



★ THE ★ MINUTEMAN

THE OFFICIAL NEWSLETTER OF THE MMRA

Volume 6

July, 1976

No. 1

MMRA ELECTS NEW BOARD

President	Merrill Callum (Cal), WIIE
Vice-President	William Sencabaugh (Bill), KUAQ
Secretary	Robert Clements (Bob), KLYB
Treasurer	David Thornburg (Dave), WAIMJD
Clerk	Charles Wood (Chuck), WIZYB
Directors	Robert Wilmarth (Bob), WICMR 1976-78 Stephen Rudin (Steve), WWSN 1976-78 John Schmock (Jack), WIDXQ 1975-77 Allen Bacon (Al), WAIMSK 1975-77

The Annual Meeting of the MMRA was held on May 27, 1976 at GTE Labs in Waltham. More than eighty members were present, thus constituting a legal quorum. Due to the fact that members were not notified of the meeting by mail, WAIQLI moved to waive the By-Laws requirement. The motion was seconded and passed by a vote of 65 in favor to 13 opposed after some discussion. This was greater than the necessary 2/3 majority. After the election took place, outgoing President Lou Savoie announced that he would exercise his option to sit on the Board as its tenth director. Lou summarized the progress of the past year, and made some recommendations for the coming year. These included a planning committee to direct the technical crews, and a coordinated effort to standardize, modernize and update all the Association's equipment. He thanked the outgoing Board and turned the meeting over to our new President, Merrill Callum. Cal briefly outlined his hopes for a harmonious year and a productive one, and asked for the cooperation of the membership.

This year's election was a milestone in MMRA history. We had a record number of candidates this year, and we congratulate the winners. Those who did not make it cannot be looked upon as losers, however, because their interest has strengthened the organization. We hope that they will involve themselves on the many committees of the MMRA, and will run again another year. Each member of the new Board of Directors is open to comment and criticism, and a complete list of their names and addresses will appear in the next issue of the Minuteman. Meantime, your President can be contacted at Bio-Design, Inc., 65 Tosca Drive, Stoughton, MA 02072. Telephone number 828-1220.



A Word From The PRES....

I am delighted with the spirit and interest you are showing for MMRA. We look forward to continuing harmony within the membership and we can do many great things with your cooperation. The Board of Directors has had one meeting and is working on a number of things, including the new budget. I am very pleased to announce the appointment of Steve and Cindy Rudin as Co-Editors of the "Minuteman", Rod Cauvel as Chairman of the Planning Committee, Bob Wilmarth as Planning Committee Vice Chairman, and Jack Ferguson as Nominating Committee Chairman. Mike Goldberg has consented to continue as Education Chairman.

We are considering holding a flea market instead of our annual auction. While the auction has been very successful in terms of membership involvement and dollars taken in, the actual profit has been smaller than hoped for. Our expenses have been high. Hopefully, a flea market would be cheaper to run. Your comments for or against this idea are solicited.

I want to compliment the hard-working tech crew of the Stoneham repeater. It sounds great, so please use it. Thanks, all of you.

73's Cal

de K1GGP-

"Ten Commandments" from Echo Repeater Association's publication

- I. Thou shalt listen before thou transmitteth, to insure that Ye have not smitten another's signals.
- II. Thou shalt giveth way to stations with emergencies.
- III. Thou shalt partake in the conversation at hand, and shalt not disreputeth the orderly flow thereof.
- IV. Thou shalt desist thy signal when the voice of Thy signal weaketh.
- V. Thou shalt not commit doubling, and insure you have the air by lifting Thy PTT button - and listeningeth.
- VI. Thou shalt not killeth the machine by allowing the wind of Thy signal to exceedeth the great timer.
- VII. Thou shalt not smiteth another's signal intentionally, lest he smiteth you on the nose.
- VIII. Thou shalt cleanse Thy signal of impurities - and putteth slef on proper frequencies.
- IX. Thou shalt not call Thy boss on "auto-patch" - and use only when needed.
- X. Thou shalt tithe accordingly, to keep Thy repeater club "Above water" - and on the air.

de K1LJN - There will be a Hamfest in Boston Sept 11-13 at the Boston Sheraton Hotel. Arrangements have been made with the FCC to give general, advanced and extra class license exams on the morning of the eleventh. Those interested should fill out a form 610 and a \$4.00 check and mail to Mike Goldberg, 40 Isabella St., Melrose 02176, by Sept. 1. This is your chance to upgrade without losing a day's pay!

