

As I'm sure most of you are aware of by now, the .045 machine was moved to my QTH in LaGrange a few months ago to facilitate a face lifting operation. The software that had been running the last few years was a mess, to say the least. It was originally written and intended to be used only as the various "pieces" of the repeater were built and put online. Not only was it lacking in function, but it was unmaintainable by anyone other than myself, - a bad situation. On May 8th the new software/hardware implant was done. Details of this will be presented at the next Club meeting but in general they include at this time the following:

- Interrupt driven multi-tasking software system
- Software documentation TM flowcharts and listings
- Regenerative touch-tone TM auto-patch
- Emergency "91X" support

Other changes are on the drawing board and are at various stages of completion. One of the first to come online will be a time-of-day function. The repeater will keep track of date and time and can be queried for same. Also, auto-patch logging will be simplified since the software will provide the time and date to the recorder upon patch termination.

A few words about the new auto-patch hardware and procedure. Three modes of operation now exist as follows:

- *1# INPUT DIGITS TO BUFFER AND IMMEDIATE DIAL
- *2# INPUT DIGITS TO BUFFER AND CW ECHO-BACK NUMBER
- *3# DIAL BUFFER CONTENTS

If the auto-patch is disabled, a CW "AP OFF" message will follow all 3 requests. Otherwise, the following will occur: "?" in CW says that the control system did not understand the request, - repeat it again and see what happens.

"R" in CW says to proceed.

If you did a *1# or *2#, the system is waiting for touch-tone TM digits, and to be followed by a #. For instance 4547966#. Upon detection of the # the number is placed in a buffer area. If a *1# was punched up, the dial tone is obtained and the number is out-pulsed in touch tones by the machine using an integrated tone encoder. If a *2# was punched up, then the number is echoed back in CW for your verification and subsequent use in dialing via the *3# command. (The *2# can for now be used as a tone pad test.) A *3# will dial the

number in the buffer provided 5 minutes have not passed since the buffer's last access, in which case the number will have been automatically erased. If a user desires to erase the buffer prior to the 5 minutes, he may do so by a *2#, then waiting for the "R", and then entering a #, and the buffer will be cleared.

The following emergency numbers have been incorporated:

- 911 Dutchess County Sheriff
- 912 State Police (Millbrook)
- 913 Dutchess County Bureau of Fire Dispatch

This means that if one comes upon an emergency situation, help can be obtained by punching up

*1#, waiting for "R", then 91X# where X is a 1, 2 or 3

The software will translate the 91X number into the real number, get dial tone and then dial it for you.

I had a very informative meeting a few weeks ago with the Dutchess County Under-Sheriff, David Gundy. I explained to him the system and the 91X implementation. Dave, himself a former Ham, was very interested and pledged the full support of the Sheriff's department to our incoming calls. Upon identification of ourselves as members of the Mt. Beacon Amateur Radio Club, and the fact that it is a mobile radio call, he has offered the services of the Sheriff's office in dispatching aid to the required area, be it in Dutchess, Putnam, or Podunk Hollow. I look forward to working with Dave and his department in this effort. I plan meetings with the State Police and Fire Dispatching personnel to set up similar agreements.

The Mt. Beacon Amateur Radio Club will hold its annual Family Day Picnic on July 12th, 1981. The picnic will be held rain or shine at Freedom Park in the Town of LaGrange just east of Poughkeepsie. All members, spouses and their children are invited, and the only cost to those who come is a covered dish. There is a playground available for the children with slides and swings. For the OMs and XYs there are horseshoe pits and a soft ball field. So make plans now and reserve July 12th.

More help is needed on the Picnic Committee. We need people who want to cook, and help to clean up afterwards, and especially someone who would like to put together games for the children. If you would like to volunteer please contact Jim WB2WLN at 914/564-2707 or on the 146.97 machine. More information, along with forms to make your reservations will be coming to you in the mail late in June.

TRUSTEE REPORT - 449.575

Ike WB2BQW

The 449.575 repeater has been very quiet lately. The noise problem has not completely disappeared but it is not as frequent as it has been in the past. As of this writing the plan is to remove the machine from Mt. Beacon, do the maintenance (that is long overdue), locate or find out if the noise problem is in the machine or from outside sources, and return it to Mt. Beacon to be re-tuned. Transportation seems to be the obstacle that has held up major repairs for a long time.

The G.E. system has been going strong for many years now, going off only once due to an open screen pot. It is my hope that the maintenance will clean things up a bit, if not improve coverage somewhat. We also hope to add some frills to the repeater, but they are only in the thinking stage now. If anyone has anything that would be of interest in this regard I'd like to hear from you.

