

Long Beach Longwire

You're really "on the air" with this beach kite antenna.

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As a ham with a "big-city" QTH, it's nearly impossible for me to put up an HF antenna of any significant size. Even a compact yagi is difficult, with the small yards typical of southern California homes. An idea came to me as I was spending a summer day on a breezy beach: Why not let the wind hold up a longwire antenna? A few days later, I was operating 40 meters SSB with my "beach kite" antenna!

The trick to getting a simple, inexpensive kite to support several hundred feet of antenna wire is to use lightweight wire. Even very small gauge copper or aluminum wire is heavy, if you use 500 feet of it. I needed wire that was both very light in weight and also strong enough to hold together under the tension of being held aloft by a kite in a brisk wind. Luckily, I have discovered the ideal kite antenna wire: "polywire" (sometimes spelled "poliwire"), a product usually used for electric fences.

Polywire, made by Stafix Electric Fencing LTD and Gallagher LTD, both of New Zealand, is a composite "wire" that is actually mostly polyester. It is about 0.060" in diameter, very strong,

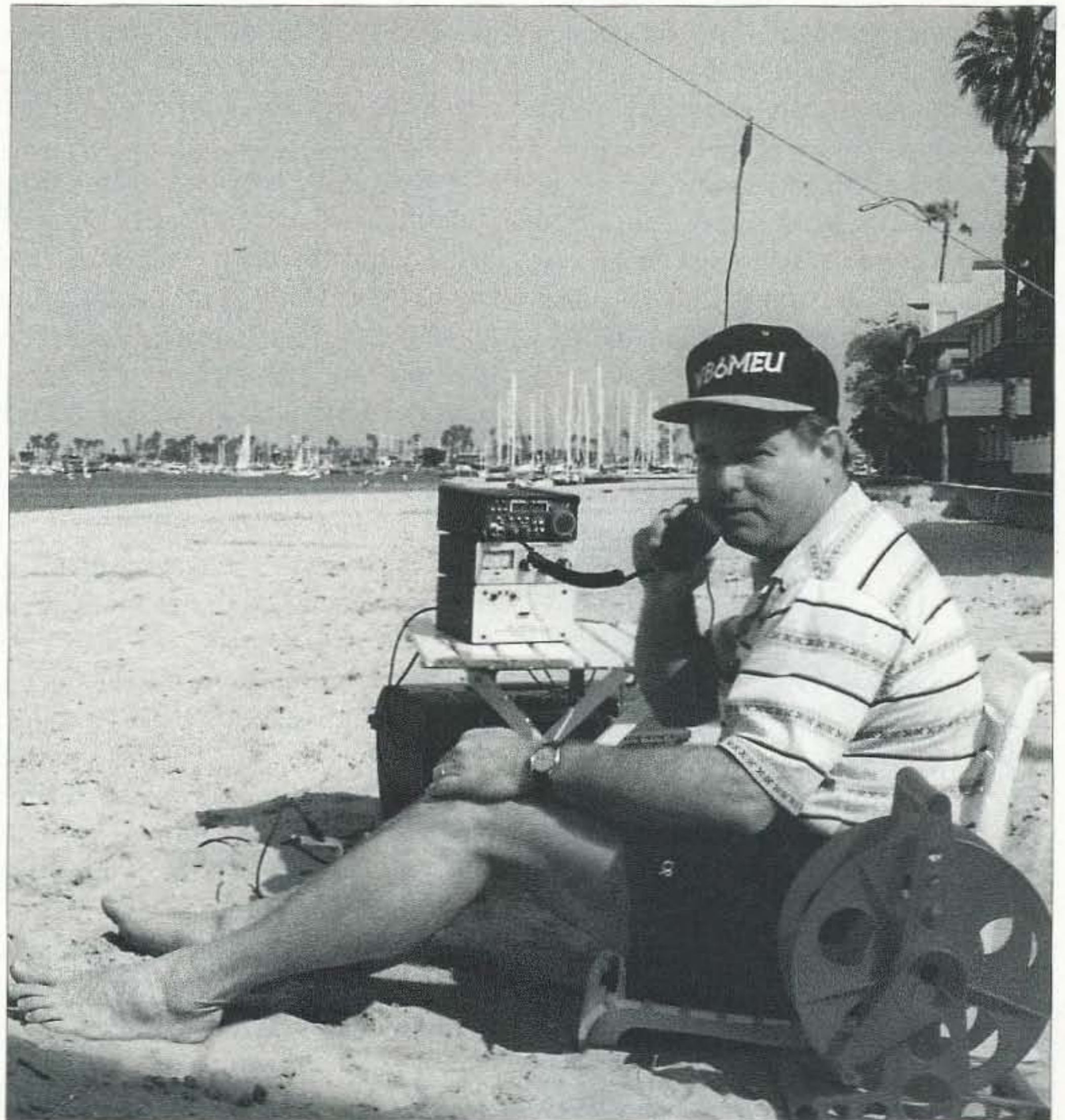


Photo A. WB6MEU operates from Alamitos Bay at Long Beach CA. Spool of polywire in foreground. (Photo by Ernie Williams WB6BAP.)



Photo B. SGC radio, MFJ tuner, and power supply. (This and succeeding photos by author.)

and very lightweight. A typical 200-meter (660-foot) spool of polywire weighs less than 1 lb. Woven through the polyester material are six strands of thin stainless steel wire, making polywire electrically conductive. The wire strands have a diameter of 0.006", and with a combined diameter of about 0.020", polywire is equivalent to #26 stranded wire. The advantage of polywire is its strength: It is much stronger (but not heavier) than the #26 wire that it supports.

