



The MINUTEMAN

Official Newsletter of the Minuteman Repeater Association

The President's Corner

Andy Morrison, N1BHI

By the time you read this, Stoneham, 146.715 should have an SCOM 7K controller in operation with full autopatch capabilities. You may also notice a new call playing on the ID...Chris Conti, N1NVL, assumed Trusteeship of Stoneham over the summer. He had been working closely with Mike Goldberg to improve system operation, and since Mike's time had become limited, he turned over the reins to Chris. We owe Mike a debt of gratitude for his efforts on behalf of the repeater and the organization. He'll be staying involved on the tech crew as much as time permits. Give Stoneham a try...it is playing a lot better....Chris will explain more in his column on repeater system status, elsewhere in this issue.

Our meeting programs this year are being set up by Clark Conti, N1NVK. And in case you didn't figure it out from the last name and the consecutive call signs, Clark and Chris are brothers. The first meeting will feature a slide show and talk about field day...I have not seen the slides, and since I was there have some concern about the possibility that some embarrassing candid shots might have been taken.

The meeting will be on Tuesday, September 21 at 7:30 PM at the Champion Center. All the meetings this year will be on the third Tuesday of each month. This could change as we don't have absolute confirmation from the Champion Center...if it does change, you will hear about it. Look forward to seeing you on the twenty first!

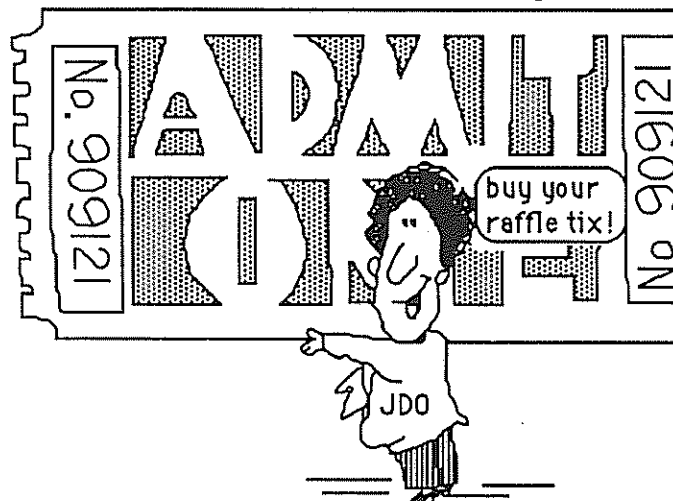
The Repeater Report

Chris Conti, N1NVL - Technical Director, MMRA

This repeater report brings with it the hope that each newsletter can contain more information about each repeater in the system. Also, as time and space permit, I hope to bring up plans for the future of each machine and hopefully some comments, ideas, and suggestions from you, the club members and users of the machines.

(The Repeater Report continues on page 4)

Volume 23, Number 1 - Sep/Oct 1993



Next MMRA Meeting is Tues Sept 21
7:30pm Weston Champion Ctr

Items of Interest

- MMRA Meetings are now the 3rd Tuesday of September, November, January, March, & May.
- Minuteman Newsletter submission deadlines are 3 weeks prior to meeting dates.
- Technical Information Nets are held monthly on the first Tuesday of the month.
- MMRA VE Sessions are the first Saturday of every month at the Marlboro Public Library at 9:00am

Joe KC1D Pete KI1M Nancy N1CXC

RIVENDALL Electronics

(603) 434-5371

8 Londonderry Road Derry, NH 03038

Editor's Corner



Bob Levine, KD1GG

I hope everyone had a good summer and got a lot of hamming in during the warm days and evenings. Don't put off making those tweaks and repairs to the antennas because before you know it, winter will be here! Hard to imagine while it is still warm and just getting past Labor Day Weekend, but time will fly. Your next newsletter will arrive around Halloween when leaves are falling!

Speaking of newsletters, I have published the deadlines for submissions to this years' issues. You will find that list on the last page of every issue. The plan is to have all of the deadlines for the newsletter distribution keyed off the meeting dates. Submission deadline is 3 weeks before the meeting date. Editing and printing of the final copy will be done 2 weeks before the meeting. The printing, folding, labeling, and stamping will be done by 1 week before the meeting at which time they go to the Post Office. If all this flows smoothly, you should receive your newsletter on Thursday prior to the Monday meeting. What do you mean this will never work, you didn't get any late last year, did you!

