



# CAARA Newsletter



AN ARRL AFFILIATED CLUB

NOVEMBER ISSUE- 2009



## President's Corner

by *Curtis AA3JE*

Well it's coming up to the holidays!

We have the Hamfest at the Pigeon Cove Circle on the 14<sup>th</sup> of NOVEMBER (do not miss this! There will be some really fantastic bargains!).

We will be having the Christmas Dinner (yes there will be a Yankee swap and door prizes) Pot Luck covered dish supper on the 12<sup>th</sup> of DECEMBER.

We will be setting up for the winter contesting season and sprucing up the clubhouse.

Winter is the ideal time to stretch into an area of ham radio you have never tried. Other club members can be invaluable in this.

I had the experience recently of purchasing a Heathkit CW rig (DX-20) at the MIT Flea, and needed a manual. I called around the club and in days a PDF file of a DX-20 manual appeared in my mailbox. I set it up, using the manual, and BANG, It worked perfectly.

But none of my old crystals would fit. So I needed a VFO. I tried on E-bay and in a few weeks had a Heathkit VF-1 VFO. But again, no manual. Back to CAARAMAIL and in a few days, in the inbox, a manual.

But I had no power supply (15 ma @ 300 volts). So it was off to NEARFEST where the CAARA team pointed out a defunct tube stereo on the junk pile. A little TLC and VOILA, a power supply.

I put all this together and it worked (be careful of the B+ voltage there) just perfectly.

I can't say I did it, for I could not have done it without the kind help of experienced club members. I got a great kick out of making this old tube rig sing again. Thanks guys!

This winter take advantage of the help we share, and try a new skill. If I can do it, you can do it. For sure!

(Next I am going to build that cool little VFO from QST.....)

73'

Curt Wright AA3JE

## CAARA 2010 MEMBERSHIP DUES NOTICE:

Hello to all CAARA members,

I will send out your 2010 club membership dues notices in the mail within the next few weeks. As always your membership dues are a vital part of your club's operating expenses and please consider your dues notice a chance to send beyond your dues in a tax deductible donation to the club since we are a 501 (C) 3 non profit charitable organization. If you think about in thirty dollars is a real bargain for dues considering you get access to a clubhouse, an excellent monthly newsletter, informative monthly members meetings and a nice club website with access to caaramail just to name a few. Not to mention the increasing amount of activities available to club members such as the superhet radio kit building class, the morse code class and the Thatchers Island Expedition. Our club is working hard to promote amateur radio as well such as holding ARRL Field day and club members Stan Stone's successful tech-in-a-day class. We also work hard to provide emergency communications and public service communications for the Cape Ann Area. Your \$30.00 goes a long way to running a very successful club and anything you can give beyond that will only make your club and your amateur radio hobby that much more enjoyable.

73's

Dean Burgess KB1PGH  
CAARA Clerk

## **CAARA Newsletter**

**Cape Ann Amateur Radio Association**

**6 Stanwood Street**

**Gloucester, MA 01930**

CAARA Newsletter is a monthly publication of the Cape Ann Amateur Radio Association (CAARA). It is the policy of the editor to publish all material submitted by the membership provided such material is in good taste, relevant to amateur radio and of interest to CAARA members, and space is available. Material is accepted on a first come, first serve basis. Articles and other materials may be submitted by internet to Jon at k1tp@arrl.net. If possible, material should be in Word format. Material may also be submitted as hard copy to Jon-K1TP or any Club Officer.

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Jon Cunningham-Editor  
K1TP

### **Board of Directors- 2008-9**

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## **Welcome to CAARA:**

CAARA, an ARRL affiliated club, operates the 2 meter W1GLO repeater on 145.130 MHz with antennas located on the Cingular tower in the Blackburn Industrial Complex in Gloucester Massachusetts. It has an average effective radius of 60 miles, and serves Eastern Massachusetts, Cape Cod, Rhode Island, Southern New Hampshire, and maritime mobile stations. CAARA also operates the W1GLO repeater on 224.900. The W1RK 443.700 repeater with antennas located in Magnolia is owned and operated by club member Ralph Karcher and it too is available for club use.

The Association is one of the few amateur radio clubs that has its own clubhouse. Located at 6 Stanwood Street in Gloucester, it includes a permanent HF station with rotating beam and vertical antenna along with a 2 meter packet station and 2 meter voice and 220 MHz transceivers.

Amateur radio exams are held on the second Sunday of each month at 10:00AM at the CAARA clubhouse. Anyone who is considering a new license or an upgrade, is welcome to test with us. There is no pre-registration necessary. Contact the head of our VE team Bob Quinn if you have any questions about monthly testing.

Monthly member meetings are held on the first wednesday of each month at 7:30 PM except for July and August.

Each Sunday evening at 9:00pm, the club operates a 2 meter net on 145.130. This is an open and informal net which disseminates club news and prepares operators for emergency communications work. All are invited to check into the net as club membership is not a requirement.

## Sandy and Paul's Wedding

**Married on Sunday July 19th, 2009 @ 2pm @  
Stagefort Park Gazebo in Gloucester**

My sister, Jennifer Downey, was the maid of honor  
and his brother, C.C. Lawson, was the best man.

The service was performed by Paul's unit chaplain, Lt.  
Kevin Eaton . Bob Quinn,(wv1a) was kind enough to  
record the service and reception for us. Thanks to the  
assistance of Linda and Curtis Wright (aa3je), we were  
able to have our reception at the Pigeon Cove Circle in  
Rockport.

Paul and I are still living in Gloucester and took a few  
days off for a "honeymoon" but nothing big, just a  
few days away camping out.



The Downey Family -Chuck-N1OCT and Sue-N1XQW



Sandy- KB1VN and Paul- KB1PPQ



Bob-WV1A was the video photographer 3



## OCTOBER MEMBER'S MEETING

Caara held it's Regular members meeting on wednesday October 7th at the clubhouse. This month we had club member Dave Robinson KD1NA Do a presentation on software defined radios. He used his own RF Space SRR IQ software defined radio and he covered all the aspects of how the radio turns raw RF noise and uses the digital filtering, digital bandwidths and real time 3d scope monitoring of all the incoming signals and places it onto the computer screen. Especially those of AM radio, PSK 31, CW and RTTY. The RF Space SDR IQ software defined radio retails for \$500.00





Dave had ther audience in the palm of his hands...Nice Job!

A **Software-Defined Radio** (SDR) system is a [radio communication](#) system where components that have typically been implemented in hardware (e.g. mixers, filters, amplifiers, modulators/demodulators, detectors. etc.) are instead implemented using software on a personal computer or other embedded computing devices. While the concept of SDR is not new, the rapidly evolving capabilities of digital electronics are making practical many processes that were once only theoretically possible.

