



# *PARTicles*

The newsletter of PART of Westford, MA – WB1GOF

*September 2010*

## **President's Column**

The ARRL New England Convention was held in Boxboro recently. The weather for the event was absolutely perfect! PART was well represented as members were selling items to raise money for the repeater fund, giving talks, acting as VEs, and enjoying the whole atmosphere.

I attended with my two older children. My daughter Kimberly (KB1PZG), my son Geoffrey, and I waited patiently in the long line of folks desiring to take their ham radio exams. Geoffrey passed his technician exam and received the callsign KB1USE a few days later. He is quite excited and you will be hearing him on the repeater. His first ham radio QSOs (besides simplex with me) were with John (KB1MGI) on the repeater and Rich (AB1HD) on 6m. Can you remember with whom you had your very first ham radio QSO? Perhaps you'd be willing to share that story at an upcoming PART meeting.



I have heard a couple of other people in the club mention that their children and grandchildren have shown an interest in ham radio. If there are young people getting their licenses, I think we should get them all together and form a PART youth annex, to let them explore the hobby in their own way, with adult elmering as appropriate. Please let me know if there are young people that would like to participate. The hobby needs

to do this in order to pass our traditions to the next generation of hams.

Bo Budinger (WA1QYM) will be our speaker at the upcoming September meeting. Bo will talk about the history of the Police Amateur Radio Team. He is an original founder of the club and has been a very active member over all of these years. Scott (NE1RD) will be recording Bo's presentation for later posting on the PART website.

John Beanland (G3BVU) will be our speaker at the October meeting. John will be speaking about antennae.

Nominations for PART elections are now closed. This year, there are no contested positions. Nominated for office are the following:

President - Andy (KB1OIQ)  
Vice President - Rich (AB1HD)  
Secretary - Kim (K1ZA)  
Treasurer - Alan (W1AHM)

Many thanks and congratulations to Rich (AB1HD) and Alan (W1AHM) for their willingness to continue to serve PART in these roles. Let's also extend a warm welcome to Kim (K1ZA) who will be joining the PART Board of Directors as its new secretary. Finally, I'd like to thank our outgoing secretary Steve (WA1KBE) for his service to the club over the last couple of years as both secretary and as an assistant Field Day chairman.

73 de Andy KB1OIQ

**Club Meeting – September 21st – Westford Police station – Public Meeting Room  
53 Main Street, Westford, MA 01886  
7:30 PM**

## Upcoming PART Meetings/Events

### Sep. 21, 2010

- Bo Budinger-WA1QYM, History of PART
- PART Annual Elections

### Oct. 19, 2010

- John Beanland-G3BVU, antennae

### Balance of 2010

- Speakers have not yet been scheduled for these dates

We have a large membership, and I'm sure each of you knows somebody who would be an excellent speaker at a future PART meeting. Perhaps YOU would like the chance to address the club. All of you can help! Please send me email with contact information for prospective speakers, including your self. I'll work out the logistics with the prospective speaker. All of you collectively know a LOT more people than I do. With your help, I'm sure that we'll continue the PART tradition of having fine speakers at our monthly meetings. Thanks, and 73 de Andy KB1OIQ.



## Treasurer's Report

PART Treasury 21-Jul-10 thru 17-Aug-10

	General Fund	Repeater Fund	Checking Total
Old Balance	3256.50	1069.98	4326.48
Income	75.00	61.01	136.01
Expenses	530.94	0.00	530.94
New Balance	2800.56	1130.99	3931.55

### Field Day 2010

Income:

\$32.00 Repeater Fund

Expenses:

\$591.94 from General Fund

268.14 Food

198.80 Capital Equipment (5 HF filters)

125.00 Honoraria (4)

## PART 2010 Membership Demographics as of 10-Sep-10

	Households (New + Renew)	Individuals (New + Renew)
Full	35 (8 + 27)	35 (8 + 27)
Senior	23 (3 + 20)	23 (3 + 20)
Family	7 (0 + 7)	14 (0 + 14)
Student	0 (0 + 0)	0 (0 + 0)
Associate	1 (0 + 1)	1 (0 + 1)
Grand Total	66 (11 + 55)	73 (11 + 62)

