



NEWS FOR AND BY BARS MEMBERS

# BARS Billerica Amateur Radio Society

FEBRUARY 2021

## **BARS physical meetings are on hiatus until further notice.**

The decision to resume in-person club meetings and breakfasts at Stellio's will be made entirely by the Board based on the outlook of this medical emergency. The safety and well-being of our membership is important to us.

Meanwhile, virtual club and breakfast meetings using Zoom have proved an enjoyable substitute. Please ignore the sections, below which give directions and schedule for in-person meetings.

VE License Exams are also virtual – see the VE section near the end of the newsletter for details.

--BARS Management.

## **From the President's Desk**

from the President of BARS, Doug Bruce, KC1MJK

Hello Everyone,

I hope that all of our members are staying safe and healthy as we continue to endure the pandemic. I am looking forward to our presentation on February 3 from Donna Halper, noted Boston Radio Historian. In my conversations with Donna on the phone to set up her presentation, I believe that she is a very special and unique talent in this area, and I feel we all will learn a great deal from her talk. Be sure to join us on February 3 for this special presentation. I am sure that you will all enjoy it.

In other news, I am looking into doing a Special Event Station later this year to celebrate the Centennial of WBZ Radio AM 1030. Seeing as we are in the Boston area, this would be a valuable opportunity to get exposure for our Club, along with celebrating one of the pioneer radio stations in the United States.

I will keep everyone posted as we plan for this event, which will probably take place in September of this year.

For those of you who are not familiar with Special Event Stations, they are set up by local Clubs to mark special events of historical or noteworthy events of the past that are located near where the Club operates. QST Magazine (for ARRL Members) has a monthly list of Special Event Stations around the United States. Examples of Special Event Stations that I have personally worked are KDKA 1020 AM in Pittsburgh, a special event station in Pennsylvania marking where Memorial Day was first organized and celebrated, and WIMS, which is the Special Event Station that runs every year during the Indianapolis 500 and Brickyard 400 and the Indy Grand Prix series of auto races.

Special Event Stations send out specially designed QSL cards and certificates that confirm that you have worked their station. These cards and certificates make great cornerstones for your QSL card collection, and great wall decor for your ham shack. Please feel free to email me if you would like to sign up to be an operator during this Special Event Station event.

On a personal note, I will be off of the HF airwaves for a couple of weeks as my office and ham shack will be undergoing a complete renovation and remodeling. I will be posting pictures of the work and subsequent completion of the project on my QRZ page. When I am finished with the project I will be making shack pictures and displays a part of the newsletter going forward, so please begin to compile pictures of your shack and antenna set ups so we can share with the membership. This will be good opportunity for everyone who may be looking to make tweaks or adjustments to their ham shack to improve their ham radio experience.

I also want to thank all of our members who check in to the B.A.R.S W1HH Wednesday night 2 meter net. This net is growing by leaps and bounds every week, and we welcome any and all amateur radio operators in our area to check in and keep the net a vibrant, positive, and upbeat event to look forward to every week. I want to give a special shout out to Chris KC1IUK, our illustrious Net Manager for organizing and scheduling the Net Control Stations that keep the net up and running smoothly

every Wednesday night. We are always looking for fresh voices to jump in and try their hand at Net Control. Once you try it, you will be hooked! I enjoy my nights as Net Control very much, and I consider it an honor and privilege to be Net Control for our great Club.

As always, please feel free to reach out to me via email or the Billerica Repeater if you would like to discuss anything Club related or ham radio related. I love to rag chew as you all know!

Until next month,

73!

## Next BARS Zoom meeting: February 3 at 7:00 PM

### “How the Amateurs Created Boston Radio”

**Presenter: Donna Halper**

Join us for the next B.A.R.S Club Zoom Meeting for an interesting and informative presentation by Donna Halper, noted Boston Radio Historian entitled “How the Amateurs Created Boston Radio”. This will be a wonderful presentation by Donna that I am sure everyone will enjoy! Hope to see you then!



We will announce the link to join the Zoom meeting before the meeting, but it will be posted to the BARS email list and should not be shared outside our Club. Are you on the email list? If not, please send an email to [bars-subscribe@w1hh.org](mailto:bars-subscribe@w1hh.org) and then simply reply to the robot response from the server and you will be subscribed.

Observing our Zoom meeting requires only a web browser and headphones/speakers. You do not need a webcam or microphone unless you want to speak or be seen.

Before our meeting date, please go to <https://zoom.us/test> and see if it will function for you. If you have problems, we can try to assist – feel free to ask questions on the BARS email list.

I am looking forward to “seeing” many of you on Wednesday 2/3 here at 1900.

Doug, KC1MJK

President, Billerica Amateur Radio Society

## A Message From the Editor

from Marla Wallace, WA1GSF

I spend a lot of my time reading, now that I’m retired. Lately, I’ve been reading articles on the web and books about the history of amateur radio. I expect to review a book next month: *The World of Ham Radio 1901 – 1950* by Richard A. Bartlett.