A basic **SDR** may consist of a [computer](#) (PC) equipped with a [sound card](#), or other [analog-to-digital converter](#), preceded by some form of RF front end. Significant amounts of [signal processing](#) are handed over to the general purpose processor, rather than done using special-purpose hardware. Such a design produces a [radio](#) that can receive and transmit a different form of radio protocol (sometimes referred to as a waveform) just by running different software.

Software radios have significant utility for the military and [cell phone](#) services, both of which must serve a wide variety of changing radio protocols in real time.

In the long term, software-defined radio is expected by its proponents to become the dominant [technology](#) in [radio communications](#). It is the enabler of the [cognitive radio](#).

# CAARA TIDBITS

The CAARA Board of Directors would like to remind the club members that now is the time of year when whoever is the last one out of the clubhouse to please make sure that the heat in the clubhouse is turned down to 50 Degrees, the coffee pots are shut off, and all the lights are out. We would also like to remind those who use the clubhouse to please sign into the logbook every time so we have a good record of who may or may not have been in the building in case something arises.

73's

Dean Burgess KB1PGH  
CAARA Clerk.

## Greetings All—

This is a brief note to advise all those who signed up for Rick Maybury's CAARA Code Class that there is a new "Yahoo Group" to which you should sign up. The purpose of this group is to provide a means by which class information, code learning help and internet links, and other hints & kinks can be shared among members. However, you do need to sign up for this to work for you and the rest of us. Go to: <http://groups.yahoo.com/group/caaracode> and join the group.

You also need to know that this group is closed and available only to our class members. It is not even listed in Yahoo's own "search for a group" feature! Once you have signed up, I will approve your membership (just another security level as I will be the group moderator for now) and you will then have access to all features of the group. Feel free to go there to ask questions, post your comments, ideas, and thoughts, and even pictures if you so choose. I will be posting some internet links I have found beneficial for code learning along with some code programs that are free to download and use. You are likewise invited to do the same and add as many as you wish. The more you use the group's features, the better it will be for all of us, so take a minute and sign up now! Remember to visit the group and join in the discussion topics.

See you in class.

73 de ab2nj  
Briggs

## FCC Issues Notice on Communication During Government Disaster Drills:

On October 20, 2009, the FCC released a Public Notice clarifying the Commission's rules relating to the use of Amateur Radio by licensed amateurs participating in drills and exercises on behalf of their employers. Entitled Amateur Service Communications During Government Disaster Drills, the Public Notice addresses participation by paid employees of organizations taking part in drills.

The Public Notice — DA 09-2259 [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DA-09-2259A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-09-2259A1.pdf) — affirms that the Commission's rules "specifically prohibit amateur stations from transmitting communications 'in which the station licensee or control operator has a pecuniary interest, including communications on behalf of an employer.'" ARRL Regulatory Information Manager Dan Henderson, N1ND, said that "This Public Notice is intended to clarify a difficult issue. A wide range of unofficial — and frankly some incorrect — interpretations have been offered on this topic in various public forums recently. DA 09-2259 is the official FCC notice on this issue. Though issued jointly by the Wireless Telecommunications Bureau (WTB <http://wireless.fcc.gov/>), the Enforcement Bureau (EB <http://www.fcc.gov/eb/>) and the Public Safety and Homeland Security Bureau (PSHSB <http://www.fcc.gov/psbs/>) under delegated authority from the Commission, the Notice makes it clear that WTB is the Bureau at the FCC with jurisdiction over the Amateur Radio Service rules and



their interpretation.”

The Public Notice states that, in order to facilitate participation by employees who wish to engage in government-sponsored drills and emergency exercises on behalf of their employers, a waiver can be requested from the WTB by the government agency sponsoring the drill or exercise (and not by the individual who wishes to participate in the drill or exercise). The government entity conducting the drill must include in its waiver application the following information:

- When and where the drill will take place,
- Identification of the amateur licensees expected to transmit amateur communications on behalf of their employer,
- Identification of the employer(s) on whose behalf the amateur(s) will be transmitting, and
- A brief description of the drill.

“It should be noted,” Henderson said, “that the waiver request must be filed and acted upon in advance of the drill. The waiver must be actually granted by the Commission before the amateurs participate in the drill. It is not enough to apply — the waiver must be granted first.”

Henderson added that the Public Notice also emphasizes that in an actual emergency, the Part 97 rules “provide that an amateur station may use any means of radiocommunication at its disposal to provide essential communication needs in connection with the immediate safety of human life and the immediate protection of property when normal communications systems are not available.” In those specific circumstances, the rule waiver is not necessary.

Government entities requesting a waiver for their emergency/disaster drill should submit a written request addressing the factors listed above to Wireless Telecommunications Bureau, 445 12th St SW, Washington, DC 20554, Attn: Scot Stone.

A waiver is needed only for those licensees transmitting messages on behalf of their employer during the State and local government public safety agency’s “occasionally conducted emergency preparedness or disaster drills test or drill.” This may, after analysis, turn out to be very few licenses or, by rearranging functions of participants, a waiver may not be needed. The Commission has also emphasized that only governmental agencies may apply for a waiver.

In September, the ARRL released guidelines <http://www.arrl.org/news/stories/2009/09/25/11094/?nc=1> that address numerous aspects of the issue of business communications in the Amateur Service.

## DX contesters killed in plane crash

The tragic news is that four members of the **C6APR** DX team perished when their light aircraft crashed soon after take-off in South Carolina.

They were heading to Crooked Island in the Bahamas for this weekend’s CQ World Wide Contest, a location used on seven previous occasions by the team since 2006 including in the CQ WW and IOTA contests.

Killed were the pilot **Pete Radding W2GJ**, **Ed Steeble K3IXD**, **Randy Hargenrader K4QO** and **Dallas Carter W3PP**. Our thoughts are with their families at this time.

The six-seater twin-engine Piper Aztec PA-23 took off Summerville Airport pre-dawn on transit via Florida when it made a steep u-turn and crashed in a wooded area just 250-metres from the runway.

