

CHEESE BITS



W3CCX

CLUB MEMORIAL CALL



ARRL
Affiliated
Club

SCANNED TO PDF BY BERT, K3IUV, 2013

VOLUME XXXX

February 1998

Number 2

THE PREZ SEZ

What a terrific turnout by the membership in the January Contest! The club really pulled together to turn in one of the great efforts in recent memory. I don't know what the final aggregate score is at the time I am writing this, but it really isn't that important. The important thing is that you got on and operated for the club and did the best you could. The results will reflect that effort I am sure. Bill, AA2UK, did a great job as chairman of the activity and is to be congratulated on his fine effort both as chairman and as participant. While everything is still fresh in your mind it might not be a bad idea to assess the condition of your station with an eye toward improving and fixing. Now is the time to start making changes and building or buying new equipment. You are allowed to operate between now and the next contest. Take my word for it, special dispensation from the powers to be has been granted to permit you to get on the air every now and then.

The Pack Rats have a few new beacons on the air. Thanks to Jack, N3DQZ and Steve, WB3KRW there are now beacons on 6, 2 and 220 in addition to the beacons on 432 through 10 GHz. That makes it a clean sweep! I think we all saw some of the value of beacons during the January contest. In particular, the microwave beacons are invaluable as a frequency reference. To be able to go 10, 20 or even 100 KHz below the beacon eliminates the frequency uncertainty and the added ability to align your antenna to the beacon location using six digit grid squares, should reduce the antenna pointing difficulty. Beacons are not just propagation indicators. Used properly the beacons greatly facilitate general operating by being a stable frequency reference and a fixed location that permits beam alignment.

I know I mentioned this before, but it bears repeating. You have to learn how to use six digit grid squares. Use your six digit grid square and the beacon's six digit grid square and calculate a heading to the beacon using the "Squares" program in "VHF Log". Align your beam so that your rotor indication is the same as the six digit calculation when the signal from the beacon is peaked. All six digit calculations give you 'true' headings, not magnetic. Throw away your compass when aligning your antenna direction. A properly oriented antenna is a great asset when working those weak ones.

The February meeting is the annual "Crying Towel". The hands down favorite is once again that "Master of Disaster", Jerome, K3GNC. This guy has a strangle hold on having things go wrong in the contest. But I am sure someone out there has a better story. Now that you know who your competition is you will be better prepared. Why not come out to this light and fun meeting.

73 Ron, W3RIW

MEETINGS

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

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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/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

TIME	FREQ.	NET CONTROL
7:30 PM	50.150 MHz	K3FOD/WA3EHD
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	W3RJW
9:30 PM	1296.100 MHz	WA3NUF/AA2UK
10:00 PM	903.100 MHz	N3AOC

COMMITTEE CHAIRMEN

LADIES' NIGHT: N3AOG 215-443-9965
 JUNE CONTEST: N3ITT 610-847-5490
 HAMARAMA: N3EXA 215-257-6303
 VHF CONFERENCE: KB3XG 610-584-2489

PACK RAT BEACONS - W3CCX/B FM29JW

50.080 144.284 222.065 432.295 903.072 1296.251 MHz
 2304.037 3456.220 5760.200 10,368.200 MHz



THE AMERICAN RADIO RELAY LEAGUE

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Pack Rat 432 Monday Night Net

Year End Statistics

432.110 MHz - Monday Night -2100 Local Time - W3RJW - FN20LE

1997 Check-in Sort No. of Nets = 49

W3HXY 46	WA3RLT 44	WA1YHO 43	K1PXE 42	WA2ZFH 33
NB2T 33	AA2UK 32	K3EOD 31	WZ1V 28	W3HK 25
N3YEB 23	N3DQZ 18	WA3EHD 16	K3GNC 16	N3EXA 15
W3KKN 15	KU3T 14	W3KM 14	N3ITT 13	N3XEM 13
KB3IB 12	KK3K 11	N3NGE 11	W1COT 11	N3AOG 8
WA3DRC 8	W2SJ 8	WA3NUF 8	WB3KRW 7	K1FO 7
W3OR 7	WA2VNV 6	AA3GN 6	N2MSS 6	K2MLB 6
WB3JYO 4	N1MUW 4	WB2VVV 4	NK8Q 4	K5MA 3
W3VU 3	WA3AQA 3	K2FK 3	N3OPM 3	W2SK 3
W1GRW 3	W3GAD 3	W3GXB 2	K3MFI 2	N2FRB 2
K3YWY 2	K3HZO 2	NC1I 2	K8ZES 2	N3WUM 2
N3DG 2	N3FUJ 2	KM1H 1	K3CT 1	W3ZB 1
K00J 1	N2TZV 1	W3IP 1	W1PM 1	N2SCJ 1
KA1OJ 1	W3MGF 1	N1DFM 1	KB3XG 1	W3GD 1
KD1DU 1	N3XVC 1	KM1X 1		

And the winner is:

W3HXY with 46 check-ins!

