CORVUS SYSTEMS

The Corvus Concept
Graph User Guide

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SCOPE

WELCOME TO GRAPH

Graph is a powerful graphics package for the Corvus Concept Personal Workstation that can create a wide variety of three-dimensional graphs. Graph is the ideal program for both novices and experienced users. The input for graphs can come from a variety of sources -- spreadsheet data files, text files, IPC files or ASCII data files. The graph can be one of several popular types -- bar, pie, line or surface - with options for combining several graphs of the same type together, such as stacked bars.

You do not have to learn a complicated programming language to take advantage of Graph. Most commands are shown on the set of function key labels, and organized into several levels. Prompts are provided to help you make the right choice. A selective set of error messages also assists you when needed.

We have tried to make this User Guide as simple and easy to use as possible. We hope that you will enjoy using Graph and the Corvus Concept.

HOW THIS USER GUIDE IS ORGANIZED

This User Guide provides complete documentation for the Graph program. The first chapter provides an overview of Graph and information on the hardware and software

required. The second chapter details how to prepare data for input to produce graphs, using the Data Manager. Chapter Three discusses the template system. The Main Level of Graph is presented in Chapter Four. Chapter Five covers the the Draw Manager, and Chapter Six explains the Label Manager. These sub-programs provide users with the ability to customize graphs to an almost endless extent.

The procedure for saving and re-loading saved graphs is explained in Chapter Seven. Chapter Eight outlines how to print graphs with various output devices, and how to use the Print Window function in ISYS. The pre-set collection of templates is described in Chapter Nine. Chapter Ten is a glossary of all the function key labels found in Graph. Finally, Chapter Eleven lists the error messages and a brief explanation of each. A short Index at the end completes this User Guide.

CONVENTIONS USED IN THIS GUIDE

TYPE -- The word "Type" is used throughout this guide to mean that two or more characters are to be entered on the Concept keyboard, exactly as shown. Do not add or delete punctuation at the end of the line.

PRESS -- The word "Press" indicates that a single character or keytop symbol is to be entered on the Concept keyboard. When a keytop symbol is used, press the key to which it refers. Do not type out the individual letters of the word shown within the keytop symbol.

FUNCTION KEY LABELS are shown like key-top symbols in this guide. These labels correspond to the ten function keys at the tope of the Concept keyboard, numbered F1 through F10. The current set of labels is displayed across the bottom of the Concept screen. Each function key may represent up to four functions:

Function 1 -- [Function Key]
Function 2 -- [SHIFT] + [Function Key]

Function 3 -- [COMMAND] + [Function Key]
Function 4 -- [COMMAND] + [SHIFT] + [Function Key]

Refer to "the Corvus Concept Personal Workstation User Guide" for a more complete discussion of function keys. Function key instructions in this guide are always given in terms of the label displayed at the bottom of the screen, rather than key number and position.

OTHER MANUALS TO READ AND USE

Basic information about the Concept is presented in "The Corvus Concept Personal Workstation User Guide." Information about LogiCalc, the spreadsheet program, is covered in "The Corvus Concept LogiCalc User Guide." "The Corvus Concept ISYS User Guide" discusses the ISYS operating system and its elements. Additional technical information about the Corvus Concept may be found in one of the other reference manuals.

HARDWARE AND SOFTWARE REQUIRED

The following minimum hardware and software is required to use Graph:

Hardware: Corvus Concept Personal Workstation with 512K of memory, and a hard disk system.

Software: Corvus Concept ISYS Operating System.
Corvus Graph program.

The output device (printer) is optional. Some of the printers which can be used are:

Toshiba P-1350	Epson FX-80
Epson MX-80	Epson FX-100
Epson MX-100	Mannesman-Tally

GENERAL DESCRIPTION OF GRAPH

Graph represents a completely new and unique approach to creating graphs using a microcomputer. Graph combines many of the features of high-end graphic packages such as interactive 3-D imaging, with the ease of use and simple data structures of low-end graphics programs. Now you can produce business graphs quickly and easily from a variety of data files.

Graph has a two-level user interface. The first level is designed for the casual user, who has simple spreadsheet data files, or who has a small amount of data that can be entered directly into Graph. This information is combined with pre-defined templates to produce 3-D graphs in a matter of minutes. The user can then modify this graph using a wide variety of commands.

Graph also offers expert users a very flexible program that can be used to build graphs step-by-step. Over 300 parameters can be defined in a custom template, and a Monitor feature used for editing and changing the template. Once the final image is produced, it can be saved as a complete screen, and later re-loaded.

SPECIAL FEATURES

Types of Graphs Available

- Bar Graphs -- Simple 2-D and 3-D
  Multiple Stacked 2-D and 3-D
- Pie Charts -- 2-D and 3-D
  Exploded View
- Line Charts -- Multiple Lines
- Ribbon Charts -- 3-D
- Surface Charts -- 3-D
- Tops -- 3-D

Different Data Files

Graph can use data from different types of data files, without the need to convert to a fixed format. Spreadsheet data files can be used in the .LC format, or a text version (.LC.TEXT) can also be used. IPC files can also be loaded into Graph without change. Structured data files from other programs can also be used (.DT.TEXT). Data and labels can also be manually entered and saved to a text file for later use.

Function Key Oriented

Graph uses the Concept's function keys to provide users with a convenient interface for most functions. Functions are organized into a series of levels, with easy movement between levels.

Colors

Vectors can be shown in white, black or broken lines. Polygon surfaces can be shown in a variety of patterns, including white, black or shaded.

Titles and Labels

Text labels can be inserted in up to 12 fields, with the first five fields pre-defined. Row and column headers are automatically inserted, plus a numeric scale for the graph. Size, font, content and position of labels are user-definable.

Data Editing

Data files can be selectively edited to delete, ignore or zero rows or columns. Row and column headers can be suppressed or added. Any sub-area of a spreadsheet file can be selected.

