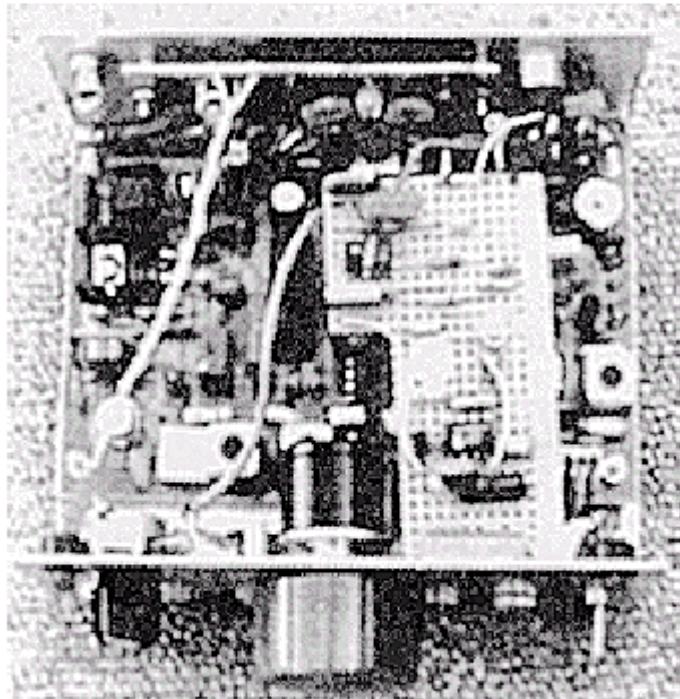


Adding CW to the Epiphyte

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Last year George Dobbs G3RJV asked for volunteers to build sample Epiphyte 80m SSB Transceivers to send with the kits under the Norcal/G-QRP scheme for the third world. Tony (G4WIF) and I offered our services and were accepted.

I built the kit & was impressed with the rig - 5 watts pep and it tuned all the UK band 3.6 to 3.8MHz. Derry VE7QK had done a great design job. I then thought back to Dayton last year where I had bought all sorts of things (as you do there!) and remembered that one of the things I had bought was an Epiphyte PCB from FAR. So out it came & I built my second but this time - I had to get all the parts myself - well I got two lots, as Tony had bought a board as well

Last December, Tony & I decided to have a joint boating holiday with our families on the Norfolk Broads. We decided to take a rig so we decided we'd take the Epiphyte but it was a shame it was SSB only. This got me thinking.

Firstly, it needed conversion to cover the CW end of the band as well as the SSB section. This was easy as the varicap I had used was a double one as I couldn't find the correct one as specified by Derry. I found that by paralleling the two halves (no doubt someone will say you can't do that!) it worked fine - it covered 3.498 to 3.801 - exactly what I wanted.

The next part was to generate CW. I thought first about re-injecting the carrier after the NE602, but that looked complicated. Then I remembered the TiCK chip invented by those two "Sons of the Dessert" Gary and Brad of Embedded Research. This had an audio output and if I could use that, I wouldn't need IRT because if I tuned my receiver to be the same note as the audio out of the chip, I would be zero beat with the other station. All I needed was to turn the 3+ Volt square wave into a microphone level sine wave. That I did with a single op-amp - a 741 connected as a simple low pass filter.

The circuit is easy. I made all up on a piece of Veroboard (strip board?) which took the TiCK and the LP filter. I used an off-cut which is why it is the shape it is! The modifications to the Epiphyte were a DPCO switch which switched the audio input to the modulator between the microphone and the LPF output, I also switched the power to the LPF as the keying could be heard on receive if the paddles were touched.

