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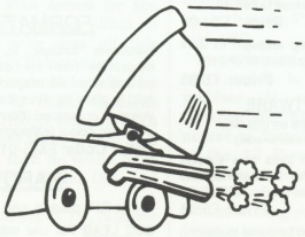

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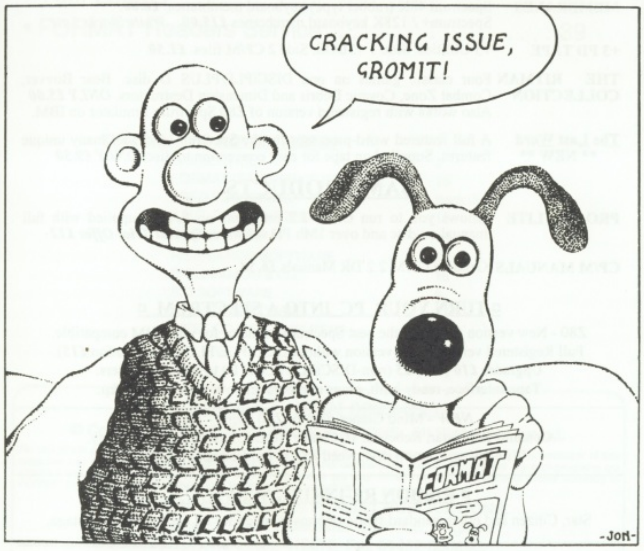


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# NEWS ON 4

## COMMODORE SOLD AT LAST

As first reported in ***FORMAT*** last month, Escom, Germany's largest computer retailing company, has finally purchased the rights and assets of Commodore International, who went into receivership last year, for $10 million.

Commodore UK, the only part of the Commodore empire that was not placed into receivership, will now enter into negotiation with Escom on its future. For a long time Commodore UK's management team had been front runners to take over all of Commodore International.

Escom are saying that they will relaunch the Amiga into western Europe later this year and that they also plan to restart production of the C64 for the Eastern European market.

## QUAZAR SURROUND

SAM's sound capabilities have long been recognised as the best you can get on any 8 bit computer, indeed they are better than many 16 bit machines. But now, for those of you who want to go even further, there is something new just around the corner.

Colin Piggot, from Fife in Scotland, premiered his new Quazar Surround system at the Gloucester Show on the 29th April. It can play sounds in stereo and full *surround sound* if four speakers are connected (speakers being connected either through your hi-fi system or a separate amplifier). Quazar has modes giving a choice of 8 or 16 bit sound (with up to six channels in 8 bit mode) and will come with a full manual and driving software. A regular support disc called Soundbyte, featuring software and music specifically for the Quazar system is also planned.

While there are some people who will buy the system just to play with the wonderful sounds it can produce, there is no doubt that software company support will be required if it is to be a real success. At the moment only Jupiter Software have committed to writing games that use the system, but others may follow suit if sales start to take off.

The prototype on display at the show was very well finished and there was certainly a reasonable amount of interest from SAM users. The price is expected to be around £60 but has yet to be finally fixed. If Colin can get his production into gear and get backing from one of the larger software companies then I think this system will go far.

For more information send a SAE to Colin Piggot, 204 Lamond Drive, St.Andrews, Fife, KY16 8RR.

## SCADS GOES PD

The Sam Coupé Arcade Development System (SCADS) which was acquired by Revelation last year has now been placed into the Public Domain. Revelations move means that it is now legal to copy and distribute copies of the new PD SCADS disc, provided it is not done for profit. Revelation also announced that copies of the manual (all 200+ pages) will be available at £7.95 +p&p. The PD disc of SCADS can be obtained from SAM PD, 18, Mill Lane, Old Skelmersdale, Lancs, WN8 8RH. Send an SAE for details.

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# The Editor Speaks

Thankyou, thankyou, THANK YOU... My warmest thanks to all who made the 4th Gloucester Show such a success. The turn out of both traders and visitors was wonderful and, as usual, we had difficulty in getting some people to leave at 4:30. The shows may be very hard work for Jenny and myself to organize but your response to them makes all that extra work worthwhile. The next show will be in October or November and we will let you know the date as soon as we can.

The major events of the show were to be found on the FRED and SD stands. Fred Publishing launched their new C compiler and came very close to selling out on the day. A full review of SAM C will appear next month all being well but in the meantime you can get more information direct from Fred Publishing. SD Software demonstrated their hard disc system for the SAM. This uses standard IDE drives and, when the operating system is finished, should handle anything from a small 20Mb drive right up to 500Mb drives and even bigger. The software, which has been delayed while the SAM C compiler was finished, is being designed as an extension to MasterDOS and will allow full access to the drive both from Basic, Machine Code and SAM C. Prices are not yet being discussed but an interface on its own will be available for use with your own drive or you will be able to buy the system complete with IDE drive and power supply. More details as soon as we have them. Alternatively send SD Software a stamped addressed envelope, marked SAM Hard Drive in the top left corner, and as soon as more details are available they will send them to you. It is expected that software companies will be able to get prototype systems in about two months followed by a release of the full version in September. Keep your eyes on Format for more news.

And now a little appeal. Wanted - one programmer/hacker with experience of +3 disc accessing and PLUS D. At the show on the 29th we relaunched a program called Music Maestro. At the moment we only have the +3 disc version available and, because the program is so good, we would like to produce a DISCiPLE/PLUS D version. If anyone thinks they could help please give me a ring one evening and we will talk it over.

This re-release will, I hope, be the first of many. It has come about because the programmer heard we were looking for old titles that still has life left in them and Music Maestro certainly has that. If you know of any serious (or not so serious) program for the Spectrum that is no longer available then let us know and we will try to track down the rights to the program and get it back on the market.

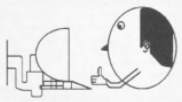
It is good to have Short Spot back this month. I'm pleased to say that John Wase is now beginning to rebuild his life after the sad loss of his wife. Our best wishes for the future John, both from the staff and the readers of ***FORMAT***.

This is a slightly smaller issue than normal because we had to produce it in a shorter time scale due to the show. Things will be back to normal next month and I can promise you there are lots of really nice things lined up for you.

Until next month.

*Bob Brenchley*, Editor.

# SDS SOFTWARE



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# SHORT • SPOT

## YOUR HINTS, TIPS AND PROGRAMMING IDEAS

**Edited By:- John Wase.**

Short Spot time again. Firstly, I would like to thank everyone for their support. Actually, it was worse than Bob knew; I was, as he said, in bed with anti-inflammatories and valium as a muscle relaxer when Cynthia was killed in a head-on collision. I eventually got back to work, but was scared to death of driving, with the 'valium fog' I got in the morning, so I gave up the tablets. And found myself back in bed again, almost back to square one. Which is why Short Spot has been missing for so long sorry, folks. So again, thank you all for your support, thank you for coming to the church services, and thank you for all your supportive letters. I hope to answer all these in due course, but I have already had over 700 items, so it will take time. Add to this the fact that I was heavily drugged, in bed, and subsequently shocked, and a golden opportunity existed for all the post to be mixed. Which it was. So my apologies; I had several programs for choosing lottery numbers, for instance, and I don't even know where they are, now. I have, however, been able to sort some of the bits and pieces out, and put a column together; I am sure you will understand if the piece you submitted some time ago isn't included.

Let's start with Carol Riman of Loughborough, who is wisely making sure her offspring will be computer-literate. Here's a very short music program for SAM for her 2-year old son, just to keep him entertained:-

```
10 POKE 22081,255
20 DO
30 GET note
40 LET note=(note MOD 41)-10
50 BEEP 0.1,note
60 LOOP
```

The line 10 POKE disables the ESC key - vital in a child's program, and line 40 means all keys are useable and the notes are in a pleasant(ish) range, as Carol puts it.

Next, Carol mentions that in Vol.8 Nº1, there was a little program called 'Stripes'. She writes that she doesn't know how it works, either, but experimented with various sizes of squares and rectangles till she got bored. She wants to know the algorithm which is the basis of the program. Anyone know? Then she can put a bit of maths to work and try to find a reason. If you know it, please drop me a line.

Finally, Carol was intrigued by the program in ***FORMAT*** Vol.6, Nº2.

```
10 BORDER 0
20 BORDER 2: BORDER 5
30 GOTO 20
```

Carol tells me it does indeed work on SAM, though I said it wouldn't. Modes 2 and 4 - stripes go up fast, Mode 1, down slow; Mode 3, up slow; keys do nothing (none of them). On a black Spectrum +2A, 48k; down slow, all keys speed downward movement; 128k, very wide stripes go up fast, none of the keys has any effect. But why does it work like that? Were we able to explain? Can we explain why all these configurations work differently? Answers to me, please.

Next, there is a note from John

Saunders of Chalfont St. Giles, Bucks, who comments on the 'Two Ants' program from Ettrick Thomson, again for SAM. His first comment is that John's way with Basic is economical to a degree, and he marvels at it. So do I, John, and it come from Ettricks utter familiarity with it. John's second comment is that a short machine code version of the program was published in issue 44 of SAM supplement (by a Duncan, but John makes no mention of his surname), and he (John) is therefore making some notes on the following lines for submission to the Editor of that magazine. In view of the fairly wide origins of the theme of the 'Two Ants' program, there seem no problems about copyright, so here goes.

