A Magazine For CPC Users And Members Support Club

WACCI

Issue 128 £2.00

WACCI
a magazine for CPC user's and members support club

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Benefits of Membership

The best magazine for serious CPC users.
Index covering issues 1-104.
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Above all the advice, assistance and friendship from other WACCI members. Benefit List: by ***Ernie Ruddick***

WACCI on the web: Matthew Phillips.
The URL, is: http://users.ox.ac.uk/~chri0264/wowww.html

WACCI Post Room: John Bowley
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Production Method

WACCI is created using Protext and Promerge on a CPC and transferred over to a PC using SANKO, MAKEBMP, PROCLIP, DOSCOPY, MULTICON, MODE 1-2 and lots of luck.
The magazine is then printed on a Epson Stylus 200. WACCI is printed and collated by A 2 Z!

Contents

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Thanx & Stuff

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Chairman: Doug Webb

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In: October 1986

Developed and Expanded by: Steve Williams, Clive Bellaby, Paul Dwerryhouse and Philip DiRichleau.

Copy date: 28th March 1999
Membership: 250

Hi all and welcome to another cracking issue. Many thanks to all those who have worked so hard to make this issue possible. I had three complaints about the red lettering in the last issue. One even said that if it was meant to make WACCI more inviting to read then I FAILED, because to him red is for caution and danger "DO NOT OPEN" all I can say is that I'm sure glad he's not a Postman. Joking aside and yes I am ONLY joking! Be it badly. I wanted it to be blue. I had to redesign the front cover so that it could be blue this time around and hopefully it is.

PD Library

Dave our friendly PD Librarian informs me that since I introduced the 3 for 2 scheme, orders have picked up, so obviously members are now using it which Dave is pleased about. I'm also pleased to inform you all that; this offer will carry on to the end of JULY 99.

What New Overseas?

Not a lot as far as I know. As much as I would like to make contact with over groups overseas I just don't have the time to do it myself so please, if you know of anything on the CPC scene in general then please let me know so I can print it within WACCI. I'm sure a lot of our members would be interested. At this point I must state that I received a copy of ATM 4 *(thanks Roy)* which had a lot of information on this very subject. Talking about ATM it is available from Roy Everett and his address is:

2 Coldnailhurst Avenue
Braintree
Essex
CM7 2SJ
01376 344572

ATM 4 is the best one yet Roy, loads of interesting articles not many attacks about WACCI *(this time around anyway, or anyone else for that matter)* but what stood out the most for me are the articles by James Hoskisson especially the one about his 3.5 1.44MB disc drive interface *(see advert page 8)* well written as usual from James.

Convention 99

This years convention is called UK8Bit. WACCI and the IEBA *(Independent Eight Bit Association)* are joining forces to make this years convention in Walsall the biggest and best yet. A big turn out from other groups is expected so please book early.

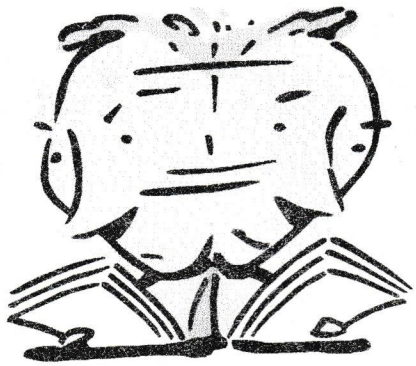
To purchase your ticket or book a stall please contact: Angie Hardwick either by letter, phone or e-mail. Angie's e-mail address is: angie.hardwick@cableinet.co.uk

The price this year is £2.00 per person and traders £5.00 per table For more details contact Angie *(address is on page 2.)*

Make your cheques or postal orders payable to the Convention Fund please.

Fair Comment

with John



Please send all letters on disc (if possible) to:
Frank Neatherway, 3 Glebe Close, Rayleigh, Essex. SS6 9HL

Interesting Advert

Dear John, What an intriguing advert on page 14 of WACCI! I wonder how they have done it - high density discs on a CPC. I always understood that the disc controller used in the CPC was not capable of the increased transfer rate required for high density discs. I wonder whether the interface comes with software to take advantage of the bigger disc size? Will there have to be a new version of Parados? I hope someone can do a review of this interface soon, as it is good to see new hardware being developed.

Continuing on the hardware side, I liked James Hoskisson's article about the Z80 chip. It reminded me of a time long ago when I read up on the Z80 hardware with a view to designing an add-on with a second Z80 in to speed up processing of calculations. I never got around to designing it. Perhaps now I have a soldering iron I might have a go at some hardware projects. The RAM-ROM looked especially interesting.

I know of another piece of hardware that uses the NMI signal on the CPC. The RAM Music Machine can use this to generate interrupts to indicate that it has received a MIDI signal from another instrument. This is useful because MIDI uses quite a high baud rate, and ordinary interrupts would not poll the hardware frequently enough. I think James is a bit harsh on Amstrad when he says that taking the NMI pin to the expansion port was an oversight. Even if they had predicted the Multiface being made, I still think they should have brought the NMI connection to the port because it is essential for certain types of hardware. On the other hand, they weren't so enlightened about the printer port or the disc firmware...

I was recently sent an AMX mouse for the PCW. It turns out that my PCW has a "proper" socket on the back instead of an edge connector. This meant that the mouse wouldn't plug in, as it had an edge connector. I thought of Stephen Potts' article about widget making, and counted up the number of pins, and found that they were the same number as on the CPC!

So I sent a cheque off to Stephen and he sent a superb widget very quickly. It was just the trick, and we now have an almost working mouse for the PCW. I say "almost" because it seems to have a habit of jumping about the screen oddly when you move it downwards. I think it needs a clean, or some better programming.

I like the idea of an all formats 8-bit convention. One of the most interesting things at the last convention was Peter Rogerson's weird CPC 664. The good thing about an 8-bit convention will be seeing all those weird computers my friends used to have.

Still, we must make sure that there are a good number of CPCs there. One thing about the last convention was that we had brought along various bits of software to show people, but there were hardly any CPCs to use, and only one 3.5" drive. We need to have a few people bring their CPCs for demonstration purposes, and preferably a few 3.5" drives as well. I'm not offering, because we have to come up by train, but it would be really good if that could be organised.

Matthew Phillips
Oxford

<<Hi Matthew, First of all many thanks for all the articles that you and your lovely wife Hilary (in fact she has also written in to Fair Comment) has written for WACCI over the years and I'm sure members

have found them to be of interest. A multi-format convention is a very good idea and the response so far has been good. In regards to the interface project I also hope a review will appear in WACCI very soon. James Hoskison in the person behind the interface.

I'm sure James will be very happy that his article was of interest and in fact I've already sent him an e-mail saying that members have found it to be interesting. James writing style made it very easy reading so well done James. -John>>

If members would like to do demonstrations at this years convention please contact Angie her phone number is on page 2 and her e-mail address is:

angie.hardwick@cablinet.co.uk

PC Tips

Hi John, This is the first comment that I have written in a long while, in answer to some of the articles in WACCI, with regards to certain issues.

The following is in reply to two items in WACCI Issue 127, and the first is Christine Raisin's point of copying disks on a PC:

If one has a shortcut to the 3.5" (A Drive) on their Desktop, then all one has to do, is to put the disk that they want to copy into the [A] Drive and right click on it and when the menu appears, Select 'Copy' and the PC will do the rest, and duly inform you to 'Change disks' at the appropriate time.

Not the long winded way that she described in the article. I have shortcut Icons on my Desktop of all my Drives A, C, D, E (CD Rom), and F (Zip Drive), which gives me easy access, rather than go through My Computer/ The second article that I am replying to is on Page 25, Issue 127, written by Pierre 'Cob Killer' Thevenet, with regards to having a 3.5" drive instead of the 3" Drive on the Amstrad.

My setup is as follow: I have 2 x 3.5" drive attached to the B Drive port, one is configured as the A Drive the other the B Drive. They both work of one cable, one power supply, each have a side switch and I have an ABBA switch. I can also read most formats because I also have Parados, which in a way give me no end of options to read 3.5" disks in whatever format. All this was done for me by Nigel Callcutt about two years ago, which some of the older members of WACCI may remember for his technical help that he used to do in WACCI, and have a help line for members in days gone by.

Hope that this letter helps with keeping WACCI going for a long while yet, although I don't use my Amstrad as much with having a PC, but I am delighted that you also have PC related pages, which enables one to keep in touch with the Amstrad Scene.

There are a couple of good magazines relating the PC, with very little advertising, which I like, one is PC Answers (monthly) and the other is Computeractive (fortnightly), if anyone is interested, and they are both very informative with regards to the PC.

Yours sincerely

Joseph Rooney

<<Hi Joseph and welcome to Fair Comment. There are bound to be other ways to make short cuts and copying disks which are possibly easier than Christines article suggests but at least it got you writing and at the end of the day that's all that really matters. Christine will be very pleased that you took the time to write in and pointed this out to her. -John>>.

Right On Tracks

No sooner had I mentioned that I had finished an article for WACCI, in which I had asked one or two what I thought more serious questions, about games. Even before the work I'd done ever reached our beloved editor, Christine Raisin was already on the scent like a bloodhound eagerly stalking its next victim.

One question was. How many games were commercially available? The other has anyone got a complete listing? Her powers of investigating surely outdo any that Sherlock Holmes ever had, and her range of contacts must spread far and wide. It wasn't long before Chris was ringing me, I've got a complete listing for you but it's in PC format. The listing itself had been I think I'm right in saying was downloaded off of the internet. A few days went by, one morning I got a phone call it was Chris, Christine's husband I'm coming over are you going to be in.

This I thought was going to be one of Chris's usual visits, but that wasn't the case. They both had been busy printing out that games list 36 or 38 pages in all, but that was just for me, they themselves also wanted copies. So their printer was working or had been working overtime. But peep's don't forget my article still was, hasn't been

published yet. We went through the list it's really quite amazing finding games on in it that you have never heard of. I myself have in the region of 1500 either on tape or 3 1/2" or the odd 3" disc. You might find it hard to take in but there were over 3500 on that list, so I'm just not quite halfway.

Reaching A Climax

Our journey still carried on into a couple of weeks, Christine with the bit still between her teeth hung on for dear life, it was another project started that wasn't going to defeat her. Christine came out of all this smelling like a rose, for not only did she accomplish what she set out to do, but did a whole lot more.

As well as the list, this woman of many talents also managed to get the list down on 3 1/2" for me too, so I can print off and add to it to my hearts content.

All my thanks Christine, credit where credits due. Additional thanks to Nigel Calcutt for his endeavours on the net.

My last words again are for anyone who can help with any game or games to add to my collection, before they disappear forever. Please contact me. My database can be supplied on request:

PAUL WASS
MANSFIELD

<<Hi Paul, Nice to hear from you again. Christine has always been very helpful to members, she feels that members are more like friends than just somebody who shares the same hobby. It looks like you've made a friend for life here Christine. Paul's address is on page 13 -John>>

Its A Privilege!

Dear Fair Comment, I have just awakened from a fainting fit! First, to have a letter printed in Fair Comment was a privilege, and I feel honoured. *(I just hope we get some response from someone with knowledge of Compilers!)*

Secondly, for you to suggest that I might be able to help David Hooker with his Basic queries is very flattering. I regret, I haven't a clue! But thirdly, to be mentioned in the same breath *(not just the same paragraph)* as Richard Fairhurst ... Too much, too much ...

There, I'm feeling faint again!

Stuart Paterson

<<Hi Stuart, Gee you say it's a privilege to have a letter printed in WACCI surely not, its my privilege to answer members questions the best way I can. Anyway hopefully Richard Fairhurst (NO! Don't faint) might be writing an article about compilers very soon. -John>>

Red For Danger

Dear Fair Comment, Having just digested the contents of issue 127 *(the one with the red-for-danger cover)* for the 3rd time I feel I must make a few comments.

First of all, the PC contents. I know that the debate has been raging for some time, whether WACCI should embrace other machines or not. This month we've been treated to four pages of PC material that have informed me of three things: firstly, that WACCI is a CPC magazine and if it changes and becomes a PC publication then sadly, it will not be for me. The user group is based around a CPC-specific PD library, the help-lines are for members suffering from CPC-related problems and the magazine is a forum for CPC users. If members move on to embrace more advanced machinery and they require a WACCI-style magazine to cover their interests then they should form one. But that does not mean taking over an existing publication to the detrimental cost of other existing members. Angela Cook had the right idea with Wibble.

The second thing I've been informed of is that PCs don't appear to be much fun. I've got one myself, of course, and I don't like it very much. It's not Heath-Robinson enough for me, I'm afraid, and I think I'll dispose of it.

