

Kanga US

3521 Spring Lake Dr.
Findlay, OH 45840-9073
kanga@kangaus.com
www.kangaus.com

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The RCX1-HF Converter is a basic converter for any of the HF bands from 20 thru 10 meters. It is intended to be used with the microR2 40 meter receiver, but any 7 MHz receiver can be used as the IF.

The converter was developed along with the 6 meter converter for use with the microR2. The schematic for each is the same – the only difference being the L/C values in the tuned circuits. You will find the 6 meter converter schematic has been supplied with the kit. The parts list supplied splits out the parts that are unique for each band and specifies the values. Those parts are packed in a separate plastic bag..

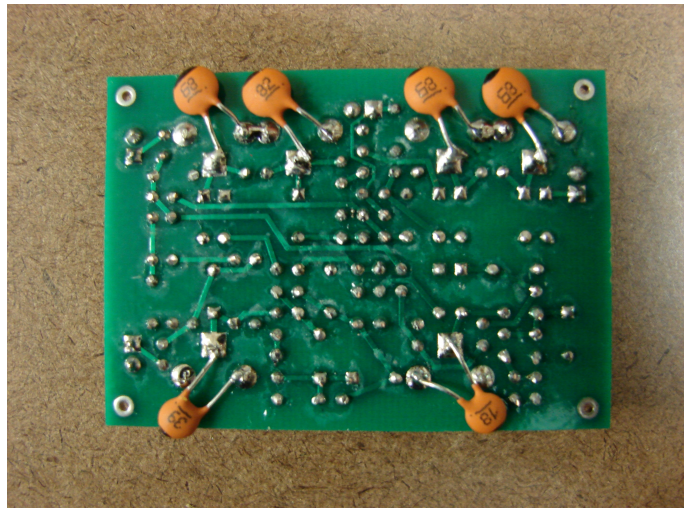
The schematic shows a trimmer cap as the “C” part of most of the turned circuits. The HF converters need more capacitance than supplied by the trimmer, so fixed capacitors must be soldered on the bottom side of the PC board to make up the needed capacity. Those values are specified at the end of the supplied parts list. A photo (of a prototype – different capacitor values!) is enclosed showing the bottom side of a 20 meter converter with the capacitors installed.. Capacitors need to be added across CV1, 2, 3, 4, and 6. CV5 is a 20 pf trimmer, and CV11 is a 68 pf capacitor. The Gimmick capacitors – C1 and C6 – are also specified for each band at the end of the parts list.

Note that the inductors are all toroids. The cores are the same for any of the band, but the number of turns and wire size is different and is specified at the end of the parts list.

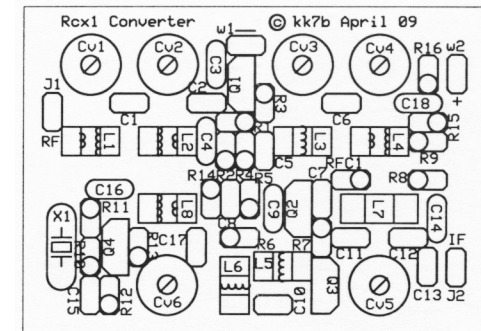
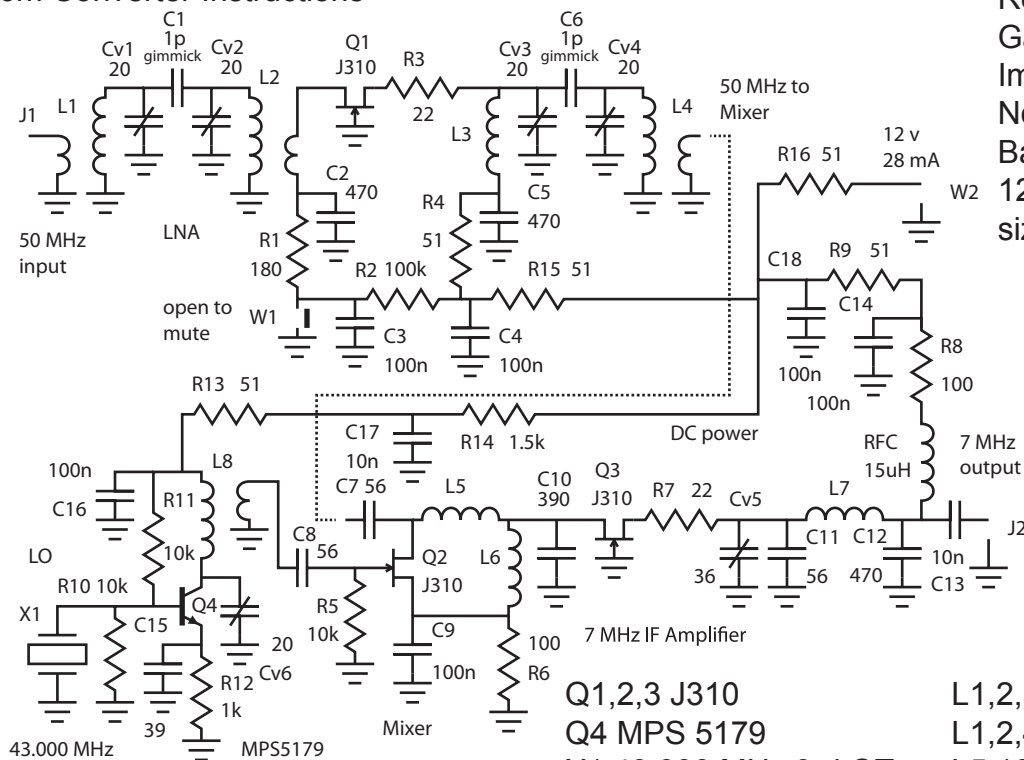
Finally – the crystal for the Local Oscillator is specified for each band at the end of the parts list.