NEWSLINE

Our newly amended By-Laws have been revised and reprinted, and were passed out to those in attendance at the election meeting. We will reprint same in a future issue of the Minuteman, but if you can't wait and would like a copy, please contact our Secretary, Bob Clements, K1YKB.

For this and all other communications, dues, etc., we have a
NEW ADDRESS FOR THE MINUTEMAN REPEATER ASSOCIATION

MMRA
P.O. Box 2282
Lexington, MA 02173

We hope you will like the format of the newsletter this year. We hope you will send us your comments, articles, information, want-ads and any other news. Your mail will reach the editors faster if you send it directly to them at

Steve and Cindy Rudin
16 Robichau Circle
Stoughton, MA 02072

Please take your copy of the Minuteman to your favorite ham dealer, and show it to your favorite salesman and manager. We will be contacting most all Boston area dealers shortly regarding advertising in the newsletter. This is a great opportunity for them to reach active hams for a small investment, and good for MMRA too!

Stoneham: 645-045 is alive and well and putting out 10 watts in the North country. Please crystal up and get on. Most dealers now have crystals either on the shelf or on order. Bill, K1UAQ and the valiant crew would like some reports on the repeater's performance. It's now been worked as far south as Fall River!

The Officials of the Town of Stoughton wish to thank each and every one of you who gave of your time to make our gala Parade and Country Fair the successes they were. It was through your efforts that public safety and coordination were so efficiently carried on.

Please bear in mind the commitment that MMRA has made to assist in communications for the Boston Bicentennial on July 4. A special page of this issue is devoted to this important effort. Please read it and return the attached coupon post-haste!

TECHNICAL TOPICS

THE UPS AND DOWNS OF TOWERS (PART III)

Our task this month is to calculate forces to counteract the force (70853 ft. lbs.) trying to overturn your tower.

1. The concrete foundation:

A foundation can be described as a cube of concrete of sufficient weight and strength to support the weight of the tower, antennas, etc., and the overturning moment.

A cube can be stated as: side x side x side or $\text{side}^3 = \text{volume}$ (algebraically $V = S^3$)

Concrete weighs 150#/cu. ft.

The counteracting force (or weight of concrete) can be assumed to act at a distance of $1/2$ the distance from a side or $\frac{S}{2}$.

Therefore the equation necessary to determine the dimensions of the concrete foundation is as follows:

$$\text{Ft. Lbs.} = S^3 \times 150\#/\text{Cu. Ft.} \times \frac{S}{2}$$

$$\text{or Ft. Lbs.} = 75 \times S^4$$

2. Using the force calculated in Part II (70853 ft. lbs.)

$$70853 = 75 S^4$$

Dividing 70853 by 75 and pushing the square root button will give us 30.736+ — now push the square root button again (you have taken the fourth root of a number!) you should have 5.54.

This number (5.54) is the width, length, and depth of concrete required to keep our hypothetical tower and antennas upright.

2. a) Another handy equation to solve for length and width if a depth is preselected.

$$\text{Ft. Lbs.} = \text{Depth} \times 150 \times \frac{S^3}{2}$$

$$\text{or Ft. Lbs.} = \text{Depth} \times 75 \times S^3$$

Assuming the same conditions as in 1 but with a 4' depth:

$$70853 = 4 \times 75 \times S^3$$

divide 70853 by 300 then derive the cube root of the result. (By trial and error if your calculator does not have Y^x function.)