Details of the C6APR latest and ill-fated planned DX operation can be found at:

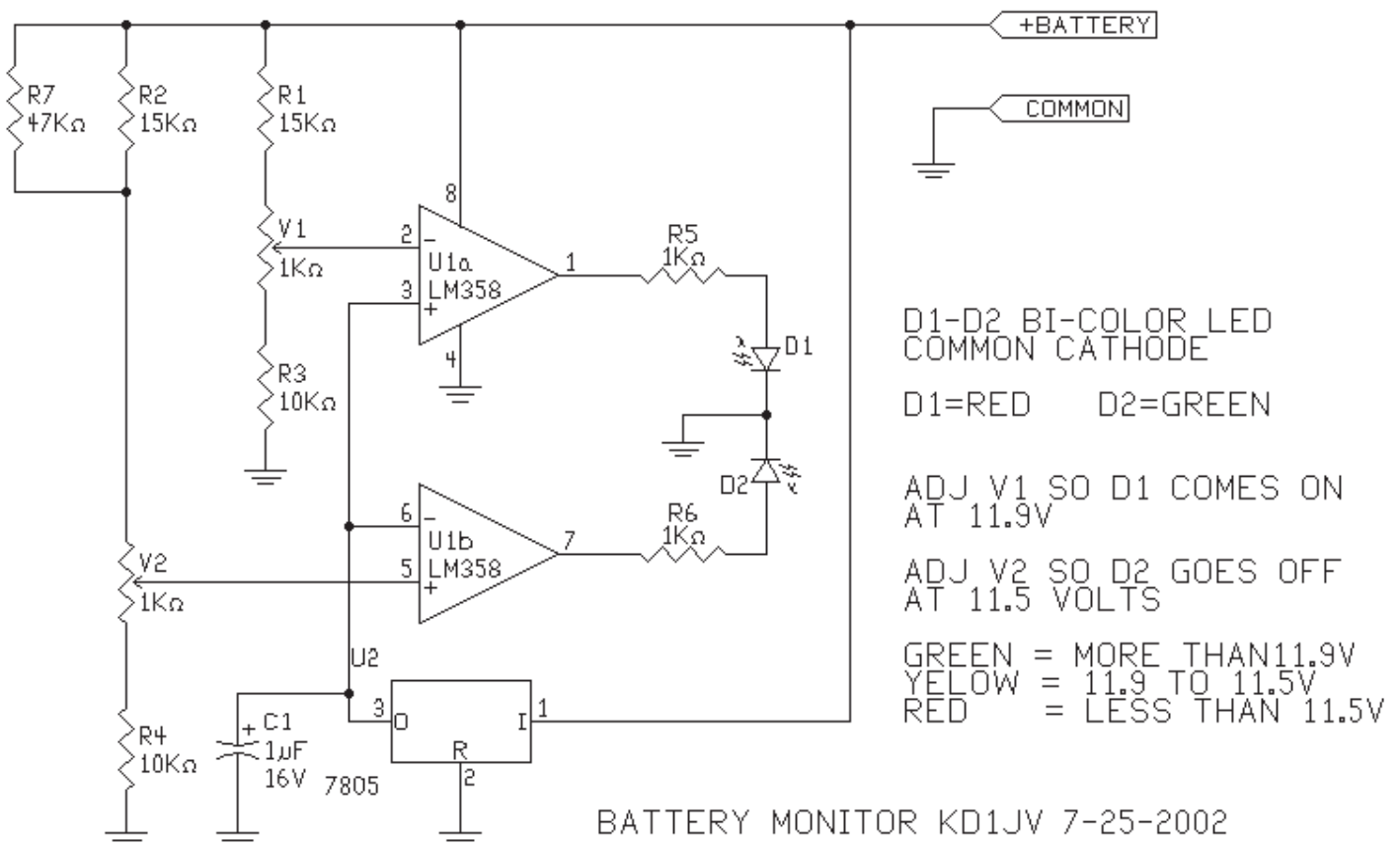
<http://dx-hamspirit.com/2009/08/c6apr-crooked-island-bahamas-2/>

## BATTERY VOLTAGE MONITOR: Looks like a fun club project for some cold Sunday morning this winter at the club house...

This circuit is used to monitor the battery voltage, using a bi-color LED to indicate the state of the battery. When the LED is "GREEN" the battery voltage is above 11.9 volts. When the LED is "YELLOW", the battery voltage is between 11.9 and 11.5 volts. When the LED is "RED" the battery voltage is below 11.5 volts. You can of course, modify the trigger points by using the trimmer resistors and/or changing the value of the dropping resistors in the divider.

A dual op amp is used as a voltage comparator. The green LED is on so long as the voltage across the circuit is above 11.5 volts. The red LED comes on when the voltage across the circuit drops to below 11.9 volts. Therefore, in the 11.9 to 11.5 volt range, both LED's are on, producing a some what yellow color. When the voltage drops below 11.5 volts, the green LED turns off and now only the red LED is on, indicating a low voltage condition.

It is recommended that multi-turn trimmer be used for V1 and V2. Muti-turn trimmer will make it much easier to set the trigger points than using a less expensive single turn trimmer. The trimmers could be eliminated entirely, if one had access to an assortment of 1% resistors and carefully calculated the values needed. One would also want to use a more precise voltage reference than the common 78L05 regulator provides.



**Web controlled shortwave receivers:** You may listen to Amateur radio communication using the following remote receivers, all you need is a soundcard, speaker and RealAudioPlayer with your Browser. Hams could also use it to check quality of their transmission online!

<http://www.qsl.net/oe3mzc/receivers.html>



## NEARFEST FALL 2009 HAMFEST PICTURES



W1TP had his huge CW key collection as well as his working Enigma Machine.



The military group had all kinds of gear including a Jeep with a .50 caliber machine gun.





Lot's of nice vintage gear.



The vendors were located in the large barns with a huge supply of parts, etc.





You can always find old military radio's and test equipment at Nearfest.



Another table with a good selection of old cw keys



# CAARA HAM RADIO FLEA — SATURDAY NOVEMBER 14, 2009

The Cape Ann Amateur Radio Association will hold its Amateur Radio Flea Market and club fundraising event on Saturday, November 14th, at the Pigeon Cove Circle Center located at 6 Breakwater Avenue in Rockport Mass.

For those without a GPS, the directions from the top of the bridge coming into Gloucester are as follows:

Start address: A Piatt Andrew Bridge

End address: 6 Breakwater Ave Rockport, MA 01966

Start at: A Piatt Andrew Bridge

1. Head east on MA-128 N - 0.7 mi
2. At the traffic circle, take the 2nd exit and stay on MA-128 N - 0.8 mi
3. At the traffic circle, take the 2nd exit and stay on MA-128 N - 0.9 mi
4. Turn left at Eastern Ave/MA-127 N Continue to follow MA-127 N - 3.1 mi
5. Turn left at MA-127 N/Main St/Railroad Ave Continue to follow MA-127 N - 1.8 mi
6. Turn right at Breakwater Ave Destination will be on the left - 174 ft





**Fox Hunting MMRA style:** Here's a pic of the Fox Hunters from Saturday morning's MMRA hunt. The hunt was sponsored by the Minute Man Repeater Association and the bounds for this hunt were within a 10-mile radius of their Burlington repeater atop the LEAHY CLINIC Bldg. The "FOX." usually the winner of the previous hunt, selects the repeater to use and then hides for the duration of the hunt. The hunt runs 10am to Noon and the Fox broadcasts for 30seconds every five minutes on the INPUT side of the repeater so you can hear him on the repeater freq wherever you are but only if you are withing range can you hear him on the input side! The fox can choose what power level he wants to use, any antenna, and any location so long as it is accessible to the general public. Usually, the fox enjoys the comfort of his car but he may also be working "/p" somewhere. I don't know if anyone has tried operating a battery powered rig via cross band repeate but that would be within the rules too. Endless possibilities and loads fo fun.

