



# Win\_Crea Help files

Knitting Graphics Program

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## Overview

Pattern size limits:

180 stitches

255 rows.

Users of Creation 6 will know what functions they expect to find in this program. Most functions are present. However, they are not all used in the same way as in Creation 6, because of differences between DOS and Windows.

Users of other Windows programs, especially drawing and painting programs will know how they expect to be able to use the various functions, and the author has tried to make the program self-explanatory.

For example, to open an existing pattern file, click on File on the menu bar near the top of the screen; then click on Open, where a file can be selected using the standard Windows open dialog.

Alternatively, to create a new pattern, starting from a blank one, click on File then New, where the required numbers of stitches and rows are specified (maximum 180 and 255, respectively).

To create, or modify, a pattern use the Tools from the Tools Palette, and the functions given in the Edit Menu.

To download the currently open pattern into the E6000 console, click File, then Download to the E6000.

Further details about the functions mentioned above, and the other available functions, are given elsewhere in the present help file.

# Menus

## File Menu

### New

Creates a blank pattern with specified numbers of rows and columns, filled with the RH button colour.

### Open

Reads the pattern from an existing file.

Supported formats are:

- CUT           Dr Halo (as used in Creation 6)
- BMP           Windows bitmap
- WMF          Windows metafile

The numbers of stitches and rows in the pattern are shown, and, if desired, the user can specify scaling of the pattern, by specifying different numbers of stitches and rows.

However, if the pattern as read from the disk exceeds the 180 stitches or 255 rows limits, then scaling is essential, and the initial dimensions shown are after scaling both by the same whole number (which is shown) to bring them within range.

The user can specify any values within range for stitch and row numbers.

In the case of CUT and BMP formats, scaling by a whole number usually gives the best results. However, in the case of WMF format any scaling can be applied, with reasonably uniform results.

A pattern can be scaled after opening through Edit/Stretch or Shrink Pattern. In the case of CUT and BMP formats, if no scaling is applied when opening, scaling later through Edit/Stretch or Shrink Pattern should give the same result as scaling during opening.

However, in the case of WMF format, scaling during opening could give better results than scaling later. Once the pattern has been opened, the special characteristics of the WMF format are lost.

BMP and WMF files contain a colour palette, which is read with the pattern. The colours in the pattern are matched as closely as possible with colours in the current program palette.

CUT files can have a separate palette file (with extension PAL). The program reads the palette, if it is found in the same folder as the CUT file. If there is no palette file, the pattern colours are assumed to be those given by the current program palette. If the program palette is not the same as that in use when the pattern was saved previously, the colours may not be as expected.

## Overlay

This is similar to Open. However, instead of creating the current pattern entirely from an existing stored pattern, the stored pattern can be overlaid (or "pasted") onto the current pattern.

The chosen pattern, after scaling if necessary, cannot be larger than the current one. It is read into the local clipboard, replacing any pattern previously placed there by cutting or copying.

After the pattern has been read into the clipboard, the pasting outline box appears over the current pattern, as in normal pasting.

After positioning the outline, clicking LB pastes the pattern, while clicking RB cancels pasting. As in normal pasting, the pattern remains in the clipboard until replaced, so that it can be pasted more than once if desired, without reading it from the disk file again.

If it is desired to overlay the new pattern using Paste Special instead of plain Paste, click RB to cancel pasting, and then select Paste Special from the Edit menu.

If a colour palette is included with the overlaid pattern, it is read, and used in the same way as for Open.

## Save

Saves the current pattern with its previous name and format, if possible (see Save As);

## Save As

Saves the current pattern with a specified name and format.

Patterns can be saved in CUT and BMP format, but not in WMF format (too complicated for the present programmer). A pattern originally in WMF format can be altered, but then only saved in either CUT or BMP format.

## Save Palette

Saves the current program palette with a specified name, in 256-colour PAL (Dr Halo) format.

This function is not needed for the present program. It might be useful if patterns prepared using this program are to be read as CUT files by other programs.

## Download to the E6000

Downloads the current pattern (that is, already opened) to the E6000. The download process has basically three steps:

1. Colour sequence adjustment
2. E6000 preparation
3. Download start.

(These steps are the same as with Creation 6).

### Colour sequence adjustment:

(This step does not occur if there is only one colour)

The colour sequence refers to the order in which the colours are fed through the knitting machine eyelets, numbered 1 to 4 from the left.

Initially, the program displays the colours in the order in which they are found in the pattern. However, if the colours are arranged in a different order on the knitting machine, this must be indicated to the program by changing the sequence on the screen. Pairs of colours can be interchanged by clicking the mouse on each; which can be repeated as often as needed to achieve the desired order.

### More Than Four Colours:

If the pattern has more than four colours, but no more than four in any one row, the colour sequence changing screen is extended.

