

**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 XXXVI

October 1994

Number 10

### THE PREZ SEZ

Many thanks to Leonard, N3NGE, and Dick, N3AOG, for an excellent presentation on Practical Design and Construction Methods for VHF yagis. Len did a superb job summarizing the complete process of building a homebrew yagi, including a great technique for keeping all of the elements lined up while drilling the boom. Dick gave us a run down on the various types of aluminum alloys that are available for antennas and masts and how to get them cheap for homebrewing purposes. Quite a few questions were answered and plans were discussed for several club antenna construction projects. More information will be available on the Monday evening nets.

By the time you've read this, Hamarama '94 will probably be behind us. It takes a lot of work by everyone to orchestrate a successful Technical Conference and fleamarket. Thanks to all of the hard working club members that pitched in to make both events possible. With our Hamarama obligations behind us we can now concentrate our full attention on our January Contest preparations! The competition is as fierce as ever this year with Rochester and the NEWS group vying for the number one position.

Each and every member needs to give some very serious thought as to how he can improve his station and operating skills. We've worked hard to get a number of guys on new bands, and we're continuing that effort with more build sessions planned for the upcoming weeks. A number of Packrats have asked about the possibility of getting an antenna project together and we're giving that a try this year as well. What we have to concentrate on now is active participation! Every member has to sit down and review his logs from the past several contests. Where did you do well? What bands didn't seem up to par? What can you do to work 5 more grids on each band? There's plenty of technical assistance available within the club, why not target what you want to improve NOW and ask for some help? It's up to every member to ensure that the gavel will again be OURS this year!

Bring your ideas and projects in progress to the October meeting!

73, Paul Drexler, WB3JYO

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

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

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**PACKRAT 222 MHz REPEATER - W3CCX/RPTR**

222.98/224.58 MHz, Churchville, PA

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**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

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## Calendar of Coming Events -October 1994

Oct.

- 1     **The 18th Annual Mid-Atlantic VHF Conference** will be held at the Quality Inn in Horsham, PA. Admission \$10 in advance or \$10 at the door (includes HAMARAMA). For further info, contact the Conference Chairman, John Sortor, KB3XG, 215-584-2489.
- 1     **Canadian 50 MHz Sprints**, 1900 to 2300 local time. See 1 Sept. See the September issue of CQ for details. Exchange is call and grid square. Scoring is number of contacts times the number of grid squares. Send logs to Dana Shtun, VE3DSS, 500 Willard Ave., Toronto, Ontario MS6 3R6, Canada.
- 2     **Hamarama 94** will be held at the Bucks County Drive-In on Rte. 611, In Warrington, Pa.
- 2     **The Hall of Science ARC Hamfest** will be held at the New York Hall of Science parking lot, Flushing Meadow Park in Queens, NY. Talk-in on 146.52.
- 9     **Pennsylvania OSO Party**. See September QST page 126 for rules.
- 9     Garden State ARA/Neptune ARA/Monmouth-Ocean State ARC **Jersey Shore ARC Hamfest** will be held in Middletown Township, NJ at Garden State Tpk exit 109 to the hamfest at Brookdale College. TI on 145.110.
- 10    Columbus Day
- 13    **Board of directors meeting** for the Mt. Airy VHF Radio Club will be held at the QTH of Dick, N2AOG at 8:00 PM. All interested parties welcome. Call 215-443-9965 for directions.
- 15-16 Simulated Emergency Test (SET). See Sept. QST, page 126.
- 16    **Columbia ARA Hamfest** at the Howard County Fairgrounds in W. Friendship, MD. TI on 147.735/135. VE Session.
- 16    **Penn Wireless Association Tradefest-94** at the Robert Yezzi Fairgrounds, Rt. 513, 1 mile south of Rte. 132 in Bensalem, Pa. Admission: \$5 each or \$10 per carload. VE exams will be held. Talk-in on 145.52 or 146.25/(-600).
- 20    **Regular meeting** of the Mt. Airy VHF Radio Club at the Southampton Free Library on Street Rd. in Southampton, Pa. WA3AXV will present a program on the Global Positioning Satellite. All VHFers are encouraged to come and enjoy the evening with us. You need not be a member to attend.
- 22    Predicted peak of the **Orionids meteor shower** at 0632 UTC.
- 23    **RF Hill ARA Hamfest** at the Armory in Sellersville, Pa. VE exams will be held. TI on 144.710/145.310, 134.28/88, and .52.
- 29-30 **ARRL International EME Competition**. See Sept. QST page 128.
- 29-30 **CQ World-Wide DX Contest**. See Oct. QST, page 126 for rules or CQ magazine.
- 31    Halloween

