ATARI

Volume II No 3

(Issue 13 June'83)

- Software search
- Hardreview
- Consumer spot
- Mactor Part II

. . . . . and lots more!

Last month we reported that we had received and sent out the first batch of 1.2 ROMs. That is all well and good but we haven't received any further chips. The problem? That's what we would like to know. We appreciate that Acorn are busy but surely they could find time to fill our order for ROMs? We are trying our best to sort things out (as much as is possible with Acorn) and will send out the chips as soon as we possibly can. The hold up isn't us but Acorn.

I said above that "I appreciate that Acorn are busy". Busy doing what? The BBC Micro is available, that much I'll give them. Most Acorn dealers do not stock (or can't get supplies of) Acorn disk drives – instead they sell other companies disk drives which are always cheaper and still of very good quality (in actual fact, I'vehad one or two complaints about the poor quality of the official single drives). The disk manual and utilities disk is only available when you buy the Acorn disk drives, not with the disk interface. Nobody can get Acorn disk drives and so can't get the manual! Some dealers are quite openly photocopying the manual. Now it is impossible to get disk interfaces (through no fault of Acorn I should add) so you can't even use other companies drives. What about peripherals? The teletext adaptor is still months away. So are the second processors, Prestel adaptor, etc.. Some at the moment are destined for release Autumn '83 – judging by Acorn's past record this is likely to be extended to at least Early '84. Items that are due to be launched this month will probably be delayed till next month at least. And now they are launching a second computer!!! Shouldn't they at least get the previous one sorted out – they have presently taken 15 months and haven't got very far. Something as simple as a tape recorder – ordered in Winter '81 – might not have been delivered until Spring '83. Letters in the national magazines are appearing asking "are Acorn still in business?". This is ludicrous! The computer has the backing of the BBC – can such an organisation really be letting all this happen. This is a nightmare, it has to be – this couldn't really happen? It has!!!

Will somebody please, please, please wake Acorn up. Will somebody please tell me why the BBC hasn't done something positive to remedy things.

A copy of this magazine will be sent to the directors of Acorn and the Director General of the BBC by recorded delivery. Will they reply?

Paul Barbour

news

Welcome All Show Vistors!

This issue of LASERBUG is the one we will be selling at the IPC Computer Fair. Members will probably receive their magazine just after the show but for a large number of you reading this, you will never have seen a copy of LASERBUG before. Welcome! Read LASERBUG thoroughly, there is a lot of information to get through. And of course, enjoy the magazine. We will have a review of the show next month . . . for regular readers.

Watch Out, Their's A Thief About!

Worried about your BBC Micro getting stolen? You needn't be with a new computer alarm that's come onto the market. It simply plugs in between the computer and mains socket. If anybody should try to remove – steal your computer either by unplugging it or by trying to remove the device, a siren goes off until the internal rechargeable battery is discharged. MORE DETAILS: Rothtron Electronics, 23 Havelock Street, Desborough, Northants. Phone: Kettering (0536) 762050.

Overwhelmed With Overlays?

If you have too many overlays for the function keys, what do you do? A suggestion comes from Furey Enterprise Products – BBkey. Up to ten templates can be accommodated in each BBkey. It is basically a spiral bound booklet containing 10 overlay cards. The back leaf of the booklet is fitted underneath the plastic strip and the key details can either be written or glued onto a template (which are made of card). You can then flick through the overlays until you find the one you want. It is easily removable, robust, will not damage your micro and has a tab index at the side for easy location of a particular overlay. The cost is only £1.50 post free! MORE DETAILS: Furey Enterprise Products (Kent), 73 Brookmead, Hildenborough, Tonbridge, Kent, TN11 9EY. Phone: 0732 832521.

More Electron Details Beam Through

Interfaces: UHF, Composite Video, RGB, Cassette. Add-ons: Full BBC B Upgrade Box (plugs into an expansion port) £200-£250. Chips: 1 main ULA controller, OS 1.2, BASIC II. Screen: MODE 6 by default – no MODE 7. Launch: Acorn User Exhibition. MORE DETAILS: We'd love to know?

Beeb Guru Criticises Micros

Ian McNaught Davis, presenter of Making The Most Of The Micro, recently criticised microcomputing in general at a British Computer Society meeting. He said that computers were not as easy to operate as some manufacturers made out in their advertising. Although Micro's can be used to solve problems, more often than not they create further problems too. Documentation in general was complained about for its low standards as well by Mac.

Smiths & Software

W H Smiths who have concentrated on ZX software to date, have now moved onto selling BBC Micro software as well. In the larger branches of Smiths that have computer centres, you should now be able to buy both Acornsoft and BBC Soft packs. As far as we know, there are no plans at present to sell other companies Beeb software although that is bound to follow.

Talk To Me

If official reports are to be beleived, by the time you are reading this Acorn dealers should have the speech/ROM pgrade in stock. This will cost £55.00 and will not only include the speech synthesis PHROM giving your computer a vocabulary of 164 words but the ROM cartridge filing system to fill in the blank space on the left of all BBC Micros. We will be reviewing the system in a future magazine (hopefully!).

Joystick Control For Non-Joystick Programs!

A new package from Microstyle not only allows you to have a decent joystick for your Beeb but also use it on programs that aren't designed to use joysticks at all! The joystick is the Quickshot made by Spectravision which is an Atari type joystick with a proper gripable control with a fire button on top of the joystick. The base has special pads on it to make it secure on any surface, thus enabling

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one-handed operation. It plugs into the user port and is driven by a special machine code program which will allow you to use the joystick instead of keys i.e. defining the Z key to mean left on the joystick, etc. They cost £24.95 + 75p P&P. We hope to be able to review the system shortly. MORE DETAILS: Microstyle, The Newbury Computer Centre, 47 Cheap Street, Newbury. Phone: 0635 41929.

DMFS Instead Of DFS?

To overcome some of the shortcomings of the official Acorn DFS, Kenda Software are developing a DMFS (Disk Management Filing System) to replace the Acorn DFS. It allows more than 31 files on a disk, can recover a program deleted by accident, can have 8 character file names, be able to read CP/M disks and can replace or work alongside the standard DFS. As a further item on the DFS, Acorn have announced that only version 0.9 of the DFS is the official version – others are not guaranteed with other ROM upgrades. The official version of the NFS (Econet) is 3.34 and the same applies.

Who?

The Beebon was the preliminary name of the BBC Micro User. Following on from last months story (Hands Off BBC) about the BBC getting nasty about the use of their logo, they have had to change their name for the third time to The Micro User. We don't really care as The Micro User act rather funny towards us and BEEBUG. For some strange reason The Micro User will not accept advertising from either us or BEEBUG – both of the other Beeb mags Acorn User and A&B Computing do? Perhaps they feel that us and BEEBUG are too much of a threat to them?

Colour Co-ordinated Bug

You will notice if you are quick that this issue of LASERBUG is the same colour as the first magazine. This is because all of the magazines will be coloured coded from now on. Volume II No 1 was light brown – Volume III No 1 will be the same, etc.

Heavy Reading

Recently a large number of new BBC books have come out – The BBC Micro An Expert Guide by Mike James (Granada), Introducing The BBC Micro by Ian Sinclair (Granada), Games BBC Computers Play by Tim Hartnell/S.M. Gee/Mike James (Interface/Addison Wesley) and 21 Games For The BBC Micro by Mike James/S.M. Gee/Kay Ewbank (Granada). We will be reviewing them all in future magazines.

Clares Move Onto Disks

Clares have two new packages for disk based BBC Micros. "The Key" provides (i) formating/verify for both 40 and 80 track disks, (ii) the capability to make back-up copies of even the most protected disks to be made, (iii) the facility to alter and customise programs which aren't even listable and (iv) a retrieve function to allow accidently erased data or programs to be recovered. The editor (iii) allows the user to see a sector in hex and ASCII, alter it and then re-write it onto disk plus many other functions, too numerous to mention here. Clares do point out that the package must not be used for piracy and will provide software houses with any help possible should they suspect that it is being used for this purpose. The other program is REPLICA which will allow cassette based programs to be put onto disk with the least amount of fuss. It will allow approximately 8-10 programs of similar length to the Acornsoft arcade games to be stored. The programs must be stored on the REPLICA disk and once that is full, a new REPLICA program must be bought. This would give an average cost of £1 per disk program. The Key costs £12.95 and Replica £9.95. MORE DETAILS: Clares, 222 Townfields Road, Winsford, Cheshire, CW7 4AX. Phone: 06065-51374.

Prestel Efforts From Acorn

The "official" way of accessing Prestel on the BBC Micro (other than via the Micronet adaptor) will be through the Acorn hard wired modem (i.e. you will have to plug a jack socket into the phone rather than fix the phone into an acoustic coupler) which will cost £103.50, available in the Autumn. This will not only let you access Prestel but allow you to set up your own mini-database for other people to look at! This modem will allow you to access Prestel and Viewfax 258 (one of the two microcomputer services) but you will be locked out of Micronet 800 to which you have to pay an extra subscription. This should do a lot for Viewfax 258 if nothing else.

Hyper-Beeb

Last month we told you about the "Super Beeb" that will be sold in the USA – now you can change your common BBC Micro into a Hyper Beeb in this country. Unfortunately you don't get any extra capabilities, what you do get is an extremely strong micro.

Crofton Electronics are selling an exact replica of the BBC Micro Case but in sheet steel. Although a little heavier than the original it is strong enough to support an 11 stone man or if you don't feel like jumping on your computer disk drives and a monitor as in the photo above. Fitting requires a few simple hand tools – the keyboard surround, back label and input/output labels are merely taken off the original case and refitted on the Crofton case by means of double sided selotape. The retail price of the standard case is £39.50 inclusive. MORE DETAILS: Crofton Electronics Ltd., 35 Grosvenor Road, Twickenham, Middx., TW1 4AD. Phone: 01-891 1923/1513. Telex 295093 CROFTN G.

BBC Micro Hospitallised

BBC Micros are now starting to appear in hospitals and day centres as part of an experiment to evaluate the capabilities of patients who have suffered head injuries by interactive assessment.

BBC Micro Into Drugs

(It seems to be all medical this month – Ed.) The Pharmaceutical Society ruled that by 1984, the labels that go onto drugs should all be printed. Because of this, a software/hardware pack has been produced for the BBC Micro. This includes an add-on RAM board and has numerous facilities to make life easier for the pharmaceutical industry.

Micronet Saga Ends

Last month we reported the goings on surrounding the new version of the Prestel Software (Micronet Soap Opera – Ed.). On the 5th May Micronet finally gave in and released the new program as telesoftware. They also put up a response frame to order the new manual – we ordered one on the day the software came out and a month later still haven't received anything. We're half there at least!

Service From Acorn?

In a vain attempt to get over the problems people have getting through to Acorn, they have tripled their customer services department in size (from 4 to 12) and have added eight telephone lines. To get through to Acorn Customer Services ring 0223-210111.

Chalk Up Some More Programs

The educational software house Chalksoft has just releaded two new programs. CAPITALS is a suite of six programs designed to help children's writing by showing them how to draw upper case letters and numbers. It is designed to go with LETTERS which is for lower case letters. PUNCMAN helps children with their punctuation marks – PUNCMAN writes stories on the screen whilst his mischievous friend Nosher gobbles away the punctuation marks. The job of the child is to help PUNCMAN put them back again. PUNCMAN costs £7.95 and LETTERS/CAPITALS £9.95. After July 1st, the programs will up to £9.95 and £11.25 respectively. MORE DETAILS: Chalksoft Ltd., Lowmoor Cottage, Tonedale, Wellington, Somerset, TA21 0AL.

Psion Dips Into The Beeb Market

Psion, leaders in ZX software, has moved into the BBC Micro market with VU-CALC and VU-FILE. VU-CALC is a spreadsheet program whereas VU-FILE is a database program. Psion have sent us review copies of both packages and so look out for Business Soft next month. MORE DETAILS: Psion Ltd., Gloucester Place, London, NW1 6DD.

BT Presenter Presents BBC 100 000

Selina Scott, presenter of BBC's Breakfast Time, presented the 100 000th BBC Microcomputer to the Charing Cross Hospital. It was received by Alison Perry and Hugh Rossi with Bryon Parkin and Sir Roy Redgrave also in attendance. This particular micro along with 4 others will be part of a communications aid centre whereas other BBC Micro's are used in the hospital for other jobs such as monitoring.

Protection Racket

The BBC Micro can now be officially protected, with the BBC Micro carry case. It is a semi-hard fibre board case in grey with twin locks, internal cable compartment, retractable handle and lined interior. It costs £24.95 inclusive of VAT and P&P. MORE DETAILS: Computer Facilities (1982) Ltd., Glebe House, Winterton Road, Scunthorpe, South Humberside, DN15 0BA.

softreview

ADVENTURE PROGRAM: Dungeon
HARDWARE: Model B
SUPPLIER: Level 9 Computing, 229 Hughenden Road, High Wycombe, Bucks., HP13 5PG.
PRICE: £9.90
DESCRIPTION OF PROGRAM: The Demon Lord AGALIAREPT has been defeated and the Black Tower shattered. But deep below ground His dungeons survive: filled with artifacts created at the height of His power. And their guardians remain. That is the background to Dungeon adventure. The game is a pretty standard adventure – nothing outstanding from the normal kind but still one worth adding to your collection if you are an avid adventurer. Aside from the review, we have had several letters asking for a feature on hints and tips on how to do specific adventures. We gave hints on Castle of Riddles a while ago but if you have successfully completed any other adventure, why not drop us a line giving brief hints on how to complete your task without giving the game away.
PRESENTATION: ★★★
COMPLEXITY: ★★★
RESPONSE SPEED: ★★★★
LOADING PROBLEMS: No
VALUE FOR MONEY: ★★★

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EDUCATIONAL PROGRAM: Angle
HARDWARE: Model B
REQUIREMENTS: PAGE to be set to &EOO
SUPPLIER: Chalksoft, Lowmoor Cottage, Tonedale, Wellington, Somerset, TA21 0AL.
PRICE: £8.95
DESCRIPTION OF PROGRAM: This program comes in four parts – A, B, C and D. Parts A and C do the teaching whereas parts B and D do the testing. A teaches about whole, half and quarter turns and then with some explanatory words compares them with their degree equivalents. Finally, it goes into some more complex angles i.e. 45, 70, 10. B is a 15 question multi-choice test based on A. It starts off with standard questions and goes on to add angles. At the end it tells you how many questions were answered wrongly. C expands on what was taught in A and explains graphically how to use a protractor (both 180 and 360 types) with examples. It is rounded off with explanations of acute, obtuse, reflex and right angles. D tests what was learnt in C with a further 10 questions requiring the child to measure the angles put on the screen with their own protractor. The children are allowed +/– 5 degrees in their answers. The programs were OK but could have been better. Some of the combinations of colours were hard to read on a monitor (which most schools have) although it may have looked alright on TV. Full error trapping was not employed i.e. the escape key was not inhibited and you could easily enter say Z in answer to a question requiring A-D. Also, we were not too keen on children getting so close to the screen to measure angles with protractors. A program that could do with a little more thinking about although we liked the teach/test, teach/test idea.
PRESENTATION: ★★
FOR AGES: 10-12
SUBJECT: *Geometry (Angles)*
USEFULNESS: ★★★
NUMBER OF USERS: Group use is possible
VALUE FOR MONEY: ★★★

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MISCELLANEOUS PROGRAM: Home Finance
HARDWARE: Model A or B
SUPPLIER: BBC Soft, 35 Marylebone High Street, London W1M 4AA.
PRICE: £10.00
DESCRIPTION OF PROGRAM: This is a suite of four programs written by the Consumers Association (publishers of Which?), designed to help consumers make four specific kinds of decision about heating, renting/buying, borrowing and saving. All of the programs worked fully and did what they are supposed to. The package came with an essential 36 page booklet which needed to be followed closely to use the programs. This is not the kind of thing that you can jump into – quite a bit of research has to be done to get the necessary data before it is worth running any of the programs. For instance with the heating program you need to find out (i) the fuel you use to heat your house, (ii) the type of heating system you use, (iii) the price of a specified unit of fuel, (iv) the temperature you try to keep your home, (v) what area you live in, (vi) the area of your outside walls, (vii) what your outside walls are made of, (viii) the area of your windows, (ix) whether you have double glazing, (x) the area of your ceiling, (xi) the kind of roof you have and how it is insulated, (xii) the floor area, (xiii) the type of floor you have and finally (xiv) the volume of your house. The answers in the program seemed to tally but presentation could have been improved. Although the program is designed to run in MODE 7, utilising features such as coloured backgrounds and double height, there is no MODE 7 command anywhere in the program, meaning that if you are in a different mode when you load the program, the screen display will look odd. The program is the kind if thing that you could use very rarely and so am not too sure that it is worth £10. However if you use the program wisely and interpret the results correctly, you could easily recoup the cost many times over.
PRESENTATION: ★★
USEFULNESS: ★★★
LOADING PROBLEMS: no
VALUE FOR MONEY: ★★★

GAME PROGRAM: Space Kingdom
HARDWARE: Model B
SUPPLIER: Software for All, 72 North Street, Romford, Essex.
PRICE: £6.95
DESCRIPTION OF PROGRAM: I must admit that I quite like this game. There are no real instructions to the program apart from a few words by the BASIC loader. When the game is eventually loaded, you get a B&W picture showing you a planet (Sol – Us) on which you are currently in orbit around. Various information is shown on the screen including the current stardate and a list of the 7 functions you can carry out by pressing f0-f6. The game is very much trial and error in the first place to understand how things are meant to work but after a while, you can have a really good game trying to take over planets! The idea is to have control over the entire universe by a set stardate – no mean feat! An enjoyable game once you have the hang of it and one that I have spent many hours on. Some people might find the game rather too slow – you should consider this more of a strategy game than anything.
PRESENTATION: ★★★
USE OF GRAPHICS: ★★★
ADDICTIVE QUALITY: ★★★
LOADING PROBLEMS: No
VALUE FOR MONEY: ★★★