Amateur radio has a long history of technical excellence. Early hams had to make their own gear, often having to fabricate the components themselves because manufacturers of things like capacitors and coils did not yet exist. The first use of Single Side Band was by a ham and we have pioneered narrowband digital modes. Hams have built and orbited their own satellites and operated the ground stations to control them.

And many hams today are professional engineers, though not always working in radio-related fields. Before retiring, I was one of those. I worked for about half of my career as a software developer, about a quarter of my career as a computer hardware designer and the remainder as both at once.

But I was a ham before I was an engineer. And I did RF design before I got my degree: I designed (and constructed) my 6 meter receiver, a triple-conversion solid-state superhetrodyne – with no frequency synthesizers and no microprocessor-driven LCD display (my how times have changed!).

In that spirit, for this issue I have contributed an article that describes how to design a class-A audio amplifier using a bipolar junction transistor in the common-emitter configuration. This circuit might be used as a microphone preamplifier or as part of the receiver chain of a QRP rig.

## Club News: On-line VE Exams

We started doing only online exams in December. Our next online exam session will be on January 14. If you are interested in participating in these sessions as a candidate or as a VE, please contact Bruce at [W1LUS@hotmail.com](mailto:W1LUS@hotmail.com) to register for this online exam session. --de Bruce, W1LUS

## Feature Article: The 4SQRP 4S-Tuner Kit By Andy Wallace, KA1GTT

**YOU CAN TUNE AN ANTENNA BUT YOU CAN’T TUNA FISH!**

My sister Marla (WA1GSF) bought a  $\mu$ BITX transceiver at the Boxborough ARRL convention a few years ago with the intent of getting on HF. That project has been going slowly but more recently she decided to prepare for it by realizing she did not have any antenna tuners and consulted with me about what to get.

The  $\mu$ BITX is low power so almost anything would work. I did some research and was surprised to see how expensive even the simplest antenna tuners were in 2020. The good news is she could use a QRP tuner and save money. I went surfing at a few sources and finally recommended the Four State QRP Group 4S-Tuner. Four State QRP was originally intended for members in AR, OK, MI, and KS but now members can be from anywhere.

<http://www.4sqrp.com/4stuner.php>

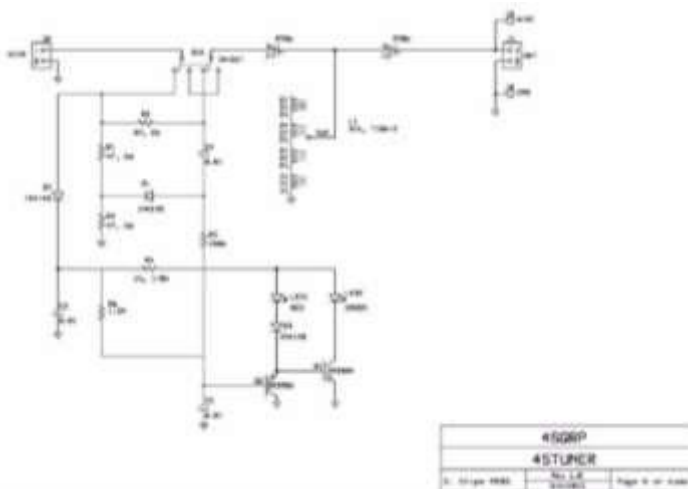
This tuner is 3x3x2" and \$52.90 shipped. I had been very pleased with my experiences with 4SQRP in building their Cricket 80 and 80A QRP CW transceivers, and also the Murania retro broadcast band AM radio. The Ozark Patrol regenerative radio is next on my bench! Check out their line of kits at:

<http://www.4sqrp.com/kitIndex.php>

The antenna tuner is a fairly simple T-match design with three knobs and a switch on the front panel. Antenna input and outputs are QRP-friendly BNC and there is also a pair of binding posts for use with wires directly. (A balun may be necessary for some feed lines.) A novel feature is that the unit uses red and green LEDs to display SWR. You simply adjust until the red light dims and the green light is bright! And another novelty: the enclosure is made out of PC boards.

The assembly manual explains it all:

[http://www.4sqrp.com/kits/4stuner/4-stuner\\_manual%201-4-2.pdf](http://www.4sqrp.com/kits/4stuner/4-stuner_manual%201-4-2.pdf)



**Figure 1: The Schematic of the 4S-Tuner**

Many of us old enough to remember Heathkits lament that new kits don't come with the quality of assembly manuals that Heath produced. However, things are getting better and Elecraft has raised the bar pretty high. I have to say 4SQRP have done an excellent job on their manuals. Before anyone criticizes any kit, please remember that many of these are designed, kitted, documented, produced, and shipped by people volunteering for a

