The ORC Newsletter

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

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From the President

de: Bill Greaves, K9GN

Summer arrived in late June with the solstice and now it is already August with warmer weather, travels, and outdoor ham activities and personal ham projects. Antenna building and maintenance gets on everyone's To Do list; checking items as "Done" is another story. My own list is way too long and requires focused attention as September is coming soon. Speaking of September, the ORC Swapfest is September 9th and an excellent way to spend a Saturday morning meeting, greeting, and browsing at the tables.

Even before the Fall Swapfest is the joint ORC and LeFrog Lighthouse operating event August 18-20 in Port Washington. Fred Schwierske W9KEY leads the event and can always use assistance with the setup on Friday afternoon, operating during the weekend, and tear down on Sunday.

The ORC membership meeting presentation next week will cover the Field Day event in June (always the 4th weekend in June). Ken Boston W9GA will present, and members will add their own experiences, from the ORC FD site as well as from their homes. I am looking forward to hearing about the different setups and individual experiences of operating Field Day. Also, one of the Bioenno batteries, artfully obtained by Tom Trethewey KC9ONY for the ORC, will be auctioned at the meeting. Zoom participants WILL be able to bid on the battery. Our Treasurer Gary Bargholz N9UUR decided payment will not be a problem because "we know where you live!"

I seem to have settled on this picture of myself for the Newsletter. I have not gotten any compliments on it – just that it is not “so scary” (the phrase that started the picture search about six months ago).

The club membership will gather on Wednesday, August 9th, both in-person and on Zoom, at 7:30pm, with a meet-n-greet at 7:00pm, at the Grafton Senior Center or on Zoom. I look forward to seeing you there.

73,

Bill, K9GN

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

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

Ken Boston, W9GA, leads off this issue with a report on the Ozaukee Radio Club 2023 Field Day Event. Stay tuned for a more detailed report and a program on the event at the upcoming 9 August 2023 Regular Club Meeting.

Check out regular columnist, Dan Zank, AA9WP, talking about Artificial Intelligence and Emergency Communications. Another regular is Stan Kaplan, WB9RQR, in his 305th consecutive article – this time about What to do with Old Computers? Think of it as Fall Housecleaning.

Regular On The Air Columnist, Gary Sutcliffe, W9XT, brings us the August and early September activities. Just a reminder, check out the final page of Gary's article. Maybe not always noticeable but that last page is suitable to print and place in your shack as a reminder of what is going in the Radio World this month. Take a look.

Your Editor, Bill Shadid, W9MXQ, continues his "go through" of Heathkit's selection of products to compete with the Collins S-Line radios. Check out Vintage Amateur Radio and the Heathkit SB-400 Transmitter. (The radio covered is actually the nearly identical, but improved, model SB-401.)

Looking for ham radio things to do and places to go in the area? Check out Tom Trethewey, KC9ONY, as he tells us all about Upcoming Events.

Again, this month, right after you see the minutes of the July ORC meeting (brought to you by our Secretary, Ken Boston, W9GA) you will see the new "Classified Advertisements" column from your Editor, Bill Shadid, W9MXQ. This is a members only Selling and Buying column for ham radio equipment. I am happy to report that the Heathkit SB-104A HF Transceiver advertised last month is on the air now with a buyer in New York state.

Pat Volkmann, W9JI, tells us about coming Programs and an invitation to make a presentation at a club meeting.

Finally Check out the Flyer for the Ozaukee Radio Club Fall Swapfest on the very last page of this month's Newsletter.

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

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Onward To the Newsletter

Ozaukee Radio Club ARRL Field Day2023

de: Ken W9GA; Field Day Chair

The ORC has been participating in Field Day every summer for decades and serves as probably the major social and operating event in the Club's calendar. Field Day [sponsored by the ARRL] is probably the preeminent event in the list of events, and the one with the highest HAM participation.

This June 2023, the ORC once again placed 5 stations in a Pleasant Valley nature park just north of Cedarburg and Grafton. [3 HF stations, a VHF station and a GOTA station for newbies and guests] We were located in Pleasant Valley park, just off county trunk I, about 2 miles north of highway 60. Several club members, their guests and some tower trailers descended on the park and set up for the weekend of operating action.

A few trailers had short towers installed on them, containing a rotatable beam antenna, which were parked and deployed for the three main HF stations and a 6-meter station. An RV housed the radio position for the 40-meter phone station, while tents were set up for the CW [all bands] and the VHF/SAT stations. New this year was a 20 Phone position in the white ORC FD storage trailer.

VHF Tent Area – Showing Antennas

CW [80/40/20/15/10 meters] Tent; Mark KD9NOO at the rig

White trailer modified as an Operating Position;
20 Phone, Jim K9QLP operating.

Satellite Station, Gary N9UUR Operating

Nate KC9TSO showing off his 'Special' FD Coffee!

At the pavilion in the park, our club members were able to meet and chat with the public.

Jeananne, N9VSV, mentoring a couple young guys on making ham radio contacts on GOTA.

Along with our club initiative to sponsor and support various STEM projects in the local schools, this kind of outreach is important to foster an understanding and interest in telecommunications among our local youth groups. We position several of the stations close to the pavilion on purpose, to generate interest and curiosity.

Over 35 club members participated this year, which is an increase over recent years; operating, assembling stations, setting up and tearing down, cooking, stopping by and just generally pitching in; making for an overall wonderful club outing! Mucho encouraging!

Again, in 2023 we ran our club effort using the 3A category, with the idea that due to a shrinking operator corps, we needed to make sure that all the stations could be adequately staffed. Even at 3A this year, we managed to have a reasonable effort put forth on the bands, with a QSO count of 2249, which was somewhat lower this year; I guess not enough e-skip. We also managed to qualify for all but a couple of the bonus point add-ons, which helped ORC to obtain a good score, totaling about 9,300 points overall.

40-meter phone rotatable dipole.

We all had fun, made lots of contacts, and had to put up with a little rain, both overnight, and right at the conclusion of the operating window.

Now looking forward to a great effort for 2024, come and join us!

Kenneth Boston W9GA, chairperson FD 2023
[stuck in the trailer, waiting out the rain]

OZARES: Ozaukee Amateur Radio Emergency Services

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

Artificial Intelligence and Emergency Communications

"*When AI knows how to destroy a hotel room, I'll pay attention to it*," Joe Walsh, American guitarist best known for work with The Eagles.

Artificial intelligence, the good and the bad, has suddenly and impressively hit the headlines. Now would be a great time to look at Artificial Intelligence or AI and emergency management and communications. It is early on the timeline to fully understand the impact of AI but there has been a great amount of study and thought invested in possible uses and concerns.
The Federal Emergency Management Agency, or FEMA, has the following definition for an *Emergency: Any incident, whether natural, technological, or human-caused, that requires responsive action to protect life or property.*

During an emergency, no matter the cause, emergency managers, first responders, and other public officials have learned that a great amount of information needs to be collected and analyzed. Collected and analyzed quickly. Because of infrastructure problems, breakdowns in communication paths, and insufficient resources, some information may be missing, of bad quality, or just wrong. Today, with more avenues of information the amount of information, both good and bad, can be overwhelming. Still, the decisions must be made quickly.

Artificial Intelligence or AI will be a valuable tool during any emergency situation. So how to find out what is going on with AI and emergency management? What better way is there to search for AI information than by using an AI search engine? I used a search engine called *Elicit*. What is *Elicit*? They explain it as:
"*Elicit is a research assistant using language models like GPT-3 to automate parts of researchers' workflows. Currently, the main workflow in Elicit is Literature Review. If you ask a question, Elicit will show relevant papers and summaries of key information about those papers in an easy-to-use table*."

Elicit has the ability to filter the search results using the criteria of the availability of a pdf for the article. That reduces a lot of time spent reviewing articles that are behind paywalls. The website is: https://elicit.org/

So, I conducted a search on Artificial Intelligence and Emergency Communications. Below are a few of the results and a short summary of the extensive amount of information available. This is barely scratching the surface.

First, a nice article by Paul Kirvan, https://www.techtarget.com/contributor/Paul-Kirvan, *How AI adds value to crisis communications systems* provides a broad overview of how artificial intelligence and machine learning (ML) may be leveraged for an improved response during an emergency. The capabilities of AI and ML in collecting and analyzing information and then providing appropriate responses are just beginning to be understood. While the article provided a general overview it did not provide much in specifics.

Another of the first articles in the search is *Artificial Intelligence in Disaster Risk Communication: A Systematic Literature Review*.[1] This paper focused on the research for the use of Artificial Intelligence for both citizens and emergency responders. Their literature review revealed that research has been focused on two areas: "(1) prediction and monitoring for early warning, and (2) information extraction and classification for situational awareness."

Unfortunately, this was just a pdf of the abstract. The complete article is behind an IEEE paywall. I am sure there is a lesson to be learned from this result.

Moving on, I did come across a wonderful article regarding AI and disaster management. It did not directly address communication technologies but stressed the requirement that for AI to be an effective tool the information provided must be "high quality."

Facilitating adoption of AI in natural disaster management through collaboration[2] *i*n Nature Communications magazine https://www.nature.com/ncomms/. The article is best summarized in a short paragraph from the abstract:

"Recently, interest has grown in leveraging innovative technologies such as artificial intelligence (AI) to bolster natural disaster management. In many fields, such as medicine and finance, AI has gained traction due to advances in algorithms, a growth in computational power, and the availability of large data sets. Within natural disaster management, it is hoped that such technologies can also be a boon: capitalizing on a wealth of geospatial data to strengthen our understanding of natural disasters, the timeliness of detections, the accuracy and lead times of forecasts, and the effectiveness of emergency communications."

The most interesting article, at least from an amateur radio emergency services perspective, was found in Electronics Magazine,
https://www.mdpi.com/journal/electronics.
This was the only article that I have found that mentions amateur radio and several of the modes and techniques used by amateur radio.

Communication Technologies in Emergency Situations[3] *by* Anna Carreras-Coch, Joan Navarro, Carles Sans, and Agustin Zaballos from LaSalle Research
https://www.salleurl.edu/en/la-salle-research

While not directly addressing AI they do provide a look at new and innovative ways of moving information from crisis areas to the decision makers. "From a technological point of view, this can be best seen as a live Ubiquitous Sensor Network—composed of human beings (e.g., first responders, victims) and devices (e.g., drones, environmental sensors,

radios)—with stringent and special communication requirements in terms of flexibility, mobility, reliability, bandwidth, heterogeneity, and speed of deployment." The authors realize that many of the technologies we now count on may not be available during a disaster emergency. The authors reviewed the challenges faced by emergency communications, review past studies, and understand the technologies now available for emergency communications They conclude the article with an approach used "to link the relocating agents that constitute a Ubiquitous Sensor Network spanning a large-scale area (i.e., hundreds of square kilometers) by combining Near Vertical Incidence Skywave technologies with Drone-Based Wireless Mesh Networks. The conclusions derived from this research aim to set up the fundamentals of a rapidly deployable Emergency Communications System inspired by the Ubiquitous Sensor Network paradigm."

