



The *ORC* Newsletter

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



ORC Repeaters on 146.97 (-127.3PL), 224.18 (-127.3PL), 443.75 MHz (+127.3PL) - Callsign W9CQO
Web site: www.ozaukeeradioclub.org Facebook: facebook.com/orcwi

Volume XLI

October 2023

Number 10

From the President

de: Bill Greaves, K9GN



The Ozaukee Radio Club maintains its designation from the ARRL as a Special Service Club. What does this mean? The ARRL defines a Special Service Club (SSC) as an amateur radio club that goes above and beyond for their communities and for Amateur Radio. An SSC provides active training classes, publicity programs, and actively pursues technical projects and operating activities. (See www.arrl.org/ssc-application) There is an annual renewal application required to maintain SSC status. The application addresses New Ham Development and Training, Public Relations, Emergency Communications, Technical Advancement, Operating Activities, and Miscellaneous Activities unique to our club. Reviewing the ORC's strengths and opportunities is one of your Board's tasks in preparation for our renewal application.

And, speaking of all of those volunteer opportunities for the club's members (I was mentioning that wasn't I?), any member can participate in the life of the club by simply emailing me at president@ozaukeeradioclub.org and we can link you into ongoing club activities.

The ORC Programming Committee is always ready and willing to assist you in preparing your presentation to your fellow club members at a monthly meeting. What can you talk about? How about that modification to your station, how you approach connecting your equipment, what you have been working on but are now at a seemingly impasse and would like club members' input to solve the issue – literally anything that is ham radio related is fair game. We have people to assist you in putting a presentation together. This could be the start of something beautiful! Just let us know. Jeananne N9VSV, Bill K9GN, and Pat W9JI can give you input, help, and guidance.

The club membership will gather on Wednesday, October 11th, both in-person and on Zoom, at 7:30pm, with meet-n-greet at 7:00pm, at the Grafton Senior Center or on Zoom. As always, I look forward to seeing you there.

73,

Bill K9GN



<https://lovetobeinthekitchen.com>

A Message from the Editor

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de: **Bill Shadid, W9MXQ, Newsletter Editor**

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

Tom Ruhlmann, W9IPR, starts us out with a report on the Fall ORC Swapfest. He provides credits and excellent pictures. Good work, Tom. (And everyone involved!!)

Following you will find two excellent first person experience articles from Nate Seidler, KC9TSO on the Wisconsin POTA Special Event and from Gary Bargholz, N9UUR, on his quest for Worked All States and DXCC in his article titled, "You've got to have a Goal!!" I always consider it a highlight when we have first person activities documented in an article in this Newsletter. When we get them, they always have top billing.

Be sure to check out Don Zank, AA9WP, in his Ozaukee County ARES column this month. Lots of opportunities are documented – local and national. Visit the links Don shows – I did, and all were very interesting.

Do all of you know that Don, as the Ozaukee County ARES Emergency Coordinator and the adjacent Washington County ARES Emergency Coordinator, Vic Shier, WT9Q, are both Ozaukee Radio Club Members? I am sure most of you know that – but it is always good to mention. Thanks to you both for accepting that responsibility.

Stan Kaplan, WB9RQR, brings us his 307th consecutive Computer Corner column. Stan often mentions Majorgeeks and their line of software. Check out his column for more information on that supplier.

Gary Sutcliffe, W9XT, is back with his On the Air Activities column. We are headed into the more active times for ham radio as the weather turns colder and indoor activities take more priority. Be sure to check his "pull-out" activities page.

You Editor, Bill Shadid, W9MXQ, has two articles this month. The regular Vintage Amateur Radio column discusses the Ten-Tec Corsair and Corsair II with emphasis on one particular example of the Corsair II and all of its operating accessories. Right along with that is an article on the Unified Microsystems XT-4 MK2 Memory Keyer used with the Corsair II and other solid state radios. This is a review that is based on being a beta tester for this latest upgrade of the XT-4 product.

Tom Trethewey is back with his Upcoming Events column. Take a look.

Jeananne Bargholz, N9VSV, and Bill Greaves, K9GN, provided the Minutes for the September meeting. And, also, following that, Ken Boston, W9GA, provided the delayed minutes for the August meeting. Both will need to be approved at the meeting next week.

Jeananne Bargholz, N9VSV, our new Program Committee Chair (in addition to being 1st Vice President), outlines the speakers and their topic for next week's meeting. Take a look at her writeup on Janice Hoettels, KA9VVQ, and Bruce Richardson, W9FZ, and their "Getting on the Air and Having Fun with Roving" program for the next meeting.

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

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The Annual ORC Regional Fall Swapfest Is Again a Success

De: Tom Ruhlmann, W9IPR

Thanks to all of the volunteer's efforts we had fun, and the event was a real success. We had 38 vendors and a paid attendance of 200. The club treasury increased by about \$650 after expenses and the STEM (scholarship) fund increased by over \$1,100. We had door prizes donated by Bioenno Power (12 and 20AH of the LiFePo4 batteries), Cable Experts and ARRL. Our number of vendors and attendance both increased by about 25% this year. We had good advertising due to the email "group" postings and the flyers at HRO and as handed out at the various area swap fests by Loren Jentz and Tom Trethewey.

My special thanks to Jim Albrinck for arranging for the Fireman's Park grounds and Mike Harrington for providing the audio equipment and the announcing.

Thanks to all of the following who volunteered and made the event such a success:

Friday at the barn and setup at the park:

Pat Volkmann, Bill Greaves, Gary Sutcliffe, Fred Schwierske, Jim Albrinck, Ken Boston, Jeananne Bargholz, and Gary Bargholz

Saturday at Fireman's Park:

Refreshments: Todd Fast

Admissions: Gary Bargholz, John Thielen, Jim Albrinck, Scott Golaska, and Chuck Meyer

Parking: Bill Greaves, John Thielen, Rod Kleist, Kristian Moberg and Mark Heleniak

Sound Equipment and Announcing: Mike Harrington

Scholarship Trailer Sales: Jeananne Bargholz, Tom Ruhlmann and Nate Seidler

Grounds and Tear Down: Jim Albrinck, Fred Schwierske, Pat Volkman, Ken Boston, Don Zank, and Matt Myszka.

Following are a few pictures of various members buying, selling, and just browsing. Thanks again for all the help. Hope you had fun and got a few treasures.





CQ WIPOTA CQ WIPOTA

de: Nate Seidler, KC9TSO

On Saturday, September 16th, there was a special event sponsored by Fox Cities Amateur Radio Club surrounding Parks on The Air. The purpose of the Wisconsin Parks on the Air (WIPOTA) operating event is to promote public awareness of ham radio within Wisconsin's beautiful state park system.

The objective of WIPOTA is to have competing stations operate from as many Wisconsin parks as possible and work hams in other WI parks, as well as hams not located in a park in any state, province, or country. This event had normal contesting type rules that kept the operating off the WARC bands even though a typical POTA operation would allow WARC bands to be operated. So, throughout the time period, you heard WI stations on 80, 40, 20, 15 and 10 meters. Bonus multipliers were available for contacting other parks so most activators stayed on the lower bands.

For this event, I set up my station at Lizard Mound State Park (K-9704) in West Bend, WI. Lizard Mound is one of the most well-preserved Native American effigy mound sites in the nation, with 28 extant conical and linear mounds on the property. The property's effigy mounds have been interpreted as representing spiritual and/or animal-like forms, including bird, panther or water spirit, and the eponymous lizard. It has a picnic area that is on the north end which is not an effigy area where I can set up my antenna without disturbing the sites. Since it is nestled in among corn fields, the ambient noise level is a S0 so you can run a preamp to really pull the distant stations out of the weeds.



Map Lizard Mound State Park as Posted on Park Grounds



Welcome Sign for Lizard Mount State Park

The event was held from 11am to 6pm but I only operated from 12:30 to 3:30pm due to family and weather. During this time, I was not hard-core contesting but having more fun searching out others in the state as well as some DX on higher bands. I made 11 contacts on 40m (3 of them other WI parks for multipliers), 17 contacts on 20m, 19 contacts on 15m (DX of Spain, France, and Venezuela) and 1 contact on 10m in California. Half of these contacts were from hunting other stations and the other half was actively calling CQ. I had the rare DX on 15m of contacting W9MXQ a whole 19 miles away....

Here is the setup for KC9TSO as he operated from Lizard Mound State Park.



Left to Right: Windows® PC,

This and all photographs – KC9TSO

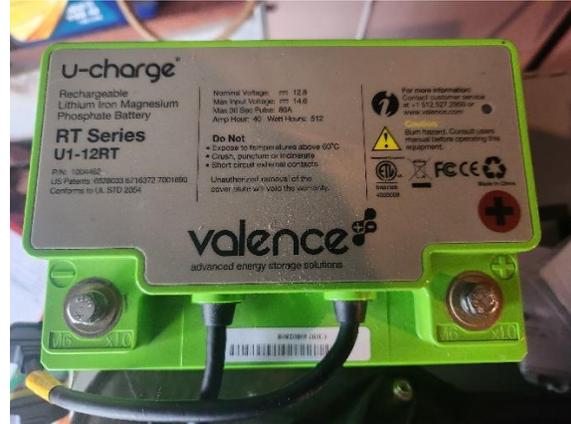
The radio used for the Pota is an Icom IC-7200. The tuner is an LDG AT-200ProII. The Coax is ARB-240 with an orange abrasion shield and ferrite beads. The antenna is a Wolf River Coils Sporty-Forty setup. The battery is a Valence U1-12RT, 40AH Lithium Iron Phosphate Battery (see picture, below). Logging software is N3FJP. Also, an HP Victus laptop computer.

While operating, Matt, KD9QLS, showed up after leaving work. He also does POTA as well and never activated this park. So, I moved aside and let him hunt out enough contacts to make it a proper activation to report. These pictures are what I took of him while he was logging. He uses HAMMRS to log while I use N3FJP. If you use N3FJP, there is a POTA format that you can download so it will arrange the information fields for quicker

entry. It also helps to know the macros to quickly enter multiple parks or operators if they are doing a group operation.



Matt, KD9QLS, making a few QSO's



The Valence U1-12RT Battery

Mark down the 3rd Saturday in September on your calendar for next year. You may say to yourself, "Why should I worry about this if I don't go out and activate parks?" They made this event inclusive to all operators. They have 5 different categories available to fit every type of op.

Operator Categories:

- Single transmitter at one time in WI park
- QRP for single transmitter at one time in WI park
- Multiple simultaneous transmitters in WI park
- WI operators not in a park
- Non-WI operators

Since the multipliers are given for contacting WI parks, having a NVIS 40 and 80 meter antenna would be to your benefit. Operating with a vertical hurt my ability to work Wisconsin parks and I will remedy this for next year. But many of you have home stations with great capabilities that would really clean up in the "not in a park" class. As an activator, we want to make as many contacts as possible and getting home stations to work us in a pile up makes the activation a lot more fun than sporadic contacts. Hope to hear from you next year.

Nate
KC9TSO

You've got to have a Goal!

de: Gary Bargholz, N9UUR

As many of you know, I started my HAM Radio interest with working Satellites.

I had a Short-Wave receiver and read an article about these "HAMS" talking to astronauts on MIR, the Russian Space Station.

Something clicked in my head, and I "Just Had To Do That."

So off to Amateur Electronic Supply (now Ham Radio Outlet), where I met Dick Engle, K9RWE, who became my early mentor.

