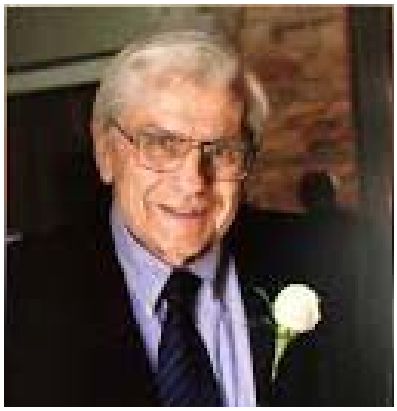
The ORC Newsletter

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 XXXII	January, 2020	Number 1

Ron Yokes, W9BCK (1926-2020) "Silent Key"



ORC members were saddened to hear the news of the passing on January 8th of Ron Yokes, W9BCK ("Big City Kid"), a co-worker, business associate and friend to a great many in the club. Ron was a founding member of the Ozaukee Radio Club and helped get it organized. He is preceded in death by his wife Ethel and sister Genevieve Bandemere. Ron leaves behind his seven children, 11 grandchildren and 14 great-grandchildren. Services will be held at the Mueller Funeral Home & Crematory, 979 N. Green Bay Road in Grafton on Saturday, January 18, 2020 from 12:30 to 3:00 PM.

The following is from Ron's obituary on the Mueller Funeral Home website (https://www.muellerfuneralhome.com/obituaries/Ronald-R-Yokes?obId=10439459#/obituaryInfo):

Born in Chicago, Ron was a World War II vet and radio operator on a Destroyer Escort US Navy ship. This propelled his lofty career into television and he grew with the broadcast mass media of the times – holding positions from TV repair for RCA, to Assistant Chief Engineer and Production Manager for WITI TV-6 in Milwaukee. Later he participated, with Storer Broadcasting, in bringing cable TV to Southern California. He then finished his career as a Broadcast Equipment Sales Representative for RCA.

Ron was an avid hobbyist all his life as a Ham Radio Operator, and was cofounder of the Ozaukee County Amateur Radio Club. He was also an automobile enthusiast, with a particular interest in Mercedes Benz.

In all endeavors, Ron strived for the best in himself and others. He served on the committee for Ozaukee Health and Human Services to ensure maintenance of quality care for his communities. He was secretary of the Grafton Lions Club and wrote the weekly newsletter. The Lions Foundation presented him with the Melvin Jones Fellow award "for dedicated humanitarian service." He was a member of Rose-Harms American Legion Post 355 in Grafton, and delivered Meals on Wheels with his wife Ethel.

Ron will truly be missed by his entire family and all who knew him.

[Editor's note: There will be an expanded article in a future edition of the newsletter about Ron and other ORC members around the time of the club's founding and afterwards. Got an idea for an article you want to contribute? Let me know at ben@evansengsolutions.com].

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

Welcome to 2020. Another year has passed, and depending on how you count, another decade. Later this year, I will celebrate the 50th anniversary of getting my Novice ticket. A lot has changed from the days of using tube rigs and a crystal controlled CW only transmitter.

We continue into the depths of solar minimum. In 2019 we had 272 (74%) days with no visible sunspots. At the end of December, there were two spots from the new cycle. New cycle spots can be identified because they occur at higher latitudes and their magnetic field is reversed from the previous cycle spots. This is a good sign.

The consensus of the solar scientists is that the minimum will occur in April, plus or minus about six months. So, we could be past the minimum, or it could be at the end of the year. That assumes they are correct. At any rate, it will be a good three years before conditions show a major improvement.

That does not mean that you can't make contacts. I totaled up my DX totals for 2019. Running less than 200 watts, I managed to work over 100 countries on 80, 40, 20, 17 and 15 meters. The openings are there; they are just less frequent and often brief. The really long distance openings don't happen on the higher bands.

The low bands are the best bet. You can get some strong signals on 40 meters, often an hour or more before sunset and lasting an hour or more after sunrise. We had some great openings on 160 meters. I was out of town at the start of the Stew Perry Top Band DX Challenge the last Saturday night of December, so I got a late start. I was able to work about 20 Europeans running 100 watts into a piece of wire in a tree. Signals were very strong, and I could have worked a lot more if they had heard me.

Besides writing this column, I have been writing the Contest Tips, Tricks, & Techniques column in the *National Contest Journal* for many years. The ARRL publishes the *NCJ*, and a separate subscription is required. The ARRL announced that ARRL members will be able to read a digital version of the magazine as part of their ARRL membership. There are a lot of articles on contest operating, of course. There are also articles on station design which might be of interest to non-contesters. The free digital copies will also apply to *QEX* magazine. *QEX* is another ARRL publication that specializes in the technical aspect of the hobby. I have been disappointed in the lack of good technical articles in *QST*.

Contests this month include the North American QSO Parties. The CW running starts at noon local on January 11th. The phone event is a week later. They each run for 12 hours, but you can only operate 10 hours. It is a good contest for those with modest stations since the power limit is 100 watts. Being a domestic contest, low antennas are effective. More info can be found at https://ncjweb.com/NAQP-Rules.pdf

The same weekend as the phone NAQP is the ARRL January VHF contest. It starts at 1900 UTC (1:00 PM) Saturday, January 18 and runs to 0359 UTC Sunday night. You exchange grid squares. Activity in the January event is not as good as the others. The June running is often blessed with big

Sporadic E openings, and the September one sometimes has good tropo openings. January is also cold so there is less incentive for the rovers to go out or for operators to go out to some hilltop to operate. On the other hand, the digital modes can create openings to make it interesting. A good time is around sunrise on Sunday, using FSK441 to work stations on random meteor trails.

The CQ 160M (CW) contest starts at 2200Z (4:00 PM Local) on Friday, January 24 and runs 48 hours. There are a lot of categories including high, low, and QRP power, and assisted and unassisted in each power group. Send a signal report and state. Full rules at http://www.arrl.org/january-vhf

Contacts with other US stations are worth 2 points. Contacts with other countries in North America are worth 5 points. Contacts to other continents are worth 10 points. Multipliers are US states, VE provinces, and DXCC countries. Full rules are at https://cq160.com/rules.htm

After a break for the holidays, DXpeditions pick up a bit this month. Palestine will be activated January 6-12 by a group of Russian hams. They will be operating as E44RU on 160-10 Meters, CW, SSB, and FT8.

Palau, in the Pacific Ocean, will be on the air with a group of Japanese operators. The dates are January 15-23. Each one will be using a different T88 call. They will operate 160-10 meters, all modes.

Cocos Island will be on January 10-February 9. This one is pretty rare because permission is rarely given. The call sign has not been released, but the standard prefix its TI9. Propagation is good in that direction, so you will just need to get through the pile ups. They will be running two stations at 700 watts. Unfortunately, they will only be operating SSB. No CW or digital.

Tanzania will be well represented in early February. A large group of Italians will be using 5I5TT on CW, SSB, and RTTY. 5I4ZZ will be used for FT8 and FT4. The dates for this group are February 4-18.

A group of primarily Czech and Slovakian hams will be on February 6-18 as 5H4WZ. They will also be active in the CQ WPX and ARRL DX CW contests.

If that is not enough, NK8O will be on from Tanzania on February 16-March 16. Holiday style operating, 40-10M. Mostly CW and digital.

That wraps up January. Cold days and long nights are the perfect time to play some ham radio.

Reserve Sunday Afternoon, March 15th, for the WIQP!

The ORC came close to winning the Wisconsin Club category last year. We can win it in 2020 if we can get a good showing of ORC members. Everyone can contribute. Work other stations on HF with digital, CW, or SSB, and FM simplex on VHF. More info in the next ORC Newsletter or rules at https://www.warac.org/wqp/wiqp_rules.htm

-Gary, W9XT

THE COMPUTER CORNER

No. 262: Linux In The Hamshack

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

[This article, by Sholto Fisher (K7TMG) appeared in THE BEACON, West Mountain Radio Quarterly Newsletter, Quarter 4-2019, pp. 3-5. It is the same issue of THE BEACON that contained ORC's Fred Schwierske's (W9KEY) article on Celebrating the 100th Anniversary of Radio Station WWV, and reading Fred's article led me to spot and read Sholto's article. It is a good thumbnail sketch of using Linux in the hamshack, so I asked permission of West Mountain Radio to reprint it here. They said yes and we are grateful for it. Stan]

We recently had a customer who mentioned we might consider writing about Linux operating systems because "it is used more than you think". I have actually been promoting the use of Linux in a ham radio environment for more years than I care to remember, and certainly the number of users is growing all the time.

There are many good reasons to use a Linux operating system, and ham radio applications are supported by a variety of programs.

Long gone are the days when you had to be a computer whiz kid to get Linux onto your PC. Nowadays you can burn a USB flash drive with an image, boot to it and install Linux in a matter of minutes. You don't even have to install it, as some Linux distributions are happy to run from the flash drive directly.

This is a great way to take a Linux test drive or even take your operating system with you wherever you go.

You might consider one of the small, inexpensive, single board computers which are available these days such as the Raspberry Pi. This is a complete PC with a Linux operating system on it and is perfectly suited for ham radio use.

Let's look at a few other benefits of using Linux vs Windows.

Linux is free, you don't need to pay anyone to install or use it. Linux is not some time-limited program with pop up adverts. It is a real, modern, operating system that is usually 100% compatible with your entire computer hardware.

Because it is not Windows or OS-X, it is in many ways more secure and less likely to be targeted by viruses or malware. It is generally much safer to browse the web or read emails on a Linux computer.

It is available in a number of different distributions (aka “distro”). This might be difficult for long time Windows users to think about but it basically boils down to choosing a particular distro (flavor) which suits you. If you don’t like the look of one distribution, just try another!

Linux is a great choice for an old desktop or laptop PC that was left behind by Windows. You can find a distribution which will work on even ancient PC hardware! So go ahead and put that old machine back in use instead of consigning it to the landfill. You will find that other Linux users are often very helpful and it may be worth asking around your club members to see if someone will take you under their wing and help you get started.

There are literally hundreds of distributions to choose from but the main well known ones are probably the place to start. I personally use Debian, but Linux Mint, Ubuntu and Manjaro are all worthy contenders. A good place to start is https://distrowatch.com/ which details all of the major distributions. Their “page hit ranking” on the right side is a good way to gauge the popularity of currently used distributions. Anything in the top 5 is probably a safe bet.

[NOTE BY STAN: In the table below, I updated the numbers in the HPD (hits per day) column as of 29Nov2019. Also, the 3rd entry (Linux Mint) is the operating system I install on the rebuilt computers I bring to the ORC auctions. Why? Read the paragraph below that starts with “Linux Mint” for the answer.]

RANK	DISTRIBUTION	HPD
1	MX Linux	4667
2	Manjaro	2542
3	Mint	2089
4	Debian	1642
5	Ubuntu	1406

Once you have selected the distribution you want to try, you should burn the downloaded image to a flash drive using a program such as Unetbootin (see https://unetbootin.github.io/) then restart your PC and change the boot up sequence to use the flash drive instead of the internal hard drive.

Booting from a flash drive is usually quite quick and most of the major distributions will start without issue and present you with a desktop in a matter of seconds.

Linux Mint provides a modern, clean-looking desktop for everyday use. Mint is a good choice for someone transitioning from Windows to Linux as a lot has been done behind the scenes to make things “work out of the box”.

Many of the well-known major ham radio programs are written for Linux too. Software such as WSJT-X (JT and FT modes) and Fidigi (multimode and CW) are available. Other great programs to try are QSSTV (Analog & Digital SSTV), FreeDV (Digital HF voice), & Xastir for APRS use.

There are even special distros available with ham radio software baked in. KB1OIQ has a nice Ubuntu based distribution with many of the programs you will likely use already installed.
Check out Andy's Ham Radio Linux page located at https://sourceforge.net/projects/kb1oiq-andysham/ for details.

At West Mountain Radio, we have worked hard to ensure that all of our RIGblaster interfaces are supported in all operating systems. Drivers for our interfaces are in the Linux kernel which makes them truly plug and play. 73, Sholto, K7TMG

UPCOMING EVENTS

Breakfast at Jim's Grille in Cedarburg – Saturdays at 7:00 AM

Upcoming ORC Monthly Programs

January *– Elections*

February *- Bill W9MXQ, Video Presentation on R.L. Drake Company*

March *– Vic WT9Q, Selecting & Installing a Vertical Antenna*

Presenters Needed!

de Pat Volkmann, W9JI

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.

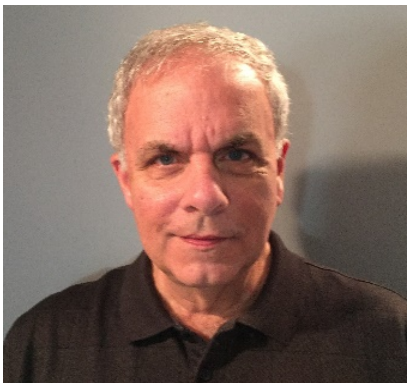
Telegraphy presentation in Fox Point February 7th

de Mike Yuhas, AB9ON

Hello ORC members and friends. If you have an interest in American Morse Code, or telegraphy in general, you might want to attend the February meeting of the Wisconsin Chapter of the National Railway Historical Society, which features "Canst Thou Send Lightnings - The Story of the Telegraph," presented by James Wades. James considers the telegraph to be the invention that spawned commerce and technology, from standardized time zones to the internet. The meeting, which is free and open to the public, will be held at 7:30 PM on Friday, February 7th at the North Shore Congregational Church, 7330 North Santa Monica Boulevard, Fox Point. Additional detail may be found at http://nrhswis.org/index.php/meetings.

Vintage Amateur Radio

de Bill Shadid, W9MXQ



The regular article series is going to take a bit of a break this month. December 2019 and early January 2020 have seen a lot of family activity, and time for writing has been a bit limited. In keeping with that, I am going to talk in this edition about what is going on with my article series on Vintage Amateur Radio – where we have been and where we are going.

This is a bit interactive and at the end of this article are requests for input from you that may impact future article content.

My goal in these articles has been to document in two areas:

1. Radios in my personal radio collection.
    - I like to write about radios I have used.

2. The introduction of the Collins S-Line radios.
    - Collins set the pace for the industry right up to today.

This far, with 29 articles completed by December 2019, Goal 1 of the documentation series has been met and will be for some time to come. Goal 2 was completed early in in the series. However, Goal 2 continues to be referenced as radios after that are documented and compared with the S-Line ground-breaking concepts.

Back in mid-2017 when Tom Ruhlmann, W9IPR, then Editor of the Ozaukee Radio Club Newsletter, approached me to do some Vintage Radio articles I made a promise to him. I said that such a series from me will be guaranteed to go for about 12 to 18 articles. After 29 articles there is no real end in sight. There is a lot of material out there!

Next month, the regular series continues with Part 2 of the three-part series about Amplifiers based on the 811/811A Triode tube. Following that, I have planned to chronicle radios held by my partner in collecting, Bob Bailey, W9DYQ. While our collections are complimentary in many ways; Bob goes into more detail. For example, Bob has done an analysis of the differences in the Collins 75S-1, 75S-3, and 75S-3B Receivers[1]. As a future article will show, Collins made significant changes in these basic chassis' in the S-Line Receiver series. Also, we will delve into the upgrade of the S-Line Transmitters in the 32S-1 and 32S-3 examples[2]. Bob will also help with documenting popular and competitive home brew transmitters from our radio heritage.

Bob and I share a fascination with all radios – holding all Vintage Amateur Radio products as gems from our history. We tend to avoid brand preferences – all are great radios.

A few other areas upcoming in the near term are stories about the rarer members of my collection, past and present. In the near-term, these include the WRL/Globe transmitters and later HyGain Galaxy line of transceivers and amplifiers. The Galaxy transceivers were able and competitive products marketed against the Drake TR-3 and TR-4 line of transceivers. We will cover another giant of the ham radio industry – Gonset. Premier in the Gonset brand were the famous Gonset VHF and UHF Communicators and their player in the world of 100-watt plate modulated

AM transceivers – the G-76 Transceiver. Also, the rather rare Gonset HF separates station with the GSB-100 Transmitter, GSB-101 Linear Amplifier, and G-63 Receiver[3].

A love of mine but, thus far, not covered are the Central Electronics line of transmitters, amplifiers, and accessories. Those articles are coming. Central Electronics radios and accessories have been treasured parts of the W9MXQ collection[4].

Now, for my question to you, the readers of these articles. Is this series taking the right path? Do you want to see any certain radios included in my series? Let me know your thoughts at W9MXQ@TWC.com.

A special note of thanks to my proofreader, Bob Bailey, W9DYQ.

Credits and Comments:

[1] The 75S-1, 75S-3, and 75S-3B Receivers had differences that can be outlined. Briefly, the 75S-1 was pretty much an SSB radio with little accommodation to CW operation. The 75S-3 and 75S-3B greatly improved on this shortcoming. Additionally, the 75S-3B was a slightly altered version of the 75S-3 but many say it was also cost reduced. Many hams today prefer the 75S-3 as the best example of the three radios. The 75S-2, 75S-3A, and 75S-3C were extended coverage versions of the above three radios, respectively. Technically they were identical to their restricted coverage versions.

[2] The 32S-3 was an improved version of the 32S-1 Transmitter. Again, the updates were heavily based on CW operation conveniences.

[3] The Gonset GSB-101 and GSB-201 Linear Amplifiers are included (with others) in Part II of my series on the 811/811A Amplifiers. Part 3 of the series covers much older, post WWII, amplifiers with the 811/811A.

[4] The line of transmitters, amplifiers, and accessories from Central Electronics include the low power 10A, 10B, and 20A Transmitters. There were the revolutionary 100V and 200V Transmitters that in 1959 required no tuning into a 50-72-ohm load. Visions of today's solid-state radios – but with tubes!

W9MXQ

Ozaukee Radio Club
December 11, 2019 Meeting Minutes

de Ben Evans K9UZ, Secretary

The meeting was called to order at 7:31 PM by President Kevin Steers (K9VIN). All the attendees introduced themselves.

Announcements, Show-and-Tell, Bragging Rights:

Bill S. (W9MXQ): The Port Washington library called and said they'd like to keep the ham radio display, put together by Bill S. and Gary Drasch (K9DJT), up for another month due to all the activity. If you haven't seen it, check it out.

Jim A. (K9QLP): Ron Yokes (W9BCK), while cleaning stuff out, came upon a tube from Channel 6's Vitascan system from the early days of color television, which Ron then gave to Jim and is on display tonight for members to look at.

Asa (KD9MUY): This past Friday, a Pico high altitude balloon was launched by the MATC amateur radio club (W9HHX). It is currently at 30,000 feet altitude and crossed the Atlantic over the week-end. At last check, it was over Turkey. It is transmitting APRS and you can track it on www.aprs.fi. The call sign is W9HHX-11.

Stan (WB9RQR): Member Dave Barrow (N9UNR) called from Illinois and sends his regards and best wishes for Happy Holidays.

Program:

John Schrader (W9NRG) gave a presentation on his experience setting up and using emergency communications for firefighting.

50/50 Drawing:

There was no 50/50 drawing.

Auction:

Stan (WB9RQR) conducted the auction. Many items were sold.

Officer Reports:

Kevin S. (K9VIN), President's Update – No update.

Pat V. (W9JI), 1st VP – No report.

Bill C. (KD9DRQ), 2nd VP – No report.

Tom T. (KC9ONY), Repeater VP – Still doing research on a new RF amplifier for the 146.97 repeater. He hasn't found anything to his liking for under $1,000. Also, those having a 220 MHz radio should use the 224.18 repeater more often; otherwise, we might lose the frequency. The 224.18 repeater links to 146.97 repeater. Jim K9QLP pointed out that the 224.18 repeater also links to the 10-meter FM remote base. Dave C. (KC9REP) pointed out that if people use their 220 radios to make contacts on 146.97, this will create traffic on both bands thus killing two birds with one stone. Tom also said if anyone wants to share duties with him in hosting the Tuesday night net, perhaps once a month, let him know.

Ben E. (K9UZ), Secretary – The minutes from the November meeting were distributed to members by email. Motion to accept the minutes was made by Stan (WB9RQR), seconded by Gary S. (W9XT) and approved by the members. The newsletter is late again but will be posted tomorrow.

Robert E. (K4WTH), Treasurer – Robert was not at the meeting, so Ben (K9UZ) gave the financial report for November which was handed out to members. The only thing of note is that the club finally reimbursed Tom KC9ONY for the new repeater antenna. Motion to accept the treasurer's report was made, seconded, and approved by the members.

Committee Reports:
Ken B. (W9GA), Field Day Committee – On the subject of the shed, Ken is still waiting for news from the buyer of the property. The closing has been pushed back past the first of the year. We're hoping for a solution to keeping the trailers on the property. The white trailer is at Big Nate's. He was authorized to fix the axel but has not yet done so.

Ken B. (W9GA), Nominations Committee – Next month are elections. We have tentative candidates for some of the positions. If anyone would like to step forward for a position, let Ken or any of the officers know. We are going to need new people for some of the offices.

Tom R. (W9IPR), Fall Swapfest – The Fall Swapfest will be August 29th, which has been published in QST, but there are errors in the posting which will be taken care of.

Tom R. (W9IPR), Extra-Class Training – There will be a session next Saturday, December 21st and that will be the last session. The question was asked as to when the new Extra Class exam questions pool will be released because the new tests start in June. Tom responded that the new manual should be coming out very soon. Someone said that the questions will be posted online so you won't need a book.

Kevin K9VIN announced that Robert K4WTH is stepping down as Treasurer. He also handled new memberships, nametags and Field Day networking, so we'll need members to cover those areas.

Old Business:
There was no old business.

New Business:
There was no new business.

Adjournment:
Stan (WB9RQR) made the motion to adjourn the meeting, which was seconded and passed by the members. The meeting was adjourned at 9:13 PM.

Attendance:
There were 25 members and two guests present at the meeting.

A copy of the attendance sheet is available upon request in PDF format. Please contact Ben Evans via email at ben@evansengsolutions.com for a copy.

Respectfully submitted,

B. Benjamin Evans, K9UZ
Secretary

ORC Meeting Agenda

January 8, 2019

1. 7:00 – 7:30 PM – Network & Rag Chew
2. Call to Order – Kevin Steers (K9VIN)
3. Introductions
4. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
5. Program: Elections, Ken Boston,W9GA
6. Fellowship Break
7. 50/50 Drawing
8. Auction – Stan Kaplan (WB9RQR)
9. President's Update – Kevin Steers (K9VIN)
10. 1st VP Report – Pat Volkmann (W9JI)
11. 2nd VP Report – Bill Church (KD9DRQ)
12. Repeater VP Report – Tom Trethewey (KC9ONY)
13. Secretary's Report – Ben Evans (K9UZ)
14. Treasurer's Report – Robert Eskola (K4WTH)
15. Committee Reports:
    a. Scholarship – Tom W9IPR
    b. Field Day Storage – Ken W9GA
    c. Other
16. OLD BUSINESS
17. NEW BUSINESS
18. Adjournment to ?

Return undeliverable copies to:

The ORC Newsletter
465 Beechwood Drive
Cedarburg WI* 53012

First Class

Next ORC Meeting:

Grafton Multipurpose Senior Center

1665 7th Avenue, Grafton, WI
Wednesday, January 8th, 2019

7:00 PM – Doors Open

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 XXXII	February, 2020	Number 2

From the President

de Pat Volkman, W9JI

At the start of this New Year, we have elected some new and returning officers for the Ozaukee Radio Club. We also have a number of members continuing to serve on our various Committees. On behalf of the Club, thanks to all of you who have decided to donate your time and energy to the Club, both past and present.

The position of Club Historian is currently open. If you have an interest in helping with the preservation of the history of the ORC, please contact me.

Stan Kaplan, WB9RQR will continue to run the monthly auction. The auction is an opportunity for members to pass on radio and computer-related items that they no longer need to others in the club. Auctioned items are donated to the Club and then sold to benefit two organizations. Half of the money raised goes to the Ozaukee Radio Club Scholarship Fund and the other half goes to OZARES to support their emergency communication work.

Please keep in mind that items for the auction are first donated to the club. If you have an item of your own that you would like to sell, you can list that item in the Club newsletter or on the email reflector. If you have any questions, please contact Stan at wb9rqr@att.net prior to the auction.

At a recent Board meeting, we formed a Repeater Committee to provide some input and direction to the Club on the future of the ORC repeater system. The committee will be composed of a cross section of Club members – old timers, newcomers, young and old to incorporate a variety of viewpoints and interests. The job of the Committee would initially be to:

- Survey club members to understand their level of interest in the repeater system.
- Do an assessment of the current state of the repeater equipment to define maintenance needs.
- Develop an estimate of maintenance costs as input to the Club budget.
- Develop a plan, with input from the Club, for the future direction of the ORC repeater system.

If you are interested in helping with the Repeater Committee please contact Committee Chair Mike Harrington, KD9GCN.

As the new president of the Ozaukee Radio Club I am looking forward to getting to know you better and to understand what you want to get out of your radio club. I encourage you to contact me with your thoughts and suggestions.

See you at the next meeting.

Pat Volkmann, W9JI email: w9ji@arrl.net

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

The focus of this month will be an event that happens next month, the Wisconsin QSO Party. It starts at 1:00 PM Sunday, March 15, and runs until 8:00 PM. Mark it on your calendar right now before you forget.

This is the one contest that focuses on Wisconsin hams. It is also one that every licensed member of the ORC can participate in and contribute to a club win. Years ago, Bob, W9LO, was a cheerleader for the ORC in the WIQP, and we did very well against clubs in the state. Last year we got a bit of an effort going, and we came close to winning it. Let's make 2020 the year ORC is on top!

The basic idea is to work as many other stations as we can. We can work other stations in Wisconsin and around the world. Everyone else will be looking for Wisconsin stations. In most contests we are not rare or the target for others operating the contest. That makes the WIQP especially fun.

You will be sending your county as the exchange. Each county you work is a multiplier, as well as every state and Canadian province. The score will be QSO points times the total number of Wisconsin counties, US states, and Canadian provinces. You can work a station on a voice mode and again on either CW or a digital mode per band.

Phone contacts are worth one point, and CW and digital contacts are worth two points. Note that FT8 and FT4 contacts are not allowed for this contest so you will have to use RTTY, PSK31 or something else if you want to go digital. I have never tried the digital modes for this contest, so I can't give any advice on it.

Although most of the action will be on HF, VHF is also a way to get on and make some points for the club. You can work other stations on simplex off the national calling frequencies. They have suggested frequencies in the official rules for 6 M, 2M, 220, and 440 MHz.

If you have VHF mobile capabilities, you can have even more fun if the weather is good for a drive. Each time you move into a new county, you can work everyone again. In addition, if you make at least 12 contacts outside your home county, you can claim 500 bonus points for that county. Doing a mobile operation can be a fun way to spend a Sunday afternoon. Plan your route to maximize the number of counties you can hit with the minimum amount of miles. Plan stops at high locations where you can increase the range you can work. Be safe. Don't operate while driving, or have someone else drive while you operate.

For HF operators, most of the action will be on 80, 40, and some 20 Meters. It is hard to say if 40 or 80 will be the most important band. It depends on conditions that day, and you want to be ready for both. You will work the majority of Wisconsin stations on 80 and 40. These bands will go long as darkness approaches so try to operate early. You will find 20 Meters important for working the other states and Canadian provinces. Make short (~20 minute) trips to 20 then go back to 40 or 80. You want to work the HF mobiles on from Wisconsin. More on them later.

If you can, split your time between phone and CW. CW contacts are worth twice as many points, but many of the counties will only have a single operator who only operates on phone. You will also find

that it slows down as you work all the CW stations on the air. I tend to operate most of my phone time in the last few hours, especially when it gets dark, and most of the action is on 80.

Whatever bands and modes you use, spend at least some time calling CQ. Out of state operators rarely call CQ, They are looking for your CQ. Remember, we are the stations they are hunting. If the VHF frequency is quiet, make sure to shout out, especially if you are mobile and just arrived in a new county.

Some of the state counties are very rare, and there won't be a ham on from there. There will be an HF mobile station passing through most of them. Several mobile contesters make a big deal of this and plan their trips to hit as many rare counties as possible. You can snag them if you are ready for them and have a bit of luck. Most of the rare ones are in the northern part of the state.

Because of the rules and bonus points, mobiles want to get into a county, work 12 stations for the bonus, then move to the next county. They usually only spend an extended amount of time if they have to drive many miles to the next one. Mobile HF stations are not especially efficient because of limited antenna size. They will usually start on 20M CW because that is the most effective band and mode for them. They will skip over us and work a bunch of W4 and W5 stations to meet their quota. This is very frustrating for us in the southern part of Wisconsin. Later they will be forced to move to 40 and 80, giving us a better chance.

You are allowed to use spotting assistance in the WIQP, so use it if you have it to keep track of the mobile stations. Some of the mobiles also use APRS, which will allow you to see where they are, but APRS does not tell you which band or frequency they are on. Typically they will have favorite frequencies and will stay near them as much as possible for the whole contest.

There are three power levels. QRP is up to 5 watts, and you multiply your QSO points by 2 if you stay at this power level. Low power is 6 to 150W, and the multiplier is 1.5. Above that, the multiplier is 1. I have found the low power category is the best compromise for being loud and getting a power multiplier.

The WARAC, which sponsors the WIQP, prefers electronic logs. You can send in a paper log if you have less than 50 contacts. N3FJP (the logging program used at the ORC FD) has a version for the WIQP. It costs about $8. N1MM+ is free and handles the WIQP, but is more complex to set up. If you want, log on paper, and then use one of the programs available to enter the QSOs and create a Cabrillo file and email that in.

I have just touched on the high points of the WIQP. Check out the full rules along with some other resources at http://www.warac.org/wqp/wqp.htm

In summary here are the important things to do:

1. **Get on and make some contacts for the ORC.**
2. **Send in your log by the March 29 deadline.**
3. **Make sure your entry specifies the Ozaukee Radio Club as your club.**

The big contest in February is the ARRL DX CW contest. It starts at 0000 UTC on February 15. That is 6:00 PM Friday the 14th and runs for 48 hours. Work DX stations on 160-10M, excluding the WARC bands. We send a signal report and our state. DX stations send the signal report and their power level. Do not work US or Canadian stations, but KH6, KL7, KP4, etc., count as DX.

There are many different operating categories. Check out the rules at http://www.arrl.org/arrl-dx

I really like this contest. The DX stations are concentrating on working us, unlike the CQWW, where they can work each other. That does cut down the DX activity somewhat there. Last year I placed #4 in the US low power, assisted category, and will see if I can improve on it this year.

The phone version of the ARRL DX Contest is March 7-8, which is probably before the next newsletter comes out.

There are two contests on the last weekend of February. The NAQP RTTY is Saturday, February 29. The CQ 160M Phone contest starts Friday afternoon, February 28. Other mode versions of these were covered last month.

There are some interesting DXpeditions in February. Palestine is on the are until February 17 using the call E44CC. 160-10M, CS SSB, RTTY, and FT8/4.

Two groups are one from Tanzania. The first group is composed of primarily Italians will be there until the 18th. They are using the calls 5I5TT on CW, SSB, and RTTY. 5I4ZZ is the call they are using on FT8/4 and has been pretty active.

The other Tanzanian operation is being put on by a group of Czech ops. 5H4WZ will be on 160-10M, CW, SSB, RTTY, and FT8 with three stations. They will also be in the ARRL DX contest. They will also be there until February 18.

The big DXpedition of the month is to South Orkney. These are a group of Antarctic Islands about 1300 miles south east of the southern tip of Argentina. Operations to Antarctic islands are infrequent due to the difficulty and costs of running them. The last operation there was 2011. It is #16 on the all-time needed list.

A large group of mostly American hams will be putting this on. They will be on 160-10M, SSB, CW, RTTY, and FT8. The expected dates are February 21-March 6. Landing can be difficult in these areas, so delays in getting started are not unusual. The call sign will be VP8PJ. You want to put this on in the log because it might be quite a while before the opportunity happens again.

That wraps up February. The ground hog saw his shadow, so we have six more weeks of winter. You might as well spend some of it on the radio.

Wisconsin QSO Party, March 15th, 1:00-8:00 PM

Get on and make some points for the ORC! We can win the state club competition if we get as many members operating it as possible. Even if you only have an HT, you can help out the club! Rules at http://www.warac.org/wqp/wqp.htm

-Gary, W9XT

THE COMPUTER CORNER

No. 263: Update your Linux Installation

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

The world's most popular Linux installation is 19.2, Cinnamon, "Tina", and most ORC members with Linux are using it. Well, 19.3 is out, and the Linux Team has made it easy to upgrade from any version 19 release (19, 19.1 or 19.2). That means you do not have to erase or overwrite an old version or reformat your hard drive. Rather, in the space of a few minutes, you can simply upgrade to 19.3 while still running your old version. Here is how I did it on three computers, which worked perfectly well and quickly, even if it did deviate a bit from the "official" way listed at the Linux Mint Blog (https://blog.linuxmint.com).

1. If you use system snapshots, use Timeshift to create one before the upgrade. Timeshift takes snapshots of the system at intervals of your choosing (mine is set to daily). If anything goes wrong, you can use Timeshift to restore your system to a previous state. Obviously, if you don't use system snapshots, ignore this Timeshift step.

2. Temporarily disable your screensaver, because, if it kicks in during the update, it will stop the process. You can enable it again when the update is done. If you plan on staying in front of the machine during the update so that you can monitor progress and wiggle the mouse if the screensaver clicks in, you can skip this step.

3. Make sure your Cinnamon spices (applets, desklets, extensions and themes) are all updated. Use the System Settings to make sure of this.

4. Find the Update Manager icon in the tray and left-click it. Click the refresh option at the top of the ensuing screen and download/install any updates to your (old) Linux operating system. If there were any really heavy duty updates, you may be asked to reboot. This is rare, but do it if asked. Get back into the Update Manager screen if you did need to reboot. In any case, when finished making sure updates are done, click the Edit button and select the "Upgrade to Linux Mint 19.3 Tricia" sentence. You are on your way. Follow any on-screen instructions. If asked whether to keep or replace configuration files, choose to replace them.

5. Add any packages you might want. For example, celluloid, gnote, drawing and neofetch were added to 19.3, so if you want to install them (probably a good idea), open a terminal (usually the 3rd icon in the tray) and type: apt install celluloid gnote drawing neofetch. Hit return and type exit when the machine is done, to close the terminal. You can then reboot to completely activate your upgrade, necessary because this is a major system change. You are done. I bet you can do it in under 20 minutes!

By the way, in reading dozens of comments in the Linux Mint Blog (referenced above in the first paragraph; just hit ctrl-click to follow the link), it is clear that this release is a winner and generally easy to install. This release (19.3) is guaranteed to be supported to 2023, so you don't need to worry about it being replaced in a month!

Happy Computing!

UPCOMING EVENTS

Breakfast at Jim's Grille in Cedarburg – Saturdays at 7:00 AM

Upcoming ORC Monthly Programs

February *- Bill W9MXQ, Video Presentation on R.L. Drake Company*

March *– Vic WT9Q, Selecting & Installing a Vertical Antenna*

April *- Gary W9XT, Soldering*

Presenters Needed!

de Pat Volkmann, W9JI

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.

Sterling-Rock Falls Hamfest – Sun., March 8th, 7:30 AM

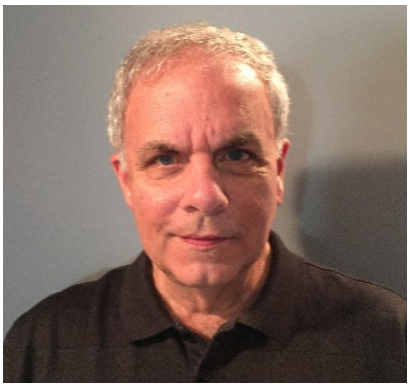
Rock Falls Community Center
601 W. 10th Street, Rock Falls, IL

Tri-County HAMFEST 2020 – Sun., March 15th, 8:00 AM

Jefferson County Fair Activity Center
503 N. Jackson Ave., Jefferson, WI

Vintage Amateur Radio

de Bill Shadid, W9MXQ



This article continues the presentation of popular, and not so popular, 811 and 811A Triode Amplifiers. In this installment we find some could amplify in Class C for more efficiency in CW operation.

The amplifiers in this article all make use of the 811A Triode. The first installment noted improvements over the original 811 Triode with respect to plate dissipation. That is, 50 watts for the 811 compared to 65 watts for the 811A.

The products shown here were primarily from the 1950's with manufacturing extending into the mid-1960's and one other one that reached to 1974. All the amplifiers here can be found today, still operating in many cases with modern transmitters and transceivers. Major differences comparing all amplifiers in this article to modern versions would include their ability to work with exciters of today that require low current transmit/receive switching.[1]

The amplifiers in this grouping include models from the major players in the post WWII era. To be sure, others were making amplifiers but with different tubes. We will talk here about Hallicrafters, E. F. Johnson, Gonset, Collins, and Heathkit. The Heathkit amplifier here was part of a series on Heathkit amplifiers but is included again because of its use of the 811A in this model. The same goes for the Collins entry in this article.

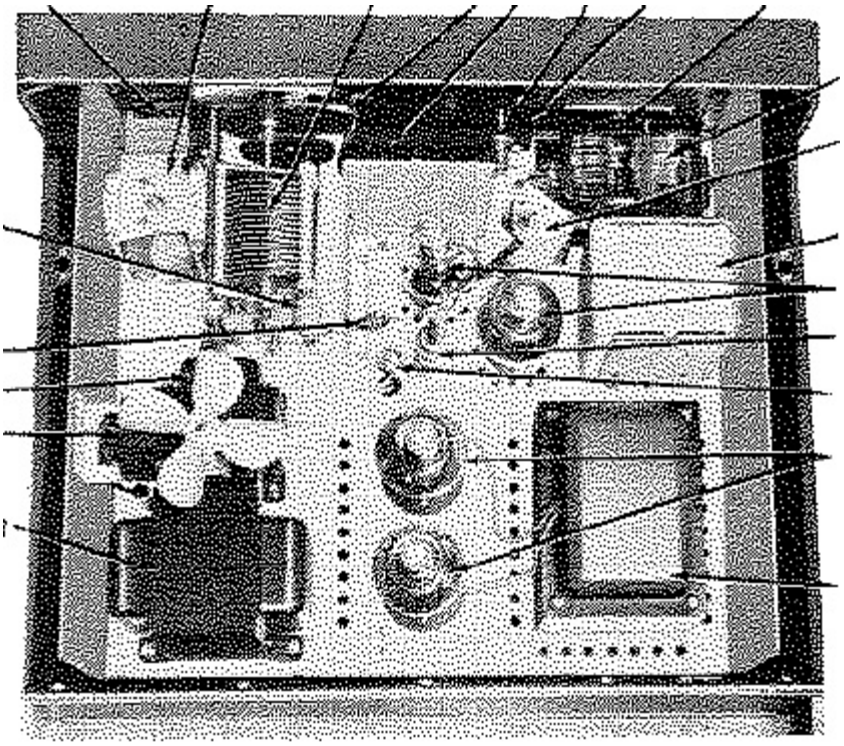
First of this group will be the Hallicrafters HT-31 Linear Amplifier. Hallicrafters made this medium power amplifier from 1955 through 1966.

Hallicrafters HT-31 Linear Amplifier
(Hallicrafters HT-31 Mark I
Operating and Service Manual)

This picture does not do this monster credit. It has rather large desktop dimensions of 20" across the front, 12-1/4" tall, and 17-1/4" deep. It weighed in at 92 pounds. This with two 811A

Triode amplifier tubes running an input power of 510 watts, maximum. Output power on SSB could be expected to be about 330 watts PEP with somewhat less on CW.

There were other technical features of the HT-31 that were important. Those included a very robust power supply more than capable of keeping the HT-31 running continuously for hours on end. The power supply was a full-wave rectifier using two 866A Mercury Vapor Rectifiers. These 866A tubes and the two 811A finals were the entire tube compliment of the radio. The HT-31 used a continuously tuned inductor in its tank circuit that allowed continuous tuning from 3.5 to 30 MHz. That said, an HT-31 would work well on today's 80-10 meter bands, including the 60, 30, 17, and 12-meter bands (only where their power output would be legal). Here is an inside view of the HT-31 – with the front panel at the top of the picture. Due to resolution considerations you can see the callout lines but not the component descriptions form this HT-31 Operating and Service Manual picture:



Hallicrafters HT-31 Linear Amplifier (Interior View)
See 866A Rectifiers at bottom center with 811A Finals just above. The rather minimal cooling was provided by the small fan mounted over the power supply choke at the lower left. The tank circuit rotary inductor is visible just over the top from the fan. For the record, that fan is the limiting factor in power – not the tubes or power supply.
(Hallicrafters HT-31 Mark I Operating and Service Manual)

The HT-31 required very low drive to attain its specification 510 watts input power. That input power ranged from 8.5 watts on 80-meters up to 25 watts at the high end of 10-meters.

The HT-31 was designed as a stable mate to the first Hallicrafters tabletop SSB Exciter/Transmitter, the HT-30. Check for my article on the Hallicrafters HT-30 for more details of the HT-31's initial pairing with the HT-30 Exciter and the SX-100 Receiver. Very early stations in this installation used the SX-96 Receiver – a fine radio for its time but not up to the capabilities of SSB provided by the SX-100.

I have operated the HT-31 and even had one in my shack many years ago. As was, and is, typical of Hallicrafters, it was easy to use and operated without problems with a wide variety of antenna configurations and impedances. Hallicrafters noted that at 285 watts output, the HT-31 could provide the same "talk power" as a 1,000-watt AM transmitter[2].

The capable and stable HT-31 Linear Amplifier was marketed for several years after the removal of the HT-30 from the market. In those days it was not as important to the average ham to have all the pieces of his station from the same manufacturer. So, that noted, the HT-31 sold well as an amplifier to work well with the low powered SSB Exciters of the day, such as the Central Electronics 10A, 10B, and 20A, the Lakeshore II, II-A, and II-B, and the Eldico SSB Jr and SSB-50 – as well as others lost, for now, to history. Comments in this paragraph apply to other 811A amplifiers in this era as well,.

Here is an interesting adaptation of the Hallicrafters HT-31 Amplifier, HT-30 Exciter, and SX-100 Receiver. Hallicrafters marketed this package for a very short time (only a few exist) under the model name SR-500. This is not to be confused with the later marketed SR-500 SSB/CW Transceiver.

This is the Hallicrafters SR-500 Console. Note top left is the HT-30 Exciter. Top right is the SX-100 Receiver. Right below the HT-30 and a control panel is the HT-31 Amplifier. Note also the work shelf with the microphone. Behind screens are speakers that are not correct for the period.

Sitting to the right of the console is a Collins KWS-1 sitting atop its power supply console.

(Property of N9CQX)

The Johnson Courier came on the market about two years after the Hallicrafters HT-31 and seemed to one up the Hallicrafters with similar features in a smaller, lighter package. The Courier is the same size (perhaps even same cabinet) as the very popular and desirable Johnson Ranger Transmitter. The desktop, completely self-contained Courier was 15" wide by 9" high by 11-5/16" deep. It weighed a modest 58 pounds – hardly approaching the 92-pound HT-31. Power capability of the Courier is as follows:

Mode	Plate Power Input
CW (Class C or Class B)	500 watts
AM Linear (Class B)	200 watts
SSB / DSB (Class B)	500 watts (PEP)

You will note that I hesitated to call the Courier a "Linear" Amplifier because it can operate Class C on CW. Class C can be 75% efficient and provide 375 watts output on CW whereas operating Class B would be more like 250 watt, or about 50% efficiency (perhaps as much as 60%).
In this group of amplifiers, two are my favorites for desktop appearance and ability to efficiently do its work. One of them is the E. F. Johnson Courier Amplifier:

E. F Johnson Courier Amplifier
(E. F. Johnson 1961 Amateur Radio Catalog)

The large vertical readout panel just to the left of center (left of the large plate tuning inductor knob) indicates one of this amplifier's features – it tunes continuously from 3.5 to 30 MHz. Like the Hallicrafters HT-31, the Courier would work well on today's 80-10 meter bands, including the 60, 30, 17, and 12-meter bands (only where their power output would be legal). On the 3.5 MHz band, the antenna loading is wide range from 18 to 600 ohms, unbalanced. On 7 MHz and above the matching can deal with as much as 20 to 2,000 ohms, unbalanced. Those are aggressive numbers – but Johnson gear was known for being widely adaptive to antenna loads.

The Courier has four tubes – the two 811A Triode amplifiers plus two 866A Mercury Vapor Rectifiers that were used as full wave rectifiers in the high voltage power supply. The grid driven finals required 5 to 35 watts of drive, depending on frequency and mode.

This amplifier has many memories for me. When I decided to purchase a Johnson Valiant for my first transmitter, in 1964, I had carefully studied a setup of the Ranger and Courier as an alternative for a lot of reasons – not the least of which the desire to see the beautiful Courier on my desk. In the end, however, the Valiant won out. But as AM faded over the next few years it might have been nice to have had the Courier to use with an SSB Exciter.

For reference, here is the Johnson Courier next to its logical partner, the Johnson Ranger:

Johnson Viking Ranger

Johnson Viking Courier

(E.F. Johnson 1957 Catalog)

Faust Gonsset, W6DIZ, was one of the most prolific designers and manufacturers in the United States. Many stations in the 50's and 60's had a Gonset Communicator. Those VHF and UHF

AM radios were the main stay of emergency communications in those days. But, while Gonset was rich in VHF and UHF product offerings, they also played in the HF world as well.

Gonset designed, produced, and marketed two 811A Linear Amplifiers from 1958 to 1961 (GSB-101) and from 1961-1968 (GSB-201), from 1968-1969 (GSB-201 Mark II).

Gonset HF Linear Amplifiers
GSB-101 Linear Amplifier GSB-201 Linear Amplifier
(Gonset Product Literature)

The GSB-101 Linear Amplifier used four 811A Triodes in a grounded-grid driven circuit. This is a departure from the grid driven 811A pairs we have seen in this article. The drive could be 80 to 100 watts. Too much drive here would drive the 811A's into distortion so best to stay under 100 watts. These amplifiers used two 866A Mercury Vapor Rectifiers in a full wave circuit.

The GSB-101 is big and heavy – there is no getting beyond that. It is 19-3/4" wide by 11" high x 14-5/8" deep. Estimated weight is 95 pounds.

Gonset GSB-101 Linear Amplifier Performance Specifications		
Mode	**Input**	**Output**
PEP SSB	1,200	800
CW	900	700
AM	400	160

I had a GSB-101 for several years in the mid-1960's. It is well made and effective but is unforgiving in tuning and a bit cantankerous as it approaches its impedance tuning range. This may be unfair of me to conclude considering my antennas of the time. Chances are that one of these found in good condition would run nearly forever.

My experience with the GSB-101 and with its mate, the Gonset GSB-100 SSB/CW/AM Exciter/Transmitter dates from the 1960's[3].

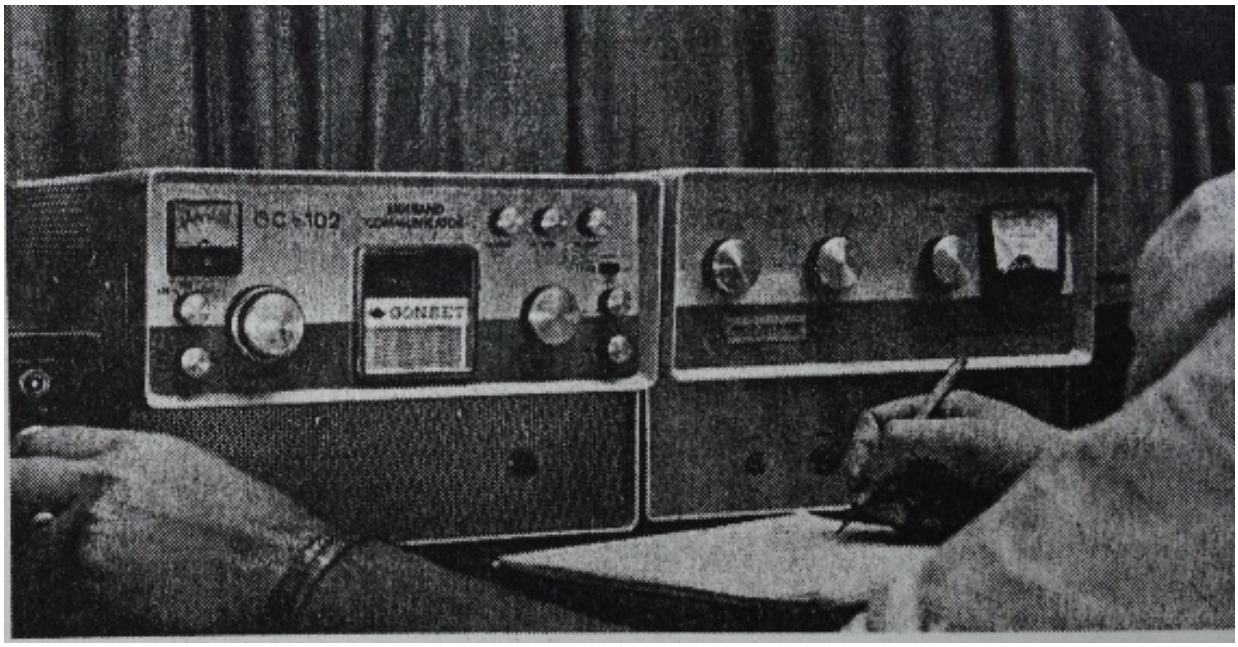
Here are the Gonset GSB-100 Exciter and GSB-101 Linear Amplifier.

Very similar in electronic design but distinctly different physically is the GSB-201 Linear Amplifier. It is an upgraded GSB-101 and, as such, performed similarly. However, note addition of RTTY in the specifications. An improved power supply was key. The GSB-201 and GSB-201-Mark II used four 811A finals but used a solid-state full wave bridge rectifier.

Gonset GSB-201 Linear Amplifier Performance Specifications		
Mode	**Input**	**Output**
PEP SSB	1,500	1,000
CW	1,000	675
AM	400	160
RTTY	750	400

As noted above, the GSB-201 physically different at 12-5/8" wide by 8-1/2" high by 17-5/16" deep. It weighs 81 pounds.

The GSB-201 was restyled to match Gonset's new HF SSB Transceiver, the GC-102 Communicator[3]. It was never produced in high volume (but, they occasionally appear at a hamfest). Given Gonset's success in the previous G-76 AM/CW Transceiver[3], it seems a shame that Gonset was unsuccessful in replacing it with the GC-102. Here is how the GC-102 / GSB-201 pair appeared at the market release of the GC-102:



Gonset GC-102 HF SSB/CW Transceiver & GSB-201 HF Linear Amplifier
(Gonset Sale Literature)

The GC-102 used a bolt-on power supply that fit under the radio and became a desktop riser. Now you can see the styling concept extended to the GSB-201 Linear Amplifier, which was one complete and open cabinet, inside, to accommodate the vertically mounted, tall, 811A tubes.

I must add here that the GSB-201 went onward in models to the Mark III and Mark IV models. Those were more powerful by virtue of their use of the 572B/T160L Triodes. Those triodes, based on the 811A, have a plate dissipation of 160 watts – more than double the 65 watts in the 811A. Also, in closing, did you notice in here that Gonset did not use the same spelling as the man's name (Gonset Company vs Faust Gonsett).

Our next 811A amplifier was covered in a previous installment documenting the many amplifiers designed and marketed by Heathkit. In this case, we have the Heathkit HA-10 Warrior Linear Amplifier. It shows a lot of resemblance to the mechanical and electrical design of the Gonset GSB-101. Check these numbers and compare with the GSB-101.

The HA-10 Warrior is a large and heavy. It is 19-1/2” wide by 11-5/8” high by 16” deep and weighs a table-groaning 90 pounds.

The HA-10 uses a grounded grid configuration with its four 811A tubes. Like other amplifiers of its vintage and power level, it uses a pair of 866A Rectifier tubes in a full wave rectifier circuit. Drive level for its operation on the 80-10 meter bands is 80-100 watts. More drive is detrimental to signal quality.

This is the Heathkit HA-10 Warrior information:

Heathkit HA-10 Warrior Linear Amplifier Performance Specifications		
Mode	**Input**	**Output**
PEP SSB	1,000	600
CW	1,000	600
AM	400	160
RTTY	650	300

Here you can see the physical appearance of the Heathkit HA-10 Warrior.

Heathkit HA-10 Warrior Linear Amplifier
(Heathkit Sales Literature)

In closing on the Heathkit HA-10 Warrior, here it is with to its partners from Heathkit, the HX-10 Marauder SSB/AM/CW Transmitter[3] and the RX-1 Mohawk SSB/AM/CW Receiver[3]:

The Heathkit Indians – as they were known back in the day

Heathkit HA-10 Warrior Amplifier	**Heathkit RX-1 Mohawk Receiver**	**Heathkit HX-10 Marauder Transmitter**

You may note two things that collectors notice about this trio . . .

