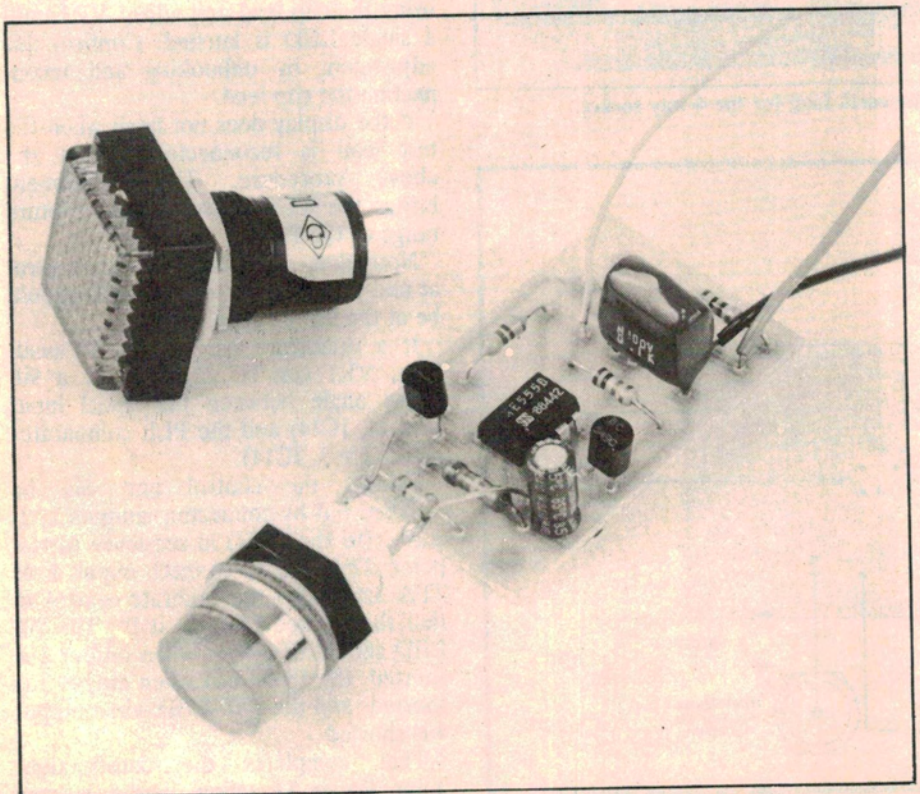
Scare off car burglars . . .

Fit this flasher to your dashboard

This is a "Claytons" car burglar alarm — the alarm you connect when you can't be bothered fitting a proper alarm. There is no siren or detection circuit. It simply flashes a light on the dashboard.

by COLIN DAWSON



This view shows the assembled PC board and two lamp bezels (see text).

Sales of car burglar alarms have boomed in recent years. With the poor level of security offered by most cars, and the willingness of many repair shops to buy spare parts with a doubtful background, car thieving has become a growth industry.

Paradoxically, the person most likely to be inconvenienced by a car burglar alarm is the driver. From the moment it is fitted, the hapless motorist is haunted by every alarm in the neighbourhood. In addition, there is the inconvenience of having to enter and exit the car within a specified time.

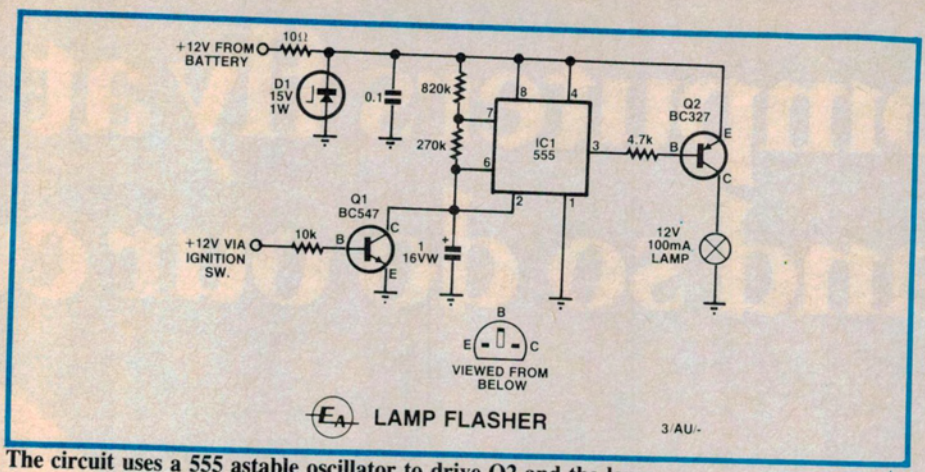
Much of the inconvenience of an alarm can be avoided with a fake alarm. One of the most effective deterrents of any alarm circuit — even the most sophisticated — is the flashing light on the dashboard.

