



# CHEESE BITS

W3CCX  
CLUB MEMORIAL CALL

ARRL  
Affiliated  
Club



Volume XLVII

JUNE 2005

Number 06

## PREZ SEZ

Dave, N0YMV sure piqued my interest at our May meeting with his presentation on using microprocessors, and I hope that we can parlay his knowledge into some small useful club projects this next year, especially with the relative low cost of the devices and the easy availability of the construction boards.

It always seems like we need more hands to manage our growing contest activity, and this year is no exception. Although there have been some efficiencies planned with the microwave station preparation, our program and goals need as much participation as possible to maximize the effectiveness of our stations. Steve, KF6AJ, has made extraordinary efforts to fill most of the needs on our punch list from last year, but **we need assistance with people-power for operating**. Please make yourself available to take a few shifts at the operating positions, and if you can't make it to the mountain, that you are active on the bands during the contest. Al, N3ITT has been working on the tower bases and rental trucks and logistics; Len, N3NGE has been enhancing the 432 station; John, KB3XG has improved the microwave switching and station mechanics; Paul, W2PED, and Bill, K3EGE, have been facilitating rover activity while Joe, K1JT, is starting to work on the MS scheds. Phil, K3TUF is finalizing the computer networking; Doc, W3GAD is planning the menus and food purchasing and preparation; Randy, NR6CA is shipping additional 47G gear for my rover. El, K3JJZ, has volunteered to be a truck driver; Bruce, WA3YUE is managing the power distribution. Bob, W3GXB, has stored the mechanical gear and will be ready to see you **help load on Friday morning June 10<sup>th</sup> at his QTH at 8:30AM. PLEASE BE THERE SO THAT WE CAN DO THIS QUICKLY AND EFFICIENTLY**. The quicker we get to the mountain with our gear, the more daylight we have to set-up and get a good night's rest before the contest. Even though your call may not be in this paragraph, be sure you are an active participant so we have it appear when we write the wrap-up article! And guest ops are invited...so bring a licensed friend.

We have a great list of speakers and topics for the Mid-Atlantic States VHF Conference on Sat, Sept 24<sup>th</sup>. Please send in your registration ASAP. HAMARAMA is all set for Sunday, Sept 25<sup>th</sup>, so mark your calendars for that weekend. We have also reserved a function room at Williamson's for Saturday night, April 1, 2006 for the Pack Rat 50<sup>th</sup> Anniversary celebration. The Board and planning committee are setting up a program, entertainment and menu, as well as special commemorative souvenirs, so please reserves the date.

Elections are scheduled for the June 16<sup>th</sup> meeting, again in the biergarten at Otto's Brauhaus. 233 Easton Road Horsham, PA; <http://www.ottosbrauhaus.com/> Come early and enjoy some brew and fine cuisine and exercise your vote. C U there and on the mountain....73, Rick, K1DS

Pack Rats **CHEESE BITS** is a monthly publication of the  
**Mt. AIRY VHF RADIO CLUB, INC.** -Southampton, PA.  
SUBSCRIPTION RATE: \$16.00 PER YEAR (USA)

\$20.00 PER YEAR (CANADA)  
\$10 PDF only \$24.00 PER YEAR (ELSEWHERE)

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222.98/224.58 MHz, Churchville, PA

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**PACKRAT BEACONS - W3CCX/B**

FM29jw Philadelphia, PA

50.080, 144.284, 222.065, 432.295, 903.071, 1296.251,  
2304.037, 3456.220, 5763.190, 10,368.140 MHz (as of  
3/1/01)

**MONDAY NIGHT NETS**

TIME	FREQUENCY	NET CONTROL
7:30 PM	50.150 MHz	K3EOD FM29II
8:00 PM	144.150 MHz	N3ITT FN20kl
8:30 PM	222.125 MHz	K3TUF FN10we
8:30 PM	224.58R MHz	W3GXB FN20jm
9:00 PM	432.110 MHz	WA3GFZ FN20kc
9:30 PM	1296.100 MHz	WA3NUF FN20le
10:00 PM	903.125 MHz	AA3GN FN20ig
10:30 PM	2304.085 MHz	W3KJ FN20hg

& go to 3.4G & up after

Visit the Mt. Airy VHF Radio Club at: <http://www.ij.net/packrats>

## Editor's Column

Well here we are again well into another month. The June contest is bearing down on the contest committee and the usual pleas for help loading and unloading, setting up and operating have issued forth from the appropriate chair persons. I can attest to the fact that there will be sufficient food to fill any mans void during the weekend. Have another new menu idea to try—NO ONE has ever gotten sick from any food experiments on the mountain. This is a good thing!

THE FARMERS ALMANAC promises thunder storms for the weekend and NOAA isn't all that encouraging either BUT... What would CAMELBACK be with out *thunderstorms*? Over 1 million points is what you get.

After 48 years in the hobby I finally went to the DAY-TON HAMVENTION and HAMFEST—That is enough to test any mans ability to walk—Kent Brit, W5VJB claims to have walked over 28 miles by noon on Saturday.

At the WEAK SIGNAL VHF Conference and dinner I Met Dick Frey WA2AAU—the man behind the dreaded W2SZ—Mount Greylock Expeditionary Force. He has been warned that W3CCX now has W2SZ clearly in our sights as we will affirm our hold on 2nd place in 2005 and keep marching forward to overtake the Mount Greylock team.

