

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, K3HJV, 2013

VOLUME XXXVI

June 1994

Number 6

THE PREZ SEZ

Ladies Night was a huge success - thanks to Bruce Loss, WA3YUE, and XYL, Beckie, for organizing the evening and to the Awards Committee - Steve, WB3KRW, Bob, WB2YEH, and Dick, N3AOG, for completing the difficult task of naming this year's awards recipients. Congratulations to the many Rats who have worked hard at what they enjoy doing!

ARRL night was well represented by our Atlantic division representatives, Hugh Turnbull, W3ABC, and Kay Craigie, WT3P as well as the division Contest Advisory representative Tim Duffy, K3LR (thanks to Gary, WA2OMY, for making everything happen). Kay and Hugh gave us an update on some of the more important division happenings; both Kay and Hugh continue to keep on top of a multitude of important issues which many of us often overlook. Tim Duffy gave a rather insightful look into the CAC's operation and unveiled the positive vote for the W3EP rover rule change. Tim has been doing an excellent job as CAC representative for the Atlantic Division; The Packrats thank Tim for putting in the time and energy necessary to make a positive impact for the weak-signal VHF community. Tim deserves an "atta-boy" for making the 6+ hour drive just to attend our meeting! The Packrats look forward to working with Tim in representing the weak-signal VHF community.

By now most of us have recovered from the June QSO party. Pat, WB3DNI, did an excellent job in organizing another June contest effort. A lot of planning and hard work goes into this event. I for one am grateful to have the opportunity to operate from Camelback - none of us could put together an operating effort of that magnitude individually; this type of undertaking is only possible with every member's assistance and cooperation. A hearty thanks to the band captains, operators, power team, KB3XG rover, and of course, our cooks Don, N3OZO and Al, N3ITT! Let's start planning for next year's effort... maybe 432 EME?

Our June meeting will feature an interesting presentation on High Definition Television. It's also election time once again. If you have an idea you'd like the club to pursue why not consider running for one of the offices? The Board is always looking for fresh ideas and new blood. If you know of someone who would be a prime candidate for one of the positions simply ask the individual and talk to Al, K3EOD of the Nominating Committee prior to the meeting.

73, Paul Drexler, WB3JYO

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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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(215) 355-5730

PACKRAT 222 MHz REPEATER - W3CCX/RPTR

222.98/224.58 MHz, Churchville, PA

OFFICERS: 1993-1994


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COR. SECR: N3AOG, Dick Comly
DIRECTORS: N3EXA, Brian Taylor (1 YR)
K3ESJ, Bill Jaxheimer (1 YR)
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	50.150 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 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 -June 1994

4 **Bergen ARA Hamfest** will be held at Fairleigh Dickinson University in Teaneck, NJ. Technical Forums and VE exams will be given. TI on 146.19/79, and .52.

4-5 **June VHF QSO Party.** See May QST Page 126 for rules. W3CCX will be operating from Camelback Mountain, FN21, near Tannersville, Pa. on all bands thru 24 GHz.

7 The **Arietids Meteor Shower** predicted peak will be at 0413 UTC.

9 Packrat **Board of Directors meeting** held at the QTH of Ron, WA3AXV at 8:00 PM. All members of the club are invited. Call (215) 355-5730 for directions.

14 **Flag Day.**

16 Packrat meeting at the Southampton Free Library on Street Road in Southampton, Pa. Annual election of officers and an interesting presentation on High Definition Television. All members and interested VHFers welcome.

18 The **Skyline ARC Hamfest** will be held at the Cortland Co. Fairgrounds in Cortland NY. Talk-in on 147.78/.18. VE exams by reservation only.

18-19 **1994 SMIRK Party** Contest. 0000-2400Z. See rules on page 138 of the May issue of QST. Official log sheets can be obtained from Pat Rose, W5OZI at PO Box 393, Junction TX 76849.