Total Different Stations in 1997 = 73

Congratulations to Hal, W3HXY, on checking in to 46 of the 49 432 MHz Pack Rat nets in the calendar year 1997. This is the second year in a row that Hal has led all check-ins.

Thanks to all the loyal net members who check-in week after week and help maintain at least a minimal level of activity on the band. The nets are stable sources of reference signals to gauge your station progress and condition so check in whenever possible.

73, Your Net Control, Ron W3RJW

CALENDAR OF COMING EVENTS - FEBRUARY 1998

- 9 Birth of Brendan Behan, Dublin 1923.
- 12 Lincoln's Birthday, 1809.
- 12 Packrat board of directors meeting at the QTH of Pat Cawthorne, W2SK, at 8:00 P.M. Call 215-672-5289 for directions.
- 14 St. Valentine's Day. Remember your sweetie.
- 14 Harrisburg Pa ARC Winter Hamfest at the Oberlin Fire Hall, Oberlin, PA. 717-232-6087. VE exams.
- 21-22 ARRL International DX Contest-CW. See Dec. QST page 102 for rules.
- 17* Presidents Day
- 19 Packrat meeting at the Southampton Free Library on Street Road in Southampton, Pa. at 8:00 PM. The theme of the evening will be our annual "Crying Towel" session. The best story of what went wrong during or in preparation for the January contest wins the coveted "Crying Towel". All friends and interested parties are welcomed to come and enjoy the evening with us.
- 23 Washington's Birthday
- 26 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.

NOW THERE ARE 10 (BEACONS)

Ron J. Whitsel, W3RJW

Look on the Pack Rat WEB page for a complete list of 50 MHz thru 10 GHz (That's 10 total!!) beacons on the air from FM29JW. The last beacon on 144.284 MHz should be on the air later today (1/29) from its permanent location.

There are now complete schematics of the 3.4, 5.7 and 10 GHz beacons on the Pack Rat web page: [www://IJ.NET/packrats/](http://www.ij.net/packrats/)

Just to confirm Ron's earlier email post, the 2 meter beacon did in fact go on the air today at 15:10 Hrs. The beacon is running 4 watts into a KB6KQ halo (the same antenna we are using on the 222 beacon). The freq. is 144.284 MHz. The beacon should be Q5 copy around this area, I would be interested in signal reports from our friends to the north and south of the local area.

Well that's all 10 beacons up and running from one location, let's hope they stay that way!

73's Jack Kauker N3DQZ, Beacon Field Service Technician

TID BITS

New Web Page Additions: Look on the Technical info page for a complete article on converting the AM 6154/55 for use on 432 MHz. The same article that was in January 1998 Cheesebits. More technical articles will be added in the near future. www.ij.net/packrats.

K3EOD reported that on about 4 February he will be moving to Vineland, NJ and will be off the air for a time with WA3EHD picking up the Monday night 50 MHz net in the interim.

Friend of the Rats, Harry Price, **W3HZO**, recently completed his VUCC for 144 and 432 MHz.

The January 1998 issue of the **San Bernardino Microwave Society Newsletter** has an article by Vincent, F1OPA on a 5760 MHz Transverter. Included are a 936 MHz Oscillator, a X4 multiplier and Tx/Rx board. The transverter board includes a Wilkinson power divider for the LO, 2 stages of amplifier and mixer for the receive side and the transmit chain uses a mmic mixer and two stages of mmic amplifiers for an output of +15 dBm at the 1 dB compression point. Pipe Cap filters are used in the LO multiplier . two in the Tx side and one in the Rx side. The Rx NF is 1.7 dB.

SWAP SHOP:

(send all ads to the editor)

FOR SALE: Drake 2C Amateur Receiver with outboard 6 meter crystal pack, manual, excellent condition, \$150, Jim W3FIE 215-342-9343.

Wanted: For my collection...Amateur radio license plates and Call Books prior to 1950. Ron Allen W3OR PO Box 73, Bethel, Delaware 19931-0073. Phone 302-875-1100

FOR SALE: Kenwood TS440S/AT General Coverage transceiver with automatic antenna tuner, best offer, 2 meter Junior Boomer 14 element yagi, very good condition, best offer, Alex, N3DGO, 610-525-6400.

FOR SALE: Yaesu FT726R with 6, 2, 432 modules, mint condition with box, manual, best offer. Dennis, N3DG, 215-938-8820.

WANTED: A 1000 V or 2000v center tapped transformer for a high voltage power supply. The B&W transformer is not quite enough. 200 ma or more would be ideal. Cash or trade. Call Gary, WA2OMY at 610-539-6409.

January Contest Ramblings.