Looking for Grids? Dick Hanson is leading a DX-pedition to Grenada J3 -FJ90(? )The end of June into early July.

Our own N3FTI has a new 1296 beacon and promises more in the future. Please send him your reports if you can hear the beacon.

We learned the microwave pioneer Des Clift VK5ZO has passed away—he was the first to complete a 2 way QSO on 10 GHZ back around 1950.

Now is the time to build new towers, install or replace feed lines and get all the kinks out of your system by operating during the August UHF Contest and the September QSO Parties—September is now a club contest like January so we need the many good logs to be competitive. Competition and development of the higher amateur bands is why we are PACKRATS so lets see us all make a bigger effort to live up to our commitments to the membership.

You may have heard about all those HF'ers complaining about BPL (Broadband over Power Lines)—well NEWS FLASH—BPL's ugly noise could ruin an excellent DX Band called 6 meters too since their spectrum goes all the way to 77 MHz. So if you have not written to you congressman and senators to support corrective legislation now is a very good time to do so.

Almost everthing highlighted here is found in more detail on these hallowed pages. Yes, after I'm done with them they are forever committed to electronic and print media. If you still get your CHEESEBITS by postal delivery please consider changing to the electronic version with color graphics and the ability to adjust the size so even "King George" can read it without his glasses.

I still have a page or two to fill so better get back to editing.

Listen for the WEAK ONES

73

W3GAD Doc



# DAYTON will NEVER be the SAME

You have to admit that 5 AM is a terrible time to get up and head off for a long days drive. But here I was at K3ESJ's garage at 5:15 meeting up with K2RMP, Ray; K3ESJ, Bill; W0RSJ, Bill; N3EXA, Brian and soon to join the group with a brief pause in Morgantown N3NGE, Len all headed West for Dayton, Ohio and a good time shopping the biggest collection of amateur radio and non amateur radio "stuff I will have ever seem in one place since the redevelopment in Philadelphia closed the shops on Arch Street in the early 60's.

K3ESJ—Bill Jaxheimer was the "ring leader" and the scheme (Plan) was to arrive on Thursday afternoon, find our assigned selling space and get the tables and awning in place so we can shop and sell all our excess stuff



K3ESJ, K3RMP Setting Up the selling space

Oh Yes! I almost forgot—a big part of the plans is food. Lots of water and soda available on ice at the truck along with the usual colestaral testing goodies from the onsite vendors but Bill likes to eat well. And eateries were on the schedule.

Thursday was the "SHUCKING SHACK" - Yes we went 500 miles inland to by seafood—good seafood at that. All the evening meal plans just were just as hard to beat.



Looking west from the entrance to Hara Arena

Friday Morning was an early call—got to be out there ready with our stuff on the tables at 8 AM or earlier—many vendors do an early shopping trip through the outside vendors before the inside spaces open for business at 9AM.

Inside vendors are not you typical hamfest resellers but rather all the major manufacturers are there with their latest and greatest equipment. Mini-Circuits was there promoting some of their filters, attenuators and high level mixers, Down East Microwave was there as well as RF Connection with more of their usual fine selection of bits and pieces and now even POWER



Inside Hara Arena we visited the ARRL Convention Area

POLE connects in colors other than red & black so you can use them for other less common voltages with out worrying about getting the connections mixed up.

As is typical with such a gathering, there is a plethora of paper and promotional items that would do justice to any mans need for reading material, trinkets, hats and rain jackets.

No matter what you may be looking for there was someone there that had at least one or knew where, or who had what you wanted.

Of course, DAYTON is not all about buying and selling, what would a hamfest be without fellowship. From the PACKRATS and Warminster Amateur Radio Clubs we had an opportunity to visit with K3CX, Jack Calker; KU3A, Bill Scott; KB3HCL, Dave Fleming; KA3FQS, Tom Fredricksen; KA3WXV, George Altemose;, W3ICC, H.P. Drexler; KD3DI, Tom LeDeux; KB3TB, Irwin Darek; KB3BI, Hugh Pepper; KD3RF, Andy Vavra, as well as many league officials, technical types and other friends we have met on the air over the years.

We learned a lot about various microwave things just by listening to others and asking a few of our own "carefully" worded questions—like "What's THAT" as you point or hold up some unique hunk of equipment. Sometimes the answer would appear to be intended to dumbfound rather than answer your question—would it not be easier just to say "I don't really know" - on the other hand, I guess that "simple, honest answer", would take a lot of the fun out of this kind of shopping. If you don't want an answer don't ask a question is the best way to do shopping of this magnitude.

I planned ahead for rain and a wet weekend, This year the rain stopped Friday morning and did not return until after we



left Sunday morning for the long drive home with my passenger, the very interesting Mr. Murphy W0RSJ.

Bill and I had many very interesting hours talking about our various adventures in work and amateur radio including his early years when KA3WXV was his mentor and inspiration in High School to getting his ham radio license and how he ran into Harry Price and other and got the "VHF Bug" early. We both had been "terminal techs" - I had a TECHNICAL CLASS for over 28 years before I was encouraged by N3AOG to get my code speed up and go for the EXTRA. Murphy took advantage of more recent changes in the requirements to get his extra, but non the less he is now an EXTRA and that takes effort no matter how either of us got there.

I got a little time to visit with N3NGE, Len and we discussed some problems I am having in planning my new antenna project and getting a working power supply for some of my high power amps. A very informative bit of time for me.



