

THE ARTIST



48k ZX SPECTRUM



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T H E A R T I S T

by
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The Artist Manual

by Dr Tim Langdell
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THE ARTIST

By Bo Jangeborg

Introduction

* The Artist is the most powerful and flexible graphics program presently available for the 48K Sinclair Spectrum. Whilst capable of helping you to create very complex graphics, The Artist has been designed to be very easy to use.

This program has been carefully designed to be of use to anyone from the complete novice with little or no 'artistic skills' to the professional artist interested in computer generated graphics.

Getting started: LOADING The Artist

* If you have a cassette version of The Artist, then simply load it by entering: LOAD"" and then press ENTER.

The Artist will start automatically when loading is complete, and you will be presented with the main 'work screen' of the program.

An overview of the essentials

* At the bottom of the work screen you will see a form of menu showing these options:

```

1      2      3      4      5      6      7      8
BRUSHBRUSH PATTERN TEXT VIEW MOVE CLS STORAGE CHR

```

Before going into a detailed discussion of what these different options relate to, it is strongly suggested that you have a 'play' with the system. To do this you will need to know the major keys which guide the cursor around the screen, how to make the cursor 'paint' pixels (the small dots on the screen), how to erase the pixels and so forth.

Here is a brief overview:

```

Q Key - MOVE CURSOR UP
S Key - MOVE CURSOR DOWN
R Key - MOVE CURSOR LEFT
T Key - MOVE CURSOR RIGHT

```

By pressing these keys you will see that you can indeed move the small 'dot' cursor around the screen. Holding down combinations of these keys moves the dot along diagonals. (Ignore the other 'cross' shaped cursor for the moment).

You will also see that the cursor's movement is 'intelligent'. That is, it will speed up if you hold your finger down, but it will move slowly at first leaving you in easy control at first for fine detail work.

To make patterns, lines etc appear on the screen you need to 'set' the pixels (dots) that the cursor is passing over. You'll also (probably not being perfect at first!) be wishing to delete some dots, and you'll no doubt wish to add splashes of colour:

C Key - SET PIXELS
 X Key - DELETE PIXELS
 Z Key - SET ATTRIBUTE (colours)(can also use the SYM/SHIFT)

As you experiment with these controls, note that they have been chosen so that you may easily use your forefinger and middle finger of each hand for the movement control, and use your thumb(s) to press either the Z,X or C Keys depending upon what you are doing.

Note that it is quite easy to 'swirl' the cursor in circles and arcs, and that it is very easy to control.

The menu options

* There are in fact three main menus in all, and a further two secondary ones; but we'll deal with the others shortly.

In each case, the menus have numbers written above features and facilities. These numbers simply refer to the numeric keys on the upper row on your spectrum. Thus pressing the '1' key choses the option marked 'BRUSH'.

BRUSH: Pressing this makes the menu disappear, and in its place you'll see the numbers '1' to '0'. Below the numbers are various sizes of what we'll term "brush width". Thus the brush width which The Artist has when the program first loads is the narrowest number 1 thickness. By pressing any of the other keys numbered 2 to 8 you'll get a gradually thicker and thicker brush to 'paint' with.

Try selecting a few different brush widths and note that the act of selecting one takes you straight back to the main work screen.

Finally, you'll see two other brush types, numbered '9' and '0'. Number 9 is useful when you want to have variable brush widths (rather like using an italic nibbed pen), and number 0 is the 'AIR BRUSH' mode. Using this you will be able to 'spray' the screen, rather than drawing defined lines. Combined with the choices of brush pattern this brush mode can be indispensable for shading and blending.

BRUSH PATTERN: When you press this option (press '2' from the main work screen's menu), you'll see you are presented

with the numbers 0 to 9 again, and below the numbers are boxes containing various patterns. As you would guess, each pattern below each number is selected by pressing the appropriate number key.

To get the best idea of just how powerful this option can be, press option '8', and when you've returned to the main work screen (note it happens automatically) select option '1' again and then select the brush width number '8' (the widest).

Back in the work screen again, draw now by moving the cursor and pressing the 'C' key with your thumb. As you can see, you are now painting with the pattern number '8'!

Note too that the cursor changes size and shape according to you current choice from the brush widths option.