A few words about roving by Rick, K1DS. Since I started the contest with the K3EOD gang, and didn't get home until 2 AM Saturday night, I didn't get going on Sunday until about 10:30 AM, after loading all the gear into the car. My first stop was in FN20, at the peak of a little hill alongside the gravel pit on Rte 309 near the Montgomeryville Mall. There is a better spot up there, in the parking lot of "Today's Man" but there would be customers coming to the parking lot by noon. It didn't take long to get the 6 meter dipole, 2 meter, 220 and 432 beams attached to their masts, and then popped the loopers on top of each mast for 903 and 1296. It was cold and a bit snowy, and I was happy to retreat to the car again and get on the air.

This was my first experience with the local QRM on FM, and it was tough to discern who was talking to whom for a while. I certainly didn't have much capture with my 5 watt walkies. No trouble working all the "rats" from here on all bands. Sitting behind the wheel, with the 6 & 2 meter rigs on the passenger seat, the walkies on top of them, and the 903 and 1296 transverters on the back seat was not real convenient. The hardest thing was reaching behind me to throw the 903 and 1296 T-R switches. In the summertime, I put the whole setup in the rear of the station wagon, and operate off of the tailgate. I thought I was having trouble with the 6 meter rig when the meter indicated no output when I keyed the mike and whistled, but as usual, it was pilot error—I luckily discovered it was just the mode switch in CW. The sigs were quiet on 903, and I discovered that the preamp was best bypassed to hear everyone. I put up the 10 GHz dish and rig, but all I heard was K3EOD calling CQ on "200", no beacon—well, that told me the XVTR wasn't working. Now a week later, I think I found out that when I put a new coax cable in to connect the XVTR to the T-R relay, that the previous coax cable connector, left in the box got wedged between the 12 VDC and ground, and bypassed the power from the XVTR to ground. I operated there for 4 hours, then packed up and

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moved on to FM29, arriving and operating by about 3 PM. The parking lot of the community center in Newtown was my QTH, and I discovered that the UHF beacons were about 60+ dB/S9 at that QTH looking North. No real fireworks, but a generally solid one day, one person effort, on six bands, yielding over 200 QSOs, all in the contiguous grids. The 12V battery ran all the gear for the entire day without recharge, and considering the 160W amp on 2 meters, it held up well. Every contest is a learning experience, and helps shape next year's experience. I will definitely have 222 and 432 SSB/CW, and spend more time trying some longer haul grids on 2. My intended trip to FN30 never happened due to fatigue, and perhaps one of you would like to link up with me for the next one. The rules do allow two ops in a rover station. The operating locations were adequate, didn't attract too much visitation, although the police did come by to check me out in each place. I will have a switching box to stack my XVTs to the 2 meter rig, and some sort of automatic T-R switching arrangement for them too, to ease the reach and end the confusion on which switch to flip. I'm always looking for more locations, so keep your suggestions coming. Personal tnx to Ron for helping me get my 10 G gear in shape, and for the 440 walkie loan. 73, Rick, K1DS.

Troubles in FM28 by Ron W3OR. Because I had a lot of problems with my higher frequencies. 903 mm preamp down, 1296 tube getting soft, 2304 big amp and driving brick both down, 38 watts out on 3456 but no antenna, 5 GHz transverter. twt sitting collecting dust due to no antenna nor feed line. Inch and quarter feed line still waiting to go up, three runs ready, three more waiting for promised connectors. Last but not least, my stacked 14 element 223 FM beams want to face toward the ground-seems like they are the most favorite roost of the Rochester line of Buzzards and every time they fly north the front of the beams head South. Sooo, decided to go limited multi op with my son hoping he might show some interest for contesting, he did for 10 minutes Saturday and I didn't see him again till Monday morning. Hope everyone else did well.

73's Ron W3OR, PS-If the Dover group with all their operators happen to beat me, there will be war next January

Two are Better than One by Gary, WA1YHO. Two six meter beams that is. This fall I replaced my 4 element NBS 6M antenna with a pair of 3 element antennas. I started with a pair of Cushcraft A50-3S antennas. I used the computer modeling program AO to optimize the design and spacing of the stacked pair, at the intended mounting height, for good F/R and to minimize high angle response. I achieved better than 25 dB F/R. This F/R performance is controversial, as many do not want to be that "deaf" off the back. However, I have a strong local station just north of me and the high F/R improves my ability to hear Packrats when he is on the air.

While one contest weekend does not really provide the length of time necessary to evaluate an antenna system, I was very pleased with its performance. I was able to work a number of stations in the 250 to 350 mile range with just 100W. It seemed much easier than with the old 4 element NBS. There were no 6M openings for me this contest, so I can't comment of the performance during e-skip, but, based on the computer model, I would expect that the pair might be a little worse than the single NBS. I hope in the future to add a single 3 or 4 element antenna mounted at around 30' to address the issue of high arrival angle e-skip signals.

Here are some details. The Cushcraft element design uses a center mounted, 4 foot long, 3/4" diameter section with 5/8" dia. outer sections that slide into the 3/4" section that are used to adjust the length. The following element lengths are measured from the end of the 3/4" section to the end of the element. The reflector dimension is 35.081". Driven element is 32.646". The director is 28.957". Element spacing is as follows: REF to DE = 35.777". DE to D1 is 34.743". Note that these dimensions were optimized as a stacked pair. I did have to adjust the gamma match quite far away from the stock Cushcraft setting, but I got a good match.