Multiple Graphs/Multiple Windows

Multiple graphs can be combined and overlayed in the same window. Up to eight different windows can be created on the screen, each with a different graph.

Output

The quickest and most economical way to produce hard-copy output is via a screen dump of the completed picture to a dot-matrix or laser printer. A number of printers are supported. Optionally, pen plotters will be supported in the future and can be used to produce output images with finer detail than the screen resolution.

SOFTWARE INFORMATION

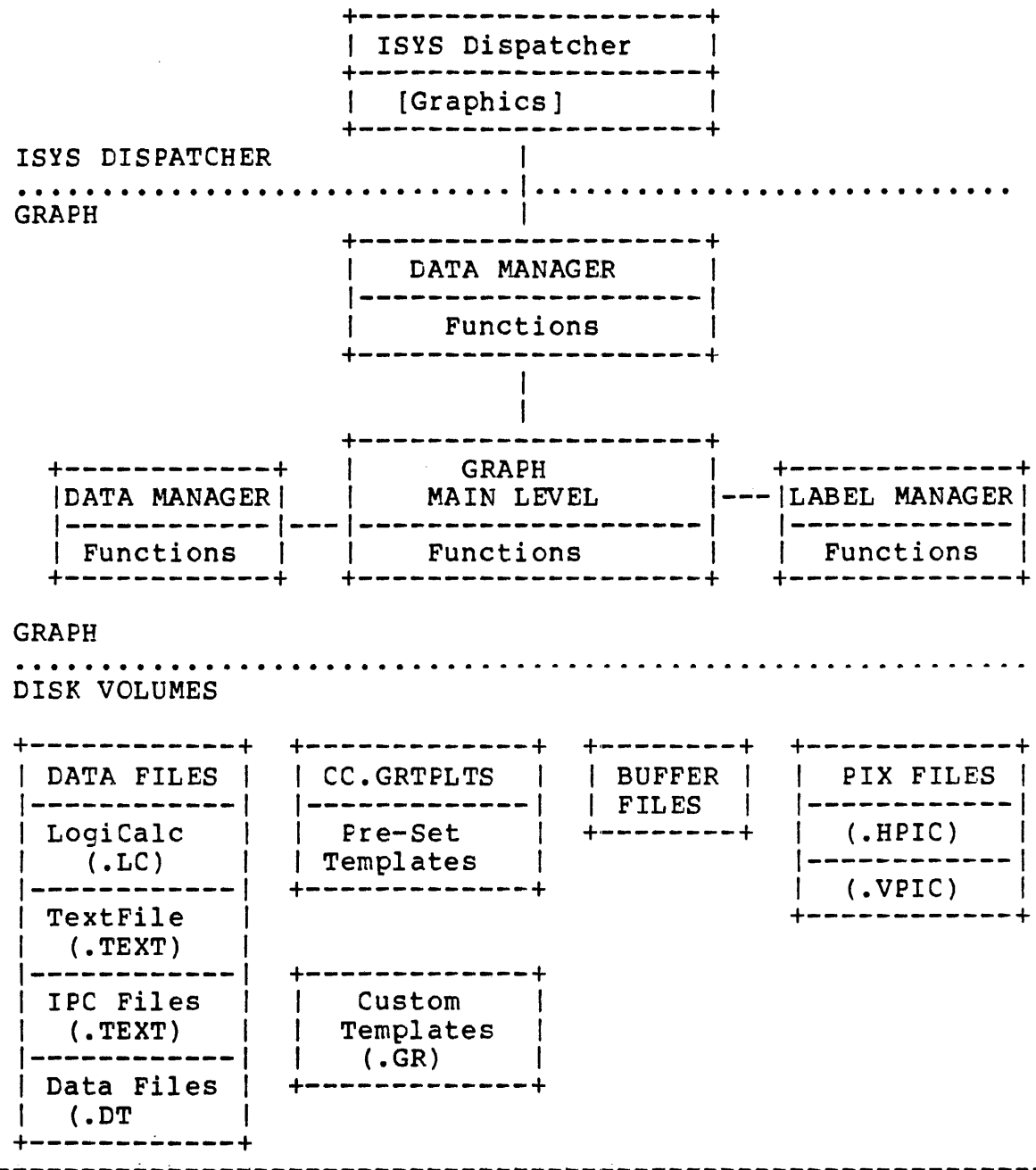
Graph is written in Silicon Valley Software's version of Pascal, and runs on the Corvus Concept, which uses the Motorola 68000 microprocessor. SVS Pascal generally conforms to ISO standards, and includes some UCSD-Pascal extensions.

Graph uses approximately 600K of memory space, of which approximately 250K consists of a set of pre-set templates.

GENERAL STRUCTURE OF GRAPH

Graph is organized into a Main Level, with a Data Manager, Draw Manager and Label Manager sub-levels. Initially, a user starts in the Data Manager, defines the data file and template, and then moves to the Main Level, to access the sub-level Manager functions. The illustration below shows how Graph is structured:

GENERAL STRUCTURE OF GRAPH



The template and data files can be accessed from both the Data Manager and the Main Level. Screen pictures are saved as separate .HPIC files. The Main Level and each Manager sub-level has a set of functions associated with that level, and in some cases further there are further levels of labels for options. Chapter 9 contains a glossary of function key labels.

ENTERING GRAPH

You should enter the ISYS program first from the main Dispatcher level of the Concept. Next, select a volume to work in. Make sure that you have plenty of extra room to save files in; a minimum of 200 blocks is recommended. Grapph creates several temporary files, so there should be room for at least 10 additional files.

Graph and its related files will be located in either the CCSYS, CCUTIL, or ISYS volumes.

Press [Graphics]

Graph will be loaded into the main memory of the Concept, which takes about 2 minutes. When Graph is loaded, you will see the copyright notice in the Command window, with the version number, and the Data Manager set of labels. You can now begin using Graph.

