

Installation notes for W0SZP new QTH install of Hustler 5BTV vertical using DX Engineering Radial Plate, Tilt Base, and Vertical Current Choke.

In the not too distant past, I lived the life of a confirmed bachelor in a house that was more workshop than home. I had my shack in my bedroom and it was gloriously packed with various boat anchors (mostly Swans) in addition to my Kenwood TS-450S. One of my antennas was a Hustler 5BTV mounted on the chimney with 2 radials per band. I had no qualms about putting the radials where they needed to go to get the best signal (I was a bachelor, remember?). The other antenna was an 75 meter dipole because my 80 meter resonator on the Hustler was tuned to the CW QRP portion of 80 meters.

The radial legs and the dipole for 75/80 meters stretched from a mast on the backyard fence to another mast in the front yard I'd sank next to the mailbox at the curb. As a bachelor I could get away with a radial system stretching all directions reaching to the far corners of my entire lot. The bachelor situation changed with the addition of a wonderful XYL and with that change came a new QTH. As wonderful as my XYL is, she understandably had a problem with wires in all directions all over the place. The only alternative was a ground mount for the Hustler 5BTV.

In planning the new installation of my 5BTV, I considered where to put it and what method I would use to connect the radials and isolate the RF from the feedline. I'd used the air wound 8 turns of the feedline on the chimney mount with success but I did not see how I could replicate that in a ground mount and keep it neat and tidy. This installation required looks as well as function (life had changed for me).

I decided to use the DX Engineering radial plate and the DX Engineering current choke. While I was shopping on the DX Engineering website, I looked at the Hustler tilt plate and recalled the inappropriate phrases uttered by my brother, my son, and myself as we mounted, tested, tuned, remounted, tested, and tuned some more on the original chimney mount. The more I remembered of the original installation, the more I resolved to not repeat that part of it. A new feedline was in order and I needed a method to get it from the house to the antenna. I looked around at various types of feedline and made my first call to DX Engineering for advice. I talked to George and he advised me to directly bury RG-213 from the house to the antenna. Although there are other types of coax recommended for direct burial they are way out of my price range. George advised that with direct burial of RG-213 the coax was out of the UV light and they'd not reported any problems with it. Good enough for me.

I bought the radial plate, the current choke, the tilt plate, and 60 ¼ inch terminal lugs from DX Engineering. All arrived promptly and well packed. The rest of the components needed for a ground mount I obtained locally. One important lesson I learned was that I should have ordered the radial kit from DX Engineering in the first place. By the time I bought the 14 gauge wire, got the stainless steel nuts/bolts/washers, and fashioned the stakes to hold the radials down, I was way behind the dollars I'd have saved if I'd got it all in one package from DX Engineering.

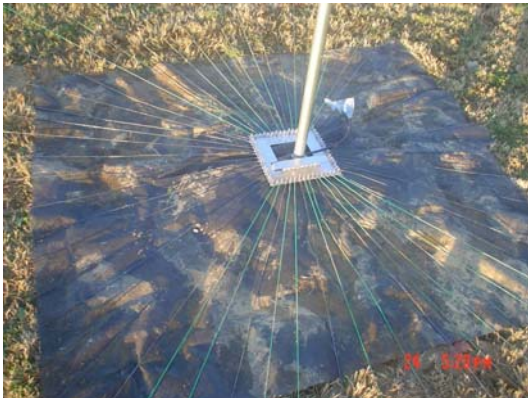
I sank the mounting post in concrete, simple enough. I left it long thinking I can always cut off some but adding post if needed would be impossible. My XYL and I dug the trench from the house to the antenna mount.

The ground was soft and using a spade instead of a shovel made the work quick and easy. We buried the coax about 6 to 9 inches deep and covered it up. Laying and measuring the installation in advanced

