

# ELECTRONICS & Wireless world

MARCH 1986 95p



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**Crystal analysis by computer**

**Memory telephone dialler**

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# ELECTRONICS & Wireless world

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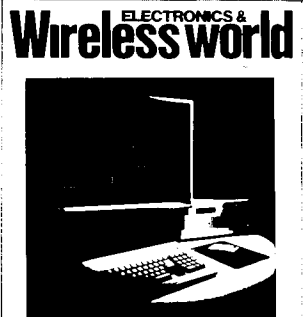
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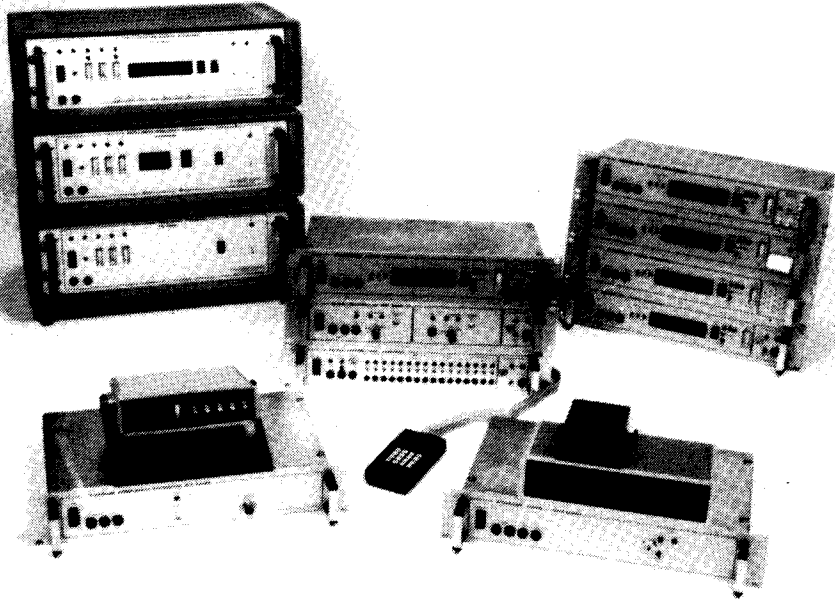
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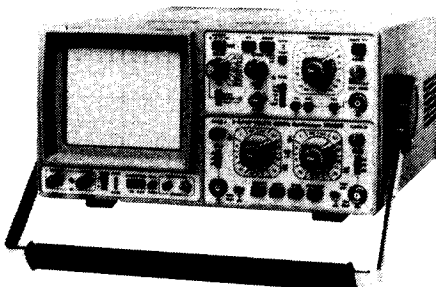
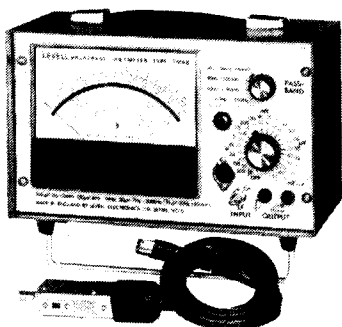
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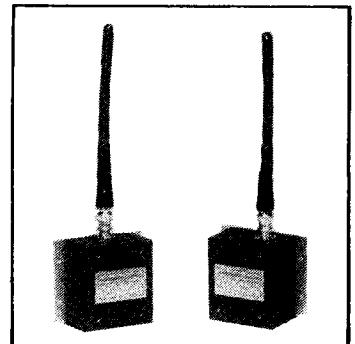
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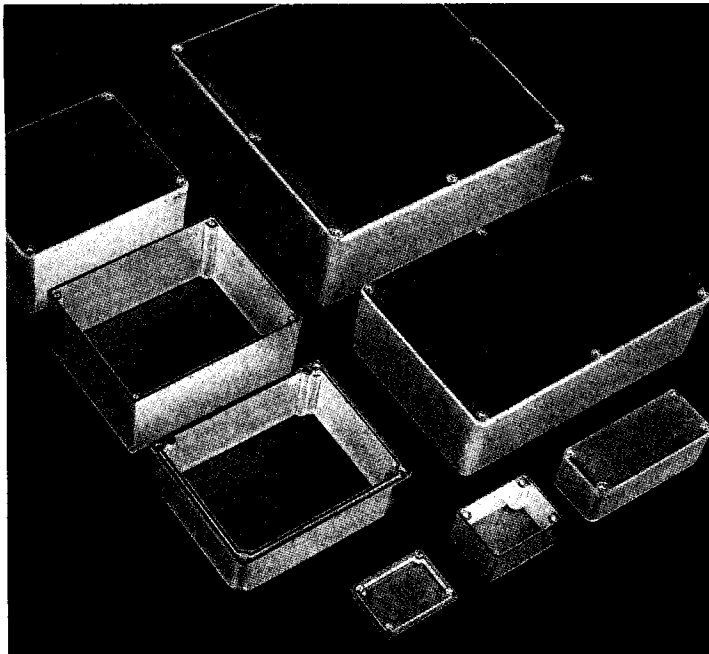
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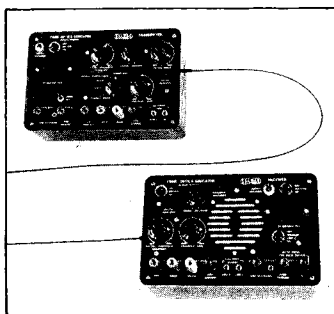