BASIC |
GRAPH | 2
PRIMER |

This chapter covers how to use Graph at the basic level, without a detailed knowledge of the program functions. A sample data file is first created with the spreadsheet, and then used together with a pre-set template to produce a graph. This graph is then re-positioned, a title added, and then saved, together with a copy of the customized template.

CREATING A SPREADSHEET DATA FILE

The spreadsheet program will be used to create most of the data files used with Graph. You load these data files directly into Graph after they have been saved as spreadsheet data files.

Enter the spreadsheet program from ISYS.

Make a spreadsheet just like the one shown below. The first two lines are title lines. If you are not familiar with how to make a spreadsheet file, refer to "The Corvus Concept LogiCalc User Guide" for more information.

Col>	A	B	C	D	E
Row+					
1	HOT PEPPER PRODUCTION				
2	Sample LogiCalc Data File				
3					
4		Alaska	Montana	Maine	
5	1988	1263	5232	8123	
6	1989	2623	6226	8233	
7	1990	2932	6238	9432	
8					

Set the default for decimal precision to 0 for the entire sheet. The contents entered in each cell are:

```
A1:  /tHOT PEPPER PRODUCTION
A2:  /tSample LogiCalc Data File
B4:  /rAlaska
C4:  /rMontana
D4:  /rMaine
A5:  /r1988
B5:  1263
C5:  5232
D5:  8123
A6:  /r1989
B6:  2623
C6:  6226
D6:  8233
A7:  /r1990
B7:  2932
C7:  6238
D7:  9432
```

Save this file under the name PEPPER.

Check the the volume directory to make sure that the file PEPPER.LC has been created.

Exit the spreadsheet program and return to the ISYS Dispatcher level of labels. Set the volume to the one you will be working in, and make sure that there is sufficient room for about 10 more files. Now, you can start the Graph program.

NOTE: You may wish to select a full screen window to work in, rather than using the ISYS window.

Press [Graphics]

Graph will take approximately 2-3 minutes to load, and then the Data Manager labels display.

BEGINNER USER INTERFACE

There are two levels on which Graph can be used. The first is a simple approach, primarily intended for the occasional user, which utilizes standard LogiCalc or IPC data files, and pre-set templates. The second level involves using Graph to design specialized graphs, step-by-step, interactively changing the parameters to produce the desired image. As you become more familiar with Graph, you will find yourself moving closer to the second approach.

In the previous section, you learned how to set up a simple LogiCalc data file that can be used in Graph.

Once you have entered Graph, this file must be loaded into the data file buffer -- "read" by Graph.

Look at the function key labels. You will see the different input file types displayed on keys F1 through F4.

Press [LogiCalc]

You are now prompted for the name of the file. Do not include the .LC part of the file name.

Type /[VolumeName]/PEPPER
Press [RETURN]

Next, you are asked if you want the entire file.

Press A

Now, you are asked about including row and column headers.

Press Y

A message appears in the Command window informing you that the file is being loaded in.

When the data file is loaded, you can proceed on to the next step, selecting the template. Initially, you will have to use a pre-set template. Look at

Chapter 8, and select a graph type designed for approximately the right number of rows and columns. Graph will automatically adjust the template to fit the number of rows and columns in your data file, but the labels may be squeezed off the screen.

Enter the number, for example, to load template 8:

Press P
Type 8
Press [RETURN]

The template is loaded in, and the Main Level labels appear. You can now begin to play with the graph, using the Draw Manager and the Label Manager make changes. First, draw the graph:

Press [AutoDraw]

It takes 2-3 minutes for Graph to complete the picture. You can select another template if you do not like how the graph looks, using Get Tplt. ClrWndow is used to clear the screen, and the new template is drawn again with AutoDraw.

THE MONITOR

For those users, though, who want to cusdtomize a template to suit their particular application, there is full interactive control over all parameters that determine the look of a graph. Any parameter can be changed by simply using the Draw Manager functions. The X-Y-Z axis of the graph can even be rotated in real time to yield the best viewing angle, and the size or focus changed. After modifying an existing preset, you can save this template with SaveTlpt and giving it a name.

When modifying a template, a Monitor can be used to record each of the user's keystrokes. This backup feature lets you replay complex models and sequences, acting like an 'Undo' feature to reverse mistakes.

THE MAIN LEVEL | 3

GENERAL DESCRIPTION

The Main Level is the primary set of labels used in Graph to access the different managers levels, and activate certain global functions. It is very important that you be familiar with the functions of the Main Level, to use Graph effectively.

The Main Level is reached after the initial input data file has been specified, and the first template loaded, using the Data Manager. Graph requires that these two operations be performed before the Main Level can be accessed. Once the template has been loaded, you are automatically transferred to the Main Level. If you use the Data Manager later, return to the Main Level is with the [Main] label.

The Main Level labels are shown below:

	F1	F2	F3	F4	F5
Shift	Scale	Get Tplt	Load Pix	SavWndow	
Unshift	AutoDraw	SaveTplt	Save Pix	List Vol	

	F6	F7	F8	F9	F10
Shift					Exit
Unshift	ClrWndow	Data Mgr	Draw Mgr	LabelMgr	

[AutoDraw] automatically draws the graph using the data and template that have been loaded.

[SaveTplt]	saves the current template as a data file for later use as a custom template.
[Save Pix]	saves the specified portion of the current window as a .HPIC file.
[Print]	calls the Print labels to select printer type and output a graphic image.
[ListVol]	lists files in a volume, either all files or certain types of files.
[ClrWndow]	erases the current window. The graph can be redrawn with [AutoDraw] to provide a fresh picture.
[Data Mgr]	calls the Data Manager, with a different label set from the initial labels.
[Draw Mgr]	calls the Draw Manager labels. Draw Manager is used to customize the look of the graph template.
[LabelMgr]	calls the Label Manager, which creates and changes headings and labels on the graph. The look of these labels is added to the template parameters if the Monitor is on.
[Scale]	selects the scaling option and sizing factor used for fitting graph images into windows. The standard setting is Absolute with the X axis equal to the Y axis.
[Get Tplt]	loads a template into Graph.

