



NOARS Log



February 2021

K8KRG

Volume 57, Issue 2

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Prez Sez

I hope you are all doing well and staying warm. We finally decided to take down the few Christmas decorations we had put up. We kept them up to help maintain our spirits while we navigate through the isolation and uncertainty regarding the pandemic and political tensions. I am personally feeling much better about the coming months and returning to normal sometime in the not-so-distant future.

I received notification that I will receive my first Covid vaccination on Thursday, January 28th and that it will be the Pfizer vaccine. The second is

scheduled for February 16th. So, I am feeling excited and relieved that I am able to get it so soon into the effort by the VA.

Our January membership meeting went nicely and Bob's presentation was very interesting. I am sure many of you have experimented with Reverse Beaconing by now and we would be interested in getting some feedback during our pre-meeting discussions at our February Zoom meeting. Speaking of the February meeting, Elaine and Tom will cover this in more detail in this issue of the Log, but the topic of discussion will be targeted at new hams or those interested in ham

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Zoom Membership Meeting, February 15 at 7:00 PM

Ham Radio Review

Are you interested in, or new, to the hobby, with questions? Maybe you are not-so-new but would appreciate a review. This program is for anyone who would like to know more. The program will include time for questions. If you know anyone who is interested in ham radio, please share the Zoom invitation that Carl will send out.

Dues are Past Due

For those of you who may not have renewed your membership for 2021. Dues are: Full \$15, Associate (non-licensed) \$7, Family members of a full member are

\$4 each. You can send a check, payable to NOARS and mail it to: NOARS Membership Committee, 161 Herrmann Drive, Avon Lake, OH 44012.



Nets

NOARS nets are Tuesday nights at 8 pm on 28.370 MHz, and Thursday nights at 8 pm on 146.700 MHz. All licensed amateurs are welcome. Participation is encouraged and appreciated.

Continued from Prez Sez on page 1

radio. So, if you have friends or relatives who fit into that group, please invite them to attend the meeting. You may share the link and password with them when you receive it.

That is all I have for this month. One or two more months and it may start warming up and maybe we will

be on the downside of this horrible and disruptive pandemic. Take care, stay safe, continue wearing your mask in public, wash your hands often, and maintain physical distancing from those outside your bubble.

73,

Carl W8KRF

Vice President's Message

Hello everyone. Regardless of being afraid of the virus or not, I will probably get the Covid-19 vaccine, just as I get a flu shot some years. It seems I don't get the flu whether or not I get a flu shot. Not much going on due to the weather, except planning, the nets and some DXing, etc. Though Zoom is better than nothing, I hope we can really meet in person soon. Good news is the Brown's lived up

to their potential and almost won, except for a questionable no call. The Ohio State Buckeyes lost to a clearly better Alabama. Well, That's All Folks.

73

Dave, KY8OSU

Don Norman, AF8B SK

Don Norman, AF8B passed away Wednesday, January 27, 2021 at the age of 90 in Elyria, Ohio. Don was a Life member of NOARS and an Extra Class Ham. Don was born in March 1930 in Shock, W. Va. He graduated from Normantown High School, Normantown, W. Va. in 1949.

He began his career as a firefighter for Elyria Fire Department in 1949, rose through the ranks and retired as Fire Chief in 1983. Services were held on Saturday, January 30, 2021.

DX Engineering's Contest University Propagation Summit

If you missed the Contest University's Propagation Summit on January 22, 2021, no problem. You can watch it by going to <https://www.contestuniversity.com/>. You

will note that The 2021 Propagation Summit presentations and video can be found on the Files and Video pages.

QSO Today Virtual Ham Expo

Coming to your desktop, laptop, and tablet: March 13 and 14, 2021 and "on-demand" until April 12, 2021. Early Bird Ticket Sales begin January 4, 2021. This is

bigger than you might think. The first QSO Today Expo had over 16,000 attendees. For complete information and to register, go to <https://www.qsotodayhamexpo.com>

Chet's Challenge

By Chet K8KIZ

Here's a pretty interesting video by PBS on the upcoming reversal of the earth's magnetic field. It's 14 minutes long and includes some pretty complex animation.

Truth be told I could only follow it for about 7 minutes before it became "blah, blah, blah". And so, here's the challenge! Can anyone in the club make it to 8 minutes before it becomes mental QRM? ; -)

<https://www.youtube.com/watch?v=51usJ74pPP8>

Upcoming Social Events

February

Virtual NOARS Lunch Tuesday, February 2

Join us on **Zoom at noon** for our Virtual NOARS lunch.