PORTABLE REPEATER CONTROL from Ed WA2VZX

Need a quickly set-up portable repeater? Your two transceivers plus borrowing a portable control system from Ed WA2VZX puts you in business for emergency and public service, e.g., 2 mobile rigs back-to-back with the control in-between. The control system, from a commercial solid state SBE marine rig, is currently in a mini-box, but will be mounted on a rack panel. It has a variable timer, variable hang-time, and 3 IDs (currently WA2MMX, WB2COY and WA2VZX). Write Ed for details.

HYDE PARK + HIGHLAND REPEATER from Ed WA2VZX

The 146.28/.88 repeater at WA2MMX location in Hyde Park is up at various times. Currently it is a GE Prog line unit, and when the solid state rig is ready it will be moved to Highland, and tentatively on 146.22/.82 MHz.

A local 2 meter SSB informal roundtable meets at 8 pm on Thursdays on 144.220 MHz. Join 'em! See page 4 of this issue for what's going on here on 2 meters SSB.

It is my hope that when the system is complete, a sticky-backed label with the various access codes and explanations can be made available to Club members. This could be attached to the top of the car sun-visor, ham shack wall, or whatever.

Suggestions and comments are, as always, welcomed. My thanks to Chuck K2NW and Dennis KB2TM for their continued help.

The purpose of this proposed change is to expedite response to the general membership. This change will create two secretarial offices, the Recording Secretary and the Corresponding Secretary. These positions will partition the duties of the current Secretary position into general Club business and correspondence/membership business. This proposal changes Articles III, IV, X, XIII, and XV of the ByLaws. The proposal follows:

Article III, Section 1

The officers of the Club will be the: President, Vice-President, Recording Secretary, Corresponding Secretary, Treasurer, Director of Engineering, and four Directors-at-Large. The preceding officers shall constitute the Board of Directors of the Mount Beacon Amateur Radio Club. The President, Recording Secretary, and Treasurer are designated to serve on the Board of Governors of CVT, Inc. and attend the Corporation's meetings.

(The amendment changes the first use of "Secretary" to "Recording Secretary and Corresponding Secretary." It changes the second use to "Recording Secretary.")

Article IV, Section 3

The Recording Secretary shall keep a record of the proceedings of all meetings in a book kept for that purpose, read the minutes of the last meeting, keep the CORPORATION'S CONSTITUTION and CLUB'S ByLaws and have the same present at all meetings to allow consultation by members upon request.

Section 4 (added)

The Corresponding Secretary shall keep a roll of members, submit membership applications, and carry on all correspondence. He shall, when directed by the President, mail notice of each regular or special meeting to every Club member.

Section 5 (this is old Section 4)

Section 6 (this is old Section 5)

Section 7 (this is old Section 6)

Section 8 (this is old Section 7)

(The amendment changes old Section 3 into Sections 3 and 4 and rennumbers others.)

Article X, Section 2

Persons interested in membership must submit their completed and signed applications to the CLUB Corresponding Secretary either by mail or at a regular general membership meeting.

Section 3

Applicants for other than ASSOCIATE MEMBERSHIP must receive a two-thirds (2/3) vote of the voting members present at a regular membership meeting before they can become members. All applicants will pay the then appropriate dues before they are considered as CLUB members. Applicants for all classes of membership may be accepted as ASSOCIATE MEMBERS upon verification of their qualifications by the Corresponding Secretary and receipt of dues. Applicants for other than ASSOCIATE MEMBER will remain as ASSOCIATE MEMBERS until receiving the required membership vote.

(The amendment changes "Secretary" to "Corresponding Secretary.")

Article XIII, Section 2

The address shall be that designated by the Corresponding Secretary.

(The amendment changes "Secretary" to "Corresponding Secretary.")

Article XV, Section 1

Proposed amendments to these ByLaws, signed by at least three (3) officers or voting members of the CLUB, shall be submitted to the Recording Secretary at a regular general membership meeting.

Section 3

The Recording Secretary, in conjunction with the ByLaws Committee, shall send a copy of the proposed amendment(s) to the voting members with a notice that such amendment(s) will be voted on for adoption at the next regular general membership meeting. A two-thirds (2/3) vote of the voting members present at that meeting shall be necessary for ratification of the proposed amendment(s)

(The amendment changes "Secretary" to "Recording Secretary.")

Duane Hansen
Duane Hansen

Tom Murray
Tom Murray

Tom Enger
Tom Enger

We wish to extend our thanks to the many friends who pitched in to help us set up the 145.250 repeater in Orange County. Special thanks to Frank W2GIO for his help with cavities, Howie K2OIX for his equipment donations, Dick K2JXU for his donations, technical help and help with the frequency coordination.

