

# PACK RATS'



**PACK RATS**

CLUB CALL: W3CCX

MT. AIRY VHF RADIO CLUB, INC.

# CHEESE

# BITS



MT. AIRY V.H.F. RADIO CLUB, INC., PHILA., PA.  
(50.2, 145.2, 221.4, 432.03 & 1296.3 Mc)

AFFILIATED CLUB: AMERICAN RADIO RELAY LEAGUE

MEETINGS: THIRD WEDNESDAY OF EACH MONTH AT 8:00 P.M.

VOLUME V

AUGUST, 1972

NUMBER 8

## THE PREZ SEZ

To start off, I would like to thank all of the past officers of the Club for their fine job in keeping the high standards of the club first in their minds as well as in their muscle.

I also would like to thank those who bestowed their trust in me to elect me President. I will do my best to take up the responsibilities of the office and the tradition set by the past Presidents.

While still in the stream of thank yous, it should be mentioned that the Club had a good representative force helping Montgomery County C.D. Details of individual and Club effort appeared in last months Cheese Bits. The instant readiness of amateurs demonstrates a partial justification for contests, field days, and etc.

Of course, a lot of people wondered why field day wasn't cancelled during the weekend of the disaster. But that is the old problem of the few and many, i.e. What is good for the few may not be the best for the many. So it was left up to the conscience of participants and probably worked out for the best.

A bit of reflecting might be in order. I have been involved with the Pack Rats since sometime in 1958 and have seen a tremendous amount of growth in many areas such as the January Contest, June QSO Party, Club Projects, Picnics, Ladies Night, Transmitter Hunts, Nets to 1296, DX Record Attempt, Amateur T.V., Antenna

CONTINUED, PG 9

DEADLINE FOR ARTICLES IS THE GENERAL MEMBERSHIP MEETING.

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DIRECTORS' MEETINGS ARE HELD ON THE SECOND WEDNESDAY OF EACH MONTH AT DESIGNATED LOCATIONS.

MONDAY NIGHT NETS:

145.2 - 7:30 P.M.  
50.2 - 8:30 P.M.  
221.4 - 9:00 P.M.  
432.03 - 9:30 P.M.  
1296.3 - 10:00 P.M.

FRIDAY NIGHT NET: ATV NET

439.250 - 19:00 Hrs.

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VICE-PRES.: W3FQD, Dick Huntzinger  
TREASURER: K3GAS, Doc Cutler  
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WA3NGK, Harry Brown  
K1SFF/3, Tony Souza  
K3ZSG, Bill Murphy  
K3CIV, Ralph Hersh  
(Ex-Officio)

\*\*\*\*\*

PACK RATS' CHEESE BITS is a Publication of the Mt. Airy V.H.F. Radio Club, Inc., Philadelphia, Pa., and is published monthly.

10¢ per copy \$1.00 per year

We operate on an exchange basis with other publications and anything that is printed in CHEESE BITS may be reprinted, unless so stated, as long as the proper credit is given.

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SEPT. 9-10, VHF QSO PARTY

Take advantage of propogation conditions and a chance to warm up your VHF gear. You know that January is not too far off - enuff sed! A good chance to run up a score for individual honors. Details in QST.

## MATCHING HARNESS FOR 4 YAGI ANTENNAS

JO, W2EIF

Some months ago I presented an article on Matching Devices for Antennas. Since then, I have been experimenting and have come up with a matching system for a 4 yagi array which has some advantages namely:

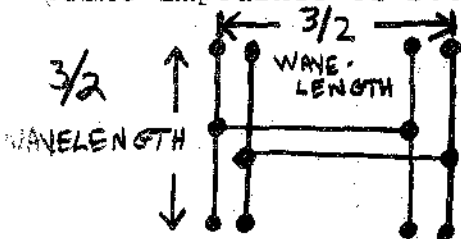
(a) The feed point impedance at the center of the matching harness is always the same as the impedance of any one of the four antennas assuming that they are identical antennas.

(b) No connectors are required at the antenna which eliminates water problems and cuts down on cost.

