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ELECTRONICS

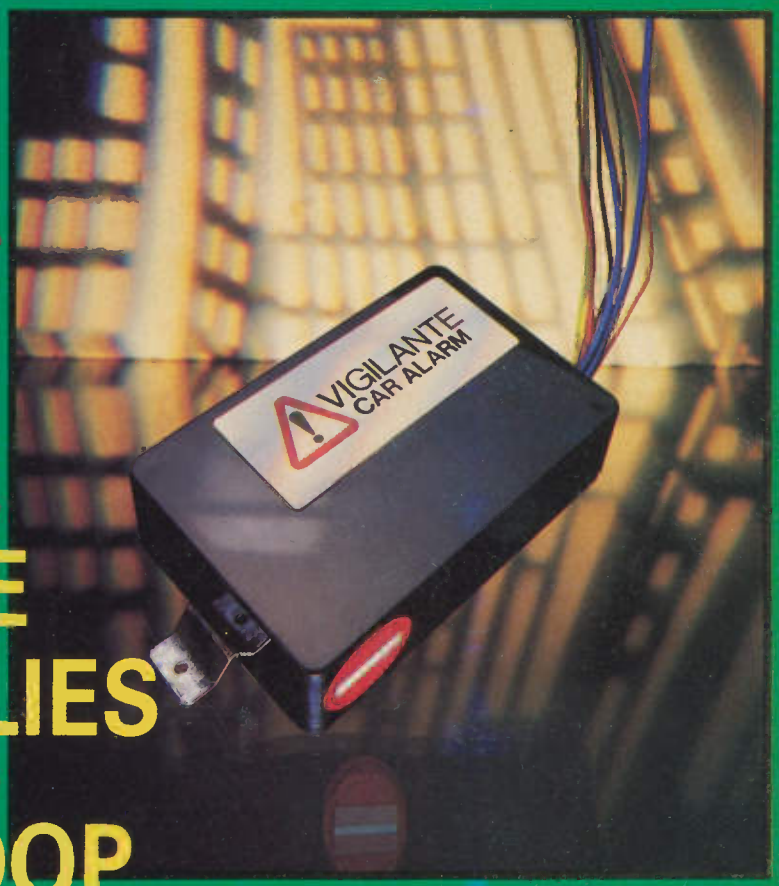
SCIENCE & TECHNOLOGY

PE VIGILANTE CAR ALARM

PE 30+30 STEREO AMP

SWITCH MODE POWER SUPPLIES

INDUCTIVE LOOP REMOTE CONTROL



DESIGN – DC MOTORS
TYPES AND FEATURES OF COMMON MOTORS

COMPUTING – DUAL OPTION
EPROM PROGRAMMER FOR THE AMSTRAD

TECHNOLOGY – SENSORS
ESSENTIAL INTERFACE DEVICES EXPLAINED

EXPERIMENTAL ELECTRONICS
AND PRACTICAL APPLICATIONS – ALL IN THIS ISSUE

PLUS:
- ★ SPACEWATCH
- ★ LEADING EDGE
- ★ INDUSTRY NEWS
- ★ CIRCUIT IDEAS
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THE SCIENCE MAGAZINE FOR SERIOUS ELECTRONICS AND COMPUTER ENTHUSIASTS

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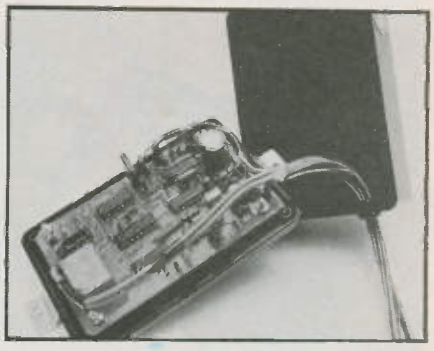

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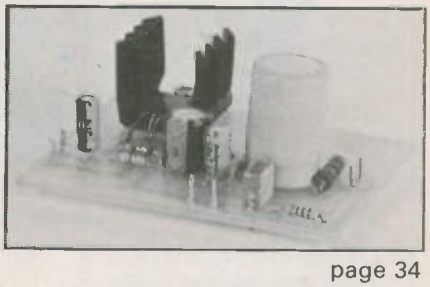

