

PACK RATS'



PACK RATS

CLUB CALL: W3CCX

MT. AIRY VHF RADIO CLUB, INC.

CHEESE BITS



MT. AIRY VHF RADIO CLUB, "THE PACK RATS", PHILADELPHIA, PA. W3CCX
NET FREQUENCIES: 50.150, 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, K3IUV, 2013

VOLUME XXXVII

December 1995

Number 12

THE PREZ SEZ

The arrival of colder weather should remind everyone that the January VHF contest is close at hand. The January SS is probably the best test of operator and equipment of any of the regularly scheduled contests. Band conditions are typically flat and usually don't favor any particular geographic area, the weather will be cold to miserable, and most of us will be walking zombies from long nights of fixing what broke over the summer or finishing that new project just in time for the contest. The only comforting thought is that you can rest assured there are hundreds of other VHF'ers like yourself who will be going through the same time honored ritual.

There are many motivations for operating in this contest: the competition, club spirit, the chance to work a new band or test a new rig, and just knowing that the bands will be crowded with activity. About this time of year almost everyone will tell you that they don't get excited about January or they'll moan and groan about the effort required or the lousy conditions. But just listen to the club repeater or local net frequency and as the contest date approaches you will hear the same people asking for a radio check or discussing the new flame thrower antenna system they just installed. The night before the contest you can hear the anxiety in the voices of these dispassionate contesters as they scramble to get prepared for the big weekend.

There are numerous reasons to explain why you chose to be an active VHF'er. For most of us it's knowing that we're part of an exclusive group of builders, experimenters, and operators who enjoy making incredible contacts at frequencies that others claim shouldn't work past line of sight. January provides a great opportunity to test your skill and catch those rare grids that only show up in a contest. With the contest only 6-7 weeks away there is still time to make improvements to your station. Ask for help, there is plenty available. Whether you like contests or just like to give out points the club needs you to help win the gavel.

The December meeting is our annual contest strategy meeting. Plan to attend and receive your contest packet and maybe get some new ideas on contest operating. Also, remember to bring in your flea market sale items. The silent auction at last month's meeting was a big success. A lot of old treasures found new owners.

73, Phil, WA3NUF

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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PACKRAT 222 MHz REPEATER - W3CCX/RPTR

222.98/224.58 MHz, Churchville, PA

OFFICERS: 1993-1994


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	N3OZO,	Don Schwartzkopf (2 YR)
	WB3KRW,	Steve Dallas (2 YR)

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	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 610-630-1875
JUNE CONTEST: WB3DNI 215-672-5289
HAMARAMA: WB3JYO 609-538-1687
VHF CONFERENCE: KB3XG 610-584-2489

THE AMERICAN RADIO RELAY LEAGUEOST

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Calendar of Coming Events - December 1995

- 1-3 ARRL 160 Meter Contest.. See page 130 of the Nov. issue of QST for the rules.
- 4 Check into the 6 Meter Net on 50.150 MHz at 7:30 PM EST.
- 4 Check into the 903 MHz Net on 903.100 MHz at 10:00 PM EST.
- 9-10 ARRL 10 Meter Contest. 0000 UTC Saturday until 2400 UTC Sunday. See page 130 of the Nov. issue of QST for the rules.
- 11 Check into the 2 Meter Net on 144.150 MHz at 8:00 PM EST.
- 11 Check into the 1296 MHz Net on 1296.100 MHz at 10:00 PM EST.
- 14 Packrat board of directors meeting at the QTH of Dave, WA3JUF. Call (215) 795-2648 for directions. All interested parties invited. Meeting starts at 8:00 P.M.
- 14 Predicted peak of the Geminids meteor shower at 0659 UTC.
- 18 Hanukkah
- 18 Check into the 220 MHz Net on 222.125 MHz or 224.58/R at 8:30 PM EST.
- 18 Check into the 432 MHz Net on 432.110 MHz at 9:00 PM EST.
- 21 **Regular meeting** of the Mt. Airy VHF Radio Club at the Southampton Free Library on Street Rd. in Southampton, Pa. Have you qualified to submit a contest log for the January contest for the club by attending the minimum of 2 meetings? Come anyway!
- 22 Predicted peak of the Ursids meteor shower at 2326 UTC.
- 25 **Merry Christmas** to all.
- Jan. 1996
- 20-21 **THE CONTEST.** Everyone's help in getting at least 51 logs submitted this year is necessary to qualify the club for the Unlimited Class in the club competition. See this issue of Cheesebits or consult your contest package for the rules.

