NVARC
Nashoba Valley
Amateur Radio Club

SIGNAL

SPECIAL SERVICE CLUB
ARRL

de N1NC

March 2004 Volume 13 Number 3

This Month's Meeting

This month's program will be **AN INTRODUCTION TO CONTESTING** presented by Les N1SV. Les will provide an overview of this competitive aspect of our hobby and discuss easy ways to become involved. In conjunction with this he will be holding a "Contest University" to provide interested parties the opportunity to learn contesting skills during a real contest. The Contest University will be held Saturday March 27th at his house during the CQ WPX SSB Contest. Interested parties should contact Les following the presentation.

Last Month's Meeting

Last month's presentation was on the ARES Response to 9/11 by Steve Schwarm W3EVE. Steve is the Norfolk County ARES DEC.

Steve discussed many of the problems his team ran into during their deployment and the solutions. They required fifty watt mobile radios for most repeater access. Having the cross band repeat and knowing how to use it enabled them to use handhelds around fixed locations with the mobile rig in cross band repeat. Omni directional antennas did not perform as well as expected in indoor situations with people all around. Steve showed one possible solution which was a fold up two meter loop antenna. Operating from gel cells was important as was having the AA pack option for handhelds.

A letter from member Dennis Marandos was passed around.

Skip K1NKR passed around a piece of equipment he estimated was 50+ years old. It was passed around to see if it could be identified. The consensus of several knowledgeable members is that it was a 2-1/2 meter rig dating from the late 40's. Kind of an early portable rig.

There was a discussion about having a Marconi Museum work party. The likely task would be to paint some portion of the building exterior. More discussion when Ray Minichiello comes down to speak in April. Approximately ten people signified they would be interested in helping.

Ralph announced that the Groton Road Race was coming up and they had to iron out coordination for the event but he would be looking for volunteers. He also said that the Longsjo Bike Race would be the week after Field Day and so would not conflict as it did last year. There would be interest in using the portable repeater for the event.

Stan passed out the Yearbook updates which included new pages for the History, Activities, and Bylaws sections as well as a complete Members Directory.

March Board Meeting

The March Board meeting took place on the March 11th at the KD1LE QTH. In attendance were Stan KD1LE, Ralph KD1SM, Bob W1XP, Les N1SV, Ron W1PLW, John KB1HDO.

Article reprints for newsletter
Yearbook update policy
CERT teams in the local area
Ralph gave the Treasurers report which is later in the newsletter.
Meeting Etiquette
Proposal for a weekly club net
Project/kit construction discussion
Ideas for a class w/hands on work
Book raffle to resume
Ralph to order Powerpole connectors
Any interest in a club table at Rochester
No Field Day Coordinator yet

From the President

In the area of emergency communications and triggered by the discussion on the attempt to develop CERT teams in Groton I did a little research on the subject. CERT stands for Community Emergency Response Team and the program is by the Department of Homeland Defense (DHD) and FEMA. The program doesn't create the teams but only supports cities, towns, or organizations that want to create them. They provide training programs and materials on line. I looked at the info on many of the teams and in general the programs aren't specifically communications but are self help teams which require communications. There are multiple levels of training with the basics being first aid, search and marking, shutting off power and gas, and the like. One notable example was the City of Los Angeles Fire Department which was looking for 500 hams to train as a supplement or replacement for their 800 MHz communications system.

I don't know how successful this is going to be but it seemed like there were nearly 100 organizations and communities in Massachusetts listing activity. If anyone knows of any local activity I'd be interested to know what is going on so we can explore the possibility of working with them.

On a different track, now that spring is here, there are many opportunities coming up for public service and we need everyone to chip in along the way. In April the road cleanups start and they will be the Sunday after our regular meetings. We have the Groton Road Race the end of April which Larry KB1ESR and Ralph KD1SM are organizing. In May the Parker Classic on Devens takes place and I'm organizing that one. Then it is June with Field Day and we don't have a volunteer to coordinate that yet. Stan KD1LE

Elecraft K2 Kit Review Part 2

By Bob Reif W1XP

In Part I, last month I reviewed the Elecraft K2 HF transceiver kit focusing mainly on the construction phase of this radio kit. This month in the final part I will discuss the operation and design of this radio.

