

## Highlights

- **AUCTION '98 IS COMING!**
- **A Field Day Retrospective**
- **New "Techy" Corner**

## Inside

- **Crotched Mountain and Ham Radio**
- **Homebrewers.... The "Where To Find Parts" List!**
- **A Boys & Girls Club Project Update & MORE!**

# Prospect Hill Intermod - *Fall '98!*

## **GOING ONCE, GOING TWICE..... AUCTION '98!**

*Repeaters, Public Service to the community and the Fraternity of our fellow amateur radio friends.*

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### **Tradition Lives on with The 1998 WARA & 1200 Radio Club AUCTION!**

Where did the summer go?!? It's already October, the frost in on the pumpkins and the Flea Market season is drawing to a close, once again. Well, maybe not entirely! Yes, that's right. There's one more chance to get that "Good 'Ole Time Amateur Radio Fix" at the **1998 AMATEUR RADIO & ELECTRONICS AUCTION**, sponsored by WARA and the 1200 Radio Club!

The date is Saturday, November 21<sup>st</sup> from 11:00 AM to 4:00 PM and seller check-in starts at 9:30 AM. The location is the same as it's been for the past couple of years, at the Newton Masonic Hall and admission is a mere \$2.00. Talk-in will be on the '64 Waltham Repeater and there's plenty of parking for all!

The auction is the major fund raiser for both WARA and the 1200 Club, each year, so be sure to mark your calendars so you don't miss the fun! That's right! Besides being the last opportunity of the season to pick up that most wanted and needed item for your ham shack, this is a chance to get together with (or even meet for the first time) many of your friends from "on the air". AND, finally, let's not forget the infamous "Heavy Hitters Snack Bar" where you can quench your thirst or get a boost of energy to keep your bidding strong.

Be sure to check out the Auction Flyer, later in this issue for even more exciting information.

Volunteers are always needed to help with setup, cleanup and for various duties in the course of the auction. Your support is always appreciated and you can contact Eliot Mayer (W1MJ), in advance, so he can plan on your help. Contact him at [w1mj@amsat.org](mailto:w1mj@amsat.org) or by phone at 617-484-1089.

Directions to the auction are:

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 St. The Masonic Hall is directly ahead of you at the end of the street, and the municipal parking lot is on your right, and it is FREE on Saturdays

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. The municipal parking lot is on your left, off Austin St. SEE YOU THERE!

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## **THANK YOU, Mr. President**

At the September 30<sup>th</sup> club meeting Eliot, W1MJ, announced his resignation as President of WARA, effective at the end of 1998, after some 11 or so years of service.

It's not an easy job and often thankless but he says "It was fun". Well, I for one would like to express my thanks for all of the hard work and determination which Eliot has put in over the years to keep the club, the repeaters and the special events going strong.

You can read more of Eliot's thoughts in his final "Mumbo Jumbo's Mumblings", later in this issue.

THANK YOU, Mr. President!

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## **WARA ELECTIONS**

Club elections will be held at our regularly scheduled meeting on Wednesday, December 30, 1998. Several of the present officers are willing to continue serving if re-elected, though club president Eliot Mayer, W1MJ, will be stepping down after 11 years in office.

Since Eliot is not seeking re-election, he was appointed at the September 30<sup>th</sup> meeting to oversee the nomination and election process. If you think you might want to become a WARA officer, or if you would like to nominate someone for office, contact Eliot by November 30<sup>th</sup>. If you would like to vote but cannot attend the December 30<sup>th</sup> meeting, contact Eliot by December 7<sup>th</sup> to request an absentee ballot.

Eliot can be reached by e-mail, [w1mj@amsat.org](mailto:w1mj@amsat.org), or by telephone, (617) 484-1089.

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## **MUMBO JUMBO'S MUMBLINGS**

**by Eliot Mayer, W1MJ**

Some of you have heard me mumbling on 64 about WARA needing a new president. At the September 30, 1998 meeting, I announced my resignation as of the end of the year, and we started planning for an election; see the election announcement in this issue. I plan to remain an active member of the club, staying involved with the auction, the newsletter and the web page. But I really believe that for a ham radio club to be vital, you need a new president every year or two. The Billerica Amateur Radio Society is a good example of such a club.

I've been the WARA president so long that nobody was quite sure how long, though I found some club records that imply that it has been 11 years. Being "President for Life" may work for Fidel Castro, but it's not my bag.

Being WARA president has really been fun – it's just that I've done my share and want to pass on the gavel. Lately, we've had enough volunteers come forward so that it really hasn't been such hard work. The only unfilled position might be a meeting program coordinator, but even here, I've had people come up to me and offer to speak at our meetings. That never used to happen.