New Member

Joe Landis, AA3GN, became a new member at the November meeting. Joe lives at 203 Twining Road, Lansdale, Pa. 19446. His home phone number is 215-855-6056 and at work 215-721-5400. His XYL is Carol. Joe has an extra class license and is active on HF, 2 meters, 440 FM and is working on 10 GHz. According to the Buckmaster Callbook CD ROM, Joe's grid is FN20JG.

BEACON Update

By Phil Miguelez, WA3NUF

If you haven't heard, all of the CCX beacons have been taken off the air. Despite the gallant efforts of Jack, Steve, Dave, Ron, and others, the TVRO interference problem could not be solved. The beacons have been removed and a new site is being investigated. No one said it would be easy.

Visitors at the November Meeting

Bill Nicholson, W3KOC, Willow Grove, Pa.

Rules, 1996 January VHF Sweepstakes

By: Billy Lunt, KR1R Contest Manager, ARRL 860-594-0252 blunt@arrl.org contest@arrl.org

1) **Object:** To work as many amateur stations in as many different 2 degrees X 1 degree grid squares as possible using authorized frequencies above 50 MHz. Foreign stations work W/VE amateurs only.

2) **Contest Period:** Begins 1900 UTC Saturday, January 20 and ends at 0400 UTC Monday, January 22, 1996.

3) **Categories:**

(A) **Single Operator:** One person performs all operating and logging functions.

(1) **Multiband.**

(2) **Single Band:** Single-band entries on 50, 144, 222, 432, 902, 1296 and 2304-and-up categories will be recognized both in QST score listings and in awards offered. Contacts may be made on any and all bands without jeopardizing single-band entry status. Such additional contacts are encouraged and should be reported. Also see Rule 9, Awards.

(B) **Single Operator, QRP Portable:** Run 10-W output or less using a portable power source from a portable location. The intent of this rule is to encourage operation from "remote" locations, not to have home or fixed stations run low power.

(C) **Rover:** One or two operators of a single station that moves among two or more grid squares during the course of the contest. A rover vehicle may transport only one station using a single call sign; thus a rover may not operate with multiple call signs under the family rule 7 (C). Rover vehicles must transport all the equipment, power supplies, and antennas used at each operating site. This rule is not intended to prevent an operator from using the same call sign to submit separate logs for single operator (fixed station) and rover entries. Rovers sign "rover" on phone and /R on CW after their call sign. All Rovers are encouraged to adopt operating practices that allow as many stations as possible to contact them. Rovers entering club competition must indicate the grid squares where operating sites were within their club's area, as spelled out in the Club Competition Rules. Only scores from those operating sites count toward the club's aggregate score for club competition.

(D) **Multioperator:** Multioperator stations must locate all equipment (including antennas) within a circle whose diameter does not exceed 300 meters (1,000 feet).

(E) **Limited Multioperator:** Multioperator stations that submit a maximum of four bands for score are eligible. Logs from additional bands used should be included as checklogs.

4) **Exchange:** Grid-square locator (see April 1994 QST, p 86). Example: WIAW in Newington, CT would send FN31. Exchange of signal report is optional.

5) **Scoring:**

(A) **QSO points:** Count one point for each complete 50- or 144-MHz QSO. Count two points for each 222- or 432-MHz QSO. Count four points for each 902- or 1296-MHz QSO. Count eight points for each 2.3-GHz or-higher QSO.

(B) **Multiplier:** The total number of different grid squares worked per band. Each 2 degrees X 1 degree grid square counts as one multiplier on each band it is worked.

(C) **Final score:** Multiply the total number of QSO points from all bands operated by the total number of multipliers for final score (see scoring example).

(D) **Rovers only:** The final score consists of the total number of QSO points from all bands times the sum of unique multipliers (grid squares) worked per band (regardless of which grid square they were made in) plus one additional multiplier for every grid square activated (made a contact from). Rovers are listed in the contest score listings under the Division from which the most QSOs were made.

6) **Use of FM:**

(A) Retransmitting either or both stations, or use of repeater frequencies, is not permitted. This prohibits use of all repeater frequencies. Contest entrants may not transmit on repeaters or repeater frequencies on 2 meters for the purpose of soliciting contacts.

