

## Phased Delta Loops for 80 meters

K1KP uses a simplified version of the ON4UN feed for his 80 meter delta loops, which are ideally equilateral triangles that have their apices up at 70 feet and base legs about 8 feet off the ground. The apices are spaced 20 feet apart, with the bases spread to a distance of about 50 feet. The feedpoint impedance of a loop is close to 100 ohms. Each feedpoint runs to a central switch. There are baluns at each loop feedpoint to isolate each antenna from its feedline. Standard feeding calls for a 1/4 wave matching section of 75 ohm line before connection to 50 ohm coax leading to the rig. The non driven element is loaded with ~110 ohms inductive reactance to make it act as a reflector. The pattern is switchable in two directions broadside to the loops. Each loop is fed 1/4 wavelength from the top, which works out to about 8 feet up from one corner.

Original loops were 256 feet long and resonated at 3.8 MHz. This results in a formula of  $973/(f \text{ in meg})$  gives length in feet.

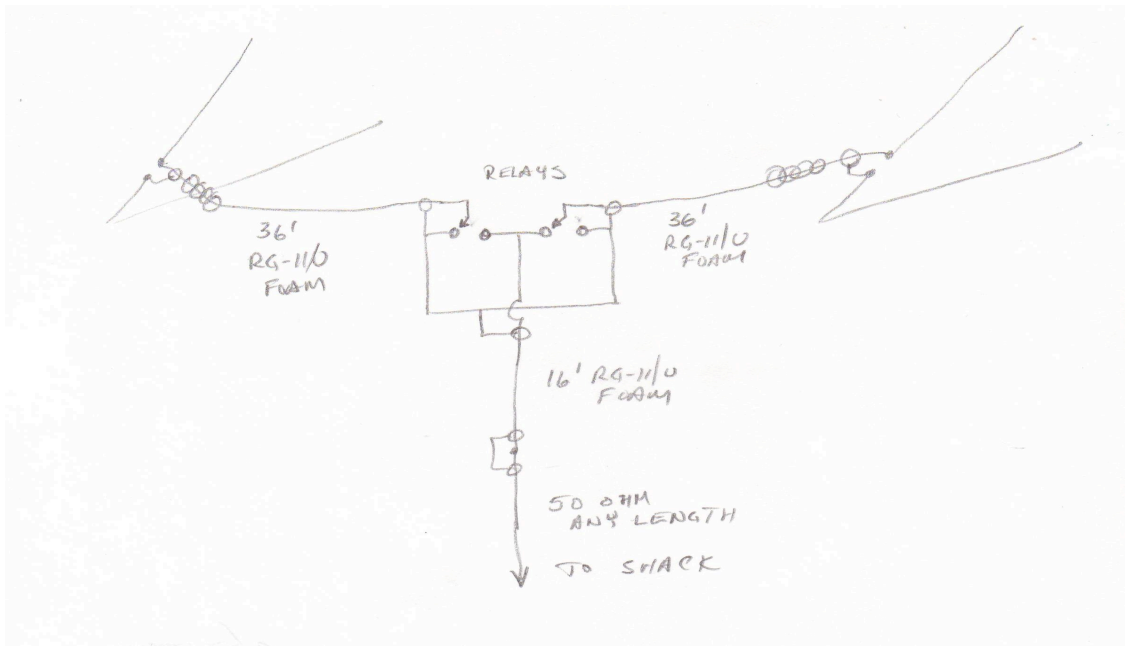
New stub method for tuning down to 3550 for CW – add a stub of wire attached at middle of base, supported parallel to ground by cord towards tower. Other end is open. This lowers resonant frequency nicely for CW. Stubs are about 13' 6" long. Stub can be attached/removed from ground level

## The K1KP Feed Method

Uses the length of coax from the feedpoint to the relay box for inductive loading of the reflector.

Coax sections from feedpoints to the relays are lengths of RG-11/U foam (with a higher velocity factor than non-foam coax) coax, 36 feet long. The switch is a relay that selects one feed as the driven element. 16 more feet of RG-11/U foam coax after the relays adds to the 36 feet on the driven element to form a quarter wave matching section, yielding a 50-ohm impedance for the coax to the shack.

The relay also shorts out the end of the other 36 foot feedline forming the reflector. The shorted 36 foot coax line functions as a loading inductance to lengthen the electrical size of the loop in use as a reflector. Current implementation uses Dow-Key relays for switching.



K1KP reports reasonable flat SWR and detectable gain over the single loop with this system, which is fairly close-

spaced (average distance = about  $1/8 \lambda$ ) as parasitical systems go. It represents an ingenious way to switch beam directions and simplify feedline requirements without sacrificing performance from the wire array.

F/B is always 10db or better, can approach 20 db at best point.