

ALL MODE TRANSCEIVER — Part 2

Notch filter and pre selector

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PROJECT



THE NOTCH FILTER

The basic circuit for the IF notch filter was included with the main central IF processing unit in the July issue and a description of how it works in the April issue. The circuit has not changed, except for the addition of C73, in parallel with VC1. The original circuit called for a 60pF variable capacitor, but as the commonly available units are 50pF max, some small additional capacity was needed. The air spaced variable used is a high quality Jackson Bros unit, to keep the Q high, and therefore the notch deep and narrow.

The purpose of the filter is to remove the heterodynes which so often appear within the receiver's passband, and with the notch depth obtainable from this unit (measured at 50dB), all but the strongest interfering signals can be

reduced to negligible proportions. There is very little effect on the intelligibility of voice signals, due to the high Q, and therefore the narrow bandwidth of the notch.

VC1 varies the frequency of the notch, and in the maximum capacity setting, the frequency is just outside the high side of the 2.2kHz SSB filter — the capacitor can be left at this setting when the filter is not in use.

Construction

This module is constructed on a small PCB, designed as a front panel control for the main transceiver. The variable capacitor is mounted on the front panel, with the PCB soldered to the two rear stator lugs of the capacitor so that it is self supporting. Connection to main CIFPU is via miniature 50 ohm coaxial cable.

Construction is simple once the ferrite matching transformer is wound as follows.

1. Take a length of 0.25mm enamelled copper wire 9cm long, and strip one end for 5mm. Carefully wind four complete turns through the core, with one turn counting as a wire inserted through one hole and then back through the other. This should leave both wires protruding from the same end of the core but from opposite holes. Reduce the unstripped piece of wire to 1cm in length and remove 5mm of insulation.
2. Take two lengths of wire, each 5cm long, strip 5mm off one end of each, twist together and solder. Insert the free ends through the two holes, from the end opposite that where the wires are currently protruding, until about 1cm of the twisted end protrudes. Pass each wire back through the other hole, and repeat again, so that a centre tapped four turn secondary is created. Reduce the wires to about 1.5cm in length and strip and tin the ends.

The transformer and remainder of the components except VC1 are then inserted and soldered. X1 should have its base against the PCB.