Well, the FCC finally issued a relaxation of the scope of permissible communications in the Amateur Service (PR DOCKET 92-136). The big joke is now whether we can order pizza on the autopatch. Well here is an interesting snippet from the FCC Public Meeting held on July 15:

FCC Commissioner Ervin Duggan: "I support the item (the rule amendments) but I have one question. Mr. Haller, a phrase leaped out at me when I looked down at the list of newly permissible communications in the Amateur Service. It was the phrase "ordering food". Could you please explain a little bit to me what that means and why it is included? I am not in opposition, but I'm just intrigued."

Private Radio Bureau Chief Ralph Haller: "I hope I can give you a good idea what that means. The amateur operators often have mobile communications

equipment in their vehicles. This relaxation means, if they were for example on their way home, and wanted to have something ready so that they could pick it up and take it home, we would allow that in the Amateur Service as long as they were not receiving any compensation for it. So it's really just to make the radios in their vehicles more useful to them."

Commissioner Duggan: "I see. That answers my question."

In my opinion this brings the Amateur Service to a new low. Hopefully the day will never come when the call for emergency assistance is delayed because some fool is ordering a cheese pizza on the autopatch.

As usual, I would like to solicit more submissions from the membership. Technical articles, building tips, homebrew projects, or general interest articles are welcome.

FLASH: A late breaking Congressional Act:

Both the House of Representatives and the US Senate have approved legislation that authorizes the FCC to issue unique amateur call signs at a cost of \$7.00/year to the Ham community.

The article in the W5YI Report goes on further to say that the petition suggests that amateurs submit their top 3 choices in order of preference with a \$30 processing fee. The petition was put forth with by Jim Willis N5HCT who has been working on the project for 3 years. -W5YI Report August 15, 1993

Respectfully,

Robert A. Levine

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R F WELDING

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MMRA Voice Mailbox !

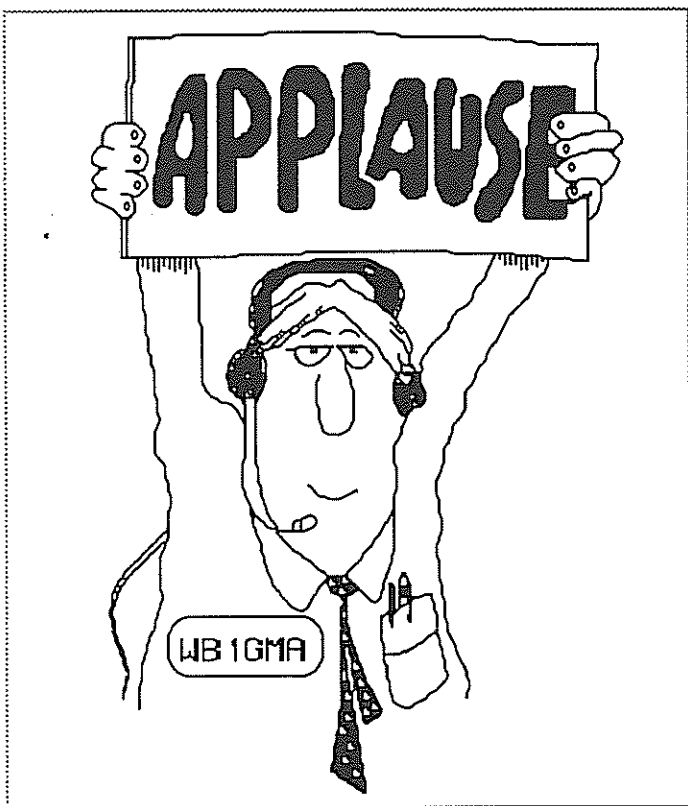
The MMRA now operates a voice mailbox/Hotline for your suggestions, comments, kudos, and complaints. You can call the voice mailbox 24 hours a day. The phone number is (508) 489-2282.

MMRA Field Day 1993

Field Day was again celebrated on scenic Slygo Mountain in Marlboro this year. A brave entourage of skilled operators braved 90+ degree weather, the meanest no-see-um flies, and an especially aromatic porta-potty supplied again this year by KD1OA.

BTW (by the way) in computer speak, I am sitting writing this article at the site during the contest. Watching N1BHI and KD1OA try to operate SSB is a riot. CW fanatics should leave microphones alone.

We ran a 2a station again this year but we had more radios on the air because of the addition of a VHF station and a packet station. Participants included N1BHI, N1HBR, N1NVK, N1NVL, WB1GMA, KD1OA, WA1ZJE, KD1GG and N1CTY. Please do not feel offended if you participated and are not listed. My volunteer reporter did not submit the information.



