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

| Volume XLII | October 2024 | Number 10 |
|---|---|---|

# From the President

**de: Bill Greaves, K9GN**

Have you been to the ORC website lately? You will be amazed at the change from just a few months ago. At the September club meeting, the membership approved a modest increase in the fixed costs to support the new upgraded website. This effort has been in development for several weeks by Gregg Lengling W9DHI, our webmaster, and Brian Jensen WA9QLQ, who have donated to the club the 2024 development expenses, in addition to their time. Visit www.ozaukeeradioclub.org and do some browsing; check out the ORC swag!

Volunteers are needed for the ORC STEM Kit-Building event. This STEM Committee event for middle and high school students is scheduled for Friday and Saturday, October 18th and 19th at the West Bend library from 9:00 am until 1:00 pm with lunch provided. Please contact committee chair Pat Volkmann W9JI (stem_contact@ozaukeeradioclub.org) or myself (president@ozaukeeradioclub.org) to be on the list for more information. About ten young future hams are anticipated each day to build an FM radio from a kit. ORC has taken the lead on this project with the library who obtained a small grant from the ARDC (Amateur Radio Digital Communications) foundation to purchase the kits, soldering stations, safety gear, etc. We look forward to your participation on one or both days.

Quiz Time: What has over 220 items owned by your club? The Club Inventory. For many months Jeananne Bargholz N9VSV has been diligently collecting and organizing into a spreadsheet all of the club-owned items. She has been helped by Nate Seidler KC9TSO with the Field Day gear in and about the trailer, by Tom Trethewey KC9ONY and Gregg W9DHI with all of the repeater equipment, and by Tom KC9ONY and Tom Ruhlmann W9IPR with the Swapfest items. Many others have contributed to this effort. I can still

hear Jeananne asking, “Who has the keys for …?” until they were miraculously identified. This is an important effort for the efficient functioning of the club, and we thank Jeananne for all her efforts.

The October club meeting will be special. The Program for the meeting will be **“Project Night (A Collection of Short “Show and Tells”)”** with Presenters: Paul Martis W9PEM, Bill Shadid W9MXQ, Pat Volkmann W9JI, Gary Sutcliffe W9XT, John Livingston WE9F, and Fred Schwierske W9KEY. The membership meeting will be Wednesday, October 9th both in-person and on zoom at 7:30pm, with meet-and-greet at 7:00pm, at the Grafton Senior Center or on zoom. See you at the meeting.

73,
Bill K9GN

**Wallpaperaccess.com**

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

Please note Club President, Bill Greaves, K9GN, on Page 1 for his monthly message. I would like to add my congratulations on the new website.

Special Editor's Note this month. This October issue is the first using macOS (in an Apple MacBook Air computer) to write the Vintage Amateur Radio column and produce the entire Newsletter. A sincere thanks to my article proof reader, Bob, W9DYQ, and our own Gary, N9UUR, for putting up with some odd operating questions – but it all went well.

Check out the information provided by Tom Ruhlmann, W9IPR, with his report about the recent Ozaukee Radio Club Fall Swapfest. As he says, "Again a Success!"

Back are Ozaukee County ARES and Computer Corner Columns, respectively. AA9WP, talks further about WINLINK. WB9RQR talks about Upgrading to Linux Mint 22 (Wilma).

Check out Gary Sutcliffe, W9XT, as he gives us a look at "On the Air Activities!" for September and early October. Note his mention of the Ozaukee Radio Club Fall Swapfest that is happening this weekend.

Bill Shadid, W9MXQ, your Newsletter Editor, expands on last month's treatment of the Collins Gold Dust Twins – and hints at a possible third installment in the future.

Tom Trethewey, KC9ONY, is back with local and regional Upcoming Events. Fall is officially here so catch those hamfests before they take winter vacation.

See the entries in the Classified Advertising section – with some revised pricing..

Check out Ken Boston, W9GA, and his Secretarial Report for the Ozaukee Radio Club September 2024 meeting for your review.

Finally, check out the items from Jeananne Bargholz, N9VSV. Jeananne gives us a window on this month's program at next week's regular meeting as well as upcoming programs. Be sure to look at the Swag pages as well!!

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

73, Bill Shadid, Newsletter Editor

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## Onward To the Newsletter

# The 2024 Fall Swapfest was again a Success!

**de: Tom Ruhlmann (W9IPR)**

Why was it a success? It was a combination of the volunteers, browsers, and vendors.

First I want to recognize and thank the volunteers: Fred Schwierske (W9KEY), Garry Sutcliffe (W9XT), Bill Greaves (K9GN), Pat Volkmann (W9JI), Mark Tellier (AB9CD), Bob Schatzmann (WI9BOB), Todd Fast (N9DRY), Gary Bargholz (N9UUR), John Thielen (WA9KNY), Dennis Hafemann (KE9MAX), Mike Harrington (KD9GCN), Jim Albrinck (K9QLP), Jeananne Bargholz (N9VSV) and myself.

A couple of the volunteers warrant special recognition and thanks those being Jim Albrinck (K9QLP) who handled all the "grounds" issues; Mike Harrington (KD9GCN) who supplied all the audio for the drawings and announcements with his personal equipment and Gary Bargholz (N9UUR) who handled all the financial matters as well as admissions starting at 6:00 AM.

The volunteers did a great job as we were 6 volunteers short of a full crew which placed much pressure on the admissions and parking early crews who continued into the second shift.

Several of our volunteers and other members also participated as vendors and "browsers" all of whom added to the success of the event.

While we did not have any commercial vendors we had 36 selling "good stuff" from their vehicles and tables. A couple of the vendors donated a few items to the Scholarship/STEM table. Those items were sold. One of the items was a test set that can be used by Gregg Lengling (W9DHI) in his maintenance of the ORC repeater system.

Many thanks to Rod Kleist (WB9AZH) who had the presence of mind to take pictures at the Swapfest to share with the group.

Our paid attendance was $955 so we were able to put $543 in the club treasury and the Scholarship/STEM project equipment sales were $510. It was a fun time and a financial success. Thanks to all!

See more pictures on the following pages . . .

**(Editor's Note – all pictures in this article are credited to WB9AZH.)**

# OZARES: Ozaukee Amateur Radio Emergency Services

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

## WINLINK SoundModem software TNC

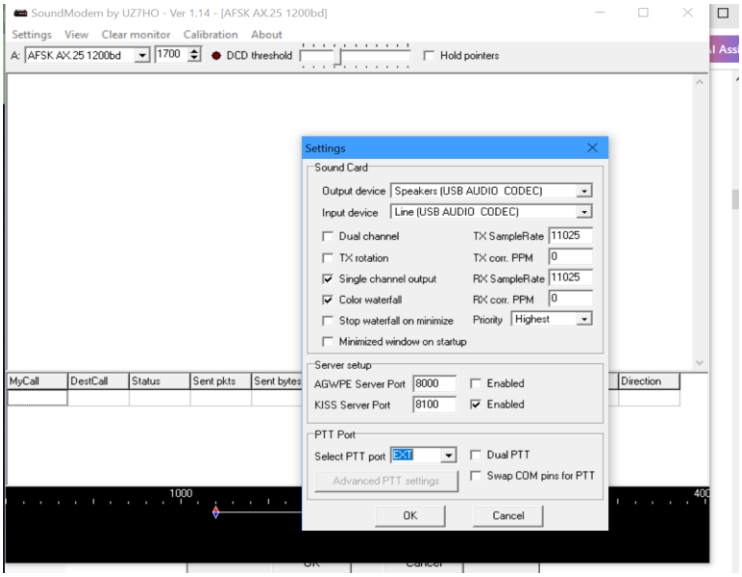
Last month we covered the basic registration for the WINLINK system and how to send a message using Telnet or basically an internet connection.
This month we will cover using a radio connection and we will start with basic Packet.

The packet radio mode is implemented by using either a hardware or software Terminal Node Controller or TNC. The TNC is responsible for taking the digital signals from a computer (or in earlier versions, a dumb terminal) and converting them into audio signals for transmitting. And the reverse, taking audio signals from the radio and converting them into digital signals for the computer for receiving.

Because of the variety of hardware TNC's we will not be examining their setups. This article will focus on a software packet TNC from UZ7HO named SoundModem. The sound card is one additional piece of hardware needed. Sometimes the sound card may be part of the radio or external to the radio. Next month we will look at the Signalink Sound Card.