The president's main activities should be to chair meetings, and inspire growth in club activities, membership and participation. We already have a good group of project leaders, such as:

**Repeater Maintenance:** Andy, WA1GEP

**Newsletter:** Ron, N1USS

**Auction:** Eliot, W1MJ

**Web Page:** Eliot, W1MJ (until a more sophisticated web author volunteers)

Speaking of auctions, ours is once again on the Saturday before Thanksgiving, November 21, in Newton. This is the major (well, only) annual fund-raiser for the club. The details are elsewhere in this issue. We need the auction income to pay for repeater maintenance, so please help us by doing as many of the following as possible:

1. Talking it up, on the air and wherever
2. Bringing stuff to sell
3. Buying stuff at the auction
4. Volunteering to help

Last year, I was starting to panic because very few people promised to volunteer for the auction. As it turned out, there was enough help, but please don't make me sweat it out this time – especially if you want me to keep volunteering to run the thing. Call or write me, in advance, if you think you can help or want to know more:

(617) 484-1089 or [w1mj@amsat.org](mailto:w1mj@amsat.org).

The next presidential column in PHI will be from our new, energetic, non-burned out president.

73,

Eliot Mayer, W1MJ

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### **NEW PROJECT LEADER ANNOUNCED FOR THE Waltham Boys & Girls Club Project!**

Jim McCobb, W1LLU, has moved out of the Waltham area due to a change in jobs. We wish Jim well with this new endeavor and location. Although this set the project back from the original plans of getting a lot done over the summer months, things are now back and moving in a forward direction.

Rick Snyder, WI1G, is taking over the project which Jim started, to bring amateur radio to the Waltham Boys & Girls Club. Funding for equipment is already available and Rick is enthusiastic about getting a station set up as well as giving license classes.

For more information or to volunteer to help, contact Rick by e-mail at: [w1lg@amsat.org](mailto:w1lg@amsat.org)

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**Waltham Amateur Radio Association, Inc.**

**1997 Annual Report**

Typically, the annual Treasurer's report is published in the Spring issue of PHI, however due to the last minute nature of how that came together it was overlooked by yours truly. For those interested, here it is and as "they" say, better late than never.

<b>Starting Balance</b>		<b>694.00</b>
<b>Income</b>		
<b>Contributions</b>	<b>1,235.00</b>	
<b>1997 Auction</b>	<b>302.53</b>	
<b>Snack Bar</b>	<b>60.50</b>	
	<b>1,598.03</b>	<b>1,598.03</b>
<b>Available</b>		<b>2,292.43</b>
<b>Expenses</b>		
<b>Telephone</b>	<b>(394.44)</b>	
<b>Equipment</b>	<b>0.00</b>	
<b>News Letter</b>	<b>(310.97)</b>	
<b>Insurance</b>	<b>(255.00)</b>	
<b>Bank Charges</b>	<b>(146.02)</b>	
<b>Memorials</b>	<b>0.00</b>	
<b>Corp. Fees</b>	<b>0.00</b>	
<b>P.O. Box</b>	<b>(40.00)</b>	
<b>Miscellaneous</b>	<b>(23.34)</b>	
<b>Expended</b>	<b>(1,169.77)</b>	<b>(1,169.77)</b>
<b>Ending Balance</b>		<b>\$1,122.66</b>

Andrew E. Donovan, Treasurer

### **A MESSAGE FROM "BEN", N1YUS**

Six meter FM is great! Our good friend, Steve Russell (WA1HUD), has erected a terrific repeater for the Waltham club high on a hill in Winchester, MA. The actual location is at Jim's house (KA1TKO). Thanks to both of these guys for putting in so much time and effort keeping our six meter FM frequency active.

For those who are interested, here are some specs and prices on six meter FM gear, just to show you how relatively inexpensive and easy it can be to get on the air on 6 FM.

ALINCO MO6 - 20 watt, mobile type unit - \$269.00

Cherokee AH50 - 5 watt, hand held unit - \$150.00

These units can be found at AES or HRO as well as a lot of other places!

Six meter AM has quite a crew on Saturday and Sunday mornings from about 6:30 AM until about 8:30 AM. I don't know if you'd actually call it a "NET", per say. The frequency is 50.4Mhz on your 6 meter AM dial!

It's attendees are there, religiously, every weekend tweaking up those great sounding, broadcast quality rigs. The format is "round robin" but you can jump in and announce your presence anytime you wake up. It's well worth tuning in to join in the fun or just the pleasure of listening.

Some of the regulars are Jim, KA1TKO; Steve, WA1HUD; Mike, N1CRI; Bill, WA1JHZ; Ken, KA1OXQ; Bill, WA4DDH and many, many others from time to time.

AM rigs (old ones which sound absolutely great!) can be purchased, used, for about \$100.00 and up.

