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RAISING a RHOMBIC

Me! Put up a rhombic?"

"Why not?" said Vince, "After all, you already have the toughest part of the job done."

"I do?"

"Sure. You've got three acres on top of a hill."

And this is how my rhombic began. Vince, K8LQM, our club treasurer, who is affectionately kidded about being K8L*QRM*, kept reminding me about what a shame it was for a ham to have all that land, and yet not have it covered with antennas.

I had to admit it. Ol' Vince had me thinking. I even started to have visions of DX calling me instead of vice versa. Anyway, after more encouragement from Vince, I decided I'd give it a try.

A-Frame Construction

Vince and I decided to make my rhombic 137 feet on a leg. Why this size? Simple. It would fit nicely within the property boundaries of my back yard.

Since I did not have any strategically located utility poles, trees or towers, and did not wish to spend much money to purchase any, my next question was "How do we support all that wire?"

"Easy." he replied in a tone that was just a little too nonchalant for me. Vince took pencil and paper in hand and sketched the 40 ft A-frame mast shown in Fig. 1 and the photographs. Although many articles say that the top section of the A-frame can be made of 2-by-3s, we used only 20 ft 2-by-4s. It may not have been necessary, but they were available, and we liked the added strength and rigidity it gave to the completed mast. Also, don't forget to run bolts through the bottom of each leg of the A-frames as shown in the illustration. This will keep the legs from splitting.

