

PVRC Newsletter

April 2012

President's Letter – Rich NN3W

In case you've been hibernating, spring has arrived to the Mid-Atlantic and signs of the season are everywhere: birds are chirping, flowers are blooming, spring green leaves are appearing on the oak, maple, and poplars, and life is good. Too bad the Sun hasn't cooperated.

I am sure you've noticed, the Sun has had quite a fit of indigestion and has seen fit to spew wave after wave of solar energy, protons, gasses, and whatever noxious materials it can come up with – just in time to put a damper on not only the ARRL DX SSB test in early March, but also the Russia DX test two weeks later. I know, with where we are supposed to be in the sunspot cycle, we should be going gangbusters on both 15 and 10 meters – working DLs and SPs off the front of the yagi, and being called by ZLs and FO8s off the back. But, alas it was not meant to be. Nonetheless, dozens of you PVRCers managed to get on for one or both of these contests and have an inordinate amount of fun. This is contesting!

Of course, that brings me to a recently developing topic.

N4AF made mention of the fact that PVRC has managed to “slink” its way up the scoring ladder in the ARRL DX test and may very well be in a position to actually win the Unlimited Club Competition in ARRL DX. I have *no* idea when this was last accomplished, but I think it's a tremendous feat if the club manages to pull it off. More importantly, it is a feat that I would really like to see encouraged in the WPX contests (where we have traditionally done quite well), and this coming fall in the CQWW tests. Perhaps one of the club gurus can let me know the last time 1) PVRC won the ARRL DX club competition; and 2) PVRC won the CQWW DX club competition.

Speaking of club competitions, I want to congratulate each and every one of you that participated in last year's running of the November Sweepstakes. As you all have undoubtedly heard, the “initial” results of the SSB leg of SS were announced last week, and with it, the final tally of the club

competition. PVRC outdid itself once again and topped our most worthy rivals (the Northern California Contest Club) by **eight million** points! This represents the third SS victory in a row for PVRC and is a great victory – especially given that SS typically favors central USA and west coast stations. Not only was it great in total score, but it was also great in that the club managed to *increase* the total number of logs submitted – reaching nearly 300 logs. This is noteworthy given that there were some rumblings last September and October as to whether we were really serious about competing in SS in 2011. I think we've put that issue to rest, and certainly believe we can break the 300 log marker in 2012.

If SS wasn't enough, word has gotten out (thanks NR4M) that PVRC won the club competition for the USA for the 2011 running of the WPX contest, and was #2 in the world. Multiple PVRC teams took top honors in various categories – including NR4M, KD4D, WX3B, and NY4A. Can we break #1 in 2012? We'll see...

Finally, I'd like to take a moment (and a little presidential privilege) to express a little gratitude and thanks to someone who has made much of my contesting career and

radio experiences possible. As some of you may have heard, my father passed away on March 1, after a very long illness. It is still a shock, but not entirely unexpected. While he was never a ham, he did work in avionics for North American Aviation and then Rockwell-Collins. I credit him for much of my entrance into ham radio including: taking me to my Novice/General license prep classes, driving me up to Ramona to K6XT's and N6ND's before and after contests, buying me my first real modern HF transceivers (a Kenwood TS-180S and then a TS-930S), building my first real station operating bench (it was quite spacious), driving me to/from various Field Day events, and being completely supportive of my crazy hobby interest. Much of my motivation and interests are due to his patience, understanding, and willingness to help his son out. Hopefully many of us had the pleasure and joy of having had such a wonderful man guide one through their youth.

He'll be and is already terribly missed. Thanks, Dad.

73, Rich NN3W

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Adding a Separate RX Antenna Input to the TS-850, revisited - Art K3KU

The basic ideas here are not new - hence "Revisited). I've included some info about differences between two already published methods. I have also provided sources for some of the needed materials (I have some extra on hand if anybody wants it), and construction detail for the approach I used. – K3KU

The Kenwood TS-850S (or SAT, with the optional antenna tuner) is an "oldie but goodie", still used in the contest community – pretty good performance, reasonable set of features, moderate cost, and can be interfaced with a computer. One of its major shortcomings is that it does not have an input for a separate receive antenna. Its antenna connector comes directly to circuit Board 3 of the "Filter Unit" (X51-31000-00), where the antenna relay switches it from receive to transmit.