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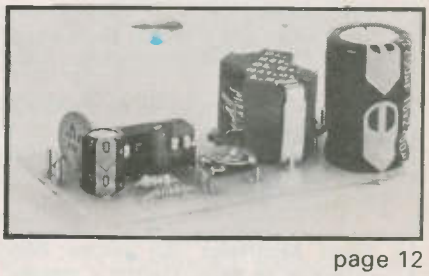

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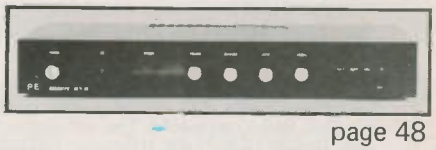

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THE SCIENCE MAGAZINE FOR SERIOUS ELECTRONICS ENTHUSIASTS

AMSTRAD EPROM PROGRAMMERS

STEPHEN BURKITT

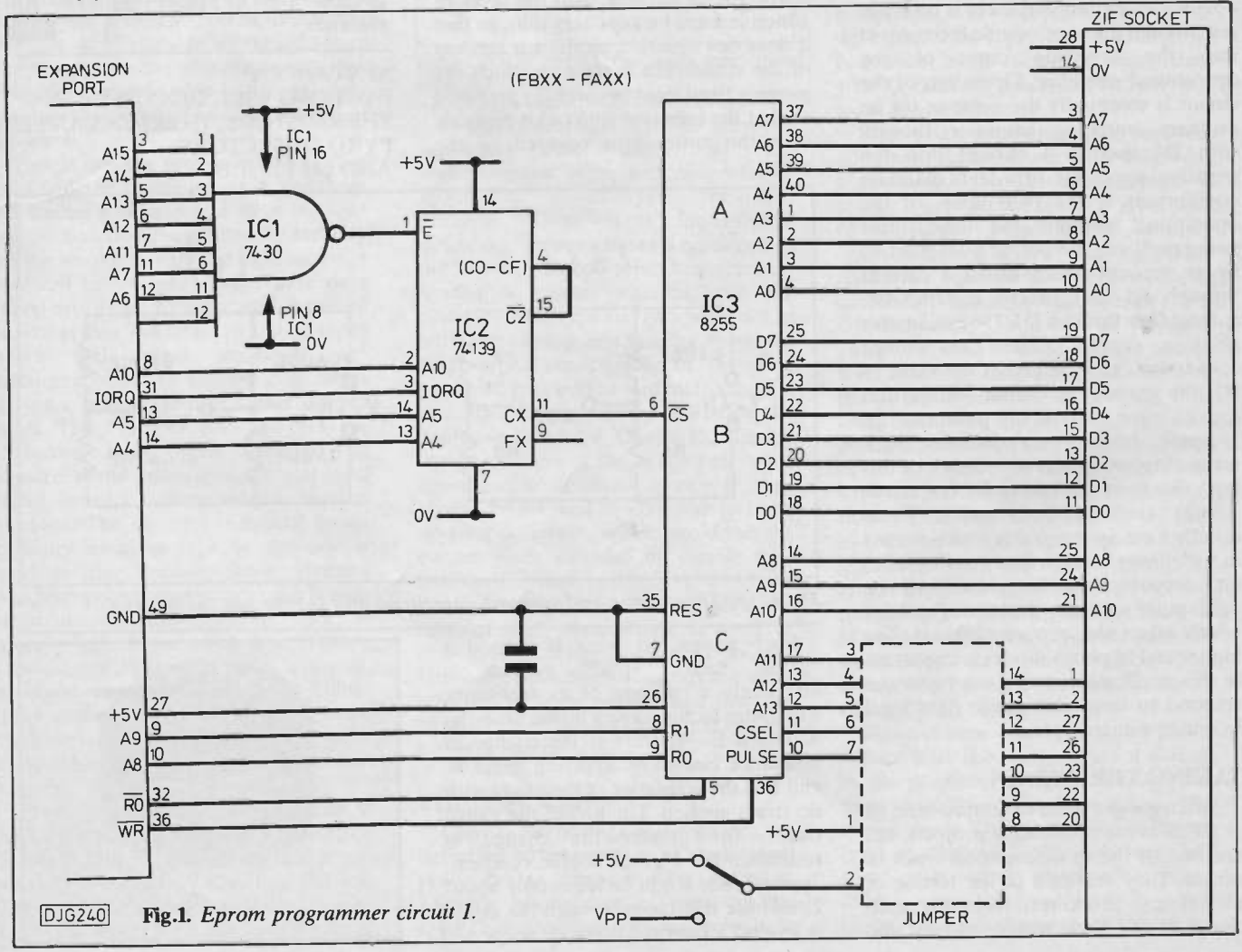
Simple design, inexpensive parts

The Amstrad's versatile sidways ROM is ideal for interfacing to an Eprom programmer. The I/O port can be used as an alternative.

CIRCUIT 1

THE AMSTRAD has a versatile sideways ROM ability yet the availability of Eprom programmers has been virtually nil. One or two are now appearing on the market, but are still extremely expensive. I therefore set out to build an inexpensive unit which would cater for the majority of Eproms, yet remain very simple and use only commonly available items. In fact, the whole prototype was built from surplus chips from my junk box.

The circuit is simple, requiring only an external variable power supply for the programming voltage. This can be easily constructed using the common single chip regulators. Fig.1. shows the wiring of the unit. The prototype was built on Vero V-Q prototype board, but any suitable type will do. The main part of the circuit revolves around the INTEL 8255 peripheral chip. This is a versatile circuit which can be programmed to almost any configaration to suit. The main use requires the chip to be in mode 0 which gives three eight bit ports, with port A, O/P, (low address), port C, O/P, (high address), and port B, data (set to input for verify and output for program). This is done by setting the control register (&80 for output and &82 for input). Bits 6,7 of port C are used as the chip select and program pulse respectively. In order to allow for different Eproms a customised jumper is used. A 14 pin header plug is suitable for this. The program supplied gives details of connections for various