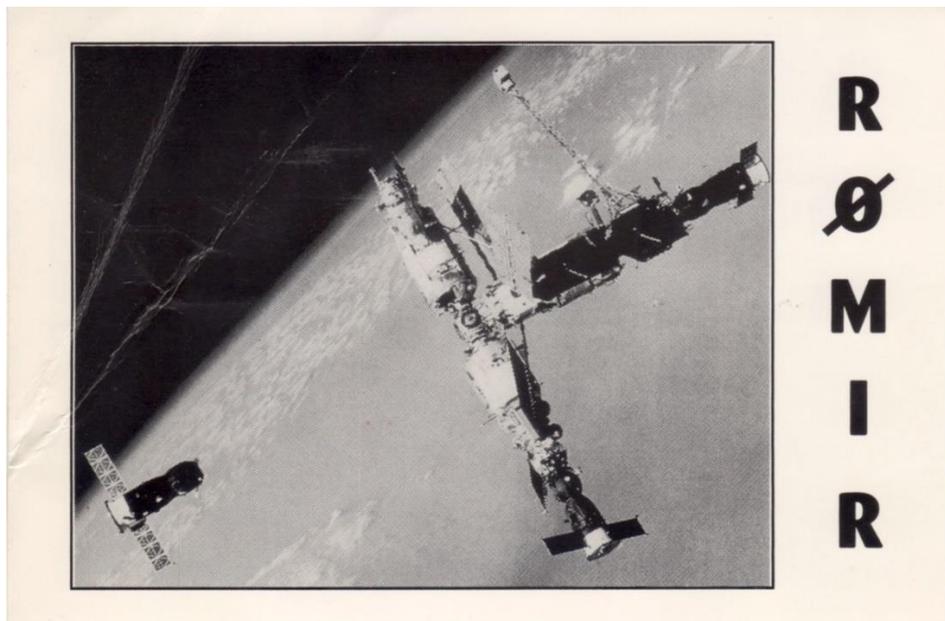
Buy books, study for the Tech exam, dream about gear needed... saving pennies.

I took my exam on July 10, 1993, at the Oak Creek Swapfest, it was corrected by Kate Kedney, KA9MWT, and Joe Mettry, AA9DO. I'm now a VE with Joe. I truly miss Dick and Kate, both now SK's.

When I took my Tech exam, I had studied an ARRL book, but I guess I waited too long to take the test. When I sat down, I had never seen the first question, or any on the first page. The question pool had changed! I still passed with only one mistake.

At that time, the FCC was changing over from paper filing to electronic submissions from the VE's. It took 3 months to get my callsign issued. Frustrating, but plenty of time to build my SAT Station, and do a lot of testing, and listening.

Once I was the proud holder of ARS N9UUR, I did QSO MIR.



And later, Bill McArthur, KC9ACR, on the International Space Station.



With these two goals achieved, and two nice cards in hand, I set off on a 30 Year Amateur Radio career. And the QSL cards started coming in, all from SAT QSO's.

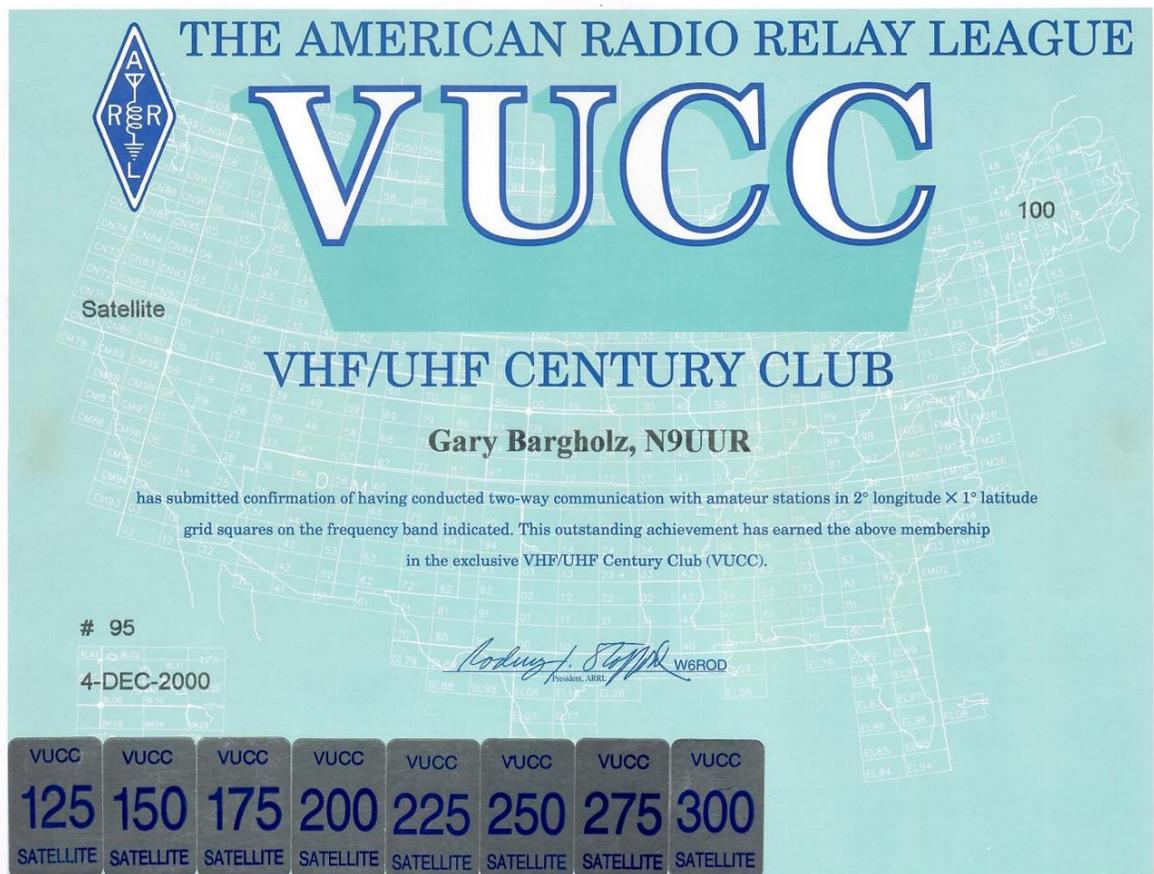


Eventually, Dick Engle said "You probably have enough for WAS, maybe VUCC." I of course replied, "What's That?."

WAS or Worked all States, is an ARRL Award issued for working all the US states.

VUCC or the VHF/UHF Century Club, is an ARRL Award for working 100 or more stations in separate Grid Squares on 50MHz, or above.

Turned out I had plenty for both. I then sat down with Stan Kaplan, WB9RQR, who is an ARRL Awards checker. I brought a 3 ring Binder filled with QSL Cards from around the world. Stan approved my SAT VUCC award (Certificate #95) and SAT WAS award (Certificate #280) in 2000.



THE AMERICAN RADIO RELAY LEAGUE

VUCC

Satellite

VHF/UHF CENTURY CLUB

Gary Bargholz, N9UUR

has submitted confirmation of having conducted two-way communication with amateur stations in 2° longitude × 1° latitude grid squares on the frequency band indicated. This outstanding achievement has earned the above membership in the exclusive VHF/UHF Century Club (VUCC).

95
4-DEC-2000

Rodney J. Stepp W6ROD
President, ARRL

VUCC							
125	150	175	200	225	250	275	300
SATELLITE							



THE AMERICAN RADIO RELAY LEAGUE



Gary Bargholz, N9UUR

has submitted confirmation of having conducted two-way communication with amateur stations in each of the states constituting the United States of America.

#280


President W5JBP

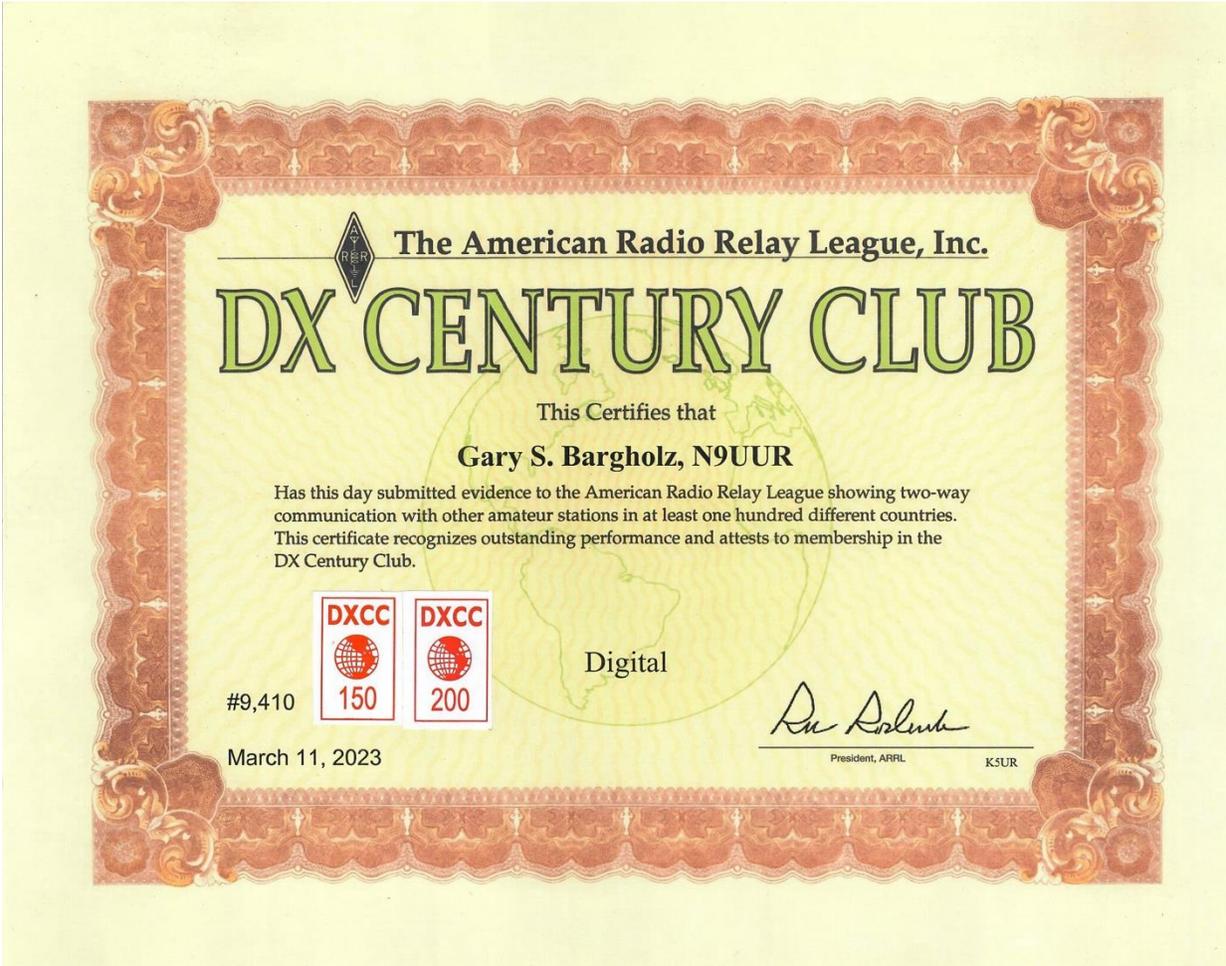
13-Nov-00

So that is where I sat for many years. These days I really only operate Satellite once a year at the Ozaukee Radio Club Field Day site. Got to get those Bonus Points, yah know. So why am I telling you all of this history? It's just my background, and mindset for hunting Grid Squares and States.

In June of 2020, I got my Extra Class License, and entered the world of HF.

On HF, the big award is DXCC – the DX Century Club, awarded for working 100 or more countries. There are currently 340 entities on the ARRL DXCC List. This list is not just Countries but includes rare Islands and territories.

So of course, I had to peruse that one. So far I'm at 206, and hunting for more.