Shown in the figure from the article, the technologies used by amateur radio operators today, NVIS antennas, mesh networks, base and mobile stations, and repeaters are proposed in the plan. Again, more information collected from more sites will make using Artificial Intelligence essential for future emergency management.

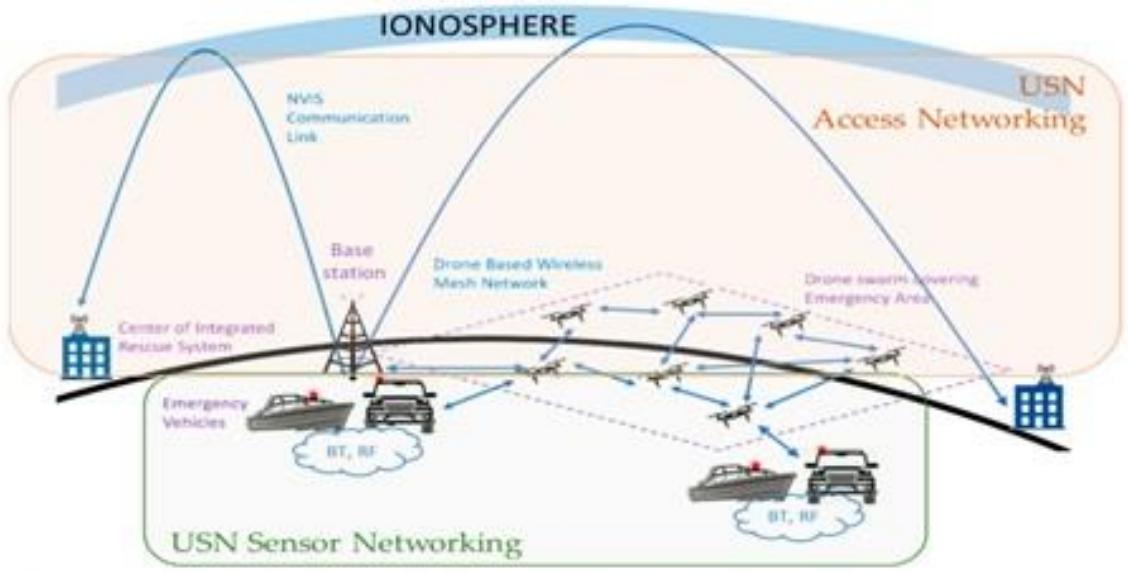


Figure 2. Possible communications technology stack for emergency communications system.

Notes and Credits:

1. R. I. Ogie, J. C. Rho, and R. J. Clarke, "Artificial Intelligence in Disaster Risk Communication: A Systematic Literature Review," *2018 5th International Conference on Information and Communication Technologies for Disaster Management (ICT-DM)*, Sendai, Japan, 2018, pp. 1-8, doi: 10.1109/ICT-DM.2018.8636380.

2. Kuglitsch, M. M., Pelivan, I., Ceola, S., Menon, M., & Xoplaki, E. (2022). Facilitating adoption of AI in natural disaster management through collaboration. *Nature Communications*, *13*(1), 1-3. https://doi.org/10.1038/s41467-022-29285-6

3. Citation: Carreras-Coch, A.; Navarro, J.; Sans, C.; Zaballos, A. Communication Technologies in Emergency Situations. Electronics 2022, 11, 1155. https://doi.org/ 10.3390/electronics11071155 Academic Editor: Antoni Morell Received: 25 February 2022 Accepted: 2 April 2022 Published: 6 April 2022 Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations. Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https:// creativecommons.org/licenses/by/ 4.0/).

OZARES Repeaters . . .

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

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

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

THE COMPUTER CORNER
No. 305 What to do with Old Computers?

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

In the last paragraph of the last article, I hinted that old machines should be given to me. Here is what I do with them.

Laptop or desktop, donated machines are first inspected to see if they are 64-bit units. If they are 32-bit machines, they are no longer useful as computers and are broken down (taken apart) for recycling. That means metal parts go in the metal bin, circuit boards in the circuit board bin, plastics in the garbage bin (computer plastics currently cannot be recycled) and so on. My recycle site does take circuit boards and all metal, though, and some of the metal may well wind up in the frame of your next car, so do not let your old computer wind up rusting in a land fill! The disassembly and recycling I do is a service to any hams that provide me with units that have no more useful life as a computer but may wind up in the melt of some new device or tool. Hard drives from these computers are wiped of data (explained later) or disassembled for metal recycling. In either case, data can no longer be captured from them.

If a unit is a 64-bit computer, it is then inspected to make sure that all the parts are there. For example, cleaned hard drives will be added if they are missing, fans will be added if needed (noisy or slow) and RAM memory may be added if I have it in stock from other units that were recycled. The interior of the machine will then be cleaned of any dust and grime, as well as the exterior, including removal software stickers.

The very next step is to fire up the newly cleaned computer and wipe the hard drive. That means running a data-destructive program that starts at the very first bit on the drive, sets it to a one, then to a zero. Then it moves on to the second bit, and so on, until the first byte (8 bits) is wiped clean. Then it goes on to the next byte, and the next, and the next, until all the bytes on the drive have been so wiped, up to 500-gigabytes or a terabyte, or whatever the drive capacity is. Then the program returns to bit one at the drive beginning and starts the complete process again. When done, it again moves back to the first bit and starts the whole process for an entire third pass.

This three-pass wiping ensures that no one can ever read old data from the hard drive, even using the side-of-track scanning methods that some governmental agencies employ when it is deemed worth the huge sums these covert methods cost to run. Thus, every bit of data, including all private data, any viruses or other malware and even the basic formatting of tracks, is gone forever. Any error messages from the wiping software during

this process will alert me to a defective drive; the wiping is then halted, and the drive is recycled by disassembly as mentioned earlier. If the wiping is completed with no error messages, the drive can be used again because now it is in the same state as it was in when completed in the hard drive factory after manufacture. Of course, it will not boot because it has not yet had a proper format of tracks and other data-organizing areas, but that will come.

As you might guess, the above process takes time. In the very fastest desktop machine, a half-terabyte drive might take overnight to wipe the three passes completely. It can even take 24 to 36 hours or more, depending on machine speed, installed memory and size of the hard drive. When done, it is ready for data.

I then mount the latest 64-bit Linux Mint Cinnamon on the drive. If you read this after the end of June 2023, this will likely be version 21.2, “Victoria”. Why this operating system? For several reasons. 1. This operating system can do about anything that Windows can do. 2. It looks much like Windows 10 to the operator, so the learning curve is minimal. 3. Unlike Windows, it is free of cost.

The process of installing Linux also formats the drive with an excellent system for holding data, which is superior to that used by Windows (less like to garble or loose data). Furthermore, installation includes Libre Office, a Microsoft Office equivalent (and more). Look at the comparison:

Microsoft Office Component	***Type***	Libre Office Component
Word	***Document***	Writer
Excel	***Spreadsheet***	Calc
Access	***Database***	Base
Powerpoint	***Presentation***	Impress
---	***Drawing***	Draw
---	***Formula***	Math

Libre Office can also read and even write data in Microsoft format. So, if someone sends you a Powerpoint presentation, you can open and read it on your Linux machine. The same is true for documents written in Word, and so on.

Installation of Linux also automatically includes the Firefox browser. The email program Thunderbird works fine, too, should the user wish to install it. There are also a myriad of programs that are either automatically installed with Linux or are available for download and installation by the end user. There are currently around 30,000 programs available to be added to a new Linux installation. Plus, there is software you can install that will allow you to run Microsoft programs on your Linux installation, or even Windows itself. It is truly a universally adaptable operating system. That is shown to be true by the fact that almost every modern smart phone uses Linux as part of its controlling software package.

OK, so Stan now has an older Windows machine that has been wiped clean and has a fresh copy of Linux on board. What does he do with it? Simple. It physically goes to the Ozaukee Radio Club for auction at the next monthly meeting. It is auctioned, for as little

as $10 or as much as $50 or $60. Half of those funds go to the ORC STEM (Science, Technology, Engineering, Math) Program, to benefit young folks' education in these areas. The other half goes to OZARES, the Ozaukee County ARES/RACES ham organization that trains members and prepares for emergency communications. Both are worthy organizations, run and staffed by volunteer hams. And those older computers that are still useful have found a second life. Sounds like a win-win situation to me! So go rummage in your closet or basement for any old computer that is just gathering dust and get it to me for reuse or recycling. Happy Computing!

Winter Approaches like a Train in the Night!!

Are your antennas ready
for the howling winds of winter?

On The Air Activities!

de Gary Sutcliffe, W9XT

It has been very dry here, and my garden suffered from the high heat and no rain. My attempts to water the vegetables have only kept them alive but not producing much. I watched the weather reports and radar, and it seems that the storms tried to avoid Slinger. They either pass to the north or south or dissipate before they arrive. We only had about 1.5" in all of June and a similar amount in July. I only seemed to experience rain at Field Day and the South Milwaukee Hamfest, only to return to find we only got a trace back home.

That changed on Friday night, July 28. We g
ot 1.6" of rain! But we paid a price. We were out of power for about 10 hours. You do not realize how much you depend on electricity. One thing that I did have power for was my 2M radio.

I was participating in the Washington County ARES severe weather net when we lost power. My radio was running on a LiFePO4 battery I bought at the Hamvention® last May. I had it hooked up because I was evaluating it for the WASHARES participation in the National Night Out in Slinger. (More about that later.)

I wish I had gotten further in my preparations to deal will the loss of power. I have some solar panels and a charge controller, but they have not been hooked up and tested yet. There always seems to be plenty of time to get that stuff going, and it really does not seem urgent until you need it. What have you done or are you planning to do to keep your station on the air if you lose power?

VHF

I chase DX on HF and operate a lot of contests during most of the year, but the summer is mostly VHF weak signal work. Starting in May, and peaking in June and July, is the Sporadic E (Es) season. This allows propagation up to about 1300 miles on 6M, but multi-hop Es can get across the oceans. Gary, K9DJT, and I have been very active the last few years chasing US grids for the FFMA award, as well as working towards 6M DXCC.

This has been the worst Es season since getting active again on 6M. Long-term 6M ops say it is the worst in a very long time. We only had a few openings to Europe. I only caught one opening to Japan and the Far East, but I spent most of that opening getting my computer and radio talking after Windows decided that the way I had stuff set up was not what I wanted and decided to "fix" it for me.

