K9GN)
3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
4. Part Volkmann, W9JI, Repairing a Classic Transmitter – The Johnson Viking Valiant.
5. President's Update:
   Bill Greaves (K9GN)
6. 1st VP Report:
   Jeananne Bargholz (N9VSV)
7. Repeater VP Report:
   Gregg Lengling (W9DHI)
8. Secretary's Report:
   Ken Boston (W9GA)
9. Treasurer's Report:
   Gary Bargholz (N9UUR)
10. Committee Reports
11. OLD BUSINESS
12. NEW BUSINESS
13. Adjournment

Next Month's ORC Meeting
Hybrid In-Person/Zoom Meeting
12 April 2023

Program:
Mike Harrington, KD9GCN
Operating a Remote Ham Station

7:00 PM – Doors Open
7:15-7:30 PM – Zoom Check-In
7:30 PM – Meeting Begins

The Ozaukee Radio Club presents its 43rd Annual Spring Indoor

Amateur Radio, Electronics & Computer

SWAPFEST

featuring TOWER ELECTRONICS!

Saturday, May 6, 2023 – 8 AM to 12 PM (setup begins at 6 AM)

Ascension Columbia St. Mary's Center (Milwaukee Curling Club)
W67N890 Washington Ave., Cedarburg, WI 53012

Talk-in: 146.97 MHz – PL 127.3 Hz
Door Prizes! Free WIFI
Food sold by Cub Scout Pack 586, returning from 2022!

Admission: $7.00 at the gate
Children 12 and under FREE, with a paid adult admission
6 ft. Tables: $12.00 in advance, $15.00 at the door, if available

Use the Order Form below, email, or call Tom Trethewey, KC9ONY at 262-421-6351
Email: swapfest@ozaukeeradioclub.org
More information: http://www.ozaukeeradioclub.org/ or http://www.facebook.com/orcwi

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For Advance Tickets and Tables, send check with a **SASE** (Business-Size #10 envelope) to:
Tom Trethewey, KC9ONY- W69N905 Evergreen Ct N, #202, Cedarburg, WI 53012-1170

Name: ____________________________ **Call sign:** __________________________

Address: ____

Phone number: ________________________ **Email:** ______________________________

No. of Tickets: ______ X $7 = ____________ **(Advance tickets are double stub)**

No. of Tables: ______ X $12 = ____________ **Electricity:** Yes (Add $5) ______ No ____

Total Amount: _________________ **(Please make checks payable to ORC)**