PAGE DESIGNER 2 USER GUIDE

P A G E D E S I G N E R 2 b y D I L W Y N J O N E S

OPERATING INSTRUCTIONS/MANUAL

INDEX

1. Index
3. Introduction, Before You Start (backup, CLONE_task)Configuration
4. Printers and printer drivers (aaargh!*#!?@*), INSTALL_bas, examples
5. Supplied printer driver settings
6. Example list of printer graphics modes, MT80 printers, SER 8056 printers
   Printer linespacing, auto linefeed
7. Example printer drivers What can it do?
8. Loading and getting started
9. Tasks menu, bar menus in general, screen layout Status Reports and position indicators, number of fonts Main menu and sub menus
10. PAGE MENU, page sizes and number of fonts
11. Page widths and height
12. Tables of standard paper and page sizes, pixel widths
13. Pixel heights, main status report display
14. Version number, viewing mode, position visual indicator
15. Cursor keys, mouse, loading a page, default drives and extensions
    Standard default drives and extensions
16. laser printing, quit List of files output format, DIR format
17. preview page, contrast
18. Copy preview to cut buffer, cut and paste, flashbacks
    Cut and paste to memory and file, clip art, digitising, CUT
    PASTE (solid, transparent and EOR'd), actual image, green box, uses
20. Image rotation, right angles, 0-360 degress, pixel rounding,reflect
    Magnify/shrink image
22. save/load cut buffer, boxes and borders Eraser
23. Files menu, Delete, Copy, Copy_n Format, save page, bytes and compressed
24. Merge screen, printout, spooler, baudrate, network, load patterns
    Configure defaults, import text
25. columns
26. character sizes Menus
27. Justifying, types of justification, linespacing, underline
28. Clear column, move text cursor during import colours OVER Underline
    linespacing fonts Skipping text in file back tracking over text in file,
    typing menu load font
29. typing status report Spellbound,
30. Function keys,text typing column,Hires text
32. Graphics, patterns (borders and brush), Brush dots and lines
33. Recolour, decolour
34. Text character font editor
39. Hires character font editor,Pattern Editor, Print spooler, SPOOLER_task
41. Compatibility with other software, specific examples
44. General hints and tips, layout
46. Suggested further reading
48. Appendix 1:List of supplied files
50. Appendix 2:Technical information (file formats etc.)
53. Appendix 3:Last Minute additions to manual.

Please also read the file "UPDATES_doc" which contains details of last minute changes, enhancements, product version differences and so on.

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8. Loading and getting started
9. Tasks menu, bar menus in general, screen layout Status Reports and position indicators, number of fonts Main menu and sub menus
10. PAGE MENU, page sizes and number of fonts
11. Page widths and height
12. Tables of standard paper and page sizes, pixel widths
13. Pixel heights, main status report display
14. Version number, viewing mode, position visual indicator
15. Cursor keys, mouse, loading a page, default drives and extensions Standard default drives and extensions
16. laser printing, quit List of files output format, DIR format
17. preview page, contrast
18. Copy preview to cut buffer, cut and paste, flashbacks Cut and paste to memory and file, clip art, digitising, CUT PASTE (solid, transparent and EOR'd), actual image, green box, uses
20. Image rotation, right angles, 0-360 degress, pixel rounding,reflect Magnify/shrink image
22. save/load cut buffer, boxes and borders Eraser
23. Files menu, Delete, Copy, Copy_n Format, save page, bytes and compressed
24. Merge screen, printout, spooler, baudrate, network, load patterns Configure defaults, import text
25. columns
26. character sizes Menus
27. Justifying, types of justification, linespacing, underline
28. Clear column, move text cursor during import colours OVER Underline linespacing fonts Skipping text in file back tracking over text in file, typing menu load font
29. typing status report Spellbound,
30. Function keys,text typing column,Hires text
32. Graphics, patterns (borders and brush), Brush dots and lines
33. Recolour, decolour
34. Text character font editor
39. Hires character font editor,Pattern Editor, Print spooler, SPOOLER_task
41. Compatibility with other software, specific examples
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Page Designer 2 was written on a QL with CST disc interface, Sandy RAM card, Turbo Toolkit and the QLOADREF utilities from Liberation Software. Tony Tebby's toolkit II was also used during development but not while compiling, so it is not needed to run the software, of course. The BASIC parts of the program were compiled using Turbo from Digital Precision. This manual was written using QL Quill and Spellbound spelling checker from Sector Software. This program was written by Dilwyn Jones between 31 July 1987 and November 1987 and is Copyright (C) Dilwyn Jones 1987. No part of this software or its manual may be reproduced in any form whatsoever (including printed, photocopied, magnetically, optically, electronically, or broadcast) without prior consent from the author or the publisher. Under no circumstances will the author or the publishers be liable directly or indirectly for any consequential damage, loss or injury arising from any error, defect or failure in the software or its documentation. This includes loss of use, data, profit or contract arising in connection with this software and manual. In other words...

Thanks are due to all the people who assisted and encouraged me to produce this software over the three months it took and before that even! In particular, thanks to my Jan. She never (well, hardly ever) complained about the long periods I spent at the keyboard. My thanks to Simon Goodwin and the crew at Digital Precision with whose compiler and Toolkit (turbo) this software was written. Thanks to all those nice helpful people in Quanta, the independent QL users group, for all their advice and help and patience. After that, let's get on with the program...

I N T R O D U C T I O N

Welcome to the world of Page Designer 2, where you will be quickly designing pages, newsletters, posters and so on with the minimum of fuss and time. Page Designer 2 is a new and completely re-written version of the old Page Designer program in the Quanta software library. This new program is a multi-tasking full blown desktop publisher with a host of powerful new facilities, but which remains amongst the easiest of this kind of program to use.

B E F O R E Y O U S T A R T . . .

The first thing to do is to make a backup copy of the software. As standard, the program is supplied on disc or on 4 microrive cartridges. Page Designer 2 is not protected, so any valid backup method can be used, e.g. the WCOPY utility from Toolkit II.

Alternatively, the supplied CLONE_task program could be used. This does not need any BASIC extensions at all and can be called up before booting the program if need be. Put the original master disc in drive 1 and a blank, formatted disc in drive 2 (note that it must be formatted). The program should be started with the command

```
EXEC_W flp1_CLONE_task
```

Substitute the name of your disc drivers for "flp1_" if different (e.g. "fdk1_" or "fdv1_"). The program will first ask you for the source drive name then the destination drive name. In case you don't understand this, the source is the disc you're copying from (the master) and the destination is the disc you're copying to (the blank disc):

Enter flp1_ as the source (or whatever is the name of your drives) and flp2_ as the destination. If you just press ENTER without typing a filename, the program will stop. This is your "emergency exit" from the program when you've just remembered that the blank disc you put into drive 2 is not formatted or full or some other such excuse for a panic. The program will stop with the message "OK, aborted" if you do this.

C O N F I G U R A T I O N

The program is supplied configured to run from flp1_ or mdv1_ and using an FX80 compatible printer driver (e.g. works with compatible 8-pin graphics printers such as a Centronics GLPII,Taxan/Kaga KP810, Canon PW 1080A). These can be changed almost at will in a very simple manner. First, we'll consider the device name. If you LOAD the BOOT program into BASIC, then LIST it, you will see line 110 like this:-

```
110 device$='flp1_'
```

In order to get the program to run from any other device name (e.g. flp2_ or fdk1_ or fdv1_) you should change the characters inside the quotes to read whatever you want. You should of course only do this to a backup copy in case you damage the master. So to run from fdk1_ you would change line 110 to:-

```
110 device$='fdk1_'
```

Before you save this new boot program, another change you may like to make concerns line 120. This currently only contains a REM statement and can be changed to set up a RAM disc or almost anything you like (e.g. set network

station number or printer baud rate, although these can be set from within the program). Just include the appropriate lines of BASIC in line 120, for example, I set up a RAM disc here with:

```
space=RESPR(4096):LBYTES device$&'RAMDISC_code',space:CALL space
```

Obviously, different people will have different software and different requirements. Unless you need to do something special, you should leave this alone. Please check beforehand that the software you will be using is compatible with Page Designer 2! Taskmaster works well with Page Designer 2, for example. Programs that use Supercharge extensions may cause problems, as this program uses the Turbo Toolkit extensions which may either cause name clashes or overflow errors because of floating point values trying to assign themselves to integers and similar catastrophes! Once you have completed the modification of your BOOT program, it should be saved back on the disc in place of the BOOT program. You should then do the same to the MENU_bas program, change the reference to device$ in line 110 and re-save this program. In case you are not familiar with this, use the following commands, with your backup copy in drive 1:

```
DELETE flp1_BOOT:SAVE flp1_BOOT                  for the BOOT program
DELETE flp1_MENU_bas:SAVE flp1_MENU_bas     for the MENU_bas program
```

Obviously, if you have disc drives such as the CST units which use the flp1_ drive name, you will not need to amend the BOOT program at all, unless you want to use it to start up some other software such as a RAMdisc. See also under CONFIGURE (on the FILES menu) later on for further information.

P R I N T E R D R I V E R

If you have an Epson FX80, a Centronics GLPII, or a compatible printer, you may not need to change the printer driver either. The supplied standard printer driver works with most 8 pin graphics printers and some 24 pin graphics printers which feature Epson compatible 8-pin modes. This means that there a great deal of available dot-matrix printers with which this program could be used without modification. In the event of compatibility problems, you may need to resort to the configuration program INSTALL_bas which patches your printer driver with the relevant control codes for your printer, which you will obviously need to know! Control codes are supplied in the printer's manual and can be quite different from printer to printer and in certain cases from model to model in the same range. Page Designer 2 can happily cope with almost all types, but if you have a laser or certain thermal printers you may need a new printer driver altogether. Thermal printers such as the Ser8056 can work with the supplied driver with minor modification and probable loss of the multipass printing.

To configure the printer driver, put your backup copy of the Page Designer 2 program disc in drive 1 and LRUN the INSTALL_bas program:-

```
LRUN flp1_INSTALL_bas
```

You can change 5 aspects of the printer driver. These are:-

1. Graphics linespacing. This is the amount by which the paper has to be moved after each line of graphics to make all lines of graphics join up smoothly with each other.

2. Graphics mode. This is the sequence of codes that have to be sent to the printer to make it go into a particular graphics mode, usually specified as the number of dots per 8 inches across a line, commonly 480, 640, 720 or 960. Some printers may go up to 1920, but this is not recommended as it will distort (squash) whatever appears on the screen (i.e. circles may come out as egg-shapes!). The recommended modes on most printers are either the 640 dots per

8 inches (commonly called CRT1 mode, for cathode ray tube - screen - graphics) or the 720 dots per 8 inches (commonly called the CRT2 mode) because they come nearest to duplicating what appears on the screen. Older printers may only have a choice of 480 or 960 (single or double density modes) whereas Thermal printers and the Ser8056 may only offer the single density 480 dots per 8 inches mode. As standard, the program is supplied to drive a CRT1 graphics mode as found on most Epson compatible dot matrix printers.

3. Multipass linespacing. This is the amount by which the paper must be moved every time the same line is printed. As the program is capable of doing multipass printing (printing over the same line up to 10 times to improve the print quality) it seemed sensible to offer a choice of two ways of doing this. You could either not make the paper move at all, so that the repeats occur one on top of the other to make the printing darker (beware of burning through the paper if you do this the full 10 times!) or you could make the paper move very slightly between each pass of the print head, so that each dot overlaps slightly, thus closing up the very fine changes of texture between each line, if this is a problem. Certain printers are not capable of this very fine paper advance (and even those that offer the facility are not always guaranteed to move the paper 1/216 of an inch accurately, although we have never found this to be a problem). You therefore have a choice - you could either just return the carriage and the print head to the left of the paper and print again over the same spot or you could move the paper very, very slightly between copies. This will, of course, affect the height of the page when finally printed, although not by very much.

4. End of line code for multipass printing on same line. If your printer is set up for auto linefeed and so on, this allows you to select whether you just use a linefeed, a carriage return, or both to send the print head back to the left for each print pass. This will depend on how you microfeed the paper and so on.

5. Normal graphics linefeed. At the start of each new line, these are the codes to linefeed and return the carriage. Depending on circumstances, they may be the same as 4. above.

6. Restoration of text linespacing. The text linespacing is normally different to that of the graphics on most printers, so this is used to restore the printer to the correct spacing.

Each of the above "variables" consist of 4 bytes, a total of 24 bytes that must be specified in the program while configuring the printer driver. It may seem complex, but don't worry, it's no more complex than setting a Quill printer driver, maybe even easier. For a start, if you don't need the 4 bytes for each entry, fill them up with nulls (0) followed by the required codes.

So to configure the printer driver, LRUN the file flp1_INSTALL_bas which will in turn load the file GDUMP_V_code to be modified. First of all, it will ask:-

```
INSTALL NEW PRINTER DRIVER FOR PAGE DESIGNER 2
GDUMP_V_code is on (e.g. flp1_, just ENTER to quit):
```

Enter the drive name as directed. If you just press ENTER without entering a drive name, the program will stop. Note that you should only enter the drive name, not the whole filename. The program is written in BASIC and is not error protected and uses none of the BASIC extensions, as described above for CLONE_task. The file is loaded into the RESPR area and brief instructions are given. Press any key to continue.

Now enter the codes as required across then down the table. All must be done in turn and if you get one wrong, you should enter -1 to tell the program to abort. The values entered should be 0 to 255, that is, byte sized entries. 0 can either be a null for surplus codes or a part of the code sequence for any of the facilities. The first table above gives an example of the control code sequences used for my Centronics GLPII and an Epson FX80. This is how the printer driver is

set up as supplied. If you have a modern Epson compatible dot matrix printer, there is no reason why you should not try the above settings as they have been known to work on the above mentioned printers. Here are some example common code sequences which you might like to try in the absence of detailed knowledge of your printer:-

```
Printer graphics modes:
ESC * 0 (27, 42, 0)   ;normal density 480 dots per 8 inches
ESC * 1 (27, 42, 1)   ;dual density 960 dots per 8 inches
ESC * 2 (27, 42, 2) ;dual density double speed 960 dots per 8 inches
ESC * 3 (27, 42, 3)   ;quadruple density 1920 dots per 8 inches
ESC * 4 (27, 42, 4)   ;CRT graphics mode 1 640 dots per 8 inches
ESC * 5 (27, 42, 5)  ;plotter graphics, 576 dots per 8 inches
ESC * 6 (27, 42, 6)  ;CRT graphics mode 2 720 dots per 8 inches
ESC K    (27, 75)       ;normal density 480 dots per 8 inches
ESC L    (27, 76)       ;dual density 960 dots per 8 inches
ESC Y  (27, 89) ;dual density double speed 960 dots per 8 inches
ESC Z    (27, 90)       ;quadruple density 1920 dots per 8 inches
ESC y    (27, 121)      ;Star Gemini 10X version of ESC Y
ESC z    (27, 122)      ;Star Gemini 10X version of ESC Z
```

The ESC K command should work on all types of dot matrix printer with a graphics mode, including the little Serial 8056 printer. ESC K and ESC L are not the same on Mannesman Tally MT80 printers. Both are valid graphics modes, but they work with 640 dots per 8 inches (ESC K) and 1280 dots per 8 inches (ESC L).

The next thing we have to worry about is the graphics linespacing, the amount by which the paper must be moved after each line of the picture. This can be calculated or it may be given somewhere in the manual for the printer. To calculate and hence obtain an estimate the amount, multiply the vertical dot pitch (typically 1/72 inch) by 8 to give the height of one line of graphics, here 8/72 or 1/9 of an inch. A suitable code sequence for this on a typical dot matrix printer might be ESC 1 (actually 7/72 inch) or ESC A 8 (actually 8/72 inch), as depicted by these examples:-

```
ESC A n (27, 65, n)  ;n/72 inch linespacing
ESC 1 (27, 49)        ;7/72 inch linespacing
ESC 3 n (27, 51, n) ;n/216 inch linespacing, may be n/144 inches on
                          some printers, half of the normal 1/72 inch dot
                          pitch, whereas 1/216 is a third, so check!
```

There is no easy recommendation to make here, as unless the printer manual recommends a setting, it is best found by experimentation.

The next one to decide on is the multipass linespacing, the amount by which the paper is moved every time the print head repeats each line of graphics. Normally, this will be none, but of course this is up to you. If you decide not to move the paper and so print each repeat on top of each other to make the printout darker, you have a choice of two ways to do this, either just issue a carriage return or set linespacing to 0 and issue a linefeed as normal. The code for a carriage return is 13, a typical code for a linespacing of 0 might be ESC 3 0 (27, 51, 0) where most printers treat this as equivalent to a carriage return. Example linespacing commands are the same as above.

Multipass linefeed is the code that is to be sent to reset the print head to the start of a line for each repeat of the same line. If you are feeding the paper, you may need either carriage return (13), linefeed (10) or both. There is room for 4 bytes if need be, although only one or two will normally be needed. The same is true of Newline Linefeed.

If your printer is set for auto-linefeed, sending a carriage return by itself may not work in the above manner. What auto-linefeed means is that both carriage return and linefeed may be needed to move the print head back to the left of the paper and feed the paper up. This gives you the option of just sending the head back to the start of the line if need be so that you can very simply print all repeats bang on top of each other. If, however, your printer is set to auto-linefeed, it may issue the other code automatically if it receives one, thus moving the print head back to the left of the paper and incrementing the paper in one go. This makes it more difficult to separate the two operations - you may have to set the graphics linespacing to 0 and issue a linefeed to make it emulate a carriage return! I have this problem, because I have my printer set to auto-linefeed! So, if you have auto linefeed set to off, you may get away with normal graphics linespacing and a carriage return for multi-pass printing, only using one code out of the possible eight. In this case, you will need to set the Newline Linefeed codes to 0, 0, 10, 13 to ensure that things work properly.