I have 25 grids left of the 488 needed for the FFMA award. Two-thirds of them are in the western states. We had very few good openings to that area this season. Many grids have no active 6M operators, and it takes a grid rover expedition to work it. I missed a

bunch of rovers because we just never got the double hop Es that we needed to get past Colorado.

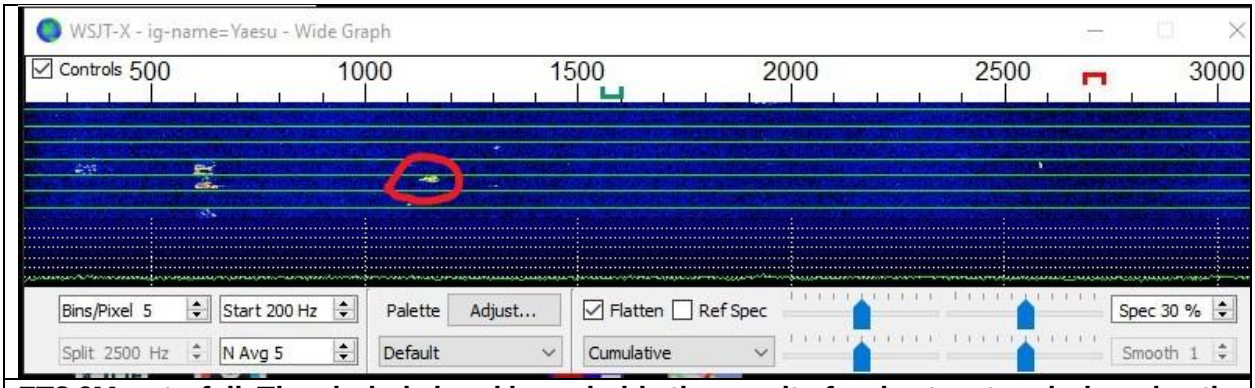
Despite the lack of 6M openings over the ponds, there were a few countries to pick up. Gary, K9DJT recently went over 90 countries worked. He got some really good ones, including 9K2GS and others in Eastern Europe and the Middle East. I got skunked that opening. Gary lives about 21 miles from me, and it is amazing how often one of us is working stuff the other cannot hear. We call it the spotlight effect.

The Es season dies around the end of July, and you can tell it is on its last legs now. We have a few other propagation modes that affect 6M and 2M, which should make things interesting in the coming months.

First of all, is the Perseid meteor shower. As meteors enter the atmosphere, they ionize the air around them, and we can bounce radio waves off them up to about 1300 miles. Meteor showers produce more meteors than regular periods, and the Perseids are usually the year's best shower.

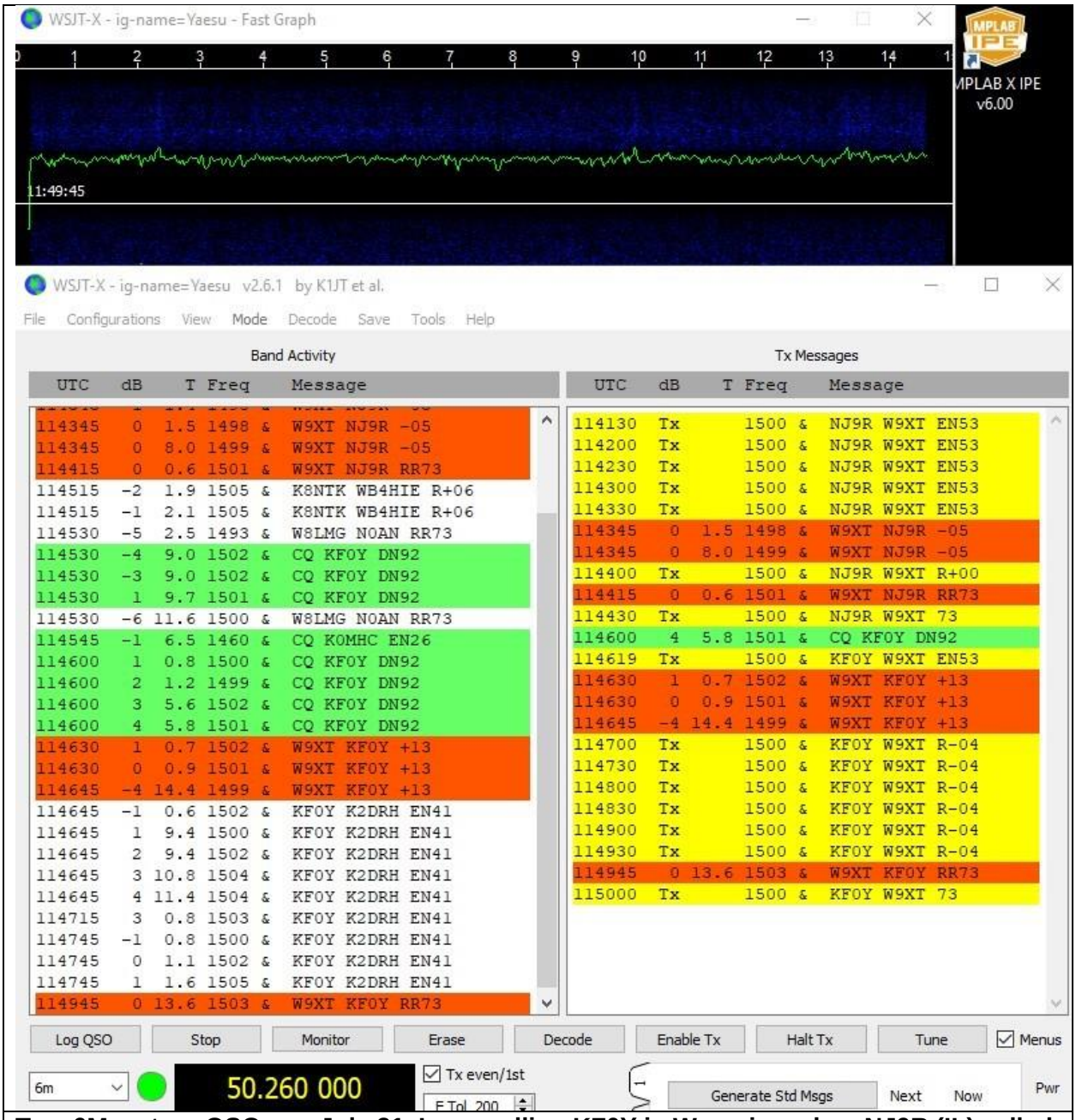
It is expected to peak around August 12. But the Perseids period is pretty broad. I have seen a lot of meteor enhanced signals already, and Gary, K9DJT (Mr. Meteor), and I have been working stations in the mornings on 6 and 2M.

If you monitor 6M with FT8, you might see a signal on the waterfall that is less than a complete sequence but still pretty strong. You might get a decode as well, but often that is the only one you get from that station. You might get a couple of decodes if the meteor is massive.



FT8 6M waterfall. The circled signal is probably the result of a short meteor induced path. It was too short to decode, but if it were MSK144, it would almost certainly be decoded. JTDX sometimes decodes short FT8 bursts that WSJT does not.

If you are running 6 or 2M FT8, you are already set up to run MSK144. This is one of the modes supported by WSJT. If you have 100 watts and preferably a small beam, you can work meteor scatter with MSK144. QSOs work similarly to FT8 but require much more patience waiting for another meteor to allow moving to the next step.



Two 6M meteor QSOs on July 31. I was calling KF0Y in Wyoming when NJ9R (IL) called. I quickly worked her, then went back to KR0Y and made a QSO. Notice that it took a few minutes to complete the QSO. Actually, it was a pretty fast QSO for MSK144!

If you have never worked meteor scatter, Mike, WB8BZK, gave an excellent presentation on working meteor scatter.
https://www.youtube.com/watch?v=RJ-kuvOAkGo

The Madison DX Club has some top-notch speakers. They record them and put the videos up on YouTube. Their website is http://www.madisondxclub.org. There is a link to their recorded presentations on the left side of the bar near the top.

Aurora is another propagation mode that can be used on 6 and 2M. When the sun has a solar flare, charged particles are ejected. If they are aimed at the earth, they arrive in 2-3 days. The planet's magnetic field funnels them to the poles, where they can cause auroras, or the northern lights in our hemisphere. We can bounce signals off them if we point our antennas north.

The Doppler shift of the aurora causes the signals to distort CW, which is the best mode for auroras. Instead of clean tones, they have a buzzing type of sound. Sometimes you can hear SSB signals via aurora. It sounds a bit like Donald Duck. Usually, we need a really good aurora and higher power stations to do SSB.

FT8 will definitely not work with aurora. There are reports of success working via aurora with MSK144 and Q65, another mode built into WSJT. I have not tried those, but it is worth a shot.

Good aurora propagation has been scarce in the last few decades due to low sunspot activity. But as we know, cycle 25 is already higher than the peak of the last one. One side effect of more sunspots is more solar flares. July had a lot of solar flares, but not many were directed our way. Many recent news reports predicted great auroral visual shows coming up, but if you were watching the numbers, you could tell they did not know what they were talking about. We might have an aurora if the K index is 4 or higher.

Auroras are more likely to occur near the equinoxes. The autumnal equinox is in September, but August could produce some good ones with a properly directed solar flare. An excellent place to check current solar conditions, is QRZ.com, but my favorite site is solarham.net.

The other propagation mode I am hopeful for is F2. We rely on the F2 layer for HF long-distance communications. It takes a high solar flux (SF) number to reach 50 MHz. Ken, W9GA, the ORC resident 6M guru, says that in the fall and winter months, an SF > 200, along with a few days of low A and K indices, can be enough to push the MUF (Maximum Useable Frequency) over 50 MHz.

The last time we had frequent F2 on 6M was 2000-2001. I was not in much of a position to take advantage of that then. My 650+ worldwide grids and 95 worked countries on 6M have all been worked with low power and small beams. That will hopefully change with a 6M amplifier by the time you read this. I am a patient person, but at this point, waiting another 20+ years is stretching it! I plan to be ready if it hits.

HF

The HF bands were bad in July. Usually, the summer months are kind of poor, but this summer was terrible with so many solar flares. Hopefully, things will improve in August. Certainly, the end of the month should be better.

Despite not hearing anything, Gary, N9UUR, was on 17M FT4 one evening. He was trying to get South Dakota on that band/mode combination for WAS. So, he was calling "CQ SD" with his beam pointed to the northwest, even though there were no other signals on the band. After a few calls, Gary got an answer from FR4OS in the Indian Ocean for a new band country (NBC).

You never know if a band is open even with no signals. It also may be only open to some remote locations. But, if everyone is listening, no contacts are made. Give CQ'ing a try from time to time. It is kind of a pain to call CQ many times without an answer on CW or SSB, but on the digital modes, a string of CQs is just a click away.