But then I'm a member of WACCI because I share a hobby with other people who have also opted to join WACCI, and that hobby is the good old CPC. Not computing as such but a tiny little branch of computing which involves an elderly 8-bit machine and sad people like me. If I ever move on to greener pastures involving more bits and bytes then I'll wave farewell to dear old WACCI. The truth is I'm not so egocentric as to believe that just because I've changed my hobby then so should everyone else.

Finally, the third thing I've learned concerns the skills of PC grammar-checkers, if that's what they're called. Now look, I don't want to imply any kind of criticism of an individual member: that kind of behaviour is unworthy and goes against everything I try to believe in. But our language, English, is horribly complex and yet at the same time is capable of such mind-numbing beauty that it has, over

the years, given birth to Shakespeare, Wordsworth and Dickens amongst many more. But the mechanical niceties of a computer program can go nowhere near to replicating it with all its wondrous imperfections.

Sometimes I get a tingle down my neck when I write what I proudly think is a Jolly Good Sentence, but I'm afraid that many a grammar checker would find that beautifully crafted sentence more full of errors than a basic program typed in by a drunkard. Strip out the human element and you get a monotonous and seemingly endless row of words from which even some of the intended meaning has been lost. I'm sorry, but that's my considered (confused?) opinion.

So what should WACCI do in order to rescue me from my confusion? Well, that's easy enough. This month it gave birth to the WACCI PC NEWSLETTER. Good. Excellent.

The child is born. Now teach it to walk and breathe and live on its own, independent of its proud parent. And we can carry on for whatever time is left to us before we curl up *(metaphorically)* and die, leaving our child to march proudly into an unknown future, taking a little bit of us with it.

After all, if the factual survival of WACCI is dependent on diversification and dilution, then I'm afraid it doesn't deserve to survive. And if the PC owners in our midst desert us *(and why shouldn't they?)* and we shrink to become an uneconomic number and the magazine dies, then that's the way of things. But I'm an optimist and believe that many who tap away into Windows 98 will still want to keep abreast with what's going on in the world of the machine that informed their skills in the first place, and nourished the first frail shoots of their fascination for computers.

Finally on this point I'm not a seething mass of blinkered prejudice. I've always been in favour of some cross format contents, a page here and there maybe, an article on PCs one month and other machines the next.

It's the apparently wholesale incorporation of at first four pages with the promise of more in the future that might threaten to make me vote with my subs when they run out. There is still a great deal to be written about in the big world of the good old CPC, and enough writers to pen it, and until the thoughts and ideas run out let's remember why WACCI was formed in the first place and get on with the job.

Now for another matter. Paul Wass wrote an impassioned plea in Fair Comment in the self-same issue as the PC Newsletter appeared. I think I'd better explain what Paul is all about. He has this force within him driving him on to amass one hundred percent of all software *(games mostly, but he's not averse to utilities)* ever written for the CPC before it goes to that great silicon graveyard in the sky and gets lost for all time. This is a gigantic undertaking and one that requires a great deal of help. And help is what WACCI is supposed to be about. At the moment Paul has around half the games ever written for the CPC, and has reached that point when new titles are hard to come by. Without wishing to enter the arena of piracy, he would like to exchange games he has got for games that he hasn't got, and to that end he has produced a huge database of his entire collection.

Other members may have far fewer titles than he owns, but amongst that humbler list may lie little nuggets of pure gold when looked at from Paul's perspective. He's not greedy or unreasonable, and he's certainly not one of those human magpies that gather all to themselves and share nothing.

So if you've got a few games *(tape or disc)* how about sharing them with him? And if you've got a dozen or so old tapes that you haven't looked at since the year dot, are no longer interested in and would like to see the back of, send them to Paul. He'll use them as swaps if he's already got them. His address *(and he doesn't mind me sending it - I've asked him)* is 86 Jenford Street, Mansfield, Notts. Or ring him on (01623) 451464. Go on: you know it makes sense.

One final point. In his thought-provoking contribution to Fair Comment Sean McManus suggests that the few thousand words of word processing memory on the CPC is laughable today. Sean, it's a question of what memory. Slip a disc in and a few thousand become a few tens of thousand. The disc is as valid a medium for memory as chips or anything else, and what's stored on the disc is almost as easily accessed as it would be if it were still in memory, only its safer. I have written a library of novels that nobody wants to publish and never had any difficulty with memory limitations. And that's me for the month. Seeya.

Peter Rogerson

<<Good day to you Peter, Where do I start to answer your letter? It seems to me that you are very concerned that WACCI will move over towards the PC in the future. This is NOT the case, the CPC as always been and will always remain WACCIs first concern since that's why members subscribe in the first place.

The PC Newsletter was only started because of the lack of CPC related articles. If more members feel the same way as you do about WACCI covering PC related articles then perhaps we should call it a day.

I certainly don't want to close WACCI down and I will keep it going as long as I can but and it's a big BUT it depends on you all, you see I can't win either way as some members enjoy the PC Newsletter and some don't but I would be condemned if I didn't try everything in my power to keep WACCI going.

Grammar checkers on the PC are useless for example take my Thanx & Stuff last month it was terrible, but it passed the grammar checker in Word with flying colours. In regards to Paul Wass he has also written a letter to Fair Comment, so members if you can help Paul in his quest then please do and maybe he will write some articles about the games he has. -John>>

Hilary To The Rescue

Dear John, Wow! WACCI in colour! Now I do hope this isn't going to push the subscription price up. *<<Certainly not. -John>>* I hear there is to be an all-formats 8-bit convention this year. That sounds like a great idea - hope to see you there! Anyway I was really writing to respond to two of the letters in last month's WACCI.

1. Sean McManus asked what proportion of the membership is still using the CPC. Well, we do, for starters. I am typing this letter on it at the moment.

The Programmers' Patch articles are written on it. I waste much of my time programming card games in BASIC when Matthew isn't using the computer for disassembling CP/M or programming higher things in machine code *(or playing my card games).*

2. David Hooker asked why a BASIC program recorded on disc using the SAVE "PROGRAM" style gives the error message "EOF met" when attempting to MERGE it if it contains a MOVE or PLOT command. It sounds as though he has a 464, because this is the error that you get when trying to merge any BASIC file on the 464.

On the 464, in order to be able to MERGE any file it has to be saved as ASCII. To do this, type SAVE "PROGRAM", A (or SAVE "PROGRAM. BAS", A if you want it to have the .BAS extension) - it will take a little longer than a normal save and might even take up more room on the disc, but that is what you need to do if you want to merge it. This should not be necessary on the 664 or 6128 as the version of BASIC is different and I am told the bug was fixed, but if you have this problem then try saving the file in ASCII format as above.

3. David also asked why the CLS command doesn't work while characters are TAGged. What happens is that when characters

are TAGged the CPC prints up control characters instead of acting on them, e.g if you have TAG: PRINT "HELLO" it will print HELLO plus two arrows which are the control characters for carriage return and line feed, CHR $(10) and CHR$(13). *(You need to PRINT"HELLO"; to get round this.)*

Similarly if you type PRINT CHR $(7) to generate a beep, this will not work when TAGged and instead will print CHR$(7), the bell symbol, on screen.

The command CLS is identical to PRINT CHR$(12). When the CPC meets CLS in TAGged mode it prints CHR$(12), which looks a bit like a barbed dagger, instead of executing it.

WHY it does this, I don't know, but the manual says "non-printing control characters will display" if you look up TAG, so it must be a design feature. If you substitute every dodgy occurrence of CLS with TAGOFF:CLS:TAG you will naturally cure your problem.

Hilary Phillips
Oxford

<<Hi Hilary, Thanks for taking the time to write. You and Matthew have both been very busy these last few days with Matthew doing his Programmers Patch and you doing a review on Scrivener (coming soon) and both of you writing to Fair Comment all before breakfast. Anyway details about the convention should be within WACCI somewhere. -John>>

Euro Symbol

Dear Editor, A symbol for the Euro. As a regular user of my CPC for financial functions, I was wondering what to do about the Euro and came up with the following ideas.

In AMSDOS use character 180 (hex B4) and in CP/M Plus use character 20 (hex 14). They are the same character - the Greek epsilon.

Perhaps WACCI members who have similar interests and/or contacts with other groups and/or abroad could sound out opinion to see if we can get Europe wide agreement on a standard approach to implementing the Euro on the CPC. It would also be useful to make contact with PCW groups about the idea of using hex 14 in CP/M - LocoScript uses a different character set. For PC users who haven't downloaded the Euro character into their existing character sets, the same character is available as ALT-238 in both PC-8 character sets.

Unlike Sean (WACCI 127), I still use the CPC for the serious stuff and there are jobs I can do easier and quicker on a CPC than on a PC - a point made by Brian Watson in an earlier WACCI.

I suspect CPC users are a pretty diverse bunch and the magazine needs to reflect that. I also find there are regular if infrequent enquiries to the Help-Line; so WACCI appears to serve the purpose of putting people in touch with each other.

Yours sincerely,
John R. Hudson

<<Hello John, It would make a nice change if something was standardised across Europe especially the CPC scene but I doubt it some how.

Hopefully when our overseas members read your letter they will write in and tell us how they are going to solve the Euro symbol problem. -John>>

A Z of CPC Chips

by James Hoskisson

In this issue, as promised, we're going to look at the FDC. First open up your CPC. There are several articles that show you how to do this. The FDC is the chip that either says 8272, or 765 on. Okay, that's done.

The Real Article

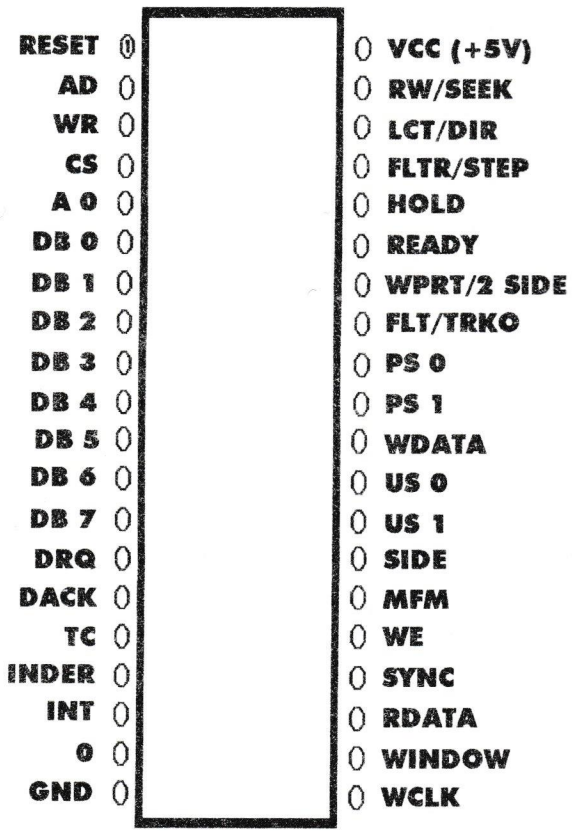
To start with I should explain exactly what the FDC is, but I'm not going to. Hah! Oh, okay, but just this once.....

FDC stands for Floppy Disc Controller (it should actually be FDDC (Floppy Disc Drive Controller), but that's a bit too long to remember easily.) As you may have gathered by now the FDC chip controls the disc drive.

The actual disc drive interface is pretty simple but that is why the FDC has to do so much. The disc drive basically only indicates information as it comes across it. This means that the FDC can't just request information from the disc drive, it has to tell it exactly what to do. This leads to the FDC having to be a very complex chip.

What Does This Bit Do?

The FDC is connected to the Z80 like all the other chips. It is a general-purpose chip so it doesn't have any special connections for the Z80 processor, like the Z80 PIO or SIO. There are several facilities available on the chip that Amstrad decided not to implement, probably to cut the cost of producing the CPC, but I'm just going to explain them so that you know what you're missing.



Pin Assignments of the FDC 765

The FDC is capable of DMA (Direct Memory Access) operation. This requires another chip which controls the data interchange. You can see where the corner was cut there. If this facility was available to the user it would mean that music could be played while disc accesses were taking place, and such like. It would also free up the processor so it would run faster while it was accessing the disc. The FDC is also capable of selecting up to four disc drives, but since Amstrad only connected one of these lines the CPC can only access two disc drives, unless some extra

hardware is added. The hardware isn't complex. The only reason you can't have up to four disc drives from the expansion port, without a switch, is because the relevant pins aren't connected to the edge connector.

The FDC can also operate in FM mode, as well as MFM mode, but only the MFM encryption is implemented in the CPC. These are ways of encoding information before it is saved to the disc.

The encoding is needed so that the FDC can tell when a 1 bit starts and when it finishes. The encoding gives the FDC a margin of error because it takes up twice as much space on the disc. The FM encoding isn't really very useful because it is only used with the single density disc drives, which can't store as much data as the double density drives on the CPC anyway.

