"OXO" Transmitter

George GM3OXX (SK) and the G-QRP Club gave Kanga (UK) Permission to reproduce this design back in the 1990's so all can enjoy, be it G-QRP members or not. When George sadly became silent key, it was decided to do something to remember him. Richard G3UGF mentioned the Foxx or the OXO Challenge. So we set about bringing this little kit back to life for all to enjoy again.

Firstly identify all components against the component list, if you find that a part is damaged or missing then please contact Kanga (UK) or if you purchased your kit in the USA - KC9ON @ 3rd Planet Solar for a replacement.

Frequency	Voltage	Power	Voltage	Power
5.262/5373	12	700	9	400
7.03	12	700	9	400
10.106	12	675	9	380
14.06	12	720	9	380
18.086	12	680	9	420
21.06	12	700	9	420
24.906	12	620	9	420

Tests without a LPF and should only be used as a guide. Key Held down for 1 min, PA was hot – heatsink may be needed

Construction

Though the fitting of the parts is straight forward, it is highly recommended that all components are solder in the order they are listed in the component list i.e. starting with the resistors followed by the capacitors and so on until all parts are fitted to the board.

Not forgetting to check your work whilst doing this to ensure that there are no solder slashes/bridges.

The only critical part is the winding of L1 which is 17 turns of 24 SWG. Being careful not scratch the enamel off as you pass it through the Toroid. This lays flat on the PCB as shown in the picture.

Within the kit you will find a 2 Pin Header + Jumper and two wire links, depending if you are going to use a Variable Capacitor *(See Comments later)* or just use the Crystal as it is. There is also a 5 Pin SIP included, you'll need to cut off 3 Pins, then cut out the middle one. You can solder this in place of the crystal, thus enabling you to change band, simply by changing the crystal. RF output is via two Vero Pins.

Circuit

This simple transmitter operates in the usual way, Q1 is both RF and DC coupled to Q2 so this circuit will not oscillate unless Q2, two 33Ω resistors and the 100n capacitor are connected as shown in the schematic. The two 33Ω resistors are used to set the output power of the Transmitter. They may be reduced, but care must be taken as to if to low then Q2 will fail through drawing to much current.

The circuit will oscillate using fundamental crystals, but a signal from a VFO can be injected into the same point.

The transmitter will operate on all bands from 160m to 20m.

The transmitter can be used above 20m, but the power level is severely reduced. A small variable capacitor maybe used to "PULL" the crystal a few "Hz" If used on 160m, a second 100n (0.1µF) will need to be placed across the 33Ω Resistors in the PA emitter. Good luck in the challenge:

PLEASE NOTE:

It should be remembered that a Low Pass Filter is to be used with this transmitter.

It was also found that different makes of Crystal also made a slight difference in power out.

We would also like to thank the G-QRP Club who kindly donated the 2N3866 (Equivalent) that is used within this kit.

NOTES

Component List

X	Item	Markings	Notes
	R1 33k Ω	Orange, Orange, Orange, Gold	
	R2 100Ω	Brown, Black, Brown, Gold	
	R3 1KΩ	Brown, Black, Red, Gold	
	R4 1KΩ	Brown, Black, Red, Gold	
	R5 33Ω	Orange, Orange, Black, Gold	
	R6 33Ω	Orange, Orange, Black, Gold	
	R7 1KΩ	Brown, Black, Red, Gold	
	C1 100pF	101	Purple Tip
	C2 100pF	101	Purple Tip
	C3 100nF	104	Red-Multilayer
	C4 10nF	103	Brown Ceramic
	C5 100nF	104	Red-Multilayer
	C6 100nF	104	Red-Multilayer
	C7 100nF	104	Red-Multilayer
	C8 100nF	104	Red-Multilayer
	C9 220µF	16v Electrolytic	Note Polarity
	Q1	BC182 or 2N2222 may be Supplied	Note Orientation
	Q2 2N3866	2N3866/G-QRP Version	Note Orientation
	Q3 ZTX751	ZTX751	Note Orientation
	Crystal x 2	Frequency as supplied	
	3.5mm	Stereo Jack for Key	
	2 x Vero Pin	RF Connection	
	2 Pin Molex Header x 2		R/Angle or Vertical
	2 Pin Molex Socket + Cable		Red/Black - Pwr
	2 Pin Molex Socket + Cable		Orange and blue - Key
	2 Pin Header		Short on Xtals to Gnd/Var Cap
	2 Pin Jumper		Short for 2 pin Header
	5 Pin Sip		3 Required for Crystal swap

OXO Transmitter
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C7 R7 C8 P103 Key
Q3 C6 C3 R6
L1
R5 Q2
Rf P101 C4
C9
R4 C2 R3
Original by GM3OXX (SK)
C5 R2 Q1 R1
P102 Cx101 X1
12V Cvar

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P102 12V
+ C9 220uF
P103 Key
C8 .1uF
R7 1K
C7 .1uF
ZTX 751 Q3
C6 .1uF
L1 FT37-43 17t 22-24ga 10.4"/26.5cm INDUCTOR CORE
P101 RF Out To LPF
C4 .01uF
Q2 2N3866-TO92 / 2N2219A
C3 .1uF
R6 33
R5 33
C2 100pF
R4 1K
C5 .1uF
Q1 BC182
R2 100
R3 1K
R1 33K
C1 100pF
CRYSTAL X1
CVAR Cx101
Jumper if not using Polyvaricon