Looking to the east we have our friends from C3i and many more hopeful sellers

Dayton will never be the same. I was told, more than once, that this is much smaller than in years past, "E-bay has changed it all", "the internet has ruined DAYTON". Well, there was possibly room for 10 to 15 percent more sellers in the outside area. The vendors changed on a daily basis and if I were to come again I would possible plan on spending a good part of Sunday just to finish visiting all the outside vendors. Would I do it again? I am giving it some serious thought for 2006 but there are many other ways I can spend a long weekend without traveling over 1200 miles in a car—but if I need to get some good stuff for a big project I know Dayton is still the place to find what ever it is I am seeking. Another way to look at it is rather philosophically—"It ain't the trip—it's the destination — DAYTON"

Story and Photos by Doc W3GAD



← **WANTED:**

Richard Frey WA2AAU only laughed when we informed him that, while W3CCX had a ways to go to top W2SZ in the June contest we were out to get a firm hold on the second slot.

## THE ANYTHING BUT WEAK UHF/UHF WEAK SIGNAL DINNER

One of the optional activities offered during the visit to DAYTON is the VHF/UHF WEAK SIGNAL BANQUET.

This annual gathering of the VHF, UHF and MICROWAVE enthusiasts and contesters was hosted by WA8RJF, Tony Emanuele and WA8WZG, Tom Whiddet. They did a wonderful job of organizing the dinner, speaker and door prizes for the over 130 guests in attendance.



WA8RJF -Tony

While the food was not of the same gourmet fare the is offered when dining with K3ESJ crew, the meal was certainly well prepared and served hot.

You don't go to one of these gatherings for the food. At least I hope not for you will be disappointed.

My decision to attend the dinner was based on spending a few hours with those who help make VHF, UHF and MICROWAVE contesting fun but they also are the ones who keep "raising the bar", setting new goals for others to reach and expanding the activity on each new band as the techniques are developed to get us on frequency and help us stay on frequency as we reach into every higher spectrum. With that expectation, I certainly was not disappointed.



WA8WZG -Tom

WA1ZMS, Brian is certainly a prime example with his accomplishments on 122 and 400 GHZ record setting contacts. The EME Efforts by Al Ward N5LUA on 47GHz is certainly also to be admired.



The room was full with only 1 empty seat—K1JT's plane was delayed but he made it in time for the door prize drawings

We heard from K5AND, Dick Hanson and his planned DX-pedition to Grenada the end of June. Dick also presented his 20 pound heavy amplifier for 50 MHz—1500 Watts from a single tube and all sorts of special considerations to make it easier to travel with the amp, no projecting knobs or switches to get broken off and keeping the weight down to make it easier to carry on the airplane. What a wonderful job Dick did planning and building the amp. (Story and photos to follow).



As we wandered around the room snapping a photo here and here we caught Dave Halliday K2DH and his wife. Dave is on the Contest advisory board at ARRL and active member of the ROCHESTER VHF Club.

We also caught one of the major supporters of the weak signal group N2CEI, Steve and his YL Sandy from DOWN EAST MICRO-WAVE. Steve donated a few 'T' shirts and other goodies as door prizes.



One of the Tee shirts was a special 1000th edition signed by Steve and Sandy—inserted inside the shirt was a very nice sized Gift Certificate. Steve also had a 3456 transverter kit and several of the display module kits on the table.

I guess Brian, WA1ZMS is getting tired of inventing new systems and wants to settle down and build a known working device for a change as he gathered up the transverter kit as soon as his ticket was drawn.

Other door prizes ranged from assorted microwave goodies to copies of LINRAD on CD donated by W3SZ, Roger Rehr.

The roving camera caught this unlikely trio in deep discussion. On the left is Richard Frey, WA2AAU, the enabler of the infamous W2SZ contest team, making a point to W3SZ, Roger Rehr and W3IIT Harry Brown (Spys for W3CCX I hope).



CQ Magazine took some time to hand out some of last years CQ's VHF Contest awards. This is a 6 & 2 meter



only event held in July. The winning MULTI-OP team was W3SO from FN00. The proud teams received a very handsome plaque for their efforts (I know they are in my logs for virtually all contests and will work with you for the contacts. Great bunch of hams.

Alas, I did not hold a winning ticket for the door prizes but I did get the biggest prize of all—a couple of hours to spend with some of the top operators, innovators and motivators in the amateur radio community.

Thanks again to Tony and Tom for all their efforts in putting together this wonderful evening.

Doc Whitticar W3GAD

# ELECTION NOTICE

The next election of officers for the MOUNT AIRY VHF RADIO CLUB will be held at the regular meeting to be held on June 16, 2005

The meeting will begin at 8PM

This meeting will be held at OTT'S RESTAURANT

on Old Easton Road (Route 611) just north of the Willow Grove exit of the PA Turnpike at 8PM

The slate of officers to be elected is:

President:	K1DS, Rick Rosen (2nd term)
Vice President:	K1JT, Joe Taylor
Recording Secretary:	K3EGE, Bill Shaw
Corresponding Secretary:	WA3EHD, Jim Antonacci
Treasurer:	W3KM, Dave Mascaro
Director:	N3NEGE, Len Martin
Director:	K3TUF, Phil Theis
Director:	N0YMV, Dave Wilmore
Current Director:	KB3HCL, Dave Fleming

Many of those on the slate have chosen to, once again, continue to serve the membership in their current positions.

