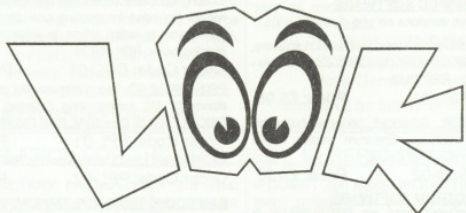


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Vol.11 N°8.

April 1998.

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## THE MOVING STORY

The change of ownership of Fred Publishing is still to be completed as we go to press. Darren Wileman has yet to finish his side of the hand-back to Colin MacDonald and so Colin is unable to sign contracts for the hand-over.

Also, it now appears that Allan Clarkson may be pulling out of the deal, made just before the Gloucester show in April, in favour of George Boyle (organizer of the last two Northern Spectrum & Sam Shows).

Hopefully things will sort themselves out by next month and we can bring you final details of the move.

## DOUBLE DENSITY DISCS

We have had so many readers who have been reporting that they are having difficulty in obtaining double density 3½" discs that we thought it was time we did something about it and came to the rescue.

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## YOUR NEWS HERE...

Come on readers, we need your news. Anything related to computers which you think will interest other SAM and Spectrum owners. Just jot it down on a piece of paper, add your name and membership number, and send it off to us at the usual address. Please mark the envelope 'News' so that we can give it the priority it deserves.

Remember, you get three months extra subscription for every news item we print, so don't rely on others to send in an item you have seen - send it off yourself and earn our thanks as well. This months credits:-

## Writing for **FORMAT**

The Spectrum and SAM have long had a dedicated following and it has been our pleasure to help users get the best from their machines for over 10 years. Some of you may think that everything that can be done or said has been, but nothing can be further from the truth.

We do our very best to produce a magazine that is interesting, informative and bloody good value for money. But we can't do that without your help.

We need your contributions. Letters, items for Short Spot, questions for the Help Page, articles - both large and small, reviews, news.....

There are so many ways in which each of you can help us to keep **FORMAT** going well into the new millennium - but we do need your help and we need it NOW!

You don't have to be a brilliant writer to contribute, you just need something to say - and every one of you out there has something to say. It is our job to edit your contribution into shape for **FORMAT** - and that is a job we love to do. So come on, get writing, even the smallest items is better than nothing.

Please, do your bit to help, you can't expect others to contribute if you don't. Honest, it doesn't hurt, and you will have the pleasure of seeing your work in print - extra copies of **FORMAT** to pass on to relatives will be available at discount prices <grin>.

Ring us if you need help (it is what we are here for) or if you want ideas, we are always being asked for articles on a particular subject so I'm confident we can soon provide you with something to write about if you don't have any ideas of your own. In particular, there is a lot of call for more on SAM Basic at the moment.

## The Editor Speaks

Now this is a first and, almost certainly a one off, for me - an editor's page that will be the same in both **FORMAT** and **FORMAT** PC this month. The reason is that there are things to say that applies to both sets of readers so why waste effort saying it in two different ways.

The reason for this special editorial is that I would like to explain why things have been so chaotic for that past few months, especially with publication dates. As you know, the last quarter of 1997 saw us get very behind with publication dates, mainly due to the serious illness of a close friend of mine and then to John Wase's tragic loss of his second wife.

Christmas came, and went, and as a result of taking very little time off I began to make headway. Then, just as things were looking up, we suffered a break-in in mid-January.

Both the office PC systems were stolen, along with a laser printer, scanner, spare hard drives, and several boxes containing chips and other components.

Now I know what you are thinking. Why have I not said something about this before? Well, to be honest, I thought it would cause what I would term 'a crisis of confidence' if word of our problems spread. I took the decision, right or wrong, that it was better to keep the matter secret until we were back on our feet.

Thanks to the help of a couple of friends, we were able to borrow a PC to use to get the recent issues of **FORMAT**

and **FORMAT** PC type-set. However, it has been a battle and I'm sorry if standards of presentation have slipped a bit (the Epson Colour Stylus 600 is a fantastic printer which I highly recommend, but it is not as good as a laser and nowhere near as fast.)

I must admit that I thought the insurance company would have sorted things out quicker than they did, but that is insurance companies for you isn't it? Still, it is sorted now, new equipment has been installed and although there are a few teething troubles to get through, we should be back to normal quite soon.

What I would say is, if we can survive this, we can survive anything.

Right, now there are some problems resulting from the break-in that we do really need your help to solve. First, although a lot of the articles that were on the hard drives were backed up to tape, we have lost some because of a tape restore failure. Trouble is, we don't really know what we have lost so we can't turn round to people and say "send us another copy". If you have sent in an article during 1997 (and maybe in 1996 as well) that has not appeared yet then could you get in touch so we can check if we still have it on file.

Secondly, at this time, more I think than at any time in our past, we need more contributions from readers. Letters, articles, hints & tips, requests for help, large donations of money - we need it all. Ok, skip the money if you want, just get writing.

Bob.

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If you have any doubts about which type of interface you need, or any questions about the drive fitting in general, then please give the FORMAT hotline a ring on 01452-412572 and they will be pleased to help you.

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## INTERFACES

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# SHORT SPOT

## YOUR HINTS, TIPS AND PROGRAMMING IDEAS

Edited By:- John Wase.

The chaos keeps on coming. I didn't think it could get any worse, but it has! As soon as I knew I was going to apply for premature retirement, I went round to the timber-frame specialist I knew (there aren't very many of them around, but there are still some in Worcestershire, where there are still lots of black and white houses), and booked him, because our black-and-white house had been going steadily more and more rotten over the last 15 or 20 years. Bang goes Lump Sum! Well, he's been at it a few weeks, now. First he took the side of the house out, all the way up from bottom to top! Then he put it back, didn't quite finish it, and, with everything covered with dust and filth, took the back gable end out! The furniture was piled against the airing cupboard, and they were marching a mixture of mud and sawdust in and out. Relief; it's nearly finished, when.....

.....the rain came, water welled up under the kitchen skirting boards on the one side, and disappeared the other. I know it was less than an inch, but it made a heck of a mess - all I could do was watch it, and the 'river' outside. To think Cynthia had consoled herself with the thought that this patch never flooded. So this month, you're going to do with what I can find. Or nothing! OK?

First off is a neat little offering from Mr Hunter of Ogmore-by-Sea, Bridgend. He writes that he wonders if I've got an efficient algorithm for calculating Pi, to any specific number of decimal places. With the time taken to get there

calculated. This one runs in Basic on his SAM, and the problem is, it's rather slow. So, it took 51 hours and 3 minutes to calculate 2,000 decimal places, and 32 minutes 13 seconds for 200 places. To calculate only 100 places took as long as 8 minutes 31 seconds. The figures are correct for the 100 and 200 decimal places, but there is nothing to check against for anything above 1000 decimal places. Speed's not its strong point. This is hardly surprising as it's almost all in Spectrum Basic: it was originally modified from a pretty old issue of PC World. Mr Hunter hasn't got the date, but the article was called 'Number Crunching' by Jeff Aughton, and was an example of how to achieve precision arithmetic via Basic.

