You still have enough time before the Contest to put one of these together and get in on the fun.

A Quick and Easy 160 Meter Antenna
(With Multiband Capabilities)

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The 160 meter band has traditionally been one of amateur radio's more fond links with both classic-style amateur activities and relaxed on-the-air casual operating practices. Indeed, a nostalgic ring straight from the golden age of yesteryear is almost perceptible in the static bursts and noise rumbles on this unique amateur band.

The recent frequency expansions and increase of power levels affecting 160 meters promise to escalate future interest in this band. The newcomer to "Top Band," however, should remember to study current 160 meter allocations for his particular area before blindly jumping into action near some possibly taboo frequency range. In addition to the few remaining restricted areas of 160 meters, all U.S. amateurs should refrain from transmitting in the "DX window" situated between 1825 and 1830 kHz. Foreign stations employ this "window" for transmitting a clear signal, while specifying their receiving frequency (which usually falls between 1800 and 1825 kHz). An adopted "gentleman's agreement" for the range of 1800 to 1825 kHz separates c.w. activity in the 1800 to 1812 kHz range and s.s.b. activity in the 1812 to 1825 kHz range. Could there be any justifiable doubt as to the more recent regeneration of enthusiasm for this lowest frequency amateur band? We might simply suggest try it; you'll surely like it!

The Top Band Radiator

The dilemma of erecting and tuning an efficient antenna for 160 meters can be an overwhelming obstacle for many amateurs. Verticals are the preferred radiators, but their height and physical construction create problems for the amateur with restricted time and finances. Longwire antennas, however, provide a very acceptable compromise, particularly when at least one quarter of their overall length is vertically polarized.