19 **Fathers Day**

19 The **Frederick Amateur Radio Club Hamfest** will be held at the Walkerville Fireman's Carnival Grounds in Frederick MD. Talk-in on 147.66/06 and 146.52.

21 +/- 1 month. Look for **openings to Europe** on 6 meters.

25-26 **Field Day.** See May QST page 127 for the rules. Look for lots of activity on 50 and 144 MHz.

JUNE CLUB MEETING

In addition to the program on High Definition TV, the meeting will also include nominations for office and voting for new officers for the year 1994-95. Members are encouraged to nominate candidates for all open offices. The only constraint is that the nominee must agree to run for the office although he is not required to be present during the nominations. Nominations received at the May meeting were:

<u>Office</u>	<u>Nominee</u>
President	Paul , WA3JYO
Vice Pres.	Gary , WA2OMY
Rec. Sec.	Walt, WA3AQA
Cor. Sec.	Dick, N3AOG
Treas.	Dave, WA3JUF
Directors:	Al, N3ITT
	Phil, WA3NUF

SWAP SHOP

(send all ads to the editor)

For Sale: HP 5345A Frequency Counter with operating and service manuals, good to 500 MHz, \$250.00. HP 1610B Logic Analyzer with probes, \$50.00. Wanted for my collection vacuum tubes (you remember them don't you?). Call Gary, WA2OMY at 610-539-6409.

Free: QST (early 60's on and a few copies in the 30's) and 73 (first issue on). Pickup only- all of each magazine or none. **For Sale:** ham radio magazine (first issue on) until the mid 80's. Make offer. Call Harry, W3IIT, at 610-584-4846.

PHONE NUMBER CHANGE

Chuck Benavides, WA1KIR, 206-965-8914(W)
Bill MURPHY, WORSJ, 908-234-3888(W)

TID BITS

Joe Reisert, W1JR, one of the friends of the Packrats up in N.H. is on the cover of the June issue of CQ. Tell Joe he looks good.

CO2KK reported that on May 29, there were at least 8 active Cuban stations on the air in Cuba. During the June contest, many of them will be using special event prefixes of CO). CO0FRC reported that he will be operating on all bands from 50 thru 1296 in the contest including 222 MHz. CO2KK will be monitoring 144.400 FM (no sideband yet) for any signs of E skip on 2 meters.

Dr. Allen Katz, K2UYH, has been honored as Inventor of the Year by the Astro Space Division of Martin Marietta. He received 2 patents in 1993 bringing his total to 12.

Joe Lynch, N6CL, writer of the "VHF PLUS" column in CQ has a new book out titled The VHF "How To" Book, A Guide For All Amateurs. It's available from CQ Communications, 76 North Broadway, Hicksville, NY, 11801. The cost is \$15.95 plus \$4.00 shipping and handling.

Ted, WA4VCC, that FM13 will be active from Pleasure Island, N.C. south of Wilmington. Activity will be from June 4 to 10 on 6M thru 432 MHz

If you're looking for one of the AM-6155 amplifiers for conversion, Fair Radio has them listed in the June issue of CQ on page 142. Pat, WB3DNI, has an extensive set of reprints of conversion articles for 2m, 222 MHz and 432 MHz for this and the 6154 including schematics.

Packrat Bob Cook, N2SB, has an article titled "5760 MHz from the Junkbox" in the May issue of QEX. 10 watts out with a receive NF of 1.2 dB for a cost of less than \$150.00!!! Try doing that on 2 meters. In the same issue, Zack Lau, KH6CP/1 has an article on a 2 watt 13 cm amplifier using a HP ATF-44101/AT-8140 power GaAs Fet. The artwork for use on a 0.031 in. Teflon board and power supply circuit are included.

The April 1994 issue of the N.E.W.S. Letter has an article by Ken, W1RIL on modifications to the Qualcomm Omnitrac PA board for 10 GHz operation. with -14.5 dBm input he gets 1.38 watts output.

