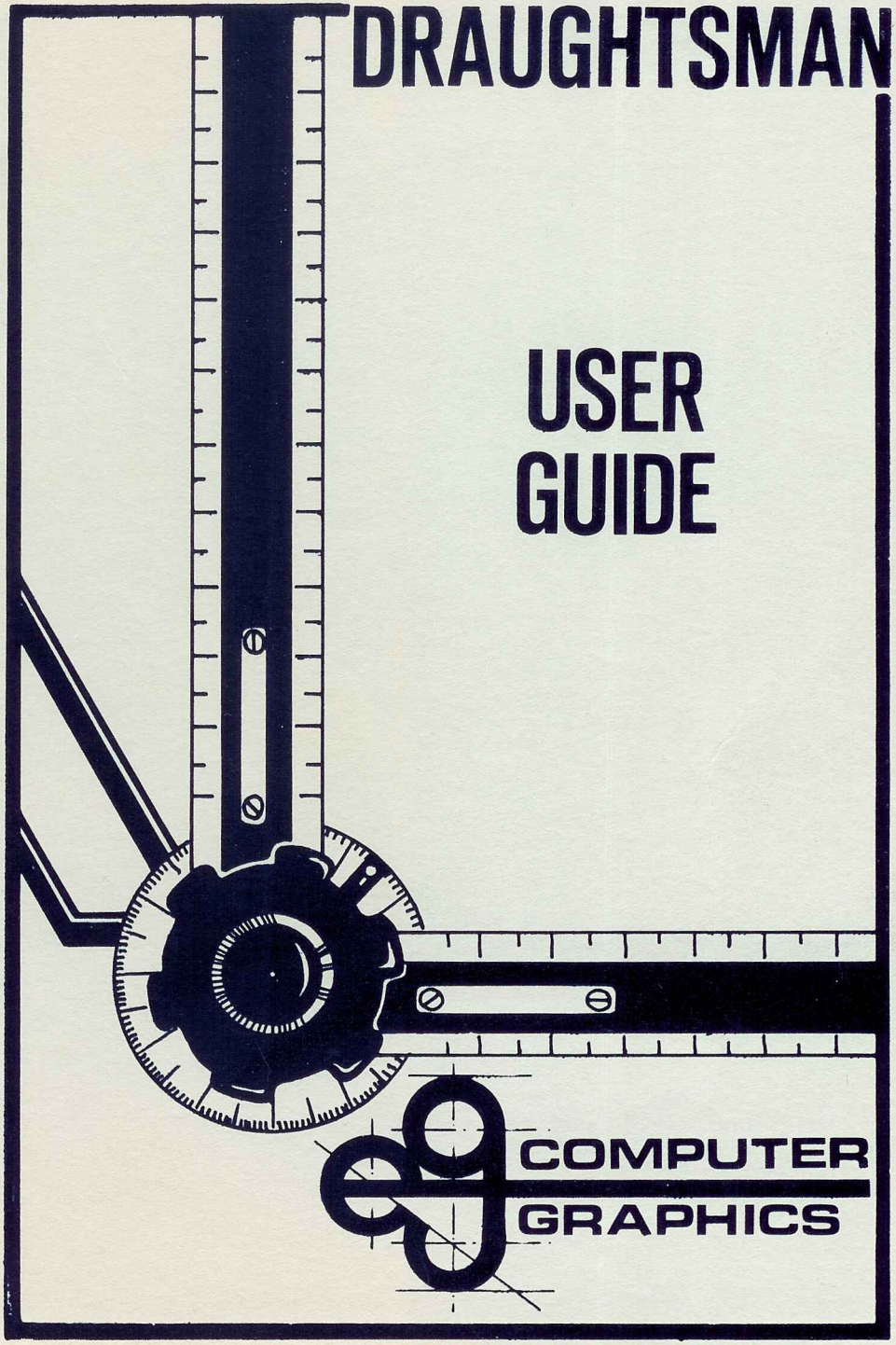
DRAUGHTSMAN

USER GUIDE



COMPUTER GRAPHICS

INTRODUCTION

"Draughtsman" is a very versatile drawing utility enabling the user to treat the screen as if it were a drawing board. Once the mode is set, colours selected and symbols loaded the user is able to call a great variety of routines by pressing one or more of the function keys. These keys are denoted by the function key strip provided which should be placed over the narrow metal strip with the 'AMSTRAD' logo on it.