Here it is; type it in.

```
10 CLEAR : CLS
20 PRINT "This program will c
   alculate and print PI corr
   ect to the number of deci
   mal places that you ask f
   or."
30 PRINT "Switch on printer!!
   !"
40 PRINT : PRINT : LET l=5,h=
   100000
50 PRINT "How many decimal pl
   aces do you require ? ":
   PRINT : PRINT : PRINT : PR
   INT "Choices are:- 50, 100
   , 150, 200, 250, 500, 1000
   , 2000, 3000, 4000, 500
   0, 6000, 7000, 8000 or 100
   00 places.
```



```

Please pick on
e of these.": INPUT "Your
choice, please. ";de
60 DIM P(DE/5+2): DIM T(DE/5+
2)
70 LET t=INT (de*1.66)
80 POKE SVAR 632,0,0,0: REM t
iming routine
90 IF de<=50 THEN GOTO 240
100 IF de<=100 THEN GOTO 250
110 IF de<=150 THEN GOTO 260
120 IF de<=200 THEN GOTO 270
130 IF de<=250 THEN GOTO 280
140 IF de<=300 THEN GOTO 290
150 IF de<=350 THEN GOTO 300
160 IF de<=400 THEN GOTO 310
170 IF de<=450 THEN GOTO 320
180 IF de<=500 THEN GOTO 330
190 IF de<=550 THEN GOTO 340
200 IF de<=600 THEN GOTO 350
210 IF de<=650 THEN GOTO 360
220 IF de<=700 THEN GOTO 370
230 IF de<=750 THEN GOTO 380
240 LET t(11)=h/2: LET p(11)=h
/2: LET b=12: GOTO 390
250 LET t(21)=h/2: LET p(21)=h
/2: LET b=22: GOTO 390
260 LET t(31)=h/2: LET p(31)=h
/2: LET b=32: GOTO 390
270 LET t(41)=h/2: LET p(41)=h
/2: LET b=42: GOTO 390
280 LET t(51)=h/2: LET p(51)=h
/2: LET b=52: GOTO 390
290 LET t(101)=h/2: LET p(101)
=h/2: LET b=102: GOTO 390
300 LET t(201)=h/2: LET p(201)
=h/2: LET b=202: GOTO 390
310 LET t(401)=h/2: LET p(401)
=h/2: LET b=402: GOTO 390
320 LET t(601)=h/2: LET p(601)
=h/2: LET b=602: GOTO 390
330 LET t(801)=h/2: LET p(801)
=h/2: LET b=802: GOTO 390
340 LET t(1001)=h/2: LET p(100
1)=h/2: LET b=1002: GOTO 3
90
350 LET t(1201)=h/2: LET p(120
1)=h/2: LET b=1202: GOTO 3
90
360 LET t(1401)=h/2: LET p(140
1)=h/2: LET b=1402: GOTO 3
90
370 LET t(1601)=h/2: LET p(160
1)=h/2: LET b=1602: GOTO 3
90
380 LET t(2001)=h/2: LET p(200
1)=h/2: LET b=2002: GOTO 3
90
390 FOR n = 1 TO t
400 CLS : PRINT "Computing Ter
m ";n;" of ";t;" Terms"
410 LET x=2*n-1: GOSUB 620: GO
SUB 620
420 LET x=8*n: GOSUB 670
430 LET x=2*n+1: GOSUB 670
440 GOSUB 720: NEXT n
450 LET c=0: FOR i= 1 TO b
460 LET p(i)=p(i)*6+c
470 LET c=INT (p(i)/h)
480 LET p(i)=p(i)-c*h
490 NEXT i
500 CLS : LPRINT : LET fiftiet
hs=PEEK SVAR 632+(256*PEEK
SVAR 633)+(65536*PEEK SVA
R 634): LET sec=fiftieths
DIV 50: LET min=sec DIV 60
: LET sec=sec MOD 60: LET
fiftieths=fiftieths MOD 50
: LPRINT "Time taken to fi
nd answer= ": LPRINT min;"
Minutes ";sec;" Seconds."
: LPRINT : LPRINT p(b);"."
;
510 FOR i=b-1 TO 1 STEP -1
520 LET a$=STR$ (p(i))
530 IF i/10=INT (i/10) THEN LP
RINT : LPRINT " ";
540 IF VAL a$<10000 AND VAL a$
>999 THEN LPRINT 0;
550 IF VAL a$<1000 AND VAL a$>
99 THEN LPRINT 00;
560 IF VAL a$<100 AND VAL a$>9
THEN LPRINT 000;
570 IF VAL a$<10 AND VAL a$>0
THEN LPRINT 0000;
580 LPRINT a$;" ";
590 NEXT i
600 LPRINT " ": LPRINT : LPRIN

```

```

T "= PI to ";de;" decimal
places ONLY:-": LPRINT : L
PRINT "The figures printed
after ";de;" places are
NOT accurate and shoul
d be deleted."
610 STOP
620 LET c=0: FOR i = 1 TO b
630 LET t(i)=t(i)*x+c
640 LET c=INT (t(i)/h)
650 LET t(i)=t(i)-c*h
660 NEXT i: RETURN
670 LET c=0: FOR i = b TO 1 ST
EP -1
680 LET z=t(i)+c: LET c=0
690 LET q=INT (z/x): LET t(i)=
q
700 LET c=h*(z-q*x)
710 NEXT i: RETURN
720 LET c=0: FOR i=1 TO b
730 LET p(i)=p(i)+t(i)+c: LET
c=0
740 IF p(i)<h THEN GOTO 760
750 LET p(i)=p(i)-h: LET c=1
760 NEXT i: RETURN

```

Mr Hunter reckons it's hardly worth printing, but I thought we'd have it in. Why? Because you might need a start to put you on the right lines for the program you're going to write for me. You see, Mr Hunter wonders if anyone has a truly efficient algorithm for computing Pi to any specific number of decimal places, to run in Basic on our trusty SAM? (or Spectrum of course). Please could you send them in, indicating in a few accompanying lines how long your program will take to calculate to 200 decimal places, what unusual features it has, and how you could speed up any 'pinch points' by using a few odd lines of code. I look forward to seeing the results.