Amendments to the NOARS By-Laws to be Voted on at the February 15 Meeting

Under ARTICLE II MEMBERSHIP Section 3 Family Member after part c) add the following:

d) Family Members who are not licensed radio amateurs receive the Associate Member status at the Family Member rate.

Under ARTICLE III DUES Section 1 replace the word **February** with **January**.

Original paragraph:

1. Annual dues shall not exceed \$15 for full members, \$7 for associate members or \$4 for family members, and are payable by the first day of January of the membership year. A member shall be stricken from the membership roll if his/her dues are not paid by the adjournment of the membership meeting in **February** of the membership year.

Replacement paragraph:

1. Annual dues shall not exceed \$15 for full members, \$7 for associate members or \$4 for family members, and are payable by the first day of January of the membership year. A member shall be stricken from the membership roll if his/her dues are not paid by the adjournment of the membership meeting in **January** of the membership year.

February Birthdays

Elijah Molseed, KE8NES

Bill Hole, AC8FD

David Novotny, N8RRC

Jane Reed, K8JGR

William Gardner, KB6ZNR

Russell Graham, KE8GNX

William Adams, WD8OSJ

Bob Plow, W8NNC

Tom Southam, W8WLI

If your birthday doesn't appear here it's a good chance that it's not in our database. Please contact Carl, W8KRF so we can wish you a Happy Birthday!



January 18, 2021 Meeting Attendance

David, W1AFC

Dan, W8AJF

Bill, KE8DIF

Tom, N8FDY

Elaine, KC8FOS

Chris, KD2HCE

Roger, AB8IF

Bob, WA8JBT

Chet, K8KIZ

Carl, W8KRF

Tom, W8KYZ

Jack, N8NDL

Bob, W8NNC

Pete, KE8NQG

Jim, KD8OCW

Bob, W8OOT

Dave, KY8OSU

Tom, W1PDI

Jeany, KC3QND

Bill, K2WJS

Bill, N8WS

Ann, KA8ZEP

Heard on the Nets in January

Jeff, K8ACF

Dan, K8AGW

Fred, N8AHS

Andy, K8ALG

Rocky, KD8AWE

James, KE8BIY

Ray, KA8BPU

Rich, WA8CAC

Charles, K8CVM

Tom, N8FDY

Jody, KE8GKO

Russ, KE8GNX

Chris, KD2HCE

Roger, AB8IF

Dan, KD8JAN

Dan, K8KGX

Carl, W8KRF

Sara, KC8KSU

Tom, W8KYZ

Pete, KE8NQG

Jim, KD8OCW

Michael, KE8OLR

Bryan, N8OOF

Dave, KY8OSU

Dave, WV8P

Bryan, W1PDI

Alan, KF8PM

Clark, N8PZD

Fred, KE8QFT

Bob, KE8QFZ

Dale, KE8QGQ

Jeany, KC3QND

Ralph, KD8REW

Dave, N8UUC

Bill, K2WJS

Tom, W8WLI

Bill, N8WS

George, WA8YVF

Ann, KA8ZEP

Jeff, KB8ZUN

February, 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2 Zoom Lunch at Noon 10M Net 8 PM - NCS Dave, KY8OSU	3 Food Group 7PM 2M NCS Elaine, KC8FOS	4 2M Net 8 PM NCS Dave, KY8OSU	5	6
7	8	9 10M Net 8 PM - NCS Tom, W8KYZ	10 Food Group 7PM 2M NCS Dave, KY8OSU	11 2M Net 8 PM NCS Tom, W8KYZ	12	13
14	15 NOARS Zoom On Line Meeting 7 PM	16 10M Net 8 PM - NCS George, WA8YVF	17 Food Group 7PM 2M NCS Elaine, KC8FOS	18 2M Net 8 PM NCS Carl, W8KRF	19	20
21	22	23 10M Net 8 PM - NCS Dan, W8AJF	24 Food Group 7PM 2M NCS Dave, KY8OSU	25 2M Net 8 PM NCS Elaine, KC8FOS	26	27
28						

February Member Highlight

George Ingmand, WA8YVF

Getting Hooked

George started listening to AM broadcast at night and made wire antennas to bring in the far away stations. Someone gave him an old radio that had the shortwave bands, and he was hooked. When he was only thirteen years old, he got into Citizens Band radio and made his dad get a license so he could talk on the radio.