## Upcoming Events

- Flea@MIT, 3<sup>rd</sup> Sun Apr thru Oct, Cambridge (<http://w1mx.mit.edu/flea-at-mit>)
- Fall NEAR-Fest Oct. 15<sup>th</sup> & 16<sup>th</sup> Deerfield Fairgrounds, NH (<http://www.near-fest.com>)
- Every Wednesday, 6 AM, Owl Diner Lowell – Breakfast
- Every 1<sup>st</sup> Saturday, 8 AM, Regency Inn Westford – PART Monthly Breakfast

## Local Amateur Radio News

### North Middlesex ARES Group

Now that members have a chance to read about ARES and its 75 years in QST, a word is needed about the local organization of ARES which has been in existence for about 8 years.

The original motivation was brought about by a visit to the Trade Center on Labor Day of 2001. A week later it became apparent that help was needed in this locality for someone to step up and be counted. The group was formed to bring together hams of like mind to do what hams do in emergencies.

The original thought behind the plan was to form an Umbrella Group in which members could come together for resources and for motivation. Out of this group came at least 3 RACES officers, a RACES operator and many others interested in public safety such as CERT and Medical Reserve Corps.

The members have provided coverage for the Chelmsford July parade with one exception for 5 years working with the Chelmsford emergency manager to keep a safe and orderly environment and to keep the reviewing stand apprised of the parade order announcements.

They are fortunate that they can perform at any time during ice storms, or other events without waiting for the local government to call for volunteers as does RACES. They can work together with RACES as a unit when the need arises.

There are 33 signed members with registered qualifications, but are looking for help from anyone when needed.

The group has a regular meeting each month at the Adams Library in Chelmsford center on the (usually) fourth Monday.

- Darrel Mallory, K1EJ
- North Middlesex ARES Emergency Coordinator
- Assistant Middlesex District Emergency Coordinator

### New Museum on Cape Cod

This past August I visited the newly opened Chatham Marconi Maritime Center on Rt. 28 in Chatham. The museum is located at the wireless station site built by Guglielmo Marconi in 1914. Most might know the site as the Chatham Radio WCC; ship to shore communications.

The museum was founded in 2002 and volunteers have been working on opening the main receiving building these past 8 years. The building features vintage radio receivers, teletype machines, a directional Antenna (similar to the receiving loop found in the ARRL antenna book!) and the diorama of the campus as it was in days gone by. There are videos, slide shows and the ability to send and receive cw using period Morse code keys. When you arrive at the museum, there is an introductory video about the history of WCC narrated by the late Walter Cronkite.

WCC was one of Marconi's 10 wireless radio stations. It operated from 1914 till its closure in 1997. In addition there is an amateur radio station. The day I visited the station was locked but is used for contesting and special events. For more information you can go to the website:

[www.chathammarconi.org](http://www.chathammarconi.org)

If you have a chance to visit, it's worth the trip. 73 John W1JMA

### Fall Freeze 2010

Charles Suprin – AA1VS writes:

For the past few years, PART has supported the Lowell Youth Soccer Fall Freeze Tournament. The 2010 Fall Freeze is suspended as the Lowell Youth Soccer Association celebrates their 30th anniversary. Congratulations to them on their anniversary.

The Fall Freeze will return in 2011 and we expect to be invited back.



## **Chelmsford High School Amateur Radio Club (N1CHS)**

Yes, this is the School's new vanity call sign from the old call KB1NAY. N1CHS is planning to participate this fall in the School Club Roundup Contest that is held twice a year.

Date: 2010 October 18 - 22

Dates: 2011 February 14-18 and October 17-21

## **School Club Roundup Contest**

The purpose of the contest is to exchange QSO information with club stations that are part of an elementary, middle, or high school or college. Non-school clubs and individuals are encouraged to participate.

