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## Tiny Toy 40m CW QRP transceiver (VK3YE, Peter)

Source (5/2021): https://www.youtube.com/watch?v=DvHfRJvjUN4

Below you will find 2 schematics for the Tiny Toy Knobless Wonder. It is a Pixie style radio with a direct conversion receiver but the oscillator is tuned about the fundamental with a small capacitor and 4 of the same crystals then act as SSB filters on the fundamental frequency (now the LSB). The DSB is via a toroid transformer instead of the 602 or 612 which would require a separate power regulation circuit.

For many years I've derided QRP crystal controlled transceivers (eg the Pixie) as toys. There'd be kits, people would build them, make a contact or two, and then they'd gather dust on a high shelf. Which is not a bad thing given the price of the nine volt batteries some of them use.

But you'd have to say that there's a novelty factor about a cigarette-pack sized rig. And their low power consumption is in start contrast to a hungry beast like an FT-817.

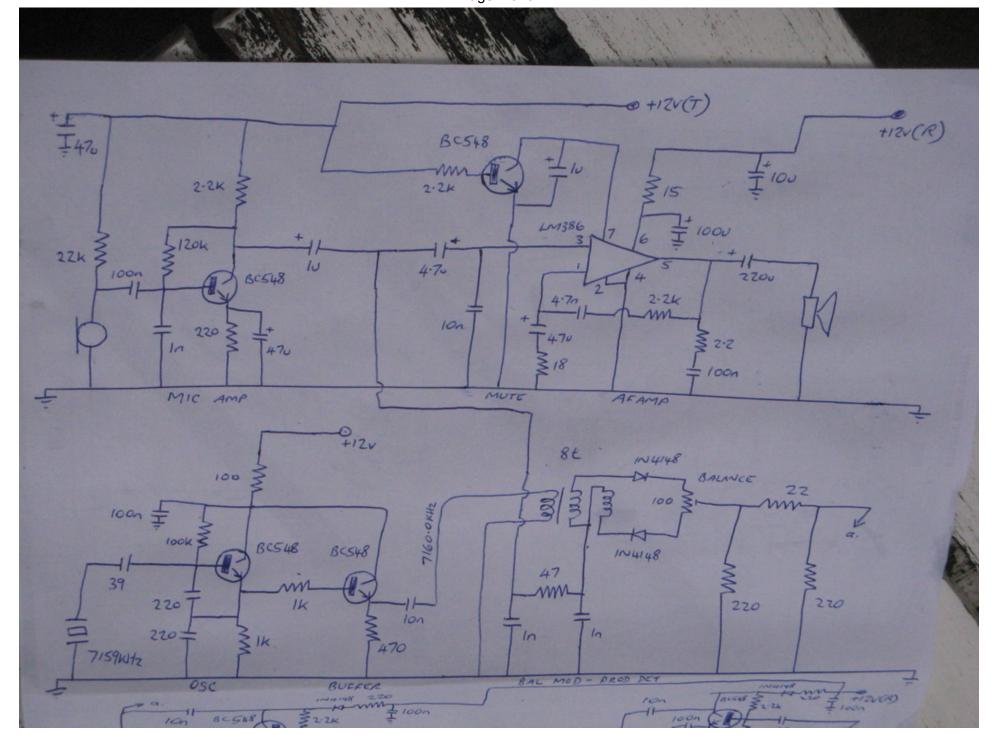
Here is my own novelty rig for 40m CW. Its clunky t/r switching (flip a switch and turn a dial) and a wide direct conversion receiver does not make it a DX machine. But in other respects it is a little less toyish. There's a wide-swing VXO (nearly 20 kHz) and a usable receiver (stable, unmicrophonic and free of broadcast station breakthrough). Plus the 4 x AA batteries provide longer life and cheaper running.

Power output is around 100mW (or a bit more). Under good conditions this is capable of contacts up to around 800km during the day. This video provides some footage of contacts made on its first day, a description and, at the end, a circuit. Note the drawing errors in the Colpitts VXO circuit; 1. add a 1k resistor from emitter to earth, and 2. move the lower 1n capacitor's top lead from the 33k resistor to the emitter/1k resistor/220pf capacitor's junction.

UPDATE: Two 7030 kHz crystals were substituted in place of the 7040 kHz initially used. VXO coverage is now 7005 - 7028 kHz. The unit is described in detail in Lo-Key March 2012 and Sprat Summer 2012.

Also see:

Bigger Toy 40m CW QRP transceiver (VK3YE, Peter)



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Page 3 of 3 OSC BUFFER BAL MOD M4148 1N4148 220 12mm ton BC548 = 100n 10n BC548 \$ 2.2K 100n 100n 10n TO RLY 100 7159442 220 IN4148 124148 2-2 \$ BC548 I 1000 2-2k \$ BC548 ± 1000 10n 220 100 Ion 1000 1000 10n 10n C. TO DR IK \$ lk \$10 470 310 220 FILTER RFAMP +12V(T) 15 RF AMP +12V(R) TO OSCIBURE 1000 100n 1000 6 hole FB 10 10 IU 6.8 K 100n BD139 1000 BD139 1N4002 A 100n 390 820 820 330 390 HO PTT ₹4.7 PA DRIVER LPF