VOTA

The second Wisconsin week for W1AW/9 was July 12-18 (UTC). Vic, WT9Q, and I were authorized to operate using that call. Unfortunately, the conditions were terrible. We averaged over a solar flare per day that week. Add that to the usual summer doldrums, and QSO rates were very slow. Sometimes I would CQ for 5 or 6 minutes before getting a reply. And that was on the best band at the time.

Vic, WT9Q, passes along his comments on the event.

> A few weeks ago, I received a forwarded email requesting volunteers to operate W1AW/9 here in Wisconsin. This was for the special Volunteers on the Air (VOTA) event. I thought it was a good opportunity to help and have some fun, so I submitted my application for approval. Who knows, maybe I would get more VOTA points too. Time passed and I had not heard anything. I was wondering if I was not qualified or if so many applied that they did not need another one. It turned out that the State Coordinator, Mark KB9S, did not receive my first request. I was soon approved and a few days later I started sending "CQ de W1AW/9."
>
> There was a learning curve with this process; mostly I had to learn how to use the sharable calendar. We had to update it and check it before we started operating because we should never have two signals on the same band and mode at the same time. The rest of it was not much different than operating a contest, but I did send slower than usual and took time to show my appreciation for the contact.
>
> When our week ended, I uploaded my ADIF file to a special spot on the ARRL website. Conditions were poor the entire week, so I only logged 130 contacts, but I enjoyed it. I consider it an honor to have been able to use the W1AW/9 call sign.
>
> Vic WT9Q

As a group, we made about 2450 QSOs. Most were FT8. Vic and I only operated CW, and we were responsible for over half the team's CW contacts. After my experience running the call sign, I will make an effort to work other W1AW/n stations I come across the rest of the year if they are not making many contacts. I know what they are going through!

The VOTA event runs until the end of the year. You get points for working other ARRL members, and some calls are worth extra points because of their ARRL volunteer positions. Vic, and Fred, W9KEY, are pretty high on the VOTA Leader Board for Wisconsin.

Light House Special Event

The annual International Lighthouse Lightship Weekend special event is August 18-20. It is at the Lighthouse Museum in Port Washington. This is a joint effort between the ORC and LeFROG.

Setup starts Friday, August 18, at noon, and they can use help. I helped set up last year, and the view alone was worth the trip. On the air operation will be during the day on Saturday and Sunday, August 19-20. Although the event runs through the night, they plan to shut down around sunset so they don't disturb the neighbors right next to the museum.

Contact Fred W9KEY for more information. Fred gave an overview presentation at the July meeting. If you missed it, the recording can be seen here.
https://youtu.be/SVNqgs94x6M

National Night Out

Although it was not an event involving the ORC, several ORC members were active in the National Night Out event on August 1. NNO is a national event where towns and cities get people out in the community to interact with the local police and fire departments, and local community groups. There were about thirty community organizations at the Slinger event.

Vic, WT9Q, is the Emergency Coordinator for ARES in Washington County. With Vic's great effort and working with other clubs in the county, we set up exhibits at Slinger, Jackson, and Germantown.

Each group did their setup based on the number of participants and resources. New ORC member Scott, KD9YEW, and I managed the Slinger event. Since this was our first time doing it, we kept it simple.

We had a 2M mobile rig run off batteries and a vertical antenna on a tripod. We had HTs for backup. When you do something for the public, you always want to prepare for something failing.

I also brought along a keyer and buzzer and a separate straight key and buzzer. We had a sign with the Morse Code alphabet. It said we would send their first name in Morse

Code. Visitors could also attempt to send it themselves with the straight key. The kids thought it was neat.

The Germantown group had more CW operators and planned to have one at each end of the table. Visitors would write their names on a piece of paper and give it to one CW op, who would send it to the other. Then the receiving op would show the name they copied. NNO occurred hours before my deadline, and I didn't hear about the results, but I expect it was a real hit.

We also did a couple of simulated severe weather net demonstrations between the WASHARES members that were on from the NNO sites, home, or mobile. Unfortunately, we were overpowered by a band about twenty-five feet away from our booth. Scott and I had to shout to hear each other a few feet apart.

Contests

August is a quiet month for contests. Two North American QSO Parties are in August. The CW event is Saturday, August 5, and the phone version is August 19. Both contests begin at 1:00 clock local. The exchange is name and state, and you can work stations once per band.

A fairly new contest is the World-Wide Digi DX Contest. It is sponsored by the World-Wide Radio Operators Foundation, which promotes contesting. From time to time, they sponsor some really excellent online presentations.

Contests often bring out lots of activity, and DX countries that are not very active between contests are often on for contests. This one starts at 7:00 local time on August 27 and runs for 24 hours. I plan to give it a shot for a few hours to check out the activity.

DX

DXpeditions are light in August, as usual. Things will pick up in September and October. There is an interesting operation by F1SMB. He will be hitting several islands from French Polynesia as part of the IOTA program.

IOTA stands for Islands On The Air. Basically, there are hundreds of registered islands in the program. You work them for awards the same way you work countries, grids, states, etc., for other awards. I never got into IOTA, but it is a popular program.
They have a designator with two letters indicating the continent followed by a three-digit number. For example, he is starting in OC-046.

He will use the call sign FO/F1SMB and move to a different island every few days between August 13 and September 5.

Ham Radio Events

There are several great events in August and September. The first one is SMC Fest. The Society of Midwest Contesters has its annual get-together on Aug 12. I am on the board of the SMC and will be giving a couple of presentations.

September 9th brings us the ORC Swapfest. I hope everyone shows up for this one.

September 16 is the date of the 70th W9DXCC convention. They have talks about DXing and DXpeditions and a banquet. One talk I am interested in is a talk by Craig, K9CT. He erected a 150' crank-up tower with a three element 80M Yagi. That is not for the faint of heart!

The keynote speaker is Glenn, W0GJ. Glenn is a well-known DXpeditioner and often the team doctor on them. Glenn always approaches things from a unique point of view.

I went to my first W9DXCC back in 1974. Since the late seventies, I only remember missing one due to a niece's wedding about five years ago. It is always a good time.

That wraps up August. Get going on those outdoor antenna projects. Fall and cold weather will be here before you know it!

Check the next page for my Operating Reference Sheet for August and Early September.

W9XT's Contest, Operating, DXpedition, and Special Event Picks for August and Early September 2023

W9XT's DXpedition picks for August and early September 2023					
QTH	**Dates**	**Call**	**Bands**	**Mode**	**Link/notes**
French Poly-nesia	13 Aug 4 Sep	FO/F1SMB	40-10M	SD	IOTA

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

W9XT's contest picks for August and early September 2023					
Name	**Start**	**Length**	**Bands**	**Mode**	**Link**
NAQP CW	5 Aug 1800Z	12 hours but op 12 max	160-10	CW	https://www.ncjweb.com/NAQP-Rules.pdf
NAQP SSB	19 Aug 1800Z	12 hours but op 12 max	160-10	SSB	https://www.ncjweb.com/NAQP-Rules.pdf
World Wide Digi DX Con-test	17Aug 1200Z	24 hour	160-10	FT8 FT4	www.ww-digi.com

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

W9XT's operating & event picks for August and early September 2023			
Event	**Dates**	**Details**	**Link/notes**
SMC Fest	Aug 12	Naperville, IL	www.w9smc.com/smc-fest/
Lighthouse Weekend	Aug 18-20	Port Washington	
ORC Fall Swap-fest	Sept 9th	Fireman's Park, Cedar-burg	www.ozaukeeradioclub.org
W9DXCC	Sept 16	Naperville, IL	https://w9dxcc.com

Topics: Emergency power, VHF, HF conditions, VOTA, Lighthouse weekend, National Night Out, Contests, DX, upcoming HR events

Vintage Amateur Radio

de Bill Shadid, W9MXQ

Following the previous article about the Heathkit SB-300 HF Receiver, it is appropriate to follow along with the matching Transmitter, the SB-400. However, we are going to skip the original 1964 SB-400 version of this Transmitter and move to the 1966 refresh of the product, the SB-401. Reasons for this will become apparent in this review.

Heathkit had arrived on the market with products to compete with the game changing Collins S-Line (which included the KWM-2 Series Transceivers) by about 1963. Heathkit and Drake went on to provide directly competitive products to Collins, Model by Model. Hallicrafters was there too, but was more selective with where they did, and did not compete with every product that Collins offered.

Here is a picture of the SB-401 Transmitter at W9MXQ . . .

Heathkit SB-401 HF CW-SSB Transmitter[1]

W9MXQ Photo

Shown in the following chart are the field of main competitors as amateur radio moved out of the 1950's and into the 1960's. With the addition of Swan and Galaxy, we are looking at the dominant players in the domestic amateur radio market of the time.

Competition to the Collins S-Line/KWM-2				
Device	**Collins**	**Heathkit**	**Hallicrafters**	**Drake**
Receiver	75S-1	SB-300	SX-117	R-4
	75S-3	SB-301		R-4B
	75S-3B	SB-303		R-4C
Transmitter	32S-1	SB-400	HT-44	T-4X
	32S-3	SB-401		T-4XB/T-4XC
Transceiver	KWM-2	SB-100/101/102	SR-150	TR-3/TR-4
Remote VFO	312B-5	SB-604	n/a	RV-3/RV-4
Linear Amplifier	30L-1	SB-200	HT-45	L-4/L-4B
	30S-1	SB-220		
Transverter	62S-1	SB-500	n/a	CC-4/TC-2/TC-6

Both Heathkit, Hallicrafters, and Drake went on to produce later generation transceivers that are not mentioned here. The chart primarily shows what was happening in the 1960's. Others competed with Collins in their own way. For instance, National, Swan, and Galaxy (and others) produced transceivers only. Hallicrafters, too, went away from the separate receiver and transmitter concept and moved to larger footprint transceivers still in the 1960's with the SR-400 series and the SR-2000. The Hallicrafters products shown above were not upgraded (except for the SR-150) to newer versions and were gone before 1970. Swan, a market leader at the time, did try to take on the Collins line separates with the 600 Series Receivers and matching Transmitter, but they were very late coming to the market, not a commercial success, and are somewhat hard to find, today.

I would be remiss by not mentioning Hammarlund – a market leader entering the 1960's. In a flawed view of the market, they felt no need to produce small footprint radios like the Collins S-Line and KWM-2 until it was too late – and they left the market and shortly after that went out of business altogether.

We need to look at the field of transmitters available to the amateur radio operator at the time the SB-400 was released to the marketplace. Collins led the market at the time. Not to be outdone, the other major players came to the table with worthy, sometimes superior, products.

Collins 32S-1 (1958) (Collins S-Line)

The first of a new generation of compact transmitters using i-f mechanical or crystal filters. Plus, a new capability to Transceive with an equally new generation of Transmitters, like the model 32S-1.