(B) Use of the national simplex frequency, 146.52 MHz, or immediate adjacent guard frequencies is prohibited. Contest entrants may not transmit on 146.52 for the purpose of making or soliciting QSOs. The intent of this rule is to protect the national simplex frequency from contest monopolization. There are no restrictions on the use of 223.50 MHz.

(C) Only recognized simplex frequencies may be used, such as 144.90 to 145.00; 146.49, .55 and .58, and 147.42, .45, .48, .51, .54 and .57 MHz on the 2-meter band. Local-option simplex channels and frequencies adjacent to the above that do not violate the intent of (A) or (B) above or the spirit and intent of the band plans as recommended in the ARRL Repeater Directory may be used for contest purposes.

7) **Miscellaneous:**

(A) Stations may be worked for credit only once per band from any given grid square, regardless of mode. This does not prohibit working a station from more than one grid square with the same call sign (such as a Rover). Crossband QSOs do not (contd. on page 6).

Jan VHF Sweepstakes Contest Rules Contd.

count. Aeronautical mobile contacts do not count.

(B) Partial QSOs do not count. Both calls, the full exchange and acknowledgment must be sent and received.

(C) A transmitter or antenna used to contact one or more stations may not be used subsequently under any other call during the contest period (with the exception of family stations); one operator may not give out contest QSOs using more than one call sign from any one location. The intent of this rule is to accommodate family members who must share a rig, not to manufacture artificial contacts.

(D) Only one signal per band (6, 2, 1 1/4, etc.) at any given time is permitted, regardless of mode.

(E) While no minimum distance is specified for contacts, equipment should be capable of real communications (i.e., able to communicate over at least 1 km).

(F) Multioperator stations may not include QSOs with their own operators except on frequencies higher than 2.3 GHz. Even then, a complete, different station (transmitter, receiver and antenna) must exist for each QSO made under these conditions.

(G) A station located precisely on a dividing line between grid squares must select only one as the location for exchange purposes. A different grid-square multiplier cannot be given out without moving the complete station (including antennas) at least 100 meters

(H) Above 300 GHz, contacts are permitted for contest credit only between licensed amateurs using coherent radiation on transmission (e.g., laser) and employing at least one stage of electronic detection on receive.

(I) Marine Mobile (and Maritime) entries will be listed separately as "Marine Mobile" in the listings and compete separately for awards.

(J) Participants are reminded that the segment 50.100-50.125 MHz should be used for intercontinental QSOs only, using 50.125 MHz as a calling frequency then QSY after contact is established.

8) Reporting:

(A) Entries must be postmarked no later than 30 days after the end of the contest (February 22, 1996). No late entries can be accepted. Use ARRL January VHF Sweepstakes forms, a reasonable facsimile, submit your entry on diskette, upload your entry to the ARRL BBS, or send your entry to ARRL HQ via Internet.

(1) You may submit your contest entry on diskette in lieu of paper logs. The floppy diskette must be IBM compatible, MS-DOS formatted, 3.5 or 5.25 inch (40 or 80 track). The log information must be in an ASCII file, following the ARRL Suggested Standard File Format, and contain all log exchange information (band, mode, date, time in UTC, call of station worked, exchange sent, exchange received, multipliers [marked the first time worked] and QSO points). One entry per diskette. An official summary sheet or reasonable facsimile with signed contest participation disclaimer is required with all entries.

(2) You may submit your contest entry via the ARRL BBS (860-594-0306) or via Internet to contest@arrl.org. Send your summary sheet file (Make sure it includes all the pertinent information outlined in the official ARRL summary sheet.) and your log file following the ARRL Suggested Standard File Format.

(B) Logs must indicate band, mode, date, time in UTC, calls and complete exchanges (sent and received), multipliers and QSO points. Multipliers should be marked clearly in the log the first time they are worked. Entries with more than 200 QSOs total must include cross-check sheets (dupe sheets). Send entries to: ARRL Contest Branch, 225 Main St., Newington, CT 06111.

9) Awards: Certificates will be awarded in the following categories

(A) Single operator

(1) Top single operator in each ARRL/RAC Section.

(2) Top single operator on each band (50, 144, 222, 432, 902, 1296 and 2304-and-up categories) in each ARRL/RAC Section where significant effort or competition is evident. (Note: Since the highest score per band will be the award winner for that band, an entrant may win a certificate with additional single-band endorsements.) For example, if WBOTEM has the highest single-operator all-band score in the Iowa Section and his 50- and 222-MHz scores are higher than any other Iowa single op's, he will earn a certificate for being the single-operator Section leader and endorsements for 50 and 222 MHz.

