

6m Vertical Antenna

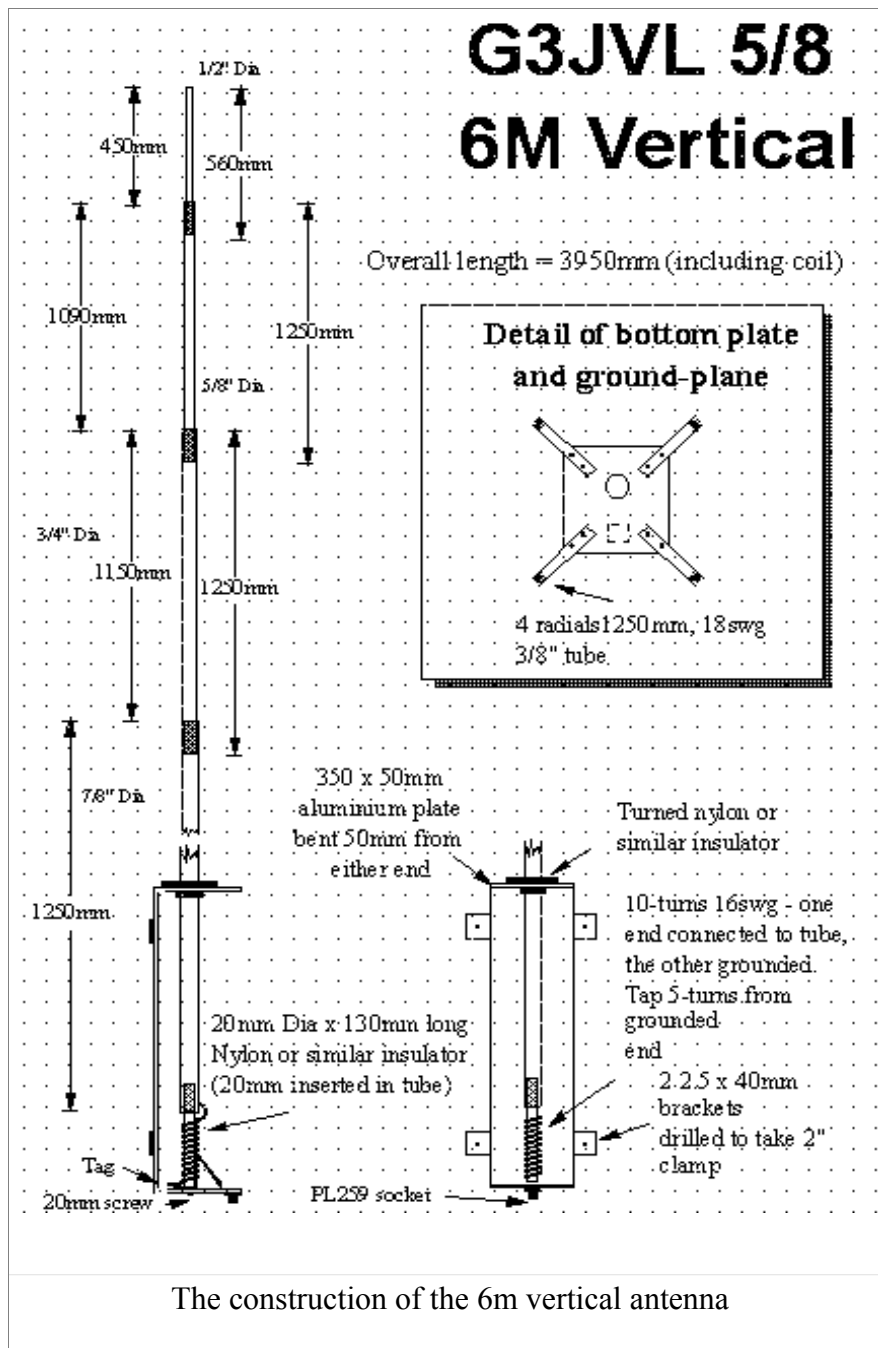
By Mike, G3JVL

The G3JVL 6M ground plane vertical is a compact antenna that is ideal for portable operations. It packs away into a small bag only 1.3 metres long which is an ideal size for hand-baggage on aircraft.

Although a little engineering work is required, it well within the abilities of the home workshop and all you newly licensed amateurs!

The vertical itself is constructed out of four overlapping sections of aluminium tube whose sizes are given in the diagram opposite. The four tubes are meant to telescope so wall thickness should be chosen to achieve this. In practice, 16swg or 1.6mm might be OK but 18swg or 1.2mm will easily fit. The lengths are held in place by three stainless steel self-tapping screws.

The vertical is bottom-loaded with a coil wound on an insulated former (nylon or similar material - it is not too critical at 50MHz). - the former is 130mm long with the top 20mm turned so it can be inserted into the bottom section of the vertical. The loading coil consists of ten turns of 16swg (1.6mm) diameter copper wire with one end connected to the bottom section of the vertical with a machine screw and the other end connected to the ground plate. A tap at 5-turns is connected to the input PL-259 socket.



The four ground plane elements are Constructed from 1250mm long, 9.5mm (3/8") diameter aluminium tube. These are mounted to the base plate by the use of eight stainless steel machine screws. This arrangement allows easy disassembly.

The vertical itself is supported by a piece of 350mm by 50mm x 4mm aluminium plate bent into a 'U' shape. The bottom section of the vertical is insulated by a turned piece of nylon or similar tubing. If you do not have access to a lathe any other insulating arrangement should suffice so long as it is robust.

The overall length of the vertical is 3950mm including the loading coil. The top section should be trimmed to set the centre frequency. If the VSWR at resonance is not close to 1:1 then alter the position of the tap on the loading coil (remember, changing this will alter the resonance of the antenna!).

Once completed give the whole assembly several coats of varnish to keep out the weather.