The point at which the interaction of the ants impels one of them to form a straight path ('staircase' is Ettrick's name for it) across the screen seems to depend on the closeness of nearby plots, together with the formal attitude of the path-forming ant. Both these can be defined mathematically. This can be deduced fairly easily from Ettrick's program: Duncan's, being machine code, is too fast, but one must assume it works similarly. John suggests that Ettrick's program could certainly be analysed and the approach of these conditions noted. Delays could then be inserted. This could well give one time to work out how and why this peculiar phenomenon works. Trouble is, John has not yet found a way to explore this; or if he has, his letter's in my Great Paper Jungle!

However, during all this, he's turned up a couple of other items of interest. It soon became clear that the initial distance between the two ants is the first factor governing the onset of a cannibal country. This, of course, results in a clear screen (the 'Kilkenny mode'), followed by births and redeaths. This initial distance also governs the onset of the staircase. John's first modifications were to offer a choice of the difference distance, x1 to x2. The other co-ordinates, y1 and y2, merely settle the height of the starting points, but might produce variations if modified so as to be unequal. John has not been able to try this yet, but suggests that if it is explored, it could well lead to a *departure to a staircase* point.

An even more interesting approach was to introduce some interference. This was found to produce 'picturesque' (as John puts it) variations in the ants' behaviour. Those interested might care to explore first the difference factor, and later introduce interferences. These can be easily achieved by a short DEF PROC introducing some random plots on the screen in the vicinity of the 'action'. All sorts of fascinating effects arise: for instance parallel tramlines along the staircases can sometimes develop.

For those interested, but not keen to spend time, here are John's modifications to the program for introducing the interference factor.

```
 60 PRINT "To introduce an int
    erference factor, enter "I
    ", otherwise any key.": GE
    T q$: CLS
 70 IF q$="i" OR q$="I" THEN i
    nterfere
200 DEF PROC interfere
210 FOR n=1 TO 10: PLOT PEN 10
    , RND(120)+80, RND(95)+34:
     DRAW 0,-6
220 NEXT n: END PROC
```

And now a different slant. As usual, I'm typing this particular section in an odd place, and so am picking out letters without discs, since I can't get back to my beloved SAMs and Spectrum to check them: we'll have some of those later. And by coincidence, the next letter I picked out is also from John; a wee SAM snippet to bring untold wealth to us all.

```
  5 REM C$ is a list of number
    s 01 to 49 (in case you ha
    dn't noticed) and can be t
    yped in very quickly. Save
    d under "LOTALOOT".
 10 LET C$="010203040506070809
    10111213141516171819202122
    23242526272829303132333435
    36373839404142434445464748
    49"
 15 CLS: PRINT AT 3,5; PEN 10;
     "THE NATIONAL LOTTERY."''
    ''; PEN 15;"These numbers
    will be successful";'';"..
    .... (as any others):-"''''
    '
 20 LET n=48: PRINT TAB 5;
 40 FOR x=1 TO 6
 45 LET k=RND (n)+1
 50 LET e$=C$((k*2-1) TO (k*2)
    ) 55 PRINT PEN 14; VAL e$;
    " ";
 60 LET C$=C$(TO(k*2-2))+C$((k
    *2+1)TO )
 70 LET n=n-1
 80 NEXT x
```

Many thanks, John; I could do with a bit of good luck for a change.

Now back to the Spectrum - and the DISCiPLE. Roy Burford noted in ***FORMAT*** Ted Cooke-Yarborough's problem with the 664 offset in the DOSPEEK program with some dismay. This is because he had also quoted the same offset - from ***FORMAT*** Vol.3, Nº1, September 89, p33 (Nev's Help Page) and assumed it to be correct. The same offset is given in Vol.3, Nº5, January 1990, p22 in Short Spot, by Peter Morgalla.

Then Roy found some more about the DISCiPLE'S ROM and RAM in Vol.3, Nº 6, February 1990, p25 of Nev's Help Page. It seems that the DISCiPLE can change the ROM and RAM around. At power-up, the ROM is at address 0, but when the system file is loaded, the "ROM and RAM are swopped over". Perhaps Ted is reading the DISCiPLE's memory before loading the SYS file. It should be interesting to see what Miles Kinloch comes up with.

And also, there's a quick note to say that there is a problem in the bubble-sort module of Frank Evans' Lottery program on page 7 of the February ***FORMAT***; it often fails to sort the numbers selected into ascending order. Put:-

```
275 LET ch=0
320 IF ch=1 THEN GOTO 275
```

and all will be well. Lee Willis, of whom more later, also noticed the same problem, and adds that PAUSE on its own makes no difference to the random values so produced. Many thanks, Roy, and thanks also to Lee.

We'll stick with the Spectrum for a while. Miles Kinloch of Edinburgh, who always turns up with something interesting, has done it again. He writes:-

"A problem I've always had with the PLUS D concerns the snapshot button: roughly one time in every five (or thereabouts) I experience a crash on returning to the program. That is, either through pressing 'x', or after making an actual snapshot. If this happens, then the snapshot also crashes on loading.

I [Miles] have pinpointed the state of affairs which gives rise to the problem, at least from a software point of view, and have written a DOS patch, which eliminates it in my own case. However, I'm convinced that the underlying cause is in the hardware, and I suspect perhaps something like a timing error may be responsible. However, I don't know how widespread the effect is, and how many other people suffer from it. It may just affect certain models of the Spectrum; I don't know. All I can tell you is that I know at least one other person who, like me owns a grey +2 and has exactly the same symptom. That would lead me to conclude that it's not just a fault in my own equipment.

For those interested in the technical aspects, it's the NMI (Non-Maskable Interrupt) mechanism that's going wrong

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More news as soon as we have it.



when the PLUS D's button is pressed. When the Z80 receives an NMI signal, the current Program Counter is preserved (pushed) onto the stack, and a call made to address 102 (decimal), where it executes the NMI service routine (i.e. the snapshot routine). The PLUS D hardware simultaneously detects when a call is made to this address, and then takes immediate action to page itself in, so it will be the NMI routine in the PLUS D ROM, rather than the one in the Spectrum ROM (which contains a fatal bug, anyway), that's executed.

That, at any rate is what's MEANT to happen, and, indeed, when it does work that way, all goes well. On the occasions that it crashes, however, something very unusual occurs. It's almost as if the above process were carried out all over again a SECOND TIME, a split second later - just when the program counter is actually at address 102, in fact. Now, try to imagine what would ensue: the next address, 103, would therefore be stacked, so when you returned to your program, it would resume from there. By that time, however, the Spectrum ROM would be paged back in again, so it wouldn't be address 103 in the PLUS D that was executed, but in the Spectrum ROM instead, i.e. plunging into the Speccy's own bugged NMI routine, and heading straight for a reset!

Strange though all this may seem, all the experiments I [Miles] have done seem to point to this happening. For instance, if I go into 48k and POKE either 23728 or 23729 (the latter is better, since 23728 also functions as an error-trap with the PLUS D) with a non-zero value, I can then press the snapshot button as often as I like, and it never crashes afterwards. This is consistent with the bug in the Spectrum's routine at 102, the result of which is to cause a jump to address 0 when both 23728 and 23729 hold zero, but to RET harmlessly (albeit having achieved nothing) otherwise.

There are some games in which the crashing symptom never happens, however many times the snapshot button is pressed. These always turn out to be the ones which overwrite the BASIC area and put values into 23728 and 23729! Incidentally, in 128 mode, POKEing 23728/23729 doesn't help, as the 128k ROM doesn't contain any NMI routine at all - not even a bugged one! A call to 102 in it will inevitably spell disaster.

Hackers Workbench is an excellent tool for examining snapshots, and when I use it to look at the state of the Z80 registers in a snapshot which crashes on loading, the PC, i.e. representing the stacked return address to be jumped to, invariably shows as 103.

Finally, a most unlikely utility proved invaluable in analysing the problem - PLUS D Poker! Invaluable, because it allowed me to look at the stack AFTER the snapshot button had been pressed, and examine the return address. On every occasion when it crashed on returning, the address was always 103, and using this method, I found I could always predict in advance the occasions when it was about to happen.

By now, I was convinced beyond any doubt about what was going on, and I decided the next step would be to write a routine to fix the problem. Perhaps neutralise might be a better word, as, of course, the underlying hardware bug is still there - but to all intents and purposes, it can be regarded as cured. There are two versions, one for G+DOS and one for Betados.

So, how does the patch work? Well, whenever the PLUS D's button is pressed, the first thing the snapshot

routines do is store the current stack pointer in addresses 16382/16383, before setting up a temporary stack in PLUS D RAM. SNAPFIX looks at the contents of 16382/16383 and tests to see if the return address on it is 103. If this is so, it increments the contents of 16382/16383 to 'drop' this address, so the one before it, i.e. the genuine return address, will be used instead. The reward is a snapshot button which in my case, at least, is now much more reliable. The G+DOS version of SNAPFIX installs itself in a special way that detects if another patch is already present which itself uses the snapshot routines. Examples are the key 'o' interrupt patch, Pick-Poke-it, etc. It's therefore quite compatible with these, and I just hope that for others who have had these problems, SNAPFIX will be as effective for them as it is for me.

```
 10 REM G+DOS PATCH TO IMPROVE
     RELIABILITY OF SNAPSHOT BU
    TTON By M.Kinloch (PD) 1995
 40 CLEAR 49999: PRINT BRIGHT 1
    ; PAPER 6;"FIXSNAPSHOT BUTT
    ON CRASHES ": PRINT '' TAB
    6;"VERSIONG+DOS 2a"''''"NOTE
    :- If you are using any GDO
    Spatches or PLUS D resident
     utilitieswhich themselves
    make use of thesnapshot but
    ton, e.g. Pick-POKE-It, PLU
    S D Poker etc., make sure y
    ouinstall these in the syst
    em file BEFORE you run this
     program."
 50 INPUT "Enter DOS filename:
    "; LINE a$: IF LEN a$>10 OR
     NOT LEN a$ THEN GOTO 50
 60 CLS : PRINT "PUT A DISK WIT
    H THE SYSTEM FILE V`DRIVE 1
    ,PRESS ANY KEY.": PAUSE 1:
    PAUSE 0: CLS
 65 LOAD d1;a$CODE 8192
 70 RESTORE : GOSUB 1000: IF c<
    >5719 THEN PRINT "ERROR IN
    DATA!": STOP
 75 RANDOMIZE USR 50000
 80 PRINT "READY - PRESS ANY KE
    YRE-SAVE": PAUSE 1: PAUSE 0
    : CLS
 90 SAVE d1;a$CODE 8192,6656
100 STOP
1000 LET c=0: FOR a=50000 TO 500
     50: READ d: LET c=c+d: POKE
      a,d: NEXT a
1005 DATA 219,231,33,107,195,17,
     190,45,213
1110 DATA 1,24,0,237,176,42,162,
     32,34
1120 DATA 214,45,225,34,162,32,2
     11,231,201
1130 DATA 245,42,254,63,62,103,3
     5,35,35
1140 DATA 35,190,32,9,175,35,190
     ,32,4
1150 DATA 43,34,254,63,241,195
2000 RETURN
```