The two antennas are stacked quite close at 9' 8" apart. In my case, the top antenna is mounted at 73'. Note that all of the dimensions quoted were optimized as a stacked pair at the specified height. As they say, your mileage may vary.

So, next time you're thinking about a new 6M antenna system, instead of one long antenna, consider stacking two, small antennas. It doesn't take a long mast and I believe that you will be pleased with the results.

73, and keep listening for the weak ones....Gary

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: _____
Street Address: _____
Town: _____ State: _____ ZIP: _____

Subscription Rate: \$10.00 per year (USA), \$12.00 (Canada), \$15.00 (Worldwide)

February 1998 Send to: SUBSCRIPTION/ADVERTISING MANAGER:

Bob Fischer, W2SJ
7258 Walnut Avenue
Pennsauken, NJ 08110

1. Grid locators:

- a. The VHF/UHF Century Club (VUCC) is awarded for contact with a minimum number of Maidenhead 2 degree by 1 degree grid locators per band as indicated below. Grid locators are designated by a combination of two letters and two numbers. More information on grid locators can be found in January 1983 QST, pp 49-51, VHF/UHF Century Club Awards, (reprint available upon request. Send a SASE 9x12 envelope with 3 units of postage). The ARRL World Grid Locator Atlas and the ARRL Grid Locator for North America is available. The VUCC certificate and endorsements are available to ARRL members in the United States and foreign non-ARRL members.
- b. The minimum number of grid locators needed to initially qualify for each individual band award is as follows:
- for 50 MHz, 144 MHz and Satellite - 100 Credits;
 - for 222 MHz and 432 MHz - 50 Credits;
 - for 902 MHz and 1296 MHz - 25 Credits;
 - for 2.3 GHz - 10 Credits;
 - for 3.4 GHz, 5.7 GHz, 10 GHz, 24 GHz, 47 GHz, 75 GHz, 119 GHz, 142 GHz, 241 GHz and Laser (300 GHz)-5 Credits.
- Awards for 222 MHz and 432 MHz are designated as HALF Century
Awards for 902 MHz and 1296 MHz are designated as QUARTER Century
Awards above these are SHF

2. Only those contacts dated January 1, 1983 or later are creditable for VUCC purposes.

3. Individual band awards are endorsable in the following increments:

- a. 50 MHz, 144 MHz and Satellite, 25 Credits
- b. 222 and 432 MHz, 10 Credits
- c. 902 and above, 5 Credits

4. Award Contact Information

- a. Separate bands are considered as separate awards.
 - b. No crossband contacts are permitted, except for Satellite.
 - c. No contacts through active repeaters are permitted, except for Satellite Awards.
 - d. Contacts with aeronautical mobiles (in the air) do NOT count.
 - e. Stations who claim to operate from more than one grid locator simultaneously (such as from the intersection of 4 grid locators) must be physically present in more than one locator to give multiple locator credit with a single contact. This requires the operator to know precisely where the intersection lines are located and placing the station exactly on the boundary to meet this test. To achieve this precision work requires either current markers permanently in place, or the precision work of a professional surveyor. Operators of such stations should be prepared to provide some evidence of meeting this test if called upon to do so. Multiple QSL cards are not required.
5. There are no specialty endorsements such as "CW only" etc.
6. For VUCC awards on 50 through 1296 MHz and Satellite, all contacts must be made from a location or locations within the same grid locator or locations in different grid locators no more than 50 miles apart. For SHF awards, contacts must be made from single location, defined as within a 300-meter diameter circle.
7. Application Procedure (please follow carefully)
- a. Confirmations (QSLs) and application forms (MSD-259 and MSD-260) must be submitted to an approved VHF Awards Manager for certification. ARRL Special Services Clubs appoint VHF Awards Managers whose names are on file at HQ. If you do not know of an awards manager in your area, HQ will give you the name of the closest manager. Foreign VUCC applications should be checked by the Awards Manager for their IARU Member Society in their respective country. Do not send cards to HQ, unless asked to do so.
 - b. For the convenience of the Awards Manager in checking cards, applicants may indicate in pencil (pencil only) the grid locator on the address side of the cards that do not clearly indicate the grid locator. The applicant affirms that he/she has accurately determined the proper location from the address information given on the card by signing the affirmation statement on the application.
 - c. Cards must be sorted by:
 - 1. Alphabetical by field
 - 2. Numerical from 00 to 99 within that field
 - d. Where it is necessary to mail cards for certification, sufficient postage for proper return of all cards and paperwork, in addition to appropriate fees as noted in (8), must be included along with a separate self-addressed mailing label. An SASE is not necessary when a certificate will be issued, since a special mailing tube is used. An 9 x 12 SASE with at least 3 units of postage (depending on the number of sheets to be returned) is required for all endorsements. Due to the way sheets are used for endorsements, the mailing of copies of field sheets and applications for future use, is required in each instance.
 - e. Enclosed with the initial VUCC certificate from HQ will be a photocopy of the original list of grid locators for which the applicant has received credit (MSD-259). When applying for endorsements, the applicant will indicate in red on that photocopy those new grid locators for which credit is sought, and submit cards for certification to an Awards Manager. A new updated photocopy listing will be returned with appropriate endorsement sticker(s). Thus, a current list of grid locators worked is always in the hands of the VUCC award holder, available to the VHF Awards Manager during certification, and a permanent historical record always maintained at HQ.