Figure 1 shows Board 3 itself (the photo is from a sale on eBay; K4QPL bought the board). Figure 2 shows the board in-place at the rear center of the radio's top side. Figure 3 is the schematic.

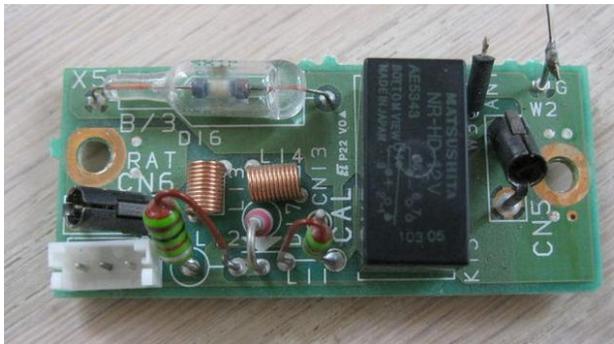


Figure 1. "Filter Unit" Board 3



Figure 2. "Filter Unit" in radio

The little tiny coax connector CN5 brings the TX (Antenna Tuner) output into the relay. CN6 sends the antenna signal out to the RX. Note in Figure 3 that the Board 3 has "RF Limiter" diodes (D17, D18) and a low pass filter between the relay and CN6.

Hams long ago worked out modifications to get a separate input for a receive antenna. This web page has two: <http://www.radiomods.co.nz/kenwood/kenwoodts850.html>. Both approaches break out the RX side of the antenna relay and give access to the RX antenna input. You can use the separate RX ANT input for a receive antenna, or you can insert a filter or pre-amp between the antenna and the RX input, or you can connect the cables together to restore "original" operation.

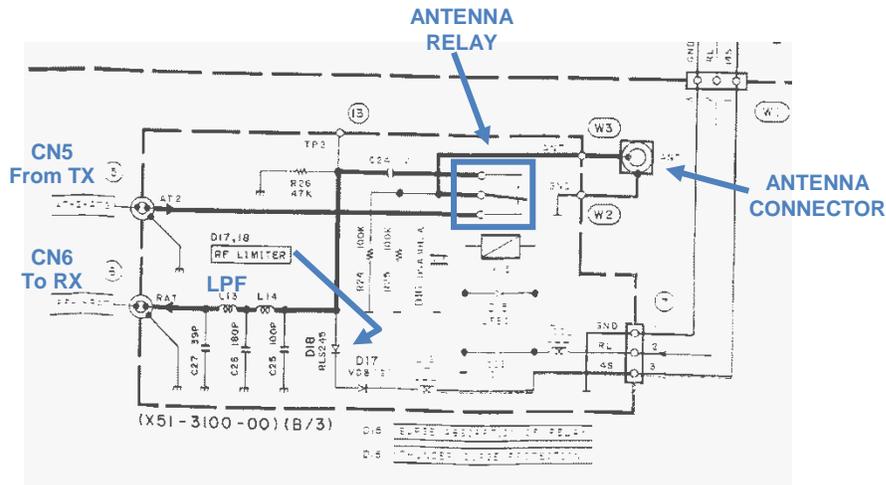


Figure 2. Schematic of "Filter Unit" Board 3

On that web site WA3WJD (now known as PVRC's own N3OC) uses a simple approach. He unplugs the mini-coax at CN6 and constructs mating cables that get routed outside the radio. *If you use this method with a receive antenna, you lose the functions of the "RF Limiter" and the LPF on the Board 3.*

N6TR cuts trace on the circuit board right at the receive side of the antenna relay, and adds RCA-type phono connectors on the rear panel.