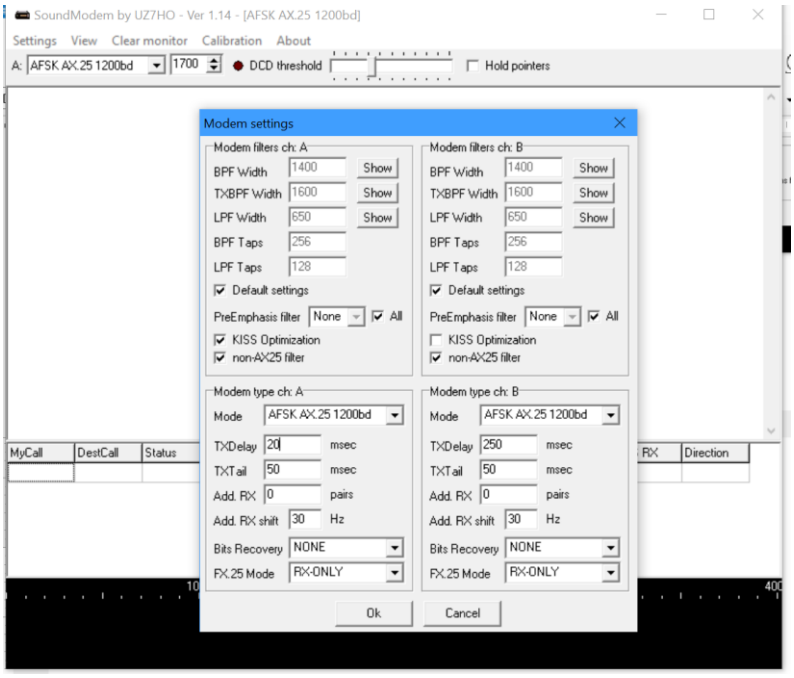
The UZ7HO SoundModem can be downloaded from http://uz7.ho.ua/packetradio.htm. Download the soundmodem###.zip file, as of today it is soundmodem114.zip. Extract the program into a file you have created on the C:/ Drive. Give it a name so you can easily locate it. You may want to create a short cut on the desktop as well.

Run soundmodem.exe and select Settings/Devices on the toolbar and the following will open.



The input and output devices must be your USB Audio Codec audio devices or Signalink in our example. Check the Single channel output; Color Waterfall; Kiss Server Port Enabled. Kiss Server Port should be port 8100 and PTT Port Ext. The input device is your microphone input, and the output device is your speakers. Of course, your SoundModem speaker output is going to your radio microphone input and the SoundModem microphone input is going to your radio speaker output. It is easy to get a little confused about you in's and out's sometimes.

Next we will go to Settings/Modems and this window will open:

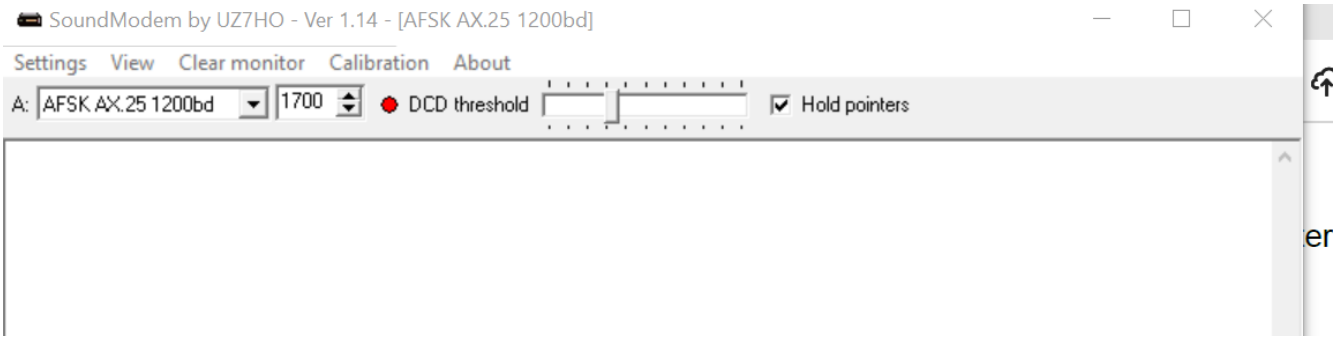



We will be setting up Channel A only.

Check Default Settings; KISS Optimization and non-AX25 filter.
Mode must be AFSK AX.25 1200bd

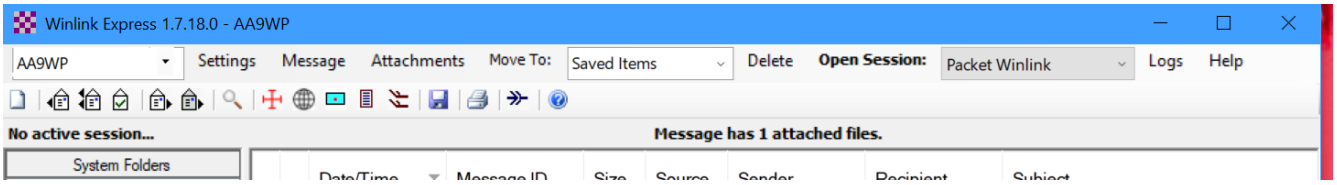
Transmit delay and tail can be left as is.

Click OK and return to the SoundModem main page:

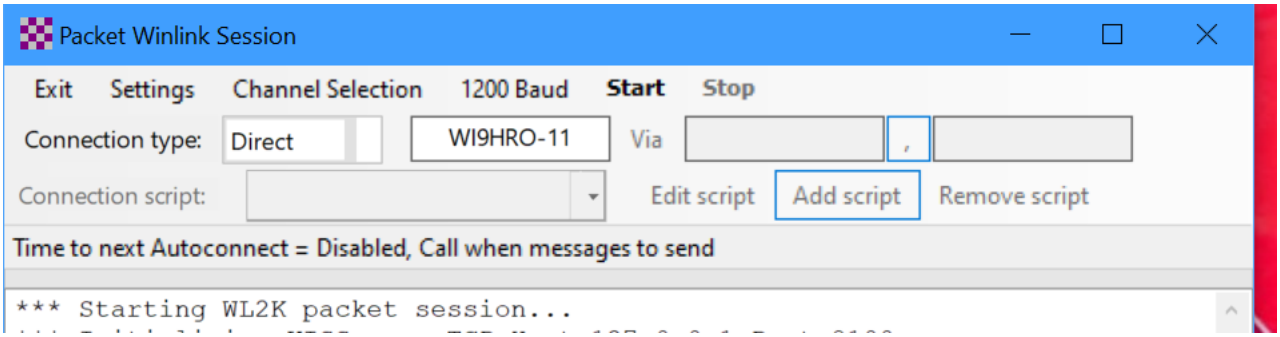



Verify Channel A is selected for AFSK AX.25 1200bd, the center channel is at 1700 and Check Hold pointers.

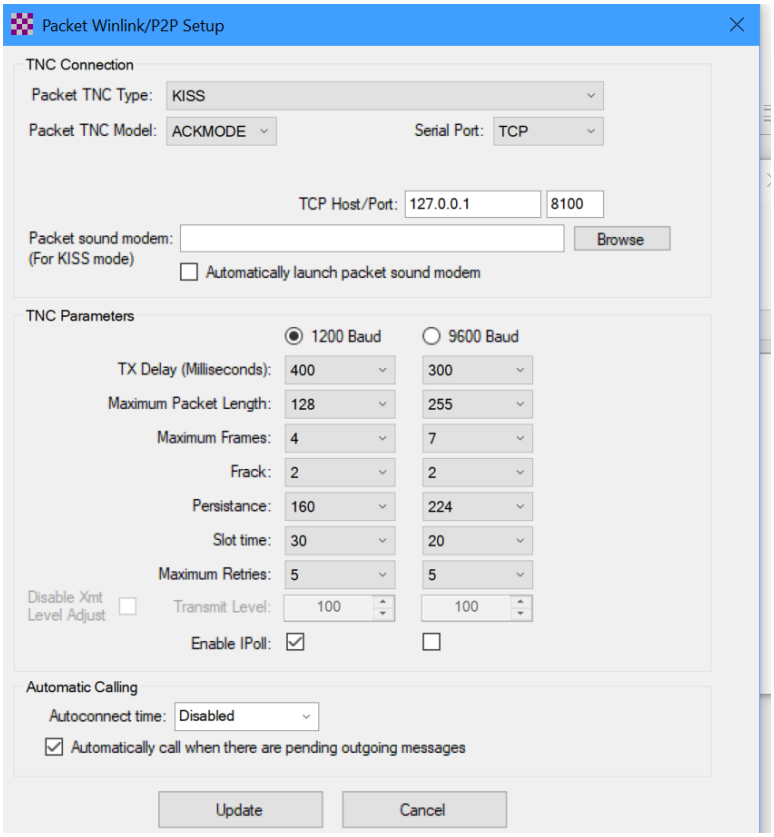
Now open WINLINK Express and change Open Session to Packet WINLINK




Click on Open Session and the following opens:

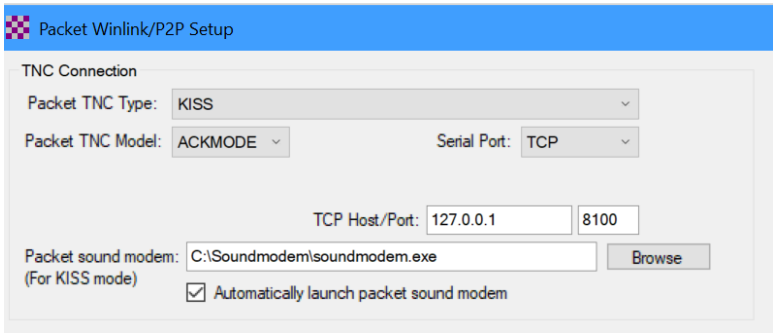



Go to Settings to open this:




Go to the Packet sound modem window and Browse for your soundmodem.exe file. Then check Automatically launch packet sound modem. 1200 Baud should be selected, and the others may be left at their default values. Insure that the TCP Host/Port is 127.0.0.1 and 8100.

