



The Minuteman Repeater Association



# The Minuteman

Volume 40, Number 4

March 2011

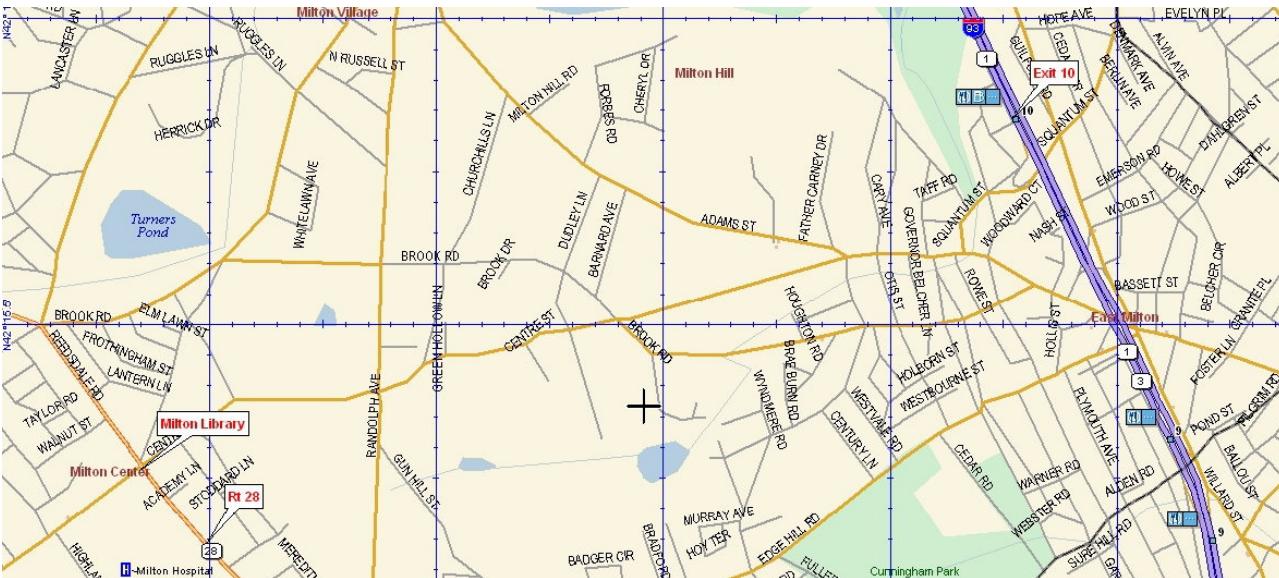
**Membership Meeting ~ Wednesday, 16 March 2011 @ 7:00 PM**

**Ed Perry, Founder and President of 95.9 WATD in Marshfield**

**Milton Public Library, 476 Canton Ave, Milton**

**Talk in — 146.67**

WATD is one of only a few locally owned and operated FM broadcast stations in the Boston area. WATD signed on December 6, 1977 and has endured booms and busts in the economy, and a drastically changing broadcast industry. Ed will share his experiences in the broadcast industry with us, and will also take questions from the membership. Read Ed's full bio at < <http://www.959watz.com/EdPerry.php> >, it's pretty interesting!



**Directions:**

**From West or South:**

Take Route 128 to route 28 N, Randolph Ave. toward Milton.

At fourth traffic light turn left on Reedsdale Road (staying on 28N). There is a Tedeschi's on the right and a church on the left.

At next traffic light turn left onto Canton Ave.

Library is on this corner, use the 1st driveway to turn left into parking lot.

**From Boston, via Southeast Expressway (Route 93 South)**

Take Exit 10: Milton, Squantum Street

Bear right onto Adams Street at end of Squantum.

At first light go left onto Centre Street

Continue through the third traffic light, just after Milton Academy.

Library is on your left. Use the 1st driveway to turn left into the library parking lot.

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## About the Minuteman Repeater Association

The Minuteman Repeater Association (MMRA) is dedicated to Amateur Radio and public service. The MMRA maintains a large system of repeaters in Eastern Massachusetts.

The MMRA meets (usually) on the 3rd Wednesday of September, November, January, March, and May. Meeting time, locations and talk-in frequency vary. These are announced in the newsletter and on weekly nets. Meetings are open to all interested parties.

