



CHEESE BITS

W3CCX
CLUB MEMORIAL CALL

ARRL
Affiliated
Club



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PREZ

SEZ:

Cats in the Shack

Among my favorite Packrats are George KA3WXV and Tom KA3FQS. George is our “go to ham”. Whatever the club or a club member needs, George is there. Lately George has been coming by during many Saturdays, helping your Prez recap his Heathkit HW-101 transceivers or with other projects in the shack. Tom was instrumental in getting my Elecraft K3S interfaced with the 2 meter, 222 MHz and 432 DEMI transverters and the brick power amps. The heart of the interface is a BCD decoder, which became available because Tom built a better one for his shack. Tom also inspired me to get a rack full of HP and Tek test equipment. Unfortunately, without Tom’s engineering know-how, the test gear does not get regular work-outs.

The part of the KA3WXV and KA3FQS story that you probably don’t know is that they laid the groundwork for the arrival of Mr. Drake, my trusty orange tabby companion. The late lovely Mrs. Davis and I had a series of basset hounds, who passed away before Mrs. Davis died in January 2014. George and Tom figured I would become lonely so that they persuaded me to adopt a cat. Becoming a “cat dad” was a novel experience for me but Tom and George provided the needed coaching. The best advice that Tom and his lovely XYL, Melanie, had for me was that the need to adopt cats as a pair was oversold. I believe that I can hear Mr. Drake say, “Don’t you bring in another cat!! I am

the cat of the house!!”

As fellow cat dads will tell you, cats spend most of their lives sleeping. Mr. Drake spends most of his time on the u-shaped platform in front of the living room picture window or in cooler weather in a felt sleeve sold as the Jackson Galaxy Comfy Cocoon. Several times during the day, Mr. Drake wanders in to see what Cat Dad is up to and to seek attention. Visitors to my QTH marvel at his friendly disposition and his soft fur. Mr. Drake allows Cat Dad to trim his nails and has never attempted a “jail break” during the years he has shared my QTH. I do not recall him ever scratching me with his paws or biting me. He apparently trusts his Cat Dad and knows a good deal.

Drake enjoys visiting the shack during operating hours. However, anything that is small enough to be batted around by a cat paw becomes an ad hoc cat toy. To the chagrin of KA3FQS and others, there was a long delay between the purchase of my K3S kit and its assembly. I was afraid that Mr. Drake would adopt some expensive parts as cat toys. It took me a year to arrange the workshop to circumvent that possibility.

Cats in Shacks is not just a local phenomenon. I was delighted to see that many of my ARRL ham radio heroes also share their shacks with cats as seen on the 2022 ARRL Calendar. I knew that Glen Popeil KW5GP of Arduino fame raises and shows Maine Coon cats. The calendar features many other cats in shacks.

Pack Rats **CHEESE BITS** is a monthly publication of the
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PACKRAT BEACONS - W3CCX/B

144.300 (FN2hd), **222.300**, 432.300(FN20tk), **903.300**, 1296.300 (FN20dh), 2304.300 (FN20dh—reduced power), **3456.300**, 5760.3 (FN21be), 10,368.017 (FM29jw—*status uncertain*). **Note: red = temporarily off the air**; see <https://www.packratvhf.com/index.php/on-air> for details)

MONDAY / TUESDAY NIGHT NETS

VHF/UHF Monday:

<u>TIME</u>	<u>FREQUENCY</u>	<u>NET CONTROL</u>
7:00 PM	224.58R MHz	WR3P FN20kb Ralph
7:30 PM	50.150 MHz	N3RG FM29ki Ray
8:00 PM	144.150 MHz	K3GNC FN20ja Jerome
8:30 PM	222.125 MHz	KC3BVL FM29jw Jim
9:00 PM	432.110 MHz	WB2RVX FM29mt Mike

Microwave Tuesday:

7:30 Coordinate QSO's on 144.260 for all Microwave bands you'd like to work. Also setup Q's at w4dex.com/uhfqso or **Packrat Chat Page**

W3SZ.COM

Visit the Mt Airy VHF Radio Club at: www.packratvhf.com or www.w3ccx.com

I enjoy watching Mr. Drake thread his path among the various pieces of equipment in the shack. Part of my motivation to restore my first HW-101 was to provide a warm spot for Mr. Drake upon which to rest. Unfortunately the Kenwood antenna tuner and Heath speaker / power supply are currently in the way.



If your QTH is lonely, a cat in the shack could be what you need.



73,
Michael **KB1JEY**

SEPTEMBER MEETING PICTURES



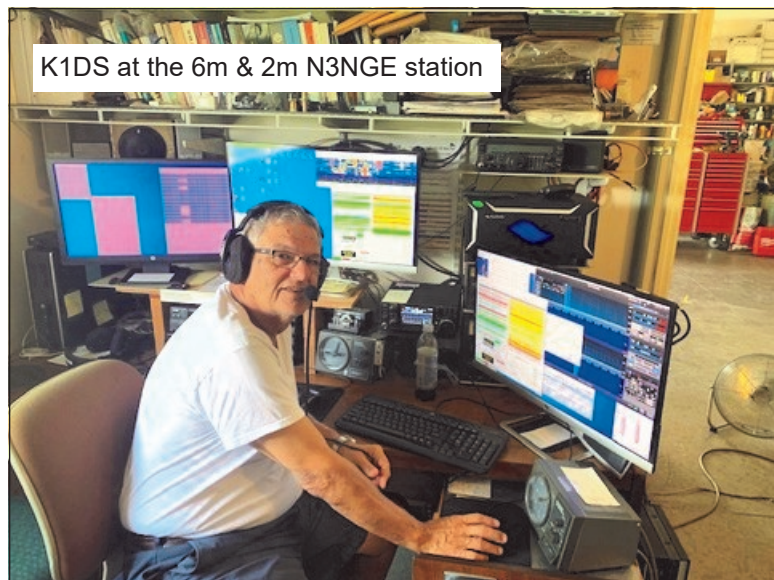


Boot and Reboot—ARRL September VHF Contest Saturday

Since I became a Packrat 25 years ago, I have made many visits to Morgantown to N3NGE, the QTH of Len & Linda Martin. Len has helped me build my rover by welding a hinge onto a drive-over mast support, putting connectors on good LMR400 cables for the rover van and providing a first stop for contesting to work through 12 bands: 50MHz through 24GHz + Laser. This time it was a special visit as I got to multi-op with Len for the first 7 hours of the VHF contest. Over the years, Len's multi-op station has grown with new radios, bigger amplifiers, new computers, new logging programs and of course, digital modes. Integration has enabled many functions to speed up logging, improve antenna pointing and scanning the analog and digital band segments for activity.

There are dozens of parameters for the computer programs that enable them to "talk" to the various different radios, set the proper exchanges for contests and send contacts to the log. In the process, if a change is made and a new box checked or unchecked in the software settings dialogs, the program often needs to be rebooted. When you use CAT control for the radios, the radio may also need to be rebooted. Such was the hour prior to the start of the contest as Len deftly went through the programs, booting and rebooting to get the station computer's programs and radios working symphonically.

The first hour saw some SSB action on 6m and 2m, while the W3IIC/R and K0BAK/R rovers were in the area and could add a few QSO points for the bands 222 and up. By 3PM, most all of the analog contacts were worked, leaving everyone on FT8. Most all of the activity was within a 500 mile-radius and the distant contacts were in digital mode. Things were slow and steady and as dinner hour approached, we took a walk to the woods to check out some very long HF antennas and a couple of 10' dishes that could be worked into an EME station. Linda



made a delightful dinner for the three of us and we chatted until it was time for moonrise. We hoped to operate both 144 and 432 EME for the 30 minutes that we would have the rising moon in our main antenna lobe. The activity from Europe was very limited, as it was about 3AM there. We saw several decodes of other US stations that we had already worked terrestrially, but did manage to have one 2m EME QSO with a station in Slovenia. We wrapped the evening with a few more terrestrial QSOs and I headed home on the PA Turnpike. As I was driving eastward, I noted an antenna studded rover van in the right-hand lane. Sure enough, it was Drex and

Paul in the W3ICC rover. We chatted briefly by phone and shared some of the highlights of roving as we both headed for home. 73, Rick K1DS

Another Plan B—ARRL September VHF Contest Sunday

The weather forecast for Sunday was rain. It convinced me to limit my operations to working from our rental apartment with the antennas on a tripod, sticking out the window. There was a reasonable amount of SSB activity on 2m and I was able to get started with a couple of QSOs with my first harmonic, N1XKT/R.