Stan, W4HIX, and I were a team for this hunt and we didn't make out so well. We were "darn close" often but, in the end, ran out of time and were called in. We all retired to Polcari's in Woburn afterwards for a relaxing lunch. The day's winners were Mike, N1OMJ and Alan, N1TBN. Congrats to them, they finally got their hi-tech gear working correctly.

—Briggs



L to R: AA1VS(Charles); KD1KY(Tim); N1TBN(Alan); N1OMJ(Mike); AB1IC(Deb); W4HIX(Stan)  
(AB2NJ (Briggs) and WB1W (Dick) not in picture)

## **EASTERN MASSACHUSETTS ARES ORGANIZATIONAL ANNOUNCEMENT...**

Hello to all....

For continued growth in an organization, changes are needed to create depth and further growth and to establish leadership succession and support for existing leadership when unavailable. Several individuals within the Eastern Massachusetts ARES program have provided robust support of the program and have been doing work above and beyond their responsibility. In addition, other individuals within the program are doing an excellent job within their role and we recognize their contributions within the Eastern Massachusetts ARES program and the fact that they will continue in their roles working together with others within the Eastern Massachusetts ARES program that will have an increased role within the program. We also realize that none of this would be possible without the ARES members, Assistant Emergency Coordinators, Emergency Coordinators and Assistant District Emergency Coordinators who work hard to support the program. To support the organization going forward, the following organizational changes will be made effective immediately. Carl Aveni-NIFY will be moved into the role of Eastern Massachusetts ARES Assistant Section Emergency Coordinator. Through his working relationship with the Bridgewater EMA Director, Herb Lemon-KC1ZW, Eastern Massachusetts ARES has had full access to the town of Bridgewater EOC to be utilized as a net control center for drills, ARES/storm activations, and other events such as the Democratic National Convention in 2004 and the Operation Atlas Drill in 2005. Carl has been working on projects involving area hospitals and has also been a tremendous supporter of operations at the National Weather Service in Taunton and has been a main alternate contact for NWS Taunton operations. He has also built a solid South Shore ARES program with the assistance of several ARES Emergency Coordinators and assistants. Carl has recently retired after over 30 years with the Brockton VA Hospital and has devoted much of his spare time to projects within Eastern Massachusetts ARES as well as the Eastern Massachusetts section staff. We are very appreciative to Carl for accepting this new role.

Jim Palmer-KB1KQW will also be moved into the role of Eastern Massachusetts ARES Assistant Section Emergency Coordinator. Jim Palmer is a younger Amateur who has done a superb job in his role assisting Eric Horwitz-KA1NCF with North Shore ARES and assisting the NWS Taunton and Gray Maine SKY-WARN programs. In addition, Jim served as the ARESMAT Coordinator for the Gardner ARESMAT during the major ice storm of December 11th-12th 2008 and supported operations from the Massachusetts State EOC during the recovery phase of the ice storm. Jim brings youth and enthusiasm to the program and has assisted me in many ways and both the ARES and SKYWARN programs would not be where they are without his assistance not only to Eric-KA1NCF but to myself as well and we are glad that Jim has accepted this position.

Eric Horwitz-KA1NCF will continue in his role as North Shore ARES District Emergency Coordinator (DEC). As many folks across the section and in particular the North Shore are aware, Eric and Jim have had a very good working relationship over the years. This organizational move reflects the strength of this working relationship in that Eric was willing to have Jim accept this role when I asked and Jim will act much in the way some managers do in professional circles where he will continue to work under Eric on North Shore ARES matters but assist the section when the SEC is unavailable and at my direction when needed and Eric will support Jim in that capacity when needed. This is no way a bad reflection on Eric and his leadership but an understanding of what Eric has to balance from a personal/family/career versus volunteer work perspective. In addition, this is much in the way Mike Neilsen and I have operated with Mike as Section Manager and myself as SEC. Many times Mike has acted in a capacity where I was in the lead and the opposite has been true in other matters. The plan is for a similar relationship to exist with Jim in his Assistant SEC role and Eric continuing in his North Shore ARES DEC role and I am thankful to both of them for their support and allowing this arrangement to take place as it is very much needed to grow the organization and to allow us to sustain the momentum of our program..

Phil McNamara-N1XTB has accepted the role of South Shore ARES DEC covering much of Southeast Massachusetts. Phil has been working very hard with Carl to build the South Shore ARES program and to also be a liaison to the various military branches of the Military Affiliated Radio System (MARS). Phil has also been the key provider and technologist of our Eastern Massachusetts ARES database that was used significantly during the Ice Storm ARESMAT and to track the growth and sustainability of our program and the resources that Eastern Massachusetts ARES has as a section and we are working to expand this to be a complete EMCOMM database that involves all interested parties and programs. Phil has also been working with several towns and groups in Southeast Massachusetts including Plymouth, Duxbury, Carver and Middleboro to establish Amateur Radio support in these areas. Clearly, Phil has stepped up to perform a role that is more like an ARES DEC versus his current EC role and Phil has graciously accepted to step up and perform this duty for our section.

Frank O'Laughlin-WQ1O is continuing in his role as Cape Cod and Islands ARES District Emergency Coordinator and



remains a critical part of our organization. Frank has seen a significant expansion to his pro-gram with several Amateur Radio classes done resulting in many new Amateurs on Cape Cod and right after those Amateur Radio classes have taken place, Frank has led Amateur Radio EMCOMM classes for those new Amateurs. Frank recently conducted a Cape Cod ARES cold weather drill in January and continues the weekly Cape Cod ARES Net on the 146.955 MHz Barnstable Repeater. Frank O'Laughlin and Dan Howard-K1DYO also assisted the Massachusetts State EOC operations in the recovery phase of the December Ice Storm. We will continue to work closely with Frank in his role in the Eastern Massachusetts ARES program. Steve Telsey-N1BDA is continuing in his role as Middlesex County ARES District Emergency Coordinator. Steve also continues his role as managing the Eastern Massachusetts ARES Net that meets on the first Monday of each month (except for first Monday of the month holidays). Steve has assisted with activities for the Northern Middlesex County ARES group and has supported getting CERT members their Amateur Radio license across areas bordering the metro Boston area. Steve also supported Massachusetts State EOC operations during the recovery phase of the December Ice Storm as well.

Steve Schwarm-W3EVE is continuing in his role as Field Operations DEC and assisting with Norfolk County as required. Steve has also supported operations during the recovery phase of the December Ice Storm and also supported Hurricane Matt drill operations from NWS Taunton in August of 2008. Steve is still a resource that is available to support Eastern Massachusetts ARES as required.