K2 Operation

Using the radio has been a lot of fun. Like any radio new to the operator, or anything else for that matter, you need to learn how to use it to get the most out of it. But I feel the time required with this radio has been minimum. Part of this is due to the simplicity of the design. There is less you have to learn your way around. But that doesn't mean you don't have what you need.

The first thing when you go to push the power on button, you find it is in the opposite corner of the radio from most off shore radios. (I wondered if this is a political statement) When you push the button, you are greeted with a clatter of relays. It can be startling until you get used to it. The "why" and "what" of these relays will be discussed shortly. After the display of 'Elecraft" on the LCD, the mode, band, and frequency that were in use when the radio was turned off come up. To change bands the "band up" or "band down" button is tapped. Tap means exactly that. A quick tap of the button. Hold is depressing the button for half a second or longer. Tap functions are in white letters over the buttons and Hold functions are in yellow below the buttons. The bands are changed in

progression either up or down by frequency. At either end the band change wraps around. You can also enter a frequency directly. To do this you need to hold both the “band up” and “band down” buttons which enters the direct frequency entry mode. This seems awkward and I would prefer a single button for this entry. It is only necessary to enter four or five digits to select a frequency. If necessary the K2 will make the appropriate band change. It is necessary to enter a leading 0 on 160 so it can tell 1808 from 18080. It is only necessary to enter four digits on 80 and 40 (60 meters with the option). When the last digit is entered the change occurs with no other operator action. Frequency is only entered to the kilohertz. Any smaller frequency changes must be made with the tuning knob. The VFO tuning rate is a bit slow for my liking even when in the rate that is optimized for CW. There is a front panel button that allows selection of the tuning rate. Three rates are available for selection by the Rate button. The default rate is 10 Hz, 50 Hz and 1 kHz. There is also a 10 Hz, 20 Hz and 1 kHz set of rates that are available from a menu that will be discussed later. Using this set of tuning rates and selecting the 20 Hz rate is reasonable for casual operating. The 1 kHz range is good for large frequency changes. The 50 Hz steps are a bit large for tuning CW stations and the 10 Hz step size at 100 steps per knob rotation is to slow to my liking on CW. I just would like more steps per knob rotation. I suspect this limit may be the shaft encoder which I believe has a 100 count per rotation rate.

The CW keyer speed and power output controls operate in a similar manner. When either control is adjusted the corresponding parameter is displayed on the normal Frequency Display during and for a few seconds after the adjustment cycle is completed. The keyer is adjustable from 9 to 50 words per minute. I have checked the speed at 10, 20 and 40 WPM using the test word “Paris”. Sending this word repeatedly and counting the number of times it was sent per minute is one way to check the CW speed. It appears to be very accurate. As you adjust the power output knob the level of the selected output power is displayed on the screen. This also remains on the screen for a few seconds after the adjusting is stopped and then the normal frequency display returns. In the power control mode, the K2 automatically knows if the 100 watt amplifier is attached and powered on. If the 100 watt amplifier is available the power control range is 0.1 watt to 110 watts. If the 100 watt amplifier is not available then the power control range is 0.1 to 15 watts. With the 100 watt amplifier option the K2 will automatically bypass the 100 watt amplifier if the requested power output is 10 watts or less. This reduces the transmit current drain at this or lower power output. There are two DC power connections on the radio when the 100 watt option is installed. The normal one on the basic K2 is still functional, but only powers the basic K2. There is a high current DC connection that powers the 100 watt amplifier and the K2. This connection uses Andersen Power Pole connectors. If the DC power to the amplifier is shut off or disconnected but the power to the K2 remains, the K2 operates in the normal K2 mode up to 15 watts output. There is a small increase in current drain over the K2 alone but the amplifier can be unplugged internally if it is felt necessary to save every milliamp. The 100 watt amplifier, which is built on the top cover heat sink, can be removed with a screwdriver and the cables unplugged. The original top cover can then be replaced and the K2 is back to its lean and mean shape (and weight).

