

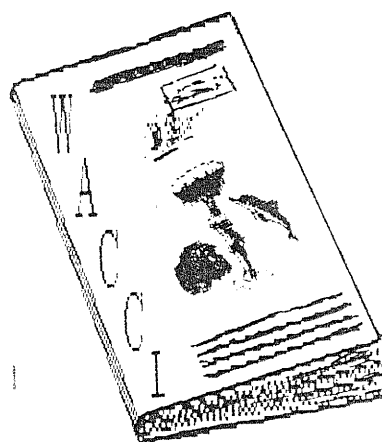
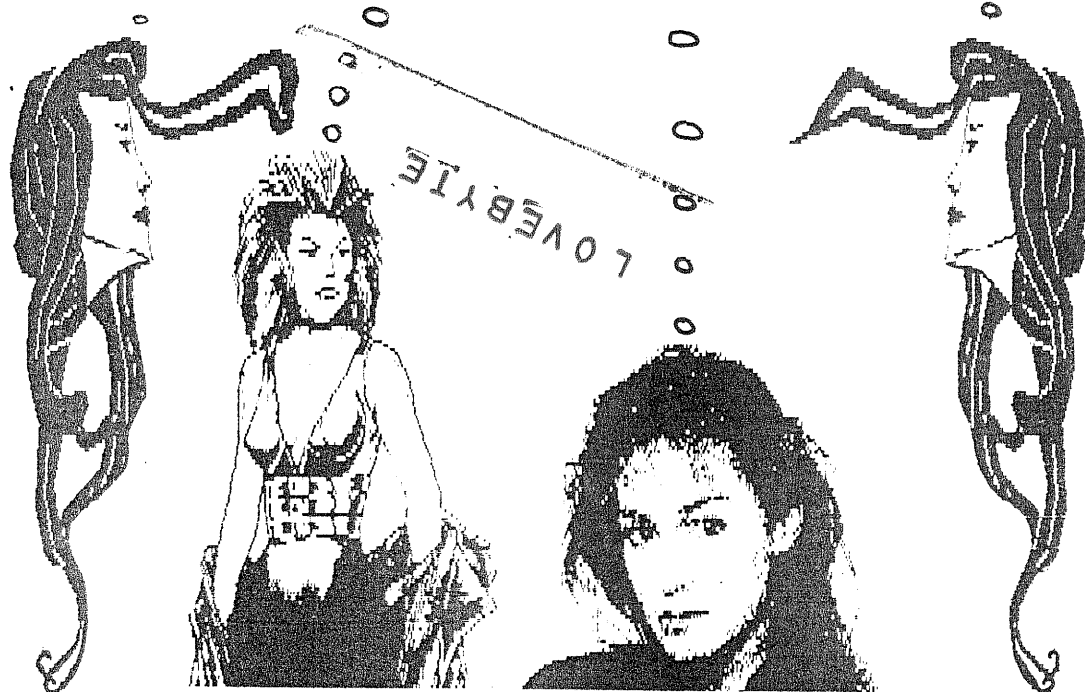
THE UK'S ONLY SERIOUS CPC MAGAZINE

Issue 58 £1.50
September 1992

WACCI PROBE:

SEXISM AND COMPUTING

Men! They only ever think of one thing.



IN THIS ISSUE:

Beginners Basic, Letters, Competitions, Machine Code, Comms, Help-Line, Discounts, Book and Tape Libraries, Public Domain and Homegrown Software and much more...

WACCI

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WACCI : is the computer club for the Amstrad CPC and PCW computers. The club magazine is distributed monthly.

The Telephone Help-Line

Tony Walker, (0772) 651698, Preston, 10.00am to 10.00pm, Comms, Protex, Prospell, Tape to disc, CP/M on ROM.

Brian Norris, (0832) 273973, Peterborough, a specialist on MasterFile III (no less) plus general advice.

Norman Buxton, (0260) 223257, Macclesfield, Basic and farming? <<Control codes a speciality -Ed.>>

Stewart Peppiatt, (0245) 353903, Chelmsford, Basic and Machine Code, DMP2000, VDE, Scrivener and general problems. <<A Tech-Head -Ed.>>

Peter Campbell, (041) 554 4735, Glasgow, OCP Art Studio, Vidi, Basic, Micro Design & Art Programs, CPC plus machines. <<A Comms Guru as well -Ed.>>

Frank Frost, (0983) 882197, Isle of Wight, 4.00 to 10pm, VDE, CP/M and Protex. <<He LOVES a chat but nobody seems to call him up -Ed.>>

Peter Ceresole, (081) 878 0391, London, Protex, Promerge, Utopia and Nukes (amateur status) <<Total nutter to be avoided at all costs -Ed.>>

Paul Graves, (0304) 812342, Ash, All varieties of Pascal (inc Turbo, JRT & Standard). Phone between 5.00pm and 9.00pm Weekdays.

Paul Dwerryhouse, (0244) 534942, Deeside, Clwyd, Basic, Bank Manager, WACCIWORD, WACCI SPELL (ISPELL), and a sympathetic ear. <<He's pretty good at accounts. -Ed.>>

Rob Scott, (081) 552 8900, East Ham, any & all hardware problems plus tape to disc, disc to disc etc. << An electronics genius, -Ed.>> Now with extra Bonzo.

Nigel Mells, (0784) 250763, Ashford, Tape to disc problems, Basic programming and a general natter.

Mike Lyons, (0942) 59942, Nr Wigan, Basic, Stop Press, Dk,tronics Speech Synth, rods and general help.

Clive Bellaby, (0602) 725108, Nottingham, 8.00pm to 9.00pm, Basic, Cobol, Forth, VDE CP/M, Protex, Promerge. <<Dominoes a speciality. -Me.>>

Chris Smith, (0252) 24721, Aldershot, Comms, BB's, Protex, Promerge, Prospell, Utopia, Brunword and general programming problems.

Please Note: This help-line is provided on a voluntary basis by club members to assist other club members. This service is provided to help you. Please call help-liners between 7pm and 9pm (unless stated otherwise.)

If I receive reports of this service being abused by software pirates I will close it immediately.

W A C C I

Edited by 'The Management'

0602 725108

Owned By

The Club Members

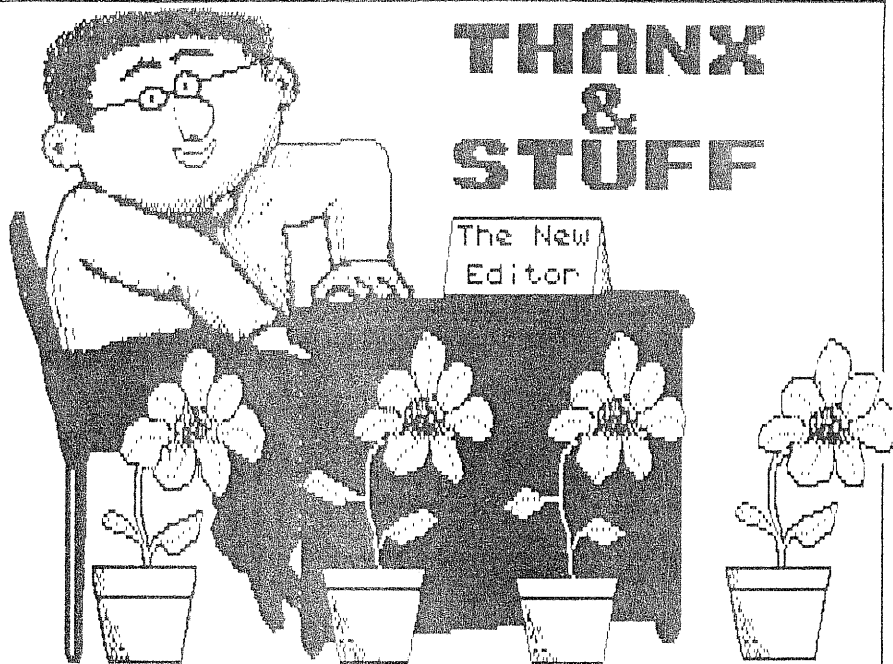
Conceived and Founded by

JEFF WALKER

Developed and Expanded by

STEVE WILLIAMS

THANK & STUFF



Another day, another page, however not all days are the same. Some days are good and some are bad, all you can say for sure it they will be interesting, rewarding and busy. Good days bring lots of 'well done' and 'keep up the good work' letters, orders for software and hardware, new subscriptions and the like. These are the days that keep you motivated, they make life fun and they bring happiness and sunshine bursting forth they're like the first day of spring

MORE NEW PD DISCS

The PD library continues to grow, with four new discs this month, we have now reached a massive 48 PD discs. That's a massive 16 Mbytes worth of software.

By the time you read this all the outstanding disc orders should have been despatched - so if you are still waiting for your order to arrive, drop me a line and we'll chase it up

APOLOGY AND UPDATE

I'm sorry, there was a mix up in WACCI 57 over the date of the Birmingham All Formats Computer Fair. John Ridding (Ex of the All Formats Fairs) told me it was on the 6th September, however I didn't get the new advert so I didn't realise that the date was wrong. It was on the 5th September (oh dear.)

If anybody turned up on the wrong date - my sincere apologies. John has since left the All Formats Fairs to start a similar venture of his own.

In case you're wondering, I finally got the new advert on the 28th August. Who was it who said I was St. Clive?

WHO DID IT

Paul Derryhouse did the MicroDesign layout and Mike Lyons and I laid out both Hardcopy and Fair Comment, thanks a lot. It all helps

COMPETITIONS

The month's front cover was designed by Andy Frame, Barrow in Furness, and it wins a copy of MicroDesign plus as one of the winners to competition #2. Well done Andy - the prize will be on its way to you shortly.

ALL FORMAT FAIRS

I've checked the dates to ensure that there are correct and we'll be at these shows:

19 Sep	Donington Park
4 Oct	Leeds
10 Oct	Edinburgh (probably)
11 Oct	Glasgow
17 Oct	Novotel, Hammersmith
24 Oct	Haydock Park

So why not take advantage of the £1 off vouchers and pop along to see us.

MONEY, MONEY, MONEY

We're doing quite well thank you. That may not be much of an answer - but it's true. PD discs and the Firmware guides are continuing to sell well, as are blank discs. Membership is steady at present, but it is expected to rise over the next few months.

Paul Derryhouse continues to keep a tight control on the finances, and we

have more money and assets than we owe to members and suppliers. I've talked to Paul and we foresee no problems.

EXPANSION SLOT KITS

The BIY (Build It Yourself) kits to go with the 'Expansion Slot' series will be ready in mid October. The I-O port kit will cost £25 and the twin 7 segment display module will cost £10.

You'll need a 7 volt (or greater), 500 milliamp power supply. If you haven't got one, don't panic, we can supply the for £6. Steve Hammond will be supplying the kits at cost to club members only.

We'll print full details in next months WACCI of specification, price, ordering method and costs.

A SAD FAREWELL

It's with great sorrow that I have to tell you of the death of Bill Lawson. Bill passed away in July after a courageous fight against illness. Bill was a senior club member (aged 81).

Bill spent much of his life developing and working with the early computer systems.

Bill was a well known, liked and long standing club member, who for many years was on telephone help-line. Bill was one of the members who helped raise the money needed to refloat WACCI. Bill will be sorely missed by all.

** COMPETITION SPOT ** COMPETITION SPOT ** COMPETITION SPOT **

HERE WE GO

Once again I find myself at the start of a page, and one again I sit here wondering how on earth am I going to introduce the competition? And once again my mind is a complete blank.

COMPETITION FOUR

Which was to write a story or the like for inclusion in WACCI. We received around 10 enteries, all of a very high standard, so we've decided to award a prize to every entry that's published in WACCI. The first winner is on page 18, it's 'The Cook Report' by

Angela Cook, Worthing, Sussex

Okay Angela. please let us know which three discs you want and we'll send them straight to you

COMPETITION THREE - RECORD ENTRY

Competition number 3 received a record number of enteries, over 40 in fact, whilst yours truly had the task of

picking a winner from the hat. Before I do that, I should tell you that we have agreed to issue one first, two second and three third prizes of 3, 2 and 1 disc(s) respectively. So without further delay: the winners are:

1st Prize (1 winner - 3 PD Discs)

David Roach, Bisley, Surrey

2nd Prize (2 Winner - 2 PD Discs)

K J Newman, St Albans, Herts
R M Briscoe, Howick, New Zealand

3rd Prize (1 PD Disc)

Steve J Lee, Ramsey, Cambs
Frank Ellis, Botley, Oxford
R Hawkins, Nether Hayford, Northants

finally, can I say well done to all of you who entered, got the right answers but did not win. My commiserations and best wishes for Competition number 7.

COMPETITION NUMBER SEVEN

I have to think up a competition for this month. It not easy trying to set the correct level, they have to tough (to ensure they are worth winning) but not so hard as to put people off entering. The prize? 3 PD discs.

1. You have 5 pieces of chain, each piece made up of 3 links. It costs £1 to break a link and £2 to join a link. How much will it cost to join the five pieces of chain to form one long bit of chain?

2. You have some matches, they have been laid out like so

$$\begin{array}{r} \times \times 11 \\ \times \times 11 \\ \hline \times \times 11 \\ \times \times 11 \\ \hline \end{array} = 11$$

You can only move one match. Your task is to correct the equation. There are two possible answers and we'll accept either.

Answers to WACCI by the 30 October.

* DISCOUNTS ** SAVINGS ** DISCOUNTS ** SAVINGS ** DISCOUNTS *

SIREN SOFTWARE, Wilton House, Bury Road, Radcliffe, Manchester, M26 9UR (Tel: 061 724 7572)

10% discount on all their CPC products: including 3.5" disc drives, software and blank discs. They will also supply a copy of their 3.5" disc drive utility FREE with each drive ordered.

BRUNNING SOFTWARE, 138 The Street, Little Clacton, Essex, CO16 9LS (Tel: 0255 862308)

Get a generous discount on Brunning products. Access or Visa cards are allowed 10% discount, but those of you who order by post enclosing a cheque are allowed 14% discount.

CAMPURSOFT, 16 Slatefield Street, Gallowgate, Glasgow, G31 1UA (Tel: 041 554 4735)

Campursoft discount both MicroDesign and MicroDesign plus for WACCI members. Save £3.00 on Micro design plus, yours for only £11.99. Or you can buy both packages for only £27.99 (saving over £6.00 on the individual prices.)

SD MICROSYSTEMS, PO Box 24, Holbeach, Lincs, PE12 7JF (Tel: 0406 32252)

10% off all Software and Consumables, whilst Hardware items will be post free. Software includes: Home Finance £14.95, Kwifile £12.50, General Ledger £29.95, Stock Accounting £39.95, Small Trader's pack £29.95, Payroll £52.50 and more

MJC COMPUTER SUPPLIES, 2 The Arches, Icknield Way, Letchworth, Herts, SG6 1UJ (Tel: 0462 670301)

Mike Cooper the big white chief and a keen CPC follower (and is a computer buff at heart.) We can expect "Special Offers" on certain items in the form of an "on-going" list of discounted products. More news on this when details have been worked out.

