VG5000μ

LGRAPH

VG5000

LGRAPH

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VG5000

LGRAPH

A) LOADING

1. There is only one program on the LGRAPH cassette, called "LGRAPH".
2. It runs automatically.
3. As it is an extension to BASIC it must be loaded after power-on, before a user program.
4. To load, enter: CLOAD RET.
5. If sucessfully loaded, it will resign on with a smaller memory size, and the message:

   LGRAPH installed

6. It is only for use with a VG5216 extension (with or without 16K rampack). If the memory size is incorrect it will display the message:

   Incorrect memory size

   - and beep.

7. After loading, the program removes itself from the user's memory space.
8. The only feature that is applicable to any printer is page width. The other features only apply to:

   VW0010
   VW0020

   - printers.

9. If "LGRAPH" is loaded a second time the incorrect memory size message will occur. However, the previously loaded copy will still work.
10. As LGRAPH is stored in RAM it can be damaged by POKE commands.
11. The use of a CLEAR command with a second parameter to change memory size is not recommended after LGRAPH is loaded, as the user program may overwrite part of LGRAPH if the CLEAR increases the memory size.

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LGRAPH

B) NEW BASIC COMMANDS

1. LPRINT_PAGE i

a. LPRINT must be entered in full - L? is not correct.

b. The variable i must be given, and relates to the number of print columns required on the printer. The default value is 80. The default suits the VW0020 - for the VW0010 enter:

LPRINT_PAGE 40

The minimum value is 0 and the maximum 255; however:

0: spaces a line before printing and uses 132 columns
1-132: set a new page width
>132: set to 132 maximum

c. Note that this command doesn't affect the screen dump.

d. When using a VW0010 or VW0020, semi-graphic and accented characters all count towards the page width.

e. Examples:

(See page 4)

e. Examples:

```
20 LLIST
10 LPRINT_PAGE 26
20 LLIST
```

```
 10 LPRINT "*";:REM To make CR/LF happen
WITHIN the loop A.
 20 FOR A=40 TO 5 STEP -1
 30 LPRINT_PAGE A
 40 FOR B=1 TO A
 50 LPRINT"*";
 60 NEXT B
 70 NEXT A
 80 FOR A=4 TO 39
 90 LPRINT_PAGE A
 100 FOR B=1 TO A
 110 LPRINT"*";
 120 NEXT B
 130 NEXT A
 140 GOTO 20
```

```
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Arrêt en 110
Ok!
```

VG5000

LGRAPH

B) NEW BASIC COMMANDS

2. LPRINT_ SCREEN i,j,k

a. LPRINT must be entered in full - L? is not correct.

b. Variables i,j and k are all optional. If they are not stated, the previous value will be used. The default values are all zero:

i = graphic filter
j = alphanumeric filter
k = double size printing

All the following examples are valid:

```
LPRINT_ SCREEN
LPRINT_ SCREEN ,,1
LPRINT_ SCREEN B        (B is a previously
                        defined variable)
```

i,j and k can have the value zero to 255 (although for k, values >3 are treated as 0 mod 4 numbers)

For documentation on i,j and k, see the HARD COPY manual.

c. This command only works on VW0010 and VW0020 printers. On the VW0010, if "double width" is selected, only the left hand half of the screen will be printed.

d. The command will only dump screens that use BASIC's own screen mode. This is the "gen/vin" mode, of 16 bit words per character, fixed.

e. To "skip" out of a dump, press and hold down RUN key. The dump will stop at the end of the current screen dump line.

f. To "skip" out of a dump and "break" a program, as well as holding down RUN, also press [↑]. Only non-protected programs can be broken. A protected program can use just the RUN key to "skip" out of a dump.

g. If [CTL] + [A] are used to break a dump, the printer must be turned off, then on again to reset the alphanumeric mode.