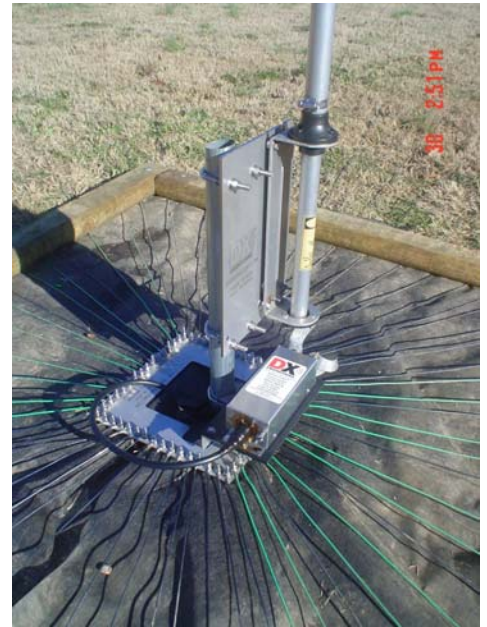


paid off because the feedline was exactly long enough to reach! After the concrete set we laid out some garden cloth and mounted the radial plate. I didn't want weeds growing next to the antenna and risk damaging components with a weed eater in the summer. Next we ran the radials, all 60 of them. Between work and limited available daylight in winter, it took a few days to get them all constructed and attached. I'd seen other methods of rolling the radials out directly from the roll of wire on site but I didn't want to fight the wire in the cold. I cut the wire to 25 foot lengths inside the house and soldered the terminal lugs on them in the warmth of our home and then attached them, conserving

body heat and sanity. My intent was to have about a 3 foot square around the radial plate bordered by garden timbers and cover the inside of the square with gravel in order to keep weeds away from the antenna and provide a safety buffer to encourage people to stay a safe distance from the antenna. Mounting the current choke and



the tilt plate was easy, just read the directions and follow them. One note I would mention; The radial plate



directions call for cutting the post 24 inches above the ground. Utilizing the current choke with the radial plate I double checked the ability of the base of the Hustler to tilt all the way without stretching or breaking anything. I'm glad I did because the braid from the red D on the current choke to the radiating element attachment screw would have overstretched had I blindly followed the 24 inch measurement called for. I recommend the current choke (including braid), the tilt plate, and the Hustler vertical base be test mounted to ensure that the post coming up from the concrete is not too long and not too short to facilitate safe tilting of the antenna without straining the braid.

After putting all the radials in, the current choke, and the tilt base, putting the antenna up was a snap. I followed the original instructions from Hustler for a ground mounted vertical installation and was testing in no time. The performance just didn't seem right and I called DX Engineering Tech Support again, speaking to Rod this time. He reviewed the basic tuning steps and we discovered that I'd made the mistake of taking my measurements from the feedline instead of from the antenna (using the 6 foot length of coax called for in the instructions). I also was using an MFJ-259 antenna analyzer, not an MFJ-259B which would have displayed a reactance measurement so I could have easily determined the resonant frequency. I would have to make a graph and plot the SWR old school to get a best estimate of resonant frequency. If you have or can borrow a MFJ-259B, that really helps but if you cannot, you can still tune pretty close following the instructions given. Another thing Rod related to me was that I would not have the bandwidth on 40 meters that I once had because the antenna had become so efficient. He

was correct, I had to choose the voice band or the CW band but I cannot get both on 40 meters with the ground mount. I still get 1.5 to 1 or better SWR on all of 10, 15, and 20, and the 80 meter resonator still covers the CW QRP portion of 80.

OK, it's time to get on the air! My first contact was CW (that's what I do mostly). W5E1Y in Enid, Oklahoma on 40 meters. My first attempt at a voice contact was the Swan User Net on Sundays at 14.250 Mhz. There I made the real startling discovery of a ground mounted vertical; I copied and could reach KB7BGS in Utah (I in west Tennessee) but could not hear anybody closer than 600 miles or so! Florida? Nothing.. Louisiana Nothing. Vermont, Massachusetts, Washington, California, S7 to S9! The angle of radiation had shifted from mostly vertical to mostly horizontal like a true vertical was supposed to be. Same rig, same antenna, same power on two different mounts (chimney and ground) gave me direct evidence on the efficiency of the ground mounted vertical. The other thing I discovered was the drastic reduction of noise on 40 meters. I was amazed at how much later in the evening I could carry out a decent QSO on 40 meters even with the broadcast stations competing.



I'm writing my concluding paragraph a couple of months after re-installing my Hustler. I've since upgraded it to a 6-BTV and retuned on all bands. I cannot get on 30 meters without getting into VE land. I never use more than 20 watts for CW; don't need to. I'm getting DX contacts now where I could only listen to them before. I picked up/worked Estonia last Saturday with 100 watts on the 20 meter phone band. I've worked other DX but Estonia is my jewel so far. Thanks to WB2WIK for his article on verticals and thanks to the staff at DX Engineering who have made themselves easily available to answer questions and give advice.

73, Rick

Rick Miller - W0SZP