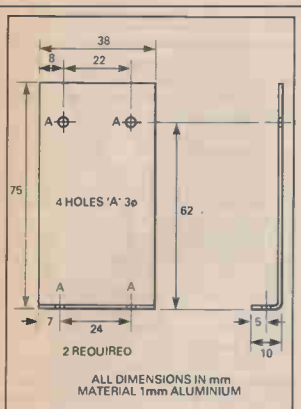

Fig.15. Bracket A (VFO box brackets).

This is shown in Fig.16, but the exact dimensions may have to be varied to suit the speaker used.

Fig.17 shows details of bracket C, which is used to mount VC2, the peak control. Exact dimensions of the bracket, expecially the positioning of the capacitor fixing holes, will vary with the capacitor used. The variable capacitor used on the prototype had a built-in slow-motion drive, which helps with the accurate peaking of signals. If such a capacitor cannot be found, a separate slow-motion drive can be incorporated.

Pcbs 1, 3 and 4 are mounted on an upper deck consisting of an aluminium sheet screwed to the lid of the VFO enclosure. Mechanical details of this sheet are shown in Fig.18. Pcb 4, the carrier insertion oscillator board, is enclosed inside an aluminium screening bracket (bracket D), which is shown in Fig.19. The positive supply for Pcb 4 passes through bracket D via a bolt-in feedthrough capacitor.

There is room on the upper deck for an additional pcb, if necessary. This could be an AGC circuit or perhaps a converter to extend the frequency range of the receiver.

The Slow-Motion Drive

The slow-motion drive arrangement for the receiver main tuning is shown in Fig.20. By using two 6:1 reduction drives in series, a total reduction of 36:1 is achieved. In practice these drives tend to have a reduction ratio of more than 6:1, so typically the total reduction can be more than 40:1. With a tuning rate as slow as this, no fine tuning control for the VFO is necessary, which can be an embarassingly difficult control to find room for on a front panel. The usual problem with using cascaded slow motion drives is that no tuning dial can be fitted because the front drive prevents a dial being fitted to the rear drive which is the one which indicates the position of the moving vanes of the VFO tuning capacitor. The mechanism to overcome this problem is as follows:

The 6:1 reduction drive closest to the tuning capacitor has a flange which rotates at the same rate as the rotor of the capacitor. Disc B (shown in Fig.21, along with the dial, disc A) transfers the motion of this flange outside the body of the front 6:1 drive so that disc A can be attached using lengths of 6BA studding. Disc A therefore also rotates at the same rate as the rotor of the tuning capacitor, so a calibrated scale can be drawn on disc A to give an indication of the received frequency.

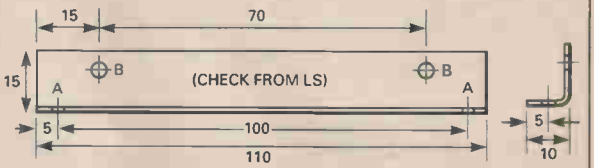

Fig.16. Bracket B (loudspeaker bracket).

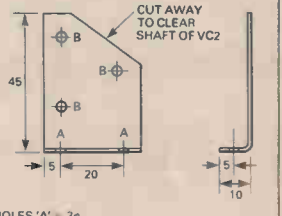

Fig.17. Bracket C (VC2 bracket).

Many materials are suitable for making discs A and B. Any rigid sheet material, such as aluminium or brass can be used, or as in the prototype, unetched pcb sheet.

Fig.22 shows how pcb 2, the VFO tuning capacitor VC1 and the power supply wiring to the VFO are arranged in the VFO aluminium box. The exact placements are not critical, as long as VC1 is presented to the slow-motion drive to give the correct position on the front panel. The connections to pcb 2 are soldered to the board via 1mm pins, rather than using the plug and socket system used for other boards.

Test and Align

Being a single band receiver, testing and alignment is relatively simple. The first module to tackle is the VFO. If a milliammeter is available, monitor its supply current. When power is applied, the current should be about 28mA. If it is

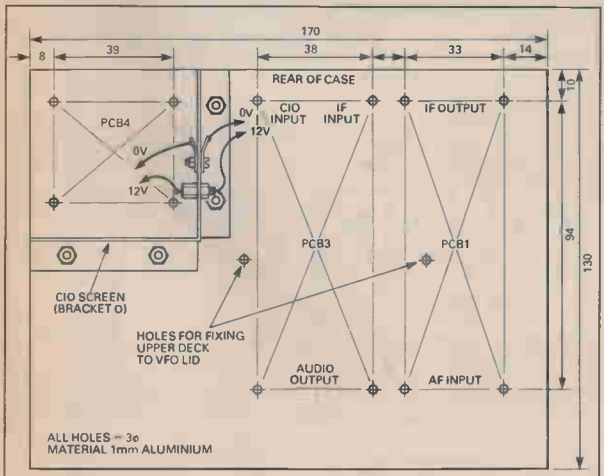

Fig.18. Upper deck drilling details.