(B) Top single-operator, QRP portable in each ARRL/RAC Section where significant effort or competition is evident. Single operator, QRP portable entries are not eligible for single-band awards.

(C) Top rover in each ARRL Division and Canada where significant effort or competition is evident. Rover entries are not eligible for single-band awards.

(D) Top multioperator score in each ARRL/RAC Section where significant effort or competition is evident. Multioperator entries are not eligible for single-band awards.

(E) Top limited multioperator in each ARRL/RAC Section where significant effort or competition is evident. Limited multioperator entries are not eligible for single-band awards.

10) Club Competition: ARRL-affiliated clubs compete for gavels on three levels: unlimited, medium and local.

11) Condition of Entry: Each entrant agrees to be bound by the provisions, as well as the intent, of this announcement, the regulations of his or her licensing authority and the decisions of the ARRL Awards Committee.

12) Disqualification: For excess duplicate contacts and call sign or exchange errors.

Band (MHz)	Scoring Example		
	QSOs	QSO Points	Grid Squares
50	25 (x1)	25	10
144	40 (x1)	40	20
222	10 (x2)	20	5
432	15 (x2)	30	10
902	36 (x4)	144	9
1296	5 (x4)	20	3
2304	1 (x8)	8	1
5760	1 (x8)	8	1
Totals	133	295	59

Final Score = (QSO Points) x (Total no. of Grid Squares) 17,405 = 295 x 59

CQ INTRODUCES NEW VHF MAGAZINE

CQ VHF TO DEBUT ON NEWSSTANDS DEC. 14 (Hicksville, New York) -- CQ Communications, Inc., publishers of CQ magazine, will introduce a new magazine called CQ VHF, Publisher Richard Ross, K2MGA, announced today. Aimed at ham radio operators active on frequencies above 50 MHz, CQ VHF will be available by subscription and on newsstands as of mid-December, 1995.

Richard Moseson, NW2L, will be the new publication's editor. "Nearly one third of a millions hams in the USA have license privileges primarily permitting operation on frequencies above 50 MHz," said Ross, noting that "VHF licensees represent the overwhelming majority of growth in ham radio today." (The Technician Class amateur license, which does not require knowledge of Morse Code and is the preferred point of entry to ham radio, grants operating privileges only on VHF frequencies.) "While all of the current ham magazines provide some coverage to VHF, their prime focus remains the HF market," Ross continued. "CQ VHF will serve the specific needs and interests of hams whose operational and technical interests exist above 50 MHz."

According to Moseson, the new magazine will cover "the full spectrum of VHF and UHF ham radio, from FM repeaters to the high-tech frontiers of microwave and laser communications. There will be a mix of articles for the new ham as well as the more experienced operator." Articles in CQ VHF will cover both operating and technical topics. Features slated for the premiere issue include two articles on repeater basics and a review of Radio Shack's HTX-212 2-meter mobile transceiver, as well as articles on "Passive Repeater Linking," "A Modular Approach to Building a VHF Weak-Signal Station" and an introduction to Sporadic-E propagation by 6-meter authority Ken Neubeck, WB2AMU. Other authors scheduled for the first issue include CQ veterans Lew McCoy, W1ICP, and Dave Ingram, K4TWJ, along with Barry Baines, WD4ASW, writing about satellites, and Communications Quarterly Senior Technical Editor Peter Bertini, K1ZJH.

The new magazine will not lead to a reduction in VHF> related content in its parent magazine, CQ. According to Ross, "This specialty magazine reflects our commitment to greater coverage of VHF activities than we can provide in a general-interest magazine such as CQ. However, CQ itself will continue to publish Joe Lynch's "VHF+" column, to sponsor the CQ World Wide VHF Contest and to present VHF-related features and advertisements in the context of its broad overall coverage of amateur radio." The first issue of CQ VHF will be dated January/February, 1996, but the magazine will be published monthly beginning with the March, 1996, issue.

