

# Circuit & Design Ideas

Interesting circuit ideas from readers and technical literature. While this material has been checked as far as possible for feasibility, the circuits have not been built and tested by us. As a consequence, we cannot accept responsibility, enter into correspondence or provide constructional details.

## Crowbar protection for 13.8V supplies

The VK Powermaster 13.8V 25-amp supply featured in the March 1984 issue did not have any over-voltage protection. This could lead to expensive damage to a

transceiver in the event of a power supply fault. The only effective way to protect an external load is to install crowbar protection. This shorts the supply output and blows the fuse in the event of the output voltage exceeding 15V.

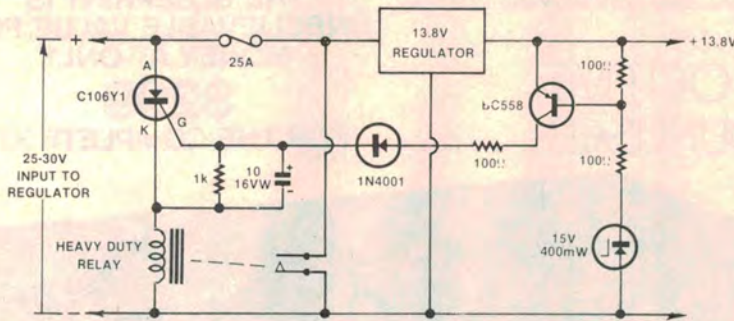
The circuit is based on that featured

with the 5V/10A Mini-brute supply published in the November 1977 issue. It works as follows: The circuit monitors the 13.8V output of the supply and if the voltage rises above 15V (depending on the tolerance of the zener diode) it trips an SCR. This energises a heavy duty relay which then blows a 15 amp fuse in series with the unregulated input to the regulated supply.

Since the SCR runs from the unregulated supply line ahead of the fuse the relay remains energised until the power is removed.

A suitable headlamp relay is available from Dick Smith Electronics (cat No. S-7304). We suggest the use of 15-amp fuse wire (not 25-amp) in a 30-amp 250VAC fuseholder.

"Electronics Australia" staff.



## Burglar alarm reminder

Many people have car burglar alarms but forget to turn them on when leaving the vehicle. This circuit turns on a buzzer as a reminder. It is basically a diode OR-gate monitoring the ignition, the door courtesy light switches and the main supply to the burglar alarm. (The circuit would be quite suitable as an add-on to the EA alarm).

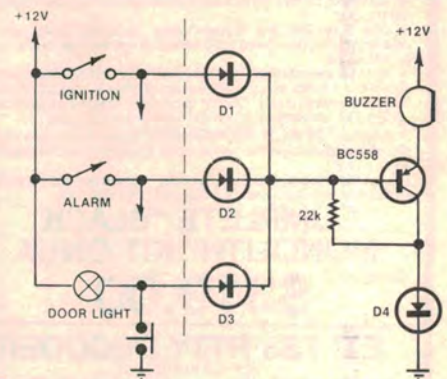
When any of the diodes D1, D2 or D3

is conducting, the base of the BC558 is held high and so the buzzer cannot sound. But if the ignition is off, the alarm off and a door opens, all three diodes will not be conducting. This allows the BC558 to turn on and sound the buzzer. D4 merely protects the transistor in case the supply is wrongly connected at installation.

The buzzer should be a piezoelectric type with inbuilt oscillator.

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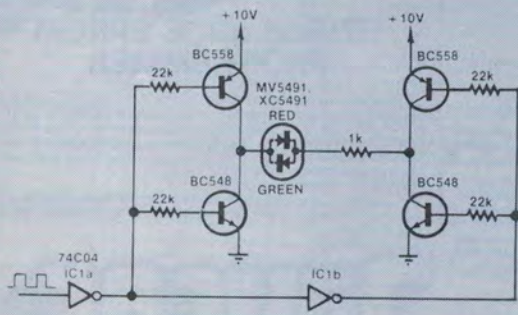
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## Bi-colour LED gives varying hue

By varying the duty cycle of the input pulses to this circuit, a bi-colour LED may be made to deliver a range of four colours from green through to red. For example, a duty cycle of less than 20% gives green; around 50%, yellow; around 80%, orange and more than 90%, red.

From "Electronics", August 1979.



## Wireless link for musical keyboard

Battery operated musical keyboards are far more satisfying to listen to via a stereo amplifier and full-sized loudspeakers. This circuit is an adaptation of the FM Wireless Microphone featured in EA in December 1980 and originally published in "Dick Smith's Fun Way", Volume 2.

Essentially, the circuit is the original with the electret microphone omitted and a 5kΩ potentiometer added as a modulation input for the oscillator. The oscillator is tuned to a blank portion of the FM band, 88 to 108MHz. Kits are available from Dick Smith Electronics.

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\$10