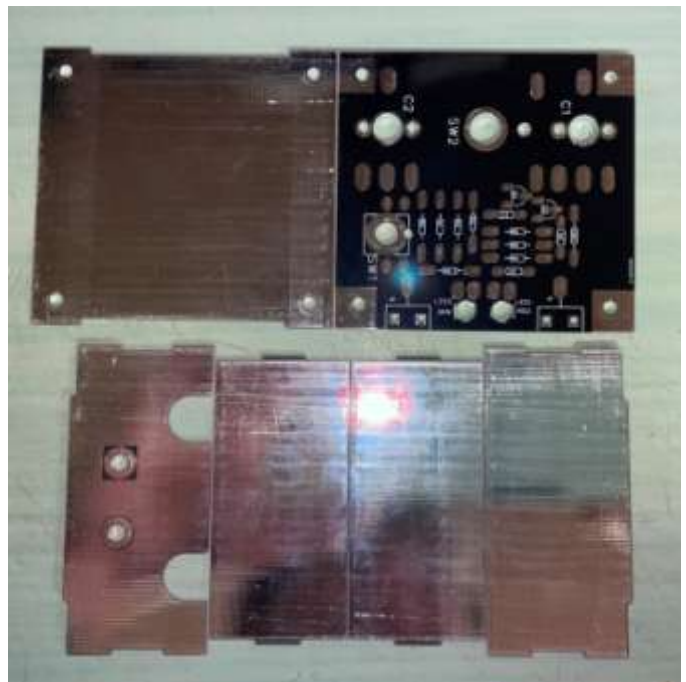
club, not a corporation. It was very hard work and I wonder if \$52.90 really does cover the time and effort spent!

The tuner is supplied as an organized kit of parts. They leave it up to you to download the manual (which gives you the latest and greatest).



**Figure 2: What's in the Box**

Because the tuner's PCB is also its enclosure, the boards have tinned copper traces that allow you to solder them together as a box. 4SQRP uses this technique on the Murania and other kits.



**Figure 3: The Six PCB Pieces**

With the parts laid out on the bench, and taking inventory, the number of items seems pretty small and you might think this was a beginner level kit. I have to say that after constructing it, this is a fairly advanced kit which I would recommend more to experienced builders.

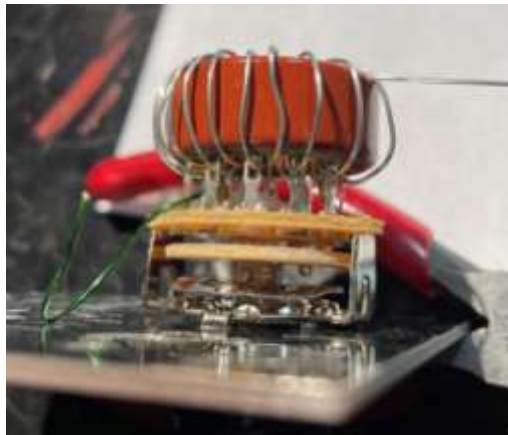


**Figure 4: Everything Laid Out and Ready to Assemble**

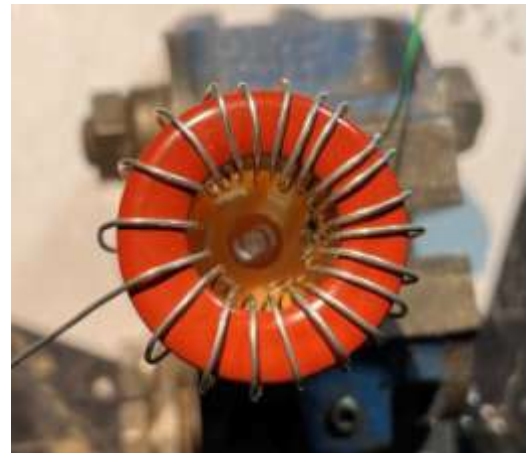
(By the way, the beat up vinyl covered office desk is a valuable ham workbench necessity which may take you decades to find, or, in my case, inherit.)

The kit uses double-sided PCBs but they are not thru-hole. Instead, 4SQRP uses something they call Pittsburg construction. It is named after W0MQY who lives in Pittsburg, KS (not Pittsburgh, PA)! His technique is to use normal leaded parts but solder them surface-mount style on pads. The manual and their website explain how this is done. A good set of pliers, tweezers, and of course a good soldering iron are all must haves.

One reason I feel this kit is more for advanced builders is that the very first item they have you build is the inductor, with its switch. They actually have you wind the toroid with bare wire rather than insulated, and “stitch” it through the 12-position switch lugs as you go. This is a very impressive way of keeping parts down but can be tricky as well. The toroid must be wound and carefully soldered in place such that adjacent turns do not short out to each other or switch lugs. I took my time at this and double checked my work.