There will be a call for additional nominations for all positions prior to the vote.

If you are interested in taking an active part in the direction of your club or if you know of anyone who is interested, this is your opportunity to make your feelings heard.

No matter what your politics, please come out for some fine food and to show your support by being there to cast your ballot for those who have chosen to serve.



# 8877 "Lite"

## A 50 MHz 20lb Travel Amp

by  
Dick Hanson, K5AND

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As those of you who do expeditions and mountain-top contesting can attest, carrying a kilowatt amp on your quest is SO much fun. Over the years since 1987, I have created 5 travel amps, all for six meters. The first was a highly modified Tokyo Hy-Power HLK-1A, followed by a Yaesu FL-2100, followed by a single 3CX800 (for W6JKV), followed by a pair of 3CX800s, followed by a single 8877 with separate power supply, followed by a single 3CX800 with built-in HV supply with a smaller (lighter) HV transformer.



These amps all had one thing in common....they were a real challenge to transport. The last one was the best of the lot with respect to "footprint" and weight, but still weighed in at 30 lbs, minus blower, plus 12 lbs for the luggage bag for a total weight of 42 lbs. I wanted a carry-on package that would weigh less than 30 lbs and available wall voltage notwithstanding, an amp that would deliver 1500 watts under normal conditions.

### Time for an extreme makeover?

It's pretty hard to "shrink" a conventional HV power supply, even with careful sizing of the transformer, smaller filter caps etc., but it is the power supply that offers the most potential for shedding pounds.

Ever since seeing a prototype regulated HV switching supply in the Command Technologies booth at Dayton several years ago, I've dreamt about "imbedding" a HV switcher in an amp. Watts Unlimited was the first commercial entry into the HV switching arena, so after months of studying the product and asking questions of its creator, I decided to try one.

Most "new" technologies have pros and cons, so you must evaluate both. The "pro" side of the Watts Unlimited PS-2500A is:  
Lightweight (10 lbs)  
Reasonable voltage regulation from idle to full-load (5-10%)

Electrically "quiet", although this does not matter much here since the supply is only "on" during transmit.

Capable of supplying enough power for 1.5KW RF output

Instead of providing a fixed bias in the cathode (assuming triode tubes) and then changing the bias from cut-off to operate with a cathode relay shorting out a 25K ohm 10 watt resistor, in this amp, there is no cathode relay. Since there is no relay to switch from cut-off to operating bias, the tube will draw idle current as soon as the PTT circuit is activated. This eliminates at least several components from the amp.

"Cons" to keep in mind include:

The supply cannot be turned on without a load. To do so would be to guarantee a failure of the output caps, as the resulting HV would soar over their 4KV rating. The manufacturer recommends a minimum idle current of 150-250 ma at turn-on. So if you're going to use a Zener for the operating bias, you pre-select a Zener that will make the tube draw 150 ma or so at idle.

Another thing to consider is that the supply does not come "on" when you turn on the AC power switch. It requires an external nominal 5-12VDC source to switch it on. The user needs to provide a DC on-off source voltage activated by the PTT circuitry. While this is not an obstacle, you need to be aware of this requirement in your planning.

### Design criteria for this amp

Let me say now that this is more of a "concept" article than a complete nuts and bolts, step-by-step how to article. That said, if you have built an amp before, you should feel right at home with this material.

Because of my requirement for 1.5 KW RF output, and because of the regulation characteristics of the power supply, it seemed that a single 8877 would be the easiest tube to implement. Other tube(s) considered were my personal favorites....the 3CX800. But for this application, the single 8877 worked best with the power supply idle current requirement.

With the 8877 idling at 150 ma the instant the supply is switched on, the anode voltage is 3400 volts. At full load of 850 ma, the anode voltage drops to 3 KV. The power supply remains cool and electrically quiet while "dormant" even though 240VAC is present. When the PTT is activated, the supply goes from 0 volts to full output in a few milliseconds.

Other features of this amp are:

1. Relatively small box (less blower): 6.5"H by 13.5"W by 12"D
2. Weight: 20 lbs, including built-in power supply
3. No protrusions from the cabinet (to break in transit) no knobs; screwdriver adjust for plate and load caps, AC line entrance with flush plug and socket, plate and grid meters are protected behind front panel
4. 3 minute time delay to hold off PTT until cathode warms up
5. Built-in RF input/output relay switching
6. Vacuum plate cap and physically small meters to help "shrink" cabinet
7. Must fit inside a rolling carry-on Travel Pro bag (wt. 8 lbs); these bags are made of Teflon-coated ballistic Nylon and are lightweight, durable, strong and water-resistant; best of all, they have really great wheels and an extendable handle!
8. Should be capable of "high duty modes" (like JT65) for EME work (an extra exhaust fan over the tube).

There is no grid protection in this amp. Since I will be the primary user of the amp, I felt that the additional circuitry required (and the space that it would require) was not justified. So the operator is responsible for not applying way too much drive, and, for not applying any drive in the absence of anode voltage. The 3 minute time delay to hold off the PTT until the cathode is "warmed up" is the only "protection" built into this amp.

This amp may not win any beauty contests, but it will be durable.