TEXT: As you might expect, pressing the option '3' from the main screen brings you into a TEXT WRITING MODE. You are immediately presented with a new menu, looking like this:

```
CAP+3-4  SYM+G  SYM+S  SYM+D  CAP+2  CAP+SYM
INVERT  OVER  SMALL  CHR  NORMAL  CHR 0  CAPSLOCK  EXTENDED
```

In this mode the keys work almost as they do when the Spectrum is in normal use. You cannot, however, use the graphics mode.

Pressing the CAPS/SHIFT key with the '4' key will turn the INVERT mode on, using CAPS with the '3' key turns it off again.

Similarly, using the SYMBOL shift key with the 'G' key will switch the OVER mode on - pressing these keys again switches this mode off again.

You can use the built-in small character set (64 column width) by pressing SYMBOL shift and 'S', and you can revert to the normal size characters again by pressing SYMBOL shift and 'D'.

CAPS shift with the '2' key switches the CAPS LOCK on (as usual), and you can enter the extended mode by pressing the CAPS and SYMBOL shift keys together.

Other features include:

- SYM + 'F' - pressing these changes the character set that you are writing with. There are 8 different, redefinable sets in all.
- SYM + 'I' - pressing these displays the currently chosen character set.

To see all of each character set you will have to press the **SYM** and **T** keys together 3 separate times. Remember to lift your fingers fully off of the keys between each press though.

VIEW mode: By pressing key number '4' when you are in the main work screen you will be able to see the entire screen. This mode removes the menu area, and pressing any key will take you back to the main screen again.

Obviously, the use of **VIEW** will be essential when you are creating screen designs which entirely fill the Spectrum's screen area.

MOVE This is an alternative to the **VIEW** mode in a sense. Pressing the '5' key will lift the screen up, pushing the top three cahracter lines off of the top of the screen, and allowing the three lines which were hidden below the menu to become visible. This is obviously essential when you are creating these bottom lines because it allows you to work on them just as you would on the rest of the screen.

CLS: As the letters imply, pressing the '6' key allows you to clear the screen and start over again. Press the '6' key now and you will see that The Artist will print up the message:

PRESS (Y) TO CLEAR SCREEN (flashing)

If you do not press the 'Y' key then the program does not clear the screen - very useful if you happen to press the **CLEAR SCREEN** option by mistake!

STORAGE: The '7' key allows you to enter another menu, this time dealing in a variety of ways with storage and retrieval of data and pictures.

The options are:

C - COPY. This option copies the current screen picture to a ZX Printer.

0 - SEARCH. This option allows you to search a tape for the names of files on it without loading them.

Pressing the **SPACE** key ends the search.

G - CAT. This gives you a **CAT**alogue of the drive in use.

E - ERASE. This erases a named file on the present drive.

H - FLIP DEFAULT DRIVE. With the Rotronics 'Wafadrive' this option flips between drives 'A' and 'B'. With the Sinclair Microdrives, though, it allows you to chose the drive you require.

Y - LOAD CHR\$ SETS. This is used to load character sets which have been saved on tape,wafadrive or microdrive. When this option is selected you will be asked both which set you wish to load into (starting at), and what storage medium it is to be loaded from.

- T - SAVE CHR\$ SETS. As with the above, this allows you to save character sets which you have created. You can chose which character sets, the number of them, and to which storage medium.
- S - SAVE SCREEN\$. This saves the current created screen (termed SCREEN\$ in Sinclair BASIC) to the chosen storage medium.
- L - LOAD SCREEN\$. This option allows you to load SCREEN\$s.
- U - SAVE USR GRAPHICS. With this option you can save the Spectrum 'User Defined Graphics'. These are in fact the last 21 characters in The Artist's character set number 7.
- I - LOAD USR GRAPHICS. This is the complement of the last option, and allows you to load in previously saved user defined graphics into the last 21 characters of set number 7.

The second 'main menu' option

- As mentioned above, to move between the three main menus you simply press the SYMBOL SHIFT key on its own.

Do this now and you will see a new menu thus:

1 2 3 4 5 6 7 8 9 0
OVER INVERT OVERLAY PATTERN ENLARGE LINE CIRCLE BOX ARC FILL

With the exception of the option to chose brush size and pattern in the first main menu, this menu is the key one for creating truly astounding graphics with The Artist.

