

## Some notes on modifying an Elecraft XV50 transverter for the 70 MHz (4 metre) band

The XV50 being modified was the later version which can be recognised by the RA30H0608M power output module and toroid inductor used for L10. Earlier units that use an M57735 power module will require the module replacing and other changes to the associated circuitry. The transformation to an 'XV70' requires changes to the crystal oscillator, and replacing several inductors and ten type 1206 surface mount capacitors.

I am grateful for the guidance and experience of Mike Willis G0MJW and Allan Duncan GM4ZUK which has been invaluable in modifying my own XV50.

### **1. Crystal oscillator**

The crystal oscillator was rewired using the circuit used in the XV144 2-metre transverter with the following changes:

Y1 42.000 MHz third overtone, series resonant crystal, HC49/U holder  
C12 22 pF ceramic capacitor  
C14 47 pF ceramic capacitor  
L4 820 nH moulded inductor

### **2. Oscillator low pass filter**

The filter comprising C58, C59 and L3 was modified to attenuate harmonics from the 42 MHz crystal oscillator. Both C58 and C59 were replaced by 200 pF made up using 150 pF in the original component holes, with 47 pF soldered on the underside of the PCB. L3 was made by winding 10 turns of 25 AWG (26 SWG), dia. 1/8-in., self-supporting and stretched to fit the L3 holes on the PCB. The inductance measures 120 nH. A moulded inductor could be fitted in this position if preferred.

### **3. RF band pass filter**

The surface mount capacitors were changed to the following values: C48 & C51 - 6.8 pF, C45 & C47 - 10 pF and C46 - 15 pF. L12, L3 and L14 were removed and replaced with Toko MC120 type 100076 equivalent SC076 (220 nH) obtained from Spectrum Communications [spectrumcomms.co.uk](http://spectrumcomms.co.uk). These are fitted with fine thread cores. It is best to remove the coils first, then replace the capacitors before soldering in the new coils.

### **4. RF preselector**

C28 was changed from 15 pF to 10 pF and L1 was replaced with a Mouser 434-1012-5.5C Green, 5½ turns equivalent that I already had. 70 MHz tunes with the C1 trimmer set at about mid range.

### **5. Output low pass filter**

After removing the existing C42, C43 & C44 surface mount capacitors, 56 pF were fitted in the C42, C43, C44 and C44A positions. L10 and L11 were replaced with T44-6 dust iron toroid cores each wound with 4 turns of 26 AWG (27 SWG) enamelled wire. The two coils were wound in opposite directions so they fitted comfortably at right angles to each other in the holes in the PCB..

With the modifications detailed above, the XV70 aligned correctly according to the instructions in the Owner's Manual. The L.O. output at TP1 measured 0.94 VDC. A further enhancement would be an **XV70** front panel label to replace the original XV50 one.!

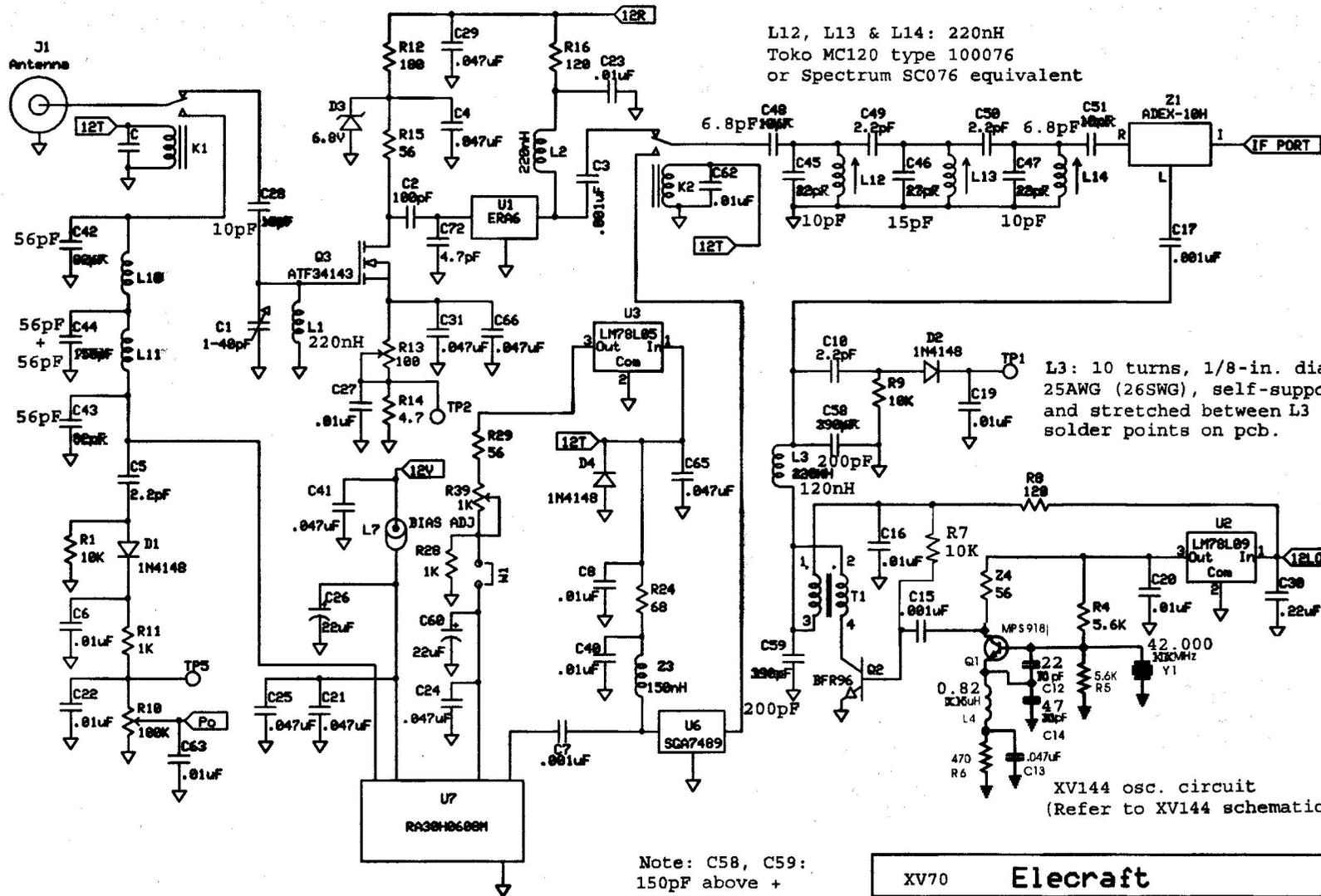
The modifications to the XV50 are summarised on the following XV50 RF Circuits Schematic.

L10 & L11:  
4 turns,  
26AWG (27SWG)  
on T44-6 core

L1: 5.5 turns  
Green, Mouser  
434-1012-5.5C  
or equivalent

L12, L13 & L14: 220nH  
Toko MC120 type 100076  
or Spectrum SC076 equivalent

L3: 10 turns, 1/8-in. dia.  
25AWG (26SWG), self-supporting  
and stretched between L3  
solder points on pcb.



Note: C58, C59:  
150pF above +  
47pF below pcb.

XV144 osc. circuit  
(Refer to XV144 schematic)

XV70		Elecraft	
<del>XV50</del> RF Circuits Schematic			
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RA30H0608M  
061AB -C JAPAN

ELECRAFT  
XV TRANSVERTER  
RF BOARD  
REV C  
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BAND SELECT  
1 2 3 4

P1 MOUNTS ON OTHER SIDE OF BOARD

