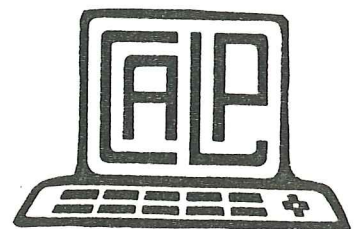


grafix



Original program written by : Shane Blackburn

Modified and further developed : John Davey

Supervisor : Michael Gray

Manual written by : John Davey
Lala Frazer

grafix

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Completed during a two year pilot programme

SPONSORED BY

The Salvation Army (Otago) Employment Programmes
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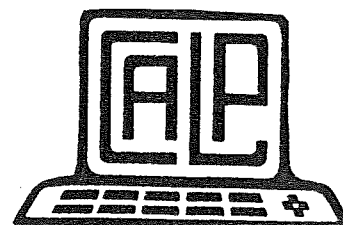
GRAFIX

(C) C.A.L.P. DUNEDIN 1986

C o m p u t e r
A s s i s t e d
L e a r n i n g
P r o g r a m m e

90 Crawford Street
P.O. Box 272
DUNEDIN

Phone (024) 775.932



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AIMS

1. To simplify the drawing of computer pictures or graphics
 - by allowing the artist to see instantly the effects of their drawing commands and the subsequent alterations.
 - by not needing prior programming knowledge
 - by offering commands in everyday terms or images so that they are easily accessible.
2. To allow the transfer of pictures drawn with Grafix to other programs.
3. To enable the building up of a library of pictures and diagrams.

ACTIVITIES INVOLVED

The artist draws a picture by giving the computer a series of commands which operate various drawing techniques. These commands are controlled by specific keys or can be chosen from a picture panel. The picture itself is seen on the screen and any additions or alterations are seen immediately.

Pictures once drawn can be changed to other positions on the screen or can be saved and stored in the "library". From the library they can be transferred into other programs, or into other Grafix pictures.

REQUIREMENTS

3.1 Preparation / Follow up

We recommend:

1. See a demonstration of Grafix (if possible)>
2. A fast read through the manual*.
3. Work through stages 1 - 4 in " Teach Yourself GRAFIX ".
4. Use GRAFIX and refer to the MANUAL for assistance.

3.2 Supervision

Necessary in initial learning stages.

3.3 Equipment

No extra equipment apart from disk drive, computer and manual. Command card (from the manual) helpful in the early stages.

3.4 Time

Not applicable.

*Fast read pages 6 -10,15,33

3.4 Technical Requirements:

Core name "GRAF" and ".GX"

COPY GRAF and COPY .GX will copy all files for this program.

Disk Menu should CHAIN "GRAFIX1.BAC"

The main program is GRAFIX.BAC

Files on disk are:

GRAFIX1.BAC	
GRAFIX .BAC	plus numerous pictures stored
GRAFLIB.LIB	with extensions
GRAFCOMP.GX1	.GX1
.GX2	.GX2
GRAFXMEN.GX1	
.GX2	
GRAFXFIL.GX1	
.GX2	
GRAFXSHA.GX1	
.GX2	
GRAFXHEL.DAT	

.....

To create a NEW GRAFIX disk with no pictures in the library:
start with a disk and operating system.

COPY GRAF

KILL GRAFLIB.LIB

(DO NOT COPY .GX)

Now the program will run and it will create a new library catalogue when you store your first picture!

INTRODUCTION

When we draw a picture on paper our brain gives the command for different operations or drawing techniques direct to our fingers. When drawing a computer picture those commands need to be given to the computer.

4.1

The program offers a number of commands which allow the user to carry out different drawing techniques in order to draw a picture.

These commands are selected either by

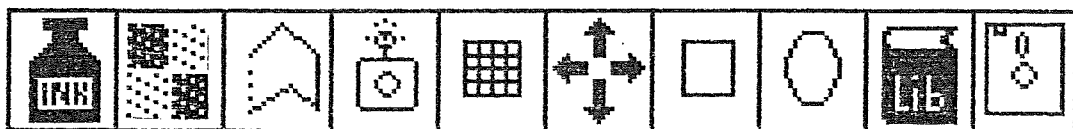
1. KEYS on the keyboard. Specific keys e.g (@, PAUSE) are used to directly select such things as colour, which cursor is to be activated, the HELP page and the picture panel. (Section 6)

∅	*	=	pause
O	P	II	EXP ENTER
L	†	£	@
<	'	?	SHIFT
,	.	/	


line INS char	line DEL char	calc help
7	8	9
4	5	6
1	2	3
∅	.	

exit back	repeat next
↑	
←	→
↓	
ENTER	

- OR 2. PICTURES. These pictures are displayed in a panel. Each picture represents graphically the command or set of commands it controls. The desired command is selected by moving a marker along the panel to the picture which pictorially represents that command. The ten sets of commands controlled by the pictures include the selection of colour shades and filling descriptions; drawing squares, circles etc; reproducing a picture elsewhere on the screen; saving and retrieving the pictures by transferring them to or from the disc.(section 7)



- 4.2 Along the bottom of the screen is a line of information about some of the conditions currently operating, e.g. cursor position, active screen and colour. (Section 5)

Cursor 1	= 100 down	10 across
FILL ON	RED	 2

- 4.3 Some problems may be encountered when colours meet because of the inbuilt specifications of the Poly computer. Steps have been taken in the program to minimise these. In order to understand these and overcome any difficulties that may arise, a separate section on the use of colour has been included. (section 8)

- 4.4 This is really a simple program to use, with most of the instructions occurring on the screen. They sound far more complex when put into words! For this reason the manual gives "General Instructions" after which you may like to try using the program, only referring to the 'Detailed Instructions' if you are uncertain about a specific command.