Blake Haskell-K1BTH is continuing in his role as Metro Boston ARES DEC. Blake, who has recovered from some illnesses, continues to work with various agencies in the Boston area including Boston Emergency Management and the Strategic National Stockpile as well as a few hospitals in the Metro Boston area. Blake will be continuing to grow these relationships and will work to add more depth to the Metro Boston ARES organization now that he has recovered from his illnesses.

Mark Duff-KB1EKN is continuing in his role as Public Safety Liaison DEC. Mark has been assisting the Eastern Massachusetts ARES staff in this advisory role to give us a perspective on the public safety side of what is happening and how it could affect the Amateur Radio community given his role as Fire Chief of the town of Hingham. He also advises the staff of organizational changes on the public safety side and any impact on the Amateur Radio community and advises if any cities or towns are interested in support from the Amateur Radio community so we can involve appropriate folks from both RACES and ARES to support those areas.

We have a number of ARES Emergency Coordinators and Assistant District Emergency Coordinators who will continue in their roles as well. We would not be successful without these individuals and we appreciate all of their efforts as well. If additional individuals would like to step up in these roles, please contact the ARES DEC, our new Assistant Section Emergency Coordinators or myself for assistance. We also have a few folks that we've identified for some of these roles that we will be working with over the next few weeks. We also have over 400 ARES members across our section.

Without all of you, none of the leadership organizational changes that we have made would matter, as it's all of you that help us be successful and make a difference. We appreciate all of your support of Eastern Massachusetts ARES and the NWS Taunton SKYWARN program and look forward to continue to work with you and support all of you in making Eastern Massachusetts ARES the best it can be.

Finally, I would like to encourage new folks that are interested in Eastern Massachusetts ARES to please fill out the ARES Registration Form off of our Eastern Massachusetts ARES web site and contact your local EC, DEC, ASEC or SEC with questions or assistance on the program. For existing ARES members that are in the database, I encourage you to login and make sure your contact information is updated and that you create a training record to track your training and list any equipment resources you have available. A link to both the Eastern Massachusetts ARES web site and the Eastern Massachusetts ARES registration form and database are listed below:

Eastern Massachusetts ARES Registration Form and Database: [https://secure.ema.arrl.org/ares/ARES\\_about](https://secure.ema.arrl.org/ares/ARES_about) Eastern Massachusetts ARES Web Site: <http://ares.ema.arrl.org/> Thanks to all of you for your support of Eastern Massachusetts ARES. We hope these organizational changes will recruit more Amateurs to get involved with ARES and SKYWARN and provide the leadership growth, succession and depth required to continue to the strengthen the program.

Respectfully Submitted,

Robert Macedo (KD1CY)  
ARES SKYWARN Coordinator Eastern Massachusetts  
ARES Section Emergency Coordinator

**Thanks to NSRA Newsletter for this announcement....**



This is what a ham radio station looked like in 1971. How much of the gear can you identify?

## Getting very serious with ham radio contests

Every major sport has at some time or another suffered from cheating.

Whether it be athletes using illegal substances to enhance performance, taking a risk that the officials won't notice that rules are being flouted or just falsifying the score-sheet.

So it should come as no surprise that amateur radio contests can be subject to cheating too.

The issue is gaining greater publicity through the disqualifications to be handed out by the **CQ World Wide Contest Committee**.

It has introduced a Yellow card and a Red card system, just like a soccer referee. Under the CQ World Wide Contest rules all entrants agree that the use of the card system and other decisions of the Contest Committee are official and final.

For a low level indiscretion a Yellow card will be issued making the entrant ineligible for an award. But two Yellow cards in three consecutive contests means a two year ban.

For higher level matters, a Red card means the submitted log is rejected or no score recorded, the entrant or operator is banned for 12 months and listed at the end of the contest results for all to see. Get two Red cards and there is a three year ban.

Cards are issued for breaches of contest rules or the operating requirements of a country, unsportsmanlike conduct such as using non-amateur radio means to pre-arrange contacts contrary to the rules, or taking credit for excessive unverifiable QSOs or multipliers.

Hopefully this innovation will discourage those who don't abide by the rules or are outright cheats.

## **FYI: North Shore Radio Association Repeaters**

**Don't forget Rick's free CW Class every Saturday Morning at the Clubhouse.**

All the following repeaters has the club callsign of NS1RA

**145.470- Danvers (PL of 136.5) (Echolink-IRLP)**

**146.880- Salem, (PL of 118.8)**

**223.880- Danvers (PL of 136.5)**

**442.800+ Danvers (PL of 136.5)**

**446.625- Salem (PL of 88.5)**

**53.850- Danvers (PL of 71.9)**



## **MMRA OCTOBER 24, 2009 FOXHUNT**

It was a very dismal day. The 'fox' did not mind, as it was his day finally for another few hours of freedom before the hunters descend on him again. On a day like this, the 'fox' has some advantages over the hunters. He has a choice of staying under a roof and keeping dry, while the hunters are continually going out in the elements to take their bearings.

With such dismal conditions, he also takes advantage of yelling loud as his voice will propagate and reflect off the near by hills and create echoes thru the valleys below. Is this the day the fox sees final freedom?

At 10 AM on October 24, 2009 the hunt commenced. Today the hunting territory was centered on the Burlington Repeater with his hiding territory limited to a radius of 10 miles. The fox's voice could be heard every 5 minutes for 30 seconds during the next hours. To the hunters this would often present a tease, always wishing for a little longer transmission. As the hunt went on it appeared that the weather & rain was causing problems with the signal they heard, as it would at times vary as reported.

The hunt continued and during the first hour the fox could hear the hunters going wildly around the countryside and at times away from his location. Yes, this may be the final day for freedom.

It was not just the hunters on the repeater, in addition, we heard from others (ex: W1GFF) at home reporting they are 'Listening & Enjoying the Hunt'.

After an hour and twenty minutes the fox's voice was getting sore from yelling so loud and reduced his power from 50 to 20 watts. Still there are no hunters showing themselves. The fox at times would try and tease the hunters with some subtle hints.

As the second hour mark approaches the fox gets braver and starts to give hints to taunt the hunters with his freedom he may soon enjoy forever.

Too smart he got, because at 12:20, the N1OMJ team (with N1TBN & AB1IC) came round the corner. The fox was found and his freedom had ended

The 'fox' was finally located at Whip Hill Road in Stoneham.

The fox continued his transmissions and at 12:43, VK3MD came around the corner. He was soon followed up by AA1VS at 12:49.





From left to right: WB1W (Dick, the 'fox'); VK3MD (Mark with his son); AA1VS (Charles); KD1KY (Tim); N1TBN (Alan); N1OMJ (Mike); AB1IC (Deb); AB2NJ (Briggs); W4HIX (Stan)

By 1:00 the remaining hunters arrived at site and the hunting stories started to develop among the hunters. A few decided to continue the stories over lunch at Polcari's in Woburn.

Despite the weather a good time was had by all.

Again would like to thank, the Minute Man Repeater Association, for use of their repeater during this hunt.