Hopefully the scores will be available for print in the next issue.

The MMRA is already starting to think about next year's Field Day. If you would like to participate or even be one of the organizers, talk to Andy N1BHI or Mike KD1OA to get more details.

CU next year at Field Day!

10 Commandments for Repairing Your Radio Equipment

I. Beware of the lightning that lurketh in an undischarged capacitor lest it cause thee to bounce upon thy buttocks in a most embarrassing manner.

II. Cause thou the switch that supplieth large quantities of juice to be opened and thusly tagged, that thy days may be long in this earthly vale of tears.

III. Prove to thyself that all circuits that radiateth and upon which thou worketh are grounded and thusly tagged, lest they lift thee to a radio frequency potential and causeth thee to make like a radiator also.

IV. Tarry thou not amongst those fools that engage in intentional shocks, for they are not long for this world and are surely unbelievers.

V. Take care thou useth the proper method when thou takest the measures of high voltage circuits so that thou dost not incinerate both thee and thy test meter, for verily, though thou hast no stock number and can be easily surveyed, the test meter has one and as a consequence will bringeth much woe unto the supply officer.

VI. Take care thou tamperest not with interlocks and safety devices lest this incurreth the wrath of thy supervisor and bring the fury of the safety officer upon his head.

VII. Work thou not on energized equipment for if thou doest so thy shipmates will surely be buying beers for thy widow and consoling her in certain ways not generally acceptable to thee.

VIII. Verily, verily I say unto thee never service equipment alone for electrical cooking is a slow process and thou might sizzle in thy own fat upon a hot circuit for hour on end before thy maker sees fit to end thy misery and drag thee into his fold.

IX. Trifle thee not with radioactive tubes and like substances, lest thou commence to glow in the dark like a lightning bug and thy spouse be frustrated and have no further use for thee except for thy wages.

X. Thou shalt not make unauthorized modifications to equipment, but causeth instead to be recorded all technical directives and authorized modifications made by thee, lest thy successor tear his hear and go slowly mad in his attempt to decide what manner of creature hath made a nest in the wiring of such equipment.

(Repeater Report, continued from page 1)

146.715 Stoneham N1NVL/r: The Stoneham repeater is now signing N1NVL/r. Thanks to the generosity of Metromedia Paging Services, a spare VHF duplexor was obtained by the MMRA as a free loaner. Chris, N1NVL was able to tune the new equipment to the 146.715/146.115 split of the repeater. This allowed the MMRA to be able to test if the Stoneham repeater could receive and reject noise better without spending club money. This seems to have reduced the interference to the Stoneham machine quite a bit.

WORLDWIDE DISTRIBUTION



Chuck Wyrick

Manager
KM4NZ

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Another problem relating to a noise spike from the power supply was found to be the cause of the repeater re-keying itself. This problem was also repaired after some bench analysis by Chris, N1NVL. Also, a crystal was ordered for a spare Hamtronics receiver to replace the current spectrum receiver for better selectivity/sensitivity.

Thanks also go to Ian McLennen for burning a new EPROM for the new ID for Stoneham. Thanks also to Clark, N1NVK and Kenny, WB1APS for their assistance in re-installing the repeater after the bench work. The next project for Stoneham will be the installation of a new SCOM 7K controller which will restore the autopatch facility to that machine. Stoneham will use the same autopatch codes as Weston when that work is done.

146.820 Weston KA1AL/r: The power output section of 82 has been steadily going down, 82 is currently running low power. A solid state 150w p.a. section was donated by Metromedia Paging Services of Boston from one of their "old" (circa 1982) analog stations. Measurements were taken on it and it was determined that the 4 watt exciter had to be attenuated down to 250mw to properly drive the p.a., Andy, N1BHI designed and built an attenuator that worked nicely, but the potentiometer on the power control circuit was flaky and caused the output to vary. Many thanks to Eric, KA1EEC for his

steady hand in drilling and taping into the heat sink to mount a fan, along with his overall help, Andy, N1BHI for help in figuring out where everything should tie in and Clark, N1NVK for helping. Special thanks to Frank, W1JDO for coming to the rescue when we needed a drill and tap set (and the expertise in mounting the fan), and thanks to Dottie, N1BHA for letting Frank come up and play with us at the site. As of this writing, the power control circuit still needs work before the new amp goes on line.