Next we have a snippet from Ettrick Thomson, of Grundisburgh, Suffolk, a frequent contributor to our pages. He took the Langford program on anagrams, modified and translated by Roy Burford,

and has further developed it. I don't like including modifications of only a couple of lines, but this one's had quite a lot of face-lifting, and is therefore well worth including. Although the nested listing gives it away as a SAM program, I can't see anything that would stop it running on a Spectrum.

```

2 REM Anagrams by Ettrick Th
omson
4 REM a variation on the Lan
gford/Burford program
10 PRINT AT 0,12;"ANAGRAMS"
20 PRINT "'Give the computer
a three-letter word or st
ring"
30 PRINT "anagrams of it will
be listed"'"(if they are
in the program's diction
ary)"
40 DIM d$(110,3): LET n=109
50 FOR i=1 TO n: READ d$(i):
NEXT i
60 DATA "ate","ant","arm","ad
d","and","ago","art","bus"
,"ban","bad","but","bun","
bog","big","cab"
70 DATA "den","dad","dan","da
m","did","dim","dab","dog"
,"eat","end","elm","ewe"
80 DATA "fim","fan","fun","fa
d","far","fag","for","fro"
,"fly","fed","fig","gas","
gat","gip","god","gob","ge
t"
90 DATA "hen","hit","her","hi
m","hot","its","ire","job"
,"key","kit","lip","lid","
lad","mad","mid","man"
100 DATA "not","net","ned","ni
p","nab","nub","nob","one"
,"out","opt","put","pig","
pot","pin"
110 DATA "ram","ran","run","re
d","rot","rip","rob","rat"
,"rag","rie","sad","sub","
sit","son","sag","sin","sa
m","sip","sat"

```

```

120 DATA "tea","ton","tan","te
n","the","tag","top","tub"
,"two","tow","tar","urn","
win","wet","wee","yet"
130 DIM a(27)
140 FOR i=1 TO 27: READ a(i):
NEXT i
150 DATA 1,8,15,16,24,28,39,45
,50,52,53,55,58,61,68,71,7
5,75,85,94,105,106,106,109
,109,110,110
155 REM GOTO 400
160 PRINT "'any key': PAUSE 0
:CLS
200 INPUT "Three-letter word:
";a$
210 PRINT "Anagrams of ";a$
220 LET s=0
230 LET z$=a$+a$+a$(2)+a$(1)+a
$(3)+a$(2)
240 FOR i=2 TO 8
250 IF i=4 THEN LET i=6
260 LET w$=z$(i TO i+2)
270 LET q=CODE w$-96
280 FOR j=a(q) TO a(q+1)-1
290 IF w$=d$(j) THEN LET s=s+1
:PRINT s;" ";w$
300 NEXT j: NEXT i
310 IF s=0 THEN PRINT "no anag
rams found"
320 PRINT "'Any key for next;
Q to exit"
330 LET a$=INKEY$: IF a$="" TH
EN GOTO 330
340 IF a$<>"q" AND a$<>"Q" THE
N CLS : GOTO 200
350 STOP
400 CLS
410 FOR i=1 TO 26
420 FOR j=a(i) TO a(i+1)-1
430 PRINT d$(j);",";
440 NEXT j: PRINT : NEXT i
450 PRINT ""

```

Firstly, lines 400-450 (which can be invoked directly, or via line 155) check that the DATA statements of lines 60-120 and line 150 have been entered correctly. An obvious difference is in the

DATA section that defines the dictionary: the words are the same as before, but they are grouped under the initial letter; not necessarily in alphabetical order, but that would do. In searching the dictionary for a potential anagram, only words with the same initial letter are looked at. With this dictionary of 100-odd words, there won't be much improvement in time, but were the 1000-odd 3-letter words of 'Chambers Words' to be included, there would certainly be a difference.

The other difference is in finding the permutations (anagrams) of the given word: the permutations of 'abc' appear as consecutive three-letter groups of z\$.

Ettrick also gives me a complete run-down on Auchentoshan whisky and its relatives. Bless you, Ettrick; I have a bottle as a treat (and also to keep the Rector sweet). What, however, I really wanted was all the words one could make from it. Maybe I'll find this when I can unearth the rest of the stuff from under the rubble! Many thanks for all your trouble, and the information, Ettrick.

Next, a letter from just down the road from Ettrick - Maurice Smith of Ipswich. He had seen the request for help for Mr Stafford-Baker in last December's **Short Spot**, and hoped that Peter Garrick might respond. However, as there was no follow-up in a subsequent issue (it might still be buried, Maurice!), Maurice has supplied the following.

The index program mentioned (writes Maurice) that was in volume 3, issue 1 was by Ken Elston and enabled the user to set up appropriate arrays and so forth, and allowed additions, alterations and searches. It was written for the Spectrum, naturally, as SAM was still a twinkle in Bruce Gordon's eye in 1989. Whether this could be used with the Coupé as it stands is not clear, but in any case, compiling an index for all the

FORMAT issues from scratch at this stage would be quite a project. Moreover, since these things are shaped by individual interests, an index compiled by someone else is probably going to be not entirely appropriate.

It was in issue 11 of volume 4 in July 1994 that Peter Garrick offered to supply photocopies at £1 a time for an index covering the first four volumes of **FORMAT**, which sounded quite comprehensive, so Maurice contacted him with a view to buying a copy of the code, so that he could build his own version of the index. Peter, in turn, kindly provided a copy with the proviso that he would not publish the data, but unfortunately, the code was an opentype file from Tasword 128, hence the need to convert it as covered in the article in November 1994. Maurice has since modified and updated the index (to within two issues at present) and has also started to write a similar index for **FORMAT** PC. Mr Garrick may still be able to supply his index, but if not (and he agreed), Maurice would be able to supply a printout of his index for Mr Stafford-Baker, if he thought it would meet his requirements. The data file itself is too large for Tasword 2 on SAM, for instance. However (confession time, or at least an example of the limits of the index system), when Maurice tried to look for the "Fater" or "Fuzzy Print" program, (challenge of the month, December 1997), he failed completely. He tried searching for likely names, and also did a manual search of the index.

Oh dear. I recalled seeing this sort of thing as a part of another program, and so put it in. Ooher! I hope it *was* in **Short Spot**, or it will be humble pie for John Wase time (again). Please find it someone! Quick!

Next, we have some stuff from Roy Burford of Norton, Stourbridge (I hear

you just missed the floods, but caught the snow instead), held over from an earlier issue. This item is a neat and fun illustration of the principle of using data lines to provide the data to write a letter. The letter is shown at the bottom of the page.

All right; I know it's a bit iffy, but it will serve to show you the principle. That's the data - you can change this to suit yourself, and even set up an extra bit to allow you to include or reject paragraphs or even bits of paragraphs. At the moment, I'm doing a business start-up course as a matter of necessity (when Lorri died, so did her income), and some of those on it are hoping for managerial re-employment, and letters like this are looking *rather* familiar just now, so it's all got a little air of *deja-vu* about it!

