

CHEESE BITS



W3CCX

CLUB MEMORIAL CALL

SCANNED TO PDF BY BERT, K3IUV, 2013



ARRL
Affiliated
Club

VOLUME XXXIX

November 1997

Number 11

THE PREZ SEZ

The VHF Conference and Hamarama were resounding successes again this year. Financially, the club did quite well with the proceeds from Hamarama '97 but the biggest gain was in the form of support from the membership. There were over forty club members out to lend a hand at running the event. The large number of 'workers' made the job much easier for everyone involved. Brian, N3EXA, deserves a round of applause for his excellent job as chairman of the event. He did so well that we will probably let him do it again next year. The VHF Conference went very well considering the move to a new location. John, KH3XG, rounded up a fine group of speakers whose topics covered a broad spectrum of VHF and above related subjects. "Sorter Airlines" even flew around the country picking up and returning speakers. This saves the club and the speakers many dollars and is appreciated by everyone involved in the event. People make the organization. This is true now and has been true throughout the existence of the Pack Rats. A few individuals, exerting a little extra effort, help any organization to excel.

One of those in the past that helped make the Pack Rats a 'can-do' outfit was Dave Zimmerman, W3ZD. Dave was a long time active member of the Pack Rats who was originally licensed as W3LHF (Low High Frequency). Vanity calls you now see are not really new. W3DZ was taken so Dave had settle for the inverse. Dave was the driving force behind Hamarama. Back in the early seventies Dave had discovered the hamfest world and soon was touring the east coast to peddle his wares and gift of gab. The idea of having a club sponsored hamfest was conceived by Dave and presented to the Board of Directors in early 1972. A location to sell his goods close to home was rumored to have been the motive. It was decided to cull the event "HAMARAMA" and to hold the first one at the Jamison firehouse on Old York Road in Jamison, Pa (the firehouse is still there). Dave was chairman of the event and organized the whole affair.

The first Hamarama netted the club \$374.00 in October of 1972 and started the club on the road to financial stability. It was at this first event that W3ZD acquired his nickname as the "White Haired SOB" (Said with a tone of respect and affection). It seems that Dave had discussed the exact location of an adjoining land owners property line prior the Hamarama '72 and assured the landowner that the first Hamarama hamfest would not impact the peaceful Sunday solitude that the landowner had enjoyed for many years. Dave had a way of being very convincing. As it turned out then as is still true today, we had a slight problem with parking late in the morning. Apparently, a few cars got 'accidentally' parked on the adjoining property. The thing that I remember most was the irate land owner storming into the firehouse wanting to know where that "White Haired Son of a Bitch" was that told him not to worry about anything. I don't really remember exactly what happened next, but I am sure, knowing Dave very well, that Dave calmly, with arms folded over his rather imposing chest, his six foot plus frame leaning slightly forward, quietly convincing the individual that he really didn't have a problem and everything would be OK. Dave had a way of being very convincing. We miss that "White Haired SOB".

73, Ron, W3RJW

MEETINGS

Third Thursday each month at 8:00 PM
Southampton Free Library
947 E. Street Road
Southampton, PA 18966

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PACKRAT 222 MHz REPEATER - W3CCX/R

222.98/224.58 MHz, Churchville, PA FN20LE

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	N3ITT	(1 YR) Al Sheppard
	N3EXA	(1 YR) Brian Taylor

MONDAY NIGHT NETS

<u>TIME</u>	<u>FREQ.</u>	<u>NET CONTROL</u>
7:30 PM	50.150 MHz	K3EOD
8:00 PM	144.150 MHz	N3ITT
8:30 PM	222.125 MHz	W2SJ/N3EXA
8:30 PM	224.58R MHz	W3GXB
9:00 PM	432.110 MHz	WA3AXV
9:30 PM	1296.100 MHz	WA3NUF
10:00 PM	903.100 MHz	N3AOG


COMMITTEE CHAIRMEN

LADIES' NIGHT: N3AOG 215-443-9965
 JUNE CONTEST: N3ITT 610-847-5490
 HAMARAMA: N3EXA 215-257-6303
 VHF CONFERENCE: KB3XC 610-584-2489

PACK RAT BEACONS - W3CCX/B FM29JW

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 1296.262 MHz 2304.034 MHz


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CALENDAR OF COMING EVENTS - NOVEMBER 1997

