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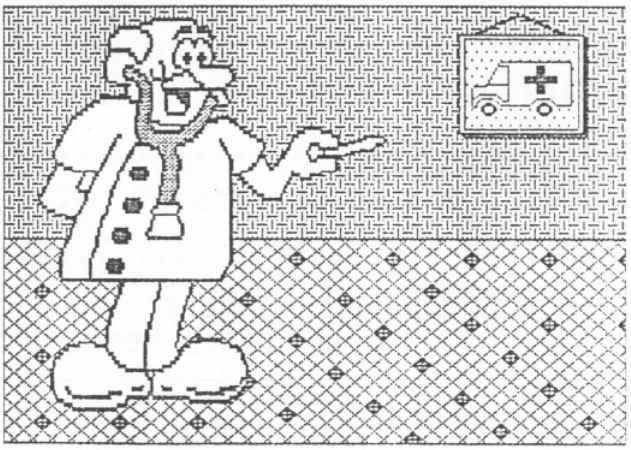
FORMAT

A Magazine from INDUG

For DISCiPLE & PLUS D Users

ISSUE #6 - JANUARY 1988



The Best Medicine for all DISCiPLE & PLUS D Owners

INDUG.

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NEXT MONTH - A Super New Competition for Indug Members.

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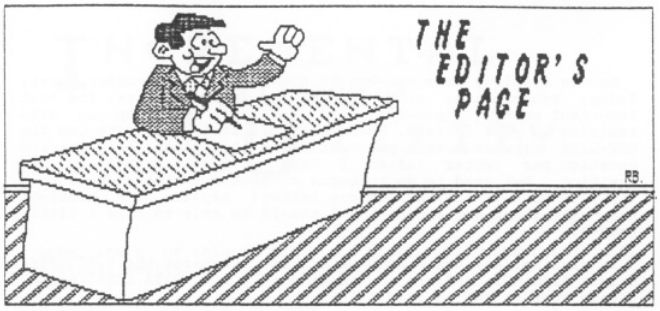

A HAPPY NEW YEAR TO EVERYONE, and I hope you all had a good Christmas. My thanks to all of you who where kind enough to send me a Christmas card, they where much appreciated.

The new year brings two milestones in the history of INDUG. First, our sixth issue, already half way to our first birthday. And secondly the news that i've been longing to give, yes, we have passed the FIVE HUNDRED mark on membership. If the post had been up to scratch we would have reach it just before Christmas, as it was number 500 arrived in the first few days of the new year. Next target 1000 by our first birthday? well we may reach it even sooner at the rate things are going.

This issue is a little smaller than usual due to problems with printing, but I'v tried to get in as much as I can so I trust you will not be disappointed. Next months should be back to normal (or even bigger) and will be sent out during the week commencing 9th February.

Now a request for help. H E L P ! ! !
I urgently need some help with FORMAT, there is a real demand for a regular column, or just the odd feature article, on communications. This is a subject I know very little about and just no time to learn anything on. If there is any one out there who feels able to contribute on this subject, then please contact me as soon as possible. I am also looking for someone to write an Adventure column on a regular basis.

Next, another plea for assistance, for Miles Gordon Technology. Alan and Bruce would like to hear about any games you are having difficulty in Snapshotting to disc (no snapshot device is perfect after all), and the solution if you have found one. Just jot down details of the game i.e. name; 48k or 128k; what happens when you Snapshot; and what happens when you reload. Then send it to us at INDUG and we will collate them and pass them on to MGT. There's no guarantee that a solution can be found, but the more details Bruce Gordon has the more chance of finding a way round any problems.

Now an appology from me. Due to the pressures I'm under, work; Indug; programming; wife; decorating (and thats just the most inportant ones) its proving very difficult to keep up with replying to your letters. Where possible it is better to use the HOT-LINE service but if you must write then please only ask one question per letter (often I have a quick answer to one question, but need to do research on another which slows down a reply to both if they are in one letter) explain the problem, keep it short and sweet, and I should be able to cope a little better.

In closing. Any new PLUS D owners who purchased the 3.5" disc drive from MGT, and are now getting a 'FORMAT DATA LOST' error, please contact MGT on 0223 311665.