Since our windows face north, most of my contacts were in FN20, 21, and 31, with a few further up north. I managed to get my 6m dipole onto a broomstick and stuck it out in the rain—it did enable me to add a few more local contacts. As I tuned to 50.313 and 144.174, I noted that most of the activity had migrated to digital. I had intended to use my newer laptop computer for the first time. I needed some assistance from W3SZ to get the proper settings for the COM port and WSJT settings. I was frustrated to find that the audio path from the receiver to the computer program was interrupted when the output plug from the Rigblaster was mated to the jack of the adapter into the computer. The stereo plug will probably need to be swapped out for a mono plug, but without one handy, I simply turned up the volume of the receiver and let the internal computer microphone catch all the tones. It enabled me to double my QSO numbers with contacts on 6m and 2m. 73, Rick **K1DS**

	Q	points	grids	totals	
50	7	1	7	3	21
144	20	1	20	9	180
222	6	2	12	4	48
432	7	2	14	2	28
1296	1	3	3	1	3

TOTALS	41 QSO	56 pts	19 grids	score 1064	



K3MD Sept VHF Report

Had a good time. 13 hours of operation Class SOHP. Wish the 222 feedline was OK, but it isn't. Feel bad for those not having FT8... it combs the bands for weak signals, even if it is a bit slow. 179 Q's, 67 Mults, 12663 Pts
73, John **K3MD**

I had other obligations this weekend. I worked the last six hours of the contest and less than an hour on FM talking to locals and a few rag chewers outside my normal coverage area on Saturday evening. No skeds as I could not guarantee I could keep them. Mostly FT8 with a few FM contacts mixed in. Had I not worked the one 223 FM contact, I probably would have entered as 3-Band category. 113 Q's, 49 Grids, 5880 Pts. 73, Bob **N2SCJ**

KOBAK/R Sept 2022 VHF Contest Rove Report

In the August contest at my last grid operation while raising the pneumatic mast I heard a loud pop that made me think a compressed air hose or fitting burst. As I drove home, I discovered the burst sound must have been an air conditioning line because I only got warm air out of the vents; up till then the A/C had been functioning well. The repair took more than 2.5 weeks in our new labor-shortage world, and I finally got it back the Monday before the September contest weekend. Weather and other obligations left precious little time for the installation and testing of the 6m amplifier system and a repositioned 6m Moxon described elsewhere in this Cheese Bits.

I was just barely finished with the build and installation of my 6m amplifier and repositioning of the Moxon by Friday, (all of which were temporary builds that would have to be done properly later). I did not have time to test any of the 6m systems on-air, so I started the contest with only a hope that it would all work.

My plan for Saturday was the same pattern as other contests this year: to activate four grids around the grid intersection near Gap PA (FM19, FN10, FM29, FN20).

The rove started at the farthest point of my plan in FM19xx in a church parking lot which I had gotten permission to use (a modest contribution to the church helped). It's high relative to the rolling hills west of Gap, but there are tall trees around the lot so it's not ideal...though I don't know of any *ideal locations out there*.

After trying a little too long to make SSB contacts, my first contact was with FN31 powerhouse Jeff K1TEO on 2m, and we ran my four bands easily. Thank you to Jeff for 10 contacts total this contest, and for all the many FN31 contacts you've given me since I started VHF roving in 2015.

I also ran all four on SSB with W3IP, K3TUF, and W3ICC/R. Getting Drex in his rover was satisfying because one of my goals was to make 4-band contacts with him this contest after only getting ICC/R a few times in the past.

After logging what I could using SSB on 2m and 6m, I turned my attention to FT8. Contacts came regularly, and it seemed like when I was on the cusp of changing bands or deciding to pack up for the next grid, I would see another new multiplier appear for me to attempt to log. I was quite happy that my work this year adding loud fans to my 2m and 6m amplifiers allowed me to run FT8 at my category maximum 200 watts while barely getting the heat sinks warm (though it helped a lot to be operating in low 80F temperatures). Because of those steady contacts with multiplier opportunities, I stayed at this initial grid longer than I had planned; it's tough to leave when you think another multiplier will be coming in a minute or two. I did not notice any propagation enhancement on 6m or 2m; I would decode a distant grid on 2m FT8 now and then but usually didn't last long enough to make a contact.

A non-fatal problem was noted with somewhat elevated 432 SWR and some power getting measured on 6m when transmitting on 432, so maybe that's a relay problem? Running "just" the max 100 watts I was still able to make



most contacts attempted on 432 but obviously reflected and possibly leaking power is not good.

By the end of the first grid activation after two hours, I also noted my main batteries' voltage would drop to just under 11v when the 2m amplifier was transmitting and causing a draw of about 60 amps total (everything in the station runs off those batteries except the 6m amplifier). The battery sag is almost certainly because those two 200Ah AGM batteries are about 5 years old so they're reaching the end of their useful life. Replacing them will be a hard decision not knowing how long the van will last, and their physical replacement will be a major project. It will also be difficult to decide to stay with the old lead-acid technology or leap into more expensive lithium types. For the first time since a long POTA rove in 2019, I enabled the circuit that charges the station batteries from the vehicle alternator, though with the short trips in this rove that doesn't help much.

Packing up and driving to the FN10 location I encountered several Amish buggies. With my heavy lumbering van, I must slow to their walking speed near any hill or curve where I can't see a passing zone. Heading down one of the farmland roads to my FN10 operating location, my heart skipped a beat when I saw a huge horse almost step onto the road from behind a steep farm hill about 50 feet in front of me. The horse was part of a team of two dragging a plow, and the Amish plowman appeared to be struggling to stop the horse, just as I was struggling to stop my van. Exactly on the other side of the road was another Amish buggy heading in the opposite direction with a minivan behind it, so veering to my left was not an option. In a split-second, I had visions of hitting that poor horse with my van, but me and the Amish kid were able to stop in time with maybe 12 feet to spare. I waited a while to let the situation resolve itself, but also waited to let my heart rate come down.

Shaken but continuing the staircase-shaped route, I reached the FN10xa operating location at a school parking lot and prepared to enter the lot. As I was slowing down, I noticed a State Police cruiser at the far end of the lot and set back from the road in position for the vital work of catching speeding Amish. I kept slowing for the turn, but finally aborted the turn and continued driving straight past the school and police car. I admit it was a wimpy decision. I have a good but not perfect win percentage sweet-talking LEOs I encounter in my many contest roves and POTA operations, but I just didn't want to deal with it this time. I did not have permission from the school district to use their lot, so I had a weak argument to make, but of course many people use school property like a public park. In my defense, I had spent more time than planned at my first grid, and I was looking forward to operating for the first time from a good high location in FM29 at my next stop. So no FN10 this time.

The next stop in FM29ax was on the property of a small business. I had talked to the owner in person a couple of months prior to ask permission. I thought the hardest part was going to be explaining why I wanted to park there for my weird hobby, but as I was describing ham radio generically and playing up the emergency preparation angle, he piped up with "oh, ham radio" before I used that phrase; I then knew I was halfway home with my ask. We had a good conversation where he described hams on his property using the same kind of van I use with a pneumatic mast. Is there another TV van out in our area for ham radio use besides me and Drex? I don't remember the few other such rove vans in the mid-Atlantic states ever describing setting up in the Gap area. It's a mystery—maybe Drex or Rick K1DS knows?

The location is small with gravel and grass, and when I got there a little after 5pm I realized it was a bit more tilted than I remembered from visiting to talk to the owner. The tilt wasn't bad, but it was enough so that I was only comfortable pushing up four segments of my mast. Fortunately, that wasn't a significant disadvantage because even at that lower height my antennas had a full circle of visibility to the horizon. After answering one SSB CQ on 2m, I phoned W3ICC/R to coordinate another run of four bands. 6m FT8 was next, and I got a few familiar callsigns along with a short string of contacts to the southwest in FM18 and FM08; again I saw no significant 6m enhancement. Going back to 2m, I saw an SSB signal and glommed onto a 3-band 3-way with K1TEO and W2KV. While making the 222 SSB contacts I saw a signal in the FT8 region, so I went back to make one of my few single contacts on that band. More FT8 on 2m followed including a strong one with W8ZN, so when all the 2m FT8 stations were harvested I called Dave K1RZ (Dave was operating at W8ZN) to see if we could try the other bands. I barely got a 432 contact, after which I tried going back to 6m but my radio seemed to be transmitting at extremely low power. I tried rebooting the radio and SDR software, which has worked to resolve this random problem in the past, but this time it didn't work. At this point I was tired and frustrated at my Flex radio that seems to be so good most of the time, but also has

infuriating quirks that I can't seem to resolve.