- 1 **Only 77 days left until the 1998 January Sweepstakes.**
- 1-5 **ARRL November CW Sweepstakes.** See Oct. QST, page 116 for rules.
- 3 Check into the **6 Meter Net** on 50.150 MHz at 7:30 PM EST.
- 3 Check into the **903 MHz Net** on 903.100 MHz at 10:00 PM EST.
- 5 Election Day
- 10 Check into the **2 Meter Net** on 144.150 MHz at 8:00 PM EST.
- 10 Check into the **1296 MHz Net** on 1296.100 MHz at 10:00 PM EST.
- 13 **Packrat board of directors meeting** at the QTH of Dave, W3KM. Call 215-792-2648 for directions. All interested parties invited.
- 15-17 **ARRL November Phone Sweepstakes.** See Sept. QST, page 120 for rules.
- 17 Predicted peak of the **Leonids meteor shower** at 0442 UTC.
- 17 Check into the **220 MHz Net** on 222.125 MHz or 224.58/R at 8:30 PM EST.
- 20 **Regular meeting of the Mt. Airy VHF Radio Club** at the Southampton Free Library on Street Rd. in Southampton, Pa. All VHFers are encouraged to come and enjoy the evening with us. You need not be a member. Do you need to attend this meeting to qualify for club contest minimum attendance? Come anyway and bring a friend.
- 23-24 **ARRL International EME Competition** - 2nd weekend. See Sept. QST page 116 for the rules.
- 24 Check into the **432 MHz Net** on 432.110 MHz at 9:00 PM EST.
- 24 Check into the **903 MHz Net** on 903.100 MHz at 10:00 PM EST.
- 27 Thanksgiving
- 27 **LEAP INTO THE MICROWAVES** with the Packrats! 903 and above. Starting on the 4th Thursday of the month and continuing every 4th Thursday of the month operate from 8 to 10 PM local time on any band 903 MHz and above. For coordination on those difficult long haul contacts 144.260 MHz is the suggested liaison frequency. So here's your chance to fix what broke in the contest and work all those stations you missed.
- 29-30 **CQ World-Wide DX Contest - CW.** See Nov. CQ, page 78 for rules.

CHEESEBITS SUBSCRIPTIONS

Cheesebits subscriptions are available to everyone interested in activities and information from the VHF through the microwave frequencies. Subscriptions are for 1 year of 12 issues. For a subscription, send the following information:

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November 1997 Send to: SUBSCRIPTION/ADVERTISING MANAGER:

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7258 Walnut Avenue
Pennsauken, NJ 08110

VHF LOG FOR WINDOWS

by Dave Mascaro, W3KM

My first attempt at a VHF logging program started in 1983 on an Apple MacIntosh. It had basic duping and printout functions with pull down menus. It quickly developed to an IBM compatible DOS version; unfortunately a step backward.

As more Pack Rats used the shareware, I added features (and removed some 'bugs') to make it more useful during the January VHF SS. A data file was added which contained the info included in the Pack Rat checklist that was supplied in the contest package. This printout was added to the contest package by Harry, W3CL a long-long time ago, and was an excellent idea to help the Rats work each other in "The contest." After entering a Pack Rat call sign, the bands that he had were printed to the screen. It was a convenient way to see what bands he had without looking at the check list printout. As a band was worked, that band was removed from the screen print the next time his call was entered.

In subsequent versions, many functions were added to "increase productivity" in contests. Data files containing beam headings and grid squares were added. The grid square and beam heading were displayed after entering a call sign. A grid map of the Eastern US could be displayed, highlighting the grids worked so far. Routines to write back-up LOG files to diskette were added, the LOG editor was improved to allow easier LOG changes and transverter LO offsets were displayed on the screen. Most recent versions had a CW keyer that sent pre-saved messages using the F-keys, keying the transmitter via the serial port.

All the "commands" (30 or more) were entered in the call sign field. The number of screen printouts at any one time were kept to a minimum to keep the screen uncluttered. A better video display was needed to display more information without distracting from the actual logging function. I decided to write a windows version of VHF_LOG.