INSTRUCTIONS

5. INFORMATION LINE.

When you run the program you will be presented with a blank screen with a red cursor about the middle.


Along the bottom of the screen is a highlighted double line which gives you information about some of the conditions currently operating. This information line indicates:

- 5.1 1. Which of the two cursors is currently active. This will read Cursor 1 at the beginning of the program. The second cursor is needed when two points have to be fixed e.g. drawing squares, circles or when transferring pictures from one part of the screen to another.

Pressing <.> on the numeric keypad will activate the alternate cursor.

The cursors are moved using the arrow keys.
- 5.2 2. The position of the active cursor on the screen e.g. Cursor is 100 down and 100 across.
(Rows down = 0 to 203;
Columns across = 0 to 239.)
- 5.3 3. Whether the shape being drawn is to be filled. E.g FILL ON
This will be off at the beginning of the program. See section 7.1 or 7.2 , under PICTURE PANEL for its operation.
- 5.4 4. Whether a trail is to be left when the cursor is moved e.g. TRAIL ON.
This will be off at the beginning of the program. It is turned on and off by the PAUSE KEY.
See section 6.4 under KEY COMMANDS.
- 5.5 5. The colour currently in use.
At the beginning this is RED. It is changed by pressing the numbers 1 - 7 on the numeric key pad. See section 6.6 for numbers associated with different colours.

- 5.6 6. Which screen is currently in use.
This can be either 2 or 4. If the colour
in use requires both screens, no number
appears. The screen can be changed when
using blue or white if you are having
problems with adjoining colours. See section
8

Cursor 1 is 50 down		150 across	
FILL ON	TRAIL ON	RED 	2

SELECTION OF COMMANDS

This can be done either by KEYS or from the PICTURE PANEL.

KEYS

Certain keys on the keyboard are used to activate some of the commands.

(See over)

These keys, the way they operate, and the effect they have, is outlined in more detail in the following sections 6.1 - 6.13. You may prefer to skip these detailed instructions until you have tried the program.

If so go directly to Section 7.

SELECTION OF COMMANDS

LINE INS

PAUSE
turn trail on
and off

change step
size between
cursor
movements

1	2	3	4	5	6	7	8	9	0	*	:	=	pause
Q	W	E	R	T	Y	U	I	O	P	EX	P	ENTER	
CAPS LOCK	A	S	D	F	G	H	J	K	L	+	=	ENTER	
SHIFT	Z	X	C	V	B	N	M	<	,	>	.	?	SHIFT

LINE DEL
to turn
FILL OFF

line INS char	line DEL char	calc help
7	8	9
4	5	6
1	2	3
	0	.

EXIT
from program

HELP
shows instructions

exit	repeat
back	next

REPEAT
photo at
cursor
position

←	→
↑	↓

ENTER
Display picture
panel.
Enter selection

ENTER

COLOURS

0 - 7
0 = black
1 = red
2 = green
3 = yellow
4 = blue
5 = magenta
6 = cyan
7 = white

@ BACKGROUND COLOUR

Select colour
number first
Press @


8 = change the
flashing cursor
size

f Clear screen

CURSOR

Activate
cursor 1 or
cursor 2
alternately

KEY COMMANDS (DETAILED INSTRUCTIONS)

<u>KEY</u>	<u>OPERATION</u>	<u>FUNCTIONS CONTROLLED</u>	<u>EFFECTS ON SCREEN</u>	<u>HOW INDICATED</u>
6.1	HELP	Press <HELP>	Displays HELP pages which show these key commands.	Replaces current working with HELP screen but working screen is retained in memory.
6.2		1. Press arrow key to move cursor in that direction. 2. Press <←> or <→> arrow key to move selection marker on picture panels.	1. Moves drawing cursor. 2. Moves selection marker along picture panel.	Movement of 1. cursor 2. selection marker when picture panels are displayed.
6.3	ENTER	Press <ENTER>	1. Displays picture panel 2. Enters picture panel selection marker position.	1. Row of pictures illustrating commands 2. Command is carried out, or sub-menus are displayed.
6.4	PAUSE	Press for TRAIL ON, press again for TRAIL OFF.	Turns TRAIL on or off.(N.B. If TRAIL is on, but colour isn't BLACK, it will erase.)	Picture panel (Section 7 for details) Indicates the movement of the cursor by leaving the trail. Appears as a broken or unbroken line depending on STEP size.

<u>KEY</u>	<u>OPERATION</u>	<u>FUNCTION CONTROLLED</u>	<u>EFFECTS ON SCREEN</u>	<u>HOW INDICATED</u>
6.5	LINE INS Press <SHIFT/LINE INS> User then asked for STEP SIZE? (To be given in pixels)	Allows choice of distance between consecutive cursor movements	E.g. If STEP SIZE 3 has been chosen, the cursor moves 3 pixels at a time.	
6.6	0 - 7 (Numeric keypad) 0 = black(or erase) 1 = red 2 = green 3 = yellow 4 = blue 5 = magenta 6 = cyan 7 = white	On numeric keypad Selects cursor colour.	Cursor becomes that colour. When TRAIL or FILL is on, it will trail or fill in that colour.	Colour indicated in Information Line by name and block of colour.
6.7	<.> (numeric keypad) Press <.> to activate first cursor, press <.> to activate second cursor.	Activates one of 2 cursors. Cursor 2 is used when drawing circles, rectangles etc, or making copies when more than one point needs to be fixed.	Only the cursor activated moves	Cursor 1, Cursor 2 at at the beginning of the Information Line

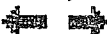
<u>KEY</u>	<u>OPERATION</u>	<u>FUNCTION CONTROLLED</u>	<u>EFFECTS ON SCREEN</u>	<u>HOW INDICATED</u>
6.8	Press <SHIFT/ >	Clears screens.	Clears screens	Blank drawing screen
6.9	@ Select background colour on numeric keyboard. Press colour code. (0 = black 1 = red 2 = green 3 = yellow 4 = blue 5 = magenta 6 = cyan 7 = white) Then press <@>	Turns on background screen in currently selected colour	Changes background to currently selected colour.	Change of background colour.

