

PACK RATS'



CHEESE BITS

CLUB CALL: W3CCX

MT. AIRY VHF RADIO CLUB, INC.



MT. AIRY VHF RADIO CLUB., "THE PACK RATS", PHILADELPHIA, PA.

W3CCX

NET FREQUENCIES: 50.125, 144.150, 222.125, 224.58/222.98, 432.110, 903.100, 1296.100 MHz

AFFILIATED CLUB: AMERICAN RADIO RELAY LEAGUE

ARNS

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

SCANNED TO PDF BY BERT, K3JUV, 2013

VOLUME XXXV

JULY 1993

NUMBER 7

THE PREZ SEZ

The past year has been extremely fruitful for the Packrats. The previous board and Prez, W0RSJ, are to be congratulated for their talented leadership and vision. We have accomplished much thanks to the diligent efforts of these men.

Thank you for the opportunity to serve as President. Just as it's an honor to be invited into the Packrats, and to be a member of this club, it's a greater honor to serve as President. I look forward to working with our members and our newly elected club officers! We are lucky to have such a fine board of Directors for the coming year!

Just as our Board members have volunteered to serve, we need each club member to do his part. From time to time we'll be looking for "a few good men" to assist with our various activities; don't be afraid to volunteer! We will need to work together as hard as ever to accomplish our priorities as the number one VHF club!

The June contest at Camelback Mt, FN21, was a success thanks to Chairman, Pat, WB3DNI and all of the band captains. We had more Rats than ever at the site this year, excellent weather, and fairly good propagation throughout the weekend.

Our first outdoor meeting of the year will be at Gary's Gulch for the White Elephant Sale. You'll be sure to go home with a new widget or two!

73

Paul Drexler
WB3JYO

Pack Rats CHEESE BITS is a publication of the Mt. AIRY VHF RADIO CLUB, INC. Philadelphia, PA. and is published monthly.

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DEADLINE FOR ARTICLES AND SWAP SHOP IS THE MONTHLY MEETING DATE. NON-COMMERCIAL SWAP SHOP ITEMS-FREE OF CHARGE.

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(609) 783-9478

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Ron Whitsel, WA3AXV
(215) 355-5730

PACKRAT 222 MHz REPEATER - W3CCX/RPTR
222.98/224.58 MHz, Churchville, PA

OFFICERS: 1991-1992

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DIRECTORS: N3EXA, Brian Taylor (1 YRS)
K3ESJ, Bill Jaxheimer (1 YRS)
WA3AXV, Ron Whitsel (2 YRS)
WB2YEH, Bob Fisher (2 YRS)

MONDAY NIGHT NETS

<u>TIME</u>	<u>FREQ.</u>	<u>NET CONTROL</u>
7:30 PM	50.125 MHz	K3EOD
8:00 PM	144.150 MHz	W2EIF
8:30 PM	222.125 MHz	WB2YEH
8:30 PM	224.58R MHz	K3ACR
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: WA3YUE 215-666-1558
JUNE CONTEST: WB3DNI 215-672-5289
HAMARAMA: WB3JYO 609-538-1687
VHF CONFERENCE: KB3XG 215-270-3158



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Calendar of Coming Events -July 1993

July

- 1-5 W5OZI Almost Annual Grid Expedition to XE2-land. Beginning DL98, then DL97, 96, 95+ ON 50.115 and 144.2 MHz. Probable call sign: XE2AWK.
- 3 14th Annual Wilkes-Barre Murgas ARC K3YTL Hamfest and Computerfest will be held at the Luzerne County Fairground on Rte 118 in Lehman, PA. TI on 146.61R and .52. VE Exams.
- 4 Independence Day
- 4 Harrisburg Hamfest at the Bressler Picnic Grounds, take exit 1 off I 283, follow PA 441 and signs. Admission: \$3. Talk-in on 146.76/R and .52.
- 8 Packrat Board of Directors meeting will be held at the QTH of Paul, WB3JYO at 8:00 PM. All interested parties welcome. Call 609-358-1657 for directions.
- 10-11 CQ Worldwide VHF QPX Contest. See May CQ Magazine page 60 for rules or June QST page 117. Contest runs from 0000Z, 14 July to 2400Z on 15 July (48 hours). All bands from 50 MHz up.
- 11 Sussex County ARC Hamfest at the Sussex County Fairgrounds, Plains Rd. off Rte 206 in Augusta, N.J. Talk-in on 147.90/.30, 146.52, and 222.90/224.50.
- 15 July meeting of the Packrats will be the Annual White Elephants Sale at Gary's Glen (WA2OMY's QTH) on Mt. Kirk Road in Eagleville, Pa. Starts promptly at 8:00 PM. Bring Chairs. For directions call 215-539-6409. See the enclosed map.
- 25 BRATS Hamfest, Timonium, Md. at the Maryland State Fairgrounds, located on York Rd. adjacent to I-83 near I-695. Talk-in on 147.63/.03, 146.16/.76, and 146.52. Admission \$5.
- 29- The 27th Annual Central States VHF Conference will be held in Oklahoma City, Aug. 1 Oklahoma at the Lincoln Plaza Hotel. For further information, contact Joe Lynch, N6CL at 405-528-6625.