VHF LOG v1.0

File View Grids Printer Log Applications CW DVK Help Interface

File	View	Grids	Prior	Log	Applications	CW	DVK	Help	Interface
1	144	0005	KB2IT		FN20	1	-	144	UTC Time 13:15:17
2	144	0007	WB2CUT		FN20				Album
3	144	0008	N3OPM		FM19	2	-	144	Refresh
4	432	0011	N3OPM		FM19	1	-	432	Delete Last QSO
5	432	0012	KU3T		FN20	2	-	432	Cancel QSO
117	2304	0248	W2SJ		FM29	6	-	2304	QSO Completed
118	144	0252	N1BWT		FN42				Change LOG
119	222	0253	N1BWT		FN42	11	-	222	Partials
120	432	0254	N1BWT		FN42	11	-	432	Summary
121	432	0256	WB2VVV		FN21				Printer ON

Date: 09/15 UTC: 1315 MHz: 144 Grid: FN20 New Grid:

N3NGE LEN: FN20bd: 240 deg: 40.4 Mi. Change LOG

Worked	Needed	Change
144	50	50
222		222
432		432
903		983
1296		1296
2304		2304
		3456
		5760

by Band			Total		
Freq	QSOs	Grids	QSOs	Grids	Score
144	48	16	121	59	10216

Dis Rate: Activity Hour: Last QSOs: QSO Completed

QSO rate: Num of QSOs: Last QSOs: <Enter> key

144 W3KM Start date: 09/14 JF: 144 100 24 10 144

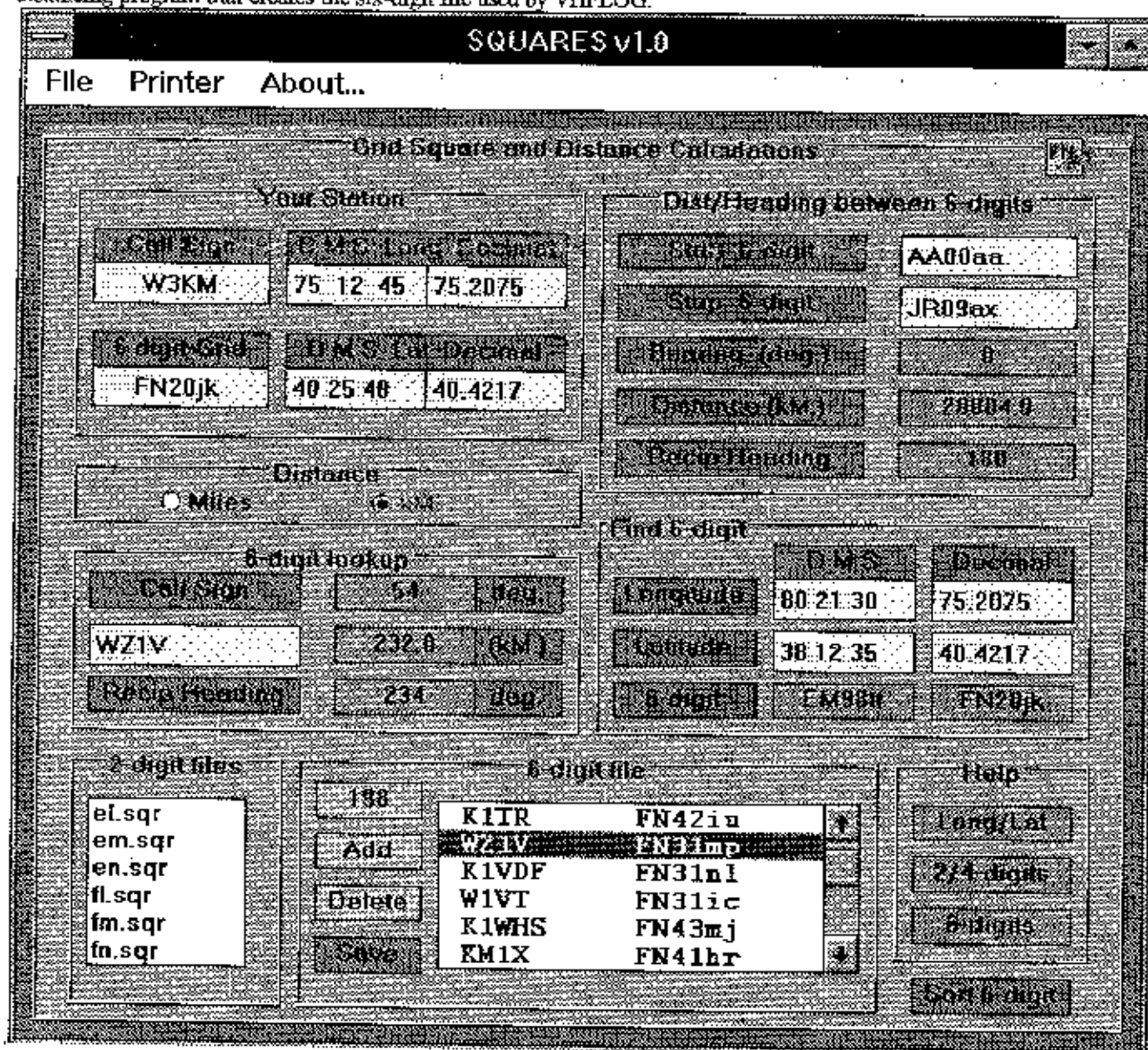
1997 ARRL Sept: QSO Party End used: 97Sept 144