The Minuteman newsletter is Emailed one week before each meeting. Members are encouraged to submit articles. Articles may be sent to the editor via email to [newsletter@mmra.org](mailto:newsletter@mmra.org). The deadline for articles is the last Friday of the month preceding the meeting.

Each Tuesday evening at 8PM the MMRA links most of the repeaters for an open net. The topic is "Technical Information and Other Stuff". Join us!

Membership in the MMRA is open to all radio amateurs. Annual dues are \$25 per individual or \$35 per family. See our website for details.

Email to the club leadership should be sent to [contact@mmra.org](mailto:contact@mmra.org). The MMRA maintains a web site at: <http://www.mmra.org/>

An email distribution list for club members named "MMRA" is at: [www.yahoogroups.com/](http://www.yahoogroups.com/)

**No part of this newsletter can be copied or posted elsewhere without prior approval from the club.  
Your cooperation in this matter is appreciated.**

### MMRA QRM Policy

MMRA members and all other operators are strongly encouraged to report repeater activity that does not abide by Part 97 rules or accepted amateur radio practice to the board of directors at [contact@mmra.org](mailto:contact@mmra.org) or via other means.

The most effective way (and probably the only effective way) to deal with an individual causing QRM is to NOT engage that individual on the air. Please include the time and date of any incident. Measures are being taken to make audio recordings of repeater activity.

### Repeater and Frequency Information

Up-to-date information about both MMRA repeaters and affiliate repeaters can be found at  
<http://www.mmra.org/repeaters/index.html>

Band	Location	Freq	PL	Call	Linking		
					To Hub 1	To Hub 2	
<b>MMRA Voice Repeaters</b>							
10m	Marlboro	29.680	131.8	W1MRA	PTL	—	
6m	Marlboro	53.810	71.9	W1BRI	PTL	—	
2m	Boston	145.160	—	W1MRA	Off the Air		
	Belmont	145.430	67.0	WA1RTT	—	—	
	Mendon	146.610	146.2	AE1C	FTL	PTL	
	Quincy	146.670		W1BRI	PTL	PTL	
	Burlington	146.715		KC1US	PTL	PTL	
	Weston	146.790		N1BE	PTL	FTL Hub2 10-4	
	Brookline	146.820		K5TEC	FTL	PTL	
	Marlboro	147.270		W1MRA	PTL	PTL	
1 1/4m	Hopkinton	223.940	103.5	K1KWP	FTL	—	
	Quincy	224.400		N1KUG	Off the Air		
	Weston	224.700		N1NOM	FTL	PTL	
	Marlboro	224.880		W1MRA	PTL	FTL	
70cm	Lowell	442.250	88.5	K1LVF	FTL	—	
	Weston	442.700		W1MRA	<b>Network Hub 2</b> (PTL to Hub 1)		
	Burlington	446.775		W1DYJ	FTL	PTL	
	Southboro	449.575		W1BRI	Off the Air		
	Marlboro *	449.925		W1MRA	<b>Network Hub 1</b>		
33cm	Boston *	927.0625	D244	K1RJZ	PTL	—	
	Marlboro *	927.700		W1MRA	PTL	—	
<b>MMRA "Other" Systems</b>							
Marlboro		144.390	none	W1MRA	APRS Digipeater		
???		145.630	146.2	W1MRA	Fox Box		
Internet	449.925: Echolink node 94940; IRLP node 4133					Normally linked to the NEAR-900 Reflector, 9125. Linked to MMRA via IRLP for the TIOS net. Normally linked together.	
	927.0625: IRLP node 4977						
	927.700: IRLP node 4978						

<b>Notes:</b>	FTL = Full Time Linked (or default state) PTL = Part Time Linked (on schedule or demand) Note — a repeater can be linked to only one Hub at a time.
<b>PL:</b>	PL is required to prevent interference. The code 750 will temporarily disable the MMRA PL on the 2M repeaters.
<b>Autopatch:</b>	Only the Hub 1 has a telephone line. Link to Hub 1 if necessary, then bring up the autopatch using the 449.925 autopatch codes.
<b>Control codes are sent to members upon receipt of dues.</b>	

