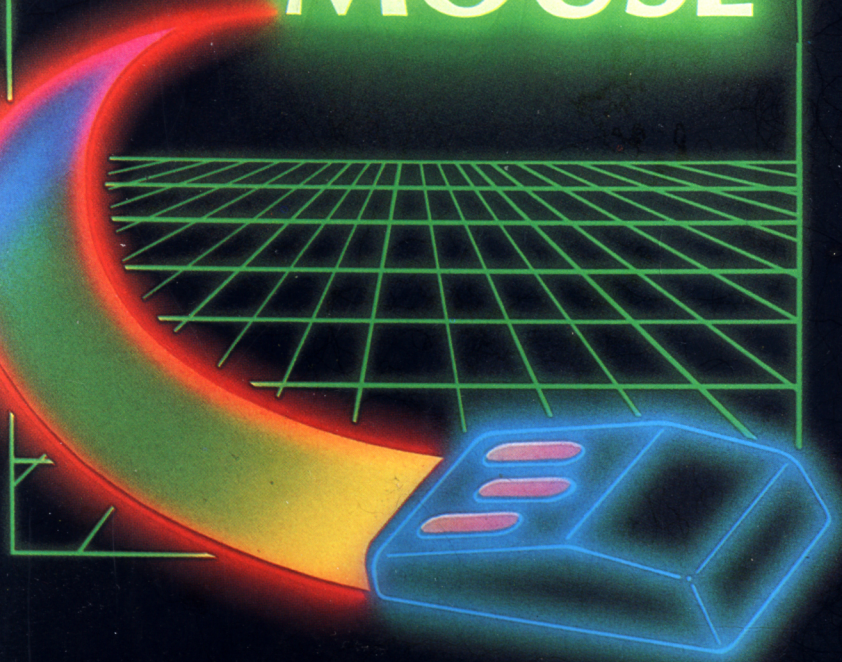
QUEST MOUSE



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All references to the BBC Microcomputer in this manual refer to the British Broadcasting Corporation Computer, produced by Acorn Computers Ltd.

Second edition. Published January 1988
Written, edited and formatted on BBC micro and printed on Laserflow printer.

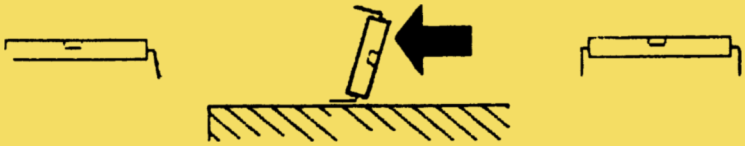
ROM FITTING INSTRUCTIONS

BEFORE INSTALLING ROMS SWITCH OFF THE COMPUTER

The following instructions ref er to the unexpanded computers as supplied by Acorn. Some computers may contain 3rd party 'hardware that affects installation of ROMs, where the layout of your computer differs from the following instructions, you should consult documentation supplied with said hardware to fit ROMs.

Hints on Handling ROMs

Often the supplied ROM has the legs slightly spayed apart which means that they do not fit easily into the ROM sockets. Rather than bending each leg individually it is easier to take hold of the ROM at each end between thumbs and forefingers, rest the ROM on a non conductive surface (eg wooden), then gently lever the ROM forward until the legs are at right angles.



Inserting a ROM

When inserting the ROM into a socket be sure to check it is facing the correct way and all the legs line up in the socket before applying firm, even pressure to the ROM to press it home.

Removing a ROM

In our experience we have found the ideal tool for removing an ROM is a small, flat blade screwdriver. The technique we employ is to first lever one end of the ROM up to an angle of about 15-20 degrees, then press that end back in slightly, then insert the screw driver under the opposite end of the ROM and gently lever it to a similar angle as before. Repeat levering the ROM from alternate ends until it becomes free.

After following the relevant installation instructions, try switching the computer on. If the computer fails to power up or the ROM does not respond to its call, then turn off the computer and carefully remove the ROM, if any legs are bent then carefully straighten them out. Refit the ROM as before and try turning the computer on. Do not under any circumstances try fitting the ROM in with the notch facing the opposite way to that stated in the instructions.

Fitting a ROM to a BBC Model B Computer

First remove 4 case screws (usually marked FIX) from computer, there are 2 at the back and 2 underneath the computer. Next remove the keyboard retention bolts.

In the bottom right hand corner of the computer you should see something resembling Figure 1.

The left most socket of the five (IC 51) contains the operating system marked PB04, this must not be moved. In one of the other 4 remaining sockets will be the BASIC ROM, for convenience this should be relocated to the right most socket (IC 101). The ROM can then be inserted into one of the 3 remaining sockets, making sure that you have the polarity notch facing towards the rear of the computer, ie the same way as the OS and BASIC.

Some BBC computers cannot switch between ROMs unless circuit changes are made. A TTL 74LS163 chip must be fitted into IC 76 and the PCB links Sl2 and S13 (located near the keyboard connector) must be broken. A true BBC Model B should already have these circuit changes carried out.

Fitting a ROM to BBC Model B Plus Computer

First remove 4 case screws (usually marked FIX) from computer, there are 2 at the back and 2 underneath the computer.

On the top left corner of the computer you should see a circuit layout resembling Figure 2.

The top right most socket (IC 71) of the 6 available contains the combined OS and BASIC ROM, this must not be moved. The sideways ROM may be inserted in to any of the 5 remaining sockets making sure the polarity notch on the ROM faces towards the rear of the computer, ie the same way as the combined OS/BASIC ROM. Under no circumstances plug a sideways ROM into IC sockets 29 and 37, as you will destroy them, these are for the Acorn speech upgrade only.

Links 9, 11, 12, 15 and 18 on the left hand side of computer correspond to sockets IC 35, 44, 57, 62 and 68 respectively. With the link made west the computer expects a 8/16K ROM to be present, with the link made east the computer expects a 32K ROM to be present.

Users may like to know that making link S13 from north to south, alters the logical ROM socket numbers of the BASIC and OS from 14 and 15 to O and 1. If 64K of sideways RAM is fitted then the 32K of sideways RAM normally mapped into sockets O and 1 will now be mapped into sockets 14 and 15.

Fitting a ROM to a BBC Master 128 Computer

First remove the 4 case screws labelled fix from the underside of the computer.

On the right hand side of the computer you should see a circuit lay out similar to Figure 3.

The uppermost socket houses the mega ROM, containing all the Master's standard software, this must not be moved. Normally the only socket that you can plug a 16K ROM into is IC 27 (the central one of the 3 available). When inserting the ROM make sure that the polarity notch on the ROM faces towards the left hand side of the computer ie. the same way as the mega ROM.

However it is possible to alter sockets IC 37 and IC 41 to accept ROMs by making links 19 and 1 respectively, east. This will however disable the 64K of sideways RAM.

The other alternative provided for is to use the ROM cartridge option. By inserting the sideways ROM into a ROM cartridge, making sure the polarity notch points towards the area marked pin 1, you then simply insert the cartridge into one of the slots on the top of the Master. It is only possible to insert the cartridge one way round.

Fitting a ROM to a BBC Master Compact Computer

Following the printed instructions on the underside of the Master Compact keyboard remove the 4 case screws. Carefully lift the top of the keyboard out of the way.

On the right hand side of the keyboard you should see a circuit layout similar to Figure 4.

The forward most ROM socket contains the Compact's mega ROM, this must not be moved. In a factory configured Compact only sockets IC 17, IC 23 and IC 29 can be used for normal 16K sideways ROMs, socket IC 38 is reserved for a 32K ROM device. Users wishing to use IC 38 for 16K sideways ROMs can change link PLU from its north position to south.

When inserting the sideways ROM check the polarity notch is facing towards the left hand side of the keyboard ie the same way as the mega ROM.

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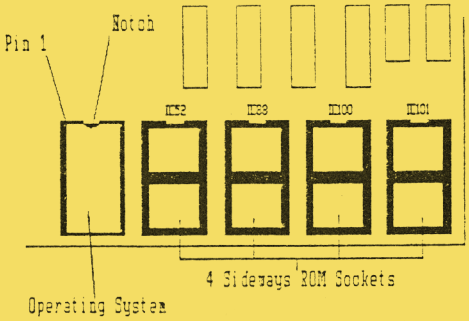


Figure 1

BBC Model B

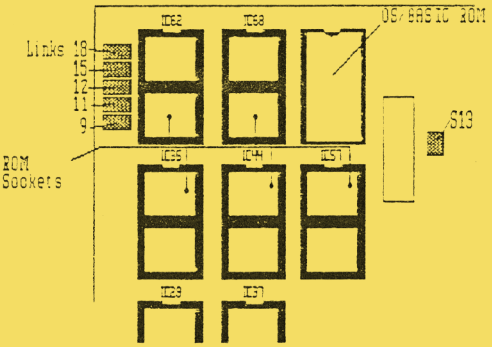


Figure 2

BBC Model B Plus

Figure 3

BBC Master 128K

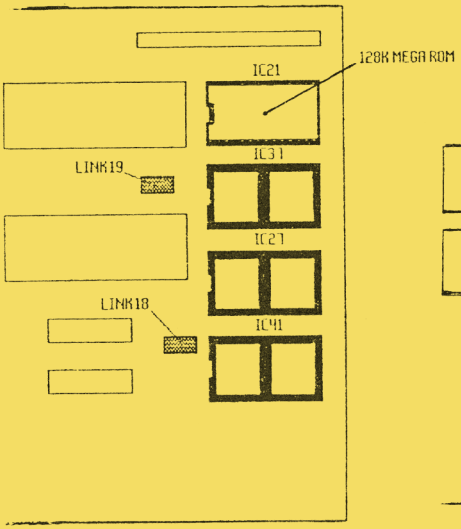
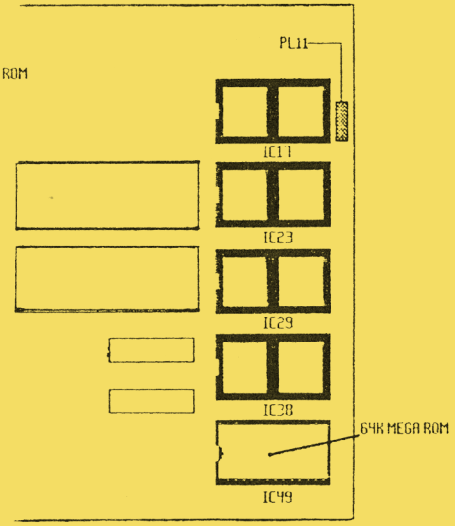


Figure 4

BBC Master Compact



CONTENTS

QUEST PAINT FOR THE BBC MICRO AND MASTER 128

1.0 INTRODUCTION

The Quest Paint package represents the latest in 'mouse technology' on the BBC Micro series of computers. Quest Paint is an advanced 32k package that offers a large number of features including pencil drawing, user defined brushes and an advanced airbrush drawing command. Four colour full screen pictures are created as standard with optional larger pictures available from the utility disc. Other features include cut and paste, trace edges, digitise a picture (with the WE digitiser). protected colours, transparent colours, cycling displays, patterns applicable to line, solid, airbrush and fill operations, etc.