But my interest in WAS and Grid Squares has not gone away. WAS on HF (Mixed Bands) came pretty easy, so I invented a new personal Challenge. I am Working individually Band by Band (each Band Separate). And I count FT8 and FT4 as separate as well (no "Mixed Mode"). So, that makes things a bit more interesting, and challenging.

So where am I after 2 years on HF?

I have (LOTW Confirmed) WAS FT8 on:

80, 60, 40, 30, 20, 17, 15, 12 and 10 Meters.

I still need Alaska and Hawaii FT8 on 160 Meters and 6 Meters.

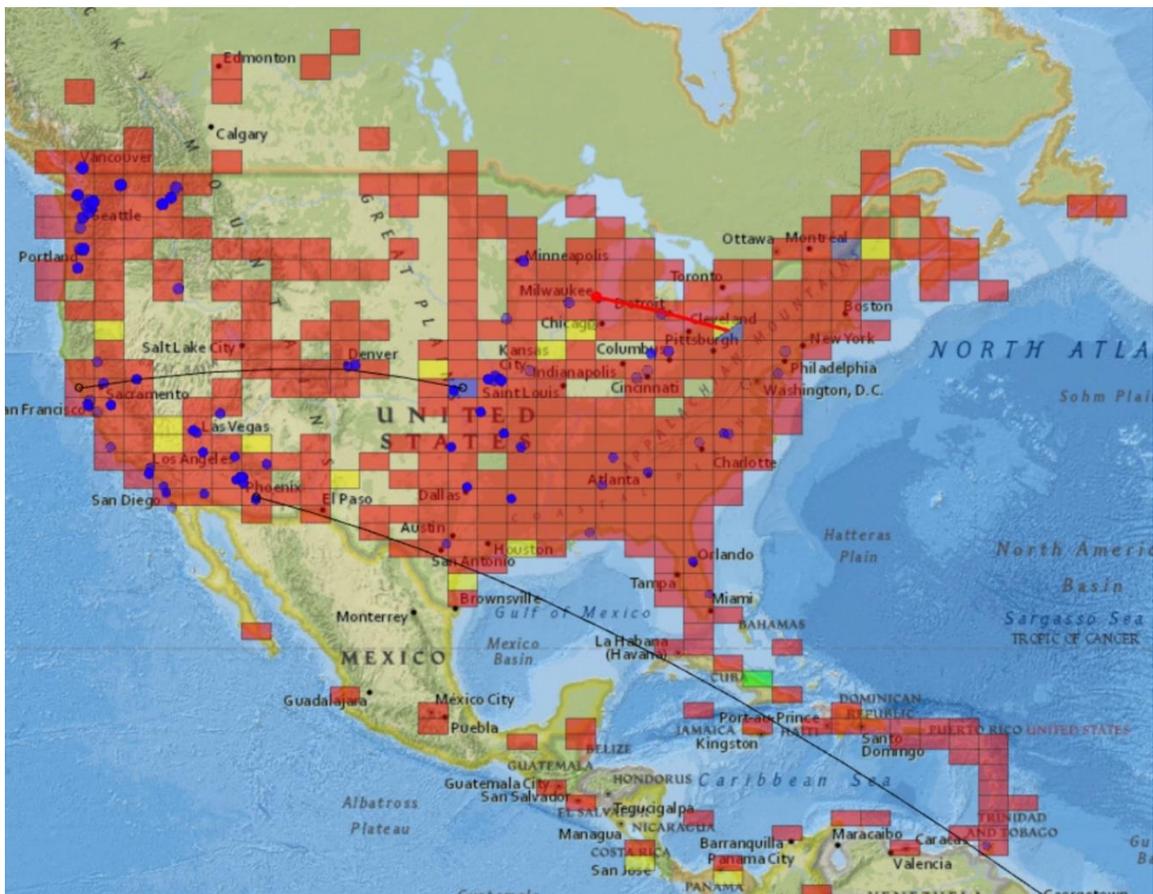
I have (LOTW Confirmed) WAS FT4 on:
40, 20 and 15 Meters.

I only need South Dakota on 17 Meters, and Rhode Island and Montana on 30. 10 and 12 Meters are getting close too.

My VUCC on 50Mhz is at 298.

You may wonder how I keep track of all of this. The answer is a piece of software called "GridTracker." GridTracker (available for MAC, Windows, and Linux) links into my logging software, and WSJT. It continuously looks at the heard stations from WSJT and compares them to my Log. It then displays a map of the world, and colors in the grid squares, or states that I have confirmed QSO's with in RED, if I need the station it colors them GREEN. Yellow grids on the screen are stations I have contacted but have NOT confirmed the contact via LOTW.

Here is a screenshot of GridTracker displaying (RED) confirmed Grids on 17 Meters FT8.



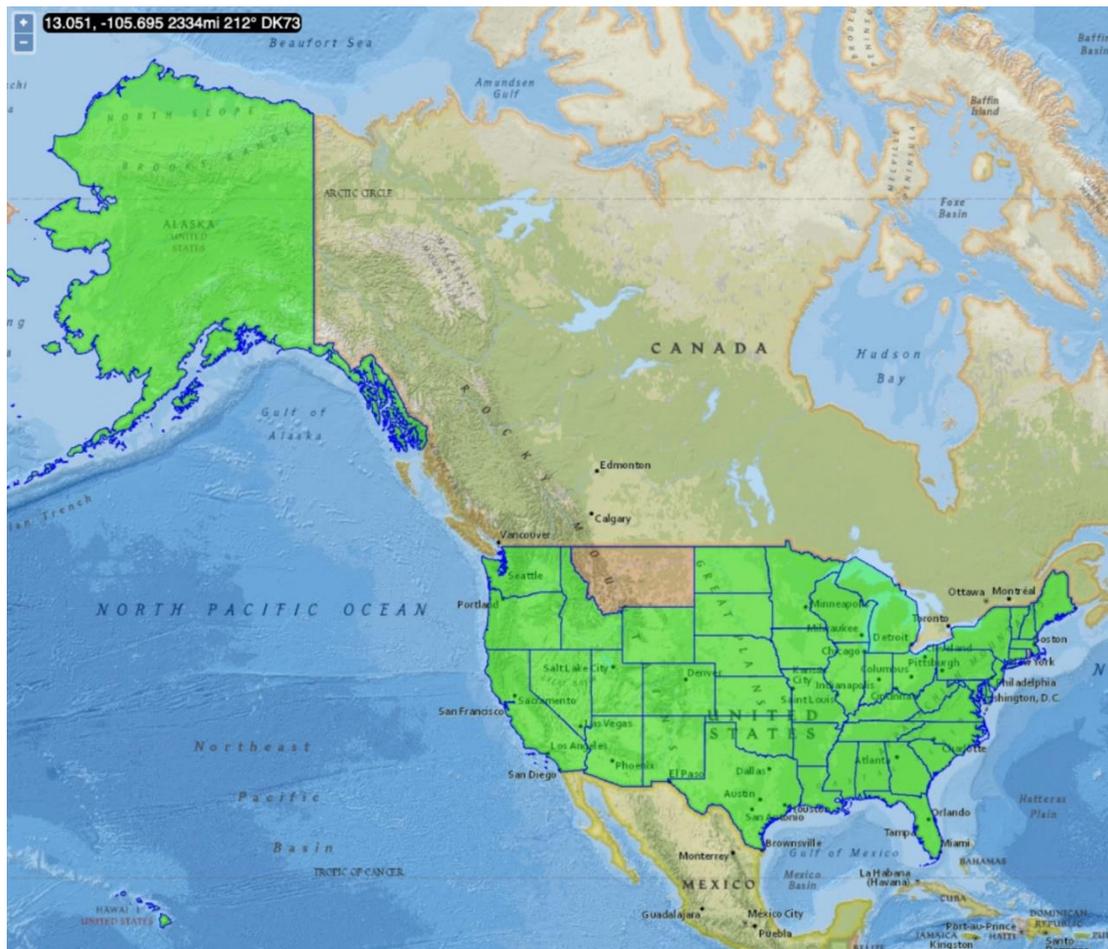
The RED Line is me trying to contact KM3P in Grid FN01 Pennsylvania.

Note that Grid FN01 is colored Blue AND Yellow. The yellow shows I do have a QSO there, but that station has not confirmed the Q in LOTW. The BLUE is showing an active station (KM3P) there, that I'm trying to contact. The BLACK lines are other stations in QSO with each other.

The BLUE dots are stations that have reported hearing my signal. GridTracker also links into pskreporter.info to get heard station reports.

Lots to see and digest in one shot. But you get used to looking at it pretty quick, and picking up the information you want. I'm very visually oriented, and really prefer this graphical display over other software that reports in text. I can just glance at it and see who is calling CQ or active, and if I need them.

Here is a screen shot of GridTracker in Award Mode displaying my standing with WAS on 30 Meters FT4. Note Montana and Rhode Island are not colored in, I still need those states.



GridTracker will display most of the major awards: DXCC, CQ Zones, ITU Zones, WAC (Continents), WAS, and WAP (Prefixes). It displays in text all the entities you have

contacted in one column, and your confirmed contacts in another, and a third column of what you still need.

The screenshot shows the 'Statistics' window in GridTracker, specifically the 'DXCCs' tab. The window title is 'Statistics' and the current view is 'Viewing: Mixed Bands / Mixed Modes'. The interface includes tabs for 'Logbook', 'Scores', 'DXCCs', 'CQ Zones', 'ITU Zones', 'WAC / WAS', 'WPX', 'Live', and 'Decodes'. The main content is divided into three columns: 'Worked (207)', 'Confirmed (204)', and 'Needed (133)'. Each column has a table with 'Name', 'Flag', and 'DXCC' columns. The 'Worked' column lists 207 entities, 'Confirmed' lists 204, and 'Needed' lists 133. The 'American Samoa' row in the 'Worked' column is highlighted in yellow.

Worked (207)			Confirmed (204)			Needed (133)		
Name	Flag	DXCC	Name	Flag	DXCC	Name	Flag	DXCC
Alaska	🇺🇸	6	Alaska	🇺🇸	6	Afghanistan	🇦🇫	3
Albania	🇦🇱	7	Albania	🇦🇱	7	Agalega & St. Brandon	🇰🇪	4
Algeria	🇩🇿	400	Algeria	🇩🇿	400	Aland Is.	🇫🇮	5
American Samoa	🇺🇸	9	Andorra	🇦🇩	203	Amsterdam & St. Paul Is.	🇫🇷	10
Andorra	🇦🇩	203	Angola	🇦🇴	401	Andaman & Nicobar Is.	🇮🇳	11
Angola	🇦🇴	401	Anguilla	🇧🇻	12	Annobon I.	🇨🇮	195
Anguilla	🇧🇻	12	Antarctica	🇦🇶	13	Ascension I.	🇨🇮	205
Antarctica	🇦🇶	13	Antigua & Barbuda	🇦🇬	94	Austral Is & Tubuai	🇫🇷	508
Antigua & Barbuda	🇦🇬	94	Argentina	🇦🇷	100	Aves I.	🇨🇮	17
Argentina	🇦🇷	100	Armenia	🇦🇲	14	Bahrain	🇧🇭	304
Armenia	🇦🇲	14	Aruba	🇦🇼	91	Baker & Howland Is.	🇺🇸	20
Aruba	🇦🇼	91	Asiatic Russia	🇷🇺	15	Bangladesh	🇧🇩	305
Asiatic Russia	🇷🇺	15	Australia	🇦🇺	150	Bhutan	🇧🇹	306
Australia	🇦🇺	150	Austria	🇦🇹	206	Botswana	🇧🇼	402
Austria	🇦🇹	206	Azerbaijan	🇦🇿	18	Bouvet	🇫🇷	24
Azerbaijan	🇦🇿	18	Azores	🇵🇹	149	Brunei	🇧🇳	345
Azores	🇵🇹	149	Bahamas	🇧🇸	60	Burma	🇲🇲	309
Bahamas	🇧🇸	60	Balearic Is.	🇪🇸	21	Burundi	🇧🇮	404
Balearic Is.	🇪🇸	21	Banaba Is.	🇵🇹	490	Cambodia	🇰🇲	312
Banaba Is.	🇵🇹	490	Barbados	🇧🇧	62	Cameroon	🇨🇲	406

There are many other things GridTracker can do, such as some interesting Logbook analysis – Furthest Station, Closest Station, Station you have contacted the most, etc.

