



# SIGNAL



de N1NC

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## This Month's Program

### NOTICE NOTICE NOTICE

March 20th and 21st is the Pepperell Lawrence Library Book Sale at the Community Center. This precludes the use of the Community Center for our meeting. As usual the Library has accommodated us by allowing us to meet at the Library. The meeting will start at the normal 7:30 time. The Library is just west of the Community Center on Route 113 at 15 Main St. If you get to the blinking light and the Town Hall you just missed it.

### NOTICE NOTICE NOTICE

Doug Grant, K1DG, returns to NVARC for our March meeting. Our club was quite busy over the last three years supporting WRTC-2014 (the World Radiosport Team Championships). Well, WRTC has come and gone as a very successful event. Doug has the professionally-prepared video wrap-up of the event. No guarantees, but look for NVARC members to show prominently in the production. That's a fairly easy prediction: we were active and one of the videographers was Pepperell's very own Dave Pease, a good friend of the club.

Entirely by the fault of our esteemed president, last month's secondary program got screwed up. Wolf, KA1VOU, had agreed to share his experiences building the keyer project during last Fall's Tech Nights. He was originally scheduled to speak in March but Skip tried to switch his talk to February without coordinating directly with him. We'll see if Skip can come up with enough apologies to get Wolf to speak this month.

## President's Corner

Here's a bit of news this month instead of the usual 'NKR philosophizing and pontificating.



The World Association of Girl Scouts and Girl Guides reserves the weekend closest to 22 February for a special Thinking Day activity. The 22nd of February is called Thinking Day because it was the birthday of Lord Robert Baden-Powell, the founder of the Scout and Guide movements, as well as that of his wife Olave, who was the first World Chief Guide. In 1909 Baden-Powell, the founder of Scouting, faced with an increasing number of girls wishing to take part in Scouting, decided that girls should have their own separate movement and the Girl Guides were founded in the UK in 1910. Many, though by no means all, Girl Guide and Girl Scout groups across the globe trace their roots to this point.

Last November, in planning for her troop's Thinking Day, my daughter Jill KB1SWV discovered that there is a Thinking Day On The Air world activity. Les Mitchell G3BHK (SK), one of the Radio Scouters who gave birth to the idea of Jamboree On The Air in 1957, had initiated TDOTA some twenty-five or so years ago. Jill asked whether I and the club would be willing to support trying TDOTA up at her troop's Raymond NH meeting space.

Stan KD1LE, Bob W1XP, and I signed on quickly (and maybe a little tentatively). Stan committed the Tower Consortium. I offered equipment. Later, Jill formally solicited the NVARC Board for its support and for the use of the club callsign. The Board agreed. Over the next few months Stan, Bob, and I did a few reconnoitering trips and Jill did the Girl Scout planning and coordination. Jill enrolled her activity on the TDOTA website ([http://84.92.59.175/NewTDOTA/?page\\_id=38](http://84.92.59.175/NewTDOTA/?page_id=38)). By the time Thinking Day arrived five other local troops had joined hers for the event. For a first time activity she soon found that she had the tiger by the tail.

Jill planned a set of activities that included introductions to world time and Morse code, indoctrination to speaking on the radio, and the actual on-the-air time.



RRS photography

Photo Courtesy KD1SM

On Saturday, 21 February, Stan, Ralph KD1SM, Greg KB1WAQ, Greg's daughter Sarah (who is also a Girl Scout), and I caravanned ourselves, the tower trailer, and the equipment to Raymond. (Bob couldn't participate because of his broken foot.) About an hour after arriving the tower was up with a

tri-bander and 80/40 dipole and the stations were set up in the Raymond Masonic lodge. We had a handful of code practice oscillators for the Morse introduction; a couple of handi-talkies and an FT-817 with various in-room portable antennas for the radio indoctrination on 2-meter FM; and an IC-756PRO for HF. Additionally, Jill had maps and a globe for teaching world time concepts and a craft table for stringing beads spelling "GS" in Morse as a keepsake.



RRS photography

Photo Courtesy KD1SM

Then the girls arrived. Bedlam! Of the eighty girls who signed up—split evenly between morning and afternoon arrivals—all but thirteen came in the morning to avoid the expected bad weather later in the day. Needless to say, there was a lot of audio QRM. Nevertheless, every activity succeeded in capturing the girls' interest.



RRS photography

Photo Courtesy KD1SM

Stan and Ralph had a great time turning "what's that" into "Wow, I sent my name in Morse code."



Photo Courtesy KD1SM



Photo Courtesy KD1SM

Greg did an outstanding job corralling a large and excited bunch of new handi-talkie users.



Photo Courtesy KD1SM

Getting on the air was easy, but we never did connect with other Girl Scout organizations—particularly the three in British Columbia who had prearranged skeds with us. Still, and despite the aforementioned audio QRM situation, we had fifteen

QSOs with stations in the US, Russia, Italy, Sweden, Spain, Switzerland, France, and Belgium.