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CHILDRENS PROGRAM: A First Book Of Micro Rhymes
HARDWARE: Model A or B
SUPPLIER: Peter Gordon, 20 Despard Road, London, N19 5NW.
PRICE: £4.95
DESCRIPTION OF PROGRAM: Fed up with the kids screaming while you're trying to get on with something? Why not employ your £300/£400 computer to do something useful – keep them quiet! If you have children less than 6 years old, this program should do the job for you quite easily. The program shows five traditional nursery rhymes (Hickory, Dickory, Dock/See-Saw Majory Daw/Humpty Dumpty/Jack & Jill/Little Miss Muffet) in animated graphics (teletext), words and tunes. Each rhyme loads in separately. As soon as it is loaded, the title appears on the screen followed by ARE YOU SITTING COMFORTABLY (Y/N) and will wait patiently until Y is pressed. THEN I'LL BEGIN is printed predictably on the screen followed by the animated rhyme before your eyes with full sound. You can either see the rhyme again or go to the next one. To keep the childs interest during the loading procedure, a different picture is shown each time whilst getting the next one ready. A very good program, well worth buying if you have young children to amuse. RECOMMENDED.
PRESENTATION: ★★★
FOR AGES: 1-6
USE OF GRAPHICS: ★★★★★
ADDICTIVE QUALITY: ★★★★
LOADING PROBLEMS: No
VALUE FOR MONEY: ★★★★★

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GAME PROGRAM: F For Freddie
HARDWARE: Model B
SUPPLIER: Kansas City Systems, Unit 3, Sutton Springs Wood, Chesterfield, S44 5XF.
PRICE: £9.50
DESCRIPTION OF PROGRAM: Last month we were asked to review another program from this company, Microtype, by a member who felt very strongly that it didn't do what it was meant to. This month another member, Peter Guest, has asked us to look at a program he bought, F For Freddie (a flight simulator), for the same reason. The main thing you should note when purchasing this program is that F For Freddie IS NOT a graphical flight simulation – it deals purely with the gauges, etc. in an aircraft. The program works in MODE7 and has 36 (!) different control keys. You are given very few instructions on how to fly the plane (a Tristar) and are left to figure most things out for yourself. Simply mastering taking off takes a while. In reviewing this, we got as far as landing but unfortunately crashed each time (the plane crashed – not the program I should say). The program does work but will not really come up to most peoples idea of a flight simulator. To be fair to Kansas, no where do they say that it is graphical – people will unfortunately read this into the description. The advert however does warn you of this. However, even so most people will expect more for their money I fear. A program more for the patient than arcade buff.
PRESENTATION: ★★★
SKILL REQUIRED: ★★★★
ADDICTIVE QUALITY: ★★
LOADING PROBLEMS: No
VALUE FOR MONEY: ★★

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ARCADE GAME PROGRAM: Rocket Raid
HARDWARE: Model B + optional joystick
SUPPLIER: Acornsoft Ltd., 4a Market Hill, Cambridge, CB2 3NJ.
PRICE: £9.95
DESCRIPTION OF PROGRAM: Another winner by Acornsoft. The game is based on Scramble/Atlantis,the idea to navigate your way through a series of caverns whilst rockets shoot up at you and various objects appear in your way (not all of which can be destroyed) remembering to destroy fuel dumps to replenish your own supplies. Further on in the game you move onto things such as skyscrapers and the maze. A fast action game but one that is not perfect. The sideways scroll is sometimes less than steady and the use of joysticks can slow the game down considerably, particularly if you are fast on the fire button. Another one for all arcade buffs. The highest known score on this game is 135 000 (see Arcade Game High Scores elsewhere in this issue). RECOMMENDED.
PRESENTATION: ★★★★
USE OF GRAPHICS: ★★★★
ADDICTIVE QUALITY: ★★★★
LOADING PROBLEMS: No
VALUE FOR MONEY: ★★★★

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MISCELLANEOUS PROGRAM: Viewtext
HARDWARE: Model A or B
SUPPLIER: IT Services, 27 Waterford Park, Radstock, Avon, BA3 3TS.
PRICE: £9.95
DESCRIPTION OF PROGRAM: You must all have seen some kind of teletext service i.e. Ceefax, Oracle, Prestel even if it's only been whilst walking past a TV rental company in the high street. This program will allow you to set up your own mini-version. If you have a Model B you can store 25 pages in memory (9 pages with the Model A). To start off with pages are created using a teletext editor. The one this package uses is a program published in the November '82 Your Computer (the program is used with permission). Once you have created all your pages and saved them onto tape, you go about the process of initialising VIEWTEXT. The program works in several parts, each part being loaded in using the function keys. To start the loading process you have to enter *RUN which sets the function keys up. Pressing f0 loads in the initial program. You are prompted to press f1 to load in the first part. Once this is in, you can (i) define the name of your "service" i.e. VIEWTEXT, (ii) specify how many pages you will have, (iii) how long each page is to be on screen and (iv) the colours for the top line display. Once all this is sorted out, you can load in the pages created earlier. After they are all loaded in, the second part of the main program can be entered by pressing f2. This will initialise the calendar and clock – the calendar if accurate to 2100 AD and the clock for 3 months continuous use. Finally, pressing f3 loads in the final program and starts the "service" operating. The commands are straight forward – you can go forward/backward one page, increase/decrease the clock, return to the index page (100), hold a page or "reveal". The method of loading may seem strange and takes a little getting used to but is necessary to use as little memory as possible. The program is designed primarily to be watched rather than turning from one page to another such as Ceefax/Oracle/Prestel. Its main use is put over for shops and exhibitors to display details about their products. Other suggested purchasers are offices, agents and schools. As it

stands the program is best as a display media maybe for a shop or exhibitor. For this it is ideal. It also might be of interest to home users for the fun of it. The teletext editor by itself is worth having. For a real Ceefax/Oracle/Prestel service, an additional facility would have to be built in – that of being able to jump to a specific page. Despite this, it's still a good buy. RECOMMENDED.
PRESENTATION: ★★★
USEFULNESS: ★★★★
LOADING PROBLEMS: No
VALUE FOR MONEY: ★★★

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GAME PROGRAM: Hyperdrive
HARDWARE: Model B
SUPPLIER: IJK Software Ltd., 9 King Street, Blackpool, Lancs.
PRICE: £6.50
DESCRIPTION OF PROGRAM: You have to guide your spacecraft around a maze, trying to destroy the enemy drone ships. If you take too long, Evil Otto comes out looking for you – he can get you but you can't shoot him! This is potentially a good game but an awkward arrangement of keys (SX (Up/Down))/Cursor left/right (Left/Right) A(fire) degrades it considerably. Another potentially good game that could have done with a little more thinking about.
PRESENTATION: ★★★
USE OF GRAPHICS: ★★★
ADDICTIVE QUALITY: ★★★
LOADING PROBLEMS: No
VALUE FOR MONEY: ★★★

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BUSINESS PROGRAM: Cashbook
HARDWARE: Model B + Printer
SUPPLIER: Micro-Aid, 25 Fore Street, Praze, Camborne, Cornwall, TR14 0JX.
PRICE: £5.95
DESCRIPTION OF PROGRAM: This program is designed to give you a double entry cashbook. It is all operated from a menu giving load/save records, add/delete records, list/calculate record and end. Also on the menu is a note of how many files you have so far and how much free memory is left. There are 50 sample records on the other side of the cassette to demonstrate the program and allow you to experiment. To add your own file the first thing you have to enter is the date. The program only allows 5 characters to be entered and so 15/10/82 is impossible, having to be replaced by 15/10. Next a description of the item follows which can be up to 8 characters long. After this are the actual amounts. The only editing that can be done to records is to delete unwanted ones – it is impossible to alter individual figures held within the records. The records can be listed on the screen although if you have more than a couple, they all flash past requiring the use of SHIFT-CTRL to halt their movement. Finally, you can print the information out – a sample (taken from the tape) looks like:

Micro-Aid CASH BOOK

PAGE 1			RECEIPTS		PAYMENTS	
			CASH	BANK	CASH	BANK
1	4.1	100 0157 TULL	5.90			
2	4.1	110 0177 UNIV OF SURREY	19.50			
3	4.1	001 BANKING		53.75	53.75	
4	5.1	100 0158 BERNSTEIN	11.90			
5	5.1	100 0159	2.95			
6	6.1	110 0178 WATTERSON	28.35			
7	6.1	100 0160 WHITFORD	4.95			
8	6.1	100 0161 CANTRILL	12.90			
9	6.1	100 0162 ROSENTHAL	4.95			
10	6.1	100 0163 GROWTH TANK	17.85			
11	6.1	100 0164 TURNER	4.95			
12	7.1	100 0165 NOAR	7.95			
13	7.1	100 0166 MACLEOD	2.95			
14	7.1	100 0167 MOBBS	17.85			
15	7.1	100 0168 SALMON	5.90			
16	7.1	100 0169 MOORE	5.90			
			154.75	53.75	53.75	0.00
		BALANCE C/D	101.00	53.75		

The program did work but lacked a little presentation and facilities. A proper DD/MM/YY date would have been better, as would improved editing capabilities. The use of a paged screen should have been used for the listing. When printing out the data, the program uses the BBC Micro's own pound sign (ASCII 96) whereas most printers treat the hash (SHIFT-3) as the pound. A reasonable program, but one that could do with a little further development.
PRESENTATION: ★★
USEFULNESS: ★★
LOADING PROBLEMS: No
VALUE FOR MONEY: ★★

We would like to thank Micro-Aid, Level 9 Computing, Chalksoft, BBC Soft, Software for All, Peter Gordon, Acornsoft Ltd., IT Services and IJK Software for supplying us with review tapes. The Kansas program was supplied to us by Peter Guest. All the programs above will work on the 1.2 OS.

mactor part II

As promised last month below is the second half of the Mactor (MAChine code tuTOR) program. To refresh your memory MACTOR is designed to be a teaching aid – it is meant for use by someone trying to teach machine code. MACTOR simulates a low level language with its code being neither one nor the other so it provides a good introduction before specialising into say 6502 or Z80 code. After the listing some hints are given along with three short programs you can use.

The full MACTOR program is over 12k long and so requires quite a bit of typing – with this much to do it would be easy to make many mistakes in entering it. MACTOR does work and works extremely well even though I do say so myself and so if you find yourself with errors in the program the fault is more likely to be you rather than us! Because of its length it does require PAGE to be set to &EOO.

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LEVEL 9 COMPUTING
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```
 2000 PRINT'cy$;TAB(13)"CTRL-f0";gr$;"INSERT"
 2010 PRINTcy$;TAB(13)"CTRL-f1";gr$;"DELETE"
 2020 PRINTcy$;TAB(13)"CTRL-f2";gr$;"CHANGE"
 2030 PRINTcy$;TAB(15)"CTRL-f3";gr$;"NEW"
 2040 PRINTcy$;TAB(11)"CTRL-f4";gr$;"ABORT EDIT"
 2050 REPEATfn$=GET$
 2060   UNTILfn$=CHR$144ORfn$=CHR$145ORfn$=CHR$146ORfn$
=CHR$147ORfn$=CHR$148
 2070 fn%=ASC(fn$)-143
 2080 ONfn%GOTO2090,2100,2110,2120,2130
 2090 PROCinsert:ENDPROC
 2100 PROCdelete:ENDPROC
 2110 PROCchange:ENDPROC
 2120 PROCnew:ENDPROC
 2130 ENDPROC
 2140 :
 2150 DEFPROCinsert
 2160 PROCtop
 2170 PRINTst$;"    STATUS: Edit Mode - Insert"
 2180 PRINTmg$;"LOCATION:";cy$;
 2190 VDU23,1,1;0;0;0;
 2200 INPUT""pointer%
 2210 VDU23,1,0;0;0;0;
 2220 IFpointer%<0ORpointer%>1024THENPRINTer$;"ERROR: S
yntax error in last line -"'er$;"       Please re-ente
r...":GOTO2180
 2230 PRINTer$;"      MACTOR: Please wait..."
 2240 FORins%=1024TO(pointer%+1)STEP-1
 2250   instruct$(ins%)=instruct$(ins%-1)
 2260   loc%(ins%)=loc%(ins%-1)
 2270   NEXT
 2280 PRINTCHR$11;SPC(35);CHR$13;mg$;"COMMAND:";cy$;
 2290 VDU23,1,1;0;0;0;
 2300 INPUT""instruction$
 2310 VDU23,1,0;0;0;0;
 2320 instruct$(pointer%)=LEFT$(instruction$,3)
 2330 loc%(pointer%)=VAL(RIGHT$(instruction$,LEN(instru
ction$)-3))
 2340 PROCerror
 2350 IFerr%<>0THENPRINTer$;"ERROR: Syntax error in las
t line -"'er$;"       Please re-enter...":GOTO2280
 2360 ENDPROC
 2370 :
 2380 DEFPROCdelete
 2390 PROCtop
 2400 PRINTst$;"    STATUS: Edit Mode - Delete"
 2410 PRINTmg$;"LOCATION:";cy$;
 2420 VDU23,1,1;0;0;0;
 2430 INPUT""pointer%
 2440 VDU23,1,0;0;0;0;
 2450 IFpointer%<0ORpointer%>1024THENPRINTer$;"ERROR: S
yntax error in last line -"'er$;"       Please re-ente
r...":GOTO2410
 2460 PRINTer$;"      MACTOR: Please wait..."
 2470 FORdel%=pointer%TO1023
 2480   instruct$(del%)=instruct$(del%+1)
 2490   loc%(del%)=loc%(del%+1)
 2500   NEXT
 2510 ENDPROC
 2520 DEFPROCchange
 2530 PROCtop
 2540 PRINTst$;"    STATUS: Edit Mode - Change"
 2550 PRINTmg$;"LOCATION:";cy$;
 2560 VDU23,1,1;0;0;0;
 2570 INPUT""pointer%
 2580 VDU23,1,0;0;0;0;
 2590 IFpointer%<0ORpointer%>1024THENPRINTer$;"ERROR: S
yntax error in last line -"'er$;"       Please re-ente
r...":GOTO2550
 2600 PRINTmg$;"COMMAND:";cy$;
 2610 VDU23,1,1;0;0;0;
 2620 INPUT""instruction$
 2630 VDU23,1,0;0;0;0;
 2640 instruct$(pointer%)=LEFT$(instruction$,3)
 2650 loc%(pointer%)=VAL(RIGHT$(instruction$,LEN(instru
ction$)-3))
 2660 PROCerror
 2670 IFerr%<>0THENPRINTer$;"ERROR: Syntax error in las
t line -"'er$;"       Please re-enter...":GOTO2600
 2680 ENDPROC
 2690 :
 2700 DEFPROCnew
 2710 PROCtop
 2720 PRINTst$;"      STATUS: Edit Mode - New"
 2730 PRINT'er$;" MACTOR: Confirm (Y) Or Cancel (N)"
 2740 REPEATcom$=GET$:UNTILcom$="Y"ORcom$="N"
 2750 IFcom$="N"THENENDPROC
 2760 PRINT'er$;"      MACTOR: Please wait..."
 2770 FORnew%=0TO1024
 2780   instruct$(new%)=""
 2790   loc%(new%)=0
 2800   NEXT
 2810 ENDPROC
 2820 :
 2830 DEFPROCcompile
 2840 PROCtop
 2850 PRINTst$;"       STATUS: Compile Mode"
 2860 IFcompile%=TRUE THENPRINT'er$;"  ERROR: Program A
lready Compiled"'er$;"            Press SPACE":REPEATUN
TILGET$=" ":ENDPROC
 2870 PRINT'er$;" MACTOR: Confirm (Y) Or Cancel (N)"
 2880 REPEATcom$=GET$:UNTILcom$="Y"ORcom$="N"
 2890 IFcom$="N"THENENDPROC
 2900 compile%=TRUE
 2910 PRINT'er$;"      MACTOR: Please wait..."
 2920 FORcom%=0TO1024
 2930   IFinstruct$(com%)=""THENcompile%(com%)=20:GOTO3
130
 2940   IFinstruct$(com%)="LAN"THENcompile%(com%)=1:GOT
03130
 2950   IFinstruct$(com%)="LAM"THENcompile%(com%)=2:GOT
03130
 2960   IFinstruct$(com%)="SAM"THENcompile%(com%)=3:GOT
03130
 2970   IFinstruct$(com%)="AMA"THENcompile%(com%)=4:GOT
03130
 2980   IFinstruct$(com%)="SMA"THENcompile%(com%)=5:GOT
03130
 2990   IFinstruct$(com%)="AND"THENcompile%(com%)=6:GOT
03130
```