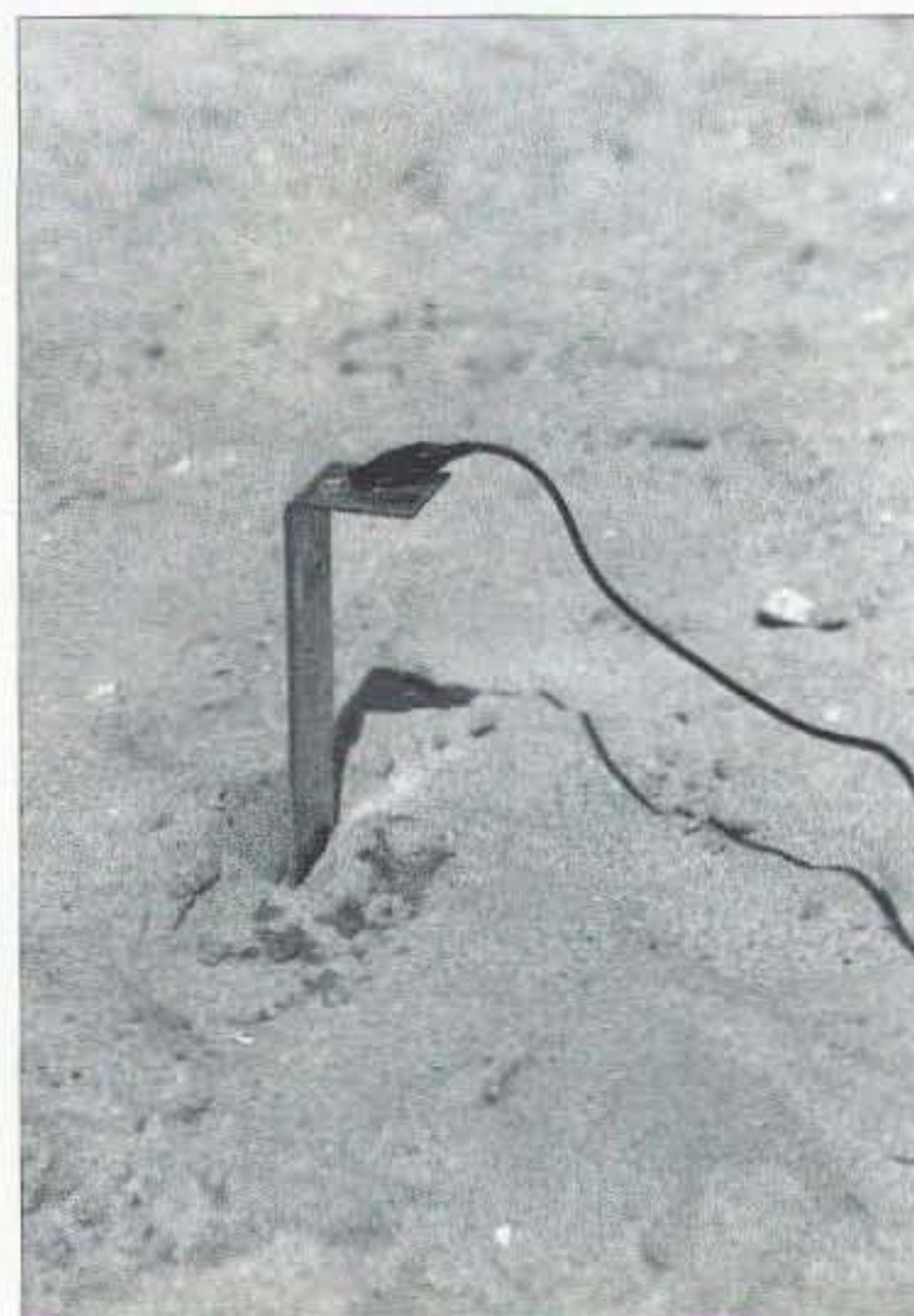


Photo C. Ground stake connects to tuner.

Now that the "radiator" problem was solved, I needed a kite to "hook it" to the sky. A trip to the local kite store provided a simple and inexpensive "delta-wing" kite, which cost about \$30. The kite has a wingspan of about 5 feet, and is easy to transport. Delta-wing kites are known for their efficiency and stability. They will fly with a minimal breeze and, once aloft, they just "hang in the sky" without zigzagging back and forth. (Having a 500-foot "tail" certainly helps!)

Constructing the beach kite antenna took about 3 minutes, since there wasn't much to build. The only item left to improvise was a means of anchoring the kite to my operating position. I assembled a "bungee-insulator" using a 2-foot length of bungee cord with a snap-ring at each end. One end of the cord would attach to the "radio end" of the polywire; the other end of the cord would be anchored to anything heavy enough to anchor the flying kite. The bungee-insulator also electrically insulates the antenna from the anchor, and provides some mechanical shock isolation to absorb the varying tensile forces on the polywire.