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### **MEMBERSHIP,,,, DO IT NOW!**

The W.A.R.A. repeaters are free and open for everyone to use. BUT.... repeaters have expenses, just like you! Your membership *and* participation will help to support the repeaters, as well as keep you informed on club activities and other aspects of amateur radio, through our newsletter. There is a membership form enclosed with this newsletter and it's also available on our web-site (check out the URL, later in this issue!). Please give some thought to "joining" in support of what you enjoy, so much. (While you're at it, BRING A FRIEND!)

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## **The Prospect Hill Intermod**

W.A.R.A. publishes a periodic newsletter called the "Prospect Hill Intermod". Would you be surprised to know that we're ALWAYS looking for contributions? Probably not.... so write in and let us know what's up! Your input can be technical, humorous, personal thoughts or stories as well as photographs, if you'd like! Whatever you'd like to share with us is just fine. If you'd like to contribute to our next issue, please contact our editor, N1USS (Ron).

Submissions can be sent to:

[n1uss@amsat.org](mailto:n1uss@amsat.org)

or

via snail-mail to:

Ron Perry, N1USS

34 Summer Street

Melrose, MA. 02176-4610

(You can, also, catch him on "64")

The "PHI" is also now available on the club web-site, on the Internet!

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# W.A.R.A. ON THE WEB!

Check out **WARA on the WEB** at:

<http://ourworld.compuserve.com/homepages/emayer/wara.htm>

or use the "shortcuts" at:

<http://www.amateur-radio.net/wara>

or at:

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

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## Your Club Officers

President Eliot Mayer, W1MJ

Vice President Bill McTighe, N1DIB

Clerk Andy Donovan, WA1GEP

Treasurer Andy Donovan, WA1GEP

Assistant Clerk Jim Finlay, N1HCF

Assistant Treasurer John Antes, KB1EB

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## Your Newsletter Staff

Editor Ron Perry, N1USS

Publisher Eliot Mayer, W1MJ

Production Steve Gilbert, K1SG

Circulation Ann Weldon, KA1PON

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## **The Emergency Autopatch**

W.A.R.A. maintains an Emergency Autopatch on the "64" repeater. It can be used to report traffic accidents or other emergencies to the Massachusetts State Police. Use is not restricted to club members, but we do ask that folks read the instructions on its use, *before* using it. They are available from our club web-site or by sending an S.A.S.E. to the:

**Waltham ARA**

**PO Box 411**

**Waltham, MA. 02454**

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## **KA1IYR and Crotched Mountain Foundation Update**

Be sure to listen for KA1IYR, the Crotched Mountain Center, on the air! Many days (usually Monday) during the early evening drive times, you may hear the folks at the center on the air. Please do your best to say hi and welcome them to the "64" family! If you're inclined and/or able to help out as a volunteer, to help to keep the station on the air, please let them know that you're available and when.

I was hoping that I could have made it up to the Center, this summer, to get a first hand story and some pictures for PHI but it just wasn't in the cards (yet). I've maintained contact with Chris and hope that sometime soon I'll get up north. Watch future issues of PHI for this story.

I do have some news, from Chris. They've temporarily lost their second volunteer (who helps to get the station on the air) until sometime after the first of the year. This leaves them with one volunteer who usually gets them on the air on Mondays.

Also of note, Chris and his wife are expecting their 5<sup>th</sup> child as I write! (Although by the time you read this their expectation may have been fulfilled!) Best of luck, health and happiness to the newborn and the family, Chris.

If you'd like to volunteer to help with the station, you can contact Chris Edscorn at:

[cedscorn@cmf.org](mailto:cedscorn@cmf.org)

or write to:

**The Crotched Mountain Center**

**One Verney Drive**

**Greenfield, N.H. 03047**

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**Education, rehabilitation, housing and managed care for physically and developmentally challenged children, adolescents and adults.**

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### **SO, You Like To Talk????**

OK, W.A.R.A. as well as other ham clubs, in the area, are always looking for speakers for meetings and special functions. Here's your chance to star on the Ham Club Circuit!

Get in touch with Eliot, W1MJ and he can get you on the "A" list of local speakers.

To get on the Local Speakers Listing, contact Eliot Mayer, W1MJ at:

[w1mj@amsat.org](mailto:w1mj@amsat.org)

**DO IT TODAY!**

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## **WALK FOR HUNGER '99 UPDATE**

## **MARK YOUR CALENDARS!**

Save the date of May 2, 1999, which is the first Sunday, for the Walk for Hunger.

Project Bread was very pleased with the efforts of all the radio operators, this past year and they are looking forward to our participation next year. More than 80 slots will be available and initial information should be out by the end of January.

I am working with the Walk committee, now, going over the details of this year's walk.

Bruce, KC1US

*If you're interested in volunteering, you can contact either of the following (via e-mail only please – at this time – it's still early):*

Bob DeMattia; [rjd@alum.wpi.edu](mailto:rjd@alum.wpi.edu)

or

Bruce Pigott; [kc1us@ma.ultranet.com](mailto:kc1us@ma.ultranet.com)

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## **CLUB ROSTER**

Several members have requested a club roster. At the June 1997 meeting we decided to make a roster available which only contains information specifically submitted by members. Kip, N1AUP has volunteered to compile the roster and this version of the roster will be made available on the club web site. Printed copies of this list will be available to members, upon request.

