The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Ben Evans, K9UZ. Permission to reprint articles published in any issue is granted provided the author and the Ozaukee Radio Club Newsletter are credited.

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Volume XXXIII	January, 2021	Number 1

From the President

de Pat Volkmann, W9JI

Well, we made it to another year. This past year was one of the strangest, scariest, difficult, tumultuous and possibly the most boring year that any of us have experienced. Everyone was affected by the Pandemic, though for many of us that amounted to staying at home more and wearing a mask to the grocery store. The most significant Covid-19 induced change, for me, was cutting off in-person contact with all my friends in the ORC. Yes, we successfully used Zoom meetings to keep in touch, but it's just not the same as getting together for a meeting and then going out for pizza afterwards. Hopefully, things will become somewhat more normal in the coming year.

With a return to normal in mind, the Board has decided to go ahead with the Spring Swapfest. While it's still much too early to tell what will happen, we are going ahead with plans. The proposed date is May 1, 2021. We will be watching developments on distribution of the vaccine and the progression of Covid-19. The event will likely be different than in previous years, most likely incorporating some social distancing and other changes. Tom Trethewey, KC9ONY, will be taking the lead on the Swapfest arrangements. Please contact Tom if you are interested in helping out with the Swapfest.

January is the month when we elect officers for the ORC. This year Tom Ruhlmann, W9IPR, is the Chair of the Nominating Committee. The Nominating Committee is responsible for soliciting candidates for each position and running the election. The list of candidates was published in the December 2020 Newsletter. If you are interesting in nominating yourself or someone else for a position, please contact Tom prior to the meeting. Candidates may also be nominated during the meeting.

The election process will be the same as in previous years except that we will be using the Zoom meeting platform. Zoom has a feature called "Polls" that can be used for voting. The procedure is very similar to what do at the meeting and is anonymous. We have used polls a couple of times in meetings, so the practice should be familiar to most members.

January also kicks off the Award nominations for the club. Ken Boston, W9GA, will once again be our Awards manager. Ken will have ballots for the awards at the January meeting. The main awards every year are "Ham of the Year" and the "Turkey Award", but these are not the only ones. There are a total of 15 awards, all of which are listed on the ORC website in the bylaws. Take a look at the list and let Ken or me know if you would like to nominate a members for one of those awards.

The Ozaukee Radio Club has produced a very high quality newsletter for many years. While many clubs publish a newsletter, I believe that ours stands out from the crowd. We look forward to the regular contributions of Gary Sutcliffe, W9XT, Stan Kaplan, WB9RQR, and Bill Shadid, W9MXQ. These guys have provided a steady stream of professional quality articles for many years. It's also important to understand that a newsletter does not assemble itself. Tom Ruhlmann, W9IPR was editor for many years and passed the job on to Ben Evans, K9UZ. Thanks to everyone for their contribution to making the ORC newsletter the fine publication that it is today.

See you at the meeting.—Pat Volkmann, W9JI

THE COMPUTER CORNER

No. 274: Belt versus Suspenders*

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*[*Stan roughed out the original article and Pat, who had done a project on just this subject while in engineering school, contributed several important points to this final edition.]*

What do you do when you need a ring or spade terminal on the end of a wire? Solder one on? Crimp one on? It's a puzzlement!

Well, there are several issues. We hams know that a well-made solder joint will tend to prevent any RF from leaking from poor connection between the elements of the joint owing to the electrically secure connection between the copper wire and the metal of the terminal. Also, we assume that the solder filling in the gaps between multiple strands of copper in a terminal will exclude air, and thus prevent or delay oxidation of the copper over the years. Such oxidation has been known to induce high resistance between copper and terminals, leading to heating problems and even the generation of RF noise. Solder is also useful because its low melting point poses minimal risk of damage to components. Chalk one up for a well-done solder joint. On the other hand, solder has little mechanical strength, leading to the well-accepted practice of also providing a mechanical interlock (e.g., a wire wrapped around a terminal) with the solder joint.

Indeed, solder connections are sometimes avoided or even forbidden. American Boat and Yacht Council standards forbid solder as the sole means of electrical connection for wire terminations (though you can solder after crimping). We know that, correctly applied, a solder joint can be strong and highly conductive as mentioned earlier. On the other hand, solder joints are somewhat brittle and prone to failure when they are under constant vibration. That is why motorsport organizations tell their folks to avoid solder joints when reliability is critical. Closer to home, the National Electrical Code ***prohibits*** soldered connections in service wires and ground or grounding wires. Service wires are upstream from over-current devices (breakers or fuses), and a fault resulting in a high current might melt the solder in a connection, leading to loose elements and a more serious current fault or even an explosion in a service panel. Aside from service wires, a melted solder connection in a ground/grounding wire could lead to a poor ground connection or no ground at all. Of course, this is dangerous and could lead to shock or electrocution. Electricians avoid solder connections like the plague, and claim soldered joints are a thing of the past. They go for pressure connectors, either crimped or bolted, and call them "solderless".

So, what is one to do? As you may know, Stan does lamps, and this includes chandeliers. Chandeliers must be grounded (for good reason, which is the topic for another article), often with an unobtrusive bare stranded copper wire that snakes down the chain from the ceiling to the fixture, along with the two-wires that supplies the hot and neutral lines to the bulbs. At the top, the electrician can connect the bare wire under a screw in the service box that effectively grounds that end. But often there is no such screw available to connect the bare wire to the fixture. The best way to fix this is to terminate the stranded ground wire in a 3/8" ring terminal that surrounds the threaded rod of the chandelier itself. But how to make that ring terminal secure (physically and electrically) to the ground wire? Stan takes the "belt + suspenders" approach.

He removes any plastic from the new ring terminal and securely crimps it (using a proper tool) to the ground wire. A strong pull tests that crimp connection. Then, using rosin-core (of course) solder, he solders it. CYA! The best of all possible worlds! It really cannot get more secure than that.

Pat points out that this general approach is good for hams, too. That is, solder joints should have mechanical stability to improve reliability. A crimped joint, even if a tiny bit loose, may accomplish this in combination with proper soldering.

To sum up, the best approach is to properly crimp the connection and test it by trying to pull it apart. A tight crimp will be about as strong as the wire, and if properly crimped, it will not come apart. Then solder it for top notch electrical continuity, excluding the air, and so on.

So, think about that the next time you are installing terminals at that repeater site. Or on the wires in that heavy duty power supply. Or wherever.

Happy computing!

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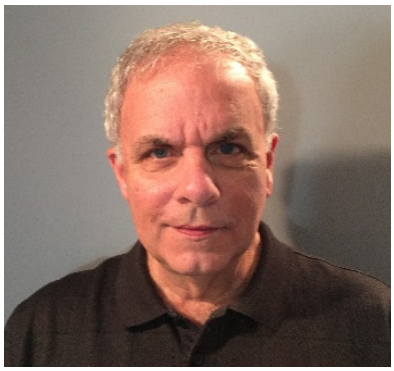
Vintage Amateur Radio

de Bill Shadid, W9MXQ



For this article I am going to push the limit on the term “Vintage” a bit and talk about a series of radios that are still in wide use to this day. I am speaking of the Ten-Tec radios in the Corsair and later analog Omni Series. In order of appearance on the market, the Corsair, Corsair II, the Omni V, the Omni VI, and the Omni VI Plus. These transceivers appeared on the market from about 1982 until 2002.

These popular radios came from a time when Ten-Tec marketed through the traditional dealer network. This was before the time when Ten-Tec became factory direct. Factory direct is Ten-Tec operating preference to this day. As I will explain, Ten-Tec has roots in central Illinois and its predecessors were operating there when I was a young ham. I will explain all of that as my own interpretation of history at the end of this article!![1]

There have been and still are many Ten-Tec radio models. The ones I am describing in this article were the company’s flagship rigs at the time they were made. But, Ten-Tec always did, and still does, market radios in different lines and price ranges.[2] Some will argue the difference in customer focus of the original Ten-Tec and the one that exists today – but that is not in the scope of this article.

The first of the series was the Corsair, later replaced by the Corsair II, pictured here. (As with many models, upon the release of the Corsair II (in 1985), the Corsair (from 1982) became known as the Corsair “I” in the ham radio community. All the radios in this article were completely solid state (as all Ten-Tec radios were, except for linear amplifiers), provided a nominal 100 watts output – a bit more on the low bands and a bit less on 10 meters.

Left to Right
561 Corsair II HF Transceiver, 263G Remote VFO
(Matching 961 AC Power Supply not shown)

W9MXQ[3]

To some, the Corsair I was more attractive because of its darker front panel color. Features on the I and II were very similar except for the addition of continuously variable bandwidth filter use in conjuction with the ability select from a variety of fixed bandwidth filters on the Corsair II. That filter selection was available in the original Corsair but the addition of the ladder filter was one step ahead in interference management.

Ten-Tec Corsair HF Transceiver (AKA Corsair I)

Ten-Tec Sales Brochure

It may be a stretch to include the Corsair models in this article for one particularly important reason. The Corsairs use a permeably tuned free running oscillator VFO (PTO). Successor models (the Omni V, Omni VI, and Omni VI Plus) used a PLL VFO. The advantage goes further in that the later transceivers were microprocessor controlled and therefore could be controlled by an external computer. At that time, the computers of choice for the ham shack were focused on the Apple II, the Apple Macintosh, the IBM PC (and compatibles), and the Commodore 64 and 128. There was no way to control the original Corsair I or the Corsair II with a personal computer[4].

One oddity with the Corsair radios was a design flaw in the radio. The Corsairs both transmitted and received on Lower Sideband (LSB) on 17-meters. How this happened is anybody's guess. It was corrected by the user by setting the MODE switch on SB-R position (meaning Sideband Reverse). Like many radios of the time, the sideband used by band was a given – 160-40 was LSB and 20-10 was USB. In the Corsair radios there was some issue in the design that left 17 meters on LSB as the standard. Incorrect!! Why did Ten-Tec never address this – and most certainly so when the Corsair II was introduced? A question lost to time!

Facing heavy competition from digital based transceivers from Kenwood, Yaesu, and Icom, Ten-Tec moved into the digital frequency control, and externally computer-controlled radio market, in 1988, with the introduction of the Omni V Transceiver. It replaced the aging technology of the Corsair I and II. Here is the Omni V. Notice its family resemblance to the Corsair II:

Left to Right
Omni V HF Transceiver & 961 AC Power Supply

W9MXQ

The Omni V unit offered RS-232 computer control access – and unlike its competition of the day, did not support other communication formats. The Omni V pictured can be controlled by most present-day logging and data communication software. The Omni V kept the excellent Notch Filter and Passband Tuning (PBT) features of the Corsair radios.

Like the Corsair models, the Omni V uses a 100-watt output PA system of similar design. It was typical at the time for domestic transceivers to stick with a single PA and use it across the product line. To accomplish remote (computer) control of the Omni V, Ten-Tec used soft touch push button, diode controlled switching for band and mode selection. Note the plentiful button population on the Omni V front panel – and the absence of rotary switches. The only missing feature in the Omni V was the ability to make direct frequency entry using the light gray keyboard visible on the control panel, to the right of the main tuning knob[5].

The Omni V included the 30, 17, and 12-meter WARC bands. Since it was not yet a band allocated to ham radio, the 60-meter band was absent.

Where the Omni V was like the Corsair models, and much of their competition, was the lack of frequency by band memory. That is, if the user is on 7.250.00 MHz on 40 meters and switches to 20 meters the radio will be on 14.250.00 – the Omni V lacked band registers. The Omni V, however, was unique in all the Omni and Corsair series to that point by incorporating a transmit audio monitor for SSB and FM transmission. All Omni transceivers had CW transmission monitors, but none thus far had a voice transmission monitor. Omitted from the previous Corsair series, however, was an internal CW electronic keyer – a rather odd omission from a company known for making radios that focused on the CW mode.

The Omni V was somewhat criticized for not having Receiver Incremental Tuning (RIT) function (known as a Clarifier on Yaesu radios). The Corsair transceivers and the Omni models before the Omni V had RIT. The Corsairs also offered Transmitter Incremental Tuning – somewhat uncommon at the time. But Ten-Tec felt at the time that their implementation of multiple VFO's (part of the memory system) was a reasonable substitute. In my opinion it was reasonable – but it was different at a time when such features were seemingly deemed, by the users in the field, as needing to be identical from brand to brand. Over the years, I have used the Omni V quite a bit and I find no issue with their implementation of offset tuning using a second VFO.

A genuinely nice feature in the Omni V is a clock/calendar that shows time of day or date in place of the readout with the press of one of two (time or date) buttons on the front panel. The radio also introduced an optional digital voice readout of frequency at the press of a front panel button. And, for the first time on a Ten-Tec radio, the FM mode was offered as an option with a plug-in board and dedicated FM Mode button on the front panel.

I have been a fan of Ten-Tec receiver design for years and find that they are some of the most comfortable receivers for listening and operating, even to this day. The Omni V in this respect is perhaps the best. The Omni VI and VI Plus were excellent, but the Omni V seems to take the crystal mixing analog design to best advantage. Proof of their fine performance is evidenced by the rarity of finding good examples of the Omni V on the used market.

In 1992, Ten-Tec introduced a major upgrade to the Omni V with the Omni VI. While there are significant similarities in the look of the Omni V and Omni VI. The new radio offered Ten-Tec's first foray into Digital Signal Processing (DSP) in the receiver section of the transceiver. While it was rudimentary DSP, it was before any such systems appeared on its Japanese competition.

Here is a look at the Omni VI in a station setup:

Left to Right
Omni VI HF Transceiver & 962 AC Power Supply
Shown with Timewave DSP-59+ Audio DSP Unit & KLH Bookshelf Speaker
W9MXQ

The Noise Reduction circuitry was essentially focused on the CW mode, but it gave a tantalizing view of what DSP Noise Reduction could offer all modes. The DSP offered an automatic notch filter to eliminate heterodynes in the receiver passband – in addition to the manual notch filter. In an oddity of the start-up access menu items (new on the Omni VI and not present on the Omni V) one could hear the results of the noise reduction in any mode during menu setup – but could not access it in modes other than CW in actual operation. Another Ten-Tec misstep?

New features added were several . . .

- A fine Iambic electronic keyer – a return of a significant feature.
- Band Memory Registers for each band with two selections – that is, the last two frequencies selected on any one band were immediately accessed with a return to that band. This included other parameters, such as mode.
- CW Identification of mode when selected. ("C" for CW, "U" for USB, "L" for LSB, "F" for FM, and "R" for RTTY.)
- "Always on" clock display.

The Omni VI kept the dependable PA circuitry developed over the years, by Ten-Tec. It has always been interesting to me to observe the differences in the way the American and the Japanese manufacturers chose to protect the final amplifiers in the PA. The Japanese designed circuitry to watch reflected power (SWR) and fold back current to the power amplifier in proportion to increasing SWR voltage. The American manufacturers monitored current from the power supply and restricted power as the current increased over predetermined values. At the same time, the American manufacturers did use voltage generated by increasing SWR to also fold

back power. What was different was the two methods in combination in the American designs. These were typical of designs from Ten-Tec, Drake, Heathkit, Swan/Cubic, and other smaller firms in the USA. The American system was a bit faster due to the two methods used in combination. Also, it seemed that American designs cause faster foldback of power levels.

Unfortunately, the Omni VI lost the voice transmission monitor that graced its predecessor.

The advances in DSP technology were moving quickly and in 1997, Ten-Tec introduced the Omni VI Plus – an audio DSP driven refresh of the successful Omni VI Design. Outwardly the Omni VI and VI Plus were difficult to distinguish – other than the appearance of the word "Plus" under the "OMNI VI" name on the front panel. The change was also covered by a model number change and obvious markings on the back panel. The true difference between the VI and the VI Plus was all tied into the Firmware – there was only one significant hardware difference. The Omni VI Plus added a second 9 MHz i-f filter position, selected via a front panel soft press button.

Ten-Tec Omni VI+ HF Transceiver[6]

W9MXQ

In a gesture to loyal Omni VI owners, Ten-Tec even offered a three-level conversion service for owners of the VI. This included three levels of update – with all three offering all features of the DSP upgrade that identified the Omni VI Plus. As per documents from Ten-Tec at the time, here are the three upgrade options for the Omni VI owner:

- Option 1 - added the VI Plus DSP chips, stick-on labels for front panel keys that have changed function.
- Option 2 - added the VI Plus DSP chips, new keycaps for front panel keys that have changed function instead of the labels (looks nicer).
- Option 3 - added the VI Plus DSP chips, adds the VI Plus 9 MHz mixer/i-f board with the extra filter slot, included all wiring changes to change functionality to that identical to a VI

Option 1 was user installed, while Options 2 and 3 were factory installed. There was a cost for all three Options and shipping costs on options where a factory return was required.

The more authentic analog nature of the Omni VI has shown over time to be superior to the Omni VI Plus and its expanded DSP features. This is my opinion, mind you, and not necessarily one held by all users. I have owned the Omni VI, and Omni VI Option 1, and an Omni VI Plus and prefer to do as I do today, run the Omni VI (no option level) along with a Timewave DSP-59+ External Audio DSP Filter. Given that the DSP in the VI or the VI Plus are audio level, they are no more integrated into the radio's performance than the external Timewave unit.

The Omni VI, and VI Plus upgraded their readout system from the one used in the Omni V. The Omni V had vacuum fluorescent readouts while the Omni VI and VI Plus changed back to the LED technology readouts of the Corsair series and previous Ten-Tec radios. The change to the more flexible LED readouts allowed for more features to be shown in the readout window in the later transceivers. Specifically, the clock shows continuously when power is applied and other information, such as memory number, can be displayed. For added clarity, more than one color is used for some frequency readout digits – as on the original Corsair models.

DSP Noise Reduction on the Omni VI Plus (and the Omni VI on CW) was so effective that band noise would be practically abolished and clear weak signals would seem to "appear out of nothing" to be perfectly audible. That is an easy marketing statement to disagree with – but it is real, and I can attest to it. While I tend to use the Timewave DSP-59+ with my Omni V, VI, and did so with my Omni VI Plus, there is no denying that overall noise reduction with the Ten-Tec system owes nothing to any competitive transceiver of the time.

There are two more models in this technical group that satisfied a perceived need for general coverage receive. These were not particular popular in numbers but are sought after today. Please note these two pictures:

Ten-Tec Paragon HF Transceiver[7]
Rig-Pix

Ten-Tec Paragon II HF Transceiver[7]
Rig-Pix

The Paragon and Paragon II are based on the Omni V and Omni VI, respectively. The Paragon II had ceased production before the entry of the Omni VI Plus on the market. Their two added features compared to their ham band only stable mates were the AM mode and general coverage of the HF spectrum. In another one of those oddities of Ten-Tec, these transceivers were not designed to operate on AM transmit. Just receive[8].

Early in this article I referenced a personal view of Ten-Tec history. While it is my own opinion (which in fairness must be said). I feel a l tiny bit of a kinship with Ten-Tec as it relates to my early years in ham radio. In the late 1960's I would frequent Central Illinois Hamfests with longtime friend, customer on my paper route when I was in high school, and amateur radio operator, Ted Bailey, W9DYQ (SK). Subsequently I became friends with Ted's son, Bob, W9DYQ (who acquired his father's call after his death). Bob, the current W9DYQ, is a close friend and fellow collector/restorer of Vintage Radios. Bob also proofreads and assists me with these articles. Those outings with Ted included Bob, in later years. Early on, when at a local hamfest, Ted introduced me to Russ Planck, W9RGH, who, along with E. G. Shalkhauser, W9CI, had founded Radio Manufacturing Engineers, Peoria, Illinois, in 1931 or 1932. You perhaps know Radio Manufacturing Engineers as RME. I never met Shalkhauser, who had become a SK before that time. However, I met and talked to Planck many times in those years.

After World War II, Planck and Shalkhauser sold RME to Electro-Voice of Buchanan, Michigan. So, when I knew Russ Planck, he was enjoying retirement from manufacturing radios – although he acted as a consultant to Electro-Voice and likely had some involvement in the last RME/Electro-Voice HF Receivers, the 6900 series. At that time, Al Kahn, K4FW, was running

the Electro-Voice company – and had been one of its founders. In 1968, Al Kahn, after retiring from Electro-Voice, partnered with Jack Burchfield, K4JU, to found Ten-Tec, Inc. In a meeting with both Al and Jack in the late 1970's – as a guest of the publisher of Ham Radio Magazine at the Dayton Hamvention – I presented my comment that they had ties all the way back to Planck and Shalkhauser and RME. I remember that they both laughed. One said to the other, "the secret is out!" So, I rest my case on a perceived connection from RME all the way over the years to Ten-Tec. Many such inter-company connections exist with ham radio – Halligan, Hammarlund, Pierson, Gonsett, and others come to mind[7].

My Omni VI Transceiver was formerly owned by Roger Zaun, W9UVV (SK), a long-time member of the Ozaukee Radio Club. Roger had previously owned an Omni V before the Omni VI that I now have. Over the years Roger had communicated with Al Kahn, K4FW, at Ten-Tec. Some of that correspondence is part of the documentation package that came with the Omni VI and 961 Power Supply when received. My thanks are extended to Mark Tellier, AB9CD, who was the interface for me securing this fine radio from the estate of Mr. Zaun. From the correspondence I have found, Zaun seems to be a fellow I would have liked to have met.

Special thanks go to Bob, W9DYQ, for his proof reading and our discussions of his father, Ted, and the days with Russ Planck, W9RGH. And, as I always add, I appreciate that you read my articles. Never forget that our close friends are our greatest personal resource in life. I am always open to questions and comments at my email address, W9MXQ@TWC.com.

Notes:

[1] My interpretation of Ten-Tec's history is my own. You can agree or disagree – but it all makes perfect sense to me!! If you have a different view, please, let us discuss it.

[2] http://www.tentec.com

[3] This Corsair II station currently is owned by W9DYQ. When it was photographed, it was owned by W9MXQ.

[4] There are various routines to add limited computer control to the Corsair models – one such source can be seen at the website of K3JLS at http://www.k3JKL.net/tentec.html. Therein, K3JLS describes such product in support of most all pre-PLL VFO Ten-Tec radios as well as the Drake TR7, and other similar radios. At least this would allow remote frequency control on any one band.

[5] N4PY Software (a publisher of radio control and logging software) used to offer a replacement ROM chip for the Omni V Transceiver they referenced as the V.9 Chip. Once installed it added many memory and operational features – including direct frequency entry. This chip was originally designed by Jack Giehl, WB8BFS, of Loveland, Ohio. Jack made similar enhancements for several other early microprocessor-controlled radios (Ten-Tec Paragon, Kenwood TS-940S, etc.).

[6] With apologies I note that I never took a picture of my Omni VI Plus with the power turned on and the readouts visible. Suffice it to know that it was an identical readout, including colors, to the Omni VI.

[7] The Paragon, Paragon II, and other Ten-Tec transceivers and the personal names shown are included in some future articles.

[8] Numerous third-party modifications to allow AM to be transmitted were published. On such third-party modifications of any kind, it must be remembered that the radios were not designed for such operation and any operation could possibly be out of compliance in some performance specification. Be aware.

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

Welcome to 2021. Hopefully, it will be better than 2020, but so far, it has not started out that way. The thing that affected our lives the most in 2020, of course, was COVID-19. How did it affect our favorite hobby, ham radio?

A huge downside was we could not get together at ORC meetings in person. Hamfests were canceled as well as bigger events such as Hamvention®. Other events morphed. Field Day changed from a large group event to operating from home individually or in very small groups. The ARRL even made a temporary rule change to accommodate more at home stations.

Ham radio turns out to be a great activity while we are locked down. It allows us to communicate with others in the area and around the world. In contesting the number of entries was way up for many contests in 2020. Last year I operated 33 contests compared to 25 the year before. Not all those were serious entries. Some were just playing around for an hour or two.

My logbook had many more entries in 2020, about 15,500 compared to 8,000-10,000 I typically make. One thing that was down was the number of different DX countries I worked. In 2019 I worked 224 different DXCC countries compared to only 192 last year. The main reason for the drop off was that most DXpeditions were either postponed or canceled. Did you make more QSOs last year than usual?

One way we adapted to lock down conditions was to use virtual meetings. The ORC and many other clubs are conducting meetings online with Zoom or other platforms. While not as good as in-person meetings where you can carry on conversations one on one before the meeting and during breaks, it is much better than not meeting at all.

An interesting side effect is that members too far away or otherwise unable to attend in-person meetings have been able to attend. It has been nice to see members who have moved away and have not attended in-person meetings in years.

Other clubs around the country have opened up their meetings to non-members, and I have attended quite a few and enjoyed some really great programs. ORC member Bill, W9MXQ, has given presentations on "mature radios" to clubs worldwide. I am scheduled to give one to a club in Arizona on contesting.

Conventions have opened up. There was one presented by Contest University last May that was free and had some great presentations. Contest University is having another one near the end of the month called the Propagation Summit 2021. As the title suggests, it will cover aspects of radio propagation. It is January 23, starting at 10:00 local time. It is free to attend. Information and a link to registration is https://www.contestuniversity.com

There are four presentations. I know or met all of the speakers and expect the presentations to be excellent. Oh yeah, if you are around to the end you might win one of those neat new Icom IC-705 rigs.

One way to stay active is to take part in regular activities. Net participation is one example. Some others can be fun. One is the QRP Fox Hunts. They take place on Tuesday and Thursday evenings. The Tuesday event is on 40M, and the Thursday one is on 80M. Each event has two designated stations as the Foxes, or in their jargon, the "foxii."

Everyone else, the Hounds, have 90 minutes to find the foxii and work them. Or, as they say, collect a pelt. This is all done at QRP (5 watt) power levels. They have an online list of the standing of how many foxii you have worked.

The website is http://www.qrpfoxhunt.org/ There is no cost, and you don't have to register or anything. Just work one of the foxii, and you will be on the list. I did this for several years, but then I got a new rig that only went down to 10W. I picked up an FT-818 over the summer and decided to do it this year. The FT-818 receiver is nowhere as good as my main rig, so it has been more challenging than before, but I have had a lot of fun. Wisconsin stations are well represented in this. Join in the fun.

State QSO parties happen all the time. Last year a group organized something to encourage operation in them and formed the State QSO Party Challenge and the Worked All QSO Parties (WAQP) awards program. They reported 1.3 million QSOs in the challenge last year.

The idea is that you get on and report your scores for as many State QSO parties as possible. You only need to make a minimum of two QSOs in a QSO party to get credit for it. You can get more information at http://stateqsoparty.com/

Speaking of state QSO parties, the Wisconsin QSO Party is Sunday, March 14. Go right now and mark your calendar. We won the club category in the 2020 event. Let's win it again in 2021! More info on the WiQP is at https://www.warac.org/wqp/wqp.htm There will be more in next month's column.

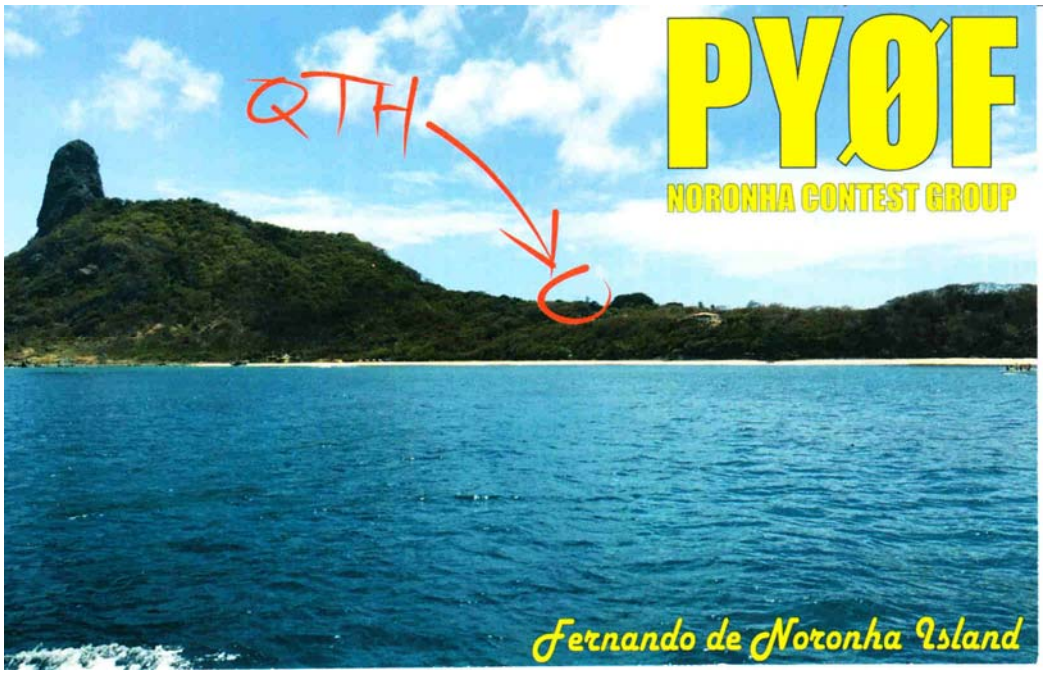
The January VHF contest is January 16-18. Of the three ARRL VHF events, this is usually the slowest. It does not have the potential for 6M sporadic E (Es) propagation the June contest has, although there is some possibility. The winter weather reduces the number of rover stations, but if you like VHF, it is worth getting on for it. More information is at http://www.arrl.org/january-vhf

The CW and phone NAQPs resume this month. The CW event is on January 9, and the phone version is a week later. Both start at noon local and end at midnight, but you can only work ten hours. Send your name and state. Full rules at NAQP-Rules.pdf (ncjweb.com)

At the end of the month is the CQ WW 160 Meter Contest. It starts at 2200 UTC Friday (4:00 local), January 29, and runs 48 hours. You can only operate for 30 hours. Operating during daylight hours on 160 is not going to be very productive anyway. We send a signal report and our state. DX station will be sending a signal report and CQ zone. Rules are available at www.cq160.com/rules.htm

DXpeditions continue to be on hold due to COVID-19. I am not aware of anything interesting happening this month.

This month's QSL is one of the last ones I received. It is for a QSO with Fernado de Noronha Island. This is an island off the coast of Brazil. The QSO was on 160 Meters and a new DXCC country for me on the band.



The first time I worked the island was about 30 years ago. It was during the ARRL DX CW contest. I tuned across him and was excited to have a chance not just for another multiplier for the contest, but also an ANTO (All Time New One) for DXCC. He came back not only with the contest exchange but also "Hi Gary!"

I just about fell out of my chair! I barely knew the place existed, let alone someone there. It turned out that it was my friend Bill, W9VA, who had gone down there. He was staying at a hotel on the island run by PY0FF.

Well, it seems the pandemic will continue to keep us at home for at least the rest of the winter. Sending some time in front of the radio this month is an excellent way to pass the time.

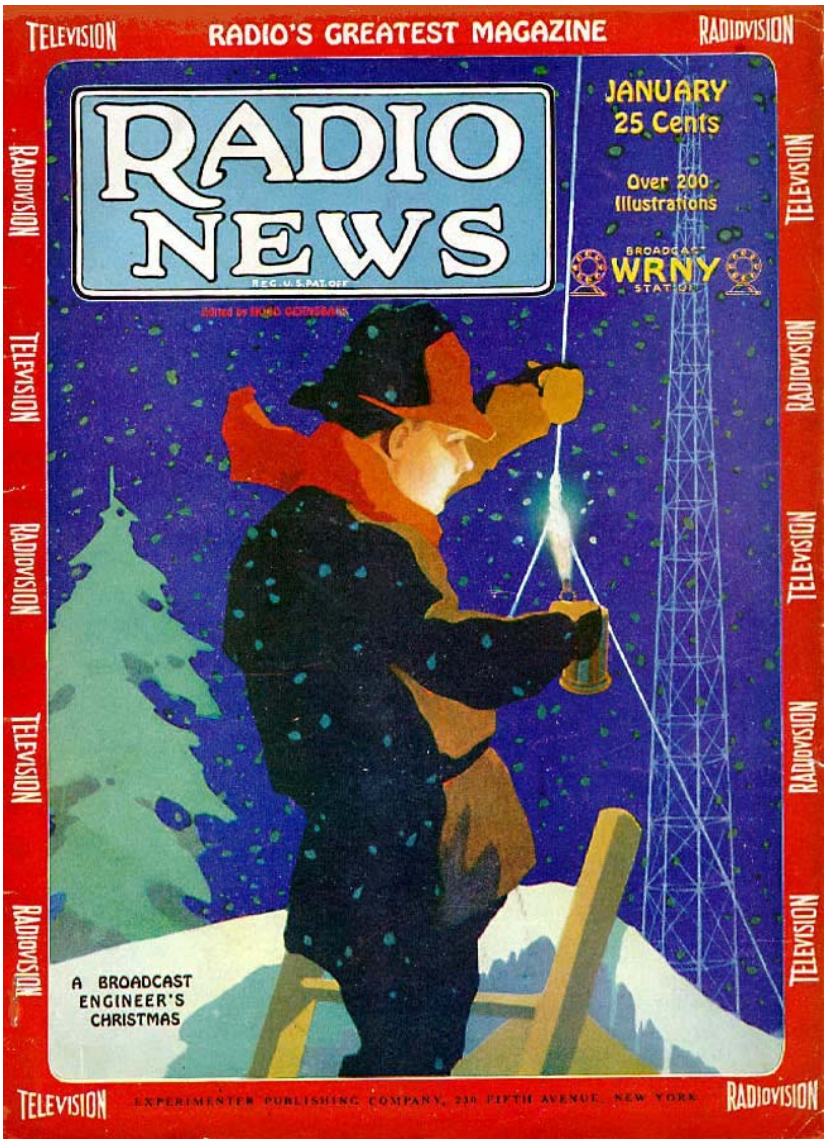
Vintage Magazine Cover Art

By Pat Volkmann, W9JI

In the early decades of radio, there were dozens of specialty magazines dealing with every aspect of radio technology. These were sold at the local magazine stand, which might have been on the street corner or in the drug store. The magazines were displayed side by side and they all competed for readers. Publishers often relied on bold artwork to grab your attention, hoping the cover picture would make you buy their magazine. Many of these covers were works of art in their own right.

I have selected a series of these old magazine covers that represent situations that we will find familiar today. I plan to present one each month, highlighting a different area of technology or an interesting situation.

The first cover is from the Radio News magazine issue of January 1929. The picture is entitled “A Broadcast Engineer’s Christmas” and depicts a situation that many of us are all too familiar with – working on an antenna in the middle of winter in a snowstorm.



“A Broadcast Engineer’s Christmas”–Radio News, January 1929

Ozaukee Radio Club
December 9, 2020 Meeting Minutes

de Ken Boston W9GA

This ORC meeting was conducted via an online (internet) connection using the ZOOM app. Prior to the meeting start, those members who were able to access the 'waiting room' via phone or computer/webcam were then introduced into the meeting space hosted by Pat W9JI. At that time various audio and video connection issues were addressed for the members before the meeting began.

ORC President Pat W9JI officially initiated the meeting at 7:35 PM, as introductions were recognized when members checked into the meeting, a go-around was not conducted. Pat reminded everyone that dues are due now through the January meeting. Todd KD9QLJ recently got his General Class ticket. Fred W9KEY has erected a 30-foot Al mast at his QTH.

Program:

The program was presented by Gary, N9UUR describing his rooftop antenna tower project. After he upgraded to General Class, and then Extra Class in 2020, he decided to upgrade his antennas with an HF antenna. He described the process of building a clone of the Glen Martin RT424 4 foot quad pod mini-tower. This tower was installed, carrying a Mosley Mini 33 HF beam and a 5-element 6-meter beam. Gary then described the process of getting everything to work, and eventually finding that he could make HF contacts readily with the new system.

Committee Reports:

Tom KC9ONY reports all is good; the 220 system is integrated into the Tuesday night net. A discussion was held concerning having a net control training session.

Gary N9UUR mentions that of the over 100 members, about 51 have renewed (61 including family members). The ARRL holds over $38,000 in the scholarship program, with $21,000 still to be transferred. Local funds include $3,700 and nearly $13,000 in a money market fund for STEM programs. W9MXQ moved acceptance, W9DHI seconded motion carried.

Ken W9GA has posted the minutes of the November meeting; noted correction of W9DHI name as Gregg. WB9RQR moved, W9MXQ seconded the motion to accept which was then carried.

Tom W9IPR is the current nominations chairman. The slate of candidates for office includes current active officers and board members, with one exception; Gregg W9DHI will step in as the Repeater VP and Tom KC9ONY will step down.

Pat W9JI reminds all to renew, and that the January elections will be via a ZOOM poll. The repeater survey is complete and a report is forthcoming.

OLD Business

There was no old business.

NEW Business:

Ken W9GA mentioned the upcoming awards nominations as being open as of January 2021.

Tom W9IPR discussed the status of the scholarship funds, and urged the formation of a STEM committee to advance that element of the club's scholarship funds usage.

Chuck W9KR mentioned problems with internet connectivity, which has been experienced by many members using the ZOOM app to attend meetings.

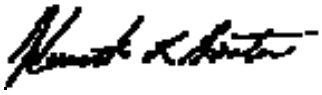
Adjournment:

There were 36 members (unique callsigns) on the ZOOM meeting. Contact Ken W9GA to obtain the list. Gregg W9DHI moved to adjourn, Jim W9QLP seconded the motion, and the motion carried.

The meeting ended at 9:04 PM.

Post meeting: Stan WB9RQR will have several refurbished laptops available for auction soon.

Respectfully submitted,



Kenneth Boston W9GA
Secretary

Upcoming ORC Monthly Meeting Programs

January – Elections
February – Open

Creating a Presentation

Almost all 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 Power Point 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 tion. Share your expertise and experience with the club. Programs can be on any topic that is ham radio related. Contact Pat Volkmann W9JI at w9ji@arrl.net to discuss your idea for a program.

ORC Meeting Agenda

February 10, 2021

1. 7:15 – 7:30 PM – Check-In and Introductions
2. 7:30 PM Call to Order – President Pat Volkmann (W9JI)
3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
4. Presentation: TBA
5. President's Update – Pat Volkmann (W9JI)
6. 1st VP Report – Ben Evans (K9UZ)
7. 2nd VP Report – Bill Church (KD9DRQ)
8. Repeater VP Report – Gregg Lengling (W9DHI)
9. Secretary's Report – Ken Boston (W9GA)
10. Treasurer's Report – Gary Bargholz (N9UUR)
11. Committee Reports
12. OLD BUSINESS
13. NEW BUSINESS
14. Adjournment

Meeting Note:

For the foreseeable future, we will be holding the meetings via the Zoom Videoconferencing platform on the same evening and time as we had the in-person meetings. Sign-in info will be emailed by President Pat Volkmann, W9JI via the ORC remailer usually about an hour before the start of the meeting.

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting via Zoom
February 10, 2021

7:15-7:30 PM – Check-In
7:30 PM – Meeting Begins

The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Ben Evans, K9UZ. Permission to reprint articles published in any issue is granted provided the author and the Ozaukee Radio Club Newsletter are credited.

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 XXXIII	February, 2021	Number 2

From the President

de Pat Volkmann, W9JI

Elections were held at the January meeting, with one new officer elected to the Board of Directors. Tom Trethewey, KC9ONY, stepped down as Repeater VP after many years in the job. Thank you, Tom, for keeping an eye on the repeater during those years. Gregg Lengling, W9DHI, was elected as the new Repeater Vice President. Please join me in congratulating Gregg on his new office. All other officers return for another term.

In addition to the elected positions there are other roles for club members who wish to help out. One important position is that of Membership Chairman. The Membership Chairman is responsible for helping new members feel welcome and get oriented when they join the club, among other things. You don't need to be a long time member – this is an excellent way for a newer member to get to know people in the club. If you are interested in this position or want to nominate someone, let me know.

One of the features in Zoom that we used for the first time at the January meeting was "Breakout Rooms". Rooms allow the group to split up into smaller groups for a conversation on a particular topic. At the last meeting I set up rooms for discussing the Yaesu FT991A, Linux, Logging Programs and General Chat. Each person was free to join the topic that they were interested in. The feedback I received during and after the meeting was very positive. We will be doing this again following the next meeting.

One issue that came up with rooms was where to find the controls to enter the breakout room. For laptop and desktop users, the controls were on the screen. Most people figured it out after a few minutes. Those using a phone or tablet had different controls, some of which were hard to discover. Before the next meeting, please take a few minutes to review the Zoom controls on the device that you like to use for the club meetings.

The repeater survey results were presented during the January meeting. A very brief summary of the discussion is that the club likes the 2 meter repeater and all the repeaters see very little use. To encourage conversations between members and promote use of the repeaters, we came up with an ORC operating event called "Key Up". This is a very simple operating activity where you can earn an award for talking to ORC members on the repeater. Details of the Key Up activity are included in this edition of the newsletter.

It's also time to think about your choice for two of our most prestigious awards – Ham of the Year and Turkey of the Year. Ham of the Year is a "contributor award. Typically the individual(s) selected has contributed to the ORC in more than one activity area and is recognized by the general membership as a key person in the success of the group for one or more reasons." Turkey of the Year is a "good guy award. Typically an individual is selected who has generally assisted the ORC with projects during the year and has promoted friendship and good will within the group." There are numerous other awards available – all it takes is you nominating a fellow club member. The Bylaws section of the ORC website has a list of the awards.

See you at the meeting.—Pat Volkmann, W9JI

THE COMPUTER CORNER
No. 275: A New Linux and A New Source

Stan Kaplan, WB9RQR 715 N. Dries Street Saukville, WI 53080-1664
(262) 268-1949 wb9rqr@att.net

Great news! Majorgeeks (www.majorgeeks.com) (in my opinion the best and safest source for Windows programs), has recognized the spread of Linux throughout the world as an upcoming alternative for Microsoft Windows/Windows programs. They have added many Linux distros (distributions) to their already wonderful Windows offerings.

Go to the majorgeeks site (usually ctrl-click the highlighted hyperlink above), look at the **Files** panel on the left for a new entry: **Linux Distros**. You'll find any flavor of Linux your heart desires among the over three dozen files listed, including my favorite, Linux Mint, version 20.1. You'll even find a Raspberry Pi Imager that will help you create a micro-SD card with Linux on board, for use with your Raspberry Pi. There is also other software there to help you create bootable CD, DVDs or thumbdrives stuffed with many different flavors of Linux or any bootable OS (operating system). A great new asset provided by a reputable, well known resource of mainly free software and some shareware.

And, that leads us to the latest and greatest version of Linux Mint Cinnamon, 20.1, nickname ULYSSA. When you install it, you'll be forewarned by the installer that new systems like 20.1 will give you new capabilities, but they also come with the danger that a new system may bring with it things like the need for new hardware drivers or new, previously unidentified bugs and the like. But don't let that deter you. My experience is that the new stuff in a new OS (operating system) far outweighs the other adjustments you may need to make. And mine is the voice of experience: I have successfully installed 20.1 over 20 in five machines; three desktops and one laptop. Of course bugs and need for a new driver here and there may yet pop up, but I have confidence it will be fixable. Linux writers have a real desire to get it right and make it work well. So, have at it.

A great article on how to upgrade from 20.0 to 20.1 can be found in an article entitled: *Linux Mint 20.1 "Ulyssa" Officially Released [How to Upgrade]*. You can find it here:

https://ubuntuhandbook.org/index.php/2021/01/linux-mint-20-1-ulyssa-officially-released/

It will tell you what you need to know and how to proceed. In a nutshell, you need at least 1GB of RAM (2 recommended), 15GB disk space (20 recommended) and 1024 x 768 screen resolution. And don't try to put 20.1 (or even 20.0) on a 32-bit machine; you need at least 64-bits. But that is not hard in this day and age. (If you are not sure what you have, try it and it will complain if it is not 64-bit.) There are not that many 32-bit machines that are still working. (Ouch! I felt that slap in the back of the head from you folks with happily working 32-bit machines!)

This release (20.1) will be supported long- term, until at least 2025. So make use of that old desktop or laptop (or buy one next time Stan advertises one on the ORC Remailer for use with the new OS). And, get this. To proceed, you will need to download the .iso file and use it to burn a bootable live OS DVD that will let you play with it, and if you like, it will install version 20.1. If you don't know how to do this and don't really want to learn, I will do it for you, free (if

you are a dues-paid ORC member). Simply email me or call me that you want one, and pick it up at my QTH when it is ready. I have six on the shelf now, and can burn more as needed. It is hard to beat that offer!

Have fun! And, Happy Computing!

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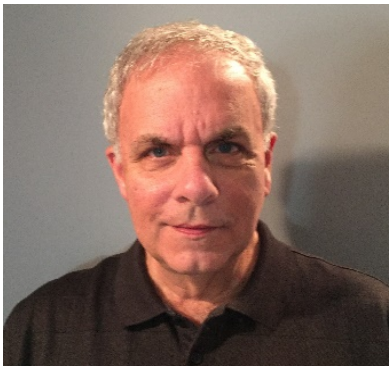
Vintage Amateur Radio

de Bill Shadid, W9MXQ



This article takes a bit of a turn that I guess should be expected considering the penetration of this column in the Vintage Radio community. Communications come to me on a regular basis from readers in the United States and other countries.

Communications are supportive and some also add small suggestions for making the articles better. Many of those comments have been incorporated in format, sources, and focus.

Recently, I was approached by Marc, K7WXK, concerning my article on the Kenwood TS-900 and how it might relate to the installation of a CW filter in his TS-511S[1]. The TS-900 and the TS-511S were marketed at the same time and were the first mass marketed Kenwood HF Transceivers in the North American market. This led Marc to a friend, Kevin, K7ZS, who shared Marc's interest in the TS-511S Transceiver and many other Kenwood Vacuum Tube and Hybrid Transceivers. Presumably, Kevin and Marc thought the Kenwood TS-900 Transceiver, which was marketed at the same as the TS-511S, were similar in circuit design. The two radios are similar in conversion scheme but are otherwise quite different. Marc and Kevin's question was also picked up by Mark, WBØIQK, a Net Control Operator on the Kenwood Hybrid Net.

So, for reference, here is the TS-511S that is in this discussion:

Kenwood TS-511S HF Transceiver with Power Supply and Remote VFO
(from the October 2020 Newsletter)

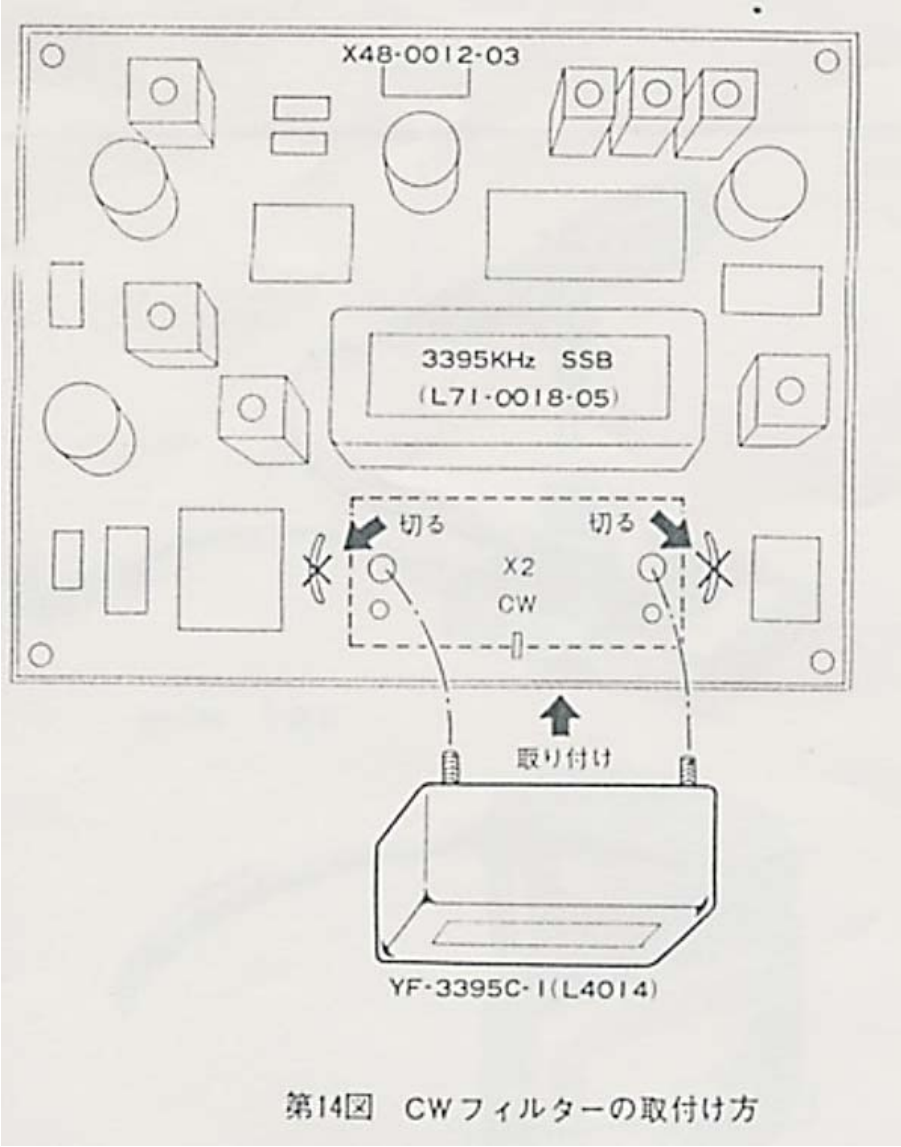
W9MXQ

I was flattered that Marc read my article and more so that he asked for my advice. But the truth was that had no idea how to answer him! I have two TS-511S Transceivers and two TS-900

Transceivers. All four of these radios are devoid of any filter installation information and came with what appear to be factory installed CW Filters. I did consider filter installation as a topic in both articles at that time of writing, but I thought perhaps Kenwood had made the CW filter standard equipment in these radios in the North American market. It seemed a reasonable assumption with no installation information present. At the time of Marc's inquiry, I was waiting for delivery of a complete Service Manual for the TS-511S but there was little hope for information since my TS-900 Service Manual from the same time-period did not cover the addition of any optional filter. There was not much chance the TS-511S manual would be any different.

No one seemed to know the answer to how these filters had to be installed. Or, more properly said, we knew how to solder the filter in place but what changes need to be made to this nearly 50-year-old radio? But thankfully, Masa, AB9MQ,[2] came on the scene and as it turned out had a Japanese market TS-511. Specifically, Masa has a TS-511DN – a lower power version of the radio marketed for a license class in Japan restricted to lower power. It is pretty much identical except for the RF power amplifier.

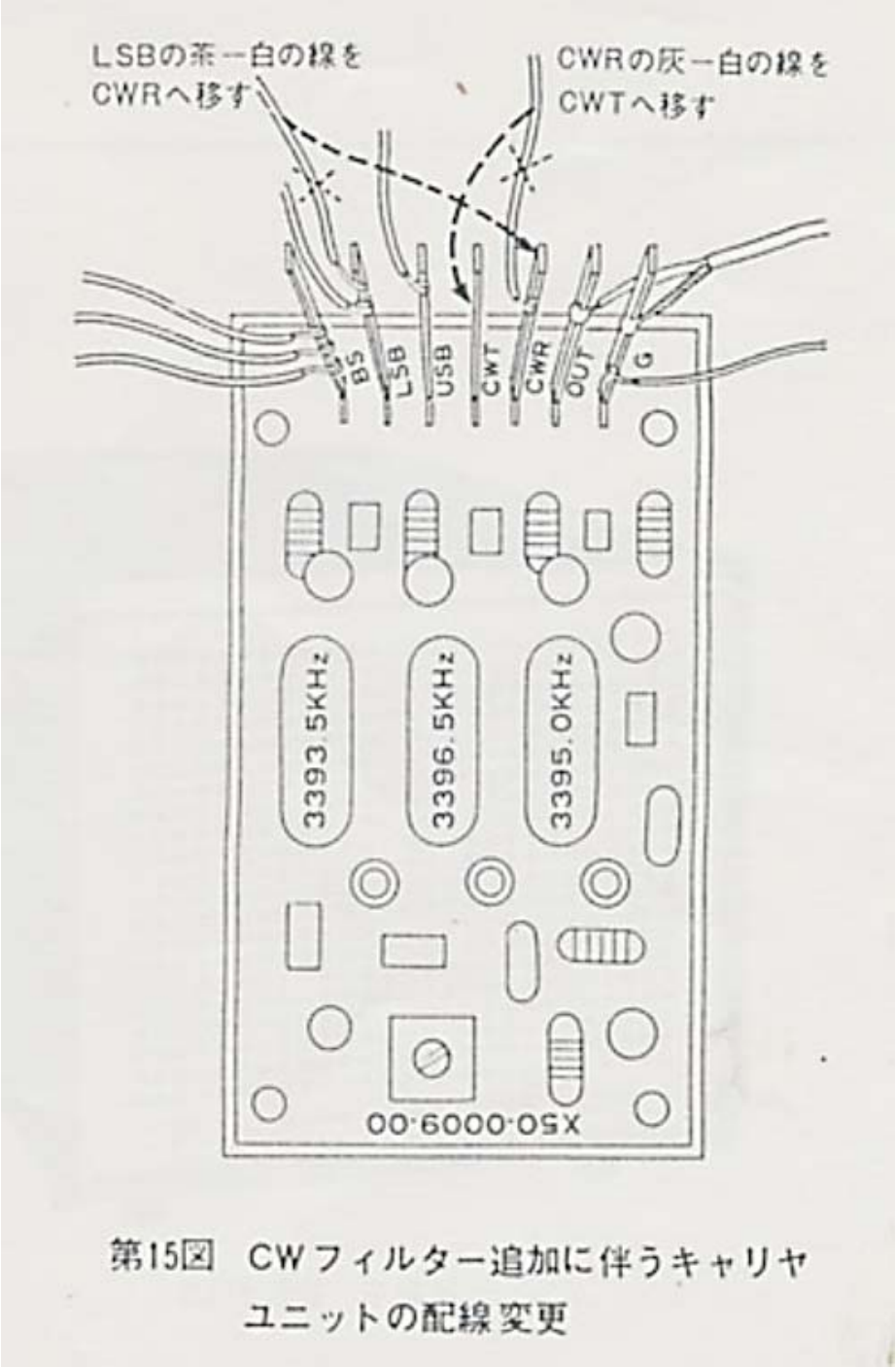
So, the mystery is quickly solved with copies, in Japanese, of the filter installation instructions Masa had with his TS-511DN:



Top View of the X48-0012-03 I-F Unit Board
AB9MQ

The I-F Unit is on the top of the radio chassis at the left rear. With the CW filter uninstalled, the open CW Filter position is clearly visible in front of the existing SSB Filter. The critical issue here is the need to cut the two jumpers shown on the circuit board. This is typical for installation on later Kenwood transceivers – and some other brands. But in the case of the TS-511S or TS-511DN, there is more that must be done.

The switching of the filters from SSB to CW is still not complete with just the modification shown above. There are wiring changes that must also be done on the Carrier Oscillator board:



Top View of the X50-0009-00 Carrier Oscillator Board

AB9MQ

The Carrier Oscillator Board is on the bottom of the radio chassis just behind the front panel. The terminals shown on the board layout are toward the back of the radio.

Masa, AB9MQ, describes the process here in that he says:

1. Move the white wire from LSB to CWR
2. Move gray wire from CWR to CWT

The only difficulty may be that you must carefully trace out the wires – even if you find wire colors as Masa specifies when preparing to make modifications[3]. Such modifications involve risk of damage to the radio so beware of that point when you decide to make any changes. Understand also that we are discussing radios here that may have been modified in some other way in the past. Just be careful – damage to either of the circuit boards here could disable the radio completely.

The installation of a CW filter in the TS-900 remains somewhat of a mystery. Both of my TS-900 Transceivers, and a third one I had access to for a while for parts[4], already had the CW filter installed. Is it logical that the jumpers present on the X48-0012-03 I-F Unit Board on the TS-511S should have some equivalent on the X51-1010-10 XF (Filter) Board on the TS-900? Looking at the board in my radios shows no evidence of a jumper being removed or any place where one might have existed. Looking at the schematic of the X51-1010-10 board in the TS-900, however, seems to indicate that the filters are diode switched – so perhaps the jumpers are not required. It remains that for the for the TS-511S and TS-900 some need exists to make changes in the radio when a CW filter is installed. Without such a modification, a radio without a CW filter would not allow receive signals to pass without the presence of the filter. A bit of a mystery remains!

