



# Watford Electronics

Dept. BBC, CARDIFF ROAD, WATFORD, HERTS. ENGLAND.

Tel: Watford (0923) 40588/37774 Telex: 8956095 WAELEC



## BBC MICROCOMPUTER

Model A—£260; Model B—£346

Upgrade your Model A with our Upgrade Kits and save yourself £ s s s

- BBC1 16K Memory (8 x 4816AP-3 100nS) **£24.00**
- BBC2 Printer User I/O Port **£8.10**
- BBC3 Disc Interface Kit **£95.00**
- BBC4 Analogue I/O Kit **£8.25**
- BBC6 Expansion Bus Kit **£7.75**
- Complete Mod. A to B Upgrade Kit

## Dust Cover for BBC Micro

Protects your expensive Micro from foreign bodies. **£3.95**

## SEIKOSHA GP100A

10" Tractor Feed, 80 columns, 50CPS. Normal & Double width Char, Dot res graphics. Parallel Interface standard. SPECIAL OFFER Only: **£144**

## INTERFACE CABLE

BBC to Seikosha Cable **£8.00**

## FRICTION FEED

Attachment for GP100A or 250X Printers **£28**

- Spare RIBBON for GP80 **£4.50**
- Spare RIBBON for GP100 **£4.95**
- Spare RIBBON for GP250 **£5.95**

GP-700 Colour Printer Screen-dump routine in ROM FOR BBC Micro **£12**



Epson RX80

100 CPS, 9 x 9 matrix, dot addressable graphics, condensed and double width printing. Normal, Italic and Elite Graphics. Tractor feed, 10" max width, bi-directional, logic seeking. Centronics Interface standard.

ONLY **£235** (£7 carr.)

## RX80 F/T PRINTER

As above but has both Friction and Tractor Feed. **£259** (£7 carr. Securicor)

## PRINTER INTERFACE BUFFER

Neatly packaged self contained box, supplied complete with all leads, manual and detachable power supply.

Price: 16K Unit **£99**  
Price: 48K Unit **£135**

## Epson FX80 Printer

160 CPS, 11 x 9 matrix, proportional spacing, superscripts, subscripts, dot addressable graphics. Normal, Italic and Elite characters. Up to 256 user definable characters. Down loadable character set. Condensed and double width printing. Full proportional spacing. Four user defined margin positions. Tractor and Friction feed. 10" maximum width Bi-directional, logic seeking Centronics interface standard.

ONLY **£345** (£7 carr.)

## Epson FX100 Printer

Same as FX80 but has a 15" wide Carriage **£495**

Type	Ribbons	Dust Covers
MX80FT	<b>£4.75</b>	<b>£4.50</b>
MX100	<b>£10.00</b>	<b>£5.25</b>
FX80	<b>£4.75</b>	<b>£4.95</b>
RX80	<b>£4.75</b>	<b>£4.50</b>
GP80	<b>£4.50</b>	—
GP100	<b>£4.95</b>	<b>£3.95</b>
GP250	<b>£5.95</b>	<b>£3.95</b>
GP700	<b>£18.50</b>	—

## RX & FX PRINTER INTERFACES

RS232	<b>£35</b>	RS232 + 2K Buffer	<b>£59</b>
IEEE 488	<b>£65</b>	2K Parallel	<b>£58</b>

## BROTHER HR-15 DAISY-WHEEL PRINTER

An exceptionally high quality daisy wheel printer at the price of a dot matrix printer. 18CPS; bi-directional, 3K of buffer; has clear buffer facility, carriage skip movement, proportional spacing; underlining; bold print and shadow print. Prints in two colours; super and subscript facility. Impact control facility to vary pressure on paper for making carbon copies. Has Centronics parallel or RS-232 interface. Connects directly to BBC Micro. A ribbon cassette plus a separate red ribbon. Optional extras: single sheet feeder takes up to 150 A4 sheets; a keyboard that transforms HR15 into a sophisticated electronics typewriter. Attractively finished in beige.

ONLY **£349**

Single Sheet Feeder **£199**  
Keyboard **£150**  
Ribbon **£3**; Daisy Wheel **£18**

## LISTING PAPER (Plain)

1,000 Sheets 9½" Fanfold Paper	<b>£7</b>
1,000 Sheets 15" Fanfold Paper	<b>£9</b>
Teletypewriter Roll (Econo paper)	<b>£4</b>

## PRINTER LABELS (continuous stationery)

1,000 90 x 36mm	<b>£5.50</b>
1,000 90 x 49mm	<b>£7.75</b>
1,000 102 x 36mm	<b>£6.25</b>
Carriage on Printer Paper & Labels <b>£1.50</b>	

## PRINTER LEAD 36"

Ready made printer lead to interface BBC Micro to EPSON, SEIKOSHA, NEC, STAR, JUKI, BROTHER, SHINWA, etc., Printers.