George received his first amateur radio license in 1968 when he was fifteen years old. His call sign was WN8YVF. He can still remember he was so excited receiving the license in the mail that his mother had to open the letter. He enjoyed CW and 2 meter AM as a Novice. He passed the Technician exam in 1969 and moved his activity to 6 meter sideband. After college George moved on to a General and then Advanced Class license. George got his code speed up to 20 wpm and passed the Extra class exam in 1992.



Enjoyment and Satisfaction of Amateur Radio

George says it is a hobby that keeps on giving; there is always something new to learn. The technology is moving so fast, he can't imagine what Ham Radio will be

like in 50 years. He enjoys sideband and the digital modes the most but finds the satellites and DMR fascinating.

George is active on the radio, checking into the Woodpecker Net on 7.242 in the mornings and the NOARS 2 and 10 meter nets. George serves as the Net Control Station on 10 meters every third Tuesday at 8 PM on 28.370 MHz. He also participates in contests, in which he keeps track of his scores and always tries to beat his previous year's score. He received the ARRL DXCC Award. Hams can earn this award by confirming on-the-air contacts with 100 countries. He also received CQ Amateur Radio Magazine's WPX Mixed, SSB and Digital Awards, along with several eQSL awards.

George was active in Navy MARS (N0LEK) during the Vietnam War and handled a lot of traffic from the Great Lakes Naval Training Center. He says it was very rewarding forwarding messages from the service men and women to their families.

Rigs in His Life

George says, "I have never met a rig I didn't like." He started out with an Eico 723 transmitter and Lafayette HA 500 receiver on the low bands and a Heathkit Twoer on 2m AM. Other rigs he owned were a Swan 250C on 6m sideband, as well as a Yaesu FT-101E complete station with the FL-2100 linear amplifier. Over the past 10 years he has been partial to Icom, saying his 7610 has been great. He wishes he had kept all his radios, but always sold them to buy a new rig with better technology.

Ham Radio – It's a Family Affair

George's wife, Marie, is also a ham - KB4VSR. George got her interested in the hobby and she passed her Technician Class exam at the Orlando Hamfest when they were living in middle Georgia. While activities seem to have slowed down over the years, Marie and George used to participate in providing communications for 5K and 10K races. They also both enjoyed Field Day. He says

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these were some of the most exciting times in ham radio for him. While they lived in Georgia, they were very active in the Dublin Amateur Radio Club. When they moved to Ohio, they joined the Portage County Amateur Radio Club and held several officer positions.

Current Project

George is working on hunting down some interference on 40 meters that seems to have popped up last fall. He was hoping it was Christmas lights, but apparently not.

Contest Corner

By Tom, W1PDI

Below are just a few of the more than 100 scheduled contests for February including four state QSO parties. February marks the beginning of 42 individual state QSO Parties scheduled through October and in May there are two regional QSO Parties-the 7th Call Area and the New England section.

For those who are looking to get in some code practice or those starting out learning Morse code give the K1USN Slow Speed Test (SST) on Sunday evenings a try. The contact exchange is quick and simple, just your name and state. It's that easy and sending at a slow speed is fine. It lasts only an hour starting at 7pm. The few times I jumped in I made anywhere from 25 to 35 contacts each time. SST contacts can be made on 20, 40, 80 and even 160 meters. Find more information and frequencies at: <http://www.k1usn.com/sst.html>

To find out all the particulars about a contest such as rules, date(s), time, bands, suggested frequencies and more, click on the links below. The QRP Fox Hunt looks interesting. Next month we'll provide more detail on this monthly contest.

QRP Fox Hunt Feb 3, 5, 10, 12, 17,19, 24 & 26 <http://www.qrpfoxhunt.org/>

VHF-UHF FT8 Activity Contest Feb 10 1700Z – 2000Z Promoting FT8 on 2m & 70cm <http://www.ft8activity.eu/index.php/en/>

Vermont QSO Party Feb 6 0000Z thru Feb 7 2400Z <http://www.ranv.org/vtqso.html>

Minnesota QSO Party Feb 6 1400Z thru 2400Z <https://www.w0aa.org/mnqp-rules/>

Professional Life

George has been in Quality Control / Assurance most of his life. His specialty has been in Supplier Quality and worked between suppliers of component parts for his company. He spent thirteen years on a Printed Circuit Board Commodity Management Team with Allen Bradley and worked with suppliers of printed circuit boards all over the world. He did the same with Invacare in Elyria, working on wheelchair components. George has worked in Europe, Australasia and the US.

