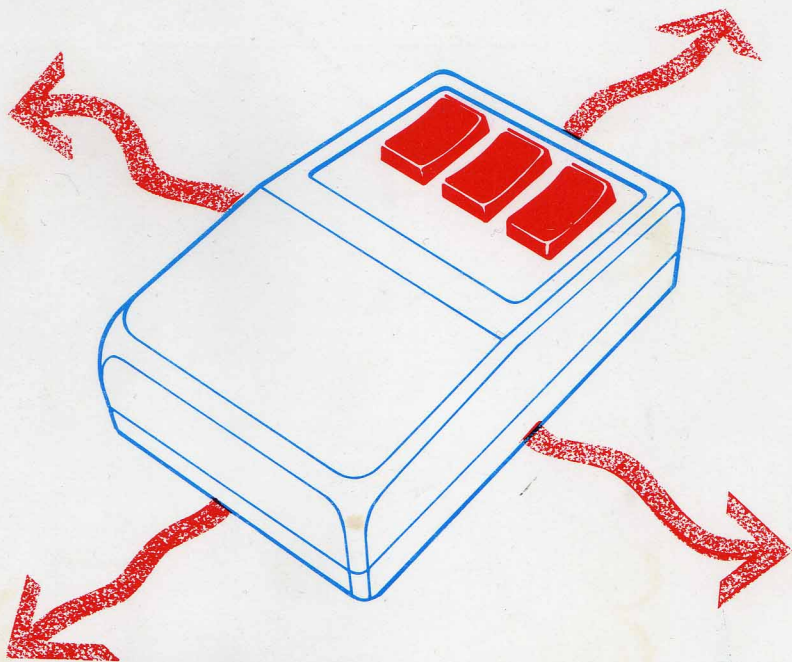


**FOR THE
AMSTRAD**



AMX AMSTRAD MOUSE

User Guide

Software and Manuals by
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1 INTRODUCTION

The AMX Amstrad Mouse together with the AMX CONTROL and utility software makes the Amstrad Microcomputer easier to use, while representing a major advance in home computing. This 'value-for-money' peripheral device transforms the Amstrad Microcomputer into a much more user-friendly device and provides facilities normally only available on more expensive machines.

The AMX Mouse can be used with the Amstrad 464, 664 and 6128 Microcomputers with either disc or cassette filing systems, while drawing its power from the monitor.

For the more advanced BASIC programmer, routines contained in AMX CONTROL can be used to produce BASIC programs utilising windows, etc. Machine code programmers are catered for in Appendix A which details System Calls for the various routines in AMX CONTROL.

1.1 THE AMX AMSTRAD MOUSE PACKAGE

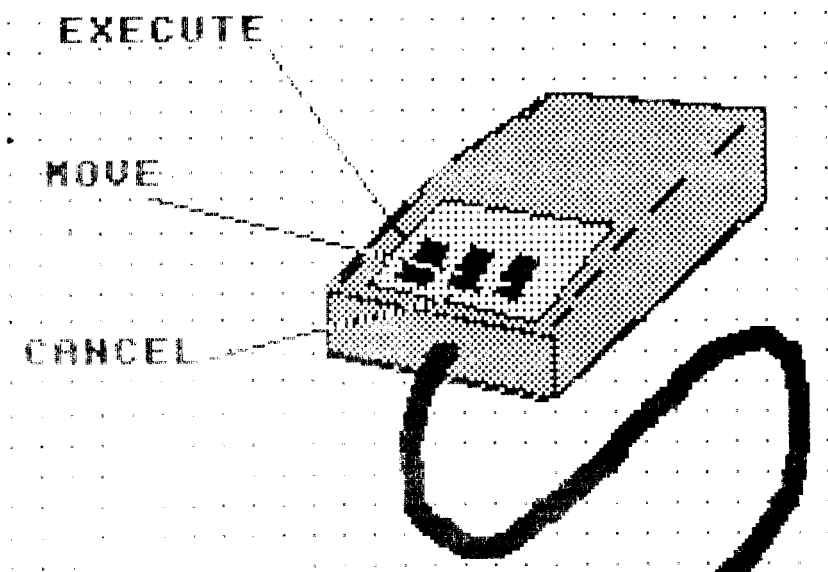


Figure 1 - The Mouse Buttons

Included in the AMX Mouse package are the AMX Mouse, together with the connecting cable and connector, the AMX 'Amstrad' Mouse Interface, and the AMX Mouse software consisting of AMX CONTROL, AMX ART, ICON DESIGNER and PATTERN DESIGNER, in cassette form. (For tape to disc transfer see Appendix B.)

The AMX Mouse uses the latest in opto-mechanical technology and is endowed with three user buttons which are configured as EXECUTE, MOVE, and CANCEL (see figure 1).

The Mouse is simply plugged into the interface as described in Chapter 2. The Mouse can also, when used with the AMX CONTROL, simulate the cursor keys and thus be used in existing software.

The AMX CONTROL software includes 'I' commands which allow the user to incorporate extremely sophisticated features such as windows, icons, and pointers from BASIC or Assembly Language as detailed in Chapters 4 and 5 (see figure 2).

Software accompanying this package includes AMX ART, AMX ICON DESIGNER and AMX-PATTERN DESIGNER. AMX Art is an extremely advanced graphics drawing package exploiting the full graphic capabilities of the Amstrad Microcomputer, hitherto not thought possible.

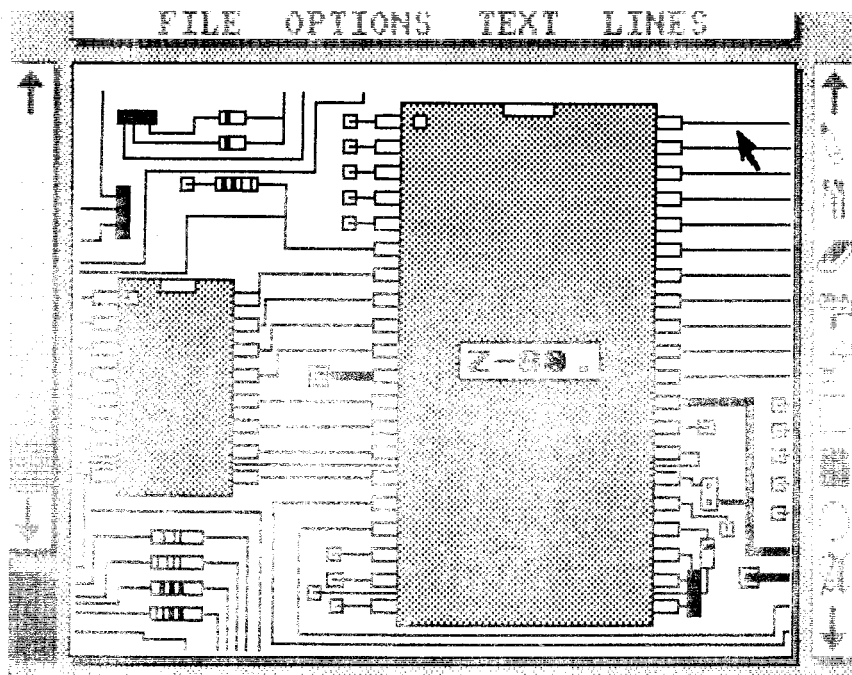


Figure 2 – Windows, Icons and Pointers

1.2 USE OF THE AMX MOUSE

The Mouse can be used from within the users' BASIC or machine code programs to provide a vastly superior pointing device, which is far more accurate than a light pen or digitiser of equal cost. By use of the | STEP command the Mouse will provide extremely precise coordinates, unlike other devices.

2 CONNECTING THE AMX MOUSE

The AMX Mouse is simplicity itself to install. Just follow the steps below exactly.

1. Switch off the monitor and unplug from the mains.
2. Unplug the 5V power lead from the monitor to the computer.
3. Plug the AMX Mouse interface into the joystick port located at the rear of the Amstrad Microcomputer. This is the 'D' shaped connector with 9 pins (located on left side of CPC6128).
4. Connect the interface power lead to the Amstrad Microcomputer power socket (5V). This is the lead terminated with a plug similar to that on the Amstrad power lead.
5. Plug the AMX Mouse into the interface using the 20 pin IDC connector. This connector is polarised and ensures that the mouse can only be plugged in one way.
6. Plug the Amstrad Microcomputer power lead into the socket on the interface power lead.
7. Reconnect the mains supply and switch the computer on.