**Figure 5: The Toroid – Side View**



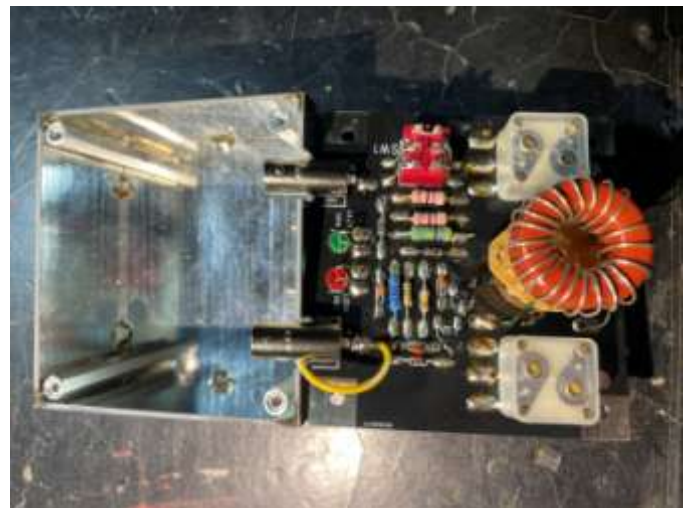
**Figure 6: Toroid – Top View**

From there it was somewhat of a coast downhill. The Pittsburg construction was fairly easy once I got the hang of it - it helps to bend and trim the leads before soldering. It also helps to tin one pad and lay one lead down with the iron, solder the other lead, and resolder the first lead.

Soldering the BNC connectors takes a fair amount of heat. Soldering the PCB “box” together is actually not as tough, because the designer added thermal reliefs to the pads. However, getting the five box pieces to align and stay in place with tape and elastic bands takes five hands. Have a helper! Getting that step correct is worth the effort though, since this will be how your tuner looks.

I did run into a snag during construction. It happens - the kit was missing parts. In my case it was one of the 47 ohm resistors for the SWR bridge, and both BNC connectors. I wrote to Steve N0SM who kitted this model, and he sent the parts out right away. No charge, of course.

So after a slight delay I had the unit together.



**Figure 7: The Assembled Kit, Ready to Box Up**

The instruction manual explains the tuning-up process. Their caveat about not switching the inductor while transmitting is a good one. I turned my transceiver power down to 1W and gave it a shot on 80m. The tuner has a toggle switch for putting the bridge (and LEDs) in circuit for tuning. When you are done, you switch to the OUT position to allow full QRP power to pass through. I got a good match on 80m coinciding with the red LED dimming and the green one brightening. I could not get the red LED to extinguish completely, but this still made things easier than reading a meter. I can see where this would be very handy when doing QRP in the field.



*Figure 8: Vatchen Das Blinkenlites*

I was able to get a match on 40 (my antenna is cut for 40 already) and 30 as well. I was pleased and handed it off to Marla.

One side-note: the IN/OUT toggle switch supplied was actually a center-off type toggle switch. This meant that in between IN and OUT would be a position where the antenna would be disconnected from the rig. Marla and I knew not to use that position but in conferring with Steve he said later kits would be shipped without the center-off version. As he had already sent me the resistor and BNCs I did not ask for a replacement switch.

Overall I was impressed with the quality of the kit and instructions. I'm hoping when Marla gets the uBitX completed and we haul some sort of antenna in the air she will enjoy using the 4S-QRP 4S-tuner I enjoyed building.



*Figure 9: Looks Pretty Sharp, Doesn't It?*

[When Andy gave it to me the other day, I used my new nanoVNA to characterize the tuner. Driving a 50 Ohm resistive load, the tuner will match to within 1.1:1 from about 2.8 to 35 MHz. One thing I noted, though, was the SWR bridge circuit affected the tuning slightly. This is not surprising and probably will make little difference to the intended use. The SWR circuit adds a complex impedance at the tuner's input port. Heisenberg is forever with us. -ed.]

Andy  
KA1GTT

## Technical Article: Designing a Class-A Audio Amplifier Using a BJT

By Marla Wallace, WA1GSF

Does anybody still use bipolar junction transistors? I should hope so! In this article, I'm going to walk you through the process of designing a class-A audio amplifier stage using the ubiquitous 2N3904 transistor. Before you run away screaming, none of the math in this article goes beyond addition, subtraction, multiplication and division.

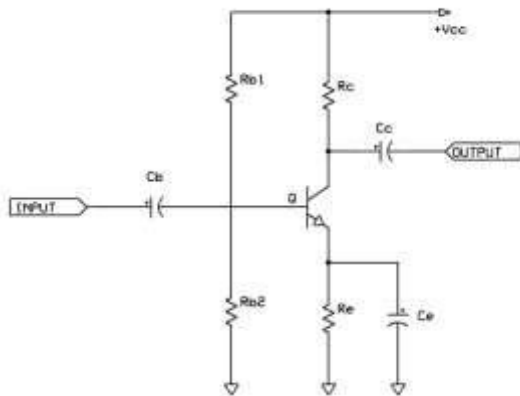
Let's define some terms: First, Class-A refers to the operating mode. A Class-A amplifier is biased such that the output signal faithfully reproduces the input (except at a larger amplitude). This amplifier is free from distortion due to limiting or rectification of the waveform. But this comes at a price: this amplifier configuration is the least efficient, as it is always drawing power. This is why you rarely see Class-A amplifiers in

the final stage of devices. So use this circuit where high fidelity is more important than power consumption.