"Weak Signal News" column for "CQ VHF"

By: Tim Marek, NC7K

As previously posted, CQ is starting a new monthly magazine "CQ VHF" this January. They intend to cover all aspects of VHF and above operation from FM, Packet, Repeaters, to Weak Signal work. I ran into the new Editor - Rich, NW2L on the VHF reflector as he was gathering data on Weak Signal operating. We started a Email conversation regarding the NorthWest VHF confrence and went on from there. Calling a few days later to discuss a few ideas for the magazine, he offered me the job of Weak Signal columnist starting with the second issue! After recovering from the initial shock I stammered "Sure, You bet!" Right away I realized the only way it can work is with YOUR help. In addition to reading the various reflectors I NEED your input for story ideas, Activity reports, DXpedition plans, Technical updates, photographs, etc. You can send your info several ways. Email - NC7K@VHF.Reno.NV.US or Tim.Marek@Megasystem.ComVoice - (702)972-4722 (I sleep from 11 PM to 7 AM PDT) FAX - Call the voice line and ask for the FAXSnail Mail - Tim Marek, 360 Prestige Ct., Reno, NV 89506 Remember, This will be Our column to share Our news and views.

73s from DM09ep

TID BITS

The 1995 UHF Contest results are in (see Dec. QST). Packrats AA2UK, N2SB, WB2YEH, K3GNC, KB3XG, K3DMA and W3HQT submitted logs. Bill, AA2UK ended up 4th overall in the single operator category.

The June QSO Party results were also in the Dec. issue of QST. W3CCX ended up in 5th place overall. Bill, AA2UK, was 7th place in the single operator category. Other rats entering logs were W2EIF, KB3QM, K3GNC, and KB3IB.

In the September issue of QEX, Zack Lau, KH6CP/1, provides a design for a 6 meter transverter. The interesting feature is that it uses a 2 meter rig as the IF instead of the usual 10 meter one that we are used to. Output power is 10 watts and the NF is around 1.1 dB plus the loss of front end filters of which several options are presented.

USING THE CHAPARRAL 11 GHz SUPERFEED AT 10.368 GHz

By: Paul Wade, N1BWT 1995

The best feed I have tested for a prime-focus dish is a Ku-band TVRO scalar feed from Chaparral, which they call the 11 GHz Superfeed (Chaparral catalog #11-0148). Although it is specified for 11 GHz, it works as well as a Chaparral feed that K1DPP made from the ARRL UHF/Microwave book, dimensioned for 10.3 GHz. Since it took Don 6 hours work to machine a feed, the TVRO one seems like a bargain.

The Chaparral feed works well on dishes with $f/D \sim 0.39$ to 0.45 ; we measured efficiency as high as 60% on a 24-inch dish at 10.368 GHz. For slightly shallower dishes, $f/D \sim 0.45$ to 0.47 , efficiency was improved slightly by shortening the projecting central ring so it was level with the outer rings. With this modification we measured efficiency of 64% on a 30-inch dish of $f/D = 0.45$. In a direct comparison on a 25-inch dish with $f/D = 0.45$, efficiency increased to 61% with the modified Superfeed compared to 56% unmodified. On the other hand, a 22" dish of $f/D = 0.39$ showed better efficiency with an unmodified feed.

As shown in the sketch, the input waveguide to the feed is narrower and taller than standard WR-90 waveguide, but we have obtained good results by centering the alignment in both dimensions by eye, then drilling and tapping holes in the feed flange to mate with the waveguide flange. Another approach is to bore out the flange to mate with 3/4 inch copper pipe used as circular waveguide; I have not tried this, and the example I've seen did not work as well when measuring sun noise.

With no further tuning, a return loss of 10 to 12 dB is obtained, which is usable, but could cause a reflection loss of about 0.3 dB. The return loss is easily improved with a tuning screw, as shown in the sketch. To reduce corrosion, I used an aluminum screw to match an aluminum waveguide; brass screws are better for brass or copper waveguides, and stainless steel is lossy. The location of the screw is quite critical; I measured the impedance with a WR-90 slotted line and calculated the location. For the unmodified Superfeed, the screw distance is 11 mm. from the flange interface, centered in the broad face of the waveguide. If the Superfeed is modified by cutting the central waveguide ring level with the outer rings, then the screw distance is 14.5 mm. For any other modification or frequencies other than 10.368 GHz, you are on your own. The screw is adjusted for best return loss -- better than 20 dB is normal. All efficiencies cited above were measured with the tuning screw adjusted for best return loss, which did increase gain by about the expected 0.3 dB. However, if you are unable to measure return loss, no tuning screw is better than a misadjusted one.