I did not want to cut and drill my radio (I hope that my heirs will be able to sell it to a collector), and my main goal for the mod was to insert a [commercial high pass filter](#) to get rid of some of the crud from WFED's 50KW on 1500 KHz, two miles from my house. Therefore, I chose to use N3OC's approach.

My first problem was to find a way to route the two cables out of the radio without drilling holes. I noticed gaps around the ACC connector on the rear of the TS-850, and I found that I could fit mini-coax through there without blocking the connector (Figure 4). I also found a passageway in the metal work between Board 3 and the ACC 4 connector (Figure 5). So, I had a way to route the cables.

Now I needed two mini-coax cables, one with one of those male tiny coax connectors, and the other with a female connector. Fortunately, queries on the PVRC Reflector led me (thanks to N3AM, W3LPL, K8GU, K3STX, and K4ZA) to [The RF Connection](#) for RG-174/U and Taiko-Denki TMP connectors.

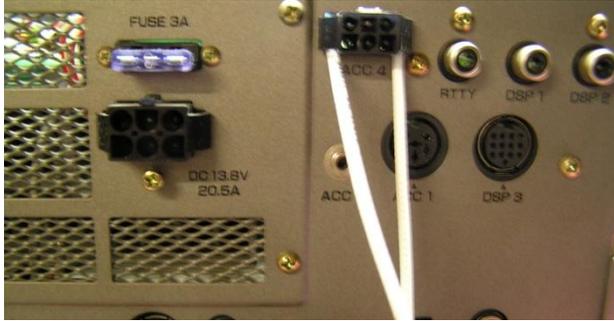


Figure 4. Cables exiting through gaps by the ACC 4 connector.



Figure 5. Passageway between Board 3 and the ACC 4 connector

I found instructions on-line for installing the male connector [here](#).

Well, that big crimp tool sure is special ... and expensive. Since I have always been leery of crimped connections, I figured out a good-enough way. (I did find on-line a guy saying he made a crimp tool by clamping together the jaws of cheap long-nose pliers, and drilling a right-size hole through the jaws; but I can't find the link now.) I used only one pigtail of the braided shield (Figure 6). I used a pair of pliers for crimping (Figure 7) and I soldered the braid-to-crimp joint (Figure 8). At Radio Shack I found some 0.022" diameter solder for doing the center pin. The finished job (Figure 9) looks almost as good as Kenwood's professional cables.

NOTE on soldering: These connectors and the RG-174 are small, and all the plastic will melt – no Teflon®. You must use low heat – a soldering iron, not a gun – and you must work fast.



Figure 6. RG-174/U prepared for installing male TMP connector



Figure 7. Using pliers to crimp the male TMP connector.

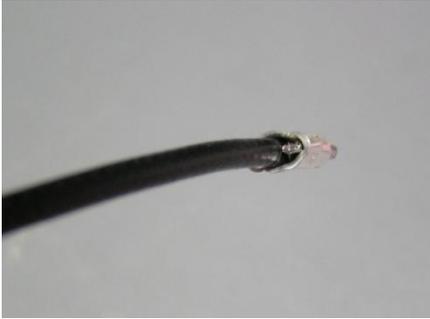


Figure 8. Braid crimped and soldered.



Figure 9. Male TMP connector installed.

Putting the female PWB-mounting TMP connector (Figure 10) onto the end of the RG-174/U took a little more creativity. I figured out a method whose soldered connections are mechanically weak, especially for the center conductor. I use multiple layers of heat-shrink tubing to give some strength.

NOTES on heat-shrink tubing:

1. I first tried a small kit of various sizes/colors from Radio Shack. It did not work very well -- wide gaps in sizes, and low shrink ratio (especially when I was using a hair drier). At Home Depot I found a 160-piece kit of assorted sizes, black, from Gardner Bender. Closer spacing of sizes, and much better shrink ratio (especially when I went to direct radiant heat from a soldering iron). It's not showing up on the web, so I can't provide a link.
2. Heating with a soldering iron held close to -- but not touching -- the shrink tubing is probably necessary because this assembly requires multiple layers of heat shrink in tight quarters. A hot air gun would shrink nearby pieces that are not yet in place.