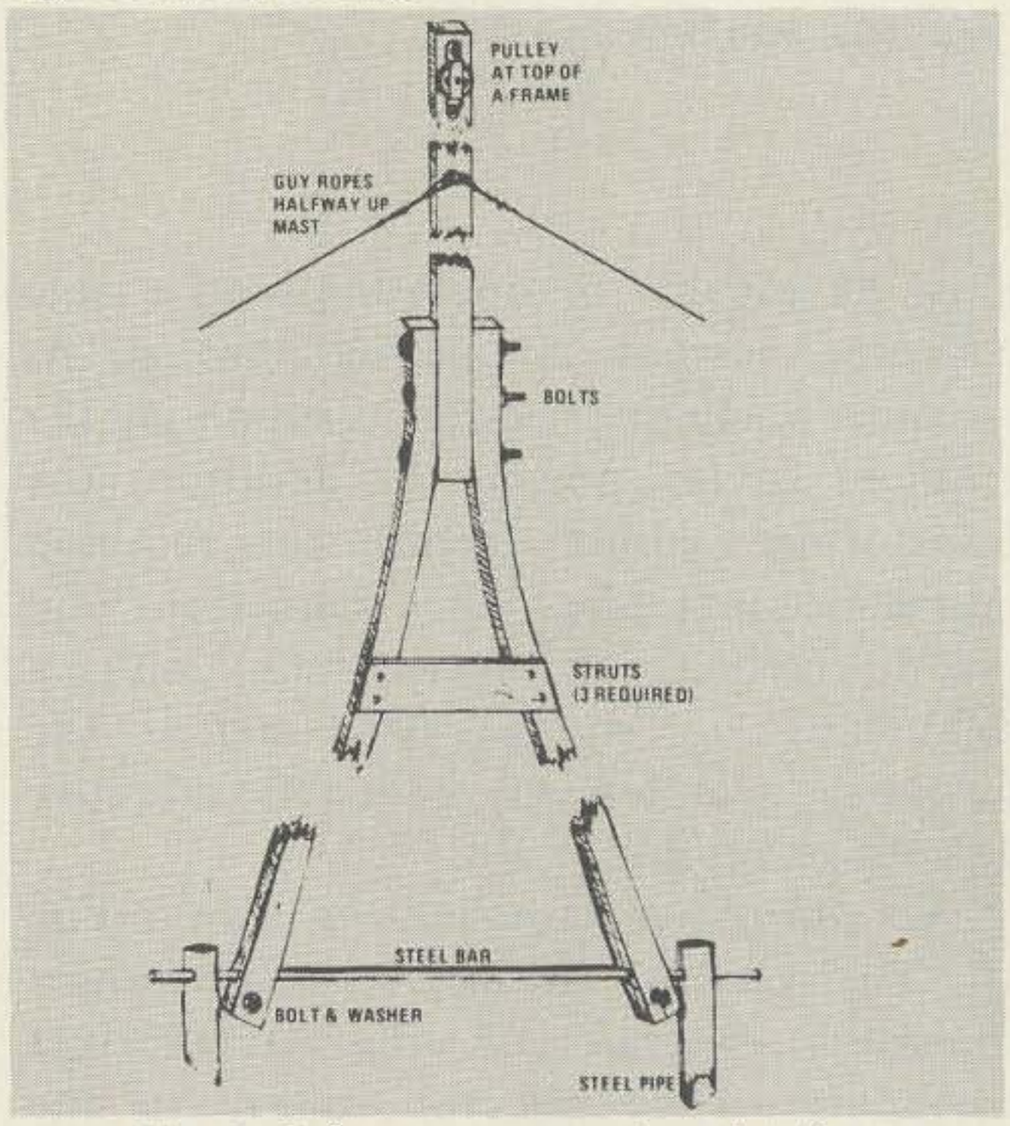


Fig. 1. A-frame construction details.

Next, I felt I'd like to be able to get these A-frames up in the air with a minimum of fuss and manpower. Again, Vince had the answer. Pivot them. This we did, as shown in the illustrations and photos. This system enables two men to "walk up" without much trouble at all. In fact I – weak ol ' pencil pusher that I am – was able to steady it all by myself while Vince tied down the guys. Even if you are not going to put up a rhombic, the A-frame

Vince (K8LQM) gets the soft job of putting the A-frames together while the author sweats over the picture-taking chores.

makes a dandy, inexpensive support for an inverted vee, VHF beam, or both.

Once the first A-frame was built, it certainly wasn't any problem to make three more of them. In fact, Vince and I were able to drill the holes and bolt them together in about 20 minutes.

When the A-frames are completed, put a couple of coats of paint on them. You can raise them up off the ground and lay them across two or three sawhorses and make the painting job a lot easier.

Vince thought it would be a good idea to paint each A-frame with a different color in a barberpole design. I painted them white. After all, they can be seen for two miles as it is, and how would it look if a high-school guidance counselor were hauled off to the happy farm for having psychedelic poles in his back yard.

To the top of each A-frame we attached pulleys, and passed ropes through them. Finally, we attached the guy ropes. Then, when we swung them up into the air, all we had to do was fasten the guy ropes to stakes in the ground. After all the A-frames were standing, we attached an insulator and antenna wire to the pulley ropes and pulled the antenna into the air. (With this rope-and-pulley system, minor tension adjustments are very simple to make.)

Feedline Construction

If you are still with me, you are probably asking yourself, "Now that that nut has that monstrosity up, how does he feed it?" Well, I should feed it skeptical, unadventurous hams, 6 meter beams, and XYLs, but I don't. I feed it with open-wire line as shown in the illustrations. How long is it? It's just long enough to reach the transmitter – which, in my case, is about 130 ft.

I made the feedline out of 14 AWG wire and 3/8 in. dowels. Since I had plenty of it available, I used 18-gage copper-clad steel wire to attach the feedline to the spreaders as shown in the illustration. This made my ladder line so strong I could almost climb it.

Perhaps you are wondering why we made the feedline 9 inc wide. Well, the dowels came in 3 ft lengths. Not wanting to waste anything, we just cut them into 4 equal 9 in. lengths. It works fine!

