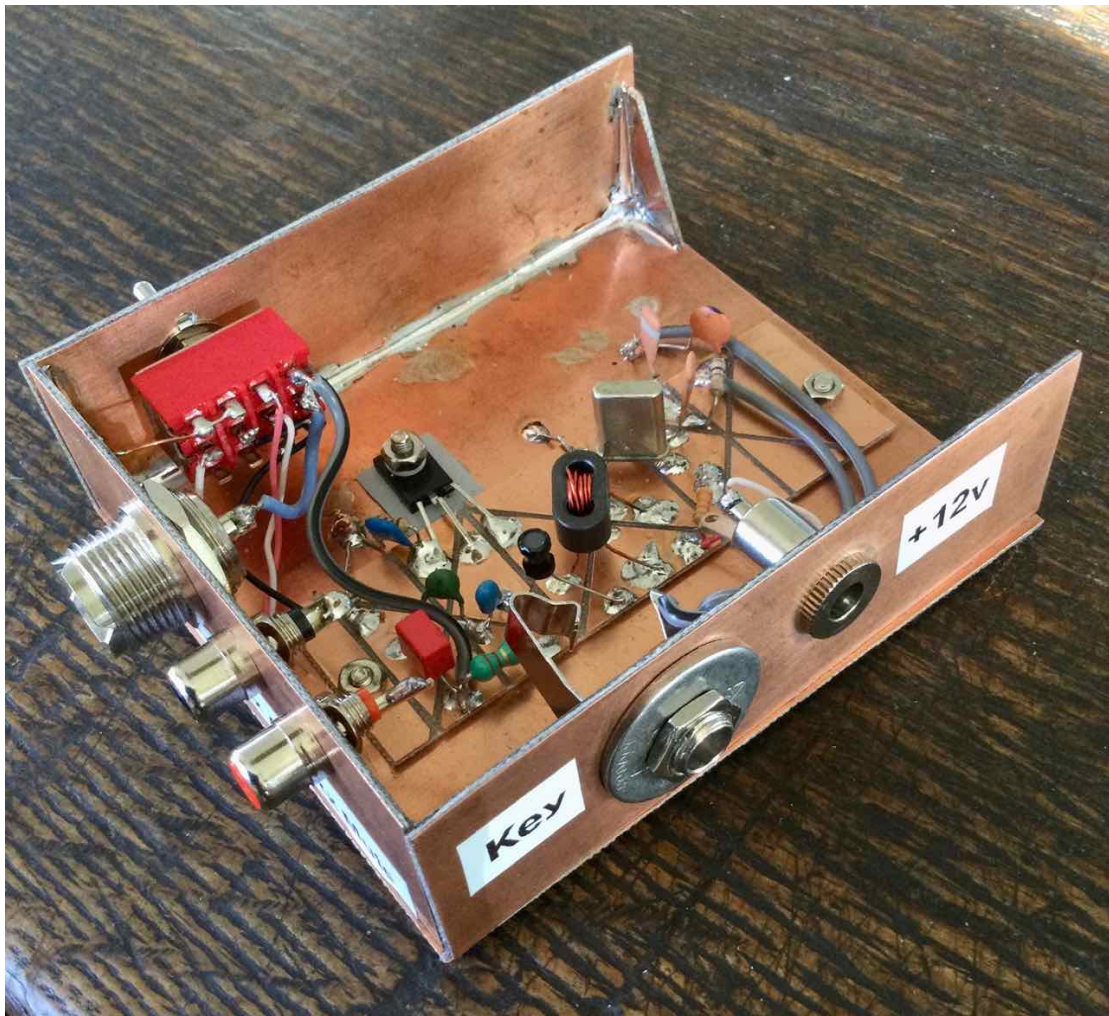


**Celebrating 100 years of Amateur Radio in Tasmania
June 2023**

A project on behalf of NTARC.
(The Northern Tasmanian Amateur Radio Club Inc.)