DJG240 **Fig.1.** *Eprom programmer circuit 1.*

Eproms. Address decoding is simple but conforms to the Amstrad specification. IC1 and IC2 give an I/O port base address of &F8E0. Use of a ZIF socket is recommended, but by no means essential. No protection is incorporated for incorrect insertion of Eproms so care must be taken in use.

CIRCUIT 2

The Amstrad I/O port (PE March 86) provides the Amstrad machines with a versatile port facility. One use of this would be as an Eprom programmer which can easily be achieved with just a few extra components. Along with a sideways ROM circuit board, this will enable the avid programmer to transfer programs onto ROM for instant use. The Amstrad firmware manuals give details of ROM code layout.

Fig.2. gives details of a suitable addition to enable programming of Eproms from the basic 2716 to the 27128. The 27256 could be used with minor adaption. Software written in Basic was used as speed was not essential. The modular layout will enable easy translation to assembler code if required. An external low current variable power supply is required, and can easily be made using standard voltage regulator chips. A d.i.l. header is used to configure the p.c.b. for different Eproms. This may be left out if only one type will be used. Wiring for the jumper is displayed on the screen guide.

Programming consists of setting the required address and data on the Eprom input lines while the Eprom is pulsed for 50 milliseconds. This is achieved by a for/next loop, catering for each location. Users are advised to consult data sheets for each Eprom as pinouts and voltages may vary. The software allows loading and saving of data to a buffer at &4000 (16384), with printout to screen or printer as required. Locations may be set individually or in block. Bytes not required for programming must be set to &ff (255) if they are in the middle of the programming block. Eproms may only be erased by ultra-violet light.