ARRL School Roundup Feb 8 1300Z thru Feb 12 2359Z <http://www.arrl.org/school-club-roundup>

ARRL International DX CW Contest Feb 20 0000Z thru Feb 21 2400Z <http://www.arrl.org/arrl-dx>

CQ 160-Meter SSB Contest Feb 26 2200Z thru Feb 28 2200Z <http://www.cq160.com/rules.htm>

South Carolina QSO Party Feb 27 1500Z thru Feb 28 0159Z <http://scqso.com/>

North Carolina QSO Party Feb 28 1500Z thru Mar 1 0059Z <http://ncqsoparty.org/rules/>

Good Luck in your next contest!

Sources for contests: ARRL Contest Branch, CQ Magazine, WA7BNM & Ham Radio Contesting.

January 2021 Contest Participants

Bob, W8NNC did 3.5 hours in the North American QSO Party. "I generally just try to do better than I did in the previous NAQP. but this time I did QRP, 5 watts, on only 40 meters."

40 contacts 22 states 1 Canada, Ontario

Tom, W1PDI

NAQP CW 216 contacts 39 states 7
International Claimed score 15,560

NAQP SSB 172 contacts 36 states 8
International Claimed score 11,524

A Homebrew Sound-Card Interface for Digital Modes

By Roger, AB8IF

If you operate QRP on the higher HF bands with a modest antenna, chances are you are not working much DX these days. Solar Cycle 25 has arrived, but the sun still shows little or no activity. And the prediction is this will be another weak cycle, just like the one before. If you have not already done so, this might be a good time to try a weak signal digital mode.

Weak signal modes include WSJT, an open-source computer program initially developed by Joe Taylor, K1JT. WSJT includes two very popular operating protocols; FT8 and WSPR. A quick peek at <https://pskreporter.info/pskmap.html> reveals a lot of round-the-clock DX activity on HF FT8. It's amazing that these are QRP transmissions with reception reports as low as -20dB SNR (with 2500Hz receiver bandwidth). Sideband and CW activity is quite modest in comparison. Click on <http://wsprnet.org/drupal/wsprnet/map> and you'll see WSPR propagation reports from 1,000's of miles away for transmissions made at milliwatt levels. WSPR signals are intelligible down to -30dB SNR!

Getting on board with digital modes can be as simple as buying a sound-card interface to connect your transceiver to a personal computer. There are many such products on the market... a few are listed here: https://www.tigertronics.com/sl_modes.htm

However, if you already operate QRP, the odds are you are a homebrew enthusiast, building stuff from scratch or assembling kits. A sound-card interface is a simple project. The complex hardware-software for signal processing resides in the computer as does an accurate real-time clock. The following text describes an interface I built so that I could go checkout the action on FT8 and WSPR. Except for the I/O connectors, the design is generic. The I/O connectors are customized to accommodate a specific transceiver and computer.

A sound interface is simply a pair of audio channels; one passes signals from the rig to the computer, while the other talks back to the rig. The interface also provides a control signal ("push to talk") to switch your rig between send and receive.

It is very important that the interface provides electrical isolation between the rig and computer. If not present, an electrical fault on one side can propagate to the other and do a lot of damage. It's no fun when a nearby lightning strike destroys your computer! A small audio transformer in each channel implements this safety feature, passing valid signals while blocking high-voltage surges.

Fig.1 shows the finished interface. The cabling and accessories address the unique needs of my station. An 8-pin CBC-8 microphone plug and its shielded coil-cable deliver audio and a push-to-talk (PTT) command to the transmitter. An optional snap-on cable ferrite helps to keep RF out of the rig in the event that RF is present in the shack.

Audio going to the computer can be picked up from a headphone or loudspeaker jack on the transceiver. It is delivered to the RCA phono jack on the interface.

Depending on the computer, there are several ways to get audio in and out. The computer may have separate microphone and headphone jacks, or a single 3.5mm 4-pole TRRS jack for a headset. Another option is to use an external USB audio adapter. I chose the latter method together with a right-angle USB-A connector for convenient cable layout. After that a 4-pole audio cable would complete the connection to the interface...

However, this is when I discovered that phone and tablet manufacturers have settled on two mutually incompatible pin-out standards for 4-pole jacks (probably to discourage customers from buying

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competitor's accessories). They are known as OMTP and CTIA <https://i.stack.imgur.com/WpR1r.png>. OMTP connects the microphone to the second ring and the shield to the barrel. CTIA reverses these connections, leaving the microphone line exposed to RF pickup! And this is how the USB audio adapter was wired. The issue was quickly resolved with a plug-in converter that swapped the mike and ground connections.

The interface is powered from a 12VDC wall-wart. Power is brought in via a conventional power-jack.