449.925 Marlboro N1HBR/r: The 12 volt supply that powers not only the repeater but also all controls for the shed plus the 145.030 digipeater was a bit on the edge of it's limits for continuous operation. One of the problems was that we need reserve capacity to recharge the batteries used for emergency back-up power. A new Astron 50 amp supply was ordered and the 35 amp supply currently on line will be used to drive the new p.a. in the Weston 146.82 machine. According to Walter, N1HBR the shed will also be getting a new battery for more "talktime" during power outages.

146.670 Quincy KA1HKP/r: - Mike Landes reports that the noises on .67 heard were only occurring when the machine was on high power and that further testing would be needed to determine the exact problem.

223.940 Hopkinton N1BHI/r: - The link audio problems should be solved within the next month.

146.610 Marlboro N1BHI/r and all other 220 machines - no problems and/or changes to report.

There are several projects that need to be done. Maybe you don't have the time to put into a repeater, but there will be plenty of things that can be done on a one time basis. A good example is Weston, the new p.a. needed a fan installed. I found people with the talents to mount it up. Maybe you have a talent we could use, we will be building some interface boxes for each of the SCOM 7K controllers, maybe you could help with wiring one in, Stoneham will need some re-racking of equipment.

Other stuff coming up:

We need you (yes you) here's the deal. I need you to volunteer for a project. Just one is all I ask. If I can get each of the members to contribute something to each of the repeater projects, we'll have a great system, and you'll have the satisfaction of knowing you have a part in it. Send your information along with ideas you have to the MMRA PO Box 2282 Lexington, MA 02173 attn: Chris Conti / N1NVL - thanks!

Minuteman Repeater Association, Inc.
P. O. Box 2282
Lexington, MA 02173

A Non-Profit Communications Organization Serving the Public in Time of Emergency.

-Application for Membership-

- ☐ New or ☐ Renewal
☐ Individual Membership (Dues \$25 per year) ☐ Family Membership (Dues: \$35 per year)
☐ Novice Membership (1st year dues: \$10)

I hereby apply for Membership in the MINUTEMAN REPEATER ASSOCIATION, INC. I agree to abide by the rules and regulations of the Association as stated in the By-Laws, and understand that acceptance of this application entitles me to all rights and privileges of membership as provided under the By-Laws.

Signature: _____ Date: _____

Name: _____ Callsign: _____ Class of Lic: _____

Home Address: _____

Home Phone#: _____

Work Address: _____

Work Phone#: _____

Member of: ARRL? _____ Other Clubs? _____

Equipment Available for Your Use:

Type	No.	Mobil	Port.	Fixed	DTMF	FM	SSB	Packet	CW	Patch	Rtty
HF	_____ <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VHF	_____ <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
UHF	_____ <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I can and am willing to assist/serve the Association an/or help maintain the Repeaters in the following ways (check all appropriate boxes)

- | | | | |
|---|---|---|---|
| <input type="checkbox"/> Antennas | <input type="checkbox"/> Flea Market | <input type="checkbox"/> Public Service | <input type="checkbox"/> Equipment Transportation |
| <input type="checkbox"/> Receiver | <input type="checkbox"/> Legal Aid | <input type="checkbox"/> Education: | <input type="checkbox"/> Technical Documentation |
| <input type="checkbox"/> Xmitter | <input type="checkbox"/> Refreshment | <input type="checkbox"/> CW <input type="checkbox"/> Theory | <input type="checkbox"/> Schematic Drawing |
| <input type="checkbox"/> Logic | <input type="checkbox"/> Newsletter | <input type="checkbox"/> Medical Aid | <input type="checkbox"/> Tech Committee-Rptr: _____ |
| <input type="checkbox"/> Telephone | <input type="checkbox"/> Special Projects | <input type="checkbox"/> Meeting Set-up | <input type="checkbox"/> Control Op.-Rptr: _____ |
| <input type="checkbox"/> Publicity | <input type="checkbox"/> Assoc. Officer | <input type="checkbox"/> Bldg Construction | <input type="checkbox"/> Bd of Directors |
| <input type="checkbox"/> Equipment Construction | | <input type="checkbox"/> Field Day | <input type="checkbox"/> Emergency Comm. |
| <input type="checkbox"/> VE Team(Gen/Adv/Extra) | | <input type="checkbox"/> Other-Specify: _____ | |

Please return this form with your Dues to:

MMRA
PO Box 2282
Lexington, MA 02173

Weston	146.82	KA1AL/R	PTL	P	
Marlboro	146.61	N1BHI/R	FTL	P	
Marlboro	449.925	N1HBR/R	FTL	P	MMRA
Stoneham	146.715	N1DKZ/R	PTL	P	Repeater Information
Quincy	146.67	KA1HKP/R	PTL	P	
Quincy	224.40	KA1CLX/R	FTL		
Weston	224.70	N1HBR/R	FTL		
Hopkinton	223.94	N1BHI/R	FTL		

FTL=Full Time Linked PTL=Part Time Linked P=Autopatch

Flea Market Calendar

Got some money that's burning a hole in your pocket, seen something recently that you can't control your urge to own, well this is the page you're looking for!

