C.M.HOWES COMMUNICATIONS

issue 1

LF20 Instructions

The **HOWES LF20** is a plug-in band filter module for use with a **HOWES TX2000** transmitter. It provides harmonic suppression for transmissions on the 20M amateur band.

Brief Technical Details

Frequency Coverage: For use with transmissions between 14.0 and 14.35MHz.

PCB type "LF" with 7 pole RF low-pass filter, and preset power control for the adjustment of transmitter drive levels in conjunction with the TX2000 module.

Building The Kit

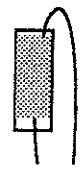
These are brief instructions giving the basic outline of building the band filter module. Please refer to your transmitter kit instructions for more information on soldering, components, and assembly techniques.

The suggested assembly order is to fit the preset resistor, followed by the socket, the capacitors, and finally the inductors (coils). When the module is finished, mark the band on it with a spirit based felt-tip pen, so that you will be able to tell which band it is! **Tip:** Grip the PCB module by the ends of the board when you plug it in.

Assembly Notes

The polystyrene capacitors are mounted "on end" in this module, as shown in the diagram.

Socket SK1: This has little plastic mouldings that wrap around the edge of the board, the terminals then slide into their holes for soldering.

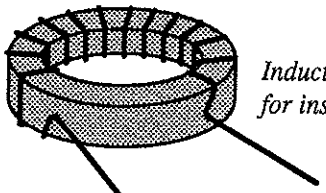


Polystyrene Capacitor

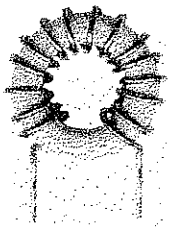
Parts List

Part	Value	Identification information
VR1	22k	Preset resistor marked 22K
C1 & C4	270pF	Plate marked n27
C2 & C3	470pF	Polystyrene marked 470

L1 15t
L2 13t
L3 15t



Inductor's leads bent ready for insertion in PCB



15 turn inductor – side view

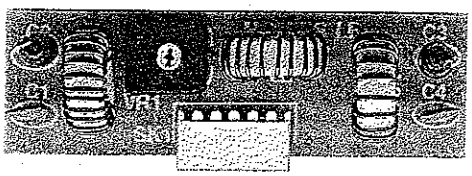
Coil Winding

Two of the inductors, L1 and L3, are identical. L2 has two less turns than the others. It is very important to wind these correctly, your transmitter's output power depends on it! Loose winding of the coils will lead to reduced transmitter output. It is essential that the wire follows the contour of the toroid to obtain the correct inductance values. Take 300mm (12") lengths of the .56mm diameter enamelled copper wire supplied, and wind 15 turns on two of the green and white toroids. Keep the wire as tight to the core as you can. When you have wound the 15 turns, bend the end wires of the coil out at right angles to the core at a point half way across the width of the toroid, as shown in the diagram. The ends of the windings should drop straight down through their PCB holes, so carefully adjust the spacing of winding on the core, so that this happens.

Use a sharp knife to scrape the insulation from the inductor's lead ends where they will be soldered. Make a thorough job of this, and then tin the leads. Insert L1 and L3 into their PCB holes and solder them in place. Then wind L2 with 13 turns and fit it to the module in a similar manner to the other inductors.

Antenna Information:

The total length of a wire half-wave dipole antenna for the 14MHz band is approx. 10.0M (32.8').



LF20 after assembly

Circuit Diagram