Each 5-day event runs Monday through Friday from 1300 UTC Monday through 2359 UTC Friday. You may operate no more than 6 hours in every 24-hour period, and a maximum of 24 hours in the event. <http://www.arrl.org/school-club-roundup-1>

All amateur bands except 60, 30, 17 and 12 meters are permitted.

On VHF and UHF, repeaters are not to be used. Only recognized simplex frequencies may be used. US examples include 144.90-145.00; 146.49, .55, 58; and 147.42, .45, .48, .51, .54 and .57 MHz. The national calling frequency, 146.52 MHz, may not be used. Similar restrictions apply in other countries.

Suggested HF Frequencies:

Phone (MHz): **1.855-1.865; 3.850-3.880; 7.225-7.255; 14.250-14.280; 21.300-21.330; 28.440-28.460**

CW (MHz): **1.800-1.810; 3.530-3.540; 7.030-7.040; 14.030-14.040; 21.130-21.140; 28.130-28.140**

## **N1CHS**

The Club should be on the air after school from 2:00 pm for an hour or so each day if schedules permit. Being on the East Coast we lose out on contacting schools on the West Coast due to the time zones. A possible idea is to have the CHSARC students and parents meet for a couple hours one evening during this contesting week at the school to operate in the contest to make some contacts to other schools on the west coast and also to meet the Amateur Radio Club adviser and Teacher Dave Steeves ( KB1MKW ). This is a fun event for all kids in the school club to be able to get together and socialize and be able to speak with other students on the air. We have seen an increase in use of PSK31 during this contest, I think the kids like this mode because it is like texting to them. But phone is great just to just to hear the voices of other students. We are hoping that the members of P.A.R.T will be able to make a contact with the CHSARC during the contest week. In the past this event has been successful.

An operating schedule could be posted on the part-1 list or look for N1CHS on the DX clusters.

In the Sept 2010 issue of QST page 62 there is a story about the past School Club Roundup success.

## **Equipment**

The School's radio is a Yaesu FT-897D 100 watts only and the antenna is a CushCraft vertical R6000 is a 6 through 20 meter. The antenna is mounted on the school's roof, you can see this antenna from RT3. At this time we don't have Coax to run to the roof (250ft) to install a VHF antenna. The Club room is located on the ground level and there are 3 story's above to the roof. The club does have one old computer that is connected to the Yaesu FT-897D and is running Ham Radio Deluxe for PSK31 etc.

School Club Roundup has its own Logging software that can be found below along with other information about School Club Roundup.

<http://home.earthlink.net/~scr-log/>

The CHSARC is looking forward to meeting our new members this fall.

Senior Physics Teacher and CHSARC Adviser  
Dave Steeves ( KB1MKW )

### **National Lifeline and Link Up Telephone Discount Awareness Week**

The Federal Communications Commission (FCC) has joined the National Association of Regulatory Commissioners (NARUC) and the National Association of State Utility Consumer Advocates (NASUCA) to call attention to the second annual "National Lifeline and Link Up Telephone Discount Awareness Week," which takes place this year September 13 - 19. The observation began with a Congressional Briefing on Monday, September 13, that outlined for Members of Congress and their staffs the efforts being made to promote awareness of these two telephone assistance programs.

"Lifeline" involves discounts on monthly charges for a primary residential telephone line, which might be wireless service. "Link Up" involves a discount on the cost of initiating the primary telephone service for a residence, including the activation of a wireless phone that serves as the primary residential telephone. The discounts are available throughout the country, including an enhanced discount on Tribal lands. In general, consumers at or below 135% of the federal poverty guidelines, or who participate in one or more of a number of other assistance programs, are eligible for Lifeline and Link Up.

Various state and local agencies throughout the country are participating with outreach activities and events. The "Lifeline" and "Link Up" programs help ensure that all Americans can get basic telephone service by providing discounts to consumers who might not otherwise be able to afford service. Recent statistics demonstrate that of the 25.7 million eligible, 8.2 million households participate, or roughly a 32 percent national participation rate for 2009.