I encourage you to give GridTracker a try. It may take a bit to get set up, but it is well worth the effort if you are a WSJT operator as I am. Even if you're not into WSJT, just import your Log (It needs an ADIF File export from your Logbook software) and play with the graphic display and log analysis.

So, this is how I spend most of my WSJT HF operating time. Chasing DXCC, Grids and States. We all need some sort of challenge and goals.

And, oh yah, while working on this article, I caught South Dakota on 17 meter FT4. So, WAS completed there too!

Maybe, someday, I'll get over my "Mic Fright," and start all over on Phone...

Gary Bargholz, N9UUR

OZARES: Ozaukee Amateur Radio Emergency Services

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



Now that summer is slowly ending and fall is approaching, several ham and ARES related activities have popped up on the calendar.

First OZARES, at the beginning of September, set up a table at the Ozaukee Radio Club Swapfest. The weather was perfect, and it was a nice turnout of vendors and buyers.

Next, Ham Radio Outlet held their Superfest on September 22 and 23. We originally set up with the ORC table, but the back corner was poorly lighted, so we moved over next to the Red Cross table. And that worked out perfectly.

On Saturday I used two small stations, to demonstrate VARA and packet WINLINK. The Red Cross group also had a portable WINLINK station. Working with Dave, KD9JYL, Steve, WI9ARC, and myself, we were able to practice WINLINK packet peer-to-peer connections. It was a great practice session, and we learned a few things about radio and computer setups.

Thanks to the efforts of Mark, AC9DE, Mike, WO9B, and the cooperation of Ham Radio Outlet, there is a VARA RMS station operating from the store. WI9HRO-10 is the call sign, and it operates on a frequency of 145.610 MHz. Mark and Mike have expanded the coverage of VARA FM WINLINK in Milwaukee County with this station and are looking to get more traffic involved with their station. There appears to be a gap between northern Milwaukee County and Ozaukee, and it would be nice to fill this gap with either another WINLINK RMS station or digipeater. The two also gave a short presentation and demonstration at Superfest which stirred up some good interest.

I had some handouts on the table for WINLINK that provided basic instructions for the installation of software and how to set up radios and related interfaces. Many hams stopped by to ask some WINLINK questions, so interest continues to grow. Remember, if you can do FT8 you can do WINLINK VARA HF.

If you are interested in learning more about WINLINK there are some great sites on the web. Oliver, K6OLI is part of the WINLINK development team and has written some very good articles covering the basic installation of VARA and packet software, as well as interfacing with various radios and sound cards. The article can be found on his web page and qrz.com site. He has created some outstanding videos for the Radio Amateur Training Planning and Activities Committee, or RATPAC, <https://www.ratpac.us/>. Other good sites include Wavetalkers, <https://wavetalkers.com/> and Mike Martens, KB9VBR, website and YouTube channel.

The Federal Emergency Management Agency, FEMA, and the Federal Communications Commission, FCC, will conduct a joint test of the Emergency Alert System, EAS, and the Wireless Emergency Alert, WEA, on October 4 at approximately 1:20 p.m. local time. The WEA part of the test will be directed to all consumer cell phones. The EAS alert will be sent to all radios and televisions. More details can be found at:

<https://www.fema.gov/emergency-managers/practitioners/integrated-public-alert-warning-system/national-test-2023>

The Simulated Emergency Test, or S.E.T., is scheduled for October 7 and most of the southeast district groups will be participating. Unfortunately, because of schedules, OZARES will be conducting their exercise on October 14. We aim to activate the two Ozaukee hospitals, the Radio Rooms at the Justice Center and Saukville Emergency Management, and public health in Port Washington. Exercises will include being net control, passing messages by phone and digital modes, and testing hardware. I will have more information in next month's article.

Also on October 14 is another S.E.T, the Solar Eclipse Test. Various activities will be occurring on Saturday, and they can be found at the Ham Science website, <https://www.hamsci.org/eclipse> There will be a digital contest and a time delay experiment during the eclipse. I believe in our area the eclipse will be approximately 40% coverage of the sun as most of the eclipse will be only visible in the western to southwestern states. The solar eclipse has a starting time of 9:13 a.m. PDT in Oregon and ends in Texas at 12:03 p.m. CDT.

This will be an annular eclipse while a total eclipse will be next year on April 24, 2024. As explained on solarsystem.nasa.gov/eclipses "A total solar eclipse happens when the Moon passes between the Sun and Earth, completely blocking the face of the Sun. The sky will darken as if it were dawn or dusk." Our area should see 90 to 95% coverage of the Sun if the weather cooperates. More information on both eclipses can be found at <https://solarsystem.nasa.gov/eclipses/home/>

October 19 is the date for the Great Shakeout. This is an exercise to be prepared for an earthquake. Wisconsin borders with the New Madrid Seismic Zone that covers southern Illinois and the bordering states of Missouri, Kentucky, Tennessee, and Arkansas. The exercise begins at 10:19 am local time, (same figures as the date). Individual amateur radio operators and groups are asked to provide WINLINK reports using the "Did You Feel It," or DFYI form, created specifically for the US. Geological Survey. More information and registration can be found at: <https://www.shakeout.org/index.html>

On October 21 and 22 Dave, KD9JYL and myself will be attending an AUXCOM, or the Auxiliary Communications Workshop. The training will be focused on communicators to provide backup radio communication support for public service agencies. Best described by Wisconsin Emergency Management as a "... course focuses on auxiliary communications interoperability, emergency operation center etiquette, on-the-air etiquette, FCC rules and regulations, auxiliary communications training and planning,

certification and accreditation and emergency communications deployment. It is intended to supplement and standardize an operator's basic knowledge of emergency amateur radio communications in a public safety context." I will provide some feedback on the course and what we learn in the coming months. It should be an interesting and intense, two 10-hour days of training and learning.

Next, the Wisconsin ARES/RACES conference will be occurring on November 4th, a little later than usual because of a library conflict. This date also conflicts with the ARRL CW Sweepstakes contest so now I am conflicted. The conference takes place in Wisconsin Rapids at the McMillian Memorial Library. A nice time to network with others in the state and learn a few things. The focus this year will be working with served agencies and AUXCOM.

Last but not least. The past two articles looked at how Artificial Intelligence, or AI, could be used in emergency management. There is a podcast, *Freakonomics, the Hidden Side of Everything*, that has three very interesting episodes on AI, #554-#556. If you want to hear some other takes on AI the three episodes are very thought-provoking.

73,
Don Zank, AA9WP
OZARES Emergency Coordinator

WI9OZ Repeater: 147.330 + pl 127.3

WI9OZ WINLINK Stations; VARA and Packet

WI9OZ-10, Port Washington, and WI9OZ-11 Saukville, 145.610

Nets: First and second Thursday, and on 5 Thursday months, the 4th Thursday; 1900 local time



OZARES Repeaters:

- **147.330 MHz (+ Shift) (127.3 PL)**
 - **443.525 MHz (+ Shift) (114.8 PL)**
-

ORC Repeaters are On the Air Awaiting Your Call:

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

THE COMPUTER CORNER

No. 307: Majorgeeks Top Freeware Picks

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



If you often read this column, you already know that I am a longtime fan of the MajorGeeks site for freeware and shareware software for Windows. There is just no better source for the software you use every day to safely run your Windows machine, and their reputation for fair evaluation is unparalleled. To examine the Top Freeware Picks category, ctrl-click this: <https://www.majorgeeks.com/> to go to the MajorGeeks site, look down the left column of the page to find FILES, then OTHER NEWS, then SPREAD THE WORD, and SITE INFO.

Under SITE INFO click the first item, TOP FREEWARE PICKS.

There are quite a few of these picks, organized in several categories. As of this writing (early August 2023) there are 20 categories but be aware that both the categories and their contents change from time to time. Here is the current list, which you should look through. [As an aside, to save yourself some money and lots of your time waiting for a slow machine to respond, please pay particular attention to what is said in the 3rd category, Anti-Virus Protection. You can probably speed up that slow machine significantly by following their suggestions!]

1. All-In-One Tweakers	11. Flash or Thumb Drives
2. Anti-Spyware & Anti-Malware	12. Graphics
3. Anti-Virus Protection	13. Multimedia
4. Backup	14. Microsoft Office Alternatives
5. Browsers	15. Partitioning
6. Data Recovery	16. Password Managers & Recovery
7. Diagnostics	17. PDF Alternatives
8. Drive Cleaners	18. System Information
9. Driver Updaters	19. Text Editors (NotePad, WordPad Alternatives)
10. File Compression	20. Uninstallers

Tim Tibbets, one of MajorGeeks directors, is quoted below concerning their Top Freeware Picks category. The Freemium category he speaks about (a combination of the words *free* and *premium*), describes otherwise free software that will do some additional functions for a monetary charge.

“MajorGeeks.Com <https://www.majorgeeks.com/> takes pride in hand-selecting the best freeware, shareware, Freemium, and Open Source software. However, in our 15,000 plus listings, you can find the cream of the crop, or as we call it, the top 1%. These are the apps that most geeks would recommend to you in their respective categories. There are now (very) few freemium listings included that we could not avoid. For example, Malwarebytes, a household name, is included. You can scan for free, but real-time protection requires a license.”

While you are at it, take a look at the About Us category under Site Info. There is even a video in there which explains how they bench test (and actually run!) each piece of software before that software becomes one of the offerings on the MajorGeeks site. That sort of testing long ago convinced me to have confidence in the software they list. Happy Computing!



On The Air Activities!

de: Gary Sutcliffe, W9XT



October is considered by many to be the best month of the year for propagation. We are past the equinox and, with it, the summer doldrums, where absorption degrades propagation. As the ratio of O₂ and N₂ reverses as the ionosphere cools, we get less absorption. Conditions in the last few weeks have been excellent on the higher bands. I have been hearing and working many distant DX countries I have not heard in years.

If you have nothing up for the higher HF bands, do it before the weather gets too cold. Even a dipole can be effective. I have over 265 countries on 12M and never ran more than a dipole and low power. Don't forget, Technician class hams have phone and digital privileges on 10M, the only HF band they have these. A dipole is only about 16.5' long on 10 meters.

We didn't have FT8 the last time we hit a sunspot peak. I noticed that Europe stays open longer after their sunset on FT8 than I recall when we only did CW and SSB. FT8 gives us another 10 dB advantage in digging out weak signals, so it is not surprising that the band opens earlier and closes later for digital compared to the analog modes. I hope this carries to 6M F2 layer propagation this winter. Maybe we will be able to work some DX when conditions are not good enough to support CW on the Magic Band.

The solar conditions are the best they have been since 2000-2001. Don't miss this opportunity!

Solar Eclipse

Did you know we have a solar eclipse on Saturday, October 14? It is only a partial here and an annular eclipse in the western states. The moon's orbit is not perfectly circular. So, if the eclipse happens when the moon is at apogee, furthest from the earth, its apparent size is too small to cover the entire sun. At the peak, there will be a ring of light from the sun around the moon. Unfortunately, you will need to be out west to see the ring. With the sun partially covered up, the amount of UV we receive is reduced, and it will affect the amount of ionization which affects propagation. The scientists who study space weather are interested in seeing the changes. You can help science by operating that day.

