

Fig. 11 Connector details.

closed in the vice to provide a degree of weather sealing. The rod is $\frac{3}{8}$ in diameter, and has a 5in length of RG213 inner core to produce the matching capacitor, working like a trombones line. This type of inner core slides freely inside the gamma rod. The design is for a centre frequency of 145.5 MHz with the dipole shortened by 3%. The length calculates to 99.999 cm for the dipole, which is near enough 1m. The gamma match is spaced 5cm from centre of aerial to rod, which makes the air gap between the

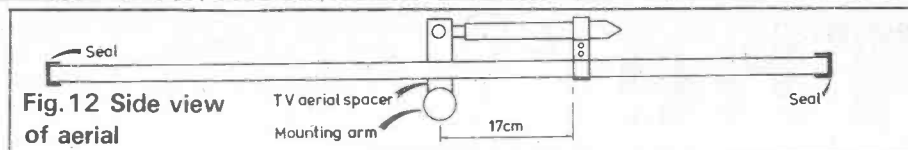


Fig. 12 Side view of aerial

dipole and the gamma match 3.57cm, and the shorting strip is 176cm from the mid-point of the dipole.

For the RG213 inner, take a length of 5 $\frac{1}{4}$ in, cut off $\frac{1}{4}$ in of the dielectric to make a soldering point, and solder on a 2BA tag. The cut off piece of dielectric is used to provide an insulating standoff over the point where the stud connector is soldered into the S0239 socket connector Fig. 11 The trombone capacitor is adjusted by sliding the gamma rod in the shorting strip AND by adjusting the position of the shorting strip. In both of the prototypes I made, if 1 $\frac{1}{4}$ in of the inner shows at the rod, and the shorting strip is 17cm as shown in Fig. 12, the SWR should be a reasonable value.

After all adjustments have been made to tune the aerial, all points should be sealed against the weather. A good method of doing this is to use silicon rubber sealant

as used for bath grouting or car sealant. Also use rubber tape to seal the PL259 plug on the end of the coaxial feeder. If the aerial is well sealed, it should last for many years.

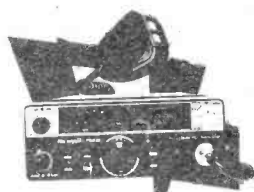
REFERENCES:

- 1) Motorola Application Note, AN-267, Matching Network Designs with Computer Solutions, by Frank David.
- 2) "Electronic Applications of the Smith Chart", by Phillip H. Smith pub by McGraw-Hill.
- 3) Radio Data Reference Book, by T.G. Giles, G4CDY and G.R. Jessop, G6JP, pub by R.S.G.B. Fourth Edition, 1977. Unfortunately, this book is dropped from their current list, and it was listed last year as being out of print.
- 4) ARRL Antenna Book, 1974 edition. Again there is now a newer edition of this book, and I do not know if this method of calculating the component values is retained in the newer edition.

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