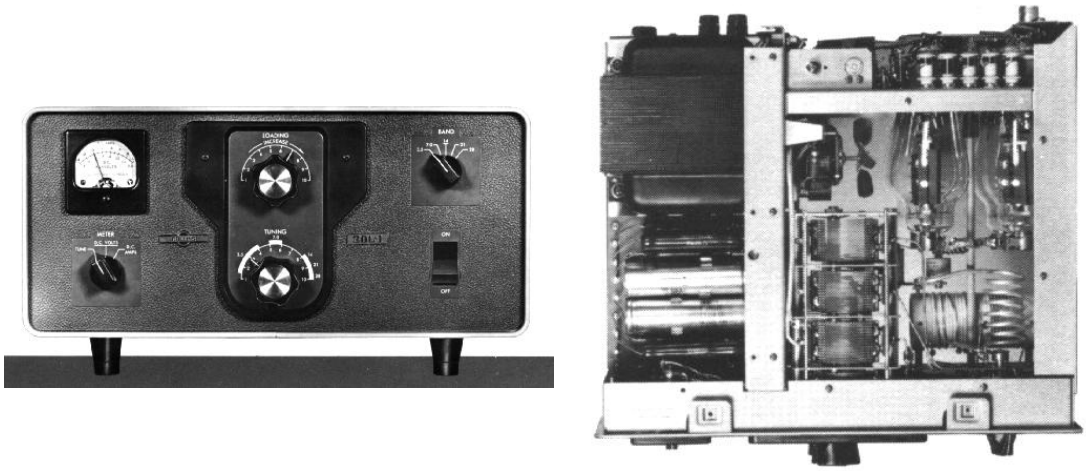
1. The colors don’t match. While colors can vary it is also well known that color control on the green Heathkits – up to and including the SB-series – was terrible.
2. Sharp eye will notice that the HA-10 Warrior and the HX-10 Marauder were made after Heathkit’s corporate acquisition by Daystrom Company and the move to show that rela-

tionship on the products. Note the Black and Red Heathkit-Daystrom Logo on the HA-10 Amplifier and HX-10 Transmitter. The RX-10 Receiver here was branded strictly Heathkit. The truth is that all these products were under Daystrom ownership.

The final model in this article, the Collins 30L-1, is certainly my favorite for function, appearance, and all-around performance. As my readers know, I have and use many pieces of equipment. For Amplifiers, I have Drake, Collins, Hallicrafters, Heathkit, National, and Ameritron models. The Collins 30L-1 is a standout – while freely admitting that the automatic tuning and band switching Ameritron ALS-1300 is the most often used! The very fact that it is totally lacking in need for any human attention or interface is a negative for this hardware geek.

The Collins 30L-1 was introduced shortly after its partners, the Collins S-Line Receivers, Transmitters, and Amplifiers in 1961. The 30S-1 Linear Amplifier, a large, floor mounted unit, was introduced first, 1959, along with the Receivers and Transmitters.

Here is the classic 30L-1 Linear Amplifier:



Collins 30L-1 Linear Amplifier
Front View **Top View (front at bottom)**
(Top RF Shield is removed)
(WA3SAY Photos)

The 30L-1 has four 811A Triodes that can be seen at the right center of the Top View. These are mounted two over two – so you only see the top two in this picture. The fan assembly is upper center and blows air across the tubes for what has historically been effective cooling in this amplifier.

Remember from past coverage of this amplifier that it uses horizontally mounted 811A Triodes. Those require sourcing with horizontal mounting in mind when the tubes were manufactured[4].

Here are some performance numbers on the 30L-1:

Collins 30L-1 Linear Amplifier Performance Specifications		
Mode	**Input**	**Output**[5]
PEP SSB	1,000	600
CW	1,000	600

The Collins 30L-1 uses grounded grid RF input design and thus needs about 80-100 watts of RF drive from the exciter. Unlike all the others in this group, however, 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 true of 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 30L-1 works continuously from 3.5 to 30 MHz in five ranges. One caveat on this statement is that the ranges set on the input coils mentioned are set for the 80, 40, 20, 15, and 10-meter bands. Using the amplifier on 17 and 12 meters, for instance, may require adjustment of the appropriate input tank coil (15-meter coil for 17-meters and 10-meter coil for 12-meters). This has not been my experience, however, on my 30L-1 being driven a set of Drake C-Line Twins (R-4C and T-4CX) on both 17 and 12 meters.

Here are a couple of 30L-1 installations at W9MXQ:

Collins 32S-3 and 75S-3B with 30L-1 (W9MXQ)

Cubic Astro 103 with Collins 30L-1 (W9MXQ)

How many of you run a new, or an old, or recent, 811A Amplifier? I guess it counts if you just have one on the shelf – but radios on the shelf that are not working are the sign of perhaps another kind of article. Let me know about your 811A amplifiers. This article brought back a lot of memories of past projects. I have built ("homebrewed") three 811A amplifiers over time. One was converted to 572B[6] Triodes but lives on – in use to this day at a ham station on Ohio.

Mentioned early in this article is the reference to needing to switch the high current transmit/receive relay and/or cut-off bias circuitry in these amplifiers[1]. I cannot emphasize this enough – you ***WILL*** damage your modern exciter by not heeding the warning here and in reference 1, at the end of this article. See Comments and Credits.

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] All the amplifiers in this article required high current at high voltages to switch between transmit and receive. That was no problem for transmitters and transceivers of that same era. Modern exciters, however, can only accommodate low voltages at very low current. 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 for this purpose. See http://www.ameritron.com/Product.php?productid=ARB-704 for details. 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.

[2] Hallicrafters HT-31 Mark I Operating and Service Manual, page 2, *"GENERAL DESCRIPTION."*

[3] Subject of a future article.
[4] The proper 811A tubes for horizontal mounting are available from RF Parts. You can access them at their website, https://www.rfparts.com/. It is best to call their phone number (shown on the website) and talk to them in person. It is not a given that all the 811A tubes shown are acceptable for this use. This concern does not apply to other amplifiers in this article.
[5] Collins rated the 30L-1 for continuous voice modulation – no off cycle – on SSB. On CW, however, they note in the 30L-1 Instruction Book, "50-percent duty cycle (continuous key-down conditions not to exceed 30 seconds duration)." None of the other amplifiers provide duty cycle ratings. For explanation, the Collins 30L-1 was sold to the US Military and to the US Department of State. Embassies often had Collins S-Line stations for back-up communications. The US Department of State used Collins S-Line, Drake C-Line, and Radio Engineering Labs (REL / Reliant / Eldico) clones[3] of the Collins S-Line at any given time.
[6] The 572B Triode – also referenced as a T-160L or the 572B/T160L is an updated version of the 811A with a carbon anode allowing up to 160 watts of plate dissipation compared to 65 watts with the 811A. While there are some minor electrical differences, the 572B is essentially a plug-in replacement for the 811A.

W9MXQ

Ozaukee Radio Club
January 8, 2019 Meeting Minutes

de Ben Evans K9UZ

President Kevin Steers (K9VIN) called the meeting to order at 7:31 PM. All the attendees introduced themselves.

Announcements, Show-and-Tell, Bragging Rights:
Jim (K9QLP): Regrets to report that former long-time member Ron Yokes (W9BCK) passed away this morning. His son Randy called this afternoon and said Ron had a pretty rough week. He did have a good Christmas with his family. In December, Ron donated a tube from Channel 6's early days of color television which Ed Rate (AA9W) is in possession of now. He had a productive career with RCA, selling TV antennas, transmitters and studio equipment. Ron goes way back in ham radio and is one of the founding members of the ORC and helped get it organized.

Tom T. (KC9ONY): The Armstrong family (six of them) went to HRO to take tests, some for the first time and others to upgrade, and all of them passed.

Elections for 2020 Officers:
Nominations Chair Ken (W9GA) conducted the officer elections, which was in place of a program.

The following members were running unopposed for the offices specified:

President – Pat Volkmann (W9JI)
First Vice President – Ben Evans (K9UZ)
Second Vice President – Bill Church (KD9DRQ)
Repeater Vice President – Tom Trethewey (KC9ONY)
Secretary – Ken Boston (W9GA)
Treasurer – Gary Bargholz (N9UUR)

Mike Harrington (KD9GCN) had agreed to become Treasurer while still holding the position of Trustee, until it was realized that the by-laws prohibited anyone from holding two offices at the same time, so Gary (N9UUR) stepped up to run for Treasurer.

There were no additional nominations from the floor. Stan (WB9RQR) moved to close the nominations, which was seconded and passed. Jim (K9QLP) moved that the secretary cast a unanimous ballot for the slate of nominees as read by Ken, which was seconded and passed unanimously.

Ken pointed out that at the next meeting in February, there will be elections for Ham of the Year and Turkey of the Year for 2019. Ham of the Year may be awarded to a member more than once, but not so for Turkey of the Year. Ham of the Year is a member of the club who has exhibited leadership skills and has been helpful to others. Turkey of the Year is someone who has provided "comic relief" during the past year. Ken urged members to think about who they'd like to vote for as Ham and Turkey of the Year. Ballots will be handed out at the February meeting for the awards which will include lists of past recipients. There are many other awards that members can vote on, particularly the presenter of the Best Program of the Year and Operator of the Year.

Auction:
Stan (WB9RQR) conducted the auction. Many items were sold, including two bag of 12V fans, a toroidal transformer, Altec Lansing speakers, a bag of toroids, a Linux-loaded desktop computer, DVR equipment, antique WWI headphones, and a painting by Julia (KB9WBQ) of a past ORC field day and depicting Bob Truscott (W9LO-SK) (which will be featured in an upcoming QST magazine issue).

Officer Reports:
Kevin S. (K9VIN) President – No update.

Pat V. (W9JI), 1st VP – No report.

Bill C. (KD9DRQ), 2nd VP – No report.

Tom T. (KC9ONY), Repeater VP – Was authorized to look for a new amplifier for the 2-meter repeater. Researched a couple brands, one is TPL which has evidently gone out of business. Also looked at Crescend in Schaumburg, Illinois. The list price for the Crescend150-watt amp is $2,200, but could be purchased wholesale for $1,600. Tom recommended to the members that the club buy this amp. Jim (K9QLP) moved to recommend the purchase of this particular amp to the board for consideration, which was seconded by Jeananne (N9VSV) and approved by the members.

Ben E. (K9UZ), Secretary – The link to the minutes from December's meeting was emailed to the members. Motion to accept the minutes was made by Stan (WB9RQR), seconded by Bill C. (KD9DRQ) and passed. The newsletter will be available in the coming weekend.

Robert E. (K4WTH), Treasurer – Robert passed out the treasurer's reports for December and a proposed budget for 2020-21. Funds in Educators Credit Union totalled $38,037.15 and the amount in Cornerstone Bank was $17,782.61. If you haven't paid your dues yet for 2020, please do so. You can pay by PayPal, cash or check, or credit card renewals can be taken at tonight's meeting. Anyone who paid with PayPal as of 3:00 PM today is considered a member in good standing. Stan (WB9RQR) questioned what the PayPal purchase errors noted in the report was about. Robert said there were PayPal purchases that were charged to the wrong account, so he reimbursed the total amount of the purchases to the wrongly charged account from the account that was meant to be used for the purchases. Motion to accept the treasurer's report was made by Ken (W9GA), seconded by Jeananne (N9VSV) and approved by the members. Regarding the proposed budget, Robert made the following points: 1) A monthly expenditure was created based on past records under former treasurers Nels (WA9JOB) and Dave Barrow (N9UNR), the last half of 2018 and the full 2019 year. 2) The yearly expenditure for the repeater averages $1,000 or more. There is a contingency fund for

future maintenance of the repeater for annual amounts exceeding $1,000. 3) There are expense line items for the major events such as Spring Swapfest, Field Day and Fall Swapfest.

Stan (WB9RQR) asked when the account signatures will be switched over. Kevin (K9VIN) responded that he'll work with the new Board to get people to the bank and change the names. Robert will work with Gary (N9UUR) to get him up to speed with what needs to be done.

Committee Reports:
There were no committee reports.

Old Business:
There was no old business.

New Business:
Tom (KC9ONY): We need a new chairman for the Spring Swapfest immediately. Tom is considering taking on the job himself, but will only do so if no one else will. The date of the Swapfest is usually the first Saturday in May, this year being May 2nd. Ken (W9GA) questioned whether Loren (N9ENR) could come back and run the swapfest again or at least help out, but Kevin (K9VIN) suggested that all Loren is willing to do, after years of running the swapfest, is pass out flyers at other swapfests and take a few orders for tickets and tables, which he has been doing since he stepped down as chairman. Question by Kevin: Do we have a reservation for that date at the Curling Center? Ben (K9UZ): They usually keep that date open for us every year. Ben will contact Mary at Ozaukee County and inquire.

Adjournment:
A motion to adjourn the meeting was made by Stan (WB9RQR), seconded and passed. The meeting was adjourned at 8:33 PM.

Attendance:
There were 31 members and 6 guests present at the meeting.

A copy of the attendance sheet is available upon request in PDF format. Please contact Ben Evans via email at ben@evansengsolutions.com for a copy.

Respectfully submitted,

B. Benjamin Evans, K9UZ
Former Secretary

ORC Meeting Agenda

February 12, 2019

1. 7:00 – 7:30 PM – Network & Rag Chew
2. Call to Order – President Pat Volkmann (W9JI)
3. Introductions
4. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
5. Program: Bill Shadid W9MXQ, Video Presentation on R.L. Drake Company
6. Fellowship Break
7. 50/50 Drawing
8. Auction – Stan Kaplan (WB9RQR)
9. President's Update – Pat Volkmann (W9JI)
10. 1st VP Report – Ben Evans (K9UZ)
11. 2nd VP Report – Bill Church (KD9DRQ)
12. Repeater VP Report – Tom Trethewey (KC9ONY)
13. Secretary's Report – Ken Boston (W9GA)
14. Treasurer's Report – Robert Eskola (K4WTH)
15. Committee Reports
16. OLD BUSINESS
17. NEW BUSINESS
18. Adjournment to ?

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting:

Grafton Multipurpose Senior Center

1665 7th Avenue, Grafton, WI
Wednesday, February 12th, 2019

7:00 PM – Doors Open

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 XXXII	March, 2020	Number 3

From the President

de Pat Volkmann, W9JI

Several months ago, I got a couple of old radios from a club member. The radios, a Collins 75A-4 and Collins KWS-1, are known as the "Gold Dust Twins". The KWS-1 is a pretty powerful transmitter running at about 1 kW input power. This high power radio needs 240 volt power to work properly. I didn't have a 240 volt line in the shack so one had to be installed. As you can imagine, this caused some disruption as tables and radios had to be moved out of the way to run the new circuit. All is finally done and the Gold Dust Twins are on the air again. I'm hoping to use them in the upcoming Wisconsin QSO Party on March 15th.

We will be talking about Awards again this month. You will have another opportunity to recognize the contributions of your fellow club members through nominating them for an award. The Club Bylaws on the website list 15 different awards. Take a look at the list and think of who deserves some recognition.

The Repeater Committee will be looking for your input to help set the future direction of the ORC repeater. Mike Harrington KD9GCN is chairing the committee. Please contact Mike if you are interested in helping out or have some suggestions on the repeater.

In February, Tom KC9ONY and I attended a meeting of south eastern Wisconsin ham clubs. This group meets occasionally to discuss issues facing local clubs and to come up with ideas for promoting ham radio. One activity that came out of this meeting was to collect some basic information from each club, such as when and where meetings are held and what is the purpose of the club. This information would then be published on a website so that people looking to join a club could more easily find a group that matched their interests. I think that this is a worthwhile project that could help spur membership. If you would be interested in participating, contact me or Tom.

We are still looking for someone to take over the job of Club Historian. Please contact me if you are interested.

See you at the meeting.

Pat Volkmann W9JI email:w9ji@arrl.net

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

The first thing on the list for March is the Wisconsin QSO Party. Hopefully, you will receive the newsletter in time for this to remind you. It starts at 1:00 PM (local) Sunday, March 15. Check out last month's newsletter for tips on operating. The rules are somewhat complex, so read them before the contest. The rules are at http://www.warac.org/wqp/wqp.htm

Remember, you can make contacts regardless of your station, even 2 meter FM simplex contacts count. Every QSO helps! Be sure to get your logs submitted by March 29 and be sure the Ozaukee Radio Club (spell it out, don't abbreviate) is listed as the club. Let's get a big effort out and win the club competition for the ORC!

Other than the ARRL DX Phone Contest, which was covered last month and will be over by the time you read this, the other big contest is the CQ WPX Phone contest. It starts at 0000 UTC March 28 (7:00 PM Friday, March 27 local) and runs for 48 hours, but you can only operate 36 hours. The exchange is the signal report and a serial number.

QSO points vary depending on where the other station is located and what band the contact is made on. As a hint, a European contact on 40 meters is worth a lot more than a 20 meter contact to Kansas. Check the rules or just let your logging program figure it out for you.

The multipliers are the call sign prefix. W9, WA9, WB9, K9, KA9, N9, etc., are all multipliers. If you have a call like WT9Q, you will probably be a lot more popular than W9XT or K9DJT. Don't spend a lot of time trying to work a rare prefix. A KD6 will probably be a lot easier to work than a 9Q1 and worth just as much for multiplier value.

Rules are at https://cqwpx.com/rules.htm

The end of March pretty much finishes the spring contest season. There are, of course, a lot of smaller contests and state QSO parties, with something nearly every weekend.

There are some interesting DXpeditions in March and early April. Zambia should be on the air by the time you read this. 9J2LA will be on until March 15 by a large international group. They will try 160-6M, CW, SSB, and FT8.

A real brief one will be the St. Peter & Paul Islands off the coast of Brazil. They will be on as PQ0S March 14-16. This one is pretty rare because operations are infrequent and are usually short. No bands are mentioned, but we should have pretty good conditions on the southeastern propagation path on most bands. This is an IOTA (Islands on the Air) operation, so I would check 20 SSB first.

Reunion Island in the Indian Ocean will be on until March 22. TO7DL will be on 160-10M CW, SSB, and digital. The German group came on the air March 4 and had a big 80M CW signal around 6:00 PM local.

A group of Russian hams will activate Kyrgystan until March 17. The call is EX0QR. Again 160-10M, CW, SSB, and digital. This one is pretty rare. There is not a lot of activity, and it is a somewhat difficult path. Work them if you hear them.

In case you missed TU5PCT in February, you have another shot at the Ivory Coast. TU2R will be on from March 23-April 3. The Belgian group will be on 160-10M CW, SSB, and digital.

There are, as always, small single-person operations to various parts of the world. They have varying amounts of activity, depending on the time available and the motivation of the operator. Often they are part of a business trip or vacation, and operating occurs outside of other scheduled events. Operating bands and times are often during periods where we don't have propagation, and one reason I don't usually list them. Just keep an eye out for them.

Finally, don't forget the Wisconsin QSO Party on March 15! We can win this!

Operating Event Scheduling Tip

Pat Volkmann W9JI

I participate in a number of operating events and sprints that recur every month. Event organizers usually state the time and date in Coordinated Universal Time (UTC) so that everyone will know when the event starts, regardless of your time zone. This, of course, requires that you convert UTC to your local time and date. I'll tell you about a way to do the conversion using a calendar app that you may not be aware of.

Why UTC and not CUT? This is one of those things that the international standards groups worked out some time ago. The abbreviation is a compromise between English and French. Coordinated Universal Time in English would be abbreviated CUT. The French equivalent, Temps Universel Coordonné, would normally be abbreviated TUC. The International Telecommunication Union and the International Astronomical Union designated one single abbreviation for use in all languages. The name Coordinated Universal Time and abbreviation UTC were adopted in 1967.

I use Google Calendar to keep track of my ham events. Google Calendar has the ability to schedule events in any time zone, which allows the selection of either Coordinated Universal Time or Greenwich Mean Time. Both represent the same time, UTC ± 00:00. The difference is that Greenwich Mean Time is a time zone (like Central Daylight Time or CDT) and Coordinated Universal Time is a time standard. UTC is not adjusted for Daylight Savings Time.

When creating a calendar entry for a contest, I select Coordinated Universal Time (or Greenwich Mean Time) as the time zone, enter the date and time and then have the event show up in my calendar at the correct local date and time. I checked Microsoft Outlook, Apple Calendar and several others - all of these calendar apps have the ability to create entries in any time zone and display the event date and time in local time.

Here's an example. The Straight Key Century Club has a monthly sprint which occurs on the 4th Wednesday of the month from 00:00 UTC to 02:00 UTC. I create a new event and select Coordinated Universal Time as the time zone and set the event to repeat monthly. I enter the time and date and save the event. The contest is now shown on my calendar starting at 7 P.M. on Tuesday March 24th and ending two hours later at 9 P.M. No need for any time zone conversion or Daylight Savings Time adjustment.

Onetime events work the same way. Once an event is scheduled in UTC or GMT, it is displayed at the correct local time with no need to adjust for Daylight Saving Time.

Use of this calendar scheduling feature makes it easier for me to get the times correct, especially for recurring events.

THE COMPUTER CORNER
No. 264: Windows 10 Licenses

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

Licenses for Windows can be confusing and hard to understand. This may help clarify it for you; I know it helped clarify it for me as I was researching this article. My sources are Win10 Forums and even some source documents that I had lying around with unknown origins. Poor documentation, Stan, when you don't write down your sources! Anyway, there are 3 types:

1. VOLUME: Whoever placed Windows 10 on the computer purchased a Volume Licensing Agreement from Microsoft. The license key (which was used to initially activate the copy) is not for resale, and may not be transferred with the computer if it is sold or otherwise changes ownership. This type of licensing typically is used with business, educational and governmental institutions. If you are the boss and got a Volume License Key (VLK) with the software, it typically allows that single product key to be used for multiple installations (bulk installation).

Just as an interesting side bit, I routinely used an XP disk some years ago that would install and activate on any Dell computer, because of a volume licensing agreement between Dell and Microsoft. However, it would not activate with any other brand of computer, just those manufactured by Dell.

2. OEM: This product key is issued by the **O**riginal **E**quipment **M**anufacturer. These keys are not for resale and can't be transferred to another computer. However, the key may be transferred with the computer if the computer is sold. Often this key is embedded in the UEFI firmware chip by the manufacturer, so it comes right with your computer when you buy it.

An (important) side issue: What the heck is UEFI? Well, do you remember the BIOS (**B**asic **I**nput/**O**utput **S**ystem)? As of 2020, newly built computers no longer have a BIOS chip. The BIOS chip has been replaced and (expanded) by the new **U**nified **E**xtended **F**irmware **I**nterface chip. Just a couple of examples of the benefits of these new chips: they allow faster booting than the old BIOS, and they use new schemes that permit the use of larger hard drives. This is a topic for expansion in a future article.

3. RETAIL: Probably the most desirable of the three types, this is what you get when you buy a boxed copy of Win10 from a retail or online store. In the current world, you can even buy a copy of the license key and download it, then download a copy of the software. No box needed. The product key may be transferred to another computer. So, for example, you buy a boxed copy of Win10 from your local bookstore and install it on your older Dell laptop. If the laptop later dies and you purchase a Win 7 desktop from a friend to replace the laptop, you can use your Win10 DVD to install Win10 on the desktop computer. Most important, you can use the product key to activate that copy of Win10.

Why did I research this topic? I was tasked with setting up a Windows 10 Professional laptop for the ORC, to use during meetings to interface with our display projector. Therefore, I had to get a copy of Windows 10 Professional 64-bit, which I did at a cost of $36 (after a 10% off coupon), after deciding which of the three types we should pay for. I selected RETAIL, so that if the laptop dies, we can replace it and use the DVD I created to install and register Win10 on a new machine without paying another fee.

Want to see what kind of license your copy of Windows is? At a Command Prompt, type "slmgr -dll" (without the quotes). Give it a few seconds to respond.

Happy Computing!

UPCOMING EVENTS

Breakfast at Jim's Grille in Cedarburg – Saturdays at 7:00 AM

ORC Monthly Programs

March *– Vic WT9Q, Selecting & Installing a Vertical Antenna*

April *- Gary W9XT, Soldering*

Home Brew Night

Last year at the August meeting we had our first Home Brew night. Members brought in examples or pictures of project that had worked on. It was a lot of fun seeing what everybody had been up to. We will be doing the same thing again this August. If you would like to share your project, send me some information on what you have done. It can be a PowerPoint presentation (3 slides max!), some pictures or bring it in and show it off. You still have plenty of time to work on something.

Virtual Shack Tour

I would like to try a Virtual Shack Tour this year at the September. The format would be simple – take a couple of pictures of your shack and talk about it for a few minutes. As we get closer to September I'll provide some more guidelines for format, what information to share and how much time to allow. I'd be interested in hearing from you before then to see how many people would be interested in talking about their shack.

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.-Pat, W9JI

Tri-County HAMFEST 2020 – Sun., March 15th, 8:00 AM

Jefferson County Fair Activity Center
503 N. Jackson Ave., Jefferson, WI

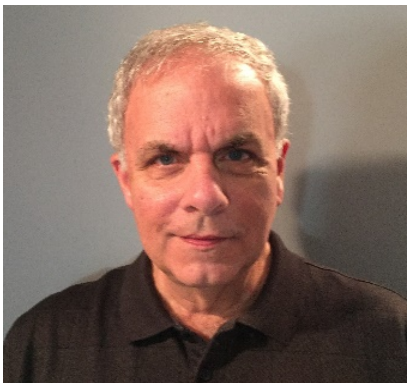
MRAC/MAARS Swapfest – Sat., April 4th, 8:00 AM
Elks Lodge #46, 5555 W. Good Hope Road, Milwaukee

MARA (Madison) Hamfest – Sat., April 18th, 8:00 AM
Mandt Community Center, 400 Mandt Parkway, Stoughton WI

ORC Spring Swapfest – Sat., May 2nd, 8:00 AM
Columbia St. Mary's Center, Cedarburg

Vintage Amateur Radio

de Bill Shadid, W9MXQ



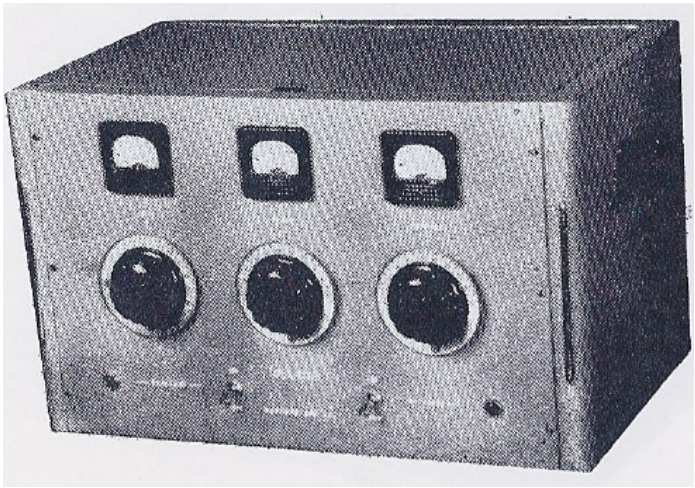
This article finishes the presentation of popular, and not so popular, 811 and 811A Triode Amplifiers. For this last installment it would be my opinion that the amplifiers included were not very popular in their day and are almost completely unknown today.

We have four products to discuss in this third group. They come from three manufacturers. In addition, I will briefly mention two other amateur radio products that used the 811 series tubes but not as Power Amplifiers.

We will see both 811 and 811A tubes used in products in this article. For reference, advertised plate dissipation of the 811A is 65 watts and the 811 is 50 watts.

The oldest of the Power Amplifiers in this group is from a company named Elenco, short for Electronic Engineering Company, of Wabash, Indiana. Elenco was an early player in the up and coming Single Sideband mode that grew rapidly in the 1950's. As far as I can tell, the Electronic Engineering Company (Elenco) talked about in this article is not related to the Elenco of today that sells electronic educational and test equipment.

While Elenco made numerous products in the mid-1950's, within that product line they made one linear amplifier that utilized 811A triodes. This was the Elenco PA-400.

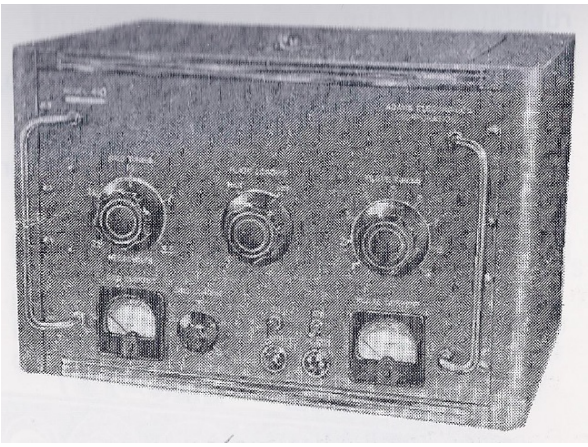


Elenco PA-400 Linear Amplifier
Moore[1]

The model PA-400, made in 1953 and 1954, utilized its two 811A tubes to produce an input power of 400 watts – as noted in its model number. The amplifier operated the two amplifier tubes in a push-pull circuit that required a very low drive at less than 8 watts. It utilized a swinging link tank circuit – as did several other transmitters of that day and even more so going back in time from the 1950's. It is regrettable that so little remains as to design details. Research did not come up with a tube compliment other than the two 811A's. It must be assumed, knowing that the plate voltage was 1,400 Volts, that rectifier tubes were part of the package. That is to say that in 1953 suitable solid-state devices for rectifying that voltage did not exist – at least not any priced for amateur radio use. This radio's information does not include band coverage but

exciters from Elenco at the same time focused on 80 meters only. It is safe to say that there is at least a good chance that was the coverage of the PA-400 as well.

Just a bit later than the Elenco PA-400 came two offerings from Adams Electronics Corporation of Amityville, Long Island, NY. Like Elenco, Adams supported the new single sideband market. Unlike Elenco that made transmitters and linear amplifiers, Adams only manufactured linear amplifiers. They were not long on the market but in their time, they made two 811A linear amplifiers and one using a single 4-400A. For Adams we will talk about a rather different approach. They made two different Amplifiers – but they looked the same – as you can see here . . .



Adams AEC 410 and AEC 420 Linear Amplifier
Moore[1]

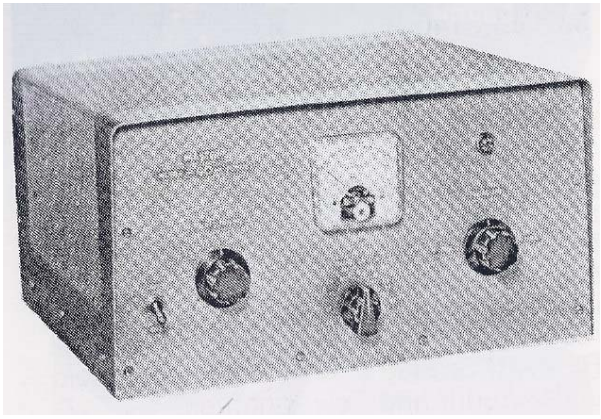
The earlier of these two amplifiers, the AEC 410, had an 80-10-meter band switched input circuit but used plug in tank circuit coils. The later AEC 420 was almost identical, from what information is available, but used a band switched input and output tank circuit. No historical documents show them physically different (or the same, for that matter). Both the AEC 410 and AEC 420 used a pair of 811A tubes in the final amplifier. Again, as noted with the Elenco PA-400, there is no surviving information that was found to show how the power supply is designed except that it was rated higher than necessary, at 1600 volts and 325 mA, for running an input power of 400 watts. These amplifiers required three to ten watts of drive power to get 400 watts PEP input on single sideband.

It should be mentioned that the plug-in coil final amplifier tank circuit in the AEC 410 was a swinging link design while the band switched tank circuit in the AEC 420 was of the now more common pi-network design.

Another entry into this market was a linear amplifier designed primarily for mobile operation from a 12-volt automotive battery and electrical system. Back in the 1950's and 1960's most hams were familiar with a brand called, Master Mobile. That was the trade name for Master Mobile Mounts, Inc., of Los Angeles, CA. Their main product line included a wide variety of mobile mounts for putting high frequency antennas on automobiles. They offered bumper and body mounting options. I used a Master Mobile Bumper Mount for a Newtronics antenna system on my 1962 Mercury that I was driving when I got my ham license in 1964.

In 1963, Master Mobile offered their own 811A Linear Amplifier in their model K-73. The K-73 covered the 80-10-meter bands. Pushing two 811A's to very limit, and perhaps a bit beyond, was the 750-watt PEP input power level of the amplifier. Specifications would indicate to me that is over driving the 811A's, but I do not have details like plate voltage, etc., so it is difficult to figure out Master Mobile's thinking and design. The power supply appears to have been solid state

with a relatively high frequency AC conversion scheme from what I have learned – and that seems appropriate given the voltage and power – far more than a typical dynamotor could provide.

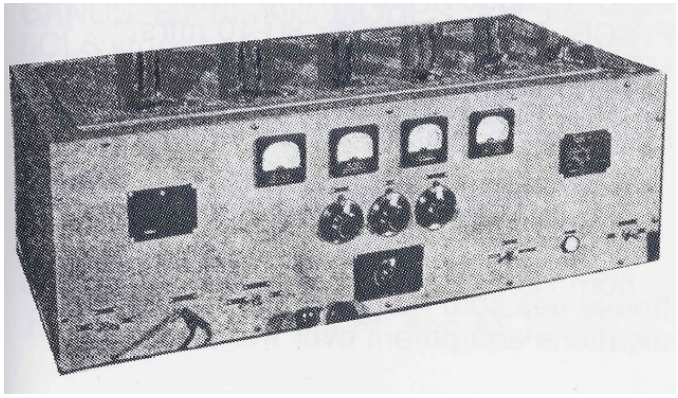


Master Mobile K-73 Linear Amplifier
Moore[1]

The amplifiers in this article, except for the Master Mobile K-73, would have been produced with no switching for an exciter. That interconnection design between exciter and amplifier would have been the responsibility of the user to design. The factory may have included some thoughts on such a design, but I can say that amplifiers from the 1950's, with a few exceptions, were devoid of any such information. Using any of these Linear Amplifiers with a modern exciter would be problematic due to low voltage and current switching capability of today's radios.

Finally, we need to cover what I will call "Honorable Mention" 811 / 811A radios. There were two radios that both used two 811A tubes but not in the power amplifier. I am only showing them because they show another good application of this tube design – a high power audio amplifier to be used in the modulator section of plate modulated AM transmitters.

The first of these is the oldest in this 811 / 811A series. And, this one predates the 811A tube and used the original 811 version. This is the Meissner 150-B Amplifier/Modulator.



Meissner 150-B Amplifier/Modulator
Almost a stand-alone power amplifier – but really an accessory
Moore[1]

This radio was a plate modulated AM and CW transmitter with an 813 final amplifier that was plate modulated with a pair of 811 triodes. This was an accessory for use with the Meissner Variation 2 Signal Shifter Transmitter from 1943 and through World War II. They were meant to

form a higher power transmitter when coupled to the Signal Shifter. For reference, the picture below is the Variation 2 Signal Shifter as used with the 150-B:

This picture is typical of the Variation 2 product under models 9-1077, 9-1078, and 9-1080. These dated from 1943 and through World War II. This little Transmitter/Exciter produced 7.5 watts output using ham band and general coverage (HF) RF coils. It was intended to run alone or with the 150-B Amplifier that had a complete audio circuit and modulator. Although low in power, the Signal Shifter could operate barefoot.

The Meissner 150-B Amplifier/Modulator units survived WWII and were sold in the ham radio market as surplus radios. They would be very, very rare and maybe completely unavailable today. The Signal Shifter in its three Variations is hard to find, but available with patience even to this day. Two friends of mine, W9DYQ and W9JI, own and use a Signal Shifter in its final variation[3]. My own Signal Shifter is the same model as the one owned by my two friends.

Meissner was a company founded sometime before WWII in Mount Carmel, IL, located about 275 miles south of Chicago in southeastern Illinois. In later years Meissner became part of Thordarson Transformer and thereafter known as Thordarson-Meissner. Thordarson-Meissner exists today with an extensive line of transformers and other products under the Thordarson Magnetics name (and a subsidiary of Thordarson-Meissner).

The second of these two “Honorable Mention” radios is probably the only one in this article that is widely known. In the time span of 1956 to 1963, the E. F. Johnson Company of Waseca, Minnesota produced a high power (500-watt) transmitter known as the Viking Five Hundred (or, simply “500”). It used a 4-400 tetrode final amplifier that was plate modulated by a pair of 811A Triodes.

The Johnson Viking 500 was a massive, 173-pound radio in two cabinets. The desktop unit held all the RF components and control circuitry while the second unit (intended to sit on the floor) contained the power supply and modulator components. This unit provided 500 watts input of plate modulated AM Phone and 600 watts input on CW.

EF Johnson 1961 Catalog

E. F. Johnson is one of the oldest names in ham radio – and at the same time one of the oldest names in radio itself. Now a part of JVC/Kenwood, Johnson still markets a large line of two-way commercial radio equipment under the Kenwood Viking™ trade name.

You have seen three articles now on 811 and 811A amplifiers. Did I miss any that you know about? There were several in the CB Band market that hold no interest for me – but if you know

of amplifiers intended for the amateur market, let me know about them and what you know about them.

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 proof-reader as he often adds commentary that makes it into the article.

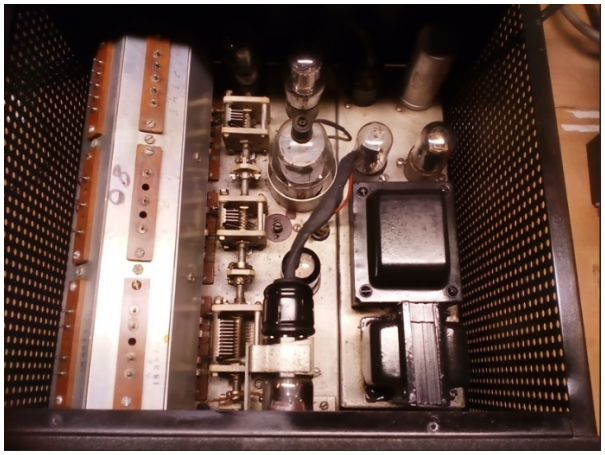
Credits and Comments:

[1] Moore is Raymond S. Moore, author of numerous books on Vintage Receivers and a single book on Vintage Transmitters. I used pictures from Moore's book, ***Transmitters Exciters and Amplifiers – 1930-1980***. RSM Communications, Key Largo, FL USA. ©1996 ISBN 0-9618882-3-7. Moore's books are out of print and generally unavailable except perhaps at a used bookstore or at a hamfest. Moore also wrote a variety of books on home education, children's books, religious books, and other subjects. I cannot determine Mr. Moore's current status.

[2] All the amplifiers in this article required high current at high voltages to switch between transmit and receive. That was no problem for transmitters and transceivers of that same era. Modern exciters, however, can only accommodate low voltages at very low current.

[3] Friends and fellow collectors, Bob, W9DYQ, and Pat, W9JI, own and use Meissner Signal Shifters in their final variation – the model EX. My own Signal Shifter is also a model EX. The Signal Shifter in its several Variations may be the topic of a future article by W9DYQ or W9JI or W9MXQ – or a collaboration of all three.

Meissner Signal Shifter EX – Front
W9DYQ



Meissner Signal Shifter EX – Interior
W9JI

W9MXQ

Ozaukee Radio Club
February 12, 2019 Meeting Minutes

de Ken Boston W9GA

Newly elected president Pat W9JI called the meeting to order at 7:30 PM, introductions followed for the gathered members and guests.

Announcements:

Tom KC9ONYcommented on FT8 contacts to El Salvador, Kevin K9VIN mentioned that he had some mobile antenna damage caused by the wife backing the car into an obstruction.

Program:

Pat W9JI then introduced Bill W9MXQ, who presented a video showing a history of the Drake model TR7B and TR8 radios and the L85 linear amplifier, which were some of the last radios the R L Drake company marketed. The company subsequently moved into satellite TV products, and suspended ham radio products.

Pat W9JI then promoted the future program scheduled to be presented by Vic WT9Q at the next meeting. Pat also introduced Tom KC9ONY, who is selling tickets and tables for the upcoming spring swapfest.

Break: The membership took a 5-10 minute bio break.

Upon reconvening, the 50/50 action was held; Bill Large KD9HLN was the winner, of a $12 prize.

Auction: Stan WB9RQR then conducted an auction; items included bags of fans, 12 VDC P.S., variable capacitors, a Dell desktop computer running Linux, a small hard drive and some DVDs

Committee reports:

There was no 1st VP report.
There was no 2nd VP report.

Repeater VP Tom KC9ONY reported a 222 desense RX problem, and that the BOD had approved the purchase of a new 146 MHz amplifier for the system update. A 100 watt amplifier had been selected, with a reduction in price from the earlier choice of a 150 watt unit

Secretary (outgoing) Ben K9UZ presented the minutes for the January 2020 meeting via a link to a dropbox. Bill W9MXQ moved and Stan WB9RQR seconded to accept minutes; motion passed.

Treasurer (new) Gary N9UUR has converted the books from Quickbooks to a spread sheet format, copies provided to the membership. Jim K9QLP moved and Todd N9DRY seconded to accept the treasury report, motion passed.

The budget was then discussed and approved, motion made by K9DJT, seconded by Jim K9QLP and motion passed.

The audit committee (Gary N9UUR and others) presented their review; the audit was accepted by motion made by Kevin K9VIN and seconded by Ben K9UZ, voted acceptance by the members.

The repeater committee has been formed, chaired by Mike KD9GCN, who asked for membership input.

The ballots for the Ham of the Year and Turkey of the Year were distributed by Ken W9GA, who encouraged members to nominate deserving candidates for these awards, and asked to indicate anyone they deem worthy of any of the other awards, and add them in the margins.

OLD Business:

Tom KC9ONY urged the membership to use the repeater system, and talk up the ORC club activities on the repeater systems.

Also, Ben K9UZ noted that he has the current membership directories in his hands and is distributing them widely to the members.

NEW business: none was presented.

Adjournment: A motion to adjourn was made by Gary K9DJT and seconded by Stan WB9RQR, motion carried and the meeting was adjourned at 9:15 PM

30 members and 2 guests were present. Contact Ken W9GA to obtain the list.

Respectfully submitted;

Kenneth Boston W9GA
Secretary

ORC Meeting Agenda

March 11, 2019

1. 7:00 – 7:30 PM – Network & Rag Chew
2. Call to Order – President Pat Volkmann (W9JI)
3. Introductions
4. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
5. Program: Vic Shier WT9Q, Selecting & Installing a Vertical Antenna
6. Fellowship Break
7. 50/50 Drawing
8. Auction – Stan Kaplan (WB9RQR)
9. President's Update – Pat Volkmann (W9JI)
10. 1st VP Report – Ben Evans (K9UZ)
11. 2nd VP Report – Bill Church (KD9DRQ)
12. Repeater VP Report – Tom Trethewey (KC9ONY)
13. Secretary's Report – Ken Boston (W9GA)
14. Treasurer's Report – Gary Bargholz (N9UUR))
15. Committee Reports
16. OLD BUSINESS
17. NEW BUSINESS
18. Adjournment to ?

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting:

Grafton Multipurpose Senior Center

1665 7th Avenue, Grafton, WI
Wednesday, March 11th, 2020

7:00 PM – Doors Open

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 XXXII	April, 2020	Number 4

From the President

de Pat Volkmann, W9JI

By now we've all had a couple of weeks of staying closer to home. For some, that might not be a big change from what they are used to but others may still be trying to adjust. I have been self-employed since 2005 so working from home is nothing new for me. I've also been a ham for almost 50 years and learned a few things about setting up a comfortable shack. Here are some of the things that I've learned that may be useful to you during extended confinement in your home.

Set up a schedule. It's very easy to start thinking that you have plenty of time to get things done. A schedule puts some structure around your day and helps you to realistically judge how much time certain tasks are going to take. You can keep track of things on a piece of paper, on the calendar app on your phone or however you want to do it. Determine what level of detail you need and start planning things out. Block out time for meals, exercise, video chats and getting on the radio.

Comfort is very important. I replaced the chairs in my shack with real office chairs years ago. I built all of the tables that I use for radio equipment (seven of them), so I was able to adjust the height and other dimensions to suit me. Take a look around your shack and see what you can optimize to improve your comfort and efficiency. Look at the lighting, ergonomics and arrangement of equipment.

Set some goals. Along with scheduling, goals will help you structure your time to be more productive. This might be a good time to actually do some of those things that you have been thinking about getting done. Maybe it's time to learn CW, master a new tech skill, try a new mode, check into the Tuesday night 2 Meter net or just commit to making one contact a day.

Stay in touch with your friends. To that end, we are going try a video club meeting this month. Information on the meeting has been posted on the email reflector and website. Additional information will be posted as the meeting times draws closer.

I hope that you are all doing well. This is a strange time for all of us and it won't be over for a while. Your ham radio hobby may be just the ticket to getting through the pandemic with a bit less stress.

I'm interested in hearing from you on how you're handling your time at home. I'll share the interesting or creative responses with you next month.

Pat Volkmann, W9JI

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

Another running of the Wisconsin QSO Party is in the books. We had a pretty good ORC turnout. I got preliminary scores from AC9JV, K9DJT, K9QLP, K9VIN, N9UUR, W9JI, W9KEY, W9MXQ, W9XT, and WT9Q. I hope I didn't miss anyone. Thanks to everyone who participated.

The 2020 score is better than the ORC score submitted last year and higher than the club that won last year. A break-down of last year's top three clubs and our 2020 preliminary score is shown below. Unfortunately, I was unable to get any information on our opponents' scores. I can usually at least a few scores.

WiQP Club Score Comparison				
Club	**2019 Score**	**#of Ops, 2019**	**2020 Score**	**#of Ops, 2020**
Hidden Valleys ARC	214,552	10	?	?
Ozaukee Radio Club	194,642	7	239,469*	10
West Allis RAC	175,200	14	?	?

*Claimed. Will go down.

The 2020 score is the claimed score. All of our scores will be reduced a little bit for busted calls, wrong county, or something. Based on that, our lead over the winning score from last year is not that large. If the Hidden Valleys ARC got a few more ops on or had a member with a higher score this year, we could be beaten.

The WARAC, the WiQP sponsors, always get a good turnout of its members. They could have rallied the troops and be in the running also. Now you know why I was trying to get everyone to operate and send in their logs no matter how big or small. A single contact or two could be the difference.

A big shout out goes to Fred, W9KEY. The WiQP was his very first contest, and he entered the Rookie category. He made a very impressive number of contacts, and I am sure he will run away with the Rookie award. Great job Fred!

We had Murphy strike with one of our members. His logging program had a problem, and it only logged CW contacts correctly. Phone contacts were logged as CW, and the frequency was logged as the frequency of the last CW contact. I know of another ham (not an ORC member) who had a similar problem. Thus, the phone contacts would not be valid because they were improperly logged.

He wrote the contest sponsors and explained what happened. The logs will be cross-checked, and the phone contacts will be flagged as bad. Hopefully, they will allow the CW contacts to count, but he might be disqualified. I did not include his results in the above score. I hope he will get partial credit, and our score will go up.

Now that we are required to stay home, have you been on the air more? Participation in contests seems to be higher, and the bands seem a little busier than usual. I played around for a

few hours in the WPX Phone contest at the end of March. I was surprised to work so many Italian and Spanish stations considering what they are going through right now.

Besides canceling ham radio club meetings and hamfests, COVID-19 has had another effect. There will not be an upcoming DXpedition section in this month's column. All the big ones have been canceled and probably the small ones too. Some have been rescheduled to the fall, some to next year, and others are in limbo.

April is a slow month in contests as well. There are no major ones scheduled. There are usually a state QSO party or two every weekend if you want to work on the WAS award or collect counties.

So, this month's column is much shorter than usual. With the forced confinement, spend a little more time on the air. Ham radio is a great way to stay in touch. It was nice to be able to say hello to a few friends in other countries in the WPX.

In 1665 Isaac Newton had to work from home because the University of Cambridge was closed during the plague. He developed calculus and formulated his theory of gravity while working from home at this time.

You don't have to set your sights quite so high, but maybe you can make an advancement in your ham radio hobby. Try a new mode or band. Dust off an old radio and get it back on the air. Build some piece of equipment from an old *QST* article, or maybe by building a kit. Start studying for a higher license class. Learn CW if you don't already know it. Build an antenna that you can put up in a few weeks when the weather warms up. If you have not made a contact recently, get on the air! The possibilities are endless!

Ham Radio Reading List

de Pat Volkmann W9JI

Recently, I've seen at least a dozen reading lists that point out books that someone on the Internet thinks will help me pass the time while staying at home. Except for a Science Fiction list, none of them were lists of my kind of reading material. I thought I would put together a list of some ham radio and technology related resources for you.

The first is the Internet Archive (archive.org). This is a huge collection of books, magazines, music, art, software, movies and a bit of everything else. Much of the Internet Archive content is organized in "Collections", which are just groups of similarly themed materials. There is good search function that helps find things on the site. You can read content via the site's on-line reader or download to your computer. Here are a few things to search for on the Internet Archive:

- 73 Magazine (Amateur Radio Today) – 514 issues of 73 magazine
- Ham Radio Magazine – 269 issues of Ham Radio Magazine
- GE Ham News – 102 issues, May 1946 – Spring 1963. GE Ham News was a small format bulletin that GE used to advertise their tubes. Includes lots of home brew projects using GE tubes.
- The Fun of Ham Radio – by Robert Hertzberg W2DJJ, full text of the book.

- 101 Easy Ham Radio Projects – by Brown & Kneitel, full text of the book.
- QST Magazine – lots of old QST magazines from the teens, 20's and 30's
- Callbook – Before QRZ.com this was how you found a ham's address. Look yourself up.

The American Radio History site (www.americanradiohistory.com) is another huge collection of magazines and books. Virtually every issue of every magazine on radio and television that was ever published, going back to the 1920's. This collection is so big that it can be hard to find things (the web site claims that there are almost 2 million pages). If you know the name of the magazine that you want to look for there is an alphabetical index on the home page. If you want to browse there is an index of magazines by category. This archive also contains many technical books and service manuals. Here's a few examples:

- Radio-TV Experimenter - https://www.americanradiohistory.com/Radio_TV_Experimenter.htm/
- Radio Craft - https://www.americanradiohistory.com/Radio_Craft_Master_Page_Guide.htm
- Popular Electronics - https://www.americanradiohistory.com/Popular-Electronics-Guide.htm
- RCA Ham Tips - https://www.americanradiohistory.com/RCA_Ham_Tips.htm

This website is dedicated to Thomas "Tom" Russell Gentry, W5RG (SK). It contains scans of his extensive QSL cards of his contacts, with over 5,700 cards. There are also a lot of pictures of hams and their stations that were sent to him with the QSL card.

- http://w5rg.donretzlaff.com/index.php

If you are interested in old QSL cards, Bob Green W8JYZ has assembled a collection of over 54,000 cards. There is also some related content that makes for interesting reading.

- http://oldqslcards.com/

That should be enough to keep you occupied for a while!

THE COMPUTER CORNER

No. 265: USB Again

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

I have written about **U**niversal **S**erial **B**us three times in this column in the past, and have the feeling that I am not done yet even after this time! USB has become so valuable to most users that it is natural for it to expand, improve, and evolve. The past articles were:

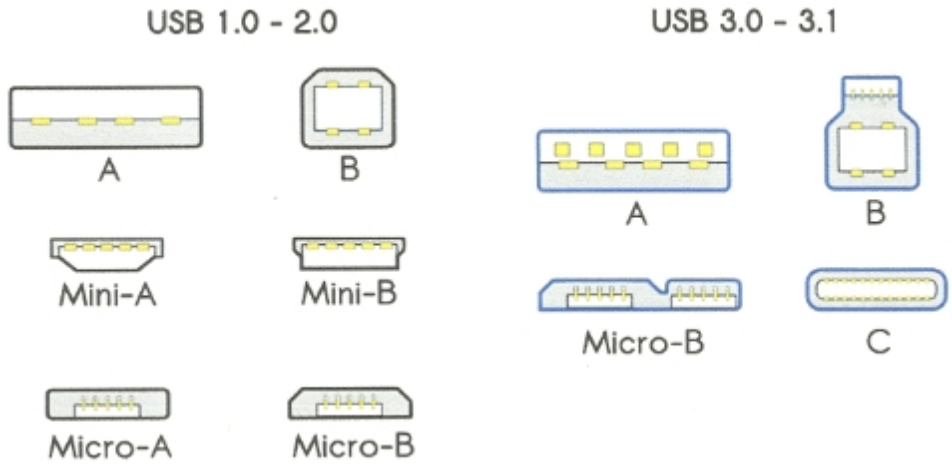
#131 USB Aug 2006 What is it for?
#184 USB July 2013 What is it and how does it work?
#210 USB HUBS Aug 2015 What are hubs and which ones to purchase.

USB was developed first in the early 1990's to replace the parallel (printer) and serial ports. Old computers had one PAR and one or two SER ports built in, and if you needed more than that,

you were out of luck unless you added more cards to supply more ports. With USB, you could have theoretically up to 127 devices on a single USB bus. Now it is common to have several or even many physical USB ports on a new machine.

Early USB connectors had only 4 contacts, a lot better than 9 needed for serial connectors or the 25 used for parallel (typically printer) connectors. When more contacts than 4 were needed as the usefulness of USB expanded (as in USB-3, where 9 or more contacts were used, study the diagrams below), clever engineers set it up so that when an old 4-contact device was plugged into a socket, it would not make contact with the additional USB-3 only contacts buried deeper in the socket, so it became backward compatible. All kinds of devices began to use the USB ports. Today they connect with keyboards, pointing devices such as mice and other gadgets, digital video and still cameras, printers, portable media players, disk drives, network adapters, and they even serve as battery chargers for cell phones and other devices that like to suck electrons from the computer to fill their own reservoirs. USB ports have become plentiful, but we always seem to need more as our uses increase. And, their configuration has changed.

USB 1 through 2 come in an A configuration, a B configuration, a mini-A, a mini-B and a micro-A and micro-B, as shown by these six cable images on the left from Wikimedia.



In all the cable images, yellow bars or boxes represent copper contacts. USB 3, shown in the four cable images on the right, are always highlighted by a bright blue plastic insulator (rather than black or neutral colored), just as shown. First released in late 2008, USB uses a SuperSpeed transfer mode which boils down to as much as about 3.2 gigabits per second delivered to the application. That is pretty darn fast, and is facilitated by multi-lane operation over existing wires that were intended for flip-flop capabilities in the type C connector (although hard to see and count in the diagram shown in this article, the type C connector has 24 copper contacts).