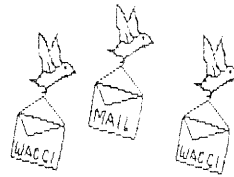
GOLDMARK SYSTEMS, 51 Comet Road, Hatfield, Hertfordshire, AL10 0SY (Tel: 0707 271529)

Specialist software for the CPC's. Willing to give members of WACCI 10% discount off all Software and Hardware (But NOT off special offers or on disc prices). There should be an insert in this issue from GOLDMARK and please refer to same.

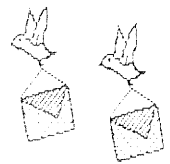
PROPAC COMPUTER GROUP, 153 Pickhurst Rise, West Wickham, Kent, BR4 0AG (Tel: 081 777 6241)

Offer you an extra £20.00 off their prices. Give Alex Kinch a ring. (Their new catalogue will be issued shortly.)

Fair Comment



Mike Lyons
85, Leigh Road
Hindley Green
Near Wigan
WN2 4XF



GRAPHIC DESCRIPTIONS

Dear Sir, <<?>>, I've been having problems printing out graphics on my Amstrad 6128, and wonder how people have got round the problem. I have a Talisman MT81 printer, <<Isn't that a Mannesman Tally?>>, which works fine with word processing programs. But when it comes to printing graphics nothing happens. As far as I can work out, the printer set up switches are OK. The printer lead is wired up correctly, (I am not getting double line feed.) But I have noticed a fault in the Amstrad printer output: inputs are D0-D6, printer has D1-D8.

Can yourself or anyone out there reading this letter supply me with the correct set-up for this printer?

Thanks in advance for your help.
S G Holland
Portsmouth

<<Hi, there, S.G.. formal aren't we? Looks like you've got a little bit of a problem there. I don't know the Mannesman Tally very well, but if it is printing out characters I can see no reason for it not to print out graphics. If you think about it, if it was the output connections which were wrong, you wouldn't get anything at all. In any case the numbering is merely a convention. I would ask you the following questions:-

- 1) What software are you using to print out your graphics? This could be important.
- 2) Do you have the manual for your printer? You need to know the correct control code sequences if you are printing graphics from your own basic programs.
- 3) Epson or IBM compatible. This makes a BIG difference. Sometimes a DIP switch allows you to change from one to the other.

For graphics, most printers will accept the codes <ESC> "K" n, <ESC> "L" n or <ESC> "Z" n to produce what are called single, (or double or

Quad(ruple)), density 8-bit graphics. The form of these commands is usually something like:-

```
<ESC> "K" n1 n2 m1 m2 m3 .....  
27 75 n1 n2 m1 m2 m3 .....
```

n1 and n2 form a 16-bit number which is the width, (in dots), of the image. m1, m2 and m3 are the bytes of dot data which represent a line of eight vertical dots.

The most significant bit, (MSB), is at the top of the line and the least significant bit, (LSB), is at the bottom of the line. Each line of the image must have n1+n2*256 bytes of data and the <ESC> "K" code must be sent for each line of the image.

On my own printer, eight inches is equal to 480 dots in single density and 960 dots in double density. In this case the <ESC> "K" and <ESC> "L" commands would look like this:-

```
<ESC>"K" 224 1 m1 m2 m3 m4 m5...  
(480 bytes of data.)
```

```
<ESC>"L" 212 3 m1 m2 m3 m4 m5...  
(960 bytes of data.)
```

In order to use these commands intelligently you need to know exactly what you're doing. It's definitely not a task for us lesser mortals. Hope this is helpful, but my best advice would be to get hold of a good graphics package, which will cater for most printers. -Mike.>>

a second disc drive and a ROMbox. I got in touch with Siren Software to order them and take advantage of the 10% discount. No such luck. The disc drive and the ROMbox were full price.

The only things that a discount is given on are 3.5" discs. If you are a member of WACCI and you buy ten 3.5" discs, then you will be given 10 more discs free. So could you please let other members know about this, especially Stamper, as he did all the hard work getting the discounts.

Yours faithfully
Dave Grimshaw
Salford

<<Hello Dave. Seems like a bit of a misunderstanding there. Here's Stamper with an explanation. (Stamper here, Dave. The reply I got from Siren software, signed by Simon Cobb, paragraph two, reads thus:- "We will be pleased to offer a 10% discount on all our products for the CPC including 3.5" disc drives, software and blank discs." un-quote.

I am now in the process of taking this up with Simon and hope for a favourable outcome soon..... Later-two days in fact. I have been in touch with Simon Cobb, Dave, and he apologises. The slip-up is due to lack of communication with the Despatch Dept. If you get in touch with him he promises to sort things out for you.)

Now Dave, what could be better than that? All sorted and in only two days. Better than the Royal Snail. -Mike.>>

SIREN SONG SUNG BLUE

Hi there, in April I ordered 4 discs for copying and they arrived in May. The problem now is that the cheque for these discs has not been cashed. I sent my order to Chris Smith along with a cheque for £4.50 (I added the 50p to cover postage. Could you please trace this cheque and get it cashed. I know we're short of cash, however not cashing cheques doesn't help funds.

On to another subject now. After reading the discounts page in issue 55, I decided I would treat myself to

ANTIPODEAN LOTTERY

Dear Clive, your address appears in the May edition of Amstrad Action and I am seeking your assistance to win our TATTSLOTTO 45 number game.

My problem is that I have a system to regularly pick six winning numbers which are in a selected group of eight to twenty three numbers. The problem occurs when I box 3 numbers in groups of 6. I am missing out on the money.

My request is, would there be such a program written to show every possible combination of numbers in groups of 6,

7 or 8 to suit an Amstrad CPC-464 with 001 3 inch disc drive and a 5 1/4 inch FDI second drive?

If a supplier's name and address could be found, I am sure that a large donation (in a plain envelope) will soon be on its way to you.

Please advise of membership details and costs. I look forward to an early and favourable reply. Sincere regards,
Lionel Barry
Victoria, Australia

<<Wotcha Cobber. This is Mike Lyons here, if you're reading WACCI, (which I doubt, otherwise you would have our address anyway.) I would have thought that a program to produce combinations of numbers would be fairly straight forward, though if you are picking 6 numbers from a possible 23 then the number of combinations possible is something over 72,000,000. In fact, my calculator says there are:-

23P6 = 72,681,840
23P7 = 1,235,391,280
23P8 = 19,769,460,480

This would be one heck of a print out. I don't know of any program of this kind available in England, as we don't have any kind of national lottery, (at least, not yet.) Does anyone know of such a program anywhere? Let us know and put our antipodean colleague out of his financial misery. -Mike.>>

EXTENSION INTO NEW DIMENSIONS

Dear Mike, the recent article in WACCI by Al Cooper about changing HARDCAT into CATLABEL planted the thought that you might be interested to know how I adapted the HARDCAT program to cater for the massive number of directory entries in the high capacity drives.

First you must understand that I have a minimal knowledge of BASIC programming and that I am even more anxious than Al to proceed with the minimum effort.

I began by fiddling with the program itself, but it soon became clear to me that I needed a different approach. I recalled the printer echo facility under C/PM Plus and I wondered if it would be possible to get this under Basic. I have amassed a collection of magazines over the years and my arduously compiled index of type-ins

paid off in the form of a Printer Echo Utility which appeared in the December 1987 issue of CWTA.

On typing out and running this program I found that it set up two RSX's, !PRINTER,1 (on) and !PRINTER,0 (off), for incorporation into BASIC programs. I duly incorporated them after line 110 in Hardcat with !B:CAT in between them, and deleted the CAT command at the end of line 30.

When running these two programs in the right order, I found I got the usual heading printed out, followed by a list of all the files but with the amount of free space at the end of the list instead of the heading.

Unfortunately, I did not get a catalogue of files before being asked for the title of the disc, which did not assist identification. I could have lived with this but eventually I decided to insert a new line, line 65:

```
65 !B:CAT:PRINT"HAVE YOU DECIDED ON A  
TITLE FOR THIS DISC?(Y/N)
```

followed by a short INKEY\$ routine to give myself time for this momentous decision. Carried away by my success, I added "DATE" to the heading with a new line 105 and some amendments to line 110. Finally I RENUMBERED and MERGED the two programs.

I know that this program works to my satisfaction, but I am sure that it can be improved considerably. I also think that several lines of the original HARDCAT could be deleted.

I do hope that the various original programmers- IAN C.SHARPE for the P/E utility and J.N.MACKLIN & T.WALKER for the HARDCAT will forgive me for taking liberties with their work and I know they could do much better than this.

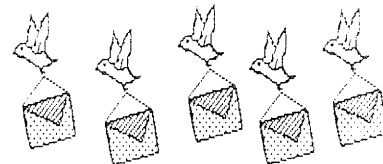
A copy of the program, entitled HARDCATX, follows this letter on disc.

Yours sincerely
Vic Baldwin

<<Thanks Vic. I've tried your program out and it works very well. What it needs now, I think, is an enhancement to catalogue all of the user areas. I try very hard to avoid having a lot of files in one user area on big discs. The ROMDOS manual does, in fact, recommend not having more than 140. I, myself, recommend not having more than about 80, (20 lines at 4 files per line), as this avoids losing filenames

off the top of the screen. St. Clive now has a copy of HARDCATX, which he will do with as he will. -Mike.>>

<<Hiya Vic, this here am Clive and I'm not a Street as suggested by Mike. Thank you for the program, it will be appearing on a WACCI PD disc near you very shortly. Cheers. -Clive.>>



LOCK UP YER WOMEN - HE'S ABOUT

Dear Clive et al! Yes, it's Stamper, back again with a short note to let you know that there are two reviews of new items to appear (I hope) in the near future all being well.

The first one I hope to accomplish is to take an XL for a test drive--- LOOK OUT Nigel Mansell. No! not the latest two fifty thousand Jag. but the new ROMDOS XL. from Siren software. A snatch preview shows it will have two new commands (and having the Romdos version at the moment) it looks as though the new utility menu will be offering some 'goodies' to make life that bit easier - There one or two small snags to iron out before it takes to the road but I'm informed these should not take too long.

The other one is a release from Goldmark which I gather is aimed specifically at MicroDesign although I am not au fait (what ever this might mean) as to what its ultimate target is to be at the moment. I gather that the program is just about ready for reviewing so look out for next month's WACCI when I hope to let you all know just what it can do.

Now to more mundane things. If any of you out there have any trouble with regards to any discounts, please give me a ring and I'll try and sort the matter out for you. The suppliers that I have been in contact with have all been straight forward and I have every faith in them. Their are one or two firms (No names-No pack drill) that I could not recommend to you. Cheers.

Stamper J Metcalfe
Sheffield

<<Hi Stamper, I don't mind you driving the XL, but for goodness sake, don't let Al 'L' Cooper near it - remember what he did to HARDCAT. -Clive.>>

A BIT DOTTY

Dear Clive, I would like to borrow two discs (2 and 12) from the Homegrown library. I enclose my cheque for £2.00 plus a few stamps towards postage.

I get a great deal of enjoyment from grabbing screen shots and printing them out on my LC-10 printer. I've an excellent screen dump routine, SHADUMP (obtained from Print-out), which uses 'bit-image graphics mode'. I also use Advanced Art Studio but the screen dump routine is very poor compared to "Shadump". Using an assembler I have re-defined the print routine to 'bit-image graphics mode', but the result is still poor. Can you offer any help? I would be very grateful. I enclose a copy of the assembler listing.

Yours sincerely
Stephen Sharrad

Listing:- Hisoft GENA3 Assembler

241D 00	10	DEFB 0
	20 ;	
241E 18	30	DEFB 27
241F 41	40	DEFB 65
2420 07	50	DEFB 7
2421 00	60	DEFB 0
2422 00	70	DEFB 0
2423 00	80	DEFB 0
2424 00	90	DEFB 0
2425 00	100	DEFB 0
	110 ;	
2426 4002	120	DEFW 576
	130 ;	
2428 00	140	DEFB 0
2429 00	150	DEFB 0
242A 00	160	DEFB 0
242B 00	170	DEFB 0
242C 00	180	DEFB 0
242D 18	190	DEFB 27
242E 2A	200	DEFB 42
242F 05	210	DEFB 5
	220 ;	
2430 C003	230	DEFW 960
	240 ;	
2432 00	250	DEFB 0
2433 00	260	DEFB 0
2434 00	270	DEFB 0
2435 00	280	DEFB 0
2436 00	290	DEFB 0
2437 00	300	DEFB 0
2438 18	310	DEFB 27
2439 4C	320	DEFB 76

lines 110 to 220 inclusive refer to the 'Bit-Image Graphics Mode'

<<Now then, Stephen. Mike here. Your discs should have arrived in your lap by now. I hope you enjoy them.

Printing Graphics. Hmm. What you need to consider is that the printer routine in Advanced Art Studio has to be very general and flexible. You need to indulge in careful consideration as to the sizing and orientation of your masterpiece on the paper. You also need to think about single or double density printing. I have had some very good results, using the given dumps, from Advanced Art Studio. I generally use single density for draft print-outs to see what the thing, (that's a pretty close description, too, given my level of artistic talents), looks like and then using a double density print to produce the final gem.

Advanced Art Studio itself is also quite an old program, so it may not be able to take advantage of any special graphics modes you may have available.

If you're using <ESC> "*" to print bit-image graphics then, unless your LC-10 is noticeable different to my LC-200 the numbers available after the <ESC> "*" are 0,1,2,3,4 and 6 5 is not amongst them.

This command converts standard graphics issued via <ESC> "K" and <ESC> "L" into a different bit-image mode. As the Advanced Art Studio only prints in either single or double density 7-bit graphics, (i.e. it uses the 'normal' Amstrad 7-bit printer port), I can't see how using this particular bit-image mode will help you. I'll try to explain.

In fact, Stephen, all the graphics modes are bit-image modes. The numbers sent to the printer are a picture, (in binary), of the screen to be printed. The only differences are in how many pins are 'fired' at the same time and how closely the dots are spaced.

If your printer can print at 8-bit Quad(ruple)-density it will print at 240 dpi, (dots per inch). This may give a clearer picture. You would have to change the number in line 120 to 1920, (8" * 240 dpi). If this isn't satisfactory, replace the 1920 with 960, which will give a half-wide print out at high density. You will also have to set the correct print mode. It might be better to try using <ESC> "Z" for quad-density graphics as you also need to send <ESC> "?" to convert the graphics from Advanced Art Studio's

<ESC> "K" and <ESC> "L" sequences. As you might guess, this is getting a bit awkward, (no apologies for the pun.) Just to make it clear:-

Step 1: Send <ESC> "*" n to set bit-image graphics mode.

Step 2: Send <ESC> "?" n to convert following <ESC> "K", <ESC> "L" or <ESC> "Z" commands from Art Studio.

Step 3: Send <ESC> "K" n...etc, (or <ESC> "L" n or <ESC> "Z" n), to print your picture.

Good Luck. I think you're going to need it - unless someone else knows differently. -Mike.>>

SNAIL MAIL STRIKES AGAIN

Dear Mike, First of all it is good to see you well again. This letter is more of a warning to the readers of WACCI than anything else.

I know we have to use the Royal Mail nearly all the time and, bearing in mind that there are 56 million people in England, I think they do very well.

My family have foreign students staying in our home and sometimes we receive letters with just Family Cokk, Worthing written on them. But, on the other hand, we have had about ten parcels lost in the post. Either being sent to us or when we send them out. A Multiface has gone missing, discs, magazines, books, games and various items not to do with the computer but equally valuable. The latest addition to this list is a £90 printer which I saved up for six months to buy.

