The Minuteman Repeater Association

The Minuteman

Volume 41, Number 3 January 2012

Membership Meeting ~ Wednesday, 18 January 2012 @ 7:00 PM

Introduction to D-Star

Northborough Free Library ~ 34 Main Street (Rt. 20), Northborough

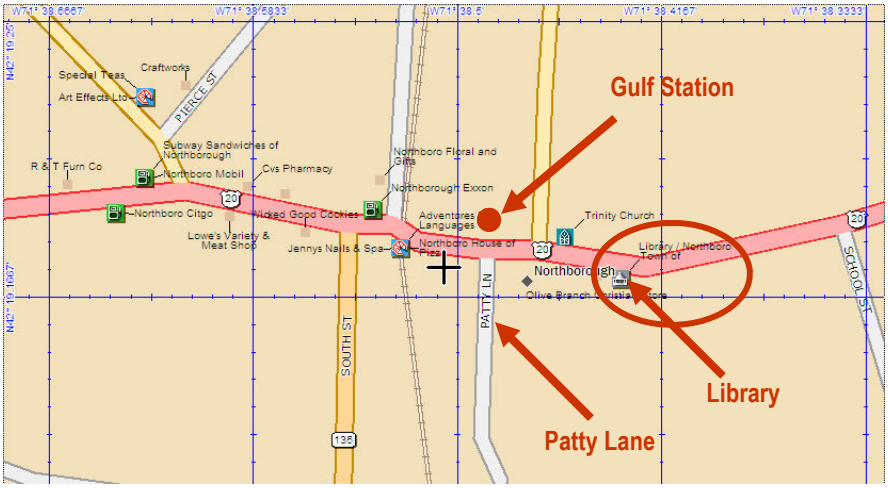
Talk in — 147.27

Terry Stader KA8SCP will be visiting to provide an introduction to D-Star digital radio technology. With the MMRA D-Star repeater now on the air, the timing couldn't be more appropriate!

Directions to The Northborough Free Library

Directions from I-495:

- From I-495, take Exit 24B which is Rt. 20 West toward Northborough.
- Follow Rt. 20 West about 3.5 miles, into the center of Northborough..
- Opposite the Gulf Station on the right, turn left into Patty Lane.
- The Northborough Free Library parking lot will be on the left.



Quincy 220 back on the air!

Thanks to Bryan, W1BRI, and Roger, WA1NVC!

Bryan can hit it with his rubber duck on a VX7 portable at 300mW from his Milford 2nd floor shack room. Roger can also, with his Alinco HT from Framingham. Power into the antenna cable was measured at 45W.

<< 146.67 Repeater 224.40 Repeater >>

Table of Contents

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. 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. 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/

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 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
MMRA Voice Repeaters						
10m	Marlboro	29.680	131.8	W1MRA	PTL	FTL
6m	Marlboro	53.810	71.9	W1BRI	PTL	PTL
2m	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	PTL
	Brookline	146.820		K5TEC	FTL	PTL
	Marlboro	147.270		W1MRA	PTL	PTL
1¼m	Hopkinton	223.940	103.5	K1KWP	FTL	PTL
	Quincy	224.400		N1KUG	FTL	PTL
	Weston	224.700		N1NOM	FTL	PTL
	Marlboro	224.880		W1MRA	PTL	FTL
70cm	Lowell	442.250	88.5	K1LVF	FTL	**PTL: 446.775**
	Weston	442.700		W1MRA	**Network Hub 2 (PTL to Hub 1)**	
	Burlington	446.775		W1DYJ	FTL	PTL
	Southboro	449.575		W1BRI	PTL	PTL
	Marlboro *	449.925		W1MRA	**Network Hub 1**	
33cm	Boston *	927.0625	D244	K1RJZ	PTL	—
	Marlboro *	927.700		W1MRA	PTL	—
MMRA "Other" Systems						
Marlboro		144.390	none	W1MRA	APRS Digipeater	
???		145.630	146.2	W1MRA	Fox Box	
* Internet	449.925: **Echolink ; IRLP node 4133**					
	927.0625: **IRLP node 4977**			**Normally linked to the NEAR-900 Reflector, 9125. Linked to MMRA via IRLP for the TIAOS net. Normally linked together.**		
	927.700: **IRLP node 4978**					

Notes: 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.

PL: PL is required to prevent interference. .