ONLY **£8**

Special Extra long 6 foot Cable **£12**

## BBC Micro WORD-PROCESSING PACKAGE

A complete word processing package consisting of: BBC Model B, Zenith 12" Green or Amber Monitor, Twin 200K highly reliable (1 year warranty) Teac Disc Drives in matching beige colour, the popular WORDWISE word processor, Watford's own highly sophisticated 62 File DFS interface fitted, the world renowned Brother HR15 Daisy Wheel Printer, Gemini's Beebplot & Beebcalc Spreadsheet Analysis Software discs, 10 blank diskettes, 500 sheets of fan-fold paper. Manuals and all the leads. To enable you to carry your Micro around, we shall pack it in our Antique Brown leatherette Attache carrying case.

ONLY **£1,275** (carr. £15)

(P.S. We will alter the package to suit your requirement. Call in for a demonstration.)

## 5¼" DISKETTES

(Lifetime warranty)

- 10 Verbatim or 3M Diskettes S/S D/D **£17**
- 10 Verbatim or 3M Diskettes D/S D/D **£27**

## DISC ALBUMS

Attractively finished in beige leatherlook vinyl. Stores, protects and displays 20 discs in double-sided clear view pockets. ONLY **£4.95**

## PLASTIC LIBRARY CASES for Disc Storage 5¼" (holds 10) £2

## LOCKABLE STORAGE UNITS

Attractively finished, strong beige plastic base fitted with dividers. Smoke acrylic top. Supplied with adhesive title strips for ease of filing.

- M-35 Holds upto 35 mini discs **£16**
- M-85 Holds upto 85 mini discs **£20**

## FLOPPY HEAD CLEANERS

Unless your office/home is dust free, you should clean heads at least once a week to avoid the risk of cross contamination. Simply apply the cleaner to one of the specially formulated cleaning discs, insert into the drive and initialise. If your system has no initialisation program then insert the disc and open and close the door 5 times.

**£16.00**

## AMS 3" DISC DRIVES

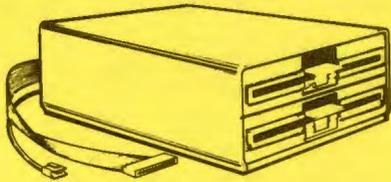
These popular mini disc drives, now available from WATFORD. For details see AMS advert in this magazine. Supplied complete with cables, manual and utilities disc.

Single 100K per side **£163**  
Twin 200K per side **£320**

## DISC DRIVES CASED WITH CABLES (less PSU)

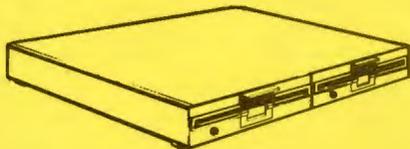
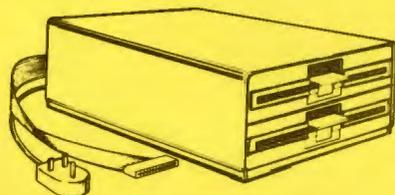
(All Drives are NEW SLIM-LINE Type)

### NEW LOW PRICES



- **CLS 100** Single, TEC Single sided 40 track 100K, 5 1/4" Disc Drive **£129**
- **CLS400** Single, Mitsubishi Double sided 80 track 400K, 5 1/4" Disc Drive **£188**
- **CLS400S** Single, Mitsubishi Double sided 40/80 track Switchable, 400K, 5 1/4" Disc Drive **£215**
- **CLD200** TEC Single sided 40 track 200K, twin 5 1/4" Drives **£252**
- **CLD800** Mitsubishi Double sided 80 track 800K, 5 1/4" TWIN Drives **£365**
- **CLD800S** Mitsubishi Double sided 40/80 track switchable, 800K, Drives **£399**

## (CUMANA) DRIVES CASED WITH PSU & CABLES



- **CS100** TEC Single sided 40 track 100K 5 1/4" Single Disc Drive **£145**
- **CS200** TEC Single sided 80 track 200K 5 1/4" Single Disc Drive **£210**
- **CS400** Mitsubishi Double sided 80 track 400K 5 1/4" Single Drive **£259**
- **CS400S** Mitsubishi Double sided 40/80 track 400K 5 1/4" Single Drive **£340**
- **CD200** TEC Single sided 40 track 200K 5 1/4" TWIN Disc Drives **£275**
- **CD400** TEC Single sided 40 track 200K 5 1/4" TWIN Disc Drives **£365**
- **CD800** Mitsubishi Double sided 80 track 800K 5 1/4" TWIN Drives **£425**
- **CD800S** Mitsubishi Double sided 40/80 track Switchable 800K TWIN Drives **£465**
- **SPARE DRIVE CABLES, SINGLE £6; DUAL £9**
- **DFS Manual (comprehensive) £7.50 (No VAT)**

### P.S.

1. You do not require Formatting Discs when using our DFS as the formatting program is in the ROM, nor do you require the expensive 40/80 track switchable drives as with our DFS, you can read and write 40 and 80 track discs on an 80 track drive (software switchable).

2. MITSUBISHI SLIMLINE DISC DRIVES that we supply are Double Sided, Double Density 5 1/4", 1 Megabyte. (With BBC Micro 400K after formatting.) When used in conjunction with Double Density board one obtains 800K (approx) after formatting. Track density 96 TPI, track to track access time 3mSec. These drives are very fast, quiet and efficient. We strongly recommend them.