It's set up for an 80-column printer in Line 12, and Formatting symbols are given in Lines 950 and following. By incrementing the 1 in the program name, copies of the letters may be kept on disc.

```

1 REM Input? Magazine. p126.
data-letter.
2 REM Revised on ZX Spectrum+
by B.C.R.Burford 060897.
10 PRINT AT 8,0;"Please ready
printer and then""press
any key:"
11 PAUSE 0
12 FORMAT "p";1200: REM Serial
8056 Compact Printer
14 LET LL=70: LET pL=80: REM p
L=printer characters per li
ne. LL=characters per line
of letter.
15 LET LL=LL+1: LET t=(pL-LL)/
2
20 LET d=0
30 READ a$: IF a$="zzzz" THEN
LPRINT : STOP
38 LET L=LEN a$
40 LET c=0

```

```

50 IF C=L THEN GOTO 30
60 LET C=C+1: LET D=D+1: IF C>
  1 THEN GOTO 100
70 IF A$(C)="#" THEN GOTO 500
80 IF A$(C)="*" THEN GOTO 700
85 IF A$(C)="&" THEN GOTO 850
90 IF A$(C)="$" THEN LPRINT CH
  R$ 13;CHR$ 13;: LET D=0: GO
  TO 900
95 LET A$=" "+A$: LET L=L+1
100 IF A$(C)=" " THEN GOTO 800
110 LPRINT A$(C);
115 IF D=LL THEN LET D=0
120 GOTO 50
500 LET NL=0: LET TA=LL: LET BE
  =0
510 LET LE=LEN A$-1: IF LE>LL T
  HEN PRINT FLASH 1;"Format e
  rror-address too long": PAU
  SE 200: FLASH 0: STOP
520 IF LE>BE THEN LET BE=LE
530 LET NL=NL+1: READ A$: IF A$
  (1)="#" THEN GOTO 510
540 RESTORE 1000

```

```

550 LET TR=T+LL-BE: FOR G=1 TO
  NL: FOR H=1 TO TR: LPRINT "
  ";: NEXT H: READ A$: LPRIN
  T A$(2 TO ): NEXT G
560 GOTO 30
700 LET TA=(LL-L)/2: IF TA<T H
  EN LPRINT CHR$ 13: PRINT FL
  ASH 1;"Format error-cannot
  centre": PAUSE 200: FLASH 0
  : STOP
710 LPRINT CHR$ 13;: FOR N=1 TO
  TA: LPRINT " ";: NEXT N: L
  PRINT A$(2 TO L): GOTO 20
800 LET SL=LL-D-1: LET CC=C+1:
  LET X=1
810 IF CC=L THEN GOTO 825
820 IF A$(CC)<>" " THEN LET CC=
  CC+1: LET X=X+1: GOTO 810
825 IF X>=LL THEN LPRINT CHR$ 1
  3: PRINT FLASH 1;"Format er
  ror-word too long": PAUSE 2
  00: FLASH 0: STOP
830 IF SL>X THEN GOTO 110
850 LPRINT CHR$ 13;: LET D=0

```

3 Snodgrass Gardens,  
Taustenburg,  
5th March, 1984.

Mr Hiram Firem,  
Production Director,  
Firem Electrical Engineering Co., Ltd.,  
22 Station Road,  
Taustenburg,  
TAS 1AT

Dear Mr Firem.

Engineering Trainee

I wish to apply for the above position, as advertised in today's  
'Taustenburg' Chronicle.

As you will see from my CV, enclosed, I am an ex pupil of  
Taustenburg Grammar School, where my five O-levels included  
English, Mathematics and Physics.

In addition, I do have a little practical experience in electrical  
work - at home, where I helped my father (a qualified electrician)  
revire our house, and at school where I was a keen member  
of the electronics club and as such helped build the school's  
public address system.

I have always wanted a career in electrical engineering and should  
you decide to appoint me, will find me an enthusiastic worker.

I should be grateful for the opportunity of an early interview.  
In the meantime, copies of my references are enclosed.

Yours sincerely,

Kenneth Sparks.

```

1030 DATA "$"
1040 DATA "$Mr Hiram Firem,"
1050 DATA "&Production Director,"
"
1060 DATA "&Firem Electrical Eng
  ineering Co. Ltd.,"
1070 DATA "&22, Station Road,"
1080 DATA "&Taustenburg,"
1090 DATA "&TAS 1AT"
1100 DATA "&"
1110 DATA "&"
1120 DATA "&Dear Mr Firem,"
1130 DATA "&"
1140 DATA "&Engineering Trainee"
1150 DATA "&"
1160 DATA "&I wish to apply for
  the above position, as adve
  rtised in today's"
1165 DATA "&'Taustenburg Chronic
  le'."
1167 DATA "&"
1170 DATA "&As you will see from
  my CV, enclosed, I am an e
  x pupil of"
1175 DATA "&Taustenburg Grammar
  School, where my five O-leve
  ls included"
1177 DATA "&English, Mathematics
  and Physics."
1179 DATA "&"
1180 DATA "&In addition, I do ha
  ve a little practical exper
  ience in electrical"
1182 DATA "&work - at home, wher
  e I helped my father (a qua
  lified electrician)"
1190 DATA "&re-wire our house, a
  nd at school where I was a
  keen member"
1200 DATA "&of the electronics c
  lub and as such helped buil
  d the school's"
1202 DATA "&public address syste
  m."
1204 DATA "&"
1210 DATA "&I have always wanted
  a career in electrical eng
  ineering, and should"
1212 DATA "&you decide to appoin

```

```

t me will find me an enthus
  iastic worker."
1216 DATA "&"
1220 DATA "&I should be grateful
  for the opportunity of an
  early interview."
1222 DATA "&In the meantime, cop
  ies of my references are en
  closed."
1230 DATA "&"
1240 DATA "&Yours sincerely,"
1250 DATA "&"
1260 DATA "&"
1270 DATA "&"
1280 DATA "&Kenneth Sparks"
1900 DATA "zzzz"

```

Now back to the Spectrum, and Gerald Symes of Winchester. He has a little tale of woe here, which has a happy ending. His 3" drive on his Spectrum +3 packed up over a year ago, and he hasn't been able to use it until now, when he acquired an external 3½" drive. Fine: we'll try and unravel this. I can read it on my +3 without difficulty, and just hope I can get it back on tape and into my +2, for I've forgotten where all the bits are to work my RS232 link....

Half an hour later, a long look at the +3 textbook (I'd forgotten the syntax), some dirty work with the volume control on the tape recorder, and a climb over some furniture that was temporarily in the way, and it was in the +2 and onto disc 2; the 3½" one as disc 1 is 5¼". Gottem!