Apart from this everything else works. The FDC can only operate in non-DMA mode. If it did try DMA mode it wouldn't receive any data because it has no way of accessing the RAM chips or co-ordinating the data transfer. This isn't really a big disadvantage with the Z80 because the command bytes still need to be sent to the FDC to read/write each track, so it isn't held up too much.

The FDC operates on the basis that once it receives a command from the processor it goes about its work. The FDC actually requires several bytes in succession before it will do anything. This is more of a safeguard than anything else, although information is transmitted in these bytes. If by some freakish coincidence the drive motor is started and a byte is transmitted to the FDC it won't do anything.

Even if, by some even more freakish coincidence, the data is exactly the right number of bytes that are needed, containing the exact information on what drive the disc is in etc., it would then require the bytes to be sent at exactly the right time. If this has ever happened to you, you can honestly say that you are the unluckiest person in the world, due to the astronomical chances of this happening by accident.

The Workings

As I have already mentioned the FDC requires multiple bytes before it can be cajoled in to doing what you want, but before we do anything, we have to start the disc drive spinning. This is achieved very simply by OUTing an odd byte to port &FA7E. The only bit that matters on this port is bit 0 (the least significant bit), the other bits are ignored. Hence the odd number required to turn the disk motor on. If bit 0 is 1 the drive motor is started, if it is 0 it is stopped, very simple.

The drive motor may be simple but that's the only thing that is with the FDC. After the drive motor has been started we have to allow some time for it to get up to speed. In assembly language this can be achieved as follows:

```
LD B,7
.WAIT1
LD HL,0
.WAIT2
DEC HL
LD A,H
OR L
JR NZ,WAIT2
DJNZ WAIT1
```

This allows some time for the drive motor to get up to speed, although the time varies from disc drive to disc drive. This length of time should be enough for all disc drives. If you want to tailor it to your own disc drive try reducing the time.

If you don't get any errors it should be fine for future use. Finding out if there were any errors is explained later. Now the disc drive is ready and spinning at full speed, we have to send some commands to the FDC. It would be a good idea to explain how the FDC processes bytes that are sent or read from it at this point.

The FDC has three different phases: command, execution, and result. The command phase is when you tell the FDC what to do. The execution phase is when the bytes to be saved, or read, from the disc drive are sent or read from the FDC. The final phase, the result phase, is where the FDC gives information on how the operation went. These bytes have to be read before the FDC will execute any more commands.

The FDC has two ports for data exchange. The Main Status register can be found at &FB7E and is an input only port. The register holds information about the FDC and is used to

synchronise data reading and writing. It is bit significant as follows:

Bit	Description
7	Data Flow Flag
6	Data Direction Flag
5	Execution Phase Flag
4	FDC Busy Flag
3	FDD 3 busy
2	FDD 2 busy
1	FDD 1 busy
0	FDD 0 busy

The explanation of the descriptions is pretty simple.

The Data Flow Flag is set if the FDC is ready for transfer, to or from the chip. This can be as in commands, bytes to be written to/read from the disc, or results. Obviously if the flag is reset the opposite applies.

The Data Direction Flag is set if the FDC is sending information to the CPU (the Z80), and is reset if it expects information from the CPU.

This bit can be used to detect which phase the FDC is in because each phase involves a change in the data direction, for the most part. The execution phase flag is more helpful here, though.

<<Here we must say good-bye to the FDC chip for this month.

James will tell us more about the FDC status registers next month until then Happy computing. -John>>

FDC Commands

I am now going to list all the commands, followed by the bytes needed for the command, split into the bit significance of the bytes, there might also be a description of the bytes, if you're lucky.

The next bit will be the expected result bytes. I am going to skip the execution phase because it's pretty self explanatory, depending on what the command is. I may include some of them though because the command in question may be a bit ambiguous. Well, here goes:

Read Data

This command basically just reads sectors from the track, that the head is over, into memory. The execution phase consists of the data in each sector.

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 1 -	MT	MFM	SK	0	0	1	1	0
Byte 2 -	0	0	0	0	0	Side	DS1	DS0
Byte 3 -	Track number on the sector ID							
Byte 4 -	Head number on the sector ID							
Byte 5 -	Sector number on the sector ID							
Byte 6 -	Sector size number on the sector ID							
Byte 7 -	Number of the last sector to read from the track							
Byte 8 -	Gap length for the sector to read							
Byte 9 -	Number of bytes to read from the track. If the sector is larger than 128 bytes this must be &FF to read all the bytes in the sector.							

Results; There are seven result bytes after the execution phase. These are the first three status registers followed by the track number, the head number, the sector number, and the sector size, for the first ID block read in.

Read Deleted Data

This command does exactly the same as the last one except it only reads sector that are marked as deleted. The only difference between deleted data sectors and normal sectors is that they have a byte, which indicates that they are deleted. As far as I know these aren't used on the CPC.

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 1 -	MT	MFM	SK	0	1	1	0	0
Byte 2 -	0	0	0	0	0	Side	DS1	DS0
Bytes 3 - 9	As above.							

Results; The result bytes are exactly the same as for READ DATA.

Write Data

Writes sectors to the track that the drive head is over.

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 1 -	MT	MFM	0	0	0	1	0	1
Byte 2 -	0	0	0	0	0	Side	DS1	DS0
Bytes 3 - 9	As above.							

Results; The results are exactly as per the last two commands.

Write Deleted Data

This command is just like write data, except the sector is marked with a deleted data address mark. These sectors can be read by Read Deleted Data.

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 1 -	MT	MFM	0	0	1	0	0	1
Byte 2 -	0	0	0	0	0	Side	DS1	DS0
Bytes 3 - 9	As above.							

Results; The results are the same as above.

Read A Track

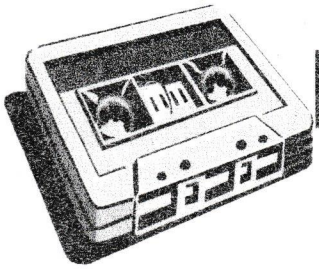
This command will read all of the sectors on the current track.

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 1 -	0	MFM	SK	0	0	0	1	0
Byte 2 -	0	0	0	0	0	Side	DS1	DS0
Bytes 3 - 9	As above							

Results; Yep, you guessed it - same as above.

Read Sector ID

This command will read the first sector ID block that it comes across on the current track. This is especially useful when trying to copy discs that have been protected using non-standard sectors because it returns the numbers of all the sectors in the order that they are laid down on the disc, if it is continually repeated.



Back To Basics

Tape to Disc transfers

By Paul Wass

Early Days

We all must have owned a 464 at one point of time or another. Some of you may still be using one! Personally I was right up to the convention last year 97, where I picked up a 6128 machine. I must admit there hasn't been much chance for me to look back. 84/85 was the year I first got involved with a 464, and over the years my tape games have been accumulating. In my collection there is possibly 500/600 if not more, and there is always room for improvement.

Since I picked up a 6128, life as I knew it changed, for the better (he said!) BUT the problem still remained all those tapes.

Being new to a 6128 causes enough grief as it is, the next task was sorting out the number of different tape to disc copiers, transfer programs if you like. I was advised on several the main ones being Bonzo Super Medler, Bonzo Blitz, Hackpack and JL-Copy: Now having selected the copiers all that's left is to get down to brass tacks so to speak.

The transferring of these games to disc hasn't been an easy task, it's taken a year and I'm still not finished yet. Tapes have to be checked i.e.:

That dreaded READ ERROR B for example, for if a tape won't load properly it won't transfer either.

A little mention here as well for 464 owners fitted with a DD1 and Interface, you may have the perfect set up for this type of operation, there's no additions, no tape recorder etc that sometimes gets in the way of things.

Note

Some games transferred will only run on the A: Drive! Don't alarm yourself there are programs to compensate this: AB-Patch: BB-Patch Copiers.

Try to select the few I have mentioned above, and add them to your collection, that's if you haven't already acquired them. I added JL-COPY to the list just for you Peter. All these programs are easily available. Dave Caleno would probably be the best one to ask. He supplied yours truly. *<<The Bonzo Suite of programs are available from WACCI's PD Library. -JB>>*

First Steps

Once you have the copiers in your possession its time to experiment. Pick up the Bonzo Super Medler disc, cat it, there should be 13k free on the disc.

YOU will also find that the screen is full, all these are different options used in the art of transfers. DON'T panic all will be revealed *(I hope)*. There is also a listing of loaders in |USER 7, but don't forget to go back to |USER 0, before continuing.

In Brief

This information I'm supplying is only an outline to the actual copiers mentioned. It's also my first attempt at writing anything, so please bare with me. Thanks. Now back to business....

The disc being in drive, cated, and on screen: RUN "INFO on doing that a database menu should be appear on screen. In it there is a listing of all the games transferred by these different options. Firstly take a print out which you can refer back too later. The method mentioned is the tried and tested option for that particular game and software house.

Some games require loaders this is where you will need |user, 7. I'll make another little point at this stage I should have mentioned before most if not all these programs do not like ROM's, so please don't forget to turn them off.

Let's continue RUN "BONZO

1: AUTO TRANSFERS
2: HEADLESS TFR
3: FLASHLOAD TFR

For a glimpse at one of these ignore 4,5,0,9 AUTO TRANS is the one we are going to have a quick look at, so press 1 on your keyboard. This option speaks for itself and will only transfer the most basic files from your tape, some of the simplest to do are the

AMSOFT games. After the options screen the next screen reads:

PLEASE ENSURE THAT YOU HAVE A FORMATTED DISC IN DRIVE A, A TAPE IN YOUR PLAYER

Instructions for relocator on or off, for now press any key don't bother about the relocator, some games do need the relocator, because some files take up the space allotted for your disc drive, but I don't want to get to technical. Screen 3 will appear and transference of your game should be appearing on screen. When transfer is complete test your disc.

2 and 3 are similar, option 2 will give you back files, which if you want can be renamed through Nivarna. DON'T forget it's the back 1 file to run the game. On option 3 it's a single file called flash which too can be renamed.

I'll also point out if your putting more than 1 game on a disc side DO NOT put more than the 1 game done by option 2 having the same file names create problems you would not believe.

I'm not going to go through each and every option on that disc, so I hope you get the jest of things. *(If I did I'll be here till doomsday).*

Another thing to mention if you have a game that's not on the database, there is a program called DETECT, run it, and it will give you its suggested option for that games transfer.

ALWAYS CONSULT THE DATABASE.

Moving on>>>>

Another program not dissimilar to option 1 is JL-COPY, it too deals with basic files. RUN "JL-COPY

1: FILE COPY
2: DISC COPY

Choose 1 the file copy: next screen reads

PRESS ENTER TO COPY
INPUT -TAPE
OUTPUT-DISC
PROTECTION
SPEEDWRITE
C TO CATALOGUE (TAPE/DISC)
QUICK SAVE
FILE/RECORD

This is how it should read after modifications to the right hand column. You have to catalogue the tape before transfers take place, so a pen and paper is needed to write down the name of the blocks that are given out from your tape. Rest of the program is easy to follow:

Bonzo Blitz

Very similar to Super Medler. Check out the database, BL, DETECT is also available. The main difference with this program is that the disc remains in the drive, transfers take place on the same disc. So before I go any further make yourself a back up copy and use that, or you may suffer the consequences.

Games transferred with this method again have to be taken off and put onto another disc, and don't forget to erase the files left behind on the BLITZ disc; it will read 74k free if you are successful. Only then can the process be repeated.

Hackpack 1 & 2

These two options use the disc in the same way BLITZ does, the files created are retained on the same disc. Files begin with W are created. But with these options is a test: rename facility: BONZO COPY will also transfer the files to your destination disc. In able to use these options the tape counter should be set at 000, the tape tried the number on the counter noted.

The reasons for this is you have to hold TAB down on your computer just before the game comes to an end, leave it there until your disc drive comes to a halt. After the games been put on the destination disc don't forget to erase the files you have just created.

All information supplied is brief and I've tried to cover them all to a point. Good luck to the tryers.

Don't forget though multi-load or level games will NOT transfer. There's a pause for thought for all you machine code buffs and medlers. Do you think you can get your heads together for a solution to this problem? *(I bet you can if you really want too).*

Personal

My ambition is to collect all the games they ever made, without help it's an impossible task. At the moment I think I may have in the region of 1400 either on tape or disc. If there is anyone out there who can help with this don't hesitate to contact me.

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Ladybrook Estate
Manfiled, Notts,
NG18 5QZ
TEL. 01623 451464

WACCI PC NEWSLETTER

Issue 2

Contents

Grateful Thanks

My thanks this issue go to Nic Rayner, for all the eight articles he has done for me and the help with my database. Thanks Nic

A Word In Your Ear

Hi there. This month I am starting with Nic's article's. They Continue in the same vain as the last issue. I intend to do one or two each month as they make a nice series.

Nic has kindly offered to answer any PC related questions for us. So please send them to me and we'll do our best to put them in the next issue.