8. Fees

- a. Beginning January 1, 1996, all VUCC applicants will be charged an initiation fee of \$10.00. This fee includes one VUCC certificate and one VUCC lapel pin.
- b. Each additional VUCC certificate, whether new or replacement, is \$10.00 each.
- c. For endorsements, a 9 x 12 SASE with sufficient return postage for the return of all paperwork is required. In lieu of an SASE \$2.00 (\$4.00 foreign) for postage and handling may be sent. (SASE for any submission where a certificate is issued is not necessary since certificates are mailed in a protective tube).
- d. Lapel pins from VUCCs received prior to the January 1, 1996 fee change may be purchased at \$5.00 each.

9. Disqualification

Altered/forged confirmations or fraudulent applications submitted may result in disqualification of the applicant from VUCC participation by action of the ARRL Awards Committee. The applicant affirms he/she has abided by all the rules of membership in the VUCC program and agrees to be bound by the decisions of the ARRL Awards Committee.

10. Decisions of the ARRL Awards Committee regarding interpretation of the rules here printed or later amended shall be final.

11. Operating Ethics: Fair play and good sportsmanship in operating are required of all VUCC members.

VUCC Award Application

Rules · VHF Award Managers · VUCC Award Field Sheet · VHF/UHF Century Club Awards
ARRL VUCC AWARD APPLICATION FORM

Please print or type clearly and use a separate application for each award.

Call sign: _____ Ex Call signs: _____

Name: _____

Print exactly as you want to appear on certificate

Address: _____

City: _____ State: _____ Zip Code: _____

Membership ID Number: _____ Expiration Date: _____

Initial Application Endorsement

Band: (please check only one) Use One (1) Application Per Band

- | | | | |
|----------------------------------|------------------------------------|----------------------------------|----------------------------------|
| <input type="checkbox"/> 50 MHz | <input type="checkbox"/> 144 MHz | <input type="checkbox"/> 222 MHz | <input type="checkbox"/> 432 MHz |
| <input type="checkbox"/> 902 MHz | <input type="checkbox"/> 1296 MHz | <input type="checkbox"/> 2.3 GHz | <input type="checkbox"/> 3.4 GHz |
| <input type="checkbox"/> 5.7 GHz | <input type="checkbox"/> 10 GHz | <input type="checkbox"/> 24 GHz | <input type="checkbox"/> 47 GHz |
| <input type="checkbox"/> 75 GHz | <input type="checkbox"/> 119 GHz | <input type="checkbox"/> 142 GHz | <input type="checkbox"/> 241 GHz |
| <input type="checkbox"/> Laser | <input type="checkbox"/> Satellite | | |

Initial Applicants _____ Number of Grid Locators _____

Endorsements			
_____	+	_____	= _____
Previous Total		Number added with this endorsement	New Total

I affirm that I have observed all the VUCC rules as well as all pertinent government regulations established for Amateur Radio in my country. I agree to be bound by the ARRL Awards Committee (Decisions of the ARRL Awards Committee are final).

Signature: _____ Call sign: _____ Date: _____

VHF Awards Manager Verification: I have verified these contacts as set forth by the rules of the VUCC Program.

Signature	Call sign	Verification	Date
_____	_____	_____	_____
		Number	

***** Application Directions *****

- 1) Complete all fields above and read MSD-261 detailing program rules
- 2) Enclose award fees (\$10.00 for each new award)
- 3) Enclose \$2.00 or a 9 X 12 SASE for return postage (Endorsements only) (\$4.00 foreign)
- 4) Sort cards alphabetically by field and numerically within the field from 00-99
- 5) Contact your VHF Awards Manager before sending cards to assure they are available to make arrangements for checking
- 6) Give Awards Manager all fees and mailing costs. They are responsible for sending paperwork to ARRL.
- 7) DO NOT SEND CARDS TO ARRL HEADQUARTERS

MSD-260 (12/97)

Field:

(first 2 letters of locator)



Field:

(first 2 letters of locator)

SQ.	Callsign	SQ.	Callsign
00		50	
01		51	
02		52	
03		53	
04		54	
05		55	
06		56	
07		57	
08		58	
09		59	
10		60	
11		61	
12		62	
13		63	
14		64	
15		65	
16		66	
17		67	
18		68	
19		69	
20		70	
21		71	
22		72	
23		73	
24		74	
25		75	
26		76	
27		77	
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44		94	
45		95	
46		96	
47		97	
48		98	
49		99	