You can enter your information onto the roster on the web site or by contacting Kip at: [n1aup@amsat.org](mailto:n1aup@amsat.org)

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## **WARA CLUB MEETINGS**

Meetings are held on the last Wednesday of the month at 7:00 PM, at Artisan Industries, 73 Pond Street, Waltham, MA. Talk-in is usually available on "64". Everyone with an interest in amateur radio is welcome.

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## **CLUB REPEATERS**

### 6 Meters

52.25/53.25 (WA1HUD) [71.9 PL]

### 2 Meters

146.04/64 (W1MHL)

### 220

223.34/224.94 (WA1GEP)

### 440

444.075/449.075 (WA1PBU)

W.A.R.A. is an A.R.R.L. affiliated amateur radio club. For a lot more information on amateur radio, check out the A.R.R.L. web site at:

<http://www.arrl.org>

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## **MEMBERSHIP PAYS!**

### **JOIN TODAY!**

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#### **NETS on the "64" Repeater**

##### **Heavy Hitters Traffic Net**

10:30 PM local time, daily.

Local net of the ARRL National Traffic System. 3<sup>rd</sup> party messages anywhere allowed by the FCC and international rules.

Net Manager: Mike Ardai, N1IST

##### **Waltham Wranglers Swap Net**

9:00 PM local time, Wednesday

- Buy, sell or trade amateur radio equipment.

Net Manager: Laurie Cote, KC1BN

##### **Heavy Hitters AMSAT Net**

8:30 PM local time, Thursday

Discussions about amateur satellites, SAREX, the Russian MIR space station, satellite tracking and more.

Net Manager: Ernie MacLauchlan, K1ELA

##### **SkyWarn**

Meets, as needed, during severe weather.

Net Manager: Terry Stader, KA8SCP

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#### **The AMSAT.ORG Mail Alias Service**

The message re-mailing service on AMSAT.ORG permits users to send each other mail on the Internet without keeping track of each other's Internet addresses. The re-mailing service allows each user to receive mail sent to the address "callsign@amsat.org", where call sign is that user's amateur radio call sign.

To obtain a mail alias on AMSAT.ORG, send a message with your request to [listserv@amsat.org](mailto:listserv@amsat.org). Be sure to include your call sign and your correct e-mail address. Your request will be processed manually, for now, so the format of your request is not important. You need not be an AMSAT member to obtain a mail alias. Further details can be found at <http://www.amsat.org/>.

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## 60 YEARS OF W.A.R.A.

### A CELEBRATION!

As the sun rose over Prospect Hill in Waltham on Saturday, June 27<sup>th</sup>, WARA members and friends from the present and the past began the trek to the top of the "hill". It had been 60 years since the first WARA meeting and the celebration was about to begin.

Kip, N1AUP had assembled a group of eager operators and equipment as this year's Field Day chairman and now the antennae, tents, equipment and generator were jumping to life. With the able assistance of Eliot, W1MJ (HF coordinator) and Rich, N1JDU (VHF/UHF coordinator) donations of equipment and volunteers were assembling on the "hill" and excitement filled the air.

Many members arrived on Saturday and stayed straight through until Sunday afternoon, operating on several bands and racking up point after point in the contest. By the time it was over the club had earned 3,510 points in the contest, with 485 CW qso's and 435 phone qso's.

On Sunday the 28<sup>th</sup> the culmination of the anniversary celebration was a cook-out, complete with and anniversary cake and a display of WARA memorabilia from over the years.

By 4:00 PM it was over but not to be soon forgotten. A good time was had by all - including those who journeyed from afar to join in the celebration.

Kudos and thanks to all who participated; from donations of time and equipment to "on air" operators and of course to all who joined in the celebration of 60 years of WARA.

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### SPRINGTIME

by Kip, N1AUP

Complete the following question: SPRINGTIME: when a young ham's fancy turns to.....

- A. The birds and the bees
- B. Contesting
- C. Burgers on the grill
- D. Mobile Antenna Maintenance

No silly, the answer's not "Romance"! Nor is the answer "Contesting" (except for Charlie, N1RR, who never met a contest that he didn't like). The correct answer for hams in the know is "Mobile Antenna Maintenance"!

That's right. Even though most hams have been warm and snug inside of their heated cars during the morning commute, their mobile ham antennas have been exposed to a harsh New England winter. Think about it:

Drowned in salty water, sandblasted with road debris and exposed to wind chill factors that are so big that they can't even be measured, these concoctions of steel, aluminum and plastic continue to perform yeoman service by channeling our signals to the atmosphere. Now that spring looms in the not-to-distant future, it's time to do some preventative maintenance to insure those DFQ signal reports that we all like to receive.