VISITORS AT THE MAY MEETING

Kay Cragie, WT3P, Paoli, Pa.
Hugh Turnbull, W3ABC, College Park, Md.
Tim Duffy, K3LR, W. Middlesex, Pa.
Jason Gorodetzer, N3FUS, Holland, Pa.
Andy Blank, N2NT, Monroe, N.J.
John Golomb, KZ2S, Wall, N.J.
Sam Santoro, W3BNQ, Blue Bell, Pa.

Hints and Bits - PRINTER CODES

By Dave, WA3JUF

Over the years I have used 3 different printers with 3 different computers. It was quite annoying to look up line printer codes for different print sizes and widths. I wrote a shareware program called PRCODE.EXE which is used to send print codes to the line printer. A data file containing ESC and decimal codes for 7 different functions is saved for repetitive printer commands.

A menu is set-up for different functions like compressed print, double strike, expanded, etc. Check your printer manual for the correct codes and enter them into the PRCODE file. 80 and 120 columns can be selected also.

Let me know if you want a copy of this software.

ROVER SCORING: Discussions at the West Coast VHF-UHF Conference

NOTE: This was sent to the Contest Advisory Committee by Wayne Overbeck, N6NB, on May 2, 1994.

This note is a follow-up to the discussions of the rover scoring question at the West Coast VHF-UHF Conference, and to my phone call to Mark Beckwith (the CAC chairman) immediately after the conference ended yesterday. I was very happy to learn from Mark that there has now been a CAC vote in favor of the W3EP scoring plan for rovers in VHF contests. I believe the W3EP plan is strongly supported by most VHF contest operators from coast to coast.

During the West Coast conference, several active and well-known rovers said they would support the W3EP plan. I promised them that I would write something about this and circulate it to the CAC, so I'm doing that now, although it turns out that you have already voted on this issue.

At the beginning of the conference, Tim Marek, NC7K, led a session on roving. I was not there, but I understand from Tim that there was considerable opposition to any rule change that would prevent rovers from counting multipliers more than once if they work them from more than one grid square. However, I understand there was no discussion of the W3EP plan; apparently no one attending that session presented it as an alternative.

Later I discussed the W3EP plan with Tim, in conversations that were joined by KC6WLC (another avid rover) and a number of other experienced VHF contest operators (including QST Editor Mark Wilson). Tim and Ron (KC6WLC) both said they thought the W3EP plan was a fair solution to the problem, a solution that would make rovers' scores more nearly equivalent to those of other stations without taking away the incentive to rove.

The W3EP plan also has another virtue that may not have been fully discussed before: it gives rovers an incentive to remain in each grid square long enough to work everyone who would like a chance to work that grid square. Under the cumulative scoring system now in use (I believe you have been calling it the "multiplicative" system), the best way to achieve a big score is to cover a LOT of grid squares, quickly working the easy multipliers on each band in each grid square (often by prearrangement) before rushing on to another grid square. Although the contest rules say rovers should adopt operating practices that make it possible for as many stations as possible to work them, the scoring system has not encouraged rovers to stay in each grid square long enough to "work out" the band. Any scoring system based on the cumulative QSO total times the cumulative multiplier total would have this unintended result.

Under the W3EP plan, there's a strong incentive to achieve a substantial score in each grid square (because the total score is simply the sum of the individual scores). Adopting the W3EP plan will not only restore some equity to the scoring opportunities for various classes of stations,

