JUG
Publication of the Northern California Contest Club
NCCC
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NCCC Net
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Our Next Meeting

Joint Meeting with MLDXC

Program: BS7H

Bob Vallio, W6RGG

Date: Saturday, 7 July 2007
Time: 11:00am schmooze, 12:00pm lunch, 1:00pm program
Location: Senior Center, 229 New York Ranch Road, Jackson, CA.

Directions and Pot Luck details

Go to www.nccc.cc, and select "meetings."

NCCC Officers

President: Bob Tellefsen, N6WG
Vice-President and Contest Chairman: Alan Eshleman, K6SRZ
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Presidential Musings

By: Bob Tellefsen, N6WG

Darn, both sessions of WPX are over now. Boy, they sure went fast. Why is it all my best ideas and best hindsight come to me when the contest is over? I hope everyone has turned in their logs.

Field Day is the next big thing coming up. While not officially a contest, many of us enjoy treating it as one and working to improve on our previous best performances.

I really enjoy working under field conditions. I tell my XYL that it brings out the McGiver in me :-) A hank of wire, some needle-nose pliers, my Swiss Army knife and I'm good to go.

W6V, in the hills behind Fremont somewhere, will be my FD home this year. I haven't been to the site yet, so I'm looking forward to a pre-FD visit. I'll be mostly a swing operator, filling in where needed.

If you are not already involved in FD with some club, please consider at least visiting one or more FD sites and operating for a while. It's a fine chance to point out that FD is a great entry point to contesting in general. Of course, mention of NCCC can't hurt :-)

Come July, we have our joint meeting with MLDXCC up in Jackson. I would like to see a great NCCC turnout, as these folks work hard to put on a great spread for us. The program will be Bob Vallio, W6RGG

talking about the 2007 BS7H Scarborough Reef DXpedition.

You will be amazed at the operating conditions when you see them. Sort of illustrates the idea that an adventure is somebody else having a tough time a long way away.

Enough for now. See you in the contests.

73, Bob N6WG

VP/CC Report
By: Alan Eshleman, K6SRZ

PVRC's recent concession to NCCC of first place in the 2006 Sweepstakes Unlimited Club Competition had a number of consequences. All of them, I believe, will be good for our club.

The first consequence is that we won! We won fair and square. The HMO strategy was once again proven to be a winner, though our competition is rapidly adopting the same tactic.

PVRC failed to keep tabs on how many of their members resided within the 175 mile radius circle that defines a club's territory under ARRL rules. Too many of their points—more than a million--came from stations or operators who resided outside of the circle. Faced with this fact, the PVRC Board of Governors voted 8-4 to concede.

This spurred us on to reevaluate our own club circle to determine if we too had submitted any scores that should not count under the 175 mile radius rule. It turns out we did submit one score from a station outside the circle, but the points were not enough to change the final standings.

Fred, K6DGW, Marc, W6ZZZ, John, K6MM, and Kevin, KE6RAD collaborated on using our club circle and roster to check eligibility. Their analysis revealed some fascinating data--data that we may be able to use capture the SS gavel once again in 2007.

There are some 532 call signs listed on our club roster. Eliminating those that belong to operators or stations outside the club circle, the 45 calls that are club calls, and a few "silent keys," we end up with 402 eligible, voting members who reside and operate from within the circle.

John, K6MM, looked at "logs received" data for 2006 CQP, Sweepstakes, NAQP, CQWPX, and 2007 CQWPX CW. From this data, he determined that only 178 unique NCCC calls appeared. This represents 36 percent of our membership. One hundred thirty individual NCCC member operators contributed to our winning Sweepstakes effort. Thirty-two percent of our membership won the 2006 ARRL Sweepstakes Unlimited Club competition.

We've always encouraged our members to recruit new members, and we continue to do so, but these new analyses suggest another tactic to increase our chances of success: we need to investigate why so many of our eligible members are not entering or submitting logs.

To that end, John has developed—and various officers and members of the BOD have commented on—a questionnaire that will be offered to the nearly 300 non-participants. The thrust of the questionnaire will be to determine *why* a member did not participate and *what* if anything could be done to increase his or her participation. Think of this as *internal recruiting.*

Tentative plans call for volunteers to be responsible for administering the questionnaire by telephone to about ten members per volunteer. If you're asked to help, please consider giving a few hours of your time to this effort.

