

Building the VWN QRP VFO

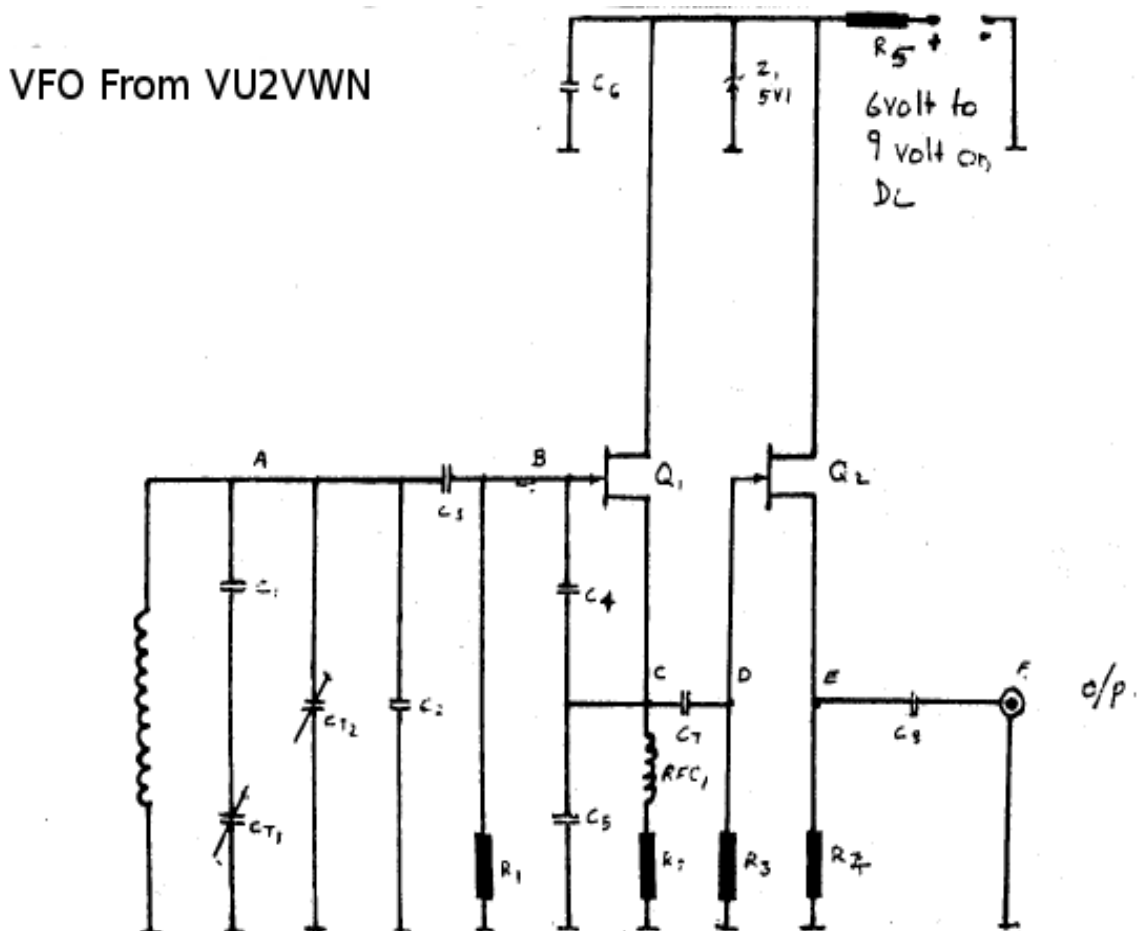
VU2SWX <http://brainstorms.in>

The VWN QRP used to be a very popular 7MHz AM transmitter in India during the 80s. The transmitter was assembled from locally available parts and very was easy to construct. Nowadays, no one uses AM. However the VFO from the QRP is a cool circuit which you can incorporate in newer design.

Recently one of my young friends, wanted to listen to SSB signals on the 40M band. We built a VWN QRP and placed it near a 3 band philips radio. The long wire was connected to the telescopic aerial of the radio. (Approximately 10 meters) . We hanged the other end of the wire on a nearby tree. The received signal strength on the radio showed a quantum jump. We slowly tuned around 40m band and located some SSB signal. Then the VFO was tuned to the receiver frequency. The SSB signals became very loud and clear. Then we changed the radio and tried the experiment on a cheap Chinese radio (10 bands) . This radio was having a frequency counter. It also received the signals beautifully.