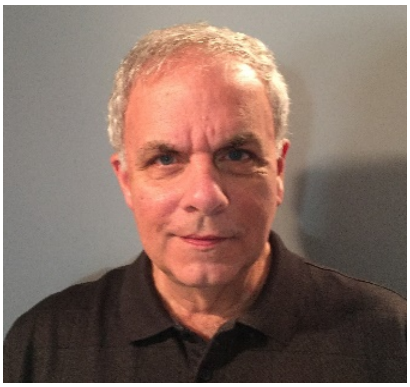
But, we are not done! The USB 4 specification was released 29 Aug 2019 and it supports 40 gigabit per second throughput! That probably means a future desktop you purchase will connect to its monitor via a USB port rather than a thick, heavy video cable or even an HDMI port. The saga never ends. Until the next update on USB ...

Want to look at the old USB articles? Did you know you can download an Index, and all the Computer Corner files from our website? Yep. Give it a try.

Happy Computing!

Vintage Amateur Radio

de Bill Shadid, W9MXQ



This As a collector of Vintage Radios, I am often described by fellow collectors as focusing on Drake and Hallicrafters. To a great degree, that is true – and perhaps especially true of Drake. But, a lot of Collins and National equipment lives in my collection as well. For a radio collector who is somewhat older nowadays, the light weight of Drake radios is a Godsend. (Perhaps apart from the power supply for the Drake L-4B and L7.)

Drake is a fascinating company – perhaps because I once lived a short distance from their Miamisburg plant, perhaps because I visited that plant, and perhaps because many models of these fine radios remain effective even on today's radio bands. The Drake R-4C Receiver and T-4XC Transmitter are widely supported with third party accessories and improvements to this day. The TR7, TR7A, and TR5 transceivers enjoy a wide following[1] and accessories in current production that rival those from Drake during their active years.

Perhaps even more than the Drake separate receivers and transmitters (R-4 and T-4X series), I have a fascination with the Drake transceivers – those being the TR-3, TR-4, TR-6, TR-4C Series, plus the solid state TR7/TR7A and TR5. Except for the six-meter TR-6, all these transceivers exist in the W9MXQ collection. Several TR-6 transceivers have come and gone over the years[2].

Drake's Transceivers fall into several categories: [3]

1. The Traditional 9 MHz i-f Transceivers (Vacuum Tube w/some Solid State)
    - Drake TR-3[4]
    - Drake TR-4
    - Drake TR-4C Series
        - TR-4C
        - TR-4CW
        - TR-4CW/RIT
    - Drake TR-6
2. The Up-Conversion (48.05 MHz i-f) Transceivers (Solid State)
    - Drake TR7 Series
        - TR7
        - TR7A
3. The Traditional 5.645 MHz Transceiver (Solid State)
    - Drake TR5

For this installment, we are going to talk more about the last transceiver from Drake, the TR5, and an earlier version of that transceiver, the TR-5. Some considerations:

1. What was the original TR-5 transceiver? (Note the dash in the model number.)
2. Was the TR5 really a low cost TR7? (Note no dash in the TR5 model number here.)
3. Why did the VFO in the TR5 turn backwards – as compared to the TR7?
4. What feature in the TR5 stood out at the time it was introduced, in 1982?

Note the similar nomenclature with the earlier TR-5 (with a dash in the model number) and the later TR5 (without the dash in the model number – more in keeping with the "dash-less" model designations starting with the TR7).

So, what was the TR-5 transceiver? First, when searching for this model, the search engine used will generally find the Drake TR5 – not the original TR-5. (Again, be aware of the use of the "dash" in the model name.) It appears from what can be found that Drake did consider a replacement for the last of the TR-4C series, the TR-4CW/RIT, in the form of a hybrid transceiver referenced as the TR-5 – a natural progression from the TR-4 moniker. It had a familiar Drake look in this picture:

Drake TR-5 Transceiver[5]. See following text for more explanation for details of this transceiver.

Very little is known about it and information I have gathered from conversations is that it was a solid-state radio except for a driver and final(s). One can presume, but not be certain, that it contained the same driver and finals as the TR-4C series. A look at the then current TR-4CW/RIT example (plus a repeat of the TR-5 picture) shows layout features that changed:

Drake TR-4CW/RIT
WB4HFN

Drake TR-5

The VFO placement changed rather substantially with the move from the right side of the radio to the left. The PA compartment is on the rear left in all TR-3 and TR-4 models but appears to be on the rear right on the TR-5 (check the ventilation opening at the right rear of the TR-5 picture). The change from the dual horizontal Plate Current and S/AGC meters in the TR-3/4 to the more conventional metering in the TR-5 would have been welcomed by this writer and many fellow collectors that I know.

It is difficult to determine all the control functions on the front of the pictured TR-5. And, for prototypes it is hard to tell if the controls shown were acting in accordance with their dial legend markings. Beyond the VFO control, perhaps the Tune and Load Controls as well as what appears to be a Preselector/Drive Control; the rest is a guess with some easier than others.

There has always been some conjecture that perhaps Drake and Hallicrafters worked together as Hallicrafters slowly exited the ham radio market. Their corporate owners, Northrup Corporation (now Northrup Grumman), were moving more into military electronics. Hallicrafters had by that time approached the end of the line by marketing their last amateur radio transceiver, the FPM-300 Mark II. I have never come to a personal conclusion on the possibility of the TR-5 being a repackaged FPM-300. Look here at the two radios (again with the TR-5 Picture repeated):

Hallicrafters FPM-300 Mk II
W9MXQ

Drake TR-5

The placement of the PA and VFO on both units is similar. I can see some control relationships as well. But we likely will never know the story of any collaboration and/or intentions. I have always felt that the FPM-300 had more of a Drake look than a Hallicrafters appearance. Check this comparison of the second to last Hallicrafters radio to the final one – the FPM-300 compared to the SR-400 Cyclone:

Hallicrafters FPM-300 Mk II Safari
W9MXQ

Hallicrafters SR-400 Cyclone II

W9MXQ

That FPM-300[10] ***does not*** have a Hallicrafters look! But it ***does*** have a Drake look!

So, time moves on and the TR-5 became the radio that never was. I leave this subject with a disclaimer. I do not know for certain if my own rationale for the TR-5 and the FPM-300 is true. I am a long-time collector and have seen a lot of things and heard a lot of stories and have enough time in grade to make an educated guess. But, to paraphrase the intro line from an old television detective show[6], “There are a million stories in ham radio – this has been one of them.”

So, Drake moves on – and knows that an all solid state radio is in their future and continue with the development of their yet to come flagship, the TR7 Transceiver – destined to change how amateur radio equipment was to move into the 21st century. The TR7, part of an earlier article, entered the market in 1977 and the TR-5 project is history.

The TR7 line grew in the late 1970’s to include the R7 Receiver and a whole line of accessories. As 1980 approached, the TR7 was a performer but was aging and lacked some of the features of the Japanese competition. As you have learned from this series before, Drake began to work on the successor radio, the TR8. Apparently, at this same time, Drake felt the need to field a lower cost transceiver. But, what do we call it? The work on the TR8 was apparently in process and the idea of a lower cost transceiver hitting the market as the TR9 before the deluxe TR8 seemed to be a problem (I assume). So, what to do?

Design goals of this new transceiver seemed to focus more on the features of the old TR-4C series than the TR7 or upcoming TR8. To my knowledge, no real information exists on the details of the new transceiver's development, suffice it to say that the decision was to name it the TR5 – back to the use of the "5" in the series. This number was never used in a transceiver actively marketed by Drake. The earlier TR-5 development did not come to light for some years – so it seemed okay. TR-3 and TR-4 were taken, TR-6 was taken with a six-meter dedicated transceiver, TR7 was taken, TR8 was taken and under development, and I can imagine that TR9 was off the table.

And yet, there is more. Many people for have believed for some time h that the TR5 was a cost reduced TR7. In my opinion, that was not true. Let us look at Drake's two main radio transceiver architectures and compare them with the TR5:

		Radio		
Item	**Feature**	**TR-4CW/RIT (the last TR-4C)**	**TR7/TR7A**	**TR5**
1	I-F Frequency	9.000 MHz	48.050 MHz	5.645 MHz
2	Dial Direction	Left Turning Up Frequency (back-	Right Turning Up Frequency	Left Turning Up Frequency (back-
3	RIT Control	Yes	Yes	Yes
4	WARC Bands	No	Yes	Yes
5	Optional Filter	Yes	Yes (Multiple)	Yes (One)
6	General Cover-	No	Yes	No
7	Digital Readout	No	Yes	Yes
8	RF Power Out-	150 watts (Nomi-	150 watts (Nomi-	80 watts (Nominal)

Now we can check the main features, by the number, to see where there are similarities:

1. I-F for the TR-4 series, at 9.000 MHz fit early convention in SSB generation. The conversion scheme led to bands below 9.000 MHz being on Lower Sideband and bands above 9.000 MHz being Upper Sideband. I-F filters for different bandwidths were readily available at 9.000 MHz center frequency. The TR5 was the same except that Drake did not want to use 9.000 MHz filters – rather the 5.645 MHz filters they used in the TR7 line. Switching circuitry in the radios of the day made the decision to be LSB or USB easy at no matter what i-f was used. So, the TR5 was more like the TR-4CW/RIT than the TR7.
2. This was a negative, but Drake copied the TR-4CW/RIT and let the dial tune backward for the TR5. In the end, for this one, the TR5 was more like the TR-4CW/RIT than the TR7 for all the wrong reasons.
3. All three transceivers had RIT – so no comparison here. For reference, only the quite rare last version of the TR-4C, the TR-4CW/RIT had the RIT feature.
4. This is not a necessary comparison. The TR-3 and TR-4 models did not have the WARC bands because they did not exist when the models were marketed.
5. All three transceivers had slots for optional filters – so not a real comparison here. For reference, only the last two version of the TR-4C, the TR-4CW and the TR-4CW/RIT, had the ability to access one optional filter – as did the TR5. So, the TR5 was the same as the last two TR-4C models, the TR-4CW and the TR-4CW/RIT. (The TR7 has three optional filter bandwidth slots.)
6. The TR-3 and TR-4 Series radios and the TR5 did not have General Coverage Receive (or Transmit). The TR7 did offer that General Coverage feature. So, the TR5 was more like the TR-4CW/RIT than the TR7.
7. The TR-3 and TR-4 Series radios did not have Digital Readout. The TR5 and TR7 Series did. That was the sign of the times and not a comparison for this analysis.

8. RF Power Output was a serious issue with Drake and the TR5. The TR5 did have what were probably lower cost PA transistors that could not match the power level of the TR7 Series radios[7]. So, what was Drake thinking? The lower cost of the PA Transistors and the lower cost of the PS75 AC Power Supply (see details below) probably drove Drake to make the decision to opt for the lower power output. As history has shown, this was a marketing error.

So, checking the above you can see that the TR5 is more of a solid-state version of the TR-4CW/RIT than a cost reduced TR7. The confusing thing about the TR5/TR7 radios is that they look so much alike – but only on a fast glance. They are completely different radios. Here they are together – along with what I see as the predecessor to the TR5, the Drake TR-4CW/RIT (picture repeated from earlier in the article):

Upper: Drake TR5 HF Transceiver
Lower: Drake TR7A HF Transceiver
(Both with MN7 Speaker and 7077 Desk Microphone)
W9MXQ

Drake TR4CW/RIT
HF Transceiver
(Last of the TR-4C Line)
WB4HFN

The TR5 was not a successful product for Drake. It was expensive, the power output was low in comparison to customer expectations of at least 100 watts and the dial turned the wrong direction. That last issue was on the older TR-3 and TR-4 series radios but somehow the digital readout on the TR5 aggravated the issue with the frequency on the readout going up while the dial was turned to the left. I can attest to that being aggravating on my TR5 – and on my TR-3, TR-4, and TR-4C to a point. On the earlier radios, the left rotation moving up in frequency was duplicated on the analog dial that also went up when tuning the dial to the left. So, it really was not as bad a mental issue as it was on the TR5.

It is widely publicized among Drake aficionados that the TR5 included the digital (PLL) VFO included in the Drake RV75 External VFO as the standard internal VFO in the transceiver. This is incorrect – the TR5 has a regular PTO[9] just like the TR7 – and for that matter one very similar to the ones Drake had used in their radios for years. My use of the TR5 seems to indicate it being more stable than the TR7 and TR7A that sit beside it in the collection. However, that is a subjective comment that if true is more tied to late circuit improvements in the old design than to any significant stability improvement.

The Drake TR5 and TR7 series radios shared many cabinet components. The Wrapper (Drake's name for the wrap-around top and sides) were identical and interchangeable. However, the TR7 Wrapper has speaker openings on the left side while the TR5 Wrapper has no such openings – the TR5 speaker is bottom mounted. The end trim pieces on the front panel are identical. The front extrusion and panel inserts are overall size and design identical but punched differently. The TR5 has no backup analog readout where the TR7 Series does have a back-up analog readout. (For a very short time at introduction, the digital readout in the TR7 was optional.) The Digital Readout was the DR7 and at first a digital readout equipped TR7 was called a TR7/DR7.

Generally, the accessories offered for the TR7 series also worked with the TR5. There is only one exception to which I am aware – and it was never marketed. I am speaking of the Drake RV5 External VFO. Here is a picture of that accessory in prototype form:

WB4HFN

The Drake RV5 External VFO was never produced, as noted in the text. However, it was identical to the RV7 except for tuning direction. I am reasonably sure that this prototype unit was made from pieces of an RV7.

Using the RV7 with the TR5 works correctly except for the nagging reverse tuning. It is even worse with the RV7 because the TR5 and RV7 VFO's are tuned opposite from each other.

At the time of the introduction of the TR5, Drake also introduced a cost-reduced AC Power Supply that, while it would work with the TR7 Series, it was more suited to the lower power requirement of the TR5. This was the very well-built Drake PS75. It was a lightweight sister to the 25 Ampere Continuous Power Drake PS7. The PS7 was designed to work with the original TR7. The PS75 was very dependable at about 15 Amperes, with peaks to 25 Amperes tolerated. Drake warned that running CW above a drain above 15 Amperes (like with a TR7 running full power) could produce "CW signal quality degradation."

Drake PS75 Rear Panel View
(PS75 on top of Drake PS7)
W9MXQ

Drake PS75 Front View

W9MXQ

Both the PS7 and the PS75 brought out 12 VDC at 1 Ampere for accessories. Also, both power supplies brought out connections for Linear Amplifier Control and Transmit AGC from the TR5 or TR7. (The PS7 shown has since been equipped with the optional FA7 Fan Kit.) These are both analog power supplies and quite heavy.

The PS75 is quite rare – nearly impossible to find. The TR5 at 300 units produced and with the production of PS75 at not nearly 1:1 in build ratio so those would be difficult to find by default.

The TR5 itself is extremely rare. Most TR5 owners that I know run their radios with a PS7 Power Supply just because they are easier to find.

Worth mentioning is the fact that the TR5, for whatever its foibles, provided some of the best receiver noise figures of the time. The TR7 was a leader in being a quiet receiver and was superior[8] to the far more expensive Collins KWM-380 of the time. The TR5 was superior in receiver performance to both more well-known radios. The TR5 also possessed quite capable, if a bit noisy, CW QSK. I find the TR5 to be comfortable to use on CW and its 80 watts of output power never presents a problem. I use my TR5 barefoot all the time – having tested it only once to confirm its operation driving a Drake L7 Linear Amplifier.

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] The TR5 Transceiver is very rare as Drake radios go – with perhaps less than 300 ever having been made available to the ham radio public. The Drake TR7 and TR7A, along with radios from Ten-Tec, were perhaps the last of the American made, competition grade radios before the current generation of new manufacturers in this country.

[2] Six meters has never been a focus at W9MXQ. Perhaps it is antenna related. I hope to change that one day in the future. One of my good friends, Ken, W9GA, is an avid six-meter aficionado and I believe that he holds DXCC on that band. Ken's expertise in all thing's VHF, UHF, and beyond is enviable. So, perhaps another TR-6 is in my future!

[3] The TR-3, TR-4, TR-4C, TR5, TR7, and TR7A are part of the W9MXQ Collection.

[4] The TR-3 is more of an early TR-4 than a different model number. I presume that it got its "3" designator as a follow on to the 1A and 2 series Receivers and 2NT Transmitter popular at the time. There are a lot of similarities between the TR-3 and the early TR-4 transceivers. One big point was that the TR-3 used three 12JB6 finals while the TR-4 and all subsequent 4 series transceivers used three 6JB6 finals.

[5] The TR-5 picture is from LA6OP.

[6] The television show was "The Naked City," 1960-1963 television series, © Screen Gems Television.

[7] The final transistors in the TR5 were MRF455 devices – capable of about 70 watts per transistor. Given a safety factor it is likely that Drake legitimately felt the radio should be rated little more than one of them. The 80 watts was probably correct.

[8] The performance comparisons can be found from data found in published Collins and Drake Literature and Operating Manuals.

[9] The "VFO" in the Drake TR5 is essentially the same as the one in the TR7, the TR4, and the R-4 & T-4X series radios. Reference the Drake TR5 Instruction Manual, Section 4-1, "Injection and Counter Circuitry," page 4-1. © R. L. Drake Company.

[9] The original FPM-300 had no marketing name. However, the FPM-300 Mk II was called the "Safari." This was like the use of the "Cyclone" name for the SR-400 Series Transceivers. Reference "Radios by Hallicrafters," Chuck Dachis, ISBN 0-7643-0807-6, © 1999 by Dachis. Pages 95 and 98.

W9MXQ

The Magic Antenna Discovery

de Woodrow Shadid, WA9MXQ

In a ham shack far, far away in Normal[1], Illinois, at what must be a long, long time ago – like February 1979 – things were changing at WA9MXQ. My QTH was ideal with cooperative neighbors in a brand new house, a super nice all Drake station only a year old, a tower with a four element tribander at 55 feet, above that were stacked VHF long boom 2-meter horizontal weak signal antennas, and great wire antennas on 160, 80, and 40. I was the Purchasing Manager in a business unit of 3M Company making electronic equipment for radio broadcast stations. Life was good and topped off with a regular string of famous recording artists visiting our business unit to revel in us and our over-the-top studio playback and recording equipment. I mean, some of these visitors were hams, like Bob Heil[2], Ronnie Milsap, Joe Walsh, and more. Did I mention that life was good? But, in the business world, as all of us have learned, that means that life is about to change!

Well as it happened, I was offered the position of Logistics Manager (that means purchasing and a lot more stuff!) of a much larger 3M business unit in the automotive business end of the company. A substantial promotion. This was much faster pace than the broadcast audio business and was coupled with a move to Columbus, Ohio – a city of one million instead of the 100,000-person metro area that I was leaving. Life in the suburbs. The beams and tower are all bundled and nested and in the garage at the new house. The shack is now on the second floor of the four-bedroom house and here I am sitting on the patio looking at my vertical antenna, the first installation of a GAP antenna, from the fledging GAP Antenna Company, installed in the state of Ohio[3].

It was pretty hot that sunny Sunday afternoon in April – first day of the month – and the first sunny Sunday since working at the new plant. Frankly, I was darned tired – business was booming, and this was the first Sunday our management team had not been sharing duties with production management to give them some time off. I was sitting there wondering where my boxes with coax were stored – watching that yet to be connected GAP Challenger Antenna standing watch in the back yard. Gee, that cold Yuengling beer tasted mighty good. Yuengling, you ask? Remember, this is Ohio. I sat there, on the lounger, next to the picnic table, kind of feeling the warm sun in my face, thinking about the antenna, wondering about my coax, and letting my thoughts wander, wander, wander.

Suddenly, I got this fantastic idea. My old Field Day rig, my Swan 350c, was in the garage in a box I could identify, also there should be a coax jumper in that box, and there somewhere would be my Unique Products Random Wire Tuner, some antenna wire. So, I sat the Swan, and the tuner on the picnic table on the patio. I threw out the random wire on the concrete patio, made my coax connections, connected the wire antenna to the tuner, and was peaking the receiver noise on 20 meters.

Wow!!! Twenty meters is really packed with signals – how can these twenty or thirty feet of wire be that sensitive? There is Antarctica with the American and the Danish sites both on the air and both way over S9. Asiatic Russia – at this time of day – and 20 over 9? Japan, and Taiwan? I've

never even heard Taiwan! What is going on? Ah, I know, hearing is one thing but transmitting and being heard is quite another. That's the end of this story, right?

No way; let's see – that SWR bridge must be somewhere around here. The bug had bitten! I had no intention of transmitting when I started this little exercise. But S9+ signals from Taiwan? I sure need to at least try! Ah, there it is – the trusty old Knight Kit SWR Bridge. It has been sitting on a garage shelf here, and before that in Illinois for a few years and is a tad dirty – but luckily it seems fine and there is that short piece of coax I need to insert between the rig and the tuner. Hmmmm, wonder how close I can safely be to that wire here on the patio? Nah, cannot be a problem, the rig is only putting out 50 watts – sure need to look at those finals before Field Day this year!

I found my CW straight key…and…and…and…surely there is a microphone in this garage!! Ah, there it is – my trusty Astatic D-104. Gee, sure was lucky I was not stranded in Ohio with just a key!

So, here is the supporting cast:

Swan 350c HF Transceiver
WA9MXQ

Unique Products (UPC)
Random Wire Tuner
WA9MXQ

Allied Knight Kit P-2
SWR/Power Meter
WA9MXQ

Astatic D-104
Desk Microphone
WA9MXQ

Random Antenna Wire
And Coax
WA9MXQ

The tuner worked great – always did. Here we are on 14.240 with 1:1 SWR – and the signals are even louder when adjusting the tuner with the transmitter. "BM1AAC in Taiwan, this is WA9MXQ in Ohio, do you copy." He was 20 over in Columbus, Ohio, surely even with this antenna I could get at least an S2 – there was almost no noise on the band. "WA9MXQ, this is Ping Tsun in Taiwan. You are S9 plus here in Keelung." What a great signal – what are you running there in Ohio, Woody?" He just laughed at me when I said I was running 50-watts to about 35 feet of wire laid out on my concrete patio and said, "Okay not to give me the real details, 73 and DX to you." Right away, right on frequency, I get a call, "Hey, WA9MXQ, this is John, VP8CEN – you are S9 at Dignan Airport down here in the Falklands. Do you copy?" "Sure do, John, you are 59+10 here in Columbus, Ohio." This time I just told him I was running 50 watts to a wire antenna – seemed like a fairy tale to mention a wire on a concrete patio.

About then my neighbor came over. That was Jack, a fellow I recently learned had a long interest in ham radio and was an Engineering Professor at Ohio State University. He arrived, carrying his own bottle of Yuengling beer, just to see what was going on. Jack was structural engineer and was quite amazed at my description of what was happening. By then I had worked sixteen more countries, including Singapore, Thailand, South Africa, Kenya, and Australia. Jack related studying a new theory on the Ionospheric Propagation of Concrete at Ground Level and how such slabs, were excited by RF and, as such, radiated with a high degree of gain at a low angle of radiation. He said it was called “Portlandic Seismic Vibrational Propagation (PSVP for short).” He said, however, that the research had been stymied by strong lobbyists from companies like HyGain, Mosley, and Cushcraft that felt that loading concrete patios might falsely deter their sales of antennas. Falsely? Immediately, I thought of upstart GAP Antenna and how this was going to ruin their long-term strategic plan!

Jack did my logging while we worked the world. At just over 120 countries we decided to take a break and get another beer.

Oops, almost spilled what was left of my now mighty warm beer as I tried to convince my body to let me get out of the tangled web of the lounger – being so close to the picnic table and all. Suddenly, there was a voice!! A voice? Jean (XYL) was standing there on the patio with a plate of burgers to go on the grill. She was chiding me for sitting there with a beer and in the sun for the past several hours in the lawn chair lounger. In defense, I said, “Hey, Jack and I are working DX here!” To which she replied, “Jack?” “Jack who?” “We don’t know anyone around here named Jack!” “And, while we are at it, what are you doing out here blurting out things like, you’re 20 over in Columbus, Ohio?” “Twenty over what?”

Oops, again!! Where is the radio? Where is the wire? But, there’s the GAP Challenger standing alone in the yard. There is the picnic table beside me so why and I’m sitting on the side of the lounger looking away from the table? Hey, there is no wire on the patio. And, indeed, who is Jack, anyway? Did he say, PSVC? Do I know him? Again, Jean tries to get me back into the regular world with a question, “Do you want to help me with the lid on the grill?” (Our grilling process is well established in our marriage by then. I control the grill’s lid and she is in control of the cooking.)

What happened?

Indeed, my mind had played the ultimate April Fool’s Day trick on me. I never left the lounger – the setup, the QSO’s, the DX, the sound of the band, the research into RF Radiating Concrete, and even Jack were products of my day-dream imagination. The radio was still securely packed in the garage.

Happy April Fool’s Day, Woody!!

Credits and Comments (back to reality):

[1] Yes, by God, there is a Normal, Illinois, the town of my childhood.

[2] Heil Sound, as we know it today was then only making sound equipment for performing artists.

[3] The GAP Antenna Company was new back at the time of this story. WA9MXQ was their first sale in Ohio and with agreement would have potential customers in the east call for a recommendation.

Tech Tidbits

de Ben Evans, K9UZ

Jay Bares, KB9JNJ, sent a helpful and easy tip for getting more height for your mag mount antenna using just a form-fitted piece of sheet metal and a ladder.

Explains Jay, “Ben, this is pretty goofy but I made a mag mount antenna tripod from a piece of sheet metal and a little giant ladder. I hammered the sheet metal into a shape that would hook onto the top steps when I folded the ladder out, painted it, mounted it on the ladder, stuck the antenna on and had a 9 foot high tripod. Like I said, goofy.”

Goofy, maybe, but pretty handy. Maybe Jay can figure out how to securely mount the ladder on top of a vehicle for mobile operation! ;)

If you have a “tech tidbit” you’d like to share in this newsletter, feel free to send it to me at ben@evansengsolutions.com. Please remember to include photos.

Ozaukee Radio Club
March 11, 2020 Meeting Minutes

de Ken Boston W9GA

ORC President Pat W9JI called the meeting to order at 7:31 PM, introductions followed for the gathered members.

Announcements:

KD9GCN Mike, read to us a letter from Adam KD9KIS who won the 2019 scolarship award given out by the ARRL on behalf of ORC. W9DHI Gregg mentioned his experience with running a mesh network for WIFI use at his QTH. Nels WA9JOB talked about info he gleaned from old newsletters of the club, and the need for a club historian. Tom KC9ONY mentioned that he had a conversation with Cindy Douglass KA9PZG. Stan WB9RQR mentioned that Nancy KC9FZK has the shingles and is out of commission for some time. Gary K9DJT received an old ORC cloth patch from Ron Yokes W9BCK's estate. It used to be placed on shirts/jackets in the early years. It was given to club historian Stan Kaplan, WB9RQR.

Program:

The program tonight was presented by Vic WT9Q on his project in erecting a Butternut vertical in his backyard for use on the low bands. He reviewed several types of vertical options, showing how he zeroed in on the Butternut HF2V as his choice. He also described the installation process, with ample slides of the ground wiring.

Break: The membership took a 10 minute bio break.

Upon reconvening, the 50/50 action was held; Gary K9DJT was the winner, of a $9.50 prize.

Auction: Stan WB9RQR then conducted an auction; a Toshiba laptop, 2 Dell laptops, Bag of fans, an ARRL antenna book, a Zenith Transoceanic radio, a modem and misc cables and items were sold.

Committee reports:

There was no 1st VP report.
There was no 2nd VP report.

Repeater VP Tom KC9ONY has received the 100 watt amplifier and will be installing it soon.

Secretary W9GA, Ken, presented the minutes for the February 2020 meeting via a link to a dropbox. Greg W9DHI moved and Kevin K9VIN seconded to accept minutes; motion passed.

Treasurer Gary N9UUR discussed dues and who has paid, whether others can be reminded, and presented the months balance sheet. Bill W9MXQ moved and Vic WT9Q seconded for approval, motion passed.

There was no scholarship report.

Ken W9GA presented the Awards as a result of the recent balloting; Kevin K9VIN winning the Ham of the Year award, and Fred W9KEY winning the Turkey of the Year award.

Tom KC9ONY, Spring swap fest; has mentioned that he has received some cancellations, and has sold a limited number of tickets. At the time of the early march meeting, the hamfest is still on, but a wait and see approach will be followed as to cancelling or rescheduling the fest.

Ken W9GA has reserved the Pleasant Valley location for the club activity of the ARRL Field day event, held every June. If the virus pandemic is contained, there will be a field day, although the final format will be dependent on events.

OLD business: Gary W9XT reminded the members of the upcoming WI QSO party and solicited club members to participate and file a log showing the ORC as their club affiliation.

NEW business: As of this meeting, a total of 65 members were signed up on groups.io, and Gregg W9DHI urged all to update their profile info on this site. Several members/officers are assigned to be moderators for this list.

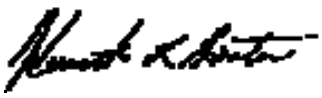
Gary, K9DJT, reported that K0GHT, Dave Lechelt, is an SK. Nancy, KC9FZK, will handle the ARRL donation in his name. He will sadly be missed.

Tom KC9ONY reported that the repeater survey committee has Fred W9KEY, Mike KD9GCN, Tom W9IPR and Gregg W9DHI joining him in the committee.

Adjournment: After a reminder by Stan WB9RQR to clean up the room, a motion to adjourn was made by Bill W9MXQ and seconded by Gregg W9DHI, motion carried and the meeting was adjourned at 9:20 PM

33 members were present. Contact Ken W9GA to obtain the list.

Respectfully submitted,



Kenneth Boston W9GA
Secretary

ORC Meeting Agenda

May 13, 2020

1. 7:00 – 7:30 PM – Network & Rag Chew
2. Call to Order – President Pat Volkmann (W9JI)
3. Introductions
4. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
5. Program
6. Fellowship Break
7. 50/50 Drawing
8. Auction – Stan Kaplan (WB9RQR)
9. President's Update – Pat Volkmann (W9JI)
10. 1st VP Report – Ben Evans (K9UZ)
11. 2nd VP Report – Bill Church (KD9DRQ)
12. Repeater VP Report – Tom Trethewey (KC9ONY)
13. Secretary's Report – Ken Boston (W9GA)
14. Treasurer's Report – Gary Bargholz (N9UUR))
15. Committee Reports
16. OLD BUSINESS
17. NEW BUSINESS
18. Adjournment to ?

April Meeting Note:

As most of you know, our regular meeting on April 8th at 7:30 PM is cancelled. We are going to try a virtual membership meeting on the same evening and time via the Zoom videoconferencing app. Details can be found on the club website. We hope many of you can join us!

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting:

Grafton Multipurpose Senior Center

1665 7th Avenue, Grafton, WI
Wednesday, May 13th, 2020

7:00 PM – Doors Open

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 XXXII	May, 2020	Number 5

From the President

de Pat Volkmann, W9JI

April marked a first for the Ozaukee Radio Club – the monthly club meeting was a video conference. The meeting was held via Zoom, a very popular videoconferencing platform. We had 43 people attend the meeting. Gary Sutcliffe, W9XT, gave a great presentation on soldering. The meeting started and ended with conversation and fellowship, much like a regular meeting. The May meeting will also be held on Zoom on Wednesday May 13, starting at 7:30 P.M. Invitations will be sent out shortly before the meeting starts. We will probably be meeting on video for some time to come, so it's good to know that the format works for us.

The ORC Spring Swapfest was cancelled, as everyone knows by now. Tom Trethewey, KC9ONY, has contacted everyone who paid for a table and/or ticket to issue a refund. A number of people graciously declined the refund and instead offered the price of their ticket and table as a donation to the ORC. A special thanks goes out to those contributors – Ken Boston, W9GA; Pancho Doneis, KA9OFA; Gary Drasch, K9DJT; Todd Fast, N9DRY; Bill Large, KD9HLN; Bill Shadid, W9MXQ; Gary Sutcliffe, W9XT; Tony Van Der Wal, N9UDS and Robert Widish, N9PSN.

The Spring Swapfest is our most significant fundraising activity. The Swapfest cancellation has resulted in a substantial loss of income for the Club and created a budget deficit. The Club has already purchased and installed a new amplifier for the 2 meter repeater. We are working on adding a PayPal link to the website for those who wish to donate any funds toward the new amp, and to help out with our budget deficit for this year. Donations may also be sent to the Club Treasurer Gary Bargholz, N9UUR. We have set a goal of $1250.00, which was the cost of the new Amp.

At the time that I'm writing this, Field Day is only 7 weeks away. The ARRL has issued a couple of statements concerning this year's Field Day, emphasizing adapting to the current situation with a creative approach. This item is from the **Field Day 2020 — A Time to Adapt** press release:

"Due to the unique situation presented this year, this can be an opportunity for you, your club, and/or group to try something new," ARRL Contest Manager Paul Bourque, N1SFE, said. "Field Day isn't about doing things the same way year after year. Use this year to develop and employ a new approach that is in line with the current circumstances."

At our last Board meeting, Field Day Chairman Ken Boston, W9GA, said that he had spoken with several club members and received mixed comments on Field Day. Some remain concerned about gathering in a group while others would like to proceed with Field Day. At this point it looks like the park will be open but the bathrooms will not. Field Day plans will depend on how many are interested in a group outing and the ever-evolving Covid-19 situation.

We would like to have a Field Day plan outlined by first week of June. So, what do **you** want to do? Please contact Ken W9GA with your thoughts. See you at the meeting.

Pat Volkmann, W9JI

.

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

COVID-19 continues to wreak havoc with life, and of course, our ham radio activities. Two important May events for me, the ORC Spring Hamfest and the Hamvention®, have been canceled. Many clubs have been adapting to canceled meetings and events by having them on the air, and as in the case of the ORC having them on-line.

The Hamvention has many independent events such as banquets and one-day conferences for special interests such as Four Days in May for QRPers. These conferences typically happen on Thursday, while the Hamvention starts on Friday. One of the Thursday events is Contest University or CTU.

I was at CTU a couple of years ago. It was really great. They had presentations on different aspects of contesting. The attendees run from contest beginners to world-class operators. I never heard of anyone not being happy they attended. This year can be your chance to attend. Virtually that is, and for free on May 14. It will be presented on Zoom, the same system used for the April ORC meeting. You can get more information and sign up at http://contestuniversity.com

Another newly free resource for contesters is the *National Contest Journal* (*NCJ)*. The *NCJ* started as an independent magazine. In the late 1980s, publishing was taken over by the ARRL, although technically independent of the ARRL. I started writing a column for the *NCJ*, *Contest Tips, Tricks, & Techniques* right after the ARRL became the publisher. Thirty years later, I am still writing the column. I pick a topic, and contesters give me their thoughts. I convert their submissions into a discussion of the topic. The topics cover operating techniques, station building, and other contest related topics.

The *NCJ* is now available as a free download to ARRL members. They are also allowing ARRL members to download *QEX* Magazine, the ARRL's technical journal, another excellent publication. The price of ARRL membership is less than the print cost of subscribing to both of these magazines. Such a deal! Then, of course, is the *On the Air* Magazine for beginners, which is also available for download.

Like last month, no major DXpeditions are going on. Taking in the lack of DXpeditions, the amount of interesting DX is higher than usual, as hams in other countries are forced to stay home. Of course, the competition to work them is also higher as the number of US hams getting on the air has increased. Some days it is just about impossible to find a free FT8 frequency.

The big contest in May is the CQ WPX contest occurring on May 30-31. I discussed the phone WPX in the March issue. Since the only difference is the mode, I won't repeat it here. WPX is usually the Memorial Day weekend. It is a fun contest, but I always had a hard time spending a weekend in the shack in what is often the first nice weather weekend of the year. This year weekends are pretty much the same as weekdays, so unless the streak of cold and windy

weather continues and the WPX weekend is beautiful, I may give it a shot. Rules are at https://cqwpx.com/

The cancellation of the Hamvention spawned a new contest for that weekend, the Hamvention QSO Party on May 16. The World Wide Radio Operators Foundation is sponsoring this contest. It starts at 1200 UTC (7:00 AM local) and runs for 12 hours. You can work each station once per band (160-10M), once on CW and once on SSB. Each QSO is worth one point. There are no multipliers. Each contact with the Dayton Amateur Radio Association station W8BI is worth 10 points. Your score is the number of contacts plus bonus points.

The exchange is a signal report and the first year you attended Dayton. If you never attended the Hamvention send 2020. The first year for me was 1976. Can anyone from the ORC beat that? You can use packet spotting, but you can't self-spot. https://wwrof.org/hamvention-qso-party/

Being forced to stay home, many contesters have been operating small contests and state QSO parties. ORC member Vic, WT9Q, has been working multiple state QSO parties at the same time!

I generally only cover the larger contests in this column. In reality, there are often several contests every weekend. The best place to check up on them is the ARRL website at http://www.arrl.org/contest-calendar Scroll down to near the bottom of the page to the box labeled Contest Corral and select the month of interest. Maybe there is one that strikes your interests while we are confined to quarters.

Sporadic E (Es) peaks in May and June. Clouds of ionization form in the E layer of the ionosphere. They peak in the spring in North America. Es is not dependent on sunspots. The most popular theory is wind shear causes the ionization. Sporadic E affects bands at least down to 20 Meters, but with other propagation modes available, it is not always recognized down there. Those 20M openings that last well into the night, and sometimes all night during Field Day, are Es.

Sporadic E is most interesting on the higher HF and lower VHF bands. During this point in the sunspot cycle, they may be your best opportunity to make contacts on 12 and 10 meters. If you have not operated HF, put up a simple 10M dipole. The 10M band is the only HF band open to Technician class ops to use phone.

Signals can be very loud, so a big station is not required. Contacts out to about 1400 miles are possible with single hops. Openings to the Gulf Coast are most common but can happen in all directions.

Es is the primary propagation mode for 6M except at the peak of sunspot cycles. The lower bands are more likely to open up, so if 10M is hopping, it makes sense to check out 6M.

Sometimes the Es clouds are arranged in a way that multi-hop contacts are possible, even on 6 M. Six Meter guru Ken, W9GA, likens it to lining up a bunch of balls in a fancy billiards combination shot. Openings to Europe and Africa happen occasionally. Openings to Central and South America are pretty common, and the path is occasionally open to Japan. FT8, with its superior weak signal capabilities, brings this to modest stations.

Six opened up for several days in mid-April. I worked 4 DX countries at this time. I had two of them worked in the past, but no QSL. I got confirmation on both countries on LoTW the next day! Since those contacts, it has not been open much, but we are still early in the season. Most likely, we will get a lot of opening in the next couple of months.

Hang in there and S.I.T.S (Stay in The Shack).

THE COMPUTER CORNER
No. 266: AnyDesk – A Teamviewer Alternate

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

Over the years, Teamviewer has been a wonderful, free tool. It has allowed me to fix remote computer software for a number of friends (even those out of state), as well as saving the need, many hundreds of times, for me to run up and down the stairs from basement-located ham and Winlink computers to the 2nd floor main computer (or the reverse). That is important when you are 84 (28 April).

Right now, I have 11 computers on my Teamviewer list (really only 9 because two are dual-boot — Windows-Linux), and Teamviewer starts up with either operating system. I own seven (really five with the two dual-boot) that are located in my home, but the remaining four are offsite at friends or relatives houses, and I service them all. For example, when one of my own machines has a Linux update, I make the rounds of all Linux machines because I know the rest of the Linux machines need to be updated, too.

Teamviewer was just peachy for a number of years. But then, perhaps because of their need for revenue, they began to throw in advertising notices to buy their software that were of the *in-your-face* nature. Then they had some secret way to decide you were using their free service for non-free commercial purposes (which I have never done), and they locked me out of using their service. The only way to unlock and resume service was to send them affidavit documentation, on a form that took several days to get from them, with signatures and dates. Furthermore, it took at least another week or even two for them to respond, and sometimes they did not respond at all, but suddenly service was simply resumed. After this happened three times with three different machines, the end user (me) got pretty annoyed. Then I stumbled upon AnyDesk.

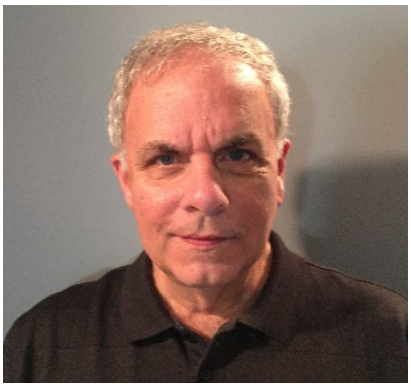
AnyDesk is quite similar to Teamviewer, but faster. They claim 12 milliseconds to transfer, for example, your mouse pointer movement to a remote computer, which is really very speedy. And AnyDesk works across platforms, with Windows, macOS and Linux. For example, I routinely control a Windows 10 desktop from a Linux machine, and vice versa. It works with XP and above, has modest RAM requirements (2 gigabytes), and very reasonable video card capability requirements.

So, have I dumped Teamviewer? No. I took the time and trouble to put both programs on all 11 operating systems, and I can pick and choose which one I want to use in a particular situation. Yes, I switch between them. On the other hand, the first time Teamviewer again locks me out, I will remove their software from all machines. Most likely, they don't care. But writing about it as I am doing now, and informing you of alternates, surely cannot help them. I think it pays to be nice to even your "free" customers as an investment in the future.

So, at this point in history, if you need to control a remote computer, be it across the room or across the world, I recommend AnyDesk. Just search for anydesk.com, download it and install it on both machines. It works nicely and the price ($0) is right! Happy Computing!

Vintage Amateur Radio

de Bill Shadid, W9MXQ



While most operators use barefoot stations with output between QRP levels (typically five watts) and standalone transceivers with as much as 400 watts output. But a good number of hams choose to use, or have available to use, more power up to the level of 1,500 watts PEP output by today's rules in the United States.

The current rules follow many years of the rule being stated as 1,000 watts DC input to the final amplifier. Note the word input – not output. This was complicated and may be the subject of some future article but let it be said that the rule was complicated by a further statement that input power to the final of the amplifier included the drive power. Did that mean that a 1000-watt amplifier that was driven by a 200-watt input exciter could only be loaded to 800-watts? I guess it makes no difference, today.

The post WWII move to SSB for phone operation led to a definition widely accepted that SSB was really an average of 1000 watts if modulation peaks reached twice that amount on power peaks. So, the feeling was that peak input power of 2,000-watts equaled an average of 1,000 watts – or said at the time that the power rating was "twice average DC."

So, in the 1960's it became acceptable to have a linear amplifier (by then, because the modes of choice were CW and SSB) that had a mode switch that showed CW and SSB. The amplifier was tuned in the CW mode to a power level of 1,000-watts. To operate SSB, the mode switch – without returning – was turned to SSB which significantly increased the plate voltage allowing a peak power of 2,000 watts[1].

Our discussion in this article will focus on the National Radio Company, NCL-2000 Linear Amplifier dating from the mid-1960s . . .

National NCL-2000 HF Linear Amplifier

W9MXQ

We often hear the term, “built like a battleship.” That wording applies to the 62-pound NCL-2000. It commands attention in its large footprint of 7-5/8” x 16-1/2” x 12-3/4” (HWD) dimensions. That weight and size included the amplifier and high voltage power supply in a single, desktop cabinet[2].

Power tubes at the time of the NCL-2000 were varied – as were the amplifiers themselves. In this time, there older, still marketed 1,000-watt DC input amplifiers were living alongside their 2,000-watt PEP input competitors. Some examples from the day were:

1960’s Linear Amplifier Examples – Showing Power Levels			
Amplifier	**Power Input (Watts)**		
	DC Rated	**SSB Peak Rated**	**SSB Capability**
Collins 30L-1 (4x 811A)	1,000	1,000	1,000
Collins 30S-1 (1x 4CX1000)	1,000	1,000	2,000
Drake L-4 (2x 3-400z)	1,000	1,000	2,000
Heathkit KW-1 (2x 4-400)	1,000	1,000	2,000
Heathkit SB-200 (2x 572B)	1,000	1,200	1,200
Heathkit SB-220 (2x 3-500z)	1,000	2,000	2,000
Hallicrafters HT-33A (PL-172)	1,000	1,000	2,000
Hallicrafters HT-45 (3-400z)	1,000	1,000	1,000

The Collins 30L-1 Linear Amplifier, for example, was a full, legal limit linear amplifier before the decision to allow “twice average DC.”

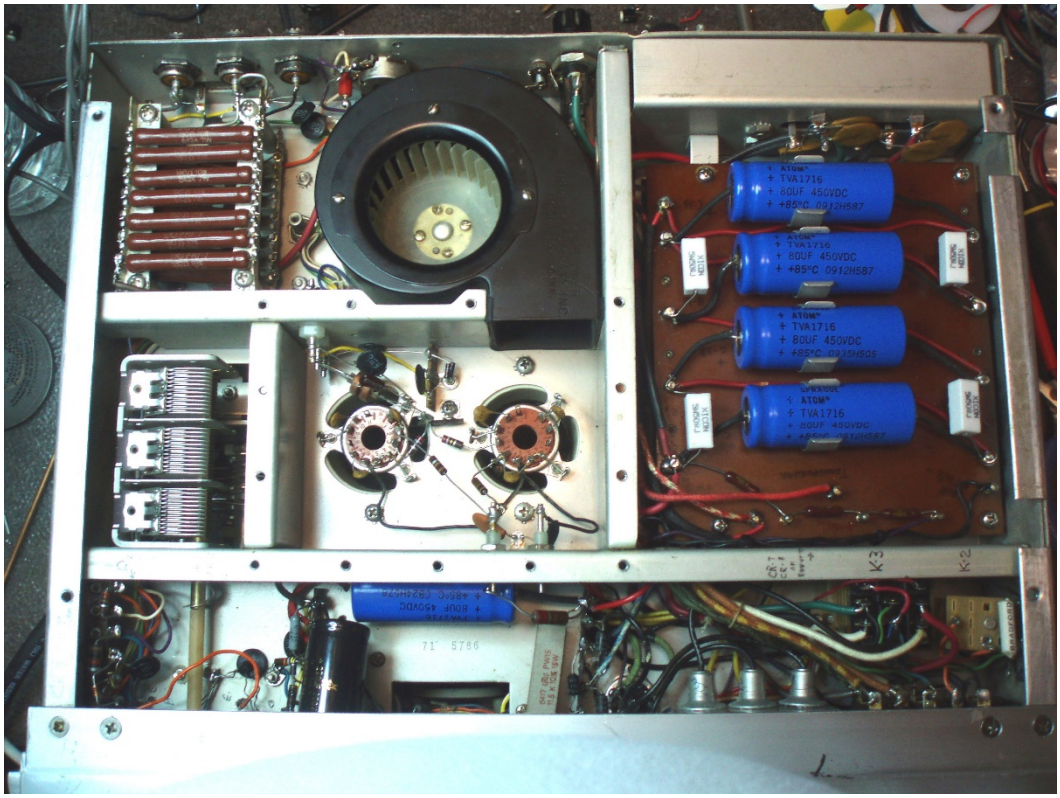
The tube technology of the time was changing. The all glass tubes of the day (and still on the market today) were being joined on the market by more modern ceramic tubes as used in the NCL-2000:[3]

RCA (now Burle)
8122 Ceramic Tetrode
400 watts Plate Dissipation
(OEM in the National NCL-2000)
W9MXQ

Eimac
3-400z Glass Triode
400 watts Plate Dissipation
(OEM in the Drake L-4 and in the Hallicrafters HT-45)
W9MXQ

Amplifiers of this era were designed to operate with a full power duty cycle in their intended mode. The NCL-2000 was no exception. It was, for instance, designed to operate at 2,000 Watts PEP input (about 1,300 watts output) on SSB – and this it can do without a need to be in standby for significant periods any more than a person talking would need to rest. On CW and RTTY (a continuous duty mode) the amplifier is designed for continuous operation at 600-watts output. Like the Collins 30S-1, the Drake L-4, and some others, the NCL-2000 has a pressur-

ized cooling system to force air past or through the amplifier tubes. This insures good cooling in all modes of service. Check this under chassis layout of the amplifier:



Under chassis view of the National NCL-2000.
Front panel is toward the bottom of the picture.
W9MXQ

At the top center of the chassis is the black squirrel cage blower with its translucent plastic fan cage. The motor is out of view on the opposite side of the fan. The bottom chassis cover is removed. Note the lower tube socket chamber in the center of the chassis where you can see the two sockets for the 8122 tubes. See also the screw holes all around the top edges of this chamber. This allows a seal and forces the air from the fan to push through the slots around the tube sockets – those slots in turn, with the design of the socket, direct air through the cooling fins that surround the outer diameter of the 8122 tube.

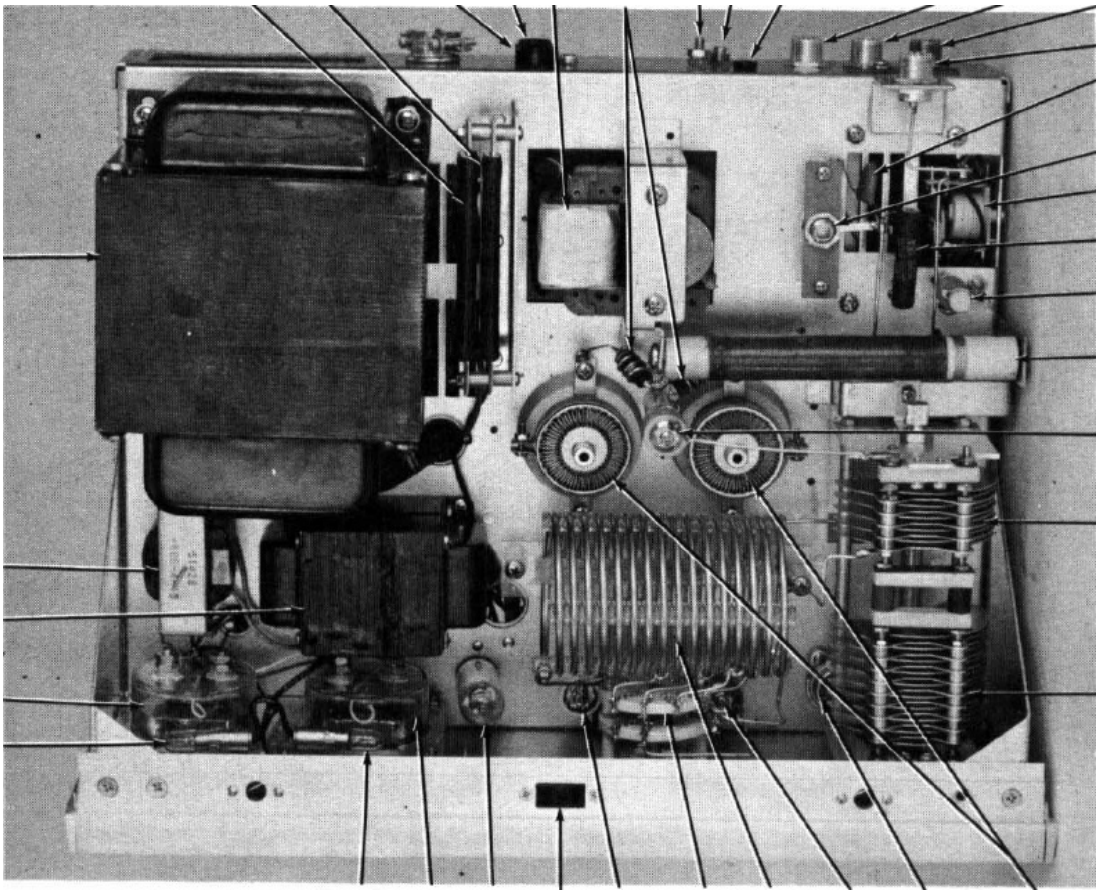
The fan cooling through the fins of the 8122 tubes allows for a total of 800 watts (400 watts per tube) dissipation. So, when the tube is running an input of 2,000 watts PEP, the tubes are putting 1,300 watts into the antenna and therefore dissipating 700 watts of heat. That is below the capability of the tubes to dissipate 800 watts – not considering that the 2,000 watts is twice average DC – meaning that the radio average power is not generating even close to the 800 watts it is designed to handle continuously. This, like many amplifiers of the time, is operating very conservatively.

Some evidence of my work a couple of years ago on the NCL-2000 power circuits can be seen in the blue colored new electrolytic capacitors. The group at the upper right are four of the eight 80uf, 450-volt filter capacitors in the high voltage power supply. The single blue 80 uF, 450-volt filter capacitor at the bottom center is the filter capacitor for the screen voltage supply.

The seven, dark brown resistors at the upper left-hand part of the picture – to the left of the blower – are the load resistors (there are a total of fourteen of these) that provide a load for the exciter.

The NCL-2000 is grid driven and requires only 20 watts of drive for full power. With proper adjustment to the input circuit, drive can be anywhere from 20 to 200 watts. In fact, the input resistor network can act as a dummy load for the typical 100-watt output exciter. Competitors in the field, like the mentioned Drake L-4, were grounded grid circuits requiring at least 100 watts of drive. And, without the resistive load presented to the exciter with the NCL-2000, the L-4 required complicated tuned input circuitry with associated and synchronized band switching.

The interior view of the NCL-2000 shows the design and grouping of components, in a reverse of the bottom view:



Top chassis view of the National NCL-2000.
Front panel is toward the bottom of the picture.
W9MXQ – NCL-2000 Operating Manual

At the top left of the picture is the plate power transformer with the much smaller bias and filament transformer just below it. Below that, attached to the front panel are the two meters – the one on the left being the Plate Current Meter and the right meter being a Multimeter reading Plate Voltage, Screen Current, Grid Current, and Exciter Tune.

The tank coil is in the center, just above the front panel in the picture. Note that because of the resistive load input circuit the bandswitch does not include a synchronizing shaft to an input bandswitch – unnecessary in the NCL-2000. Above the tank coil are the two 8122 tubes with their cooling fins showing clearly. You can see the plate choke running from the right side of the

chassis to the area between the tubes. Note that on the 8122 tubes the ring around the fin area is also the plate surface so the parasitic resistor/coil assemblies are clamped to the outside of the tube.

You can see the blower motor at top center. To its right you see an open chassis area that shows off the antenna relay. That relay, detailed below, is part of an ingenious circuit that works equally well with a transceiver or with a separate transmitter and receiver. At the time of this product the transceiver was the prince in line to be the king. But in 1965 the king and queen, the transmitter and receiver, were still in their glory and their reign!