A few more words about the power control are in order. The range mentioned above of 0.1 to 110 watts is not adjustable continuously in 0.1 watt steps. The control is actually 0.1, 0.5, 1.0, 1.5... in 0.5 watt steps to 10 watts. Then in 1 watt steps to 110 watts. The power output is controlled by a control loop within the processor. A rectified sample of the RF output voltage in the K2 or the directional coupler in the 100 watt amplifier if this option is used, is sampled by an Analog to Digital Converter (ADC). This will represent a calculable power in a 50 ohm system. This is compared with the desired power and the gain of one of the driver amplifiers controlled via a Digital to Analog Converter (DAC). If the output is lower than desired the gain is increased via the control voltage and vise versa if the power is high. At some power levels the output of the K2 tends to jump up and down a little. Elecraft says this is the result of the limited control range of the DAC used for the control function. The only time I have found it to be noticeable is when driving an amplifier with the K2 and trying to tune it up with the drive going up and down a few watts.

The RIT/XIT control provides about a plus or minus kHz of range. This is less than most other radios but seems quite adequate for normal operation. The range can be increased up to plus or minus 4.8 kHz via the menu function. The RIT or XIT frequency change is reflected in the frequency display. For larger offset between the transmit and receive frequencies, the split mode can be used with the two VFOs. The split operation is similar to most other HF radios. The indicator that the radio is in the split mode is a blinking annunciator on the

LCD. This is not very obvious and there is a user modification to add an LED Split mode indicator which is more conspicuous. To aid in split operation there is a Reverse button that swaps the transmit and receive frequencies while it is held in. While held the frequency can be changed to try and choose a better transmit offset frequency. Zero the station working the DX for example.

Without going through the rest of the controls blow by blow, I will just list some of the features that I feel are unusual , particularly well done, or not. There are only 20 frequency memory positions. Just over two per band. I guess this is not excessive. I am usually thinking what am I going to do with 300, but I suspect 20 might be a bit low by many peoples thinking. On the other hand in the CW keyer memories, there are 9 that each have 250 characters of storage. The 250 characters seems large to me. So I guess I feel that a better split of the available storage might have been made. On the other hand I don't think this is a real driver in my choice of an HF transceiver.

I mentioned the CW memories. There are nine CW memories that can be programmed with messages. To program you select the REC mode via a button and select the number of the memory you wish to program. Then load in the message via the keyer paddle. When you start recording the frequency display changes to 250 and counts down as you load the memory. Tapping the Message button stops the record mode. To play the message you just tap the Message button and the number key of the message you wish to send. The message is sent at the speed that the keyer is presently set for. A message can be halted by tapping the Message button or tapping the paddle. Messages can be chained or repeated automatically. A receiving pause up to 255 seconds can be programmed between repeated messages.

And now Menus. Those things we love to hate. The K2 has two. They are called primary and secondary. The primary menu is entered via the Menu button. To enter the secondary menu you tap the Display button after the Menu button. Tapping the Display button will toggle you between the two menus. In general the menus contain the functions that belong there. Between the two menus there are 29 menu functions but some of these have extensive sub sets of parameters to set or adjust. Some are testing and calibration firmware used in the checkout process of the K2 during the building phase. There are two programmable buttons on the K2 front panel, labeled PF1 and PF2. These buttons can be programmed in the menu to allow you to enter a chosen menu function when the PF1 or PF2 button is held on. These buttons only take you to the menu function. For example the one function that is in the menu that I strongly feel should have its own front panel button is the receiving antenna port selection. This is a separate antenna connector for a low noise receiving antenna. This is part of the 160 meter option but its use is not restricted to 160 meter. To enable this antenna connection the primary menu must be entered, then move through the menu to the RANT parameter and then turn the function on or off with the VFO knob or by pressing the band up or band down push buttons. Trying to do this while digging a weak DX station out of the curd is a bit distracting. Using the PF1 programmable button is a big help, but after pressing the PF1 key for example you still have to switch the antenna connection with the VFO knob or band buttons. Moving the programmable keys to the next level, such as actually turning the receive antenna on or off, would be a big help here.

So How Well Does the K2 Work?