Marc W6ZZZ has also analyzed the results of 2006 CQP and SS, looking for entries from operators in the NCCC territory who are not members. He found 58 operators

who fill the requirement. We have also developed a plan to go after these operators.

In addition, the BOD llooked at our voluntary dues policy, and at the dues policy of some other major contest clubs. The decision, for now, is to keep dues voluntary, but with the implied expectation that every member—dues paying or not—should make an effort to participate in club competition.

Finally, here are some NCCC results:

NCCC plaque winners for SS Phone 2007:

Unlimited WX5S at W7RN
High Power N6KT at W6NL
Low Power N6NF
QRP N6WG
Multioperator W6YX

K6XX, W7RN, N6WG, N6NF, N6BV, and W6YX all scored in the top 5 for the West Coast Region.

NCCC winners in the ARRL RTTY Roundup

From the ARRL Web page:

From Aruba, Ed Muns, W0YK, operated P49X and set another Single Operator World Record with 2,803 QSOs and 372,799 points.

As expected during the low end of the solar cycle the East Coast has the edge. Setting a new Medium Club record and beating the second place finisher by nearly half a million points was the Potomac Valley Radio Club. The Northern California Contest Club was again second this year. Out of the Black Hole finishing third was the Minnesota Wireless Association with a strong showing in the Medium Club category. They had nearly as many participants as the NCCC.

Twenty-nine of the 43 Pacific Division scores were NCCC entries. You can view the complete results at http://www.arrl.org/members-only/contests/scores.html?rtty_class=&rtty_power=&rtty_sect=Div-PC&clb_name=&ss_call=&sort0=&sort1=&sort2=&con_id=128

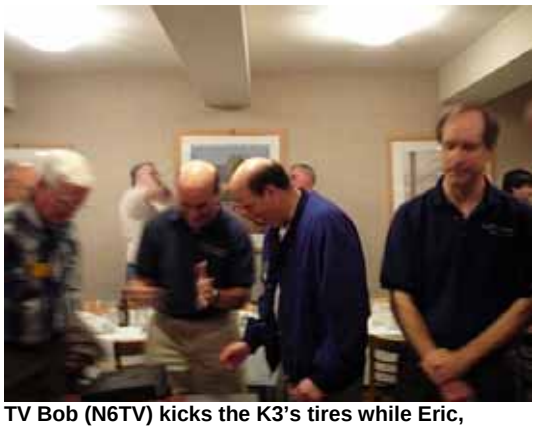
Contests coming up for July include: RAC Canada Day, the Colorado QSO Party, NAQP RTTY (my choice for a possible club win), IARU HF World Championship, CQWW VHF, and RSGB IOTA. There are many other contests is July. For a complete listing see the WA7BNM Contest Calendar at http://www.hornucopia.com/contestcal/contestcal.html

And here's a heads-up from IARU Secretary K1ZZ, Dave Sumner via The Daily DX:

The annual IARU HF World Championship is held on the second full weekend of July. This year it will be held during the 24-hour period from 1200 UTC Saturday, 14 July to 1200 UTC Sunday, 15 July. Rules are at http://www.iaru.org/contest.html. Because this is unusually late in the month for the event to occur, there has been some confusion about the dates. The CORRECT dates are 14-15 July. Any references to 7-8 July are INCORRECT.

Full house shows up at June meeting at Vic's

Wayne Burdick, Elecraft founder and one of the K3 designers, talks about the new "wunder" rig.



TV Bob (N6TV) kicks the K3's tires while Eric, WA6HHQ, another Elecraft founder describes some of the finer points.

The "No-Excuses" 160M Antenna

By: John Miller, K6MM

This antenna is designed for stations having a difficult time putting a decent signal on 160M from small or CC&R'd lots.

It is a 27 ft. vertical antenna, made from three 10 ft. PVC sections bolted together and 1/2 wavelength of antenna wire helically wound around the PVC sections.

A capacitance hat is on top, and the antenna is fed with a 50-ohm feedline.