New England Area Major Flea Market *** DATES *** 1993 P 1 of 2
 All events are Ham Radio/ Electronic related except ~~~~~

 1993 Contact Source

11 Sept Windsor ME @ Fairground \$3@7AM	Skeet KA1LPW	207 622 2915	
12 Sept Gaithersburg MD FAR @Mg Cty FG \$5@6A- \$7TG	Nancy Drahim	703 691 0078	J
12 Sept S Dartmouth MA SE Mass ARA 8A-	Dan N1HCV	508 933 0678	
18 Sept Forestdale RI RIFMRS @VFW 8A	Rick K1KYI	401 725 7505	
18 Sept Berlin VT CVARC @NG Armory 9-3 \$3 Ta\$8 TG\$4	Tom WALYNU		F+
19 Sept Cambridge MA FLEA at MIT	Nick	617 253 3776	F
19 Sept Sandy Hook CT Candlewood ARA	Harold KB1US		A
22-25 Sept Rochester NY Antique Radio Assn @Marriot	Bruce W2ICE		+
25 Sept Greenbush ME WCSN/BARC @WCSN xmtr	Ed Cockburn	207 732 4366	
26 Sept Framingham MA @ HS \$12@8 \$5@9 \$2@10	Barry WN1N	508 877 4947	F
26 Sept Yonkers NY Metro 70 ARC	Otto WB2SLQ	914 969 1053	A
26 Sept Vernon CT Natchaug ARC	Wayne N1GUS		A
3 Oct Queens NY Hall of Science ARC 47-01 111st	Arnie WB2YXB		A
10 Oct Durham CT Nutmeg @FG 4pm sat set up	Jim N1IZF	203 349 3353	F
10 Oct Poughkeepsie NY Mt Beacon ARC	Ken KL7JCQ	914 485 9617	A
15,16 Oct Rochester NH Hoss Traders @FG ex13 off rt 16 \$5 noon fri			K1RQG
17 Oct Cambridge MA FLEA at MIT	Nick	617 253 3776	F
3rd Sunday Each Month April thru October			
23,24 Oct Waltham MA Photographica 10-5 \$5 "photo" (bef 9PM)		617 965 0807	F
30 Oct Nashua NH NE Antique RC \$5@8 \$1@9 @ Res Ctr Church	Ray	508 865 1290	
13 Nov Plymouth MA Mayflower RC @Mem Hall 9-3 sell@8	Jim NM1F	508 747 2224	
13 Nov Boston MA Metro Radio Sys 808 Comm Av 11-5 s\$35	Julie	617 969 3000	+
14 Nov Branford CT SCARA @intrm sch	Brad WA1TAS	203 265 9983	T
22 Jan Nashua NH NE Antique RC \$5@8 \$1@9 @ Res Ctr Church	Ray	508 865 1290	
27 Feb Westford MA Boston Antique RC	John	508 371 0512	T
17 April Cambridge MA FLEA at MIT	Nick	617 253 3776	F
3rd Sunday Each Month April thru October			
29 30 April 1 May Dayton OH			F
15 May Cambridge MA FLEA at MIT	Nick	617 253 3776	F
5 June Newington CT @HS Flea + ARRL HQ OH	Al N1JWF	203 747 1925	T+
19 June Cambridge MA FLEA at MIT	Nick	617 253 3776	F
17 July Cambridge MA FLEA at MIT	Nick	617 253 3776	F
21 Aug Cambridge MA FLEA at MIT	Nick	617 253 3776	F
18 Sept Cambridge MA FLEA at MIT	Nick	617 253 3776	F
1-2 Oct Boxboro MA NE Div Conv.	Gene W1VRK		A
16 Oct Cambridge MA FLEA at MIT	Nick	617 253 3776	F

Source F= Flyer J= John Roberts list A= ARRL list WR NV 73 CQ QST = Mags
 T= tentative early info D= W1DL + = new info this month

This list has been compiled from many sources. While we believe the info to be accurate the author can not be responsible for changes or errors.

Check with the sponsoring organizations for more details.