h. Examples:

```
10 PRINT"           ";:TX1,7:PRINT"VVG655
000000"
20 TX1,0:PRINT"This is:  ";:TX1,7:PRINT"
VVG655000000"
30 GR1,7:FOR I=0TO 127
40 PRINTCHR$(I);:NEXT I
50 TX1,0:PRINT:PRINT"Finished
```

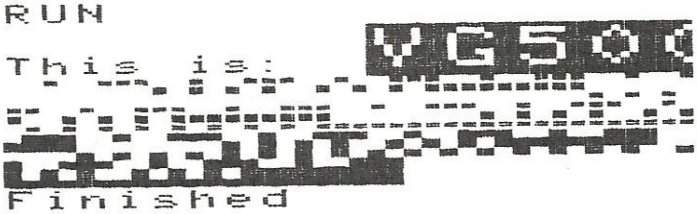
```
RUN
This is:  VG5000
Finished
Ok!

LPRINT_SCREEN
```

```
RUN
This is:  VG5000
Finished
Ok!

LPRINT_SCREEN,,1
```

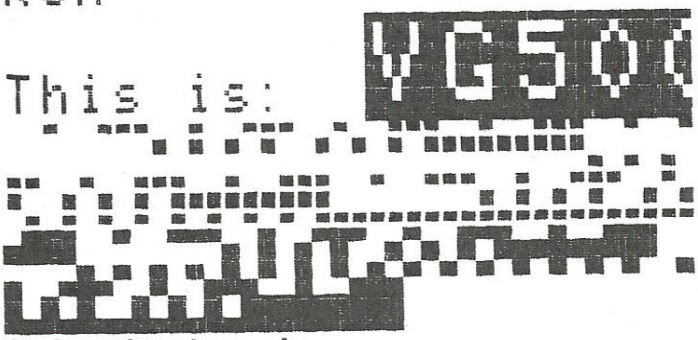
```
RUN
This is:
```



```
Finished
Ok!

LPRINT_SCREEN,,2
```

```
RUN
This is:
```



```
Finished
Ok!

LPRINT_SCREEN,,3
```

B) NEW BASIC COMMANDS

3. CHARACTER SETS

a. For the VW0010 and VW0020 printers, it is possible to print most of the VG5000 characters, although the shape may be a little different. This is because the screen uses an 8x10 format for characters, whilst the printer uses 8x8 pixels, or dots for each character.

b. For other printers, it will depend on the code-set of that printer. In any case, CHR$(128) to CHR$(255) should not then be used as LGRAPH will convert them to graphics for VW0010 and VW0020 printers. This conversion can be turned off by sending:

```
LPRINT CHR$(31);
```

c. If graphic conversion for CHR$(128) to CHR$(255) is turned off whilst a VW0010 or VW0020 is in use, additional symbols will be listed. The graphic conversion can be restored by sending:

```
LPRINT CHR$(30);
```

d. The default on loading LGRAPH is for the graphic conversion to be turned on.

e. Examples:

(See page 9)

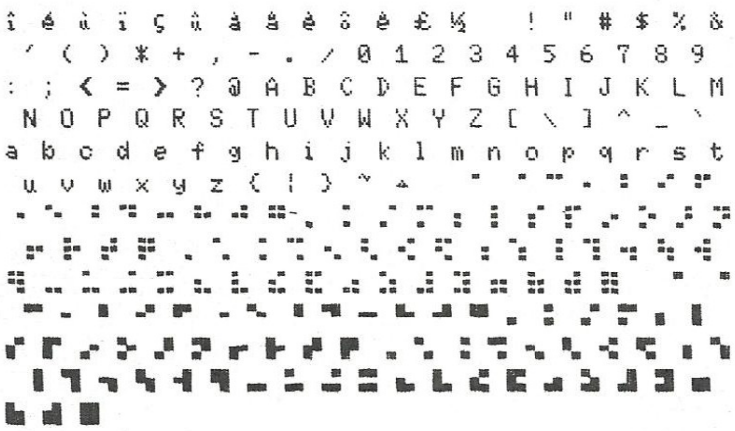
COMPARATIVE CHARACTERS FOR VG5000

```
5 LPRINT_PAGE39
10 PRINT "VG5000 CHARACTER SET"
15 LPRINT "VG5000 CHARACTER SET"
20 PRINT
25 LPRINT
30 FOR C=17 TO 29
40 PRINT CHR$(C)" ";
45 LPRINT CHR$(C)" ";
50 NEXT C
60 FOR C=32 TO 127
70 PRINT CHR$(C)" ";
75 LPRINT CHR$(C)" ";
80 NEXT C
90 GR0,6:FOR C=0 TO 127
100 PRINT CHR$(C);CHR$(0);
105 LPRINT CHR$(C+128);CHR$(0+128);
110 NEXT C
```