Having stayed at FM29 for my planned 1.5 hours, but not knowing if I'd have an operable radio at my next stop, I decided to cancel my last stop in FN20 and drive home. As I look back at this year, abandoning planned stops is a recurring story with fatigue being a big factor in my decisions. Reluctantly I think I need to be more realistic in my rove plans. I just can't do the exhausting work of a rove at the pace or duration I used to do just a few years ago. I already no longer consider driving the rover van out of the area for fear of another breakdown far from home requiring a long tow and my wife having to drive hours to rescue me. Now I think even my local rove plans must be shortened. If anyone wants a rover van like mine, this would be a good time to make an offer.

Significant off-and-on rain was forecast for Saturday evening through all of Sunday. This meant I couldn't recharge my tired station batteries overnight. It also meant I wasn't going to be roving on Sunday because it's dangerous for me to be climbing up a wet ladder to connect and disconnect the cables to my antennas and rotator. Although I made 98 contacts in just 3.5 operating hours on Saturday, I was bummed that I had activated only two grids and had a short total number of hours.

On Sunday, after my weekly early breakfast with Pottstown hams, I was resigned to my two-digit QSO total and planned to watch the Eagles opener during the rains. Checking the weather forecast, I noticed that there seemed to be a two-hour period in the early evening where the rain chance dropped from 40-80% to "just" 15% before climbing again. I resolved to check the forecast again after the Eagles game. The rain gap forecast held, and though there were on-and-off sprinkles, I felt I could dry the ladder rungs with a towel before climbing and have acceptable risk. Operating from my FN20 driveway would minimize disappointment if the radio continued to act up or rain came suddenly. I was extra careful going up the ladder but was happy that I could start operating the station if only for a short time. My first goal was to get at least 1 contact so I could claim to activate 3 grids instead of 2. Making a second contact would also get me to 100 QSOs. The results were better than those modest goals, and I was happy to have made 15 contacts from my driveway which is in a hollow with hills about two-thirds around.

During the short session I was able to get four bands with N2NT (3 on SSB) and made a few first contacts with Packrats. I phoned Drex and Paul but we couldn't make any contacts with him being much farther away than on Saturday and me being in a lousy location, but I appreciated their effort to try.

Roughly in the middle of my hour-long Sunday session the rain poured for a while and I thought I had made a mistake deciding to operate, but the rain eventually calmed down to a trickle allowing me to dry off and climb the ladder to disconnect and shut down the station.

I had almost exactly twice as many FT8 as USB Q's, but the sideband total was enhanced by a few quick runs through my bands. I saw no one transmit a band change request on FT8, including me. FT8 continues to be a blessing for making more contacts farther than I could otherwise, and a curse for largely shutting out the opportunity for a rover like me to run the bands without coordination for the short time I'm operating at a particular grid.

Results 113 Q's, 54 grids, 7074 pts.

Susquehannock Trail Performance Rally

By Bill **WS30**

Recently, I was asked to volunteer as a radio operator for the Susquehannock Trail Performance Rally. (<https://stpr.org/>) The event was held on Sept 16 and 17, 2022, but due to my work, I was only able to participate on Saturday the 17th. This race is held annually in the state forests west of Wellsboro, PA. I love road trips to northern and central Pennsylvania, so I really wanted to do this. Add in the opportunity to do something with the radio and this was an event that I expected to be fun. And we were far out in the woods, with no cell service.

The Race

The race attracts teams from all over the country, and some international participants as well. The race vehicles all resemble cars you would see on the road, but with safety and performance modifications. I am told that the race vehicles are all road-legal, but I am certain that most of them would violate local noise ordinances.

The race is divided up into 16 stages, with each stage being run twice. I was assigned as a radio operator to the spectator location along stages 11 and 15. There also were radio operators at the stage start, stage finish, and two other mid-stage control points.



My spectator location was roughly in the middle of the stage.

Responsibilities included reporting on vehicles passing the location, passing information from the site captain to net control, and letting net control know about any unusual issues which might arise, like breakdowns, pedestrians, or non-race vehicles entering the course. I also needed to inform my site captain about announcements from net control, particularly when the race stage went active, and when the stage was completed.



The Station Setup

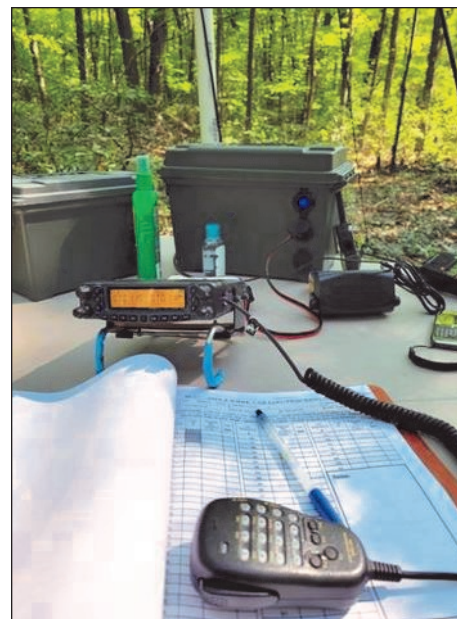
Once I got to the location, I set up my station. This included my Yaesu FT-8900r, running from a 12Ah LiFePO4 battery that I had built into a plastic ammo box. This includes a voltmeter, Anderson power-poles, a cigarette lighter plug, and USB charging ports.

Rally cont'd... My antenna was a mobile Nagoya TB-320A tribander. The mount was built from a plastic 2-gang electrical outlet box, with the appropriate panel-mount connector bolted into the top of it.

I also fashioned a ground plane using four pieces of 14 gauge THHN wires. These get folded up as necessary to produce a good match on the antenna analyzer. It's a little ugly, but it works well.

This assembly was then screwed to the top of two 5ft PVC sections, and guyed with paracord. This is roughly the same setup I use for SOTA activations.

Regarding the FCC exposure limits, I was in a restricted area. The public couldn't get any closer than 25ft to my station. According to the ARRL exposure calculator, this was well above the minimum safe distance for an uncontrolled environment.



The Operation

There were four of the area repeaters assigned for use during the race. One for each of the active stages. This was our primary communications channel. As the stations on the stage were setup, we checked in with net control. My signal was received more than adequately.

The operators using HTs had a little difficulty, but keeping the antenna upright helped a lot for them. My radio partner at the site was using just an HT, but unfortunately, my 50W output was saturating her HT's receiver. She couldn't hear my transmissions. Since all of the volunteers at our location also had FRS radios, we just used that when we needed to talk.

We also had a simplex frequency assigned for use if the repeater wasn't working. We never actually tested this. It turned out that we probably should have.

Repeater Problems

There was an hour and a half break between the two race stages at our location. During this intermission, the radio operator at the next checkpoint came up on the simplex frequency. He and I started chatting a little about our setups. The radio operator at the stage finish heard us and joined in. This was good, at least the three of us could communicate on simplex. We never heard the stage start, though, nor the other checkpoint.

It turns out, there were reported problems with the repeater we were using. I never noticed it, as every transmission I had made was acknowledged by net control. But it seems some of the operators were having difficulties. It was announced that they suspected the repeater had overheated. We were asked to try an alternate repeater. All of the operators switched over and checked in, with usable audio. However,

Rally cont'd... net control was not getting into the alternate very well. It was announced that we were to switch back to the original repeater, but keep our transmissions to the bare minimum. For my location, that meant I was only to report problems.

During this incident, we never tried simplex. I suspect that all five operator locations would have been able to communicate effectively, but I doubt net control would have heard all of us. I don't know exactly where net control was located, but it was not nearby. I have heard that they were in the county EOC, which was pretty far away, with lots of hills in the path. Those with HTs would have been out of touch.