[Load Pix] loads a .HPIC file into the window, and calls a set of labels for changing the picture.

[SavWndow] saves the entire current window to the .HPIC file specified.

[Exit] terminates Graph and calls the ISYS Dispatcher labels.

COMMAND LEVEL

	F1	F2	F3	F4	F5
Shift					
Unshift	[MemAvail]				

	F6	F7	F8	F9	F10
Shift					
Unshift	[RevBkGnd]				[Suspend]

[MemAvail] shows the amount of Concept memory available for the Graph program.

[RevBkGnd] reverses the screen.

[Suspend] suspends Graph and calls the Suspend labels of ISYS.

THE DATA MANAGER | 4

GENERAL DESCRIPTION

The Data Manager level is the first level you start at in Graph. At the Data Manager level, you specify the data file that will be graphed, and select the template. You must perform these two steps before you can go to the Main Level. However, you can return from the Main Level to the Data Manager and change either the data file or the template to be used in creating your graph.

THE DATA MANAGER FUNCTION KEY LABELS

The following function key labels appear when you first enter Graph at the Data Manager level:

	F1	F2	F3	F4	F5
Shift	DelFile				
Unshift	Manual	LogiCalc	TextFile	IPC File	DataFile

	F6	F7	F8	F9	F10
Shift					Exit
Unshift	List Vol		Get Tplt		Main

[Manual] creates a data file directly from data entered in response to prompts.

[LogiCalc] selects the specified spread-

sheet data file as input.

[TextFile]	selects the specified text file copy of a spreadsheet as input.
[IPC File]	selects the specified IPC file as input.
[DataFile]	selects the specified data file as input. This file must be an ASCII-type file of numbers formatted into a defined table.
[List Vol]	lists all files or selected files of the specified volume in the Command window.
[Get Tplt]	loads the specified template into Graph to use with the data file.
[Main]	moves to the Main Level of Graph after the data file has been specified and the template loaded.
[Del File]	deletes the specified file.
[Exit]	terminates Graph and returns to the ISYS dispatcher.

When the Data Manager is called from the Main Level of Graph, [Exit] will not appear.

CREATING THE INPUT FILE

The input file that will be graphed must be created before entering Graph, unless the Manual option is used. The following ways can be used to input data:

- LogiCalc spreadsheet data file (.LC)

- Text file of a spreadsheet (.TEXT)
- IPC data file (.TEXT)
- ASCII data file (.DT)
- Manual input through the Data Manager Level of the Graph program.

Most data used to produce graphs will come from spreadsheet data files.

Spreadsheet Data Files

The spreadsheet data file must be set up following certain conventions. The most important of these are:

- All titles must go at the top of the sheet, starting in Row 1, Column A. Titles should be short, usually no more than 25-30 characters per line. They should be defined as titles with the /T command, and a maximum of 8 title lines is allowed. The first title line usually placed at the top of the graph, with the remaining lines being positioned according to the template layout.
- The next line after titles is defined as the column headers if it is text. One line is allowed. The column headers must be right-justified using the /R command directly over each column of numeric data. No blank spaces should be left.
- Row headers must be text data, and also right-justified with the /R command. They must go in column A.
- The data to be graphed must be numeric, and right justified. It should have 0 places of decimal precision displayed. While Graph can

accommodate considerable variance between the smallest and largest values to be graphed, your data should all be within 3-5 orders of magnitude. Graph will automatically calculate the scale to use on the chart.

The absolute maximum size is 32 rows by 32 columns of numeric data. However, most templates are designed for smaller data sets. The templates adjust automatically to fit the size of the inputed data file, but a warning appears in the Command window to alert you that you may have problems with labels and dimensions.

A sample spreadsheet file is shown below:

Column>	A	B	C	D
Row				
1	CORVUS Growth			
2			Income	Sales
3		80	58	2184
4		81	705	10235
5		82	2352	26830
6		83	4500	47500

Notice that the title appears on the first line, starting in Column A. The next line contains the column headers, which are text and right-justified over the columns. The row headers are in Column A and are text, right-justified. Lastly, the numeric data is in a solid block directly under the Column Headers, and is also right-justified.

The Graphics program lets you use partial spreadsheet files. Additionally, selected rows or columns can be deleted, zeroed or ignored when graphing the data.

Text Files

Text files (spreadsheets that have been printed to a text file) can also be used with the Graphics program. These files should follow the same conventions as spreadsheet data files, plus the following requirements:

- The file name must have a ".text" at the end.
- There should be a blank line between the title and the row/column headers. This is necessary since Graph cannot tell the difference between titles and headers.
- The numbers should be in a solid block. An empty line signals the end of the data to the Graphics program.

IPC Files

The IPC file must follow IPC conventions, with the following details particularly important:

- The first line defines the record fields, and must consist of + and - characters only. The exact length of each field must be defined.
- The second line containing the field names becomes the column headers. If there are no headers these should be left blank.
- Row headers must be in the first field only, and start with the first line of numeric data.
- A blank line must be left between the column headers and the numeric data to be graphed.
- The numeric data must be in a solid block. Graph will assume that the next blank line

marks the end of data.

Data Files

These are ASCII-character files of numeric data arranged in a table format. The data should be clearly arranged, with at least one blank space or tab separating each field. There should be no extra blank lines in the data. Graph may not accept all data files.

Manual

The Manual mode is used to create a data file after entering the Graphics program. Only numeric data can be input; labels and titles must be added later with the Label Manager.

When the Manual mode is selected, prompts appear for the numer of rows and the number of columns in the graph. Once the size has been defined, you are prompted for each item, until the data table is finished. A file name can be specified for this data; otherwise, a temporary buffer is used and then discarded when you are finished.

TEMPLATES

After the data file that will be used in the graph has been specified, the template must be selected. You have a choice of using one of the pre-set templates (see Chapter 8 for a brief description of these templates), or loading a custom template in. Initially, you will use pre-set templates. However, after you modify a template, you can save it as a custom template with SaveTplt at the Main Level.