If the Amstrad Microcomputer should power up as normal then its all systems go. If the computer does not power up as normal, switch off the monitor immediately, and retry installation from step 1. If the computer should still not power up as normal, consult the dealer from whom you purchased the AMX Mouse.

2.1 INSTALLING AMX CONTROL

In order to install AMX CONTROL and make available the extra '|' commands, follow the steps below.

1. Insert the cassette into the tape recorder (or disk into drive)
2. Rewind cassette if necessary (ignore for disk)
3. Type in RUN"AMX" and press RETURN.

On loading the screen should clear and the following appear:

```
AMX MOUSE v2.10
©1985 ADVANCED MEMORY SYSTEMS LTD
  & CYGNET COMPUTER CONSULTANTS
29325 BYTES FREE
```

```
READY
```

3. AMX ART

3.1 WHAT IS IT ALL ABOUT?

AMX ART for the AMSTRAD MICROCOMPUTER family is the most advanced in its class. Mouse driven, it offers all the facilities of packages which were up to now only available on more expensive machines. The full complement of pattern fills, spray windows and pull-down menus has been provided. You may well ask what AMX ART can be used for. Well, its uses are only limited by one single factor. Your IMAGINATION. It can be used to teach the basics of sketching and also for producing illustrations for your own needs.

3.2 HOW TO USE THIS MANUAL

This manual will take you step by step through the procedures of using the different facilities that AMX ART can offer. It will firstly take you through the screen layout and then through the finer points of the different options.

3.3 WHAT DO I NEED TO USE AMX ART?

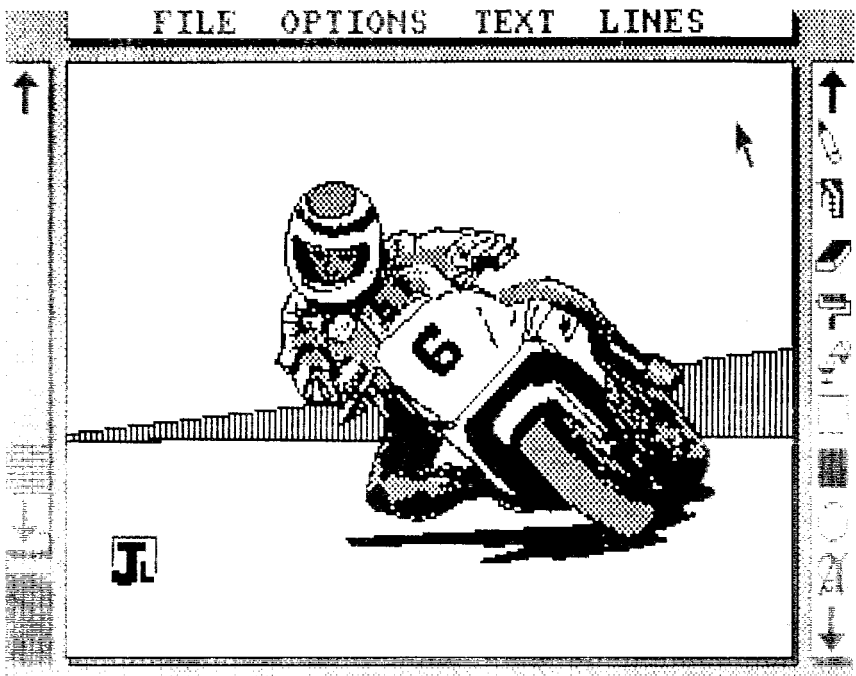


Figure 3 - The Art Screen

All you need is an AMSTRAD micro and the mouse package. If you have disc drive all the better as all the programs are readily transferable. The next thing you will need is a little bit of imagination. Lastly, a printer (EPSON or EPSON compatible) will be most useful if you want to print out your pictures.

3.4 THE AMX ART SCREEN

The AMX ART screen is split up into five main segments. These are the pull-down menu bar, the mode icons, the pattern bar, the currently selected pattern area and the drawing area. The pull-down menus are situated at the top of the screen. There are four menus in all.

The menus are activated by taking the pointer over the menu title. Once this is done the menu will automatically pop down and reveal its various options. The options are selected by moving the pointer up or down within the menu boundaries. As the pointer passes over an option, that particular option is highlighted in inverse. Selection of the option is carried out by pressing EXECUTE. In the case where several options may be selected the menu, upon selection of an option, will continue to stay down. The menu can be released at any time by simply moving the pointer out of the menu area.

On the right hand side of the screen is the Mode and Spray size section. This section contains a larger number of Mode and Spray Size icons than the screen will permit. It is for this reason that the window can be scrolled up and down. To scroll the window up simply take the pointer to the UP ARROW and press EXECUTE. Each single press will scroll the window up by one icon, whereas a continuous press will keep the window scrolling until the end of the icon array has been reached. The BOTTOM ARROW at the lower end of the MODE window will scroll the window downwards. Only one drawing mode can be selected at any one time, and this can be linked to a spray size as appropriate. Selection is carried out by taking the pointer over the chosen Mode/Spray Size and pressing EXECUTE. Once this has been done the chosen icon will be inverted. If another Mode/Spray Size is later chosen the previous one will be de-selected.

The left hand side of the screen contains the Pattern window. Once again the principle of a scrolling window has been used. There are 32 patterns in all and 7 are displayed at any one time. The UP ARROW will scroll the Pattern window upwards and the BOTTOM ARROW will scroll it downwards. To select a pattern simply take the pointer over the desired pattern and press EXECUTE. The chosen pattern will be displayed in the PATTERN DISPLAY BOX at the bottom left of the screen. The centre and majority of the screen is occupied by the drawing area.

3.5 PULL DOWN MENUS

THE FILE MENU

The file menu contains options which are related to the input/output streams. When pulled down the screen should look similar to that in figure 4. The following is a description of the various options.

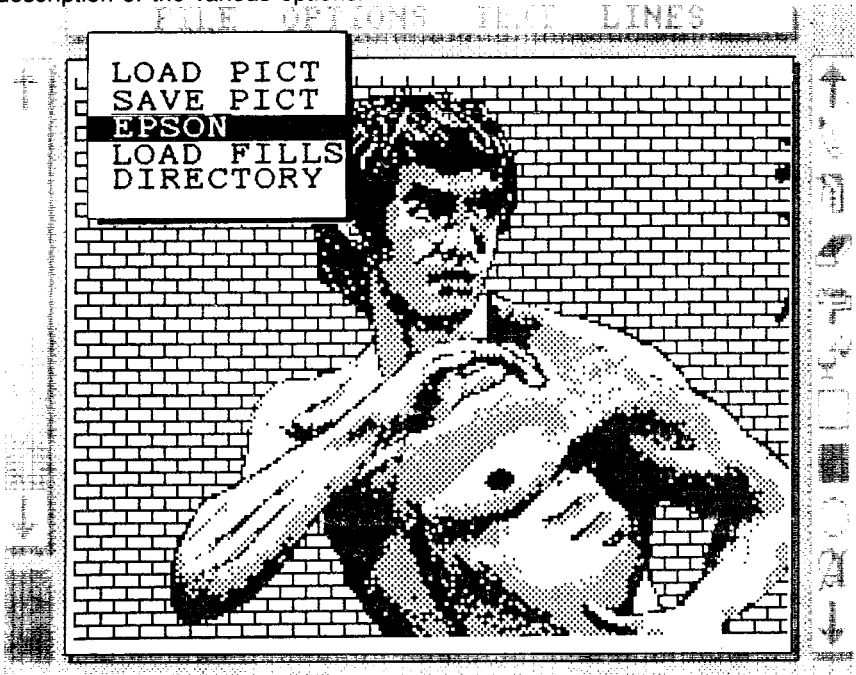


Figure 4 – The File Menu

LOAD PICT: This is used in order to load a picture from tape or disc. When selected the file menu will be pulled up and a second window will be placed in the centre of the drawing area, prompting for a filename. Once the filename has been entered the picture is loaded in.