With the kite, polywire (wound onto a plastic extension cord reel), my QRP radio, antenna tuner, batteries, and lunch, I was ready to fly the kite, tune up, and call CQ. A steady breeze was blowing off the Pacific Ocean at Alamitos Bay in Long Beach CA. The kite took off immediately; I let out about 400 feet of antenna wire. The polywire was secured to the frame of my chair using the bungee-insulator. A clip lead connected the antenna to the "longwire" output of my MFJ-971 QRP antenna tuner. A ground for the tuner was provided by pushing a steel "L" bracket into the sand, connected with another clip lead to the tuner's ground terminal. My rig was an SGC SG-2020 multiband SSB transceiver, operating on batteries.

I tuned up on 40 meters; the tuner was able to provide a 1:1 match to the antenna. A few CQ calls resulted in numerous contacts throughout the country, plus a few in Canada! All this on 5 watts of power, SSB ... and no neighbors complaining about an ugly tower



Photo D. Clip lead connects polywire antenna to tuner.

or TVI! After a while on 40m, I switched to 20m ... and discovered that the antenna was too long for the MFJ-941 to tune due to excessive reactance (at 400 feet). I wound in the kite to about 150 feet, tuned up, and got a 1:1 match. I worked about a dozen stations on 20m, getting several good signal reports from the East Coast. (One ham had a hard time believing that I was QRP!)