The pattern is divided into sections, each containing a different set of four (or fewer) colours. The first pattern row (as distinct from knitting row) of each section is shown. The sequence in each section can be adjusted independently.

(The display differs from that in Creation 6 in that the sections are listed upwards, instead of downwards, starting from the first section at the bottom. This

seems to be the logical arrangement, since row 1 is at the bottom of the pattern; especially since the pattern and the sequencing display can be seen simultaneously in the present program.)

After downloading, the colour sequences displayed in the pattern information window are the same as set during downloading (provided that the pattern has not been changed) and can be used as a guide while knitting the pattern. (However, the sequences are not saved with the pattern file. If the pattern is closed and re-opened, the colours will revert to the sequence in which they are found in the pattern). (Alternatively, the colour sequence window can be copied into the Windows clipboard by typing Alt+PrintScreen, and then pasted into Windows Paint or other painting program, where it can be saved for later use as a knitting guide).

### **E6000 preparation:**

After clicking on OK in the colour sequence window, a window appears showing the COM port in use, the time the download will take, and the instructions:

Switch on ELECTRONIC 6000 and program as far as ST.PATT

Press unlabeled key and 0

(For assistance in carrying out these steps, refer to the E6000 manual).

On completion of these instructions, the E6000 console displays the message PC START.

### **Download Start:**

Clicking Done in the E6000 preparation window starts downloading from the computer to the E6000. The E6000 console display changes to WAIT, which remains until downloading is finished. On the computer screen, a window appears which shows the download time remaining, updated at 5 second intervals.

### **Download Errors:**

If the currently specified COM port is incorrect, or there is a problem with the connecting cable, or with the E6000, an error message will appear (but see below for differences under Windows XP). This can appear immediately, before downloading is started, or 5 seconds after attempting to start downloading. (In

such a message, the received Windows message is shown in brackets after the main message).

### **Windows XP:**

In computers running Windows XP, the signal which controls transfers to the E6000 does not appear to be detected correctly by the software. Consequently, the Win\_Crea program cannot always detect that there is a problem, and an error message will not always appear within 5 seconds, or at all. The E6000 console messages are all that are available for checking on correct operation. (PC START changing to WAIT at the start of downloading, and WAIT disappearing on completion.)

Further, it is important to carry out the instructions in the E6000 preparation window before clicking on the Done button. If Done is clicked first, the computer will start sending data, even though the console is not receiving it. Unless the computer has already finished sending the pattern, ERR 213 will be shown by the console, immediately after START PC, on pressing the unlabeled key and 0.

### **COM Port Uncertainty:**

If there is initial uncertainty about the number of the COM port being used for the connection to the E6000, trial runs can be carried out using any pattern. The COM port used by the program can be changed using the Settings menu, until downloading is successful.

### **Console Memory Overflow Warning Message:**

If the current pattern could overflow the console memory a message is given. Downloading can be cancelled, or can continue. (If it is continued, the operator might need to ERASE the console memory while preparing the console).

(See also Settings/E6000).

### **Print**

If the printer has a sufficient number of colours for the current pattern, the pattern is printed. The stitches are printed with borders if borders are currently turned on (through the View menu).



Aspect ratio of the pattern cannot be changed, but the pattern can be rotated anticlockwise by 90 degrees, if desired. The size of the print can be specified (through the height), up to the maximum that will fit onto the page.

## Quit

Closes down the program, prompting for saving of the current pattern if necessary.

## **Edit Menu**

Notes:

Editing of the pattern is also done using the Tools Palette. The Edit Menu and the Tools Palette work in different ways. There is a connection between the two through the Selection Rectangle tool.

Copy, Cut and Paste work with a local clipboard, only. The data are not placed in the Windows clipboard, and so are not accessible by other programs.

In addition to Copy, Cut and Paste, File/Overlay also uses the local clipboard, which means that it alters the contents of the clipboard.

### **Undo**

The last change to the current pattern is undone. Only the last change can be reversed; it is not possible to go back any further.

This cannot be used to undo operations like saving a file, or downloading to the E6000, or making settings; only an alteration to the pattern can be undone.

### **Copy**

The currently selected stitches are copied to the local clipboard, replacing any previously copied stitches.

### **Cut**

As for Copy, but, after copying, the stitches are changed in the pattern to the RB tool colour.

### **Paste and Paste Special**

These are used to copy the stitches from the local clipboard into the pattern.

When Paste is selected, an outline of the stitches to be pasted appears over the pattern, and can be positioned using the mouse. (The mouse cursor changes to a finger pointing to the top left hand stitch of the paste rectangle.) Clicking the left mouse button copies the stitches into the pattern at the current position.

Clicking the right mouse button cancels pasting.

The stitches in the clipboard remain there until replaced (by a further Copy or Cut, or by File/Overlay), or until the program terminates. Thus, the stitches from the clipboard can be pasted more than once if needed, can be pasted into a different pattern, etc.