HamSci is a group I have mentioned before. It is a coalition of scientists and hams to help gather data the scientists can use to better understand the ionosphere. They have several projects, including space weather stations you can build to collect data. Another one is a simple direct conversion receiver. It monitors WWV. In the morning, the ionosphere rises and drops at sunset. This movement causes a Doppler shift of a fraction of a Hz. Tracking these changes provides data.

HamSci has a convention in March. I attended them virtually for the past three years and learned much from them. The October 2023 *QST* has an article about the HamSci conventions.

They are sponsoring a QSO party on the day of the eclipse. If you operate, you will help them collect data. Check out their web page to get the details. There is a lot there.

They want to get as many signals on the air as possible before, during, and after the eclipse. Become a citizen scientist on October 14 by getting on the air!

Tracking the New Ones

With all the activity and DXpeditions, how do you track the ones you need for new bands, modes, or ATNOs (All Time New Ones)? Most general purpose logging programs keep track of your DXCC totals. I use Logger 32, but there are other popular ones.

I connect to the DX Cluster through the W9ODD node at Marquette University. It gets DX spots from all over the world, but I filter them only to include those originating from the US and Canada. It usually does not help to know that Europe is working the Far East on 15 meters at local midnight. I won't hear them. A lot of times stations on the east or west coasts hear DX we don't, but it is worth checking out good ones.

Countries spotted on the DX Cluster that show up on a needed band or mode will be highlighted by my logging program depending on the nature of the need. I can click on a spot, and my radio will move to the DX station's band, frequency, and mode. After 50+ years of DXing, new band countries don't come around that often. I rarely see one I need, although 12 meters has been productive recently since it has not been open much in the last seven years.

Besides propagation cycles, trends in ham operator numbers often fluctuate over time. Sometimes it is due to increased or decreased interest. Other times government policy towards the hobby discourages people getting licensed.

Usually, new band countries or mode countries are from DXpeditions if you have been DXing a long time. If they get spotted, and I need them, they will be highlighted by my logging program, of course. But with so much activity, skimmers reporting every CW station they hear, the ones I need can quickly scroll off the screen. I have band maps set up that show recent spots, but not on every band, and spots there are deleted after 15 minutes.

DXSummit is a site that shows spots. Not as many DX stations are spotted there, and sometimes stuff is missed compared to the regular DX Cluster, but the ones spotted are usually the rarer ones. It does have some additional advantages. One is for the digital spots. My logging program is set up to reject digital spots from skimmers. There are just too many. It would be like drinking from a fire hose.

For whatever reason, DXers seem more likely to spot DX stations running digital off the main digital frequencies. DXpeditions are encouraged to use alternate frequencies, especially when running Fox/Hound mode. It helps to know where to look for them.

The biggest reason I like DXSummit is that you can set filters. You can enter country prefixes or call signs in the search box in the upper right corner. Then, only calls that pass through the filter show up. That makes it easy to track the DXpeditions.

Often, the spots are from Europe or other distant locations. Sometimes, I won't be able to hear them, but I am alerted, and I know we might have propagation soon. I don't filter by band or modes needed. I have a cheat sheet of the needed bands and modes and cross them off as I work them.

The URL for DXSummit is: <http://www.dxsummit.fi>

Spotter	Freq.	DX	Time	Info	Country
IZ7DJS	21089.2	5X3K	12:22 01 Oct	CCC 5X*	Uganda
IT9IDR	28077.7	ZD9W	12:19 01 Oct	AF-029	Tristan da Cunha & Gough
LZ2PL	21089.6	5X3K	12:19 01 Oct	FT8	Uganda
JH1CPN	18100.0	T22T	12:17 01 Oct	FT8	Tuvalu
SP4JP	14074.0	T22T	12:17 01 Oct	FT8 -20 dB 407 Hz	Tuvalu
TEAM-@	28000.0	5X3K	12:16 01 Oct	pse cw/ssb	Uganda
N5AO	3573.0	T22T	12:15 01 Oct		Tuvalu
OZ3TT	28077.0	ZD9W	12:12 01 Oct	Trnx nice FT8 F/H qso	Tristan da Cunha &

Screenshot of DXSummit showing filters for current DXpeditions.

DXpeditions

I don't know where to start! There are so many coming up in October and early November. I will cover some of the more interesting ones but list more in the DXpedition picks.

One of the most interesting is ZD9W, in Tristan de Cunha, a very remote island in the South Atlantic. The operator is YL2GM. Yuris left South Africa and was supposed to arrive on September 22 on the monthly supply ship. The seas were too rough to unload the

freight and passengers, and he finally got ashore on September 29th, and on the air the next day. He has been very active on FT8 on several bands. He will be there until October 22, when the supply ship returns. You can follow his progress at:

<https://www.dx-world.net/zd9w-tristan-da-cunha/>

The island is one of the most isolated inhabited areas of the earth, and the people have adapted to it in interesting ways. There is an article in DX News about the island. Scroll down past the operation updates to read more about Tristan de Cunha.

<https://dxnews.com/zd9w/>

A big operation will head to Swains Island in the Pacific from October 4 – 17. They were planning on being there in the fall of 2020 but, like a lot of things, it was postponed due to the pandemic. The call sign is W8S. The multinational team plans to have six stations on the air. One of the stations will be on 6 meter EME. There have not been any moon bounce operations from Swains before. *Late news: Swains will start a few days late due to bad weather preventing transportation.*

Timor Leste should be a good one, November 6 - December 5. This country is located northeast of Australia. It became an independent country in 2002. There have been a few operations there, but going there has been somewhat dangerous. They sent a scouting team to Timor Leste earlier this year to select operating locations for the big operation. Operation during the scouting trip was pretty limited.

These are just a few of the major ones in the next 4-5 weeks. Besides these and those listed on the chart, there are a lot of others, usually by a single operator. The list includes Marshall Is, V73AH; two to Niue, E6; Tuvalu, T2C; North Cook Island, E51JAN; two to Chatham Island, ZL7; Vanuatu YJ0CA; and Cocos Keeling, VK9QO. Others are going to less rare countries too. Keep your eyes out for them.

More DXpeditions are coming up later in November and December. It sure will be a lot of fun chasing DX this fall and winter.

Contesting

October is the start of the fall contest season, which lasts from the last weekend in October until the middle of December.

The California QSO party will occur just after you get the newsletter. The CQP is the biggest state QSO Party, but the Wisconsin QSO Party is still the best! I try to get on a bit for this one to give the station a shake down to ensure everything is working for the fall and winter seasons.

Work just California stations. The higher bands should be great in the afternoon to California. If you put in enough effort, you may be one of the lucky ones who win a bottle of California wine.

You send a serial number and state. They send a serial number and the county. A four letter county abbreviation is sent on CW. Check out the rules. You might want to print out a copy of the California counties list if you are unfamiliar with them, which is the case for most of us in Wisconsin.

The big contest of October is the last weekend, the CQWW DX Phone contest. This is the biggest DX contest of the year. The format brings out activity from almost every corner of the earth, and many DXpeditions are formed just to operate this contest.

The exchange is a signal report and CQ zone. We are in zone 4, so our exchange is 59 04. Multipliers are DXCC countries with a few WAE European countries added. Your logging program should automatically keep track of the countries. You can work the same station again on each of the HF bands for point and multiplier credit, except for the WARC bands, of course.

There are a ton of different categories. High, low, and QRP power levels. Assisted or unassisted. All-band or single band. Pick one from each.

With the good conditions, it should be a lot of fun. Some newer hams do not believe me when I tell them there will be wall to wall Europeans from 28.300 to at least 29.500 mid-mornings during this contest. The exception would be if we got a big solar flare a few days before the contest.

The first weekend of November is the ARRL Sweepstakes CW contest. This one has the most complicated exchange of any contest. The format is based on the header format for ARRL messages. This is the breakdown with an example I might be sending for my first contact.

Serial number	Power class (Precedence)	Your Call	Year first licensed (Check)	ARRL Section
001	A	W9XT	70	WI

I think that the ARRL CW Sweepstakes is the contest where operator skill is the most important factor in the skill vs. station equation.

Be sure your logging program is up to date. The ARRL split the Canadian Maritime (MAR) section into several sections, including Prince Edward Island (PE), New Brunswick (NB), etc. You should also check the rules for sending the proper precedence for your class.

Events

Hamfests and conferences have just about wound down for the year. The last area hamfest of the year is the Friendly Fest by the Milwaukee Repeater Club. It is on Saturday, November 4, at the Elks Club on Good Hope Road, across from HRO.

That wraps up October. Get on the radio and finish up those antenna projects!

W9XT's Contest, Operating, DXpedition, and Special Event Picks for October and Early November 2023

W9XT's DXpedition picks for October and early November 2023					
QTH	Dates	Call	Bands	Mode	Link/notes
Tristan de Cunha	To Oct 22	ZD9W	160-6	CSD	https://www.dx-world.net/zd9w-tristan-da-cunha/
Samoa	Oct 1-14	5W0LM	160-6	CSD	Focus on CW
French Polynesia	Oct 2-15	TX6D	160-10	CSD	
Swains	Oct 4-17	W8S	HF	CSD	
East Kiribati	Oct 4-11	T32AN	40-6	CS	
Mayotte	Oct 10-22	TO8FH	160-6	CSD	
Micronesia	Oct 25-31	V6SZ	80-6	CSD	On for CQWW SSB
Temotu	Oct 26-Nov 9	H40WA	160-10	CSD	
Cameroon	Nov 2-Nov 15	TJ9MD	160-6	CSD	Four or more stations
Marquesas	Nov 4-19	TX7L	160-6	CSD	Four or more stations
Timor Leste	Nov 6-Dec 5	4W8X	160-6	CSD	

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

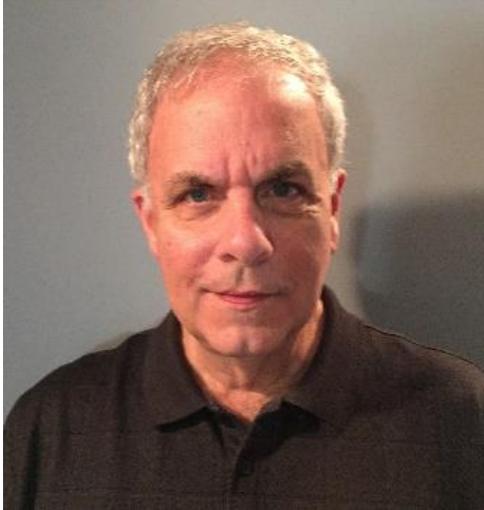
W9XT's contest picks for October and early November 2023					
Name	Start	Length	Bands	Mode	Link
CA QSO Party	Oct 7 1600Z	30 hours	HF	CW SSB	https://cqp.org/Rules.html
Solar Eclipse QSO Party	Oct 14 1200Z	10 hours	HF	All	https://hamsci.org/seqp-rules
CQWW Phone	Oct 28 0000Z	48 Hours	HF + 160	SSB	https://www.cqww.com/r/rules
Sweepstakes CW	Nov 4	30, work 24	HF + 160	CW	https://arrl.org/sweepstakes

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

W9XT's operating & event picks for October and early November 2023			
Event	Dates	Details	Link/notes
Friendly Fest	Nov 4	Elks Club, 5555 W. Good Hope Rd, Milwaukee	https://www.arrl.org/ham-fests/friendly-fest-1

Vintage Amateur Radio

de Bill Shadid, W9MXQ



In the late 1970's, a small company in Sevierville, Tennessee, took shape and began manufacturing ham radio equipment, military and commercial radio apparatus, and electronic equipment enclosures.

Over the years, Ten-Tec enjoyed a solid following of customers. In particular, they were well known for their expertise in making some of the best performing Morse Code (CW) radios available to the amateur radio operator. While Ten-Tec made several lines of equipment, they seemed to excel in their Omni, related Paragon, Corsair, and Orion series of equipment. That tradition continues to this day with their Omni VII Plus Transceiver. The Omni VII Plus is available in limited supply and are often heard on the amateur radio bands.