Aug.

- 21 The August meeting of the Packrats will be a family picnic with all Packrats, friends, wives, kids, etc. invited. The picnic will be held at the QTH of Dave, N3CX. Call Sylvia, Dave's XYL at 215-679-7293 if you wish to bring a covered dish to share. Start time is noonish. Bring your swim suits.

Oct.

- 2 Mid Atlantic VHF Conference. Exact location to be announced soon.
- 3 Hamarama 93 will be held at the Bucks County Drive In theater on Rte 611 north of Philadelphia in Warminster Pa.

VISITORS AT THE JULY MEETING

<u>CALL</u>	<u>NAME</u>	<u>QTH</u>
N3OSU	Don	Warminster, PA
KU3A	Bill	Pipersville, PA
W3ICC	Hartford	Wycombe, PA
XYL W2EIF	Dolly	Stratford, NJ

Health and Welfare

Condolences to Dave, N3CX and his family for the loss of his mother and to Len, N3NGE for the loss of his brother in law.

We are saddened to report the death of a long time friend of the Packrats, Ed Keener, W3AJS. Ed last attended the May ARRL Night meeting. Harry Stein, W3CL, used to tell many stories about meeting Ed while attending West Philadelphia High School. I believe that Ed was a year ahead of Harry and taught a class on electronics and ham radio that got Harry into electronics and ham radio.

PROPAGATION REPORT

By Dave, N3CX

6 Meters has really been the fab spot this month. The band has been open at least a dozen times (maybe more). Some double hops into 7 land and the following states have been heard at my QTH: Ala, Fla, NC, Ga, La, Tx, Mo, Ks, Wis, Minn, Ia, Ark, Okl. I probably missed some but a lot of grids were in there. Cuba was in there also. So turn on the gear guys. On the 16th about 2145, 432 was open to the west with signals fair to good into EN72, EN73, EN90, EN91, FN01, AND FN00. One note on 222 MHz, for the past few Tuesday evenings, our Pack Rat friend, Tom, K2UOP/8 in FM09 has been on and he has a big signal from W. Va. his new address is PO Box 329, Romney, WV. 26757. Along with K2UOP on 222 was W2KFC, an old Pack Rat friend and Terry, WD8ISK, who is now living in Va. and building his station back together from the move. If you have read down to here and don't forget to get into the shack tonight for a few minutes and listen for the weak ones. 73 and HOW ABOUT THOSE PHILLIES.

TID BITS:

The May/June issue of NTMS "Feedpoint" has articles by Peter, G4BCH, on a combined Transition and Waveguide Switch, and by Paul, N1BWT, on a two stage MMIC Amplifier for 5760 MHz. The March/April issue has an article by Paul, N1BWT, and Matt, KB1VC, on Metal Lens Antennas for 10 GHz, an article by Paul, N1BWT, on Improved Battery Regulation for No-Tune Transverters, and one by KE7CX, on a 2C39 Control Boards.