First off, using a garden hose, direct a strong stream of water over all exposed antenna parts to wash off road salt and loose debris. Road salt does considerable damage to metal parts and can corrode contacts that are necessary for a proper antenna match.

**BEFORE DISASSEMBLING ANYTHING**, accurately measure the length of the whip that sticks out from the top of the loading coil or threaded connector. Write it down in a safe place. The exposed length of the whip directly correlates to the SWR of your antenna system. Changing the length of the exposed part of the whip will cause significant changes in your SWR reading. Save yourself some future grief by noting the length before loosening any set screws. If you have access to the owners manual for the antenna, locate the "tuning part" of the antenna to make sure you've measured the right thing.

After a good flush with fresh water, unscrew the coil and whip from the mount.

Having noted the whip length, lay the antenna on a flat, well lit surface that will contain any small parts that will inevitably drop during the disassembly process. Take it from an expert klutz: it's impossible to locate a tiny set screw that has dropped onto a sandy, asphalt parking lot. Remove all set screws, and disassemble any threaded parts of the antenna. If anything looks glued, welded, braised or crimped, leave it alone. We're only concerned about threaded or exposed parts here.

If you're like me, you can never remember which set screw goes where, so make sure you take detailed notes concerning how various parts fit together. It's an ominous feeling to find spare parts after you thought you completed final assembly. If you can get away with it, remove, clean and reassemble only one threaded piece at a time. This will minimize mix-ups.

Wipe down any exposed surfaces with a light coating of oil to remove stubborn road grime. WD 40 efficiently removes tough grease or dirt, and supposedly leaves a protective coating over metal surfaces. According to the directions on the can, WD 40 won't degrade plastic surfaces, so don't worry about getting any on the plastic coil covering.

Inspect all parts (including the coax, mount, and the coax connector at the radio end) for cracks, kinks, breaks or missing parts. Replace anything that looks suspect. Sixty-five MPH driving puts considerable strain on antenna parts. You wouldn't want to lose an expensive whip assembly because you put off replacing that cracked ball mount. In addition, a whip that slams into the Mercedes convertible behind you might be returned accompanied by an expensive lawsuit.

After all parts have been cleaned and inspected, reassemble all threaded parts. I coat all threads with a light covering of silicone grease or "Lube Gel" which can be purchased at any Radio Shack location (part number 64-2326). In case you're wondering, this is not the same as "Silicone Seal" which contains a corrosive mixture of acetic acid. Snug up all connections, making sure you don't apply too much force to the connections or improperly align any threads.

If your antenna mount contains any rubber gaskets, replace any that show signs of hardening, cracking or wearing. These gaskets keep water out of sensitive areas containing coils, capacitors or other electronic components. Wet coils and coax will destroy an antenna faster than your two year old with wire cutters.

Now is the time to focus on the radio end of the antenna system. Make sure that the coax connector is firmly screwed into the back of the radio. Use this moment to inspect power cables, fuses, speaker and microphone

connections. Take care of any loose, dirty or corroded connections, especially those near the battery. Make sure that both sides of the power feed are properly fused. Improperly fused power connections can result in car fires that will most likely ruin your day as well as your new Icom 706. If you're not sure how to fuse a power cable, consult the ARRL handbook. Using a soft, clean cloth, wipe all dust from the outside of the radio and clean the donut crumbs and coffee spills from the grooves in the microphone.

Finally, break out your SWR meter, and insure that your antenna presents a reading equal to or less than 1.5 to 1. Final amplifiers in modern day transmitting equipment will not tolerate much reflected power. If you're lucky, your radio will significantly reduce the output power if it sees an SWR higher than 2 to 1.

If you're unlucky, you'll vaporize a transistor or output module that might cost you between \$50 and \$200 to replace.

These steps shouldn't take most hams more than 15 - 30 minutes to complete. Properly maintained mobile antennas will last for decades, and will continue to do an effective job of radiating RF from your radios. 15 minutes of maintenance now, might save hours of aggravation later on. Do you really want to discover blown finals from a corroded antenna after you've broken down on Route 128 during a Friday evening rush hour?

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## WHAT IF.... Dr. Seussâ were a technical writer?

Here's an easy game to play.

Here's an easy thing to say.

If a packet hits a pocket on a socket on a port,

And the bus is interrupted as a very last resort.

And the address of the memory makes your floppy disk abort,

Then the socket packet pocket has an error to report!

If your cursor finds a menu item followed by a dash,

And the double-clicking icon puts your window in the trash,

And your data is corrupted 'cause the index doesn't hash.

Then your situation's hopeless and your system's gonna crash!

You can't say this?

What a shame, sir!

We'll find you

another game, sir!