## **President's Corner**

### **Bob DeMatta (K1IW)**

In 1938, Congress passed the Agriculture Adjustment Act, which imposed limits on the amount of corn, cotton, and wheat that could be produced by farmers. Each year, a farmer was given an allotment which he was not allowed to exceed. In 1941, Roscoe Filburn, a farmer in Southwest Ohio was given an allotment of 11.1 acres. Despite this, he planted 23 acres. When the crops were harvested, Mr. Filburn sold 11.1 acres into the market, but kept the remaining wheat for use on his own property for his farm animals and his family to consume. The secretary of agriculture fined him \$117.11. Mr. Filburn sued the federal government and the case made its way all the way to the U.S. Supreme Court. Filburn had argued that since the excess wheat had not been used across state lines that the federal government had no authority over the matter. The Supreme Court disagreed and upheld the fine. They stated that although the wheat itself was not brought across state lines, it still reduced demand as Mr. Filburn would have otherwise had to engage in interstate commerce to purchase the wheat had he not grown some himself.

That court case, Wickard v. Filburn, is fairly well known and has been used in a number of subsequent cases involving the constitution's commerce clause. It is known as the decision which broadened the power of the federal government to regulate commerce significantly. Roscoe Filburn farmed until his death in 1987. However, in 1966 he persuaded his family to sell much of the family farm.

The farm eventually became the Salem Mall in Trotwood, Ohio. The mall was mostly out of business in the late 90's and mostly torn down in 2006. However, for those that have visited the Dayton Hamvention, it is the place many people park to take the shuttle buses to the convention. It is ironic that a seemingly common, obscure, barren piece of land has such an exceptional history.

## **The Amateur's Code**

The Radio Amateur is:

**CONSIDERATE**...never knowingly operates in such a way as to lessen the pleasure of others.

**LOYAL**...offers loyalty, encouragement and support to other amateurs, local clubs, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.

**PROGRESSIVE**...with knowledge abreast of science, a well-built and efficient station and operation above reproach.

**FRIENDLY**...slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for the interests of others. These are the hallmarks of the amateur spirit.

**BALANCED**...radio is an avocation, never interfering with duties owed to family, job, school or community.

**PATRIOTIC**...station and skill always ready for service to country and community.

**Paul M. Segal, W9EEA, 1928**

## **January Membership Meeting ~ MMRA Mid-Winter Pizza Gathering**



The test setup for the new S-Com 7330 Controller for Hub One, courtesy of K1IW, Bob

One of the tables at Pizzeria Uno in Newton



Roger, WA1NVC, demonstrates a Software Defined Radio using the SDR-IQ at the left and the SDR-radio.com software on his laptop.



The hardware is the SDR-IQ from RFSPACE (<http://www.rfspace.com/RFSPACE/SDR-IQ.html>). The software is from Simon Brown, HB9DRV, the developer of Ham Radio Deluxe (HRD) at [www.SDR-RADIO.com](http://www.SDR-RADIO.com).

## ***Updating an old Mastr II for use in a D-Star System***

### ***Harold Read, K3FG ~ Part 1***

This is the first article documenting the repair of an old Mastr II repeater and modifying it for use as the 2M radio for the D-Star repeater at the Prudential building. A number of things need to be accomplished for this:

- Change the frequency from 147.15/147.75 to 144.56/145.16
- Replace the receiver crystal filters with narrow band filters.
- Repair the defective PA section.
- Figure out where/how to interface the ‘Not Quite So Mini-Hot Spot’ (or NQSMHS), which is essentially a modem for the D-Star controller, to the Mastr II.
- Fabricate cables and connectors as needed to interface the various components.

The first two items required ICOMs set to the desired frequencies and crystal filters which Bob (K1IW) obtained. The remaining items caused me to spend a fair amount of time researching the various components of the repeater on line. I found the repeater builder web site (<http://www.repeater-builder.com/rbtip/>) among others to be quite useful.