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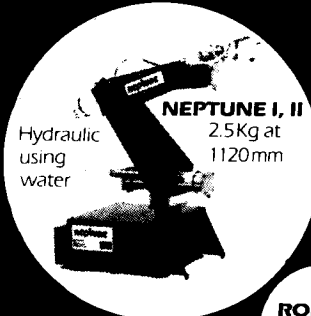


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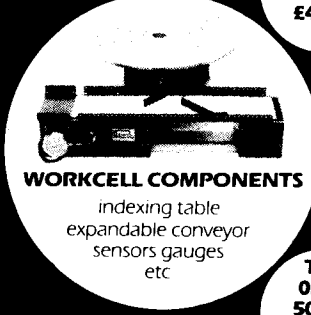


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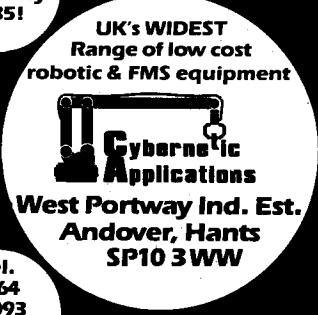


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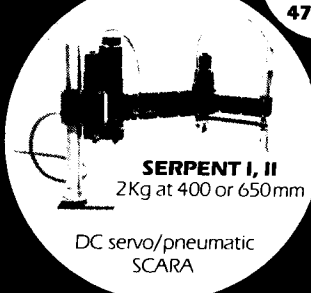


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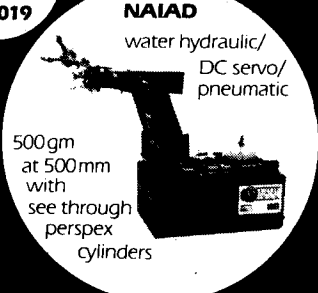


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# Acorn's new Beeb

Acorn Computers have at last announced the latest version of the BBC Micro, called the Master series. Over the years since the Model B was launched, there have been a number of additions both from Acorn and from third party manufacturers; extra memory, better disc interfaces, rom expansions, word processors, graphics extensions, second processors and so on.

The new series incorporates many of these upgrades in the basic model, the Master 128 which is still recognisable as being an enhanced Model B.

## Master 128

Externally it is wider to accommodate an extra numerical keypad and the top cover has been made deeper to allow space for plug-in expansions.

Internally it has a lot more memory: 128K of ram which is divided between main ram and paged 'sideways' ram. It also has 128K of rom in one i.c. nicknamed the Megarom. This contains the operating system which has been enhanced to include extended graphics facilities and terminal software: BBC Basic (version 4) which includes extra commands to take advantage of the other enhancements; an Edit rom which is used as a Basic program and text editor, the View wordprocessor and Viewsheet spreadsheet program and two disc filing systems. The DFS ensures some compatibility with software developed on the Model B; and the ADFS which is a double-density system with, at last, an unlimited number of files. To make this possible Acorn have devised an hierarchical system with file directories nested within files.

There is space for four additional roms inside the computer and it is possible to have three other 128K roms or even two 256Kbyte roms. This has limited application because such monster roms have to be programmed and be made available. However there are also two external cartridge rom sockets which offer the 1MHz

bus of the Model B, uprated to 2MHz. Through these not only can rom firmware be plugged in but also sound input/output with such peripherals as the Music 500, and, for example, a video genlock. Each cartridge socket has a capacity of 256Kbyte.

