61 An audio filter for CW

Introduction

This is a simple passive circuit (it has no power supply) that adds some audio selectivity for Morse code reception and also includes a very simple noise limiter that gives a visual indication of when noise spikes are being removed!

The circuit

Figure 1 shows the complete circuit. The tuned circuit of C1 and L1 resonates very close to 800 Hz, so initially you will have to tune a signal in carefully until it sounds loudest – you will soon be able to do this without thinking. The two LEDs connected back to back across the signal path act as a noise limiter, reducing the amplitudes of static crashes and noise from car ignition systems, etc. The LEDs blink when they conduct – this is not necessary to the operation of the circuit, but adds a little colour to your listening! The noise limiter *does* make listening more comfortable, though.
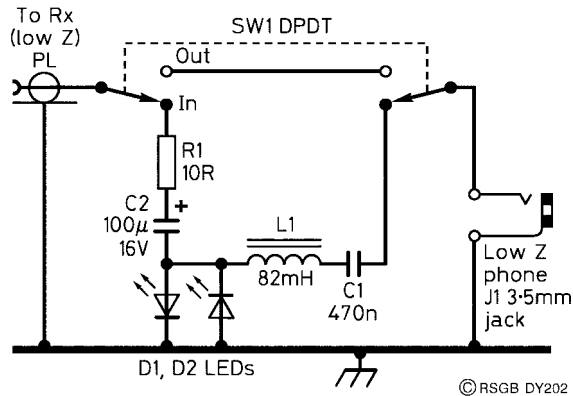

Figure 1 CW filter, circuit diagram

Construction

The circuit layout is shown in **Figure 2**. Point-to-point wiring is used, with a small tag-strip being the only item used for the extra support of C2 and R1. The LEDs and SW1 support the other components. An aluminium box (**Figure 3**) is used to make the circuit tidy and usable.
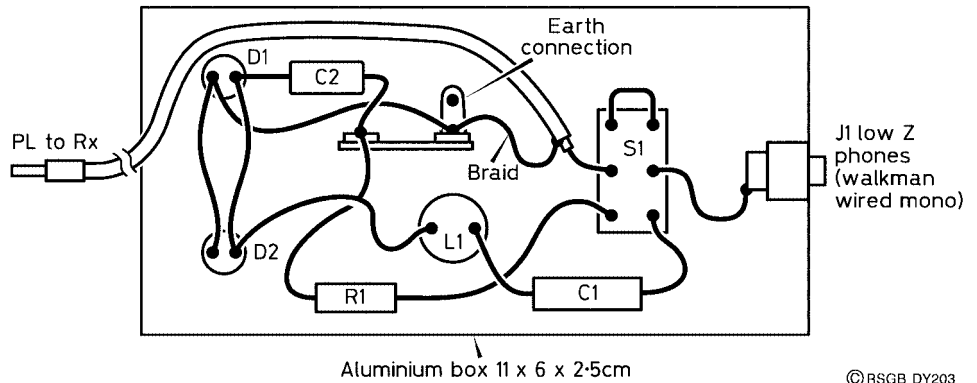
Figure 2 CW filter, component layout

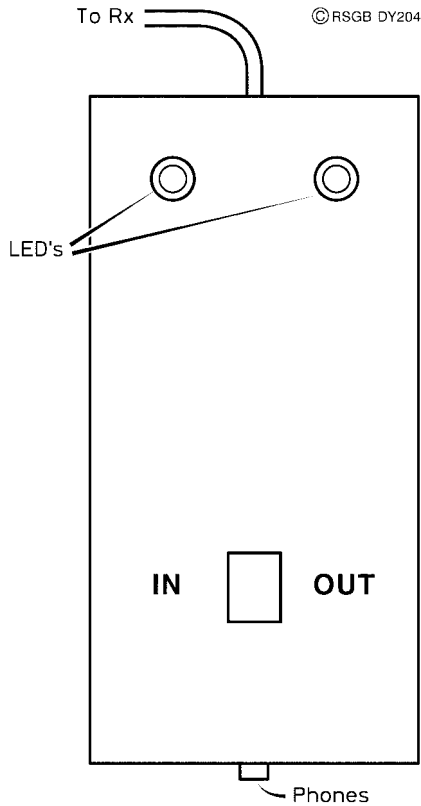Aluminium box 11 x 6 x 2·5cm

©RSGB DY203

Figure 3 CW filter, front panel

You must use low-impedance headphones for the circuit to perform properly. Plug the completed unit into the headphone socket of your receiver and adjust the volume so that the LEDs are just *not* blinking on normal audio. The unit should be switched out of circuit for speech listening; this is the purpose of the toggle switch, SW1.

Parts list

Resistor
  R1   10 ohms (Ω), 0.25 watt, 10% tolerance

Capacitors
  C1   470 nanofarads (nF)
  C2   100 microfarads (μF) electrolytic, 16 V WKG

Inductor
  L1   82 millihenries (mH)

Semiconductors
  D1, D2   LEDs

Additional items
  SW1   DPDT
  J1   3.5 mm jack socket
  PL   Jack plug to suit receiver
              Aluminium box, approx. 11 by 6 by 2.5 cm

Source

Components are available from Maplin.