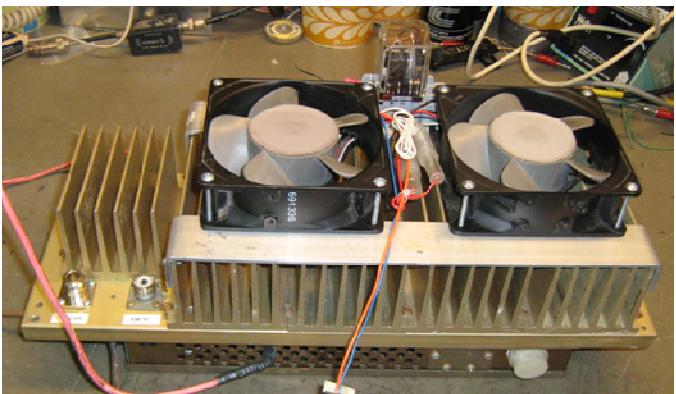
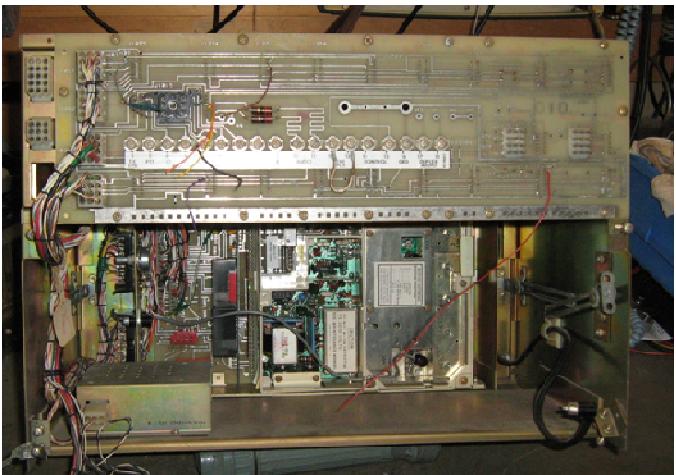
While researching the project, it occurred to me that it would be a simple thing to configure the repeater so that it could be used as a voice repeater as well as a D-Star digital repeater. Since D-Star radios are not too widespread in the field so far, it seemed to me that more HAMs could get some use out of the repeater if voice mode was available. I reviewed the idea with Bob and he noted there were some spare S-Com 5K controllers available so we agreed to try it out and see how it works. We need to remember that the repeater is getting modified to narrow band, so *users will have to configure their radios to use narrow band for voice with this repeater*. Also, the digital mode will have to have priority over the voice mode which means digital traffic could potentially interrupt voice traffic. This seems to be a reasonable trade-off to have voice mode available. This idea adds some additional items to the action item list:

- Figure out the connections for the S-Com controller.
- Add a relay to switch the transmit modulation source between the digital and analog modes.
- Fabricate cables and connectors as needed to interface the various components.
- Program the S-Com controller.
- Test, tune, etc.

Once of my goals was to minimize the modifications to the repeater. The idea is to make it as easy as possible for someone else that might have to work on the unit to understand what’s going on. This turns out to be relatively easy as the receiver already has discriminator audio coming out to the controller backplane and the second generation (ours is first gen) of the exciter board has provisions for feeding in a digital modulation signal after the audio processing section with

the necessary chassis wiring changes already mapped out.

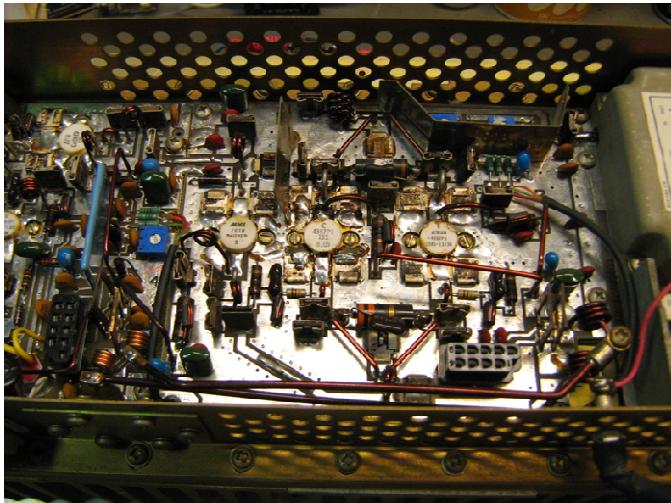
The first pictures show the radio and associated components as I received them. The main chassis and front door components were all intact and in very good condition.