```
 3000   IFinstruct$(com%)="ORA"THENcompile%(com%)=7:GOT
03130
 3010   IFinstruct$(com%)="NOT"THENcompile%(com%)=8:GOT
03130
 3020   IFinstruct$(com%)="INC"THENcompile%(com%)=9:GOT
03130
 3030   IFinstruct$(com%)="DEC"THENcompile%(com%)=10:GO
TO3130
 3040   IFinstruct$(com%)="SKG"THENcompile%(com%)=11:GO
TO3130
 3050   IFinstruct$(com%)="SKL"THENcompile%(com%)=12:GO
TO3130
 3060   IFinstruct$(com%)="SKZ"THENcompile%(com%)=13:GO
TO3130
 3070   IFinstruct$(com%)="LAK"THENcompile%(com%)=14:GO
TO3130
 3080   IFinstruct$(com%)="LSA"THENcompile%(com%)=15:GO
TO3130
 3090   IFinstruct$(com%)="LBL"THENcompile%(com%)=17:lb
l%(loc%(com%))=com%:GOTO3130
 3100   IFinstruct$(com%)="JMP"THENcompile%(com%)=18:GO
TO3130
 3110   IFinstruct$(com%)="PRA"THENcompile%(com%)=16:GO
TO3130
 3120   IFinstruct$(com%)="END"THENcompile%(com%)=19:GO
TO3130
 3130   instruct$(com%)="":NEXT
 3140 ENDPROC
 3150 :
 3160 DEFPROCrun
 3170 PROCtop
 3180 PRINTst$;"          STATUS: Run Mode"
 3190 IFcompile%=FALSE THENPRINT'er$;"    ERROR: Progra
m Not Compiled"'er$;"            Press SPACE":REPEATUNT
ILGET$=" ":ENDPROC
 3200 pointer%=0:quit%=FALSE
 3210 ONcompile%(pointer%)GOSUB3230,3240,3250,3260,3270
,3280,3290,3300,3310,3320,3330,3350,3370,3390,3410,3420
,3430,3440,3450,3460
 3220 IFquit%=FALSE THEN3210:ELSEPRINT'er$;"MACTOR: End
 Of Mode - Press SPACE":REPEATUNTILGET$=" ":ENDPROC
 3230 acc%=loc%(pointer%):pointer%=pointer%+1:RETURN
 3240 acc%=mem%(loc%(pointer%)):pointer%=pointer%+1:RET
URN
 3250 mem%(loc%(pointer%))=acc%:pointer%=pointer%+1:RET
URN
 3260 acc%=acc%+mem%(loc%(pointer%)):pointer%=pointer%+
1:RETURN
 3270 acc%=acc%-mem%(loc%(pointer%)):pointer%=pointer%+
1:RETURN
 3280 acc%=acc%ANDmem%(loc%(pointer%)):pointer%=pointer
%+1:RETURN
 3290 acc%=acc%ORmem%(loc%(pointer%)):pointer%=pointer%
+1:RETURN
 3300 acc%=NOTacc%:pointer%=pointer%+1:RETURN
 3310 mem%(loc%(pointer%))=mem%(loc%(pointer%))+1:point
er%=pointer%+1:RETURN
 3320 mem%(loc%(pointer%))=mem%(loc%(pointer%))-1:point
er%=pointer%+1:RETURN
 3330 IFmem%(loc%(pointer%))>acc%THENpointer%=pointer%+
2:ELSEpointer%=pointer%+1
 3340 RETURN
 3350 IFmem%(loc%(pointer%))<acc%THENpointer%=pointer%+
2:ELSEpointer%=pointer%+1
 3360 RETURN
 3370 IFmem%(loc%(pointer%))=0THENpointer%=pointer%+2:E
LSEpointer%=pointer%+1
 3380 RETURN
 3390 *FX15,1
 3400 acc%=GET:pointer%=pointer%+1:RETURN
 3410 VDUacc%:pointer%=pointer%+1:RETURN
 3420 PRINTacc%:pointer%=pointer%+1:RETURN
 3430 pointer%=pointer%+1:RETURN
 3440 pointer%=lbl%(loc%(pointer%)):RETURN
 3450 quit%=TRUE:RETURN
 3460 quit%=TRUE:RETURN
 3470 :
 3480 DEFPROCdecompile
 3490 PROCtop
 3500 PRINTst$;"      STATUS: Decompile Mode"
 3510 IFcompile%=FALSE THENPRINT'er$;" ERROR: Program A
lready Decompiled"'er$;"            Press SPACE":REPEAT
UNTILGET$=" ":ENDPROC
 3520 PRINT'er$;" MACTOR: Confirm (Y) Or Cancel (N)"
 3530 REPEATcom$=GET$:UNTILcom$="Y"ORcom$="N"
 3540 IFcom$="N"THENENDPROC
 3550 compile%=FALSE
 3560 PRINT'er$;"      MACTOR: Please wait..."
 3570 FORdec%=0TO1024
 3580   IFcompile%(dec%)=20THENinstruct$(dec%)="":GOTO3
780
 3590   IFcompile%(dec%)=1THENinstruct$(dec%)="LAN":GOT
03780
 3600   IFcompile%(dec%)=2THENinstruct$(dec%)="LAM":GOT
03780
 3610   IFcompile%(dec%)=3THENinstruct$(dec%)="SAM":GOT
03780
 3620   IFcompile%(dec%)=4THENinstruct$(dec%)="AMA":GOT
03780
 3630   IFcompile%(dec%)=5THENinstruct$(dec%)="SMA":GOT
03780
 3640   IFcompile%(dec%)=6THENinstruct$(dec%)="AND":GOT
03780
 3650   IFcompile%(dec%)=7THENinstruct$(dec%)="ORA":GOT
03780
 3660   IFcompile%(dec%)=8THENinstruct$(dec%)="NOT":GOT
03780
 3670   IFcompile%(dec%)=9THENinstruct$(dec%)="INC":GOT
03780
 3680   IFcompile%(dec%)=10THENinstruct$(dec%)="DEC":GO
TO3780
 3690   IFcompile%(dec%)=11THENinstruct$(dec%)="SKG":GO
TO3780
 3700   IFcompile%(dec%)=12THENinstruct$(dec%)="SKL":GO
TO3780
 3710   IFcompile%(dec%)=13THENinstruct$(dec%)="SKZ":GO
TO3780
 3720   IFcompile%(dec%)=14THENinstruct$(dec%)="LAK":GO
TO3780
 3730   IFcompile%(dec%)=15THENinstruct$(dec%)="LSA":GO
```

```
TO3780
 3740   IFcompile%(dec%)=16THENinstruct$(dec%)="PRA":GO
TO3780
 3750   IFcompile%(dec%)=17THENinstruct$(dec%)="LBL":GO
TO3780
 3760   IFcompile%(dec%)=18THENinstruct$(dec%)="JMP"
 3770   IFcompile%(dec%)=19THENinstruct$(dec%)="END"
 3780   compile%(dec%)=0:NEXT
 3790 ENDPROC
 3800 :
 3810 DEFPROCsave
 3820 PROCtop
 3830 PRINTst$;"         STATUS: Save Mode"
 3840 IFcompile%=FALSE THENPRINT'er$;"    ERROR: Progra
m Not Compiled"'er$;"              Press SPACE":REPEATUNT
IL6ET$=" ":ENDPROC
 3850 VDU23,1,1;0;0;0;
 3860 PRINTmg$;"FILENAME:";cy$;
 3870 VDU23,1,0;0;0;0;
 3880 INPUT""file$
 3890 IFLEN(file$)=0ORLEN(file$)>10THENPRINTer$;"
ERROR: Illegal Filename"'er$"          Please re-enter":
GOTO3850
 3900 file%=OPENOUT(file$)
 3910 FORsav%=0TO1024
 3920   BPUT£file%,compile%(sav%)
 3930   BPUT£file%,loc%(sav%)
 3940   NEXT
 3950 CLOSE£file%
 3960 ENDPROC
 3970 :
 3980 DEFPROCload
 3990 PROCtop
 4000 PRINTst$;"         STATUS: Load Mode"
 4010 VDU23,1,1;0;0;0;
 4020 PRINTmg$;"FILENAME:";cy$;
 4030 VDU23,1,0;0;0;0;
 4040 INPUT""file$
 4050 IFLEN(file$)>10THENPRINTer$;"      ERROR: Illegal
Filename"'er$"         Please re-enter":GOTO4010
 4060 file%=OPENIN(file$)
 4070 FORloa%=0TO1024
 4080   compile%(loa%)=BGET£file%
 4090   loc%(loa%)=BGET£file%
 4100   NEXT
 4110 CLOSE£file%
 4120 compile%=TRUE
 4130 ENDPROC
 4140 :
 4150 DEFPROChelp
 4160 PRINT'er$;"  FATAL ERROR - Memory Corrupted"
 4170 PRINTer$;"Please Press SPACE to Reboot System"
 4180 REPEATUNTILGET$=" "
 4190 CLEAR:RUN
```

As an example I will go through typing in the following listing:

0 - LAN 1	5 - LAM 0	10 - SAM 1
1 - SAM 0	6 - PRA 0	11 - SKZ 1
2 - LAN 101	7 - INC 0	12 - JMP 0
3 - SAM 9	8 - LAM 0	13 - END 0
4 - LBL 0	9 - SMA 9	

Firstly, press SHIFT-f1 to go into the program mode. Enter the listing above typing in only the commands, not the line numbers. There is no real need to put spaces in between the commands and the values (i.e. LAN1 is all right instead of Lan 1) and if the value if 0, no number has to be entered, RETURN will suffice. Once you have entered all 13 lines press RETURN without entering anything – this will take you back to the menu mode. List the program using SHIFT-f2 to compare it with the program above. Once you are sure it is the same enter SHIFT-f4 to compile the program. Finally, SHIFT-f5 will run the code. The program above will print out the numbers from one to one hundred.

The second program will wait for a keypress (1-9) and then double the number pressed:

0 - LAN 48	4 - SAM 0
1 - SAM 9	5 - AMA 0
2 - LAK 0	6 - PRA 0
3 - SMA 9	7 - END 0

The final program illustrates printing text by putting the word MACTOR on the screen:

0 - LAN 130	6 - LAN 67	12 - LAN 82
1 - LSA 0	7 - LSA 0	13 - LSA 0
2 - LAN 77	8 - LAN 84	14 - END 0
3 - LSA 0	9 - LSA 0	
4 - LAN 65	10 - LAN 79	
5 - LSA 0	11 - LSA 0	

Well, we hope the program is of use. We would be pleased to receive listing of programs written using MACTOR and any suggestions for improvement.

Paul Barbour

assembler prog - BBC micro V

This month I shall consider a few more of the instructions available to the 6502 programmer on the BBC Micro. Most people find that only about twenty mnemonics need to be learnt for the majority of machine code programming, despite the fact that the 6502 has roughly 180 different instructions. To understand why this is, try assembling the following meaningless program.

```
>L.
  10 DIMP%-1
  20 [
  30 LDA#&70
  40 LDA &70
  50 LDA &70,X
  60 LDA (&70,X)
  70 LDA (&70),Y
  80 LDA &7000
  90 LDA &7000,X
 100 LDA &7000,Y
 110 ]
>RUN
1981
1981 A9 70     LDA#&70
1983 A5 70     LDA &70
1985 B5 70     LDA &70,X
1987 A1 70     LDA (&70,X)
1989 B1 70     LDA (&70),Y
198B AD 00 70  LDA &7000
198E BD 00 70  LDA &7000,X
1991 B9 00 70  LDA &7000,Y
```

Despite each line using the "load accumulator" instruction you will see that the hexadecimal machine code listing gives a different opcode byte each time. This is because the assembler looks at both

the operator (in this case LDA) and operand (the rest of the line) before creating any machine code, so this not only tells the processor what to do but also what to do it with. All you need to know are the mnemonics and the different addressing modes available and the assembler will do the rest for you. "Addressing modes" is a jargon phrase for the different ways that you can do whatever you wish to do, in this case load the accumulator with a value. Each opcode byte represents not only an instruction, but also its addressing mode. Often, the best way to find out the different modes available with the different instructions is to try them out but most of the more common operations take all the addressing modes shown above for LDA.

And so to the mnemonics:

LDA: Load the accumulator with a value
STA: Store the accumulator to memory
ADC: Add value to the accumulator
SBC: Subtract value from the accumulator

In fact add and subract instructions are not as simple as they seem since they actually involve a carry bit as well to allow manipulation of numbers longer than a single byte. In this case the carry bit is exactly what it says: a carry from the previous instruction. Of course, if you are going to do a simple addition or subtraction you don't want to include the result of a previous calculation so you must set the carry or clear it as required. You may be able to guess that in preparation for an add you should clear the carry using the CLC instruction, since no result has been carried over. It may be less obvious that before you do a subtraction you should SET the carry bit using SEC. Really this is a "borrow" bit and it is only cleared if the subtraction had to borrow to produce a result, otherwise it remains set.

Try this example of addition:

```
L.
  10 DIM code% 50
  20 FORpass%=0TO3AND3
  30   P%=code%
  40   [OPT pass%
  50   LDA &70
  60   CLC
  70   ADC #10
  80   STA &70
  90   BCC fin
 100   INC &71
 110   .fin:RTS
 120   ]
 130   NEXTpass%
 140 INPUT oprnd%
 150 ?&70=oprnd%AND&FF
 160 ?&71=oprnd%DIV&100
 170 CALLcode%
 180 PRINT?&70+&100*?&71
>RUN
19EE          OPT pass%
19EE A5 70    LDA &70
19F0 18       CLC
19F1 69 0A    ADC #10
19F3 85 70    STA &70
19F5 90 02    BCC fin
19F7 E6 71    INC &71
19F9          .fin
19F9 60       RTS
19EE          OPT pass%
19EE A5 70    LDA &70
19F0 18       CLC
19F1 69 0A    ADC #10
19F3 85 70    STA &70
19F5 90 02    BCC fin
19F7 E6 71    INC &71
19F9          .fin
19F9 60       RTS
?290
        300
>
```

On running this you should find the result is the same as in the first example but the program is shorter (like me, you can probably see that the second BASIC program is longer than the first and so are probably wondering what Nick is talking about? The machine code produced by the first program is 13 bytes long (&1A54–&1A47) whereas the second is only 11 (&19F9–&19EE) so he is really right! – Ed.) This is made possible by the fact that the carry bit is part of the condition code register and therefore it can be tested and acted on by the BBC instruction instead of being used in the ADC instruction. If the result is greater than 255 only the lower eight bits will be stored but the overflow will set the carry bit. If this occurs then the top byte needs to have this carry added in using the INC instruction, if there was no carry then the addition is complete without this.

As an excerise try using the ADC instruction to alter the values stored on a MODE 7 screen using the ( ),Y addressing mode.

Nick Goodwin

```
L.
  10 DIM P% 50
  20 [.code%
  30 LDA &70 \ Get operand byte
  40 CLC     \ Ready for addition
  50 ADC #10 \ Add 10 to it
  60 STA &70 \ And store it away
  70 LDA &71 \ Now the nigh byte
  80 ADC #0  \ Add in the carry
  90 STA &71 \ And store it away
 100 RTS
 110 ]
 120 INPUT oprnd%
 130 ?&70=oprnd%AND&FF
 140 ?&71=oprnd%DIV&100
 150 CALLcode%
 160 PRINT?&70+&100*?&71
>RUN
1A47          .code%
1A47 A5 70    LDA &70 \ Get operand byte
1A49 18       CLC     \ Ready for addition
1A4A 69 0A    ADC #10 \ Add 10 to it
1A4C 85 70    STA &70 \ And store it away
1A4E A5 71    LDA &71 \ Now the high byte
1A50 69 00    ADC #0  \ Add in the carry
1A52 85 71    STA &71 \ And store it away
1A54 60       RTS
?290
        300
>
```

It should add 10 to the number you input and print out the result. Now try altering the program by replacing the assembler section to produce:

diskspot

There have been several programs floating around for relocating programs for use on disks. That is fine but all of the programs I have seen to date only deal with pure BASIC programs that load in just one stage. Most of the decent programs are machine code for starters and some load in two or three parts with one part being BASIC and the others machine code. So really there is not one program or one method anybody can use to save all tape based programs onto disk. For this reason this article is written in several parts to help yo re-save the kind of program you have in front of you.

The first thing to do is to establish a few facts about the program you want to re-save onto disk. Firstly you must load it in using tape and check to see if it does work on the new operating system. If it doesn't there is nothing you can do apart from go back to the company that produced the program and see if they have a version for the new operating system and run an exchange deal. Most reputable companies (i.e. IJK Software Ltd.) will do this (*see Issue 9/February'83, page 21*). About the only software house's programs that you can guarantee working on the new operating system is Acornsoft.

When you have checked that the program works decide what type it is and follow the instructions below:

(i) A SINGLE BASIC PROGRAM THAT WORKS FINE WITH PAGE LEFT AT &1900

1. Enter *TAPE
2. Load the program in using LOAD"<filename>"

3. Enter *DISK
4. Place a disk in the drive
5. Re-save the program using SAVE"<filename>" (note that although tape filenames may have 10 characters, disk filenames can only have 7 so you might have to shorten the program name)
6. Do a *CAT to check the program was recorded
7. If the program doesn't work correctly carry out steps 1 and 2 again. Check that the length of the program (which should be displayed on the screen) is the same as PRINT(TOP-PAGE). If it isn't then the program you thought was BASIC (because you loaded it in using LOAD/CHAIN) is in fact partially machine code or special data. If this is the case then go through the process for re-saving machine code programs (ii).
9. Protect the program from accidental erasure by entering *ACCESS <filename> L

(ii) A SINGLE MACHINE CODE PROGRAM THAT WORKS FINE WITH PAGE LEFT AT &1900

1. Enter *TAPE
2. Enter *OPT1,2
3. Load in the program using *LOAD"<filename>"
4. Once the program has loaded in there should be many details on the screen in the order <filename> AA BBBB CCCC DDDD EEEE
5. Enter *DISK
6. Place a disk in the drive
7. To re-save the program you must use *SAVE"<filename>" CCCC+BBBB. Remember the filename can only be 7 characters long.
8. Do a *CAT to check the program has been recorded.
9. *RUN the program to check it works
10. Protech the program from accidental erasure by entering *ACCESS <filename> L

(iii) A SINGLE BASIC PROGRAM THAT REQUIRES PAGE TO BE SET AT &EOO

1. Enter *TAPE
2. Load the program in using LOAD"<filename>"
3. Check whether or not the program is listable. If not you will have to treat it as a BASIC program that loads in two parts. See part (iv)
4. Add the following lines to the program:

```
L.
    0 IFPAGE<>&E00THENGOTO10000
10000 *TAPE
10010 FORX%=0TOTOP-PAGE STEP4:X%!&E00=X%!&1900:NEXT:?&
E04=&F4:PAGE=&E00:RUN
```

This will only increase the program length by 84 bytes – not enough to worry about. Do not run the program at this stage.
5. Enter*DISK
6. Place a disk in the drive
7. Re-Save the program using SAVE"<filename>"
8. Check it recorded using *CAT
9. Re-load it using CHAIN"<filename>". The program will take a second or two more than usual to run.
10. If there is some kind of fault the most probable cause is entering the short program incorrectly. Go back to step 1 and try again in this case
11. Protect the program from accidental erasure by entering *ACCESS <filename> L

(iv) A SINGLE MACHINE CODE PROGRAM THAT REQUIRES PAGE TO BE SET TO &EOO

1. Enter *TAPE
2. Enter *OPT1,2
3. Load the program in using *LOAD"<filename>"1900
4. Once the program has loaded in there should be many details on the screen in the order <filename> AA BBBB CCCC DDDD EEEE
5. Enter *DISK
6. Place a disk in the drive
7. Re-save the program using *SAVE"<filename>"1900+BBBB
8. Type in the following program

```
>L.
   10 *LOAD"<filename>"1900
   20 *TAPE
   30 FORX%=0TO& BBBB STEP4
   40   X%!&E00=X%!&1900
   50   NEXT
   60 CALL& EEEE
```

Obviously the <filename> in line 10 should be replaced by the correct one, the BBBB in line 30 replaced by the value found out earlier as should the EEEE in lilne 60.
9. Save this program using SAVE"<loader>" (you should use your own filename)
10. Enter PRINT~&1900+BBBB where BBBB is the value found earlier. Call this new found hex number FFFF
11. Enter PRINT~((& FFFF DIV256)+1)*256 where FFFFis the number for 10. Call this value GGGG
12. Enter NEW
13. Type in the following program:

```
>L.
   IOPAGE=& GGGG :CHAIN"<loader>"
```

You should replace the GGGG by the value found out at 11.
14. Save this program using SAVE"<prog>" where <prog> is your own filename. If say your program was FROG you might like to call <prog> FROG, <loader> FROG2 and <filename> FROG3 as the programs will be loaded into the computer in the opposite order to which they were created.
15. Enter *CAT to check that all three programs have saved
16. Finally enter CHAIN"<prog>" (note the use of CHAIN, not *RUN even though the original program was machine code)
17. If all the instructions were followed correctly the program should work and so finally protect all three i.e. *ACCESS <prog> L, *ACCESS <loader> prog, *ACCESS <filename> L

(v) A PROGRAM THAT REQUIRES PAGE TO BE SET TO &EOO, LOADS IN SEVERAL PARTS AND CONTAINS A MIXTURE OF BASIC AND MACHINE CODE

Although the other four cases were straightforward, this kind of program quite simply isn't. It is therefore impossible to give you a number of steps to follow guiding you through the whole operation. All you can do is experiment with the program you have in front of you until you have a success. As a "rule of thumb" guide go through the following process to get you started

1. First of all look at all the parts you will have to save and see what parts are necessary and which parts aren't (i.e. a pretty display at the beginning to make the wait for the program to load in from cassette more bearable). Just because one part does make a nice display don't always dismiss it immediately – some loaders contain vital information i.e. defining envelopes or characters.
2. Once you have eliminated any parts that are peripheral for every remaining program find out its filename, its length and in the case of machine code programs the execution address (using *OPT1,2 and looking at the last number)
3. Now you will have to work out a "plan of action". One problem you may have is with filenames – any name longer than seven characters will have to be altered. The principle of re-locating programs is to load them all in at &1900+, re-locate them using a program above the last saved program and then hand control over to either a BASIC program or a machine code one. As an example supposing you had a BASIC program FROGGER which was &347 long and a machine code FROGS which was &259A. The plan might be to load in FROGS at &1900. &1900+&259A leaves you with the next location as &3FOO. FROGGER therefore would be *LOADed at &3FOO. &3FOO+&346 gives the next location as &4400 which is where the downloading program would be.
4. At this point the FROGGER program would be loaded in using *LOAD"FROGGER"3FOO (even though it is BASIC) and re-saved using *SAVE"FROGGER"3FOO+347. FROGS similarly would be loaded using *LOAD"FROGS"1900 and saved using

*SAVE"FROGS"1900+259A.
5. The initial loader (i.e. the first program) would be similar to the one in (iv) part 13 with PAGE set to &4400.
6. The re-locator would have it's first two lines as *LOAD"FROGS"1900 and *LOAD"FROGGER"3FOO. *TAPE would be the next line followed by two FOR . . . TO . . .NEXT loops relocating the programs to the memory locations they are meant to load at.
7. The final line would hand control over to one of the programs. This could be something like PAGE=&3FOO:RUN or perhaps a CALL command

Unfortunately all of the above will not help you in every occasion. The most common program is of the last type and only trial and error will get you a working disk copy. Once in saving a program onto disk I have had to go to the extreme lengths of adding characters to the keyboard buffer via a *FX call to make it work properly but I can honestly say to date I have not met a program that I couldn't re-save onto disk.

The best advice I can offer is keep persevering – all programs can be re-saved if you use the right method. If you have any particular program that seems impossible to use on disk then let us know the details (or even send us a copy of both the program on tape and disk) and we'll see if we can add anything to the details already given.

consumer spot

In last months Consumer Spot we highlighted several complaints with regards to one of the major software houses, Bug-Byte.

Soon after publication (on a Saturday) we had a letter from Dr. Barry Roper which read as follows:

Sirs,

Re: your piece on "Bug Byte" – I am one of those who subscribed to "Beebon" but have received only issues 1 & 2. Numerous letters and 'phone calls to Bug Byte have been ignored.

I ordered, + paid for (by Access) their "Chess" + "Spacewarp" – after 3 months and many ignored letters + phone calls only the threat of legal action by me and investigation of the matter by ACCESS produced the goods.

Now I find that neither will run on my 1.2 OS and I'm back to square one – BUG BYTE IGNORE ALL LETTERS & 'PHONE CALLS. These people are either knaves or fools; FELLOW MEMBERS MUST BE WARNED.

On the next working day we have a phone call from a Ms. Barbara Smathen of Bug Byte.

With regards to John Shaw mentioned in the article, one problem he could have had we were told is that CHESS only works on the 0.1 OS. If you have a 1.2 (or 1.0/1.1) then the program will just not operate. This program will be phased out of circulation and all the new programs produced by Bug Byte will be compatible with the 1.2. Bug Byte agreed however that John Shaw had suffered enough already and is prepared to give him a full refund. He should not have needed to incur any postage rates as Bug Byte have a FREEPOST address it seems.

Next – the infamous Beebon. We were told that the Beebon was to be replaced by the new style Beebon which was the preliminary title given to BBC Micro User which in turn has become The Micro User. Everybody who paid for a subscription to the original Bug Byte Beebon should have been passed on to Database Publications and had received the remainder of their subscription with the new magazine. As far as we know (and please write in if you know differently) nobody has received copies of The Micro User instead of the Beebon. When questioned on this, we were told that it was possible that some names did not get on the new list and if anybody wrote in to Bug Byte they would receive a full refund of £3.75.

Dr. Barry Roper's extraordinary long wait was brushed off as his order getting mislaid?

We are not 100% happy with Bug Byte's response – they said that they would give a refund to people that had paid for the Beebon but look at Dr. Roper's letter "Bug Byte ignore all letters and phone calls". Also, programs that people buy "for the BBC Micro" should run on a BBC Micro no matter what operating system you have. If the programs are dependent on one or the other this should be stated clearly. Anyway, we will hold them to what they said. If anybody ordered the Beebon and only got part of their subscription please either write to Barbara Smathen at Bug Byte and ask for refund quoting this article in LASERBUG or, if your dealings with Bug Byte in the past has led you to worry whether or not the letter will be answered, send the complaints to us and we'll pass them on. If anybody still does not get a satisfactory reply or has other complaints against Bug Byte please let us know.

The idea of Consumer Spot is to protect you, the individual, against any company that you may have had a raw deal from be it a dealer, software house or anybody. If you have any problems that you think Consumer Spot could solve please send full details to the normal LASERBUG address, marking the envelope Consumer Spot.

sound review

A new article name – sound review. We will be reviewing two sound related devices designed for the BBC Micro this month. One provides a volume control and output via a five-pin DIN socket to a cassette recorder/external amplifer and the other provides two external sepakers or facilities for headphones, a cassette recorder/ external amplifer if you have some suitable leads. Neither device requires soldering or drilling to fit although both require you to remove the case and free the keyboard

PRODUCT: BBC Sound Lead
SUPPLIER: South Coast Communications Ltd., Computer Department, 23 Sandy Close, Petersfield, Hants., GU31 4HF.
COST: £6.95 (inclusive of P&P and VAT)

The fitting instructions for this device came on a small A5 sheet. They are rather brief when you consider what you have to do but a bit of commonsense should see you safely through the operation. Basically to fit this device you must first remove the cover, then take off the three bolts holding on the keyboard (not 2 as the fitting instructions said) and move this forward so you have access to PL16 which is the point from where the sound comes. Already attached to this is the speaker plug. You have to detach this (just by pulling upwards gently) and in its place plug in connector from the sound lead. Next, the speaker plug is also connected to the lead. The volume control is then brought out the back of the computer and held on by a washer and nut arrangement. The DIN socket of a cable is pulled out of the Econet socket and finally the computer is fitted back together. In fitting the device it was found that the volume control did not fit easily within the case and in the end the contracts had to be bent down to enable us to refit the cover.

If you enter SOUND1,-15,100,255 you get the same tone as used by the bell (CTRL-G/VDU7) except it sounds continuously. By altering the volume know it was possible to turn the sound down or off altogether. If you find your computer too loud then this might be handy but most people find the BBC Micro's sound output rather quiet. Nevertheless, if you are trying to use a computer in a classroom, a volume control might be a handy feature (see the next review for an internal volume control that all BBC Micro's have!). The other part of the lead is the 5 pin DIN socket. This hangs rather loosely outside the machine but is easily attached to your equipment. Via the socket you can connect the BBC Micro's sound output to a cassette recorder and save pieces of music for later playback. Alternatively, you could connect it up to an external amplifer/ speakers for a really powerful sound.

This lead did work but we were less than happy with the stability of the system. The volume control was hard to fit inside the computer and still have the cover on. The way the socket hangs loosely out of the computer means the lead is not suitable for anywhere with prying fingers attcking you from all sides, i.e. in a school. If however it's just for your own, personal use then you might well be interested.

PRODUCT: Microvoc

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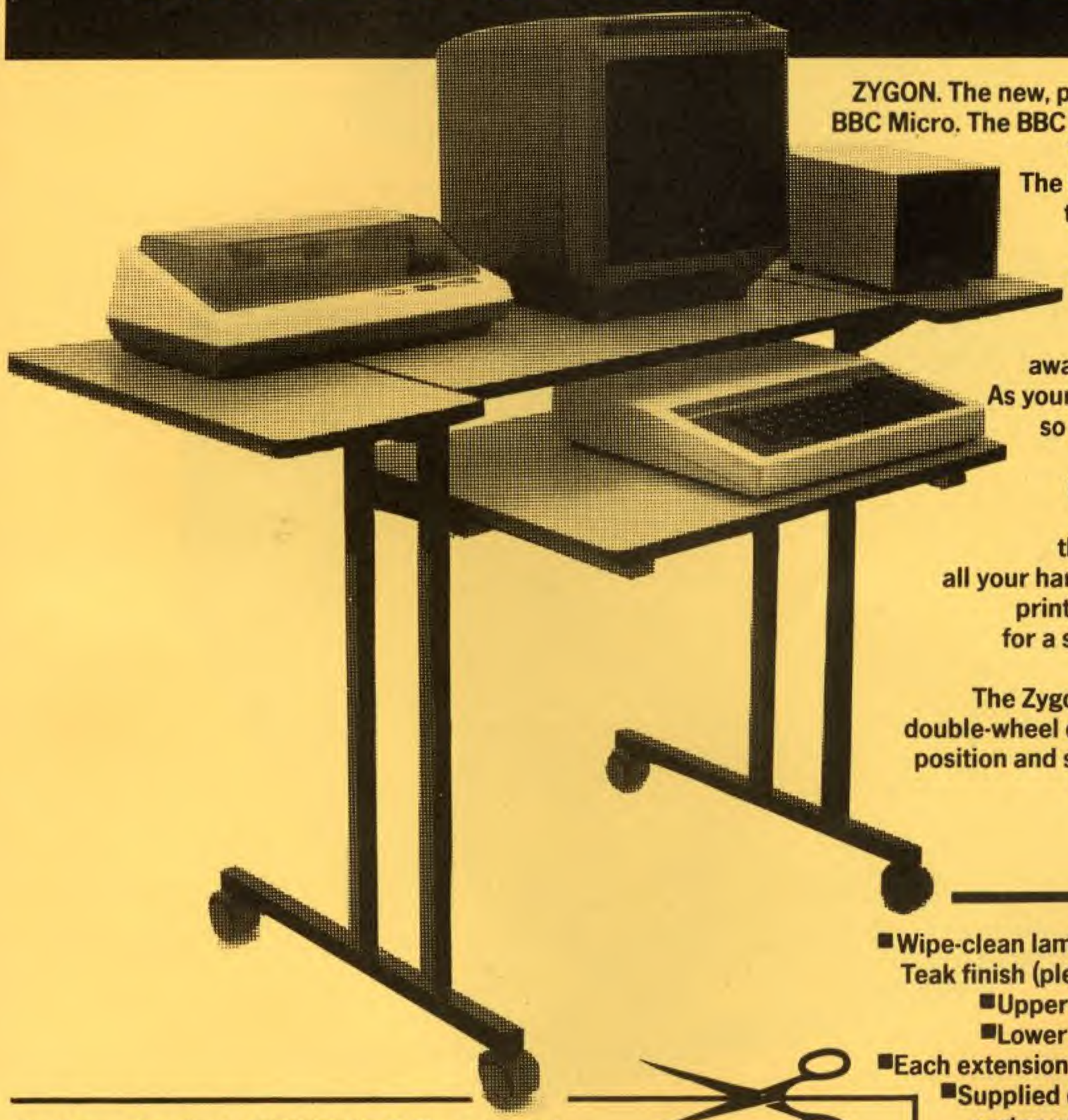

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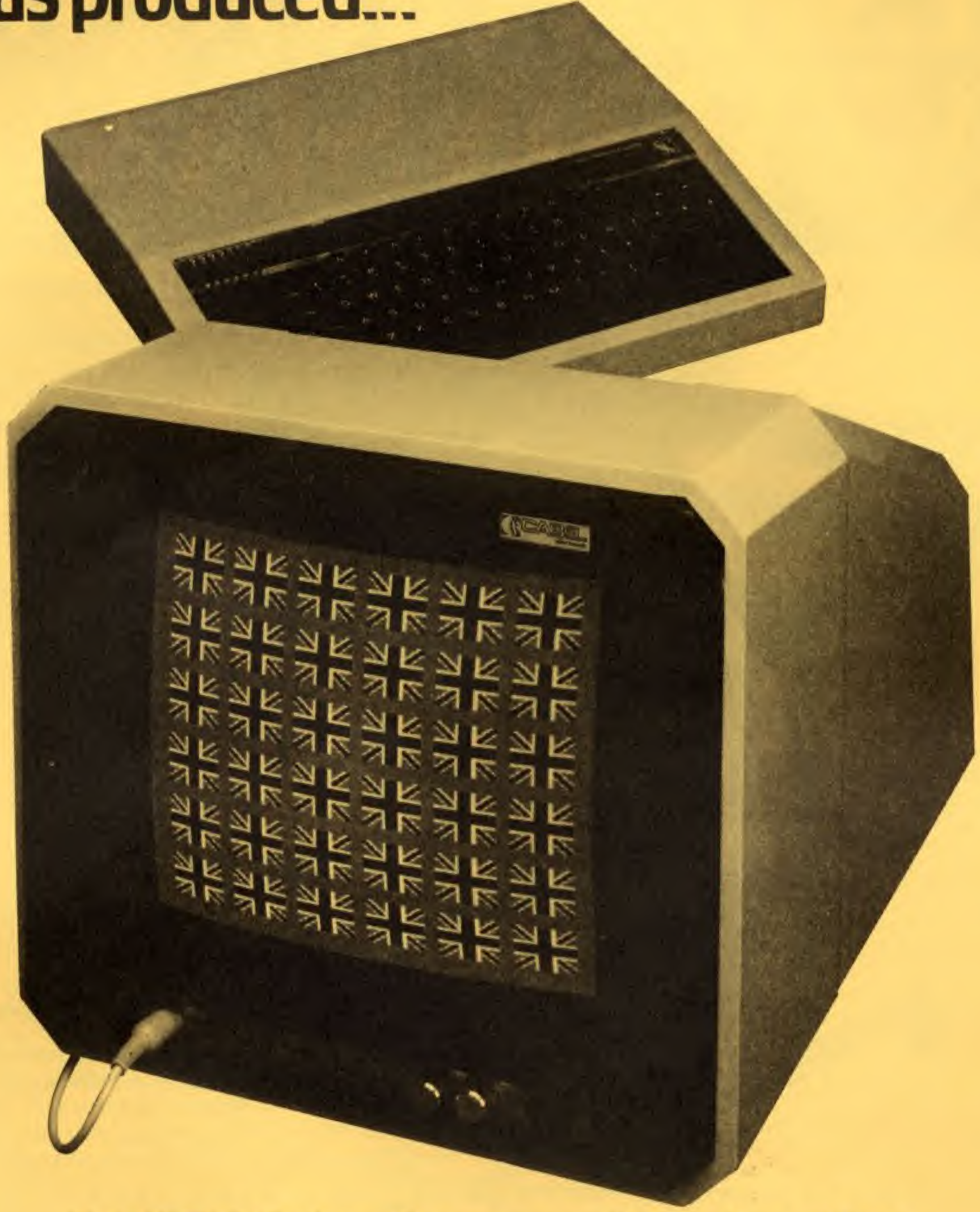

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SOFTWARE SEARCH

Have you written a REALLY good program lately? If so what are you going to do with it. Nothing? Send it to a magazine for maybe £10 or £20? Attempt to sell it yourself with all the risks that involves? Enter it in the LASERBUG Software Search competition and possibly win an RGB Monitor? If you've any sense then there is only one answer!

Quite simply, LASERBUG is searching for some good software – the kind that you don't run once and then discard but keep using over and over again. We would like to see all kinds of programs – games, educational, business and utilities. The programs will be judged on their individual merits and the winner will receive an RGB Monitor donated by Cabel Electronics. There will be one monitor to win each month for the next 12 issues.
programs will be judged on their individual merits and the winner will receive a combined TV/RGB Monitor donated by Cabel Electronics. There will be one monitor to win each month for the next 12 issues.

Programs may be sent either on cassette or disk. If on cassette, please supply a copy at both 300 and 1200 baud. For disks, we will accept both 40 and 80 tracks on either single or double sided disks. Please do not send us your only copy of the program as we will not be able to return any. Make sure your name and address is on the cassette/disk and any accompanying documentation. Employees/relations of employees of either LASERBUG or Cable Electronics are not eligible for entry in this competition, as are non-members of LASERBUG. There is no cash alternative for the prize. The closing date for Software Search 1 is the last working day in July. The winner will be notified by post and their program may be printed in LASERBUG, included in a Software Library or perhaps both. In both events the author will be acknowledged but no further payment made. The program must be the authors own, unaided work and should not have been submitted elsewhere. Judging will be carried out by the LASERBUG editor and the editor's decision is final. No correspondence will be entered into with regards these rules.

SOFTWARE SEARCH 1 ENTRY FORM

I enclose a program for entry to the LASERBUG Software Search competition, the details of which are:

PROGRAM NAME ..... REQUIREMENTS .....

PROGRAM TYPE
- ☐ GAME
- ☐ EDUCATION
- ☐ BUSINESS
- ☐ UTILITY
- ☐ OTHER (*please specify*)

.....

MEDIA
- ☐ CASSETTE
- ☐ 40 TRACK DISK
- ☐ 80 TRACK DISK

PROGRAMMERS NAME ..... MEMBERSHIP NUMBER .....

ADDRESS .....

.....

I am a member of LASERBUG. The program I have submitted to this competition is my own, unaided work and has not been sent to any other organisation. I understand that if I win this competition I will receive an RGB Monitor in exchange for full rights to the program. My program in turn may be printed in LASERBUG or included as part of a software library. In either case I will be acknowledged but not receive any further payment. I accept the rules laid down in this competition and agree that the editor's decision in judging the winner is final.

SIGNED ..... DATE .....

- ☐ If I do not win Software Search 1, I would like my program to be entered for Software Search 2, 3, etc.
- ☐ If I do not win Software Search 1, I wish my program to be withdrawn from the competition.

THE FINAL CLOSING DATE FOR SOFTWARE SEARCH 1 IS THE LAST WORKING DAY IN JULY

You may enter more than one program in the competition but each entry must be accompanied by a copy of this form. Your entry is not valid unless it is signed and your membership number included.

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This device primarily provides two external speakers for the BBC Micro. Fitting is roughly the same as the BBC Sound Lead reviewed above. The instructions are, however, much more comprehensive. One extremely interesting fact given in the instructions is the existence of an internal volume control in all BBC Micros! In actual fact this is a mini-potentiometer marked VR1 which can be found underneath F0 on the PCB. This is normally brightly coloured and on the computers I've seen is either blue or yellow. Turning the adjusting screw one way turns the sound up and the other way turns it down. I can't, I'm afraid, tell you which way is which. The instructions for the Microvoc tells you that it needs to be turned anti-clockwise in most cases but on all the computers I've altered the percentage seems to be 50:50 either way – try anti-clockwise first though. The fitting instructions tell you to remove the keyboard ribbon connector – the fitting can be done without this and I personally would not recommend removing the connector as it can be easily broken. The internal connections are the same as with the sound lead but externally, the volume control is fitted into the Econet socket and the jack socket into the Reset hole. This would of course make the system unsuitable for schools using Econet on their machines. Without plugging anything into the jack socket, the normal internal speaker works perfectly and the volume control can alter its level.

The speakers supplied with the Microvoc are two black spherical ones with a speaker diameter of approx. 85mm. They are, I would imagine, car speakers wired up to a special plug. You can have them either as free standing, attached to a wall or even hidden underneath the table. They are adjustable for approx. 110' and so can be used at varying heights. The cable for each speaker was two and a quarter metres long; this means that with one speaker to your left and one to your right you could have almost five metres between the two thus capable of filling a fairly large room with sound. Once plugged into your computer the difference is unbelievable – I would estimate a sound increase of three to four times. Instead of having to scream for quiet to hear your computers sound, Concorde could fly past and you would still hear it. I personally think that the speakers improve the BBC Micro a thousand fold – any program that uses sound is made twice as interesting being able to really hear the noises properly.

The jack socket is a standard size and so instead of connecting up the speakers or using the internal one you could plug in your own headphones, keep the sound to yourself and not annoy other people. You can buy an adaptor for one or two pounds to convert mini-headphone jacks (i.e. those from prsonal stereos) into the full size one. Also via such an adaptor and a suitable cable you could connect the sound output to a cassette recorder or maybe an amplifier.

The physical construction of the Microvoc was much better than the sound lead. The connectors on the back of the micro fitted well and firmly. The jack plug looked a little fragile as there was no cable grip holding the wires firmly – too strong a pull could easily break one wire completely. The speakers were good and amplified the sould well. They were well suited to wall/desk mounting but as free standing speakers, the lack of non-slip pads on the base means they easily slide around. We would have prefered a better base as they are likely to be used more as free standing than mounted.

SUMMARY: Both items reviewed did exactly what they were meant to. The construction of the sound lead, or to be more precise the way it is left fitted to your computer, needed a lot to be desired. The volume control did work but was hard to leave in place on the machine. The 5-pin DIN socket was much less than secure. The Microvoc was, in our opinion, a fairly good buy. Apart from the slippery base the speakers have, there were no real problems with it. One thought that did come to mind is how easy it should be to rig up something similar yourself. If you want an off the shelf sound system and are prepared to fit it yourself then do buy the Microvoc. We will be seeing just how good it is at the Earl's Court Computer Fair – if you can still hear the sound over the normal din you get at these exhibitions then it will really have proved itself. The BBC Sound Lead I am afraid must get our thumb's down.

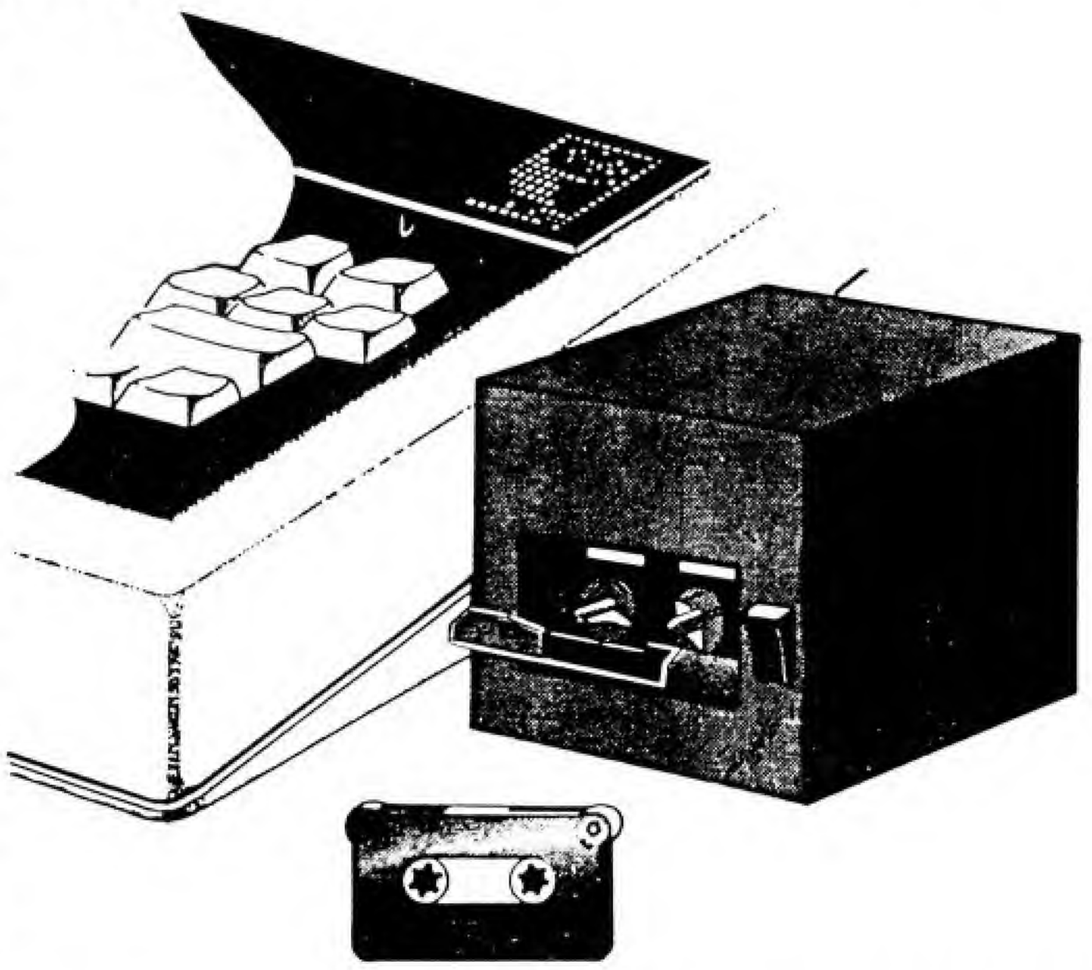
We would like to thank South Coast Communications Ltd. for supplying us with a BBC Sound Lead for review. The Microvoc was obtained independently of Micro-Advent.

Paul Barbour

hardreview – the Hobbit

PRODUCT: The Hobbit Floppy Tape System
PRICE: £135.00 + £3.00 p&p VAT
Second Drive £120.00
Mini-cassettes (from Ikon) £17.50 for 6 (£2.92 each)
Mini-cassettes (from Willis Computer Supplies Ltd) £4.60 each
Mini-cassettes (from Inmac (UK) Ltd) £3.95 each
SUPPLIER: Ikon Computer Products, Kiln Lane, Laugharne, Carmarthen, Dyfed, SA33 4QE.

Cassette recorders are slow and prone to error. Disk Drives cost a minimum of £300.00 including the interface chips (when you can get them!). What's the alternative? Until recently there wasn't – now there is, the Hobbit.



The Hobbit arrived in a fairly small box — much of this is packing material and so once taken off you are left with a small black box measuring 96mm (W) x 85mm (H) x 109mm (D). Compared with the dual disk drives I normally use the Hobbit looks really miniature. On the front is a single swith which ejects the cassette and on the back is a 20 way connector for the cable and 3 pin DIN socket for power. Also included on opening the box is a ribbon cable half a metre long to connect the drive to the computer, a power cable three quarters of a metre long, the operating system IC which was supplied in a foil wrapped 2764 EPROM, one Philips certified digital mini-cassette and a "manual" which was in actual fact a 16 page A5 duplicated booklet. We understand that a proper manual is being printed soon but was not available for this review.

The publicity literature given out with the Hobbit says that "the HOBBIT is compatible with all versions of the operating system including version 0.1". This is not strictly true. With the 0.1, when you enter *FXO you will get a comment like OS 0.10 EPROM whether the program is in EPROM or ROM. If it is in ROM (i.e. one chip) then the Hobbit will be OK – if it is in EPROM (i.e. one chip) then you will need to have the OS replaced for a new one (sse the back cover of LASERBUG for ordering details of the 1.2 ROM) Another problem owners of early computers might have and not mentioned anywhere is that you might have the wrong power supply! If you do have an old computer you might still have one of those power supplies that gets really hot. This however isn't the problem – those early power supplies did not have a power out

socket. This means that you might need to have that changed as well! I should say that both changes would be done free by your local Acorn dealer but probably not instantly. Although the dealers might have 1.2 ROMs the power supply is likely to have to be ordered.

The first thing you have to do is to fit the Hobbit operating system IC. This might be no more complex than fitting a 1.2 ROM which a good number of our members have achieved. If you do not have any ROMs already fitted i.e. VIEW, WORDWISE or BEEBPEN then after opening up the computer and undoing the keyboard bolts you should be able to place the chip straight into IC100 and only might have to alter one link. If you do already have a ROM in IC100 then you will have to fit the ROM in another socket, perhaps move one link and cut a diode. If you do not feel able to do this then Ikon will install the chip for you at a price of £5.00 plus VAT (plus p&p I would imagine, but this is not made clear).

At this stage before proceeding any further it seemed appropriate to open up the Hobbit which is done by taking off four small screws. Inside the unit appears to be a standard digital cassette unit (made by Philips I think) with a piggyback board containing a couple of extra ICs and connectors to allow it to interface with the BBC Micro. A long 12 wire ribbon cable connects the extra board to the main PCB. The black case must have been custom made for the BBC Micro version of the Hobbit although being black, it doesn't exactly match the rest of the equipment.

To connect up the Hobbit to your BBC Micro firstly you plug the ribbon cable into the user port. Then, as the Hobbit uses the BBC Micro's own power supply, a cable has to be attached into the power out socket. The plug can go in one of two ways and it is not made too clear which way is correct. The other ends of the two cables are then plugged into the Hobbit. On the model of the Hobbit we were sent, the two small levers that hold the cable in firmly were broken off – this did not alter the Hobbits function in any way but led us to wonder whether or not the packaging was sufficient. Also with the power lead, the end that plugged into the Hobbit (a 3-pin DIN socket) was secure but the BBC Micro part wasn't. Too hard a pull might easily have pulled one of the wires out of the plug. This is however a fault on the Beeb's designers side for choosing such a power socket, not Ikon's.

There is no power switch on the Hobbit and so as soon as the BBC Micro is switched on you get the message:

BBC Computer 32K

HOS V1.8 (C) L.J.WANT & A.A.WANT 1983

IKON . . . TEL 099 421 515

BASIC

>

and everything is quiet. With a cassette tape you can just put it straight into a tape recorder and use it. With a floppy disk you have to format the disk before use which takes 35 seconds (40 tracks). The Hobbit, like a disk, has to be formatted. This took 4 minutes 17 seconds which is over 8 times as long as a disk. The formatting is performed with the command *FORMAT"<title>" where the title must start with a capital letter and cannot be more than 8 letters long. Obviously it is possible to use both sides of the cassette. Double sided disk drives enable you to access both sides of the disk without turning the disk over. With reversible disks (normally only 8") you have to turn the disk over to use the other side. The Hobbit's mini-cassettes are like the latter meaning that both sides have to be formatted separately by turning the cassette over to access the other side. However, once the tape is formatted it can be used normally without any other similar time consuming processes having to be performed. With the Hobbit you have access to all the standard filing system commands plus some extra star instructions detailed below. Also below are some standard commands which have had parts added to their syntax:

*BBC — A command present on an earlier version of the Hobbit operating system which has now been discontinued.
*CAT — Obtains a catalogue of the cassette. This catalogue is far, far more comprehensive than the catalogue functions of either cassette or disk. The catalogue displays the name of the tape (defined whilst formatting the tape), the drive number, the name of every file on the tape (each one with its own number) which will be flashing if the file is still open, its file type (program or data) and the number of blocks each one has. The catalogue has space for 60 programs on screen at one time, after that the remaining ones have to be scrolled by pressing SPACE. From the catalogue, you can enter a programs name or the number assigned to it and then by pressing either f8 or f9 load or chain the program automatically.
*COPY (d) <fln> (t) TO (@) (d) <fln> (nn) (a) (t) – Copies one file to another.
*DELETE (d) <fln> – Deletes file <fln>
*EXEC (d) <fln> (t) – Standard *EXEC command with extra options
*FORMAT (d) <fln> – Formats the cassette
*HOBBIT – Returns to the Hobbit filing system (HFS ???) after a *TAPE command
*KILL (d) – Deletes all files on the cassette
*LOAD (d) <fln> AAAA – Standard *LOAD command with extra options
*RECOUP (d) <fln> – Attempts to recover a file that has been accidently deleted.
*RENAME (d) <fln> (t) TO <fln> (t) – Renames a file
*RUN (d) <fln> (t) Standard *RUN command with extra options
*SAVE (d) <fln> (nn) (t) (a) AAA BBB CCC – Standard *SAVE command with extra options
*SPOOL (@) (d) <fln> (nn) (a) (t) – Standard *SPOOL command with extra options
*TAPE – returns to CFS (cassette filing system)

KEY TO ABBREVIATIONS:
<fln> – Filename (compulsory)
(@) – Inhibit check (will allow the Hobbit to overwrite a file with the same name without asking the user). Default value is ask first.
(d) – Drive number (for if you have two hobbits). Default value is drive O
(t) – File type (P – program/D – data). Default is P
(a) – Append (allows you to add date to an existing file)
(n) – Size (sets size of a random access file)

As well as the above there are four extra commands that may be added to the OPENIN/OPENOUT functions:

W – Causes a write only file to be opened
R – Causes a read only file to be opened
B – Causes a file to be opened for both reading and writing
X – Causes the file to be deleted

A few examples:

*COPY 1 GEORGE:P TO @ O FRED:22D

This would copy the program file GEORGE on drive 1 to the date file FRED in drive O. The file FRED is tohave 22 continous blocks assigned to it. The @ instructs the computer to delete any previously existing file called FRED on the drive O without asking the users permission.

Z3@OPENIN("TEST:R")

This command opens the read only file TEST.

There are several error messages associated with the Hobbit – unfortunately there isn't a list of them given in the manual. Hopefully this will be present in the new version.

The real thing you obviously want to know is exactly how fast is the Hobbit compared to tape. Below is a set of bench tests run on (i) a cassette recorder, (ii) the Hobbit and (iii) 40 track disk drives. The results were as follows:

	TAPE	HOBBIT	DISK
1.		4'17"	35"
2.	23"	18"	1"
3.	2'23"	55"	4"
4.	32"	22"	6"
5.	21"	23"	14"
6.	3'33"	1'00"	10"
7.	3'20"	1'02"	18"

Interpreting these figures, on average the Hobbit is 42% faster than tape whereas disks are 77% faster than the Hobbit and 82% faster than tape. By comparison, the Hobbit is 5 times as expensive as tape

whereas disks are twice as expensive as the Hobbit and 10 times more than tape.

The Hobbit is very easy and reliable when compared to tape. There is no need to even touch the Hobbit during normal use and although on average the comparison with tape could be better, loading in a long multi-part program took 1 minute as opposed to the normal 2 and a half. They are not really an alternative to floppy disks and shouldn't be thought of as such. I have had some people asking why they should buy the Hobbit at £150.00 when they could get a single 100k floopy disk drive for £200? With a floppy disk you need to pay out £100 to get the interface on top of the actual drive unit – the Hobbit comes complete. I found the Hobbit very reliable and would say if you were looking for a cheap method of saving your programs, something more reliable and faster than tape but not too expensive then the Hobbit would provide your answer. It does have the facility to connect up two drives together and can perform random access which adds to the attraction but if you were going to pay out for two drives you would be better off buying disks.

To summarise, the Hobbit provides a much more powerful alternative to cassette tape and should be though off as an economic upgrad from this method of filing. It is not comparable with floppy disks but doesn't really try to be. RECOMMENDED.

Paul Barbour

basic BASIC

BASIC words covered this month: FOR, TO, NEXT
Other topics covered: Typing in programs and the reasons for errors

Firstly, the answers to last months problems. the program to ask a multiplication question should look something like:

```
LIST
   10 FIRSTNUMBER=RND(12)
   20 SECONDNUMBER=RND(12)
   30 ANSWER=FIRSTNUMBER*SECONDNUMBER
   40 PRINT"WHAT IS ";FIRSTNUMBER;" TIMES ";SECONDNUMBER
   50 INPUT GUESS
   60 IF GUESS=ANSWER THENPRINT"RIGHT" ELSEPRINT"WRONG"
>RUN
WHAT IS 11 TIMES 4
?44
RIGHT
>RUN
WHAT IS 9 TIMES 1
?91
WRONG
```

As we said it required you to alter four lines – the 10 to 12 in lines 10 and 20, alter the sign in 30 from + to * and to replace the word PLUS by TIMES in line 40. Just think – that was the first program you've written!!!

The second problem was to write a program to print out all the odd numbers between two values entered by the user. If anybody managed to do this then either they are extremely bright or shouldn't be following this course. Thankfully after doing so many LASERBUGs, very few printing errors creep into the magazine. One of the few ones to slip in recently was in that question. On page 13 (!) the first line of the mathematics you would need to be able to answer the question said

ODD=NUMBER

whereas it should have read

ODD=NUMBER/2

Unless you really thought about it the chances are very few people managed to get a working program. Anyway, for those that did the correct program should look something like:

```
LIST
   10 INPUT FIRSTNUMBER
   20 INPUT SECONDNUMBER
   30 REPEAT
   40 ODD=FIRSTNUMBER/2
   50 ODD=ODD-INT(ODD)
   60 IFODD=0.5 THEN PRINT FIRSTNUMBER
   70 FIRSTNUMBER=FIRSTNUMBER+1
   80 UNTIL FIRSTNUMBER>SECONDNUMBER
>RUN
?1
?20
          1
          3
          5
          7
          9
         11
         13
         15
         17
         19
```

Now for this months article. Still on the subject of maths (groan!) With what you've learnt so far try to write a program so that when somebody enters a number, the computer printes out the times table for that number.

To start off with you must enter the initial number or table:

10 INPUT TABLE

Then you will have to keep a track of where you are up to in the table:

20 NUMBER=1

Next is the calculation:

40 ANSWER=NUMBER*TABLE

followed by printing out the result:

50 PRINT NUMBER;"X";TABLE;"=";ANSWER

One has to be added to NUMBER so as to be able to do the next sum in the table:

60 NUMBER=NUMBER+1

Finally you will have to keep on doing lines 40 to 60:

30 REPEAT

until the end of the table is reached i.e. NUMBER is more than 12:

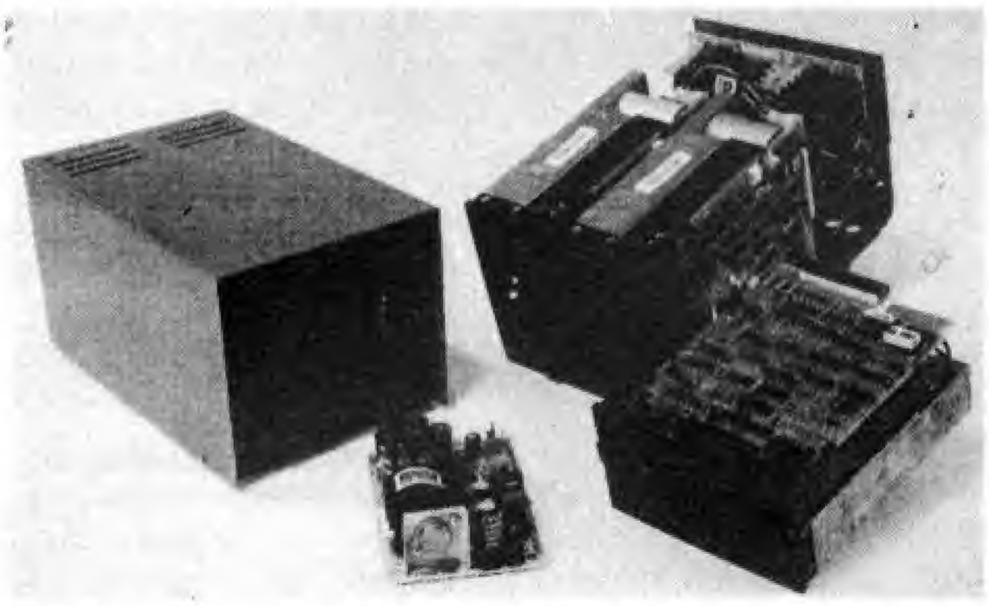
70 UNTIL NUMBER>12

To summarise, therefore, the whole program together should look like:

```
LIST
   10 INPUT TABLE
   20 NUMBER=1
   30 REPEAT
   40 ANSWER=NUMBER*TABLE
   50 PRINT NUMBER;" X ";TABLE;" = ";ANSWER
   60 NUMBER=NUMBER+1
   70 UNTILNUMBER>12
>RUN
?12
 1 X 12 = 12
 2 X 12 = 24
 3 X 12 = 36
 4 X 12 = 48
 5 X 12 = 60
 6 X 12 = 72
 7 X 12 = 84
 8 X 12 = 96
 9 X 12 = 108
10 X 12 = 120
11 X 12 = 132
12 X 12 = 144
```

MICROWARE ANNOUNCE THE Z/ L RANGE OF FLOPPY DISC SUB SYSTEMS

from £175



The Control Data Family of Flexible Disk Drive is a single- or double-sided, random-access, low-cost storage device. Maximum storage capacity 1 megabyte on a 133.4-millimetre (5.25-inch) interchangeable disk. This disk drive is interchangeable with comparable products, providing industry compatibility in size, mechanical mountings, electrical interface, power requirements and physical appearance. CDC® FDD operates in single- or double-density formats. Single-density operation is achieved by using Frequency Modulation (FM) encoding, and in double-density operation uses Modified Frequency Modulation (MFM).

OPERATIONAL CHARACTERISTICS

Capacity	9408	9409	9409T
Unformatted			
Per disk	250.0 kbytes	500.0 kbytes	1 megabyte
Per track	3.1 kbytes	6.2 kbytes	6.2 kbytes
Formatted (16 sectors, 126/256 bytes)			
Per disk	163.84 kbytes	327.68 kbytes	655.36 kbytes
Per track	2.1 kbytes	4.1 kbytes	4.1 kbytes
Code	MFM	MFM	MFM
Transfer Rate	125 kbits/s	250 kbits/s	250 kbits/s
Average latency	less than 100 ms	less than 100 ms	less than 100 ms
Seek Time			
Track to track	less than 5 ms	less than 5 ms	less than 5 ms
Average Access	less than 80 ms	less than 80 ms	less than 132 ms
Setting time	less than 15 ms	less than 15 ms	less than 15 ms
Head Load Time (OPT)	less than 50 ms	less than 50 ms	less than 50 ms
Media	hard/soft sector	hard/soft sector	hard/soft sector

Rotational Speed	300 r/min	300 r/min
Track Density	48 TPI	96 TPI
Flux Reversal Density (track 39, side 1)	5876 FRI	5922 FRI
Number of Tracks	40	80
Inner recorded radius (side 0)	1.437 in (36.50 mm)	1.385 in (35.2 mm)
Outer recorded radius (side 0)	2.250 in (57.2 mm)	2.250 in (57.2 mm)
Inner recorded radius (side 1)	1.354 in (39.39 mm)	1.344 in (34.1 mm)
Outer recorded radius (side 1)	2.167 in (55.0 mm)	2.167 in (55.0 mm)

THE Z/ L RANGE

Type	Capacity	Tracks	No. of Drives
ZL141	250 k	40	1
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ZL241	500 K	80	1
ZL242	1 Mb	80	2
ZL291	1 Mb	160	1
ZL292	2 Mb	160	2

Microware Disk Drive Subsystems are plug compatible with the following: —
TANDY, VIDEO GENIE, BBC MODEL B, NABCOM, SUPER BRAIN, IBM/PC. and many more.

Microware also supply floppy drives, Winchesters and sub systems to OEM's and the trade at very aggressive prices, offering the best price performance ratio available. Call and ask for details.

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Cabinets of steel, aluminium or plastic are available in a choice of colours, and each unit is fully guaranteed.

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The AC 8151 Switch-Mode Power Supply has been designed for use in small terminals and other similar equipment. The AC 8151 has dual line inputs and regulated outputs of: +5V at 2.5A, +12V at 2.0A, -12V at 0.1A. This compact unit features low magnetic radiation and is built to conform to International Safety and RFI Regulations.

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40/80 switchable

If you try this by entering RUN you should find it works. If not then the chance is you've typed it in wrong. While we're talking about this, we might as well say something on typing in programs. The most common mistake you are likely to make is typing in 0 (the number zero) for O (the letter o) or 1 (the number one) for l (a small l). If you get the message NO SUCH VARIABLE on the screen this should be the first thing to look for. Another thing that can make things go wrong is spaces – at certain times you must have them, at others you mustn't. For example, compare these three lines:

1. IFhold(1)=FALSETHENreel$(1)=STR$(RND(10)-1)
2. IF hold(1)=FALSE THEN reel$(1)=STR$(RND(10)-1)
3. IF hold (1) = FALSE THEN reel$ (1) = STR$ (RND (10) - 1)

All of the lines contain the same information – the only difference is in the spaces. 1 has no spaces, 2 has some and 3 has many. Which one is correct? Believe it or not only number 2 would work – all the others would give error messages. Basically the reason for the first one is that FALSETHENreel$ would be taken as a single variable like FIRSTNUMBER whereas in actual fact it is two variables and a statement. With the third one, RND(10) is one command and must not be separated by a space i.e. RND (10). If you find a line doesn't work try re-typing it in again for the time being.

As an alternative to that program, enter NEW to clear the computer's memory and type in the following one:

```
LIST
   10 INPUT TABLE
   20 FOR NUMBER=1 TO 12
   30 ANSWER=NUMBER*TABLE
   40 PRINT NUMBER;" X ";TABLE;" = ";ANSWER
   50 NEXT NUMBER
>RUN
?12
        1 X 12 = 12
        2 X 12 = 24
        3 X 12 = 36
        4 X 12 = 48
        5 X 12 = 60
        6 X 12 = 72
        7 X 12 = 84
        8 X 12 = 96
        9 X 12 = 108
       10 X 12 = 120
       11 X 12 = 132
       12 X 12 = 144
```

Whereas most of the words we have learned previously have been comparable directly with English, I am afraid the above just isn't with words like FOR, TO and NEXT. The meaning will be explained in a second but to start off with see that it works and in two less lines than the other program.

Roughly, the line FOR NUMBER=1 TO 12 is the equivalent of NUMBER=1 and REPEAT and the NEXT NUMBER is the equivalent of UNTIL NUMBER>12. To take the first line, FOR NUMBER etc. When the computer sees this it sets up a variable called NUMBER. The 1 TO 12 tells the computer the range of number – it will start off as 1 and keep on getting bigger until the number 12. At the NEXT NUMBER the computer starts off by adding one to NUMBER and then checks to see if it is bigger than it is allowed to get (i.e. NUMBER>12). If it is then it carries on, if it isn't then it goes back to the line after the FOR i.e. line 30.

Let's try a much simpler example. Instead of:

```
LIST
   10 NUMBER=1
   20 REPEAT
   30 PRINT NUMBER
   40 NUMBER=NUMBER+1
```

```
   50 UNTIL NUMBER>10
>RUN
          1
          2
          3
          4
          5
          6
          7
          8
          9
          10
```

we can use

```
>LIST
   10 FOR NUMBER=1 TO 10
   20 PRINT NUMBER
   30 NEXT NUMBER
>RUN
          1
          2
          3
          4
          5
          6
          7
          8
          9
          10
>
```

This should show up much more clearly how this arrangement of FOR, TO and NEXT works. This is known as a FOR loop.

Another example. Supposing we were going to throw two dice in a game and the idea of the game was to attempt to throw a seven (i.e. the sum of the dice adds up to 7). What are the possible combinations you could have that makes up to 7? Using REPEAT and UNTIL this would be quite a hard task – however using FOR loops it is remarkably easy. A dice has the numbers 1 to 6 on it and so a FOR loop to simulate one would look something like:

```
FOR DICE=1 TO 6
```

In our example we have two dice and so the program would start off as:

```
10 FOR DICE1=1 TO 6
20 FOR DICE2=1 TO 6
```

The third line would have to test to see if the dice did add up to 7 and if so print them out:

```
30 IF DICE1+DICE2=7 THEN PRINT DICE1;"-";DICE2
```

The other two lines would just have to be the other parts of the FOR, TO loops i.e. NEXT:

```
40 NEXT DICE2
50 NEXT DICE1
```

All this should leave you with a program that looks like:

```
LIST
   10 FOR DICE1=1 TO 6
   20 FOR DICE2=1 TO 6
   30 IF DICE1+DICE2=7 THEN PRINT DICE1;" - ";DICE2
   40 NEXT DICE2
   50 NEXT DICE1
>RUN
          1 - 6
          2 - 5
          3 - 4
          4 - 3
          5 - 2
          6 - 1
>
```

On running the combinations 1/6, 2/5, 4/3 and their inverses will be printed.

We'll end this month the same way as last, with a question or two.

Q.1 Write a program to print out all the possible combinations of a dice showing the total for each throw e.g. 1/1 – 2, 1/2 – 3 . . . 1/6 – 7, 2/1 – 3 . . . 6/5 – 11, 6/6 – 12.

Q.2 Write a program to print out a square of stars with the length of the sides specified by the user.

Paul Barbour

letters

Dear LASERBUG,

RE: Colour Monitors from Display Electronics

This company are advertising 14" "superb" chasis monitors. Perhaps you could warn members that these are standard .63mm tubes which do not give very good 80 character displays. The regulation is very poor, at least it is on the one I have tried and am now returning. The Sanyo monitor at about the same price (and cased!) is much superior and as good as the Microvitec which is slightly more expensive.

A friend of mine is thinking of updating his BBC for disks himself. On my Issue 4 board there is an additional preset VR2 which seems to be linked to the floppy disk controller chip, but on his Issue 3 board there is no provision for it. Any idea what this preset does and whether or not it is required when updating an Issue 3 board for disks? Also is the cutting of the track and the addition of a strap to pin 9 of IC27 required when updating the Issue 3 board. Any other changes required? Any help would be much appreciated!

D. Mather – Prestel Mailbox 273691771

REPLY: Sorry but we can't offer any help – can any member?

Dear LASERBUG,

This is to inform you of the formation of the IVER COMPUTER SOCIETY the IC's. The IC's will power up for the first time on May 12th at the 'Huntsmoor Room' in the Iver Village Hall. Switch on time will be 7.30 till 10.00.

The meetings will be bi-monthly (I think he means fortnightly – Ed.) on the 2nd and 4th Thursdays and anyone interested should come along or for more information contact me at the above address or phone Iver 654431.

The club will cater for all types of home micros and will be informal in format. It is hoped to cater for all levels of enthusiast, from those just about to start to those already bitten by the bug!

We hope you can publish this news in the club section and thank you in anticipation. We will keep you informed of club activities in future.

John Haigh, Iver.

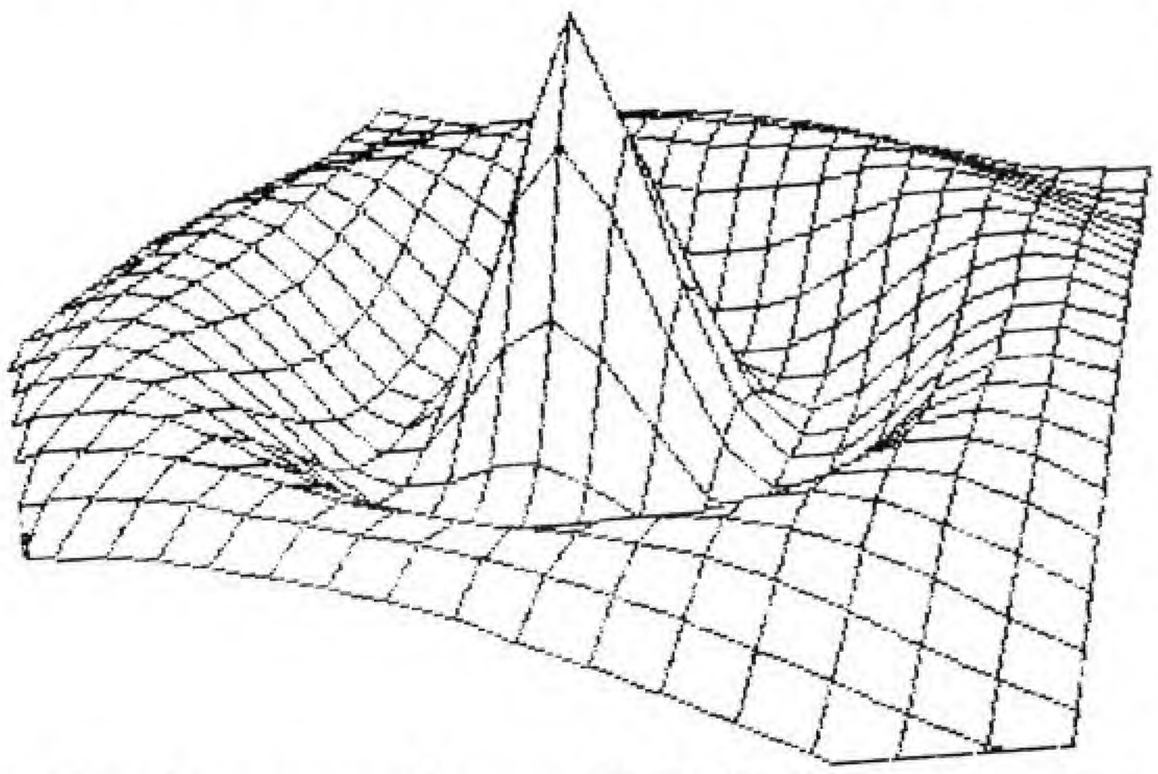
EDITORS REPLY: Club Reports is a page for exclusive use by computer clubs – you can have anything you like on it. To date however only one club has ever used it and this was only once. Remember that there is a column open to you that simply awaits something to go in it! – Ed.

Dear LASERBUG,

I have recently bought a printer for use with my BBC Micro – a C.T.I. CP80 Type I. Do you know of any screen dump available for it. I was told that any one for use with an Epson would do but have tried two without success. Would this be because of the OS 0.1 (I am still awaiting delivery of the 1.2 ROM from your goodselves). Perhaps in some future issue you could run a detailed article on the use of printers for beginners like myself.

Mr. I. Evans, Darwen, Lancs.

REPLY: A friend of mine, Tom Measures, has the same printer as yourself and confirms that in every respect it thinks it is an Epson. To prove it, below is a screen dump produced on the printer:



There is no reason why your OS should effect a screen dump program – all of the ones I know of should work with all OS versions. I must therefore assume that the program is with your screen dump program – I suggest that you try one of the Epson screen dumps that we have printed as I can confirm that they do work.

Therefore as for an article on printers for beginners I suggest you try Epson In Depth on pages 6-8 of the April LASERBUG.

Dear LASERBUG,

Thank you very much for the 1.2 OS ROM. It works correctly. I hereby return the replaced 0.1 EPROM. As I have read in LASERBUG replacements could be done free of charge. If so could you owe me the money for further orders.

E. Krediet, Aerdenhout, Netherlands.

(3 days later the following letter was received.)

Dear LASERBUG,

Last week, when returning the 0.1 OS to you, I wrote that the 1.2 OS was working properly. Only today a problem came up. To be more specific when using this program. I have written to you before about the Business Special Wordprocessor Issue 5 October'82. When using this program on OS 1.2 lines 360 and 380 seem not to work. Would you please be so kind to tell me whether this is normal on the 1.2 OS or am I one of the lucky ones with a 1.2 OS with a few extra bugs . . .?

E. Krediet, Aerdenhout, Netherlands.

REPLY: First things first. If you had the 0.1 OS in EPROM an Acorn dealer (or in your case perhaps the distributor in your country?) would replace it free of charge. If you had it in ROM, you woould have to pay for the replacement unless upgrading to say disks. For starters, we are unable to provide free upgrades if you have the 0.1 OS in EPROM. Secondly you did not have the 0.1 OS in EPROM but in ROM. The EPROM is four chips whereas the ROM is just one. Onto the wordprocessor. With the 1.2 OS, many memory locations are changed. For that specific program replace line 360 with:

```
360 *FX202,48
365 PRINT:VDU26
```

and line 380 with:

```
380 ?208=2
```

Please note that although lines 360/365 are fully compatible, line 380 will not work with the Tube.

Dear LASERBUG,

I have changed from EPROM .1 to ROM 1.2 and found a difference. A change is required to the Drive program (Issue No.10) at statement 650. It should read

```
650 UNTIL (ADVAL(0)AND3)=1
```

Alan Stoner, Coulsdon, Surrey.

Dear LASERBUG,

Please find enclosed my cheque in payment for the back issues of 'LASERBUG' which were received by myself just days of requesting same. Most efficient, thank-you.

I am given to understand that I am perhaps the only subscriber to 'LASERBUG' from Abu Dhabi, this understanding coming from your comment in this month's issue . . .

Just to keep you informed about the competition to 'LASERBUG' and how it fares out here. I thought that I would relate my own personal experiences to you. I have sent letters and cheques to 'BEEBUG' and in eight weeks I have seen nothing! I have had one hell of a problem getting 'ACORN USER' sent out here. One copy did not arrive and I had to write to Addison-Wesley Publications to have them send it to me. Once they missed a month and sent me two months together. And in all this confusion, I had ordered the magazine at Christmas last year whilst I was in the U.K. by quoting my VISA credit card I.D. I have sent a cheque to Acornsoft for a book. I'm still waiting after six weeks for that. And finally I have written letters to the following companies without even receiving any replies.

ASP Software	I requested info about 'THE VALLEY' . . . (I can't seem to get very far when playing it!)
Acornsoft	I requested a catalogue giving details of their software.
Acorn Computers	I wrote to them last October (I think) and asked them to send me the necessary Gov't forms duly completed by them, in order that I could claim back the VAT when I took the computer to Abu Dhabi.

So, as you can see, I'm having a wonderful time with some people!

Oh yes, I nearly forgot. I sent a cheque to Technomatic to have them airmail a dustcover and the 1.2 OS with D/Drive to me. That was three or four weeks ago and I'm still waiting . . .

But 'LASERBUG' gets here on time, every month, without any problems whatsoever.

I am currently engaged in writing a program to hold details concerning my various bank accounts situated around the world and I am experiencing difficulties in two spheres. These are:

a) How can I scroll up the page but have the titles at the top remain permanently there. I wish to do something akin to what happens with a games program called 'World Cup' or 'Manager'.

b) How do I set up a system where I can add the details of a new transaction of a particular bank account to the info that was there previously? I think, but I am probably wrong, that I have to set up an array of some kind. If I am correct on this assumption, then I so not know how to set up the program in order that I can fill in the empty boxes, when a transaction takes place, in order that the balance figure is always correct. The display I have in mind is exactly the same as that used by banks when they produce a statement.

I am considering purchasing the Modem in order to access Micronet 800, but I will only do so if I am able to use it here in the Middle East. My query is, can it be used via international telephone lines?

I would finally like to take this opportunity of thanking you for all your endeavours in getting 'LASERBUG' to me so quickly each month and also for producing such a brilliant magazine.

THANK-YOU.

Mr. A.W.A. Coppin, Abu Dhabi, United Arab Emirates.

REPLY: Well first let me thank you for your nice comments. The service we provide is purely because we are dedicated to what we do. Believe it or not LASERBUG is run by a staff which must be a quarter of that of the smallest organisation you mention – most of the hard work at LASERBUG including getting your magazine out to you on time is all handled by Maureen Barbour, the club secretary. Your thanks should really go to her rather than anyone else – thanks Dos! (don't worry if you don't understand, that's a private joke?). Your titles are easily done. Basically you start by printing your titles on the screen Then you define a text window (see page 387/8 in the user guide) to cover the whole screen apart from the lines that contain the title. After this, the remaining screen can be used for whatever you wish without damaging the titles. An example is shown below:

```
LIST
   10 MODE7
   20 PRINTCHR$157;CHR$129;CHR$141;TAB(12)"THIS IS A T
ITLE"
   30 PRINTCHR$157;CHR$129;CHR$141;TAB(12)"THIS IS A T
ITLE"
   40 PRINTCHR$157;CHR$132;STRING$(36,"-")
   45 VDU28,0,24,39,3
   50 FORX=1TO1000
   60   PRINT"  *";
   70   NEXT
   80 ON ERROR LIST
   90 ERROR
```

Your other programming query would require much more space than I have available here to answer it. I would suggest that you wait for the appropriate article in the Basic BASIC series for an in depth look at what you want to know. The user guide covers arrays on pages 120-125 and 236-237. Briefly, you start an array by a statement such as DIM ACCOUNT(10). This dimensions (DIM) the array at 10 elements. Rather than ACCOUNT being treated as one variable, in actual fact it is 10 i.e. ACCOUNT(1), ACCOUNT(2), etc. The difference between ACCOUNT(1), ACCOUNT(2), etc. and ACCOUNT1, ACCOUNT2 is that to access one of the account figures you could use ACCOUNT(X) where X is the particular item. A short program is included below to help you understand arrays a bit better:

```
>LIST
   10 DIM ACCOUNT(10)          100 DEFPROCdump
   20 PROCdump                 110 FOR X=1TO10
   30 ACCOUNT(1)=5.36          120   PRINT X;" - ";ACCOUNT(X)
   40 ACCOUNT(7)=8.46          130   NEXT
   50 PROCdump                 140 PRINT'"PRESS ANY KEY"'
   60 ACCOUNT(3)=3.50          150 A=GET
   70 ACCOUNT(10)=-7.29        160 ENDPROC
   80 PROCdump
   90 END
```

For your particular application the best idea would be to save details of the accounts onto tape/disk at the end of the day and load them back in again when you next use the program. Basic BASIC is your best bet I think for an in depth answer.

Micronet is another matter. I have problems with bad phone lines when making a local call to the Prestel computer – it is unlikely that the telephone line would be good enough over that kind of distance to be usable. Anyway, I have contacted Micronet and will let you know what they say.

EDITORS NOTE: The Consumer Spot article featuring Bug Byte was written before the letters page and hence letters printed below were received after that item was finished and typeset.

Dear LASERBUG,

RE: Your review of "Microtype" p.4 May'83 I too was foolish enough to buy this rotton typing program – at least you have alerted your readers. My experiences of Bug Byte is also extremely poor. Mr. Edward Somerville, Kilwinning, Ayrshire.

Dear LASERBUG,

I was reading your excellent magazine "Volume II" number 2 issue 12 May'83, when I came across an article about Bug Byte and their magazine Beebon. May I give you the history of my experience with this firm. I sent Bug Byte £7.50 for 6 issues of Beebon. I also received only three issues of the magazine. About four weeks after the fourth issue was due, I got in touch with Bug Byte by phone and was told that there was a delay in printing. The person on the phone assured me that I would receive the magazine within the next few days. Another two weeks passed and still no magazine, so I got on the phone to them again. The person on the phone told me that the magazine had been sent out and that I should be receiving mine any day now. After another four weeks with still no magazine coming I got on the phone once again. I was told this time that someone had pressed the wrong key on the computer and destroyed all the names on file. She took my name and address, which she said she would pass on to Debbie. She also told me that they had changed to a different distribution agency and that the magazine had changed its name from "Beebon" to "BBC Micro User" which would be sent to me. After a while and still no magazine arriving (getting boring now isn't it?) I got back on the phone to be greeted by a tape recorded message saying that Bug Byte were not dealing directly with the public anymore (is it any wonder!). I wrote the firm a letter, but as yet I have received no refund or any of the remaining issues of the magazine. Living near this firm I did go down once but I could not find them. May I also add that I have never dealt with such an industry as the computer industry before, where you send for goods and then wait months without words for your goods. If the industry does survive (and I have no doubt it will), it won't be through such firms as these.

Joseph B. Cooney, Kirkby, Merseyside.

Dear LASERBUG,

I am having a reasonable amount of trouble keeping my colour TV tuned into the colour signal from my BBC Model B. It is a very tricky operation getting a clear crisp colour picture initially but from then on I am constantly trying to "defuzz" the colours with the TV fine tune.

The TV is an ITT model CB 602/3 and when I off tune it I get a very good black and white display. Can this situation be improved by boosting the computer signal so the TV AFC has more to lock on to?

D.H. Lockwood, R.A.F. Uxbridge, Middx.

REPLY: Boosting the UHF signal will obviously do some good to the display. Apart from that has any member a suggestion?

Dear LASERBUG,

Many cassette recorders produce horrible phase distortion which may well account for peculiar loading difficulties. My BEEB will

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load accurately down to 30 millivolts on a clean signal, but a distorted one may require 1.5 volts. See current Practical Electronics (June). How does one program the "shifted" function keys?
Dr. J.A. Lack – Prestel Mailbox 072277303

REPLY: Unfortunately it is impossible to program the shifted function keys. The normal function keys (*KEY0–*KEY10) may be programmed as well as *KEY11–*KEY15 (if enabled by *FX4,2 – see page 423, user guide). The SHIFT–fn and CTRL–fn will produce an ASCII code only i.e. a single character. By default these correspond to teletext control characters. You may alter however which ASCII characters are produced using *FX228/229 (see pages 439/440 of the user guide).

Dear LASERBUG,

I have enclosed a listing of Mark Cook's Centronics 739 screen dump which was requested in your June issue.

