Delta Loop Portable

Rob Mannion G3XFD enjoys working portable, using relatively low power. Fed up with 'just missing' juicy DX on 18MHz...he's tried using an unusual Delta Loop with great success!

Many readers will be familiar with my usual portable h.f. operational set-up...using the Tennamast drive-on Tenna-Tourer mast base which supports a 10 metre high collapsible fibreglass fishing pole (available from **Sycom**, see advert this issue).

The vertical wire (wound round the erected pole) antenna system is used in conjunction with a 20 metres long single wire radial, laid out along the ground. In practice the system works exceedingly well and I've had great fun in working West Coast USA stations (often using 400W plus into complex beam antennas...with my 10W or so on either c.w. or s.s.b.

However, I've often lost out on some really juicy DX - often having received a 'QRZ' when I've called them. Frustrating indeed! So, I then looked at a simple directional antenna which I could erect quickly, and was easily portable.

A cubical quad antenna would be ideal for DX...but that's not the sort of antenna to erect and dismantle on a regular basis! Although I should mention that the cubical-quad can be used when mounted just above the ground...and still provide you with phenomenal DX. Indeed, other things considered (children, washing hanging out, and partner objections!) the cubical-quad is the ideal small space antenna (**yes it really is...just think about it!**).

Instead, bearing in mind the logistical problems, I looked at either a square or Delta loop. I ended up trying a trick I'd thought of...using a Delta Loop and bamboo canes.

● Fig. 1: The Fibreglass 10m high telescopic mast in use with a Tenna-Tourer mast base (see text).

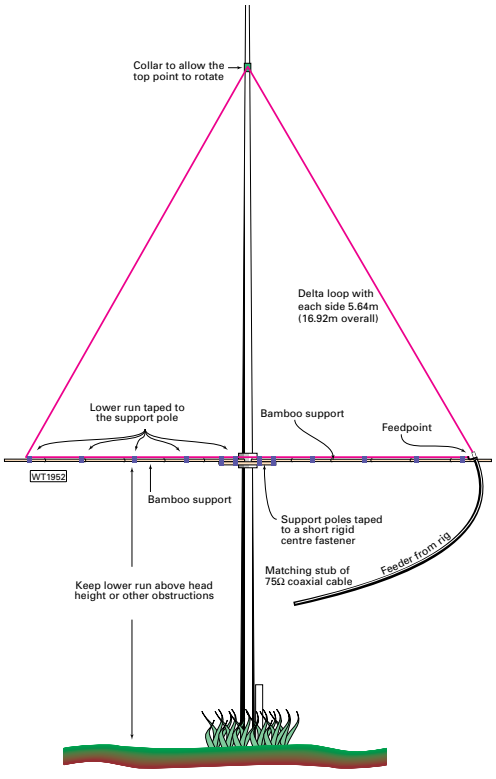
Bamboo & Delta

The photograph, **Fig. 1**, shows my ill-fated (I got rid of it as it was so unreliable) VW Sharan MPV estate car 'parked' on the Tenna-Tourer mast base. I've used this photograph because it illustrates the portable mast very effectively - and it's from this system I've 'hung' my Delta loop from.

The portable Delta loop is extremely simple, **Fig. 2**. For 18MHz (18.100MHz) it consists of a loop (using 7mm stranded wire as used in mains 'flex') of 16.92m (55ft 6ins) total length. The bottom part of the wire forming the loop is permanently taped to the two bamboo sticks. (From a gardening centre, I got some 10ft lengths (they're not sold in metric sizes apparently), but shorter lengths can be joined together with non-metallic sleeves.

I made a mast 'collar' bracket from a sheet of fairly stiff polythene (removed from a large detergent container), making a hole (for the mast pole to pass through loosely) and lugs, which were then taped onto the bamboo. Make sure it's stiff enough to make the whole length of bamboo to move round the mast pole as one unit, and adjust it so the 'boom' clears the roof of your vehicle!

The apex of the continuous loop (only broken at feed-point) to connect to the coaxial cable inner and outer is provided with a polythene collar to slip over the very thin top section. In effect it all looks like a sail rigging...without the sailcloth! It only take a few minutes to erect, and dismantle. To dismantle I lower the telescopic sections, slip off the top collar, fold the loop wire and wrap it around the bamboo sticks, pop it on the roof rack and drive home!



● Fig. 2: Using a simple length of wire, together with garden-centre bamboo sticks it's possible to make an extremely effective Delta loop antenna which folds and transports easily. Here, the fibreglass mast (or similar) used by G3XFD is illustrated - for clarity - as a free-standing system, leaving enough headroom/vehicle clearance (see text).

Tuning & Feeding

Tuning is incredibly simple and feeding with 50Ω coaxial cable into a standard antenna tuning unit (a.t.u.) in my car I've found that there's no need to use a coaxial balun. Purists can use a 2.73m length of 75Ω television type coaxial cable. (the Delta Loop length for 14MHz is 21.64 metres - 7.2m per side!, matching stub 3.49m).

In use you only need to rotate the loop a quarter of a turn to 'beam in' a DX station because it's bi-directional of course, the main lobes being at right angles to the bamboo boom. (the feedpoint indicated provides low angle radiation). Although I intended the apex collar to rotate...in practice it jams and the wire spirals around the mast if you turn it through more than 90°...making the loop smaller. This increases the loop's resonant frequency significantly...increasing the system's bandwidth (useful!).

Obviously, the idea becomes more attractive for 21, 24 and 28MHz. So I urge you...have a go, you'll be astounded at the results. Let me know how you get on working the DX! PW