We experimented with the focal distance for this feed, using one that N1IOL modified to make the outer choke rings adjustable. It appears that the focal point is controlled by the outer choke rings, labeled "focal point reference" in the sketch, independent of the projection of the center ring, which makes small adjustments to the illumination angle for different f/D . My best estimate for the focal point of this feed is 3 mm. behind the "focal point reference," inside the feed horn.

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:

Name: _____ Call: _____

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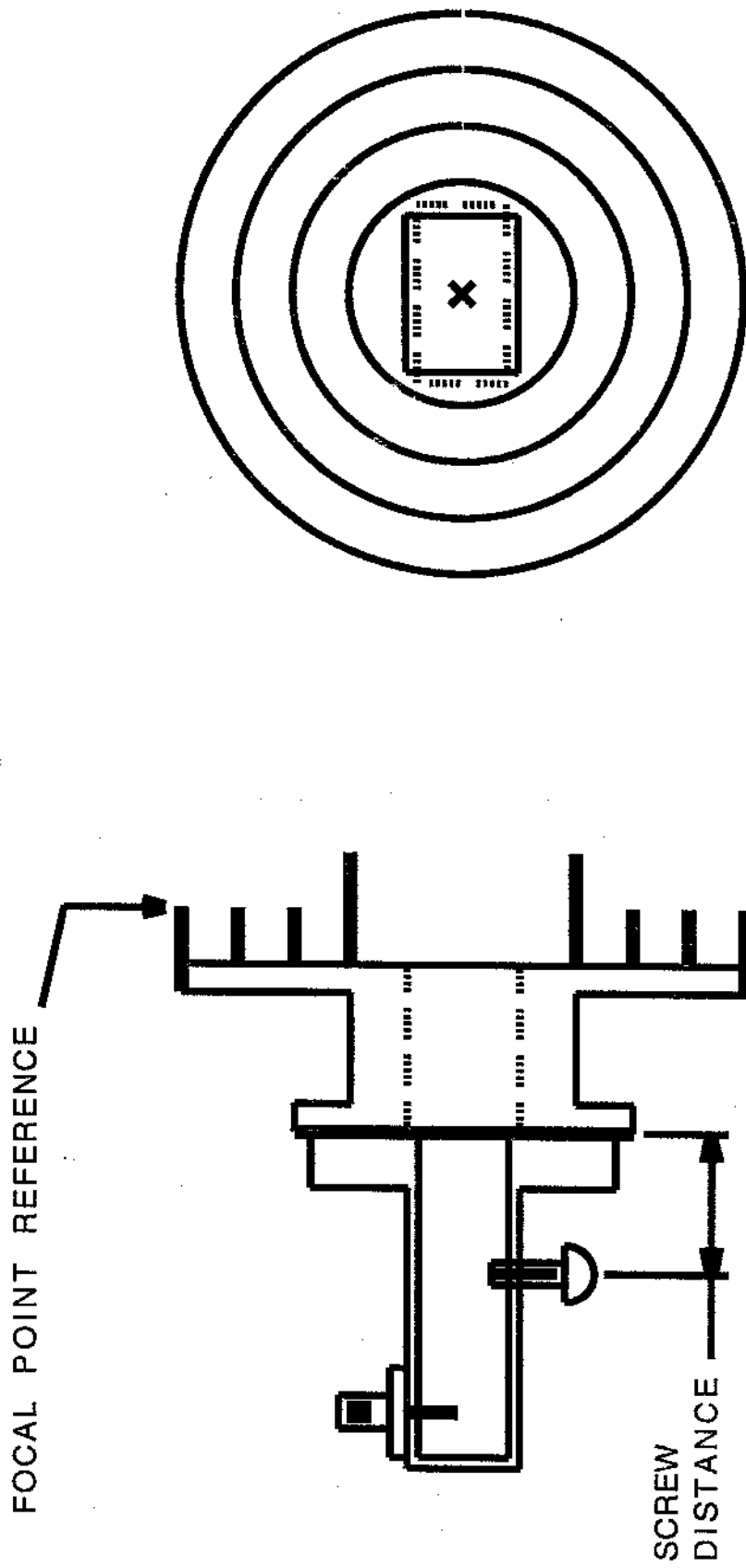
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7258 Walnut Avenue

Pennsauken, NJ 08110

CHAPARRAL FEED FOR 10.368 GHZ



CHAPARRAL
11 GHZ
SUPERFEED
WR-90
ADAPTER

N1BWT

The Pack Rats Announce 2nd Annual January Contest Award!