## NEW

### Mk II 13 ROM SOCKET BOARD

Now all lines fully buffered - On board battery back-up facility - will now accept EPROMS 2716, 2732, 2764 & 27128 and ROMs 6116 & 6264.

Simply plugs into one of the four ROM sockets currently available in BBC Micro. There are only 5 solder connections to be made. Full instructions are supplied. This board has been ergonomically designed to enable the user, easy further expansion inside the Micro, e.g. Double Density Board, Torch Board, etc. (At Watford, we think ahead.)

Our 13 ROM SOCKETS BOARD enables the User to increase the Sideways ROM capacity the basic four sockets on the main board up to the full SIXTEEN capable of being supported by current operating systems. In addition the board is designed with the facility to hold upto 16K RAM, which when switched into operation is automatically selected by any WRITE signal to the Sideways ROM area. This gives the User the ability to write a utility or language and upon pressing break have the utility or language up and running (new ROM software can be developed and tested in situ.)

The Board gives the User, plenty of freedom to explore the possibilities of the new paged ROMs due in the coming months and offers them the chance to develop their own.

All lines are fully buffered and the Board meets or exceeds all timings for operation in the BBC Microcomputer. When fully populated, the ROM Board consumes less than half the recommended maximum current limit.

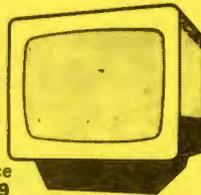
Supplied ready-built and tested complete with fitting instructions.

**ONLY £32.50 (carr. £1)**

## EPROMs & CMOS RAMs for BBC MICRO

2764-250nS (8K ROM)	<b>£6.95</b>
27128-250nS (16K ROM)	<b>£19.00</b>
6116-150nS (2K RAM)	<b>£6.00</b>
6264-150nS (8K RAM)	<b>£38.00</b>

## MONITORS



**MICROVITEC 1431**  
14" Colour Monitor, RGB Input. (as used in BBC programmes) FREE Interface Lead. **Special Offer £189**

- **MICROVITEC 1451** Hi-res 14" Monitor incl. lead **£319**
  - **NEW MICROVITEC 14"** Colour Monitor/Composite Video **£249**
  - **KAGA RGB 12"** Medium Resolution Colour **£199**
  - **KAGA RGB 12"** High Resolution Colour **£259**
  - **KAGA 12"** Standard resolution colour MONITOR/COMPOSITE VIDEO **ONLY £205**
  - **BNC** Connecting Lead **£3**
  - **RGB** Connecting Lead **£5**
  - **ZENITH 12"** Green or Amber Monitor Hi-resolution **£75**
- Carriage on Monitors £7 (Securicor)

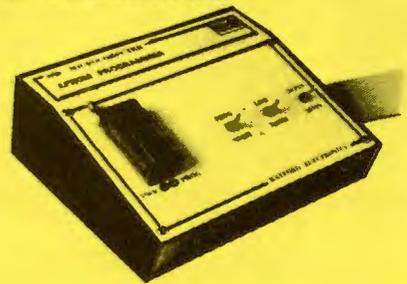
## READY-MADE LEADS

CASSETTE LEADS 7 pin DIN Plug to 5 pin DIN Plug + 1 Jack Plug	<b>£2.00</b>
to 3 pin DIN Plug + 1 Jack Plug	<b>£2.00</b>
to 7 pin DIN Plug	<b>£2.50</b>
to 3 Jack Plugs	<b>£2.00</b>
<b>6 pin DIN to 6 pin DIN Plug (RGB)</b>	<b>£2.50</b>
Monitor Lead, BNC to PHONO	<b>£3.00</b>
Disc Drive to BBC Micro Power Lead	
Single: <b>£3.00</b> Dual <b>£3.75</b>	

## MISCELLANEOUS CONNECTORS

	Plugs	Sockets
RGB (6 PIN DIN)	30p	45p
RS423 (5 pin Domino)	40p	50p
Cassette (7 pin DIN)	25p	65p
ECONET (5 pin DIN)	20p	30p
Paddles (15 pin 'D')	110p	215p
BBC Power Plug 6 way	75p	-
Disc Drive Plug 4 way	70p	-

## EPROM PROGRAMMER for BBC MICRO



At last! - the EPROM Programmer for BBC Micro Computer from WATFORD ELECTRONICS that will suit both your pocket and all your requirements. Programs all popular types of EPROMS from 2K bytes up to 16K bytes - **2716 - 2516 - 2532 - 2564 - 2764 - 27128.**

This extremely powerful system is designed for your needs of TODAY & TOMORROW! - BBC Basic programs can be copied into EPROM and subsequently re-loaded faster than from a disc! Suitable for both hobbyist and professional users!