OVER : Key 1. This command only affects the four drawing commands below (LINE, CIRCLE, BOX, ARC). If the OVER command is on then pixels will be inverted rather than set by those four commands

INVERT : Key 2. This command is like the above, and once again only affects the four drawing commands. Instead of inverting pixels, though, INVERT deleted pixels instead.

OVERLAY : Key 3. This is a very powerful and complex command, and for this reason will be dealt with in greater detail below.

PATTERN : Key 4. This option simply creates a chequer pattern on the screen of 'bright' and 'normal' character squares. This chess pattern effect is ideal for determining where the boundaries of character squares are and thus enabling you to located colour boundaries.

ENLARGE : Key 5. This mode 'blows up' the area of the screen around which you are currently working (that is assumed to be around where the main cursor is). To see the uses of this option draw some random lines and shapes on the screen and then select this mode by pressing the '5' key. As you will see, the area where the cursor was has been enlarged. You can now work on this enlarged version of your pattern to touch up fine detail, and so forth. Note that all the draw commands such as LINE, ARC, and so forth work in this mode, and note too that you can move around the entire screen without having to exit and re-enter the mode. You can even change or set attributes in this mode too (using the 'Z' or SYM SHIFT keys as explained above).

LINE : Key 6. This option, as it name suggests, allows you to draw lines on the screen. There are several LINE drawing options though.

To see most clearly how the different options work, go back to the first main menu (press 'SYMBOL SHIFT' twice and clear the screen using the '6' key)

Now re-enter the second main menu. If you press the '6' (LINE) key now you will see that quite simply a line is drawn between the reference cursor and the main cursor. If you now move the main cursor and press '6' again, then you will see that another line is drawn, again from the position of the reference cursor to the main cursor.

You are presently in what The Artist calls the 'PLOT-POINT' mode, and indeed you can see this displayed on the right side of the menu area, above the numbers 7,8, and 9. By pressing the 'M' key you can change this mode. Pressing it now changes it to the 'PLOT-MOVE' mode and if you draw lines now using the '6' key, moving the cursor between lines, then you will see that the main cursor and reference cursor both move in parallel. In this way parallel lines can easily be drawn, and identical boxes and circles too.

Pressing the 'M' key again moves you on to the 'PLOT-TRACE' line drawing mode in which the reference cursor's position is automatically updated by executing a LINE command. In this way you can very easily drawn around a shape.

Setting the reference cursor : The reference cursor, then, is very useful in creating a variety of line drawings. To set its position on the screen simply move the main cursor to where you wish the reference cursor to be placed, and then press the SPACE key. The reference (or 'cross') cursor will be immediately in its new position. However, do not try to set a new position for this cursor when in the 'PLOT-MOVE' mode. The two cursors will follow each other everywhere.

CIRCLE : Key 7. This command, as you would expect, allows the creation of circles. The reference, cross, cursor is used once again to determine the radius of the circle to be drawn. The centre of the circle is determined by the position of the reference cursor, and the main cursor will be on the circle's perimeter itself. To get some feel for the speed and power of this routine, place the reference cursor near the middle of the screen and hold down both the 'T' (move right) and '7' (draw CIRCLE) keys at the same time.

BOX : Key 8. Once again the two cursors' positions determine the size and shape of the box to be created. Position the cursors so that they will be at opposite corners of the box you wish drawn, and then press the '8' key. Again the speed of this routine can be gauged by holding down the cursor movement and '8' keys at the same time.

ARC : Key 9. This draws an arc between the two cursors. You will be asked to either press the 'P' key to accept the arc and have it 'printed' onto the screen, or to press the ENTER key to quit the option. You will also see that the keys U, I and O may be used to curve the arc in one direction, and the keys

L, K, and J can be used to curve it in the other direction. The 'U' and 'J' keys have the quickest effect, decreasing to the relatively slow change in arc shape when you press either the 'O' or the 'L' keys.

FILL : Key 0. This is one of the most impressive features of The Artist.

To gain a quick idea of the possibilities of this routine, return to the first menu to clear the screen, and then return to this menu again. Once back set the cursors and create a fairly large circle in the middle of the screen. Now position the main cursor somewhere inside the circle. Simply press the '0' key to engage the FILL option, and almost instantly you will see the circle is filled in black.