See you next month.

Bob Brenchley. Editor.

* - * - * - *

DISCiPLE NEWS.

PLUS D AT FAIR

The PLUS D received it's public launch at the ZX Micro Fair in London on December 12th. Speaking from bitter experience, the stand was under an almost constant seige from the moment the doors opened.

Both the new PLUS D and the DISCiPLE where on display and I was on the stand to promote INDUG and talk to existing / potential members. Despite being a new product, with little advertising and no revievs behind it, the PLUS D sold extremely well but it was good to see plenty of interest in the DISCiPE as well.

BETTER BYTES FOR THE PLUS D

The PLUS D gained its own version of the Better Bytes DISC MANAGER package at the Christmas Micro Fair. The program works in exactly the same way as for the DISCiPLE (see review last month) but has been changed to fit in with the altered DOS layout.

NEW YEAR MICROFAIR

No sooner is the Christmas Micro Fair over with then along comes the first Fair of 1988. It will be held at the usual venue on Saturday 6th February. I will be on the Miles Gordon Technology stand so come along for a chat if you can beat the crush (and my throat holds out).

INCREMENTAL BACKUP UTILITY

by: Nev Young.

Lets start of this months quota of 'I.B.U.' with the second, and final, section of the Basic program.

IBU The Basic Program. Part 2.

```
7060 FOR c=1 TO 10: PRINT CHR$ PEEK (dir1+c);: NEXT c: IF PEEK 2
3688>9 THEN PRINT " ";
7070 POKE @mapaddr,dir1
7080 RANDOMIZE USR mapbuild
7090 RETURN
8000 REM print statics
8005 LOAD @sourcedisc,0,1,bufferstart: REM select correct disc
8010 PRINT : PRINT : PRINT
8020 PRINT fcount;" file";"s" AND fcount<>1;" copied"
8030 PRINT scount;" sector";"s" AND scount<>1;" copied"
8040 PRINT : PRINT : PRINT
8050 PRINT "More discs to backup? (Y/N) "
8060 LET a$=INKEY$: IF a$="" THEN GO TO 8060
8070 IF a$="n" OR a$="N" THEN STOP
8080 IF a$="y" OR a$="Y" THEN GO TO 9000
8090 GO TO 8060
8500 REM wait for discs
8510 CLS : PRINT '''"Please load source disc into drive ";source
disc;
8520 IF sourcedisc=destdisc THEN GO TO 8550
8530 PRINT " and load the desination disc into drive ";destdisc
8550 PRINT '"Then press any key to begin the backup."
8560 PAUSE 0
8565 CLS
8566 POKE 23692,255
8570 RETURN
9000 REM program start
9010 GO SUB 100
9015 GO SUB 8500
9020 GO SUB 500
9030 GO SUB 600
9040 GO SUB 700
9050 GO SUB 800
9060 IF NOT fcount THEN GO TO 9100
9070 GO SUB 1000
9080 GO SUB 4000
9100 GO SUB 8000
9996 STOP
9997 CLEAR 29999
9998 LOAD d*"IBU_C"CODE :GO TO 9000
9999 SAVE d1"IBU" LINE 9997:VERIFY d*"IBU"
```

Right, thats the Basic done, now I will try and explain how it all works.

Firstly notice that the program starts at line 9000 and calls each section by a GOSUB. The first subroutine at line 100 gets the addresses of the machine code routines and variables by peeking at a table produced by the assembler. Then it sets up some parameters. It is lines 250-285 that you would change to configure the program for any type of system as follows:

maxtrack = 40 or 80
sourcedisc = 1 or 2
dest disc = 1 or 2 and may be = sourcedisc
sides = 1 or 2 for single or double sided discs
density = 1 or 2 for single or double density

LEAVE THE REST ALONE UNLESS YOU'RE
SURE YOU KNOW WHAT YOU'RE DOING.

