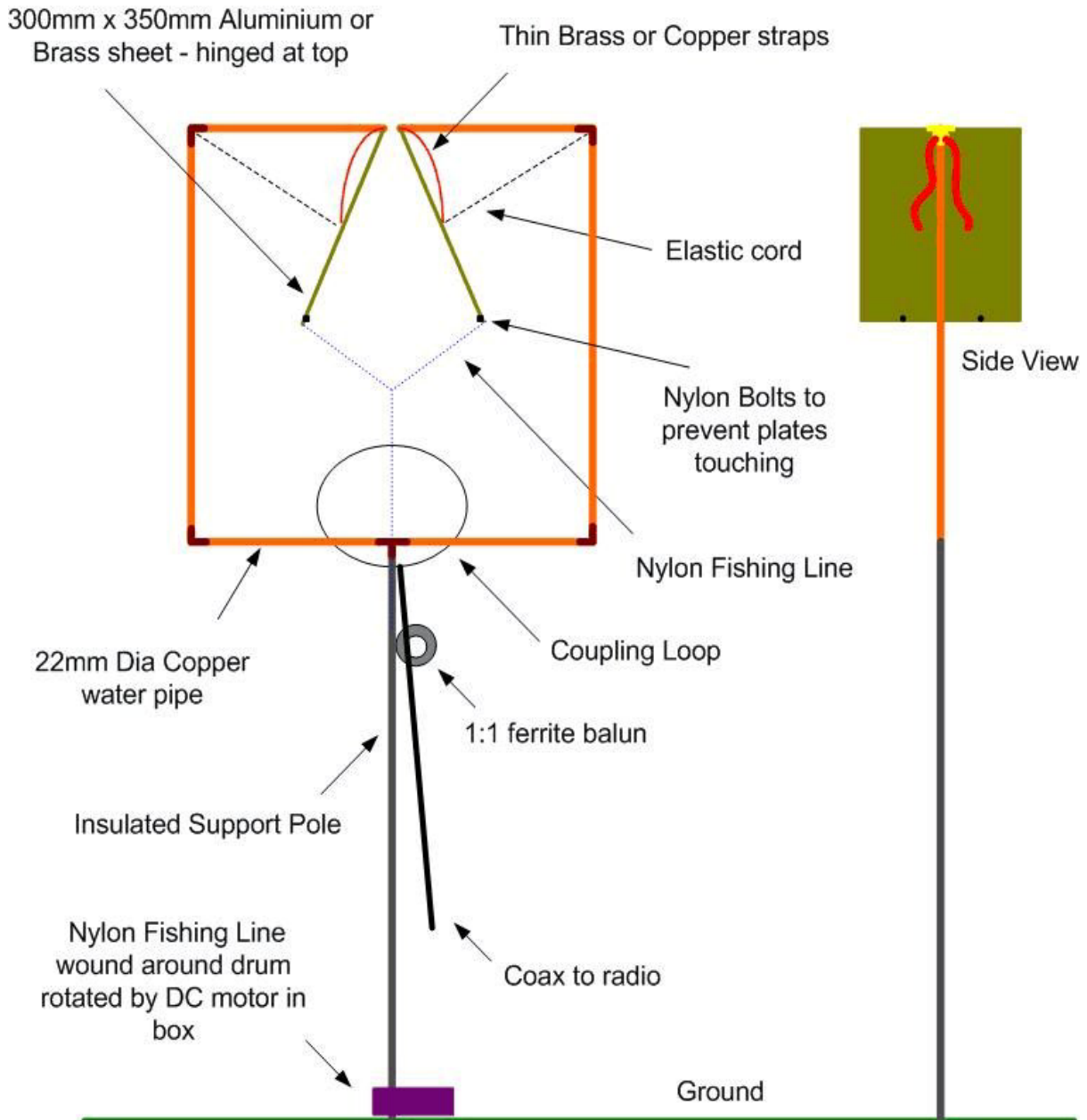


Remotely tuned 1m Dia HF loop antenna for 7 to 29MHz

The following is a prototype antenna I'm currently constructing.

Note that 28mm Dia pipe and octagonal shape (use 45 degree elbows) would give approx 2dB more gain at 7MHz but would cost about £15 more in materials (at current prices).

1m Dia Remote Tuned Loop Antenna



The antenna can be remotely tuned by powering the DC motor so that it either pulls or slackens the Nylon Fishing Line attached to the hinged capacitor plates. This causes the plates to move towards or away from each other. The spacing between plates must be greater than 2mm when closed to prevent high voltage flash-over. With the dimensions shown a capacitance range of 3 – 250pF should be achievable. The hinge has a strap of thin sheet brass across the moving parts in order to ensure a low impedance connection with no sliding contacts. The plates can be made larger and 'Tear' shaped in order to increase the Max to Min capacitance ratio and antenna tuning range. With the dimensions shown the loop should operate over the range 7-29MHz.

Construction- progress so far:-

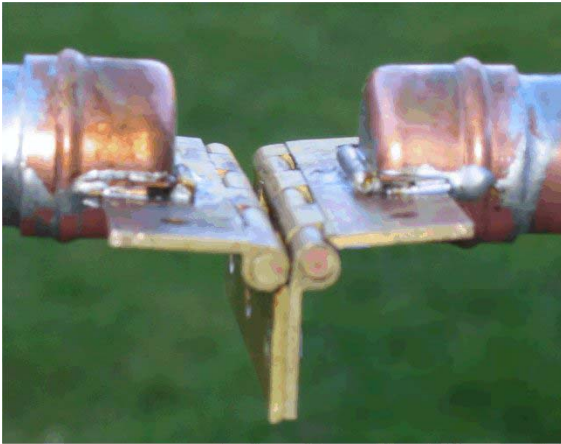
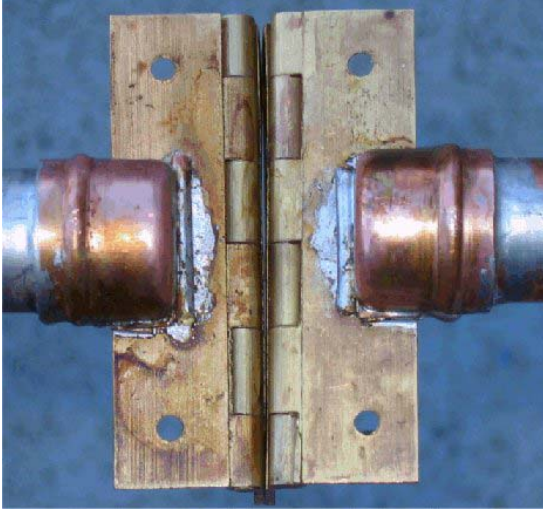
I have soldered up the loop and hinge assembly and checked it with a temporary feed loop and no tuning capacitor.

I wanted to ensure that in it's basic form the loop was resonant above 29MHz, as I was concerned that the end capacitance with the hinge assembly fitted would be too great to allow operation on 10m.

It looks like the design parameters I selected were OK as the resonance is at 31MHz.



I decided to mount the brass hinges by cutting a slot in the end of the pipe and soldering them directly in.



The next stage is to fit the tuning plates on to the hinges and make a perspex plate to mount across the top faces of the hinges to hold them apart at the correct spacing. I may also have to use a spacer between the tops of the hinged plates to stop them shorting as they swing open. Some short straps made from coax braid will connect between the two halves of the hinges in order to ensure a good low impedance moving joint.