Improvements are going on daily, and we have more good ideas than time to build. We welcome anyone interested in our project, and the machine is open to all.

If you find in your area that you can not hear it due to leakage from the cable TV in your area, call NY Cablevision at 831-4700 and inform Mr. R. Wager of your problem. I would also ask that you log the location and send it to me for our FCC complaint.

PAST SCAN AMATEUR TELEVISION
Jim WB2WLN

Fast scan amateur TV is now active in the Newburgh/Beacon area. Jim WB2WLN and Bob WB2ZVI are presently conducting video transmissions every Wednesday evening at 9 pm. Jim transmits on 439.25 MHz and Bob on 446 MHz, both using horizontal polarization, - Bob will also be on 439.25 when the crystals arrive. Also, both use 146.43 direct on 2 meters for the audio portion of their transmissions, with vertical polarization so others interested can join in. For more information on this activity contact Jim or Bob on the Mt. Beacon 146.97 machine.

Q Z X
Marty K2MI

"QZX" - calling all ZX-80 users. The Sinclair Amateur Radio Users' Group is looking for new members who wish to exchange programs, schematics, hints and kinks for the Sinclair and Micro Ace ZX-80 computers. The first issue of their newsletter, "QZX", is scheduled for publication this Spring. Contact K2MI, Marty Irons, at 46 Magic Circle Drive in Goshen, NY 10924, or telephone at 914/294-9462 between 9 and 10 pm or on weekends.

Usually enclosed with each issue of the REPEEPER is a separate page or more of general Club information. With this issue is the first portion of our ByLaws, - the balance will accompany the next issue, scheduled for late August. The Editor regrets that owing to having received an apparently incomplete copy of the ByLaws, there is an omitted gap from Article VI to X.

The list of current enclosures is as follows:

Aug. 1980 Autopatch procedures and tel. exchanges
Nov. 1980 Mailing list; control operators
Feb. 1981 Emergency telephone nos. (prelim draft)

The Editor regrets that the minutes of the Club's quarterly meetings of December 7th 1980 and March 15th 1981 have not been made available for publication in the REPEEPER.

The Board of Directors requests that Club members refrain from giving last names, addresses or telephone numbers over the air unless it is certain that the person about whom such info is being requested does not object.

144 MHz SSB
Art WA2TIF

A couple of years ago I tired of high frequency DXing & all the QRM and switched to 2 meters. To date it has been a ball ! I thought it might help you to understand what goes on on this band if I give you a run down on equipment used and propagation conditions you can expect on 144 MHz SSB.

Most people run a 20 watt input multimode rig driving a solid-state amplifier. Second most popular is a transverter from 10 meters. I keep a card file of QSOs made on 2 from which I have produced the table below which gives a breakdown of the power levels and antenna systems in use today in the Northeast.

Power	Elements:	11	16	19	32	64	The table is
20 w	-	87	25	12	6	0	number of
160	-	53	29	31	8	1	stations with
300	-	21	23	14	8	1	listed power
500	-	3	8	8	7	4	and antenna
1 kw	-	12	35	11	20	20	elements.

I recommend starting out with 20 watts and a good 16 element Yagi. However, communications over 100 miles generally require 100 watts, a receiving preamp, and a very good feedline, so plan to go that far before you start. My station currently is an IC 211 with ARR preamp, a homebrew kw amplifier using 2- 4CX250B in parallel, two 16 element Yagis, and $\frac{1}{2}$ " hardline.

Propagation on 144 MHz can be broken into two broad categories,- normal and enhanced, where signals are reflected by either the weather or the ionosphere. The enhanced propagation is very exciting, but let's first review what can usually be expected.

Normal communication is "line of sight", and therefore location is the most important factor. Let me try to put this into perspective. Three of us in the local area run similar stations. Pat W2YX is located at 1200', Art WA2TIF at 550', and Jeff WA2TEO at 150' elevation. Experience has shown Pat to have a 6 db advantage over Art and Art has 6 db over Jeff.

Given a decent QTH and a good 16 el. Yagi (a must !) you can anticipate the normal range of communications to be dependent on power

20 w	50	to	100 miles
100 w	100	to	200 miles
1000 w	200	to	400 miles

At our location in the Hudson River valley, approx. 100 miles away from areas of high population, 100 watts is required for reliable communications. Note the same results can be achieved with 20 watts if your QTH is on top of a hill or you have four 16 element Yagis.