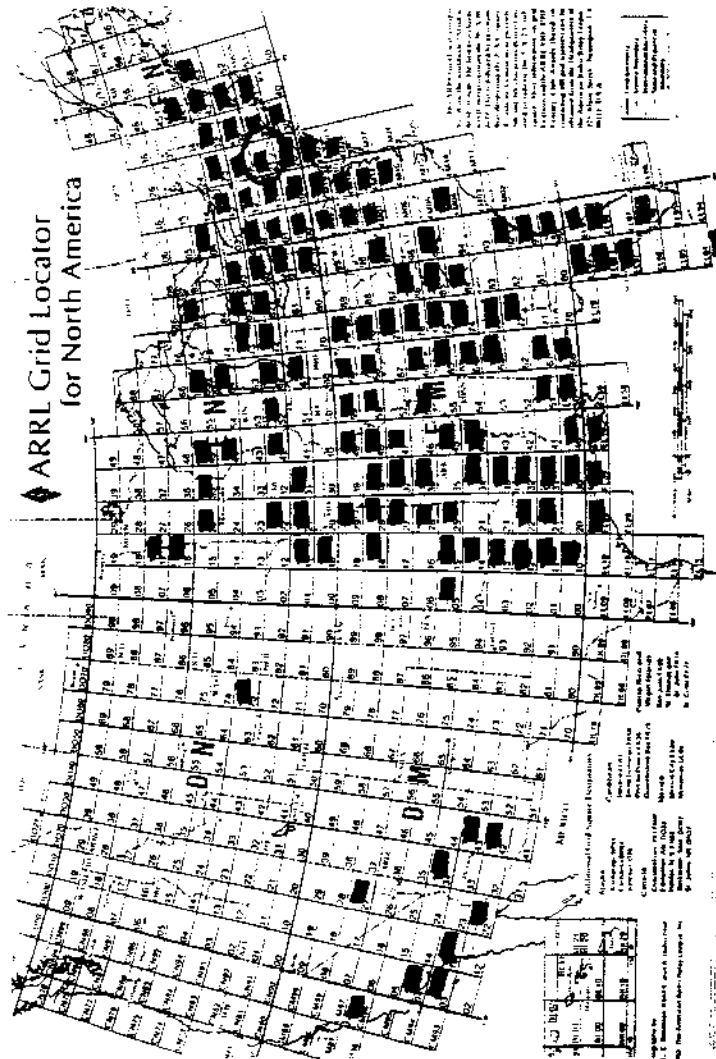
The May issue The VHF/UHF DXer has articles by Paul, G1WBX, on high current 13.8 V power supplies using paralleled transformers and an update on the 144 MHz no-tune preamp by John, G4SWX (Reprinted in this issue).

Anomalous Propagation, the newsletter of the Midwest VHF-UHF Society, has an article by Ed, KA9LNV on adding a second stage to the Downeast Microwave (WB5LUA) Preamp.