Capable of operating on all the BBC range (apart from the Master Compact), Quest Paint is able to take advantage of any shadow and sideways RAM fitted to give faster and more flexible operation (although shadow RAM on the B + cannot be used). It can, of course, operate on a standard 32k BBC machine though some minor features are unavailable due to the lack of available memory.

Operating in mode 1, and hence giving detailed colour images, Quest Paint creates full screen images. Two special menus are displayed when needed with the original screen image restored afterwards. Using the 'hand' option disc based pictures in excess of the normal screen size can be created with ease. Any mode 1 screen can be loaded into Quest Paint and screens saved do not have extra borders added un-necessarily. Normal screen saving time is just a couple of seconds.

Quest Mouse has three buttons on it: these are referred to as the left. middle and right hand buttons, symbolized as L, M and R throughout this manual. Their uses are:

L is mainly used to execute a command (for example, holding this button in pencil mode will draw a line).

M is used to cycle through a special set of options called the Toolbox; these are explained in detail later.

R is used to select and deselect the menus, and to cancel some operations.

Although Quest Paint is amazingly simple to use once you are familiar with it, there are a large number of features to become conversant with. To help you start drawing quickly we give some easy to follow examples.

The mouse is used to control actions to the screen. and to move a pointer around. The three buttons on the mouse are used to select various options (as outlined briefly above).

The pointer icon is used to display 'where' the mouse is, and can change depending upon what is happening. For example, when you start the Quest Paint package, the pointer icon is a pencil. If you select the fill option however. then the fill icon (a paintbrush) is displayed.

1.1 SOME GENERAL TERMS

Ink

The Ink refers to the currently selected colour, or colour pattern, that is used for drawing. When started, the ink colour is white.

Paper

The Paper, or background. refers to the colour that is going to be drawn on. This is. initially black. but can be swapped to any other single colour. Note that the ink colour can be a pattern, but the paper colour cannot.

Page

The concept of the page refers to the picture as viewed on the screen. Most of the time. the picture is the size of the page that you are viewing. However, there Is an extended mode that permits pictures to be larger than the viewable screen, or page.

Rubber Banded

This is a fairly general term used in most computer graphics applications. When drawing a square, or the like, you are often given the option to fix the first point and then select the second point by moving the mouse around. While you are selecting the second point, the software will continually draw the outline of the box (or whatever shape) that would be drawn if you selected the next point immediately. If you imagine a fixed nail with one end of a rubber band hooked over it, and you stretch the other end, then you can probably see why this is referred to as rubber banding. The best way to view rubber banding is as temporary lines added by the computer to guide you when choosing a position.

1.2 LEARNING AND THIS MANUAL

The best way to become familiar with Quest Paint is to experiment with it. However, note that we recommened that this is done in conjunction with this manual: otherwise you are quite likely to miss being able to realize the full potential of Quest Paint.

2.0 GETTING STARTED

Important :-
If your machine contains shadow RAM then its controlling software MUST be disabled before running Quest Paint. (See APPENDIX 1)

Before using the system you should copy the disk supplied with the package and keep the original safe. The disk is only needed for a few features of the Quest Paint Package but it is still worth keeping safe.

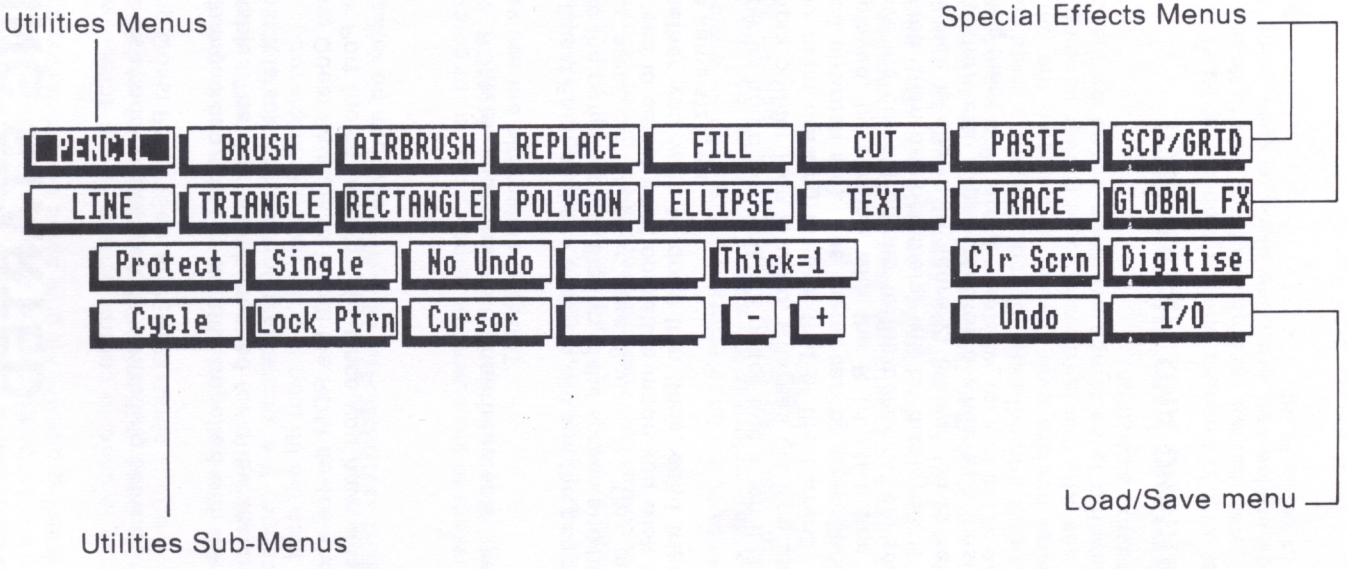
The first stage in using Quest Paint, is to install the ROM device and connect the mouse to the User Port (notch uppermost). Once you have attached the Mouse switch the computer on and type:

*PAINT

If you have another ROM in your machine that intercepts the *PAINT command then you may use the alternative *WPAINT .

This will start up the Quest Paint package and you will see the pencil icon on the screen. If you move the pencil icon to the top of the screen and then press the R (right) button a menu will appear (see figure 1). This menu (the COMMAND menu) is used to select what operation mode you wish to use. It allows you to say whether you wish to draw thin lines, solid triangles, or multiple ellipses of the same size, etc.

If you move the pointer up and down, you will notice that when it is over the menu at the top a simple pointer icon is used, whereas the icon used when the pointer is over the main drawing area is that of the currently selected drawing icon (eg pencil airbrush etc). The menu can be cancelled, and the original picture redisplayed, by clicking with the R (right) button over the menu area. If you move the current pointer to the bottom of the screen and press the R (right) button, then another menu will be displayed. This menu (the PALETTE menu. which is shown in figure 2) allows you to select such things as colour and pattern etc. Experiment for a while with these menus, selecting and deselecting them.


Utilities Menus
Special Effects Menus
PENCIL
BRUSH
AIRBRUSH
REPLACE
FILL
CUT
PASTE
SCP/GRID
LINE
TRIANGLE
RECTANGLE
POLYGON
ELLIPSE
TEXT
TRACE
GLOBAL FX
Protect
Single
No Undo
Thick=1
Clr Scrn
Digitise
Cycle
Lock Ptrn
Cursor
-
+
Undo
I/O
Load/Save menu
Utilities Sub-Menus
(Vary With The Application Selected)

Note:- If you do not have any sideways RAM fitted to your machine then only one of the above menus can be displayed at a time and if a menu Is selected while the other Is already displayed then the existing one will be removed before the new menu Is shown. (If you have sideways or shadow RAM fitted to your machine, then refer to APPENDIX 1).

2.1 AN EXAMPLE

The following example assumes that Quest Paint has just been started with *PAINT (and hence that certain options have their default values). If this is not the case, then just press Break to initialise everything.

Select the Command menu by clicking R in the top portion of the screen and locate the + and - boxes. The Command menu is divided into two sections. The top section, and some of the options on the right, are the main drawing command selectors and are displayed whenever the Command menu is selected. Only one of these features can be active at once. The currently active command box will be displayed in reverse, much as the pencil box top left is when the Command menu is first selected. The other portion of the Command menu, that towards the lower left, is used to display paramaters specific to the currently selected command from the top half of the menu. These options are remembered, and recalled whenever a given command is selected during a session with Quest Paint. This permits the individual functions to be configured more precisely to the effects you desire, and saves a lot of time in the long run.

Move the pointer over the + symbol and click twice on L. The box that previously said Thick= 1 should now read Thick= 3. This is a measure of the thickness of the line that will be drawn when we use the pencil later. Click R to remove the Command menu.

When in pencil mode and when not on one of the two menus, pressing L and moving the mouse will draw a line. Use the pencil to draw a selection of closed loops on the screen

Once you have done this, move the pointer to the top of the screen and click on R to select the menu. Click L over the box marked fill and then click R to cancel the menu. The pencil has now been replaced with a paintbrush icon, this is used to indicate that fill is the currently selected command. Now move to the bottom of the screen and click R to display the Palette menu.

Towards the left of this menu are six boxes, each holding a pattern of dots called a dither pattern. The dither patterns are simply alternately coloured pixels and are used to create the effects of other colours on the screen. The dither patterns are extremely useful for fill and airbrush operations because they allow a large area of the screen to be filled in but avoid the striking qualities achieved if just a single colour is used. Select one of these dither patterns by pointing to it and clicking L once.

