

WIZZDOM

A newsletter for the owners of Dick Smith WIZZARD and Funvision Computers.
Issue 2, October 1984. Written by Barry Klein.

EDITORIAL

Dick Smith Electronics (DSE) says that VTL has stopped making the WIZZARD, so it is unlikely that new cartridges or other accessories, will become available. It is also unlikely that many more programs will be published in either book or cassette form. It is therefore, up to us - the User Groups to maintain support for the WIZZARD.

The Second Book of Programs is available. It contains many errors (see later) and has many examples of poor programming in it. Also not all programs will work correctly with both versions of BASIC (see later).

DAMNATIONS (my errors in previous newsletters)

Some copies of issue 1 had errors in the last PRESTIDIGITATION on Page 4 - it should read : The top LH corner is L219=208 and L218=0.

The bottom RH corner is L219=210 and L218=255.

The screen will scroll only when L218 is of the form

$n*32+2$ where n is from 0 to 7.

Setting L219 outside the range 208 to 210 may cause
real problems.

If L218 is not of the form above, the display will occur
only in a group of 8 lines.

There was also an omission in the introductory article - the keyboard.

The keyboard.

The standard keyboard is supplied in two sections, both with 16 way joysticks, and 24 'keys' which respond to pressure, moving only slightly. When in the console, they form a 48 key 'QWERTY' keyboard. Not all of the ASCII characters can be generated from this keyboard. (Not even all of the 64 character 'uppercase' subset.) In addition to the 'printable' characters, 24 'control' characters are available (see later).

A 'moving key' keyboard is also available. This is much easier to use than the original, but is still not like a VDU type keyboard. This keyboard fits into the console in place of the joysticks and allows the joysticks to be attached to it.

Some notes on WIZZARD BASIC

According to DSE, two different versions of BASIC have been sold. These can be identified by the copyright date on the 'CREATIVISION BASIC' message. It will be either 1982 or 1983. The differences between 1982 and 1983 BASIC that are likely to cause problems are:

1982 BASIC	1983 BASIC
CLS resets colours to green	CLS does not change colours
RND(N) gives results in the range 0 to N-1	RND(N) gives results in the range 1 to N
SGN(-ve number) gives -1 (correct)	SGN(-ve number) gives -2 (incorrect)

To write programs that will operate correctly on both, you will need to do the following:

- all COLOR statements must follow a CLS. Do not use CLS statements in a program unless you immediately reset the colours.
- for a random number in the range 0 to N-1, use RND(N)-RND(1)
for a random number in the range 1 to N, use RND(N)-RND(1)+1
- instead of X=Y*SGN(Z), use


```
IF Z<0 THEN X=-Y
IF Z=0 THEN X=0
IF Z>0 THEN X=Y
```

NOTE: Most of the programs in the 2nd Book do not follow these rules, but all of those in the first Book do.

Why is WIZZARD BASIC so slow?

I believe that the WIZZARD checks for CTRL C at every instruction. Because the decoded character only appears for 1/50th of a second (20mS), the WIZZARD waits for the right time to find it. As a result, every instruction takes a multiple of 20mS to complete.

NOTE: an IF statement is equivalent to two statements. The IF comprises one instruction and that following the THEN the other.

The following program can be used to check instruction execution times:

```
100 FOR I=1 TO 500
200 NEXT I
210 SOUND 0;30
```

This should take around 10 seconds to execute. (The FOR statement is executed once, the NEXT, 500 times and the SOUND statement gives an audible indication of the end of the loop.)

The instruction(s) to test can be placed between 100 and 200.

e.g. adding 110 REM should increase execution time to 20S.

Hints for converting programs from other versions of BASIC

1. Only one-letter variable names are allowed – if you need to rename, make table. Very large or complex programs may not be convertible because they use more than 26 variables.
2. Character variables can only be 31 characters long and cannot be arrays. If only a few elements are used in a string array, you can use A\$, B\$ etc and select which one is required with IF statements or GOTO statements.
3. There is no ON ... GOTO statement. It can be simulated with a statement like GOTO 300+N*10 , provided you can arrange the line numbers appropriately. If not, you'll have to use a string of IF statements. Similar comments apply to ON ... GOSUB .
4. Multiple statements on a line have to be converted to one statement per line. This is only likely to cause problems with IF statements:
e.g. 310 IF B<4 THEN B=B+1 : GOTO 280

becomes

```
310 IF B>= 4 THEN 320      (relation reversed)
312 B=B+1
314 GOTO 280
```

Expressions in IF statements need brackets eg IF (A*2)=10 THEN ...

