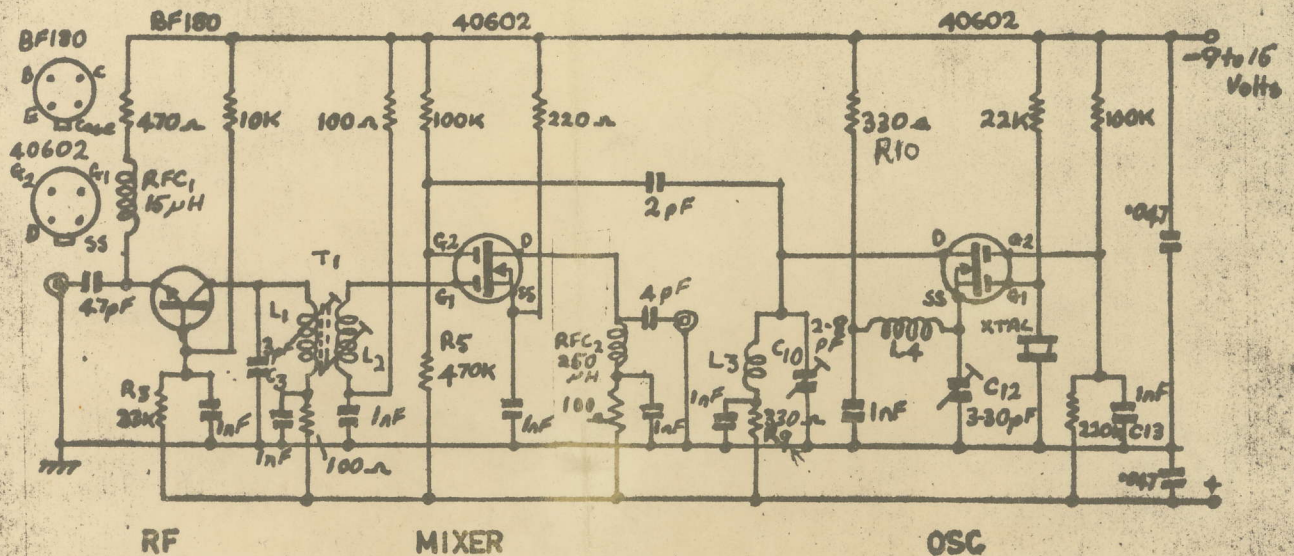


CH VHF 1 2 METRE MOSFET CONVERTER



The converter was designed using low cost components to achieve a high performance: cost ratio. The insertion gain is about 30 db with a NF below 2 db able to be achieved. The MOSFET xtal oscillator also operates as a doubler. Another low-cost MOSFET is used as a mixer for strong signal performance. A BF180 bipolar common base amplifier gives a very stable, low noise front end. The xtal is a readily available American surplus unit in HC18/U holder.

$$\text{Xtal} = (\text{Signal} - \text{IF})/2$$

providing instructions are followed, no trouble should be experienced.

Coil Winding Data

L1 5 truns 22 swg enam closewound on 3/16 in drill

L2 4½ turns " " " " " "

L3 5 " " " " " " 1/4 " right hand sense

L4 6½ " " " " " " " " " "

RFC1 35 turns swg enam " on 1/8 diam former

All components are mounted on fibreglass side of board.

DO NOT REMOVE 40602 MOSFET SHORTING SPRINGS

1. File 3/16 hole to fit 3-8pf piston trimmer wind all coils.
2. File lugs off base of neosid former before glueing in hole for L1L2. Slip L1 onto former at base and L2 1/8 in above (earthy ends at centre) Dismantle and mount piston trimmer, soldering the nut to copper for rigidity.
3. Mount RFCs, L3 and L4.
4. Mount all fixed capacitors with minimum lead lengths. Note:- 1nf capacitor by oscillator FET temporarily in right hand position.
5. Mount resistors. Use spaghetti on vertical mounting types.

6. Mount BF180 flush with board observing correct location of leads as shown by key.
7. Mount xtal with short leads using minimum heat.
8. Mount 40602 MOSFETS with shorting clips still in place. DO NOT SOLDER. Leave just enough room to remove clip. Earth soldering iron to board negative and solder MOSFETs.
9. Mount 3 - 30 beehive.
10. Using pliers or tweezers BONDED to Negative rail, carefully remove shorting clips. On MOSFET
11. Check all components for correct position and soldering.
12. Apply 12 volts and align.
 - a. Set piston trimmer for min capacity and beehive for max.
 - b. Place slugs in each end of L1L2 almost fully out.
 - c. Connect IF OUT to receiver. Apply voltage.
 - d. Using GDO (diode position) tune L4 with beehive until xtal oscillates at marked frequency. Tune L3 with piston trimmer to twice xtal freq. for max injection at G2 of mixer.
 - e. Tune L1L2 for max receiver noise. Tune in a suitable signal and realign.

Optimum performance may be achieved by repeaking on a weak signal. If the oscillator does not give adequate injection, move Inf capacitor by oscillator FET to holes nearest this FET. Reduce R10 (330 chms) to 150 chms.