Having selected a dither pattern, move the fill icon to the centre of one of the enclosed areas and press L. The area will now be filled with the pattern selected. Try selecting other dither patterns and filling other areas. If you point to a dither pattern and click more than once on L, then a new dither pattern will be displayed.

Obviously there is more to using Quest Paint than just following every step in an example like the one above. However, while we are just starting to learn about Quest Paint. we shall deal with the more fundamental aspects. When you are drawing, whether it be with the pencil or filling with the fill icon, Quest Paint uses the currently selected colour. As we have seen above, a colour can actually refer to a specific pattern: however, more on patterns later. For now, let us examine what can be done with the colours.

If you examine figure 2 again, you will notice down the left hand side of the screen are three rows. each of four differently coloured boxes. The top of these three rows is used to select the drawing colour. Point to one of these boxes and click L. and the foreground colour box will change to the colour you selected.

To produce a few bands of different colours, select the top menu (with a single click on R) and click with L on the Brush box. If the top menu is now removed with a click on R. you should see that a square shaped icon has replaced the normal pointer (this is the default brush shape, but you can design you own shapes or load them in from disc). For now, we are interested in the fact that moving the mouse with L held down will produce a large band of foreground colour if this is the select~d feature.

Having selected a foreground colour, paint a strip across the screen, select another colour, and then do the same again. Repeat this process, using the different colours, a few times and you will soon become familiar with the process of selecting a colour for drawing with. Once your experimentation has started to fill the screen, try selecting black as the foreground colour and drawing a line with it.

Eventually. there comes a stage when you want to wipe the screen clean and start another picture. This action is accomplished with the Cir Scrn option from the top menu. To prevent accidental screen clearance, two clicks on L are required. When the screen is cleared, It is effectively filled with the currently selected PAPER colour. Normally, this amounts to colouring the entire screen black. Of course, it is quite acceptable to choose another colour and use this option (Cir Scrn) as a quick way of colouring the screen.

New background colours are selected with a single L click over the PAPER box in the lower menu (which will then become reverse highlighted in the same manner as the selected options from the top menu do) and then another L click; this time over the colour which you want to become the background colour. It is not possible to select one of the dither patterns as a background colour; in fact, the only valids options for the background colour is one of the four main colours. When selecting the colour, ensure that it is selected from the row of four boxes with an 'I' beside them, as the other boxes have different purposes. (If a colour is required either as a foreground or background colour, then it should always be selected from this top row of boxes, and not from the others.)

3.0 THE PALETTE MENU

When drawing, Quest Paint basically takes a new colour and puts this over an old colour. An analogy that is readily understood is that of writing with ink on paper. In computing terminology, the ink is referred to as the foreground colour and the paper as the background colour. Of course, Quest Paint permits more than just simple overwriting of paper with ink. The ink can be made up from a mixture of different colours and can form distinct patterns. Inks already present can be protected so that new inks do not overwrite them, and so on.

A dither pattern is an ink made up from a collection of different coloured pixels (dots) arranged to produce new shades. A dither pattern is very much the equivalent of the side of a pencil when it comes to shading in areas of your picture. Each dither square in the lower menu can produce five different patterns, giving a total of 30 dithers, a new dither being produced when the same dither box is selected more than once. (You can also cycle through the five dither patterns in each box without disturbing the currently selected colour by pressing the middle button instead of the left button with the pointer over the selected dither box.)

A brush, in mouse terminology, is a mask used to apply ink (either a single colour or a specific pattern) to a picture. When the ink is a pattern it is helpful! to imagine your pattern repeated over a large piece of paper and designed to act as a transfer, then the brush is the shape that, when applied, transfers the pattern onto the page.

The patterns themselves are composed from a regular array of 16 by 16 pixels, each of which may be one of 4 colours. If you look at figure 2, you will see two rows of 8 designs. The top row are the patterns and are coloured; the next 8 are the brushes, and are only black and white. Whilst a pattern obviously requires colour for maximum effect, the brush, being a form of mask, does not require colour. To the right of the patterns are a further two boxes, these are the currently selected ink and paper and to the right of the brushes is another box containing the currently selected brush.

Most of the pictures that you draw will probably want to use colours other than black, white, red and yellow. Although you can only actually have four different colours, the way in which these are displayed can be changed (by performing the equivalent of VDU 19). To change a colour, point the mouse at the colour in the ink selection group on the bottom menu, and click on M. Each click will change the colour to another one, cycling through the available colours. Note that you will not be able to define two colours to appear as the same colour on the screen. When a picture is saved, the display colour information is also saved. When a picture Is loaded, the colours will be set back to any display values from when the picture was last edited.

3.1 Colour Transparency

Transparency is only used in CUT and PASTE (see later). To select a colour as transparent, simply click L on one of the four coloured boxes with the letter 'T' to the right and a cross will appear over the colour. To de-select simply click Lover the colour again.

3.2 Colour Protection

With a colour protected. nothing will overwrite it. This can be useful for ensuring that detail added later to a picture does not automatically appear closer to the viewer when perspective is involved or that coloured detail is not overwritten etc.

There are two stages in selecting protected colours. The first one is very simple, and merely involves selecting the bottom menu (click R in the bottom section of the screen), pointing at the appropriately coloured box in the horizontal list with the P to the right of it, and clicking L to select it. A cross will appear through the colour (L again will remove this cross). This Is the stage in specifying the colour to be protected. The next stage is selecting which drawing commands are to use protected drawing and which are not.

Each option from the top menu for drawing has its own Protect box, and hence each applicable option from the top can be selected to take note of protection or not, totally independently of the other options. To make the rectangle command, say, take note of the protected colours, click L on the protect box within the rectangle section (which will reverse the box).

3.3 Cycle options

The cycle is a special type of ink, and is used to add variety or colour to pictures and to liven them up. Basically, if you are drawing with a cycle, then the colours that you are using will change every so often. For example, If you were drawing with a circular BRUSH and had the cycle option active, then the colour would appear as a series of discs.

Each of the four main ink colours can have a cycle associated with it. These cycles are entered by selecting the colour itself (such as red) and then clicking L on the CREATE CYCLE box in the lower menu. Whilst the CREATE CYCLE box is reversed. any colour or dither pattern selected will be added to the cycle associated with the colour selected before CREATE CYCLE was selected. The sequence of colours (or dither patterns) is displayed in the row of eight small boxes at the bottom left of the bottom menu. Although a cycle can consist of up to 8 colours, it may be entered with anywhere between 1 and 8 actual colours.

When selecting dither patterns. M should be used to change the dither pattern associated with a particular dither pattern box. Once a colour has been entered into a cycle it cannot be deleted by itself: you will need to click L on the CLEAR box, which will clear the entire cycle. When you have finished entering a cycle, click Lon the CREATE CYCLE box again. Whenever a colour is selected, any cycle associated with it will be displayed in the cycle boxes at the bottom of the screen.

Once a cycle (or a number of cycles) has been entered. it is actually used by clicking Lon the CYCLE box in the options from the top menu (such as pencil, ellipse, etc). Whether a cycle is used depends upon the individual drawing command: they are not just universally selected or ignored. If you define cycles for more than one colour, and then use a multi-coloured pattern as your ink with cycles selected, then each pixel within the pattern has the relevent cycle applied to it. This allows a given shape to be repeated with different colours, but without the need to actually select new colours.

3.4 Brush and Pattern Design

Both brushes and patterns play a crucial part when creating complex drawings, and hence it is essential that you are familiar with their use, and the steps necessary to create a new brush or pattern. Brushes and patterns can be loaded and saved quite freely from the 10 Menu, and edited with the built in editor.

To edit a brush or pattern. click L on it to ensure that it is the currently slected brush or pattern, and then click Lon the DESIGN box. This will call the built in brush and pattern editor and allow you to design as you please. When this menu is called up, the currently selected brush is displayed on the right in normal and expanded form, and the currently selected pattern is displayed on the left in both normal and expanded form. When editing. which is described below, is finished, click Lon the EXIT box to return to the bottom menu.

To edit the brush. hold down L and move the pointer over the expanded image on the right. If L was depressed when the pointer was over a white square, then any square it goes over will turn to black. Conversely, initially depressing the pointer over a black square causes all squares the pointer is moved over to turn white. The brushes use white to signify where colour will be applied, and black to signify where the background will be left Intact.

Pattern editing is slightly more complex as this can utilise all four colours. To the left of the expanded pattern image are four colour selectors. The small square underneath the normal size version of the pattern is the currently selected pattern edit colour, which may be altered by clicking L with the pointer over one of the colours on the left. Editing the pattern is very simple; click L when the pointer is over the place where you wish a dot of the currently selected colour to appear. If you hold L down and move the mouse around, a trail of coloured dots will be left.

The SIZE box is used to specify the size of the pattern: e.g. if you want to design a pattern which repeats every 5 pixels. (i.e. a 5*5 box) then this could not be done on a standard size pattern (16*16 pixels). Having produced the required pattern, originating from the bottom left hand corner, click L on the SIZE box: it will reverse. Now move to pointer to the top right hand point of the pattern that you have designed (which is not necessarily the whole pattern design area) and click L. If you are uncertain on the size, depress Land move the pointer until the rubber banded box surrounds the required sections, and then release L.

Experimenting with Patterns and Brushes will soon show their power and flexibility, they are a very important part of the tools provided by Quest Paint.

4.0 THE COMMAND (UPPER) MEN

The upper menu is used to select drawing commands, clear the screen. call the WE digitiser, undo last operation and call up the 1/0 (input/output) menu. The top two rows of boxes are the drawing commands. the bottom left two rows of boxes (8 in all) are the options for the currently selected command and the bottom right boxes (4 in all) are used to perform the other functions.

4.1 Cir Scrn (Clear Screen) command

Clicking twice on this command wipes the screen to the current papercolour.

4.2 Undo

Clicking on this command will undo the last change made to the screen (provided that compatible shadow RAM is fitted).

4.3 Digitise

One exciting expansion option contained within Quest Paint is the ability to interface to the Watford Beeb Video Digitiser and to accept digitised pictures and to then start editing them directly. To digitise the picture Click on R to select the upper menu, and then double click on the Digitise option with L.

