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A publication of the Four State QRP Group and OzarkCon QRP Conference

[www.4sgrp.com](http://www.4sgrp.com)

Group callsign WQ5RP

Ozark QRP **BANNER**



Coming soon: Ozarkcon 2015!!!

### **Index**

Ozarkcon update...pg 2.....Repurposing old computer...pg 2  
Triton IV and the Hi-Per-Filter...pg 4.....KB6NU's Column...pg 5  
From The Editor...pg 8

## **Ozarkcon 2015 Update**

### **Paul Smith, N0NBD**

Hello all 4-Staters,

There are only 66 days until the 2015 Ozarkcon. As of this morning there are 38 persons pre-registered for the 2015 Ozarkcon. There are people registered from 11 states and the United Kingdom.

Terry, Sarah, and I will travel to Branson soon to finalize all of the plans with the Stonecastle management. The prize list is growing and looks great, be sure to look at it on the Ozarkcon page. The speaker lineup is a good one and the build session kit is on the webpage as well. It should be a good build and testing to follow.

Follow this link and read up!

<http://www.ozarkcon.com/index.php>

Come join the fun April 10-11 at the Stonecastle Hotel in Branson, MO.

De Paul Smith, N0NBD

## **Repurposing That Old Computer**

### **For the Hamshack**

### **Phil Anderson, W0XI**

I've been on a mission to rebuild my ham station over the last couple of months. I built an Elecraft K3 Kit in December and have now added a P3 Panadapter. Not wanting to use/mix my office Dell computer with my ham shack activities, I decided to either buy another Dell for the shack or repurpose an older Dell or Gateway, both of which I had on hand.

I mentioned this project to my nephew and he came over to take a look at the relics. I was surprised when I looked at the ancient paperwork on the Gateway. Todd told me there was no way I could put system 7 on that Junker. We then looked at the other choice, the Optiplex 330, which was parked unused in the corner and was purchased around 2008. Yeah; it's a relic too but not quite as useless as it turns out. We took it apart and checked on the processor, RAM and other goodies. He said the processor was adequate but would probably need more RAM to run my station needs.

Given that we ran some tests. We erased the contents on the DELL 330 hard drive and installed System 7 Professional with just the basics: no Word, Excel, or any other Office stuff. We added AVAST security and the hard drive was big enough for my station needs. With that configuration the computer came up fine but had little RAM left for applications. We checked the RAM sticks and found two 1 GB each, which was not quite enough. System 7 took most of that to run! Given the number of programs I'd be running on the shack station, we figured two 2 GB sticks would do it; so, we just doubled the RAM to 4 GB. I found two of the 2 GB DDR2 sticks at Best Buyer for \$39 each, completing the computer repurpose! The Dell 330 is running great now.

Since I purchased the Elecraft SVGA (flat screen driver option) with the P3 Panadapter, I could use the 19 inch monitor from the old 330 Dell system so I could have a large screen version of the P3, much better for my 73 year old eyes. The VGA screen plugs into the P3 itself, thus leaving room on the Dell 330 for one station/computer monitor. While I could have purchased a card to support dual-screens in the shack with the Dell, I didn't have to. I found a new and shiny HP 23-inch diagonal flat screen at Best Buy on sale for \$129. That brought my total repurpose expense to \$207! Not bad given the goodies the station gained. What remains to be added and configured is perhaps a free copy of N1MM+, CW skimmer and moving my log data, programs and contest programs over from the office computer to the not-so-new but shiny ham shack computer! Both computers are cabled/supported by my Linksys router which is attached to the local cable vendor.

My station now has this panoramic view, left to right:

\*computer with keyboard, 23" screen, mouse and USB sockets,

\*SteppIR Vertical Antenna control box,

\*K3 transceiver, P3 with added 19" screen monitor, USB to serial port connection back to the computer, and an Astron metered supply.



## Triton IV and the Hi-Per-Filter

### Bill Allen, W0WCA

**Ed. Note:** This article originally appeared on the [www.eham.net](http://www.eham.net) website on Dec 26, 2014. Because one of our kits is central to it, I decided it was worth reprinting here in it's entirety. Reprinted with express permission of Bill, W0WCA (the original author) and Mike, N2MG (the webmaster at eham.net).

Last month, I decided that I must have a Ten Tec Triton IV. I don't know why I decided this but there are many things in my life that probably want explaining. To this end, I am envious of W. Nelson who "has a long list of real good reasons for all the things I've done". But I digress. Found my Triton IV on Qrz.com, sent some money and in about ten days, here she came. My Triton IV was labeled Model 540. Same radio just a different label; long story. The radio was actually in pretty decent shape; a bit dirty (the thing is probably 35 years old), the dial cord wanted fixing, the calibrator needed calibrating and it needed one new knob from Ten Tec and a new meter bulb from bubs are us.

So, after making an "interchange" cable (four pin inline jack on one end and ¼" stereo plug on the other) for my trusty D-104, I got it on the air. Surprise, surprise, what a great little radio, a definite keeper! Receive audio (once you re-orient yourself to tuning an analog radio) is GREAT and very good audio reports from the other end! Happy am !