Finally, text linespacing. Unless you had a special linespacing programmed, this is likely to be 1/6 inch, using the codes ESC 2 (27, 50).

Let us now consider two example drivers, the first a very simple one for a printer with automatic linefeed switched off:-

```
0, 0, 27, 49        ;7/72 inch linespacing for graphics
0, 0, 27, 75        ;480 dots per 8 inch graphics mode
0, 0, 0, 0          ;not needed, carriage return will be used
0, 0, 0, 13         ;carriage return for multipass printing
0, 0, 10, 13  ;carriage return+linefeed for new line of graphics
0, 0, 27, 50        ;1/6" text linespacing
```

and the second a more complex one for printers with auto-linefeed switched on:-

```
0, 27, 51, 24       ;24/216 inch (1/9 inch) linespacing
0, 27, 42, 4        ;640 dots per 8 inches (CRT1) graphics mode
0, 27, 51, 1 ;move paper by 1/216" between each pass of the same line
0, 0, 0, 10         ;multipass linefeed
0, 0, 0, 10 ;normal end of line linefeed for next line of graphics
0, 0, 27, 50 ;restore 1/6 inch text linespacing at end of printing
```

This second driver should only really move the paper by 23/216 inch to maintain the slight overlap defined by the multipass printing, which is only inserted between the passes and not after the last pass, which is left to the Newline spacing.

W H A T C A N I T D O ?

Page Designer 2 can do almost anything you'd want from a desktop publisher and above all it is simple and fast to use. The list of things it can do is very long indeed, but here are some of them:-

Any size page, variable number of fonts in memory, both normal text and high definition character fonts, 8x8 patterns which can be used as page border patterns or brush patterns or UDG's, handle colour or stippled 'grey shaded' black and white, use the OVER command for solid and transparent text and graphics, paint brush, recolour, de-colour (change a colour picture into stippled black and white for printing), type text in any valid QL character size (any of the eight sizes!) in columns with typewriter bell, underline, normal and inverse video on the same line, mix any font combination in any colour, mix text and graphics freely, type hires text direct to whole page in a number of sizes (small to very large, with or without proportional spacing, variable inter-character

spacing and variable linespacing), mix hires fonts freely, auto-scale string text size to fit given box area, import hires text across whole page, import normal text (all types of justification and columns - automatic or user defined columns down whole length of page), file handling functions (COPY, DELETE, FORMAT etc), load and save pages in BYTES or COMPRESSED format, merge screens created using either dedicated art packages such as Eye-Q or from a video digitiser such as the SPEM unit, printout on paper or to file, very fast cut and paste to memory (and to file if need be), clip art, image manipulation (reflect, rotate in degree steps, magnify, shrink, add box outline in any size or colour), eraser (variable size), define new page size or wipe existing one, preview page in two sizes, include preview image as a CUT/PASTE file if desired (useful for flashbacks to yesterday's news!), automatically recognises file types and sizes on reloading (no need to set page size or select BYTES/COMPRESSED before loading - it does it automatically), view page, default filenames, etc etc

L O A D I N G A N D G E T T I N G S T A R T E D

After saying that, here's how to get it all going. First, assuming you've got the required equipment attached to your QL, especially the expansion memory, put the disc in drive 1 (or whatever drive you have configured your copy for) and either reset the computer so that the program boots up automatically (use either F1 or F2 display mode on the QL, the program will always run in 4 colour mode using a screen width of 480 pixels placed centrally, so that non-QL monitors that clip the full 512 pixel width slightly can still be used) or use the command LRUN flp1_BOOT to install the extensions and call up the main menu. This installs several sets of BASIC extensions which are essential for the program to work properly. These are the Turbo Toolkit extensions (version 1.42 at the time of writing), the screen compression system COMPR_code, the virtual page handler VIRTUAL_code, the page preview system PV_code, the pixel colour tester P4_code and last but not least, the multipass printer machine code, GDUMP_V_code. These files have been kept separate because it makes them easier to modify if the need arises and loading from disc it does not make all that much difference to the loading time, although it means they take up a bit more memory.

The BOOT program chains in a BASIC menu program, which simply allows you to select which of the programs in the suite to call up. The INSTALL_bas program is not included here (a) because it's BASIC and (b) because once used, it need never be used again once the printer driver has been perfected.

This program uses what are called Bar Menus. This means that you are given a list of things to choose and the one currently about to be selected is highlighted by having a white bar outline across it. Whereas the text would normally be white on a black background, the highlighted item is black on a white background to make it stand out. Move the bar from item to item using the cursor up/down keys then execute the desired item by pressing either the SPACE bar or the ENTER key. This means that they can be manipulated either by a CTL1 joystick or a cursor key emulation mouse for convenience. These keys are used in all such bar menus in the program. In addition, if you press the ESC key, the bar moves to the bottom item in the menus, nearly always 'Quit' or 'Return To Main Menu'. If you wanted to abort and go back to BASIC from this menu, move the pointer to quit (use ESC if you like) and press either SPACE or ENTER. You could always restart this menu by typing RUN, since it's a BASIC program. All the programs it calls are compiled tasks, called using EXEC_W for convenience, although if you wished to, EXEC could be used directly from BASIC if you wanted to multi-task any of the programs (the menu should not contain any EXEC's in it's present form, since it relies on BASIC being suspended to prevent it messing up the task display). The three editors are discussed elsewhere. The BACKUP COPY option calls up the CLONE_task described elsewhere. The one you'll be interested in is the PAGE

DESIGNER 2 option. Select this now. Move the white bar over it and press the space bar or the ENTER key and the main program will be loaded. It will take a few seconds because it is a very long program! When the program has started up, it will greet you with a title screen using large bold 3D letters showing the title of the program and copyright the author notice. You will see a screen divided into three boxes, one large, one small and one medium with some white writing in it. Before we go on, we'll briefly describe this:

The upper window is the main art display window, where you will see the page display, previewed pages, bar menus and so on. The bar menus partly overlap this area, leaving the other two areas free for all sorts of information display. If you think this all sounds messy and complicated, don't. If you want to look at the visible part of the page momentarily between menus, the bar menu can be switched off until required, allowing you to study the display. Bar menus only pop up as and when required, so don't think they'll get in the way. the lower left window is the status report area which tells you where on the page you are, which font you're using, amount of free memory and various bits of information. This can get quite complex until you're used to it - it's just a matter of getting used to where all those little nuggets of information are. This part of the screen is also used when entering filenames and so on. The lower right window is a graphic display of which part of the page you're staring at. The page is the large white part filling the box while the visible section is a darker red box covering a part (or all if a minimum size page) of the white page. This is automatically scaled for whatever size page you use, so that you don't get eye strain when using small pages and so that large pages can also be accommodated in the same size box. As you move around the page, this little display gets updated along with any status reports shown at the time.

You will notice that the two small windows at the bottom have a solid green line as a border, whereas the large window has a dashed green line. Notice anything familiar? The dashes are the same size and pitch as the current character width and height, to give you a reference grid from which to plan your work.

The first thing the program does is set a minimum page size automatically, or if you have set a default page size then that will be loaded in together with any fonts you have decided to use as defaults (more on this later) it then tells you how much free memory there is. For example, if you're using a 640k QL as I was, expect around 451,000 bytes free - this will vary from version to version, obviously!

Now you are asked the number of hires fonts to hold in memory. This will be chosen with care, because they use up a lot of memory (9280 bytes per font actually). To start with, just select room for the one font. You could actually set aside room for up to 9 hires fonts, which would take up about 82 kilobytes of memory! Alternatively, you could have none, if you want to use as little memory as possible and have no need for hires text. Choose with care because you cannot change this later without losing the current page - every time a new page is set up, you are given the option to change the number of fonts resident, because the page sits above the fonts pile in the heap area used by the task and everything must be defined and undefined in order, tidily, to avoid wasteful use of memory. Next, you are asked to enter the number of text fonts to hold in memory simultaneously, again from 0 to 9. These use up to 1452 bytes each, so a full set of 9 fonts could use up to 13 kilobytes of memory. All fonts include the entire printable character code range from 32 (space) to 191 (down arrow on UK machines). You may be able to make some text character sets designed using other commercial font editors work with this program as long as they have a standard 2 byte header for the number of characters and the lowest valid characters. If you have the option, define the default character to be a space (i.e. all pixels

reset, or turned off, paper colour). If you have decided on having default fonts then they will be loaded and allocated space without you having to retype them in each time you boot up.

Once you have selected the number of fonts, you come to the main menu, which is a bar menu with a bar over the first option:-

These ten items (including Quit) are the main parts into which Page Designer 2 is split) lead you to sub menus which you use to select anything you want to do. Some, such as ERASER, do not lead to a sub-menu at all. If this sounds needlessly complex, don't worry. It had to be like this simply because there are so many options throughout the program that they could not possibly be accommodated on one single menu, so it made sense to split the menus up into neat sections where, say, all the graphics facilities were together and so on. Some items are so commonly used that they appear on more than one menu, e.g. COLOUR appears on most of the menus!

Probably the first thing we'll use will be the PAGE menu, to set what size of page we intend to use. By default, Page Designer 2 always starts up with the smallest possible page(480 dots across by 200 dots down, equivalent to the entire visible area in the main display area) or the default you have decided on. While we're talking sizes and co-ordinates, Page Designer 2 always talks about co-ordinates in terms of x,y (across,down) so that if you see CURSOR AT 100x20, for example, it means that the cursor is at 100 dots across the screen and 20 dots down the screen (0,0 is always the top left of the screen or the page). The page origin is the origin of where you can see on the page, so that if you were looking at an area shown to be 0,0 page origin, you'd know that you were looking at the top left of the page, as the page position indicator at the bottom right of the screen would remind you. This minimum page size takes up a surprising amount of memory, the same as it would on the screen, namely 24000 bytes. You can work out the amount of memory a particular size of page would take by multiplying the width by the height and dividing by 4, then adding 8 for what is called a 'page header'. With large pages, this figure of 8 extra is almost negligible unless you've got to know the exact amount of memory for any reason. The program also suggests 1 hires and 3 text fonts as default, but this is obviously up to you.

PAGE MENU OPTIONS

Return simply means that selecting it would cause the program to return to the main menu. Page position is the facility to let you move the visible section and hence view any or all of the page. Wipe the page means wipe the current page clean but don't change it's size and keep the same fonts. It's a fast way of starting a new page without any of the fuss of defining your own page size. New page is what we'll start with and I'll describe that fully in a moment. Load new page enables you to load a page from disc or microdrive in either BYTES or COMPRESSED format. Preview page shows a reduced size version of the whole page on the screen in one of two sizes, depending on page size.

First, we'll discuss how to set up a new page. Move the pointer bar over the NEW PAGE item on this menu and press SPACE or ENTER to call up that facility. You will first be asked in a bar menu to authorise the command.

You can either answer yes or no to this by moving the pointer bar over the correct word. To be safe, it always starts on NO, in case you selected this item accidentally and don't, in fact, want to erase the page! If you press SPACE or ENTER with the bar on NO the program will return to the main menu automatically, skipping the previous PAGE MENU. If you select YES, the screen will clear and

this message will appear:

Currently:1 Hires and 3 Text Fonts. Alter (y/n)?

If you wish to change the number of fonts held, answer y for yes, otherwise answer n for no. If you answer y, you will be asked to enter the number of fonts as you were on entry to the program. Next, you will be asked to set the page width and height. Press the cursor left key to reduce the width, right to increase the width, up to reduce the height and down to increase the height. Both width and height can be adjusted at the same time and both will adjust in multiples of eight pixels. This gives you a choice of page widths from 480 dots across to 3840 dots across. The height can be from 200 to 1600 dots. If you work it out, this would be a larger page than the QL's design limits can hope to store (about 1.5 megabytes in theory, less in practice)! This does, however, give you the option of either long, narrow pages or wide, shallow pages (about 200,000 bytes either way) and any size in between which the QL's memory can store. As you define the page size, the amount of memory required for that size will be shown on the right of the display on the bottom line under the free memory display. How do we know what page size to use with what size of display? No simple answer to that one, I'm afraid, since it depends on how you set up your printer driver. The easiest is width, since printers almost always operate in terms of dots per 8 inches or some other settings which will give you a clue as to the number of dots per inch or dots per centimetre. Here, we'll talk about inches because the units concerned are always in terms of inches, in my experience. Suppose that you were using a printer that took 9.5 inch wide by 11 inch long (the normal perforated paper with pin feed holes along the sides. By the time you've removed the half inch wide pin feed hole strips along both sides, it's down to 8 1/2" in width, effectively meaning that you can print on 8 inches across the paper, once you've allowed for a small margin either side, so on most domestic printers you can print the exact amount of dots specified across the 8 inches, making life that bit simpler for you. A4 paper is 8.3 inches wide, meaning that you could use the same width setting as for 8.5 inches printer paper, albeit with a reduced margin.

Now for height. This is a bit more difficult and depends on whether you move the paper for every print pass or not and what graphics linespacing you use. The average printer will have a graphics linespacing of 8/72 inch (1/9 inch), since most Epson compatibles have a vertical dot pitch of 1/72 of an inch and 8 pins (out of the 9 possible) are used for graphics in the modes we're using. Assuming that we are able to print on the whole page, we can use the page height and this linespacing to work out what page size we can use. Firstly we'll consider 11.5 inch high printer paper and leave a half inch off for borders and so on we can work out how many pixels will fit on this size area using the 8/72 inch line pitch information.

(11*72) = number of 1/72 inch dots down 11 inches of paper = 792

Since this a multiple of 8, this could be used directly. Therefore, to work out the vertical height for A4 page, use the same approach, bearing in mind that the paper height is 11.5 inches APPROXIMATELY. This approach gets complicated by the fact that if you use multipass printing which does anything other than overstrike with no paper movement, you must add the appropriate amount of paper movement to your calculations, bearing in mind that if you have, say, 4 passes, the minute linespacing is only used three times, although the actual linespacing may be altered to provide a very slight overlap between consecutive lines of graphics to close up any gaps between lines. You should calculate this carefully to ensure good results which are predictable, making life easier for you. In the following examples, we'll assume we're not feeding the paper at all during multipass printing and we're using a 1/9 inch linefeed. But first, the actual sizes of various 'standard' paper sheets:-

NAME	WIDTH (inches)	HEIGHT (inches)
printer fanfold paper	8.5 (excl. perforations)	11
A0	33.1	46.8
A1	23.4	33.1
A2	16.5	23.4
A3	11.7	16.5
A4	8.3	11.7
A5	5.8	8.3
A6	4.1	5.8
A7	2.9	4.1
A8	2.05	2.91
A9	1.46	2.05
A10	1.02	1.46
PAPERBACK (trimmed)	4.75	7.13
FOOLSCAP	13.5	17
CROWN	15	19.7
DEMY (UK)	15.5	22.5
DEMY (USA)	16	21
MEDIUM	18.1	22.8
ROYAL	19 or 20	24 or 25

(ROYAL:the smaller sizes for writing, larger for printing)

(The actual page size depends on the number of times it's folded, into 8 leaves for Octavo and 4 leaves for Quarto, commonly abbreviated to 8vo and 4to respectively)

Printer fanfold paper mentioned above is sometimes referred to as American Quarto. It's an American size but commonly available and used in Britain too. My dictionary lists Quarto as an 8 inch by 10 inch sheet of paper, just to confuse you...

The international A series sizes of paper is based on a rectangle of one square metre area, the sides of which are in the proportion of 1:1.414 (1.414 is the square root of 2, approximately, and this is the diagonal and side ratio of a square). 'A' sizes are noted for an interesting fact, by design rather than accident, that the 1:SQRT(2) sides ratio allows it to be folded in half and the ratio of the sides can remain the same. All size above are only approximate, as you will find if you calculate the actual ratios. There is also an international B series of sizes in between the A sizes, which is used for posters etc and a C series, used for envelopes. You are not likely to want these!

And here is a table of example page widths to set for various paper sizes, using the four most common printer graphics modes

TABLE OF PIXEL PAGE WIDTHS FOR VARIOUS PAPER SIZES

DOTS PER 8 INCHES :	480	640	720	960
NAME:				
Fanfold paper (margins) :		480	640	720
Fanfold paper(no margins):	504	680	760	1016
A3 :		704	936	1048
A4 (margins) :		480	640	720
A4 (no margins) :	496	664	744	992
A5 :		n/a	n/a	520
Foolscap :		808	1080	1208

TABLE OF PIXEL PAGE HEIGHTS FOR VARIOUS PAPER SIZES, BASED ON 1/72" VERTICAL DOT PITCH

Fanfold paper :	792 (no top or bottom margin)
Fanfold paper :	720 (1 inch total of top and bottom margin)
A3 :	1184
A4 :	840
A5 :	592
Foolscap :	1224

All sizes given are approximate and do not allow space for a border unless otherwise stated. To allow room for a border, deduct a suitable multiple of 8 from each width and/or height as appropriate. If your printer executes an automatic sheet feed or form feed to skip over perforation in fanfold paper, for example, you may have to deduct the equivalent of 1 inch (or whatever is the length of paper skipped). Remember also to make allowances for micro feeding the paper during multipass printing. Those marked n/a are not available, since they would need a smaller page width than the minimum offered by this program.