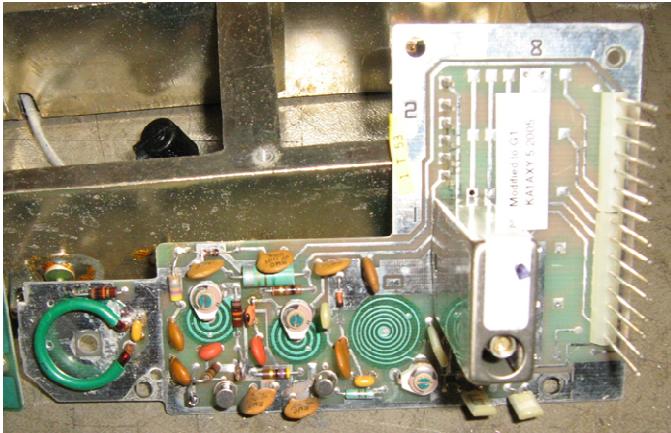
The PA section on the next page had been removed from the main chassis. It looked a little crispy inside in the area of the final amplifier transistors. More on that next issue.

## **Updating an old Mastr II for use in a D-Star System**

**Harold Read, K3FG ~ Part 1 continued**



Phase one of the project was to get the receiver working on the new frequency before making any other changes. I had to verify that the oscillator board had been modified for the low band split option as the part numbers indicated the receiver was a high band split model. The oscillator board had a tag on it saying it had been modified but we wanted to be sure all the changes had been made that the documentation said were required. Below is a picture of the oscillator board. The changes required for low band split were verified.

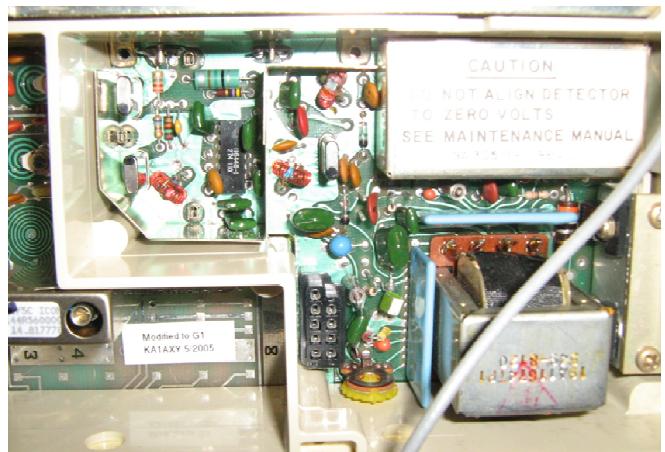


When I put the boards back in the receiver and powered it up, it worked as advertised and I was able to tune it up on the new frequency without further issues. The next step was to replace the existing crystal filters with the new narrow band parts. The new filters were packaged as pairs with instructions for installation at the various locations in the receiver.

This first picture shows the mixer / IF board installed in the radio with the existing filters.

The picture to the right is of the mixer / IF board with the new filters installed.

The final picture is the IFAS board with the new crystal filters (3) installed. There was a capacitor that needed to be changed on this board as well. It's the little yellow one next to the 15K 5% carbon resistor on the left side of the picture.



**Next issue: the transmitter.**

## **MMRA February Board of Directors Meeting**

### **Bob Evans — N1BE — Clerk**

MMRA Board meeting minutes by N1BE.

The MMRA board met on the evening of 2011-02-16 at the office of Conexant in Waltham at 7:32 PM. K1KWP, K1IW, N1BE, WA1NVC, KC1US, N1BDA, W1DYJ and N1NVK were present.

Kevin, K1KWP presented a report of the MMRA accounts and expenses. About \$185 of the dues collected for the current year has not been committed to expenses. He also reviewed MRW electricity usage, with the last month an all time high, and membership status. Kevin's report also showed memberships numbers; about 46 of last year's members have not renewed.

We considered replacing linear and ferro-resonant power supplies with switching supplies to lower the energy usage. We estimate it takes about three years for the reduced electric bill to offset the cost of switching power supplies, or less time if the power rates go up. WA1NVC will provide info about the MRW loads so that N1NVK can research alternatives to the current power supplies.

147.27 is suspected of imminent PA failure. Bryan, W1BRI plans to work on this at his earliest opportunity. 147.27 was noisy with receive sensitivity varying during last night's MMRA TIAOS net. We do not know if the sensitivity issue is due to a transmitter problem. Bryan also has several other MMRA projects in his garage.