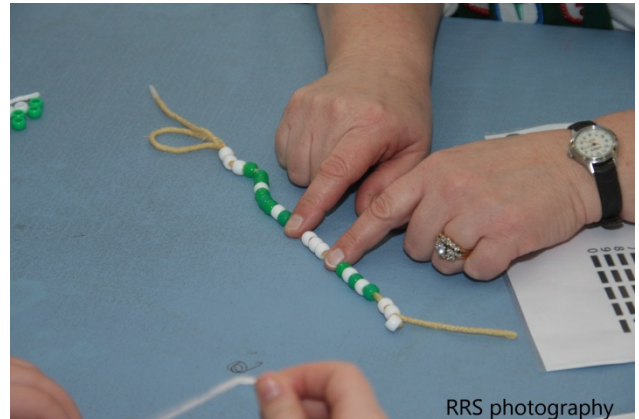


Photo Courtesy KD1SM

Each of the girls left with their beaded GS keepsakes, an “official” NVARC certificate of Morse code proficiency, and an international “On The Air” Scout interest patch for their vests. More importantly, some eighty girls were introduced to geography, science, technology, and radio. And a few were mesmerized—truly mesmerized—by the ability to talk to the world via Amateur Radio. Think about it.



Photo Courtesy KD1SM

After everything cooled down Jill and I prepared and sent out QSLs. When the replies come back those budding scientists and potential new hobbyists will be reminded of a great experience and will have another thing to be excited about.

Troop 12416 and the neighboring troops have expressed their thanks to all who participated. NVARC has had at least one major off-site Amateur Radio demonstration per year recently. Who knows, we just might do TDOTA again next year.

## Last Month's Meeting

Last month Jack Warren WB4MDC joined us for an informative and entertaining presentation called "Hamshack Hints and Kinks." Jack presented a collection of useful solutions we could use in our hobby such as methods to hang and tension dipoles, the way to wind coax properly and how to keep your cables rolled up neat.



### Attendees:

Jim AB1WQ, Bill AB1XB, Bruce K1BG, John K1JEB, Ksip K1NKR, Steve K1SMD, Gary K1YTS, Michael KA1NXH, Ken KB1UVP, Stan KD1LE, Ralph KD1SM, John KK1X, Dan KW2T, Ed N1YFK, Peter N1ZRG, Jim N8VIM, Paul NW1U, Dick W1LTN, Bob W1XP, Rod WA1TAC, Jack WB4MDC



Raffle winners: (Arduino kits) W1XP, N8VIM, K1YTS

Present at the February meeting were:

KD1LE Stan, N8VIM Jim, W1XP Bob, WA1TAC Rod, K1YTS Gary, KB1JKL Phil, KB1UVP Ken, W1LTN Dick, KW2T Dan, EX-K4OHZ Bill, KB1WAQ Greg, K1LK Leo, K1LGQ Dennis, K1NS Bill, N1SV Les, K1BG Bruce, WA1RCH Chuck (brought a cake to share), KK1X John, N1ZRG Peter, AB1WQ Jim..

## The G5RV

Would the G5RV be better in the inverted V configuration to communicate locally?

The above question was raised to me by a local ham, and it is a very good question. So I thought I would take the opportunity to answer his question and also submit the answer to the Signal. So here goes.

Now the question seems straight forward enough. A simple one word answer should be adequate, right? Well it might be if the G5RV was not intended to operate over much of the HF frequency range. There is some question if Louis Varney, G5RV (sk) really saw the antenna in the way that his antenna has been promoted in later years. But for its good and bad points, and it has some of both, it does do a reasonable job of getting out a signal on 80 through 10 and even 6 meters. It does require an antenna tuner to cover this kind of frequency range. And it works better on some of the bands than others. But it is a lot of bang for your antenna buck.

Now it is the wide coverage of the antenna that makes the answer to the above question more difficult. For the moment let's not consider 6 meters, and for that matter 160. We will have some comments to make about these two bands later. Let's stick to just considering 80 to 10 meters for the moment.

80 meters to 10 meters is a 3 octave frequency change. That is almost half way from one end of the piano keyboard to the other.<sup>1</sup> The wave length changes from 281 feet at 3.5 MHz. to 35 feet at 28 MHz. Now how a radio wave propagates through space is related to the size of the radio wave and its relation to, and the size of the objects in its path of propagation. So we can expect the 80 meter wave to behave differently than the 10 meter wave that is one eighth the size of the 80 meter wave. It should not be surprising this relates to the relationship between the antenna length and the height of the antenna above ground. Even in free space, which is really only a theoretical point of discussion, the radiation pattern of our antenna changes greatly from 80 to 10 meters. On 80 and 40 meters (I'll skip the WARC bands for the moment) the pattern in free space is pretty much that of the donut pattern of the classic half wave dipole. The radiation main lobe becomes a bit narrower as we move from 80 to 40 meters. This is because the narrower beam pattern has a bit more gain over the normal dipole. At