ARRL VUCC AWARD

CALLSIGN: _____

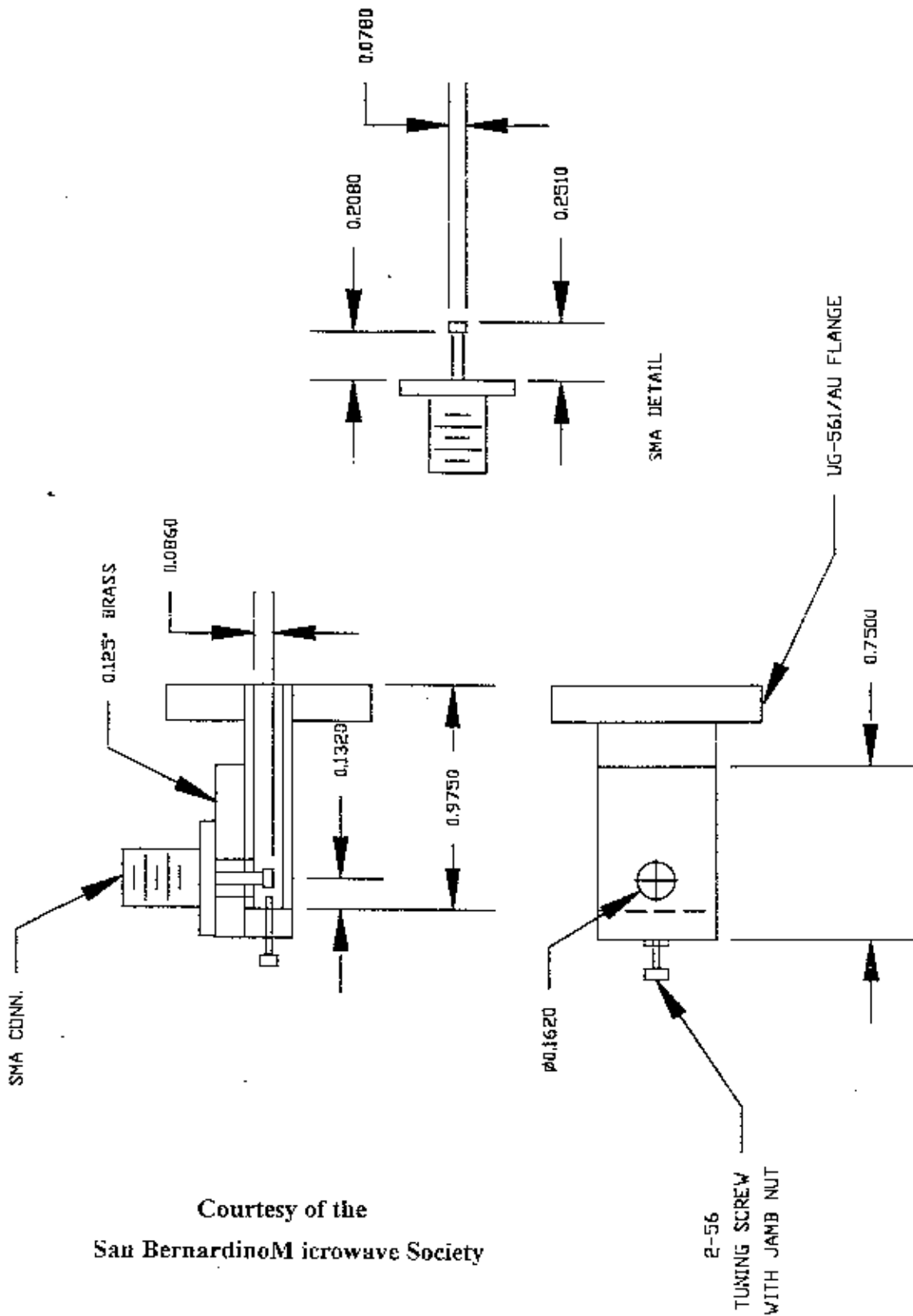
- 50 144 220 432 1296 MHZ

DIRECTIONS: This side of tally sheet good for two fields. 1. Enter your callsign and check band. 2. Enter two-letter field. 3. Enter callsigns of stations worked in appropriate grid square. 4. Total grid squares for each field.