This installment will focus on two models of transceiver that seemed to replace early Omni models – but after that time, Ten-Tec returned to the Omni brand, and, if you will, orphaned the Corsair name. We will focus on the Ten-Tec 560 Corsair and the Ten-Tec 561 Corsair II HF transceivers. These radios covered the 160 through 10-meter bands, including the WARC Bands. They did not include the later 60-meter band¹.



**Left to Right – Ten-Tec Model 961 AC Power Supply/Speaker, Model 561 Corsair II Transceiver, and Model 263G Remote VFO.
Also see Ten-Tec 705 Desk Microphone**

W9MXQ Photo



Model Comparison Pictures
Top Picture: Ten-Tec Model 560 Corsair HF Transceiver
Bottom Picture: Ten-Tec Model 561 Corsair II HF Transceiver

Top: Ten-Tec
Bottom: W9MXQ

The Corsair was produced from 1982 to 1985 while the Corsair II was produced from 1986 to 1989. The replacement for the series was the Omni V HF Transceiver.

While the two versions of the Corsair appear to be nearly identical (other than panel and cabinet color), there are substantial technical upgrades to the later Corsair II product. These upgrades and additions to the Corsair II were²:

- **Frequency Counter:**
 - The Counter Logic Board and LED Display Driver board are substantially different. The Corsair II manual has the correct new schematics, but the text is substantially incorrect by still describing the original Corsair circuitry.

- **9 MHz I-F Filtering:**

- The stock Corsair stock 9 MHz filter is a 4-pole, 2.4 kHz unit while the Corsair II stock 9 MHz filter is an 8-pole, 2.4 kHz unit. The Corsair II also includes a 2-pole roofing filter on the mixer board before the 2.4 kHz filter. Many original Corsair owners upgraded their 2.4 kHz filter to an 8-pole unit.

- **Audio Bandpass Filter:**

- The Corsair II introduced a variable audio bandpass filter. The control knob for that filter replaced the orange dot Ten-Tec insignia on the original Corsair.

- **CW Keyer:**

- The Corsair II introduced an internal CW keyer, with a single memory.

- **Noise Blanker:**

- The Corsair II added a Noise Blanker Width control to the Noise Blanker circuit included in the original Corsair.

- **RF Mixer:**

- The original Corsair used 4 discrete Schottky diodes in the Mixer while the Corsair II used 4 monolithic Schottky diodes in the Mixer circuit.

- **Spot Control:**

- The original Corsair spot button turns on a sine wave oscillator to inject an audible sidetone (nominally 750 Hz) that's mixed with the receiver audio so the target received signal can be tuned to have the same tone as the sidetone to accomplish zero beat.
- The Corsair II spot button shifts the receive frequency downward by an offset equal to the sidetone frequency (nominally 750 Hz) so the target received signal can be tuned for null to accomplish zero beat.

You can see that a lot of performance attention was paid to the Corsair product line upon the release of the second version (Corsair II). As a user of the Corsair radios, I can say that one issue that was never corrected was an unfortunate error in the sideband selection for 17-meters. Unlike some radios, sideband selection was “standard” or “opposite,” That is to say that it was generally assumed that Lower Sideband (LSB) was used on 160-40 meters and Upper Sideband (USB) was used on 20-10 meters on the HF bands. 30 meters did not (and still does not) allow phone operation – so sideband selection was not an issue. For some strange reason, with both Corsair models, LSB was selected as standard

for 17-meters. That was certainly not the conventional thinking. So, when operating SSB on 17 meters with either version of the Corsair, one must select “opposite” sideband. Perhaps because the radio was so well known for its CW mode, many reviewers of the radio never mention this error in design.

Some important performance parameters with both Corsair models are:

- RF Power Input: 200 watts
- RF Power Output: 85 to 100-watts. The ARRL Review of the Corsair II³ showed a power output of 92 watts on 160-meters progressing upward to 102-watts on 10-meters. That is the opposite of most radios where the highest power is on the lower frequencies. My own Corsair II seems to be at a fairly consistent 90-watts output across the HF spectrum.
- Receiver sensitivity experienced in the ARRL Review³ was 0.25uV for 10dB Signal plus Noise / Noise – pretty much a standard kept by well-designed radios of the day. In the real world of operating this radio, the background noise is very low and seems to be missing the assorted noises of digital frequency generation of the day. Why, you ask? One of Ten-Tec’s touted features was its conventional, analog, i-f design using conventional frequency conversion and a permeably tuned variable frequency control (PTO). The PTO in both Corsair models is identical – and silky smooth in its mechanical response to the user.
- Receiver Incremental Tuning (RIT) is selectable for both models and is available in two ranges. Those are +/- 1.5 kHz or +/- 4.0 kHz. Those selectable ranges are available for the receiver alone, the transmitter alone, or receive and transmit together. (Or it can be turned off – but turning off the RIT does not clear its selection. Remember, this is not a digital transceiver – so RIT settings are handled via potentiometer. So, there is no digital register that can merely be erased – the user must return the potentiometer to its zero position.)
- In tests run by the ARRL and shown in the QST Review³, the Corsair II met and exceeded FCC requirements for spectral purity.
- As you would expect if you knew Ten-Tec’s reputation, their transceivers were exemplary in the CW mode with outstanding QSK (full break-in) operation on that mode. There is no relay noise – in fact, no noise at all – while keying. The user can hear the band clearly between each character when sending CW. Zero perceived delay between transmit and receive. To this day, they are the game to beat in this field. (Ten-Tec has equals, today, but remember that we were talking QSK CW performance designed and implemented in the early 1970’s – one would expect that some have caught up by now – 50 years on!! (And, I might add, that some prominent and expensive transceivers of today still cannot match Ten-Tec’s CW performance for full break-in operation⁴.)

- The Speech Processor is a mixed blessing. First of all, the Corsair II model (where I have spent most of my time) seems to attract numerous unsolicited “great audio” reports. That was NOT true when I used the Speech Processor. Mind you, no one told me that I was distorted or broad (signal bandwidth) but provided numerous, “turn off that processor, you sound like a contester.” So, was that a compliment or a criticism? I do know that without the Speech Processor turned on, running a barefoot 90-watts, I worked any POTA station I called in one call, pileup or not. So, seemingly good basic and solid audio from this radio without the need for processing. I do use my Vintage Radios in contests from time to time – so when I do, perhaps there will be an update on that “contester audio” comment.

The Corsair models as well as the Omni models (through the Omni VI+) seem to have shared the same 12 VDC Power Amplifier. In operation these radios provide protection for the final amplifier transistors by limiting the amount of current fed through them. The Ten-Tec Model 961 AC Power Supply was designed with an EXTREMELY sensitive current cut-off whereby the power would be cut long before over current – due to antenna mismatch, or other cause – can go on for any significant time. This circuitry was far faster than any fuse or standard circuit breaker. When not using a 260 AC Power Supply/Speaker (physically color matches the original Corsair Transceiver), or the later 960, 961, or 962 AC Power Supply/Speaker units, attention must be paid to the radio’s need for an extremely fast response for high current draw. For that, Ten-Tec marketed their Model 1140 Circuit Breaker. This breaker was specially designed to Ten-Tec’s specifications. These are rare or even unobtainable, today. My advice is to secure a Ten-Tec AC Power Supply if you run a Corsair, Corsair II, or any of the Omni models⁵.

The opening picture in this article shows the equipment as a collector would keep it with all Ten-Tec items. Actually, my own operation at W9MXQ is a bit different:



I do not use the Ten-Tec 705 Desk Microphone. I feel the unamplified Astatic D-104 is much superior with my voice. Also, I do not use the internal electronic keyer and instead

use the Unified Microsystems XT-4 MK2 Memory Keyer⁶. You can see it being controlled by a Bencher BY-1 Key⁷ and a Nye-Viking Speed-X Straight Key. The output of the XT-4 MK2 and the Speed-X Straight Key⁸ are fed via a “Y” Adapter into the back panel KEY Jack of the Corsair II. (The KEY Jack is separate from the KEYS PADDLE connector used to access the Corsair II’s internal electronic keyer.) Also, I find that many Vintage Radios used on today’s bands can use the assistance of an external Digital Signal Processing (DSP) unit. Shown here is the MFJ-784B Tunable DSP Filter⁹. While the MFJ-784B can provide for bandwidth control and notch filtering, its noise reduction feature in the presence of high atmospheric noise is the most useful from my point of view.

One major feature of the Ten-Tec Corsair II complete station is the Ten-Tec Model 263G Remote VFO. A note here is that the Remote VFO for the Corsair and Corsair II were identical – except that the original Corsair was a gray color which changed more to a beige color in the Corsair II. The original Corsair Remote VFO was the Model 263 whereas the Corsair II Remote VFO was the Model 263G. It is important to understand that difference if you are looking for the Remote VFO for either Corsair as over time the use of the “G” in the model number just got dropped. If you are looking for one, be sure you know the color of the one you are buying. The same is true of the original power supply, the Model 260. Initially, that supply was called the 260G for the Corsair II. Soon afterward, the 260G was replaced by the definitely matching Model 961 – like the one pictured in this article. So, the actual 260G is quite rare.

The 263G Remote VFO is a really handy device – especially if you often operate split in working DX.



Ten-Tec Model 263G Remote VFO

Ten-Tec Wiki

The Ten-Tec Model 263G Remote VFO is equipped to allow up to four crystal controlled frequencies – allowing crystal control of the Corsair II Transceiver. Note the rotary switch in the lower right hand corner of the panel showing the selection of crystals or VFO.

Most important is to know that this Remote VFO can allow the operator to listen on the frequency on the radio dial, and on the Remote VFO dial at the same time. The knob in the lower middle of the panel allows a mixing of the two frequencies with intensity all to the “A” (Transceiver) when turned completely CCW or all “B” (Remote) when turned completely CW. If that knob is pointing straight up, intensity will be balanced between the two VFO’s with both audible on the speaker on in the headphones. So, if you have the radio set to listen to the DX station on VFO A (Transceiver), you can hear those working him split on your VFO B (Remote) transmit frequency. Setting the Remote VFO then to handle transmit, you would be transmitting right where the DX station last listened to a caller.

It goes perhaps without saying that the A-B knob that blends the two receive signals can be at varying degrees between fully CCW, at the center, or fully CW. Making those intermediate adjustments – for instance half way between CCW and center – will net signal levers more or less favoring one frequency or another. Remember that the position of the TB button (that is, which VFO is being used for transmitting) always determines transmit frequency. The setting of the A-B knob has no impact on transmit frequency.

The 263G Remote VFO indicates its own frequency on the Transceiver when engaged. It has its own screen to show in what 50 kHz segment it is running. It has separate scales for different frequency ranges.

I have always been rather amazed at how similar the outer cabinetry is designed on some Ten-Tec equipment when compared to R. L. Drake equipment in the “5,” “7,” and “75” lines of product (Drake’s last Amateur Radio focused product lines). I touched on this subject in an article covering the later Ten-Tec Omni series radios written in the recent past. The fascination with this apparent cooperative design is based on things I have seen in my manufacturing career. The Ten-Tec products using this cabinetry design seemed not to have a long parallel life with the similar Drake equipment. Almost as if it was an, “okay, I am done with it now, so you can use it,” agreement. Of course, that is my opinion, based only on personal observation.

The original Corsair, as noted earlier, was introduced in 1982. That was about the time that the last of the Drake TR5 and TR7A were being produced. I only mention that point because of a similarity with the Corsair, Corsair II, Omni V, Omni VI, and Omni VI+ radio cabinetry with that of the Drake radios of the period. One of the core businesses of the Ten-Tec at that time (and maybe still) was injection molding and custom radio/electronic cabinetry. The cabinet design for the Corsair and Omni radios shown is exactly the same unique design used on the Drake TR5, TR7, TR7A, and all the accessories for the “7” and “75” line of Drake like of equipment. Check the following pictures showing the similarity – differing only in size.