<sup>1</sup> The standard piano covers just over 8 octaves. 160 to 6 meters is about 5 octaves.

wavelengths of 20 meters and shorter the lengths of the half elements of the G5RV are longer than 5/8ths of a wave length. At this condition the single main lobe starts to break up into multiple lobes that no longer are pointed normal to the wire axis. The antenna still radiates well, the maximum signal is just not at right angles to the wire. At first as the frequency increases the single lobe breaks into two lobes that point to either side of the normal to the wire axis. The antenna radiates, but the energy just doesn't go the same direction that the lower frequency energy goes. As the length of the half element becomes longer and longer, as the wavelength become shorter and shorter, the radiation lobes move more and more toward the axis of the wire and more and more lobes are produced. This can be seen as either a plus or a minus. With just one antenna I suspect I feel it is a plus. Now as we place this antenna in the real world the radiation pattern is not only governed by the relationship between the wavelength of the signals and the length of the antenna, but also by the relationship between the height of the antenna above ground and the length of the wave. With an 8 to 1 change in wave length, it is not hard to imagine a large change in the pattern of radiation from one end to the other of the frequency range. With such a range of possibilities I can't go in to trying to explain this in this short article. But I will point out some trends for a horizontal antenna. If the antenna is a quarter wavelength or less above ground most of the radiation is pretty much straight up. If the antenna is one half wavelength or so above ground the antenna radiates most of the energy in lobes between say 15 degrees above the horizon to say 45 degrees above the horizon. The exact peak of this broad lobe depends on the characteristics of the ground and exact height of the antenna above ground in wavelengths. There is a null in the radiation pattern straight up at one half wavelength above ground. A simpler rule is if the number of quarter wavelengths of height above ground is odd (say 1 or 3) there is a peak straight up and if the antenna height is an even number of quarter wave lengths (say 2 or 4) there is a null in the pattern straight up. There is a transition between the two cases as the height is varied. So at intermediate heights the vertical lobe is in between the peak lobe and the deep null. As the number of quarter wavelengths increases there is less and less energy in the vertical lobe and more in the lower angle lobes. Therefore there is more energy toward the horizon and less toward the zenith.

Now the next part of the question is how does the signal get from the antenna to the station you are trying to communicate with? It should be obvious that the antenna should radiate in the direction the radio

wave has to travel to reach the station we are trying to contact. The original question was about communications between local stations. So to understand the question we must understand how the signal will propagate between the two "local" stations. We are also interested in how this propagation path may be affected by the 8 to 1 change in wavelength. By the way we would be asking the same questions if we changed the question to how to talk to a station at the farthest distance separation. We may just find we get different answers - or not.

So how does an HF signal travel to a local station we might want to communicate with? We will see that the path will likely be much different across the 8 to 1 frequency range. This as we will see may affect our choices of antenna type and location. To keep this reasonable let's just consider the limits at each end of the HF range, 80 meters and 10 meters. So how can we expect a signal to travel between two local stations at 80 meters? For the purpose of discussion I am assuming we are talking distances of a few miles to a few tens of miles. Maybe even out to 50 or more. At the other end of the spectrum ranges of this magnitude may be a bit difficult, but let's proceed.

Most of us have some general concept about the radio wave going up in the air and coming down somewhere else after some interaction with a charged layer referred to as the ionosphere. But does this get in the act for our local contacts? Maybe yes, maybe no.

After all isn't there a thing called "ground wave", and isn't that what we might want to use? Well let us look at the ground wave mode briefly. A ground wave signal is a wave that is propagated along the surface of the ground. The wave is held close to the surface by interaction between the wave and the surface. One way that has been used to describe the process and it may oversimplify the process, is to think of the wave as dragging its feet as it moves forward along the surface. This tips the wave forward so it follows along the surface of the ground. The bigger the wave the better the mode works. That says it works better as the frequency is lowered. This is why back in the early 20<sup>th</sup> century the commercial radio services wanted the low frequency spectrum and agreed to let the amateurs use the spectrum at wave lengths shorter than 200 meters. Up until this time, the ground wave mode was the only recognized mode of radio propagation. So although ground wave propagation is possible at frequencies shorter than 200 meters it isn't very effective with amateur power and antenna limits. It also dies out rapidly as the frequency increases. One

thing about Ground wave propagation is that the wave has to be polarized vertically. That is the Electric vector of the wave has to be normal to the surface of the earth. If the Electric vector of the wave is horizontal the conductive surface of the earth shorts out the Electric vector and the wave dies out very rapidly. Keep in mind that this is the mode of propagation that is present in the daytime service of the AM broadcast band. But think of the high power and large antennas used by the broadcast stations to be effective. Ground wave can be used effectively at 160 meters, but an effective vertical antenna with an extensive ground system is required along with high output power.