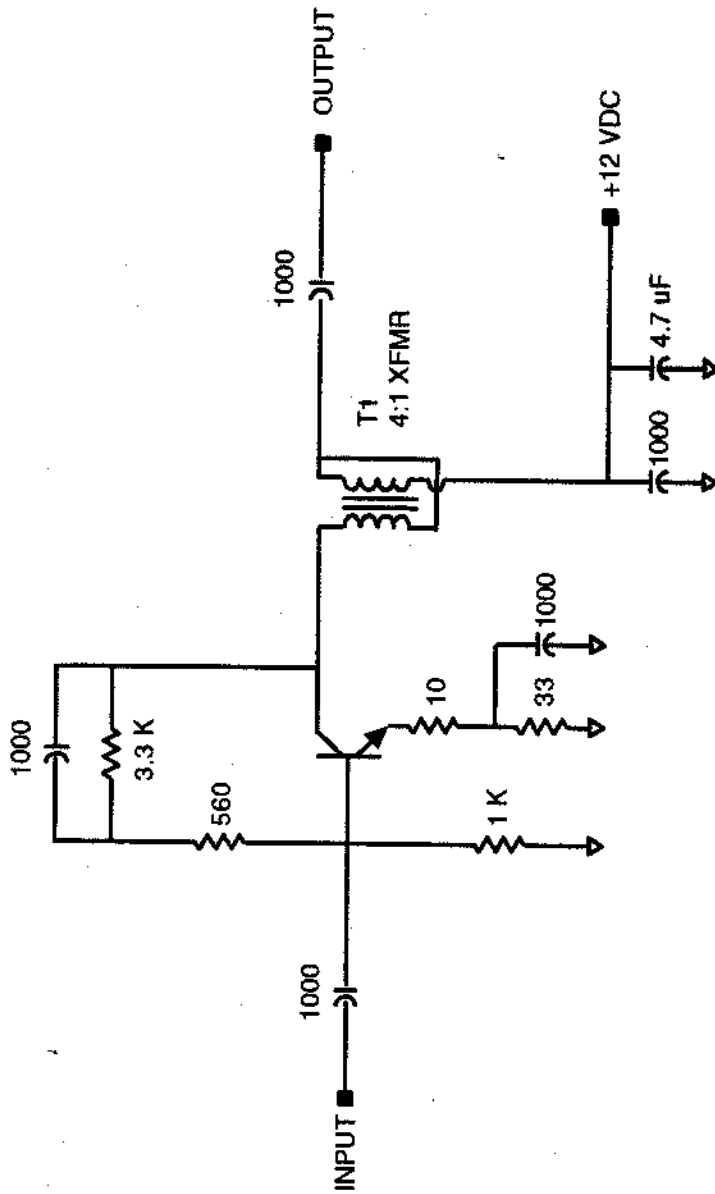
but it will also give more stations a chance to work rovers in rare grid squares, especially on the higher bands. In my experience, rovers who are going for a big score under the present system enter and leave grid squares so quickly that many operators who would like to work them cannot catch them on all bands before they cross over into the next grid square!

I understand from Mark that some rovers feel they would have an advantage over other stations even under the W3EP scoring system. I agree that this would sometimes be true, especially in areas of low VHF activity in the midwest and west where fixed stations quickly work out the bands and then face long hours of low QSO rates. When the rate slows down (because the bands are worked out) rovers can move to a new grid square and work all of the available stations again for additional QSO and multiplier credit under the W3EP plan.

Perhaps there is no scoring system that would create absolute parity in scoring opportunities between rovers and other classes of stations. But the W3EP plan would go a long way toward restoring the perception that the scoring system in VHF contests is fair and equitable for all participants. I realize that rovers technically do not compete with other operators, but in reality many people look at the relative scores. For example, last June I put on a serious six-band effort on a good mountaintop in a rare grid square--with kilowatts on all bands to 432. I had the highest single operator score ever recorded in California, but a rover (a recently licensed ham using a medium-power mobile station) had a far higher score--and then a widely read newsletter said that he had "won" the contest. I was almost as disappointed as the Rochester and Mt. Airy folks must have been when two family-owned rover stations made a shambles of the club competition last January. Some semblance of equity must be restored to VHF contest scoring, not only in January but also in the other contests. Roving adds a wonderful new dimension to VHF contesting, but I don't think most rovers really want a scoring system that gives them a huge scoring advantage over everyone else. And such a scoring system certainly creates a disincentive for participation by non-roving stations.