Articles Needed

I want to ask if there is someone that would write us a *How To* on installing *Device Drivers for Mouse, Sound, Video, and CD ROM Drives.*

Please try to remember that members could still be using Windows 3.1, 3.11 for Workgroups, Windows 95-98. Some even prefer to use Dos. The idea is to help the beginner so the easier it is written the better. I would also like articles on working in Windows, Excel, Binder, Word, Publisher and Access to name but a few. I know these would be much appreciated.

Extracting A Zip File

I had a Zip File that I needed to extract but didn't know how to, a little help from John and away I went.

What's A Zip File?

A Zip file is basically a file or group of files compressed. There are other programs that you can obtained and the one that springs to mind is ZIP MAGIC with this program you don't even have to uncompress a zip file it reads a zip file like any other directory and you can even run your programs from within it. There are many uses for ZIP files but they are mainly related to the Internet for example; downloading software, but what do you do with it once you have downloaded a zip file?

First create a directory called *Temp* on your hard drive. I always keep this directory as I find it very useful. The zip file is on a 3.5 disk for this article. Just go to My Computer icon and select *A: Drive.* Once the A: drive springs to life you will see another icon *(see picture left)* just double click on the Zip file icon and Winzip will start up automatically, that's of course if you have got Winzip installed on your computer.

You are then faced with a list of files that the ZIP file contains. Highlight the files that you want to extract. Click on the *Extract icon.* You are then asked where you want to extract the files to. Go to the C: drive and find the *Temp* directory that you created earlier then click on Extract. The files will then be extracted to this *Temp* directory or any other directory that you chose.

Now close *Winzip* and you are ready to go to where you put the files and continue to do what you want with them. This is just one small part of this program. Winzip does a lot of things, but until I learn I can't tell you. I will put these little *How To's* in as I learn them.

TIPS

- **When deleting hold down the *Shift Key* and it won't go to the *Recycle Bin.***
- **If you want to select several files, hold down the *control* key and *click* each files with the mouse. This comes in handy when sending files to 3.5 floppy drive.**

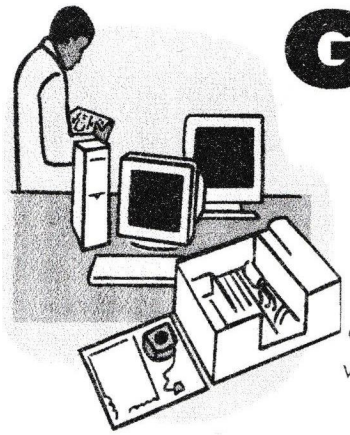
Get the idea, then please help with Tips, Articles, How To's and your Questions. *Thanks.*

If you can help please send them to me.

WACCI PC
117, Tilbury Rise
Cinderhill
Nottingham
NG8 6DE

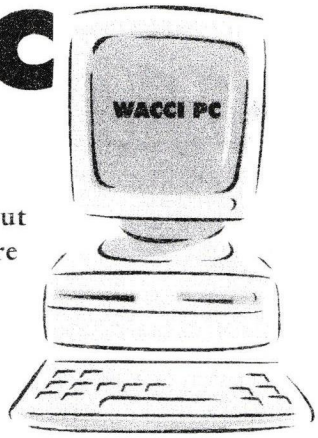
0115 9133181

Bye for now
Christine Raisin



Getting A PC

by Nic Rayner



So you have decided that you want a PC. WHY? What you buy depends on what you want to do with it.

Shop Around

Many people only want to do simple word processing and such like, and if this is the case then you do not need to spend huge amounts on a new PC *(of course all these are relative amounts, especially when you consider that CPCs are going for £20 or thereabouts at car boot sales)*, maybe £600-£800, if you do well you should get a good printer in this price as well, although it is often worth buying the printer separately as the bundle deals which look quite good, you often end up paying full price *(£200-£300)* for the printer whereas you can usually get them for £120-£220 if you shop around.

Minimum Specs

The realistic minimum for a PC today is probably a low end PII with 32 Mb ram, running Windows 95 or 98. It is probably worth getting the biggest hard drive you reasonably can, many companies are now routinely fitting 4 or even 6,8 or 10 GB hard drives, and of course the more that happens the more programmers will fill them up, quite a lot of programs today require 100 or 200 Mb of hard disc space and that will not shrink.

Scanning Photographs

If you want to do scanning of photographs then get a lot more memory, at least 128 Mb and preferably 256 Mb, especially if you want to do high resolution, full colour scans of A4 size photos, I know it seems insane but the price of memory is so low now that you really won't have to sell your children to get this much memory, or at least not many of them, and the difference that having all that memory will make is that you will be able to scan those things, but if you have less memory you may well not.

The scanner we have at work seems to require about twice as much memory as the finished scan takes up, this seems to be in order to move it around, and a real colour, high resolution A4 image will probably take up about 120 Mb.

The thing to remember about scanning images is that there will be a limit to the resolution you require, for instance if you are only going to show it on screen you probably only need to scan at 100 DPI *(dots per inch)*, as most PCs display at 96 DPI or less.

If you want to print the images then obviously the printer resolution is the next limit, the best printers I have come across are the EPSON STYLUS range, which print at up to 1440 DPI, and will print at very close to photographic quality if you use the right paper.

It was this 1440 DPI resolution which I used for the calculation of scan memory size. The next point to remember about scanning is the resolution of the scanner, many of the cheaper flat bed scanners quote 1200 or even 2400 DPI but if you look closely it says '300 DPI optical 1200 interpolated' which basically means that it scans at 300 DPI and makes up the bits in between to go to 1200 or whatever, this will usually work ok unless you are wanting to do serious publishing work or something like that, but try to get the best optical resolution you can.

If you want access to the Internet then you will need a modem, get the fastest one you can, 56k at least, as the amount you will save in phone bills will pay for the £10-£15 difference in price very quickly and it is very annoying to have to sit while you download some site full of graphics, and if you can cut the time down it helps a lot. Of course it may well also mean that you end up spending more time on line as you can go to more sites, but that is down to you.

Playing Games

If you want to play games then go for the latest processor you can get, and the fastest, and at least 64Mb RAM and more if possible.

You will also need to look at the games that are out now and see what video cards they require, although it is suggested that the next generation of processors will have built in video and sound card capabilities, but that does not help much at

the moment. You will also probably want to take a look at PC joysticks, as they now have force feedback ones which wiggle about as if the thing was real i.e. driving a car or flying a plane.

Where's My Disks?

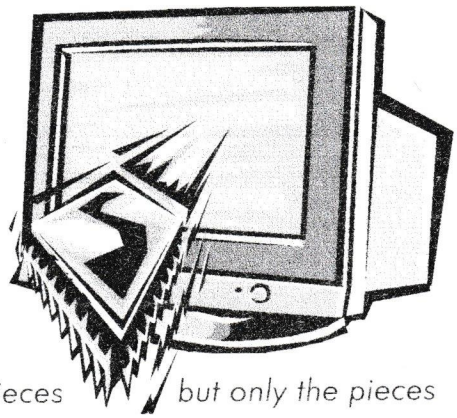
Always try to make sure that you get the original discs when you get your PC, this is one of the problems of companies like Curries and Dixons, with them you often get the operating system and software installed but no original discs, which is ok until you have a problem, and then you are stuffed unless you take out one of their 5 year warranties which cost about the same as the machine did originally.

The company I have dealt with most is one called Dan Technology, which consistently seems to be at the top of readers polls about computer manufacturers, service, reliability quality etc. They used to be more expensive than a lot of other companies, but this does not seem to be as much now, and if in the future you want to upgrade the machine you can get in touch with them and they will tell you what parts are in your machine as they seem to keep a record of all machines they build. *(and no I do not work for them but I have bought either personally or through work about ½ a dozen machines from them and I have always received excellent service).* Basically you get what you pay for.

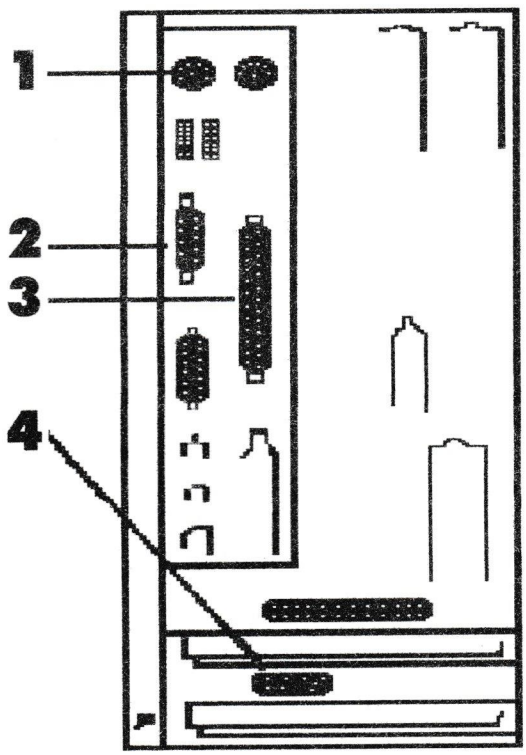
There can be a problem if you buy machines in slim line cases *(Compaq are the machines that I have had problems with)*, and later you want to upgrade them you have to take out about half of the bits inside just to add memory, and if you want to change your modem you will often have to buy another proprietary one as they are the only people who make them the right shape for that machine, and so you end up paying about 5 times as much as otherwise.

Setting Up A PC

by Nic Rayner



Hopefully you have got your new PC home in one piece or rather several pieces but only the pieces it should be in. But what do you do with it now?



Rear view of a PC

1) Keyboard Connection
2) 9-pin serial port (com 1)
3) Parallel port (for printer)
4) Connection for monitor (VGA-port)

First Things First

First thing to do is select a good place to site it. A solid surface is favourite as if it wobbles about it will not do things any good and if your PC table collapses it will be extremely annoying.

I've Got The Power

You will also need several power points, or one and a trailing multi socket, as most PC things are quite low power consumption, and if you have a modem it will be useful to be near a phone jack point, so there are not wires trailing across the floor to fall over *(I know that a lot of this is bloody obvious but it is often the obvious things that people forget).* It is also as well to try and site the computer away from light sources which will reflect on the screen, away from windows where would be burglars can see your new toy is also a good idea. If you have bought your PC from a good manufacturer the actual

setting up should not be too horrible, the operating system should be pre-installed, and really it is just a matter of plugging cables together, and if it has been designed properly there should be only one place where each cable will go, there should also be a manual to show you what goes where.

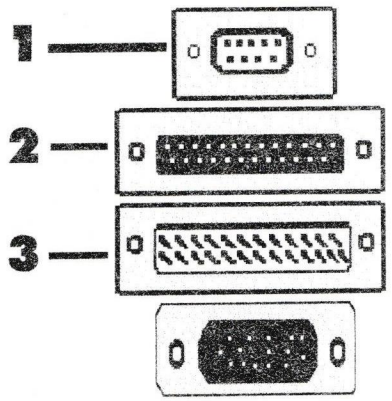
Putting It Together

You will have a system unit, monitor, keyboard and mouse, and you may well also have a printer and scanner etc. Set up the basic unit first and get that working, if you have a tower system it will sit on the floor, the desktop units will sit on the floor but you have to be careful if you sit it on edge as hard drives seem to not take well to certain orientations, but it should say in the manual which side you can stand it on. If you put the system unit on the work surface you can stand the monitor on top of it, as they are

1) 9-pin serial port, in most cases COM 1 (e.g. for mouse)

2) 25-pin serial port, mostly COM2 (e.g. for modem)

3) 25-pin parallel port (LPT 1) (e.g. for printer)



15-pin VGA plug for connecting the monitor

tiltable. Get the parts in the right places first and then connect the cables, you will probably need a small flat head screwdriver to tighten up the screws which hold the cables in place, on at least one cable, if you leave this loose it will always fall out and you will spend hours trying to figure out why it does not work before you find it.

Software

If you have bought software to install *(i.e. Office)* and hardware, install the software first and check that it works as often the drivers for hardware can cause problems with software installation, although in my experience suggests that this mainly happens with Microsoft products, I do not know why but that has been the case. Always check things like that every key on the keyboard works, as a weak solder joint can come away in transit and you are stuck with a computer on which you can not use the letter 'e' or something, and the sooner you find any faults the better.

Internet Providers

If you are going to go on the Internet I would advise against using AOL or CompuServe *(I've heard that AOL actually owns CompuServe, but I don't know how true this is. -JB),* especially as at the moment there seems to be a group who have access to CompuServe's new signings.

Whoever you go with never tell anyone your personal Ids just like with bank PINs, as the scam seems to be contacting new subscribers shortly after they have started, claiming to be the account manager, getting account details and using them in various ways.

There are some very good companies about but it is worth noting that the companies which offer a free month generally require you to give your credit card details at the start, and if at the end of the first month you decide not to go with them it can be very difficult to stop them taking money from your credit card account.