In fact, many car owners have been quick to realise this and have simply fit-

PARTS LIST

1 PC board, code 86au1, 29 x 46mm
1 555 timer IC
1 BC547 NPN transistor
1 BC327 PNP transistor
1 15V 1W zener diode
1 10µF 16VW electrolytic capacitor
1 0.1µF greencap
1 12V lamp bezel (see text)

Resistors (0.25W, 5%)
1 x 820kΩ, 1 270kΩ, 1 x 10kΩ, 1 x 4.7kΩ, 1 x 10Ω/0.5W



The circuit uses a 555 astable oscillator to drive Q2 and the lamp.

ted an authentic-looking flashing light in the place of a real alarm. These are generally purchased from motor accessory shops for around $20.

This type of "Clayton's" alarm has a few advantages. First, it never false alarms during the middle of the night. Second, the driver doesn't have to worry about making a frantic dash for the kill switch upon entering the car. And third, it is far cheaper and easier to install than a real alarm.

By contrast with the commercial units, this unit can be built for around $10 (depending on the lamp used). Once installed, you need never worry about the flasher again. It automatically starts when you switch the ignition off.

The project would be most effective when used with a proper red or yellow square 12V bezel as per the commercial devices. These can be purchased from automotive accessory shops.

Alternatively, most of the kitset suppliers carry round 12V lamp bezels which would still look fairly convincing, particularly if you fit a couple of warning stickers as well.

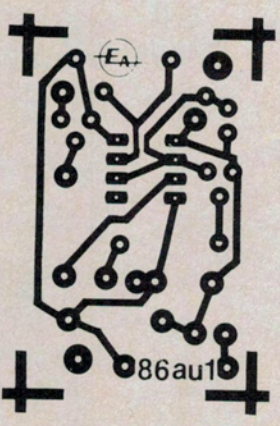
Don't buy a combined switch and bezel — they're too expensive.

Circuit description

The circuit is based on a 555 timer IC. Its configuration in this instance is quite typical, the device being wired as an astable oscillator. This means that it oscillates, with its output (pin 3) going alternately high and low whenever the IC is enabled.

The rate of flashing is controlled by three components: the 820kΩ and 270Ω resistors, and the 1μF capacitor. With these component values, the rate will be about one flash per second. The simplest way to adjust the rate is to alter the value of the 820kΩ resistor.

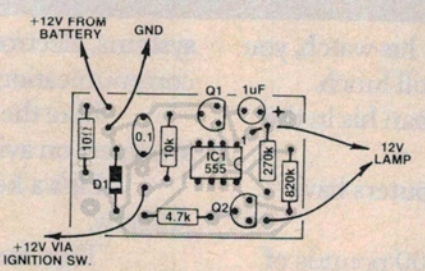
The enabling aspect of this circuit is somewhat unconventional. During normal operation, pin 2 of the 555 will oscillate between 1/3 and 2/3 of the supply voltage. Clamping it to any fixed voltage inhibits astable operation.



Here is an actual-size artwork of the PC board. It measure 29 x 46mm.

This function is controlled by transistor Q1 and the ignition switch. When the ignition is switched on, transistor Q1 is biased on and clamps pin 2 to ground. This disables the 555 timer and turns the lamp off.

When the ignition is switched off, Q1 turns off and releases its clamp on pin 2. The 555 immediately begins oscillating, its output (pin 3) switching high and low. This drives transistor Q2 which, in turn, drives the lamp.



Parts layout for the lamp flasher. Take care with component orientation.

Power for the circuit is derived directly from the car battery. A 10Ω resistor and 0.1μF capacitor provide supply decoupling while the zener diode clips any voltage spikes exceeding 15V.

Construction

The parts are all mounted on a small PC board measuring 29 x 46mm and coded 86au1. No special order need be followed when assembling the board, but take care to ensure correct orientation of the polarised components.

These include the IC, transistors, zener diode and 1μF electrolytic capacitor.

Once the board has been assembled, it can be tested by connecting the power leads to a car battery. The lamp should immediately begin flashing at a 1Hz rate. The lamp should stop flashing when the input to the 10kΩ resistor is connected to +12V.

Incidentally, we purchased our lamp bezel from RS Components, Unit C, 6 Durdans Avenue, Rosebery NSW. This is a round 14mm bezel and is available for $5.10 (price includes five light bulbs). Alternatively, a larger square lamp bezel (20 x 20mm) is available from Hi-Com Unitronics (7 President Avenue, Caringbah, NSW) for just $1.20.

Installation is straightforward. There's no need to fit the circuit into a case. The best approach is to wrap the board in insulating foam and then tape it in some convenient location behind the dashboard.

The external wiring connections should be run using medium-duty hookup wire. Connections must be made to the power supply, the lamp and the ignition switch.

Note that the latter connection need not be made directly to the switch — it could just as easily be taken from an accessory switch or some accessible point on the ignition wiring. Similarly, the +12V supply rail can also be derived from under the dashboard (eg, from a glovebox light switch terminal or from the headlight switch).

Finally, although the circuit is designed to operate automatically, some constructors may prefer to manually switch it on and off. No problem — just install a switch in the power supply lead and connect the input to the 10kΩ resistor to chassis.

In fact, the 10kΩ resistor and Q1 could be left out of the circuit altogether. It goes without saying that any power supply switch should be well hidden.