



# Prospect Hill Intermod

The News Letter of the Waltham Amateur Radio Association  
and the "Heavy Hitters"

Fall 2001

Check out our web site at [www.wara64.org](http://www.wara64.org) !

## INSIDE THIS ISSUE!

- President's Message
  - Preparing for Emergencies
  - J.O.T.A. - 2001
  - It's a boy AND a girl!
  - Auction 2001 Notice
- AND MUCH MORE!

## AUCTION 2001

– Coming Soon!

Saturday, November 17, 2001

11:00 AM – 4:00 PM

Seller Check-In 9:30 AM

Newton Masonic Hall (2<sup>nd</sup> Floor)  
460 Newtonville Avenue  
(at the corner of Walnut Street)  
Newtonville, MA.

Look later in this issue and check out the Auction 2001 page on the club web site for more information. ([www.wara64.org](http://www.wara64.org)).

## OCTOBER W.A.R.A. CLUB MEETING ON SPECIAL DATE!

The October 2001 WARA club meeting will be held on October 24<sup>th</sup> (the fourth Wednesday of this month) due to Halloween, which falls on the last Wednesday of October.

The guest speaker for the October meeting is going to be W1FBI, Ed. His topic will be generators; large and small.

Directions to our club meetings is posted on the WARA web site and talk-in is always on the '64 repeater.

## JAMBOREE ON THE AIR 2001 - SCOUTING AND AMATEUR RADIO OCTOBER 20 - 21

"JOTA" is an annual event which promotes the interaction of the worldwide Scouting organizations and amateur radio operators. All Scouting groups participate including Boy and Girl Scouts as well as Cubs and Brownies.

With amateur radio operators acting as advisors, Scouts of all ages gain an exposure to amateur radio by talking to other Scouts and hams around the world who participate to add to the activity to demonstrate the capabilities of amateur radio.

The world wide Scout Frequencies are as follows (MHz):

80	3.740 and 3.940	phone
80	3.590	cw
40	7.270	phone
40	7.030	cw
20	14.290	phone
20	14.070	cw
17	18.140	phone
17	18.080	cw
15	21.360	phone
15	21.140	cw
12	24.960	phone
12	24.910	cw
10	28.390	phone
10	28.190	cw

This is a great opportunity for help to promote amateur radio to our youth in your area and around the world.

JOTA is on the weekend of October 20-21, 2001 and begins Saturday, at 0001 hours local time, and ends on Sunday, at 2359 hours local time.

## JOTA (continued)

In addition to setting up an HF station to allow the Scouts to communicate with others around the world, you could also set up a demonstration using a simple 2 meter HT and a mobile rig to show local communications possibilities. Others have thought of demonstrating amateur television or the new forms of digital communications that are available.

For more information, check out the JOTA link on the front page of the WARA web site. ([www.wara64.org](http://www.wara64.org))

## PRESIDENT'S MESSAGE

Welcome back to another new season with the Waltham Amateur Radio Association.

Please save the date for the annual auction, in your calendar. This is a very important event for the club. Support in all areas will be needed, so if you can volunteer for even part of the day your assistance will be greatly appreciated. Please contact our chairpersons as soon as possible.

I look forward to seeing many of you at the monthly club meetings and/or at the auction.

Remember that the club meetings are held on the last Wednesday of each month except July and August at 7:00PM at Artisan Industries in Waltham. OCTOBER'S CLUB MEETING IS, HOWEVER GOING TO BE HELD ON THE 24<sup>th</sup> DUE TO HALLOWEEN. All are welcome!

73, Ann, KA1PON

## W.A.R.A. OFFICERS

President – Ann Weldon, KA1PON  
V. President – Kip Shustack,  
N1AUP  
Clerk & Treasurer - Andy  
Donovan, WA1GEP  
Asst. Clerk – Jim Finlay, N1HCF  
Asst. Treas. – John Antes, KB1EB

## PHI NEWSLETTER STAFF

Publisher – Eliot Mayer, W1MJ  
Editor – Ron Perry, N1USS  
Production – Steve Gilbert, K1SG  
Circulation – Ann Weldon,  
KA1PON



**The Waltham Amateur Radio  
Association is affiliated with  
the A.R.R.L.**

## ***NEW ARRIVALS IN MARLBORO!***

On Wednesday, October 10<sup>th</sup> between 8 and 9 AM Dianne (KA1NOJ) and Ralph (KB1DXL) Cook became the proud parents of twins. The names of these healthy, budding hams are Kyle Joseph and Kayla Joann.

Join us all in wishing Dianne, Ralph and the twins all the best for the future.

