IMPROVISING ANTENNAS

Custom made, fully trapped, multiple band commercial antenna systems look as though they should provide the last word in performance. The idea has been put about that to stand any chance of making worthwhile contacts, you have to part with at least £60. Not true. Any piece of wire will radiate RF with comparable efficiency provided that it is long enough and high enough.

Amateur radio is now comparatively bereft of any substantial element of DIY thanks to the influx of equipment from the Far East, and the ever-expanding TV broadcast service. unless one can construct an effective screened cage it is impossible for the large majority of amateurs to carry out any experiments with transmitters, especially those for the HF bands, without causing unacceptable QRM with neighbouring TV receivers, except during the small hours of the night, when one ought to be DX-ing, anyway.

With the long-overdue demise of the monochrome 405-line TV service (Bands I and III) by the end of 1984 this situation could improve a little. At the moment the lower order harmonics of HF band transmitters can cause havoc to this service.

For the amateur who still hankers after some form of experimentation, playing around with antennas may be the only answer. Given a Japanese "black box" with, usually excellent suppression of harmonics, and a sensible, balanced antenna feeder a lot more fun can be had than might be imagined. Surprisingly, the cost is next to nothing, which is quite rare these days. Wether it be ordinary TV reception, VHF/FM stereo, or any other form of communication by radio, the simplest and cheapest method of improving the performance of the system is by attention to the antenna system.

It is presumed that in addition to the black box there is a standing wave ratio meter (SWR), most likely combined with a power output indicator. This "indicator" in cheaper meters merely shows the relative output rather than the absolute value but is still quite adequate for most purposes. Anyway, there is usually a similar indicator on the transceiver. If one can afford to go to a meter measuring actual power output, and SWR without any preliminary adjustments, so much the better. One small point, ensure that the meter is suitable for the output impedance of the transmitter, normally 50 ohms.

The only other item, which should be an absolute necessity in any AR station, is a "dummy" or artificial load, also of the right impedance and of adequate power rating see **Fig. 1**. This rating need not be thee maximum power output quoted for the transmitter provided the rig is run at that level for only short periods. A suitable design for a dummy load appeared in the January issue of *Practical Wireless*.

Any resistor used in a dummy load must be either carbon or carbon-film otherwise it will show considerable reactance at the higher frequencies and give entirely misleading results.

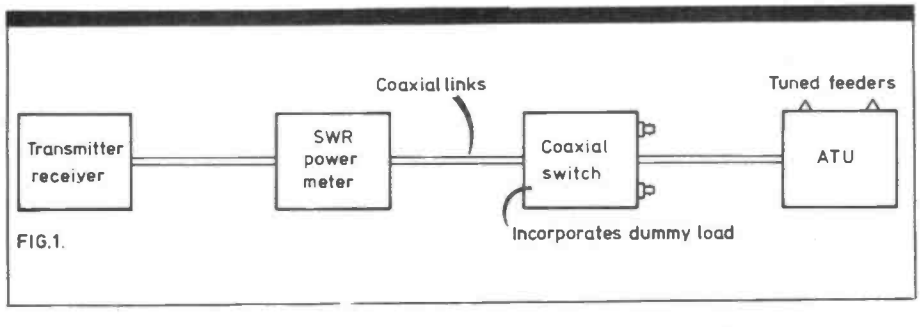

FIG.1.

Fig. 1 Arrangement of equipment which includes a coaxial switch incorporating a dummy load enabling the rig to be tuned up without radiating

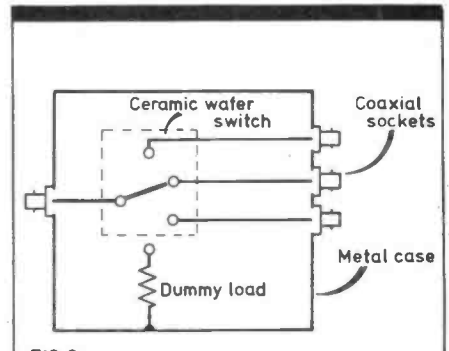

FIG. 2.

Fig. 2 Coaxial switch should have a ceramic wafer to minimise losses. Wiring should be in heavy copper wire and be as short as possible. Several coaxial outlets enable rapid choice of antenna

The initial set-up is as shown in **Fig. 1** which is more or less permanent. The experiments start after the SWR/power meter. The coaxial switch can be a bit expensive so a ceramic wafer switch, using the shortest possible wiring, can be used for the HF bands, **Fig. 2**. With the dummy load in circuit the SWR