Back to the program. Once you have set the desired size, press the SPACE bar or ENTER. The program will now try to set up the requested page size and fontspace in the common heap area of memory. If the computer runs out of memory (quite possible with wide and tall pages) the program will say 'Too big for free memory. Press any key' and you can resume setting a suitable size. You may find that you can get a slightly larger page than the free memory display suggests you could - this is because the free memory display plays safe by assuming that QDOS will need an extra K or two, but if forced to, will permit the full amount of free memory to be allocated (rather dangerous, I might add, since filing system operations, for one thing, might make the program crash) if you really force it to - but try not to exceed the free memory display. One other thing, if the common heap has become fragmented for some reason (usually due to other tasks releasing memory allocated before Page Designer 2 stuck its nose in) and hence leaving 'holes' which do not count as free memory as far as the memory check routines are concerned, the amount of free memory may not be correctly evaluated, but since the program needs one huge chunk in the heap for the page and fontspaces, this will not matter.

Once the page size has been set, the program returns to the main menu. So that you can see the way in which page viewing and the position indicators work, define a page larger than 480 x 200, for example, 640 across x 720 down, assuming that your QL has enough free memory, about 115Kilobytes. If not, set the largest size you comfortably can. Upon return to the main menu, you will see that the page position indicator now shows a white page with a red rectangle in its top left hand corner. This is the part of the page we can see at the moment, which will, of course, be blank, since we have just defined a new page. The status report area will look rather daunting, like this:

```
                    PAGE DESIGNER 2 STATUS REPORT
INK   =7          CUT buffer=No     OVER=0          Page at 0,0
PAPER=0          Version=V2.10    Underline=off Page size=480x200
TEXT :FONT 0/3 (AaBbCc123)        CSIZE=0,0      Page mem.=24008
HIRES:FONT 1/2 Prop.spacing=On  Text size=1x1 Free mem.=348672
```

The V2.XX is the version number of the software you have. The INK colour number is shown and the PAPER colour number is shown, both followed by a block of that colour (which if black you won't be able to see of course!), the colour numbers being the same as those you'd use in BASIC (7=white, 4=green, 2=red, 0=black, 255=black and white stipple and so on). OVER and UNDER are the same as those found in BASIC, where OVER 0 is normal, OVER 1 is transparent paper (i.e. don't fill in paper colour pixels, so text is transparently printed on top of what was already there, for example) and OVER -1 is the EOR effect, where everything is EOR'ed with whatever is already on the screen, producing a ghostly, almost see through effect. UNDER 1 means underline on and UNDER 0 means underline off. The free memory display is the same as that when setting up the page, although if the page size changed this will change as well! The page size is shown in pixels and in terms of the amount of memory taken. The cut buffer may or may not exist as yet as indicated by the YES or NO following it. The current state of both hires text and normal text is shown on the bottom two lines - the current font number and character size is shown. In the case of text fonts, the CSIZE numbers are like those of BASIC and the letters following the font number (current font number/total number of loadable fonts) are examples of what the current font looks like. Font 0 is the QL's built in ROM character set. The hires text size indicates as what multiple of the normal character size the text is currently being printed. 1x1 is the normal size. Proportional spacing is exclusive to Hires text and is a facility whereby narrow letters such as I take up less room than wide letters such as W or M, which is not important in normal size characters. It can be on or off, depending on whether or not you want the characters to be uniform in size.

Let us now see how the viewing mode works. Move the bar over the word VIEW on the main menu and press SPACE. The menu will disappear and the full picture can be seen. Press any key to restore the menu. Now, to try the other method, call up the page menu again then call up the PAGE POSITION option, the first item on the PAGE MENU.

```
VIEW MODE. Use<>^v to move around page, SHIFT=finer, CTRL=coarser,
ALT=to the edges. ESC/SPACE/ENTER=quit
Page size=640x720
Page at (x,y) 0x0
```

This seems to be a lot of fuss about nothing, so here goes me trying to justify it all. Basically, you steer the red box in the position indicator around the page until you get to where you want. The display is of course constantly updated

throughout this so that you can see where you're going; shame the page is blank! The co-ordinates at the bottom left of the screen give the position of the section you can see on the page and will be updated together with the visual indicator as you move around the page. Movement is fairly rapid using the cursor keys and you can move diagonally by holding down two keys at the same time if you wish. It moves in steps of 10 pixels down and 80 pixels across. If you wish to move in finer steps, hold down the SHIFT key as you go and this will make it move by less pixels at a time, slower and less flicker, so that you can see what's happening better. The idea of using SHIFT to slow things down and move in finer steps is used throughout this program so that if you use cursor key emulation mice, you can use the mouse to coarsely move through the page then hold down the SHIFT key for fine tuning the position, much more convenient! If you wish to take larger leaps across the page, you can hold down the CTRL key, which makes it move in steps of 160 downwards and 160 across. These figures might seem arbitrary, but they have been chosen after a lot of use of the program. Finally, if you just want to get from one side of the page to the other or from top to bottom, you can hold down the ALT key at the same time as the cursor keys. The red box will now jump to the selected edge. Press the usual SPACE or ENTER keys to return to the PAGE MENU.

So that we can have something to play with, let us load a page into the computer. We can use the LOAD NEW PAGE facility to fetch an example page from disc. Select this facility now.

You are first of all asked to confirm if you want to destroy the existing page by loading a new one - it will also destroy any existing CUT/PASTE buffer, by the way, since that resides above the page in memory and things would get difficult as the new page could well be a different size to the existing one. If you answer NO to the YES/NO bar menu, you will return to the main menu without affecting anything.

For now, reply YES so that we can load a new page such as the example provided. You will get this message:-

LOAD PAGE-Enter filename (? for list of files, just ENTER to quit):

Now we have to digress slightly to discuss how Page Designer 2 treats filenames and how you enter filenames, as this is an important concept used throughout the program.

F I L E N A M E S A N D F I L E N A M E E N T R I E S

A standard feature of Page Designer 2 is the use of default drive names and extensions. If you have used Quill or any of the Psion packages supplied with the QL, you will know that they can add drive names and extensions to the file name on your behalf. For example, if you wanted the filename flp1_LETTER_doc, you need only type LETTER and the rest can be added by Quill. Page Designer 2 can produce the same facility, but it does not work in the same way. All the filename is visible and it can all be edited and seen on screen.

A drive name and extension are offered on entry to any procedure that uses filenames, with the cursor presented between the drive name and extension (the extension is also called a suffix in the description that follows) so that you may type the middle name directly or edit them in the normal way.

For example, if you were about to load a page, you would be offered the name "flp1__page", (note: two underscore characters between the drive name and the extension) with the cursor placed on the second underscore, so if the drive name

and extension offered were suitable, you need only type a name for the file without having to type drive name, underscores (underline characters) and extensions. So if you typed the name POSTER, you would get the full filename flp1_POSTER_page. There is a whole list of 'standard' filename extensions, with the exception of PRINTOUT where ser1 is always offered until changed by the user, and the changed version is offered after that. Here is the list of default drive and filename extensions used as standard in Page Designer 2 from version V2.03:-

```
default drive: flp1_   (disc version)

page files            : _page
text fonts            : _font
hires fonts           : _hires
imported text files: _doc
pattern files        : _patn
cut/paste files      : _cut
screen pictures      : _scr
```

These defaults can all be changed by the user by selecting the CONFIGURE option from the FILES menu. This also allows you to change the network station number and the serial port baud rate. All this is explained later, in the relevant section of this manual. Note that this is not the same CONFIGURE as setting up a disc/microdrive copy to work from a different device name.

Just because the program offers the name flp1___page, you don't have to use that or anything based on it. For example you could edit the drive name to become ram1_ and if another of your programs uses the extension _page, you could change the extension to become "_sheet". So if your filename was to include the name POSTER, it might end up as ram1_POSTER_sheet.

These default names are offered for your convenience only, you may change them at will (as long as the QL recognises them!) or do away with them altogether. The advantage which they offer is the saving in typing, in particular it is no longer necessary to press SHIFT for the underline characters after the drive name, meaning that one fingered typing can be just that. If you wanted the filename flp1_SCHOOL_page, you need only type the word SCHOOL and the program would supply the prefix flp1_ and the extension _page automatically. This sort of facility was proposed by Ian O'Hara and also by Neil Taylor, who runs a laser printing service for the QL. He has, incidentally, designed a laser printer graphics driver for the QL. Contact him on 01-390 5652 (135 Ellerton Road, Surbiton, Surrey, KT6 7UA, England) for further details. The actual implementation goes far beyond that which they originally suggested.

One final thought on this subject of extensions. The purpose of filename extensions is to enable file types to stand out in a list of files, so that you can spot at a glance which file is which in a long list. If you dislike long filenames, you can do away with the extensions altogether. There is nothing to stop you having a filename such as flp1_X. The extensions mean nothing to the program as all information needed is held in the file itself. The extensions are only there to try to make life easier for you. You can do away with them altogether by altering the defaults using the CONFIGURE option described later.

Here is another standard feature of Page Designer 2. Whenever you are doing anything that involves filenames, you will be able to do two extra things. (1) Quit, by just pressing ENTER with no characters entered - if any are shown, delete them using CTRL left and right cursor keys, as in BASIC and (2) obtain a list of files by deleting any characters shown then entering a question mark and pressing ENTER. In the first case, the program will quit and return to the main

menu without destroying the existing setup, which is only done upon actually attempting to load a page. If you ask for a list of files (do this now) you will be asked

LIST OF FILES-Enter drive name (just ENTER to quit):

Enter a drive name, such as flp1_. If you make a typing mistake, correct it using the CTRL left and right keys as normal. If you entered a bad name, e.g. mistyped it as fflipp11_ the program will grunt at you and ask you to re-enter the drive name. Normally, whatever you entered is presented back to you for correction, for your convenience. If you wish to star afresh, delete them all using the CTRL cursor left and right keys. If you press cursor up or down, the cursor moves to the end of the line ready for you to delete the whole entry if need be. This may be accompanied by a warning squeak! Upon entry of a valid drive name (and an error message will appear if there are any problems such as no disc in the drive and so on), the list of files appears in the upper window (it will be cleared temporarily for this, then the old picture restored afterwards). This is done in two columns across the screen and if need be, the program will ask you to press any key to continue when the list overflows and fills the screen. A certain amount of free memory is needed for this, as the DIR output is sent to a temporary storage area (PIPE) in memory ready for formatting the output. If there is insufficient free memory for this pipe to be set up, you can expect a normal DIR type output which will whizz up the screen and you'll have to press CTRL f5 to make it pause and resume. Any page present will usually have a name ending with _page. On the program disc supplied, they are EXAMPLE_page and FONTS_page, the latter being a demonstration of text and hires fonts supplied. Enter the full filename once you have finished with the list of files. If found and is reckoned to be suitable, the page is loaded. You do not need to set the page size beforehand or tell the program which of the two types of page files it is (BYTES or COMPRESSED) as it works this out for itself. The length of time it takes to load depends on the size of the page, from a couple of seconds for small to medium BYTES pages to several seconds for a large COMPRESSED page. The visual position indicator will disappear momentarily until the page has loaded. The top left corner of the page will be shown on the screen once it has finished loading. Now we can use the page position facility to examine the page and how this facility works in more detail, seeing as we've got something to look at! Once you've finished that, come back to the page menu to look at another facilty, PREVIEW PAGE, which enables us to see in miniature on the screen what the whole page might look like when printed on paper.

Preview mode prints on the screen in black and white a much reduced copy of the page (either four or eight times, depending on page size, this is one of the limiting factors on permitted maximum page sizes in fact!) so that a sort of image of the page is shown whole on the screen. It means that individual characters cannot be recognised (text size characters might shrink to one dot each!), but pictures, column layout and overall 'shape' of the page are readily discerned, even if the text cannot be read. Hires characters might be legible, depending on character and page size. The purpose of this after all is to give you a guide as to the final page layout and what it will roughly look like on paper. It will inform of you of large blank areas or overcrowded areas, presence or absence of text and so on. It is actually possible to set the 'contrast' of the picture that will be displayed, using a number from 0 to 4 (0 is not much use, as it's only purpose is to tell you what area the preview of the full page takes, for comparison purposes, if you have a document with wide margins and want to see just how much blank space there is. The program asks:-

PREVIEW PAGE-Select contrast (0-4, ESC to quit):

Press any of the keys indicated. If you press the ESC key, the routine aborts and returns to the page menu. If you press 0, 1, 2, 3, or 4, the routine will begin to draw the preview image in the selected contrast. What this means is that the finished image can be lighter or darker, depending on page density. Graphics and text are shown, in fact the way in which the routine works is to count the number of INK dots in a given block area (depending on size) and compare this with the contrast number (or a suitably scaled version thereof!) and use this comparison to decide whether or not to set a dot in the preview image. The principle is easy, the mechanics of the thing are not. It is slow (in machine code terms) due to the large amount of calculating done, but still does a full page in one to two seconds, depending on page size. If you select a value of 1, the previewed image will probably have much more ink in it than a value of four would give. The image colour is white on black paper, like the normal Page Designer 2 colours, rather than black ink on white paper as most printers would do. This is because an all white screen tends to give an annoying flicker with some monitors and most TV sets, which causes eye strain and distraction after a while. If your page is densely populated, it might be better to give a value of four, but a value of 1 might be better early on in the making of a page. Experience will teach you which is the best value to use (I normally use 2 for most purposes), but it is fairly important that you stick to one setting in similar circumstances so that you get used to the relationship between the preview and the sort of pages you normally compose, giving you the 'personal feel' for your own work. The other values are useful for comparison, especially if you wish to see in more or less detail any particular part of the page layout. It can help to make more or less densely populated parts more legible, used wisely. There is no restriction on how many times during the development of a page, or how early on or late during development, that you can use the preview facility.

After the image has been printed on screen, the program asks if you want to copy the preview image to the Cut/Paste buffer, so that you can include the image on a page later on if you want to, for any reason. Cut and Paste will be described later, but it's a means of moving pictures or sections of a page from one location to another - a copy of the part of the page or picture is held in a buffer in memory and can be 'Pasted' back elsewhere later or saved on disc or microdrive for future use. The terms come, as you might expect, from cutting a piece out of a sheet of paper and gluing or pasting it back somewhere. The difference between computer and paper pages is that cutting and pasting does not destroy the original unless you put the saved pieces on top of the originals. The facility to put the preview image in this buffer can be used to provide flashbacks to yesterday's news, for example. Newspapers show a miniature copy of a previous day's front page when referring back to a story from that day's paper (i.e. following up their 'exclusive'). This gives another good reason for the contrast settings - the saved image might look better with different contrast settings, as you'll find when you get used to it. You obviously won't use this facility much, but it took so little code space to implement it seemed reasonable to include the facility.

Now return to the main menu, keeping the example page in memory, so that we can explore the CUT and PASTE facilities. The main purpose of Cut and Paste have been discussed above, but there is a little more to it than that. To cut a piece of the page to memory, we have to mark its size and location. It will always be a rectangle or a square. Once marked, the computer makes a copy of that section somewhere in memory. This is then copied back to a similarly marked area, giving us the facility to copy parts of the page. Normally they will be pasted back the same size and shape as the original, but this program can turn the image around, reflect it sideways and/or vertically, magnify, shrink, or add a box border around this picture (we'll refer to it as a 'picture' or 'image', but it can hold

graphics, text, or both in any free mixture). It can also be saved to a file and subsequently reloaded, giving us the facility to assemble little libraries and collections of pictures for inclusion in our pages. Sometimes, this is called 'Clip Art' and is sold as a collection of little pictures (often cartoon - like) for use with conventional posters and artwork. Sometimes you'll see in newspaper adverts and sports pages pictures that obviously aren't photographs but hand drawn pictures - some companies sell this sort of 'general clip art', but they tend to be expensive and for the professional only. Contact Sector Software for cartridges or discs of digitised pictures for use with this program. As we'll see later, this is not the only way of getting pictures into this program as we can bring in screens from either QL graphics programs or video digitisers.

Anyway, let's get down to some basic cutting and pasting. Again, there is a complicated list of facilities available, so let's get stuck in head first!

```
---------------------------------------------------------------
CUT TO BUFFER
Move green block with <>^v, Move page with ALT<>^v, change block size
with CTRL<>^v, SHIFT=finer, SPACE/ENTER=accept, ESC=quit
Page size=640x664   @ 0x0,    Block @ 176x50, size=120x100
(all in pixels)
---------------------------------------------------------------
```

The first thing you will notice is a large green square or box on the screen over a part of the page. If it overlaps anything, it can be seen through the box, as it is designed to be vaguely transparent, although it may change the colour of things slightly - this is so that it is immediately obvious where it is (very important if you're working with colourful intricate graphics, where the block area might not be too obvious unless it had a visible effect) on the page. This block can be moved around with the cursor keys and its size can be changed using the CTRL cursor keys. If you wish to move it to another part of the page, this can be done by pressing ALT and the cursor keys to move the visible section in the desired direction (watch the red and white boxes at the bottom of the screen). To return to the menu, press the ESC key. Hold down the SHIFT key for finer movement. In general, set things roughly where you want them, then use SHIFT with the same keys to 'fine tune' the position and size. There is a slight restriction on how finely it will move - in steps of about a quarter of an inch (8 pixels) across the screen and in single pixels down the screen. This is due to word addressing being used for fast data transfer without having to juggle odd bits at the ends. As you move around the page or the screen, the figures at the bottom will change. These are the page and box position information. The box co-ordinates are across and down the screen, so you can find the position of the box on the page by adding the co-ordinates of its corner and those of the Page @ co-ordinates. If you want to cut and paste several very large sections, you can do this by remembering the figures (write them down) and using this display to help you place the various sections accurately. Once you are happy with the piece that you want to copy, CUT only copies, it does not destroy the original. Press either SPACE or ENTER to copy it to the buffer in memory. There will now be a split second pause as the picture is copied into memory. The program then returns to the cut and paste menu.