Now for the real fun. As it turns out, my new treasure does not have the optional CW filter. Additionally, and as the radio is three decades old, the factory optional filter seems to be in the category on "un-obtainium". After scouting around a bit, I decided to send twenty bucks to the Four State QRP Group for one of their Hi-Per-Mite CW filter kits. This is actually a very fine little kit with the one exception that it makes use of several "box" type capacitors that were unfamiliar to me. They have a different marking system that caused me some confusion. But then I'm old and ugly and easily confused – but I digress. At any rate I got the little filter soldered together and was very pleasantly surprised at just how well it worked! It has a 200-hertz pass-band at the –3 DB points and plenty of power to drive a small speaker. It is very nice indeed.

Now to back up just a little bit, in my Google search for the factory optional filter I did come upon a page from some Ten Tec manual the provided a circuit diagram and other information regarding same. Also, I need to mention that the Model 540 has a front panel control for the optional filter. Are you beginning to see where this is going? I took the bottom off the radio and found the terminal block for the factory optional filter and determined that short lengths of #18 solid hook-up wire would work for "pins" to plug into the terminal block. Hooking up the Hi-

Per-Mite into the block for the Factory optional filter was not an easy thing for me; it actually took three or four days of referring back to the paperwork and stopping to think about it and back and forth and back and forth. Finally there was a laborious conversation with my friend Mark, KC0FNS, and it was decided that there are two input wires, two output and two power wires on the Hi-Per-Mite and there were like receptacles in the filter block in the Triton. It took about ten minuets to solder my #18 pins on the filter wires and about a minuet to plug 'em in. The one exception was the power ground, which had to go to an existing ground lug.

Now another hour spent in looking at the installation and the diagram and back and forth some more. Finally, with the Triton IV still upside down on the bench and with the bottom cover still off, it was with the greatest trepidation that I pushed the button to feed the thing with the purest filtered and regulated 13.8 volts that I had available. No smoke – awesome! Turned the volume up slightly and noise comes from the speaker – voila! Now for the big test I switch the front panel switch to the CW-1 position where previously there had been no sound at all from the speaker. Now what I hear is background noise but at a diminished level. As a first test, I turn on the calibrator and dial it in through the speaker – OK fine I hear it and wonder of wonders, when I dial just a bit off frequency the beeping of the calibrator goes away! Now as a further test, I switch back to the CW-2 position (no filtering) and there is the broader, off frequency calibrator beeping away as expected. Subsequent on-air tests have proven the Hi-Per-Mite filter to be pretty excellent and the installation into the Triton IV in place of the unobtainable factory optional filter well worth doing. The filter not only filters out off frequency signals but also slightly increases the volume of the desired signal while at the same time lessening the ambient background noises.

I present here to encourage others to resurrect the old rigs and to go ahead and experiment with "upgrades". You'll have fun and garner huge satisfaction!

Happy tinkering!

**Dan – KB6NU's Column**  
**With Just a WSPR**  
**Dan Romanchik, KB6NU**

It's really amazing what you can do with computers in amateur radio, and there's been an explosion in the number of digital modes. One interesting mode that I've recently been introduced to is WSPR, which is short for Weak Signal Propagation Reporting. The protocol and the original WSPR program was written by Joe Taylor, K1JT, and is designed for sending and receiving low-power transmissions on the HF bands to test propagation paths.

I won't try to cover all the technical details here. There are several sites that cover them pretty well:

\* Wikipedia: WSPR

([http://en.wikipedia.org/wiki/WSPR\\_%28amateur\\_radio\\_software%29](http://en.wikipedia.org/wiki/WSPR_%28amateur_radio_software%29))

\* G4ILO's Shack: WSPT - Distant Whispers

(<http://www.g4ilo.com/wspr.html>)

I was introduced to WSPR by my friend, Joe, AC8ES. He posted a message to our club mailing list asking if anyone had a toroid core that he could buy to make a QRP balun for 10 MHz. When I asked what he was going to use it for, he said that he was making a WSPR transmitter with a Raspberry Pi, and the balun was for the dipole he built for it. He said that he'd gotten roped into doing this because he'd attended a local Raspberry Pi users' group, and when he mentioned he was an amateur radio operator, they encouraged him to try this project.

How could I refuse a request like that? I have a whole kit of ferrite cores, and after some back and forth, we found a small core that he could use.

The software he chose is WsprryPi (<https://github.com/JamesP6000/WsprryPi>). It's described a "Raspberry Pi transmitter using NTP-based frequency calibration." It uses a GPIO port to generate WSPR signals anywhere from 0 to 250 MHz. Joe said that there are several Raspberry Pi programs that run WSPR, but that he chose this one because it seemed to have more features than the others.

Figure 1 shows Joe's setup. Since the output generates a square wave, a low-pass filter is needed to filter out the high-frequency components. As you can see, the GPIO output is fed through a 0.1uF decoupling capacitor into a Mini-Circuits 10.7MHz low-pass filter, then to a 1:1 balun, which is connected directly to the dipole elements.

Joe says, "The antenna is just a dipole taped up to the walls of my living room and hallway." As you can see he made the balun and dipole from 24 ga speaker wire.