Some amplifiers of the day had no internal switching – such as the Hallicrafters HT-45 and relied totally on ham designed[4] or separately purchased switching relay(s). Not so with the NCL-2000. National provided coax connection points for connection to three different systems using these four coaxial connectors . . .

1. Transceiver Input
2. Separate Receiver and Transmitter
    - With their own antenna switch between them.
3. Separate Receiver and Transmitter
    - Without their own antenna switch between them.
    - This option does not allow the transmitter to run barefoot.
4. Station Antenna Connection

This linear amplifier works perfectly with modern radios and has run from time to time with my Drake TR7 and my Drake R-4C / T-4XC combination[5]. The NCL-2000 cannot be run, unmodified with a modern transceiver that has no relay switching for operating the T/R relay inside the amplifier[6]. Commercial units are available (the Ameritron ARB-704, for instance). However, of late I have been modifying my amplifiers so there is a transistor switch added to the amplifier to handle such switching. Schematics for such additions are widely available on the internet.

The NCL-2000 is a classic Linear Amplifier that was marketed by National Radio Company – at the time one of the oldest names in radio. Here is a duplication of an advertisement appearing in 1969. These are not props from National – it is an operating station at W9MXQ . . .

W9MXQ

The picture duplicated with W9MXQ equipment and is based on a 1969 advertisement in both CQ and QST Magazines. Title of the advertisement was, “Live a Little.” The equipment, left to right is

- National NCX-A AC Power Supply and Speaker Console
- National NCX-5 HF SSB/AM/CW Transceiver
- National VX-501 External VFO

- National NCL-2000 HF Linear Amplifier
- National HRO-500 HF Receiver
- Shown with:
    - Electro Voice 638 Microphone with PTT Base
    - MFJ-422C Keyer with Bencher BY-1 Mechanism.

This picture appeared in an earlier installment that chronicled the NCX-5 Transceiver.

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 proof-reader as he often adds commentary that makes it into the article.

Credits and Comments:

[1] The "twice average DC" implied that the amplifier (or transmitter) was not to ever be operated in SSB mode for key down (CW) operation – which would indicate a DC input of 2,000 watts. That would have been clearly illegal.

[2] The NCL-2000 was quite heavy for the time. But it was lighter than some with a separate power supply. One competitor of the time, the Drake L-4 Linear Amplifier, weighed more at 75 pounds but that was a total of 75 pounds with 43 pounds of that weight in the separate power supply.

[3] The march of time has not been kind to the glass envelope tube. In amateur radio, new technology vacuum tube amplifiers are all ceramic with many of those tubes being made in the United States. Glass tubes are virtually impossible to source from American manufacturers today, except for New Old Stock (NOS).

[4] Relays were available on the market from Dow-Key, B&W, and P&H – but most hams fabricated their own in those days. I still do!

[5] My current NCL-2000 is in restoration. I have had a previous one that I used for many years. With my Drake TR7, TR7A, and R-4C/T-4XC

[6] The high open circuit voltage and current required for NCL-2000 relay closure (receive/transmit switching) will destroy the switching transistor in modern transceivers of most manufacturers. Exceptions that I know about are relatively recent Yaesu models that include such a relay as a menu option. The optional use of the relay will preclude QSK operation of the radio. However, QSK is not possible while the NCL-2000. Those Yaesu radios include some models in use at W9MXQ. They include the Yaesu FT-1000D (switch activated – not via menu), FT-1000MP, FT-1000MP Mark V, and the FT-2000. Yaesu models in use at W9MXQ that DO NOT have this feature include the FT-817ND, the FT-450D, the FT-897D, and the FT-991A. Radios without the relay require an interface or internal modification of the amplifier. Both options are covered in the article. Other brands and models should be researched carefully – beware of internal relay specifications shown in Icom Operating Manuals. Most are incorrect – you can seriously damage your Icom radio when using an older amplifier if you do not use an interface..

W9MXQ

Tech Tidbits
FT-8 ANTENNA TIP

de Pat Volkmann, W9JI

I was having trouble working South America on 40 and 30 meters on FT-8 with my wire antenna. I wanted to improve the situation without getting into a major antenna project and here's what I did.

My main wire antenna is a variation of a double extended Zepp, up about 50 feet. The antenna pattern favors signals to the east and west so it works well for Europe and Asia. South America has been a problem with relatively few contacts and poor signal reports.

Mounting bracket for Hamstick antenna (photo by W9JI)

I was able to improve the situation with a simple change – I added a vertical antenna. I took one of the 40 meter Hamstick antennas that I used for HF mobile and mounted it on the deck in my backyard. Two elevated radials tucked under the edge of the deck created the ground plane. The radials are out of sight and the vertical blends in with the deck railing. The feed line runs into the shack and connects to a tuner. The incorporation of a tuner in the systems allows for easy multiband operation. The 40 meter ham stick works well on 40, 30 and 20 meters.

It took about 3 hours to install the vertical and radials and run coax into the shack. There was no additional cost as I already had all the parts. I am now able to work South America easily on FT-8 on 40, 30 and 20 meters.

Ozaukee Radio Club
April 8, 2020 Meeting Minutes

de Ken Boston W9GA

This ORC meeting was conducted via 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. A stripped down format was then followed for this meeting.

ORC President Pat W9JI officially initiated the meeting at 7:36 PM, as introductions were recognized when members checked into the meeting, a go-around was not conducted.

Committee reports:

Reports limited for this meeting

Repeater VP Tom KC9ONY has installed the 100 watt amplifier in late March. Tom also discussed with the members as to whether the spring swapfest should be rescheduled or cancelled, with opinion favoring the latter.

Treasurer Gary N9UUR reported on receiving dues from 3 members renewing, and reported the current balance. He has emailed the latest treasurers report.

Secretary W9GA, Ken noted 3 corrections to the March 2020 minutes, and will update.

Program:

The program tonight was presented by Gary W9XT on Soldering tips and techniques, plus recommended equipment. Gary reviewed the types of solder used, flux types, types of soldering guns .irons and various tips. He went over ancillary equipment, then provided several tips on making a good joint, soldering parts into circuits, and soldering coax connectors. He ended by describing other add-on tools you can use.

Adjournment:
43 members (unique callsigns) were logged in. Contact Ken W9GA to obtain the list.

Respectfully submitted,

Kenneth Boston W9GA
Secretary

ORC Meeting Agenda

June 10, 2020

1. 7:00 – 7:30 PM – Network & Rag Chew
2. Call to Order – President Pat Volkmann (W9JI)
3. Introductions
4. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
5. Program
6. Fellowship Break
7. 50/50 Drawing
8. Auction – Stan Kaplan (WB9RQR)
9. President's Update – Pat Volkmann (W9JI)
10. 1st VP Report – Ben Evans (K9UZ)
11. 2nd VP Report – Bill Church (KD9DRQ)
12. Repeater VP Report – Tom Trethewey (KC9ONY)
13. Secretary's Report – Ken Boston (W9GA)
14. Treasurer's Report – Gary Bargholz (N9UUR))
15. Committee Reports
16. OLD BUSINESS
17. NEW BUSINESS
18. Adjournment to ?

Meeting Note:

Depending on how the Covid-19 situation evolves and how members feel about meeting in person again, we may have another virtual meeting in June on the same evening and time via the Zoom videoconferencing app. Details will be emailed via the ORC remailer.

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting (Tentative):

Grafton Multipurpose Senior Center

1665 7th Avenue, Grafton, WI
Wednesday, June 10th, 2020

7:00 PM – Doors Open

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 XXXII	June, 2020	Number 6

From the President

de Pat Volkmann, W9JI

The June meeting of the Ozaukee Radio Club was held via Zoom on Wednesday June 10th at 7:30 P.M. The meeting was well-attended. The subject of the presentation was, as usual, Field Day. Ken Boston W9GA told us about the Field Day rule changes for this year.

At the May meeting we asked club members how many were interested in attending a Club sponsored Field Day event this year. The great majority said that they wouldn't attend this year due to concerns about the Covid-19 virus. Others said that they had a desire to try something different. By the time of the June meeting, the situation hadn't changed. Now it's official. There won't be an ORC-sponsored Field Day outing this year.

This is not to say that people aren't interested in Field Day. There were lots of questions during the presentation about Field Day rules and a discussion of what everyone has planned for their personal Field Day. I asked everyone to take some pictures and send them to me. I'll put together a presentation for the July meeting so we can see what everyone was up to.

I expect that we will have a "normal" Field Day outing in 2021.

And, for our next Field Day outing, we will have another generator. Jon Gilmore KB9RHZ has donated a Coleman Powermate generator in like-new condition. The Powermate puts just over 6 KW peak power and will be welcome addition to our emergency preparedness gear. Thank you Jon!

The ORC Fall Swapfest has been scheduled for August 29th. The fall event is held outdoors which should make it easier to maintain our social distance. Tom Ruhlmann W9IPR will be organizing the Swapfest again this year. We will keep you updated with any changes that occur over the summer.

If you know someone who is not a member but would like to attend a Club meeting ask them to contact me for an invitation.

See you at the meeting.

Pat Volkmann, W9JI

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

The results of the Wisconsin QSO Party are out, and ORC took first place in the local club competition! We had scores submitted by AC9JV, KC9CI, K9DJT, K9QLP, K9VIN, WT9Q, W9JI, W9KEY, W9KHH, W9MXQ, W9XT, and W9XX. With this great turn out, we crushed the competition! Let's do it again next year!

June is a great month for Sporadic E (Es) propagation. Es propagation happens when small patches of the E layer of the ionosphere get ionized. The range is usually from a few hundred miles for high levels of ionization up to about 1300 miles. Multiple hops are possible in what Ken, W9GA, compares to a combination billiard shot.

Propagation can also be very localized. I have had half-hour QSOs with a station in Florida or Colorado, and the rest of the band was dead. Sometimes you will hear stations 50 miles away working stuff you can't hear. Most openings are to the south. Florida and the Gulf Coast states are most common, but openings can happen in all directions.

Es is more pronounced on the higher HF and lower VHF bands. Es occurs on other HF bands, but different propagation modes mask it. Es is a good mode to get WAS contacts for 15-6 Meters. I picked up a few new 12M states in the last few weeks.

Es peaks May-July with a smaller peak in December. I mentioned that the season seemed to start early this year, mid-April, but then we had a lull for a few weeks.

My primary interest this season is working new DXCC countries on 6M. So far, I have worked 19 separate DXCC countries on 6M this season with a crappy three element beam. Three of them were all-time new countries on 6M. Most were with FT8. FT8 opens up the bands not able to support SSB or CW.

Most of my 6M DX contacts have been into Central America, the Caribbean, or South America. I did work one station in the Canary Islands, which is part of Africa. So far, I have not heard any Europeans. Looking in previous years' logs, it seemed that most of the Europeans I worked on 6M Ex was between mid-June and the end of July, so there is still time for you to get into the action.

Other awards to chase on 6M include the popular VUCC award. You get this by making and confirming contacts with 100 grid squares. FT8 makes this easy because CQs include their grid square. You can see right away if they are a new one. Most FT8 ops are very active on LoTW, making confirmation quick, easy, and inexpensive.

Another, but much harder award is the Fred Fish Memorial Award. This was named after K5FF (SK), a big 6M proponent. You have to work every grid square that contains land in the continental US. Many are very rare because most of the grid is water or sparsely populated. LoTW tracks both VUCC and FFMA.

I first got interested in Es when I upgraded from my Novice license many years ago. It was on 10M. This band is the only band Technicians have HF phone privileges. Getting on is pretty easy. The legs of a dipole are only about 8' long. Get one up 15-20,' and you can make lots of contacts.

DXpeditions are still on hold with COVID-19, so not much to report there.

The big June “contest” is Field Day. ORC FD plans are not finalized as this is being written, but it seems unlikely there will be a group operation. Most members are skipping FD this year, or operating from home. I understand this will be discussed during the June ORC Zoom meeting.

If you are going to do FD by yourself, be sure to review the rules. They are complex, and we have relied on the FC committee to handle much of that in previous years.

This is going to be my 50th consecutive FD. I was hoping for something special, but it is not turning out that way. I have gone through three different plans. These changed as the ARRL made changes and made clarifications. I am disappointed in some of the ways they handled this. I will just default to using my home station with commercial power (Class D).

Note that they made a change that allows Class D stations to contact other Class D stations. That is a special rule in effect only for 2020. Also, individual stations can specify their club name with their entry. There will be a club listing. Get on the air and submit your score! ORC had a great showing in the WiQP, let’s do it in FD!

The other contest in June is the VHF contest, June 13-15. You work other stations on 6M and above and exchange grid squares. The June running always has the possibility of Es openings on 6M, and it can be a lot of fun. The digital modes may play a big role, but if the bands open up enough to support CW or SSB, you will be able to make contacts faster on the traditional modes. Full rules at http://www.arrl.org/june-vhf.

A contest for early July is the IARU contest. It starts at 1200 UTC (7:00 AM local) Saturday, July 11, and runs 24 hours. You can run CW only, SSB only, or mixed-mode in high, low, and QRP power levels. Exchange signal report and ITU zone. We are in Zone 8. Full rules at http://www.arrl.org/iaru-hf-world-championship.

That wraps up this month on the air. Things are starting to open up a bit with the virus situation, but there are still reasons to spend some time in the shack.

THE COMPUTER CORNER

No. 267: How to Clean That Radio

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

What the heck is he writing about now? Well folks, with the current Coronavirus problem, what do you use to clean up a radio you bought at a swapfest? What do you use to clean that chassis you are rebuilding? What do you use to clean the resistors, capacitors and other parts for that fresh project you are about to construct? Here are some basic guidelines recently outlined by Consumer Reports (June 2020), based upon scientific studies they have reviewed recently, with a few bits thrown in by your author (I was trained as a biomedical scientist and dealt with killing bacteria and viruses on cadavers as part of my job).

Soap and water, of course, for our hands before and after working with devices with unknown contamination. Soap and water breaks the protective envelope around the virus quickly and effectively, as we have all heard. It cannot really "kill" a virus because they are not living entities, so we more accurately say it inactivates them and prevents them from infecting a cell. But, we can be sloppy and say it "kills" them. Make sure it is at least a 17-second rinse (recently upped to 20 seconds just to make it to the nearest round number, but Stan remembers experiments done over 50 years ago using radioactive markers on the hands of volunteers that showed a 17-second rinse after a soap and water wash to be effective). Don't use soap and water and a long rinse for intact radio equipment, though!

Bleach. A half cup of bleach in a gallon of water (or 4 teaspoons per quart of water) makes a solution that will definitely kill viruses and bacteria (embalmers use bleach solution plus other additives to decontaminate the exterior of bodies prior to starting the embalming process, so that tells you something). Use gloves to protect your skin when preparing the solution. Make it fresh every few days because the chlorine gas in bleach will evaporate with time (that is the smell you smell – chlorine gas, and we humans can detect as little as 0.1-0.3 parts per million in air). Bleach can corrode metal with time and damage some plastic, so it needs to be water-rinsed a few minutes after application to whatever you are disinfecting. Keep all that in mind when treating electronic gadgets or components. Not the best choice for radios or their parts.

Hydrogen peroxide. Household hydrogen peroxide (3% in water) will "kill" almost all viruses in 6-8 minutes. Use a spray bottle and let it sit for awhile before drying with towels and vigorous air streams. It won't corrode metal surfaces, and it decomposes into simple oxygen and water. A caution. It is in a light proof bottle for a reason. Light will decompose hydrogen peroxide, so put fresh solution in that spray bottle you will use today. And it decomposes spontaneously with time, so make sure to follow the use-by date on the container. Don't bother using that bottle in your bathroom cabinet that you purchased 10 years ago! So, hydrogen peroxide is a pretty good candidate for making old radios safer.

Alcohol. Specifically, 70% rubbing alcohol. Vodka (80 proof or 40%) or other drinks will not work because they do not contain enough alcohol! Don't ask me why, but even 95% alcohol is less effective than 70%! Stick with plain, inexpensive 70% isopropyl ("rubbing alcohol") from your drugstore. It is pretty safe for all surfaces, except it may discolor some plastics. Spray it

on from a spray bottle or pour it on (keep away from flames). But mop it up and dry the equipment with a fan to make it evaporate after a few minutes have gone by.

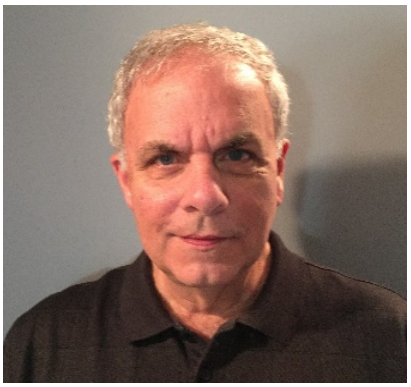
Vinegar. Said to be pretty good for cleaning windows. But forget it in this day and age, since it has not been shown to be effective against any viruses.

Wipes. There are a bunch of brands for sale. The one I use and trust is Clorox Disinfecting Wipes (bleach-free), which they claim will kill 99.9% of viruses and bacteria, including human Coronavirus. Okay for most hard surfaces (not for skin, unfinished wood, foods, worn surfaces). As always, read the cautions and directions on the package.

So the upshot is, hydrogen peroxide (3%) and isopropyl alcohol (rubbing alcohol, 70%) look like pretty good candidates. Keep safe, and Happy Computing!

Vintage Amateur Radio

de Bill Shadid, W9MXQ



In the 1970's, ham radio was still progressing from a totally separate receiver and transmitter station to what we see today in the modern transceiver. But, several manufacturers like Kenwood and Drake[1] held on to older concept, separate Receivers and Transmitters. That was in addition to offering successful ham band Transceivers. One manufacturer that had practically defined the transceiver concept – while not inventing it – was Swan Electronics. By the 1970's, Swan was a wholly owned subsidiary of the communication and technology conglomerate, Cubic Corporation.

Things were developing in the market with Kenwood and Yaesu (and sold by American distributors we knew as amateur radio sales outlets). CIR Industries, in the 1970's introduced the PLL main oscillator equipped transceiver, the CIR Astro 200. That Astro name would come back again at the end of the 1970's decade as a product and trade name of another manufacturer[2].

Both Kenwood and Swan introduced Receiver and Transmitter separates in 1970 and 1971, respectively, in the form of the Kenwood R-599 Receiver and T-599 Transmitter and the subject of this article, the Swan 600-R Standard / 600-R Custom Receiver and the Swan 600-T Transmitter. Drake was established in the "separates" or "twins" market starting with their Drake R-4 Receiver and T-4X Transmitter in 1964. The rather remarkable Drake R-4C and T-4XC version pair came along toward the end of the 1970's. These Swan "twins" were late to this market started in 1958 by Collins with what were the 75S-3B Receiver and 32S-3 Transmitter by 1964. (That market was for separate receivers and transmitters that could be connected to transceive.)

Swans "twins" were large in desktop space requirements and unique at least in their frequency control system. They pretty much dwarfed their stable mates, the Swan 500cx and 270B Transceivers of the same vintage.

Swan 600 Twins
Swan 600-T Transmitter and Swan 600-R Custom Receiver
W9MXQ

The 600-R Receiver came in two forms . . .

- The 600-R Standard Receiver
- The 600-R Custom Receiver

The receiver in the above picture is a Custom model. The Custom version included both a Dual Mode i-f Noise Blanker and an ICAF Audio Filter. (ICAF strands for "Integrated Circuit Audio Filter"). The two receivers were different in appearance – showing the absence of certain Custom

version features. The Standard unit could not be converted into the Custom by addition of options – at least not in the same form.

Swan 600-R Standard Receiver
KE9PQ

Swan 600-R Custom Receiver
W9MXQ

On the Standard Receiver (left), note the missing ICAS Controls (under the S-Meter) and missing Noise Blanker control just to the right of the frequency readout window.

The receiver characteristics are ruled by its excellent 5.5 MHz i-f, 8-pole crystal bandwidth filter. This i-f design carried over (except for a change in 1968 to the final 5.5 MHz center frequency from approximately 5.2 MHz) from the original five band, Swan 350 Transceiver[3]. The 2.7 kHz filter bandwidth of the filter allowed for a full, rich audio bandwidth and comfortable listening. If anything, this filter limited the ability of the receiver to reject very close-in interference. However, the very steep slope factor (1.7:1 at 6 to 60 dB down) of the filter made the most of its design.

Both the Receiver and Transmitter are self-contained with internal power supplies. This was like similar separate receiver and transmitter products from Kenwood but unlike Collins and Drake where power supplies were separate.

While extremely rare to find, today, even installed in a radio, Swan offered optional bandwidth filters for the 600-R Receivers. These included a 600Hz CW Filter and a 6.0 kHz filter for AM. To my knowledge, none of the aftermarket filter manufacturers (INRAD, Sherwood, Fox-Tango, etc.) ever offered retro-fit filters for Swan or Cubic products. Optional receiver bandwidth slots in Swan radios were limited to the 600 series “twins” and the later Astro 103BXA and 103 Transceivers – none of which had significant volume.

Some options for the 600 series radios were offered at the time from Swan. These included . . .

- External Swan NB500 Noise Blanker for the 600-R Standard Receiver. (Receiver modification was required – the NB500 was built into the 600-R Custom Receiver.)
- External Swan ICAF Audio Filter for the 600-R Standard Receiver. (Receiver modification was required – the ICAS was built into the 600-R Custom Receiver.)
- Swan SS-16B i-f Filter for either 600-R Receiver[4]. This replaced the standard SSB i-f filter in the receiver and offered a steeper Slope Factor.
- Swan 600-S Matching Speaker for use with either 600-R Receiver.
- Swan 600-SP Matching Speaker and Phone Patch for use with either 600-R Receiver. The Phone Patch was also offered as an external package and marketed as the Swan FP-1
- Swan Model 330 External General Coverage Adapter for the 600-R Receivers[4].
- Selectable Swan 600 Hz Narrow CW Filter for either 600-R Receiver[4].
- Selectable Swan 6.0 kHz AM Filter for either 600-R Receiver[4].
- Transceive Cable – Swan 500cx[4,5] Transceiver with either 600-R Receiver.

- Transceive Cable – Swan 270B[4,5] Transceiver with either 600-R Receiver.

As a comparison of power levels, the chart below shows the power specifications of the various Swan Transceivers and the Swan 600-T Transmitter in 1971 – the year the Swan 600 Receiver and Transmitter were introduced:

	Swan Radio in 1971			
	600-T	**500cx**	**270B**	**350c**
SSB Input	600w	550w	260w	520w
CW Input	500w	360w	180w	360w
AM Input	125w (Carrier)	125w (Carrier)	N/A	125w (Carrier)
SSB Output	360w	330w	150w	310w
CW Output	300w	200w	110w	200w
PA Tube(s)	2x 6KD6	2x 6LQ6	1x 6LQ6	2x 6LQ6

Power input levels are as posted in Swan literature of the time. Power output is based on about 60% efficiency and/or personal experience (Swan 600-T, 500cx, and 350c). In actual experience, the 600-T seems to operate smoothly to 400 watts output on SSB with good waveform showing on a monitor scope. Holding the output to no more than the above chart seems to be best for tube life. As a case in point – to reference tube life, the 500cx in the chart above was operated daily from its purchase in 1971 until three years ago – and now about monthly. It still produces more than 330 watts output from its original 6LQ6 tubes. The 600-T shown above will easily produce a clean signal on the monitor scope at over 400 watts, if allowed to do so.

Any mention of the 600's would be incomplete without some mention of the rather unique method of frequency determination. It is unique – and even may explain the rarity of the units.

W9MXQ

The Frequency Determination Controls on the Swan 600-R Custom Receiver – Typical if the 600-T, 600-R Standard, and the 600-R Custom.

The picture above is showing the Frequency Determination Controls that includes the tuning window with the Dial Set and Main Tuning disks, the Dial Set Knob, the Main Tuning Knob, and the Band Switch. This is the front panel of the 600-R Custom Receiver, but it could be just as well any of the models (Receivers and Transmitter). The process follows:

- Set the bandswitch to the desired band – noting the bandswitch indication of the bottom frequency. In the above picture, the bandswitch is set for 40 meters at 7.1 (for 7.1 MHz).
- Noting that the VFO dial has a range of 200 kHz tuning (identical, by the way, to the tuning range on the Collins S-Line VFO's). Set the VFO Dial to "0." (The 600's have a 500 kHz tuning range on 10-meters.)

- Noting whether I want the VFO to tune from 7.000 to 7.200 MHz or 7.100 to 7.300 MHz, I set the Dial Set control for a starting point of “0” (to run 7.100 to 7.300 MHz) or at -100 if I want to run the VFO from 7.000 to 7.200 MHz. Engaging the 100 kHz Crystal Calibrator (and with the VFO at “0,” carefully tune the Dial Set knob for zero beat with the calibrator in the small range for the -100 setting.
- Similarly, this procedure is followed for each band – using the bandswitch reading as the starting point and making the Band Set setting for the proper 100 kHz offset of the starting point, as desired.
- I will leave it to the user to handle a slightly different system on 10-meters (due to a 500 kHz range on the VFO for that band). It is covered nicely in the Operating Manual for both the Transmitter and Receiver. The procedure for both is identical.

I kind of find the system intriguing and fun to do, but I have friends today that would feel ill-used if their transceiver is not controlled by their computer and if their linear amplifier does not change bands at the command of the transceiver. I am just not an appliance operator!! But, I will also admit that this procedure is not conducive to quickly checking the 10-meter phone band while operating on 40-meter CW.

Another interesting phenomenon of today’s transceiver-based operator is the concept of using a separate receiver and transmitter. While the 600-T and 600-R radios will transceive using either one’s VFO, they are completely at home running separate. After initially getting the two working but not yet having the interconnection cable designed and built, I made an attempt at getting on the air when I was not totally sure of the ability to get the Transmitter and Receiver on the same frequency. Several attempts never netted the other station zero beating my transmitter signal and letting me follow with my receiver. They were hung up on their own digital readout and kept telling me to, for instance, “move to 7156!!” Enough said, that trait is gone and lost on most of today’s operators. A thanks and a tip of the hat” to WØAH, W9DYQ, and K9DJT – old timers who knew exactly what to do. Thank you, fellows.

If the 600-T Transmitter user is a CW operator, there is a shortcoming in the standard 600-T Transmitter that can be addressed. Out of the box, Swan required the rotation of the Function switch from PTT to TRANS position to send CW. Or, a foot switch could be wired to the PTT line to connect to a foot switch to go from receive to transmit. For many this is effective but for some, semi-break-in is more to their liking. Swan offers a VOX (for voice) that includes semi-break-in CW circuitry that integrates itself into the radio. This is the VX-2 VOX unit for which there is a dedicated socket on the rear of the 600-T.

The 600-T Transmitter and 600-R Series Receivers are rare – and difficult to find in good condition. The one pictured at the beginning of this article is the result of a search that has gone on more than 25 years. It came from an estate that included two operating 600 stations – the one acquired and one that included the 600-R Standard Receiver and in less desirable condition, overall. They both were sold almost immediately. In my searches for the radios I find that many comments are made that the 600-T sold better than the 600-R Receivers. Best guess is that only 500 to 600 of the transmitters were made and under 500 of the 600-R Receivers. The split between 600-R Standard and Custom versions seems to indicate more Standard receivers were made than Custom. Anything is a guess – but suffice it to say that a search for a Swan 350 or 500 series Transceiver would net a find in minutes while a search for a 600 series pair could take years.

The rarest of all accessory item is the Swan Model 330 General Coverage Adapter. This device, that closely matched the appearance of the 600-R Receivers, sold in small quantities. Perhaps it

is conjecture on my part, but the 600-R Receivers had an optional AM filter – essentially for pleasant international shortwave listening. But, at the same time, it seems well known that Swan had problems in supplying that AM filter – for reasons unknown now. That was also true of the narrow CW filter. I feel it was possible that the lack of a readily available AM filter limited the viability of a General Coverage Adapter.

This is the Swan Model 330 General Coverage Tuning Adapter. It is shown here with a Swan 600-R Custom Receiver. The picture is scanned from the 1972 Swan General Catalog.

I have no idea how many (or how few!) of these Model 330 Adapters were produced. I have seen the unit in personal videos but have never seen one for sale.

Here is pricing for the units listed in this article – in 1972 dollars from the 1972 Swan General Catalog, plus its equivalent in 2020[6]:

Swan Item	Price in 1972	2020 Dollars
600-R Receiver Standard	$395.00	$2,500.00
600-R Receiver Custom	$495.00	$3,100.00
600-T Transmitter	$535.00	$3,350.00
330 General Coverage Adapter	$129.00	$800.00
600-S Speaker	$18.00	$115.00
600-SP Speaker / Phone Patch	$59.00	$370.00
AM Filter for 600-R	$29.00	$180.00
CW Filter for 600-R	$22.00	$140.00
VX-2 SSB/CW VOX for 600-T	$35.00	$220.00
NB500 Noise Blanker for 600-R Standard	$89.00	$560.00
ICAF Filter for 600-R Standard	$59.00	$370.00
500cx Transceiver w/117xc Power Supply	$588.00	$3,700.00
270B Transceiver	$429.00	$2,700.00

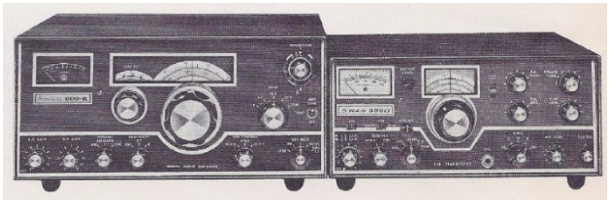
Swan did more than others to encourage the use of the separate 600 Series receivers with the rest of their product line. Drake encouraged using their separate receivers (the 2-Line and the 4-Line) with the TR-4 series transceivers. Much later they did the same thing with the TR7 Transceiver and the use of their matching R7 Receiver. In the case of the R7, it would transceive with the TR7.

Per the 1972 Swan General Product Catalog, the 600-R Standard Receiver is shown running with a Swan 270B and 500cx Transceiver. Reference these pictures from page 6 of that catalog:

- **Swan 270B Transceiver (left)**

With Swan 600-R Standard Receiver in Transceive Setup

- **1972 Swan General Catalog**



- **Swan 500cx Transceiver (right)**

With Swan 600-R Standard Receiver in Transceive Setup

- **1972 Swan General Catalog**

And, here is the picture of a similar tie up of radios at W9MXQ, wired for transceive operation on 40-meters:

Swan 500cx Transceiver with Swan 600-R Custom Receiver
(with 117XC Power Supply/Speaker and 600-SP Speaker/Phone Patch)
W9MXQ

In transceiver mode with the 600-R Receiver, the receiver sets which VFO is running the transceiver. There are three selections – Transceive with the Receiver VFO, Separate (Receive on Receiver VFO, Transmit on the Transceiver VFO) and Transceive with the Transceiver VFO.

Separate receivers and transmitters are a throwback to our historical roots. I admit to being more inclined to want a table full of apparatus – all contributing to the QSO at hand.

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] Kenwood marketed the R-599 Receiver and T-599 Transmitter pair (last version was the R-599D and T-599D. Drake early on marketed the R-4 Receiver and T-4X Transmitter (last version was the R-4C and T-4XC) with the R-4C being technical very different, and much higher performance than the R-4, R-4A, and R-4B.

[2] In 1978, Cubic Corporation bought CIR Industries and incorporated the Astro 200's conceptual designs into later Swan products. They continued to use the "Astro" name as a model version of the radio – such as the Swan Astro 150 Transceiver. The "Astro" name lived on as Swan dropped their original Swan brand and moved to the parent, Cubic, brand name in later years in the amateur radio business.

[3] Swan collectors and users today must be careful with this change of i-f frequencies. While Swan, unlike Drake, but like Collins and Heathkit, typically used the same i-f frequency throughout the product line, there was one Swan i-f frequency change in 1968 that causes today's users a bit of a problem. One simple example is buying an External VFO for a Swan 350 or a post 1968 Swan 350c. The External VFO to match the 350 and 500 Transceivers was the Swan 410. But the External VFO for the Swan 350c, 500c, and 500cx (and later) Transceivers is the Swan 410c. For a few years, Swan added that "c" to the model

number to designate the later i-f frequency. However, that did not last. The final External VFO offered by Swan was also designed for the 350c, 500c, 500cx, and later transceivers. It was the Swan 508. At that point, Swan dropped the use of the “c” in the model number. Confusing? It sure is!! So, what happens if you plug in the wrong VFO? Nothing destructive but the frequency of the radio’s output is about 300 kHz off the dial frequency. Beware!!

[4] Swan accessory items such as the SS-16B or the Transceiver Interconnect Cables or the Model 330 General Coverage Adapter are nearly impossible to find today. I have never even found schematics of the Transceiver cables and had to design one myself to try the use with my Swan 500cx and Swan 600-R Custom. Even the 600-R to 600-T Interconnect Cable – that was standard with the 600-T but mostly missing when the transmitter is found, today – is rare and, again, not described in Swan Operations and Service Manuals. For my installation, I had to determine necessary connections and make my own cable.

[5] Swan 500c Transceive Cable also worked with the same transceive cable as the 500cx – and with the 350c if the 350c was modified to accept external frequency control (the addition of a rear panel connector). The 270B Transceive Cable presumable would work with the later Swan transceivers that succeeded the 270B. (I cannot confirm that use of the 270B Transceive Cable.)

[6] Reference: https://www.dollartimes.com/inflation/inflation.php?amount=1&year=1972

W9MXQ

Upcoming ORC Meeting Programs

de Pat Volkmann, W9JI

Upcoming ORC Monthly Meeting Programs
July – ORC Members Field Day Report
August – Home Brew Night??
September – Virtual Shack Tour

Home Brew Night
Last year at the August meeting we had our first Home Brew night. Members brought in examples or pictures of project that had worked on. It was a lot of fun seeing what everybody had been up to. We will be doing the same thing again this August. If you would like to share your project, send me some information on what you have done. It can be a PowerPoint presentation (3 slides max!), some pictures or bring it in and show it off. You still have plenty of time to work on something.

Virtual Shack Tour
I would like to try a Virtual Shack Tour this year at the September. The format would be simple – take a couple of pictures of your shack and talk about it for a few minutes. As we get closer to September I'll provide some more guidelines for format, what information to share and how much time to allow. I'd be interested in hearing from you before then to see how many people would be interested in talking about their shack.

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.

Ozaukee Radio Club
May 13, 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 7:30 PM, as introductions were recognized when members checked into the meeting, a go-around was not conducted.

Committee reports:

Repeater VP Tom KC9ONY reports that repeater now operating well, Nels WA9JOB has checked the system RX, the 220 link is okay.

Tom KC9ONY also reported that the spring swapfest was cancelled, with no rescheduling of this fest. The fall swapfest will be considered next. Tom did remind the membership of the Tuesday night ORC net on the repeater, held at 8 PM CDT.

W9XT Gary mentioned that the Contest University (usually held in Dayton prior to the Hamvention) was held online, and is available as a free online stream. This event, moderated by Tim Duffy K3LR, has over 2700 participants this year.

Program:

Gary K9DJT presented a program on how to assemble and solder coax connectors on the ends of coaxial cable jumpers. He gave a detailed procedure on soldering PL259 or N connectors on an RG8 style cable. Tools, solder types and other details were presented, along with a fairly detailed explanation of the process of cutting the cable and assembling the connector.

Field Day polling was taken to see how the members would respond to participation this year. The results indicated that a group effort would not be supported by the majority due to the Virus.

13% indicated group effort support
70% indicated stay at home operation
17% indicated no FD operation.

Commentary on field day included the probability that there would not be sufficient tents or motorhomes available for station locations, and that band captains would be in short supply.

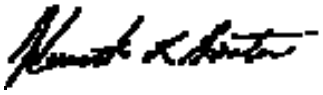
A general question was put forth regarding using the polling feature in Zoom to take a vote on proposals to the club, which was overwhelmingly supported by the club members.

Adjournment:

Bill W9MXQ moved to adjourn, Stan WB9RQR seconded the motion, and motion carried.
Meeting ended at 8:55 PM

29 members (unique callsigns) were logged in. Contact Ken W9GA to obtain the list.

Respectfully submitted,



Kenneth Boston, W9GA
Secretary

ORC Meeting Agenda

July 8, 2020

1. 7:00 – 7:30 PM – Network & Rag Chew
2. Call to Order – President Pat Volkmann (W9JI)
3. Introductions
4. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
5. Program
6. Fellowship Break
7. 50/50 Drawing
8. Auction – Stan Kaplan (WB9RQR)
9. President's Update – Pat Volkmann (W9JI)
10. 1st VP Report – Ben Evans (K9UZ)
11. 2nd VP Report – Bill Church (KD9DRQ)
12. Repeater VP Report – Tom Trethewey (KC9ONY)
13. Secretary's Report – Ken Boston (W9GA)
14. Treasurer's Report – Gary Bargholz (N9UUR))
15. Committee Reports
16. OLD BUSINESS
17. NEW BUSINESS
18. Adjournment to ?

Meeting Note:

The July meeting will likely be held via the Zoom videoconferencing platform on the same evening and time. Details will be emailed via the ORC remailer.

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting (Tentative):

Grafton Multipurpose Senior Center

1665 7th Avenue, Grafton, WI
Wednesday, July 8th, 2020

7:00 PM – Doors Open

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 XXXII	July, 2020	Number 7

From the President

de Pat Volkmann, W9JI

Field Day 2020 was a lot of fun with wide open bands and beautiful weather in northern Wisconsin. I was operating from my cabin in Dunbar, Wisconsin again this year. The weather was warm and sunny, leading to comfortable operating and fairly low noise on the lower bands. Ten and fifteen were open to the US and Canada and that is where I spent most of my time. All of my contacts were made on CW this year. The FT-8 setup had some trouble with RFI so it sidelined.

This year's temporary rule change for Class D stations was noticeable on the bands. Class D and E stations made up 80% of my contacts, with Class A & B stations making up the other 20%. I worked only 1 Class F station. The large number of people operating from their home station resulted in a lot of very strong signals rather than the usual assortment of anemic signals from temporary antennas.

Your Field Day entry can be made at http://field-day.arrl.org/fdentry.php. It is very easy to do online and only takes a few minutes. Remember to use "Ozaukee Radio Club" as your club name, not ORC. The ARRL will also accept paper entries. As of July 4th, there were only six entries listed for Ozaukee Radio Club. You have until July 28th to get your entry in, but don't delay. It's easy to forget and then miss the entry deadline.

The week following Field Day is when the 13 Colonies Special Event starts. This activity runs from July 1 through July 7th. The object is to work a special event station in each of the 13 colonies, along with two bonus stations. There are a number of people in the ORC who do this one every year. I did this one for the first time last year. Most of the stations are easy to work but there can be some big pileups from time to time. This is a great event for the July 4th holiday as the relaxed pace lets you participate in family activities and still have time to operate the contest.

The July and August meetings will be held on Zoom. I don't know how much longer we will be holding meetings this way but it will probably be for a while yet. The recent surge in the Coronavirus numbers makes it unlikely that there will be large group gatherings anytime soon.

For the July program, we will be discussing everyone's Field Day experiences. Send me some pictures of your setup along with a few comments. I'll put a presentation together with your input.

All club members should be receiving an invitation for the Club Zoom meetings from me at orc_pat_w9ji@outlook.com. Note: This is not the email that the groups.io reflector sends out when a new message is posted. The invitation goes out about an hour before the meeting. If you aren't receiving this email there are a couple of things to try:

1. Check your spam folder. If the email is there, mark it as "Not Spam".

2. Update your email address with the Club so we are sending the message to your preferred, working email.

3. Check that your inbox is accepting email. I get a couple of “Inbox is full” messages from members every month

4. You can send me an email at orc_pat_w9ji@outlook.com to test that everything is working.

That’s all for now. See you at the meeting.

Pat Volkmann, W9JI

.

DX’ing & Contesting

De Gary Sutcliffe (W9XT)

Well, 2020 is half over. I sure hope the second half is better than the first half. Despite the situation in the rest of the world, there have been some good things in ham radio.

One of them has been the 6 Meter spring Sporadic E season. Some Magic Band experts say this one is the best in at least a decade. I talked about it in last month’s column. The band has been open just about every day, often most of the day and well into the night. Mostly it has been opening to other parts of the US. Multi-hop to the west coast has occurred frequently.

We have also had some good DX openings. We had one afternoon to Northern Europe. I worked several Norwegian and Swedish stations. I heard but was unable to work Finland, Estonia, Ukraine, and Aland Islands. We had one super opening to Japan, Korea, and a few local stations heard China. Unfortunately, I was shut out on this and am still looking to work my first Asian station. Other stations in the area added some nice contacts to their logs.

Despite a lot of missed countries, I have worked 28 different DXCC countries this season, of which six were new ones. That is the most countries worked on the band since 2001. I cannot afford too many more 20-year droughts!

It was also open a lot during the June VHF contest. Between DX openings, it is fun to chase grids for VUCC. I earned the VUCC award on 50 MHz back in 1986. Unfortunately, I do not know which grids I confirmed that long ago. Unfortunately, neither did the ARRL. Apparently, those records have been lost, so I am getting a new one, starting over.

One popular but exceedingly difficult 6 meter award is the Fred Fish Memorial Award. This is difficult because you must work and confirm every grid that contains land of the continental United States. Only about 10 people have accomplished it. With the great conditions, I know one ham in Madison and one in Illinois completed it in the last month. Ken, W9GA, is closing in on the 488 needed grids and has picked up a few new ones this season.

HF DXpedtions have been pretty much shut down but there have been a few VHF grid DXpeditions to the tougher ones. As I write this, there is one to EN67. This grid is mostly in Lake Superior with just a little land from Michigan’s Upper Peninsula.

Gary, K9DJT, has been active on 6M. Gary notes “Six meters in June always reminds me of going fishing. You know, it is like showing up at your favorite lake and talking with another fisherman who

says, 'Wow…you should have been here yesterday…they were really biting!' That proved to be true for me this past June."

Gary made 106 contacts on the band in June. His only DX was Cuba, but he worked 106 stations, mostly FT8. Of those, 59 were new grid squares. He has been linking JT Alert to WSJT. It highlights stations that are new grids. I use Logger32 for general logging. It has a feature to link to WSJT and automatically log completed QSOs. There is a band map of stations decoded. I set it up to highlight all time new countries in red, and new countries for the year in blue. New grids are highlighted in orange.

I hope you got on for Field Day. This was the 50th consecutive FD I participated in. The majority of the stations I worked were 1D – home station, commercial power. Reports are that about 75% of the stations participating were from home using commercial or emergency power.

Hopefully, it will get back to normal next year, but it was nice not spending three hours in the hot sun tearing everything down after being worn out from operating all night.

It will be interesting to see how we all did as part of the July meeting. Be sure to send your score, regardless of how small it is. We did great as a group in the WiQP back in March. We will see how we do in FD.

When you send in your logs, be sure to enter "Ozaukee Radio Club" as the club. Not ORC, not Ozaukee RC, or other permutation. If you do, you run the risk of being listed as the only entry.

The ARRL has a contest log entry page. Because FD is so complex with all the different categories and bonus points, they have a special site just for FD. Be sure to use the right one. https://field-day.arrl.org/fdentry.php

There are a few contests in July. The big one is the IARU contest. It is a 24-hour contest. You can work anyone and work them once per band/mode (CW/Phone). It starts at 1200 UTC (7:00 AM local) on Saturday July 11 and runs 24 hours.

There are a lot of categories so you can pick your own. Phone only, CW only, and mixed mode. Each of these has high, low, and QRP levels. You can also run Single Operator without spotting assistance, or Single Operator Unlimited.

Send a signal report and the ITU zone. We are in Zone 8. Do not get that confused with the CQWW zones. QSO points vary depending on if they are your zone, a different zone in your continent or a different continent. There are special stations that are the headquarter stations of the different country's national radio organization. Most of them have HQ suffixes. The US station is NU1AW. Multipliers are the total number of zones on all bands plus the number of HQ stations per band. For more info check out the rules at http://www.arrl.org/iaru-hf-world-championship.

VHF enthusiasts will want to check out the CQ WW VHF Contest. It starts at 1800 UTC (1:00 PM Local) Saturday July 18 and runs to 2100 UTC on Sunday. This contest is only for 6 and 2 meters and you can operate single or all band. There are also categories for rovers and Hilltoppers. The last category is for people who want to go to a good VHF location and operate for a maximum of six hours. The exchange is your grid square. If 6 Meter conditions continue, this one could be a lot of fun. Full rules at https://cqww-vhf.com/rules.htm.

Another contest is the North American QSO Party summer RTTY event. Unfortunately, it overlaps the CQWW VHF contest. It starts at 1800 UTC on Saturday July 18. It runs 12 hours, but you can only operate 10 of them. The exchange is your name and state (or Canadian province or DX country). This is the RTTY event. CW and SSB events are in August. There are 6 NAQPs each year and it has been discussed in detail many times in the past. Rules are at https://ncjweb.com/NAQP-Rules.pdf.

DXpeditions continue at an extremely low level due to COVID-19. Some scheduled for the fall are now being cancelled or postponed. Maybe there will be something interesting next month.

For you FT8 fans, there are some special event stations on commemorating the 3rd anniversary of the FT8 Digital Mode Club. 9K8FTDMC will be on from Kuwait. A60TDMC is on from the United Arab Emirates, and A91FTDMC will be on from Bahrain. They will be on for the entire month of July.

COVID-19 has taken a toll on ham meetings, hamfests, and big events like Hamvention®. Ham meetings have moved over to virtual meetings with Zoom and other online tools. Now there is going to be a virtual ham expo on August 8-9. It is the creation of Eric Guth, 4X1UG. Eric does the popular weekly QSO Today podcasts which are 1-hour interviews with hams doing exceptional things in the hobby.

There will be 70 speakers over that weekend, covering many aspects of the hobby. I am told the schedule should be available soon. There will be an exhibitor area where you can visit virtual booths, collect brochures and other materials, and converse with people from the company. About 30 companies have signed up so far, including Unified Microsystems, Slinger Wisconsin's largest ham radio manufacturer. (www.unifiedmicro.com)

Attendance at the QSO Today Virtual Ham Expo 2020 is free for early bird registrations. I don' know if there will be a charge as we get closer to the date. If you think there is a possibility you will want to attend, register now to get the free tickets, and tell your friends too. https://www.qsotodayhamexpo.com/

That wraps up July. Stay cool. In a few months we will be complaining about the heat.

Upcoming ORC Monthly Meeting Programs

July – ORC Members Field Day Report
August – Home Brew Night??
September – Virtual Shack Tour

Home Brew Night

Last year at the August meeting, we had our first Home Brew night. Members brought in examples or pictures of projects they had worked on. It was a lot of fun seeing what everybody had been up to. We will be doing the same thing again this August. If you would like to share your project, send me some information on what you have done. It can be a PowerPoint presentation (3 slides max!), some pictures or bring it in and show it off. You still have plenty of time to work on something.

Virtual Shack Tour

I would like to try a Virtual Shack Tour this year at the September meeting. The format would be simple – take a couple of pictures of your shack and talk about it for a few minutes. As we get closer to September, I'll provide some more guidelines for format, what information to share and how much time to allow. I'd be interested in hearing from you before then to see how many people would be interested in talking about their shack.

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 w9ji@arrl.net to discuss your idea for a program.

THE COMPUTER CORNER
No. 268: A Quick Printer Fix

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

What a pain! You just finished something rather important and want to print it, so you send it to your printer and nothing happens! The printer icon is in your tray, but the darned machine never starts printing. So, you want to stop that job and restart it, without the bother of restarting the whole computer. Double-clicking the printer icon gives you something that says you can cancel all jobs, but it really doesn't work. What to do? You can reboot the computer and try to print again (after turning the printer off and back on), but that frustrating waste of at least 10 minutes of your time does not always work, either. Here is a simple fix that often (maybe not always, but often) will prevent having to reboot both the printer and the computer, courtesy of Majorgeeks (https://www.majorgeeks.com/content/page/reset_and_clear_print_spooler.html). You can get the simple batch file shown below in red from there, or you can highlight it on your screen and copy it to a text file and save it as ***Reset and Clear Print Spooler.bat***, then run it by double clicking it. Here is what it contains:

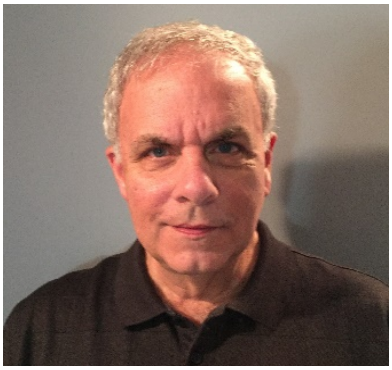
```
:: MajorGeeks.Com
:: How to Reset and Clear Print Spooler in Windows
:: https://www.majorgeeks.com/content/page/reset_and_clear_print_spooler.html

@echo off
powershell -windowstyle hidden -command "Start-Process cmd -ArgumentList '/s,/c,net stop spooler & DEL /F /S /Q %systemroot%\System32\spool\PRINTERS\* & net start spooler' -Verb runAs"
```

The stuff on the lines after a double colon (::) consists of labels for your reading, while everything after the "at sign" (@) is the actual batch file program read and executed by your computer. In essence, it stops the print spooler, clears all the print spooler arguments, and restarts the spooler. It will reflect all that on your screen for you to read so you can see what is happening. Then, try your print job again. Quick, nifty, and it often solves the problem.

Fred Schwierske, W9KEY, is interested in knowing about all the "reborn" computers I have put out there with Linux on them. If you have one, what favorite software (ham radio or otherwise) are you using with them? What games, utilities or other software do you use with them? Fred says he will be adding the Libre Office suite, but, Fred, that already comes with the Linux Cinnamon 19.3 package, the latest and greatest. Anything else? Any underlying tips or tricks you can suggest? Write a note with this info and send it to fred.schwierske@gmail.com and copy me, as well. Or send to me (address below the byline above) and I'll be sure to send a copy to Fred. Happy computing!

Vintage Amateur Radio

de Bill Shadid, W9MXQ



Welcome to the Independence Day Holiday to my fellow Ozaukee Radio Club members and other friends that read this column.

Because of Field Day and this holiday weekend I find myself a bit behind on my writing. Also, at this time there are several projects on my workbench that will lead to future articles. That work is delayed a bit. It is summer, don't you know?

This installment is going to be a bit different. We will discuss the approaching articles in my latest series with focus on several radios. Included will be some returns to previous subjects now discussing restoration issues encountered to get them running, new radios models that extend series coverage from some past articles, and some completely new topics.

I will show six article projects that are coming – complete with some initial pictures and basic information leading into the series. The information below is not in order of the appearance of the articles nor a promise that all six will be in succession. Some are still in process so more work is necessary before the article can be written. As always – some burning radio obsession could be injected into the progression of the series!

To start with, the Swans "twins" recently covered required quite a bit of work to get them operating 100%. These uncommon units include the Custom version of the 600-R Receiver, the 600-T Transmitter, and the 600-SP Speaker/Phone Patch.

Swan 600 Twins

Swan 600-T Transmitter and Swan 600-R Custom Receiver

W9MXQ

An upcoming article will detail these radios return to operation. Their arrival netted fair working condition, but they became problematic. They were analyzed, repaired, and now work very well in the way they were intended as released new in the 1970's. This behavior is not untypical of old radios that have been stored (25+ years in the case of these radios). Even though brought back to life with a combination of slow voltage bring-up (using a Variac) and current monitoring, they ultimately failed. "Bringing radios back," as we like to say for this method, is much of the time something less than 100% successful in the long term.

Then there is another Swan – identified as the "Swan Song of Swan" Vacuum Tube Radios. The Swan 750cw is the last version of the radio originating as the Swan 350 back in 1964[1]. It is the very last of the two-tube final amplifier design. Swan referred to this radio as the "CW Operator's Dream." I will expand on that, and other points, in a future article on this excellent transceiver. Meanwhile, check these pictures of a Swan 750cw:

Swan 750cw HF (80-10 Meter) SSB / CW Transceiver

W9MXQ

Swan 750cw Station
Shown with the PSU-3 Power Supply/Speaker

W9MXQ

The PSU-3 AC Power Supply/Speaker is a gem and is a substantial upgrade over the 117x and 117xc (Power Supply alone and with Speaker, respectively) that had been in service with Swan transceivers since the time of the Swan 240. The improved PSU-3 will be covered in the article along with the Swan 750cw.

A special hard to find item is next. In 1969, Icom (then called Inoue[2]), produced what was quite close to a set of separates (separate receiver and transmitter). They were like what we now call hybrids. That is, both tubes and solid-state design in the same product. This would be the Inoue (Icom) IC-700R Receiver, IC-700T Transmitter, and IC-700PS Power Supply/Speaker.

The IC-700T transmitter half of the pair was not a standalone. It had no included VFO, so it had to be connected to the IC-700R for transceiver operation – its only option. The receiver had RIT to allow some deviation (+/- 3 kHz) between receive and transmit frequency. Other similar units in the marketplace with this format were the Drake TR-44 and TR-44B Receiver/Transmitter and the Atlas RX-110 Receiver paired with the Atlas TX-110 Series Transmitters. The Inoue (Icom) IC-700T transmitter used a pair of then common 6146B tubes in the final amplifier and additional tubes in the driver and lower level transmitter circuits. Look at this diminutive pair:

Inoue IC-700R – IC-700PS – IC-700T

W9MXQ

Another radio is one that Bob Bailey, WB9PCU (now W9DYQ), and I operated together at Field Day, in 1975, back in our hometown of Bloomington-Normal, Illinois. We used a radio (not owned by us) that was to become known as the first major attempt by Kenwood to sell product in the USA.

The radio referenced is the Kenwood TS-511S. It followed the successful (outside the USA and Canada), TS-510S. The TS-511S was known outside the USA as the TS-515S.