Now, we'll find out how to paste this picture or image back onto the page, firstly using the most simple option of full size. Even this is not 100 per cent simple, as you have a choice of two ways of doing this. You can either use a transparent green box or you can use the actual image, although you can't see through this as it hides what's under it, although it doesn't destroy what it passes over. The snag is of course that you can't see what you're about to paste back, but if you don't like the result you can always undo it later and try

again. The other difference is that using the green box shows what area the image will cover and is slightly faster than using the actual image. Move the image around and change the screen position and the page position as before. Another option on the menu would allow you to change the size, but this is slower. If you want to abort and return to the menu, press ESC. To put the image in place, press SPACE or ENTER. You will be asked if that result is OK. If you reply NO the program will put back what was on the screen previously and you can try again. If you want to change from using the green block to the actual image method, go back to the menu and select PASTE again. If you pressed Y for yes, the image is placed where shown and the program returns to the Cut/Paste sub menu. Normal size cut and paste is very fast and will also respond to the OVER setting, hence the apparently silly appearance of OVER on the Cut/Paste menu. If you selected OVER 1 (the settings for Page Designer 2 OVER are exactly the same as for those in BASIC, 0=normal, 1=transparent, -1=EOR with what's there already) only the INK dots would be filled, anything in black wouldn't be touched, so that images can be put on top of existing text or graphics for a see through effect. Overlapping green and red may cause unpredictable results (they may become white!) since the pixels are OR'd into the page contents. This can still be undone later, if need be. The other possibility is to use OVER -1, but I can't see much point to this. By and large, it will be the same as OVER 1 effects, except that white on white will turn black and so on - the INK pixels are inverted. This could be used to cancel a mistakenly inserted picture, for example, by PASTEing it on top of itself with OVER -1 to cancel it, although there are easier ways of erasing things! One possibility is to use it to make complex overlapping graphics distinguishable, since it can produce an inverted 'ghosty' image under the right conditions. Someone pleaded with me to include OVER facilities for PASTEing, so there it is.

The next option is to rotate an image, where we can turn an image through any angle (specified in degrees) for special effects. The usual option will be to turn something upside down (pictures) or sideways (text), although you can do things like turn a picture through twenty three degrees to look like a crooked picture frame, for example. The nature of the way computer dots and pixels work, that is, they have sharp edges, mean that this will not work too well on some images, although it will come in useful and if the results are not too brilliant for the particular image you want to rotate, you could always touch up the results manually if you felt it necessary. What you have to do is tell the computer where the unrotated image would go then by how much it is to be rotated. If necessary, the computer will juggle the visible section so that you can see what it's doing. The rotation will be about the top left corner of the unrotated image. At least, that's how it's meant to be. It's also SLOW since floating point arithmetic has to be used to work out where everything goes (there's a lot of SIN and COS arithmetic involved) and it can take several seconds to rotate a not-too-large image. Also, since the routine can only turn images that fit on the screen and it will not be easy to do the job in sections, unless it's a right angled (90, 180, 270 degree) rotation, bear in mind that the width of the part you can see is 480 dots and the height is 200, so to turn something sideways, it should not be wider than 200 dots or it will be clipped (the visible section will be plotted normally, but if it won't fit on the screen, it won't be plotted). A facility exists for pixel rounding, to make the effects of rotation less nasty (fills up any gaps introduced, although it might overlap slightly, to smooth things out), although this is fairly primitive and limited in what it can do. It won't be needed for 90, 180 and 270 degree turns. This suffers from no word addressing limitations and so on, so if you want to place a PASTE with dot accuracy, with the angle of rotation set to 0. It's slow, but it works. After pasting, the original visible section setting is restored, so don't panic when things start jumping around of their own accord! Also, don't forget that if an inage is turned sideways, its length may change, because the QL screen pixels are not quite square.

The next thing you can do to a cut and paste file is to reflect it in the way it might look in a mirror. If you reflect an image, it is not the same as turning it to the same position, because the left and rights might not be in the same place. You can opt to reflect horizontally, vertically, or both, or even neither - this is just the same as ordinary pasting. As before, once the image has been plotted you'll be asked if that is ok. If not, the original is restored.

The next thing you can do with an image is to change its size. Page Designer 2 allows you to magnify an image or to shrink it - it's rather slow, though, especially if you want to change the size by a non-integer amount, which will occur quite often if you want to make a picture fit into a given area. There is some loss of detail, naturally, when reducing by non-integer amounts, but nothing unacceptable. The method used is a green box on screen which you can place where you want in whatever size you want, and the size to original ratio is also displayed together with co-ordinate information and instructions:-

```
--------------------------------------------------------------------------
PASTE MAGNIFIED/SHRUNK
Move green block with <>^v, Move page with ALT<>^v, Change block
size with CTRL<>^v, SHIFT=finer, SPACE/ENTER=accept, ESC=quit
Page size=480x400   @ 0x0, Block @ 176x100, size=40x32
(all in pixels). Ratio (x,y)=3,2
--------------------------------------------------------------------------
```

All this is fairly self explanatory, except maybe for the ratio. As you change the size of the green block window, the figures after the word Ratio change. This is by how much the size of the image is changed. For example, if you were trebling the width and halving the height (it might look silly and squashed if we did) it would read Ratio (x,y)=3,0.5. The first figure is the horizontal ratio and the second is the vertical ratio. A figure of less than 1 is obviously a reduction in the size in that direction. Again, if you don't like the finished product, you can go back and try again.

The next option is to save and load the contents of the cut buffer. This is the facility I used to create the 'Clip Art' files I have mentioned else where in this manual. There is an example file on the disc supplied, called EXAMPLE_cut. Try loading some now to get used to loading, then change it with the manipulation facilities and save it again. If you already have an image in the cut buffer, it will ask Overwrite (y/n)? before going on to load the image. If you say y for yes and later abort without completing the loading, the old buffer will be preserved. Also, if when saving a file, the specified filename already exists, you are given the option to delete and overwrite it.

One very useful thing that we can do for cut and paste images is to add borders to them. This border can be any thickness and colour you like - solid colour or stippled. To draw the box, you move the outline to where you want it with the cursor keys, change its size (outside edges) with CTRL cursor keys and use ALT cursor keys to change the width of the outline - the horizontal and vertical outline width and height can be separately set. The colour of the outline can be toggled with the space bar and the colour in which it will appear is shown in the prompts display at the bottom of the screen. The relevant details such as box size, location and outline details are also shown. Because the CTRL, ALT, and SHIFT (finer) keys are used, to change the page position you should call up that option from the menu, unfortunately. It might be necessary to press up to four keys at a time (CTRL ALT SHIFT cursor key) to arrange this here! When you press ENTER, the box is drawn as requested, followed by a "Is that OK (y/n)?" query as usual. If you press y for yes, the image is stored and the program returns to the sub menu, but if you press n for no the box is discarded and you can try again. To abort, press ESC which returns you to the sub menu.

We mentioned the OVER option earlier. This simply pops up a bar menu with the three settings of OVER. Select the one you want by moving the white bar over it and pressing ENTER as usual.

That completes our tour of the cut and paste menu. Next, we'll visit the Eraser. This is a very useful and potentially destructive facility for, as you might expect, erasing portions of the page. The eraser itself looks like the usual green window box on the screen and it has two modes, MOVE and ERASE. The first simply lets you move the eraser to the desired place, whereas the second does the actual erasing:-

Press the space bar to change between moving and erasing - it starts off at MOVE when you first start. Pressing ENTER erases the current spot whichever mode you're in. The eraser moves in steps of its own size normally, but it can be persuaded to move at pixel resolution by holding down SHIFT as you move it. Diagonal movement is possible. Change the size of the eraser using CTRL cursor keys - both height and width may be changed. Move the page position using the ALT cursor keys.

Now let us move on to another menu, the FILES menu:-

There are some facilities here with which we'll already be familiar. These are PAGE POSITION, LOAD PAGE, SAVE and LOAD CUT BUFFER. LOAD FONT is used to load a text font, as described later. The next options are useful file maintenance type utilities. The first is DELETE which performs a similar function to the BASIC DELETE command, in that it deletes a file, but is protected so that the program does not crash when something goes wrong. You enter the filename and can obtain a list of files by entering a question mark, or quit by just pressing ENTER with no characters typed. If an error occurs, e.g. you mistype a filename, the original filename is presented for you to edit. The next two are complementary. COPY and COPY_N are again like the BASIC commands of the same name, used to copy file to file and file to printer for example. COPY_N copies the file without transferring the header bytes as well, essential for copying files to a printer, for example. First, you enter a source filename (copy this file) and then the destination filename (the new file created). If you enter a question mark at either or both stages, you can obtain a list of files. Just pressing ENTER when entering the source filename aborts the routine. Just pressing ENTER when entering the destination filename returns you to entering the source filename again. Re-entrys are again treated as editable versions of the original filename.

FORMAT is again like the BASIC command of the same name. Enter a medium name (the name of the medium, not the length of the name!) to be used to format the disc, cartridge or RAM disc. You may again obtain a list of files or quit in the normal way. Since this routine is potentially destructive, you are asked if you're sure you want to format first. The routine is error protected, so if you forget to put a cartridge in the drive or put in a write protected disc, what you will get is a disgusted grunt from the program and a 'Format failed' message and a chance to try again. The name you supplied is presented to you for editing and re-entry. This FORMAT routine is also useful for initialising static RAM discs which need a FORMAT command. The text output of the FORMAT command (e.g. 50/50 sectors) is directed to the prompts window, so it shouldn't mess up the display - if it does just return to the menu and use SHIFT-F5 to refresh the display.

The two SAVE PAGE options are next on our list of items to explain. Page Designer 2 can save pages in two ways, depending on what you need. The page can be saved as BYTES (like an SBYTES file in BASIC) which is very fast for loading and saving, but takes up the same amount of room on disc or microdrive as a page takes in memory (i.e. a lot!). Therefore, a compression utility is supplied to make storage space a priority, although it slows down screen saving and loading to some extent, to quite an extent if you have a complex page to save. Most compression systems rely on finding sequences of similar colours, bits, or words in memory and encoding this so that a count is given of the number of consecutive identical parts of information. So if there are no pattern sequences, or very few, the encoding and decoding routines have a very tough time of it! For complex pages, there will be little space saving. Conversely, for a simpler page (or an average page) the compression systems can have a drastic effect on the length of the file. A hint with complex compressed files is to COPY the page to a RAMdisc then LOAD from the RAMdisc - on long files the extra time spent copying to the RAM disc can be more than recouped by the faster loading time. You have to choose between BYTES (fast) or COMPRESSED (economical) at saving time; upon reloading the page, the information is present in the file to enable the program to determine for itself both the page size, the amount of memory and most importantly the decision as to whether to load as BYTES or COMPRESSED and even tell you what it's doing! If an accident happens while you're saving the file, for example, if you remove the disc or the disc fills up, whether or not the program recovers or not depends a lot on how QDOS copes - the program is fully

error protected as long as QDOS doesn't give up on you!

Merge screen. This is a routine that allows you to merge a 512x256 QL screen anywhere onto a page, as long as the page is wide enough. You are not limited to visible screen area, there is no clipping of either width or height of the screen. Placing the screen origin is done in a slightly different way to other such operations in the program.

You will see a green 'corner' symbol at the top left of the screen. This is where the top left corner of the imported screen will go. The program will control how far to the right of and down the page you can place the screen. Use the cursor keys to move around the page to find where you want to put the screen then press SPACE or ENTER to fetch in the screen. Press ESC to abort. The loading time can be as long as a quarter of a minute and goes direct to the page, so you won't see it until it has been completed.

P R I N T O U T

This is what this program is mainly about, getting the page onto paper. The first thing you are asked is how many passes of the print head to make on each line, how many times each line is printed on top of itself, if you like. Then you are asked how many copies to print. In both cases you can specify 0 to 9, 0 being 'quit'. Next you are asked where to send the print output. This will normally be printer output via the 'ser1' port, but it can equally well go to a parallel port or to a file, even. If you want to quit, erase the name shown and press ENTER. The program will return to the main menu. Enter a filename or printer port name and the program will begin to print the file. If you are printing to file, this can be used later for bulk copying to paper, using a print spooler. During printing you can abort by pressing the ESC key, which is checked at the end of each pass and print line and each copy. Although the routine can do up to 9 copies, it may be better to print to file and use a multi-tasking spooler to copy all the copies to paper while your program gets on with something else.

The final option is Load Patterns. This loads the pattern file for use in both pattern brush and page border applications. As usual, the list of files options, typing error control and quit are all available.

It's time now to move on to what is probably the most useful and fun, but most difficult to understand aspect of Page Designer 2, the text import facilities. The basic idea is that you can take text from a file (Quill _doc, _lis or text files) and put it on the page in columns in a variety of styles and fonts. The first thing we have to do is choose our files,

IMPORT TEXT: Enter filename (? for list of files, just ENTER to quit):

This works in the normal filename entry way, in that you can enter a filename of up to 40 characters, obtain a list of files with ? and abort by pressing ENTER with no filename. The file will be checked and if it is a Quill _doc file, the fact will be reported, as this is treated differently. The program is happiest with Quill _doc files, and even offers the _doc suffix as the default, so you need only enter the name itself, which can only be up to 8 letters long in QL Quill. If it was a _lis file, you will be asked if you want to ignore a single linefeed (e.g. carriage return to printer at end of line) and accept a double linefeed (paragraph break). This means that if you have a text file which contains end of line codes which may affect the justification, it may be best to skip over them so that lines can be joined together to make the finished results more attractive. It is important not to do this for paragraph breaks though.

since they are spaced out normally, making it easier on the eye. You will have to use your initiative for this, unfortunately, as the routine will do its best under all circumstances but _lis files are horrible things for the program to try to work with - Quill _doc files are preferred. To start with, use _doc files until you get used to things, then try a _lis file, both ignoring a single linefeed and not ignoring a single linefeed. Just in case I had you confused, the _lis files are PRINT files from Quill. When Quill sets about printing it normally asks you something like PRINT Current, Whole, To printer...

When it does this, enter a filename and instead of going onto paper it goes into a file in a format suitable for copying to the printer later with the COPY or COPY_N commands from BASIC. Since Page Designer 2 prefers Quill _doc files.

Once you have decided on this, the next thing you need to decide is what kind of columns to use. Text is put into columns which can be up to the entire length of the page. You can have up to 10 columns across the page, in a variety of styles. These are:-

(1) Multiple automatic columns, spaced and sized to fit a given page width. This means that their width might be unpredictable, but they will all be the same width, chosen by the computer.

(2) Multiple specified width columns. This means that you can tell the computer how many characters per line you want the columns to have.The computer will then define as many columns as will fit onto the page. This is the option I use most often for my designs, but option (1) is useful when layout is more critical than actual column size.

(3) A single manually defined column can be placed anywhere you like in any size. This is fiddly, but can produce excellent results where you might be working under difficult circumstances, e.g. you want text to flow around a picture. It is easy to get carried away though, since it is probably better to type short bits of text manually in these cases, as described later

You may be asked to indicate what end of line code to use, unless the file loaded is a _doc file. You may select linefeed (the code for which is 10) or a carriage return (in which case it would be 13). Quill _doc files use a code of 0 for end of paragraph (there are no end of line codes unless you press ENTER at the end of each line, in which case the document is treated as a series of paragraphs). If a carriage return and linefeed are used, just select one or the other. The second will be ignored if they are different.

You will be asked what character sizes you want to use - you can import text in all 8 QL text character sizes, single or double width, single or double spacing, single or double height. All the text in one import session for a multiple column layout must be the same size (if you want to vary the size you can do one part in a given size, go back to the main menu, select the text import facility and size again, and move the cursor and file positions as described later), but text size can be set within the same document, as long as you tell the computer what size the resultant column will be (i.e. wider or less characters per line). Once we've been through this rigmarole, we come to the text column menu unless we chose a single manually defined column. We'll be asked in this latter case to visually position the column across the page - the column will be full page height but you don't have to use the height if you don't want to, as it is possible to restrict the text to given areas manually. Move the column indicator using the <> cursor keys to move the column itself and the ALT <> cursor keys to pan the page itself across, if the edge of the column is not going to fit into where you can see.

Press SPACE or ENTER to select the position shown when happy with it, and the program then goes on to the text import sub menu, which is where the fun really starts and life starts getting really complex, since there are so many things you can do. As a single manual column is treated differently to a multiple automatic column, we'll keep the descriptions separate and discuss first the multiple automatic column setup, starting with the menu and status display, which looks even more complex than the menu itself!

After the page size, the figures in brackets are the number of characters that will fit onto the whole of the page in the current character size. This is a guideline only and it will be false in terms of justification, column spacing and general layout etc. The current cursor position is shown after this and is again only a guide since much of the cursor control is automatic unless you manually override it.

On the second line are the details of the columns. The column type is either auto or manual. For this menu it will always be auto. Manual will only appear when you use single manually defined columns. WIDTH is the number of characters that will fit on a line in the column, assuming no justification takes place! Origin is the top of the current column, base is the bottom of the current column. Both co-ordinates are in pixels. OVER and CSIZE are obvious. OVER parameters and CSIZE parameters are the same as for the equivalent BASIC commands. COLUMN is the number of the column in which the cursor is currently located and line is the line down that column, which should be somewhere in the visible section of the page, but may not always be, since the program may suppress the cursor block at the bottom of the page or between columns or if it is off screen. INK and PAPER colours are shown as blocks of their colours. One point to note about the use of colour in Page Designer 2 is that although you can have stippled black and white, you can only have solid red or green unless you do something in black and white stipples and recolour, although this is only practical if you use three colours - black and white for the stipples and red or green for the background, then recolour the stipples to green, say, and the red to PAPER colour, and there you have a green stipple on a black background. Doesn't life get complex sometimes?