There is a second method of propagation that can be very effective at 80 meters for short range communications. It turns out that it is a natural for good local coverage at this frequency range. It is called NVIS or Near Vertical Incident Service. Simply the radio wave is radiated straight up. If the electron density of the ionosphere is high enough for the frequency of the wave, the wave will be reflected straight back to the earth over a large area centered on the transmitting station. So this means that signals can be exchanged with many stations from very local out to typically several hundred miles or more. The only thing that is necessary is that the station antenna at each end needs to radiate at least part of the energy at a very high angle of radiation. We learned earlier how to do this. Oh yes. Let me see. Ah yes we want the antenna height to be an odd number of Quarter wavelengths. Actually any antenna from a small fraction of a wavelength to a quarter wavelength high will work very well in this mode. Now since a quarter wave at 80 meters is about 70 feet, putting the antenna at a quarter wave or less is not difficult. Probably it is less than 70 feet even if we try to get it as high as we can. At 40 meters the height is only 35 feet so putting the antenna too high is more likely on this band. But the degradation is gradual. It doesn't stop working at 36 feet. It just starts to develop a null straight up. This null at the 40 meter band is maximum at 70 feet. It can be well above the 35 feet and still work as a NVIS antenna on 40 meters.

NVIS propagation is not without problems. There are mainly two problems. These are related to the state of the ionosphere. The E layer (about 60 miles high) has to be ionized to a high enough level to provide the required vertical reflection. This condition may not be present 24/7. Especially in winter when the numbers of hours of sunlight and the low sun angle are not as favorable to maintaining the required level of ionization throughout the hours of darkness when the sun is not providing stimulation

to the E layer. This is also more difficult at 40 meters where the level of free electrons necessary for the vertical reflection is higher. As a practical matter 40 meters is usually considered the high frequency limit of this mode of propagation. The vertical MUF seldom gets high enough for NVIS propagation on the higher bands. 160, 80, 60 and 40 meters are the NVIS bands with the availability diminishing as we go to shorter wavelengths. One other thing that impacts the choice of bands is the wave absorption or attenuation of the signals during daylight hours as the radio wave passes through the D layer. The D layer is below the E layer so the signal has to pass through it twice. Going up and coming back down. Because the D layer occurs at lower altitude where the air density is still great enough to allow for rapid electron, ion recombination, the layer vanishes quickly after sun set. So the loss drops quickly after the sun sets. When the layer is active during sun light, it absorbs energy from the lower frequency signals. The lower the frequency the higher the loss will be. This is due to the long wave length path of the electrons that are accelerated by the passing wave. This long path allows for the free electrons to be captured by anions in the dense air before the electron it has reradiated the energy it has captured from the passing radio wave. The longer the wavelength the longer the electron path, the more likely the electron is captured and its energy lost causing attenuation to the radio wave. The big low frequency wave loses energy, the short high frequency waves pass through with little loss. The loss is also proportional to the distance traveled in the D layer. The effect of this is somewhat limited because the path through the D layer is short because it is normal to the layer. Going to a higher frequency that will still support the NVIS mode will reduce the D layer loss. This is not a problem at night, but then finding a frequency low enough that supports the NVIS mode may be a problem, especially late at night. But having said all this the NVIS mode is quite useful as a mode of local to 300 miles or more communications on a 24/7 basis. This makes the mode quite useful for local HF communications. So I think it is obvious that the horizontal G5RV is a good choice for local contacts at the low frequency end of the frequency range. But by making it into an inverted V the vertical component of the radiation will not provide any useful NVIS performance and due to its small amplitude will not provide any useful ground wave coverage. That doesn't mean that an inverted V can't be used for effective NVIS communications. It just isn't the ideal antenna.

Now let's look at the other end of the G5RV's frequency range, 10 meters. This should be duck soup! Right? After all the frequency is right next to

the CB frequency range and we are all aware of the use of that band for local coverage and the CB operators all use vertical antennas. So it's got to be the way to go. We let's look at the problem in a bit of detail so we at least understand our decision. The way the radio wave gets between the two ends of the path at 10 meters (or 11 meters) is not ground wave propagation as I was describing before at 80 meters. It is really a Line of sight path. Vertical polarization is used primarily because the antenna is much simpler on a moving vehicle. The 360 degree azimuth pattern is also a plus of the vertical antenna. It is necessary to use the same antenna polarization at each end of the path, vertical to vertical or horizontal to horizontal. The method of the signals getting from one end of the path to the other end is basically that the two antennas can see each other. This is the same method that is use for public service radio like police and fire, and was used for years for over the air VHF and UHF TV coverage. Foliage blockage provides some loss in signal but this is minimal at the lower frequencies. Reflection of signals is also possible. The importance of polarization, whether it's vertical or horizontal, is not a big issue, but it needs to match. Since it is line of sight, antenna height is the most important issue for extended coverage. The higher the antenna is the farther the coverage. This goes for both antennas. As you might imagine the signal level drops very rapidly as the path passes the radio horizon. The atmosphere has an effect on the propagation of the wave. It actually makes the earth appear to be 1/3 larger in diameter that it is. So the "line of sight" distance to the radio horizon is farther for a given antenna height than the geometry of the path would indicate. There is also a mode referred to as extended ground wave, (a misnomer) that is the result of scattering in the atmosphere. This provides a weak but useable signal beyond the radio horizon. There are even more modes of VHF/UHF propagation but I can't go into them here. So back to our G5RV.