<u>KEY</u>	<u>OPERATION</u>	<u>FUNCTION CONTROLLED</u>	<u>EFFECTS ON SCREEN</u>	<u>HOW INDICATED</u>
6.10	REPEAT After taking a 'photo' (see section 7.3) Move the cursor to the top left corner where the 'photo' is to be repeated. Press <SHIFT/REPEAT>	Shortcut for redrawing somewhere else on the screen.	Repeats part of the drawing elsewhere on the screen.	
6.11	EXIT Press <SHIFT/EXIT>	Exit from the program.	Asks are you sure? (Y/N) before exiting N.B. Screens are not cleared so that you can do a printout if required.	
6.12	8 (numeric keypad) Press <8> to change cursor	Allows a choice of 3 cursor sizes.	The flashing cursor will change size each time you press the 8 on the numeric keypad	
6.13	LINE DEL Press <SHIFT/LINE DEL> to turn fill off	Turns FILL OFF	Closed objects will have an outline only. They will not be filled with colour.	"FILL ON" is removed from the Information Line.

PICTURE PANEL (7)

As well as the set of keys controlling specific commands or functions, there is a panel of 10 pictures or diagrams, each of which illustrates a specific function. These control different drawing techniques and operations, such as saving and retrieving pictures.

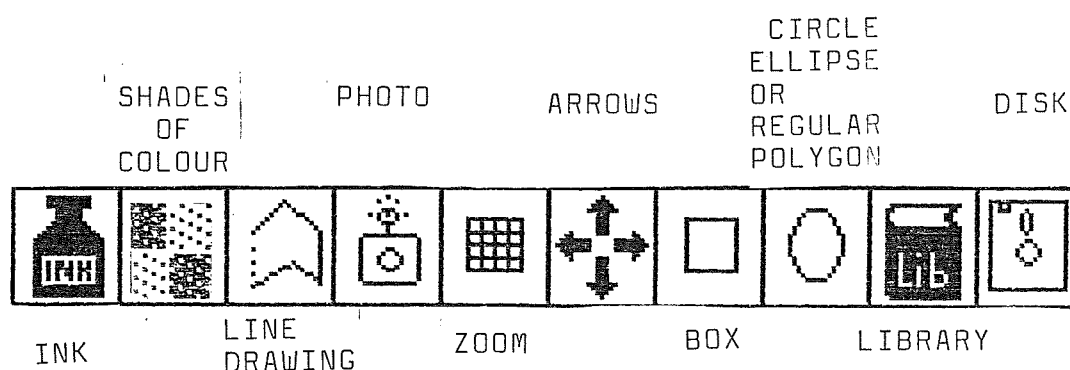
To see the picture panel, press <ENTER>

Select one of the options by moving the marker with the left and right arrow keys  until it appears above and below the diagram which controls the commands wanted. Then press <ENTER>

The picture panel will then disappear, leaving the drawing space clear. In some cases there is a sub-menu, in the form of another panel or word choices.

The picture panel can be displayed again at any time, by pressing <ENTER>

The commands controlled by the picture on the panel are given below.



INK: To fill or shade closed shapes as soon as they are drawn, with a single colour pattern.

SHADES: To fill closed shapes as soon as they are drawn, with 1 of 60 shades of colour.

LINE DRAWING: To draw lines, and by closing the shape, irregular polygons.

PHOTO: To take a photo of a small section of the screen and copy it elsewhere on the screen.

ZOOM: To magnify a small area of the screen in order to alter the fine detail of the drawing.

ARROWS: To return to the drawing screen.

BOX: To draw a rectangle.

CIRCLES, To draw circles, ellipses and regular
ELLIPSES & polygons.(Up to twelve sides)
REGULAR POLYGONS:

LIBRARY: To access the picture library and
its catalogue..

DISK: To store and retrieve the complete screen
drawing or part of it. (photo)

Skip the next pages containing 7:1 - 7.10 until you have
tried the program. Go straight to section 8.

7.1

INK




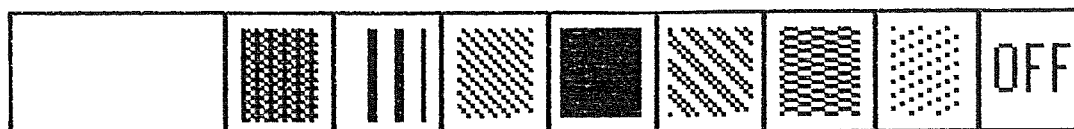
FILLING with patterns of ONE COLOUR.

FUNCTION:

To fill or shade closed polygons, circles, ellipses as soon as they are drawn, with a single colour pattern.

OPERATION:

1. Press <ENTER> to display picture panel.
2. Mark  (as above) and press <ENTER>
3. A further panel will appear



4. Select a fill pattern.

Using the arrow keys, mark and <ENTER>

1. The blank rectangle if you wish to DESIGN your own pattern or
2. One of the seven predefined fill patterns.

7.1.1

DESIGNING A FILL PATTERN

You will be asked "Which pattern ? (0 -63)"
The number chosen is translated into a binary code, and this is interpreted in turn as on/off signals for each group of 6 pixels.