The listing is adequately REM'ed for information on each module and on screen guideance is provided. Entry of addresses is in decimal, with confirmation in hexadecimal. Pressing Return will normally give default addresses of &4000 to &4000+ Eprom size. PE

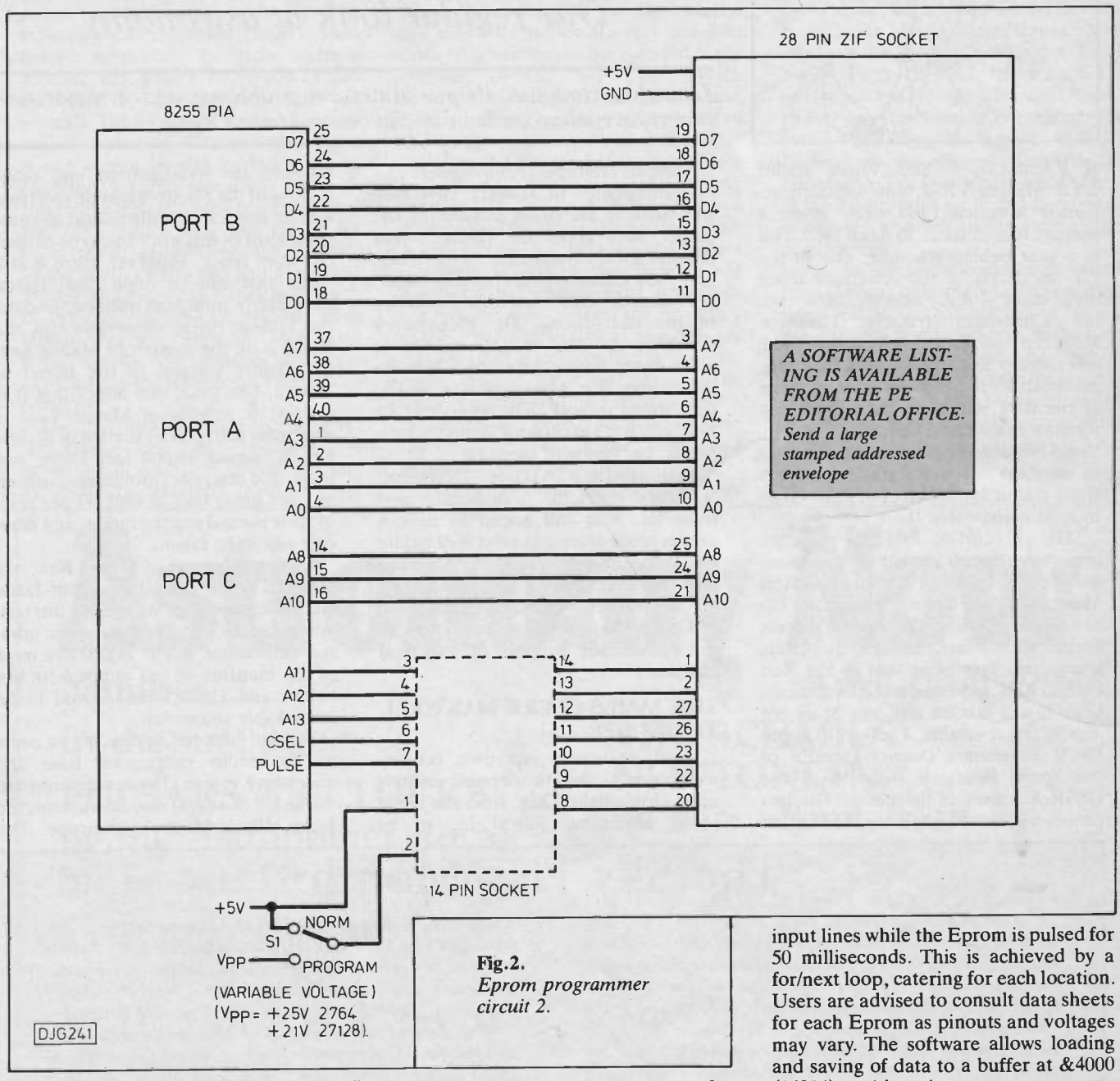


Fig.2. *Eprom programmer circuit 2.*

Construction is straight forward. Sockets are best used for all i.c.s., and decoupling capacitors fitted. The unit should be checked for shorts following assembly, and it is advisable to check voltages with the p.c.b. connected before finally fitting the l.c.s.

In order to allow for flexibility in development the software was written in Basic. Instructions on use are provided in the program. A buffer starting at 16384 (&4000) is used for the Eprom data, and is the default setting. A screen dump facility exists which can also be directed to a printer if required.