The performance of this setup has been kind of amazing. In one e-mail, Joe reported, "Your toroid seems to be working well. Got the balun and antenna finished and executed seven WSPR transmissions from the Raspberry Pi. The WSPR reporting website WSPRnet (<http://wspnet.org>) came back with a couple dozen reception reports; typical distance is ~300+ miles, max was 593 miles." In a second e-mail, Joe writes, "Did a few more beacon transmissions and checked the WSPR signal reports again. Someone picked up my 5 mW signal from 1010 miles away in Canada."



Fig. 1

Joe's turned into quite a WSPR fan. He's even written an Android app - WSPRnet Viewer

(<https://play.google.com/store/apps/details?id=com.glandorf1.joe.wsprnetviewer.app>) to retrieve and displays report from [www.wsprnet.org](http://www.wsprnet.org). Tapping on a specific report displays more details about it, along with a world map that shows transmitter and receiver locations.

Unfortunately, I don't have a Raspberry Pi, or I'd try this as well. I do have a BeagleBone Black, but there doesn't seem to be software that I can download and install as easily as the Raspberry Pi software. That being the case, this might be a good excuse to purchase one of those new, cheaper RPis.

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When he's not digging through his junk box or teaching amateur radio classes, KB6NU writes about amateur radio at [KB6NU.Com](http://KB6NU.Com). He has just released *The CW Geek's Guide to Having Fun with Morse Code*. The book is available on [Amazon.Com](http://Amazon.Com) or on [KB6NU.Com](http://KB6NU.Com).

## **From the Editor Life Stinks & BE SAFE**

I'm sure many of you have noticed, this issue of the Banner is much later than usual. I sincerely apologize for that! Unfortunately, "real life" has intruded way too much since the last week of January! First off, we had a big deadline at work, which necessitated 10-12 hours days a lot of the time. Robin came down with an ear infection combined with a nasty cold/flu bug during the last week of January, and still to this day is not quite over all of it. However, that's not the worst of it!

My parents have been working off and on over the last few years to remodel their house, one room at a time. As of the first of this year, they had one room left – their spare bedroom. Since my father retired a couple of years ago, he has a lot of time on his hands, so this winter (non camping season!) he decided to get that final room finished. On February 5, he was working on cutting a board to help rebuild the doorframe, when the board kicked out of the table saw in his garage, and his thumb got caught in the blade. The next day, he had surgery to remove the tip of his right thumb, down to the first joint. He was worried that leaving things as they were until he healed would cause damage to the house, so I spent the rest of that weekend helping him get to a point where he was comfortable with leaving it until he healed enough to continue.

I know this isn't exactly Ham Radio related, but the accident happened because he didn't take proper safety precautions. However, in the ham radio world, there's plenty of similar things that can happen! High voltage power supplies, RF burns, even a drop of solder, can cause injury! We are all tinkerers and builders at heart, so PLEASE all of you, make sure you take proper safety precautions at all times!



## Four State QRP Group

is meeting at the Country Cupboard Restaurant in downtown Seneca, Mo. This is one of the locations that 4SQRP folks gather.



The Country Cupboard has a nice menu and they have a separate meeting room we can use.

The Country Cupboard restaurant is located in the first block north of the blinker light in downtown Seneca. From Barney's, head north on Cherokee Street (that's the main street of town). Go across the railroad tracks and keep going past the blinker light stop. The restaurant is located at 1038 Cherokee street, on the west side of the street.

Caution: If you are headed north, do not make a left "J turn" into a parking spot. "J turns" are illegal in the downtown area. Keep going north past the restaurant till you reach the residential area north of downtown where a "U turn" is permitted. Make a U turn there (it's a wide street) and come back to the parking in front of the restaurant.

Our group is an informal organization with no officers, no rules, no dues or any other things to get in the way of having fun with QRP. **We get-together monthly for lunch and the sharing of ideas and information, parts swapping and just plain fun on our normal third Saturday of a month.**

All ham radio amateurs (or prospective hams) are invited to participate.



The Four State QRP Comfortable nets meet each Wednesday night beginning at 7:30 PM CDT, 0030z.

Note: on Nov 6 we'll be on CST.

If we have to QSY, I like to move up, Wayne likes to move down, and Dick doesn't have to move much at all.

Add anything to the exchange that you wish, temp rig, ant, etc. Checking into all sessions is encouraged.

7:30 CDT 0030z ... 40M CW Net on 7122, KCØPMH NCS

8:00 CDT 0100z ... 80M CW Net on 3564, WAØITP NCS.

8:30 CDT 0130z ... 40M CW Net on 7122, KCØPMH NCS

9:00 CDT 0200z ... 80M PSK Net on 3580.5, NØTGR

**Thursday mornings ~ 8 to 8:30am**  
**A gathering of CW ops are having fun on**  
**7.122 MHz**  
**....and you are invited!**

**Join us on the air on the second Saturday of**  
**each month for the 4SQR "SSS" – Second**  
**Sunday Sprint – 7-9PM Central time**  
**See: <http://www.4sgrp.com/4sgrpOnTheAir.php>**  
**for rules and log submission!**

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