E.G. choose 42

This translates as :

Place value	32	16	8	4	2	1
Binary number	1	0	1	0	1	0
On or off pixel	on	off	on	off	on	off

Pattern (over 6 pixels)

Next you are asked which shift? (0-6)
This defines the number of pixels the pattern is shifted along the next line.

E.g. for the example given above, if you choose a shift of 1, the two rows will look like this:

	1		1		1
1		1		1	

The full pattern is displayed in the blank rectangle and you are asked, "Is this okay? (Y/N)

7.1.2.

Having selected your fill pattern, the program returns to you to the main drawing screen.

When you complete drawing a closed polygon or circle or ellipse, it will automatically fill the pattern chosen.

To stop FILLING

(a) Press <LINE DEL> or

(b) Press <ENTER> to display Picture Panel

mark

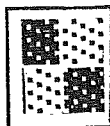


ink and press <ENTER>

Mark ☐ OFF on the filling panel, press <ENTER>

7.2

SHADES




FILLING with shades of colour.

FUNCTION:

To allow the use of 60 colour patterns when filling closed polygons, circles or other figures.

OPERATION:

1. Press <ENTER> to display the Picture Panel
2. Mark SHADES  (see above) and press <ENTER>
3. Mark the shade of colour you want and press <ENTER>

7.2.1

Having selected the colour shade, the program returns you to the main drawing screen. When you complete drawing a closed polygon, circle or ellipse, it will automatically fill with the coloured pattern chosen.

To stop FILLING, either

- a) press <LINE DELETE> or
- b) press <ENTER> to display Picture Panel

mark (ink) and press <ENTER>

mark OFF on the filling panel, press <ENTER>

7.3

LINE DRAWING




Function:

To draw lines, and by closing the shape, irregular polygons.

OPERATION

1. Press <ENTER> to display the picture panel.

2. Mark LINE DRAWING  (see above) and press <ENTER>

3. The following sub-menu appears:

S)elect F)inish C)lose E)rase

and remains on the screen while you draw.

4. Move the cursor to where you want to start drawing, and press (S)

Repeat, moving the cursor and pressing (S) to make the required shape. Each time (S) is pressed a line is drawn connecting it to the previous point.

5. To erase a line press <E>. The last line drawn is erased.

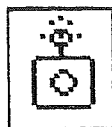
6. To draw a line between the last point selected and the first, press <C>

N.B. At this stage, the shape will be filled if the FILLING command (section 7.1 or 7.2) is active.

7. Press <F> to finish. The sub-menu will disappear.

7.4

PHOTO



FUNCTIONS:

To take a small section of the screen, and copy it elsewhere on the screen.

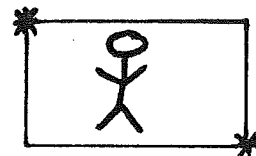
N.B. The "photo" may also be stored on disk. (See (DISK) 7.10.3) and used in another picture.

OPERATION:

To take a photo

7.4.1


1. Define the area of screen you wish to photograph, by positioning the cursors at the top left and bottom right corners of the rectangle.



Press <.> to activate cursor 1. Position it with arrow keys. Press <.> again to activate cursor 2 and position it with arrow keys.

2. Press <ENTER> to display the picture panel.



Mark the  using the arrow keys, and press <ENTER>


3. This sub-menu appears:

T)ake photo D)evelop photo Q)uit

4. Press <T> and the area within the dotted box in our example above is stored in the computer's memory.

7.4.2

To copy the photo elsewhere on the screen.

1. Decide where on the screen you want the copy. Move the cursor to the top left corner of the new position.
2. Press <ENTER> to display picture panel. Mark  and press <ENTER>
3. Press <D>

N.B. This can also be done more quickly by positioning the cursor and pressing the REPEAT key.

WARNING: The photo when "developed" or copied onto the screen will wipe out anything presently drawn on that section of the screen.

4. To leave the PHOTO function without carrying out an operation, press (Q) to quit.





7.4.3

To save the photo for use at a later date follow the procedure given in 7.10.3

7.4.4

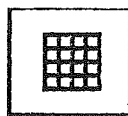
To erase a photo which you do not want at that position on the screen.

There are two ways of doing this.

- 1)
 - i) Place your cursors 1 and 2 on a portion of blank screen marking the top left and bottom right corner of a rectangle the same size as the photo you wish to erase.
 - ii) Take a photo (7.4.1 above)
 - iii) Position the cursor at top left corner of the photo you wish to erase.
 - iv) Press <SHIFT/REPEAT>
- 2) If there is no suitable blank area on your screen
 - i) Press <ENTER> to display the picture panel 
 - ii) Mark  on the panel. Press <ENTER>
 - iii) When sub-menu panel appears mark the solid fill description and press <ENTER>
 - iv) Press 0 to change the colour to black.
 - v) Position cursors 1 & 2 at top left and bottom right section of the section you wish to erase.
 - vi) Press <ENTER> to display Picture panel 
 - vii) Mark  and press <ENTER>
The section on the screen marked by the cursors will disappear.

7.5

ZOOM



FUNCTION:

To magnify a small area of the screen in order to alter the fine detail of a drawing pixel by pixel.

OPERATION:

1. Position cursors to define working area.

Press <.) and position cursor at the top left of the area you want.

Press <.> and position the cursor at the bottom right of the area you want.

N.B. The area to be magnified must be greater than 8 X 8 and smaller than 32 X 32 pixels square.

2. Press <ENTER> to display the picture panel.

Mark



and press <ENTER>

The selection area will be drawn enlarged on the left hand side of the screen, within a grid.
Each square in the grid is equivalent to 1 pixel.