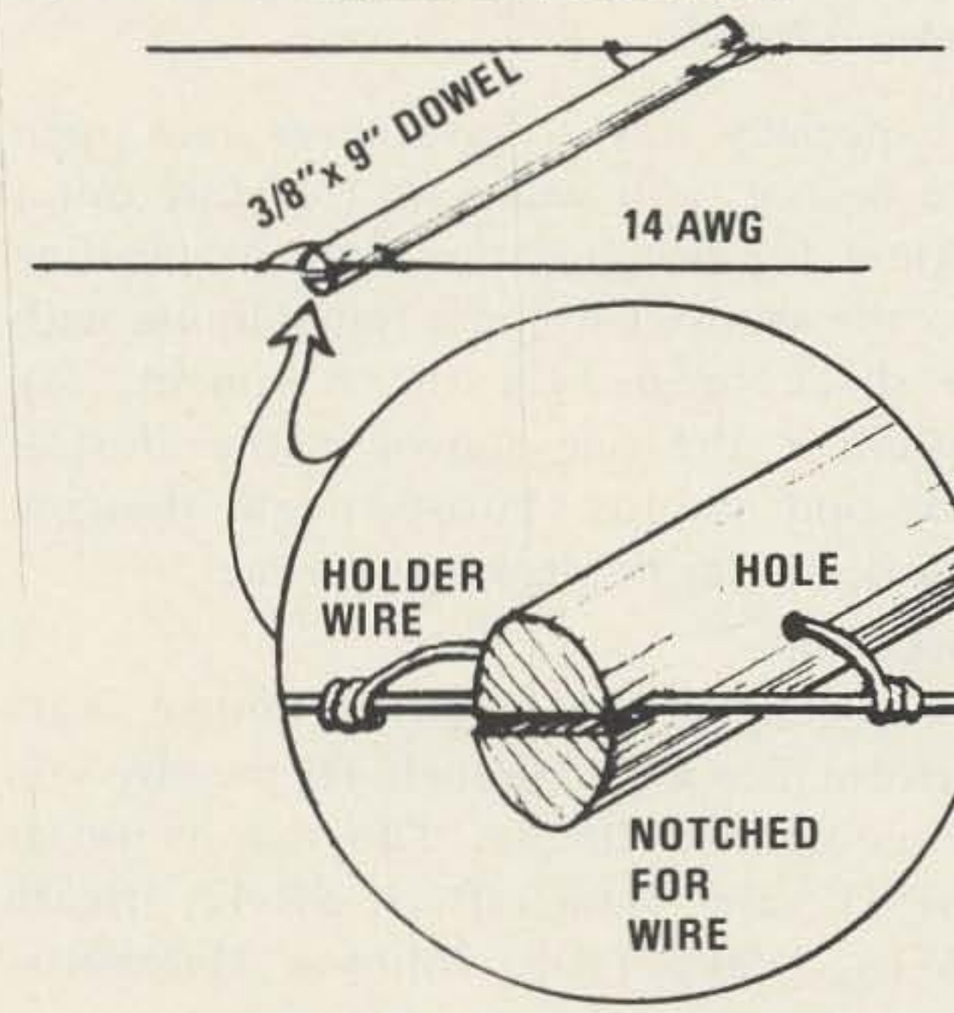