Let us assume that the antenna feed impedance is 200 ohms so that I can use a 50 ohm line and a balun to feed it, and that there are 4 of these antennas to be mounted, equidistant apart on an "H" frame. The matching harness will be fashioned from open wire line and be an odd number of half wavelengths for both the vertical and horizontal portions of the "H" harness. This configuration has the unique ability to combine the 4 antenna impedances and transform them as that the feed point Z at the center of the harness is the same as any one antenna.

Also, the characteristic impedance of the open wire transmission line does not matter. If you don't believe it, calculate a few examples. The line of course should be reasonably close spaced to cut down radiation problems. Usually 1/2 inch, 3/4 or 1 inch can be used. Sure 3/4" because the spaces happen to come that way.

Now lets take an example - I have four 220 MHz beams, each having a feed point impedance of 200 ohms, balances. I make up an "H" harness as follows:



At 220 MHz, 1/2 wavelength in free space is  $\frac{5905}{220} = 26.7$  inches, and

3/2 wavelengths then would be 80.1 inches.

However, I am not in space and I must reduce the length by multiplying by the velocity factor which in this case is 97.5% for open wire line. So,  $80.1 \times 97.5\% = 77.5$  inches. This means that the vertical and horizontal line will be each 77.5 inches long. (I could have used 5/2 wavelength if I wanted to stack the beams further apart).

Next, I make up the phasing harness, using No. 14 enamel wire and some polyethelene spacers placed every 5 or 6 inches. This line happens to have a characteristic impedance of about 370 ohms. If I had used No. 12 wire the characteristic Z would have been 340 ohms.

NEW PRODUCTS OF INTEREST TO HAMS

Lyn, W3NSI

1. Receiver and Transmitter Modules 144 and 220 Mc.

VHF FM modules are available both wired and tested and as kits from VHF Engineering Communications Co. An instruction manual is available for the receiver modules for \$1.00 from the Company. Four modules are used to make a complete receiver as follows: Converter - I F - Lo I F - Audio section. All units operate on 12 VDC at a 60 ma drain. The converter circuit uses 4 transistors, while each of the other three modules use two ICs each. The transmitter is rated at 1 watt output and measures 6 x 1 1/2 inches. Each receiver module measures 1 1/2 x 4 inches. The five units can be arranged to provide a complete transceiver package that measures 6 x 5 1/2 inches. A ten watt power amplifier is available wired and tested for \$29.95. The receiver modules are \$19.95 each, while a kit of all four units would be \$59.95. A set of etched boards for the receiver would cost \$9.95, the transmitter board is \$5.95. Transmitter kit is \$39.95. As can be seen, for just under \$100.00 a complete transmitter/receiver unit in kits can be assembled, less mic. and crystal.  
1017 Chenano Street, Binghamton, New York 13901

2. Antenna Matchboxes - KW Electronics.

KW Electronics Ltd., an English Company, has available two antenna matching units for use on 10-80 meters. Data from the company indicates any load from 15 to 5000 ohms may be matched to a receiver input or transmitter output. The smaller unit called the EZee Match can be used for up to 1000 watts if the SWR is low to start with. For other situations, the higher power #107 Supermatch should be used. This model has a built in watt meter, SWR meter and dummy load rated at 1 KW for short periods (5 seconds). A power of 100 watts can be used for 6 minutes. Five antennas can be connected to the unit and selected from the front panel. More information can be obtained from the importer. KW Electronics, 10 Peru Street, Plattsburgh, New York.

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CALENDAR OF COMING EVENTS

Syllabus by Lee, K3MXM

August

- 6 Shenandoah Valley Hamfest - Armory - Wichester, Virginia
- 6 East Coast Society VHF Hamfest, Paterson, New Jersey
- 9 Board of Directors Meeting - QTH - K3GAS, Doc Cutler, Directors and interested parties invited. 8:00 P.M.

CALENDAR OF COMING EVENTS, CONTINUED

August

13

PACK RAT PICNIC

Ft. Washington State Park, Flourtown, Pennsylvania

The really big one - picnic in style, enjoy games for the children, games for the adults, mini transmitter hunt, bingo for the ladies, free soda, guessing contests, door prizes and a good day to get together and say hello and have eyeball contacts with old buddies and make new contacts.

Bring your QSL Card and most important, a small transistor radio - necessary for the transmitter hunt.

Members and families, friends, other clubs, yl's, xyl's, kids and kiddies of all ages invited. Let's make this the biggest turnout ever - it will be well worth attending!