Unfortunately, both the Digitiser and the Mouse plug into the User Port of the BBC Micro and hence only one can be connected at once. When you are using Quest Paint, the Mouse is obviously connected to the User Port, and must stay connected until the Digitise option has been selected. Once this has been selected, the Mouse is not needed until the Digitiser has performed its task.

When the Digitise option is chosen a mode 7 display is selected. You are prompted to change the Mouse for the Digitiser and press a key on the keyboard. After this key is pressed, a *WIMAGE command is issued and a picture digitised into the screen memory. Note that the Digitiser should have the mode switch set to mode 1 for correct operation. Once the image has been digitised, you have two choices. Pressing any key will result in a further digitising scan, but if you are satisfied with the results then press the ESCAPE key and you are prompted to connect the mouse again in a similar manner, and to press another key. Once this is done, treat the digitised image as if it had just be drawn, and edit away.

5.0 THE I/0 MENU

In order that Quest Paint can save pictures to disc. permit you to issue commands and perform various other options not present from the top menu, the 1/0 menu exists. Pressing L on the 1/0 Menu option of the top menu will change the display to mode 7 and display the 1/0 options. When. pressed from within the 1/0 Menu. the R button returns you to the main display. Mis ignored (except when a direct "Press a button" prompt is printed, when any of the mouse buttons will suffice) and L selects the option that the cursor is currently over.

Apart from directly issuing * commands, all the 1/0 Menu options are selected with the mouse. A large cursor is displayed in the 1/0 menu which is moved simply by moving the mouse. This cursor is used to select what type of image you are dealing with (a full picture or a set of patterns, etc) and to specify what action you wish to perform on it (load, save. etc).

Typically, the first uses of this facility will be to load in the default brushes and patterns from disc. To perform this operation, move the cursor over the "BRUSH" or "PATTERN" option, and press L. This action will highlight the selected option and tells Quest Paint that you want to load or save that type of file. Now click L over the "Load" option. Quest Paint will prompt you for the filename to use (PATTERN for the default patterns or BRUSH for the default brushes). Enter this as normal, and press Return at the end.

When saving a picture, information regarding the current palette will also be saved, so that it can be automatically restored when the picture is next loaded. If a file by the same name already exists on disc, you will be prompted whether or not to overwrite this; Y or y will cause the new file to overwrite the old file, whilst any other key will abort the save operation.

Note :- Both cutout and font files are treated differently to those above.

Cutouts are not actually loaded or saved from the 1/0 Menu but the filename specified is remembered and used during CUTting or PASTEing operations. If LOAD CUTOUT is selected then the disc is examined to check that the named file exists and no further action is taken, the cutout only being read in during a buffered PASTE command. If SAVE CUTOUT is selected then the disc is checked again to see if a file exists and if it does then an opportunity is given to delete it. This filename is used when the next buffered CUT operation is selected. (This is unusual in that the SAVE command must be issued before the shape is CUT).

Fonts are loaded in a similar way to cutouts. i.e. the font is not actually read In until needed by the TEXT command. It is not possible to SAVE fonts and an error will be generated if this is attempted.

A catalogue of files saved on disc may be obtained by clicking L over the Cat option. A specific option for cataloguing discs has been included because this is the most common • command that is used. Any • command can be issued from the 1/0 Menu simply by entering it; a • detected from the keyboard tells Quest Paint to receive a line of text and issue this command when the Return key is pressed. Note that commands that are likely to overwrite memory (such as *COMPACT) should be used with care. If in doubt, save your picture first.

At the top of the screen, underneath the title line, is an indication of whether any shadow or sideways RAM has been found or extended picture mode selected. Note that this line is for information only, and clicking the mouse on these items will have no effect.

5.1 The Print Option

The print option is selected from the 1/0 Menu by clicking L once or twice over the Print item:. Clicking the first time produces a prompt and expects a * command for a printer dump routine suitable for your printer e.g. *GIMAGE for WE Dump Out 3 ROM. (This allows screens to be dumped to printers not supported by the standard printer dump).

If. instead of entering a command, you click a second time, the standard Print options menu will then be displayed to allow printing on FX80 and compatibles. Note that for this option to work, you will require the file called "PRINT" from the utility disc supplied so ensure that this disc is in the currently selected drive.

The print menu displays 6 options, 5 scales and a 'PRINT' command to start the printer dump.

If the PRINT command is selected upon entry. a standard single page normal scale printout is produced. However, selecting a new scale before 'PRINT' will result in a scaled output thus :-

x1/4 quarter size picture
x1/2 half size picture
x1 normal size picture
x2 double size picture
x4 quadruple size picture

Note that x2 and x4 pictures are wider than the printer carriage and will be printed out in strips which must be taped or glued together. The x4 is especially suitable for posters as it is approx 2ft Bin by 2ft 3in, it does however take about 45 minutes to print.

The options perform the following functions:-

INVERSE :- Will cause black to be printed as white and white as black (other colours are also changed accordingly).

ROTATE:- This picture will be printed out sideways

REVESE :- The picture will be printed as a mirror image of the screen

WIDE LINE :- The printer normally scrolls at 23/216 of an inch for each line printed, if this produces slightly overlapping lines then select this option which will force the printer to scroll at 24/216 of an inch

NO FF :- Normally, after a printout, a form feed is sent, but this option will suppress it.

FX100 :- Forces the printer dump to make use of the wider carriage of an Epson FX100 or compatible printer.

Note :- If extended picture mode is selected. then printing is done from the disc based copy of the picture and when the print option is selected, the currently displayed part of the picture is saved to disc first to ensure that the printout is up to date.

6.0 THE TOOLBOX

The toolbox contains the most frequently used tools and allows instant access from any command. As each tool is selected a different Icon appears at the cursor position.

The top level of the toolbox is always the currently selected command (and relative Icon). By clicking the middle button on the mouse you can step through the toolbox, the right hand button will always return you to the top level.

Here are the tools and associated Icons:

COMMAND (Arrow, Knife etc.)

ERASER Square

ZOOM Magnifying Glass

PAN Hand

6.1 Eraser

The Eraser wipes the section of screen under the square to the Paper Colour.

6.2 Zoom

Move the Magnifying Glass to the part of the screen you wish to enlarge and click L. A menu will appear on the lower part of the screen showing the zoomed section in the centre. To each side are arrows which can be used to scroll in any direction, and beside these are four colours (to select one click L over the box). The box on its own on the left shows the currently selected colour and the two boxes on the right allow the zoom level to be altered. To edit the image on the menu simply move over the required pixel and click L. To remove the menu simply click R.

6.3 Pan

If an extended picture (bigger than one screen) has been created (see Disc Based Utilities) the hand will allow you to move around the picture. By holding down L and moving the mouse the page can be pushed in any direction so revealing a new part of the image. NOTE that due to the disk overheads this will take some time.

7.0 DICTIONARY OF COMMANDS

7.1 PENCIL

This drawing tool is a freehand system for drawing lines and single points. Whereas the brushes are used for quite a lot of freehand drawing, the pencil scores signifcantly in that it always ensures that a continuous line is drawn which the brushes cannot do unless used slowly. Typical uses of the pencil Include sketching a picture, adding a signature in small letters and even just touching up a normal picture.

Having selected the pencil from the menu at the top. position the pencil icon where you wish your line to start, depress and hold down the L button and move the mouse around. A little experimentation is recommended with the pencil. Although the pencil initially appears a clumsy method of drawing lines, you will soon realise just how flexible it actually is. One point to note about pencil mode; if thick lines are selected and the mouse is moved very fast, then a series of short straight lines will be generated. It is for this reason that we recommend that the pencil be used for careful sketching only.

Options within PENCIL mode

Protect.

When this option is selected, any colour selected in the P list of colours will not be overwritten by the pencil. The effect this achieves is to make a new line look as if it passes underneath another area of colour, instead of above it as it would otherwise do.

Cycle.

When this option is selected, the lines drawn with the pencil will cycle through the colours of the currently selected cycle at regular intervals. If the pencil is moved slowly, then this change in colour will create very small overlapping areas: if the movement of the mouse is rapid, then lines of colour will tend to be created.

Single.

When this option is selected. clicking L only produces a single dot. L will need clicking, releasing and clicking again to produce two dots.

Lock Pat.

If the currently selected colour (or ink) is a pattern. then it is normally locked to the lower left of the screen (le the pattern is reproduced in neat regular units, with the first one starting from the bottom left of the screen). This option permits the pattern to be displayed relative to the starting point of the mouse.

No Undo.

When shadow RAM is fitted to your machine. Quest Paint will use it to implement an undo buffer, permitting any hasty additions to be undone without too much anguish. One problem with this is that each time a major operation is about to start, the screen has to be saved to the shadow RAM. For operations such as fill. this is not noticeable. However. when drawing a pencil line, the time between depressing the L button and the line appearing (the delay is when the screen is being copied) can become quite significant. As pencil mode is the mode most drastically affected by this copying, there exists a specific flag to disable this copying in pencil mode only: this flag is controlled by the No Undo option from the pencil menu.

Cursor.

When normally drawing in pencil mode. the pencil icon is removed and the required line drawn as you move the mouse. There are times, especially when moving the mouse slowly. when it is easy to lose track of precisely where the pointer actually is. For situations such as this, the Cursor option allows you to specify that the pencil icon is to continue to be displayed (with an added time delay) so that it is easy to follow precisely where you are drawing.

Thick = n

The thickness of the line drawn by the pencil is controlled by altering this control. Initially, a value of 1 will be displayed in this box. representing a single pixel line. A click from L on the + box will increase this value. and a click from L on the - box will decrease this value. The maximum thickness value is 4. If you attempt to increase or decrease this value too far, then it will wrap back round to the other end of its scale (4 becomes 1 and 1 becomes 4).

7.2 BRUSH

The Brush option is used to take the currently selected brush and use this as a mask through which the current ink is applied. With a brush and ink defined, depressing L whilst keeping the mouse steady will result in an image of the current ink (a solid block in the case of just a single colour, but part of the pattern in the case of a pattern ink) in the image of the current brush appearing.

Options within BRUSH mode.

Protect.

