

A Simple Audio Oscillator using TTL Logic devices

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After demonstrating the very nice ZS1OAK audio oscillator kit (see the ZS1OAK website) I built up from their design, at a recent meeting of the Centurion Radio Amateur Club, a comment was made that it was too complicated. This set me thinking – how can one build an audio oscillator with the minimum number of components, without making use of the boring 555 timer chip?

An article in the July 1982 issue of 73 Magazine seemed to provide the answer (Ref 1) – three components if the 5 volt power supply is not included!

I built up and tested two versions of the circuit, first using a 7404 hex inverter chip (Figure 1), and then a second using the common 7400 quad nand gate (Figure 2). Both worked first time!

Using a 10 microfarad capacitor gave an output frequency of 830Hz – perfect for a code practice oscillator when the positive 5 volt supply (using the “Variable Battery DC Supply” featured in the November issue of CQ Centurion), was connected in series with my favourite straight key.

Important Note – do not ever supply more than 5.25 volts to a TTL chip – the smoke comes out!

Figure 1

Using the 7404 TTL chip (14 pin DIL hex buffer)

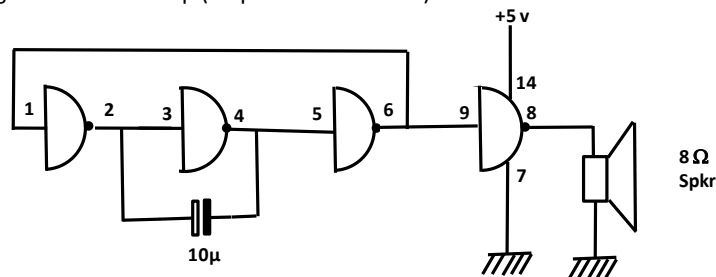
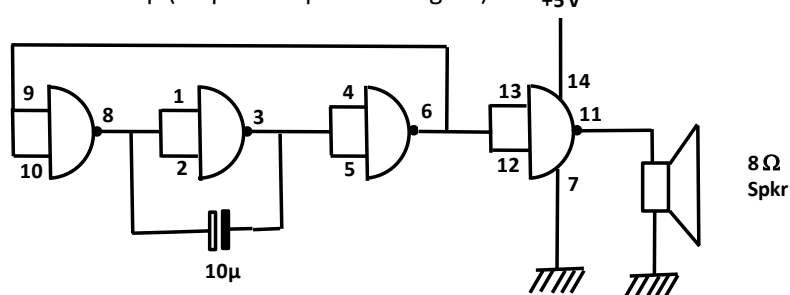


Figure 2

Using the 7400 TTL chip (14 pin DIL quad Nand gate)



Reference 1 : “A Three-Piece CPO – battery not included” – Alfred Fant, Jr. WB5WAF