Learning how to use the programme is best achieved by making a 'user trip'. The user guide therefore takes the form of a journey through the programme. Start by loading Side 'A' of the tape which will load at speed write 1 (2000 Baud) which should be perfectly adequate and cuts down the loading time considerably. If you do have problems with it then try Side 'B' which will load at speed write 0 (1000 Baud). Use CTRL and the small enter key in the usual manner.

Once the programme is running do not remove the tape. A second part will load automatically later. Should you wish to save symbols on tape you may take out and replace it with another but remember to return it before proceeding into the main programme.

GETTING ON THE ROAD

Once running you will be given the choice of selecting the mode. You will see that the programme is self-documenting and so we will not go into an explanation of the differences between the modes in the guide. Please note that it is as well to get into the habit of inputting numerical data by using the separate numeric key pad though the top row of the QWERTY key board can be used. The computer will not respond to any input other than that it is waiting for i.e.Ø, 1 or 2. For the purpose of this trip choose mode 1.

You are now informed of the colours available in that mode If you are not satisfied with them they can be changed by pressing 'Y'. Let us assume you want to make a change, so press 'Y'. The full list of colours available on the AMSTRAD will now appear and you are asked to choose a background colour. Choose black. Now you can enter a drawing colour. Please note that this first colour will be the colour used for the information readout. It is therefore advisable to select a colour that will contrast against the background colour especially if you are using the GT 64 monitor. Choose brilliant white. You can now enter another two colours as mode 1 allows the use of four

colours. You will also appreciate that it is impossible to choose a colour that is the same as the background colour or a colour you have already choosen. Try it and see.

Once the colours have been selected you will be offered the choice of 1) designing a symbol, 2) loading symbols or 3) moving on. Chose option 1. Again the instructions are quite straight forward. Input a width of 3 and a height of 2. A grid will now appear made up of six (3x2) smaller grids (8x8). A flashing cursor can be found in the top left hand corner. This can be moved about the grid using the cursor keys or joystick. Pressing the COPY key will fill a square. Pressing COPY again will empty it. If you are using a joystick fire 1 will have the same effect. Try to design a symbol in the grid. When you have finished press TAB. If you have got volume on you will be able to hear the computer as it scans the grid one character at a time. Each character will be printed in the bottom right hand corner until all the characters have been scanned. The assembled symbol will then be printed, also in the bottom right hand corner. It is worth pointing out at this stage that the shape of the grid will vary depending on the mode previously selected. However, the symbol in the corner of the screen will always be printed in mode 1. You are now invited to store the symbol in memory or alter it.

Let us move on. Press 'S' to store it. You will now be informed of the key to which this symbol has been assigned. In practice you would now make a note of this on the symbol charts at the back of this guide.

Next, after a few seconds, you will be given the opportunity to design another symbol, save the symbols so far designed or move on. If you choose to design another symbol you will be informed of the number of characters left and how many more symbols you can design. If you save the symbols you will be given the usual messages printed when saving a file. Make a note of the tape counter setting so you can find the symbols later. It is advisable to write this in the top right hand corner of the symbol chart.
Press '3' to move on.

The screen will clear and a frame will be drawn. At the top of the screen are two lines of text. This is the information readout box and consists of the following:-

1) A constant up dating of the x-y co-ordinates of the cursor.

2) A constant up dating of the linear distance from the last fix position to the current cursor position.

3) A status report indicating the current drawing colour (the colour of the star) and the function selected.

4) The co-ordinates of the last fix position.

5) The speed of the cursor, 1 being the slowest, 2 medium speed and 3 the fastest.