And now the same for BetaDOS:-

```
 10 REM  BDOS PATCH TO IMPROVE
     RELIABILITY OF SNAPSHOT BU
    TTON By M.Kinloch (PD) 1995
 40 CLEAR 40959: PRINT BRIGHT 1
    ; PAPER 6;"FIXSNAPSHOT BUTT
    ON CRASHES ": PRINT '' TAB
    6;"VERSIONBETADOS"''''"NOTE
    :- If you are using BETAFIX
    ,make sure you change your
    systemfile with that FIRST,
     before yourun this program
    ."
 50 PRINT #0; BRIGHT 1; PAPER 2
    ; PEN 7; AT 1,0;"PUT A DISK
     WITH A BETADOS SYSTEMFILE
    V - DRIVE 1 - PRESS A KEY."
    : PAUSE 1: PAUSE 0: CLS
 60 LOAD d1"+sys Beta"CODE 4096
    0
 70 RESTORE : GOSUB 1000: IF c<
    >9492 AND e<>4122036 THEN P
    RINT "ERROR IN DATA!": STOP
 80 PRINT "READY - PRESS ANY KE
    YRE-SAVE": PAUSE 1: PAUSE 0
    : CLS
 90 SAVE d1"+sys Beta"CODE 4096
    0,6850
100 STOP
1000 LET c=0: LET e=0: FOR a=452
     50 TO 45294: READ d: LET c=
     c+d: LET e=e+a: POKE a,d: N
     EXT a
1010 DATA 73,110,115,101,114,116
     ,32,79,82,73,71,32,100,105,
     115,227
1020 DATA 205,138,23,73,110,115,
     101,114,116,32,84,65,82,71,
     69,84,32,100,105,115,227
1030 DATA 245,205,56,46,241,195,
     21,33
1040 FOR a=44593 TO 44610: READ
     d: LET c=c+d: LET e=e+a: PO
     KE a,d: NEXT a
1050 DATA 24,40,205,72,49,24,14,
     42,254,63,62,103,195,234,45
     ,205,185,46
1060 POKE 45246,19: POKE 44576,1
     8: POKE 44580,14: POKE 4121
     1,64: POKE 41206,195: POKE
     41122,231: POKE 41123,48: P
     OKE 44736,195
1070 FOR a=44739 TO 44747: READ
     d: LET c=c+d: LET e=e+a: PO
     KE a,d: NEXT a
1080 DATA 205,185,46,33,56,0,34,
     141,92
1090 FOR a=44519 TO 44530: READ
     d: LET c=c+d: LET e=e+a: PO
     KE a,d: NEXT a
2000 DATA 195,125,15,35,35,35,35
     ,190,192,195,112,40
2010 FOR a=43120 TO 43127: READ
     d: LET c=c+d: LET e=e+a: PO
     KE a,d: NEXT a
2020 DATA 35,175,190,192,43,34,2
     54,63
3000 RETURN
```

Many thanks, Miles.

Well, so far this seems to have been a very serious Short Spot, so I'm going to round it off on a serious note, too. We'll finish with a load of SAMsnippets from Lee Willis, whom I mentioned earlier.

All these are REAL SERIOUS STUFF, and are to do with formatting text output.

'Centre' is a small routine to centre text as it is printed. The routine is called by:-

```
Centre a$
```

Where a$ is your text. The text is printed on the current print line, in the centre: if the strings last more than one line, it can still cope, Lee thinks. Get testin'!

```
1000 DEF PROC Centre a$
1010 LET Width=PEEK 23096+1
1020 IF LEN A$>Width THEN GOTO
     1040
1030 PRINT AT PEEK 23149,(Width
     -LEN (TRUNC$ a$))/2;TRUNC$
      a$: GOTO 1100
1040 DO
1050 LET Temp$=a$( TO Width)
1060 PRINT AT PEEK 23149,(Width
     -LEN (TRUNC$ Temp$))/2;TRU
     NC$ Temp$: PRINT
1070 LET a$=a$(Width+1 TO )
1080 LOOP WHILE LEN a$>Width
1090 PRINT AT PEEK 23149,(Width
     -LEN (TRUNC$ a$))/2;TRUNC$
      a$
1100 END PROC
```

Wwrap is another utility to help you print text. C'mon, how many times have YOU typed out instruction pages in PRINT statements, and then had to go through them and pad them out with spaces, 'coz words went over lines. Call this by: `Wwrap a$` - and the text will be printed without any words being split over lines. It works in mode 3; it works in mode 4; it will even work if you want to print within a WINDOW!

```
  5 LET t$="    Welcome to Lee
     Willis's word wrap routin
    e, to stop words being spl
    it across lines in MODE 3
    or MODE 4, CSIZE 6 or 8!"
 10 MODE 3: CSIZE 8,8
 20 PRINT AT 1,5;:WWrap t$
 30 PRINT ''
 40 CSIZE 6,8
 50 WWrap t$
 60 CSIZE 8,8: WINDOW 10,28,10
    ,18
 70 WWrap t$
 80 WINDOW
1000 DEF PROC WWrap a$
1010 LET a$=a$+" "
1020 FOR c=1 TO LEN a$-1
1030 LET x=PEEK 23148,y=PEEK 23
     149
1040 IF x=PEEK 23096 AND a$(c)<
     >" "
1050 IF a$(c+1)=" " THEN PRINT
     a$(c);: LET c=c+1: PRINT '
     ;: GOTO 1150
1060 FOR d=c TO 1 STEP -1
1070 IF a$(d)=" " THEN GOTO 110
     0
1080 PRINT CHR$ 12;
1090 NEXT d
1100 LET d=d+1,c=d
1110 IF a$(c)=" " AND c<LEN a$
     THEN LET c=c+1: GOTO 1110
1120 PRINT ';
1130 END IF
1140 PRINT a$(c);
1150 NEXT c
1160 END PROC
```

The next one makes things even easier. If you merge the following lines with 'Wwrap', the resulting program will produce a string called 'Done$' that contains an altered version of your original, so that printing will be already WWrapped.

```
1010 LET a$=a$+" ",Done$="",xc=
     PEEK 23148
1030 LET x=xc,y=PEEK 23149
1050 IF a$(c+1)=" " THEN LET Do
     ne$=Done$+a$(c): LET c=c+1
     ,xc=0: GOTO 1150
1080 LET Done$=Done$( TO LEN Do
     ne$-1)
1120 LET Done$=Done$+CHR$ 13,xc
     =0
1140 LET Done$=Done$+a$(c),xc=x
     c+1
```

Finally, yet another text printing routine. This one will print text neatly over a screen. Difficult to describe, but it works. Call it using:-

```
Standout a$,x,y(,dm)
```

Where a$=text to be printed, x=x co-ordinate in pixels, y=y co-ordinate in pixels, dm (optional) =2 to give double height letters.

```
1000 DEF PROC Standout a$,x,y,d
     m
1005 DEFAULT dm=1
1010 OPEN SCREEN 2,4: SCREEN 2:
      DISPLAY 1
1015 IF dm=2 THEN CSIZE 8,16: E
     LSE CSIZE 8,9
1020 PRINT AT 1,1;a$: CSIZE 8,9
1030 GRAB txt$,6,165-(6 AND dm=
     2),4+(LEN a$*8),(9*dm)+2
1035 IF dm=2 THEN CSIZE 8,16: E
     LSE CSIZE 8,9
1040 PRINT AT 1,1; PEN 15;a$: C
     SIZE 8,9
1050 GRAB msk$,6,165-(6 AND dm=
     2),4+(LEN a$*8),(9*dm)+2
1060 ROLL 1,1
1070 PUT 6,165-(6 AND dm=2),msk
     $,msk$
1080 ROLL 3,2
1090 PUT 6,165-(6 AND dm=2),msk
     $,msk$
1100 ROLL 1,1: ROLL 2,1
1110 PUT 6,165-(6 AND dm=2),msk
     $,msk$
1120 ROLL 4,2
1130 PUT 6,165-(6 AND dm=2),msk
     $,msk$
1140 ROLL 2,1
1150 GRAB bord$,6,165-(6 AND dm
     =2),4+(LEN a$*8),(9*dm)+2
1160 SCREEN 1
1170 PUT INVERSE 1;x,y,bord$,bo
     rd$
1180 PUT x,y,txt$,msk$
1190 CLOSE SCREEN 2: END PROC
```

