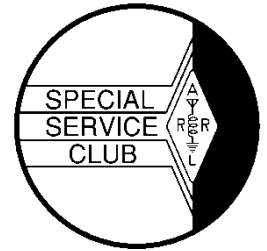




The *ORC* Newsletter

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



ORC Repeaters on 146.97 (-127.3PL), 224.18 (-127.3PL), 443.75 MHz (+127.3PL) - Callsign W9CQO

Web site: www.ozaukeeradioclub.org

Facebook: facebook.com/orcwi

Volume XXXII

May, 2020

Number 5

From the President

de Pat Volkman, W9JI



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

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

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

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

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

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

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

Pat Volkmann, W9JI

DX'ing & Contesting

De Gary Sutcliffe (W9XT)



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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

THE COMPUTER CORNER

No. 266: AnyDesk – A Teamviewer Alternate

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



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

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

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

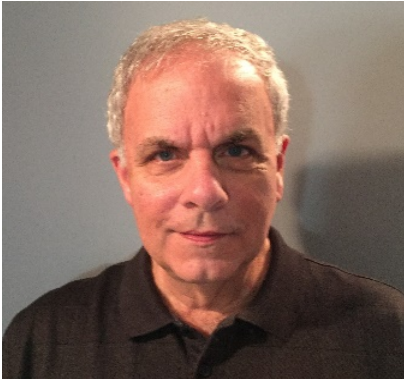
AnyDesk is quite similar to Teamviewer, but faster. They claim 12 milliseconds to transfer, for example, your mouse pointer movement to a remote computer, which is really very speedy. And AnyDesk works across platforms, with Windows, macOS and Linux. For example, I routinely control a Windows 10 desktop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

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

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

Vintage Amateur Radio

de Bill Shadid, W9MXQ



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

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

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

So, in the 1960's it became acceptable to have a linear amplifier (by then, because the modes of choice were CW and SSB) that had a mode switch that showed CW and SSB. The amplifier was tuned in the CW mode to a power level of 1,000-watts. To operate SSB, the mode switch – without returning – was turned to SSB which significantly increased the plate voltage allowing a peak power of 2,000 watts¹.

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



National NCL-2000 HF Linear Amplifier
W9MXQ

We often hear the term, “built like a battleship.” That wording applies to the 62-pound NCL-2000. It commands attention in its large footprint of 7-5/8” x 16-1/2” x 12-3/4” (HWD) dimensions. That weight and size included the amplifier and high voltage power supply in a single, desktop cabinet².

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

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

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

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



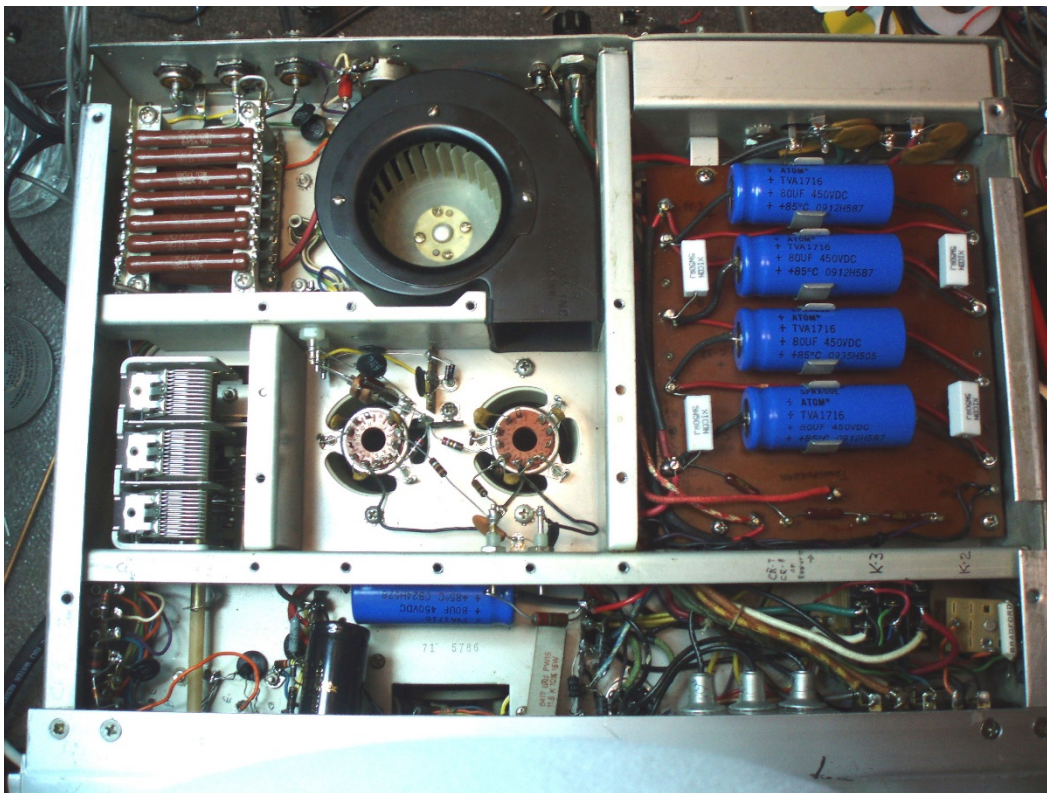
**RCA (now Burle)
8122 Ceramic Tetrode
400 watts Plate Dissipation
(OEM in the National NCL-2000)
W9MXQ**