SAVE PICT: In order to save a created picture to tape or disc the user selects the SAVE PICT option on the file menu. Once again the filename prompt will be presented and after entering the filename the picture is saved.

EPSON: This dumps the picture to an Epson Printer. If this option is accidentally selected, press ESCAPE twice.

LOAD FILLS: When selected this option will prompt the user with a filename request. The selected pattern file, previously designed using PATTERN DESIGNER, will then be loaded in and displayed in the pattern area.

THE OPTIONS MENU

This menu contains various system options. These are explained in detail below.

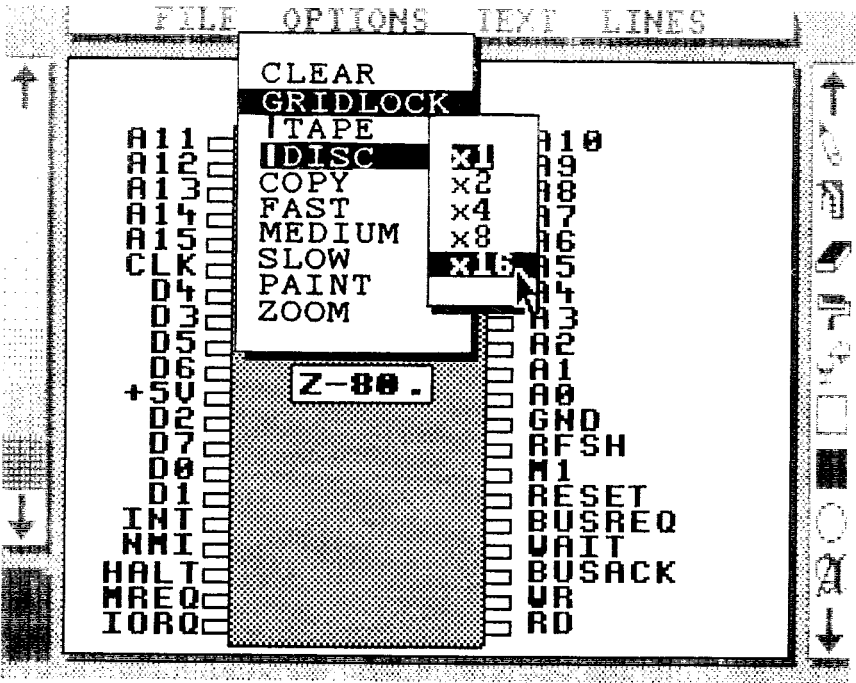


Figure 5 – The Options Menu

CLEAR: This option will, when selected, make an 'EXECUTE/CANCEL' request and upon confirmation clear the drawing area.

GRIDLOCK: Upon selection a second pull-down menu will drop showing the different gridlocks available. A gridlock allows the user to move the pointer in steps. This 'step' rate is determined by the individual gridlock chosen. If, for example, the x8 option is chosen, the pointer will then move in definite steps of 8 pixels on the drawing area. Gridlock will only operate in PENCIL, FRAME BOX and FILLED BOX modes. The gridlock menu can be cancelled by pressing CANCEL.

COPY: This facility is used to copy one area of the screen to another. When selected the pointer will be turned into a 'dual-window' pointer. This must be placed primarily at the top-left corner of the desired area. The EXECUTE button must then be pressed. This will finalise the top-left corner. Further movement of the mouse will produce a 'rubber-banding' box. When this box is positioned to your requirements press the MOVE button. The set box can be aborted by pressing the CANCEL button. If the box is in the desired position and has been finalised you will see that a second box has been placed on the screen. This second box can then be moved over to the required position and EXECUTE pressed. The chosen area is then copied over from the area covered by the first box to the second.

| **TAPE:** This option will switch the filing system over to tape from disc.

| **DISC:** This option will switch the filing system from tape to disc.

ZOOM: The zoom option has been provided to accurately alter the AMX ART picture on a pixel by pixel basis.

Once the zoom has been selected, the pointer is changed into a 14x14 pixel box. It is the area under this square that is duplicated in the zoom window. The square is then moved over the area which has to be altered and EXECUTE pressed. Once this is done a zoom window will appear on either the left or right side of the screen. The selected side will depend on where the square pointer is moved to. Therefore, if the square is initially in the right half of the screen, the zoom window will be placed in the left half of the screen. If the square is then moved over the left half, the zoom window will be replaced in the right half of the screen.

The zoom window is a square within a square. It is in the inside square that the pixels are displayed and altered. A pixel is represented by a 8x8 character square. The outer window contains 4 arrows, placed at the bottom of the square, which enable the zoom window to be scrolled pixel by pixel in any of the four directions. On the upper side of the outer box, are four colour squares. These represent the four colours selected in the paint option. The colour of the pixels may be altered by selecting a colour and then amending the pixel. In other words, if a black pixel needs to be altered to another one of the colours, that colour should first be selected and the pixel then amended. Pixels may be altered within the inner window by placing the pointer over the character square which represents the pixel, and pressing EXECUTE.

PAINT: The FILL Mode must be selected prior to choosing this option. The paint option allows the user to fill in areas of screen with various colour hatches. When the paint option is selected the standard patterns are removed and the colour hatches are placed within this area. The hatch fills can then be scrolled in much the same way as the standard patterns.

The hatches are made using 4 different inks. These are inks 0, 1, 2 and 3. The colours of inks 2 and 3 may be altered and are continuously displayed above the two 'up' arrows over the pattern area and mode icon area respectively.

The colours of inks 2 and 3 may be changed by placing the pointer over the respective arrows and pressing the MOVE button. Each press of the button will increment the colour by one.

One must however note that if, for instance, there is red present (ink 2) within the drawing area and the colour of ink 2 is then changed to green, the red area will also be changed to green. Once again the filled area may be unfilled by using the CANCEL button.

The paint option may be exited by moving and selecting any of the mode icons.

THE TEXT MENU

This menu contains various text options and provides the user with different combinations of text styles (see figure 6).

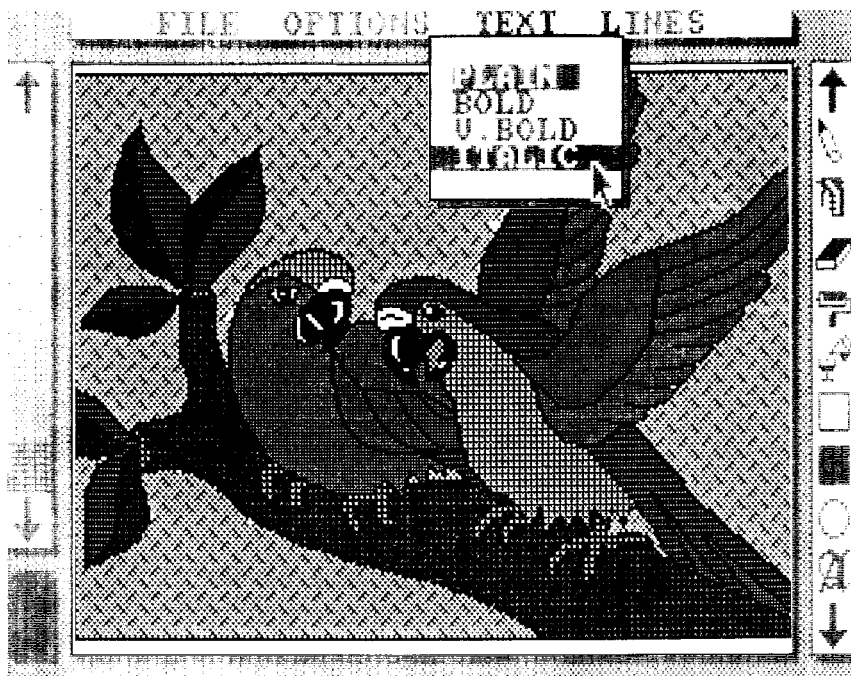


Figure 6 – The Text Menu

The combinations available are: PLAIN, BOLD, VERY BOLD, PLAIN ITALIC, BOLD ITALIC and VERY BOLD ITALIC

THE LINES MENU

Various forms of line drawing and filling can be chosen from this menu (see figure 7).