Templates are files that contain a description of the look a particular graph will have. Templates have a .GR suffix added when they are created. The collection of pre-set templates is found in the file CC.GRTMPTS which is part of the Graph software.

Each template describes the graph in terms of the type of graph, the number of rows and columns, the length and number of row/column headers, the font style and size used for labels, the angle and distance the graph appears, the orientation of the graph in 3-D, and so forth.

The template system allows you to make a series of graphs that look similar, but use different data. Also, by having the template independent of the actual data, the same data file can be graphed a number of different ways.

ENTERING THE MAIN LEVEL

The Main Level labels appear after the template has been selected, or when [Main] is pressed after you have re-entered the Data Manager.

THE DRAW MANAGER | 5

GENERAL DESCRIPTION

The Draw Manager has all the functions which allow you to change, position, or create the graph itself. The Draw Manager is really the heart of Graph, allowing you to make or modify a graph in virtually any way.

DRAW MANAGER LABELS

The top level of the Draw Manager labels is shown below:

	F1	F2	F3	F4	F5
Shift	DrawPrms			Rev Cube	Monitor
Unshift	SelGraph	Position	Redraw	Clr Cube	Frame

	F6	F7	F8	F9	F10
Shift	RevBkGnd	Grid X	Grid Y	Grid Z	
Unshift	ClrWmdow	Base			Main

[SelGraph] calls the SelGraph labels, which are used to select the graph type.

[Position] calls the Position labels, which are used to position the graph in 3-D space, or view the graph from different pre-set angles.

[Redraw]	redraws the graph using the current template.
[Clr Cube]	clears the cube of the graph, without erasing the labels or the frame.
[Frame]	draws a skeleton (using broken lines) of the X-Y-Z frame of the graph.
[ClrWndow]	erases the window.
[Base]	activates the Base segment of the graph, and calls the Base labels.
[Main]	ends the Draw Manager and calls the Main Level labels.
[DrawPrms]	calls the DrawPrms labels, which control the perspective from which the graph is drawn or viewed, and the sizing of the graph.
[Rev Cube]	reverses the cube of the graph, without affecting the labels.
[Monitor]	turns the Monitor on, creating a buffer file that records all modifications to the graph. This buffer file can later be saved with SaveTplt to create a custom template. The Monitor is turned off by pressing [MntrOff].
[RevBkGnd]	reverses the screen.
[Grid X]	activates the Grid X (back wall) of the graph and calls the Grid X labels for defining the lines and shading.
[Grid Y]	activates the Grid Y (bottom) of the graph and calls the Grid Y labels for defining the lines and shading.
[Grid Z]	activates the Grid Z (side wall) of the graph and calls the Grid Z labels for defining the lines and shading.

THE LABEL MANAGER | 6

GENERAL DESCRIPTION

The Label Manager is used to create and modify text labels on the graph, as well as add an optional legend. These text labels are assigned to one of 12 different fields, with the first four fields containing sub-fields called tags.

Text labels may be part of the input file, or can be added or changed with the Label Manager. See the chapter covering the Data Manager for details about including labels in input files.

Parameters for each field are stored in the template. If Monitor is on, any changes to label parameters, such as size, font, or position, are stored in a buffer file. When the graph is redrawn, this buffer file is used. A custom template can be created to save this set of parameters, including label information.

LABEL MANAGER LABELS

The Label Manager labels are:

	F1	F2	F3	F4	F5
Shift	LablPrms	DrwLegnd	Ers Tag	ErsField	EraseAll
Unshift	Def Tag	DefField	Wrt Tag	WrtField	WriteAll

	F6	F7	F8	F9	F10
Shift	RevBkGnd	Wht Line	Blk Line	Xor Line	
Unshift	ClrWndow	Frame	Reverse	Clear	Main

[Def Tag] activates the specified tag in the specified field, and loads the text for that tag.

[DefField] activates the specified field.

[Wrt Tag] writes the specified tag using the current tag attributes.

[WrtField] writes the specified field using the current field attributes.

[WriteAll] writes all label fields that contain text, using current attributes.

[ClrWndow] clears the screen, but does not delete the buffer files containing the template or graph information.

[Frame] draws a box in the selected line mode (Wht Line, Blk Line or Xor Line) around the tag or field selected with Ers Tag or ErsField.

[Reverse] draws a box around the tag or field selected with Ers Tag or ErsField and reverses the boxed area.

[Clear] draws a box around the tag or field selected with Ers Tag or ErsField and erases the boxed area.

[Main] exits the Label Manager and returns to the Main Level labels.

[LablPrms] calls the LablPrms set of labels, which assign attributes such as font or size to the selected label field.

[DrwLegnd] writes the legend. The legend consists of a shaded box and text label, which matches the shading used in the graph. The legend position is changed with LegndXY under LablPrms.

[Ers Tag] erases the selected tag. Ers Tag is also used with Frame, Reverse or Clear to highlight or clear a tag.

[ErsField] erases the selected field. ErsField is also used with Frame, Reverse or Clear to highlight or clear a field.

[EraseAll] erases all the label fields, but not the graph itself.

[RevBkGnd] reverses the screen.

[Wht Line] selects line mode 1, a solid white line, to use to write the active label.

[Blk Line] selects line mode 0, a solid black line, to use to write the active label.

[Xor Line] selects line mode -1, a broken line, to use to write the active label.

THE LABEL FIELDS

The 12 fields are divided into two groups. The first group, Fields 1 through 4, has sub-fields called tags. This first group is also positioned in 3-D space along the graph planes. These labels change their look when the graph is rotated or moved.

Field 1 identifies the vertical (x-axis) along the back wall that has the number divisions for the data. These divisions are automatically calculated from the data.