How To Change Your Screen Saver

1) Click on Start.

2) Go to Settings.

3) Click on Control Panel.

4) Double Click on Display. You will see your current screen saver on screen. *(Mine is the flying windows).*

5) On the left you will see a box called Screen Saver, on the left of this small box there is a scroll box with an arrow, click on the *arrow* and you will see a list of all the screen savers available to you. Click on one and you will see it displayed, when you find the one you like best click on *Apply.*

6) On the right of the display box there is another small box called with a time in minutes, you can also alter this time to suit yourself. What this does is control the amount of time before the screen saver comes into action and is a personal choice.

7) Underneath this display box is another box called Energy Savings Features of Monitor. I must admit I have never touched this but it gives information on the times in minutes for low power standby and shut of monitor, you can also alter this to suit your own needs. *Have fun*, by the way I have gone back to my flying windows.

Market Stall

Sunday 26th September 1999

The place to be, get all your bargains, meet your friends. Have a meal, the best day out of the year.

UK 8-Bit Convention.
Saddler's Club, Junction 9
M6. 10.00am to 4.00pm
E-mail: angie.hardwick@cableinet.co.uk

Tickets available **NOW**
Price £2.00 each
Traders £5.00 per table
Tel: 01922 449730

Here we are in March/April, my daffs are blooming, all's well with the world. The best news is of course the Convention Sunday September 26th at the Saddlers Club, right on the front of Bescot Football Stadium adjacent to the market (more doughnuts), and NO stairs. Look forward to seeing you all there. For further details either phone, e-mail or write my address is on page 2.

For Sale:
Two 6128's *(one disk drive unpredictable)* with Colour Monitors. Dot Matrix Printer. Silver Reed EXP with 2 spare tapes. Tape play/recorder. Multiface with Insider. Almost complete 6 slot Rombox with instructions & Prospell, Protext, Rodos & Maxam Roms. 3.5" Disk drive in case. Plenty of cables.

Software includes:
Laser genius machine code system, Protext, Tasword, Rodos extra, Discology, Office Disc, DES, MS800, Public Domain discs 9 and 10, 2 sets of CPM Master Discs, Ispell, VDE 266 plus Ramdos & Maxidos on 3.5" discs.

Spitfire 40 & Strike Force Harrier flight games. 16 Blank Discs 3 and 10 used 3.5" Discs. 28 unused 3.5" Discs. Books include; Amstrad Micro Guide, Two 6128 Manuals, Ready Made Machine Code Routines, CPM Handbook. Magazines include Amtix No's 1,2,3,4,9,11,14,15,16.

Computing with the Amstrad
March, April, May, July 85. April, May, June 87, March, April, May, July 88.

Amstrad Computer User
Jan, March, April, May, June, July, Aug, Sept, Nov, Dec 85. Jan to Nov 86, Jan, Feb, April, June, July 87. March, April, May, July, Aug 88.

Amstrad Action
17, 20, 27, 28, 29, 34, 35, 50, 100, 104, 105, 106, 112, 113, 114, 115, 116, 117, all number from 100 with cover tapes.

WACCI
3,52 and 86 onwards.

Offers please to
Alan Simms, *14 Chichester Close, Boultwood Road, London E6 4QJ*
Tel: 0171 4744891

Wanted:
Brunword ROM Module Mk111 or IV *(around £15)* also Dart Scanner, Rombo Digitiser & Teletext Adapter & Tuner all around £10.00 each.

Please Contact:
Ray Neal *56 Houldsworth Crescent, Coventry, CV6 4HJ*
Tel: 01203 362063

Wanted:
Video Master as produced by Campursoft reasonable price.

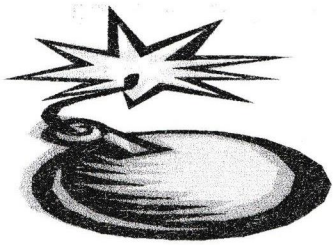
Please Contact:
Mike Crook, *33 Baulk Lane, Harworth, Doncaster. South Yorkshire ON11 8PF*
Tel: 01302 742019

Wanted:
Items for Epson LQ-1000 *(A3 24pin Dot Matrix Printer)* as follows: User Guide/Manual to buy or borrow. Paper Tray Attachment.

Please Contact:
Keith Sterrow *9,September Court, Dormers Wells Lane, Southall, Middx. UB1 3HR*
Tel: 0181 5712830

For Sale:
Two Amstrad CPC 6128, Two Colour Monitors, One User Instruction book, Two sets of master discs, An assortment of sixty or more other discs, Eight Socket ROM board with Protext, Prospell, Promerge Plus, Parados and Des 1 and 2, All with manuals. Multiface 11, 3 inch disc drive, 3.5" second drive FD-1, Amstrad Module MP-2, WACCI mags 45 to 127. £100.00

Please Contact:
Jack Butler, *20 Meadow Road, Grays, Essex RM16 2ET*
Tel: 01375 403461



Blast From The Past

This year it's my turn to present the WACCI membership with a retrospective of what the past twelve months have been all about.

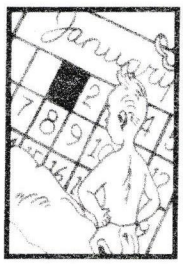
First of all, an overview. Fair Comment has declined further *(5 pages in January has reduced to but a single page in December)*. Sad, this. I always particularly looked forward to Fair Comment in the days when it covered a multitude of subjects on a multitude of pages.

A forum for the exchanging of tips and ideas is no bad thing. Perhaps the simple truth is all the questions have been asked over the years, and all answered. *Ah, well.*

The membership has remained surprisingly stable, declining from 269 in January to 261 in December. During the earlier part of the year *(February)* it hit 276 and then in May soared to 281, from which it slowly sunk to the aforementioned 261.

There's nothing to be drawn from statistics like these, though: it's probably just a seasonal thing and anyway nobody can realistically expect a magazine extolling the virtues of an elderly 8-bit computer to do anything but decline. After all, a PC running Windows 98 it ain't.

I guess we CPC users are the genuine eccentric remnants of a once-proud eccentric tradition. Or something like that. Anyway, let's see what happened last year.



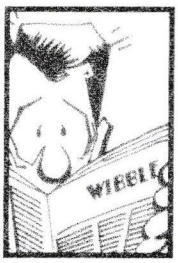
ISSUE 118

Back in January 1998 Richard Fairhurst provided that year's Blast from the Past and if I were to be tempted to trawl over that excellent article we of WACCI could rightfully claim to have our heads buried in the sands of time. So I won't.

I provided Part 1 of a child's guide to Protext as supplemented by Epic, Proclip etc, whilst Frank Neatherway gave us a scholarly introduction to the Protext Filer, in which he actually confesses to reading through manuals *(albeit quickly)* before launching himself into a more thorough re-reading. Ah, so there are saints on this Earth, as in days of *yore!*

Hilary Philips provides us with a listing for those of nimble fingers to type in a simple card game, and breaks down the code in order to educate those of us who are still frantically grasping for understanding when it comes to BASIC.

Articles of this type are always useful even if they're not followed immediately but are set aside for a few months until the reader has contracted flu and finds himself recovering in the intellectually sterile territory of a home where his fads go largely disregarded. Dear old Jonty Jones *(I don't actually mean old as such)* gives us a lesson in perspective and Richard Fairhurst's back again with a look at DOS-Copy and transferring text files to your friendly office PC. And that, in a nutshell, was January.



ISSUE 119

Feb, Christine Raisin tells us how to fix broken 3 inch discs. Fiddly things at the best of times, but sometimes data is more important than a fellow's patience....

Angie Hardwick continues on the subject of games, Ray Powell tells us everything we ought to know about ... Ray Powell, Angela Cook's News Desk announces the demise of Brian Watson's 8bit, dad Arthur tells us how to fit a drive belt and Ian Parker goes poking around in the PD library, bearing unmercifully down on PD Disc 55 *(Amsdos Utilities Disc No. 2)*.

Angela Cook returns with a glance at CPC internet sites, Richard Fairhurst continues with his highly acclaimed First Steps in Machine Code and I'm there with part Two of my examination of Protext and its mates. And that was a very full month.

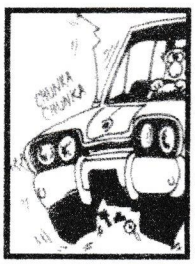
ISSUE 120

Covered two months, March & April. Jonty's here again, this time extolling the virtues of the famous Freddy drive. Look, I don't know what it is with disc drives, to have to give them names. Mine came from a cheap Sunday market, cost a fiver and has soldiered on for years. And I never called it anything more affectionate than *Esmeralda....*

Anyway, there were to be ripples over the way Jonty extolled his *(female)* drive's finer points, which must prove something.

Programmer's Patch *(Matthew Philips)* looks at MIDI interfaces whilst Richard Fairhurst pours praise on the virtues of a whole range of software when it comes to making your homely little CPC talk to other machines.

Brunword Elite gets two pages of glory (its worth more than that) penned by Mick Gushlow and we find out all there is to know about Carol Bowley. *Wonderful.*



ISSUE 121

Must have been particularly informative because my copy almost got worn out. Anyway, we reach the final part of Richard's First Steps in Machine Code and Ratz embarks on a Ram-Rom project, which is a device that takes the time-consuming blowing and erasing of roms away from the development of the perfect rom program.

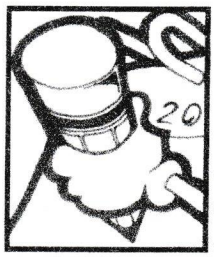
In short, it's ram that thinks it's rom. Clever stuff - and well illustrated, too. I get the first printed-at-home-on-my-old-Citizen-120D-page in which I introduce the unknowing to Protype. Ian Parker looks at PD disc 59 and Programmer's Patch continues on the theme of MIDI interfaces.

I look at that excellent little utility DSK-CPC which returns . DSK files *(used by emulators)* to their rightful machine, Jonty looks at the first two ATMs *(Amstrad Technical Magazine, though as they're on disc I suppose they should be called ATD)* whilst Dave Simpson shows belated interest in the good old GX4000 console. Oh, and Doug Webb suggests that WACCI's future might be brighter if we paid a little more attention to the world of the PC. As Doug admits to being born a stone's throw from the Lord's Cricket Ground he's just got to be an all-round good egg, and therefore what he says goes for me!

The printer utility people at AKTIV start advertising. First rate prices, excellent service, well deservous of any support we might give them. So it was a good issue, then.

ISSUE 122

Sees the start of Paul Fairman's Arnolds Basic, which is described as a crash course in Basic. Ratz's ram-rom article moves into second gear, Dave Teague goes under the spotlight and there's a humungous listing in Programmer's Patch, which installs a few RSXs in 464s, bringing it into line with the slightly more sophisticated 6128. My contributions are a tutorial on how to write articles *(much reprinted, I believe, in PCW mags)* and a home-printed examination of Microdesign.



ISSUE 123

Covered two months - July and August. Arnolds Basic continues, as does the ram-rom masterpiece by Ratz.

John Hudson's Why Use a PC puts the PC into a kind of perspective and satisfies the devil in those of us who really enjoy life when that excellent machine and its side-kick Microsoft gets swiped at.

James Hoskisson shows us how to hack without a Multiface, Programmer's Patch continues examining the difference between Locomotive Basic 1.0 and Locomotive Basic 1.1 and there's a reprint of a 1988 article in Computing with the Amstrad in which a genealogical database is put under the microscope.

My penchant for using my ancient printer at home proves to be catching as Ray Neal impressively puts Brunword and its fonts under the microscope.

And I do the same with Powerpage 128, a task that proved well night impossible as Powerpage is basically intended as a DTP package for A5 sheets and not the A4 format of WACCI. The only font available to me left much to be desired.

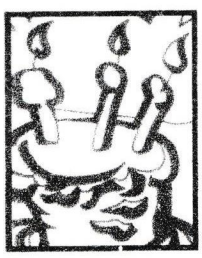
Moving onto issue 124>>>

ISSUE 124

Kicks off with my instructions on fitting an ABBA switch to your faithful 664, Arnold's Basic deals with a long listing which portends to be a telephone directory and Simon Lucas goes into detail regarding the Brunword 32-Pin Font Editor. Ratz's Ramrom project continues with a Header Reader routine and Simon Lucas lets us know all about Simon Lucas.

For a reason known only to himself Jonty raves about negative images and Angie Hardwick delves deep into her games collection with a look at that glorious classic, The Bard's Tale. John Hudson puts our minds at rest regarding the CPC and any millennium bugs that may be floating around.

Programmer's Patch examines the unofficial differences between Basic 1.0 and Basic 1.1 and Jonty terrifies us with illustrations of badly mistreated ROMS as he endeavours to get us to insert them correctly into our ROMboards/boxes. My little effort *(in which animated eggs put in an appearance)* has to do with importing picture screens from games into MicroDesign.