OH, by the way..... this happy event gives our President, Ann, one more title.... **CONGRATS, GRANDMA!**

## ***A Journey to Airventure***

By Lou, N1UEC

As many of you undoubtedly know, not only am I involved with amateur radio, but I am also a fledgling pilot.

A couple of my friends and I went out to Airventure, the world's largest air-show, this year in my trusty plane N2405Y (A 1985 Piper Archer II {PA28-181}). As Airventure is in Oshkosh, Wisconsin, it took a few stops to get there.

On our first leg from Mansfield, MA to Buffalo, NY, we had to make an unexpected pit stop in Syracuse, NY. This stop was required because the pilot (N1UEC) had a little too much coffee before take-off. So, after a quick stop in Syracuse, we were again on our way to Buffalo. The clouds had moved in and the approach to Buffalo was shrouded and obscured. It was a good thing that not only had I been recently training for this type of flying (instrument reference) but that I also had a more experienced pilot next to me (W1DCB). After a nice approach into Buffalo, some lunch, and fuel, we again were off into the wild, not so blue yonder.

For those of you who have played with any of the PC flight simulator's I can tell you, the simulators are pretty close to the real thing and in some cases more difficult to fly than the real thing. The instrumentation in the panel of N2405Y matches closely to that of any of the Cessna 172's in MS Flight simulator 2000.

Our next Hop took us from Buffalo into Muskegon, MI. Muskegon is on the west coast of Michigan right next to Lake Michigan. This would be our stop for fuel and a snack before the leg into Oshkosh. This leg went pretty smooth and uneventful. All of the Air Traffic Controllers we spoke with, even those in CANADA were excellent. After we landed in Muskegon, while getting an update on

the weather, we realized that a level 2 to 3 thunderstorm was poised right over the lake between Oshkosh and us. Just because you can do a thing does not make it prudent, and flying through a moderate to severe thunderstorm is one of those things that you should just not do. So we stayed in a Holliday-Inn in Muskegon till early the next day.

With an early start to the trip on Monday morning, we arrived on the other side of the lake at about 06:00 AM CDT. As we were almost 1 hour early for our scheduled arrival into Oshkosh, ATC placed us into a holding pattern over Sheboygan, WI. After about 15 minutes, they cleared us for the approach into Oshkosh! We finally made it!

After tying down the plane in the 'North 40' we were off to our rooms at the University of Wisconsin Dormitories.

The next 6 days we were subjected to an absolute overload of aircraft, accessories, and air-show's. The show was excellent and a real must see for any aircraft enthusiast.

While traveling around the grounds of Airventure, and keeping in contact with our friends on 146.52 (the group included N1UEC, KA1NCF, W1DCB, N1OPG, AA1WM, and WB1FWG), I overheard someone trying to deliver an NTS message to the Tuskegee Airmen. Now, we all know I wasn't planning on passing traffic, but, as a good ham, I offered to hand deliver the traffic. After copying the message at a booth for the RC Modelers, I walked over to the Tuskegee Airmen's booth and delivered the message from one of their comrades who were unable to attend and returned three pieces of traffic to him. All in all, a good exchange.

The trip home was almost as much fun as the way out and we made it back in only 1 day. Arriving home at 1B9 (Mansfield, MA) around 6:00 PM EDT. WOW, What a trip. 9.7 hours flight time out, 8.8 Hours flight time back and no unexpected surprises!

## Airventure

(continued from page 2)

I hope you have enjoyed this story as much as I have enjoyed telling it. If you want to see some pictures from the trip, be sure to visit [www.n1uec.org](http://www.n1uec.org) and check out the Oshkosh 2001 entry on the vacations page. You can also follow links from their to the official EAA Airventure website.

73 4 now... de N1UEC, N2405Y  
Aeronautical Mobile... (see below)



## HAM VOLUNTEERING AND EMERGENCY PREPAREDNESS

At this point in time I don't think anyone needs further reminder of the terrible things which happened in and to our country recently.

One point, however, should be made and that is that without the 100's of amateur radio operators who have, once again volunteered time and equipment there would have been a communications vacuum at a time and place where communication was and is crucial.

In emergency situations, natural or otherwise, it's not unusual for the regular communications infrastructure to fail. Hard line telephones and cell phones can often be the first to go. In addition, many communities don't have radio systems to allow them to communicate to other towns and/or services. So often it's imperative that these lines of communication be open

## Auction Help Wanted

No experience needed, will train, one day only.

Saturday November 17 2001 8:00AM-4:00 PM.

Our busiest times are 8AM- 11:00AM and from 2:00 PM to 4:00 PM

Auction runners, check in personnel, snack bar attendants, general help. Please come by for a couple hours in the morning, afternoon or all day.