Just look at these features:

- **COMPLETELY SELF CONTAINED** - Housed in its own sturdy case - Uses its own power supply - connects directly to the 1MHz Bus - Simple and Safe!
- **FULL SOFTWARE SUPPORT** - Comes complete with simple to use fully machine code ROM based software and easy to understand manual. Facilities include Verification, Reading, Virgin Testing, Writing, Editing, Saving, Loading and more! NOTE!! - This software does not simply comprise hastily prepared routines to get you going, but is a professional, purpose designed applications package.
- **ACORN BUS COMPATIBLE** - Use of the 1MHz connection complies with all Acorn addressing recommendations - That means you can still add-on such things as the TELETXT, IEEE 488 TUBE and PRESTEL
- Allows more than one program to reside in an EPROM using the ROM Filing System.

**ONLY £89 incl. Manual (£3 carr)**

## BEEB SPEECH SYNTHESISER

### VERSATILE SPEECH SYNTHESISER UNIT FOR THE BBC MICROCOMPUTER

Watford Electronic's very own Speech System. Specially designed so that even a novice can make his BBC talk:-

**SIMPLY the best!** - An unlimited speech synthesis system. Complete with easy-to-follow manual. Controlling software is in ROM so no Cassette Loading problems!

**PHONEMES** for word synthesis - That means unlimited vocabulary! No extra speech dictionary chips to buy!

**BUILT-in** Library of approximately 500 words to get you started.

**ENGLISH** accent - Utilises inflexion techniques to produce highly comprehensible speech.

**EASY** to use system - Just plug the software ROM into a socket, the Speech unit into the User Port, and away you go! No specialised 'dealer upgrade' required!

**COMPACT** unit - The whole system is built into a small case - easily tucked behind the computer. Auxillary output socket provided for direct connection to an external amplifier.

**HOURS** of fun! - Suitable for any application - Games, Educational Programs, Specialised Packages.

We know this all seems to good to be true but **DON'T BE LEFT SPEECHLESS!** Order your Versatile Speech Unit now!

**Only £44**

Continued →



**WATFORD'S  
BEEB PRINTER ROM**



Are you fed up with not being able to unravel your printer manual and use all those features you paid for? Need sensible paging for use in the creation of booklets? Then you certainly need our Beeb Printer ROM.

A machine code printer utility in ROM.

- 'Single' key operations replace control code sequences for underline, font and size selection, paper movement, etc. Up to 30 come pre-defined, without effecting normal fn key usage.

- **This rom allows easy control of your printer from 'Within' WORDWISE text. Instead of long escape sequences, you just 'OC' a single number to Select, Underline, Print Styles, etc.**

- Automatic fanfold page margins. Puts gaps in listings. PRINTed text etc to skip the folds. The gap size alternates to minimise paper wastage when using binders.

- Form feed and related commands, made available on ALL printers. Can also provide a left margin.

- User defined characters embedded within text are printed as on VDU.

- ★ Commands select option for GP100, STAR, NEC, MX/FX, LP VII/DMP100, DMP200. Operates with Parallel and Serial Printers.

- Fully functional with the popular WORDWISE wordprocessor.

*Supplied complete with a comprehensive 50 page manual.*

**Price: £24**

(When ordering, please specify the make of printer you have.)

**SPECIAL OFFER**

Buy BEEB PRINTER ROM and any one of the two SCREEN DUMP ROMS for

**ONLY: £33 (A saving of £7+)**

**TWO NEW GRAPHICS  
SCREEN DUMP ROMS**

**DUMP OUT 2**

A versatile machine code hi-res Screen Dump ROM.

- You can now have small or large 2 tone dumps and multi-tone 'colour' pattern dumps (8 distinct mode 2 shades) on every printer.

- \*Commands initiate the required dump optional parameters may be included for colour masking and selecting the part of the screen to be dumped.

- Clever use of the processor stack means that no workspace is required! (Multitone dumps also use 2 zero page locations.)

- For GP80/100/250, STAR, NEC, EPSON MX/RX/FX, LPVII, DMP100/120/200/400.

- Screen modes 0, 1, 2, 4, & 5.

- Instruction Manual

All this for **ONLY £15**

**EPSON DUMP ROM**

A specially designed Dump ROM for EPSON RX and FX Printers.

Will accurately DUMP all Screen modes including TELETXT, GRAPHICS and DOUBLE HEIGHT. MULTITONE DUMPS are also supported. Simple single command (\*SCDUMP) operation. **Only: £16**

**WATFORD JOINS THE  
COMMUNICATION REVOLUTION**

**MODEM 84**

**Prestel<sup>TM</sup>**

**A British Telecom Service.**



With the launch of Watford's MODEM 84 you can now hook into PRESTEL, MICRONET, HOMELINK, TELECOM GOLD, etc., for about the cost of a good tape recorder. Prestel gives you access to an incomparable database covering almost every subject under the Sun. There is Micronet with lots of free programs that you can download and run. Details of Clubs and User groups, a diary of meetings and exhibitions, news and reviews, technical information, etc. There is Homelink with On-line banking. And there is armchair shopping, travel information, Entertainment, World News, Sports News, Business News, Weather information, Electronic mail and lots more. The basic Prestel subscription is only £5 per quarter for domestic user and at off-peak times there is no charge for access time. Can you afford not to be part of this revolution?