NB: All LPRINT lines end in xx5

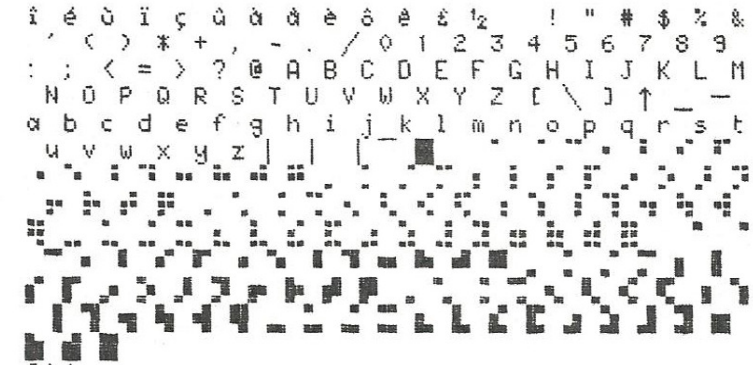
RUN

VG5000 CHARACTER SET



Screen-dump

VG5000 CHARACTER SET



```
Ok!
```

LPRINT_SCREEN

VG5000

LGRAPH

c) COPYING

1. LGRAPH consists of one program, recorded several times at 1200 and 2400 baud.
2. As an extension to the BASIC, it is SAVED using a different procedure to games. The program is saved as a BASIC TEXT file (!) and is not protected.
3. To copy, proceed as follows:
   a. Power up computer
   b. Enter:

      CLOAD"LGRAPH",0 [RET]

      - and read LGRAPH to memory.
   c. Now enter:

      POKE 18904,112 : POKE 18905, 85 [RET]
   d. Put in a fresh tape, and do the following:

      CSAVEL [RET] (If needed)
      CSAVE(x)"LGRAPH",10 [RET]
      ↑ enter 1 or 2 for 1200 or 2400 baud
   e. Repeat step d. as often as required.

LGRAPH

D) TECHNICAL INFORMATION

1. LGRAPH is a combined version of the routines GLPRT1, HCOP32, HCOP48 and PRTWTH, redesigned to be easy to use from BASIC.

2. It occupies 1184 bytes after loading, and is situated at the very top of available RAM.

3. The code is not ROMable, but uses ROM extension techniques whilst loading.

4. A general purpose relocator program has not been developed for VG5000. Therefore, LGRAPH can only load into two addresses upwards; hex. BB60 and hex. FB60. Both versions are contained in the one file, and the program decides where to locate which version at runtime.

5. To sucessfully load LGRAPH, it is not necessary to have a printer ready, or even plugged in.

6. LGRAPH uses the two hooks, "prthk" and "outhk". If these hooks become disconnected by the user, the routine will "vanish". It can be brought back to life again by:

   CALL -17562 [RET] (extension 5216)
   CALL -1178 [RET] (extension +16k RAM)

7. If other software is written using "prthk" (for example, extensions to the PRINT command for graphic lines, plots, etc) it MUST:

   Nest the hook(s) used
   Relocate itself correctly
   Correctly tie-in with LGRAPH.

8. The modifications, etc. noted elsewhere to enable HCOP32, HCOP48 and GLPRT1 to work with other printers are still possible, but are excluded from further discussion here.