In closing, I would like to apologize for not writing to the CAC long ago. As a former CAC chairman, I of all people should write when an issue concerns me as much as this one does after 50+ VHF contests. I just assumed from what I was reading last winter that everyone agreed on the W3EP plan or something like it. It wasn't until I saw the May QST (with no change in the rover scoring for June) that I realized this might not be resolved. I hope your vote and appropriate follow-up action at League Headquarters will put this matter to rest in time for the September contest.

144 MHz 2N3866 LINEAR AMPLIFIER

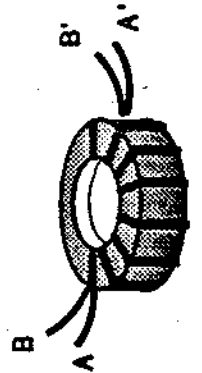


NOTE

Resistance values in ohms, capacitance in pF.
Use small push-on type heatsink for 2N3866
(Digi-Key HS101-ND)

T1 is 6 turns #28 bifilar on Amidon T30-0 toroid. Twist together 2, #28 enameled wires to wind the transformer.

After winding, label the leads at the start of the transformer as A and B, and those at the opposite end as A', B'. Connect lead A' to B as shown in the schematic. Connect lead A to the transistor collector and lead B to the 1000 pF output capacitor. Lead B' is connected to the DC supply.



ICQ = 40 mA
9 dB gain @ 144 MHz
P1dB = +20 dBm
IMD < -50 dBc @ +12 dBm Pout
WB3JYO 5-94

Ladies Night

Awards were numerous at the Ladies Night Club Banquet and in addition to thanking the XYL's for their tolerance in the ham activities over the past year, there were a few awards given out. Hopefully, all are included in this list.

- 1st Place Single Op in the Jan VHF S/S: Phil Miguelez, WA3NUF
- 2nd Place Single Op in the Jan VHF S/S: Bob Fischer, WB2YEH
- 3rd Place Single Op in the Jan VHF S/S: Paul Drexler, WB3JYO
- 1st Place Multi Op in the Jan VHF S/S: W0RSJ and crew
- 2nd Place Multi Op in the Jan VHF S/S: N3EXA and crew
- Best Technical Project: 3 way tie of WA3NUF, WA3AXV and N3AOG
- 3rd Place Multi Op in the Jan VHF S/S: N3ITT and crew
- Most Ambitious Project: Dave Mascaro, WA3JUF
- Best First Time Project: Ken Bromberger, N3PER
- Best Construction: Paul Drexler, WB3JYO
- Packrat of the Year: Harry Brown, W3IIT
- Mario Award, Gary Hitchner, WB2OMY

6 METEOR SCATTER

By Larry Jones, WB5KYK

I am packing up the 6 meter gear till May. The sunspot cycle is again in a nose dive so I might just sell the 6 meter gear! I have my 6 meter VUCC but I would like to keep chasing grids. I guess with conditions getting worse, I'll just have to wait. This line of thinking is happening in too many hamshacks! Do you want to enter a different 6 meter world? Try 6 meter meteor scatter (MS). I want let you in on one of the best kept secrets in ham radio: SIX METERS IS THE BEST BAND FOR ms! I know you can work all those grids via sporadic E, but when? Look at your grid map, do you have some grids that should have been worked but haven't? Set a sked and work it via meteor scatter!

Meteor scatter can be used most any morning on 6 meters between the hours of 1000 to 1200 UTC by using random meteors. Meteor Scatter during meteor showers, even minor ones, is highly productive! I set up my 6 meter meteor skeds during the minor showers that might prove less productive on the higher bands (2 meters and 70 cm.). Using meteor scatter, you will be surprised at the growth of your grid totals, especially in the winter months!

What do you need for successful 6 meter meteor scatter work?