The only glitch was caused by static buildup on the antenna. Every 30 seconds or so, static buildup would cause a discharge across the tuning capacitor in the tuner, resulting in a loud "POP" in the SG-2020 receiver. At worst, this could damage the front end of the receiver; at best, it caused the receiver AGC to knock the audio down by a few dozen dBs each time there was a static discharge. The cure for this annoyance was to install a 1-megohm (1/4-watt) resistor between the Antenna (output) and Ground terminals of the MFJ tuner. The 1-megohm value provides sufficient DC leakage to dissipate the static charge buildup on the antenna, yet it's a high enough value to "bridge" the RF on the antenna without any adverse affect on its tuning or resonance. After installing the resistor, there were no problems with static pops.

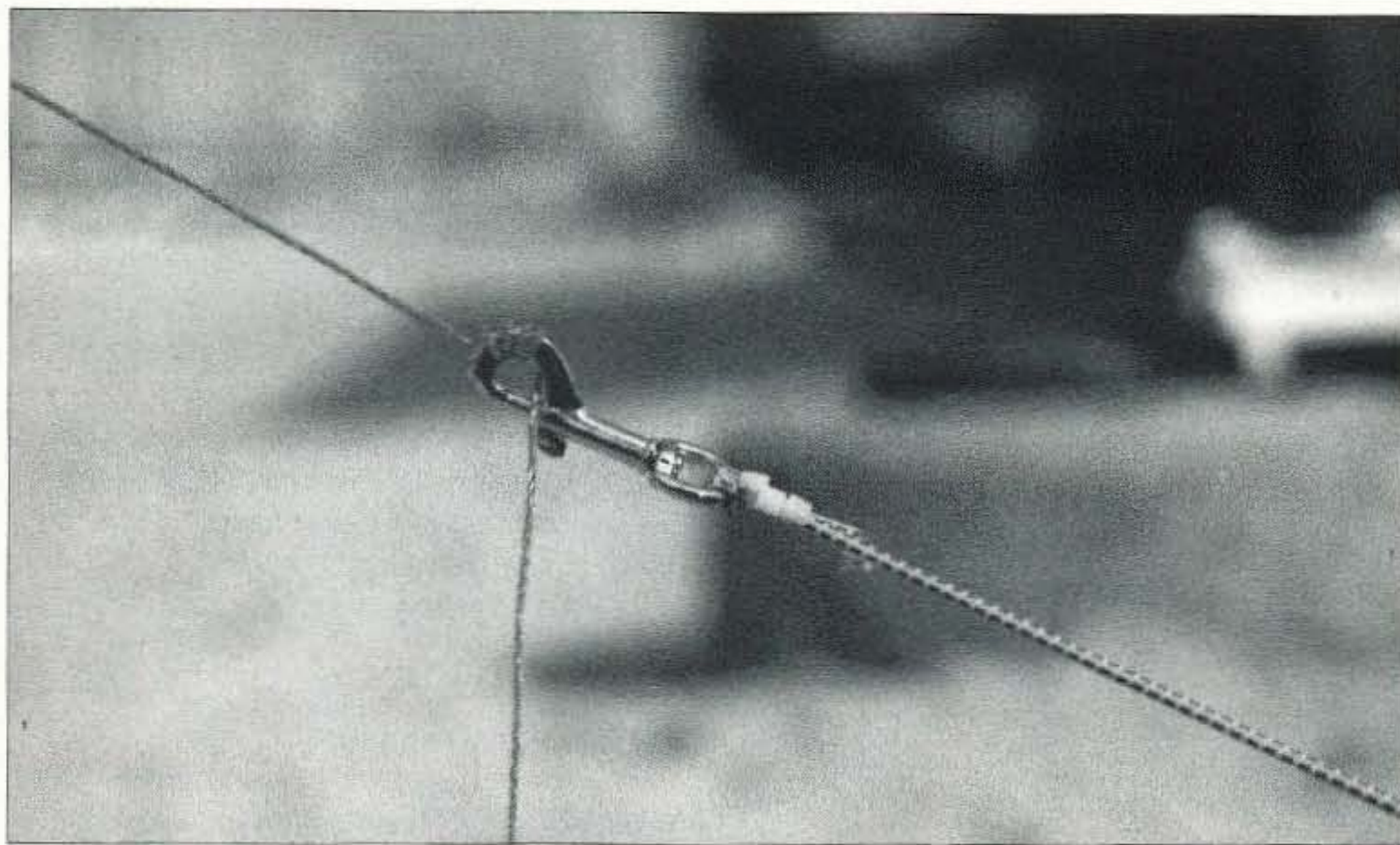


Photo E. Bungee-insulator secures antenna and isolates it from anchor point.

Power for the QRP station was provided by a modified MFJ-4114 portable power pack. This unit normally contains ten 1.5-volt "D"-size NiCd batteries, to produce 15 volts of output. The problem I found with this design was that the slightest amount of physical shock would cause the batteries to "spring loose" from their holders. Also, my SG-2020 won't operate well if the supply voltage drops below 12.0 VDC. I fixed these problems by modifying the MFJ-4114, removing the D-battery holders, and installing two 8-volt (3.2 Ah) sealed lead-acid rechargeable ("gel-cell") batteries connected in series (Power-Sonic Corporation, type #832). They provide 16 volts DC fully charged, and allowed

the SGC radio to operate for several hours before dropping below the 12 volt limit. The other advantages of these batteries are that (a) they are much more secure than 10 D-cells, (b) they don't have the NiCd "memory effect," and (c) they're more reliable than 10 batteries connected in series with spring connectors.

I have used my kite antenna for over a year now with great results. It's lots of fun operating on the beach ("that's SANDchair copy, OM!"), and my portable station usually prompts a few questions from curious onlookers ... a great way to explain what amateur radio is all about, and why it's more interesting than making a call from a cell phone!