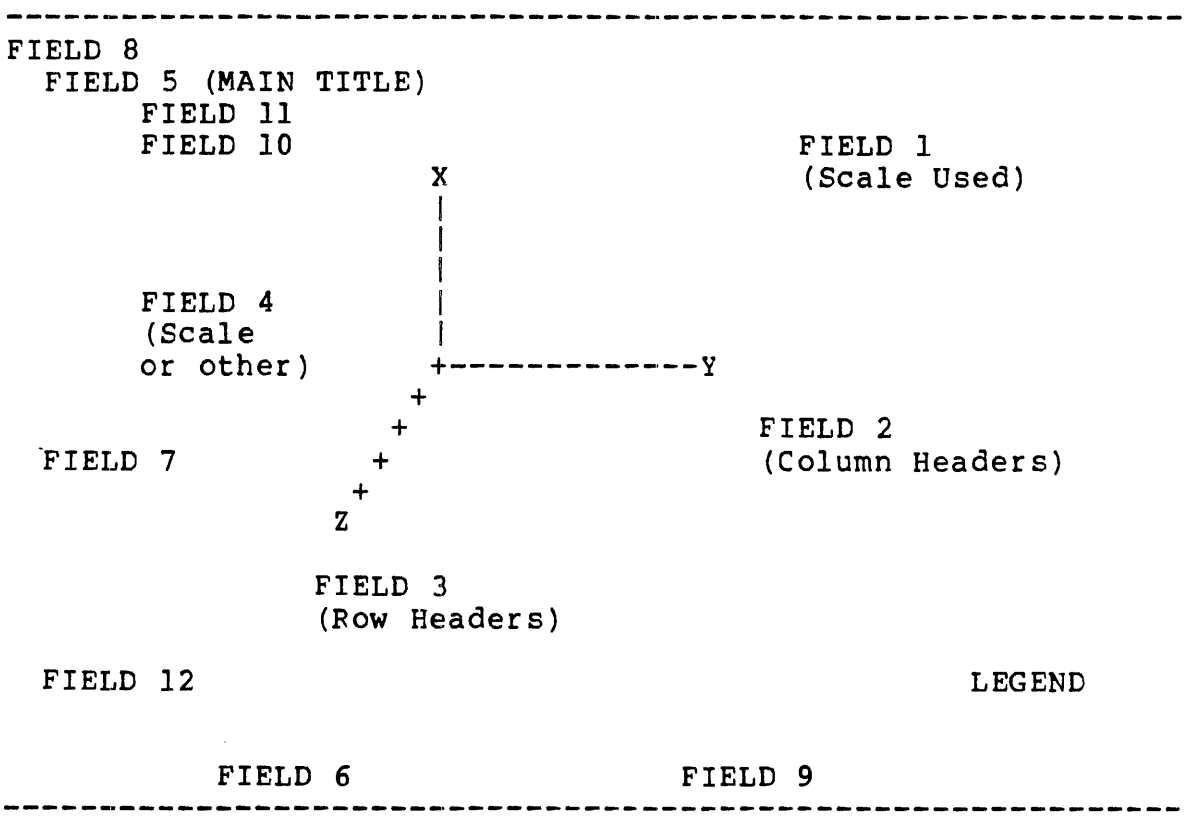
Field 2 contains the column headers, if any, from the data file.

Field 3 contains the row headers, if any, from the data file.

Field 4 contains the number divisions along the side wall (z-axis).

The second group, fields 5 through 12, are shown in 2-D only, and can be positioned anywhere in the window using LablPrms. Field 5 is reserved for the first title line, if any, in the data file. Fields 6 through 12 are for other titles, if any.

The illustration below shows a sample layout of these fields. The position of each field and its attributes vary, depending upon the pre-set template.



LABEL PARAMETERS

The parameters for the label fields are defined using LablPrms. The LablPrms labels are:

	F1	F2	F3	F4	F5
Shift	Font 1 B	Font 2 M	Font 3 F	Font 4 O	Font 5 G
Unshift	Field	Slant	Spacing		Boldness

	F6	F7	F8	F9	F10
Shift					
Unshift	Height	Origin		LegendXY	Exit

[Field] selects the active field.

[Slant] specifies the slant value to be assigned to the field. Slant values range between 1 and 1000, representing slant as a percent of height.

[Spacing] sets the spacing between the letters.

[Boldness] sets the boldness of the font.

[Height] sets the height of the selected field for fields 5 through 12.

[Origin] determines the location of the bottom left corner of the active field, in relation to the origin (center of the window. Origins sets the locations for fields 5 through 12.

[LegendXY] sets the location for the legend.

[Exit] leaves LablPrms and calls the Label Manager labels.

[Font 1 B] assigns Font 1 (bold) to the active

field.

[Font 2 M] assigns Font 2 (medium) to the active field.

[Font 3 F] assigns Font 3 (fancy) to the active field.

[Font 4 O] assigns Font 4 (outline) to the active field.

[Font 5 G] assigns Font 5 (gothy) to the active field.

ADVANCED FEATURES | 7

[THIS SECTION TO BE ADDED LATER]

DESCRIPTION |
OF THE | 8
PRE-SET TEMPLATES |

The following chart should be used as a guide in selecting the pre-set template number for your data. The first column gives the pre-set template number. The template type is listed in the second column. The third and fourth columns indicate the maximum number of rows and columns that your data should have to use that particular template. The fifth, sixth, seventh and eighth columns give the recommended maximum number of characters that the title, subtitle, column headers and row headers should have. The numbers given in this chart are not absolute limits, but should be followed as much as possible to make your graphing as easy and simple as possible.