Look at this genuinely nice example of a complete TS-511S station:

Kenwood TS-511S HF (80-10 Meter) SSB/CW Station
TS-511S HF Transceiver (Center) with PS-511S AC Power Supply/Speaker (Left) and VFO-5SS External VFO (Right)
W9MXQ

For a Drake collector, one of the crowning achievements is finding one of the rarer models. That would be the TR-4CW/RIT – the end game for Drake vacuum tube transceivers. Essentially the Drake TR-4, as it is known generically, includes the TR-3, the TR-4, and the TR-4C. The TR-4C was the basis for the TR-4C itself, the TR-4CW, and the TR-4CW/RIT.

The TR-4CW/RIT is the last version of the “C” series TR-4 and the end of the line started with the TR-3 in about 1963. Drake TR-4CW/RIT Transceivers were made in parallel with TR7 Transceivers at Drake for a short time.

Here is a picture of a fine example of the Drake TR-4CW/RIT:

Drake TR-4CW/RIT HF (80-10 Meters) SSB/AM/CW Transceiver
W9MXQ

The article coming on this radio follows other TR-3 and TR-4 coverage but also gets into electronic restoration of this unit and how it extended the life of this venerable model line by adding long-desired features.

One last piece of equipment for an upcoming article in this series is an SSB/AM/PM/CW Transmitter from 1958, the Gonset GSB-100. This was one of the multitude HF Transmitters of the time as the manufacturers tried to market radios in the new and popular SSB mode – some like this one also had the FM mode (PM[3], here) included.

Check this picture of a true boat anchor – close to 100 pounds – GSB-100:

Gonset GSB-100 HF (80-10 Meters) SSB/AM/PM/CW Transmitter[4]

The GSB-100 was an acquired taste for many. Something I will describe. Power was modest with only 65 watts output on SSB and CW. There are a lot of interesting stories about this radio, including some of its circuitry being extracted from surplus WWII radios. Gonset had a matching Linear Amplifier (GSB-101) and Receiver (G-63) that went along with this transmitter to make up a complete station.

Stay tuned for more information on all these interesting units in the coming months.

I like to have rare or unobtainium[5] items in my collection. I enjoy a mystery and the conversational topics that such mysteries can generate. Over the years, along with good friend and fellow collector, Bob, W9DYQ, I have aspired to competence in figuring out how to make rare and unusual ham radio equipment return to operation as originally designed. This is not a gift – rather, it is a result of hard work and attention to detail. And, it is not generally a lone wolf pursuit. Input and assistance from friends and fellow collectors are critical contributors to success. Another person significant in my pursuit has been Pat, W9JI. Pat has remarkable skills in analysis – and is a significant collector and restorer. But even to mention Bob and Pat is to leave out others who have individual and related talents in small pieces of the process.

Some of the radios shown herein are somewhat rare. If any of you have experience with any one of them, please let me know – I am looking for first-hand (first person) personal experience notes to be included in these upcoming articles. Just as important would be contacts from people that you know as past or present users of these items.

A special thanks go to Bob, W9DYQ, for his proof reading. 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:
[1] This the year that I was licensed as WA9MXQ. Swan 350's and WA9MXQ (now W9MXQ) share the same anniversary in ham radio.
[2] In the early 1970's, Inoue (In'-oh-way) changed their name to Icom. Inoue was the name of the founder of what became Icom. Inoue had been a well-known producer of VHF FM equipment.
[3] PM is Phase Modulation. For now, think of it as FM – it is perfectly compatible with FM detectors. It varies the instantaneous phase of the carrier wave – and is recognized by the demodulator in a receiver the same as frequency modulation.
[4] Picture Credit: http://www.oldtuberadio.com/gonset-gsb-100/
[5] This is found in a Bing search https://www.bing.com/search?q=unobtainium&form=QBLH&sp=-1&pq=unobtainium&sc=8-11&qs=n&sk=&cvid=B5C9BABB6A5C4B2CAC5B5375B8ECE7C1

W9MXQ

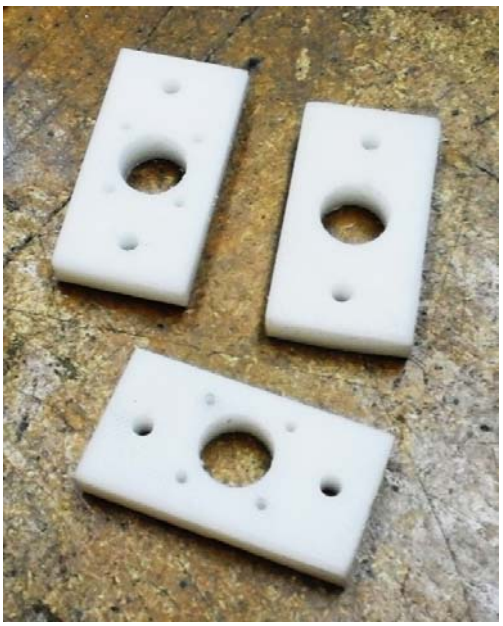
Project of the Month©

de Gary Drasch, K9DJT

Dipole Center Insulator

Well, after a short hiatus, I decided to jump back into this well-know and recognized newsletter. This month's project is about building your own *dipole center insulator*. I decided that during Field Day, I would like to be able to move an RG-8X coax, and bead-balun, from one dipole to another. Specifically a 20, 40, and 75 meter. In addition, I've added a 40m NVIS folded dipole to my arsenal. My thought was nothing could be any more convenient than having an SO-239 female coax connector at the center of each.

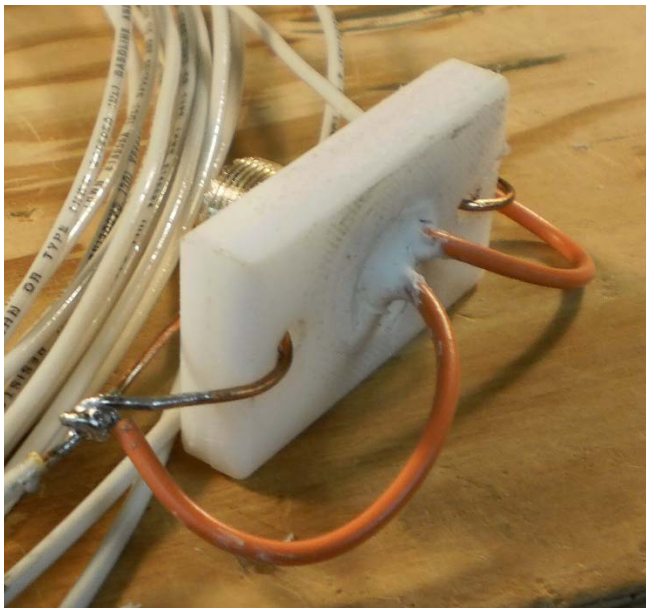
I came up with the idea of using a plastic cutting board for the insulating material while cutting up an onion for my omelet one morning. The XYL had three of these white boards in a kitchen cabinet and I figured she wouldn't notice one missing. So far she hasn't!



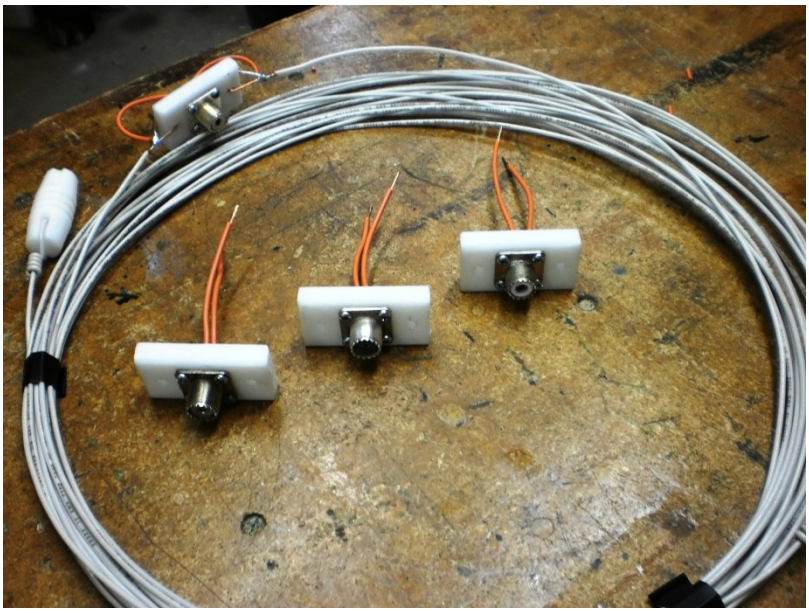
After the theft, I began by laying an SO-239 on the large board and sketched on some approximations. Then I used an adjustable T-square and came up with some real dimensions for the four rectangles. I am not sure exactly what type of plastic was used in the manufacturing of the cutting board. All I knew was it was plastic, and was a rather soft material. Having experience cutting PVC pipe using my radial-arm saw, I felt it would work for this too. Four rectangles were cut and a center line drawn lengthwise on each. Then I determined the center of each and center-punched the position for the SO-239 connector. At this point I adjusted the T-square for what I believed to be a reasonable dimension from both end edges for the wire

elements and center-punched those. Using a drill-press and a 5/8” flat paddle-drill, I drilled the center holes to accommodate the SO-239’s. After placing the connector squarely on top of each insulator, not through, I used an awl to mark all four holes of the connector flange. At this point I needed to drill six additional holes. A 13/64” at each end for the elements, and four 3/32” holes for the sheet metal screws that hold the connector. (You’re going to want to set a depth-stop so you don’t go all the way through the insulator with these.) Other than the 5/8” hole for the connector, the sizes of the other holes are up to you, just that you choose a correct size for the self-tapping sheet metal screws.

Now it’s time to do some soldering. I went through my wire collection and came up with some #16 stranded wire which I soldered to both the center-pin and flange of the connector. I eyeballed it in cutting the length and found them to be 4-1/2”. I reused that measurement for all four insulators. In order to keep water from accumulating at the SO-239 connections, I decided to fill the opening with DAP latex caulk.



OK, the only thing left to do is to fasten the elements to the insulator. I simply passed the bared ends of the antenna wires through the holes at each end and twisted them closed. Then I stripped the ends of both stranded wires coming from the connector and wrapped each to the separate elements. A little solder at both connections and you’re done! (I did experience a little melting of the plastic insulator where the antenna wire came through the holes during soldering but nothing significant.)



The finished product is shown at the left. If I only have one coaxial line available, I can easily switch between antennas. If there are other operators who have a cable but no antenna, they can also make use of an uncommitted one.

If you have a project you’ve built, please share it with the club. If you dislike writing, send me some pictures, we can talk on the phone, and I’ll write it up for you.

73, Gary
K9DJT

Ozaukee Radio Club
June 10, 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 7:32 PM. As introductions were recognized when members checked into the meeting, a go-around was not conducted.

Committee reports:

SWAPMEET: Tom W9IPR updated on the fall swapfest; asking Ben K9UZ to update the fall fest flyer, to the late August date. There is still a possibility that it could be delayed or cancelled, as the county fairgrounds are closed through the end of July, which could be extended.

Tom KC9ONY reported that a battery failure in the UPS feeding the 220 repeater had failed, and was being addressed. He also referenced a problem with the 10 meter linking feature.

Mike KD9GCN commented on the club having a share in sponsorship of the WiQP winner's plaque, which is funded by ORC.

Gary N9UUR presented his Treasurer's report, which is emailed to the members. Mentioned was the revision of the language regarding the club's solicitation of donations to make up for the income shortfall, which is expected due to the cancellation of the Spring Swapfest, and the outlay for the new repeater amplifier.

Ken W9GA referenced the minutes of the May meeting, also emailed to the membership.

Program:

Ken W9GA gave a brief slide show that outlined some key elements of a stay-at-home FD event. After prior discussion and polling, the majority of the members considering operating Field Day this year were doing it as solo or two-member events from home. The slides presented detailed which categories or class of operation a station could declare; the ARRL rule changes which allowed class 1D ops to work each other for credit; which bonus points could be collected by home stations; logging programs with updates-N3FJP-N1MM-others; some data from our club results over the years. It was suggested that most who will get on will probably go 1D, but !B, 1Bb, !E could also be used. Pat W9JI would like those who run FD can send him some pictures and comments on their operations, and he would present them at the July meeting. A good roundtable discussion was held, with many detailing their potential plans.

Mike AB9ON mentioned that he had located several pictures or slides from FD 2008.

Adjournment:
30 (+1) members (unique call signs) were logged in. Contact Ken W9GA to obtain the list. Stan WB9RQR moved to adjourn, Bill W9MXQ seconded the motion, and motion carried. Meeting ended at 8:42 PM.

Respectfully submitted,

Kenneth Boston W9GA
Secretary

ORC Meeting Agenda

July 8, 2020

1. 7:20 – 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. Program – Field Day Reports from Members
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 – Tom Trethewey (KC9ONY)
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. Details will be emailed via the ORC remailer.

Return undeliverable copies to:

The ORC Newsletter
524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting via Zoom
July 8, 2020

7:00-7:20 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 XXXII	August, 2020	Number 8

From the President

de Pat Volkmann, W9JI

We recently had a Club member offer to match donations to the ORC at the rate of $0.50 for each dollar donated. The member, who wishes to remain anonymous, will donate up to $300 in matching funds. Prior to the matching offer we had about $350 donated towards our goal of $1250. That goal was set to help offset the cost of the replacement amplifier for the repeater, which was purchased earlier this year. If Club members donate an additional $600, the matching funds will allow us to reach our goal.

This generous offer comes at the time when our normal source of Club income, the Spring and Fall Swapfests, have been cancelled. Expenses such as insurance, rent and the repeater continue as usual. Your donation to the Club, in any amount, will help. Those who wish to donate will find a special PayPal donation link on the Club web page, or you may directly access the link HERE, or you can send a check to the Club Treasurer, N9UUR.

At our last in-person meeting we set up a Committee to survey our member's interests regarding the Club repeater system. That effort has been stalled by the Coronavirus. Our Club Trustee Mike Harrington, along with the Repeater Committee, will put together the survey and then present the results to the Club at the October meeting.

We have had our meetings on Zoom for about 6 months now. The video meetings seem to be working out well, allowing us to stay in contact with each other. There are some Club members that were regulars at the in-person meetings but haven't joined us for the video meetings. Please reach out to anyone that you haven't heard from in a while and encourage them to attend a meeting. The same goes for anyone that you know of that may be interested in joining the Club or just attending a meeting.

Michael Schultz WH6ZZ sent me an email inviting ORC members to work him in the Hawaii QSO party coming up later this month. I've included Michael's email in an article in this month's Newsletter.

One of the outbuildings at my QTH is a log cabin that was built in the late 1800's. This building houses my shack during the warm months. This fall we will be starting some maintenance on this building which will include new windows, updated electricity and a number of minor repairs. The first step in this project was to take down the 75' tree that holds up my main HF wire antenna. The tree died a couple of years ago but I was in no hurry to remove it as it was such a great support for the antenna. The tree and antenna are now down and the search is on for a replacement antenna. I don't know what that will be but I hope to have something in place in the next couple of months.

Pat Volkmann, W9JI

.

THE COMPUTER CORNER
No. 269: Linux Mint 20

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

It is here now and was first available for download at the end of June 2020. Version 20 will be supported through 2025; it is based on Ubuntu 20.04 and uses the Linux 5.4 kernel. It comes in several flavors, but the most popular is Linux Mint 20 Cinnamon 64-bit, nickname Ulyana, which I recommend. Actually, you need not worry about the bit count since Linux Mint 20 is only available in 64-bit. Don't try upgrading or replacing this version on a 32-bit machine; it will not work.

So what are the minimum needs for your computer? Sixty four-bit as already mentioned, plus 1 GB RAM (2 GB would be better and is recommended, though just one will work), at least 15 GB disk space (though at least 20 would be better), and at least a 1024 X 768 pixel screen.

What's new? Here is the big picture, with admittedly few details:

1. Marked performance improvement with a new file manager named Nemo.

2. Completely refreshed color schemes for a more vibrant color representation.

3. A new graphical user interface (GUI) tool, named Warpinator, for sharing files across your local network. This may well be the major enhancement that will attract the most users as the new release becomes better known. It will undoubtedly outperform the woeful, klutzy file-sharing capabilities of Microsoft Windows.

4. Better integration of electron apps. These are cross-platform desktop applications.

5. Improved multi-monitor support. For example, if you work with a laptop and it also has an exterior monitor attached, you will be able to select separate resolutions for each.

6. Much improved handling of Nvidia cards and settings (about time!).

So how do you get it? First, you need to consider approaches, and there are two:

Approach 1. Upgrading to this new version from an older one means working for quite a while using the web as a source tool. This is not a simple process and it will take some time (meaning over one hour minimum, and perhaps more). I would suggest you think instead about copying all your old creations onto a CD or other media, then wiping the drive and installing the new version 20 by using an active copy from DVD (see ahead, Approach 2). Then, when done installing Version 20, copy all your old files to the drive to finish the job. This may well take less time than upgrading and it avoids getting through part of the upgrade process only to discover you must install from an active copy after all. On the other hand, when upgrading works, it works well. Yes, I have personally done it both ways. You can start the process by going to this site for instructions (print them):

https://www.zdnet.com/article/how-to-upgrade-from-linux-mint-19-3-to-the-latest-version-mint-20/

Once you have the instructions in hand, follow them to the letter to maximize your chances of completing the update with no glitches. Don't skip any steps!

Approach 2. Installing from an active DVD involves downloading an *iso* file containing the new Linux, then burning an active DVD from that on your machine. Then you can install the new version from the burned, active DVD. Alternatively, you can burn a copy to a thumb drive if you have one that has enough capacity. In either case, when you boot with the DVD or with the thumb drive, Linux will ask if you want to overwrite all files on the machine's hard drive or just the old Linux files. If you have a dual-boot machine (Linux and Windows), it can do this without touching Windows or the dual-boot choices when you turn on your machine. To get the .iso file, go to https://linuxmint.com/download.php and be sure to follow the cinnamon link. Download the 1.8 GB *iso* file and use it to burn a new DVD, then pop this newly burned DVD into your machine and reboot to start the process.

In summary, converting to Linux 20 is not a snap, but it is worth it in the end.

Happy computing!

Upcoming ORC Monthly Meeting Programs

September – ORC Repeater System Overview, Tom Trethewey KC9ONY
October – *Open*
November - YU7EF 6M Beam Construction & 6M DXing, Ken Boston W9GA
December - *Open*

Home Brew Night
At the July meeting, several people asked to hold off on Homebrew Night as they had some projects planned but not ready yet. Let me know when you have your projects ready. October is open so far. Maybe we can do it then.

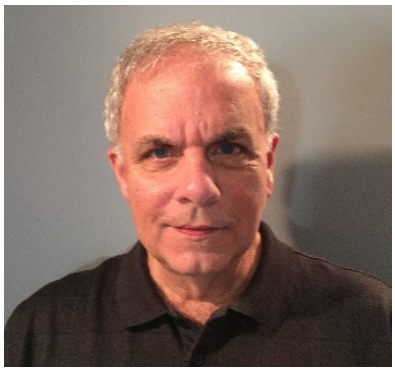
If you would like to share your project, send me some information on what you have done. It can be a PowerPoint presentation (3 slides max!) or some pictures. You still have plenty of time to work on something.

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.

Vintage Amateur Radio

de Bill Shadid, W9MXQ



Examples of rare amateur radio equipment have always been a fascination of mine. Radios that perhaps go through many years of design and development only to come to the market with the wrong timing, the wrong features, deployment or manufacturing issues, or one of many other things that can plague the process from inception to market.

Examples come to mind of a few such products. One is the Hallicrafters FPM-200 HF Transceiver. The first true hybrid radio, the FPM-200 used solid state technology for all but voltage regulators, the driver, and the two 6146 final amplifier tubes. Costs escalated for the unit and it failed on the market. I have never seen one of these transceivers, but they were illustrated in Hallicrafters advertising in the 1950's and were far ahead of their time. Hallicrafters had them in numerous special events and even a few DX-Peditions.

RigPix Photo

This is a picture of the Hallicrafters FPM-200 HF Transceiver as eventually marketed. Fewer than 100 are thought to have been made[1]. With numerous germanium transistors it would be remarkable (but not impossible) that a working unit could be found today.

Another such rare piece of equipment would be the E. F. Johnson Avenger HF Transceiver from about 1969.

RigResource Photo

This is a picture of the E. F. Johnson Avenger HF Transceiver. This radio perhaps had fewer than 20 examples made[1]. However, these do appear for sale occasionally. Note the two incorporated VFO's.

The example rare radio for more discussion in this article are the Inoue IC-700 Twins. They take their place along with the two above – perhaps similar in volume to the Hallicrafters FPM-200 and almost certainly more than the E. F. Johnson Avenger.

In 1967, and more actively in 1968 and 1969, Inoue (say, In'-Oh-Way) attempted to market a set of twins (matching separate receiver and transmitter) of hybrid design. To start with, Inoue had been making VHF and UHF FM Transceivers for sale for some time in the North American market. Inoue in this time sold a relatively small receiver, the IC-700R, and a style matched transmitter, the IC-700T. Look at this rather unique pair and see if the package shows you a design concept that was part of these radios' design:

Inoue IC-700 Twins

IC-700T Transmitter and IC-700R Receiver
Shown with the IC-700PS AC Power Supply/Speaker Console

W9MXQ or KE9PQ Photo

This pair – if you notice – is absent a VFO knob on the transmitter. This radio is similar in concept to the Drake TR-44 where a Drake R-4 is in the same cabinet with a Drake T-4. The T-4 was like a Drake T-4X, but it did not have a VFO. It relied on the VFO in the R-4 to control the station frequency. Here is that Drake radio:

Rigpix Photo

These are the combined Drake R-4 Receiver and the T-4 Reciter (Transmitter without a VFO[5]) in the same cabinet – the model TR-44. To my knowledge these were not available as separate units – other than the fact that the R-4 Receiver was available as a stand-alone unit. This pair required the AC-4 Power Supply and MS-4 Speaker units. The T-4 was known as a Reciter – meaning it used the frequency established by the R-4 Receiver. This radio was updated later using the R-4B Receiver and T-4B Reciter – referred to as the model TR-44B.

The concept in the Inoue Twins was that they operated off the IC-700R Receiver. The Receiver did include RIT so there could be a slight variance (+/- 5 kHz) on Receive. No XIT (transmitter incremental tuning) was available. The Drake unit had no RIT – like the popular TR-4 Transceiver of the time.

The IC-700R Receiver is all solid-state but suffers from overloading – not untypical of Japanese receivers of the time. For as good as equipment as Japan produces now, that was not the case in the early days of solid-state when the American manufacturers produced credible solid-state designs while the Japanese were just not up to the same technical level. (To be fair in this assessment, the Japanese produced high performance vacuum tube radios in the same period – competitive in every way.)

The receiver covers 80 thru 10-meter bands (no WARC Bands). It also receives 10 MHz WWV via a special setting of the Preselector when the receiver is in the 28 MHz band position. The

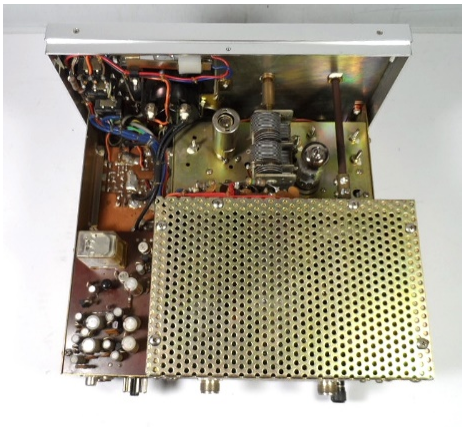
receiver (and therefore the transmitter) can be crystal controlled with positions for three crystals provided as a part of the bandswitch.

W9MXQ or KE9PQ Photo

This is an interior view, viewed from the rear, of the IC-700R Receiver. Note the large shielded box with the tuned circuits for the i-f system. You can also see the 9 MHz i-f filter. The power transformer is visible – see notes about that in the main text. To the right on the back panel is a seven-pin connector used with a cable to provide control connections to and from the IC-700T Transmitter. Note that some former owner marked bands near the i-f tuning adjustment ports.

The power supply built into the IC-700R is two way. It is accessed by the 8-pin octal connector on the left rear of the chassis. While the manual with the IC-700R notes that the receiver works from 12 VDC or 240 VAC. This unit meant for the North American market has an undocumented 120 VAC transformer installed in place of the 240 VAC one documented. See the octal connector at the left rear – the connector wired to that connector is wired for a 12 VDC source or a 120 VAC one. Documentation for these units is sparce and gets much more sparce after the receiver.

As noted above, the IC-700T transmitter has no included VFO, so it had to be connected to the IC-700R for transceive operation – its only option. There were two interconnections between the units. First was a coaxial cable between VFO in the receiver to the transmitter that is handled with a low loss coax connection between phone jacks on both units. Also, as mentioned above is a Control Cable that connects to a seven pin miniature socket on each chassis. This connector is a seven pin tube socket connector. The plugs are identical to the External VFO connectors used by Kenwood on their hybrid transceivers. The IC-700T Transmitter used a pair of then common 6146B tubes in the final amplifier, a 12BY7A driver tube, and a 12AU6 tube as a buffer tube feeding VFO signal from the VFO in the receiver to the transmitter circuitry.



W9MXQ or KE9PQ Photo

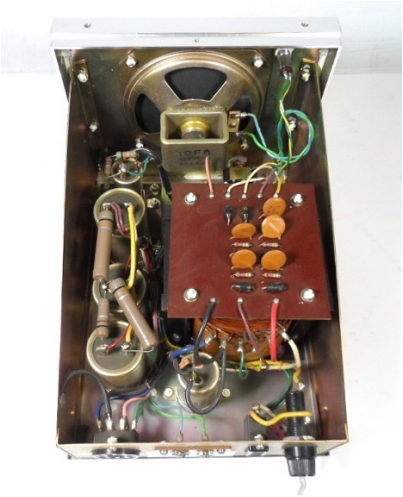
This is an interior view, viewed from the rear, of the IC-700T Transmitter. The large shielded and ventilated box at the right rear houses the two 6146B finals and the tank circuitry. You can also see the 9 MHz i-f filter. The other two tubes are visible between the PA compartment and the front panel. Power connections are through the octal chassis plug just visible at the left side of the rear panel. You can see two SO-239 sockets – the one on the right is for the antenna connection and the one on the left is there to feed antenna signal to the receiver. There is no cooling fan for which there are some comments in the text.

The transmitter produces 150 watts input PEP on SSB and CW. This provides an output of about 70 watts – with a bit less on 10 meters. Like the receiver, the transmitter covers the 80 thru 10-meter bands – not including the WARC bands. This is lower than most radios of the time

which had an input power in excess of 200 watts. However, tight physical size and the lack of a cooling fan likely put design restrictions on the transmitter.

Interestingly, the receiver bandswitch for 10 meters had three positions while the transmitter covered all three of those positions with one position. That is understandable.

The IC-700R Receiver and the IC-700T Transmitter are setup with the IC-700PS AC Power Supply/Speaker Console, pictured in the center of the pair in the station picture, earlier in the article. The interior of the unit is as shown here:



W9MXQ or KE9PQ Photo

This is an interior view, viewed from the rear, of the IC-700PS AC Power Supply/Speaker Console. You can see the voltage doubling rectifier board for the nominal 500 VDC high voltage used by the final amplifier tubes and the nominal 250 VDC “low high voltage” produced for the tubes other than the final amplifier tubes. This is mounted over the North American version power transformer. Also provided were bias voltage for the final amplifier tubes, filament voltage for the transmitter vacuum tubes, and 12 VDC for the solid-state stages. There is a 120 VAC convenience outlet for the IC-700R Receiver.

Here is a rear panel picture of all three units in the IC-700 Station:

IC-700T Transmitter **IC-700PS Power Supply** **IC-700R Receiver**

IC-700 Station Rear Panel Views

W9MXQ or KE9PQ Photos

For interconnections – and somewhat repetitive from above – there are three octal connectors present for power distribution within the setup. The octal connector on the transmitter is to connect power from the one octal connector on the power supply. The one octal connector on the receiver determines (by its wiring) the power supply used (12 VDC or 120 VAC). If 120 VAC, then it can be plugged into the convenience outlet present on the back of the power supply (next to the fuse and AC cord). The control cable connects between the 7-pin miniature sockets at the left side of the transmitter and the right side of the receiver. The VFO feed cable from the receiver to the transmitter is connected to the phono sockets seen at just left of center on the receiver and to the right on the transmitter. Finally, there is the terminal strip on the back of the power supply for connection to its integrated speaker. That speaker line comes out of a 1/8” speaker connector on the receiver rear panel, right side.

For some panel specifics, please note the two illustrations, below:

W9MXQ or KE9PQ Photo

IC-700R Receiver:
Note upper center BAND SELECT switch and see the “28-10” position. When in that position and with the PRE SELECT control can be tuned to 10 MHz for receipt of 10 MHz WWV. The BAND SELECT has the A, B, and C crystal positions. The receiver includes AM and AM with Automatic Noise Limiting plus SSB and CW. The RIT controls +/- 5 kHz excursions from the indicated dial position (receiver only). The ring on the back of the TUNING knob can be turned to adjust for dial calibration. The main dial (above the TIUNING knob) shows rough calibration in 50 kHz segments while the adjustable ring indicates kHz either 0-50 or 50-100, depending on main dial starting point.

W9MXQ or KE9PQ Photo

IC-700T Transmitter:
Immediately can be seen the lack of a VFO knob – depending on the receiver frequency. Since no information or manuals seem to exist on this radio, one must use caution and known techniques for tuning a tube final amplifier. Current should be held to (dipped at) 200 mA, at the most. Note that FUNCTION does not include AM mode even though the receiver does include that mode. VOX GAIN must be moved to the off, or PTT position to allow the transmitter to work on PTT operation. The microphone (MIC) connector is an odd (but readily available) three pin model. Transmitters like the IC-700T require extreme care in tuning. They are delicate, close to the edge on power capability, and easily damaged if the user is careless or inexperienced.

The IC-700PS is shown between the IC-700T Transmitter and the IC-700R Receiver in the complete station setup earlier in this article. Here is a closeup view of the front panel:

W9MXQ or KE9PQ Photo

IC-700PS AC Power Supply/Speaker Console:
This power supply in the North American market came with a 120 VAC (only) power transformer and a fixed two wire AC Cord. Unlike radios today which accommodate 100 VAC (Japan), 120 VAC (North America), 220 VAC Center Tap (many areas) and 240 VAC non-Center Tap (also many areas). Likely with the low volumes the power supplies were custom made for market being supplied. Note the neon pilot light and the push/push on-off switch. That switch did not control the utility outlet on the rear panel intended to supply the IC-700R Receiver with AC power.

Icom also provided a 12 VDC Power Supply for the IC-700T Transmitter, it was a model IC-700PSDC. Recalling that the IC-700R Receiver was capable of 12 VDC operation as connector option, the IC-700PSDC would allow the complete station to operate mobile or portable on bat-

tery power. Here are some pictures of the IC-700PSDC – the only information I have on this unit:

Rigpix Photo

IC-700DCPS DC Power Supply: This power supply augmented the IC-700PS AC Power Supply when operation from 12 VDC was desired. The three views here are of the cable, the assembled power supply, and the connections available.

Inoue, known to all of us, today, as Icom (see details, below) produces much more sophisticated radios. And, yet, as a long-term user of many Icom HF radios[2], I can "hear the IC-700R" in every one of them.

In the early 1970's, Inoue (In'-oh-way) changed their name to Icom. Inoue was the name of the founder of what became Icom. The company had been a well-known producer of VHF FM equipment (and continue to be into the present time). Inoue, now Icom, was founded in 1954 by Tokuzo Inoue,[3] who remains as leader of the company. Asian companies at times do change their names to a more global format – that is perceived to be a positive for their marketing organizations. Here is the progression:

Inoue Logo
Most often this was red or silver, but also blue. The logo often included the text, "Inoue Communications Equipment" or "I.C.E." adjacent to the logo. Check the red Inoue logo on the front panels of the IC-700R and IC-700T.

Early Icom Logo

Current Icom Logo

The logo change for Icom from the Inoue logo with the word, "Icom," changed during the production cycle of some radios. For instance, all Icom IC-751 Transceivers have the Early Icom Logo and so do early IC-751A models. Late IC-751A models, however, carry the Current Icom Logo.

As said at the beginning of this article, these are extremely rare radios. As it happens, I know of two complete sets that are available as of this writing. If you are interested, contact me and I can set up contact for you with their owner. These are true collectables and not for the casual collector to plug in and get working to make contacts on a whim. Their greatest value may well be knowing you have them!

Special thanks go to Bob, W9DYQ, for his proof-reading. And, I appreciate that you read my articles. Remember that I am open to questions and comments at my email address, W9MXQ@TWC.com. Also, for this article, I owe a debt of gratitude to Mark Olson, KE9PQ, Nationwide Radio[4], for his assistance in this set of IC-700 Twins.

Notes:

[1] Estimates of radio sales volumes are difficult to determine. Suffice it to say that I have a lot of different friends in the industry and they have knowledge I do not possess. Production volume comments from the most credible sources. Some are retirees from the specific companies or otherwise not willing to be quoted specifically. However, for the IC-700R Receiver, I can, quote Fred Osterman, N8EKU, in his book, ***Shortwave Receivers Past and Present***, (Universal Shortwave Research. 4th Edition © 2014) where he lists the Inoue IC-700R as "Extremely Scarce."

[2] Equipment I have or have had (only two remain with me) from Icom were the IC-751A, the IC-775DSP, the IC-756PRO, the IC-756PROII, the IC-756PROIII, IC-706 (original), IC-746, IC-726, IC-746PRO, and the IC-7410. I am an experienced Icom user and have respect for many of their features.

[3] Credit: Wikipedia <http://www.wikipedia.com> - search for "Icom."

[4] Nationwide Radio <http://nationwide-radio--amp-amp-amp--eq-sales-llc.mybigcommerce.com/>.

[5] In this article, the term VFO is used to describe a tunable frequency control. The VFO in the IC-700T was a capacitor tuned oscillator. In the Drake R-4 and R-4B that VFO was actually a PTO, that was tuned with a variable inductor.

Project of the Month©

de Gary Drasch, K9DJT

Building a Simple Dipole

Last month I showed how to build a center insulator for my Field Day/ emergency dipole antennas. This month it would only be appropriate to show how to build the dipole itself. Anyone who knows me, or has read my book, *Ham Radio is Alive and Well*, is aware of how I feel about hams purchasing a wire antenna. Building a wire antenna is one the most simplistic things us radio amateurs can build. Not to mention the money saved.

There are only a few things required. The first, and most important, is the formula of: L = 468 / $f_{MHz.}$ That is the total Length (L) in feet of the dipole, is equal to 468 divided by the frequency (f_{MHz}) in megahertz you prefer to operate at. That is the exact same formula all the commercial wire antenna manufactures use. (Don't let them know I leaked it to you.) You will also need some type of tape measure, a pointy thing like an awl or icepick, wire cutters, pliers, knife or wire stripper, solder, and a soldering iron or gun. If you don't know how to solder, learn. There are plenty of people in the club who are willing to teach you. Just ask.

OK, that is the knowledge and tools required. What about the materials? Let me see. We need an insulator at both ends and one in the middle. There isn't anything special about this stuff other than one material will maybe last longer than another. Insulators may be made out of PVC pipe, flexible pluming pipe, cut-up plastic bread boards, commercially available plastic or

ceramic. It doesn't matter…nor does it affect the performance of the antenna. As far as wire goes, what do you have lying around? You probably could buy an adequate length at the club's Scholarship Auction or from Tom, W9IPR, for 25 cents! Again, it doesn't matter. You can use solid-drawn cooper, stranded copper, copper-clad welding, or stainless steel wire. It can be insulated or not. Use what you have. If it matters, use what looks good or stealthy to you. Now having said that, technically, an engineer who looks for mouse crap in the pepper will tell you that the diameter of the wire, and insulation on the wire, does make a difference, and he or she is correct. It does. But not so much to prevent a ham from designing and building their own antenna. The same goes for the type of wire. Technically, stranded wire will survive wind longer than solid-drawn. But ask yourself, how sharp are the bends of a copper wire during a wind storm? They sure aren't at right-angles! I'm still using some of the same solid-drawn wire I used when I returned to the hobby in 2010, and it will most likely last until I croak.

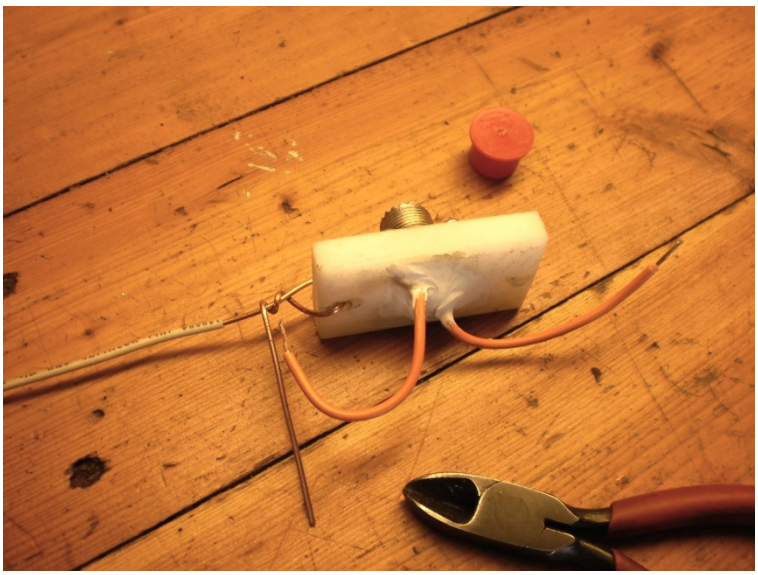
A 20 meter dipole is what I need to add to my arsenal of emergency/Field Day antennas. I already made the center insulator last month so all we need to do now is calculate the length of the two wires, fasten the end insulators, the center insulator, and solder. Using the formula, I'm going to divide 468 by 14.050 MHz which equals 33.3 feet for the total length of the antenna. (I chose the CW portion of the band for this antenna because if required to use PHONE, it can easily be shortened rather than made longer.) Because we require two separate wires, we need to divide the total length by 2. That equates to 16.65 feet per wire. I'm now going to convert the .65 foot to inches by multiplying .65 times 12 inches which equals 7.8 inches. Seeing .8 of an inch is so close to ¾ inches, we're going to make each leg 16'-7¾." That would normally be the measurement used between the hole of the end insulator and the hole of the center insulator. But wait a minute! What about the additional 6" of stranded wire coming from the center insulator? There is 3" on the shield side and 3" on the center conductor side of the connector. Those will actually become part of the antenna length and need to be subtracted from each side. Therefore our wires will be 16'-4¾" from the end insulator hole to the hole of the center insulator.

What I've found to be the easiest way to do this is to first attach an end insulator to the wire coming off of a spool or coil. You simply pass a few inches of the wire through the hole of the insulator and bend it around back to itself and closely wrap three or four turns. You might want to use a pliers to tighten the wrap. Whatever is left over can either be snipped off or wrapped further down. Now put an awl or

icepick through the hole of the end insulator, where the wire is attached, and push into the ground. Also fasten the end of your tape-measure to the awl. (Mine has a loop which I also pass the awl through.) Now lay out the wire alongside the length of the tape-measure, and find 16'-4¾". Right at that point, bend the wire 90 degrees. Measure 4-1/2" from the bend to-

wards the spool and cut the wire. Now measure from the bend towards the attached insulator 1-1/2" and from that point strip the insulation including the 4-1/2" towards the cut end. There should now be 6" of bare wire. Relocate the 90-degree bend and put the wire through the hole of the center insulator tight to the bend. Bend the loose end back around and wrap to itself. Wrap the end of the stranded wire coming from the connector to the wrapped antenna element and solder. Repeat the same steps on the other side and you have yourself a dipole ready for deployment.

This happens to be the way I've built wire antennas. Some other old guy will likely have his own way to make them. Neither is right or wrong; only different. The main thing you need to follow is the formula which is common to all of them including the commercially built ones.



This is a technical hobby in which we can all make some of our own stuff and actually use it to communicate. That's the magic of the experience! It's a reason to imagine and build!

If you have a project you've built, please share it with the club. If you dislike writing, send me some pictures, we can talk on the phone, and I'll write it up for you.

Catch you on the bands!

73, Gary
K9DJT

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

The spring and summer fun on 6M that I have covered in the last few columns appears to be over for the most part. The band is not opening every day as it did earlier in late spring and early summer. The openings are not as long and tend to be limited to the Gulf Coast. I worked over 250 different grids this season, and 29 countries, several of which were new ones. I know Ken, W9GA, picked up a few new ones.

Ken's big goal is the FFMA award. It is named after Fred Fish, W5FF (SK), the first ham to contact and confirm 6M QSOs in every grid containing land in the continental US. It is an exceedingly difficult award, and only a dozen or so have accomplished it. Ken is down to his last dozen or so of the 488 required grids.

My main interest on 6M is chasing DXCC. Unfortunately, DX openings are rather rare here in Wisconsin. Watching the PSKReporter maps, it is obvious that we are a state too far north and/or too far west most of the time. In between I chased new grids, and Ken turned me on to the FFMA.

Many of the grids are very rare, especially some out west. No one lives there in many cases, or no one is active. Others just include a sliver of land, the rest of the grid being water. So how does one work these grids? It turns out that it is often the same way HF DXers work many new countries – someone goes there to active them.

Ken turned me towards a part of the hobby I sort of knew existed but did not know was as active and big. There are locations on the web where the information on 6M activity is discussed. Ken clued me into the ON4KST website. I have used it for the low bands but didn't notice there were 6M chat rooms as well. I found out about some grid DXpeditions by W7GJ. Lance is a big-time 6M guy and usually makes a couple of trips per year to put on rare countries on 6M EME. With the international travel restrictions, he decided instead to go on several grid DXpeditions in the Montana area. He loaded his truck with camping gear and radio equipment and headed out. In some cases, he operated from grid lines, giving out two grids at a time. Lance's operations put a few rare ones in my log.

There is another opportunity in August for those interested in VHF. That is Meteor Scatter (MS). When a meteor enters the atmosphere and burns up, it leaves a trail of ionized gas. These trails reflect radio signals. Depending on the size of the rock, and the frequency, the reflection can last from a few milliseconds up to a minute or so. The path remains open longer on lower frequencies for a given trail. Most meteors are the size of grains of sand and produce short bursts, well under a second. Contacts up to about 1400 miles are possible.

Meteors continuously rain down on the earth. If you go out in a clear moonless night, you can usually see several per hour. Radio meteors are more frequent. Several times a year, the earth's orbit crosses the path of a comet. Comets are globs of ice, dust, and small rocks. As the ice vaporizes, the dust becomes the tail we see, like with Comet NEOWISE, which made an appearance this summer. The larger pieces spread out over time along the orbit. When the earth passes through the orbit, we get an increase of meteors, called a meteor storm. In some good years, some storms can produce 150 meteors per hour but are usually much lower than that.

Meteor showers are named from the star constellation that they seem to appear from. One of the best is the Perseids because meteors from debris from the Swift-Tuttle comet appear to come from the constellation Perseus. Meteor showers will have a peak date. This year it is the night of August

11-12, although the peak is pretty broad. There will be Perseid meteors useful for MS contacts by the time you read this, and for maybe a week afterward.

So, what does it take to make MS contacts? Well, if you have been making contacts on 6M FT8, you have all you need. If you are on the digital modes and have a rig capable of SSB on 6M or 2M, you are all set. A big antenna and high power are not needed. Power is useful, but big beams can actually be less effective because of their narrow beamwidths. I once worked a station in Florida who was running 12W, and a 7-element homebrew Yagi mounted on a step ladder. That was on 2M.

You do not use FT8 for meteor scatter. FT8 is designed to dig deep into the noise. Meteor signals are often loud, but usually very short. Instead, load up WSJT and set the mode for MSK144. MSK144 is designed for sending the exchange extremely fast to take advantage of short bursts, most well under 1 second long.

Operating is similar to FT8 in that you alternate transmitting and receiving for 15 seconds. You do not spread out with MSK144. Just set the rig for the frequency listed by WSJT-X. With luck, while you are receiving there will be a short burst from another station calling CQ. It can be at any point in the 15 second period, or it can last several seconds or so. Click on the decode, and your computer will try to make a contact like how you do with FT8.

There are nuances in operating. I suggest you read the WSJT-X manual section on operating MS. There are also web sites explaining operating techniques. A good site to check out is www.pingjockey.net. It is a chat site for coordinating MS contacts. Many contacts are done with schedules, which you can arrange on the site. Or you can just learn about other QSO attempts, and listen for them.

The best time to work MS is after midnight. Before dawn is a great time, but you can make contact later. This summer, I made a 6M MS contact about 8:30 AM local. There was not even a shower going on. A lot of MS contacts happen using random meteors on 6M, which is the easiest band.

Most of the time it takes several sequences of transmission cycles to get to the next step in the QSO. The more meteors, the sooner a suitable one will pass by to complete the sequences.

Meteor scatter is an interesting mode. Give it a try.

There are not a lot of big contests in August and early September. A new one is the Worldwide Digi DX Contest. It is for FT4 and FT8 QSOs. The exchange is you are your grid. QSO points depend on the distance, with longer distant QSOs being worth more points. Multipliers are the two-letter grid blocks.

There are many entry classes, high power, low power, and QRP. Also, all band and single band within each power class. It starts Saturday, August 29, at 12:00 UTC (7:00 AM local) and runs for 24 hours. More info at https://ww-digi.com/rules/

The first big one in September is the ARRL September VHF Contest. This the same format as the June contest. It starts at 18:00 (1:00 PM local) UTC Saturday, Sept. 14, and runs until 0259 UTC Monday (9:59 PM Sunday night local). Rules are at http://www.arrl.org/september-vhf

As the last few months, there really are no DXpeditions in the next month.

Fall is going to be here before you know it. It looks like we will not be back to normal from the COVID-19 thing anytime soon. Get to work on those antenna projects because you might be spending a lot of time in the shack this winter.

An Invitation from Hawaii

By Pat Volkmann, W9JI

If you live in Hawaii, where do you go for your vacation? Why, Wisconsin of course! Michael Schultz WH6ZZ stopped in for a visit at the ORC last summer. He sent me a message offering to set up skeds for Hawaii and an invitation to participate in the Hawaii QSO party later this month. Here is Michael's email:

Aloha Pat,

I enjoyed attending a few ORC meetings last summer while I was on vacation in Wisconsin. Unfortunately, the Covid has kept me home here in the middle of the Pacific Ocean this year, but I do enjoy reading the ORC Newsletters, and I'm looking forward attending meetings and outings next year.

*Perhaps ORC members might be interested in the Hawaii QSO party on August **22-24.** The Hawai`i QSO Party (HQP) is an event to promote HF operation with the unique Hawai`i destination in the Pacific. Hawai`i is an ARRL DXCC entity as well as the nation's 50th state needed for the ARRL WAS Award, as you may know.*

*Many Hawaii Hams will be on-the-air for the QSO Party from 0400 UTC Aug 22 through 0359 UTC Aug 24, 2020. Stations must be worked only on the 10, 15, 20, 40, 80, and 160 meter bands. All digital modes (RTTY, FT8, FT4, PSK, whatever) are considered "digital" so there are three modes to use: CW, Phone, Digital. More information can be found at: **https://www.hawaiiqsoparty.org/***
I'm looking forward to QSOs with ORC members then (and anytime actually) using SSB, JS8, (and maybe FT8 or PSK31) on 20 Meters. (Thank you Don Lesch K9KOI for the Double Bazooka inspiration! It is my primary HF antenna). Although 14.250 is the suggested QSO Party SSB frequency, if it is piling up, I'll be on an adjacent freq.
Hopefully, the sun will cooperate and we'll have some excellent conditions.
Aloha and 73….
Michael Schultz

WH6ZZ QSL Card

Ozaukee Radio Club
July 8, 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 Volkmann W9JI officially initiated the meeting at 7:33 PM. Introductions were recognized when members checked into the meeting, to a go-around was not conducted.

Committee reports:

SWAPMEET: As reported from a recent ORC Board of directors meeting, by a vote of 7-0 (1 abstain) the August 29th outdoor swapfest has been cancelled. Sadly, the coronavirus remains an issue, and although the fest is staged outdoors, it was felt that there remained some risk, and attendance would be very low.

REPEATERS: Tom KC9ONY discussed the activity on the system, and hoped to see more use on the 222 and 440 MHz systems in the future. The Tuesday night net remains active at 8:00 PM, and also is linked to the 222 system.

Pat W9JI: Had several items to present. He asked that if anyone knows of some Ham who would like to join the ORC Zoom meetings, they get in touch with him for an invite. He mentioned that the donation button has been added to the webpage for those who would like to support the club due to the loss of revenue. ORC is also part of the Amazon 'smile' program, which can add some small revenue when members buy on Amazon.

Stan WB9RQR has been handling some online auctions of various computer items. Watch for his emails and respond quickly if you're interested.

Gary W9XT mentioned the upcoming "virtual ham expo" to be held on August 8-9 via Zoom. It is being presented by the "QSO today" podcast crew, and features 70 speakers, and also includes exhibitors. Entry is free for any early applicants. See the link in the ORC newsletter in W9XT's column.

Gary N9UUR presented his Treasurer's report, sent via email. Expenses were low, and little income was noted.

Ken W9GA referenced the minutes of the June meeting. Bill W9MZQ moved to accept, Stan WB9RQR seconded, motion passed.

Program:
W9JI had input from 10 members on their FD effort, and showed slides and heard comments:

W9MXQ: 1D	0.5K score
WT9Q/AE9MY: 2D	5.0K score
N9UUR/N9VSV: 2D	2.0K score
K9QLP: 1D	126 score
W9XT: 1D	5.8K score
W9KEY: 1D	2.4K score
W9GA: 1Eb	2.0K score
AC9WL: 1D	600 score
W9JI: 1D	???
K9DJT: 1D	1.9K score

Adjournment:
30 (+1) members (unique callsigns) were logged in. Contact Ken W9GA to obtain the list.
Bill W9MXQ moved to adjourn, Ken W9GA seconded the motion, and motion carried.
Meeting ended at 9:10 PM

Respectfully submitted,

Kenneth Boston W9GA
Secretary

ORC Meeting Agenda

September 9, 2020

1. 7:20 – 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. Program – ORC Repeater System Overview, Tom Trethewey KC9ONY
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 – Tom Trethewey (KC9ONY)
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. Details will be emailed via the ORC remailer usually about an hour and a half 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
Sepember 9, 2020

7:00-7:20 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 XXXII	September, 2020	Number 9

From the President

de Pat Volkmann, W9JI

It looks like the ORC fundraiser will hit the goal of $1,250. I had a message from the ORC Treasurer, Gary Bargholz, N9UUR the other day saying that he has commitments to donate that would put us over the goal. Gary is still expecting some checks so we'll put out a summary in the next couple of weeks after everything is in. Thank you to everyone who donated and thank you to the club member who contributed the $300 in matching funds.

Earlier in the year, when we knew that we weren't going to be holding the Spring Swapfest, a number of people who had purchased tables and tickets did not ask for a refund. Those donations were mentioned here in the May edition of the newsletter but it doesn't hurt to say thank you once again to Ken Boston, W9GA; Pancho Doneis, KA9OFA; Gary Drasch, K9DJT; Todd Fast, N9DRY; Bill Large, KD9HLN; Bill Shadid, W9MXQ; Gary Sutcliffe, W9XT; Tony Van Der Wal, N9UDS; and Robert Widish, N9PSN.

We have cancelled our reservations for the rest of the year at the Grafton Senior Center. Gary, N9UUR, has reserved the meeting room for next year in the hope that we will be meeting again in person at some time. The meeting room at the Senior Center would not begin to hold all of us and maintain our social distance. We could perhaps set up a meeting where we had a mix of in-person and Zoom participation. Please let me know your thoughts on resuming in-person meetings.

Last month I mentioned that my antenna tree had to come down. The tree was a 75-foot ash tree that had been holding up my main HF wire antennas for a number of years. I thought that this would be a temporary situation until I was able to get the replacement antennas in place. I was planning on installing a Gap Titan DX antenna after hearing good reviews on this antenna from several club members. When I went to place an order, I found out that the antenna was available from dealers as a "special order only" with shipping lead time estimates of over a month. I checked several different types of antennas and found the same situation. There are certainly antennas available, just not the ones that I was looking for. I was hoping to avoid winter antenna work but that is looking more likely as the season progresses.

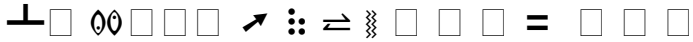
Pat Volkmann, W9JI

THE COMPUTER CORNER

No. 270: BabelMap

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

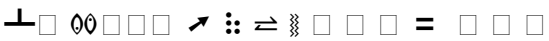
Did you ever write something and wish you had a symbol that just was not included in the bunch that came with Microsoft Word or even Libre Office? How about weird ones like these, just to show a few (a random selection by Stan):



Well, this month's topic is a fun one that may turn out to be a happy find! A program called BabelMap.exe, available here at MajorGeeks:

https://www.majorgeeks.com/files/details/babelmap.html

It will make available to you the entire Unicode character set, consisting of over 137,000 characters like the samples I have printed above at 14 point. By the way, they come smaller than those shown here. I simply used Libre Office Writer to expand them somewhat above so they would be easier for you to see. You can expand or contract them as you like with Microsoft Word, as well, allowing you to put one or more right in line with your article text. Here they are at 6 point:



Which might be close to the size you need for whatever article you are writing.