### SWAP SHOP

(send all ads to the editor)

**Wanted:** Student or better microscope, 600X, with turret-mounted objectives, etc. Also, a 6 inch or better reflector telescope with eyepiece, optics, etc. And a 3 ft. dish with a f/D of .45 through .6. Call David, N3CX, at 215-679-7293 (H) or 215-483-2030 (W).

### NEW PHONE NUMBER

Dave, WA3JUF, 215-830-5447 (W), -5608 (FAX)

## ADDRESS CHANGE

Mike, WB2RVX  
9 Briarwood Drive  
Voorhees, NJ 08043  
609-782-0150 (H)  
609-988-9080 (W)

## TID BITS

The September 94 issue of QEX has the first of a 3 part article on Practical Microwave Antennas by Paul, N1BWT. The same issue has Zach, KH6CP/1's RF column with a 5760 MHz low noise PHEMT amplifier. NF is 0.65 dB with a gain of 22 dB. Artwork is included.

## GAITHURSBURG

By Harry, W3IIT

This note is not about the hamfest although I did attend and it was a great hamfest - reportedly over 10,000 in attendance. What this about is VHF contesting. The same weekend as the hamfest is the September VHF QSO Party - one of the big three VHF contests. At the hamfest, some enterprising group had signs up requesting contacts by hamfest attendees via FM to a multiop contest station some miles away (reportedly around 75 miles). To aid the typical handhelds that many attendees had, a directional antenna was provided for anyone to use for the contacts. The multiop station in question ended up with a very large number of 2 meter contacts - in the high hundreds.

Now all of this is hand-me-down information to me since I was busy looking at the goodies that were being sold at the hamfest. Where I found out about all of this was by one of the features of the INTERNET that is available to me. It is a VHF mailing list that allows anyone with an interest in VHF to send in comments, technical info, notices about such things as the Mid Atlantic States VHF Conference, etc. And everyone receives the comments and notices of everyone else. It's pretty neat.

Well, shortly after the contest a brief notice appeared in my electronic mailbox that ended up in a couple of days of a very full mailbox. The details of the Contest/Hamfest/Call involved gradually all came out (with some uncertainty of all of the details). Among the questions that came out was the ethics of this, did it violate the contest rules and if so, who violated them - the receiving multiop station, the provider of the signs and antenna, the hams attending that provided the contacts, etc. I'm not going to say who the station was in Cheesebits but I'm sure that it will all come out. I can't say that I was too surprised by what happened since I had heard of something like this discussed many years ago. It was one of those "what if someone would" discussions. I haven't reviewed the contest rules yet but I believe that it could be easily interpreted that the rules were not broken. I can also see that someone would not believe that it was in the spirit of the rules (it's my view at this time). I'm not a fan of FM use in contests but I'm not so strong minded about it that I ignore the contacts that are available but that's not the point here. The emotions ran very high on the electronic mail but seem to have subsided partly because the guy that runs the mail list as a service seemed to get fed up with all of inflammatory mail being passed around and suggested that the discussion be moved to some other forum. On Internet, the process of attacking someone verbally is called "Flaming" and is frowned upon.

The question is what's next? Should the rules be amended to prohibit this? Are there advocates among us that believe that this should be encouraged and allowed? There was some discussion on the VHF mail-list about the benefit of exposing the FMers to contesting by doing this (I'm a little skeptical that this is an effective way of increasing the ranks).