Second, the circuit we will study is a Common-Emitter configuration. This means that the input and output share a connection (in terms of AC, anyway) at the emitter of the transistor.

As we shall see, establishing the operating point of the amplifier for Class-A operation involves logical choices and not a little bit of arithmetic, but is pretty straightforward.

First, let's look at the schematic diagram for this common-emitter amplifier:



**Figure 1: A Common-Emitter Amplifier  
Using an NPN Bipolar Junction Transistor**

This circuit needs just eight parts: the transistor (Q), three capacitors (Cb, Cc and Ce) and four resistors (Rc, Re, Rb1 and Rb2). Now for the 12-step design process...

1. Choose Rc. Rc should, optimally, be the same as the load connected to the output because maximum power is transferred when the load impedance and the output impedance of the amplifier are equal (1:1 SWR, in ham terms).

$$R_c = Z_{LOAD}$$

2. From the maximum peak-to-peak input voltage, estimate the peak-to-peak output voltage.

$$V_{out} = V_{in} \times R_c \div h_{ie}$$

Where the base resistance,  $h_{ie}$ , for the 2N3904 (one of the transistors most appropriate for this circuit) is 1000 Ohms. Now choose  $V_{cc}$  to be not less than  $V_{out} + V_{in} + 0.7V$ . This will ensure that when the amplifier is

properly designed the output waveform will not be limited by  $V_{cc}$ .

3. We want the quiescent collector voltage,  $V_c$  to be set to the midpoint of the excursion range that the circuit will allow. This is  $V_c = 0.5 \times (V_{cc} + V_{in} + 0.7V)$ . By Ohm's law, we can now determine the quiescent collector current:

$$I_c = V_c \div R_c$$

4. The emitter needs to be set to a voltage high enough that the base-emitter junction is always forward biased. This means that  $V_e = V_{in} \div 2$ , at least. From Ohm's law, we now can determine the value of  $R_e$ :

$$R_e = V_e \div (I_c \times (1 + 1 \div h_{FE}))$$

Where  $h_{FE}$  is the DC current gain, which for the 2N3904 is around 75.

5. Now we determine the base voltage,  $V_b$ :

$$V_b = V_e + 0.7V$$

(I probably should stop and mention where that 0.7V term that keeps popping up comes from. The voltage drop across a diode junction in a silicon-based semiconductor like the 2N3904 is 0.7V at room temperature. This is given, sometimes, in data sheets as  $V_{be}$ , but is also approximately the collector-emitter saturation voltage,  $V_{CESat}$ .)

6. Now we calculate the base bias current,  $I_b$ :

$$I_b = I_c \div h_{FE}$$

7. We now have what we need to calculate the values for the base bias network, a voltage divider made from  $R_{b1}$  and  $R_{b2}$ . From Thévenin's theorem, the voltage across  $R_{b2}$  if the transistor was disconnected is  $V_b$  and the current that would flow through  $R_{b1}$  if  $R_{b2}$  was shorted out would be  $I_b$ . This results in two equations in two unknowns:

$$V_b = V_{cc} \times R_{b2} \div (R_{b1} + R_{b2}) \text{ and}$$

$$R_{b1} = V_{cc} \div I_b$$

We can solve the second equation and get the value of  $R_{b1}$ .

8. Doing a little algebra, we then solve for  $R_{b2}$  using this formula:

$$R_{b2} = R_{b1} \div ((V_{cc} \div V_b) - 1)$$

Because the current gain of a transistor ( $h_{FE}$ ) is often only specified as a typical value, we take advantage of the negative feedback provided by  $R_c$  and supply more  $I_b$  than is required: divide the calculated values for  $R_{b1}$  and  $R_{b2}$  by 2 to allow for a part whose  $h_{FE}$  is half the typical value.

So we now have calculated values for all of the resistors. In the remaining steps, we calculate the capacitors' values.

9. Choose the minimum operating frequency,  $F_{MIN}$  consistent with your desire for booming bass sound. ☺  
In order for the amplifier to reproduce this frequency with minimum roll-off, the reactance of each of the capacitors must be  $1/10^{th}$  the resistance of the circuit element the capacitor works with.
10. Calculate  $C_c$  such that  $X_c = R_c \div 10$ :  
$$C_c = 10 \div (2 \times \pi \times F_{MIN} \times R_c)$$
11. Calculate  $C_c$  such that  $X_c = R_c \div 10$ :  
$$C_c = 10 \div (2 \times \pi \times F_{MIN} \times R_c)$$
12. Calculate  $C_b$  such that  $X_c = h_{ie} \div 10$ :  
$$C_b = 10 \div (2 \times \pi \times F_{MIN} \times h_{ie})$$

And there you have it! Go warm up your calculator and a soldering iron and build yourself an amplifier.