Wrap-Up

This was my first time doing radio support for any kind of event, and I had a great time. I always enjoy road trips, and doing something to help others with the radio was a positive experience. I learned a few things about packing the gear for such an adventure, and have since made improvements to the setup. For example, the guy lines were some 800 to 1000% longer than they needed to be. This has now been measured and trimmed down so that they are only double what is expected. I had used a patio umbrella stand at the base of the PVC mast. This will be replaced with a simple stake. I also added a travel clock to my kit, so that I don't have to constantly activate the screen on my phone to note the time when vehicles passed my location. (This will help with rover operations too, as I stopped wearing a watch decades ago, and no longer own one.)

The racing crews, volunteers, and fans that I spoke with, were generally very friendly and sociable. I was carrying my radio to the car as I was leaving the hotel Sunday morning to come home. Someone behind me asked if that was a ham radio, and if I had worked during the race. I acknowledged this, and asked if he was also involved in the race. Indeed he was, he was one of the rally drivers.

And then, to my surprise, he said "thank you."

Bill **WS30**



ARRL 10 GHz + Contest Report

By Dave **K1RZ**

Round 1. On Monday before the contest Dale AF1T, Mickie W1MKY, Steve K3WHC and me met on the ferry boat to Block Island FN41ee, and set-up that evening on the porch on the highest point on the island and started playing Ham Radio on 10 GHz. Tuesday during the day we worked Ray N3RG (CW), Jeff K1TEO (USB), Mike W3IP (CW & Q65-15C) and Roger W3SZ (Q65-15C) just to be sure every was working. On Tuesday evening I worked Peter VA3ELE FN03dm on Q65-15C to give Peter FN41 for his 57th grid on 10GHz using airplane scatter – the computer did the work. Finished out the evening working John N9ZL FM08us on CW for the farthest DX of the day. Good activity for a Tuesday I'd say. Hi.

On Saturday we started the contest working Tyler KM3G near his home at FM19ps for our first contact. Followed by our local beacon Jeff K1TEO, and then Phil K3TUF and Paul WA3GFZ (both on Penobscot Knob PA) in FN21be. Then to the State of Maine reps John K1OR and Larry K1CA in FN53fu. Then Roger W3SZ on Q65-15C at FM19rx (and later on at home QTH FN20AD, also Q65-15C). And then during the next hour John W3HMS on CW, also at FM19rx. During that hour we worked Tommy W1AUV FN41oo and John N9ZL FM08us on Hogback Overlook VA at 629 km.



Also the team of W1FKF, KA1NKD and W1EX at FN43bj from the parking lot below the Mt Kearsarge NH summit. Then worked Dave K1ZZ and Linda KA1ZD on the school parking lot at FN42ad. Later on also worked Fred N1DPM and John AA1I at this same spot. And then worked the team of Paul W1GHZ and Chip W1AIM at FN34wl. Followed by Chris KG6CIH on Mt Agamenticus at FN43pf. And later on worked Leandra AF1R at this same spot. Went on to work Glenn KC0IYT on Mt. Wachusset FN42bl and Ray VE3FN in FN25dk. All good locations for sure. And then Ron WZ1V went out on his sidewalk in front of his house on the road lined with trees and found that the roadway actually was headed directly at Block Island, and Ron worked us all. Thanks for your good effort on these four contacts Ron. Many operators were out at all kinds of locations and this made it real fun for all involved.

Rainscatter. Who better to work for our first RS contacts than Andy K0SM in FN12ev. I immediately opened the <https://rainscatter.com> app on the phone and set up to also work Jim N2JMH FN12bw, Kevin VE3KH FN03cg, Wayne N2WK FN03xe, Peter VA3ELE FN03dm (operating his home station while out portable) and Hugh VA3TO FN03cn (at 721 km for best DX of round 1) – all on RS in the next couple of hours.

Late Saturday evening on the porch the dew was extremely heavy. And Dale said that other times this has happened when he'd been on Block Island it was a precursor to a band opening the next morning. And sure enough the K3EJJ/B north of Baltimore was S9 in the 6 o'clock hour on Sunday morning. We worked everyone else in Maryland and PA within the first two hours of the day to include Brian N3OC FM19le,

10 GHz cont'd...

Maurice K3EJJ FM19of, Tyler KM3G FM19rx and Chris NG3W FN11bo. Thanks to you for getting on before the inversion layer burned off. And thanks to the many more who continued to operate through the day on Sunday. Overall Round 1 was very successful with 88 QSOs, 58 unique calls, and 27,521 kilometers for 33,321 points.

Round 2. Bill W2RMA, Steve K3WHC and I had talked about operating from Reddish Knob FM08jl in WV at 4400 ft ASL over the recent years. And we decided to make the effort to do just that on Saturday. It is an interesting site, and when we got up there coming up from Harrisburg VA before sunrise, it was a pleasant morning – shirt sleeve weather, and very little wind. But in trying to tune in beacons and other relatively local stations we felt like there was an inversion layer below us in altitude as we were unable to hear these local stations, and may have to wait until the layering in the atmosphere would



burn off in a few hours. Three hours later I made my first contact with Paul W1GHZ on Block Island at FN41ee. It was an airplane scatter contact, and each of us worked Paul, but with the typical slowness of an airplane scatter contact. The predominant propagation of the day, with very few exceptions were the same – aircraft scatter, and happy for it. Then I worked Phil K3TUF in FN10we, Chris NG3W FN11cp and John N9ZL on the next ridge over to the northeast at FM08us – and also worked John on 24 GHz. Plus we worked Gene WA4PGI FM07as down in the valley near his home QTH, with Gene using tower bounce off a nearby tower. Then we three worked Dale AF1T and Mickie W1MKY at FN41ni on Martha's Vineyard MA out at Gay Head light house, for our Best DX of the contest at 786 km. In the late afternoon we broke down our WV operation and drove to Bedford PA.

Sunday we got up to Blue Knob Ski Resort FN00rg and set up on another very pleasant morning in terms of visibility and temperature. We worked W1GHZ again on Block Island FN41ee. And then we worked N2JMH and VE3KH using tower bounce off a ski-lift tower about 100 yds away and generally in the direction of WNY and Toronto. And later, using reflection off the same ski-lift we worked Wayne N2WK and Peter VA3ELE (Peter operating his Toronto station remotely while motoring across the north shore of Lake Ontario). Just after local noon we worked the team of Rus K2UA, Dave K2DH, Tony K8ZR and Mike N2MG on Greylock at FN32jp at 517 km. We also worked John W3HMS FN10mf, plus Phil K3TUF and Claire KA3TUF in FN10we. And then the team of Jeff W2FU, Bruce WA2TMC and Chris K2CS at FN02xu. We finished by working Tyler KM3G in FM19pt.

My final score was 116 QSO's, 38,242 km, 66 unique calls and 44,842 points. Thanks to everyone who went out to make this activity more fun for all to enjoy. Thanks for the QSOs and the tries.

6 Meter Amplifier Cooling

By Pete **KOBAK**

Quite early in my VHF roving “career”, I found that the only band I needed (versus wanted) more power for was 6m. That band was often frustrating on 100w when I could easily hear other stations (even on my low-end Icom IC-7100) who could not hear me. A “350w” TE Systems 6m amplifier was my first big purchase, providing a relatively minor boost over my barefoot radio.

Still having a problem being heard, a couple years later I picked up a used M² “kilowatt” amplifier from a fellow Packrat. My first and still my only 50vdc amplifier, I had problems powering it from a battery; in retrospect I tried to use a battery with inadequate maximum current when I was still pretty ignorant about lithium batteries. The bottom line is that this amplifier, as much as I believe it’s necessary to complete the last 10-20% or so of possible contacts I can hear, has caused me multiple issues trying to be able to use it reliably in a contest.

I solved the power supply problem with a big battery purchase that can supply almost twice the peak current requirements of the amplifier. Now I found I had another problem. The amplifier would shut down due to high temperature, especially on hot days with heavy use of WSJT modes. The M² amplifier seems to use a unique approach to cooling: The heat sink, which I’m guessing is less than 100 square inches in area (smaller than my much lower-powered TE amplifiers), is enclosed all around except for the back. Two fans mounted on the top of the case (not on the heat sink) can turn on to draw air from the opening in the back and pull it upward away from inside the case. There is a thermostat mounted on one of the fans (not on the heat sink)



that turns on the fans when the temperature of air above the heat sink reaches some value. So, the design apparently is to use the heat sink to warm the air mostly enclosed by the case until the air is hot enough to exhaust through the top. I know little about heat management, but that doesn't seem like a smart arrangement to me.

