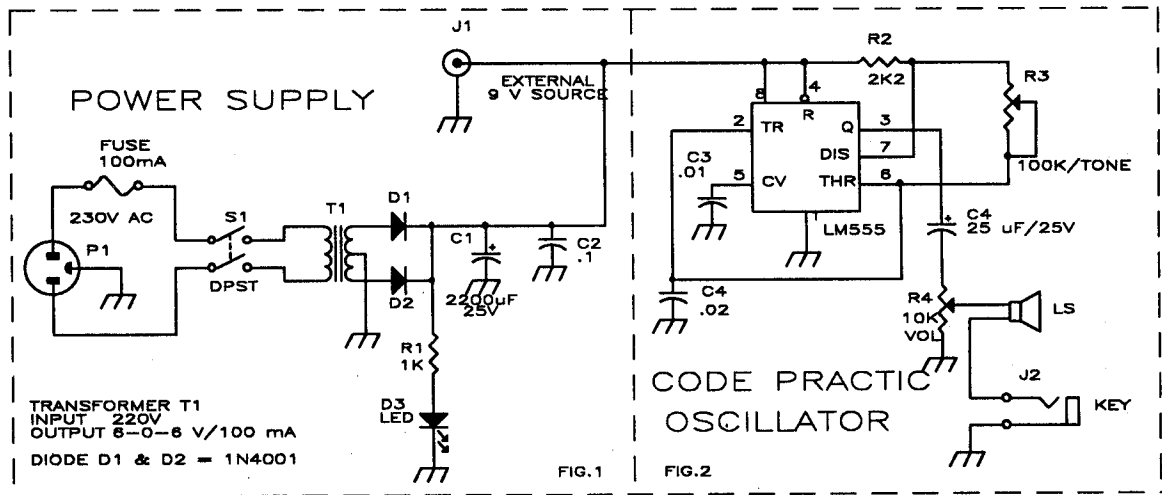


MORSE CODE PRACTICE OSCILLATOR

A simple first project for young newcomer



If you are a new comer trying to enter the world of amateur radio or an experienced VHF'r planing to upgrade your licence you have to learn Morse code and for this you need a Code Practice Oscillator or in short a C.P.O. If you are not successful in your efforts in borrowing or getting it gifted to you, you might aswell make one for yourself. It is very easy and can be a very useful first home brewing project in case you are new to this hobby.

The complete circuit of the CPO is given in the fig.1., The circuit is divided in to two parts, The second portion is the oscillator which works on direct current (D.C). of any value between 6 to 12 Volts and the first portion is the power supply (commonly known as Battery eliminator) which converts 230 Volt Alternating Current (A.C.) from your house wiring, in to 9 Volt D.C. which is fed to the oscillator. If you have a Battery eliminator of any voltage between 4.5 to 12 volts you can use it to run the oscillator and need not make the first portion.

You can also run the oscillator on a 6 or 9 volt dry battery of the type normally used in torch, but you may find that running the CPO on torch cells usually causes heavy strain on pocket money. Running a CPO, a radio or to say any other electronic gadget on a battery eliminator is always cheaper in the longer run but making a battery eliminator requires interconnecting transformer, switches, power cord and power plug which carry dangerous high A.C. Voltages(230 V. AC.) and unless you have some senior person say your teacher or a senior ham guiding and supervising your project, you should avoid making the first portion of the cicut and use torch cell instead. When dealing with high voltages SAFETY ALWAYS COMES FIRST. Don't do anything alone and whenever in doubt "ASK" a seinor person.

Now move to the second part, the actual oscillator circuit is all

enclosed inside the small 8 Pin (legs) Integrated Circuit (I.C.) LM555. This is commonly known as "Tripple 5". The frequency of oscillation or the tone of the sound is controlled by the fixed resistance R2, variable resistance R3 and the capacitor C4. By varying the variable resistance R3 you can change the tone to your liking. The output of the oscillator is available from Pin 3 of the IC and is supplied to the loudspeaker via capacitor C4 and variable resistance R4. The capacitor C4 is used to prevent DC from Pin 3 from flowing in to the loudspeaker and the R4 is used to vary the volume. The Morse key is connected to the jack J2. Whenever the key is pressed the second terminal of the loudspeaker is connected to common ground and oscillating current flows through it, producing sound. In this circuit the oscillator is always running and it is the speaker which is switched in and out. Even when the key is not pressed and no sound is coming, the oscillator is still drawing some current. Therefore to avoid the battery being discharged unnecessarily disconnect it when the CPO is not in use.

The complete circuit is assembled on a small printed circuit board (PCB) and the overall pictorial view of the interconnections is shown in the Figure 3. If you are new to electronics try to find more information about the components used in the circuit, where they are available, how much they cost etc. and from where help might be available. Before starting any constructional project, collecting sufficient money to buy all the compontnts is a major obstacle, so start saving and if your parent are very strict about the pocket money than remember saving on ice creams and chocolates always makes a young ham healthy, wealthy and wise. In case you are living in some remote area where electronic components are just not available, don't panic, we will help you in getting all the components. Next time we will look at the actual construction of the CPO in detail.