**The Century “Cent” (1 Watt) 80m CW
Transmitter Mk I**



by

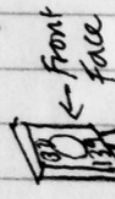
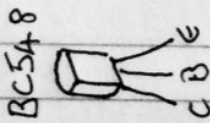
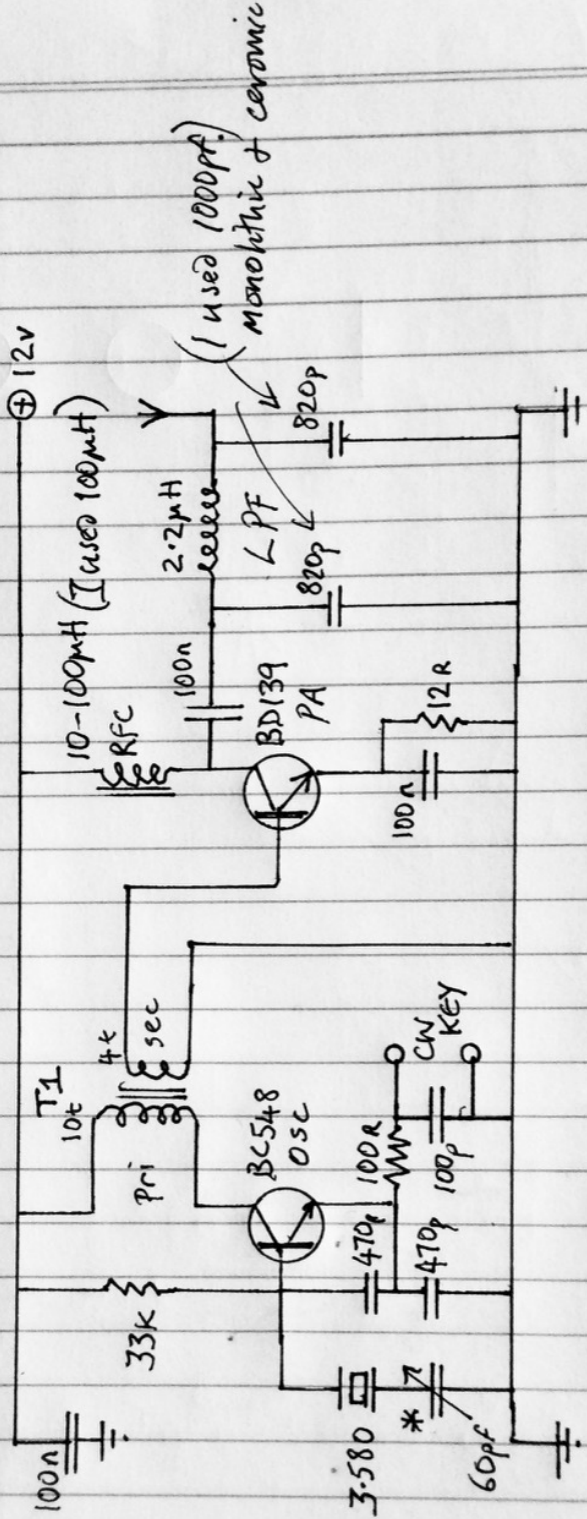
VK7WW (Nic)

Celebrating 100 years of Amateur Radio in Tasmania

June 2023

The NTARC CENTURY "5IN" CW TX for 80M - VK7WW (Nic)

EASY TO GET PARTS - EASY TO BUILD

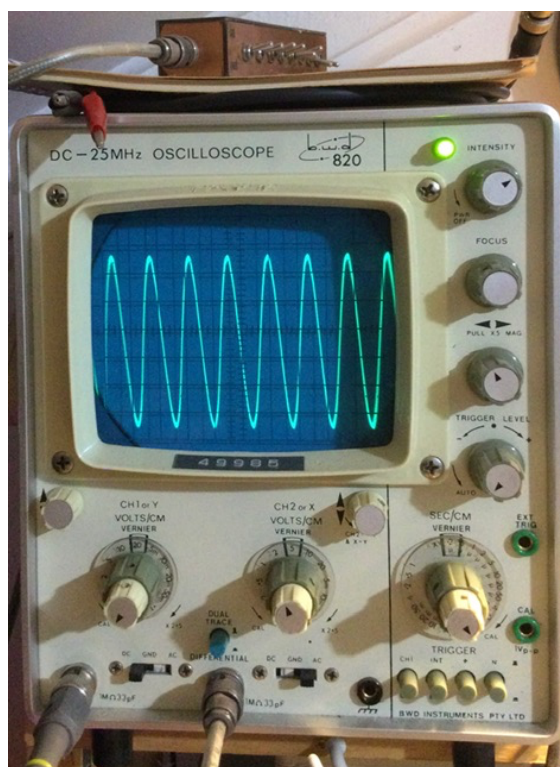


* Variable Capacitor may be left out. (The ability to shift the crystal frequency depends on the crystal). Connect the capacitor side of the crystal to ground.