To help call attention to the availability of these programs, the FCC, NARUC and NASUCA urge government agencies and non-profit organizations to help disseminate information on Lifeline and Link Up to their constituents. More information about the programs and how to apply is available at [www.lifeline.gov](http://www.lifeline.gov) or <http://www.usac.org/li/low-income/apply-for-support.aspx>

## Suspended Full Size 40 Meter Wire Vertical

Bob Glorioso, W1IS

The antenna described here is now in its second incarnation. The first version, thrown together to “try it out,” finally needed to be replaced after being up for nearly 20 years.

### Description

This antenna has several rather unique characteristics. First, it is a full quarter wave wire vertical. Second, the bottom and radials are 10 feet off the ground thereby minimizing ground losses and making it a very efficient radiator. Third, the design is a bit unconventional as it has only two radials. Why? Well, you really only need two radials on any vertical to provide a balanced counterpoise and two full size 40 Meter radials are easier to fit into a small yard. The catch - the radials have to be in line - 180 degrees apart even if they have to be woven through the trees or brush. To show that you only need two radials I have included the EZNEC azimuth pattern even though it is a boring circle. As is true for all verticals, it radiates equally badly in all directions! But don't sell a low band vertical short. This is a great DX antenna. The elevation plot shows that the take-off angle is a respectable 21 degrees, great for DX.

My antenna is hanging from the limb of a pine tree about 45 feet off the ground. This leaves room for the 34 foot vertical radiator and at least 10 feet of space from the base of the antenna to the ground - plenty of room under the antenna to mow the lawn. Note that the proximity of the tree to the antenna can influence the tuning so it is best to start with longer wires and prune them to get the SWR lowest in the part of the band that you use. I spend most of my time on the lower end of the CW portion of the band with a few trips up to as high as 7.2 MHz. The SWR chart shows that I have less than 1.35:1 SWR over the part of the band I operate though my rigs are very happy without a tuner up to the high end of the band where the SWR is still less than 1.75:1.

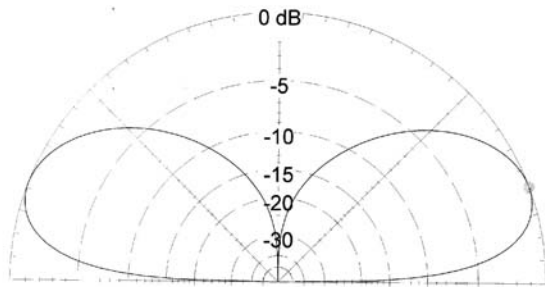


**Radial with Extra Wire for Tuning – Support Cord is on the Left**



Total Field

EZNEC

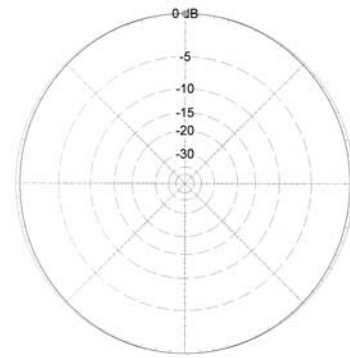


Elevated radial system

7.1 MHz

Total Field

EZNEC



Elevated radial system

7.1 MHz

**Elevation Plot**

**Azimuth Plot at 21 Degrees**



**Vertical Suspended from Pine Tree**



**Base for Radiator, Radials and Coax**

### SWR Chart

Frequency	Standing Wave Ratio (SWR)
7.0 MHz	1:1
7.1MHz	1.05:1
7.2 MHz	1.35:1
7.3 MHz	1.75:1

### Materials

- 1 SO-239 female VHF connector
- 10 feet RG-8X coax, or as much as you need to get either to your shack or to some coax you can bury.
- 1 PL-259 male VHF connector
- 1 UG-176 adaptor for RG-8X
- 1 Piece of scrap double sided PC board about 1 ½ inches by 4 inches. A scrap piece of aluminum will also work.
- 1 Acrylic Insulator, 1 ½ inches long. (The Wireman #813)
- 4 ½ inch 4-40 Stainless Steel screws
- 4 4-40 Stainless Steel nuts with lock washers
- 1 ½ inch 6-32 Stainless Steel Screw
- 2 1 ½ inch 6-32 Stainless Steel Screws
- 3 6-32 Stainless Steel elastic nuts
- 4 #6 Stainless Steel washers
- 75 feet radial wire #16 or larger. I used #14 Flexweave insulated wire (The Wireman #542)
- 36 feet radiator wire #14 or larger. I used #12 "silky" stranded wire (The Wireman #516)
- 2 Antenna Insulators. Mine came from my junk box but The Wireman #813 will work fine.