To have good local coverage at 10 meters all stations should be using the same polarization. If you are trying to talk with a station that is using a vertical, then changing the G5RV from a horizontal antenna to an inverted V will possibly improve signals. The inverted V name covers a lot of different antennas. The internal angle determines the vertical component. Much of the antenna is closer to ground. Hanging an addition vertical dipole for 10 meters would probably be much more effective. But as mentioned earlier getting the antenna as high as possible because height matters in this case. Such an antenna would be an effective 10 meter antenna for all kinds of operation. It could outperform the G5RV on some paths. Wave polarization is not im-

portant with sky wave signals. The wave polarization becomes twisted as it passes through the ionosphere. It usually breaks up into both vertical and horizontal components. A ten meter vertical or ground plane made out of a cut down CB antenna is a common 10 meter antenna. In this case adding a 10 meter vertical to your antenna farm for local coverage as well as for possible good performance on 10 meters may be a good step up. Ten meters is hot these days but no telling how long these good conditions will last. (Come on Cycle 25!) But, for a given height antenna at each end of the local path I suspect that two horizontal antennas positioned such that their main lobes of radiation are favoring each other will provide the best coverage. Lining up the main lobe on the G5RV may not be easy. There are usually only limited points of support. Many, but by far not all amateurs are probably using horizontal antennas on 10 meters. There are a good number of verticals of all kinds used also, so one might use this as an argument of the inverted V option to the G5RV, the best of both worlds. But if the G5RV antenna is being used for other than local contacts on 10 meters and can be in any other configuration than the inverted V I would not change it. If the inverted V configuration of the G5RV is the only one that you can put up, DO IT! But all things considered, if you can get it more horizontal I'd go for it. If you really want to have a vertical for 10 meters, get an old CB whip and cut it down and put it up as a second 10 meter only antenna. Or the vertical dipole as mentioned above. Then you can do A/B comparisons between the two antennas and give us some hard data of the difference between them. Of course things are never equal. A G5RV with the center at 80 feet in the top of a tree as an Inverted V may work better than the G5RV horizontal antenna at only 25 feet.

As a point of reference the club had a slow speed CW net on 10 meters a few years ago. We had stations from Chelmsford to Lunenburg and Sothern NH to Harvard all checking in and in most cases everyone heard each other. There was at least one exception where a station had a big hill in the foreground that blocked signals. I think there was a sample of every kind of antenna, from beams on big towers to multi band ground mounted verticals and we all seemed to do well. My antenna here was a Double Extended Zepp for 10 meters at about 30 feet. But the antenna is running more NW/SE which is not the most favorable orientation. I heard everyone here as I recall.

So what about frequencies between 10 meters and 40 meters? Well in general the performance is the same as on 10 meters, but it can be complicated by

interference from sky wave signals coming in. But basically the line of sight mode works where there is a line of sight.

Now a few words about 160 and six meters. The G5RV 102 feet long is not a very effective antenna when you are trying to feed it in the normal fashion on 160 meters. The SWR of the very reactive short wire elements is so high that feed line losses eat up most of the signal. I really do not recommend this antenna. (The half wave dipole on 160 is 256 feet.) Of course I've tried it and made contacts, but it really is not a very effective antenna. That is true of any antenna that is shorter than a quarter wave for the frequency. The reactive mismatch losses kill you. The antenna really radiates fine, it just doesn't take power from the feed line. To make it work all you need to do is match it at the feed line. This may be easier said than done. Anyway it isn't the subject of this effort. But some people have used the G5RV as a vertical T antenna on 160 by feeding the shorted feed line at ground level under the center of the horizontal section via a matching network against a ground system. (Read lots of wire radials in the ground.) It is necessary to have an effective ground system for efficient operation. Not a trivial task. But such an antenna is a Vertical polarized antenna and as such not an effective NVIS antenna. Therefore not effective for local contacts via NVIS. There is a deep null in the vertical pattern of any vertical antenna.

Now for 6 meters, the comments about 10 meters are echoed for this band. The G5RV can be a reasonable horizontal antenna for local contacts. (And under suitable conditions DX contacts.) Again the antenna has many lobes and hopefully one will point in a direction that will be useful. All SSB and CW activity on 6 meters is horizontally polarized so you want to avoid the inverted V. On the other hand the FM repeater activity is all vertically polarized. There is a local 6 meter repeater in Pepperell and I expect the coverage to a G5RV in any configuration is excellent. (53.890, -1MHz split, 100Hz tone) The G5RV will give you a chance to sample 6 meters. That is true of all the bands you can use the G5RV on. Expect to need a tuner to keep the SWR gods happy, but the G5RV antenna will give you a lot of QSOs from 80 to 6 meters and that's a lot of bang per buck. It will also do a respectable job on world-wide DX. I would put it up horizontal if possible, but anyway will work better than no antenna at all.