As you can gather by now my family and I are very fed up with both the Royal Mail and Parcel Force. Bad manners and sarcasm in this situation do not exactly help the issue either.

My plea is that, when you send any valuable items through the post, use Insured Post, obtain a Receipt of Posting or, even better, opt for a delivery firm such as Securicor. But be very wary when using the Royal Mail and Parcel Force. Battle with them until you get your lost item or the money to cover it - and never let the issue lie. It has happened once too often to my family.

Angela Cook
Worthing

<<Hello Angela, it's nice to hear from yet another member of the female persuasion. It's so refreshing, even though your letter is a complaint.

Now, you know me. I wouldn't dare be sarcastic or bad mannered to our beloved Royal Snail and their large item delivery arm - (Pass, (and drop), the) Parcel Force. However, their recent promises to improve delivery times and the service in general don't seem to be being kept. It seems that *they* now decide *where* the mail will be delivered and whether or not it will be intact when it gets there. I once had a letter take about 12 months to get from one side of Edinburgh to the other - literally, I kid you not.

It's worth bearing in mind that the Royal Snail are not the only carriers, and also that they are not the only ones who can make mistakes. White Arrow recently delivered a parcel, meant for me, to Elida Gibbs Ltd. (That's right, the cosmetics firm), who live in Leeds. How they managed that I'll never know.

I think the message is:- whatever you send, if it's expensive - make sure you insure it. -Mike.>>

A MODERN MAJOR GENERAL

I would like to put Al Cooper out of his misery, <<wouldn't we all -Mike>>, in having to read my article some ten times. The Hybrid Programming article was meant to introduce a broad concept and was not detailed enough to be grasped by someone without a knowledge of machine code and BASIC skills.

If you have read the article three times so far, Al, please stop. Save it to be used as a reference later on. Hopefully, my new series on growing Daisies and four-leaved Clover will help you, <<That's one not to be over-looked, folks -Mike.>>

I suspect that WACCI is read by many persons of various skills, from Professor Alan Tilling, <<He of the cloth ears>>, to your common-or-garden Pat Love, <<there's nothing common about you Pat, love>>, so it's difficult to gauge the technical level that would suit everyone. An article for all seasons? Whatever next?

Incidentally, I hate being beaten - by a Chess-playing program in this instance, (what else), so I took up reading about Chess and learnt about

tactics and strategy. This is where many persons go wrong in that they don't learn about the strategies of programming. Now, don't be put off by my analogy to Chess. Tactics is all about learning the commands and how they operate. Strategy is about stringing the commands together to achieve some goal or goals. Please bear this in mind. You need to know both tactics and strategy before you can successfully write programs. I hope to write about the tactics of machine code programming. Can you help with the strategy side, George? Or anyone else for that matter? Regards,

Pat Love
Middlesex

<<Hello Pat. I was enthralled by your article on Hybrid Programming and I am waiting in anticipation for the follow up, You've left me wanting more.

I always found Chess difficult to come to terms with, probably because of my lack of strategy or tactics, (or both.) Scrabble is more in my line. I very rarely lose against either human or computer opponents, (offers of a thrashing, anyone), but that's a different kind of strategy altogether and tactics of a different order. Each to his, (or her, or its), own.

One final thought. There is always more than one way to skin a cat, (if that's what you want to do.) If one strategy fails there are always others, (usually someone else's.) If at first you don't succeed, buy a budgie. -Mike.>>

PROTEXT PROTECTOR

Hi Mike, Aha! I read John Hudson's "Foreign Languages", (#57), and what do I see? Yuss.....

"I've not yet found an 8-bit CP/M word processor... Newword always displays the 7-bit equivalent of the character on screen."

Well Newword does that, but Protext, (you *knew* that was coming, didn't you Mike?), <<Yup>> displays the accented and other foreign characters correctly on screen. It also has configurable printer driver, which means you can, if you need to, generate characters by changing fonts 'on the fly' and hopping backwards and forwards, things like that. Meaning you can indeed write foreign with a daisy wheel. Ugh.

Both CP/M and AMSDOS Protext will let you embed your predefined printer control codes anywhere in the text without affecting formatting.

Do remember, though, as I think John is saying, that with the CPC you do need an 8-bit printer port to do all this stuff *simply* with a dot matrix or inkjet printer, or the printer has to have a code to set the eighth bit for the next character, or have a software selectable font that includes the accented characters within the first 127. Select and deselect with each character, many happy minutes spent with the printer driver.

Protext has its own screen driver and displays faster on the CPC than any other CP/M program I have used.

Actually generating the characters is pretty easy too; you can put an accent onto any normal character with a Ctrl/O+number combination, (this is easier than a CHR\$(n) combination) and there are extra weirdies available. As you don't need to use LANGUAGE or SETKEYS you get to keep all the standard characters.

If you want to design your own, like Greek characters for example, you can substitute any on-screen symbols you want using the "SYMBOL" command, (in AMSDOS too of course.) And if you have an IBM character set in your printer, and an 8-bit port, you can print 'em.

A word of caution; CP/M Protext has the drawback that it needs a RAM disc for its swap-file to work at any speed, certainly if you intend to have files bigger than about 10k. My KDS 8-bit port would not co-exist with the DKTronics silidisc, so I would do all the writing and hacking with the silidisc and *then* fire up the port to print the full eight bits. There are other ways, using butchery, of getting your CPC to output eight bits to the printer, and if you can find someone who knows how to do this mod, it seems to be worth it. Otherwise, just use the AMSDOS version which works fine with the 8-bit port interface.

As for Protext itself, okay, so you have to pay for it. But that's the price of excellence.

I'm using Protext v5.5 on a PC now; it's blindingly fast, compared to the CP/M or even the AMSDOS version, which is itself pretty stunning, (and uses key substitutions which are ever so slightly awkward but display correctly

on screen and print fine too.) The great thing is that, if you use the Amstrad versions and you move to the PC, (or ST or Amiga versions), there's nothing to un-learn - you can crack on right away and learn all the new goodies in your own time.

And d'you know, after all that, I still pay Arnor full whack for all the software I get from them? I think I must be missing something.

Peter Ceresole
London

<<Hiya, Unca Peeta. Glad to see you're still doddering along. Once again, you've beaten me to it. I was going to write in and tell everyone about the wonderful work which Protext can do and along comes Good Ole Uncle Pete to get in first. Seriously folks, Peter probably knows more about Protext than the guy who write it. If he says it can it will - And I agree with him, every word. Mutter, moan, gnash, moan, clever clogs, mumble, moan... -Mike.>>

AND SOME FELL ON STONY GROUND

Hello everyone, 'tis I. I'm writing to Mike this time. I'm glad to learn that your throat is getting better now. What's this about Sir Vital? I didn't know you knew a knighted surgeon you name dropper you.

You know folks I met Mike at the Haydock Park WACCI computer show last spring, if you can get to the October one come and have a laugh I'll be there and Clive is going to make an appearance. Back to Mike's throat, his problem wasn't depressive lamentations or what ever he said - his head was on back-to-front. We didn't know if he was coming or going. Anyway Mike, glad you're back and fighting fit.

In issue 57 Andy Frame came up with a good idea of comparing program listings. Andy please send me your programs so I can compare them one month in VbB. Or could this be the start of a further column to swell the annals of WACCI? Is there anyone out there who would like to have a go? Any of my VbB programs may be used within WACCI. If there is someone willing, please get in touch with Clive. If you don't want to write a column but have a program similar to one of mine get in touch with me, my address is somewhere near the back page.

Another part that caught my eye was John Hudson's piece about foreign languages. Last year I thought I would broaden my horizons and learn Greek. Now as we all know the greeks use a different alphabet. <<It's actually a Cyrillic alphabet, listeners, invented by St. Cyril. -Mike.>>

I wanted to be able to write my notes on the computer in an effort to make them more legible. <<Ha. Fat chance>> I tried everything to obtain a suitable package but was met with howls of derisive laughter everywhere I turned. <<Are you surprised? I've seen your handwriting.>> In the finish I ended up by constructing a greek alphabet using Qualitas driven from the Tasword alternative character set. Not a good way to operate but it does prove once again, I suppose, that the good old CPC is a versatile machine.

Mind you it was so cumbersome that I went back to writing my notes by hand. Ah well, such is life.

Don't forget, both hop juice and ice cream are good for the throat. Now there's a thought - hop flavoured ice cream. <<Yuk.>>

Alan Tilling
Altrincham

<<Hello Alan. Interesting to have you on the other side of the counter, (as it were), for a change.

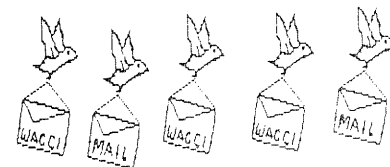
What a revolting thought. How could you ruin good hops by making ice cream with them. I don't know about name dropper, I think you've been at the eye dropper again.

It's all greek to me, Alan. Hold on a bit though, there was a company, a year or two ago who advertised in AA, (I think), who offered some kind of software support in foreign languages for the CPCs including Arabic, Hebrew and Urdu - I'm not sure about Greek and I can't remember what they were called. Can anyone out there remember?

If you have a STAR printer, there may be a font cartridge which will allow you to print out your notes. I know of several Cyrillic alphabets, (mostly Russian and eastern european languages, though), available in this way. The only way to display them on screen would be to design them yourself using SYMBOL.

Tedious, but at least you only have 24 upper and lower case characters to redefine (plus diacritics and accents,

of course.) If you did want a print out you would then have to mess about re-defining printer characters to reproduce your screen characters. Sounds like a lot of fun to me. There's also the tiny little problem of what your keyboard has on it, so while you're busy re-defining and designing you could also make yourself a keyboard overlay. Have fun. -Mike.>>



HIGH MELODRAMA

Dear WacCI, Can I tell you a tale of great sorrow? I can? Thanks. Sitting comfortably? Today dawned much as any other of the 16563 days of my life. As the sun rose in the watery, northern sky I realised that today was to be different. We had loved each other for the past five years were about to part. We been through times of sadness and of fun. We'd known disappointment and frustration and yet, at times we had enjoyed an almost real orgasmic excitement that transcended pure love.

I make no excuses. I am but human. I am a man and as a man I am fickle. I fell in love with another. I fell for one who was sleek, beautifully marked and fast. I shout her name with pure joy "ELONEX 486-33MHZ WITH 100 Mb OF HARD DRIVE". A name of true beauty. I am sure you will agree.

Now we come to the sleazy bit. When you start a new relationship one must get rid of the old. As a result, it is with great pain, <<I just bet>>, that I offer the following for sale.

For hints on how to play any of them please ring. I am very good at Silent Service and regularly sink 80,000 tons of shipping. (Well a man has to brag occasionally.) I had hoped that I wouldn't cry at this point but I can't help it. Goodbye everyone, thank you WACCI, thank you Amstrad Action, Microprose, Silent Service, I can't stand it. Goodbye, I love you all.

Tony Rothwell
Bradford

<<As you can see, Tony, your advert has been posted. With your sense of the dramatic you ought to be on the stage. There's one leaving in about 5 minutes. Ham, I just love it. You can

imagine the scene, a tropical sunset.
A well dressed young man.....

TONY: "Well, a *fond adieu*. It's been
nice knowing you."

(Pause for dramatic effect)

PRINCESS WACCI (very wistfully): "Sad
parting is such sweet sorrow. Is there
no chance for us?"

(Looks tearful)

T: "No. Alas, I love another. She is
fair of looks, slim of footprint,
large of Hard Drive. You can never
match her talents."

P.W.: "But she's so common. She needs
all kinds of strange appliances to
give reasonable results. I'm not one
to gossip, but I've heard that her
software is useless and costs more
than her hardware!"

T: It's no use, I cannot love you. I
am another's.'

(Pauses to sweep arm across forehead,
then minces into the sunset affecting
a limp. -- Background music "Red Sails
in the sunset"... Scene fades out..)

Your name address and telephone number
appear in the advert. Give him a ring
folks. Pick up a bargain. -Mike.>>

A ROSE BY ANY OTHER NAME.....

Dear Mike, is mentioning your recent
op. a *sine qua non* of getting a letter
published? Sorry, I can't explain the
technical name of your pain in the
neck but, like you, I am surprised at
the two uses of the word *cervical*.

Please assure Andy Frame that I will
pass on his good wishes to Rob Baxter,
(I've already passed on yours, Mike),
who will be pleased to know that
neither he nor AMS have been entirely
forgotten. He tells me that all his
AMS discs were put into an independent
CPC PD library by someone else, (with
his permission, of course) and they
are, presumably, not available for the
WACCI library. He goes on to suggest
that I offer you some of mine.

I am a reliable sort of musician, if
not as imaginative as Rob. Baroque is
my favourite period, Handel my

favourite composer, (Rob's was J. S.
Bach), my discs cover various other
kinds of music. My work tends to be
fairly literal transcriptions - Piano
pieces sound like pianos, orchestral
works sound as orchestral as three
sound channels will allow.

It must be made clear that these are
not free-standing discs. They must be
used with the AMS LINKER module and
they only do justice to the CPC and
AMS when played via a stereo amplifier
and loudspeakers or headphones.

If you're interested, could someone
supply some start-up screens for them?
(How much disc space would this take?)
I can supply some on-disc programme
notes, but nothing in the way of fancy
graphics. Let me know if anyone is
interested, Yours Sincerely.

Pauline Russack
Northampton

P.S. Would anyone like a pile of AA
cover tapes to use as blanks? (I know
that WACCIites do not play games.)

<<Now Pauline, would I stoop so low as
to only answer letters which mention
my operation? Moi? How could you say
such a thing? But since you have.

I had occasion to look something up
in the dictionary and I found out,
(while looking for something else),
that cervix is latin for neck and so
cervical vertebrae are in the neck.

As to Rob's music as you can see
from Steve Lee's letter we have found
out where Rob's discs ended up, so it
shouldn't be long before we get hold
of that wonderful music. Of course,
that doesn't preclude your musical
offerings being included on any discs.
It will make a nice change from the
Bach, (I find him a little stuffy.) My
all-time favourite composer from the
Baroque period is Vivaldi. (I'm really
a Renaissance fanatic, I love the
early instrumental and vocal styles.)

I always had difficulty getting
sounds acceptable to my ears using the
synth module within AMS. It would be a
really good idea for someone to write
an article on getting good sounds from
AMS, (Hint, hint.)

What do you mean by 'Start-up
Screens'? I thought you had to run the
'Linker' module from AMS. Why would a
front screen be needed? Have I missed
something? Now c'mon Pauline, don't
fool about. -Mike.>>

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THE EXPANSION SLOT

Steve Hammond delves into his bag of chips!

As promised, here is my first article on interfacing the CPC to the outside world. The CPC's Z80 microprocessor uses an 8255 I/O chip to communicate with printers, sound chips etc. I have chosen to use the same I.C. in the series.

ANY PORT - EVEN THE 8255

Before getting stuck into the 8255, a quick mention on how the Z80 talks to Input/Output ports.

The Z80 communicates with I/O ports using a method that is similar to the way in which it communicates with RAM. It is possible to communicate with I/O ports from Basic or machine code. I'll cover the machine-code instructions in a future article (Basic is much too slow for many applications.) To keep things simple, for the moment, I will stay with Basic.