Teflon chimney with rubber "extension" for pressurizing anode compartment

## Building the amp

For me, the hardest part of a project is planning the metal work which of course is dictated here not only by the size of the components, but also by the airline size limitations for "carry-on baggage". Charlie Byers of Byers Chassis supplied the chassis and its "innards". I had some more metal work done by a local machine shop, and I used imbedded captive nuts for cabinet assembly rather than gambling on my fat fingers trying to get a nut on a screw.

Since this is a single band (in fact, almost single frequency) amp, it does not require much tuning. So if you can eliminate the protruding tuning knobs.....why not? I made a couple of knobs with 1/4" shafts and then filed the ends of the shaft "stubs" to resemble a flat-blade screwdriver end. These assemblies are temporarily inserted into the plate and load panel bushings on the front panel so that you can in fact tune with a knob in "set and forget" fashion; the knobs are removed for transport. The cathode tuning capacitor is also a screwdriver adjustment, and once set, will hold tuning over at least 1 MHz.

This amp uses a conventional Pi circuit instead a Pi-L circuit in order to save a little more space. I always carry a high-power ICE six meter filter in the suitcase, so no worries about 2nd harmonic rejection. The blocking cap is an "857" type, rated at 15KV and a "lot" of current. The RF input/output relay board is same one I have been using for a number of years now. The SPDT Schrack relays have very robust contacts, and the amp off-line VSWR may be "tuned out" using the little thru-line capacitor to ground trick mentioned in an earlier article

The 3 minute time delay for cathode warm-up is provided by a common Omron H3YN-2, 0-10 minute delay relay; the delay is set



Rear view, showing RF input and output connectors at bottom left and top left; mounting flange for blower, cathode compartment air exhaust (under blower flange), AC power connector for blower and fan upper center, fuse, RCA PTT, and AC mains connector, hole for muffin fan at far right. Both openings are "screened" with stainless screening.

The cathode choke is a Z-50 (7uh) unit. Don't forget to install another Z-50 RF choke from the output loading cap terminal to ground to protect YOU from a shorted blocking capacitor. L1-L3 are described in the RF deck section.

Tripplett 120-G meters are used for the plate and grid metering since they are physically small and very high quality. Because they are mounted behind the front panel, they are pretty well protected from abuse. The grid meter is a 100 ma unit and the plate meter is a 1.5 amp unit.

### Specifications

No surprises here.

With 40-50 watts of drive, the amp will put out 1500 watts with 2500 watts input.

The anode voltage is about 3000 volts under a load of 850 ma.

Grid current runs between 40-60 ma with this loading and anode voltage.

If you have an MFJ 259, you can do all your preliminary tuning before applying high voltage. Getting the cathode and tank circuits "in the ballpark" before applying drive is always a good feeling.



Front view, showing exhaust port on left, plate current meter top center grid current meter at center, recessed power switch and amp in/out switch with LED indicator above. Top removable knob upper right is plate tune; lower removable knob is plate loading. Air intake for power supply is on bottom of cabinet. RF compartment is pressurized so that 95% of air exhausts thru anode cooler and the rest exits thru the cathode compartment.

for 3 minutes, an eternity when the band is open and the amp is warming up...

The power cord set is a heavy duty IEC arrangement featuring a standard 3-prong male chassis mount connector mated to a 3-wire, number 12 AWG power cord about 8' long. The plug end is left un-terminated so that you can put on whichever male plug may be required for the country you're visiting. Again, this "connector" approach on the amp was used to eliminate "protrusions" which can be damaged in shipment. The AC mains are turned on and off by a recessed DPST switch rated at 10A at 250VAC. The filament and control voltage "combo" transformer is an Ameritron unit; PN 406-1419-3J; \$49.95.

The plate RF choke is wound on a 1/2" Teflon rod, using 42 turns of #20 Formvar insulated copper wire. The bifilar filament choke is 10 turns of #14 Formvar insulated copper wire wound on a 2" long by 1/2" diameter ferrite rod.



Top view, showing Watts Unlimited PS-2500A switching power supply at far left. The center section is the control circuitry, including filament transformer, time delay relay and metering. The RF compartment is on the far right.



### Installation of PS-2500A supply

The good news is....very few connections are required for this unit. The sobering news is....mistakes are either costly, dangerous or both. Fortunately, the manufacturer has done a very nice job with documentation; the manuals are excellent. I would suggest taking extra time reading and understanding the manual regarding the following points:

- AC connections, including neutral
- B minus
- HV turn on-off
- B plus connection
- Metering
- Jumpering

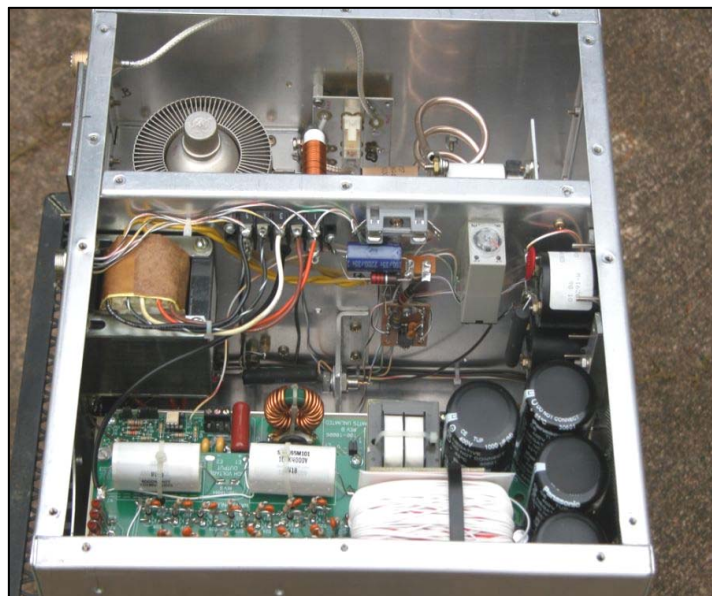
The supply factory default wiring means 240VAC mains; it also means the B minus connection is tied to chassis ground. Most linear supplies have the B minus "floated" above ground several hundred ohms for metering purposes, which is the option I chose; this means



