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Hold that V Saddle Clamp!

This summer, the "BelchFire Team" of N2HS, WA1PMA, and me, WS7I, started construction of three 6 meter loop-fed Yagi (LFA) antennas. The BelchFire Team is a small group that is part of the Spokane DX Association (www.sdxa.org/) and has interest in many antenna projects. Lynn, N2HS, lives north of Spokane and has a complete shop and engineering facility. Wayne, WA1PMA, the current SDXA president, has many interests and plays with 6 meter DXing (Wayne and I do some VHF contesting as well). I am the former NCJ RTTY columnist have always been interested in VHF and antenna building. The team's goal is to take antenna models and see what they actually do in "real" practice on an antenna range.

The primary feature of the LFA Yagi is that the driven element is a rectangular loop instead of a typical "split" dipole element. The loop is placed on the boom in the same plane as the parasitic elements. The benefits of the LFA seem to be twofold. First, the feed-point impedance is 50 , and this makes matching easy. Second, the loop adds gain to the antenna and makes it less noisy. We picked the GØKSC design and wanted to test its benefits.

We spent a little more than four months on this project, which included not only building the LFA Yagi antennas but designing an antenna range and conducting extensive testing of the antenna on that range. The project was the first for the BelchFire Team. We purchased all aluminum except the boom from DX Engineering (www.dxengineering.com), since we liked its products and prices.

We also selected the DX Engineering V saddle clamp for our antenna project, to be used for the mast-to-boom bracket. We purchased six 1 to 2 inch OD adjustable DXE-CAVS-2P V saddle clamps. These clamps cost $11.95 each and made up a significant part of our Yagi budget, yet we found them to be exactly what we were looking for in our development and testing.

We constructed boom-to-mast brackets from these clamps and attached them on the 2 inch square boom. This boom and the fairly large plate allowed us to move elements around on the boom and facilitated attaching different baluns, stubs, and chokes to the LFA. We can actually move the boom-to-mast clamp to the very end of the boom and hold the antenna, and this allows us to move the elements around in many different configurations and run antenna patterns and gain analyses.

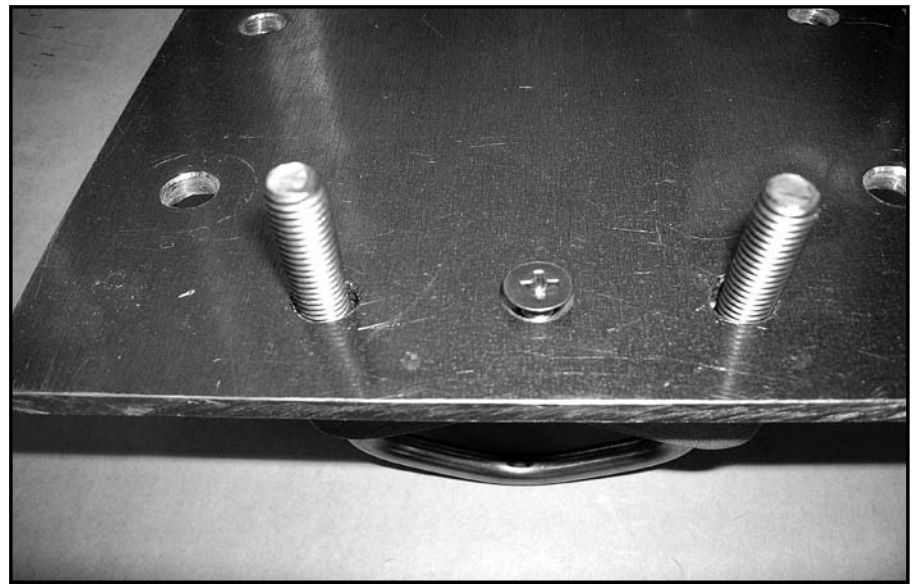

Figure 1 — A closeup of the V saddle clamp assembly: Note the countersunk Phillips-head bolt that secures the V saddle.

Figure 2 — The "BelchFire" 6 meter loop-fed Yagi

While installing the first BelchFire 6 meter antenna, Lynn, N2HS, learned that he wasn't born with enough hands. It was awkward to hold the clamp, antenna, and the V saddle with only two of them. It was suggested that we just tap the V saddle and then run a small bolt into the saddle to hold it tight to the plate. We countersank the bolt head, so it would be flat on our aluminum plate. We did the same on our second and third Yagi models, and it was a worthwhile improvement.

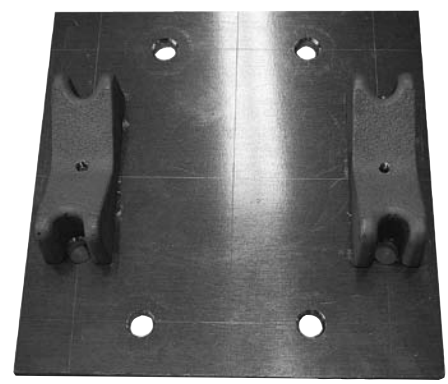

Figure 3 — The V saddle clamp assembly from the "V" side

This modification may slightly weaken the V clamp, but the hole is very small, and, according to our engineer Lynn, N2HS, should have no deleterious effect on the clamp's performance in this application. Use anti-seize compound and consider tapping the V saddle.

NCJ