Now using the latest techniques and the new generation of Modem chips, Watford have developed a Modem that is newer, better and yet cheaper than any on the market.

*Compare the Specifications:*

**MODEM**

- Direct-connect Modem using BT approved isolation components.
- Full Duplex V23 operation for Prestel and TELECOM GOLD operation (1200/75 Baud).
- User-to-User half duplex 1200/1200 Baud operation with AUTOMATIC SEND/RECEIVE switch (BEWARE - most MODEMS switch manually between send and receive, which precludes the use of intelligent user-to-user software).
- Simple single button operation and comprehensive LED status display.
- Attractive Beige case to match your Micro. Sized to sit on the disc drive.

(P.S. BT approval applied for).

**NEW SUPER PRESTEL  
INTERFACE ROM**

Fully compatible with Watford's MODEM 84 as well as with PRISM and most other Modems.

- Supports full Prestel Colour Alpha and Graphic Characters including Double Height, Flashing, Conceal/Reveal.
- Called by simple \*PRESTEL command. Disc and Tape configurations fully supported.
- Telesoftware downloader included.
- Comprehensive MAILBOX facilities including offline editor.
- Auto Logon sequence, can be burnt into ROM if desired.
- Unique 'TAG' facility allows tagging and recall of interesting pages - avoids the common and annoying 'NOW WHERE WAS THAT PAGE' problem.
- Page load and save to tape or disc. Pages are automatically saved under Page Number reference in a 'FRAME' directory.
- Print page options are ASCII only (i.e. with suppression of Graphics) - fast and works with any printer - as well as a full graphics dump for the popular Epson printer.
- 'USER' function call built into interface with specialist add-on routines (your own as well as ours).
- All the above facilities available from Function Keys. An overlay is provided giving simple yet comprehensive guidance to the key functions.
- Comprehensive instruction manual supplied.

PRICES:  
SOFTWARE in ROM incl. Comprehensive MANUAL **ONLY: £25**  
MODEM 84, SOFTWARE in ROM & Operating MANUAL **Only: £75 (Carr. £1.50)**  
*(Please allow upto 28 days for delivery)*

Coming soon:  
BEEB User-to-User ROM. For automatic user-to-user communication including file/program transfer. (Requires Watford's MODEM 84 or PRISM 2000).

Please write to Watford Electronics for full details, Order and Application Forms.

**NEW FX80 PRINTER  
DRIVER for VIEW**

Do you want to use Italics or Enlarged Characters with View? French or German Characters? These and other FONTS from FX80 character sets can be accessed using our Printer Driver with VIEW. The disc contains an example as well shows how to use. Available on 40 or 80 track Disc. **ONLY: £7.50**

**VIEW**

Acorn soft's Wordprocessor ROM. **£52**

**FORTH ROM for BBC**

This superb (FIG FORTH) compiling language now available in ROM. Simply plugs into one of the ROM Sockets. Manual included. **£33**

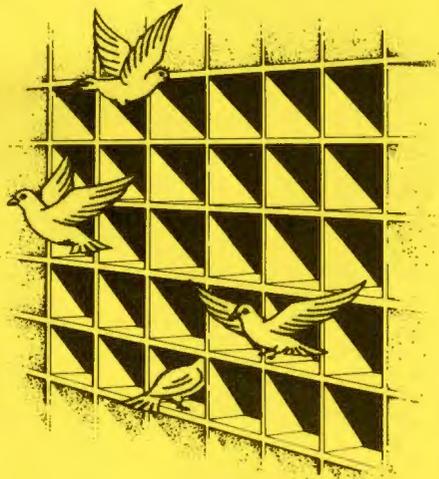


**WATFORD  
ELECTRONICS**

Continued

# WONDERFUL WATFORD

## TWO NEW DATABASE SOFTWARE for BBC Micro



### ★ ★ NEW LAUNCH ★ ★

#### DISCDATA

At last for BBC Micro Disc users, Watford Electronics have produced 'DISCDATA' which must be the most versatile general database at the price on the market. The length of your files is restricted only by the space on your disc. You can have up to 20 fields with 'page' length records of up to 254.

Characters. The program is completely menu driven obviating reference to a manual although written guidance is given with the program. Add and delete records, amend title, field names and records, sort on any field and search for any record or group of records in any field. You do not need to abandon or rewrite your files if you wish to add additional fields or extend the length of any field, the program will rewrite the files for you. Your files can be in any drive. Output can be in 40, 80 or 132 character width with Printer routines. Two forms of output are provided for, horizontal for label type output and a tabulated output with title and headings. What is more, the selected fields can be placed in any order on the screen. In the horizontal mode you can scan backwards or forwards with wrap around effect. Output can be started or stopped anywhere in the file. There is automatic totalling on decimal fields and an automatic count of the number of records output.

On disc at **Only £15**

It has to be the best value.