3. Move the flashing cursor within the enlarged area using the arrow keys. Use the <INS> (insert) and (delete) keys to draw pixel by pixel.

N.B. The actual size drawing will also be changing as you change the drawing within the grid.

4. Selecting colours can be done as usual by pressing 1-7.
5. To exit from ZOOM, press <BACK>

7.6

ARROWS



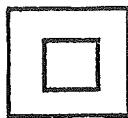
FUNCTION:

To return the user to the main drawing screen.

(It is particularly useful if you accidentally press <ENTER> and get the "picture panel...just select the ARROWS to return to your drawing.

7.7

BOX




FUNCTION:

To draw a rectangle shape

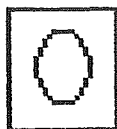
OPERATION:

1. Define the position and size of the rectangle or box by positioning the cursors in diagonally opposite corners. Press <.> to activate the first and then the second cursor.
2. Press <ENTER> to display Picture panel.
3. If the area is to be filled, mark either INK or SHADES and select your pattern.

N.B. If FILLING is not activated only the outline will appear.

4. Mark  diagram (see above) on the PICTURE PANEL and press <ENTER>


The rectangle as previously defined will appear on the screen.



7.8

CIRCLES, ELLIPSES AND REGULAR POLYGONS

FUNCTION: To draw circles, ellipses and regular polygons.

- OPERATION:
1. Define the position and size of the shape.
Press <.> and position cursor 1 at the centre of the shape you wish to draw.
Press <.> and position cursor 2 as the radius length.
 2. Press <ENTER> to display Picture Panel.
 3. If the figure is to be filled, mark either INK or SHADES and select your pattern.
 4. Mark CIRCLES, ELLIPSES and REGULAR POLYGON  (as above) diagram and press <ENTER>.
 5. A sub-menu will appear
D)raw circles P)olygon
E)llipse Q)uit
- 7:8:1 6. To draw a circle press <D>
- 7:8:2 7. To draw an ellipse, press <E>
- You will be asked : "Squashedness? 1-50 (Circle 14)"
Enter a number between 1 and 50
(N.B.A circle is 14. Below 14 it will become shorter and fatter; above 14 taller and thinner.)
8. To draw polygons press <P>
You will be asked the "number of sides?" (3 - 12). Enter the number of sides appropriate to the polygon you wish
e.g. 3 = triangle, 4 = square.
9. To quit without drawing a shape press <Q>

7:9

LIBRARY



FUNCTION:


To use the Library catalogue of pages and photos.

Note: Each catalogue has

- a) the Filename given the page or photo
- b) a description of it,
- c) the actual picture.

The library is purely a reference catalogue, allowing you to view the pictures already stored. It can be used to jog memory of a name given to a previous picture. It also allows you to hunt for pictures you remember drawing a while back.

OPERATION:

1. Press <ENTER> to display the Picture Panel
2. Mark LIBRARY diagram  (see above) and press <ENTER>

The following sub-menu appears:

D)delete	U)pdate	V)iew
E)xit	C)atalogue	

- D To delete a catalogue entry press <D>
You will be asked its name.
(Filename, description and picture are all deleted.)
- C For a quick total listing of all filenames on disk, press <C>. Use pause key to stop the scrolling
(Press any key to continue the scrolling.)
- U To update the description of a catalogue entry press <U>.

(N.B. Within the library, neither the filename nor the picture itself can be updated.)

V To view catalogue entries press <V>.
The Filename and description of the first entry will appear.

e.g. FILENAME :CARS
DESCRIPTION: A number of cars.

At the bottom of the screen is a further sub-menu

D)delete U)pdate L)ook NEXT BACK

- i) To delete entry press <D>
- ii) To update the description only press <U>

You get the message 'retype your description now.'
- N.B. The original description remains above for reference.

The original description remains above for reference. When you have changed or added to the description, press <ENTER>
- iii) To look at the picture called CARS press <L>. You must press <NEXT> after looking. The next entry will be displayed.
- iv) To go to the next entry, press <NEXT>.
- v) Press <BACK> This will take you back to original library sub-menu.

7:10


DISK



FUNCTIONS:

To allow you to save and retrieve the complete screen drawing (page) or part of it (photo) and to catalogue pictures in a 'library' for quick reference.

OPERATIONS

- i) Press <ENTER> to display the Picture Panel.
- ii) Mark DISK diagram  (see above) and press <ENTER>

The following sub-menu appears:

S)store page	R)etrieve page
L)ibrary	P)ut photo on disk
G)et photo	Q)uit

7:10:1

- iii) To store or save the complete screen drawing (page) press <S>. You will be asked, "page name?" Choose a name (with a maximum of 8 characters) type it in and press <ENTER> e.g. PICNIC

BEWARE: Do not use a name you have used before, unless this picture is just an improved version, as your previous picture with that name will be wiped. You will be asked "Save over old file?" (Y/N) if you use the same name. If you wish to check, select L and go through the Library catalogue of previous pictures.

PROTECTION: When more than one user has access to the disk it is a good idea to take precautions against someone else's picture being accidentally or deliberately wiped or altered. Because each picture becomes 2 separate files, when saved it can be given write protection in the usual way. (See your Poly manuals),

We recommend that each user puts their initial as the first 2 letters of the Filename. Thus if John Smith and Mary Brown both draw trains one will be filed as JSTRAIN and the other as MBTRAIN and the risk of one person wiping another person's picture is lessened.