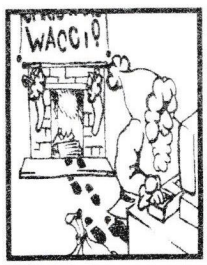


ISSUE 125

Is the big get togetherd report issue. I like conventions, especially WACCI conventions because I can buy one or two black boxes of long forgotten use and guarantee myself many happy days of innocent play in the privacy of my own home. Come on, it's not illegal and beats many another domestic chore into a neatly cocked hat.

In this same issue Uncle Clive introduces us to the PC and gives me *(at least)* a perfectly sound reason for not buying one. Jonty shows us how to replace the broken leg of a ROM with an extrusion of solder (!!!) whilst Stephen Potts introduces us to the noble art of creating widgets at home *(a widget is a small piece of hardware which makes a plus machine accept CPC peripherals).*

Brian Watson terrifies us with visions of mountains of outdated computers and then sorts everything out by explaining that we should actually use them rather than *(shudder, shudder)* discard them and Stuart Paterson loses me entirely in the middle of a Noddy program. And my home-printed pages look at Proprint.



ISSUE 126

Is the last issue of the year. Ratz soldiers on with his Ramrom project, Angie looks at Chips Challenge, Arnold's Basic reaches that point reached by all basic tutorials - the one in which I get totally and utterly lost.

James Hoskisson rubs it in with his own look at Amstrad basic, Christine Raisin declares herself to be a Dual User and draws us delicately into the web of the Personal Computer and Martin Beddall produces a scholarly article on the Multiface 2. As for myself, I look at the Dart Scanner, which is currently my favourite toy. And there we have a year of WACCIs. A single editor lasting the course in sharp contrast to last years upheavals, a varied selection of contents with only the oddest nudge in the direction of PCs.

My efforts have tended to fly in the face of reality as I've tried to prove your machine can actually do something on sheets of paper, but then that's me, never one to be wooed by logic, common sense and the real world. I wonder who'll write this article *next year*?

As for me, I sorted out my COMMS blindness during the year with much help from Martin Bela who patiently lectured me on the subject at the convention.

It seems I'd got everything the wrong way round and once I'd got round to surrendering control of my CPC to some great god in the ether then everything turned out to be perfectly *okay.*

The real low point of the year happened, actually, this year. I was helping an overworked and underpaid relative on his window- cleaning round when we stumbled on a box of rubbish put out for waste collection.

Amongst other things was a 6128+ with its *(colour)* monitor. The owner agreed that we could take them free gratis and for nothing and we did. And after drying them both out they worked. Which is a lesson in relative values and, Jonty my friend, a truly compelling vision of *perspective.*

Peter Rogerson

Arnolds Basic

by Paul Fairman

There is BASIC 1.0 and there is BASIC 1.1. My Amstrad CPC 6128 uses 1.1, the improved version of BASIC. There are a few useful (and some not) commands available under BASIC 1.1 that are not on BASIC 1.0; the CPC 464 uses BASIC 1.1. and the 6128 uses BASIC 1.1. Those commands only in BASIC 1.1 are tagged with "6128 only"

CALL You should have already encountered the CALL statement with the CALL &BB18 command which waits for a key to be pressed. The CALL keyword is used to CALL up machine code at a specified memory address. Below are a list of some useful (and useless) CALLs that you can use from within a BASIC program:

CALL &bb4e place cursor in home position ie top of screen.

CALL &bd23 flashes the screen for a second or so.

CALL &bc5e puts linear breaks on the screen.

CALL &bd13 prints program load fail on the screen and resets computer.

CALL &bb15 keeps on churning out OPERAND MISSING errors whatever you type.

CALL 24 (when just turned on computer) makes writing go all weird.

CALL &bcb6 flushes sound queues (turns of all sound in other words).

CALL &bcb9 starts up sound again.

CALL &bc6e turn tape motor on.

CALL &bc71 turn tape motor off.

CALL &bd19 same as FRAME command in BASIC.

CALL &bb03 same as CLEAR INPUT (has some side effects).

CHAIN - Does basically the same as RUN but you could throw a comma followed by a line number then the program will load and start running the program at that line.

CLEAR - Clears all BASIC variables and functions set by DEF FN, files with OPENIN or OPENOUT collapse and effectively the command DEG is entered.

CLEAR INPUT - (6128 only) The keyboard buffer is emptied.

This has the advantage, one of which I wished was possible on the 464, of NOT printing characters that have been detected using INKEY.

CURSOR (6128 only) - The cursor can be switched on or off using CURSOR 1 and CURSOR 0. There are many situations where the cursor is not displayed on the screen but this can be overridden by typing CURSOR 1 just before entering the next command. An example:

```
10 CLS:CURSOR 1
20 CAT
30 CURSOR 0:CAT
```

The above program CATs the disk (disk 'cos the command is 6128 only) with cursor 1 set and you will see the cursor zooming along as the directory is printed.

Then CURSOR 0 is set and the disk re-CATed to show the difference.

If you wish to switch on and off the cursor without the CURSOR command two machine code CALLs are provided: CALL &BB81 for on and CALL &BB84 for off.

COPYCHR$ (6128 only) - Stores a character into the specified variable.

```
10 CLS:LOCATE 3,10
   PRINT"Text"
20 FOR a=3 TO 6:LOCATE
   a,120:a$(a)=COPYCHR$
   (#0):NEXT
30 CLS:FOR a=3 TO 6:
   PRINT$ (a):next
```

The stream expression MUST be specified, (#0) in this case.

DEF FN - A variable is used to DEFine a FuNction as shown in the example below:

DEF FNarea=pi*r*r

This defines "area" as "pi" multiplied by "r" squared which I think is the formula for finding the area of a circle.

To use this type PRINT FNarea with "r" as the radius already specified.

DEFINT - The first letter or letters of the following variable is set to INT when used so "DEFINT a" and then "a=9.2333232" will set a to equal 9.

DEFREAL - Sets a variable to be real like it is normally without a $ such as in a$.

DEFSTR - The following variable can now be treated as a string variable such as one with the $ marker eg DEFSTR t.

The above three commands may specify multiple variables such defining a range of letters with a hyphen (eg DEFINT f-h) or seperated by commas to present a list of variables (eg DEFSTR q,w).

FILL - (6128 only) This fills in a section of area on the graphics screen using the ink number followed by the command. Boundaries are set by lines on the screen. You may have seen the filling in feature of art packages.

FRE - PRINT FRE(0) will return how many bytes (see below) are free for the BASIC program. PRINT FRE ("") forces what is known as a garbage collection before doing so, which tidies up the memory, releasing as many bytes as possible. BYTES are the usual units of measuring memory for small amounts of memory.

ERASE - Once an array has been used, memory is used up. If this memory is needed for other purposes and the array is no longer needed by BASIC it can be ERASEd.

ERASE c will destroy the array "c".

FRAME (6128 only) - Having said that this command is only for the CPC 6128 it can be used on the 464 in a different way by CALLing up the machine code. CALL &BD19 does the trick.

Basically it waits for the next frame- flyback before writing graphics on the screen.

This gives it a smooth effect instead of flickering like an old IBM computer.

JOY - This command is used in detection of the joystick. It is possible to cover two joysticks using JOY(0) and JOY(1).

```
5 REM Programmed by Paul
Fairman 20.2.92
6 REM SHEEPSOFT 1992
10 MODE 1:s$=CHR$(250):x=12:
LOCATE x,12:PRINT s$
20 IF JOY(0)=4 THEN GOSUB 100
30 IF JOY(0)=8 THEN GOSUB 200
40 IF JOY(0)=16 THEN GOSUB 300
50 GOTO 20
100 LOCATE x,12:PRINT" ":x=x-
1:IF x<1 THEN x=39
110 LOCATE x,12:PRINT s$
120 RETURN
200 LOCATE x,12:PRINT" ":
x=x+1:IF x>39 THEN x=2
210 LOCATE x,12:PRINT s$
220 RETURN
300 LOCATE 1,1:PRINT"YOU HAVE
PRESSED FIRE YOU POTATO
WAFFLE"
310 RETURN
```

This mega program performs the sophisticated operation of detected whether the joystick has been waggled to the left or right, or if the fire button has been pressed. The routines are then GOSUBed to at lines 100, 200, and 300 respectively.

The routine erases the little character, moves the position of him (or her, can't see myself) to the right or left by one. Detection is also included to see if the sprite has gone off the screen, and if it has then it appears the other end. Not only this but the above is a good routine for movement of sprites within a BASIC game.

KEY - There are a number of keys on the keyboard that can be customized so that they print something up that you want them to.

The function keys do exactly this; by pressing f1 for example normally prints the number one just as the normal keys do but by typing KEY 129,"DATA " sets the key to print the word DATA on the screen, useful when typing DATA statements from a magazine.

All of the key numbers for this system are on page 22 of chapter 7 of the 6128 manual.

128 - f0 129 - f1 130 - f2 131 - f3 132 - f4 133 - f5 134 - f6 135 - f7 136 - f8 137 - f9 139 - on 464 small ENTER key, on 6128 ENTER key to right of SPACE BAR.

KEY DEF - Redefines a key to be another. On page 23 of chapter 7 in my 6128 manual and on the disk drive of my 6128 is a list of the key numbers; you'll notice that SPACE BAR is 47 and ESC is 66.

KEY DEF 47,1,13 will redefine the SPACE BAR to the RETURN/ENTER key. The number in the middle can be 1 or 0 which means whether the repeat function is to be set like if you hold down the number 2 key you will see a string of 2's appear but the f2 key does not have a repeat function.

The RETURN doesn't have a repeat but the SPACE BAR which is the same as RETURN now repeats 'cos there is a 1.

The first number refers to the numbers on the 6128 disk drive and the next refers to another set of keyboard numbers on page 21 of chapter 7 of the 6128 manual.

MERGE - Loads in a program merging it with the current program in the memory and any lines that existed before can be replaced if the same lines numbers in the merged program exist. MERGE"fred" merges "fred" with the current proggy.

ON BREAK STOP - This command can be used with ON BREAK GOSUB to trap the pressing of the ESCape key. If **ON BREAK GOSUB** line number is used then on pressing ESCape the program jumps to the line number specified. ON BREAK STOP disables this. To stop ESCape having any effect use KEY DEF 66,0,0,0,0 and if you want to go the full way and even prevent CONTROL SHIFT ESC working POKE &BDEE,&C9 does it. ON BREAK CONT - Disables the ESC key.

PEEK - Looking directly into the memory is possible using PEEK by PRINT PEEK (30000) which will return the byte held at memory address 30000 (&7530). The Multiface Two is capable of doing this.

POKE - Places a specified byte into the memory location. POKE address,byte is the format and taking the above as an example POKE &BDEE, &C9 places &C9 at &BDEE in the memory which is the built in routine that resets the computer. By replacing the normal byte of &C3 to a &C9 (m/code for RET) stops the built in routine.

POS - Returns the horizontal POSition of the text cursor; the stream expression must be specified. PRINT POS(#0) returns the current position. Could be useful in a BASIC written text editor program ...

SPEED KEY - As with many other commands such as AFTER and EVERY the parameters of this command are in 50th of a second.

SPEED KEY has two parameters the first being the time delay before the repeating of a key starts, and the second being the speed at which the key is repeated. SPEED KEY 1,1 sets the repeat rate too much.

**STRING$** - NOT a variable. The ASCII character set can be written to the screen using the CHR$ function eg PRINT CHR$(65) will print the character "a" which is the character for 65. If more than one of the characters is need STRING$ is available. PRINT STRING$(40,42) would print 40 *'s across the screen.

SYMBOL and **SYMBOL AFTER** commands are detailed in part two under the title FONTS.

TAG - Stands for "Text At Graphics" cursor which means the specified text is placed at the current graphics cursor.

```
10 MODE 1:a$="HELLO"
20 TAG:FOR q=1 TO 640
STEP 2:MOVE q,200:PRINT
a$;:NEXT
30 MODE 1
40 FOR q=1 TO 40:LOCATE
q,12:PRINT a$:NEXT
```

This is two programs bunged into one. In the second example you will see the word HELLO go across the screen using the normal system by just using LOCATE within a FOR NEXT loop, but first of all the TAG command is used and you will see the text scroll a lot better.

TAGOFF switches the TAGging OFF and if you don't stick a semi-colon (;) after the PRINT a$; control codes are printed on the screen which make a mess of everything.

More next time>>>

Programmers' Patch

by Matthew Phillips

We return to the computer chat program, AI, which we first looked at in the October issue. We are going to add quite a bit more to the program this month, so the whole listing has been reprinted to make things easier. The main changes are a couple of new subroutines, at 800 and 900, but a few other lines have been altered too, so if you are going to load up an older version of the program, make sure you check all the lines for changes carefully.