Larger view of tank circuit, showing silver-plated tank coil, 3-30 vacuum variable, 857 blocking cap, RF plate choke and almost buried at the bottom, the 200 pf loading cap.



This shot shows the PS-2500A high voltage switching power supply. The white thing at top left is the high voltage transformer. The two HV output caps are center right; total output "C" is .2 mf at 4000 VDC.



Another view of RF deck, showing 8877, anode clamp and input/output relay switching board, featuring the Schrack relays. Also note the Teflon RG-142 coax for the output. Will handle the 1.5 KW without meltdown! Also shown is part of the control circuitry: Omron time delay relay and Tripplett 120G series plate and grid meters. The fuse at the center is for the 1 amp cathode circuit. The filament/control transformer at left is an Ameritron 406-1419-3J.

you need to remove the B minus jumper to ground. The negative terminal of the plate meter is connected to B minus thru a 200 ohm 10 watt resistor in parallel with a 6 amp 1KV diode, both going to chassis ground. This affords both current measuring as well as protection for meters and PS components.

I likewise chose to "key" the supply "on & off" with +12VDC supplied thru the PTT circuit.

Schematics and instructions for the power supply are not furnished here but are available for download from the manufacturer.

In closing, remember: Failures on a mountaintop or in some foreign country are easier to prevent than to repair.... (ancient Ham proverb)

If anyone has any questions on this project, please phone or e-mail. I will be glad to discuss this at length.

One postscript is that it would be possible to shrink the cabinet one more inch in height. If you eliminate the 1" tall fan mounted below the PS heat sink and change the air flow (and vents!) from front to back, you could wind up with a cabinet only 5.5" high! You pretty much need all of the 13.5" of width and all of the 12" of front-to-back depth though.

Dick Hanson, K5AND      770-844-7002  
7540 Williamsberg Dr.      [k5and@adelphia.net](mailto:k5and@adelphia.net)  
Cumming, GA 30041

The PS-2500A may be obtained from:  
Watts Unlimited (Tim Hulick)      610-764-9514  
886 Brandon Lane

[www.wattsunlimited.com](http://www.wattsunlimited.com)  
Schwenksville, PA 19473-2102

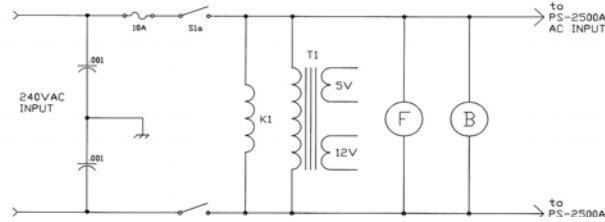
**SK** I know all microwavers will be saddened at the news of the passing of Des Clift, VK5ZO, just a few hours ago. He died in an Adelaide hospital, South Australia. I believe he was either just in his eighties or approaching that age.

Des was a true amateur microwave pioneer, making the first 10GHz contacts in the UK when he was G3BAK during the late 1940s/early 50s. de Peter, G3PHO - UK Microwave Group