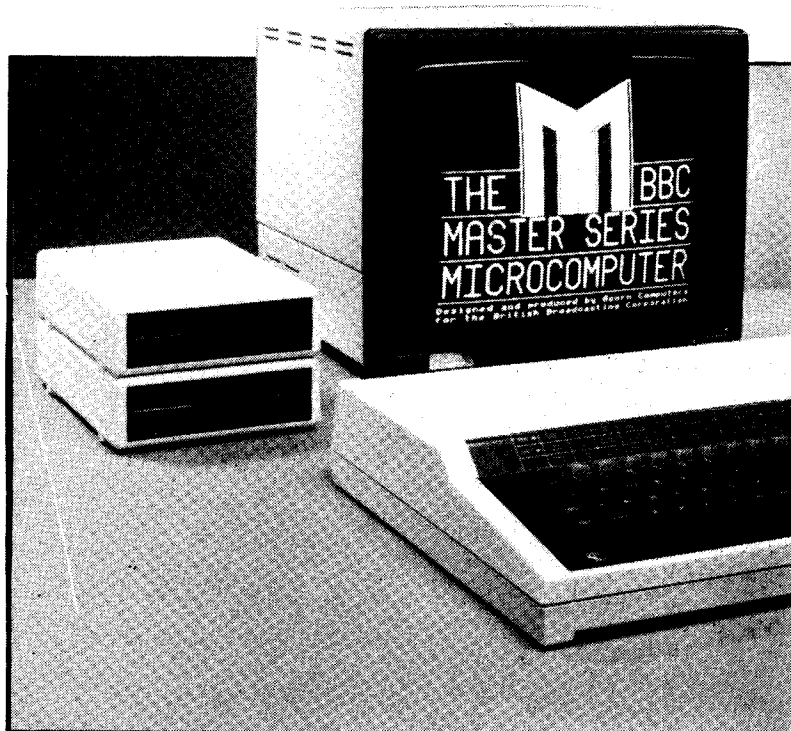
Another addition is the provision of a battery-backed real-time clock and some ram which is reserved for the start-up options so that the computer will automatically switch itself into the wordprocessor mode, for example, if needed.

The display modes are similar to those of the Model B, though the additional ram means that 'shadow' modes do not take any ram from the user. Similarly there is no extra ram required for the filing systems. The rest of the specification duplicates the facilities of the Model B: The same video outputs are provided; modulated u.h.f, composite video and RGB. It uses the same sound chip and internal loudspeaker though an audio socket has been added to drive an external loudspeaker or amplifier. Also duplicated are the user port, the 1MHz bus, the Tube for connecting external second processors, analogue input and cassette interface. Software is provided on a "Welcome" disc and tape which includes a suite of demonstration programs, assorted utilities including disc filing system utilities and Basic 128 - BBC Basic for use in sideways ram. The package is completed with a Welcome manual and reference cards for the firmware utilities. The Master 128 costs £499.

One feature we have omitted is the internal Tube bus and socket which enables the plugging in of additional processors and memory. These permit the expansion of the system and the expanded versions are also available as computers in their own right. There is no difference in price between buying the 128 and upgrading it or buying the enhanced versions of the computer.

## Turbo

The first expansion adds to the 128 an additional 64C102



processor with a clock frequency of 4MHz, along with 64Kbyte of ram and 4Kbyte of rom, and a disc with a version of Basic for use with the system. It is designed for high-speed processing and is claimed to be faster than any other microcomputer for interpreted Basic. Turbo costs an additional £125.

## Master 512

This adds a 16-bit 80186 processor, running at 8MHz and 512Kbyte of ram; up to 128K of rom. This is provided with Digital Research's DOS-plus which makes it compatible with MS-DOS and CP/M 86 and

opens up a wide field of applications software. MS-DOS being almost identical to PC-DOS enables some software written from the IBM-PC to be used. Also provided on disc is DR's GEM suite of utilities: GEM Desk Top, GEM Paint and GEM Write. The price of this addition is yet to be announced but is likely to be about £500, making the combined computer cost £1000.

## Master Scientific

This adds the facilities of the Acorn Cambridge Workstation: 32-bit 32016 processor and a floating-point 32081 co-processor; 512K ram, 16K rom

## Poor job prospects

Job prospects in the electronics engineering field are poor for at least the first quarter of this year. Statistics have come from Manpower Ltd, who specialize in such surveys.

The decline in confidence now being shown by electronics manufacturers reflects the decline in confidence in all sectors of employment, according to Manpower. Their survey points out that this is the first time in five years that New-year prospects in Britain have failed to show an improvement over the previous year.

Fewer employers in electronics manufacturing are

planning to increase their workforce and projected job cuts are higher than in the last quarter of 1985. The relative decline in job prospects in electronics is shown clearly by the 'balance' or difference between the proportion of employers increasing their staff and those cutting jobs. The balance now stands at +9, only barely positive, in contrast with +24 last quarter.

Manpower claims these results confirm its forecasts made in three prior surveys during 1985, that job prospects in Britain will increasingly "flatten" over the next 12 months. ■