In Fig. 2 the interface enclosure is opened up. I chose an extruded and anodized enclosure for ruggedness and good looks. A basic aluminum utility case will work just as well. An unshielded enclosure is not recommended.

The circuit populates a perforated board made by Adafruit Industries. I mention the manufacturer because their prototyping boards are of exceptional quality and use durable plated-through holes. The major board components include wire-to-board connectors, the isolation transformers, and two trimmer potentiometers that adjust the signal level in each audio path.

A schematic diagram is shown in Fig 3. The audio

channels between the computer and transceiver are straight forward. A dual-comparator, U2, looks for audio signals coming from the computer. When signals are detected, the PTT line is asserted low, putting the transceiver into transmit mode. When audio from the computer ceases, the transceiver returns to receive mode.

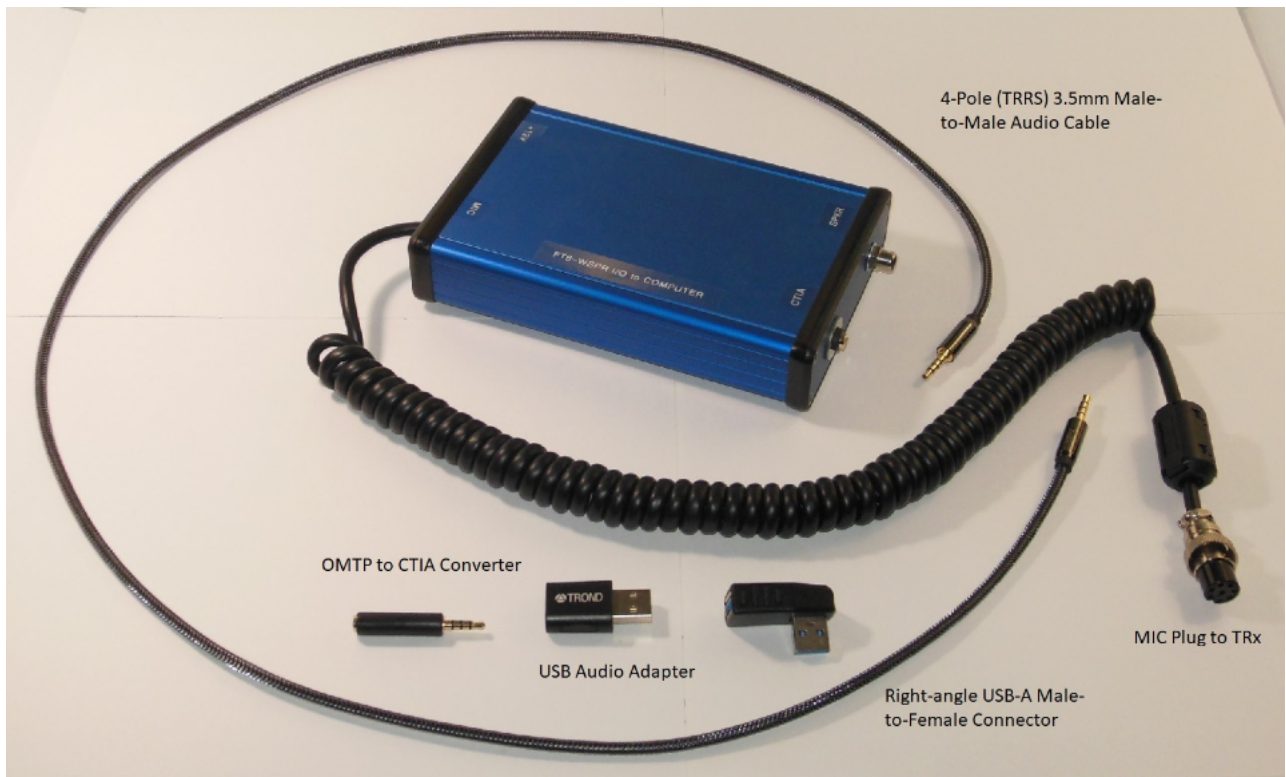
In order to adjust potentiometers R4 and R5, the transceiver must be tuned to a weak-signal band, and the computer must be running the appropriate weak-signal program (e.g. 7074.00 kHz and FT8). Next adjust the transceiver audio output and/or R4 so that the program audio-input indicator shows optimum signal levels while receiving (typically a green annunciator or bar-graph).