Special thanks go to Bob, W9DYQ, for his proof reading. Also, a special thanks for the very great assistance I received from Masa, AB9MQ. I am always open to questions and comments at my email address, W9MXQ@TWC.com.

Notes:

[1] CW filters for the TS-511S or the TS-900 are the same. Today they are increasingly difficult to find. The Kenwood model is YG-3395C – it may be branded Trio, Kenwood, or Trio-Kenwood. Kenwood no longer stocks them. It was also available from INRAD (http://inrad.net) – but is no longer in stock. They are sometimes available on eBay and other sites. For the INRAD part – be sure it is the equivalent of the YG-3395C.

[2] Masa Yamamoto, AB9MQ, lives in my hometown of Bloomington-Normal, Illinois. In fact, as a point of trivia, he lives on what was once my newspaper route when I was in high school. It is a small world. Masa is an avid collector and restorer of radios. Masa and I have previously met on vintage radio nets.

[3] Repeating what is said above – NEVER make modifications in radio wiring without knowing exactly what you are doing. In my own radios I trace out every connection before making any modification – even if the wire colors seem correct. You have the potential to destroy the radio – please be careful.

[4] The TS-900 is usually rated in North America at a power rating of 300 watts input on PEP SSB with a pair of 6LQ6 Tubes. A few can be found with a pair of 6146 Tubes. The third one that I mention as having for a while was equipped with the 6146 Tubes. This was not a field modification and represented a radio produced by Kenwood. Several different tubes were made available in the TS-900 is different markets. Those radios were likely rated at 180 watts PEP SSB input. This was shown in more detail in my TS-900 article.

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

HF propagation is a very complex subject. Active hams get a feel for how things work. They learn that Europe usually comes in on 15 meters in the morning. But not always. There has to be a minimum amount of ultraviolet light to ionize the upper atmosphere and create the ionosphere. That means the solar flux must be around 90 or so from Wisconsin. The geomagnetic field has to be reasonably quiet, or the signal will be absorbed as it goes through the polar regions. That is what it is for us, but someone say, in South Carolina, does not have to worry so much about the polar path since the signal travels south of the auroral ring unless conditions are really disturbed.

Other bands have these and other factors that determine if signals can make a given path at a given time on a given band. There are computer programs that you can plug information into, and it will provide you with a forecast. But, it is more like a weather report that says we have a 50% chance of rain today. So the path will be open a certain number of days in a month, but no one can say for sure if it will open *today*.

If you operate enough, you will get a feel for things, but something will happen that knocks your socks off every so often. One of those happened to me during the ARRL 10M contest back in December. As you remember, we had a burst of sunspots from the new solar cycle in November, and the higher HF bands were better than they had been in years. There was hope the conditions would hold up through the 10 Meter contest, but they did not.

I have been active on HF for 50 years now, and 10 Meters is my favorite band. I operated nearly every 10M contest since they started in the mid-1970s. My experience said that there was almost no chance of contacting European in the contest's 2020 running. Then around 11:30 AM local, I am concentrating on working towards the US southeastern states. My beam was pointed SE, not NE that it would be if I were trying to work into Europe.

Out of the blue an English station calls me. He has a pretty strong signal. There is no way it could be open to the UK, and if it were, he would be very weak even if the beam was pointed in his direction. I must be copying his call wrong. I was on CW. I had him repeat his call four or five times and got the same one each time. OK, log it. It is probably someone in Florida pirating a G0 call, or maybe a friend of mine was pulling my leg. I was tempted to delete it so I would not have a score reduction but decided just to leave it in.

As usual, I uploaded the logs to the ARRL for the entry and then to Logbook of The World (LoTW). A few days later I had a confirmation that indeed I had worked England on 10 Meters! How was that possible? There was probably some scatter mechanism. From time to time, I have worked into Europe from scattering off Africa or the Atlantic Ocean. Both the G0 and us would have propagation to the area, but the rough surface of the earth bounces the signal in a different direction than it was traveling. Most of the time, such signals are weak and have a hollow sound to them. This one did not. So, it will remain a bit of a mystery, but a lucky break. I doubt many other Wisconsin stations got that multiplier.

We are learning a lot of new things about propagation. One thing is that the ionosphere is not smooth but rough. That can affect how signals are refracted back to earth—or not refracted back to earth. It appears that events in the lower atmosphere can bubble up and affect the ionosphere.

There is a lot of research into this. Did you know that you might be aiding in this research? If you use one of the digital modes, automated receivers pick up your signals and report them to sites like pskreporter. This site creates maps that show who is hearing and working what on the bands. They also store that information in a database. University scientists use these databases in their research.

One group doing this is HamSCI, a collaboration of ionospheric scientists and hams. You can learn more about them at https://www.samsci.org

Last month I mentioned the Propagation Summit put on by Contest University one January 23. One of the talks was by Nathan Frissell, W2NAF, the founder of HamSCI. He gave an update on the work they are doing. There were other interesting talks on propagation that day. If you missed it, you can view the recorded presentations at https:///www.contestuniveristy.com/files/

Also, mark your calendars. Both of these have upcoming online conferences in the next few months. HamSCI is having a two-day workshop on March 19-20 (Friday and Saturday). I attended last year, and it was excellent. It was also my first experience with Zoom presentations. It is amazing how something new can become a part of everyday life less than a year later.

Contest University is a one-day event on the Thursday before Hamvention. As you probably heard, Hamvention 2021 was canceled. CTU is switching to a virtual event like they did last year. They will be doing it on May 20. Check the home pages of these organizations for more information.

HamCation was another event that has been hit by the pandemic. It is a big hamfest that occurs in Orlando Florida. A lot of snowbirds down there attend, and others plan a Florida trip around it. They are moving it to February 11-13. There will be webinars on Saturday and Sunday. They are running four tracks, Contesting, Technology, Vendor talks, and a Youth track. You can choose from four presentations each hour. More info at https://www.hamcation.com/about

I don't know. This pandemic is affecting my life more than I thought. It seems that every weekend that there is not a big contest, there is a great online radio event to attend. I'm glad I am retired so I can recover and catch up with other things during the week!

Another event to mark on your calendars is the Wisconsin QSO Party. It is Sunday, March 14. Last month I told you to mark it down on your calendar. You probably said to yourself you would do it but forgot. So get up from your computer and go mark it on your calendar right now. I will wait for you to get back.

Last year we won the in state club competition for the WIQP, and we should do it again. If you can get on the air in any manner, you can contribute points to the club effort. The information is on the West Allis Radio Amateur Clue web site. www.warac.org and follow the links to the WI QSO Party for the rules.

Other contests for February and early March include the ARRL DX contests. The CW weekend is February 20-21 (UTC), and the phone weekend is March 6-7. You work DX stations and send a signal report and state. They send a signal report and their power. Do not work Canadian stations. Alaska and Hawaii are considered DX. Full rules are at www.arrl.org/arrl-dx If you are operating the phone session for the first time, here is a tip. A lot of DX stations are not all that familiar with US states. Instead of saying 59 Wisconsin, say 59 Whiskey-Italy. They have to type WI into the log, and giving them the letters phonetically makes it easier. Sometimes I slip into the more traditional Whiskey India, which sometimes gets translated to Indiana in their minds.

The NAQP RTTY contest is on February 27. It starts at noon local time and runs 12 hours but only operate 10. Send name and state. Full rules at https://www.ncjweb.com/NAQP-Rules.pdf

Big DXpeditions are about as common as passenger pigeons during the pandemic. There are single op efforts. They are usually part of a vacation or business trip as times allow. A friend of mine from up near Green Bay (sorry, I didn't mean to bring that up after the terrible NFL Championship game), Tom, AA9A, will be down in Sint Maarten for February 27 through March 27 with the call PJ7AA. Give him a call if you hear him and tell him about the cold and snow we have to make him feel good.

A couple of French hams will be activating Monaco, February 27- March 2. They will be using 3A/home call. They will be on 20 and 40 meters, SSB and digital.

This month's QSL is from the Soviet Union before it fell apart. Back then, ham radio in the USSR was very different. They called it Radio Sport. Competitive things like contesting and fox hunts were the primary activities. You could work them, but the QSO was usually limited to signal report, name, and QTH. Sometimes they would mention power and antenna. You didn't hear if it was sunny or rainy because weather information was considered strategic information during the Cold War.

Getting a license required a lot of work. They started out as SWLs and had to collect so many to move to the next step. I used to get a lot of them. Eventually, they could get a license to transmit. Due to all the training, they were generally excellent operators. Much of the activity was from club stations. You could tell a club station because they had the prefix UK.

There was only one way to get a QSL. That was through their QSL bureau at PO Box 88, Moscow, USSR. It often took years to get a QSL. They didn't have money for fancy QSLs, and most were a single color ink printed on cheap paper. Often they were a generic QSL where the call sign was added with a rubber stamp.

You didn't mark the Wisconsin QSO Party on your calendar, did you? I'm serious about this! Go do it now!

That wraps up this month's commentary. See you on the air.

Vintage Magazine Cover Art

By Pat Volkmann, W9JI

Our cover this month, “A Loose Coupler”, is from the February 1923 edition of Radio News magazine. In 1923 radio was just starting to enter the boom years. Sales of radios of all types would increase tremendously over the next few years. We see a young man, with a well-appointed station, being scolded by Mother for operating his radio set late into the winter night. Many of the magazine’s readers, as well as many modern hams, could relate to the lure of the late night radio session.

The “Loose Coupler” is a type of transformer that was used with a crystal detector. The device used loose (as opposed to tight) coupling to achieve selectivity without losing sensitivity. By 1923 the loose coupler would have been replaced by the variometer and variocoupler.

“A Loose Coupler” – Radio News, February 1923

Repeater Tones and IDs

By Nels Harvey, WA9JOB

There has been more attention given to the three Ozaukee Radio Club repeaters recently. The recent survey as well as the Covid “Stay at Home” has brought an “Uptick” to the usage. It occurred to me that there are many new members that do listen, and wonder what the various beeps, or tones, represent.

First, if the 224.18 MHz repeater or the 146.97 MHz repeater hasn’t been used for about ten minutes since it last ID’ed, you will hear it say “W9CQO”. Then after each transmission you will hear the reset beep, or beeps. The 443.75 MHz repeater does not have this voice feature.

The repeaters all have a three-minute timeout timer. When using the repeaters, wait for the reset beep after someone else’s transmission. When you hear the reset beep(s), the timer is reset and you have a full three minutes for your transmission.

The repeater will ID every ten minutes in CW when in use. After your QSO, the repeater will do a final ID in CW ten minutes after its last ID. If the repeater remains unused for ten minutes after the last CW ID, the next time someone accesses the repeater, the Voice ID will be heard.

On Tuesday at 8 PM we hold an informal Net. During the net the reset beeps represent the letter ‘N’, for Net. The main site receiver timeout timer is set for 10 minutes when the ‘N’ ID is heard.

The controllers that do these functions have been in service for more than 20 years. When they were programmed, notifications about impending weather events were programmed as well. Now, with cellphones, we all get the notifications, and there is no need to depend on the repeaters. Nevertheless, a control operator may change the reset to a ‘W’ in CW, or even “Tornado Warning” by voice if it is appropriate.

All three ORC repeaters are kept in good operating condition by Gregg, W9DHI, Tom, KC9ONY, and their control operators. The .97 repeater has five remote receive sites so your low power HT can be heard, and can sound as good as most mobile and home stations over a wider area.

So, turn your radio on, key your mic, wait a half second so the PL can respond, ask “Is anyone around?” and perhaps you can have a nice QSO with someone you know!

Ozaukee Radio Club "Key Up" Activity

Purpose: To encourage use of the Ozaukee Radio Club (ORC) repeaters.

Objective: **To contact 15 or more ORC members using any of the ORC repeaters.**

Who can participate: All licensed hams are welcome to join in.

Date and Time: The event will begin on February 13, 2021 at 1:00 P.M. Central Time and end at 8:00 P.M Central Time on March 7, 2021.

Mode: FM

Exchange: Call sign and name

Entry: For each contact, record the call sign, name, date and repeater used.

Award: Qualifying entries may request a certificate.

Rules:

1. All contacts must be made using one of the ORC repeater systems during the activity period.

Frequency	Offset	PL Tone
146.970	-	127.3
224.180	-	127.3
443.750	+	127.3

2. You can work any ORC member, but only once, for credit.

3. Contacts made during the Tuesday net do not count for credit.

4. Logs may be paper or electronic – Cabrillo, .doc, .docx or plain text format.

5. Entries will be reviewed by the Awards Manager.

6. The Awards Manager may verify some or all of the contacts claimed for credit. All decisions of the Awards Manager are final.

7. All entries must be received by April 1, 2021.

8. Send your entry to kboston6@wi.rr.com

Spring Swapfest 2021 Update

It's with sadness that I report that the ORC Board and I have decided to cancel the 43rd Annual Spring Swapfest for May 1, 2021. It's become clear that the rollout of the vaccine isn't going as fast as hoped. Even so, there would be those who are already vaccinated that might not attend or volunteer to help out like in the past.

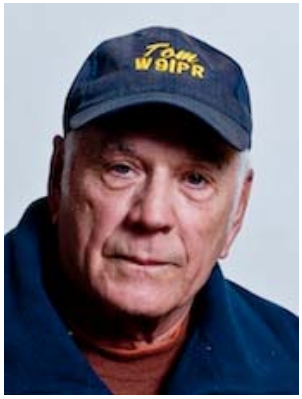
In addition, the Columbia St. Mary's Center is rather expensive, and we would need a certain amount of vendors as well as attendance to break even. We discussed the possibility of trying to find an outdoor venue, such as Firemen's Park where the ORC Fall Swapfest is held. However, late April/early May weather is so iffy, we could not guarantee a successful turnout. Let's hope that we will be back to "normal" in May of 2022.

I have informed Tower Electronics, who was our cornerstone vendor for the Spring Swapfest, about the cancellation and naturally they're disappointed but they understand. I told Scott Cole that we would try and steer some web business their way. Scott told me that there are a number of swapfests going on down south in Indiana, Florida, and Georgia if you wanted to travel. If you need something and were planning to buy from Tower Electronics, their website is http://www.pl-259.com/. I'm sure they would appreciate your business.

Tom Trethewey, KC9ONY
2021 Spring Swapfest Chairman
Ozaukee Radio Club, Inc.

Scholarship and STEM Awards

By Tom Ruhlmann, W9IPR



The ORC has for many years accepted donated radio equipment and then sold it at swapfests, the auction, eBay and to other interested individuals. Typically, we first determine its condition and then offer it for sale. For many years we offered a $1,000 scholarship award to a Wisconsin youth amateur radio operator. We accumulated a significant balance in the scholarship account thanks to Ed Rate, Stan Kaplan and others who have participated in the efforts. A couple of years ago we committed to a $2,000 annual scholarship award administered by the ARRL on our behalf of the ORC.

There will be excess funds beyond the $60,000 commitment to the ARRL endowment and we plan to establish a STEM project to follow similar procedures but assure the award goes to a “local” individual or program.

Some of the various actives involved in the Scholarship/STEM project are:

1. Keeping records of donations and providing “value” letters to donors for tax records
2. Pickup of donated equipment
3. Pricing (valuing) donated equipment using eBay and swapfests etc. as a reference
4. Checking-out donated equipment for condition and operability.
5. Handling occasional eBay sales
6. Assisting in exhibit and sales at ORC and potentially other local swapfests
7. Promoting the availability of the ARRL ORC scholarship and the locally awarded STEM project funds.

If you have a willingness to get involved in ORC projects and an interest in the above activities contact Tom Ruhlmann (W9IPR) at 377-6945 or at teruhlmann@wi.rr.com.

Ham of the Year Award Ballot for 2021

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):

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
2009 WA9JOB Nels Harvey
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

My vote for the 2021 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 1, 2021

Turkey of the Year Award Ballot for 2021

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):

1981 W9NHE Ted Willett
1983 WA9JOB Nels Harvey
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 K9DRQ Bill Church
2019 W9MXQ Bill Shadid
2020 W9KEY Fred Schwierske

My vote for 2021 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 1, 2021

Ozaukee Radio Club
January 13, 2021 Meeting Minutes

de Ken Boston W9GA

This ORC meeting was conducted via an online (internet) connection using the ZOOM app. Prior to the meeting start, those members who were able to access the 'waiting room' via phone or computer/webcam were then introduced into the meeting space hosted by Pat W9JI. At that time various audio and video connection issues were addressed for the members before the meeting began.

ORC President Pat W9JI officially initiated the meeting at 7:38 PM, as introductions were recognized when members checked into the meeting, a go-around was not conducted. A general comment period was held; W9IPR will conduct the elections with help from Pat W9JI; WT9Q is logging in from FLA; W9KEY mentioned the Madison DX club program; WH6ZZ in Hawaii is available for 10 meter contacts; N9UUR is available to help with WAS applications to ARRL.

Officer Elections for 2021:

Club Nominations for the year 2021:

President:	Pat W9JI	[incumbent]
1st Vice President	Ben K9UZ	[incumbent]
2nd Vice President	Bill KB9DRQ	[incumbent]
Repeater VP	Gregg W9DHI	[new]
Secretary	Ken W9GA	[incumbent]
Treasurer	Gary N9UUR	[incumbent]]

No other nominations were entered into the ballot process.

Stan WB9RQR moved to select and elect the entire slate as presented; Nels WA9JOB seconded. The membership at large by voice and raised hands elected the slate unanimously. Tom KC9ONY has stepped down as Repeater VP, and was thanked for his service, along with his hosting of the Tuesday Night Net.

Committee reports:
Tom KC9ONY [repeater] reports that the repeater system is running well. Recent Tuesday Night Net check-ins were at 10 members. Some comments on the repeater survey report and on some recent check-ins.

Tom W9IPR [scholarship] updated the members on the silent auction still in process for items at the barn.

Gary N9UUR [treasurer] mentions that renewals now total over 70 members. The Audit Committee met and reviewed the budget and financial details, noting that revenues were down, and so were expenses; Jim K9QLP mentioned that it went smoothly. W9MXQ moved to accept, WA9JOB seconded, motion carried.

Ken W9GA [secretary] has posted minutes of the December meeting. WB9MXQ moved to accept, WB9RQR seconded, motion carried.

Tom W9IPR [scholarship] informed members of the upcoming ARRL report of scholarship activity.

OLD business; Mike KD9GCN conducted a review of the repeater survey recently conducted; there were 39 responses with percentages to several questions indicated, along with specific observations.

W9JI ran a timer to track usage, which was low; W9KEY had made an analysis of the repeater usage, showing the 146 mHz system running as the main usage machine; W9IPR reiterated the need for the repeater as an emergency resource, enhancing our tax free status; WB9RQR reminded us of the agreement with OZARES; WA9JOB mentions that digital modes may require more attention in the future; W9IPR says that LeFrog has digital modes; KD9QLJ reminded that the share-net with OZARES is active.

NEW business:

W9JI and W9GA reminded the members that award nominations for Ham and Turkey {of the year} are open, as well as many others noted in the bylaws. Email your selections to Ken W9GA.

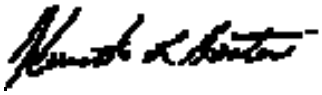
Pat W9JI announced the creation of a 'Key-up activity' to promote FM repeater activity within the club system. This activity will encourage the members to contact 15 or more of the members on our ORC system, over a month long period; details to come shortly.

Gary N9UUR has indicated that the 2021 budget and financial details will be presented next month.

Adjournment:

There were 37 members (unique callsigns) on the ZOOM meeting. Contact Ken W9GA to obtain the list. Stan WB9RQR moved to adjourn, Todd N9DRY seconded the motion, and motion carried. Meeting ended at 8:53 PM.

Respectfully submitted,



Kenneth Boston W9GA
Secretary

Upcoming ORC Monthly Meeting Program

The upcoming program at our February meeting will be *"Creating a Multi-Voltage Bench Power Supply or VHF/UHF Power Supply from an Old ATX Computer Power Supply"* presented by Tom Ruhlmann (W9IPR).

These ATX supplies are often available from Stan (WB9RQR) at our auctions for under a dollar.

Creating a Presentation

Almost all 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 Power Point 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 w9ji@arrl.net to discuss your idea for a program.

ORC Meeting Agenda

February 10, 2021

1. 7:15 – 7:30 PM – Check-In and Introductions
2. 7:30 PM Call to Order – President Pat Volkmann (W9JI)
3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
4. Presentation: Tom Ruhlmann (W9IPR)
5. President's Update – Pat Volkmann (W9JI)
6. 1st VP Report – Ben Evans (K9UZ)
7. 2nd VP Report – Bill Church (KD9DRQ)
8. Repeater VP Report – Gregg Lengling (W9DHI)
9. Secretary's Report – Ken Boston (W9GA)
10. Treasurer's Report – Gary Bargholz (N9UUR)
11. Committee Reports
12. OLD BUSINESS
13. NEW BUSINESS
14. Adjournment

Meeting Note:

For the foreseeable future, we will be holding the meetings via the Zoom Videoconferencing platform on the same evening and time as we had the in-person meetings. Sign-in info will be emailed by President Pat Volkmann, W9JI via the ORC remailer usually about an hour before the start of the meeting.

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting via Zoom
February 10, 2021

7:15-7:30 PM – Check-In
7:30 PM – Meeting Begins

The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Ben Evans, K9UZ. Permission to reprint articles published in any issue is granted provided the author and the Ozaukee Radio Club Newsletter are credited.

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 XXXIII	March, 2021	Number 3

From the President

de Pat Volkmann, W9JI

The ORC "Key Up" contest has been running for over two weeks now and has generated much enthusiastic activity. Most of the contacts have been made on the 2 Meter repeater (146.97). When I was on the other day, the repeater was busy for over a half hour with people making contacts. If you haven't given it a try yet, you still have some time. The event runs through March 7th, the Sunday before the next meeting. In case you haven't heard, the Key Up contest is about contacting 15 ORC members on one of the club repeaters. Complete details were published in the February newsletter and also in the email reflector on groups.io.

While we are having a good time on the repeater, I can't help but be aware that many of our fellow hams in Texas have not been so fortunate. Extensive, prolonged power outages combined with unusually low temperatures made for a hellish week for millions of people. The Red Cross asked for activation of the regional ARES groups to help with "the effects of the natural disaster, which included a lack of drinking water, power outages, fuel shortages, and frozen plumbing, among others." It's been many years since we have had to deal with a prolonged power outage in Wisconsin, especially in winter. Would we know what to do and be able to respond as effectively as the Texas ARES volunteers?

The Wisconsin QSO Party will be held on March 14, 2021, which is the Sunday following the March ORC meeting. Last tear the ORC took first place in the club competition and was awarded a very nice plaque. To help get everyone informed and involved in this year's activity, Michael Johnson, WO9B, will give a brief presentation on the WiQP at the March ORC meeting. We will also have a WiQP breakout room following the Zoom meeting to give everyone a chance to get their questions answered.

At the March meeting this year Ken Boston, W9GA, will once again be the Master of Ceremonies for the presentation of Club awards. There was a nice write up in last month's newsletter describing some of the awards. Be sure to send in your nomination for Ham and Turkey of the Year to Ken, along with your pick for any of the many other honors that we have available to bestow on our fellow hams.

Club Treasurer Gary Bargholz, N9UUR, reports that we have 97 paid and 17 family memberships for a total of 114 ORC members. Many of those are renewals from previous years but we also have a number of new members. Be sure to say hello and welcome our new members. Have you renewed your membership? If you're not sure ask N9UUR and he can let you know if you are up to date.

Just before the really cold weather set in, I managed to get my HF wire antenna back up. It's a design that I came up with to fit the space between several trees in my yard. It looks something like a tripod, with three wires emanating from a central high point. The antenna is fed at the end of one of the wires, similar to an end fed sloper. The antenna covers 160 through 10 meters and is tuned by a Palstar AT5K. I was in the ARRL CW DX contest for a few hours and had a chance to check the antenna out. Fifteen meters was open during the afternoon, which was a real treat. Contacts were made with Europe, South America and Asia on 15, 20 and 40 meters. The most distant station was ZM1A in New Zealand on 40 meters at 11:30 PM. Lots of fun with 100 watts into some wires.

See you at the meeting.—Pat Volkmann, W9JI

THE COMPUTER CORNER
No. 276: Reducing the Pain of an OS Upgrade

Stan Kaplan, WB9RQR 715 N. Dries Street Saukville, WI 53080-1664
(262) 268-1949 wb9rqr@att.net

*This article was written by Mark Siegesmund, President of West Mountain Radio, and it appeared in their **The Beacon** newsletter, 2020 Quarter 4 issue. Reprinted with permission. It turns out that Mark worked for me when I was running the Department of Anatomy and Cellular Biology at The Medical College of Wisconsin. I hired Mark as a programmer back when he was still in high school. He successfully wrote software and the operating system (similar to CP/M but different from it) that allowed us to put a dumb terminal in every faculty member's office or lab so they could write scientific papers and have their writings saved by a single CPU on a floppy in the departmental office. The secretary could then format an article properly, correct the English and otherwise fix it up and print it. When the faculty member approved it and added the needed illustrations, it would be sent off to the scientific journal for peer review and publishing. My department was the first in the nation that had this kind of facility, back in the era of 8-inch floppy drives and total system memory described in a few kilobytes, not mega or gigabytes!0—Stan, WB9RQR*

A lot of our customers are upgrading their operating systems frequently due to hardware failures. Others are holding on to a OS they know, out of fear of the unknown. This article covers some of the basic concepts of upgrading. Hints and links to utilities are provided to help make the new operating system effective.

A quick history lesson showing the most important releases:

1985	Windows 1	No one really noticed, everyone is using MS-DOS.
1992	Windows 3.1	The first release of Windows that caught on.
1995	Windows 95	Big cleanup of 3.1, now 32 bit, more consumer friendly.
1996	Windows NT 4.0	A lot of hype. New kernel. High security. Big flop.
1998	Windows 98 and ME	Windows 95 with out of the box networking and better graphics.
2000	Windows 2000	A cleaned up version of NT marketed to corporations.
2001	Windows XP	Modernized version of 98. Well received. Also a 64-bit version.
2007	Windows Vista	Took NT/2000 and put in the popular XP features. A flop.
2009	Windows 7	Vista, minus what people didn't like most.
2012	Windows 8 and 8.1	Windows 7 plus a smart-phone-like human interface. A flop.
2015	Windows 10	Took 8 and made the user experience more like XP.
***	***	Microsoft says there will be no more names. They have had several major versions since the initial release, all called Windows 10. Each release seems to be more internet/cloud dependent.

Compatibility

The primary concern for application programs is if they are 16, 32 or 64 bit programs. Windows only allows running one step down. A 64 bit Windows 10 will not run old 16 bit programs. It can, however, run a 32 bit Windows 10 on a 64 bit machine. A 32 bit OS can only access 4 gig of memory, so be aware. Sometimes the programs themselves will check the OS version and they will not run if it is higher than what they are designed for. Windows has a way around this where users can set it up to lie to the application about what the version is.

Drivers are much harder to use between versions of Windows. Check to see if the drivers needed, like for a printer or other connected device, are available for the new OS version. Using the older drivers on a newer version of Windows frequently will not work.

When upgrading from Win7 or Win8 to Win10, Win10 will keep the programs installed. To upgrade from older systems, upgrader programs like Laplink can help. Either way, Windows keeps a copy of all old documents in a file called c:\windows.old. After installing, the first step is to rename that file. Windows will delete it when it thinks it is unneeded.

Virtual Machines
Virtual machine software allows users to customize an environment that can emulate a specific hardware platform. This allows loading another operating system running under the primary operating system. For example, on a new Windows 10 system, virtual machine software can be installed and then load a full XP operating system on the same machine. In the case of Windows, a license key is still required to install it. When discarding an old XP or other machine, keep the key so it can be used for a virtual machine. Older programs and drivers should be able to run under the virtual machine. XP runs extremely fast on a modern PC. A virtual machine is also a great way to start playing with Linux. Most Linux operating systems are free. 16 bit programs from the Win98 days can still be used on a virtual machine. See the references at the end of this article for help getting started.

About Windows 10
Out of the box, Windows 10 is strongly tied to the Internet. Some users will appreciate the convenience of keeping things up to date behind the scenes and giving hints based on Internet queries. Other would prefer their OS would only access the Internet when specifically requested. When first installing Win10, disconnect from the Internet to bypass creating a Microsoft cloud/email account. After installing, there is a utility that can be used to control privacy settings. See the references for a link. For total control, use an outgoing firewall. This can be used to block any program not specifically authorized from accessing the internet. There is a bit of a learning curve to set this up properly, but it can be very effective. It may bother people that the XBOX software they never use or installed is doing who knows what on the Internet, then this will help. XBOX seems to be one of the software programs Microsoft installs and does not let users uninstall.

Win7 to Win10
It may still be possible to upgrade from Win7 to Win10 for free. You can try using your Win7 license key to activate Win10. There is more information on a link in the references. Win10 can be downloaded from Microsoft, then burn it to a flash drive using Rufus and use the existing key to get a fresh install of Win 10.

Hard Drives
Windows 10 can only be installed on a disk with the newest file system type (NTFS). There will be no problem starting with a clean drive. Otherwise, the older FAT32 file system needs to be converted to NTFS before installing Win10. Note that there are two popular disk formats, MBR and the newer GPT. Windows 10 will work on both but if starting clean it would be best to format the drive for GPT and a NTFS file system. The last time I tried to install Win10 on a FAT32 partition, I got a cryptic error with a giant number. The error messages may have improved since then.

Removing Extras
There is another utility that can be used to uninstall programs users do not plan to use. This is an easy way to get rid of a lot at one time. Be aware there are two type of programs under Windows 10. The traditional type of programs run when double clicked, or they can be set up to run on startup. The newer style programs are called apps and those are usually running in the background. Menu squares (also known as live tiles) on the Win10 start can be seen with programs showing the current weather and news when users click on start. These are the mobile phone style apps that are running.

Start Menu
Many find the new style of start menu hard to use, especially for traditional programs. I have a recommendation for yet another utility that will restore the start menu to something more traditional (and usable). This is the first thing I install on Windows 10 systems. *[The original of this article showed here a snapshot containing a new Win8/10 style start menu next to a more traditional start menu. Majorgeeks has a number of programs that will allow a more traditional style start menu under Windows 10.–Stan]*

Web Browser
Microsoft Edge is the newest web browser. Microsoft works very hard to get people to make that the users default browser. Even if users resist and install another browser like Firefox, Edge keeps coming back. Edge runs as an app and some apps like that do not run when users operate as an administrator, so I never gave it much of a chance. I never was a fan of the Microsoft browser, since the older IE seemed to be a virus magnet and tended to corrupt downloads. The newest version of Edge has a Chrome engine behind it so it works very similar to Chrome. I do not have an opinion as to how good it is. I have not had trouble with Firefox so that is what I use. Many others seem to prefer Chrome.

File Security
File security will take some getting used to if users are coming from XP. There is a way to turn off all file security, but Windows will punish users if they do it. Security is set up as if a lot of people were using the same PC and want to keep some data private from other users. The problem is that the vast majority of people have one user per PC and file security just gets in the way. It is further complicated by special rules and exceptions to try to keep popular older programs running. For example, in the XP days, a lot of programs kept user settings in the program files directory. Windows 10 does not allow writing to that directory, so when a program attempts to do that, it goes somewhere else instead. When a program tries to read the data from program files it goes to the secret directory to get the file. This works until a user tries to delete files or move data on their own. My recommendation to reduce grief is to just put all the files created somewhere under the documents folder. By default Windows makes those files broadly accessible. If users have programs written before 2006, they probably want to install the programs directly under Documents instead of under program files or directly under the root directory (c:\).

Administrators
If there is only one user, then they are probably set up as the PC administrator. In Windows 10, that does not mean what it used to. For programs that require administrator privileges, users will be prompted to confirm they want to run it. For programs that need administrator privileges, but do not know it, or if the programs were written before Windows 7, they need to right click on the icon and select RUN AS ADMINISTRATOR. There are some exceptions to make things less objectionable. For example, if they run a program with setup in the name it will run as an administrator. There is also a hidden administrator account that will give users more privileges if they log into it. Google "hidden administrator" for more details. Some buttons in Windows will have a shield on them, meaning if users click on it, it will do what they want in administrator mode. This replaces the nag that would pop up in older versions.

Updates
Unlike previous versions, Windows 10 makes it very hard to prevent automatic updates. We bring a bunch of laptops to shows to use in demos and we frequently have a laptop or two down for a couple of hours doing an update. Newer versions of Windows allow users to defer updates for some (small) number of days. Frequently the updates begin when users first power on the PC and I have not found a way to stop it. PCs could be in transit for more than a week before being powered up so the deferral feature is less useful. If users get internet over WiFi they can mark the WiFi connection as being metered and then tell the update utility not to update over metered connections. This is the easiest way to stop updates. A reference is provided for more advanced situations. Be aware when it is updated, these tricks likely will change.

Searching
Starting with Win7, searching became a bit difficult in Windows. They now have a search box in the upper right of the file explorer window for searching. When they start typing in there, other search options appear at the top of the window. This only searches the computer drives for the files users are looking for. I frequently have trouble getting this to find all the files and I have not figured out why. It may only look for certain types of files. I use a command line version of grep for local searches but would prefer a good GUI version. In Win10 users can also press the Windows key and S to bring up a search window. That version of search sometimes also looks on the internet. The search Microsoft is pushing in Win10 is called Cortana. It will transfer audio from the Mic or typed in questions to Bing for answers. The easy way to just turn it off is to right click on the taskbar and select SEARCH > HIDDEN. See the references to prevent the audio from being sent to Microsoft.

Backup
We all know backing up is important, or at least we do when a drive crashes. To avoid crashes, users may want to just replace their hard drive after 30,000 hours of use. The cost is low compared to dealing with a crash. The most annoying thing I have found in backup utilities is many companies stop supporting their own backup formats in newer versions of the software. For example, I cannot read my Win98 backups under Win10. For people that do not have a lot of data, just copying everything to a DVD periodically is one solution. I found the Win7 backup program works well. By installing a second backup drive users can set it up to automatically keep an archive of their data on the second drive. Win10 includes the Win7 utility, but it needs to be turned on. I am currently using the EaseUS backup utility and have found it effective, but it does have a learning curve. The Win10 out of the box backup might work for some people, but it does seem to think it is smarter than the user and it does some scary stuff. One more hint, make a copy of the C:\boot directory if a full backup is not done. I have had that directory get corrupted twice during a power failure. When corrupted, the PC will not boot.

Conclusion
It takes some effort to configure Windows 10 to be most effective for users, however, it is quite usable. As for bugs, it is probably about the same as XP. The difference is we have had time to get used to the XP issues. Windows 10 blue-screens maybe once a month, about the same as XP and much better than 98. More and more software is only available for Windows 10 and many companies will not provide support for older OS hosts. It can be valuable to upgrade during free time.

References: This list has URL links and a search term to use if the link does not work.

Better Start Menu
Search: open shell download
https://github.com/Open-Shell/Open-Shell-Menu/releases/download/v4.4.152/OpenShellSetup_4_4_152.exe

Privacy Settings Utility
Search: OOSU10
https://www.oo-software.com/en/shutup10

Fast Uninstaller Tool
Search: Bulk Crap Uninstaller
https://www.bcuninstaller.com/
Virtual Machine
Seach: VirtualBox
https://www.virtualbox.org/wiki/Downloads

Free Linux
Search: Linux Lite or Ubuntu
https://www.linuxliteos.com/download.php

Maybe get a free upgrade from 7 to 10
https://www.cnet.com/how-to/how-to-download-windows-10-for-free-now-that-windows-7-is-dead/

Convert drive to GPT or manage drive partitions
Search: Mini-Tool partition manager
https://www.partitionwizard.com/free-partition-manager.html

Stop auto update
Search: stopping windows 10 update
https://www.windowscentral.com/how-stop-updates-installing-automatically-windows-10

Really stop voice activated searching
Search: getting rid of cortana
https://gadgets.ndtv.com/laptops/features/how-to-disable-cortana-on-windows-10-1683223

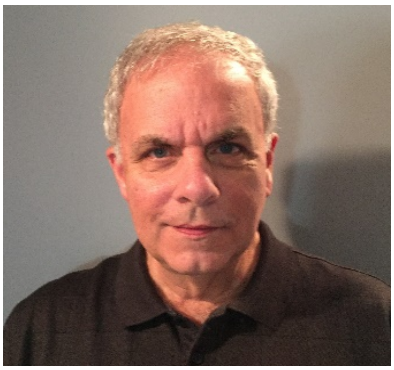
Find out how many hours the hard drive has run
Search: crystal disk info
https://crystalmark.info/en/software/crystaldiskinfo/

Outgoing Firewall:
Search: WFC firewall
https://www.binisoft.org/wfc.php

The older style calculator
Search: Microsoft Calculator Plus
http://download.cnet.com/Microsoft-Calculator-Plus/3000-2053_4-10628441.html

Vintage Amateur Radio

de Bill Shadid, W9MXQ



If you were licensed in the 1950's and 1960's (or even earlier!!) you experienced what we now know was the dawn of the ham radio transceiver concept. At the same time, we unknowingly watched the separate receiver and transmitter in the ham shack fade away.

Licensed in 1964, I was able to see first-hand the early SSB equipment which at that time was brand new, or at least not really at the time what we would have called, "Vintage Amateur Radio," as I pen this article series today.

My first complete ham station was made up of relatively new equipment at the time – it was used but not out of date. It consisted of a Hallicrafters SX-101 Mark III Receiver (introduced in 1958) and an E. F. Johnson Valiant Transmitter (also introduced in about 1958). My SX-101 was soon replaced by a brand-new Hammarlund HQ-170AC in 1965. Today, all three of those radios are considered not only Vintage but the last version of the HQ-170AC (the HQ-170AC/VHF) is hard to find.[1] So, I was born into ham radio when the separate receiver and transmitter were king.

Transceivers date perhaps from the late 1930's and units like the portable RCA ATR-219 Transmitter/Receiver for the 5-meter band. It cost, about $20.00 then (not including batteries, tubes, or microphone). A similar cost competitor was available at the same time from Allied Radio under the Knight brand[2]. These were AM radios and were separate receivers and transmitters in a single cabinet – not true transceivers.

In 1946, Abbott produced a 2-meter AM receiver/transmitter, called the TR-4B, that sold for about $20.00 in that year[2]. Abbott and the TR-4B model number have no relationship to the later TR-4, TR-4C, TR-4CW, and TR-4CW/RIT transceivers from R. L. Drake Company.

By 1953, the Gonset introduced the Communicator AM Receiver/Transmitters[2] for the 50, 144, and 220 MHz bands.

Gonset Communicator

Gonset Communicator IV

Uncredited Internet pictures

These Gonset "transceivers," as they were called, were like the predecessors mentioned above – not real transceivers, as we know them today. They did not share circuitry between the receiver and transmitter. The Gonset rigs were known to those of us then as "Goonie Birds" or "Gooney Boxes" and were dominant in emergency communications.

There were also similar VHF receiver/transmitter radios from Sonar, Sperti, Polycomm, Clegg, and others in that popular VHF AM market. All of this was before the wide availability of surplus commercial FM equipment that drove the boom in VHF FM communications and repeaters.

The first successful high-frequency receiver/transmitter was marketed by Hallicrafters in late 1950 with their model SR-75 – essentially a Hallicrafters S-38 Receiver that included an internal low power CW transmitter covering the 80-10 meters. As with all the above[4] receiver/transmitters, this radio was crystal controlled on transmit.

Hallicrafters SR-75 Transceiver from 1950

Uncredited Internet picture

So, there you see it – the Hallicrafters SR-75 that is the grandfather of that modern transceiver that sits in your ham shack. The SR-75 is still not a true transceiver but at least it is a product focused on the high-frequency part of the radio spectrum. In case you were wondering, the tune and load controls for the transmitter are on the rear panel.

But, the true SSB/CW transceiver, was on the horizon even in 1950. Actually, there were two manufacturers in the forefront of this new market – a market perceived in the 1950's that was quite frankly a bit of a risk. Both Collins and Hallicrafters were ready to move forward in mid-1957. It was a complete change in the concept ham radio operators had accepted from the beginning – we thought the receiver and transmitter were two different animals that were impossible to combine. For sure, the "transceivers" thus far introduced were packaging marvels – they took separate devices and conveniently installed them into a single cabinet. The cabinetry was designed to look like a single operating entity. They were so cleverly designed that users thought of them as a single device.

Back in that time frame, Collins introduced their ground-breaking, compact KWM-1 Transceiver. First shipments to dealers took place in August of 1957.[2] But, at the same time, Hallicrafters was announcing the coming of their even more ground-breaking FPM-200 HF Transceiver.[3] There were major differences in the concept of these two radios. Below are pictures of those now famous transceivers. (Well, at least famous if you are a ham radio operator.)

Collins KWM-1 HF Transceiver with 516F-1 AC Power Supply
HF Coverage limited to 20, 15, and 10 Meters

W9DYQ

Hallicrafters FPM-200 HF Transceiver with P-200 AC Power Supply
HF Coverage of 80-10 Meters

W8ZR

Both radios are in the 100-watt power output category on SSB and CW. The KWM-1 was heavily based on the popular, at the time, Collins 75A-4 Receiver and KWS-1 Transmitter. It was a vacuum tube design which then was very acceptable. Hallicrafters, however, produced a hybrid transceiver in the FPM-200 – it was all solid state (Germanium transistors!) with vacuum tubes for the driver and two final amplifier tubes. There were also two vacuum tube regulators in the power supply. While the KWM-1 used known technology with some significant packaging design, the FPM-200 completely changed the design concept. The FPM-200 included two separate VFO's with separate pointers on the slide rule dial. The KWM-1 lacked any separation of receiver and transmitter frequency.

Only a few months after the 1957 Collins' release and Hallicrafters announcement, Cosmos Industries introduced the Cosmophone 35^3 Dual Receiver SSB/CW Transceiver. It had dual VFO's as you can see in the following picture:

Cosmos Industries Cosmophone 35 HF Transceiver

WA5UEK

The Cosmophone 35 was produced in small quantities and ultimately was removed form the market. It was a vacuum tube design with a single 6146 final giving an output of 35 watts on SSB and CW. A few later production units used a single 4CX250B final amplifier for a power level of 1,000 watts and was called the Cosmophone 1000. Given the tube and the power level, that had to be input power. The Cosmophone transceivers used Collins mechanical filters and were very robustly made.

Hallicrafters made up for its extremely limited production of the FPM-200 with the popular, vacuum tube SR-150 HF Transceiver in 1961. Two years after the introduction of the Collins KWM-2 HF Transceiver. Both were 80-10 meter transceivers with the Hallicrafters being 150 watts input and the Collins being 180 watts input. Both were SSB and CW only.

The Hallicrafters SR-150 was offered in a complete station setup:

Hallicrafters SR-150 HF Transceiver
with PS-150-120 Speaker/AC Power Supply

W9MXQ

Hallicrafters also offered a 3-400z Triode equipped matching HT-45 Linear Amplifier for 1,000 watts SSB and CW Input Power. The SR-150 had Receiver Incremental Tuning.

Collins KWM-2 HF Transceiver
with 516F-2 AC Power Supply and 312B-5 Station Console

W9MXQ

Collins also offered a 4x 811A Triode equipped matching 30L-1 Linear Amplifier for 1,000 watts SSB and CW Input Power.

Some other early entries into this market were the National NCX-3, HF (80, 40, and 20 meters) Transceiver from 1962:

National NCX-3 HF (80, 40, and 20 Meters) HF Transceiver

WA6DIJ

Others came a bit later – some were noteworthy by the fact that they had extremely limited production or never made it beyond the prototype stage. One such radio was the E. F. Johnson Avenger HF Transceiver and another, more popular, SBE SB-34:

KØMYW

W9MXQ

The left above is the E. F. Johnson Avenger[3] HF Transceiver. Note the dual VFO controls at either side of the dual pointer slide rule dial. It is said that most of the units produced stayed with E. F. Johnson employees.[2]

To the right above is the SBE (Sideband Engineers[3]) SB-33 HF Transceiver. It covered only 80-15 meters. SBE was successful for a time in the market. Their offerings (including the SB-33, SB-34, and exceedingly rare SB-35 models) were essentially SSB radios with little attention paid to CW. Production moved overseas with the SB-35 and SB-36 models and CW became an included mode.

A bit off topic because it was not SSB, an extremely popular transceiver of the day, with separate receiver and transmitter, was the Gonset G-76. It was an 80-10 meter AM/CW Transceiver – with plate modulated AM. It was introduced in 1960 – right as the SSB boom was beginning:

Gonset G-76 AM/CW HF Transceiver – 80-10 plus 6 Meters

RigPix

The G-76 closed in a bit on the true transceiver concept with audio-based circuits common between receiver and transmitter.

Gonset did attempt a full SSB Transceiver in the GC-102, but it was not successful. They can occasionally be found on the used market – but are certainly quite rare.

Gonset GC-102 HF Transceiver – 80-10 Meters

Uncredited Internet picture

Gonset's separate SSB/CW/AM/FM GSB-100[3] Transmitter and GSB-101 Linear Amplifier were marketed successfully for a time.

In the period between the Gonset G-76 and the GC-102, Gonset founder, Faust Gonsett (note the difference in name spelling) left Gonset to help found Sideband Engineers. It seems that when Gonsett left Sideband Engineers that company also began to drift away from successful product offerings. That is just my opinion from a lot of reading of the history of those companies.

The last player to be mentioned here is Hammarlund Manufacturing Company – one of the earliest manufacturers in radio and one that was nearly dominant in SSB Receivers well into the SSB era. They announced a PRO-200[3] HF Transceiver in 1963 that was never produced. Then in 1964 they released and then quickly withdrew the HXQ-300[3] HF Transceiver.[2]

There were other players in the market as the transceiver came on the scene. But this article deals with transceivers. Other manufacturers were in the single sideband market, some significantly so, but with stand-alone transmitters. Included were Lakeside Electronics, Central Electronics, Hunter, Eldico, Reliant, and others.

Special thanks go to Bob, W9DYQ, for his proof reading. I appreciate that you read my articles. Remember that I am open to questions and comments at my email address, W9MXQ@TWC.com.

Notes:

[1] Many thousands of the Hammarlund HQ-170, HQ-170C, HQ-170A, and HQ-170AC were produced, to be sure. However, the last version, the HQ-170AC/VHF, is difficult to find, today.

[2] Reference Mike O'Brien, KØMYW, in some of his writings – publication not identified.

[3] Subject of a future article.

[4] Some of the Communicator models included in integral VFO for the transmitter. Other brands offered external VFO's. Stability could be an issue so a lot of use for emergency communications were handled with crystals to control transmitter frequency. The integral VFO's in at least the Gonset units used a different dial scale so had a separate readout panel on the radio – or simply a calibrated knob.

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

March. In like a lion, out like a lamb. Or something like that. Maybe. What you can count on is that if it is March, it is Wisconsin QSO Party time. This is the one time the rest of the ham world is looking to contacting us.

Last year a few of us tried to get some activity in the ORC, and we won the club competition for state clubs. Nice job! Now we are at the top, we need to stay there, and we are a target, so we must be even better this year.

The WiQP allows everyone with a license to participate, and we will need more ORC participants than last year. VHF contacts must be made on simplex frequencies. HF contacts can be made on CW, digital, and phone. Note that FT8/FT4 contacts are not valid for the WiQP. Those modes can't support the exchange. I expect RTTY is the best choice for digital, but I don't know if there is any activity there.

Your score is the number of QSO points times the number of multipliers. Multipliers are states and Wisconsin counties. That is multiplied by a power factor. You want a good mix of lots of QSOs and multipliers.

You will send your current county. Other Wisconsin stations will send their counties, and the rest will send state or Canadian province. Signal reports are optional.

I will describe some suggestions for maximizing your score. Follow as many as you can, consistent with your station, license class, and skills.

First, read the rules so you know what you can and can't do. They are online. https://warac.org/wqp/wiqp_rules.htm

There are VHF suggested frequencies in the rules. You are not allowed to use repeaters. Having a beam will help to get other counties. Another option is to go mobile. If you go mobile you can work everyone again once you get to a new county. On top of that, if you make 12 or more contacts in a county outside your home county, you get 500 bonus points. Hitting a few counties can rack up some serious bonus points.

If you do go mobile, drive safely. It is best to have someone else drive. Going to a high point and parking will extend your range and lead to even more contacts.

It will be easier to work a lot of counties and states on HF. You will work most WI stations on 40 during the day and on 80 after dark. Note that we have been getting long skip, and many WI station signals will be bouncing over our heads. Get to 80 a little before sunset, and even check it out a couple of times before.

You can work many states on 40 and 80 meters, but a couple of trips to 20 meters will help get some distant states. It is well worth the effort. Keep the trips to 20 short, maybe 20 minutes at a time. You will want to get back to the lower bands to work the mobile stations.

Many of the rarer counties don't have anyone participating in the WIQP. Your only shot is to work a mobile station as they pass through. The strategy for them is to work 12 stations in a county as fast as possible, get their 500 bonus points, and move on.

They will be on 20M at the start for the most part. Mobile antennas on 20 are more efficient than 40 and 80 meter ones. There will be plenty of stations in other states to work early on 20 meters, so it makes sense for them to be on 20 meters. Later they will move to 40 and 80 meters. It is frustrating, but that is a fact of life. Being in the southeast corner of the state helps us somewhat.

If you are familiar with the DX spotting networks, use them. That will help you track the mobiles as they move to the next county, and you can work them again. Also, check the WiQP site on Saturday before the QSO Party. Many mobile stations will post their routes and the expected times to be in the counties they hit. It will give you an idea of when to look for them for the next county. Note that many of them will have 2M with them. They might not be a new county when they get in your area, but they are good for another QSO.

Plan on spending 1/2 to 2/3 of your time on CW if you are proficient with it. CW contacts are worth two points. Digital contacts count as CW contacts. Phone contacts are worth one point. Don't spend all your time on CW at any rate. You can work the same station on each band on CW/digital and again on phone.

Also, there will be some WI stations only on phone. You won't make a contact with them unless you go on phone. Also, some rarer counties will have only phone ops on.

Be sure to call CQ at least part of the time. Probably half the stations never call CQ. Out of state stations will rarely call CQ. You will never work them unless you take the first step and call CQ yourself. Furthermore, you can usually make contacts faster if they come to you.

My general strategy is to bounce around a lot and never spend more than 20-30 minutes before switching bands and/or modes. You want to catch openings to different areas and operators on as many bands and modes as possible.

Finally, double-check that you have Ozaukee Radio Club listed on your submission. Spell out the club name and don't enter ORC. We want your log to count!

Other than the WiQP, March is not a big contest month. One big one in March is the ARRL DX Phone contest, but it will be over by the time you read this.

The WPX Phone contest is March 27-28. You work everyone, everywhere. QSO points depend on distance and band. It is somewhat complicated but explained in the rules, and your logging program will figure it out for you. Multipliers are call sign prefixes, i.e., W1, W2, N3, K3, WA4, WB5, etc. Having a call like WT9Q is much better than, say, W9XT. Full rules are at https://cqwpx.com/rules.htm

April is also a quiet month as far as contests go.

After nearly a year, we have an interesting DXpedition happening! Cocos Keeling will be on March 16-23. The group includes ten ops. They will be on 80-6 meters, SSB, CW, and FT8. The call sign will be VK9CE. This is a challenging path from Wisconsin to the island northwest of Australia. I need it on a bunch of bands and on digital, so I hope to fill a few band slots.

One of the few benefits of the COVID lockdown is the expansion of technologies like Zoom that lets us meet virtually. Members who can't attend meetings because of distance or other reasons can now participate. Many clubs have opened their meetings to everyone. Conferences that are in-person events are often now open to all online. There are two big ones this month.

The first one is the QSO Today Expo on March 13-14. They had the first event last August. They had many exhibitors and a ton of excellent presentations on just about every aspect of ham radio you can imagine. Over 16,000 attended last year.

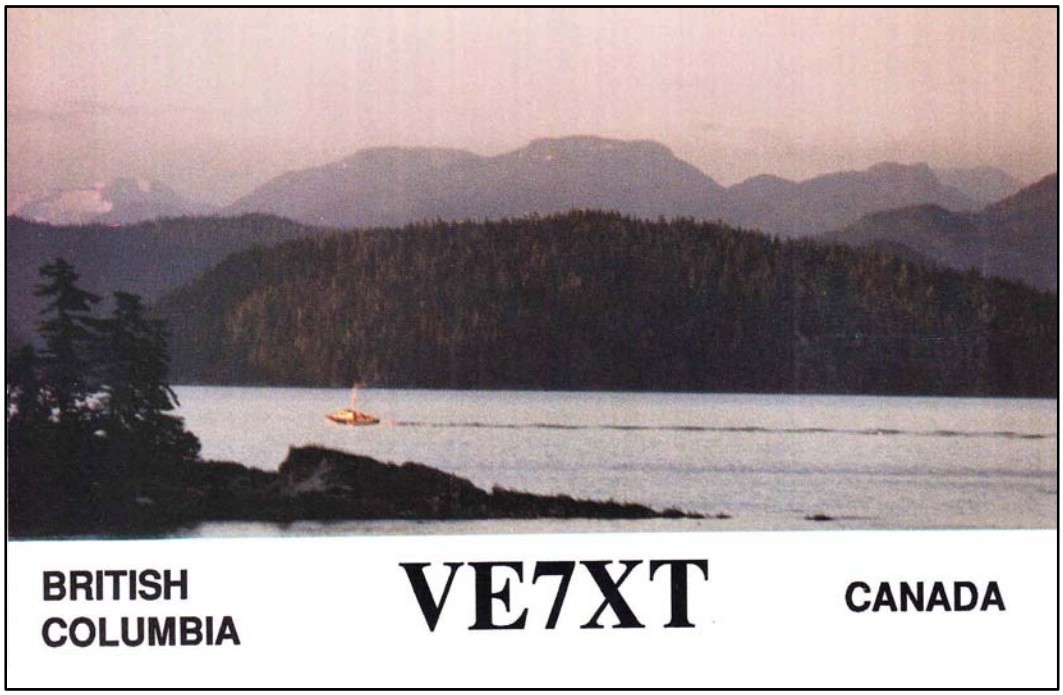
It was free to attend last year. Due to the cost of putting this on, it will cost $10 to attend. That is not much more than a hamfest ticket, but this runs for two days, and so far, there are over 80 presentations scheduled. By registering, you get 30 days access to the presentations, so if you can't attend some or there are two on at the same time you want to see, you have a chance. More info at www.qsotodayhamexpo.com They have an early bird price, so if you plan to attend, it is probably a good idea to sign up right away.

Now, those with sharp eyes might have noticed that it is the same weekend as the WiQP. I will be exhibiting with my company Unified Microsystem (Slinger Wisconsin's largest ham radio manufacture!), so I will miss a large part of the WiQP. I am also tentatively scheduled to give a presentation. So, the rest of you will have to pick up for me slacking off.

Another great event is the HamSCI workshop. https://www.hamsci.org Normally an in-person event, they made it virtual last year. It was my first Zoom event. They are doing it the same way again this year.

HamSCI is a group of university researchers working with hams and citizen scientists to understand how space weather and radio propagation work. They had a lot of interesting talks last year. This is Friday and Saturday, March 19-20. Details on the event are not finalized on their website. Check again as we get closer to the date.

This month's QSL is from VE7XT. I like to collect QSLs from other stations with the XT suffix.