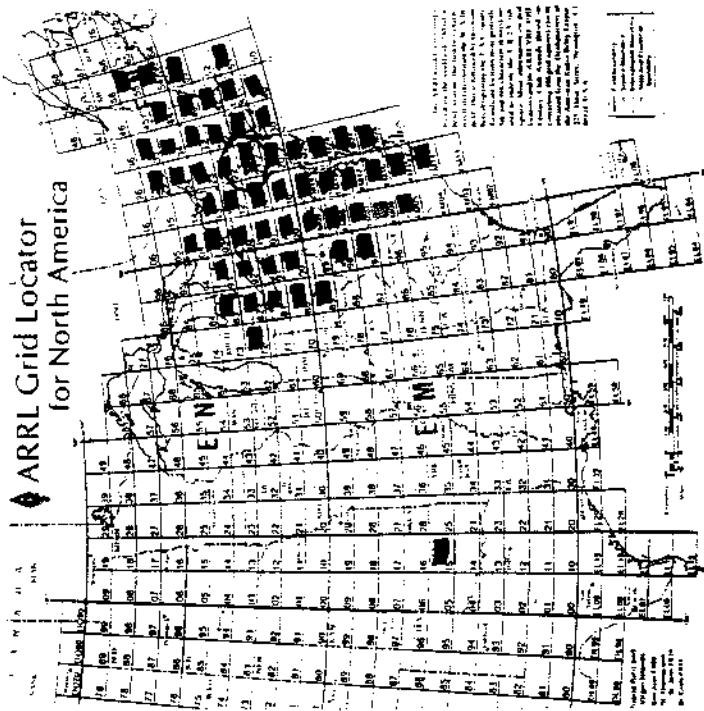
Optimum Antenna Installation

By Harry, W3IIT

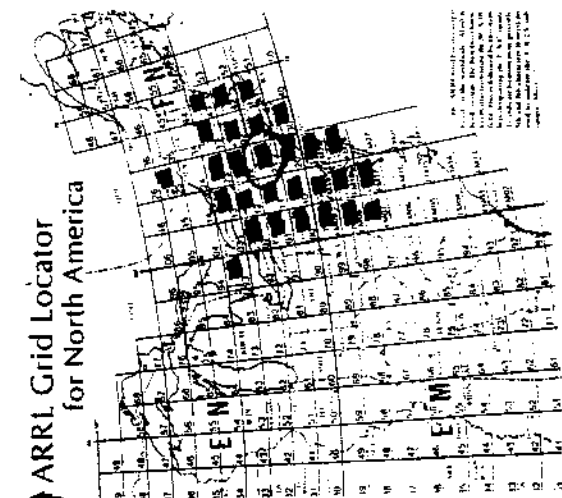
Every December or early January I get around to upgrading my antennas up or install them since they've fallen down. My wife thinks that it is a stupid thing to do when the weather is so terrible at this time of year. I try to explain that a real ham installs antennas at the optimum time and that they will operate better when they are "fresh". Two recent items have come to my attention that reinforce my theory that I would like to share with you. The July CQ magazine editorial by Alan, K2EEK, states: "I know that real hams do their antenna work in the freezing days of winter...". Also, the 2 meter report in the May issue of The VHF-UHF DXer (from England) reports that "Reg, GW8VHI thoroughly agrees with Andy's comments that it is a scientifically proven fact that antenna systems which are erected during raging winter blizzards give far superior performance to a similar system assembled in the halcyon days of summer...". There you are, two independent unbiased observations on the "right" time to do antenna work.



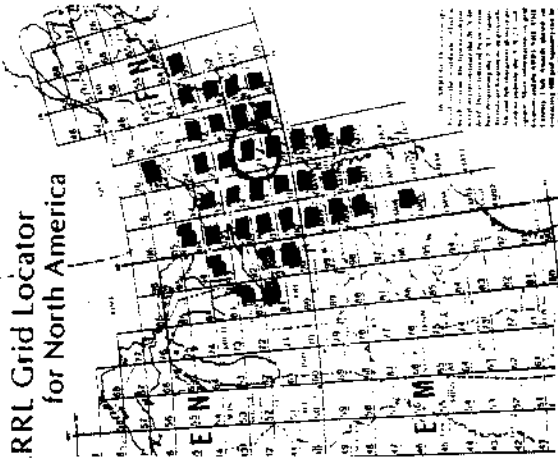
6 Meter Grids



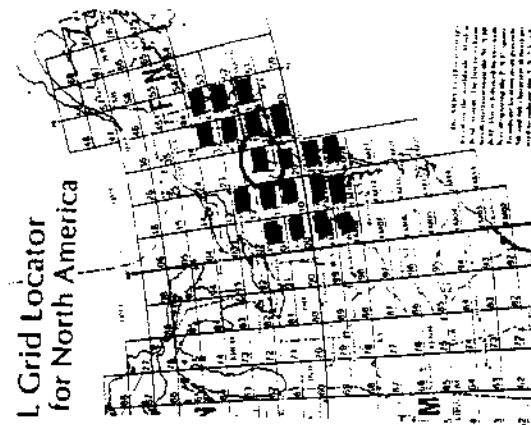
2 Meter Grids



222 MHz Grids



432 MHz Grids



903 MHz Grids

June 1993 VHF QSO Party Results

By Pat, WB3DNI

The annual expedition to Camelback mountain for the June VHF QSO Party went off as generally expected. We arrived on the mountain at about noon on Friday and after a brief moment of confusion, began the task of setting up all that equipment. When contest time rolled around at 2 PM on Saturday the gang was ready to go. We operated until the end of the contest at 11 PM on Sunday and dropped over where we stood until Monday morning. Despite the lack of basic survival necessities (coffee) 11 guys managed to hang in there until all was packed and we were ready to depart.

We had a total of 24 participants in the effort this year. I personally think that the guy that deserves the biggest cheer was Dave, WD5BRP, who provided the food for the weekend. I heard nothing but good things from all the guys. Good job Dave! I would also like to thank all the band captains for their extra effort in making things happen. Special thanks to Phil, WA3NUF, who provided those little reminders to keep me on track. Rookie of the year goes to Len, N3NGE, whom I tapped to be the band captain for 222. Len did a great job in getting the 222 station together, but thru personal misfortune could not stay and help operate. Bob, WB2YEH, and Rick, WC2K, provided just about all of the towers and rotors that we use. Thanks to Bruce, WA3YUE, for the effort in getting the computer network running. Thanks to John, KB3XG, for a super effort roving. He provided a lot of otherwise unworkable grids.

Hero of the year goes to Al, N3ITT, for facing down the bear (and waking up the editor in the process)!

The band captains were; W1YHO, WB3JYO, N3NGE, WA3AXV, N3AOG, and WA3NUF. The operators were; K3ESJ, N3ITT, N3EXA, W3GAD, WU3C, W3GXB, N3EVV, N3GSA, WA3YUE, N3BBI, WA3JUF, W3IIT and prospective member, KC3HK.