BROWSE OR TALK - IT'S UP TO YOU

A browse through the user manual will show there are two main Basic commands that are used to "talk" to I/O ports, these are the commands INP and OUT.

These two commands can be related to PEEK and POKE respectively. The port address can be anywhere in the range 0 to FFFF (HEX). This creates a problem because all the memory locations in that range are allocated to RAM (or ROM if switched in.)

The Z80 overcomes this problem by having two separate control lines, allocated to RAM and I/O, these are each allocated a pin on the Z80 microprocessor, called MREQ and IORQ.

When the Z80 wants to talk to memory (with a PEEK command for instance), the MREQ (Memory REQuest) line is active and when the Z80 wants to talk to I/O the IORQ (I/O REQuest) line is active. The hardware connected to the Z80 (both inside the computer and any external interfaces) ensures that RAM only responds when MREQ is active and I/O ports only respond when the IORQ line is active.

Using the system RAM and I/O devices can share the same addresses. Early microprocessors like the 6502, as used

in certain educational machines, address I/O in the same way as ram so that if you have lots of I/O ports the memory is reduced accordingly.

PIN OUT AND PIN IN

The following is a table of the pin-outs of the 8255 IC. You do not need to know the respective pin numbers or in depth details of the functions, knowing what lines are available will help explain how to control the I.C. (sorry, no pretty pictures this month, I'll run out of space.)

THE 8255 PIN NUMBERS

PIN	Function
1-4,37-40	Port A
5	RD
6	CS
7	Ground
8	A1
9	A0
10-17	Port C
18-25	Port B
26	VCC
27-34	Data
35	Reset
36	WR

As you can see from the table, the 8255 has three 8 bit ports, PA,PB and PC. many of you will already know that the Z80 (and therefore the CPC) only has 8 data lines.

It is thus impossible to communicate with all the ports at once. The next question to answer then is 'how do we talk to 24 bits of I/O with only an 8 bit data bus?'. The answer is that the 8255 has a some control logic 'on

board' which allows us to talk to each port individually. this control logic allows us to do two things;-

Firstly, we can address each port individually - each port is given its' own I/O address

Secondly, a fourth address on the I.C. is use to input a control would to the I.C. to configure each port as an input or output - to talk to port A,B or C it must first be told that it is an input port or an output port (i.e. whether to talk or listen).

MORE PINS TO STAND ON

You will notice that pins 8 and nine are labelled A1 and A0. By putting a binary code on these two lines we can talk to any one of the four address in the 8255 (remember - one control register and 3 eight bit ports).

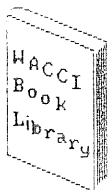
By using some hardware (logic chips) to decode the upper 14 address lines (A2-A15) and the IORQ line as required we can select the chip via pin 6 (CS).

OUTRO

That's all for this month. In next months I hope to have two pages (at least), and will finish my brief explanation of the 8255 IO Chip. To demonstrate the basic functions of the 8255, I will also be discussing how to drive a seven segment display and to read switch inputs.

In the meantime, for those of you who wish to experiment with the series a 8255 I/O port and a twin 7 segment display module will be available from WACCI from the second week in October (only to WACCI members) - see fair comment for full details.

P.S. If any of you bought the Maplin 48 bit I/O port and wish to connect the modules to it let 'Uncle Clive' know and we may be able to supply an adaptor cable to allow our modules to run on the Maplin port.



The Lending Library



The BOOK and TAPE Library Rules

Book Librarian: Steve Lee Tape Librarian: Arthur Cook

This is how we intend the library to run. As this is our first time of doing something like this, things may not work out according to plan and thus could be subject to future amendments, but we'll see how it goes.

1. The books and tapes in the library will be available to WACCI subscribers only. The service will not be run for profit. It is run to benefit members.

2. The maximum loan period will be 4 weeks.

3. Members are expected to treat the books and tapes in their possession with great care and to return them at the end of the loan period in the same condition as they are received in.

4. There will be no hire charge as such. Members wishing to borrow books or tapes should send stamps, a cheque or a postal order for the correct value.

5. Books and tapes will be sent out in a jiffy bag along with a self addressed return envelope.

When you have finished with the book or tape, place it in the jiffy bag and then place the jiffy bag in the envelope provided.

Stick the appropriate postage on the envelope and send it back.

(The 'hire' cost is listed alongside the titles available.)

6. Should a book or tape not be available when a member requests it we will notify them of this fact, and advise them how long the wait will be.

7. Should any book or tape prove to be tremendously popular, then the loan period for that book or tape will be reduced to two weeks, to avoid any member waiting too long.

We will also try to obtain additional copies of the book or tape to alleviate any delays.

If anyone has any books or tapes they feel would be of use to the library, please send them to Steve. These can either be as a donation to the club, or on loan with the donor retaining ownership. Please tell us which when you send the books or tapes.

LIBRARY BOOK LIST UPDATE

No Title (contents)	Cost
60 Amstrad 464 M/Lang for the Absolute Beginner...	0.54
61 Some Useful Basic Subroutines (not Amstrad specific but easily adaptable)	0.48
62 How to write Amstrad 464 games programs	0.48
63 Intro to programming the Amstrad 464 & 664	0.48
64 The Amstrad games book for the 464 & 664 (various types of Basic games listings)	0.72
65 An introduction to Algol programming	0.96
66 ZX Spectrum (!!?) Astronomy (!!?!)	1.08
67 Pocket guide to Cobol	0.48
68 Pocket guide to Fortran	0.48
<hr/>	
17 AMSTRAD CPC 464 Whole Memory Guide (Machine Code, ROM & RAM routines, programs)	0.72
18 Machine code routines for your AMSTRAD (Assembler, Hex, utility, listings and info)	0.72
19 Master Machine Code on your 464 & 664 (Machine Code introduction)	0.72
20 CP/M - The Software Bus	1.20
(A CP/M programmers companion, inc. CP/M Plus)	
21 The Digital Research CP/M Plus Manual for CPC 6128 & PCW 8256. (Operator's and Programmer's Guide) (Soft 971.)	2.40
22 AMSTRAD Micro Guide	0.48
(Reference guide to BASIC and Systems Operations)	
23 An Introduction to programming the 464	0.48
(Basic programming introduction)	

Also, I have a number of copies of Amstrad Computer User (87 to 89) and CWTB (87 to 88), donated by Phil Morley. (Remember him ?) Should anyone be looking for a specific copy to borrow I might be able to help. Feel free to write or ring (on 0487 814043) and I will see what I can do to help. Steve Lee

VERY BASIC

Written by
Alan Tilling

Letters to:-

Very Basic Basic
65 Lawrence Rd
Altrincham
Cheshire
WA14 4EL

ERRORS - PREVENTION IS BETTER THAN CURE (ERRcording to Alan Tilling)

Hello everyone. Tis I.

Have you ever got your screen just how you wanted it then had it spoiled by an error message? Very annoying isn't it? You cannot prevent this sort of error detection but you can suppress the reporting of the error.

The next time you come across the Amstrad manual (*that's that dusty tome in the corner*) look up the section about Basic error reports. You will find that the error messages are all numbered which is very handy because numbers will fit into a variable quite nicely and surprise, surprise there is a variable already used by Basic for just this. It's called ERR. ERR? -Ed.

ERR...ERRM?

When an error occurs Basic only uses the number obtained from ERR but in the cause of user friendliness the number is suppressed and a message in english is printed. So to trap the report all we need to do is to divert it with ON ERROR GOTO. Have a look at line 40 of figure 1. This instructs Basic to goto line 160 as and when an error is detected. ON ERROR GOTO *must* be declared *before* an error condition is found.

Before we wander through the listing we ought to look at the Basic error messages. These are listed on page 27 of chapter seven of my manual. I have invoked the first 10 but more can be added if you want. All you need do is to realise what the error is and then cause it. The first is "unexpected NEXT". We all know that NEXT marks the end of a FOR-TO-NEXT loop so if we put

it *before* the FOR or even forget the FOR altogether then the NEXT *must* be unexpected, and so it is. This is the way all the errors were generated.

TIP TOE THROUGH THE LISTING

Right, let's have a look at fig 1. I think large writing would look good

here so line 10 sets up the 20 column mode 0 and line 20 DIMensions an array called b\$, more of this later. The variable x is a counter and in line 30 it is set to zero.

The ON ERROR GOTO we spoke about earlier is located at line 40 and, if (when in our case) there is an error,

ERRORS & COLOURS - THE PROGRAM - by Alan Tilling, 1992

```

10 MODE 0
20 DIM b$(12)
30 x=0
40 ON ERROR GOTO 160
50 NEXT ' 1
60 wheel barrow' 2
70 RETURN' 3
80 READ 1000000' 4
90 INK 17,5b' 5
100 PRINT 10000~100' 6
110 MEMORY &0' 7
120 GOTO 7' 8
130 a$(12)' 9
140 DIM b$(12)' 10
150 END
160 PRINT SPACE$(7);ERR
170 x=x+1
180 IF x=10 THEN 220
190 IF x<>ERR THEN PRINT"ERROR":STOP
200 RESUME NEXT
205 '
210 REM *** Colours Test ***
215 '
220 PAPER 0
230 INK 0,13
240 FOR p=1 TO 15
250 PEN p
260 PRINT SPACE$(7);"pen";p
270 GOSUB 490
280 NEXT p
290 PEN 1
300 FOR pap=0 TO 15
310 PAPER pap
320 PRINT SPACE$(7);"paper";pap
330 GOSUB 490
340 NEXT
350 PAPER 0
360 CLS
370 FOR bord=0 TO 26
380 BORDER bord
390 LOCATE 7,12
400 INK 1,bord
410 PRINT "border";bord
420 GOSUB 490
430 NEXT
440 CLS
450 LOCATE 4,12
460 PRINT "Press any key"
470 CALL &B818
480 CALL &0
485 '
490 REM ***** Timer *****
495 '
500 FOR timer=0 TO 500
510 NEXT timer
520 RETURN
530 END

```

fig 1

Basic will jump to line 160 as instructed. Line 50 will cause it to do just that because line 50 contains NEXT. Notice the apostrophe ('), this is a shorthand way of writing REM. The 1 following it is the error number and it's there for our use only, the computer ignores everything after REM.

SAY IT AGAIN, ALAN

Let's recap for a moment. Arnold has set up mode 0, dimensioned b\$, set x to zero, made a note to action errors via 160 and then found an "Unexpected NEXT", error No.1. Instead of writing the error message on the screen, it goes off to line 160 and it is told to print seven spaces on the screen followed by the contents of ERR which, remember, is the error number.

So a 1 now appears on the screen. The counter x has 1 added to it and 160 tests it to see if has reached 10 well it hasn't yet. It is tested again in 190 and I'll come back to that in a minute. The next line contains RESUME NEXT and this sends control back to the line after the one in which the error occurred which is line 60 and it contains a wheel barrow which is incomprehensible to a poor little computer, so it cries Syntax error and as before it whistles off and this time writes a 2 on the screen.

WHAT NO GOSUB

Since there hasn't been a GOSUB the RETURN at 70 was unexpected and line 60's READ causes Basic to look for a DATA statement. It can't find one and so it reports, or rather tries to report DATA exhausted. The ink in pen 17 is colour 56. Well we all know there are only 26 colours and so that's an improper argument. PRINT 10000 100 (the 1 is the up arrow under the 1 sign by the way) tries to print the result of multiplying a large number by itself 100 times and results in a number that is too big to fit into the computer and so results in an overflow. Setting HIMEM the highest point of memory down at the first memory position results in there being no free memory and so the memory is reported as being 'full'.

WHAT NO LINE SEVEN!

Line 120 tell Basic to goto line 7 and Basic promptly tell the program where to go seeing there isn't a line 7. The

array a\$ hasn't been DIMensioned yet and so its subscript is out of range whereas b\$ was already dimensioned in line 20. If and unplanned error occurs it is probable that it won't be the same error number as ERR is presently on and so line 190 will grab it and the program will come to a shuddering halt with the word ERROR emblazoned across the screen.

COLOUR MY WORLD

Sorry green screeners. You'll have to read ALTER MY BRIGHTNESS. Eventually x will become 10 and so control will pass to the colourful section starting at line 220. Here the PAPER is set to the colour in pen 0. Don't fall into the trap of thinking that the paper will be set to colour zero. The ink in pen 0 is set to 13 (white.)

Line 240 sets up a loop for 15 p's (and not a penny in sight.) The "p" is going to be the pen number but notice

that the name pen cannot be used because it is a word reserved for Basic. The same applies to pap for PAPER and bord for BORDER later on in the program. In the same way that ERR was printed earlier, 260 prints out the word pen and the pen number in the colour of the present pen see line 250. The delay timer at line 500 causes a delay of 500 time periods and then RETURNS from whence it came.

THERE'S MORE

The remaining two subroutines do more or less the same thing but at 440 "press any key" will be displayed in the centre of the screen and then one of my favourite calls &BB18. This makes everything stop until any key is pressed. As soon as that happens the call &0 is made which resets the computer just like the three fingered reset. Well that's all for this time. So its.... Bye for now. Alan.

COMPATIBILITY - MORE THAN A START

464s and 6128s, more than just friends, but are they compatible?

COMPATIBLE - TONY IS

Tony Williams of Camberley has sent us lots of 464 to 6128 routines for Competition Number 6, here's some of them - Will he be the winner?

USE THE FIRMWARE CALLS

Some of the missing Basic commands can be replaced by firmware calls. These calls that do the same task.

Basic	Firmware
-------	----------

CLEAR INPUT	CALL &BB03
-------------	------------

FRAME	CALL &BD19
-------	------------

The following command converts from Basics:

CURSOR [system switch, user switch]
(where 1 is ON and 0 is OFF.)

To compatible Firmware commands of:

System Switch - ON = Call &BB81

OFF = CALL &BB84

User Switch - ON = CALL &BB7B

OFF = CALL &BB7E

COMPATIBLE - UNCLE CLIVE MAY BE

A long long time ago. I was young, innocent and writing the 5's and 3's domino program. So I also wrote to this letter to Jeff Walker at WACCI.

KEYWORD COPS

I am currently working on some programs which I intend to send in to the FSW library. Please advise as to which commands I should avoid to allow the programs to run on the 464 and 664 machines.

Clive Bellaby
Nottingham

<<Are you ready for this (takes deep breath) in no particular order avoid MASK, CLEAR INPUT, COPYCHR\$, CURSOR, GRAPHICS PEN, GRAPHICS PAPER, FRAME, FILL, DERR, MASK, DEC\$ and ON BREAK CONT and the final parameters in DRAW, DRAWR, PLOT, PLOTR, MOVE and MOVER. -Ed.>>

And there you have it, Jeff Walkers reply to Uncle Clive's first letter to WACCI. (From WACCI 20, May 1988.)

THE COMPLETE MicroDesign Plus

REVIEW BY PAUL DWERRYHOUSE

In desperation Clive has turned to me to write a review of MicroDesign Plus. The last time I turned my hand over writing a review for WACCI did produce two conclusions. The first was that it was clearly a joke and, secondly, I couldn't spell "Micro" to save my life. This time will be different (maybe).

For those readers who fail to understand the above I'll not explain. Either buy a back issue of WACCI #42 or dig it out and read it again. I will give just one clue - it was an April edition of WACCI.