Pasting cannot overlap the pattern boundary. If the left mouse button is clicked at a position that would cause overlap, a message window appears. After clicking OK in that window, the program returns to pasting, which can be attempted again, or cancelled with the right button.

When the stitches are small, accurate positioning of the pasting rectangle can be difficult. Positioning is much easier if the stitches on the screen are made bigger by zooming. If necessary, zooming be carried out beyond the point where the whole of the pasting rectangle will fit onto the screen. Providing that the required top left hand stitch at the pasting position is visible, pasting can still be carried out, providing that the pattern boundaries would not be overlapped.)

Paste Special differs from Paste in that stitches in the pasted pattern with the RB colour are treated as transparent. That is, pasting of stitches having RB colour is skipped so that, in effect, the existing stitch colour in the underlying pattern shows through.

### **Replicate Pattern**

This allows the current pattern to be repeated a specified number of times in each direction, within the limits imposed by the allowable pattern size.

When mirror imaging is selected, every second copy of the pattern is the mirror image of the original pattern.

A dialog box is used to allow the user to specify requirements.

### **Stretch or Shrink Pattern**

This allows the pattern as a whole to be stretched or shrunk to a specified number of stitches and rows (within pattern size limits).

Since the pattern is made up of discrete, indivisible stitches, stretching or shrinking cannot occur in a continuous fashion, and does not always produce good results. Several trials might be needed, followed by hand adjustment in some parts of the pattern.

Stretching and shrinking can also be carried out when opening or overlaying an existing pattern. Stretching and shrinking of part of the pattern is also available through the toolbar, using the keyboard arrow keys.

### **Insert Stitch Columns and Rows**

This allows extra columns and rows of stitches to be added to the pattern. The new columns and rows have the RB tool colour.

The position for insertion is indicated by drawing a selection rectangle on the pattern. Extra columns can be inserted to the right of the rectangle, and extra rows inserted above the rectangle. (The positions of the left hand edge and the bottom edge of the selection rectangle have no effect). The required numbers of new rows and columns are specified through a dialog box.

If columns are to be inserted at the left hand edge of the pattern, or rows at the bottom edge, no selection rectangle is drawn on the pattern.

### **Delete Stitch Columns and Rows**

To delete stitch columns and/or rows, a selection rectangle is drawn, which extends over the columns and rows to be deleted.

Through a dialog box, column deletion and/or row deletion can be specified. If column deletion is specified, all columns that pass through the selection rectangle are deleted. Similarly, if row deletion is specified, all rows that pass through the selection rectangle are deleted.

### **Reduce Colours**

This allows the number of different colours in the current pattern to be reduced.

For each reduction by one, the two colours in the pattern which are nearest to each other (in terms of red, green and blue intensity values) are found. A colour is calculated which has red, green and blue values which are the averages of the values in the two colours found. The colour in the palette which is nearest to the averaged colour is then found, and substituted for the colour of each stitch having one of the original two colours.

## View Menu

### **Zoom In**

Each time Zoom In is selected the size of the stitch rectangles on the screen is doubled.

If zooming in results in the pattern display being too large for the screen, then only part will be displayed. The horizontal and/or vertical scroll bars will become active, allowing the portion of the pattern which is displayed to be changed.

(The zoom limit is 7 times, giving a zoom factor of 128).

### **Zoom Out**

Each time that Zoom Out is selected the size of the stitch rectangles on the screen is halved, unless they are already at their base size.

### **Show or Hide Tools Palette**

Each selection either removes or restores the tools palette to the screen.

### **Show or Hide Colour Palette**

Each selection either removes or restores the colour palette to the screen.

This can also be done through the tools palette.

### **Add or Remove Stitch Borders**

The pattern is normally displayed with a fine black line around each stitch (unless the stitches are too small to allow it). This is to facilitate editing of the pattern.

However, removing the stitch borders shows the pattern more like it would appear in reality.

Each time this item is selected, the stitch border setting is reversed.

(A black border is not visible against a black stitch, of course. However, methods which adjust the border colour to contrast with the stitch do not give good results in many cases; and a constant black border colour seems to be the best compromise. When the border is not visible, the number of the stitch under the cursor can still be seen from the status bar.)

## **Settings Menu**

### **E6000**

#### **COM Port:**

As mentioned under Connection to the E6000, the COM port in use for connection to the E6000 is indicated here, by clicking the appropriate radio button; and the setting is saved for later running of the program.

#### **E6000 Memory Size:**

The size of the memory (8kB or 32kB) can be indicated here; and is saved for later running of the program. This information is used by the program in determining whether a memory overflow warning message needs to be displayed prior to downloading (see below).

#### **Download Monitoring:**

This section contains two items, Count Downloads and Reset Counter Now, each of which is on or off (ticked or unticked by clicking with the mouse). (The Count Downloads setting is saved for later running of the program).