The next gosub is to 8500 and all this does is wait for you to insert the disc or discs into the drives. Gosub 500 uses the POKE@ command to load some values into the m/code area. You will notice that the values are 664 bytes out, to compensate for the base value of POKE@, if you are using the new PLUS D then change the value at line 105 from 664 to 8192 (the base address of POKE @ in G+DOS). The final thing done by this subroutine is to call a m/code routine to set all the memory used as disc buffers (from bufferstart to the m/code)to a value of 0. Gosub 600 loads the first 40 sectors of the source disc into memory. This is the disc directory. Gosub 700 is used in a few places. If the source and dest discs are in the same drive it prompts for the operator to change discs. Otherwise it does nothing.

Gosub 800. This is where the fun begins. Every sector of the dest disc directory is loaded into memory and the m/code routine 'comp1' is called to compare them with the corresponding sector of the source disc, which is in memory as you recall. A value of 0 from comp1 means the file headers are the same, anything else and they are not. I also check to see if the last byte of the sector map is =.0 (line 870). If the headers are not the same OR if the last map byte = 0 then I record that fact in an array by calling a subroutine at line 7000. You will also see that I do the test twice on double density systems. The subroutine at 7000 not only records which directory sectors I need to copy but, as long as the header does not point to a deleted file, will call more m/code to record the sectors marked in the map for that file. As it passes by it also prints the file name, and counts how many files need to be copied.

When I return from the subroutine at line 800 back to line 9060 I test for any files to be copied. If there are none then I finish by going to the end routine at line 8000. If there are files to be copied I do a gosub 1000 and copy all the updated directory sectors to the dest disc. Making sure that the last byte of the map = 255. I then do the same for the source disc after waiting for it to be loaded if required. The final routine

is at line 4000 this reads as many sectors from the source disc as possible into memory and then copies them to the dest disc. Another m/code routine (next) is used to get to sector number from the map built up by calls to mapbuild in subroutine 7000.

When all the sectors are copied I report what was done and wait for the user to load more discs if required. THE TWO DISCS ARE NOW THE SAME. Don't be surprised if the first time you use IBU it takes a long time. Thats because it will have to copy all the files the first time around. For those who do not have the ability to assemble the m/code (the comments should make its functions clear) I have included a basic program to poke the m/code into memory. It should then be saved to disc with the name used in line 9998 of the basic program. The basic program, IBU, should be saved by RUN 9999

Thats the Basic part of IBU out of the way, but what about the machine code routines? I hear you say. Well next month I will give the coding to finish of the system.

See you next month.

* - * - * - *

BARGAIN CORNER

BRISTOL Forty year old NEWCOMER to the DISCiPLE wishes to swap ideas and software preferably with someone of similar age living in or near the Bristol area. Ring 04545 - 3807 or write to D.Nethercott, 144 Beach Road, Severn Beach, Bristol, BS12 3PQ.

DUAL 5.25" DRIVES Mitsubishi dual 5.25" 80 Track, Double Sided Disc Unit. Cased with built in power supply. With lead for direct connection to DISCiPLE or PLUS D. ONLY £170. Phone Retford (0777) 701502.

WANTED EPROM for Saga 2000 keyboard (I ruined mine). Write Jack Dohany, 390 Rutherford Ave, Redwood City, CA 94061, U.S.A.

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RECOVER.

Get Back Those ERASED Files

By: JAMES WILLSHER

This is a BASIC program I have written which enables the DISCiPLE user to recover files which they have accidentally erased. It works on the basis that the file itself is not erased, the file type in the directory entry is simply set to zero to indicate an ERASEd file. It is therefore possible to recover the file. The program uses information given in recent issues of FORMAT.

'RECOVER' first of all loads the directory into memory, which is stored in the first forty sectors of the disc. Then the memory is analysed, and the relevant data is stored in several arrays. These arrays contain the file title, the file type, and the length of the file in sectors. As soon as an unused header is detected, the array stops filling up. This is because it is not possible to have files stored after unused header, as the data is stored in the first empty header. These arrays are then displayed in pages, one for every 20 headers used, which can be flicked through as desired.

When the erased file is displayed (in red ink) a number appears on the left hand side of the title. Hit space to 'select a file', and type in the number I have just mentioned. A menu then appears and you should input what type of file has been erased, via a number.