Have fun on the HF bands!

73 – Bill – N8ET
Kanga US



6m Converter Instructions



Q1,2,3 J310
Q4 MPS 5179
X1 43.000 MHz 3rd OT
RFC 15 uH molded

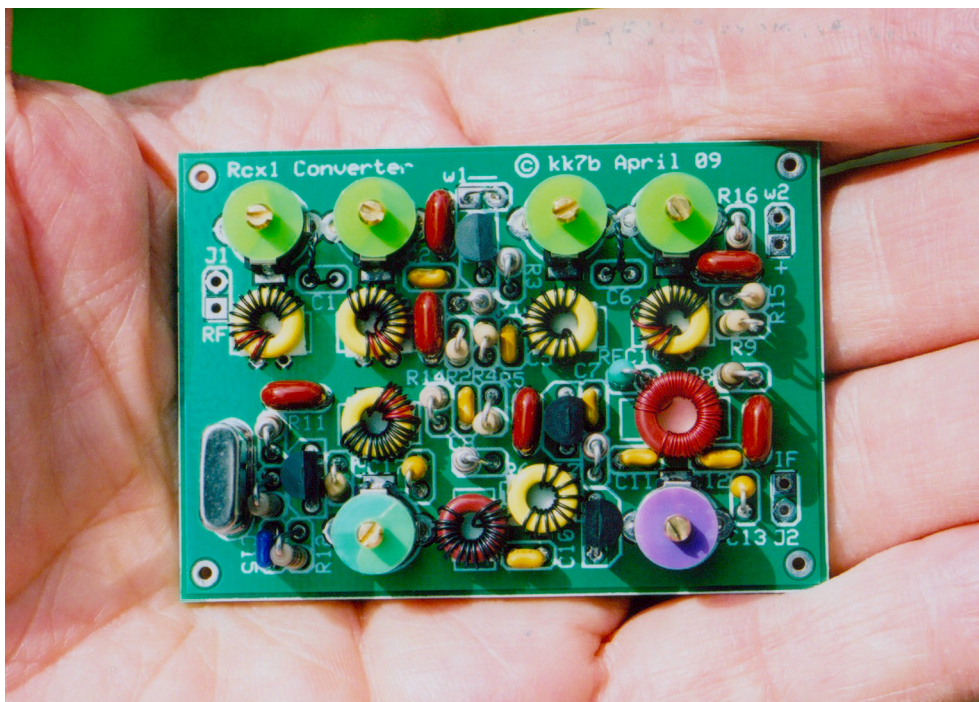
C1,6 1p gimmick
C2,5,12 470p
C3,4,9,14,16,18 100n
C7,8,11 56p
C10 390p
C13,17 10n
C15 39p