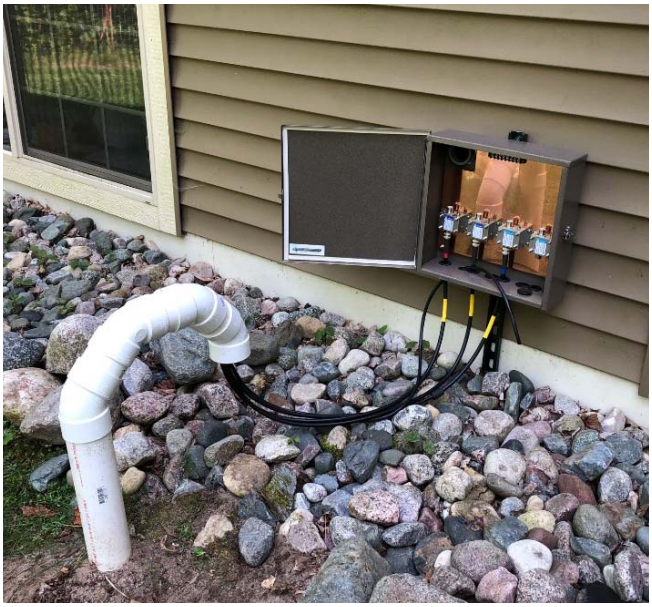


That wraps up March on the air. Hopefully, it will be warmer, and the snow melted. I have antenna work to do!

Remote Station Building, Part 4

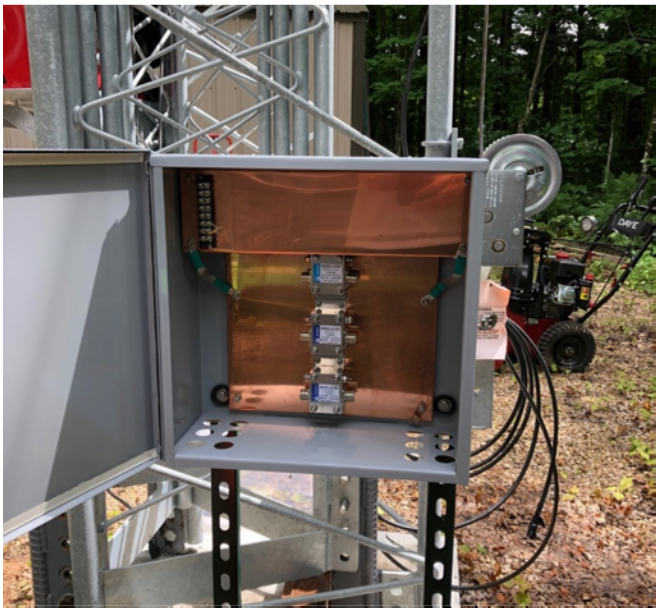
de Jeff Whisler, W9KW

I spent much of Covid summer finishing the hardware details of my project. With the help of some friends, we pulled three runs of low loss coax and a length of rotor cable from the entrance panel at the house to the distribution panel at the tower a distance of about one hundred feet. I bought the entrance panel, distribution panel and lighting arrestors from KF7P. These items are very high quality. Chris even painted the entrance panel to closely match the siding on the house. Here is the entrance panel:



The lightning arrestors are mounted on a solid cooper plate. The plate is connected by #6 solid cooper wire that is welded to an 8-foot ground rod.

Here is a picture of the distribution panel at the tower:



After working with the tower for a month or so I grew very tired of the of effort required to raise and lower the tower as well as tilt the beast over for tuning and adjustment. I went back to KF7P and Chris sold me an adapter plate that allowed me to install a motorized winch to raise and lower the tower. I installed a Harbor Freight 2000-pound winch and now it takes less than a minute to fully raise or lower the tower. I also got an accessory from the tilt winch manufacturer Dutton-Lainson that allows use of a slow speed high torque mixer to tilt the tower over. Again I bought a mixer from Harbor Freight and it has saved tons of energy, tons….get it? With these two additions I can have the tower lowered and tilted over in less than 15 minutes.

Here is the winch on the adapter plate:

I spent some time referring to the ARRL book on Grounding and Bonding. I also watched a presentation on the subject by the author, H Ward Silver, N0AX. I admit I did not follow his recommendations 100%. I didn't have the money and my body just isn't up to that much pick and shovel work yet. I did place four eight-foot rods around the tower about eight feet from the legs. Each leg was connected to a rod and all the rods were joined together with #6 solid cooper wire. The wire and rods were exothermically welded together, no clamps to loosen or decay. The welding is done using a product from Harger sometimes called a "one shot". There is a ceramic mold that goes over the rod and the wires also go into that mold. A thermite mixture is placed into the mold and ignited. The resulting combustion welds the parts together securely.

Here is one of the welds:

I spent the last few weeks of September dressing up the cables and making things look pretty both outside and inside. I also began testing my remote software across two LANs. One day we had some high winds and a bit of rain. Outside with the dog, I noticed to my horror that the wind was lifting the beam up on its "Tilt Plate" hinge and slamming it back down. I quickly ran inside and turned the beam to stop that from happening. This is a known problem with this arrangement. The solution is a specific mechanism called a KAR lock. I hoped to avoid the cost but not so. The lock prevents the beam from lifting more than an inch or so in high wind and yet it still tilts for maintenance. The lock is shaped like a big letter **J**.

Here is a picture of the lock:

Just as we were preparing to move to our new condominium in Lannon we were notified that our internet provider was going out of business. This was a huge blow. Fortunately, T-Mobile began offering a rural cellular remote service at the same time. While it isn't an unlimited plan so far it seems to have enough speed and bandwidth for my needs. There are rumors that a broadband expansion grant will be available in our area this spring. I sure hope so.

As I write this we are moved in and I am trying to set up my new shack. I have plans for some radios here in Lannon but most will be remote operation. As you might guess I have had some teething pain but nothing serious so far. In the end I am using Win4ICOM suite at the radio site to control the IC-7610. I am using AnyDesk to remote into that computer and Skype for audio from Lannon. I hope to eliminate Skype soon. I have several other programs running or available all remotely. I use MS TeamViewer as a backup to AnyDesk. I need to work out logging / contesting.

Here is the finished tower bathed in wintery frost:

I hope you work me during the Wisconsin QSO party from Langlade County!

73, Jeff W9KW

Vintage Magazine Cover Art

By Pat Volkmann, W9JI

Our cover this month, “His New Enemy”, is from the March 1920 issue of Radio Amateur News. The dog appears to get a leg up on the cat, pressing the key with his paw while the cat is a bit too close to the rotary spark gap. The spark gap comes to life and seemingly electrifies the cat. The arcing of the spark and whine of the motor would have been quite loud and, no doubt, very startling to the feline.

A spark gap transmitter produced radio waves from an electric spark. The development of high power transmitting tubes at the end of WW 1 spelled the end of the spark transmitter. The continuous wave oscillator, invented by Edwin Armstrong in 1912, was to replace spark transmitters by the early 1920s. Radio operators were called “Sparky” for many years after the spark gap disappeared.

“His New Enemy” Radio Amateur News March 1920

Repeater Tones and IDs

By Nels Harvey, WA9JOB

This is a reprint of the article in the February ORC Newsletter, with a few comments added that probably should have been included in the Newsletter. This email is being sent now because of the 15 ORC member contact challenge on Club repeaters that's now underway.–Nels, WA9JOB

There has been more attention given to the three Ozaukee Radio Club repeaters recently. The recent survey as well as the Covid "Stay at Home" has brought an "uptick" to the usage. It occurred to me that there are many new members that do listen, and wonder what the various beeps, or tones, represent.

First, if the 224.18 MHz Repeater, or the 146.97 MHz Repeater haven't been used for about ten minutes since it last ID'ed, you will hear it say "W9CQO". Then after each transmission you will hear the reset beep, or beeps. The tones represent the CW letter T, or if there is a weather event, CW letter W. The 443.75 MHz Repeater does not have this voice feature. Instead it will transmit W9CQO/R with CW tones.

The repeaters all have a three-minute timeout timer. When using the repeaters, wait for the reset beep after someone else's transmission. When you hear the reset beep/s the timer is reset and you have a full three minutes for your transmission. Our repeaters all are operated in "Automatic" mode and three minutes is all the time permitted by the FCC for "Automatic Mode".

The repeater will ID every ten minutes in CW when in use. After your QSO, the repeater will do a final ID in CW ten minutes after its last ID. If the repeater remains unused for ten minutes after the last CW ID, the next time someone accesses the repeater the Voice ID will be heard.

On Tuesday at 8 P.M. we hold an informal Net. During the net the reset beeps represent the CW letter 'N', for Net. The main site receiver timeout timer is set for ten minutes when the 'N' ID is heard. Since there is a control operator overseeing the net, the three-minute timeout timer limit is not necessary and can be extended as desired. We set it at ten Minutes. The five remote receive sites remain at three minutes timeout however.

The controllers that do these functions have been in service for more than 20 years. When they were programmed, notifications about impending weather events were programmed as well. Now, with cellphones, we all get the notifications, and there is no need to depend on the repeaters. Never the less, a control operator may change the reset to a 'W' in CW, or even "Tornado Warning" by voice if it is appropriate.

All three ORC repeaters are kept in good operating condition by Gregg, W9DHI, Tom, KC9ONY, and their control operators. The .97 repeater has five remote receive sites so your low power HT can be heard, and can sound as good as most mobile and home stations over a wider area.

One other good operating tip: Remember, if your signal is picked up by one of the remote receivers, it takes about 200 milliseconds for the PL tone to respond. It then needs to be detected at the main site, where another 200 Milliseconds is needed, before your signal will be

heard. The technique of keying the mic and immediately talking, like on single sideband on the low bands, will result in dropping the first couple of letters from your call sign. Even if you are into the main site there is a bit of delay.

So, turn your radio on, key your mic, wait a half second so the PL can respond, (This is important) ask “Is anyone around?” and perhaps you can have a nice QSO with someone you know!

Wisconsin QSO Party

March 14, 1:00-8:00 PM Local

Let's win the state club category again!

Every entry helps!

KA6LMS - Special Radio Event

The Last Man Standing Amateur Radio Club is joining with a team of seasoned special-event operators across several states to present a multi-band, multi-mode special event celebrating the prime-time network TV show for its positive and accurate portrayal of amateur radio. During its nine seasons, the Last Man Standing ARC also operated as KA6LMS from real radios on the set during production breaks, making thousands of contacts with the showâ€™s amateur radio fans.

The special-event team includes the Long Island, N.Y. - based Great South Bay Amateur Radio Club, the 12 Days of Christmas and the K2Heroes teams, and a number of guest operators and podcasters.

KA6LMS and a number of affiliated stations will livestream their operations. At times, the Amateur Logic team will pick up video feeds from active stations to provide commentary and context.

The event will start at 00:00 UTC on March 24, 2021 and end at 23:59 UTC on March 30, 2021, the last day of shooting for the show, which is concluding its long, successful run.

The event will feature guest operators with special 1-by-1 call signs in most call sign areas. The 1x1 calls will act as Bonus Stations qualifying contacts to be able to download a "Clean Sweep" certificate. The KA6LMS call will also be used with a /(Call Area) attached to give access around the country.

The intent is to operate on as many bands and modes as possible. Satellite and repeater operation is also encouraged. We want to thank the PAPA Repeater system and Georgia DSTAR. We'll be running on REF012A DSTAR and a DMR TalkGroup via PAPA and REF030B via Georgia DSTAR.

Because of Covid-19 restrictions, operations from the set will be limited to crewmembers at times the stage is otherwise empty. Operations will always be spotted online.

Contact: Lou Maggio NO2C at lou_maggio@hotmail.com

More information: **http://www.gsbarc.org/lms/**

Ozaukee Radio Club
February 10, 2021 Meeting Minutes

de Ken Boston W9GA

This ORC meeting was conducted via an online (internet) connection using the ZOOM app. Prior to the meeting start, those members who were able to access the 'waiting room' via phone or computer/webcam were then introduced into the meeting space hosted by Pat W9JI. At that time various audio and video connection issues were addressed for the members before the meeting began.

ORC President Pat W9JI officially initiated the meeting at 7:34 PM, as introductions were recognized when members checked into the meeting, a go-around was not conducted. A few incidental comments were made by members, including notification by K9DJT that a new group of WSJT modes [Q65] were recently released.

Program:
Tom W9IPR presented a program detailing his project in converting a common computer power supply (the ATX model) for use as a general purpose supply giving +12 VDC, +5 VDC and +3.3 VDC. His use for this supply was to provide DC voltage to an Aircraft panel, used in a mock-up or flight simulator. Tom detailed the color codes of the wiring, and showed how he re-purposed an old Heath equipment case as the PS case, installing and refinishing the cabinet for the supply.

Committee Reports:
Gregg W9DHI [Repeater VP] reports that all repeater systems are operating OK.

Gary N9UUR [Treasurer] states renewals now total over 93 members. WA9JOB moved acceptance, W9DHI 2nd, motion carried.

Ken W9GA [Secretary] posted minutes of Jan 2021 meeting; WB9RQR moved, W9MXQ 2nd, motion to accept then carried.

Tom W9IPR [scholarship] updated cash status of award fund; with $34,000 balance at ARRL, and new balance of $33,038 yet to be transferred.

OLD business: Pat W9JI gave an overview of the repeater 'KEY UP' activity, which will start soon, and encourages the members to participate, Ken W9GA recounted that Ham of the year, and Turkey of the year awards nominations are open.

NEW business:
Gary N9UUR presented the 2021-2022 budget with the details explained. W9QLP moved to accept, W9MXQ seconded and the motion carried.

W9JI put out a plea for a member to take up the chair of the membership committee.

W9IPR indicated the Fall ORC swapfest is scheduled for September 11, 2021 at Fireman's Park.

Adjournment:
There were 41 members (unique callsigns) on the ZOOM site. Contact Ken W9GA to obtain the list.
Stan WB9RQR moved to adjourn, Ben K9UZ seconded the motion, and motion carried.
Meeting ended at 8:40 PM

Respectfully submitted,

Kenneth Boston W9GA
Secretary

Upcoming ORC Monthly Meeting Programs

March – Michael Schultz, WH6ZZ – Marconi's Transpacific Wireless Telegraph
Michael Johnson, WO9B – Wisconsin QSO Party Announcement

April – Fred Schwierske, W9KEY – Aluminum Antenna Mast Project

May – Mike Harrington, KD9GCN – Virtual Shack Tour

June – Ken Boston, W9GA – Field Day

July – Pat Volkmann, W9JI – Members Field Day Reports

Creating a Presentation

Almost all 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 Power Point 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 (underscores between the words left of the "@") to discuss your idea for a program.

ORC Meeting Agenda

March 10, 2021

1. 7:15 – 7:30 PM – Check-In and Introductions
2. 7:30 PM Call to Order – President Pat Volkmann (W9JI)
3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
4. Presentation: M. Schultz WH6ZZ, M. Johnson, WO9B
5. President's Update – Pat Volkmann (W9JI)
6. 1st VP Report – Ben Evans (K9UZ)
7. 2nd VP Report – Bill Church (KD9DRQ)
8. Repeater VP Report – Gregg Lengling (W9DHI)
9. Secretary's Report – Ken Boston (W9GA)
10. Treasurer's Report – Gary Bargholz (N9UUR)
11. Committee Reports
12. OLD BUSINESS
13. NEW BUSINESS
14. Adjournment

Meeting Note:

For the foreseeable future, we will be holding the meetings via the Zoom Videoconferencing platform on the same evening and time as we had the in-person meetings. Sign-in info will be emailed by President Pat Volkmann, W9JI via the ORC remailer usually about an hour before the start of the meeting.

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting via Zoom
March 10, 2021

7:15-7:30 PM – Check-In
7:30 PM – Meeting Begins

The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Ben Evans, K9UZ. Permission to reprint articles published in any issue is granted provided the author and the Ozaukee Radio Club Newsletter are credited.

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 XXXIII	April, 2021	Number 4

From the President

de Pat Volkmann, W9JI

Is Cycle 25 really here? Something sure seemed to be going on the last weekend in March. I was on 20 meters and was able to work DX from Europe, Africa and Asia, all within a few hours. After the sun set, 40 meters was doing pretty well too, both on CW and FT8. The space weather reports, however, are reporting that sunspot numbers are down and that the predicted solar flux over the next month doesn't look too promising. Many of the announcements of Cycle 25 predicted that is would be like the old days all over again – some of the best propagation seen in the last 50 years. Not the case so far, but it sure would be nice.

Do you read newsletters from other radio clubs? I read a lot of them every month to keep up with what's going on in other ham organizations. One observation that I make, again and again, is that the ORC Newsletter is one of the best. We consistently put out over 20 pages of high quality content, all of which is generated by members of our club. There are no special qualifications required to write an article – you already have what it takes. I'll be that you (yes, YOU) have done something interesting that we would like to hear about. Gary Sutcliffe, W9XT, thinks so too. In his column this month, Gary has issued a challenge to ORC members to become an author for the newsletter. Check it out.

Field Day is coming up in a couple of months and it looks like we might be able to go ahead with a group outing this year. Restrictions on gatherings have eased and many of us have had the Covid 19 vaccine. At the April meeting I will run a poll to see how much interest there is in getting together for Field Day. The Field Day site has been reserved, so we will have a place to gather if we so decide. We'll talk about it again at the May meeting. We don't have to decide anything for a while yet, but I do want to see how much interest there is and under what conditions people would be willing to meet.

The Zoom Breakout rooms after the Club meeting have become a very popular feature. The breakout rooms allow us to meet in small group and chat a about a subject. Topics from the previous meetings have been Morse Code, computers, contesting, help with radio setup or whatever people wanted to talk about at the time. We have learned a few things about using the rooms and hopefully that will ease some of the confusion.

One important thing we learned is that you need to keep your Zoom client updated to the latest version. Zoom doesn't prompt you to do it, it has to be dome manually. They continue to make improvements in the client and you need the latest version. The other thing that we've learned is that rooms were set up for Windows 10 on a laptop or desktop computer. If you join the meeting using another platform (Linux, iPad, phone, etc.) you may not see the same controls for the breakout rooms. We've been able to make this work out and it's easier now that we have some insight into what is going on.

A Zoom meeting and a conversation on the repeater have something in common – only one person can talk at a time. We need to take turns talking to make sure that everyone is heard. It's also important to involve everyone in the conversation, especially in a breakout room. If you notice that someone hasn't joined the conversation, ask them what they think about the topic. With every taking turns and joining in the conversation, things will sound more like a roundtable discussion on the repeater rather than a classroom lecture.

See you at the meeting - Pat Volkmann, W9JI

THE COMPUTER CORNER

No. 277: Linux Has a Lot of Updates!

Stan Kaplan, WB9RQR 715 N. Dries Street Saukville, WI 53080-1664
(262) 268-1949 wb9rqr@att.net

Well, that is sort of what you'd expect. I am talking about Linux Mint Cinnamon 20.1 ("Ulyssa"), which is a vibrant, adapting, living Operating System (OS) with many thousands of users around the world, many of whom are finding small bugs and places where updates would markedly improve the system, and they are constantly reporting these to a central gathering site that farms them out to gals and guys who are competent programmers. What is amazing is that these competent guys and gals then write updates to the system at no charge to anyone – just for the satisfaction of improving things to make a great OS even better! Clearly their willingness to do this makes the effort a truly world-wide, cooperative undertaking. The ultimate result is an OS that is initially free of charge and free of any subsequent charges, and much better than the one you have to pay for – Microsoft Windows. I submit to you that at this time, this particular version of Linux[1] has now evolved to the point where it can easily take over the general role of Microsoft Windows. Translation: you don't have to lay out dollars for a Microsoft OS anymore!

Just put the latest copy of Linux Mint Cinnamon, specifically 20.1, on a machine and start learning to use it. The learning curve is not at all difficult if you are migrating from Windows. And, there is this offer: ORC, WiARC or Le Frog members can let me know you want a copy and when, and I will put a disc out for you by my front door for you to pick up (free). You'll get a DVD that you can boot with and play with to your heart's content. It will not change a thing on your machine during your exploratory play, and you can see what it is all about. If you decide it is good, you can tell the DVD it to install Linux by selecting an "Install Linux Mint" icon on the desktop. If you decide not to, just remove the DVD at any time and reboot. Your unchanged computer will be exactly as it was before. And you can always boot with it in the future and click the Install Linux Mint icon to install, if you make that decision. That is called a "live copy", and it is a handy way to explore the OS. No danger, I assure you, to whatever OS was on the machine before you started to play.

So, what can you expect with updates? During January 2021, I installed 9 updates on my Windows 10 machine, including HiBit Uninstaller, K-Lite Codec Pack, Burn Aware Free, VLC Media Player, Thunderbird, Firefox and the major Windows Features 20H2 update which took a really long time to install including several reboots of the machine. You probably know the patter with those reboots – "UPDATING – DO NOT TURN OFF YOUR MACHINE". Windows finishes

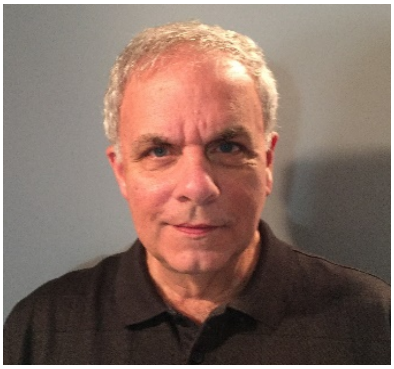
about 30% of the update, then turns the machine off, then restarts and finishes the other 70% of the update, and THEN REQUESTS ANOTHER REBOOT! I really don't understand what they are doing with those multiple reboots, except maybe breaking up the update procedure so the customers will tolerate it better. Anyway, the procedure is a pain and ties up your machine for a really long time.

So that was Windows updates. How about Linux? During the same month, I installed exactly the same number of Linux updates – 9. One included a new release of Firefox, which is part and parcel of the OS package. One of those updates was major, an upgrade from version 20.0 to 20.1, and it did require a (single) reboot. But, all of these updates were relatively painless. A small shield found in the tray (taskbar, at the bottom of the screen) lets you know that one or more updates are available by showing a numeral in the center of the shield. If nothing is in the shield or just a check mark, your machine is up to date. If updates are available, you can choose to ignore them, or click the shield to show them. You can tell it to update, which it will do in usually only a few seconds to download and install whatever is needed, followed by the message that your machine is up to date. If it was a (rare) major update, it will ask you to reboot to finish the installation. Clean and simple. And, you do the updates when YOU want to. There is no nagging as there is with Windows. More important, it is almost always very quick and almost always does not require a reboot.

So there you have it. A no-risk, no-cost offer. It could very well be worth your time. Happy computing!

Vintage Amateur Radio

de Bill Shadid, W9MXQ



One of the last of what we refer to as the large post-WWII American manufacturers to design and market amateur radio equipment was Swan Manufacturing. It is true that they did not come on the scene until the 1950's, but still they were once one of the largest, if not the largest manufacturer of amateur radio equipment. They survived into the 1980's and went through name changes. During their time as Swan Electronics and were acquired by the conglomerate, Cubic Corporation. That led the former Swan operation into military electronics where they exist to this day making communication products as a part of Cubic's many operations. Some of those Cubic communication products lend their roots back to the Swan product line, even now.

The point that Swan was once one of the largest, if not THE largest, producer of ham radio equipment in the United States comes from Ray Grenier, K9KHW, retired Sales Manager of the Amateur Electronic Supply (AES) chain of stores[1]. Ray noted that at one time Swan products accounted for the major portion of the new product warehouse space at the AES anchor store in Milwaukee, Wisconsin. For the most part, Swan was known for making equipment that focused on SSB. In some models, Swan radios did reasonably well on AM as well. All had the capability to operate on CW – but CW was an afterthought on most Swan branded models. Like Collins transceivers, KWM-1 and KWM-2 models, CW was difficult without a Remote VFO because there was no way to adjust the offset between receive and transmit to get the most comfortable receive tone. To be fair, unlike Collins, there was at least a reasonable CW offset built into Swan models. This acceptable offset was also present in other popular transceivers of the day – such as those from Drake in the TR-4 Series and later the TR7.

This article will not cover a complete story of the many models and ham radio market segments where Swan focused[2]. Instead, it will present a story of one of the last products the company marketed to the amateur radio community – and an attempt to save it from oblivion. That last model was the Cubic Astro 103 HF Transceiver, introduced in 1981.

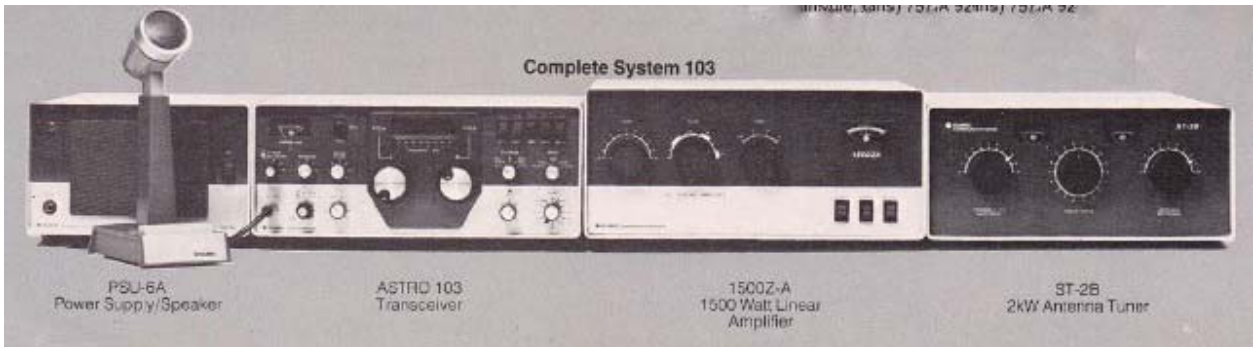
Cubic Astro HF SSB/CW/RTTY Transceiver (included WARC Bands)
W9MXQ Collection

Swan's corporate owners for many years, Cubic Corporation, attempted to jump start the lagging technology in the Swan product line in the late 1970's by acquiring CIR Industries. CIR, with its state-of-the-art digital line of radios, would soon see that technology included in the Swan radio product lineup.

By 1981 and the introduction of the Cubic Astro 103, pictured above, Swan had changed its marketing name to Cubic. The 103 was an improved model of the original concept, the Swan 102BX and the identical but Cubic branded 102BXA. The Astro 103 is about the size of the Collins KWM-2. Some of its important specifications are:

- All Solid State 160 through 10-meter band operation – including the 30-, 17-, and 12-meter WARC Bands (but not the later 60-meter band). Suitable band overlap to allow for MARS operation.
- Provision for feeding antenna line and mute for an external receiver.
- Two discrete PTO (Permeable Tuned Oscillators – variable inductor tuned) for frequency control – with separate selectable VFO operation possible. The Two PTO units could be selected with the PTO MODE switch:
    - **A** – Transceive on the A (left) PTO
    - **RX A TX B** – Receive on the A (left) PTO and Transmit on the B (right) VFO
    - **B** – Transceive on the B (right) PTO
    - **RX B TX A** – Receive on the B (right) PTO and Transmit on the A (left) VFO
    - **EXT** – External Frequency Control (details later in this article)
- Transmitter with 235 watts input (nominal 100-watt output) final amplifier.
- Industry leading QSK CW with operation rivaling or exceeding market leader QSK transceivers from Ten-Tec.
- SSB, CW, and RTTY dedicated modes included. Optional 400 Hz Narrow CW and RTTY i-f filter. CW output pulse waveform shaping front panel selectable.
- Cascaded 9 MHz 8-Pole and 13.8 MHz 8-Pole filters producing continuously variable 600 Hz to 2700 Hz operation i-f bandwidth.
- Continuously variable AGC in addition to I-F Sensitivity and RF Gain controls to allow for maximum receiver sensitivity control.
- Military Grade Glass Epoxy Circuit Boards throughout – in keeping with Cubic's military communication business – which exists to this day.

Cubic also produced a line of accessories for the Astro 103 Transceiver that included:



Left to Right
Cubic PSU-6A Power Supply/Speaker – Astro 103 HF Transceiver
Cubic 1500ZA Linear Amplifier – Cubic ST-2B Antenna Tuner
Cubic Sales Brochure – Cubic Astro 103

As the early 1980's progressed, it appeared that reduced advertising was showing a decline in interest in the amateur radio product line from Cubic. Four of us with experience in the radio broadcast and point to point communication equipment industry were extremely impressed with the performance of the Cubic Astro 103, and felt that there remained a strong market for the products. At the time, I worked with Fred L. (Ted) Bailey, W9DYQ[3], two other fellows in the industry, and a potential manufacturer in Bloomington-Normal, IL, in a study of the possibility of manufacturing these radios under license. Time goes by and now I am left as the only survivor of that team with the others having passed away many years ago.

By the 1980's the Japanese manufacturers were moving ahead, technically, of their American counterparts. While Ten-Tec and by now the Astro series from Swan/Cubic have perfected QSK CW to a high order of performance – far ahead of their rather klutzy Japanese competition – the other parts of the transceiver experience were scoring significant performance points for Icom, Kenwood, and Yaesu.

An important area of study for an updated Astro 103 (which we affectionally referred to as our "Astro 105") was to utilize PLL oscillators in place of the Astro 103's PTO variable frequency oscillators. While very stable for the technology being used, the Astro 103 offered less frequency stability than the PLL VFO's in the Japanese competition. Some breadboarding was done and even tested in an R&D radio we used for our tests.

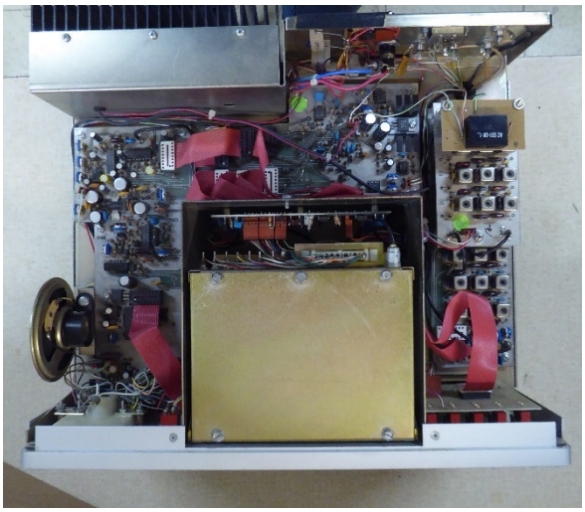
As it turns out (and learned only somewhat later), we were working on technology planned for the never produced Drake TR8 Transceiver, the successful but short-lived Drake RV75 Remote VFO for the TR7, TR7A, and TR5 Transceivers, and the soon to be released (at the time) Ten-Tec Omni V Transceiver. To be fair in this analysis, the Collins KWM-380 HF Transceiver was released with this technology in 1980 – but at a price that kept it away from the main-stream in the amateur radio market.

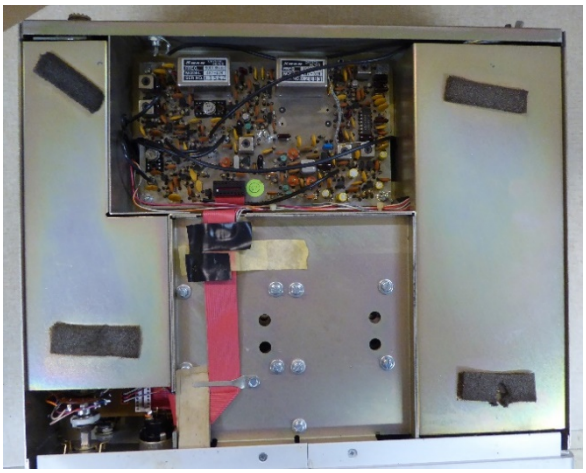
Also coming on stream was the automatic antenna tuner – in its infancy in the early 1980's but available none the less as external and built-in accessories in many Japanese radio models. Like the other American manufacturers, we looked at available third-party automatic antenna tuners and how to perhaps integrate them into our radio. This is as done later by Ten-Tec and their work to integrate LDG tuners within their transceivers and to provide seamless control of the devices as if they were designed into the radio.

An area of concern with upgraded technology in frequency generation was receiver noise. Some of the quietest receivers on the market – even compared to today's radios – were free running VFO's and crystal heterodyne frequency mixing schemes. To this end, we worked with PLL oscillators to replace the PTO oscillators but kept the crystal mixing scheme. Ten-Tec used this same concept with the later Omni V transceiver that utilized a PLL based VFO but kept crystal mixing and was known for its quiet receiver.

The mechanical considerations of the radio design were well satisfied with the Cubic Astro 103 with its Cadmium plated, yellow chromate conversion coated, carbon steel chassis, shields, and painted top and bottom covers. Large scale integration in circuitry had already been seen in Japanese equipment but seemed to be cost prohibitive to the volumes we perceived as attainable for the product. So, we stayed with generally available active devices.

The interior of the transceiver is cleanly planned as shown below:





R&D Cubic Astro 103 HF Transceiver at W9MXQ
Top View (front Panel at Bottom) on the left
Bottom View (front Panel at Bottom) on the right

Some interesting notes apply here. The Cubic Astro 103 owes much of its design to the initial Swan Astro 102BX. However, one of the biggest differences between the two is the appearance of the 30-, 17-, and 12-meter WARC bands on the Astro 103. The picture above, left, shows at the right side, the Preselector Board. At the rear of that board, you can see a smaller daughter that includes the three added bands. (In this view, you can also see an experimental linear amplifier switching board that covers the rear of the three added band preselectors.) Note that bottom shields – left and right sides – do appear in the transceiver at W9DYQ. They are on both transceivers at W9MXQ.

The picture above, right, at the back (top of picture) shows the Exciter Board with the two SSB filters that are cascaded in use – providing for a continuously variable 600 to 2700 Hz bandwidth. Looking carefully at this board shows an open place below the right-hand filter in this picture. Cubic offered a 400 Hz CW / RTTY filter for that location that provided better shape factor than the cascaded filters could provide at that bandwidth. Cubic was focused on good CW performance in this radio.

Above is a beautiful example of the Cubic Astro 103 HF Transceiver in use at W9DYQ. This Astro 103 is equipped with the optional 400 Hz dedicated CW /RTTY filter in the 13.2 MHz i-f. In operation, this filter, in receive, is in cascade with the 9 MHz SSB filter.

Below are a pair of Cubic Astro 103 HF Transceivers at W9MXQ. The top unit is the R&D unit from the 1980's when the analysis was being made. The bottom unit is the regular operation radio. The power supply to the left is the Swan PSU-6 – identical to the Cubic PSU-6A except for the paint scheme. The regular operation unit on the bottom is also pictured at the opening of this article with its own Swan PSU-6 Power Supply/Speaker Console. That unit and the one from W9DYQ are remarkably close in serial numbers.

Cubic Astro 103 HF Transceivers at W9MXQ

W9MXQ Collection

Cubic had a relatively unique feature in the Astro 103 model that was never developed with any accessory. When describing the use of the PTO MODE Switch, above, the EXT position was identified. The relates to the EXT LO (External Local Oscillator) connection on the rear panel – on the Cubic Astro 103 pictured at the beginning of the article:

When the PTO MODE is in the EXT position, the signal from the two PTO units is no longer connected to the radio. That allows the injection of a signal from an external oscillator that was not supported by any Cubic product. As described in the Astro 103 Owner's Operation Manual, a proper signal can be injected trough EXT LO connector on the rear panel. The manual describes this signal as being:

For LSB	For USB and CW
$f_{LO} = F_{CARRIER} + 9.0000$ MHz	$f_{LO} = F_{CARRIER} + 9.0033$ MHz
f_{LO} is the Injected Signal Frequency – keep level at 0 dBm	

Experiments with the R&D unit in the 1980's showed that an external oscillator could effectively replace one or both of the PTO's. Programming one of the many oscillators available these days could easily substitute for transceiver or separate receive and transmit – and allow for today's stability requirements even for digital data modes[4].

One final comment is about the unique marketing philosophy of Cubic at the time. There were essentially two radios that preceded the Astro 103. Those were the non-WARC Band Swan Astro 102BX and Cubic Astro 102BXA. Those two were identical except for brands name (Swan vs Cubic. Respectively) and cabinet color (black vs beige, respectively). Here are the two of them for review:

Swan Astro 102BX HF Transceiver

Cubic Astro 102BXA HF Transceiver

These transceivers are electronically identical.

Cubic Corporation offered a program where for a fee they would convert a customer's Swan Astro 102BX or Cubic Astro 102BXA into a full specification equivalent Cubic Astro 103 – even to the point of a new Cubic Astro 103 front panel. But, as you know about collectors, there are always ways to spot the changed unit. If the unit was a Swan Astro 102BX, the unit retains the black cabinet covers, has a back panel that is unique to the 102BX and 102BXA, and retains its 102BX Serial Number Label. If it was a Cubic Astro 102BXA, the unit retains its back panel that is unique to the 102BX and 102BXA and its 102BXA Serial Number Label. A converted Swan Astro 102BX or a Cubic Astro 102BXA lacks the ability to accommodate an external receiver[5].

Astro 102BX and 102BXA Back Panel
W9DYQ

Astro 103 Back Panel
W9MXQ

A note about the EXT MOD connector – this is in parallel with the microphone jack and allows for such external modulation as from an AFSK sound generator for RTTY or other digital mode.

As is history now, the idea of proposing a manufacturing program for the Cubic Astro 103 and the associated accessories and other Astro transceiver models never came together. It was not for the lack of trying but the cost realities for such a low volume enterprise, the necessary marketing costs to re-invigorate the name, and other related factors left this as a very pleasant exercise with good ham radio friends. Even my friend Bob, current W9DYQ. and I only began discussing it in recent years. But we both now keep our Cubic Astro 103 Transceivers alive and well – and on the bands. In fact, we just found, together, a parts-only unit that will hopefully improve some readout problems for W9DYQ's Astro 103 and provide the optional CW filter for the main Astro 103 at W9MXQ – and a few other parts we can use to keep our radios running in top shape.

In closing this month's Newsletter, I want extend appreciation to the Ozaukee Radio Club for my receipt of the President's Award for helping to produce a great club newsletter. That award also went to fellow long-time writers, Gary Sutcliffe, W9XT, and Stan Kaplan, WB9RQR. Writing has its own rewards, but recognition is certainly welcome and appreciated. I also appreciate being awarded recognition in an International Goodwill Award for these Vintage Radio Articles and the subsequent spreading of the name of the Ozaukee Radio Club in areas far removed from Southeast Wisconsin.

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 bit more than a proofreader as he often adds commentary that makes it into the article. That is truer than ever this month as we shared stories on our "Astro Experience."

Credits and Comments:

[1] This was input received in a personal conversation with Ray Grenier, K9KHW, who for many years was the Sales Manager of the Amateur Electronic Supply (AES) chain of stores. He was at the anchor store and main warehouse for the firm The AES name is now absorbed into Ham Radio Outlet (HRO) (http://www.hamradio.com). Their store in Milwaukee, Wisconsin, is one of the largest HRO stores.

[2] This is the first of several articles on Swan and especially Cubic radios carrying both the Swan and Cubic names. Previous articles have chronicled older models such as the Swan 350 and 500 Transceivers, the Swan 750cw Transceiver, as well as the Swan 600-R / 600R Custom Receivers and 600T Transmitter. The new series will delve into the acquired CIR Astro Transceiver line, the Swan Astro Line, and the final Cubic Astro Line products.

[3] The call, W9DYQ, his now held by Ted's son – my long-time friend, fellow collector, and proofreader of these articles. Robert L. (Bob) Bailey, W9DYQ.

[4] An ideal example of such an oscillator would be the Elecraft XG3 Programmable Signal Generators or the KKmoon KY6800 DDS Dual-channel Function Signal Generator. The KKmoon KY6800 was used to make a general test for writing this article.
[5] The Cubic Astro 103 unit at W9DYQ is, as you can tell from the above, a converted Astro 102BX. In fact, its serial number plate identifies it as so. Also, noting the above comments about bottom shields, the Astro 103 at W9DYQ does not have bottom shields nor does it show evidence of a way to mount them. Did the Astro 102BX not have such shields? The investigation continues!

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W9MXQ

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

Last month I mentioned a couple of online conventions. One was the QSO Today Virtual Ham Expo. Unfortunately, there were a lot of technical problems. People could not get their tickets, many of the presentations didn't work, visitors could not get to the manufacturers' booths, etc. Slinger's largest ham radio manufacturer had a booth and had maybe five potential customers show up. It was disappointing.

My talk on low band antennas did get off with just a few minor glitches. There were about 400 people who watched it live and so far about 850 watched it in replay. I am happy about that.

The talks were all pre-recorded and uploaded a week or more before the event. They are now available online, and you can watch them for free. https://qsotoday.vfairs.com/

You will have to register, but there is no cost. Once you register, you go to the site, which looks like the outside of a convention center. Click to go inside. On the right side is a sign that says "Auditorium." Click on it, and on the screen is the list of talks. You can scroll down and pick the ones that you find interesting. There are over 80 talks on all sorts of subjects. They will be available until April 16. After that, they are supposed to be uploaded to the web, but I don't know how long it will take for that to happen.

The other event was HamSCI. Most presentations were technical, which is why I enjoyed them. The speakers were a mix of scientists studying the ionosphere and radio propagation along with hams. There was one talk that I really liked. It was about sporadic E (Es) propagation titled "Amateur Radio Observations and The Science of Midlatitude Sporadic E" and given by K1YOW.

I hoped they would post it on YouTube or another site, but I could not find it. I did find the next best thing. YouTube had a recording of the entire day's events, nearly 9 hours! https://www.youtube.com/watch?v=-CrvuS0h9XA

Go to the 1:30 point, and the talk starts shortly later. The presentation goes into the things that create the ionized patches that we can use on the upper HF and lower VHF bands for communications. Of particular interest was the correlation of storms in the North Atlantic Ocean and multi-hop openings to Europe. If you are interested in Es propagation on 6M and other bands, it is well worth watching.

As we get into April, the Es season starts up. We have had some small openings at the end of March, but often it starts getting into high gear in late April or early May. Around mid-July it starts to fade out.

Most of the big HF contests end by April, and I tend to shift some of my radio activities to VHF, especially 6M. Mostly I am looking for new DXCC countries with multi-hop skip. In between, I collect grid squares. I know K9DJT and W9GA are into collecting VHF grids as well.

A popular award by the ARRL is the VUCC. You need to work and confirm 100 grids. I originally got it back in the 1980s. It was a lot tougher back then because fewer hams were on 6M. Now, just about every HF rig also covers 6M. That was a big incentive to get on the band. Who can resist having a band switch position on their rig and not put up an antenna? Some, I guess, but certainly not me!

The digital modes also allow making contacts when propagation does not support CW or SSB. Digital is great when propagation is marginal, but if you start seeing your S-meter moving, move down and work some SSB and CW. You can make contacts a lot faster on the traditional analog modes.

There is an extremely tough award, the Fred Fish Memorial Award. You get it by working every grid with land from the continental US on 6M. Only 12 people have accomplished this. W9GA is getting close. Ken is down to needing a couple of dozen grids. Will 2021 be the year he makes it?

This award is tough partially because propagation is not reliable. Openings to some areas may not happen all that often. Others, especially out west, don't have any active hams on 6M. Finally, some only have a tiny bit of land in the grid. Often it takes someone going there DXpedition style to work and confirm some grids. They try to work Es if it is present and switch to meteor scatter at other times.

There is a new WSJT mode available that should help with getting 6M grids. It is Q65. It is designed to use scatter and is good for ranges in the 100-300+ mile range or so. Those distances are sometimes challenging because they are out of the range of line of sight and normal tropo, and too short for Es and meteor scatter.
Q65 is still an experimental mode and is not in the general release of WSJT. My experience is that it is sensitive to settings. There are many options with different transmit/receive sequence times ranging from 15 to 300 seconds. The longer the period, the weaker the signal that can be copied. Longer sequences also mean that it takes longer to make contacts. Then there are the sub-modes A-E, which set the tone spacing.

Unless you have a schedule with the options agreed in advance, you have to figure out what the other station is using. Watching the transmit time of the other station will tell you the sequence length. Once you have that, you might have to try the sub-modes. A, B, and E seem to be the most popular. Timing sequences of 15, 30, and 60 are the ones I have seen, with the 60 second ones being used for moon bounce. Terrestrial seem to be mainly Q65 30A and Q65 15A.

There does not seem to be a lot of use of Q65 so far. I have seen maybe a half dozen on the 6M frequency and worked a few. Some stations were doing live demos with it, and they were making contacts over several hundred miles using 5 watts or so. That was impressive. Some stations have been using it on moon bounce. I had a really good copy on two stations using on

2M moon bounce. Most EME stations are still using JT65 even though Q65 seems to offer better results. Stay tuned as the bugs are worked out on this exciting new mode.

Even if you are not interested in 6M, Es propagation might help other radio activities. I know at least a few ORC members are working on Worked All States on all the HF bands. During the low sunspot period of the last four years or so, there have not been many opportunities to make contacts on 10 and 12 meters. This spring's Es season will be an excellent opportunity to make contacts on these bands. In fact, Es will often be open on these bands when it is not open on 6 meters.

There are no major radio contests in April or early May. There are many state QSO parties and other smaller contests. The same holds for DXpeditions. There are some single operator events planned. Usually, they are operating around work or vacation schedules, so operating times are limited, and often during periods without propagation to the US. For that reason, I usually don't mention them in this column.

Finally, I want to thank Pat, W9JI, for the President's award that he awarded to Stan, WB9RQR, Bill, W9MXQ, and myself for our efforts in helping to produce a great club newsletter. Bill continually works hams around the world who mention reading his column and the newsletter. That is really impressive.

Stan has been writing for 23 years, according to my calculations. This issue will mark the completion of my 19th year. Bill has been writing his column for a few years. That amounts to about 45 years of columns!

I am sometimes disappointed that there are not more articles by other members. I bet you have done something in ham radio in the last year that others would find interesting. I challenge every member to write up something in the next year.

Don't like writing? It is a lot easier than it used to be with word processing software with spelling and grammar checking. If you would like someone to review your article before exposing it to the world (it can be a bit scary the first few times), I would be happy to proof it and run it through a professional checking program I have. I bet the other regulars would be glad to help you out on your first article.

That wraps up April. I have a lot of antenna projects on the list for this year. I'm trying to get an early start this year. We have had some nice warm days in March, but too many are very windy. Climbing towers with 40 MPH gusts would just be insane. Hopefully, we will have a lot of nice spring weather for outdoor activities.

DID YOU KNOW ABOUT ACTIVE WINLINK NETS?

By Stan Kaplan, WB9RQR

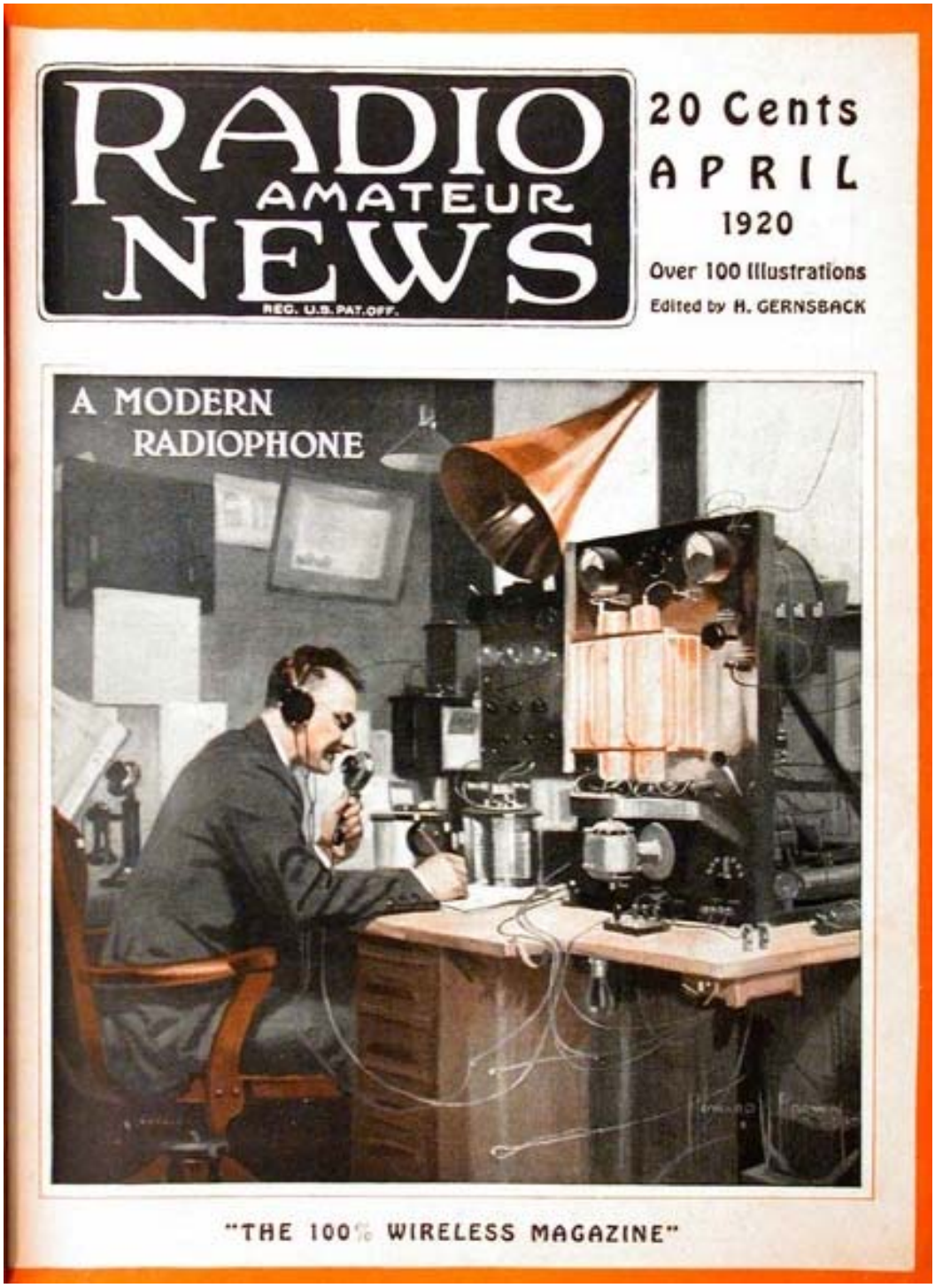
This article describes two such nets. The first has been operating in Wisconsin for well over ten years. "Invented" by Jim Markstrom, KB9MMA (SK) and Jim Darrow, KB9MMC (then Assistant Coordinator for Digital Communications in Wisconsin), the net was at first designed to send pictures, files and text during the Madison-Chicago 200 event in support of their communications during the 200 mile running race from Madison to Milwaukee to Chicago. The heavy use crashed local Winlink nodes with all the traffic! Later the net was changed to a one day format when the event no longer needed ham support. I became the third Net Control Operator and took over the one-day format for a couple of years, followed by the current NCO, KB9MMC. The aim for the redesigned one-day net was simple – to provide a way for hams to do a weekly test of their sending and receiving capability on Winlink. The net is now open to all hams (no constraints – no need to be an ARES/RACES member) each Tuesday for 24 hours local time. In that window, any ham with Winlink capability is invited to check in by sending their name and call sign, city, county (and state if outside WI) to the Net Control Operator, thus: **Jim Ham, WA9ABC, Simville, Rock County**. Sometime the next day the NCO will return a Winlink message to all who checked in containing a list of all who checked in with their check in data. In this way, the individual ham has tested their sending and receiving capability. It works. The first few years it grew from a handful of check ins to over 40, and currently the check in list runs between 70 and 80 each week. Furthermore, quite a few hams from out of state find it useful to check in as a test of their system. You can do it yourself, any Tuesday between 0000 and 2400 hours local time, by sending your information as shown above to kb9mmc@winlink.org. Sometime the next day you should receive a list of all who checked in, in the order checked in, including yourself.

The second net is new. The Great Lakes Area Winlink Net started operation on 10 March 2021, modeled on our Wisconsin Winlink Net as described above. It serves the same purpose – to provide a way that hams can do a weekly check on their sending and receiving capabilities. It is designed for hams in 9 locations: MN, WI, IL, IN, MI, OH, PA, NY and Canada's Ontario Provence – all bordering the Great Lakes. However, check ins are not restricted to hams in those sites and hams from other states and provinces are welcome. You can check in yourself on any Wednesday, (24 hours, your local time) by sending your first name, call, city, county, state and country to the NCO. Example: **Joel, AA9A, Saukberg, Ashland, Wisconsin, USA**. Send it to kb8rcr@winlink.org. Ryan Lughermo, KB8RCR, is ARRL Section Emergency Coordinator for Data Management/Special Projects, Michigan Section, and an Official Relay Station. Check out your Winlink station!

Vintage Magazine Cover Art by Pat Volkmann, W9JI

Our cover this month, “A Modern Radiophone”, is from the April 1920 issue of Radio Amateur News. We see a man operating a phone transmitter. The equipment is very advanced, if not fanciful, with a loud talker (speaker), some very large tubes and many coils. The CW position is seen to the right.

World War I had ended a little over a year ago and hams are back on the air. Radio telephone is a novelty for most hams, who are still arguing over spark versus cw. QST published an article called “Recent Development of Radio Telephones” in June 1920 which laid out the theory and practice of phone communications. The article describes transmitters capable of 1 KW output, but those would surely have been out of the reach of most hams. The first commercial radio station, KDKA, made its debut in November 1920.



“A Modern Radiophone” Radio Amateur News April 1920

Upcoming ORC Monthly Meeting Programs

May – Mike Harrington, KD9GCN – Virtual Shack Tour
June – Ken Boston, W9GA – Field Day
July – Pat Volkmann, W9JI – Members Field Day Reports
August – Tim Duffy K3LR – K3LR Talks About Contesting

Creating a Presentation

Almost all 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 Power Point 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

Ozaukee Radio Club
March 10, 2021 Meeting Minutes

de Ken Boston W9GA

This ORC meeting was conducted via an online (internet) connection using the ZOOM app. Prior to the meeting start, those members who were able to access the 'waiting room' via phone or computer/webcam were then introduced into the meeting space hosted by Pat W9JI. At that time various audio and video connection issues were addressed for the members before the meeting began.

ORC President Pat W9JI officially initiated the meeting at 7:29 PM, as introductions were recognized when members checked into the meeting, a go-around was not conducted. Pat then introduced Mike WO9B from the West Allis RAC who promoted the upcoming Wisconsin QSO party, slated to run on Sunday 3/14 (pi day) from 1PM to 8PM, and invited our members to participate. Gary W9XT then mentioned the upcoming QSO today online hamfest to run on 3/12 to 3/14, available for a $10 fee. Gary is participating in the hamfest as one of the program presenters.

Program:

Mike WH6ZZ gave a presentation on the Marconi Wireless Telegraphy station, located on the north shore of Oahu, Hawaii, near the town of Kahuku. He described the station with it's high power alternators and large antenna structure, which at the time (1914-1924) was the world's most powerful radio telegraphy station. He added that the station was later disassembled, and the property has undergone ownership changes from the military to a private business concern.

Committee reports:

Gregg W9DHI [repeater] reports that all the repeater systems are in good condition, other than a curious digital noise interference signal that has cropped up.

Gary N9UUR [treasurer] states renewals now total over 100 members, we have had minimal expenses, and also reported that the roster is nearing completion. WB9RQR moved acceptance, W9KR 2nd, motion carried.

Ken W9GA [secretary] posted minutes of February 2021 meeting; W9KR moved, W9JI 2nd, motion to accept then carried.

Tom W9IPR [scholarship] indicates no new developments.

OLD business; Pat W9JI reminded members of the ongoing KEY-UP activity, which ends soon, with log info to be sent to W9GA through the end of the month.

NEW business:

Ken W9GA described the awards for 2021; with Pat W9JI winning Ham of the year, and Don K9MOI winning Turkey of the year. There were several other winners for President's, Committtee, Project and other categories.

K9QLP informed the members that Nels WA9JOB is in the hospital, and can be found on the K9QLP 442 MHz repeater. W9KEY wanted to thank Dave N9UNR for his donation of Ham radio books to the Cedarburg library.

Ken W9GA has indicated that Field Day 2021 as a club activity this year is looking good, and took a brief poll of members, where many are ready for the outdoor activity.
The plaque for the ORC club win of the 2020 WiQP was awarded to Jim K9QLP in a random drawing. It was announced that the June Cedarburg Maxwell days is cancelled.