(Programmers note: Screen 2 will be saved as FILENAME.GX1 and Screen 4 as FILENAME.GX2) The page name will reappear as Filename. You will then be asked for a description. Type in a brief description (maximum 80 characters or two lines) of the picture. This will automatically become part of the 'Library' catalogue which allows you to look up previously saved photos and pages. (To avoid making a library entry, press <.>(full stop key) and <ENTER> when asked for the description.)

7:10:2

- iv) To retrieve and display complete screen drawing (page):
(N.B. You must have stored it first.)
Press <R>
You will be asked for the name of the picture. Type it in e.g. Picnic and press <ENTER>.
The picture will appear on the screen.

7:10:3

- v) To store or save a section of the screen that you have previously photographed (see PHOTO section 7:4:1)
Press <ENTER> to display the Picture Panel.
Mark DISK diagram and press <ENTER>.
When sub-menu appears press <P>(Put photo on disk).
You will be asked "photo name ?" Type in the name you wish to give it (maximum of 8 characters) and press <ENTER>.
It will be stored on disk and can be recalled later using G)et photo choice (See below)

The photo name will reappear as Filename. You will then be asked for a description. (To avoid making a library entry Press <.>(full stop key) and <ENTER> when asked for the description)

Type in a brief description (maximum 80 characters or 2 lines) of the photo. This will automatically become part of the library catalogue which allows you to look up previously saved pages and photos.

7:10:4

vi) To get or retrieve a section of the screen (photo). It must have previously have been

- a) photoed (7:4:1) and
- b) stored or put on disk (7:10:3)

Position the cursor so that it marks the top left corner of where you want the picture to go.

Press <ENTER> to display the Picture Panel.

Mark DISK diagram and press <G> (Get Photo)

You will be asked "Photo name?"

Type in the name you gave when you put it on the disk.

Press <ENTER>

The section or photo will appear on the screen at the position marked by the cursor.

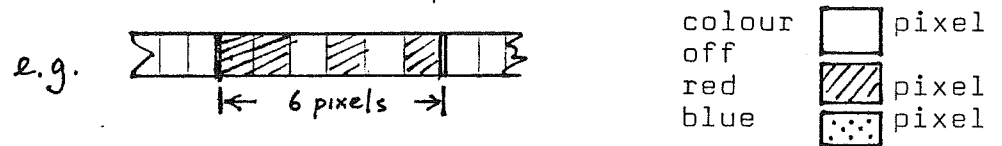
If, at a point where two colours meet, blank areas appear in your drawing, or colours you hadn't programmed appear, read the following section on Use of Colour. These problems occur because of the inbuilt specifications of the Poly Computer.

Steps have been taken in the program to minimise the 'six pixel problem' and this section will help you to understand these and overcome any difficulties that might arise.

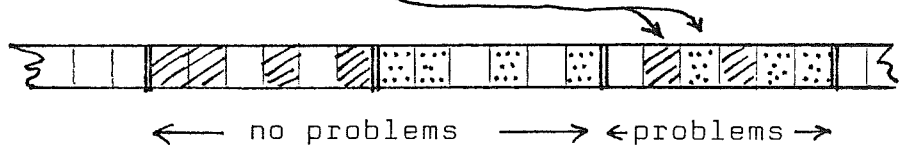
It is suggested you leave reading this section until you meet the problem. Go directly to section 9.

USE OF COLOUR

1. Colour is coded in blocks of six (6) horizontal pixels.



Problems arise when the artist wishes two colours to meet within that block.



Either no colour will be shown, or in some cases a mixed colour will appear.

If the adjoining colours are in separate blocks of six pixels this won't happen.

Sometimes it may be possible to move the boundary right or left.

2. The poly computer effectively uses 5 screens which are superimposed in the following order:

1. text
2. graphics
3. text
4. graphics
5. background display at half the intensity behind the others

Apart from the background, only screens 2 and 4 are used in this program.

If the adjoining colours are on different screens the 6 pixel problem will not occur

To maximise the likelihood of them being on different screens certain colours have been restricted to specific screens.

Red is always on screen 2 and green on screen 4.

The colours magenta, cyan and yellow actually result from the combining of 2 colours on each of the two screens. Because each of these includes either red or green they too are automatically allotted fixed screen combinations. (See table over the page)

8:1:1

<u>COLOUR</u>	<u>CODE</u>	<u>SCREEN</u> <u>2</u>	<u>SCREEN</u> <u>4</u>
BLACK (erase)	0	-	-
RED	1	RED	-
GREEN	2	-	GREEN
YELLOW	3	RED	GREEN
BLUE	4	-	-
MAGENTA	5	RED	BLUE
CYAN	6	BLUE	GREEN
WHITE	7	-	-

Blue and white are thus the only colours that can be put on either screen. They can be changed from screen 2 to screen 4 or vice versa to avoid the 6 pixel problem.

8:1:2

TO CHANGE SCREENS

The current screen activated is indicated by 2 or 4 in the Information Line (following the colour). (This is not shown when both screens are in use for composite colours i.e cyan, magenta and yellow.)

To change screens: If for instance blue is active on screen 2, press <4> (the code for blue) on the numeric keyboard again and it will change to screen 4. For white, each time you press <7> (code for white) on the numeric keyboard it will change screens.

8:1:3

PROBLEM COMBINATIONS

If you have used red or magenta and you wish to use blue next to them, draw blue on screen 4.

<u>COLOUR</u>	<u>SCREEN</u> 2	<u>SCREEN</u> 4
RED	R	-
BLUE	-	B
MAGENTA	R	B

If using green or cyan then blue should be drawn on screen 2.