Then you will be asked if there are any more files. If more than one file is to be recovered, then write down the relevant numbers of the files when the catalogue is displayed, answer yes to this question, then enter the next number from your list. If there are no more files to be recovered, just answer no and insert the 'corrupt' disc. The recovered directory is then saved.

All instructions appear 'on screen' and the program itself is very simple and pleasing to use. The success rate of this program depends on whether the disc has been written to since the file(s) were erased. If it has not, then it should work every time.

The program listing appears after this write-up and should present no problems in typing in. The program was written in 128k mode on a Spectrum +2 with a DISCiPLE running GDOS 3b. However, it works on a 48k Spectrum, and should work on all versions of the GDOS after V3 and on the new PLUS D.

The program is fully error-trapped including, for example, a situation where the disc has been left in the 'WRITE PROTECT'

state. In this way, my program is very user friendly.

I sincerely hope that this program is useful to someone, as it has been priceless to me - I am one of these morons who is not clever enough to recover files by an easier method.

```
 10 REM File Recovery Program.
 20 REM James Willsher 22/12/87
 30 REM Using data supplied by David Kennedy-FORMAT SEP87,
 31 REM and Nev Young-FORMAT DEC87.
 40 REM
 50 CLS #: PAPER 0: BORDER 0: INK 5: BRIGHT 1: CLS : CLEAR 4000
0
 60 RESTORE
 70 IF PEEK 65367=1 THEN GO TO 90
 80 GO SUB 910: RESTORE
 90 INK 5
100 DIM a$(80,10): DIM b$(12,8): DIM c$(80,8): DIM e(80): DIM x
(80)
110 FOR j=1 TO 12: READ n$: LET b$(j)=n$: NEXT j
120 INK 6: PRINT AT 0,1;"DISCiPLE FILE RECOVERY PROGRAM"''; INK
4;" James Willsher - DECEMBER 1987.": GO SUB 1160
130 INK 5: PRINT #0;" ENTER DISC, THEN HIT SPACE..."
140 PAUSE 0: CLS
150 LET d=16: LET t=0: LET s=1: LET i=3: LET j=0: LET M=40000:
LET b=40001: LET a=0:
160 PRINT AT 0,0;"Directory Is Loading-Please Wait"
170 GO SUB 1060: FOR T=0 TO 3: FOR S=1 TO 10: LOAD @z,T,S,M
180 GO SUB 1140
190 PRINT AT 9,8;"DIRECTORY LOADED"
200 GO SUB 1080: PRINT AT 13,5;"NUMBER OF HEADERS USED";
210 INK 6: PRINT AT 16,15;"0": FOR v=1 TO 80: LET e=(v-1): PRIN
T AT 16,d;e
220 IF v>9 THEN LET d=15
230 FOR c=b TO (b+9): LET a=a+1
240 LET k=PEEK c
250 IF k<32 THEN LET k=63
260 LET a$(v,a)=CHR$ k
270 NEXT c
280 IF a$(v)="??????????" THEN LET o=v: LET p=o-1: GO TO 340
290 LET a=0: LET f=PEEK (b-1): IF f>0 THEN LET x(v)=PEEK (b+11)
300 IF f=9 THEN LET x(v)=257
310 LET l=f: LET f=f+1: GO SUB 360
320 LET b=b+256
330 NEXT v
340 LET v=1
350 GO SUB 380
360 LET c$(v)=b$(f): LET e(v)=l: RETURN
370 GO SUB 1060
380 PRINT AT 21,0;"Press any key to catalogue disc."
390 PAUSE 0
400 LET g=1: LET h=20: GO SUB 730
410 GO SUB 820
420 INPUT "Which program number?";h
430 IF h>p OR h<1 THEN GO TO 420
440 CLS : INK 5: PRINT AT 0,7;"You wish to recover"
450 INK 2: PLOT 86,150: DRAW 0,11: DRAW 83,0: DRAW 0,-11: DRAW