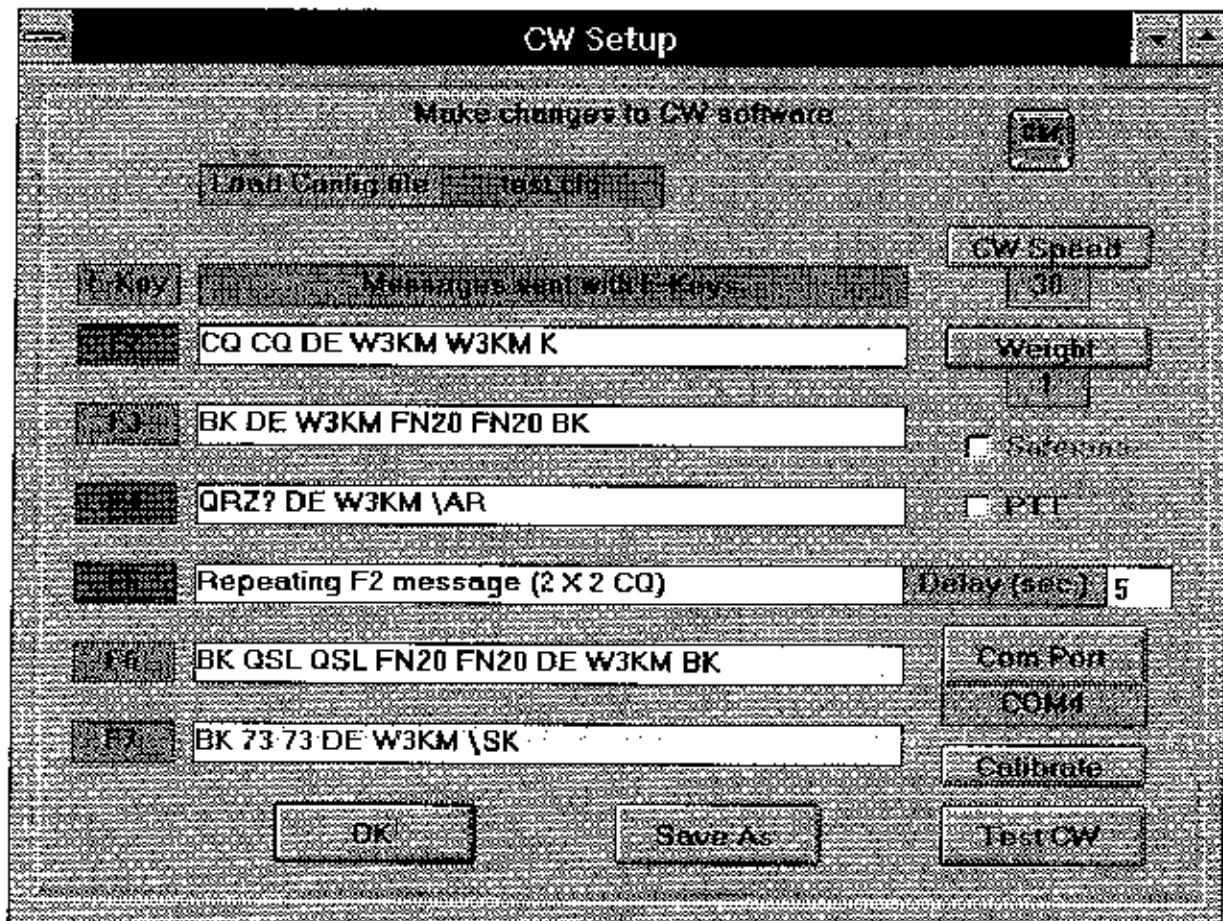
I named the software VHFLOG (no underscore) since it is the same 'code' as the DOS version; with a graphical interface added. The applications software used was Visual Basic; a visual interface with 'basic' code. VHFLOG will run on any machine running Windows; although a 486/100 MHz machine will naturally display graphics and dupe hundreds of contacts much faster than a 386/25. VHFLOG will run in Windows 3.x and Win 95, supporting CW via COM ports. All logging functions will work in Windows NT; the CW software and DVK were not tried and probably will not work.