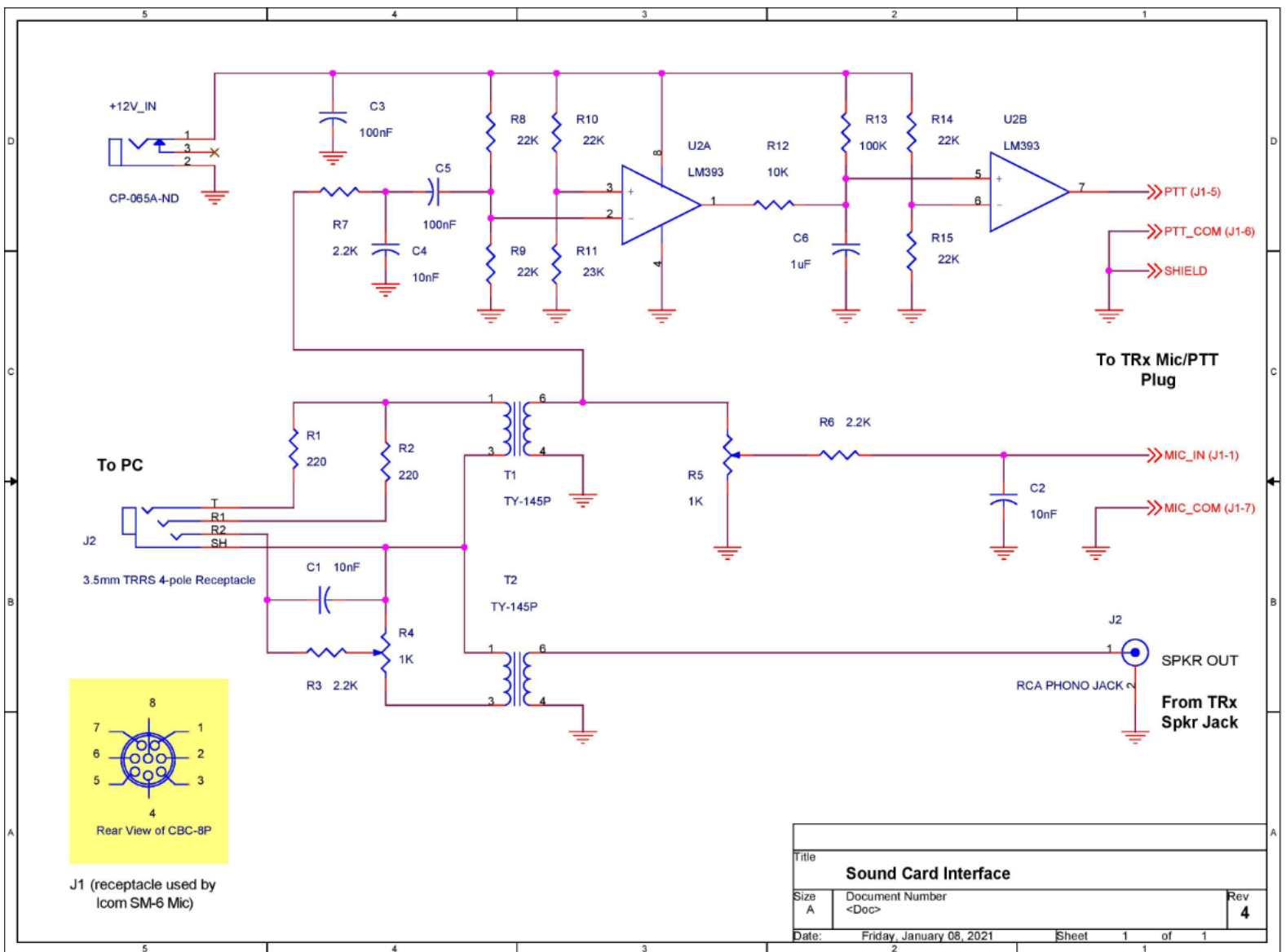
When the program switches to transmit (either normal cycling, or by selecting the tune-up mode), adjust the audio output of the computer to get PTT to activate reliably. This is typically done with a sliding potentiometer in the computer task bar.

Finally, adjust the transceiver mike gain and/or R5 to obtain the desired power output.

Enjoy the DX!

73





NOARS Membership Meeting Minutes

Submitted by Elaine Wilkinson, KC8FOS

January 18, 2021, The meeting was held over Zoom.

The meeting was called to order at 7:02 PM by club President, Carl, W8KRF. Twenty-two members were in attendance. Chris, KD2HCE made a motion to suspend reading minutes of the December 2020 meeting, as they are published in the newsletter. Pete, KE8NQQ seconded the motion. The motion passed.