I clipped off the mounting legs (shield connection) from the shell of the connector, and made sure the center-conductor pin was sticking out straight (Figure 11).



Figure 10. PWB-mount female connector.



Figure 11. Legs removed.

I slipped two pieces of heat-shrink tubing (1/8" and 3/16" dia), about 2" long, over a piece of cable. I removed 1-1/2" of outer jacket from the end of the cable, and pushed the shield braid

back (Figure 12). I cut the center conductor to 1" beyond the end of the outer jacket. I stripped off about 3/16" of the inner insulator, and lightly tinned the center conductor (work fast!).

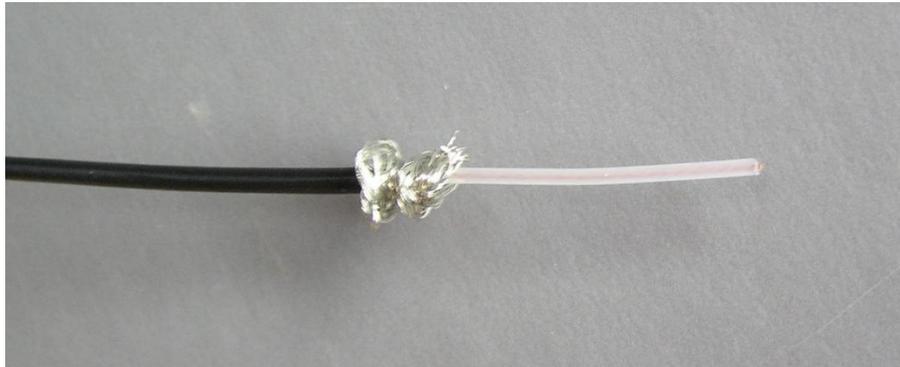


Figure 12. Coax braid pushed back.

The next step is to slip a piece of 1/16" dia, 3/16" long heat-shrink over the center conductor. When I had tinned the center conductor its insulation had swollen (I did not work fast enough). So, before I slipped on the skinny heat-shrink I had to trim off about 1/16" of the inner insulator and trim the end of the center conductor similarly.

Then I placed a 3/4" long piece of the next-larger tubing (3/32" dia) over the center conductor and the short piece of skinny tubing. Figure 13 shows this assembly.

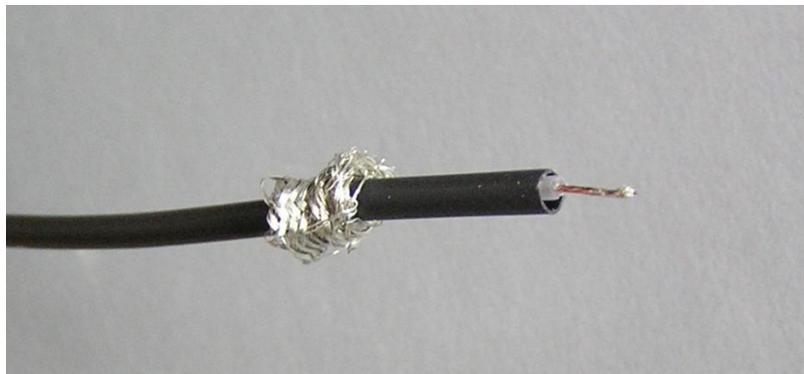


Figure 13. Coax end prepared (inner piece of heat-shrink hidden inside outer piece).

The next step was the trickiest part, requiring fast soldering and more than two hands. Holding the heat-shrink back, I made a lap solder joint between the center conductor and the pin of the connector (Figure 14). The wire goes on the "top" side of the pin, toward the axis of the connector. You have to solder fast to prevent pre-shrinking the heat-shrink or swelling the center insulation of the coax.