**Top is Drake TR7A Transceiver – Bottom is Ten-Tec Corsair II Transceiver
W9MXQ Photo**

Note the extruded aluminum front panel with clear plastic insert along the top third of both panels and the silk screened, painted aluminum insert panel on the lower main panel. The same design appears on both radios. To be sure, the cabinet (behind the front panel) was a clamshell (top and bottom) design on the Ten-Tec and a “wrapper” design for the top and sides on the Drake.

Now I will remove the side panel strips and let’s take an end (or side) view of the front panel with those strips gone:



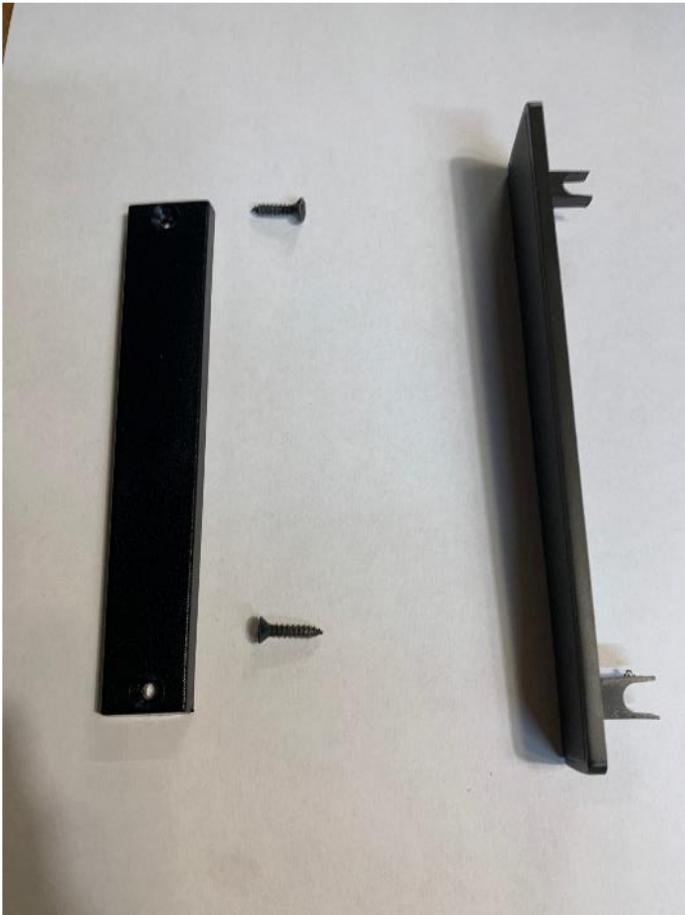
**Left Side View – End Strip Removed
Drake TR7A Transceiver
W9MXQ Photo**



**Left Side View – End Strip Removed
Ten-Tec Corsair II Transceiver
W9MXQ Photo**

Check the aluminum panel – visible on both products. There are small offset differences (top and bottom inserts) between the two. You can see that the Ten-Tec panel has a large proportion as part of the top insert compared to the Drake.

Also visible in these views is the way the covers enclose the electronics. On the left you can see enough of the top and sides wrap-around single wrapper (that is exactly what Drake called it, the “Wrapper”). On the right you can see the front to back line denoting the seam between the top and bottom half of the clam shell cabinet over the top and bottom of the radio. Internally the Corsair and Corsair II used individual boards with connectors between them. That was unlike the motherboard and plug-in boards in the Drake TR7 series – but identical to the individual boards with connectors between them system in Drake’s later (in spite of its number) TR5. One very positive note about Ten-Tec’s connection system between boards – they used small connectors that after all these years have not been a problem. Drake should have been so lucky with its choice of connectors to mate the individual boards to the motherboard!



W9MXQ Photo

Here is a picture of the End Caps (Drake to the left and Ten-Tec to the right). The Drake End Cap attached with small sheet metal screws into slots in the front panel extrusion. Ten-Tec has tabs molded into the End Cap and those tabs slid in behind the front panel and were compressed, that is, held in place, by screws holding the front panel in place on the front of the chassis.

Years down the line, the complex molding of the Ten-Tec system comes back to haunt the user. The Drake End Cap can actually be closely duplicated with sheet plastic and drilled holes – not so with the Ten-Tec. In fact, third party end caps for the Drake cabinetry are readily available.



W9MXQ Photo

To the left you can see the assembled End Cap on the left side of the Corsair II Transceiver. Remember the tabs on the Ten-Tec End Cap in the above picture. Those Tabs slide behind the screws you can see at the top left corner and lower left corner of the Corsair Front Panel. Older Ten-Tec gear will often have one of both of those tabs broken off from misuse at some time in their past. As far as I know, Ten-Tec is the only source for these End Caps – and they no longer supply them.

Ten-Tec, for many, has always been an acquired taste. They have always been above board with top performance, especially on CW. In my opinion, much of the time their packaging quality (but not necessarily design) left something to be desired. My focus here is on things like the quality of potentiometers, switches, and capacitors. Also, wide variance in the quality of components in the same radio. Case in point is in the Corsair and Corsair II where the PTO drive mechanism is smooth as silk, but the AF Gain pot seems at the same time to have been akin to something you would expect to find in a Cracker Jack™ box. I have to be careful here because I am reviewing a 50 year old radio that has had numerous users handling that very control. Truth is, however, that the AF Gain pot on my Drake equipment – generally older than the Ten-Tec equipment that I have used – is not that way. True also is the excellent performance of such hardware on Hallicrafters, Collins, National, and Swan that I use.

At the same time, the electronics and its design seems first rate. Attention to those details was excellent. That is ignoring rather odd occurrences where, as discussed earlier, normal side band on the Corsair was wrong (LSB instead of USB). The fact that this error stayed on in the Corsair II seems odd. A lot of engineering improvements went into the Corsair II – did Ten-Tec actually not know of this error?

The last of such things was their Argonaut VI product. An excellent design, all mode, very compact little QRP (10 watts, maximum) transceiver that covered 160-10 meters – or did it? It omitted 12 meters. (It also omitted 60-meters – but that is more understandable – even though by that time, everyone else included it.)

Well, we leave this product on a positive note – I thoroughly enjoyed getting this Ten-Tec Corsair II, Power Supply, and Remote VFO working and for now it has an honored place in my collection of radios that made our hobby what it is, today.

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 nearly always adds commentary that makes it into the article. The Corsair II Transceiver in this article was used by Bob for some period of time. Bob is a very nearly 100%, CW operator.

Credits and Comments:

¹ There is no known way to modify the Corsair or Corsair II for 60-meters.

² Reference Location: <http://corsair.wikidot.com/start>. This is a very complete site to locate information related to the Ten-Tec Corsair and Corsair II HF Transceivers.

³ **QST Magazine**, August 1987, page 32.

⁴ The prowess of the Ten-Tec QSK operation is perhaps the choice of some CW operators. And, may I add, more power to them for their exemplary skills. I also know many operators who use semi-break-in CW Transmit/Receive Switching and are perfectly happy with that performance. Some modern transceivers use relatively fast semi-break-in and call it QSK.

⁵ Ten-Tec users have reported that they have found a particular circuit breaker, not sold by Ten-Tec, to be useable in this application. I cannot verify the accuracy of the statement but the one being sourced is from Amazon under this link:

https://www.amazon.com/gp/product/B07H9483K4/ref=ppx_yo_dt_b_search_asin_title?ie=UTF8&th=1

The description is: "T Tocas AC/DC Single Pole Magnetic Circuit Breaker Toggle Single Pole Circuit Breakers 20A 415Vac 80 Vdc"

⁶ Unified Microsystems can be found at <https://www.unifiedmicro.com/> for product details. Products are sold at: Ham Radio Outlet <https://www.hamradio.com/> and at: DX Engineering <https://www.dxengineering.com/>.

⁷ The Bencher BY-1 is shown at:

<https://vibroplex.com/contents/en-us/d67.html>.

They are available at the same URL or at: Ham Radio Outlet <https://www.hamradio.com/>

and at: DX Engineering

<https://www.dxengineering.com/>.

⁸ Unfortunately, the Speed-X Straight Key shown is no longer sold new to my knowledge. For details on Nye-Viking Straight Keys, check ham radio classified sites or eBay.

⁹ The MFJ-784B Tunable DSP Filter is available direct from MFJ Enterprises via their website at:

https://mfjenterprises.com/products/mfj-784b?_pos=2&_sid=86b1cf31f&_ss=r

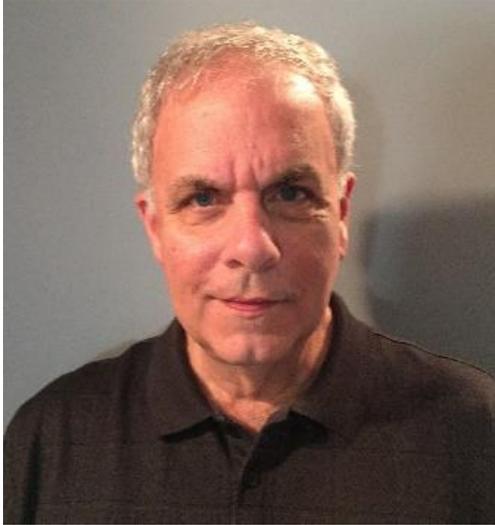
or from most ham radio dealers, such as: Ham Radio Outlet at:

<https://www.hamradio.com/>.

© W9MXQ

Running CW with Vintage Solid State Radios Using the Unified Microsystems XT-4 MK2 Memory Keyer

de: Bill Shadid, W9MXQ



The Unified Microsystems XT-4 MK2 has been a real turning point for me in running CW with my solid-state Vintage Radios. In this month's Vintage Amateur Radio article, you saw the little Unified Microsystems XT-4 MK2 being used with the Ten-Tec Corsair II here at W9MXQ. In a recent article, you saw me making CW contacts using this same XT-4 MK2 with a Drake TR5. For most POTA (Parks on the Air) CW contacts the exchange is minimal. You need to recognize your call, of course, which the POTA station will send back to you when he hears your call. For that initial call, I have "W9MXQ" programmed into Memory 1. When the POTA station calls you, he/she will provide a signal report. I program Memory 2 with my standard reply of "DE

W9MXQ 599 599 MKE WI KN" or "DE W9MXQ 5NN 5NN 5NN MKE WI KN" would also be acceptable. If needed, I have "TU 73" in Memory 3. Depending on band conditions, I may think it improper to provide a 599 report. So, in those cases the keyer portion of the XT-4 MK2 comes into play when I send a different report, manually.

For making my own calls, I have a regular "CQ" call with my call letters programmed into Memory 4. I have done that a few times – cringing at my current skill level that the caller will be wanting an extensive conversation. But, I have survived just fine. The XT-4 also is a traditional keyer with speed set the SPEED control. That speed control also translates to the speed at which the memory data is sent.



Programming the memories is easy, too. Taken directly from the Unified Microsystems XT-4 MK2 Manual:

With the power turned "ON" the XT-4 MK2 Memory Keyer:

- 1) Press the REC button. The LED will blink rapidly.
- 2) Press a message button (1, 2, 3, or 4) that you wish to record. The LED will come on without blinking.
- 3) Start sending the message you wish to record with the paddle. The XT-4 will not begin recording until the first dit or dah is sent.
- 4) Press the REC Button to stop recording. The LED will go out. Press the REC board as soon as possible after you finish sending the message. This will minimize recording dead time at the end of your message.