## THANKS & WHAT DO YOU LIKE?

By Harry, W3IIT

I'd like to start out thanking the behind the scene Rats that help in getting Cheesebits out each month. They are truly unsung in that their names never appear anywhere except for whatever other jobs they may take on. I'd like you to know that Cheesebits would not arrive at your QTH without the help of Gary, WA2OMY, John, KB3XG, Walt, N3EVV, and Bruce, WA3YUE. When I finally get things ready, they arrive at my QTH for a session to convert 5 or 6 double sided sheets into the Cheesebits that appears in your mailbox. There's the shuffling of the sheets, staple in the corner (thank goodness for the electric stapler), folding in half, stapling again, adding the address sticker and then the stamp. The run of Cheesebits to members, subscribers and exchange with other clubs runs around 250 copies. It's handled quickly by the crew in about an hour and a half and afterwards with an occasional glass or two on HB wine.

The second item is the need for feedback. If you don't tell me what you want to see in Cheesebits, you'll only see what I think should appear. I do try to keep a balance on activities and something technical. Let me know what you want or better yet, write something for Cheesebits. Any input media is ok, but I prefer something on a computer disk if possible.

## Some Thoughts on 432 MHz Meteor Scatter

By: Larry Jones, WB5KYK

Meteor scatter on 432 MHz is not possible! We have this misconception to put to rest so we can proceed with the discussion on 432 MHz meteor scatter.

**432 MHz meteor scatter is not easy, but with proper planning, it can be accomplished.**

### What kind of antenna does it require?

A single long boom yagi (Cushcraft 424B, M2 432, 13-wla, etc.). You should use no feedline that exhibits a loss greater than the loss incurred in 9913 cable. Use the best connectors available for the cable you are using and be careful in connector assembly and waterproofing. Keep your antenna at low height (if possible). This will lower your feedline losses and widen your beamwidth (see page 7-14 of the VHF/UHF Handbook). Your antenna needs a good view of the horizon. You must get your antenna above obstructions, if your QTH is blessed with trees that block your antenna's view of the horizon. Height will increase your feedline losses and will narrow your beamwidth. I have found that an antenna height of 35' - 40' works very good for meteor scatter at my QTH which is free of obstructions to the horizon.

### Mast Mounted Preamp?

A mast mounted preamp, coupled to a long boom yagi will allow you to HEAR meteor scatter signals you would not otherwise know existed! I urge you to not overlook this part of a 432 MHz meteor scatter station. TE Systems, Down East Microwave and Advanced Receiver Research supply mast mounted preamps suitable for serious 432 MHz meteor scatter work. This is one part of the station can mean the difference in completing a sked and only hearing "pings".

### How much power do I need?

How much power do you need for successful 432 MHz meteor scatter? All you can get! Don't let this scare you. You do need at LEAST 100 watts. 200 watts will give you a lot better completion rate. Remember, 432 MHz meteor scatter is not easy! The amp should be capable of running high power cw for long periods without overheating. You need a heavy duty power supply if you are going to run a solid state amp. Down East Microwave, TE Systems and Mirage provide suitable amps for 432 MHz meteor scatter work. An external fan blowing across the top of solid state amps are very helpful in keeping the amp cool during the long sked required in 432 MHz meteor scatter work.

### What Mode?

I have ran many SSB skeds on 432 MHz meteor scatter and I have not been able to complete. Believe me, CW is the mode to use for 432 MHz meteor scatter. You need a keyer with at least 3 memories. You should store calls in one memory, reports in another, and "roger" in another. Code should be sent at no less than 40 wpm and no more than 50 wpm. Use headphones, remember you are dealing with VERY weak signals! MFJ manufacturers several keyers that work nice for 432 work.

### Skeds or Random?

Do not try 432 MHz random meteor scatter. It is a waste of time! Set up your 432 MHz meteor scatter skeds in a shower that has a zhr of at least 20. You and the station you are running with should have a frequency counter to insure you are both on the exact same frequency. Do not depend on the accuracy of the frequency readout of your transceiver. Run your skeds between 1000-1200 UTC. Run your skeds for 1 hour using standard 15 second segments. Transmit for the complete 15 second segment (do not "break" in the middle of the transmission, it is a waste of time). Finally, be patient, patient, patient.