Rcx1 6m Converter Specs

Gain 12 dB
Image Rejection >75 dB
Noise Figure 6 dB
Bandwidth 300 kHz
12 volts at 28 mA
size 1 11/16" x 2 3/8"

R1 180
R2 100k
R3,7 22
R4,9,13,15,16 51
R5,10,11 10k
R6,8 100
R12 1k
R14 1.5k

L1,2,3,4 14 turns #28 T25-6
L1,2,4 secondary 2 turns #28
L5 10 turns #28 T25-6
L6 18 turns #28 T25-2
L7 38 turns #32 T30-2
L8 16 turns #28 T25-2
L8 secondary 4 turns #28



Alignment: preset 6 trimmers to half mesh. Connect to 40m receiver and tune Cv5 for maximum noise. Then tune Cv6 for more noise. Connect 6m antenna and tune for maximum band noise, starting with Cv3, then Cv4, then Cv1 and Cv2. Done.

73 de kk7b May 09

Receive Converter 20 – 6 meters						
Part	Value	Digikey	Mouser			
CV1	20p trim	SG3003-ND				
CV2	20p trim	SG3003-ND				
CV3	20p trim	SG3003-ND				
CV4	20p trim	SG3003-ND				
CV5	20p trim	SG3003-ND				
CV6	20p trim	SG3003-ND				
C1	*					
C2	470p		581-sr151a471j			
C3	100n	P4525-ND				
C4	100n	P4513-ND				
C5	470p		581-sr151a471j			
C6	*					
C7	56p		581-sr151a560jar			
C8	56p		581-sr151a560jar			
C9	100n	P4525-ND				
C10	390p		581-sr151a471j			
C11	68p		581-sr151a360jar			
C12	470p		581-sr151a471j			
C13	100n	P4525-ND				
C14	100n	P4513-ND				
C15	39p		581-sr151a390jar			
C16	100n	P4513-ND				
C17	10n	P4513-ND				
C18	100n	P4525-ND				
R1	180 ohms	150qbk-nd				
R2	100k	100kqbk-nd				
R3	22 ohms	51qbk-nd				
R4	51 ohms	100qbk-nd				
R5	10k	10kqbk-nd				
R6	100 ohms	100qbk-nd				
R7	22 ohms	51qbk-nd				
R8	100 ohms	100qbk-nd				
R9	51 ohms	51qbk-nd				
R10	10k	10kqbk-nd				
R11	10k	10kqbk-nd				
R12	1k	10kqbk-nd				
R13	51 ohms	51qbk-nd				
R14	1.5k	1.5kqbk-nd				
R15	51 ohms	51qbk-nd				
R16	51 ohms	51qbk-nd				
TR1	J310		512-J310D26Z			
TR2	J310		512-J310D26Z			
TR3	J310		512-J310D26Z			
TR4	2N3904		512-2N3904TF			
RFC1 / L6	T25-2 18T #30		434-22-100			
RFC2	15uh		434-22-150			

Sheet1

L1	T25-6					
L2	T25-6					
L3	T25-6					
L4	T25-6					
L5	T25-6 10T #28					
L7	T30-2 38T #32					
L8	T25-6					
XTAL	*					
PC Board						
RF parts	14 MHz	18 Mhz	21 MHz	24 MHz	28 MHz	50 Mhz
L1, L2, L4	27t:3t #32	23t:3t 330	22t:3t #30	20t:3t #30	19t:3t #30	14t:2t #28
L3	27t #32	23t #30	22t #30	20t #30	19t #30	14t #28
L8	20t:4t #30	18t:4t #30	17t:4t #28	16t:4t #28	16t:4t #28	14t:4t #28
C1, C6	4.7p	4.7p	3.9p	3.9p	3.3p	2.2p
XTAL	21.2 MHz	25.2MHz	28.2 MHz	32.0 MHz	35.2 MHz	43.0 MHz
C1, C6 mouser number 75-561R10TCCVxx where xx is 47 for 4.7p etc.						
Pad across xx (value in pf)						
CV1	56	39	33	27	22	
CV2	56	39	33	27	22	
CV3	56	39	33	27	22	
CV4	56	39	33	27	22	
CV5	0	0	0	0	0	
CV6	33	27	15	10	10	