Gerald also sent a shuffle program for a pack of cards. This takes around five seconds for 52 cards, and he wonders if there's a quicker way. I think we've seen this before, but since we have an enquirer, it's a fair bet that lots of others have forgotten as well. So here it is: how can we improve this, folks?

```

10 REM PROG: SHUFFLE
20 REM This shuffles 10 letter
  s but could be 52 cards.
30 RANDOMIZE

```

# THE MILLENNIUM FILES

By:- Jenny Bundock.

```

40 PRINT "Press 'BREAK' to STO
P": PRINT
50 DIM p$(10): REM Pack
60 POKE 23672,0: REM Time take
n
70 LET q$=""
80 FOR p=1 TO LEN p$
90 LET q$=q$+CHR$(p+64)
100 NEXT p
110 REM Ordered pack gives posit
ions vacant.
120 REM PRINT q$: STOP
130 REM Shuffle
140 FOR c=1 TO LEN p$
150 LET rp=INT (1+LEN q$*RND):
REM Random choice from car
ds left.
160 LET p$(c)=q$(rp)
170 LET q$=q$( TO rp-1)+q$(rp+1
TO ): REM Shorten list of
cards.
180 NEXT c
190 PRINT p$,PEEK 23672
200 GOTO 50
210 STOP
220 SAVE "b:shuffle": STOP

```

Finally, now we've got the cards shuffled, let's deal 'em out. This deals 4 bridge hands, each of 13 cards. Poor Gerald finds this rather slow, at around 5 seconds, and wonders if there's a way to hurry things along a bit. Can you help?

```

5 REM PROG: DEAL
10 REM This deals four hands w
ith a random distribution.
15 GOSUB 500: REM Create symbo
ls for suits.
20 DIM h$(4,17): REM Bridge ha
nds
30 DIM h(4): REM Hand counter
40 LET v$="AKQJ98765432"
50 LET s$="ABCD":REM UDGs
60 RANDOMIZE 99: REM Can be
changed as wanted.
100 FOR s=1 TO 4
110 FOR h=1 TO 4
120 LET h(h)=h(h)+1
130 LET h$(h,h(h))=s$(s)

```

```

150 NEXT h
160 FOR c=1 TO 13
165 LET r=INT (1+RND*4)
175 IF h(r)>(12+s) THEN GOTO 16
5
180 LET h(r)=h(r)+1
190 LET h$(r,h(r))=v$(c)
200 REM LET l(r,s)=l(r,s)+1
260 NEXT c
280 NEXT s
310 FOR h=1 TO 4
320 PRINT AT h*2,0;h$(h)
340 NEXT h
380 STOP
500 REM Graphic data
510 LET adg=USR "A"
520 FOR a=adg TO adg+39
530 READ b: POKE a,b
540 NEXT a
550 RETURN
600 DATA 0,28,28,107,127,107,8,
28
610 DATA 0,8,28,62,127,62,28,8
620 DATA 0,34,119,127,127,62,28
,8
630 DATA 0,8,28,62,127,127,73,2
8
640 DATA 0,76,82,82,82,82,76,0
700 CLEAR: SAVE "b:DEAL": STOP
710 SAVE "b:dealfigs.usg"CODE U
SR "A",128: STOP

```

Many thanks, Gerald.

Right loyal readers, that is all I've got for you this month. I hope you have enjoyed this month's selection and that if the actual routines themselves were not exactly what you wanted then at least you learnt something from other people programming efforts.

Please keep all your snippets coming to me; without them I can't put a column together. Please send them to:-

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

See you next month.

I expect anyone of you reading this would have seen or heard something about the year 2000 computer problem. Quite a bit has happened since my last *Millennium Files* which was in Vol.11 N°3 of *FORMAT*, way back in November last year. As a result of that article I have received a few press clippings from readers and have spoken to a number of members on the telephone, which proves that the majority of my readers are as interested in the subject as I am, and are paying attention to this bizarre situation.

Well, here once again is an update, compiled from my regular series of articles in *FORMAT* PC.

In the December/January issue of *FORMAT* PC, (as it was the season to be cheerful) I did concentrate on the funnier aspect of the millennium bug. Now, if you would like a good giggle then send me five first class stamps and I shall send you a copy with your next *FORMAT*.

\*\*\*\*\*

According to a study carried out by a UK Consultancy firm 'Corporation 2000' they predict that key services will break down through a combination of technology failures, logistics and business pressures as a result of the 2000 crisis. Their predictions for London at the turn of the century are:-

- Banks closing for most of January 2000.
- Telephone lines only operating properly 75% of the time.
- Massive disruption of power supplies during December 1999 and the

following January.

- Stock market closed between 1st December 1999 and 24th January 2000.
- Ten days of disruption of the postal service.
- Schools closed for four weeks.
- Hospitals only open for emergencies for four weeks.

The Government have been accused by Corporation 2000 and other leading year 2000 specialists that they are not doing enough to tackle the problem and that they need to concentrate more on the millennium crisis than on millennium celebrations.

Under the previous (Conservative) government, Taskforce 2000 was established to raise public awareness of the problem and to warn companies and businesses that if they don't act quickly to ensure their systems are year 2000 compliant they may suffer major disruption, even bankruptcy.

Robin Guenier, head of Taskforce 2000 has been (and still is) working diligently to keep plugging the year 2000 message to politicians and the media. But after a long stormy relationship between him and Whitehall, the Government finally withdrew all funding from Taskforce 2000.

Action 2000 was then set up in conjunction with industry bodies including Taskforce 2000 (which is now funded by the private sector and still being run by Robin Guenier), the Confederation of British Industry (CBI),



the Computing Services and Software Association (CSSA), the Federation of the Electronics Industries, Department of Trade and Industry (DTI), the National Computing Centre (NCC) and the British Bankers Association.

Don Cruickshank who was appointed chairman for Action 2000 is pushing for a tenfold increase in the £1 million annual budget to deal with the issue. Their 'Millennium Bug' campaign will be to provide direct support to Small to Medium-sized Enterprises (SME) and to encourage large firms to help the smaller ones. The support is available via a help-line and Web site.

Action 2000 (nicknamed *Inaction 2000*) and the Government have been severely criticized in many recent publications for wasting time and underestimating the seriousness of the matter. Having said that, Gordon Brown in his last budget introduced a millennium tax allowance. This will enable companies to offset the cost of defusing the millennium bomb, which means any expenditure incurred will be fully recoverable against corporation tax or income tax.

When the millennium bomb explodes it will in the middle of Labour's first term, and according to experts the first victims will be the old, the sick and the unemployed. Although these vulnerable people have almost no conscious dependence on computers, they rely on governments for regular income and assistance.

But, come 2000, the effects on government will be magnified by bureaucracy, shortage of cash and aged computer equipment and software. Experts believe that it will be social security payments, unemployment benefits and state health service equipment most at risk.

There is also growing concern that the year 2000 problem could be a threat to human lives. For the NHS - and its patients - failure in medical equipment could be anything from irritating to disastrous.

For instance, it has emerged that infusion pumps in intravenous drips will stop working after the millennium. The pumps contain a chip whose purpose is to measure out the correct drug and fluids dosage to the patient. But this can become inaccurate over time and needs to be recalibrated regularly.

The embedded chip registers when the last calibration took place and compares it with the current date in its internal time-clock. If no calibration has taken place, the pumps issue an alert and shut down altogether after six months on the basis that they are probably dangerous. When the millennium arrives the date calculation will indicate that the last recalibration took place nearly 100 years ago, causing the pump to shut down. It's easy to fix but every single one has to be checked, and there could be five in every ward in every hospital.

Heart pace-makers could be affected too. Every time a heart pace-maker detects an irregular heartbeat it sends a shock to the system and then records the time the event occurred. This information is regularly downloaded and the pace-maker resets itself. The downloaded information is used by cardiologists to detect patterns and irregularities in the patient's heart rhythms. If the software in the receiving system starts recording faulty times for the shock deliveries, the cardiologist could misinterpret the results and administer improper medical care.