For those of you that would like to try 222 or 900:

Alinco just released the first amateur dual band handheld for 900 MHz and 222 MHz. — The Alinco DJ-G29T
http://www.alinco.com/Products/DJ-G29/

President's Corner

Bob DeMattia — K1IW

August isn't too far away, right? If you're involved with the New England Convention, August is never too far away, but especially now.

In a few short weeks, tickets for the Boxboro convention will be on sale. I bring this up because the convention is one of the best way to advertise MMRA to many hams that aren't members. MMRA provides the talk-in for the convention and in return is given a hospitality booth to greet potential new members.

We need ideas and volunteers to help out with the planning and execution at this event. If you have a really neat idea that we could use at the convention, let us know. Would you like to help staff the table for a few hours? Let us know.

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

MMRA Repeaters used for Public Service in 2011

Bruce Pigott — KC1US

This is a summary of the repeaters used for public service events in the past year. The coverage area of both the suburbs and downtown Boston is a great asset for organizations looking for communications support.

Event Date	Repeater	Group	Use
Sat Feb 19	147.270, 449.925	Algonquin Amateur Radio Club	flea market talk in
Mon Apr 18	145.430, 146.670, 146.790, 146.820, 147.270, 224.700, 449.925	Boston Athletic Association and Mass. Bay Red Cross	Boston Marathon
Sat Apr 30	145.430	Charles River Watershed Assoc.	fund raising canoe race
Sun May 1	146.820, 145.430	Project Bread	Walk for Hunger
Sun May 15	145.430	Brain Tumor Association	fund raising bicycle tour
Sun Jun 12	146.790, 147.270	ALS Assoc. of Mass.	fund raising bicycle tour
Sat Jul 16	147.270	NE Multiple Sclerosis Society	fund raising bicycle tour
Tue Aug 8	ARES linked net configuration	EMass ARES	hurricane drill
Sun Sep 18	145.430, 146.820, 147.270	Mass. Bay Red Cross	Jimmy Fund Marathon Walk
Sat Oct 1	147.270	Cystic Fibrosis Foundation	fund raising bicycle tour
Fri to Sun, Oct 21 to Oct 23	146.820	Mass. Bay Red Cross	Head of the Charles Regatta

November 16th Membership Meeting

Ham Radio at the Boston Marathon

About 50 Hams attended the November meeting, held at MEMA Headquarters in Framingham. After a business meeting which included a Treasurer's report and an update on the status of all repeaters, the main event was a presentation about the ***Boston Marathon***. **Here is a small part of the presentation.**

Amateur Radio at the Boston Marathon

Bob DeMattia K1IW
Steve Schwarm, W3EVE
Paul Topolski, W1SEX

Challenges

- Recruitment – need a LOT of people
- Registration – dealing with the BAA registration website.
- Execution –
  - The course is 26 miles in a straight line.
  - The course winds between various hills and valleys.
  - Many checkpoints are located in RF unfriendly locations, ranging from deep valleys, RF hotspots and every combination in between.
  - With a large number of volunteers, some people's equipment "isn't that good".
  - Multiple channels are needed due to heavy traffic volume.

The Start Team

- Hopkinton Common – help locate and get messages to key officials – make sure route is clear before start of each race segment

Lots of Radio Traffic

- Start Line/Parking Lots – 5 channels
- Course - 10 channels
  - 26 first aid stations
  - 48 water stations
  - 20 medical buses
- Finish Line – 13 channels
  - Medical Tents
  - Officials
  - Strategic positions
- We use the term "channels" because some channels are multiple linked repeaters.

Traffic ranges from
- routine logistical traffic about setup and supplies to
- high priority first aid traffic.
- In 2004 more than 196 ambulance calls came into net control via ham radio.

Course Net Control

- About 25 people
  - 20 Hams
  - 2 Red Cross EMTs, 2 Ambulance dispatchers and 1 State Police dispatcher
- Handle Ambulance request
- Handle problems on the course
- Manage Medical Buses
- Logistics for Fluid and First Aid Stations

This is only a small part of the total effort that involves upwards of 200 Hams!

MMRA Repeater Controller Primer – Part 2 - Linking

Bob DeMattia — K1IW

In the last installment, I discussed how the MMRA repeater systems were standardized. This was done for two reasons: (1) to make it easier to maintain all of them and (2) to provide a consistent set of control commands for both control-ops and users. With a large linked network, one of the biggest problems to overcome is keeping the linking commands from getting too complicated. It would be good if people are able to remember how to link and de-link without confusion, but at the same time have lots of flexibility.