- (1) A 6 meter multi-mode rig, most 6 meter meteor scatter is run using ssb.
- (2) At least a 4 element yagi fed with nothing less than 9913.
- (3) At least 75 watts of power. 100 watts will net you lots of contacts. 100+ watts will allow you to run some serious long haul skeds!
- (4) A good preamp helps a lot on long haul 6 meter meteor scatter. It is not absolute necessary. You will work many many stations without the aid of one.

6 meters is a great band for meteor scatter but there are a couple of problems that challenge an operator's skill. Noise is sometimes a problem, especially when the sun is up and you are using a hot preamp. There is also man made noise. The answer to these, I have found, is the use of a good DSP filter. They will help you pull out the weak ones. Noise is not a problem at every QTH. I have found the DSP filter that I use to be very helpful in running long haul meteor scatter skeds on 6 meters and I have a quiet location down here in the Tallahalla Swamp. The other problem is also noise of a different nature: QRM! Random meteor scatter is usually run on 50.125 MHz because that is where we all listen. Rag chewers, meteor scatter, etc. turns this frequency into a real circus on Saturday mornings for the meteor scatter operator where only the strong survive and many QSO's that could be completed are lost in the QRM. I have advocated a 6 meter scatter calling frequency for a long time. The only way to accomplish this is to have the national publications (CQ, QST, etc.) too get on the ball and push it! They have the national circulation to do this. How do you think the "DX Window" on 6 meters became established?

When you are running "randoms" on the band, try to transmit the 1st and 3rd 15 second segments of each minute if your beam is pointing EAST and the 2nd and 4th 15 second segments if your antenna is pointing WEST. When you do this, the stations in the direction you are transmitting will be listening and YOU will be listening when they are transmitting. Grid squares are generally used as

reports on 6 meter random meteor scatter. Keep your transmissions short (15 seconds) and concise (call, grid, rogers) and you will be loved by the experienced meteor scatter operator. DO NOT ATTEMPT TO CARRY ON A RAG CHEW VIA METEOR SCATTER. This ruins a lot of guys chance to work a new grid!

Well, I hope this answers some of the most frequently asked questions I receive about 6 meter meteor scatter. Oh, by the way, I run randoms most Saturday and Sunday mornings. It sure would be nice to hear more from the stations out WEST! Hope to hear YOU on meteor scatter soon. Try 6 meters, it's easy and fun. (Editors note: next month I'll put in Larry's lists of major and minor showers).

Hints and Bits - CRYSTAL OVENS

By Dave, WA3JUF

All of my transverters are located in the attic where the temperature can go from 10 to 120 degrees F. No temperature compensating components were used when I built them, so the local oscillators can change frequency with temperature. Before I installed a crystal oven, my 2160 MHz local oscillator moved 15 KHz from summer to winter. Granted, some of the temperature shift was due to the capacitors in the oscillator circuit.

Taking your microwave rig out to the field in the June contest can change the LO frequency. A frequency counter is then needed to check your frequency calibration. A crystal oven can be used to almost eliminate the temperature shift. Cheap crystal stability can be achieved with PTC thermistors (positive thermal coefficient resistors). The resistance increases with temperature in this type of thermal-resistor. The thermistor heats up when dc is applied, which causes the resistance to increase, which in turn reduces the current flow. The unit will then stabilize at the rated temperature.

PTC thermistors are available from many mail order houses. The KC003P and the KC006P are Keystone thermistors rated at 50 ohms at 25 degree C. Both were used with great results when attached to crystals in the DEM transverters and the SSB Electronics transverters. I unsoldered one lead of the thermistor so it could be soldered to the case of a crystal.

Murata Erie makes a Posistor attached to an HC-25U "clip-on" that makes a great crystal oven. Just slip it on an HC-25U crystal and apply 12 V dc. The Murata BG330N is available from Yaesu USA, part number G9090019.