Treasurer's Report - Tom, W8KRF. November and December expenses were reported, including Windstream and a donation to Second Harvest. Another donation, in memory of Harold Drake, K8HRD SK was made to Lorain County Retired Senior Volunteer Program, in which Harold was active. The current checking account balance was reported.

President's Report - No report.

Committee Reports

Parliamentarian - Tom, N8FDY. No report.

Club Property - Tom, W1PDI. Initially no report, then Dan, W8AJF reported he gave the club's antenna analyzer to Dave, KY8OSU.

Repeaters - Carl, W8KRF. No report

Website – Carl, W8KRF. Carl is caught up with providing access to all current members, so let him know if you can't get into the Members Only section.

Membership – Carl, W8KRF. There are currently 83 members.

Field Day – Al, N8CX. Al was not in attendance. Carl, W8KRF announced Field Day is currently on hold. Whether or not it takes place depends on the status of vaccinations for the Covid-19 virus and whether or not we can use the Lorain Metroparks site.

Social Committee - Elaine, KC8FOS. Fox hunts will resume in April, weather permitting.

Summer Hamfest – Carl, W8KRF. The status of the Covid-19 virus, the state of vaccinations, and whether or not LCCC will rent us the indoor space will determine if

we have the Summer Hamfest. Plan B is being considered, which is holding an outdoor hamfest in the parking lot at LCCC, rather like a flea market. Tom, W8KYZ, will contact LCCC about the Summer Hamfest.

Sunshine - Bob, W8RET has returned home.

Nets – Elaine, KC8FOS. Not much change. Going well.

VE Testing – Tom, W8KYZ. Currently no testing.

Newsletter - Tom, N8FDY. January 27 is the deadline for submissions.

Old Business - None.

New Business - The budget for 2021 was shared and explained. Dan, W8AJF, made a motion to accept the budget, seconded by Tom, W1PDI. The motion passed.

Suggested by-law amendments were presented by Carl, W8KRF. These are: Article II Membership, 3. d) Family Members who are not licensed radio amateurs receive the Associate Member status at the Family Member rate. Article III Dues. A member shall be stricken from the membership roll if his/her dues are not paid by the adjournment of the membership meeting in January of the membership year. These amendment changes will be published in the NOARS Log, per the requirements to change the bylaws.

There was a brief discussion of the ARRL's statement, emailed to all members, "The Purpose of Amateur Radio". Tom, W8KYZ, suggested confirming that anyone who asks for help programming a Baofeng, or other radio, has an amateur radio license. All agreed.

Added Comments - Dr. Jack, N8NDL, announced his Compactenna Scan III, which is a nine-inch antenna, being marketed as a scanner antenna.

A motion was made to adjourn the meeting by Bill, K2WJS, seconded by Chet, K8KIZ. The motion passed. The meeting was adjourned at 7:50 PM.

Following the meeting, a program about Reverse Beacon Networks was presented by Bob, W8NNC. Bob titled the presentation "High Frequency Propagation of Radio Signals. A video of the program will be available on the NOARS website.

We're Here for Your Ham Radio Needs

The Showroom is Temporarily Closed to Walk-in Customers, But You Can Still Place Your Orders & Pick Them Up at the Curb.

- Available from 9 am – 8 pm, Monday-Saturday and 9 am – 7 pm, Sunday.
- Place your order at DXEngineering.com or by calling 1-800-777-0703. All orders must be prepaid.
- Pull into a designated curbside pickup space in front of the Summit Racing Retail Store. You will need valid ID, your order number, and the physical credit card you used or Pay Pal receipt.
- Only the person who purchased the item may pick up the order.

Please note that the Summit Racing portion of the store is open. If you know your DX Engineering part number, you can place your order directly in the store and pick it up there.

We look forward to seeing you!

DXEngineering@DXEngineering.com

The DX Engineering Retail Showroom
1200 Southeast Ave., Tallmadge, Ohio



DX ENGINEERING®

Books For Sale by Tom, W8KYZ

Elimination of Electrical Noise by “Radio Today” Don Pinnock, G3HVA. 64 pages. \$15.00

ARRL Vertical Antenna Classics 120 pages. Edited by Robert Schetgen, KU7G. 1st edition. \$5.00

ARRL Handbook, 2010, including Handbook CD. New. \$15.00

ARRL Antenna Compendium, Volume 2. 210 pages. \$5.00

ARRL Pocket Reference. New. 864 pages. \$5.00

73 Dipole and Long Wire Antennas. Edward Noll, W3FQJ. 160 pages. \$5.00

ARRL Antenna Anthology. Reprint of QST Articles – Theory Presentations. 151 pages \$5.00

21 Things to do after you get your radio license. Dan Romanchik, KB6NU. 73 pages. \$5.00

Contact Tom. 440-320-5523 or tporter161@oh.rr.com.

