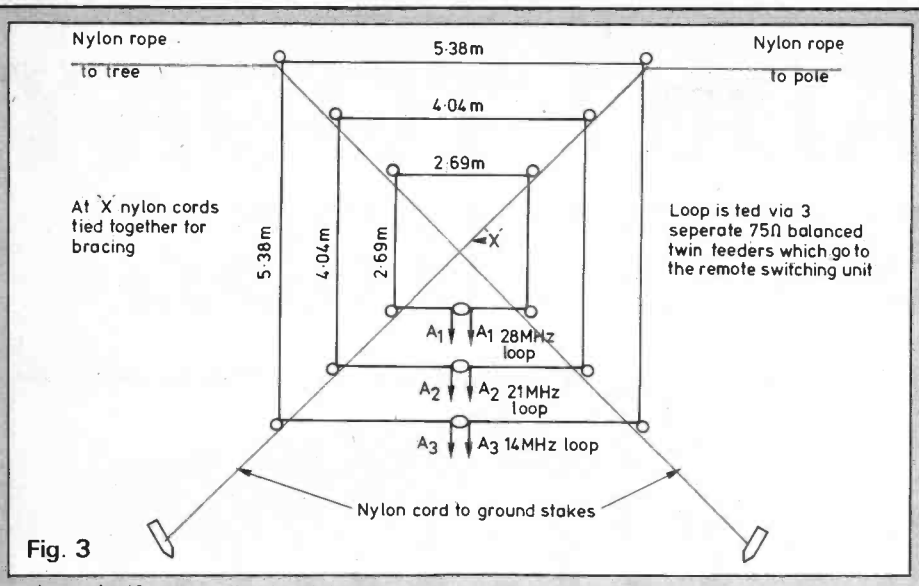


Fig. 3

using a half-wave dipole. A low angle of radiation is vitally important under these conditions as a reduced angle of radiation will consequently reduce the number of reflections needed between the ionisphere and the earth in order for contact to be made between the two distant radio stations. In reducing the number of times the signal is reflected, the resulting attenuation of the signal is also reduced very considerably. So, up goes the signal strength in both directions. Fig. 5 and 6 show the vertical polar diagrams of a half wave dipole and a full wave quad loop at a similar height above ground.

Fig. 4 Horizontal Polar Diagram of loop — similar to that of a half wave dipole.

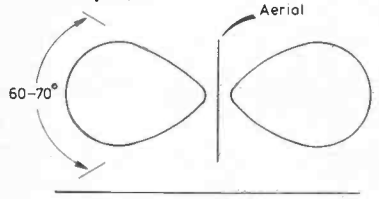


Fig. 5 Dipole.

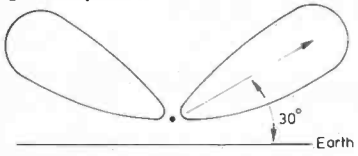
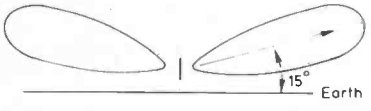


Fig. 6 Quad loop.



Both aerials quarter wavelength high.

Only one coaxial feeder is required to feed the aerial system. Switching from one aerial to another is achieved by "ghosting" DC control voltages down the feeder from the radio shack, using the simple unit depicted in Fig. 7. The control voltages activate a remote unit located at ground level in a waterproofed container, under the feed points of three loops. The circuit diagram of the remote unit maybe seen in Fig. 8. I have found this to be a much more reliable method of feeding more than one aerial from a common feeder than some of the "trick" methods employing matching stubs (the described method is also much superior to the practice of parallel connecting antenna's on the same feeder —Editor). The matching arrangements are often more difficult to set up than the aerial!

This method of remote aerial switching may of course be used in a variety of situations and can save you a lot of money if long feeder runs are used, especially if you are using very low loss feeder cables.

Componets List

Capacitors

C1	4700u electrolytic (voltage to suit T1 secondary)
C2,3,4,5,6	100n ceramic, 100V

Semiconductors

D1,2,3	1A 100V rectifier diodes, e.g. 1N4001

Miscellaneous

T1: mains transformer, secondary to suit RLA1 and 2; RLA1,2: double pole change-over relays, surplus types can be used, e.g. PO 3000 series; RFC1,2: 2.5mH RF chokes.

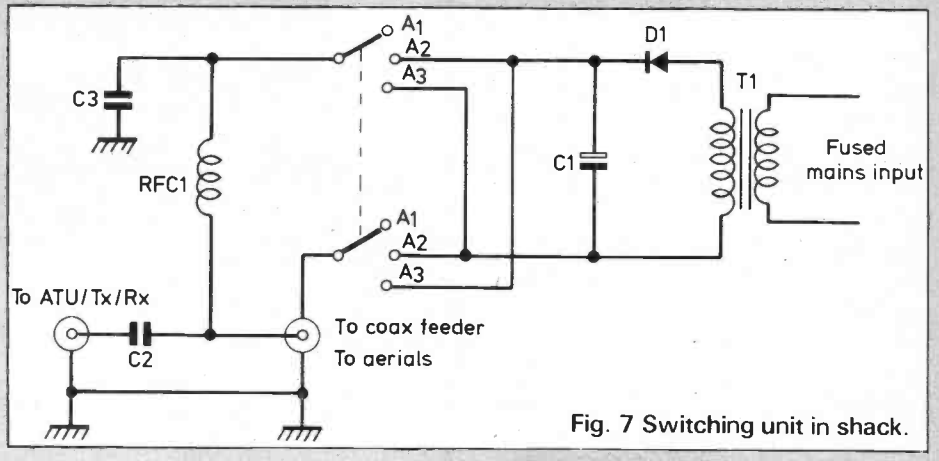


Fig. 7 Switching unit in shack.

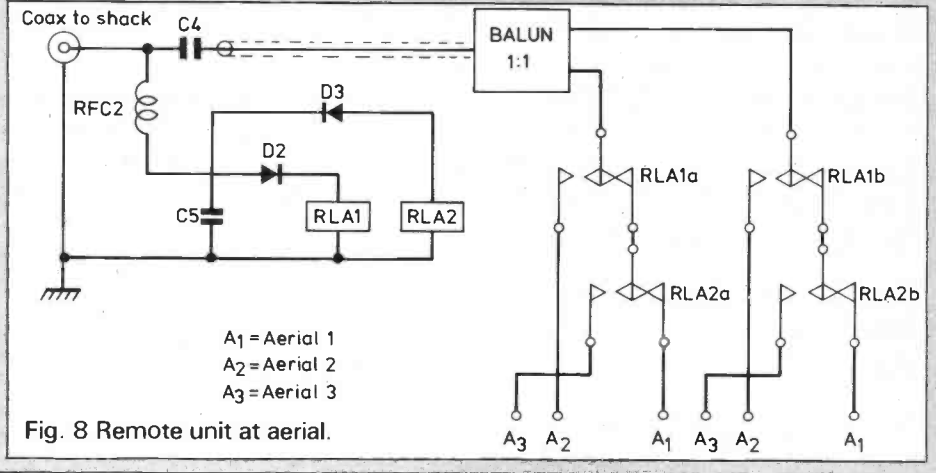


Fig. 8 Remote unit at aerial.