### ★ ★ NEW ★ ★

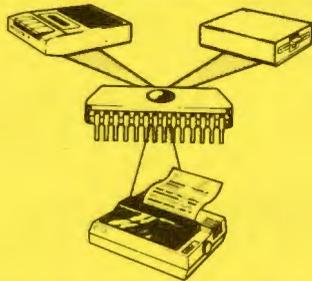
#### FILE-PLUS

A 16K ROM containing the most flexible and easy to use disk based Database system on the market. A database may occupy your total on-line storage capacity. You may design any number of data entry forms using a "paint" on screen technique. Forms may be up to 3 screens in size. Any of these forms may be used to Add, Delete, Update, Print and Spool records from your Database. Quick search facility on any text field. A query language provides full maths support (-, +, /, \*, +9999999999.9999) and compare facilities (=, >, <D, <I, >=, &, I) when used with the keywords - Assign, Compare, Display, End, Goto, If, Ift, Print, Read, Search, Spool and Update. Full printed output control via embed commands. Supplied with 70 page manual and fitting instructions.

DISC DATA **Only £15**  
FILE-PLUS **Only £43**

Send SAE for Fact Sheet

### ★ ★ STAR LAUNCH ★ ★ BUFFER & BACKUP ROM



A very versatile firmware. An ideal ROM for engineers, programmers, teachers, students, etc.

- ★ Converts your Sideways RAM to a 4K or 16K BUFFER for a parallel printer. (Uses \* FX5,3). (You no longer require to purchase expensive (£100+) Printer Buffers.)
  - ★ Dumps selection of Disc files to Tape.
  - ★ Makes backup copies of tapes onto Tape, Disc and Hobbit.
  - ★ Displays contents of a chosen paged ROM on screen.
  - ★ Menu display on 'shift-break' using ROM Filing System.
  - ★ Comprehensive Manual
- Simply a give away at **£16**

In keeping with our tradition of bringing you the best in BBC Micro at prices you cannot refuse, we are launching yet another of our ROM based software.

**NEW  
LAUNCH**

#### TERMEMU

(A Terminal Emulator ROM for BBC Micro)

Use your BBC micro as a VDU terminal, connected to any other computer with a V24 or RS423/RS232 serial interface. Transfer text files in either direction, using disc or tape filing system.

Powerful function set allows emulation of popular mainframe terminals, including full DEC VT52. A tailoring program is included which allows you to define your own terminal and save the file on disc or tape.

The TERMEMU ROM is entered either using \*VDU, or directly when the BBC micro is switched on.

##### Features include:

- Compatible with BT GOLD electronic mail service
- Full BBC graphics available
- Split baud rate for receive/transmit
- User-defined function keys
- Visible control codes (for debugging protocols)
- Full cursor addressing
- User-definable addressing convention
- ALL OS commands available, even when online
- SPOOL and EXEC, even at 75 baud
- Parity, start/stop and number of bits
- Change baud rates online
- Online/local operation
- Runs in any mode
- Comprehensive manual and fitting instructions

ALL THIS and MORE FOR ONLY **£24**  
(Price includes tailoring software on disc or cassette and manual)

Suitable cable for RS423 domino to V24

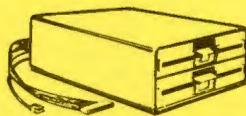
**ONLY £5**

#### PACKAGE OFFER

BBC model B, ZENITH 12" monitor, plus TERMEMU and cables, a complete mainframe terminal for:

**ONLY £445**

#### SPECIAL 'DISC DRIVE OFFER



##### MITSUBISHI DISC DRIVES

Cased, including Power Cable and Interface Cable. Plugs directly to BBC's Power Supply socket.

- LCS400 Single 400K Drive **£185**
- LCD800 Twin 800K Drives **£359**

#### GEMINI'S BUSINESS SOFTWARE

Cashbook Accounts	£52
Final Accounts	£52
Invoices & Statements	£17.25
Commercial Accounts	£17.25
Mailing List	£17.25
Database	£17.25
Stock Control	£17.25
Home Accounts	£17.25
Beebcalc Spreadsheet Analysis	£17.25
Beebplot	£17.25
Payroll	£39

N.B. All the above Gemini software is on tape. For Disc Based (40/80 track) please add £3.

#### ACCESS ORDERS

Simply phone your order through and we will do the rest.

Tel: (0923) 50234

#### VERSATILE LIGHT PEN SOFTWARE

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## DISC-DATA

You know that having a disk system makes life a lot easier, but why just use your disks like a fast tape drive? You can use this system to keep records of anything you like, mailing lists, incoming orders, the uses are endless.

DISCDATA is a utility disk for your BBC microcomputer that provides a simple to use, but powerful, database facility. It occupies 33K of disk space, allowing the rest of the disk to be used for file storage. Discdata files consist of a series of records, each with up to 20 fields of variable lengths, with maximum total record length of 254 characters.

Discdata is a menu driven system so you know where you are because Discdata always lets you see what you are doing, from start to finish. This really makes Discdata simple to use.

A comprehensive set of file maintenance facilities are provided that allow you to perform such operations as adding a record, deleting a record, sorting the records on any given field (every field is either an integer or a string so that a sort may be in either alphabetical or numerical order depending on the field type), plus several other options.

A printer is of course very useful for large data bases like mailing lists. Discdata comes with printer drivers already included for Epson printers but should you wish to change these for other printers, details are given in the manual.