In the centre of the screen you will find a flashing cross wire cursor. Use the cursor control keys or joystick to move this around. Pressing COPY will change the cursor speed to 3. Pressing COPY again will set it to 1, then 2, and so on. Set the cursor speed to 3. Move the cursor over to the right. You will find that it will go off at the right and re-appear at the bottom. Note also how the readout is constantly changing. Now press '1'. If you have the volume turned up you will hear a bleep. The fix readout will be the same as the x-y readout. The distance readout will be 0. This is because you have called the fix function. The co-ordinates of the current cursor position have been stored and because you have not moved the cursor the distance is zero. Now move the cursor to the right/left. You will see that the distance readout begins to increase and the x-y readout changes also.

However, the fix readout remains constant. Move so that the distance reads about 50, then press '2'. Again you will hear a bleep, but of a different pitch, and a line will be drawn from the fix position to the cursor. This is because you have called the draw function. Incidently, these two functions can also be called with fire 1 and fire 2 on a joystick. Move to somewhere in the centre of the screen and press '3'. You will see that in the top right hand corner of the screen the status report indicates that the circle function is opperative. Beneath this you will see the prompt, 'RADIUS'. The computer is waiting for an input. Type in 100 using the numeric key pad and then press the enter key. The next prompt will be,'DASH/LINE' pressing 'D' will draw a circle in a dashed line. Press 'L'. The circle will be drawn. Now, without moving the cursor press '3' whilst holding down SHIFT. The circle will be erased. Now move the cursor a little and press '3' again. The prompt for radius will appear again. Just press the enter key. You will see that the computer has remembered the circle. You can repeat this as many times as you like, but as soon as you define another circle the previous one will be erased from memory.

Now press TAB whilst holding down CTRL. The screen will clear. Move the cursor back into the centre of the screen and press '4'. The status report will indicate that the ellipse function is now operative, and the prompt is for the x-axis. Type in 200. Next the y- axis. Type in 100.

Next the start position. Zero degrees is at the twelve o'clock position so type in '0'. Now the end position. A full ellipse will end at 360° so type this in. Dash or line is next. Type 'L'. The ellipse will now be drawn. As before SHIFTED '4' will erase, and pressing the enter key directly after selecting the ellipse function will repeat the ellipse. Try the function again choosing different start and finish positions, e.g. 75 & 270 or 300 & 180.

Tidy the screen up with CTRL TAB as before and press '5'. This selects the polygon function. Enter radius 100. Number of sides 6 (a hexagon). Start position 0 and choose, if you like, to draw this in'dashed line'. Erase and repeat operate as before. The start position refers to the angle at which the first point is plotted For example, enter radius 100, number of sides 4, start position 0, solid line. Now compare this with the shape you get when you enter the same as before but the start position at 45.

Clear the screen again and move to the centre and press '6'. This calls the arc function. You are asked to fix the first point. This is achived by pressing '1'. Now move the cursor over to the right, say 50, and up about 30. Press '1' again. This will fix the second point. Now move the cursor over perhaps another 50 to the right and down about 70. Press '1' again to fix the third point. Press 'L' for

a solid line. An arc will be plotted through the three fixed points. Erase and repeat operate as before.

Let us now take a look at the other types of lines available. Clear the screen and move to the centre. Press '1' to fix, then move 200 to the right. Now press '1' whilst holding down SHIFT. Instead of a solid line you will get a dot-dash line as used in engineering drawings to indicate centres. Fix at your present position and move down about 100. Now press '2' whilst holding down SHIFT. A dashed line will be drawn as used in engineering drawings to indicate hidden detail. Without moving the cursor press SHIFTED '1' and you will find that you now have a broad dashed line.

Now press SHIFTED '7' to obtain the rubber. A flashing 'X' will appear, the centre of which will rub out one pixel at a time. Try rubbing out the dashed line. It is rather slow but useful for rubbing out very small areas. Press the space bar. The 'X' will now turn into a square occupying one character space. This will erase areas much more rapidly. Rub out the centre line with it. Press the space bar again. The square will now expand to a larger square occupying four character spaces. This will allow you to erase large areas very quickly. Press the space bar again and you will return to the fine eraser. To escape from the rubber function press SHIFTED '7' again.

