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UNIT 2, 584 HAGLEY ROAD WEST, OLDBURY, B68 0BS ENGLAND

PAGE ONE

INSTRUCTIONS FOR FITTING THE LCL7136/7 TEN METRE MODIFICATION BOARD (29.300-29.690)

A unique design by Colin Horribin G3SBI and Bill Sparks G8FBX in conjunction with Raycom Limited. All rights reserved. Patent applied for.

Important: Before attempting to carry this modification please check the following;

- (A) That your CB transceiver has a LC7136 or LC7137 synthesizer I.C.
- (B) That your CB transceiver is working to specification on 27MHz FM (CB'81).
- (C) That no modifications have already been carried out on the transceiver.

You will need the following:

- (1) A full circuit of the transceiver, (not necessary in all cases).
- (2) A good quality 15/50watt soldering iron.
- (3) A good quality trimming tool.
- (4) If possible a signal source on 29.600MHz, plus power meter/dummy load and a simple volt & ohm meter.

This modification board is built and tested and only requires fitting and relatively simple adjustments making to the transceiver. It should not be undertaken by anyone without basic knowledge of electronic circuits or soldering practice.

The PCB (see fig.1) has eight wires attached, or six without repeater shift. Please familiarise yourself fully before attempting to install the circuit board.

- RED = + 13.5 volts.
- GREEN = Ground/chassis-negative (pin 13 LC7136/7)
- WHITE 1 = Repeater Shift.
- WHITE 2 = Repeater Shift.
- GREY = VCO out.
- BLUE = VCO in (pin 19 LC7136/7).
- BROWN = 10.24 Clock (pin 12 LC7136/7).
- ORANGE = T/R switching (pin 20 LC7136/7).

INSTALLATION.

- (1) Remove all the covers of the transceiver after checking that the unit functions correctly, and disconnect completely from the power source.
- (2) Place the mod board above the LC7137 so that the 74LS163 is approximately above the existing synthesizer chip. See fig. 1 above.
- (3) Solder the GREEN wire to pin 13 on the LC7137 (negative). Keep all wires as short as possible.
- (4) Solder the RED wire to the switched +13.5 volts on the transceiver on/off switch.
- (5) Solder the ORANGE wire to pin 20 on the LC7137 (TX/RX).
- (6) Solder the BROWN wire to pin 12 on the LC7137 (10.24 clock).
- (7) Solder the BLUE wire to pin 19 on the LC7137 (VCO in).
- (8) Solder the GREY wire (VCO out) to point 'X' on your transceiver. Point 'X' will depend on the CB under modification. Basically a capacitor is removed from the PCB, this cap. is the VCO feed to pin 19 on the LC7137, the VCO now goes to the GREY wire (mod board VCO input) and the VCO output wire (BLUE) goes to pin 19 of the LC7137, so effectively the BLUE and GREY wires replace the removed capacitor, which is normally .01mfd, 100pf or 39pf. *see page 3 + fig.2.

HINTS AND KINKS.

The most important factor in the modification relies on the VCO being in lock on transmit and receive it may be necessary also to add a few pf's across the padder capacitor on the TX/RX circuit switch to enable RX lock at the new frequency. Try and use good trimming tools and test equipment and always switch off when making circuit adjustments. Be patient and take care as the mod board uses CMOS devices which are sensitive to static pulses, most modern IC's are protected, but your kit utilises the very latest 'high speed' logic IC's not available until recently so with care and concentration there is no reason why the circuit should not work first time. Your mod board has been fully inspected and tested in a transceiver test jig. When your mod board has been fitted correctly you can be assured of using a radio modified by yourself and perhaps have learnt a little along the way, an achievement that any progressive Radio Amateur or Enthusiast can be proud of.

Regards,

Ray G4KZH, with best wishes from Bill G8FBX
and
Colin G3SBI

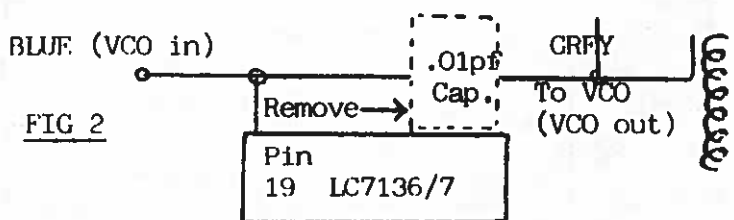
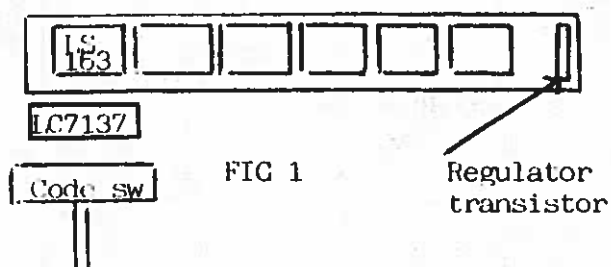
SUPPLEMENTARY

In CB chassis with a small coupling capacitor in the VCO, (ie 39pf) this means this type of VCO circuit uses a buffer stage, it has been found on the Amstrad, Harvard, Grandstand and some others. This produces too much VCO injection to the mod board, causing noisy TX audio, this is easily rectified by fitting a 2pf cap. in series with GREY LEAD (VCO out) in sets with 100pf coupling use a 33pf in series, in sets with .01 no reduction in coupling is necessary.

In some cases fit a 0.10pt trimmer & adjust for min noise on TX but retain lock on RX which has a smaller VCO amplitude.

****SERIES CAPACITY NOT REQUIRED ON CYBERNET CHASSIS****

- ie. Binatone, York, JCB 863 -



IMPORTANT NOTE : Please exercise EXTREME CARE that the regulator legs are not inadvertently shorted. This results in destruction of the reg. which allows 12+ volts to pass onto the IC supply rail, the end result of which is of course a dead board.