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

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

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



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

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

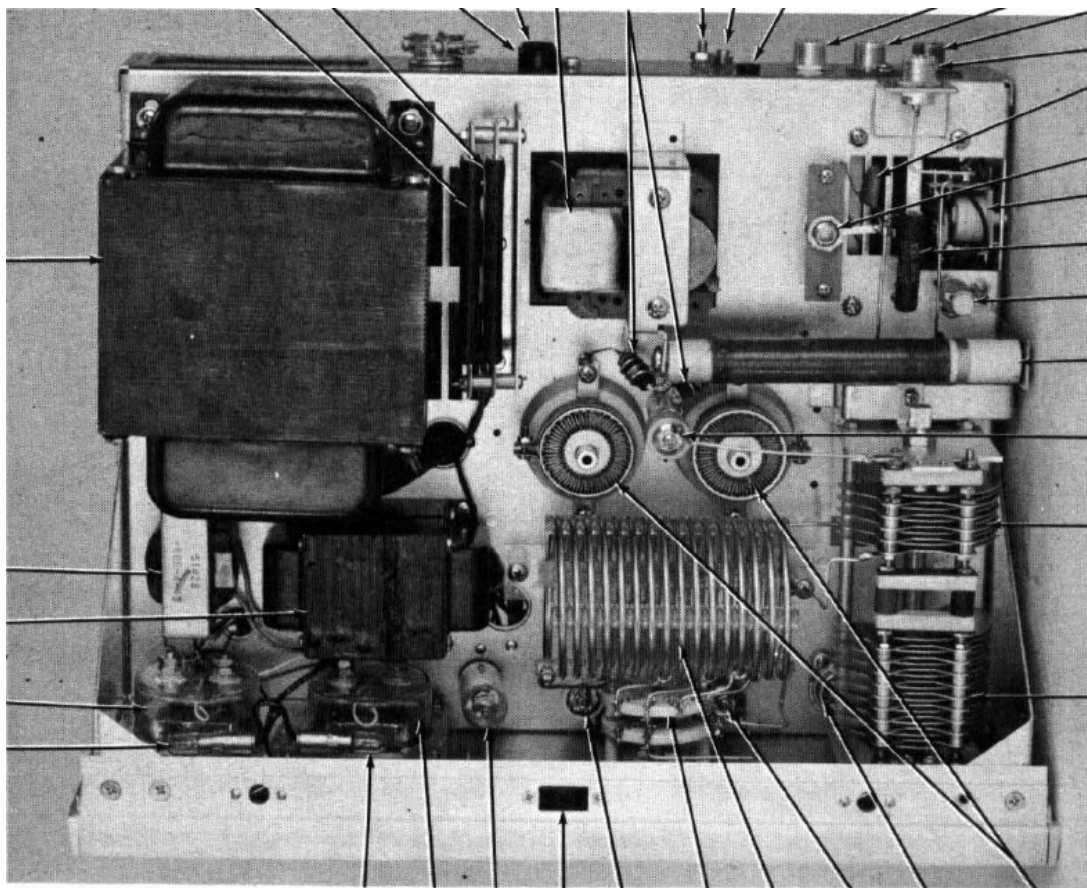
The fan cooling through the fins of the 8122 tubes allows for a total of 800 watts (400 watts per tube) dissipation. So, when the tube is running an input of 2,000 watts PEP, the tubes are putting 1,300 watts into the antenna and therefore dissipating 700 watts of heat. That is below the capability of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

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

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

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

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



**Top chassis view of the National NCL-2000.
Front panel is toward the bottom of the picture.**

W9MXQ – NCL-2000 Operating Manual

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

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

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

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

Some amplifiers of the day had no internal switching – such as the Hallicrafters HT-45 and relied totally on ham designed⁴ or separately purchased switching relay(s). Not so with the NCL-2000. National provided coax connection points for connection to three different systems using these four coaxial connectors . . .

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

This linear amplifier works perfectly with modern radios and has run from time to time with my Drake TR7 and my Drake R-4C / T-4XC combination⁵. The NCL-2000 cannot be run, unmodified with a modern transceiver that has no relay switching for operating the T/R relay inside the amplifier⁶. Commercial units are available (the Ameritron ARB-704, for instance). However, of late I have been modifying my amplifiers so there is a transistor switch added to the amplifier to handle such switching. Schematics for such additions are widely available on the internet.

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



W9MXQ

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

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

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

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

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

A special note of thanks to my proofreader, Bob Bailey, W9DYQ. Bob is a bit more than a proof-reader as he often adds commentary that makes it into the article.

Credits and Comments:

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

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

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

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

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

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

W9MXQ

Tech Tidbits

FT-8 ANTENNA TIP

de Pat Volkmann, W9JI



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

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



Mounting bracket for Hamstick antenna
(photo by W9JI)

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

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

Ozaukee Radio Club

April 8, 2020 Meeting Minutes

de Ken Boston W9GA



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

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

Committee reports:

Reports limited for this meeting

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

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

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

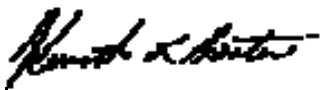
Program:

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

Adjournment:

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

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Kenneth Boston".

Kenneth Boston W9GA
Secretary

ORC Meeting Agenda

June 10, 2020

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

Meeting Note:

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

Return undeliverable copies to:

The ORC Newsletter

524 Alta Loma Drive
Thiensville, WI 53092

First Class

Next ORC Meeting (Tentative):

Grafton Multipurpose Senior Center

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

7:00 PM – Doors Open

7:30 PM – Meeting Begins