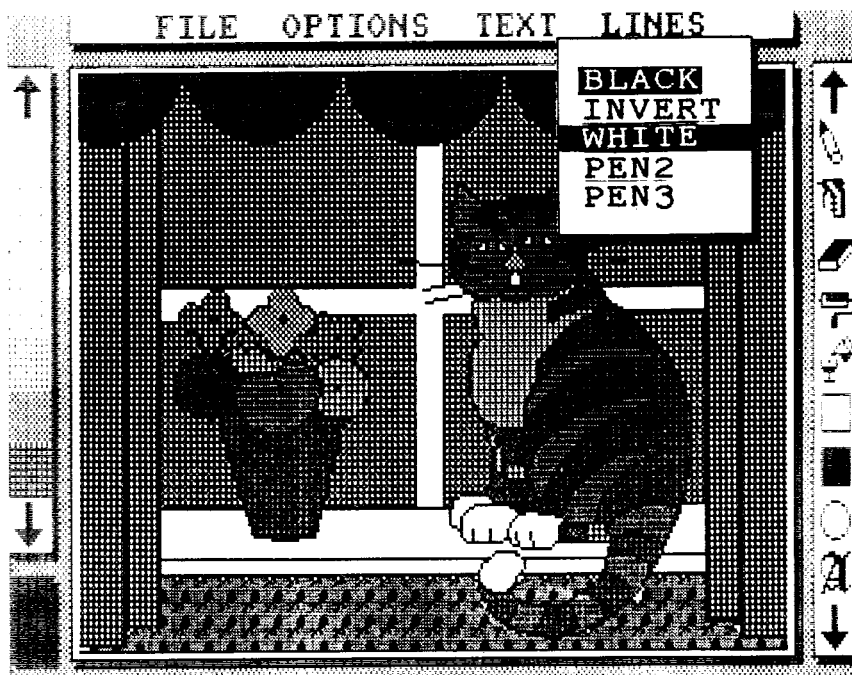


Figure 7 – The Lines Menu

BLACK: When chosen all lines or boxes will be drawn in black. The filled box will be filled in black.

INVERT: This option allows either inverted lines or inverted filled boxes.

WHITE: When chosen all lines or boxes will be drawn in white. The filled box will be filled in white.

PEN 2: This, when selected, enables colour to be used in the pencil and box drawing modes. The colour used for ink 2 will be as indicated in the small rectangle at the top of the pattern area, whereas the colour for ink 3 is shown by the small rectangle over the mode icon area.

These colours may be altered by using the 'up' arrows under the respective colour rectangles. This is done by taking the pointer over the respective arrow and pressing the move button to cycle through the colour range. Each press will increment the colour in the respective rectangle.

PEN 3: This mode operates in the same way as **PEN 2** but the colour of boxes and pencil drawings will be as indicated by ink 3.

3.6 MODE ICONS

There are nine mode icons altogether. Each of the mode icons has an individual purpose. Below you will find detailed the action of each of the mode icons as they appear in the Mode Window.

The Pencil Mode: This is used for the drawing of lines. To draw lines on the drawing area simply take the pointer over the pencil and press EXECUTE. The pencil icon will then be inverted and you will be in line drawing mode. You may have noticed that the pointer is still the standard arrow. This will change to the pencil when you move over the drawing area. To draw a line, simply take the pencil to the desired starting point by moving the mouse while keeping the MOVE button pressed. This is because of the 'rubber-banding' principles which are used. When you have reached the starting point release the MOVE button and then take the pencil to the end point. As you move the pencil you will notice a line is continuously drawn from the starting point to the current position of the pencil. This line is by no means permanent but can be finalised at any point by pressing EXECUTE. If one wishes to draw freehand then all that needs to be done is to keep the EXECUTE button pressed while moving the pencil in the drawing area.

The Spray Gun Mode: This mode has a multitude of actions. It is primarily used to spray a pattern onto the screen. It can use any of the 12 spray sizes which are situated below the TEXT MODE icon (letter A). By careful combination of patterns and spray size the most remarkable effects can be produced. Selection is very simple. For instance, if we wish to spray in the 'BRICK WALL' pattern using the 'HEAVY MIST' spray size, simply select the spray gun and scroll the mode icons upwards until the chosen spray size is visible. Once again select it by taking the pointer over the icon and press EXECUTE. Then move to the pattern window. Select it, move over onto the drawing area and SPRAY!! The drawing point is the tip of the spray gun. You may, if you wish, use the 'SMALL DOT' spray size to make freehand sketches. To spray simply place the gun at the desired point and press EXECUTE.

The Rubber Mode: This is used to rub out any errors you may make in the process of drawing. The rubber can be any one of the selected spray sizes. Therefore you may rubout mistakes in the tiniest of corners. To use, you must first select the rubber icon and then the appropriate spray size. To rubout simply place the rubber over the area you wish to rubout and press EXECUTE.

The Paint Roller Mode: This is to be used in conjunction with a pattern. When selected and placed at the appropriate point on the screen, simply press EXECUTE and move the roller. The pattern will be laid out on the top edge of the roller. You may then create patterns not unlike writing or painting with a brush.

The Fill Mode: Fill mode has attributed to it an icon with a glass being filled by a jug. To fill a shape with a pattern simply select the Fill icon and a pattern and then place in an enclosed white area at the centre of the shape you wish to fill. Then press EXECUTE. If by chance the pattern should leak or you change your mind, simply press CANCEL and the fill will be undone.

The Frame Box Mode: This is the 'frame structured box' icon just under the Fill icon. When selected simply take the pointer, a cross-hair, to the desired point and press EXECUTE. After this point a rubber-banding rectangle will be drawn from this point. The pressing of the MOVE button will draw a rectangle in the current line colour. When used with INVERT the lines drawn will be inverted with the background. If the WHITE option was chosen from the lines menu the lines will be drawn in white.

The Filled Box Mode: The icon which represents this mode is the solid black box located prior to the circle. The process is the same as above, however the drawn box is then filled. Once again this can be used with INVERT, WHITE, PEN 2 and PEN 3.

The Circle Mode: When chosen, the pointer is changed into a cross-hair, which should be positioned at the point which you wish to use as the centre of the circle.

Now press EXECUTE. When the mouse is moved, a "rubber-banding" box is drawn around the selected centre. This can be cancelled at any time by pressing CANCEL. The box may be enlarged to the desired diameter, and execute pressed to draw the circle. The circle is drawn within the box frame.

The Text Mode: The gothic letter A is the icon representing this mode. After choosing, the pointer takes the shape of an enlarged letter 'I' on the drawing area. The text can be in any one of three different styles and in upright or italic modes. To start entering text simply position the cursor and press EXECUTE. Text can only be entered in the drawing area. If you wish to cancel the current line of text you have entered just press CANCEL. To finalise the text entered press MOVE.

3.7 PATTERN DESIGNER

Pattern Designer has been provided to allow the user to design and use new patterns within AMX ART. Pattern Designer can be used to design upto 32 patterns at any one time. One must however note that all created patterns will be lost should the Amstrad be powered down, or reset.

How to Load Pattern Designer

In order to load Pattern Designer the following procedure should be followed:

1. Ensure that AMX CONTROL has been installed.
2. Type RUN"PATDES" and press RETURN.

Upon loading the screen should be as in Figure 8.