UNDER refers to the underline facility which can be on or off. Justify is shown as an internal flag value only, This flag value is the same as the order in which they appear on the sub menu:-

0=No justification (off) 1=Left only 2=Right only 3=Centre
4=Left and Right Word Spaced 5=Left and Right Character Spaced

Linespacing can be normal, double or triple, shown as the number of blank lines to insert between lines of text. Normal spacing would, therefore, be 0, double spacing would be 1 and triple spacing would be 2, just to make you think! Incidentally, don't think that you have to select double linespacing for each line of text if you're going to use double height characters. Page Designer 2 works that out automatically and still allows you to use double and triple linespacing if you want to.

FONT is the number of the current text font. 0 is the built in QL character set, whereas 1 or higher is a text font that can be loaded from disc or microdrive. The characters in brackets after the font number are example characters from the current text font (Aa8bCc123) printed in that font style.

Line end pause is an interesting and potentially useful feature. While text is being imported, you may wish to restrict a particular section or facility, so you

can always press ESC and the program will return to the above menu. The text import rate is quite fast and always tries to show clearly what it's doing on screen, so it should be possible to judge accurately exactly when to press ESC, although for critical applications, the import can be made to wait at the end of each line for a signal to continue. This is line end pause - press any key to continue, but press ESC to abort - meaning that there is less hit and miss involved. Switch line end pause off and text flows into the columns uninterrupted until one of three things occurs:-

(1) You press ESC
(2) The end of the page is reached
(3) The end of the text in the file is reached

In the case of (3) above, if the file is a Quill _doc file, not all the file is read, only the text part. The paragraph and margin information and so on is not included.

File position is the current part of the file, that is, where the current character is taken from in the file. Note that Quill _doc file text does not start from the head of the file, so if you see a number like 30 before you have put any text on the page, don't panic! The linefeed code shown is always 0 in the case of a _doc file and can be either 10 or 13 in the case of all other files. If your file includes two end of line characters (e.g. carriage return and linefeed) one will normally be ignored as long as they are both different.

The text import status area is quite an eyeful (and even more of a mouthful) to take in. You don't have to be an expert on it, it's only there to remind you of something should you want to be reminded of it.

Now, on to the menu. Let us examine the menu items individually. First, the justification selection. Page Designer 2 supports a number of ways of justifying text. By default, left only is selected. From the top, NONE (OFF) is provided so that you can fetch in text or characters that should not be justified, such as a BASIC program listing. NONE allows text to be imported without the justification facilities messing it about, but it does mean that words will be split at the end of lines.

Left only means that words are not chopped at the end of a line (it moves them onto the beginning of the next line to prevent that happening. The left hand edge is smoothly defined at the edge of the column, but no attempt is made to ensure that the right hand side of the column is smooth - depending on the sizes of the words and where the gap between words in the text comes, it might be quite ragged! If there is one very long word that more than fills a line, the routine gives up and just chops it (try the Welsh place names LLANFAIRPWLLGWYNGYLLGOGERYCHWYRNDROBWLLLLANTYSILIOGOGOGOCH and RHOSLLANNERCHRUGOG to see what I mean! In case you're not aware of them, these are real place names, one on the isle of Anglesey and one in the county of Clwyd).

The opposite of left only is also possible for special effects. This is called right only and is the same as left only in that it prevents words being chopped, but smooths the right of the column, leaving the left edge ragged. This is sometimes used when attaching text to a long picture for adverts, for example. The next option is Centre justification where again words are not chopped, but this time they are placed as near as possible to dead centre on the line. This can be used for headings and special effects, such as might be needed in some adverts. You probably won't be using this one much!

The next two options both allgn text at both the left and right of the column so that words are not chopped and the line of text fills the full column width exactly, but they differ in the way they do it. Using the word spacing method means that the gaps between words are altered to make the line fit neatly onto the full line width. The other method, character spacing, is not as neat but is more flexible in some ways, in that it changes the gaps between each letter until the line fits. Fascinating to watch! Both these methods can give ugly results to narrow columns where you might end up with two short words with a large gap between them. In such a case, it might be better to do that one line again with left or no justification, or go back to it later and tidy it up by manually typing over it. You'll find that word spacing is the one you'll use most often, except maybe for left justification.

Clear column allows you to wipe an entire column clean so that if you do not like the end results you can go back and try again or put the text elsewhere. A bar menu will appear asking if you are sure before anything drastic is done, since once cleared, the contents cannot be recovered. The cursor position may return to the top of the column if you are lucky - it can't always be done.

Move text cursor gives you the option of placing the cursor on any line of any column defined on the page. You can move up and down the columns at will - it will also follow linespacing. If you want to move in one line steps while importing in double or triple spacing, reset spacing while you move the cursor then restore the spacing afterwards. You can also jump left or right to adjacent columns. You can even go back on top of text already imported, to go back and do it again in a different font, for example. SHIFT cursor keys moves the cursor faster.

Colours. This sub menu crops up in certain other menus as well. It is a bar menu with the colour numbers (as in BASIC) alongside a block of colours consisting of the stippled black and white colours as well as red and green. Move the pointer bar (which does not extend over the colour blocks, just over the numbers) over the colour number you want and press SPACE. This sets the INK colour. To set the PAPER colour, go through the same thing again.

OVER. To set the state of OVER (1=transparent, 0=normal, -1=XOR, as in BASIC) move the pointer bar over (sorry!) the one you want. Underline, This can be on or off, select the one you want from the menu.Next comes linespacing, which can be single, double, or triple, chosen from the menu. Line end pause has already been discussed, select yes or no from its bar menu. Select textfont won't mean much at the moment, but it's used to choose which of the text character sets loaded (or the default ROM set) is used for printing. All the font options are written using their own styles. So if font 1 was italics, font 2 was bold and font 3 was old fashioned text, they would all look like that. If a font has not been loaded, it defaults to the default set until something is loaded into that area. The fonts have to have been loaded into the computer before the import file is opened.

The next two items in the menu are similar. They enable you to whizz through a file skipping text in the process. Useful also if you want to skip through parts of the text, e.g. for taking a chunk of text out of a file. You can also jump straight to the end of the text by pressing either SHIFT cursor right or SHIFT cursor down. Using SHIFT left or SHIFT up goes to the start of the file. A small window is opened on the screen and the text shown as it is skipped over. The next character that would be imported from the file is the one the red cursor is sat upon. When at the desired position, press SPACE or ENTER to return to the menu. Finally, we come to the magic one, READ TEXT TO PAGE. The screen also responds to CTRL F5 during this, so that if you want to supervise the importation without

returning to the sub menu when the phone rings, use CTRL F5 to freeze the screen output and subsequently restart it again.

If the end of the page or the end of the text in the file is reached, the program does not automatically return to the main menu, because it assumes quite correctly that you might want to either reposition the cursor or move the file pointer within the file to do something else before you finish. The file is not closed until either an error occurs (e.g. bad or changed medium) or you select RETURN to go back to the main menu. Remember that text automatically fills up the full length of the column from top to bottom, jumping automatically to the next column, if there is one. If you want to skip a part of a column (e.g. to insert a picture at that point later) you should return to the import menu by pressing the ESC key and manually move the cursor past the required area.

One the main menu, there is another way to add text to the page, direct manual typing. It is called simply TEXT on the main menu. It calls up this sub menu, where most of the facilities will be known to you, such as SELECT FONT, COLOURS, PAGE POSITION, OVER, UNDERLINE and RETURN.

TEXT SIZE simply lets you choose from all the possible QL text character sizes, from CSIZE 0,0 to CSIZE 3,1 in a bar menu. As usual, move the bar menu over the text size you want (remember that the first digit is the width and the second is the height. CSIZE 0,0 is the smallest and CSIZE 3,1 is the largest, as in the BASIC command of the same name. LOAD FONT shows a list of all the current fonts in memory for Page Designer 2. You are asked to select one of the fonts to load.

This example shows us that we have two fonts we can load to, in addition to the default font, which is always present and cannot be loaded to. The fonts are printed in their own style or typeface.

This enables us to type text to the page in a non justified manner. This is most often used for adding text to a picture, correcting mistakes, adding text where it would not be practical to import it because either it is so short or it has to go in a restricted space or you want to do something not possible with importing text, such as produce special spacings, stagger the text, put text in a stepped line, type in a column downwards or just not want to restrict yourself to a single size of typing area, e.g. to type all the way around a picture. It is quite powerful, but can be tedious for long jobs. You can position text to an accuracy of one pixel horizontally and vertically by using the SHIFT cursor keys to move the cursor, but the normal thing is for the cursor to move in character size increments, scrolling the screen if necessary.

To type text just move the cursor to where you want the text to appear then start typing. If you get to the top or the bottom of the screen, it will scroll up or down by one line. The cursor is indicated by a steady red block in the text area (the flashing cursor is actually down in the status area). The program is compatible with SPELLBOUND for spelling checks, but do not use the examples display as it will mess up the work area. The indicators SPELLBOUND puts at the bottom of the screen may partly obscure some of the status reports while SPELLBOUND is in use. Also, you should use a checking mode that does not introduce the 'hat' or circumflex accent (^) character, because when that is deleted under SPELLBOUND on the start of a line, results might be unpredictable. Mode 2 should be fine. Also, the game SPELLBOUND plays with its own name if you type it in lower case may confuse the Page Designer display.

The four function keys F1 to F4 are used for four distinct purposes here. F1 is used to swap the ink and paper colours. It is faster than going through the select colours routine and you don't have to return to the menu to do it. It is useful to be able to reverse the colours to create special effects for highlighting words and so on. Be careful with using inverse video (i.e. black ink on white paper on the screen, because it may be blurred by the printer, especially if the printed copy is to be photocopied. F2 toggles between all the defined fonts, F3 toggles the state of OVER and F4 toggles underline on and off.

The only other facility on this menu is COLUMN. It allows you to place limits on where on the screen the cursor may move to, effectively allowing you to manually type into columns. Although automatic justification is not possible due to the page text being stored in bit map form, there is a 'bell', rather like a typewriter, which warns you when you are within seven letters of the right margins. If you like, the column facility allows you to set left and right stops like the typewriter.

The column may be up to 480 pixels wide. The number of characters per line may be worked out by checking the text character size in pixels (width 0=6 pixels, 1=8 pixels, 2=12 pixels and 3=16 pixels) and diving the column width with this. So, for CSIZE 0,0, a column width of 480 pixels will be 80 characters wide. Use the controls indicated to change the size and location of the column. The height extends from the top of the page to the bottom with automatic scrolling on text entry. The column may be placed anywhere across the page by selecting the required page position with ALT cursor keys. ALT left and right are obvious, but ALT up and down may not be so obvious, since we have just said that the column extends from the top to the bottom of the page. It's only included for when you have to fit the column between two pictures on a page, for example, where the column width would be critical, so you can visually adjust it to suit. Without using SHIFT, movement and size alteration is fairly coarse. It becomes finer when using SHIFT. Use the CTRL left and right cursor keys to change the column width. The page size and position are shown on the status report on the third line and the column width and position on the line below that. These are in pixels. The column location is in pixels across the art window on the screen, so the position on the page is deduced by adding the column position and the page origin. Once happy with the sizes (oh, the column width and location can be adjusted with pixel accuracy, by the way) press ESC, SPACE or ENTER to select the size shown and return to the menu. In use, you will find the fact that a short bleep is sounded seven characters from the end of a line (it doesn't sound at all unless the column is about 10 characters wide, size considered and either a character is being typed or the cursor is being moved forward in character sized increments, not pixel steps) is extrememly useful when trying to manually type in columns, as it enables you to judge where to press ENTER to start a new word on a new line.

H I R E S T E X T

Hires text on Page Designer 2 uses a 16 by 28 pixel set of characters which can be typed in given sizes, with or without proportional spacing, imported across the whole page and auto-scaled to fit a given area on the page.

Many of the principles of normal text apply to this set, in that a cursor appears on the screen in the current character size and you can select the number of fonts to hold in memory and so on. There is no default character set, however, and you can actually end up with no hires fonts in memory at all (not a bad idea - they all take up about 9 kilobytes, so it would save a lot of memory!).

The first thing we can do is to select the size of the text used for typing. This can be up to 25 times the width and 7 times the height, enabling a single character to fill the visible section of the page. The old height and width are presented for you to edit, so you can preserve the settings just by pressing ENTER for both.

The next thing we can do is to select whether proportional spacing is on or off. What proportional spacing means is that if a narrow letter such as an 'I' is to be printed, it need only take just enough room for itself, not the whole cursor size! For normal QL text, this is not important as the characters are fairly small and you're used to being without proportional spacing anyway, but for hires text it is essential because of the size of characters involved.

We can also set the character spacing, the gap between the characters. This can be from 0 (continuous edge to edge characters) to 16 (1 normal character width) pixels across and 0 to 28 pixels down.

Hires fonts can be loaded and selected in the same way as for normal text fonts, as can colour and OVER state. After that we come to the three means of putting hires text onto the page. The first is to import text from a file, although this facility is somewhat restricted, since it does not check whether a file is a Quill _doc file or a common text file. Justification is not supported, but proportional spacing is. It's also rather slow, but can be rather useful at times. It can go across the whole page and down the whole page. Unfortunately, it is not possible to use columns, nor is it possible to import Quill _doc files. ASCII files have to be used – these are files that contain only text, such as the files created using PRINT# in BASIC, or those created by the editors supplied with some machine code assembler programs. Quill _lis files can be used. The text has to be preformatted, meaning that you should calculate how many characters will fit on a line on the page by dividing the page width (in pixels) by the character size (16 times character width, e.g. 16 times 1 for normal width hires text, 16 times 2 for double width text and so on). Then, when preparing the text on Quill (for creating a _lis print file) or whichever editor you are using, use that as a guide to what line width to use.

The second facility is to fit a given text string into a given area, scaling the characters to fit. First, you mark the area with the green box window. Then, you enter the text and as long as the program does not consider it stupid to try to fit what you have entered into the marked area, it asks for the pixels of spacing to put between each character then proceeds to plot it all into place.

The final facility for hires text is direct typing of hires text. This is very useful for putting headings into place and for general typing where a larger font with more detail than the normal QL text character set can hope to provide.

You can use the function keys for special effects such as swapping ink and paper colours with F1, toggle the current font number with F2, change the OVER state with F3 and change the condition of proportional spacing with F4. When you press these keys, the relevant part of the status display is updated. Also, you may delete a character by using the CTRL left and right cursor keys, but that only works reasonably as long as proportional spacing is on, as the character delete routine always thinks in terms of one full character wide. The fact that pixel adjustment of cursor location is possible helps to overcome this.

G R A P H I C S

The graphics facilities of Page Designer 2 are not very elaborate because it was decided that it should be able to do things like handle imported text better than produce graphics, since there are many excellent QL graphics programs that can do this job far better. Page Designer 2 supports a wide range of facilities for combining externally generated graphics and text and printing them out. On the files menu, there was a facility for merging QL screens into the page. That's one way of bringing external graphics into the program. Another way is via cut and paste files and the clip art collection. It would also be possible to bring high detail user defined graphics into the program by suitable definition of either hires or text character sets. In addition to this, Page Designer 2 has space for a set of 9 special graphics characters that can be loaded, based on an 8 by 8 pixel grid. These can either be used to add a border all round a page or as a sort of Paint Brush or simply as user defined graphics characters. They permit a reasonable definition and are very economical on memory. I call these pattern characters ,since that is the purpose for which I originally designed them.

The example files on the disc end with the name _patn. They are created using the pattern editor supplied. To use them to add a border all around the page automatically, load a pattern by selecting the LOAD PATTERNS option from either the graphics or files menus. You will be asked to enter its filename - you may obtain a list of files or quit in the normal way. The file is checked for length and so on then loaded ready for use. Once loaded, it remains until overwritten by another pattern set, because it's installed at the bottom of the heap area of memory and is not deallocated until the program ends.

One thing you can do with them is to use them to add a patterned border to a page - it might take a couple of seconds, but it's often well worth it! If you imagine the block of 9 such 8x8 patterns laid out as three rows of three characters like this:

1 2 3
4 5 6
7 8 9

The one labelled '1' would be used as the top left corner of the page, the one labelled '3' as the top right hand corner of the page, the one labelled '9' as the bottom right hand column of the page, the one labelled '7' as the bottom left hand corner of the page, and '2', '4', '6' and '8' as the sides of the page. 5 is only used for the pattern brush, although the pattern brush can obviously be any of the nine characters. The brush is indicated on the screen by a small green box which can be moved around under cursor control in the normal way. If you hold down CTRL as well as the cursor keys, the patterns will be drawn as it moves. It is possible to paint the current spot by pressing ENTER if you just want to place an user defined graphic somewhere without drawing a whole line of them! To select which of the nine characters to use, press the space bar.The nine characters are drawn in the bottom window in a box layout, as shown above. Select which of the nine to use by pressing a key from 1 to 9 as shown in the adjacent diagram. The current pattern number, page size, pattern brush location and page position are shown in the little status display at the bottom of the screen. Press ESC to return to the graphics menu.

There is another kind of brush that you can use for touching up graphics and general line drawing. This works in a fairly similar manner, but uses the QL colours and stipples instead of the patterns. It has two modes - draw and move.

Toggle between them by pressing the SPACE bar. Change the size of the brush by pressing CTRL cursor keys and change the page position by using ALT cursor keys.Again, SHIFT gives finer control. ENTER draws the point without moving the brush.