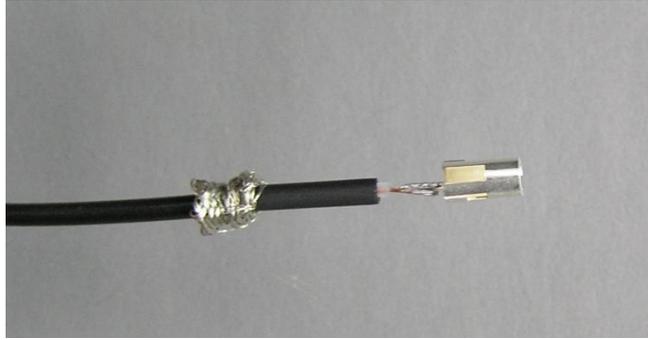


Figure 14. Center conductor lap-joined to connector pin.

Then I slid the short, skinny heat-shrink out of the larger heat-shrink, and over the lap joint, and shrunk it with the soldering iron (Figure 15; be careful not to shrink the larger piece!). Then I slid up the larger piece of tubing and shrunk it in place (Figure 16). The two layers of heat-shrink give a little strength to the joint.



Figure 15. Inner heat-shrink in place.



Figure 16. Outer heat-shrink in place.

Next I pulled the braid back up over the bottom end of the connector and tack-soldered it to the shell, making sure the braid was soldered all around, even where there were gaps in the shell (Figure 17). (Again, work fast!) I trimmed the loose ends of the braid.



Figure 17. Braid soldered to connector shell.

To finish this assembly the two pieces of heat shrink are slid up the coax and shrunk in place. The inner piece fits to about where the braid starts to flair out, and the outer piece comes up over the shell of the connector (Figure 18). (In fact, it could come up to the

rim of the shell.) Again, the two layers of heat-shrink give some strength to the assembly.



Figure 18. Completed female cable-end connector.

Now I had the two cables prepared, ready to install. (The cable construction photo's have black cable with black heat-shrink. My own cables, shown in the installation photo's, are white, with red and blue heat-shrink.) I fed the cables' free ends through the gaps by the ACC 4 connector from the inside (Figure 19; see Figure 4 for the outside view).

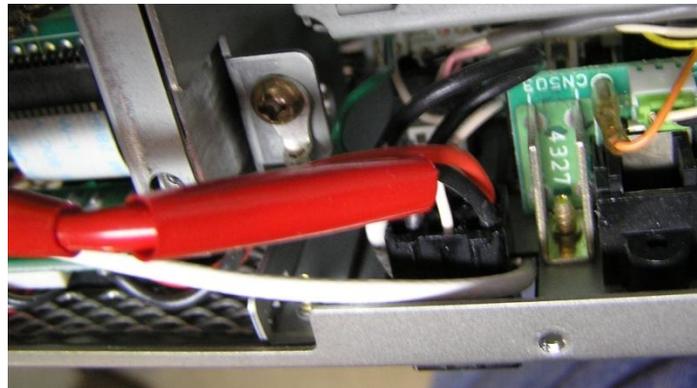


Figure 19. Inside view of cables routed through gaps by the ACC 4 connector.

I routed the cables over to the board and plugged them in (Figure 20), and tucked them into place (Figure 21). I put a piece of un-shrunk tubing (blue in Figure 20; red, in Figure 21) over the cable-to-cable connection to keep it from shorting anything.

Button up the radio, install connectors of your choice on the outer ends of the coax, and you're ready to go.