Each MMRA repeater can operate unlinked, linked to HUB1, or linked to HUB2. There are user commands which work on all repeaters to accomplish this. The exact DTMF codes are available to members on the members-only portion of our website. Use of the link commands is on the honor system. If you are not a member, or your membership is expired, please refrain from using the linking commands.

When an MMRA member changes the link state with a user command, the change is temporary. After nine minutes of repeater inactivity, the controller will revert to the default state. The default state may be permanently changed by the control-op version of the linking command, or by automatically scheduled event such as the MMRA TIOS net link up on Tuesday nights.

The three commands are of course “Delink”, “Link to HUB1”, and “Link to HUB2”. For dual-repeater sites, there is only one controller and one link radio, so there are no combinations where one repeater is linked to HUB1 and the other is linked to HUB2 at the same time. Also, one repeater cannot link to both HUBs at the same time.

The controller operates in one of eight modes. These modes and the transitions between them are explained best in the table to the right. If a command is not listed for a particular state, it has no effect. Note that if there is a command that would change the linking from HUB1 to HUB2, then the repeater not being linked by the new command will always end up unlinked.

When linking, you shouldn’t have to worry much about this table. Just enter the link you want to change and the controller will take care of the rest. When you say “Link to HUB1”, the controller looks at which repeater you are on and assumes that repeater. This allows you to use the same command, for example, on 147.27 or on 224.88 but that command will translate to “Link R1 to H1” or “Link R2 to H1” automatically. When you are on a HUB, there are specific unique linking commands for each repeater.

Transition Table (H1 = HUB1, H2 = HUB2)

State #	Repeater 1 (R1)	Repeater 2 (R2)	Command Received	New State #
0	unlinked	unlinked	Link R1 to H1	1
			Link R2 to H1	2
			Link R1 to H2	5
			Link R2 to H2	6
			Link R1 to R2	4
1	linked H1	unlinked	Link R2 to H1	3
			Delink R1	0
			Link R1 to H2	5
			Link R2 to H2	6
			Link R1 to R2	4
2	unlinked	linked H1	Link R1 to H1	3
			Delink R2	1
			Link R1 to H2	5
			Link R2 to H2	6
			Link R1 to R2	4
3	linked H1	linked H1	Delink R1	2
			Delink R2	1
			Link R1 to H2	5
			Link R2 to H2	6
			Link R1 to R2	4
4	linked R2	linked R1	Delink R1	0
			Delink R2	0
			Link R1 to H1	1
			Link R1 to H2	5
			Link R2 to H1	2
			Link R2 to H2	3
5	linked H2	unlinked	Link R2 to H2	7
			Delink R1	0
			Link R1 to H1	1
			Link R2 to H1	2
			Link R1 to R2	4
6	unlinked	linked H1	Link R1 to H1	7
			Delink R2	0
			Link R1 to H1	1
			Link R2 to H1	2
			Link R1 to R2	4
7	linked H2	linked H2	Delink R1	6
			Delink R2	5
			Link R1 to H1	1
			Link R2 to H1	2
			Link R1 to R2	4

In the next installment, I’ll provide a little more detail on how the SCOM controller decodes and executes DTMF commands.

Marlborough West Shelter Gets an Upgrade

Bob DeMattia — K1IW

You may have seen this photo, or one like it, in previous issues of *The Minuteman*. This was the shelter that housed the MMRA's main Hub repeater, 449.925, as well as 147.27, 224.88, 927.700, the receive end of 53.81, the 447.875 affiliated repeater, and the APRS node.

The club had gotten used to the frequent rodent visitors that found many ways to access the interior. However, after the heavy rainstorms in mid-August 2011, we were treated to a new problem when we found moisture inside the shelter. This prompted the addition of the blue tarp. While the tarp endured the subsequent tropical storm Irene, it didn't provide full protection. Moisture and electronics don't generally mix well, so the decision was made that the shelter needed to be replaced before it went through another winter.

The club knew this day was coming for a long time. In 2009, Bob Stone, N1KMA donated a new shelter to the club. All we had to do and come and get it (Bob lives in Maine), so we did!

The shelter laid in waiting for nearly two years. In that time, the inside was cleaned up and the outside was given a new coat of paint.