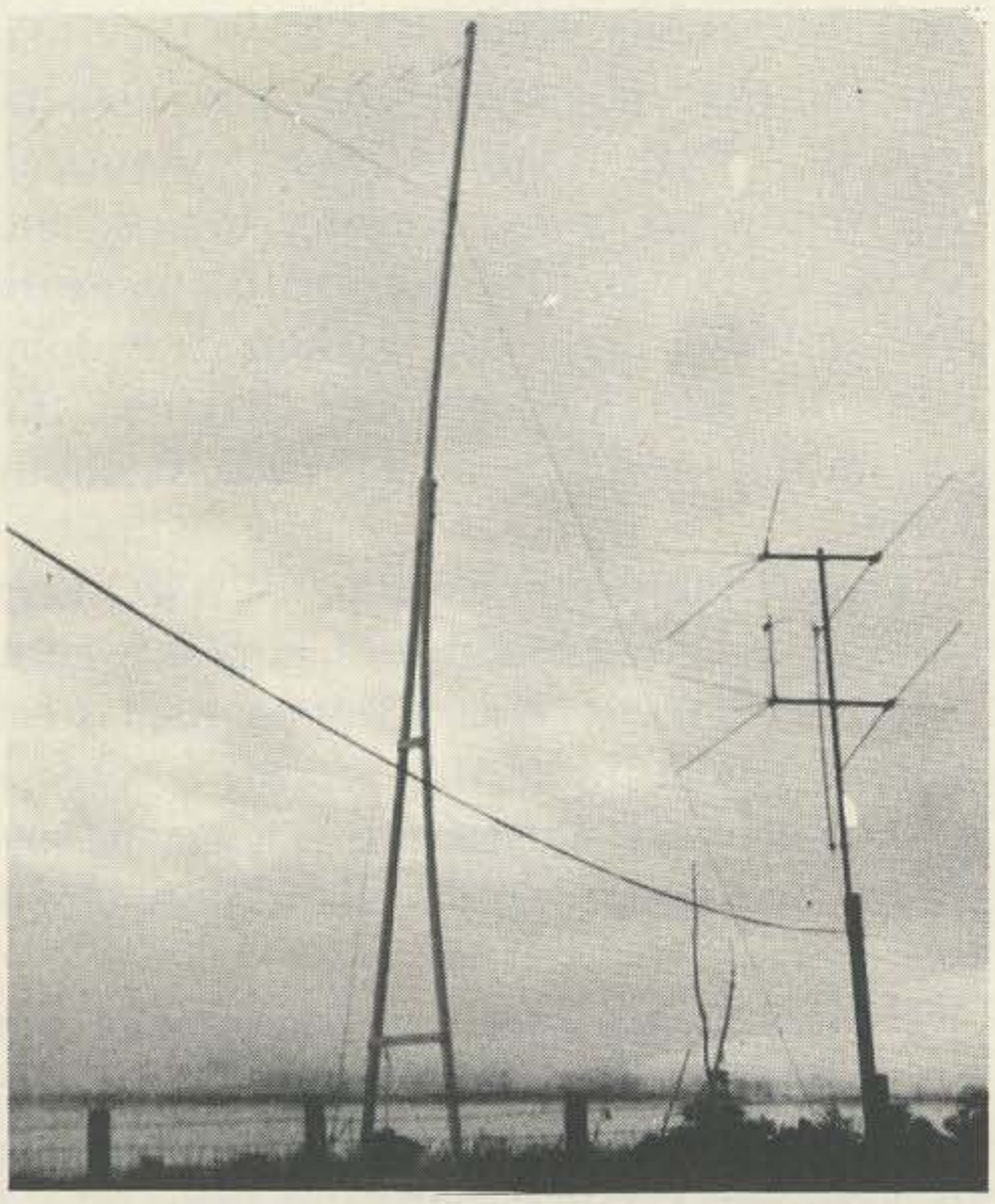