T1 - 10 turns wound on a tv "bivocular" balun former (the smaller one) - primary
4 turns wound on top of the 10 turns - Secondary. (0.5mm enamelled copper wire or 5-wire).

I have the privilege of running the TechNet and TestNet for the Northern Tasmanian Amateur Radio Club (NTARC). The TestNet is a 30minute net on 3.580 Mhz combined with a slow-morse course. The TestNet gives QRP builders an opportunity to test their simple low-power (mostly CW) transmitters, even if they don't know Morse code! (Just send a string of Vs – Beethoven's Fifth' – di di di dah)

To commemorate the Centenary Celebrations of 2023, I decided to build a simple crystal controlled, low power (>1w), morse code Tx (transmitter) for 80m. It uses commonly available parts is very easy to build, and it performs very well, with a 'sweet' clean signal.



BASIC COMPONENT LIST

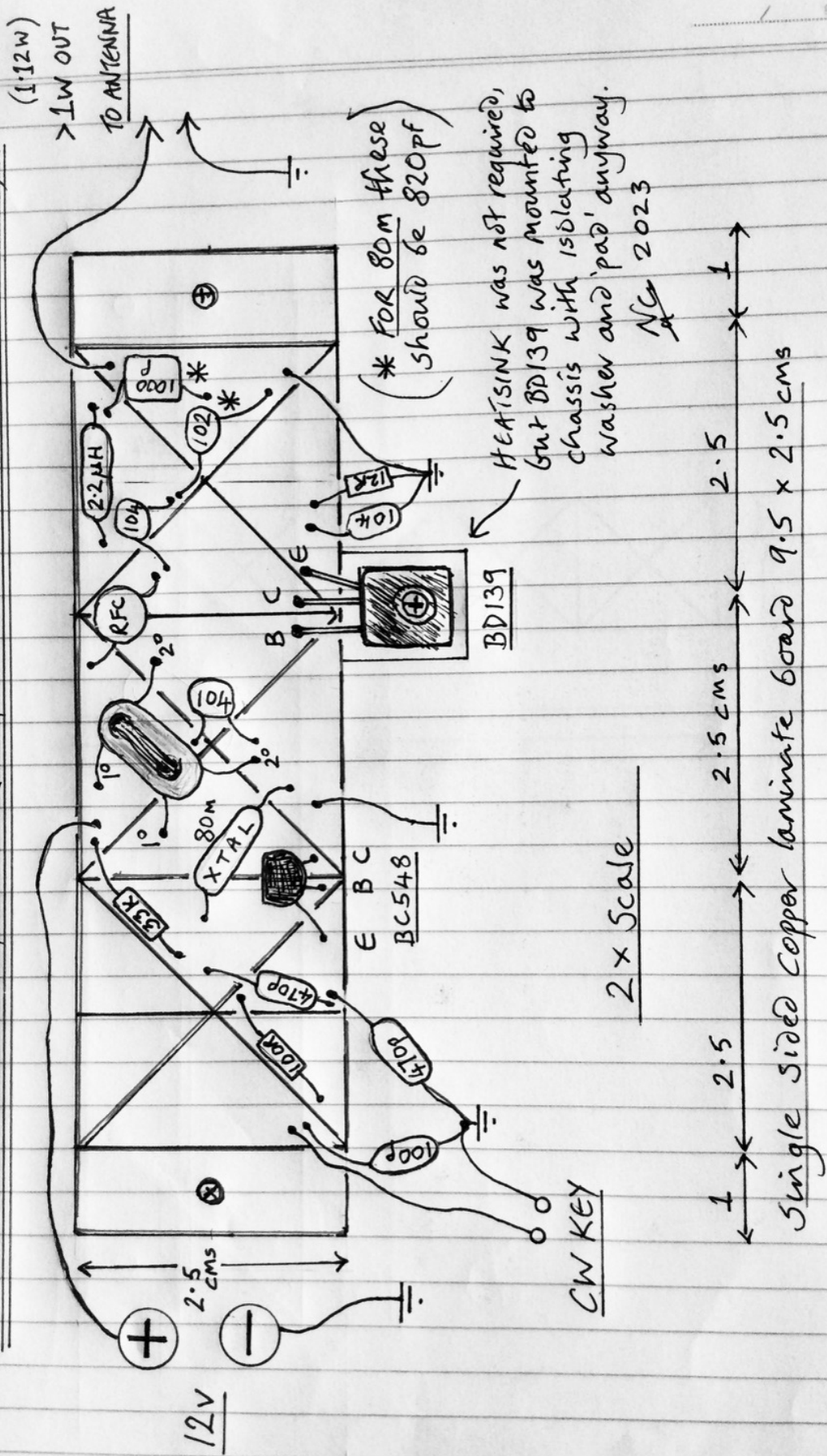
At the time of writing, all components are available at Jaycar.