The primary mode of enhanced propagation on 144 MHz is via the weather, or tropospheric refraction. The signals which would normally penetrate the atmosphere and ionosphere are bent back to Earth within the atmosphere by advancing weather fronts. This usually occurs from April through October and supports communications from 200 to 1000 miles. A special case of tropo is tropo-"ducting" where signals get trapped between layers of air and are transported over great distances with

virtually no loss, like a waveguide. Generally, communications are excellent between the two end points and virtually non-existent in-between. During the first week of April such a duct occurred between VE1 and Georgia & Florida. WB2OTK in Jacksonville, Florida, worked many low power stations in Nova Scotia and New Brunswick,- I never heard any of them. Twenty watts is sufficient for this tropo propagation.

Ionospheric propagation occurs infrequently on 144 MHz. The only layer known to reflect 144 MHz signals is the E layer which is about 60 miles above the Earth. Several times per year the MUF (maximum usable frequency) will get up to 144 MHz. Keeping an eye on TV and FM broadcasts is a must. It generally occurs in limited patches,

as "spradic E". The better openings generally coincide with a prolonged hot spell across the country. In 1980 I caught three openings,- on July 16th a 10 second opening into Minnesota, on July 16th a 20 second opening into Kansas (2 QSOs !), and on July 17th a 3 hour opening extending from Indiana to South Dakota from Eastern New York. This was the largest/best skip ever recorded.

Communications over 1400 mile paths have occurred via single-hop E skip. Two-hop E skip is theoretically possible, however, the first occurrence I know of was between Western New York and Oregon on July 17th ! During skip conditions, 20 watts is plenty.

Sunspots set up ionic storms that sweep past the Earth causing patches of strong ionization at the North and South Poles,- Aurora Borealis. This mode occurs about 12 times a year during the Spring and Fall. It generally occurs between 6 and 8 pm. I put my beam North every night when I get home from work. Usually only CW communications are possible as the ionization is spotty and the reflected CW note is more like white noise. The maximum distance supported by this mode is about 1300 miles. SSB contacts are possible during extremely strong Auroras. For this propagation 100 watts is required.

All serious DXers watch the periodic occurrence of meteors and bounce signals off the ionized trails occurring in the upper atmosphere, of one to three seconds on 144 MHz. Schedules on specific frequencies coupled with persistence and patience will net a new State. Paths of 1500 miles are possible with a minimum of 100 watts.

If you want a new challenge, try 144 MHz. The combination of a new technical experience, ragchewing, DXing, and contesting is unique.

Comments from others using VHF SSB...

Fred KA2DAA..."So you want to get into 2 meter SSB ? So I go out and buy a Yaesu FT-221R and a Cushcraft 11 element beam. Oh boy ! I'm on two sideband, but nobody can hear me, and I can't hear anybody. So I go out and buy an amplifier, about 150 watts. Oh boy ! I can talk farther than I can hear. Next comes a 16 element KLM, and then comes the preamp. Next comes the low loss coax and put the antenna up another 20 feet. You ask is it worth it ? Yes, if you like to have rag chews with no side splatter. Really, try it, you'll like it."

Frank W2GIO...has an ICOM IC-251A multi-mode..Best feature is squelch on SSB..Antenna is a 3 element Quagi on 2nd floor in the house..Best DX was somewhere on L.I.. Use the rig mostly to tune up cavities.

Bob W2LW...on 144 MHz uses only the Kenwood TS520S with TV502 transverter at 10 watts output and an 8 element Telrex beam converted to a Quagi, in a fixed position at present. Big thrill on 2 mtrs SSB was last Summer, July 17th and 18th, during the big sporadic E opening to the mid-west. Worked Kansas, South Dakota, Missouri, Iowa and Nebraska to bring states worked and confirmed total up to 29. Also, on 50 MHz using the TV506 transverter with an amplifier at 450 watts input and 6 element Telrex beam at 30 feet has netted a total of 23 countries worked and confirmed, with daily listening and checking with WWV for flux and geomagnetic activity numbers.

Fred WB2SUH...has a Kenwood TS700A on 2 mtrs SSB and a KLM 160 watt amplifier with a 21 element Yagi 85' high. On that same tower he also has a 5 element 6 meter beam using a Kenwood TS600 and 550 pep amplifier.

Jay KA2JGC...uses a Kenwood TR9000 with 11 el. Cushcraft.

Wes WB2OIA...also uses a Kenwood TR9000 with Mirage 80 watt amplifier, presently into a 3 el. beam for "local" work, e.g., listening in to the Sunday 10am net heard on 144.250 MHz.