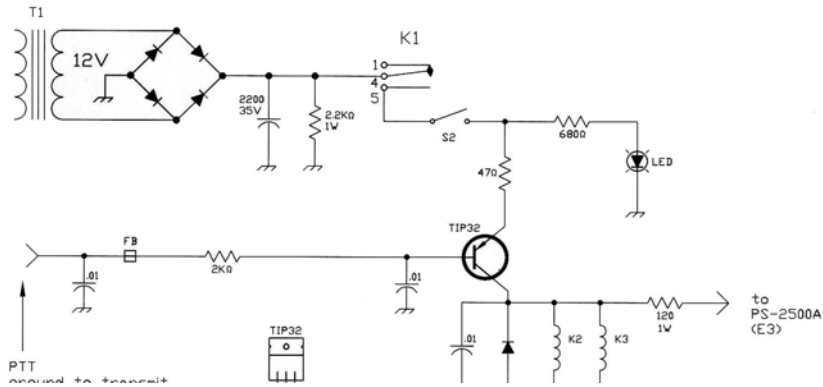


# SCHEMATICS for K5AND 8877 50 MHz Amplifier

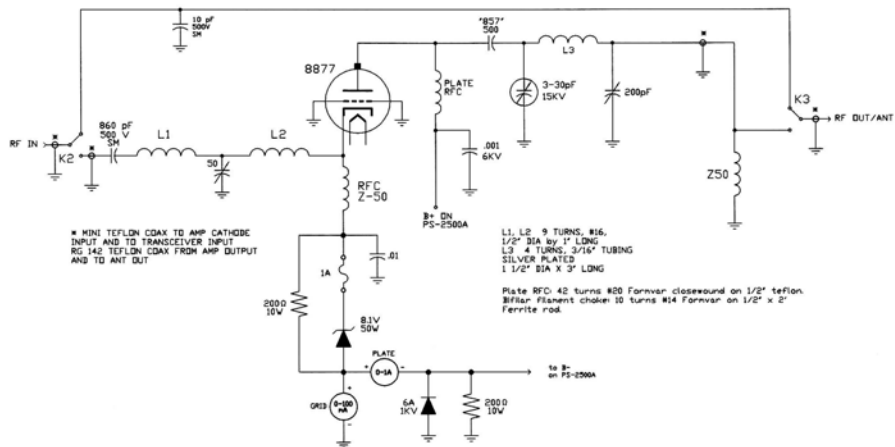
## POWER WIRING



## CONTROL WIRING



## RF DECK



# WHAT'S HAPPENING

## A LISTING OF INTERESTING EVENTS

**11 TO 13 JUNE 2005**—ARRL June VHF QSO Party and PACKRATS BOD Meeting on the mountain.

**16 JUNE 2005**—Regular meeting of the Mount Airy VHF Radio Club (PACKRATS) at OTTO" BRAU-HAUS, Easton Road, Horsham, PA - Election of officers and June contest follow up.

**25 TO 26 JUNE 2005**—ARRL Field Day

**14 JULY 2005**—PACKRATS BOARD of DIRECTORS Meeting

**16 TO 17 JULY 2005**—CQ VHF CONTEST 50 and 244 MHz only—*Rules next month*

**21 JULY 2005**—Annual PACKRATS WHITE ELEPHANT AUCTION at the Home of Gary Hitchner WA2OMY, 39 West Mount Kirk Avenue, Norristown, PA bring you un used stuff so you can make room for all the fine treasures you win at the auction.

**30 JULY 2005**—**RAIN DATE 31 JULY**—ANNUAL PACKRATS FAMILY PICNIC at the QTH of Al and Carol Shepard N3IIT, 77 Foellner Lane, Ottsville, PA This will be the August meeting.

**11 AUGUST 2005**—PACKRATS BOARD of DIRECTORS Meeting

**5 SEPTEMBER 2005**—Final call for papers for MICROWAVE UPDATE 2005

**15 SEPTEMBER 2005**—PACKRATS BOARD of DIRECTORS Meeting

**22 SEPTEMBER 2005**—Regular meeting of the Mount Airy VHF Radio Club (PACKRATS) at the Southampton Public Library at 8 PM. Final preparations for the Conference and Hamfest

**24 SEPTEMBER 2005**—MID ATLANTIC VHF/UHF/MICROWAVE CONFERENCE Sponsored by the Mount Airy VHF Radio Club (The PACKRATS) at the Marriott Courtyard, Street Road, Bensalem, PA

**25 SEPTEMBER 2005**—PACKRATS HAMFEST—Middletown Grange Fair Grounds, Wrightstown, PA

**13 OCTOBER 2005**—PACKRATS BOARD of DIRECTORS Meeting

**20 OCTOBER 2005**— Regular meeting of the Mount Airy VHF Radio Club (PACKRATS) at the Southampton Public Library at 8 PM. Special guests Dave and Linda Sumner K1ZZ and Lind KA1ZD will their experiences on 10 GHz. Dave is Chief Executive Officer of the ARRL.

**27 TO 30 OCTOBER 2005**—MICROWAVE UP DATE 2005 sponsored by San Bernardino Microwave Society and Western States Weak Signal Society—Cerritos California (Near Los Angeles)

**10 NOVEMBER 2005**—PACKRATS BOARD of DIRECTORS Meeting

**17 NOVEMBER 2005**—Regular meeting of the Mount Airy VHF Radio Club (PACKRATS) at the Southampton Public Library at 8 PM. Special guest Joel Harrison W5ZN Executive VP ARRL. Joel is a VHF, EME, HS Meteor Scatter enthusiast.

## NEW LOCAL BEACON ON THE AIR

Looking for signal reports on my new 1296 beacon that operates from FN20aj on 296.262(+/-) Mhz with a power of 10W. Antenna is a LPDA pointed toward the south and east.

Any and all reports are welcome.

73 Steve, N3FTI

**Joel Knoblock W3RFC**

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Dust off those KW Finals and check out this rare grid opportunity the end of June. Looks like it should be FK90... ed

## GRENADA, J3 ON THE AIR

Johan, Arliss and I are heading to J3. Arrive Jun 23, depart July 4. We should be on the air from 6/24-7/3.

Our focus is mainly 50MHz, with operators and the equipment below a reasonable change of working Europe is to be expected.

Operators on this trip will be K5AND Dick, W7XU Arliss, Holly, ON4IQ Johan

QRV on Friday, June 24 from Almost Paradise cottages on the northern tip of Grenada.

We will beacon and run on 50.107. We plan to have one fixed yagi on the US and the big antenna rotatable toward Europe and other DX countries. We will be QRV with a Pro3 radio and an FT-897. and a homebrew 4CX1500 Amp.

Besides the 50MHz operation a station for 144MHz EME will be set up as well. A group of 4, M<sup>2</sup> 2M9SSB will provide sufficient gain to allow us to work single yagi stations off the moon using JT65 digital mode.

We expect to be available on the [www.dxers.info](http://www.dxers.info) and <http://www.chris.org/cgi-bin/jt65eme> site for EME skeds. No skeds in advance.