I hope you have found this discussion not only long but useful. Till next time. Bob W1XP

## The Cleaning and Care of Kenwood Desk Top Microphones

Occasionally your Kenwood microphone needs to have the screen cleaned and the sonic foam replaced.

The sonic foam/sponge will disintegrate and turn to powder as mine did. Once this happens the internal screens get clogged. My mike is a TS-50 used by my Grandfather WA8DSL (SK) when he owned a TS-520. This also applies to a MC-60 and MC-60A Microphones.

The process in taking the mike apart is a challenge as the shell covering the mike element is glued and as such does not unscrew easily.

Here is the picture of the MC-50:



Photo Courtesy K1JEB

Warning: Make sure there are no metal or magnetic particles within in the work area. The mike element has a magnet and if any magnetic material should stick the mike element or surrounding area you will have hard time removing it without damaging the mike.

To remove the outer shell you will need to apply heat with a heat gun. But, first add some tin foil to protect the mike element from the heat. as shown below:





Photo Courtesy K1JEB

Then apply heat around the silver label area and rotate the mike while applying the heat: Try the lower setting on the heat gun first.



Photo Courtesy K1JEB

Once enough heat has been applied, using gloves twist off the Shell from the Mike Body. I had to heat the mike 3 times before the glue finally gave way.

Here is what it looks like when you twist off the shield from the mike body: (Again, it unscrews from the body.)



Photo Courtesy K1JEB

Next disassemble the screens within the removed shell. Warning: Do not remove the mike element from the body of the mike. The wires are thin and break off easily. There is no need to remove the mike element.

There are 6 components that you will be concerned about cleaning: Take care and remember the order the screens come apart.



Photo Courtesy K1JEB

From Left to Right:

Cylindrical shield, Acoustic foam, Upper Inner screen and Upper Outer screen. The order they are assembled is Upper Outer screen, Upper Inner screen, Acoustic foam, and side shield.

The Acoustic foam on my mike was reduced to powder from age and clogged the screens. The Acoustic foam in the picture is the new foam. I went on eBay and ordered a sheet of Acoustic foam. Then cut it to size.

Also, remove the screen within the shell. This one was clogged with dust on the side facing up when the mike was placed in the same position on the mike stand:

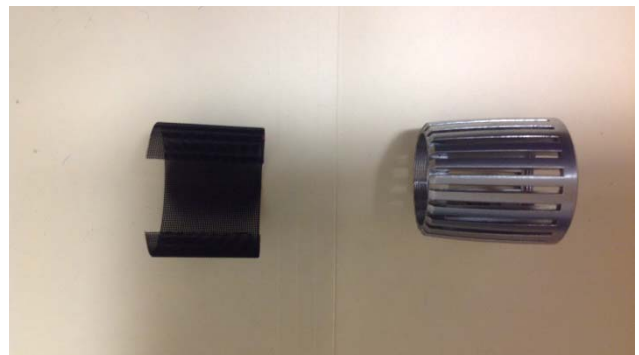


Photo Courtesy K1JEB

Clean THESE items ONLY!

To clean the shields I used compressed air and alcohol. Please use care using compressed air.

Once you have the screens and the new Acoustic foam just assemble everything in reverse order. You

do not have to re-glue the threads as originally done by Kenwood. This way you can clean the mike again in the future.

Before the cleaning my signal reports were such that my speech sounded a bit muffled. After the cleaning the reports were that I sounded natural like a Kenwood Desk Mike Should.

John Bielefeld  
K1JEB

### Breakfast at Tiny's

Breakfast at Tiny's February 15<sup>th</sup> had a great turnout. Everyone must be suffering from cabin fever. But as you can see they weren't communicating with each other, but rather their cellphone or tablet. There were 20 people in attendance.



Photo Courtesy N8VIM



Photo Courtesy N8VIM

Well at least they all looked up for a group picture!

### March Board Meeting Notes

- Treasurer's report
- Two new members AB1XB & KB1ZVR
- No annual report
- No purge of stale members
- No insurance renewal bill was ever sent - Ralph trying to negotiate giving them money
- Property page updated and forwarded to Ralph
- No Field Day news is good Field Day news
- Girl Scout operation went well for "bedlam"
- Groton Road Race is coming up April 26
- Justin KJ1H willing to present in June re: Ham Radio support for Performance Rally
- Jeopardy quiz, LBC, and Elections in April meeting

John Griswold, KK1X

### American Legion

This month's Legion Magazine has a great article on Ham Radio written by Don Keith N4KC. Also there is a one page article on the American Legion involvement in Ham Radio.

The American Legion operates the "American Legion Amateur Radio Club or TALARC operating from the National Head Quarters in Indianapolis under the call of K9TAL. If you are in good standing member with the Legion you can be a free member of the club. The club is active in the national emergency services (ARES, RACES, etc.) They conduct a monthly nets and conduct special events on Veterans Day and the Legion's birthday in March.