"The Wireman" 800-727-9473, [www.thewireman.com](http://www.thewireman.com)



## Construction

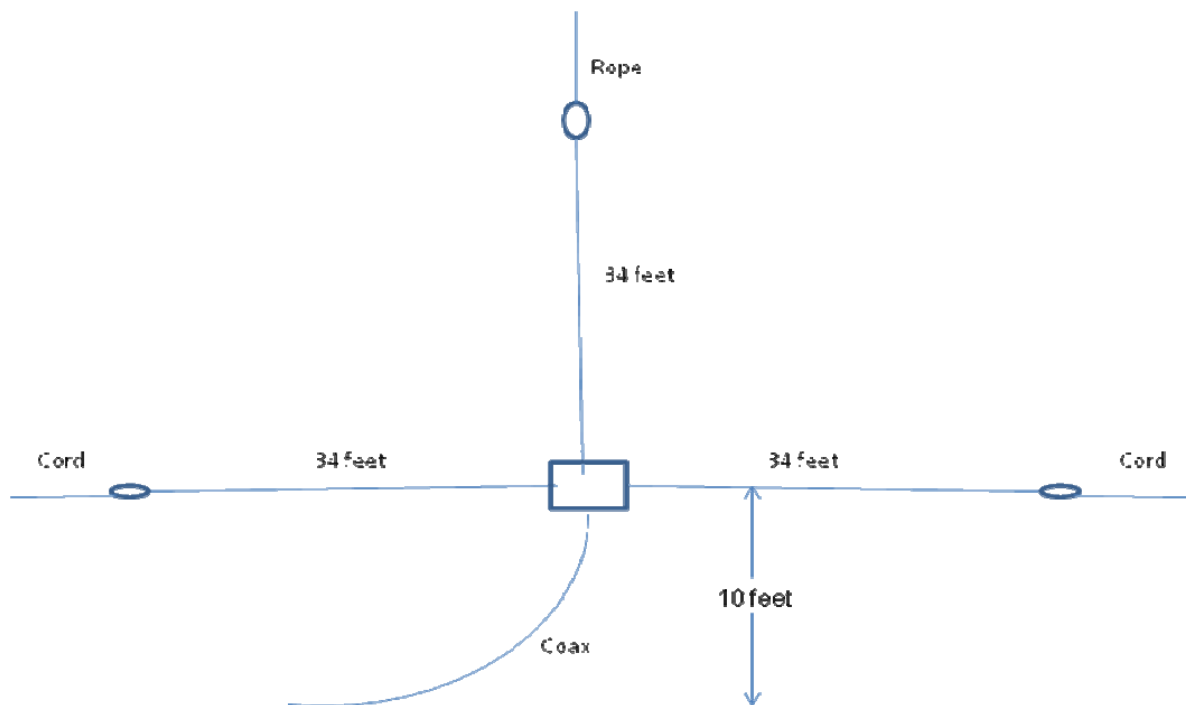
A schematic of the antenna is shown below. The most critical piece is the mount for the coax, radiator and radials. I used aluminum in my first version with a very "Rube Goldberg" strain relief for the radiator. My current antenna uses a scrap piece of double sided printed circuit board and a more respectable strain relief, the acrylic insulator.

First cut the 3" acrylic insulator in half with a hack saw or band saw. Drill two holes to accommodate two 6-32 screws as shown in the photo. Next lay out the board to make sure you have enough room for the insulator the coax connector and one radial screw. The other radial will be tied to the screw that holds the insulator. Make the hole for the coax. A punch is the easiest way but a ring of small holes and a half round file will also work. Drill the holes for the insulator and one hole on the opposite side for the other radial. Mount all the parts and admire your work or panic and start over. Scrap PC board is cheap and you probably learned something anyway.