Bit opaque? Try adding the following lines which give a very good demonstration. You will need to come up with three Screen$ files of your own, cos we can't put them in ***FORMAT***, any mode 4 pics will do, amend the filenames in the program to match your files.

```
  10 CLS #: FOR x=0 TO 15: PALE
     TTE x,0: NEXT x
  20 PAUSE 1: LOAD "Screen.1"SC
     REEN$: REM provide a scree
     n yourself
  30 LET xos=0,yos=0,xrg=256,yr
     g=192: CSIZE 8,9
  40 REM LOAD "Font"CODE (if yo
     u want a different font
  50 PEN 15: Standout "LEE WILL
     IS Productions",40,145
  60 PEN 12:Standout"PROUDLY",1
     00,117
  70 Standout "PRESENTS",96,103
  80 Standout "O U T L I N E R"
     ,68,75,2
  90 Standout "PRESS ANY KEY",7
     2,0
 100 PAUSE : FOR x=0 TO 15: PAL
     ETTE x,0: PAUSE 3: NEXT x
 110 LOAD "Screen.2"SCREEN$: RE
     M another screen here
 120 PAUSE 1
 130 Standout "  This routine p
     rints text over",0,160
 140 Standout "a background scr
     een, outlining",0,145
 150 Standout "it neatly!",0,13
     0
 160 PEN 8:Standout "I N   A N
     Y   C O L O U R",26,100
 170 PEN 12:Standout "PRESS ANY
      KEY",72,50
 180 PEN 5:Standout "FOR INSTRU
     CTIONS!",56,20
 190 PAUSE : FOR x=0 TO 15: PAL
     ETTE x,0: PAUSE 3: NEXT x
 200 LOAD "Screen.3"SCREEN$: RE
     M and another screen file
     here please
 210 PAUSE 1
 220 PEN 9:Standout "CALL USING
     ;",0,170
 230 Standout "Standout a$,x,y
     [,dm]",20,150
 240 Standout "a$=Text to be pr
     inted",0,130
 250 Standout "x=X Co-ord (in p
     ixels)",0,120
 260 Standout "y=Y Co-ord (In p
     ixels)",0,110
 270 Standout "Dm is optional!"
     ,0,90
 280 Standout "DM=1 for normal
     text",0,75
 290 Standout "DM=2 for double
     height",0,65,2
 300 PEN 15:Standout "DEMO FOR
     FORMAT READERS",0,0
 310 PAUSE : FOR x=0 TO 15: PAL
     ETTE x,0: PAUSE 3: NEXT x
 320 CLS #
 999 STOP
```

Nice set, and many thanks, Lee. Well, that's all for this month. Although normal service is not quite resumed, (and I am away in the USA for a period in the summer), I hope that you enjoyed the column. I've carefully sorted most of the backlog into date order, though not everyone puts dates on, and it has taught me how illegible postmarks are. Things always go quieter in the summer evenings, anyway, because there's less attraction in staying in and programming. So I've a nice little pile of stuff to publish, haven't I! Please, however, don't let me stop you submitting contributions, the shorter the better; after all, this is Short Spot, isn't it, and all I can do is publish YOUR snippets and YOUR short cuts. Please keep them coming to:-

**John Wase,**
**Green Leys Cottage,**
**Bishampton,**
**Pershore,**
**Worcs, WR10 2LX.**

And bless you, all of you. It's nice to hear from you. See you next month.


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# THE CRICKET PROJECT

**By:- Doug Casterton.**

My other hobby is cricket; these days as an umpire and in administration. Seven years ago, the other umpire (who was also the league secretary) and I were in the bar recuperating in the usual way after a game. John was regretting that although there was a computer at home, it was useless since his son was at Manchester doing computer studies and too busy to write the programmes which could take the drudgery out of the league secretary's job.

My interest in computers had arrived via my grandchildren. I'd had a Spectrum+ for two years, worked through '40 Hour Basic' and was about three months into 'Beta Basic', I'd also added an Interface 1 and a pair of Microdrives.

Learning for the sake of learning, for me is not very satisfying; I need an end product. I could see lots of applications in league administration and not all of them too difficult for a raw beginner to attempt, so having found an excellent excuse for messing about with a computer. I started quietly, without letting anyone know, in case I fell flat on my face.

To run a league of any kind, the first thing you need is a fixture compiler. I looked at it, decided that it is the last thing a beginner should attempt. My mathematical studies were so long past I wasn't capable of creating the formula for an academic league. Think of the practical difficulties. 1st & 2nd XI share grounds and play in different divisions; some teams in the same division sharing the same ground. The pitch at Boggerthwait has a high water table. Can the Waders C.C. play only away game during the monsoon season? Blidworth Bottoms Gamekeepers need to be at home during rutting season. I wasn't convinced that computer logic could cope with that so I looked at the problem of allocating umpires, which seemed to occupy Ambrose (the umpire's secretary) all winter.

The Notts Amateur League has a 1st XI Competition of four divisions and a 2nd XI Competition of three divisions; generally ten teams per division. We have an independent umpires panel and allocate umpires to the top three divisions (four if possible), so I made an array for 50 umpires, names, affiliated club, availability over 18 playing days, experience/competence (for the top division), mobility; it's the Notts Amateur League, but there are teams on the Lincs border and over the borders into Leicester and Derbyshire.

John compiles the fixtures manually on a separate grid for each division, so I wrote a routine to transfer the numbers into a fixture array. The league list came next, at that time just a list of team names.

The 48K Spectrum was getting a bit overcrowded. BetaBasic needs about 20K (it's worth every byte), but even by converting to string arrays throughout for the DATA, I could see the need for more memory so I acquired a SPECTRUM +2 and all against the advice and wishes of Messrs Amstrad

fitted the Interface 1 and microdrives. The 21K left in normal memory was used for the programs and DATA input to the Ram Disc of 73K.

Slowly, slowly I developed the umpires program. The umpires are split into two groups. Those with less experience operating in the second and lower divisions. A random number is generated in the range of umpires suitable for the division, it is tested for availability, independence of either team in that game, ability to reach the ground, has he seen either team in the previous three weeks and if applicable, has he already had his fair share of games in the top division. If the number is not accepted the next higher number is tested until one suitable is found, or if not (and the program has gone full circuit) to the number it chose first then that slot is allocated to the dummy and the program proceeds to the next game. Some umpires hunt in pairs so that added a few more lines commencing with IF...

That program has been used for the past six seasons. This season we were only able to allocate to three divisions which required 540 allocations. The program took 15 minutes to do the job. It tested 2452 numbers and the dummy umpire only got one appointment. The output is passed on to the umpires secretary so that he can do any fine tuning, like matching a new umpire with one with experience, so there's a routine to make alterations and having got everything into the computer it's easy to send every umpire a separate list with his games and colleagues for each game. The data is also used to output the complete League Fixtures for printing in the seasons handbook.

The next big chore is receiving results of 35 games, calculating the points earned by each team, printing a list of results, then re-arranging and printing the league tables. John estimated that it occupied about five or six hours every Sunday morning. I wrote a program which needed about 25 minutes to enter the results and scores for 35 games, add on the print out, say half an hour. I'd not used it in real life because I didn't want to load myself with that chore, so I kept it quiet. The other programmes were for once a year jobs and I didn't mind them.

In January 1990 they announced that no more microdrive cartridges would be made. SAM was still a baby (female according to Bob) and I felt that she needed to grow a bit before I committed others to her, so that evening I told the League Management Committee that having talked about computer assistance for two seasons, now was the time to decide. They could invest in an obsolescent system exactly like mine with available software, or forget it until they could find someone to reproduce programs similar to mine on the latest equipment costing five to ten times more money. There was no argument. They asked me to provide John with a system so he could do the the Results and League Tables.

That has been the situation for the past five seasons. Some tidying up and polishing but otherwise a complete system of computer assistance except for the elusive fixture compiler. Way back, shortly after I started, a fellow member of the Nottingham Microcomputer Club gave me a mathematical routine to create fixtures for a division of any number of teams. I gave John lists for 8, 10 & 12 teams which he said were useful for the first two weeks and then fell down because of ground sharing.

John had indicated that after this year he may not be able to do the fixtures and because he was away in October I



collected the club and team information for him. I made copies before passing it on so that I could study it and I arranged the details into loose categories. About six weeks ago I was messing about writing the mathematical routine into SAM and for the first time examined how the home/away sequence varied for each team. Then having got all the information together for the first time the solution became obvious. Instead of trying to write fixtures to suit teams, tighten up the categories of teams and their restrictions and do a combined fiddle of fitting categories to fixtures. A bit like the game of arranging the tiles into a sequence with the computer prompting the best move. It's impossible to get 100%. The final list is agreed at the annual fixture meeting at which all clubs are present and where they can re-arrange some fixtures to suit any special requirement. John says that anyone new to the art would need a month to get 95% games arranged. My first run took me three hours and I got 95%, by the third run it was down to one and a half hours and 97%. I don't think I'll better that. So now we've got a complete system. It needs some polishing before I'd trust it to work for anyone else.

During the last winter I've rewritten the programs on SAM. In theory they ought to be suitable for any cricket league. In Nottinghamshire two of the four larger leagues have separate 1st & 2nd XI competitions. The other two have a single competition with 2nd XIs floating below the 1st XI. The rules for earning points vary from league to league and season to season. I'll have to collect more information to see if the variations can be accommodated.

**Editor's Note:-** If anyone would like to write to Doug about his cricket programs we will be happy to pass on your letters.