To extend my use of the amplifier in the hot van, I had to improve cooling by moving a much higher volume of air over its heat sink. I also didn't want to wait for a thermostat to decide when the air was hot enough to bother to exhaust it. At the same time, I didn't want to radically modify the amplifier so I could still use it under less-taxing circumstances (like in an indoor air-conditioned ham station) or to sell it someday.

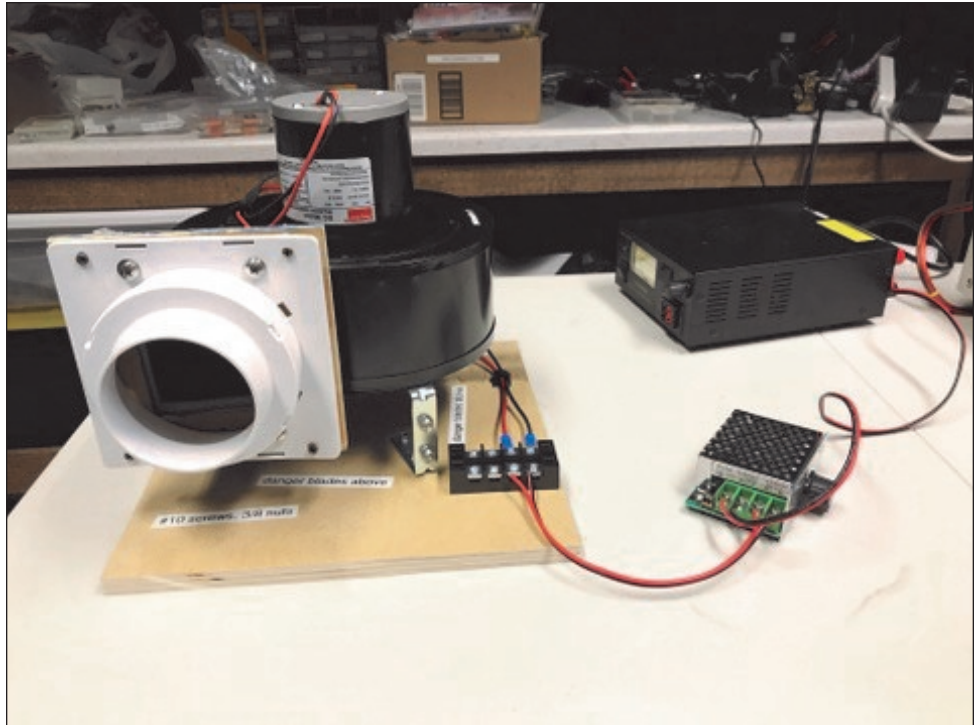
Most 12vdc computer-type fans would move too little air through the smallish opening in the back of the amplifier (I estimate 20-25 square inches); most larger fans that can move enough air are only available for 120vac. I felt lucky to have found a fairly large 12vdc 6amp 176cfm squirrel cage blower on Amazon that looks like the fans sometimes used to cool ham tube amplifiers. Since I didn't have much to choose from that works with 12v, I had to accept that it would be awkward to mount, and I would have to find a way to direct the air from square outlet of the blower to the rectangular opening in the amplifier. In addition, I bought a DC motor speed controller to allow me to manually adjust the blower speed to compromise between noise and cooling needs. Lastly, I intended to add

a digital thermometer so I could get a relative idea of the air temperature above the heat sink.

One decision I had to make was whether to remove the existing two fans from the amplifier top. I decided to leave them in place even though they had to reduce air flow from my new blower, hoping the flow would be enough without having to further modify the amplifier. One advantage of leaving them though was that if I heard them start up, it meant I had forgotten to turn up my new blower before operating 6m.

I decided to use pairs of right-angle braces to mount the three screws on the blower's round air input side to a foot-square piece of wood; this raises the round air inlet about 3 inches above the wood. I renewed my high school cylinder area knowledge to check that the area around the bottom of the fan was more than the area of the circular inlet of the fan. Initially I was thinking about mounting the fan outlet directly to rear of the amplifier, which might simplify the adapter I would have to design and build. But I decided to separate the amplifier and the fan and use a 3" flexible duct between them. This would significantly increase the time I'd need to build adapters on both ends but would result in a system that allows more options for mounting the amplifier and blower.

Scrap 1/8" plywood was used for the shape adapters between two plastic 3" duct mounting plates and the existing openings of the blower and amplifier. A tabletop jigsaw was used to make the rectangular interior cut on the blower side; the result wasn't pretty and if I knew anything about woodworking, I might have used a better tool. The amplifier adapter interior was round so that cut was easier by using a hole saw. Four quarter-inch angle braces were added to the top and side of the amplifier case wall to hold the adapter. I added sticky-back weather stripping to seal the air gaps.



I was happy that the motor control seemed to work fine with the blower on the test bench, because as you might imagine, the blower is loud at full power. With time running out, partly due to only having gotten the van back from repair on the Monday before the contest, I had to decide to mount the amplifier and blower using a redneck combination of bungee cords—it really is an embarrassment, but I didn't have time for anything better. I did a little testing on heat management, and was happy with the temperature reduction I measured with that digital thermometer before and after using the blower while the amplifier was being driven hard into a dummy load.

During the contest, although I was only running 200 watts on 6m, the blower was effective at keeping the temperature under control while running FT8 for fairly long periods. I would typically set the fan at a quiet speed to keep air moving while not on 6m, and then would turn up the speed almost to max before running 6m FT8. With this new 6m blower system, and the set of four high-performance fans I mounted on top of my TE Systems 2m amplifier earlier in the year, I was able to use my full allowed 200 watts on FT8 on those two dominant bands. Running all the power I can has to help me be decoded on the other end of the contact.

Stability Mods to the Elecraft 432 MHz Transverter

By Chet N8RA

The past weekend contest (September VHF) presented a good opportunity to test a recent modification to my Elecraft XV432 transverter.

In the last contest I noticed that its frequency stability was not sufficient for dependable FT-8 operation. As it went thru transmit cycles, the received signals on the waterfall would slowly arc over on a curved trajectory. It took about 15 minutes of operation to settle down.

I theorized that the high FT-8 duty cycle raised its internal temperature faster than its local oscillator crystal oven could compensate. The little fan inside simply spread the heat from the PA around to the whole unit.

In a separate box I rigged a freq synthesizer from Q5 Signal (DEMI), which has a nice TCXO. I set it to produce the required LO frequency. The LO in the transverter was disabled with a jumper from its transistor's base to ground. A BNC connector added to the side of the transverter near the internal LO circuit allowed for a small capacitor to then couple in the synthesized signal, and LO levels and alignment were similar to the original.

It worked well! Now I get quick answers to my FT-8 transmissions. And, it is interesting to watch other's signals on the waterfall - some are obviously stable with a vertical series of transmissions, but others have curving trajectories, often seen when they would first start up on the band, and those stations were often difficult or impossible to contact as their frequency moved.

My XV144 and XV222 transverters do not seem to suffer the same problem but will get a closer look in the future.

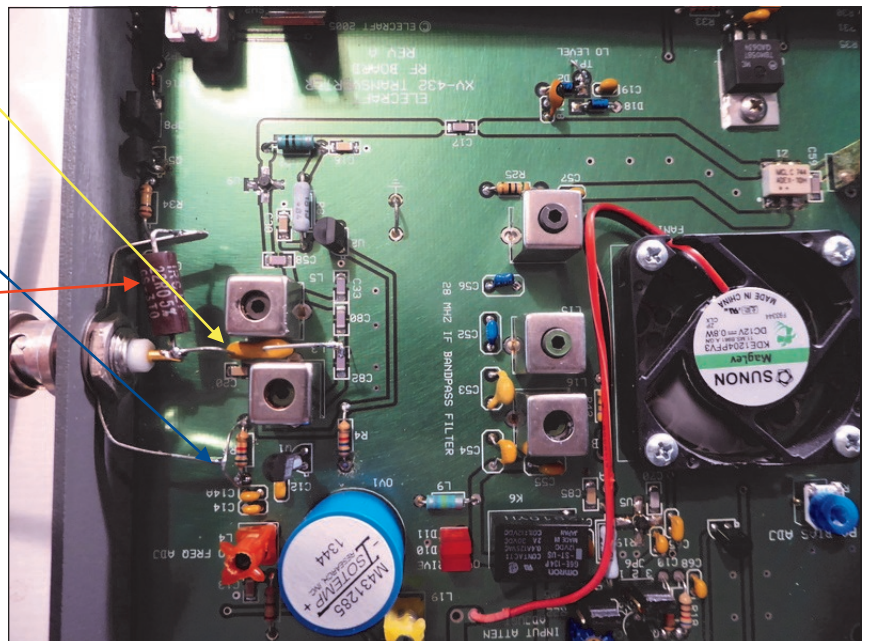
Here are the exact details of the conversion:

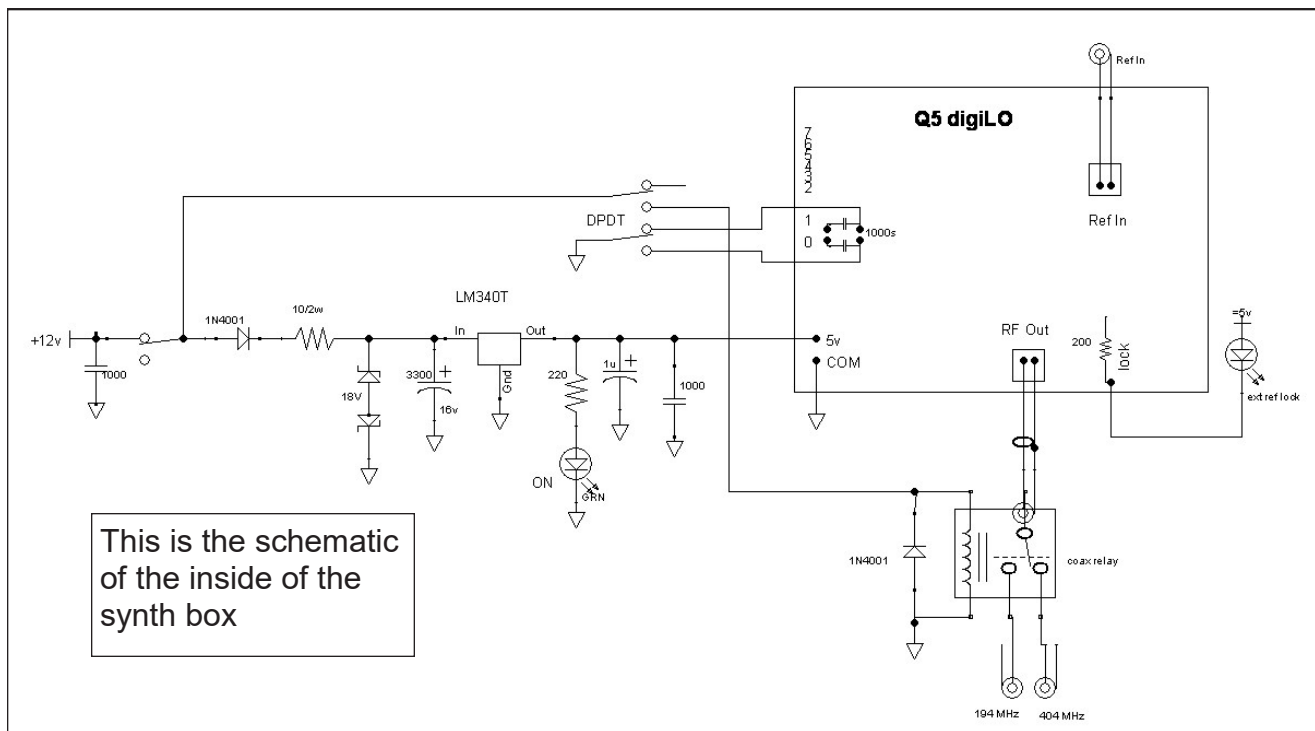
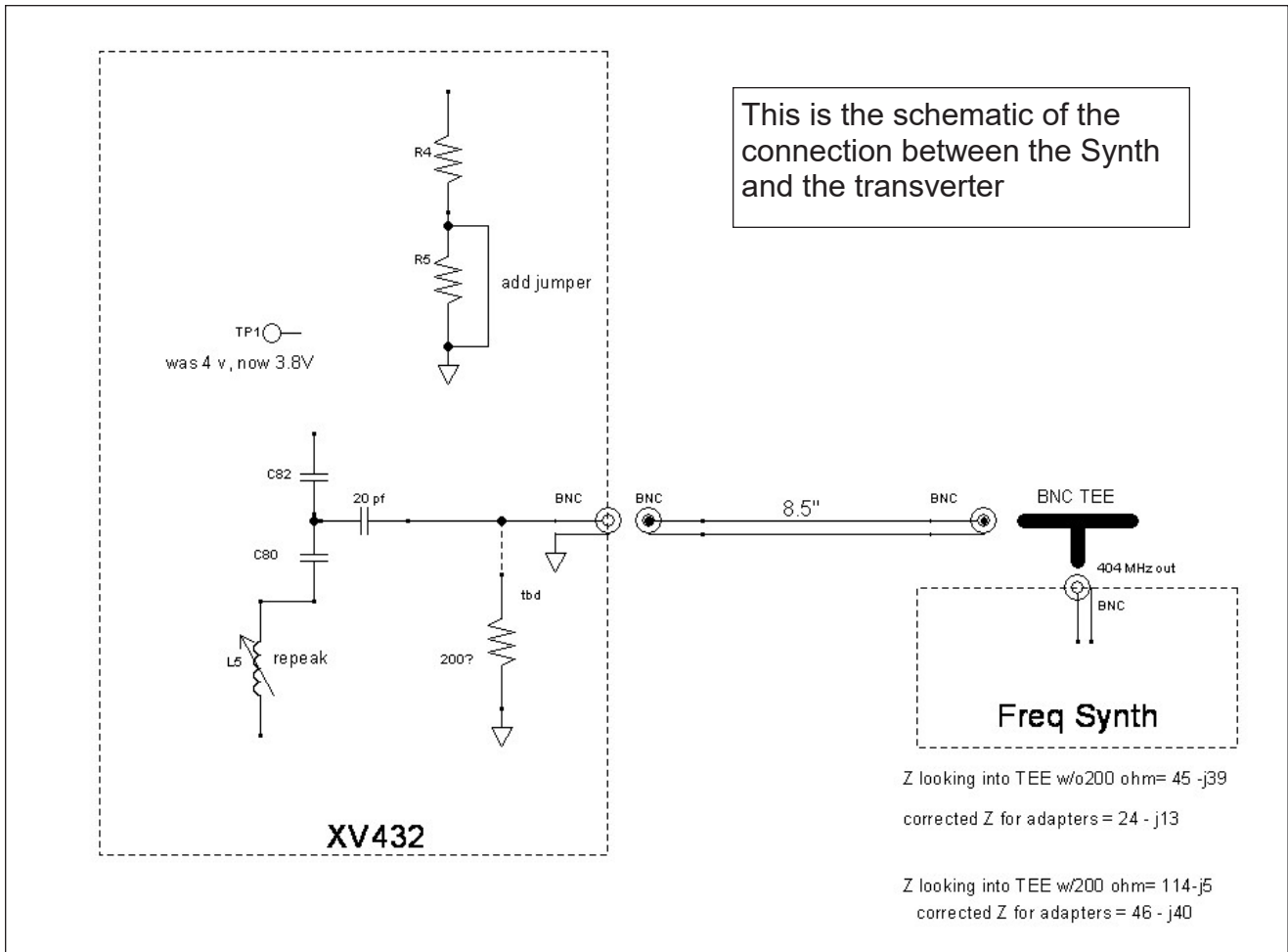
The 20 pf coupling cap is between the metal inductors.

The shorted base resistor is below that with the BNC ground tab going to it also.

The 220 ohm resistor from BNC center pin to case is part of my playing around looking for best match to the freq synthesizer.

I tried differing parts there and I think I disconnected it in the end.