Adjournment:

40 members (unique callsigns) were on the ZOOM site. Contact Ken W9GA to obtain the list.
Stan WB9RQR moved to adjourn, Todd N9DRY seconded the motion, and motion carried.
Meeting ended at 9:12 PM. Following the meeting, several breakout rooms were opened.

Respectfully submitted,

Kenneth Boston W9GA
Secretary

ORC Meeting Agenda

May 12, 2021

1. 7:15 – 7:30 PM – Check-In and Introductions
2. 7:30 PM Call to Order – President Pat Volkmann (W9JI)
3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
4. Presentation: M. Harrington KD9GCN – Virtual Shack Tour
5. President's Update – Pat Volkmann (W9JI)
6. 1st VP Report – Ben Evans (K9UZ)
7. 2nd VP Report – Bill Church (KD9DRQ)
8. Repeater VP Report Gregg Lengling (W9DHI)
9. Secretary's Report Ken Boston (W9GA)
10. Treasurer's Report Gary Bargholz (N9UUR)
11. Committee Reports
12. OLD BUSINESS
13. NEW BUSINESS
14. Adjournment

Meeting Note:

For the foreseeable future, we will be holding the meetings via the Zoom Videoconferencing platform on the same evening and time as we had the in-person meetings. Sign-in info will be emailed by President Pat Volkmann, W9JI via the ORC remailer usually about an hour before the start of the meeting.

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting via Zoom
May 12, 2021

7:15-7:30 PM – Check-In
7:30 PM – Meeting Begins

The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Ben Evans, K9UZ. Permission to reprint articles published in any issue is granted provided the author and the Ozaukee Radio Club Newsletter are credited.

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**

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From the President

de Pat Volkmann, W9JI

The first week in May brought thunderstorms, which are a reminder to me to take a look at my emergency power situation. We have been very fortunate that we haven't had an extended power outage in our area for many years but that can, of course, change with the next storm system. Emergency power isn't just about the radios, you may need to keep your sump pump and refrigerator running too. If you have a generator, make sure that it starts and that you have fuel for a few days. If you use backup batteries make sure that the charging system is working. High capacity LiON battery packs are very inexpensive and can keep your phone working for days. Some advance preparation makes things a lot simpler when the lights go out.

Our monthly club meetings have been on Zoom for more than a year now and it looks like we will be sticking with virtual meetings. When we do resume in-person meetings we will very likely continue to use Zoom in parallel with the live meeting to allow everyone to attend. Gary Bargholz, N9UUR, has edited Fred Schwierske's, W9KEY, talk from the April meeting into a 58 minute presentation. Fred's talk is available through the ORC YouTube channel. The video is "unlisted", so you will need the link (https://youtu.be/TADkUidurQc) if you want to watch it. The link was also posted to the groups.io reflector. Fred's talk has been viewed 21 times so far. If you watched the video, please let me (and Fred!) know what you think.

Ken Boston, W9GA, will be our Field Day chairman again this year. At the last meeting we polled members to see how much interest there was in getting together for a Club Field Day. About of third of the folks present said they would like to participate, assuming proper Covid precautions were taken. We will keep an eye on the situation but I doubt that we will making any firm decisions until we see what things are like in June. Ken is going to need some assistance with Field Day, so contact Ken at kboston6@wi.rr.com if you would like to help out.

Do you use Logbook of the World? If not, you should consider signing up, especially if you use FT-8 or one of the related digital modes. There is no cost to use LOTW, though US hams must be ARRL members for award credits. JTAlert, one of the companion programs to WSJT-X, can flag LOTW users. For those working towards an award, this feature can help identify which stations can be easier to get a QSL from. The number of people who use LOTW on FT-8 is pretty high, which results in about 80% QSL success from US hams. DX stations do not use LOTW as much and will require more traditional methods to get a QSL card.

The ARRL Contest Update reports that Bob, N6TV, has updated his presentation "Everything You Need To Know About USB and Serial Interfaces". If you have been wondering how to set up a serial or USB port, this is a great source of information. Bob also discusses which chipsets to use and which to avoid when selecting a serial to USB interface, using Windows Device Manager, sharing serial ports and lots of other information that you would be great to have on hand the next time you are trying to connect a radio to a computer. Check out Bob's QRZ page for a list of his presentations and other info.

See you at the meeting.—Pat Volkmann, W9JI

THE COMPUTER CORNER

No. 278: AT&T Domain Email

Stan Kaplan, WB9RQR 715 N. Dries Street Saukville, WI 53080-1664
(262) 268-1949 wb9rqr@gmail.com

Guest Author: Gregg Lengling, W9DHI w9dhi@att.net

Gregg sent this out as a general message to those on the Ozaukee Radio Club mailing list, and I thought it was terrific information that no one should miss. Since there are a significant number of non-ORC members who read the ORC Newsletter each month, I asked his permission to reprint it here, hoping it would reach a few more people. So, thank you Gregg for the good guidance! Edited a bit for punctuation.—Stan, WB9RQR

Many people have ignored warnings over the last three years that Client Email needs to move to a secure key instead of a password. So if you have any of the AT&T email domains (ameritech.net, att.net, sbcglobal.net, etc.) and use Client Email, your email could stop working at any time because of failed attempts to access or hackers trying to access and causing the multiple attempt lock outs. Here's how to set up Secure Key.

To test if you need a SECURE MAIL KEY please do the following:

1. Test all your devices to validate you are unable to get your email.

2. Go to www.yahoo.com and login with your email account as your account and your email password as your password. You should be able to login. Go to the email and you should be able to see all your emails through their web portal.

3. If yes to #1 and #2 above, go to www.att.com and login with the same account and password as above . If you have a different login pair, you can try it.

4. Once logged in, click on your name in the upper right hand corner (exactly where you see it depends somewhat on the browser) and select Manage Profile.

5. Click on Sign-In Info.

6. Scroll down. There should be a secure Mail Key box, click on it.

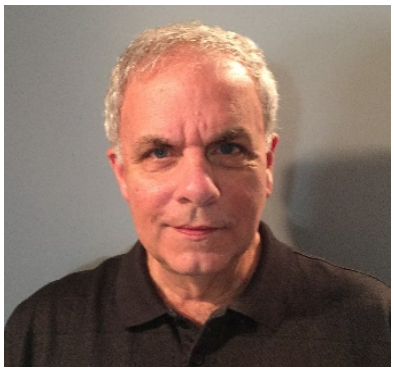
7. Get the key and use it as your new email password for third-party applications like Outlook, IOS, Thunderbird, etc. Note: The key will look like 18 random lowercase letters.

I hope this helps.

Gregg, W9DHI

Vintage Amateur Radio

de Bill Shadid, W9MXQ



Writing articles about Vintage Amateur Radio has certainly had its positives – and as they become more numerous, the return comments are growing. And that makes the entire process even more fun. Here are three items with a story to tell about each.

First Story.
An upgrade to the Drake PS7 AC Power Supply.

Recently, good friend and fellow appreciator of Vintage Amateur Radio equipment, Bill Schnell, AC9JV, came up with a question that I am frequently asked by other collectors.

Like me, AC9JV is an appreciator of Drake amateur radio equipment – we discuss the brand almost anytime we are talking about collecting. Bill often operates his Drake TR7 and TR-4 Transceivers. Like many Drake fans, Bill was looking for a fan to install instead of the now rare Drake FA7 Fan unit. The FA7 was optional on the following products:

- Drake TR7 Transceiver – optional cooling fan for continuous duty operation
- Drake TR7A Transceiver – optional cooling fan for continuous duty operation
- Drake TR5 Transceiver – optional cooling fan for continuous duty operation
- Drake PS7 Power Supply – optional cooling fan for continuous duty operation
- Drake DL-1000 Dummy Load – optional for full power (above 300 watts) output being tested under load

The Drake FA7 fan is no longer available and is often worn out or noisy when found removed from a Drake product. Even a brand new (NOS) FA7, at its best was a somewhat noisy product. Bill was asking if I had a recommendation for a suitable replacement. Having restored quite a few Drake items using the FA7 Fan, I did provide AC9JV a recommendation. For those of you with any of the products listed above, I recommend this replacement that I found on Amazon:

- AC Infinity AXIAL 8038, Quiet Muffin Fan, 120V AC 80mm x 38mm Low Speed, UL-Certified for DIY Cooling Ventilation Exhaust Projects

Here is a picture of the fan:

Item Dimensions	**3.2” x 3.2” x 1.5” L x W x H**
Cooling Method	**Air**
Noise Level	**28 dB**

Screws that come with the fan are too large. I used 4-40UNC x 2” Pan Head Phillips Head Screws to fit the thread inserts in the Drake units.

The cord is a plug-in type that has a traditional 2-wire plug on the end. But the 48” cord length is far too long. So, I purchased DIY molded two wire plugs to plug into the 120-volt outlet installed on Drake equipment. An exception to that advise is for use with the DL-1000 Dummy Load. For that application I

use the full cord length. I might also add that the plug provided on the supplied AC cord shipped with the AC Infinity fan will not work with the non-polarized chassis socket in the Drake products mentioned.

Here is Bill's installation on the back of his recently acquired Drake PS7 AC Power Supply:

Note that Bill used the OEM technique Drake used to install short machine screws to fasten the fan to the chassis.

Bill has cut the 48" cord short and installed the white DIY, two wire plug that is installed into the pre-wired socket on his PS7 Power Supply.

Bill has also carefully controlled the wire placement by installing a cable tie at the upper right-hand corner (in the picture) of the fan. In fact, Bill used cable ties to fasten the grill to the fan – perfectly acceptable.

AC9JV Photo

The fan goes in place of a panel installed by Drake when no fan was present. Good work, Bill – it looks nice.
That heavy gray wire you see at the left side of Bill's picture is the main 12VDC feed line to the TR7 Series or TR5 Transceiver. It is hard wired into the back of the PS7.

I have done many installations of the AC Infinity fan, but I thought it would be good to show you a Drake FA7 installation done with a NOS Drake branded FA7:

Drake FA7 Fan installed on a TR7 Transceiver
Note Drake installed power-lead to molded non-polarized plug on cord.

W9MXQ Collection

The AC Infinity is significantly quieter than the FA7 in all Drake installations. AC Infinity also sells an AXIAL 8025 fan that has the same dimensions but provides an increased air flow (and more noise) than the one mentioned above. The AXIAL 8038 discussed above has a 28 dB noise level while the 8025 has a 32 dB noise level. I recommend the 8025 and use it currently on the Drake DL-1000 Dummy Load that resides in my collection. The DL-1000 needs all the air flow that can be provided when running near its power limit.

Second Story.
A Collins KWM-2 Transceiver and a few notes about its former owner.

This short story goes back to an article written for the January 2018 Edition of the Ozaukee Radio Club Newsletter. It covered the Collins KWM-2 and KWM-2A Transceiver. The article correctly credited that product as being the first successful move to putting a transceiver in every ham shack. The star of that article was a KWM-2A in my radio collection. Recently that same article appeared in a club newsletter in the Atlanta, Georgia area, and was updated to show a recently acquired KWM-2 with a connection, directly and indirectly, to members of Ozaukee Radio Club, Washington County Amateur Radio Club, and the Wisconsin Amateur Radio Club – to all of which I belong. The original article can be found in the archives of the ORC Newsletter[1].

At the end of a slight rewrite of the 2018 article, I related that I would be remiss if I left out another Collins KWM-2 that is in my radio collection. This set, including a KWM-2 Transceiver, 312B-5 Remote VFO/Station Console, and 516F-2 AC Power Supply came to me from a local friend, Paul, W9SIZ. Paul, who is still active on the HF bands is a World War II veteran. Most particularly, Paul is a veteran of the Battle of Normandy – the D-Day invasion of Nazi Germany's "Fortress Europe." As we all know now, that signaled the beginning of the end of Nazi Germany's occupation of Europe. Paul was storming the beaches at Normandy that fateful day – 6 June 1944 – almost 77 years ago.

Here is a picture of this beautiful station – looking every bit the same today as it did when brand new – needing no apologies for time:

Collins KWM-2 HF Transceiver
With Collins 516F-2 AC Power Supply and 312B-5 Remote VFO
W9MXQ Shack Photo

This complete station was purchased in 1961 at Amateur Electronic Supply, Milwaukee. As I can determine from my records, it was in the first 1,100 KWM-2's built, in 1960. It was late in that production that included all KWM-2 units and just 5 KWM-2A units. Production was at the Collins facility in Anamosa, Iowa, about 30 miles from the Cedar Rapids corporate home of Collins Radio Company. To me, the historic value of this radio and its owner are especially important and are prime reasons for its collector value.

Paul, W9SIZ, is an accomplished CW operator so perhaps I am the first person to seriously use this radio on SSB. As I have mentioned before, serious CW operation with the KWM-2 and KWM-2A required the use of the 312B-5 Remote VFO. That was likely well known to Paul when he purchased this station.

Paul is the uncle of Tim Broppe, KA9EAK (SK). Tim, of course, was a member of Ozaukee Radio Club until his untimely passing. Paul is also a member of the Washington County Amateur Radio Club. Friends in common with W9SIZ are Gary, K9DJT and Gary, W9XT and likely among many others in the clubs mentioned. Gary, W9XT, first introduced me to Paul.

The KWM-2 and 312B-5 Remote VFO in the above picture is an early model from the KWM-2 and KWM-2A product line. The newer model, shown in the picture below, was the subject of the article in January of 2018. See more detail below of model differences.

Collins KWM-2A HF Transceiver in the Original Article
With Collins 312B-5 and 30L-1 Linear Amplifier – and Heathkit HA-1410 Keyer
W9MXQ Shack Photo

My original KWM-2A, 312B-5 and 516F-2, from the January 2018 article came to me via another friend, a veteran of the United States Marines, Phil, KC9CI. Phil is one of the first ham radio operators that I met when moving to Wisconsin, 23 years ago – and remains a close friend. The 30L-1 Linear Amplifier has been a part of my collection of Collins equipment for many years.

To those of you students of Collins history, note some obvious differences in these two Collins KWM-2 stations. (Obvious, that is, if you know where to look!)

1. The KWM-2 in the recently acquired station (first one shown) is an early version of the first KWM-2 released in 1961. Youi can tell by the “wings” on the Collins emblem just above the readout. Also, early KWM-2 and KWM-2A Transceivers did not have the finger hole in the main tuning knob. This KWM-2 was one of 1,094 units made in 1960.
2. The KWM-2A in in my original 2018 article (second one shown, above) still has the winged emblem but is later in that it has the finger hole in the main tuning knob. This KWM-2A was one of 313 made in 1963.
3. Note that the 312B-5 Remote VFO/Station Console in the first station shown also has the winged emblem and the original main tuning knob without the finger hole.
4. The 312B-5 Remote VFO/Station Console in the second picture shown has the later round Collins emblem and the finger hole in the main tuning knob.
5. Like the other parts of the station, the first picture shows an original edition, winged emblem 516F-2 AC Power Supply.
6. The 516F-2 AC Power Supply for the second station shown is not in the picture but it is a later edition, round emblem unit.

Another detail item for reference in looking at the two KWM-2 transceivers (KWM-2 first, then the KWM-2A) is a collector related item giving away a KWM-2A. The KWM-2 (not 2A) has 14 bandswitch position for which the user can choose 200 kHz wide bands in essentially anywhere between 3.5 and 30 MHz. By contrast, the KWM-2A is different in that it has a two-level bandswitch. That is, by turning a switch just above the BAND switch on the KWM-2A, the user can select for an additional 14 positions.

Now for the most obvious – if you look carefully – difference between the KWM-2 and KWM-2A. Look at the two knobs at either side of the main dial readout. The one on the left is the EXCITER TUNING and the one on the right is P.A. TUNING. These controls tell a story about most KWM-2 or KWM-2A units. You can see that the legend above the knobs on the KWM-2 is less pronounced than the same legend on the KWM-2A. This difference, known to collectors as “eyebrows” on the KWM-2A, merely hints at the extra 14 band positions which may well be outside the carefully marked ham bands. Many, if not most, KWM-2A units went to military and/or commercial users who would operate in other parts of the high-frequency spectrum. Similarly, KWM-2 units were made for the ham radio market. At the end of the product’s life cycle, only the KWM-2A was produced.

One caveat on the above is that Collins offered a conversion kit to change the KWM-2 into a KWM-2A. This conversion supplied a new Tuning Dial Escutcheon showing the “KWM-2A” model number and a new switch panel and internal parts to add the two level bandswitch. It did not include a new front panel

with the “eyebrows.” So, a KWM-2A without the “eyebrows” is proof of a KWM-2 that has been converted to a KWM-2A.

Third Story.
Vacuum Tubes – especially RF Power and Sweep Tubes – Not an endless supply.

The third item is just a note relating to a lot of comments from users of vacuum tube radios, including right up to the hybrids with vacuum tubes only in the driver and final amplifier circuitry.

Receiving Tubes

Transmitting Tube

Several readers have written that they are wondering where to find sweep tube finals (6HF5, 6JB6, 6LQ6, 6KD6, etc.), traditional tetrode transmitter tubes (6146, 6146A, 6146B, 807, 6550, etc.), high-power glass high power transmitting tubes (572B, 3-400z, 3-500z, 4-400A, 3-1000z, etc.), and ceramic tubes (8122, 4CX-250B, 8877, etc.).

My advice is that if you have a tube transmitter then you need to invest now in spare tubes. Many of the above tubes are now available only from China[2] and Russia[2]. While some of those coming from good North American distributors are tested and guaranteed, others are not so high in quality. Sweep tubes are becoming hard to find – and even when available they may not be available in matched sets as needed.

Many tubes from North American distributors carry dependable warranties but remember that vacuum tube warranties are based on purchase date – not in-service date. Any tubes purchased for spares should be tested immediately upon receipt and stored only after you know they are working. I rotate spare tubes in my linear amplifiers just to be sure they are heated up and used occasionally[3].

At this time, my comments about vacuum tubes do not generally apply to receiving tubes., Even there, beware of tubes found of value by the audiophile group – that has inflated some receiving tube prices to stratospheric levels[4].

A bit of extra information here – only one of the popular sweep-tube equipped transceivers from the 1970’s seemed to foresee the future shortage of matched tubes. Hallicrafters, in their 1972 release of the SR-400A Cyclone III Transceiver was equipped with one of the most powerful sweep tubes offered, the 6KD6 Tetrode. The SR-400A Cyclone III is on the next page.

Hallicrafters SR-400A Cyclone III HF Transceiver
Shown with PS-500A-AC AC Power Supply/Speaker and HA-1 Electronic Keyer
W9MXQ Shack Photo

The SR-400A Cyclone III had internal circuitry to match most any two 6KD6 final amplifier sweep tubes – regardless of brand, age, or most other factors. This was a rather revolutionary feature and not repeated elsewhere to my knowledge. The similar SR-400 Cyclone and the SR-400 Cyclone II predecessors with their 6HF5 final amplifier sweep tubes did not share the feature.

Attempts to implement this tube matching technology to other sweep tube equipped transmitters and transceivers would seem to have some merit. Readers also should note that tube failures in final amplifiers are rare if the radio is operated correctly[5].

I collect these short stories on the ongoing collecting and restoring of Vintage Ham Radio Equipment. Occasionally, it is nice to share a bit of the experience. The basic text for the next article like this one is already written – I am just looking for a few more stories.

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. Bob and I work to collect and restore many examples of Collins, Drake, Hallicrafters, National, RME, Swan/Cubic, Ten-Tec, and some of the Japanese products of historic and/or personal importance.

Notes and Comments:

[1] The Ozaukee Radio Club Newsletter Archives can be found at . . .
https://www.ozaukeeradioclub.org/index.php/newsletters

[2] The sources found in Russia (Svetlana, Sovtek, and others) are quite good and many times made using tooling formerly at RCA, GE, Raytheon, and other well-known brands. Chinese tubes are tied to the quality and reputation of the importer. “Let the Buyer Beware!!” As an importer of goods from many countries, I am aware that offshore sources in the third world are not necessarily competent and technically knowledgeable and are dependent on the North American or European distributor to set and enforce technical specifications. This sadly does not bode well for the American buyer who is totally drawn by price.

[3] "Readers needing vacuum tube sourcing advice can feel free to send a note requesting up to date information on sources. Write to W9MXQ@TWC.com – remembering that such advice is not guaranteed!!

[4] There is a good side to this as well – many audiophile tubes are being produced new, today, due to this new demand.

[5] There is good reason to be confident in the life of final amplifier tubes in vacuum tube radios. One item in my collection is a Swan 500cx using a pair of 6LQ7/6JE6 final tubes. The former owner of this radio, now a SK, was a friend – and I remember his Swan 500cx purchase, brand new, in 1972. This radio was operated daily for over nearly 45 years with its original final amplifier tubes at 550 watts PEP input. I use it with those same tubes today and net a power output of just over 275 watts – and are capable of much more if pushed a bit. Similarly, a Hallicrafters SR-400 Cyclone II Transceiver in my collection has its original Hallicrafters branded 6HF5 final amplifier tubes operating at 400 watts PEP input. To this day, these

tubes net well over 200 watts output – but are loaded to about 200 watts output in operation. (Hallicrafters branded tubes were not sold by dealers – so it is an easy way to determine if a tube found in an old Hallicrafters radio is original.)

W9MXQ

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

Last month I mentioned the 6M sporadic E (Es) season about to start. We have begun to see a few openings towards the end of April. W9GA reported working some southern South American stations.

It was very spotty and was much better if you were further south. While Ken was working some countries I needed, I barely managed to get an FT8 decode here and there. PSKreporter and other information sources indicated no one north of me worked these stations. Even the seven miles between Ken and me made a difference.

I decided to upgrade my 6M antenna before things get rolling this season. If you have been looking for an antenna lately, you might have noticed that they are hard to get. You might need to wait several months for delivery.

A big part of this is a shortage of aluminum tubing. The prices have skyrocketed. I was looking at some 1/8" aluminum rod about 3' long. I bought some for around $1.00 (if my memory is correct) a few years ago. I see them for sale for nearly $8 now!

I decided to build a four element 6M Yagi from the YU7EF design. If you remember, W9GA showed some slides at an ORC meeting a couple of years ago of some beams of that design series he had a hand in building.

I needed to buy tubing for the elements. Despite a rather large pile of aluminum tubing, I didn't have enough of the right size for the elements. Looking around, I was getting prices well over $200 (plus shipping). I found that DX Engineering apparently had a lot of older stock at more reasonable prices. The boom is salvaged from an old broken down small tribander. I had an old rusty boom to mast clamp that has been wire brushed and coated with anti-rust paint. I am now just waiting for some Teflon for the element insulators. That stuff is not cheap either!

It looks like this will cost about 1/3 of what a new commercial one would cost, not to mention being able to use it this season. With luck, it will be ready to put up by the time you read this.

May is the month of the Hamvention®. Like last year, it is a victim of COVID again. But there will still be some on line events you might want to check out.

The first one is Contest University (CTU). CTU is normally an in person event on the Thursday before the start of the Hamvention. I attended one year in person, and it was excellent. Last year it was on Zoom and very good. CTU will be on Zoom again this year. It starts at 8:00 AM CDT Thursday, May 20. As usual, there will be talks of interest to contesters.

Registration is free. https://zoom.us/webinar/register/WN_uFqLO-ZhQg-KtrH0zKaVjg

ICOM will be giving out four radios as prizes at random times, but you must be present (virtually anyway) to win.

One big draw of the Hamvention is the presentations. They will have some the next day, Friday, May 21, starting at 10:00 AM CDT. Registration is free. https://zoom.us/webinar/register/WN_jHSTZ6RlT3eOaM_ykZ4oVQ

Like CTU, ICOM will be giving away four radios as prizes. Again, you have to be present on Zoom to win one.

Traditionally other groups have had events on Thursday of the Hamvention weekend like CTU. One of them is Four Days In May (FDIM) by the QRPers. They will have an on line event on Saturday. May 22. Info at https://qrparci.org/ Note there is a $10 fee for this.

The weekend before the Hamvention, the International DX Convention is held. Hams from other countries often went to this one in California and went to Dayton the following weekend. This year it will be on line. Saturday's events are on DXing, contesting, propagation, operating, etc. Sunday presentations are by ham radio businesses.

This convention is free. Registration and other information is at http://dxconvention.com/.

Prizes are gift certificates from various companies. You don't need to be present to win, but you need to register in advance.

With all this on line stuff, who has time to get on the radio? To make matters worse for me, back in January, I signed up for an online engineering conference that runs May 17-20. I paid money for this, so I better attend. I could be spending ten days in a row watching programs! Yikes! I guess I will be skipping less interesting talks.

The big contest this month is the WPX CW contest. I have covered this one before. Basically, you work everyone. Multipliers are the call sign prefix. If you have a call like WT9Q, you will be more popular than something plain like W9XT.

Send a signal report and sequential serial number starting with 001 for your first QSO. QSO points vary depending on the band and location of the other station. Your logging program will handle that for you.

It starts at 0000 UTC on May 29 (7:00 PM local time Friday, May 28) and runs for 48 hours, but you can only operate 36 hours. WPX CW is a fun contest, but yes, it is during the Memorial Day weekend. I have a hard time sitting in the shack on a holiday weekend if the weather is nice. https://cqwpx.com/rules.htm

DXpeditions are starting up again. Although I am not aware of any big operations in May or early June, there was a big announcement of another attempt to go to Bouvet Island, 3Y0. There were two attempts in the last few years but had to be aborted due to weather and mechanical problems. If you draw a line between the southern tips of Africa and South America, Bouvet is in the middle. It takes at least a week by boat to get there. Then you need to get above some high glaciers to get to a place to make a camp. It is not a surprise that it is #2 on the DX needed list.

The budget for this is $764,000. Each member is contributing at least $20,000. The rest of the money comes from contributions from corporate sponsors, DX foundations, DX clubs, and individual DXers. In addition to the cost, the hardships of living in a tent on an Antarctic island, they will be gone from home for 5-6 weeks. That is an incredible sacrifice just to give us another QSL card. My hat is off to people who do these.

The 3Y0J operation is scheduled for January of 2023. https://3y0j.com/

That wraps up May. Don't forget Field Day is not that far off. Hopefully, it will be a group event this year.

Ham Radio Podcasts

de Jeff Whisler, W9KW

Are you bored with Ham Radio? Are you newer to the hobby and looking to build your knowledge and skills? Want to try the latest digital mode but don't know where to start? Try listening to a ham radio podcast. They can be very instructive, inspirational and just plain fun. What else are you going to do during the 2 hours you spend mowing the lawn or commuting to work or whenever you have a slice of time.

What is a podcast?

A podcast is a recording of audio discussion on a specific topic, like business or travel or ham radio, that can be listened to. They're often found on iTunes, Spotify and many other applications but are also sometimes hosted on websites. Content is delivered on a cadence set by the creator such as weekly, bi-weekly or monthly. This dynamic medium can be a perfect way to receive your regular dose of inspiration wherever you might be. A user can download a podcast to a personal device such as a phone or tablet or iPad for easy listening. Streaming applications and podcasting services provide a convenient and integrated way to manage a personal consumption queue across many podcast sources and playback devices.

Common podcast player applications include: Podbean, Sticher, RadioPublic, Castbox and many more. These applications install cross platform between Android and iOS. Most are free and allow you to control your listening much like any digital playback device with fast forward, rewind and pause. Some allow you to play back at increased speeds as well as bookmark and archive favorites. These shows often have an extensive back catalog of episodes which you can search and access for topics of interest. Often creators will have show notes which provide links to products and services mention on that episode. Here are some examples.

"Ham Radio 2.0" **https://www.livefromthehamshack.tv/**

Hosted by Jason, KC5HWB. He focuses on 'What is New in Amateur Radio?' during this podcast series titled Ham Radio 2.0. Talk about new radios, new transmission modes, License classes, Technical talks, and trips around the world. This is a shorter podcast with new material daily.

"QSO Today" **https://www.qsotoday.com/**

QSO Today is a weekly conversation, rather like a QSO, between amateur radio operators about ham radio. Eric Guth, 4Z1UG, hosts a new guest every week to talk about their ham radio journey, their specialized expertise in ham radio, and how amateur radio has impacted their personal and professional lives. QSO Today is targeted at anyone interested in amateur radio who wants to learn more about our fascinating hobby. New interviews weekly. Eric is founder and facilitator of the QSO Today Virtual Ham Expo.

"Ham Radio Workbench" **https://www.hamradioworkbench.com/**

This is your bi-weekly deep dive on making, DIY, electronics, and technical topics of interest to the radio amateur. Join your hosts George KJ6VU and Jeremy KF7IJZ as they discuss current developments in ham radio while introducing listeners to a plethora of topics and skills such as test equipment, 3D Printing, Arduino, Raspberry Pi, and more.

This is my current favorite podcast. Always fun and inspiring although can be hard on the wallet. I love the banter between hosts and guests. Format has two segments with the first segment dedicated to sharing "what's on your workbench" and the remaining time spent on the topic of that episode. This is a

long format show with many episodes lasting up to 3 hours. I can't listen without a notebook handy. They produce content about every two weeks.

The ARRL also has several podcasts such as *On the Air* https://feeds.blubrry.com/feeds/arrlontheair.xml and *The Doctor is In* http://www.arrl.org/doctor. While no longer produced, four years of back episodes are available at the league website. Finally, ARRL's *Eclectic Tech* Podcast http://www.arrl.org/eclectic.

There are many other podcasts of interest to the amateur radio operator. Let me know your favorite and I will add it to this list.

73, Jeff W9KW

Upcoming ORC Monthly Meeting Programs

May – Mike Harrington, KD9GCN – Virtual Shack Tour

June – Ken Boston, W9GA – Field Day

July – Pat Volkmann, W9JI – Members' Field Day Reports

August – Tim Duffy K3LR – K3LR Talks About Contesting

Creating a Presentation

Almost all 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 Power Point 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 (underscores between the words left of the "@") to discuss your idea for a program.

Vintage Magazine Cover Art

By Pat Volkmann, W9JI

Our cover this month, “How To Make A Radio Set Work Best”, is from the May 1922 issue of Popular Science Monthly. Popular Science Monthly and a host of similar magazines provided eager experimenters with information on how to build and operate crystal, tuned RF and regenerative receivers. Articles also covered the fabrication of parts such as speakers, headphones, coils and capacitors for those who could not afford the pricey components offered by the many radio parts jobbers in business at the time. The superhetrodyne receiver had been invented in 1917 but wouldn’t become a mainstream device for another 10 years or so.

Cover, Popular Science Monthly, May 1922

Ozaukee Radio Club
April 14, 2021 Meeting Minutes

de Ken Boston W9GA

This ORC meeting was conducted via an online (internet) connection using the ZOOM app. Prior to the meeting start, those members who were able to access the 'waiting room' via phone or computer/webcam were then introduced into the meeting space hosted by Pat W9JI. At that time various audio and video connection issues were addressed for the members before the meeting began.

ORC President Pat W9JI officially initiated the meeting at 7:30 PM, as introductions were recognized when members checked into the meeting, so a go-around was not conducted. A brief mention was made that Ben K9UZ has been briefly hospitalized for a medical emergency, affecting the newsletter preparation; Marc KD9MFS commented on CW practice procedures.

Program: Fred W9KEY gave a detailed step by step of his project to erect a new antenna support made from aluminum irrigation pipe. After getting a 30 foot section of 4 inch pipe from the ORC storage 'barn', he detailed the process of moving, erecting and outfitting the pipe as a support for his 'antenna farm' of various wire antennas that had previously been supported by trees on his lot.

Committee Reports: Gregg W9DHI [repeater] states that the activity on the repeater system has been quiet, after the busy days during the 'key up' activity. There has been only minor interference seen on the system.

Gary N9UUR [treasurer] is still collecting some dues, as we continue to have minimal expenses. W9MXQ moved acceptance, W9JI 2nd, motion carried.

Ken W9GA [secretary] posted minutes of the April 2021 meeting; W9JI moved, W9MXQ 2nd, motion to accept then carried.

Tom W9IPR [scholarship] again indicates no new developments.

OLD Business: The certificates for the Key Up activity will be going out shortly, with 14 participants having filed logs. Many more calls were seen in the logs, both club and non-club members were seen, indicating a high level of interest,

Jim K9QLP commented on the fall swapfest, with firemen's park available, only waiting on the rental rates to become available.

Pat W9JI performed a brief poll of the members on their willingness to have an in person meeting. The results were a qualified 'yes' over a 3 to 1 ratio. Meeting outdoors with distancing was favored, with some willing to meet once they had received the vaccine.

NEW Business: There was no new business.

Adjournment: WB9RQR moved to adjourn, W9MXQ 2nd, motion carried. Meeting ended at 8:45 PM.
There were 35 members (unique callsigns) on the Zoom meeting. Contact Ken W9GA to obtain the list.
Following the meeting breakout rooms for WiresX, W9KEY's presentation; were opened.

Respectfully submitted,

Kenneth Boston W9GA
Secretary

ORC Meeting Agenda

May 12, 2021

1. 7:15 – 7:30 PM – Check-In and Introductions
2. 7:30 PM Call to Order – President Pat Volkmann (W9JI)
3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
4. Presentation: M. Schultz WH6ZZ, M. Johnson, WO9B
5. President's Update – Pat Volkmann (W9JI)
6. 1st VP Report – Ben Evans (K9UZ)
7. 2nd VP Report – Bill Church (KD9DRQ)
8. Repeater VP Report – Gregg Lengling (W9DHI)
9. Secretary's Report – Ken Boston (W9GA)
10. Treasurer's Report – Gary Bargholz (N9UUR)
11. Committee Reports
12. OLD BUSINESS
13. NEW BUSINESS
14. Adjournment

Meeting Note:

Until the club decides it's safe to hold in-person meetings again, we will be holding the meetings via the Zoom Videoconferencing platform on the same evening and time as we had the in-person meetings. Sign-in info will be emailed by President Pat Volkmann, W9JI via the ORC remailer usually about an hour before the start of the meeting.

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting via Zoom
May 12, 2021

7:15-7:30 PM – Check-In
7:30 PM – Meeting Begins

The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Ben Evans, K9UZ. Permission to reprint articles published in any issue is granted provided the author and the Ozaukee Radio Club Newsletter are credited.

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

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From the President

de Pat Volkmann, W9JI

At the May meeting we asked how many would join the Club for a Field Day outing and about 1/3 of the group said they were interested, as long as we took precautions for Covid-19. The pandemic restrictions have eased quite a bit recently. Vaccinations rates are at 80% for people over 65 and about half of all people in the state have had at least one shot. It looks like we will be going ahead with Field Day. Ken Boston, W9GA, will be the Field Day chairman again this year. We are planning on a modest effort from Pleasant Valley Park, where we set up in 2018 and 2019. At this point we think there will be enough operators for at least three stations. There will be no Friday night cookout, but some plans are in the works for Saturday evening.

If you haven't done Field Day with a club before, I encourage you to give it a try. It's a lot of fun to be out with the group. It's a chance to learn a few things from some very experienced operators. There is also a real need for help with the non-operating part of the weekend. Field Day is, after all, a camping trip. Setting up tents and equipment, stringing up antennas, tending to the generator, preparing food and packing it all up on Sunday requires a lot help. So, if operating is not your thing, consider coming out to lend a hand with the other activities.

At the July meeting this year I would like to do a review of Field Day – both the ORC outing and any event that any of the members attended. We did this last year and it was interesting to see all the Field Day setups. Be sure to take lots of pictures to document what you are doing.

Even though the pandemic seems to be easing, we will continue meeting on Zoom, at least for a few more months. When we resume in-person meetings, they will most likely still involve a Zoom component. The video meetings will allow anyone to attend, wherever they are. The hybrid meetings will take some planning and some additional equipment to make sure that we have good audio and video. We will be talking more about this in the coming months.

One thing that we can do, now that summer is here, is to get together for lunch in the park. I have done this a couple of times with friends and it's very simple – bring a lawn chair and your lunch and sit outside. We need to find a park that is conveniently located for club members and pick a date. Maybe some time in July?

The upper HF bands have been open more and more. Signals have strong enough for CW and sideband, not just FT8 as was the usual case over the winter. Summer is also the 6 meter season. I have heard a number of reports of great propagation on 6, with paths open to Europe and Asia from the Midwest. If you haven't been on the air much, turn on the radio and see who you can work. It will also help you get warmed up for Field Day!

See you at the meeting.

Pat Volkmann, W9JI

THE COMPUTER CORNER
No. 279: My Email Address Was Wrong!

Stan Kaplan, WB9RQR 715 N. Dries Street Saukville, WI 53080-1664
(262) 268-1949 wb9rqr@gmail.com

Well, AT&T really messed us up. My email (wb9rqr@att.net) stopped working, as did my wife Nancy's (kc9fzk@att.net). When I contacted them, they told me my account did not exist. When I explained that I had been using that account for well over five years, they told me "that cannot be since there is no record that it ever existed"! Gregg Lengling (W9DHI), who used to work for them as a master troubleshooter, told me the account probably did exist in a completely retrievable form, but the troubleshooters I contacted did not have the knowledge needed to get the account back. Rather than trying to pursue this with AT&T, I simply created a new account with Gmail to substitute as my new main email address, and that is shown in the header in this article. So, if you tried to contact me to pick up a DVD as offered in the last article (#277), my apologies. I never received it. Just ask me again with an email to the new Gmail address above and I will honor it, quickly. Or call me.

I have fixed our addresses in the ORC roster, and elsewhere, but it is possible that I missed some folks. It is amazing how dependent we become on an email account always being there. For this reason and to help maintain my personal sense of security, I am never without two accounts, with two different entities. For example, I still maintain an old account with RoadRunner. And it still works well. Think about doing that yourself. After all, email accounts are free for the asking.

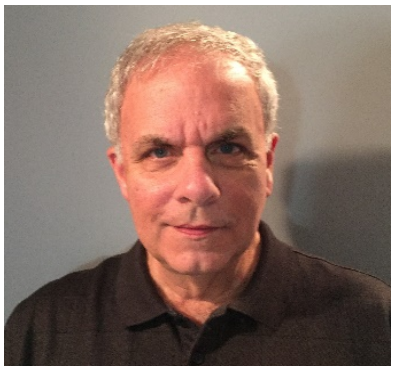
How did I come up with Gmail? I looked, but MajorGeeks does not rate email providers, just email clients (the program you use to get and send emails), so I went looking on the web. What I found was a really good, balanced article at https://www.lifewire.com/best-free-email-accounts-1356641 by Stacy Fisher that had been updated on 2 April 2021 (you can just click or control-click this hyperlink address to go right to the article). In it, she rates ten providers, and Gmail was at the top. It was followed by Outlook, Yahoo, AOL, Yandex, ProtonMail, Zoho Mail, Tutanota, iCloud and 10 Minute Mail, in that order. The strong and weak points of each are listed, making it pretty easy to select issues that seem important to you in making a choice. I went with Gmail rather than Outlook to avoid Microsoft, and Gmail was rated first in the list, anyway. So far, it looks like a good choice.

It might be prudent to avoid using AT&T. On the other hand, Gmail is reported to sell your email and addresses – not much privacy, if any, which AT&T does not. So, the lesson I learned is: 1. Be wary of your email provider. 2. Have more than one, as a backup.

Happy computing!

Vintage Amateur Radio

de Bill Shadid, W9MXQ



We talk a lot in this column about old radios and using them in modern times. While some mention has been made of a process to bring a long-stored piece of vintage electronic equipment back to life, there has never been any detailed information on this process published by this author.

I am going to say up front that this seemingly simple process can be unique in many ways to the radio involved. There really is no universal process for completion. The complexity of the process is directly proportionate to your experience so the less experience you have, the more complex. Be advised as we start that there is a high probability of destroying major components if not extremely careful. I have close friends with radios rendered useless because of not really knowing what to do.

Are you sufficiently terrorized? If so, we shall progress!!!

All radios must be first made safe in terms of their power supply. This discussion is for AC powered electronic equipment – powered by any of the popular input voltages (100/200 volts AC in Japan, 120/240 volts AC in the United States and Canada, and 240 volts AC in Europe). Most other countries use one of these three standards. But you must be sure of what is used where you reside and alter these instructions with your specific voltage specifications.

Radio equipment and accessories using AC power almost always have power supplies that convert the AC power to lower voltage AC, for tube filaments, low voltage DC supplies for solid state components, high voltage DC plate voltage for power amplifiers, lower DC high voltage for receiving and lower-level transmitter circuits, and DC voltages for screen and bias requirements.

Most voltage conversions are handled by a power transformer with primary windings matching the incoming AC supply voltage. The secondary for our discussion generally consists of several windings for the uses shown in the previous paragraph.

The DC voltages developed begin as AC voltages on one of the secondaries, are rectified (converted from AC to DC) by solid state or vacuum tube rectifiers and are smoothed by a setup of electrolytic (or in some cases oil filled) capacitors and perhaps in some cases also a choke (sometimes called a reactor). Herein lies the problem area in old, especially long unused power supplies.
Note: You need to take some time here if you are not familiar with the use and technology of transformers, solid-state and vacuum tube rectifiers, electrolytic and oil filled capacitors, or chokes (reactors) to make yourself familiar with these devices – what they look like, how they are rated, and how they might fail. This part of your radio is ***extremely dangerous*** *– this part of your radio can kill you. You have been warned!! Keep this picture in mind especially when working on vacuum tube radios – it means just what is implied . . .*

Get the message?

!!!

This is not mean spirited – I like that you read my articles and I want you to see the next one!

As collectors and restorers, we all think we know how to follow such a process. Radios in near perfect or perfect condition are no more exempt from such precautionary procedures than the similarly aged rusted and mishandled equipment – age is still age – pretty face or not. The critical items here are the electrolytic capacitors and sometimes early solid-state rectifiers (diodes).

Being a bit redundant, we know the power supply consists of a power transformer, rectifiers (solid-state and/or vacuum tube), and electrolytic (or oil filled) filter capacitors, and a choke (reactor. Some supplies are not designed with chokes – so do not be concerned if you cannot locate them in your radio. To bring the capacitors back to life and to check the integrity of the power transformer or any chokes present, there several items necessary:

1. An Autotransformer (VARIAC™). I use a 0-140 Volts AC, 2,000-watt unit or a 0-140 Volts AC, 1,000-watt unit for 120 Volt AC devices[1]. I always temporarily re-jumper 220 VAC units for 120 VAC operation and use a 0-140 Volts AC autotransformer for these tests.
2. A Wattmeter / Ammeter useable for 120 Volt AC lines. I use a P3 P4400 Kill-a-Watt™ Electricity Usage Monitor[2]. This device reads voltage, amperage, and wattage. (It even tracks power usage.)
3. You need Standby power (wattage) information for the radio you are testing. This will be in the specifications of the product as shown in the product instruction manual.

It is critical that you know the power consumption specifications of the equipment you are working with. This data is in the Specifications section of the Operations Manual for the equipment. If you do not have the manual, virtually all vintage radio manuals are available from various reprint services or via download from the internet[3].

Here is the setup for a typical radio transceiver – here showing a vintage Kenwood TS-830S HF Transceiver. (If you are using any radio that has an audio system, be sure that you have a speaker connected – for reasons that will become clear.)

(W9MXQ Shack Photo)

Left to right in the above picture:

1. Main Power AC Strip (AC Strip 1) with Kill-a-Watt the only item connected.
2. 2000 VA Autotransformer – getting power via the Kill-a-Watt Device
3. AC Strip (AC Strip 2) drawing power from the Autortransformer. Note Digital AC Voltatge meter plugged into this strip.
4. The Kenwood TS-830S HF Transceiver under test – plugged into the AC Strip in item 3, above.

The startup from zero incoming AC volts to full 115-120 VAC operation should never exceed the AC power (wattage) specification of the radio. For instance, the manual for the TS-830S (shown in the test setup, above) indicates 32 watts with the final amplifier and driver tube filaments switched off. So, since we want all items on for this test, let us look at what else is involved:

- Final Amplifier Tubes
  - Two 6146B Amplifier Tubes running 6.3 Volts @ 1.125 Amperes each.
- Driver Tube
  - One 12BY7A Driver Tube running 12.6 Volts @ 0.3 Amperes.
- Total vacuum tube filament power requirements:
  - (6.3 volts x 1.125 amperes) = 7.1 watts. 2 tubes = 14.2 watts
  - (12.6 volts x 0.3 amperes) = 3.8 watts for the single tube.
  - (14.2 watts + 3.8 watts) = 18 watts for filament power required
- Total Standby Power Required
  - 32 watts for receiver and low-level receiver power (per manual)
  - 18 watts for transmitter tube filaments (per above calculations)
  - (32 watts + 18 watts) = 50 watts total power.

Suffice it to say that those are DC calculations we are using for AC circuits – but it is close enough for our purposes. Just note above that all factors of the power drawn in standby must be included. The Kenwood TS-830S Operating Manual only shows on part of power consumption for our purposes – the balance had to be calculated using data we can find. In this case, a vacuum tube specification manual[4].

The 50 watts is a figure that can be read on the P3 P4400 Kill-a-Watt Electricity Usage Monitor, mentioned above. Alternatively, that can be converted to amperage (using the P=VI formula as a basis). For the TS-830S the known points are 50 watts and 120 volts so the formula would be modified to show the current as I = P/V or (50 / 120) = 0.42 amperes. I use wattage on this instance because it does not change as the voltage changes as a total consumption of power.

Some considerations before starting the process:

1. The digital voltmeter in the autotransformer works from zero to 130 volts AC as delivered from the secondary of the device. However, it is not quite linear. For our purposes it is accurate enough.
2. The digital voltmeter plugged into the AC Strip between the autotransformer and the radio under test shows a second digital voltmeter. This one does not begin to register until about 60 volts AC but is much more accurate than the one in the autotransformer. So, both meters have their purpose.
3. Some radios – such as the Kenwood TS-830S shown here – do not have a grounded AC plug (the TS-830S is self-contained and includes its AC power supply. In such an instance I connect the chassis of the radio to the chassis of the autotransformer and then that is made further secure by connecting the chassis of the radio to the station ground.
4. Keep in mind that the Kill-a-Watt monitors do not work at voltages below about 80 volts AC so they must stay in the primary circuit feeding the autotransformer. Since we only want the Kill-a-Watt to read total power its placement is of no consequence. But remember that its voltage readout mode is not of value in this analysis – except perhaps to know the actual primary voltage being fed to the autotransformer.

Now that connections have been made, be sure that the autotransformer is set to zero output volts – as shown on the digital meter on the autotransformer itself. Also, the power switch (or switches) on the radio under test much be set to “ON.” And the AF Gain on the transceiver needs to be set so when the radio becomes operational its sounds can be heard. (Also allows for hearing other tell-tale sounds to be discussed below.)

Ready to Start

Autotransformer powered on and voltage set at Zero Volts

Radio shows both power switches “ON” and AF Gain at about 30% level

So, again, the voltage feed in the left AC Strip (AC Strip 1 – see setup picture, above) is receiving AC power, the Kill-a-Watt and the autotransformer are plugged into AC Strip 1. The autotransformer is set to zero. The AC Strip 2, between the autotransformer and the test radio, is connected to the output of the autotransformer. The test radio is connected to AC Strip 2. Be sure, as noted in the picture, that the AF Gain is set to about 30% of range – and the RF Gain should be at maximum. You may find at some point you need to adjust the AF Gain, up or down. Set the Kill-a-Watt so it is reading Watts. (Done by pressing the button with the legend, "WATT" (this position also indicates "VA" which means Volt Amps – meaning a calculation if V * A).

Generally, I do not have the antenna connected during this test – because since I am in the shack anyway, I connect a dummy load to the radio being tested and get on the air with my regular station. But it does no harm to have the antenna connected and there are some benefits as will be explained later.

We are ready to start – during the process, do not leave the setup unattended for more than a few minutes. I never let the setup run even while having a meal or if I leave the house – I do not even leave the room where the test is taking place for more than a few minutes at a time. I arrange my schedule, making this process my top priority. If necessary, I eat lunch and/or dinner where the radio is being tested. Laugh or otherwise comment – but the radio is in a potentially critical situation at this point – any component failure can destroy the power supply and more. For this first, 20-volt, setting, I generally leave the setting for two or three hours. All the while, keep regularly monitoring the wattage on the Kill-a-Watt. While problems can occur at 20 volts – the low power being consumed will limit damage.

Keep confirming under 50 watts on the Kill-a-Watt device. With the TS-830S used for this article, setting the autotransformer to 20 Volts AC output to the radio netted 13 watts on the Kill-a-Watt readout. If you do not see some power at this point, then you need to check your connections to be sure AC voltage is being fed to the power supply in the radio. Be aware that the power switch in the test subject may be open (defective) or the power transformer could have an open winding. Or there could be a blown primary fuse. (Blown or incorrect specification fuses are often an issue in older radios.) If you still see no power indication on the Kill-a-Watt, then the process ends here – something else is wrong and there is a need for troubleshooting of the radio without power applied.

All along this process, listen for any pops, buzzing, screeching, or any odd noises coming from the speaker. These indicate internal problems – likely with the electrolytic capacitors. If you hear such noise, then the process stops - something else is wrong and there is a need for troubleshooting of the radio without power applied.

If none of the symptoms mentioned above occur, then after two or three hours (the more the better) you can turn the voltage up by another 15 volts – to 35 volts. Watch the Kill-a-Watt for any large excursions upward. The Kill-a-Watt does not move quickly. Watch if for a few minutes to see how much more power you are consuming. At 35 volts you still should be relatively low – well below the calculated 50 watts. Keep watching that wattmeter and listen for any of the noises mentioned above – even advance the AF Gain to see if you can then hear anything. Most all vacuum tube circuits will not begin to conduct until much higher primary voltage, but the pops and buzzing may occur if there is a significant problem. A hiss from the speaker is generally okay but probably not going to occur at 35 volts.

Note: Depending on how I feel about the radio, I might decide to monitor voltages as the test is being run. This is particularly true of vacuum tube circuits. Those radio's power transformers and their multiple secondary windings can be problematic. A shorted winding may be less likely to show when simply monitoring incoming power. In such a situation I would have the radio chassis open and perhaps several meters attached to critical voltage points. This is dangerous – and can burn you, or much worse. DO NOT do this if you are not experienced in working with high voltage circuits. DO NOT even approach the radio without one hand in your back pocket. DO NOT provide a path for

electricity to pass through your body – such as having one hand on the chassis and the other hand on the HV lead. Laughable?? I do not think so!!

If all is well, we can move from 35 volts to 50 volts on the autotransformer. Again, immediately check the Kill-a-Watt for a wattage reading of under 50. At 50 volts it is likely that you will hear some sound from the speaker. Equipment with solid state power supplies and audio systems tend to start showing activity at this point – but not always. Also, at 50 volts the digital voltmeter on AC Strip 2 starts to work. This may be different in your installation. So, you could hear some "hiss" from the speaker. But, here again, if you hear pops or buzzing or screeching the process stops - something else is wrong and there is a need for troubleshooting of the radio without power applied.

Assuming continued smooth progression of the wattage as the voltage increases you may apply more voltage via the autotransformer in steps of 15 to 20 volts after at least an hour at any setting. After about 60 volts you are highly likely to hear activity and even signals if the antenna is connected. Pilot lamps, depending on ambient light in the room, can become visible at much less than 60 volts applied. The digital readout in the TS-830S begins to work, dimly, at about 62 volts.

Assuming all has gone well, you will arrive at full operation in about ten hours – give or take a bit. If the radio does not come to life, then other work is necessary – not in the scope of this article. If it works but is very noisy with hum, or similar noise, then likely you need to replace the power supply electrolytic capacitors. I have never had to replace oil filled capacitors or chokes. Older radios with solid state diodes may need to have them replaced with modern devices. If there are ANY selenium diodes they should be replaced immediately – even before the attempt to bring the radio back to life. While there are sometimes reasons to replace vacuum rectifier tubes with solid-state diodes, they are rare. DO NOT wholesale replace vacuum tube rectifiers. To do so significantly increases the resulting output voltage and likely makes the filter capacitors work close to, or are over, their design operating voltage. That, in turn, stresses other components in the circuit. Also, vacuum tube rectifiers, by their very design, allow for current limiting at startup which reduces current peaks as the circuit begins operation.

Note: Some users of this kind of method to return a long-stored radio to general use can relate to these three other notes – for your reference:

1. Many of these radios will need the electrolytic capacitors replaced. I do not replace them without reason, however.
2. Some restorers limit the amount of power put into the radio. That can be done in a variety of ways, including wiring an incandescent light bulb in series with the AC Line. I do not do that because I am intense about monitoring the power drawn and listening to the sounds produced by the radio. My procedure works for me but admittedly without my level of attention this may not be suitable in your case. Be aware of that, please.
3. This method of restoring a long dormant radio is NOT SUITABLE for linear amplifiers using large transmitting tubes. While the method herein does apply to the linear amplifiers in your desktop transceiver using sweep tubes or the 6146 family of tubes – like the 6146B's in the subject radio for this article. For high power linear amplifiers, this procedure could damage the filaments in the tubes. Because of that, long dormant high power linear amplifiers should have their filter capacitors (if electrolytic) and silicon diodes replaced for safe operation. Is that perhaps wasteful of good components? Perhaps. But these high power and high voltage devices are worth the extra expense to bring them back safely. The potential cost of damaging these expensive tubes is well worth the price of component replacement.

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 bit more than a proofreader as he often adds commentary that makes it into the article.

Credits and Comments:

[1] You will find suitable autotransformers on Amazon, eBay, or other sources using the description shown in the article. In addition, I also use a 1,000-Watt unit for 120-Volt AC devices. Sometimes it is handy to have two autotransformers.

[2] The Kill-a-Watt™ unit mentioned is available at local hardware stores in many cases or on Amazon and eBay using the description shown. I cannot comment on other brands of such a unit but there are many.

[3] While there are many online retailers and download sites for vintage (and current) radio manuals, these are the ones I most frequently use – keeping in mind that the best manual reprints are not a low-cost item but worth their weight in gold for proper restoration:

http://www.KE9PQ,com. Nationwide radio is a purveyor of reprint and some original manuals for sale. Quality is excellent with reasonable pricing.

http://www.hamradiomanuals.com. This is WB2JKJ who works with inner city kids to teach ham radio, help youngsters get licensed, and even supply them with equipment, through donations, to get them on the air. In addition, the group sells good reprints of most vintage radios.

https://bama.edebris.com/manuals. This is a free download site with a considerable inventory.

https://kaysgoods.wixsite.com/kays-manuals/about. A good inventory of vintage and current reprint manuals of exceptional quality – many times they are easier to read than the originals. The books include large size schematics. Heavy paper and binders that allow the manual to lay flat on the workbench while in use.

https://manualman.com. An outstanding supplier of hard-to-find manuals. The quality is exceptional. Heavy paper and binders that allow the manual to lay flat on the workbench while in use. The proprietor is also a vintage radio restorer and contributor to vintage radio reflectors.

[4] Older editions of the Radio Amateurs Handbook, old tube manufacturers data sheets and data books (some available online), and general internet searches by vacuum tube model (such as 6146B and 12BY7A in this case) can also net specific vacuum tube specifications. Be careful with tube model suffixes. For instance, the 6146 and 6146A do not have the same filament specifications as the 6146B.

On The Air!

De Gary Sutcliffe (W9XT)

First off, I decided to change the title of my column. It started out covering DX in 2012 after being asked by Tom, W9IPR, the newsletter editor at the time. Bob, W9LO, had a column on contests. After he became a silent key, I started including contests. Each month I would list the big contests, basic information, and maybe some operating tips. After all these years, it sort of got redundant. The basic rules usually don't change that much year to year, and I always encourage you to read the full rules if you decide to operate a contest.

So, I changed the name to *On The Air!* I will continue to list upcoming contests and big DXpeditions and cover other things happening on the air. I hope the more general focus will be of interest to ORC members.

Last month I mentioned the Contest University (CTU) event held on May 20. Normally this is held in person the Thursday before the Hamvention®. It was a free virtual event last year and this year because of COVID.

There was a presentation by José Nunes, CT1BOH called "*There is nothing magic about propagation*." José is a world class contester. He described some work he did during the lock down on propagation prediction that has the contest and DX community in a buzz.