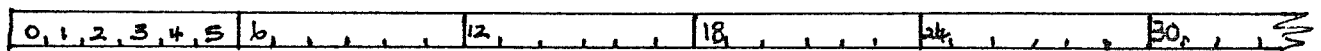
<u>COLOUR</u>	<u>SCREEN</u> 2	<u>SCREEN</u> 4
GREEN	-	G
BLUE	B	-
CYAN	B	G

White cannot be placed next to any of the combined colours (cyan, magenta, yellow) within the same 6 pixels. When next to red or blue 2 place white on screen 4. When next to green or blue 4 place white on screen 2.

Where are the six pixel boundaries?

If the 'across' co-ordinate is divisible by 6, it is at the start of a set of 6 pixels.

E.G.



BECOMING FAMILIAR WITH GRAFIX

The sooner you start using Grafix the less confusing it will seem and the quicker you will become used to using the commands automatically.

You may prefer to play around with the commands yourself (The command card may be helpful in the early stages.) or you may like to work through the Self Teach exercises.

If you want more detail you can refer back to the detailed instructions given in Section 6.1 - 6.13 and 7.1 - 7.10. The index at the back of the manual will allow you to refer to them quickly.

Command Card

press **HELP**

for all key Commands

< > = PRESS THIS KEY

CURSOR

Move cursor :

Cursor size : **<8>**

Step size : **<SHIFT / INSERT>**

Cursor Choice : **<0>**

COLOUR

Black
Red
Green
Yellow
Blue
Magenta
Cyan
White

Fixed Screen

<0>
<1>
<2>
<3>
<4>
<5>
<6>
<7>

Background Colour :

Select colour **<0-7>** **<@>**

LINES

Trail : **<PAUSE>** = on, off

Lines : 1. **<ENTER>** **<ENTER>**

2. Cursor to start position **<←→→→>** **<S>**

3. Cursor to next position **<←→→→>** **<S>**

4. To finish **<F>**

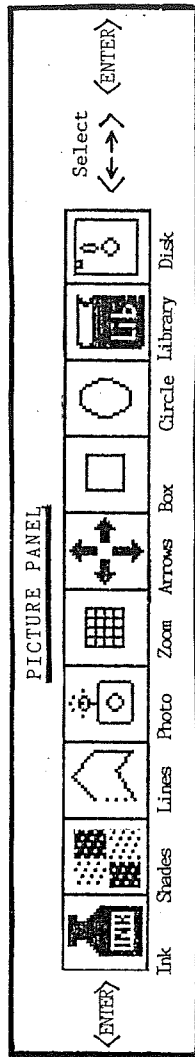
SCREEN

Change screen : Press same colour code **<6>** or **<4>** again

Clear screen : **<F>**

Save screen : **<ENTER>** **<S>**

Retrieve screen: **<ENTER>** **<R>**



ERASE

Line : **<PAUSE>** **<0>** Retrace line

Line : if using **<E>**

Photo:

- 1) Mark top left of blank screen
- 2) Mark bottom right of blank screen
- 3) Photo **<ENTER>** **<0>** **<ENTER>**
- 4) 1 Mark top left of area to be erased
- 5) **<REPEAT>**

or 1. **<ENTER>** **<ENTER>**

2. Select solid fill. **<0>** **<ENTER>**

3. Cursor 1 to top left **<0>** **<ENTER>**

4. Cursor 2 to bottom right **<0>** **<ENTER>**

5. **<0>** (black) **<ENTER>**

6. **<ENTER>** **<ENTER>**

SHAPES

<0> 1) Mark centre with cursor 1

2) Mark radius with cursor 2

3) **<ENTER>** **<0>** **<ENTER>**

4) **<D>**

Ellipse Steps 1 - 3 as above.

4) **<E>**

Regular Polygon 1 - 3 as for Circle & Ellipse

4) **<P>**

<0> 1) Mark the top right with cursor 1

2) Mark bottom left with cursor 2

3) **<ENTER>** **<0>** **<ENTER>**

Irregular Polygon

1) **<ENTER>** **<0>** **<ENTER>**

2) Move cursor to start position **<S>**

3) Move cursor to next position **<S>**

4) Repeat (3) until last line **<C>**

DRAWING TECHNIQUES

Fill : 1) **<ENTER>** **<ENTER>**

2) **<0>** **<ENTER>** **<←→→→>** **<ENTER>**

ZOOM (Magnify) :

1. Mark top right with cursor 1 **<←→→→>**
2. Mark bottom left with cursor 2 **<←→→→>**
- 3) **<ENTER>** **<ENTER>**
- 4) Place dot **<INS>** Remove dot ****
- 5) To finish **<BACK>**

PHOTOS

Take photo : 1) Mark top left with cursor 1

2) Mark bottom right with cursor 2

3) **<ENTER>** **<0>** **<ENTER>** **<T>**

Store Photo on disk : 1) Take photo as above.

2) **<ENTER>** **<0>** **<ENTER>** **<P>**

Retrieve photo : **<ENTER>** **<0>** **<ENTER>** **<G>**

Put elsewhere on screen :

a. If last photo taken :

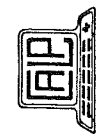
1) Mark top left with cursor 1

2) **<REPEAT>**

b. If on disk :

1) Mark on top left with cursor 1

2) **<ENTER>** **<0>** **<ENTER>** **<G>**



grafix

APPENDIX 2

TO USE GRAFIX PICTURES WITHIN OTHER PROGRAMS

The aim of the Grafix program is to simplify the drawing of pictures for use in other programs, e.g. a Driving Licence program may need pictures of cars, intersections and traffic signals. These may stand alone using a whole screen, or may be inserted within blocks of text.