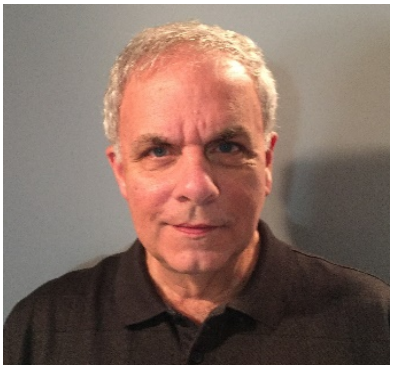
Wow! Over 137,000 characters! How do you find what you want? The program includes several utilities which will help you to home in on what you are looking for. An **Overview** utility lists essential details for all TrueType and OpenType fonts. A **Font Analysis** utility lists all Unicode blocks covered by a particular font, or lists all fonts that cover a particular Unicode block. A **Font Information** utility provides info about the currently selected font. A **Font Glyph Export** utility will export your selections in BMP, GIF, JPG or PNG format if you need to drop one in an illustration. A **Font Coverage** utility lists all fonts that cover a particular character, or all characters in a piece of text, or all the characters you have put in the BabelMap edit buffer. An **Advanced Character Search** utility lists all characters that meet certain criteria. And there are a bunch more utilities that will make your searches easier, including such things as utilities that will show you Han characters with a specified number of strokes, or characters with a particular Mandarin Pinyin pronunciation, or those with a particular Cantonese Jyutping pronunciation! Pretty amazing!

It is an impressive resource and utility, especially considering the .exe program itself occupies only 18.1MB of your hard drive space. It is worthwhile to get this program, if just to have a little fun with it during these boring Covid-19 days.

Happy computing!

Vintage Amateur Radio

de Bill Shadid, W9MXQ



In 1971, we saw the first of what would become one of the most successful of the new Japanese entries into the North American market, Trio-Kenwood. For this article, we will refer to them as Kenwood. At that time, Kenwood did not have any established business entity in the United States or Canada. As they took the first steps to become part of this market, they contracted with large North American radio distributor, Henry Radio, to market and distribute their products. To be sure, the Kenwood radios would be found at places other than Henry Radio's three store fronts in the United States, with headquarters in Butler, MO. Kenwood's first HF radio in the North American market was the TS-511S HF Transceiver[1]. But for this article we are going to discuss the second HF radio to be seen here, the TS-900 HF Transceiver, introduced in 1973. The first of the long line of Kenwood "900 Series" Transceivers.

Left to Right

PS-900 Power Supply, TS-900 Transceiver, VFO-900 Remote VFO

Shown with – Left to Right

Kenwood MC-50 Microphone, HS-6 Headphones, Johnson Speed-X Key

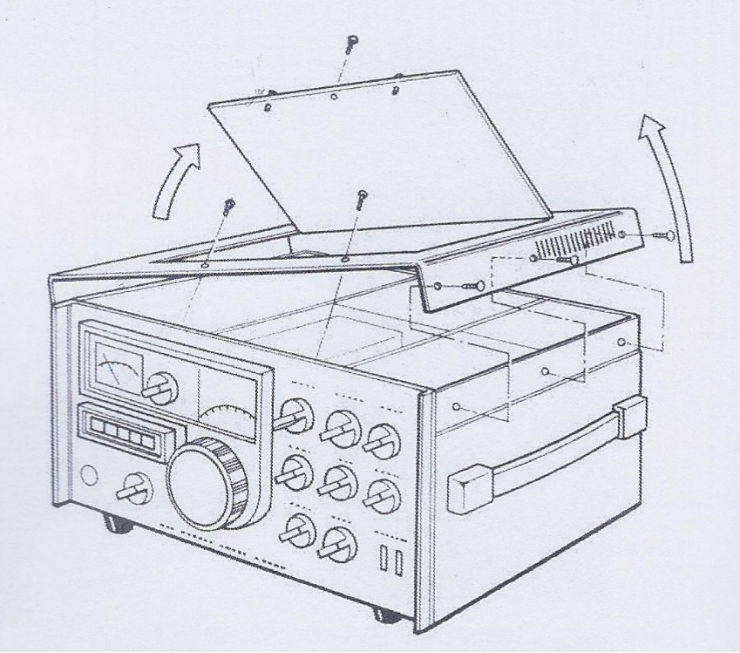
W9MXQ Photo

The 900-Series Kenwood radios would always tend to lead or be equal with features available at the time in ham radio. In the case of the TS-900 that leading-edge technology was incorporated with the use of the VFO-900 Remote VFO – shown above to the right of the TS-900 Transceiver. The VFO-900 could by synchronized with the VFO in the TS-900 – the user did not have to switch back and forth between VFO's while listening to one and the other to make sure they were tuning the same signal.

The VFO synchronizing feature was not offered by any other manufacturer at the time. Certainly not by technology leader, Collins, with its KWM-2 Transceiver and 312B-5 Remote VFO. Also, VFO sync is not a feature of the popular Drake TR-4 Transceiver with its RV-4 Remote VFO or any of the other installations that I know about from the time. Perhaps a close second in this feature was the Hallicrafters SR-400 Transceiver with its HA-20 Remote VFO (called a "DX Adapt-

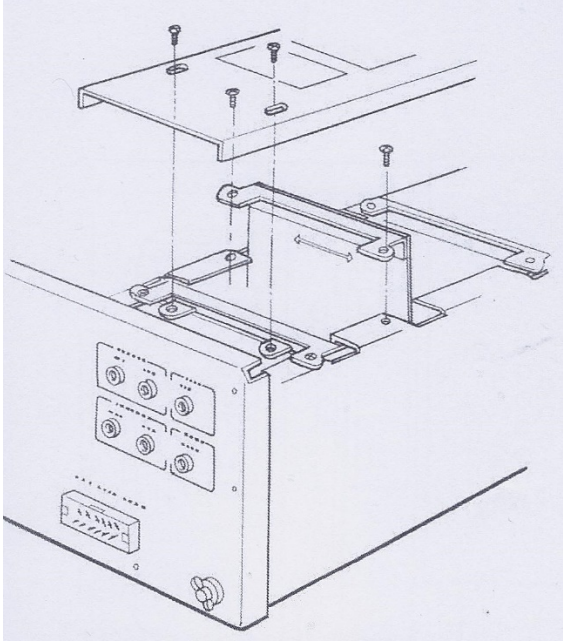
er" by Hallicrafters) that allowed listening to both the radio and the remote VFO signals at the same time.

The TS-900 is a modular design radio with a motherboard connection scheme (see later for details) and plug-in daughter boards. This technology – quite popular in commercial radios to perhaps better support the field repair process – has not survived past this period in most ham radio designs. Knowing that the average ham is not going to have unique daughter board service apparatus, Kenwood designed the TS-900 to be serviceable (for the most part!) without the need for board extenders and/or special tools. To illustrate this technique, note these pictures for daughter board access, removal, and service position:



Here is a picture of the opening of the cabinet. Screws are removed from the top and right side, as shown, to allow the complete cabinet top to open via left side hinges to expose the entire top of the radio.

Kenwood TS-900 Operations Manual.



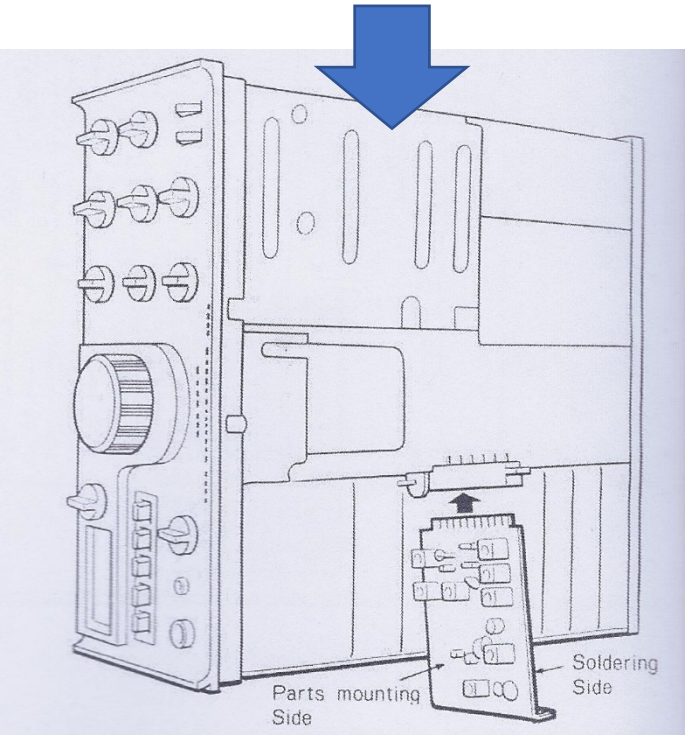
Here is a picture of the removal of top shields (covering the installed daughter boards) for individual board access. Note that each board is held in place with two screws.

As you can see, the above picture and this one shows from the perspective of the front of the radio (above) and from the back of the radio (left).

Kenwood TS-900 Operations Manual.

For the next picture, there is an assumption that the user has by now removed the entire cabinet for access to the bottom of the radio. When removing the entire cabinet, be careful that the hinged top is not damaged – as one removes the radio upward out of the cabinet, the offset

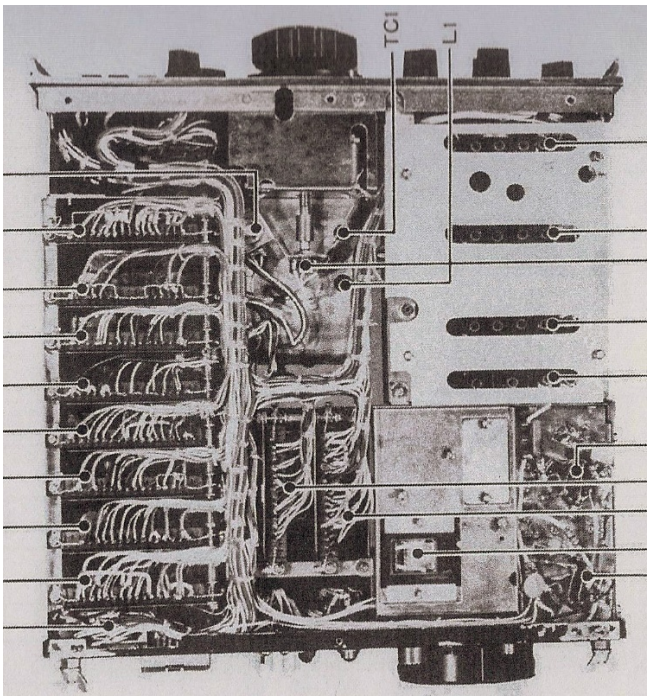
hinged top can cause the empty cabinet to shift in the direction of the hinged side of the now unrestricted enclosure – be careful!



Once the daughter board being serviced is removed, the radio is turned on its side, as shown, and the board's connector is unscrewed form one side and hinged outward, away from the chassis. The removed daughter board is then re-inserted into the connector to allow it to operate while being accessible. The arrow points to the only area of boards that cannot be serviced in the way described herein.

Kenwood TS-900 Operations Manual.

Mentioned above is the unique "motherboard connection scheme." This is different from the classic printed circuit board motherboard in that it takes the form of a wiring harness instead of a printed board. The construction scheme is shown here in a bottom view of the TS-900 with the outer cabinet completely removed:



This is the TS-900 Bottom View with the front panel at the top of the picture. You can see the wiring harness "motherboard" that allows for the hinging of the PC board sockets for the Daughter Boards to be hinged outward for access while in operation. The boards available for this process are along the left side of this picture, at the bottom half of the center area. However, the i-f related boards at the picture's upper right (with the shield covering them) cannot be serviced in this way.

Kenwood TS-900 Operations Manual.

Innovative as this design was, it did not appear again in Kenwood transceivers of which I am aware. And, while this radio was on the market, its sister offering, the TS-511S[1] used a board to board wired design with wire-wrap connections. However, to be fair, the TS-511S is a different radio all together – not a hybrid design to the extent of the TS-900.

The TS-900 has some interesting operating specifications for the time. In 1973 when this radio was new, there was a power competition going on between the major manufacturers in the market. Check this list . . .

Radio	Final Amplifier Tubes	RF Power Input (Watts)	
		SSB	CW
Collins KWM-2	6146A (2x)	170	160
Drake TR-4	6JB6 (3x)	300	260
Hallicrafters SR-400A	6KD6 (2x)	550	350
Heathkit SB-102	6146B (2x)	180	170
HyGain Galaxy GT-550	6LB6 (2x)	550	360
Kenwood TS-511S	6LQ6/6JE6[4] (2x)	500	300
Kenwood TS-900	6LQ6/6JE6[4] (2x)	300	200
National NCX-500	6LQ6/6JE6 (2x)	500	390
Swan 500cx	6LQ6/6JE6 (2x)	550	360
Yaesu FT-101E/EE/EX	6JS6C (2x)	260	180

Reference individual Operation Manuals for the radios shown.

Some points to note was a push toward higher power in several the above contenders. But remember that RF Power Input is not the major consideration in purchasing a radio. Receiver performance is, however. Reading posted information[3] from the time is pretty much the same for every one of them – all generic such as "better than 1uV sensitivity" and similarly benign statements of selectivity without comments about noise rejection, real world filter performance, etc. For the purposes of this article, however, I can bring personal performance comparisons for all the above, except for the HyGain Galaxy GT-550. The best receiver performers in the above list are the Collins KWM-2, Hallicrafters SR-400A, and the Kenwood TS-900. The others, however, are capable performers that many of my friends and I use and enjoy. The TS-511S is the leader of that second tier. Obviously, such comments are personal and not quantifiable in universal terms.

In a conversation I had with Mark Olson, KE9PQ, I noted his comment that the TS-900 had a different model number outside the USA (and perhaps Canada as well). While Mark did not have details, his comment have some basis in terms of the Kenwood TS-511S in this market that is known as the TS-515S outside the United States (and perhaps Canada) but is actually the same radio except for model markings. I was able to find the following list of models – with only the TS-900 being sold in North America (to my knowledge) in any significant volume:

- TS-900 – Finals are a pair of 6LQ6/6JE6 vacuum tubes.
  - North American Market Version.
- TS-900S – Final is a single 4X150 vacuum tube.
  - Trio Branded so not made for North America.
- TS-900X – Final is a single 6146A/B vacuum tube. (See picture, below.)
  - Japanese home market radio for entry level licensees (or QRP use).
- TS-900D – Finals are a pair of 6146A/B vacuum tubes.
  - Unknown market location focus. But did exist in the USA.

The focus of this article, the TS-900, is in my collection. The TS-900D can be confirmed because I temporarily have one that is on loan for writing this article. I have seen numerous pictures of the TS-900X. The lower power versions of Trio-Kenwood transmitters and transceivers – and those of all Japanese manufacturers – were well known in the Japanese market. The TS-

900S has been referenced in other places but the use of a 4X150 final amplifier would require an air systems socket and cooling system, such as seen in a linear amplifier. I question its viability in the market for a HF transceiver.

In our North American market, the TS-900 had an extruded aluminum, vertically brushed, clear anodized aluminum front panel – with black silk-screened lettering. Perhaps late versions, but certainly some versions, had a different color. These alternate color versions were also extruded aluminum and vertically brushed but were bronze anodized with white silk-screened lettering. Here is an example:

Kenwood Photo

Left to Right

PS-900 Power Supply and TS-900X Transceiver

(Note "Trio[4]" branding – these were not for the USA Market)

1

There was a bronze colored VFO-900 – but a picture of one was not found. Note the cooling opening in the right rear of the top cover. This was not present in the TS-900 version. Likely the single 6146A/B final amplifier was cooled differently in the TS-900X than the TS-900. The TS-900 and TS-900D, for which I have experience, were cooled by drawing air up from the bottom of the radio and exiting out the back.

For background, here is what the long history of the Kenwood 900 Series HF Transceivers looks like today:

- TS-900 Transceiver – 150 Watts / 100 Watts Nominal Output – SSB/CW
  - The first 900 series.
  - Hybrid Design – solid state except for 6GK6 driver and 6LQ6 final amplifiers.
  - Introduced in 1973 – 80-10 Meters - WARC Bands not included.
- TS-930S Transceiver[1] – 100 Watts Nominal Output – SSB/CW
  - All Solid State – including Final Amplifier.
  - Internal AC Power Supply becomes a 900 series feature.
  - Introduced in 1982 – 160-10 Meters – First model with WARC Bands.
  - Designated as TS-930S/AT with Internal Automatic Antenna Tuner.
- TS-940S Transceiver[1] – 100 Watts Nominal Output – SSB/CW
  - Introduced in 1985 – 160-10 Meters
  - Designated as TS-940S/AT with Internal Automatic Antenna Tuner.
- TS-950S/SD Transceiver – 150 Watts Nominal Output – SSB/CW
  - Automatic Antenna Tuner becomes standard equipment with this model.
  - Introduced in 1991 – 160-10 Meters
  - Designated TS-950S in standard form.
  - Designated TS-950SD with added Audio Transmit and Receive DSP[2].
  - TS-950S and TS-950SD were the first Kenwood dual receiver transceivers,

- TS-950SDX Transceiver – 150 Watts Nominal Output – SSB/CW
    - Improved ergonomics and audio DSP over TS-950S/SD.
    - Introduced in 1992 – 160-10 Meters
- TS-990S Transceiver – 200 Watts Nominal Output – SSB/CW
    - IF-DSP integrated into the design.
    - Introduced in 2012 – 160-6 Meters
    - This is a current production radio

Beginning with the TS-930S and its all solid-state final amplifier, Kenwood used 24 volts on the final transistors. This higher voltage provided better final amplifier distortion performance. To accommodate this, beginning with the TS-930S, the 900 series radios included an integrated power supply. TS-930 and beyond were not adaptable for 12 VDC operation.

In this time of making radios (1970's), even relatively large equipment like the TS-900 had an option for DC operation from 12 VDC[5]. Here is a picture of the DS-900 that supported 12 VDC operation with the TS-900:

Kenwood DS-900 12VDC Input Power Supply. The large Jones Connector is for connection to the TS-900 Transceiver. See the AC Socket at the upper right-hand corner. In this picture that is shown as 220 VAC – presumably because this picture is for a European version. That outlet would have been 120 VAC in North America – presumably to power the VFO-900 Remote VFO that contained its own internal AC Power Supply (but provided for 12 VDC operation).

Kenwood Photo

The TS-900 Transceiver was a first for Kenwood in a market it later led along with Yaesu. That is, the market for a hybrid transceiver[6]. This hybrid market, started in 1959 by Hallicrafters with the model FPM-200[1] Transceiver, was not populated with other models other than the ground-breaking SBE-33[1], from Sideband Engineers in 1963 and the Hallicrafters FPM-300[1] in 1972. To my knowledge, no other American company offered a hybrid transceiver, or separate receiver and transmitter that could be defined as hybrid. A past article talked about a hybrid attempt at the market with minimal volume Inoue (Icom) IC-700 Receiver and Transmitter and what may have been, the original Drake TR-5 (not to be confused with the production Drake TR5). However, to the point of this article, Kenwood went on to product a successful line of hybrids in the form of the TS-520 series, the TS-820 Series, TS-530S Series, and the TS-830S[6]. Yaesu also followed with the FT-101Z Series, FT-901 Series, FT-902 Series, and the FT-102. Kenwood and Yaesu also make hybrid transceivers marketed by others – such as Henry Radio Tempo Transceivers and Allied Radio.

Those interested in restoring an older hybrid transceiver are wise to remember that they are getting quite old by now. An initial market TS-900 can now be close to 50 years old. Components tied to alignment of these radios have gotten very brittle and can be severely damaged by even minor adjustment of the receiver and/or transmitter i-f coils. These parts are no longer available in a market of rare radios where even a parts-only unit is protected for possible restoration. If you find a similar old radio that you want to restore, contact this writer for further advice and

more information. I may have more pointers that may assist you, depending on what you can or have encountered.

The 900 series Kenwood Transceivers, in general, can be hard to find. Easiest to locate may be the TS-930S and TS-940S models – but exceptionally nice, properly functioning versions of even these are not overly common. Both the TS-930S and TS-940S are heavily supported by third party manufacturers covering several age-related maladies in these aging favorites[8]. The TS-900 is quite rare and can command a high price. When locating a TS-900, be sure to get one with its matching PS-900 AC Power Supply/Speaker. The power supply alone is almost impossible to find. Fortunately, it generally is sold with the transceiver. The VFO-900 is extremely rare. I have only recently found a complete set as you see on page one of this article. So, if you like these radios and see one – grab it!! You may not see another.

I appreciate that you read my articles. Special thanks go to Bob, W9DYQ, for his proof reading. Also, for this article, I owe a debt of gratitude to Mark Olson, KE9PQ, Nationwide Radio[9], for his assistance with this TS-900 HF Transceiver. Remember that I am open to questions and comments at my email address, W9MXQ@TWC.com.

Notes:

[1] Subject for a future article.

[2] The DSP unit in the TS-950SD could be added to a TS-950S by the user. The TS-950SD as delivered from the factory, however, had some unique cabinet marking.

[3] Magazine advertising and manufacturers brochures from the time, applicable operating manuals, etc.

[4] Kenwood used the 6LQ6/6JE6, the 6MJ6/6LQ6, or the 6ME6 – supposedly based on availability. Also, some to note that some 6LQ6 tubes are designated only as 6LQ6 without the 6JE6 or 6MJ6 designation.

[5] Collins also offered a 12 VDC power supply, as did Drake, Swan, Hallicrafters, and everyone else. But Collins was unique if offering also a 24 VDC supply for use of the KWM-2 on an airplane.

[6] Hybrid came to be known in the amateur radio market as a transceiver (or receiver/transmitter separates) where the only tubes were the driver and final amplifier states in the transmitter.

[7] The Kenwood TS-830S is widely known as the best of the hybrid radios with operational features that are effective to this day. A close second is also a Kenwood, the TS-530S or the rare but sought-after TS-530SP. The TS-530 series did not have the array of QRM and interference fighting tools of the TS-830S. However, a notch filter added with the TS-530SP did help in that respect a bit.

[8] Reference https://k6iok.com/ for details of the TS-930S and TS-940S restoration power supplies, LED lighting, and battery backup replacements.

[9] Nationwide Radio <http://nationwide-radio--amp-amp-amp--eq-sales-llc.mybigcommerce.com/>.

Project of the Month©

de Gary Drasch, K9DJT

Building an RF Detection Loop

Last I have had an RFI problem for the better part of a year. It has been a loud sharp buzzing, sometimes S7-8, and of course intermittent. Logging the time in which it was occurring proved to be fruitless. There was no pattern. It would pop up at 3:00pm in the afternoon to 3:00-4:00am in the morning and anytime in-between. I first eliminated everything in the house by operating my K3 on a battery and then turning off the main breaker in my home. It was still there. When I started operating on 6m this summer, I noticed that when I would turn the beam to the west the noise became stronger. Using my FT-891 mobile radio in the truck and riding around the neighborhood proved it was stronger near my home rather than a block away in any direction. I decided I needed a directional antenna.

Scrummaging around the basement workshop, I came upon a piece of ½" OD cooper tubing. I can't even remember what it was from but figured I only saved it because it was cooper. Now I needed something to shape it with, and came across a workshop stool my grandfather built in trade-school. You need to remember, I'm 72 which makes the stool really old. I was able to wrap the tubing around the circumference of the seat which seemed to be just right. Grandpa Buck would have been proud! (The picture was taken after I drill holes and decided to write this article.)

Now I needed some type of mast I could extend out the sunroof of the vehicle. Again, my shop didn't let me down. I found a piece of 7/8" OD thin wall PVC pipe and cut it to 25" in length. At the top end I used a half-round file to make a concaved spot to accommodate the tubing. Then I drilled a ¼" hole, all the way through, below and perpendicular to the concave for a cable tie to secure the top of the tubing to the mast.

In order to fasten the feed-point of the tubing to the mast, I drilled ¼" holes at both ends of the tubing, again all the way through, and did some final filing for a tight fit. Tinning the ends with solder made it easy to attach the RG-58A/U cable which also was found in the shop. Having a BNC connector already attached was a plus.

OK, it was now time to solder the coax to the tubing prior to cable-tying it to the mast. Because of the required length of the shield and the center-conductor separated by the mast, I decided to pull the center-conductor out of the braiding. If you haven't seen it done, all that is needed is a sharp tool. Start by putting a sharp bend in the coax at the point where the jacket is removed; poke around and gently separate the braiding. Then put the tool between the center conductor and the braiding, push through, and slide the center conductor out.

Now I removed about 3/8" of the center foam dielectric, thinned both ends and soldered to the tubing. Mounting the loop to the mast was pretty simple using just two cable-ties. One around the top and the other at the feed point. The only thing left to do was to put my callsign on it. That's so all my lid friends remember who to return it to!

So, did I find my noise? I did! I was able to pinpoint it to what I originally thought was a power transformer on a pole between my neighbors' houses. I was pretty sure that's what it was while the noise was steady anyways. What I was lacking was more attenuation than the 12db my FT-891 was able to provide. What was needed, and still is, is a switchable attenuator box as is used for fox-hunting. If I could have weakened the signal further I would have found the branches intertwined with the wires 6-8' from the transformer causing the noise. Because it was extremely windy the following day, the noise began to pulsate, full noise…no noise…to the rhythm of the wind. Go figure! Wish I would have noticed those branches sooner. Hi HI. WE Energies said they were going to send a tree trimming service out. I'm still waiting for the proof in the pudding.

If you have a project you've built, please share it with the club. If you dislike writing, send me some pictures, we can talk on the phone, and I'll write it up for you.

Come chase rocks with me on 6m!

73, Gary
K9DJT

Upcoming ORC Monthly Meeting Programs

October – *Open*
November - YU7EF 6M Beam Construction & 6M DXing, Ken Boston W9GA
December - *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 w9ji@arrl.net to discuss your idea for a program.

Upcoming Events

Wisconsin ARES / RACES Virtual Conference & ARRL Convention

Saturday, Oct. 24, 2020, 9:00 AM to 4:30 PM
https://wi-aresraces.link/register

49th Annual WARAC Midwinter Swapfest

January 9, 2021
Racine, WI

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

The days are getting shorter, and the nights are cooler. I always look forward to this time of the year. The hot, humid weather of summer seems to sap my energy. I get most of my antenna projects done in September and October. Okay, sometimes they stretch out into November. Okay, yes, they occasionally carry over into December. You got me. Too often they get postponed until the following year.

Fall is also is the time many of us get more active on the air. I always considered the W9DXCC convention in mid-September as kicking off the radio season. Like every other in-person event since March, W9DXCC 2020 was canceled. I will miss it.

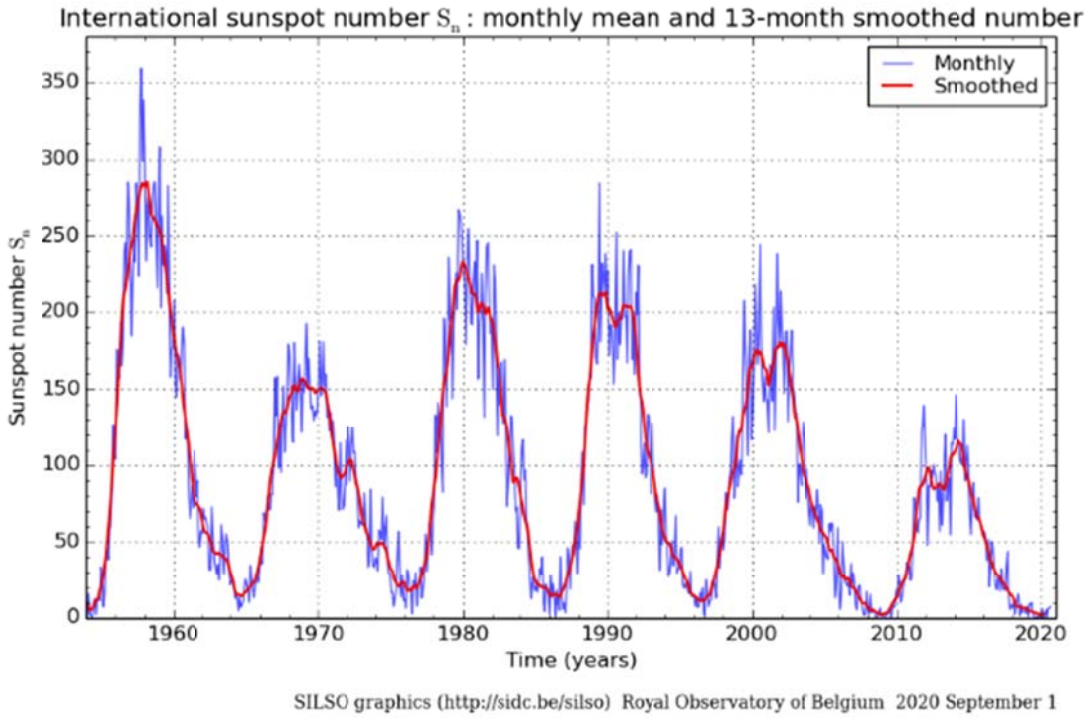
The low HF bands get better with the longer nights and fewer thunderstorms. A friend of mine reports the season is getting off to a good start, and he has been working into Europe in the evening and Australia around sunrise on 160 M. I have been updating my low band receive antennas. I need a whole new switching control system to make this work. Some parts arrived this week, so hopefully, I will have that running soon.

The low bands should be good this winter since we are still near the bottom of the sunspot cycle. There is new hope that we will start to see more sunspots and the higher bands will open up. One report says the minimum was last December. Why did it take so long to come to that conclusion?

The number of sunspots can change rapidly over the course of days and weeks. We can have a lot of variation in the number of spots, day to day, week to week, even month to month. It is a very noisy signal. So, the monthly numbers are averaged over a 13 month period, which means we don't know what a given month's number is until six months after it is over. Then we need a few months of rising numbers to declare a minimum. I hope December was the minimum, but it may have been a false alarm.

So how long before we see good DX openings on 10M? It will probably a couple more years. My experience is that we will get some openings to Southern Europe when the sunspot number gets around 40-50, and we have a very quiet geomagnetic field. Propagation to Japan and the Far East requires even more solar activity. The good thing is that sunspot numbers rise faster after the minimum than they decline after the peak.

The next question is how high the next peak will be. As you can see on the graph on the next page, peaks vary from cycle to cycle. My go-to expert on propagation is Carl Luetzelschwab, K9LA. He publishes monthly articles on his web site. His August 2020 article covered the predictions for Cycle 25. He lists 27 different published solar activity predictions. Carl points out that we really don't fully understand the process, as proven by so many prediction methods. http://k9la.us/Aug20_Cycle_25_Predictions.pdf



The above graphic from the Royal Observatory of Belgium shows the monthly and smooth sunspot numbers since the 1950s as of September 1, 2020.

The smallest peak prediction is only 50, and the highest is 229. Most of the projections are in the 100-124 range. That would be about like the last one, which was the smallest peak in my lifetime. Hopefully, the high outlier prediction will be the correct one!

DXpeditions continue to be on hold. Many announced ones earlier this year were tentatively rescheduled for this fall, but most of those have now been canceled or postponed until next year. Occasionally there have been single operator efforts, often linked to business travel or vacations. These are typically not to very rare locations.

There is one of interest from September 15-23 to the Faroe Islands by a couple of German ops. They will be using their home calls with the OY prefix. They will be on 80-10M, SSB, and digital.

There are two large contests of interest in September. The first is the ARRL September VHF Contest. The ARRL hosts VHF contests in June, September, and January. The June one is often the best because of the likelihood of Es propagation on 6M. September holds the promise of enhanced tropospheric ducting, which can produce VHF and UHF contacts out to 800-1000 miles or more. This ducting happens when a high-pressure zone moves in, and warm, dry air covers cooler moist air. This causes a temperature inversion results in VHF and higher frequencies signals to be refracted back to earth.

I recently stumbled on a web site that has tropospheric ducting prediction maps. https://dxinfocentre.com/tropo.html There is a box in the upper left that lets you select what part of the world you are interested. I don't have a lot of experience with this site, except in the week or so I've been following it, it seems good at predicting there is no ducting on 2M!

The VHF contest starts at 1800 UTC (1:00 PM local) on September 12 and ends at 0259 on September 14 (10:00 PM Sunday local time). This is for the VHF and UHF bands starting at 6M. You can work a station on CW, phone (SSB or FM), or digital modes. Work a station once per band, regardless of mode. If you are operating with FT8, be sure to change the Advanced

Settings to NA VHF. The exchange is your grid square. Get the full rules at http://www.arrl.org/september-vhf.

The other big September contest is the CQWW RTTY contest. It starts at 0000 GMT September 26 (7:00 PM Friday, September 25 local) and runs for 48 hours. Rules are similar to the phone version in October and the CW event in November. You send a signal report and CQ zone. Our zone is 04. This one is different from the CW and phone versions in that you get 1 point for working stations in our own country. Those QSOs are worth zero points in the other mode events but can be worked for multipliers. Also, you can't use 160M for the RTTY version. Note that the CQWW events are the last full weekend of August (FT8), September (RTTY), October (SSB), and CW (November).

The CQWW contests have a lot of different categories, high, low, and QRP, single band or all band, and assisted or unassisted in all combinations. There is a class for everyone. Get full details at https://www.cqwwrtty.com/.

The California QSO Party starts on Saturday, October 3, at 1600 UTC (11:00 AM local) and runs to 2200 (5:00 PM local) on Sunday. You can only operate a maximum of 24 hours. California has the biggest state QSO Party, and there is a lot of activity. A lot of contesters get on for this to check out their station before the fall contest season starts.

You will send a serial number and state. You only work CA stations, and they will send a serial number and abbreviation for their county. CW contacts are worth 3 points, and phone contacts are worth 2 points. Multipliers are the CA counties. Don't forget to work mobiles again when they move to a new county. Classes are high, low, and QRP, assisted, and non-assisted. Now for the good part. The top twenty scores outside of CA win a bottle of California wine! There are also something like 55 plaques awarded for a lot of different things like top youth, top YL, most improved, top new contester, etc. You can get more information at http://www.cqp.org/Rules.html

That wraps up this month. Let's get those antenna projects finished up before the snow flies!

Ozaukee Radio Club
August 12, 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 7:31 PM, as introductions were recognized when members checked into the meeting, a go-around was not conducted. Pat then refreshed the members on the on-going Club donation program, with the fact that an anonymous member was offering to match every dollar donated with a 50-cent match (up to $300). This will increase the effective donations, and should help the club reach the $1250 goal.

Tom W9IPR briefly mentioned that the ARRL has awarded the $2,000 ORC scholarship.

Stan WB9RQR will have a Linux-based laptop up for direct online auction soon; the first person to respond wins the auction, and must pay directly to the treasurer.

Program:
Peter W0NG gave a presentation on his DIY solar back up power project. He had purchased a couple of 200+ watt panels earlier and designed and installed a backup power source based on the panels. He described a process of obtaining permits, designing the system and selecting components, then installing and getting the system operational.

Committee reports:
Tom KC9ONY provided updates on the repeater system. The 222 system has been experiencing interference, similar to interference affecting the 442.1 system managed by K9QLP. This interference is being investigated. Our 146.97 MHz club net was also mentioned.

Gary N9UUR advised that the statements had been emailed to the club. We had limited expenses, and unfortunately have had 3 silent keys in the club recently. The club is still solvent however.

The minutes from the July meeting, which had been emailed to the membership, were approved by a motion made by Vic WT9Q, seconded by Bill W9MXQ and voted on by the membership (includes one minor correction of a call).

Tom W9IPR elaborated on the award of the scholarship; the recipient; Dakota Nyberg, KD9DIU of River Falls, sent a short thank you letter, which Tom read to the members.

Ben K9UZ will be issuing the newsletter by the end of the week.

OLD Business:
Pat W9JI is hoping that the repeater use survey will be distributed soon.

NEW Business:
Vic WT9Q noted the 2019 10-meter contest results in the July QST; Gary W9XT was first, and Vic WT9Q was second.

Pat W9JI is looking for programs for the 2020 October and December meetings.

Adjournment:

35 members (unique callsigns) checked into the ZOOM meeting. Contact Ken W9GA to obtain the list.
Stan WB9RQR moved to adjourn, Bill W9MXQ seconded the motion, and motion carried. The meeting ended at 8:52 PM.

Respectfully submitted,

Kenneth Boston W9GA
Secretary

Gozinta Definition "Not in Dictionary"

de Nels Harvey, WA9JOB

Many of you have heard me use interesting words in my conversations. No, some of these words aren't in the dictionary. Gozinta, Comzouta and some lesser words like Gozonta, and Gozoffa, are words that dictionary people aren't able to classify, so they do not consider them as real words. I disagree!

In reality, Gozinta and the others are really nouns verbs adverbs and/or adjectives. It represents a place, so it's a noun. It represents an action, so it's a verb. It explains an action, so it's an adjective, or it describes an action, so it's an adverb. Since the words do not change their pronunciation, they're only one declension.

The primary words are Gozinta, and Comzouta. These words apply to everything! If you are looking at a complicated electronic circuit, you look for the Gozinta, and the Comzouta of the whole circuit, or the individual parts of the circuit. Your microphone is a Gozinta! The Comzouta is an electrical signal. That then becomes a Gozinta, going into an amplifier, and so on.

This thinking can be applied to just about anything. The milk Gozinta the refrigerator. The egg Comzouta the refrigerator, but then it Gozinta the frying pan. The milk Comzouta the refrigerator, but then it Gozonta your cereal. Your shoe Gozonta the step, and Gozoffa the cement. You take the freeway Gozonta, and then you need to find the right Gozoffa. Sometimes one Gozinta a tunnel, and then one Comzouta the tunnel!

Lamps are a good example of Gozonta, and Gozoffa. Flip the switch, and it either Gozonta, or Gozoffa. The switch determines the Gozinta for the lamp and when it Gozinta, the light Comzouta. The gasoline Gozinta your auto's gas tank. The Comzouta comes from your credit card, which has its Gozinta from your bank. The bank's Comzouta depends on your Gozinta.

See how many ways you can apply Gozinta, Comzouta, Gozonta, and Gozoffa to your daily life. This should help while our world is on hold with the virus situation. Hopefully you will agree with me that these words really do belong in the dictionary.

ORC Meeting Agenda

October 14, 2020

1. 7:20 – 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. Program – To Be Determined
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 – Tom Trethewey (KC9ONY)
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. Details will be emailed via the ORC remailer usually about an hour and a half 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 14, 2020

7:20-7:30 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 XXXII	October, 2020	Number 10

From the President

de Pat Volkmann, W9JI

Fall is here and with it comes an increasing number of contest events. These range from the weekly sprints that last a couple of hours to the more grueling events that last an entire weekend. Contests are a great way to check out your rig and antenna while also having some fun. You don't need to be a world class contest operator or copy CW at 40 WPM to have a good time and get on the air.

There are a number of places that you can get information on upcoming contests. For many years I have used The Contest Calendar, compiled by Bruce Horn, WA7BNM. The list is available by email or at http://www.contestcalendar.com/. The ARRL also hosts a Contest Calendar and Contest Corral at http://www.arrl.org/contest-calendar. And of course, the ORC Newsletter is home to Gary Sutcliffe's, W9XT, Dx'ing and Contesting column. Gary includes lots of useful and interesting information on propagation, working DX and upcoming contests. Get informed and get on the air!

Watch for the ORC Repeater Survey sometime this month. After some delay, the Repeater Committee has gotten together and produced a draft copy of a survey that will attempt to learn what members want to see in our club repeater system.

This is also the time of the year when I start telling myself that it's time to get the antenna work completed. I have some additional incentive this year as all my HF antennas, except one, had to come down. A dead tree needed to be removed for a remodeling project, which was the antenna support that I have been using for years. The remodeling work included some new windows in a shed that houses my shack. The antennas used to come through a board placed in the window. This was never a tight fit and would let in lots of cold air during the winter. The new setup uses a window that is about 6" shorter than the old one. A panel is permanently mounted in the space above the shorter window, making a weather tight access point for the antennas. All I have to do now is get to work before the weather gets cold.

See you at the meeting.

Pat Volkmann, W9JI

THE COMPUTER CORNER

No. 271: Why you need Linux NOW!

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

Microsoft has introduced us to a "new way to build, deploy and service Windows: "***Windows as a service***" (bold italics are mine)*. Prior to the present, Microsoft had to release a new version of Windows every few years. Now, they claim this is no longer needed. Windows 10 will remain Windows 10 for many years, with smaller updates released twice a year, "around March and September" to help meet present needs in a rapidly changing world. Not stated anywhere by Microsoft but something Stan says you can count on will be a monetary charge for the semi-annual updates. Just you wait and see.

Do you think this is good because it will do away with monthly updates? Forget it! They intend to continue with cumulative updates each month for both security and non-security changes. So, you are not off the hook with time-consuming, multiple-reboot updates.

So what is the advantage? There probably is none, other than tightening the control that Microsoft has on its Windows product. But, they have made some changes to assuage the squeeze. They plan on three "servicing channels", ostensibly so that their customers can decide how often an individual device can be updated. 1. The Semi-annual Channel permits twice a year feature updates. The Semi-annual Channel is probably what you and I would get as a non-corporate user. 2. A Long Term Channel is for devices that don't run Office, such as those that control medical equipment or ATM machines. These are only updated every two to three years. 3. Finally, a Windows Insider channel permits users to test and provide feedback on features that will be shipped in the next semi-annual release. My question: does this latter channel simply represent a free testing ground for features that should have been thoroughly tested by Microsoft staff?

The obvious (to me) way to avoid any new fees and miss all this nonsense is to use Linux. The latest and greatest (Linux Mint 20, Cinnamon, nickname "Ulyana") is so easy to use and functionally similar to Windows that a Windows user will hardly know the difference between desktops, and it is easy for users to tweak it until it looks and feels even more like Windows. Ulyana comes with a clone of Microsoft Office (Libre Office) that works just like the Microsoft product and can open and save Microsoft Office documents in Microsoft formats (.doc, .docx, etc.). And it has more of the other programs than even Office has. Besides Writer (for Office documents), it comes with Calc (for spreadsheets), Impress (for presentations), Draw (for drawing), Math (for formulae) and Base (for databases). Each of these can open their Microsoft counterpart files, and save them that way, too. So you can get a presentation file written in Microsoft PowerPoint, open and edit it in Impress, and save it again in PowerPoint (.ppt) format. Sometimes you may find slight differences when you save between versions, but usually these are easily tweaked to the way you want it. And remember, Linux is totally free, comes with free Libre Office, free Firefox browser and a bunch of other free programs, with thousands of others available. It even has Wine available for you to install, a program that lets you run Microsoft programs within Linux. Remember, no fees, no charges, either for the Linux operating system

or for thousands of available free programs. There are some programs you can purchase if you want, but they are not needed for usual operations.

Linux is software the way it was meant to be structured, rather than the way it has evolved under the tutelage of really-big-business Microsoft. Linux was developed by individuals who wanted to share their programming skills rather than to make a profit. And we can all benefit by this selfless attitude.

So, what do I suggest? One approach would be to add Linux to your existing Windows 10 hard drive in a dual-boot configuration. Then you can get to know Linux, keep it up to date and even use it productively while having the safety net of Windows 10 intact on the same machine and hard drive with the backup of a working Linux installation if you encounter conditions that make you want to abandon Windows. That is what I have done on my main desktop computer. Oh, let me mention this. In a dual-boot arrangement, you can access all your Windows 10 files (letters, pictures, etc.) from Linux. You can, for example, access a Microsoft Word document on your Win10 section of the drive with Linux, suck it into Linux and edit it with Libre office and save it in Linux in Microsoft Word format! Not the other way around, however. While Linux can easily read Microsoft (NTFS) files, Microsoft cannot seem to read files written with the Linux operating system. Or, they don't want to.

Alternatively, you could put Linux on a separate hard drive in your desktop and simply plug that hard drive in (and unplug the Windows hard drive) when you want to work with Linux. That keeps everything separate, and hard drives today are so cheap that this route is very inexpensively done. This ploy also provides some insurance against a hard drive failure because both are not likely to fail at the same time.

Finally, a third ploy would be to have an altogether separate Linux machine (desktop or laptop). That's kinda nice because if you physically arrange things well, you can be working with two machines and two operating systems more or less simultaneously. That is fun and sometimes extremely useful. Have fun finding what works best for you.

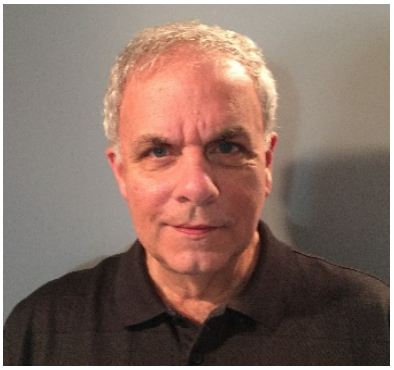
Happy computing!

---

*Read about this yourself in "Overview of Windows as a service, 15May2020, Microsoft Corporation, https://docs.microsoft.com/en-us/windows/deployment/update/waas-overview. In case you did not know, you can click on the https address above and it will take you directly to the document in your browser (sometimes ctrl-click instead of just click).

Vintage Amateur Radio

de Bill Shadid, W9MXQ



A name in ham radio we all know is Kenwood. Today known as JVCKenwood after their corporate merger with JVC some years ago, in 1971 they were known in Japan as Trio Kenwood – Trio was the corporate name selling the Kenwood brand in some markets. In that same year, Trio Kenwood came into the North American amateur radio market as Kenwood, imported by Henry Electronics. At that time, Henry was the manufacturer of Linear Amplifiers and other high-power RF devices. Henry also owned three store front locations in the United States that sold and distributed amateur radio equipment. Known in this market as Kenwood, they began with one HF Transceiver, the TS-511S, an 80 to 10-meter SSB/CW Transceiver. Also offered were major accessories, including the PS-511S AC Power Supply/Speaker as well as the VFO-5SS Remote VFO. The TS-511S was the first of Kenwood's popular priced "500 series" transceivers (in the North American market) that exist with us today with the current TS-590SG model.

Left to Right
PS-511S Power Supply, TS-511S Transceiver, VFO-5SS Remote VFO
W9MXQ Photo

Kenwood always had market segment placement defined by model number – starting in 1970 and still existing today. Here is a rough analysis of the model levels . . .

- TS-100 Series – Mostly Entry-Level Transceivers
  - Examples are the TS-120S, TS-130S, TS-140S
- TS-400 Series – More Deluxe Entry Level Transceivers – added features
  - Examples are the TS-430S, TS-440S, TS-450S, TS-480SAT/HX
- TS-500 Series – Popular Priced Mass Market Transceivers
  - Examples are the TS-510, TS-511S, TS-515S, TS-520, TS-530S, TS-570S, TS-590S/SG
- TS-600 Series – Early on these were 100 or 400 series with Six-Meters added (with some adding six meters to only a few HF bands)
  - Examples are the TS-660, TS-670, TS-680S, TS-690S
- TS-800 Series – Higher echelon transceivers with added technology
  - Examples are the TS-820, TS-830S, TS-850S, TS-870S, TS-890S
- TS-900 Series – Top of the Line Kenwood Transceivers – the most Deluxe
  - Examples are TS-900, TS-930S, TS-940S, TS-950S, TS-990S

To be sure, there were exceptions to the above. The TS-50S and TS-2000 come to mind. And some transceivers seemed to be placed in areas that implied entry or lower level in a radio that obviously had design aspirations above its traditional place in the line. The TS-130S. TS-180S, and TS-590S/SG come to mind as examples.

The TS-511S was not what could be called a Hybrid Transceiver as we came to define that design. We tend to define "Hybrid" as a transceiver with a tube final amplifier section (usually – but not always – two vacuum tubes) and a vacuum tube driver[1]. The TS-511S used a 6GK6[3] driver tube and two 6LQ6[3] final amplifier tubes. It also included seven other tubes in various sections of the radio. Even the PS-511S Power Supply included a single vacuum tube, a 6BM8, in the low high voltage regulation circuit.

The TS-511S was a powerful transceiver making a good account of itself on the bands in competition with powerful American transceivers of the time. These included, but perhaps not limited to, the Swan 500c, National NCX-500, Drake TR-4 (at 300 watts), and the Galaxy GT-550. The TS-511S had an input of 500 watts PEP SSB and 300 watts CW. It could provide over 250 watts PEP SSB and 150 watts CW DC output. Unlike some of the others, there was no accommodation for AM receive or transmit.

W9MXQ Photo

Kenwood designed the interior of the TS-511S on individual small circuit boards, as shown to the left. In this picture, the front panel is at the bottom of the picture. You can see the crystal filters on the board at the upper-left part of the chassis. Shown is the optional 500 Hz CW Filter – the lower of the two filters. The power amplifier compartment is completely enclosed and is under the "DANGER" label at the upper right-hand corner. Microphone Gain and VOX controls are on the controls in the middle of the chassis. The VFO enclosure is just to the right of center mounted at the front panel.

W9MXQ Photo

In this rear panel view, note the exposed internal circuitry at the right center – an open area to the interior. While probably not a shock hazard at that location[4], it left circuitry exposed in an otherwise well enclosed cabinet design. Connections below the fan were for an external receiver. See connections for the PS-511S Power Supply and VFO-5SS Remove VFO. To the right of the fan is a connector that is used to get fan power from the PS-511S Power Supply.

One disadvantage of the open back area on the TS-511S – which certainly was not unique to Kenwood – was access by vermin during storage. While the radios in this article are in pristine condition, there is a second TS-511S and a PS-511S in this writer's inventory. Outwardly that second trans-

ceiver is perfect, but it has interior defects that render it never to be restorable. I am extremely fortunate to have this pair.

The circuit boards inside the TS-511S cabinet are mounted over open areas in the chassis top and are open to the bottom for access. Most board to board connections are handled with individually soldered leads to board terminals via a wiring harness. This is traditional manufacturing process at the time.

At the left, top picture, is a front panel view of the PS-511S AC Power Supply. The power supply cabinet also integrates a station speaker. Just to the lower left-hand corner of the speaker area, a small diameter neon pilot can be seen. This indicates presence of AC Power.

At the left, bottom picture, is a rear panel view of the power supply. You can see the “Cinch Jones” style 12-pin power connector for the transceiver, an AC socket for the 120 VAC fan. There is a final amplifier bias adjustment at the top center of the lower panel. The is a provision for the system AC fuse as well as a fixed AC power cord – a typical two-wire 120 VAC line cord of Kenwood at the time. Even much later Kenwood radios did not have a three-wire AC power cord.

W9MXQ Photos

PS-511S AC Power Supplies are extremely rare. If not included with the TS-511S Transceiver, it would be difficult, if not impossible to find one. The somewhat more plentiful Swan 117xc AC Power Supply (for virtually all Swan radios from the original 350 to the 500cx, and more) could perhaps be made to work with the TS-511S. This is just one of the several challenges faced by collectors of relatively rare old radios. I occasionally see TS-511S transceivers for sale without a power supply and wonder if they were ever put on the air. A home-brew alternative always existed with many hams in the 1960’s and 1970’s having made their own power supply units for transceivers of the day. Circuits used to appear in popular ham radio publications of the day[5].

An additional note about the PS-511S is that its high voltage rectifier diodes seem somewhat delicate. They are unforgiving and easily overloaded in situations with any excessive current draw from the transceiver. To compare that with the comparatively simple design of the Swan 117xc AC Power Supply would indicate Swan supply as being of lower duty cycle than the Kenwood. But at the same time, the Swan power supply seems to be more tolerant of over current situations. Personally, I attribute that to better and more robust silicon power supply diodes from North America at time.

Certain long-term traits of Kenwood’s expertise in radio design are immediately apparent in the performance of the TS-511S. While a bit subjective[6], I find these items superior and still relevant to this day . . .

1. Kenwood radios have a critical advantage in signal to noise ratio in their receiver i-f design. I am not an RF Engineer – but know what I hear. Your ears can tell the difference even if instruments cannot.
2. The crystal i-f bandpass filters Kenwood was using were first rate – not something always evident in Japanese radios of the time. There was at the time (and still today) active discus-

sions of the recovered audio performance of crystal filters that all but Collins used vs the mechanical filters used in the i-f of Collins radios beginning with the 75A-4 HF Receiver[2]. To my ear, only Kenwood was equal to the challenge of the performance of the mechanical filter. That last comment is quite subjective and perhaps open to some discussion.

3. Kenwood has a "smooth" performance to its transmitter tuning. In my opinion, this was the result of good driver and PA tank circuit design. Along with high quality meter instruments in the transceivers and good use of vernier controls, tuning a Kenwood PA was smooth and exacting – and, relatively easily performed. Missing was the rather erratic tuning of Swan, Drake, and Galaxy products. While the Collins products of the day were superior to their American cousins in many ways, the tuning process was different and complicated[7].

Like most of the competition of the time, the Kenwood TS-511S was offered with all the proper accessories. As shown in the opening picture herein, the TS-511S had a matching VFO-5SS Remote VFO. Here are some notes about the unit . . .

At the left, top picture, is a front panel view of the VFO-5SS Remote VFO. The VFO takes its power from the host TS-511S transceiver. Note there is a crystal socket at the upper right-hand corner and an associated crystal/VFO switch below it. The VFO-5SS could use a crystal for a single frequency location, such as a net. This was much more important in a day when free running VFO oscillators could not approach crystal stability like the PLL circuits of today.

W9MXQ Photo

At the left, bottom picture, is a rear panel view of the Remote VFO. The small, 9-pin connector at the right is the interconnect to the TS-511S and carried VFO power, switching signals, and VFO RF to/from the transceiver. The eight pin "octal" socket is not generally use but contained connections to an internal relay that could be used for linear amplifier, receiver preamplifier, or other accessories.

W9MXQ Photo

The FUNCTION switch on the VFO-5SS allowed for operation of the station on the Transceiver VFO (Exclusive), Split between the two, or from the Remote VFO (Exclusive). Rather unique was RIT on the External VFO – but not so pleasant was the RIT On/Off switch that required the user to rotate the RIT control to its extreme minus voltage rotation to turn on and off. In the top picture of the VFO-5SS, above, you can also see the OPERATION indicator lamp in the upper left-hand corner of the front panel. That lamp illuminates when the VFO-5SS is controlling station operating frequency.