As several expeditions are QRV in the same period we have come up with 50.107 to 50.108 as operating frequency. Additional details and log search are at the J3 Expedition webpage: <http://www.eudxers.com/J3/K5AND/> TNX Dick Hanson K5AND

## TAKE TIME TO WRITE A LETTER

*News flash!* Scientists have determined that the bands are not only open during contests! Try calling CQ (without the "Contest") during the week to test this provocative new theory!

The Co-Sponsors to the BPL bill H.230 needs the support of your congressmen and congresswomen. There is a sample letter on the ARRL Web pages at:

[http://capwiz.com/govexec/issues/bills/?bill=7546281&cs\\_party=all&cs\\_status=C&cs\\_state=all](http://capwiz.com/govexec/issues/bills/?bill=7546281&cs_party=all&cs_status=C&cs_state=all).

It won't take much time to send your encouragement their way for this important legislation. (Thanks, Phil AB7RW)  
Via ARRL WEEKLY LETTER 3 June 2005

**NE3I**

**Robert A. Griffiths**

Attorney at Law

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A PROFESSIONAL CORPORATION

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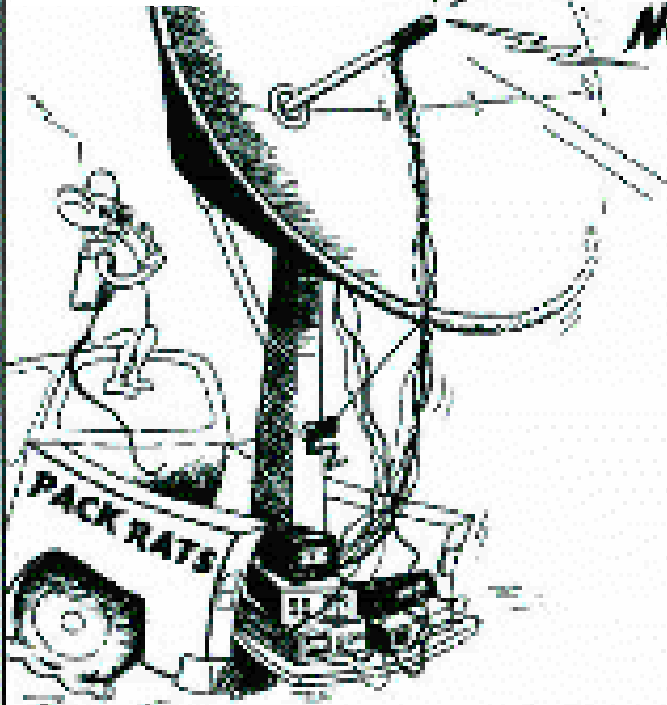
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# MEETING NOTICE



## LOOKING AHEAD:

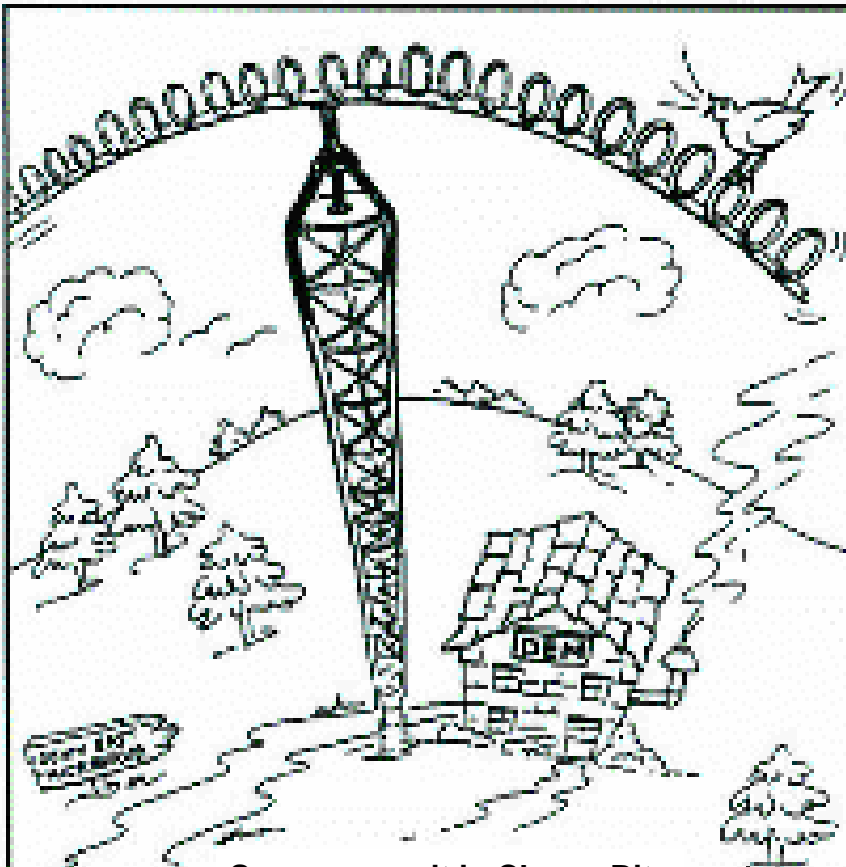
21 July—White Elephant Auction  
30 July—Annual Club Picnic

## INSIDE:

Dayton 2005  
K5AND's 50 MHz 1.5 KW Amp

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