TEMPLATE No.	Type	Maximum Size in Rows	Cols	Max # of Characters in Field 5 Title	Field 6 Subtitle	Field 2 Column Headers	Field 3 Row Headers
1	BARS	1	12	28	28	14	10
2	BARS	2	2	35	35	9	9
3	BARS	2	3	35	35	30	15
4	BARS	2	4	35	20	9	9
5	BARS	2	8	22	40	9	12
6	BARS	2	12	20	25	9	9
7	BARS	2	20	20	25	9	12
8	BARS	3	7	25	25	10	15
9	BARS	3	15	20	20	9	9
10	BARS	4	2	20	25	12	8
11	BARS	4	3	20	25	12	8
12	BARS	4	4	35	35	12	8
13	BARS	4	6	22	40	15	15
14	BARS	4	12	?	?	?	?
15	BARS	4	20	30	25	12	15
16	BARS	5	1	20	30	12	9
17	BARS	5	3	40	30	10	9
18	BARS	5	6	30	30	12	12

19	BARS	6	2	20	25	15	8
20	BARS	8	2	20	25	12	8
21	BARS	8	4	20	30	9	8
22	BARS	8	8	30	25	20	7
23	BARS	8	12	25	30	9	9
24	BARS	8	20	20	20	9	10
25	BARS	9	5	20	25	12	9
26	BARS	10	2	20	?	9	9
27	BARS	12	2	20	40	12	9
28	BARS	12	4	40	40	15	9
29	BARS	12	12	25	40	15	12
30	BARS	12	16	50	35	20	9
31	BARS	12	20	20	20	15	9
32	BARS	20	2	25	40	9	9
33	BARS	20	4	20	30	10	10
34	BARS	20	8	22	25	15	15
35	BARS	20	12	20	20	15	8
36	PIES	1	1	20	20	9	9
37	PIES	1	2	30	40	12	12
38	PIES	2	2	30	40	12	8
39	PIES	4	4	25	40	9	12
40	PIES	5	1	25	25	12	9
41	PIES	5	3	20	25	12	9
42	LINE	1	16	20	40	12	12
43	LINE	1	20	30	50	12	9
44	LINE	2	10	40	40	12	12
45	LINE	5	3	40	40	9	9
46	LINE	6	16	?	?	?	?
47	LINE	6	18	20	25	20	15
48	LINE	6	20	?	?	?	?
49	LINE	8	16	?	?	?	?
50	LINE	12	24	40	20	10	10
51	LINE	32	24	20	20	9	20
52	SURFACE	4	6	20	50	9	8
53	SURFACE	4	8	40	40	15	9
54	SURFACE	5	2	25	25	9	9
55	SURFACE	6	17	50	40	12	10
56	SURFACE	8	12	20	20	15	9
57	SURFACE	8	13	20	30	9	9
58	SURFACE	8	16	25	25	9	9
59	SURFACE	10	7	20	25	9	9
60	SURFACE	10	8	20	40	9	9
61	SURFACE	11	7	20	30	10	9
62	SURFACE	11	15	30	25	9	9
63	SURFACE	12	12	50	40	15	15
64	SURFACE	13	8	20	30	9	12

65	SURFACE	15	15	20	30	20	12
66	SURFACE	24	24	?	?	?	?
67	RIBBON	1	20	25	40	12	12
68	RIBBON	4	4	20	30	9	8
69	RIBBON	4	12	50	25	9	9
70	RIBBON	4	20	20	25	12	10
71	RIBBON	6	10	25	40	9	12
72	RIBBON	6	17	20	30	12	12
73	RIBBON	8	13	20	25	9	9
74	RIBBON	18	5	20	25	12	9
75	OUTLINE	4	4	20	30	9	9
76	OUTLINE	6	16	30	30	9	9
77	OUTLINE	11	15	20	50	9	12
78	OUTLINE	12	1	20	40	15	30
79	OUTLINE	16	6	30	40	9	10
80	OUTLINE	20	1	20	25	9	9
81	FREEFORM	8	8	--	--	--	--
82	FREEFORM	13	13	--	--	--	--
83	FREEFORM	18	18	--	--	--	--

Notes :

The number of rows and columns for each template are suggested maximum values. Most templates will work with slightly more data, and all of them can safely be used with any data file of smaller format.

GLOSSARY OF GRAPH LABELS | 9

This chapter is designed for reference only. The first part shows the tree structure for all function key labels in Graph. The second part contains a short description of each label and identifies its location.