```



```
-83,0
460 PAPER 6: INK 0: PRINT AT 2,11;a$(h): PAPER 0: INK 5
470 PRINT AT 4,4; "What type of file is it?"
480 GO SUB 1110
490 PRINT AT 7,9;"1.BASIC";AT 8,9;"2.N.ARRAY";AT 9,9;"3.$ ARRAY
";AT 10,9;"4.CODE"
500 PRINT AT 11,9;"5.SNAPSHOT 48K";AT 12,9;"6.M/DRIVE FILE";AT
13,9;"7.SCREEN$";AT 14,9;"8.SPECIAL FILE"
510 PRINT AT 15,9;"9.SNAPSHOT 128K";AT 16,8;"10.OPEN #TYPE";AT
17,8;"11.EXECUTE"
520 GO SUB 680
530 PRINT AT 20,1; INVERSE 1;"Are there any more files?(y/n)"
540 PAUSE 0
550 IF INKEY$="y" THEN GO TO 420
560 IF INKEY$="n" THEN GO TO 580
570 BORDER 2: BORDER 7: GO TO 540
580 PRINT AT 21,6; INK 3; FLASH 1;"ENTER DISC-HIT SPACE": PAUSE
0: CLS
590 POKE 23728,255: POKE 23610,255
600 GO SUB 1060: LET M=40000: FOR T=0 TO 3: FOR S=1 TO 10
610 POKE 23728,255: SAVE @z,T,S,M
620 IF PEEK 23610<>255 THEN PRINT AT 5,9; FLASH 1; INK 2;"DISC
PROTECTED": FOR x=1 TO 15: BORDER 2: PAUSE 2: BORDER 0: NEXT x:
GO TO 640
630 GO TO 650
640 PRINT AT 21,0;"*SWITCH THE TAB, THEN HIT SPACE*": PAUSE 0:
PRINT AT 21,0;"                                    ": GO TO 610
650 GO SUB 1140: POKE 23728,0: POKE 23610,255
660 PRINT #0;"HIT ANY KEY FOR A CATALOGUE...": PAUSE 0
670 CAT 1: STOP
680 INPUT "Number?";n
690 IF n<1 OR n>11 THEN GO TO 680
700 LET y=40000+(h*256)-256
710 POKE y,n
720 RETURN
730 CLS : INK 5: GO SUB 1040: FOR t=g TO h
740 IF t=o THEN GO TO 800
750 IF e(t)=0 THEN INK 2
760 IF e(t)>0 THEN INK 5
770 PRINT t;TAB 4;a$(t);TAB 16;c$(t);TAB 27;x(t)'
780 INK 5
790 NEXT t
800 INK 5: PRINT #0;"KEY 1-?, KEY 0-?. SPACE-SELECT"
810 RETURN
820 PAUSE 0
830 IF CODE INKEY$=49 AND g=1 THEN GO TO 820
840 IF CODE INKEY$=49 AND g>1 THEN LET g=g-20: LET h=h-20: GO S
UB 730
850 IF CODE INKEY$=48 AND h>p THEN GO TO 820
860 IF CODE INKEY$=48 AND g<o THEN LET g=g+20: LET h=h+20: GO S
UB 730
870 IF CODE INKEY$=32 THEN RETURN
880 GO TO 820
890 DATA "ERASED  ","BASIC    ","N.ARRAY ","$ ARRAY ","CODE    ",
"SNP 48K ","M/DRIVE ","SCREEN$ ","SPECIAL ","SNP 128K","OPEN # "
,"EXECUTE "
900 RETURN
910 RESTORE 940
```

```
 920 FOR n=0 TO 7
 930 READ q
 940 DATA 24,60,90,153,24,24,24,24
 950 POKE (65368+n), q
 960 NEXT n
 970 RESTORE 1000
 980 FOR n=0 TO 7
 990 READ q
1000 DATA 24,24,24,24,153,90,60,24
1010 POKE USR "B"+n, q
1020 NEXT n
1030 POKE 65367,1: RETURN
1040 PRINT AT 0,0;"##  TITLE        TYPE        SEC"
1050 INK 5: PRINT : RETURN
1060 INK 6: PLOT 61,126: DRAW 0,11: DRAW 134,0: DRAW 0,-11: DRAW
 -134,0: INK 5
1070 RETURN
1080 INK 3: PLOT 118,38
1090 DRAW 0,11: DRAW 19,0: DRAW 0,-11: DRAW -19,0: INK 5
1100 RETURN
1110 INK 3
1120 PLOT 63,30: DRAW 0,91: DRAW 130,0: DRAW 0,-91: DRAW -130,0
1130 INK 5: RETURN
1140 LET M=M+512: PRINT AT 5,8;"TRACK ";T;AT 5,15;" SECTOR ";(S-
1): NEXT S: NEXT T
1150 RETURN
1160 PRINT AT 5,2; INK 3; INVERSE 1;"HOW MANY DRIVES HAVE YOU GO
T?": PAUSE 0
1170 IF CODE INKEY$=49 THEN LET Z=1: RETURN
1180 IF CODE INKEY$=50 THEN LET Z=2: PRINT AT 5,0;"
                  ": PRINT AT 10,0;"PLACE CORRUPT DISC IN DRIVE
 2.": RETURN
1190 SAVE d*"RECOVERER" LINE 10
```