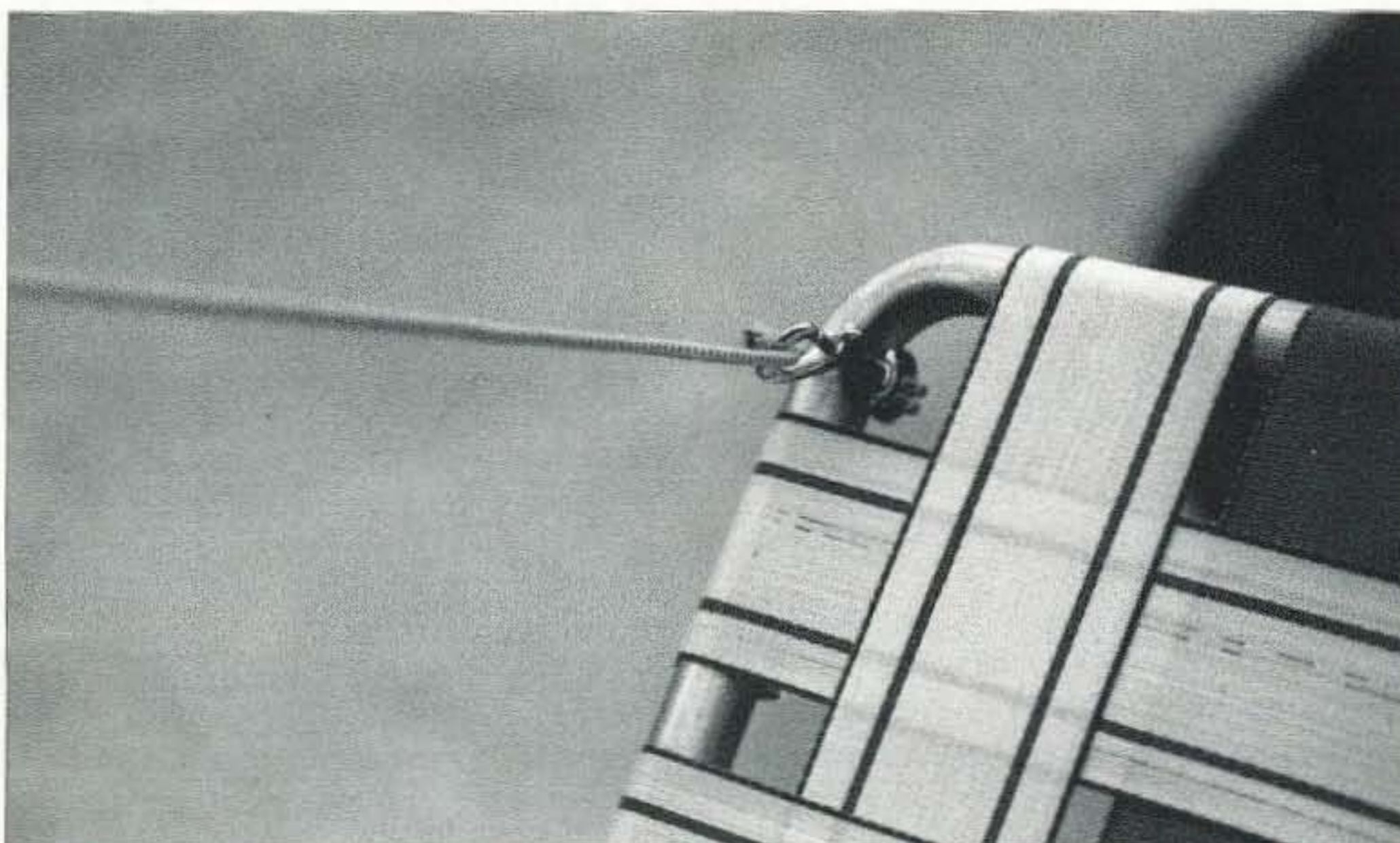


Photo F. Other end of bungee-insulator is tied to operator's chair.

Locating polywire can be tricky if you don't live where there are farming materials suppliers. Try calling feed and tack stores, or these polywire manufacturers (Web sites listed in brackets):

Stafix Electric Fence, Ltd.; (530) 743-9045 (located in California); [www.stafix.co.nz].

Gallagher Power Fence, Inc.; (800) 531-5908; [www.gallagher.co.nz].

For batteries, try:

Power-Sonic Corporation; (619) 661-2020 (located in California); [www.power-sonic.com]. 73

You, Too, Can Be an SOB

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in groups larger than one, lest the enormity of our cumulative strangeness become apparent to others or, worse, obvious to ourselves.

The SOB constitution, therefore, requires members to avoid face-to-face meetings with other amateurs. This is our only caveat, and SSTV and FSTV operators are obviously ineligible. There are no initiation fees, no dues, and above all, no meetings to attend. In fact, if any SOB goes to any kind of amateur social affair anywhere, he is subject to instant expulsion. And so compliant with this rule are we that none of us ever has been expelled. "Once an SOB, always an SOB" is our motto.

So how do you join?

Membership is by over-the-air invitation only. Any amateur holding any class of license anywhere in the world is welcomed (SSTV and FSTV ops aside) so long as he swears on the memories of Hertz, Steinmetz, Phelps, and The Old Man himself to abide by the no-meetings rule.

(Phelps, Herman W., ex-1XGZ, for the benefit of those who may not be thoroughly schooled in early amateur lore, was the first licensed ham operator to fracture his skull on an attic rafter while jerking his lip away from an RF arc drawn off a carbon microphone loop-modulating a self-excited 210 on or near 160 meters.)

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