According to an audit carried out by Canterbury Health, dialysis patients may

be at risk from the date bug. Dialysis machines were among about 1500 pieces of medical equipment, of 4500 checked, that are likely to need enhancements to used past the year 2000.

The dialysis units, use electronics to monitor cycles and blood flow, and, are time-dependent.

At the moment the predictions are, that hospitals will accept emergencies only during January 2000. The NHS are working on contingency plans and have instructed hospitals to do the same. The problem right now with local authorities and the health sector is the lack of cash and a shortage of skills to fix the bug.

Some watches may be affected as well, I read somewhere about this guy who programmed his watch to read 11.55 p.m. December 31st 1999, and let it run. At midnight, the digital readout went blank. After failing to get the watch ticking, he wrote to the manufacturer. They replied saying the watch had a design flaw. When the year reached 00, the battery drained inside the watch, burning up the components!

Year 2000 compliancy in PCs refers to their ability to handle dates after 31st December, 1999. Just to re-cap, there are three major issues with which the PC has to be able to cope:-

- > *Accepting and representing dates after 31/12/1999 in a correct format.*
- > *Coping with the transition from 21/12/1999 to 01/01/2000.*
- > *Dealing correctly with leap years after 1999, especially the first one in the year 2000.*

These are processed at three different levels in a standard PC:

- > *The real-time clock, the battery-backed hardware timer which keeps track of date and time information within the PC.*
- > *The Basic Input Output System (BIOS)*

- *the special read-only memory containing code that interfaces the PCs hardware and devices with the operating system.*

- > *The operating system level - Windows 3.1, Windows 95 etc.,*

UK police could be forced to shut down their IT systems because of doubts over millennium compliance and a lack of funds to fix the problem.

Plans for forces to temporarily switch off systems on 31st December 1999 are under discussion as an option to avert a policing nightmare. They are looking deeply at what problems they'll have and how much money they'll have to fix them. Possible disasters include failing command and control systems, leading to delays in responding to emergency calls, and frozen electronic locks on police stations cells.

Police forces around the country along with other armies of workers have been told they are to cancel all leave and rest days for the holiday season of December 1999 and January 2000 describing the period as a 'Millennium Emergency'. A spokesman for Derbyshire police said "It will be a stressful time, not just because of all the extensive partying but because of all the other potential problems such as computer breakdown. We are anticipating potential chaos, with traffic lights and street lights going wrong, so we need to be sure we have enough people to cope"

As a result of police warnings about traffic congestion, London Electricity will be issuing mountain bikes to its engineering staff!

Airline pilots from more than 90 countries have stated that they may refuse to fly in January 2000 because of fears over the millennium bug according to reports.

The United Nations have written to 160 air transport organizations around the world asking for updates on their plans to eradicate the Y2K bug. Pilot concerns centre on whether certain airlines and air traffic authorities are doing a proper job checking their own systems. Parts of central Africa, Asia and southern Europe are seen as the most risky.

Older air traffic control computers need to be replaced before hundreds of thousands of people are affected by increased airline costs and degraded levels of safety. If computer clocks are wrong, controllers might not be able to tell the exact altitude and speed of aircraft or the distance between aircraft, which could cause flights to be delayed or grounded.

In general, the UK banks are said to be better prepared for the millennium than most firms in other sectors, and that they are ahead of the game. Although credit firms and banks are delaying sending out cards with post 2000 expiry dates because of concerns that they may not be accepted abroad. The large majority of UK retailers should be able to cope, but travellers abroad are advised to take other means of payment.

Banks and credit companies had hoped to launch 00 expiry dates sooner but ensuring that electronic points of sale terminals are millennium compliant has proved a bigger task than anticipated. The build up of cards expiring in December 1999 could create an administrative burden for issuers at a time when they'll have other problems to sort out. Also banks face an increase in costs as more cards are being issued with a shorter life cycle than usual.

Companies can expect no insurance cover for losses from a year 2000 failure,

even if they take reasonable precautions. The Association of British Insurers (ABI) sent model year 2000 'exclusion clauses' recently to all its member insurers. Designed to be added to a range of standard corporate policies, they specify that any loss suffered due to a year 2000 failure will not be covered.

Only extreme risks, known as defined peril, such as a computer crash caused by fire or flood, will remain insured. Excluded will be any 'damage or consequential loss directly or indirectly caused by the failure of any computer .....or any computer software, whether the property of the insured or not'.

As you now know, we had a break-in here recently and lost most of our computer equipment. It soon became clear to us that putting in a claim for your computer equipment from now demands that you convince your insurance company that your system was year 2000 compliant. The reason for this is insurance companies want to put a stop to computer owners 'willfully damaging/doing away with' their old systems so as to upgrade, at the insurers cost, in time for the great roll over.

The BBC are to broadcast a series of public warnings about the threat of the year 2000 problem. The first of the information films will be broadcast on May 21st.

A Hollywood thriller about the looming catastrophes is on the way. Warner Brothers is said to have bought the rights to script outline, provisionally titled Y2K, for a six-figure sum. The film will, presumably, be a disaster movie!

Well, that's all I've got room for this time. I hope to gather enough information for another in a few months time so please send in any clippings you find.



# YOUR LETTERS

**Dear Editor,**

I would just like to say a big thank you to you and your staff for organizing the Gloucester shows. They are really wonderful events as I get to talk to so many enthusiastic Spectrum and SAM users.

You asked recently if you should try a Sunday show. My reply would be no, please don't. Sunday is the one day that I have free to spend with my wife and I think she would object if I suggested a trip to Gloucester for her as well. Sorry, but Saturday will always be best for me.

*Yours sincerely, Philip Thomas.*

Thanks for taking the time to write and comment Phil. We have had a hand full of letters on the subject and, so far anyway, Saturday is the (almost) unanimous choice.

The next show will be on Saturday the 17th October at the usual venue here in Gloucester. However, I'm still open to representations from Sunday people if you would care to write so maybe next Spring's show will be a Sunday if the demand is there. **Ed.**

**Dear Editor,**

I have the 48K Spectrum version of CAMPION Spreadsheet, will this run on the SAM using the Specmaker emulator from S.D. Software, if not, is the SAM version available and how much does it cost?

*Yours sincerely, Mr M. Benjamin.*

The Spectrum version will run but it would be easier to obtain the SAM version. To do this all you need is a new

disc (the manual is the same for both versions). If you ordered your Spectrum version direct from Revelation then just send them and order, the disc costs £5 including p&p. If you bought Campion at a show or from someone else, then just send your original disc (not a working copy) back with your order and it will be returned to you with the SAM disc. **Ed.**

**Dear Editor,**

This letter is to confirm my phone call concerning my temporary change of address due to the problems I am having with the post going astray.