VHFLOG for Windows has all the functions of the DOS version, and more. More information can be displayed on the screen at one time. The complete LOG can be viewed, the last 5 QSOs are displayed, bands needed and bands worked are displayed. The total QSOs, grids and score are displayed, as well as for each band. After entering a call sign, the six-digit square, beam heading and distance are displayed for those calls included in the data file. Like the DOS version, the LOGSORT.dat file is used to display the bands and grid square for a call sign entered. The data file supplied comes from high scoring Pack Rat LOGs from previous contests. Or you can make your own file using the supplied application, LOGSORT. HELP is available during logging, using pull down HELP menus; or the 4 pages of HELP can be line printed.

In addition to the 6 / F-keyed CW interface, a 4 / F-keyed Digital Voice Keyer is included. 4 pre-recorded .wav files can be played via your sound card. Both the CW and DVK functions have a repeating mode on one F-key; the delay between repeats is selectable in seconds. Control of the TX PTT line was added to the CW software, as well as the DVK portion.

Other applications software included with VHFLOG are similar to the .EXEs supplied with the shareware version. SQUARES, RATSWRKD, LO, TGRIDS and DXGRIDS are a few Windows versions included. SQUARES is a grid square calculator and distancing program that creates the six-digit file used by VHFLOG.





VHFLOG v1.0 for Windows ordering information:

Send your Call, Name and Address with \$50.00 to:
 Dave Mascaro, W3KM
 1603 Mink Rd.
 Ottsville, PA 18942

A free demo version of VHFLOG is available at <http://www.qsl.net/w3km>
 My E-mail addresses are: mascaro@bellatlantic.net or w3km@qsl.net

HAMARAMA WORKERS

By Phil, WA3NUF

I believe we have set a new record for number of Packrats working at Hamarama. By my count we had 40 people all doing their part to make Hamarama 97 a big success. The honor list includes:

WB8ZAR	N3EVV	AA3GN	K2FK (formerly AK3O)	WB3JYO	WA3DRC
AA2UK	W2SK	W2SJ	WA3YUE	N3EXA	K3PHY
N3GSA	WU3C	WA3EHD	N3NGE	N3ITT	KB3IB
K3ESJ	K3EOD	W3GXB	K2UT	W3RJW	W0RSJ
N3YVH	N3OZO	W3SYN	WA3IAC	KU3A	N3DQZ
WA3NUF	W3TNP	K3MFI	W3GAD	WB2VLA	W3OR
					N2DEQ

My apologies to anyone that may have been overlooked.

TID BITS

New phone number . Call 978-659-2465 direct to my desk with voice mail or, in the unlikely case that number fails, try: 978-687-1501 and ask the real, live operator for me. regards, Gary Dallas, WA1YHO

HAMARAMA PRIZES The 1st prize winner at Hamarama was Ed White, WA3EZT from Bear, DE who won a \$300 gift certificate from HRO. The vendor prize winner for \$100 cash was Joe Hatcher of Pennsburg, PA.

Visit the Mt. Airy VHF Radio Club web page at: <http://www.ij.net/packrats>

FREQUENCY WEST BRICK PROBLEMS - 24 GHz Continued

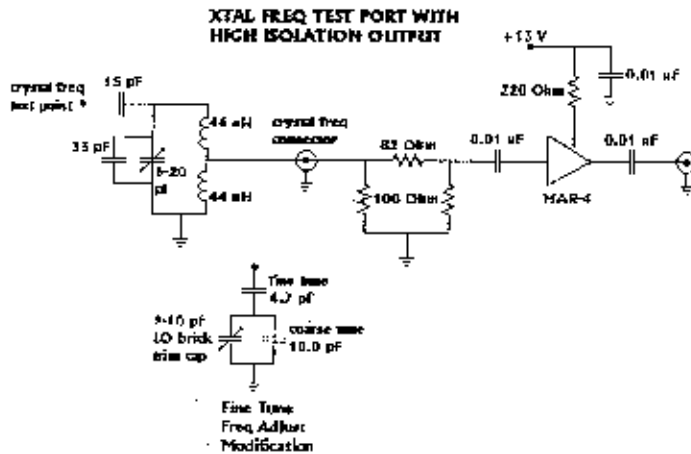
de John, KB3XG and Paul, WB3JYO

INTRODUCTION:

While checking the stability of my 24 GHz source, I found that the load on the crystal test port pulls the base frequency of my 11.6 GHz brick. For the past couple of years I've been using the Xtal test port to make sure I'm right on frequency. The frequency counter provides a good load to the Xtal port but when the counter is removed, the frequency shifts up 86 Hz. I wasn't sure if this was caused by harmonics of the crystal fooling the counter or actual pulling of the LO circuit. I found it hard to believe that the isolation to the Xtal test port on the brick was that lousy.