# SMALL ADS

**SAM Coupé** 512k, 1 drive, boxed, excellent condition with manual and original software, plus SAMtape 4(Speccy emulator), plus collection of backdated Formats. £80. Mouse interface £15 (no mouse). Voicebox Speach Synth £10, Comet Assembler £5, Driver £10, SAMpaint £15, Lemmings £10, Sound Machine £5. Fred issues 29-52 50p each, Postage and packing extra. Write to K.Mayes, 10 Broom Ave, Hellesdon, Norwich, NR6 6LG.

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**WANTED** Spectrum +3, I am deaf and severely disabled (housebound) and I need a working +3 as soon as possible. Please write to Arthur Harding, 25, Churchdown Lane, Hucclecote, Gloucester, GL3 3QH.

**WANTED** Grey +2 Spectrum - MUST WORK, no software or manual necessary, Phone Ashley Martin on 01843 821859 after 6pm.

**FOR SALE** INPUT magazines 1 to 52 (in binders), Modula2, Pascal book, Speccy mags (Sinclair User, Your Sinclair, ZX Computing, etc. some early issues 1983ish), Betabasic 3&4 (128K version) both on disc. Two +3 circuit boards complete with chips, Speccy hardware e.g. Joystick interfaces, keyboards, ZX81 etc., for spares, some may work. Phone to make me some offers. Tel: Nigel on 01406 422916 for more details (Spalding, Lincs) after 7pm please.

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# The HELP PAGE

**Edited By:- Ray Bray.**

Our first problem this month comes from L.W.Simpson of Mansfield. He wished to print some of the characters 171 to 255 from the IBM Set #2 and used the methods given by Ettrick Thompson in Format Jan 94 p13 for modifying the Secretary, but with no success. He also tried using the codes listed in the printer manual with a command:-

```
FOR d=32 to 255: LPRINT CHR
$ d: NEXT d
```

but this did not work either. He uses the SAM with a Star LC10 printer which, on the long self-test printed all the IBM characters correctly. He wishes to know whether the printer interface might be at fault or if he is using the wrong commands. He also wishes to know how to print the Additional Character Set which the manual states "are obtainable with special commands".

Before going into any detail on this question I should point out that some of the Set #2 characters are already available on the keyboard, but the only way to find out which, is by experiment! Also it is possible to set most of the characters using the Redefine Keyboard facility of *The Secretary*. A quick way to check if your interface is at fault (by means of *The Secretary program*), is to use the line and box drawing facility. If the printout is alright then there is nothing wrong with the interface as lines and boxes are drawn with the IBM Set #2.

I suspect your problem lies in the method of programming being used. Just in case you are not familiar with the elements of printer programing I will explain all the details relevant to this problem.

Firstly, to be able to send to the printer any of the codes required to select the IBM character sets, the interface must be set to allow these control codes to pass to the printer. In Basic this is done by the command:-

```
CLOSE #3: OPEN #3;"B".
```

To revert to normal codes the command is:-

```
CLOSE #3: OPEN #3;"P".
```

Secondly, if you only required to print the IBM Set #2 then the printer does not have to be in the IBM mode, thus DIP switch 1-6 can remain ON. Incidentally, this also allows the printing of codes 3 to 6 and 51. However, to be able to print the Additional Character Set (ACS) the IBM mode must be selected, i.e. DIP switch 1-6 must be OFF. The following program will select and print character codes 32 to 254 of the IBM Set #2:-

```
10 CLOSE #3: OPEN #3;"B": REM
    Allow control codes to pa
   ss.
20 LPRINT CHR$ (27);"t";"1";:
    REM Select an IBM charact
   er set.
30 LPRINT CHR$ (27);"6"; Sele
   ct IBM Set #2.
40 LPRINT CHR$ (27);"R";CHR$
   0; Select US Character set
50 REM control code to print
   the Additional Set placed
   here.
60 FOR c=32 to 254
70 LPRINT CHR$ c;" ";
80 NEXT c
90 STOP
```

Be sure to include the semi-colon at the end of the control code lines. To obtain characters 3 to 6, and 51, add this line:-

```
85 LPRINT CHR$ 3;" ";CHR$ 4;"
   ";CHR$ 5;" ";CHR$ 6;" " C
   HR$ 51.
```

To enable the printing of the ACS, the extra line (50) has to be included to allow bytes, normally used as control bytes, to be accepted by the printer as character codes. The extra line tells the printer that a specified number of codes following the command are to be treated as character codes. The number of codes to be handled in this way is defined in the two byte form n1 + n2*256. To change the program to enable the ACS to be printed along with IBM Set #2, the following line has to be inserted:-

```
50 LPRINT CHR$ (27);"\";CHR$ 3
   2;CHR$ 0;
```

In addition to this line, DIP switch 1-6 must be set to OFF and the FOR statement needs amending to FOR c=0 TO 254, which will then include characters 0 to 31 in the print-out. Finally there is another command which enables printing of all codes on the next character only; that is:- `LPRINT CHR$ (27);"^";`. However, I have been unable to get this one to work so I only use the command in line 50 above set to `27,"\",1,0`. That just about covers all the basic points; but how to achieve this using *The Secretary* WP program? You mentioned the article by Ettrick Thomson in the January 94 FORMAT which touched on this subject. There are two points that you need to be aware of in that article. Firstly, if you have the latest version of the WP (1.5) then the layout of the "prcodes" file is slightly different, there being 17 bytes per code with the first byte showing the number of bytes in the command. Therefore the "prcodes" POKE should read:-

```
POKE 106607,8,27,116,49,27,54,27
     ,82,0.
```

Secondly, for some reason the map position for the key SYMB/F is given as 128 when it should be 183, SYMB/F is 43+140. Incidentally, as an alternative to the "prcodes" POKE you can use the Redefine Printer Codes facility when you first load the the WP.

To check that everything works, change the printer codes, then change the 'prn' codes for the SYMB/Minus key by POKE 106117, 246. Don't bother about changing the screen character at this stage. As you know, you can make these temporary pokes by breaking into the program (press the break key briefly) and after making the pokes, type the word 'resume' to get back to the WP. Type SYMB/minus several times and with DIP s/w 1-6 ON, print the line, which should now consist of the non-computer division sign.

To obtain the ACS with *The Secretary* is somewhat messy in that, unless you are not going to use any printer control codes in the text, a command to accept the control codes as characters has to be sent before every ACS character to be printed. The ACS can be accessed making use of the two Optional Printer Codes by setting both to 27,92,1,0 on start up, or by POKE'ing the "prcodes" file:-

```
POKE 106200,4,27,92,1,0
POKE 106217,4,27,92,0
```

Both optional codes have to be set as they are 'toggles'. Alternatively you could use any of the other single operation codes which you were unlikely to need. Having done this, the keyboard and 'prn' files have to be amended, as in Ettrick's article, to give the correct screen and printer outputs, and the DIP switch 1-6 set to OFF. Then to obtain any ACS character all you have to do is input SYMB/O before typing the character.



Once you have everything working properly then save all the code files.

The next query, also about printers, comes from Malcolm Dopson of Hazlemere. His problem is that every page he prints from SAMPRINT using his Epson and Star printers, over runs to the second sheet of A4 paper. Examination of the printout which was sent shows that the line spacing is set to 14/72", giving a printed page length of 11.6". If the line spacing is reduced to the usual 1/6" then the page length will become about 10" which will fit comfortably on an A4 sheet.

Malcolm has a supplementary question about printers which he shares with another reader, B.H.Davis of Hatfield, both get the hash character (#) instead of the £ sign when printing from the PCG DTP program using an Epson printer. Mr Davis has this fault when using an new Epson LQ100 (24pin) printer but not when using his old 9 pin printer; Malcolm doesn't state what model Epson he is using. I am not familiar with the PCG DTP suite of programs but they have been around for some time and as this query has not arisen before, coupled with the fact that the £ sign prints correctly on the 9 pin printer, suggests that it must have something to do with the printer settings being used. All I can suggest is that you check that your printer is set to the English International Character set.

Mr Davis also states that when using Wordmaster he cannot do any screen printing, he is not particularly worried about this but wonders why this should be so. Well I'm not sure whether the program is configured to deal with screen printing using 24 pin printers but the control codes for 8-bit graphics are the same on 24 pin as they are on 9 pin printers, therefore this should not be the problem. The only other thought is that on my printer, a Star LC10, in order to get dot graphics DIP switch 1-8 (Automatic Line Feed), has to be OFF. Does the Epson printer have a similar setting?

As a change from printer problems we now have a letter from Ian Minshull of Egham in Surrey, who has a Psion Organiser model LZ64 complete with RO2Y Comms Unit. He was hoping to be able get the Psion to communicate with his SAM via the RS232 sockets but has been able to pass no more than a few random characters with no apparent pattern. He is using the SAM Comms software and has tried many combinations of baud rate and parity to no avail. The Psion was returned to the supplier to check for any faults but was found to be perfectly serviceable.

Unfortunately Ian, there appears to be an inherent fault in the circuit layout of the SAM Comms interface which makes the reception via the RS232 socket unreliable. Without going into the details of this, the good news is that, if you have a soldering iron and a sharp knife and can use both of with some degree of competence, you can overcome this problem without too much trouble. Firstly there is the modification suggested by Andy Wright which appeared in Short Spot (Apr 92 page 7) which aimed at curing a fault which seemed to appear after transmission of one or two hundred characters, I will leave you to look that one up. For the second modification, which seems to be more appropriate to your problem, we are indebted to Johnathon Taylor. I will give you his instructions verbatim.