This list will be posted monthly to Usenet if additions have been made.

Mailed copies are sent when additions are made.

Additions/ Corrections via Internet wlgs1@athena.mit.edu

TCPIP wlgs1@gw.wlms.ampr.org

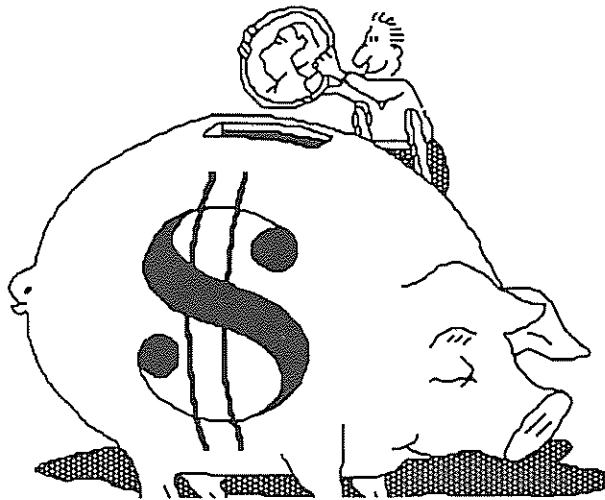
AX.25 wlgs1@walphy.ema.ma.usa

US Mail W1GSL POB 82 MIT Br Cambridge MA 02139

SASE for updated copy as issued.

Reprinted with permission of W1GSL, tnx Stephen.- KD1GG

Treasurer's Report



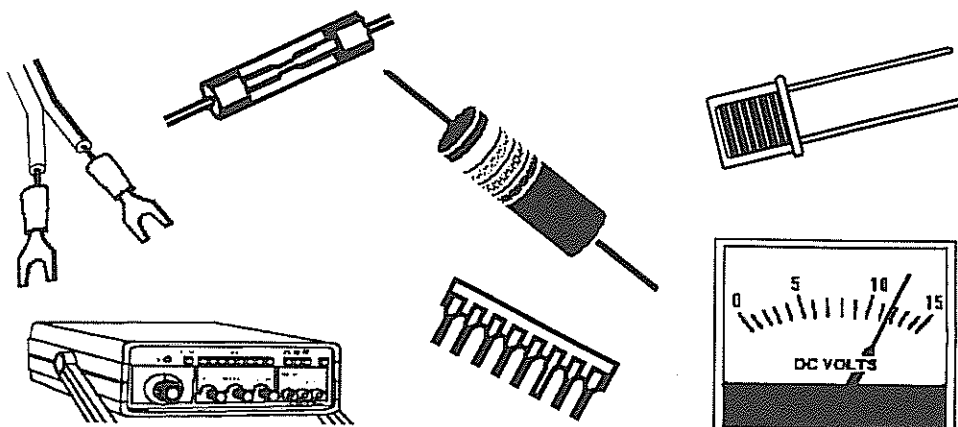
	1993	1994	
Income:	Actual	Budget	
Dues	7441.75	7500	
Flea Market	1305.00	1000	
Raffles	189.00	200	
Advertising	0.00	0	
Misc.	165.22	0	
Total	9100.97	8700.00	
Expenses:	Actual	Budget	Capital Equipment for 1994
Administration	4014.29	3900.00	-none-
N1BHI-146.61	286.43	540.00	electrical tools
KA1HKP-146.67	137.42	1130.00	SCOM 7K controller & link radio
N1NVL-146.715	1464.37	530.00	power supply & link radio
KA1AL-146.82	1125.69	480.00	link radio
N1BHI-223.94	0.00	200.00	receiver
N1BHI-224.40	137.42	100.00	-none-
N1HBR-224.70	241.09	100.00	-none-
N1HBR-449.925	654.26	800.00	power supply
KA1OUI-145.03	152.03	150.00	-none-
R&D/Contingency	31.92	500.00	-none-
Field Day	182.96	250.00	-none-
Total	8427.85	8680.00	

Details of 1994 Administration	
newsletter	1500.00
meetings	300.00
president's account	50.00
secretary's account	300.00
treasurer's account	100.00
flea market	400.00
insurance	950.00
P.O. Box	100.00
miscellaneous	200.00
Total	3900.00

Balance on Sept 1, 1992
5291.84

Reserved for Test Equipment Fund
1757.20

Things to Build



Radio Packratting For Fun And Profit

by Brad Thompson N1JII

(Copyright (c) 1993 by Brad Thompson)

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If you're a newcomer to amateur radio, chances are you think of packrats only as denizens of the desert who stash all kinds of useless objects in their nests. With a little effort, you can join the ranks of another species-- the amateur radio packrat. Unlike their four-legged namesakes, radio packrats collect stuff for several reasons.