If the label on the cable on the table at your house  
 Says the network is connected to the button on the mouse,  
 But your packets want to tunnel on another protocol,  
 That's repeatedly rejected by the printer down the hall,  
 And your screen is all distorted by the side affects of Gauss,  
 So your icons in the windows are so wavy as a souse,  
 Then you may as well reboot and go out with a bang,  
 'Cause as sure as I'm a poet, the sucker's gonna hang!

When the copy of your floppy's getting sloppy on the disk,  
 And the micro-code instructions cause unnecessary RISC.  
 Then you have to flash your memory and you'll want to RAM your ROM.  
 Quickly turn off the computer and be sure to tell your mom!

## **CONSTRUCTION NOTES FROM KEN, KA10XQ**

### **Power Division Harnesses for Stacking Antennas**

Here is some construction data and formulas for power division harnesses.

~ = wavelength

f = frequency

V = velocity factor

To make your inner 75 ohm  $\frac{1}{4}\sim$  sections use the following equation:

$$\text{Length (feet)} = (246/f) \times V$$

$$\text{Example: } (246/50.4\text{MHz}) \times 0.66 = 3.22 \text{ feet}$$

To make your outer 50 ohm  $\frac{1}{2}\sim$  sections use this equation:

$$\text{Length (feet)} = (492/f) \times V$$

$$\text{Example: } (492/50.4\text{MHz}) \times 0.66 = 6.44 \text{ feet}$$

**And now, the recipe for construction!**

Using one "T" connector in the center, connect one 75 ohm,  $\frac{1}{4}$ ~ section on each side of the "T" using PL259 connectors. Install one barrel connector (double female) on each outside end of the 75 ohm,  $\frac{1}{4}$ ~ sections. Now install each 50 ohm,  $\frac{1}{2}$ ~ section to the outside of the barrel connectors, with PL259's.

Voila`, now you have 50 ohms at each antenna port and an even power division!

You may make the following substitutions to accommodate antenna spacing:

For the 75 ohm inner sections you may use  $\frac{1}{4}$ ~,  $\frac{3}{4}$ ~ or  $5/4$ ~ sections.

For the 50 ohm outer sections you may use  $\frac{1}{2}$ ~, 1~ or 1.5~ sections.

Using these formulae will always result in a lower SWR when you couple 2 or more antennas together. Any dividers which don't utilize the 75 ohm inner cable sections will show an increased SWR. Any dividers which use only the 75 ohm inner cable sections and are extended to  $\frac{3}{4}$ ~ or  $5/4$ ~ sets will match fine, but will exhibit a loss in efficiency (i.e. 0.5db).

Maybe some of you folks would like to try something a bit different to suit your geographical location relative to the other hams in your "group". This suggestion will give you a keyhole pattern, using an omni-directional antenna in phase with a directional yagi. This pattern will allow you to have omni-directional coverage of the "local" stations, while giving you the gain and directionality of the yagi to allow you to hear that "far out" station. To accomplish this, just add a phase delay line of one  $\frac{1}{4}$ ~ of 50 ohm cable on one side of the power divider only.

### Sample Stacking Distances

Distance in Wavelength	at 50 MHz	at 146 MHz
1	236"	80"
5/8	147"	50"
1/2	118"	40"
3/8	88"	30"
1/4	59"	20"

These are stacking distances, in free air, for antenna array set ups. Please note, however, that  $5/8$ ~ spacing is the maximum stacking distance you should use. Wider spacing will result in the creation of minor lobes.

Ken, KA1OXQ

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## "HOME-BREWER'S" PARTS SOURCE GUIDE

Here's a list of places where you can find parts to build and/or repair those old or new radios we love so much.

### PARTS SOURCES

Allied Electronics, Inc.

7410 Pebble Drive

Fort Worth, TX. 76119

800-433-5700

Antique Electronic Supply

6221 S. Maple Avenue

Tempe, AZ. 85283

602-820-5411

Antique Radio Components

1065 Faith Drive

Meadow Vista, CA. 95722

800-649-6550

Associated Radio

8012 Conser Box 4327

Overland Park, KS 66204

800-497-1457

Byers Chassis Kits

Charles Byers, K3IWK

5120 Harmony Grove Road

Dover, PA. 17315

717-292-4901

C.W. Wolfe Communications

1113 Central

Billings, MT. 59102

406-252-9220

Communications Concepts, Inc.

508 Millstone Drive

Beavercreek, OH. 45434-5840

513-426-8600

Connectors Unlimited

P.O. Box 5973

Manchester, NH. 03108-5973

CW Crystals

570 N. Buffalo Street

Marshfield, MO. 65706

Daily Electronics Corp.

10914 NE 39<sup>th</sup> Street

Vancouver, WA. 98682

800-346-6667

Electron Tube Enterprises

Box 8311

Essex, VT. 05451

802-879-1844

Fair Radio Sales

1016 East Eureka Street

P.O. Box 1105

Lima, OH. 45802

Jan Crystals

P.O. Box 60017

Fort Myers, FL. 33906

941-936-2397

Lucas Transformer Co.