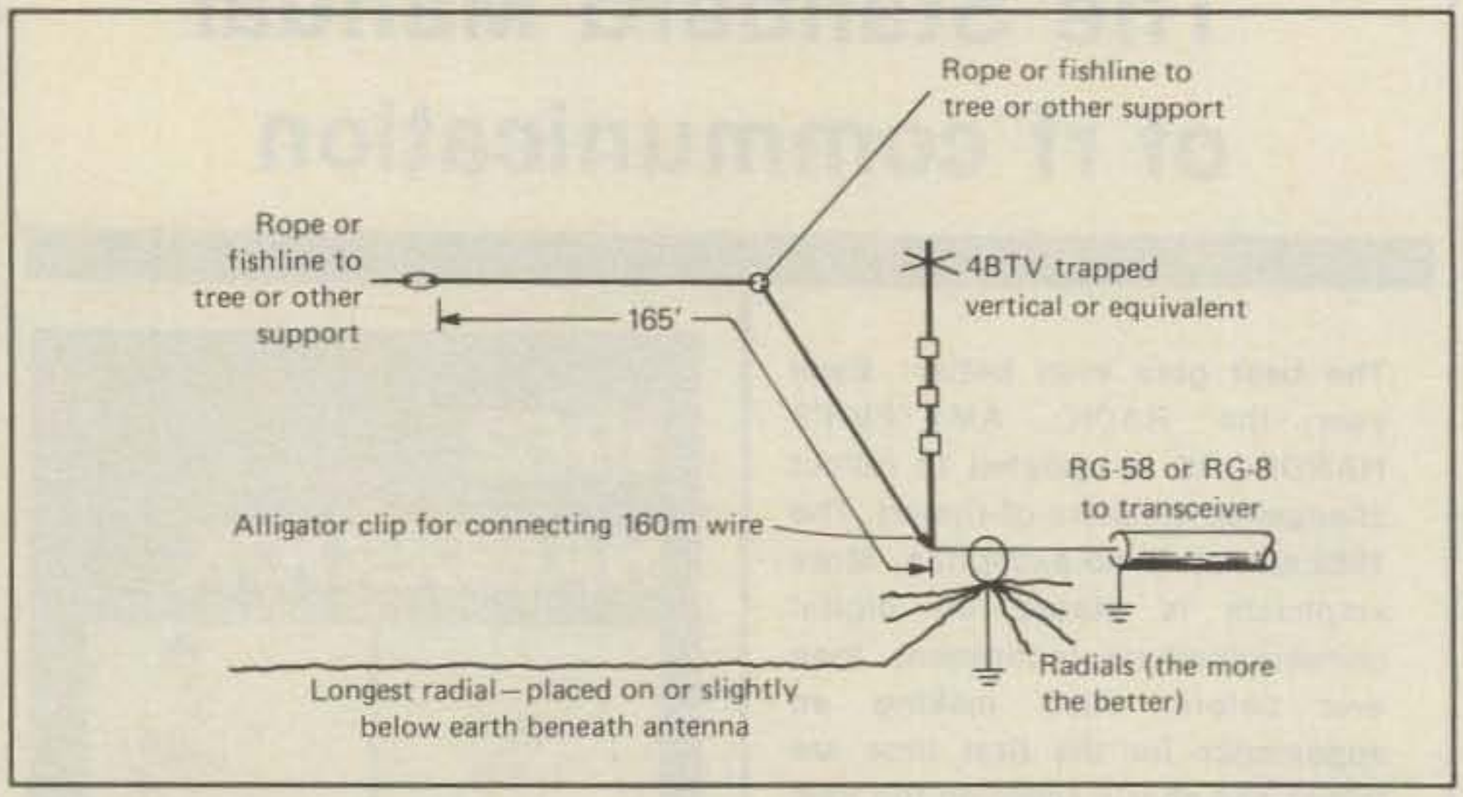

Fig. 1– The quick and easy 160 meter antenna starts out as a multiband vertical radiator. The addition improves overall antenna performance. A 365 pf to 750 pf variable capacitor can be inserted between the alligator clip end and the vertical radiator if tuning problems are encountered. Note that the vertical mounts on a ground rod, but the radiator is insulated from the ground proper.

The 160 meter antenna described in this article is a cross-combination of the popular W1BB inverted L and a reduced-sized vertical antenna. The idea was conceived out of necessity (getting an efficient radiator up and tuned within a mere hour's time before the annual *CQ* 160 Meter Contest), yet the creditable performance has resulted in permanent use of the antenna by myself and several other amateurs. A sketch of this simple antenna is shown in fig. 1. An approximate 165 foot length of antenna wire is erected with as much of its length as possible situated in a vertical or semi-vertical position. The horizontal section's end is affixed to an insulator and supported by a nearby tree, tower, etc. The vertical section's end (which, in the W1BB design, connects through an approximate 750 pfd variable capacitor to a 50 ohm coaxial cable) is then connected to the feedpoint of a multiband vertical antenna. Since the vertical's associated coax cable and ground system is thus utilized, the 160 meter antenna construction is complete. If tuning of the 160 meter is required, the wire's length should be varied at the feedpoint (point of connection to the vertical antenna). An s.w.r. of 1.4 to 1 or less should be obtainable at the resonant frequency (*example:* 1820 kHz), with reasonable frequency excursions causing s.w.r. rises of less than 2 to 1 (example 1801 or 1840 kHz). The vertical antenna used in my particular case is the Newtronics 4BTV 40 through 10 meter trapped antenna, ground mounted with approximately 25 radials of approximately 30 foot length (not the most effective radial system, but the best I can presently muster).

It should be realized that the overall effectiveness of any vertical antenna, and any 160 meter antenna, is directly related to the ground system utilized. A single 6

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foot rod or mere connection to a cold-water pipe isn't sufficient. Radials of at least a quarter wavelength for the lowest frequency should also be used (the more the better!). Any kind of wire can be used—old guy wires, old antenna wire, hookup wire, unwound transformer wire, etc. Metal objects lying on the ground, such as tin sheets, old TV antenna, etc., can also be connected to the radials' ends for more "surface area" (burying those objects is also worthwhile). At least one of the longest radials should be placed below the 160 meter antenna's horizontal section. This wire doesn't necessarily need to be buried; it may be laid on the ground proper (don't insulate this wire from earth, however).

The 4BTV vertical used in my particular case isn't a set-in-concrete prerequisite for the 160 meter radiator. A 20, 15, and 10 meter vertical was also tried and used with similar results. Since exciter-only power levels are used on 160, and the verticals tried were rated at 2 kw, no trap degraduations were experienced. The prime key to this antenna is thus to open-mindedly experiment with what you have available, and use an indoor antenna tuner should the s.w.r. rise above 2 to 1 (we've seldom encountered this).

Installation Notes

One of the quickest and easiest ways of erecting this antenna involves the careful use of a slingshot or "wrist rocket." After a few practice shots, tie a lightweight fishing line onto a metal object and shoot it over the desired tree limb. Next tie the fishing line to the antenna wire and pull it into position. A desirable length for the wire's vertical section is 45 feet; however, vertical lengths of 25 feet have produced good results. The antenna should, naturally, be situated as high and in the clear as possible. A slight amount of directivity in the direction of the wire's horizontal length will be noticed with this antenna. The directivity isn't substantial; however, its existence may assist consideration of antenna location.

Summary

The 160 meter antenna described in this article has proven itself through both local and DX contacts on "Top Band" (we filled several log sheets with 1000-mile-plus QSO's during the antenna's first weekend of use). The over-one-quarter wavelength employed (165 feet) allows easy impedance matching and tuning. As an extra bonus, we found the 160 meter wire could be left connected to the vertical during 20 and 15 meter operations (it actually helped!). Operations on other bands required removing the 160 meter wire. Although we haven't tried applying this extended-quarter-wavelength wire idea to 10 or 20 meter whips for 40 or 80 meter activity, the possibility holds merit. Here's hoping you enjoy the simple skywire, and it brings good DX returns!