Discdata may not be the most elaborate database system around but it should be able to cope with all but the most specialised of applications whilst remaining user friendly. It must surely represent the best value for money in database programs for the BBC micro.

## EPSOM DUMP ROM

Have you ever thought how complex it would be to have a program that could take the image from your BBC microcomputer's screen in ANY mode (Yes! even the Teletext block graphics) and put it onto paper through your Epson FX or RX printer? Well now you don't have to think! Leave your brain at home and buy Watford Electronic's SCDUMP ROM for Epson printers. The most amazing thing about this utility ROM is the number of commands that have to be learned. Just one command per screen mode, perhaps? No, there is only one command! This one command is \*SCDUMP, in any mode this will produce a screen dump with different grey shades representing the different colours on the screen. This means that any BASIC program can be made to transfer the screen image to the printer at any point in the program by just inserting one extra line, for example:

```
1000 REM finished drawing a picture.  
INSERT THIS LINE ---- 1001 *SCDUMP
```

This can be combined with other utilities (such as BEEBFONT) to get a screen dump from their output.

It also means that if you have a Teletext or Prestel unit then SCDUMP will enable you to easily take hardcopy of any page you wish, with no fuss.

A screen dump can also be initiated from machine code by calling the OSWORD routine thus:

```
LDA #&BB  
JSR &FFF1
```

Since most machine code games have a routine which is used after the ESCAPE key is pressed which looks like this:

```
LDA #&7E  
JSR &FFF4
```

then you could find this code and change it so that if, during your game, you want a copy of the screen then you just have to press ESCAPE.

Finally:

The only thing you need to remember is that you're just not doing yourself or your Epson printer any favours if you don't get SCDUMP.

## PRINTER ROM

PRINT-ROM is an 8K sideways ROM utility which will give you easy control of your dot matrix printer, in both serial or parallel mode, by providing various simple commands and single key control of complex printer functions. Once PRINT-ROM has been initialised the various facilities available for different printers can be selected through the \*PRINTER <name> command, where the <name> option can be one of: SEK, TND, DMP, NEC, EPa, EPb, EPc which can be used to enable control of the following printers:

Seikosha - GP100, GP80  
Tandy - LPVII, DMP100, DMP120, DMP200  
NEC - PC8023  
EPSON - FX, RX, MX types

For example '\*PRINTER EPc' would enable control of an EPSON MX printer. After the particular printer type has been selected, the function keys are then defined so that up to 30 printer functions can be obtained by either SHIFT-function key, CTRL-function key or SHIFT-CTRL-function key, and yet the function keys on their own can still be used in the normal way to produce user-defined graphics characters (which PRINT-ROM will also handle!). The function key options can include such things as selecting proportional spacing; emphasised, large or condensed fonts; underlining or even superscripts and subscripts but, of course, the particular facilities available on the function keys will depend on the printer that has been selected.

Various other PRINT-ROM commands include:

\*HELP PMON - lists all the available PRINT-ROM \*commands.  
\*PRAM1 - tells PRINT-ROM to reserve private workspace (like the DFS).  
\*PRAM <page> - allows the user to select a specific page of memory as the PRINT-ROM workspace.  
\*PAPER66 - selects default page length and page margins for 66 line paper.  
\*PAPER72 - as above but for 72 line paper.  
\*PAPERCON - causes continuous printing without page margins.  
\*MARGIN <size> - sets the left margin.  
\*KILL - disables PRINT-ROM after it has been initialised.  
\*REVIVE - re-enables PRINT-ROM from the previous \*KILL command.

These are just a selection of the facilities that PRINT-ROM can offer you but it must be obvious that if you are a printer user then only PRINT-ROM can give you the control of your printer that a serious user requires.

## BEEBFONT

This one has to be seen to be believed! Fed up with the same old, boring BBC character set? Now's your chance to break out of the restriction of an 8 by 8 character cell into the amazing possibilities presented to you by BEEBFONT, with it's expanded 16 by 16 format, to produce an almost limitless number of character font styles either on your screen, or even on your printer! BEEBFONT is a complete package consisting of:

(1) The BEEBFONT ROM, containing the software which interfaces with the operating system to integrate the expanded character fonts into the BBC VDU drivers so that they are handled just like normal sized characters. This makes BEEBFONT a joy to use, rather than a major programming effort. The ROM also produces an extra 8 character fonts:

- i) 1 normal sized font.
- ii) 5 large sized fonts.
- iii) 1 RAM based normal sized font.
- iv) 1 RAM based large sized font.

The RAM based character fonts may be redefined by you. Other enhancements allow:

- a) A double height attribute for small fonts.
- b) A double width attribute for small fonts.
- c) Both the above can be combined together at the same time.
- d) Any character font provided by BEEBFONT can be used in an emphasised printing mode.

2) The BEEBFONT utility disk, or tape, containing:

- a) A comprehensive font editor which will allow you to create a new font or just modify an already existing one to suit your own needs. Once you have defined your own fonts, they can be put into EPROM to produce your own personalised version of BEEBFONT, or you can just load them into RAM when you need them.
- b) A Spooler program which enables a formatted text file (e.g. a file created by WORDWISE would do) to be printed out on a dot matrix printer in any large or small size character font.
- c) A DEMO program to show just some of the possibilities available with BEEBFONT.