Total cost for all parts is less than $90 and assembly is pretty simple. Construction time is about 6-7 hours.

Parts List

Home Depot

- one 10' length, 2" diameter schedule 40 PVC
- one 10' length, 1-1/2" diameter schedule 40 PVC
- one 10' length, 1" diameter schedule 40 PVC
- one 1" diameter PVC end cap
- one 2" diameter PVC end cap
- one 1/4" x 3 1/4" threaded bolt
- one 1/4" x 2 3/4" threaded bolt
- one 1/4" x 1 ft. threaded aluminum rod
- two 3 ft. length brass rods
- 4 1/4" diameter nuts (Home Depot)
- 4 1/4" diameter washers (Home Depot)
- one can Rust-Oleum Spray Paint (dark green)

Radio Shack
- 2 packets, multipurpose posts (RS 274-661)
- 1 packet, crimp-on spade tongues (RS 64-408)
- 1 packet, alligator clips (Radio Shack has them)

Misc
- one 500 ft. roll, #14 insulated stranded wire (antenna element)
- one roll of your favorite ground wire for radials (insulated or uninsulated)
- one roll duct tape (2" wide)
- one SO-239 chassis mount coax socket and mounting screws/nuts

Tools Needed
- Soldering iron,
- solder,
- glue/glue gun,
- hacksaw, drill, 1/8" drill bit,
- 1/4" drill bit, felt marker pen

Construction

PVC Painting

Using a can of Rust-0Leum Paint For Plastic, the first step was to make the PVC pipe environmentally friendly by spray painting all 3 pieces green. This was easily done by suspending each 10 ft. section from 2 pieces of nylon rope between 2 branches of a convenient backyard tree.

Prepare the bottom of the 2" PVC section for ground and coax connections. First, place the 2" PVC cap on the bottom of the section to make sure it won't interfere with the coax connector and internal wiring. Use a felt marker to mark the border between the bottom cap and the PVC section. Remove cap.

Drill holes for the SO-239 center section and attachment screws. I centered my connector 2-

1/4" from the bottom edge of the section.

Drill 1/8" holes for the binding posts and ground-to-SO-239 hole. I made one antenna post hole and 2 ground post holes. (Note: In retrospect, 3 ground post holes would be better, placed 120 deg. apart).

Antenna post is placed 2" from the bottom edge and ground posts 1-1/2" from the bottom edge to prevent shorting. I placed the antenna post about 45 degrees from the coax connector. 1 ground post was placed immediately beneath the coax connector and one other was placed on the side of the PVC opposite the coax connector. Stated another way, place the 3 binding posts equidistant from each other around the PVC section, antenna post 2" from the bottom, and ground posts 1-1/4" from the bottom. Write "A" next to the antenna post hole and "G" next to the ground post holes.

Coax Connector/Antenna Binding Post Preparation

Solder a 4" piece of #14 insulated wire to the center connector of an SO-239. Push the wire into the prepared SO-239 hole in the 2" PVC tube and attach the SO-239 to the PVC using 3 of the 4 mounting holes. Attach the other end of the insulated wire to the inner section of the antenna post using a spade tongue. Secure with the binding post nut, and solder.

Cut a 6" section of #14 insulated wire and solder (or crimp) spade lugs on both ends. Connect one end outside the PVC to the remaining SO-239 screw, and secure the final SO-239 screw.

Connect the other end of #14 wire to the closest ground binding post on the outside of the PVC. Inside the PVC, attach another piece of #14 between the 2 ground binding posts--essentially connecting both ground binding posts and the base of the coax connector together. Secure with nuts, and solder. Take care not to short the antenna and ground braids.

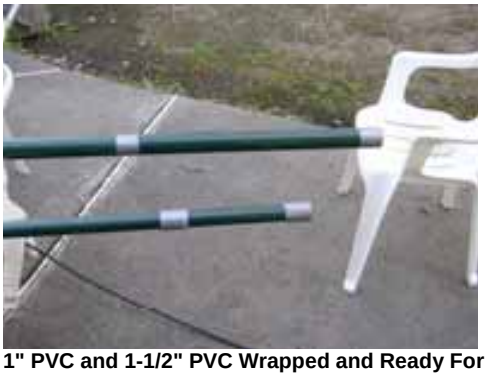
Glue each binding post to the PVC, inside and outside. Place a red binding post cap on the antenna post, and black binding post caps on the ground posts. You'll be glad you did when it's 1:00 a.m. and you have to work on the antenna.