Although the fox has been captured again he will soon be released again. The first hunter, N1OMJ, that takes the fox captive will be fox on the next hunt. Stayed tuned, the details of the next hunt will be announced.

Join the fun and try your skills. Talk to a hunter, grab a ride or try on your own. You soon will be enjoying the sport of 'fox hunting'.

Dick  
WB1W



## TAPE MEASURE BEAM OPTIMIZED FOR RADIO DIRECTION FINDING

Joe Leggio WB2HOL

**Description** ...Briggs-AB2NJ will be making one of these at the clubhouse. If you would be interested in building one, contact him

This antenna evolved during my search for a beam with a really great front-to-back ratio to use in hidden transmitter hunts. This design exhibits a very clean pattern and is perfect for RDF use. It trades a bit of forward gain in exchange for a very deep notch in the pattern toward the rear. (You could optimize the design for more forward gain, but at the expense of a really good notch in the pattern toward the rear.) It is a design that can be constructed using only simple hand tools (no machine shop needed) and still perform well. It has been duplicated several dozen times by other local hams and has been successfully used as a club construction project.

When I designed this antenna I had one basic idea in mind. It had to be easy to get in and out of the car when hunting for a hidden transmitter. This would be accomplished by the use of steel “tape measure” elements. These elements could fold easily when fitting the antenna into my car and yet still be self supporting. I decided to use three elements to keep the boom from getting too long.

Another of my design goals was to use materials that were easy to obtain. I chose to use Schedule-40 PVC pipe and fittings available at my local hardware store for the boom and element supports. These kept the cost for the antenna very low. The element supports consist of PVC crosses and tees.

Since I had never seen any plans for an antenna using elements made from 1 inch wide steel “tape measure,” I had to do the design myself. To assist in the design I used a shareware computer aided yagi design program written by Paul McMahon VK3DIP. It allowed me to optimize the antenna for the cleanest pattern combined with the best front-to-back ratio.

When I first built this beam I found it needed a matching network of some kind to have a low SWR. My first attempt was a Gamma match. This was unwieldy. The driven element could barely handle the weight and the Gamma match itself was not very flexible. The best matching network turned out to be a “hairpin match.” This is simply a 5 inch length of wire that is connected across the feed points of the driven element. The antenna has some capacitive reactance without the matching network. The 5 inch length of wire has just enough inductance to cancel the capacitive reactance. This resulted in a better match than anything else I had tried.

The wire I used for the hairpin match was enamel insulated 18 gauge solid. Other hams who have duplicated this beam have used just about anything they had on hand. 14 gauge house wire works well, so does a length of 22 gauge hookup wire. It does not seem to matter if it is stranded or solid, use whatever you have available. This results in a very good match across the two meter band once you have adjusted the distance between the halves of the driven element for minimum SWR. (1 inch apart on my prototype).

I used a pair of shears to cut the tape measure elements to length. An old pair of scissors will probably do as well. No matter how you cut the elements be very careful. Those edges are very sharp and will inflict a nasty cut if you are careless. Use some sandpaper to remove the really sharp edges and burrs resulting from cutting the elements to size. I put some vinyl electrical tape on the ends of the elements to protect myself from getting cut. I encourage you to do the same. It will probably be best if you round the corners of the elements once you cut them. Wear safety glasses while cutting the elements. Those bits of tape measure can be hazardous.

The RG58 coax feedline is connected directly to the driven element. No matter what method you use to attach the feedline, make sure you scrape or sand the paint off the tape measure element where the feedline is attached. Most tape measures have a very durable paint finish designed to stand up to heavy use. You do not want the paint to insulate your feedline connection.

If you are careful, It is possible to solder the feedline to the element halves. Care must be taken since the steel tape measure does not solder easily and since the PVC supports are easily melted. You might want to tin the tape measure elements before mounting them to the PVC cross.

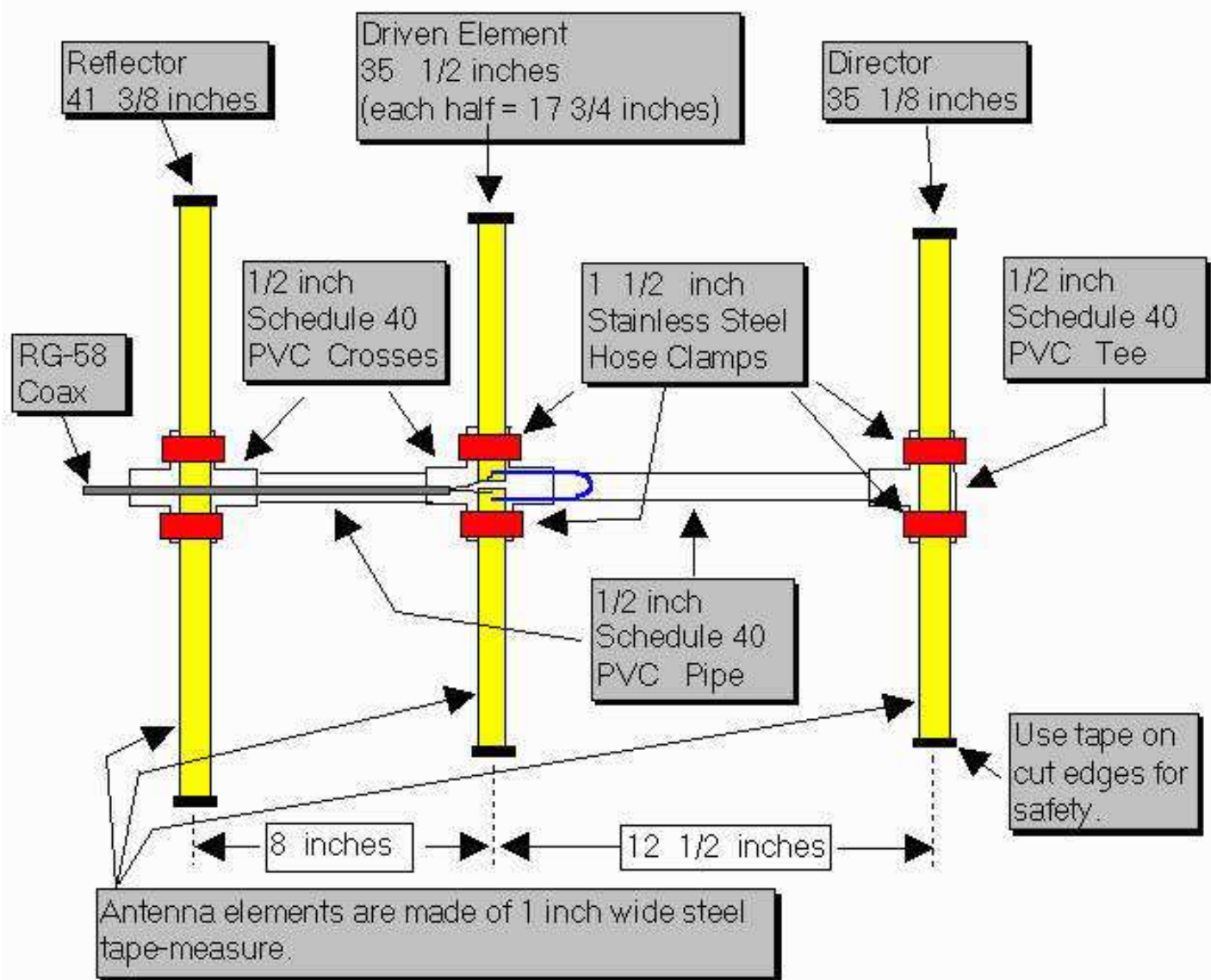
If you decide not to solder to the tape measure elements, there are two other methods that have been used to attach the feedline. One method employs ring terminals on the end of the feedline. The ring terminals are then secured under self tapping screws which hold the driven element halves. This method does not allow you to tune the antenna by moving the halves of the driven element. 6-32 bolts and nuts could be used if holes are drilled in the elements near the ends. If the bolt heads are placed nearest the PVC fitting, you could secure ring-terminals with nuts and lock washers. Another possibility is to simply slide the ends of the feedline under the driven element hose clamps and tighten the clamps to hold the ends of the coax. I know this is low-tech, but it works just fine.