```
 920REM
 940REM SCREEN DUMP FOR CENTRONICS 739
 960REM
 980
1000DEFPROCdump
1020LOCALA%,X%,Y%,Z%,mode,char,table
1040DIMtable 7:!table=&80402:table!4=&804
1060A%=135:mode=(USR&FFF4 AND&FF0000)DIV&10000
1080IFtable?mode=0ENDPROC
1100VDU2,1,27,1,37,1,48
1120FORZ%=0TO50
1140FORX%=0TO1279STEPtable?mode:char=0
1160FORY%=1003-Z%*24TO1003-Z%*24+20STEP4
1180MOVEX%,Y%:char=char*2-(POINT(X%,Y%)>0)
1200NEXT:VDU1,char+32
1220NEXT:VDU1,13
1240NEXT:VDU1,27,1,19,3
1260ENDPROC
```

Listed below is my catalogue of non-service from everyones favourite software house, Bug Byte.
JULY 1982 – Saw advertisement and subsequently ordered Chess.
SEPTEMBER 1982 – Eventually received the program.
ONE WEEK LATER – Found that the program took 6 hours to respond to every move if you wanted a good game.
JANUARY 1983 – New MOS fitted and no working program.
MARCH 1983 – Sent back Chess and wrote an angry letter asking for a refund.
JUNE 1983 – Still no reply.

The person mentioned in your June issue is by no means alone. I am fed up with large software house making untrue claims about mega-crummy software.
P.S. Space Pirates does not work on the new MOS either.
Ian Cook, Braintree, Essex.

computer prog review V

The Computer Programme II – Making The Most Of The Micro
Presented by Ian McNaught Davis
With Peter Clayton and Sally Ash
Produced by David Allen
Episode V – Keeping A Record

The program opens showing Peter Clayton, a BBC Radio presenter, who has a radio programme playing jazz records requested by listeners. He receives letters every day asking to play particular songs. The BBC stores all its records in a huge library – each record is catalogued in a special filing area which contains a massive one and a quarter million cards arranged alphabetically in both song title and artist order. Finding a track on a record if you have the title is easy – however if you are given just the artist you might easily have a good few hundred cards to look through to locate a specific song. As a demonstration of the micro, a thousand or so records are put onto computer. Mac enters one piece of information (one of the artists) and is left with 117 possible records. The song was a duet and so entering the other artist cut that 117 down to 34. He was told that the word weather was somewhere in the title – this one word narrowed down the possible tracks to just 3.

Next, Mac goes on to explain the difference between files, records and fields. To use an example other than the one he used, supposing the entire LASERBUG mailing list was held on one disk. The disk itself would be the file or to be more precise, its contents relating to the mailing list. An individual name, address, membership number, etc. would form a record. One line in that record i.e. a persons name would be a field.

Back in the studio, Mac demonstrates a simple database on the BBC Micro. The database is to hold a set of birthdays. It is set up using an array and the commands read and data. All three commands are explained briefly. A few lines are then added to enable you to access the data. Some quite complex commands are used in this section of the program with insufficient explanation – I am sure a number of people were confused by the time they had reached this stage. The limitations of the program is discussed as well as the ways around them.

A fairly good commercial database program is shown set up for keeping track of a video tape collection. Several different aspects of the program are shown, illustrating how useful and versatile a database can be. The advantages of disk (random access) over cassette (sequential access) is also talked about.

A real life database – belonging to the British Waterways Authority – was shown. The balance of the water on the canals has to be maintained around the country. A microcomputer connected to a Winchester (hard) disk is used. Forms have to be filled in logging the movement of traffic – these are all fed into the computer. If say a new marina was to be opened up on the canal system, the added traffic in this area could cause a severe loss of water elsewhere. The database is used to test what would happen in this situation.

Back in the studio, Mac actually shows a hard disk and compares it with a mainframe interchangeable hard disk (there are three types of computers – microcomputer, minicomputer and mainframe computer). It is possible for a micro to access a mainframe database. The New York Times Information Bank is accessed by a BBC Micro using an acoustic modem. A search mode is entered and Mac limits the information he wants to the three big American TV networks (CBS/ABC/NBC) which gives a possible 9006 records. Specifying education brings this down to 112. Computers reduce this down to just one record which can then be viewed on the screen.

Databases is one of the big uses of computers today – this programme tried to go into the subject as much as possible in 30 minutes. The biggest criticism of this particular episode was of the possible confusion that could have occurred with the short database program.

Next Month: Getting Down To Business

Paul Barbour

meeting place

And so to our bi-monthly listing of local user groups. First though a few words about the whole subject of local user groups.

When LASERBUG was first set up back in March '82 one of the aims was for us to set up local user groups. However when we first started LASERBUG actually stood for London And South East Region BBCmicrocomputer User Group. Setting up user groups in this area would have been a task we could have coped with. However since those early days LASERBUG has mushroomed at a tremendous rate so that not only did we have to go national, due to the demand we had to turn international. At the last count we had members in 17 different countries. Organising local meetings on a national scale is simply something we are not capable of doing.

Hence we leave the local user group side up to you. If you have already set up a user group then please drop us a line giving full details and we will add you to our user group list – you don't have to belong to LASERBUG to do this.

If you are thinking of starting up your own local user group then two options are open to you. The first is to write to us and get your name put on the Contacts page (which is run on opposite months to Meeting Place). The alternative and probably more effective

method is to drop us a line giving details of when and where you are thinking of holding meetings and a phone number that people can get in touch with. Try starting off in your own home for a few months. When you get enough people starting to attend you can think of moving the meetings to a church hall or local school, etc.

Local user group meetings is the other way that members of LASERBUG can get in touch with each other apart from the newsletter. We all at LASERBUG feel that this is a very good way of getting more out of your computer. You can share your experiences with others and get the benefit of their discoveries.

If there is no user group near you we would strongly advise you if you can spare an evening or two a month to seriously consider starting up your own group. It only needs one person to make the first move.

We do offer an affiliation to local user groups as long as one person in the group is a member of LASERBUG (preferably the leader of the group). If your user group would like to be affiliated to LASERBUG then please drop us a line. Affiliation to us does give you several advantages. For a start this provides you with a "big brother" with whom you can refer to for anything. Secondly there is our Club Reports page which is reserved for anything the affiliated clubs want to use it for whether it be the news of a big event or just a report on your last meeting. Thirdly we offer clubs discounts on subscriptions – if three or more people from one individual club wish to subscribe to LASERBUG as long as all the copies of the magazine are sent to the main address and distributed from there we are prepared to offer a 10% discount on each individual fee. Apart from that if affiliated clubs need any other help that we can offer let us know and we will see what we can do.

Anyway, the present list of local user groups is:

Geoff Barker, Cardiff BBC Computer Club (CBCC). Penarth 701023. Holds meetings on alternate Wednesday evenings in the Applied Science Lecture Theatre of University College, Newport Road, Cardiff. Extensive facilities at the Lecture Theatre. After only three months had 60 members.

James Bridson, Barnsley Computer Users Group, 39 Keresforth Hall Road, Kingstone, Barnsley, S. Yorkshire, S70 6NF. 0226-41753 (after 4.30 p.m. please).

John Claydon, North London BBC Microcomputer Users Group and Education Workshop. 01-889 5446. Meetings held at Bounds Green Junior School, Park Road, N11 on the second Sunday of each month at 2.00. Fee of approx. £1/meeting to cover costs. AFFILIATED TO LASERBUG.

G.W. Goodacre, CHELMERBUG, 34 Quilp Drive, Chelmsford, CM1 4YA. Formal meetings held on the first Wednesday of each month at a local school. Informal meetings in-between in members homes.

Nick Goodwin, South-West Wales BBC and Electron User Group (allied with the Swansea Computer Club at present). Meetings every Tuesday above the Three Lamps pub in Swansea. AFFILIATED TO LASERBUG.

Nick Lamb, 23 Gaywood Close, Caistor-on-Sea, Great Yarmouth, Norfolk, NR30 5RD. 0493-728442.

Norman Lambert, Orpington Computer Club, 11 Vinson Close, Orpington, Kent, BR6 0EQ. Meetings held every Friday evening at a local church hall.

C.J. Manvell, Skye and Lochalsh Computing Society, Tigh na Pairc, 25 Breacais Iosal, Isle of Skye, IV42 8QA. Caters for all machines with the BBC Micro dominating.

Janne Soderberg, Frihetsvagen 32, S-175 33 Jarfalla, Sweden. Phone 0758-317 53 (caters for the Atom as well as the BBC Micro).

Richard Sterry, 1 Wavell Garth, Sandal, Wakefield, West Yorkshire, WF2 6JP. Telephone Wakefield 25515 for more information.

All enquiries about Meeting Place or Affiliation should have the words User Group in the top left-hand corner of the envelope.

This feature has been going very well. Most of the high scores are obtained on Acornsoft games so we dropped a line to them, asking if they kept a record of the highest known high scores on their arcade games. It turns out they did – thus smashing most of our old high score chart to ribbons! Upholding the name of LASERBUG though is Ian Cook who has a high score on Snapper beating anything Acornsoft has on record. Other new high scores this month (other than the Acornsoft ones) are from Ian Coldicott and Andrew Graham.

Arcadians (1)	35 000	Neil Raine
Atlantis (2)	39 650	Andrew Graham
Galactic Firebird (3)	10 400	Ian Coldicott
Missile Base (1)	50 000	Jonathen Griffiths
Meteors (1)	44 000	Neil Raine
Monsters (1)	110 000	Neil Raine
Planetoid (1)	408 000	Neil Raine
Rocket Raid (1)	135 000	Nick Pelling
Snapper (1)	240 830	Ian Cook
Starship Command (1)	2 152	Jonathen Griffiths

KEY:
(1) Acornsoft
(2) IJK Software
(3) Kansas

Don't forget if you have a high score beating those above then please write in, making sure you have a witness sign the letter. Also, if you have any other arcade game listed above that you have obtained a reasonable score on, drop us a line.

*FX update I

Last month, we published a list of 90 *FX calls – the only time as far as we know anywhere that all of the known calls have been published in one list. However, at that time we said there were still 66 unknown calls!

With the help of Dr. Susans and Dave Atherton, we are able to provide you with 11 more to add to your list:

*FX141	Equivalent to *ROM	*Dr. Susans*
*FX154	Write to video ULA at &FE20	*Dr. Susans*
*FX155	Write to video ULA at &FE21	*Dr. Susans*
*FX179	Reset for OSHWM	*Dr. Susans*
*FX180	Current OSHWM (used by BASIC to initialise PAGE)	*Dr. Susans*
*FX189	Read number of ADC channels (as set by *FX16)	*Dr. Susans*
*FX194	Read flash period 2 (as set by *FX10)	*Dr. Susans*
*FX195	Read flash period 1 (as set by *FX9)	*Dr. Susans*
*FX209,x	Turns off (x=0) or on (x=0) the speech synthesiser	*Dave Atherton*
*FX242	Read cassette motor status – off=&64, on=&E4	*Dr. Susans*
*FX243	Read offset address of real time clock. Contains 5 or 10 with clock stored at &28D + offset	*Dr. Susans*

Dr. Susans gets £10 and Dave £5 for their efforts.

Don't think this is it!!! We still have 55 more calls to find out about – 119, 120, 121, 122, 143, 157, 160, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 181, 182, 183, 184, 185, 186, 187, 188, 190, 191, 192, 193, 198, 199, 201, 203, 204, 205, 206, 207, 208, 215, 216, 217, 218, 221, 222, 223, 234, 238, 239, 240, 244, 250 and 251.

101 CALLS KNOWN/55 TO GO – Let us know if you discover any more, there's a prize for all we publish.

If you are a member of LASERBUG you will have a membership card – that card not only proves that you belong to LASERBUG but also entitles you to special discounts that certain companies have offered. First, to recap on the old list:

Dracal – 5%	Design Sheets/Monitor Stands	Dracal (North West) Ltd., P.O. Box 130, Warrington, WA1 4QB.
Futura – 25%	Games Software	Futura Software, 63 Lady Lane, Chelmsford, Essex, CM2 0TQ.
Silent Computers – 10%	Monitor Stands	Silent Computers, 27 Wycombe Road, Tottenham, London, N17 9XN.

Full details on these companies offers were given in issues 6, 9 and 10 respectively. Please quote your membership number both when corresponding or ordering goods from these companies.

This month we have been offered tremendous discounts on all manner of Beeb hardware – even on the computer itself!!! These are from Comp Shop Ltd of New Barnet: Full details are:

Product	**Price**	**Offer**	**+VAT**	**Discount**
BBC "B"	347.00	337.00	387.55	3%
A to B Upgrade (fitted)	80.00	60.00	69.00	25%
Disk Interface	95.00	90.00	103.59	5%
BBC DISK SYSTEMS				
40 Track Single 100k	229.00	219.00	251.85	4%
80 Track Dual 800k	699.00	649.00	746.35	7%
CUMANA DISK SYSTEMS				
40 Track Single 100k	199.00	179.00	205.85	10%
40 Track Dual 200k	369.00	329.00	378.35	11%
80 Track Single 400k	345.00	299.00	343.85	13%
80 Track Dual 800k	619.00	549.00	631.35	11%
2-Drive Cable	15.00	12.00	13.80	20%
MICROWARE DISK SYSTEMS				
40 Track Single 100k	179.00	149.00	171.35	17%
40 Track Dual 200k	325.00	299.00	343.85	8%
40 Track Dual 400k	425.00	399.00	458.85	6%
80 Track Dual 800k	619.00	549.00	631.35	11%
Torch Z80 Disk Pack	780.00	749.00	861.35	4%
Epson ZX80	438.00	350.00	402.50	20%
Epson MX100	489.00	429.00	493.35	12%
OKI Microline 80	229.00	189.00	217.35	17%
OKIMicroline 82A	396.00	339.00	389.85	14%
Olivetti Bytewriter 30	485.00	349.00	401.35	28%
Olivetti Bytewriter 35	485.00	389.00	447.35	20%
Hitachi 9" B/W	132.00	99.00	113.85	25%
Kaga 12" Green	119.00	99.00	113.85	17%
Microvitec RGB Monitor	259.00	225.00	258.75	13%
DISKETTES PER 10 (VERBATIM)				
40 Track Single Sided	25.20	19.00	21.85	25%
40 Track Double Sided	36.50	29.00	33.35	21%
80 Track Single Sided	32.90	29.00	33.35	12%
80 Track Double Sided	45.40	35.00	40.25	23%
Library Boxes	3.50	2.40	2.76	31%
Monitor/Disk Plynth	14.77	12.00	13.80	19%
Zygon Desk/Stand	59.00	54.00	62.10	8%
RIBBONS				
Microline	2.50	2.20	2.53	12%
Epson MX/FX80	8.50	5.99	6.88	30%
Printer Leads	15.00	12.00	13.80	20%
2000 Sheets Printer Paper	15.00	12.00	13.80	20%
C12 Cassettes (Per 100)	40.00	30.00	34.50	25%

Postage on large equipment £10.00.
Postage on smaller items at cost.

As you can see, there are discounts on almost everything ranging from 3% to 31%!!! As with the other offers, please either quote your membership number or, if making a personal call, please take your membership card along. Comp Shop can be found at 14 Station Road, New Barnet, Herts., EN5 1QW. Telephone 01-441 2922/01-449 6596. Telex 298755 TELCOM G. We would like to take this opportunity to thank Bill Wood of the Comp Shop for his help and assistance.

tape talk

Got problems with your tape recorder? If so read below. This month in Tape Talk we look at two things, both from Dr. Susans. If you only have OS 0.1 (look on the back cover for how to get a 1.2 ROM) then you are more than aware of the OS bug that means about 1 in 16 times the first block does not record. Dr. Susans has the answer.

The program below is an alternative to the well known cassette recorder fix for OS 0.1. It is the same code as is produced by the assembly language version but by pokeing directly into memory it occupies only 205 bytes of memory instead of the 486 bytes used by the assembly language version. This saving can be very useful when the fix is incorporated into a long program where the use of files makes the fix essential.

```
>LIST
  10REM OS 0.1 CASSETTE BUG FIX
  20REM    by Dr.D.E.Susans
```

```
30REM Only 205 bytes if REMs
40REM       taken out !
50:
60   :::::
70:
80*KEY10OLD¦M?&218=&F6690DD0¦M
90DATA&F5212048,&91C96068,&E014D0,&BDBA10D0,&F7C901
02,&A20BF0,&98D91A9,&606C60FE,&206868DB,&7B20F9D8,&DE8
20FB,&F7FB4C
100¦218=&F6690DD0:RESTORE90:FORI%=0TO47STEP4
110READX%:I%!&D00=X%:NEXT
```

When loading programs from cassettes it sometimes happens that errors continually occur. This may happen with cassettes that previously loaded correctly or only on commercial cassettes or those not recorded on the loading recorder. There are a number of possible reasons for these errors. Dirt on the head is a common cause of intermittent errors which increase in frequency with time. Cleaning the head should remove these errors.

Poor head alignment is another cause of problems. Here there are no problems when saving and loading from the same machine. However when different machines are used, the high frequency components are reduced and this can make the level setting very critical or even impossible. Fortunately, this misalignment is seldom serious in this context.

A much more serious problem is that of speed errors in either the SAVE or LOAD recorder. Again, if the same recorder is used for both operations the errors cancel unless speed variations occur due to failing batteries or a sticky cassette. I have found that there are appreciable errors in some commercial cassettes, a selection of Acorn cassettes showed a spread of 14%! The specified computer tolerance is +/– 10% and this leaves little room for errors in recorder speed.

One way to check the speed is to "load" a program (preferably as long as possible so as to reduce timing errors) and to time the loading operation. The timing should start at the beginning of the data and finish at the end of a data block. The number of data blocks should also be counted. The average time for one block can then be calculated. The result should be 3.5 seconds (1200 baud). It is not necessary to actually load the program to do this but to check if it is possible to listen to the recording.

If the program will load and the recorder is switched by the computer a simple way of measuring the time is to set the cassette as near to the start of the data as possible then enter *KEY0 TIME=0¦M T%=TIME/((TOP–PAGE)DIV256+1)¦M PRINTT%/100;"secs"¦M. Then pressing £0 will load the program and at the end print the average block loading time.

Carrying out the above operations for a recording just made on the same recorder will give the "correct" average block loading time, any errors on the other cassettes can then be seen. Consistent errors for several different tapes probably indicate loading speed errors whilst variations in average block times indicate recorder errors particularly if repeats of the same tape give the same block times.

If it is found that commercial recordings are consistantly slow then it could be that the recorder bearings require a spot of oil or the belt is slipping and the drive requires careful cleaning.

One program I have found useful for this check is the KINGDOM program on the WELCOME tape, this should take 117 seconds to load. On my normal recorder it takes 107 seconds!!!

D.E. Susans

Got something to sell or buy? If so then LASERBUG classified Ads are for you. Rates are 10p/Word (minimum 15 words) or £10 per column centimetre (minimum 2 centimetres). Send your cheques/PO's made payable to LASERBUG to Classified Ads, LASERBUG, 10 Dawley Ride, Colnbrook, Slough, Berks., SL3 0QH. We cannot guarantee your ads will go in any particular issue but will do our best to ensure a prompt service.

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LASERBUG is edited by Paul Barbour.

The contributors this month were Paul Barbour, Nick Goodwin and D.E. Susans.

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