I am impressed with the little radio. The design is one that starts out sound on paper and carries it through in good implementation. It is a single conversion superheterodyne that covers all nine HF bands with the addition of the 160 meter option. There is also an option for the new 60 meter band (Not in the review radio.) There is some coverage beyond the ham band limits but I haven't investigated just how much coverage is possible beyond the normal bands. It is not a general coverage receiver. This restriction of the frequency coverage is one reason the receiver is so good. There is a double tuned band pass filter for each of the bands. Some of these filters cover more than one band and the filter tuning is switched by latching relays. All signal path switching except the T/R switch is done with latching relays, not diodes. This is a really sound approach although more costly. . The elimination of the usual switching diodes in the signal path removes one of the biggest causes of dynamic range reduction in modern receivers. These relays are a latching type that do not require current to hold them in either position so there is little power penalty to the use of the relays that would be required with diodes or normal relays. There is a size penalty as they are large compared to the diodes but is takes more than one diode and other bias components to make a diode switch so the board area saving is probably not much different with the diodes. The Ten Tec Scout and some other QRP transceiver designs used plug in modules to solve the problem of how to

select the band pass filters in the receiver front end. The design challenge has been how to select narrow band pass filters in the receiver without power hungry large relays or power hungry and distortion causing diodes. One solution was to leave the filters out. Not the best approach. The same latching relays are used in the selection of the low pass filters in the transmitter output. The receive signal is also passed through the low pass filters. The design is unique in that the diode T/R switch is located between the final power amplifier and the low pass filters. There are several advantages to this. The receiver input has additional protection from big signals by the spectrum limiting of the transmit low pass filters. The big signals that can overload a receiver are not limited to ham bands. On transmit any harmonics generated in the T/R switch are suppressed by the low pass filter. After the band pass filters in the receive signal path there is a relay switched 10 dB attenuator and a high dynamic range pre amp that uses a low distortion part. This pre amp has about 14 dB of gain. The relay that switches the preamp in or out also turns off the pre amp when it is not in use, saving supply current. Just another cleaver bit of a complete design. On a dipole antenna on the lower bands the preamp is not needed and even adequate signals are present with the attenuator switched in. On the higher bands the preamp is necessary to hear the background noise indicating adequate sensitivity.

The receive mixer is a 7 dBm LO power, double balanced diode mixer. I wondered why they didn't use a better mixer here (not that this is bad) but decided the more power required by a stronger mixer was probably not considered worth the possible improvement in the dynamic range. The next stage after the mixer is very important to good dynamic range performance. This first IF amplifier, which must handle all the products coming out of the mixer, is the same part as the RF amplifier. This amplifier uses current and voltage feedback to provide a constant 50 ohm load for the mixer (necessary for good dynamic range performance) and lots of collector current so it can handle the large signal levels with minimum distortion. But there is a transistor switch controlled by the processor that allows the reduction in collector current in this stage. This will allow an overall reduction in current drawn by the receiver. There is some degradation in receiver dynamic range performance. They do not say how much the performance is degraded. I suspect that when the radio is used in the mountains on a small antenna well removed from strong local stations the reduction in dynamic range is not noticeable, but the extra battery life due to lower receive drain is noticeable. This current adjustment may be made via the transceiver menu.

The first IF amp is followed by five of the seven poles of crystal filtering.(one quartz crystal per pole) The IF frequency is 4.915 MHz. This IF is low enough to allow filtering with low cost crystals. The receiver image is then about 10 MHz removed from the signal frequency. I have not noticed any signals that I suspect were images. Elecraft does not specify an image rejection number or an IF break through number either. It may be interesting to make these measurement. The IF filter is not particularly unusual in design. These ladder crystal filters have been used in many radios. They use a series of quarts crystals all cut for the same frequency with coupling capacitors (the ladder rungs) to ground between each crystal. This filter uses varactor diodes as variable coupling capacitors between the crystals. Changing the voltage on the varactor diodes, changes the capacity of the diodes which changes the coupling between the crystals and therefore the bandwidth of the filter. Other radios have used this voltage variable filter before including the NorCal 40 and Sierra radios (another Wayne Burdick design I believe) and the Ten Tec Scout. But what is unique about this design is that the tuning voltage does not come from a pot on the front panel. It comes from a DAC (digital to analog converter). So the filter bandwidth is controlled by the processor. We will see how this leads to a unique application in a minute. The output of the 5 pole IF filter drives an MC1350 IC IF amp which is under AGC control. The AGC is IF derived and uses delayed AGC with a slow and fast rate. It can also be turned off and the "RF" gain knob used for gain control. The output of the IF amp goes through two more poles of IF filter and into the product detector. The bandwidth of this second IF filter is also controlled by the processor. It is a good design that breaks up the poles in the total IF filter into two or more pieces. The final filter just before the product detector removes any wide band noise generated in the high gain IF amp IC and provides a clean sound to the receiver.