It should look like this:




Now when WINLINK Express is opened for a Packet Session the soundmodem.exe file will also open.

Next month we will look at setting up and connecting the Signalink between the computer and the radio. There are several sound adjustments, on the Signalink, the computer and the radio, that we will look at as well. I think that is more than enough for now.

73,

Don AA9WP

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## OZARES Repeaters:

- 147.330 MHz (+ Shift) (127.3 PL)
  - FM Mode Only
- 443.525 MHz (+ Shift) (114.8 PL)
  - FM Mode Only

## ORC Repeaters are On the Air Awaiting Your Call:

- 146.97 MHz (- Shift) (127.3 PL)
  - FM Mode Only
- 224.18 MHz (- Shift) (127.3 PL)
  - FM Mode Only
- 443.75 MHz (+ Shift) (127.3 PL)
  - FM & Fusion (C4FM) Modes

# THE COMPUTER CORNER
# No. 319: Upgrading to Linux Mint 22 ('Wilma')

**(Cleaned up and simplified from the Linux Mint User Guide.)**
**de: Stan Kaplan, WB9RQR, 715 N. Dries Street, Saukville, WI 53080-1664**
**wb9rqr@gmail.com**

Wilma was released in July 2024; you can download a copy (.iso) for a fresh install, or if you already have 21.3 on your machine, you can upgrade it to Version 22. To upgrade:

1. You must start with **21.3** for an upgrade. Anything below 21.3 will require a complete, fresh installation (which is not covered in this writing).

2. Refresh the cache. Open a terminal and type: ***apt update*** and press Enter.

3. Install the upgrade tool. In the terminal, type: ***apt install mintupgrade*** and press Enter.

4. Launch the upgrade tool by typing (in the terminal) ***sudo mintupgrade*** and press Enter.

5. Upgrade to Linux Mint 22 'Wilma' will appear in a box on your screen, along with the green Linux Mint logo. Read the box contents and click the Let's go! Bar. Follow all instructions on your screen, to the letter. When the tool is done and the upgrade is a success, do the following:

6. In the terminal type: ***apt remove mintupgrade*** *and press Enter.*

7. In the terminal type: ***sudo reboot*** and press Enter.

8. This is a major upgrade that can take several hours. If you don't have many personal file on the machine, it is probably easier and even quicker to copy the files to a thumb drive or DVD and then do a fresh installation (boot with a bootable thumb drive or DVD with the installation file (.iso) on it and have it install version 22). Then you can copy your files back to your computer and save the DVD or thumb drive as an off-computer backup.

Happy Computing!

# On The Air Activities!

**de: Gary Sutcliffe, W9XT**

Radio conditions were good in September. We had a few days with high K indices that caused poor conditions. High K levels convinced me to postpone a six park POTA operation. Even with good propagation, operating QRP with a marginal mobile whip is challenging. I didn't want to struggle to get my minimum QSO requirements after driving so much.

But we can see that we are approaching fall conditions. The high bands are getting better for long distance DX, and bands like 20 and 17M are staying open very late, maybe all night. On top of this, October is usually considered the best month of the year for propagation from this part of the world.

The only contest I operated in September was the CQWW RTTY contest. I wanted to try out a new radio on the mode. After spending too much time getting every setting in N1MM+, MMTTY, and the radio right, it was a lot of fun. I didn't expect it, but I had short runs where the rate was over 100 QSOs/hour. I had a run for about 20 minutes that was close to 150 QSOs/hour. Just try doing that on FT8!

I was not serious about the contest and just operated a few hours here and there but ended up with about 575 contacts in the low power assisted category. I know many ORC members operate FT8. It is simply different software to operate RTTY. I find it more fun than FT8, and if you are into keyboard-to-keyboard rag chewing, you can do that on RTTY but not FT8.

The solar flux was just under 200, and the K index was low for the CQWW RTTY weekend. That is probably about the optimum for a DX contest. If the solar flux increases, 10 and 15 meters will be better, but 20 meters and below will suffer. Of course, you want a low K index regardless of the solar flux. A solar flux of around 200 allows many bands to be productive.

The fall contest season starts at the end of October. Barring some solar flares at inopportune times, it could be one of the best seasons in decades.

Hopes are still high for some 6 meter $F_2$ DX propagation starting later this month. We will see. Ideally, we would like to see the solar flux hit 250 or even higher, but that is yet to be seen. It has been a long wait since the winter of 2000-2001 when we last had consistent $F_2$ propagation on the Magic Band.

Last month, I suggested that Technician class members take advantage of getting on 10 meters this winter since that is the only band they have phone and data privileges. You still have time to put up a dipole or converted CB vertical antenna. Opportunities like this only come around about every 11 years at best, and it might be several 11 year sunspot cycles before we see such good conditions again.

**The K9DJT Antenna Trailer**

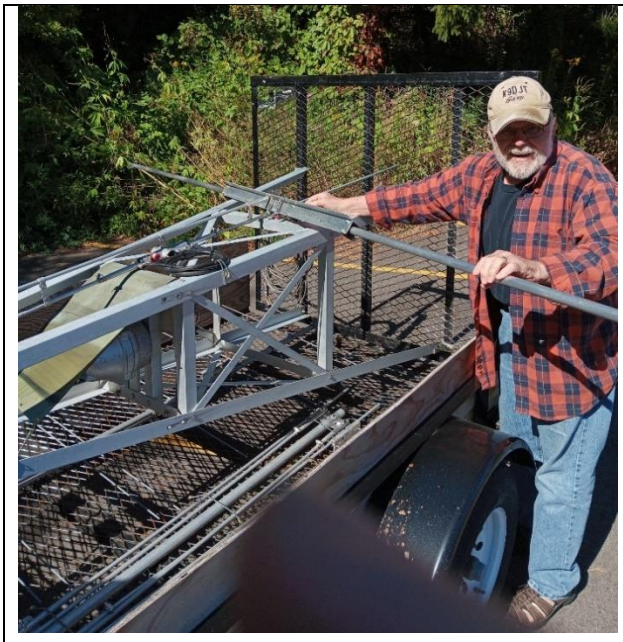
Gary, K9DJT, finished his portable antenna trailer. I got a sneak preview of it. It is a slick design. It is not as big as the tower trailers the ORC uses for Field Day, but rather a lightweight system that is easy to haul and can be set up quickly by one person. The tower is attached to the rear gate. Swing the gate down, and the tower goes up. It has a rotator, so he does not have to use the Armstrong Method to change directions. Gary then operates from the back of his SUV.

**Rear view of the K9DJT trailer showing the tower mounted to the rear gate**

**Part of the rotatable HF dipole showing quick assembly markings.**

The primary purpose of the trailer is to operate 6 meters from different grids during the sporadic E season in the spring and early summer. He also has a rotatable dipole for several HF bands. The individual sections are marked for the different bands, so it is easy to set up. Gary estimates it takes about 10 minutes to set the system up.

When you see Gary, ask him when he is going to grid DL88. It is an exceedingly rare grid for many reasons. It is at the Texas/Mexican border, and only a tiny section of it is in Texas. It is a US park, but they don't want people going there because of the danger from cartel gangs. The temperatures are over 100° during the best propagation times to make it even less inviting. Oh yeah, you can't run a generator there, so it all has to be



**Gary, K9DJT, showing his antenna trailer. He is holding the boom for the 6M beam.**

**Gary showing the tower in the upright position.**

Battery powered. Forget the AC. Gary has been pretty non-committal about heading there. I even offered to chip in for gas for his trip!