Independent Radio Nets are conducted by Legions regional clubs around the nation. TALARC also promotes the art and science of radio to young people through on-air exhibitions and sponsorships of license-training-classes. Additionally the club has opened the door to American Legion membership for a group of veterans whose interests are focused on radio communications and community service.

TALARC is well represented at the Dayton Ham Hamvention by N3TAL the club with the American Legion Post 275 in Glenarden, MD.

For more information go to:  
[www.legion.org/hamradio](http://www.legion.org/hamradio)

73  
John  
K1JEB

## February Treasurers Report

Income for January was \$90 from membership renewals, \$4 from ARRL membership renewals, \$15 from newsletter advertising, and \$51 from the "book" raffle at the January meeting. Expenses were \$57.96 for four Arduino kits for the meeting raffle rental leaving a net income for the month of \$102.04.

Current balances:

General fund	\$3,007.46
Community fund	\$4,636.41

As of 5 March we have 38 members who are current with their dues and 27 renewals outstanding. Thank you to those of you who hand in your dues before Ralph comes to you. Please check your renewal status on the roster circulated at the monthly meeting or ask Ralph.

If you are joining ARRL or renewing your membership please consider letting Ralph send in the paperwork for you. The Club will buy the stamp and will get a commission from ARRL. ARRL membership checks should be made payable to NVARC; Ralph deducts the Club commission before forwarding your paperwork to Newington. As an Special Service Club, the ARRL expects a majority of Club members to also be ARRL members.

Ralph KD1SM

## Meeting Coffee "Bar"

Many thanks to Ed Snapp, N1YFK, for his rejuvenating the coffee "bar" at the meetings. There's been an incremental increase in socializing, and that's what we meet for. Ed will be unable to bring the coffee for the next few meetings so if you are able to step in contact Skip K1NKR

Don't forget to leave a donation if you partake.

## Items That Anywhere Else Would Be Called Strays

None this month

## NVARC Club Net

The NVARC Club Net meet's every Monday evening at 8 PM on the 442.900 Pepperell repeater.

Stop in and bring your input and questions.

The net is in need of a regular Net Control Station (NCS).

Recent nets have been run by George KB1HFT. Thanks George

The January 26 net was run by Bob W1XP. The primary discussion was on preparations for the Tuesday storm which was forecast to have blizzard conditions. Thanks Bob.

Attendees  
W1XP BOB/NCS, KW2T Dan, N1MNX Dave, K1BG Bruce, KD1LE Stan, KB1HFT George, N8VIM Jim, AB1CV Bob.

The February 2<sup>nd</sup> net was run by George KB1HFT.

Discussion about the new quad core and faster Raspberry Pi, VHF Contest and log submissions, upcoming snow storms, high activity on 10 meter band.

Attendees

Stan KD1LE, Skip K1NKR, Larry W1ESR, George KB1HFT/NCS, Dan KW2T, Larry W1ESR, Leo K1LK.

## Upcoming Contests

2015

March

14 Idaho QSO Party  
15 North American Sprint RTTY  
15 Wisconsin QSO Party  
21 Russian DX Contest  
22 North American Sprint SSB  
28 CQ WW WPX Contest SSB

April

2 SARL 80 Meter QSO Party  
4-5 Mississippi QSO Party  
4-5 SP DX Contest  
11-12 JIDX CW Contest  
11-12 Georgia QSO Party  
17-18 Holyland DX Contest  
18 EU Spring Sprint SSB  
18-19 YU DX Contest  
25-26 SP DX RTTY Contest  
25-26 Florida QSO Party

May

ARI International DX Contest  
2-3 Indiana QSO Party  
2-3 New England QSO Party  
CQ-M International DX Contest  
9-10 Volta WW RTTY Contest  
30-31 CQ WW WPX Contest CW

## Flea Markets/Hamfests

2015

May 1, 2 Deerfield NH NEARfest  
August  
21 ARRL New England Convention Boxboro MA  
21, 23 Boxboro MA FEMARA NE Convention

**The New England Amateur Radio Festival, Inc.** at the Deerfield NH Fairgrounds May 1<sup>st</sup> and 2<sup>nd</sup> 2015



## FOR IMMEDIATE RELEASE

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March 1<sup>st</sup> 2015.

Dear Friends of NEAR-Fest:

It is with great regret and sadness that I must inform the radio amateurs and electronic hobbyists of New England that the NEAR-Fest Board of Directors finds it necessary to POSTPONE the FreeFest aspect of NEAR-FEST XVII that was scheduled for May 2015. It will be held at a later date. However, first and foremost, I want to assure everyone that NEAR-Fest XVII WILL TAKE PLACE AS SCHEDULED on May 1st and 2nd, 2015, at the Deerfield NH Fairgrounds. NEAR-Fest XVIII will also be held as scheduled on October 16th and 17<sup>th</sup>, 2015.