432 MHz meteor scatter is a new and exciting frontier! You will find 432 meteor scatter interesting, challenging, and exciting. Good luck and good DX. Let me know what you encounter. Oh, one other thing, if you need EM51JQ in 432 MHz, let me know.

**I'M ALWAYS LOOKING FOR METEOR SCATTER SKEDS! May your bursts be long!**

## 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:

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October 94

Send to: SUBSCRIPTION/ADVERTISING MANAGER:

Bob Fischer, WB2YEH

7258 Walnut Avenue

Pennsauken, NJ 08110

## METEOR SHOWER DATA

By: Larry Jones, WB5KYK

Please find attached dates of Meteor Showers and their names that have proven productive for me time and time again over the years. Using this list, my completion rate for the first 7 months of 1993 has been 73.5% 9% of all skeds run on all bands, 6, 2 and 70 cm) The list contains: (A) Date, (B) Name of shower, and (C) number of meteors per hour (zhr). The zhr is variable from year to year. Showers listed which have no zhr listed are showers that have such a variable zhr from year to year that it is impossible to list a realistic zhr.

My rule for setting meteor scatter skeds is: A shower having a zhr of 2-8, skeds run on 6m  
A shower having a zhr of 8-20, skeds run on 6m or 2m.  
A shower having a zhr of 20+, skeds run on 6m, 2m, and 70 cm.

My cardinal rule for meteor scatter is:

**IF YOU DO NOT MAKE A SKED AND YOU DO NOT RUN A SKED, IT IS GUARANTEED YOU WILL NOT COMPLETE!**

The data that follows this page is a result of 38 years, 7 months and 5 days of running skeds and meteor scatter fascination. If I can be of assistance feel free to contact me by mail (SASE PLEASE) or by phone (601-426-2403), Larry Jones, WB5KYK, Rt. 12, Box 139C, Laurel, MA. 39440.

### MAJOR

### AND MINOR METEOR

### SHOWERS

#### January

- 2 Zeta Aurigids
- 3 Quadrantids (45)
- 6 Gamma Vedicids (9)
- 8 Rho Geminids (6)
- 13 Jan. Draconids (6)
- 15 Jan. Bootids (7)
- 17 Eta Craterids (4)
- 19 Delta Cancrids (7)
- 20 Alpha Hydrids (5)
- 21 Eta Carnids (3)
- 29 Alpha Leonids (10)

#### February

- 3 Capricornids-Sagittarids (15)
- 7 Aurigids (2)
- 8 Alpha & Beta Centaurids (14)
- 13 Chi Capricornids (15)
- 22 Delta Leonids (3)
- 25 Sigma Leonids (3)

#### March

- 2 Eta Draconids (10)
- 3 Rho Leonids (5)
- 6 Pi Virginids (2)
- 10 Lenoids (2)
- 14 Mar. Aquarids (7)
- 16 Gamma Normids (9)
- 18 Delta Mensids (2)
- 20 Beta Leonids (4)

#### April

- 1 Tau Draconids (10)
- 6 Delta Pavonids (10)
- 7 April Virginids (8)
- 12 Alpha Virginids (10)
- 14 Gamma Virginids (5)

#### April Contd.

- 17 Librids (5)
- 19 Ursids (10)
- 20 Lyrids (10)
- 23 Pi Puppids (18)
- May
- 5 Eta Aquarids (20)
- 6 May Librids (6)
- 9 Epsilon Arietids
- 12 May Piscids (8)
- 14 Omicron Cetids (18)
- 15 Southern May Ophiuchids (7)
- 16 May Arietids (16)
- 17 Epsilon Aquilids (17)
- 18 Northern May Ophiuchids (30)

#### June

- 4 Chi & Omega Scopiids (20)
- 8 Arietids (60)
- 9 Tau Herculids (4)
- 10 Theta Ophiuchids (10)
- 11 June Aquilids (13)
- 13 Saffittarids (30)
- 15 June Lyrids (8)
- 18 Phi Sagittarids (5)
- 20 Ophiuchids (6)
- 27 June Scutids (2)
- 30 Beta Taurids (25)