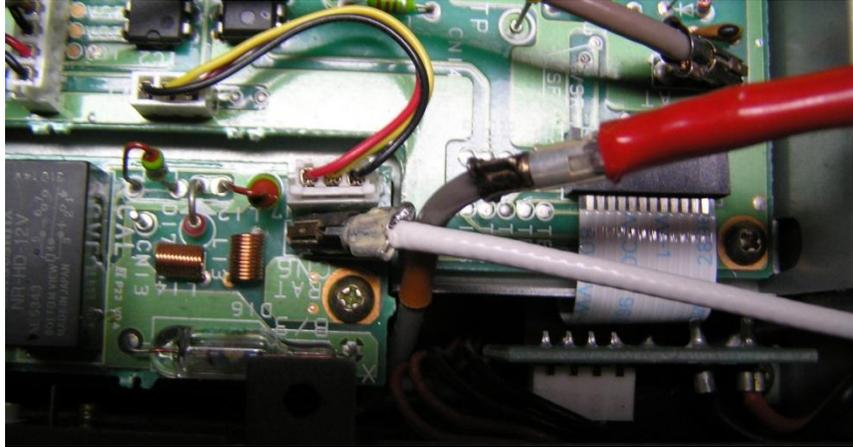


Figure 20. Cables plugged in at "Filter Unit" Board 3 (view from rear).

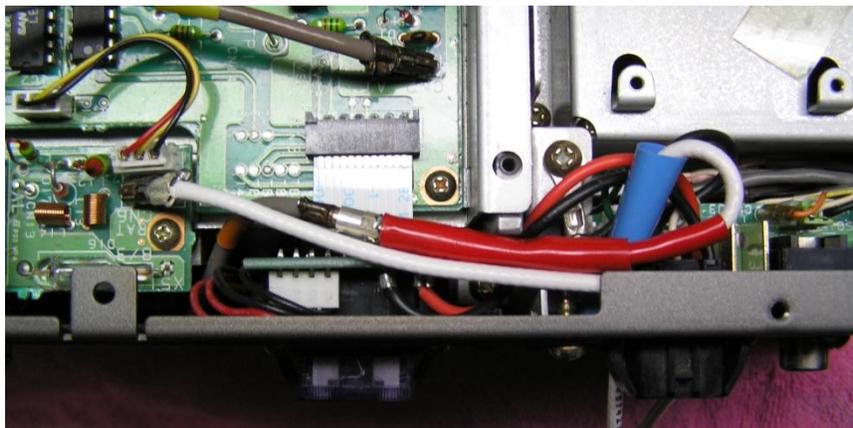


Figure 21. Cables tucked in place (blue tubing was later replaced with red).

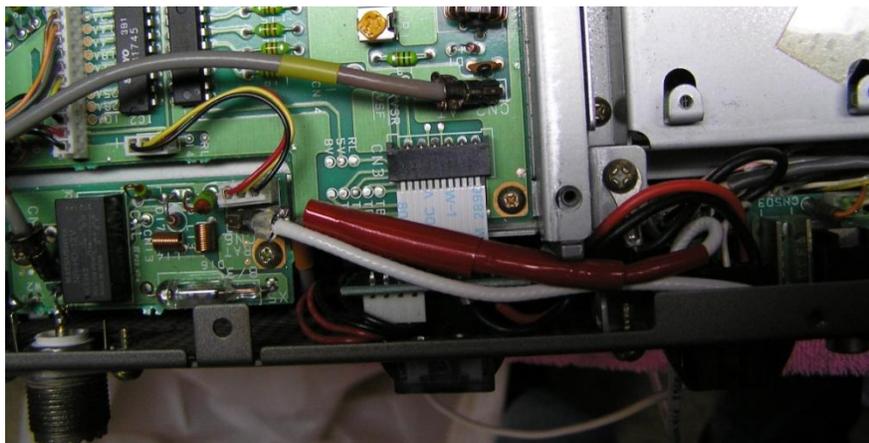


Figure 21. Installation complete; loose tubing (red) slid over cable-to-cable plug connection.

TI5W Record Setting Multi-Multi – Jim WX3B

Here are a few photographs from the record setting TI5W M/M effort from February's ARRL DX CW contest. These pictures are taken in Costa Rica and Kam N3KS's home.

My favorite picture is the suspended 3 element 10 meter Monobander (below), which was installed "field day style" with a rope boom and it was literally twisting in the wind.



