

123 Hz Access Tone for the Dick Smith 430 MHz Explorer

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The advent of the new 430 MHz repeater VK3REO which requires a tone of 123 Hz for access gave both Reg VK3LS and myself a few headaches. For starters, we did not know the stability or level required for the tone. After some tests we decided that a Wien Bridge oscillator would be satisfactory, and a level about 15 dB below voice was required to open the repeater.

The final circuit is shown in Fig 1

and is a Wien Bridge Oscillator designed round a 741.

This chip needs positive and negative supply lines. As the Explorer has only a 12 V line, a virtual ground was provided by two 10 K resistors in series across the supply, the lower one bypassed by an electrolytic condenser for both stability and to complete the output circuit.

Frequency is adjusted by C1, C2 and R1, R2. As C1, C2 are 0.1 μ F then R1,

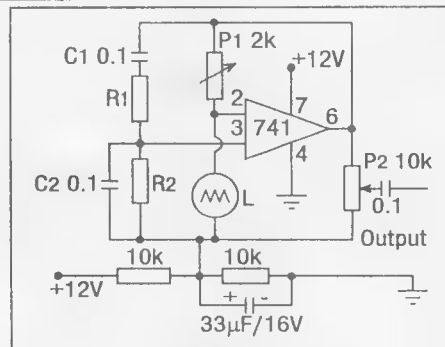


Figure 1

R2 need to be about 12 K. The precise frequency can be obtained by starting with 15 K and paralleling extra resistors.

The lamp from 741 pin 2 to virtual ground is any small 20 to 30 mA one and potentiometer P1 is adjusted to give a good sine wave out.

The tone is injected through a 15 K resistor at the junction of R68 and R69, just before the varactor diode in the Explorer. The level is adjusted so as to just access the repeater.

The oscillator was built on a small board mounted just behind the microphone socket. The 12 V supply comes from the board stake at A6 on the main board with earth from the back of the front panels. A switch will be put in next to the microphone socket when I find one small enough.

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