7113 N. 9 Mile

Lake City, MI. 49651

Mouser Electronics

958 North Main Street

Mansfield, TX. 76063

800-992-9943

Nemal Electronics

12240 NE 14<sup>th</sup> Avenue

North Miami, FL. 33161

800-522-2253

Newark Electronics, Inc.

255 Bear Hill Road

Waltham, MA. 02154-1017

781-622-5760

Peter Dahl Company

5869 Waycross Avenue

El Paso, TX. 79924

915-751-2300

Purchase Radio Supply

327 East Hoover Avenue

Ann Arbor, MI. 48104

Ramsey Electronics, Inc. (kits)

793 Canning Parkway

Victor, NY. 14564

800-446-2295

RF Parts

435 South Pacific Street

San Marcos, CA. 92069

800-737-2787

Surplus Sales of Nebraska

1502 Jones Street

Omaha, NE. 68102

402-346-4750

United Electronics, Co.

201-751-2591

(Tubes bought & sold)

Universal Radio

6830 Americana Parkway

Reynoldsburg, OH. 43068

614-866-4267

**VINTAGE RADIO MANUALS, SCHEMATICS AND MORE**

A.G. Tannenbaum

Electronic Service Data

P.O. Box 386

Ambler, PA. 19002

215-540-8055

Manual Man

27 Walling Street

Sayreville, NJ. 08872

908-238-8964

W7FG Manuals

3300 Wayside Drive

Bartlesville, OK. 74006

800-807-6146

### VINTAGE RADIO PUBLICATIONS AND CLUBS

AM Press Exchange

2116 Old Dover Road

Woodlawn, TN. 37191

Antique Radio Classified

P.O. Box 802-C15

Carlisle, MA. 01741

508-371-0512

Electric Radio Magazine

P.O. Box 57

Hesperus, CO. 81326

970-247-4935

The Quarter Century Wireless Assoc.

159 E. 16<sup>th</sup> Avenue, POB 9

Auburn, CA. 95604

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# AMATEUR RADIO & ELECTRONICS

# AUCTION

Sponsored by the Waltham ARA and the 1200 Radio Club

When: **Saturday, November 21, 1998**, 11 a.m. - 4 p.m.

- ◦ Seller check-in starts at 9:30 a.m.

Where: **Newton Masonic Hall** (second floor)

- ◦ 460 Newtonville Avenue, Newtonville, MA  
(at the corner of Walnut Street, near Star Market)

Admission: \$2

- ◦ ■ ■ Parking: 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.

Talk-In: 146.64 (-) Waltham Repeater

Heavy Hitters Snack Bar; coffee, donuts, lunch, snacks, etc.

## If you are selling:

- Label your equipment with a brief description, condition, your name and call
- Bag small items
- *Don't Bring Junk* (TVs, boat anchors, non-electronic items, etc.)
- Commission: 15% / \$1 minimum / \$30 maximum / \$0 for owner buy-back

## Auction Rules:

- Decision of auctioneer is final
- Buyers must pay immediately after sale, in cash

For directions and further information, visit our World Wide Web site:

<http://ourworld.compuserve.com/homepages/emayer/auction.htm>

or contact Eliot Mayer, W1MJ, tel: 617-484-1089, e-mail: [w1mj@amsat.org](mailto:w1mj@amsat.org)

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

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## **STOP THE PRESSES!.....**

### **LAST MINUTE UPDATES FOR PHI coming down the line!**

#### **WALTHAM BOYS & GIRLS CLUB UPDATE FROM RICK, W1IG!**

After nearly two years in the making, the Waltham Boys and Girls Club Amateur Radio project, named "*Passport to the World*," will be getting off to a flying start in the coming weeks. The brainchild of James McCobb, Jr., W1LLU, sponsored by Andrew Donovan, WA1GEP, and catalyzed by the Waltham Amateur Radio Association, the project will begin with the construction of a fully functional multi-mode multi-band amateur radio station at the Boys and Girls Club building in Waltham, Massachusetts. The program will run under the directorship of Rick Snyder, W1IG, and run continuously for an indefinite period of time.

The amateur radio station will be put to good use by a multi-week amateur radio licensing course, in which interested members of the Boys and Girls club will participate. The course will teach the essentials of being an amateur radio operator and will be structured around preparing students for the FCC Technician Class amateur radio license exam. The bi-weekly theory classes will be supplemented with hands-on radio laboratories in which students will have ample time to develop those skills associated with being a responsible and effective amateur radio operator. Morse code education will be presented to all the participants and offered as an option. Communications and interpersonal skills will be developed, as well as the fundamental technical aspects of the service. Rick Snyder, a third year student at Brandeis University, will serve as the instructor for the course, and Andy Szekely, N3ZAG, another third year student, will act as a teaching assistant.