OvenAire crystal ovens are a complete unit in an insulated housing. They are available in a variety of temperatures, voltages and crystal sizes. The units that N3CX found on the surplus market were PLC1-43-20-75 which are rated at 75 deg C and 20 volts DC. I use one on my 1152 MHz PLL local oscillator and it moves < 1 KHz during temperature extremes.

If a crystal will not adjust "on freq" when used with an oven, order a new crystal specifying the oven temperature. Additional stability can be achieved by surrounding the crystal and thermistor with some insulating material.

<u>Part # and Description</u>	<u>Vendor</u>	<u>Temp. C</u>	<u>VDC</u>	<u>Price</u>
PCL1-43-20-70 HC-25U oven	OvenAire	70	20	\$ 40.00
KC003P thermistor w/leads	Digi-Key	50	12	\$ 2.31
KC006P thermistor w/leads	Digi-Key	70	12	\$ 2.31
BG330N therm/HC-25U holder	Murata Erie	70	12	\$ 15.00
G9090019 therm/HC-25U holder	Yaesu USA	70	12	\$ 6.88

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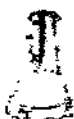
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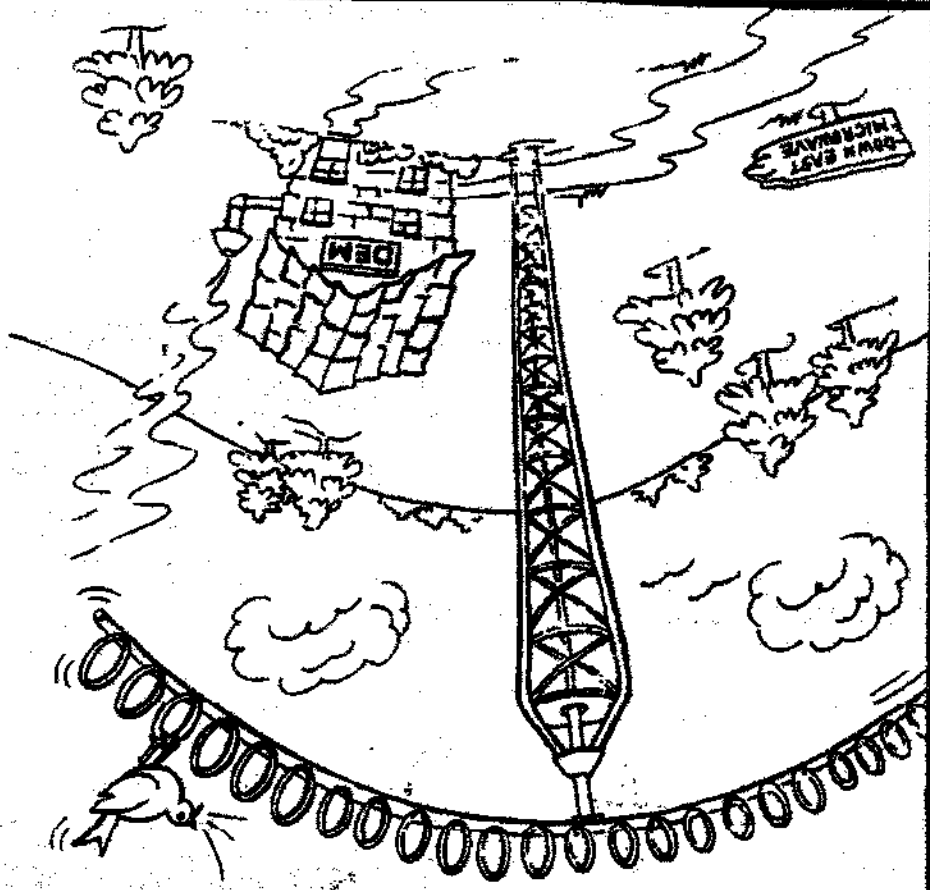
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