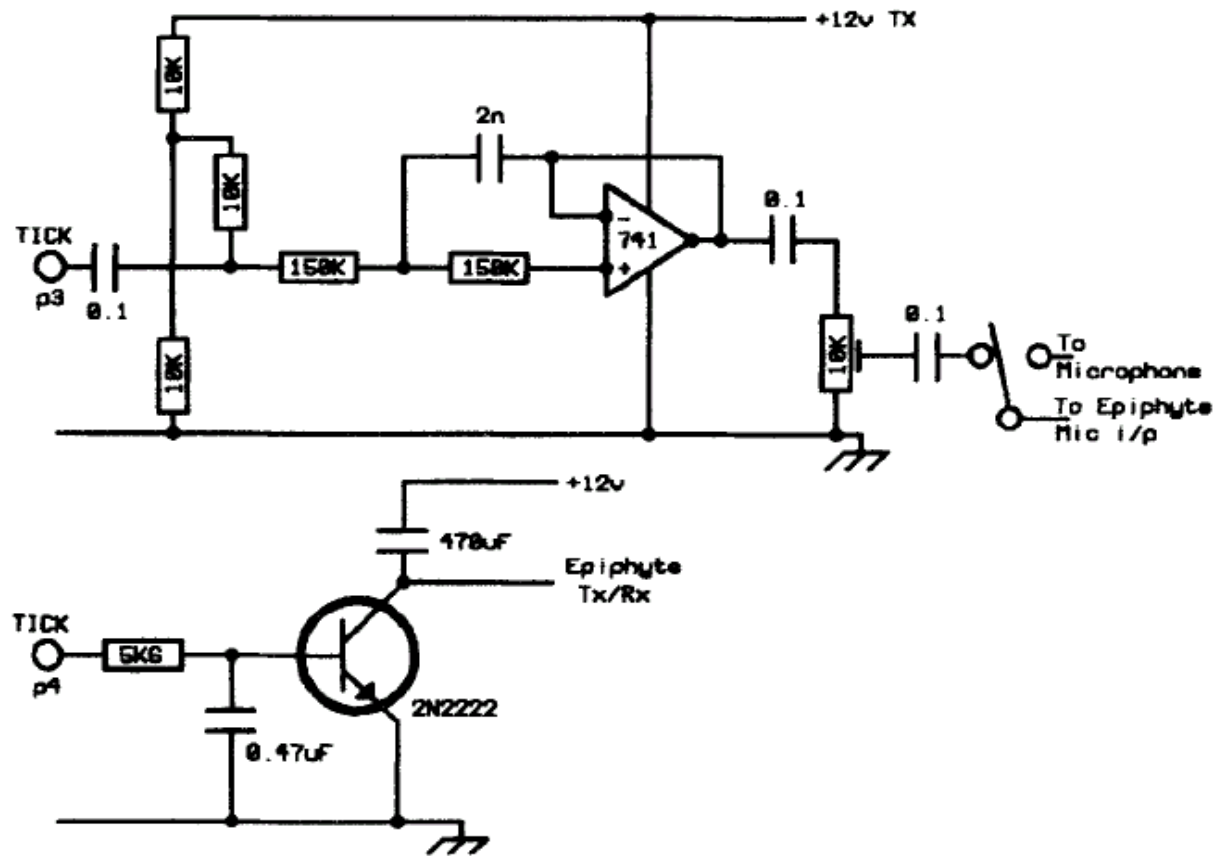
I used the TiCK circuit as recommended by Gary & Brad except that I added a large capacitor in parallel with the Tx/Rx relay to give semi break in as the Epiphyte clipped the cw a bit with full QSK. This was mounted next to the keying transistor on my PCB.

The only thing I did wrong initially was to power the TiCK down on phone. The TiCK I used was the one with a memory & it lost it's configuration if I switched to phone. I've since modified it to be powered all the time as it takes negligible current on standby.

The only adjustment needed is to adjust the output pot until the PA draws about 500/600 mA on key down.

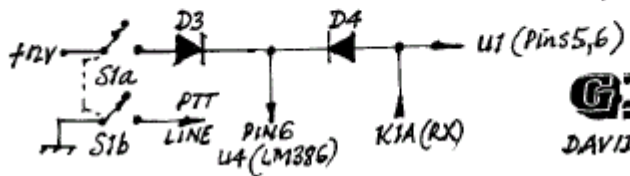
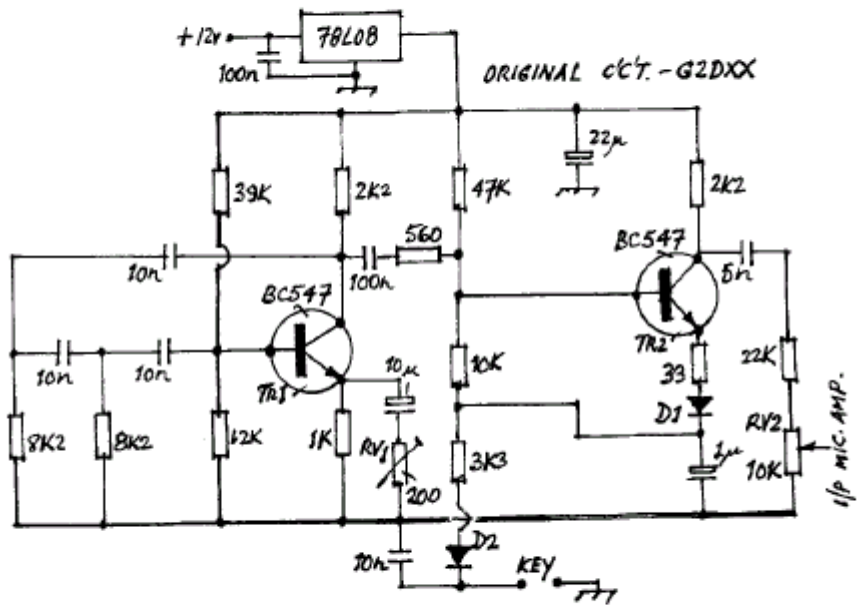
That's it! Tony made a linear loaded dipole as described by W4RNL at FDIM this year and we worked around the UK on both phone and CW (when the family holiday permitted)!