Another way of drawing lines which in many ways is better than brush for many applications is the LINES option from the graphics menu. You should select which part of the page is needed before selecting this option (e.g. use PAGE POSITION), as it does not have the usual ALT cursor key facility to select page position. You first select the start point of the line by placing the little green point where you want the line to start - anywhere on the screen. Move it using the cursor keys, with the option of SHIFT for finer movement as usual. Now select the end position using the same method, except that the line will be drawn rubber banded (i.e. it appears in green where the start and end points lie without destroying things underneath). In either case, use ESC to abort without drawing the current line. This routine is rather slow when drawing long lines and the end point always starts where you placed the start point.

Colours and OVER we know about, as we know about page position. Box has already been described under cut and paste. Recolour is vaguely like the BASIC RECOL command. Mark the area whose colour is to be changed then select the colour palette to be used (is green to become red, black or white and so on) by moving the white bar over the colour name and toggling the new colour with the cursor up and down keys. You can change the four colours available in screen mode 4 to any of each other, including turning red black and green white to form a simple way of taking the colour out of a picture for black and white printing. Once happy, press space, and the area marked will be recoloured. You will be asked if that was OK so that you can have another go at it or even abort it altogether. This facility can also be used to invert a block - mark the area and set black to white and white to black (plus swap green and red if needed) to invert the colours.

The final option on this menu is to take out the colour from a given area by replacing red and green with stippled black and white. Mark the area with the green box then press SPACE to extract the colour. It may take several seconds.

We've had a guided tour of the program itself, now let's take a look at the three supplied editors, the pattern editor, the text font editor and the hires font editor.

TEXT CHARACTER DESIGNER FOR PAGE DESIGNER 2

This is a powerful and simple to use utility for producing QDOS-compatible text character sets incorporating both the normal and alternate character sets in one long character set consisting of 160 characters, from SPACE (CHR$ 32) to the DOWN arrow symbol (UK character set, CHR$ 191).

This program is called TEXT_DESIGNER_task and is an executable Turbo-Compiled BASIC program, capable of multi-tasking with the rest of the Page Designer suite. It can run alone on an unexpanded QL

To start the text character designer, ensure that the Turbo Toolkit extensions are installed. If you have already run one of the other programs, they will be in place. If they are not, all that will happen is that the program will give a message such as 'Extensions not loaded' and will refuse to execute properly until they are present. To load the extensions, run the BOOT program from BASIC.

To start up the program, use either the EXEC_W command (if not multitasking) or the EXEC command (to allow multitasking). If your setup has an equivalent command which you prefer for some reason, these programs will usually respond satisfactorily to these. If you are starting up the program from the Page Designer 2 menu, simply move the white bar over the TEXT FONT EDITOR indication and press the SPACE or ENTER keys in the normal way.

Once loaded, four windows are drawn on the screen, three of them enclosed by black borders. The main screen background is always green, the top three windows are white and the main prompts window is normally red. The top left window is used as the grid upon which characters are designed. The small window in the top centre of the display holds a 'life-sized' copy of the character being drawn. The top right window will hold the list of edit-able characters from which the character to appear in the design grid will appear. Upon initial entry to the program, all three windows at the top of the screen will be blank. The prompts window will be at the bottom, looking like this. It is what is called a pointer bar menu, namely that the current item selected is highlighted by being enclosed in a white bar. Pressing the up and down arrow keys on the keyboard moves the bar up and down the list. Press either SPACE or ENTER to execute that item. If you are using a joystick, control will be via the CTL1 port on the QL using the up/down directions and the fire button. If using a mouse, vertical movement will control item selection and both buttons will execute the selected item. Mouse control depends on (a) your type of mouse (b) the version of the software supplied. In case of difficulty, contact us and we will do our best to advise. In general, mice capable of keyboard emulation are suitable, although you should set their sensitivity either in the BOOT program or manually from BASIC where possible, for optimum effect.

You will notice that, depending on what you did last, the program seems to have an uncanny knack of thinking it knows what you should do next. That is, it reckons that the first thing you should do is to load a character set. Fair enough - unless you want to start from a blank character set, in which case you could avoid this by simply moving the bar to where you want. The bar will wrap around from top to bottom and vice versa if required, or if, like me, you're a bit lazy! Also, once you've just loaded the character set, it assumes you'll be wanting to edit it. Also, after editing, it assumes you'll want to save the character set. The good news, it works rather well. The bad news, no two persons work alike! Fortunately, nothing's ever more than a keypress or two away!

Since it assumes the first thing we want to do is to load a character set file, let us do this. A list of character sets supplied with the program is given elsewhere in the manual, but for the moment let us use the 'STANDARD_font', which is the same as the one the QL normally uses when printing to the screen. So if the pointer bar is not already on LOAD FONT, move it up or down until it gets there, then press SPACE or ENTER. Incidentally, you may find some differences in spelling between the software and this manual where the word 'font' is concerned - it depends whether or not I was reading the QL Technical Guide or my little dictionary at the time! Both are actually correct, believe it or not, although FONT is most commonly used, but FOUNT was the 'official Sinclair Research term' at the time.

Once the LOAD item has been called, the prompts menu will change. You may now do one of three things. If you wish to return to the main menu, you should press the ENTER key. Before doing so, you should check that no characters are shown. Text entry will be below the word ENTER on the display, so if any characters are shown under that word before the cursor (the flashing square) you should delete them using CTRL-LEFT and CTRL-RIGHT cursor keys as you would in BASIC, then press ENTER. An entry without any characters is called a NULL ENTRY and is often used in Page Designer 2 to abort a routine, as it would in this case. The second option is to obtain a list of files on any specified drive or medium. To do this, you should delete any characters shown, type a question mark ? (query) and press ENTER. As usual, a default drive name and extensions are offered, e.g. flp1___font, where the "flp1_" is the default drive name and "_font" is the default extension, both of which can be edited in the usual way.

Now, type in the drive name from which you would like a list of files, unless the default drive shown is the one you want. The program now checks the medium in that drive and tries to find the directory of that medium so that it can extract its own list of files. This is done in one of two ways. If there is enough memory available, output will be sent to a temporary storage area in memory (called a 'PIPE') then sent to the screen, one full window at a time. If not, you will get an uncontrolled continuous list as you would in BASIC, although you could pause the list with CTRL-F5 to alternately freeze and unfreeze the screen. Up to 11 filenames can be shown on the screen window at a time. Press any key for more, or press ESC to return to the previous stage of entering a filename. Once the last screenful has been shown, the message at the bottom changes to ANY KEY TO RETURN. The procedure is reasonably well protected against errors. Such things as empty drives, unformatted media, write protection and similar nasties will not unduly bother it into any stronger action than a rude noise and a brief error message, although the QL's favourite trick where microdrives are concerned may mess up the display slightly as it spatters up 'Bad or changed medium' all over the shop. If this happens, go back to the main menu and press SHIFT-F5 which will refresh the display.

Assuming you've found the name of the file you wanted to load in as a character set, type it in when the program gets to the LOAD FOUNT menu. The filename will be checked to see if it exists or not, if it is not too long (in case it crashes the computer!), if it is not currently in use and so on. You may find that the program can be fooled into loading short character sets (e.g. those only consisting of CHR$ 32 to CHR$ 127, the normal QL first font. This is actually a benefit at times, since it means that fonts created using other editors can be loaded and patched to make them fully Page Designer compatible. Remember that Page Designer uses a single font of 160 characters. If all is well the font will be loaded and the program will return to the main menu. If the loaded font has a non Page Designer 2 header, this Text Designer will insert a new header as best as it can.

Having loaded the font, you will now be back at the main menu, probably with EDIT/VIEW selected. This should be your next course of action. Select EDIT/VIEW, if not already selected, and we'll move on to the most complex part of this program.

EDIT CHARACTER CONTROLS

Many controls need the simultaneous pressing of two or even three keys, so all the information will be on screen somewhere to remind you what these are

The top left window on the screen holds a five by nine grid of squares, rather like a small piece of graph paper. It's background colour is white. Any pixels currently set (i.e. in INK colour) are shown in black. This grid is quite large and can easily be seen in detail. A normal size version of the character is shown in the small window at the centre of the screen. This actually shows the character in CSIZE 2,0 - the same as double width characters in BASIC.

Back on the design grid, the current square is shown by a cross-hair in the relevant position. A cross-hair is like a + sign with its centre dot missing, and is unmistakable, whether it be above a black or white background, since it changes its colour to suit. It can be moved around the grid at will using the four cursor arrow keys. More about this in a moment.

To the right of these two windows is another window showing all the characters included in this character set. For clarity, they are shown using the standard QL character set and include the full 160 character set. The current character is shown by a black square rather like the cursor, or a little blob, but non-flashing, around it. So if that square is on the letter M and you're editing a K, you know you're making a mistake!

As I've already mentioned, the cross-hair is moved around the design grid using the cursor arrow keys. This simply causes the cross-hair to move without changing anything. If you want to change a certain pixel (that's any one of the dots making up the character on the grid, by the way), press the SPACE bar and if it was black it'll change to white and vice versa. If only it would change lead into gold! If you hold down SHIFT as well as using the cursor arrow keys, the cross-hair will jump to the edge in the direction you indicated. If you realise you're making a mistake and wish to start that character from scratch, press the F1 key to wipe the grid clean. If you wish to draw whole lines in one direction, it would obviously be quite a chore to move, SPACE, move, SPACE... all the time, so an additional facility is provided. Hold down the ALT key as well as the cursor keys and the pixels will automatically be set at the same time as the cross-hair moves (not just inverted, since you wouldn't normally want to do that anyway).

The opposite is possible, too. Hold down CTRL as well as the cursor keys and any pixels the cross-hair passes over will be reset as it moves. If you wish to select another character onto the grid, it can be done in one of three ways - requiring one, two, or even three key-presses, sometimes simultaneously. Doesn't this sound horrendously complex? Never mind, you'll be surprised how quickly you get used to it. Suppose you were editing the letter N and wanted to do the number 9 next. Just press the 9 key on the keyboard. What could be simpler?

If this were all that there was to it, there would be no point to having the next two facilities. On a UK keyboard, there are 64 symbols/characters available which are not actually printed on the keyboard, although if you have a good memory of where they are, they will respond to the correct keys when pressed. Not having used any non-UK keyboards at the time of writing, I don't know if the same is true in that respect, although the second method will cater for all eventualities, even though it is slightly less convenient to use, but it can do all the things the other two methods combined are capable of. Press F2 and the prompt display will change. What it does is to effectively move the cursor keys to control the black blob in the character selection window rather than the designer grid. So, if you wanted to jump from the letter X to, say, the down arrow symbol, use the cursor arrow keys to move the black square until it is over the letter or character that you want to select. You still have the option of just directly typing the character you want, though, so if you change your mind after pressing F2, and just want to go from X to Y instead, simply press the Y key. The editor will now return to the designer menu as before and you will be able to resume editing as normal. So the option of pressing F2 then selecting the character would be distinct from the editing side of things, since it would clarify and distinguish between the two things visually.

Now, the third method. If, in the editing display, you just want to view or alter characters one by one, then there is an even simpler way, although this requires you to hold down three keys at once - panic, shock, horror... Press CTRL-SHIFT cursor left or right (i.e. hold down both CTRL and SHIFT simultaneously then, before letting go of these press the cursor left or right keys). On UK QL keyboards, these are all next to each other on the left of the keyboard nearest to you. The black square in the character selection window will jump to the next or previous character (right and left respectively) and the design grid will be re-drawn automatically. Re-drawing of the design grid is quite rapid, if you hadn't noticed already - in fact it takes longer to re-write the text on the screen than it does to refresh the grid. CTRL cursor up or down moves to the previous or next line respectively.

Now that you know what the F2 key does, you nearly know what the F3 key does. It allows you to copy one character pattern into another. Take, for example, the accented a, CHR$ 140. This is very similar to the ordinary letter a, so there's not much point in redefining it, so it is possible to copy the letter a into this accented character position. The controls are the same as for F2 and the prompts are very similar. You may either type the character directly or move the black blob onto the desired character. The source character is selected first followed by the destination character. The nine bytes that comprise each character's dot patterns are copied from the source character to the destination. If you press F3 by mistake and want to get back to were you were before, just press ENTER twice, so that source and destination characters are the same and no damage can be done.

The final control is the ENTER key. This simply returns you to the main menu. Just to prevent under-use of any key, you may also press ESC to do the same thing.

Upon return to the main menu, the pointer bar will probably have jumped automatically to SAVE FOUNT, so we'll look at that next.

This facility allows you to save your font onto any QL device. Enter its filename and the program will attempt to save it. If there is enough room, the file does not already exist, there is a medium in the specified drive, the specified RAMdisc (if any) exists, the medium is not write-protected and not in use, the file will be saved.

A particular fly in the ointment, as the Digital Precision Turbo manual says, is that while write protect detection works fine with floppy discs, the whole system is rather unpredictable with microdrives. If you save a file (any file, not just a Page Designer font) to a write-protected cartridge, all will apparently go well until QDOS realises the cartridge isn't accepting the data being sent to it, by which time you're doing something else, so QDOS throws up a 'Bad or changed medium' or similar message across the screen and the file has been quietly forgotten about. Apparently, the QL hardware can check the write protection mechanism, because protected cartridges don't get overwritten, but the message does not get through to QDOS until it's too late. The theoretical answer is to check when the drives have stopped and make the program pause until then, but that would seem like a crash state and could well turn into one. If there is not much free memory for microdrive slaving, the program will wait anyway, because there is no fast buffering as would normally occur (the file would get buffered normally and the problem would happen when the buffers were sent to the microdrive). The moral of all this is that although this will not crash the program (it could happen, theoretically, but it's never happened to us!), it's better to be safe than sorry, so check all microdrive cartridges, particularly used ones, before use.

The other main option on the main menu is CLEAR FOUNT. This simply blanks out all entries in the current character set so that you can start again from scratch. The character sets take up 1452 bytes in the common heap area of memory. The default character, while actually present, is not redefinable. If created with Text Designer, the default character will be blank, the same as SPACE, otherwise if imported from a set that was created with another program, it will take on the form originally created. This does not matter since the default character is never used by Page Designer 2. The file header is always saved as 31 (lowest valid character, default) followed by 160 (number of characters in font) and the file is always a SINGLE font which adheres to the QDOS specification, which although not the same length as the QL internal set, will, nonetheless, successfully operate within QDOS and as such can be used in BASIC programs provided that you have character set redefinition commands such as SET_FONT#channel, first_font, second_font (or CHAR_USE or equivalent). In this case, assuming the use of SET_FONT, we'll load a character set created using this program for use with BASIC channel 1. The fonts are always saved as 1452 bytes long, so we'll reserve this amount of space. The range of character codes from 32 to 191 is usually in two separate fonts on the QL, but it'll work like this, so instead of supplying the address of two sets of characters to QDOS, we'll supply the address of just the main set and use a dummy value for the second. This would be 0, since this would mean use its own ROM character set, just to be on the safe side. So to use a Page Designer 2 text font in BASIC with channel 1, we might use:-

```
base=RESPR(1452):LBYTES mdv1_FONT_NAME,base:SET_FONT#1,base,0
```

The symbol after the keyword SET_FONT should be the channel indicator symbol (hash), followed by a valid BASIC channel number.

HIRES CHARACTER DESIGNER FOR PAGE DESIGNER 2

This is a powerful and simple to use utility for producing hires character sets for use with Page Designer 2 and associated software ONLY. The same range as the text character fonts is catered for, from CHR$ 32 to CHR$ 191, a range of 160 characters.

The program is a called HIRES_DESIGNER_task and is an executable Turbo compiled BASIC program, capable of multi tasking with the rest of the Page Designer suite. It can run alone on an unexpanded QL if the extensions are present. The program requires the use of the Turbo Toolkit extensions from Digital Precision. The runtime version of this is supplied on the cartridge/disc with the program, of course.

The actual operation of the program (indeed, its appearance) is very, very similar to that of the Text Designer program, so that most of the instructions pertaining to that program also apply to this program, so they need not be repeated here. The main difference is the characters themselves, being based on a 16x28 grid for very high levels of detail and good descenders (the tails on a "g" or a "y" come down below the line when handwritten and are not usually too well represented on a computer). You will see that the new editing grid is much larger than that of the Text Designer, for obvious reasons, and the 'actual size' display at the top centre of the screen is also slightly larger. Otherwise, the program is used in exactly the same way. Therefore, to learn how to use this program, read the instructions for Text Designer and then these additional notes.

The hires character sets take up 9280 bytes in the common heap area of memory. There is no default character, but there is proportional spacing information for each character, including space, although that is a special case. These character sets cannot be used in user - written programs. They are exclusively for the use of Page Designer 2. They are not compatible with the 16 by 16 character sets of the original Page Designer 1. A list of fonts is given elsewhere in this manual.

PATTERN EDITOR

This is a very simple editor for creating nine 8x8 user defined graphics for use in page borders and pattern brush in the main program. All you do is move the cursor around the grid dotting and undotting the relevant parts. Remember that the outside edges and the corners are used for the page borders, so design with this in mind unless you know you'll only use these as user defined graphics.

Four options are shown on the main menu, Edit Pattern, Load Pattern, Save Pattern and Quit. Select the one you want by moving the highlight bar over that one and press SPACE. Once editing, move the cross to the places where you want to change the appearance. Press space to invert a dot, ALT cursor keys to draw, CTRL cursor keys to erase and F1 to clear the grid. Press ENTER or ESC to return to the main menu.

When saving and loading pattern files, you may obtain a list of files and quit in the usual ways by entering a question mark and so on, having first deleted any default names or characters show.