Excellent job, Gary! Maybe we can make a joint 6M grid/POTA operation next spring.

**ORC Fall Swapfest and HRO Superfest**

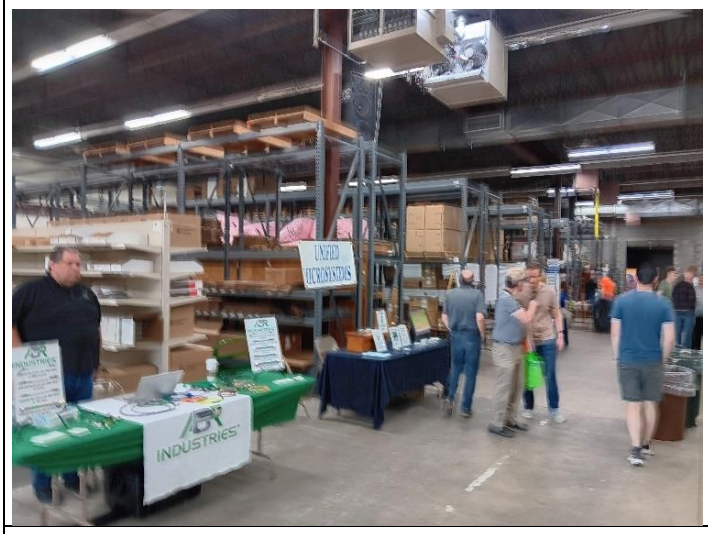
September was busy with a couple of local events. First off was the ORC Swapfest. We had great weather and a good turnout. I believe there is a separate write-up in this issue.
Later in the month was the HRO Superfest. The ORC had a booth there. I know Jeananne, N9VSV, and Gary, N9UUR, were there publicizing the club. I'm sure that other members also helped out. I was pretty much tied to my Unified Microsystems booth and didn't get a chance to wander around much. It was fun talking to members that stopped by.

**The weather was great for the ORC fall Swapfest.**

**DX**

Last month, I mentioned a DXpedition to Somalia. This is a dangerous country with no real

government. I had my doubts it would happen. The operators had documents from various authorities. When they arrived, the equipment was seized, and apparently, they were held for about a week. They described the experience as "harrowing." They are now back in Europe and promised to tell the whole story when they return home safely.




**A portion of the HRO Superfest**

Despite our image as a bunch of old men sitting in their basements in front of a radio, the hobby has some segments that are anything but sedate, whether from DL88 in Texas or Somalia in Africa.

Quite a few interesting DXpeditions are coming up in the next month. First up is Svalbard by Norwegian hams. They will use the call sign JW5X during the Scandinavia Activity Contest on October 12-13 and separate calls around the contest from October 10-14. The SAC is an excellent time to work the northern European countries. There is usually a lot of activity, and we have good propagation to that area in the morning on the high HF bands. I have never operated it seriously, but it can be fun to put in a couple of hours. We only contact the Scandinavian countries. The exchange is the signal report and a serial number starting with 001.

A large group of German hams will head for Nauru in the Pacific. The dates are October 10-29. They will be running five stations. Look for the callsign C21MM. Check out their website. There is a lot of information on this operation. The link is in the chart following this column.

Another Pacific Island will be activated by a US group from Vanuatu as YJ0VV. They will be on for the CQWW Phone contest at the end of October.

Yet another CQWW contest operation is planned by an international group of hams to the African country of Malawi. Their callsign is rather unusual, 7Q1. That is correct. No suffix. 3DA0DL will be on the air from the Kingdom of Eswatini, a landlocked country within South Africa. You may be more familiar with its former name, Swaziland. They changed the name in 2018. A German group is putting this on from October 25 through November 9. They will have five stations on the air. Although I didn't see any information stating so, I expect them to be on for the CQWW contest.

Burkina Faso will appear on the bands from October 31 through November 11 as XT2MD. I don't have much info on this, except there will be 14 operators concentrating on the low HF and WARC bands.

The DXpedition that really caught my attention is to Cocos Keeling under the callsign VK9CV. The group is comprised chiefly of Czech and Slovakian hams. This one has a tough path from Wisconsin. I need it on a lot of bands. With the current solar conditions, this is the best time to catch them on the higher HF bands.

As usual, there will be many contest DXpeditions for the CQWW Phone contest. Look for them on the bands starting the week before the contest as they test their gear, learn the propagation, and wait for the contest to begin.

**Contests**

The fall contest season starts in October. Earlier, I mentioned the SAC contest as a warmup. Another good one for that is the California QSO party. That runs on October 5 and 6. Basically, the world works California. We give a serial number and our state. They provide a serial number and their county.

I have never operated the CQP seriously, but I get on and make some contacts most years. There is a lot of activity. In past years, they gave bottles of Californian wine to top scorers. I didn't see anything about that this year. End of an era?

Check out the rules if you plan to operate. Also, print out a copy of the California counties and their abbreviations.

The CQWW DX SSB contest is the biggest contest of the year based on activity. It is a free-for-all where you can work anyone outside your country for points. This brings out the rarer countries and DXpeditions.

The exchange is a signal report and CQ Zone. We are in Zone 4. Multipliers are zones and countries per band. QSOs with other North American countries are worth two points and contacts to other continents are worth three points. Be sure to work one US contact on each band to get the country multiplier plus the zone if you don't work a Canadian station in the zone. The contacts with the US stations are worth zero points, so only work them if you need the multipliers. Work US stations that call you and log them. They need you for a multiplier. Alaska and Hawaii count as DX countries.

If you are chasing new countries but not a contester, this is an excellent contest to get on to pick up new ones. As I mentioned, there are many countries active. Some of them are common during contests but relatively inactive between them. Getting on Sunday when the pile ups are down is an effective technique, especially for smaller stations.

Ten meters should be really exciting this year. Expect to hear Europeans during the mornings from 28.300 to 29.500 MHz and maybe higher. If you never experienced that, it is something to behold. Find a clear frequency high up in the band. You might be surprised by how many callers you get, even with a small station. Fifteen meters should also be excellent.

The ARRL Sweepstakes (CW) is the first weekend of November. That used to be my favorite contest. I think SS is a contest where a small station with superior skills can beat bigger stations with less operator skill. Part of this is because low antennas can effectively compete with bigger antennas up high. The other part is that the exchange is exceptionally long and is not static like most contests. That puts a premium on CW skills.
Read the rules about the exchange, times off, etc.

Unfortunately, I have another event that weekend and must split my time between them.

**Hamfests**

The last local hamfest of the year is the MRC91 Friendly Fest on November 2. It is at the Elks Club on Good Hope Road, across from HRO.

That wraps up the October installment of OTAA. The cool weather makes it a good time to finish up your antenna projects in preparation for great fall and winter radio conditions.

**BLOGSPOT.COM**

Check Next Page for W9XT's DXpeditions, Contests, and Events for October and Early November 2024.

# W9XT's DXpeditions, Contests, and Events for October and Early November 2024

| W9XT's DXpedition picks for October and early November 2024 | | | | | |
|---|---|---|---|---|---|
| **QTH** | **Dates** | **Call** | **Bands** | **Mode** | **Link/notes** |
| Svalbard | Oct 10-14 | JW5X plus others | HF | SSB, plus? | SAC SSB contest |
| Nauru | Oct 10-29 | C21MM | 160-6 | CSD | https://c21mm.mydx.de |
| Vanuatu | Oct 16-30 | YJ0VV | 160-6 | CSD | QRV CQWW SSB |
| Malawi | Oct 24 – Nov 2 | 7Q1 | 160-10 | CSD | QRV CQWW SSB |
| eSwatini | Oct 25-Nov9 | 3DA0DL | 80-10 | CSD | |
| Burkina Faso | Oct 31-Nov 11 | XT2MD | Focus on low and WARC bands | CSD | |
| Cocos Keeling | Nov 1-15 | VK9CV | 160-6 | CSD | https://vk9cv.com |