Equipment for Sale from Dave, WV8P

Heathkit SWR meter: HM 2140. In good shape. \$45.00.

Daiwa CNW419 antenna tuner. 500 watts. In good shape. \$55.00.

Heathkit RF oscillator. IG- 5280. New. 10.00.

Olson SWR & field strength meter. In good shape. \$10.00.

Heathkit code Oscillator. HD1416A. In good shape. \$12.00.

Contact Dave, WV8P, at (440) 799-3202. (Leave message)

This Spot Reserved for Your Free Ad to Sell Your Stuff



CW OP Lapel Pins for Sale Created by Chet, K8KIZ

They have been sent to multiple states, Denmark, United Kingdom, Germany, Australia

CW OP Pins are \$5.75 each. US S/H is \$5.06 - International S/H* is \$15.50

(*The US Postal Service ships to most countries around the world.)

NOTE: This pricing includes shipping charges for up to 10 pins per envelope.

For Example:

- 1 pin + US 1st Class S/H \$10.81
- 2 pins + US 1st Class S/H \$16.56
- 3 pins + US 1st Class S/H \$22.31
- 1 pin + International S/H \$21.25

2 pins + International S/H \$27.00

3 pins + International S/H \$32.75

NOTE: This pricing includes shipping for up to 10 pins per envelope.



Envelopes are 5"x7" tan heavy paper with inside bubble padding. Please send your order and full correct address with ZIP code to:

CWpins05@gmail.com

Send your appropriate payment to: www.paypal.me/ANCRSundials

Please advise me if you are using a

different name with your payment (Example: a company name) so I can credit your email order.

Thank you! 73, Chet K8KIZ



Chet Roberts

22h

How would you like a CW OP label for a coffee mug, car window, or whatever? Get 3 of these 3" durable, waterproof and dishwasher safe labels by sending \$5 WITH a self-addressed AND self-stamped envelope to: Chet Roberts K8KIZ, 173 Fredericksburg Drive, Avon Lake, OH 44012. 73!



NOARS Information

Members of the Board of Directors

President: Carl, W8KRF
Vice President: Dave, KY8OSU
Secretary: Elaine, KC8FOS
Treasurer: Tom, W8KYZ
Others: Bob, W8NNC, Tim, NC8X; Tom, N8FDY

Others

Net Manager: Elaine, KC8FOS
Club Trustee for K8KRG: Al, N8CX
NOARS Log Editors: Tom, N8FDY; Elaine, KC8FOS
Volunteer Examiners: Tom, W8KYZ; Joe, W8GWD;
John, KC8KI; Dave, K8WRS; Sallie, AB8GI

Committees

Parliamentary Committee: Tom, N8FDY
Repeaters: Carl, W8KRF; Tim, NC8X
Field Day: Al, N8CX
Hamfest:
Sunshine: Tom, W8KYZ (temp)
Membership: Carl, W8KRF
Club Property Committee: Tom, W1PDI
Program Committee: Elaine, KC8FOS; Joe, 8DYZ;
Bob, W8NNC; Dave, KY8OSU
Social Committee: Elaine, KC8FOS; Dave, KY8OSU;
Ann, KA8ZEP
Public Relations Committee: Dave, KY8OSU;
Elaine, KC8FOS

Membership

Membership is open to anyone interested in radio communication. Dues are: Full \$15, Associate (non-licensed) \$7, Family members of a full member are \$4 each. Membership forms are available at www.noars.net. Make checks payable to NOARS and mail them to: NOARS Membership Committee, 161 Herrmann Drive, Avon Lake, OH 44012.



Meetings

During the Covid-19 pandemic, in-person meetings have been cancelled. They will resume as soon as it is safe to once again meet in large groups.

Nets

NOARS nets are Tuesday nights at 8 pm on 28.370 MHz, Wednesday nights at 7 pm on 146.700 MHz, and Thursday nights at 8 pm. on 146.700 MHz. All licensed amateurs are welcome.

VE Testing

Due to COVID-19, there will be no VE testing until further notice.

Net Control Stations

Elaine, KC8FOS
Carl, W8KRF
Tom, W8KYZ
Dave, KY8OSU
Dan, W8AJF
George, WA8YVF