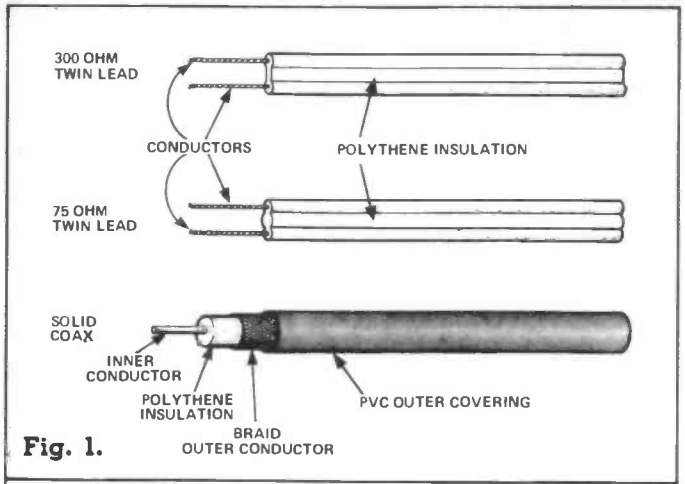

Fig. 1.

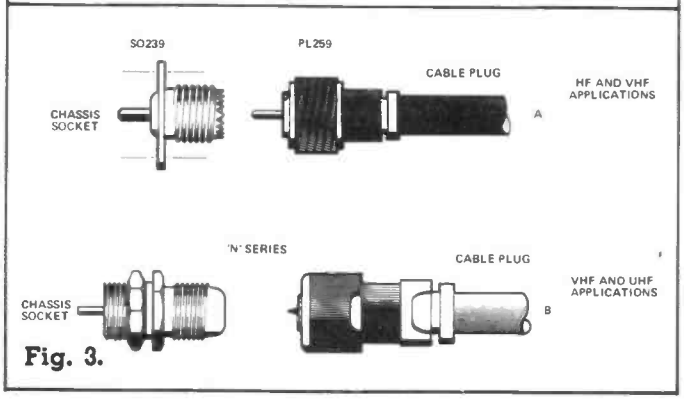

Fig. 3.

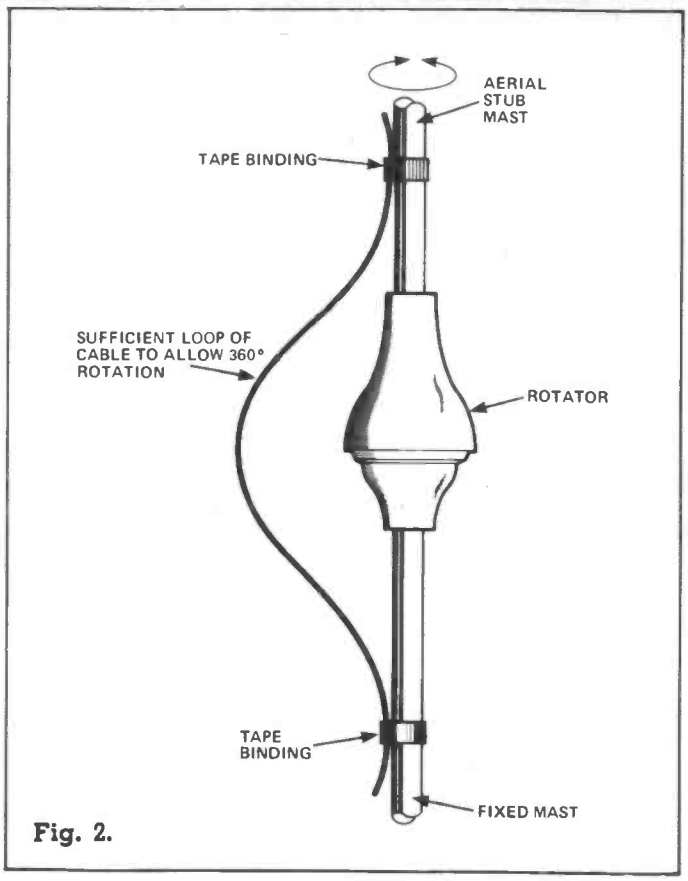

Fig. 2.

weatherproof, insulating PVC covering. On some coax, the polythene insulation may be of a cellular construction with air bubbles. This is called a foamed dielectric and has lower RF loss in the cable.

Hints on choosing and using coax cables.

1. Always choose a cable that has a capacity sufficient to carry all the power from your transmitter.
2. Avoid cheap cable: its characteristics are likely to be poor and losses may be higher than specified.
3. Seal the ends of coax cables with a good SEALING COMPOUND or tape to prevent water getting under the outer covering.
4. Smaller diameter coax with thin conductors have higher losses.
5. The FOAMED type dielectric has a lower loss value and should be better for VHF and UHF.
6. Use good quality connectors, such as the PL259 plug, SO239 chassis socket or the 'N' series fittings specialy designed for UHF applications. See **Fig 3.**
7. Avoid sharp bends in the coax on the run from the transmitter to aerial, and support long lengths to prevent stretching.
8. When using a rotator, make sure you leave a loop of cable slack between the rotating section of mast and the fixed section sufficient to allow 360° of rotation. See **Fig 2.**

Rotators

A rotator turns the aerial into the required direction. There are a large number of different rotators available and it is beyond the scope of this article to discuss all of these. However the first thing to remember is to choose a rotator suited to your application and not one that is either too small or far too big for the job in hand. There are three basic types of aerial rotator that one can use and these are shown in **Fig 4. A-D.** You will notice that Fig 4A is a typical rotator for mounting directly onto a mast or support tube. Fig 4B and D shows essentially the same rotator but with the bottom clamp removed so that it can be mounted directly on to a flat plate as in Fig 4D, into a rotator head unit of the type generally used on lattice towers. Fig 4C shows another type of rotator where the rotating stub mast passes through the motor. A support bearing can be mounted below the rotator on the support mast and serves to steady the stub mast.

Wind load

When choosing your rotator, it is essential to have some idea of what sort of loads your aerial will put on the rotator. Most rotators have internal ball or roller bearings in them capable of taking all the loading that the manufacturers state. These are chiefly the weight of the array and the loads due to the wind resistance of the aerial.

Refering to **Fig 5.** There are two loads due to the wind resistance of an aerial. These are the side load on the rotator bearing and the other is the turning load on the drive or brake mechanism due to the "weather locking" effect of the aerial. On large aerials these can become quite considerable and, if not allowed for, soon put paid to the rotator.

Additional supports to the stub mast above, or below the rotator can reduce the SIDE LOADS considerably and these can be a simple support sleeve or an additional support bearing mounted onto the mast or rotator head, Fig 5, **C** and **D.** However, the turning load due to weather locking is another matter and has to be watched closely. Read the manufacturers specification carefully and ensure that their figures are sufficient to cater for your needs.