

LCL-2740 Display Modifications

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THIS is simply an update to the author's August 1983 *S. W. M.* article on modifying displays fitted to ex-CB rigs, retuned for the 10m. band. Because it was primarily aimed at users of the Icom rig, readers may not have realised that the displays of several other rigs can also be adjusted so that instead of reading 1-40, they show 31-70, corresponding to 29.31 MHz-29.70 MHz, making a lot more sense.

To illustrate this point, the display of the LCL-2740 has been modified, and is described here. This is a very popular CB rig for conversion, and for readers who are interested, an address is given at the end of the article where rigs and modification details can be obtained. The performance that can be obtained is extremely good, and the channel conversion is perhaps even easier than the Icom. Certainly the front panel, in matt black looks extremely smart! Most users of this transceiver have not bothered to insert the extra crystal for repeater working, so the circuit of August 1983 giving display repeater-shift, is not necessary and the simpler circuit of Fig. 1 will be perfectly adequate.

The circuit works by decoding the actual digit lines from the channel selector switch, using a 4077 Quad EX NOR gate IC. Using four of the 'tens' digit lines, b, c, f, and g, the three outputs of the gates will produce a 3-bit binary code corresponding to the numbers 3-7, whilst the switch still thinks it is producing 0-4! The resulting code is fed into a 74LS47 display driver, whose outputs feed the 'tens' segments, *via* the current-limiting resistors.

In terms of construction, the modification to the LCL-2740 is easier than the Icom. Referring to the component overlay diagram, insert the ICs, noting the polarity, then remove from the main rig PCB (close to the channel switch) the resistors numbered R118, 116, 115, 126, 113, 117 and R114. This last resistor is on the opposite side of the switch to all the others for some reason. Also remove the segment leads associated with these resistors; the colours should be as shown below.

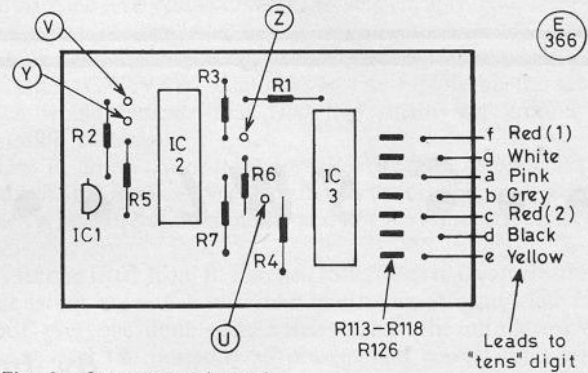


Fig. 2 Component layout

Colour	Resistor	Segment
Red	R114	f
White	R116	g
Pink	R115	a
Grey	R118	b
Red	R117	c
Black	R126	d
Yellow	R113	e

Note there are *two* red leads. Tie a knot in the one linked with R114 to distinguish it. Insert veropins into the holes vacated by R118, 117, 114, and 116, marked U, V, Y, Z respectively. (These letters date from the Aug. '83 article!). The four holes must be

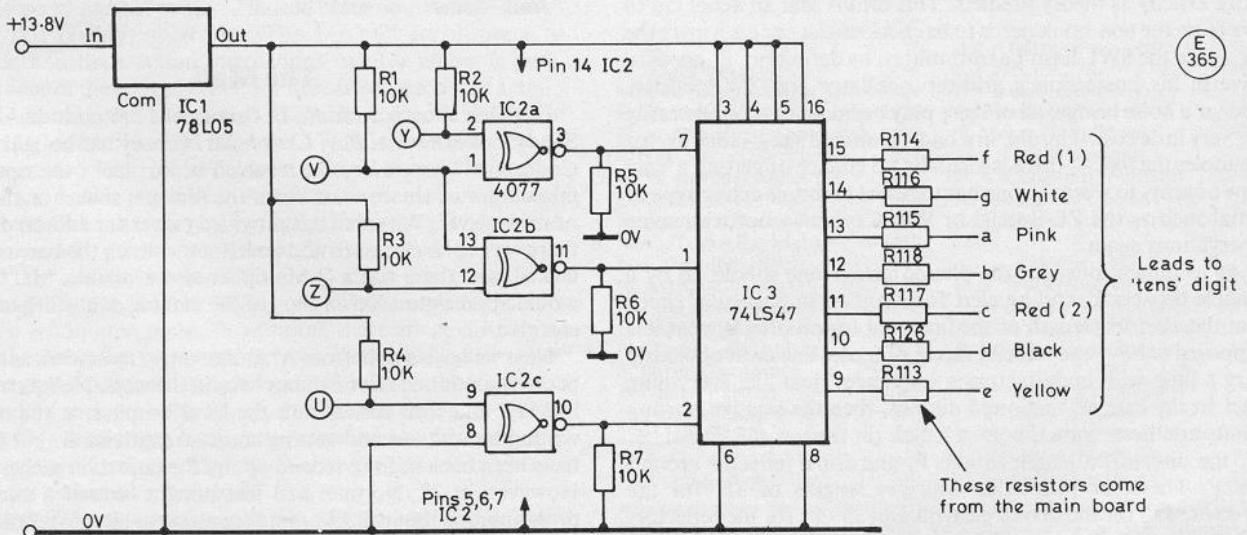


Fig. 1 CIRCUIT DIAGRAM

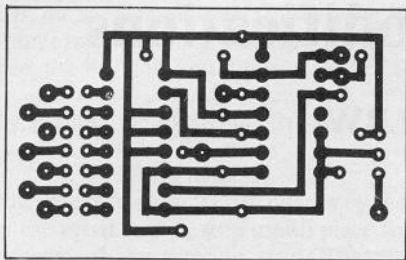


Fig. 3 Track layout (full size)