The picture shows the Epiphyte board mounted in a Ten Tec case with the cw mod board mounted higher. The filter on the circuit diagram is a better one than the one shown in the photo - so it's a bit different.

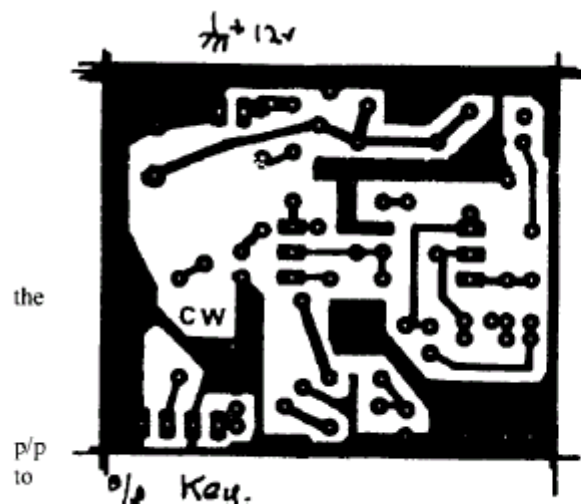


Note:- There is a 1nF capacitor missing between pin 3 of the 741 and the earth rail.

A CW Generator and Sidetone for the Epiphyte 2
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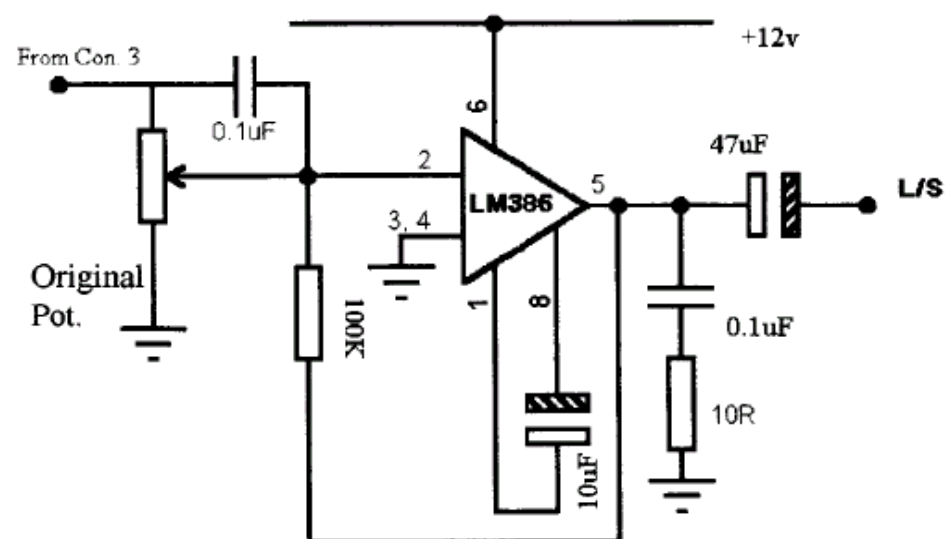


This is a simple way to put an EP-2 transceiver onto CW. A phase shift oscillator provides a tone which is fed into the microphone input of EP-2. C1 sets rise and fall dealy (approx 5m/sec), RV1 is set for best sine wave with reliable starting. RV2 set the required output. Note that both oscillator drive levels on the author's EP-2 were reduced to about 500mV to the NE602, by changing C5 to 2.7pF and C6 5.6pF.

A Louder Epiphyte 2

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The Epiphyte 2 is a superb portable SSB transceiver with plenty of audio available to a pair of headphones. When connected to a loudspeaker however, it can hardly be said to fill the room. A rummage around in the junkbox bought forth another of those ubiquitous LM386's and I wondered whether it could be added to the existing one in the EP2 to give it more "wellie". After a little experimenting, I came up with the circuit shown.



Disconnect the two wires going to the volume potentiometer (Connector 4) and replace them with a 470 ohm resistor. Connect the original output (Connector 3), to the input of the amplifier, reusing the original volume potentiometer (shown above). While developing this circuit it was apparent that a great deal of noise was generated internally. While I'm not certain what caused it, placing the 0.1uF capacitor across the volume control suppressed it. Ideas anyone? My thanks to Derry Spittle VE7QK for creating such an effective and adaptable design.