Cut the wires at least 35 feet long so you have enough wire to wrap around the insulators and some to spare for tuning. Strip about one inch from one end of each radial wire and tin them. Then bend the wires around the radial attach screws, one on the end of the board and the other holding the insulator, using one washer on each side of the wire and tighten. Attach insulators to the other ends as shown in the photo.

Feed the radiator wire through the hole in the insulator and wrap it around the long side of the radiator a turn or two leaving enough wire to reach the coax connector. Then solder it to the center conductor of the SO-239. I also soldered the wrap to hold it in place. Put an insulator on the other end of the radiator.

Now get out your bow and arrow, sling shot, or warm up your arm and get a rope up 45 feet in a tree. If the radiator goes over a branch either put some shrink wrap on it or good electrical tape. I use a light cord to hold up the radials that are tied to a screw in a tree. The load on the radials is very light as trees don't move much at that height.



**40 Meter Suspended 2 Radial Vertical**

My antenna is about 20 feet from the house so I used a short piece of RG-8X to keep the weight on the antenna down and fed that to a piece of Buryflex coax that goes under the grass and into the shack. The thinner coax and cord for the radials also keeps the antenna visibility down as it is on the street side of our house. I use a straight shovel or an edger to slit the grass and stuff the coax just below the turf. I have used this method to bury radials for my 160 Meter Inverted L and to run coax out to my K9AY receiving loop nestled in the woods opposite the 40 meter vertical.

Next tune the antenna by lengthening or shortening the radials and the radiator a few inches at a time. An antenna analyzer is very helpful for this process. All the elements should be the same length when you are finished.

**Operation**

This is a terrific DX antenna but is only ok for domestic contacts shorter than a few thousand miles. I also have a 130 foot dipole fed with ladder line up about 50 feet broadside east - west that works well on 40. DX stations in all directions are regularly stronger than an S-Unit or more on the Vertical and most domestic stations see the same advantage on the dipole. Independent of the orientation of the dipole, the take-off angle on the dipole is about 40 degrees, nearly twice that of the vertical, which is why the vertical beats the dipole for DX in all directions.

I have used this antenna mostly with my TenTec Argonaut 509 that puts out about 4 watts. Since I got the 509 on eBay two years ago, I have worked 139 countries on CW and 45 on SSB with this antenna. I have even called DX in pile ups and gotten through!

**“Antique Radio”?**

*Ham Radio's  
Technical Culture*

Kristen Haring

50

OUTDOOR ANGLES NOVEMBER, 1952

**BOYS' LIFE  
Radio Club Contest**

**DEATH MARCH OF THE LEMMINGS**

**SLIDE OF THE MONTH**

**Snowshoe**

**BOYS' LIFE Radio Club Contest**

**CLASS A—Manufactured receivers, including surplus.  
CLASS B—Home-built receivers.**

**To: BOYS' LIFE Radio Club  
2 Park Avenue  
New York 16, N. Y.**

**1 am interested in radio. Please enroll me in the BOYS' LIFE Radio Club and send me the free Radio Contest Kit.**

Name .....

Street address .....

City .....

State .....

## Local Nets

**146.955 Nets – There are a number of nets that are regularly scheduled on the 955 repeater.**

Sunday Night PART Net – every Sunday night at 2000/8:00 PM

Sector 1C RACES Net – this net occurs the 1<sup>st</sup> Monday or every month (except when it is a holiday).

Skywarn and ARES Nets – these nets are spontaneous when local conditions warranted.

## NVARC Slow Speed CW Net

Pete-KB1LZH reports that there is a Slow Speed CW Net being conducted by our neighbors in Pepperell. If you have some interest in learning CW and or learning how to interact in a NET, you might want to join the net on Tuesday and Thursday evenings, at 7:30 PM. The net is run by the NVARC in Pepperell. It is a good chance to develop skills in NET procedures and in developing CW capability. This net meets on 10 meters on 28.123 MHZ. The (usual) Net Control Operator is Bruce, K1BG.