Some practical considerations: the capacitors should be chosen from 10% values closest to that calculated and the working voltage should be greater than or equal to  $V_{cc}$ , to avoid tragedy if you make a wiring error. Also observe polarity! Resistors should be  $1/4W$  and chosen to the nearest 5% value.  $V_{cc}$  must not exceed the lowest of the absolute maximum ratings for the transistor (in the case of the 2N3904, this is 40V) and the value of  $I_c$  must be less (preferably a lot less!) than the absolute maximum current of the transistor (200 mA). Like any other piece of engineering, be prepared to have to adjust things if your assumptions about the transistor's  $h_{FE}$  or the gain of the circuit turn out to be wrong. Not all transistors with the same part number are exactly the same.

Finally, choosing a modern silicon transistor has allowed me to make a few simplifying assumptions; the equations for an older germanium transistor (e.g.: CK722) are more complicated, so before you go recreating 1950s technology, do your research. In particular, you must account for  $I_{c0}$ ,  $h_{oe}$  and  $h_{re}$ , all of which have negligible effect when using the 2N3904 and some negative feedback in the bias network must be provided to prevent destructive thermal runaway due to  $I_{c0}$  and  $h_{FE}$  being positive functions of temperature (i.e.: they increase with both ambient

temperature and the power dissipation which increase as  $I_c$  [recall that  $I_c = h_{FE} \times I_b$ ] is affected).

## Strays

### Spring NEARFEST Canceled

Dear Friends of NEAR-Fest.....

I am sure that just about everyone knew this was coming but this makes it is official.

Given the current Coronavirus situation with new cases reported every day at astronomical levels (on January 8th there were 7,110 in Mass. alone) and the fact that the vaccination process is running behind schedule we have decided that April 30th/May 1st 2021 is far too soon to hold NEAR-Fest XXIX and guarantee that it will safe for all. Consequently I have this day notified the Deerfield Fair Association that we have decided to cancel it.

This decision was not taken lightly but it is also a no brainer. There are no options. As you know this is the third NEAR - Fest that had to be cancelled because of Covid-19. The good news is that NEAR-Fest XXX is scheduled for October 15th and 16th, 2021 and, for the first time since this started, I am fully confident this will be our grand "NEAR-Fest Homecoming!"

Advance tickets and parking passes that were sold for NEAR-Fest XXIX will be valid for NEAR-Fest-XXX. However anyone wanting a full refund may have it. Email [w1rc@near-fest.com](mailto:w1rc@near-fest.com) for details.

For more information visit  
<http://forum.near-fest.com/index.php?topic=1522.0>

73 and see you all on October 15th!

Mister Mike, W1RC  
Benevolent Dictator  
New England Amateur Radio Festival, Inc.

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## Found on the Web

He built the very first radio transmitter and radio receiver. I bet it's not who you think! Read about this radio pioneer at:  
[https://en.wikipedia.org/wiki/Heinrich\\_Hertz](https://en.wikipedia.org/wiki/Heinrich_Hertz)  
Furthermore, he was operating on six meters, more-or-less. But his best DX was only across the room.

And for those who need it, a nifty calculator for designing multi-element yaggi antennas:

<https://sites.google.com/view/kn9b/yaggi-antennas>

I was going to use this to design a high-gain yaggi for 2450 MHz so I could connect to a weak WiFi portal, but I found the antenna on Amazon for less than it would have cost me to make it. (And that antenna's design used the same dimensions as the calculator gave me, so I guess the calculator is trustworthy.)

--de Marla Wallace, WA1GSF

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## Making ZOOM available to Elmers

In this time of social distancing we have been using Zoom for our monthly club meetings. I have been thinking that Elmers could also be using Zoom to coach new hams instead of actually going to visit with them. Elmers could perhaps help with programming a new radio with the new ham sharing their computer screen and the Elmer helping to walk them thru the process. An Elmer could have Zoom on their cell phone and show a new ham how their shack was setup. Use your imagination and see how you might use this tool. If you would like to use Zoom for this, contact Bruce, [W1LUS@hotmail.com](mailto:W1LUS@hotmail.com), with a date and a time and a meeting will be setup for you. You may also contact Bruce if you would like training on using Zoom to Elmer someone.