Fig. 2. Feedline construction.

This is the author's method for bringing the ladder line into the shack.



A "ladder line" open-wire feeder carries the signal from the house to the feed point on the nearest A-frame.

Especially if you have never used open wire before, you will have to figure out a method for bringing this type of feedline into the shack. I live in a frame house with the shack located in the basement. My method is the one shown in the illustrations and photos. Purists might disagree with it, but, again, it works for me.

Operation

The biggest test of all, of course, is its performance. First, though, let me give you the equipment lineup. The rigs in use at W8DYF are Hallicrafters SR-42, Heath HW-16, Drake TR-3, Johnson Matchbox, and a Knight bridge.

Using one configuration or another on the Matchbox I have been able to load the antenna on phone and CW on every band. I can't give you any gain figures, but a couple of VKs and ALs have told me I have a very good signal for 300W PEP barefoot. A WØ in Denver told me I had the needle on his S-meter shoved up as far as anyone has ever put it. Frequently, when ragchewing, fellows will break in just to tell me what a good signal I have.

Every Sunday at noon I work W8ZRI/4 in North Carolina. He usually gives me a report of 55 to 60 over. Even field day did not interrupt our schedule. We just talked right through that mountain of QRM!

One thing I am going to try is putting a terminating resistor at the far end of the antenna so that the pattern will be broader, for I do find it to be pretty sharp. For example, one night after the skip had gone out on 10 meters, I called W8DRW, a good friend of mine who lives about 18 miles south of me. He could barely hear me. However, when I tied the feeders together and fed it with the Matchbox as a random length of wire, he was comfortable copy.

I've also been using the antenna with my SR-42 and a homebrew antenna coupler on 2 meters. It seems to work fine, but seems to be pretty directional.

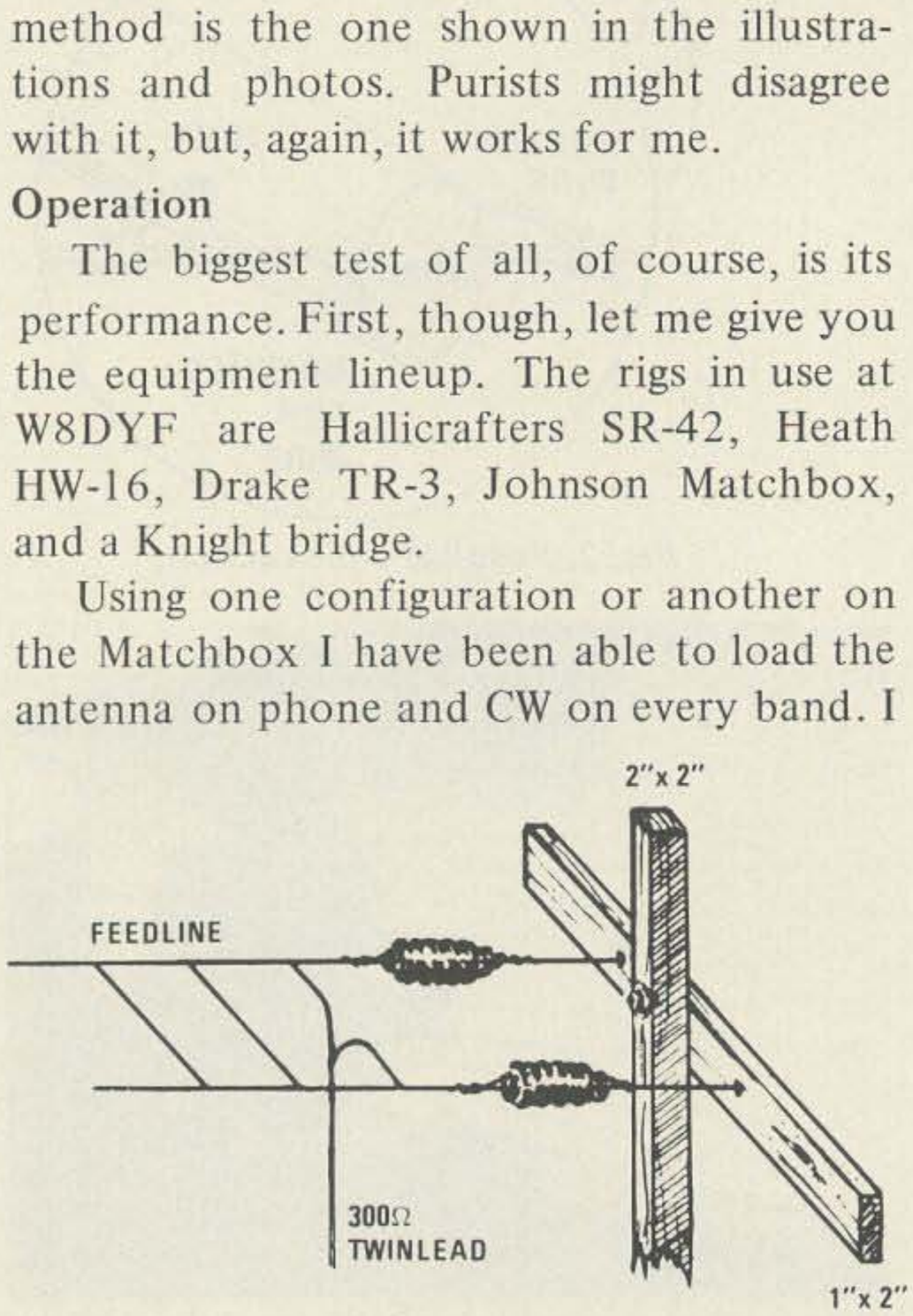


Fig. 3. Feed point details.