The IF amp and filter arrangement and PC board layout is obviously quite good. I have not been able to notice any If filter "Blow-by" in the receiver. This is the condition where you can hear a strong signal after you have tuned the signal out of the pass band of the IF filter. This is partly an implementation issue involving the PC board lay out and signal decoupling from control leads. There is an elaborate grounding method of the crystal cases in the IF crystal filter. The point of contact is speci-

fied on the crystal cans for the grounding wires. These ground wires are soldered a specific distance up the side of the crystal case. This is a bit of a chore to do during construction but if it is responsible for the excellent stop band performance of the IF filter, it is worth all the effort. I have not been able to detect any "Blow-by" of the IF filter in operation. I probably should go looking for it, but many more costly radios don't do as well. At least I don't need to go looking for the problem with them.

The product detector is an NE602 active double balanced mixer which is not unusual. The active Gilbert cell device provides gain after the loss in the second two pole crystal filter. It is a good choice in this application. The BFO is the clever part of the design. The BFO uses two crystals in parallel to provide a wide tuning range VCXO (voltage controlled crystal oscillator) . The tuning control voltage is also from a DAC that is connected to the processor. This means that the processor has control of both the IF filter bandwidth and the BFO frequency. This is where the design gets very cleaver. Since the processor can change the IF band width (in very small steps determined by the DAC step size) and also tune the BFO frequency (again in small steps determined by the DAC step size) it is possible to store IF bandwidth and BFO frequencies in memory (as voltage levels) and call them up on command from the front panel. This allows calling up preset IF bandwidth and BFO frequency combinations. For example the default set up that is measured and loaded during construction checkout, provides four CW filter bandwidths, 1.5 kHz, 700 Hz, 400 Hz and 100 Hz and four SSB filter bandwidths, 2.2 kHz, 2.0 kHz, 1.8 kHz, and 1.6 kHz.. It is also possible to choose the desired CW pitch so the processor then knows what to use for a tuning voltage for the BFO VCXO. To select the CW reverse mode (BFO on the opposite side of zero beat) the processor knows what tuning voltage to use. Well how does it know you ask? It learns it during the set up phase where it uses its onboard frequency counter and an onboard calibration routine to learn what tuning voltage values are required for each specified BFO offset. Since this is an interactive process with the operator, it can be changed at anytime by connecting the proper jumper probe in the transceiver and entering the calibration program. You can customize the filter bandwidths and BFO offset (pitch) to suit your own personal preferences and them store them in the processor memory. DSP versatility in an analog back end. It is an off line operation so you can't change these things on the fly while in a QSO but you can load several test set ups as part of the selection of four and leave certain of the old ones in storage also. Then you can switch back and forth between the old and new setup comparing results. So far all I have done is use the default setting that Elecraft provided. But I like the sound of the receiver. There is not an analog filter back end that I know of that can give you this level of versatility at any price. The ability to control both the IF filter band width and the BFO frequency, in small continuous steps, is the key to this versatility. I don't know any non DSP radio that gives you this flexibility today. Since the BFO can tune through the IF pass band, the CW operator that prefers very low pitch notes should love this receiver.

The audio amplifier is rated at 3 watts. There seems to be plenty of audio for normal shack operating. I don't know about mobile and other high back ground noise environments. The headphone level might be set a bit low for my old ears, but there is still plenty of volume when the level is turned up.