--de Bruce Anderson, W1LUS

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## Upgrading Your License? Here's a Resource

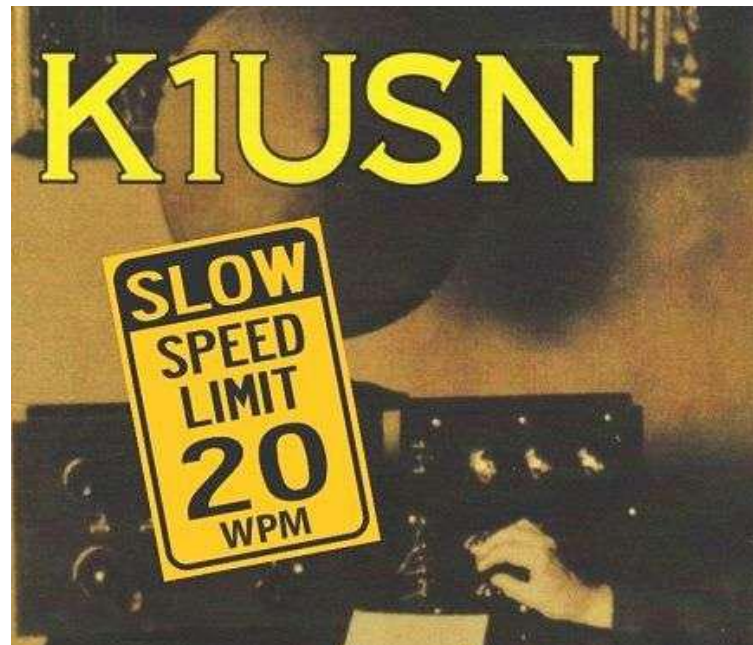
If you are thinking of upgrading your license using one of the Online exam sites. I recommend that you take some free practice exams on HamStudy.org. I recommend it because the software used to generate practice exams on HamStudy.org is the same software that is used to create exams for online tests. By doing that when you take an online upgrade exam the test question format will be familiar. With HamStudy.org practice tests you should use the keyboard to select the answer, A,B,C, or D and not your mouse as that is way online exams are run.

--de Bruce Anderson, W1LUS

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## Weekly Sunday Night CW Slow Speed Contest

There is a weekly slow-speed CW contest run by the local K1USN guys. This is a good way to polish up your CW skills. See <http://www.k1usn.com/sst.html> for details.



-- de Tom Walsh, K1TW

## Secretary's Reports

from Scott Ginsburg, K1OA, Secretary

### BARS General Meeting, Jan 6, 2021

President Doug Bruce, KC1MJK called the Zoom virtual meeting to order at 7:07 PM.

Bruce McKinnon, KC1FSZ, gave a talk on the NanoVNA Vector Network Analyzer. Bruce covered the basics of the instrument, its history and design through public domain development and how it can be used to analyze antenna performance and various circuits such as filters.

A motion was made and seconded to authorize renewal of the club's annual web hosting fees due in February in the amount of \$119. A vote was held and passed.

There were 26 attendees. KC1MJK closed the meeting at 9:12 PM.

### BARS Board of Directors Meeting, Jan 21, 2021

Board Members present: KC1MJK, W2IRY, W1LUS, WA1VAB, K1TWF, K1OA

The speaker lineup for meetings through April was discussed.

Doug, KC1MJK suggested the club sponsor a special operating event in commemoration of the 100 year anniversary of AM station WBZ. Doug will investigate some ideas for the event and present at a future Board meeting.



Field Day 2021 was discussed and the Board agreed that June will probably be too early to start gathering in person again.

The recording of presentations at Zoom general meetings was discussed and the consensus of the Board is that this will not be done due to privacy issues.

The Board discussed better ways of letting new members know how to get on the club mailing list in order to receive Zoom meeting links and other helpful information. Bruce, WILUS will send out instructions with the dues payment acknowledgement email on how to do so from the club website.

## BARS Membership

Bruce, WILUS, our BARS Treasurer reports that as of 2/1/2021, we had 107 members. To date 68% of 2020 members have renewed for 2021

## 2021 BARS Member Dues

The BARS Board has changed the policy on member dues. A \$15 annual BARS membership now runs from January 1<sup>st</sup> and expires on December 31<sup>st</sup>. Any renewal or new membership made after September 1 will be valid until December 31<sup>st</sup> of the next year. Memberships allow us to

- Pay our bills;
- maintain our great web page;
- fund field day;
- and bring the membership a great variety of informative meetings and speakers.

## Treasurers Report for January 2021

from Bruce Anderson, WILUS, Treasurer

For December our expenses were Zoom \$15.93, PO Box rental \$80, Billerica ARS domain fee \$16.88, a \$15.74 refund and PayPal fee of \$12.58. We had 23 new/renewals for an income of 345.00 plus donation of \$7.30. We now have \$331.60 in the Bank and \$1123.54 in our PayPal account for a total of \$1457.42

Dues for 2021 will remain at \$15 for 2021 and are due starting January 1, 2021.

Dues can be paid several ways:

- Via bank to bank transfer with Zelle, Venmo, PayPal, etc. by sending \$15 to [bars.dues@outlook.com](mailto:bars.dues@outlook.com).
- With credit card by using the Join/Renewal membership form on the W1HH.org website.
- With cash or check by mailing \$15 to Billerica ARS, PO BOX 832, Nutting Lake, MA 01856

Bruce Anderson, WILUS  
Treasurer

## BARS Needs You!!!

We are looking for a few good hams to act as net control on the regularly scheduled Wednesday night nets! All it takes is one night a month; if you are interested contact Chris, KC1IUK. Also, the club needs volunteers for light tasks of ~ 1 hour a month. Are you able to pitch in? Contact Doug Bruce, KC1MJK.