K1IW also reported that the new 7330 controllers have been installed in HUB1 and HUB2.

Larry, W1DYJ is looking for additional net control operators. This is only once a month for each control operator. Larry also reminded us about the

newsletter deadline, the last Friday of the month before the general membership meeting.

Roger, WA1NVC reports that at the February Algonquin flea KC1US and K1NZQ will be helping him at the MMRA table. MMRA property to be sold includes some Larcam amps and coax cables. KC1US also will link the MMRA repeaters for talk-in.

Bruce, KC1US reports public service is pretty quiet at the present time. But things are starting to get active for the Boston Marathon.

Bob, K1IW reports there is a new way people can register to be marathon communications operators. There are 192 volunteers so far, with reports that it is easier to register than in the past. More operators are still needed for the Marathon. K1IW also indicates the Walk For Hunger in early May will soon be recruiting volunteers.

Steve, N1BDA mentioned the Emergency Communications training in Concord, MA on March 5th.

The meeting adjourned at 20:56.



**Walk for Hunger 2011**  
**Amateur Radio Volunteer Signup**  
**The Walk is on Sunday, May 1**  
[\*\*http://wfh.mmra.org\*\*](http://wfh.mmra.org)

### **Boston Marathon**

Marathon Amateur Radio Communications is seeking amateur radio volunteers for the Boston Marathon on April 18. People are needed at stations all along the route! For more information or to volunteer, visit <http://marc.mmra.org>

## 2010—2011 Membership Meetings

### 15 September Meeting

Lexington Public Library ~ 7:30 PM

Dave Allred, N1VU

Antenna Myths: Transmission Line Tall Tales

### 17 November Meeting

Northborough Public Library ~ 7:30 PM

Barry Baines, President of AMSAT

### 19 January Meeting

Pizzeria Uno, Newton MA ~ 7:30 PM

MMRA Mid-Winter Pizza Gathering

### 16 March Meeting

Milton Public Library ~ 7:00 PM

Ed Perry, WATD 95.9 Radio

### 18 May Meeting

Tatnuck Bookseller, Westborough, MA

Phil Temples, K9HI, on the Courage Handiham System

MMRA General Elections

## Board of Directors Meetings

Wed, Oct 20

Southborough House of Pizza

Wed, Dec 15

Stratus, Maynard

Wed, Feb 16

Conexant, Waltham

Wed, Apr 20

No meeting in April

Wed, Jun 15

Kennedy's Pub, Marlboro

## Don't Forget!

Every Tuesday @ 8 PM

Technical, Informational and Other Stuff Net

The MMRA's repeaters are linked Tuesday nights for the TIAOS Net. Join us! This is a good way to keep up with what is happening in the MMRA and ask your ham related questions.

**We need another net control! If you would like to try your hand at Net Control contact me at [W1DYJ@mmra.org](mailto:W1DYJ@mmra.org) — we have a script you can use.**

### Current Net Control Operators:

Week 1	WA1JIM	Jimmy Devaire
Week 2	???	shared
Week 3	W1DYJ	Larry Banks
Week 4	K1KWP	Kevin Paetzold
Week 5	W1DYJ	Larry Banks

To connect using the digital modes during the Net, use the New England Reflector:

For IRLP use node 9127

For Echolink, connect via \*NEW-ENG\*. You can find this under "Node Types" >> "Conferences"

## MMRA Leaders

### Officers

President	Bob DeMatta	K1IW
Vice President	Steve Telsey	N1BDA
Secretary	John McGovern	W1JMC
Treasurer	Kevin Paetzold	K1KWP
Clerk	Bob Evans	N1BE
Technical Officer	Bryan Cerqua	W1BRI

### Board of Directors

Director »2011	Steve Schwarm	W3EVE
Director »2011	Roger Coulson	WA1NVC
Director »2012	Clark Conti	N1NVK
Director »2012	Mike Neilson	W1MPN