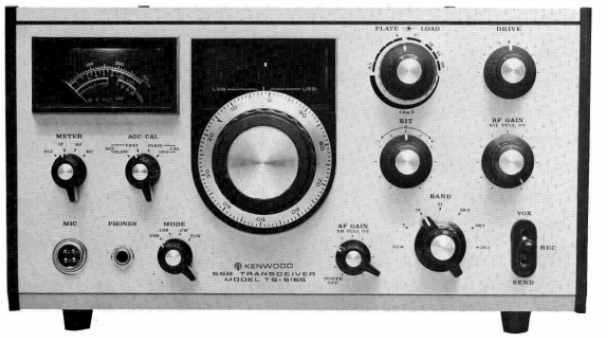
If the PS-511S is rare then the VFO-5SS is nearly unobtainium[8]. As collecting goes, this is typical. Finding a historic transceiver can be difficult. Its matching power supply generally stays with the transceiver – even though it is in a separate cabinet[9]. So, it is generally rarer than the transceiver as a stand-alone purchase. Since only a small percentage (or relatively so) of initial transceiver buyers bought a Remote VFO, they have become rare. Cases in point are 312B-5 External VFO's for Collins KWM-2, RV-4 and RV-4C for Drake TR-4, HA-20 for the Hallicrafters Cyclone (SR-400) and Hurricane (SR-2000), FV-101 and FV-101B for Yaesu FT-101 and FT-101B/E/F, to name a few.

The TS-511S had a cousin in the North American market. That was the TS-511D. Differences were only in the final amplifier which contained 6146A tubes instead of the 6LQ6 tubes used in the TS-511S. While the TS-511D used the same VFO-5SS Remote VFO, it is unclear as to the power supply and how it might have differed from the PS-511S. Not that the PS-511S had an "S" in the model

number. Did that mean there was a PS-511D[10]? Switching from 6LQ6 sweep tubes to 6146A tetrodes is not a plug and play process.

Kenwood did not offer the TS-511S or TS-511D outside the United States. However, they did offer the identical TS-515S and apparently a TS-515D[10]. Here are the TS-511S and the TS-515S, side by side . . .

Kenwood TS-511S HF Transceiver
W9MXQ Photo



Kenwood TS-515S HF Transceiver
Kenwood Photo

Photo color differences are not present in actual units – they are identical except for the actual model number at the bottom center of the front panels. Well, maybe better called, "almost identical." My own early TS-511S does not have a TUNE position on the MODE switch – the TS-515S, and the later builds of the TS-511S have that fourth MODE position. It is hard to see, above, but the MODE switch is to the lower left of the Main Tuning Knob on both radios – note three positions on the TS-511S and four on the TS-515S.[13]

Friend and fellow collector, Jan, N8CBX, and I have recently discussed the existence of both the TS-511S and the TS-515S and their similarities. We felt we found one difference in the MODE switch just mentioned. At first, we disagreed that the TS-515S was unique in having the TUNE position as a MODE selection. But we have found internet pictures (Bing™ or Google™ search of both models) showing thee and four mode versions of both radios. It is reasonable to assume that both went through a running design change that added the TUNE position in later production runs. In mentioning Jan, I would be remiss not also mentioning Dale, W4OP, who was involved in the same conversations. Dale is another friend and collector of vintage amateur radios. Dale introduced me to Jan.

It is logical that there would have been a TS-515V[10] model to market in Japan. Japan had (and still has) an entry level license with a 75-watt power limit. The radio probably would have used a single 6146A in its final amplifier[10]. Some of those lower powered (suffix "V") radios made it to the USA – case in point being the Kenwood TS-130V version of the popular TS-130S. If that happened with the TS-511S, then perhaps there are a few TS-511V models somewhere in the USA[10].

For several personal reasons tied to using a TS-511S early in my ham radio career, I had been looking for one for years. Thanks to Mark Olson, KE9PQ[11], I found the one shown in this article (including the PS-511S and VFO-5SS) in the past few months. A ham friend in the area[12], put me in touch with a parts-only TS-511S and excellent looking and working PS-511S. These "extra" units support the working station.

It is interesting to see Kenwood's two previous radios to the TS-511S in the USA and the TS-515S in the rest of the world. Branded as Trio, there were two radios that developed into what we knew as the TS-511S . . .

Trio TS-500 HF Transceiver (Pre-1970)
Trio Photo

Trio TS-510 HF Transceiver (1970)
Trio Photo

These radios used a pair of S-2001 final amplifier tubes for an input of 160 watts PEP SSB and DC CW. The S-2001 is a Japanese specification 6146 or 6146A. These were primarily vacuum tube radios – not all that different from the TS-511S.

Also, for comparison to the Trio TS-510, above, was the Allied (Allied Radio Company[14]) A-2517 HF Transceiver made on contract with Trio . . .

Allied Radio A-2517 HF Transceiver from 1970. This perhaps is the first Trio-Kenwood radio to be marketed in the USA. Comparing this radio with the Trio TS-510 shows them to be similar, if not identical. There was also a very nice A-2516 Receiver that would have worked well as a partner with the A-2517 shown here. The A-2515 was not designed to transceive with the A-2517, to my knowledge. These date from about 1970.
Radio Shack Photo

I appreciate that you read my articles. A special thanks go to Bob, W9DYQ, for his proof reading. Also, for this article, I owe a debt of gratitude to Mark Olson, KE9PQ, Nationwide Radio[9], for his assistance with finding this TS-511S HF Transceiver Station. Remember that I am open to questions and comments at my email address, W9MXQ@TWC.com.

Notes:

[1] The Hybrid amateur radio transceiver in volume was pioneered by the American designed and manufactured, Sideband Engineers SB-33 Transceiver. It was introduced in 1963. An exceptionally low volume American transceiver, the Hallicrafters FPM-200, would qualify as well but it was never really produced in high volume. Hybrid came to be known in the amateur radio market as a transceiver (or receiver/transmitter separates) where the only tubes were the driver and final amplifier states in the transmitter.

[2] Subject for a future article. This includes the SB-33 and FPM-200, mentioned in Note 1, above.

[3] Kenwood used the 6LQ6/6JE6, the 6MJ6/6LQ6, or the 6ME6 – supposedly based on availability. Also, note that some 6LQ6 tubes are designated only as 6LQ6 without the 6JE6 or 6MJ6 sub-designation.

[4] Perhaps an unwarranted conclusion – always be careful - DO NOT TOUCH ANY EXPOSED CIRCUITRY!!! (Unless power is removed, and all voltages are proven to be completely discharged.)

[5] ***QST***, ***CQ***, ***Ham Radio***, ***73***, and other publications come to mind.

[6] I have been an active ham for 56 years, so I do not apologize for my version of “subjective!”

[7] Collins seem to have had an overly complicated tuning process. The S-Line transmitters could be extremely frustrating in terms of proper grid drive. While important in the Collins tuning process, grid drive was not even a measured parameter in Hallicrafters transmitters!

[8] "Unobtainium" is a term use in many collector fields – not just ham radio. It means something like, "I don't care how hard you look; you are not likely to ever find one!"

[9] Today's radios that typically run from 12 VDC power are not so reliant on an OEM Power Supply. Third-party 12 VDC power supplies are economical and readily available. However, more and more high-end transceivers run at 24 or even 48 VDC for their final amplifiers. Such power systems, however, are generally built into the transceiver.

[10] This references a conjecture on my part based on experience – but not a proven fact.

[11] Mark Olson, KE9PQ, is the owner of Nationwide Radio: <http://nationwide-radio--amp-amp-amp--eq-sales-llc.mybigcommerce.com/>.

[12] The parts only TS-511S and compete PS-511S come via the good graces of Richard Engel, K9RWE.

[13] The three and four MODE versions of the TS-511S and TS-515S looked as follows . . .

Three MODE Version

Mode Left to Right
USB-LSB-CW

Four-MODE Version

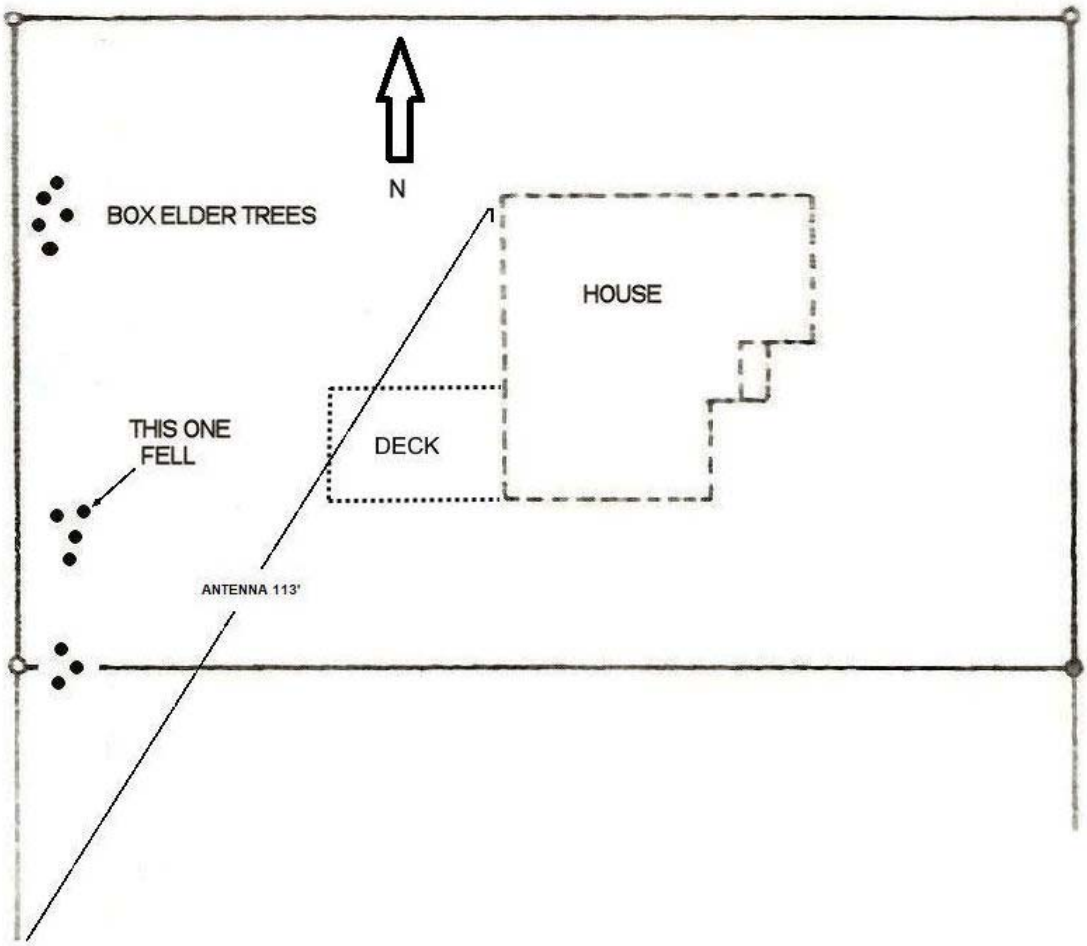
Mode Left to Right
TUNE-USB-CW-LSB

[14] Trio Corporation (Trio-Kenwood in the time of the TS-511S and now JVCKenwood) was involved with many retail operations making private label electronics – especially world band (short-wave) receivers, ham radio equipment, and other related items. Also, of interest to ham radio operators is that JVCKenwood is the corporate owner E. F. Johnson Company and their line of public service VHF/UHF RF equipment. Many of us remember E. F. Johnson and their extensive line of Viking Transmitters and Accessories. The Viking line of amateur radio equipment was sole to a company formed for that purpose – named Nye-Viking, part of the Wm. Nye Company.

Pulleys and Counterweights Really Do Work!

By Stan Kaplan, WB9RQR

On Friday, 11 September 2020, we had a minor disaster at my QTH. Days and days of rain preceding this date had softened the ground, and one of the box elder trees on the west margin of my property decided it had had enough. At about noon that day, it toppled over with a crash to the east, bringing the top branches onto my deck. Below is a sketch of my QTH and part of my neighbor's yard, with the position of trees, antenna and deck.



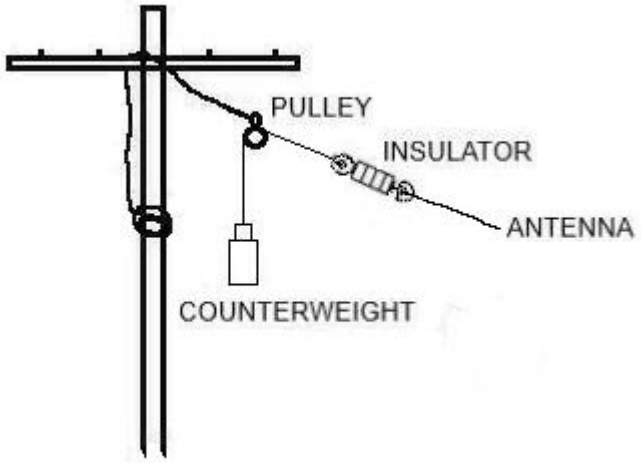
The box elder that fell was big, 21 inches in diameter (measured) and 65 feet high (measured). It fell toward the east, missing several other trees in my back yard and landing with its top branches on my deck. The branches did no damage to my deck other than to a mechanical weather vane/wind speed indicator that I was able to straighten and repaint. But, if you look at the diagram above, it landed on my longwire HF antenna and brought it down to the deck and ground.

But, the copperweld longwire antenna did not break! Let me describe the layout and why it was saved without damage. Indeed, after removal of the tree branches and with a little careful guidance, it popped back up to its original position, and my tuner showed the SWR to be just the same as before the incident.

The antenna starts at the HF station in my basement, comes out of a basement window (through the frame) and runs up at the NW corner of my house to a ceramic insulator under the soffit 17.5 feet above the ground. It then heads in a SW direction, across my yard and part of

my neighbors. There is an active Wisconsin Central railroad track on the west margin of our properties, and buried in the vegetation at the back of my neighbor's yard on the train right-of-way is an ancient telephone pole and cross-member, abandoned and clearly forgotten by the railroad. Judging by its condition, the pole and cross-member are at least 100 years old. But, supported by surrounding small trees and shrubs, it stands strongly and (with my neighbor's full permission) supports the end of my longwire antenna.

So, to support the antenna end, I threw a line over the telephone pole's cross member, tied a pulley to one end and tied the other end to the pole within standing reach. Then I connected a dog-bone ceramic insulator to the end of the antenna (about 10 feet from the pole), and light nylon woven cord from the insulator's other end (the halyard), through the pulley (close to the telephone pole) and down to a plastic gallon tea jug filled with sand as a counterweight. This is all shown in the sketch below. Not shown is a light line, with lots of slack, between the counterweight and the pole to keep the counterweight from swinging too much in high winds.



The counterweight keeps the antenna taut so there is very little "belly", and high winds, ice or snow offer no danger to the antenna's position. But, as we have seen, a falling tree will bring it down (without breaking it), until it pops back up when the tree is removed.

So that is my story. Since then, I have gotten back on the Wisconsin ARES/RACES HF Net, Sunday mornings at 8:00 a.m., with no problem. It's good to be back on HF again!

Upcoming ORC Monthly Meeting Programs

November - YU7EF 6M Beam Construction & 6M DXing, Ken Boston W9GA
December - *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 w9ji@arrl.net to discuss your idea for a program.

Upcoming Events

Wisconsin ARES / RACES Virtual Conference & ARRL Convention

Saturday, Oct. 24, 2020, 9:00 AM to 4:30 PM
https://wi-aresraces.link/register

49th Annual WARAC Midwinter Swapfest

January 9, 2021
Racine, WI

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

If you chase awards like DXCC (DX Century Club), WAS (Worked All States), etc., you need confirmation of your contacts. Traditionally this was done with paper QSL cards, essentially custom postcards with information on your station and the contact information.

Some of these were quite plain, just printed information with your name, call sign, address, and maybe your county and grid square. Others had full color pictures of the operator, station, dog, or perhaps a scene from the area. Some even folded out with more pages.

In the old days you could look up the address of the station you worked in the Call Book. These were telephone book (remember those?) size and style books that listed ham addresses by call sign. They came out once a year, but you could subscribe to quarterly updates.

Then you wrote out your QSL card, and if you were polite, included an SASE (self-addressed, stamped envelope) so you would not burden the other guy with the hassle and cost of mailing you a response.

DX QSLs were more difficult. Part of the problem was postage. US postage stamps are useless in Outer Flezevania. There were places that sold foreign uncirculated stamps, but that was expensive and took a while to arrive. One solution was International Reply Coupons, IRCs. You could buy them at the local post office, but you usually got a deer in the headlights look when you asked for them.

Theoretically, one was good in any country for a letter to any other country. In reality, you had to usually send a couple or five. Usually you did not buy IRCs from the post office. If someone sent you a card with IRCs, you purchased a stamp with cash and used the IRCs to send to someone else. They became a sort of an international currency, but not as high tech as Bitcoin. IRCs have been discontinued.

An alternative was "Green Stamps." These were dollar bills included with the QSL to help the DX station buy stamps. You had to be careful though. It was illegal for citizens of some countries to own foreign or US currency. If the DX operator were in jail, you probably would not get a card from him.

The other problem was theft. Postal workers in third world and not so third world countries would often supplement their income by opening interesting mail and taking the contents. You never put a call sign on an envelope. That was a tip-off for enclosed green stamps and IRCs, which in some areas could also be exchanged (under the table) for cigarettes and food.

The last method was through QSL Bureaus. But that was terribly slow, often 2-3 years to get a response. It was so slow that on CW stations sometimes send "QSL via Buro" hinting that is will be transported by donkeys.

Bureaus handled cards for a country or region. Instead of sending ten cards individually to stations in Germany, you sent all ten to the DARC bureau. They would arrange to get the cards to the proper

hams. Some countries only allowed their hams to exchange QSLs via the bureau. PO Box 88, Moscow was where you sent all your cards to USSR hams for many years.

The ARRL runs the US bureau system. You can send sorted outgoing cards to the ARRL, and for a fee, they will send them to the other country bureaus. Based on the number in your call sign, you need to send money or SASEs to the right incoming US bureaus.

It could take years to get DXCC using the paper QSL method. In 2003 the ARRL started the LoTW, or Logbook of The World program. It is a computerized system that matches logbooks between stations.

If you upload your logs and a station you worked also uploaded theirs, it matches the QSOs, and you have QSO credit for ARRL and a few CQ awards.

Some stations have their logging software upload each QSO as they make them. You can get credit within minutes in some cases. I upload soon after contests or when I have a dozen or so contacts in the log. Right now, I have about 136,000 QSOs uploaded to LoTW and almost 72,000 QSL records. My experience is contesters and digital mode operators are most likely to participate in LoTW.

LoTW saves a lot of time and money. Before LoTW I would often reply to a thousand paper QSLs during high sunspot years. That was expensive and time consuming. Now I get a trickle of paper QSLs. I do not send out for many, either. I have every DXCC confirmed on at least one band, and I am not motivated in most cases to spend $5 or more in outgoing postage and green stamps to get a paper confirmation on a different band or mode. Some stations let you sent money by PayPal to cover return postage. In general, they don't need another card from the US, so you avoid the expense of sending a card first.

Many stations do not participate in LoTW, so there is no alternative to paper QSL. Over time more and more stations sign up for LoTW. Once in a while, a QSL confirmation shows up for a contact made a decade or more ago.

The ARRL is very serious about the security of the LoTW program. A major complaint is the number of steps that are required to get set up. It is more complicated than setting up a bank, credit card, or brokerage account. My DXCC record is very important to me, considering it has taken almost 50 years to get where I am, but not nearly as important as getting my life savings stolen.

LoTW is a powerful system and is worth using for anyone who is interested in awards. The link for the LoTW is at http://www.arrl.org/logbook-of-the-world

Another great resource for getting started in LoTW is https://www.g4ifb.com/LoTW_New_User_Guide.pdf

The fall contest season gets underway in October. The big one is the CQWW Phone contest starting at 00:00 UTC Saturday, October 24. That is Friday night at 7:00 PM local. CQWW Phone is the most popular contest in the world. It is a DX contest where you work only DX. The exchange is a signal report and your CQ Zone. We are in Zone 4. The multipliers are the number of DX countries plus the number of zones worked on each band.

You get three QSO points with DX stations on other continents. Contacts with DX stations in North America are worth two points. You get zero points for contacts with stations in the US, but you can work them to get the country and zone multipliers.

There are a ton of different operating categories. There are high, low, and QRP classes. You can go assisted with DX spotting assistance or unassisted. You can go all band or single band in any of the

power and assisted/unassisted categories. Read the rules and results from past years at https://www.cqww.com/

Twenty meters will be the main band for this year. The 15 Meter band should produce more contacts than in the last few years. Most will continue to be to the south, but we might get contacts in other directions if the solar activity continues its slow increase. Check 10M periodically, especially in the early afternoon. There will likely be some brief openings to South America.

Contests for early November are the ARRL Sweepstakes. SS is a very popular contest and was my favorite when I first started out contesting. The exchange is really long compared to other contests. It is based on the header for traffic handling. You send out a serial number, your precedence (a letter indicating your operating class), your call sign, your check (last two digits of the year you were first licensed), and finally, your ARRL section. We are in the WI section. Larger states are often broken down into multiple sections. New York, for example, has four, and California has nine sections. Assuming I go low power unassisted, my first exchange will be "001 A W9XT 70 WI."

The CW start is on November 7, and phone starts on November 21. The starting time is 2100UTC and runs for 36 hours, but you can only operate 24 hours. Check out the full rules and operating guidelines at http://www.arrl.org/sweepstakes

DXpeditions are still pretty much on hold due to the COVID-19 pandemic.

October is generally considered to be the best month of the year for HF propagation. It is also the last month for decent weather for getting antenna work done. Take advantage of it!

My very first DX QSL. I was a Novice and the contact was made with a 75 watt crystal controlled transmitter and a 40M dipole on CW.

Ozaukee Radio Club
September 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 7:30 PM, as introductions were recognized when members checked into the meeting, a go-around was not conducted. Pat mentioned that those hams that would like to attend our Zoom meetings, but are not getting the group invitations need only to email him to be added for an invite.

Announcements:

Gary K9DJT announced that he has reached 50 states worked on 30meters. Adam, KD9NRG has a new Icom IC7300, Pat W9JI is working on completing 5BWAS, Fred W9KEY updated info on the ARRL plus TAPR digital program, Gary W9XT mentioned the International Space Station operation on 145MHz uplink/437MHz downlink, Ari KD9KHY has upgraded to general class. Mike WH6ZZ has been active in the recent State QSO parties.

Program:

KC9ONY Tom did a program on the ORC system of repeaters; W9CQO. The system encompasses repeaters fixed on 146MHz, 224MHz, and 446MHz. The system also boasts remote receivers located at 5 sites, with the main RX/TX site located on the west side of Cedarburg. He described the system physical components and layout in great detail, and gave us some historical perspective. Tom also gave some indication of future plans.

Officer Reports:

Repeater VP KC9ONY Tom advised that there still are some noise issues on the 222 system.

Treasurer Gary N9UUR advised that the statements had been emailed to the club. He mentioned that we have received thanks from Cindy Douglass for the SK donation (for Skip). He has reserved the senior center for 2021, should we return to onsite meetings. We have sufficient cash to operate, minimal bills, and our donation program has raised $1170 as of the meeting.

Secretary Ken W9GA had recently posted the August 2020 minutes; WB9RQR moved and N9DRY seconded to accept the minutes, motion passed.

OLD Business:

Pat W9JI updated the status on the repeater survey, and mentioned that there are three main issues put forth in the upcoming survey. He also discussed the pending elections for club officers, and asked how we might be handling these in January 2021. Ken W9GA mentioned that we have vacated the 'shed' rented on Hawthorne court, and moved the trailers to big Nate's (KC9TSO) QTH in Germantown.

NEW Business:

Tom KC9ONY informed us that there is to be a ham auction on Oct 13th, and to remind us of the 'parks on the air' event to be held Saturday the 19th. Pat W9JI conducted an online survey on what options we should ad-

dress in the future; the answers were revealing: Wait until vaccine- 33%; In-person- 26%; Zoom- 17%; Combination- 21%.

Adjournment:

Stan WB9RQR moved to adjourn, Bill W9MXQ seconded the motion, and motion carried. Meeting ended at 9:05 PM.

There were 36 members (unique call signs) on the ZOOM site. Contact Ken W9GA to obtain the list.

Respectfully submitted,

Kenneth Boston W9GA
Secretary

ORC Meeting Agenda

November 11, 2020

1. 7:20 – 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. Program – Ken W9GA: 6M Beams & DXing
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 – Tom Trethewey (KC9ONY)
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. Details will be emailed 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
November 11, 2020

7:20-7:30 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 XXXII	November, 2020	Number 11

From the President

de Pat Volkmann, W9JI

The FCC has proposed a $50 fee for each amateur radio application for new licenses, license renewals, upgrades to existing licenses, and vanity call sign requests. The FCC proposal is detailed in a Notice of Proposed Rulemaking MD Docket 20-270, which was published in The Federal Register on October 15, 2020. The deadline for comments is November 16th. The ARRL website has complete information on the proposal. They have also prepared detailed instructions on how to file your comments in the FCC system. Search for "Steps to Submit an Online Filing" on the ARRL website.

If you have never filed comments with the FCC, it pays to read the ARRL guide first. The ARRL has a number of suggestions for arguments that they believe will work. Complete information can be found here: http://www.arrl.org/news/arrl-urges-members-to-join-in-strongly-opposing-fcc-s-application-fees-proposal

The Germantown receive site for the 2M repeater has been down for some time and we have been unable to access it to make repairs. Several club members took the initiative to set up some equipment to duplicate the function of the Germantown site. The new site is now on the air. Special thanks to Nels Harvey, WA9JOB, Gregg Lengling, W9DHI, Nate Seidler, KC9TSO, and Tom Trethewey, KC9ONY.

Gary Sutcliffe, W9XT, received Special Service Award from the ARRL citing his contributions to the National Contest Journal. Gary has authored a regular column in the NCJ for over 18 years. Gary was also featured on the cover of the November issue of the NCJ. You can see both in this month's newsletter.

See you at the meeting.

Pat Volkmann, W9JI

THE COMPUTER CORNER
No. 272: The Microcutter

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

There is no doubt that proper tools can make jobs easier. A good tool can make the swearing level as small as zero, while a poor tool or the wrong tool can escalate the swearing level considerably. Let me share a recent discovery of mine, at the risk of hearing from some of you that "Oh, I have been using those for years!".

Most of us cut wires in our ham radio pursuits, and sometimes this requires cutting precisely and working in tight spots. I do even more cutting than the average ham, in connection with my rewiring of lamps as a hardware store service – many of you know about this pursuit of mine. Proper trimming of wire leads in this case is especially important, since tolerances are often tight and 110 VAC is unforgiving. The old, clunky side cutters of past years sort of work OK, but now there is a new kid on the block that makes the job easier. Microcutters.

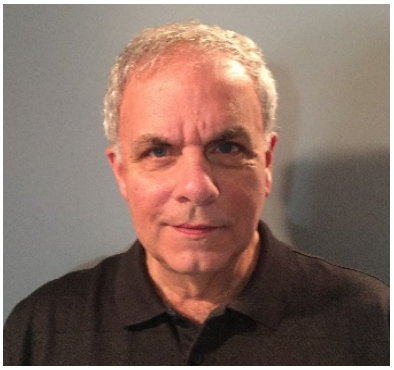
Here is a picture of one. These CHP-170 microcutters can be purchased on Amazon for about $13 for <u>two</u> units, including shipping and sales tax. The cutting head is only about 8 mm long, so it will fit in tight spaces. The steel jaws are heat-treated carbon steel, angled at about 20º and will flush-cut wires made of soft copper or aluminum up to about 16 AWG. They are not made to work with larger diameter wire or wire that has been hardened in some way. But they are just right for the smaller stuff, down to and including your grandchild's battery-powered device that you just have to fix! I can attest to the fact that they are just perfect for trimming wire ends coming from underneath terminal screws in lamps and other devices.

That is it! Just a tip. Oh, yes, I have found another use for them. They are great for removing that split fingernail fragment that is driving you crazy! But, please take my advice from a previous life of mine. Dip them in ordinary rubbing alcohol (70% isopropyl alcohol) before operating on yourself. That concentration of alcohol (70% only, not less and NOT more) kills all bacteria and inactivates all viruses.

Happy computing!

Vintage Amateur Radio

de Bill Shadid, W9MXQ



If you have been in amateur radio since the 1960's, or before, you can remember Hammarlund Radio Company. They were a global player in the radio component and later the receiver, transmitter, and accessories part of the market. Tracing its origins back to around 1910, Hammarlund was one of the oldest entities in the radio communication field when its factory closed forever in 1973.

The history of the Hammarlund Radio Company is an interesting, separate topic[1]. It certainly parallels the development of radio communication and technology as a whole – but for me and the readers of this column, Hammarlund had significant impact on amateur radio throughout its history. The radios we ham radio operators used – and still use – owe their heritage to such famous radio names as Comet, Comet-Pro, and Super Pro from the Hammarlund product offerings over the years. The radios we will discuss in this article owe their heritage to all those predecessors.

The first Hammarlund items to discuss are very nearly the last products produced in large volume. These are the HQ-170 series Ham Band Only and the HQ-180 series General Coverage High Frequency Receivers. Shown below are these last of the "big iron[2]" Hammarlund receivers. The HQ-170AC-VHF (on the left) is the last, version of the HQ-170 – this one being the HQ-170AC-VHF. The HQ-180 (one the right) is the first version, of two (HQ-180 and HQ-180A). This one is an HQ-180C.

With affection, these are known as the
Last of the Hammarlund "Big Iron."

Hammarlund HQ-170AC-VHF Receiver

Hammarlund HQ-180C Receiver

W9MXQ Collection

Just a note for clarity in Hammarlund model numbers, the "C" in the model number merely means that there was an optional front panel Clock installed, as you can see in both examples, above, mounted in the upper left hand corner in both models.

Understanding of Hammarlund model numbers is important from a historical standpoint. For that, check the following chart showing the different versions of both receivers.

Hammarlund Model	Years Produced	Band or Frequency Range
HQ-170 / HQ-170C	1958-1962	160, 80, 40, 20, 15, 10, & 6 Meters
HQ-170A / HQ-170AC	1962-1968	
HQ-170A-VHF / HQ-170AC-VHF	1964-1967	160, 80, 40, 20, 15 10, 6 & 2 Meters
HQ-180 / HQ-180C	1959-1962	540 kHz through 30 MHz, Continuous (80, 40, 20, 15, and 10 Meter Ham Radio Band Spread)
HQ-180XE	1959-1962	
HQ-180A / HQ-180AC	1963-1972	
HQ-180AX	1963-1972	

The model breakdown can be a bit confusing. As noted above, the suffix letter “C” merely means the radio has an internal Telechron™ Clock installed. That “C” is a reference only and not really a model designator – none of the radios had the clock as standard equipment. Models with an internal Crystal Oscillator to allow crystal control of the radio (HQ-180 and HQ-180A models only) were designated with the “XE” (for the HQ-180) or “X” (for the HQ-180A). The Crystal Oscillator was installed in the clock location. Here are some additional variations in the appearance of these radios with HQ-180 models. The HQ-170 appearance without a clock would be like what is shown below in the HQ-180 . . .

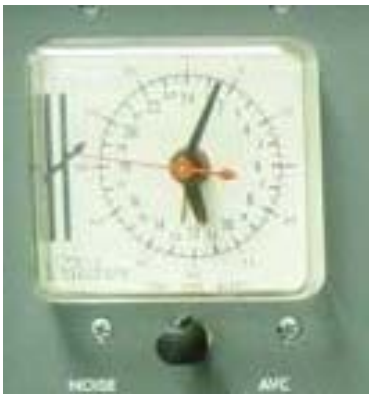
HQ-180 Receiver
(No Optional Clock Installed)
RigPix

HQ-180XE Receiver
(Showing Optional Crystal Oscillator)
RigPix

The missing clock, when that option was not chosen, was a simple panel with the Hammarlund logo covered by the same plastic lens used to cover the clock. Clocks were installed in the field by the dealer or the user. They were more than a simple convenience to tell the time of day – they could be set to turn the radio on at a predetermined time. In my early days of ham radio, my main receiver was a Hammarlund HQ-170AC. I was a college student at the time, and I would set the radio to power itself on at a time about an hour before I would return home from classes for a schedule on the bands. The radio would be warmed up and stable by the time I arrived[3].

Clocks were different over time – but always Telechron. The initial non “A” models of the two receivers had a 12-hour clock while some late non- “A” models and all “A” models with clocks had a 24-hour clock. The 24-hour clock was that rather rare face design that had 24 hours in the rotation for hours. Here are both versions for reference . . .

12-Hour Clock
W9MXQ

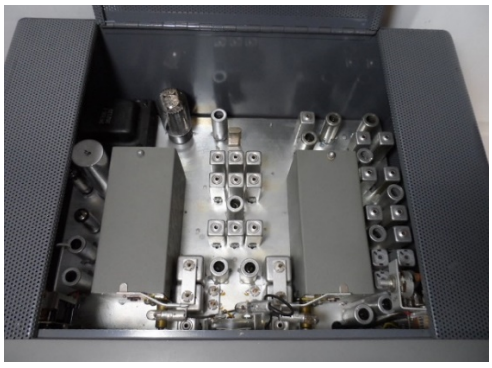


24-Hour Clock
RigPix

The Hammarlund HQ-170 and HQ-180, in their original form, tended to drift more than some of their competition. As I say that, I must add that all radios of the time drifted to some degree and virtually all of them were quite stable after about an hour of warm-up. Hammarlund tried to assist in this area using the clock to power up and pre-warm the radio before a scheduled use. The move to the "A" version of both radios – both versions of which had nearly identical circuitry – was directed to frequency stability. In both radios, these were the primary changes made in the "A" version products:

1. The heat generating 5U4 High Voltage Rectifier was removed and replaced by silicon diodes. The solid-state components produced negligible heat, so they did not heat stress adjacent components within the cabinet and cause frequency instability. While this would stabilize, given time, the reduced heat allowed that stability to be attained quicker.
2. V2, the First Mixer tube, and V12, the HF Oscillator tube, were connected to filament power if the radio was connected to AC power – no matter if the radio was switched on, or off. This allowed these two critical frequency stability tubes and their internal components to always be at correct operating temperature. That meant that they did not have to warm up and become stable right after powering on the radio. This technique was also used by Hallicrafters in the SX-101 series receivers.

"A" Series, HQ-170AC-VHF
Open area to the left rear is made possible by the silicon diodes.
W9MXQ



Non- "A" Series HQ-180C
See the 5U4 Rectifier at the left rear, the heat generator!
W9MXQ

Another visible difference in the 170 and 180 versions of this basic chassis were the large tuning capacitors in the HQ-180 (above, right) shown covered with large plastic enclosures vs the open single capacitor (left of center) in the HQ-170 (above, left). Later productions of the HQ-180, and especially in the HQ-180A, these covers were removed as they seemed to trap moisture and encourage the formation of mildew in tropical climates. The HQ-180 radios were used in many applications other than ham radio. They were also used as laboratory instruments and other applications where

HF Radio Reception was required. General Coverage receivers produced at that time were not necessarily the most convenient for ham radio use. This is despite the HQ-180 and HQ-180A having ham radio Band Spread. However, these general coverage receivers were manufactured for years after the ham band only HQ-170 series was replaced by more modern designs.

Hammarlund did a major cabinet redesign in late non- “A” production. Here is an example of both the HQ-170C and the HQ-170AC-VHF cabinet and the improved access in the later version. This also applied to the HQ-180 cabinet.

Hammarlund HQ-170C
Note closed top – no chassis access.
W9JI then W9MXQ

Hammarlund HQ-170AC-VHF
Note door access to chassis.
W9MXQ

The above noted update is not easy to determine as to implementation, however. This HQ-180C is the original design yet check its cabinet:

This HQ-180C should have a closed cabinet – no top access. But, as you can see, the cabinet has a door. Was it a replacement cabinet? Perhaps, but the chassis layout decal on the back panel clearly shows it as a HQ-180, not a HQ-180A. Also, it has a 24-hour clock. Since the HQ-180 was widely used, as mentioned, in specialty applications, it is possible that the cabinet was at the time offered as an option from Hammarlund. Just one of the many mysteries of second guessing the decisions of a manufacturer now silent for nearly 50 years!

As an appreciator and user of both the HQ-170 and the HQ-180 series Hammarlund receivers, I will detail some differences in Single Sideband and CW tuning. Over time there were changes as the original series in the HQ-170 and HQ-180 moved to the “A” series:

HQ-170 (HQ-180 was similar)
SSB and CW were the same mode switch position (see upper left)
WØUI

HQ-170A (HQ-180A was similar)
SSB and CW were separate mode switch positions (see upper left)
W9MXQ

For the earlier (non-"A") models of the HQ-170 and the HQ-180, one would access Single Sideband signals by switching to the CW/SSB position on the MODE switch and using the BFO KCS knob to tune the proper offset for USB or LSB. In addition, the SIDE BANDS switch was switched to the correct L (Lower) or U (Upper) Sideband position. BOTH could be selected when in AM or CW. CW could certainly be received in the Lower or Upper Position, as done in today's radios.

For the later ("A") models, Single Sideband was selected on the MODE switch (CW was a separate position), the BFO KCS control was set to mid-point, and the SIDE BANDS switch was selected for Upper or Lower Sideband. Or the SIDE BANDS switch would be set at BOTH for AM – and for CW, if desired. While the use of the BFO KCS knob was not necessary for adjustment, it could be used for touchup tuning and for general use in the CW mode.

For users of more modern equipment, the mode setup and tuning were much more complex than today. However, it remains that a lot of flexibility was available compared to today's radios. Selectivity, however, was much wider, even at narrow positions, on these older radios that lacked mechanical or crystal filters (or today's digital filters). However, proper use of the BFO and Vernier Tuning (see below) could give response like what we today refer to as I-F Shift[4].

Frequency tuning of the HQ-170 and HQ-180 series receivers (both non- "A" and "A") were somewhat different from each other.

Frequency Tuning – HQ-170AC-VHF
W9MXQ

Frequency Tuning – HQ-180C
W9MXQ

For the HQ-170 – any model – both tuning dials (to the left and right of the S-Meter) turn at the same time with the left main knob (TUNING). The left readout dial covers 160, 40, 20, and 80 meters (bottom to top of the opening). The right readout dial covers logging (0-100), 15, 20, and 6 meters (again, bottom to top of the opening). Exact band (160-6 meters) is selected with the TUNING RANGE MCS switch in the center. Once the signal for Single Sideband or CW is roughly tuned, the right tuning knob (VERNIER TUNING) is used for fine tuning. The manual cautions the user to use the vernier tuning for smoothest tuning on those modes. With its wider signal bandwidth, AM tuning is accomplished for the most part with just the left knob. Note that on the HQ-170A, the mentioned logging scale on the right dial was replaced with the 2-meter band for converter use (and 2-meters on the VHF model.)

For the HQ-180 – any model – the left (MAIN TUNING) knob tunes the entire band in ranges set by the TUNING RANGE MCS knob, in the center of the panel. The range selection, on the left readout window includes 0.54-1.05, 1.05-2.05, 2.05-4, 4-7.85, 7.85-15.35, 15.35-30 Mcs (MHz, today). Tuning the ham bands is a bit more difficult with the HQ-180 series (and most such two dial general coverage receivers of the day). For the HQ-180, there are markings in the left dial for the ham band set points. You will see them at 4.04, 7.3, 14.425, 21.6, and 29.7 Mcs (MHz). These relate to BAND SPREAD dial positions for 80, 40, 20, 15, and 10-meter dials, respectively, on the right readout. This is a bit more involved than what I have shown here. See Operating Manuals for details.

Hammarlund was quite specific in the HQ-170 series Operating Manuals about using the VERNIER TUNING on Single Sideband and CW. That was also true in the HQ-180 series receivers – but the control was in a different place and was smaller in size:

Earlier, the Sideband Selection and Mode switching in the HQ-170 was described. That also is similar in the HQ-180 and HQ-180A Receivers. However, the control layout is different. The VERNIER TUNING control for the HQ-180 series radios is to the right of the right main tuning window and is a smaller knob than on the HQ-170 series. The VERNIER TUNING knob location on the HQ-170 is the BFO KCS.

A feature of many radios of the time of the HQ-170 and HQ-180 was the use of what was called a Slot Filter – also often called a Notch Filter. This circuit allowed the user to eliminate a carrier in the receiver passband – such as a close by interfering CW signal, without affecting the signal being

tuned. While a good deal more complicated than this brief description, it was a good tool and is with us today as the Automatic and Manual Notch. In the case of the HQ-170 and HQ-180 Receivers, the Slot Filter was always in circuit but disabled by tuning it out of the passband when not needed. The Slot Filter was effective for removing interfering carrier heterodynes in the passband when in AM Mode.

HQ-170 Slot Filter Location
W9MXQ

HQ-180 Slot Filter Location
W9MXQ

Note the SLOT DEPTH knob on the HQ-170. This is generally a “set and forget” control. On the HQ-180, this control is inside the cabinet, behind the SLOT FREQ control. Hammarlund used the same punch pattern on both the HQ-170 and HQ-180 receiver front panels and sometimes that meant a bit of compromise from one model to another.

One feature of the VHF model of the HQ-170A – that is, the HQ-170AC-VHF – was 2-meter coverage without a converter. This model included a Nuvistor[5] tube converter and pre-amplifier for the 2-meter band and used the 2-meter calibration on the right tuning window. It converted 2-meter signals to 6-meters and then fed signals into the 6-meter band signal path in the receiver.

This large assembly in the back center of the radio chassis – reference the red arrow – is absent from HQ-170 and HQ-170A Receivers. It is present only in the HQ-170AC-VHF. Contained therein is a converter and pre-amplifier for 2-meters. The converter and pre-amplifier use the then new, and revolutionary, Nuvistor vacuum tube from RCA. Not much larger than a transistor, it was designed with its tiny internal elements to be effective at VHF and UHF frequencies.

There were other features offered by Hammarlund in its product life cycle. One rather rare item was an i-f Noise Blanker – different from the Noise Limiter included as standard equipment in both the HQ-170 and HQ-180 receivers. The NS-1 Noise Silencer was added as shown here:

HQ-170 or HQ-180 Receiver
Lower left corner of Front Panel
This radio has no NS-1 Noise Silencer, only the standard NOISE LIMITER
W9MXQ

HQ-170 or HQ-180 Receiver
Lower left corner of Front Panel
See Maroon concentric NS-1 Level Knob on the NOISE LIMITER knob.
W9MXQ

Hammarlund advertised but never released a product called ZBZ, Zero Beat Zero, that was to allow the HQ-170 series receiver to transceive with the Hammarlund HX-50 or HX-50A Transmitter. The ZBZ or Zero Beat Zero concept was later used to describe a feature of the Hammarlund HX-50A Transmitter to make zero beating the transmitter. So, for the purposes of this writing, we will leave the ZBZ product as a bit of a mystery.

Finding a good HQ-170 or HQ-180 is not difficult, even today. Finding them in pristine condition is a bit harder. The version of the HQ-170 shown in this article, the HQ-170AC-VHF is rare. However, finding and appreciating the look, feel, and sound of any of these radio model series is an attainable goal.

Hammarlund has a following in the Ozaukee Radio Club that I do not want to fail to mention. Pat Volkmann, W9JI, has several Hammarlund receivers – all are older vintage than the HQ-170 and HQ-180 series of radios. Nothing quite matches being in Pat's shack and listening to the sweet sounds of CW coming from one of his Hammarlund HQ or SP series receivers. The older Hammarlund receivers are identical in circuitry but as they go back in time the tube types are different – in keeping with tube development and the move to miniature tubes in the later years.

Another Hammarlund aficionado in our ranks is fellow member Mike, AE9MS. Mike has a very nice-looking Hammarlund HQ-180C that has a prominent place in the picture on his QRZ page. That Hammarlund is joined by some other fine vintage equipment.

Very good friend, Bob, W9DYQ, in Minnesota, is a Hammarlund owner with a receiver in the Super-Pro model line – the SP-200-SX. Bob and I have compared notes on how the SP line of receivers developed into what ended in the HQ-180 (and the HQ-170) series.

It is always nice to see how these old radios looked in a station setup. Here is one example of a set-up from E. F. Johnson and Hammarlund (with a National Speaker). Back at that time, E. F. Johnson was known for transmitters and Hammarlund was known for receivers[6]. But it was common then to mix manufacturers in a station setup.

Ham Radio Station from the 1960's
As used in the QTH's of current Ozaukee Radio Club members,
Gary, K9DJT, and Bill, WA9MXQ (now W9MXQ)
"Those were the days!!"

Johnson Valiant
AM/CW Transmitter

National HRO-60TS
Speaker

Hammarlund HQ-170AC-VHF
Receiver

Pictures – W9MXQ in 2020

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

Notes:

[1] Subjects for a future article.

[2] "Big Iron" is an affectionate term used by vintage radio collectors about radios made from the 1920's well into the 1970's that were physically large and heavy. At 10-1/2" High x 19" Wide x 13" Deep, and weigh in at over 40 pounds, shipped, these radios qualified as "Big Iron." However, their competition from Hallicrafters could weigh nearly twice as much.

[3] Vintage radios tend to drift – and in fact were quite unstable by today's standards. However, most of that lack of stability was mitigated by including warm-up time in operating plans.

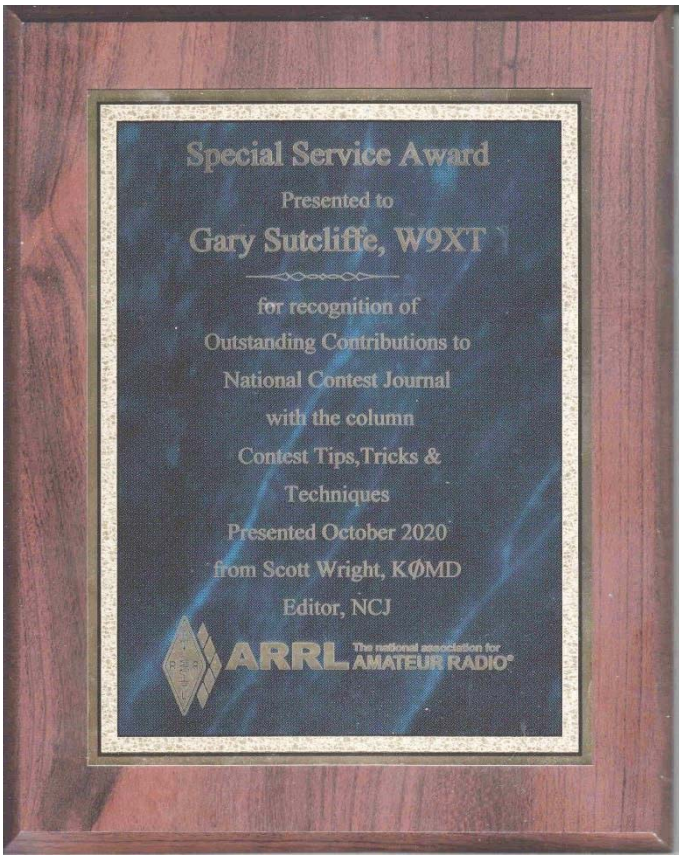
[4] Users of the Collins 75A-4 can attest to this I-F Shift technique. The front panel 75A-4 control for I-F Shift actually, mechanically, tuned the VFO one direction while tuning the BFO in the opposite direction. Many radios of the day had separate BFO controls that allowed this interference fighting trick. Another example would be the Hallicrafters SX-115 and SX-117 Receivers. However, in the case of the SX-117 this was not possible when the SX-117 was mated to the HT-44 Transmitter and used in transceive mode as a pair. Many other receivers also shared this ability.

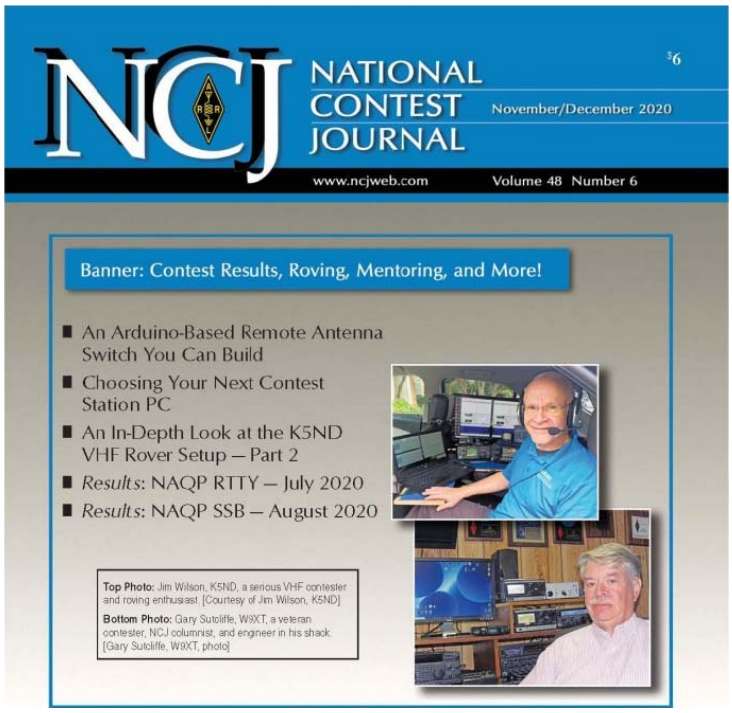
[5] "The nuvistor is a type of vacuum tube announced by RCA in 1959. Most nuvistors are basically thimble-shaped, but somewhat smaller than a thimble, and much smaller than conventional tubes of the day, almost approaching the compactness of early discrete transistor casings. Triodes and a few tetrodes were made. The tube is made entirely of metal with a ceramic base. Making nuvistors requires special equipment, since there is no intubation to pump gases out of the envelope. Instead, the entire structure is assembled, inserted into its metal envelope, sealed, and processed in a large vacuum chamber with simple robotic devices". The HQ-170AC-VHF was one of several ham radio receivers using this rather revolutionary device. Ultimately it did not win out over solid state devices. https://en.wikipedia.org/wiki/Nuvistor

[6] Johnson did not make ham radio receivers but at the end of ham radio equipment manufacturing made a few 80-10 meter Avenger HF SSB/CW Transceivers – but only a very few. Hammarlund made several transmitters over the years but none that ever became market leaders.

Gary Sutcliffe, W9XT, Recognized by ARRL and NCJ

Gary Sutcliffe, W9XT, received a Special Service Award from the ARRL for his many years of contribution to the National Contest Journal. Gary's picture also appeared on the cover of the November issue of the NCJ. Congratulations Gary!





Top Photo: Jim Wilson, K5ND, a serious VHF contester and roving enthusiast. [Courtesy of Jim Wilson, K5ND]

Bottom Photo: Gary Sutcliffe, W9XT, a veteran contester, NCJ columnist, and engineer in his shack. [Gary Sutcliffe, W9XT, photo]

Upcoming ORC Monthly Meeting Programs

de Pat Volkmann, W9JI

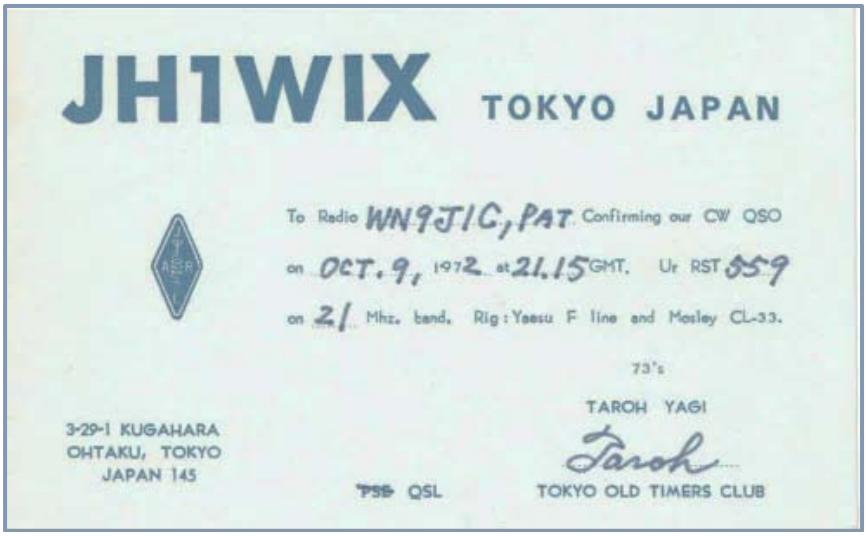
December – Open
January – Elections
February - Open

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 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.

Last month, Gary, W9XT, showed us his first DX QSL card. I looked back through my collection and found, if not the first, certainly one of my earliest DX cards. It was October 1972 and I still remember the thrill of working Japan for the first time. I was using my Heathkit HW-16 on 21129 MHz, running 75 watts to a 15 meter dipole in the attic of my parent's house. The only piece of coax that I had was too short to reach my desk, so I had to set the HW-16 on a chair on the other side of the room to get on 15 meters. Years later I learned that Taroh Yagi, JH1WIX, was well known for being the first JA contact for many novices. Taroh passed away in 2001 at the age of 93. – *Pat, W9JI*



DX'ing & Contesting

De Gary Sutcliffe (W9XT)

We are heading towards winter propagation. The clocks got moved back an hour to standard time, and sunset will be around 4:30 PM by the time you read this. The long periods of darkness help the low bands.

Indeed the low bands have been pretty good. I worked Japan on 160M on October 20. That is the earliest in the season I ever workrd Japan on the band. In the past, I don't think I worked Japan on 160 meter before December. But, that was CW, and the October QSO was FT8, which gives a significant advantage. But, the CW contacts were with 1500W, and the FT8 contact was low power, so some of the difference is reduced.

The high bands have been improving. As noted before, it was likely the sunspot minimum occurred last December. While sunspot numbers increase more quickly from the bottom than they decline from the peak, it will take some time to get really good. We will get some tastes of better days from time to time.