The default setting for Count Downloads is off, in which case Reset Counter Now has no effect. This is the appropriate setting for knitters who only store one pattern in the E6000 console at a time.

If Count Downloads is ticked, the program keeps a count of the number of stitch bytes downloaded since the count was last re-set to zero. The current value of the downloaded bytes count is shown, and a tick against Reset Counter Now causes the stitch counter to be set back to zero. The count should be reset when the console has been ERASEd.

The download count is used in determining whether a memory overflow warning message needs to be displayed prior to downloading. If the E6000 console is always ERASEd before downloading a pattern there is no need to keep the download count, and Count Downloads should be off.

#### **Console Storage Limits:**

There is a limit of 255 rows for any pattern (A,B,C,...), regardless of the number of stitches, or of 8kB or 32kB memory size. (Attempting to download a pattern with more than 255 rows gives ERR 214; while attempting to create a pattern with more than 255

rows, by joining a second pattern onto a previously downloaded one, gives ERR 114. The E6000 manual mentions 256 rows as the limit, but this appears to be incorrect).

In addition to the row limit per pattern, the total number of stitches that can be downloaded is limited by available memory. The console stores 8 stitches per byte for 2 (or 1) colour patterns, and 4 stitches per byte for 3 or 4 colour patterns, but the whole of memory is not available for storing stitch data.

Some memory would be needed for storing data for each pattern (numbers of colours, stitches and rows, knitting technique, etc). As indicated in the E6000 manual, the amount of memory required is variable. From limited tests carried out by the writer, the memory requirement is about 32 bytes per pattern. (Allowing a factor of safety, 64 bytes are allowed in estimating requirements).

In addition, some of the memory is needed for other purposes. In an 8kB E6000 the extra requirement is about 1500 bytes, while in a 32kB E6000 it is about 16500 bytes (more than half the memory).

A pattern of size 180 stitches by 255 rows will load into an 8kB E6000 with two colours, but with 3 or 4 colours the number of rows must be reduced to 148.

When an overflow warning message appears the estimated memory requirement and estimated available memory are shown. If the requirement is much greater than the availability the pattern will not download successfully. However, if the requirement is only a little larger than the availability, the pattern might still download correctly.

The overflow warning message is probably only a little more useful than relying on the E6000 console messages. If a pattern is too big to download, the console shows ERR 118 immediately at the start of downloading. However, sometimes a pattern will download, but there is then insufficient memory remaining to enter the knitting technique (ERR 112), and the pattern cannot be knitted. The estimates used in the overflow warning message are not sufficiently accurate to determine definitely whether ERR 112 would occur.

## **Colour Palette**

The current colour palette can be changed to one of the three standard palettes, or a custom palette, here. The last setting is carried forward to the next running of the program.

When the user supplies a custom palette, it must be in PAL 256-colour format. The filename of the last used custom palette is also saved for the next running of the program.

When the palette is changed, the colour of each stitch in the current pattern is changed to the colour in the new palette which is nearest to its present colour.

## Font

The font to be used for inserting text into the pattern can be selected through the standard Windows font selection dialog. Only fixed-pitch fonts are available.

Font sizes are listed in the dialog, which normally are the heights in points on the screen or paper. In the present case, Size has no such significance, and should be regarded simply as a reference number.

In the Information Menu the height, descent and width of the characters are given in pixels, and pixels correspond to stitches in the present application. The height is the number of pixels (stitches) from the base line to the top. The descent is the number of stitches below the base line. The width is the number of stitches across.

The default font is FixedSys with Size 8 and Regular Style. This has Height 12, Descent 3 and Width 8. Font dimensions include blank space between adjacent characters.

Use of a little trial and error is probably the quickest way to finding suitable font settings, when text is needed in the pattern.

## Swatch Data

As discussed under Pattern Display, stitches are initially displayed as squares.

In other knitting modes, the proportions can be different, and are specified here by giving the number of stitches with the same width as a number of rows.

For example, in single-jersey knitting on the Passap the width of 3 stitches equals the height of 4 rows; that is, the stitch proportions are 4 across to 3 down.

In defining the swatch ratio, the two numbers specified should preferably not be too large, to avoid needing excessive screen scrolling while working on the pattern.

The rectangles used to represent the stitches cannot have fewer screen pixels than the corresponding number given in the swatch data setting. If the two numbers are large, the



smallest rectangles that can be used will be large, so that the number of stitches that can be shown on the screen simultaneously will be small.

For example, if a swatch is found to have 25 stitches with the width of 26 rows, the stitches on the screen would require 26 pixels across and 25 pixels down. However 26 to 25 is close to 1 to 1. Specifying 1 to 1 instead of 26 to 25 would allow smaller stitches on the screen, and would still be close to the correct proportions.

## Information Menu

### Pattern

Number of stitches and rows.