I have talked about propagation programs here in the past. They will give you the percentage of days a given path will be open. For example, it might say we will have propagation to Japan on 15 meters 76% of the days in a given month. It is sort of like a weather forecast with a 50% chance of rain.

That is useful, but we always would like to know if it will rain or the band will be open *today* with more certainty.

For a path to be open between two locations, the ionosphere must refract the signal back to earth. The maximum frequency of a given area of the ionosphere will refract from is called the Maximum Useable Frequency (MUF). The MUF will vary by time of day, season, and solar activity.

If the path uses multiple hops, the MUF must be equal to or higher than the frequency you want to use.

So how do you know if all the spots on the path are above the MUF? In real time? It's tough. A site I recently heard about is at http://prop.kc2g.com/.

It shows a map of the world with MUF isolines. It sort of looks like a weather map but shows MUF instead of air pressure isobars. This site is updated every 15 minutes and is based on the data from ionosonde stations around the world. These are special radars that shoot signals straight up and sees what gets reflected back. The problem is that there are not all that many ionosonde stations worldwide, resulting in much of the numbers shown on the map being extrapolated.

What is needed is more information from more locations. Well, there is such a source. If you operate the WSJT modes, you can check the configuration box to send every station you decode to a central server. You can see who hears who by going to https://www.pskreporter.info/.

You can set the map up for the band you want to see. You can also set it up for a single station. It is interesting to see who is hearing you. The site has an incredible number of reports. It just went over 30 *billion* spots a couple of weeks ago, and it added another 350 million since then. The latest ARRL Eclectic Tech podcast episode interviews the creator of PSKReporter, N1DQ.

So, CT1BOH used this real time data to see what the MUF was at along various spots along the paths based on reception reports. Essentially, he determined the MUF isobars based on more data.

The current propagation programs are based on a propagation model created about 60 years ago using statistical data for determining the best frequencies for the Voice of America. Our understanding has improved since then.

CTU records all the talks and puts them on line. As of the time this is being written, it has not been uploaded. By the time you read this, it will probably be available at https://www.contestuniversity.com/videos/.

If it is not available, try this link: https://www.youtube.com/watch?v=q-esob7BPtc

I watched it during CTU and plan on going back and watching it again and probably several times. It is well worth checking out if you are interested in long distance communications.

The 6 meter sporadic E (Es) season has a pretty good start so far. The band has been open to many parts of the country almost every day. We had an excellent opening to Europe one day. Gary, K9DJT, worked his first Europeans on the band. Ken, W9GA, worked about thirty stations there and chased a couple of countries he needed but had no luck. I picked up two new countries on the band that day. It was interesting seeing who Gary and Ken were calling and working. Sometimes I could not hear who they were calling, and there were times they could not hear who I was working. Even the short distances between us made a lot of difference. Es, especially multi-hop Es, can be like a moving spotlight.

The night of May 24 was an exciting one for me. Six was open to the west coast very late. I picked up some new grids out that way, then Hawaii started coming in. I have been trying to work KH6 for years to finish my 6M WAS. I was able to work one quite easily at 11:00 PM local. I finally had to call it a night at 1:00 AM, but the band was still open. With 6M, you never know.

Most new rigs include 6M. Throw up a wire in the next few weeks. Some guys use their 80M dipoles with success. Beams are even better, and some are not much bigger than an old TV antenna. It is a lot of fun. Because signals are often weak, FT8 is the primary mode, but if signals are strong, try CW or SSB. I heard a few CW stations during the big European opening, but they were weak and could not hear me.

There are two contests in June. The first one is the ARRL June VHF contest on the weekend of June 12. This event can be a whole lot of fun if 6M opens up. FT8 will be a big mode, but if signals are reasonably strong, check SSB and CW. You can make contacts much faster than with the digital modes. If conditions are good on FT8 but not able to support CW or SSB, try FT4. That happened at times last year, and very few stations realized they could make contacts much faster on FT4. You can only work a station once per band, and all QSOs have the same point value, so it makes sense to make them as fast as you can.

Be sure to set the WSJT NA VHF Contest button in the advanced settings window. Full rules at http://www.arrl.org/june-vhf.

Of course, the other big event is Field Day. After being locked down last year, it will be good to get a bit closer to normal. ORC FD this year will not be completely back to normal, but we will be operating in tents this year, June 26-27.

A contest to check out in early July is the IARU HF World Championship. July 10-11. Work the world. It is the biggest contest until next fall. Check out the rules and note the special multipliers for working IARU headquarter stations. http://www.arrl.org/iaru-hf-world-championship

Nothing significant is showing up on the radar regarding Dxpeditions in June. There is an interesting one at the end of July which will be covered in the next issue.

See you at Field Day!

ORC Field Day Covid-19 Guidelines

The Ozaukee Radio Club will follow the CDC recommendations for Covid-19, in addition to state and local regulations. At this time, the state of Wisconsin and Ozaukee County follow the CDC guidelines.

If you are fully vaccinated you no longer need to wear a mask or practice social distancing.

If you have been vaccinated but it has not been two weeks since the last shot you are not fully vaccinated. We ask that you wear a mask and maintain a 6 foot distance from others.

If you are not vaccinated, we ask that you wear a mask and maintain a 6-foot distance from others.

Field Day visitors are welcome to observe, but not enter, the radio operating areas.

Anyone who wishes to wear a mask, even if vaccinated, is welcome to do so.

If you have health concerns, discuss them with your doctor prior to attending Field Day.

If you do not feel comfortable joining the group for Field Day, the ARRL has continued the home operating rules changes for this year.

For More Information:

State of Wisconsin Department of Health Services Covid-19 Information

Centers for Disease Control and Prevention Covid-19 Information

Vintage Magazine Cover Art

By Pat Volkmann, W9JI

Our cover this month, “How To Use Your Set on Your Vacation”, is from the June 1923 issue of Popular Radio. Popular Radio was a technical magazine, aimed more at the skilled user than the novice. This issue addresses the concern of “static” which was believed by many to render radio useless in the summer months. Not so, say the authors in Popular Radio. The opening line of the lead article states that “THIS is the time of year when the prudent radio man is making his plans for using his set on his vacation outings.” While not quite a Field Day theme, this issue has several photos of radios in use while camping, fishing and boating. There are detailed descriptions on how to build several types of radios suitable for portable use. There are even instructions on how to throw a line over a tree to haul up an antenna.

“How To Use Your Set on Your Vacation” Popular Radio, June 1923

Ozaukee Radio Club
May 12, 2021 Meeting Minutes

de Ken Boston W9GA

This ORC meeting was conducted via an online (internet) connection using the ZOOM app. Prior to the meeting start, those members who were able to access the 'waiting room' via phone or computer/webcam were then introduced into the meeting space hosted by Pat W9JI. At that time various audio and video connection issues were addressed for the members before the meeting began.

ORC President Pat W9JI officially initiated the meeting at 7:33 PM, as introductions were recognized when members checked into the meeting, a go-around was not conducted. Ken W9GA mentioned that the KEY_UP certificates had been mailed.

Program:

Mike, KC9GCN gave a thorough overview of his home HAM radio station(s), as he has a primary and a secondary operating position in his house. The primary station is centered around a Yaesu FT991 and AL-800 amplifier, and the secondary position uses a Yaesu FT891. He gave details of the station accessories and the grounding and wiring he installed to support the stations. He also described his mobile installation using a Yaesu FTM400xdr, and his antenna installation on his boat, which is used with one of his radios when going maritime mobile. He is also playing around with an SDR play unit.

Committee Reports:

Gregg W9DHI [repeater] mentioned 18 check-ins on a recent Tuesday night net; and that the 222 system is working well. There have been some minimal QRM issues that are being investigated.

Gary N9UUR [treasurer] is seeing a few renewals and otherwise low cash flow activity. W9DHI moved, W9MXQ 2nd of acceptance, motion carried.

Ken W9GA [secretary] posted minutes of the May 2021 meeting; W9JI moved, W9MXQ 2nd, motion to accept then carried.

Tom W9IPR [scholarship] again indicates no new developments, waiting until September when the remaining CD can be taken off of auto-renew, and the money can be transferred to the ARRL.

OLD Business:

The fall Swapfest is scheduled for September 11, 2021. Expenses are estimated to be under $300, with the hope of a positive turnout, ensuring some profits. 600 flyers are being printed, with 200 of those slated to be taken to HRO for dissemination

Field Day plans were introduced, with a definite presence at the Pleasant Valley Park just north of Grafton/Cedarburg. Several members will be available this summer, so we will have 3 or 4 stations plus VHF at the site. A future meeting is planned, and we will be discussing a COVID protocol for everyones protection at the future meeting. One facet of the ORC field day, the Friday night party/gathering will NOT be a feature this year.

Gary N9UUR has been recording the recent meetings and presentations and has been posting them on YouTube.

NEW business:

The members discussed the lack of usage on the ORC 'chatter' link from the website, so it was decided to have that feature turned off.

Adjournment:
There were 37 members (unique callsigns) recorded as check-ins. Contact Ken W9GA to obtain the list. WB9RQR moved to adjourn, N9UUR 2nd,motion carried. The meeting ended at 8:35 PM.

Following the meeting, breakout rooms for Mike's presentation were opened.

Respectfully submitted,

Kenneth Boston W9GA
Secretary

Upcoming ORC Monthly Meeting Programs

June – Ken Boston, W9GA – Field Day

July – Pat Volkmann, W9JI – Members' Field Day Reports

August – Tim Duffy K3LR – K3LR Talks About Contesting

Creating a Presentation

Almost all 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 Power Point 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 (underscores between the words left of the "@") to discuss your idea for a program.

ORC Meeting Agenda

June 9, 2021

1. 7:15 – 7:30 PM – Check-In and Introductions
2. 7:30 PM Call to Order – President Pat Volkmann (W9JI)
3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
4. Presentation: Ken W9GA, Field Day
5. President's Update – Pat Volkmann (W9JI)
6. 1st VP Report – Ben Evans (K9UZ)
7. 2nd VP Report – Bill Church (KD9DRQ)
8. Repeater VP Report – Gregg Lengling (W9DHI)
9. Secretary's Report – Ken Boston (W9GA)
10. Treasurer's Report – Gary Bargholz (N9UUR)
11. Committee Reports
12. OLD BUSINESS
13. NEW BUSINESS
14. Adjournment

Meeting Note:

Until the club decides it's safe to hold in-person meetings again, we will be holding the meetings via the Zoom Videoconferencing platform on the same evening and time as we had the in-person meetings. Sign-in info will be emailed by President Pat Volkmann, W9JI via the ORC remailer usually about an hour before the start of the meeting.

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting via Zoom
June 9, 2021

7:15-7:30 PM – Check-In
7:30 PM – Meeting Begins

The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Ben Evans, K9UZ. Permission to reprint articles published in any issue is granted provided the author and the Ozaukee Radio Club Newsletter are credited.

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 XXXIII	July, 2021	Number 7

From the President

de Pat Volkmann, W9JI

Another Field Day has come and gone. Judging from the many pictures that have received from ORC members, the club outing was successful. Field Day always presents some challenges, but we overcome them and move forward. It will be interesting to hear the ORC results along with the Field Day stories of the rest of the group at the July meeting.

The Grafton Senior Center has reopened, so we are able to resume in-person meetings. I don't know yet what restrictions, if any, there will be. I expect that we will have a hybrid meeting, using Zoom along with the live meeting. Before starting up at the Center again there a few things in the way of tests and equipment that need to be done. I'm expecting that we can go "live" again by the September meeting.

We are going to need a few items to run Zoom from the Senior Center, namely a camera and a microphone. There may be some additional equipment which we will figure out as we get into this new venue. We are also going to need a person who is willing to run the equipment, sort of an "AV" person. The AV person will need to set up and run the gear, work the microphone and the camera and run the computer. If you are interested in volunteering for this position, please contact me and we can talk about it.

Club membership has been going great this year, with well over 100 people signed up. Our newest member is Sullivan, KD9TAI. Please say hello and welcome Sullivan into the club. We encourage new members to join the grops.io email reflector but that also applies to all members. The reflector is easy to use and is an important part of communications in the club. If you haven't signed up yet, you can do so by sending an email to ozaukeeradioclub+subscribe@groups.io

Ten meters open all day Saturday and Sunday this past weekend. Worked a number of stateside hams and had some very good signal reports while running less than 20 watts. Very little DX heard but it was fun to be on 10 with lots of other folks.

All of my contacts are confirmed through Logbook of the World these days but I still receive a handful of requests each month for a QSL card. Recently, I received this beautiful fold-out card from Jim, SV1LHZ (next page). This four-page card is more like a brochure than a postcard and is a very nicely-done QSL. Jim was also thoughtful enough to include a return envelope.

See you at the meeting.

Pat Volkmann, W9JI

THE COMPUTER CORNER

No. 280: Protecting Against Ransomware

Guest Author: Gregg Lengling, W9DHI w9dhi@att.net

Regular Author and Editor: Stan Kaplan, WB9RQR
715 N. Dries Street Saukville, WI 53080-1664
(262) 268-1949 wb9rqr@gmail.com

(This is really good advice from Gregg concerning Windows Defender, which I have noted before is a fine and adequate antivirus package that comes with Windows 10. Here, Gregg gets specific about its ransomware protection, which I did not know about prior to his writing about it in this article. He also outlines how to make sure this ransomware protection is enabled and working. Thanks, Gregg! Stan)

Windows 10 comes with its own antivirus solution called Windows Defender, and it is enabled by default when setting up a new PC. This provides some good basic malware and virus protection. However a lesser known feature is “Ransom Ware” protection, keeping folders secure from being modified or encrypted by nefarious players.

It’s actually called “Controlled Folder Access”. However it is not enabled by default; you have to turn it on. Go to Settings > Update & Security, click on Open Windows Security, click on Virus & threat protection, then scroll down and click on Manage ransomware protection.

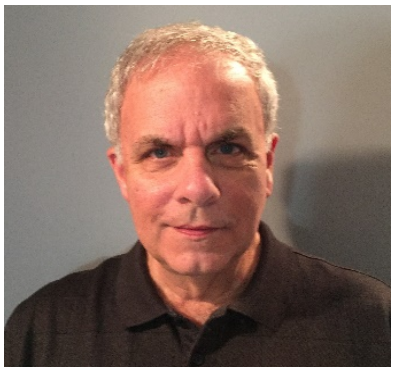
The Controlled folder access toggle is set to 'off' by default. Turning it on designates specific folders that only trusted apps have permission to access, and you can add folders beyond the ones that are selected by default. There's also a section to grant specific applications permission to access your protected folders. This is required when the computer is being used for “gaming” as most games require continued access to specific files and folders.

However if you are using another company’s protection program it won’t allow you to turn this feature on because Windows Defender needs to be the primary Virus/Malware program for the feature to be enabled. Other software packages may also have this feature to protect against ransomware, however they are sometimes separate add on features and tend to be pricey.

All in all Microsoft’s Windows Defender is actually a pretty good program. It is among the top 5 virus/malware protection programs listed by PC Magazine and Gamer Magazine. So if you feel you could be exposed to a ransomware attack on your Windows 10 computer, just a few clicks to make sure this feature is enabled and you will be protected – at no additional cost.

Vintage Amateur Radio

de Bill Shadid, W9MXQ



In an earlier article, I discussed the Ten-Tec Corsair and later analog Omni Series. Those included the Corsair, Corsair II, the Omni V, the Omni VI, and the Omni VI Plus radios marketed from about 1982 until 2002. After that, and to this day, Ten-Tec produces the well-respected Omni VII and the very latest Omni VII Plus[1].

Back at a time when the Japanese were producing hybrid radios, American companies, such as Ten-Tec, Drake, Swan, and Heathkit, were producing good quality all solid-state transcievers[2]. The new offering from Ten-Tec in 1978 was the first radio in the long running Omni series – the Omni A 160-10-meter solid state HF Transceiver. These were competitive radios – but perhaps lacked in the physical charm exuded by the more "stereo equipment" looks of the popular Kenwood and Yaesu hybrid Transceivers. These included the Kenwood TS-820S and the Yaesu FT-101E. Here is the model 545 Omni A – as introduced in 1978:

Ten-Tec Omni A HF Transceiver – Model 545

Ten-Tec Wiki Website

The Omni A (the "A" was for "Analog Readout" and was not a reference to this being the first of its kind) was marketed in parallel with the digital frequency readout Omni D HF Transceiver. (A picture of the Omni D appears further along in the article.) The Ten-Tec model numbers for the two radios was different – the Analog Readout Omni A was the model 545 and the Digital Readout Omni D was the model 546.

The Omni A (and Omni D) covered the 160 to 10-meter bands in 500 kHz segments. Four of those segments covered the 10-meter band. There was no transmit coverage of the WARC bands which came along a bit later.

Power input for the Omni A and D was 200 watts with an output on SSB and CW of 85-100 watts, depending on band[3].

The Omni A and D were designed with solid-state final amplifiers that required no tuning other than to set frequency of the VFO and peak the receiver sensitivity with the DRIVE control. Early solid-state radios did not yet have broadband front ends and/or low-level driver circuitry and need to be tuned to maximum receive signal to allow for full power transmit and maximum sensitivity.

Below see the Omni D that was merely an Omni A with a digital readout.

Ten-Tec Omni D HF Transceiver – Model 546

RigPix Photo

In comparing these two otherwise identical radios we can see the only difference in the two – aside from the readout. The Omni D has no access to a typical 100 kHz calibrator to use in correcting linearity errors in the mechanical readout used on the Omni A. On the Omni A, note the push-button to the right of the main tuning knob – and that it is absent from the digital readout Omni D, above.

The Omni A and D had an excellent SSB Crystal filter but did not allow for additional CW bandwidth crystal filters. Instead, it has a three-position audio filter system. These can be seen on the SELECTIVITY control that allowed for audio filters 1, 2, and 3 plus a “SB” position for the single sideband crystal filter. These radios had no provision for general coverage or AM (other than to zero beat the carrier in SSB to tune an AM signal. Like most Ten-Tec radios, past and present, these Omni models had excellent QSK available for CW.

The original Omni A and D transceivers could receive on 10 MHz for WWV reception. None of the WARC bands were accommodated as they were not yet available to hams. There was an AUX bandswitch position that was essentially able to be used for any additional coverage within the range of the radio.

An exceptionally good friend of mine in my Illinois days had an original version Omni D[4]. On many occasions I would assist in maintenance of this radio when any issue occurred over the many years my elderly friend owned this fine radio. As far as I know it continues to operate today. It was paired at the time with a Heathkit SB-220 Linear Amplifier and a home brew Quad antenna at about 40 feet – an installation one had to see to be believed!!

About two years after the introduction of the Omni A and Omni D, Ten-Tec did an update of this radio model and introduced the Omni A, Series B, and the Omni D, Series B. Major changes included the addition of a board holding two additional crystal filters – used for optional crystal filters for CW. Also, the rather useless SQUELCH control on the original Omni was replaced by NOTCH filter control – a very handy accessory. The Series B radios had an option to add transmit capability to the 10 MHz (30-meter) band as well as transceive capability on the 24 MHz (12-meter) band.

Here is a picture of the Omni A, Series B, showing a clear view of the analog readout. As explained above on the original Omni A, see the calibrator (CAL) button at the right of the main tuning knob.

Ten-Tec Omni A HF Transceiver – Model 545B

RigPix Photo

The only inconvenience I have noted in this model is the filter switching. It did not allow for separate switching of the audio and crystal filters One could switch the appropriate (in Ten-Tec's decision) audio filter to complement the closest crystal filter. This issue would have to wait for the final version of the radio for a final, and proper, correction.

The final version of this original Omni series transceiver was the Omni C. The nomenclature changed a bit as the analog version was dropped so the old term "Omni D" seemed to no longer fit. In the original model lineup this new radio would have been called the Omni D, Series C – but it was just shortened to Omni C.

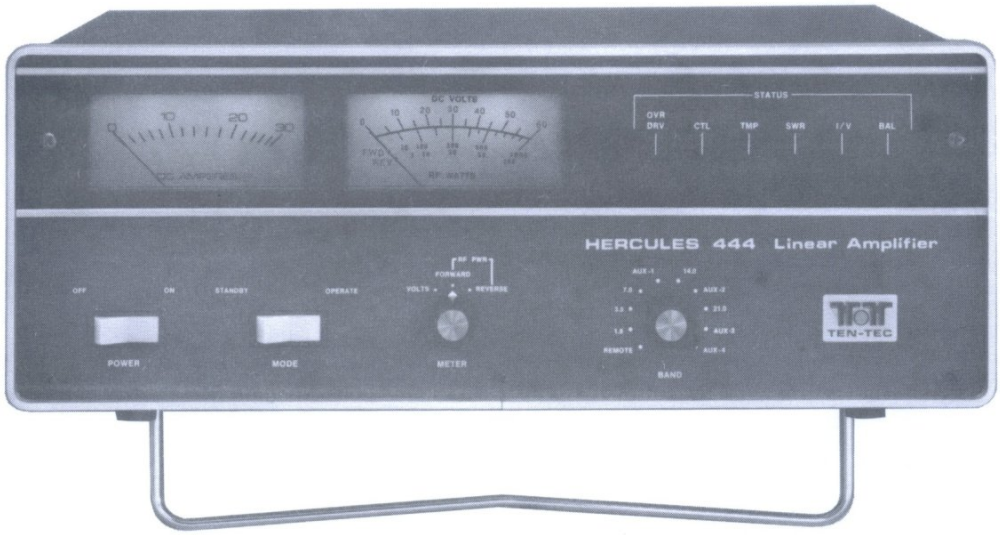
With the Omni C, the band availability was complete with the 30, 17, and 12-meter bands being included and working – and properly marked on the bandswitch. The biggest ergonomic improvement was the convenience of the separate switching of the crystal and audio filters. Now the flexibility of the two kinds of filtering were separately selectable for maximum flexibility.

Ten-Tec Omni C HF Transceiver – Model 546C

RigPix Photo

Although my own experience with this radio was tied to the original Omni D (Model 546) owned by my friend, I can say that these radios were very capable with good filtering and a very pleasing audio sound. This has always been typical of Ten-Tec radios. Although my friend never used it on CW, I ran the rig many times on that mode. As you have perhaps often heard, Ten-Tec was and is a master at providing superior QSK CW performance. Not so well known was the fine SSB performance these radios exhibited. In my humble opinion, SSB performance with Ten-Tec radios seems to be a closely guarded secret!

All the Omni, Omni Series B, and Omni Series C radios had a full complement of accessories to go along with them. Ten-Tec was an early player with a solid-state linear amplifier with the Ten-Tec Model 444 Hercules:



Ten-Tec Model 444 Hercules Linear Amplifier

Ten-Tec Documentation

That is faded picture of the Hercules but the best available that I have found so far. This amplifier provided 1,000 watts input on CW and 1,200 watts input on SSB for an estimated power output of 500 and 600 watts, respectively. Here is a second picture with another view of the radio but with the amplifier sitting atop its matching power supply:

Ten-Tec Model 444 Hercules Linear Amplifier (sitting on top of matching AC Power Supply)

Ten-Tec

There was also a Model 243 Omni Remote Analog VFO. The Remote VFO worked with all three series of the original Omni HF Transceivers. However, it was only available with an analog readout. When engaged, its frequency would show on the digital readout on the host transceiver (if a digital model). The Remote VFO is shown here:

Ten-Tec Model 243 Remote VFO.

Ten-Tec

Ten-Tec was quite focused on radios with CW as the primary mode. That perhaps did not sell products then and it likely would not do so today other than a very few true CW aficionados. (Try to find a rag chew QSO on CW on the bands, today.) What was perhaps unfortunate was that Ten-Tec tended to ignore selling the fine SSB performance present in all their radios. Their transmit audio and receiver bandwidth control were exemplary. And, in many cases it was ahead of their competition. If one adds that omission to the radio's humble appearance (mentioned earlier in this article) and that almost surely limited their sales!

Many of these early Omni radios, the Corsair and Corsair II models[5], the Omni V, VI, and VI Plus[5], the now discontinued Orion and Orion II, and onward to today's Omni VII and Omni VII Plus radios still grace many stations operated by serious ham radio operators. These operators run the gamut – from DX operators to those of us that just want to get on the air and talk to someone.

A special thanks to Bob, W9DYQ, for his proof reading and our discussions of vintage radio and a million other topics from BBQ to politics. Bob, and XYL, Deb, KAØPBV, live in the Minneapolis-St. Paul area.

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

Notes:

[1] Reference http://www.tectec.com for Ten-Tec's complete line, including the current Omni VII Plus and other items. That site also includes links to documentation on earlier Ten-Tec radios.

[2] The reference here is to the Drake TR7, the Heathkit SB-104, the Swan SS Series, and the Ten-Tec radios in this article. At the time, there was only Icom, from Japan, who was in the market with an all-solid-state radio, the IC-701. I tried one of these at the time – in my opinion, it did not compete well with the other radios mentioned in this note!

[3] The specifications given – unless otherwise noted – come from the Ten-Tec Operating Manual for the mentioned radio.

[4] That friend was Floyd (Pappy) Sakemiller, W9PRV. Pappy is now a SK. He and his XYL, Ruth, were close family friends in those days.

[5] The Corsair, Corsair II, Omni V, VI, and VI Plus were the subject of a previous article.

On The Air!

De Gary Sutcliffe (W9XT)

Another Field Day is in the books, my 51st consecutive participation. While muted compared to past years, it was great to see some normality compared to last year. There were two highlights for me. One was getting to use Vic, WT9Q's Flex 6600. This is the first time I got to play with a Flex other than a brief period at the Flex Radio booth at the Hamvention® in 2019. The SDR technology is amazing.

The other highlight was seeing the excitement of Mark, KD9NOO getting his first exposure to CW contesting. I hope Mark follows through and becomes another CW op in the club.

Six meters has been the focus of several ORC members during this year's Sporadic E (Es) season. There have been a few DX openings to Europe and Africa, some lasting hours. Openings to the Caribbean are reasonably common. I have managed to pick up a few new countries on the band.

Between DX openings, Ken, W9GA, Gary, K9DJT, and I have been chasing new grids for VUCC and the FFMA award. I have talked about the FFMA award before. It requires working every grid that includes land from the lower 48 states, all 488 on 6M. Last year several stations made the grade to increasing the class to 12 since the program was started in 2010. So far, at least nine more have claimed completion.

June was filled with grid rovers operating from rare grids. Some of these operations lasted for as long as two weeks. One spent a week each in two grids in Maine, the two most needed grids in the country. They had big beams and full power and used all sorts of modes, including moon bounce. Others spent a day or so in rare grids before moving to the next. This activity allowed many with only a few needed grids to complete the award. It has been a lot of fun tracking these rovers on their travels and working them as often as conditions allowed.

The Es on 6M will continue through the end of the month, with occasional openings in August. So there is still time to get into the fun. Most of the grid chasing and DX has been on FT8.

The longer days and a bit of increase in sunspots have made some interesting propagation on some of the higher bands late at night. The action has been on 15, 17, and 20M. First, these bands have been staying open very late, at least to midnight local time. The higher bands will close first. I don't know how late 20 stays open, maybe all night on some nights. I didn't stay up any longer.

The second thing is that these bands are often open to many locations at the same time. It has not been uncommon to hear four continents within a short period. As I write this at 10:00 PM in late June, I currently see 17M FT8 decodes from Kazakhstan, Sri Lanka, China, Afghanistan, New Zealand, and a bunch of more common countries all on the screen at the same time.

A little earlier, I was decoding Europe on 15M. When the solar flux is high enough, Europe usually opens after local sunrise and will close an hour or two after sunset in Europe, which is the early afternoon for us. Openings to Europe at night on 15M are rare. Or are they?

One thing to keep in mind is that digital modes let us dig out signals around 10 dB lower than can be copied on CW. This allows us to communicate on bands that would be dead to other modes. In addition, we are discovering a lot about propagation because of the digital modes.

While we are making our contacts, systems like WPSRNet and PSKReporter are recording when stations hear and work each other. Scientists studying the ionosphere are tapping into this data as part of their research. Who would have guessed that just by operating our radios we are aiding science better understand our planet?

The most interesting DXpedition this month is to Svalbard. This is an island way up in the Arctic Circle and is somewhat rare. A group of five Norwegian stations will be operating JW0W from July 21-26. They will concentrate on 30, 40, and 20 meters. The antennas are verticals near saltwater. These antennas are proving to be highly effective, and more and more DXpeditions are using them in favor of conventional towers and Yagis, along with the hassles and expense of shipping and setting them up.

There are a few interesting contests in July. The IARU HF World Championship starts at 7:00 local on Saturday, July 10, and runs for 24 hours. Work everyone. The exchange is a signal report and IARU zone. That is 08 for us, not the one four we use for CQ contests. There are points for working IARU headquarter stations and some other things, so check out the website if you plan to operate it. www.arrl.org/iaru-hf-world-championship

The CQWW VHF contest is July 18-19. This is not as popular as the ARRL VHF contests but still has a good amount of activity. Exchange grid square. This is 6M and 2M only. https://www.cqww-vhf.com/

The RTTY NAQP is also on July 18. It starts at 1:00 PM local and runs for 12 hours. The exchange is name and state.

That wraps up July. Enjoy the summer, but don't forget the radio!

Hickok 539C Tube Tester

De Chuck Curran, W9KR

I recently acquired a Hickok 539C Tube Tester, in mid-June, and have been working on it to bring it up to full operational status. As always, I'm having fun and making progress. I failed to take pictures of this unit when received; I just thought of sharing this project after receiving Ben's reminder email about newsletter articles.

Okay, no pictures available as purchased, but below show results of a cabinet refurbishment, using the products found available on-line and shown here. Cabinets from the 50's and 60's commonly used a product called Tolex, a fabric impregnated with vinyl. It was used on suitcases, briefcases, and many other enclosures, including Hickok tube testers. You can still buy it today from Antique Radio Supply in Arizona. The pictures below show a complete multicoat recoat using a product I found, picture shown below. It was applied with no issues and I'm happy with the results. There were several deep cuts and holes, but a presentation on YouTube showed a method of using Super Glue to fix these defects. It worked very well.

This piece of equipment, the Hickok 539C, was described by the seller as faulty. I ended up as the only bidder. I wanted this unit for the last 15 years, and owned a manual for it for at least 14 years!

It turned out that the fault described was simply a misunderstanding by the seller; the fault didn't exist. Being familiar with its operating characteristics, I knew his description wasn't correct, so I made an offer and bought it. I found a few other issues, still resolving last one with a bias circuit, a small issue.

Below shows the unit set up and ready to test my Collins KWM-2 tubes.

I'm very happy with the results!

Vintage Magazine Cover Art

By Pat Volkmann, W9JI

Our cover this month, “Alone At Last”, is from the July 1926 issue of Radio News. Radio News was Hugo Gernsback publication with “Circulation larger than that of any other radio publication”. The picture shows a tearful young woman on her honeymoon sitting next to a young man who is, of course, setting up his radio.

Portable radios were a big item in the 1920s, just as they are today. A radio that would fit in a suitcase was something of a technical marvel at the time. This cover also illustrates the incredible attraction of a technical hobby like ham radio. She should have asked him about his radios before they got married!

“Alone at Last” Radio News, July 1926

Ozaukee Radio Club
June 9, 2021 Meeting Minutes

de Ken Boston W9GA

This ORC meeting was conducted via an online (internet) connection using the ZOOM app. Prior to the meeting start, those members who were able to access the 'waiting room' via phone or computer/webcam were then introduced into the meeting space hosted by Pat W9JI. At that time various audio and video connection issues were addressed for the members before the meeting began.

ORC President Pat W9JI officially initiated the meeting at 7:33 PM. As introductions were recognized when members checked into the meeting, a go-around was not conducted. Pat W9JI will be setting up breakout rooms for the post-meeting, and also recognized Fred W9KEY for his top finish in the rookie category in the WiQP this spring.

Program:
This meeting was devoted to planning issues for the upcoming ARRL Field Day event scheduled to occur on June 26-27, which is the fourth weekend of June. An overview of what Field day is, and means to the hobby was shown with a few slides, and then plans were discussed; such as the use of multiple logging programs [no network], N3FJP update to version 6.6; how to handle the 24 hour setup window [can be broken into segments]; and scheduling issues. Further discussion and questions were then referred to be handled at the end of the meeting in a breakout room.

Committee reports:
Repeater – Tom KC9ONY reports that all systems are OK; some minor remote issues to address in the future. The Tuesday night net sounded good.

Gary N9UUR [treasurer] did not have much activity; some dues were received, paid RPT electric bill, details released to BOD. Ask if you need more info. WB9RQR moved, W9GA seconded, to accept treasurer report; motion carried.

Ken W9GA [secretary] distributed minutes; WB9RQR moved, WT9Q 2nd, motion carried to accept.

Tom W9IPR read a letter from the 2021 recipient of the ORC Scholarship Award [$2000], who is Nesya Graupe, KD9JNT {family are club members!!} Congrats to one of our own!

OLD business: No old business

NEW business: No new business

Adjournment:

A total of 29 members (unique callsigns) were recorded. Contact Ken W9GA to obtain the list. W9IPR moved to adjourn, AC9WL 2nd,motion carried. Meeting ended at 8:26 PM.

Following the meeting, breakout rooms for the Field Day discussion were opened.

Respectfully submitted,

Kenneth Boston, W9GA
Secretary

Upcoming ORC Monthly Meeting Programs

July – Pat Volkmann, W9JI – Members' Field Day Reports

August – Tim Duffy K3LR – K3LR Talks About Contesting

September – Open

Creating a Presentation

Almost all 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 Power Point 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 (underscores between the words left of the "@") to discuss your idea for a program.

ORC Meeting Agenda

July 14, 2021

1. 7:15 – 7:30 PM – Check-In and Introductions
2. 7:30 PM Call to Order – President Pat Volkmann (W9JI)
3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
4. Presentation: Pat W9JI, Members' Field Day Reports
5. President's Update – Pat Volkmann (W9JI)
6. 1st VP Report – Ben Evans (K9UZ)
7. 2nd VP Report – Bill Church (KD9DRQ)
8. Repeater VP Report – Gregg Lengling (W9DHI)
9. Secretary's Report – Ken Boston (W9GA)
10. Treasurer's Report – Gary Bargholz (N9UUR)
11. Committee Reports
12. OLD BUSINESS
13. NEW BUSINESS
14. Adjournment

Meeting Note:

Until the club decides it's safe to hold in-person meetings again, we will be holding the meetings via the Zoom Videoconferencing platform on the same evening and time as we had the in-person meetings. Sign-in info will be emailed by President Pat Volkmann, W9JI via the ORC remailer usually about an hour before the start of the meeting.

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting via Zoom
July 14, 2021

7:15-7:30 PM – Check-In
7:30 PM – Meeting Begins

The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Bill Shadid, W9MXQ (W9MXQ@TWC.com). Permission to reprint articles published in any issue is granted provided the author and the Ozaukee Radio Club Newsletter are credited.

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 XXXIII	August, 2021	Number 8

From the President

de Pat Volkmann, W9JI

Radio clubs thrive on member involvement and the Ozaukee Radio Club is certainly a thriving club. Running a club this size requires the participation of committed members to take care of the day-to-day activities. Some of our members wear more than one hat, providing a high level of service to our organization. Please keep in mind that our "organization" is not some abstract entity, it's you and me. Our fellow members are the source of the things that we enjoy in our club, such as our repeater, newsletter, meeting programs and more.

Our First Vice President, Ben Evans K9UZ, is great example of a committed member. In addition to his role as First Vice President, Ben is our newsletter editor and webmaster. Prior to his current term, Ben served for several years as the Club Secretary. Recently, Ben's business has picked up and he finds that the time he has available to devote to Club activities is limited. Ben has asked me to find another member to take over the role of newsletter editor and webmaster.

Fortunately, several members have already stepped up to volunteer for the positions. Gregg Lengling, W9DHI, who is our Repeater Vice President, has agreed to take over the webmaster role. Gregg is an experienced webmaster and is already familiar with Joomla, the software used for managing the ORC website.

A regular contributor to the ORC Newsletter, Bill Shadid, W9MXQ, will become the new Editor. Bill's column on Vintage Radio is very popular and is read by hams all over the world, not just those in the ORC. Bill has several anecdotes about on the air contacts recognizing him from his monthly column. Bill will assume the role of editor beginning with the August 2021 issue. You can email your items to Bill at W9MXQ@TWC.com.

Another position that is looking for a new leader is Program Chairman. The Program Chairman arranges for the monthly programs that are an integral part of the ORC meetings. I have been doing the Program Chairman job for several years and now it's time for someone else to take over. Please contact me if you are interested or to recommend someone for the job.

We are still looking at resuming in-person meetings starting in September. The Senior Center remains open but there may be some restrictions. We will keep an eye on the Covid 19 situation over the coming month and see how things shape up.

Are you ready for another "Key Up" contest? Key Up is where we contact other ORC members via one or more of the club repeaters. The last one was in February and was popular. The repeater was pretty busy for a few weeks with people making contacts. Let me know if you are interested in participating in another one.

See you at the meeting.
Pat Volkmann, W9JI

THE COMPUTER CORNER
No. 281: Privazer

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

If you want to really deep clean your computer (safely), here is a new program find of mine that will certainly do the job. The first version came out in December 2011, so it has been around awhile and has had a chance to mature. It will scan your Windows machine thoroughly, including both conventional hard disk drives, SSD drives (and even other devices). You can have it scan specific traces and even delete stuff without a trace, such as data in the recycle bin. There are lots of options and advanced options, including automatic cleanups. It will also restore and repair data. You can set it to work with a low, normal, high or maximum priority, depending on whether you wish to do the job quickly by concentrating on it, or have it done in the background while you continue working on other projects.

To describe the program simply, Privazer is a PC cleaner that erases unwanted traces forever. Be aware that it is a cleaner that you probably don't want to use every day. Rather, you might elect to use it just occasionally -- perhaps monthly, or even every three or four months. It does, however, seem to be an unparalleled scrubber that really does a thorough job of getting rid of unneeded data. It will also protect your privacy by removing sensitive material that you want thoroughly erased.

You can take a close look at it with a couple of majorgeeks videos. One will explain clearly what the program does and another will compare Privazer vs CCleaner vs Wise Disk Cleaner. Go here to take a look at the two videos, and decide what is best for you:

https://www.majorgeeks.com/files/details/privazer.html. I think Privazer is terrific for periodic cleaning to a depth not available with CCleaner or Wise Disk Cleaner. And it will

expose and offer to remove, in an unparalleled way, files that expose your privacy. This site is also where you can safely download the program.

Is it free? Well, yes and no. It is effectively free because the program, as it is offered, will do all that most people will ever want or need, with no fee. On the other hand, there are a few, relatively unimportant features that you can get for a minimum donation of $10. I would suggest you download and use the program just as it is for a while, and only send a donation later, if you feel guilty or want those extra features that are only available with the "Donors Version". On the other hand, what you get for free is a really well done program that deserves being used.

Some additional suggestions. Do any backups that it invites you to do (such as a Registry backup) before you run the program. While not really necessary, making backups will make you feel more confident that you will lose no non-recoverable data when the program is run. Besides, you should run backups anyway from time to time, so here is an incentive to do one. The other suggestion: although the program may or may not suggest a reboot after running, always do a reboot when finished. Some of the files it will remove cannot be erased except on startup, so the reboot will let the program truly finish its job and erase these locked files. This is particularly important if you routinely leave your machine on 24/7, as I do. No sense in waiting for a month or the next power outage to finish your cleanup job.

Vintage Amateur Radio

de Bill Shadid, W9MXQ

One of the goals and delights in collecting vintage radios is finding examples that "look like they came off the original factory production line just this morning." Many readers know that I surround myself with such collectable items. Finding such radios is not easy – but it is far from impossible.

So, the general thinking amongst the ham radio operators, short wave listeners, and general radio aficionados is that such radios – be they receiver, transmitter, transceiver, accessory, or whatever – is they are the gem of the century when found. Their vision is of a prized vintage radio emitting golden tones of CW, AM and SSB from Ham Radio and Shortwave Broadcast stations while shining like a new penny with spotless paint, bright and clear vacuum tubes, and a nicely plated chassis.

Radios such as this are rare – not unobtainium[2] – but not an everyday find. So, you locate such a prize and what do you do? There is a tendency to plug them in and enjoy

their beautiful sound – radios of that time did have beautiful audio and some of them could be defined as hi-fidelity when connected to a high-quality speaker.

In this article I am going to describe several exceptional physical condition radios, how they sounded after their initial power up[3], what steps took place, and how they sounded and operated when this extra step in the restoration process was done. Let me emphasize that this article assumes that you have followed a procedure to render the radio safe to operate from information provided in this series of articles[3] or by having the process professionally done.

Maybe like this gem acquired from Nationwide Radio[1], a few months ago:

Hammarlund HQ-180C General Coverage Shortwave Receiver
Looking brand new today – but built in 1959, over 60 years ago
W9MXQ Collection

In the case of the Hammarlund HQ-180C, after confirming its power supply integrity it sounded okay but not stellar – not the way this rather spectacular receiver is supposed to sound. So, to this radio we apply the long-practiced enhancement technique used by Bob, W9DYQ, and me in our radio restorations. This is a wholly unscientific approach that has netted positive results for years for the two of us.

To start with, the Hammarlund HQ-180C Receiver (from 1959) was powered on with 105 to 125 volts AC, so the tubes were illuminated, pilot lamps showing, but the [SEND, RECEIVE, CAL] Switch set to SEND (which for the receiver running alone is Standby).

The receiver is allowed to sit, under power, in Standby, for hours. I keep it somewhere I can keep an eye on it – only letting it stay under power, out of my sight, for more than a few minutes. At night it is off or any significant times if I am not with it, it is off. I like to have the radio under power, on Standby, for a total of 24 to 36 hours. More – even more than 36 hours – is good.

Result? When returned to regular operation, it had reduced background noise, quieter operation (electrically) of switches, and improved audio response. Subjective? Yes. But I am familiar enough with these radios to know when I hear changes.

Now for another example of this technique . . .

Drake TR-4Cw/RIT HF Transceiver

Cannot anywhere be distinguished from brand new

W9MXQ Collection

The HQ-180C was a pretty basic improvement and no other changes were needed. Some radios require more work. Here is an example of that in a fairly rare Drake TR-4CW/RIT HF Transceiver. These were very-late in TR-4 production and for a while was made in parallel at Drake to the TR7 HF Transceiver.

The TR-4Cw/RIT came to my collection as one of the most pristine radios I had ever seen to this point. After all, it was made nearly 44 years ago. As it turned out, it screeched and howled when it made any audio output at all.

This radio had two issues – one being that part of the tube filament string was lighting intermittently. That turned out to be a break inside the main chassis wiring harness that bundled perhaps two dozen wires securely laced together every inch or so. Opening the harness to find the broken wire was deemed impractical so the circuit was repaired with an added wire wrapped into the harness. (Hmmm, one short paragraph on finding a broken wire in a harness – the process takes a lot longer than these few lines of text!)

After the wiring harness was corrected the radio came to life, received signals, and seemed relative sensitive and selective. But it was still noticeably pinched in audio and seemed strangely unpleasant to the ears. It was setup to run with a trusted Drake AC-4 AC Power Supply. The MODE switch was set to SSB (although any position would be fine) and the RF Gain was set to zero. The radio was run under power for what became close to fifty hours. It was close to me when I write one of these articles, so I was able to monitor it for long periods over several days. In this case, I ran the radio with the top cover removed so I could confirm that the formerly open filament line had not developed into more similar issues. The open cabinet gave me a chance to look at the interior of this pristine radio that appeared to have been virtually unused. (That pristine look probably is because of its intermittent cable harness that was never successfully detected[4].)

The end result was a radio that worked beautifully. The sounds warmed – that is, audio response became smoother, and the radio became a joy to the ear.

Another such radio that came in excellent condition – acknowledging that few will ever arrive looking like the Drake TR-4Cw/RIT – was a complete Kenwood TS-511S HF Transceiver station . . .

Kenwood TS-511S HF Transceiver and Accessories
PS-511S, TS-511S, and VFO-5SS
(W9MXQ Collection)

This station – the first Kenwood model to be widely imported into the United States and Canada – was on the market in about 1971 (now 50 years ago). Henry Radio Stores imported Kenwood radios and sold them in their stores plus other stores.

This radio was the first Japanese radio I ever used – it was at Field Day in the mid-1970's in Bloomington, Illinois, my hometown. I really liked the radio and since getting seriously into collecting had looked for a good example. The one I found included the extremely rare matching VFO-5SS Remote VFO.

This beautiful radio package came to me with no discernable audio at all, most of the time. But it would occasionally come to life on receive – only to "go mad" in a bit in loud pops and howls then go completely dead. When working a try at transmitting netted arc-

ing in the power amplifier cabinet (shielded compartment on the right rear of the chassis that enclosed the two 6LQ6 final amplifier tubes and associate tank circuitry.

Even though this radio successfully got beyond the initial tests and burn in with the PS-511S AC Power Supply, it ultimately was found to have an intermittent in the 300 volt "Low High Voltage" regulator, controlled by a 6BM8 High Mu-Triode Power Pentode. This tube crosses as also a 6GW8. The voltage adjust pot was open but responded to an attempt to repair it using parts salvaged from an inventory of Japanese radio parts.

This circuit also provides other outputs for screen voltages used for control of lower-level circuits. The resulting intermittent voltages were causing erratic behavior in lower-level circuits. Then a mechanical problem with the Plate Tuning Variable Capacitor in the tank circuit was causing arcing when the transmitter was engaged. With difficulty I was able to straighten the thin aluminum rotor side plates that were somehow damaged by a former owner. (Try repairing variable capacitor plates sometime!!! Perhaps a stretch here but Newton's Third law says, "For every action**,** there is an equal and opposite reaction." He was right!!!)

Upon the completion of necessary repairs, this radio did not have the sound expected from a Kenwood radio[5]. To try and regain what I remember as an incredibly comfortable radio to use at that Field Day, years ago. I put the radio through the "power on but inactive period" described with the other radios in this article. I this case, the radio was powered up and the RF Gain set to zero. Also, the VFO-5SS was set to XMIT to make sure it was drawing power. In this case, about 24 hours were put on the radio while it sat in my office during the work week when I was in the house.

The net result was the smooth sound we know emitting from Kenwood Receivers and Transceivers. Success!! This radio also came from Mark Olson at Nationwide Radio[1]. Mark presented the radio to me as having problems and giving me an accurate description of what he heard when trying to use it. Mark knows me as a technician capable of making necessary adjustments in a radio based on his accurate description of symptoms. I benefit from many years of study of radios, interpretation of designs, and careful listening to a seller to gauge the potential to make a malfunctioning radio work again.

Another Kenwood radio, a TS-940S HF Transceiver, that actually had problems. However, none of the problems could be tied to physical repair issues. It appeared only to be suffering from time on the shelf. Indications seemed to show a malfunctioning transmitter in that it would sometimes fail to operate. The radio would go into transmit mode, but no output would be present. In times when the transmitter was working, it was confirmed that both the Power Amplifier and Power Supply fans – which are thermostatically controlled – were coming on when needed. They were operating properly.

With continued work in getting the transmitter to work, it became more regular in operation (as mentioned) without ever finding a cause. Without knowing for sure that there was any issue, I did apply cleaner (Caig DeoxIT) to the power level potentiometer and also to the switch for XMIT (that manually enables transmit) and the VOX ON/OFF

switch (that engages semi-automatic and full break-in CW keying and Voice Operated Phone modes).

This is the Kenwood involved in this project . . .

Kenwood TS-940S HF Transceiver with SP-940 Speaker Console
(W9MXQ Collection)

This radio is a work in process – it has responded to many hours – perhaps over fifty – of power on in standby. No hint of past problems has come up. After its time under power but not operating it was used on CW and SSB extensively with no hint of a problem. A week ago, it was returned to its box for storage and will soon be brought back on-line for another series of tests. This is the most dramatic example of the effectiveness of just letting a radio sit under power for many hours to allow its components to heat up and be exposed to operating voltages. In the case of the TS-940S, however, being all solid-state there is minimal heat involved in most of the circuitry – especially in standby mode.

On the bench as I write this installment is a long-time favorite that has not been operated for a long time. Unfortunately, radios need this long standby operation if allowed to sit idle for any significant period of time. This classic NCX-5 station is from about 1965 and was manufactured by the National Radio Company.

National NCX-5 Mark II HF Transceiver
VX-501 Remote VFO – NCX-5 Transceiver – NCX-A AC Power Supply
(W9MXQ Collection)

This station was the subject of an article in this series several years ago. It is now on the bench idling in preparation of being used. This vintage radio dates from 1965 as the Mark II – the original version dates from 1964. This later version has an improved balanced modulator, among other things.

These are a few examples of radios that have been returned to life completely or enhanced by some attention to details. All of the radios in this article were also aligned as a part of their refurbishing process – so what you see in this article is not the sum total of the return to operation. Power supply confirmation, control lubrication, contact cleaning, and alignment are all in addition to what is described in this article. Restoring vintage radios is a lot more than just bringing them up on primary power. Even that small step is potentially fatal to a radio if not done correctly and carefully. Radio restoration is very satisfying but definitely a skill that comes from long experience! Be careful and stay safe in your work with vintage radios – for your protection and the protection of the historic radio!!!

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.

Credits and Comments:

[1] One of my best sources of vintage radios of exceptional quality as well as OEM parts for same, is Nationwide Radio (http://www.KE9PQ,com) of Suamico, WI. The proprietor, Mark Olson, KE9PQ, is a good friend as well as the source for supporting parts to keep my vintage radio collection operating.

[2] I often use the term “unobtainium” to identify something impossible to find. “A highly desirable material that is hypothetical, scientifically impossible, extremely rare, costly, or fictional, or has some of these properties in combination.” This definition is from the Search Engine at http://www.bing.com.

[3] The subject for last month’s article.

[4] This is not the first time I have run into wiring issues in a radio. I once had a Drake R-4C that had an intermittent audio problem. Long story shortened – it was a never soldered wire to one audio power amplifier tube. The wrap on the wire was just enough for long periods of operation then it would fail. Soldering the connection cleared the problem for the long term. The number of hand soldered connections in these old radios meant that the chances for one being missed was present. I have run into it many times – and almost always in some pristine radio that likely was in that condition because it was just not dependable.

[5] This radio, was the first of the Kenwood TS-500 series in North America. It was sold outside this region as the identical TS-515S. In Japan and outside North America it was preceded by the earlier TS-510S. The current Kenwood TS-590SG in North America owes its heritage to this TS-511S.

On The Air!

de Gary Sutcliffe, W9XT

My primary activity the last few months has been 6-meters. We had an excellent sporadic E (Es) season. Maybe my comments stirred up a little interest. I frequently heard Ken, W9GA, the guru on 6-meters, and Gary, K9DJT, was around a lot. Fred, W9KEY, joined the action towards the end of the season but still managed to make some nice contacts.

Gary and I, along with a couple of guys from the Greater Milwaukee DX Assoc., had chat message conversations announcing new grids or countries that showed up. As the name suggests, sporadic E is sporadic. There are times when it is most likely to show up, but it can show up at any time. Although I spent hours sitting in front of the radio in marginal conditions hoping the band would improve, you can't be there all the time. If the band opened and others were not around, text messages like "Europe coming in on 6M" were common.

This cooperation really helped make progress on 6-meter DXCC and the FFMA award, which requires you to work all 488 grids covering the lower 48 states.
I asked the ORC members active on the band to provide a summary of their season. Here is what Gary, K9DJT, sent in:

"This year was like no other. I've never experienced anything like this on 6m before. Add 2m along with meteor scatter, and it made for a fantastic season. I'd say it was so good that it actually turned me into a VHF kind of junkie. On this date, July 30th, last year, I had accumulated 193 grids on 6m, having confirmed 171.

"The number of countries I had QSO'ed totaled seven and were all Caribbean. The number of states I had under my belt were 46 worked with 44 confirmed. 2m was a big goose egg because I didn't have any all mode 2m gear then. Let's jump forward to present day. I can proudly say that I now stand at 502 grids worked with 448 confirmed. Country wise, I'm at 61 worked with 52 confirmed, along with 48 states worked and confirmed.

"Never in my wildest dreams had I thought I would ever work stations in Europe, much less Japan, on 50 MHz. One night I worked 30 JA's! Although I started late with 2m this year, I've managed to work 31 grids: confirming 20 of them. I'd say Sporadic-E was the

main contributing factor, along with Meteor-scatter and making use of the MSK144 and FT8 modes."

Fred proved you don't have to have a beam to work a lot on 6-meters when the band is open. Fred, W9KEY made the following comments.

"As a relatively new ham, I had never operated 6-meters, nor were any of my existing wire antennas (in trees) suitable for operation at 50 MHz. But reports early this summer of excellent 6-meter sporadic E (Es) convinced me to finally investigate this band.

"I again read ARRL's book, "Magic Band Antennas for Ham Radio" by Bruce Walker, N3JO, which includes many different antenna options, some easily constructed at home. I considered a simple vertical delta loop made with wire and a PVC pipe spreader, which required a matching network.

"But in the end, I selected and built an H DoubleBay wire antenna based on internet calculations. The H DoubleBay is essentially a stacked pair of full wave rectangular wire loops (hung vertically). It's inexpensive and simple to construct, offers some directional gain, horizontal polarization, low radiation angle (for DX), and is fed at the bottom with 50-ohm coax - no matching network required. In final form, it's a bit over 2 feet wide by 14 feet tall, constructed from common #12 THHN house wire, two 1/2" PVC pipe spreaders, and a 2x4 treated lumber base (for bottom weight) to keep it hanging straight. Unfortunately, pondering the best design and general procrastination resulted in most of the Es summer season passing before the antenna was finally deployed (in a tree) on July 19, 2021.

"Operating exclusively FT-8, I've so far only experienced one strong day of DX propagation - which proved frustrating! I could "hear" many European stations from various countries - but many seemed unable to hear me very well - making it a challenge to log any appreciable number of contacts that day.

"I have had better success with USA stations over the past 10 days of operation, but as feared, 6-meter band activity has now slowed over the past several days (writing this at the end of July). Although I enjoyed only 2 weeks of 6-meter operation thus far, the allure of this band is obvious. Strong signals can randomly appear (and disappear) quickly, rewarding those who are paying close attention.

"Running WSJT-X using the FT-8 mode with helper program JT-Alert allows for quick identification of "new" US States and DX Countries, but even then, they sometimes "get away." However, persistence pays off, as they can "re-appear" minutes later - rewarding you with a solid QSO.

"In my short time on 6-meters, I've made over 200 contacts, confirming 42 States and 10 Countries via Logbook of The World. Should have started sooner, but it's obvious why they call it the "Magic Band" - great fun! Consider constructing a simple and rela-

tively small wire antenna for 50 MHz. I've been told band openings can be expected at various times of the year. Looking forward to that!!"

Fred kindly provided a link for more information on his 6-meter antenna. https://sites.google.com/site/wvfisher/hdoublebay

I am pleased with my results this season. I worked 51 different countries, about 20 of which were new ones. That brought me up to 83 countries worked on six meters. I need to track down QSLs for about 10 of them. Will I be able to complete 6-meter DXCC next year? I hope so. DXCC on that band from Wisconsin is very difficult. I think that Ken, W9GA, might have been the first station in the state to do it.

On the FFMA award, I went from about 280 at the start of the season to an even 400 worked. Those last 88 will be really tough, but more and more ops made it. Last year only a dozen stations completed it since the award started around 2008. So far this year, the number has increased to at least 22 stations. FFMA is getting to be very popular, and some hams go out to activate rare grids, just like DXers go to rare islands.

Fred proved that you don't need a big beam to make contacts. I learned something interesting and important this year. Ken, Gary, and the others kept working stuff I could not hear. That is normal, but over time it should even out. A friend of mine suggested I do a terrain analysis with my station. HFTA is a program that lets you plug in your local terrain then specify an antenna at a certain height. It will calculate the real-world patterns that occur because of the hills and valleys around the antenna.