EVOLUTION

Back in issue #51 Peter Campbell gave the definitive story of how both MD and MD+ came into being. Not much point in repeating it all here and every WACCI member knows of Peter Campbell and Jess Harpur (CampurSoft to their friends) so let's get on with the show.

WHAT THE HECK IS IT?

Let's start with a very necessary statement. MicroDesign Plus is not a desktop publishing package. It can mix text and graphics but its prime aim is at art, graphics and technical drawing. Now that we have that point clear I propose to start with bog standard MicroDesign and then tell a little about the Plus bits and pieces.

THE BOGGY BITS BEGIN HERE

RUN "DISC is all that is required to load MicroDesign and the LAYOUT screen, fig 1, is where you start.

There are five screens in all and I'll deal with each one in turn but the first thing to note is that the screen is divided into four windows. These windows carry out similar functions on each of the five screens.

The top left is where the drawing is held and this area can extend over the bottom left window for a larger drawing area. The bottom left window displays the icons and the odd message. The top right window is always the options menu and the bottom right shows you the functions allocated to the f-keys which change depending on what you are doing.

PRESS A KEY TO CONTINUE....

I'll not list the great many key presses that can be achieved with a program with this level of depth to it but one sentence can sum it all up. It's dead easy to use and it is mouse compatible.

LAYOUT SCREEN

Back to the first screen, fig 1, which allows us to select the paper size, either A4 upright, A4 sideways or the high resolution strip format, which is one quarter of an A4 sheet. The cotton New does this for us.

Block will allow you the erase, copy or move sections of the drawing. Opaque, Transparent or XOR modes can be set for these operations.

The Design option allows you define the area of the drawing you wish work on and then to jump directly to the design screen. If you go through the Main Menu then you are unable to select the design area but have to scroll madly to it once there.

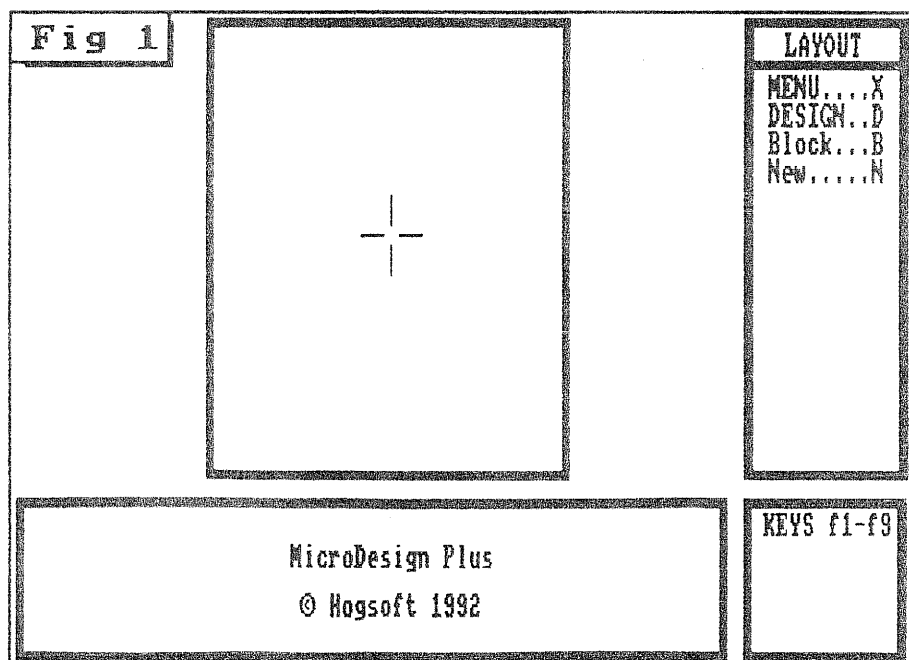
ICON SCREEN

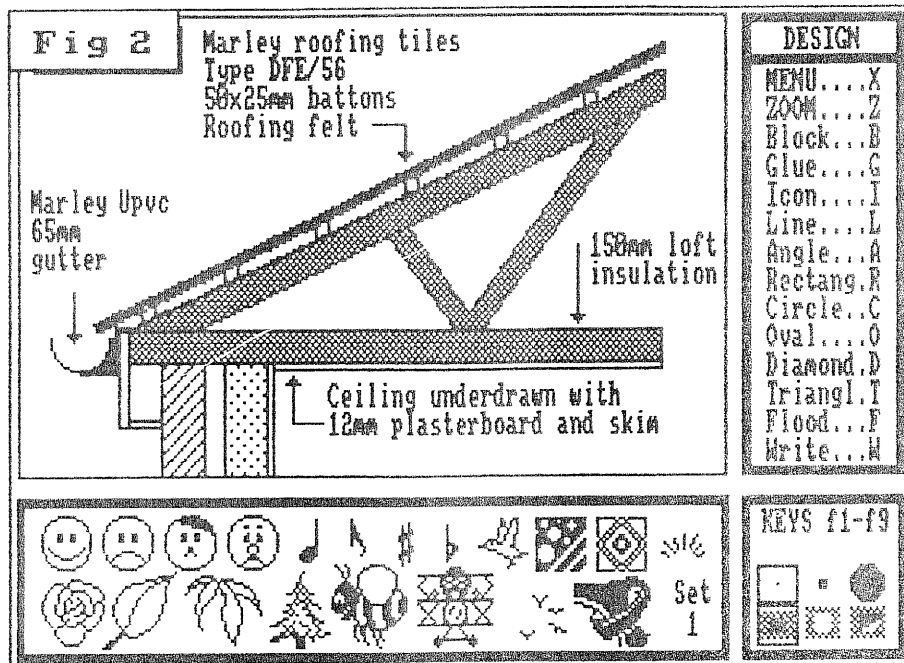
Here you can design new icons or edit existing icons. Two sizes are available, 16 x 16 and 24 x 24 pixels. Using the Icon editor is just like any other font editor.

The Icon Editor Menu shows you all of the available options.

You get loads of Icons with MicroDesign to get you up and running and these form one of the programs great strengths.

Icons can be saved to disc as sets. Two sizes of icon sets can be saved, either 22 or 66 individual icons, to allow you some flexibility. The greatest usage I have made of the icons is for designing my own fonts.

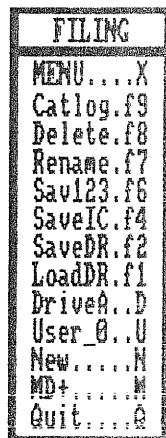




FILING SCREEN

It may be wrong calling this a screen as only the Options Menu alters but we'll not argue about it. The menu, shown here, includes the first showing in our look round MicroDesign of the PLUS side of life.

The filing options are as comprehensive as they need to be but this is due to some tweaks here and there by Campursoft.



DESIGN SCREEN

The design screen is shown in fig 2 and this is where most of the work is done. It has all the usual features and if you are familiar with any graphics package than you will be at home here. You can see from fig 2 just what is available. I bet you can also spot the odd Icon or two that Clive uses in the mag.

Some options require a good read of the manual. If you're (I am) familiar with the Art Studio, then some functions are not that obvious. In Art Studio if you wish to produce inverse video, you simply define a window and select Swap Inks from the Windows menu. In MicroDesign you select Rectangle (not Block) and set the fill mode to solid and the ink mode to XOR. As I said, a good read of the manual is (and always will be) necessary.

PRINTING SCREEN

Everything needed, as shown in fig 3, is here to output our carefully designed work to a dot-matrix printer.

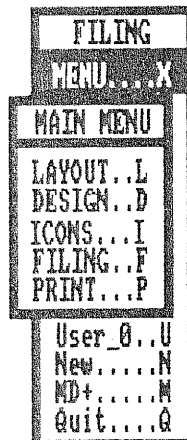
It must be said that the program was intended to work with 9 pin printers and to the best of my knowledge no 24 pin printer drivers are yet available. If you like your circles accurately produced on paper then 9 are the only number of pins to have. For most applications, and definitely ones not involving circles, a 24 pin printer is not a disadvantage and maybe even be a plus point.

The print routines of MicroDesign are a joy to behold. If I had to list the top feature of MicroDesign this

would be the one. You will not be disappointed. Gosh, nearly forgot say that three scales (full, half and quarter) are allowed and light or dark setting are available depending on the age of your ribbon. Add to that high speed quadruple density graphics or slow (that's a better word for quad density graphics) accurate styles, margin settings and multiple copies and you have something good.

THE MAIN MENU

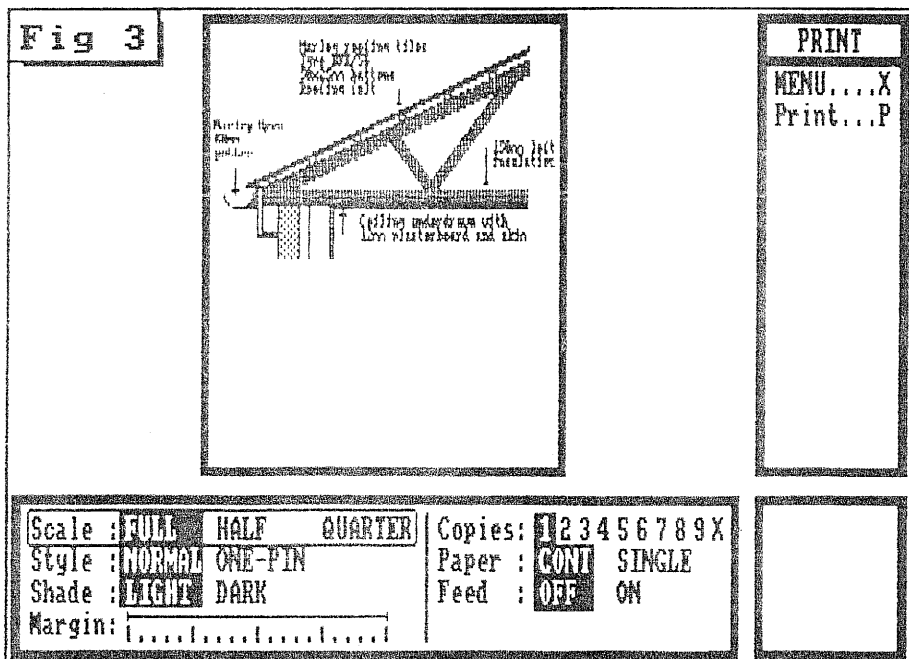
This is always available as the first option on any of MicroDesign's menus. Pressing X will result in the Main Menu popping up as shown here. This allows access to all of the five screens. What could be easier? To jump between screens you soon think in terms of XP or XD, for example.



PLUS..PLUS..PLUS..

Okay, I hope that has given you an insight into MicroDesign, now let's look at the many improvements that Campursoft have added.

The first improvement, and a very obvious one, is the loading time. The original MicroDesign loading time goes on for hours and hours. I have timed it at 43 seconds, that's a long time just looking at a screen. The Plus

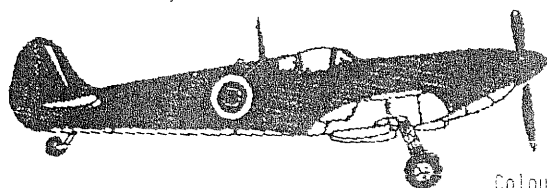


version I timed at 14 seconds, that's one third of the original time.

There's a down side to this because, in order to speed up the loading time, the program reads directly from the disc's sectors. This means that copying the files does not create a backup disc. Since no instructions are given on creating such a disc, then I assume that Campursoft are happy with this. I certainly am not, it goes against the grain not to be able to backup by discs. Moan over.

THREE B OR THREE AND A HALF B
MicroDesign can now recognise drive B. This is a real godsend. How could they have forgotten that when they put the original version together. Either 3 or 3.5 inch drives are allowed and the big drive formats supported include Big Bonzo, ROMDOS and MS800.

The maximum number of files that can be held in one user area is 25 but the Plus version allows access to 10 user areas per disc. The full capacity of the 3 inch disc can now be used and 3.5 inch drive owners have a ten fold increase in the number of DR (drawing) files that they can store.



QUIT..QUIT..QUIT

Guess what you couldn't do in good old MicroDesign before the Plus goodies came along - yes Quit. CTRL-SHIFT-ESC was disabled so you only had one option and that was to switch off. Real Naff. Now Campursoft have fixed it for us, thanks Jim.

To achieve these improvements three new options have been added to the Filing Menu and you can easily recognise them as D, U and Q.

One last addition has been made to the Filing Menu, the MD+ option and whilst it does run a separate program, you can think of it as the sixth MicroDesign screen called Utilities.

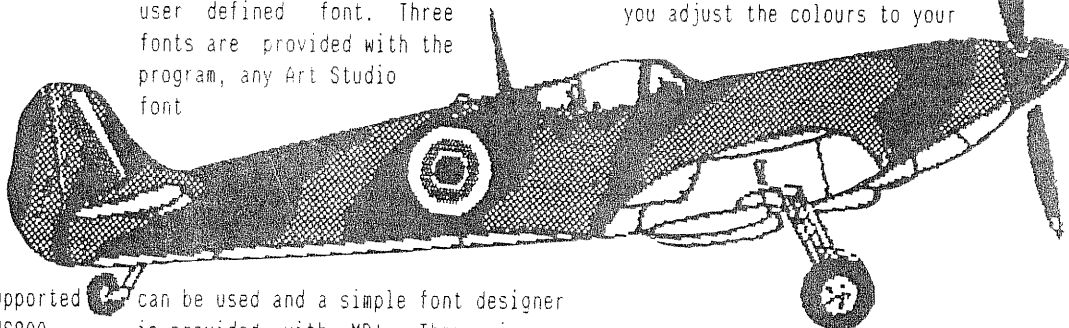
TEXT IMPORT

Mass text can now be imported allowing the user access to a WP for formatting, spell checking etc. The file must pure ASCII and have the

extension TXT - no problems there. You can (must) specify the character height and width, Characters per line, line spacing and lines per page for your new page layout.

Remember I told you that MD+ is not a DTP package, well you can't flow text around graphics using this option. That must be done manually, using the Design screen, typing all the required text in.

One very good aspect of text import is the ability to be able to load a user defined font. Three fonts are provided with the program, any Art Studio font

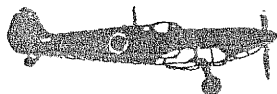


can be used and a simple font designer is provided with MD+. There is one drawback to using your own fonts, if you need to edit text or add even just one letter then the font is not available to you when in the Design screen. Also if you need loads of pound signs then you are in trouble, MD+ doesn't support the little beast.

MODES 0/1/2 AND STOP PRESS

All standard AMSDOS screens, in any mode, can be converted to DR files and options to set and alter inks are available. Colours are represented by various patterns or shades.

Both Stop Press page and cutout files can be converted which greatly adds to amount of clip art available to the MicroDesign Plus user.



MANIPULATE DR FILES

One important feature not included in MicroDesign is the ability to re-scale a drawing or part of a drawing. MD+ has solved this with its manipulation feature. It allows for horizontal and vertical stretch and reduction. Only one reduction factor is available whilst there are 240 stretch factors. This does seem a little unbalanced.

When asked for a Vertical stretch factor, entering 3 results in a DR three times the height of the source file. Entering a minus sign will

result in a DR file half the height of the source file.