The Unified Microsystems XT-4 MK2 (and its predecessor, the XT-4) is only designed for keying solid-state radios. Be advised that grid block keying or cathode keying a tube transmitter will damage or destroy the Keyer.

The XT-4 or XT-4 MK2 is not designed to key a vacuum tube transmitter. Grid Block Keying or Cathode Keying often used with vacuum tube transmitters is going to involve switching 90 volts – or even several hundred volts. Switching much over 12 volts is out of the question with most solid state electronic Keyers. Check this warning from the XT-4 and the XT-4 MK2 Manual:

“If you are unsure of your transmitter type, plug the CW cable into the transmitter but leave the other end free. Measure the voltage across the other end of the cable. Ground is the outer shell, and the inner pin is positive. The voltage should measure +5V to +12V. Do not use the XT-4 keyer with your radio if the voltage is negative or is more than 24V.”

The XT-4MK2 and other Unified Microsystems products can be found at <https://www.unifiedmicro.com/> for product details.

The wide variety of Unified Microsystems products are sold at:

Ham Radio Outlet – <https://www.hamradio.com/>

DX Engineering – <https://www.dxengineering.com/>.

I have run the XT-4 MK2 (and its predecessor, the XT-4) with the Drake TR5 and TR7, the Ten-Tec Corsair, Corsair II, and Omni VI, the Swan 100MXA, and the Cubic Astro 103 Transceivers. I tested each one per the note shown above to confirm compatibility. Obviously, any of the many modern solid state radios work fine with the XT-4 and XT-4 MK2. It is good to note here that the MK2 version of the XT-4 has some improvements like more memory and some additional special modes. I am sharing with you my own experience being a beta tester for the XT-4 MK2.

There are many power on options for different parameters that can be set up with the XT-4 MK2. Read the manual for details. I have only scratched the surface here with the capabilities of this product. For now, it is set up to meet my own level of expertise. As I progress, so will the Keyer!!

Are you doing CW in a POTA setup even with a modern radio? The easy to carry in your pocket XT-4 MK2 is a gem to program and use. It is a little gem. It's common 9V Battery will likely get you through many hours of operation – and, to lengthen battery life, it even puts itself to “sleep” when not being used.

Have fun – that is the name of the game, you know!!

Upcoming Events

de: Tom Trethewey, KC9ONY

10/04/2023 – Nationwide Emergency Alert System Test (EAS)
<https://www.fcc.gov/general/eas-test-reporting-system>

10/20/2023 – Scouting Jamboree On the Air (JOTA)
October 20-22, 2023 (third full weekend in October)
<https://www.arrl.org/jamboree-on-the-air-jota>
<https://www.scouting.org/international/jota-joti/jota/>

11/04/2023 – Milwaukee - MRC91 Friendly Fest
<https://www.arrl.org/hamfests/friendly-fest-1>

11/05/2023 – Neenah - Fox Cities Amateur Radio Club, Inc (FCARC) Hamfest
<https://www.arrl.org/hamfests/fcarc-swapfest-9>
<https://www.fcarc.club/hamfest.php>



Ozaukee Radio Club Minutes of Membership Meeting. 9/13/2023

de: Jeananne Bargholz, N9VSV, and Bill Greaves, K9GN

for: Ken Boston, W9GA, Secretary

The ORC meeting continues to be “hybrid” in nature. About half of the 28 attendees (15 members and 1 guest) were present and half (10 members and 2 guests) attended via Zoom.

ORC President, Bill K9GN, called the meeting to order at 7:30 pm and lead introductions around the room. He then gave the floor to Bill W9MXQ to coordinate introductions for Zoom attendees. Visitors were specifically welcomed.

Announcements: Although not present, congratulations were given to Tom W9IPR for another successful Fall Swapfest – good call on the weather, Tom! There were no other announcements.

Program: The program was presented by Bruce Smith AC4G who described his “DXpedition” on the Kwajalein Atoll in the Marshall Islands. Bruce spent three years on the Atoll with his family. Bruce discussed the many considerations that went into the planning and organizing of the trip. He also shared what it was like living on the atoll from family attractions and schools to how the weather affected the radio gear. Bruce’s presentation was well-received, and he graciously answered a number of questions afterwards.

50/50 Raffle: After a 5 minute break, Jeananne N9VSV conducted the 50/50 Raffle draw. This month’s winner was Gary W9XT!

Auction: Gary W9XT held the auction, which had only a few items.

Reports:

- **President:** Bill K9GN called for volunteers needed to help Tom Trethewey KC9ONY setup of the audio equipment for the monthly meetings.
- **1st VP Report:** Jeananne N9VSV 1. Need volunteers for club table at HRO Superfest on September 22 and 23. 2. Club Swag (name badges, mugs, and hats) available. Contact Jeananne.
- **2nd VP Report:** Vacant
- **Repeater Update:** Tom KC9ONY provided a brief history of our 220 Repeater and then gave the floor to Gregg W9DHI to talk about the new 220 Repeater purchase (actually two repeaters purchased), along with custom cables. The “new” repeater includes a club owned SCOM Controller and a donated Astron Power Supply. The

repeater has the capability of a 2m link for our nets. Gregg was on Zoom and screen-shared a brief PowerPoint with pictures of the equipment.

- **Treasurer's Report:** Gary N9UUR provided the current report and account balances. Gary gave a preliminary report on the Fall Swapfest, in Tom W9IPR's absence. Gary also shared that our accounts at Cornerstone Bank will be transferred to the new Horicon Bank who purchased the Cornerstone Bank. Unfortunately, there has been little to no communication as to account numbers, checks, etc. The merger becomes effective September 18. Gary is monitoring this closely. Jim K9QLP motioned to accept the Treasurer's report; Todd N9DRY seconded; motion carried unanimously.
- **Secretary's Report:** No minutes/report for now.
- **STEM Committee:** No report
- **Technical Committee:** No report
- **Programming Committee:** Jeananne N9VSV - Our Program Calendar is set through November, but we have no additional programs scheduled after then. Would you like to talk about a recent project? Know of any presentations that the members might appreciate? Is there an area within amateur radio that you'd like to know more about? Jeananne is looking for ideas. The programs must be amateur radio related.

Old Business:

- No old business.

New Business:

- No new business.

Adjournment: Stan WB9RQR motioned to adjourn the meeting; Nate KC9TSO seconded; **Motion carried unanimously.**

Ozaukee Radio Club Minutes of Membership Meeting. 08/9/2023
de: Ken Boston, W9GA, Secretary

The monthly ORC meeting occurred at the senior center as we have returned to live in-person meetings, along with a streaming version held via Zoom. ORC President Bill K9GN began the meeting at 7:31 PM, with actual members attending, a go-around was conducted. Zoom attendees were also in attendance and were also introduced. Bill reminds us that we still need help with the technical committee, and an auctioneer. [joking that the winner of the 50/50 raffle automatically becomes the auctioneer]

Program: This program consisted of a group of power point displays and photos from our recent Field Day outing. Submissions included pictures submitted by W9GA, W9XT, W9MXQ and W0NG. Our group site at Pleasant valley park was featured, and also home efforts were shown.

50/50 Raffle: This was won by Bill K9GN ; winning an award of \$8.00

Scholarship Auction: There was a small auction, with a 15A Bioenno battery, bought by Vic WT9Q. Also, items included a router, cables, SWR bridge, and an antenna book.

Committee reports: [there were no 1st VP, Tech, and scholarship reports.]

RPT VP: KC9ONY advises that the Germantown site is back fully operational.

Treasurer: Gary N9UUR [and N9VSV] being gone on vacation, did supply a report showing ORC is still quite solvent. No motion made, however.

Secretary: W9GA reported that the July 2023 minutes are posted, a motion to accept was made by KC9FZK; 2nd by W9DHI & carried.

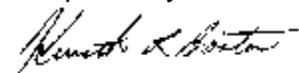
OLD business: W9IPR reminds every one of the upcoming fall outdoor SwapFest on September 9, and that he needs a few more volunteers, please add names to the list! Last year the fest was quite successful, so hoping for a repeat.

Tom mentioned that Ed Rate AA9W is now 91 yrs. old, but still active. W9KEY also reminded folks of the upcoming Lighthouse event and put out an invite.

NEW business: No new business

Adjournment: WB9RQR moved to adjourn, W9DHI 2nd, motion carried; time end was 8:33 PM. There were 20 in-person attendees, 11 Zoom attendees.

Respectfully submitted;



Kenneth Boston W9GA, Secretary

Next Meeting: October 11, 2023 - 7:30 PM
Program: Getting on the Air and Having Fun with Roving
De: Jeananne Bargholz, N9VSV

Janice Hoettels, KA9VVQ, and Bruce Richardson, W9FZ, have been active rovers together since they began dating back in 2012. When they married in 2014, Janice moved to Bruce's townhouse in Woodbury, MN (suburb of St. Paul), which is sadly not conducive to ham radio because of its HOA rules and regulations. While they have a small cabin in Hillsboro, WI where they have a "little pistol" 100W HF station with some wire dipoles up in the trees, it takes some scheduling in order to take advantage of the cabin and ham radio!

And this is where roving has played an important part in their enjoyment of ham radio and getting on the air.

"Roving has brought us great fun and some wonderful adventures, and this is what we'd like to share with the ORC. And maybe--just maybe--some ORC meeting attendees who find themselves with similar fixed station restrictions, might consider roving as a way to finally GOTA!"

Janice has been a ham since 1986. She is a former member and officer of the Ozaukee Radio Club. Presently, she is a club officer of the Northern Lights Radio Society (NLRS). The NLRS is a large organization of Upper Midwest amateur radio operators who are active in weak signal SSB, CW, and digital work on the VHF, UHF, and microwave bands.

She, like Bruce, is an active contester on HF, VHF, UHF, and microwaves!

Bruce has been a ham since 1977. He is the founder of the Badger Contesters and is an active member and officer of the Central States VHF Society.



**Bruce, K9FZ, and
Janice, KA9VVQ**

Upcoming Meeting Programs:

November 2023: 8 November 2023, 7:30 PM

Carl Luetzelschwab, K9LA
ARRL Director, Central Division,
HF Rules Petition - Shortwave Modernization Coalition”

December: 13 December 2023, 7:30 PM

Gregg Lengling, W9DHI
Club 220 Repeater System History and Upgrades 1988 to Present

Creating a Presentation

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.

Not sure how to approach talking about a subject? Never used PowerPoint? No problem, I would be happy to help you get your talk ready for the club.

Contact Jeananne Bargholz, N9VSV, at iamn9vsv@wi.rr.com to discuss your idea for a program.



ORC Meeting Agenda

October 11, 2023

1. 7:15 – 7:30 PM
Check-In and Introductions
 2. 7:30 PM Call to Order:
President Bill Greaves (K9GN)
 3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
 4. Janice, KA9VVQ, and Bruce, W9FZ
Getting on the Air and Having Fun with Roving
 5. President's Update:
Bill Greaves (K9GN)
 6. 1st VP Report:
Jeananne Bargholz (N9VSV)
 7. Repeater VP Report:
Tom Trethewey (KC9ONY)
 8. Secretary's Report:
Ken Boston (W9GA)
 9. Treasurer's Report:
Gary Bargholz (N9UUR)
 10. Committee Reports
 11. OLD BUSINESS
 12. NEW BUSINESS
 13. Adjournment
-



The Back Page

**This Month's ORC Meeting
Hybrid In-Person/Zoom Meeting
11 October 2023**

**Program:
Janice, KA9VVQ, and Bruce, W9FZ
“Getting on the Air and Having Fun
with Roving!”**

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

**NEXT MONTH
Hybrid In-Person/Zoom Meeting
8 November 2023**

**Program:
Carl Luetzelschwab, K9LA
ARRL Director, Central Division,
HF Rules Petition
Shortwave Modernization Coalition**