Resistors: 33K, 100R, 12R
Capacitors: 100n (3), 470p (2), 100p, 820p (2) see notes on circuit
Inductors: RFC 10-100uH (I used 100uH), 2.2uH, TV balun former (small)
Transistors: BC548, BD139

80M Crystal: 3.579Mhz 'colour-burst crystal'
Switch: 4 pole double throw (Tx/Rx Sw)
Misc: Copper laminate PCB

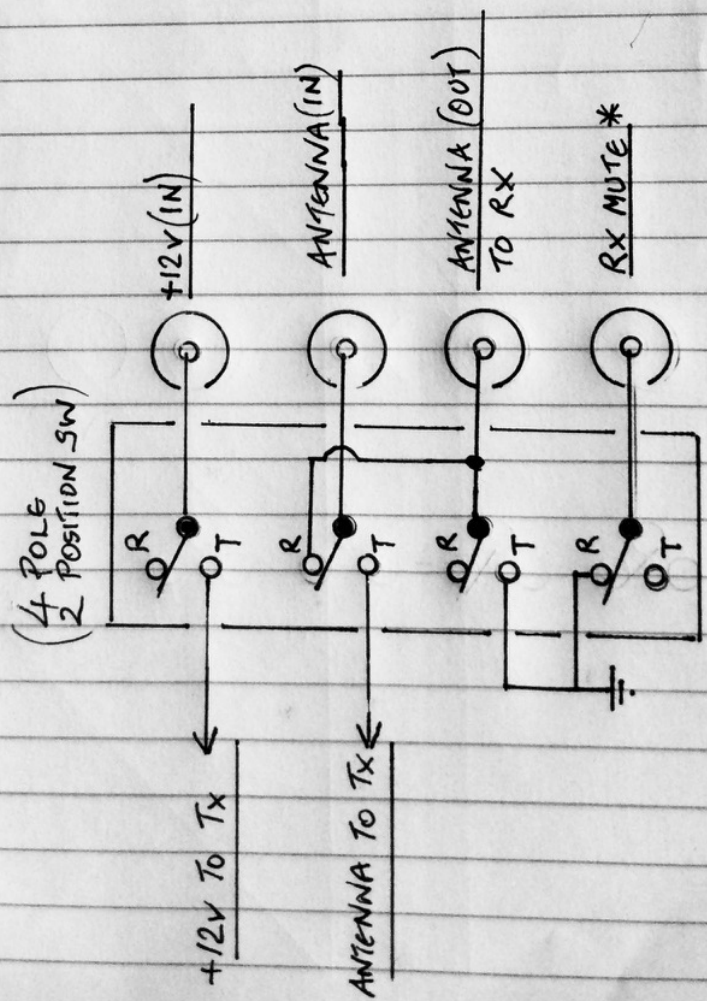
Plugs and Sockets for CW Key, Antenna, Rx Ant, Rx Mute, Power.

