

**Fig. 2** The Multiplexer is ideally contained in a diecast box 17 × 12 × 5 cm with the circuit constructed on the underside of the box lid. Lower illustration shows mounting for C5, 6 and 7.

or anything else — floating at an undetermined voltage). This means that C2 and C3 have to have their rotor grounded via two M3 screws. Grounded rotor types could be used for C2 and C3, of course, but they are usually not so easily obtained at rallies, emporiums, etc.

C9 and C10 are cut from thin paxolin PCB material by scoring and snapping. Both are made using 1/16" -thick (or thinner) PCB and should be 20mm by 40mm; both are glued to the case. (see Fig. 2).

The edges of C9 and C10 should

be rounded with a file — so that there is no possibility of shorts to ground.

C5, C6 and C7 are 'postage stamp' compression trimmers mounted on a small piece of PCB material on pillars. Most trimmers of this type have the adjusting screw floating, but if it is connected to one side of the capacitor, C5 will need the PCB foil removing around its mounting thread.

### Adjustment

Install the multiplexer in a conve-

nient location in the car, making sure that you can get at the adjustments *before* you finally fix the unit in place. The coax to the antenna should be as short as possible, at most 1.5m.

With VSWR meters in both CB/10m and 2m transmission lines, twiddle all trimmers for maximum received signals. The settings of C1 and C5 should be quite critical, resonating in their respective bands.

Switch the CB/10m set onto 'transmit' and adjust C6 and C7 for minimum VSWR on 2m.

Switch the 2m set onto 'transmit' and this time, using a plastic trimming tool for C1, adjust C1, C2 and C7 (then back, finally, to C1) for minimum VSWR.

There may well be slight interactions between all adjustments, so go back and forth over the above adjustments until you are satisfied you cannot improve on them.

Finally, re-peak the antenna trimmer on your car radio for the new coax.

It should now be possible to natter on 2m, listen to Radio 1 and let the kids use the CB, all at the same time!

### COMPONENTS LIST

#### Capacitors

- C1 50 pF air-spaced trimmer
- C2,3 30 pF air-spaced trimmer
- C4 100 pF disc ceramic
- C5,6,7 500 pF compression trimmer
- C8 50 pF disc ceramic
- C9,10 see text

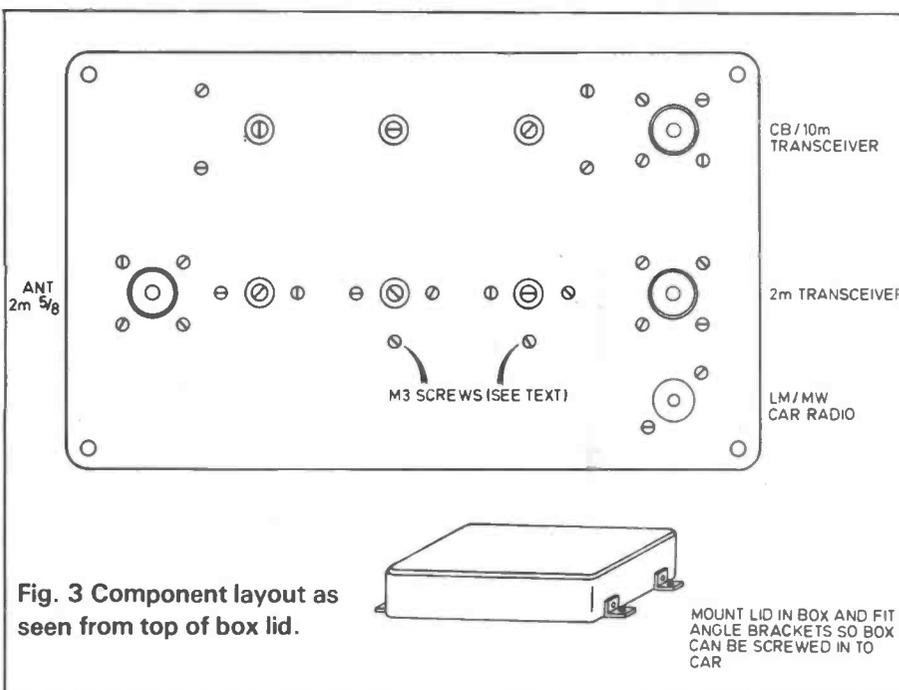
#### Inductors

- L1 3t 16 SWG\*
- L2 2t 16 SWG\*
- L3 10t 20 SWG\*
- L4 4t 20 SWG\*
- RFC1 12t 22 SWG\*
- RFC2 5 uH
- RFC3 20 uH

\*Note L1,2,3, and RFC1 are all 10mm diameter, with turns spaced by the wire diameter.

#### Miscellaneous

- SK1 To suit antenna; SO239 or BNC
- SK2 To suit 2m transceiver; SO239 or BNC
- SK3 To suit car radio; Belling Lee
- SK4 To suit CB/10m transceiver



**Fig. 3** Component layout as seen from top of box lid.

MOUNT LID IN BOX AND FIT ANGLE BRACKETS SO BOX CAN BE SCREWED IN TO CAR