FREQUENCY SHIFT PROBLEM:

I added a single pole tank inside the LO circuit chamber of the brick (see diagram) and coupled into the source through a 15 pF series C. The tank killed all of the base frequency spurs to better than -26 dBc, burned up 3 to 4 dB of test port output power, but the frequency still shifted up by 57 Hz. At 24 GHz, this seemingly small frequency shift takes me way out of the pass band after multiplying by a factor of 240. (57 Hz x 240 = 14 kHz)



Freq. MHz	Pout no tank	Pout with tank
97.0375	+5 dBm	+0 dBm
194.075	-9 dBc	-30 dBc
291.112	-17 dBc	-26 dBc
388.150	-27 dBc	-38 dBc

	Freq. no tank no MMIC	Freq. with tank no MMIC	Freq. with tank and MMIC
LOAD			
open	97.037422	97.037560	97.037501
3 dB		97.037525	97.037500
6 dB	97.037456	97.037511	97.037500
10 dB	97.037508	97.037508	97.037500
Term.		97.037503	97.037500

It was now clear that Frequency West did not provide adequate isolation between the Xtal test port and the base frequency oscillator circuit. I added a 10 dB pad and a MAR-4 MMIC to the Xtal test port output. This gave me better than 20 dB of isolation and eliminated the frequency shift problem.

OTHER STABILITY PROBLEMS:

WB3JYO faxed me an app note from Frequency West that said the base frequency of the brick can be pulled +/- 500 Hz before dropping out. My brick met this spec but the sensitivity of the tuning cap was very touchy. I could swing the frequency 100 to 200 Hz by just cracking the Johanson cap. I could make the LO drop out (stop oscillating) at the low end frequency extreme in less than a 1/4 turn.

XTAL TRIM CAP:

I thought by ordering the manufacturers specified crystal I would eliminate a tweaking step, but as with any hamfest item you pick up, you don't know where's it's been. Close inspection of the LO board revealed lots of flux around a freshly installed fixed chip cap near the hot end of the trim cap. I removed the fixed cap, cut the trace to the trim cap, and added a fixed cap in series. I did this so I would have a finer frequency adjustment. An additional SBT (Select By Test) 10 pF shunt C was required to put the Xtal near the center frequency. (see schematic) The trim cap now tunes from 97.0371 to 97.0384 MHz without dropping out. The fine tuning fix makes it much easier to tweak the Xtal to the exact frequency.

LORAL / FREQUENCY WEST TUNE-UP PROCEDURE, Bulletin #210:

Crystal Installation, Sources With Ovens:

- 1) Remove the side plate bearing the Frequency West logo from the unit, the oven insulator, and the crystal.
- 2) Clip the replacement crystal leads to between 0.150" and 0.190" inch in length. Insert the crystal into its socket. For best results use crystals meeting Frequency-West Specification 37-052243. Replace the oven insulator and side plate.

LORAL / FREQUENCY WEST TUNE-UP PROCEDURE, Bulletin #210 (contd):

Alignment Procedures:

- 1) Apply the specified input (supply) voltage between the DC input terminal and ground. The required input voltage is indicated above the terminal. Be sure to observe polarity.
- 2) Connect a VOM to the crystal oscillator test point (XTAL). Set the VOM on the 1.5 VDC scale. The typical voltage level at this point will be 0.1V volts minimum.
- 3) Tune the crystal oscillator coil, or capacitor (through a hole in the side plate or the front plate, depending on the configuration) until a reading is obtained (approximately 0.1V minimum). Maximize this reading.

A maximized VOM reading at this point can be expected to yield a crystal oscillator accuracy within approximately 5 ppm of the marked crystal frequency.

If a frequency counter is available, connect the counter to the crystal oscillator monitor connector and tune the crystal oscillator to the exact frequency. Make sure that the crystal oscillator is not near dropout by rocking the tuning screw back and forth. The unit should tune a minimum of 5 ppm, or 500 Hz at 100 MHz.

Reset the crystal to the correct frequency.