Just thought that I'd tell you about this. Looking in the latest CU Amiga magazine, May 1998, the back page has a write up about the SAM, but says it was born in 1989 and died in 1991 etc., It does mention that it is on the WWW but doesn't mention that it is still being made.

Anyway, thank you for your help and keep up the good work. Although I now have a PPC Amiga, I still use the Spectrum 'cos I still like typing in programs. I believe that a lot of other Spectrum user's that have down graded to PCs still love using their Speccies, although I use the Amiga for a lot of rendering as I do a lot of animation, its a lot faster than a PC.

*Yours sincerely, Phyl Smith.*

People have been trying to kill off 8 bit computers for years, so I'm not surprised at the ignorance shown by CU. Still, at least **FORMAT** readers know their favourite machines are alive and well.

Why don't you write to CU and tell

them about their mistake, it may not do any good, but it certainly will not do any harm. If a few more letters appeared in the main-stream press about the Spectrum and SAM then I'm sure it would bring a lot more users out of the closet. **Ed.**

**Dear Editor,**

I see from the latest issue of *FORMAT*, that you are still looking for a source of supply for binders for the magazine.

You may wish to know that I am using A5 binders from W.H.Smith. These are ring binders and you therefore have to punch two holes in the magazine but as your margins are wide, the holes do not interfere with the text. The binders also have the advantage of taking a large number of magazines. I have all copies of *FORMAT*, starting with the very first issue, in 8 binders.

I don't recall seeing any mention of these binders in previous issues of *FORMAT* so I hope this may be of some use.

*Yours sincerely, Bill Lawrie.*

I've heard of a couple of people who use one form of ring binder or another, but most people seem reluctant to punch holes in their magazines.

I'm currently looking for an A5 slip-case to use instead of a binder. Does anyone know (or better still work for) a company that works with card? If so I would appreciate a chat on the subject. **Ed.**

**Dear Editor,**

I have read your article in the February issue and Mark Sturdy's letter in March and I cannot disagree with either. I do, however, wonder whether we are able to use our existing SAMs to their full capacity. Mark Sturdy mentioned an internal hard drive system called Atom and a program called Commix. I have never heard of either of these, and I wonder how many SAM users have. It

seems to me that we do not know what hardware and software is available for SAM.

I think the reason for this is that magazines like *FORMAT* need advertising revenue to survive, but most SAM hardware and software suppliers exist on a shoe string and cannot afford to pay for advertising. The result is we go into a downward spiral. Lack of perceived software and hardware causes users to abandon their SAMs. Lack of orders for SAM suppliers causes them to go out of business. Lack of SAM users and suppliers causes magazines like *FORMAT* to fold. Is this what they call a Catch 22?

Dare I suggest a way out? If the suppliers listed in the *FORMAT* directory were to commit brief details of their wares to disc in a similar format to that used by SAM PD and these were collected by *FORMAT* and compressed on to one disc, *FORMAT* could supply this disc to SAM users at a charge that would cover expenses and contribute to profits (pause for Editors comment), but *FORMAT* to survive must build up some capital.

I also wonder if it is possible for software to be produced to enable SAM to read and amend files in some of the popular PC formats. I am thinking of database files, word processor files and perhaps spreadsheets so that SAM users, memory permitting, can bring work home from the office.

P.S. I have just put this through a spell checker which suggests that 'SAMs' should be written as 'jams'.

*Yours sincerely, John Avis.*

Like the PS John, raised a grin here. As to the rest, well yes, *FORMAT* does need advertising revenue to print larger issues, and it is true that advertising revenue has dropped in recent years. To help this along we did start our annual Resource Guide (third edition currently

being prepared for later this year if anyone wants to send in their details).

However, it is not really as simple as you suggest John. If software or hardware suppliers want to stop 'existing on a shoe-string' they need to advertise and they need to handle their publicity in a reasonably professional way. We do, and have done since we started, a lot to encourage new people to 'have a go'. But ultimately they have to help themselves as well. I've heard comments at shows, or over the phone, like "why haven't we heard about this product or that product?" To which I reply "we haven't had a press release on it."

My recommendation to people has always been; send a press release for News On 4, then follow up with a short run of adverts (three ads give the most cost effective way of trying something). Keep in mind that people will be wary of the first advert they see, it is simple human nature. But if you budget for three ads, and your press release is interesting enough that it gets printed, then you should start to see your product take off.

Certainly a few years ago *FORMAT* would not have been able to survive with the level of advertising we have today, but we have been able to reduce our overheads quite a bit and the cross subsidy from other things, like handling Revelation orders for them, and dealing with West Coast sales, have all helped to keep the magazine side on a firm footing.

We are here to help anyone who wants to start their own business, both on the Spectrum/SAM side and on the PC. It is in our interests to help, but we can only go so far, unless people have the right attitude.

Now your list bit, on using PC data, I'll throw open to other readers for comments.

Thanks for your letter John, anything that sparks discussion is welcome here. **Ed.**

**Dear Editor,**

I note that you still have my £20 for the SAM CLOCK. I am surprised that you advertise this item in every issue of *FORMAT*, in view of the delay. If this is not forthcoming very shortly can I have my £20 back please. Perhaps you could print this paragraph of this letter in *FORMAT* and see if other members are of the same opinion.

*Yours sincerely, G.S.Hathorn.*

As I've explained in the letters we sent out last year, and in more detail several times in recent *FORMATs*, there were big problems with the SAM\_CLOCK, some caused by the PCB production and others by the very poor spec sheets issued by the chip company.

However, anyone who visited the April show will have seen the final version, and we are desperately working to get them built and out the door as quickly as possible. My target had been to get all old orders done by the end of April but that was thwarted by the amount of time I've had to spend recently dealing with insurance companies. Still, we are catching up as fast as we can, and all orders are being dealt with in strict rotation. **Ed.**

**Dear Editor,**

I've owned a Spectrum for over ten years but I'm now getting a bit worried about how much longer I'm going to be able to carry on. The problem is the keyboards you see.

My original rubber-key jobby wore out years ago, since then I've used a DKTronics and a Lo-Profile, but both are now past their best. Where can Spectrum owners get new keyboards from these days? I just don't know what I would do without my Speccy to pass the time with now I'm retired.

*Yours sincerely, John Fenter.*

This is a problem that keeps coming up. There are no replacement keyboards

in production these days so your only hope would be to find a second hand one.

The other option would be to look at the Pro-Face being produced in Germany by Sintech (see News On 4, vol.11, N°3 for details). I've not had one to play with myself (yet) but I've heard good reports. This allows a standard PC keyboard to be plugged in and so in many ways provides the best long-term solution. **Ed.**

Dear Editor,

I've heard on the grapevine that there is a hard drive interface for the Spectrum computers available. Is this true, and if so do you have any details that you can give me?

*Yours sincerely, Martin Dale.*

There is a design for an IDE hard drive interface, which I think was developed in Germany. I understand that SD's SAM IDE interface was based on this design. However, as yet I don't think there are any interfaces available commercially for the Spectrum.