On October 21st, club members descended on the old shelter and removed all the equipment. Later in the evening, the old shelter was dragged onto a flatbed truck and hauled away.

Marlborough West Shelter Gets an Upgrade

Bob DeMattia — K1IW

The equipment was brought to K1IW's garage for safe storage

The next morning, the ground was graded to provide a flat surface.

And the new shelter was put in place by crane.

With the shelter in place, all the equipment was re-populated. It is now protected from weather and rodents!

Special thanks go to **Keith KB1OEI** who hauled the shelter from Maine, stored it for almost two years, pulled out the old shelter and arranged for the crane to put the new shelter in place (all free of charge). To **James N1DDK** for designing, organizing, and contributing greatly to the new shelter re-build. Also thanks to **James KB1LOY** for organizing the replacement effort and providing valuable expertise.

Finally, thanks to all the other club members who helped with the paint job, the old shelter cleanout, and the new shelter build up!

MMRA December Board of Directors meeting

Bob Evans ~ N1BE ~ Clerk

At 7:00 PM on December 14th the MMRA Board met in the Maynard, MA headquarters of Stratus Technologies. **In attendance** were K1KWP, K1IW, N1BDA, W1MPN, W3EVE, KC1US, W1BRI, N1DDK, N1BE and WA1NVC.

Kevin, K1KWP, presented a report with details of our **treasury balance, income sources and spending**. As previously reported, the MMRA was hit with expenses, including large planned and unplanned maintenance projects that exceed the income this year. Kevin projects $1325 of additional expenses this fiscal year. We also reviewed MRW power usage.

Then Bob, K1IW led a discussion of repeater status:

145.160 D-Star is back on the air in Boston but unbalanced with transmitter coverage reaching into NH, but the receiver range is much more limited. K1IW believes that the high 2-meter noise level at the site is the primary problem. Bob suggests dropping transmit power from 100 W to both decrease some de-sense as well as to balance the transmit and receive range. We are also considering replacing cables and adding a circulator to that system. It was suggested to plan a longer site visit possibly including surveying the received spectrum, so as to minimize the impact on the site host.

The reworked **224.40** repeater is ready to go online in **Quincy**, perhaps as soon as December 28th.

Site work by the City of Marlborough continues at the **MRW site**. There was a tarp with an ice load pulling on the feedline of 449.925. Bryan tightened the connection at the lightening arrestor that may have been affected by this. Also the 6-meter receive antenna is bent. Due to the city's site work, we may need to replace some MMRA feedlines at the time all the site feedlines are re-routed through the soon to be installed central standpipe.

Roger, WA1NVC suggests a network test with all sites routing through HUB2. This would indicate which sites need some enhancement. The goal would be to have a redundant hub capability. This may not be feasible for all sites like Lowell, with the present frequency plan when the links are also considered.

At present **MRE** has difficulty linking to HUB2. And last night during the TIAOS Net, HUB2 did not seem to be linked to HUB1. We also discussed synchronizing the clocks in the outlying repeater controllers to the time in a 7330 HUB controller.

Bruce, KC1US reports good receive sensitivity in the **Burlington VHF** repeater that he has been monitoring for the last several months.

Other repeaters are operating normally and were not mentioned.

There have been a few recent changes of repeater **control operator**. These are the control operators in the NESMC database. (Each repeater also has a trustee registered.) K1IW has become control operator for 146.79 at present. Jim, N1DDK is the new control operator of 147.27. And Ron, KB1UXT is the new control operator of 442.250.

We then considered plans for the **Algonquin flea market** on Feb 18. WA1NVC and KC1US will represent the MMRA at this event. We have been asked to allow talk-in on 147.27. We will query AARC whether they also want to use 449.925.

With a **Boxboro convention** this year, we began to consider MMRA involvement. Much time was spent considering how to attract people to the MMRA hospitality suite. We discussed free sodas to members, free bottle of water to those who pay dues, raffle prizes, etc. The MMRA has an IC-730 HF radio that by consensus will be used for a raffle item. We also considered a few other possible prizes like test equipment, a new 6-meter beam already in MMRA possession, and perhaps a new handheld VHF/UHF radio.

The **MMRA web hosting** provider moved their equipment to a new site today. K1IW provided a backup site with the most popular mmra.org content for today. At the time of the board meeting, the web host completed their relocation. With DNS updates needing to propagate, we should be online with all normal mmra.org content tomorrow.