Details such as the construction standards of the radio station and the plan for the course are being drafted by Rick Snyder and will be proposed in a meeting with Bill Parks, executive director of the Boys and Girls club, and several other participants in the project. The course will be geared towards kids of middle and early high school age and will be designed to make learning even the most difficult aspects of amateur radio as fun as possible. According to the initial course proposal, *Passport to the World* will "...invariably and inevitably bring to the participants a sense of confidence and satisfaction that comes with completing an important and valuable task...another primary focus...is to bring a sense of camaraderie, trust, and friendship between the participants themselves and the participants and their instructors." The course will be concluded with a special examination session for the participants, run under the direction of Rick Snyder and three other ARRL accredited volunteer examiners.

The American Radio Relay League will be contacted with requests for course materials, such as multiple copies of *Now You're Talking*, which will serve as a textbook for the course. The key players in the project hope to work closely with the League, the WARA, and other radio organizations to make the experience as enjoyable and educational as possible.

Rick, [w1g@amsat.org](mailto:w1g@amsat.org)

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## EXPEDITION '64 IN PLANNING STAGES

There's an expedition in the making with the '64 gang. According to Charlie (N1RR), "We are beyond the discussion phase and are turning our efforts toward securing a location to operate from on Nantucket. Once the location is secured, we will turn our attention to selecting a weekend for our trip."

A LISTSERV mail reflector has been provided by Joe (W1EK). To subscribe, send a mail message to

[LISTSERV@the-courtyard.com](mailto:LISTSERV@the-courtyard.com) and in the body of the message type in Exped64. Persons interested in participating may also contact N1RR at [morriso@massed.net](mailto:morriso@massed.net).

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**October 13, 1998**

## 2M REPEATER TECHNICAL UPDATE by WA1GEP

As many of you know, the Waltham 64 machine was originally installed by a group spearheaded by George Caswell W1ME (ex K1MON) in the late sixties.

It is a split site machine with **the** receiver on the north peak of Prospect Hill and the transmitter at the fire tower on the South Peak. There is a 1200 foot run of telephone drop wire that goes between the two peaks that supplies COR and audio to the transmitter.

We are very fortunate to have the best radio site in eastern Mass. which explains the excellent coverage of the repeater. It is also a difficult site to work with because of access, local politics, RFI and lightning.

This arrangement has worked well for many years. Of course, the equipment has been upgraded at various times and currently consists of a mixture of modified commercial units and custom designed and built units. In recent years the only troublesome parts of the system have been the audio line and the power amplifier.

While the repeater is operating well as I write this, there are two major issues to be addressed:

1. There is no spare equipment that is plug-in compatible with what is in use at the moment. This means that all repair work and modifications have to be done while the repeater is shut down. I feel a lot of pressure to respond quickly and I may not be able to do so if there is major damage.
2. We may be forced to consolidate into a single site in the near **future**. Should this occur, we do not have equipment set up for single site full duplex operation. Again, the repeater would be down until the existing equipment could be modified.

Actually the availability of single site operation would be very desirable in the event of repeater receiver or audio line failure.

At a Radio Club meeting held last June, it was voted to purchase back-up equipment and set up plug in compatible replacements for each unit currently in use.

Most of the necessary commercial equipment has been purchased but, to date, none of it has had the necessary modifications to be used. The back-up custom equipment has yet to be started, but this is less of a problem because it is easier to repair at the component level.

If anyone would like to take on the responsibility for setting up one of these units for use in the repeater, please let me know. In the meantime, let's hope everything keeps working.

## THE WALTHAM AMATEUR RADIO ASSOCIATION

and its newsletter,

### PROSPECT HILL INTERMOD

The Waltham Amateur Radio Association operates repeaters on 6 Meters, 2 Meters (04/64), 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 membership would help support these repeaters, as well as keeping you informed on 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 the form below, legibly, and return it to:

Waltham Amateur Radio Association

P.O. Box 411

Waltham, MA 02254

If the information on the mailing label is correct, check here and skip the address section: _____
Name _____ Call _____
Address _____
City _____ State _____ Zip _____

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

E-mail \_\_\_\_\_

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

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

\_\_\_\_\_ Waltham Boys & Girls Club

\_\_\_\_\_ Repeater Maintenance or Construction Projects

\_\_\_\_\_ Public Service Activities

\_\_\_\_\_ Auctions

\_\_\_\_\_ Newsletter Writing or Production

Comments about the club or the newsletter:

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| [Top of this Issue of PHI Online](#) | [WARA Main Web Site](#) | [PHI Online Index](#) |

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**Last Updated: Monday, December 13, 1999**

**Direct system problems, comments and questions to [webmaster@wara64.org](mailto:webmaster@wara64.org)**

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