5. The total number of array elements must be 256 or less
eg DIM A(10,10) is 100 elements, DIM B(60) is 60 elements.
There may be other limits, as the WIZZARD MUSIC MACHINE does not work properly for dimensions greater than about 62. (124 elements total).
6. Array elements (and functions) don't work properly as array subscripts.
eg A(RND(3)) always gives A(3). This must be separated into two statements – X=RND(3) then use A(X).
7. Nesting of subroutines and FOR ... NEXT loops is limited to 5 deep. An incomplete FOR .. NEXT , if restarted will add another level to the nest. Therefore, the following type of routine must be avoided.

<u>Avoid</u>	<u>Replace with</u>
200 FOR 1=1 TO 10	200 F=0 (F is a 'flag')
210 IF X=A(I) THEN 240	210 FOR 1=1 TO 10
220 NEXT I	220 IF X=A(I) THEN F=1
230 GOTO 400	230 NEXT I
240 REM VALUE FOUND	240 IF F=0 THEN 400

8. In most BASICs, the first element of an array is element 0 or 0,0 . In WIZZARD BASIC it is always 1 or 1,1 , therefore programs that use a subscript of zero will have to be modified by adding 1 to each dimension and subscript.

Hints ... (continued)

9. WIZZARD BASIC neither has nor needs a RANDOMIZE statement or equivalent. Its random number generator is changed every 20ms (50 times a second). However, as an instruction takes the same time (20ms) to execute, successive random numbers will not be as random as possible. A way of obtaining 'more' random numbers could be:
- wanted - random row and column numbers - 1 to 24 and 1 to 32
total number of possibilities = $24 \times 32 = 768$
use $RND(768) - RND(1)$ and obtain the row and column numbers by
 $X = RND(768) - RND(1)$
 $R = INT(X/32) + 1$
 $C = X - 32 * (R - 1) + 1$
10. There is no DEF FNx statement, so in any program that uses it, you would need to replace the FNx function with the full expression. In most programs, this statement is used to obtain random numbers. In these cases, the RND function can often be used.
- eg DEF FNR(Z)=INT(20*RND(1))+1 replace references to FNR(x)
with RND(20)-RND(1)+1
or DEF FNR(Z)=INT(Z*RND(1))+1 replace references to FNR(X)
with RND(X)-RND(1)+1
11. A HOME command (put cursor at top L.H.S. of screen) can be simulated by:
- ```
xx10 POKE 218,2
xx20 POKE 219,208
```
- this preserves full screen scrolling.
12. Some characters outside the range of ASCII values 32 to 90 can be used in PRINT statements. They have the ASCII values 1 to 26, except for 13 and 21. These correspond to CHARs 1 to 26. They are entered from the keyboard by holding down the CONTROL key while pushing a letter key. Character 13 (CONTROL 'M') is the same as RETURN and character 21 (CONTROL 'U') is the same as backspace '←'. CONTROL 'C' behaves as any other character: it only operates otherwise while a program is running (so you can't input CONTROL 'C' at an INPUT statement.)

DAMNATIONS (WIZZARD books)BASIC interpreter version 1:0 Reference Manual

|                   |            |                                                                                                                                                 |
|-------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Page 26           | in example | 30 PRINT"RESULT", (4/2*6)...                                                                                                                    |
|                   | last line  | RESULT 12                                                                                                                                       |
| Page 27           | last line  | ... correct <u>letter</u> .                                                                                                                     |
| Page 29           | LLIST      | line numbers are ignored – the entire program is listed                                                                                         |
| Page 33           | line 12    | ... fixed <u>variable</u> name.                                                                                                                 |
|                   | line 16    | replace 'theat' with 'that'                                                                                                                     |
| Page 37           | RND(N)     | see 'Notes...'                                                                                                                                  |
| Page 41           | 3rd last   | Unary minus is not recognised. Numbers may need to be written as (-6) or (-N) – ie in brackets.                                                 |
| Page 42           | 1st para.  | if a unary minus was recognised, it would be evaluated before exponentiation. The expression A**(-B) is illegal. It must be written as A**(-B). |
| Page 43           | 1st para.  | The "1" and "0" referred to are only meaningful in Boolean Algebra. WIZZARD BASIC doesn't use 1 and 0.                                          |
| Page 47           | INT(X)     | X must be in the range +8388607 to -8388607                                                                                                     |
|                   | RND(N)     | see 'Notes...'                                                                                                                                  |
| Page 51           | last para. | the maximum length of string variables seems to be 31 characters in some circumstances and can be more than 32                                  |
| Page 55           | LEN(A\$)   | A string, apparently without characters (eg A\$="") has a length of 1 and a value of "" or CHR\$(0)                                             |
| Page 61 & page 62 |            | replace 'latter' with 'later'                                                                                                                   |
| Page 62           | line 1     | replace 'must' with 'need not'                                                                                                                  |
| Page 70           | line '40'  | 40 PRINT N,S                                                                                                                                    |
|                   | line '50'  | 50 N=N+1                                                                                                                                        |
| Page 80           | lines 18+  | RUN                                                                                                                                             |
|                   |            | 123 (computer output)                                                                                                                           |
|                   |            | A=3 " "                                                                                                                                         |
|                   | last line  | 12345678910 (computer output)                                                                                                                   |
| Page 82           | line 6     | PRINT TAB(5);"A";TAB(10);"A"                                                                                                                    |
| Page 89           | last para. | 'CRUN' not 'SRUN'                                                                                                                               |
| Page 95           | example    | ... DEMONSTRATION                                                                                                                               |
|                   | last line  | replace 'light green' with 'black'                                                                                                              |
| Page 99           | figure     | column 32 (extreme right) should be added                                                                                                       |
| Page 123          | list       | add 0. CASSETTE LOADING ERROR                                                                                                                   |
| Page 127          | line '50'  | 50 IF X<>Y THEN 30                                                                                                                              |
| Page 129          | line '120' | 120 NEXT J                                                                                                                                      |