HIDE AND SEEK

If you have spent a long time talking to the computer with the AI program, you will have found that the computer takes an increasingly long time to respond to each new sentence. As you use new words, its vocabulary grows, and it takes longer to go through the array of words to match up those you type with the ones it knows. If you have taught it 300 words and you use a new one, it will have to look through all the other 300 words first before adding the new word on the end.

We need a method of searching for words that will work quickly even when there are a lot of words to search through.

NUMBER ONE: THE LARCH

As I hinted last time, this month we are going to look at trees. The tree is a very useful data structure, but for some reason, all trees grown by computer scientists start with their roots at the top and grow downwards, with the leaves at the bottom. We are just going to look at binary trees, which are the easiest to understand. There are other sorts of tree, but they are much harder to cultivate using BASIC.

We are going to use a binary tree to keep the words in AI in alphabetical order. The diagram shows a tree with five words in - "This is how trees grow". The words would be stored in a string array, (w$ in the AI program), and would be at the positions shown by the numbers at the top left of each box. So w$(2) would be "is", for example.

We also have two numeric arrays, "le" and "ri". These are used to point to the parts of the tree which are down to the left and down to the right of the current word. Looking at the word "is" at w$(2) again, le(2) is 3, pointing down and left to w$(3) which is "how". Down and to the right, ri(2) is 4, pointing to w$(4), which is "trees".

If there is nothing further down the tree, then we store 0 in le or ri to show that there are no further branches in that direction. So le(1) is 0 to show that there is nothing down to the left of "This".

We are using the tree to keep the words in alphabetical order. Actually I mean ASCII order, because that's what the computer can do most easily. The main difference is that all the capital letters come before the small letters, so "This" comes before "is". The tree has been constructed in such a way that if you look at any word you will see that the word to the right of it comes after it in ASCII order, and the word to the left comes before it. To the left of "is" is "how", and to the right of "is" is "trees".

CLIMBING TREES

This structure means that we can search for a word very quickly. Suppose we wanted to search for the word "how". Starting at the top of the tree, we have the word "This". We move right, because "how" comes after "This" in ASCII order. Moving right we come to "is". This time "how" comes before the word, so we move left, and find the word we want. Try it yourself with one of the other words in the tree.

What happens when we search for a word which is not in the tree? Let us try with the word "leaves". It is right of "This", so we move to "is". It is right of "is", so we moveto"trees". It is left of "trees", but there isn't anything left of "trees"because le(4) is zero. From this we know that "leaves" cannot be in the tree.

In AI, we add new words to the vocabulary. By searching for "leaves" we have found that "leaves" is not in the vocabulary, but when we got stuck trying to move left from "trees" we also found the place that "leaves" would go in the tree. If we put "leaves" in at w $(6), we can set le(4) to 6 to point from "trees" left to the word "leaves".

Notice that we only looked at three of the five words in the tree when searching for "leaves". This improves the speed of searching for words. If we had five hundred words, you might expect to have to look at three hundred of them when searching for a new word, but in fact it would probably be more like nine words! This is because with each new layer on the tree we can add twice as many words as were in the previous layer, so while a 2-layer tree can have at most 3 words in it, a 9-layer tree can have 511. When searching for a word we just move from the top layer downwards looking at one word on each layer.

Computer scientists say that searching a binary tree has "order log n", which basically means it's a Good Thing.

FROM LITTLE ACORNS...

The main routine added to the program is found in lines 800 to 830, which searches the tree for a given word. The idea is that you store the word in the variable "word$", and then GOSUB 800 to call the routine. The routine searches the tree. If the word is found, then the variable cword is set to the number of that word. Otherwise when the subroutine ends, cword is equal to zero, and the variable "parent" points to the part of the tree that the word should be attached to.

Let's see how it does it. Line 800 sets up parent to be zero, and cword to be ri(0).

```
10 DEFINT a-z:OPENOUT"d":MEMORY HIMEM-1:CLOSEOUT
20 mwords=1000:mlinks=6:nwords=0
30 DIM w$(mwords),le(mwords),ri(mwords),lk(mwords,mlinks),
tempw$(128),stack(5)
35 MODE 2
40 LINE INPUT"",a$
41 IF UPPER$(LEFT$(a$,5))="*LOAD" THEN GOSUB 600:GOTO 40
42 IF UPPER$(LEFT$(a$,5))="*SAVE" THEN GOSUB 700:GOTO 40
43 IF UPPER$(LEFT$(a$,9))="*SHOWTREE" THEN GOSUB 900:PRINT:
GOTO 40
50 wcount=0:GOSUB 300:IF a$<>"" THEN GOSUB 100
60 IF nwords THEN GOSUB 200
70 GOTO 40
100 WHILE INSTR(a$," ")>0:a=INSTR(a$," ")
110 tempw$(wcount)=LEFT$(a$,a-1):a$=MID$(a$,a+1)
120 wcount=wcount+1:GOSUB 300:WEND
130 IF a$<>"" THEN tempw$(wcount)=a$:wcount=wcount+1
140 pword=0:FOR i=0 TO wcount-1:word$=tempw$(i)
150 GOSUB 800
160 IF cword=0 THEN nwords=nwords+1:w$(nwords)=word$:lk
(nwords,0)=0:le(nwords)=0:ri(nwords)=0:cword=
nwords:GOSUB 840
170 GOSUB 400:pword=cword:NEXT
180 cword=0:GOSUB 400
190 RETURN
200 pword=0:GOSUB 500
210 WHILE pword>0:PRINT w$(pword)" ";:GOSUB 500:WEND
220 PRINT CHR$(8);".":PRINT
230 RETURN
300 WHILE LEFT$(a$,1)=" ":a$=MID$(a$,2):WEND:RETURN
400 j=lk(pword,0):x=1:y=pword
410 WHILE j>0 AND cword<>lk(y,x):j=j-1:x=x+1
415 IF x=mlinks THEN y=lk(y,x):x=1
420 WEND:IF j>0 THEN 440
430 lk(pword,0)=lk(pword,0)+1:lk(y,x)=cword
435 IF x=mlinks-1 THEN nwords=nwords+1:lk(y,mlinks)=nwords:lk
(nwords,0)=0:w$(nwords)=""
440 RETURN
500 i=INT(RND*lk(pword,0)+1)
505 WHILE i>=mlinks:i=1+i-mlinks:pword=lk(pword,mlinks):WEND
510 pword=lk(pword,i):RETURN
600 file$=MID$(a$,7):IF file$="" THEN file$="VOCAB"
610 OPENIN file$:INPUT#9,nwords
620 FOR i=0 TO nwords:INPUT#9,w$(i),lk(i,0):le(i)=0:ri(i)=0
625 word$=w$(i):IF word$>"" THEN GOSUB 800:cword=i:GOSUB 840
630 j=lk(i,0):y=i:x=1:WHILE j>0:j=j-1:INPUT#9,lk(y,x):x=x+1
635 IF x=mlinks THEN INPUT#9,lk(y,x):y=lk(y,x):x=1
636 WEND:NEXT
640 CLOSEIN:RETURN
700 file$=MID$(a$,7):IF file$="" THEN file$="VOCAB"
710 OPENOUT file$:WRITE#9,nwords
720 FOR i=0 TO nwords:WRITE#9,w$(i),lk(i,0)
730 j=lk(i,0):y=i:x=1:WHILE j>0:j=j-1:WRITE#9,lk(y,x):x=x+1
735 IF x=mlinks THEN WRITE#9,lk(y,x):y=lk(y,x):x=1
736 WEND:NEXT
740 CLOSEOUT:RETURN
800 parent=0:cword=ri(0):WHILE cword>0:parent=cword
810 IF word$=w$(parent) THEN RETURN
820 IF word$<w$(parent) THEN cword=le(parent) ELSE cword=ri
(parent)
830 WEND:RETURN
840 IF word$<w$(parent) THEN le(parent)=cword ELSE ri(parent)
=cword
850 RETURN
900 level=0:stack(level)=ri(0):d$=""
910 PRINT TAB(level*16+1);d$;LEFT$(w$(stack(level)),13);
920 IF level=4 THEN 950
930 IF le(stack(level))<>0 THEN d$="L":level=level+1:stack
(level)=le(stack(level-1)):GOSUB 910
940 IF ri(stack(level))<>0 THEN d$="R":level=level+1:stack
(level)=ri(stack(level-1)):GOSUB 910
950 level=level-1:RETURN
```

I will explain why later, but it basically means that cword starts off at the top of the tree. We then have a WHILE-WEND loop, which keeps going until cword=0. Just within the loop, parent is set to equal cword. This means that parent is one step behind cword - it points to what cword was last time round.

Line 810 is straightforward. If the word we are looking for, word$, is equal to the word we are pointing to in the tree, then we exit from the subroutine. This means that cword (and parent) are equal to the number of the word as found in the w$ array.

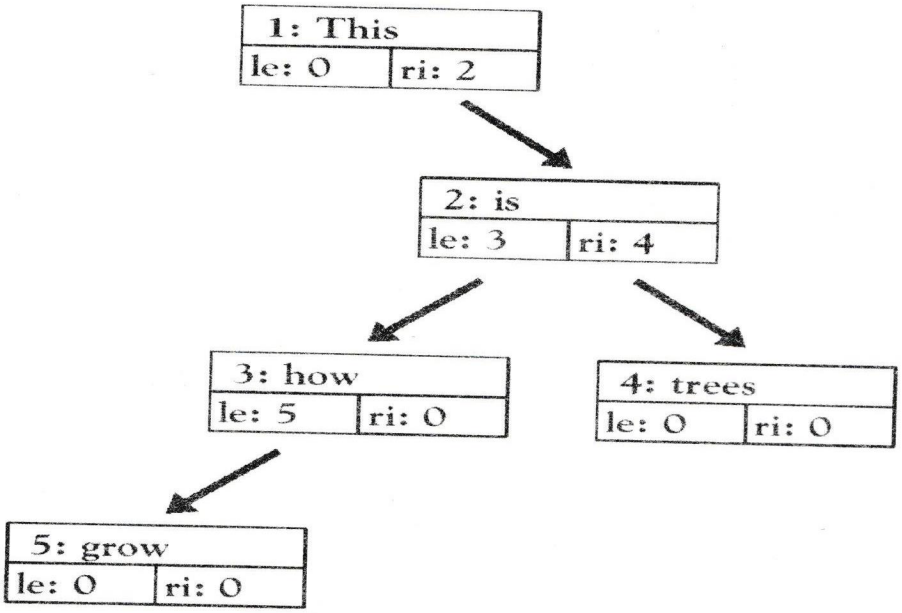
If we get to line 820, then word$ must either come before or after the word in the tree. If it comes before, then cword is set to le (parent) to go left, otherwise we go right.

We then come to the WEND, which will return us to the start of the loop provided that cword is not zero. If cword is zero this means that we have come to the end of the tree. We have not found the word, and there is no point in searching further. The loop ends, and we RETURN from the
subroutine with cword equal to zero, and parent pointing to the last word that we looked at in the tree.

...MIGHTY OAKS DO GROW

How does this tie in with the main program? Here the main lines to change are 150 and 160. Line 150 used to have a loop looking through the whole of the w$ array for the word in question. Instead we just GOSUB 800.

Line 160 uses the information returned from the subroutine. If cword is not zero, the computer had already met the word. We proceed to line 170 to make the



link as before. If cword is zero, it is a new word. We increase nwords and store word$ in the w$ array, setting other variables, including le and ri, to zero. We point cword at the newly added word, and GOSUB 840, another new subroutine. Remember that parent points to the last word that we looked at in the tree. Our new word needs to be attached to the tree at this point - the only question is whether it is a left branch or a right branch. Line 840 compares the new word with the parent word, and sets up le (parent) or ri(parent) as appropriate.

I said I would explain the start of line 800. Why do we set up parent as zero and cword as ri(0)? Well, remember that to start with there will be nothing in the tree. Our routine has to cope with starting a tree from scratch. Let's see what happens. The variable ri (0) starts as zero when we first run the program. This means that when we search for the first word ever, the loop in line 800 will never get started, as cword is zero straight away. We return from the subroutine with parent and cword equal to zero. Line 160 adds the first word to the array at w$(1), cword is set to 1, and we GOSUB 840. The new word is compared with w$(parent), which is w$(0), and always the empty string. The new word is therefore greater than w$(parent), and so ri(0) is set to 1, the value of cword.

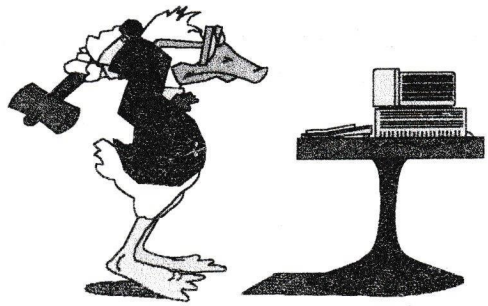
And that's all there is to it: next time 800 is called, cword will start off as 1, the top of the tree, and everything will work as described.