Colours contained in the pattern, with their palette indices (position in the palette, 0-255), and column (0-15) and row (0-15) in the palette (starting from (0,0) for the first colour (top left-hand corner)).

If the pattern contains more than four colours, the display is divided by rows into sections of one or more rows, each containing a different set of colours. If any section contains more than four colours the pattern cannot be knitted. (See also colour sequence adjustment during downloading).

### Tools

The current LB and RB tool colours. Palette index (0-255), palette column and row (starting from (0,0)), and the red, green and blue values (0-255).

### Font

The font currently selected for adding text to the pattern.

Name,

Style,

Size,

Height,

Descent and

Width

### Printer

The number of colours available, and other information about the printer.

### Video Characteristics

Information about the computer video display.

Primarily intended to help the program author in identifying problems with particular computers.

Help Menu

Help topics

About Wincrea

# Pattern Area, Scroll Bars and Status Bar

## Pattern Display

Each stitch is displayed as a rectangle, filled with the appropriate colour. The rectangle proportions are initially 1 across to 1 down (i.e. square). However, in standard, single-jersey knitting on the Passap, for example, the proportions are 4 across to 3 down. To change to this, or another, "swatch ratio"

the Settings menu is used.

The rectangles are initially the smallest with the required swatch ratio that can be drawn on the screen, or larger ones with the same ratio if a pattern with the maximum allowable numbers of stitches and rows will still fit into the display area. (The initial size depends on the swatch ratio and on the video mode which is in use on the computer).

The stitch rectangles can be increased in size by selecting Zoom In from the View menu. Each time Zoom In is selected the display size is doubled. (Zooming does not affect the number of stitches in the pattern; only the display size on the screen).

Conversely, Zoom Out reduces the display size by half, unless it is already at its starting size.

Each stitch rectangle is shown with a border, unless Remove Stitch Borders is selected from the View Menu. There is also no border if the rectangle size is too small to allow both the stitch colour and the border to be seen.

## Scroll Bars

If the pattern will fit into the display area using the initial stitch size, the scroll bars are initially inactive, with no "thumb" box visible.

However, if the pattern is initially too big for the display area, in one or both dimensions, or becomes too big after Zooming In, the scroll bars are active. The portion of the pattern that is visible on the screen can be manipulated using the scroll bars in the usual way (click on the arrow at either end, drag the thumb box, or click between the thumb box and an end arrow).

## Status Bar

The status bar (below the Menu Bar) contains five panels.

No. 1 Normally, shows the stitch that the mouse cursor is currently over. The bottom left hand corner is (1,1) while the top right hand corner coordinates are the numbers of stitches and rows. (The first coordinate is the stitch number, and the second the row number).

However, the above description changes when panel 2 is active (see below).

No. 2 When a drawing tool is in use (line, rectangle etc), or a selection rectangle is being drawn, this panel shows the current mouse cursor stitch, while the first panel remains constant showing the starting stitch.

No. 3 When panel 2 is active (that is, drawing is in progress) this panel shows the number of stitches and number of rows in the rectangle with the starting stitch and the current stitch at opposite corners.

No. 4 Shows the total number of stitches and rows in the pattern.

No. 5 Shows the current Zoom Factor, which is equal to one when the display size has not been increased from its initial value.

## **Tools Palette**

### **Palette Display**

A tools palette window appears over the pattern-display area when the program starts.

This window can be moved around the screen in the usual way, by mouse dragging on the title bar.

The window can be removed from or restored to the screen through the View menu (with a keyboard alternative control+T).

### **Tool Selection**

A Hint is displayed for each box in the palette, when the mouse pointer pauses briefly over it, indicating the function of the tool.

There is always one tool selected, which is indicated by changed colour in the Tools Palette. The selection is changed by clicking a different box in the palette.

The currently-selected tool remains active when the palette is removed from the screen.

The two boxes at the bottom of the palette are special cases.

The bottom left box shows the currently selected left-button (LB) and right-button (RB) tool colours. Clicking on this box has no effect. The LB and RB colours are selected by clicking on the colour palette.

Clicking on the bottom right box turns the colour palette display alternately on or off.

### **Drawing Tools: Single Stitch, Straight Line, Rectangle, etc**

**Note:** Drawing cannot occur outside the current pattern boundaries. (Extra stitch rows or columns can be added, if necessary, through the Edit Menu).

#### **Stitch:**

When this tool is selected, clicking on a stitch in the pattern changes its colour to LB or RB, depending on which button is clicked.

#### **Straight Line:**

In this case, a mouse button is held down at the starting stitch, the mouse is moved until the desired line is seen, then the button is released. The colour of the line depends on the mouse button used (left or right).

During the drawing of the line the end stitches, and the size of the rectangle defined by the two ends of the line, are shown on the Status Bar.

#### **Rectangle, Ellipse (Oval) and Rounded Rectangle:**

These are drawn in the same way as the straight line.