KC1US reported on the use of the MMRA network for **public service eve**nts in the year 2011. Details will appear elsewhere in the newsletter. We also discussed putting similar info on the MMRA web site.

The meeting adjourned at 9:00 PM.

2011—2012 Meetings

21 September
Rob Macedo, KC1CY — Tornadoes and Hurricanes
Westborough Public Library ~ 7:00 PM

19 October — Business Meeting
Southborough House of Pizza

16 November
Ham Radio at The Boston Marathon
MEMA Hqtrs, Framingham ~ 7:30 PM

14 December — Business Meeting
Stratus, Maynard

18 January
All About D-Star — Terry Stader, KA8SCP
Northborough Free Library ~ 7:00 PM

15 February — Business Meeting
Conexant, Waltham ` 7:00 PM

21 March
TBA
Concord Public Safety Bldg / EOC ~ 7:00 PM

18 April
No meeting in April

16 May
TBA & MMRA General Elections
TBA ~ 7:00 PM

20 June — Business Meeting
Kennedy's Pub, Marlboro ~ 7:00 PM

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.

If you would like to try your hand at Net Control contact me at W1DYJ@mmra.org – we have a script you can use.

Current Net Control Operators:

Week 1	WA1JIM	Jimmy Devaire
Week 2	W1DYJ	Larry Banks
Week 3	KQ1Y	Tim Wortley
Week 4	K1KWP	Kevin Paetzold
Week 5	W1DYJ	Larry Banks

To connect using the digital modes during the Net:
Use the New England Reflector: connect via ***NEW-ENG***,** node 9123**.** You can find this under "Node Types" >> "Conferences."
For the HHTN, use *NEW-ENG2*, node 9127

MMRA Leaders

Officers

President	Bob DeMattia	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 »2012	Clark Conti	N1NVK
Director »2012	Mike Neilsen	W1MPN
Director »2013	Steve Schwarm	W3EVE
Director »2013	Roger Coulson	WA1NVC

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, 47.270, 224.880, 449.925,		
Weston 442.700, 927.700 — all as W1MRA		
	Bill Northup	N1QPR
Mendon 146.610	Jim Podsiadlo	AE1C
Weston 146.790	Bob Evans	N1BE
Weston 224.700	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 DeMattia	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

Membership Meeting
Wednesday, 18 January 2012 @ 7:00 PM
Introduction to D-Star
Northborough Free Library

If you haven't renewed...
Dues are due.
$25/year — $35/family

($10 extra for snailmail Newsletter)

http://www.mmra.org/

...or mail your check, with your callsign listed, to:
MMRA
P.O. Box 669
Stow, MA. 01775-0669

Calendar of Ham Radio Flea Markets

See this web site for more information: http://mit.edu/w1gsl/Public/ne-fleas

4 Feb	Augusta ME	AARA @Club Calumet
11 Feb	Windsor CT	VR+C Mus 115 Pierson LN
18 Feb	Marlboro MA	AARC @MidSc
25 Feb	S Burlington VT	HAM-CON @HI
25 Feb	N Conway NH	WMARC @ComCtr
4 Mar	Hicksville NY	LIMARC @LevitHall
10 Mar	Feeding Hills MA	MtTARA @TurnverneinClb
18 Mar	Southington CT	SARA @HS
25 Mar	Framingham MA F	ARA @KeefeTech
14 Apr	Montreal PQ	MARC @RCL Hall
15 Apr	Cambridge MA	FLEA at MIT
28 Apr	Gales Ferry CT	RASON Auction @FireCo
4,5 May	Deerfield NH	Nearfest XI @FG
12 May	E Greenbush NY	EGARA @FD
20 May	Cambridge MA	FLEA at MIT
2 Jun	Windsor CT	VR+C Mus
16 Jun	Newington CT	NARL @StMarySch
17 Jun	Cambridge MA	FLEA at MIT
15 Jul	Cambridge MA	FLEA at MIT
12 Aug	Adams MA	NoBARC @BoweFld
19 Aug	Cambridge MA	FLEA at MIT
8 Sep	Ballston Spa NY	SCRACES @FG

THE MINUTEMAN REPEATER ASSOCIATION

MMRA
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Stow, MA. 01775-0669

Email: contact@mmra.org

WE'RE ON THE WEB
HTTP://WWW.MMRA.ORG/