SQ.	Callsign	SQ.	Callsign
00		50	
01		51	
02		52	
03		53	
04		54	
05		55	
06		56	
07		57	
08		58	
09		59	
10		60	
11		61	
12		62	
13		63	
14		64	
15		65	
16		66	
17		67	
18		68	
19		69	
20		70	
21		71	
22		72	
23		73	
24		74	
25		75	
26		76	
27		77	
28		78	
29		79	
30		80	
31		81	
32		82	
33		83	
34		84	
35		85	
36		86	
37		87	
38		88	
39		89	
40		90	
41		91	
42		92	
43		93	
44		94	
45		95	
46		96	
47		97	
48		98	
49		99	

TOTAL number of grid squares worked in this field =

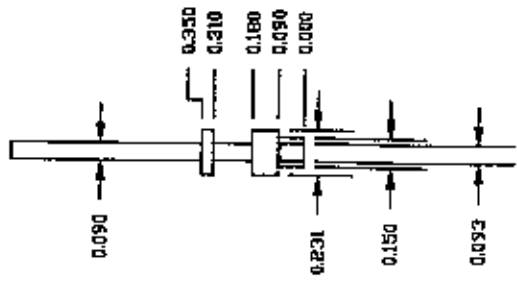
TOTAL number of grid squares worked in this field =



Courtesy of the
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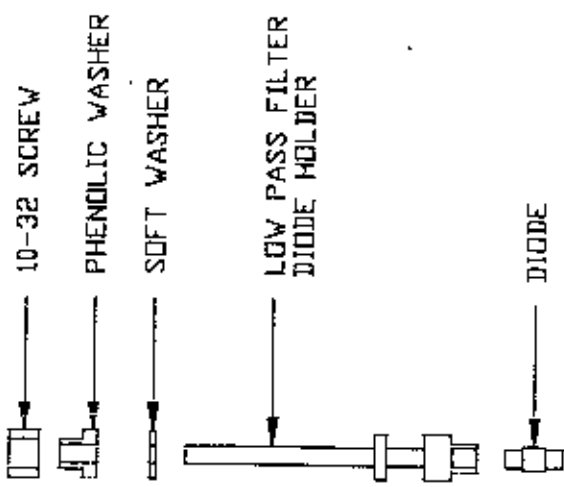
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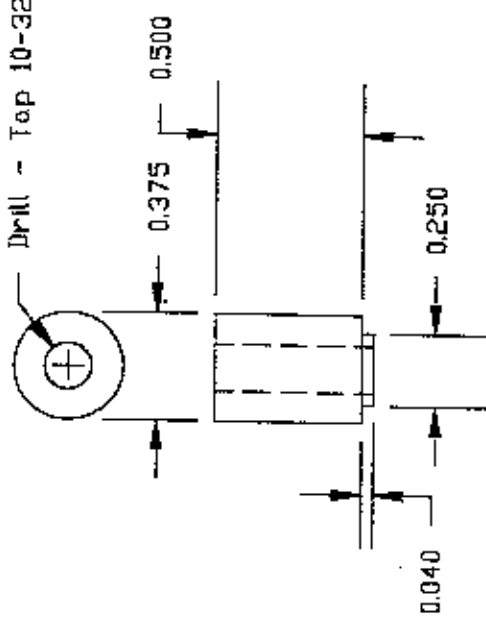


LOW PASS FILTER & DIODE HOLDER

Material: Brass

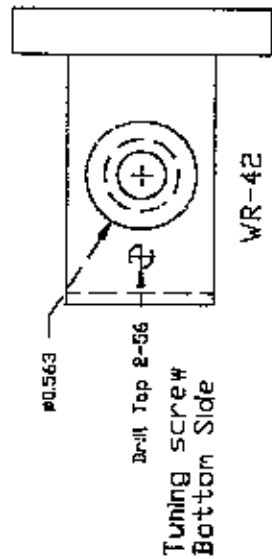
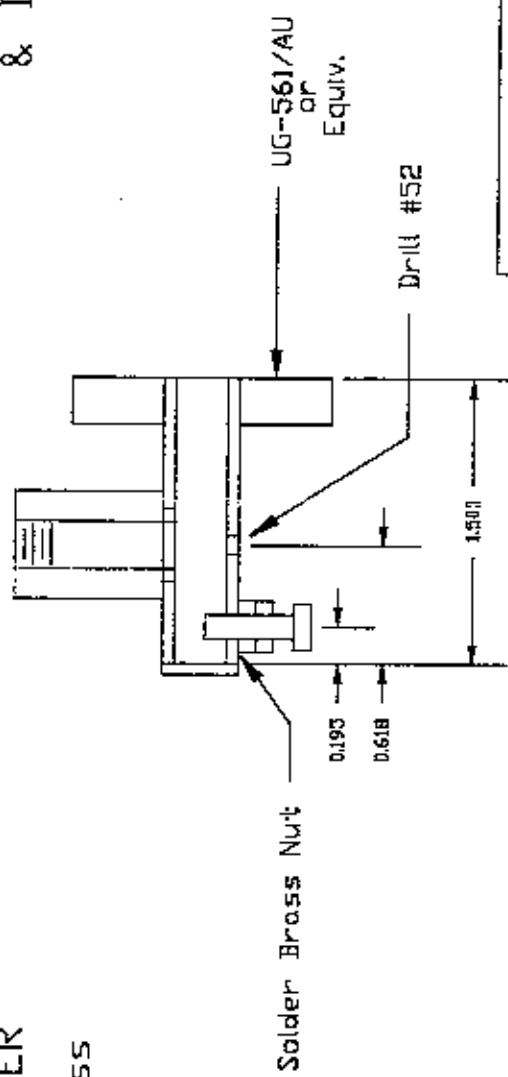