"After removing the case:- Use a sharp knife to make a clean cut in the track on the front side of the PCB (side with the chips on) as indicated below. Turn the PCB over so that the cut can be bridged on the REVERSE side with a forward

biased general purpose silicon diode e.g. 1N1001. Bend the legs of the diode as necessary and cut then as short as practicable to reduce the risk of a short circuit and for maximum robustness. To further reduce the risk of accidental damage, the body of the diode should lie flat against a blank area of the PCB as close as possible to the attachment points. Solder the Cathode end (with the silver band) directly to the protruding end of pin 24 of chip Z1 - as quickly as possible to avoid overheating the chip. The Anode (unmarked end of the diode) should then be soldered to the protruding end of the $V^{cc}$ leg of capacitor C5 - the leg in the 'supply rail' just above your cut.

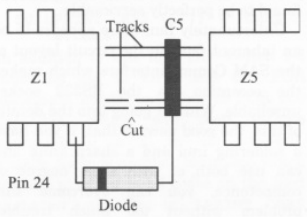


Fig 1. Mods To Comms Interface.

The voltage drop of 0.6V across the diode reduces the voltage supplied to the chip by 0.6V which is sufficient to ensure that the logic 0 levels now fall within the prescribed ranges. A further modification which should not now be necessary, but whilst the PCB is to hand can be done just to be sure, is to bridge the protruding end of pin 10A of the Euroconnector (again on the reverse side of the PCB), to the adjacent main 0V rail with a very short piece of tinned copper wire (cut from the diode?) making sure that no contact is made with any other track or component. When finished clean off any solder 'hairs' or splashes plus excess resin and re-assemble."

In addition to these modifications, if you are seriously into transferring data between Psion and SAM you could try to obtain a copy of a suite of programs by J.Jennings which were specifically written for transferring data between the LZ64 and SAM. This comprises five files and, as far as I am aware, was first published on a SAM Supplement disc, they can be contacted at:- 37 Parker Street, Bloxwich, Walsall, West Midlands, WS3 2LE.

I originally intended to continue with the subject of download characters this month but, apart from running out of space, we have already had a surfeit of printers in this edition. Also there was an overdose of SAM questions, so come on all you Spectrum users, I can't believe you don't have any problems!

**HELP WANTED**

J.S.Foster of Burton-on-Trent has aquired an IBM colour monitor (Model 5154002), without a handbook, and would like know if it can be used with a Grey Spectrum+2. Has any reader any knowledge of this monitor?

That's all we have for this month. Please keep sending your problems/ answers to the following addresses:-

Anything SAM or General Purpose:-
Ray Bray (Format Help Page),
Spring Cottage, Bourne Close,
Porton, Salisbury, Wilts, SP4 OLL.

Anything +3, CP/M:-
Mike Atkins (Format Help Page),
7O, Rudgwick Drive,
Bury, Lancashire, BL8 1YE.

Please remember that if you want any discs/printouts etc returned then you must include an SAE.



# MUSIC MAESTO +3

**Reviewed By:- Carol Brooksbank.**

At the April Gloucester Fair, ***FORMAT*** launched the latest in their Spectrum Software re-issues - this excellent Music development package. At present, only the +3 version is available, but ***FORMAT*** are looking for someone to convert it to PLUS D/DISCiPLE. Hopefully someone will soon be found, because this is a program which deserves to be available to as many users as possible.

It is one of the best music development programs I have come across. If you use it in 48K mode you must set it to work with BEEP, but in 128K mode you can choose to use the +3's sound chip, which makes it possible to produce first-class music. Your compositions can be saved in a stand-alone form for use within your own programs and, being interrupt-driven, will play while other things are happening in your program.

Composing your music is simplicity itself, because you write it on the ordinary music stave. So many computer music preparation programs invent weird and wonderful ways of entering the notes. It is very refreshing to find one that does it the obvious way - using the notation that has been familiar to musicians for centuries. The graphics are first class, notes, rests, clefs, flats, sharps, naturals, all look exactly right.

Fig.1 shows the working screen. When you load the program the stave is empty. Select the key you want to use, and the

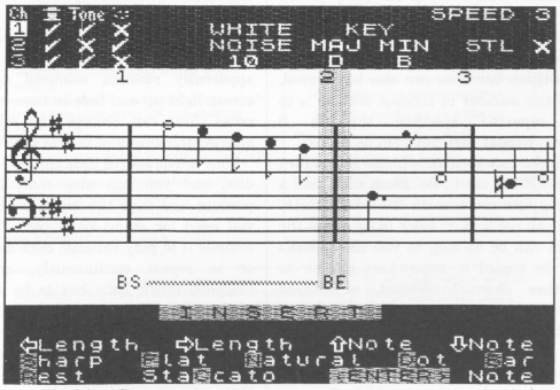


**Fig.1 - The Working Screen.**

appropriate flats or sharps are entered on the stave. You don't have to enter a flat/sharp where they normally occur in the key - the altered note will be used unless you enter a natural.

The cursor, marking the current note, is a coloured line down the middle of the screen. When you enter INSERT mode, a middle C crotchet appears under the cursor. Arrow keys are used to move it up or down the stave to the note you want, and to lengthen or shorten it. You can toggle between the note and a rest of the same length - arrow keys will also change a rest length - or replace it with a bar line. ENTER fixes the note/rest/bar, scrolls it to the left and presents another copy of the same thing for you to change to whatever you want next. If you have written a note it will sound when you enter it. Notes can be dotted, naturals sharps and flats can be entered anywhere, and even staccato can be marked. Four speed modes are available.

As soon as you enter bar lines, the bars are numbered, and you can jump to any bar for editing. Individual notes can be edited or deleted, and a note can be inserted at any point in your music. Repetition bar lines can also be entered, and the number of times a section is to be repeated specified (up to 9 times).Repeat bars can even be nested.

Blocks can be marked, and are shown by BS(Block start), BE(Block end), and a zigzag line underneath the whole block. You can see a short block in fig.1, but the block can be as long as you like. Blocks can be copied to somewhere else or to another channel, deleted, or played independently.

There are three channels, any of which can be set to tone (musical note) or white noise - the level of white noise can be set. Each channel can be switched off or on, so you can check them separately or listen to all together to hear the overall effect. Only one channel is displayed on screen at a time, but you can switch between them instantly, and the bar lines and numbers help you to keep things in line when using all three for harmonies or for different instruments.

You can design your own sound envelopes to give varying instrument sounds. There are pitch and amplitude envelopes associated with each channel, which govern the type of sound and the volume at which it will play. The envelope design mode has a graphic display giving you a visual impression of the envelope, which changes as you change the parameters. These envelopes can be saved to disc, for loading into other music later.

You can test your music by playing it through once or continuously. Also, when you exit the INSERT/EDIT modes to the main menu, the arrow keys let you run through the notes and they sound as the stave moves - a very useful way of locating mistakes precisely.

A fun feature is a simple sound and light display. As the music plays, apparently random coloured dots on screen light up and fade in time with the notes. You can change the effect by altering the length of fade of the dots.

Your music source code can be saved to disc, and you can also compile it to produce and save the music object code you need for stand-alone use. You can compile it to play through once and stop, or to repeat continuously, and the compiled music code has to be used in conjunction with special interrupt routines provided on the disc. More than one file of music object code can reside in memory at once, each having its own USR call address to start it playing. Only one piece can play at a time, though, so you can't use this to devise 6-instrument music. Another USR call disables the interrupt routine to stop music playing, so your compositions can be included in Basic or machine code programs.

The program comes with a sensible and easy to follow handbook, and there are lots of example music files on the disc - far more than the handbook lists. These are a splendid reference source to help you to see how things are done, and any of the instrument sounds can be saved out to disc for your own use if, like me, you are a bit hamfisted at designing sound envelopes.

I love this program. I like its simplicity and its versatility. I like being able to see what I am writing as proper music on screen. The only thing which would make it perfect would be to be able to print out the music too. Unfortunately it has no printing facilities. But it enables the Spectrum user, especially in 128K mode, to produce music which sounds almost as sophisticated as that produced on the SAM. For the moment the +3 users have it all to themselves, but if you think you could do a conversion, get in touch with ***FORMAT*** straightaway. We must get this working on the PLUS D and DISCiPLE soon.


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# YOUR LETTERS

**Dear Editor,**

Please find, in the box attached to this letter my 'under the weather' SAM Coupé. The nature of her illness is such that she is unable to display herself properly. Her ailment affects her ability to communicate to visual display units. However, she does not seem to be prejudiced in any way in that she refuses to co-operate correctly with both TV's and monitors. I have also sent her energy source in case her problem is attributable to malnourishment.

I hope that you can nurse her back to full health and I would be delighted if the medical expenses are not too high because she does not have any form of health insurance.

I have also enclosed a copy of a shareware program (for PC) called 2COL, together with a copy of the manual which I DTP'd from the text file on the disc. These are for the attention of Bob (he may recall me telling him I would forward him a copy).

***Yours Sincerely, Geoff Wilson.***

Now before someone accuses me of being sexist (perish the thought) I should point out that in many parts of the world it is common to refer to mechanical or electrical devices as *SHE*. This, of course, has nothing to do with the temperament, reliability or to any other aspect of comparison between machines and the female of our species. It is just a fact of life.

As to your beloved SAM(antha), she should be back with you by now - fully recovered. And thanks for the PD program, very useful. ***Ed.***

**Dear Editor,**

Sorry for the delay in sending my subscription for this year. Being late with my subs I think I've missed the April issue of ***FORMAT***. Would you send me one please.