QCWA, Delaware Valley Chapter Get Together

Talk in on 50.2 MHz and 2 meter FM.

\$2.00 registration per family.

No Flea Market or Sales will be conducted.

13

Delmarva Hamfest - Harrington Fairgrounds - Harrington, Delaware. Sorry about the conflict of dates, but we post this notice for our Virginia and Maryland friends.

12

Knight Raiders 6th Annual Hamfest  
Passaic-Clifton YM-YWHA CAMP - West Paterson, New Jersey

September

3

17th Annual York County Hamfest; new location - Elickers Grove near Tomasville, Pennsylvania.

10

South Jersey Radio Association Hamfest, Malaga, New Jersey

13

Board of Directors Meeting

20

General Club Meeting - Third Outdoor Meeting, WHITE ELEPHANT SALE

CALENDAR OF COMING EVENTS, CONTINUED

October

1

HAMARAMA

The first Pack Rat Hamfest, to be held on the Warwick Fire Company grounds in Jamison, Pennsylvania (just North of Hatboro) Meetings have been held, posters are being distributed and plans are being firmed up. Help is still needed. Contact Dave Zimmerman, W3ZD.

Table selling, tailgate selling displays, refreshments, etc.

Many more details to come.

\* \* \*

Have you joined the one on one club yet. One item once a year for MARIO'S AUCTION. Look around your shack for that one item and give it to Mario.

\* \* \* \* \*

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K3GAS, Doc Cuter  
(215) ME 5-1078

MATCHING HARNESS FOR 4 YAGI ANTENNAS CONTINUED

I now connect the open wire line as shown in the diagram. It calculates as follows:

Actually, each top antenna "locks" into a 1/4 wavelength transformer, characteristic Z=370 ohms, so,

$$Z = \frac{1,369,000}{370^2} = 1,000 \text{ and the impedance at the other end of the } 1/4 \text{ section is } \frac{1,369,000}{200 \text{ (ant } z)} = 684.5 \text{ ohms. This impedance is transferred to the center of the Vertical phasing lines by the additional } 1/2 \text{ wavelength of line. Similarly the bottom antenna also present } 684.5 \text{ ohms at the center so that at the center of the vertical phasing line the resulting } Z = \frac{684.5}{2} = 342.25 \text{ ohms. The horizontal line also looks like two } 1/4 \text{ wave transformers connected by a } 1 \text{ wavelength piece of line and the impedance at the center of the phasing harness is } \frac{1,369,000}{34225} = 400 \text{ ohms for each vertical set of antennas or since they are in parallel the final feed impedance at the center of the harness is } \frac{400}{2} = 200 \text{ ohms balanced. It would make no difference if the antennas were } 300 \text{ ohms each, then the } Z \text{ at the center of the harness could be } 300 \text{ ohms.}$$

\*\*\*\*\*

SUMMARY OF DIRECTOR'S MEETING  
MINUTES

WA3BIV, Carl Barish

W3SAO received a letter from Montgomery County thanking those who helped during the flood.

K3BPP thanked K3UJD for his past performance and asked if he would continue as raffle chairman.

K3JJZ thanked W3KKN for printing Cheese Bits last month.

The Board voted funds to the Picnic Committee.

The Board voted funds to pay for the meeting place this coming year.

The Board passed a motion to direct the Editor of Cheese Bits that "all future articles must be signed by the author in order to be printed in Cheese Bits." By request, the minutes show how each Board member voted. There were also requests by interested parties that the minutes show their attitude to the Motion.

K3GAS gave an annual accounting of the Treasury. The Board passed a Motion to rescind the Motion allotting \$10.00 to the host at the Board Meetings.



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DANIEL T. COSTELLO  
CHIEF COMMUNICATIONS OFFICER

JOSEPH D. HAMILTON

Pack Rats Radio Club  
c/o Francis Brick W3SAO  
821 West Lindley Avenue  
Philadelphia, Pennsylvania 19141

Gentlemen:

I am writing to express my extreme gratitude for the assistance given to Montgomery County Civil Defense by members of your organization during the Hurricane Agnes flood emergency.

The actions of your members as well as the other amateurs who volunteered was in the highest tradition of amateur emergency service and is greatly appreciated by all of us of the County Civil Defense staff.

