

# Antenna Workshop

## Fishing for DX

**Ben Nock G4BXD plays the field, as he describes using an all-in-one fishing rod to improve his signals. Read on as he tells you how!**

**Y**ou know what it's like, as you walk around the car boot sale, you try to keep the (X)YL away from all the wonderful tat masquerading as antiques, dodge the Mongolian hoards scrambling around a newly arrived table as though crisp new fivers were being sold for 10p. You try to avoid the van selling off potential salmonella-poisoning cheap. You also have to dodge the dog-draggers, the pushchair drivers and the skipping kids.

Then, you see something and an idea immediately springs into your mind. It's a good idea of course, unlike the one such as the wonderful 16th century photograph of a Chinese girl with flowers in her hair that the YL thought would look nice over the fireplace. This new idea's not like when you bought 300 flower pot tubs, as you were: 'bound to use them in a myriad of applications'.

No, your idea's a great idea to do with radio. As we know, all radio ideas are great ideas. So, after buying the treasure, you scurry back to the car, parked three miles away in the near(ish) mud drenched field, to examine the find and extend your idea.

### Treasure

So, it was on one Sunday that my 'treasure' and I arrived back home. I had purchased a fishing rod. Now, I've not been fishing for 35 years or more and I had no intention of taking it up again. What! Sit there all day waiting for a water-inhabitant with a 7-second memory retention to eat a worm attached to a big shiny hook. That's no longer a pleasure to me.

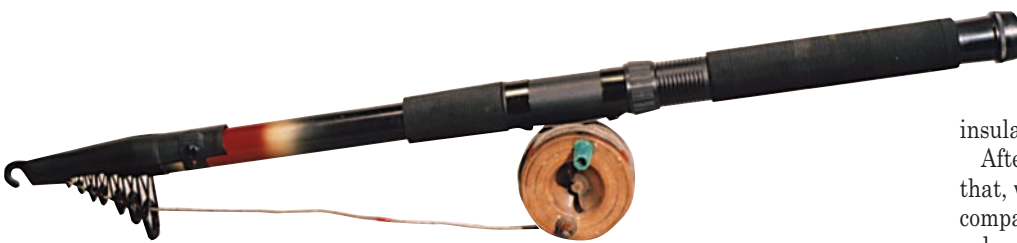
My intention was to sit in a field all day, awaiting that elusive bit of DX while surrounded by cud-chewing bovines. The type of DX that could only be heard in such a noise free environment away from the rubbish associated with modern day town dwellers.

All the other buyers at that boot sale on the day, saw only a fishing rod! In my mind's eye, I saw a portable antenna support. It's a fishing rod that has the interesting ability to be quickly collapsed down to just 680mm long, but it can be extended to 4.5m long. Being made of a hard plastic type material it is very light and with a substantial rubber grip that should also be well insulated, **Fig. 1**.

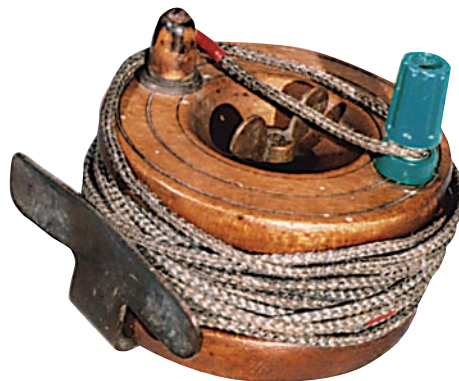
The eyelets, through which the fishing line normally runs, are actually equally insulated, as the inner metal ring in each eyelet is mounted in a plastic grommet. The base cap on the handle, unscrews to provide a space, if needed, for various small insulators to be stored.

After more thought, it crossed my mind that, while a sectional metal whip is also compact and easy to stow away this new pole would easily replace it. The beauty of the fishing pole and the wire option was that, not only could one erect a simple vertical but, if space permitted, a longer wire antenna could be easily accommodated.

Having sold all of my fishing tackle many years ago, I needed to find a reel to hold the intended antenna wire. I thought the open reel fly-fishing type would be better. It would probably hold more wire than the 'spinning-reel' type. I actually managed to find a vintage wooden reel to help with the insulation needs for such a project.



**Fig. 1: The portable antenna and wire container, otherwise known as Fishing Rod and reel!**



**Fig 2: The wooden fly reel, open and easy to wind wire around.**

## Construction & Modifications

The fly reel, Fig. 2, was modified in that one of the small winding stubs was removed and a 4mm 'banana' socket fitted. One end of the wire being used was attached to the inside of the reel and a quantity of the wire wound onto the reel. The wire used is of a very flexible military specification.

The wire I used has a string like quality, very flexible and strong as it's interwound with metal strands. It's ideal as a portable antenna wire. The amount of wire you will get onto the reel depends upon the size of the reel but as the idea was to produce a short vertical whip, with the possibility of extending the top section to any suitable handy support, long length was not considered.

Having used some of the wire from a military portable wire antenna I kept the remainder on its original holder to spread out and to act as a ground-plane. The original holder even had a frequency and antenna length chart and the wire had coloured marker bands fitted every foot (305mm) along its length, though really of no use for my short vertical it might be used if the long wire option is erected.

## Portable Operations

In use there would seem to be several ways of using the rod antenna. Simply extending the rod to its maximum length, threading the wire through each eyelet with a small knot at the top would see a plain 4.5m vertical whip. Mounting the whip as a free standing vertical is possible using a length of piping and a couple of the springy type bicycle clips used to hold pipes to walls, small one used to hold the pump to a bicycle.