With this option selected, any colour selected from the P list in the lower menu will not be overwritten when drawing takes place on the screen. This is the same as for other options.

Cycle.

With the cycle option selected, the brushes and patterns really come into their own. Using a pattern with a number of colours, with each colour having an associated cycle sequence, selecting the cycle option means that an incredible range of effective patterns will be created from just a single pattern and brush.

Use S.C.P.

With this option selected, the centre of the pattern produced will be forced to the stored cursor position. Note that the centre is taken as the centre of the 16 by 16 grid, which is not necessarily the centre as viewed once it has been redesigned.

Lock Pattern.

The Lock Pattern option is particulary applicable to the brush option. If a grid work pattern is being used, overlapping brush patterns will not acquire the appearance of being overlapped squares, but simple a filled area with a regular pattern. By selecting the Lock Pattern option, each brush stroke will produce the same pattern, but produced relative to the brush stroke itself and not one of the screen corners.

Single.

Selecting this option causes only one brush pattern to be printed for each depression of L. To make two patterns appear, L will need to be released in the meantime. This option can be useful in combination with the Use SCP option when drawing precisely.

Brush + -.

This option is mainly used to provide an indication of which brush is currently selected, although using L on the + and - boxes can be used to increase and decrease the brush number. (Which saves calling up the lower menu to select a brush)

7.3 AIRBRUSH

The Airbrush option is mainly used for the shading of pictures, and functions very much as a normal airbrush. When applied a variable sized area is randomly sprayed with a series of pixels that will build up the current ink, dither pattern or user defined pattern. The spread of the pixels applied can be altered from centre weighted to evenly spread over a square area. Airbrush is applied by holding L down and moving the mouse.

Options within AIRBRUSH mode Protect.

The protect option is used. as with all the other protect options. to prevent colours marked in the lower P list from being overwritten by, in this case, the airbrush. Interesting effects can be obtained by spraying a light pattern in one colour, protecting that colour and then spraying over this with another colour. This permits colour mixing to be performed in a slightly more controlled manner.

Cycle.

With this option selected, each application of a colour with an associated cycle will cause different coloured pixels to be sprayed onto the screen. When creating mottled backgrounds. the cycle and pattern lock options within airbrush can create some very pleasing effects.

Use S.C.P.

This option will force the centre of the airbrush pattern to the current stored cursor position.

Lock Pattern.

With this option selected. the patterns sprayed will be relative to the mouse position. whereas without this option selected they will be relative to one of the corners of the screen. To achieve the best effects from the airbrush you are recommended to select the pattern lock option as more random looking patterns are produced.

Single.

Selecting the single option causes each depression of L to produce only one burst on the airbursh (as opposed to continuous firing). This can be useful when only a delicate amount of shading Is required.

Even.

The airbrush normally sprays with a centre weighting. rapidly building up a pattern in the centre of the spray area and only applying a small amount to the extremeties. This option, when selected, causes the spreading to be even. The shape of the area sprayed within is a square.

Size + -

By default. the size of the sprayed area is a small square. Using this option you can increase the size of the area sprayed to quite a large area. There are four sizes, with the smallest (the initial one) corresponding to about half the area of a full size brush. with the largest corresponding to about four times the area of a full size brush.

7.4 REPLACE

The replace command is used to replace one colour for another. To provide an easy way to interface to the rest of the Quest software. it changes paper colour to ink colour. The command is used very simply by selecting the appropriate area with a rubber banded box. Once both corners of the box have been defined, Quest does the rest. Replace mode can be used for performing various operations on dither patterns, etc, which can not be performed by normal fills. Note that that ink colour being used can be a dither pattern or user pattern if required. Of course, the paper cannot be a pattern.

Options within REPLACE mode Protect.

This option protects any colour selected in the P colour list in the lower menu from being overwritten.

Cycle.

If the cycle option is selected then the standard colour cycling actions will apply to each whole replace operation. In other words, each replace operation uses a single colour. but the next colour may well be different from that use for the last replace operation.

Use S.C.P.

Selecting this option forces one corner of the replace rectangle to the currently stored cursor position.

Lock Pattern.

If this option is selected, and the current ink is a pattern, then the pattern will be locked (displayed relative) to the lower left hand corner of the rectangle defining the area in which the replace operation is performed.

Exchange.

This option is used to exchange the paper colour for the ink colour and the ink colour for the paper colour (provided both are solid colours).

7.5 FILL

The fill command is used to fill any area of a picture to a new colour, dither pattern or user pattern. When deciding what to fill and what to avoid, the fill routine takes the colour of the pixel that it is started on as the colour to fill, and takes any other colour as the boundary, or edge, and will not fill over this boundary. The fill routine will cater for irregular shapes and can fill virtually any pattern that you can display on the screen.

When called, a paintbrush icon is displayed. This should be moved around until the top left tip points to the pixel at which you wish the fill operation to start, with L starting the fill operation itself. Should you wish to abort a fill operation at any stage, a single click on R will perform this. Note that, under very strange circumstances, the fill algorithm can enter an endless loop; a special routine will trap this and exit after a short period of time.

You can fill with any valid ink (ie colour, dither pattern, etc), including black. Under normal conditions, the fill routine will automatically reselect itself if L is still depressed when it exits a fill operation. The idea behind this is to make it easy to fill fiddly areas: just hold L down and move the mouse in the approximate vicinity of the required target area.

Options with Fill. Protect

With this option selected, any colour marked in the P list of colours on the lower menu will not be overwritten.

Cycle.

With the fill cycle option selected, each fill operation will select the next item from the colour sequence. This is only really useful when filling a lot of small totally self contained areas.

Use S.C.P.

If this option is selected then the fill operation will start at the stored cursor position.

Lock Pattern.

When filling with a pattern, selecting this option causes the pattern to be locked to start from the initial fill start point and not the normal screen reference fill point.

Single.

This option is normally used in conjunction with either the Horizontal or Vertical fill options. When selected, this option prevents the fill routine automatically reselecting itself on exit.

Boundary.

A boundary fill is a very wide ranging fill and simply floods outwards with the current ink until the current paper is reached. Boundary fill is normally used in conjunction with the Protect option. The Boundary fill option is still applicable when either horizontal or vertical options (detailed below) are used.

Horizontal.

When this option is selected, each click on L causes the Quest software to perform a single fill operation for just the currently selected horizontal line. If the Single option is not selected, holding L depressed and moving the mouse causes fills to take place for each line covered (or most of them if the mouse is moved fast). If the Single option is selected, then the L button needs to be released and depressed again before the next fill will take place. Note that, unlike the normal fill operation, this mode of filling does not cater for complex shapes: it simply fills up to the next change in colour or boundary change (depending upon what other options are selected in the fill menu).

Vertical.

This option is very similar to the Horizontal option. except that the filling operation takes place vertically, not horizontally. If both the horizontal and vertical options are selected, then the vertical option is cancelled and only the horizontal one acted upon.

7.6 CUT

Cut mode is used to specify the rectangular area, known as a cutout, that is used for pasting operations. Options exist for using sideways RAM as a long term cutout buffer. cutting out only foreground colours, and moving an area (as opposed to copying it).

Options within CUT mode

Buffer.

What normally happens when you define a cutout is that Quest Paint makes a note of the rectangle coordinates on the screen where your cutout is, and then uses the screen image directly for pasting. The reason for using the screen image is that there is not sufficient memory in a normal BBC system to hold a copy of the cutout anywhere else. With the Buffer option selected. the cutout will be saved to disc or RAM (depending on the Use RAM option, see below). If saved to disc, the filename used is the one specified in advance In the I/0 menu. Note that the default filename is 'PASTE'.

Move Area

This option is a variant on the cut and paste theme, and is used to copy a block from one area of the screen to the other. The original area is filled in with the paper colour. Once the area is marked, the paste option is selected, with a single pasting available (selecting the cut buffer option will permit multiple copies, with the original being deleted from the screen).

Use S.C.P.

This option forces one of the corners of the rubber banded area for the cutout onto the stored cursor position. This effectively enters the first click on L for you.

Lock Pattern.

If the Use Ink option is used (see below) and the current ink is a pattern, then this will force the pattern to lock onto the bottom left of the rubber banded box, as opposed to one corner of the screen.

Transparent.

If this option is set. then any colours marked in the T ink boxes on the lower menu will be left behind when the cut is made, with other colours being replaced by the paper colour.

Use Ink.

This option is provided to permit the currently selected ink to be left behind when the move option is used. The reason that this option is specifically provided is that there is not normally any way in which a pattern can be used as a background. When you are moving a section of a picture from one area to another, It is quite possible that the relevent detail would have previously covered a patterned area.

Use RAM.

The problem with using the screen image as the cutout store is that any drawing operations that affect this area will also affect any subsequent pasting operations. However, if you restrict the cutout size to the barest minimum necessary to hold the required data and avoid overwriting the cutout area if possible, then not too many problems will be encountered. To prevent this sort of problem becoming really inconvenient, a solution is offered (of course there is a penalty, though). Whenever there is a menu on screen, a 5k buffer is used to hold the screen image underneath the menu. If required, you can opt for the menu to be removed and this 5k area to be used as a buffer for the cutout. The disadvantage with this, however, is that you must ensure that both cut and paste options have been correctly set up before the cut operation is performed, as Quest Paint goes straight into paste mode afterwards, and selecting any menu will remove the buffer contents.

On systems with sideways RAM, a 6k buffer is provided for within the bank of RAM, permitting both menus and a buffered cutout all at the same time. Attempts to create too large a cutout will cause a bleep will sound to inform you of this.

Note:- The Buffer option must also be selected for this option to work.

7.7 PASTE

Having marked a cutout, the next thing to do is to paste it down, which is where this option is comes. Without any options explicity set, Quest Paint assumes that you wish to paste down a cutout of the same size and so provides you with a rectangle showing the current cutout size. The source for the paste command depends upon the last CUT option i.e. screen, disc or RAM.

Options within PASTE mode Protect.

When this option is selected, any colours marked in the P list in the lower menu will not be overwritten when the cutout is pasted into the picture. This can be useful when pasting in a section of a picture when you wish to avoid overwriting, say, the background pattern.

Cycle.

