

car rip-off protection

The complete circuit of the alarm is shown in figure 1. N1 to N4 form a 5-input OR gate, but the number of inputs can easily be increased by adding extra gates. When the car is unoccupied (and the ignition is switched off) R11 holds the inputs of N5 low, so the output is high. The inputs of N1 to N4 are held low via the filaments of the lamps, etc. that are being protected. The output of N4 is thus low, the output of N6 is high, T1 is turned on, T2 is turned off and relay Re.1 is de-energised.

In the event of an accessory being disconnected by a thief (for example, the lamp connected to input E1), then the appropriate input to the OR gate will be pulled high by the 10k input resistor. The output of N4 then goes high, the output of N6 goes low, T1 is turned off and T2 is turned on, energising Re.1 and sounding the car horn.

When the ignition switch is closed the output of N5 is low, which holds the output of N6 permanently high, thus disabling the alarm. This prevents the alarm from sounding when one of the accessories is switched on. Of course, the alarm will still sound if an accessory is switched on whilst the ignition is switched off. This prevents spotlamps and foglamps from accidentally being left on whilst the car is unoccupied. Alternatively, these accessories can be wired via the ignition switch so that this cannot occur.

An additional bonus is that the alarm will also sound in the event of a lamp filament failure. However, since a

Thefts from cars of valuable accessories such as spotlamps and foglamps are on the increase. Equipped with a spanner, and given a few minutes undisturbed, the enterprising felon can frequently make a haul worth over £100. The inexpensive alarm circuit described in this article will protect these valuable items, and can also be used to prevent the theft of accessories from inside the car, for example radios and cassette players.

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Figure 1. Complete circuit of the car rip-off theft alarm.

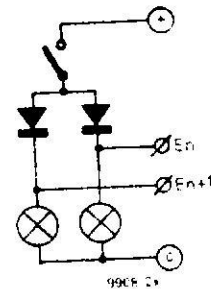
Figure 2. Lamps connected in pairs must be isolated from one another, otherwise the alarm will not give complete protection. This can be done with a pair of diodes, as shown in figure 2a, or by double-pole switching, as shown in figure 2b.

replacement lamp may not always be available, a secret 'cancel' switch (S1) is required . . .

Accessories inside the car, such as radios and cassette players, may also be protected by connecting a wire from one of the alarm inputs to the earthed case of the equipment. When the thief cuts this wire to remove the equipment then the alarm will sound. Of course, this facility should only be regarded as a backup to an alarm that prevents a thief entering the car in the first place!

Where lamps are wired in pairs the alarm will, of course, not sound until both have been disconnected. To overcome this disadvantage a diode of suitable current rating can be wired in series with each lamp, as shown in figure 2a. Since there is a 0.7V voltage drop across a diode, a better idea would be to use a double-pole switch for the set of lamps being protected, as shown in figure 2b.

2a



2b