If you are interested in ham radio, this can be your first project. A big thanks to OM Vasanth VU2VWN for designing such a wonderful VFO.

Here are the details of the VFO,



COMPONENT DETAILS OF V.F.C

Resistors

All resistor are 1/4 watt type, if not mentioned.

	Item No.	Description
1.	R1	100 ohms
2.	R2	220 ohms
3.	R3	100 ohms
4.	R4	1 k ohms
5.	R5	47 ohms
6.	R6	220 K /1 watt (for making RFC)

Capacitors:

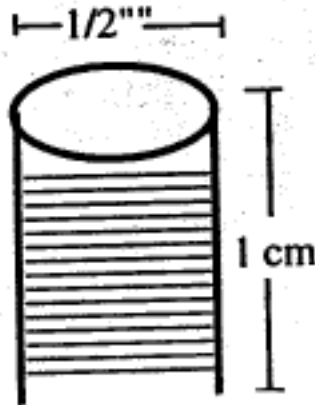
When purchasing capacitors special care should be taken to get the specified capacitors as mentioned below.

	Item No.	Description
1.	C1	47 PF Styroflex only
2.	C2	180 PF " "
3.	C3	100 PF " "
4.	C4	100 PF " "
5.	C5	100 PF " "
6.	C6	01 MF Philips red or striped polyester
7.	C7	10 PF Philips gray disk or styroflex .
8.	C8	100 PF " "
9.	CT1	50 PF metal gang condensor is preferred If not available use oscillator section of 2 X PVC gang or one section of 2J PVC gang.
10.	CT2	22 PF Philips make green button trimmer

Inductors

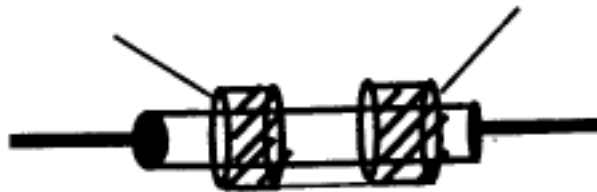
1. L1 - 2 micro henry (Tank Coil)

It can be made by winding 11 turns of 24 S.W.G. enameled copper wire on a piece of polythene pipe of 1/2 inch inner dia at a length of 1 c.m.



2. RFC

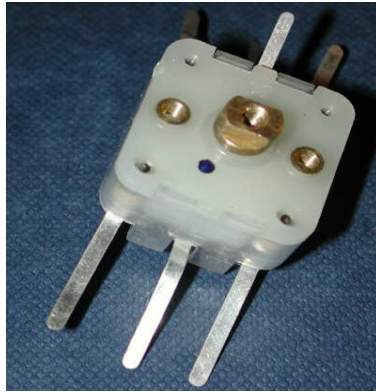
It can be made by winding 150 turns of 36 S.W.G. enameled copper wire on a 220K ohms/1 watt resistor in a random mode or in two sections as shown in the figure.



The FETS are BFW 10 or BFW11

The styroflex capacitors are no longer available in the market. You can use high quality ceramic disc capacitors . (NP0) . Or look inside some old TV or cordless phones for good disc capacitors. If you use ordinary ceramic disc capacitors, the oscillator frequency can drift over a time. If you are unable to find NP0 capacitors, try ordinary disks.

Use a 2x gang capacitor . It also may not be available in the local store. Look for a dead pocket radio and pullout the gang capacitor. See the figure below. You can also use other type of gangs like 2J or FM gang. You may have to adjust other values.



Gang Capacitor

I used ordinary disc capacitors for C6 . The button trimmer was recovered form an old radio.



Button Trimmer

The copper wire size is not very critical. I used some copper wire from the secondary of an old 6-0-6 transformer. For the RFC you can wind the coil on any suitable former. The size is not very critical.

Assemble the circuit and power up. Switch own your radio and tune around 40M band . You will hear a loud whistle . Now slowly adjust the trimmer or the number of turns on the tank coil to get 7Mhz frequency.

Fix the VFO in a small eliminator box (available in electronic shops).