In place of the menu you will now see a choice of patterns - the same choice you have when choosing brush patterns. By simply pressing any of the keys '0' to '9' you will see the circle quickly fill with the chosen pattern. You can also 'abort' from this stage too.

Remember too that you can select any of the other patterns, as well as those you have created yourself. Select these (as when choosing brush patterns) by pressing the 'S' key before pressing a numeric key in the pattern-choice mode; the 'S' key can be pressed several times to reveal all possible pattern choices.

* Note that the FILL feature is intelligent and can paint in areas with quite complex outline shapes.

MISTAKE The UNDO command.

* What if you make a blunder? Or what if the shading you put in was not as great as you'd hoped? Or what if you have drawn a wonky line? Partly rubbed out something by accident?

Well help is at hand with The Artist's UNDO command. You have probably noted that there are two 'reminders' on the upper left side of the menu areas. The leftmost of these says 'U=UNDO ' and the other 'O=OK'.

If you've just followed the above suggestion regarding creating a circle and filling it with a pattern, the power of the UNDO command can quickly be seen by pressing the 'U' key. If you have come fresh to this section then put something, anything, onto the screen. Pressing the 'U' key immediately 'undoes' whatever you have been doing. It will undo up to the point in the past when a command change occurred, or up to the point when the 'O' key was pressed to indicate 'OK up to now'. Hence the OK command effectively updates an indicator to The Artist as to how far back it should UNDO if requested to do so.

Obviously the UNDO command has many other uses than simply erasing

errors. It can be invaluable when you are experimenting with different shadings, colourings, shapes, fittings, etc.

Note that you cannot UNDO after returning from the OVERLAY mode (see below). Note also that you can UNDO the UNDO itself. Hence you are protected against accidentally UNDOing some of your work.

Lastly, note that an automatic 'OK' occurs when ever a FILL is done, or after entering the TEXT mode, and when leaving the OVERLAY mode.

What about the Colour? The PALATE MENU

• Up to now we have mainly been dealing in black and white drawing. What about colouring a picture?

The next main menu deals with the so called 'attributes' - that is the colour, brightness, and flash attributes of the screen. As usual with the Spectrum, it is limited to only one INK colour, one PAPER colour, and either flash on or off, bright on or off within any given character square (remember the 'PATTERN' key in the last menu which highlighted these?).

However, The Artist allows you to have very powerful control over the attributes on the screen.

When you enter this menu you will see that a window immediately appears with the two cursors defining the size of the box. The window will appear surrounding character squares on the screen - not using the cursor positions exactly.

Now any changes you wish to make to attributes can be confined to being within this window. To see how this works create a fairly complex pattern (filling a circle is a quick and easy way), and then make the window in this mode overlap with the area of graphics.

By pressing the keys '1' and '2' you can change the PAPER and INK colours respectively. Having chosen a PAPER and INK colour you can then see the effect of those colours within the 'window' by pressing either key '6' or '7'. Key '6' changes the WindowPAPer to the selected colour, and key '7' changes the WindowINK to the selected colour.

You can also select bright or normal colours - simply pressing the '3' key will toggle between the two. Similarly FLASH can be put on or off by pressing '4'. To then see the effects in the window you would use the WBRI and WFLA commands respectively (keys '8' and '9').

By pressing key '5' you can change the BORDER colour; each press changes it onto the next colour in the Spectrum's palate. Note, though, that the BORDER is not part of the screen you are creating, and will have to be set later in your own program.

Lastly, note that the current settings of PAPER INK and so forth set in this mode are also those used in the main menu when you press either the 'Z' or SYMBOL SHIFT key to set attributes.

THE OVERLAY MODE

* The OVERLAY MODE is undoubtedly one of the most unique and powerful features of The Artist.

Return to the second main menu - where key '3' is the OVERLAY option.

It is best to think of this mode as creating a sheet of plastic or 'acetate' (as used by professional artists) over the screen of graphics that you have created. You are then able to 'cut and paste' different parts of the screen you have created. That is, you can select just a portion of the screen to 'cut out' and then you can move this section to another part of the screen, and when it is in the best position you can commit it to being 'pasted' onto the screen in its new position. However, that is not all you can achieve using OVERLAY.