- 4) Connect an oscilloscope or VOM to one of the phase voltage terminals (iV). The two terminals should be jumpered together on units with two terminals. For sources that have a lock limit alarm, connect the scope or VOM to the single phase voltage terminal. The scope should show a waveform of between 50 and 500 Hz, with an amplitude greater than 12V p-p. The VOM should read approximately 9 volts on the AC (RMS) scale.
- 5) Slowly tune the fundamental oscillator tuning screw clockwise until the waveform drops out or the AC voltage drops to zero on the VOM.

If the unit has a crystal that places the output frequency at the high end of the band, it may be necessary to continue to tune until a second lock occurs. Check for the proper lock point with a frequency meter or counter to insure locking on the correct harmonic of the reference oscillator.

- 6) Switch the scope to DC (2V/cm) or the VOM to 30 VDC full scale. (The lead should still be connected between the phase lock terminal and ground.)
- 7) Check for lock by rocking the fundamental oscillator tuning screw slightly. The absolute magnitude should decrease as the tuning screw is rotated clockwise.

If the voltage does not change, the unit has not locked and has stopped sweeping. Repeat steps 4 and 5, then continue tuning the fundamental oscillator until lock occurs.

- 8) Tune the fundamental oscillator to the edge of the phase lock range. This should be between -3V +/- 2V and -16V +/- 2V. The unit should remain locked between these voltages and go into sweep as the fundamental oscillator is tuned further. This verifies that the unit remains phase locked over the appropriate tuning voltage range.

Note: The fundamental voltage polarities will be + for positive DC input inputs.

- 9) Set the fundamental oscillator so that the voltage at the phase lock terminals is -7.5 volts. Tune-up is complete.

Note: For units with lock limit alarm: To verify the operation of the lock limit alarm circuitry, connect a VOM (x10 Ohm scale) between the lock limit terminal and ground. As the unit is tuned from one end of the lock range to the other (-3V +/- 2V to -16V +/- 2V), the VOM will read either zero or infinity. It will be infinity between approximately 4.5 and 13 VDC (as read at the phase lock terminals) and zero elsewhere.

CONCLUSION:

Shoot! Now I'm going to have to check the bricks on all my other rigs for the frequency shift symptom. This is probably only a problem on 5760 MHz and up due to the high Xtal multiplication factor, but a check of all rigs is suggested.

Document the range of VCO voltages where your cavity locks up in addition to where the base crystal drops out. Use the Frequency West tune up procedure to check the performance of your bricks. If your cavity is on the edge of unlocking or your crystal is on the edge of dropping out, you can be sure that these faults will occur during the contest.

Over the past couple of years The Pack Rats have stressed the need for knowing your exact frequency to help reduce the time required to complete a weak signal QSO. Last month W3RJW talked about using W3KM's VHF contest logging program to accurately determine beam headings. Frequency is another variable that we have control over. Eventually we will be able to say with assurance that the only reason we were not able to work that rare DX grid is because of propagation losses. 73, XG.

REFERENCES:

Bulletin #210
Loral / Frequency-West
214 Devcon Dr.
San Jose, CA 95112-4210

International Crystal Manufacturing
P. O. Box 26330, 10 N. Lee
Oklahoma City, OK 73126-0330
(800) 725-1426
Xtal Frequency = 97.037500 MHz
catalog # 00585187Q
Frequency West # 37-052243(FX=50-125MHZ)

PACK RAT OSL CARD ORDER FORM

The club has arranged for special prices on these fine 3-color quality cards. The regular price is \$20.00/hundred plus \$10.00 for each additional hundred. Our price is \$17.50/hundred plus \$7.50 for each additional hundred. Minimum order is 200 cards for this special price.

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Please circle quantity ordered, make check payable to Donald J. Newhard and mail to:

Bob Fischer, W2SJ
7258 Walnut Avenue
Pennsauken, NJ 08109

Orders will be accepted from now until November 30th to allow all members to be able to participate in this offer.

Please fill in the info below exactly as you want it printed:

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6 Digit Grid Square: _____
EX: (Your Old Call if wanted) _____
ARRL logo? (Circle) Yes No

Note: The card sample on the reverse was reduced in size for this announcement. Printed cards will be standard full size.