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

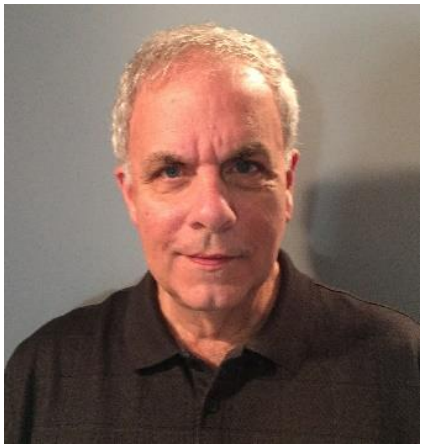
| W9XT's contest picks for October and early November 2024 | | | | | |
|---|---|---|---|---|---|
| **Name** | **Start** | **Length** | **Bands** | **Mode** | **Link** |
| California QSO Party | 1600Z, Oct 5 | 30 hours | 160 + HF | CW, SSB | www.cqp.org |
| CQWW DX SSB | 0000Z, Oct 26 | 48 hours | 160 + HF | SSB | www.cqww.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 October and early November 2024 | | | |
|---|---|---|---|
| **Event** | **Dates** | **Details** | **Link/notes** |
| MRC91 Friendly Fest | Nov 2 | Elks Club, 5555 W. Good Hope Road, Milwaukee | https://wi9mrc.org/ |

# Vintage Amateur Radio

**de Bill Shadid, W9MXQ**



Continuing with this article, we go further with the revisit of the Collins Gold Dust Twins (abbreviated in this article as GDTs). As said before, that refers to the 75A-4 Receiver and the KWS-1 Transmitter from 1955. “Gold Dust Twins” is a term used by hams relating to the station’s high price back at the time of its introduction. It applies to its resale value to this day. You will often hear me refer to Collins equipment as having “desk presence” and this set sure does keep to that promise. You will see that term come up in later article on Collins equipment and with some of its competitors from the 1950’s and 1960’s. Here is the complete station used in writing this and the previous article – shown here again in this installment, for your reference.

**A repeat picture from Part 1 of this installment.**

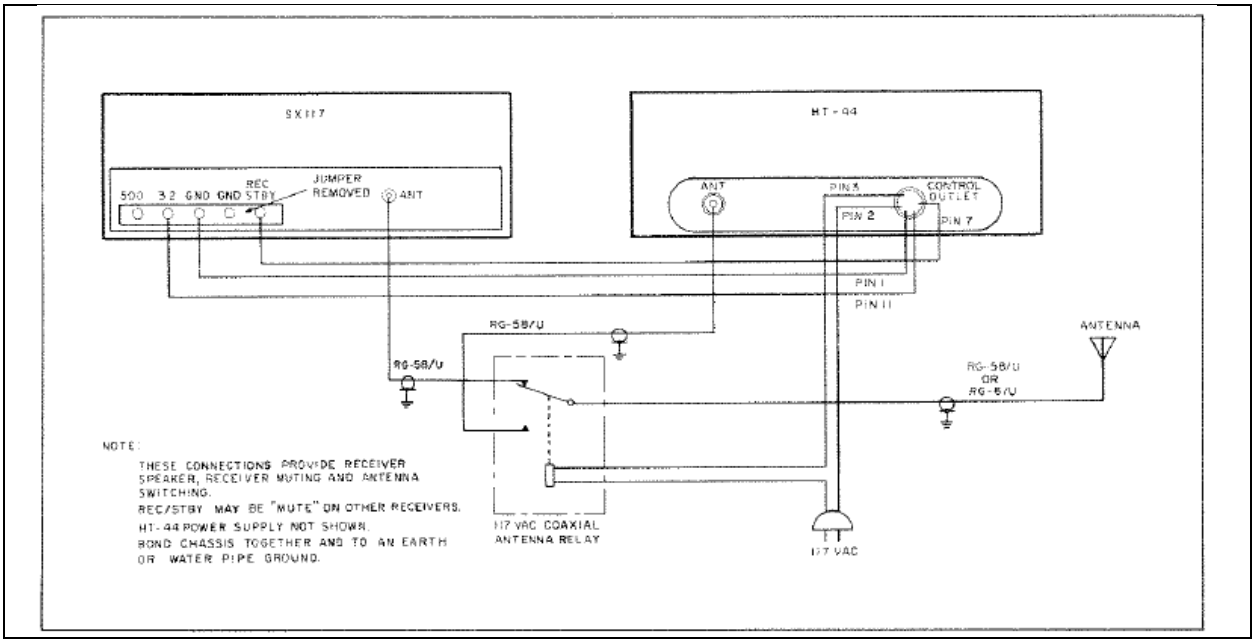
**Left to Right are the KWS-1 Transmitter Power Supply (floor mounted in this installation), the Collins KWS-1 Transmitter RF Unit, the Collins 270G-3 Speaker Console, and the 75A-4 Receiver.**

Typically, when setting up a classic station with a tube receiver and tube transmitter there are considerations of the following connections:

1. Receiver/Transmitter switching relay.
    a. Antenna input coaxial line to relay common connection.
    b. Relay coaxial line to receiver – for when the station is in receive.
    c. Relay coaxial line to transmitter – for when the station is transmitting.
    d. Two wire feed to activate the relay coil.
    e. Relay auxiliary contacts to facilitate muting the receiver when transmitting.

Following here is a diagram of the interconnections required on a Hallicrafters SX-117 Receiver (left side of the picture) and the HT-44 Transmitter (right side of the picture). The Hallicrafters radios were typical of most SSB/CW radios of the 1960’s and 1970’s where the auxiliary contacts (“e” in the previous listing) were included with internal

transmitter switching. Many AM/CW setups from various manufacturers (Hammarlund, Johnson, Hammarlund, National, etc.) required auxiliary contacts on the external antenna relay.




The above is from the Hallicrafters HT-44 Operating and Service Manual (about 1964) and is shown to demonstrate its simplicity in comparison to later showing the complexity of the interconnections between the Collins 75A-4 Receiver and Collins KWS-1 Transmitter. That said, to not be concerned over the lack of clarity in the picture – it is shown only for reference. Note the following list of connections:

SX-117 Receiver:

- Three control lines
- One coaxial cable line (antennas)
- One ground connection (not shown)

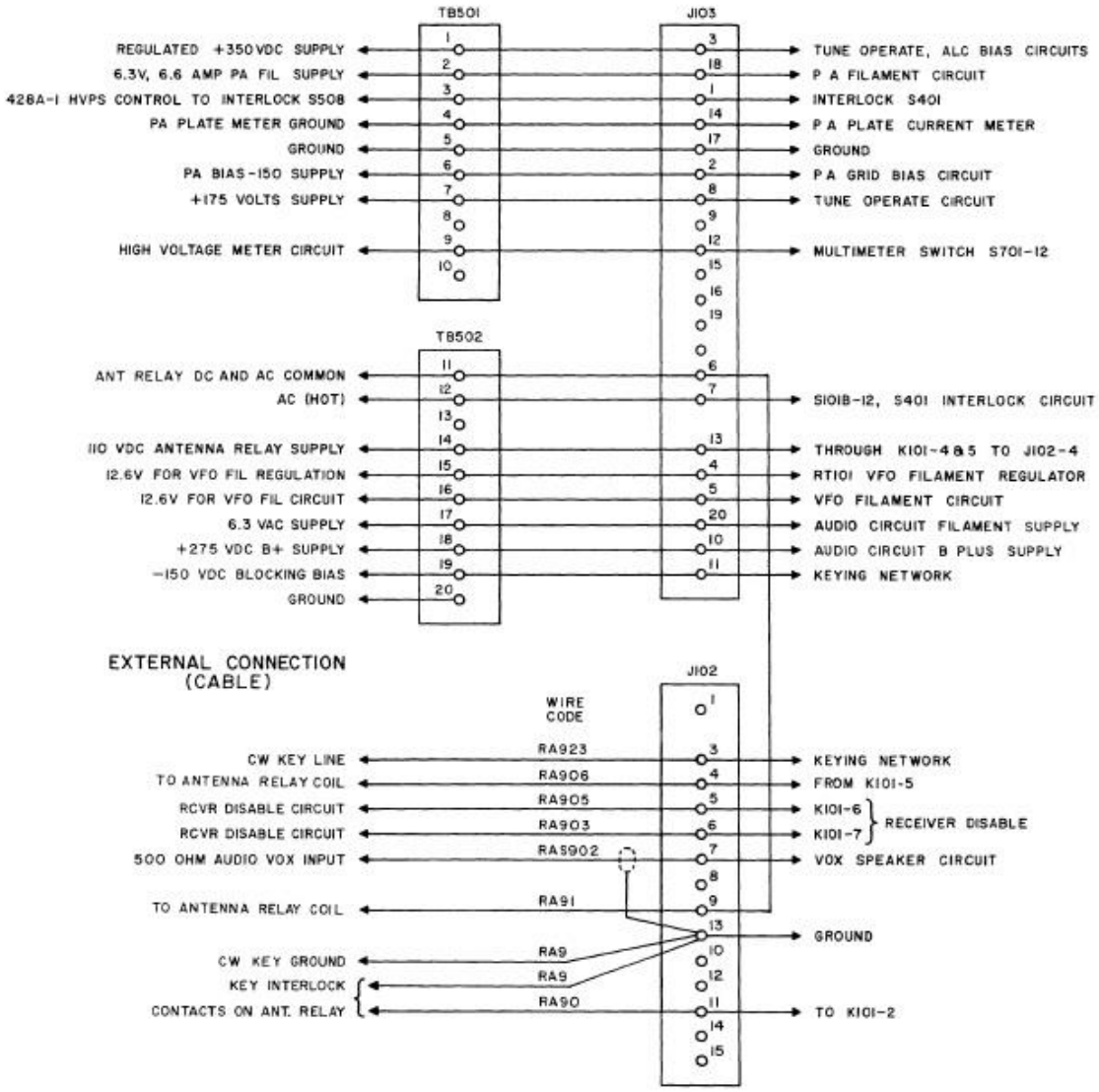
HT-44 Transmitter

- Five control lines (into an octal connector)
- One coaxial cable line (antenna)
- One ground connection (not shown)

Above said, we will now look at the interconnection setup for the interconnections between the three components of the GDTs installation. There are three units with one being in two pieces. Here is the list for reference in looking at the illustrations. Also look at the complete station setup to see the units as they appear when operating the station. As you will see there are four cabinets that perform as three units.