### **Pattern Text**

With this tool selected, clicking on the pattern results in the appearance of a blinking caret. Characters can be inserted into the pattern from the keyboard, until the Return (Enter) key is pressed. The (currently typed) character to the left of the caret can be deleted by means of the Delete (Backspace) key; but no other editing is available.

Characters cannot overlap the edge of the pattern. If displaying a character would cause overlap, at the starting position of the caret, or after characters have been typed, keystrokes are ignored (other than Return, or, if at least one character has been typed, Delete).

No other tool can be selected while text input is active; that is, until Return is pressed. (However, LB and RB colours can be changed while text input is active).

The font name, style and size can be selected through the Settings menu.

## **Selection Rectangle**

A number of the Tools work on the whole pattern, or on a selected rectangular part of the pattern. Also, Edit/Cut and Edit/Copy require part of the pattern to be selected.

To select part of the pattern the selection rectangle tool must be selected. (Note that there is also a tool for drawing a rectangle as part of the pattern).

Hold the mouse button down while over the stitch at one corner of the desired part.

Move the mouse until over the stitch at the opposite corner of the desired part, and then release the button. During the drawing of the rectangle the corner stitches, and the size of the rectangle, are shown on the Status Bar.

The selected area is marked by a fine line, drawn just inside the outer edges of the outer stitches. The colour of the line varies with the colour of the stitches underneath.

Clicking the mouse button outside the selected area cancels the selection.

Clicking inside the selected area causes the action appropriate for the currently selected tool.

For example, to change the colour of part of the pattern:

1. Select the Selection Rectangle tool.
2. Select the required area.
3. Select the Flood Fill tool.
4. Click with left or right button inside the selected area, to flood fill with either the LB or RB colour.

## **Arrow Key Area Change**

To use this tool an area must be selected; which can be moved, stretched or shrunk. In all cases, the selected area cannot overlap the current pattern boundary.

With the tool selected, click in the selected area.

The pattern in the selected area can now be moved, one stitch at a time in any of the four directions, using the arrow keys on the keyboard.

On each movement the stitches vacated by the moved pattern are changed to the RB colour.

The process is terminated by pressing the Return key.

For small adjustments, this can be easier to use than the alternative of Edit/Cut followed by Edit/Paste.

If the Control key is held down, pressing an arrow key causes the area to be stretched, by moving the corresponding side of the rectangle by one stitch outwards.

If the Shift key is held down, pressing an arrow key causes the area to be shrunk, by moving the corresponding side of the rectangle by one stitch inwards. Stitches vacated during the shrinking process are changed to the RB colour.

Stretching or shrinking an area is an alternative to stretching or shrinking the whole pattern.

(When stretching or shrinking, it is possible to retrace the steps taken and return to the original rectangle, within a single execution of Arrow Key Change. However, if Arrow Key Change is terminated after changing the rectangle, on re-starting from the final rectangle it will not necessarily be possible to return to the previous rectangle.)

No other tool can be used while Arrow Key Change is in progress. However, the RB colour can be changed if necessary.

### **Flip, Twist and Rotate**

These tools act on the selection rectangle, if any, if the mouse is clicked in the rectangle; otherwise on the whole pattern.

Flip interchanges stitches top to bottom, twist interchanges from left to right, and rotate anticlockwise and clockwise rotate through ninety degrees.

Rotate can only be applied to a selection rectangle if the latter is square.

### **Colour Changes**

These tools act on the selection rectangle, if any, if the mouse is clicked in the rectangle; otherwise on the whole pattern.

Replace Left Colour with Right changes all stitches in the pattern having the LB colour to the RB colour.

Swap Left and Right Colours is as above, but also changes all stitches having the RB colour to the LB colour.



(Stitches having neither the LB nor RB colour are not affected in either case.)

### **Flood Fill**

This tool acts in two different ways, depending on whether a selection rectangle has been drawn or not.

When a selection rectangle is present, clicking the mouse inside the rectangle replaces all stitches within the rectangle with the LB or the RB colour, depending on which mouse button is clicked.

When there is no selection rectangle present, clicking the mouse on a stitch changes its colour to the LB or RB colour (depending on which button is used), and all the surrounding stitches which have the same colour as the first stitch. The colour spreads out from the starting stitch over the whole area that has the colour of the first stitch.

(To be included in the area to be changed, a stitch must have a side in common (not just a corner) with at least one of the inner stitches.)

### **Colour Pick-up**

When using the colour change tools, it is not always easy to know which colours are present in any given area of the pattern.

When the Colour Pick-up tool is selected, clicking the mouse left button on a stitch replaces the LB tool colour with the colour of the stitch, and clicking the right button replaces the RB tool colour with the colour of the stitch.