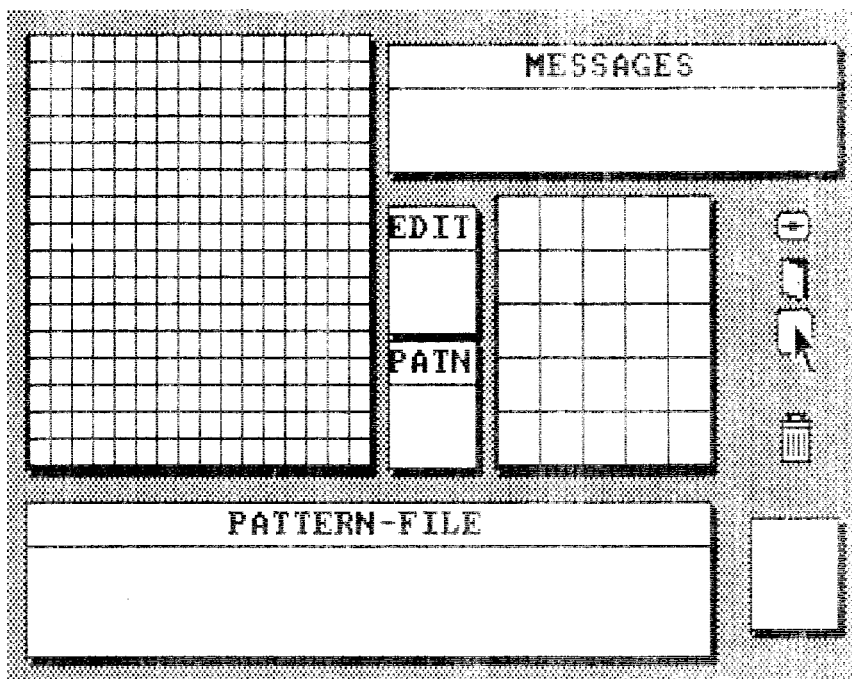


Figure 8 – The Pattern Designer Screen

The Pattern Designer Screen

The Pattern Designer screen is made up of 8 different sections. These sections are:

Pattern Design Grid	centre-left of screen
Pattern File Area	bottom of screen
Pattern Display Area	bottom-right of screen
Scratch Pad Area	centre-right of screen
Edit Pattern Number	upper-centre of screen
Current Pattern Number	lower-centre of screen
Message Area	top-right of screen
Function Icons	right of screen

Following, you will find each section outlined in full.

The Pattern Design Grid

A 16x16 character grid is provided for the design of the pattern, on a pixel by pixel basis.

Each character on the grid corresponds to a pixel within the pattern. In a similar way to Icon Designer, each grid character can be toggled between a 'BLACK' and 'WHITE' state.

However, unlike Icon Designer when a grid character is toggled in say, the top left quarter of the grid, the corresponding grid characters in the remaining quarters are also toggled. This is to ensure that the pattern is symmetrical when sprayed. Apart from this difference, the Pattern Design Grid is operated in the same way as the one provided in Icon Designer.

Summary: EXECUTE to Set a Pixel
CANCEL to Clear a Pixel
MOVE to pick up a pattern off the grid
EXECUTE to drop a pattern

The Pattern File Area

Designated as one of the drop zones, the Pattern File Area is used as an intermediate storage area prior to saving, or as the area into which loaded patterns are displayed. Operation of this area is identical to that of the Icon File Area within Icon Designer.

Summary: EXECUTE to drop a pattern
MOVE to pick up a pattern

The Pattern Display Area

Identical, but larger to the Icon Display Area within Icon Designer, the design created on the design grid is recreated on a pixel basis within this area.

The Scratch Pad

Used as a temporary storage area, the scratch pad functions in an identical manner to that in Icon Designer

Summary: EXECUTE to drop a pattern
MOVE to pick up a pattern

Edit Pattern Number

This window will inform you of the number of the pattern currently on the design grid.

Current Pattern Number

As the pointer is moved within the Pattern File Area or the Scratch Pad, the number of the pattern currently under the pointer is displayed within this window.

Message Area

The message area is used to relate to the user, any filing system prompts or error messages (disk error messages are for CPC664 and CPC6128 only).

Function Icons

The Drive Icon: When loading or saving operations are required this is the icon to select. In order to select the icon simply take the pointer over the icon and press EXECUTE.

Once selected, the message window will ask the user to select either FILE or PAD. File is used to save or load the Pattern File Area, whereas the Pad is chosen to save or load the Scratch Pad. This is done by taking the pointer over the relevant selection and pressing EXECUTE. This being done, the user is prompted for a LOAD or SAVE operation. Once again, the selection is made by moving the pointer over the relevant choice and pressing the EXECUTE button. After this stage the user is prompted with a filename request. The selected file type is saved with the chosen name and a postfix of '.PCN'. When the Scratch Pad area is saved, two files are created on disk, one of which has the postfix '.SCN' while the other has the postfix '.DAT'.

Once filing system operations are complete the CANCEL button must be pressed.

NOTE: If an error should occur and the program return back to Basic, simply type in 'GOTO 2000' and press ENTER.

The Door Icon: This is used to exit from Pattern Designer. When selected the user will be asked to press EXECUTE or CANCEL.

Clear Icon: This, upon selection, will clear the design grid.

The Bin Icon: This icon is used to dispose of any patterns you may have picked up. To use the bin, simply carry the pattern over the bin and press EXECUTE.

4 HOW TO USE AMX CONTROL GUIDE

Full details on the use of the AMX Mouse are given in USING THE AMX MOUSE, together with ' | ' command details and example programs in Chapter 5. The use of the Icon Designer software is detailed in Chapter 6.

When using this guide it will be noticed that a number of abbreviations have been used, which are all detailed below.

x	Text x coordinate
y	Text y coordinate
n	Numerical Value
c	Numerical Command Value (i.e. 1=on or 0=off)
i	Icon Number
sx	x axis sensitivity
sy	y axis sensitivity
lx	Left x coordinate of window (text)
by	Bottom y coordinate of window (text)
rx	Right x coordinate of window (text)
ty	Top y coordinate of window (text)
gx	Graphics x coordinate
gy	Graphics y coordinate
tx	Text x coordinate
ty	Text y coordinate
sn	Stream Number applied to window
F\$	String containing filename
T\$	String containing title of window title

The ' | ' commands available are described separately, with optional parts shown in square brackets []. Following the command name is the syntax for each command.

4.1 USING AMX CONTROL

Mouse Control

As the mouse is moved it generates a number of pulse signals. These are used by the interface to toggle 4 joystick lines, each one representing a different direction. The AMX CONTROL software then uses these toggled joystick lines to increment or decrement various counters. These counters are used in two different modes:

MODE 1: The counters are used to hold x and y coordinates which are compatible with the graphics coordinate system, i.e. 0,0 is the bottom left corner of the screen. These coordinates are used by the POINTER routines in AMX CONTROL and can be read using | GCRSR and | TCRSR.

MODE 2: By using the |MCRSR command with a value of 1 (see Chapter 5) the counters are reset to zero and a cursor key code is generated in response to mouse movement. This results in the screen cursor being moved around as the mouse is moved. This is particularly useful when used in conjunction with TASWORD.

NOTE: These modes are not compatible with each other and cannot be used at the same time.

Another function built into AMX CONTROL is the ability to read the mouse buttons by intercepting the keyboard vector. This therefore means that the Mouse buttons can be programmed to generate different key codes (see Chapter 5 – |BUTTONS).

4.2 IN EXISTING PROGRAMS

The Mouse can be used to mimic the cursor keys by simply entering |MOUSE,1 followed by |MCRSR,1 (see Chapter 5). This can be performed either before or after loading, depending on the individual program.

Several |BUTTON options are supplied, allowing the mouse buttons to simulate different sets of keys. For example, |BUTTONS,1 will make the mouse buttons generate the codes which correspond to RETURN, COPY and DELETE whereas other options allow the mouse buttons to generate codes corresponding to amongst others, the function keys (see Chapter 5, |BUTTONS).

5 TECHNICAL

The following chapter deals with the commands together with their related syntax and example programs. Also allied to this section is Appendix A, which provides Jumplocks and relevant entry conditions. This appendix is supplied for use by machine code programmers who wish to take advantage of routines contained within AMX CONTROL.

The layout of each command is as follows:

Command Name
Syntax
Where
Errors
Function
Example program

Appendix A can be found at the rear of this manual.

5.1 | BUTTONS

Syntax: |BUTTONS,n

Where: n is a numeric value between 0 and 6

Errors: |BUTTONS – Operand Missing
– Unknown Command

Function: This command enables the Mouse buttons to be reconfigured to return a differing set of values. The normal setting of the buttons allows their detection by using the Basic INKEY command. In this default situation, the EXECUTE, MOVE and CANCEL buttons are respectively attributed 77, 78 and 76 as their key values. Therefore, to detect the pressing of the EXECUTE button, the function IF INKEY(77)<>-1 will have to be used.