- KWS-1 Transmitter
    - KWS-1 RF Unit
    - KWS-1 Power Supply Unit
- 75A-4 Receiver
- 270G-2 Speaker Console

Reference this diagram for descriptive information to follow. The cable to the “Supply Circuits” on the back of the RF Unit, coming from the Power Supply Unit, is shown as J103, below. The cable exiting the RF Unit from the “Control Circuits” connector (J102, below) on the back of the RF Unit go to various connection on the receiver and elsewhere will be described. Keep this diagram in mind for reference.




**Collins KWS-1 Operating Manual, 7th Edition, Figure 7-2, on page 7-7.**

Here is the back of the RF Unit . . .

**Rear Panel of Collins KWS-1 Transmitter RF Unit**

**Gold Plug on Left – that is referenced as J102, above text. This is the Control Circuits Connector.**

**Gold Connector on Right – that is referenced as J103 in above text. This is the Supply Circuits Connector.**

**Silver Connector at Lower Left – Twist On/Of High Voltage Cable Connector.**

## Also note right angle air duct fitting and Type N ANTENNA connector – mentioned later

**W9MXQ Photo**

The J102 connection allows the following connections to exit to the 75A-4 Receiver and other station accessories as follows . . .

- CW Key Line Hot and Ground wires to the CW Key, or Electronic Keyer. (There is no CW Key Jack on the KWS-1. This is that connection!!)
- Two-wire Receiver Mute (on Transmit) connections to the 75A-4 Receiver.
- Two-wire line to the Coaxial Antenna Relay. (Relay not shown in this article.)
- Single-wire feed to 500-ohm audio line in 75A-4 for Anti-VOX circuits in KWS-1.
- Two-Wire Key Interlock wires to the Auxiliary contacts on the Coaxial Antenna Relay.

This is detailed the chart on the previous page.

The J103 connector details the lines coming from the Power Supply Unit to the RF Unit. The complexity is overwhelming to someone used to the simplicity of other radios, even of the same vintage. This cable exits the KWS-1 Power Supply Unit at the lower right-hand corner in a rear view of the unit.

**Rear Panel of Collins KWS-1 Transmitter Power Supply Unit**
**Red Arrow Cable – Line with J103**
**(Woven Plastic Fabric Insulation Cover)**
**Green Arrow Cable – AC Line Voltage Cable**
**(Abrasion Resistant Rubber Jacket Cover)**
**Yellow Arrow Cable – 2,000 Volt High Voltage Cable**
**(Quarter Inch, Shielded HV Cable)**

**W9MXQ Photo**

**Left – Swivel Air Port on KWS-1 Transmitter RF Unit**
**Right – Static Air Port on KWS-1 Transmitter Power Supply Unit**
**Air Hose connects these two ports. Air is fed from the Power Supply Unit to the RF Unit for cooling the 4CX250B Final Amplifier Tubes[1].**
**W9MXQ Pictures**

Remaining is the High Voltage feed to the KWS-1 Transmitter RF Unit from the Power Supply Unit.

**W9MXQ Photo**

The High Voltage connection terminal on the lower left-hand corner of the KWS-1 Transmitter RF Unit has been a subject of discussion among GDTs aficionados for some time. The feeling has been that the originally supplied connector from Collins was inadequate, or even dangerous. See the text below for some discussion on this subject.

Over the years I have seen many a conversation on the design and even the adequacy of the Collins supplied High Voltage connector on the back panel of the KWS-1 Transmitter back panel. My first KWS-1 came with the original connector and at that time no

alternatives, that I was aware of, came to light. In fact, it was not discussed among users as a problem. For my second KWS-1, the small sub chassis box, see the picture, above,

was severely damaged so I removed the damaged parts and replaced the assembly and cable connector with a Millen male and female connector.

To the left, you can see the Millen parts with the chassis mount socket on the left and the plug on the right. This connector is common to many for their use on other high voltage connections with amateur radio equipment. These should be familiar as the units used with power supply connection for the Drake L-4, L-4B, and L7 Linear Amplifiers. Those amplifiers had separate power supply and RF cabinets.

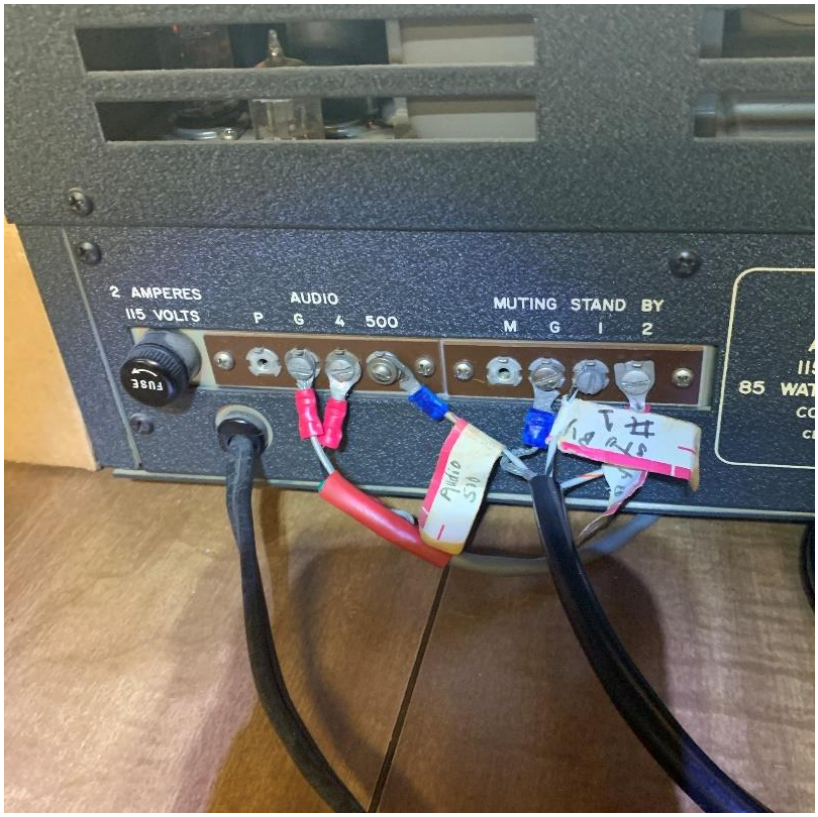
In my installation of the Millen chassis connector involved fabricating a small panel to replace the “sub chassis box.” That worked very well, and I would assume that somewhere that KWS-1 still sports the same connector. They are very nearly indestructible. Today, the Millen connector pair are somewhat hard to find (the one illustrated was from an eBay™ advertisement). There is a very well designed, and somewhat complicated to assemble Amphenol pair. The Amphenol pair looked like an oversized BNC connector. The closest I can come to that Amphenol assembly, today, is as follows, from Pasternack Electronics (https://www.pasternack.com/).

- C Female Bulkhead Mount Connector, Product ID PE4972
- C Male Connector Clamp/Solder Attachment, Product ID PE4950

At close to $100, this pair is expensive!

For my current KWS-1, I found that the connector was merely damaged and that the “twist lock” parts had been bent from some previous accident, or manipulation. Careful reforming of the locking parts allowed for a return of the connector to originally designed function. I tend in such instances to try and make the radio as close to original as possible, as long as it is safe. The original design can be subject to damage, so if you take my approach, be sure that your original Collins supplied high voltage connector pair is still as it was originally designed. At the same time, it is good to have an alternative available, such as the Millen (only available via eBay) or Amphenol/Pasternack units. Keep in mind that high voltage connectors in the amateur radio market are getting harder and harder to find. I keep the Collins supplied connector in place with the Millen and Amphenol/Pasternack alternative at the ready.