Stainless steel hose clamps are used to attach the driven element halves to the PVC cross which acts as its support. This has the added benefit of allowing you to fine tune your antenna for lowest SWR simply by loosening the hose clamps and sliding the halves of the driven element either closer or further apart. By using the dimensions specified, I found that the SWR was 1:1 at 146.565 Mhz (our Fox-Hunt frequency) when the two elements were spaced approximately 1 inch apart. Figure 1 shows the method used to attach the driven element to the PVC cross.

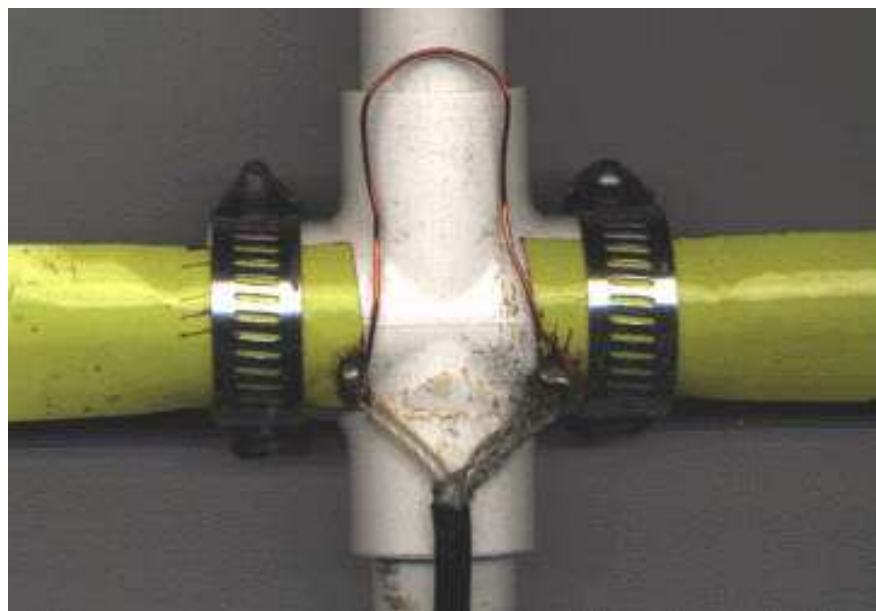
I used 1 1/2 inch hose clamps to attach all the elements on my prototype beam. Others who have duplicated my design have used self tapping screws to attach the elements to the PVC crosses and tees. Performance is the same using either method. The screws are much less expensive but they do not hold the elements as securely. If you do not use 1/2 inch PVC fittings but instead use 3/4 inch, make sure the hose clamps you buy are large enough to fit.

If you wish a slightly neater looking beam, use the self tapping screws. If you do not mind spending a few more dollars for the hose clamps, use them instead. If I were to build another beam I would use screws for the director and reflector, and hose clamps for the driven element. That would give me the best of both methods.





Rubber faucet washers have been used by some builders between the tape measure element and the PVC fittings on the director and reflector. These allow for the tape to fit the contour of the PVC fitting and will make the antenna look better. Now you know what to do with those washers left over from the assortment you once purchased; You know the ones I mean, the washers that do not fit the faucets you have in your house. If you are an apartment dweller, ask around, these things are stashed in almost every homeowners basement or garage.



## Construction:

Cut a length of tape measure to 41 3/8 inches. It will be the Reflector element. Cut two lengths of tape measure to 17 3/4 inches. These will be used for the Driven element. Cut one length of tape measure to 35 1/8 inches. It will be used for the Director. Once you have cut the tape measure to length, put vinyl tape on the cut ends to protect yourself from the sharp edges. You will want to scrape or sand off the paint from one end of each of the driven element halves so you can make a good electrical connection to the feedline.

If you are planning to solder the feedline to the driven elements it is best to tin the elements first before attaching them to the PVC cross. If you don't, the PVC will melt as you apply heat to the element. It would be a good idea to also take the time to form the wire used for the hairpin match into a "U" shape with the two legs of the "U" about 3/4 inch apart. Tin the ends of the hairpin if you plan on soldering it to the driven element. If you tin 1/4 inch of each end of the hairpin it will leave 4 1/2 inches to shape into the "U".

You will need to cut two lengths of PVC pipe to use as the boom. One should be cut to 11 1/2 inches. It is used to form the boom between the Director and the driven element. The other piece of PVC should be cut to 7 inches. It will be used between the Reflector and the Driven element. Just about any saw will cut through the soft PVC pipe. I used a hacksaw. When we mass produced this antenna as a club project, we marked the pipe and used a portable jig saw to cut the lengths in assembly line fashion. It took longer to measure the pipe than to actually make the cuts. Since the pipe is available in ten foot lengths, you can make a few beams from a single 10 foot length. In any case, you might want to cut a few extras lengths for your friends. They will want to duplicate this once they see your completed antenna.

At this time you can pre-assemble the PVC boom, crosses and tee which will support the tape measure elements. I did not use any cement or glue when I assembled mine. The PVC pipe is secured in the fittings with a friction fit.

The hose clamps I used are stainless steel and have a worm-drive screw which is used to tighten them. They are about 1/2 inch wide and are adjustable from 11/16 inch to 1 1/2 inch diameter. Attach the tape measure elements to the PVC fittings as shown in the accompanying drawing. It is normal for the Reflector and Director elements to buckle a bit as it is tightened to the PVC Tee and Cross. You can eliminate this buckle if you use the washers and self tapping screws to attach these elements instead of the hose clamps. I do not think the beam will withstand as rough a treatment as when hose clamps are used.