Drake T-4X (1964)

Drake T-4X, T-4XB, and T-4XC matched its line of Receivers, the R-4, R-4A, R-4B, and the final R-4C in the line. The R-4 Series works with the Drake T-4X Series Transmitters.

Hallicrafters HT-44 (1964)

The HT-44 arrived later than its stable mate, the SX-117. It used phasing SSB Generation, which had been popular, but many had abandoned the process by this time. It did transceive very capably with the matching SX-117 Receiver.

Heathkit SB-400 (1964)
(SB-401 is the subject of this article.)

The SB-401 solved functionality issues of the initial SB-400 but was otherwise almost identical. For transceiving Heathkit offered the SB-300 Series Receivers.

All Pictures – W9MXQ

A major feature of the SB-400 and SB-401 compared to the Collins 32S-1 or 32S-3, or offerings from Hallicrafters and Drake is its integrated AC Power Supply. Collins, for instance, required the use of the 516F-2 AC Power Supply to provide power for the circuitry in the 32S-1 or 32S-3 Transmitters. Heathkit, like its competition, DOES require an external AC Power Supply (the ubiquitous HP-23 series) when using its transceivers. Like with the HP-23, the power amplifier high voltage, the lower-level circuitry high voltage, bias circuit voltage, and filament voltage are all generated internally with the SB-401 and SB-401.

A word here about the differences between the SB-400 and SB-401 is appropriate. These two models are mostly identical but do have differences that mostly are not noticed in general operation. The SB-400 lacked convenient switching to allow transceiving with the matching Heathkit Receiver (SB-300, SB-301, SB-303). One had to open the hinged top-cover and exchange some coaxial cable connections. This was accomplished with a convenient front panel switch on the SB-401 added to the MIC CW CAR Level Control as a concentric switch.

The LMO (Linear Master Oscillator) changed from using a 6AU6 tube on the SB-400 to a 6BZ6 on the SB-401. Over time the LMO changed yet another time with the last version also using the 6BZ6. This change was not apparent to the user.

A major change – which allowed a reduction in the price of the SB-401 compared to its predecessor SB-400 was based on most SB-400 series transmitters found to be running with SB-300 series receivers. When interconnected, the SB-300 series receiver and SB-400 series transmitter could use the same LSB and USB carrier oscillator as well as then same frequency range heterodyne oscillator crystals present in the receiver. This was true if the units were operating in transceive (off the receiver LMO) or separately (receive using receiver LMO and transmitter using transmitter LMO). That saved the cost of a total of ten crystals. If the SB-401 was to be used with a non-Heathkit, or earlier Heathkit, receiver, then the crystals could be purchased as the SBA-401-1 Crystal Pack.

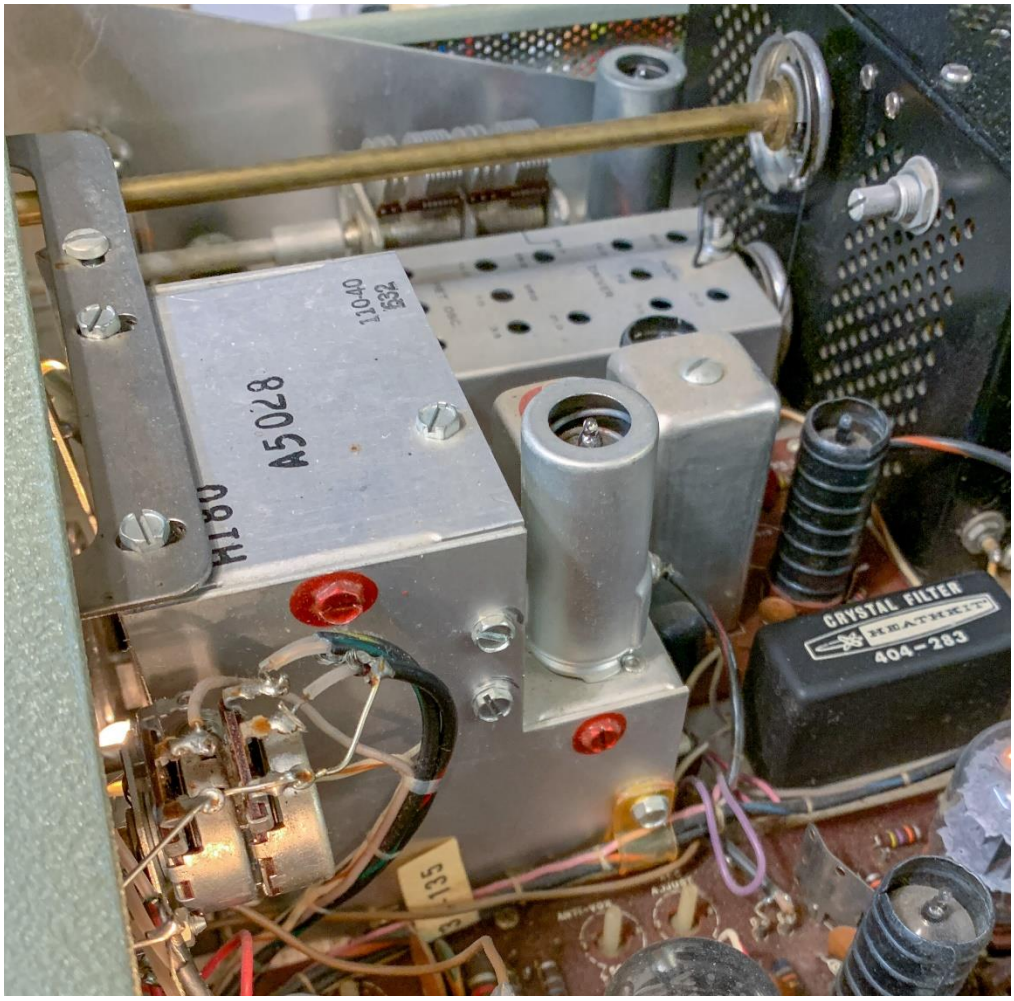
A small point here relates to CW operation. The SB-401 Transmitter did come from the factory with a CW carrier oscillator crystal. This was required because without that the transmitter and receiver would be on the same frequency when transceiving. That would cause the listener to hear nothing when transceiving. In the case of the SB-400 series design, the difference in the carrier oscillator crystals was 1 kHz. That allowed the user to hear a 1 kHz tone when the other station is transmitting. A small but particularly critical point!

Focusing on the SB-400/401 and its target Collins product, look at a selected group of feature comparisons:

Feature Comparisons – Collins 32S-3 and Heathkit SB-400/401[2]		
	Collins 32S-1/32S-3	**Heathkit SB-400/401**
Frequency Coverage	3.5-30 MHz with fourteen 200 kHz Segments	80-10-meter ham bands only in eight selectable 500 kHz segments
RF Power (SSB)	175 Watts PEP Input (100 watts Output) (Less on 10-meters)	180 Watts PEP Input (100 watts Output) (Less on 10-meters)
RF Power (CW)	160 Watts PEP Input (90-100 watts Output) (Less on 10-meters)	180 Watts PEP Input (100 watts Output) (Less on 10-meters)
Frequency Stability	After warmup, stable to 100 Hz	<100 Hz per hour after 20-minute warmup. Less than 100 Hz for 10%-line voltage variation.
Transceive Engagement	Front Panel Switch	Internal Swap of Injection Cables was Required[3]
Modes of Operation	LSB, USB, CW	LSB, USB, CW
AC Power	Separate Collins 516F-2 AC Power Supply	Internal

These SB Series receivers and transmitters, like their competition from Collins, Hallicrafters, and Drake, excel as being closely related to the coming amateur radio preference to transceiving. Unlike the competition, however, the Heathkit radios lacked the interference fighting controls in the receivers that all the others shared (except for the very first Collins S-Line receiver, the 75S-1. In the case of the Heathkit SB-300 series and SB-400 series together – functionality was almost identical to the SB-100 series transceivers. And, with the addition of the Remote VFO (SB-640) the functionality was identical within any one band.

Like in all the SB Series Receivers, Transmitters, and Transceivers, the LMO came fully assembled and calibrated . . .

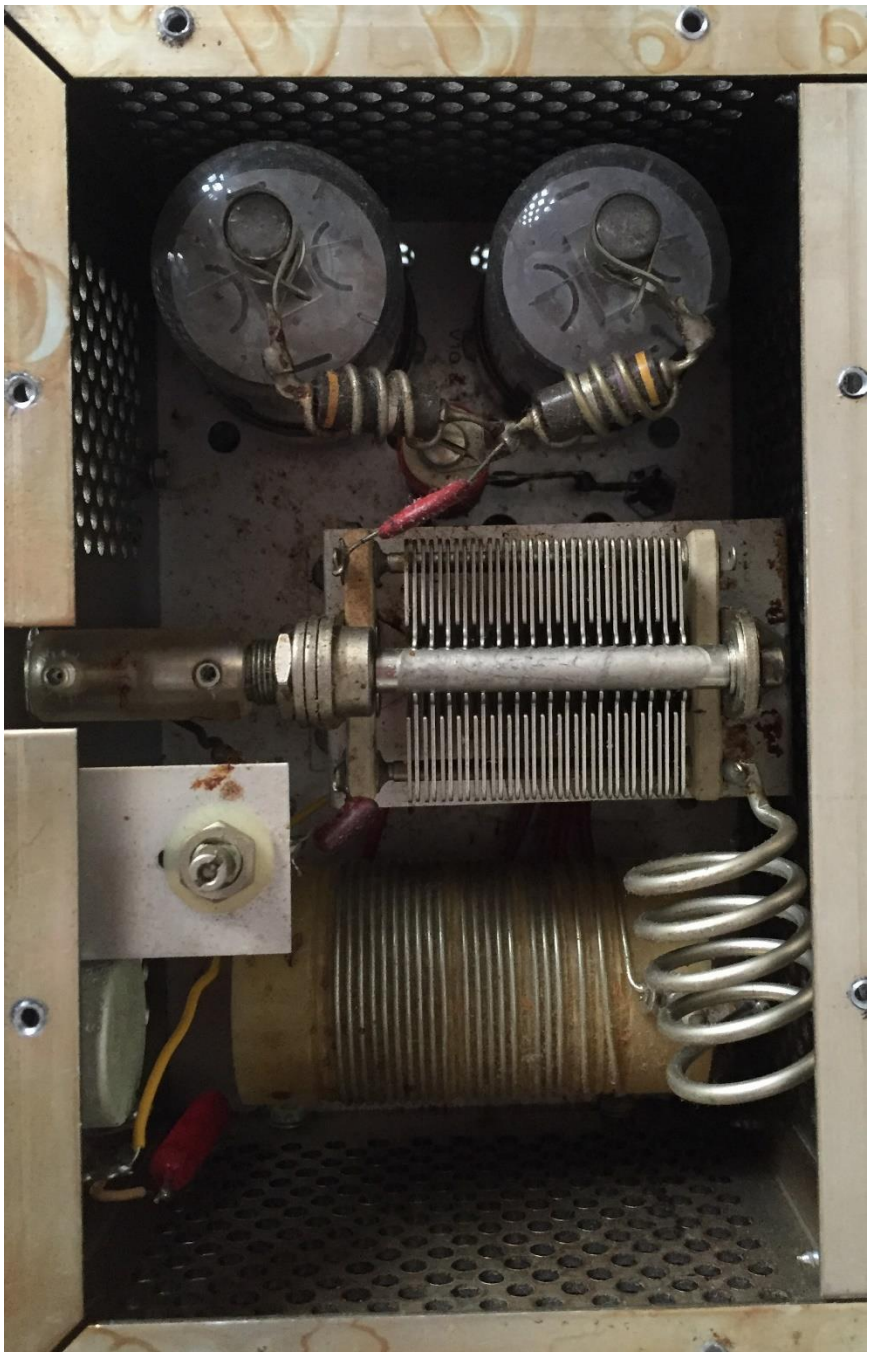


SB-401 LMO – installed in place. Note red paint to indicate "Factory Sealed." (Front Panel is to the left.)