CONTINUED

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3. Now the guy wires:

The 70853 ft. lbs. previously calculated can be stated as many combinations of pounds x feet — for example:

$$70853\# \quad x \quad 1 \text{ foot} = 70853 \text{ ft. lbs.}$$

$$7085.3\# \quad x \quad 10 \text{ feet} = 70853 \text{ ft. lbs.}$$

$$1180.88\# \quad x \quad 60 \text{ feet} = 70853 \text{ ft. lbs.}$$

For optimum results guy wire should be anchored at a distance equal to the height on the tower at which they are attached. Since this is not always possible we will assume anchors 50' from the tower and calculate accordingly.

$$a) \text{ divide } 70853 \text{ by } 60 = 1180.88\#$$

$$b) \sqrt{50^2 + 60^2} = 78.102'$$

$$c) \frac{1180.88}{50} = \frac{x}{60} = \frac{y}{78.10}$$

$$d) \text{ Solve for } x \text{ \& } y \quad \begin{array}{l} x = 1417.06\# \\ y = 1844.53\# \end{array}$$

$$e) Y = \text{stress on guy wire} = 1844.53\#$$

(Select guy wire with breaking strength 4 times this value = 5/16" H.S.)

Don't bother to calculate any guys other than the top set — stress is less on the lower guys so use the same guy cable as the top set.

4. Guy Anchors:

Guy anchors can be calculated as tower footings

$$V = S^3 \quad \text{Weight} = S^3 \times 150\#/\text{cu. ft.}$$

In the previous calculation we found a value for X which represents the force trying to lift the anchor out of the ground. To allow for additional moment (the force trying to pull the anchor toward the tower) double the X value
 $1417\# \times 2 = 2834\#$

$$2834\# = 150\#/\text{cu. ft.} \times S^3$$

$$\text{divide } 2834 \text{ by } 150 = 18.89$$

$$\text{extract cube root} = 2.66' = 32'' \text{ cube}$$

Note: If you don't have the function Y^x on your calculator try trial and error as follows (trying to get as close as possible to 18.89). Example:

$$2 \times 2 \times 2 = 8 \text{ too low}$$

$$3 \times 3 \times 3 = 27 \text{ too high}$$

CONTINUED

Answer lies between 2' and 3'

$$2.5 \times 2.5 \times 2.5 = 15.625 \text{ too low}$$

$$2.75 \times 2.75 \times 2.75 = 20.797 \text{ too high}$$

$$2.6 \times 2.6 \times 2.6 = 17.576 \text{ too low}$$

$$2.7 \times 2.7 \times 2.7 = 19.683 \text{ too high}$$

Answer lies between 2.7 and 2.6 etc., zeroing in on final answer!

That's all you need to put a tower up and keep it there. Good luck!

de WALIMS

P.S. If there is any interest I have roughed out an outline on concrete tips, reinforcing, placing concrete, etc.

\$ Treasurer's Report \$

STATEMENT OF FINANCIAL CONDITION 5/13/75 - 5/26/76

INCOME

Dues	\$6580.00
Sales	287.90
Raffles, Misc.	955.99
Auction	<u>1591.57</u>

Total Income \$9415.46

EXPENSES

Rent	\$ 445.00
Telephone	854.07
Newsletter	526.15
Meetings	425.00
Weston Repeater	278.90
Quincy Repeater	484.79
Marlboro Repeater	52.80
Stoneham Repeater	1430.19
Administrative	203.15
Auction	832.45
Public Service	27.40
Raffles, Misc.	102.95
Secretary	217.98
Treasurer	100.46
Legal, filing fees	170.00
Insurance	127.00
Field Day	69.33
Miscellaneous	21.66
Debit Memos	<u>165.00</u>

Total Expenses \$6534.28

Income \$9415.46

Expenses 6534.28

Balance 2881.18 (ledger)

2881.18 (check account balance)

Submitted by: Lucinda A. Rudin, Acting Treasurer



FROM WASHINGTON COMES THIS NEWS ON FCC DOCKET 20282

FCC action on Docket 20282 came late last week. Novices and Technicians benefit the most!

Technicians receive full Novice privileges. CW on 80, 40, 15 and 10 meters. Technician exams will no longer be administered by mail - only by FCC offices.

Novices receive two benefits: power limits have been raised to 250 watts, and novices may continue after license expiration by taking another Novice exam. The one-year delay waiting period between Novice tickets has been dropped.

All stations, of ANY class of license operating on Novice frequencies will be limited to 250 watts of power.

No mail exams will be given except for Novices or those with physical handicaps.

ALL PRESENT HOLDERS OF TECHNICIAN (CONDITIONAL) AND REGULAR CONDITIONAL licences will be "grandfathered" into straight Technician and General class licenses as their present tickets come up for renewal! Thus, without re-taking the written exam, a present Technician class licensee would be eligible to become a General by taking the code test only before an FCC examiner!