Visitors who dropped by were: W3KKN, K3EOD and KF6AJ.

The totals for the weekend looked like this:

PRELIMINARY RESULTS-W3CCX, FN21

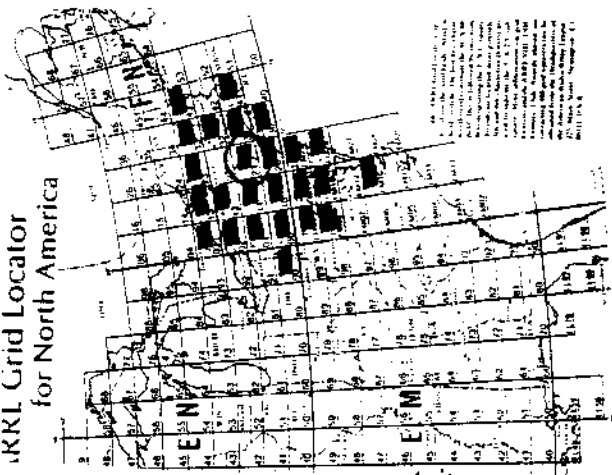
<u>Band</u>	<u>Contacts</u>	<u>Points</u>	<u>Grids</u>
50	548	548	140
144	660	660	58
222	146	292	28
432	241	482	38
903	34	102	20
1296	58	174	25
2304	6	64	10
3456	12	48	7
5760	3	12	1
10368	6	24	3
24000	1	4	1

Total: 2410 x 331 = 797,710 Points

It was a super effort by all, a lot of fun and hard work, great job guys, lets go '94!

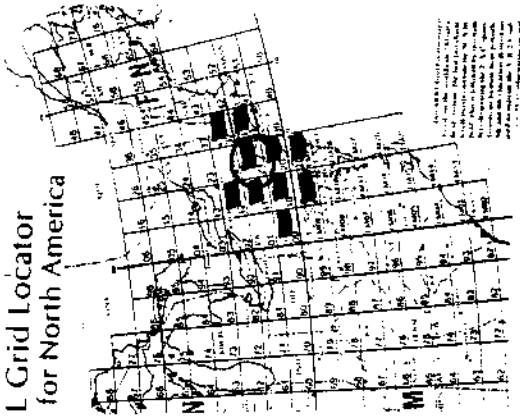
73,
Pat, WB3DNI

UKL Grid Locator
for North America



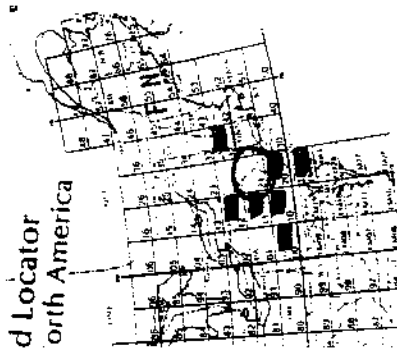
1296 MHz Grids

L Grid Locator
for North America



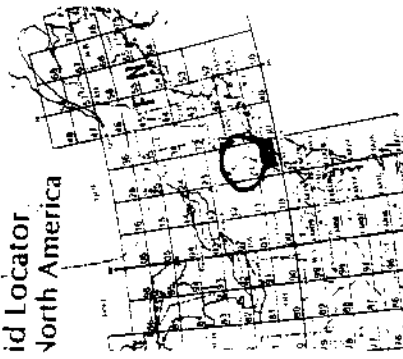
2304 MHz Grids

d Locator
orth America

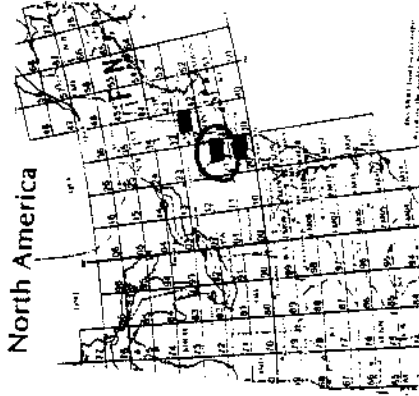


3456 MHz Grids

id Locator
North America



5.7 and 24 GHz Grids



10.GHz Grids

ELECTION OF OFFICERS

At the June meeting, the new slate of officers for the 1993-1994 year were voted in. The new officers :

<u>OFFICE</u>	<u>CALL</u>	<u>NAME</u>
President	WB3JYO	Paul Drexler
Vice Pres.	WA2OMY	Gary Hitchner
Treasurer	WA3JUF	Dave Mascaro
Rec. Sec.	WA3AQA	Walt Zumbach
Corr. Sec	N3AOG	D i c k C o m l e y
Directors	K3ESJ	Bill Jaxheimer (1 Year)
	N3EXA	Brian Taylor (1 Year)
	WA3AXV	Ron Whitsel (2 Years)
	WB2YEH	Bob Fischer (2 Years)

SWAP SHOP

Send non commercial swap shop items to the editor.