## Wednesday Night Net

Join us on the Billerica Repeater for the weekly BARS net each Wednesday at 8:00 PM (**except on the first Wednesday of the month which is club meeting night**).

Repeater info:

147.12 MHz

+600 kHz (normal) offset

Encode CTCSS 103.5 Hz

## Club Meetings

When we resume in-person meetings, they will be held on the first Wednesday of the month at 7:00PM at Chelmsford Bible Church, 128 Gorham St., Chelmsford MA

Park in back and enter by rear door

[Chelmsford Bible Church Hall, 128 Gorham St, Rear Door,](#)

[Chelmsford MA 01824-3220](#) (map)

## VE Sessions

We started doing only online exams in December. Our next online exam session will be on January 14. If you are interested in participating in these sessions as a candidate or as a VE, please contact Bruce at [WILUS@hotmail.com](mailto:WILUS@hotmail.com) to register for this online exam session.

Eventually, we hope to resume holding VE sessions as before, every month on the 2nd Thursday at 7:00 PM at Chelmsford Bible Church, 128 Gorham St., Chelmsford MA. Park in back and enter by rear door. [Chelmsford Bible Church Hall, 128 Gorham St, Rear Door, Chelmsford MA 01824-3220](#) (map)

### January 2021 VE Session

On January 14 we had our second online VE Exam session. We had three people signed up Two passed their Technician and one earned his General upgrade.

Our next session will be on February 11, 2021. If you are interest in taking an online exam or assisting with an exam contact me at [w1lus@hotmail.com](mailto:w1lus@hotmail.com).

I would suggest that anyone considering taking an online exam use the exam prep site HamStudy.org for practice as that is the same site that is used to generate the online exams.

Thanks to Scott, K1OA, Andreas KC1NTL, Niece KA1ULN, and Gary, W1GFF for their help in running the session.

Bruce Anderson, W1LUS

## Club Breakfast every Saturday

On Saturday mornings around 8:15AM, we also meet weekly for a casual, social breakfast at Stelio's restaurant. [Stelio's Family Restaurant, Billerica, MA](#) (map)

## BARS Leadership Team

President: Doug Bruce, KC1MJK  
 Vice President: Kayla Creamer, W2IRY  
 Treasurer: Bruce Anderson, W1LUS  
 Secretary: Scott Ginsburg, K1OA  
 Net Coordinator: Chris Lobdell, KC1IUK  
 Newsletter Editor: Marla Wallace, WA1GSF  
 New Member Outreach: John Fisher, KC1FTJ  
 BoD: Mike Raisbeck, K1TWF  
 BoD: Henry Christle, WA1VAB  
 Ex Officio: Andy Wallace, KA1GTT

## Future Meetings

The 3/3 meeting will be held via Zoom.

## Subscribe to the BARS Mailing List

To subscribe to the BARS email list, send a blank email to [bars-subscribe@w1hh.org](mailto:bars-subscribe@w1hh.org) and watch for an automated reply. Note that bars-subscribe is all one word.

Reply to that message from the list server and you are then subscribed.

To post to the list, address your email to [bars@w1hh.org](mailto:bars@w1hh.org)

## BARS February Suggestions - Get-on-the-air Events

BARS is a "get-on-the-air" (GOTA) club. We encourage members to participate in the varied events on HF and VHF. Here are some popular suggestions for this month:

Date	Event
Feb 6-7	European Union DX Contest <a href="https://eudxcc.altervista.org/eu-dx-contest/">https://eudxcc.altervista.org/eu-dx-contest/</a>
Feb 12-14	Young Ladies Radio League (YLRL) YL-OM Contest <a href="https://ylrl.org/wp/yl-om-contest/">https://ylrl.org/wp/yl-om-contest/</a>
Feb 13-14	Straight Key Century Club (SKCC) Weekend Sprintathon <a href="https://www.skccgroup.com/operating_activities/weekend_sprintathon/">https://www.skccgroup.com/operating_activities/weekend_sprintathon/</a>
<b>Feb 20-21</b>	<b>ARRL International DX Contest, CW **</b> <a href="http://www.arrl.org/arrl-dx">http://www.arrl.org/arrl-dx</a>
Feb 1, 8, 15, 22	K1USN Slow Speed Test (0000-0100Z) <a href="http://www.k1usn.com/sst.html">http://www.k1usn.com/sst.html</a>

### \*\* Top Recommendations for this month

Details on each contest above and more events can be found every week on the WA7BNM contest calendar at :

<https://www.contestcalendar.com/weeklycont.php?mode=custom&week=current>

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