# Colour Palette

## Palette Display

A 256-colour palette window appears over the pattern-display area when the program starts. (For downloading to the E6000, a pattern can contain no more than four of the colours in any pattern row). The palette contains sixteen columns and rows. The colours are numbered from 0 to 255, left to right, top to bottom. They can also be referred to by column number (0-15) and row number (0-15).

This window can be moved around the screen in the usual way, by mouse dragging on the title bar.

The colour palette can be removed from or restored to the screen through the View Menu (with a keyboard alternative control+R), or by clicking the bottom righthand box on the Tools Palette.

## LB and RB Tool Colours

There are always two tool colours selected; the left mouse button (LB) and right mouse button (RB) colours. These are displayed in the bottom lefthand box of the tools palette. In some contexts, the LB colour can be thought of as the foreground colour, and the RB colour as the background colour.

These colours can be changed whenever necessary by clicking either left or right button on the appropriate colour in the colour palette. They can also be changed by using the colour pick-up tool.

In all the drawing tools and the flood fill tool, the colour obtained is determined by the mouse button used. In the case of the Text tool, the letters are written using the LB colour, and the background is drawn with the RB colour. The LB and RB colours are also involved in the arrow key area change and colour change tools.

## Standard and Custom Palettes

There are three standard palettes that can be chosen, using the settings menu:

Creation 6 Standard

8x8x4 Standard

6x6x6 Standard

Also, the user can supply a 256-colour palette in PAL format, as a custom palette.

Each time the program is started, the most-recently selected palette is shown.

Creation 6 standard palette is the one that appears when Creation 6 is started. This is the appropriate palette to use when loading a CUT-format pattern that was originally prepared using Creation 6 and the standard palette.

(Depending on the video-display capabilities of the computer, the colours may not look as sharp as when using Creation 6. This is because Creation 6, being a DOS program, has complete control over the colours used, because no other program is using the screen at the same time. However, the present program, running under Windows, has to fit in with other parts of the screen display, so that some colours can only be approximated (by "dithering").)

The writer has not been able to discern the rules by which the Creation 6 palette was originally produced. Creation 6 users will be aware that, for instance, it does not contain pure white (usually colour 255). Colour 255 is close to white, but is slightly creamy.

The 8x8x4 standard palette is a commonly-used general-purpose palette. It is obtained by using all combinations of 8 equally spaced values each of red and green, and 4 equally-spaced values of blue ( $8 \times 8 \times 4 = 256$ ).

It will be seen that the palette can be divided vertically into 4 sets of 64 colours. In the first set, blue is set to off, in the second set blue is at one third intensity, in the third set two-thirds, and in the fourth set blue is on full.

Each set of 64 colours can be divided into 8 sets of 8. The green setting varies from off in the first set of 8 to on full in the last set of 8.

Within each set of eight colours, red varies from off to full on.

The 6x6x6 standard palette is generated in a similar way to the 8x8x4 case. The difference is that each of red, green and blue has the same number (6) of possible values, giving  $6 \times 6 \times 6 = 216$  possible colours. There are, thus, 40 spare spaces in the 256-colour palette. The 6x6x6 palette starts after skipping the first twenty positions, leaving twenty spare positions at the end.

In computers that have no "System Palette" the 40 spare entries in the palette are filled with shades of grey. In computers that have a System Palette, the reserved colours (usually the first 10 and last 10 of the 256) are shown in the palette, and the remaining spare entries are filled with shades of grey.

The 216 entries in the 6x6x6 palette divide into 6 groups of 36. Blue varies from off to full on over these six groups. Each group of 36 divides into 6 groups of 6. Green varies from off to full on over the 6 groups of 6. Within each group of 6, red varies from off to full on.

The palette in current use by the program can be saved in PAL format if desired. This might be useful if patterns produced using the present program are to be read by other programs.

## **Individual Pattern Palettes**

### **CUT Files:**

CUT files can have palette files (extension PAL) associated with them. (In Creation 6, the current palette can be stored (usually after one or more of the standard colours have been adjusted).)

The present program expects any palette file to have the same main name as the pattern, but with extension PAL. Also, it is expected to be stored in the same folder as the pattern.

When a pattern in a CUT file is loaded, any palette (found in the same folder as the CUT file) is also read, automatically. The colours in the pattern, as found in this palette, are replaced with the closest colours in the current program palette.

(Alternatively, the pattern palette could be loaded as a custom program palette before opening the pattern file. All colours in the pattern will then occur in the program palette, and there will be no need for any approximation of colours.)

### **BMP Files:**

A pattern stored as a BMP file has a palette stored as part of the file, which is read when the pattern is loaded, as described above for a PAL file accompanying a CUT file.

When a pattern is saved as a BMP file, the colours that occur in the pattern are stored in the palette which is saved in the file.

### **WMF Files:**

The same applies to WMF files as stated above for BMP files. The only difference is that the present program cannot save in WMF format.