FOR SALE: Tek 545A 30 MHz Scope with dual trace plug-in, very good condition, \$30.00. 545B Scope, no plug-in, burn on crt, with above \$40.00. Collins 5760, 5 watt amp with documentation \$100.00. 2 3 ft. dishes, one w/feed mount and rear mounting plate, \$30.00. 6 Meter HB Amplifier with 4-400 in grounded grid, no PS, in 70's handbook, \$75.00. ARR 903 GaAsFET Amp with 17 dB gain and NF 0.7 dB, \$45.00. 10 watt commercial amp, +5 dBm input, +24 V., \$60.00. Various mixers thru 2304 MHz, call. 2 5 Element Telrex 6 meter beams with documentation, \$45.00. Gary Hitchner, WA2OMY, 215-539-6409.

FOR SALE: 5.7 GHz, 25 watt TWTA, -24v, 7 amp, fully metered, \$125.00. 5.7 to 6.3 GHz Microwave sources with internal oven, \$30.00. Various isolators and filters for 5.7 GHz, 2 ft. GG214 cables with N conn, 6x8x1 in and 3x8x1 in sealed boxes and 15 dB, 1watt coax attenuators with N connectors. Call Pat, WB3DNI at 215-672-5289.

WANTED: Clegg Thor 6 and a Gonset G28 for 10 meters. Call Bill, WB3IZX at 687-5232. Bill is on 6 Meter AM on 50.400.

COMMERCIAL AD

LOOP YAGIS: 902 MHz 33 element \$89 kit, \$109 assembled and tested. 1296 MHz 45 element, \$89 kit, \$109 assembled and tested. 1296 MHz 55 element "Sooper Looper" \$99 kit, \$124 assembled and tested. 2304 MHz 45 element \$75 kit, \$89 assembled and tested. Also available: element and hardware kits for the above. 2 and 4-way power dividers. Discount on complete arrays. Solid State Linear Power Amps, 13 VDC: 1296 - 8W in 35W out \$315, 1W in 20W out \$265, 4W in 70W out \$695. GaAs FET Preamps: 903 MHz .8dB NF \$90, 1296 MHz .8 dB, 2304 MHz 1 dB max NF \$140. SHF SYSTEMS No-tune Transverter kits, w/144 MHz IF now available for 903 through 3456 MHz. Write or call for complete catalog. DOWN EAST MICROWAVE, Bill Olson, W3HQT, Box 2301 RR-1, Troy, Maine. For information and orders telephone (207) 948-3741.