SPOOLER

The printout facility on the files menu in Page Designer 2 can make up to ten copies of a page in one go. However, it's slow and ties up the program while you could be doing something else. A program called SPOOLER_task is supplied which

can make multiple copies of a printed page while Page Designer 2 is in use for something else.

You can specify if you want each page to appear on a new sheet of paper, how many blank lines to insert between each page printed, how many copies to do and where the printout is to be sent to, e.g. 'ser1' printer or 'par' printer. To use the spooler properly, you should first print the page once to a file (not to the printer) by altering the print destination offered by PRINTOUT in Page Designer 2. Edit the 'ser1' (or whatever it offers) to be a filename such as flp1_PAGE_print. I use the extension _print for such files, but this is not important as no defaults or extensions are assumed for PRINTOUT files. The page will now be printed to this file on disc - have patience, it will take a while. It may be quicker to print the file to RAMdisc if you have the facility and the free memory - CAUTION: a lot of free capacity is needed, one free byte per 8 pixels plus control codes, so a 640x640 page might need about 50 kilobytes or about 100 sectors! You will not be able to load such files into Page Designer 2, so ensure that if you want a copy you can reload later, save it in the normal way using SAVE BYTES or SAVE COMPRESSED.

As you can see, you are first asked for the filename of the printed page that you want to spool to the printer (spooling in Page Designer 2 is a term that simply means that a copy or copies are to be made while the main program is freed to get on with something else, although the devices involved - disc and printer - may be tied up temporarily). If you just press ENTER with no filename entered, the program aborts and stops.

You are then asked for the number of copies to make. If you enter 0, the program aborts and stops. The next question is how many form feeds are to be emitted between each copy. A form feed is a signal from the computer to the printer to make the sheet of paper roll on until the start of the next sheet (assuming you are using fanfold paper!) comes up. If you are using a sheet feeder, like a photocopier, for example, it might either just eject the sheet currently in the printer ready for you to put the next sheet of paper in, or it might eject the sheet and suck in the next sheet from the tray. It works on all printers we have come up against and dozens we haven't, as it uses one of the most standard of all printer facilities, the formfeed activated by sending a code of 12 to the printer. If your printer does not respond to the formfeed code, it is likely that it is not suitable for use with Page Designer 2 anyhow. The only example I can think of is the Ibico LTR1 printer, which is not all that common and it is a small letter quality printer fairly similar to a daisywheel printer and cannot do graphics anyhow. It is also possible, although we have not checked on this, that some dot matrix typewriters which have computer interfaces may not respond either. If you have managed to get your printer to do graphics at all, it is quite likely that it is able to cope with this simple little spooler! If you specify 0 formfeeds and ask for more than one copy, you will get a continuous printout (as long as you specify 0 line feeds later) with each copy of the page attached to the previous one. You will have problems if your printer is set to automatic skip over perforation or a certain paper size with blank lines between each sheet's print area. However, normal printing will be with one formfeed between each copy (that is, each copy on a separate sheet).

Next, you are asked for the number of blank lines to print between each copy. This is not likely to be of use unless you are using continuous paper, when it can be very useful. An example might be the paper roll holders supplied with certain printers, so that you may use teleprinter rolls of paper (they look like rolls of kitchen paper towels without the perforations), or the rolls of paper used by some thermal printers, where the end of a sheet of paper is not as

important as having a certain length of blank space between each sheet. If you specify 0 and there is no form feed between each copy, they will all be joined to one another.

Finally, you are asked for the print destination. This is where the spooler output is to go. Normally, it will be to a printer (e.g. ser1, ser2 or par), although it could go to the network or down a modem or over an inter-computer serial link. You will need special software for this. If you use the network to another QL, make sure that you get the station numbers right! If you delete the destination name offered, the program will abort and stop. Otherwise, it will start to spool the file as specified. A running tally is not given, only an indication of the copying starting, since the whole idea of the program is to copy in the background without disturbing other programs or the screen once it has started.

SUPERCHARGE

Supercharge compiler extensions cannot be mixed with Turbo compiler extensions, so any program that uses the Supercharge extensions cannot be used at the same time as Page Designer 2.

QLIBERATED PROGRAMS

As far as we know, there are no compatibility problems with QLiberator compiler extensions. No doubt, someone will prove us wrong!

TURBO COMPILED PROGRAMS

This ought to be completely trouble free, although if you have a version 1 Turbo Toolkit which snatches the cursor from windows without waiting for CTRL C, minor problems (display corruption) could theoretically occur, although we have not had any problems. All released versions of Page Designer 2 use series 2 Turbo extensions which allow a 'shriek' or exclamation mark to be added to CURSOR_ON statements (e.g. CURSOR_ON#3!) to make it behave like a SuperToolkit II CURSEN command, that is, activate the cursor without making it flash, so that you have to press CTRL C into the right window before the new program takes the keyboard queue. Page Designer 2 copies no windows from BASIC, so there are no problems with software that object to this (see QRAM below). Turbo Toolkit extensions V1.42 are also compatible with Page Designer 2, although earlier versions are not.

SPEEDSCREEN

Speedscreen was released late during development of Page Designer 2. By and large they are highly compatible. Speedscreen code is re-entrant, so Page Designer 2 can share it at the same time with other programs. We have only tested Page Designer 2 with Speedscreen on setting 'n'. Page Designer 2 cannot take advantage of Speedscreen's fastest possible printing, but some Page Designer 2 operations can benefit from the screen handling improvements offered by Speedscreen. You may encounter small problems when printing text in the bottom right hand corner of the art window, where an unwanted scroll might be introduced by Speedscreen, as it does not seem to hold newlines pending in the same way that QDOS itself does. If this happens, use the display refresh (SHIFT F5) to recover the display. This can only happen if you are using a column that is full art window width.

SPELLBOUND

Text typed manually into Page Designer 2 can have its spelling checked by Spellbound, although you should not use the examples display as it will overwrite the main Page Designer 2 art window. and you will have to do a display refresh (SHIFT F5) to clear this. The status report area in Spellbound was designed for Quill screen layout and overwrites a part of the prompts display at the bottom of the screen. If you don't mind this, you can use Spellbound for manual typing checks, although it will not work on imported text. You should use Spellbound mode 2 or 1 to avoid problems with the extra unwanted 'hat' character that indicates a spelling error.

TASKMASTER

Fully compatible. Follow the Taskmaster instructions on how to install BASIC extensions and program names and make sure you set the code sharing to 'N' or PD2 will not run.

QRAM AND QIMI etc

Compatible with QRAM subject to no new compatibility problems between Turbo Toolkit and QRAM. No active windows are copied from BASIC into Page Designer 2 and the Turbo cursor grabbing has been suppressed, the two main sources of problems in early pre-release versions of Page Designer 2. You may find that since both QRAM and Page Designer 2 use vast amounts of memory for storage, you have less free memory useable than you might like to have! We have not tested the QIMI and pointer interface software so cannot comment on compatibility. The QIMI mouse and interface seem to live quite happily with Page Designer 2, although the mouse cannot be used to control Page Designer 2 other than from within the QRAM menus.

SUPERTOOLKIT 2 (QJUMP Ltd)

Fully compatible. The program was written with the reconfigurable Toolkit present, but the BASIC parts were compiled without the Toolkit present, so it is not needed to run Page Designer 2, although nothing will go wrong if it is present (famous last words!). The same goes for the ROM version of the Toolkit 2

SMILING SOFTWARE MOUSE AND TOOLKITS

The mouse is fully compatible with Page Designer 2 and can be used in the program, provided that you have installed the cursor emulation mode software and set a suitable sensitivity. The Complete Toolkit 2 from Smiling Software was delayed and arrived too late for extensive checks. As far as we know, there are no problems.

TRUMP CARD

No known comptibility problems with either the Trump Card toolkit or the extended memory capacity. Page Designer 2 seems to enjoy a huge 896 kilobyte environment,

THOR

No known cmpatibility problems. We changed the one possible source of problems, the printer driver, when we realised that the Thor's KEYROW emulation did not apparently extend to the machine code trap level. KEYROW is used as a BASIC

keyword (so you will need the KEYROW emulation) and seems quite happy. It is not called as a machine code trap, so there should be no problems. Where needed, all machine code keyboard calls have used IO.FBYTE to read bytes from the keyboard, check the ESC key and so on, rather than use the MT.IPCOM KEYROW machine code call.

PAGE DESIGNER 1.33 (QUANTA LIBRARY), AND RELATED PROGRAMS AND FILES

Not compatible, as PD1.33 uses Supercharge compiler extensions. In addition, none of the file types are compatible. This incompatibility extends to Image Extractor and Image Manipulator, although mode 4 screens created by Image Extractor can be imported into Page Designer 2. Pages, left files and print files are not compatible with Page Designer 2. Conversion utilities will be made available. Text and hires fonts are not compatible, although text fonts can be converted by merging the two parts of the text font into one long font by moving the second font down in memory, overwriting the alternate font header and suitably modifying the two bytes at the head of the file to suitable values. A suitable conversion utility will be made available.

HINTS AND TIPS

You can mix as many fonts as you like on a page, but it won't always look good. In fact, it will usually look distracting and is often very bad practice since it does nothing for the reader's eyes! Change fonts for emphasis maybe, but use the effect with caution. If you insist, the facility is there to load, mix and print using any font combination you like. Remember to try to use fonts that are relevant to the subject being written about when doing adverts. For example, a light lively style would be relevant for fashion or young people's adverts, while heavier texts would be suitable for adverts selling heavy machinery. Be careful in your use of serif and sans serif fonts and how you mix them (if you do!). Serif refers to whether or not the letters have little tails on the end of them, rather like those on typewriters. Sans serif have no such tails, rather like the default character set which the QL normally uses!

If you want to print multiple copies of a page, consider if it would be worth printing them all from the Page Designer 2 PRINTOUT facility direct to the printer, or if it would be better to print it to a file first, then use the spooler to do the multiple printing in the background while you and Page Designer 2 get on with something else.

Do use CRT (cathode ray tube) graphics modes on your printer, as long as they are supported, because these modes help to make sure that squares on the screen come out as near as possible to squares on the paper. On Epson FX80 and compatible printers, the CRT2 mode is usually best, although it is not available on many printers, which is why the program is supplied configured to work in CRT1 mode. The required control codes should be in your printer manual. See the relevant section in this manual for printer driver configuration. If you manage to set up the printer driver for less common printers that you think other people might have difficulty with, let us know how you did it. Similarly, if you manage to write new drivers for specific printers (e.g. plotters) we would always be pleased to hear from you.

Inverse text (i.e. white letters printed on black background on paper) will not come out too well on printing on a dot matrix printer, although reversed video text looks fairly good on screen. Printers generally manage to blur such text, especially if you are using multiple pass printing. Getting the printed page photocopied will make things worse quite often! Also, bear in mind the effect that printing inverse text has on most dot matrix printers - more dots have to be printed (head wear!) and this uses more ink (ribbon wear!) and some printers slow down as well, although this is less of a problem. Do bear in mind that most low cost dot matrix printers are not guaranteed to stand up to printing continuous bit image graphics, although I've yet to see one break down from this effect. The reason is, I think, that continuous printing makes the print heads get very hot due to the needles being pointed outwards towards the paper very often. This might be a problem if you did an entire page in inverse text and asked for ten copies - don't try it! Your printer manual will tell you what's safe and what isn't. Printing a single page of normal mixed text and graphics is not a problem, normally.

Be careful in your choice of black and white stippled colours, as what looks good on screen does not always look good on paper due to the different resolutions and how far apart the dots are and so on. The opposite is also true to a lesser extent, that something that does not look too clever on screen can become acceptable on paper. This is something you get to acquire a 'feel' for after a while.

Relief effects. As I was writing this program, Neil Taylor sent me a printout where he had used two opposite striped stipples (actually colours 120 and 127) for ink and paper with hires text size 2x2. The contrasting stipples were quite striking at the top and bottom edges of the text, where the occasional double black or double white made the eye think that there was a contour or raised edge present. How well this comes out on your printer depends on the printer and how the printer driver is set up. Vertical stripe stipples also work, in that they give an effect of sorts, but not as well as horizontal stripes. The vertical stripe stipple colours are 184 and 191 if you want to try this out for yourself. Another interesting effect can be obtained with ink 120 and paper 56 on printing. I'm not telling you what it looks like, so go ahead and experiment.

3D effects. The title screen shown on entry to the Page Designer 2 program is produced by overprinting the same background ink colour with OVER 1 set, each printing being offset by one pixel (like the SHIFT cursor arrow key movement controls in the program) with the front effect surface being in a different colour. With suitably chosen colours, this can be quite effective, especially with fairly large lettering. All it involves is printing letters over each other in not quite the same place, without deleting what was there before. Beware: this is an example of something that looks good on the screen that may not come out so well on the paper.

Remember that what looks good on the eye usually overrides technical considerations like centring and inches and millimetres. your instinct to place a block of text dead centre on a page may confuse the eye, which is used to seeing unequal margins around text on a book page. There are standard ratios for these margins and any good book on the subject should be able to tell you what these are. As an example, take a page which has a line length of two thirds the width of the paper, with the ratios of the margins (inside:top:outside:bottom) being 2:3:4:5 and there are, of course, others with different ratios for different applications. The 'inside' by the way is the edge nearest to the binding of the book. As far as good readability is concerned, 50 characters per line is a good reading width for wide text columns.

Be careful how you lay out text and graphics as badly placed pictures surrounded by ragged text in small staggered blocks, for example, can look awful. There are, again, standard formats for page layout for different applications and any good book on layout, page design and related subjects should be able to teach you these formats.

Be careful not to overdo the technical side, sacrificing the artistic side. Just because Page Designer 2 lets you have ten columns six letters wide, it won't look any good if you try it. Don't try to be too clever - producing a document that uses every single facility of the program is possible but rarely needed.

Point system. A standard UK typographical 'point' measures 1/72 inch, a measure often found within printer specifications. A 'pica' is 1/6 inch (12 points). One inch therefore has 72 points. Typography mentioned above is the art or style of printing. So now you know.

Don't be afraid to experiment on paper first to find the most attractive layout possible for your page. Follow that great British tradition and design something on the back of an envelope if you like! A quick sketch with straight lines for text and boxes for pictures will do. Large text for headings can either be written or marked as a box if there is a lot of it. When putting it all into the computer (the design, that is, not the old envelope), don't be afraid to make use

of the whole page preview mode - that will often end up looking like the back of your old envelope! Most layouts will be parallel to the edges of the paper, since oblique lines break the continuity of things and can be 'disquieting', although obliques can be compensated for by following them with horizontal lines to drag the effect back into normality.

Where you have a page of text in columns, two, three, or four columns are usually most effective. Use text character widths 0 or 1 for most things, although 2 and 3 can also look good, particularly if you use dual density print modes. For bold text fonts, the greater spacing of widths 1 and 3 makes them more readable, whereas the 'slimmer' fonts can look best with widths 0 and 2. Avoid using double height characters in narrow widths - it looks even worse on paper than it does on screen.

Here are some hints on mixing text and graphics. An accepted standard is that the text should begin in the left column, normally, even if it is slightly out of step with the headings. Imagine an A4 page with a heading in large characters and a picture of less than a quarter of the size of the page and three equal sized columns of text. If the picture is of the same size as one, two, or three columns, no problem, simply place it squarely above the relevant number of columns. If the picture is wider than a single column but narrower than two columns, you may be able to place it centrally with a slight reduction in the size off the columns around it. Depending on the context on which it is used, this might look good, bad, or indifferent. Alternatively, the picture could go on the right hand side of the page, above the third column. If there is text to accompany the picture, place it under the picture if central, otherwise alongside it to fill up the part of the middle column not used.

If you have a large illustration and several smaller ones, the smaller can be grouped together to break up the monotony of large areas of text. Try putting the large picture on the top right of the page and the group of smaller pictures on the bottom left, adding explanatory text to the group of smaller ones, if it has an odd number of pictures and they are not stacked on top of each other or alongside each other.

Consider now one picture on top of two columns of text, a fairly simple,standard layout. The picture is the same width as the two columns and the same height. Draw this on a piece of paper and add a little footer (e.g. a company name) at the bottom, below the text columns. Everything looks rather flat and equal doesn't it? The term that best describes this is 'static', that is, it doesn't catch your eye or move you at all. Now try the same again with the picture being taller than the text. There is something more eye catching about these two formats and which one you use will depend on whether or not the picture is more important than what is said. Remember that variety creates interest, as long as you don't overdo it and allow it to get chaotic.

Most good books on layout and so on have a wealth of information on how to lay out text and pictures and headings on a page to create the best possible effects. Such books give specific examples, e.g. one large picture, two small ones, paragraphing details and so on and how to combine them as well as possible. You are strongly recommended to read these books. Listed below are useful sources of information:-

Letraset catalogue. This lists all their products and has all sorts of examples, including fonts. It is a bit expensive, but well worth it. Should be available from your local art and design or stationery shops.

The American firm Dover Publications Inc. produce a wide range of what are called Pictorial Archive Books, which contain a wealth of copyright free fonts, clip art and advertising illustrations and shapes and so on. They also produce more general books on typography, caligraphy, design and layout and so on. They are distributed in Britain by Constable Publishers, Constable & Company Ltd., 10 Orange Street, London WC2H 7EG. They will send you a catalogue if you ask for the Dover Pictorial Archive Book Catalog (note the American spelling!). Strictly speaking, this catalogue is for trade only, but they sent us one without question. Here are some of the books listed, those we have seen:-

Victorian Display Alphabets (100 fonts), by Dan X. Solo
Modern Display Alphabets (100 fonts), by Paul E. Kennedy
Sans Serif Display Alphabets (100 fonts), by Dan X. Solo
Classic Roman Alphabets (100 fonts), by Dan X. Solo
The Alphabet And Elements Of Lettering, by Frederic W. Goudy
Lettering, Calligraphy, Typography, by Dan X. Solo

Another American firm, North Light Publishers, produce a book called Basic Graphic Design & Paste-Up, by Jack Warren. This is very informative. We came across a copy in a shop in North Wales some time ago, but don't know if it is still available. Your local bookshop should be able to check for you. A whole range of associated books is listed in the back of that one.