THE NTARC CENTURY "CENT" (>1W) CW TX - 80M VK7WW (NIC)



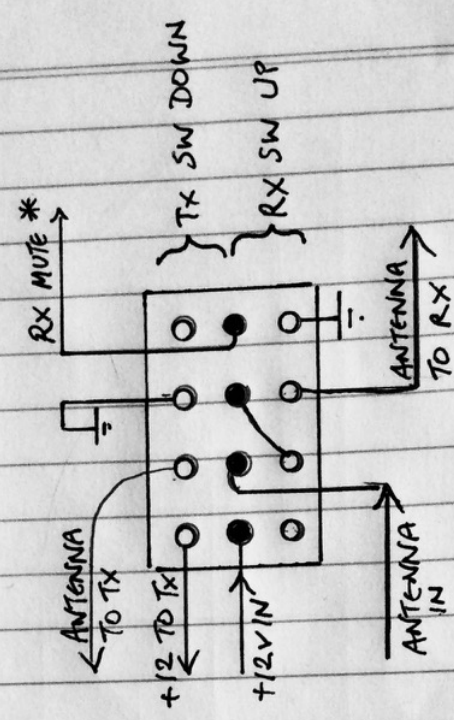
THE NTARC CENTURY "CENT" (Y1W) CW TX - 80M VK7WW (NSIC)
TRANSMITTER & ANTENNA SWITCHING SYSTEM - VK7WW

CIRCUIT



LAYOUT

REAR OF SWITCH



* Some mute systems on Rxs are open, others are closed!
 (SSB or other terminal if required)

SWITCHING

This type of SWITCHING arrangement can be used with any home 'brew' Tx.

ON RECEIVE

1. No power is supplied to the Tx.
2. Your antenna is switched through to the Rx Antenna socket.
3. Your Rx is unmuted

ON TRANSMIT

1. Power is supplied to the Tx.
2. Your antenna is switched to the Tx
3. Your Rx antenna is grounded.
4. Your Rx is muted.

BUILDING

Building is pretty easy. I mounted the prototype in a box I made from copper laminate from another project, seen in the photos. You can place it in a housing of your choice. Some builders mount it on another copper laminate board to use as a ground/"earth", on which they can solder all components that go to ground. Much like what I did with my prototype. (See photos.)

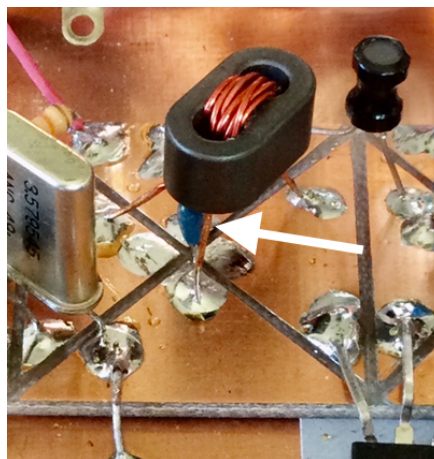
Others may want to fix solder tags to all components that go to ground and bolt them inside a metal case.

I used a piece of single sided copper laminate (cut approximately to size) and a hand hacksaw blade to create the separate sections – size detailed in the component layout page. I drilled mounting holes in each end of the copper laminate and screwed it to a wooden pallet so it couldn't move, as I cut the pattern out with the hacksaw blade.

ASSEMBLY

I suggest you solder all components on your 'board before you mount the 'board in your box.

First, solder the 100n decoupling capacitor first (coloured blue, seen in the following photo ...almost as if it is under T1). Refer to other photos if it is not clear to you.



The rest of it is pretty straightforward...

TESTING

Having completed building, first have a visual inspection to make sure none of the saw-cuts have been bridged; no shorts!

ALWAYS OPERATE INTO A 50 ohm DUMMY LOAD, OR TUNED ANTENNA! (1 W carbon resistor is fine so long as you don't leave the CW Key down for too long!)

Double-check your wiring!

If you don't have any test gear, then disconnect your antenna to your Rx (and the Rx Mute – if connected); listen to the signal. It should sound clean and without any chirp.

Good luck! Feel free to call in on the TestNet and TechNet 73 Nic.

PERFORMANCE

It performs beautifully with a clean output signal and a nicely shaped CW signal.

From Tasmania on 3.580 Mhz (a commonly available xtal on 3.579, known as 'the old colour-burst crystal') QSOs and reports between 7 and 9pm have come from Canberra, Gosford, Victoria, South Australia, and even Perth. Not bad for just over 1 watt output.