The pay is great, supporting the WARA repeaters, meeting the repeater voices face to face, heavy hitters snack bar.

All helpers are allowed, encouraged to consign and bid

Contact: Jim Hicks K1QJS,

toll free 1(888)544-3777 or [k1qjs@amsat.org](mailto:k1qjs@amsat.org)

and that's where the amateur radio community comes into the picture.

The question is, how do you prepare for these kinds of situations? The answer is right in front of you many times a year. VOLUNTEER!

The experiences you gain from volunteering for such events as the "Walk for Hunger" or the "Boston Marathon" or to participate in the annual "Field Day" exercises go a long way to helping you to understand what you must do and what you should have available in order to take your ham shack from your home and to operate under less than ideal circumstances.

The best training, however, is to get involved with ARES. ARES (Amateur Radio Emergency Service) provides periodic training sessions and exercises to formally prepare you for the possibility that your efforts could provide the ONLY means of communication in a situation where there are no other alternatives available.

You can get more information regarding A.R.E.S. at their site on the internet at: <http://www.ares.org/>

Remember, amateur radio was created as a service to provide communications by skilled operators in time of need to the community and nation.

## MEMBERSHIP PAYS!

JOIN W.A.R.A.  
TODAY!

## WE NEED YOU –TO PARTICIPATE AND CONTRIBUTE!

Prospect Hill Intermod (PHI) is *YOUR* newsletter. We always get good submissions of articles, information and sometimes even photographs to include in each issue. That's what makes it interesting for the readers. So if you have an idea, some thoughts or perhaps some photos of your shack or some event you participated in, send them on in and share them with everyone!

You can send things in via e-mail to [n1uss@arrl.net](mailto:n1uss@arrl.net) or snail mail to:  
Ron Perry, N1USS; 34 Summer Street  
Melrose, MA. 02176-4610

Text should be plain text (ascii) like an e-mail message or in Microsoft Word format (preferably) and photos should be in JPEG or GIF format.

## **ENGINEERING A RECEIVER THE ELECRAFT WAY**

Since this great description of the Elecraft K2 was an answer to a question by our own NS1R I thought that it might make good input for PHI. What do you think?

Fran, KA4FRH

### **----- Original Message -----**

Posted By NS1R

I have a question. I have seen the specs of the K2 performance including the latest specs in QST at the end of the Kenwood TS-2000 review. How can Elecraft get those high specs? OR why is it the Japanese radios have such lousy specs \$ for \$.

You would figure the Japanese manufacturers could blow away the Elecraft kits in performance due to the larger engineering staff.. larger operating budget etc.

I don't own an Elecraft...however I am impressed at how the specs measure up against the \$3,000 to \$4,000 Japanese radios. Is it a matter of engineering, better quality parts etc.?

I would appreciate an answer especially from the guy named Eric at Elecraft.

Thanks,

Steven, NS1R

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***This is the response Steve received.***  
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Hi Steven,

The primary reason the K2 does as well as it does is that Wayne (N6KR) and I decided to pay special attention to RX and TX performance from the start, rather than try to fit too many unneeded marketing features into the K2. Plus we're both performance addicts.. By applying good RF engineering practice to the design, combined with an emphasis on trying

to do more with less, we ended up with a solid design that performs well. Plus it is easy to build, trouble shoot, modify and understand.

The K2's receiver does well because:

1. The K2 uses a single conversion RX, which almost always will out perform multiple conversion schemes in dynamic range. (Less stages to overload etc.) We go directly from the first mixer to our narrow IF crystal filter at 4.91 MHz. This blocks signals that are outside our narrow filter from overloading the remaining receive chain. A single conversion RX is also usually quieter than a multi-conversion one since there are less active stages to add noise to the receive path.

A primary reason for using multiple conversions in other rigs is to provide general coverage receive. Multi-conversion receivers -can- improve their dynamic range, but it adds a lot of cost to their design.

The multi-conversion schemes used on other receivers typically first go to a high IF (45 MHz and above) and can only filter signals there with a wide 'roofing filter' that is 10 to 25 kHz wide. Once a strong signal gets inside the roofing filter at the first IF it will begin to overload the following stages, seriously degrading dynamic range - before- they reach their narrow IF filters. That's why the K2 shines even more now that the ARRL is publishing 5 kHz spacing dynamic range results in addition to their 20 kHz numbers.

2. We designed a clean, low phase noise, PLL. This is especially important for improving blocking dynamic range (de-sense) in an RX. No matter how good your IF filters are, your RX will dense in the presence of strong signals if your PLL is not clean.