Drill - Top 10-32 0.200" deep



FILTER HOLDER

Material: Brass



WR-42

Courtesy of the San Bernardino Microwave Society

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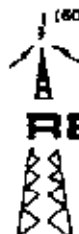
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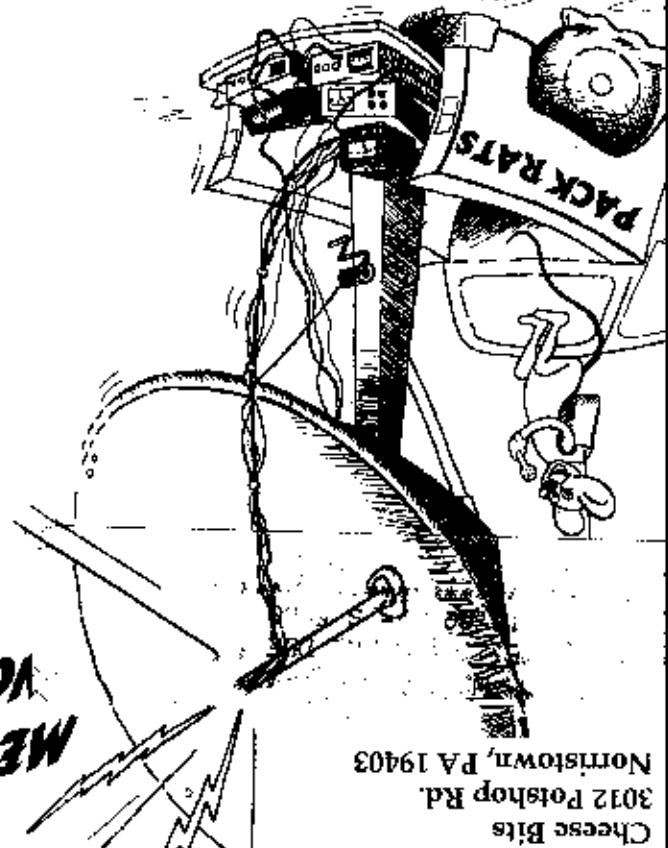
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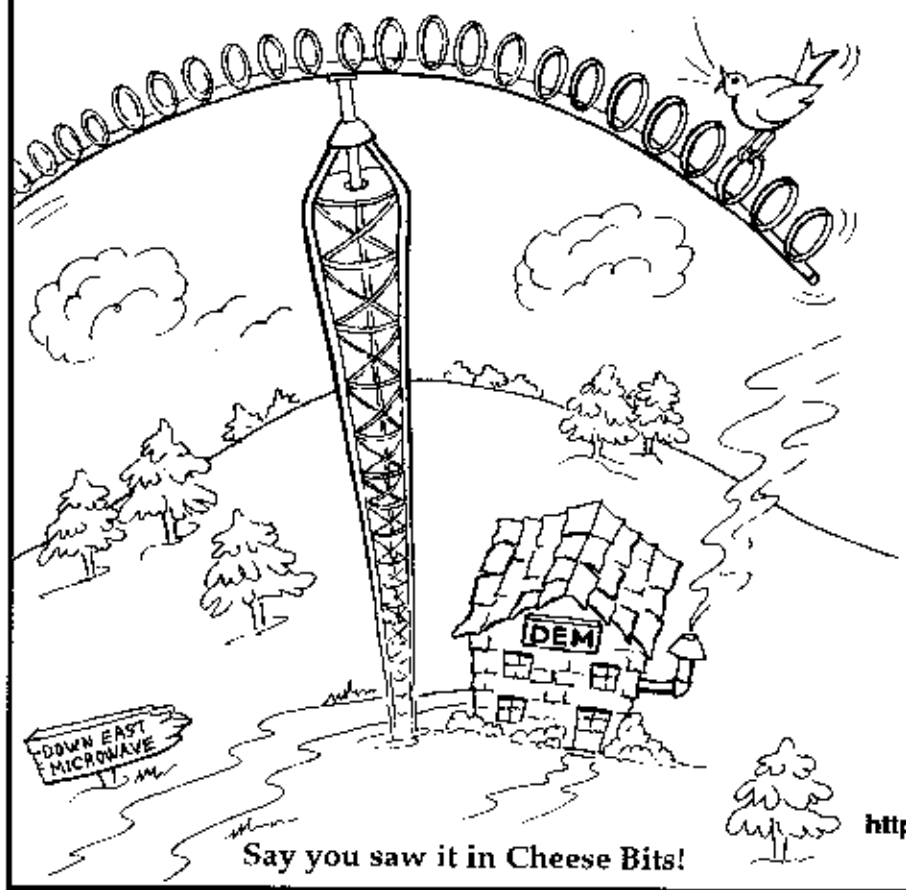
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