loading on both horizontally and vertically polarized loops. If installed at the top of the delta loop as in Fig 10-20C, a 9-meter long wire inside the loop will shift the 3.8-MHz loop (from Fig 10-11) to resonance at 3.5 MHz. For installation at the center of the baseline, you can use a single wire (Fig 10-20D), or two wires in the configuration of an inverted V (Fig 10-20E). Several wires can be connected in parallel to increase the capacitance. *(Watch out, since there is very high voltage on those wires while transmitting!)*

The same symmetry guidelines should be applied as explained in Section 3.1 to preserve symmetrical current distribution.

3.1.3. Adjustment

Once the loop has been trimmed for resonance at the high-frequency end of the band, just attach a length of wire with a clip at the voltage point and check the SWR to see how much the resonant frequency has been lowered. It should not take you more than a few iterations to determine the correct wire length. If a single wire turns out to require too much length, connect two or more wires in parallel, and fan out the wire ends to create a higher capacitance.

3.1.4. Bandwidth

By using one of the above-mentioned loading methods and a switching arrangement, a loop can be made that covers the entire 80-meter band with an SWR below 2:1.

3.2. Reduced-Size Loops

Reduced-size loops have been described in amateur literature (Refs 1115, 1116, 1121, 1129). **Fig 10-21** shows some of the possibilities of applying capacitive loading to loops, whereby a substantial shift in frequency can be obtained. G3FPQ uses a reduced-size 2-element 80-meter quad that makes use of capacitive-loaded square elements as shown in Fig 10-21A. The fiberglass spreaders of the quad support the loading wires.

It is possible to lower the frequency by a factor of 1.5 with this method, without lowering the radiation resistance to an unacceptable value (a loop dimensioned for 5.7 MHz can be loaded down to 3.8 MHz). The triangular loop can also be loaded in the same way, although the mechanical construction

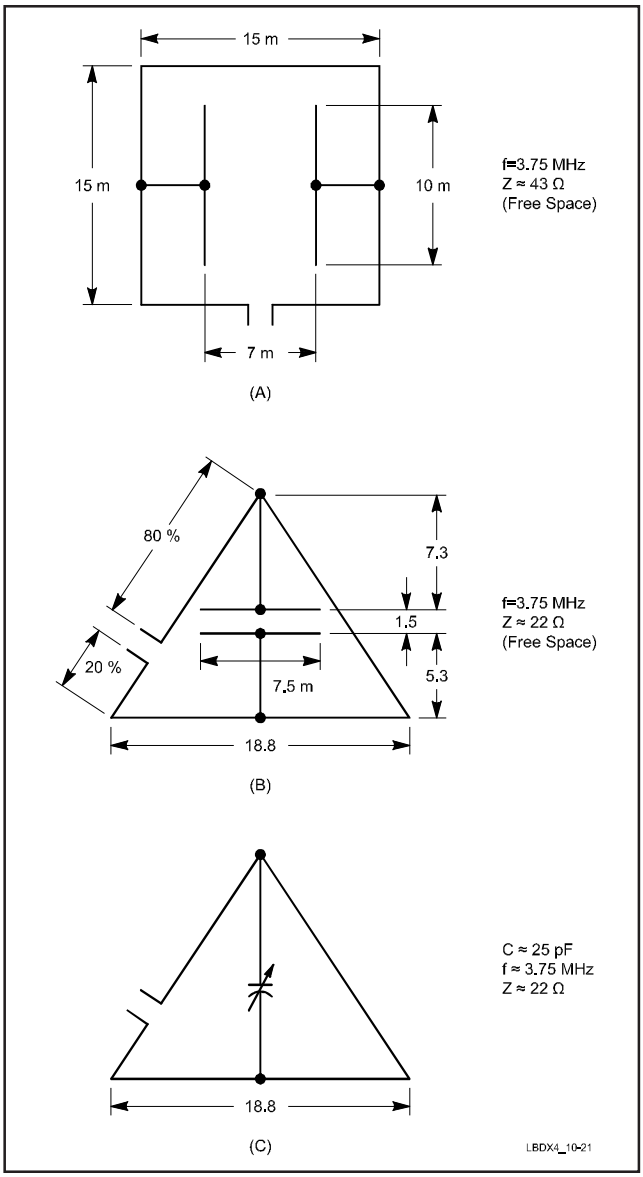

Fig 10-21—Capacitive loading can be used on loops of approximately ²/₃ full size. See text for details.

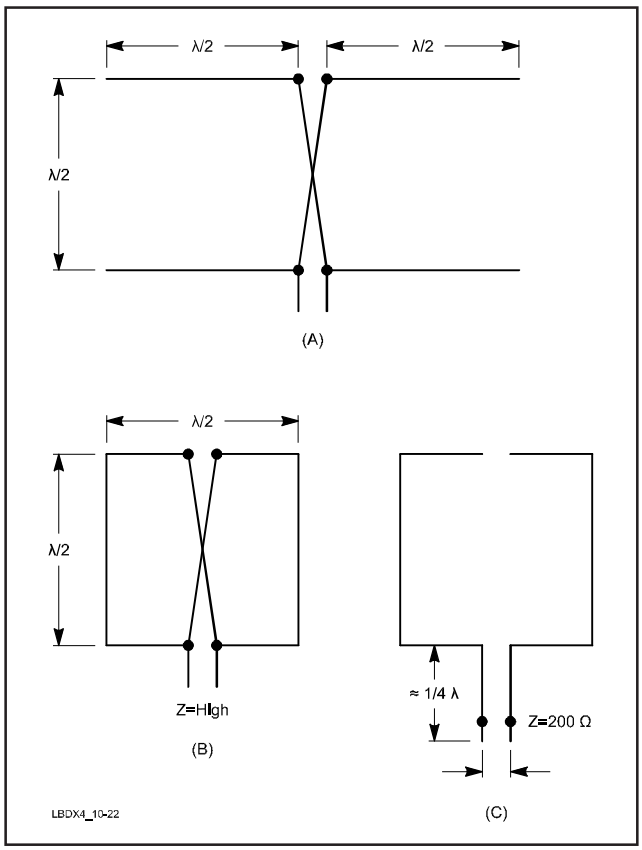

Fig 10-22—The bi-square antenna is a lazy-H antenna (two λ/2 collinear dipoles, stacked λ/2 apart and fed in phase), with the ends of the dipoles bent down (or up) and connected. The feed-point impedance is high and the array can best be fed via a λ/4 stub arrangement.