W9MXQ Photo

Note in the above picture that careful diligence and neatness in wiring. The quality of the wiring is witness to a well assembled kit – something that must be evaluated when buying any used Heathkit. It is only as good as the original builder made it!

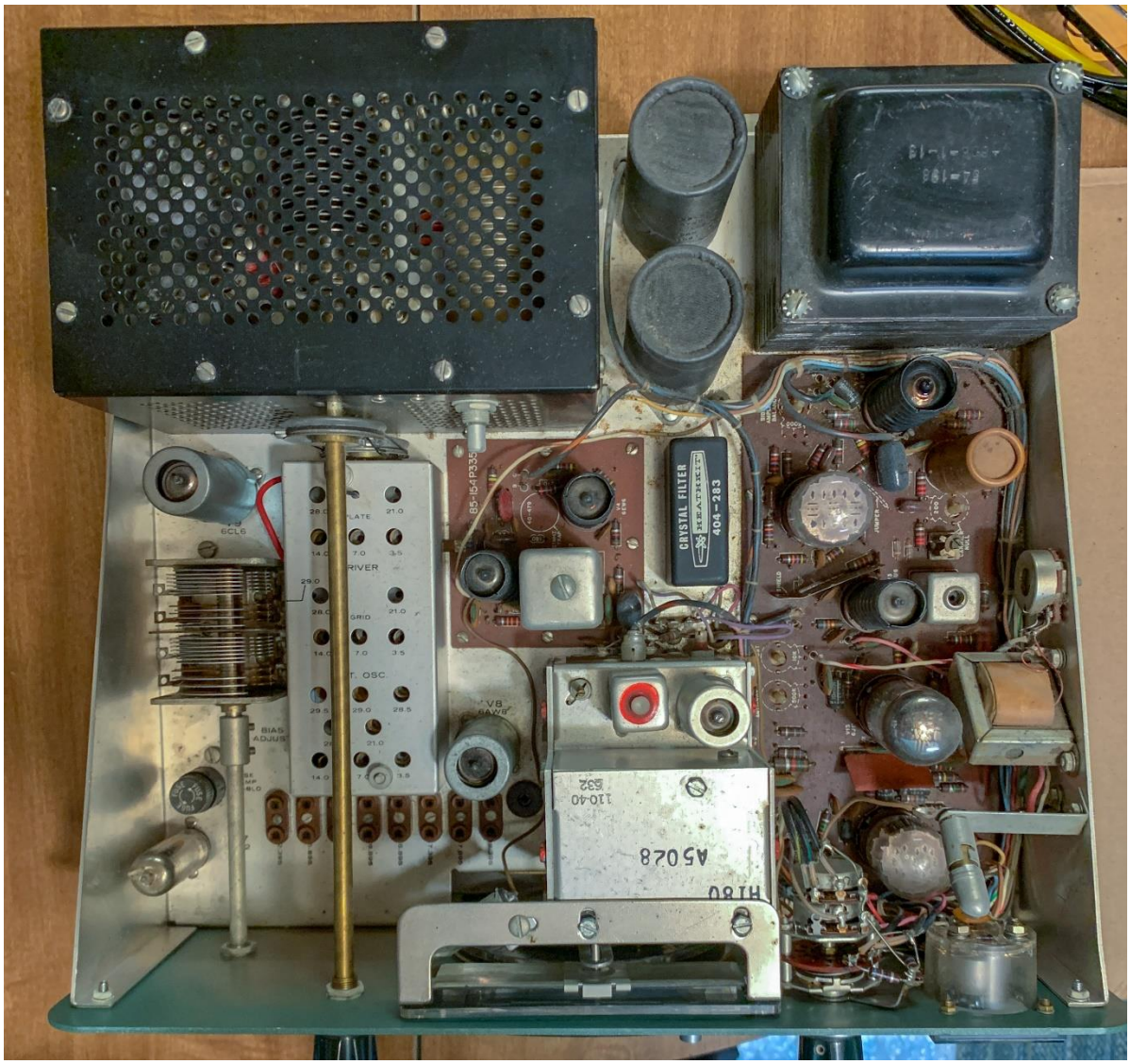
Here is the power amplifier compartment. Like most power amplifiers in radio transmitters the amplifier tubes and tank circuit are completely enclosed. The top cover has been removed in this picture . . .



Power Amplifier Compartment in the back left corner of the top chassis. (Front Panel is to the left.)

W9MXQ Photo

Note, above, the 6146 Power Amplifier Tubes to the top of the picture. The Plate Tune Control Capacitor is at the center. The Plate Load Capacitor is directly below the Plate Tune Control Capacitor and therefore not visible in this picture. At the bottom you can see the 80-15-meter tank coil. At a near 90-degree angle to that coil you can see the larger wire gauge, open wound 10-meter tank coil. On the left, just below center, see the Neutralizing capacitor. The protective cover has been removed – be careful as there is 800 or more Volts DC exposed inside this compartment. That is 800, as in DEAD!!



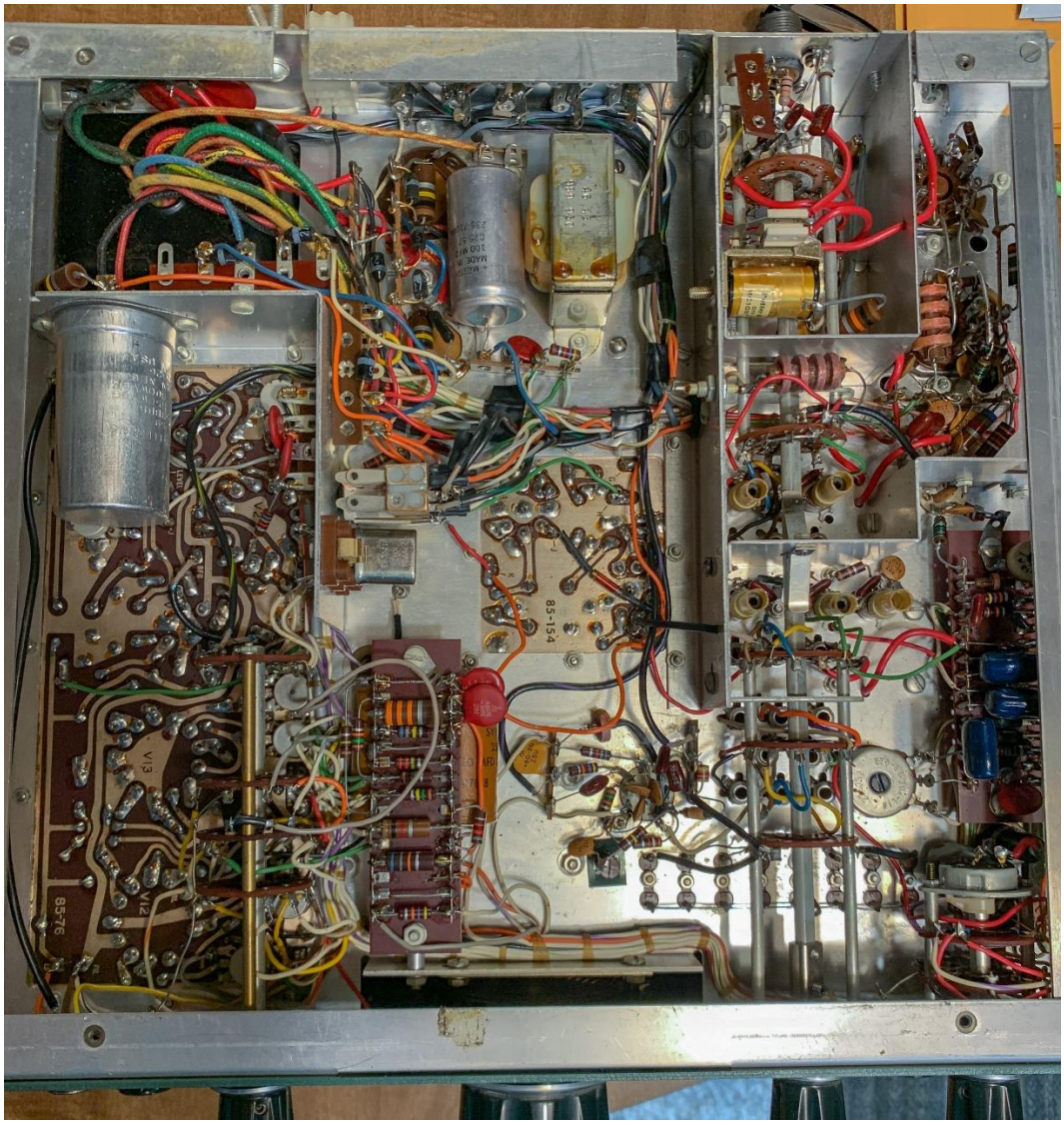
Top Chassis View of the SB-401 Transmitter – Outer Cabinet Removed.
(Front of Transmitter is at the bottom of this picture,)

W9MXQ Photo

Above you can see the chassis top – radio removed from the outer cabinet. PA Compartment is at the left rear with the Power Transformer at the right rear. The Drive Control (driver tank circuit) is at the left center with the 6CL6 Driver tube just to the rear of that variable capacitor. Just to the right of the Driver capacitor can see the Plate and Load

Tune concentric control shafts heading back to the PA Compartment. At the lower front center is the preassembled LMO chassis. Just to the left you can see eight empty crystal sockets. Those are for the heterodyne crystals – mentioned earlier – not yet installed at the time I am drafting this article. Under the Plate and Load concentric control shaft you can see the shield cover over the transmitter i-f tuned circuits – lettered for alignment. Close to the center, you can see the transmitter's crystal filter. That filter is part of the SSB/CW generator that is the large circuit board to the right. Straight below that board, you can see the meter. To the left of the meter is the SSB CW LEVEL control that is concentric with the switching circuitry for choosing which LMO is in use to transmit.