FUN WAY into COMPUTERS using your WIZZARD

|                 |           |                                                                                                                                                                                                                |
|-----------------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Page 10         | 2nd para. | ... greeted by a <u>black</u> picture ... showing this message in <u>green</u> :<br>CREATIVISION BASIC<br>BY VTL<br>COPYRYGHT 198x<br>where x is either 2 or 3                                                 |
| Page 19         | line 18   | replace 25 with 50                                                                                                                                                                                             |
| Page 45         | & page 46 | the plug and socket for the cassette deck are 7 pin                                                                                                                                                            |
| Page 47         | line 7    | replace 'blink' with 'show'                                                                                                                                                                                    |
| Page 77         | & page 78 | LLIST & LPRINT – you can get out of the 'dead loop' by using the RESET button, without losing your program                                                                                                     |
| Page 82         | add code  | 00: CASSETTE LOADING ERROR -- a fault on the tape has caused an error. Try again. If the fault persists, you'll have to retype the program. If you're using a 'cheap' tape, throw it out and get a better one. |
| Page 84         | last line | ASCII code 95, the character is the 'block' cursor.                                                                                                                                                            |
| Pages 61 to 64, |           | the display should be described as green on black instead of black on green                                                                                                                                    |

DAMNATIONS (continued)FUN WAY ... (continued)

Page 60 SOUND: The description of the operation of the SOUND statement is not correct. The WIZZARD waits until the longest note of one SOUND instruction is finished before starting the next. The SOUND instruction can be extended eg to do what was described, the program on page 59 can be modified – replace lines 40 to 60 with  
 40 SOUND 18;3,13;3,9;3,16;3,13;3,9;3,21;3,13;3,9;3  
 If values for a channel are left out, they are ignored – to play a note in one channel, use 20 SOUND 16;1

First Book of Programs for the Dick Smith WIZZARD

I haven't checked all the programs, so there could be other errors.

Page 8 DATA There are 259 characters of DATA, so one value must be removed. I chose one of the '106' in line 50.  
 Page 9 1800 resulting from the above, change to FOR X=3 TO 29  
 Page 13 Subroutine position seems to have no effect on WIZZARD speed  
 Page 19 5060 you can cheat by entering the equation  
 Page 33 change 140 COLOR 7,13,15  
 150 COLOR 8,13,15 note – there is no NEXT N  
 Page 41 change 2105 IF N>60 THEN 2300

Second Book of Programs for the Dick Smith WIZZARD

I've not actually typed in any of these, I've just listed the obvious errors DSE only admits to 2 errors in this book!

Page 5 Index Copter Jump is on page 57  
 Page 36 missing Lines may be missing between 2160 and 2175  
 Lines ARE missing between 2205 and 2215  
 Page 59 missing Probably CONTROL characters should be in the lines 3115 to 3154  
 Page 58 change 1042 IF D>1 THEN D=1 (DSE No. 1)  
 Page 74 and on Pages 74 and 75 are out of order – they should have been between pages 77 and 78. (DSE No. 2)  
 Page 77 ? Lines 85 to 93 as C is always an integer, line 93 is the same as IF C>1 THEN ...  
 Page 81 misprint 155 PRINT  
 Page 82 " 285 last word should be .. YEAR"  
 Page 88 2nd program line 1 ... R.H. ..  
 1st " line 120 ... PRESS ...  
 Page 89 PEEK(28) On my WIZZARD, this location is 0 when no key is being pressed, and 3 while a key (not SHIFT or CONTROL) is pressed. It does not take the value 2.  
 Page 91 4th para. add after the word 'display', "unless the value POKEd into 218 is of the form N\*32+2 where N is from 0 to 7".  
 Pages 94 & 95 POKE 4098 – this is suitable only for the round file!  
 A better explanation is in the ELECTRONICS AUSTRALIA article of August 1983, page 80.

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