I have PCG's DTP Wordmaster with which I can display what I want on the screen but when I dump to my Tandy DMP 110 all I get is a continuous form feed. To write a letter I have to fall back on my ancient Electron with View. Although it does a good job I would like to be able to use my +2 with PLUS D and disc drive.

Everything stops when ***FORMAT*** arrives and it's not put down until it has been read from cover to cover.

***Yours Sincerely, E.Butterfield.***

We always backdate late renewals anyway Mr Butterfield so fear not, you will not miss out on an issue.

As far as I know the DMP110 is not fully Epsom compatible so it could be that it is not understanding one of the codes that the program is sending. Compare what is in the PCG paperwork with the printer's manual and see if you can work out what code is causing your problem, if not send copies of the relevant pages of the printer's manual to the Help Page and they will try and help you. ***Ed.***

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**Dear Editor,**

Could you maybe fit this in the Letters Page or edit it for the Small Ads?

Basically, I want to know if anyone working at ***FORMAT*** or any readers can tell me where I can get my hands on a good Spectrum emulator for SAM. I already have the SAMDOS one and Specmaker, and they're both pretty good, but I can't run Chaos (A Spectrum game by a chap called Julian Gollop) on either of them. I think it's the best computer game ever, but I haven't been able to play on it for two years!

***Yours Sincerely, Stephen McGreal.***

The only other one around now is from Steve's Software. Perhaps some reader has experience of getting Chaos to work. Over to you good readers... ***Ed.***

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**Dear Editor,**

It was a most pleasant surprise to receive last week the packet containing four ***FORMAT***s and your brief note informing me of an anonymous donor's gift of a year's subscription. Please thank him on my behalf and tell him I would be delighted to hear from him in person if he chose to identify himself.

I hope you don't think me hypercritical after all this generosity but you included February 1994's ***FORMAT*** which I already have instead of the 1995 issue. I am returning the 1994 copy and hope you will be able to include the February 1995 issue in the next mailing. Perhaps that one contains a clue to the mystery donor: I am filled with puzzlement.

***Yours Sincerely, Chris Ingram.***

Jenny has been given yet more demerit points, I don't know what to do with her (but I would hate to be without her). The correct issue should reach you, maybe even in the very envelope this months issue comes in. ***Ed.***

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**Dear Editor,**

Thank you for your subscription reminder. Please find a cheque for the next 2 years (I assume I can still claim the extra month for the quick return?)

Allow me to make a couple of criticisms, and then offer some praise!

My first one is that I dislike the amount of coverage that the SAM machine gets. I appreciate that you want to cater for this machine as well as the Spectrum, but believe that it will never have (even a fraction of) the support/user base of the latter. Readers of your magazine should be reminded of this viewpoint, every so often, until proved wrong!

Secondly, I would ask you to review your policy of how you deal with complaints regarding companies/ advertisers in your magazine. It was only recently you informed us of your policy to pass these directly on to the company themselves, instead of inquiring or reviewing the complaint yourself.

I have had two occasions where this has backfired on me; Once when I wrote to Prism PD, and had problems with their software. Whilst I was negotiating a satisfactory result, they (presumably) received my same letter again from yourselves, looking as if I was trying to apply more pressure than intended.

On the second occasion I had problems with hardware from Richardson & Co. Again, while I was talking to them they would of received my letter to you. This time I said that I was reluctant to take direct action as they were Spectrum suppliers, it being a small amount? About a year later I had similar problems, and can only conclude that by now they considered me a 'soft touch' because they flatly refused to refund any of my money, and I had to resort to (successfully) taking them to the small claims court.

Onto more positive matters. I find most of your (Spectrum) articles interesting, particularly those on machine code. The help sections also quite good, with some interesting technical problems.

Articles for the future? Well I'd like more of the above obviously, but I also think you should be putting much more emphasise on the IBM emulator (i.e. the

Z80 by Gerton Lunter). This is the only way the Spectrum will survive in the long term, and it will get people into the PC world. A 386 will do the job for only a few hundred pounds, and can run a lot of PC software - even some of the latest titles!! There is still some life in the Spectrum, but it will die sooner rather than later unless some sort of lifeboat is used.

Keep up the good work. My best wishes for the future.

***Yours Sincerely, M.R.Prichard.***

We try to achieve a mix of articles in ***FORMAT***, targeting as well as we can for a three-way split. One third Spectrum, one third SAM and the rest general interest. In the main, looking at things over say six issues, we don't do to bad on that target. However, as I have always said, we can only print what comes in. It is true to say that most new software is for SAM, therefore most of the reviews we print are for SAM, but we can't help that.

I have been looking for someone to do a regular column on emulators, and not just those that run on the IBM. The last thing I want to do is encourage people to buy a 386/486 or what have you. If people want a machine that is still in production that will run much of their Spectrum software then they are much better off with a SAM Elite.

Personally, I think the Spectrum (and the SAM) will be around for many years to come. Don't look for their deaths, there is plenty of life in them yet.

And finally, if we get a letter of complaint about a company we have to investigate it, and the best way is to send a copy of the complaint to the company and ask for their comments. If we don't get a good response from them then we may print something in FORMAT, but only if we feel that it would protect our readers by doing so. Often disputes are just between the two parties involved, in those we will try and mediate but there is little to be gained by involving thousands of ***FORMAT*** readers in the matter. If people have a problem then by all means ask for our help, we don't perform miracles, and we don't always agree that there is a problem, but we are here to talk to - and that often helps more than anything else. ***Ed.***

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**Dear Editor,**

I have a SAM Coupé with a total of 1.5 Mb memory and an Epson printer - but no interface. I don't want to buy the external printer interface, as I wish to use the 1Meg module frequently and also to keep the expansion port relatively uncluttered.

Is the SAM Elite's internal printer interface available separately, or at least in circuit diagram form? There seems to be room inside my 1 Meg case for me to wire in a printer interface circuit. What would be the minimum requirements, regarding connections, for this?

I would be grateful of any assistance received on this matter.

PS What happens with the 'busy' line from the printer? I have a technical manual (giving a diagram of the external printer/serial port interface on page C12) and it seems to send a signal to CD0, but no particular address.

What port numbers does PRINTL use? - the manual I have contradicts itself - is it 246? 248 is used by the palette.

***Yours Sincerely, Richard Mason.***

The SIPI, the internal interface board used in the Elite, is not available separately - although if there were enough demand then it would not be too difficult to make it available in kit form. How about it readers? Would you want such a thing? The only problem I see is that the Elite has an extra hole cut into the back into which the printer cable is plugged. If people were prepared to have the connector dangling out of the back of their machines on a short length of ribbon cable, then I think it would work. As to the busy line, that is read as bit 0 (I think). ***Ed.***



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**Dear Editor,**

I'm writing this a couple of days before I expect the next ***FORMAT*** to come tumbling through my letterbox, so forgive me if any of the points in this letter have been raised in the April issue.

Firstly down to business, I've enclosed a cheque for FORMAT volume 3.

I missed out on volumes 1 and 2, so I want to get my hands on volume 3 before you stop printing them.

I also enclose an SAE. Reading in the December issue that you sell conversion kits for TW+2 and Art Studio made me think - how many other hidden software delights do the mysterious ***FORMAT*** offices hold? Any chance of sending me a list?

Secondly, a couple of my responses to Mark Sturdy's letter, and your reply, in the March magazine. I agree with Mark, and Martin Scholes from ZAT, about West Coast. They need to broaden their horizons a bit, and at least take the free advertising that ZAT are offering. What's the point of only advertising to ***FORMAT*** readers? It's like a pop group with a new CD only telling it's fan club members about it - that record isn't going to get to number one! However, considering that ***FORMAT*** is now West Coast's 'sole mail-order distributor' surely it is up to you to advertise SAM? With such an impressive computer at your fingertips, why keep it a secret in these pages? There must be at least a few prospective buyers in ZAT.

Now on to something a bit lighter... The continuing debate on the proper use of English in ***FORMAT***! You use the argument that ***FORMAT*** uses English spellings (as opposed to US), but on the FRS page you say that the Printer Lead is, and I quote, '2 meters long'. If you look in the Collins English Dictionary you will see that 'meter' is 'The US spelling of metre'. 'Meter' in English (!) means 'any device that measures and records the quantity of a substance....'

I'll leave you with that thought.....!

***Yours Sincerely, Thomas Adams.***

You will notice that metre has been corrected, I don't know how we managed to miss that one for so long. Thanks for pointing it out.

As to advertising in ZAT, well I understand that is now irrelevant as ZAT is no more. West Coast did not advertise in other magazines (in the UK that is) because ***FORMAT*** did a good job for them. ZAT only mailed a few dozen copies whereas we mail in the thousands. And as to the analogy to the pop group, I can assure you that most do sell certain CDs and tapes in exactly the way you describe - they don't make number one but the company behind them makes more money that way. ***Ed.***

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**Dear Editor,**

In answer to Petros Devakis of Athens question on Page 20 of Aprils issue of FORMAT Vol 8 No 8. Microsnips are no longer trading.

***Yours Sincerely, Mr Burford.***

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**Dear Editor,**

I enjoy reading my ***FORMAT*** each month - it is especially useful compared to a disc based magazine as, being a mum of 2 small boys, I don't manage to use my SAM Coupé very much.

Short spot and the letters page are my favourite regular sections. I also enjoy daydreaming over all the things I could buy from the adverts!

The articles I have enjoyed most in the last year are:-

V7 Nº 12 Analogue and Digital States
V8 Nº 4 Hunting the Wumpus
V8 Nº 5 2001 - Message In Time Bottle
V8 Nº 6 Video Titling
V8 Nº 7 Easter Day

I would not say I disliked any particular articles, I don't always read those not relevant to me, but they can still be interesting.

