

Figure 4
Proto Board Layout

There are still some changes required in order to make the frequency spread extend from just below 5.0 MHz to just above 5.5 MHz.

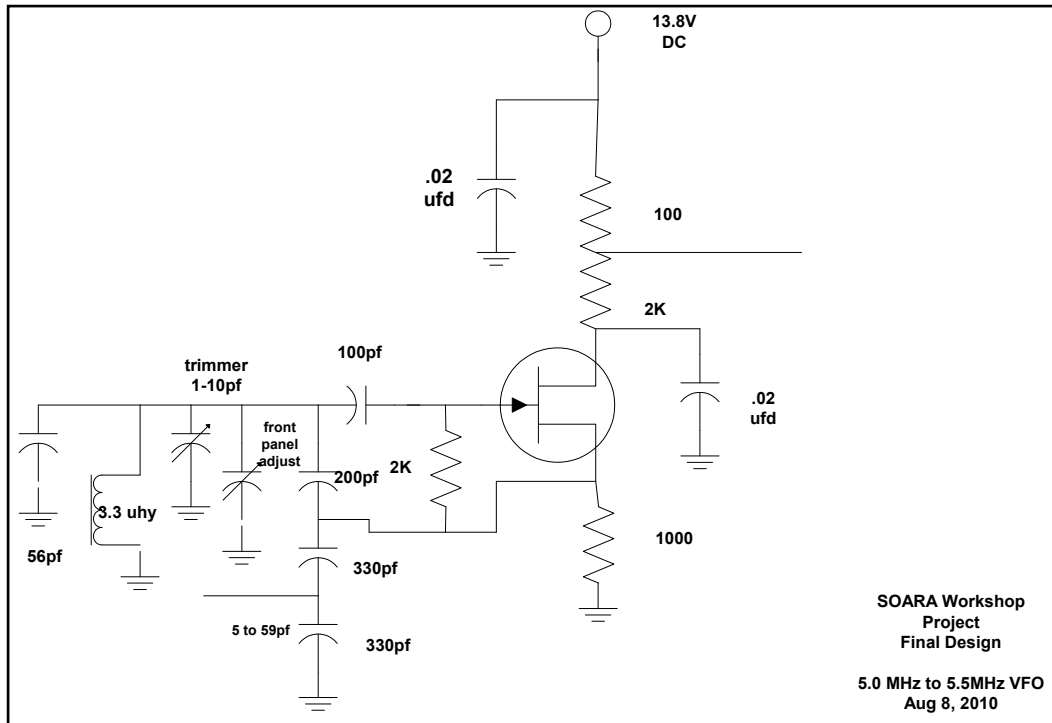


Figure 5
Final Design 5.0MHz to 5.5MHz

I would add a small variable inductor in series with the 3.3 μ H fixed inductor. I would also look at the 1000 pF capacitor divider and scale it to a lower value of capacitor. The values used were taken from the VFO of the HW32A.

Calculating the value of X_C for a 1000 pF capacitor at 2.0 MHz gives a result of 79.6 Ω . A 330 pF capacitor at 5.0 MHz will result in a X_C of 88.5 Ω . That will be close enough for this circuit. A follow-on project is to assemble this circuit on a universal solder type printed circuit board, and then mount it in a chassis.

Some of the early 5 band rigs used a 5.0 MHz to 5.5 MHz VFO to tune the various bands. As an example, if you mixed a 9.0 MHz crystal controlled oscillator, the sum produces 14.0 MHz to 14.5 MHz output. The difference frequency produces 3.5 MHz to 4.0 MHz. As you can see, these are the 20 meter and 75/80 meter ham radio band allocations.

The addition of an amplifier stage would make a suitable design for a CW QRP two band rig. If an experimenter wanted to extend the design and build a frequency doubler to the design it could be expanded to include the 40 meter and 10 meter bands in a four band rig.

The rest is left for the imagination for the home brewer.

If there are any comments, please feel free to contact me at WB6WXO@SOARA.org