3. We use narrow double tuned front end filters to filter out strong signals outside of the ham band in use. This really improves our 2nd order IMD, a feature important to contesters and hams in Europe, with its extremely strong BC stations.

4. We optimally balanced the gain between the various stages in the receiver for both good sensitivity and excellent dynamic range. Too much gain up front in a receiver will seriously degrade strong signal handling. You only need enough front end gain to hear signals that are - above- the naturally occurring band noise. Too much sensitivity is wasted and makes the RX more likely to overload in the presence of strong adjacent signals.

5. We designed all the receiver stages with enough dynamic range to handle a wide range of signal strengths.

The bottom line: Keep the RX simple, clean, and properly balanced. Too much extraneous circuitry can actually degrade receive performance.

On top of that, we also paid special attention to the cleanliness of the TX signal. We optimally shaped the CW wave form for best performance and we designed the SSB circuitry for clean audio. We also use a diode switched T/R path to eliminate chattering relays and enhance break in CW operation.

The popular trend to put as much as possible (all mode, all bands through UHF etc.) into a single box these days provides convenience, but it seriously sacrifices performance. I think the all band radios are excellent compromises in design, but they can't match the performance of an optimized HF (160-10M) radio without adding significantly to their size and cost.

Please feel free to check out the information on our web site, <http://www.elecraft.com/> It includes customer comments, rig comparisons, our email list archives and even manuals which can be downloaded.

Also, feel free to email me directly if you have any further questions. My email is: [eric@elecraft.com](mailto:eric@elecraft.com)

73, Eric WA6HHQ

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## **THE WALTHAM REPEATERS - wara64.org - the wara64 email group?**

Communication is the name of the game and at the Waltham Amateur Radio Association, we've got you covered!

That's right. W.A.R.A. has 4 repeaters in the Greater Boston area (Waltham, MA.) on 50MHz, 146MHz, 220MHz and 440MHz to provide you wide choice and bandwidth to carry on your conversations and pursue your hobby of amateur radio at any time you'd like to. All of our repeaters are free and open for all licensed amateur radio operators to use. However should you feel inclined and would like to support the operation of one or more of these machines you can join W.A.R.A. by filling in the membership application at the back of this newsletter or by downloading a copy of it from our web site.

We also have a web site that includes areas of interest in most facets of the amateur radio hobby and service. Some of the topics available are public service opportunities, upcoming club events, club meeting schedules and general amateur radio related events. We, periodically, include information and links to such things as F.C.C. rules changes as well as issues of interest and concern for we hams. On the web site we have a guest book where visitors can sign and leave a message, question or opinion. We also have a BBS style message board where you can ask and answer questions about amateur radio as well as to communicate to the general user-ship special events and information in your life in amateur radio.

Finally, we have the wara64 email list at "yahoo groups". This email list, should you decide to join, allows members and friends of WARA to communicate by simply sending one email message and reach ALL the members of the list.

Links and additional information about all of these methods of communication are presented in much more detail on the WARA web site at:

<http://www.wara64.org/>

## **PUBLIC RELATIONS - Just One More Way To Communicate**

One more way that the Waltham Amateur Radio Association can communicate is to send meeting and special events information to our local and area news outlets to promote and publicize what we at W.A.R.A. as well as we, in general in amateur radio are doing "today".

We have many special interests and activities and we all seem to ask why we don't see an influx of new hams into the hobby/service. Perhaps the answer is that we confine ourselves to our own little clique of fellow hams. Perhaps it's because we don't take that single extra step to let those just outside of our little circle of friends to know that we're even here. Perhaps, in addition to putting our photographs and stories (most of which are great and fun events) on our web site and into our email messages we should make a copy and email or snail mail those same bits of information and news to our local news papers.

Maybe, just maybe, if one of you would like to take on the easy task of handling "public relations" for the Waltham Amateur Radio Association we could get the ball rolling and see more people (young and old and even in between) join the ranks of we hams.

Anyone game? If so, give a call or drop and email message to either Ann (KA1PON) at [ka1pon@amsat.org](mailto:ka1pon@amsat.org) or to me Ron (N1USS) at [n1uss@arrl.net](mailto:n1uss@arrl.net).

If you want to see the kind of resources available to help in the take of public relations check out the ARRL web site at this URL: <http://www.arrl.org/pio/>.

## **VQSL.NET Offers Free 21<sup>st</sup> Century QSL Service To ALL Hams!**

There is a new service for Amateur Radio Operators; a virtual QSL card service.

