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Fiery Endfed

- - keep antennas ice-free!

The winter of 1977, so I've been told, was the worst in over 100 years, at least for the Midwest and the East Coast. Coming from California where the weather is always warm, I was led to think that the simple endfed random length wire was the ideal solution to the problems of operating in a dorm room or apartment. But moving out to the snowy, icy chill of New England left my ideals in a frozen heap of wired snow, collapsed ignobly on the ground. The results were a badly mismatched transmitter and disastrous signal reports.

Every place in which I've had the fortune to dwell always has had at least one window looking out toward a tree, pole, or other building. With a little bit of nighttime or early morning rock-throwing, arrow shooting, or flycasting, I've been able to secure a nylon line to that remote support. Then, a wire is slinked out, made fast, and a primitive but effective matching network employed to fool my poor FT-101B into thinking that a 37 foot piece of copper is a 50 Ohm dummy load.

This works great until you find out that snow, a funny white stuff which apparently falls freely all winter everywhere except California, is made out of water. Water weighs over 8 pounds per gallon – it doesn't take much snow to accumulate on a skinny piece of wire and make it *very* heavy. After a particularly nasty storm blew its way into Boston in our wonderful winter of '77, guess what happened? My lovely wire antenna snapped under its unwanted icy-white burden, leaving the transceiver in grave doubts as to whether its pi-network would ever be duped again by coils, capacitors and random copper.

There are three solutions to this problem. One is to move back to California as any sane person would do. However, in my case at least, the phenomenon known as graduate school prevents me from being counted among the sane. The second is to do what the power company, Ma Bell and the rapid transit people do – use enormously thick and strong cables with reinforced supports so that even if the frozen Charles River were encased around the wire, it wouldn't give a bit. But thick copper wire can get very expensive and cumbersome and also violates the ideal of having as invisible an antenna as possible, so that the RFI complaints get directed elsewhere.

The third way is to take advantage of the slightly higher resistance of thin copper wires over the big fat ones. I ran a twisted pair of #24 insulated wires out to my support with the ends soldered together at the far end. When I use the twisted pair as an antenna, I merely connect the two ends together at my end and feed the whole mess as a single wire. But come the ires of Mother Nature and buildup of ice on the line, I disconnect and separate the two wires at my end and feed some current (dc or 60 cycle, not rf) into the resultant loop to make it toasty warm. The ice melts, and the strain is off the antenna. This heated antenna idea really does work. All you need is a variac and a hefty filament transformer (whatever is handy), and you can power the thing up. Once the ice is off, relatively little current (wires not even warm to the touch) is needed to keep the antenna clean of white stuff.

Use a copper wire table to determine the resistance of the wire and be sure to double the figure for the measured length of the antenna, since it's a loop out and back. Don't get carried away with the heating juice, or you'll burn up your snow-bound antenna and really be the victim of fiery irony!

Some excessively clever soul will no doubt come up with a tension-actuated switch which would automatically disconnect the antenna, separate the two ends of the loop, and feed in the heating current once the pull of the line increases with snow buildup.

The light weight of the #24 twisted pair and its ability to shrug off snow at the turn of the knob result in an antenna which is durable and resistant to wind and storms. It even serves to radiate rf power quite effectively from its associated transmitter, heating up the ether and, on occasion, the coldest winter in a long time. ■

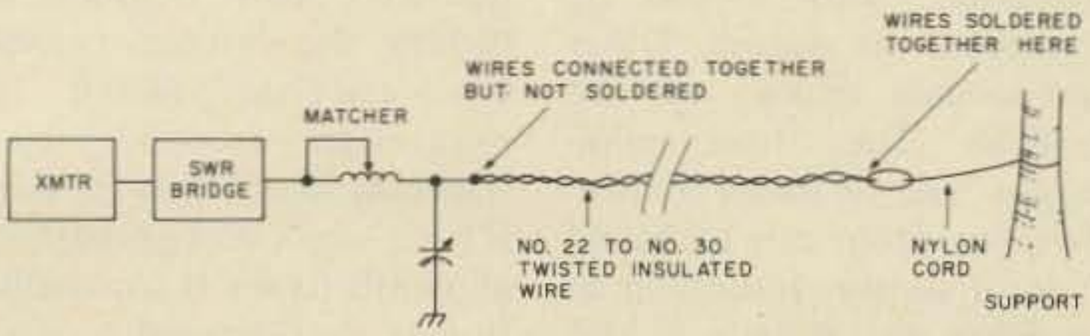

Fig. 1. Fiery endfed antenna in normal use.

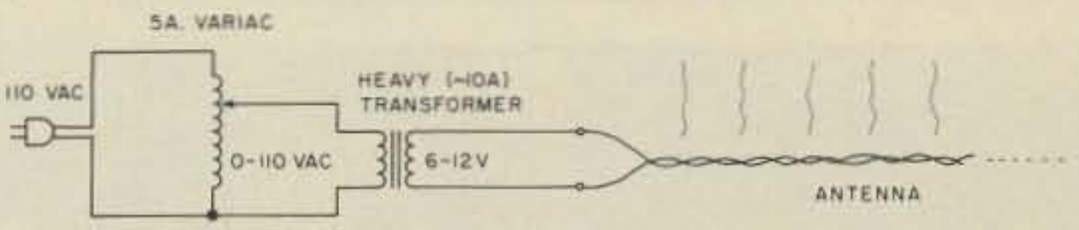

Fig. 2. Heating the antenna when things get icy.