waves, halos and rubber ducks.

The only differences between types is in manufactured quality. A case in point, the ever popular 2m mobile 5/8 wavelength whip. I've had a number of these things on my car over the years and confirm that they all work equally well when new. However, the cheap types which use the integral loading coil suffer badly from internal corrosion of the loading coil guts after a couple of years' service. The rain and Winter salt spray gets in and the copper plated steel coil literally rots away. Against this, the expensive types with demountable aerial whips and coils sealed against the elements have always been nicked from the car before I've ever had a chance to see whether they deteriorate any slower.

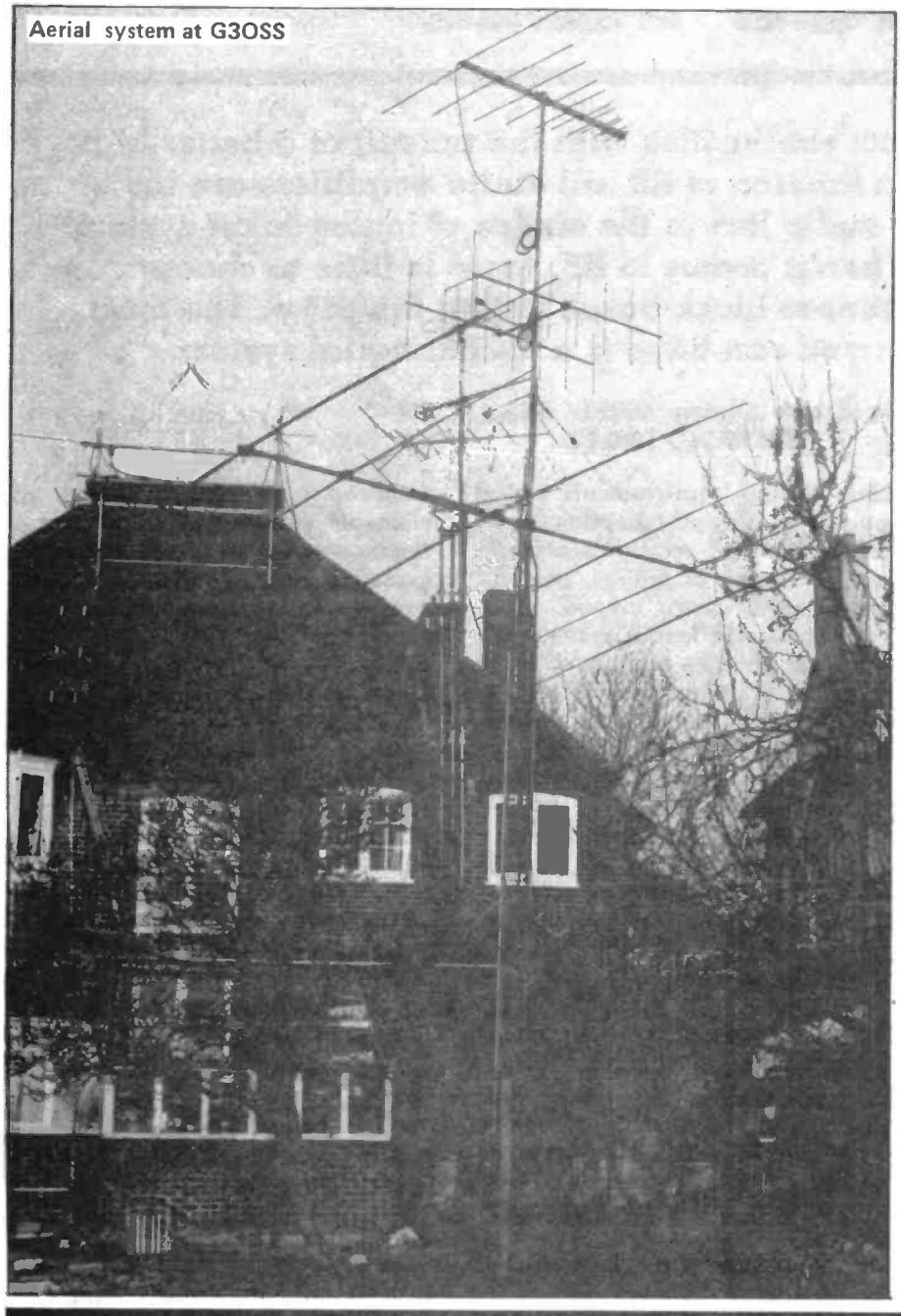
There are pronounced differences between the aerial types. 1/4 wave aerial whips mounted centrally on the car roof perform better around town — where there are strong multiple reflections — than gain systems: 5/8, 7/8, etc. Short aerial whips produce less mobile flutter than the longer ones although in open countryside, the stronger signals of the big aerials offer a considerable advantage. In my opinion, the 5/8 system offers the best compromise between mobile flutter and signal strength.

Juggling figures

Manufactured quality, rather than specified performance, is the thing to look for in base station co-linears. In any case, the specifications themselves are very misleading. Virtually all beam type aerial systems are referred to a simple dipole when it comes to calculating dB of gain. For some reason, the reference used to judge the performance of omni-verticals is the quarterwave groundplane. This gives most vertical aerials types 3dB more gain than they actually have when compared to a dipole. Put another way, a simple dipole exhibits 3dB of gain when compared with a quarterwave groundplane system.

Putting the record straight about mobile aerials, in comparison to a dipole (0dB) the 5/8 has 0dB gain, a halfwave exhibits 0dB as does a *Slim Jim* while the 7/8 shows all of 1.5dB real gain. The classic double 5/8 co-linear weighs in at around 2.5dB over a dipole. By contrast, the most basic 2-element beam returns roughly 3.5dB of gain over a dipole.

Aerial system at G3OSS



Hand portable

Handitalkies used as such are remarkably inefficient radiators. The body has to provide the ground image, the other side of the dipole. Since some rubber duck type aerials only have a radiation resistance of between five to ten ohms and acknowledging that the body is a lossy, high impedance radiator, very little RF actually gets out, or is received.

The answer is to use a halfwave

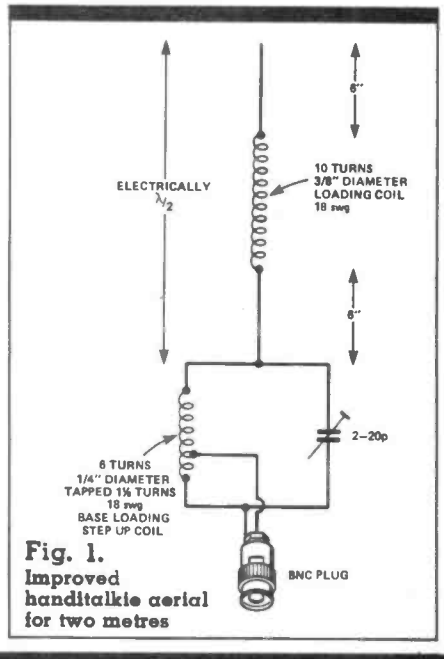


Fig. 1. Improved handitalkie aerial for two metres