With the clips attached to the top of the pipe this could be knocked into the ground, Fig. 3, there is little weight and wind resistance of the rod so, great strength is not needed. Alternatively, if it was used trailer or vehicle-mounted, the antenna could be fed against ground or a vehicle acting as a ground plane, Fig. 4.

Another way would be to use the rod to lift the wire to 4.5m then attach the wire to a suitable point, tree branch etc, with a suitable insulator, to make a longer inverted-L antenna. The total length of the antenna would then depend upon the amount of wire you could get on the reel.

Another idea could be to pass the wire

Fig. 3: Mounted on a ground-post ...

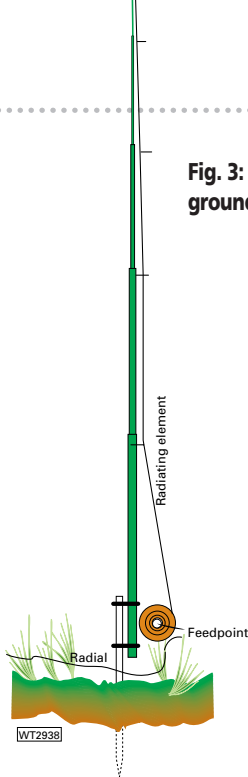


Fig. 4: ... and on a small trailer.

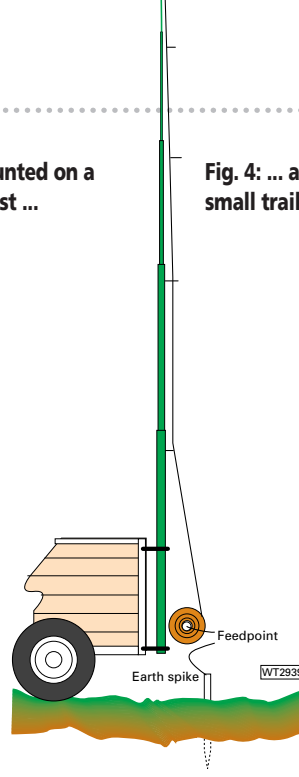
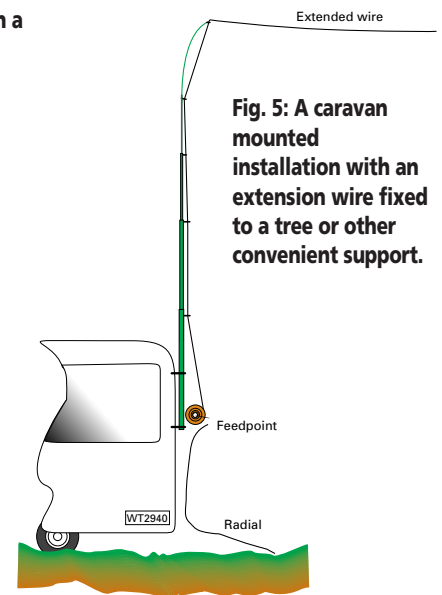


Fig. 5: A caravan mounted installation with an extension wire fixed to a tree or other convenient support.



through the eyelets to the top and tie off in a knot. Then to twist the rod sections as they are extended winding the wire around the body of the rod and making in effect a loaded whip antenna. The rate of twist might be a matter of trial and error but as this particular wire has a marker every foot then some idea of wire used would be possible.

For caravan operators, Fig. 5, the two clips could simply be screwed to the side of the van and the rod inserted when operating. Anyone with a trailer could also mount the clips on that. Indeed, for the price of a couple of cycle clips various mounting positions for home, holiday locations or portable operation could be fitted.

I chose to fit a 4mm banana type socket to the reel, most of the portable sets I would be using were designed to be used with whip antenna of various lengths but fitting a BNC socket could be done. If a connection on the reel was added so that a ground plane or ground spike could be attached close to the BNC then a coaxial feed could be used though matching would be an issue.

## A Day Out

On a nice sunny day I erected the support in the garden. I attached two clips to a length of steel tube, better for knocking into hard ground than aluminium tubing. I erected the fishing rod with the wire fed through the eyelets to the top.

Using one of my military manpacks, a PRM-4031, I tuned up on the various bands, 3.5, 7 and 14MHz. Though band conditions were not great the antenna peaked nicely and using a good length of radial I managed to work several stations on each band.

I then tried twisting the wire around the

pole as it was extended to increase the length of wire in the air. The length used went from 4.5m to 7.5m of wire. This changed the tuning point on the set's built-in a.t.u. and did appear to give better performance, particularly on the lower bands. Due to the time it took to alter the antenna it was not easy to get a really definitive comparison but this could be done over a period of operating.

I then tried the whip in its support role. The wire was taken from the top eyelet and connected to a suitable support a several metres away. This produced a much longer antenna with equally different tuning points on the set tuner. The lower bands, 3.5MHz in particular, responded better to the extra wire length and good reports were obtained. The ground radial was laid under the antenna wire.

I would have thought that on the higher bands, 14 and 21MHz for instance, there might be a peak in directivity towards the direction the top section is supported. Further experimentation will be made to see if the antenna could be so arranged so as to give some degree of directivity.

Future experiments will also include winding a coil around the rubber grips above the point where the reel fits. This could be tapped at various turns and used to load the whip for different frequencies. Indeed, if you had a favourite band then a purpose made loading coil could be fitted to the shaft of the rod, and the coaxial cable feed utilised.

Given such a simple and cheap method of holding up the antenna, this one cost me just £5 from a car-boot sale, the experimentation and options available should keep me busy for quite a while. Not only that, it's a healthy way to play radio.

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