I have a small three element Yagi at 55'. It is not exactly a big gun antenna. But I should be able to work stuff but had terrible luck in some directions. Gary was reporting working dozens of Japanese stations in an evening, and I had never work Japan on the band. Because of the hills in my area, I had some nulls in the pattern that were 20 dB below what the antenna would have provided on flat land! It turned out a dipole at 35' would have been much more effective in some openings to some directions.

I have been playing with HFTA and am thinking of changes before next year. I will be doing more of that and doing it for other bands. The findings are fascinating. Maybe it would make a good ORC meeting program. Let me know if you would be interested in one. By the way, HFTA is a program that comes with the ARRL Antenna Book.

The 2021 summer Es season is, for the most part, over. The last week or so have shown considerable declines in openings. There will be less frequent and short openings, mainly to the southern states in August. But another VHF activity will occur this month. That is meteor scatter (MS) with the Perseid meteor shower. Meteors, or "shooting stars," are fun to look for on clear August nights. At the peak, you might be able to see 60 per hour on moonless nights in good years. But if you are a ham, you can also bounce VHF signals off the ionized trails they create and make contacts out as far as 1300 miles or so.

If you are on FT8 and have a rig and antenna capable of doing SSB on 6 or 2 Meters, you are all set up to work the meteors. The MSK144 mode is part of the WSJT suite that includes FT8. A beam is best, but it does not have to be big. Power helps, but you can still make contacts with 50 or 100W. I once worked a station in Florida running 12 watts to a five-element coat hanger Yagi supported by a step ladder. The contact was on 2 Meters. Meteor contacts are easier on 6-meters. A given meteor trail will support signals on lower frequencies longer than higher ones.

The best time to work meteor scatter (MS) is between midnight and noon. Around dawn is the best time. The peak is expected the night of August 12-13, but there will be increased activity for several days before and after.

August usually is a slow month for DXpeditions. I have not uncovered anything really exciting this month or early September. The same goes for contests in August and early September.

That wraps up August. Enjoy the rest of the summer.

A Message from Your New Newsletter Editor

de Bill Shadid, W9MXQ

I am honored to have been asked to be the Editor of this fine Newsletter. I hope that I can help the momentum of my predecessors in this position to keep moving this already excellent publication forward.

I am especially indebted to Ben Evens, K9UZ, for his ongoing patience and assistance. Ben, I thank you for your work as editor and the other communications areas you so ably led for the Ozaukee Radio Club. Another past Newsletter Editor certainly worthy of comment is my friend, and Article Mentor, Tom Ruhlmann, W9IPR. Tom started me on my journey to writing my historical articles on Vintage Radio.

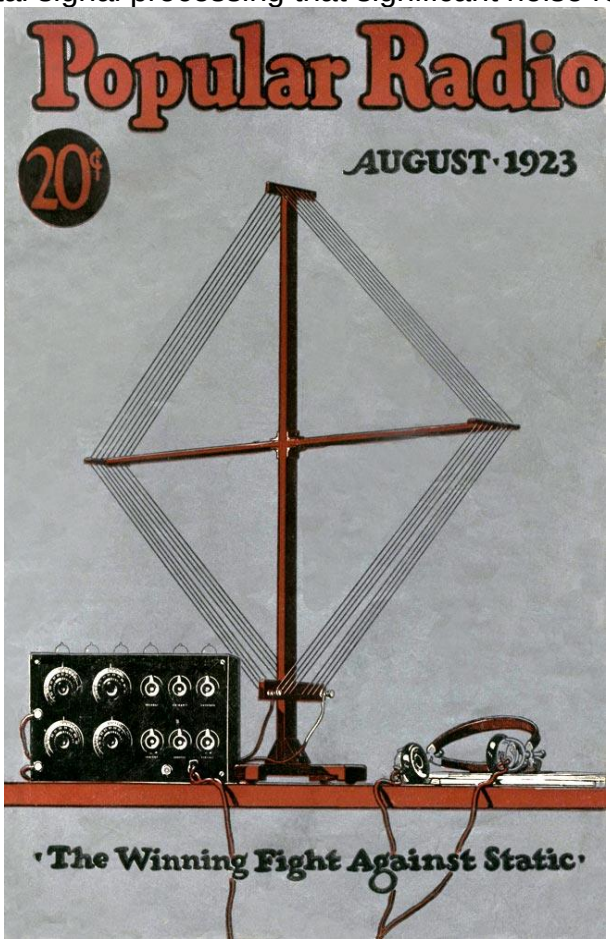
My short-term goal in this is to keep consistency in this excellent publication. Content is already well above average for similar publications. That will remain – and how can it not succeed with the contributors we have? However, I want to find ways to encourage more participation from our members and from others who read this Newsletter. Do you have an idea for an article but are concerned that you may not know how to get pen to paper, so to speak? I can help you with that!! Contact me at W9MXQ@TWC.com. Tom Ruhlmann, W9IPR, as I mentioned above, started me in writing articles with suggestions on what readers wanted to see – and that was 50 articles ago this month. You can do that, too.

Vintage Magazine Cover Art

de Pat Volkmann, W9JI

Our cover this month, “The Winning Fight Against Static”, is from the August 1923 issue of Popular Radio. Popular Radio was a somewhat technical magazine that focused on the practical aspects of setting up and using radio equipment in the early 1920s. We see a typical directional loop antenna and headphones near a sophisticated looking radio.

Static was such a problem in the early years that some considered radios to be unusable during the summer months. Articles on dealing with static were very common in the hobby magazines. The most effective solution in the broadcast world was to increase transmitter power to a very high level. Improved radio circuits helped the ham somewhat, but it wasn’t until the introduction of digital signal processing that significant noise reduction was possible.



Ozaukee Radio Club
July 14, 2021 Meeting Minutes
de Ken Boston W9GA

This ORC meeting was conducted via an online (internet) connection using the ZOOM app. Prior to the meeting start, those members who were able to access the 'waiting room' via phone or computer/webcam were then introduced into the meeting space hosted by Pat W9JI. At that time various audio and video connection issues were addressed for the members before the meeting began.

ORC President Pat W9JI officially initiated the meeting at 7:30 PM, as introductions were recognized when members checked into the meeting, a go-around was not conducted. Pat W9JI will be setting up breakout rooms for the post-meeting.

Program:

- Pat, W9JI held a roundtable presentation encompassing photos and comments submitted by some of the members regarding their Field Day participation:
- N9UUR gave summary; 1322 CW; 35 Digi; 906 Phone; 7290 score b4 bonus points, for ORC 4A
- W9XT happy to see Marc KD9NOO trying CW tent; Flex 6600 radio used.
- WT9Q shared various camera shots of the ORC site.
- KC9TSO shared pictures of the ORC antenna trailers.
- KA9RNU shared a panoramic view of the ORC site.
- AC9JV and K9DJT operating two stations from Gary's cabin in N. Wis.
- K9GN made his first HF QSO in many years from the ORC 40 Phone camper.
- KD9FM operated from home, on battery, 113 QSOs.
- WH6ZZ shared several photos from the ORC site.
- WB9RQR shared a chart showing the ORC finishing position in 5A from 2001-2013
- W9MXQ operated from home; using Yaesu FT2000 and Swan 750cw; 96 QSOs
- W9KEY operated from home; 532 Digi/226 Phone QSOs
- W9JI operated from cabin in Dunbar, WI; with Yaesu FT991A, 96 CW QSOs

Committee reports:

Repeater: W9DHI Gregg reports problems with the 222 system, showing low output, which will be addressed in the upcoming months.

Treasurer: Gary N9UUR distributed report; K9QLP moved, WT9Q seconded, motion carried.

Secretary: Ken W9GA distributed minutes; WB9RQR moved, W9MXQ 2nd, motion carried.

Tom W9IPR: no report on Scholarship activity.

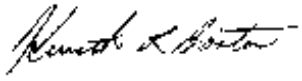
OLD business: The Fall Swapfest, set for September 11 is moving forward.

NEW business: Orc is considering re-starting in-person meetings; a poll was conducted with over 1/3 responding that they would attend. There is a need for a member or members to take on the scholarship/S.T.E.M. committee, and the Swapfest committee, as W9IPR is retiring.

Adjournment:

WB9IPR moved to adjourn, W9MXQ 2nd, motion carried.
Following the meeting breakout rooms for the Field Day discussion; were opened.

Respectfully submitted,
Kenneth Boston W9GA, Secretary



Upcoming ORC Monthly Meeting Programs

August – Tim Duffy K3LR – K3LR Talks About Contesting

September – Open

Creating a Presentation

Almost all 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 (underscores between the words left of the "@") to discuss your idea for a program.

ORC Meeting Agenda

August 11, 2021

1. 7:15 – 7:30 PM – Check-In and Introductions
2. 7:30 PM Call to Order – President Pat Volkmann (W9JI)
3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
4. Presentation: Tim Duffy K3LR
   "K3LR Talks About Contesting"
5. President's Update – Pat Volkmann (W9JI)
6. 1st VP Report – Ben Evans (K9UZ)
7. 2nd VP Report – Bill Church (KD9DRQ)
8. Repeater VP Report – Gregg Lengling (W9DHI)
9. Secretary's Report – Ken Boston (W9GA)
10. Treasurer's Report – Gary Bargholz (N9UUR)
11. Committee Reports
12. OLD BUSINESS
13. NEW BUSINESS
14. Adjournment

Meeting Note:

Until the club decides it's safe to hold in-person meetings again, we will be holding the meetings via the Zoom Videoconferencing platform on the same evening and time as we had the in-person meetings. President Pat Volkmann will email sign-in info, W9JI via the ORC remailer usually about an hour before the start of the meeting.

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting via Zoom
August 11, 2021

7:15-7:30 PM – Check-In
7:30 PM – Meeting Begins

The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Bill Shadid, W9MXQ (W9MXQ@TWC.com). Permission to reprint articles published in any issue is granted provided the author and the Ozaukee Radio Club Newsletter are credited.

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 XXXIII	September 2021	Number 9

From the President

de Pat Volkmann, W9JI

This past month the Club lost a long-time member and good friend to many. Nels Harvey, WA9JOB, passed away on August 25, 2021, following a long illness. Nels was well known for not only his extensive knowledge of radio but his willingness to share that knowledge with others. The many positive comments left by Nels' friends on the Club reflector are a testament to his fine character. A memorial service is planned for Saturday October 2nd. Details will be published as they become available.

The ORC Fall Swapfest is set for Saturday September 11th. This will be the first time we have been able to get together in quite a while and many are looking forward to the event. Tom Ruhlmann, W9IPR, is once again organizing the Swapfest. Tom is looking for more volunteers to help with the event. People are needed for setup on Friday, working the gate on Saturday and a variety of other jobs. We do need your help, so please consider volunteering. You can contact Tom at teruhlmann@wi.rr.com.

Covid 19 and all its variant strains are still with us. The CDC has some new guidelines, and we plan to follow those guidelines for the Swapfest – see the next article. The newest addition to the CDC guideline is a recommendation for unvaccinated people to stay home and not travel. The Club Covid guidelines can be found in this issue of the Newsletter.

I polled the members at the last two Club meetings and found limited interest in attending a meeting. The surge in Covid illness and the uncertainty of the emerging variants seem to have further dampened interest in an indoor meeting. We will therefore continue with Zoom meetings for the foreseeable future.

Ever have one of those projects that started out small and then grew into something that you weren't expecting? I decided that it was time to update my 20-year-old rig and replaced it with a Yaesu FTDX-101MP. I realized shortly after I got it that the shack was too crowded, and some changes were needed. I don't know yet how things will end up but it is great fun to be designing a new station layout.

See you at the meeting.

Pat Volkmann, W9JI

ORC Fall Swapfest Covid 19 Guidelines

Ozaukee Radio Club Board of Directors, August 26, 2021

The Ozaukee Radio Club will follow the CDC recommendations for Covid 19, in addition to state and local regulations. At this time, the State of Wisconsin Department of Health Services (DHS) and Ozaukee County follow the CDC guidance.

If you are fully vaccinated, you do not need to wear a mask or practice social distancing *when outdoors*. A mask is recommended when indoors in areas of high transmission, which currently includes Ozaukee County. You may also choose to wear a mask, regardless of the level of transmission, especially if you are around someone who is at increased risk of severe disease.

If you have been vaccinated but it has not been two weeks since you had the last (final) shot, you are not fully vaccinated. See the next paragraph to follow DHS rules in this case.

If you are not fully vaccinated, we ask that you wear a mask and maintain a 6 foot distance from others. On the other hand, if you are not fully vaccinated, DHS continues to advise against attending gatherings with people who don't live with you and who are not fully vaccinated, so you should reconsider attending at all.

If you have health concerns, discuss them with your doctor prior to attending the Fall Swapfest.

Board of Directors
Ozaukee Radio Club

Upcoming ORC Monthly Meeting Programs

de Pat Volkmann, W9JI

Upcoming ORC Monthly Meeting Programs
September (this month) – Morgan Bailey, NJ8M, End Fed Half Wave Antennas
October – Open
November – Open
December – Open

At this point we do not have any programs scheduled for the rest of the year. Please contact Pat W9JI with your program ideas.

Creating a Presentation

Almost all 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/

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A Message from the Editor

Bill Shadid, W9MXQ

On advantage of being he Editor of a publication is total freedom as to where something I want to say is where I want it to appear in the Newsletter! I want to extend a sincere invitation to budding writers in this organization (or elsewhere) that want to be published. Special projects around the shack, operating/on the air experiences, radio comments, or whatever you have that is ham radio or shortwave radio related. Interesting tidbits on Shortwave Listening are also most welcome. Contact me (W9MXQ@TWC.com) and let's discuss your article ideas. I am intrigued of late with a lot of activity on weak signal modes with VHF and UHF. Are you involved? Let me know and let's get it in from of the rest of the club.

This month check out Gary Sutcliff, W9XT, and his monthly **On the Air** column. This month he covers the beginning of the fall season of the year. Gary also includes notes about interest within Ozaukee Radio Club on a topic mentioned just above – "weak signal modes with VHF and UHF."

Stan Kaplan, WB9RQR, talks about upgrading to the latest version of Linux Mint (v20.2) in his 282nd edition of the monthly **Computer Corner**.

Pat Volkmann, W9JI, not only provides us with his monthly **From the President** message, but he also presents another of his **Vintage Magazine Cover Art** articles. I think these started as a single article, but I find an increasing fascination with monthly column, as it has become. Pat has material herein about upcoming programs for club meetings – and the process for making presentations for all to enjoy.

Check out the article from your Editor, Bill Shadid, W9MXQ, in the monthly **Vintage Amateur Radio** column, about the ground-breaking Hallicrafters FPM-300 Safari Transceiver.

Check references in this month's Newsletter concerning Covid-19 related issues and guidelines – including those for general meetings and the upcoming Fall Swapfest.

On to the Newsletter . . .

THE COMPUTER CORNER
No. 282: Upgrading to Linux Mint 20.2

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

If you are already running Linux Mint 20 or 20.1, upgrading is easy.

1. Create a system snapshot using Timeshift so that if anything goes wrong, you can restore the system to the previous configuration. That just makes sense. Left-click the Linux Mint icon in the lower left of the tray, type the letter t and click the Timeshift logo from the choices shown. Type in your password and left click the Create logo at the top of the window. All that might take 10 minutes or so.

2. Disable the screensaver temporarily if you use it. That will prevent the screensaver from interrupting the update process and potentially garbling it. That makes sense, too.

3. Click the shield logo in the tray to bring up the Update Manager and click Refresh to make sure your system is up to date. Install anything shown. Refresh again to make sure there are no more updates. Also common sense. You are now ready for the upgrade.

4. While still in the Update Manager, click Edit at the top and select Upgrade to 20.2, Uma (Uma, the name of a goddess, is the code name for 20.2). From there, just follow any instructions as they come up. Give yourself at least half an hour of free time for the upgrade, though in my experience, you won't need that much time. For one of my upgrades, there were 16 security updates and 21 software updates, but they go pretty fast. Nevertheless, don't start it 5 minutes before you have to leave for work! That makes sense, too.

You will need a reboot after the upgrade to complete installation of many of the updates.

Yes, it is worth it. Besides being relatively simple to do, there are a couple of important changes that are largely in the background, but nevertheless, they are important. There is a reworked desktop that uses less memory to operate for you, though you may not notice it as being different. The search feature has been improved, which is appreciated because it means quicker search results. Many Cinnamon utilities ("spices", such as widgets and themes) have been redone and are better. Also, you can now move files from Linux Mint to Android devices, or the reverse, on the same LAN.

Not bad, for about half an hour's time investment. Also, the Linux development team, after much soul searching, made the reminders to update a teeny bit more intrusive so that you are protected as needed when stuff is updated. I was impressed with how

much effort they made not to be “in your face” more than absolutely necessary in good conscience.

So there you have it. Do the update. And, Happy Computing!

On The Air!

de Gary Sutcliffe, W9XT

Fall is right around the corner, although as I write this near the end of August with temperatures in the 80s and 90s with humidity levels to match, it does not seem that way. Even if the heat and humidity are not bad enough, the mosquitos have been terrible. Too bad we can’t harness them to lift antennas. There must be enough of them in my yard to put up a full size 80 Meter Yagi.

But the days are getting shorter. By the middle of the month, we will be losing just under three minutes a day. That is a half hour less daylight after just ten days! That leaves less time to get those fall antenna projects done. I certainly have a pile of antenna projects I hope to accomplish before the fall contest season.

But, putting up new antennas is only part of the fall work list. It is also time to inspect and perform maintenance on the antennas already up in the air. It is better to find you have a problem or are about to have a failure before there is three feet of snow and sub-zero temperatures. Checklists are an excellent way to ensure nothing is missed. The checklist here is a good starting point. Feel free to add extra ones that are relevant to your station.

	Fall Antenna Inspection and Maintenance Checklist
	Check the SWR of every antenna. Check all bands with multi-band antennas. Compare it to the readings when you put it up. Failures usually result in high SWR, but lower SWR can mean problems such as lossy coax.
	Check coax connectors. They should be tight and have proper weatherproofing.
	Inspect coax for wear, cracks, and rodent damage. Replace damaged coax.
	Check tower guy lines for proper tension, loose hardware, and corrosion.
	Prune branches that have grown around antennas and guy wires.
	Inspect wire antenna rope supports for wear or damage.
	Enter your inspections points here.
	Enter your inspections points here.

One of the most challenging accomplishments in ham radio is making contacts by bouncing signals off the moon, commonly called moon bounce or EME (Earth-Moon-Earth). As far as I know, the only ORC members who have accomplished it are Ken, W9GA, and myself. Ken has made EME contacts on 6 and 2 Meters and maybe 432. I have done it on 2 Meters.

The reason EME is so difficult is the path loss. On 2 Meters it is 250 dB. That is a mind-boggling number. If you transmit 1 watt to the moon, you will only get 0.00000000000000000000000001 watts back. That loss must be made up for by power, antennas, and other techniques.

Recently I saw a post on the EME reflector from Jeff, W9KW, looking for advice for antennas for moon bounce on 1296 MHz. I didn't know he was interested in EME, so I contacted him, and we had several email conversations on his progress.

Recently Gary, K9DJT, and I both bought radios that gave us capabilities on the 1296 band. We have been talking about what to do on the band. The subject of EME came up. We checked with Ken, W9GA, who is the club's resident weak signal VHF expert.

Most EME activity is on 2M due to the availability of commercial equipment. 432 MHz band is the next most popular band after 2 Meters, but Ken told us that 1296 was quickly moving into second place. Furthermore, Ken has also been looking into getting on 1296 moon bounce and is considering a dish antenna system that folds up like an umbrella. Driveway EME is becoming a thing on the higher UHF and microwave bands.

1296 has some advantages over 2 meters. The biggest is that sky noise is lower at the higher frequency. Noise is the limiting factor for communications. The signal must be stronger than the noise, so less background noise is beneficial. The other advantage is that antennas are smaller.

So, we have four ORC members who are moving towards getting on 1296 EME. That would be pretty remarkable for a general interest radio club of our size.

HF propagation improves in September as summer absorption declines. The higher bands, which have been open on sporadic E this summer, will start to open with F layer propagation. Of course, we need some sunspots to produce that. Cycle 25 is showing a faster increase in sunspot activity than the last one coming out of the sunspot minimum. That is a welcome thing, a lot like an early spring after a bad winter.

We still have a way to go for really good conditions, but newer technology gives us an advantage over the past solar cycle. My rule of thumb is that you need a solar flux (SF) of at least 100 with a few days of low geomagnetic activity to get 10 Meter openings to Europe. As I write this, the SF is 90. Digital modes like FT8 give us an extra 10 dB or so of extra margin. Europe may be very workable on 10M with FT8 this fall and winter, and 15 almost certainly will. With luck, maybe in a few months, 10 Meters will open to east-west and polar paths well enough to support CW and SSB.

Contests pick up in September after the summer break. The ARRL September VHF Contest runs Saturday, September 11 (1:00 PM Local) through Sunday night at 10:00 PM. Work a station once per band regardless of mode (CW, SSB, or Digital). Exchange grid locations, which are also multipliers.

A lot of the activity will be FT8 because of its weak signal performance but check CW and phone if you start seeing stations up around +05 dB or higher. You can make contacts so much faster. The June version was terrible because even when conditions were very good, few moved off FT8. There were so many signals on that frequency that it was hard to complete QSOs through the QRM. Furthermore, the band would frequently change before the contact could be completed. Those contacts would have been completed quickly with a non-digital mode. http://www.arrl.org/september-vhf

The CQ World Wide RTTY Contest is the last weekend of September, starting at 0000 UTC September 25 (7:00 local Friday night). It runs for 48 hours. This is similar to the more well known CW and Phone versions, with a few differences. First, there is no 160M activity allowed. More importantly, you can work your own country for QSO points. You can work them for multiplier value in the other modes, but they have zero QSO point values.

Besides DX countries and CQ zones, US states and Canadian provinces are multipliers. So, we will send signal reports, CQ zone, and state. That will be “599 04 WI” for us. DX stations only send signal reports and zone. https://www.cqwwrtty.com/rules.htm
A good one in early October is the California QSO Party, starting at 11:00 local Saturday, October 2 and running until 5:00 PM Sunday. I put in some time as a shake down to check out the station after a summer of limited contesting. Send a QSO number and state. Work only Californian stations. They will give a QSO number and a 4-letter county abbreviation. I suggest you become familiar with the CA counties and have a copy handy while you operate. Work CA stations both on CW (3 points) and phone (2 points). One cool thing about the CAQP is that if you have one of the top 20 out of state scores, you win a bottle of California wine. Rules, county listings, etc., from their website: www.cqp.org/Rules.html

Big DXpeditions are still uncommon, but it sounds like things will be picking up early next year. There are a few single op efforts in September. Tanzania seems to be a popular destination by a couple of different hams in the second half of September.
A group of Czech hams will activate Sao Tome & Principe using the call S9OK October 2-16. They will be on160-6M, CW, SSB, and digital.

This newsletter will be changing hands, starting with this issue. A big thanks to Ben, K9UZ, for handling the editing job for these past years. Good luck to Bill, W9MXQ, our new editor. Bill adds this task to a long list of obligations to area radio clubs. Help him out by writing up something radio related for the newsletter. I always believed that if you can’t get up and talk or write a short article about something interesting you did in ham radio at least once a year, you are in the wrong hobby.

That wraps September. Print out the checklist and get busy on inspecting that antenna system!

Vintage Amateur Radio

de Bill Shadid, W9MXQ

Those that know me well and my history with ham radio and with Vintage Amateur Radio in particular, know that I am primarily a Hallicrafters fan. As Hallicrafters said in a 1972 advertisement[1], "You should be talking on a Hallicrafters." I bought into that philosophy from day one of being a ham radio operator and before that as well. My very first new commercial radio was a high school graduation gift from my parents. That was the popular, in 1963, Hallicrafters SX-110 General Coverage Receiver.

I am an appreciator of many, if not all, brands of vintage amateur radio equipment. I appreciate my Collins, National, Swan, Drake, and other brands of equipment – but Hallicrafters is, and always has been, my favorite brand.

This installment of Vintage Amateur Radio will discuss the very last amateur radio product Hallicrafters marketed[2]. Check this advertisement:

This is from the April 1972, issue of ***Ham Radio Magazine***. Note the arrow I added to the original scan of the advertisement pointing to an unidentified new product from Hallicrafters. Advertising from Hallicrafters introduced the radio the next month. That was the self-contained FPM-300 HF Transceiver. Self-contained meant that the box you see in the picture include both AC (117/234 VAC) and DC (12 V) Power Supplies and Speaker. All the amateur of the day needed was a microphone and/or a key (and an antenna!) to get on the air. So, here is the radio that was revolutionary in its day:

Hallicrafters FPM-300 Mark II HF Transceiver

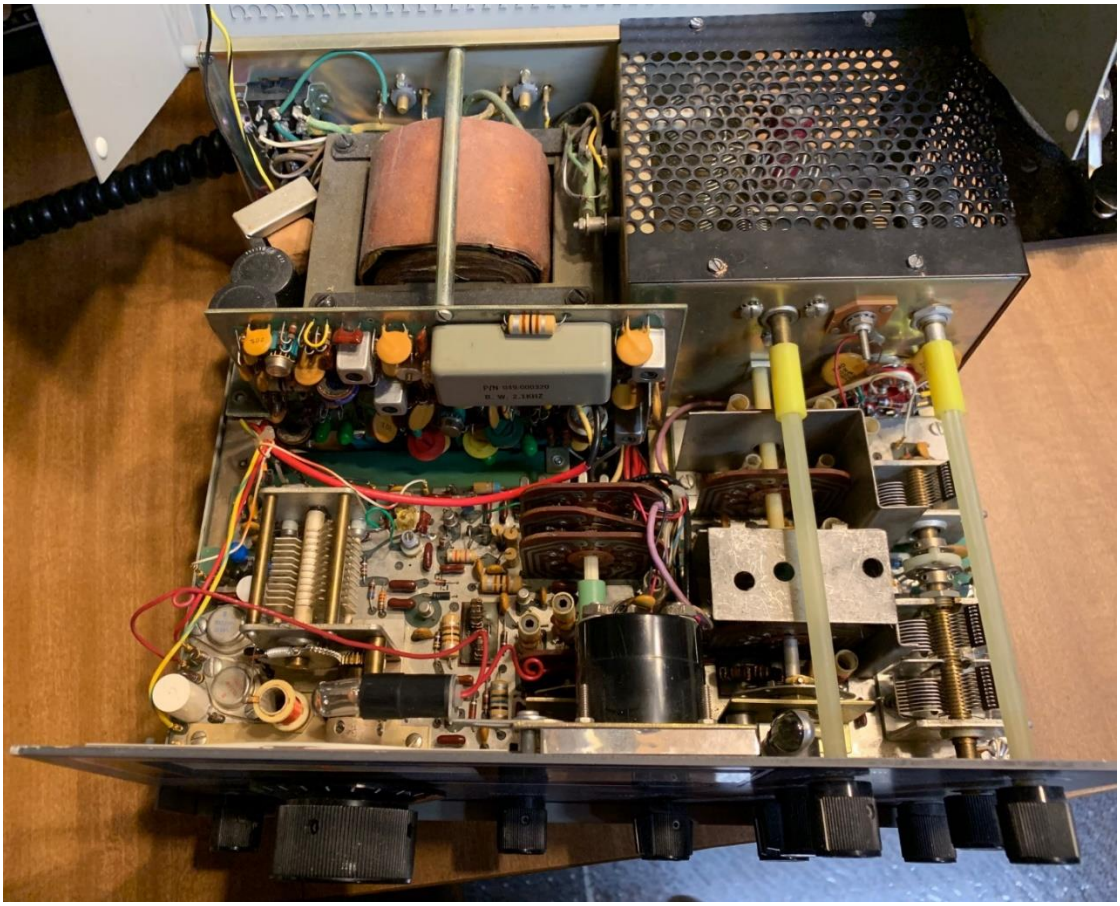
W9MXQ Collection

The advertisement on the previous page had received a lot of attention. While the American amateur radio equipment manufacturers were leaving the market for more lucrative, at the time, military work, they were respected by the amateur community. A call that I made to the Chicago factory, after seeing the advertisement, was interesting. It seems the advertisement had been set up without the pending FPM-300 announced to the market. That led to many calls to the factory. And, according to the person that I talked to, had shown much more interest than the marketing department expected.

Before going further, the collector in me makes me want to describe the other products in the advertising picture. Sitting on top of the FPM-300 was what I think was a “Hand Command” HT that operated on 2M FM. However, the Hand Command radios were for the commercial market. To the left of the FPM-300 was the HA-20 Remote VFO that worked with the SR-400A Cyclone III HF Transceiver and the SR-2000 Hurricane HF Transceiver. Below the FPM-300 is the PS-2000 AC Power Supply/Speaker Console for the SR-2000 HF Transceiver. To the left of the PS-2000 is the PS-500A AC Power Supply/Speaker Console for the SR-400A HF Transceiver. To the left of the PS-500A is the HA-1A Electronic Keyer for CW. Below the PS-2000 is the SR-400A HF Transceiver with the SX-133 General Coverage HF Receiver next to it. On the bottom row, below the SR-400A is the SX-122A General Coverage HF Receiver. Finally, next to the SX-122A is the SR-2000 HF Transceiver. The microphone on top of the HA-1A Keyer is a mystery. Hallicrafters most often marketed private labeled Turner microphones so some version of one of Turner’s products may have been this mystery unit.

The FPM-300 had very desirable specifications. First it carried an input power of 250 Watts PEP on SSB for a rated output of 100-watts – on the lower bands it was a bit more and on the 15- and 10-meter bands it was closer to 90-watts. On CW the radio delivered 180-watts input for an output of at least 90-watts.

The radio was all solid state except for a 12BY7A Driver and a single 6KD6 sweep tube final amplifier. The solid-state portion of the radio was a really fine performing radio at a time when solid state radios in ham radio could leave a lot to be desired in the area of receiver performance – especially overloading of the front end. I have used the one shown here on Field Day with other radios present in a close together operation. There were no problems. Take a look at this interior view – front panel is at the bottom:



Hallicrafters FPM-300 HF Transceiver – View from Top – Cover Open

W9MXQ Collection

This top view shows the VFO/Pre-Mixer/Audio Amplifier board at the front left. The Function Board is mounted vertically on the back plane separating the Power Supply and Power Amplifier areas from the receiver and low-level transmitter circuitry. The Function board carries the 6-Pole Crystal Filter. The filter specifications are for 2.1 kHz at 6 dB down and 5 kHz at 60 dB down – for a shape factor of 2.4 – a bit broad for the technology available at that time but in keeping with the 6-pole design. A positive of the design is very easy listening audio response.

The remaining circuit board, the Pre-Selector/ALC Board, is at the right side of the chassis in the view on the previous page. It is mostly invisible in this view. Note that the Bandswitch Wafers are PC board mounted to the Pre-Selector/ALC Board.

This unit is a Mark II Model – meaning it is the second version of this transceiver. Take a look at this picture of the back panel:

Hallicrafters FPM-300 HF Transceiver – Rear View

W9MXQ Collection

Note the two power transistors used in DC operation. Those are 2N1522 – available readily, today. I do not use this radio on DC power as these are Germanium power transistors and unlikely to take the strain of operation at their age. I have never tried powering my FPM-300 on 12-VDC and will not be doing so. These devises are for display only!

The 12 Volt power transistors are not the only place where this transceiver is delicate, While the transceiver operates very well, it has two ticking time bombs inside in the form of two impossible to replace integrated circuits on the Function Board. Those are:

- MC-1496G – Product Detector and Audio
- LM-370 – Transmitter Audio Compressor/VOX Delay/Anti-Trip

The only thing possible here in the event of a failure is modification to use other forms of case configurations that may be available. If you notice a familiarity in the device callouts, you would be correct. But these particular devices are round and socketed – a case configuration no longer generally available. The once popular LM-370 is now hard to find in any kind of configuration.

The Mark II version of this radio corrected many early production problems with the radios. Lots of issues with the bandswitch and general manufacturing quality. One major

improvement in the Mark II was a much better design bandswitch wafer. The new wafers were still PC board mounted but the technology for that kind of switch was new at the time and was not in its best form in the original version. Also, at the time, Hallicrafters was moving amateur radio production to Kansas City, Kansas, to be a part of the electronics operations of Northrup Corporation – Hallicrafters' parent for many years by that time. Generally speaking, Mark II versions, which were all built in Kansas City, are fine little radios. The Mark II discussed in this article provides a lot of pleasure in operating – especially on SSB. The original units could be a quality nightmare and they eventually ruined the reputation of the model and caused its early demise. In the end, this radio was off the market by 1977.

A note of caution here. Some early Mark II radios were actually rebuilt early units that were modified with most (but not all) redesign features included. My advice, if you want one, is to look for radios with the white adhesive back serial label like you see in the rear panel picture in this article. It is my experience that only the Kansas City built units have that label.

On CW, the radio had the same limitations as the Collins KWM-2, the Drake TR-4, and others, in that there were limitations on CW offset and no ability to fine tune the receiver (as with Receiver Incremental Tuning). The offset was acceptable (unlike the terrible CW implementation on the Collins KWM-2), so the radio was fine for casual CW operation. Also good for contest events where the exchange is too fast to get involved in the minor drift that was common in radios of the time. Suffice it to say that like many radios of the day, CW was an afterthought. These were phone transceivers with, in the case of the FPM-300, no accommodation for much of anything other than SSB.

Hallicrafters, starting with the HT-44 Transmitter, in 1964, included a rudimentary speech compression circuit that upped the average modulation by increasing drive while providing for an ALC circuit that acted very quickly to prevent over modulation. It was effective with somewhere just less than 3 dB of compression – a small number by today's standards but a unique to Hallicrafters feature in the HT-44 and HT-46 Transmitters as well as the FPM-300 Transceivers (and all the transceivers listed, below). This very responsive ALC circuitry was named Amplified Automatic Level Control – "AALC." To quote the Theory of Operation in the FPM-300 Operating and Service Instructions book included with the radio, "The Amplified Automatic Level Control (AALC) circuits are utilized only in the transmit mode. To properly employ the capability of the linear power amplifier, the stage must operate up to and slightly into the control grid current region and yet not overdrive into unwanted distortion known as "flat topping[3]."

Not shown on the rear view of the FPM-300 is the optional Hallicrafters HA-60 Cooling Fan. You can see the fan location in the previously shown rear view – on the left side of the back panel. There is a 117 VAC outlet toward the right, lower center for powering the fan – see connector marked "BLOWER." This outlet supplies 117 VAC when the radio is on 117 VAC or 234 VAC power. If the radio is running on 12 VDC, then this outlet provides square wave 117 VAC power – on transmit only. The square wave surely

makes for a noisy running fan! I have the HA-60 Fan assembly but do not have it installed.

Hallicrafters' transceivers were usually (but not always!!) named after storms. Some had no name at all. Those names include the following:

- SR-150 HF Transceiver – no name given (80-10 meters)
- SR-160 HF Transceiver – no name given (80-40-20 meters)
- SR-400 HF Transceiver – Cyclone (80-10 meters)
- SR-400 HF Transceiver – Cyclone II (80-10 meters)
- SR-400A HF Transceiver – Cyclone III (80-10 meters)
- SR-500 HF Transceiver – Tornado (80-40-20 meters)
- SR-540 HF Transceiver – The Eastwood (80-10 meters)
- SR-750 HF Transceiver – Cyclone (80-10 meters)
- SR-2000 HF Transceiver – Hurricane (80-10 meters)
- FPM-300 HF Transceiver – Safari (80-10 meters)

These were not the only SR and FPM prefix transceivers from Hallicrafters[4].

Hallicrafters, perhaps to distance themselves from the early FPM-300's, never used the Safari name when advertising the Mark II version of the radio. The Safari name hinted at Hallicrafters having a long history of sponsoring or just supporting DX-Peditions. One example is one that I experienced. That was Hallicrafters' support of DX-Peditions to isolated Pitcairn Island. It was my pleasure to work a Hallicrafters equipped station, operated by Tom Christian, VP6TC, a descendant of Fletcher Christian of Mutiny on the Bounty fame. He was running a nice new, at the time, Hallicrafters SX-117 Receiver and HT-44 Transmitter. I did not work the DX-Pedition but do recall Tom mentioning that Hallicrafters allowed him to keep the Receiver and Transmitter when the DX-Pedition departed. (Tom, VP6TC/VR6TC, is now a Silent Key but his relatives on the island carry-on an amateur radio tradition begun by Tom.)

I have seen pictures of early FPM-300 Transceivers with the word, "SAFARI" screened on the front panel. But I have never seen a Safari printed radio up close and personal.

Hallicrafters in the 1950's was active in many partnership operations with ham radio and the military at bases in the Arctic and the Antarctic. They were also active in operations with National Geographic – and in particular, I can remember seeing such equipment used extensively during the International Geophysical Year (IGY) running from 1 July 1957 to 31 December 1958[5].

There are rumors and stories about the FPM-300 that I have come across from other collectors over the years. They may not be worth the effort to discuss – but they are fun to contemplate, none the less. The first involved information about a model FPM-750 that is scarce on information. One picture, which I can no longer find, showed a design identical to the FPM-300. So, I suspect at most it was a planned, but never developed, higher power version of the FPM-300. Also, along the line of rumors and stories, there is

one about Hallicrafters at the time of their exit from amateur radio approaching R. L. Drake Company about continuing the little FPM-300 under the Drake name. Drake was a stickler for quality and the early quality reputation with the FPM-300 would give Drake a reason to step back from such a proposal – that is, if it ever happened.

A special thanks go to Bob, W9DYQ, for his proof reading and suggestions as to content. And I appreciate that you read my articles. Remember that I am open to questions and comments at my email address, W9MXQ@TWC.com.

Notes and Comments:

[1] This is from a Hallicrafters advertisement in the April 1972 edition of ***Ham Radio Magazine***.
[2] To be sure, Hallicrafters did market short wave receivers for a bit after their last dedicated amateur radio product – but not for long.
[3] Reference Section 6-5 of the Hallicrafters **FPM-300 Operating and Service Instructions.**
[4] Subject of a future article.
[5] Look up "International Geophysical Year" at http://www.wikipedia.com.

Meeting Note:

Until the club decides it's safe to hold in-person meetings again, we will be holding the meetings via the Zoom Videoconferencing platform on the same evening and time as we had the in-person meetings. President Pat Volkmann, W9JO, will email sign-in info via the ORC remailer usually about an hour before the start of the meeting.

Vintage Magazine Cover Art

de Pat Volkmann, W9JI

Our cover this month, "A 'Ground' For Complaint", is from the September 1921 issue of Radio News. The cover art is by Howard V Brown, whose distinctively styled art appeared on the covers of ***Scientific American***, ***Astounding Science Fiction***, and several other magazines.

On the cover, we see two men on a camping trip. One of them is holding a fish and the other is operating a portable radio. In 1921 broadcasting was in it's infancy, so there probably wasn't too much to listen to, just hams and some commercial traffic. The radio has an interesting antenna overhead and the camp frying pan is used for the ground connection. No wonder that fellow has a complaint!

Minutes of the August Ozaukee Radio Club Meeting

Ozaukee Radio Club Secretary, Ken Boston, W9GA, reports that he is having some technical difficulties and the minutes will follow for later approval.

ORC Meeting Agenda

September 8, 2021

1. 7:15 – 7:30 PM – Check-In and Introductions
2. 7:30 PM Call to Order – President Pat Volkmann (W9JI)
3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
4. Presentation: Morgan Bailey, NJ8M, “End Fed Half Wave Antennas”
5. President’s Update – Pat Volkmann (W9JI)
6. 1st VP Report – Ben Evans (K9UZ)
7. 2nd VP Report – Bill Church (KD9DRQ)
8. Repeater VP Report – Gregg Lengling (W9DHI)
9. Secretary’s Report – Ken Boston (W9GA)
10. Treasurer’s Report – Gary Bargholz (N9UUR)
11. Committee Reports
12. OLD BUSINESS
13. NEW BUSINESS
14. Adjournment

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting via Zoom
September 8, 2021

7:15-7:30 PM – Check-In
7:30 PM – Meeting Begins

The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Bill Shadid, W9MXQ (W9MXQ@TWC.com). Permission to reprint articles published in any issue is granted provided the author and the Ozaukee Radio Club Newsletter are credited.

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**

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From the President

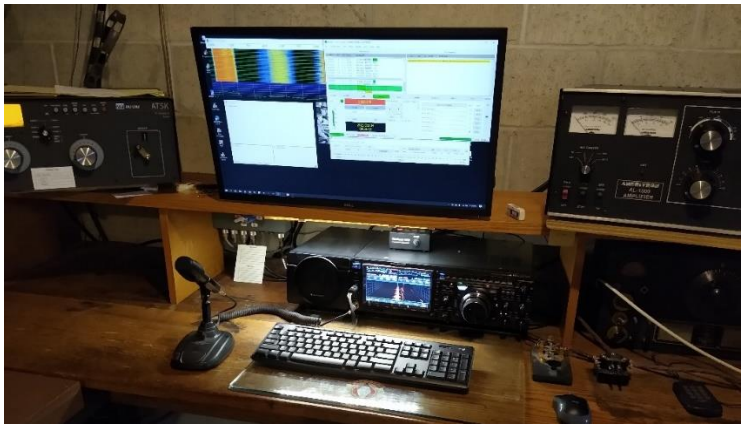
de Pat Volkmann, W9JI

Saturday October 2 marked the day of Nels Harvey's, WA9JOB (SK) Celebration of Life. The ceremony was held at St. Christopher Episcopal Church. In addition to family and friends, a number of Club members were in attendance to pay their last respects to Nels. For those who could not attend in person, the event was live streamed on YouTube. The priest delivered a warm and personal eulogy, highlighting Nels service to his church and community. 73 Nels, we miss you.

The ORC Fall Swapfest was held on Saturday September 11, 2021. The weather was beautiful, warm and sunny. A very pleasant day to be outdoors. Turnout was good, with 149 tickets sold. When everything was tallied up, all the bills were paid, and the club made some money. For a lot of us, this was the first time we had seen our fellow hams for many months. Hopefully we will have another occasion soon to get together.

Thanks go to Tom Ruhlmann, W9IPR, for organizing another successful Swapfest. Tom was aided by the many Club members who showed up to help with all the tasks that needed to be done. That includes loading up at the barn on Friday afternoon, selling tickets, helping with parking, announcements, refreshments and hauling stuff back to the barn on Saturday afternoon. Thanks to everyone who was involved and helped to make the event a success.

I mentioned last month that I was working on a new shack layout, with more room for the radios and the computer. I've made a number of changes and I am liking the new arrangement. One change that I particularly like is a swivel arm to hold the monitor. I'm now able to position the monitor at a comfortable height and viewing angle. I also made a coax patch panel to replace a burned-up switch. While not quite as convenient as a switch, the patch panel handles full power without any worries.



See you at the meeting.
Pat Volkmann, W9JI

A Message from the Editor

de Bill Shadid, W9MXQ

There are some new items in this edition of the Ozaukee Radio Club Newsletter that I am very excited to report. For Newsletter structure, I have moved to include page numbers – if for no other reason than to make it easier for this short Editor's Note to reference articles and where to find them. For a review, read on:

I draw you attention to Page 4 where you will see a short article from Nesya Graupe, KD9JNT. Nesya, as reported by ORC Scholarship Chairperson, Tom Ruhlmann, W9IPR, is the winner of the **2021 ORC Scholarship Award**. This Award is administered for the Ozaukee Radio Club by the American Radio Relay League (ARRL). In her writeup, Nesya, KD9JNT, sends us all a message about the Award, her school activities at University of Wisconsin Madison, and her work in amateur radio. Congratulations from all of us to Nesya!

Look at the monthly front-page article, **From the President**. On Page 1, Pat Volkmann, W9JI, opens expressing our sadness at the loss of fellow member, Nels Harvey, WA9JOB. Pat also talks about our Fall Swapfest and his ongoing shack improvements. He returns on Page 25 with his Vintage Radio Magazine Cover Art column. And, again on Page 27 with a note on upcoming programs – and a bit of information on how to prepare and present a program at an Ozaukee Radio Club meeting.

On Page 5, please see an excellent report on the **2021 Fall Swapfest**. This is presented to us by the Fall Swapfest Chairperson, Tom Ruhlmann, W9IPR. It ends with a shot of Tom relaxing and dreaming about the 2022 Fall Swapfest. Good work, Tom!

Starting on Page 7, please welcome Don Zank, AA9WP, OZARES Emergency Coordinator, for the first of his monthly **OZARES: Ozaukee Amateur Radio Emergency Services** columns. Glad to have you with us, Don. You are covering a very important part of our responsibility as Amateur Radio licensees.

On Page 9, see the always excellent **Computer Corner** column, written by Stan Kaplan, WB9RQR. This month, in his 283rd consecutive article, Stan writes about, **A Place for Your Old Computer**. This is a very important topic as we progress to a new computer.

Beginning on Page 11, your Editor, Bill Shadid, W9MXQ, in his monthly **Vintage Amateur Radio** column, presents the first of several articles on the Novice License in the United States. This was a unique time with many new pieces of equipment to attract an influx of new hams bent on learning Amateur Radio. Did you send an entry with information on your Novice station? If you did, watch for your story – included in the article.

Beginning on Page 22 is Gary Sutcliffe, W9XT, and his monthly **On the Air!** column. Gary is trying some new presentation formats for his column as he talks about the coming Fall Contest Season. Check out his column and its new design. I like the easy access to information as shown by Gary this month and very likely going forward.

Check Page 24 for a short bit on the upcoming **Boy Scouts Jamboree on the Air (JOTA) 2021**. Take a look and see if that is something you might want to do.

Ozaukee Radio Club Secretary, Ken Boston, W9GA, presents the **Ozaukee Radio Club September 8, 2021, Meeting Minutes**, Page 26. Those are presented for your review and for any comment during the upcoming September 13, 2021, club meeting – via Zoom.

Speaking of the September 13, 2021, meeting, you may check the **ORC Meeting Agenda** on Page 28.

On to the Newsletter . . .

In 2021 we have an ORC Scholarship winner from Ozaukee County!

(And she is an Ozaukee Radio Club Member!)

My name is Nesya Graupe, KD9JNT. I am from Mequon, Wisconsin and graduated from Homestead High School in 2019. Now I am at the University of Wisconsin Madison where I study Biomedical Engineering and plan to graduate in the class of 2023.

I started participating in amateur radio my junior year of high school. I studied for my license with my father and brother on a whim, and since then I have come to appreciate the great community and educational experiences that amateur radio has to offer. Learning about circuits and electricity during high school was one of the reasons I was inspired to study engineering.

At university I am active with the UW Madison chapter of Engineers Without Borders where I serve as outreach coordinator and organize science activities for the community. In addition, I am part of a research lab where I am creating models of wireless resonant circuits that use RF heating to stimulate neurons in the brain. Once I graduate, I hope to attend medical school. I have learned a lot from participating in amateur radio, and I hope to become even more active in the future!

The 2021 ORC Fall Swapfest; it was fun and profitable!

Tom Ruhlmann, W9IPR

If you were there you know what I mean. We had great weather and participation. There was a significant increase in the number of vendors and vehicles parked. The word got out and HAMs from near and far were there. Setup started at 6AM and there was a line of vendors waiting at the gate.

We had HAMs from Grafton, Cedarburg, Port Washington, and Milwaukee as you would expect. However, we also had HAMs from Oshkosh, Waukesha, Neenah, Sturgeon Bay, Manitowoc, Green Bay, Hurley, Eagle, Wautoma, and Beloit all in Wisconsin. They even came from Lith and Hoffman Estates in IL and Kingsford Michigan. It was a great time with all the visiting, selling, and browsing for treasuries.

We were pleased that our ARRL representatives joined us and for the gift certificates they provided for door prizes. We also received door prizes from Easy Way Ham Books (K4IA).

The economics were good with approximately $325 going to the ORC treasury and sales of $775 by the Scholarship Program. Note that there were no table sales this year since it was all outside.

While the scholarship tables had a variety of “good stuff” Many of our vendors had some “really good stuff.”

Yes, we had several of our members as vendors with Ken Boston and Vic Shier reducing their inventory of "good stuff" as Gary Sutcliffe was offering some of his new products from **Unified Microsystems.**

My special thanks to those who volunteered to help Friday evening and Saturday and made the event a success. These included the following members: Jim Albrinck, Jeanne Bargholz, Gary Bargholz, Bill Bischoff, Ken Boston, Bill Church, Cindy Douglas, Ben Evans, Dave Flowers, Bill Greaves, Mike Harrington, Richard and Catherine Holt, Loren Jentz, Greg Lengling, Tom Nawrot, Ed Rate, Mike Schultz, Fred Schwierske, Vic Shier, John Strachota, Gary Sutcliffe, Tom Trethewey, Pat Volkmann, and Don Zank.

Again, thanks to all who made it another success. Now it's time to take a break and start planning for 2022.

(*Editor's Note: And thanks to Tom Ruhlmann, W9IPR, for his work coordinating the Swapfest!!*)

OZARES:
Ozaukee Amateur Radio Emergency Services

de: Don Zank, AA9WP, OZARES Emergency Coordinator

Hello from Ozaukee County's other radio club, the Ozaukee Amateur Radio Emergency Services organization otherwise known as OZARES. Our nineteen-member group operates under the auspices of Ozaukee Emergency Management and Scott Ziegler, KC9IIZ, Director Ozaukee County Emergency Management.

OZARES operates two Yaesu Fusion repeaters available at 147.330, 127.3 pl, positive offset and at 443.525, 114.8 pl, positive offset. The station, which operates under the call sign WI9OZ, is located at the Justice Center in Port Washington. There is a WiNLINK connection available, WI9OZ-10, at 145.610 Mhz.

OZARES maintains a google group at: https://groups.io/g/ozares. This site has a list of frequencies and a membership application form. Our Facebook site is https://www.facebook.com/OZARES.

We hold two monthly practice and training nets on the first and second Thursday of the month, and on the few months that have five Thursdays, another practice net is held on the fourth Thursday. All of our nets take place at 8 pm on the 147.330 repeater. The third Thursday is our monthly meeting night at 7 pm that is presently conducted either by Teams or Zoom virtual meetings. The last Thursday of the month our members participate in the statewide VHF net held on the WECOMM linked VHF network https://www.wecomm.org/.

Amateur Radio Emergency Services®(ARES) is a program from the Amateur Radio Relay League (ARRL). ARES consists of amateur radio operators who voluntarily contribute their time, equipment, and skills to serve their communities, locally and nationally. Every amateur radio operator is eligible to participate with ARES regardless of ARRL membership.

OZARES is the Ozaukee County ARES organization in the Southeast District of Wisconsin. The statewide organization, Wisconsin ARES-RACES, provides the leadership, training, and conference for Wisconsin ARES groups. More information on Wisconsin ARES-RACES can be found at http://wi-aresraces.org/. Other local groups include Milwaukee/Waukesha ARES (https://milwares.org), Racine/Kenosha (http://rkares.org), Jefferson County (https://www.facebook.com/JefCares-Jefferson-County-Wisconsin-ARESRACES).

We would like to thank Pat, W9JI, and Bill, W9MXQ, for the invitation to include information and news regarding OZARES in the ORC newsletter. It seems appropriate to be writing this article in September, 20 years after 9-11, for the October issue. After the communication problems of 9-11 new procedures were developed for first responders, emergency government and other non-governmental agencies. The National Incident Management System, NIMS, was developed by the Secretary of Homeland Security under President Bush's direction.

There are five components to NIMS and all impact the emergency amateur radio operator when working with government organizations and non-governmental organizations. The components include Preparedness, Resource Management, Ongoing Management and Maintenance, Communications and Information Management, and Command and Management. For the emergency amateur radio operator to be effective he/she must be trained in the procedures provided in the Incident Command System (ICS) and be prepared to communicate in an efficient and effective manner.

The training, covering the Incident and Command System, ICS, and NIMS is available from FEMA. The on-line courses required for ARES membership include IS-100b Introduction to Incident Command System, IS-200b ICS for Single Resources and Initial Action Incidents, IS-700a National Incident Management System (NIMS) An Introduction, and IS-800b National Response Framework, An Introduction. So, it takes an investment of just not equipment but of time and effort to learn and pass the exams of the FEMA courses to be an emergency amateur radio operator. Why? So, our served agencies, federal, state, county and city governments and private agencies can trust us as certified participants who understand procedures and responsibilities.

In Wisconsin we have a good news/bad news situation. The good news is that we are not faced with many of the natural disasters such as hurricanes and earthquakes that other regions of our country face. We do get a few tornadoes and severe storms with power outages but normally, unlike this past summer, major power and communication outages are rare. The bad news is that opportunities to put our training and skills into play are very infrequent. Apart from providing communication support for a run/walk or other community activity, we are dependent upon exercises to keep skills up to date.

A great opportunity to test our preparedness and abilities occurs on the first Saturday in October. The ARRL sponsors the nationwide Simulated Emergency Test, or S.E.T. Nationally, and in parts of Wisconsin, the S.E.T. will be on the air on Saturday, October 2 with a local operating time of 9 am to 12 noon, approximately.

The ARES groups in the Southeast District will be doing a combined S.E.T. on October 16 between 9 am and noon. District ARES groups, including OZARES, will test communication links between local Emergency Operations Centers and other supported agencies including hospitals and public health operations. Operations will include vhf and hf communication links and the modes of SSB, FM, and Digital including WINLINK and possibly Narrow Band Emergency Messaging Software (NBEMS) (http://www.arrl.org/nbems). The abilities of the ARES operators to pass messages, re-

ceiving and sending, and handling unforeseen requests and problems will be tested in the exercise.

The S.E.T. is open to ALL amateur radio operators. You do not need to be affiliated with the ARRL or ARES to join in the exercise. Please join in the fun!
Skip Sharpe has created a nice training bulletin, W9REL, Wisconsin ARES-RACE Assistant Emergency Coordinator (AEC) for Training and is available on YouTube. Search on YouTube for *Training Bulletin #16.*

If you are interested in joining or have more questions about OZARES please feel free to contact me at aa9wp@arrl.net.

Future articles will cover some of the history of OZARES, how we work with Ozaukee Emergency Government, the ARES field structure, and procedures of the Incident Command System.

THE COMPUTER CORNER
No. 283: A PLACE FOR YOUR OLD COMPUTER

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

I need your spare units to rebuild them and either give them away or auction them online or at Ozaukee Radio Club meetings. Proceeds are shared between OZARES and the ORC Scholarship Fund, both worthy places to donate the funds.

How do I rebuild them? First (and most important to the donor), I wipe the hard drives of all partitions and data, so that the drive reverts to the same condition it was in when it left the hard drive factory (except for ensuing wear). When finished, no one (even including unnamed federal government data laboratories), can restore any data on that drive.

How? I use a software program that changes the first bit on the drive to 1, then 0, regardless of what it was before starting. Then it does the second bit, and third – up to the 8th, and those 8 then represent the first byte on the drive. The program then continues with the next byte, and so on, to the end of the drive. In the case of a terabyte hard drive, this means one trillion bytes or 1024 gigabytes or 1,099,511,627,776 bytes (8 times that for the number of bits). Since it changes each bit to a 1 and then a zero, that means double the number of actual changes. Then, when all done with the last bit on the drive, it goes back to the position of the first bit at the beginning of the hard drive platter and starts the whole process again, until the drive has been completely done again. Then, it does it a third time. Yes, this takes a lot of time. I usually run it overnight or into the next day.

That more than takes care of any old data on the drive, including magnetic bleeds to the left or right of the normal tracks written by the write heads. If the drive survives that whole process without errors (all are reported to me), it can be reused. If it does not survive, I disassemble the hard drive, separating the ferrous metals and aluminum into their respective recycle bins. I save the magnets. The point is, your data is unrecoverable.

Then on to the remainder of the computer. Everything is physically cleaned – all dust bunnies and dirt are removed from the interior and exterior of the unit, along with all stickers. Peripherals are checked and determined to be in working order (DVD drives, USB ports, and so on). If there is room and my stock has appropriate memory sticks, I add them. Then, the drive is partitioned, and an operating system and other software is added. Currently, I add Linux Mint Cinnamon version 20.2 (nicknamed “Uma” after a Hindu goddess, as mentioned in my last article). This version of Linux also includes Libre Office, a Microsoft Office-compatible version of Word, Excel, Access, and PowerPoint plus math formula and drawing software. There are actually thousands of additional programs (ham programs, too) for new owner may download and install, including programs to run Windows programs within Linux, or to install Windows itself within Linux.