### Repeater Trustees, Appointed

Belmont 145.430	Larry Arone	WA1RTT
Boston 927.0625	Rick Zach	K1RJZ
Brookline 146.820	Bob Phinney	K5TEC
Burlington 146.715	Bruce Pigott	KC1US
Burlington 446.775	Larry Banks	W1DYJ
Hopkinton 223.940	Kevin Paetzold	K1KWP
Lowell 442.250	Vince De La Flor	K1LVF
Marlboro 53.810, Quincy 146.670, Southboro 449.575	Bryan Cerqua	W1BRI
Marlboro 144.390, 145.160, 147.270, 224.880, 449.925, Weston 442.700, 927.700 — all as W1MRA	Bill Northup	N1QPR
	Jim Podsiadlo	AE1C
Mendon 146.610	Bill Dunn	N1KUG
Quincy 224.400	Bob Evans	N1BE
Weston 146.790	Eddie Mulhern	N1NOM

### Appointed, non-Voting

Newsletter Editor	Larry Banks	W1DYJ
Emergency Coord.	Kevin Paetzold	K1KWP
Public Service Coord.	Bruce Pigott	KC1US
VEC Liaison	Bill Wade	K1IJ
Net Manager	Larry Banks	W1DYJ
Web Page Editor	Bob DeMatta	K1IW

## MMRA VE Sessions

3rd Saturday of each Month

9 AM at the

Marlboro Public Library

Contact: Bill Wade, K1IJ

781-891-9079

Evenings 6 - 10 PM

Weekends 8 AM to 10 PM.

Accredited by the ARRL VEC

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**Ed Perry, Founder and President of 95.9 WATD in Marshfield**

**Milton Public Library, 476 Canton Ave, Milton**

**Talk in — 146.67**

## **Calendar of Ham Radio Events**

**Framingham**

**Amateur Radio Association**

**Spring Flea Market and Exams**

**Sunday, April 3, 2011**

**New location: Keefe Technical School**

**Doors open at 9 am**

**Amateur radio equipment, electronics  
and computer hardware and software**

**<http://www.fara.org/flea/>**

### **New England Area Ham - Electronic Flea Markets**

See this web site for contact information

<http://mit.edu/w1gsl/Public/ne-fleas>

5 Mar	Feeding Hills MA MtTARA	@TurnverneinCIB
19 Mar	Dayville CT ECARA	@StJosephCh
20 Mar	Southington CT SARA	@HS
25 Mar	Lewiston ME AARC StConv	@ Ramada
26 Mar	Middletown NY OCARC	@CommCtr
27 Mar	Henniker NH CVRC	@CommSch
3 Apr	Framingham MA FARA	@KeefeTech
10 Apr	LaGrangeville NY MtBARC	@TymorPk
16 Apr	Manchester NH NHAntqRC	@Bingo
16 Apr	S Portland ME PAWA	@AmLegion
17 Apr	Cambridge MA FLEA at MIT	
29,30 Apr	Deerfield NH Nearfest IX	@FG

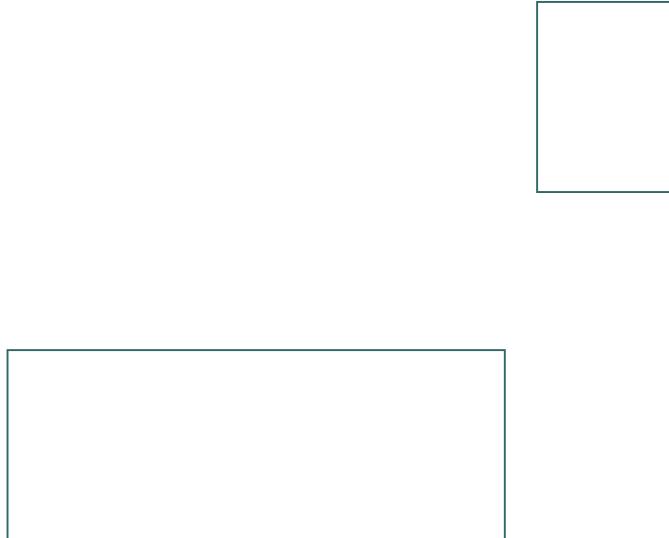
THE MINUTEMAN REPEATER ASSOCIATION

**MMRA**

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Stow, MA. 01775-0669

Email: [contact@mmra.org](mailto:contact@mmra.org)



WE'RE ON THE WEB  
[HTTP://WWW.MMRA.ORG/](http://WWW.MMRA.ORG/)