Any questions? Contact Bob, W2SJ on 609-665-8488 (home) or 609-541-0120 (work) or via my e-mail address: fnsf57a@prodigy.com

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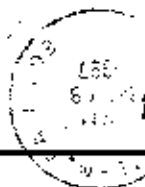
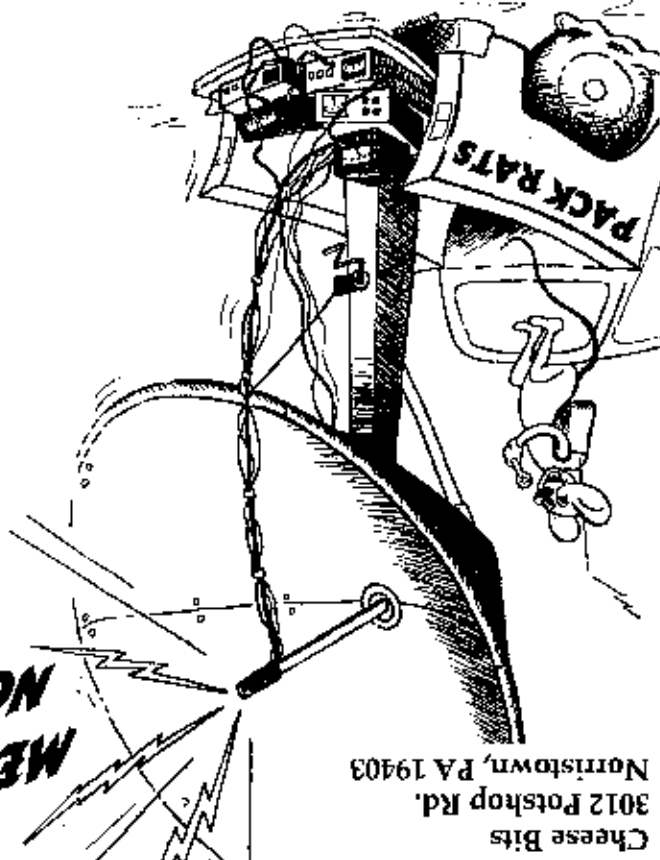
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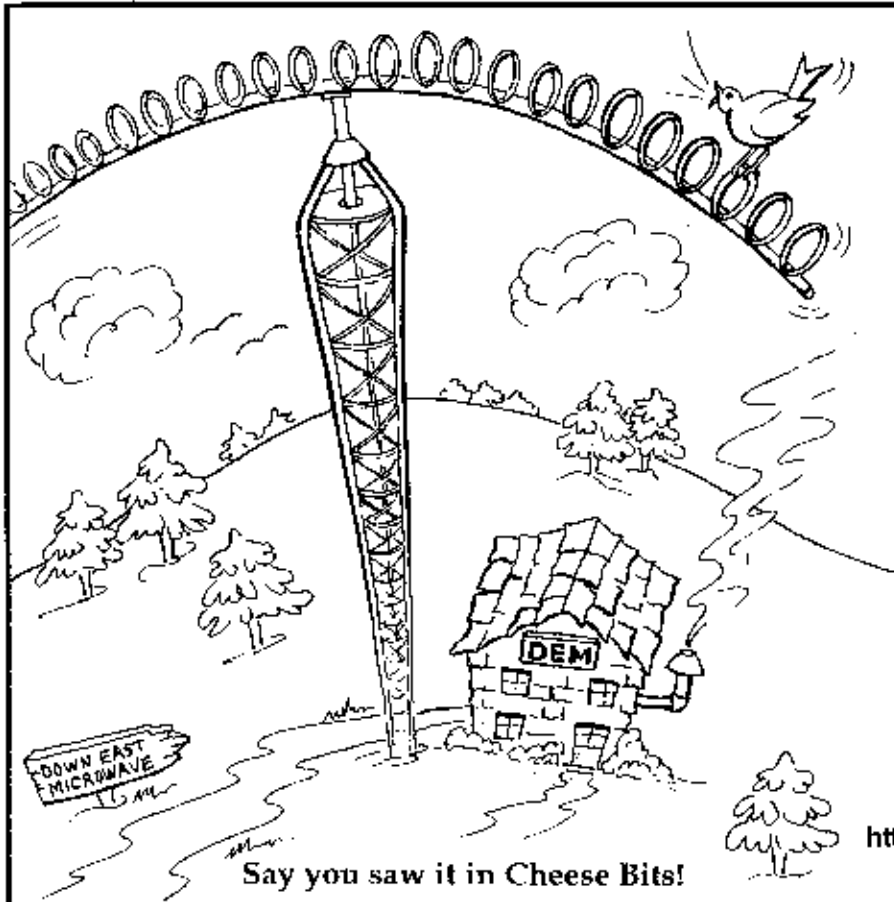
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