## How does it perform?

Once you have completed your beam you probably will be interested to see if it performs as well as the computer predicted. The SWR should be less than 2:1 across the entire two meter band. The front-to-back ratio is predicted to be very good with the antenna exhibiting a very deep notch in its pattern towards the rear. The [YagiCad 4.1](#) program produced these antenna pattern graphs showing the pattern you should expect. If you would like to experiment a bit with this program, the yagi specification file for this tape measure beam is available for

download [here](#). Simply download the YAGI-CAD program and put the tape measure beam design file in the same directory. You will then be able to experiment with the design. Note: under Windows95, only the first .yag file will show in the OPEN-FILE menu. You can either move all the other .yag files to a sub-directory or re-start the computer in MS-DOS mode. It works fine there. (I really do not know why this occurs but will blame Microsoft)

## Plane crash leaves void on airwaves

Pete, Randy, Ed and Dallas.

Off-air, that's how most people knew Peter Radding, James Randolph Hargenrader, Edwin Steeble and Dallas Carter, the four men who lost their lives October 21 in a pre-dawn plane crash in Jedburg.

But in the world of ham radio, the men had different handles - their callsigns. To the many amateur radio operators worldwide who communicated with the quartet, Radding was known as W2GJ, Hargenrader as K4QO, Steeble as K3IXD and Carter as W3PP.

"Those callsigns get to be very familiar," said Richard Moseson, editor of CQ Amateur Radio magazine.

News of their deaths rattled members of the global ham radio community and soon hundreds of "hams" began holding vigil on the Journal Scene Web site.

As of Wednesday, there were 327 online comments attached to the story of the crash, with radio operators from as far away as Russia and New Zealand leaving condolences as well as their own callsigns.

The crash occurred just days before the start of the most popular ham radio contest in the world, the annual CQ World Wide DX Competition.

Last year the contest, which is sponsored by the magazine, saw the participation of 50,000 hams, Moseson said.

When Radding's twin-engine Piper PA-23 fell from the sky and burst into flames shortly after takeoff last week, he and his passengers were on their way to the Bahamas, where Moseson said they would have had a clearer signal to compete on, and would have scored more points by operating from outside their own country.

While the men "were pretty well-known in the contesting world," the outpouring of grief and support also underscores a broader connection among radio operators, he said.

"It's an affirmation of what we hams have understood for a long time - it is a community and a worldwide brotherhood," Moseson said. "So when there's a tragedy like this, it's like losing a family member."

Moseson found poignant what a fellow ham said last Friday: "We lost four of us this week."

As the ham radio community mourns the loss of four of its own, a probe into what caused the crash continues.

Although a preliminary report is not expected for several days, and the official cause may take more than a year to determine, the National Transportation Safety Board last week discussed some early findings from its investigation.

NTSB investigator Shawn Etcher said the plane banked to the left after takeoff. Judging by marks found on trees near the wreckage, it appears the plane climbed to an altitude of at least 90 feet before crashing, he said.

You can read the full JournalScene article by David Berman at:

<http://www.journalscene.com/news/Plane-crash-leaves-void-on-airwaves>



# Amateur Radio Quiz: Assault'n Batteries

By H. Ward Silver, N0AX  
ARRL Contributing Editor

Solar cells — can't top 'em. Ultracapacitors — can't top 'em. They produce an unstoppable electromotive force! Powering everything from power amplifiers to personal phones, no other practical product packs the punch of electrochemical cells, the first true electrical device. Ubiquitous though they may be, our knowledge of their inner workings is often weak. Discharge your memory banks into this quiz to see how you measure up!

- 1) What causes the terminal voltage of a battery to drop under load?
  - a. ennui
  - b. internal resistance
  - c. contact delamination
  - d. electromigration
- 2) Who invented the first electrochemical cell?
  - a. Volta
  - b. Voltaire
  - c. Volare
  - d. Voldemort
- 3) What's the difference between a battery and a cell?
  - a. Cells are only found in laboratories.
  - b. There's no difference — the terms mean the same thing.
  - c. Batteries have more current capacity.
  - d. Batteries are made up of more than one cell.
- 4) Volume being equal, which type of battery will deliver the most energy?
  - a. Lead-acid
  - b. Zinc-air
  - c. Lithium-ion
  - d. Carbon-zinc
- 5) Which type of charger maintains a battery at a stable voltage?
  - a. Constant current
  - b. Trickle
  - c. Float
  - d. Training
- 6) Which type of battery can be recharged?
  - a. Primary
  - b. Secondary
  - c. Tertiary
  - d. Stationary
- 7) What does "MH" stand for in the battery type abbreviation "NiMH"?
  - a. Metallic Hydrogen
  - b. Maximum Horsepower
  - c. Metal Hydride
  - d. Mega Henries

- 8) What is necessary for a battery to produce the flow of electrons?
- A completed external circuit.
  - A liquid or gel electrolyte.
  - Free metallic cations.
  - An acid and a base, separated by a dielectric.
- 9) A deep-cycle battery is specially designed so that it can be used in what way?
- Supplying pulses of high current.
  - To maintain a constant output voltage with wide variations of current.
  - Underwater applications, such as sonar and remote vehicle propulsion systems.
  - Be repeatedly discharged to low output voltage between charges.
- 10) If a battery is a “pull-out,” what does that mean?
- It slides in and out of a battery holder.
  - It has been removed from some other piece of equipment.
  - It failed to meet manufacturer specifications and is sold at a discount.
  - These are new batteries, just received from the manufacturer.

**Bonus:** Ampere-hours (Ah) have units of coulombs — an amount of charge. What assumption allows Ah to be used as a measure of deliverable energy instead?

### Answers

- b — Current flowing through the internal resistance causes a voltage drop, just like a separate resistor.
- a — He was rewarded (eventually) by having the unit of electromotive force — the volt — named after him.
- d — For example, a 9 V battery consists of seven 1.5 V cells in series. That’s why we buy “D cells” and not “D batteries.”
- c — This is the reigning energy density champ of consumer batteries, but new “chemistries” are being devised all the time!
- c — Float charging applies a constant voltage to the battery after full-charge is reached.
- b — Although it helps for the battery to be stationary, only secondary batteries can be recharged.
- c — Some metallic hydrides (compounds of metal and hydrogen) can store and release electrons quite effectively.
- a — Without a path for the electrons, the chemicals in the cell cannot react by exchanging electrons.
- d — A regular automotive battery used in this way quickly loses its energy storage capacity.
- b — Rechargeable batteries are often removed from service on a fixed schedule to ensure that equipment operates properly. They may have significant service life left, but generally less than that guaranteed by the manufacturer. Caveat emptor!

**Bonus** — The assumption is that the battery maintains a constant output voltage. The units of voltage are joules ÷ coulombs, so  $Ah \times V = \text{joules (or energy)}$ .