Most amateurs build (or want to build) radio accessories and projects but become frustrated when searching for components-- most of the old-time electronic surplus outlets vanished years ago, and Radio Shack stores stock only a few kinds of basic parts.

Also, in today's economy many of us can't afford to pay premium prices for electronic components, and recycling some of the electronic junk generated by our throwaway society offers an economic and ecological payoff.

Think of electronic salvaging as manufacturing-in-reverse: you disassemble what someone else has built. You'll need basic hand

tools--Philips and flat bladed screwdrivers, slip joint pliers, and heavy-duty diagonal cutters-- to penetrate the packaging.

Once inside, you'll need tools to unsolder components-- a soldering iron, vacuum solder-remover or solder-absorbent wick, needle-nose pliers, small-jawed diagonal cutters, and a small, flat-bladed screwdriver or soldering aid tool.

Study equipment before you disassemble it. Trace circuit connections leading into and out of unfamiliar components. When you remove a component, use a Pilot ultra-fine point permanent marking pen (or equivalent) to label each component's function, estimated operating frequency, and the date of salvage. If you record a component's connections in a laboratory notebook, mark the component with a book and page number for future reference.

Safe Packratting

Like most hobbies, amateur radio packratting has its hazards. Here's a list of safety suggestions.

-- Always provide mechanical support for what you're working on

--use a bench or tabletop, and not your lap.

-- Wear safety glasses or goggles, old clothes or a denim shop apron.

-- Work in an area free from small children, pets, beloved and easily-damaged knickknacks, expensive furniture and carpets.

-- Pick up dropped components immediately, an overlooked integrated circuit can inflict a painful 14-point dual-inline puncture wound on a bare foot.

-- Wear lightweight cotton gloves to protect your hands-- the soldered sides of PC boards contain more sharp points than a political debate.

Disassembling electronics can bring you into contact with hazardous substances. Molten solder flows and splashes like water and clings like napalm, melting its way through nylon carpets, polyester fabric and

rayon muu-muus and inflicting painful burns if you try to brush it away. Desoldered wires and component leads can spring free from connections, flipping blobs of hot solder in all directions (wear your safety glasses).

Electronic solder contains lead and tin-- heavy metals that are hazardous to your health if you ingest them. Never hold a strand of solder between your teeth. Get someone to lend you a third hand. Also, leftover solder flux and printed-circuit board coatings emit acrid fumes when heated. Use a fan to draw air away from your workbench when you're desoldering parts.

Older military equipment marked "MFP" contains a coating of moisture and fungus-proof varnish. When heated with a soldering iron, the coating liberates traces of mercury, another poisonous heavy metal. Work on this equipment only in well-ventilated quarters.

Improvise or purchase a soldering-iron holder. Nothing concentrates one's attention as wonderfully as a hot soldering iron that rolls off the workbench and drops into one's lap.

If you're disassembling a TV set or equipment containing a cathode-ray tube (CRT), handle the tube carefully! Nicking or scratching the tube's glass envelope or neck can cause an implosion as air rushes into the tube's vacuum and flings shards of glass in all directions. Handle CRTs as if they were unexploded bombs (they are).

Certain electronic components contain hazardous substances. For example, oil-filled capacitors and amateur radio dummy-antenna loads manufactured prior to the early 1970s contained a dielectric fluid (the "oil") consisting of polychlorinated biphenyl compounds (PCBs). Avoid

disassembling or opening these components, and wash your hands immediately if you contact PCB fluids.

Voltage-regulator tubes bearing numbers such as 0C3 or VR-150 contain small amounts of radioactive compounds that provide ions for the tubes' operation. Some old-style aircraft instruments contain radium compounds to provide glow-in-the-dark scale markings. Also, some antique rectifier tubes (e.g., types 866-A and 83) contain a few drops of mercury visible as movable metallic splashes inside the tubes.

Some semiconductors, mostly RF power devices, contain beryllium-oxide insulation, usually tinted pink to distinguish it from nontoxic aluminum-oxide insulation used for less-critical applications. Never crush or grind beryllium oxide, a toxic substance when inhaled or trapped in a wound or cut.

Silver-cased tantalum capacitors, now mostly obsolete but found in military electronics, contain small amounts of sulfuric acid-- discard any that show signs of corrosion or leakage.