## **Palette Management for CUT Files without PAL Files**

Most CUT files do not have associated PAL files. When such a file is opened the program palette in use must be the one in use when the file was saved. If not, the colours displayed will usually be very different from the originals.

Most CUT files prepared using Creation 6 will have used the Creation 6 Standard palette.

To change a CUT file to work with a different palette of those available (with small changes in the colours):

Select the palette that was in use when the file was saved previously.

Open the file.

Select the desired new palette. (This changes each colour to its nearest equivalent in the new palette.)

Re-save the file.

## **Palette Treatment During Pattern Overlaying**

When patterns are combined by overlaying, palette handling is the same as for opening each file. When the file has an accompanying palette, the file colours are matched as closely as possible with colours in the current program palette.

## **Colour Adjustment**

Colour adjustment is not provided in the present program. It is expected that most patterns can be adequately represented using colours from one of the standard palettes or a custom palette.

# Connection to the E6000

## Cable Wiring

A standard Creation 6 cable, with dongle, can be used.

However, this program does not require a dongle. A handy-person knitter, or a knitter with access to a handy-person, can make a cable if needed. (Note that the following description has been modified a little from the original).

## **E6000 connector:**

A 6-pin DIN plug is required

It has a centre pin and 5 pins around the outside.

## **Computer connector:**

A 9-pin D-socket is required; or, in older computers and as used in the Creation 6 cable, a 25-pin D-socket.

This goes into one of the serial connectors (COM1, COM2, COM3 or COM4).

## **Wiring:**

Three wires are required, plus a 1K resistor (quarter watt) and a diode (1N4148).

Note: The latter two items (inexpensive and readily obtainable) were not included in the original cable specification. They have been added as a safety measure, on the recommendation of Anne Croucher, Dorset, UK. They will fit into the shell of the computer connector (9 or 25 pin).

Computer end		E6000 end
Data Pin 3 on 9-pin <resistor>		Pin 2
Pin 2 on 25-pin		
	^	
	d	
	i	
	o	
	d	
	e	
	^	
Ground Pin 5 on 9-pin		Pin 6
Pin 7 on 25-pin		

Control (DSR) Pin 6 on 9-pin  
Pin 6 on 25-pin

Pin 4

The resistor is connected into the Data line. This is the equivalent of a component which is present in the Creation 6 dongle cable.

The diode is connected from the Ground line to the Data line, at the E6000 end of the resistor. The diode anode is connected to Ground and the cathode to Data. The diode is less important than the resistor; it duplicates a component which is included in the E6000 circuit.

### **Pin Numbering:**

Both connectors should have the pin numbers moulded into the plastic at the back (where the wires are soldered).

#### **25-Pin Socket**

Looking into the FRONT of the socket with the 13-socket row above and the 12-socket row below, the pins are numbered -

From 1 to 13 from the RIGHT in the top row, and

From 14 to 25 from the right in the bottom row.

#### **9-pin Socket**

Similarly,

1 to 5 from the right in the top row, and

6 to 9 from the right in the bottom row.

#### **6-pin DIN Plug**

Looking into the front of the plug, with the gap in the outer circle at the bottom, the pins are numbered

anticlockwise from 1 to 5, starting from the lower right, and

number 6 is the centre pin.

### **COM Ports**

Most computers have two COM connectors at the back. These are panel plugs (as distinct from panel sockets), with 9 or 25 pins.

The two connectors are usually *COM1* and *COM2*. However, instead of *COM1* there can be *COM3*; and instead of *COM2* there can be *COM4*.

Current computers usually have two *COM* ports on the mother board. These can be configured in the board set-up system (often activated by pressing *Del* shortly after turning on the power) as *COM1* or *COM3*, and *COM2* or *COM4*.

On older computers, jumpers on the communication card inside the computer are used to choose between *COM1* and *COM3* and *COM2* and *COM4*.

Recent computers may have only one *COM* port, or (especially in laptops) none. (In the latter case, see below.)

Computers can have more than two *COM* ports, but at any given time only one with an odd number and one with an even number can be in use.

In such computers, if the mouse uses one of the *COM* ports then the port used for downloading to the E6000 should be opposite in terms of oddness/evenness. If both are odd or both even, conflict will occur between mouse action and downloading; if the mouse is moved or a button clicked during downloading the latter will be disrupted.

If a PS/2 mouse (small round plug) or USB mouse (flat plug) is used, there can be no conflict.

In the program, it is assumed initially that *COM1* is used to connect to the E6000. However, if this is not correct, the user can specify which *COM* port is in use through the Settings menu. This setting is saved for subsequent running of the program.

For computers with no *COM* port, adaptors are available to produce *COM* port behaviour from a USB port. (Provision of a direct USB output from *Win\_Crea* to the E6000 is not possible, since the latter is not a USB device. To allow the E6000 to be connected to a USB port, some intervening circuitry is required, which is provided by currently-available USB to *COM* adaptors.)