The effective date for the new rules change is 23 July, 1976!

The foregoing courtesy ARRL and HR Report!

MMRA CODE AND THEORY CLASSES NEEDS YOU!

Know anyone who's interested in ham radio classes? Mike, K1LJN, needs help. He needs additional instructors and additional places for classes to meet. We can help a lot more people to become hams if we make it convenient for them to attend classes - so we'd like to have classes in several different locales, with a number of instructors. Mike is working on a curriculum guide so that classes will be fairly uniform and the task won't be too scary for a newcomer to teaching. With the Worldwide Amateur Radio Conference coming up, we had better put some real effort into swelling our ranks!

Any ideas for a Question-and-answer column? Letters to the Editors? Topics of special interest? Ladies activities (YLRL, WRONE, etc.)? Let the editors hear from you!

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BUY & SELL



FOR SALE: Collins 75S3, 32S1, 516F2. Gove over by Collins technicians and may be tried at my shack. \$850.00. Also, Mint Gonset G50, 6 meter transceiver. \$100.00. Murry, K1GGP, 698-7198 before 10 pm.

FOR SALE: 2 meter Motorola Metrum II, manual, new DC cord, crystals for 52, 04-64, 07-67, 13-71, 16-76, 19-79, 22-82, 25-85 28-88, 34-94. Also will work simplex on any of above output frequencies. 1/25 watt, with measured 28-30 watts. 14 months old, like new. New: \$550.00, Sell \$250.00 Jim, WA1QKK 897-2943.

FOR SALE: 2 meter crystals for SBE144 FM transceiver: 07-67, 13-73, 28-88 and 31-91. \$7.00 a pair. Joe, W1RRN, 664-3851

FOR SALE: Clegg FM27B. Very hot receiver, recently aligned. Transmitter 25 w. output, 146-148 MHz, with 12V power cord. Transmitter needs one potentiometer only, otherwise excellent. Going ICOM, will sacrifice \$250.00. Bob, W1UXL, 769-1923

NEEDED: For a non-profit summer camp, SSB/CW transceiver or xmtr and receiver, in working condition, either as a loan or donation. Donations tax deductible. Also needed, general coverage rcvr for SWL. Contact Arnie, WA1SLK, 426-1832 work, or 784-8969 at home before 10 pm.

NEEDED: Socket for 4CX250 with built-in screen bypass capacitors. Need for home brew amplifier, stuck in middle without socket. Woody, W1WK 479-0430 before 10 pm.

FOR SALE:

For Sale. All equipment in first class like new condition. Heathkit HW-7 QRP and AC power supply \$65. Clegg FM27B latest model 4 pos. rotary switch and all modifications \$295. Collins KWM-2 with Waters Rejection Tuning, NEVER MOBILE, \$695. Collins 312B-4 \$150. Collins 399 C-1. Collins 516F-2 \$135. Collins MP-1 \$175. Collins 51J4 w/3 filters and NEW Tubes \$395. Collins KWM-1 with NEW SET RCA spare tubes \$295. Henry 2K like new w/4 NEW SPARE tubes and 2 NEW SPARE 3B28's \$550. Prefer local pickup and inspection, but will ship Prepaid. Bob Anderson, 428 Central Ave., Milton, MA. 698-9337 evenings, 227-2981 days.

FOR SALE: Collins 32S1, mint condition, spinner knobs, manual \$375. W1BGW, 327-8950.

DEADLINE for want ads, for sale, ANY material for the Minuteman is fifteenth (15th) day of the month preceding publication. That is, material for publication in the September issue must be received no later than August 15th!

MMRA assumes no responsibility for claims made in classified advertising.

2 METER CRYSTALS IN STOCK

We can ship C.O.D. first class mail. Orders can be paid by: check, money order, Master Charge, or BankAmericard. Orders prepaid are shipped postage paid. Phone orders accepted. Crystals are guaranteed for life. Crystals are all \$5.00 each (Mass. residents add 25¢ tax per crystal). *U.S. Funds Only*

We are authorized distributors for: Icom and Standard Communications Equipment. (2 meter)

Note: If you do not know type of radio, or if your radio is not listed, give fundamental frequency, formula and loading capacitance.