* - * - * - *

BACK ISSUES

For members who have missed past issues of FORMAT (or perhaps worn theirs out through constant use) we have now introduced, by popular demand as they say, a back-issue service.

The cost is 60p per copy (80p overseas). Your copies will be sent out as soon as possible but, in order to keep printing costs down, it may take up to 21 days for us to dispatch.

Available Issues

Issue 1 - August 1987.
Issue 2 - September 1987.
Issue 3 - October 1987.
Issue 4 November 1987
Issue 5 December 1987

THE HELP PAGE

Problems with your DISCiPLE, PLUS D or Spectrum. Dont worry, let the HELP PAGE sort them out. Note: One question per letter please, and renenber that Stamped Addressed Envelope if you want a reply.

A different look to the Help Page this month. While I do try, I can't be an expert on everything, so this month I'm devoting this page to some of the problems I am still looking for an answer to. If you have a solution then please let me know so I can pass it on in future pages.

TASPRINT

This utility, from Tasman software, is designed to give fancy fonts on a dot matrix printer. It can be used in most versions of Tasword (hence the name) but uses the printer stream (#3) in a funny way. Has anyone worked out how to convert it to print through the DISCiPLE / PLUS D?

THE WRITER

I have had many letters about The Writer wordprocessor from Softech. In the tape version its possible to use the program but the printer routines wont print. The Microdrive version makes direct calls to the Interface 1 ROM (I think) so it wont work at all. Any ideas?

HARWARE

Several letters have asked about the compatability of various pieces of hardware i.e. Midi interfaces, Modems etc. If there's anyone with a more detailed knowledge of hardware then please contact me.

ART STUDIO

This art package seems to work in the main, but there are problems with the screen printing routines. The manual gives no indication as to where a DISCiPLE printer drive could be put. Any information please?

SEIKOSHA SCREEN DUMPS

Most Seikosha printers are totaly non compatable with the Epson printer control codes. Has anyone found a machine code dump routine (gray scale is possible) which will work? if so please send in a copy.

SPELL CHECKER

Does anyone know of a Z80 machine code spelling checker for the Spectrum that is adapted, or could be adapted, to the DISCiPLE / PLUS D?

NETWORK SOFTWARE

Do you know of any software written to use the Interface 1 / DISCiPLE network? There must be some but I cant find it.

VU-FILE
GETS A NEW LEASE OF LIFE.

By: HAROLD BURTON

Readers may be interested in this short conversion to an old and trusted favourite. VU-FILE, from Psion Software, was one of the very first database type programs published for the Spectrum. Even now, after all this time it still has a lot to offer.

Most Spectrum users will have a copy of VU-FILE in their library of tapes, if not it can often be picked up for a pound or two at your local software shop or at the ZX Microfair in London.

To produce the disc version simply type in the new Basic part for VU-FILE and save it to disc by SAVE d1"VUFILE" LINE 10, it may be easier to load in the tape version and alter it to match but I leave that up to you. Now type in the CONVERTER program, RUN it, and set the VU-FILE tape going. The CODE file will be loaded in from tape, converted and then saved to disc.