So far I haven't mentioned the VFO. It is a digital frequency synthesizer that receives frequency update information from a digital shaft encoder. There is also an RIT/XIT pot on the front panel. There are two VFOs, A and B, but they exist in the firmware. Split frequency operation is possible. It is much like the average HF radio where you can select VFO A or B, make the two equal or offset them and transmit on one and receive on another. You can only monitor one frequency at a time. You can only transmit and receive in the same band at a time. You can store frequencies, modes etc. in the programmable memories to allow switching between specific frequencies on various bands. The synthesizer loop moves in five kHz steps, and the finer frequency steps are achieved by tuning the reference oscillator via a 12 bit DAC and varactor diodes. (Another VCXO) This VCXO has temperature compensation added to improve the stability in harsh environments. The internal frequency counter is used during test and alignment to allow the processor to memorize the tuning curve of the VCXO so that it can interpolate in 10 Hz steps between the measured 100 Hz points to tune the VCO frequency in between the 5 kHz PLL step points. The VCO tuning range is limited to narrow ranges in the 6 to 24 MHz range. for each of the bands. The reduction of the VCO tuning range goes a long way to improving the phase noise performance of the PLL and reducing spurious signals in the VFO. The VCO bands are selected by latching relays which again reduce the current drain over diode switches or normal relays.

Switching diodes at this point would contribute to oscillator phase noise. The lower the phase noise, the better the radio. High side injection is used on most bands, (high side injection is when the local oscillator is above the signal frequency) but to reduce the required tuning range of the PLL VCO low side injection is used on 15 meters and higher bands. This is another area where restriction of the range of coverage results in a better performing receiver.

So far I haven't mentioned the transmitter part of the transceiver except for the Low Pass filters and T/R switch. In the CW transmitter the BFO and Local Oscillator signals are mixed and then filtered by the switch selected band pass filters used in receive. The low level signal is then amplified in a three stage amplifier to the desired power level. The final stage of this amplifier uses two TO220 case power transistors. The radio bottom cover plate is used as the heat sink for the final amplifier. In the SSB mode, which the review radio does not have, an additional small PC board has the microphone amplifier and double balanced modulator. The BFO is used for the carrier generation by the SSB board. The double sideband output of this is then filtered by a crystal filter on the SSB option PCB to remove the unwanted side band. The output is then mixed with the Local Oscillator like the CW signal, filtered by the RF band pass filters and amplified by the power amplifier. With the 100 watt amplifier option, the 10 to 15 watt signal for the K2 is amplifier to 100 watts (or what ever level desired) by the additional power amplifier. The 100 watt amplifier has it's own set of Low Pass filters and T/R switch. This diode T/R switch uses a crystal controlled (to insure the spurious signals are outside the ham bands) voltage multiplier to be able to provide a large back bias voltage to the switching diodes to reduce the possibility of distortion in the diode switch which is another good design feature.

One more bit of information. I measured the current drain in receive on several transceivers. I did this with the K2 set up in the normal mode and again in the low current mode (Battery Mode). The other two radios are the FT100 and the Ten Tec Scout. It would be interesting to have data on some of the other radios but this is the data I happened to have on hand.

K2 100 watt amp installed	0.320 amps
K2 as above "Battery Mode"	0.240 amps
FT100	1.350 amps
Ten Tec Scout	0.600 amps

Table 1, Transceiver Current in Receive

It would be interesting to take data on the same radios at full output. But the deadline is approaching so I better leave that for another time.

In closing I have several thoughts on the K2 besides the comments I made at the end of Part I last month. One is that if you built the radio, you probably can fix it. Since it is all "through hole" construction it is easy to work on should repair become necessary. It is also a good radio for the person that wants to tinker with modifications and improvements. And a third thing, for all the good things that the relays bring to the radio as discussed above, there is a reliability issue with relays (as with any part). Relays have tended to have a bad reputation. Some times they have deserved it. I professionally know of relays that have served for 20 plus years and millions of operations without a failure. What the story will be with the relays in the K2 I guess time will tell. I have not heard of a problem now.

I have used the radio in the ARRL CW contest and was pleased with how it performed. At one point on 40 meters I was beginning to wonder about how the radio was performing so I switched back to the Corsair and sure enough the K2 was doing about as well as you could expect of any radio. When the stations are three (or more) deep on the SAME frequency I suspect any amount of DSP isn't going to help. The 100 Hz filter comes in handy in these situations. The one option I think I would like on the receiver for CW at this location is the noise blanker. After over two months using the K2 it is still a fun new toy. And I suspect it will be for some time. If you missed Part I go back and read about the construction phase and my bottom line comments on the K2.