## Repeater News

### 145.330 WB1GOF VHF Repeater D-Star on the air

The D-Star settings for WB1GOF Port C D-Star system:

RX Freq: 145.330

TX Freq: 144.730

MYCALL: <your callsign>

URCALL; CQCQCQ

RPT1: WB1GOF C

RPT2: WB1GOF G (make sure this is set!)



We have seen a lot of new “faces” on the D-Star repeaters. Many of these new users have indicated they’ll be joining PART and attending meetings. We received some very nice donations from the users of the repeaters, you know who you are and we all thank you very much for helping us maintain and add new capabilities to our repeaters!

## Repeater Interference

The 146.955 repeater continues to see interference to existing conversations as well as at random quite times throughout the day and night. The repeater interference committee needs your help in collecting information about this interference.

If you hear any type of interference, please report the following info to **"repeater"** at **"wb1gof.org"**:

- Time: When did the event happen?
- Observing location: Where were you? Were you mobile?
- Frequency: Input only (146.355 MHz)
- What you heard: Voices, tones, kerchunking or whatever.
- Signal strength: Either by ear (noisy, quiet or full quiet) or S meter
- Radio: To get an idea of the reporter’s radio situation.

\* Most important - what direction: How did you determine direction? This is the most essential piece of information. Even if it's an estimate as in "Roughly east" or "from the Northeast" it's useful.

**If you are interested in assisting in helping us identify the sources of interference, contact Terry-KA8SCP.**

## PART Gear

The PART Quartermaster has lots of great PART-ware for sale including hats, mugs, and shirts. You can get information how you can obtain your PART-ware at the monthly club meetings.

Club members are also encouraged to obtain an official PART badge from [The Sign Man](http://thesignman.com/clubs/part.html) (<http://thesignman.com/clubs/part.html>)



## EmComm

**RACES** – The WB1GOF 146.955 repeater is used on the first Monday of every month (except federal/state holidays) for RACES starting at 1930 local time. If you are interested in being part of the local emergency communications team in your community, feel free to contact any of the following folks:

Terry Stader – KA8SCP, MEMA Region 1 RACES Officer  
Hugh Maguire – N1QGE, RACES Officer, Town of Westford  
Bill Ohm – W1OHM, RACES Officer, Town of Chelmsford

- We need radio operators that can pass messages on to the local emergency management directors in several towns in northern Middlesex County.
- There is a Region 1 RACES meeting to be held on Saturday, March 20<sup>th</sup> at the MEMA Region 1 HQ in Tewksbury from 10:00 am to noon. Contact Hugh-N1QGE or Terry-KA8SCP for more information.

**Skywarn** - The WB1GOF 146.955 repeater is also used for reporting significant weather events to the National Weather Service from our local spotters. We expect to have a local Skywarn training class in 2010, more information as it becomes available. You can provide valuable information even if you have not attended one of the training sessions. Listen to the Skywarn Net Control Station for reporting criteria, when you have information that qualifies, please advise him with your report.

**Situational Awareness** – Recently, the Massachusetts Emergency Management Agency has asked the Amateur Radio community to provide situational awareness and disaster intelligence information within your local community via RACES, ARES and/or Skywarn stations. Significant events such as widespread power outages can be reported and by agencies such as MEMA to evaluate the scope of a blackout for example. Initially, you should try and contact RACES or ARES operators on the Westford 146.955 repeater to pass this information. More on this new program will be forthcoming.

**PART Sunday Night Net** – The PART Net each Sunday night is an IMPORTANT part of our regional EmComm function. With each station that checks in from the surrounding communities, we test our ability to communicate vital information to the ham radio community. Sure we announce club info but we can also communicate regional disaster news and serve as a “hub” for news of situations in our communities. The repeater is on a generator, so even if we loose power in the region, an ht with a supply of batteries will reconnect you to other local hams.



PARTicles © 2010, a publication of PART of Westford, MA – WB1GOF

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