#### July

- 6 Sigma Capricornids (2)
- 12 Tau Capricornids (3)
- 14 Alpha Lyrids (33)
- 17 Omicron Draconids (21)
- 29 Delta Aquarids (20)
- 30 Alpha Pisces Australids (5)

#### August

- 1 Alpha Capricornids (14)
- 6 Iota Aquarids (8)
- 8 Upsilon Pegasids (5)
- 8-12 Persids (a lot)
- 13 Alpha Ursa Majorids (4)
- 19 Kappa Cygnids (6)
- September
- 1 Alpha Aurigids (9)
- 7 Gamma Aquarids (4)
- 11 Piscids (5)
- 12 Eta Draconids
- 22 Gamma Piscids (35)

#### October

- 1 Sextantids (30)
- 4 Eta Cetids (8)
- 6 Oct. Cygnids
- 8 Oct. Arietids (5)
- 9 Draconids
- 18 Epsilon Gemidids (2)
- 21 Oronids (20)

#### November

- 12 Alpha Pegasids (5)
- 14 Andromedids (5)
- 17 Leonids (15)
- 21 Nov. Monicerotids

#### December

- 5 Phoenicids (5)
- 6 Delta Arietids (7)
- 9 Sigma Hydrids (5)
- 10 Chi Orionids (2)
- 11 Dec. Monocerotids (2)
- 13-14 Geminids (80)
- 22 Ursids (15)
- 24 Coma Berenicids (7)

## Preliminary Scores - September VHF QSO Party

CALL GRID	W2SZ/1	W3ZZ	W4IY	K3MQH	WB1GQR	AA4S	W0UC/9
	FN31	FN00	FM08	FM19	FN33??	FM07	EN44
	M/U	M/U	M/U	M/L	M/L	M/U	M/U
50	360/68	420/104	220/70	356/85	177/36	375/117	289/113
144	487/51	711/68	365/44	901/68	370/31	379/72	321/69
222	169/32	116/41	67/34	136/39	94/21	107/48	53/32
432	259/32	182/41	129/32	304/48	135/22	160/53	120/44
903	48/18	40/25	19/15			19/17	6/6
1296	70/20	50/26	34/16	15/7		30/16	31/19
2304	63/17	15/12				5/4	
3456	36/14					5/4	
5760	25/9						
10GHz	29/9	2/2				4/1	
24GHz	15/7						
TOTAL	1561/227	1536/317	834/211	1697/240	776/110	1084/332	820/283
QSOs/							
Cal. Score	697,763	652,069	239,696	512,880	110,550	529/872	301,961

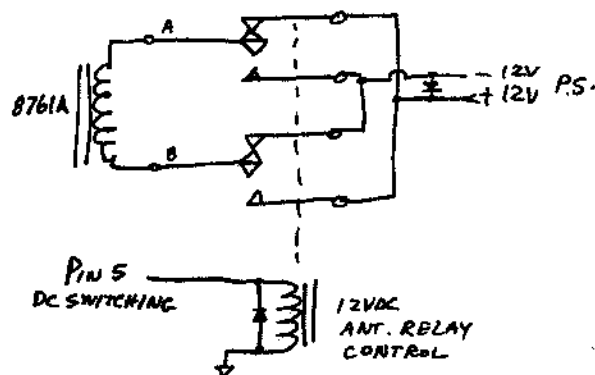
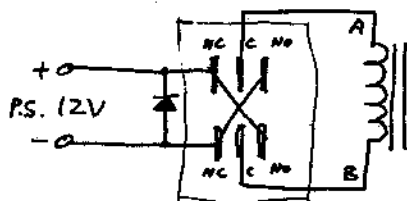
### Single Operator Scores

CALL GRID	K9MK/5	KH6CP/1	K00U/4	WZ1V	WA8WZG	WA2TEO	WB2DNE
	EM12	FN33JC	FM18	FN31	EN81	FN31	FM19
	S/O	S/O	S/O	S/O	S/O	S/O	S/O
50	237/105	41/16	43/23	92/37	144/49	191/64	129/49
144	59/25	111/19	107/23	176/31	214/51	309/44	193/38
222	7/5	45/10		38/16	73/31	73/28	258/24
432	19/8	68/13	39/16	66/19	132/41	111/30	92/22
903	2/2	18/9		17/8	43/22	31/19	
1296	3/2	26/11	15/7	23/11	66/29	37/17	15/8
2304		10/8			24/16	5/3	
3456		9/7			11/7		
5760		6/4			14/9		
10 GHz		6.4					
24 GHz		1/1					
TOTAL	327/147	341/102	204/69	412/122	721/255	757/205	577/141
SCORE	53,361	65,076	18,836	72,717	315,000	224,000	98,049