You are now also able to invert a DR file. The new DR file will be identical to the source but the colours will have been reversed.

GREEN ISSUES

It can't be said to be environmentally friendly but you can't argue that it isn't. What you can say is that MD+ is kind to GT65 monitors. Any piece of software that lets you adjust the colours to your

own preferred setup is a friend of mind. Well done lads.

NEARLY THERE

Okay, so that concludes our little tour into MicroDesign Plus but I can't let this review finish without showing you a little more of it. The Clip Art on this page has been printed using the Full, Half and Quarter modes from the print menu.

All of the illustrations, including the title to the review, have been designed on MicroDesign and printed on my trusty 9 pin, a Amstrad DMP-2000.

I can't think of a better recommendation for MicroDesign than the fact the WACCI use it to produce the mag. I can't wait for Campursoft to release the up-grade but wait I will. I hope Peter and Jess can incorporate some alterations to sort out those niggly bits that upset me but I forgive them already, for MD+ is clearly now, thanks to them, in the top league of CPC software.



OUTRO

If you haven't yet got a copy of MicroDesign Plus, then get one. To up-grade MicroDesign to the Plus version will cost you £11.99 whilst £27.99 will get you the complete package.

Paul F Derryhouse

THE COOK REPORT

THE COOK FAMILY, WACCI'S OWN COMPUTERHOLICS, ANGELA TELLS ALL!

It was an early summers morning in 1986. Jill (mum) was very busy ironing and Arthur (dad) was writing out an estimate for tiling a bathroom.

"Beat you to the computer" shouted Angela.

"I want first go!" grizzled her 5 year old brother.

"No!" she said sternly pointing a finger at him.

"We'll play Roland on the Ropes, I'm good at that!"

"No!" Lewis whined.

"You're better than me. I want to play something else, I want to go first!"

Dad, Angela won't let me play on the computer!" he whined yet again.

WHO'LD BE A PARENT

This whining went on and on and on for over a year. It was getting worse. Arthur soon spent 90% of his spare time on the Amstrad CPC 464 Computer, neither Arthur nor Jill could handle the arguments over the computer.

Then in May 1987 there was a new arrival to the family. A baby boy, named Michael Arthur (after his dad and his dad's dad.) Originally Michael was intended as an aid to Arthur's giving up smoking. Ha Ha Ha! We would not swap him for anything (debatable!) A year and a half on, Michael demanded his time on the computer.

ANOTHER NEW ARRIVAL(S)

Suddenly that spring a 6128 was bought and the 464 was put in my bedroom.

As you can imagine, with a 12 year old girl, 9 and 3 year old boys, there were arguments! 6 months later another 6128 was bought for me. Then I had two computers in my room.

ARTHUR PROMOTED

Then around 12 months ago Arthur took the *highly paid* position of WACCI tape librarian. He started copying the PD tapes and discs over on the old 464, now Lewis's, but he could see within a few days that he would not be able to use it with out putting up a fight!

ANOTHER ONE

Then along wondered Damien. A 14 year old friend of mine. He had a green screen 464 for sale - and to cut a long story short, we bought it. Now,

although it's classed as Michael's personal computer, Arthur uses it exclusively for the Library.

TO LONDON TOWN

Two weeks later Arthur drove up to London for some disc drives and free screens. Remember, that's the one you all phoned up about - but it was not available. Then he bought a keyboard, put it together and zap (kapowie and Woosh) we had an Amstrad PCW 8512.

He still had a screen left over so he bought a computer (keyboard) and after many months of searching, a printer. Arthur has now put all of these together - to form another mess for my mother to complain about!

TO THE SHOW

Arthur went to a computer show recently and bought a 664 computer, minus the monitor, he is going to use this for spares and making another mess for my mother to complain about.

I'M A TYPIST

Now I'm typing out a lot of things for the brilliant WACCI <creeping will get you everything you want> and for the local newspaper and stories of my own. So I wanted (needed) a printer. Again after many months of searching for the right item, I found it, the printer of my dreams and we bought itbut guess what the ever brilliant and wonderful Royal Mail - which we depend on for: Bills, Birthday cards & WACCIs - lost the printer in the post!! -
- snarl! -

I GOT EVEN

I complained and eventually (well it was quite quickly really) I got my money back and bought another printer. It was buyer collects, so, one Friday whilst I was at school (doing exams) Arthur drove up to collect it and much to Jill's despair - he bought yet another computer (this time it was a green screen 464) at the same time.

THEN I GOT ANOTHER 464

Then I saw an advert in Friday's paper for a computer, only £40, a 464, plus modulator, green screen and games. We mainly bought it for the 135 games. It is another computer we can use.

NERVOUS - SKIP ON BY

Now people with a nervous disposition should skip the rest of this paragraph brave people are you ready? The computer had been ill-treated. It had paint on it and in it, still wet!

There were screws missing, wires missing, keys missing, soldering where there was not supposed to be solder, it was obvious this computer had never seen a cover. If there was a RSPCA for computers ... this is when they would be needed! Some people should not be allowed to own a computer (especially a 464/664/6128), they should be locked up at birth and the key thrown away.

TLC - TENDER LOVING CARE

The computer has been cared for, it has been loved. Had wires, keys and screws put in. Desoldered, unsoldered and resoldered. Dust and dirt removed. Paint stripped. Polished. Cleaned. My family has nursed and counselled this computer, and it is expected to make a full recovery. Eventually.

THE END - SNIFF

That's how we came to own 9 computers. So when Jill's in bed and we are all on the computers, things don't go bump in the night, they go buzz and beep!

HARD COPY

PRINTERS : MIKE LYONS TELLS YOU ALL YOU EVER NEEDED TO KNOW

Welcome to the start of a short series on the use of a printer. This will more-or-less apply to any printer which has IBM or Epson emulation, (most of today's printers do.) Although my own experience is mostly with 24-pin Star printers and the Amstrad DMP2000 the information should at least point you in the right direction. Always remember, if all else fails RTFM.

DON'T PIN YOUR HOPES TOO HIGH

There are some people who would have us believe that a computer system is of no use at all without a printer. Still others think that the quality of the computer matters little compared to that of the printer which is attached to it. I agree with both of these points of view - up to a point.

One of the most common applications for a computer system is that of communication; to other people, to the user, to other computers. Though there are a number of alternatives to paper communication, unless both ends have the same (or very similar) equipment this can often prove difficult.

I have discovered this when trying to log on to a number of BB's - all using different emulation systems and with their own set of strange quirks about screen display.

Most people who have a computer and use it for 'serious' applications want or need some kind of permanent record of their efforts. Having copies of letters, documents, theses, pictures etc. on disc is a help, but you can't safely clutch a disc to your chest and cuddle it in a moment of ecstasy, or throw it up in the air in a moment of exasperation, (at least, not if you want to be able to use it again.)

This is where *Hardcopy* the actual paper print out comes into its own.

In the late dawn of computing it was thought by many that computers would be ecologically sound, creating the, (almost), 'paperless office' and hence the practically dust-free one. Unfortunately, this was not to be the case. Somehow, computer discs just do not have the 'sex-appeal' of a pile of crinkly, dusty white paper and very

few people now seriously consider the idea. Besides which, the paper making industry would have a corporate fit.

I think it's fair to say that most people who have a computer also have, (or at least want), a printer, however basic, with which to produce hardcopy to amaze their friends and unsettle the bank manager.

It is my considered and heartfelt opinion that anyone buying a printer should go for the very best that they can afford. It doesn't matter if you're driving the most up to date Cray Supercomputer or the lowliest Spectrum or PET. If your printer is of poor quality then *everybody* will know.

DAMN AND BE PRINT(ER)ED

What is a printer? It's a machine, of greater or lesser complexity, which uses one of a number of methods to turn your polished prose into a black and white, (or colour, if you're lucky), mess. There are several types of printer in the lower end of the market and, as most of us are in that income bracket, these are the ones I'm going to deal with. I'm not going to talk about Daisy Wheels or Laser printers nor even, (except in a very general sense), about thermal, bubble jet or ink jet printers. If anyone wants to lend me a "Laserwriter" or some such, please feel free.

LOW (LIKE SAYING DAMN) STANDARDS

Long, long ago in the misty, musty, boring depths of history there were two major firms which manufactured printers and computers. The printers were very popular, if noisy, and made their impression on people. (actually the impressions were made on paper),

by using nine or ten little pins in a vertical row and making them hit paper very through a ribbon. As the carriage moves from one side to the other, the pins are 'fired' again and again to make up the image, whether it's part of a picture, a letter, or whatever.

INCREDIBLY BORING (MACHINES)

IBM had long-since adopted the trusted ASCII 'standard' for the characters which could be displayed on a V.D.U. (a computer screen to you and me) and so it made sense to keep to a similar standard, (not the same) for printers.

A LONG LONG TIME AGO

It is a sad fact that, in the days before you had WYSIWYG! (Wot You See Is Wot You Might Get If You're Lucky), IBM had decided that there was no such thing as *italic* letters. This meant that their printers had the normal set of upper and lower case letters, numbers and punctuation marks, making up to 127ish characters.

Even in those days, computers could print up to about 255 characters, so they filled up the rest of the space with 'Line Graphics' characters plus international, various accented and weird characters, (there was a good reason for this, given the business nature of most of IBM's business.)

At about the same time, Epson also decided that a standard was needed for their printers. As there was no copyright involved, they also adopted the ASCII codes for the first 127 characters, but decided to have all of lower characters duplicated (but in italics) for the upper set.

IT GETS WORSE

What you can print varies according to which 'standard' you are using. The situation was made worse as printers became able to print a greater variety of characters. IBM developed more along the lines of cosmopolitanism,

creating what they called 'Code Pages' for different international languages, Epson kept its basic character set but added special *control codes* to allow the replacement of certain characters in the set with other characters.

LAST BUT NOT LEAST

Last on the scene were other printer manufacturers who also wanted to get in on the act. After a lot of finagling and failed attempts they decided that as IBM and Epson had already done the major work they might as well save on R&D time and produce printers which emulated the IBM and Epson control sequences.

Partly due to exorbitant licensing fees the early 'compatibles' only had a sub-set of the character sets and control codes. Most printers not made by IBM or Epson were less flexible than the two big names. Thankfully, this is getting better and most modern printers can emulate the majority of features of the big two. This is where we stand at the moment. Some of the rest of this article will not apply to some of the printers you will have. Some features will not be mentioned because I don't have them on any of my printers. Read on and learn

A PRINTER OF CHARACTER(S)

Here is the ASCII set of characters upto CHR\$(127). This forms the basis of both Epson and IBM character sets:

```
!"#$%&'()*+,-./01
23456789:;<=>?@AB
CDEFGHIJKLMNOPQRS
TUVWXYZ[\]^_`abcd
efghijklmnopqrstu
vwxyz{|}~
```

Note: Character 127 is not printed as it is used to represent ete. This character set is called the *Standard* or ASCII set. The Epson set from 128 to 255 are the same, but italicised.

```
!"#$%&'()*+,-./01
23456789:;<=>?@AB
CDEFGHIJKLMNOPQRS
TUVWXYZ[\]^_`abcd
efghijklmnopqrstu
vwxyz{|}~
```

THE IBM UPPER CHARACTER SET NUMBER TWO

Of course, things are not quite that simple. There is something called IBM character set #1, which has control codes instead of characters 128-159 and the IBM special character set which replaces control codes from 0 to 31 with other characters.

KEEPING IN CONTROL

What are printer control codes? They are special characters which don't (usually) print anything. Instead they tell the printer (or the computer) to actually DO something.

In ASCII, (American Standard, Code for Information Interchange), codes 0-31 and 127 actually cause something to happen, whether on the computer screen, (Type in PRINT CHR\$(24) to see what I mean), or on the printer. These codes include making the printer bleep, (CHR\$(7)), forcing a page feed, (CHR\$(12)), and so on.

ESCAPE FROM CONTROL CODES

The most important control code is <ESC> or CHR\$(27). When the printer receives an <ESC> it expects the next character to be a command. It should be fairly obvious that 31 characters

aren't enough for all the tasks that modern printers do (especially 24-pin ones.) Again, we have a problem of the difference between Epson and IBM codes. As an example let's take italics. There are none in a standard IBM character set.

In Standard/Epson mode the code to start italics is <ESC> "4", (or 27,52 for Protext users.) In IBM mode this sets the present position to be the top of the page.

Manufacturers have run out of things to do with <ESC>, so they sometimes use another code <FS> which is ascii code 28 to perform a similar function to <ESC>. Some <FS> codes even provide alternatives to <ESC> sequences. Many control codes have parameters which give further information on what the printer is expected to do, eg:

<ESC> "f" <1> <5>

will tell the printer to feed 5 lines. [ESC] tells the printer to expect a control code. "f" or CHR\$(102) AND the 0 tell the printer to <LF> and the 5 says how many times. (Numbers in angle brackets, <>, indicate actual ASCII codes to be sent, so <5> means CHR\$(5), not the number 5.)

OUTRO

I'll tell you a little bit more about the various codes next time. Sorry to keep you on pins. Bye. -Mike.

THE PRINTER ASCII CODE to NAME to ACTION GUIDE

Code	Name	Action	Code	Name	Action
0	<NUL>	Does nothing	16	<DLE>	???
1	<SOH>	Acts as a switch	17	<DC1>	Device Control 1
7	<BEL>	Makes a beep	18	<DC2>	(Cancel Condensed)
8	<BS>	Back space	19	<DC3>	Device Control 3
9	<TAB>	Horizontal Tab	20	<DC4>	Cancels <SO>
10	<LF>	Line feed	22	<SYN>	???
11	<VT>	Vertical tab	24	<CAN>	CANCEL last char.
12	<FF>	Form feed (=CLS)	25		Used on Auto Sheet
13	<CR>	Carriage return	27	<ESC>	ESCAPE
14	<SO>	Spread Out (=expand)	28	<FS>	??? extra ESC code
15	<SI>	Condensed			



Inspiration

George Ho-Yow converts Basic commands
into machine code routines.

- READ SECTORS, WRITE SECTORS AND OTHER PECULIARITIES -

One way of finding out the telephone numbers of your local butcher, baker and candlestick maker, is to let your fingers do the walking. But when you want to find where a file is on your disc, you do a CAT, correct?

There is another way of finding out details of files on your disc however. You can carry out a sector-read on the directory track as mentioned in my previous article. In this article I will attempt to explain the meaning of the data that you see displayed on your screen when you read down track zero, sector &C1 from your experimental disc.

THE FIRST BIT

Okay, get out the disc you prepared from last month (WACCI 57), load your disc and enter RUN "readsect" and in response to the prompts enter 0, 1, d respectively for track, sector and type of disc.

You should see rows of 16 (&10) bytes of hex(adecimal) data appearing on your screen. On your left, the three numbers indicate the position of the first byte in that row in relation to the overall block of data. It starts with zero and then progresses by &10 per row.

To the right you will see an ASCII display of the bytes. Non-printable ASCII bytes are displayed on the screen as filled triangles.

LET'S DO SOMETHING

So let's have a look at the first row read down from our experimental disc. You should see something like:

the slash char on your screen. The byte in the first field is zero in this example. This field indicates the USER number. The default is zero. This byte is also set to &E5 after the file has been erased.

