

A simple beam for 10 metre FM

Trying to get a good signal out from an urban area can be a problem especially if you have limited space.

Vertical antennae seem to be the only answer, but in addition to spraying RF in all directions their susceptibility to manmade interference can be a problem.

Being the sort of person that believes in "Why buy it when you can build it yourself?" it was decided a simple beam would be to some advantage.

The main design is derived from the basic HB9CV. Both elements were made from readily available CB dipoles (purchased by the author for just £2.50 each).

The construction of the original CB dipole is not strong enough to withstand horizontal mounting so some modification is necessary. Fig. 1 shows how the centrepiece is formed. Strip the plastic moulding of all metal pieces and discard the top cover. To make the boom drill a piece of thick wall aluminium tube in the centre and fit it into the top of the moulded centrepiece. The cutouts in the sides are made with a Stanley knife and must be a close fit to the tube. Pass the 6mm bolt with the solder tag through the centre, fit the whole assembly to the boom and tighten up. The coaxial feed hole must face backwards.

After the two moulded centres have been modified and fitted to the boom, fit the elements and hold them in place with self tapping screws, with the seams of the elements facing uppermost. Permanent fixing of the overall length is made after final adjustment.

Gamma match

The gamma match is made from a strip of aluminium 8mm wide by

By M Hadley G4JXX



1.5mm thick shaped into the dimensions shown in Fig. 2. If necessary two shorter pieces can be joined where the gamma match crosses the boom. Fix the corners of the gamma match to the moulded centrepieces using two M3 screws, the front screw having a solder tag on

the inside. Mix epoxy putty and form it between the boom and gamma match to produce an insulating and securing block in the centre. Be careful to keep the 10mm distance between the gamma match, and boom and elements. Using self tapping screws, drill and fix the ends of the gamma match onto the front driven and rear reflector elements.

Strip the coaxial cable at the end and push it through the hole in the front driven dipole centre. Solder the braid to the solder tag and connect a temporary 100pF variable capacitor between the coax centre conductor and the solder tag on the M3 screw.

To match the antenna to the transmitter, set the tuning capacitor to approximately half mesh and the dipole elements to the dimensions shown in Fig. 2. Apply a small amount of RF and check the SWR. With the transmitter off adjust the capacitor then check the SWR again. Repeat the adjustments until minimum SWR is obtained. Fine

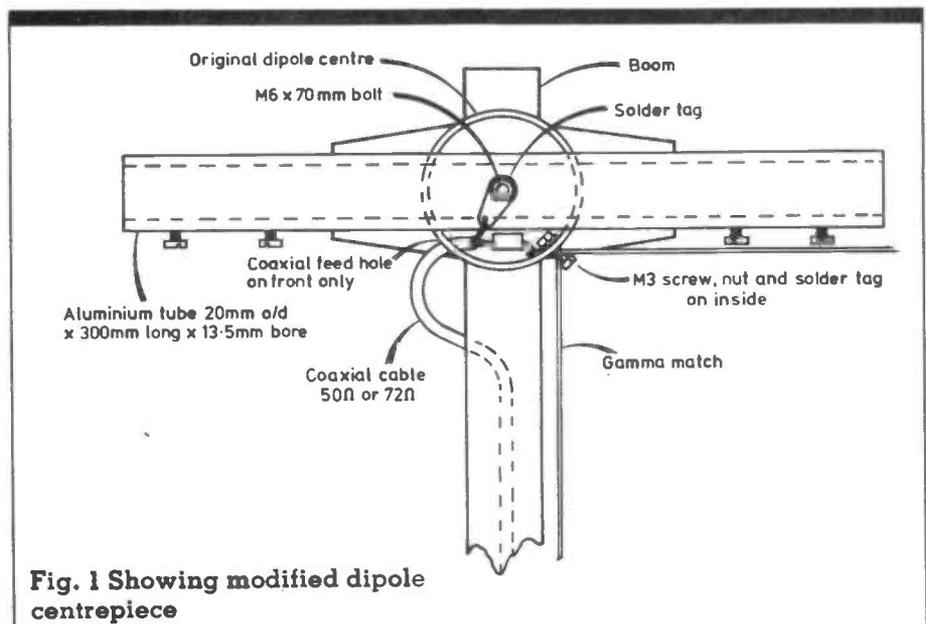


Fig. 1 Showing modified dipole centrepiece