PVC Mast Preparation

Cut 2' 6" from the 10' length of 1" diameter PVC. Next, prepare the 1" and 1-1/2" 10' PVC for assembly using duct tape.
Step 1.Wrap duct tape around the bottom 2" of the 1" and 1-1/2" PVC pipes.

Step 2. With the 1-1/2" pipe, wrap another section of the PVCwith duct tape between 22"and 24" from the bottom of the pipe.

Step 3. With the 1" PVC section, wrap a second section of the PVC with duct tape between 9-1/2" and 11-1/2" from the bottom.Note: Use enough duct tape to ensure a good telescoping fit is created between PVC sections when assembled.



1" PVC and 1-1/2" PVC Wrapped and Ready For Assembly

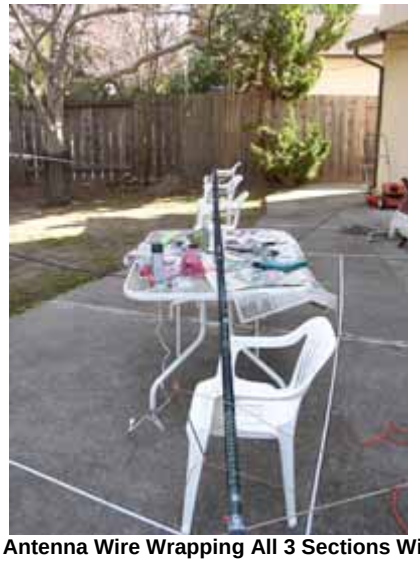
Telescope the PVC sections together. Stop when the top edge of the upper duct tape wrap of the 1-1/2" and 1" PVC lengths are level with the top edge of the lower PVC section. The 1 1/2" PVC section will extend 2' into the 2" bottom PVC section, and the 1" PVC section will extend 11-1/2" into the 1 1/2" PVC section.

With the lower joint (2" and 1-1/2" sections), drill a 1/4" hole through both sections 1' down from the top of the 2" section. With the upper joint (1-1/2" and 1" sections), drill a 1/4" hole through both sections 6" down from the top of the 1-1/2" section. With a 3-1/4" bolt, nut, and washer, fasten the 2" and 1-1/4" sections together. With a 2-3/4" bolt, nut, and washer, fasten the 1" and 1-1/2" sections together.

Drill a 1/8" hole 1" from the top of the 1" PVC section and attach a red-capped binding post to it, using a nut and glue to secure it. This will be the antenna-to-capacitance hat attachment point.

Wire Winding

Prepare a 1/2-wavelength length of wire for your desired center frequency. I chose 1.825 MHz. Using the formula 468/1.825 = 256' 5" of wire. Using our kitchen table, which measured 5 ft long and a large coffee can with 2 large screws protruding from sides
at the top and bottom 180 deg apart (to keep the wire from falling off the can as it was being wound), my XYL "unwound" the wire
from the spool, while I wound it onto the coffee can. 50x across the kitchen table = 250' + an additional 6' 5" did it. Cut the wire, adding a few extra inches for experimentation, but keep the 256' 5" point marked: that length worked for me.



Antenna Wire Wrapping All 3 Sections Wire-Wrapped

If you use insulated wire, remove the insulation for several feet from the attachment point; it'll make future adjustment easier. Attach the wire to an antenna binding post at the bottom of the 2" PVC section and start winding your 1/2-wavelength section of wire to the mast. Ideally, make the spacing as large as possible. I "eyeballed" my winding, and found a 1/2" pitch to work best. Use duct tape wraps every few feet on the PVC to secure the windings. As you near the end of each PVC section, take care to avoid the bolts with the wire. As you wind the 1-1/2" section you'll know if you need to increase or decrease the winding pitch. When you've reached the end of the wire, solder a spade tongue to it and attach the wire to the antenna binding post with the red cap at the top of the 1" PVC section.