To gain some idea of its features, create a circle FILLED with a pattern (clear the screen first if you wish). Now enter the OVERLAY mode by pressing the '3' key. Whilst the only obvious change is that the word 'OVERLAY' has been inverted, effectively a kind of film has been placed over your drawing.

You can still move the cursor as usual, and you might move it such that by using the PLOT-TRACE mode you can draw a loop around a section of the filled circle (or whatever on the screen). Ensure that the loop you create is completely closed - or use the CIRCLE command to be certain.

Now ensure that the main cursor is within the shape you have overlaid on the existing graphics and then press the '0' (FILL) key. You will see that the shape you created (or circle) in the OVERLAY mode has filled in black. But your original shape in the main work screen is unaffected except for a shading effect where the two areas overlap.

Now press the '3' key again (OVERLAY) and you will see the overlapping section has been lifted out of the screen - cut out as it were.

You are now given the choice of CUTting the shape, COPYing it, or ABORTing. Chose CUTting (this option removes the area from where it was on the original screen, where as COPYing just creates a copy of the area).

You now see a new menu headed 'OVERLAY':

1	2	3	4	5	6	7	8	9
INVERT	MIRROR	MIRROR2	VIEW	USCA X	DSCA X	USCA Y	DSCA Y	PATT

INVERT This inverts the area that you have 'cut' out of the screen. By using this command you can ensure that should you wish to force the entire of this cut out portion back onto the screen (one of the options, see below), that it will delete just those areas that you wish it to.

MIRROR This option executes a left-right mirroring of the OVERLAY.

MIRROR 2 This option executes an up-down mirroring of the OVERLAY.

VIEW Using this you can view how the cut-out section will appear when it is finally placed on the main screen, but without committing it there as yet (for the technically minded, the overlay graphics are XORed onto the main screen and then XORed off again - thus they will not resemble exactly what you will see when the graphics are committed to the screen).

USCA X,DSC X,USCA Y,DSCA Y. These options allow you to expand or shrink the area that you have cut out of the main picture in either the vertical (Y) or horizontal (X) planes. For an example, press USCA X (key '5') - you will be asked what degree of up-scaling you require (0= minimal, to 9=maximum). Press '5' for an example. You will see the shape spread widthwise. You can return the shape to its original size by selecting DSCA X and again pressing the '5' choice of scaling. For upscaling you are advised to place the object/graphic in the upper left hand screen before using the upscaling feature.

Note that down scaling followed by up scaling gives less predictable results.

PATT This command puts the bright and normal chequer pattern onto the screen as in the main screen mode. Using this you can use the OVERLAY mode to move something where an attribute clash was occurring a fraction one way or the other to enable colouring to be more effective.

Having chosen where you want the cut-out part to be, and what size you wish it, pressing ENTER will give you the options:

1=XOR 2=OR 3=EXCLUSIV

If you chose '1' then the area on the overlay will be 'blended' with the picture in the main screen (it will be XORed onto it). If you chose '2', then the area which overlapped and which you have been working on in the OVERLAY mode will be forced onto the screen, rubbing out what was beneath it. The last option forces the entire cut-out section onto the original screen - circle or surround as well as the chosen 'overlap' area.

You also have the option to make a number of copies of you overlay graphics.

Character and User Defined Graphics Creation

* We now turn again to the first main menu, where option number '8' was one marked 'CHR'.

By pressing this you will enter The Artist's character creator mode. In this mode you can create new character sets - up to 7 in all can be redefined (set 0 is the Spectrum's ROM).

Upon entering the mode you will see a grid comprised of nine large squares each split up into 64 smaller ones. Each of the larger squares represents a 'character' and you can thus work on 9 separate characters at once.

Toward the lower left of the screen you can see a menu of FUNCTIONS. Above the menu is a non-bright block of 9 character squares which contains a 'normal' size view of the enlarged 9

characters on the right. Above this square (marked 'USR') there are a further 4 such squares alternately coloured green and cyan.

The four coloured squares: Each of these contains characters in the particular selected character set (upon loading this is set to set 7, which includes the Spectrum's own 'UDG's'). The squares in fact contain the central 36 characters of the presently selected set.

