

TECH TIPS

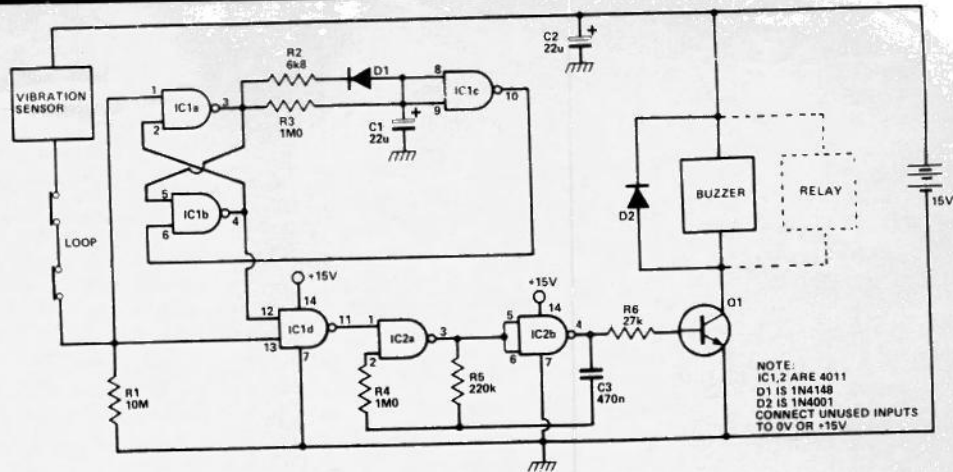
Anti-Theft Device

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Many audio retailers employ anti-theft devices whereby a loop, made up of lengths of cable joined with plugs and sockets, is passed through the handles of radios and cassette players. If the loop is broken an alarm sounds.

The circuit diagram shows a design which has been built in the lab and functions very well. R1 sets the quiescent current in the loop. The loops could include vibration sensors or any other suitable normally closed contacts. When the loop is broken, the logic 0 at R1 causes the astable multivibrator formed by IC2a, b to be enabled via gate IC1d, which acts as an OR gate for 0s at its inputs. The astable frequency is set at approximately 1/4Hz causing the buzzer to sound intermittently.

The logic 0 at R1 also triggers the monostable formed by IC1a,b,c and the output of this monostable also enables the astable via pin 12 of IC1d. Thus, if a quick-witted thief



quickly removes the broken loop or the vibration sensor quickly breaks the loop, the monostable ensures that the alarm continues to sound for approximately 20 seconds. If the loop is left open then the alarm will sound all the time. Unused inputs of the CMOS chips should be tied to V_{CC} or 0V whereupon the quiescent battery

drain will be less than a microamp.

R1 can be replaced with an LDR (ORP12) and a 10M resistor used to replace the loop. The alarm is then triggered by light. Place the device in your components drawer and you'll be able to nab the guy who's been pinching your ICs when no-one's looking.