Connections to the Collins 75A-4 all come from the J102 connector. That connector, as mentioned above, also has such external connections as the Antenna Switching Relay and the CW Key.




Collins 75A-4 Receiver

Rear Panel View – lower left corner – showing AUDIO and MUTING

W9MXQ Photo

Three connections are made to the MUTING STAND BY Terminal Strip and from the same group of wires, one connection is made to the AUDIO Terminal Strip. These lines come from the cable exiting from the connection to the J102 connector – The "Control Circuits" Connector. In my case, some past owner had labeled each of the wires so there is no connection guessing – but it is wise to do as I did when receiving the cable assembly. I checked continuity of each connection to the proper pin on J102. A casual observer will notice that the wires involved are color coded – but there is no key in any documentation about said color codes. The three connections to the MUTING STAND BY Terminal Strip are:

- Terminal G – this is the ground connection.
- Terminals 1 and 2 – these two connections are shorted during receive by a relay in the KWS-1 Transmitter RF Unit. The open, muting the receiver, during transmit

The single connection to the AUDIO Terminal Strip:

- Terminal "500" – this line feeds audio to the Anti-Vox circuit in the KWS-1 Transmitter RF Unit.

Notice connections also to the AUDIO Terminal Strip on Pins “G” and “4.” These are the two wires coming separately to the 75A-4 from the 270G-3 Speaker. That is, this is the connection used to feed audio to the speaker.

The feed from the antenna to the receiver is connected as shown below. This 75A-4 Receiver came with a BNC connector. That was standard equipment on the receiver when it was manufactured.

Collins 75A-4 Receiver

Rear Panel View – lower right corner – showing ANTENNA Connections

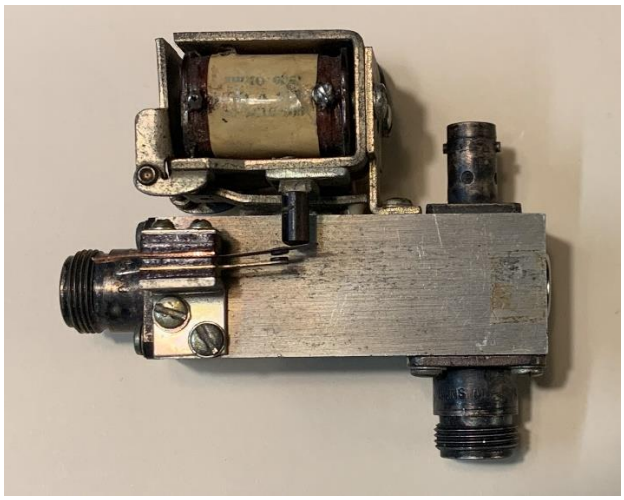
W9MXQ Photo

The above illustrations show coax connected to the right ANTENNA connector plus the left ANTENNA connector with “2” and “G” jumpered with a floating lead close to (but not connected to) the “1” lead. The terminal strip (left ANTENNA connector) allows for the connection of a balanced feedline to pins “1” and “2” or an unbalanced (coaxial) feedline to pins “1” and a jumpered “2” and “G.” In the instance shown, the wiring would be with the center connector of the coaxial feed (the BNC connector) tied to Pin “1” of the Terminal Strip. To use the Terminal Strip with an unbalanced feedline the center conductor of the feedline would go to Pin “1” and the shield line would go to the jumpered Pin “2” and “G.”

In the case here, that floating wire – close to, but not connected to, Pin “1” – is there merely as a part of the calibration process for the S-Meter in the 75A-4 Receiver. The connections here are typical of radios from the 1950’s – the vintage of the Gold Dust

Twins that were released in 1955. Some radios in that period did not include the coaxial connector – or they made it optional by going so far as to including mounting holes for the future additions of a proper connector.

One final item involved in the setup is the Antenna Relay.



**Ameco Antenna Relay – Sourced and supplied by Collins**

**"Front" Side of Antenna Relay" "Rear" Side of Antenna Relay"**

**W9MXQ Photos**

For the GDTs, this is the Antenna Relay from Ameco[2]. Ameco, still in business today with amateur radio related products, once manufactured antenna relays similar to ones many of us remember from Dow Key. Dow Key[3] is now Dow Key Microwave. Dow Key is far removed from the company that we knew in the 1950's and 1960's. They still have RF switching as their core business, however.

The left picture, what I call the "Front," shows the body, the BNC connector (upper left) for the 75A-4 Receiver antenna connection, the N connector (lower left) for the KWS-1 Transmitter, and the N connector (right) for the antenna feedline. The right picture, what I call the "Rear." This view shows the detail of the SPST contacts that close in Transmit mode. You can also just see the two terminals at either end of the activation coil for the relay. The coil activates the relay inside the cast and machined body as well as the push-ing the armature show to close the auxiliary contacts. The two auxiliary contacts and the two contacts to energize the coil are fed by four wires coming from the J-102 connector, mentioned previously.

During the preparation for this article, this relay along with the aging and very brittle inter-connection cable, that includes this relay, failed. I was able to make RF tests but had to stop short of completion of what I wanted for this article. Now part of a third installment, there will be a number 3 in this series that details tune-up and operation of the GDTs.

I might add that the Cable from J102 to interconnect the KWS-1 Transmitter RF Unit to the 75A-4 Receiver (and presumably a non-Collins Receiver) can be elusive. I know of

several instances where this cable has been missing. Unlike the cable that exits the KWS-1 Power Supply and connects to the KWS-1 RF Unit that usually is not disconnected from the Power Supply. When GDTs are found from an estate, as an example, they unfortunately tend to be missing accessory items and documentation originally supplied by the manufacturer. In the case of Collins, their instruction manuals were usually tied to the serial number of the radio – meaning that the update level of the product received matched the instruction manual supplied.

In my case, I am making a new Cable from J102 on the KWS-1 RF Unit to the 75A-4 Receiver, Morse Key, and Antenna Relay. The one uncommon part is the connector at the KWS-1 RF Unit. That is available from Nationwide Radio & Eq. Sales LLC[4, 5].
Check: https://ke9pq.com/search.php?search_query=kws-1&section=product.

When you read these articles, remember Bob Bailey, W9DYQ, and his work to proof-read the finished work. Not only proofreading, but he also contributes ideas and suggestions as to content. We have collaborated in collecting vintage radios for all of our adult lives.

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] In the setup for this article, the hose mentioned was found to have gone brittle and broke into pieces. So, for this article, it could not be shown. Sourcing of a replacement is pending but a conversation with a fellow GDTs user (Pat, W9JI) netted identification as "1-3/4 inch CAT-7 Ducting Hose." That seems to be a common item at Home Depot. On their website you can search for search for "1-3/4 inch ducting hose." Check https://www.homedepot.com/). Under no circumstances, even standby operation, can the KWS-1 be put under power without this hose in place and the blower working properly. Deviation from this procedure can and likely will destroy the final amplifier tubes.

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

[3] https://www.mpgdover.com/en/company/brands/dow_key_microwave.html

[4] https://ke9pq.com/

[5] Mark Olson, KE9PQ, Proprietor of Nationwide Radio, has been a longtime friend and a prime mover in many attempts to find elusive radios and especially for parts to keep them running.