(For Non-Members Only! Pack Rats Not Eligible)

Once again as an incentive to increase activity on the VHF + bands during the ARRL January VHF Sweepstakes on January 20-22, 1996, The PACK RATS will sponsor a special award to be given to the NON-CLUB MEMBER, SINGLE OPERATOR STATION that works the most PACK RAT QSO's on all bands.

For example, if W3ABC works WA3AXV on 5 bands and works WA3NUF on 2 bands he will have a total of 7 PACK RAT QSO's.

Please submit a copy of your logs with PACK RAT QSO's worked indicated for verification to Bob Fischer, WB2YEH at the address below.

Deadline for logs received will be 30 days after the contest. The award will be a handsome brass key mounted on a finished wood base with an engraved plate and a pen holder.

This award was on display at our "HAMARAMA" hamfest in October. If you saw it you will want to display it in your shack soon!

All participants submitting logs will receive a certificate suitable for framing.

NOTE: SEE LIST OF PACK RATS AND BANDS THEY WORK ON BACK.

For Any Questions, Please Contact:

Bob Fischer, WB2YEH

7258 Walnut Avenue, Pennsauken, NJ 08109

609-665-8488

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Check-off list for Pack Rats to look for in the January 20-22, 1996 VHF SS

CALL	GRID	BANDS USED	CALL	GRID	BANDS USED
KUGA	FN20kj	6-2-222-432	WB2JHG	FM29ou	6-2-222-432-903-1.2-2.3
WN3A	FN20hc	2-222	WA3JUF	FN20kl	6-2-222-432-903-1.3-2.3-3.4
K3ACR	FN20kc	6-2-222	WB3JYO	FN20of	6-2-222-432-903-1.3-2.3-3.4
N3AOG	FN20ke	6-2-222-432-903-1.3-2.3-3.4	WC2K	FM29pu	6-2-222-432-903-1.3
WA3AGA	FN20kc	6-2-222-432-903-1.3	W3KKN	FN20kd	6-2-222-432-903-1.3-2.3
W2AXU	FN20og	6-2-222-432	WB3KRW	FN20ji	6-2-222-432-903-1.3
WA3AXV	FN20ie	6-2-222-432-903-1.3-2.3-3.4	K3LOM	FN20jd	6-2-222-432
K3BFP	FN20ig	6-2-222-432 1.3-2.3	K3MFI	FN20ie	6-2-222-432 1.3
W3CXU	FN20kd	6-2-222-432	KA3MGB	FN20cm	6-2-222
N2DEQ	FN20is	2	WA3NFV	FN20ji	6-2-222
K3DMA	FN20kc	6-2-222-432-903-1.3	N3NGE	FN20bd	6-2-222-432-903-1.3-2.3
WB3DNI	FN20ke	6-2-222-432-903-1.3-2.3-3.4	N3NIA	FN01st	6-2-222-432
N3DQZ	FN20kh	6-2-222-432 1.3	W3NSI	FM29wx	2-222
K3EBZ	FN20ke	6-2-222-432 1.3	WA3NUF	FN20ke	6-2-222-432-903-1.3-2.3-3.4
WA3EHD	FN20kd	6-2-222-432 1.3	AK3O	FN20mf	6-2-222-432-903-1.3-2.3
W2EIF	FN29lt	6-2-222-432-903-1.3-2.3	WA2OMY	FN20hd	6-2-222-432-903-1.3-2.3-3.4
K3EOD	FN20lb	6-2-222-432-903-1.3	N3OZD	FN20ke	6-2-222-432 1.3
K3ESJ	FN20ii	6-2-222-432-903-1.3	WR3P	FN20kb	6-2-222
K2EVW	EM96uv	2	K3PHY	FN20kd	6-2-222 903
N3EXA	FN20ii	6-2-222-432-903-1.3	KB3QM	FM28en	6-2-222-432-903-1.3-2.3-3.4
W3GAD	FN20mf	6-2-222-432	WA3RLT	FM29cx	6-2 432 1.3
WA2GFP	FN20kd	6-2-222-432-903-1.3-2.3-3.4	W0RSJ	FN20jq	6-2-222-432-903-1.3-2.3-3.4
K3BNC	FM29kw	6-2-222-432 1.3	WB2RXM	FM29mv	2-222
N3GSA	FN20hk	2-222-432-903-1.3	N2SB	FM29mx	6-2-222-432-903-1.3-2.3-3.4
W3GXB	FN20jm	6-2-222-432-903-1.3	WA3U	FM29co	6-2-222-432 1.3
W3HFY	FM29ix	6-2-222-432-903-1.3	AA2UK	FM29oo	6-2 432-903-1.3-2.3-3.4
W3HK	FN20ka	6-2-222-432	K3VEQ	FN20hf	6-2
W3HMU	FN20kl	6-2-222-432	WB2VLA	FN20of	6-2-222-432-903
W3HQT	FN54jp	6-2-222-432-903-1.3-2.3	KB3XB	FN20hd	6-2-222-432-903-1.3-2.3-3.4
WA3IAC	FN20lb	6-2-222-432-903-1.3	WB2YEH	FM29lw	6-2-222-432-903-1.3-2.3-3.4
KB3IB	FN20nd	6-2-222-432-903-1.3-2.3	WA1YHO	FN42it	6-2-222-432-903-1.3-2.3
W3IIT	FN20hd	6-2-222-432 1.3	WA3YUE	FN20hd	6-2-222-432-903-1.3
N3ITT	FN20kl	6-2-222-432-903-1.3	WB8ZAR	FN10wp	6-2-222-432-903-1.3
K3IUU	FN20ld	6-2-222-432 1.3			