Now let us look at the chassis bottom . . .

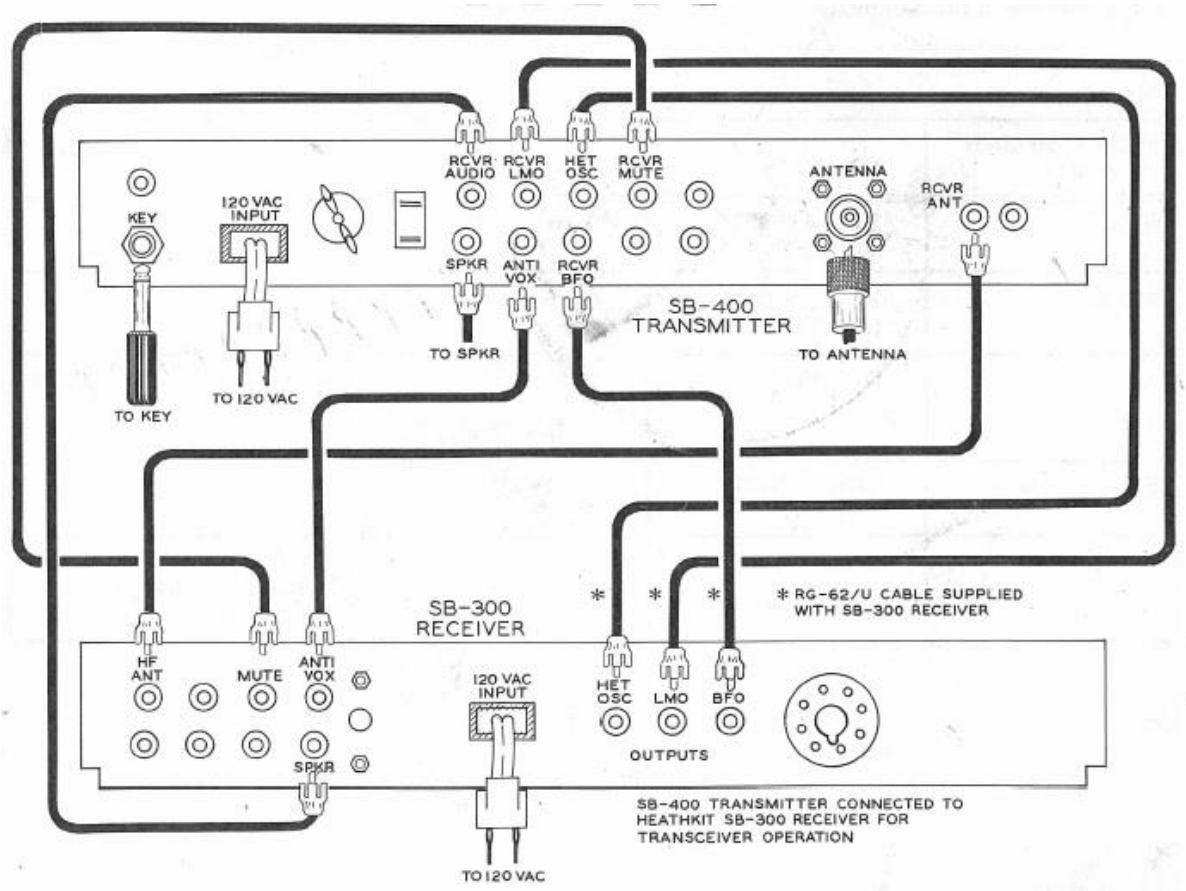


Bottom Chassis View of the SB-401 Transmitter – Outer Cabinet Removed.
(Front of Transmitter is at the bottom of this picture,)
W9MXQ Photo

Above you see the bottom chassis view of the SB-401 Transmitter. The rear left two-thirds of the chassis houses the under-chassis parts for the transmitter's power supply. Those parts are directly under the Power Transformer that is visible in the Top Chassis view. This circuitry closely follows that of the Heathkit HP-23 AC Power Supply. Later versions of this transmitter went from the 120 VAC primary Power Transformer used in the SB-400 and early SB-401 to a dual 120 VAC (120-0-120) primary for use internationally and for 240 Volt Service, domestically.

Just to the left of the very center you can see a single crystal for the Transmitter's CW carrier oscillator, mentioned earlier. Careful study will show the sockets for the LSB and USB carrier oscillator crystals not installed at the time of this writing. Right above the crystal you can see the transmit/receive control relay. The parallel wired antenna relay (that sends signal to the receiver, when receiving), is toward the upper right of the picture. The bandswitch is visible to the right in the picture – attached to the front panel.

Today's hams are not so familiar with using separate receivers and transmitters. Here is an excerpt from the SB-401 Operating Manual showing the interconnection of the SB-401 Transmitter to the SB-300 Receiver . . .



Heathkit SB-300 Receiver and SB-400 Transmitter Interconnection for Transceive and Separate Operation
Page 94, Heathkit™ SB-401 Assembly and Operating Manual

There are seven cables, as follows:

SB-300 to SB-400 Interconnection Details				
Cable	**Cable**	**Length**	**Connector**	**Application**
1	RG-62/U	24 Inches	Phono Plug	Heterodyne Oscillator
2				LMO
3				BFO
4	Audio Cable	36 Inches		Mute Line
5				Anti-VOX Line
6				Speaker Audio Lione
7	RG-58/U	36 Inches		Receiver Antenna Cable

Cables 1 through 3 are critical as to length while Cables 4 through 7 are not critical, within reason. Premade RG-62/U cables for this application are available, custom made from eBay sellers. I used a Composite Connection TV Triple Cable for my cables 4, 5, and 6 and made my own cable 7 from some surplus RG-8X. RG-62/U is a 90-ohm cable. Use of other cable impedances may be problematic.

The model numbers of the SB-300 and SB-400 Series can be confusing so let us look at them one more time . . .

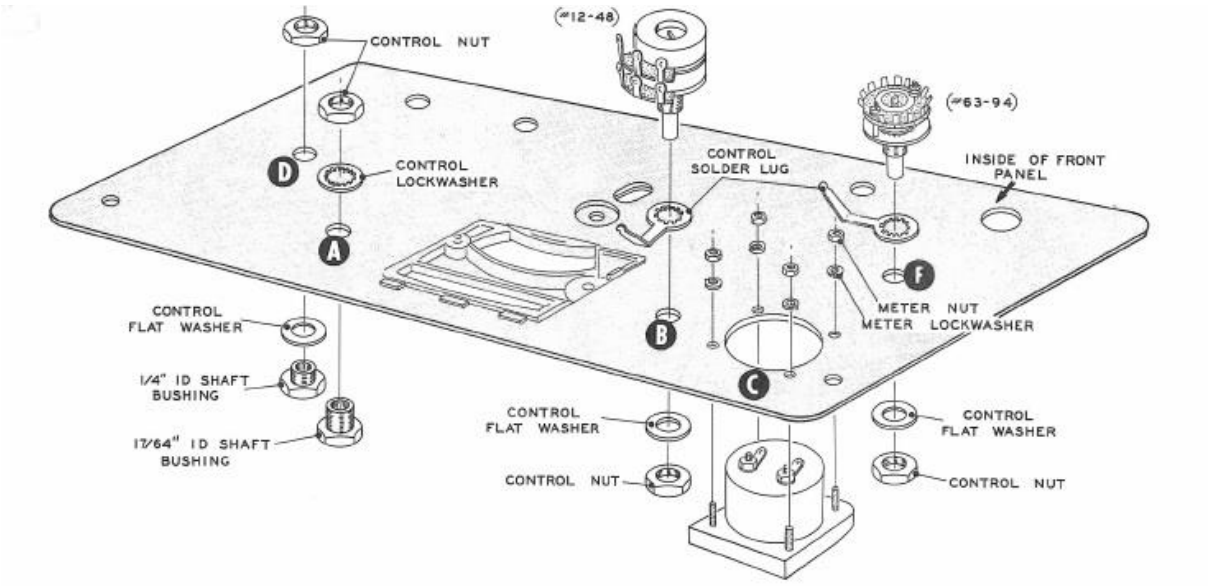
Receivers	**Transmitters**
SB-300	SB-400
SB-301	SB-401
SB-303	

Any Radio in the Receiver Column will operate as separate units or transceive with any Radio in the Transmitter Column. The Cable Set is the same. Just be careful of the back panel layout because the connectors are not all arranged on the back panel in the same way on every model. For instance, the back panel of the SB-303 is completely different from the back panel of the SB-300.

Do remember the shortcomings of the SB-400 (not SB-401) for separate vs transceive operation. The transmitter is excellent in performance but loses significant marks in convenience. Somehow, the “Hams at Heath” got that one wrong. They did recover in the SB-401, however. Hams being hams, many field modifications made by individuals and published widely provided excellent work arounds for the SB-400.

All the SB Series Receivers and Transmitters shared a complex design main tuning dial mechanism. I am fortunate in that my own SB-300 and SB-401 are expertly assembled and work silky smooth. I also have two SB-303 Receivers wherein one operates just as well as the SB-300 and SB-401 but the other one has all the sounds of a howling cat as it squeaks and growls with every movement of the dial! Thank goodness that is covered in a two-page process in the Heathkit Assembly and Operation Manual for the radio. It is repairable and eventually will yield to my efforts.

Speaking of the Heathkit Assembly and Operation Manual, I am thinking that most of the readers here have never assembled a Heathkit. To that end, here is an excerpt from the SB-401 Assembly Manual . . .



PICTORIAL 19

PARTS MOUNTING-FRONT PANEL

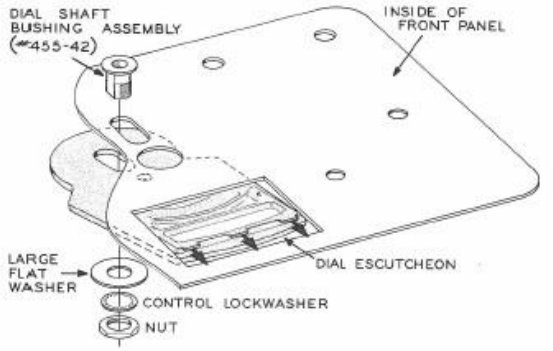
Refer to Pictorial 19 for the following steps.

( ) Place a soft cloth on the work area to prevent scratching the front panel.

( ) Referring to Detail 19A, install the dial escutcheon to the front panel with drive shaft bushing assembly (#455-42). Position the tabs at the top of the escutcheon inside the front panel. Do not tighten the nut at this time. Be sure the bushing is inserted from inside the front panel. It may be necessary to sand off any excess paint from the top inside edge of the panel to allow installation of the escutcheon.