To see this, press the 'L' key and you will be taken to the display of that character set. The set number (here '7') is displayed in the top left hand corner, and once again the USR box is displayed on the left hand side. The characters in the set are arranged in columns and rows, each numbered for easy reference.

You can now see that the characters which make up the 4 boxes of 9 characters on the other screen are here also depicted in the green and cyan colours. They range from row 3 column 2 to row 6 column 7.

Which ever characters occupy these positions will be those which appear on the other screen - the full significance of this follows.

Return to the other screen now by pressing the ENTER key. Let's look at the **FUNCTIONS**:

1 -4 PRINT BLOCK. This function refers to pressing any of the keys '1' to '4', the result being that the chosen block of 9 characters from the 4 such blocks in the upper left of the screen is transferred both to the grid for editing, and also to the USR square. Experiment with pressing the keys '1' to '4' until you are sure you see what they do. Note that block '1' is the upper left-most, '2' is below it, '3' is to the right of '1' and '4' is below '3'.

SYM+1-4 LOAD BL. To get this function, press the SYMBOL SHIFT key along with one of the keys '1' to '4'. This does the reverse of the above. That is, it puts whatever is on the screen into the chosen 3-by-3 block in the upper left hand of the screen. Don't experiment with this option yet - the 'man' graphics are very useful for demonstrating another function (see below).

F MIRROR. This command mirrors each of the character squares individually.

G MIRROR SIX. This command will mirror just the left-most six character squares in the grid.

H MIRROR NINE. Predictably, this function mirrors all 9 character squares.

K TURN. Using this you can turn each of the characters around its axis by 90 degrees.

CAP+4 TURN FOUR. Press the CAPS SHIFT key and the '4' key. This allows you to rotate just the upper left hand four character squares on the grid.

CAP+9 TURN NINE. Press CAPS SHIFT and the '9' key. This allows you to rotate the entire 3-by-3 9 character grid.

I INVERT. As to be expected, this function inverts the entire grid and the USR square as well.

L CHARACTER SET. As mentioned above, this option takes you to a display of the character set, and also allows you to view other sets to, as well as allowing you to save to sets or load from them (see below).

U UNDO. AS in the main drawing mode of The Artist, this command effectively 'undoes' the last actions you did. It primarily acts on the pixels you have set in the grid allowing you to see the effects of minor changes without committing to them.

O OK. (the letter - not zero). This puts the contents of the grid into the USR square. You will note that not all changes to the screen are automatically transferred to the USR square. Use of the 'O' key is important as the USR square's contents is the link between your character creation(s) in the grid and the contents of the various character sets.

P CLS. This option clears the grid. If you clear it by accident, then remember that the UNDO command will recover your graphics again.

7 MOVE. This powerful command puts you into a different mode. Pressing the '7' key removes the flashing cursor, and instead allows you to

move the entire contents of the grid around - adjusting the entire 3-by-3 creation in any direction a pixel at a time. Press ENTER to exit this mode.

8 ANIMATE FOUR. Pressing the '8' key will animate the four blocks of characters in the upper left of the screen, by printing them one after another in turn in the USR square. Pressing it now will animate the small man figure firing a gun. To STOP THE ANIMATION, simply press the ENTER key. Do not worry if nothing happens immediately, the animation sequence waits for an appropriate moment to cease.

9 ANIMATE SIX. This will animated six lots of 3-by-3 blocks, the 4 visible at the top left of the screen, and the following two blocks of 9 characters in the set presently selected. Don't use this option with character set number 7.

Creating a character.

First start with a clear screen (press the 'P' key).

The cursor is controlled in its movement around the grid in the same way as the main cursor is controlled in the other part of The Artist.

Once again, then, the keys Q,S,R and T are used for Up, DOWN, LEFT and RIGHT respectively.

The keys 'X' and 'C' are used as in the drawing mode - holding 'C' as you move the cursor sets pixels, and holding 'X' removes them. However, you also have the option of using the 'Z' key which will remove 8 pixels at a time. That is, it clears entire rows of pixels within a given character square.

Storing characters/Loading characters

* You can re-define up to 7 different character sets using this program. What you are saving is that which is in the USR square.

To see the effect of saving a created character, create one now - a simple shape will suffice.