When this option is selected each new paste operation selects the next colour cycle value for· each colour being pasted down. This type of flexibility means that you can design a picture of, say, a flower. with green stem and leaves, white petals and yellow centre with cycle lists defined for yellow and white only. This will result in each pasted flower having different coloured petals and centres according to their respective cycle lists, but the green stems will remain unchanged.

Use S.C.P.

With this option selected, the pasting operation will always take place at the stored cursor position.

Lock Pattern.

If this option is selected, then the pattern lock is used if the current ink is a pattern and the silhouette option is selected.

Transparent.

With this option active, any colours selected from the T list in the lower menu will not be pasted down, leaving the background untouched.

Silhouette.

When this option is selected, the pattern that would have been pasted down is used, instead, as a mask with which to plot the current ink. This allows drop shadows and the like to be created. Transparent mode also needs to be selected for this option otherwise a solid rectangle of colour will result.

Reflect.

When selected. this option causes the cutout to be reflected about the Y axis before it is pasted onto the picture.

Size.

When a cutout is normally pasted down, a one to one relationship is maintained between the paste size and the cutout size. However. there can be occassions where you wish to alter the size of the cutout actually being pasted down. If this option is selected. then just a pointer is displayed when PASTE mode is entered. Position the mouse at one corner and click L to mark this location (R to cancel this marking). Now move the rubber banded box until the correct size is achieved. and click L again to perform the actual size changing and pasting. Note that when a dither pattern or another pattern involving single alternately coloured pixels is changed in size, some strange aliasing effects can be produced. This is because expanding. say, two pixels of different colours to occupy three pixels means that there will be twice the number of pixels of one colour as the other. Similarly, shrinking can totally eliminate small areas.

One problem with a totally flexible rubber banded box for specifying the size is that the horizontal to vertical proportions are likely to change. Sometimes this is the effect required, but on other occasions the proportions, or aspect ratio, is required to stay constant but the overall picture size must change.

The ASPECT option (in SCP/ GRID) tells the Quest Paint software to maintain the original aspect ratio whilst permiting the size to be changed.

The LOCK HALF option (in SCP / GRID) forces the size option to gridlock to half the size of the source area. i.e. cutout sizes in x and y axis can be varied from 1/2, 1, 1 & 1/2, 2 etc. (most useful for doubling or halving cutout sizes)

Both of the above may be selected simultaneously.

Rot.

This option is used to control rotation of the cutout. in steps of 90 degrees. Click L on either the + or - boxes to adjust the value shown in the normal manner.

7.8 LINE

The pencil mode permits freehand sketching. but lacks the precision that can be required for certain operations. In line mode, a starting point is fixed and then the end point moved around with the mouse until correctly positioned, when it is selected (L performs selection of both the start and end points) and a line drawn between the two points. Note that, when a line of a thickness of greater than one pixel is drawn, the specified points are taken to be central within that line. If you find that you have specified a starting point and cannot find a suitable end point. and hence wish to reposition the starting point, click R to cancel the start point. Line mode is typically used for such things as enclosing a section of a picture, generating a regular outline (as opposed to an irregular outline from pencil mode). providing temporary perspective lines for 3D drawings or for drawing a horizon between land and sky.

Options within LINE mode Protect.

When this option is selected. any colour selected in the P list of colours will not be overwritten when crossed by any lines you are drawing. The effect this achieves is to make a new line look as if it passes underneath another area of colour, instead of above it as it would otherwise do.

Cycle.

When this option is selected, any lines drawn will cycle through the colours of the currently selected cycle at regular intervals.

Lock Pat.

If the currently selected colour (or ink) is a pattern. then it is normally locked to the lower left of the screen (le the pattern is reproduced in neat regular units, with the first one starting from the bottom left corner of the screen). This option permits the pattern to be displayed relative to the starting point of the line.

Repeat.

The Repeat line mode is, effectively, a combination of pencil and line mode. When selected. start drawing by holding down L, and a pencil effect will be drawn (le the ink drawn will precisely follow your movements). If the L button is then released and the mouse moved, a new point will be 'rubber banded' between the current position and the position at which L was released. This mode, effectively. offers a superb combination of the facilities of both line and pencil mode. Note the comment earlier in this section on line mode about R cancelling a line starting point. For Repeat mode, the starting point is considered to be the point at which the L button is released (and not the point and which it is depressed).

If Repeat is used in combination with some of the other effects, then even more interesting options become available. For example, Repeat used with Use Last effectively gives you an effect very similar to the Brushes (described elsewhere) and allows you to take the last line drawn (more accurately, reproduce lines of the same length and orientation/angle) and use this as a type of brush. This permits cyclinder effects to reproduced very easily (take a line at about 30 degrees, with Repeat and Use Last selected. held down Land prescribe a circular motion with the mouse: this produces an effective result for the amount of effort required to produce it). It is suggested that you experiment with the various options available within line mode.

Use Last.

This option simply allows you to take the last line, in terms of the same length and angle, and move this around to position it until you are happy, and then draw it.

Link.

This option is used to start a line where the previous one finished (ie the first point of the current line is the second point of the last line). Note that there is no point combining this effect with Repeat, as Repeat effectively performs this operation anyway.

45 Lock.

This option is used to ensure that the angle used for the line that you are about to draw is an exact multiple of 45 degrees (ie the line is either horizontal. vertical, or at 45 degrees to these). This can be useful when creating precise drawings where you wish to enforce regular angles on the lines.

Thick = n

The thickness of the line drawn in line mode is controlled by altering this control (much as for pencil mode, etc). Initially, a value of 1 will be displayed in this box, representing a single pixel line. A click from Lon the + box will increase this value, and a click from L on the - box will decrease this value. The maximum thickness value is 4. If you attempt to increase or decrease this value too far, then it will wrap back round to the other end of its scale (4 becomes 1 and 1 becomes 4). The values for line and pencil thicknesses are stored separately so one can be altered without affecting the other.

7.9 TRIANGLE

When drawing a triangle three points need to be specified. These three points are specified in much the same manner as with lines. Move the pointer to the position for the first desired corner and click L. As you now move the pointer to the location of the second corner, a line will be continually drawn between the point originally fixed and the mouse pointer. Click L to mark the second point. The mouse will now move around the third corner of a triangle; click on L when you are happy with its position. You can cancel this operation at any stage (prior to the final click on L) by clicking on R.

Options within TRIANGLE mode

Protect.

When this option is selected, any colour selected in the P list of colours will not be overwritten when crossed by any triangles you are drawing. The effect this achieves is to make a new triangle look as if it either wholly or partially passes underneath another area of colour, instead of above it as it would otherwise do.

Cycle.

When this option is selected, any triangles drawn will cycle through the colours of the currently selected cycle at regular intervals.

Lock Pat.

If the currently selected colour (or ink) is a pattern, then it is normally locked to the lower left of the screen (ie the pattern is reproduced in neat regular units, with the first one starting from the bottom left corner of the screen). This option permits the pattern to be displayed relative to the starting point of the triangle (ie the first of the three points marked).

Repeat.

The Repeat triangle mode is, effectively, a combination of line and triangle mode. When selected, the first two points of the triangle are definined in the normal manner (which also defines a constant side of the driangle). If the L button is then held down and the mouse moved, triangle will be repeatedly drawn, taking as their third point the next position of the pointer. This facility offers the ability to create some interesting patterns. especially if solid is also selected; it is suggested that you experiment with this particular feature.

If Repeat is used in combination with some of the other effects, then even more interesting options become available. For example. Repeat used with Use Last effectively gives you an effect very similar to the Brushes (described elsewhere) and allows you to take the last triangle drawn (more accurately, reproduce triangles of the same size, etc) and use this as a type of brush.

This permits some very interesting effects to be produced. Note that producing solid triangles in this manner takes a noticeable amount of time, and hence the mouse should be moved slowly for large triangles.

Use Last.

This option simply allows you to take the last triangle, in terms of the same length and angle, and move this around to position it until you are happy, and then draw it. In effect. this allows all the options of specifying a triangle and then copying It at various different locations. By selecting the Cycle option, you can copy the same triangle all over the screen and display it in a whole variety of different colour patterns.

Use S.C.P.

This forces the starting point of your triangle to the stored cursor position.

This is useful should you wish to ensure that a number of differently shaped triangles all have precisely the same starting point.

45 Lock.

This option ensures that the angles used for the first two lines of the triangle are locked to a multiple of 45 degrees (ie the line is either horizontal. vertical, or at 45 degrees to these). This can be useful when creating precise drawings where you wish to enforce regular angles on the triangles.

Solid.

This option is used to specify whether a solid triangle should be drawn.

7.10 RECTANGLE

The drawing of a normal rectangle only requires two points to be specified; those of the opposing corners. To draw a standard rectangle select Rectangle mode from the top menu. and move the pointer to the screen area where you wish one of the corners to be. and click on L. If you now move the pointer, Quest Paint will rubber band the rectangle, taking the current mouse position as the opposite corner. When you are happy about the position of the second corner, click on L again and the rectangle will be drawn. If you position the first point incorrectly, then this can be moved, providing the second point has not been entered, by clicking on R.

Rectangle mode gives access to squares through the 45 degrees lock feature. while parallelograms are created by clicking L over the + sign on the Points = 2 box at the top. This points factor is used to determine how many points are used to specify the shape being drawn. With two points specified, a regular rectangle is produced: with three points specified. the angles in the corner of the rectangle do not have to be 90 degrees. When three point mode is selected, the first two clicks of L position a single line. Once this line has been positioned. you move around a line with the same length and angle of the first one. with Quest Paint providing the lines between the ends of the lines as appropriate. The third point is the corner diagonally oposite the first corner. Try the parallelogram drawing mode for yourself; it it a lot easier to understand if you have seen it in operation.

Options within RECTANGLE mode Protect.

When this option is selected. any colour selected in the P list of colours will not be overwritten when crossed by any rectangles you are drawing. The effect this achieves is to make a new rectangle look as if it either wholly or partially passes underneath another area of colour, Instead of above it as it would otherwise do.

Cycle.

When this option is selected, any rectangles drawn will cycle through the colours of the currently selected cycle, a new colour for each new rectangle.

Lock Pat.