Now that we've covered the safety hazards, we'll look at some salvage strategies in Part Two of this series which will appear in the next issue of The Minuteman.

Cable TV RF Leakage Study

NEWSLINE RADIO - CBBS
EDITION #75

The FCC has announced the results of a recent project to enforce its cable television leakage standards and what it found in a March sweep was a mixed bag of news for the cable industry. According to the Commission, the investigation included the monitoring of 321 cable TV systems, their visiting eight

systems to discuss operator measurements, and the closing down of one system for violating the FCC's Cumulative Leakage Index limit. The system which was taken out of service was found to have a small number of significant leaks, according to the FCC. The FCC says that it has sent letters to 1,550 cable TV operators, issued 112 complimentary letters to clean systems, but also dinged 73 cable system operators violation letters. The commission adds that it plans another monitoring project later this year to gauge the effect of its enforcement and education efforts. During the sweep, the Commission's Enforcement Division focused on cable systems which it felt could pose a danger to public service radio communications, such as aeronautical, police, fire and other such services.

CONGRESS SUPPORTS HAMS

NEWSLINE RADIO - CBBS
EDITION #75

Another joint resolution of Congress to recognize the achievements of radio amateurs, and to establish support for radio amateurs as national policy, has been introduced as House Joint Resolution 199. It is identical to Senate Joint Resolution 90, introduced in the Senate in early May. House sponsors of the measure are Representatives Mike Kreidler of Washington and Jim Cooper of Tennessee. They have been joined by 15 additional co-sponsors.

*Deadline for Article
Submission for the
next Minuteman is
October 26.*

The Minuteman

Newsletter of the Minuteman Repeater Association - Sept/Oct 93
Volume 23 Number 1

MMRA Repeaters:

Weston	146.82	KA1AL/R	PTL	P
Marlboro	146.61	N1BHI/R	FTL	P
Marlboro	449.925	N1HBR/R	FTL	P
Stoneham	146.715	N1DKZ/R	PTL	P
Quincy	146.67	KA1HKP/R	PTL	P
Quincy	224.40	KA1CLX/R	FTL	
Weston	224.70	N1HBR/R	FTL	
Hopkinton	223.94	N1BHI/R	FTL	
FTL=Full Time Linked		PTL=Part Time Linked		P=Autopatch

MMRA Officers:

President:	Andy Morrison, N1BHI	508-481-3878	
Vice President:	Walter Ching, N1HBR	508-481-0994	
Secretary:	Frank Morrison, KB1FZ	508-443-6047	
Treasurer:	Ian MacLennan, AF1R	617-449-1227	
Clerk:	Al Williams, KA6BUV	508-369-0717	
Directors:	Tom Qualtieri, WB1GMA	617-329-9151	Al Kunian, KA1AL
	Chris Conti, N1NVL	508-	Mike Ryan, KD1OA
	Bob Levine, KD1GG	508-485-7006	872-2912 (office) (unlisted)

Newsletter Editor:

Important MMRA Club Information:

Membership Meetings: 3rd Tue of Sept, Nov, Jan, Mar, May at Campion Center, Weston at 7:30pm
Meeting Dates for 1993-94 Season: September 21, November 16, January 18, March 15, & May 17.

Board Meetings: 3rd Tue of Oct, Dec, Feb, Apr. Meetings are open and members are welcome.
If a visiting member wants to be on the agenda, please contact Andy Morrison beforehand.

MMRA VE Sessions: Saturday Sept 11, Saturday October 9, Saturday November 13, Saturday December 11 (all 9am at the Marlboro Public Library)
Contact Bob KD1GG (508) 485-7006 for information and reservations

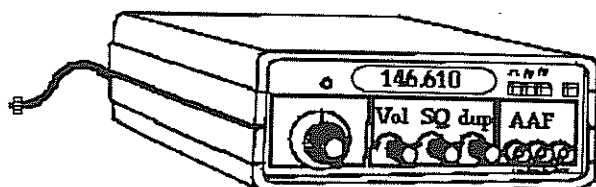
Newsletter Information	September issue	November issue	January Issue	March Issue	May issue
Mailing Date	done!	November 9	January 11	March 8	May 10
Submission Deadline	done!	October 26	December 28	February 22	April 26

The MMRA is dedicated to Amateur Radio and the public service. The MMRA is a registered non-profit Massachusetts corporation. Membership is open to all amateurs. Annual dues are \$25.00 individual, \$35.00 family.

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Lexington, MA 02173

TO:



First Class Mail