The Directors made the difficult decision to POSTPONE the FreeFest due to a legal issue that has arisen since the FreeFest was announced last October. The matter is being addressed professionally; however the funds that would have financed the FreeFester may now be needed to resolve this issue at hand. There was no other option open to us. It is important for everyone to understand that there are no issues or problems with the Deerfield Fair Association; in fact our relationship with them is better than ever.

I want to personally assure you all that the FreeFest will be rescheduled as soon as possible once this issue has been resolved. The entire NEAR-Fest management team is committed to, and is looking forward to, hosting the FreeFest, in it's original spirit, to thank all our loyal attendees and the amateur radio community for the support since 2007. We appreciate your understanding and continued support. We hope to be able to post an update about FreeFest on our website before the end of the year. Advance tickets and inside parking passes will be on sale in the usual places starting in April. Check our Web site ([www.near-fest.com](http://www.near-fest.com)) for more details.

To summarize: NEAR-Fest XVII WILL TAKE PLACE on May 1<sup>st</sup> and 2<sup>nd</sup>, 2015, exactly as scheduled, Admission will be the same as always, \$10 per person and \$10 for an inside parking pass. NEAR-Fest XVIII will also take place as scheduled on October 16<sup>th</sup> and 17<sup>th</sup>, 2015. The FreeFest that was

planned to take place as a part of NEAR-Fest XVII is POSTPONED until a later date.

The NEAR-Fest staff and management as well as I thank you for your total support and understanding.

73,

MisterMike, W1RC

### Your Article

Your article could have been here which would have eliminated this blank space.

### Advertiser



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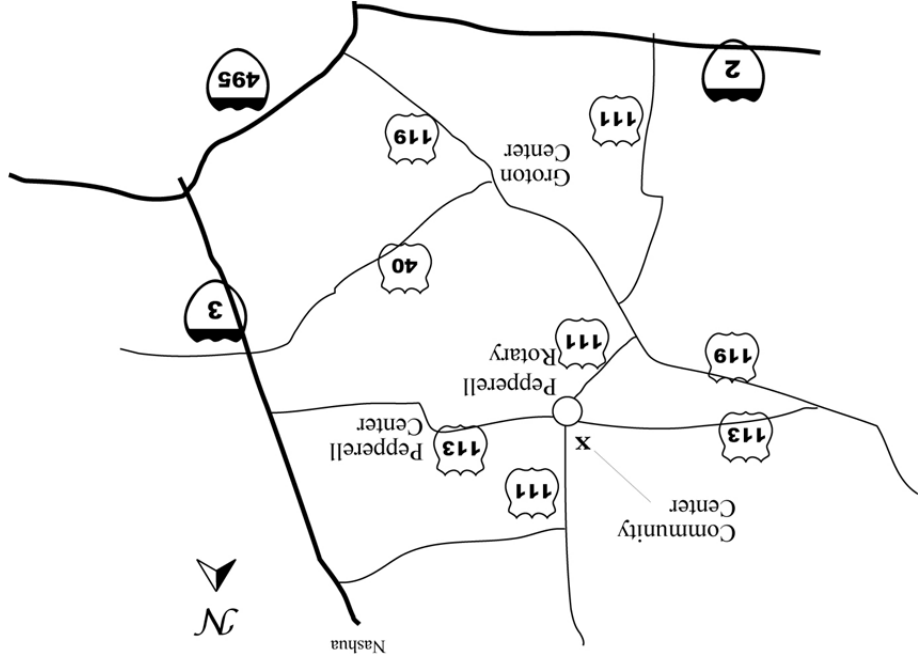
## Nashoba Valley Amateur Radio Club

PO Box # 900  
Pepperell Mass 01463-0900

<http://www.n1nc.org/>

President: Skip Youngberg K1NKR  
Vice President: Jim Hein N8VIM  
Secretary: John Griswold KK1X  
Treasurer: Ralph Swick KD1SM  
Board Members:  
Rod Hersh WA1TAC 2012-2015  
Bob Reif: W1XP 2013-2016  
Wolf Seidlich KA1VOU 2014-2017

Editor: Stan Pozerski KD1LE  
Emergency Coordinator: Larry Swezey W1ESR  
Photographer: Ralph Swick KD1SM  
PIO: Roland Guilmet NR1G  
Librarian: Peter Nordberg N1ZRG  
Property Master: John Griswold KK1X  
N1NC Trustee: Bruce Blain K1BG  
Annual membership dues are \$15; \$20 for a family  
Meetings are held on the 3rd Thursday of the month  
7:30 p.m. - Pepperell Community Ctr.  
Talk-in 146.490 simplex  
442.900 + 100Hz Repeater battery power  
147.345 + 100 Hz Repeater  
53.890 - 100Hz Repeater battery power  
This newsletter is published monthly. Submissions,  
corrections and inquiries should be directed to the  
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PC formats are OK.  
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**Nashoba Valley Amateur Radio Club**  
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