When you save a screen or photo in Grafix and give it a name it is saved as two files, one for each of the graphics screens. E.g. I have named my drawing of a stop sign as "STOPSIGN" It is saved as STOPSIGN.GX1 and STOPSIGN.GX2 These files are now available for copying onto other disks in the normal way.

To insert the picture into the program listing use the following commands:

```
205 MIXON
210 SELECT 2: CLS : DISPLAY 2 : DRAW # "STOPSIGN.GX1"
220 SELECT 4: CLS : DISPLAY 4 : DRAW # "STOPSIGN.GX2"
```

NOTES:

1. CLS (clear screen) is not always necessary and should not be used if you want to draw more than one Grafix photo on the same screen.
2. The photo will appear on the screen at the position it had in Grafix..
It can either be moved within this program in the normal way e.g. Draw @ (20,20) or it can be positioned first in Grafix before being transferred into the Listing.
3. In order to get the mixed colours (magenta, cyan yellow) MIXON is necessary somewhere in the program.

APPENDIX 3

PRINTING COPIES OF PICTURES

1. The picture needs to be currently in screen memory.

a. If in Grafix

Press <ENTER> Select Press <ENTER>
Press <R> (Retrieve page) or (G) (Get photo)
When asked, type Picture Name (Filename)
When picture is displayed press <SHIFT/EXIT> to go
into BASIC or back to the MENU.

b. If not in Grafix

From BASIC type:
SELECT 2: DRAW # "Filename.GX1 " press <ENTER>
SELECT 4: DRAW # "Filename.GX2 " press <ENTER>

(It is not necessary, but if you wish to see them,
type:
DISPLAY 2:DISPLAY 4 press <ENTER>)

2. To prepare the picture for printing. (Version 2.3 *)
operating system)

Go into DOS
Type: DOS and press <ENTER>
Type: GPRINT press <ENTER>

The following heading and questions will appear. Type and
<ENTER> the answers as given.

POLY SCREEN PRINT

Start Row (0 - 203)	?	(Normally type 0 and ENTER)
Start Column (0 - 239)	?	(Normally type 0 and ENTER)
End Row (0 - 203)	?	(Normally type 203 and ENTER)
End Column (0 - 239)	?	(Normally type 239 and ENTER)
Size (1 or 2)	?	(Size 2 is larger)
Screens (24)	?	(Type 24 for both graphic screens)
Output File Name	?	(You can type in any name you wish. On the catalogue it will appear as Filename.LST)

As the rows are recorded you will see them on the screen.

3. To print the picture:

Type: PRINT FILENAME.LST NG
(The NG stops heading and linefeed on the printer.)

*
NOTE: Version 3 Operating sytem varies a little from this.
See the POLYSYS UTILITIES MANUAL.

APPENDIX 4

PICTURE LIBRARY -- A LISTING

DIRECTORY OF DRIVE NUMBER 1
DISK: CALP _150 CREATED: 13-DEC-84

<u>NAME</u>	<u>TYPE</u>	<u>R</u>	<u>SIZE</u>	<u>DATE</u>	<u>PRT</u>
GRAFXMEN.GX1			4	4-MAR-86	WD
GRAFXFIL.GX1			3	4-MAR-86	WD
GRAFCOMP.GX1			11	25-JUL-85	WD
GRAFXSHA.GX1			6	16-AUG-85	WD
NZMAP .GX1			5	18-MAR-86	
VIEW1 .GX1			11	27-FEB-86	
VIEW2 .GX1			12	27-FEB-86	
KENNEL .GX1			4	18-MAR-86	
COMPUTR1.GX1			8	18-MAR-86	
NZFLAG .GX1			6	27-FEB-86	
COWBOY .GX1			4	27-FEB-86	
AUSTMAP .GX1			7	27-FEB-86	
WORLDMAP.GX1			12	27-FEB-86	
BAR .GX1			12	27-FEB-86	
BARBITS .GX1			6	27-FEB-86	
CARS .GX1			7	27-FEB-86	
PICTURS1.GX1			8	27-FEB-86	
COLOURS .GX1			15	27-FEB-86	
MONDRIAN.GX1			5	27-FEB-86	
ROCKS .GX1			8	27-FEB-86	
HOUSE .GX1			14	27-FEB-86	
KITCHEN .GX1			13	27-FEB-86	
KITCHEN2.GX1			15	27-FEB-86	
KITCHBTS.GX1			13	27-FEB-86	
TRAIN1 .GX1			9	18-MAR-86	
FRUIT .GX1			9	27-FEB-86	
WEEDOGS .GX1			11	27-FEB-86	
FATDOG .GX1			6	27-FEB-86	
SIGNS1 .GX1			12	27-FEB-86	
SIGNS2 .GX1			9	27-FEB-86	
TRAIN2 .GX1			10	18-MAR-86	
HANDSIGN.GX1			6	27-FEB-86	
SIGNS4 .GX1			10	18-MAR-86	
CARBITS .GX1			7	27-FEB-86	
POLYCOMP.GX1			13	27-FEB-86	
ROOMBITS.GX1			8	18-MAR-86	
LADY .GX1			15	28-FEB-86	
HOUSE2 .GX1			5	18-MAR-86	
DOGKEY .GX1			8	28-FEB-86	
ARCTIC .GX1			5	28-FEB-86	
DOORS .GX1			6	28-FEB-86	
HELL .GX1			8	28-FEB-86	
THINKER .GX1			10	18-MAR-86	
HIGHWAY .GX1			6	18-MAR-86	
SIGNS5 .GX1			11	18-MAR-86	
SIGNS3 .GX1			6	18-MAR-86	
BEACH .GX1			8	19-MAR-86	

FILES=146, SECTORS=1459
LARGEST=116, FREE=821

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