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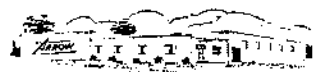
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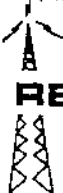
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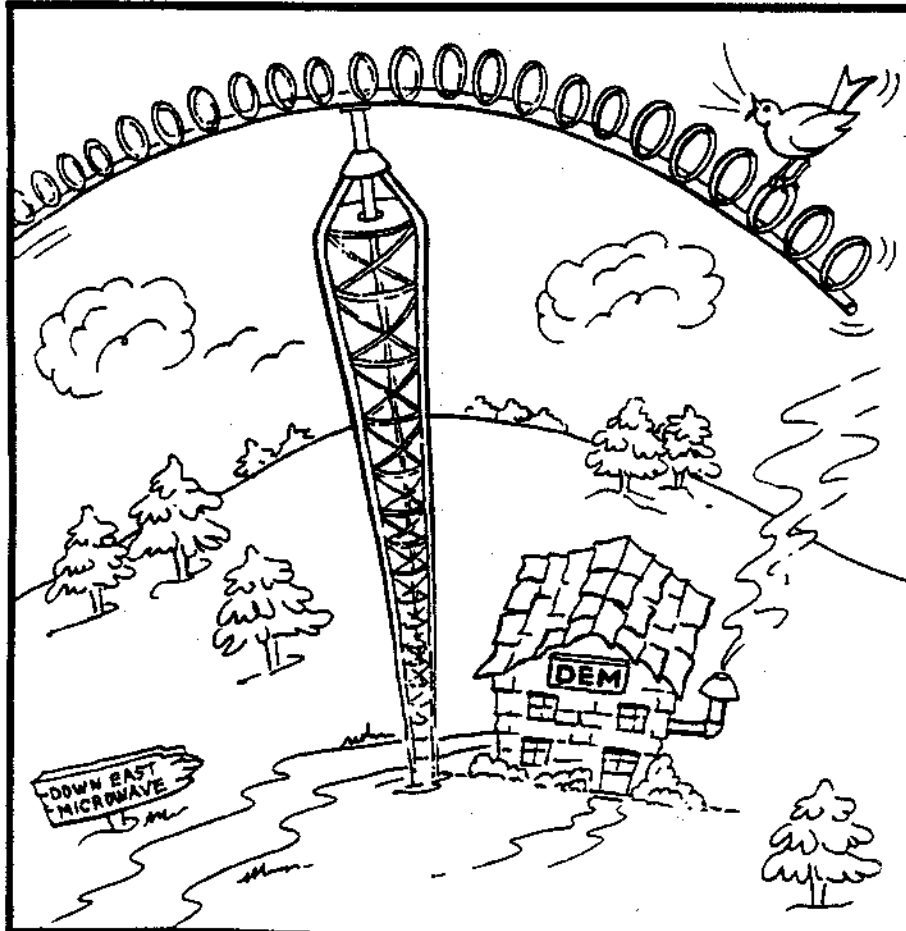


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