When using VU-FILE from disc the only change you will notice from the tape version is that a CATalogue of the disc is done before each LOAD and SAVE. All files have "VU_" added as a prefix by the program and there is no need to type this in.

I think you will find this breathes new life into a very good program.

VUFILE - THE NEW BASIC

```
  10 REM GOTO USR (a)  after breaks
  50 CLEAR VAL "25087": LOAD D1"VUFILE_C"CODE
 100 DIM a$(VAL "32"): LET a=VAL "29785": LET x=VAL "36": LET y=
VAL "4": LET z=VAL "80": GO SUB VAL "4000": GOTO USR VAL "29721"
1000 CLS : PAPER VAL "5": INK VAL "0": CAT VAL "1";"VU_*": PRINT
 '"SAVE A FILE:": INPUT "Enter file name (omit VU_):  ", LINE b$
: LET a$( TO VAL "7")=b$: LET s=CODE a$(VAL "11")+VAL "256"*CODE
 a$(VAL "12"): LET t=CODE a$(VAL "13")+VAL "256"*CODE a$(VAL "14
"): GOTO USR a
1005 SAVE d1"VU_"+b$CODE s,t: VERIFY d1"VU_"+b$CODE
1200 GOTO USR a
1900 PAPER VAL "1": INK VAL "7": CLS : PRINT AT VAL "10",VAL "0"
;"Press B for BASIC                "'"Press ENTER to CHANGE CODE
S      ": PAUSE VAL "0": IF INKEY$="B" OR INKEY$="b" THEN GOTO 1e
4
1910 CLS : INPUT "Spacing?";TAB VAL "19";(x);TAB VAL "26";x'"Mar
gin?";TAB VAL "19";(y);TAB VAL "26";y'"Print code (27+?)";TAB VA
L "19";(z);TAB VAL "26";z
```



```
1920 GO SUB VAL "4000"
1960 GOTO USR a
2000 IF INKEY$="5" THEN GOTO VAL "1900"
2010 CLS : PAPER VAL "5": INK VAL "0": CAT VAL "1";"VU_*"!: PRIN
T '"LOAD A FILE:": INPUT "Enter file name (omit VU_):", LINE b$:
 LOAD d1"VU_"+b$CODE : GOTO USR a
3000 LPRINT a$( TO VAL "32"): GOTO USR a
4000 POKE @VAL "6",VAL "1": LPRINT CHR$ VAL "27"+CHR$ VAL "64";:
 LPRINT CHR$ VAL "27"+CHR$ VAL "51"+CHR$ x;: LPRINT CHR$ VAL "27
"+CHR$ VAL "108"+CHR$ y;: LPRINT CHR$ VAL "27"+CHR$ z;: POKE @VA
L "6",VAL "0": RETURN
```

Be sure to count the spaces between quotes ("") or the screen layout may be wrong.

VUFILE CODE CONVERTER

```
  10 CLEAR 25087
  20 LOAD ""CODE
  30 FOR n=28911 TO 28953: READ b: POKE n,b: NEXT n
  40 FOR n=25189 TO 25192: READ d: POKE n,d: NEXT n
  50 DATA 65,108,116,101,114,32,112,114,105,110,116,101,114,32,9
9,111,100,101,115,32,1,15,5,54,32,77,97,107,101,47,76,111,97,100
,32,110,101,119,32,102,105,108,101,68,73,83,67
  60 SAVE D1"VUFILE_C"CODE 25088,5622
```

* - * - * - *

WRITING FOR FORMAT

Contributions from FORMAT readers are very welcome. We like to publish articles on any subject relating to the DISCiPLE, PLUS D or the Spectrum in general.

Some points to bear in mind

* Ideally submit your article as a Tasword (2 or 3), The Last Word, or similar text file (with a printed copy). We can accept disc (5.25 or 3.5) or tape.
* Any graphics or diagrams should be drawn in black at twice (2x) normal size for reduction. Pack well, Do Not crease.
* Mark everything with your name, address and telephone number.
* Keep a copy, DO NOT send your only version, the post office is not that good (and nor are we).
* Include a stamped addressed envelope if you want your material returned.
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