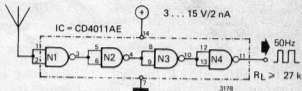


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hum receiver

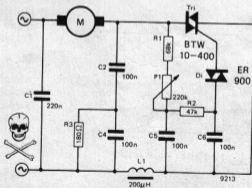
The hum receiver consists of one COS/MOS IC comprising four NAND-gates (CD 4011). The four gates are series-connected as amplifier elements. The first gate (N1) picks up the hum radiated by the mains. The inputs of this gate should not be in the close vicinity of other sources of interference (amplifier outputs, etc.). A copper wire 2 to 3 cm long is sufficient



to pick up the hum and to produce a square wave with a frequency of 50 Hz and a risetime of about 20 ns at the output of gate N4. Depending on the conditions, one or more gates can

sometimes be omitted. The current consumption of the entire CD 4011 is so low that if a 4.5 V battery is used as the power supply, its life will be essentially shelf life.

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This circuit is intended for continuous speed control of small series wound motors, as used in most electric hand

drills, etc. The speed is adjusted by potentiometer P1. The setting of this potentiometer

determines the moment at which the triac is triggered. If the motor speed drops below the preset value (under load), the back EMF of the motor reduces. Consequently, the voltage

triac speed controller

across R1, P1 and C5 increases so that the triac is triggered sooner, and the motor speed will be increased. In this way, a certain amount of speed stabilisation is obtained.

(Transitron)