THE FILE NAME AND EXTENSION BYTES

The second field contains eight bytes and this is used for the program (file) name to the left of the full stop. BLOCTRAC in our example. If the filename is less than eight bytes, spaces are used to pad the field out to eight bytes. The third field is used for the extension part of the file name, IE, BAS in our example. It could be BIN or ASC or any three chars for that matter if it's a data file.

LOADS OF ZEROS AND RECORDS USED

The fourth field is always empty and contains three zero bytes. The final and fifth field contains the number of

long. Thus four records are written up to disc as a sector at a time. Pairs of sectors constituting blocks, make up a file. The minimum file size is thus 1024 bytes.

THE SECOND ROW

Now we have examined the first row, let's move on to the second. Not an awful lot of info, nevertheless just as vital to AMSDOS. The second row is shown in Fig 1, line 2:

The bytes in this row indicate the blocks allocated to the program. In our example AMSDOS will read block two into memory. It will then look at the next byte which is a zero. A zero byte tells AMSDOS that no more blocks are to be read down to memory. Should there have been a byte, AMSDOS would have read that block and the next and so on until it encountered a zero byte. The block numbers are not always contiguous. That's why you sometimes hear your disc drive being thrashed as it jumps sectors or skips to another track.

DOUBLE ENTRY - DOUBLE SIZE

For programs greater than 16 kbytes in size, you will find another row with details of the same program, followed by another row with the set of blocks allocated for the remainder of the program. After all there are only 16 blocks available in the second row and since a block is 1024 bytes in size, only 16,384 bytes can be allocated in any one row. Very large progs require many pairs of rows needless to say.

A SUMMARY

To summarize, each program on the disc is defined in pairs of 16-byte rows. The first row contains the User Number (0 to &F) or &E5 to indicate an erased

Fig 1 : A TYPICAL DIRECTORY ENTRY

```
Line 1: 000: 00/42 4C 4F 43 54 52 41 43/42 41 53/00 00 00/07 -BLOCTRACBAS---
Line 2: 010: 02 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 -----
```

I've separated the row into five fields using the slash character for convenience. You wouldn't have seen

records used in writing the file to disc. In our example this is seven. As a reminder a record is 128 bytes

EXPERIMENT FOR YOURSELF

You will see that a third entry has been added and that the first field of this entry shows that the program belongs to USER 1.

HIT THE ESC KEY (DON'T USE A HAMMER)

Stop the program by hitting the ESC key twice. Now erase the program by entering `%ERA,"TEST1.BAS"` and run the program again. Enter 0,1,d in response to the prompts. Now look at the third entry and see that the first field shows the program has been erased. Its changed to %ES. See how easy it is?

FIND TRACKS AND SECTORS

You can use the prog BLOCTRAC.BAS to find out on which track and sector the programs resides on. Use SECTREAD.BAS to read the actual program. BASIC an Binary files have headers and it's worth investigating the format. You could unprotect a file for example if you knew which byte to alter. You can probably merge simple data files by altering the record size and adding block numbers. I haven't tried this before, I just thought of it.

OUTRO

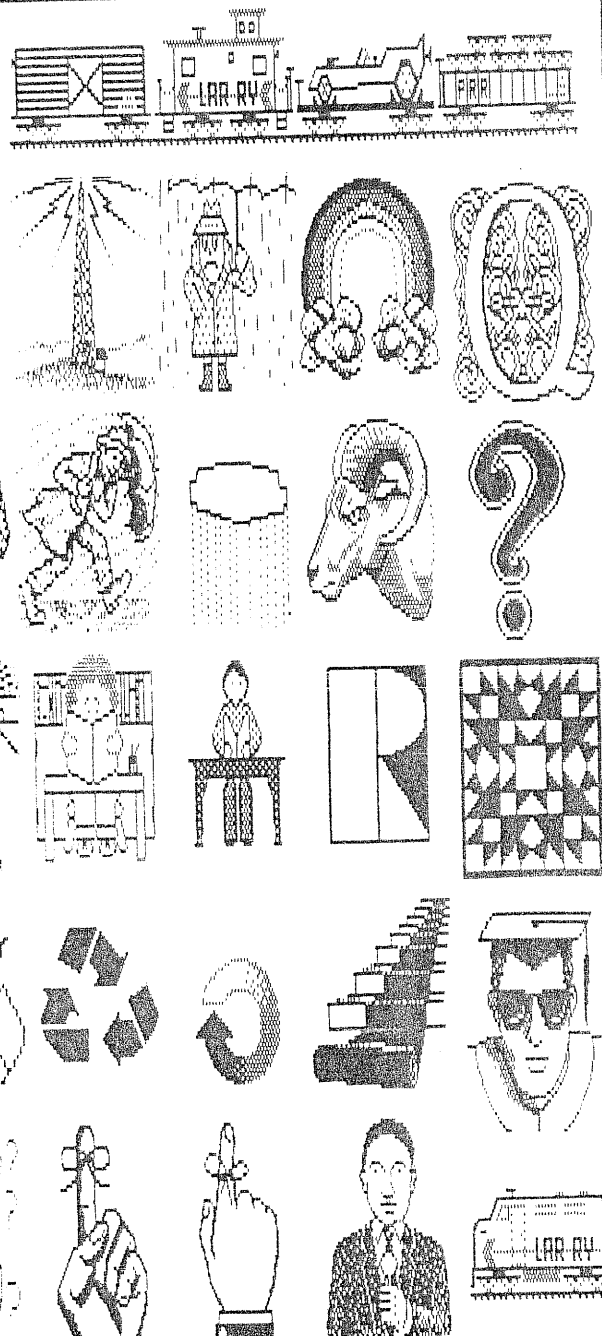
DISC BLOCK NUMBER CALCULATOR - By GEORGE HO-YOW

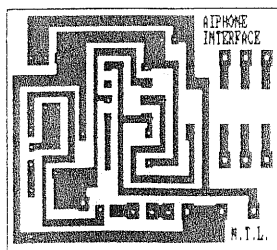
```

10 REM SECBLOK.BAS
15 REM a prog to print out the block number for a track/sector on disc
20 REM Written by George Horow, Copyright(c) June 1991. All rights reserved
30 MODE 2
40 INPUT"Enter a Track (0 to 39) pls: ",track: track = track MOD 40
50 INPUT"Enter a Sector (1 to 9) pls: ",sector: sector = (sector MOD 10):
55 IF sector=0 THEN sector =1 'don't have a zero sector.
60 block=INT((4.5*track)+(sector-0.5)/2)
70 PRINT "Block no. for track/sector (";USING "##"; track;;PRINT"/";
75 PRINT USING "##";sector;;PRINT") is &;HEX$(block,2): PRINT
80 GOTO 40
90 STOP

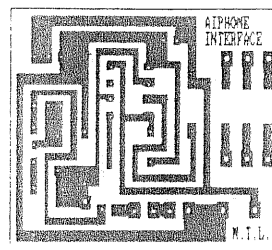
```

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BYE BYE ROMS



JESS HARPUR FIXES A DISABLE SWITCH TO A ROMBO ROM BOX

Do you own a Rombo Rombox? Ever encountered software which will not run unless all expansion Roms are disabled? Does it infuriate you when the only solution is to disconnect the box from the expansion port or open up the box and switch all the DIP switches off? Now, if you've got a couple of quid to spare, access to a soldering iron and you can make six solder joints, your problems are over.

Here is a simple hardware project that will provide your Rombo Rombox with an external switch to enable/disable all the Roms inside. As an added bonus, it also allows you to toggle the Romboard between high (8 - 15) and low (0 - 7) bank configurations.

WHAT YOU NEED

The Rombox uses 3 pins and a pin-jumper to configure the board high or low. We are going to dispense with the pin-jumper and replace it with a switch. This must be a SPDT 3-position switch (ON - OFF - ON - centre off, locking both ways.) A suitable switch and all the necessary components are available from MAPLINS....

THE PARTS LIST

Cat No	Description	Price
FH01B	Sub-Min Toggle Switch	0-86
BL07H	7/0.2 Wire 10M Red	0-36
UJ14Q	10 pk D Skt Shell Pin	0-42
BH06G	Systoflex 2mm Black	0-10

Total		£1-74

HERE'S WHAT TO DO....

Turn off the power to the computer and remove the Rombox from the expansion port. Remove the lid and drill the switch mounting hole. (The Maplins switch requires a 6.5 mm hole.) The location is not important provided the switch does not "foul" any components when the lid is replaced.

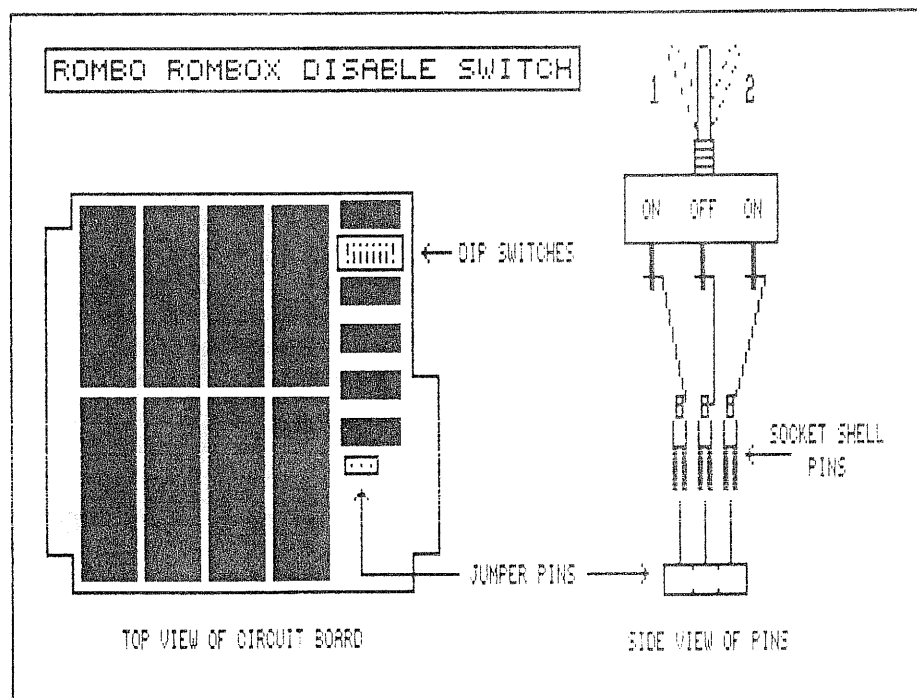
Cut a piece of wire about 150mm long. Carefully bend one of the Socket Shell Pins until it parts from the

retaining strip and crimp & solder it onto one end of the wire. Solder the other end of the wire to one of the switch terminals. Repeat this for the other two switch terminals.

Now flick the switch to position one (Select Low Bank) and reset the computer. All your Rom sign-on messages should now be displayed showing that the Rombox is active.

To configure the board high, flick the switch to position two (Select High Bank) and reset the computer.

I'm not sure what Rombo would think about this modification so if your unit is still under guarantee perhaps



MOUNT THAT SWITCH

Mount the switch in the lid if you have not already done so. Push a piece of insulating sleeve (Systoflex) over each Socket Shell Pin. Remove the pin-jumper from the jumper pins and push the Socket Shell Pins over the jumper pins as shown in the diagram.

Replace the lid and reconnect the Rombox to the computer. Flick the switch to the centre position (Off - Roms disabled) and power up. If all has gone well the screen should be displaying only Amstrad's copyright message and 'Ready' prompt.

it would be best to wait until it has expired. (The guarantee that is!)

Jess Harpur, Campursoft & Waccl

UNCLE CLIVE SPEAKS

Hi there, I've tried out Jess's gismo. it works, and what's more it's easy to do. It's as easy as he says, and you don't need to be an electronic genius. The only change I made was to fit the switch to the front of the Rombox, so I could easily get at it.

You can adapt this for any Rombox that uses the Jumper pin method to select the Rom bank. TTFN. -Clive.

CPC ATTACK - A RIVAL?

CPC ATTACK : FRIEND? FOE? GOOD? BAD? ALAN TILLING REPORTS

Earlier this year, WACCI rose from the ashes like the phoenix and following our example ACU (The Amstrad Computer User) has done the same, only (unlike WACCI) they have changed their name to CPC ATTACK. Why change the name, here's the reason from issue number 2:

"..... ACU was an official Amstrad title, licensed to the magazine's publishers. When HHL Publishing was born it was decided to cancel the Amstrad contract. As such it had to loose the title"

THREE'S A CROWD

I am going to review issue number three because there has been the inevitable settling in period - I think issues 1 and 2 are best forgotten. (In issue 2 there was a reader's survey form which was reported on in issue 3 and good things have already started to happen as a result.

What do you get for your money? Well one thing is that the hole in your pocket is only £1.85 which must be good value. They did say that it would be low because there would be no cover tapes or other give-aways but this may change because of the survey. Pity, I prefer a good read rather than a load of junk with a magazine.

There were 68 pages including the covers which covered (sorry) the following topics: News, tips, letters, a centre-fold poster, pokes, maps, an adventure section called "The Dungeon" (a was bit like Trafalgar Terrace actually), questions and answers, a PD Page, elementary and advanced Basic and machine code programming. Plus competitions, games reviews, etc. and the last in a series of console articles. Also included was a special on add-ons that are/were available for the CPC.

CPC ATTACK - FACT FILE

Adverts	28 pages	General Interest	12 pages
Letters	4 pages	Programming etc	9 pages
Games	6 pages	Pokes/Tips	7 pages

What was the magazine like? Well it was glossy and it carried some drawings of an unusual girl who oft times carried a "machine gun" which, if it were possible to make, would be too heavy for Geoff Capes or even Clive to lift, let alone a

nice young lady. Last there were the adverts - lots and lots of them. The most ironic aspect was that there were several adverts for Amigas, which leads me to think the publishers have a death wish or are masochists. Some of the language that it was written in was very "modern" which is a shame but in this day and age I suppose it is inevitable. They seem to have a down on amateur magazines. Only one has been referred to, and that was in derogatory terms. It was Yes you've guessed it, WACCI.

FINALLY - THE SUMMARY

To sum up, there's a good balance of articles, from games reviews to specials to technical programming. Even though the writing is different, it's worth investigating and HHL publishing are becoming professional. Go on, give them your support and get yourself a good mix of CPC information.



VIDEO MASTER

Tom Betts Reviews VideoMaster - A New Product From Campursoft

Have you ever wanted to use your CPC to produce Video Graphics? Or title your own videos? Have you considered putting your computer's sound onto your Home Movies. CampurSoft are marketing a remarkable system that will do all this and lots more.

INTRO

VideoMaster is the size and shape of a ROMBO box. From one side protrudes a length of cable with a 7 pin DIN plug. On the other side is a 12v cable which must be inserted into your Monitor's 12v socket. Of the two leads coming out of your monitor the DIN plug has become redundant. The 12v cable from the monitor is connected to a socket on the front end of VideoMaster. There's also a phono socket on the front of VideoMaster unit.

Instructions are in the form of two A5 sheets produced by MD+. Sheet one explains the setting up procedure. The second sheet has a set of diagrams which are clear and precise and should leave no doubt in anybody's mind as to the correct installation of the unit.

NEE PANIC LAD

CampurSoft have proved very helpful in the past and in their instruction sheet they stress that their complete backup service and help-line is always available.