Now enter the 'character sets' mode by pressing the 'L' key. You will see that your creation is present in the USR square in this screen too.

To save this character (or characters) you simply select the 'S' key. You will be asked:

STARTING AT WHICH LINE? (0 - 9)

You might select '0'. Then you will be asked:

STARTING AT COLUMN ?(0 - 9)

Again you might select '0'. Whereupon you will be asked:

HOW MANY CHARACTERS (0 - 9) ?

Select '9' in this case to save the entire contents of the USR square.

You will now see that the entire of the USR square has been put into the first 9 character square places in the character set. You will see that the transfer of the characters is done row by row from the USR.

LOADING characters to the USR square: This is equally simple. Let's load one of the shooting men into the square. Select the LOAD option by pressing key 'L'. You'll then be asked the same questions that were required when you were SAVING characters. To the first question answer '3' (for row 3), to the second answer '2' (for column 2 of row 3), and to the last answer '9' (for all 9 character squares to be transferred to the USR starting at the one in position 3,2).

The man firing a gun will appear in the USR square (assuming , that is you have done nothing to this point to change his graphics).

CHANGING CHARACTER SETS: This is very easy. By pressing the 'C' key you will then be invited to say which set you wish to select and that set will replace the current one. Note that selecting a new set does not change the contents of the USR square. Thus transferring characters from one set to another is quite easy.

The only set you cannot alter is set '0'. However, you can pick up characters from this set (it is the standard one in the Spectrum's ROM). You will also note that in the display of each set the standard Spectrum ROM set is given to show the place within the set of each character.

'GRABING CHARACTERS FROM THE MAIN SCREEN': The Artist even allows you to LOAD into the USR square from the main screen which you have created in the Drawing/Painting mode.

This is simply done by pressing the 'K' key. Immediately the main work screen of The Artist displayed. On it will be a green square the same size as the USR square. You can move this green square around the main screen using the normal cursor keys. When the green square is over an area which you wish to 'grab', then

press the 'X' key. A tone will confirm a successful transference. By now pressing ENTER you will return to the character set display screen and see the area of main screen selected is in the USR square. You can now treat this pattern as any other set of 9 characters, and modify it by returning to the grid mode, or save it into a set.

You can also put characters onto the main screen using the above command. If you load some characters into the USR square (using the 'L' to LOAD function), then by pressing the 'K' key again you will be taken once more to the main screen. Once there and once you have moved the green square to a suitable position, pressing the 'C' key will 'PRINT' the characters onto the screen.

POINTS TO NOTE

- First, note that the FILL patterns in character set number 5, and the small character set in set 6 are used by The Artist. Hence changing these sets can cause an unusual effect. However, this does allow you to:

CREATE YOUR OWN FILL PATTERNS:

These can be created using the character creator and then loaded into set 5. You will see in set 5 that the brush widths are stored from position 2,3 to 3,1. The FILL patterns are then stored from 3,3 onwards.

You can also create your own cursors, for these too are held in character set number 5.

THE SCREEN COMPRESSOR

° On side 2 of your tape of The Artist there is a program which will allow you to compress screens which you have created. Typically this program will allow you to compress a screen to between a third and a half of its normal size (which for a full screen is more than six thousand bytes).

You can compress several screens, and even compress selected thirds of screens. The program also allows you to store these screens or thirds/two thirds of screens giving each a number, and then allows you to recall the picture by selecting its number.

The program has a menu which allows you to chose to load a screen, view a screen, delete the last screen or save the finished block of screens.

If you wish to compress just one or two thirds of a screen, then first press the 'C' key. You will be asked:

FROM THIRD?:

And then:

TO?:

If you want just the first third, then enter '1' as the answer to each question. Similarly, enter '2' each time for the middle third. To load the top two thirds, then respond with '1' TO '2'. And so on.

Note that compression is automatic following loading from tape, microdrive or wafadrive (you can select which medium from the menu). You must therefore select the compression option **just prior** to loading.

The compressor will tell you how much free memory you have.