To change drawing colours press '↑'. You will notice that the star next to the word, "STATUS" will now be a different colour, or different shade of green on the GT 64 monitor. Pressing '↑' again will change the drawing colour again. In fact you can spin through the available palate of colours by holding this key down. This can best be seen in mode Ø when sixteen colours are available. Selecting the drawing colour as background colour can be useful in erasing lines quickly or 'unfilling' shapes. (see FILL). Set the drawing colour back to the most contrasting one and draw a vertical line from top to bottom of the screen to the right of centre. The cursor wrap round is useful here. Now move the cursor to the left of the line and roughly in the centre of the screen. Now press SHIFTED '9'. This is the hatching function. You will now be given the choice of several different lines, namely 45° and 60° hatching sloping up or down. Horizontal and vertical hatching are also available. Note that all hatching moves from left to right except vertical wich moves from the bottom upwards. To select 45° hatching sloping up type '4/' then press enter. To select 60° sloping downwards type '6 ' then enter. Horizontal hatching is '-', enter. Vertical hatching is '↑', enter. The flash rate of the cursor will change. The COPY key will still alter the cursor speed. Select horizontal hatch, then press the space bar. A horizontal line will be drawn to the vertical boundry. Try moving the cursor down and <u>then</u> holding down the space bar at the

same time. You will now get a series of evenly spaced horizontal lines. The spacing can be altered by changing the cursor speed. Press SHIFTED '9' to escape from the function. Try it again now but this time type in '4/'.

When you have finished press SHIFTED '9' again and clear the screen.

Move to the centre of the screen and draw a circle with a radius of 30 in solid line. Without moving the cursor draw another circle radius 20 in solid line. Now move the cursor into a position between the two circumfrences. Press SHIFTED 'Ø'. This area will now fill with the current drawing colour. Once filled, the cursor will re-appear and drawing can continue. Beware! If there is a break in the boundry line the filling colour will leak out and eventually fill the screen. It is therefore advisable to be prepared to press the ESCAPE key which will abandon the filling process and return you to the normal drawing mode. If you are dissatisfied with the colour you have used then it can be erased by selecting the background colour and filling with this.

Now press SHIFTED '-'. You can now enter text. The normal editing function will operate as usual. When you have entered the text press the enter key. The text will be printed at the cursor position and can be moved around using the cursor control keys. COPY still operates.

Once positioned the text can be fixed by pressing SHIFTED '-' again. Erasing text can be achieved by using the rubber or entering the text again and printing it over the previous text.

Now press '-'. This calls the symbol function, so that if you now press the key assigned to a particular symbol it will be printed at the cursor position. Earlier, you should have designed a symbol which was assigned to the 'Ø' key. Press 'Ø' then, and your symbol will appear. As with the text function the symbol can be moved around the screen, fixed by pressing '-' again and erased if so desired.

We will now move on to the perspective drawing facilities within the programme. It is possible to draw in either one or two point perspective. Let us first consider two points. Press '8'. This calls the horizon to the screen which can be moved up or down using the cursor control keys and COPY to fix it in position. Next you are asked to set the X co-ordinate of the left hand vanishing point. If you simply press enter it will be fixed at its default setting at the edge of the screen. i.e. Ø. Type in -300 and enter. Now you are asked for the X co-ordinate of the right hand vanishing point. Similarly, pressing enter will fix it at its default setting at the edge of the screen i.e. 640. Type in 940 and enter it. The horizon will disappear.

Now press '7'. A 'rubber band' will be drawn from the left hand vanishing point to a new cursor, and then to the right hand vanishing point. This new cursor can be moved around using the cursor control keys whilst SHIFT is held down. The normal cursor is still active. By positioning the normal cursor on one of the vanishing point lines, fixing a point as usual, then re-positioning it further along the line and pressing '2' to draw a solid line,objects can be drawn in perspective. Apart from FIX and DRAW other functions are not available until you escape from the BAND function by pressing '7' again.

Single point perspective operates in a similar fashion. Press '9' and use the cursor control keys to position the vanishing point. Pressing '9' again will fix it. Now press 'Ø'. A vanishing point line will be drawn from the edge of the screen to the vanishing point. This can be moved clockwise by pressing the right cursor control key whilst SHIFT is down. Or anti-clockwise with the left cursor control key and SHIFT down. Pressing 'Ø' again will return you to the normal drawing mode.

