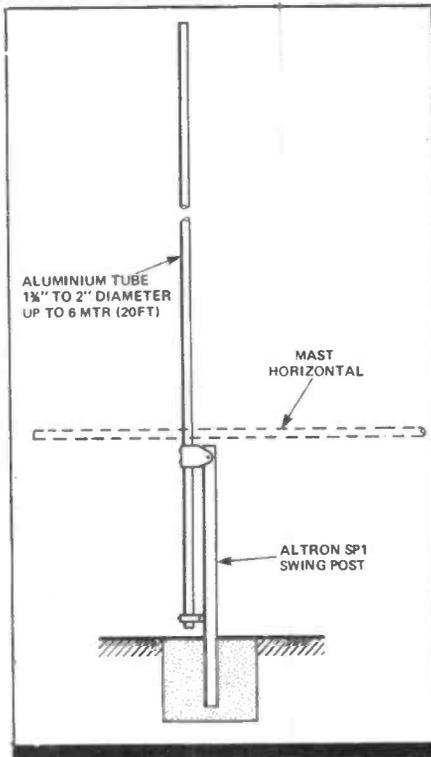


fixed mast which is more commonly called a lattice tower. Generally constructed in a triangular form either pre-fabricated as a welded structure, or made from steel tube with solid rod bracing. Some makes of lattice mast are available as a kit of parts that can be DIY assembled using bolts and nuts, made up of pre-drilled extruded aluminium. A thirty foot self supporting tower of this type can be a relatively light weight structure when assembled. Lattice masts or towers as they are commonly called, offer a much greater wind resistance than a tubular pole and this means that a fairly good concrete base is necessary. Manufacturers specify the size of base required and their instructions should be followed. Although no guy ropes are needed to keep this type of tower upright, getting it up and down can be a major problem, particularly with large aerials fitted.

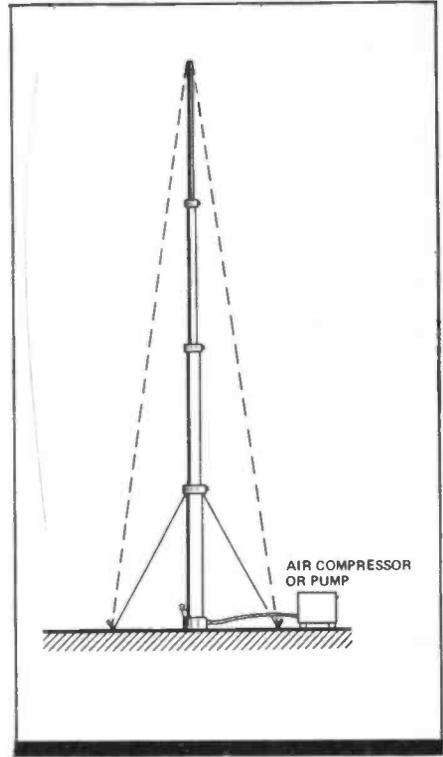
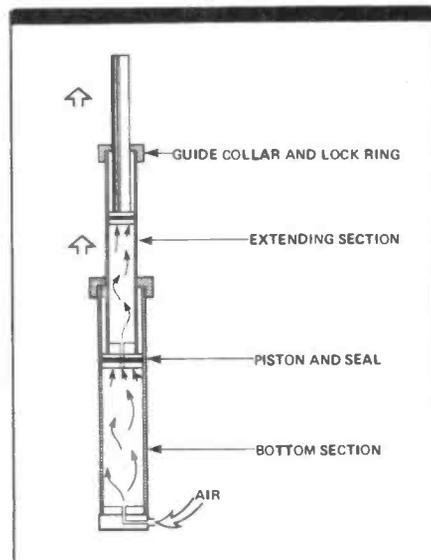
A simple mast that can be easily raised and lowered is shown in Fig. 3. This consists of a mounting post with a hinge at the top and a locking arrangement at the bottom. Any length of tube, such as aluminium scaffold tube, can be held in the hinge bracket. This allows the mast to swing down horizontal when the locking device at the bottom of the mounting post is released. The *Altron SPI* is a commercially available unit suitable for tubing from 1 3/4" to 2 1/8"



in diameter up to 6 metres long.

The bottom section of the mounting post can be bedded into a small concrete base and, depending on the aerial size and tube diameter, the mast can be additionally supported by guys. Retailing at £49.50 each, VAT and UK (mainland) carriage, the *Altron SPI* can make a very simple and cheap swing down mast for lightweight aerials.

There are two basic types of telescopic mast or tower: the pneumatic or hydraulic pressure operated type as in Fig. 4, and the cable and winch operated types, Fig. 5 and 6. The pressure operated mast, Fig. 4, consists of a number of tubular sections of reducing



diameter, fitting one inside the other, see Fig. 4A. Although water pressure hydraulics can be used to operate this type of mast, compressed air is the most common. Fig. 4A shows the basic construction of a typical pneumatic mast. The sections are generally of aluminium alloy tube with a smooth precision bore. Each section can be six to 12 feet long depending on the overall height when extended and number of sections used.

In operation, air is supplied by a pump from an electrically operated compressor and enters the base of the bottom, largest diameter, section through a release valve. The air pressure builds up beneath the piston at the bottom of each subsequent section, forcing them out so extending the mast. A locking device is sometimes provided to lock the sections together when fully extended. Because of the precision needed in their manufacture and the complexity of construction, pneumatic masts are relatively expensive, ranging from £400 to over £1,200. Although pneumatic masts can be self supporting with light loads, they will require guying if any decent sized aerial is to be fitted. Pneumatic masts can be raised up or lowered very quickly indeed and have a fairly low closed down height. They suffer from one drawback when used in amateur application when they tend to lift for