Very truly yours,

Thomas E. Gibson  
Deputy Director

\*\*\*\*\*

VHF REPORT

Jo, W2EIF

The openings on 6 meters have continued into mid July with double hop into the far west being particularly good.

Two meters has continued with good activity particularly at the low end on SSB. K4JQV and WA4WJP are on in North Carolina. Bob, W8DGF in Cleveland was off for about 5 weeks due to hospitalization and is just now getting back into action. 220 MHz has shown some good openings up to Boston and Maine, and 432 has been good with contacts into Ohio. The activity on all bands has dropped off a little due to summertime activities.



THE PREZ SEZ CONTINUED

measuring, etc. At least two areas of Club participation have been somewhat slight, F.M. Repeaters and Moonbounce. Club interest does exist in these areas and members with these interests should make them known and who knows, here may be others and before long, there is a full project underway.

After having listed all of the sugar and spice, one might ask how does it all happen. The answer is simple, hard work and involvement. Does it always go smooth? Rarely! But the struggle is half of the fun so lets all get involved and have fun this year as in the past years.

K3BPP, Walt

\* \* \* \* \*

ANOTHER "AGNES" REPORT BY PETE SHAVNEY,  
WA3OVH

"The members of PENNARC radio club, WA3RCA, and affiliated Explorer Post 681 returned home Sunday night the 25th of June after the wettest Field Day ever, never realizing that this was just a 'dry run' for nearly a week of 24 hour a day flood relief work 115 miles north of Philadelphia in the flood stricken city of Wilkes Barre, Pa. Sunday evening, member Tom Cochrane, WA3QQG heard the appeal for twenty additional amateur radio operators and equipment over Eastcars, to relieve those who had already been on duty for several days with next to no sleep. Although our group hadn't gotten much sleep either the preceeding weekend, mobilization proceeded quickly and by Monday morning a group of eight general class (or higher) operators with equipment and loaded trailer were ready to leave.

Emergency type operations on two through eighty meters are conducted by the club several times a year throughout the area, mostly the Blue Mountain, seventy miles north of Philadelphia. Everything was right on hand therefore for a well equipped emergency radio operation anywhere within reason. Several hundred feed of AC line, coax and connections, complete mobile tool cabinet etc. etc. along with the usual transmitters, antennas and so forth were neatly packed into the trailer when we pulled away at 10 AM. Free passage was given the group at the Turnpike toll booth which was a surprise but well appreciated.

Upon arrival in Wilkes Barre, we checked in with WA3JZB (C.D. RACES net control) and were ordered to set up our mobile trailer and one station at Wyoming Valley Mall which was high and dry just outside the beleaguered city. From this point we were able to assist JZB in dispatching amateur radio operators throughout the area utilizing a National Guard truck and driver as passage through the cordoned off city was not allowed without escort. During Monday and Tuesday 29 operators were logged into and out of the Mall, most being

CONTINUED

ANOTHER "AGNES" REPORT BY PETE SHAVNEY, WA3OVH, CONTINUED

sent to the major evacuation centers where about 7,000 people were being provided for.

Many hundreds of messages were handled by the C.D. RACES net of six meter stations established for emergency and priority communications in the complete absence of city telephone service. The heaviest flow of traffic was between JZB, net control in the Boro Building in Center City and essential services such a Police, Evacuation Centers, Red Cross, Ambulance services, Military Communications (Mil-Com) and so forth. We heard traffic ranging from death messages, to requests for thousands of blankets, to two tons of foodstuffs. Health and Welfare traffic was not allowed.

Several hundred fire trucks had to be dispatched from Wyoming Valley Mall Monday evening and throughout the week to start the mammoth job of pumping out thousands of basements and hosing down miles of city streets covered with inches of mud and muck. PENNARC's assistance in setting up the Fire Chief's emergency FM field transmitter proved invaluable as without our hundreds of feet of AC line cord and co-ax they could not have operated at all.

Links with 75 meters were established on Monday through the group we had dispatched to Scranton/Wilkes Barre airport (Avoca, Pa.) and on Tuesday a 40 meter link was set up at JZB, where all services were being coordinated.