**1950's QST Advertisement for Henry Radio and Gold Dust Twins**

Henry Radio is still in business today!! https://henryradio.com/

# Upcoming Events

**de: Tom Trethewey, KC9ONY**

**10/18-20/2024** – Scouting Jamboree on the Air weekend (JOTA)
https://www.scouting.org/international/jota-joti/jota/
https://www.arrl.org/jamboree-on-the-air-jota

**10/19/2024** – Lancaster, WI – Hidden Valleys Amateur Radio Club Hamfest
1st Annual FREE Hamfest
https://www.kc9kq.net/hamfest/

**11/02/2024** – Milwaukee, WI – Milwaukee Repeater Club – Friendly Fest
https://wi9mrc.org/downloads/FunFest_2024.pdf

**11/03/2024** - Neenah or Appleton, WI ?? – Fox Cities Amateur Radio Club – Swapfest
https://www.fcarc.club/hamfest_files/FCARC_Swapfest_Flyer.pdf

**3/16/2025** – Jefferson, WI – Tri-County Amateur Radio Club Hamfest
https://www.w9mqb.org/SwapFest/

**4/26/2025** – Cedarburg, WI – Ozaukee Radio Club Spring Swapfest
https://www.ozaukeeradioclub.org/

# Classified Advertising
# For Sale & Wanted Items
# Ozaukee Radio Club Members

**de: Bill Shadid, W9MXQ**

Classified Advertising for Ozaukee Radio Club Members is a members only feature. (Members may post for non-member friends, however.) 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.**

## Icom IC-751A HF Transceiver

**160 – 10 Meters, including 60, 30, 17, and 12 Meter WARC bands. All mode, AM, FM, LSB/USB, CW, and RTTY. 100-watt output on all modes. Icom desk and hand microphones plus all manuals included as is original packaging. Requires 12 VDC Power Supply. Radio is in good operating condition and is clean. Asking price: $350 (NEW PRICE) (Will negotiate for a reasonable offer.)**

**Contact Jim Albrinck, K9QLP. albrinck@att.net**

**Classified Advertisements Continued – Next Page**

# Icom IC-505 6M All Mode Transceiver

**Capable of CW, LSB/USB, and FM operation on six-meters. Dual VFO's for FM Repeater operation plus attached PL Deck. Radio has carrying case and self-contained telescoping antenna. Three power levels of 500mw, 3-watts, and 10-watts with 13.8 VDC from vehicle or power supply. Hand microphone is included. The radio has a built-in battery case for type C dry cells which can power radio at up to 3 watts. Batteries not included.**

**This is a rare radio. Vintage 1980's. I used it to work my VUCC on six meters. Radio is very clean. Asking price: $130. (NEW PRICE)**

**Contact Jim Albrinck, K9QLP. albrinck@att.net**

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## Define Junk!!

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# Ozaukee Radio Club Minutes of Membership Meeting. 9/11/2024

**De: Ken Boston, W9GA Secretary**

The monthly ORC meeting occurred at the senior center as we have returned to live in-person meetings, along with a streaming version held via Zoom. ORC Pres Bill K9GN began the meeting at 7:30 PM, a go-around was conducted. Zoom attendees were also in attendance and were also introduced.

**Program:**
Gary N9UUR presented his project to rehabilitate a Yaesu G-800 rotator, which had developed a problem with the readout of azimuth direction on the controller display. He showed how the rotor was disassembled, keeping the parts in order. Details of the replacement of the rotor position potentiometer, cleaning and lubrication, and reassembly were detailed.

**50/50 Raffle:** This was won by Dennis AD9FH; winning an award of $24.00

**Scholarship Auction:** Gary W9XT auctioned off several bundles of leftover soda's from the lighthouse event; plus, a 15 A/H Bioenno battery, sold for $105!! The free QSTs had no takers.

**Committee reports:** [NO reports: Tech committee, programs, RPT VP]

PRES: Bill K9GN; our website has been reconditioned, and is available via a temporary link, for inspection prior to going fully online.

1st VP: Jeananne: N9VSV; ORC will have a table at HRO Superfest to be held in late September, plus the next meeting will feature a project night.

Treasurer: Gary N9UUR laid out reports; club is solvent; recent hamfest netted $593 for the club, $510 for scholarship fund. K9QLP moved, WB9AZH 2nd to accept, motion carried.

Secretary: Ken W9GA has stated that minutes are posted; W9DHI moved, N9VSV 2nd to accept, motion passed.

STEM: Pat W9JI talked about the upcoming project at the West Bend library on Oct 18 & 19 in order to teach kids about soldering and building simple FM radio kit.

**OLD business**: Tom W9IPR reviewed the recent Fall hamfest activities and was generally happy with the good turnout. He did mention that the fest needs a larger turnout of ORC members to help man the event and did a callout of the 12 members who joined him in presenting the event. Bill K9GN detailed the events leading up to our new website. He credits W9DHI and WA9QLQ with rebuilding the website using WordPress, and migrating to SiteGround, ensuring a more robust site. Costs yearly have increased from $135 to $216, starting in 2025. W9DHI added that our previous host, QTH.net did catch several hack attempts, but missed one which affected our ORC page. Our new page is

up as a demo, and after some tweaks, it will go live. Tom W9IPR suggested a write up describing the ordeal.

**NEW business**: Bill K9GN brought up the idea of a ORC dues increase for the 2025 year, with a study of what should be considered. N9VSV mentioned that the ORC board reviews a dues increase yearly. W9IPR also stated that the Board can authorize up to $500; with any larger amount to be brought to the membership at large.

**Adjournment**: W9DHI moved to adjourn, motion carried; time end was 8:53 PM. There were 24 in-person attendees, 5 zoom attendees. W9PEM then offered many Arduino kits, and ancillary PCB kits to the members, with a small donation to the club treasury for whatever is selected.

Respectfully submitted;

Kenneth Boston, W9GA, Secretary

# Notes from the 1st Vice-President

**de: Jeananne Bargholz, N9VSV**

**This Month's Meeting:**
Wednesday, October 9, 2024, 7:30 PM
**This Month's Program:**
Project Night

Someone mentioned that we should have a night where members could give brief talks about projects they've completed; projects they might be currently working on or even a favorite item in their shack. A "show and tell" for the rest of the class … I mean members … to see. I think we have a great line up of speakers for the October meeting.

**Paul Martis, W9PEM**
3D Printing and PCB Design for Arrow Satellite Antenna

**Pat Volkmann, W9JI**
A Homebrew Transmitter from W9SIZ

**Bill Shadid, W9MXQ**
In Support of Multiple Station Setups

**Gary Sutcliffe, W9XT**
A Low Noise VHF Pre-amplifier

**John Livingston, WE9F**
The Key

**Fred Schwierske, W9KEY**
Portable Battery Supply for Amateur Radio

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**Upcoming Meeting Programs**

**2024**:
November: Stan Kaplan, WB9RQR – Building a Crystal Radio
December: Gary Sutcliffe, W9XT – It's Not Just FT8 - The other WSJT Digital Modes

**2025:**
January: Annual Meeting/Election of Officers and Trivia (if time allows)
February: Pat Volkmann, W9JI – The Collins 310B Exciter
March: Gary Sutcliffe, W9XT – POTA - Radio Fun in the Park

## Call for 2025 Programs

Do you have a new or different radio? Are you working with a new mode? Do you have an operating routine? We need presenters for our monthly meeting programs. Programs can be on any ham radio-related topic and are usually 20-30 minutes. Share your stories; share your knowledge! We are fortunate to have many skilled people in our club. 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, contact me at:

**Iamn9vsv@wi.rr.com**

**1stvp@ozaukeeradioclub.org**

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### ORC Meeting Agenda

*9 October 2024*

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. Jeananne Bargholz N9VSV - Host, Member Projects Night
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

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# Ozaukee Radio Club Swag Spot

**de: Jeananne Bargholz, N9VSV**

Listing of available Ozaukee Radio Club Swag Items for your review and selection . . .

**Tumbler – Front**

**Tumbler - Back**

**Tumbler Caps**

**Personalized Polar Camel 20oz Tumbler**
**$33.00 (with standard cap) $36.00 (with slider cap)**
9 colors available: black, red, royal blue, teal, purple, dark gray navy blue, maroon, and green. The font is standard; all you need to decide is "just callsign" or "name and callsign." If "name and callsign," then name on line one or on line two?

**Name Badge**
**$10.00**
Magnetic "clasp;" one size fits all
The font is standard.

**Personalized Cap**
**Khaki cap is 100% Cotton w/Velcro closure: $33.00**
**Navy Blue cap is 65%/35% Polyester/Cotton w/plastic snap closure: $30.00**
(When limited stock of the blue hat is gone, we will offer a blue that is identical to the Khaki style.) Font is standard; all you need to decide is name on line one or on line two?

We have an ordering option on our Webpage that includes PayPal costs:

https://www.ozaukeeradioclub.org/index.php/orc-gear
This is a great option if you don't attend meetings regularly – or just contact me and save those costs. If you DO attend meetings somewhat regularly, just contact me at and let me know what you want. You can pay me for your items at the next meeting.

Questions? Ready to order? Contact me at:

1stvp@ozaukeeradioclub.org

I'm also in the roster.

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# The Back Page

## This Month's ORC Meeting
## Hybrid In-Person/Zoom Meeting
## 9 October 2024

## Program:

**Project Night**
**(A collection of short "show and tells") with Presenters:**
**Paul Martis, W9PEM**
**Bill Shadid, W9MXQ**
**Pat Volkmann, W9JI**
**Gary Sutcliffe, W9XT**
**John Livingston, WE9F**
**Fred Schwierske, W9KEY**

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

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## NEXT MONTH
## Hybrid In-Person/Zoom Meeting
## 9 October 2024

## Program:

## Building a Crystal Radio
**Stan Kaplan, WB9RQR**