What is even more amazing is that to use BEEBFONT needs only 3 simple commands! These commands are:

- 1)\*FONT - turns on the BEEBFONT ROM.
- 2)\*NOFONT - turns off the BEEBFONT ROM.
- 3)CTRL-V (or VDU 22) plus one other character to select between all the various fonts and attributes.

Few software packages can be as easy to use and yet add so much to the versatility of your BBC Microcomputer.

## BEEBMON

Now's the time to get your own back on all those machine code programs that got away! If you want to write machine code programs or just find out how other machine code programs work (for example, games, languages, utilities, even BEEBMON!) then BEEBMON is not just useful, BEEBMON is essential.

BEEBMON is not a machine code monitor, but a complete 6502 emulation system which allows absolute control of the BBC Microcomputer. What this means is that any program you run with BEEBMON does not go through the 6502 microprocessor but is actually processed by BEEBMON itself, and since you are in control of BEEBMON then you can watch exactly what is happening within any machine code program, or you can even specify certain conditions to be set up so that you can check that the machine code will perform as you expected it to. BEEBMON is a sideways ROM and is enabled with the command \*MONITOR to provide the following facilities:

1) Memory display and editing.

A - produces a disassembled listing of code from any required start address, code may be disassembled in either the forward or backwards direction.

E - allows easy editing of any block of memory.

P - used to tell BEEBMON where to send it's output (e.g. printer or screen).

D & I - these commands are the same as A and E respectively but allow editing when the output has been selected to go to the printer.

2) BEEBMON also has a varied selection of memory block manipulation commands, including compare, fill, checksum, move, relocate and search.

3) Emulation commands:

F - send BEEBMON output to a file.

WM - display a dynamically updated section of memory, the display is updated after every step.

WT - sets up separate windows for the program display and for the BEEBMON display.

S - single steps through the next instruction.

TI - execute the program, giving a listing of instructions as they are executed.

B - set breakpoints. Breakpoints can be set anywhere and can be activated on almost any condition, this is an extremely versatile command!

TB - execute the program displaying breakpoints as they occur.

X - execute the program at the fastest possible emulation speed.

L - set address limits for which instruction listings are given.

Z - move BEEBMON workspace, useful if the program's memory initially clashes with that used by BEEBMON, which only requires 256 bytes anywhere in memory.

Together with all the above commands BEEBMON also supports a full range of commands which set register values to enable specific conditions to be set up. From the brief outline above you can see that BEEBMON brings a new level of support to machine code programmers and must represent excellent value for money.

## DUMPOUT 2

You know that your BBC Microcomputer has some of the most powerful graphics available on any microcomputer today, so why not get the most versatile and easy to use high resolution graphics dump utility ROM available, and take that power to your printer?

DUMP-OUT is an 8K sideways ROM that will take graphics from your screen to your Seikosha, Tandy, NEC or Epson MX, FX, RX in any graphics modes (0,1,2,4,5) to give a faithful reproduction of any image in such a way that the original screen aspect ratio of 4 to 3 is preserved on the paper, and yet it uses only 2 extra zero-page RAM locations! There are 3 types of graphics dumps available, with the following commands:

1)\*SIMAGE <pr> (<mask>) (<topY>) (<bottomY>)

This produces a small size, 2 tone screen dump with a width of between 3 to 6 inches, depending on the printer.

2)\*LIMAGE <pr> (<mask>) (<topY>) (<bottomY>)

This produces a large size, 2 tone screen dump with a width of between 6 to 8 inches, again this depends on the particular printer.

3)\*CIMAGE <pr> (<topY>) (<bottomY>)

This command produces a large size multi-tone screen image with the same number of tones as there are colours on the screen (except MODE2 where the flashing 'colours' cannot be reproduced on paper)

The parameters for the above commands are:

<pr> - selects the printer type from the following:

SEK - Seikosha GP80, GP250

TND - LPVII, DMP100

DMP - DMP120, DMP200, DMP 400

NEC - PC8023

EP - Epson MX, RX, FX, STAR types

<mask> - With a multicolour screen mode being dumped in only 2 tones, this parameter lets you select which colours will be printed in black, and which colours will be left to come out as white (or what ever colour your paper is!). For example, if you were using a 4 colour mode then you could set up the <mask> value so that only 1 of the colours was printed in black, or you could select that all the colours were printed in black (this would be a bit silly because then you would just print out a completely black page, no matter what the image was on the screen!)

<topY>, <bottomY> - These parameters determine the top and bottom Y-coordinates from the screen that are to be transferred onto the paper.

Moving the graphics origin before initiating a dump out will also restrict the range of screen graphics coordinates that are printed and this can be used to cut down the size of the print out in the X direction.

For anyone who has a printer and wants to get full use from their BBC Microcomputer then DUMP-OUT will bring greater versatility to any possible print requirements and open up a whole new area of possibilities limited only by the users imagination.