Other pictures include Kam's tower chock full of nice antennas: from bottom to top: Force 12 2 element 15m monobander at 25 feet; SteppIR 3 element yagi at 35 feet, and a Log Periodic at the top of the tower.



The 80 meter array (not a great picture) is made of two full size aluminum verticals and there were about 130 radials under the array. Tom N11N loves radials:



Southern Maryland PVRC Chapter Meetings to Restart – Tom AB3IC

The Southern Maryland PVRC Chapter is starting (or re-starting, as you please) meetings in St. Mary's county. At this initial meeting we'll be discussing future meeting dates, times, and locations. A short presentation about PVRC for potential members will also be made.

This Chapter primarily serves the needs of the Hams in St. Mary's, Calvert, and Charles counties. Of course, meetings are open to all PVRC members.

When: Tuesday, April 3rd, 2012. From 6:30PM until 8:00 PM.
(We have the meeting room starting at 5:30 if you'd like to drop in earlier for an eyeball ragchew)

Where: St. Mary's County - Charlotte Hall Library - 37600 New Market Road, Charlotte Hall, MD 20622 (NW Corner of Rt. 6 and Rt. 5/235) GPS: 38.473358, -76.777733

Wayne Rogers (N1WR) will be the chapter chair. For more information contact Wayne (n1wr@chesapeake.net) or Tom, AB3IC (GL1800Winger@verizon.net).

Upcoming Webinar: Getting Started In Digital Contesting - Ken K4ZW

Steve Ford, WB8IMY, QST Editor/Publications Manager will provide a beginner-level introduction to digital contesting with discussion of equipment, software and techniques.

Date: Sunday, April 1

Time: 3 PM EDT (19:00 UTC)

Registration (free): <https://www2.gotomeeting.com/register/982837010>

(registration link also posted on www.pvrc.org under the Upcoming Webinars link)

Upcoming Contests and Log Due Dates

Contests This Month

- Apr 1 – UBA SSB
- Apr 7 – SP DX
- Apr 14 - JIDX CW
- Apr 14 – Yuri Gagarin DX
- Apr 21 – Holyland DX
- Apr 21 – YU DX

Logs Due This Month

- Apr 3 – ARRL DX SSB
-

See WA7BNM's [Contest Calendar](#) for more detail and the latest information.

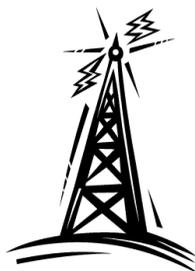
The Editor's Last Word – John K3TN

The March/April issue of the National Contest Journal has an article by Rich N0HJZ: "Contest Club Comparisons" He added up the club scores for the major contests in 2010/2011 and then added a "growth factor" giving additional points for which clubs grew fastest from 2010 – 2011. PVRC came out as the highest ranked club, with YCCC, NCCC, FRC and the Minnesota Wireless Association filling out second through fifth. Pretty cool to see.

When I was a Johnny novice ham, I would look at those pictures in QST of people's shacks and there were two things I'd see that seemed like that defined "real" ham shacks: those 5BDXCC or 5BWAS plaques on the wall and that station monitor/bandscope on the desk. Well, thanks to LotW I now have the plaques, and thanks to Santa (K3YDX's wife) giving Hank a P3 he didn't really want, I will soon have one of those bandscopes in my shack. Now all I need is a pointable, resonant antenna...

Thanks to Art K3KU and Jim WX3B for submissions for this month's newsletter. If you have any post-contest write-ups, embarrassing pictures or soapbox items, drop me a line [here](#).

– 73 John K3TN



Eyeball QSO Directions

The latest info on local club meetings and get together will always be sent out on the [PVRC reflector](#) and posted on the PVRC [web site](#).

NW Region:

Meetings are generally held on the third Tuesday of each month at the City Buffet, 1306 W. Patrick Street, Frederick, MD. (301) 360-9666. It's in a small shopping center. Most arrive about 6 PM for dinner and informal discussions. The meeting begins at 7:00 PM.