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those nearest to the channel switch. Insert all of the resistors into the new PCB. Connect leads from the new PCB to the four veropins as marked, and then connect the digit leads to the outputs of the 74LS47. The supply can be taken from any 13.8ve and Ove source, as the board has its own 5ve regulator.

The PCB can be mounted anywhere inside the case that is convenient, and no adjustment of any kind is required. The result is a much more meaningful display for an outlay of approx. £1.50. Readers who want more details about the LCL-2740 are invited to contact Ray, G4KZH, at Withers Communications, 021-421 8201.

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SHORT WAVE LISTENER FEATURE

By Justin Cooper

IT seems we touched a sore spot with that last paragraph of September's *SWL*; rather surprising in view of the amount of 'aerials' information in the amateur radio press of the past few months.

If we are talking about directive aerials — as we indeed were — then a fixed wire beam *must* aim its main lobe somewhere useful at the times one is likely to be able to listen. For that purpose, one needs a Great Circle map centred on London if one is based in U.K.

Practically, one supposes, a fixed beam firing west is the most useful, as it will be handy for North and South America in the evenings, and the long-path VK and ZL stuff in the mornings; it will discriminate against the VK/ZL short path and much of Europe off the back (to some extent) and similarly it will not be very enthusiastic about the Mediterranean and Africa directions or over the North Pole. The second point to realise is that none of us is able to erect an aerial 'in the clear' to the point where it will work exactly as theory predicts. This means that an aerial cut to size from the text-book needs to be checked-out once it is up in the air. Since the SWL hasn't a transmitter, by definition, he needs to have in his possession a grid-dip oscillator and SWR bridge, and/or a noise bridge; all of these may be home-made quite easily for very little cost. Thirdly, in a badly cluttered site — such as, for example, the loft — there is virtually no chance of getting a Yagi type of array to work, so one has to resort to the all-driven type of aerial such as the ZL Special or W8JK types — but with some reservations again.

As to dimensions, for the phased arrays one should go by a reliable text-book, and be alert for snags — in particular check that the *electrical* length of the line used for phasing is what it is supposed to be — the velocity factor of feeder line must obviously vary a little with manufacturing tolerances, just like everything else! In the case of Yagis and dipoles, then the relative starting points are these: for a dipole, a length (in feet) of $468/F$ (MHz); for the director, a length of $440/F$; and for a reflector around $498/F$. These, at 14.2 MHz will give lengths of 31' for the director, 33' for the driven element and 35' 1" for the reflector. Obviously the dipole will be cut exactly at the centre for connection to the feeder. A 'chocolate-block' connector serves

well for this. Another piece of 'chocolate-block' connector can be put at the centre of the director and of the reflector. Now, the 'boom' will be of string in the example quoted last time; terylene shark-line was what I used with one end made fast to a hook at the house end, and then threaded through the chocolate-block pieces in the desired order (through the screw holes, normally used for fixing the block to the wall); the far end attaches to a convenient tree. As the house is at the west end of the string, the order from the house is director, dipole, reflector — in your case it might be t'other way round. The string is hauled pretty tight to hold the aerial up, and the ends of the elements are insulated and made off so that they look like three inverted-vee aerials on a string. Because of this, they will almost certainly be too long. With the bridge or SWR indicator, 'prune' the elements carefully until you get it centred in the middle of the band. Don't forget to weatherproof the centre of the driven element — the best stuff for that is the RTV type of silicon rubber sealant/adhesive.

And — there you are!

The Mail

Our first letter is from *K. T. Gracey* of 11 Woodside Avenue, Sandy Cove, *Kinnel Bay*, Clwyd. Mr. Gracey has bought an old Codar CR-70 receiver and revalved it, but lacks the operating manual for it. He wonders about the four-pin socket on the back of the receiver. We recall this provided power for add-on units — there was a preselector to add an RF stage which the base receiver lacked, and there was a Q-Multiplier also available. Mr. Gracey would appreciate a Xerox copy of the manual or any help anyone can give.

Next we have a note from *N. E. Jennings (Rye)* who, as several people mentioned last time, has been in the wars. He was taken ill in May, and then rushed into the local hospital; at the time of writing he was out and getting some strength back, but he will have been back in for a second op. by the time this reaches print. However, at 75, Norman had just bought himself a micro, so programming that will give him something to bite (byte?) at while he is getting better. Our best wishes to him — and doubtless we shall hear from Norman's pals as to his progress.