In the design of any new radio, or any other product for that mater, it is too easy to fall in to the trap of trying to please everyone with the same product. (The "trying to please all of the people all of the time" syndrome.) The K2 offers a well chosen subset of "All features" in a package that is not too large or too small but maybe "Just right". It is small enough for portable and mobile operation but large enough to be easy to use. The trade offs have been to design an HF transceiver kit with a well chosen set of features that the average ham can build and that will compete with the best radios at any price. I think Elecraft has done this very well.

73 Bob W1XP

Contest Calendar and DXpeditions

I started this column with the hope it would help some members log a new country or even try contesting. I'm not a contester myself, but I enjoy getting on the air for a while during a contest and giving out a few contacts and maybe logging a rare country. Another bit of information I thought might be of value to members is a list of upcoming DXpeditions. They usually activate countries, or in some cases islands (as in the case of IOTA (Islands On The Air) that are rare. This might give you a chance to log a missing country or island. The information for a DXpedition can be quite detailed and may include bands, dates, number of stations, and times of day they plan to work certain continents so I can not list it all here. But if a country or prefix is of interest you can get more information at the following site.

www.425dxn.org

CONTESTS (MARCH)

14 North American Sprint RTTY
exchange other call, your call, s/n, state province or country

20 9KCC 15M Contest CW/SSB
exchange RST QSO number

20-21 Bermuda World Wide CW/SSB
exchange RST

27-28 CQ World Wide WPX CW
exchange RST 3 digit s/n

DXpeditions

3DA	Swaziland	March 12-22
5V	Togo	current
7Q	Malawi	18 April-1 May
9M & V8	IOTA Pulau Muara Besar, Brunei, Pulau Satang Besar	21 April-
9M2	Kuala Lumpur	March 7-30
GM	Lunga	Apr 30-May3
V2	Antigua	March 20-28

PSLIST MARCH

Listing public events at which Amateur Radio communications is providing a public service and for which additional volunteers from the Amateur Community are needed and welcome. Please contact the person listed to identify how you may serve and what equipment you may need to bring.

The most up-to-date copy of this list is maintained as http://purl.org/hamradio/publicservice/nediv.

**** Every event listed is looking for communications volunteers ****

Date Location Event
Contact Tel/Email

Apr 19
Hopkinton Boston Marathon Start
Steve K1ST k1st@arrl.net
Hopkinton/Boston Boston Marathon Course
Steve W3EVE baa2004@amateur-radio.net
Boston Boston Marathon Finish
Paul W1SEX w1sex@arrl.net

Apr 25 Groton MA Groton Road Race
Ralph KD1SM 978-582-7351 kd1sm@arrl.net

May 2 Boston MA Walk for Hunger
Bob K1IW 413-647-3111 wfh2004@amateur-radio.net

May 15-16 NH-ME Lung Assoc bike trek
David KA1VJU 603-581-2602
ka1vju@dmegin.com

May 16 Devens MA Parker Classic Road Race
Stan KD1LE 978-433-5090 kd1le@arrl.net

May 23 Boston MA ALA Asthma Walk
Bruce KC1US 781-275-3740
kc1us04@amateur-radio.net

Jul 4-5 Longsjo Classic
Ralph KD1SM 978-582-7351 kd1sm@arrl.net

See http://purl.org/hamradio/publicservice/nediv

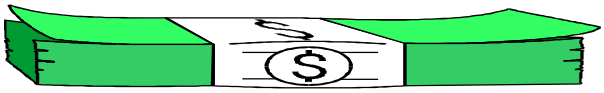
Advertisements

NVARC Loaner Equipment

Kenwood TS-451 transceiver
Cushcraft R-7 antenna
Astron RS-35M power supply
Practice Oscillators MFJ557 Keyer

$March Treasurers Report$

Income for February was $75 in membership dues. Expenses were $14.80 for newsletter postage leaving a net income of $62.20 for the month.



Current balances:

General fund	$4701.62
Community fund	$1842.55

We have 52 current members.