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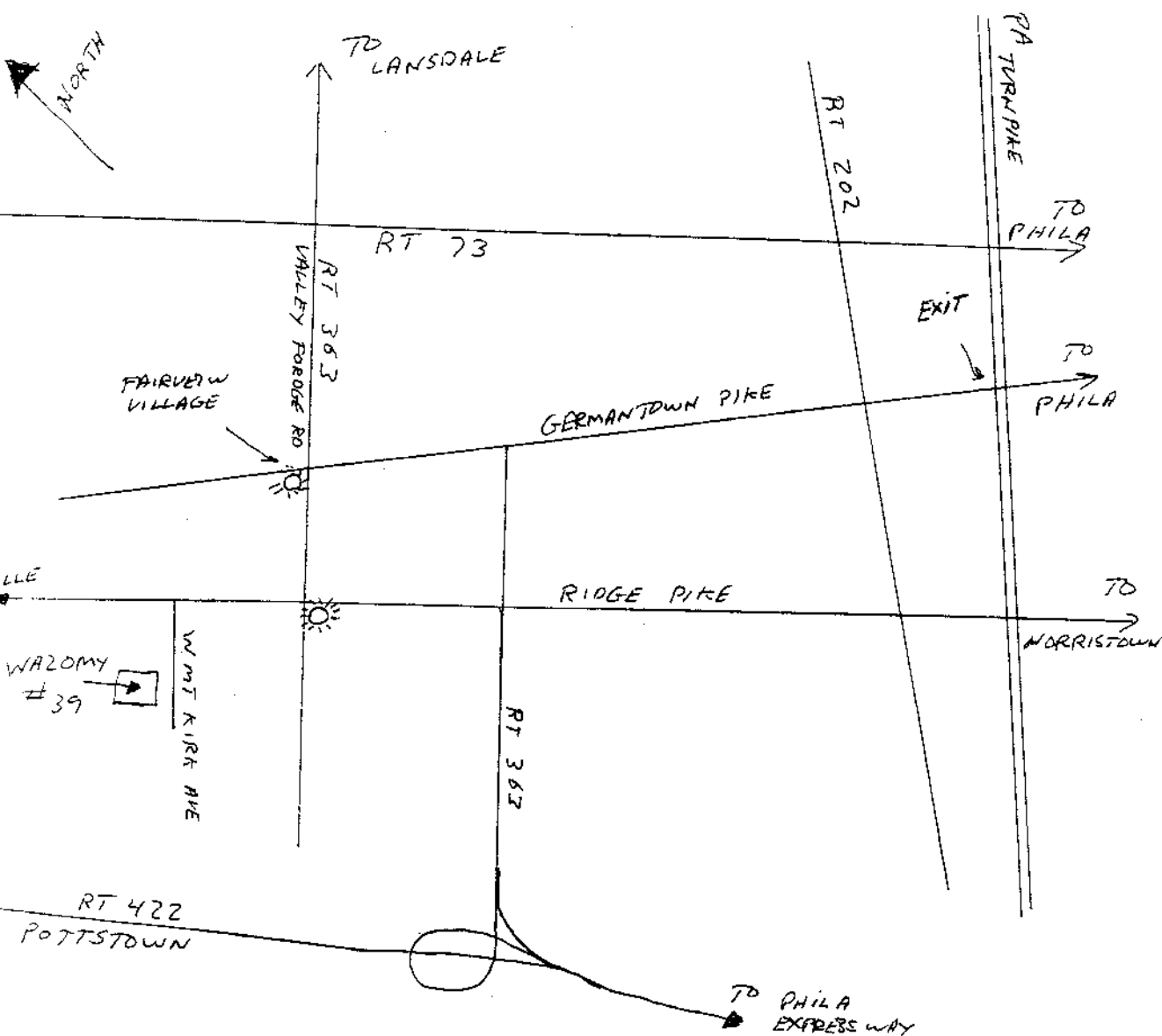
Cheesebits subscriptions are available to everyone interested in activities and information from the VHF thorough the microwave frequencies. Subscriptions are for 1 year of 12 issues. For a subscription, send the following information:

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July 93 Send to: SUBSCRIPTION/ADVERTISING MANAGER:
Bob Fischer, WB2YEH
7258 Walnut Avenue
Pennsauken, NJ 08110

DIRECTIONS TO GARY'S GULCH

The July meeting will again be at the QTH of WA2OMY in Eagleville PA. The program is "WHITE ELEPHANT SALE"! This is a chance for you to move something you keep kicking under your operating table, into somebodys basement, with some help for the club coffers. Actually if you talk to some past attendees you may find out it was well worth attending and a good time to boot. Rumor has it that the experienced K3IUUV will start the auctioning. So lets see if we can increase the attendace a little and all have a good time on the 15th.

Map shown below. Additional parking at the corner drugstore, driveway will be kept open for loading and unloading of usable items.



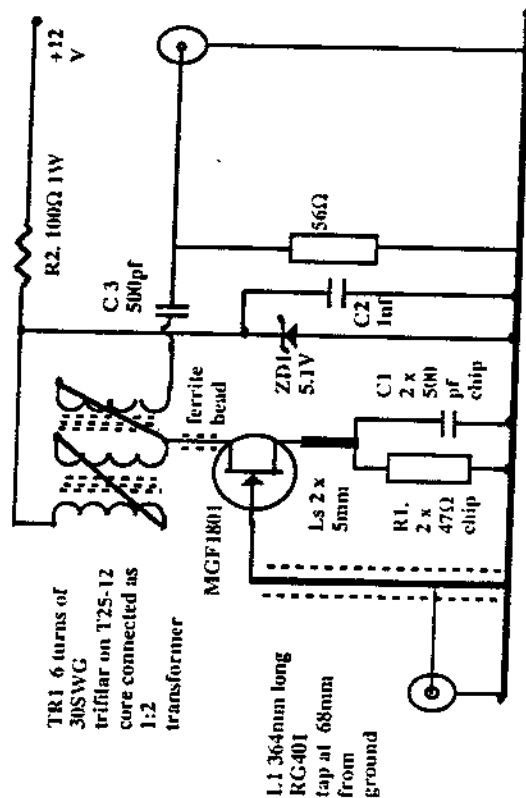
144MHz No-Tune Pre-amplifier - Revised by John Regnault G4SWX

Since my original article in the VHF DXer 1/93 I have put in many hours at the bench and even more at the PC attempting to improve this pre-amplifier. After a great deal of experimentation I must admit that I don't seem to have moved as far as I would have liked, but the results probably still worth publishing.