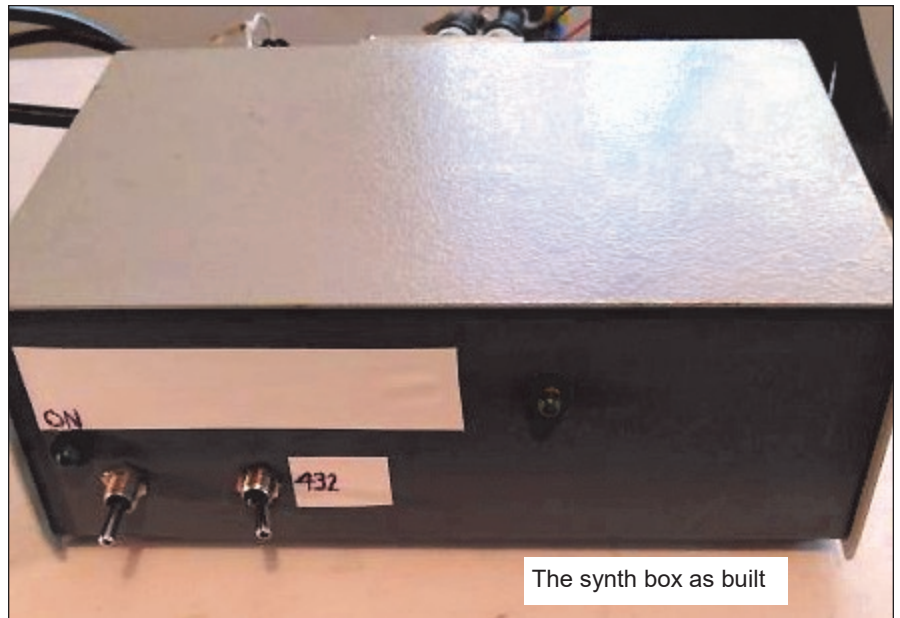


Transverter cont'd ...

Before doing the mod, the LO level in the XV432 at TP1 was around 4V- higher than Elecraft spec'd but it seemed to work OK. With the external synthesizer I got it close to that again by fiddling with that matching element on the BNC. The 3.4V on the diagram was an initial measurement, not where I ended up. It worked OK with 3.4V but xmt power out was down a little so I raised it closer to 4V. The XV432 L5 adjustment peaks nicely after the mod.

I designed the box incorporating a coax relay thinking I could use it with the XV222 also, but to do so I'd have to remember to

switch the switch when changing bands. It might be easy for me to forget to do that during a contest so I am pondering options for auto switching or possibly using another synth? (This would add a lot to the cost.) Another unanswered question: does 222 really need it? This hobby is endless! Right now with my K3 it is so nice to change the transverter bands. The transverter bands act like any other band on the radio. If you do a single synth on multiple bands let us know how it worked out!



The synth box as built

Adapting 6M Moxon on My Rover Van

By Pete **KOB**AK

Antennas for four bands plus an RF relay board on just a foot and a half of my rover van's rotator mast creates a crowded space. The short mast is by design to conform to a height limit of 12 feet from the ground, based on tree strike experience and advice from other rover ops.

After I assembled a new rigid 6m Moxon (SAL Electronics SE-6MB) to replace my aging and loose wire-stressed Moxon, I hoped I'd see a better SWR but did not. With the Moxon sandwiched between 3 Yagis (222 & 432 on a cross-mast below and the 2m above) with only inches between, it's not surprising the Moxon would be affected. My conversation with the responsive and helpful owner of SAL Electronics, Mike KC9Q, confirmed the problem was likely interaction from my other antennas.

While I can operate the sandwiched Moxon with barefoot power and help from my radio's built-in transmatch, I spent considerable time and money to operate an M² "kilowatt" amplifier on 6m. 6m is the only band where I need all the power I can get based on the number of times I could clearly copy a station but they couldn't hear me. The M² amp refuses to operate when it detects a VSWR above 2.0, even when I operate at just a small fraction of the amp's maximum (such as 200 watts as a 4-band rover). Both the old and the new Moxon on the crowded mast would often trip the amp's SWR protection.



With limited time before the September contest, and not being sure repositioning the Moxon would help, I decided to try to offset the Moxon forward and below the rotator with a minimum of cost and effort. Without engineering some counter force, the offset would create an unbalanced condition on the mast straining the rotator, but in the time available I would have to live with a poor design and hope the rotator would still work.

I already had a “genius clamp” from DX Engineering, bought years ago for a mobile HF arrangement I never implemented. This clamp supports perpendicular one-to-two-inch diameter masts using teeth, so I didn't have to buy or build (or more likely beg a ‘Rat to build) a plate to mount conventional mast clamps for my 1.75” vertical and 1.25” horizontal masts. Proper mast clamps and a plate for perpendicular support would be much stronger, but I had to use what I had or could build myself.

The Moxon would be mounted on grey schedule-40 PVC electrical conduit consisting of horizontal and vertical pipes with a sweeping 90° piece between, and the plane of the conduit assembly would align with the centerline of the van. The Moxon would be held a couple inches above the van roof, and the horizontal conduit held by the “genius” clamp roughly in the middle of the existing 1.5-foot steel rotator mast.

After mounting the Moxon on the conduit and installing coax, it was very difficult to maneuver my body over the Moxon and under the lowest Yagi back to the van's ladder. I seriously considered disassembling what I had just built to extricate myself. With this new setup, the Moxon sits in a previously clear roof



area between the helix cable basket around the pneumatic mast in back and the raised platform in front that originally held the van's satellite dish. Overall then there are only a few inches clearance around the Moxon in the travel position. When the pneumatic mast is raised though, the Moxon is almost clear all around with only the pneumatic mast top section (4 to 6 inches in diameter) directly behind.

It didn't take long for the unbalanced PVC conduit to sag a bit, tilting the Moxon a few degrees forward and reducing the clearance from the basket. My wife, following me on a highway while I was driving the rover to my rental garage to avoid the effects of Hurricane Ian, reported that the “rectangle thing” bobbed up and down and side to side; she decided to begin following me behind a few other cars. Clearly this isn't a long-term solution. However, I was thrilled to measure a better SWR when I raised the antenna and was able to tune the Moxon to 1.1-1.2 SWR on my analyzer. Because I was also working on a better cooling solution for my 6m amplifier, I couldn't immediately check performance on-air, so using the Moxon in this position for the September contest would be more a matter of faith than assured engineering.

During the contest (see my rove report elsewhere in this issue of Cheese Bits), the amplifier did not trip and SWR under power stayed at 1.4 or less. Although I used only 200 watts in the contest, there is no reason to believe that higher power, would change this positive outcome. The PVC pipe is not a good solution in the long term, so I hope to work on a better mounting arrangement this winter, having now proved the offset position solved the Moxon tuning problem.

The Wayback Machine In CHEESE BITS, 50 Years Ago

Nibbles from September 1972. Vol. XV Nr 10
de K3IUV Bert
(*author's comments in italics*)

“Our Prez Sez”. Prez Walt, **K3BPP** thanked the new Editor and Printing staff “for the fine job they did with last month’s Cheese Bits.” He noted that the Membership Chairman reports that openings for membership exist at the moment, so we should seek out some good VHFers. He also reminded us that now is the time for antenna work. January will soon be here!

Calendar. The Delaware Valley Radio Association will hold an auction near the campus of Trenton State College on October 15, 1972. Donations 50-cents! Antique wireless equipment and an RTTY station will be on display. October 18 will be an indoor club meeting. The speaker will be member Alan, **K3AUH** who will discuss “Pacemaker Evaluation” and the growing field of medical electronics (*we’ve come a long way since then*). November 15, Club meeting, with a talk by Dick Knadle, **K2RIW** on receiving direct Apollo broadcasts from the moon. (*Dick successfully set up a receiving station to capture the Apollo astronaut traffic with Houston, surprising NASA!*) And December 20, the closed club meeting at which contest strategy will be discussed.

Oscar VI Launch. The Oscar VI launch was scheduled for October 9th. If successful, it should be heard in our area about 9:00pm and 9:00am. Input frequency is 145.95 MHz and the output

is at 29.450 MHz. There will be a beacon on 29.450 and 435.10 MHz. More information is available, and reports go to **AMSAT**, Washington, DC.

VHF Report. Joe, **W2EIF** notes that August and September have produced some excellent openings. On 2-meters, August 3rd 4th and 9th produced the best auroras heard in years. Stations from **S. Carolina around to Missouri, Iowa, Minnesota and Wisconsin** were worked. He stated that there is considerable evidence that many openings go unnoticed because of lack of activity (*hint – get your station on*). The September QSO party produced some excellent openings from 6-meters through 432 MHz. On September 16th, Joe reports working **K4JBV** in **Kentucky on 220-MHz**. And finally, he notes that **W8YIO** in Manchester, MI worked **K4QIF** in Norfolk, VA on 1296 to set a new distance record.