We had one the last week of October when a large group of sunspots appeared. The solar flux, which is a proxy for the number of sunspots, hit 88. While this is a long way from numbers over 200, which we sometimes get at the peaks, it is a refreshing change from the mid-60s we experienced in the last few years. In fact, it was the highest we have seen in about three years.

I was on a bit. There was a lot of activity on 15M and above. I worked quite a few Europeans on 12M using FT8. The east coast was working a lot of Europeans on 10M. I didn't hear any out here. My experience says the solar flux has to be up to at least 100 for 10M openings to Europe on CW. Maybe there were a few chances for us using FT8, but I missed them.

Unfortunately, the solar flux is dropping again, and on Halloween day it was down to 80. Still a good number compared to the last few years.

One of my favorite contests is the CQWW CW DX contest at the end of November. I would sure like to see a higher solar flux for it. But what are the chances of that?

Well, maybe better than we thought. The sun rotates. Sunspots can last for more than a rotation. Could the big sunspot come back for the DX contest?

The sun is not solid like the earth. Regardless of where you are on earth, a day is 24 hours. The rotational period varies with latitude on the sun. The equator rotates in about 24.5 days. It takes about 30 days as you get near the poles.

This sunspot group is from the new cycle. New cycle sunspots appear at mid-latitudes and appear near the equator as the cycle progresses. So these new cycle spots should complete a rotation in about 27 days, assuming they live that long.

The peak solar flux occurred on October 28. CQWW starts on November 28 (UTC), so it will be 31 days later. Furthermore, this sunspot group is about to rotate out of view. So, assuming the group survives, it will have rotated out of view again by the start of the contest. Oh well, maybe a new group will pop up for the contest.

If you are interested in following activity on the sun, a great website is https://www.solarham.net/

Just when you think you have figured out the latest digital modes, FT8 and FT4, out comes some new ones, FST4 and FST4-W. You can download the beta version of WSJT, V2.3.0-rc-1, to try them out. This version expires on November 17, so by the time you read this there might be a version for general release or a new test version.

These new modes are designed for the lower frequency bands. Joe Taylor, the principal person behind the WSJT modes, mentioned to me that he was working on a mode for the low bands back at the 2019 Hamvention®. The recommended frequencies are 160M, 630M, and 2200M. I have only listened to it on 630M.

FST4 is different because it has multiple transmit/receive periods. Each of the different WSJT modes have different, but fixed periods. For example, FT8 is 15 seconds, FT4 is 7.5 seconds, and WSPR is 120 seconds. As a rule, the lower the data rate, and the longer you have to detect the signal, the lower the minimum signal strength needed for communications.

FST4 has selections from 15 seconds up to 30 minutes! The message sequence is the same as FT8 and other WST modes, so it would take a minimum of a couple of hours to complete a QSO with the longest periods. But, in theory, the signals could be about 45 dB under the noise level. That means the signal is 1/100,000,000,000,000,000,000,000,000,000,000,000,000,000,000,000 the level of the background noise. There are reports of stations making intercontinental QSOs on 2200M with 5 minute periods. Keep in mind that on 2200M the power limit is 1 watt EIRP. With 5 minute periods, signals as low as 35dB should be possible.

FST4 has replaced JT9 as the QSO mode for 630M. From what I have seen, most are using a default value of 60 second sequences. I'm sure stations really wanting to work long distances set up a schedule and agree on a longer period.

FTS4-W is a WSPR replacement, but most of the band's beacons are using the old WSPR standard. One reason is that many beacons, including mine, are hard coded using Arduinos and other standalone microprocessors to generate the signals.

Another new feature of FST4 is that you can select the frequency range to detect signals. Reducing the bandwidth of the receiver increases the signal to noise ratio.

Are there any QRPers in the ORC? The first week of November kicks off the Winter QRP Fox Hunts. I have not done them in a couple of years, but I plan to do it this year. Every week two stations are designated as "Foxes". The "Hounds", the rest of us, try to work them. The fox stations change each week. The 40 Meter versions are on Tuesdays, and the 80 Meter versions are Thursdays. They start at 8:00 PM and run for 90 minutes.

Everyone runs 5 watts or less. The foxes will be calling CQ Fox. They work split most of the time since there may be quite a few calling. The exchange is RST-State-Name-Power. A typical exchange for me would be "559 WI Gary 5W".

You don't have to register or send in your logs. If you get in the log of a fox you will show up in the standings. More info on their website: http://www.qrpfoxhunt.org/

Two big November contests are the ARRL Sweepstakes. The CW portion starts November 7 and the phone event on November 21. I mentioned them last month. Rules are available at http://www.arrl.org/sweepstakes Be sure to read them carefully if you are not familiar with it. The exchange is very long and needs an explanation.

CQWW DX CW is the last weekend of the month. As usual, this is the weekend after Thanksgiving. That holiday is likely to be less of a conflict this year with many families skipping the traditional get together. I mentioned the CQWW phone version last month, so there is not much point in repeating it here, except that with luck, we will have some more sunspots than last year. Rules at https://www.cqww.com/rules.htm

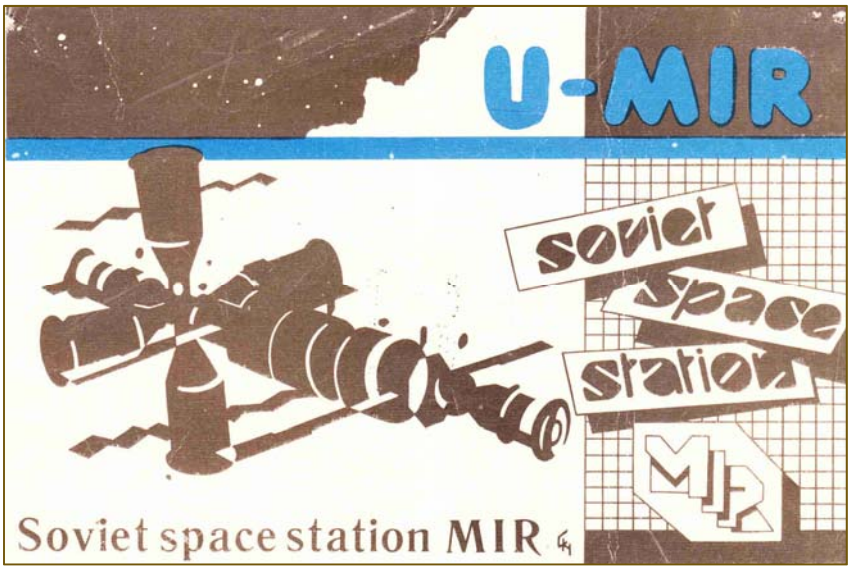
Coming up in early December are the ARRL 160 Meter and 10 Meter Contests. The 160M Contest starts on December 4 at 2200UTC (4:00 PM local) and runs 42 hours. The exchange is signal report and ARRL section. We are in the Wisconsin Sections. We can work anyone. DX only works W/VE stations. This is a CW contest and is a lot of fun. Full rules at http://www.arrl.org/sweepstakes

The following weekend is the ARRL 10 Meter Contest. This has always been one of my favorites since it started in the mid-1970s. At the time, there was a threat to our 10M band, and the ARRL wanted to protect it by increasing activity. We were at the bottom of the sunspot cycle, and not many hams bothered to check the band. We are just past minimum now, and except for some brief opening to South America, this will primarily be a VHF-like contest. There are many entry categories, CW, phone, or mixed mode, along with high, low, and QRP power, assisted and non-assisted. http://www.arrl.org/10-meter

Last year I operated CW only, low power, assisted. I took first place USA, and 2nd place World. Right behind me in second place USA was Vic, WT9Q. He came uncomfortably close to beating me. I'm sure there will be a rematch this year.

DXpeditions are still on hold for the most parts, but once in a while someone shows up someplace, often traveling on a work assignment and operating during free times. I expect this to continue. My local DX club, the GMDXA, recently received notice that a planned DXpedition for the fall of 2021 was canceled and they were returning our donation. They felt that travel issues due to COVID-19 were unlikely to be resolved by then, so they canceled it.

Last month I included a scan of the QSL of my first DX contact. I got an overwhelming response to that. Well, maybe one response. So, I will include an interesting QSL from time to time. This one is for a 2M packet QSO I made in 1992 with the Soviet Space Station Mir.



That wraps up November. As the cold weather approaches, there are lots of reasons to get on the air.

Ozaukee Radio Club
October 14, 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 7:34 PM. As introductions were recognized when members checked into the meeting, a go-around was not conducted. Pat welcomed a new member; Todd KD9QLJ to the meeting.

Vic WT9Q thanked Greg WD9LHI and Gary K9DJT for help with his Low Band vertical.

Bill W9MXQ has gotten a Hallicrafters SR150 restored and ready for the “classic exchange”.

Gary W9XT recently received a plaque he won as a special service award from his hosting of the ‘Tips, Tricks & Techniques’ column in NCJ. (ARRL)

Peter W0NG states that he has posted a video of his solar project program, accessible from his website. Check the link from his QRZ.COM page.

Gary N9UUR has experienced good HF conditions, with Digi QSOs up to 15 meters, and even some 10 meter propagation.

Program:

Pat W9JI gave a presentation on the Hallicrafters SX-11 Super SkyRider receiver, and included some early pre-WW2 history of the Hallicrafters company, and its heavy presence in the early Ham radio equipment market. Pat had obtained a nice condition radio set, and performed a restoration to a fairly high standard. A particular discussion was made about switching components from vacuum tubes to solid state with resultant problems. The talk concluded with a number of comments on performing restorations, refurbishments and reaching Original or Museum quality of an older radio targeted for restoration.

Committee reports: (after a short break at 8:35 PM)

KC9ONY Tom; reminds everyone of the Tuesday night net, and that the noise issues persist on the 222 system. A team will be investigating more closely very soon.

Gary N9UUR indicated that the donation program had reached $1357.60, which is over the goal set by the board. Bills are paid, and we are still solvent.

Ken W9GA had distributed the minutes of the September meeting via email. Bill W9MXQ moved to accept and Ben K9UZ seconded, motion carried.

Tom W9IPR updated the members on the scholarship fund and the S.T.E.M. program funding. ORC still has a large balance of funds in a CD, which will be transferred to the ARRL program when it matures (a renewal date was recently missed). Tom also proposed that some of the scholarship items held in the barn may be put up in a silent auction for the membership.

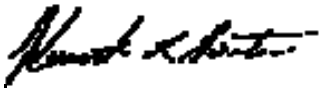
OLD business; Mention was made about the club newsletter distribution running late.

NEW business: Tom KC9ONY mentioned a QST article about the “QSO virtual hamfest” which included a quote from the president of the Largest Ham Radio Manufacturer in Slinger, Wisconsin, Gary W9XT, about the trials and tribulations of doing a virtual sales booth. He also mentioned that the Boy Scouts Jamboree for the local area, Metro Milwaukee has been cancelled.

Adjournment:

36 members (unique callsigns) were on the ZOOM site. Contact Ken W9GA to obtain the list. Bill W9MXQ moved to adjourn, Bill AC9JV seconded the motion, and motion carried. Meeting ended at 8:58 PM.

Respectfully submitted,



Kenneth Boston W9GA
Secretary

ORC Meeting Agenda

December 9, 2020

1. 7:20 – 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. Program – TBD
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 – Tom Trethewey (KC9ONY)
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 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
December 9, 2020

7:20-7:30 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 XXXII	December, 2020	Number 12

From the President

de Pat Volkmann, W9JI

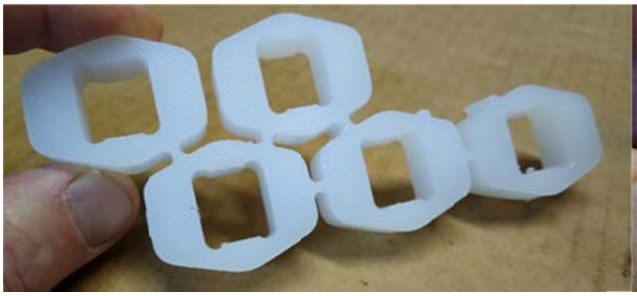
December is here again, signaling the end of another year. The Holidays will be here soon. For most of us, celebrations will be different this year because of disruption from the Corona virus. The vaccine is in sight and with it the promise of a more normal future. I am grateful that we are able to keep in touch with Zoom meetings and the repeater. I do look forward to the possibility of in-person meetings and a Hamfest later next year.

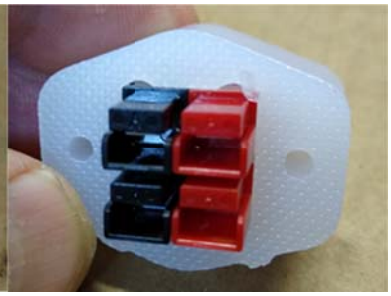
The Repeater Committee is reviewing the results of the recent repeater survey. We had over 40 responses and many thoughtful comments. The Committee will report on the results at an upcoming meeting. Thank you to all who took the time to fill out the survey and share your thoughts with us.

The election of Club officers will take place at the January meeting. Tom Ruhlmann, W9IPR, is the Chairman of this year's Nominating Committee. Tom has prepared a list of candidates for each of the positions. That list appears in this month's newsletter. If you are interested in running for office, please contact Tom at teruhlmann@wi.rr.com .

To vote in the election your dues must be paid up. You can renew through the ORC website or by sending a check to the Treasurer. Information on renewing can be found on the Club website at https://ozaukeeradioclub.org/. Click the link in the upper right hand corner.

Some time ago, I began the process of converting all my 12 volt power connections to Anderson Powerpoles. Powerpoles are very convenient, much easier than the Molex connectors that I used to use. One problem with Powerpoles has been how to mount them in a panel. There are several solutions that have been around for a while, each having their drawbacks. I recently found a new product that works very well and is less expensive than the others. They're called Anderson Autogrips and are made by Hardened Power Systems, located in Tennessee. Autogrips are CNC milled from high density polyethylene, a stable and sturdy plastic. The Powerpoles are an "interference fit" in the holder. That means that the hole is a bit smaller than a Powerpole, requiring quite a lot of insertion force. They also didn't come with instructions, but after some head scratching I figured out how to insert the connector. See you at the meeting.—Pat, W9JI





THE COMPUTER CORNER
No. 273: Why NOT to use Teamviewer

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

We are into the 27th year (!) of the Computer Corner, and I have not written many negative articles in all that time. Well, maybe a couple on Microsoft. But never before on Teamviewer. However, it is time.

For those of you who don't know, Teamviewer is software that permits you to take control of another computer, across the room or across the world, and across platforms (Microsoft control of a Linux machine, or the reverse, and the like). It works well. And there are several other software packages that work as well or better than Teamviewer, so they are not the only game in town.

Teamviewer claims that it is free for non-commercial use. But lately, they have made it very difficult to use if you are not one of their paying customers. I claim, therefore, that it is no longer free for non-commercial use; rather, they are placing impediments in the way of non-commercial use by non-paying customers, contrary to what they advertise.

What are they doing? Using criteria to judge your use that they admit they will not disclose. When you use their software it comes up with a note to the effect that you are using it for commercial purposes and it will shut off your remote connections with in 5 minutes. This effectively makes the software useless for most users.

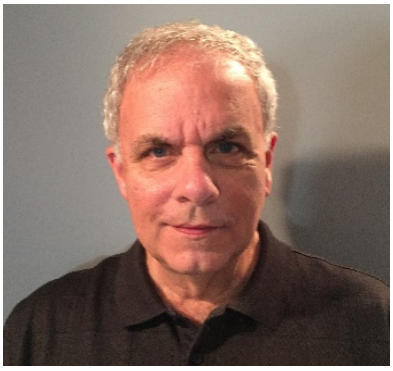
Now, let us look at my case to judge. I have three computers in my office: my main desktop, a laptop, and my wife's laptop. Two of those are dual-boot, using both Windows and Linux. Therefore, we could count those as 5 separate computers to be controlled remotely by Teamviewer. Two floors down in my basement are three more; one Windows/Linux dual-boot machine, one is a pure Linux machine and one is a pure Windows machine for Winlink. That is 4 more computers for a grand total of 9 computers at my address. Beyond that, I maintain 2 Linux computers off-site for my son-in-law and one more Windows machine for a friend. That totals up to an even dozen platforms, though it is only 9 physical computers.

That admittedly is a lot, but I use Teamviewer only to update software or to help a relative or friend when they get into trouble or to prevent having to run down to the basement to check into a Winlink net. No money is involved at any time. And I explained all this back in August 2019 when I filed a Declaration of Private Use with the company, outlining how I used it to provide help to family and friends and monitor and administer devices outside of a commercial environment. That worked for about a year, but now the time limited use notices that makes the software unusable have come back. Accordingly, I removed Teamviewer from all 9 computers yesterday, and now use one of the other remote software packages exclusively (for awhile, I was using two such packages, with Teamviewer as a backup). If you need this type of software, I recommend AnyDesk. It works well (actually somewhat better than Teamviewer) without the unreasonable (and I think untruthful) restrictions.

Happy Computing!

Vintage Amateur Radio

de Bill Shadid, W9MXQ



Sometime in the past, I penned an article on what would be called rare or even "unobtainium[1]" ham radio products. That came with a promise to detail some of those products, based on personal experience.

As I have often said in the past, in every product family manufactured, there are common items in the resulting population and items that are somewhat hard to find, if you are a collector. Ham radio is no different – there are items from the past you can readily find, items that can take a lot of time and work to find, and then there are items that seem impossible to locate – no matter how hard one tries.

One such hard to find item is what my friend, Mark Olson, KE9PQ, who runs a business based on Vintage Amateur Radio Equipment[2], once referred to Swan's last vacuum tube-based transceiver as "The Swan Song of Swan." That is the theme of this article's subject.

The radio defined here is the Swan 750cw Transceiver. It dates from its introduction, in 1977. Most think of it as Swan's last tube transceiver, so it was their "Swan song."

Here is a picture of the Swan 750cw as it sits with its matching PSU-3 AC Power Supply and Speaker . . .

Swan 750cw HF SSB/CW Transceiver

Shown with its matching PSU-3 Power Supply/Speaker

W9MXQ

The 750cw was more like the Swan 500c and 500cx models than it was any unique, upgraded product. Except, that is, for its rather odd "cw" in its model number. More about that a bit later. For now, look at some comparisons between the extremely popular 500cx and the 750cw:

- Both models covered the 80 through 10-meter ham bands. There was some overlap for MARS[3] and CAP[3] use with no modifications for those services required on either radio.
- Power input was the same with 550 watts PEP input on SSB and 360 watts DC input power on CW. Output was roughly 275 watts on SSB and 180 watts DC on CW. There was some variance band to band with less power on 10 meters.

- Receiver specifications were identical.
- The rather unique Swan conversion scheme – with the VFO running on different ranges, depending on the operating frequency band.
- Regrettably missing on the Swan 750cw, but present on earlier models, was the effective Automatic Noise Limiter circuit. While not a true Noise Blanker, it was effective on many kinds of impulse noise. (Swan did offer an external cabinet mounted Noise Blanker as an option for the 500c, 500cx, 700cx, and 750cw. It was also quite effective – especially when these radios were operated in a vehicle.)

Up to the release of the 750cw, the model number of Swan transceivers closely paralleled the SSB input power of the radios. Between the 500 series and the 750cw, Swan had offered the 700cx transceiver with SSB and CW input power of 700 and 400 watts, respectively. That model owed its performance to its Tung Sol model 8950 graphite anode sweep tubes. The tubes had a short marketing life due to the demise of tube televisions (their primary volume customer). By 1977 these tubes were most likely close to impossible to source for an OEM product. So, Swan returned to the 6LQ6/6JE6/6MJ6 tubes that had begun their use in Swan radios with the 500c and 350c models. With the introduction of the 750cw the move to an increasingly higher model number seemed to meet a marketing plan requirement – thus ending a long connection between model number and power.

The biggest differences one can see in the Swan 750cw, when compared to earlier models was the meter and the readout dial color. Long known for their large, easy to read, and smooth operating meters, the 750cw moved to a relatively small meter with unacceptable (in my opinion) resolution and erratic operation. Perhaps the biggest problem is the black on white background on the earlier models compared to the white on black on the 750cw. Look at the meters and the dials compared in these pictures:

Swan 500cx – Left side of Front Panel
W9MXQ

Swan 750cw – Left side of Front Panel
W9MXQ

Swan seemed to try and improve the 750cw meter. Even though the total number of 750cw built was small, they tried to reorganize the space available for the legend. But it was not too successful as the mechanical characteristics of the meter assembly did more to determine the view than did the printing of the face. If you look carefully at the two pictures below, you can see that the actual arc of the meter readout scale is not changed from one version to the other. Moving of the Swan logo from the left side to the lower center only seems to improve resolution.

Swan 750cw – Early Meter

W9MXQ

Swan 750cw – Late Meter

See Note 4

There may have been a perceived difference in resolution, but it was not present in reality!

The change in the dial segment was from a two-color background to a white on black frequency dial. At that time, it appeared that it was to give a more military look to the radios. I think that the change removed a very well recognized Swan look of color. But, at the same time, the new look was not necessarily objectionable.

Owners of the Swan 350, 350c, 500, 500c, 500cx, 700cx, HF-700S, and 750cw will see little difference in the interior view of their respective transceivers. Here are top interior views for the 500cx and the 750cw . . .

Swan 500cx – Left side of Front Panel

W9MXQ

Swan 750cw – Left side of Front Panel

W9MXQ

Evident in the 500cx is the shielded tube at the top center of the picture – and the fact that there is a vertically mounted circuit board in that location in the 750cw. That is V13, the Balanced Modulator tube in the 500cx – replaced by a solid-state circuit in the 750cw. Also evident is the change in brand of the i-f filter (blue in the 500cx and silver in the 750cw). The i-f filters in Swan equipment were some of the best found in ham radio. For the most part, these two designs stayed the same throughout the production of the 350, 350c, 500, 500c, 500cx, 700cx, HF-700S, and 750cw models. The supplier of choice, however, did change, as it appears. I have seen both Network Sciences and C-F Networks filters in Swan radios.

The PSU-3 AC Power Supply/Speaker (shown to the left of the 750cw in the first picture in this article) is a gem and is a substantial upgrade over the 117x and 117xc (Power Supply alone and with Speaker, respectively) that had been in service with Swan transceivers since the time of the Swan 240. The PSU-3 used the power transformer from the much more substantial Swan 600-T Transmitter and gave a new power capability for the high-powered Swan HF Two-Tube Final HF Transceivers. The PSU-3 Power Supply was first marketed with the extra powerful 700cx. However, the 117x and 117xc will, in fact, power even the 700cx Transceiver – but it will run a bit warm doing so.

The 750cw was marketed as “the CW Operator’s Dream” due to its included digital bandwidth filter (an audio-based filter) that was quite effective at 80 or 100 Hz. While audio filters have their advantages – they can only partly replace a good narrow bandwidth crystal or mechanical filter in the i-f path. The audio filter in the 750cw (installed also in the same form in the HF-700S) is relatively free of hiss and other issues that makes many such filters objectionable. Like most radios when operating CW, the proper use of RF Gain adjustment in the 750cw minimizes any AGC-pumping evident in these filters outside the AGC loop.

The audio filter is nice, but CW as a convenient operating feature eluded most Swan transceivers before the release of the Astro[5] models – that is, unless the Remote VFO is installed. While no longer manufactured at the time the 750cw Transceiver, the Model 508 VFO – shown below with the 500cx Transceiver – worked perfectly as an accessory.

Swan 500cx Transceiver with 508 Remote VFO and 117xc Power Supply/Speaker
W9MXQ

The Swan transceivers mentioned here lacked the capability to shift the receiver (separate from the transmitter) for listening comfort. Sometimes this was necessary on SSB as well. That feature is present in radios with Receiver Offset Tuning (RIT) as a part of their feature set. The use of a Remote VFO allows that flexibility. Late model Swan Remote VFO’s (such as the 410c[6] or the 508) are plug and play with the 750cw. Adding the remote VFO has the added benefit of allowing split operation – such as often done working DX. The lack of Receiver Offset Tuning was not just a Swan issue. Collins, Drake, Galaxy, and other transceivers of the day lacked this feature – but they all offered accessory Remote VFO units. Only Hallicrafters offered Receiver Offset Tuning from the beginning of their SSB and CW transceivers. National followed shortly behind Hallicrafters. Swan’s late generation solid-state transceivers, just over the horizon at the time of the 750cw, offered this important feature.

The CW transmit monitor in the Swan 500c was terrible. It improved a bit with the 500cx and 700cx (marginally!) then seemed to finally work in the HF-700S and the 750cw. Even in those last two units, it was only barely acceptable.

These are the last two-tube final Swan Transceivers – four models.

Swan 500cx

W9MXQ

Swan 700cx

SwanNetwork

Swan HF-700S

KE9PQ

Swan 750cw

W9MXQ

The HF-700S is more toward a Cubic Communications product (Swan's parent company) in panel design and cabinetry. And, unlike the other three, only the 700cx used the 8950 final tubes – as noted, above.

The Swan HF-700S and the 750cw are electrically identical – according to what I can determine by an examination of literature and schematics. Notice the Swan styling change between the 500cx and the later 700cx and 750cw. The line across the lower third of the front panel on the 500cx dips below the main tuning knob while on the 700cx and 750cw it seems to go through the knob area. While mostly identical in layout, the 750cw and HF-700S also different in two other places. One was the use of the much more desirable paddle switches in the HF-700S and the movement of the PTT/VOX switch on the HF-700S to the location under the meter rather than to the right of the readout window on all models up through the 700cx.

Swan radios are very dependable – probably tied to their rather unsophisticated design that provided excellent basic communication. That was a hallmark of Swan's product engineering until the release of the much more advanced Astro[5] line of radios.

A dependability issue in late models was the balanced modular in the HF-700S and the 750cw. Swan moved to a solid state design after progressing from a 7360 tube based design, to a 6JH8 tube based design, then on the HF-700S and 750cw the final move to a solid state design based on a MC1496 chip. The solid-state design increased failures by 20 times[7]. If you find yourself with a Swan HF-700S or a 750cw you had better also have a few Motorola MC1496P chips on hand as well. It would seem from I can determine, use of the optional SS-16 i-f filter seems to be linked with the failure of the solid-state balanced modulator[7].

I remain unsure of which of the two transceivers, the HF-700S or the 750cw was the last of the Swan two-tube final amplifier transceivers. Certainly, the 750cw was the last that "looked like a proper Swan should look." Neither of them was a commercial success with the HF-700S seeing only 950 made[7], and the 750cw seeing only 1,000 units[7]. A lot of evidence – such as the complete appearance revision – would seem to indicate that the HF-700S may have had that honor. Whichever one it really was – I can tell you that all Swan and Cubic radios have a special place with me and my life as a ham radio operator.

Special thanks go to Bob, W9DYQ, for his proof reading. 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:

[1] This is found in a Bing search of the word, "unobtainium."

[2] Mark Olson, KE9PQ, is the owner and operator of Nationwide Radio & Eq. Sales, Inc. Locate them at Nationwide Radio (mybigcommerce.com).

[3] MARS is Military Auxiliary Radio System. CAP is Civil Air Patrol. Check these references:
MARS: Military Auxiliary Radio System - Wikipedia
CAP: Civil Air Patrol - Wikipedia

[4] Unfortunately, while I am certain from personal experience in seeing these meters, I cannot identify the source for the late 750cw meter picture.

[5] Subject of a future article.

[6] The 410c requires the use of the Swan Model 22 Remote VFO Adapter to use with any Swan transceiver. The 410c has no internal switching for VFO selection as does the model 508. This necessary switching is accommodated by the Swan model 22 or 22B Remote VFO Switch. This device plugs into the rear panel Accessory connector of Swan Transceivers (and the 600-R and 600-RC Receivers) and allows for necessary switching by extending a switch over the top of the radio – easily reached by the operator.

[7] Information from the Swan Compendium, Revision 4.

Remote Station Building, Part 3

De Jeff Whisler W9KW

At the end of Part 2 of this series (in the December 2019 issue of this newsletter), I lay on the deck at my house after a crushing fall from the roof after returning from an inspection of a chimney chase-mounted antenna that I was going to remove.

October 5th, 2019, continued. I was in absolute agony. Fortunately, I did not lose consciousness. I briefly considered trying to crawl to my truck and drive myself to the hospital. Hoping that they could fix me up enough so my wife wouldn't kill me. I made a very small movement towards my truck which caused profound blinding pain and I quickly abandoned that idea. Fortunately, I had my cell phone with me and despite taking the brunt of the fall, it still worked. About 45 minutes later the cavalry arrived. I spent the next two months in four different hospitals or rehabilitation facilities, enduring five ambulance rides, two surgeries and two eight-inch screws all of which put humpty dumpty back together again. After my discharge I enjoyed another two months of arduous physical therapy.

To all the people who took care of me over those four months, you have my deepest and heartfelt gratitude. At the top of that list are my wife Correen and RN daughter Stacy. Correen worked tirelessly to get me fixed up and back home. She waited patiently for 45 days before chastising me for the foolish behavior which led to my accident. Daughter Stacy kept all the medical folks on their toes making sure they were doing their very best to make me better. I couldn't have asked for a more skilled or compassionate care team.

I can't turn the page on this episode without offering a few lessons learned. The first is don't climb alone, ever. No matter your skill level or physical condition. Even if it is just a short simple job wait until someone can be there to observe and help. Think thru your plan of action and how you could make it safe before you start to climb. I could have easily rigged a safety line and body harness as well as a stop for the ladder base. Despite having all the materials and knowhow I completely skipped that step. Don't be like me. The medical expenses alone from my fall were well over $300,000.

Now back to remote station stuff.

In January 2020 I began to think about next steps with the remote project. I wanted to finalize the software solution for internet access and radio and peripheral controls. I am not a LAN / WAN guy and I don't write code. I was looking for something I could plug and play and it needed to be compatible with ICOM radios. Further, the solution needs to work with my kludgy internet connection which is a Wi-Fi Hot Spot using a cellular router. I wanted to provide an overview of the popular software solutions as well as some basic pros and cons. Alas, after careful consideration I decided based on my skill level I couldn't do that properly. Your experience, if you should try something similar, will be affected by many different variables including your choice of radio, computer operating systems and ISP method.

With the above in mind, you might be thinking this sounds way too hard for me. Not so. There are many ways to approach this problem. Perhaps you have been off HF for a while and can't

have an antenna. If you have internet access there are options for you. As I was recovering, I spent a lot of time in a recliner not able to get down the stairs to my shack in the basement. One day, I got special dispensation from the chief medical officer to go down to the shack for a brief visit. While there, I installed TeamViewer software on my shack computer which is connected to my IC-7610. Back upstairs I connected to the shack computer from my iPad also using TeamViewer and was thus able to control WSJT-X / FT-8 to make a number of contacts. It was very simple and a real morale booster for me.

My basic remote requirements are as follows:

- All operating modes: SSB, CW and Digital
- Switching between three antennas
- Rotator control (Yaesu)
- Future amplifier control
- No custom software coding
- User friendly….HiHi

There are three major use cases for "remote operation." The first is on a "Local Area Network" or LAN. For example, the radio and its control computer hardware and software located in the basement and your operator control computer or tablet is upstairs in the living room or something similar. This is easy to do and relatively straight forward. Second is a case where your radio, computer and shack are located at your primary residence and you want to operate while away from that home perhaps traveling for business or pleasure and connect over a WAN (aka the internet). Many of the popular remote software and hardware solutions are designed to support this specific use case. It ***assumes*** you have an unlimited, fast, robust, reliable internet connection such as Cable or Fiber to the Home. In addition, many of these solutions require a Publicly Addressable IP at the radio site to function. I am operating in a third use case. This is where the radio, antennas and controlling computer hardware and software is, in my case, a truly remote location. It's not the end of the world but you can see it from here. It is akin to a repeater site housed on a mountain top. You use the remotely sited radio from the comfort of your home 100 miles away. The critical cable or FttH Internet connection is simply not available. It might surprise you to learn that much of rural America has little to no internet access. For most rural dwellers the best they can get is dial up. Some, as in my neighborhood, don't even have that as an option. I am fortunate to have (for the moment) a cellular-based internet service which is reasonably priced. The problem is cellular carriers use CG-NAT to route internet traffic and that means I don't have a public IPv4 address to access my radio.

One basic option which I am using is to use remote desktop access software. These are popular programs that have permission to bypass CG-NAT and allow you to connect remotely to another computer. You still don't have a public IP but this the approach I am using at present.

Remote Desktop options include:

- TeamViewer (free): TeamViewer has a reputation of treating hams poorly, classifying them as commercial customers. Not good. https://www.teamviewer.com/en-us/

- MS Remote Desktop (not so free) https://www.microsoft.com/en-us/download/details.aspx?id=50042

- Anydesk (free): I am using Anydesk at present. https://anydesk.com/en

The next options needed are radio control software tools which allows the user to control another computer thru a LAN or the internet (WAN) and then to your radio:

- Remote Hams (free): Originally engineered for Elecraft radios. Needs a public IP. Remote Hams allows people and clubs to "host" their stations and provide access to members or guests. https://www.remotehams.com/

- ICOM RS-BA1v2 ($125): Hopefully you are fluent in Japanese language and culture. Kludgy, hard to setup, and needs a public IP. This is from a guy who loves Icom radios. https://www.icomamerica.com/en/products/amateur/hf/rsba1/default.aspx

- Ham Radio Deluxe (current version is $99): https://www.hamradiodeluxe.com/

- Win4IcomSuite ($60): My choice. Easy to use, outstanding support. https://icom.va2fsq.com/

I also acquired rotator controller software, PSTRotator. It has also been very helpful.

On the software side, I still have some other applications I want to integrate including CW Skimmer, N1MM and HDSDR.

I did run a Category 6 Ethernet cable from my cellular router at the remote radio site to my shack computer to remove any latency that would have been there using Wi-Fi.

I would like to report more specific results, but the pandemic has impacted my ability to test things out in depth. My main concern right now is latency with my current setup.

Part 4 will focus on the remaining installation details of the tower, antennas and grounding system.

If you are a network engineer reading this and thinking to yourself "Why didn't he do it this way?", please reach out to me directly at Jwhisler33@gmail.com I would love to hear your thoughts.

73,

W9KW

DX'ing & Contesting

De Gary Sutcliffe (W9XT)

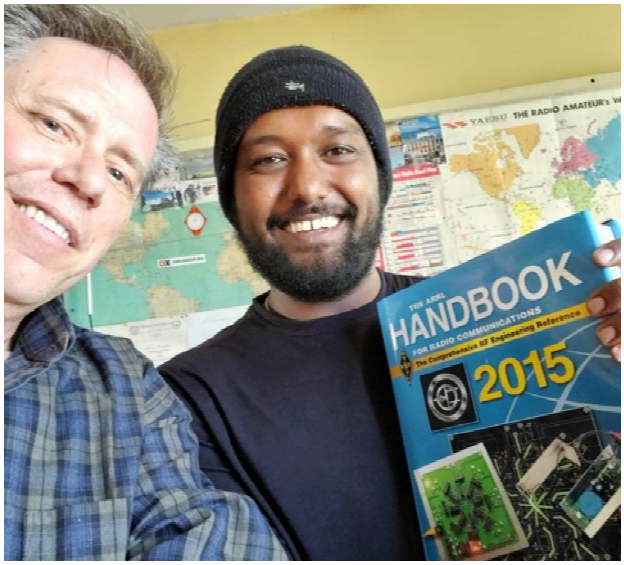
If you turned your HF radio on during the last week or so of November, you got a taste of things to come. We had a nice sunspot group, and then another large group of sunspots rotated into view. As the CQWW DX CW contest got closer, the new group rotated towards us, and the solar flux rose.

The solar flux, a proxy for the number of sunspots, had been hanging in the low 70s the last few months but shot up dramatically. By the November 28-29 weekend contest, it was 110, and I saw it briefly hit 116. By comparison, solar flux was 70 in last year's running. The last time the solar flux was in this range for the CQWW CW contest was 2015, when it was 99.

The better conditions meant 10 and 15 meters were at their best in years. I made some contacts in western Europe on 10M. I made my first CW contact to Japan on 15M in three years. Twenty meters also provided some longer distances than in recent years. Hopefully, this means the sunspots will return faster than usual after a minimum and not just a tease. Unfortunately with COVID the number of countries on were way down from previous years.

There has not been much DXpedition news in past months due to COVID-19 pretty much ending those. There is one that just started, and this one is extra special to me because of the Wisconsin connection. Bob, W9XY, and Ken, K4ZW, arrived in Ethiopia on December 3. Both are friends of mine. Bob lives up in Montello, Wisconsin. Ken lives in Virginia but grew up, I believe, in the Sheboygan area.

They are at the Addis Ababa Institute of Technology and helping out the ham club there. The first job is helping the students make repairs to the station. Unfortunately, much of the repair materials are being held at customs. They had hoped to be active on the low bands, but staying there at night is not possible because of recent civil unrest. They also discovered a noise source that is S9 and covers all the bands. They have their work cut out for them.



Bob, W9XY, presenting an ARRL Handbook to Efriem, the President of the Ethiopian Amateur Radio Society. W9XY Photo

They will be using the calls ET3AA and ET3YOTA (Youth On The Air – December is YOTA Month). The best band will probably be 20 or maybe 15 meters. They have been spotted on 15 meter SSB. They will be leaving on the evening of December 12. The ARRL 10 Meter Contest is December 12-13. They are hoping to start the contest and have the students take over after they leave.

Speaking of the ARRL 10M Contest, that could be interesting if the solar conditions hold up. I covered it last month. It would be nice to have some propagation besides brief Es opening to isolated spots in the US and occasional whispers out of South America. Signals to Africa, South America, and the South Pacific were good on 10M during CQWW. Some F layer propagation to the West Coast would be a real treat.

The last contest for the year is the Stew Perry Top Band DX Challenge. This is a 160M CW contest that starts at 1500Z and runs for 24 hours on December 26, but you can only operate a maximum of 14 hours with 30 minute minimum time off periods. There are high, low, and QRP categories. DX spotting assistance is not allowed for single op categories. You send your grid square for the exchange.

Scoring is much different than most contests. First, there are no multipliers. The score is the total of your QSO points. QSO points are based on the distance between the stations, as computed by the grids. You get one point per QSO, plus one additional point for each additional 500 KM distance. Contacts to places like Hawaii are worth a lot of points.

The points get multiplied by 1.5 if you are low power and by three if you are QRP. The neat thing is that the points are multiplied by two if the other station is low power and by four if the other station is QRP. Of course, you have no idea what power the other station is running. That is all computed based on the other station sending in a log. It is interesting watching the claimed scores go up as logs are received.

Because of the multipliers for working lower powered stations, DX is often willing to listen harder for weak stations. I hear pretty well with my array of low band receiving antennas and have a high percentage of worked low and QRP power stations compared to others with similar QSO totals.

The SPTBDXC is an odd contest, and it does not stop with the rules. There are a lot of plaques for notable achievements. The list for 2020 does not seem to be out yet, but last year there was a plaque for the highest score by a Wisconsin station running low power and operating this contest for the first time. Some of the other 2019 plaques included the highest score from a lot under ¼ acre, the highest score with no busted calls or exchanges, the top score without calling CQ, the VE/W/XE with the most contacts to the British Isles and Ireland, and the best score with a temporarily installed antenna.

The rules are at https://www.kkn.net/stew

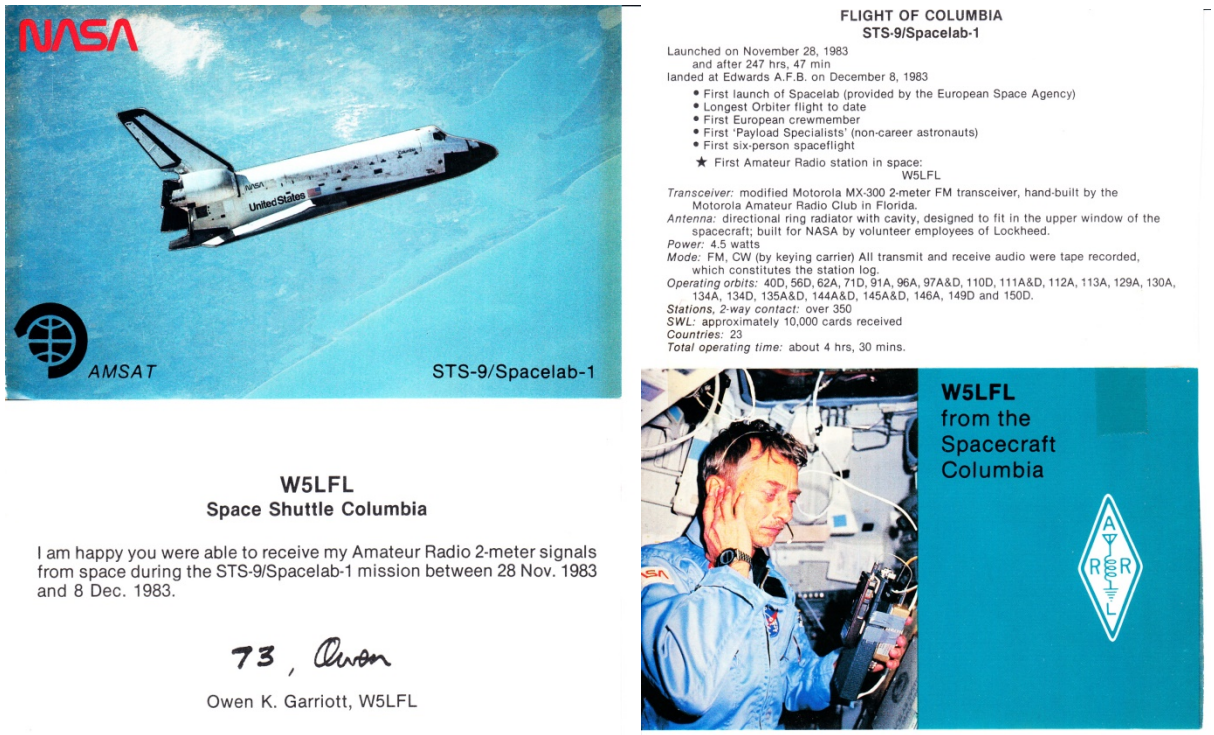
The first contest for 2021 is the ARRL RTTY Roundup on January 2-3. The RTTY RU starts at 1800 (noon local) on January 2 and runs until 2359 UTC Sunday. Despite being called an RTTY contest, you can use other digital modes, include FT8 and FT4. Previous results show the highest scorers spend the largest percentage of their time on RTTY, moving over to FT8 or FT4 when conditions get too poor for RTTY or they run out of stations to work. I don't know about this contest, but there were times in the VHF contests when too many ops failed to recognize that 6M was not open enough to support CW, but was good enough for FT4, but stuck with FT8. AlthoughFT4 will not handle signals as weak as FT8, it is much faster. I would check the FT4 frequencies first when not on RTTY.

Full rules are at www.arrl.org/rtty-roundup

Last month I posted a scan of my QSL for a QSO with the Soviet space station MIR. I will continue the space theme this month, showing my card from the Space Shuttle. If you were involved with ham radio back in 1983, you remember it was a huge deal for the first amateur radio operation from space by Owen Garriot, W5LFL (SK).

Competition to make a contact was fierce, and I was not able to get through. His operation was recorded, and if you could provide details of who he was working at a given time, you got what is es-

sentially an SWL card, which is what I have. I remember going out to the parking lot at work during passes trying to make a contact with my HT. My co-workers were impressed I could even hear the Shuttle.



QSL for hearing the first ham radio operation from orbit.

Space operations from the ISS are common now, but most of them are pre-arranged with schools instead of random QSOs. Maybe before the end of the decade, the Moon will be a new DXCC country.

I just had a big radio anniversary. My original Novice license was issued at the end of November 1970. It took a week to get to me through the mail, and I made my first QSO in early December. I don't have the logs, so I don't know the exact date. Fifty years is a long time, and it has been quite a ride!

That wraps up the last one for 2020. I hope Santa leaves some nice piece of gear under the tree for you, and hoping for a better 2021.

A Tale of Two W9HERs

This article is reprinted from the QRZ.com website, with permission from the author.

My daughter Hannah was born in May of 2002. She has always had a ham radio-crazy dad. Whether it was code paddles on the passenger seat, a disembodied voice in the car, Field Day on the porch, or hilltop contacts while hiking, she has always been around ham radio. In one of my favorite photos, from November, 2002, she's sitting on my lap, eating the Yaesu FT-817 microphone during ARRL Sweepstakes, but I don't think she completed the exchange.

Ham radio has given me lifelong friends, and I now have an all-ham family. I love the weird occurrences and coincidences that seem to pop up in ham radio, like going to a hamfest and seeing a callsign you've only heard on the air, an Oregon-to-Japan 20 meter CW contact with the power control set to zero, or finding out that a co-worker was a ham as a kid in the 1950's and has many stories to tell.

Hannah always resisted dad's geeky hobby, although she was always a good sport when I asked her to make a couple of contacts with me during a contest, go to a hamfest, or help set up and operate during ARRL Field Day. But she has always humored me, and I've always appreciated that. I convinced her to study for her Technician class license back in 2013, but she didn't pass the exam, and it sat on the back burner for a while.

Six years later, Hannah found herself in the midst of two years' worth of high school physics. I mentioned that, during the summer, studying for her license would bridge the gap between those physics classes, not to mention that there were scholarships available for hams going to college. She received her Technician's license in August, 2019. A few months later, I mentioned that the General exam would match up well with the electromagnetics and waves section of her physics class. She passed her General exam in December.

When the pandemic hit in March of this year, Hannah decided she would stay close to home and go to the University of Oregon. Her senior year of high school ended abruptly, like everyone else's, and with a six month summer vacation looming, I recommended that she study for the Extra class exam as a way to prepare for college while doing something useful. We also discussed her becoming a volunteer examiner, as it would give us something to do together once the lockdown was over.

Our family of hams belongs to the Valley Radio Club, a large, supportive, active radio club here in Eugene with an active VE team. Hannah turned 18 in May. We administered exams together in June. Her high school physics teacher studied for his Technician license during the "down time," and Hannah was privileged to administer and grade HIS exam (for a change), and sign his certificate and Form 605. She also passed her Extra class exam in June, right before the question pool changed.

I started searching for unassigned callsigns, and to my shock, W7HER was available. It's obviously an ideal callsign for a YL, and "HER" are Hannah's initials, too! After 18 days, the FCC assigned her new callsign, giving Hannah her own amazing coincidence to experience.

The FCC ULS database listed the previous licensee as Harlan E. Rolph, who held the callsign in the 1990's and 2000's, but I figured that it must have been assigned to someone well before that.

I searched for traces of W7HER in the online archive of Radio Amateur Callbooks, and found it assigned in 1939 to Marjory Allingham of Tigard, Oregon. In the late 1940's, her address (and name) changed to Marjory Ramey of Eugene, Oregon, and in 1979, it disappeared.

"Hmmm, she lived in Eugene, and we live in Eugene, how weird," I thought.

The great thing about re-allocated callsigns is that each one has a unique history, having been used by someone else in a different time. W7HER was originally allocated and used years before transistors existed, when "phone" simply meant "AM" because SSB wasn't used yet. Since Eugene is a "big, small, college town," I searched for "Marjory Ramey" on the web, and immediately discovered a transcript of an interview with "Marge Ramey" of Eugene, in which she talked about attending the University of Oregon, living just east of campus, and working as the UO Director of Housing.

I thought, "wow, the 7th call area is really large, what a coincidence that she had lived a mile from us, went to UO, and worked there." My father-in-law, a retired UO professor, had even met her.

Because the phone book called "the white pages" doesn't exist anymore, I thought I would look online for people named "Ramey" who lived in Eugene. Amazingly, there was an "M. Ramey" listed, with an address identical to W7HER's last published callbook address.

I nervously called the phone number, and someone answered.

"Is this the Ramey residence?"

"Yes."

"Is this Marjory?"

"Yes, that's me."

"Were you W7HER?"

"Yes, I was."

I was absolutely stunned to be speaking with the original W7HER.

I proceeded to tell her the story of W7HER, my daughter, who was born and grew up in Eugene, and was also going to be an Oregon Duck. Marjory explained that she'd gotten her license when she was 13, and although she could copy CW at a very young age, it took her five tries to pass the written part. She also said that her father had petitioned the FCC to give her that call. Now 95 years old, she had let her license lapse, but was thrilled to hear from me. We agreed we should all meet before Hannah disappeared into the Covid-19 induced student bubble in the dorms.

September brought historic forest fires that filled the Willamette Valley with thick, choking smoke, so our meeting would have to wait. I searched further on the web for her call, and found a photo of Marjory and her mom (also a ham) from the January, 1940 issue of Radio magazine.

Finally, at the end of September, the day before Hannah checked into the dorms, the smoke finally cleared out of the valley, and the original W7HER and the new W7HER, were thrilled to finally meet. We even heard a great story that most hams can appreciate:

"***A young ham was to attend UO, and wanted to bring his ham equipment to the dorm. He went to resident housing to ask for permission to set up his equipment in his dorm room. He obviously expected a response of "no," but didn't realize he was speaking with a ham radio operator at the time, and instead received an answer of, "well, if you hide the wire up under the eaves, nobody will ever see it."***

• A mother and daughter team in a really radio-minded family—Lucile Allingham (left), W7FXE, is the wife and Marjory Allingham (right), W7HER is the daughter of William Allingham, W7KY. Marjory obtained her license when she was 13 but could copy 10 per when she was five. Her transmitter is on 160 phone, W7FXE's is on 40 c.w., and the om's is on 20 phone.

We chatted for about 20 minutes. Hannah received some very sage advice, and will be updating Marjory periodically about how her college experience is going.

One of the greatest thrills of ham radio is how it can link generations. We offered to help Marjory get licensed again, but she graciously declined. At any rate, hopefully this the first of many amazing experiences radio will provide for my daughter Hannah, the new W7HER.

73,

Scott N7JI
Karen K3LUX
Hannah W7HER
Nate K7NAR

Sources:

Online archive of Radio Amateur Callbooks. https://archive.org/details/callbook Radio magazine, January, 1940, page 103. https://worldradiohistory.com/Radio_Magazine_Guide.htm

The caption under the photo from Radio magazine reads as follows: "A mother and daughter team in a really radio-minded family—Lucille Allingham (left), W7FXE, is the wife and Marjory Allingham (right), W7HER is the daughter of William Allingham, W7KY. Marjory obtained her license when she was 13 but could copy 10 per when she was five. Her transmitter is on 160 phone, W7FXE's is on 40 c.w., and the om's is on 20 phone." –Ben, K9UZ

Ozaukee Radio Club
November 11, 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 7:32 PM. As introductions were recognized when members checked into the meeting, a go-around was not conducted.

Program:

Ken W9GA (yours truly) gave a program detailing the process of building your own yagi antennas, with particular attention to the designs found at the YU7EF website. Details on materials, mounting methods and other specifics of mechanical details were presented for some 6 meter designs, along with some cost estimates.

Announcements:

A mention was made about VA day, and tendered recognition of our Ham Radio ops who are Veterans. Tom W9IPR provided an update about the silent auction of scholarship fund donated items; so far this has had a low response. Tom wanted our members to give the auction a look, with a mention of some of the items being auctioned there. Greg W9DHI made sure the auction posting was current.

Committee reports:

Tom KC9ONY reported that the system is running normally; Nels WA9JOB added that the Germantown system link is back, after a move of equipment to Big Nate's QTH

Gary N9UUR gave the treasurer's report; the club is still solvent; the scholarship fund has $38,700 currently, with a commitment of $26K coming up for ARRL foundation. Currently most of the funds are in a CD which matures/renews in October 2021, leaving over $12,000 for local STEM program support. There has been discussion as to whether we close out the CD early and transfer the funds into the ARRL program, or wait until the maturity date. The membership renewals are open, two people have renewed, and webpage PayPal link is open. W9MXQ moved acceptance, WB9RQR 2nd, motion carried.

Ken W9GA has posted minutes of the October ORC meeting; WB9RQR moved, W9MXQ 2nd, motion to accept then carried.

Tom W9IPR is current nominations chair; the election will occur via Zoom, nominations will be taken from the floor, and the details of the Zoom process will be worked out.

OLD business:

Repeater survey has been released, and over 30 replies have been collected; additional comments are found in the "free form" boxes.

NEW business:

Tom KC9ONY informed the club that jackets and other club items are available; check the "club swag" tab on the ORC webpage. Gary K9DJT is managing these orders.

Pat W9JI mentioned a review of the bylaws with regard to voting via internet, or online meetings, and mentioned our dues remain at $15.00, which are due by January 2021.

Adjournment:

Stan WB9RQR moved to adjourn, Bill W9MXQ seconded the motion, and motion carried.
Meeting ended at 9:00 PM.

39 members (unique callsigns) were on the ZOOM site. Contact Ken W9GA to obtain the list.

Respectfully submitted,

Kenneth Boston W9GA
Secretary

2021 ORC Nominating Committee and ORC Board Nominees

Nominations Committee:	Tom Ruhlmann (W9IPR), Chairman	
	Kevin Steers (K9VIN)	
	Stan Kaplan (WB9RQR)	
Nominees:	President	Patrick Volkmann (W9JI)
	1st Vice-President	Ben Evans (K9UZ)
	2nd Vice-President	Bill Church (KD9DRQ)
	Repeater VP	Gregg Lengling (W9DHI)
	Secretary	Ken Boston (W9GA)
	Treasurer	Gary Bargholz (N9UUR)

Should you like to run for an office or nominate another with their permission, contact Tom Ruhlmann (W9IPR) at 262-377-6945 prior to January 6, 2021. The election will be held on a Zoom membership meeting at 7:30 PM on January 13th.

You must have paid your dues to be eligible to vote. You can pay your dues using a credit or debit card at the ozaukeeradioclub.org website using the PayPal feature.

Tom Ruhlmann (W9IPR)

ORC Meeting Agenda

January 13, 2021

1. 7:20 – 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. Election of Club Officers – Tom
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 – Tom Trethewey (KC9ONY)
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 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
January 13, 2021

7:20-7:30 PM – Check-In
7:30 PM – Meeting Begins