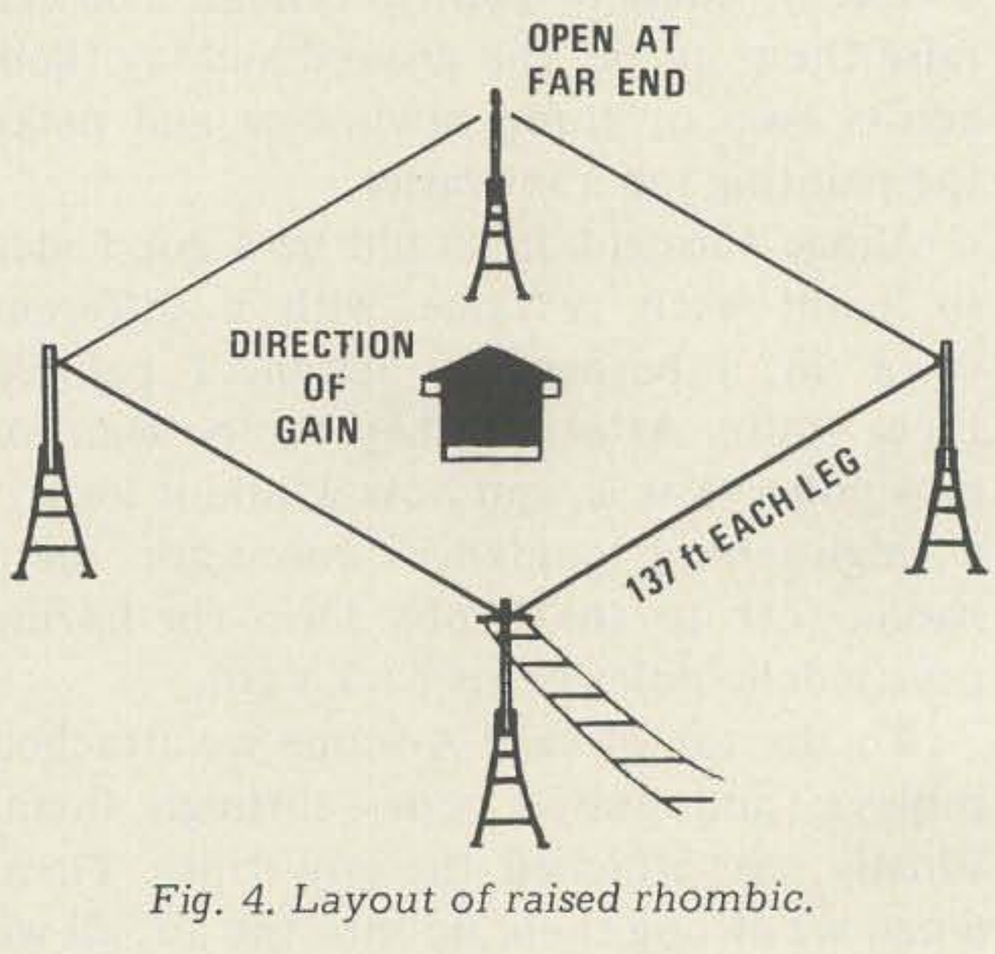


Fig. 4. Layout of raised rhombic.

All in all, I'm very pleased with the antenna. It is rather inexpensive and it permits me to operate over a wide variety of frequencies with only one antenna. Also, it's quite a conversation piece on the air. So even if you can't raise your own rhombic, I hope I've given you some ideas for a QRM killer of your own.

. . . W8DYF ■