<http://www.vqsl.net/>

There's NO charge for this service or ANY service on VQSL.NET. The service is designed to help the QSL effort and to give an alternative to the high cost of postage and printing of QSL cards to send to your DX and local contacts. This site and concept was created by Michael Paris (KA9TND) and ALL online services are provided FREE OF CHARGE as his was of giving back to the ham community.

VQSL has other features, in addition to the QSL service. These include DX chat rooms to help you make those remote contacts, FREE web hosting for amateur radio operators, FREE email accounts, CQ contests and much more.

Check it out! Why not... it's all free and there's NO obligation to purchase anything.

## **A NOT SO SIMPLE "THANK YOU"**

Today, more than most of the past times in my life, it means, to me and to so many others, so much more to be a citizen of the **United States of America**.

Today, more than most of the past times in my life, I realize that EVERYONE from the custodial engineers who make our lives easy and pleasant to deal with to the President of this great country are EQUALLY as important, to that which is and has always been what these United States have always and will always stand for.

**GOD BLESS AMERICA!  
And God Bless you ALL!**



# AMATEUR RADIO & ELECTRONICS AUCTION

*Sponsored by the Waltham Amateur Radio Association and the 1200 Radio Club*

**Saturday, November 17, 2001**

**11 AM – 4 PM**

Seller Check-in starts at 9:30 AM

Newton Masonic Hall (second floor)

460 Newtonville Avenue

Newtonville, MA. 02460

Admission: \$2

### PARKING & ACCESS

Metered parking on street, *free parking* in municipal lot across Walnut St. Please do not park in the lot next to the Masonic Hall, or in the Star Market parking lot. Unfortunately, this fine old building does not have a “Handicapped Access Ramp” – there is an elevator but the entrance has five steps.

**While you are at the AUCTION; enjoy the “Heavy Hitter’s Snack Bar”  
Coffee – Donuts – Soft Drinks – Lunch – Snacks – AND MORE!**

For auction rules and other information, visit <http://www.wara64.org/auction>,  
or contact Eliot Mayer, W1MJ, [w1mj@amsat.org](mailto:w1mj@amsat.org), Tel 617-484-1089

WARA and 1200 RC thank the Newton Masonic Associates for the use of their fine facility.

### Directions:

From 128/I95 take the Route 16 East exit (#21A), follow Rt 16 into West Newton square, then bear right leaving Rt 16 and following Washington St. About 8/10 mile further take a right at the light at Lowell Ave., cross the turnpike and take the immediate left onto Austin St. The Masonic Hall is directly ahead of you at the end of the street, and the municipal parking lot is on your right.

From Boston, take the Mass. Pike west to exit 17 at Newton Corner. Go straight ahead on Washington St. about 1.2 miles to Newtonville Square. At the light at Walnut St. go left over the turnpike and take the immediate right onto Austin St. (The Masonic Hall is on your left as you cross the turnpike.) Park in the municipal lot on your left off Austin St.

**TALK-IN: 146.64 MHz (-) Waltham Repeater**

# WALTHAM AMATEUR RADIO ASSOCIATION

## MEMBERSHIP FORM

The Waltham Amateur Radio Association operates repeaters on 2 Meters (04/64), 6 Meters, 220 MHz, and 440 MHz. The repeaters are free and open for everyone to use. But repeaters have bills to pay, just as you do. A \$15 annual membership would help support these repeaters, as well as help to keep you informed about club activities and other aspects of ham radio. If you cannot afford \$15, please send what you can. If you are inclined to donate more, we will put it to good use. Please complete this form, legibly, and return it to:

**Waltham Amateur Radio Association  
Post Office Box 411  
Waltham, MA 02454**

Name \_\_\_\_\_ Call Sign \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone # \_\_ (\_\_\_\_) \_\_\_\_\_ Are you an ARRL member? \_\_\_\_\_

Email \_\_\_\_\_ Web Site Address (URL) \_\_\_\_\_

This year's donation enclosed (\$15 nominal): \$ \_\_\_\_\_

Check if you would like to get involved in any of the following Waltham ARA activities:

_____ Repeater Maintenance/ Construction	_____ Speaker for Club Meetings
_____ Public Service Activities	_____ Auctions
_____ Newsletter Writing or Production	_____ Public Relations for W.A.R.A.
_____ Contribute to the W.A.R.A. web site	_____ Photographer for W.A.R.A. events

Comments about the club, its repeaters, our web site or the newsletter:

**Visit the W.A.R.A. web site at: <http://www.wara64.org/>**

**Waltham Amateur Radio Association**  
**P.O. Box 411**  
**Waltham, MA. 02454**

*Please check expiration date on mailing label.*