If the currently selected colour (or ink) is a pattern, then it is normally locked to the lower left of the screen (ie the pattern is reproduced in neat regular units, with the first one starting from the bottom left corner of the screen). This option permits the pattern to be displayed relative to the starting point of the rectangle (ie the first of the two or three points marked).

Repeat.

The Repeat rectangle mode is one that can be used to great effect with one corner of the rectangle fixed with the Use S.C.P. option detailed below. By selecting these two options, holding down L and describing a circular movement with the mouse, a very interesting pattern can be created. Used by itself, Repeat causes the first corner of the next rectangle to be the last corner of the current rectangle. and hence allows a string of rectangle to be created. Note that, when just Repeat is selected, holding L down continually will yield a pattern of very small rectangles; you are advised to release L and move the mouse when using this option alone. Setting Points= 3 (ie to produce parallelagrams) and then using Repeat mode produces another effect. The best way to learn about Repeat mode is to try it.

If Repeat is used in combination with some of the other effects, then even more interesting options become available. For example, Repeat used with Use Last gives you an effect very similar to the Brushes (described elsewhere) and allows you to take the last rectangle drawn (more accurately, reproduce rectangles of the same size, etc) and use this as a type of brush.

Use Last.

This option simply allows you to take the last rectangle. in terms of the same size (and angles for parallelograms), and move this around to position it until you are happy, and then draw it. In effect, this allows all the options of specifying a rectangle and then copying it at various differnt locations. By selecting the Cycle option, you can copy the same rectangle all over the screen and display it in a whole variety of different colour patterns.

Use S.C.P.

This forces the starting point of your rectangle to the stored cursor position. This is useful should you wish to ensure that a number of differently shaped rectangles all have precisely the same starting point. This is most useful when used in conjunction with Repeat mode selected.

45 Lock.

This option ensures that the angles used for the first two lines of the rectangle are locked to a multiple of 45 degrees (ie the line is either horizontal, vertical, or at 45 degrees to these). This can be useful when creating precise drawings where you wish to enforce regular angles on the rectangles. For rectangles with two specified points, a square is produced. When three points are specified, a rhombus is created.

Solid.

This option is used to specify whether a solid rectangle should be drawn. If used in conjunction with Repeat, then you are advised to also select a cycle to generate more interest in the patterns produced.

Points = 2 or 3

This selector is used to specify the number of points required to define the rectangle. Two points produce shapes with right angles for all the corners; three points permits other angles to be used for the corners (and hence allows a parallelogram to be generated). No other values. apart from 2 or 3, can be selected for the Points value; continually selecting either the + or - boxes will simply toggle between the two values.

7.11 POLYGON

Polygon mode is used for drawing polygons with between 3 and 16 sides.

When drawing a normal polygon, the centre and an outside point need specifying. To draw a five sided polygon, select polygon mode from the top menu and move the pointer over the + box: click L twice. This has now specified that a five sided shape is to be drawn. Now move the pointer to the screen area where you wish the centre to be and click on L. Moving the pointer now causes Quest Paint to rubber band a polygon. taking the current mouse position as an external point. The precise relation between the mouse pointer and the size of the polygon is rather complex and diffucult to explain. A little experimentation will soon demonstrate how easy it is to use though. When you are happy about the position of the rubber banded polygon, click on L again and the polygon will be drawn. If you position the first point incorrectly, then this can be moved, providing L has not been clicked for the second time, by clicking on R. By using the 45 degrees lock feature, regular polygons are created.

Options within POLYGON mode

Protect.

When this option is selected. any colour selected in the P list of colours will not be overwritten when crossed by any polygons you are drawing. The effect this achieves is to make a new polygon look as if it either wholly or partially passes underneath another area of colour, instead of above it as it would otherwise do.

Cycle.

When this option is selected, any polygons drawn will cycle through the colours of the currently selected cycle, a new colour for each new polygon.

Lock Pat.

If the currently selected colour (or ink) is a pattern, then It is normally locked to the lower left of the screen (ie the pattern Is reproduced in neat regular units, with the first one starting from the bottom left corner of the screen). This option permits the pattern to be displayed relative to the starting point of the polygon (Ie the first of the two or three points marked).

Repeat.

Holding down L and moving the pointer produces a stream of linked polygons. If Repeat is used in combination with some of the other effects, however. then some more interesting options become available. For example, Repeat used with Use Last gives you an effect very similar to the Brushes (described elsewhere) and allows you to take the last polygon drawn (more accurately, reproduce polygons of the same size, etc) and use this as a type of brush.

Note the comment earlier in this section on pencil mode about R cancelling starting points. If R is pressed in polygon repeat mode. then Quest Paint removes the fixed line initially created and returns to the pointer awaiting the first corner.

Use Last.

This option simply allows you to take the last polygon. in terms of the same size and angles, and move this around to position it until you are happy, and then draw it. In effect. this allows all the options of specifying a polygon and then copying it at various different locations. By selecting the Cycle option, you can copy the same polygon all over the screen and display it in a whole variety of different colour patterns.

Use S.C.P.

This forces the centre point of your polygon to the stored cursor position. This is useful should you wish to ensure that a number of differently shaped polygons all have precisely the same starting point. This is most useful when used in conjunction with Repeat mode selected.

45 Lock.

This option ensures that the angles used for polygon produce a regular polygon (ie all the angles are the same).

Solid.

This option is used to specify whether a single outline for the polygon should be drawn. If used in conjunction with Repeat, then you are advised to also select a cycle to generate more interest in the patterns produced.

Sides.

This selection is used to alter the number of sides, which can be between 3 and 16, to give the polygon. Attempts to produce values outside the range permitted will simply result in the number of sides looping around, and starting from the other extreme.

7 .12 ELLIPSE

Ellipse mode is used for drawing ellipses and circles.

When drawing ellipses normally, the centre point is first defined and then the size and proportions of the ellipse rubber banded to move <!long with the mouse pointer. R will cancel an ellipse centre, if entered accidentally. A little experimentation will soon demonstrate how easy the ellipse feature is to use.

Options within ELLIPSE mode

Protect.

When this option is selected, any colour selected in the P list of colours will not be overwritten when crossed by any ellipses you are drawing. The effect this achieves is to make a new ellipse look as if it either wholly or partially passes underneath another area of colour, instead of above it as it would otherwise do.

Cycle.

When this option is selected. any ellipses drawn will cycle through thecolours of the currently selected cycle, a new colour for each new ellipse.

Lock Pat.

If the currently selected colour (or ink) is a pattern, then it is normally locked to the lower left of the screen (Ie the pattern is reproduced in neat regular units, with the first one starting from the bottom left corner of the screen). This option permits the pattern to be displayed relative to the starting point of the ellipse (ie the first of the two or three points marked).

Repeat.

Holding down Land moving the pointer produces a stream of linked ellipses. If Repeat is used in combination with some of the other options, some more interesting effects become available. For example, Repeat used with Use Last gives you an effect very similar to the Brushes (described elsewhere) and allows you to take the last ellipse drawn (more accurately, reproduce ellipses of the same size, etc) and use this as a type of brush. This permits some very interesting effects to be produced. It is suggested that you experiment with the various options available within ellipse mode.

Use Last.

This option simply allows you to take the last ellipse, in terms of the same size and proportions, and move it around to position it.

Use S.C.P.

This forces the centre point of your ellipse to the stored cursor position. This Is useful should you wish to ensure that a number of differently shaped ellipses all have precisely the same starting point. This is most useful when used in conjunction with Repeat mode selected.

Solid.

This option is used to specify whether a single outline for the ellipse should be drawn. If used in conjunction with Repeat. then you are advised to also select a cycle to generate more interest in the patterns produced.

Circle.

When this option is selected, the ellipse if forced into a circle (a circle is only a special case of an ellipse). Although you can often approximate an ellipse to a circle, any slight deviations will soon show up if they are arranged concentrically. With the circle option selected, you are certain that a circle will be produced.

7.13 TEXT

The text option is used for placing text on the screen with predefined fonts (you can also hand write with the pencil as well). A variety of different effects are available, including automatic italics, vertical text (suitable for labelling the vertical axis of a graph), etc. Normal inks, dither patterns and patterns are all available for printing the text in, as you would expect.

Text is plotted by selecting text mode and then entering the text required. This is achieved by clicking on L when the pointer is not within the menu region. This causes the Quest software to go to mode 7 and prompt you to enter the text required. Once this has entered. the display returns to your picture for you to position a box that delimits where the text will be printed. The first point to be marked is the top left one. and the second the bottom right one. The by now familiar rubber band system is used to determine the box size.

Options within TEXT mode

Protect.

With this option selected, the text printed will not overwrite amy colours marked within the P list in the lower menu.

Cycle.

The cycle option permits text to be printed in a number if different colours. Each letter is assigned a new set of colours from the cycle, and hence words appear multi coloured, but individual letters are printed the same colour.

Use S.C.P.

This option forces one corner of the box that delimits the text to the stored cursor position. Note that this does not necessarily have to be the top left position: you can rotate the rubber banded box quite freely about the stored cursor position.

Use Text.

There can be occassions when entering text, when you wish to repeat the same word or phrase in a different place or just position a string in precisely the right position. To overcome the inconvenience of entering the same piece of text repeatedly, the Use Text option forces the TEXT command to use the last text string entered.

Use Size.

With Use Size selected, the size that each character is printed in will be the same as the last piece of text. This does not mean that what everstring you enter will be adjusted to fit within a given size box, but that each character will be the same size as previous characters

When this option is selected and the text has been entered. or used from the previous print. the Quest software will provide you with a fixed sized box to drag around the screen to position your text as required. Practical uses of this include maintaining the size of some printed text when more than one line is being entered.

Lock Size.

The Lock Size option is used to ensure that the text entered is printed with a regular size. When the size is user specified, there is the possibility that the 8 or 16 grid of pixels will be required to fit into say, 6 pixels. This would obviously result in a loss of clarity. With Lock Size. each pixel within that character is forced to occupy a specific number of screen pixels (1, 2 or 3, etc). Once some text has been entered and the top left hand corner positioned, the bottom right hand corner is rubber banded as normal, except that the box will only form at certain sizes. Unless text is required to fit into very precise locations, you are recommended to use this option as the printing produce is far more attractive than irregularly sized text.