The different button values available are as follows:

n	EXECUTE	MOVE	CANCEL
0	77	78	76
1	ENTER	COPY	DELETE
2	f1	f2	f3
3	f4	f5	f6
4	f7	f8	f9
5	1	2	3
6	a	b	c

Example Program:

```
10 |DESK
20 |SHOWPOINTER
30 WHILE 1
40 |MOVEPOINTER
50 IF INKEY(77)<>-1 THEN LOCATE 1,1:PRINT "EXECUTE
    PRESSED"
60 IF INKEY(78)<>-1 THEN LOCATE 1,1:PRINT "MOVE
    PRESSED"
70 IF INKEY(76)<>-1 THEN LOCATE 1,1:PRINT "CANCEL
    PRESSED"
80 WEND
```

The error "Bad Parameter Count" will be produced if a parameter has been omitted. Unknown Command will be produced if AMX CONTROL has not been previously initialised.

5.2 |DESK

Syntax: |DESK

Errors: Unknown Command

Function: This command will cover the screen with a desk-top background. Its function is very similar to a mode change, in that any previous screen contents will be covered over, with the exception that any windows that have been set up will still be valid.

Example program:

```
10 MODE 1: |DESK
20 |SHOWPOINTER
30 WHILE 1
40 |MOVEPOINTER
50 IF INKEY(77)<>-1 THEN |HIDEPOINTER
    |DESK: |WINDOW,1,5,20,30,5: |SHOWPOINTER
60 WEND
```

5.3 | GCRSR

Syntax: |GCRSR,@GX%,@GY%

Where: GX% is an integer variable name

GY% is an integer variable name

Errors: |GCRSR – Bad Parameter Count

– Unknown Command

Function: The function of this command is to enable you, the user, to detect the graphic position of the pointer and thus, the mouse. The command works in such a way as to return the graphic coordinates into the two variables specified with the |GCRSR command. For example, |GCRSR,@X%,@Y% will have X% containing the graphic X coordinate and Y% containing the graphic Y coordinate. Integer variables must be used. However, there is no need to use the '%' postfix if the Basic command DEFINT is used. The selected variables must, in any case be preset to '0' in order that the values are returned correctly.

Example program:

```
10 MODE 2
20 DEFINT A-Z
30 GX=0:GY=0
40 |SHOWPOINTER
50 WHILE 1
60 |MOVEPOINTER
70 |GCRSR,@GX,@GY
80 LOCATE 1,1:PRINT GX,GY
90 WEND
```

The error "Bad Parameter Count" will be produced if a parameter has been omitted. Unknown Command will be produced if AMX CONTROL has not been previously initialised.

5.4 | HIDEPOINTER

Syntax: |HIDEPOINTER

Errors: |HIDEPOINTER – Pointer already hidden.

– Unknown Command

Function: The purpose of this command is to remove a pointer from the screen and restore the contents of the screen originally under the pointer, should the user issue a |HIDEPOINTER command whilst the pointer is already in a hidden state, the error Pointer Already Hidden will be produced.

Example program:

```
10 |MODE 1
20 |SHOWPOINTER
30 GOSUB 100
40 |HIDEPOINTER
50 GOSUB 100
60 GOTO 20
100 LOCATE 1,1
110 PRINT "PRESS A KEY"
120 CALL &BB06
130 ENTER
```

Unknown Command will be produced if AMX CONTROL has not been previously initialised.

5.5 | ICON

Syntax: |ICON,n,x,y

Where: n is the icon number between 0 and 63 (0-31 User Icons)

x is the x axis tab position

y is the y axis tab position

Errors: |ICON – Bad Parameter Count

– Unknown Command

Function: This command is used to place icons onto specified positions of the screen. The user may place onto the screen any of 64 icons. The user defined icons are in the range of 0-31, whilst the preset RSX icons are number 32-63. If user defined icons are to be accessed, they must of course, initially be designed using ICON DESIGNER and then loaded into memory using |ILOAD (see Chapters 5 and 6).

Example program:

```
10 |DESK
20 |ICON,32,2,2
30 |ICON,45,10,10
```

The above example will print icons 32 and 45 at 2,2 and 10,10 respectively.

The error "Bad Parameter Count" will be produced if a parameter has been omitted. Unknown Command will be produced if AMX CONTROL has not previously been initialised.

5.6 | LOAD

Syntax: |LOAD,@F\$ (or |ILOAD,"????.???" for the 6128 and 664)

Where: F\$ is a string variable containing the title of the icon file.

Errors: |LOAD – Bad Command
– Unknown Command
– No Filename Supplied
– Operand Missing

Function: This command has been provided to enable the user to load, into memory, icons previously designed using ICON DESIGNER. If the user has previously loaded in a set of icons, these will be written over by the new icon file.

Example program:

```
10 |DESK
20 F$="ART.ICN"
30 |ILOAD,@F$
40 |ICON,0,10,10
```

The above example program should now place icon 0, a pencil, onto the screen at position 10,10.

Unknown Command will be produced if AMX CONTROL has not been previously initialised. Bad Command is produced if an illegal filename is supplied. Operand Missing is produced if the filename is missing, but the comma has been included, i.e. |ILOAD,. The error "No Filename Supplied" is produced if the filename and preceding comma are omitted.

5.7 | MCRSR

Syntax: |MCRSR,c

Where: c is a numeric command variable between 0 and 1.

1 = Enable 0 = Disable

Errors: |MCRSR – Bad Parameter Count

Function: This command is used to enable or disable the cursor simulation routines within AMX CONTROL.

Cursor simulation is enabled by the use of |MCRSR,1 while |MCRSR,0 will disable cursor simulation. When |MCRSR,1 is issued AMX CONTROL converts the mouse movements into cursor codes, rather than graphics coordinates.

This command is ideal for use with existing software such as Tasword.

The error "Bad Parameter Count" will be produced if a parameter has been omitted.

5.8 | MOUSE

Syntax: |MOUSE,c

Where: c is a numeric command variable between 0 and 1

1 = ENABLE 0 = DISABLE

Errors: |MOUSE - Bad Parameter Count

Function: This command is used to either enable or disable the mouse. It is advised that the user enables the mouse by issuing |MOUSE,1 as one of the first lines of the command.

Example program:

```
10 |DESK
20 |SHOWPOINTER
30 WHILE 1
40 |MOVEPOINTER
50 IF INKEY(77)<>-1 THEN |MOUSE,1:LOCATE 1,1
   :PRINT "MOUSE ENABLED"
60 IF INKEY(76)<>-1 THEN |MOUSE,0:LOCATE 1,1
   :PRINT "MOUSE DISABLED"
70 WEND
```

The above program will enable the mouse when the EXECUTE button is pressed and disable the mouse when the CANCEL button is pressed.

The error "Bad Parameter Count" will be produced if a parameter has been omitted.

5.9 | MOVEPOINTER

Syntax: |MOVEPOINTER

Errors: Unknown Command

Function: This command is used to move the pointer around the screen. The command works by erasing the pointer at the current position, restoring the original contents of the screen under the pointer and finally placing the pointer at the new position.

Example program:

```
10 |DESK
20 |SHOWPOINTER
30 WHILE 1
40 |MOVEPOINTER
50 WEND
```

Unknown Command will be produced if AMX CONTROL has not been previously initialised.

5.10 | POINTER

Syntax: | POINTER,n

Where: n is an icon number between 0 and 63

Errors: | POINTER – Bad Parameter Count
– Unknown Command

Function: When issued with a valid icon number the pointer is immediately changed from the current icon to the new icon. The default value for the pointer is 32, the standard arrow. This function can be used, for instance to change the pointer when entering selected areas.

Example program:

```
10 | DESK
20 | SHOWPOINTER
30 C%=32
40 WHILE C%<64
50 | MOVEPOINTER
60 IF INKEY(77)<>-1 THEN C%=C%+1: | POINTER,C%
70 WEND
80 GOTO 30
```

The above program will change the pointer after every EXECUTE button press.

The error "Bad Parameter Count" will be produced if a parameter has been omitted. Unknown Command will be produced if AMX CONTROL has not been previously initialised.