( ) Install a 17/64" ID shaft bushing at A, using a control lockwasher and a control nut. Do not tighten at this time.

( ) Install a 1/4" ID shaft bushing at location D, using a control flat washer and a control nut.



Detail 19A

( ) Install the 1-section, 2-pole, 5-position switch (#63-94) at F, using a control solder lug, control flat washer, and a control nut. Position the switch lugs and solder lug as shown.

Partial Assembly Detail – SB-401 Front Panel Assembly
Page 75, Heathkit™ SB-401 Assembly and Operating Manual

Another area of useful design on Heathkit's SB-Line major components was the excellent top accessible (opening) outer cabinet. Collins and Hallicrafters have very nicely designed, fully opening tops on their outer cabinets but I think that Heathkit was a bit more elegant than their competition. Look for yourself . . .

Closed Cabinet – Corner View

Partially Open Cabinet – Corner View

W9MXQ Photos

You can see the fitting design – note that removing the closure screw is not required to open the cabinet.

W9MXQ Photo

The hardware involved here is an 8-32 UNF Oval Head Chrome Plated Screw. These are difficult to find – and while Flat Head designs work, they just do not look right –

"Flat Head Screws Get No Cigar!!"

These Oval Head Heathkit Cabinet Screws are available from eBay sellers supporting vintage Heathkit equipment.

In closing, here is the SB-401 with the SB-300 from the previous installment . . .

Left to Right (All Heathkit)
SB-401 Transmitter, SB-600 Speaker, SB-303 Receiver,
HDP-121 Microphone, & HA-1410 Electronic Keyer
W9MXQ Photo

The "Green Machines."

A reminder from the SB-300 installment, if you have any of the SB series radios (or any Heathkit Amateur Radio Equipment), I urge you to locate and purchase an excellent book by Chuck Penson, WA7ZZE, entitled "Heathkit Guide to the Amateur Radio Products," Third Edition. The earlier editions are good (great, actually), but the Third Edition adds an incredible amount of detail about this fine equipment[4].

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] This is my first SB-401 Transmitter and comes from fellow collector, W9DYQ. I have a bit of fascination for this series of radios – with an SB-300, two SB-303's, the SB-401 in this article, and an SB-200 Linear Amplifier in my collection. I have never had the middle model receiver, the SB-301. Like many hams, even today, I have a variety of Heathkit Accessories and several Heathkit pieces of Test Equipment in my shack.
[2] From the Specifications in the respective Operating Manuals of the noted models.
[3] This is covered in the text of the article – and was corrected with the later SB-401.
[4] Chuck Penson's Heathkit related books are available from his website, https://wa7zze.com/. I also recommend his other Heathkit related books, "Heathkit Test Equipment Products," and Heathkit H-Fi and Stereo Products." I have all three, plus early editions of the "Heathkit, A Guide to the Amateur Radio Products" books.

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Upcoming Events

de: Tom Trethewey, KC9ONY

8/07/2023 – USA National Lighthouse Day
https://uslhs.org/fun/lighthouse-festivals-events/national-lighthouse-day

8/12/2023 – Racine Free Fest
http://www.w9udu.org/

8/19/2023 – Port Washington - International Lighthouse Lightship Weekend
https://illw.net/

8/26/2023 – Baraboo - Circus City Swapfest
http://yellowthunder.org/?page_id=66

9/09/2023 – Cedarburg – ORC Annual Regional Fall Swapfest
https://www.ozaukeeradioclub.org/

9/22/2023 – Milwaukee – HRO Superfest, ARRL Wisconsin State Convention – September 22nd and 23rd
https://www.hamradio.com/

9/24/2023 – Belvidere, IL – Chicago FM Club Hamfest - 2023 Radio Expo
http://chicagofmclub.org/radioexpo/radioexpo2023.html

Ozaukee Radio Club Minutes of Membership Meeting. 07/12/2023
de: Ken W9GA, Secretary

The monthly ORC meeting occurred at the senior center as we have returned to live in-person meetings, along with a streaming version held via Zoom. ORC President Bill K9GN began the meeting at 7:30 PM, with actual members attending, a go-around was conducted. Zoom attendees were also in attendance and were also introduced. Bill reminds us that we still need help with the technical committee, and an auctioneer. [joking that the winner of the 50/50 raffle automatically becomes the auctioneer]

Program:

Fred W9KEY gave a talk on the annual Fieldhouse event, which will be running this August 18-20, 2023. It is a joint event run by ORC and LeFrog and will be set up at the Port Washington lighthouse once again. The event originated in Scotland in 1993, grew in popularity in the EU and then internationally. Recent participation was over 450 stations in 50 countries. It is not considered a contest but an operating event. Plans are to have 3 basic HF stations set up next to the museum at the lighthouse in Port and operate during the daylight hours for the weekend. ORC members are encouraged to take part.

50/50 Raffle: This was won by Gary N9UUR {?} ; winning an award of $13.00.

Scholarship Auction: There was a small auction, featuring a Bioenno battery and left over FD soda cans in 'packs.'

Committee reports: [there were no Tech, and no RPT VP reports.]

1st VP: Jeananne N9VSV taking orders for badges [$10] and mugs [$33]

Treasurer: Gary N9UUR provided reports on the tables. Some FD expenses have been paid, others are outstanding, FD rent was $195, overall balance still above $5K overall balances are >$40K. The June treasurers' report was accepted; motion by K9QLP; 2nd by W9KEY & carried.

Secretary: W9GA reported that the June 2023 minutes are posted, a motion to accept was made by N9VSV; 2nd by KC9TSO & carried.

Scholarship: W9JI reports that the ARRL foundation had a poor year for investment returns in 2022, leading to a situation where we did not issue a scholarship for the current year [2023] Pat had no other statistics concerning endowment performance at ARRL, but the report is available.

OLD business: W9JI has dropped by AA9W's home, to give him the president's award, and was pleased to get it. Also discussed was the process of posting presentations on YouTube, as there could be copyright issues.

NEW business: N9UUR has submitted our club FD entry to the ARRL; he also reiterated other facts from the posting. We did miss out on the solar QSO's due to a technicality. We can also count any member entries that were submitted separately toward our aggregate club entry. W9JI will be asking for pictures from individual members on their FD efforts from their separate sites.

Adjournment: W9IPR moved to adjourn, N9DRY 2nd, motion carried; time end was 8:46 PM. There were 18 in-person attendees, 12 Zoom attendees.

Respectfully submitted,

Kenneth Boston W9GA, Secretary

Sometimes you just get stumped!!!

Remember – you have fellow ORC Members all around you that have "been there, done that."

Classified Advertising
For Sale & Wanted Items
Ozaukee Radio Club Members

de: Bill Shadid, W9MXQ

For Sale: Uniden Bearcat SDS100 Portable Digital Scanner.
Comes with radio, antenna, charger, manual, belt clip, extended battery.
https://uniden.com/products/sds100 Asking $500 (retails for $650).
Contact Paul Martis, W9PEM at 630-551-8155 or at W9PEM@digitalmisery.com

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For the Asking: Rohn 25G Tower Sections.
Four Regular Sections plus a Top Section – for pickup at my Port Washington, WI, QTH.
Contact Gary Drasch, K9DJT, at gary.drasch@k9djt.com

Do you have an old radio that needs a home?

Classified Adverting for Ozaukee Radio Club Members is a new feature. Only contact advertiser for details. The Newsletter editor has no knowledge of any sale items (unless he is the seller!!). Ozaukee Radio Club is not responsible for any purchases and cannot be involved in any buyer/seller agreements or disagreements – all sales are final other than what you work out between the buyer or seller. Advertisements will be accepted up to the 10th of the month before Newsletter publication.

Advertising from non-ORC Members not accepted at this time.

Advertising works!! The Heathkit SB-104A HF Transceiver advertised last month was SOLD.

Upcoming ORC Monthly Meeting Programs

de: Pat Volkmann, W9JI

August – Ken W9GA – Field Day Reports from the Club and Members
September – Bruce AC4G – Report on a DXpedition
October – Janice KA9VVQ and Bruce W9FZ – "Getting on the Air and Having Fun with Roving!"
November - Jeananne N9VSV – Collecting Amateur Radio Themed Stamps

Please consider sharing some of your experiences with the rest of us. If you have an idea and would like some help putting a program together let me know at orc_pat_w9ji@outlook.com.

Creating a Presentation

We are fortunate to have a number of very talented people in our club, many of whom have shared their knowledge through a presentation. Share your expertise and experience with the club. Programs can be on any topic that is ham radio related.

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

Contact Pat Volkmann, W9JI, at orc_pat_w9ji@outlook.com to discuss your idea for a program.

ORC Meeting Agenda

August 9, 2023

1. 7:15 – 7:30 PM
   Check-In and Introductions
2. 7:30 PM Call to Order:
   President Bill Greaves (K9GN)
3. Announcements, Bragging Rights, Show & Tell, Upcoming Events, etc.
4. Ken Boston, W9GA
   ORC 2023 Field Day Report
5. President's Update:
   Bill Greaves (K9GN)
6. 1st VP Report:
   Jeananne Bargholz (N9VSV)
7. Repeater VP Report:
   Tom Trethewey (KC9ONY)
8. Secretary's Report:
   Ken Boston (W9GA)
9. Treasurer's Report:
   Gary Bargholz (N9UUR)
10. Committee Reports
11. OLD BUSINESS
12. NEW BUSINESS
13. Adjournment

This Month's ORC Meeting
Hybrid In-Person/Zoom Meeting
9 August 2023

Program:
Ken Boston
ORC 2023 Field Day Report

7:00 PM – Doors Open

7:15-7:30 PM – Zoom Check-In

7:30 PM – Meeting Begins

NEXT MONTH
Hybrid In-Person/Zoom Meeting
9 August 2023

Program:
Bruce Smith AC4G
Report on a DXpedition

ORC 17th Annual Regional Fall Swapfest

Test Equipment, Radios, Antennas, Accessories, Tools, Hobby Stuff & More

Saturday, September 9th, 2023

Firemen's Park (W65 N796) on Washington Avenue in Cedarburg WI 53012

N 43° 18.283' W 087° 59.500'

Setup and general admission from 6am to noon – Door prizes

Refreshments available inside the exhibit hall

$5 admission at the gate – buyers and sellers – 12 & under free

Just park on the grounds and sell your stuff or just browse & buy their stuff

Inside tables $10 as available (5 for $40) – ARRL and any Commercial Vendors are typically inside.

Go to www.ozaukeeradioclub.org or

Facebook.com/orcwi

For more information call

262-377-6945 (h) (W9IPR)

262-844-6331 (c)

Talk-in @ 146.97 PL