I think the problem is simple, the hardware is the easy part but software development takes a long time. These days I think it would need someone like ourselves to launch a hard drive interface for the Spectrum and, to be honest, so far there has not been much interest expressed.

Now, if your letter sparks a flood of letters saying "yes please, I would look at buying one if it was available at the right price" then maybe we could look at it as a future project. What do readers other readers think? Write and let us know. **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 Email us at [FormatPub@aol.com](mailto:FormatPub@aol.com).



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# Sounding Better!

By:- Matthew Gallagher.

What is it with using a TV with a computer? You either get good sound OR a good picture, but never both together! I've always had this problem with my Spectrums (+2A and +3) and when I first got SAM it was exactly the same. However, one quick read through the SAM Manual later I realised that I could apply the same fix to SAM that I'd earlier applied to my Spectrums.

What I'd done was to buy a pair of speakers with a built-in amplifier that were designed for use with Walkmans (walkmen?) and used the diagram in the Spectrum manual (reproduced below as Fig.1) to wire the Tape/Sound socket to the speakers.

Now although the speakers run in stereo, output from the Tape/Sound socket is mono. However, the improvement over the TV sound is dramatic and if you're just a tiny bit

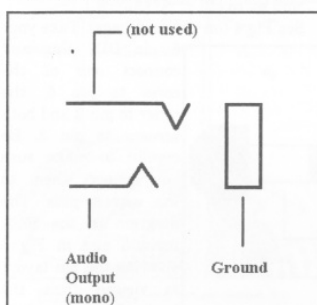


Fig 1. Spectrum Sound Connection



- 1: 5 volts (not used)
- 2: Audio Left Output
- 3: 0 volts (Ground)
- 4: Spkn (not used)
- 5: Audio Right Output

Fig 2. SAM's Sound Connector

familiar with a soldering iron the job is dead easy.

Before I start telling you how it's done, let me also mention how the same solution can be applied to SAM. As you'll know, the back of SAM is absolutely bristling with sockets to plug in external devices, and yet with all the hardware and software available, the one un-used socket remains - the Light Pen socket. Well for the anoraks out there who've got SAM running as part of a MIDI / Network set up, with a joystick, hard-drive, tape recorder (for those Spectrum tape games that just will not convert to Plus D snap files) and a SCART TV all plumbed in together - at last you can fill that last gaping socket!

The SAM manual indicates that of the five pins (see Fig.2 above) that make up the light-pen output three will give us STEREO sound at our finger tips, pin 2



carries audio left, pin 5 audio right and pin 3 (0 volts) serves a ground to them both.

What you will need:-

- ✓1. Powered Walkman speakers. e.g Index catalogue p129 items 21/22/23 £14.99 - £39.99. Argos catalogue p398 items 4/5/6 £9.99 - £34.99. Maplin catalogue p47 Rj94C/MK51F £14.99 - £16.99 - details correct at time of writing.
- ✓2. For Spectrum sound - 3.5mm stereo jack plug. (Available from Maplin or Tandy)
- ✓3. For SAM sound - 5 pin DIN plug Type A (also known as 180 degrees). (Available from Maplin or Tandy)
- ✓4. Batteries or power supply for the speakers (shop around, some speakers already come with a suitable mains adaptor, if not you can readily buy a suitable one)

**WARNING:** This project will change the speakers wiring so that they can no longer be plugged into a Walkman - so don't use your brothers/sisters or any other relatives speakers - they WILL notice. If you're concerned about maintaining the option of plugging the speakers into a walkman then you'll need

to make up an adaptor lead but, although I have chosen this option and successfully done this myself, this is outside the scope of this article, so you'll need to make up your own adaptor lead and just read the information below to give you ideas.

#### WHAT YOU DO

Cut the 3.5mm plug already fitted to the speakers you've bought, separate the two wires up to about 2 cms from the (now bare) end of the cable. One of these wires will carry the left channel signal the other the right. Strip the outer and inner insulation from both wires to bare the outer (screen) wire and inner (core) wire.

#### For Spectrum:

See Fig.3. Take your (new) 3.5 mm stereo jack socket and wire both core wires to the centre contact and the two screen wires to the outermost contact. Make sure none of the soldered contacts are shorted (otherwise you'll hear nowt). Place one speaker either side of your TV, connect it all up, switch it on and Robert is your parents male sibling!

#### For SAM:

Slightly more complex this, deep breath ... and we're off!

See Fig.4 (on the next page). Take your 5 pin DIN plug and connect one of the cores to pin 5, the other to pin 2 and both screens to pin 3. Be careful to make sure you connect them to the correct pins. The diagram in the SAM manual and in Fig 3 showing the pin layout is viewed from the back of SAM (ie from

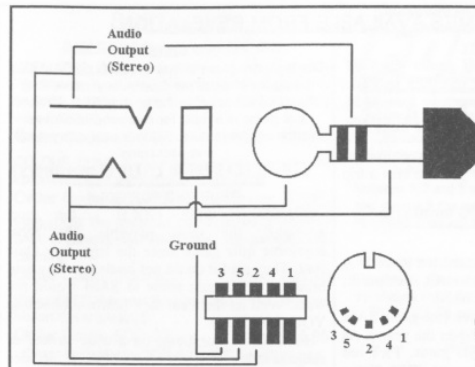


Fig 4. The SAM Connections.

the side of the plug you actually solder to). It doesn't actually matter that you work out which core carries audio left and which right because if you get them

SAM demo (or a decent game (the opening explosion of *TnT* sounds neat)) and bask in the Stereo soundscape that is SAM sound!

## FUN SPOT - FUN SPOT - FUN SPOT - FUN SPOT



Ouch!!! Designers never seem to live in the real world...

#### CONTRADICTIONS IN TERMS

Act naturally	Sweet sorrow
Found missing	Passive aggression
Advanced BASIC	Taped live
Genuine imitation	Clearly misunderstood
Airline food	Government-organization
Good grief	Peace force
Almost exactly	Plastic glasses
Sanitary landfill	Terribly pleased
Silent scream	Political science
Living dead	Tight slacks
Small crowd	Definite maybe
Business ethics	Pretty ugly
Soft rock	Rap music
Butt head	Working vacation
Military intelligence	Microsoft Works
Californian culture	Socialist Worker
New classic	D.N.

We need your jokes and cartoons to help fill small spaces. Computer related is best, but anything you find funny will do, and if you have them as a computer file - even better.

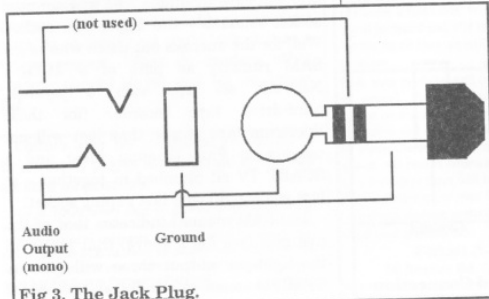


Fig 3. The Jack Plug.

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# FORMAT

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