The result is that your old computer will have a new, useful life. On the other hand, if it really is too old (just a 32-bit machine), or the motherboard is not working properly, I separate the metals, circuit boards, batteries, etc., and take them to a commercial recycling center. Any proceeds are donated by that center to a local school. Recyclable plastics go in my household recycling bin.

So how does all this happen? My physical and email addresses are on the header of this article. Drop off your laptop or desktop (keyboards, mice, cables and other peripherals are OK, too, but only modern, working monitors – no CRTs). A sticker with your name and call would be nice on each major piece. Email me first if you want to let me know stuff is coming, but this is not absolutely needed. Just drop off by my front door. Do your bit (or byte) for the ham community and the environment. Happy Computing!

Vintage Amateur Radio

de Bill Shadid, W9MXQ

If you were licensed in the period beginning in 1951 up until 1974 and held a Novice License (in the United States) during that period, you are the subject of this article. In 1951, the Federal Communications Commission introduced three new licenses. Those included the Novice, Extra, and Technician Class. These new classes joined the existing Class A (name changed to Advanced), General, and Conditional Class licenses.

While much thought and preliminary work went into this change, we will not cover that process here. This article will focus on the Novice Class License and specifically the equipment used by holders of that unique license. And, that license class remains today with nearly 7,000 Novice license holders out of a total of nearly 780,000 licensees in the United States.

Up until the time of the new license classes, amateur operators in the United States could use crystal or VFO (Variable Frequency Oscillator) control of their transmitters. This was their choice based on their perceived need for frequency accuracy and stability.

For the short-wave bands, Novice license holders were restricted to CW operation and were allowed an input power to the final amplifier of their transmitter of seventy-five watts[1]. This was compared to 1,000 watts allowed to General, Advanced, and Extra class licensees of the time. Here is a complete listing of Novice Class Operating Privileges[1]:

Mode: Telegraphy (CW)

- 80 Meters – 3700 to 3750 kHz (specified as “kc” back then) (“kc” = kilocycles)
- 40 Meters – 7150 to 7200 kHz
- 15 Meters – 21100 to 21250 kHz
- 2 Meters – 145.0 to 147.0 MHz (specified as “Mc” back then) (“Mc” = Megacycles)

Mode: Voice (AM)

- 2 Meters – 145.0 to 147.0 MHz

Note that on 2 Meters that CW and AM privileges were in the same range.

The Novice license required no prior experience in ham radio – and it had a hard and fast rule that the license was for one year and was not renewable. The non-renewable

rule was hard and fast – there was no provision for letting it expire and then taking the exam and gaining the license again after a period of time. One and done!!

License call letters were, for the most part, predictors of the call letters of one's post Novice future as a Technician, General, Advanced, or Amateur Extra license class. An example is my friend, Gary Drasch, K9DJT. When Gary was a Novice, he was KN9DJT, and he was reasonably certain that when he took his next class of license his call letters would simply drop the "N." In case you have not guessed, the "N" stood for "Novice." (See more about K9DJT in the station pictures at the end of this article.

The manufacturers stepped into the game of supplying this new class of amateur radio operator – the Novice – by marketing a wide variety of equipment that was suited to the operating legalities presented by the United States Federal Communications Commission (the FCC). Some suited only the operations of a Novice, but some also were of a higher order and would suit the amateur after he upgraded.

One such setup was from National Radio Institute, of Washington, DC, a supplier of mail order electronic educational programs – including a set of lessons on becoming a ham radio operator.

Conar Model 500 Receiver (Left) and Model 400 Transmitter (Left)
Sold by National Radio Institute, Washington DC, in the 1960's

This advertisement, appearing in Electronics and Amateur Radio Specific magazines in the 1960's was a mainstay and something I memorized back in those days. The ad

went on (from what is shown here) to describe the Model 500 Receiver as being available in kit form for $37.50 and assembled for $56.50. The model 400 Transmitter was available in kit form for $32.50 and assembled for $46.50. As an enticement, National Radio Institute offered a special $64.00 package that included the Model 500 and 400 kits plus the ARRL Radio Amateur's Handbook, and the ARRL Radio Amateur's License Manual. These radios only operated on 80, 40, and 15 meters – totally in keeping with the Novice class license.

The Model 500 Receiver touted its ability to tune not only CW but also AM and SSB signals as well. The Model 400 Transmitter advertised sending CW (only) at a power input level of twenty-five watts. These little units (10.5" x 7.5" x 6.5") are still frequently seen at Hamfests to this day.

For a little more money, and certainly a little more style, and with the ability to send AM signals after upgrade was the Novice offering from the Heathkit, Benton Harbor, Michigan.

Heathkit HR-10 Receiver **Heathkit DX-60 Transmitter**

Picture Reference from 1964: Note 1

These were kits only – who could forget Heathkit? The HR-10 Receiver sold for $79.95 plus another $8.95 for the HRA-10-1 Crystal Calibrator Kit. The DX-60 Transmitter also sold for $79.95. But the radios both covered the HF bands of 80 through 10 meters. The transmitter had a setting for seventy-five watts input for the novice – but could attain ninety watts for more advanced licensees. The DX-60 Transmitter could also run sixty watts input on AM after the operator obtained his/her General Class license. And there was an accessory VFO kit for the DX-60, the Heathkit HG-10 for $34.85 more that offered crystal free transmitter tuning for the General class licensee. The DX-60 was so

popular that to this day there is an ongoing weekly “DX-60 AM Net” for these transmitters[3].

Not to be outdone was the Hallicrafters Company, of Chicago. Those that know me know that easily Hallicrafters is my favorite vintage radio manufacturer. I love them all, but Hallicrafters always holds a special place for me.

Hallicrafters SX-140 Receiver

Hallicrafters HT-40 Transmitter

1961 Price Lists from the Hallicrafters Company

These radios were optionally offered as kits (Hallicrafters used the term, “Halli-Kits” for their kit products). Fully assembled and tested prices were $109.95 for the SX-140 Receiver and $99.95 for the HT-40 Transmitter. Hallicrafters also offered a VFO for use with the HT-40 after the operator obtained his/her General License. That was the HA-5 and is very popular to this day as one of the best examples of a stable running VFO on the market at the time.

Before the SX-140 and HT-40 pair, Hallicrafters had another contender in a low power adaptation of their very popular S-38 Series Receiver. Note here this ten-watt output (CW only) receiver/transmitter:

Hallicrafters SR-75 Receiver/Transmitter

RigPix Database

The SR-75 came out in 1960 or 1961 and was in production for a very short time. The Transmitter shared no circuitry with the Receiver, so it was not really a “Transceiver” in the way we describe that kind of product, today. The transmitter and its tuning were ac-

cessed from the rear panel. It was a single tube addition to the base S-38 receiver. It could be run in transmit on any of the 80 through 10-meter bands of the day. There was no provision for modulation.

Back in the 1960's, it was not at all uncommon to have a receiver that was from one manufacturer and a transmitter from another. Also, at that time it was common to see a Novice (or other class) licensee using a commercial receiver but a home brew transmitter.

To the other players in this market, check below these popular transmitters and receivers of the time. These radios were not designed to necessarily operate with a matched unit from the same company.

First, let us look at several commercial transmitters that targeted the Novice licensee:

Ameco AC-1

Ameco TX-86

Globe Scout 680

Eico 720

Eico 723

Johnson Viking Adventurer

Johnson Viking Ranger

Knight-Kit T-50

Knight-Kit T-60

Many new Novice hams used a rather interesting series of products from Heathkit that amounted to early Receiver/Transmitter packages that progressively improved over time and model. Only one of these arrived during the time period of this article, however. That was the rather cult-like radio, the HW-16. Take a look at it here:

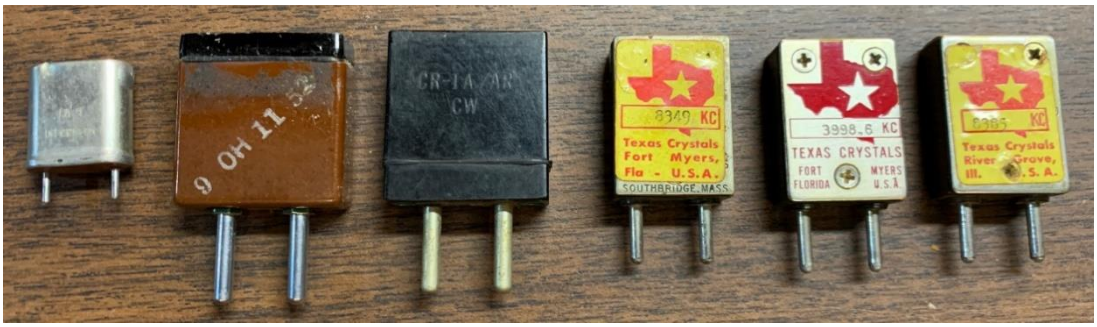
Heathkit HW-16 Receiver/Transmitter

Heathkit Product Catalog

The HW-16 was a kit built, mostly vacuum tube radio operating only on the Novice bands of 80, 40, and 15-meter bands. And, on those bands, the coverage was only on the lower 250 kHz. Too bad, too, because this radio was worthy of operating by all license classes with its excellent receiver and transmitter performance.

Many companies made receivers dedicated to the Novice operator – more than the few shown in this article. Those will be covered in the next part of what will be a series on the Novice license and the equipment made in support of the licensees. Stay tuned for some future articles that cover experiences of owning only a couple of crystals and no way to move in the process of working other Novice operators who were blessed with

the same transmitter frequency limitations as you. And, much more to come on the hardware. Before moving to a look at some Novice shack layouts, I think it might be important to look at a few crystals – the main stay of frequency control for the Novice operator:



Typical Crystals used by Novice (and other) Class Licensees
(Note that these are not necessarily ham radio band crystals!)
W9MXQ Photo

For now, we will look at some example Novice stations from people you may know, people I have known in ham radio over the years, and others who are readers of this column:

Novice Station KN9DJT, Gary Drasch, 1960 – Now K9DJT
See the Globe Chief Transmitter (CW only), the Hallicrafters SX-110 Receiver, the Hallicrafters R-48 Speaker and that Vibroplex "Bug" Key.
Photo is from 1960, when Gary received his Novice License.
K9DJT

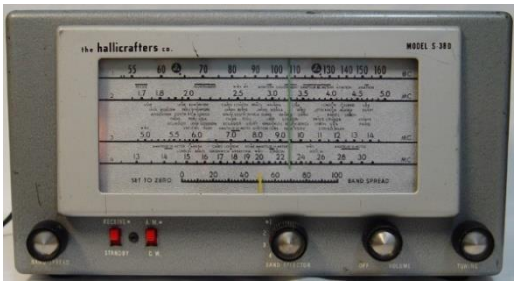
Novice Station KN9TRB, Paul Schumacher, 1958 – Now KD9FM
See the Heathkit AR-3 Receiver and E. F. Johnson Adventurer Transmitter (CW only). Also see the straight key with the shorting bar.
Photo is from 1958, when Paul received his Novice License.

KD9FM

Novice Station WN9NZH, Don Zank – Now AA9WP
See the Heathkit HW-16 (CW only).
Don added a Heath HG-10 VFO when he received his General License, N9FGS.
Photo is from the time when Paul received his Novice License.

AA9WP

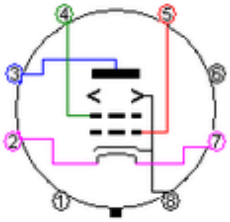
Novice Station WN9FRG, Gary Sutcliffe, in 1970 – Now W9XT
Drake 2-C Receiver and a Heathkit DX-60B Transmitter
These are internet file photos – no personal pictures could be found. But Gary's original Novice Drake 2-C Receiver is currently being brought back to life.
Internet – Photographer Unknown



Novice Station KN1OFU, Fred LeMere, in 1961 – Now KD9IGO
Hallicrafters S-38D Receiver and a Heathkit DX-20 Transmitter
These are internet file photos – no personal pictures could be found.
Internet – Photographer Unknown

Novice Station WN9JIC, Pat Volkmann – Now W9JI
Heathkit HW-16 Transceiver (CW only)
These is an internet file photo – no personal picture could be found.
Internet – Photographer Unknown

Single 6L6 Tube, Crystal Controlled
CW Transmitter as noted below.



Novice Station WN9FIY, Bob Bailey, in 1970 – Now W9DYQ
Military Surplus BC-348-P Receiver and Home Brew 6L6 Transmitter.
The 6L6 Transmitter was a modified circuit from
the 1955 ARRL Radio Amateur's Handbook.
Bob refurbished the receiver and built the transmitter for his Novice station.
W9DYQ Photo

Novice Station WN9BJU, Gary Frankeberger – Now WA9BJU
Hammarlund HQ-100 Receiver and a Heathkit DX-20 Transmitter.
These are internet file photos – no personal pictures could be found.
Internet – Photographer Unknown

Novice Station of Mark Gilger, WN8TJJ, in 1966 – Now WBØIQK
Knight-Kit R-100A Receiver and Knight-Kit T-60 Transmitter
(See the Crystal – plugged in, just below the meter on the T-60 Transmitter)
These are internet file photos – no personal pictures could be found.
Internet – Photographer Unknown

Stay tuned to these pages for subsequent installments. This is an evolving story with many more equipment stories and hopefully more people we know who were involved in this first phase of the Novice License. Some stations shown in this article have further stories to document their Novice experience – W9JI (ex-WN9JIC) and W9DYQ (ex-WN9FIY) to name two. After that we move into the phase of Novice License that allowed 250 watts of RF power and VFO control of the transmitter. For many, the Novice license was a great adventure with training for radio technique not to have been imagined at the time. Those of us that bypassed the Novice license – I started with my General – can never really match what they learned.

A special thanks go to Bob, W9DYQ, for his proof reading. I appreciate that you read my articles. Remember that I am open to questions and comments at my email address, W9MXQ@TWC.com.

Notes:

[1] Reference is to the American Radio Relay League (ARRL) "***Radio Amateur's License Manual***," 1964 Edition.

[2] Reference https://dx-60.net – you do not need a Heathkit DX-60 Transmitter to check in, but AM is the preferred mode of operation.

On The Air!

de Gary Sutcliffe, W9XT

In late spring and early summer, I covered 6-meter activity. A challenging award for the band is the Fred Fish Memorial Award. As I said before, you needed to work each of the 488 different grid squares that include land in the continental USA. ORC members Ken, W9GA, Gary, K9DJT, and I have been chasing this one.
It is difficult not just because of the total number of grids, but some are sparsely populated and maybe only include a small amount of land. There are some that most people can't get permission to operate from, like a military base off the coast of California. Last summer, a government contractor was there for several weeks and made contacts during his off hours. Maybe next year.

I have been looking at getting back into satellites. I found there is a satellite award for working all 488 continental US grid squares. Sponsored by AMSAT, it is called the GridMaster Award. Like the FFMA award, very few hams have made the grade. https://www.amsat.org/gridmaster

October is an interesting month for the low bands. Daylight savings time lasts way too long into the fall, in my opinion, but between now and when we switch back to standard time, sunrise is pretty late. Sunrise and sunset are excellent times for the low bands to catch the gray line openings. You don't have to set your alarm clocks so early to catch the sunrise openings.

Another band that is getting fun again is 12 meters. There have been some nice openings to Europe in the morning. I know that Fred, W9KEY, and Gary, K9DJT, have picked up a lot of new band countries on this band. It has to be four to five years since 12 has been this good.

There is a new format change to this column. In the past, I would give my picks for upcoming contests and DXpeditions with the dates, times, etc., information, and comments embedded in a paragraph or two. I am changing it to show my picks in a table format. The tables will show the basic info in a more useful form. There are, of course, many more contests and DXpeditions every month, but I will be showing the bigger and most interesting ones. I will continue to comment on some of them.

W9XT's contest picks for October and early November 2021					
Name	**Start**	**Length**	**Bands**	**Mode**	**Link**
CQWW	0000Z 30 Oct	48 Hours	160, HF	SSB	https://www.cqww.com/
ARRL Sweepstakes	2100Z 6 Nov	30, work 24	160, HF	CW	http://www.arrl.org/sweepstakes

Times in UTC. Subtract 5 hours from UTC to get local (CDT). Watch for day changes
HF = 80, 40, 20, 15, 10 Meters

Contest Hell Month starts the last weekend of October with the CQWW phone contest. There is a major contest from the end of October through mid-December, every weekend except for the second weekend of November. CQWW phone is probably the most popular contest of the year. It is a DX contest where everyone can work everyone else. That brings a lot of stations out of the woodwork since they hope to pick up new countries for their DXCC and other DX awards.

I have not spent a lot of time on this one in the last 4-5 years. At the bottom of the sunspot cycle, DX phone contests are tough from this part of the world. All the activity is crammed on 20 meters and below. Twenty is so crowded it is just about impossible for all but the largest mid-western stations to get a frequency. The lower bands are always tough on phone.

But the new sunspot cycle is rising faster than expected. The sunspots are not always there, but we get some interesting periods with increasing regularity. Hopefully, we will hit a hot stretch for the contest and get some good openings on 15 meters.
The following weekend is the ARRL Sweepstakes Contest, CW. The two Sweepstakes are probably the most popular domestic contests. The exchange makes this contest challenging since it is very long compared to most contests. Check out the link to get more information on the contest and your exchange if you have not operated this one.

W9XT's DXpedition picks for October and early November 2021

QTH	Dates	Call	Bands	Mode	Link/notes
Sao Tome	Oct 2-16	S9OK	160-6	C/S/D	https://www.cdxp.cz/
Guinea Bissau	Oct 9-22	J5T/JT5HKT	160-10	C/S/D	JT5HKT is FT8 call sign
Kingdom of Eswatini	Oct 7-21	3DA0RU	160-6	C/S/D	https://3da0.ru/en/
Austral Isl.	Oct 16-24	F0/W6GJ	6	D (EME)	http://www.bigskyspaces.com/w7gj/Austral%20Islands%202020.htm
Marquesas Isl.	Oct 27 – Nov 7	TX7MB	6	D (EME)	http://www.bigskyspaces.com/w7gj/Marquesas%202020.htm
Galapagos	Oct 26 - Nov 7	HD8R	160-6	C/S/D	http://www.dxfriends.com/hd8r/

Modes: C = CW, S = SSB, D = Digital (may include RTTY)
DXpeditions are finally starting to happen again after most of them were canceled for the better part of two years due to COVID.

The DXpedtions to the Austral and Marquesas Islands will probably only be worked by ORC member Ken, W9GA. That is because they are 6-meter EME operations. EME is difficult, but 6M really requires some big setups. Amazingly, people go to the trouble and expense of going to exotic places for such a narrow audience.

These are being put on by Lance, W7GJ, who is *the* guru for 6-meter EME, and pretty much anything regarding the band. Lance has been going out to DX countries for several years. Often the country has never been on the air for 6-meter EME. The ones coming up were planned for 2020 but got postponed until now.

Not familiar with the Kingdom of Eswatini? It is one of those land-locked homelands inside South Africa. It was formally known as Swaziland.

It is good to see the Galapagos back on the air. For many years HC8 was almost a sure contact in the big contests. A ham with an excellent station lived there, and frequently there were big multi-op efforts in contests. I don't remember what happened to him, but for the last 15 years or so, operation from the Galapagos has been rare in contests, and generally on the air at all. There were some small operations in 2017 and 2019, but the last big one was in 2014. There probably won't be propagation, but this will be the first time 6-meter digital will be used from the islands.

A lot of contesters travel to semi-rare locations to operate the CQWW contest. Usually, they get there several days in advance to get things set up for the contest. They are very active on the air the days before the contest. This is often an excellent time to catch them. Often they will be on the WARC bands before and after the contest if you need them.

So, the countdown is on for the start of the fall contest and DX season and the last few weeks to get your antennas ready before the cold weather arrives. Things are shaping up to be one of the best in several years!

Tell me what you think about the new charting included in the article.

Boy Scouts – Jamboree on the Air – 2021

de: Bill Shadid, W9MXQ – via Tom Trethewey, KC9ONY

In a note from Tom Trethewey, KC9ONY, I received information on the **Scouting - Jamboree on the Air (JOTA)** that is coming up the third full weekend in October. This came to me too late to research for details but please contact Tom (KC9ONY@arrl.net) if you have questions about how to become involved. Tom has some possible contact information that I could not verify in time for this Newsletter edition.

Tom also reported that MRAC (Milwaukee Radio Amateur's Club) is participating at Oh-Da-Ko-Ta Camp, 3363 Dyer Lake Road, Burlington, WI. MRAC is looking for volunteers to assist in the event. You may contact them via this link:

https://mailchi.mp/95d293ae81cd/swapfest2021-5659672?e=a0de4dcde6

I received this link also in my work with Wisconsin Amateur Radio Club.

Ozaukee Radio Club and its members have some history in working with this event. It would be nice if that continued.

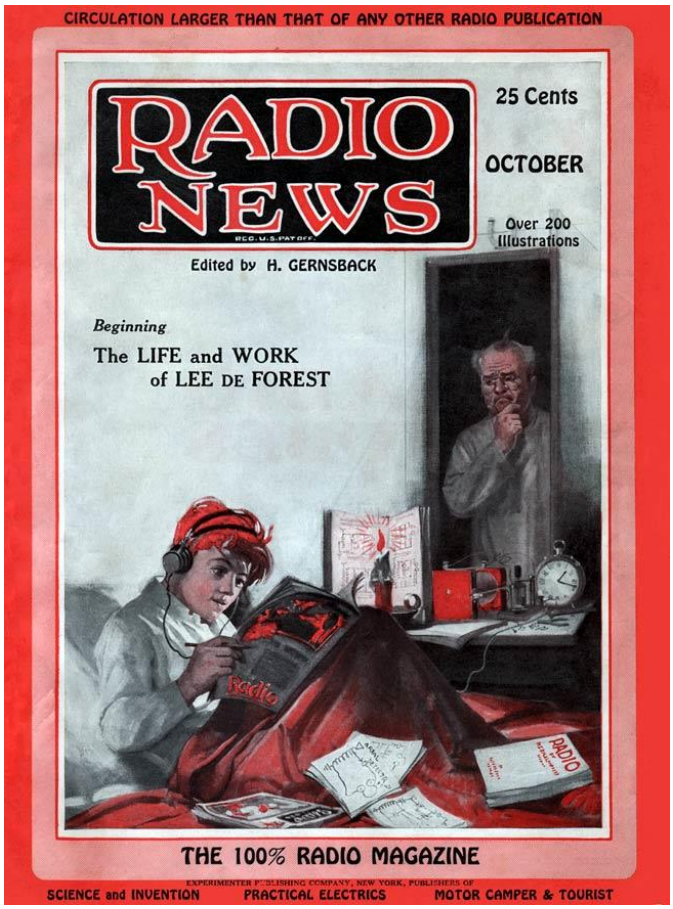
Vintage Magazine Cover Art

de Pat Volkmann, W9JI

Our cover this month is from the October 1924 issue of Radio News. We see a boy wearing headphones and reading by candlelight. Radio books and circuit sketches litter the bed. The clock shows 1:20 A.M. and Dad is standing in the doorway, perhaps wondering if this is a good thing?

I picked this magazine cover because I can relate to the intensity of the boy's interest, as I'm sure many of you can. I can well remember that time as a youth (and sometimes even now) when my interest in ham radio occupied my thoughts day and night.

And Dad, it all turned out OK.



Ozaukee Radio Club
September 8, 2021, Meeting Minutes
de Ken Boston W9GA

This ORC meeting was conducted via an online (internet) connection using the ZOOM app. Prior to the meeting start, those members who were able to access the 'waiting room' via phone or computer/webcam were then introduced into the meeting space hosted by Pat W9JI. At that time various audio and video connection issues were addressed for the members before the meeting began.

ORC President Pat W9JI officially initiated the meeting at 7:34 PM, as introductions were recognized when members checked into the meeting, a go-around was not conducted. It was sadly reported that ORC has lost another well-loved member; Nels WA9JOB (SK), with a funeral date of Oct 2 being set. Pat W9JI will be setting up breakout rooms for the post-meeting.

Program:
Our program was presented by Morgan, NJ8M about the use and design of end fed wire antennas for HF radio use. He described the basic design parameters for half wave wire antennas and went into detail of how these antennas can be configured and deployed upon the average ham operators QTH. Topics addressed were: Matching transformers, ferrite baluns and chokes, random length wires and matching techniques, resonant wire antennas and their feed methods, wire type and transformers available, plus other tips.

Committee reports:

Repeater: W9DHI Gregg [with help from KC9ONY] have been making improvements to the Germantown site, with antenna height, and the addition of PL filtering, on the 146 MHz system. Some improvements are in store for the 222 system in the future.

Treasurer: Gary N9UUR mentioned that no major transactions were processed for the month, and has distributed report; W9DHI moved, W9MXQ seconded, motion carried to accept.

Secretary: Ken W9GA reported that the August minutes will be delayed.

Tom W9IPR: reported two members had donated items for the scholarship fund activity; John Gilmore and Bob Schatzmann. Tom announced the timing for the Swapfest activities and solicited members to help with the fest.

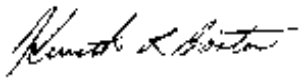
OLD business: None

NEW business: W9IPR will be taking the large CD out of the CU in October, and transferring the funds to the ARRL, which will complete the process of transferring the awards to the ARRL.

Adjournment:

WB9RQR moved to adjourn, WT9Q 2nd, motion carried; time ending was 8:55 PM. Following the meeting breakout rooms for the program, and a general topic; were opened.

Respectfully submitted,
Kenneth Boston W9GA, Secretary



Upcoming ORC Monthly Meeting Programs

October – John Portune, W6NBC - Copper and Aluminum Foil Antennas
November – Paul Mower VA6MPM - Canadian Rockies SOTA
December – Brian Page, N4TRB – Transatlantic Tests in the 1920s
January – Elections
February – Gary Sutcliffe, W9XT – Antenna Basics
March – Chuck Curran, W9KR - Hickok tube testers

Please contact Pat W9JI with your program ideas.

Creating a Presentation
Almost all 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 Power Point, 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

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ORC Meeting Agenda

October 13, 2021

1. 7:15 – 7:30 PM – Check-In and Introductions
2. 7:30 PM Call to Order – President Pat Volkmann (W9JI)
3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
4. Presentation: John Portune, W6NBC ”Copper and Aluminum Foil Antennas”
5. President’s Update – Pat Volkmann (W9JI)
6. 1st VP Report – Ben Evans (K9UZ)
7. 2nd VP Report – Bill Church (KD9DRQ)
8. Repeater VP Report – Gregg Lengling (W9DHI)
9. Secretary’s Report – Ken Boston (W9GA)
10. Treasurer’s Report – Gary Bargholz (N9UUR)
11. Committee Reports
12. OLD BUSINESS
13. NEW BUSINESS
14. Adjournment

Meeting Note:

Until the club decides it’s safe to hold in-person meetings again, we will be holding the meetings via the Zoom Videoconferencing platform on the same evening and time as we had the in-person meetings. President Pat Volkmann will email sign-in info, W9JI via the ORC remailer usually about an hour before the start of the meeting.

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting via Zoom
October 13, 2021

7:15-7:30 PM – Check-In
7:30 PM – Meeting Begins

The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Bill Shadid, W9MXQ (W9MXQ@TWC.com). Permission to reprint articles published in any issue is granted provided the author and the Ozaukee Radio Club Newsletter are credited.

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 XXXIII	November 2021	Number 11

From the President

de Pat Volkmann, W9JI

The end of another year is in sight, which means there is some club business that we need to attend to. Elections for officers will be held in January. Ken Boston, W9GA has agreed to be the Chairman of the Nominating Committee. The Nominating Committee will put together a slate of candidates for the officer and board member positions. To be eligible for office you must be a full or family member and have agreed to the nomination. If you are interested in running for office or nominating someone, please contact Ken. Complete information is available in the Bylaws section of the ORC website.

Have you taken a look at the ORC website recently? Our new webmaster, Gregg Lengling W9DHI, has been hard at work updating the content of much of the site. There is a “Members Only” section for Club members. If you don’t have an account yet, click the link on the page to get one set up.

You can also renew your dues through the website by using the PayPal link on the home page. Dues are $15 plus the PayPal fee. If you don’t use PayPal, you can send a check to the Club Treasurer, Gary Bargholz N9UUR. I’m sure that we will be hearing from Gary on getting our dues paid up.

Another Club member has become a Silent Key. John Palese, WB9JPH (SK), passed away on October 17, 2021. John was 66 years old. John’s wife Angie, N9USB, is also a member of the ORC. Arrangements are being handled by the Bruskiewitz Funeral Home. A donation has been made to the ARRL in John’s name. Our condolences go out to Angie and to John’s family.

Nels Harvey, WA9JOB (SK), passed away in August of this year. Nels was an active member with many friends in the Club. A number of donations, in honor of Nels, have been made to the ORC. The donations will be divided between the Scholarship / STEM fund and the (reestablished) Repeater Fund, per the wishes of Nels family.

Club meetings will continue on Zoom for now. The technology has been working well, with just a few glitches from time to time. If you haven’t tried Zoom yet or maybe aren’t

sure how to get started, contact me and I'll talk you through it. It is really easy (most of the time!) and helps us keep in touch with each other.

See you at the meeting.
Pat Volkmann, W9JI

A Message from the Editor

de Bill Shadid, W9MXQ

Just a quick note here about this month's content:

A special thanks to Ray Totzke, W9KHH, for suggesting a look, every once in a while, at how main street media saw and used amateur radio in their advertising. More new columns are in the works. Stay tuned!

On to the Newsletter . . .

THE COMPUTER CORNER

No. 284: This PC Can't Run Windows 11

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

Well, so what! It is too early to worry about Win 11 at this point, and Microsoft itself is evolving the definition of which computers can and can not run Win 11. Hints floating around even say that some updates they have or will release in the near future will change some machines so they fit the definition. So, at this point, continue on doing what you are doing and don't fret the issue.

On the other hand, the issue does exist, and folks want to be aware of it and what it might mean for them in the future. So, right now, here is the skinny concerning what your machine should have/do:

1. A 1.0 GHz (or faster) processor with 2 or more cores.
2. A total of 4GB (or more) of RAM (random access memory sticks).
3. A 64GB or larger hard drive.
4. A video card (or video section on the motherboard) capable of Direct X 12.
5. At least a 9-inch display capable of HD (high definition).
6. A Microsoft account and Internet connection.
7. A Secure Boot Capable Unified Extensible Firmware Interface (UEFI, referred to by old fashioned, stick-in-the-mud's such as me as your BIOS – the Basic Input/Output System).
8. A Trusted Platform Module (TPM) version 2.0 or greater.

Most of us have or can get items 1 through 6 in the above list. Lack of items 7 or 8 or both, or the fact they are not turned on, are the reason why most people are getting the error message found in the title of this article.

Check the TPM in your machine by pressing the Windows key + r and typing in *tpm.msc,* then press enter. You should get a message telling you of the TPM status. If it is present but turned off, there are ways to turn it on, but use care and caution. Messing with the BIOS has the potential to screw up your machine royally! Best to back it up first, if possible. Better yet, click this hyperlink and read the article at Majorgeeks.com, then print it out and follow all the cautions.

https://www.majorgeeks.com/content/page/this_pc_cant_run_windows_11.html

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OZARES: Ozaukee Amateur Radio Emergency Services

by Don Zank AA9WP, OZARES Emergency Coordinator

October is Simulated Emergency Test, otherwise known as the S.E.T., month for the majority of ARES® groups in the United States. It is a time for the groups to put together a response to either a natural or man-made emergency where normal modes of communications have failed.

This year was year of new procedures and involvement. The Southeast District groups of Ozaukee, Milwaukee/Waukesha, Jefferson, Walworth, Racine/Kenosha, and Washington Counties joined forces on Saturday, October 16. In the past each county group would operate their exercise separately with the occasional contact with neighboring teams.

A scenario of a derecho, or high wind event, was used in the simulation. The simulated damage from the winds caused power and communication outages. Involvement from the Red Cross, Wisconsin Emergency Management, local public health agencies and hospitals were included this emergency exercise.

As with all exercise some things went well, and others did not. And that is the point of the exercises, to find what works, what needs to be fixed and what can be improved.

In Ozaukee County, OZARES members Dave KD9JYL, Naomi KC9YES, Todd KD9QLJ, Roland, KB9TMB, Robert K4WTH and myself participated. Dave was assigned as a liaison with an Ozaukee Hospital, virtually from his home station. Naomi was assigned to Ozaukee/Washington Public health, again as a virtual station working from home. Todd and Roland operated from the OZARES radio room at the Justice Center in Port Washington. Robert operated from his home in Michigan's Upper Peninsula and provided back up communications on hf. I was assigned to the Emergency Operations Center in Saukville.

Roland and Todd discovered how very busy it can be in the radio room. Their communication modes, including vhf/hf voice and WINLINK on VHF, provided opportunity and challenge. The 80-meter band was not too friendly, and they had to rely on a relay to check into the state net. Roland and Todd created and passed a number of messages on WINLINK to the OZARES group and the local district. Near the end of the exercise, they setup a portable VHF station next to the Justice Center and did a quick check in and check out on the district net.

Naomi and Dave were also busy using WINLINK and the Red Cross forms available as templates. Requests from Public Health for supplies were passed along and responded to. Weather reports, also available in template form in WINLINK, were created from Port Washington and Cedarburg, since this was a weather-related exercise.

Robert and I provided a number of WINLINK messages to our group, the district, and the State. As a number of OZARES members are relatively new to WINLINK, Robert has been a good mentor and voice of experience. Robert had some 80-meter issues at the beginning of the exercise, but they band opened up for him later in the morning.

So, as you can see, VHF WINLINK was used extensively by our group. It provides a great way to pass traffic, verify reception of traffic, and furnishes a communication report, ICS-309, at the end of the exercise.

The problem was all of this WINLINK traffic in Ozaukee was trying to work through one RMS station, WI9OZ-10 at the Justice Center. At times, several stations would be calling at once which made connections difficult. So, a lesson learned is that traffic into the WINLINK station needs to be controlled or monitored. Either the net control station needs to be checked with first or the frequency must be monitored more closely. Something we need to talk about going forward.

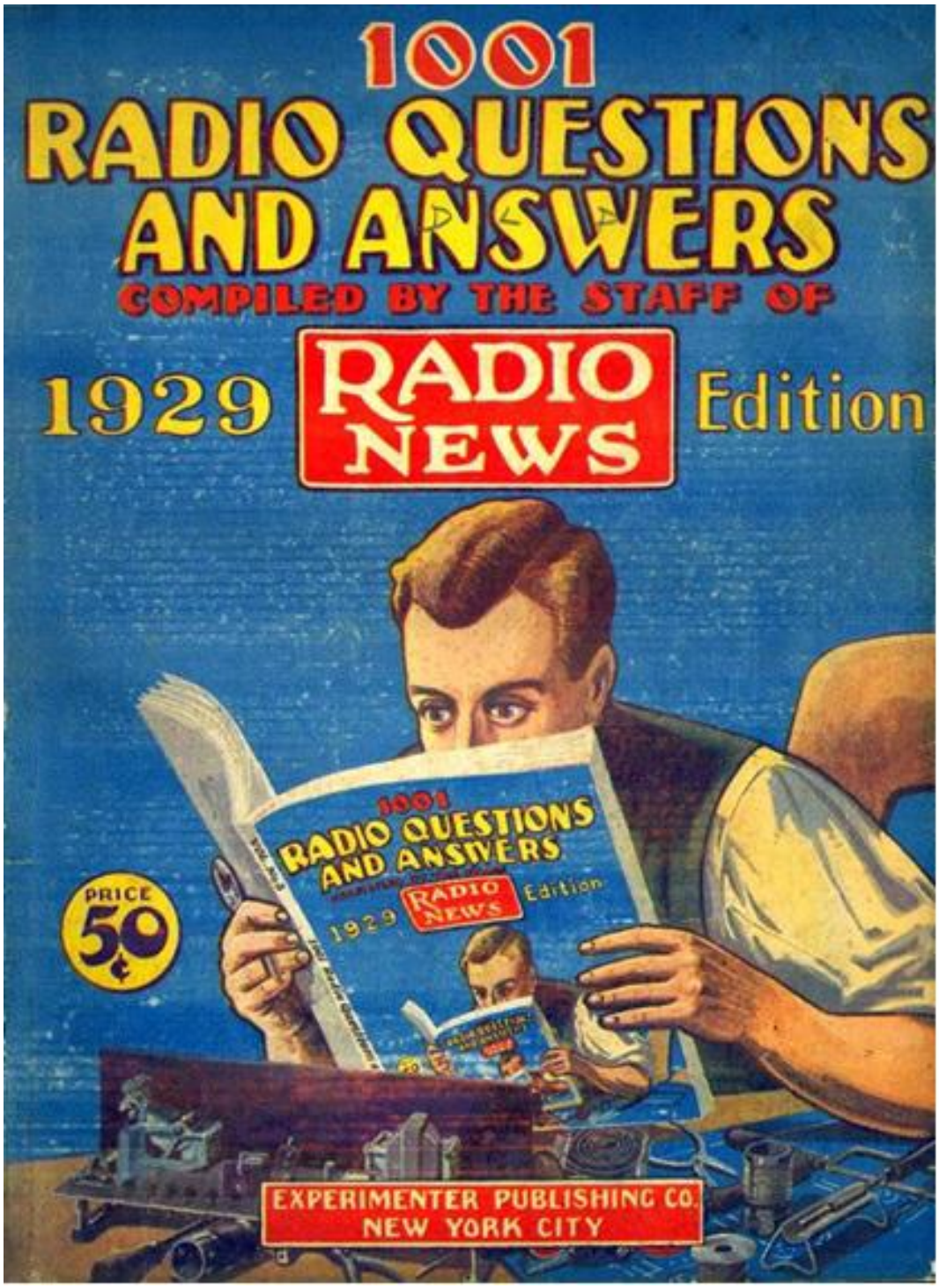
I want to thank the members who participated in the S.E.T. Exercises and practices, with this being the first exercise for most of them, are always a stressful time. Adding the new mode of WINLINK helped increase their stress level. Their enthusiasm and willingness to learn and be involved is greatly appreciated. An After-Action Review was conducted, and they came up with some great learning activities for the future. So, this exercise was a success in helping to determine which communication skills, modes and techniques need to be improved.

Vintage Magazine Cover Art

de Pat Volkmann, W9JI

Our cover this month is from the 1929 issue of Radio News “1001 Radio Questions and Answers”, which was compiled by the staff of Radio News. In addition to the typical monthly magazines, many magazines collected previously published articles into a single volume. This was a low-cost way of having another volume to sell to the public. The practice continues today with, for example, the ARRL Antenna Compendium and the ARRL Wire Antenna Classics.

Take a look at the cover of the magazine the man is reading. The same image appears several times, as if looking into a mirror. This may represent the artists interpretation of publishing the same articles again and again.



RADIO NEWS – 1929 Edition

Vintage Amateur Radio

de Bill Shadid, W9MXQ

I have run into a few issues with my collection of Drake radios in the past few weeks. One of them has netted some information worthy of sharing. Another one is destined to reach these pages in the future.

R. L. Drake Company amateur radio products range from just after World War II with Low Pass Filters and other accessories[1]. They continue as a company to this day in non-amateur radio fields. Their last amateur radio related product ended with the last R-8B General Coverage Receiver in 2005[2].

For most of us enjoying the use of Drake equipment today, the time of actual receivers, transmitters, and transceivers dates from the introduction of the Drake 1-A Receiver in 1957. This tiny receiver (by the standards of the day) was a revolution at the time with its performance equaling or surpassing the heavy radios of the day. Just over 18-pounds in a day with its Collins competition (by performance), a 75A-4 Receiver, weighed twice that[2]. To be sure, Drake only beat its main competitor by a year – the 20-pound Collins 75S-1 was introduced the very next year.

Simple issues certainly predominate in our old favorite classic radios. This is true even with well-designed and built radios as they become older and older. As time has shown, even old Drake Receivers, Transmitters, and Transceivers from the 1950's can easily be in use today. Some still possess competitive operating specifications that allow them to be effective players on today's bands. Even though my main station[3] is up to date and a top performer, I still enjoy using my several Drake separate receiver and transmitter and transceiver setups.

In this article we are going to talk about tips and modifications to the Drake TR-4 Transceiver (which includes the TR-4, TR-4C, TR-4CW, and TR-4CW-RIT).

Before we start, let's review the details of the several versions of the TR-4 over the years. These radios had the same basic features throughout their long run but had five noticeable versions over that time – but new features were added as time went along.

1. The early TR-4 was the basic radio that lasted through all versions. It was a significant upgrade from the previous, but every similar concept, TR-3 Transceiver. The TR-4 introduced internal accommodation of an external receiver (with connectors to supply muting and antenna feed to the remote radio).
2. The late TR-4 added a front panel switch and internal socketing for including the new 34-PNB Noise Blanker. (Early TR-4's and the previous TR-3 model could be adapted to accept a hard wired 34-NB Noise Blanker.

3. The TR-4C model changed the dial mechanism readout to one similar to the updated design used on the new (at the time) R-4C Receiver.
4. The TR-4CW model added a selectable 500Hz CW filter that could be engaged when the radio was in CW mode.
5. The TR-4CW-RIT model added RIT (Receiver Incremental Tuning) to the front panel. This was a major change in the front panel with the RIT control replacing the Noise Blanker On-Off rotary switch. Engaging the Noise Blanker or the RIT feature were accommodated with individual push-push buttons on the front panel.

Over time, as an owner and user of the TR-3, early and late TR-4, TR-4C, and TR-4CW-RIT models, most of the R-4(x) and T-4X(x) models, the TR5, and the TR7(x) versions, I can say that to my ear, no Drake sounds better than the TR-3 and TR-4 series. I know that is a very subjective comment. At the same time, I also will say that the R-4C/T-4XC and the TR7(x) radios are better performers in difficult band conditions. They were better armed with QRM and Noise abatement tools. Other than an optional Noise Blanker and narrow CW filter in the TR-4CW and TR-4CW-RIT models, the TR-3/TR-4 series of radios had no features for controlling interference[4].

The TR-4(x) series of transceivers were extremely popular over the years and had many user-designed convenience updates published in the various radio magazines and by discussions among users. One feature of the TR-4 radios was their ability to accommodate a separate receiver and thereby offer some way to offset receive and transmit frequency as well as working with a separate receiver (such as a Drake or a different brand[5]). Drake TR-3 and TR-4(x) radios had a different conversion scheme than any other Drake radio so the external receiver, even if a Drake model, could not be used in transceive with the transceiver. They two always had to be separately controlled.

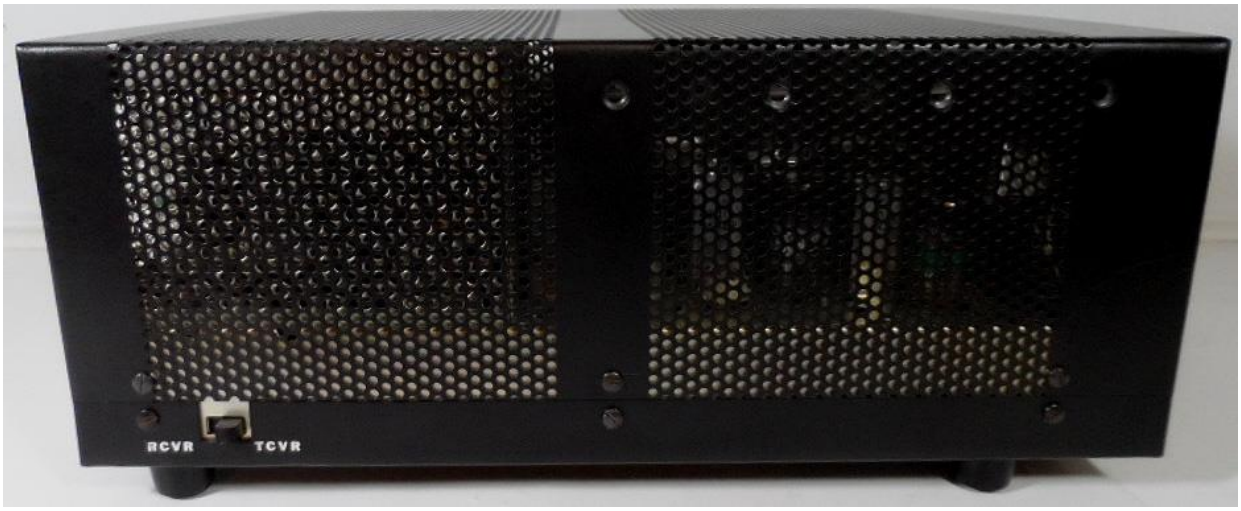
Drake had some unique ideas about items such as microphone and key connections, VOX adjustments, etc. Instead of being on the front or rear panel, they were on the sides of the radio. So, to have the transceiver sitting next to another radio or speaker, one had to use right angle connectors on external microphones and keys. Accessing VOX and S-Meter Zero potentiometers could be a real problem in a station setup. Most such controls were on the right side of the radio, as shown here: (All TR-4 Versions are identical as to side controls and connectors.)

(**Special Note:** As you proceed here, watch for pictures showing side lettering, in white, on the TR-4 cabinets. I have found some variances in the exact nomenclature used. Is this difference from the Drake factory or changed later by some highly skilled cabinet repainters of Drake cabinets? The factory that painted Drake cabinets is well known to me and I actually worked with them in my professional career with another manufacturer. They no longer do this re-finish work. Another source for this work is a very accomplished service provider for repairing Drake products. He provides not only electronic repair and alignment but also does re-painting that rivals or exceeds original Drake standards. Contact me for more details – W9MXQ@TWC.com – as I did not contact him for permission to use his name for this article.}

Drake TR-4 Transceiver
Right Side View - Front Panel is to the Left
(All TR-4 Versions are Identical for Side Controls and Connectors)
W9MXQ

The mounting on the right side for the headphone jack must have been particularly inconvenient for many operators. If other users are like me, they frequently connect then disconnect the headphones in exchange for using the speaker. In many cases, users of early TR-4's would actually drill a hole in the lower right-hand corner of the front panel and install a phone jack for better convenience. The late TR-4's used that position for a Noise Blanker switch but early TR-4's (also TR-3's) are often seen for sale with a phone jack installed. This may be convenient but is rarely done well and can severely detract from the value of the radio to a collector. If it is done well and it does not bother you, it is an effective way to get a decent price on an otherwise nice TR-3 or TR-4.

Now, for the subject of this article, check the other side of the TR-4 (any version) Transceiver:



Drake TR-4 Transceiver
Left Side View - Front Panel is to the Right
(All TR-4 Versions are Identical for Side Controls and Connectors)
W9MXQ TR-4

The Left Side View is the subject of this commentary. Note the slide switch (S4). When the switch is in the TCVR position, the radio will receive and transmit with its internal receiver. When the switch is in the RCVR (or EXT REC) position, the radio will receive with the external receiver and transmit with the internal (TR-4) transmitter. The external receiver does not transceive with the transceiver – the frequency of the two units is always controlled internally to the respective device. (Note that some TR-4's use the term RCVR and some use EXT REC – they mean the same thing.)

This arrangement is very inconvenient to say the least. There is no way to zero beat[6] the internal TR-4 Transceiver and the external receiver.

In addition to the inconvenience, there is another issue with this switch that is more an issue with today's occasional user/collector. The switch itself is problematic:

1. This is a slide switch, and such devices have a limited length of service life. Here are two pointers if the switch seems not to do its assigned function:
    a. Clean the Switch by carefully spraying a small amount (emphasis on "small") of DeoxIT™ D5 Contact Cleaner or CRC QD™ Electronic Cleaner[7] followed by moving the switch back and forth, numerous times.
    b. Check the switch and if you find it defective, replace it. The original is riveted in place. Those rivets must be drilled out to remove the switch. Replace the rivets with #4-40 pan head screws, a lock washer, and #4 hex nuts.
2. Once cleaned or replaced, the switch is at best inconvenient or near impossible to access in a typical radio setup. Think of it sitting in its operating position and needing to access the very lower back of the left side to reach the switch every time you want to switch from internal to external receiver.

This switch issue is best described in the TR-4 Mods and Tech document[8] as developed by Wayne Montague, VE3EFJ, when he quoted, Tom Taylor, N7TM, commenting on the External [Receiver] Switch, "The switch on the side of the TR4 allows for an external [receiver] to be connected. Whenever you move the transceiver, the switch moves to external by mysterious cosmic forces. You connect the antenna and wonder why the receiver is dead. To prevent this, you can lock the switch by placing a 4-40 nut in the exposed slot where the tab slides back and forth. Cover the nut with some tape to prevent it from coming loose."

The troublesome Switch. Set in EXT REC (or RCVR) Position. This switch can be slipped accidentally to a mid-position with limited connectivity – causing receiver attenuation.

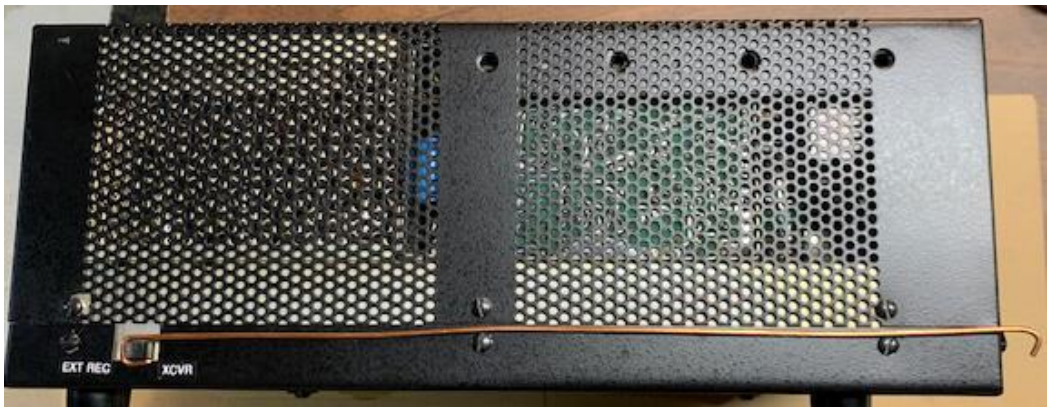
W9MXQ TR-4CW-RIT

The troublesome Switch can be locked in one desired position by inserting a #4-40 hex nut, as shown. The nut can be held in place with tape (not shown here).

W9MXQ TR-4CW-RIT

It is worse than the comments from N7TM, however. As mentioned at the left, above, often during handling of the radio, the switch is accidentally moved to some odd position in between the two selections causing the radio to receive as if an attenuator has been introduced into the antenna line. This triggers endless troubleshooting until the problem is found! If you are me, then you are mystified for some period before thinking to check that annoying switch!

Many years ago, one of the amateur radio publications presented a suggested alternative for the designed-in inconvenience of that switch. I have searched for a long time for this article[9] but cannot find it. While I am not a candidate to install it on my TR-4 or TR-4CW-RIT, you may find it an innovative idea with application in your installation.



Remote RCRV/EXT REC / XCVR Switch Actuator

W9MXQ TR-4CW-RIT

The above is simply a length of 12-gauge copper wire affixed to the switch and extending to a hook that can be pulled or pushed to make the selection without reaching to the back of the radio. Some fabricated brackets mounted to the lower row of cabinet screws can be used to keep the wire in alignment. The original author of this idea used piano wire and drilled a hole through the handle of the slide switch to hold the wire at the switch end. He used wire solder lugs, reformed for the purpose, to support and guide the wire at the middle and front, lower cabinet mounting screws. I did that long forgotten ham's modification to my first TR-4 Transceiver, in the past. The above is not mounted and is shown only as an illustration of what can be done.

I collect these short stories on the ongoing collecting and restoring of Vintage Ham Radio Equipment. Occasionally, it is nice to share a bit of the experience. This is an ongoing process!!

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. As I have often said, Bob is a lot more than a proofreader as he often adds commentary that makes it into the

article. Bob and I work to collect and restore many examples of Collins, Drake, Hallicrafters, National, RME, Swan/Cubic, Ten-Tec, and some of the Japanese products of historic and/or personal importance.

Notes and Comments:

[1] Wikipedia: https://www.wikipedia.com

[2] RigPix: https://www.RigPix.com

[3] My main station includes a Yaesu FTdx-101MP which is currently the top-rated receiver performance radios available to radio amateurs. I reference Rob Sherwood's industry recognized measurements that are available at https://www.sherweng.com/table.html. Despite this, I am still inclined in casual operating to use my vintage Drake, Hallicrafters, Collins, Swan, or National equipment. But that is just me!!

[4] The Drake TR5 was almost identical in features to the TR-4CW-RIT. As such, it offered an optional Noise Blanker and an optional filter slot. The filter slot on the TR5 could accommodate any one of the various filter options available for the TR7(x) series Transceivers. The TR5 had only one optional filter slot.

[5] The separate receiver idea was accommodated also in the TR-3 by an external circuit that could be fabricated by the user. This is covered in the TR-3 Instruction Manual.

[6] "Zero Beat" is a term meaning to put the separate receiver on the same operating frequency. This term, not so common in today's transceivers, comes from a time when receivers and transmitters operated separate from each other.

[7] Available from a local commercial hardware dealer or from Amazon (https://www.amazon.com). DeoxIT D5 is available from Radio Shack™ stores or from (https://www.radioshack.com).

[8] This is a part of the document, "Drake Mods – TR3 to the TR7," as edited by VE3EFJ. The comments shown in the text is in Section 9.2 of this document. If you have trouble finding it on the internet in a search, contact me at W9MXQ@TWC.com. All rights to this document belong to VE3EFJ and to contributors that he mentions therein.

[9] If you can identify this author and where you saw his article on this front accessible switch, please let me know – W9MXQ@TWC.com

W9MXQ

On The Air!

de Gary Sutcliffe, W9XT

One of the things about ham radio is there are so many different things to do within it. It has been said it is a hobby with a thousand hobbies. After 50 years of ham radio, I have been serious about a few aspects and dabbled in many more. I could fill a good portion of this column listing them, and there would be many more I have not tried. No doubt that a year from now, there will be a few new ones to add.

SOTA

A couple of weeks ago, I was tuning around 40M CW and heard a CQ from a DXer radio friend, Paula, K9IR. She was calling CQ SOTA. I knew Paula was big into SOTA and got points for every contact she made, so I gave her a call. We made the contact, and she continued to work other stations. I was only somewhat familiar with SOTA, so I decided to look into it a bit more.

SOTA stands for Summits On The Air. It is a program where hams go out and operate from mountain tops or high hills. QSO point values vary from two to ten points, based on the height of the summit. There are o1ver 100,000 summits in the program, so this is not something you will complete in a weekend. Some of the summits I worked had not been activated in a few years.

SOTA is a worldwide program with the summit lists maintained by regional groups. There is a W9 association that covers the US 9th call district. Wisconsin is not known for being a mountainous state, but we have 42 in the program. I didn't dig deep, but the closest seemed to be Holy Hill, which I can see from my backyard.

There are separate awards for those heading out in the field and those operating from home. The first award starts at 100 points. It didn't take me long to gain 100 points with a good mix of eight and ten-point QSOs. There are separate awards for those going to the summits.

You can work the portable stations with any band and mode except with repeaters. Most are on HF, although some operate on VHF FM simplex if they are near population centers. I concentrated on CW. SSB is pretty common, but I have not heard many. Stations may not operate from mobile stations. Reaching the summit often requires long hikes. Weight is a limiting factor. Simple antennas and small battery packs don't translate to big signals. FT8 operations are uncommon. I suspect the added weight of computers discourages digital operation.

There are no dues for this program. Donations support the SOTA program, and you have to pay for the awards. The rules are pretty complex, especially for determining

which hills can count and requirements for operating from summits. Frankly, I have not read them thoroughly.