To use the compressed block of graphics load it in where ever you wish to call it. To decide which picture or part of a picture you to call you must poke the number of the picture into the memory address two higher than the address you loaded the picture into. For example, say you load the comopressed screen into memory starting at address 50000, then this BASIC program would allow you to recall the screen again:

```
10 CLEAR 49999
20 LOAD""CODE 50000
30 INPUT "PICTURE: ";X
40 POKE 50002,X
50 RANDOMISE USER 50000
60 PAUSE 0: GOTO 30
```

The last line is of course dependent upon whether you wish to load in a number of pictures, or just one. The PAUSE 0, by the way, is a method of allowing the full screen to be displayed to you without a Sinclair BASIC report message being printed (the OK report usually) until you press a key.

USING YOUR OWN CHARACTER SETS

* You saw in the description of using The Artist that you can easily create your own character sets - or user defined graphics as your Spectrum Handbook calls them.

But how about using these new sets? To use a set you have to reset a pointer which the Spectrum uses called CHARS in an area of memory called 'SYSTEM VARIABLES'. This can easily be done using the following BASIC program:

```
10 LET X=64000
20 CLEAR X-1
30 LOAD"" CODE X
40 POKE 23606,X-256*INT(X/256)
50 POKE 23607,INT(X/256)-1
```

If you wish to have the character set somewhere other in memory than starting at location 64000, then simply change the value of 'X' in line 10.

HINTS ON USING THE ARTIST

* You will no doubt have gathered by now that The Artist is a truly powerful piece of software. There are, as you may imagine, often a number of ways of achieving the same result, and a number of tricks to be learnt about creating effects, cutting corners, etc.

ELIPSES

You can create ellipses with The Artist. First draw a circle on the normal main screen. Now go into the OVERLAY mode and without moving either of the cursors, draw the same circle again. Press the OVERLAY again and you will see that you have now lifted out the circle.

Now you will chose to either copy the circle or cut it, and having made this decision you'll be put into the manipulation menu mode. Here you can chose to rescale the circle either horizontally or vertically and in doing so you will create an ellipse. All that then remains will be to put the ellipse back onto the main screen in the usual way.

SHADING FILLED AREAS

Imagine that you have a picture of a face which is made up of solid lines and for effect you wish to put in some shading. One way of doing this would be to delete and replace the lines with a brush pattern of your choice. Another way is to select a brush pattern and then enter the OVERLAY mode. Before entering this mode, mark out those areas which you wish to shade (that is, actually 'paint' over

them using the brush pattern). Once in the OVERLAY mode press OVERLAY again to grab those sections of the graphic to be shaded. Chose the copy option, and then ignore the manipulation options by pressing ENTER, and put the cut-out graphics back onto the screen again using the XOR option.

This will effectively give you inverse shading.

RANDOM DRAWING METHODS

You can very easily create rather interesting patterns with the drawing commands. For instance, set the plot mode to PLOT-POINT and activate the OVER option. By moving the cursor and simultaneously drawing lines and/or circles you can now create some quite astounding patterns.

There is also an enormous variety of patterns to be found in the ROM which can be accessed by pressing the 'S' key in the BRUSH PATTERN mode, and going on beyond the user-defined graphics in the seven character sets. You can then use these patterns in the FILL mode as usual.

CREATING LARGER CHARACTERS

It is quite easy to create characters larger than the 3 by 3 size which the character creator section of The Artist is designed to deal with.

To do this simply enter the ENLARGE mode whilst on the normal drawing screen and put on the PATTERN command. You will then have a screen which displays more than 160 character squares, each four times normal size, and each highlighted in either bright or normal attribute setting.

By using the cursor as normal (and you might prefer to have the BRUSH width set to minimum, the pattern to black), you can then move it around each individual square setting or clearing pixels using the 'X' and 'C' keys.

Once you have created your larger UDG you can quite easily transfer it to your character sets by using the 'GRAB UDGs' option within the character creator part of The Artist. Obviously, though, you will have to grab sections of your character in nine character blocks.

JOYSTICK OPERATION

You can use a joystick with The Artist by using a Kempston (or Kempston compatible) interface. With the joystick attached you will find that you now have the option to move the cursor using either the keyboard or the joystick. To draw, delete, set attributes and so forth you simply press the fire button. What happens will depend upon what key you pressed last. Thus if you pressed the 'C' key last then you will be drawing on the screen, and similarly for the 'X' and 'Z' keys. Note you do not need to hold down the key in question.

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