### USING THE HP 8761A RELAY FOR A T/R SWITCH

By Dave, WA3JUF

The HP 861A is a 12 volt coil latching type relay. The coil polarity is switched to operate the switch. Use a small control relay to flip the polarity as shown below. Connect terminals A/B so port #1 is the RX port.

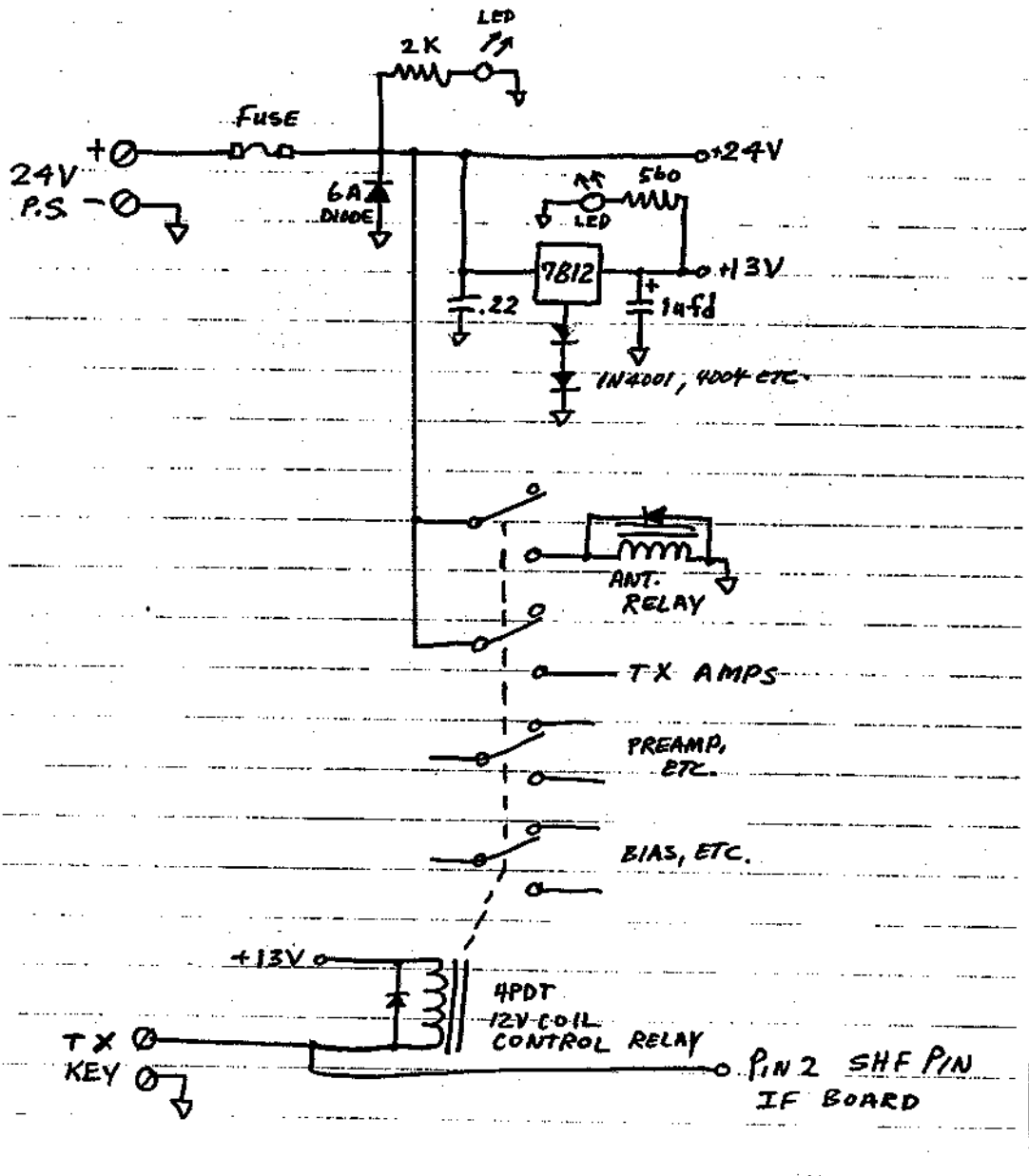


# Power Supply and control circuit for DEM no-tune Transverters

by D. Mascaro, WA3JUF 4/93

The DEM no-tune 2.3 and 3.4 GHz transverters require a supply voltage of 13V. Since the antenna relay and TX