Welcome to new member Jason Grennell KB1KEG of Groton. Jason is on the Groton Fire/Rescue squad and has a special interest in fire and rescue.

73, Ralph KD1SM

From the Editor

Based on several discussions I've had with people since I distributed Yearbook updates at the February meeting it seems there are at least a few that have not been kept up to date.

So that everyone will know how this is going to work the plan is that each update will be passed out at a regular meeting. If possible there will be a prior notice in the newsletter. After a distribution there will be notice in the next two newsletters and updates will be available at the meetings that follow each. That allows 60 days and three meetings to get an update. After this period any unused updates will be discarded.

At the March meeting I will distribute an Updates Page that lists the date for each page in the Yearbook. In the future the updates page (page i) will come with each update (replacing the previous version) and include a list of the pages in the update, any instructions, and the list of pages with dates as the yearbook should appear after the update is installed.

Stan KD1LE

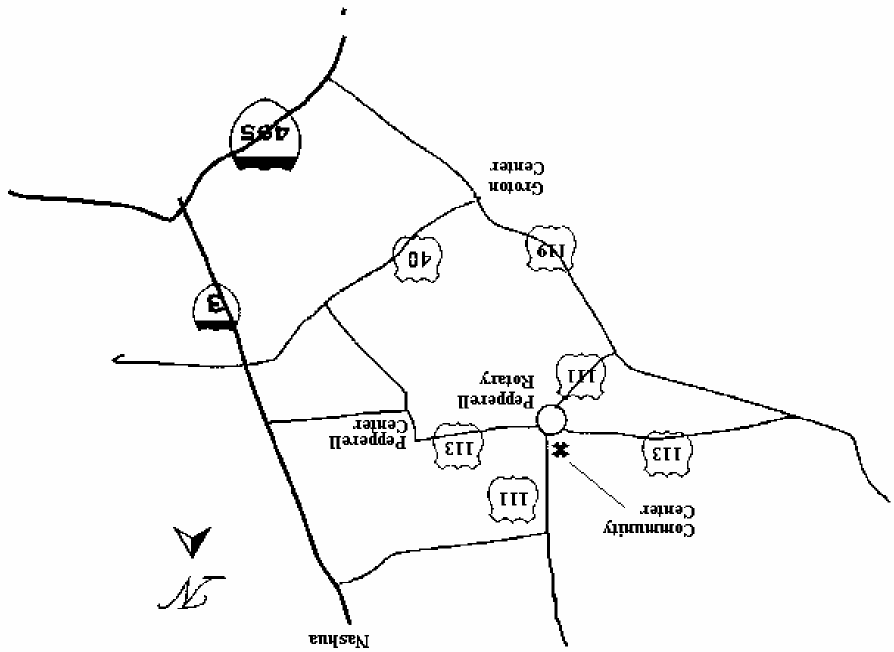
NVARC

Nashoba Valley Amateur Radio Club

PO Box # 900
Pepperell Mass 01463-0900

mailto:nvarc_n1nc@arrl.net
http://www.n1nc.org/

President: Stan Pozerski KD1LE
Vice President: Peter Nordberg N1ZRG
Secretary: John Griswold KB1HDO
Treasurer: Ralph Swick KD1SM
Board Members:
Bob Reif 2001-2004
Les Peters 2002-2005
Dave Peabody 2003-2006
Editor: Stan Pozerski KD1LE
Emergency Coordinator: Den Connors KD2S
Photographer: Ralph Swick KD1SM
PIO: Ron Wood W1PLW
Librarian: Peter Nordberg N1ZRG
Property Master: John Griswold KB1HDO
N1NC Trustee: Bruce Blain K1BG
Meetings are held on the 3rd Thursday of the month - 7:30 p.m. - Pepperell Community Ctr.
Talk-in 146.490 simplex
442.90 + 100Hz Repeater
147.345 + 100 Hz Repeater
53.890 – 100Hz Repeater
This newsletter is published monthly. Submissions, corrections and inquiries should be directed to the newsletter editor. Articles and graphics in most IBM-PC formats are OK. You can send items to pozerski@net1plus.com



Nashoba Valley Amateur Radio Club

PO Box 900

Pepperell, MA 01463-0900