I set out with two objectives; firstly to improve the input return loss, only 0.5dB in the original, and secondly to achieve a condition of unconditional stability, $K > 1$. It would have been nice to further improve the dynamic range but as I described in my first article, this is akin to finding the holy grail.

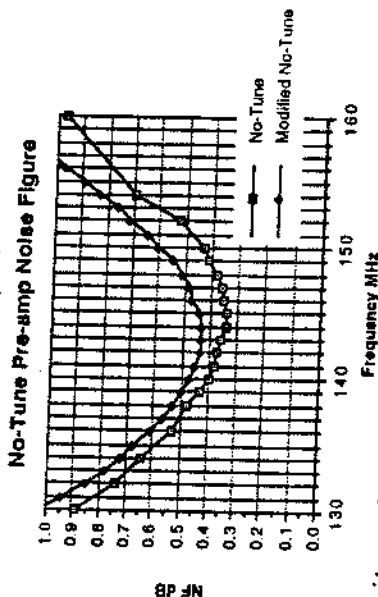
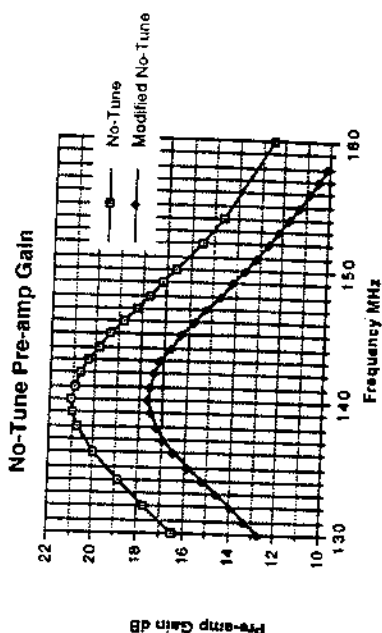
During this work I started to use a commercial software package RFDDesigner. This I have used to test a variety of design changes so that I am now satisfied that there is very little to be gained by further improvement.

The first change is to introduce an output stabilisation resistor, 56Ω in parallel with the pre-amplifier output. In order to maintain the same effective drain load, 12.5Ω, I have reduced the output transformation from 1:4 to 1:2. This leads to a reduction in gain of 3dB but produces a pre-amplifier that is unconditionally stable. This circuit has also been modelled by others using different software whose results have agreed with my own.



144MHz MGF1801 Pre-amp

To improve the input match I have added a small amount of source feedback, this increased the input return loss from 0.5dB to 1.5dB, a worthwhile improvement. The addition of L_s is relatively simple, I just spaced out the decoupling capacitors to the extremes of the fet leads(5mm), taking care that the length on each side was similar.



As can be seen from the graphs above the penalties paid for the improved input return loss and unconditional stability are a 3dB reduction in overall pre-amp gain and an increase in NF of 0.07dB (if you believe that you really can measure this ?)

One variation which I have not tried was to change the output transformer to 1:1 turns ratio. This should still be unconditionally stable but will increase the overall gain by 3dB, if you really must have 20dB, but slightly degrade the noise figure and input return loss. It is possible to build a similar MGF1801 pre-amp with L/C input circuits, published designs not to compromise overall stability.

Do You Really Need a Power fet pre-amp ?

I have been asked why use such an exotic device like the MGF1801 when you can just as low a noise figure with the cheaper MGF1302. You may even use a programme such as G3SEK's TCALC to "prove" that you cannot possibly utilise such a large dynamic range in the pre-amp as the rest of the receiver will fall over. This is true if you only consider in-band signals but the reason for attempting to obtain a very high dynamic range pre-amplifier is to cope with strong out of band signals which are filtered out from the 2nd stage and mixer.

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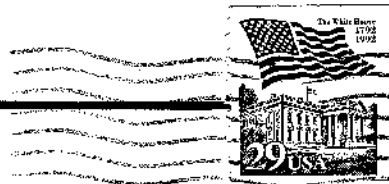
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