They have a very impressive website: https://summits.sota.org.uk/. The home page lists call signs, frequencies, and summit designators for SOTA operations currently on the air. If you click on the designator, you go to a page with more information on that summit. It gives you the name, location, latitude and longitude, number of points, last operations, etc. There are also links to Google Maps, topographical maps, and other sources of information. It is kind of fun to work one of the stations and then check out more about them.

I had fun chasing these stations the last couple of weeks. However, I don't know if I will get bored in a few more weeks or really jump in and wear out two pairs of hiking boots hauling radio gear up hills. Well, I might give it a shot in the field next spring, but I doubt I will wear out any boots.

The point is it is fun to try new things from time to time. It does not always take a big expenditure for new equipment to try something new. It might only be a matter of changing the band switch and tuning around a bit.

Transatlantic Tests 100th Anniversary

One hundred years ago, amateur radio operators only dreamed of making contacts across the Atlantic Ocean. Only very low frequencies were thought to be useful for long distance communications back then. Those frequencies were far too valuable to be wasted on ham radio operators, so we were banished to "useless" higher frequencies. Still, there were rumors that amateur radio signals had been copied across the pond.
The ARRL send Paul Godley, 2ZE, to Scotland as a representative to the Second Transatlantic Tests. These were to see if North American amateur signals could be copied on the other side. The first station heard was 1BCG from Connecticut on December 12, 1921.

Note that in those days, we didn't have internationally assigned call sign prefixes. Many countries assigned amateur call signs starting with a number followed by letters. The thought of confusion on the country of origin had not really popped up yet.

Anyway, there are activities planned by the ARRL, the Radio Society of Great Britain, and other organizations to commemorate this milestone. The first events occur in mid-November and others throughout December.

I suggest you check out the ARRL web page for more information. At the time of this writing, the page says to watch the page for updates.

http://arrl.org/transatlantic

HamSci Solar Eclipse Experiment

Are you ready for the solar eclipse on December 4? Don't worry. You won't need your special eclipse glasses unless you plan a trip to Antarctica. But it might affect radio propagation, and you can help scientists to find out.

I have mentioned the HamSCI group before. It is an organization of hams and scientists researching the ionosphere and space weather. They want hams around the world to monitor stations like WWV for a change in frequency. At sunrise and sunset, the ionosphere will change in height. Like a police radar bouncing off a speeding car, that will cause a Doppler shift in the signal's frequency. But in this case, the change is a fraction of a Hz. They want to see what happens when the sun gets covered by the moon in an eclipse.

To participate, you will need a receiver, a computer, and some free software. Your ham rig is probably not good enough, though. The rig will drift far more than a fraction of a Hz over time. Instead, you will need a rig with a GPS Disciplined Oscillator (GPSDO). These devices use the incredibly stable frequencies of the GPS satellites to provide a reference signal, usually 10MHz. The rig will lock its oscillators on this reference to provide frequency stability. Some of the newer high-end radios have the feature to use an externally supplied reference signal.

The experiment will start on December 1 and run for ten days. They want to get baseline data on both sides of the actual eclipse. You can read more at the HamSci website. Unfortunately, their website is rather difficult to navigate. However, the link below will get you started.

https://www.hamsci.org/december-2021-eclipse-festival-frequency-measurement

DX

Last month I mentioned several DXpeditions. One was 3DA0RU, to the Kingdom of Eswatini, formerly Swaziland. This same Russian group was in Botswana in April of this year as A22RU. At the end of their DXpedition, they announced they were extending their trip to include Mozambique as C92RU. As the 3DA0RU operation was wrapping up, I wondered if they might do the same this trip. I was not disappointed, and they announced they were going to Lesotho, another landlocked homeland inside South Africa. Following their tradition, they used the RU suffix and are currently signing 7P8RU. They will be wrapping up by the time the newsletter comes out. It proves the point that you need to keep current as things can change quickly in the DX world.

After all the exciting DXpeditions last month, November looks a bit dull. A group of Israeli hams will put Rwanda on the air. They will be running three stations. They will also be on for the CQWW DX CW contest at the end of November.

St. Martin is not a particularly rare country, but I include it because a group of W9 hams is putting it on. Note they are concentrating on the low bands and should be pretty easy to work.

Also, check out the bands the week before the CQWW DX CW contest. Contest DXpeditions show up early to get set up and are on the air.

W9XT's DXpedition picks for November and early December 2021					
QTH	**Dates**	**Call**	**Bands**	**Mode**	**Link/notes**
Rwanda	Nov 24-Dec 1	9X4X	HF	C/S/D	http://9x4x.qrz.co.il/home
St Martin	Dec 01-10	TO9W	160-40	C/S/D	www.k9el.com/TO9W/TO9W/htm

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

Contests

Last month I mentioned the CQWW DX (phone) and ARRL Sweepstakes (CW) contests. Well, in November, the opposite mode version of them takes place. Conditions for the CQWW DX were the best in a long time. I made my first SSB contacts to Europe on 10 meters in probably five years. With luck, the sunspots will continue for the CW weekend of CQWW. Note that this is the Thanksgiving weekend.

Going into early December is the ARRL 160M contest. I have started to enjoy 160M contests the last few years. There is a lot of activity, but since it is a single band and you can only work a station once, the serious operators start running out of new stations to work towards the end. If you get on later Saturday night or early Sunday morning before sunrise, you can get some big pileups going once you get spotted on the DX cluster. I did that a few times and had some runs that lasted for 15-20 minutes. If I could have kept it up for an hour, I would have been around 300 QSOs. It is a real thrill to do that.

There will be special event stations during this year's running of the ARRL 160M contest to commemorate the Transatlantic Centenary.

W9XT's contest picks for November and early December 2021					
Name	**Start**	**Length**	**Bands**	**Mode**	**Link**
ARRL Sweepstakes	2100Z 20 Nov	30, work 24	160, HF	Phone	http://www.arrl.org/sweepstakes
CQWW	0000Z 30 Nov	48 Hrs	160, HF	CW	https://www.cqww.com/
ARRL160M	2200Z 3 Dec	48 Hrs	160	CW	http://www.arrl.org/160-meter

Times in UTC. Subtract 6 hours from UTC to get local (CST). Watch for day changes
HF = 80, 40, 20, 15, 10 Meters

VHF

November and early December are not known for being particularly exciting months on VHF. The sporadic E (Es) openings in the spring and summer have mostly ended. The tropo season is mostly over, but we did get a 2-meter opening to Alabama the last week of October. But there are some opportunities during meteor showers.

Gary, K9DJT, and I used it to pick up a few new 6M grid squares in October. Gary also worked some new ones on 2M. Gary worked hard to make the 2M contacts. It takes larger meteors to create ionized patches that will support contacts as you move up in frequency. I know that some of his contacts took close to an hour, and many others were unsuccessful. Gary notes that you just have to stick to it. The Leonids Meteor Shower will peak around November 16-18 if you want to try this mode.

That wraps up November. A lot is happening on the radio especially since the sunspots are returning!

Ham Radio in Mass Market Print Media

This month from Ray Totzke, W9KHH

Do you remember this advertisement from the 1950's? Fellow member Ray Totzke, W9KHH, sent this ad to this Editor during the past month.

This advertisement appeared in 1952 in popular mass media magazines of the day. Not in ham radio magazines! The text at the lower left says, "Here's a Message from Milwaukee"

That message goes on to say:

"This thoughtful wife knows that the moment her husband tunes in on Schlitz the reception is good. For Schlitz has a very special taste that beer lovers are changing to with ultra-high frequency."

Note the National NC-183D and the RME DB-22 Preselector with the OM's hand on the dial. Home brew transmitters and amplifiers were quite common in those days. Hmmm, note that "W3H??" callsign. He must have moved to Milwaukee!!

W9MXQ

Ozaukee Radio Club
October 13, 2021, Meeting Minutes
de Ken Boston W9GA

This ORC meeting was conducted via an online (internet) connection using the ZOOM app. Prior to the meeting start, those members who were able to access the 'waiting room' via phone or computer/webcam were then introduced into the meeting space hosted by Pat W9JI. At that time various audio and video connection issues were addressed for the members before the meeting began.

ORC President Pat W9JI officially initiated the meeting at 7:30 PM, as introductions were recognized when members checked into the meeting, a go-around was not conducted. There were no pre-program comments put forth.

Program:
The program was presented by Morgan, W6NBC, on the design and fabrication of antennas based on metal tape as a spiral winding on an insulating tube. Design parameters were presented, some RF theory covering skin effect and metal tape as a radiator was presented, and some designs described for the group.

Committee reports:

Repeater: W9DHI Gregg has reported that there were no major changes from last month.

Treasurer: Gary N9UUR has processed the movement of money from the CU to the ARRL [$26K] for the scholarship program, and the remainder into Cornerstone bank, for the STEM program. A discussion of the disposition of the Nels Harvey estate-radio equipment occurred, where the proceeds will be split between the repeater and the scholarship program. Gary reminded everyone that the 2022 dues are coming, and that PayPal can be used. The treasurers' report was accepted; motion made by W9MXQ, 2nd by WB9RQR, and carried.

Secretary: Ken W9GA reported the September minutes had been posted; KD9DRQ moved, K9QLP 2nd, motion to accept carried.

Tom W9IPR: turned scholarship discussion to K9QLP, who has been helping Nels family with the disposition of his radio equipment. Equipment includes some Kenwood TS850s's, plus some HTs and various other pieces; sales will be split between club and family 50/50.

K9UZ is preparing our club inventory

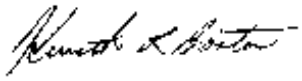
OLD business: None

NEW business: KC9ONY has 2 tickets available for the Fox cities hamfest. KD9RAW reported on the upcoming Scouting Jamboree, JOTA will be at Terry Andrae Park.

Adjournment: WH6ZZ moved to adjourn, KD9JNV 2nd, motion carried; time ending was 8:54 PM.

Following the meeting breakout rooms for the program, and a general topic; were opened.

Respectfully submitted,



Kenneth Boston W9GA, Secretary:

Upcoming ORC Monthly Meeting Programs

de Pat Volkmann, W9JI

November – Paul Mower VA6MPM - Canadian Rockies SOTA
December – Brian Page, N4TRB – Transatlantic Tests in the 1920s
January – Elections
February – Gary Sutcliffe, W9XT – Antenna Basics
March – Chuck Curran, W9KR - Hickok tube testers

Please contact Pat W9JI with your program ideas.

Creating a Presentation

Almost all 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 Power Point, 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

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ORC Meeting Agenda

October 13, 2021

1. 7:15 – 7:30 PM – Check-In and Introductions
2. 7:30 PM Call to Order – President Pat Volkmann (W9JI)
3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
4. Presentation: Paul Mower, VA6MPM ”Canadian Rockies SOTA”
5. President’s Update – Pat Volkmann (W9JI)
6. 1st VP Report – Ben Evans (K9UZ)
7. 2nd VP Report – Bill Church (KD9DRQ)
8. Repeater VP Report – Gregg Lengling (W9DHI)
9. Secretary’s Report – Ken Boston (W9GA)
10. Treasurer’s Report – Gary Bargholz (N9UUR)
11. Committee Reports
12. OLD BUSINESS
13. NEW BUSINESS
14. Adjournment

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Meeting Note:

Until the club decides it's safe to hold in-person meetings again, we will be holding the meetings via the Zoom Videoconferencing platform on the same evening and time as we had the in-person meetings. President Pat Volkmann will email sign-in info, W9JI via the ORC remailer usually about an hour before the start of the meeting.

Next ORC Meeting via Zoom
10 November2021

7:15-7:30 PM – Check-In
7:30 PM – Meeting Begins

The ORC Newsletter

Official publication of the Ozaukee Radio Club, Inc. Email all contributions to the editor, Bill Shadid, W9MXQ (W9MXQ@TWC.com). Permission to reprint articles published in any issue is granted provided the author and the Ozaukee Radio Club Newsletter are credited.

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 XXXIII	December 2021	Number 12

From the President

de Pat Volkmann, W9JI

Elections will be the focus of the January Club meeting. Tom Ruhlmann, W9IPR, will be chairing the nomination committee rather than Ken Boston, W9GA, as reported last month. Ken is currently a Club officer and was not eligible to be on the nomination committee. Anyone interested in running for office should contact Tom at teruhlmann@wi.rr.com. A big thank you to Tom for once again helping out with nominations.

Would you like to help the Club but don't care to be an officer? The Club has a number of positions and committees that take care of various activities. These include the Field Day Committee, Spring Swapfest, Fall Swapfest, Scholarship Committee and others. We would not, for example, have a Swapfest without a person to organize the event and volunteers to help out. These activities do not require a large time commitment and can be flexible to accommodate your schedule. A list of the positions can be found on the ORC website. We are currently looking for someone to take over as Club Historian and Membership Chairman. If you value, the Club and all that it provides then please consider helping out.

Last month I reported that Club member John Palese, WB9JPH (SK), had passed away. Nancy Stecker, KC9FCK, our Sunshine Committee chair told me that the Club had received a card from John's family expressing their thanks for the Club's ARRL contribution in John's name and the support of Club members.

We are working on another Key Up contest for the repeater, The last one was popular and many of you have asked for a repeat. We are working on some rule changes which should make things a bit more competitive and increase the opportunity to work more stations. At this point it looks like the event will start in mid-January. Look for announcement on the email reflector with updated rules.

My most recent shack project was replacing the power transformer in a National HRO-50T-1 receiver. The replacement was a modern part and I had to make an adapter plate to fit it in the radio. It turned into quit a project!

National HRO-50T-1 Receiver ca. 1951
Photo by W9JI

See you at the meeting.

Pat Volkmann, W9JI

A Message from the Editor

de Bill Shadid, W9MXQ

Just a quick note here about this month's content:

On to the Newsletter . . .

THE COMPUTER CORNER

No. 285: Which Anti-? App is Best, and Two Case Studies

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

Majorgeeks.com, my absolute favorite site for safe, effective, and free (mostly) software, recently did an informative article on anti-malware applications, including comparisons. They pointed out that anti-malware is the new term, and it covers viruses, malware, spyware, worms, Trojans, rootkits, rogues, adware, PUPs and even more, all gathered and now considered as *malware*. You really ought to read this one-pager by Tim Tibbetts of Majorgeeks. To quickly reach the article, copy these two lines and paste them in your browser, or else just control-click the lines below. Ignore the 2018 date shown below; it was written in April 2020 and so is less than a year old as of right now. It is safe, as is all of Majorgeeks.

https://www.majorgeeks.com/content/page/which_anti_malware_app_is_best_and_can_it_run_alongside_my_anti_virus_2018_edition.html

Read the article, and if so inclined, click the hyperlink in the article to lead you to AV-Comparatives for more in-depth and more updated analysis. The upshot seems to be that (pushing aside all the hype and confusion generated by companies that want to sell you safety) the Windows Security Center that comes with Win 10 does a good basic job. Personally, I really like Malwarebytes added as an above and beyond anti-malware application, mostly because it seems to sit right in the face of malware a bit better. But that is a personal preference. The Majorgeeks article seems to show that it is not really necessary to spend anything on additional protection other than what comes with a Windows 10 installation that is kept up to date. So put that in your pipe and smoke it!

Now, before I leave you, let me relate two personal experiences that prove beyond a shadow of a doubt that the person at the keyboard plays an even larger role in protection than does any anti-malware software you might obtain.

1. My wife, Nancy (KC9FZK) was surfing the web for a recipe for a beef roast. She chose a recipe to look at more closely when a message came up on the screen telling her that her computer was totally locked, and she must click on a certain web site to unlock the machine. She yelled for me. The machine was unresponsive and locked – no keyboard entry was reflected. I did not test the mouse, but immediately shut down her laptop *by pressing the main power button*. The power went off; I waited perhaps 30 seconds to allow the memory to bleed electrons and started it up again with the main power button. It restarted normally and all was good after the restart. I told her to continue surfing for her recipe but **not** to visit that last site. She did so and got her recipe without further incident. I later did a Malwarebytes scan just for safety, but no problems or infections were found.

So that was a successful encounter with a bad actor. The next one was not successful.

2. I service several computers for friends using AnyDesk to remotely control the computers to update it and fix any problems. One is a couple with a desktop Win10 machine. The husband is completely computer illiterate and does not touch the machine. The wife can surf but is not much better at computer literacy or the dangers, and I have encouraged her to contact me by phone immediately if there were problems, besides my updating and checking her machine. Just like my Nancy, the wife was surfing for recipes. She encountered the same demanding message and went to the site! Moreover, she gave them her bank routing number and authorized the payment of $300! Luckily, they released her machine as they said they would. When I asked her why she did not call me for help, she said she did not want to bother me! My advice to her was to immediately contact her bank with the full story and ask them for advice on how to proceed. I do not know if she did, and what they might have told her.

OZARES: Ozaukee Amateur Radio Emergency Services

by Don Zank AA9WP, OZARES Emergency Coordinator

The Attack of the IMOANS

On November 4, our normal Thursday evening net was interrupted with an Emergency Message:

"Imoan aliens have invaded Ozaukee County X The Imoans have taken over communication towers including all cell phone and repeaters X Communication is intermittent X Mass evacuations are possible."

As members checked into the net control station (NCS), Naomi, KC9YES (who is also the instigator of this exercise), became very busy. Besides checking in the members, she was developing plans on where best the operators could be virtually deployed. The operators, while readying themselves for their virtual deployment, were thinking about the best modes of communication and what frequencies to use. It was not your normal OZARES net!

Virtual assignments included the Emergency Operations Center's (EOC's) in Port Washington and Saukville, the two Ozaukee Hospitals, Ozaukee/Washington County Public Health and two virtual shelters and damage assessment.

To keep things simple at the beginning it was decided that communication modes should be FM voice on VHF and digital WINLINK, either VHF or HF. The only frequencies available for operation were our simplex channels because the repeater towers had been taken over. And using the simplex frequencies became our first big test. Because of the distance between our members located in Ozaukee County, including a guest from Sheboygan County, stations had a difficult time connecting to each other. We were dependent on relays to pass messages. This challenge provided, and this is the whole point of the exercise, several great learning opportunities.

First, when directing operators to another frequency the OZARES channel number and operating frequency must be announced. Then one channel or frequency should be assigned as primary and the other as the auxiliary or tactical channel.

Second, because of the activity going on, one NCS is insufficient. A back up or auxiliary net control station (ANCS) should be assigned. Then the primary NCS can maintain control of the primary channel and the ANCS can work the auxiliary or tactical channel.
And from lesson two rolled Lesson Number Three. All operators should be using an ICS-214 form, which is basically an Activity Log. On the ICS-214 form information detailing the stations that have checked in and operator assignments can be logged. So, if an operator is assigned as the ANCS they would be ready to roll. Operators should also be logging all of their activity on the ICS-214, including any transmissions or messages

passed, during the exercise or operation. Notes, updates, and changes can also be recorded on the 214 form.

Our exercise continued the next week using the WINLINK system and generating messages played a large role. Forms included two request forms: the ICS-213-RR, and the Red Cross 6409. WINLINK also has a weather reporting form that was used in the exercise. Thanks to Dave KD9JYL for that portion of our exercise.

This is not your normal OZARES exercise. This exercise is much different from anything we have done before. It is more like a sport training camp. If we run into difficulties or have a training moment we can stop, move back to the repeater, and either correct the problem or provide immediate feedback. This makes the time and effort going into the exercise much more effective and efficient. As an example, when we passed a message among the group using the ICS-213 form, several minor errors occurred. Those errors were corrected immediately, and everyone benefited from the feedback.

While this is a very interesting and fun exercise it does require much more time than the normal 15-minute nets. They are running about an hour long, which makes for a long night for some members that need to get to work the next day. So, we are changing the starting time to 7 pm on the first and second Thursday of the month. The third Thursday will still be the monthly meeting time and the fourth is either the Statewide VHF net on the WECOMM network, or if there are five Thursdays, then an additional net. The Statewide VHF net is always on the last Thursday of the month. If you have the opportunity, please check in or just listen in sometime. See if OZARES can overcome the communication blackout created by the IMOAN's.

OZARES repeaters are on 147.330, +, 127.3 PL and 443.525 +, 114.8 PL.

Vintage Magazine Cover Art

de Pat Volkmann, W9JI

Our cover this month is from the December 1921 issue of QST magazine. At this time, there had been no confirmed contact between amateurs in the USA and Europe. The first Transatlantic test was held in February 1921, with no success. Considerable preparation was made for the December tests. Paul Godly, considered the best short wave receiver man in America, traveled to Scotland to set up a receiving station. Godley used a regenerative Superheterodyne with 5 stages of amplifications and a 1300-foot Beverage antenna. Success was realized on December 10th when 1BCG was heard on 230-Meters. Most of the transmitters heard were CW stations, which lead to the demise of spark gap transmissions.

QST cover Courtesy December 1921 QST

Vintage Amateur Radio

de Bill Shadid, W9MXQ

Some of my favorite vintage linear amplifiers have been those using 811A final amplifier tubes. Amplifiers equipped with the original 811 and subsequent 811A tubes[1] have ranged from just after World War II to current models from Ameritron[2]. This article chronicles one of the best of the breed and an amplifier that was first marketed in the 1960's with the original release of the Collins S-Line separates (75S-1 Receiver and 32S-1 Transmitter) along with the KWM-2 and KWM-2A Transceivers. I am speaking of the table-top, completely self-contained Collins 30L-1 Linear Amplifier.

At the time of its introduction in 1961[3], the Collins 30L-1 offered maximum legal power for an amateur radio operator at 1,000 watts plate input power on both CW and SSB. Like all Collins transmitters of that time, there was no published rating for AM operation.

The 811 Triode Transmitting Tube, introduced by RCA in around 1938[4], was updated to the 811A version shortly after World War II[5]. The 811A Triode has a plate dissipation of 65-watts.

The Collins 30L-1 Linear Amplifier

W9MXQ Collection

The 30L-1 lends itself to easy installation in that it has internal circuitry to switch between being in-circuit and out. This now common feature in amplifiers was not common in the 1960's. At that time, the amplifier merely accepted driving input and provided high power output. Feedline switching was totally at the discretion of the operator. This presented problems, especially with transceivers. Transceivers used the same feedline to

send signal to the internal receiver or transmitter. That means that in receive the signal would be fed through the amplifier. While this could work after a fashion, there could be a lot of attenuation close to the position to which the amplifier is tuned. Also, it was not possible in that kind of setup to run the transmitter straight to the antenna, not using the amplifier.

Amateurs at the time would fabricate their own DPDT (double-pole, double throw) relay to provide proper by-pass of the amplifier. Companies at the time, including DowKey and P&H Electronics, offered commercial relays for the purpose. At that time, I was using a Hallicrafters HT-45 Linear Amplifier and homebrew switching relay setup.

Collins had the most easily adapted linear amplifier for any 70 to 100-watt output station. The 30L-1, for instance, would have been plug and play with my Hallicrafters SX-117 Receiver and HT-44 Transmitter when I acquired that Hallicrafters station in the 1960's. Here is how the Collins S-Line and KWM-2A look with the 30L-1 Linear Amplifier:

The W9MXQ Collins S-Line Station – Pictured from my QRZ Page
30L-1 Amplifier, 75S-3B Receiver, 312B-4 Console, 32S-3 Transmitter
W9MXQ Collection

You will also note the vintage radio operator in the above picture!

The W9MXQ Collins KWM-2A Station
KWM-2A Transceiver, 312B-5 Console, 30L-1 Amplifier
W9MXQ Collection

The same Collins 30L-1 Linear Amplifier is in both above photos. Color differences are from the photographs. Collins was quite good in keeping their color match from year to year. Notice the Round Emblem (later date) Collins emblems on some pieces and the Winged (earlier date) Collins emblems on others. These two emblems, and some even later ones, are covered in earlier articles on the S-Line and KWM-2/2A product lines.

And, finally, here is how the main competition looked in 1964 from Hallicrafters with the HT-45 Linear Amplifier that carried the same specifications as the 30L-1:

The W9MXQ Hallicrafters Twins Station with their Linear Amplifier
HT-45 Amplifier, HT-44 Transmitter, PS-150-120 Console, SX-117 Receiver
W9MXQ Collection

And, also from 1964, the competition from Heathkit – across Lake Michigan from Hallicrafters with the similar specification amplifier to the 30L-1 – the Heathkit SB-200:

The W9MXQ Heathkit Twins Station with their Linear Amplifier
SB-401 Transmitter, SB-600 Speaker, SB-303 Receiver, SB-200 Amplifier
W9MXQ Collection

The Collins 30L-1 was introduced shortly after its partners, the Collins S-Line Receivers and Transmitters, in 1961. A more commercial and military Linear Amplifier, the 30S-1, a large, floor mounted unit, came to market a year before.

At the time of the 30L-1 Linear Amplifier, the Federal Communications Commission defined maximum power for Amateur Radio Stations as 1,000 watts DC Power Input. This

rule was to include the power from an exciter. That is, the driving transmitter used to "excite" the amplifier into operation. Forgetting for a moment[6] the "including the drive from the exciter" concept the maximum input power allowed would have been based on a calculation of Plate Voltage time Plate Current not to exceed 1,000. The resulting "1,000" in that formula would have been in watts – and could not exceed 1,000 for legal operation. Typically, the plate voltage on the 30L-1 would be 1,600 volts so the maximum current when the final amplifier is resonated would be just under 630 mA, or 0.630 Amperes.

Later in the 1960's there seemed to be general agreement between the manufactures that the 1,000-watt maximum input could be interpreted for SSB as average power. So, on SSB one could run 2,000 watts input with a linear amplifier that operated at 50% efficiency and get an average input of 1,000 watts. The rub here was that it would be illegal for an amateur operator to tune up his/her amplifier to resonance at 2,000 watts. You see, for that instance of tuning up, the operator would be illegal. To get beyond this, you will notice that most older generation linear amplifiers (and older generation amplifiers still in production) have a CW and SSB mode selection. Some show that as a CW/AM mode and SSB mode. CW and AM are DC modes (as we reference it) so they are not operating as average power.

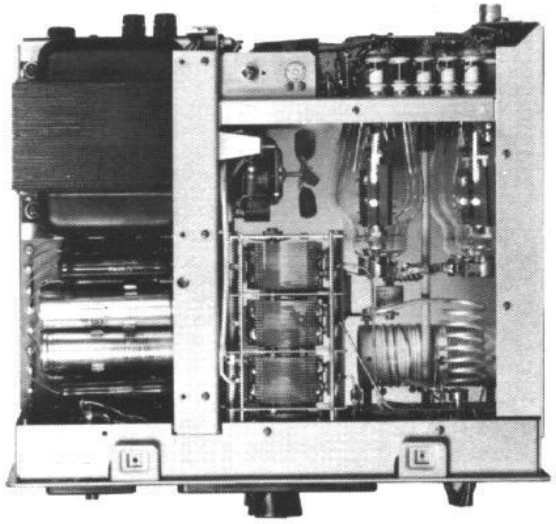
So, to tune an amplifier of the day to maximum power, one would follow the tune-up procedure in the CW mode. When complete, the operator would switch to SSB mode that would significantly increase the plate voltage. In theory, the amplifier was still tuned properly but the higher plate voltage significantly increased the power output. There is one interesting phenomenon here. My Drake L-4B and L7 Linear Amplifiers operate at a CW plate voltage of about 2,100 volts. While on SSB it operates at about 3,200 volts (somewhat less under load). So, a logical question is, why is SSB not twice the 2,100 volts – or 4,200 volts? That is mode and power supply related. Being an intermittent mode, when operating on SSB the plate voltage does not sag as much under load. The idea of average DC power provides at least 1,000-watts output. In truth, even more. Real output is more like 1,200 to 1,400-watts peak output on both mentioned Drake amplifiers. In today's flat 1,500-watts PEP Output rule that is no problem.

When introduced, the 30L-1 provided about 500-watts output and was rated at 1,000-watts DC (key down) input. Collins rated its much higher power 30S-1 Linear Amplifier at the same power level. It was marketed in the amateur market with instructions for tuning in keeping with legal amateur rules. Of course, "wink-wink," all amateurs carefully operated at that power and would never have thought of running far more power – as could easily be accommodated. For reference, the power specifications for both the 30L-1 and 30S-1 had the same power specifications. The 30L-1 was correctly rated but the 30S-1 was capable of at least twice or two and a half times more[7].

The Collins 30L-1 had a nice table-top stance compared to most all other 811A tube equipped amplifiers of the 1960's and up to the ones available today. To make the 30L-1 fit in a cabinet that matched the S-Line separates and the KWM-2/2A, they mounted the tube horizontally – not vertically like their competition. Collins 30L-1 Linear Amplifi-

ers used RCA or Cetron tubes that were designed to be mounted vertically or horizontally. In today's world, RCA and Cetron tubes are rare and only available when new old stock is located. Svetlana, the Russian tube manufacturer up to recent times marketed 811A tubes that could be mounted vertically or horizontally. Svetlana no longer makes that line of tubes – but they can be found as new old stock here and there. The Chinese make such tubes but be sure to buy them from a distributor guaranteeing them for horizontal mounting. One such distributor is RF Parts[8].

The Collins 30L-1 Linear Amplifier seems timeless in that it operates today much like it did when new. That is, as with all older radios, assuming replacement of the aging power supply capacitors and diodes. My own Collins 30L-1's (I have one now and had a different one in the past) had their high voltage electrolytic capacitors, rectifier diodes, and by-pass resistors replaced with third party restoration boards. Both of my 30L-1's used a retrofit board from Young Kim, K6HM[9], in California. Kim is widely known with Collins collectors as having one of the best quality units. (Kim is also a vintage Collins collector.) However, another high-quality retrofit board comes from Harbach Electronics, in Ohio[10]. While I do not just flat out replace capacitors and diodes in vintage equipment – I do so in high voltage circuits.



At the left here you can see in interior view of the Collins 30L-1 Linear Amplifier the Power Supply and separate RF Area shields removed. This picture, from the 30L-1 Technical Manual, does not show the more modern retro-fit power supply board installed at the lower left hand corner of the radios.

Note the horizontally mounted tubes. Two are shown with the other two just below them. See also the small cooling fan, the large Load Capacitor at the left and the tank coils. The Plate capacitor is under the Load capacitor. **W9MXQ**

To the left is the Young Kim, K6HM, retro fit HV Circuit Board. The capacitors are on the understand of the board. The HV diodes are shown across the top and the top right, The equalizing resistors are on the left and under the capacitor rows. The Harbach board is equally well designed and of excellent quality.
W9MXQ

Here are performance numbers for the Collins 30L-1:

Collins 30L-1 Linear Amplifier Performance Specifications		
Mode	**Input**	**Output**
PEP SSB	1,000	500 – 600
CW	1,000	500 – 600

It is important to remember that Collins designed the 30L-1, the S-Line, and the KWM-2/2A to be used by the amateur, commercial, and military market. As such, they cover from 3.5 to 30 MHz

Collins advises that the input circuits may need adjustment for operating in places outside the amateur bands. However, I have successfully used my KWM-2A Transceiver with my 30L-1 Linear Amplifier on the 17-meter and 12-meter bands with no issues in the KWM-2A or the 30L-1. Your experience may be different – so be aware.

Frequency Coverage Allowed – with Alignment* of Input Coils		
Band Switch Setting	**Lower Limit Mc. (MHz)**	**Upper Limit Mc. (MHz)**
3.5	**3.4**	**5.0**
7.0	**6.5**	**9.5**
14.0	**9.5**	**16.0**
21.0	**16.0**	**22.0**
28.0	**22.0**	**30.0**

(*) Alignment only if required. **Collins 30L-1 Technical Manual, Table 4-1**

Here is another interior view of the amplifier – showing the interior shielding:

Here is a view of the 30L-1 Linear Amplifier with the cabinet cover door open. Compare this with the above interior picture and see both the Power Supply (left) and RF Compartment (right) covers in place. See also the unique punch pattern for the RF Cover that allows the model number to be silk screened in the active area of ventilation holes. The 30L-1 is an impressive mechanical design. That and the electrical design have withstood the test of time. **W9MXQ**

The Collins 30L-1 uses grounded grid RF input design and thus needs about 70-watts of RF drive from the exciter. Unlike amplifiers of the day, the input circuitry in the 30L-1 insures a 50-ohm impedance for the exciter. While this was not as critical at the time of all these products, it was critical for the Collins S-Line Transmitters and Transceivers.

That point makes the 30L-1 one of the best partners to use with modern, solid-state exciters.

Speaking of partnering with modern radios, the Collins 30L-1 Linear Amplifier in this article and virtually all linear amplifiers from this era required high current at high voltages to switch between transmit and receive. This was no problem for transmitters and transceivers of that same era. However, modern exciters can only accommodate low voltages (5 to 12-volts) at low current (on the order of a few mA). Interface units are available from several manufacturers for this purpose as well as modification circuitry for the amplifier to make it compatible with modern radios. I reference but am not limiting you to the Ameritron ARB-704[11] for this purpose. Other options exist – including modifications to the amplifier itself. Some large chassis Yaesu radios have internal relays that can be activated in menu to provide interface with older amplifiers. But be sure the current draw from the amplifier is not too high for even that relay. If you do not know how to measure the required current, buy the Ameritron ARB-704, or one of the several competing units. Most of today's radios do not give you a second chance with said switching – the first time you make a mistake and draw too much current from an old amplifier's switching circuit, you WILL destroy the switching transistor in the radio. And, as if that is not bad enough, several Icom radios have an error in their instruction manual on just that point – showing a typing error indicating way more current than the little transistor can withstand. Beware!!

Here are a couple of 30L-1 operations at W9MXQ where the Collins 30L-1 is running with other brands of exciters:

Cubic Astro 103 and Collins 30L-1
W9MXQ Collection

Kenwood TS-830S with Collins 30L-1
W9MXQ Collection

In the above pictures, the Cubic Astro 103 includes an added internal relay for switching a vintage linear amplifier – as mentioned above. The previous owner added that relay. I have now removed it and use the Ameritron ARB-704 Interface with the pair shown. The Kenwood TS-830S uses a large relay internally for amplifier switching – so no interface is needed.

Ameritron Catalog

Pictured at the left is an Ameritron ARB-704. The unit as delivered includes most cabling for vintage radios (or any radio with cables of you own making). Ameritron offers custom cables for current transceivers on the market – and some recent models as well.

Another area involves the AC Mains wiring. The amplifier came from Collins wired for 230 VAC. If you find a used one it could come wired for 115 VAC as a convenience. When returning the amplifier to 230 VAC service, note that the manual is incorrect. My best advice is to carefully examine the circuit and wire the transformer logically, not necessarily by the manual. I have never seen a correct manual.

Whenever talking about the Collins S-Line and the associated accessories, I must repeat something I mentioned in the first article done on the original 75S-1 Receiver and 32S-1 Transmitter as these radios were introduced in 1958. These radios have a feature that was approached, but never exceeded, by their competition – "Desk Presence." Look again at the Collins station pictures at the beginning of this article and draw your own conclusions. Another subjective comment is to say that the closest of the time competition for that look were the Hallicrafters and Heathkit lines from 1964 – also shown as complete stations, earlier in this article.

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.

Credits and Comments:

[1] Reference three earlier articles in this series on 811/811A triode final amplifier linear amplifiers in the December 2019, February 2020, and March 2020 issues.
[2] Ameritron, at the time of this writing, markets the AL-811 Linear Amplifier with three 811A tubes and the AL-811H Linear Amplifier with four 811A Tubes. You can find further details on those offerings at https://www.ameritron.com,
[3] Reference the excellent data website on many Collins Radio Company historical items from Norman Drechsel, WA3KEY. Reference http://www.collinsmuseum.com.
[4] Reference the 1938 Edition of the "Transmitting Tube Data Book" from Radio Corporation of America (RCA).
[5] Other than "after World War II," I do not know the year the 811A version of the 811 Triode was introduced. Other than nomenclature printed on the tube and power handling specifications, the difference between the two versions is limited to some extra fins on the 811A's anode structure.
[6] My first commercial Linear Amplifier was a 1,000-watt input Radio Industries Loudenboomer. Radio Industries later became the Kansas City plant for Hallicrafters and the Loudenboomer became the Hallicrafters HT-45. My long-time friend, Bob, W9DYQ, now has that original Loudenboomer. I remember carefully monitoring my power input to the final of the amplifier to hold it to 800-watts. 200-watts from the exciter plus the 800-watts – for a total of 1,000 watts input.
[7] The Radio Industries Loudenboomer and subsequent Hallicrafters HT-45 Loudenboomer Linear Amplifiers were capable of far more than 1,000 watts input. The Collins 30L-1 had a total plate dissipation of 260 watts (4 times the 65-watts for each tube). The two Loudenboomers had a total plate dissipation of 400-watts with their Eimac 3-400z tube. At the time of their manufacture, the companies kept the printed specifications compliant with the law. The Heathkit SB-200 used two of the Cetron 572B Triode with a 160-watt dissipation – a total dissipation of 320-watts. The 572B – a redesigned 811A with more than twice power capability.
[8] The proper 811A tubes for horizontal mounting are available from RF Parts. You can access them at their website, https://www.rfparts.com/. BE SURE to mention horizontal mounting.
[9] Contact Young Kim, K6HM, at this QRZ page address. I have used Kim's kits in both of my Collins 30L-1 Linear Amplifiers.

[10] Harbach Electronics is at https://harbachelectronics.com. I have used Harbach's kits in my various Drake Linear Amplifiers and Drake Transceiver/Transmitter AC-4 Power Supplies. I have one Harbach kit pending installation into a National NCL-2000 Linear Amplifier.
[11] The Ameritron ARB-704 is available for most ham radio equipment distributors, including HRO, locally. The website link is https://www.mfjenterprises.com. Go to that link and enter "ARB-704" at the time of the page to search for the product.
[12] Other brands of amplifiers mentioned in this article (Hallicrafters, Heathkit, and Radio Industries have been the subject of detailed articles by this author. Contact me for article details at W9MXQ@TWC.com.

Hammarlund Hullabaloo!!

de Bill Shadid, W9MXQ

On 19 through 21 November 2021, the High Appalachian Mountain Amateur Radio Society operated what is called the "Hammarlund Hullabaloo!!" Special Event station. They used special callsign, W4H.

This was in celebration of the anniversary of the opening of the new Hammarlund Manufacturing Company facility in Mars Hill, NC, 70 years ago, in 1951. Also, 19 November would be the 170th birthday of Oscar Hammarlund, founder of Hammarlund Radio Company. He was born 19 November 1861. The Hammarlund radio factory was located in Mars Hill from 1951 to 1973. In 1973, Hammarlund Manufacturing Company went out of business. They left behind many fine amateur radio receivers, transmitters, and accessories., So, as the special event sponsors said, "Crank up your Hammarlund radios and make contact with us!" Contacts with other radios were, of course, also welcomed to play along. Here was the setup at W9MXQ as it worked W4H on SSB . . .

Collins KWM-2 and 312B-5 (1961) with a Hammarlund HQ-170AC-VHF Receiver (1958). Transmitting with the Collins and Receiving with the Hammarlund.

On The Air!

de Gary Sutcliffe, W9XT

When we talk about the sun's effect on radio propagation, we usually talk about sunspots, or at least for the last five years or so, the lack of them. Other than low band enthusiasts, most HF operators love sunspots. Without them, our higher HF bands like 10 and 12 meters are not very exciting.

But there is a dark side of the sun, so to speak. The big one is solar flares. Solar flares can happen at any time but are more common during periods of high sunspot activity. So, they are likely to become more common over the next few years as we get further into solar cycle 25.

Solar flares affect radio propagation in two ways. The first is when the event happens. In addition to the light, the solar flares emit a burst of X-rays. When that hits the earth's atmosphere some nine minutes later, the D layer is ionized. The D layer forms during the day from solar UV light and dissipates at night. The D layer absorbs lower frequency radio signals. That is why we only hear local signals on 80 and 40 meters as well as local AM broadcast stations during the day. The signals are absorbed before they can get to the F layer and refracted back a long distance from the transmitter.

The X-ray burst from a flare can be so intense that the D layer starts absorbing signals at higher frequencies. It can cause a radio blackout called a Sudden Ionospheric Disturbance (SID). Because the X-rays travel here at the speed of light, we have no prior warning.

It is pretty dramatic if you happen to be operating when one occurs. Your first reaction will be that your receiver died, or something happened to your antenna. I have witnessed a few SIDs.

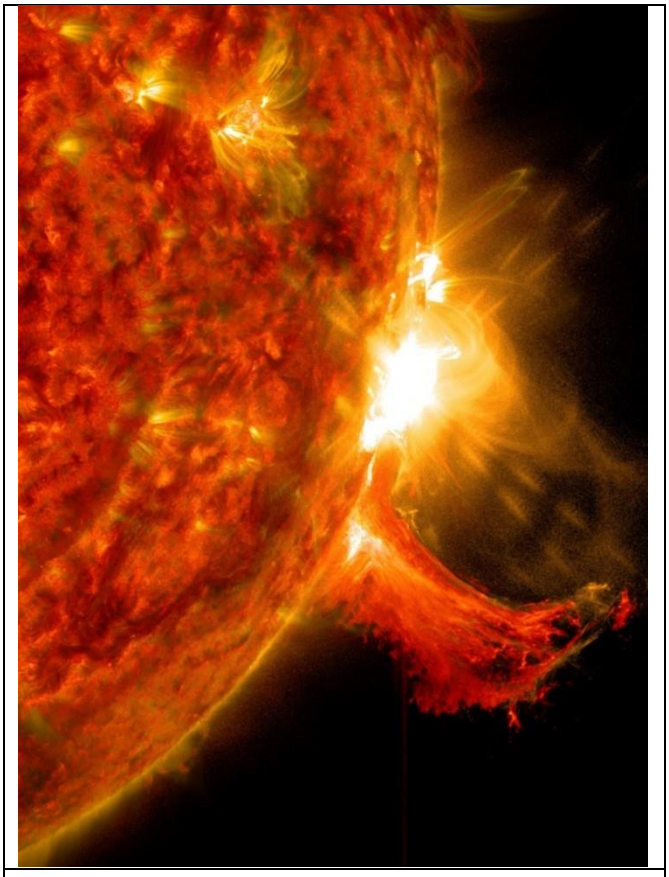
The SID will only occur on the sunlight side of the planet. Usually, conditions will get more or less back to normal in a few hours.

The flare will also eject charged particles in a coronal mass ejection (CME). CMEs can also be produced without a flare. Most of the time, they are ejected in directions away from us and don't cause us problems. But occasionally, the head our way. It takes one to three days for them to make the 93-million-mile trip. When they arrive, they interact with the earth's geomagnetic field causing disturbances or even a geomagnetic storm. Signals traveling near the poles are absorbed, and HF conditions, in general, are poor for several days.

The auroras surrounding the magnetic poles expand and become visible at lower latitudes if we get enough particles. They are beautiful to watch and can be fun for VHF operators. Auroras can reflect signals and communications out to 1200 miles or so are possible.

Aurora reflected signals have a lot of distortion. SSB signals may be difficult to understand, and CW signals have a buzzing sound to them. Instead of sending a signal report of 559, you might send 55A with A standing for aurora.

If the flare is big and directed our way, it could cause big problems. It will create very large auroras, which cause huge currents to flow in long wires. In 1965 an aurora induced current caused the failure of a power transmission line near Ontario, Canada. This started a chain reaction that shut down a good portion of the northeastern US and Canadian electrical grid.



A solar flare.
The flare is the bright white spot.
NASA Photo

CMEs can also damage satellites and cause GPS location errors.

A really large flare could cause even more widespread damage. In 1859 the largest CME on record occurred. People as far south as Mexico saw the aurora. Further north, people could read newspapers by the light of the aurora. Telegraphs, the most advanced communications system of the day, were affected. Some worked without their batteries from the current induced in the lines. There were reports of fires being started at some telegraph offices.

The 1859 event was named the Carrington Event after the British astronomer who saw the flare while observing the sun before the particles arrived. He made the connection between the flare and the effects happening on earth.

A Carrington sized event today would be devastating. Our electric grid could be destroyed. Our electronics are based on sensitive transistors and could be burned out. That old tube radio in the closet might be the only radio working, assuming it was not connected to the power lines or antennas at the time, and you had the power to run them.

It would take years to repair the electric grid. Typical lead times for large transformers are many months. Consider how long it would take to replace most of the power lines and transformers for an entire hemisphere, assuming the factories to produce them were still functioning.

Experts who study this have been lobbying the government to harden our electric grid. The estimate is that it could be done from $2B, a drop in the bucket considering all the trillions of dollars spent on questionable programs recently. If the US was without electricity for a year, millions would die, according to some estimates.

Like the killer asteroid out there someplace, another Carrington Event is only a matter of time. We will get one eventually, if we are prepared or not. Some estimates say they happen on the order of one every hundred years or so. If that theory is correct, we are overdue. Hardening the power grid would also protect us from a nuclear bomb induced electromagnetic pulse (EMP) attack. A single nuclear device detonated about 300 miles above Kansas could affect most of the country.

So why am I talking about this? We had a solar flare at the end of October. There was a SID. I was not on the radio but heard some chatter about it later. This one was not a really big flare, but there was some concern about satellites and GPS problems since it was thought to be directed at us.

It turned out the big part missed us. We had some pretty good auroras, and pictures from around the world started showing up on space weather sites. I went out to look for aurora, but as usual, whenever there is some sort of astronomical event I want to see, it was cloudy in Wisconsin.

We did get some aurora action on 6M. I worked a few stations on 6-meter Aurora on November 4. The mode was CW. They were the first aurora contacts I have made in many years. I worked as far as New England on 2 meters on some really good auroras in the past.

If you hear about an aurora and want to give it a try on the radio, point your beam just a bit east or west of north. SSB signals might be too distorted to copy. Sometimes it sounds as if the other station is whispering. CW is more efficient but sounds like a buzzer. Besides 6 and 2 meters, you might want to give 10 meters a shot.

December Meteor Shower

I talked about working stations off meteor trails in this column several times. Gary, K9DJT, is active most mornings working stations on 6 and 2 meteors with the MSK144 mode in WSJT. WSJT is a suite of different digital modes. If you run FT8, you probably saw it in the mode drop-down tab.

Meteor scatter is more effective during meteor showers. Comets are composed of ice and small rocks. As they orbit the sun, some of the ice evaporates, releasing the solids along the way. As the earth passes through the orbits, the sand and small pebbles enter our atmosphere, where they burn up, producing light and an ionized tube we can bounce radio signals off. The number of comet particles hitting the atmosphere is much

higher than the random ones we usually get. Since you need a string of meteors to complete a QSO, more meteors mean more and faster QSOs.

Meteor showers are named after the star constellation they appear to originate from. A big one peaks December 12-13 but will still be active for a few days before and after. This one is called the Geminids after the constellation Gemini.

Most meteor scatter work is done on 6 and 2 meters, but meteor propagated signals can happen at lower frequencies. By chance, the ARRL 10 Meter contest is at that time. You can work stations during that contest off meteors if you want to give it a try.

You can work stations in the contest on CW or phone. If this is your first time, I suggest phone. It is much faster.

Tune around the band after dark. From time to time, a signal will jump up for anywhere from a fraction of a second to may a half minute or more. If you can copy his CQ, give him a call. He will respond with a signal report and state. Reply in kind.

Now, the meteor trail may not last very long. So be very fast, and don't say anything not necessary. Give your call once phonetically. If you hear someone but didn't get the call, or if you start a QSO but can't finish, stick around on that frequency. Another meteor will probably show up in a minute or two.

Transatlantic Test Centennial

Last month I mentioned that the first amateur signals were heard across the Atlantic 100 years ago this December. The ARRL, RSGB, and other organizations have events planned to celebrate this. The December issue of *QST* has a few articles about it.
The ARRL has a web page listing some of the events. http://arrl.org/transatlantic
There will be a QSO party where you try to work W1AW and GB2ZE on 160-meter CW. Special event station GB10002ZE will be active December 1-26. I am not big on working special event stations, but I think I will try to snag this one.

Contests

As mentioned above, the ARRL 10 Meter Contest starts at 6:00 PM on Friday, December 11 local time. You can operate CW, phone, or mixed mode.

The 10 Meter Contest is probably my favorite contest. You can work DX and domestic stations. You might work stations via F layer, Es, or meteor scatter propagation. The band is quiet, and small antennas work well. The band is also large, so there is room to spread out.

Without sunspots the last 4-5 years, it has been more like a VHF contest. As we move further into cycle 25, conditions on the band will improve. As a result, we will likely have a lot more DX than the last few events. At sunspot peak, you will often find the band

packed from 28.300 to 29.500 MHz with US and European SSB signals. It is really amazing.

Vic, WT9Q, has been out to beat me in this contest. For the last few years, we have been placing in the top 5 in the world in our class. Vic's score has always been just a bit below me. He is out for another try this year. It will be an epic battle.

W9XT's contest picks for December 2021 and early January 2022					
Name	**Start**	**Length**	**Bands**	**Mode**	**Link**
ARRL 10M Contest	0000Z 11 Dec	48, work 36	10M	CW, Phone, Mixed	http://www.arrl.org/10-meter
160-Meter Transatlantic Centenary QSO Party	0200Z 12 Dec	6 hours	160M	CW	http://arrl.org/transatlantic Work W1AW & GB2ZE
Stew Perry Top Band Distance Challenge	1500Z 15 Dec	48, work 14	160M	CW	www.kkn.net/stew/
Straight Key Night	0000Z 1 Jan	24	All	CW	http://www.arrl.org/straight-key-night

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

The other fun contest this month is the Stew Perry Top Band Distance Challenge. This is a 160 meter, CW only contest. Usually, this is the Saturday between Christmas and New Year's, but since these fall on Saturdays, it is a week earlier December 18.

The thing that makes this interesting is that there are no multipliers. You just get points for each station you work. The points vary by the distance between the stations. A nearby station is only worth one point. DX contacts can be worth 20 points or more. But they can be worth much more. If the other station is running low power, the QSO is worth twice as many points. If they are running QRP, they are worth four times as much. The exchange is grid squares. Your logging program will calculate the number of points, but assume the other station is high power, so they will show up with the minimum point value. If the other station is running low power or QRP and sends in their log, your points are adjusted accordingly. You can look online for claimed scores. You watch your score increase as more low power, and QRP ops send in your logs. Your relative position might change depending on if other stations worked the lower power stations.

It is not really a contest, but if you are getting too old to go out partying and don't want to wake up with a hangover, consider dusting off your old straight key and do some CW on local New Year's Eve for Straight Key Night. It is really not a contest. There is no set exchange and no points or awards. Conversational QSOs with straight keys and mechanical bugs are encouraged. Send in your log and see your call sign in *QST*.

DX

W9XT's DXpedition picks for December 2021 and early January 2021					
QTH	**Dates**	**Call**	**Bands**	**Mode**	**Link/Notes**
Bangladesh	Dec 16-22	S21DX	40-10	SSB	https://s21dx.org
Mount Athos	Dec 1-7	SV2RSG/A	160 +?	FT8 +?	

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

A Bangladesh group of hams will activate Manupura Island Dec 16-22. This is part of the Islands on the Air (IOTA) program that activates islands. But as a DXCC entity, Bangladesh is pretty rare. Probably more of the stations contacting them care more about them as a DXCC entity than an island. The path there is challenging, but with increasing sunspots, we might have a shot.

There might be another attempt at Bouvet Island by a group of Polish hams. Their last attempt and another by an international team had to abort without landing due to weather or mechanical breakdowns. It is a very long trip and expensive to go there, and landing on the island is very difficult and dangerous. The Polish group might be making another attempt between December 25 and January 25.

Personally, I think the chances this will occur are pretty slim, but if it happens, it will be the biggest DXpedition event in years. Keep an ear out.

A late notice came out that Mount Athos will be on, and if you act quickly, you might get a chance. Mount Athos is a Greek Island run by a monastery. Access is extremely limited, and the one monk that was an active ham died a few years ago. Due to little activity, this is much needed for DXCC. The word is that SV2RSG/A will be active December 1-7. The focus will be FT8 on 160M, but other bands and maybe modes are possible.

That wraps up this month's On The Air. Have a great Christmas and New Year's!

Ozaukee Radio Club Minutes
Membership Meeting of 11/10/2021

de: Ken W9GA, secretary

This ORC meeting was conducted via an online (internet) connection using the ZOOM app. Prior to the meeting start, those members who were able to access the ‘waiting room’ via phone or computer/webcam were then introduced into the meeting space hosted by Pat W9JI. At that time various audio and video connection issues were addressed for the members before the meeting began.

ORC President Pat W9JI officially initiated the meeting at 7:33 PM, as introductions were recognized when members checked into the meeting, a go-around was not conducted. Tyrel KD9TRX was recognized as a new ham, and a new ORC member.

Program:
The program was presented by Paul, VA6MPM on the "Summits on the Air" [SOTA] program, and his association with the Alpine club of Canada. Paul described his many activations, starting with Banff national park, near Calgary, Alberta, Canada. He also described other activations, and some of the details regarding how the SOTA program works, and that it is a word-wide endeavor.

Committee reports:

Repeater: KC9ONY Tom reported that the repeater system was all working OK.

Treasurer: Gary N9UUR reminded everyone that the 2022 dues are due, and that PayPal can be used, as well as a check mailed to Gary N9UUR to his callbook address He also informs us that the members list on the website is current. The treasurers' report was accepted; motion made by WB9RQR, 2nd by K9QLP, and carried.

Secretary: Ken W9GA reported the October 2021 minutes had been posted; with a correction regarding the treasurer's activity. WB9RQR moved, KD9JNV 2nd, motion to accept carried.

There was no update on the Scholarship/STEM program.

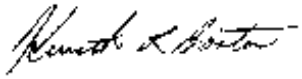
OLD business: None

NEW business: W9JI is soliciting members for the Nominating committee, let him know if interested. The annual dues will remain at $15 for 2022. Nate KC9TSO gave a brief description of our needs for future expenditures on Field Day equipment, which he is presently storing. It was determined that the club will need an accounting of future costs related to the FD trailers and their maintenance, with attention to the future budget. Pat mentioned that Gregg W9DHI has cleaned up the Website a bit.

Adjournment: WB9RQR moved to adjourn, K9QLP 2nd, motion carried; time ending was 9:00 PM.

Following the meeting breakout rooms for the SOTA program, and a general topic; were opened.

Respectfully submitted,



Kenneth Boston W9GA, Secretary

Upcoming ORC Monthly Meeting Programs

de Pat Volkmann, W9JI

Upcoming ORC Monthly Meeting Programs

November: Paul Mower VA6MPM - Canadian Rockies SOTA
December: Brian Page, N4TRB – Transatlantic Tests in the 1920s
January: Elections
February: Gary Sutcliffe, W9XT – Antenna Basics
March: Chuck Curran, W9KR - Hickok Tube Testers
April: Bill Shadid, W9MXQ - Drake Linear Amplifiers – Features and Failures

Please contact Pat W9JI with your program ideas.

Creating a Presentation

Almost all 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

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ORC Meeting Agenda

December 8, 2021

1. 7:15 – 7:30 PM – Check-In and Introductions
2. 7:30 PM Call to Order:
   President Pat Volkmann (W9JI)
3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
4. Presentation: Brian Page, N4TRB:
   Transatlantic Tests in the 1920s
5. President's Update:
   Pat Volkmann (W9JI)
6. 1st VP Report:
   Ben Evans (K9UZ)
7. 2nd VP Report:
   Bill Church (KD9DRQ)
8. Repeater VP Report:
   Gregg Lengling (W9DHI)
9. Secretary's Report:
   Ken Boston (W9GA)
10. Treasurer's Report:
    Gary Bargholz (N9UUR)
11. Committee Reports
12. OLD BUSINESS
13. NEW BUSINESS
14. Adjournment

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Meeting Note:

Until the club decides it's safe to hold in-person meetings again, we will be holding the meetings via the Zoom Videoconferencing platform on the same evening and time as we had the in-person meetings. President Pat Volkmann will email sign-in info, W9JI via the ORC remailer usually about an hour before the start of the meeting.

Next ORC Meeting via Zoom
10 November 2021

7:15-7:30 PM – Check-In
7:30 PM – Meeting Begins