Until Wednesday, Pocono Downs Race Track served as the principal supply center for the flood of food supplies, clothes, bedding, medical items, etc., but this function was transferred to Avoca from that day on, and the ten or so amateurs at the Racetrack were reassigned at the same time. Principal supply line for all of these materials was from Philadelphia to the Willow Grove Naval Air Station and from there by military planes and trucks and civilian trucks to Avoca. Local distribution in the Wikles Barre area from Avoca was under the control of JZB in center city utilizing local trucking, many sizes of helicopters and military vehicles.

C.D. RACES operations on six meters were maintained on a 24 hour a day basis until 3 P.M. Friday at which time Mil-Com set up a two meter FM network phasing out the six meter operation officially at that time, and relieving the several remaining PENNARC members for a well deserved rest.

Details of the 2 meter FM phase will have to come from some other group, as the last of the PENNARC/Post 681 members were on the way home by 5 P.M. Friday June 30th.

PENNARC/ Post 681 members who assisted in the disaster relief crew were:  
Steve Schwartz, WA3QMX, Charles Keenan, WA3QQE, Don Goldstein, WA3RBF, Hank O'Neil, WA3QGH (all of the above from Philadelphia) Tom Cochran, WA3QQG, Glenside; Joe Burns, WA3QOO, Glenside; Ray Menna, WA3QAC, Jenkintown; Pete Shavney, WA3OVH (Trustee WA3RCA), Glenside.



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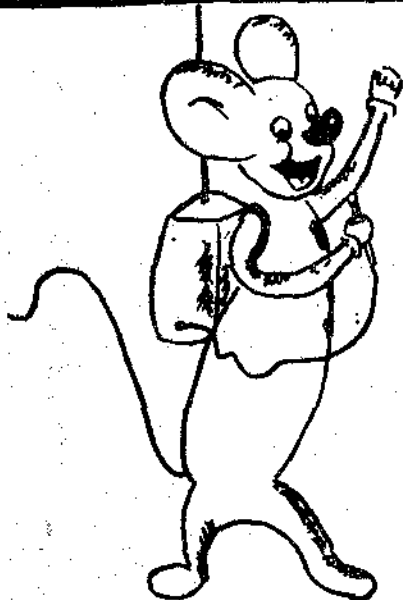
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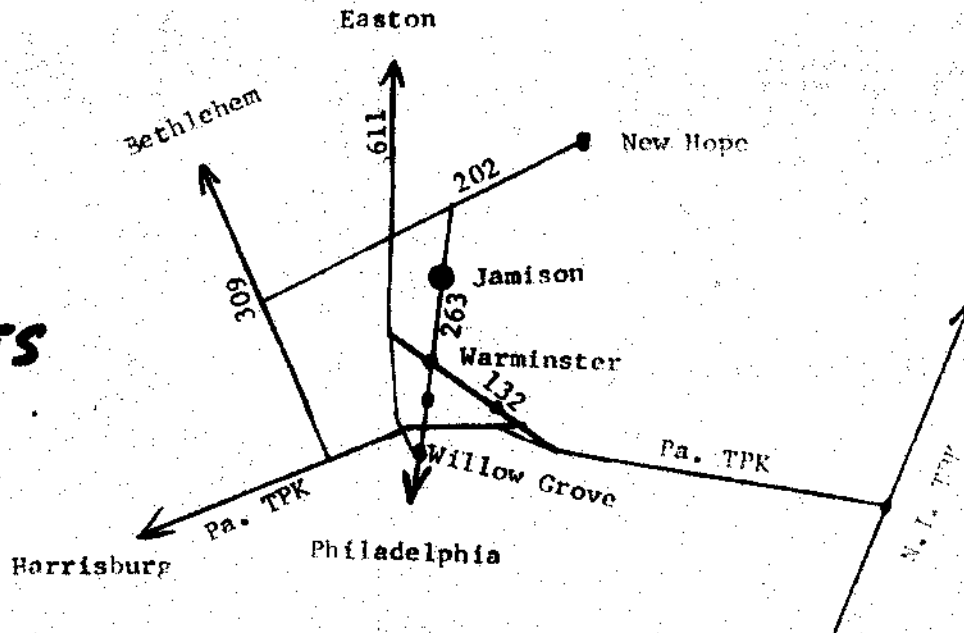
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