There are several things I would like to see covered.

Production of stereograms (Magic Eye pictures/3 D pictures) on SAM/Speccy.

Memory usage - how on earth do you know where to put screens, fonts etc.

History of the multitude of 128K/+2/A/Bs I have black +2(A) (Car boot Sale) and I'd like to know where it fits in - and why it says it has +3 Basic.

Review of SAM C - I'm sure someone will be doing this one.

One other thing - why did 'Basically Mousing' appear in nos 3 and 8 (Vol 8)?

***Yours Sincerely, C.H.Riman.***

Mousing was my fault, I just could not remember running it and did not check properly. Sorry. ***Ed.***

**Dear Editor,**

Re: Your Letters Vol 8 Nos 6 & 8.

I note that there was an original program 'Lucky numbers' etc. written for the Spectrum (Short Spot), where or how can I get this now? Or does Mr Warwick of Plymouth still have this and would like to dispose of it?

Please thank Carol Brooksbank for providing me with the company that can supply A5 continuous listing paper, I have contacted them and now await their price list/catalogue.

I use 128K Spectrum+2 (Grey case) computers with PROTITLER 4 & LOGOMASTER for my Home Video's with reasonable success so wonder whether the following may be of help to reader B.H.Davis? Anyway here goes!

I have made an adaptor which fits the RGB (8 pin), socket at the rear of the computer, and converts it to an in-line phono composite video, and bypasses the RF stage of both machines. An 8 pin plug, a phono plug and miniature screened co-axial cable is required, connect centre wire to Pin 1 and connect screening to Pin 2, (8 pin plug), connect phono plug centre wire to centre pin and screening to plug body. This is then connected to the VCR via a 'Scart to Video/Audio' (if fitted) or the 'Video in' socket, use the VCR 'AV' channel and tune the computer output into a suitable spare channel on the TV/Monitor, and when this is done you should be able to load the computer and be able to copy what appears on the screen, titles etc. on to tape ready to then edit/copy.

Incidently I use a "Y" connector so as to connect camcorder/second VCR and computer, switching to the source required.

You can pass my details etc., to B.H.Davis if it will help, perhaps we can get our 'heads together'.

Thanking you again, I do look forward to receiving ***FORMAT*** each month but do wish it covered a bit more for us "poor Speccy owners".

***Yours Sincerely, Deryck R.J.Morris.***

If you know what back issue you want we can always supply a copy. ***Ed.***

**Dear Editor,**

Extract from March ***FORMAT*** 1995 Vol 8 No 7:

Spectrum Owners - We hope to soon have a similar repair service for your machines. Ring us for details.

Well, we have five or six Spectrum's here and the last repair was by the Alpha people, so now I am absolutely depending on you. How are things going?

***Yours Sincerely, Joseph Hurley.***

At the moment we can cope with some repairs - but certainly not all. The problem is finding spares for the Spectrum. We are still looking for a company that we can recommend to people, keep reading ***FORMAT*** and we will let you know as soon as we have sorted something out. ***Ed.***



**Dear Editor,**

This letter follows with my renewal notice. (You will receive soon your cheque by post office). Down on the notice, you're asking for articles we will enjoy to see in ***FORMAT*** magazine.

I think it will be a good idea to do now, 'C without tears' or 'Pascal without tears' (using compilers from Hisoft).

And why not more articles with excellent package from Hisoft, like Hisoft Basic or The Colt?

Betabasic is also welcome because we can adapt SAM programs for the Spectrum.... (I have an old version of Betabasic).

I think it will be very well to make long programs for the Spectrum (48K) in ***FORMAT***, like games or utilities (mind games are the best).

Something else: is it possible to build a 'hard clock' for the ZX Spectrum 48K??? If yes, please, give the diagram, many good people will be interested! (sure!)

Oh! you know, many, many things can be done with this computer, show them to us!!

OK that's the end of my letter, I say a big "Hello" to all the people working at ***FORMAT***..... bye, bye and many thanks and of course long life to ***FORMAT***.

Remember my computers: 2 Sinclair 48K (Spectrum+), 1 Sinclair 128K (the first one), 1 Sinclair ZX81 with 16K, 1 Atari ST (1040 STF), 1 old IBM PC 5150 (with 8088 mp).

***'Yours Sincerely, Dominique Charbonnier (France).***

Articles on C are a definite for the future and I will try to make sure they deal with Hisoft C as well as the new SAM C. Pascal and the others? Well if someone wants to write something I look forward to seeing it. ***Ed.***

**Dear Editor,**

Further to my note about the continuous A5 paper, available from CLP, the price was +VAT, not inc. VAT as you printed in ***FORMAT***.

This particular firm sells a lot of useful goodies, including unbranded four-colour ribbons for Citizen, Epson, Panasonic and Star printers, and they say the range is to be expanded to other printers and it is worth asking if your model is not listed. There is a huge saving in price over the branded colour ribbons. The official Citizen ribbons from CLP are £15.76 + VAT, while the unbranded one is £7.95 + VAT - more or less half price. I have tried one, and it seems to be fine - this letter is written with it.

CLP also sell the shiny foil you used with a laser printer to make your printing silver, gold, or one of a variety of metallic colours. If you don't have a laser printer, you can get the same effect by making a photocopy and then ironing the metallic foil over the area you want to colour, with an ordinary domestic iron on a moderate heat. I think the foil probably works with a photocopier anyway, but if you don't have your own copier, the local Library or Post Office may not take too kindly to your putting your copies through twice with bits of foil stuck to them.

CLP sell a huge range of papers, labels, discs, cables, connectors, printer stands, footrests, and other accessories. They will even fix you up with such esoteric items as a mouse mat shaped like a hamburger, or a jazzy frame to put round your monitor if you feel you cannot live without such things! I find them a useful source of all sorts of things I can't get elsewhere, or can't get at a better price. Their address is:-

CLP Computer Supplies, Units 7 & 8, Holland Way, Blandford Forum, Dorset, DT11 7TA. (01258 459544).

***Yours Sincerely, Carol Brooksbrank.***

Ok, Ok, I get your point Carol, you love the company to death. We will send them advertising rates straight away. ***Ed.***

**Dear Editor,**

I'm writing to you in response to the letter in April ***FORMAT*** from 'ANON'. It must be an April Fools Day JOKE. I can't think of anyone who would want to degrade his PC screens by displaying them on a TV, especially as you can buy a good PC with a VGA screen for the amount of cash he's quoted. What is PC/TV format and why does all this make the PC (which PC?) look silly.

Now down to the technical stuff. The connections given in John Redferns article work fine! If ANON connected his Non-Proper lead, inner wires to pins 1&2 of the SAM SCART then he would have been connected to RH Audio Out and SPEN In, the result ??

Now to his question about TV, Monitor and Video Signals.

A TV signal is a modulated RF carrier at the channel frequency, CH 36 is 591.5 Mhz, carrying the information to reproduce the transmitted picture, ie: the Video information and line and frame synchronization pulses, and Audio.

A Monitor signal is the Video signal that is required to drive the particular Monitor in use. It could be, Composite Video, and/or for Colour, RGB with Blanking and Synch at either TTL level (5V) or Linear level (1V PtoP).

In answer to the question you raised about the SAM SCART for Sony TV's, I found that when I connected up my SAM to my Sony TV the picture would not lock. I found from experiment that an 82 ohm resistor fitted instead of the link between pins 16 and 20, fixed the problem, on my set up, obviously by reducing the level of the synch pulses. I have to remove the SCART from the TV if I need to use the AV inputs for Monitoring my Camcorder pictures, otherwise the picture rolls.

I also read that someone was having problems with a Cub RGB Monitor where they had tried the Bright TTL signal from the SAM Scart. The information I have found is contradictory, in the Technical Manual page 10 and the Users Guide page 173, Pin 20 is Bright TTL Out, but in the Technical Manual circuit diagram on page C11 and Users Manual page 172, Pin 20 as listed as 5V. Perhaps the manufacturer can resolve this one. I know that the TTL default level could be high (5V).

I was hoping to get to Gloucester but was unable to drive due to an eye problem. It would be nice if us Northerners could have a gathering nearer to home! How about attendance at the *All Formats Show* at Haydock, with Derick Morgan's help I'm sure you could drum up plenty of SAM FANS.

I am writing procedures to load Printer Drivers which remain resident on loading various programmes, I'll send it in soon as I've made it presentable.

***Your Sincerely Bob Haslam.***

There are many reasons for wanting to get a TV signal from an IBM type PC, the biggest being Video Titling that led to the letter you refer to. An adaptor board for a PC to drive a TV can cost the earth. My first prototype SAM did not have a TV modulator so I took Composite Video from the Scart and fed it through a £399 Betamax VCR in order to produce a TV picture - without doubt the most expensive modulator SAM has ever had.

So rest assured the letter was not an April Fools Joke, and thanks for the other information.

As to shows outside Gloucester. If people can travel from Holland and Germay, I'm sure the North is not too far to come for such a good show, is it? ***Ed.***

**Letters may be shortened or edited to fit on these pages although we try to edit as little as possible.**

This is **YOUR** letters page so it is up to you to fill it with interesting things. Come on, get writing, any subject even remotely related to computers. Just keep things as short as you can so we can fit in as many as possible each month. Please write clearly or type your letters. Send them to the address on page 3 or fax them to us on 0452 380890.



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All issues, from Volume 6 Nº 1 to the latest issue, are available separately. To order just quote the Volume/Issue Nº. **Price:** £1.50 each, (5 or more £1.25 per copy).

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