amplifiers will be 24V, it makes sense to wire the whole xvtr for 24V operation. The 7812 regulator must be isolated from chassis ground and heatsunk for 500 mA or so.

Use the SHF PIN IF relay board to control the xvtr and an outboard 4PDT 12v control relay to control the other functions.





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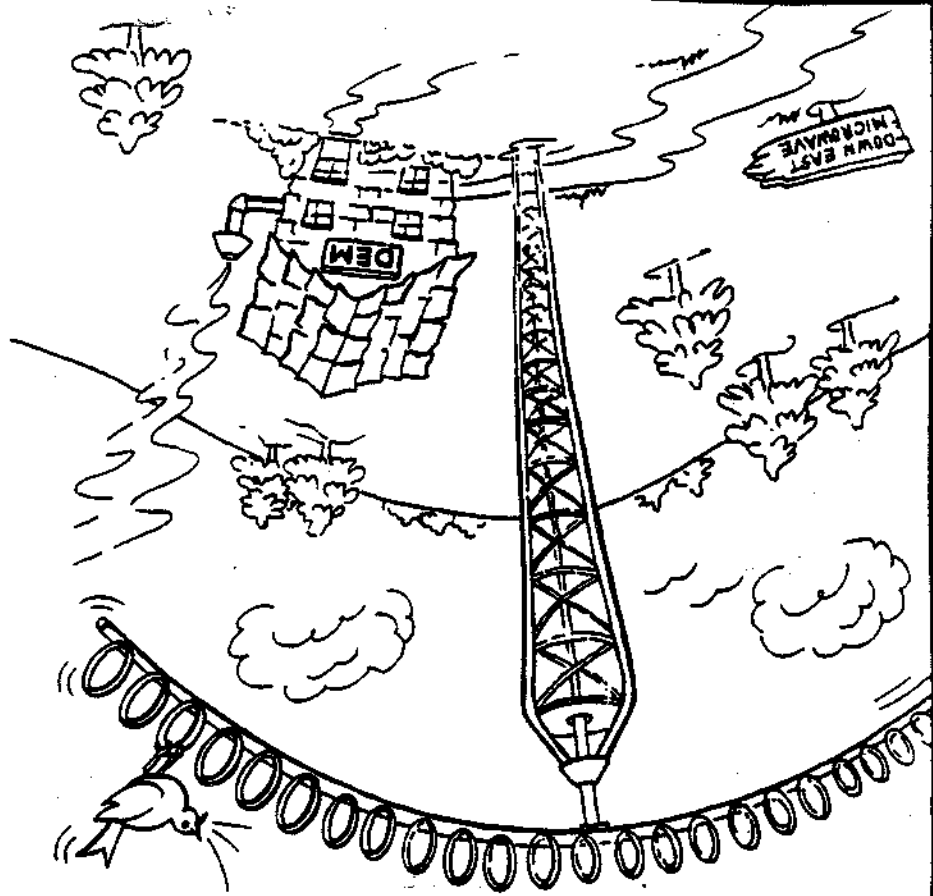
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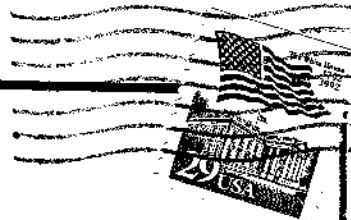
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