Note: For a permanent installation you can skip this step. At both PVC joints, cut the antenna wire, strip insulation from the ends and solder an alligator clip to each end. Clip the wires back together. This will allow you to easily take apart and reassemble the antenna as needed.

Capacitance Hat Construction

Drill four 1/8" holes 90 degrees apart in the 1" PVC cap, 1" from the bottom of the cap. Drill another 1/8" hole beside one of these holes. Insert the brass rods into the cap, forming an "X." Take a 6" piece of #14 insulated wire, put it through the 1/8" hole not used by the brass rods, and wrap it around the junction of the two brass rods inside the PVC cap. Solder the rod-and-wire connection. Connect the ends of the brass rods together with bare solid wire, as well as another "square" of wire connecting the brass rods midway between the rod ends and the PVC cap. I used #14 gauge copper wire.

Inside Top PVC Cap

Attach the PVC cap to the top of the 1" PVC section. Secure the wire outside the PVC cap to the top antenna binding post using a spade lug. It’s important to have a good electrical connection between the antenna wire and capacitance hat. Note: For a permanent installation there's no reason not to attach and solder the top of the antenna wire directly to the center of the capacitance hat.

Bottom Cap Preparation

With a hacksaw, cut a 1' section of 1/4" threaded aluminum rod. Drill a 1/4" hole in the bottom of the 2" PVC cap and also through the center of a piece of scrap plywood (about 1 ft. square). Run the threaded rod through the 1/4" hole in the cap, and then through the plywood. Attach a pair of nuts and washers on the threaded rod inside the

cap and on the other side of the plywood. When tightened, leave 2" of rod inside the cap, taking care that it won't touch the base section antenna and ground wiring when attached to the mast. Leave 10" of threaded rod sticking out from the bottom of the plywood. The plywood base serves as a stabilizing platform to ease final installation of the vertical. By gently standing on it and pushing, you can easily drive the 10" of threaded rod into the ground.

Guying And Bracing

In my case, I attach the mast to my back fence at the 6' point. I keep a section of nylon rope attached at 12', wrapped around a tree limb, and secure the rope tightly at ground level. Your guying/bracing will depend upon where you place the antenna.

Erecting The Antenna

After bolting the PVC sections together, attach the capacitance hat (don't forget the wire-to-antenna binding post connection). Place the bottom 2" PVC cap/plywood base in the ground where you want the antenna to stand. Raise the 27 ft. antenna, bracing the bottom against the ground. Carry the antenna to the plywood base and set it into the PVC cap. One person can carry/mount the antenna but two people makes it easier. Guy or brace according to your needs.

Antenna against fence to left of the pine tree

Radial Wires

Of course, use as many ground radial wires as possible, ideally cut for 160m. One 160m 1/4-wavelength ground, together with 1/4wavelength wires for other bands, is better than nothing at all, but the more, the merrier. I used #16 stranded insulated wire soldered to spade lugs, and then attached to the ground posts.

Performance

Attach your 50-Ohm coax. I used a borrowed MFJ 249B antenna analyzer to check for resonance. I hope you're as lucky as I was with resonance at 1.830 MHz, and a 50 KHz bandwidth, with <2:1 SWR. If the antenna isn't resonant, adjust the antenna wire length from the bottom of the antenna.

Overall, this antenna works pretty well on 160M. It's a solid performer from KH6/KL7 to the Mississippi and decent performance to the W/VE East Coast. For DX, the Pacific, Caribbean, and Central America are strongest. Europe is weakest.

Summary

This is not "the" perfect antenna for 160M, but for a small lot, or where CC&R's are strictly enforced, this little vertical is a good alternative to an inverted-L or dipole. Making it "stealth green" helps too.

Good luck with your 160M efforts. Let me know if I can help.

73, John, K6MM
Email: k6mm@arrl.net

Update

Changes made since building Version 1.0:
-Re-wound the antenna wire using 3-conductor #14 stranded wire
-Hot-glued the antenna wire to the PVC pipe for extra stability
-Improved the ground system with more radials

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Check us at:
http://www.cqp.org
http://www.nccc.cc

Repeaters:
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and 444.2 (PL107.2)

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