One other function related to perspective drawing is the DEPTH function. Pressing SHIFTED '8' will result in a set of lines being drawn which indicate equal distances receding towards the horizon. These can be used to assist the user in judging the amount of foreshortening that occurs as objects become more distant. Pressing SHIFTED '8' again will remove them.

Saving screens is achieved by pressing CTRL Ø. The information readout box will clear and ask for a name by which the screen can be recognized. Type in "TEST' and press enter. The box will clear again enabling you to type in anything you like.Title, dimensions, date etc., When you have done this press enter. The screen will begin to be saved immediately so make sure you have a tape in position and REC and PLAY pressed down. You will not recieve the usual messages as this would corrupt the screen image. The screen is saved in eight blocks and once completed the title box will clear and return you to the normal drawing mode.

The CAT function will catalogue a tape in the usual manner. Please note, however, that doing so will erase the current screen. You will be warned of this on screen. Press SHIFTED '↑' to try it out. If you have a screen saved, try to find it using this function. Pressing the ESCAPE key twice will return you to the normal drawing mode.

Having found a screen press CTRL '↑'. This is the load function and once again you are warned that this will erase the current screen. If you proceed with this function the screen will clear. Again, no messages will appear. Press PLAY and wait. You will see, once the first block is loaded, part of the screen suddenly appears. Thereafter it is fascinating to watch your creation painted in, a line at a time. Once completely loaded the computor will 'freeze' until you press the space bar. Then the title box will be replaced by the information readout and the normal drawing mode will be resumed.

The DELETE key turns off the information readout display which speeds up the cursor movement considerably COPY is still active. Pressing DELETE again turns it on again, updating the information.

The CLR key will restart the programme right from the beginning though you cannot now use the symbol design feature. Also any stored symbols will be lost and you will need to rewind the tape to the start of the second part of the programme.

Finally, the DUMP function. 'DRAUGHTSMAN' works in conjunction with 'TASCOPY' by 'TASMAN SOFTWARE'. Their address is SPRINGFIELD HOUSE,
HYDE TERRACE,
LEEDS, LS2 9LN.

To configure 'TASCOPY' it is important that you first enter the command SYMBOL AFTER 256 immediately after you have reset the computer (SHIFT, CTRL, ESC). Now follow the rest of the 'TASCOPY' instructions as normal and save the configured programme.

To use this programme in the future you must first enter, SYMBOL AFTER 256 then load the configured 'TASCOPY', then run 'DRAUGHTSMAN'. Whenever CTRL 2 is pressed (once in the main programme) the current screen will be dumped to the printer.

SYMBOL CHART:

A		K		U	
B		L		V	
C		M		W	
D		N		X	
E		O		Y	
F		P		Z	
G		Q		@	
H		R		[	
I		S		]	
J		T		/	

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C		M		W	
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E		O		Y	
F		P		Z	
G		Q		@	
H		R		[	
I		S		]	
J		T		/	

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E		O		Y	
F		P		Z	
G		Q		@	
H		R		[	
I		S		]	
J		T		/	

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E		O		Y	
F		P		Z	
G		Q		@	
H		R		[	
I		S		]	
J		T		/	

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B		L		V	
C		M		W	
D		N		X	
E		O		Y	
F		P		Z	
G		Q		@	
H		R		[	
I		S		]	
J		T		/	

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A		K		U	
B		L		V	
C		M		W	
D		N		X	
E		O		Y	
F		P		Z	
G		Q		@	
H		R		[	
I		S		]	
J		T		/	

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A		K		U	
B		L		V	
C		M		W	
D		N		X	
E		O		Y	
F		P		Z	
G		Q		@	
H		R		[	
I		S		]	
J		T		/	

SYMBOL CHART:

A		K		U	
B		L		V	
C		M		W	
D		N		X	
E		O		Y	
F		P		Z	
G		Q		@	
H		R		[	
I		S		]	
J		T		/	