

NEW IDEAS

Protecting your car

HERE IS AN ALARM CIRCUIT FOR YOUR car that uses only one IC and is rather easy to build. But it still has many desirable features, including entrance- and exit-delay times, an auto reset control, automatic shutoff, and low power consumption. The schematic of the alarm is shown in Fig. 1.

First we'll look at the two switches, S1 and S2. Opening switch S1, which is a normally-open door-mounted switch, activates the alarm after an 8-second delay. However, if S2—a hidden switch inside the car—is closed within that 8-second delay time, the alarm will not be activated. That switch always takes priority over S1. Whenever it is closed, the alarm is off. Even when S2 is opened again, it still inhibits the alarm activation—but only for an additional 20

seconds. (That delay is determined by the combination of R4 and C3.) That's enough time to get out of the car and close the doors. Switch S2 can be a momentary normally-open switch, but you may prefer using a toggle switch. That way you can disable the alarm if you have to keep your car open for more than 20 seconds, such as when you are loading it with luggage.

Integrated circuit IC1 is a quad 2-input NAND Schmitt trigger. The output of IC1-c latches IC1-b to a high output state once switch S1 is opened. After that, only S2 can stop the alarm oscillator, IC1-d, from being triggered after the 8-second delay (determined by R9 and C6). That drives transistors Q1 and Q2, which switch the load (the coil of the horn relay, RY1) to ground. Thus the horn sounds in-

termittently. The maximum current that transistor Q2 can sink safely is about one amp.

After about 2 1/2 minutes (controlled by the R7-C4 combination), which is called the alarm cycle time, IC1-b is unlatched when pin 6 goes high via C4. If S1 at that time is not open, pin 4 of IC1-b goes low and the alarm stops and is once again ready to receive triggering signals from S1. If S1 is still open, the alarm will continue to sound. Remember though, that S2 inhibits both the detection and activation of the alarm at any point of the cycle.

I used RCA IC's when building my alarm. If you substitute those of another manufacturer, you may have to adjust the values of the timing resistors and capacitors. Some experimentation may be required before everything works as it should.—Ronald Ham-Pong

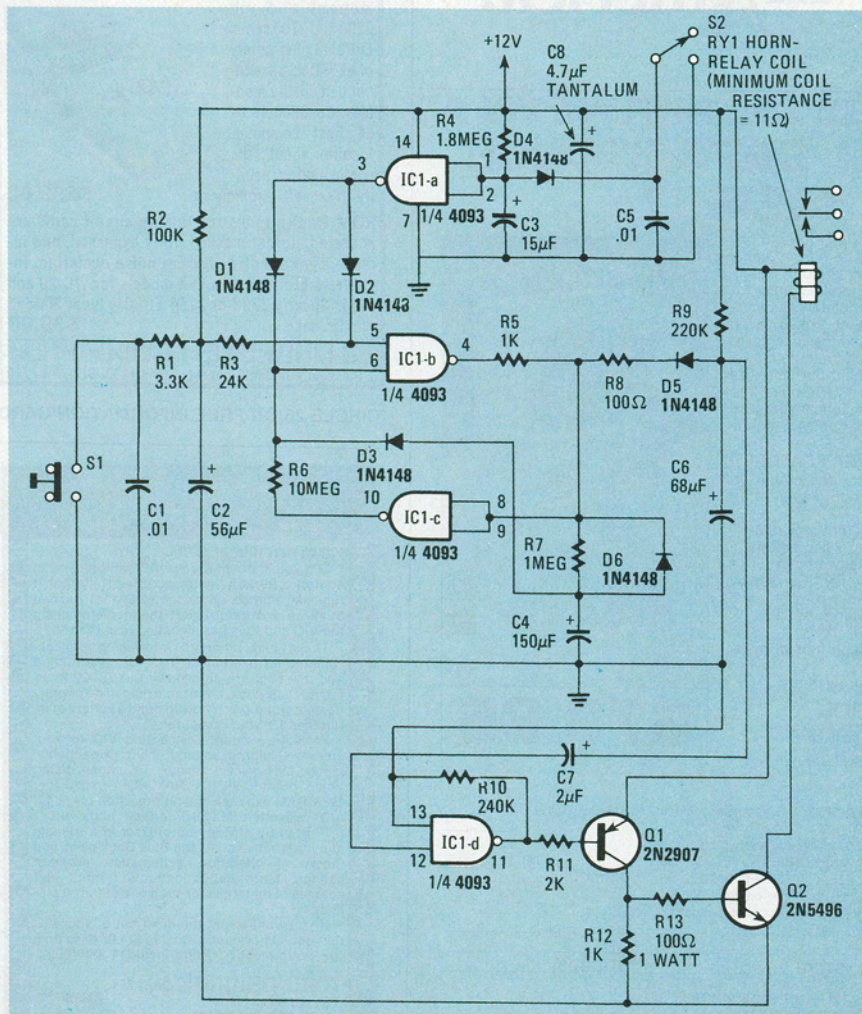


FIG. 1

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