5.11 | STEP

Syntax: | STEP,sx,sy

Where: sx is the x axis step rate

sy is the y axis step rate

Errors: | STEP – Bad Parameter Count
– Unknown Command

Function: Movement of the mouse creates pulses along the joystick lines. These pulses are scanned and used to increment or decrement several counters in memory. It is the rate of increment or decrement which is set by the values of sx and sy. If for instance sx was set to 3 the counters would be incremented in such a way that the pointer steps 3 pixels at a time in the x axis. The value of sx or sy can be in the range of 0–255. If sx or sy exceeds 255, for example 256 then the value will be taken as 0.

If | MCRSR,1 has been issued, the values of sx and sy will determine the rate at which the cursor codes are generated.

Example program:

```
10 |DESK
20 |SHOWPOINTER
30 DEFINT S
40 SX=0:SY=0
50 WHILE SX<256
60 |MOVEPOINTER
70 IF INKEY(77)<>-1 THEN SX=SY+1:SY=SY+1:
   |STEP,SX,SY
80 WEND
```

This program will increase the step rate by one on every press of the EXECUTE button.

The error "Bad Parameter Count" will be produced if a parameter has been omitted. Unknown Command will be produced if AMX CONTROL has not been previously initialised.

5.12 |SHOWPOINTER

Syntax: |SHOWPOINTER
Errors: Unknown Command

Function: This command is used to show the pointer onto the screen at the current graphic mouse coordinate.

WARNING: PRIOR TO USING A |MOVEPOINTER LOOP, A |SHOWPOINTER COMMAND MUST BE ISSUED. THIS IS TO SET UP THE WORKSPACE FOR THE POINTER. IF IT IS NOT ISSUED PROGRAMS MAY BE CORRUPTED !!!

Example program:

See Section 5.4 – |HIDEPOINTER

5.13 |TCRSR

Syntax: |TCRSR,@tx%,@ty%
Where: tx% is an integer variable name
 ty% is an integer variable name
Errors: Pad Parameter Count
 Unknown Command

Function: When used this command will return the text position of the pointer into the two specified variables. The two variables must as in |GCRSR, be integer variables. However, they may be predefined as integers by using DEFINT. The two variables must be defined to 0 at the start of the program.

Example program:

```
10 MODE 2
20 DEFINT A-Z
30 TX=0:TY=0
40 | SHOWPOINTER
50 WHILE 1
60 | MOVEPOINTER
70 | TCRSR,@TX,@TY
80 LOCATE 1,1:PRINT TX,TY
90 WEND
```

Unknown Command will be produced if AMX CONTROL has not been previously initialised. The error "Bad Parameter Count" will be produced if a parameter has been omitted.

5.14 | WINDOW

Syntax: | WINDOW,sn,lx,by,rx,ty[,@t\$]

Where: sn is the window stream number (standard Amstrad format)

lx is the left x coordinate of the window

by is the bottom y coordinate of the window

rx is the right x coordinate of the window

ty is the top y coordinate of the window

t\$ is a string containing the title of the window (optional)

Errors: | WINDOW – Bad Parameter Count

– Unknown Command

Function: This command is intended for users to create windows, similar to ones used in ICON DESIGNER and AMX ART, within their own Basic programs. The window when drawn onto the screen, has a special border which gives the impression that the window is standing away from the screen. If t\$ has been specified and used within the | WINDOW command, the title is centered on top of the window, and a line drawn under it. This title is separate to the text window and will not be scrolled with the window.

The window is technically the same as standard Amstrad windows and can be manipulated by WINDOW SWAP, PRINT# and CLS#. For example, PRINT#sn,"HELLO" will print "HELLO" in window 1, if created.

NOTE: The order of window parameters is not the same as for Amstrad windows.

Example Program:

```
10 | DESK
20 | WINDOW,1,2,20,10,6
30 T$="WINDOW DEMO"
40 | WINDOW,2,2,5,37,3,@T$
50 | WINDOW,3,15,20,37,6
60 FOR N=1 TO 1000
70 PRINT#1,N
80 PRINT#3,N;
90 NEXT
100 PRINT#2:PRINT#2," WHAT A DEMO !!!"
```

6 ICON DESIGNER

The Icon Designer is a utility program used to design icons for use within your own programs. The designer can be used to design and store upto 320 different icons in memory. However all designed icons will be lost if the AMSTRAD should be powered down, or reset.

What is an icon?

An icon is a 2 character x 2 character pictorial representation of a function. For instance, in order to represent disc filing, a suitable icon may be a disc drive or to represent pages of memory, one would use an icon designed to appear as a page. Therefore, if one wishes to select disc functions, the pointer has to be taken over the disc icon and a button on the mouse pressed.

How to Load Icon Designer

To load Icon Designer simply follow the following steps:

1. Ensure that AMX CONTROL has been installed.
2. Type RUN"ICONDES" and press ENTER.

Upon loading, Icon Designer should present you with the screen as on Figure 9.

The Icon Designer Screen

The Icon Designer screen is split into 8 main sections (see figure 9). The sections are as follows:

Icon Design Area	centre-left of screen
Icon File Area	bottom of screen
Icon Display Area	bottom-right of screen
Scratch Pad Area	centre-right of screen
Edit Icon Number	upper centre of screen
Current Icon Number	lower centre of screen
Message Area	top-right of screen
Function Icons	right of screen

Following you will find each section outlined in full.

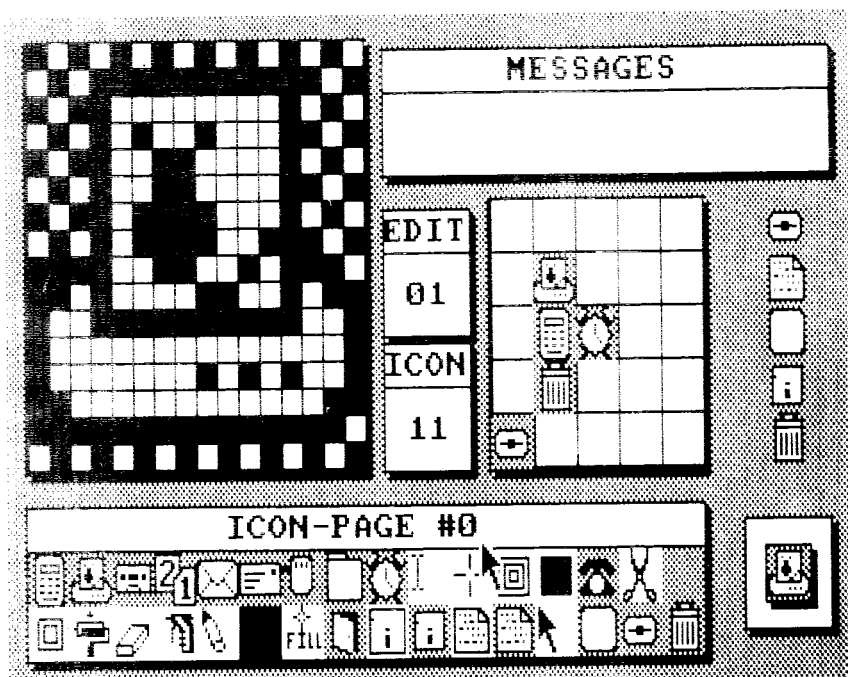


Figure 9 – The Icon Designer Screen

The Icon Design Area

This is the large 16x16 character grid located towards the centre-left of the screen. It is in this area that the icon can be designed, pixel by pixel.

Each character on the grid corresponds to a single pixel in the icon. Each of these grid characters can be toggled between a 'BLACK' and 'WHITE' state by use of the mouse buttons. To set a grid character, and thus a pixel, simply take the pointer over the grid character and press the EXECUTE button. To reverse the state of a grid character to white, position the pointer over the grid character and press CANCEL. Any change you make to the icon design area will be registered in the display area. After design, the icon can be carried off the grid by taking the pointer over the grid and pressing the MOVE button. Upon doing this it will be noticed that the pointer has changed to the designed icon. It may now be carried to one of the drop zones and dropped using the EXECUTE button.

The Icon File Area

This area is designated as one of the drop zones for newly designed icons. In order to save icons that have been designed, they must firstly be saved in this area. This is achieved by carrying the icon from either the design grid or the scratch pad and *dropping* it into one of the predefined and numbered areas. The number of each area within the icon file area is indicated in the 'CURRENT ICON NUMBER' box. The *drop* is achieved by carrying the icon to the area and pressing EXECUTE.