BONSAI BEECH

The other alterations to the program include lines 620 and 625, which are part of the loading routine. When loading a saved vocabulary from disc we have to build up the tree properly. It uses the same routines, but can be simpler because we know that each word read in from disc will be a new one. I have also added a subroutine at 900, which is called by line 43. If you type "*SHOWTREE" instead of a sentence, the subroutine will display a representation of the first five layers of the tree on screen.

You can use this to see how the tree grows as you add new sentences. Try it with 'This is how trees grow", and you should get the same tree as in the diagram. It looks a bit different displayed on the CPC's screen instead of drawn on an Acorn, but you'll get the idea.

Are You Game For A Game?



John forgot to include these pages last month so Happy New Year and I hope you all had a great Christmas and are now fully recovered, I want to give a great big thank you to Christine Raisin who has transferred all my Protext files over to the PC for me, this has made my job so much easier and given me more time to do other things for the club. By the way if any of you want a hard copy of any of the game instructions, if you send a stamped addressed envelope I will be happy to send it to you.

Answer Back Junior

The Answer Back Junior quiz package contains a powerful control program and a series of self-contained General Knowledge quizzes. As an effective educational incentive, only correctly answered questions are rewarded with further turns in a compelling animated game.

Fourteen ready made quizzes are included in the package, these are referred to by their filename Q1 to Q14. Each quiz covers a different topic, as follows-.

Q1	Nature
Q2	Music & Nursery Rhymes
Q3	Lucky Dip
Q4	Famous People
Q5	Science
Q6	The British Isles
Q7	Word Fun
Q8	Around the World
Q9	Brain Strainers
Q10	Games & Sports
Q11	Books & Poetry
Q12	Fun Sums
Q13	Spelling
Q14	Take your Chance

1. Loading and Starting the Program. The control program should first be loaded using the command Chain "Quiz. On successful loading the screen will show the program title and a list of available facilities. This is known as the Command Menu. At the bottom of the screen the message 'Question Store empty' will be seen. The question store is actually part of the computers memory in which a quiz is stored while it is being used. Only one quiz may occupy the question store at any time.

2. Program Facilities The facilities listed in paragraphs 3 to 11 are available whenever the screen shows the Command Menu. Individual program facilities are requested simply by keying the first letter of the appropriate command. Your first command will probable be to load a quiz file into the question store.

3. Loading a Quiz into the Question Store (Key L) The program will ask you to key in the filename of the quiz you wish to try. Key in a filename (Q1 to Q14) from the list above end with return.

4. Beginning a Quiz (Key B)

To begin the quiz key B, you will then be asked which format you would like the options are ;-

M Multiple choice, where the computer presents a question followed by several answers. All you have to do is select the correct answer each time by pressing A, B, C or D as appropriate.

Y Yes-No, where the computer gives an answer to the question and you have to decide if the answer is correct or not.

C Complete the answer, where the computer gives you part of the answer and you have to fill in the missing letters.

S Selection of all three of the above.

Having made your choice the computer will ask how many questions you would like to try, whether you would like a random or sequential selection from the questions in store and whether you would like to be timed or not.

The fairy princess will then appear on the battlements of the magic castle and with a wave of her wand will ask the first question.

5. Answering the Questions

If you answer the question correctly you will hear a high note from the computer. You will then have two chances to save the beautiful princess from the

dreadful dragon which keeps her imprisoned in the castle. To do this you must first move the air balloon 8in which you are a passenger until it is precisely above the eye of the dragon. Then you must quickly drop one of your sandbags onto its head. Remember, you only have two chances to destroy the dragon and it moves very fast. The following keys are used to control the air balloon.

< Left > Right Space drop sandbag

If you get the answer wrong the computer will sound a low note and then tell you the correct answer. If you do not know the answer to the question, you can PASS by pressing the DEL key. When you have completed the number of questions requested, a summary of your performance will appear. You then have the option to repeat the questions you answered incorrectly and to discover the answers to those you PASSED.

There are three special commands which can be used whenever the fairy princess is waiting for your answer to her question.

CTRL A This displays the position number of the question within the Question Store (only required for editing purposes).

CTRL F Turn off the sound effects.

CTRL S Turn on the sound effects.

The number displayed on the small flag indicates which question you are on, the large flag shows elapsed time in minutes and seconds (if time requested).

6. Creating your own Quiz (Key C) You can create any number of your own quizzes by successively keying in lists of questions and answers in the boxes shown on the screen. Each question must be accompanied by the correct answers and at least one wrong answer. The text for each question and answer should be terminated using the RETURN key. You can use the down arrow key to move the cursor down to the next line in the question box if required. The last two 'wrong answer' boxes may optionally be left blank simply by pressing the RETURN key.

Mistakes in entering text can be corrected with the DEL key provided the RETURN key has not been pressed, or by keying X (Return) as the first character in any answer box to return to the previous one. Questions and answers may be repeatedly keyed into the question store in this way until your quiz is complete. There is room for 50 to 100 questions depending on their length. A message 'FILE FULL' will appear should you reach the limit. You can end quiz creation at any time simply by keying END (RETURN) at the start of line 1 of the question box.

A number of special keys may be used to enter the following symbols and special characters in the text.

CTRL A = 2 CTRL B = divide
CTRL C = 1/4 CTRL D 1/2
CTRL E =%

7. Saving A Quiz (Key S)
The save command need only be used when a permanent copy is required of a newly created quiz of a previous quiz which has been modified. Enter a filename for the quiz (up to 7 characters). Enter a title for the quiz (up to 24 characters). Insert a blank cassette or formatted disc before pressing RETURN. The Verify facility should then be used as described below.

8. Verify a Saved Quiz (Key V)
This facility should always be used to check that a newly saved quiz has been successfully re-coded. Simply enter the filename of the quiz to be verified, the program confirms that verification is successful by printing 'OK'. If verification fails, save the quiz again.

9. Add to Current Quiz (Key A)
This facility may be used to add further questions to a quiz which is already held in the Question Store. Instructions for using the Add facility are identical to those for the Create facility (see paragraph 6).

10. Delete Question (Key D)
In order to delete a particular question you will need to know its position within the Question Store. This may be determined using the CTRL A command whilst running the quiz, as described in paragraph 5. The Delete command will ask you for the question number to be deleted and will give you a chance to change your mind in case you make a mistake.

11. Insert New Question (Key I)
This facility allows you to insert a new question at a particular point in the quiz currently occupying the Question Store. You must first specify the point of insertion required, the question currently occupying that position will then be displayed.

After confirming that this is the correct place for the insertion you can then enter the test for the new question and answers.

Services

Homegrown, PD Extra, PD Discs 1-onwards:

Dave Stitson, 4 Connaught Avenue, Mutley, Plymouth, PL4 7BX Tele: 01752 254404

Homegrown

H1	Aj's Concept Disc
H2	Aj's Twilight Zone
H3-5	Utilities 1-3
H6-9	Games 1-4
H10-14	Utilities 4-8
H15	Pagesetter 64
H16	Family Tree
H17	Family History

PD Extra

X1	Maxidos, Procopy
X2	Super Meddler, Hack Pack
X3	Bonzo Doo Dah
X4	MS800, Bonzo Blitz
X5	Big Batch
X6	Flash Pack

Public Domain

1	Forth Programming
2	CP/M utilities
3	MBasic
4	PowerPage, RAMbase, PD Planner
5	CP/M Games
6	Games
7	CP/M+ utilities
8	Comms
9	CP/M utilities
10	VDE, I-Spell
11	Adventures
12	Cobol
13	Demos 1
14	Amiga Graphics 1
15	Flags, Animator Demo
16	PPC Pascal, ZBasic
17-8	JRT Pascal
19-21	MicroDesign Art 1-3
22-4	Pictures 1-3
25-6	MicroDesign Art 4-5
27	Mini Print Shop
28-9	MicroDesign Art 6-7
30	GPaint, RSXlib
31	Amiga Graphics 2
32-4	MicroDesign Art 8-10
35	Picture 4
36	Teach Yourself Pascal
37	Adventures 2
38	Games 2
39	Logos, Women & pics
40	MicroDesign Art 11
41	Eve of Shadows & advs
42	22disk/22nice *for PC*
43	Pictures 5
44	Demos 2
45	Paradise Demo (Paradox)
46	The Demo (Logon)
47	Utilities 1
48	Adventures 4
49-53	Pictures 6-10
54	Parrotry demo & clip art
55	Utilities 2
56	Star Trek pics, music
57	ZDE & CP/M utilities
58	Overscan Pictures
59	Demos 5, Face Hugger
60	Digital Dreams
61-62	Word Games 1-2
63	Adventures 5
64	Demos 6
65	Games 3
66	Overscan demo (18+)
67	Demos 7
68	Utilities 3
69	CCC 4 fanzine
70	Disc Full 6 fanzine
71	Disc Full 7 fanzine
72-3	Demos 8-9
74	Epic, utilities 4
75	Utilities 5
76	Megaparty Demo
77	Computext, pictures
78	Games 4
79	Games 5
80	Small C & Interpreter
81	Printmaster
82	CP/M utilities
83-84	Printmaster Graphics
85	MicroDesign fonts
86	DOScopy, DLan
87	Scrivener
88	Rundschlag PD disc
89	Pictures 11
90	Voyage 1993 demo
91	Protracker, Discomagic
92	Games 6
93	Utilities 8
94	Demos 12
95	Print Enhancer
96	CP/M Printlt
97	Des demo
98	Programmers Patch Disc 1
99	Crossword Compiler
100	WACCI index
101	Promerge tutor, RAMbase 4
102	Utilities 9
103	Clip art 1
104-8	AMS music discs
109	AMS-MIDI, MusicPack
110	Word games
111	Pictures 12
112	Demo-makers, Basic tutor
113	CPC Emulator *for PC*
114	B-ASIC *for CPC plus*
115	Animal Quiz, Francis
116	Smart+, Fluff *for CPC Plus*
117	Bankbase
118	Games 7
119	Cribbage, Blackjack
120	Adventures 6
121	Soundhakker v2
122	Soundhakker modules
123	Otto 1-2 fanzine
124	Mr Men slideshow
125	CPC Guide
126	Street Warriors
127	PowerPage support
128	BTL 1 fanzine
129	BTL 2 fanzine
130	Ghoul's Writer

Other WACCI services:

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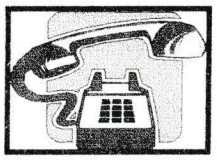
Discs: Frank Frost, 4 Rectory Close, Wootton, Ryde, IoW, PO33 4QB 01983 882197
£1.50 for 3", 35p for 3.5": minimum order two. Alternative Firmware Guide, £2.99p



Got a problem? Then call the Help-Line, that's what we're here for.

Bob Moffatt ***01454 329875***
Weekends only please. Masterfile III, Mastercalc, Qualitas and Protext.

Frank Frost ***01983 882197***
4pm-10pm, VDE, CP/M Protext and WACCI Services.

Angie Hardwick ***01922 449730***
Market Stall, Game Page and Convention tickets.

Malcolm Brabbin ***01502 716344***
8pm-11pm, but not Saturdays. Basic Programming.

Mark Stewart ***01773 822599***
8pm-10pm. PAW Adventure Creator, Basic and General help.

Stuart Gascoigne ***0117 9831361***
Basic, Machine Code. New PD is to be sent to Stuart please.

John Hudson ***01484 423252***
MOII, CP/M, Wordstar, Newword, dBase, CP/M PD, CPC-PCW-PC.

John Bowley ***01733 330890***
Book Library, Subscriptions, Distribution, and WACCI (being late) in general.

Dave Stitson ***01752 254404***
Central Librarian. WACCI PD library enquires.

Richard Avery .....
Tasword 464 GPaint, Another World, 35, Marlborough View, Cove, Farnborough, GU14 9YA.

Nic Rayner ..... ***Mobile: 0850 992747***
CPC Emulators for the PC.

Arthur/Angela Cook ***01903 206739***
8pm till 10pm, Tape Library, Repairs, General CPC, Merline-Serve/KAD and Angela's new magazine for the PC called Wibble.

Frank Neatherway ***01268 784742***
Fair Comment letters.

Christine Raisin ***0115 9133181***
Past WACCI's on disc, phone for what's available. and WACCI PC>

Do you want to be a Help-Liner? If YES then give me a call and this space could be yours.

Convention 99 tickets available NOW please contact Angie Hardwick for more details.

PLEASE NOTE:
This help-line is provided on a voluntary basis by club members to assist other members. Please call between 7pm and 9pm, unless stated otherwise.