YOU'LL ALSO GET

The unit comes supplied with a video cable and phono plug and an audio lead with a stereo mini-jack. Both are connected to a 21 pin Scart plug. If your video does not have a Scart socket then CampurSoft will supply a BNC connector and fit the black box with a separate audio outlet.

ALL YOU DO IS ...

In operation, connect the phono plug to your VideoMaster and connect the Stereo mini-jack to the Stereo socket on your computer. The scart plug is connected to a VCR. Some VCR's may have two Scart sockets and you will have to select a LINE output to suit.

Switch on the monitor, computer, video and the television set. I found that the default screen and indeed all the various screens such as, Art Studio, Protext, screen listings, all these gave a shimmering effect.

But CampurSoft do warn the user of these effects and explains that this is normal. Adjusting the controls on my TV made a some improvement, particularly when I called up Protext (on Rom.) It needed only a slight adjustment and made no noticeable difference to TV reception.

PETER ASKED ME

I must admit that I was delighted when Peter Campbell asked me if (as a known Video Graphics Fanatic) I would review VideoMaster. I carried out the tests using Sony and Panasonic VCR's.

The unit I was given for these tests did not have a separate sound output and my Panasonic does not have a Scart connector hence when running this VCR and VideoMaster the input was via the BNC connection.

KEEP THAT MP2 - IT HAS THE POWER

If you already have the MP2 modulator you can use this as the source power supply to your computer so don't throw it away. For months now I've tried all kinds of permutations to improve on the output from the MP2 but my pictures have always been grainy or have been bothered by wavy lines and of course no sound. As a matter of fact when using the modulator I've had to turn off the sound on the TV set.

SOUND IN STEREO

My very first impression on playing back the recorded video tape was what wonderful sound, even my wife was impressed. Before VideoMaster I had no

idea that the humble CPC could produce such tremendous sound (and in stereo to boot.) In addition to the stereo sound emitting from my TV I was suddenly watching computer graphics as I had never seen them before.

ART STUDIO MASTERED

I tried Art Studio first and I might have given up at this point except that I had promised Peter I would give VideoMaster a thundering good going over. The shimmering effect mentioned above is apparent in the blue and white menu bar and too the subsidiary menus, red and black are barely discernible. I found that mode 0 was the easiest to read. The main screen does not suffer from scintillation.

In addition to many PD. graphic screens not to mention games. Using ART STUDIO, I drew a screen of several vertical windows side by side filled & locked each window with a different colour. The colours remained steady as the 'Rock of Gibraltar' both on screen and in the recorded playback. As a further test I ran a short Basic program introducing to the screen all the colours in turn from 0-Black to 26-Bright White. On playback however the colours were weak with shaky unsteady edges. I don't know why this particular program caused this effect other than perhaps I did not have the Scart plug fully connected.

RING OF CONFIDENCE

I have considerable confidence in CampurSoft's package and I'm happy that the colourful titles and graphics can be edited/inserted into ones home movies, the latter restricted only to ones own imagination.

ANOTHER NEW PROGRAM

However, I understand that CampurSoft may well come to the rescue. Because they are half-way to producing a software Video Titling package. For

anybody who has an interest in this fascinating subject this is a great prospect. You're not restricted to graphics or titles with VideoMaster because as its name suggests it is the master of your video. Whiz around a racing circuit of your choice on 3-D Grand Prix or beat your computer at dominoes or chess, or sometimes (when you're feeling energetic) a round of golf? I can now play all these games on the big screen.

IT'S NOT TRIVIAL

View your computer's animated programs on your television set and listen to the sound produced by the computer's sound producer you'll be fascinated. If you have Trivial Pursuit then the whole family can join in. You can sit around the TV screen and watch some really excellent graphics and what is more you can record the whole lot for posterity (if you so wish.)

You'll have heard (or seen) LOGON's DEMO. What about running it on your TV screen? You can using VideoMaster. You can record it whilst you are viewing, take the video cassette to an Amiga owner and let them cry their eyes out.

VCRs, BNC AND SCART?

I tested this package on both my VCR's the Sony via Scart and the Panasonic via BNC connector. The latter gave me a set back at first as although the screen was showing colour the actual recording came out in black and white. I didn't believe it was the heads of the machine because I'd run a head cleaner through both machines before starting the tests. I changed the cable for another and that did the trick. I shoved a few graphic progs through the computer making recordings as we went along, unfortunately I wasn't able to connect up the sound to CampurSoft's Black Box but the recorded reproductions were excellent not a shimmer or shake anywhere.

QUALITY PICTURES

I would recommend VideoMaster to anybody who is struggling to get a decent picture from the MP2 modulator, but hold on to it because it does enhance CampurSofts package and as a source of power to your computer is considerably more convenient than your monitor. For anyone interested in making Home Movies then VideoMaster

will be a boon. It can be used as an excellent titling package. Just think of it unlimited fonts.

SPECIAL EFFECTS

All of the current stand alone Video Production titler's cost the earth but generally do have a limited amount of fonts, granted these do have other useful post production effects like fades, wipes and dissolves.

CONCLUSION

VideoMaster is practical, interesting and a useful package. If the Camcorder users amongst you want a Super titler capable of producing reliable pictures and with the promise of some exciting software, then this is for you.

PROGRAM FACTS

Name: VideoMaster
Price: £35.99
Delivery: 21 Days
Pay by: Cheque, Access, visa, etc
From: Campursoft
Address: See Below

FEATURES INCLUDE:

- FULLY MENU DRIVEN
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THIS AD PRODUCED USING MICRODESIGN PLUS AND A STAR LC10 9 PIN PRINTER

... AND THERE'S MORE YET TO COME...

dBASE II dBASE II dBASE II

dBASE II - GOOD, BAD OR UGLY? - JOHN HUDSON SPILLS THE BEANS

Over the next months John Hudson is going to be introducing us to DataBases and in particular dBASE II. dBASE is one of the more popular databases and there's a version available for the CPCs and PCWs. dBASE II can be obtained from W.A.V.E. for the modest (by today's standards) price of £34 'ish inc p&p. dBASE II operates under CP/M 3.1 (plus) only (it will not operate under CP/M 2.2, sorry.)

ANCIENT HISTORY - ASK YE DAD

dBASE was invented in the 1970s by Wayne Ratliff who worked at NASA's Jet Propulsion Lab. He sold it through small ads in the computer press as Vulcan until Ashton-Tate began to market the program as dBASE II.

It took the market by storm but its successors, dBASE III, dBASE III Plus and dBASE IV, never achieved their promise and competitors like FoxBASE and Clipper began to eat into the market. Wayne Ratliff had left by now and, unlike WordStar which bought back the inventors when the company ran into trouble, Ashton-Tate struggled on alone. They lost lawsuits for copyright infringement because they had failed to patent dBASE III correctly and were taken over last year by Borland; since then Microsoft and Computer Associates have swallowed up their two main rivals, Fox and Nantucket, producers of FoxBASE and Clipper respectively.

LAWYERS WIN AGAIN

But the ending of the lawsuits has left dBASE an open language rather than a proprietary one and the term

xBASE is now being used to describe all the dBASE like languages. A committee has begun work on worldwide standards for xBASE. dBASE has always attracted ambivalent feelings - one of its earliest reviewers in BYTE (magazine) described it something like 'infuriatingly good'. Amstrad users are regularly put off it in magazine articles where it is described as 'difficult'. Yet these same magazines carry features on advanced BASIC and assembler which are far more obscure and difficult than anything a dBASE user will come across.

dBASE has seven elements: its own way of holding data and facilities to index files, create reports from data held in files, make intermediate calculations or adjustments to data, draw screens to input data, query the contents of files and automate operations. The last two form the dBASE programming language.

IT'S A LANGUAGE

Like BASIC most keywords can be used to produce an immediate response on screen or to create programs. Programs have elements of assembler, C and

LISP. Like assembler, dBASE works through a sequence of instructions until it comes to the end; like assembler, it can be made to loop back to repeat a sequence. But, like C, sub-routines are held in separate modules to which dBASE jumps when they are called. Like LISP, once you have written a piece of generic code and given it a name, you can incorporate it into any other program simply by calling its name.

IT'S A STANDARD

Like WordStar and Supercalc, dBASE was invented when it was advantageous for programs to be able to transfer information easily and dBASE has very good facilities for importing and exporting information - so, unlike many other databases, your information is never locked into dBASE. It also allows you to restructure, split and join files if you want to change the ways in which you hold particular information.

IT'S AVAILABLE

With W.A.V.E. selling dBASE II, now is the time to learn a programming language which is relatively easy to understand, which will teach you as much about good programming as any language and which will enable you to make your Amstrad a really useful computer! John R Hudson.

* Adverts * * Adverts * * Adverts * * Adverts * * Adverts *

THE NEW ALTERNATIVE FIRMWARE GUIDE

Here at WACCI we have long mourned the passing of the good old Soft968, known to many as the Firmware Guide. Finally there's a worthwhile alternative that that's almost as good You get 80 full A4 pages, in a slide binder with card covers. The pages are full of 280 instructions, the firmware jumpblocks,

maths routines, the CPC memory maps, output port addresses, 454-6128 conversion addresses, Bios and Amsdos calls and much more You also get a 3 inch that's full of useful machine codes routines (and includes a monitor and machine code assembler.) This is what you have been waiting for. This great new CPC product can easily be

yours. It's not £30, it's not £20. It won't cost you £10. It's yours for:

£7.95 including p&p (and the disc)

Got a 464? Don't panic, there's a tape version. Once you've purchased the new firmware guide and disc you can borrow the tape from the tape library.

* FSW * The WACCI Public Domain Software Library * FSW *

All the programs in this library have been fully tested on an Amstrad 6128. The programs are supplied on an as-is basis. Please advise WACCI of any problems, we will do our best to rectify the problem and provide any assistance you need.

PUBLIC DOMAIN DISC 1 - CP/M 2.2 ONLY
Forth Programming Disc: Forth & intro to the language.

PUBLIC DOMAIN DISC 2 - CP/M 2.2 and CP/M 3.1 (plus)
Utilities: NSWP, Print, BD04, Rasmb, Zmac, Zlink & more.

PUBLIC DOMAIN DISC 3 - CP/M 2.2 and CP/M 3.1 (plus)
MBasic Programming Disc: MBasic, Compiler, Instructions etc

PUBLIC DOMAIN DISC 4 - Amsdos (128k CPC's only)
Includes: PD Planner, Powerpage, Rambase3 & Ramdisc.

PUBLIC DOMAIN DISC 5 - CP/M 2.2 and CP/M 3.1 (plus)
CP/M Games & Adventures. (Base, Island, Colossal Caves etc)

PUBLIC DOMAIN DISC 6 - Amsdos
Games Disc One: 37 CPC games (inc. Splat, Hangman & more)

PUBLIC DOMAIN DISC 7 - CP/M 3.1 (plus) ONLY
Utilities: Superzip, Form3, Crunch/Uncr, Andybase & more.

PUBLIC DOMAIN DISC 8 - Amsdos and CP/M 3.1 (plus)
Comms disc: contains, ZMP, TERM5048 and loads of help files.

PUBLIC DOMAIN DISC 9 - CP/M 2.2 and CP/M 3.1 (plus)
CP/M Utilities: LT29, Nulu15, Unzip, MFT, Rescue, and more.

PUBLIC DOMAIN DISC 10 - CP/M and Amsdos
Word processor (VDE266) and spell checker (ISPELL.)

PUBLIC DOMAIN DISC 11 - Amsdos
Adventures Disc 1. Two full adventures & Eschers crazy mill.

PUBLIC DOMAIN DISC 12 - CP/M 2.2 and CP/M 3.1 (plus)
COBOL Programming Disc: Compiler, Series and Examples.

PUBLIC DOMAIN DISC 13 - Amsdos
Demo's Disc 1. Loads of graphically superb demo programs.

PUBLIC DOMAIN DISC 14 - Amsdos
David Carter's Amiga Graphics Disc One (49 super pictures.)

PUBLIC DOMAIN DISC 15 - Amsdos
'Flags of the World' and David Carter's 'Animator Demo'.

PUBLIC DOMAIN DISC 16 - CP/M 2.2 & 3.1 (plus)
Programming Languages: PPC Pascal and ZBasic (demo version.)

PUBLIC DOMAIN DISC 17 - CP/M 3.1 only
JRT Pascal Programming Disc: (Disc 1 of a 2 disc set.)

PUBLIC DOMAIN DISC 18 - CP/M 3.1 only
JRT Pascal Programming Disc: (Disc 2 of a 2 disc set.)

PUBLIC DOMAIN DISC 19 - Amsdos
Lots of MicroDesign format pictures and clip art.

PUBLIC DOMAIN DISC 20 - Amsdos
More MicroDesign format pictures and clip art.

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SELECT-A-DISC

PUBLIC DOMAIN DISC 4 : Amsdos

POWERPAGE ... DTP program, by Richard Fairhurst
PD PLANNER .. Spreadsheet by Paul Dwherryhouse, 128k Reqd
RAMBASE3 Super Database by John Fairlie, 128k Reqd
RAMDISC Create a Ram drive, 128k Reqd.

PUBLIC DOMAIN DISC 5 : CP/M & CP/M+

BASE Text only adventure
BASE2 Part 2 of the BASE adventure
ISLAND Text only adventure
ISLAND1 Part 2 of the island adventure
PRESSUP Simple to play game, but very hard to win.
ADVENT The original Colossal Cave adventure
CUBE Version of Rubiks cube.
GOLF Weird text only golf game.
MASTMIND Interesting version of MasterMind.
OTHELLO CP/M version of Reversi.

PUBLIC DOMAIN DISC 6 : AMSDOS

ADDER guide the snake to collect points
ANNA eat the diamonds with your annaconda
ASSETS asset strip companies to make a profit
BIO plot your BioRhythms, having a good day?
CALENDAR print out a calendar for the year
CATLABEL print out a label for any disc
GEEP customise the beep on your CPC
CRIB the card game of crib
DESERT guide your tank around the desert
DROFFOUR a version of connect four
EDITOR run your own magazine and make a profit
EEZAP shoot the balloon to win
GIN play the card game on your CPC
HANGMAN guess the word before it's too late
ICEFRONT an interesting game
MUSIC write and play tunes
ODE dedicate an ode to a friend
PATIENCE play the card game of patience
PIQUET the card game of piquet
ROMANNUM converts numbers to roman numerals
SPRING an interesting game, well worth playing
TRENCH fly your fighter down a trench
BOP plays a bit of 8op music
CHESS basic game of chess
COLOSSAL level 9's colossal cave adventure solution
CONNECT another connect four game
CREEPY move around the vegetables, don't touch
CSEA get the submarines before they escape
CTN conversion of a very old english game
FRED talk's a load of rubbish!
GIGO garbage in, garbage out, rubbishy talk
HOROSCOPE ... want to know the future? here it is
OCTAVE play the octaves on the numeric keypad
ORGAN use the keys as an organ! designer tunes?
POOLS plan to win the pools with this super aid!
SPLAT a super machine code & Basic game
TIMEBOMB collect the timebombs before they explode
NOTHING fills the space at the bottom of this page

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Green's strip pontoon, Dripzone plus, Beetlemania, Saucer attack, 3D Maze, Englebert, Globe and Juggle.

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