Upon loading an icon file, the icons are displayed in this area. They may then be altered and resaved. To pick up an icon from this area, simply take the pointer over the icon and press MOVE. The current icon pointer is then changed to the selected icon and may then be moved to either the design grid or the scratch pad.

One must take note of the fact that if an edited icon is placed down over an existing icon, that icon is then deleted.

Icon Display Area

When an icon is being edited or created, the result of such edits or creations are displayed in the Icon Display Area. Quite simply this means that if a grid character is set to black, a corresponding pixel on the icon is set within the Icon Display Area.

The Scratch Pad

A temporary storage area in the form of a 5x5 icon grid is provided, this being known as the Scratch Pad. This area is totally independent of all other areas on the screen. Each block within the scratch pad is numbered starting with 'SA' to 'SY'. Basically the area works in much the same way as the icon file area. Icons may be dropped and picked up from this area using the same procedure as the icon file area. For example, a designed icon can be carried to and left on the scratch pad for later use. It can of course also be duplicated onto other areas or pages. Once again, if an edited icon is placed over an existing icon, the old icon is lost.

Edit Icon Number

The purpose of this window is to keep you, the user informed of which icon you are editing. Once an icon is brought over the grid and *dropped* the number of the icon (i.e. the sub-area from which it was brought) is displayed in this window.

Current Icon Number

This window is used to display the number of the icon which is currently under the pointer. This window only comes into operation when the pointer is within the Icon File Area or the Scratch Pad.

Message Area

The Message Area is used when the filing system is selected. This window comes into operation when the 'DRIVE' icon is selected (see below). Upon selection the window is cleared and the message 'FILE PAD' is displayed. On the CPC664 and CPC6128 micros this window is also used to display disk errors.

Function Icons

The Drive Icon: When loading or saving operations are required this is the icon to select. In order to select the icon simply take the pointer over the icon and press EXECUTE.

Once selected, the message window will ask the user to select either FILE or PAD. File is used to save or load the Icon File Area, whereas the Pad is chosen to save or load the Scratch Pad. This is done by taking the pointer over the relevant selection and pressing EXECUTE. This being done, the user is prompted for a LOAD or SAVE operation. Once again, the selection is made by moving the pointer over the relevant choice and pressing the EXECUTE button. After this stage the user is prompted with a filename request. The selected file type is saved with the chosen name and a postfix of '.ICN'.

Once filing system operations are complete the CANCEL button must be pressed.

NOTE: If an error should occur and the program return back to Basic, simply type in 'GOTO 2080' and press ENTER.

The Page Icon: In order to provide the facility to design upto 320 different icons in memory, the page icon has been provided. This keeps 10 pages of 32 icons each in memory. Once selected using the EXECUTE button, the grid area clears and further page icons are displayed in the Icon Design Area. Further selection of one of these additional pages will reveal the contents of that page in the Icon File Area together with the page number. Pages may of course be changed at any time without losing their contents. Icons may be transferred from page to page by using the Scratch Pad as an intermediate area.

Clear Icon: This upon selection will clear the design grid.

Disk Icon: This icon provides additional facilities to the disk user. Upon selection, the grid area is cleared and a further 10 disk icons are displayed. Individual selection of these will provide the following functions:

CATALOGUE DISC	ERASE FILE	RENAME FILE	DISC
TAPE	DISC.IN	TAPE.IN	DISC OUT
TAPE.OUT	EXIT		

The Bin Icon: This icon is used to dispose of any icons you may have picked up. To use the bin, simply carry the icon over the bin and press EXECUTE.

APPENDIX A

Listed below are the entry points and conditions which are relevant to AMX CONTROL.
For optimum performance these should be followed as stated.

ON ENTRY : IX POINTS TO DATA AREA

'A' REGISTER CONTAINS NUMBER OF PARAMETERS

ON EXIT : ALL REGISTERS AND FLAGS CORRUPT

COMMAND	ADDRESS	CONDITIONS
BUTTONS	# 7834	IX+0 = BUTTONS PARAMETER
DESK	# 783A	NO CONDITIONS
GCRSR	# 783D	IX+0 & IX+1 = 16BIT MEMORY ADDRESS FOR YPOS (GRAPHIC) IX+2 & IX+3 = 16BIT MEMORY ADDRESS FOR XPOS (GRAPHIC)
HIDEPOINTER	# 7840	NO CONDITIONS
ICON	# 7843	IX+0 = YPOS IX+1 = XPOS IX+4 = ICON NUMBER
ILOAD	# 7837	IX+0 & IX+1 = MEMORY ADDRESS OF START OF FILENAME
MCRSR	# 7846	IX+0 = 1 TO EMULATE CURSOR KEYS IX+0 = 0 TO END EMULATION
MOUSE	# 7849	IX+0 = 1 TO ENABLE MOUSE IX+0 = 0 TO DISABLE MOUSE
MOVEPOINTER	# 784C	NO CONDITIONS
POINTER	# 784F	IX+0 = POINTER/ICON NUMBER
SHOWPOINTER	# 7852	NO CONDITIONS
STEP	# 7855	IX+0 = Y AXIS STEP RATE IX+2 = X AXIS STEP RATE
TCRSR	# 7858	IX+0 & IX+1 = 16BIT MEMORY ADDRESS FOR RETURN OF YPOS (TEXT) IX+2 & IX+3 = 16BIT MEMORY ADDRESS FOR RETURN OF XPOS (TEXT)
WINDOW	# 785B	IX+0 & IX+1 (OPTIONAL IF A=6) = 16BIT MEMORY ADDRESS OF TITLE STRING IX+2 = TOP Y (TEXT) IX+4 = RIGHT X IX+6 = BOTTOM Y IX+8 = LEFT X IX+10 = STREAM NUMBER

NOTE: If title parameter is omitted then
subtract 2 from position parameter index,
e.g. IX+4 = IX+2.

APPENDIX B

In order that the files contained on the cassette can be transferred to disk, follow the instructions detailed below. The steps are sequentially numbered.

```
1  RESET MACHINE ([ctrl][shift][esc])
2  |TAPE.IN
3  |DISC.OUT
4  LOAD "AMX"
5  SAVE "AMX"
6  MEMORY &5FFF
7  LOAD "DEMLOA.BIN",&6000
8  SAVE "DEMLOA.BIN",B,&6000,&80
9  LOAD "DEMO.RS",&7800
10 SAVE "DEMO.RS",B,&7800,&2000
11 LOAD "VDUTAB.O",&A000
12 SAVE "VDUTAB.O",B,&A000,&1D0
13 LOAD "ROM.ICN",&9800
14 SAVE "ROM.ICN",B,&9800,&400
```

★ ★ ★ AMX CONTROL has now been saved to disk ★ ★ ★

```
1  RESET MACHINE ([ctrl][shift][esc])
2  |TAPE.IN
3  |DISC.OUT
4  MEMORY &3FFF
5  LOAD "ART",&4000
6  SAVE "ART",B,&4000,&700 (decimal)
7  LOAD "RSXB.BIN",&7100
8  SAVE "RSXB",B,&7100,&6FF
9  LOAD "ART.ICN",&9C00
10 SAVE "ART.ICN",B,&9C00,&400
11 LOAD "PAT1.PCN",&A200
12 SAVE "PAT1.PCN",B,&A200,&300
13 LOAD "CHAR.BIN",&5400
14 SAVE "CHAR.BIN",B,&5400,&300
15 LOAD "COLHATS.BIN",&4000
16 SAVE "COLHATS",B,&4000,&512 (decimal)
```

★ ★ ★ AMX ART has now been saved ★ ★ ★

```
1  RESET MACHINE ([ctrl][shift][esc])
2  |TAP. IN
3  |DISC. OUT
4  LOAD "ICONDES"
5  SAVE "ICONDES"
6  MEMORY &70FF
7  LOAD "OCODE", &7100
8  SAVE "OCODE", B, &7100, &120
9  LOAD "PATDES"
10 SAVE "PATDES"
```

★ ★ ★ ICONDES and PATDES have now been saved ★ ★ ★

NOTES

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