LIST OF TWO METER CRYSTALS CURRENTLY STOCKED FOR RADIOS LISTED BELOW:

- | | |
|--|---------------------|
| 1. Drake TR-22 | 6. Regency HR-2B |
| 2. Genave | 7. S.B.E. |
| 3. Icom/VHF Eng. | 8. Standard 146/826 |
| 4. Ken/Wilson /Tempo FMH | 9. Standard Horizon |
| 5. Regency HR-2A/HR212/Heathkit HW-202 | 10. Clegg HT-146 |

The first two numbers of the frequency are deleted for the sake of being non-repetitive. Example: 146.67 receive would be listed as - 6.67R

1. 6.01T	9. 6.13T	17. 6.19T	25. 6.31T	33. 6.52T	41. 7.03R	49. 7.15R	57. 7.27R
2. 6.61R	10. 6.73R	18. 6.79R	26. 6.91R	34. 6.52R	42. 7.66T	50. 7.78T	58. 7.90T
3. 6.04T	11. 6.145T	19. 6.22T	27. 6.34T	35. 6.55T	43. 7.06R	51. 7.18R	59. 7.30R
4. 6.64R	12. 6.745R	20. 6.82R	28. 6.94R	36. 6.55R	44. 7.69T	52. 7.81T	60. 7.93T
5. 6.07T	13. 6.16T	21. 6.25T	29. 6.37T	37. 6.94T	45. 7.09R	53. 7.21R	61. 7.33R
6. 6.67R	14. 6.76R	22. 6.85R	30. 6.97R	38. 7.60T	46. 7.72T	54. 7.84T	62. 7.96T
7. 6.10T	15. 6.175T	23. 6.28T	31. 6.40T	39. 7.00R	47. 7.12R	55. 7.24R	63. 7.36R
8. 6.70R	16. 6.775R	24. 6.88R	32. 6.46T	40. 7.63T	48. 7.75T	56. 7.87T	64. 7.99T
							65. 7.39R

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2	34/94	4	28/88		

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Reception System	Double Superheterodyne	Transistors 23
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Sensitivity	a. Better than 0.4 u v 20db quieting	IC 3
		Diodes 16

STORE HOURS: MON-FRI: 9 A.M. - 9 P.M. SAT: 9 A.M. - 6 P.M.

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Box 469
Dept. 4676, Quincy MA 02169
617-471-6427



Public Service Committee



HAPPY BIRTHDAY - HELP WANTED!

The American Revolution Bicentennial Celebration will take place in Boston on Sunday, July 4, 1976. It will be held on the Esplanade, at the Hatch Memorial Shell, and will include an exclusive Boston Pops concert and a fireworks display.

It is expected that over 250,000 people will be in attendance, extending from the Shell to Cambridge and the Back Bay. The MMRA Public Service Committee has been asked to coordinate communications for public safety, people movement, crowd control, etc. Over 130 amateurs will be needed to accomplish this.

Two other repeater groups, Waltham (.04-.64) and the South Shore Repeater (.90-.30) will be assisting. MMRA prime frequency will be .07-.67 (Quincy). Other frequencies will be used if necessary, based upon the information provided below.

Because of the nature of the task, portable units or handie-talkies will be required as opposed to mobile units. We must know in advance what stations will assist, for credentials must be made up in advance. We will also have plans of operation made up for you in advance.

PLEASE FILL OUT THE COUPON BELOW AND RETURN IT IMMEDIATELY. You can also furnish the information requested to any Public Service Committee member on the air if you cannot get this item mailed promptly. But LET US KNOW. YOUR HELP IS URGENTLY NEEDED!

BIRTHDAY COMMUNICATIONS

Name _____ Call _____

Telephone _____ Have you a walkie? ()yes () no

Can you work: 07-67 () 04-64 () 22-82 () 90-30 () 19-79 () 52-52 ()

Other frequencies available in walkie: _____

Mail to: S. R. Salow, WALIDA
MMRA - PSC
Box 116
Newton Highlands, MA 02161

P.S. - Spread the word. We need all the help we can get.
This affair should need more coordination then Concord last year!

MMRA

MINUTEMAN REPEATER ASSOCIATION, INC.

P.O. BOX 2282

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W1BPM, 0636, 7610
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