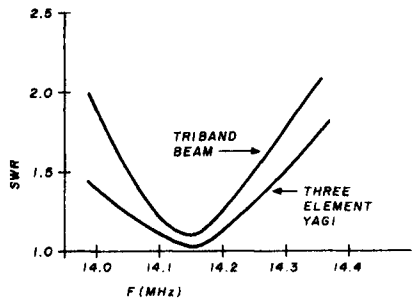

fig. 5. SWR bandwidth curve of typical triband Yagi beam is quite sharp on 20 meters, approaching 2 at band edges. A three-element, full-size Yagi exhibits a more moderate SWR curve for the same frequency span. On 15 meters, tribander bandwidth is somewhat improved and is essentially equal to full-size Yagi on the 10-meter band.

three-band operation. If a solid-state transmitter is used, an SWR "flattener" will prove helpful in making the transmitter perform at top efficiency.

the G3LDO wire

While on the subject of Yagi antennas, the interesting design by G3LDO is worth considering.[2] Experiments were run on 144 MHz with wire beams, and G3LDO came up with the interesting observation that the resonant length of a wire element depended upon the insulation on the wire. Uninsulated copper wire and enamel-coated copper wire provided "normal" dimensions, whereas insulated copper wire (hookup wire) had a velocity factor of about 0.965. The insulation on the tested wire was PVC (polyvinyl chloride).

Based on this information, G3LDO built a test beam on 2 meters, and then a larger model for 10 meters (**fig. 7**). He found that bending the elements back in the plane of the antenna caused an increase in the resonant frequency of the bent element and also resulted in a drop in gain. The solution was to fold the elements back in umbrella fashion, with the ends of the elements forming guys for the bamboo or fiberglass support structure. Dimensions for the beam are given in **table 1**. The performance of this simple and inexpensive wire beam was equal in every way to a standard equivalent design using full-size elements. This looks like a good antenna design for the ham who has a problem locating aluminum tubing.

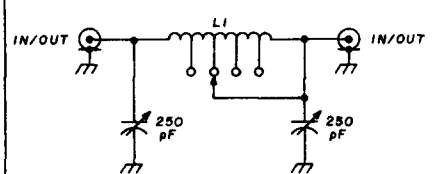

fig. 6. Simple SWR "flattener" for coaxial line. Capacitors are single-spaced receiving types for powers to 250 watts. Mica compression units can be used for low power. Inductor consists of 15 turns, 1-inch (25.4mm) diameter and 2 inches (51mm) long. Tap to coil is through a ceramic, single-pole rotary switch, such as Centralab 2501 (two to six positions, nonshorting). The coil is tapped about every other turn. Wire tap can easily be soldered to coil by depressing turn on either side of tap with screwdriver to allow tap wire to pass around a turn of the coil (coil may be a B&W miniductor or equivalent). Network is symmetrical; either terminal may be used for input or output.

a TVI filter for the 6-meter operator

Do you have a problem with 6-meter operation? It's a tough deal, what with TV channel 2 only a few megahertz away. Filters that can protect channels 2 and 3 (and provide attenuation of TV garbage in the 6-meter receiver) are hard to find.

My attention has just been directed to a new filter that will be of interest to all 6-meter operators. It is the *Unadilla/Reyco* Interfilter, specifically designed for 6 meters. It's rated for full Amateur power over the range 50-52 MHz and provides over 63 dB attenuation at TV channel 3. (Attenuation at channel 2 is somewhat less.) For full information on this interesting filter, write Unadilla/Reyco, 6743 Kinne St., East Syracuse, New York 13057.

references

1. Design and construction of trap antennas is covered in detail in *Simple Low-cost Wire Antennas,* by the author of this column. Available from Ham Radio's Bookstore for $6.95.
2. This material is abstracted from *Radio Communications,* a publication of the Radio Society of Great Britain, 35 Doughty Street, London WC1N 2AE, England.

ham radio

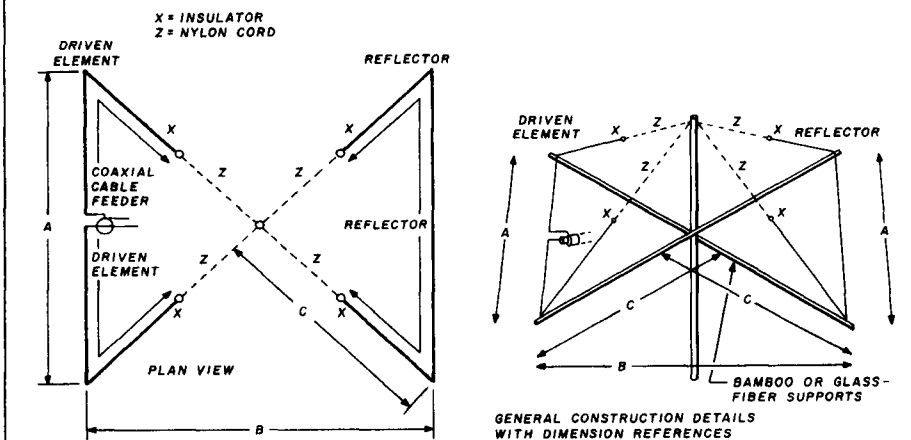

fig. 7. The G3LDO wire beam antenna for 10, 15, or 20 meters. Framework consists only of vertical mast and four bamboo or glass fiber support rods. Antenna is fed with coaxial line at midsection of driven element. Dimensions are given in table 1.