From W. Patrick Street, turn up McCain Dr. (the Mountain View Diner is on the corner), then turn right into the shopping center, then turn left and search for a parking place. The City Buffet is tucked back in the left corner of the shopping center behind the Mountain View Diner. You can't see the City Buffet from W. Patrick Street.

Contact: Jim [WX3B](#)

Central Region

Meets monthly the second Monday of each month, except June, July & August). The location alternates between the below MD and VA locations. Pre-meeting dinners start at 6:00 pm and meetings start at 7:30 pm.

VA LOCATION: Anita's, 521 E. Maple Ave, Vienna, VA. Tel: 703-255-1001. Meets at this location during the months of February, April and October.

Contact: Rich [NN3W](#)

MD LOCATION: Max's Café. 2319 University Blvd W, Wheaton MD 20902. Tel: 301-949-6297
People usually begin arriving at the restaurant around 6:30. Meets at this location during the months of January, March, May, September and November.

Contact: Art [K3KU](#)

The Laurel, MD Region: Bill N3XL

The PVRC get together is held at the first LARC meeting each quarter at the clubhouse.

The Annapolis Crew : Dan K2YWE

Meetings are held on the 4th Wednesday of each month at Broadneck Grill in Annapolis. We gather at about 5:30 PM and order dinner about 6. We break up usually before 8 PM. E-Mail [K2YWE](#) to be put on the e-mail reminder list.

PVRC-NC

The PVRC NC-East chapter meetings are held at [Manchester's Bar and Grill](#) on the 9100 block of Leesville Rd. in North Raleigh, with "QRM" beginning at 6:00pm and the dinner meeting following shortly thereafter. The meeting is held monthly on the 1st Thursday of most months, cancellations or changes usually announced on the [PVRC-NC website](#).

[The PVRC NC-West Chapter](#) holds its meetings on the 4th Monday of each month at [the Mellow Mushroom](#), 314 W. 4th St., Winston-Salem, NC. Ragchew at 7:00pm, dinner meeting starts at 7:30pm. All contesters and interested guests are invited!

Central Virginia Contest Club: Ed NW4V

Meets the first Tuesday of the month at St. Martins Church, 9000 St. Martin Lane, Richmond VA, (between W. Broad St. and N. Parham Road). Our meeting begins at 7PM.

Over the Hill Bunch:

The group meets for lunch at noon alternately in Maryland at the College PARK Holiday Hotel Route 1 and the Beltway or in Virginia at the Parkview Marriot near route 50 and the Beltway. Meetings generally are held on the last Wednesday of the month and are subject to change. Meetings are announced by E-Mail.

All PVRC members, non-members interested in membership and guests are welcome. For information contact Roger Stephens, K5VRX, 703-658-3991 for Virginia meetings; or Cliff Bedore [W3CB](#) or get on 147.00 for Maryland meetings.

Downtown Lunch Group

Meets on the 3rd Wednesday or Thursday of the month in the downtown area of Washington, DC. Locations occasionally change, but are always Metro accessible. Details are sent out on the PVRC reflector. Feel free to contact Eric W3DQ or Brian WV4V for details and directions.

Southwest VA Chapter:

The Southwest VA group meets each Wednesday at about 8:30 AM at Hardees at 20265 Timberlake Road in Lynchburg, VA. This is an informal gathering, but normally about 10-12 attendees. Contact Mark Sihlanick N2QT, Tel: 434-525-2921

SOMD Region Kickoff Meeting:

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If you'd like to add or correct a listing, contact K3TN for inclusion in the Newsletter!

Now a Word From Our Sponsors

PVRC doesn't ask for dues, but the Club does have expenses. Please send PayPal donations via DAVE@WR3L.NET or by snail mail to Dave's address at QRZ.com. You can also support the Club by buying from the firms listed who advertise in the newsletter, or by getting your company to sponsor the newsletter!

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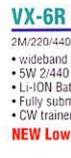
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