The British firm, Usborne Publishing Ltd has produced a handy little book called Lettering & Typography, by Tony Potter, in the 'Usborne Guide' range. Our first impression was that it was aimed at children, since it is a slim, colourful book full of pictures, but it is actually quite informative and easy to read.

There was an extensive review of books on Desktop publishing in the magazine Personal Computer World, December 1987, starting on page 172, listing 5 books in detail:-

Design For Desktop Publishing, by John Miles (Publsher:Gordon Fraser)
The Desktop Publishing Companion, by Graham Jones (Publisher:Sigma Press)
Desktop Publishing, by Joseph St John Bate & Kirty Wilson-Davies (Publisher:Blackwell Scientific Publications)
Desktop Publishing Bible, by James Stockford (Publisher: Howard W. Sams/The Waite Group (Pitman Publishing)

The fifth title (or pair of titles) is not of great interest to us, since it describes the Postscript language, a system of describing the page to be printed as an ASCII file to the printer, usually a laser type. You may like to try it as background reading for other packages. See the article for further details.

Laser printing. A reminder about this service offered by Neil Taylor. His phone number is 01-390 5652 (Taylor Made Systems, 135 Ellerton Road, Surbiton, Surrey, KT6 7UA, England)

Thank you for taking the trouble to buy this software and reading through this long manual. I hope the bugs are few and far between and that your designs are out of this world. I hope you get the same pleasure out of this software as I had writing it. If there are facilities you would like added, please let me know. If you discover a bug, please let me know. Who knows, we may do something drastic such as doing something about it!

Dilwyn Jones

A P P E N D I X 1

L I S T O F S U P P L I E D F I L E S

1. EXECUTABLE PROGRAMS

PD2_task	the main program
TEXT_DESIGNER_task	text font editor
HIRES_DESIGNER_task	hires font editor
PATN_task	patterns editor
SPOOLER_task	background print spooler
CLONE_task	backup utility

2. BASIC PROGRAMS

BOOT	installs machine code extensions
MENU_bas	selects programs to EXEC_W
INSTALL_bas	printer driver configuration

3. PAGES

EXAMPLE_page	example page, stored in compressed format
FONTS_page	demonstration page of fonts supplied

4. SCREEN PICTURE

EXAMPLE_scr	demonstration mode 4 screen, digitised from video tape.

5. MACHINE CODE FILES

COMPR_code	page file compression
GDUMP_V_code	printout machine code
VIRTUAL_code	virtual screen/page code
PV_code	page preview code
P4_code	mode 4 pixel colour check
RUNTIME_exts	runtime Turbo Toolkit

6. QUILL -doc FILES

UPDATES_doc	updates list for this version

7. CUT/PASTE FILE

EXAMPLE_cut	example cut/paste file

8. TEXT FONTS (N.B. "QL set" below refers to the set in the QL's ROM)

SQUARE_font	more square than the QL set
SERIF_font	with serif 'tails'
BOTTLENECK_font	try it and see!
HEAVY_font	extremely bold font
OLDE_font	old fashioned
UPWARD_font	for typing upwards effects
OUTLINE_font	as near to outline as QL fonts can go!
COUNTDOWN_font	modern font
SANSSERIF_font	alternative QL set?
AURA_font	try it and see!
ITALIC_font	italic version of QL set
STANDARD_font	the font built into a British QL ROM
SMALL_font	suitable for use as subscripts
BOLD_font	more bold than standard QL character set
ALIEN_font	another modern style font
ZIPPER_font	decorative font, try it and see!
DATA70_font	another modern style font

ARCADE_font similar to arcade game lettering
FANCY_font decorative serif font
REVERSED_font mirror image font
HALFHEIGHT_font full width, half height, slightly taller and wider than SMALL_font
TRAFFIC_font try it and see!
EXTRABOLD_font very heavy, bold font
FUTURADISPLAY_font a style of its own! Try it and see!
FUTURABLACK_font bold, split lettering
ODIN_font try it and see!
DOWNWARD_font for downward typing effects
BABYTEETH_font try it and see!
STENCIL_font split like stencil lettering
UPSIDEDOWN_font inverted characters
SQUARESS_font similar to SQUARE_font but no serifs
MOORECOMPUTER_font another modern font
AMELIA_font another modern font
SQUARESSBOLD_font bold version of SQUARESS_font

9. HIRES FONTS

STANDARD_hires standard serif hires font, use as a base from which to design your own
BOLDSTANDARD_hires bolder version of STANDARD_hires
CUBIC_hires 3D cube characters font
FUTURADISPLAY_hires try it and see!
BROADWAY_ENGR_hires broadway engraved hires font
COUNTDOWN_hires modern style hires font
DATA70_hires modern style hires font
OUTLINE_hires outline characters
SERIFA_hires try it and see!

A P P E N D I X 2

T E C H N I C A L I N F O R M A T I O N

The following text summarises file formats and various other items of technical information concerning Page Designer 2. The list is not exhaustive, but provides adequate information for when you want to do something "out of the ordinary" with the program's files.

1. PAGE FORMAT IN MEMORY

Page Designer 2 pages are held in the common heap area of memory. Since the program can use mode 4 colour, it was decided that it was best to use exactly the same bit mapping as the screen to provide for fast, easy transfer of the relevant part of the page to the screen. The red and green bits in a word holding 8 pixels are exactly as documented in the user guide for the QL screen, except that the line length is different, to allow for variable width pages. The page has an eight byte header to allow it to be identified when saved to disc/microdrive and to allow the page size to be deduced. The format is:

4 bytes: "PD2P" (standing for Page Designer 2 Page, original, eh?)
1 word (2 bytes): pixel width
1 word (2 bytes): pixel height
then, as many words as are required for the complete page

2. PATTERNS

These are also stored in the common heap area of memory, under the page. The patterns, therefore, must be static in terms of memory used and can remain in memory undisturbed when new pages are defined or loaded. They have a four byte header, consisting of the four letters 'PD2F' followed by 144 bytes of bit mapped information for the 9 pattern characters, organised as follows:-

4 bytes: 'PD2F'
6 bytes: top row of patterns 1, 2 and 3
6 bytes: next row of patterns 1, 2 and 3
and so on to the end of patterns 1-3
6 bytes: top row of patterns 4, 5 and 6
and so on to the end of patterns 4-6
6 bytes: top row of patterns 7, 8 and 9
and so on to the end of the patterns

This unusual format makes it highly unlikely that you'll be able to use these patterns for any other purpose! It also means that you may have difficulty in using 8 x 8 characters from other programs.

3. CUT/PASTE IMAGES

These reside in the common heap memory just above the page memory and fonts and are accordingly destroyed when the page is altered or a new page is loaded. They are straightforward copies of the relevant area of the page memory, which in turn means that they are the same format as screen memory, enabling rapid transfer to screen or page. They have a four byte header 'PD2L' followed by two words for width and height in that order:-

4 bytes: 'PD2L'
1 word: width
1 word: height
image: as many WORDS as required, enabling images to be colour

4. TEXT FONTS

These are QDOS compatible 160-character single fonts, with the normal and alternate fonts merged into one. The font occupies 1452 bytes, although only 1451

are used:-

1 byte: lowest valid character including default (31)
1 byte: number of valid characters-1 (160)
9 bytes: default character (looks like SPACE if font designed by Page designer 2 text font editor)
1440 bytes: 160 font characters, codes 32 to 191, 9 bytes per character pixels stored in bits 6 to 2, as in QDOS fonts

5. HIRES FONTS

These are based on 16 pixel across by 28 pixel down characters, with proportional spacing data. No header. The entire font takes 9280 bytes of memory. There are, therefore, 58 bytes per character. The first byte per character tells us which bit the character starts at and the second byte tells us which bit the character ends at. This is the proportional spacing data. The program will cope if this is missing or out of range - the default of full width is used. The font editor works this out and inserts the two bytes as a character is edited. So if you have a font with rogue data (e.g. a corrupted font) load it into the hires font editor and it will be corrected. The third byte of each character holds the pixel information for the leftmost eight pixels of the character then the fourth byte holds the pixel information for the rightmost eight pixels of the character. A set bit, as with pattern files and text fonts, indicates that the pixel is set, that it will be drawn in INK colour when used.

2 bytes : proportional spacing data for first character
32 bytes: pixel pattern for first character
2 bytes : proportional spacing data for second character
32 bytes: pixel pattern for second character
and so on

6. FONT FILES (TEXT AND HIRES)

These are exactly the same as in memory - they are actually saved from and loaded to memory using SBYTES and LBYTES routines.

7. PATTERN FILES

Again, exactly the same as in memory.

8. PAGE FILES

The BYTES files, as their names imply, are exactly the same as the page in memory, including the header. The COMPRESSED files are very different - for a start they have a 'PD2C' header to distinguish them from BYTES files and have a 10 byte header, not 8 bytes:-

4 bytes: 'PD2C'
1 word : width (pixels)
1 word : height (pixels)
1 word : compression code flag

These files are extremely complex and you are advised not to try to decode them. If you must, the information follows, but it is far easier to load them into Page Designer 2 and re-save them as BYTES files, which are easier to manipulate.

The compression code flag is a unique word length integer value that did not occur in the page before being saved, therefore, as it is not used on the page, it was chosen to indicate that a sequence of words follows in compressed format. It is followed by two words of data. When encountered in the file, the first word indicates which word value is to be inserted into the page, followed by the number of times this word occurs in sequence. If the compression flag does not follow, the following word is one taken from the screen direct and not

compressed. This format ensures that since a minimum of three identical words have to occur in memory to be compressed, the file can never be more than two bytes longer than the equivalent BYTES format page. The two extra bytes come from the compression code flag value itself.

9. CUT/PASTE FILES

These are exactly the same as stored in memory.

10. MEMORY MAP

The pattern characters, hires fonts, text fonts, page and cut/paste files are all stored in the common heap memory, in the order listed.

This manual was printed on a Taxan/Kaga KP810 dot matrix printer using Cueprint by D.A. Burridge.

Contact Sector Software for all your QL and Z88 software and hardware.

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APPENDIX 3

LAST MINUTE ADDITIONS TO MANUAL

C O N F I G U R A T I O N

This feature allows you to specify in a file on the disk/microdrive how the program will configure memory on startup. The file is created using the CONFIGURE option on the files menu and saved under the filename "PD2_CONFIGURE_FILE". If this file is not present on startup, the program uses its own internal listof defaults as at present. The drive passed from BASIC to the taskis used as the default driveon which the configuration file is to be found - if the default drive specified in the file is different, the file drive takes precedence. The file may contain the following defaults and startup values.

default drive name; default extensions for page, hires fonts, text fonts, pattern files, text files, screen files and cut/paste files; baudrate; printer device name; network station number; number of text and hires fonts to reserve room for; page width; page height; number of pages; text font(s) to load on startup; hires font(s) to load on startup and pattern file to load on startup.

If an error occurs during startup, the program may use values from the internal table of defaults or simply ignore things, whichever it judges to be the best at the time, e.g. if you specify nine full size pages and there is not enough memory, it may decide to allocate space for only one minimum size page, or if a font specified is not present on the disk/microdrive then the space will be allocated but there will be nothing there.

The file occupies very little room on the disk/mdv, typically 200 bytes (a single sector!) for a single page three font setup with four average length filenames and the usual extension names. All values stored in the file are in internal format as opposed to ASCII as this takes up less room where numbers are concerned. The header is a long word ('PD2D' - defaults) followed by numbers or strings which may be read with the Turbo Toolkit GET% and GET$ functions. There is no end of file marker. The defaults and details loaded are shown on screen. You are prompted to press any key to load the configuration file (as long as its from microdrive or no name was passed to the program) and to press any key afterwards to give you a chance to read the information.

Addition to 'LOAD AND SELECT FONTS'

The names of the fonts loaded are remembered after loading and displayed in the selection menus. This is very useful where a font is not immediately obvious from its appearance(text font) or in the hires menus where the actual typefaces can be shown. No name is shown for those not yet loaded. A menu is shown for the hires fonts, but listing only the names. These names include the drive name as stored internally.

M U L T I P L E P A G E S

If there is enough free memory, you can define up to 9 pages in memory, although 1 or 2 will be the norm unless you have a memory expansion such as the Trumpcard - each colour page can take up to 100K storage space.
You can load and save them individually and you can switch between the pages at will using the Switch Page option present on most of the menus. If there are two

pages, the switch page option acts like a toggle between the two, from one to the other, but if there are 3 or more pages you are asked to choose which one you want. Page switching is very fast and you always go into the new page at the coordinates from which you left the old one, even if the new one is empty - the page position indicator is a good reminder of this, fortunately.

One point to note when using more than one page at a time is that loading a different sized pageis not possible, unless is is the same width and no longer than existing pages, because all pages must be the same size. In a single page setup the old page is deleted and the new page size is automatically adjusted. This need not be a problem, since most people will always work with their own 'standard' page sizes and will not want to mix different sized pages. If the page is the same as the others in the multiple page environment, but shorter in length it may be merged on top of the existing page. It always goes at the top of the page to avoid complications, but the base of the old page is not cleared. Future saves of this page will use the full size of the page, not the size of the small page loaded. A warning is given when loading shorter pages to warn you that you are mixing dissimilar pages.

The multiple pages are all separate single pages as far as the program is concerned. That is, there is no automatic overflow from one page to the next (except in the 'TEXT IMPORT'). When you reach the end of a page you should SWITCH PAGE then move manually to the required position on the new page.

P A T T E R N P A I N T F I L L

This routine uses the patterns files to fill and enclosed area with a colour pattern. Draw the outline (which must be non black) then move the little green box to where you want to fill to start. Now select a pattern from 1 to 9 on the list shown (the same as the ones used for page borders and pattern brush) and the area fill commence. The routine will stop when (i) you press ESC (previous picture restored) (ii) you press SPACE or ENTER (the picture is stored as it stands) (iii) when it gets stuck, usually because it has no more area that it knows of that it can fill within the outline or has filled the screen. It is a bit of a slow routine and may need more than one fill to fill in a complex outline due to the way it works. If the fill 'leaks' across a diagonal line, this is because of the 'stepped' nature of diagonal lines on a computer display and may be prevented by using slightly thicker outlines.

Addition to 'TEXT IMPORT AUTO COLUMNS'

The guttering(inter column gaps) may be specified on defining multiple columns. Four widths of gap may be used, 1 to 4. Press the apropriate key, 1 the narrowest. The gaps are multiples of eight pixels, but this may be adjusted slightly to get the next column to start on an even value.

2nd addition to "TEXT IMPORT AUTO COLUMNS'

Protect border area. This has to be specified by the user. If you reply 'n' for no the columns can overwrite the eight pixel area at the page sides used for the border even if one has already been drawn, if you reply 'y' for yes, the area is protected even if no border has yet been drawn, so that you may add one later.

addition to "TEXT IMPORT"

Auto flow to page in multiple page setup. on entry to the routine if more than one page is in use, the use can specify if the program is to go to the top of the next page or not when it gets to the end of a page. The program will not go from the last page to the first to avoid accidentally overwriting the contents of that when long documents are in use. Manual page switching is available from the column menus, of course, so this could be done manually. Page border area protection and automatic column structure has to be the same on all pages. If a page has to be different the manual columns must be used.

addition to "SAVE PAGE"

On the files menu, this is now one option. you are then asked SAVED COMPRESSED (Y/N)? This was changed to allow the SWITCH PAGE option to be added to this menu.

PAGE DESIGNER 2 - EXAMPLE FONTS PAGE

STANDARD FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

SANSSERIF FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

SERIF FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

FANCY FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

BOLD FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

EXTRABOLD FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

HEAVY FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

SQUARK FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

SQUARESS FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

SQUARESSBOLD FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

FUTURADISPLAY FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

ITALIC FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

HALFHEIGHT FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

SMALL FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

UPSIDEDOWN FONT
REVERSED FONT

ZIPPER FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

BOTTLENECK FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

BABYTEETH FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 67890

traffic font
abcdef, ghijkl, mnopqr, stuvwxyz; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

ARCADE FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

STENCIL FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 67890

FUTURABLACK FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

AMELIA FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

OUTLINE FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

ALIEN FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

MOORECOMPUTER FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

COUNTDOWN FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

DATA70 FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

Olde font
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

AURA FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

DOTS FONT
ABCDEF, GHIJKL, MNOPQR, STUVWXYZ; 12345
abcdef, ghijkl, mnopqr, stuvwxyz; 67890

HIRES FONTS

STANDARD font
SERIFA font
BOLDSTANDARD font
FUTURADISPLAY font
OUTLINE font
ORION FONT
BROADWAY ENGR FONT
COUNTDOWN font
DATA70 font

These fonts are all supplied as standard with Page designer 2. The Hires fonts were printed with width 1 and height 1, with proportional spacing, 2 pixels horizontal spacing and 0 pixel vertical spacing.

The text fonts were printed in 2 sizes. CSIZE 2,0 for the headings and... CSIZE 0,0 for the alphabet.

The page was printed on a 603508 Laser Printer, by:-

TAYLOR MADE SYSTEMS LIMITED

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