Construction Article. Ron, **WA3AXV** (now **W3RJW**) provided a very nice construction article for a 432-MHz power divider. Designed around a piece of 1-1/4” copper tubing, he included detailed instructions, dimensions, and performance data. Still useful today.

Tidbits. Jack, **W2AXU** reported on the Central States VHF Conference. He gave a thorough discussion of the speakers and events. (*Lots of excellent VHF details, and I encourage you to read the full article on the club web site.*) Some of the key people in VHF (like Mel Wilson **W1DEI** and Dick Knadle, **K2RIW**) presented at this conference. Dave, **W3ZD**, provided a eulogy for recent SK member, Tom Coin, **W3IA**. It was another sad loss for

the group. A note mentioned that member Jerry, **K3BHK** (now SK) was on "What's My Line" on September 15, 1972. Sadly, Jerry died last year.

ARRL Director's Letter. A lengthy letter from the ARRL published a long list of changes that were just issued by the **FCC**. Too numerous to cite here, they can be read in the web site copy. They dealt with station ID, calls to use when at another station, and a number of other important issues.

Swap Shoppe by W3ZRR. (Always nostalgia. Now we use the club reflector.) For sale by Ron, **WA3AXV**, a 432-MHz 32-element collinear, homebrew, complete with phasing lines. \$15. From John, **K3CJV**, a Tektronix model 513 Scope with probes and book. "Will swap for a 6-meter rig." Wanted by Bert, **K3IUV** (that's me!), a schematic for an ancient Atwater Kent radio, model 37. And Paul, **WA3HIT** was looking for old copies of "Television" magazine, circa 1928 – 33.

Ads. The October 72 issue included the half page back cover ad from club member Ham Buerger (an Astatic **D104** microphone with PTT stand for \$25.00, without stand for \$15.50!) Business card ads were back, with 27 included in this issue. I note the current Cheese Bits Ad complement includes only 4 small ads, a ¼ page from Beko and a ½ page from Down East. If you'd like to join them, contact the ad chairman, Bob, **W2SJ**.

Miscellany. Postage for this issue was a pair of 8-cent "Flag" stamps. (9 double sided, 8-½ x 11" sheets). As usual, many "folksy" comments about members, their families, and activities were included in

*this edition of Cheese Bits. If interested, or for more detail on any of the above items, visit our website (www.W3CCX.COM) and read the full issue scanned by **K3IUV** (me), and posted on the website by **WS3O**, our webmaster. I have also posted the club Officers history, club Membership history, and Packrat Inventory (updated frequently) on the **W3CCX** website. These files are password protected, and only accessible to registered members. Are you registered? I hope you enjoyed reading these bits of nostalgia as much as I did in writing the article. If yes, you might let me know. Thanks to those that did.*



*thirty, de **K3IUV*** (comments or corrections to: K3IUV@ARRL.net)

Quick Take

The Guohe Q900 HF/VHF/UHF Version 3 transceiver was recently released. It covers all ham bands HF though 432 MHz.(minus 222). Features include Satellite Doppler tracking, built in sound card, spectrum display, internal battery, DMR, easy FT8, built in antenna tuner. It's very compact and has a reasonable price of around \$625. Numerous web sites and YouTube channels carry full descriptions and specs. Performance is not top tier, but it may be worth a look. —W2BVH

Events

For inclusion, please direct event notices to the editor.

Pacific Northwest VHF Conference - October 7-8, 2022. See www.pnvwvhfs.org/conference/2022/announcement.html for details.

Microwave Fall Sprint -Contest- Saturday October 8, 2022 8am—2pm local See <https://svhfs.org/2022VHFSprintRules.pdf> for details.

EME - 50—1296 MHz – Wknd 2 - Contest - October 15-16, 2022 See <http://www.arrl.org/eme-contest> for details

EME - 50—1296 MHz – Wknd 3 - Contest - November 12-13, 2022. See <http://www.arrl.org/eme-contest> for details

Oktoberfest - Hamfest - October 22, 2022. Sponsored by HRAC. Harrisburg PA. Details at: <http://www.w3uu.org/oktoberfest/>

Winterfest - Hamfest - January 14, 2022. Sponsored by HRAC. Harrisburg PA. Details at: <http://www.w3uu.org/winterfest/>

Firecracker - Hamfest - July 1, 2023. Sponsored by HRAC. Harrisburg PA. Details at: <http://www.w3uu.org/firecracker/>

[**Reminder:** Look for the North American Meteor Scatter Sprint contest in August 2023. Details will be found at <https://kv5w.com/2022/07/24/na-meteor-scatter-sprint-digital-rules/>]

Count Yourself Lucky

China recently announced their 16th exam session for the Class C (equivalent of Extra) class license. If you want to sit for the exam, you'll have to find your way to Beijing to take it. If you're in Lanzou (pop. 3.8 million) in northwest China it's only a 1500 KM ride. Some more details of this situation can be found at <http://www.southgatearc.org/news/2022/september/ham-radio-exam-session-to-be-held-in-beijing.htm>

Open Position - Packrat Contest Chairman.

Qualifications: A club member with a strong desire to continue the PR tradition of putting out the best effort every contest.

To make communications a much easier effort. The past Chairman will provide template emails and presentations.

Contact Michael KB1JEY if you are interested in helping out the club in this important position.

KC3BVL Friday Net

Lately Packrat Jim KC3BVL has been conducting a Friday night net with schedule as follows:

7:30 pm	144.160
8 pm	50.160
8:30 pm	222.150
8:45 pm	1296.160
9 pm	432.160
9:15 pm	2304.100

Reminder: there are 3 FT8 VHF / UHF Activity Contests each month. For info see: <http://www.ft8activity.eu/index.php/en/>

For those interested in an online "Contest Only" event calendar for VHF+, see <https://www.qsl.net/n2sln/contestcalendar.html>

222 MHz Activity Night

There's been an informal 222 activity night in the Northeast (and beyond) every Tuesday night starting around 7 pm (or so) Eastern Time. ON4KST is being used by some to coordinate Q's when direct CQ's are weak. —W2BVH

Bob Fischer

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PLEASE SEND IN 2022 DUES

Club dues are due as of Jan 1st, 2022. Go to
https://www.qsl.net/w3km/MtAiryRC_Dues.htm and
use the "check here" link to see if you already paid.
If not, enter your callsign and click on "PayPal"

AS OF 10/5/22 13 DUES REMAIN UNPAID

Dave **W3KM**

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HLV-2000* 5,250	HLV-1470* 4,580		

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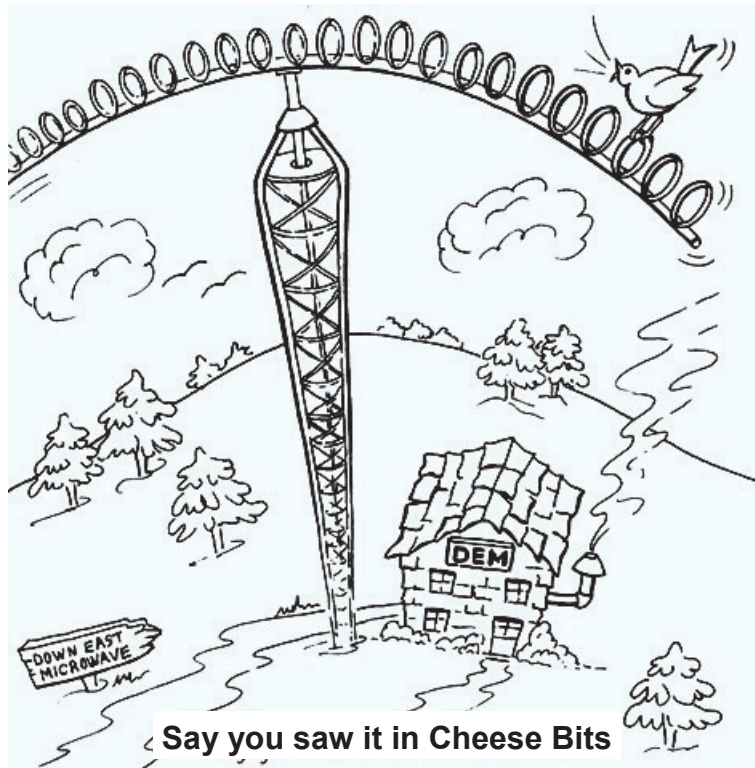
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