Vertical.

The Vertical option is used to print text with consecutive characters placed underneath each other. This provides an easy to use means of labelling graphs and the like. Note that the text is simply printed In a column, not rotated through 90 degrees.

Font.

There are four font options available within the text printing section of the Quest software. Font 1 uses the standard BBC character set (which is defined in an 8 by 8 matrix) and Font 3 uses a larger, 16 by 16 character set read from disc. Fonts 2 and 4 are italic versions of the preceeding character sets. The italicisation is created by shearing the character set. The angle of this shear will depend upon the height and width of the character being printed.

The disc based fonts (font 3 and its italic version font 4) have to be specified in advance from the 1/0 Menu. The font is not loaded into memory, there is no room, but read when required. This means that the named font has to present on disk when the text is to be printed.

7.14 TRACE

This mode is used to highlight a given shape. What it actually does is to surrounds any area of pixels of the PAPER colour with the INK colour within the rubber banded box.

Make the PAPER colour the colour of the area to be trace'd and the INK colour the colour you want to trace with. Note that the ink can only be a solid colour for tracing i.e. not a dither or user pattern and that the ink and paper colours must be different. If these conditions are not met then the trace command will be ignored.

Options within TRACE mode

Protect.

The only option available within Trace mode is the colour protection option, which works in the same manner as the protect option from other modes (ie if protect is selected, then any colour selected from the P list in the bottom menu will not be overwritten). This is useful for multiple traces.

7.15 S.C.P / GRID

This is a collection of options which relate to the Stored Cursor Position and various forms of gridlocking. It also allows the line thickness used in the geometric commands to be varied. When the Set Grid option is not selected, the Stored Cursor Position can be adjusted simply by clicking on the drawing page. A cross-hair cursor shows the S.C.P.

Options within S.C.P / GRID

Gridlock

This enables the gridlock which affects all commands. The cursor is forced to snap to a rectangular grid which can be altered in size. (The default gridsize is 8 x 8).

Set Grid

After this option is selected, the gridsize can be set by stretching a rubber-banded box to. the required size. (This option must be disabled to change the S.C.P.)

Lock Grid

This forces the grid to be adjusted in steps of 8 pixels.

45 Lock

Allows square grids to be defined.

Aspect

When using the SIZE option in PASTE, this forces the cutout to maintain the same aspect ratio. (see PASTE).

Lock Half

When using the SIZE option in PASTE, this forces the cutout to a grid defined as half the source size.

Thick =

By clicking over + or - the thickness of the line used to draw the geometric figures can be altered. This affects Triangle, Rectangle, Polygon and Ellipse.

7.16 GLOBAL FX

This command contains various options which have a universal effect.

Options in GLOBAL FX

Cycle Dly

Turns on an adjustable delay which determines the number of times each colour in the cycle list is used. e.g. if the cycle delay is set to 8 and the brush command is used with cycling then 8 blobs of each colour will be drawn before changing to the next colour in the cycle list.

Slow Repeat

With this option selected the speed at which drawing functions are repeated is reduced. e.g. using the brush command and moving the mouse at high speed will result in more widely spaced brush blobs.

No Undo

Disables the undo facility, the result of which is to speed up the reaction of all the drawing functions. The Undo command now switches between two independant screen buffers but allowing you to use buffered cut and paste between the two screens.

Flicker

Normally, rubber-banded shapes only flicker when the mouse is moved. This option forces them to flicker all the time (useful if the background is complex).

Move Cur

If undo is active. the mouse is ignored during the time taken to save the screen. This option causes the mouse position to be updated constantly. The effect is subtle and a matter of taste - try it and see which you prefer. (It's most noticable in Pencil)

Slow

Alters the ratio of mouse to cursor movement. If enabled this option will halve the cursor speed (and increase the surface area needed).

Cyc Dl =

By clicking over the + or - boxes the number of times a colour is used from the cycle list can be set. ie If 2 is set each colour will be used twice.

8.0 UTILITES SUPPLIED ON DISK

PRINT is the printer driver and must be on the default drive when printing.

HAND is used by the pan function when using extended pictures.
FONTA
FONTB
FONTC
FONTD
These are used by the text command and can be pre-selected from the I/0 menu.

BRUSH is the default brush file.

PATTERN is the default pattern file.

Note : Both of the above must be loaded from the I/0 menu.

LDSCRN is a stand-alone * command to load and automaticlly select the correct palette for normal MODE 1 pictures created by Quest Paint. (You can use this command from Basic eg *LDSCRN picname).

The remaining two facilities are accessed by pressing Shift-BREAK to boot the disk, which will show a menu offering two selections.

1.EXTENDED PICTURE CREATOR

2.PRINTER CUSTOMISER

After selecting the extended picture creator, you will be asked to enter the size required In pixels. Some default values are also available on the function keys. You will be prompted for a filename and then asked if you wish to save the HAND and PRINT files (as these are needed on the disk with the extended picture). Once the extended picture file has been created, you may load it as normal from the 1/0 menu. (Quest Paint will automatically detect that it is an extended picture and will allow the extra features such as the hand to be used). When you have finished with an extended picture you must issue a save command to update the picture file whereupon, Quest Paint will leave extended mode and return to normal mode.

To indicate extended mode, the letter 'X' will be displayed at the top of the I/0 Menu.

The printer customiser allows the control codes needed by your printer to be defined, the codes for EPSON and compatable printers are set as default values on the function keys, refer to your printer manual for any other code required.

9.0 APPENDIX 1

Shadow RAM and sideways RAM usage

Quest Paint can utilise 20k of shadow memory and a single bank of sideways RAM to buffer various actions that it performs (although it is not possible to use shadow RAM on the B +). The shadow RAM is used to act as an Undo buffer, and permits the entire screen to be recovered when necessary. Due to the way in which Quest Paint uses the shadow RAM, any software present in your machine designed to perform control for printing characters should be disabled. For example, with the Watford 32k RAM Card, either a Control Break or *RAMOFF will be required before the mouse will work correctly. If Quest Paint is entered with the shadow software enabled then the error Shadow! will be produced and a * prompt is given to allow the user to type the command to disable the RAM.

The presence of sideways RAM permits the saving of a cutout to a fairly permanent buffer, and permits the swapping between different pictures of a cutout. The cutout for these purposes can be approximately a quarter the size of the screen (strictly speaking, 6 k).

When a menu is normally placed on the screen, the image underneath is saved away to normal RAM and restored when the menu is deleted. Unfortunately, the BBC only has sufficient memory as standard to permit one menu to be displayed at once. With sideways RAM fitted, it is possible for both menus to be present on the screen at once, with the sideways RAM buffering both images. As a further advantage, because the menu is saved in an area of memory not used for other purposes, it can be redisplayed very much quicker than normal.

Compatible shadow rams are :-

Watford 32K
Aries B20
Master 128

The Quest software can be used with the Silicon Filing System supplied with the Watford Electronics RAM/ROM Board. To use this you must reserve socket 0 for the Quest buffers using the command *INIT -0 and then enter *PAINT as normal.

10.0 APPENDIX 2

Reading the Mouse from BASIC.

To read the mouse from BASIC, the mouse driver code must be enabled by Issuing a *MOUSEON command.

From then on, issuing an OSWORD call with the accumulator set to 64 and the X and Y registers pointing to a parameter block will result in the following.
A=64

X & Y point to parameter block

CALL &FFF1

returns :-

XY + O LSB of X coordinate
XY + 1 MSB of X coordinate

XY + 2 LSB of Y coordinate
XY + 3 MSB of Y coordinate

XY + 4 Text X position
XY + 5 Text Y position

XY + 6 Mouse button status

The mouse button status byte is as follows :

RML00000
Where R is right button, M is middle button and L is left button. IF the corresponding bit Is a '1' then the button is up and if it is a ·o· then the button Is down.

To disable the mouse reading code, issue a *MOUSEOFF command.

Both of the above * commands may be preceeded by a 'W' i.e. *WMOUSEON and *WMOUSEOFF

11.0 APPENDIX 3

ERROR MESSAGES

No Font

Generated if an attempt is made to use fonts 3 or 4 in the TEXT command without first specifying the name of the font in the 1/0 menu.

Not Found

The required file is not present. (Note that this error is also generated if the PRINT. file is not present when the PRINT command is selected, of if an attempt is made to access an extended picture without the HAND file present.

Bad Type

An attempt is made to load an incorrect file type e.g. attempted to load a brush file as patterns.

Too Small

Produced when trying to load a We smaller than a mode 1 screen (i.e. less than 20K).

Can't open for read/write

Produced when an error occurs at the start of loading or saving an extended picture.

Read/write error

Produced if an error occurs during loading or saving of an extended picture.

Shadow!

Shadow RAM software is enabled. Type* command to disable it.

SYSTEM ENHANCEMENT

Conquest

Now that you have reached the end of the Quest Paint manual, you will no doubt be enthralled at the quality and quantity of features that go into making Quest the best package available for the BBC micro.

In addition to Quest, try Conquest, which gives the system a total of 64K ROM code. Conquest provides such additional features as distortion and rotation of cutouts, enhanced screen dumps, use of the Master's or Acorn's GXR ROM functions and many more!

Wapping Editor

This has to be the definitive desktop publishing package for the BBC micro. The 32K ROM package provides all you need to produce your own newsletter, leaflets, or with a little imagination, even a daily newspaper. It can even be used in conjunction with the Watford Video Digitiser.

The Package is totally. ROM based, eliminating the need for clumsy system discs, and contains a font designer.some pre-defined fonts, a wordprocessor, a drawing package, page make-up software, in fact everything required.

Quest Fonts

This is a disc containing over twenty additional pre-defined fonts for use with the Quest Paint software.

Quest Mat

This neat rubberised mat provides the ideal working surface for your Quest mouse. It protects your mouse from dirt, and protects your table from your mouse.

Video Digitiser

Using any source of composite video input, (colour or monochrome), and the Watford Video Digitiser, you can produce a graphics screen on your BBC micro.

Images produced can be stored away for use with many commercial art packages, including the Quest Paint and Wapping Editor, or used in other application, limited by your imagination.

The Digitiser is easily controlled by simple ROM commands, and is supplied with a comprehensive manual.