STRUCTURE OF GRAPH FUNCTION KEY LABELS

(AS ORGANIZED FROM THE MAIN LEVEL)

```
AutoDraw  F1
SaveTplt  F2
Save Pix  F3
SavWndow  F4
List Vol  F5
ClrWndow  F6
Data Mgr  F7
     Manual     F1
     LogiCalc   F2
          Pick Row   F1
          Pick Col   F2
          Ignore     F6
          Zero       F7
          Delete     F8
          Exit       F10
     TextFile   F3
          Pick Row   F1
          Pick Col   F2
          Ignore     F6
          Zero       F7
          Delete     F8
          Exit       F10
     IPC File   F4
          Pick Row   F1
```

```
                Pick Col   F2
                Ignore     F6
                Zero       F7
                Delete     F8
                Exit       F10
           DataFile  F5
                Pick Row   F1
                Pick Col   F2
                Ignore     F6
                Zero       F7
                Delete     F8
                Exit       F10
           List Vol   F6
           Get Tplt   F8
           Main       F10
           DelFile    SF1
           Exit       SF10
      Draw Mgr  F8
           SelGraph   F1
                Bars       F1
                     Draw       F1
                     Wht Line   F3
                     Blk Line   F4
                     Xor Line   F5
                     Fill       F6
                     Cancel     F10
                Pies       F2
                     Draw       F1
                     Wht Line   F3
                     Blk Line   F4
                     Xor Line   F5
                     Fill       F6
                     Explode    F7
                     3-D        F8
                     Cancel     F10
                Line       F3
                     Draw       F1
                     Wht Line   F3
                     Blk Line   F4
                     Xor Line   F5
                     Fill       F6
                     Cancel     F10
                Surface    F4
                     Draw       F1
                     Wht Line   F3
                     Blk Line   F4
```

```
          Xor Line   F5
          Fill       F6
          Cancel     F10
          AutoFill   SF6
     Ribbon    F5
          Draw       F1
          Wht Line   F3
          Blk Line   F4
          Xor Line   F5
          Fill       F6
          Cancel     F10
     Outline   F6
          Draw       F1
          Wht Line   F3
          Blk Line   F4
          Xor Line   F5
          Fill       F6
          Cancel     F10
     Tops      F7
          Draw       F1
          Wht Line   F3
          Blk Line   F4
          Xor Line   F5
          Fill       F6
          Cancel     F10
     Cancel    F10
Position  F2
     RotaXRel  F1
     RotaYRel  F2
     RotaZRel  F3
     Focus     F4
     Zoom      F5
     MoveXRel  F6
     MoveYRel  F7
     MoveZRel  F8
     Move 2D   F9
     Exit      F10
     ClrWndow  SF1
     Top View  SF2
     Row View  SF3
     Col View  SF4
     DataView  SF5
     StepMov2  SF6
     StepMov3  SF7
     StepZoom  SF8
     StepAngl  SF9
```

```
          StpFocus   SF10
          RotaZAbs   CF1
          RotaYAbs   CF2
          RotaZAbs   CF3
          MoveXAbs   CF6
          MoveYAbs   CF7
          MoveZAbs   CF8
          Cursor     CF10
Redraw    F3
Clr Cube  F4
Frame     F5
          Draw       F1
          Wht Line   F3
          Blk Line   F4
          Xor Line   F5
          Fill       F6
                White      F1
                LiteGrey   F2
                Med.Grey   F3
                DarkGrey   F4
                Black      F5
                Hz Lines   F6
                Vt Lines   F7
                Hz Bars    F8
                Vt Bars    F9
                Invert     F10
                Fill Off   SF6
                Cancel     SF10
          Cancel     F10
ClrWndow  F6
Base      F7
          Draw       F1
          Wht Line   F3
          Blk Line   F4
          Xor Line   F5
          Fill       F6
                White      F1
                LiteGrey   F2
                Med.Grey   F3
                DarkGrey   F4
                Black      F5
                Hz Lines   F6
                Vt Lines   F7
                Hz Bars    F8
                Vt Bars    F9
                Invert     F10
```

```
                Fill Off   SF6
                Cancel     SF10
          Cancel     F10
Main      F10
DrawPrms  SF1
     3D X Pos   F1
     3D Y Pos   F2
     3D Z Pos   F3
     ViewDist   F4
     Zoom       F5
     Dimensns   F6
     Spacing    F7
     2D X Pos   F8
     2D Y Pos   F9
     Exit       F10
     Format     SF6
Rev Cube  SF4
Monitor   SF5
MntrOff   SF5
RevBkGnd  SF6
Grid X    SF7
     Draw       F1
     Wht Line   F3
     Blk Line   F4
     Xor Line   F5
     Fill       F6
          White      F1
          LiteGrey   F2
          Med.Grey   F3
          DarkGrey   F4
          Black      F5
          Hz Lines   F6
          Vt Lines   F7
          Hz Bars    F8
          Vt Bars    F9
          Invert     F10
          Fill Off   SF6
          Cancel     SF10
     X-Hatch    F9
     Cancel     F10
Grid Y    SF8
     Draw       F1
     Wht Line   F3
     Blk Line   F4
     Xor Line   F5
     Fill       F6
```

```
                    White      F1
                    LiteGrey   F2
                    Med.Grey   F3
                    DarkGrey   F4
                    Black      F5
                    Hz Lines   F6
                    Vt Lines   F7
                    Hz Bars    F8
                    Vt Bars    F9
                    Invert     F10
                    Fill Off   SF6
                    Cancel     SF10
               X-Hatch    F9
               Cancel     F10
          Grid Z     SF9
               Draw       F1
               Wht Line   F3
               Blk Line   F4
               Xor Line   F5
               Fill       F6
                    White      F1
                    LiteGrey   F2
                    Med.Grey   F3
                    DarkGrey   F4
                    Black      F5
                    Hz Lines   F6
                    Vt Lines   F7
                    Hz Bars    F8
                    Vt Bars    F9
                    Invert     F10
                    Fill Off   SF6
                    Cancel     SF10
              X-Hatch    F9
              Cancel     F10
     LabelMgr  F9
          Def Tag    F1
          DefField   F2
          Wrt Tag    F3
          WrtField   F4
          WriteAll   F5
          ClrWndow   F6
          Frame      F7
          Reverse    F8
          Clear      F9
          Main       F10
          LablPrms   SF1
```

```
                Field      F1
                Slant      F2
                Spacing    F3
                Boldness   F5
                Height     F6
                Origin     F7
                LegendXY   F9
                Exit       F10
                Font 1 B   SF1
                Font 2 M   SF2
                Font 3 F   SF3
                Font 4 O   SF4
                Font 5 G   SF5
          DrwLegnd  SF2
          Ers Tag   SF3
          ErsField  SF4
          EraseAll  SF5
          RevBkgnd  SF6
          Wht Line  SF7
          Blk Line  SF8
          Xor Line  SF9
     ReDraw     SF1
     Get Tplt   SF2
     Load Pix   SF3
          Fine Up    F1
          FineDown   F2
          PutSmear   F5
          Put Over   F6
          Put XOR    F7
          Exit       F10
          ErasWndw   SF1
          Eras All   SF3
          InvtWndw   SF5
          NoLabels   SF8
     Print      SF4
          Toshiba    F1
          EpsMX80    F2
          EpsMX100   F3
          EpsFX80    F4
          EpsFX100   F5
          M./Tally   F6
          Cancel     F10
          Custom     SF1
     Monitor    SF5
     Scale      SF7
     Exit       SF10
```

MemAvail	CF1
RevBkgnd	CF6
Suspend	CF10

DESCRIPTION OF LABELS

GLOSSARY OF GRAPH LABELS

[3-D]	selects a three-dimension view of the pie, which appears to be a cylindrical rod. 3-D is found in the Pies choice of SelGraph in the Draw Manager.
[2D X Pos]	sets the screen offset in pixels from the origin for the X-axis for a 2-D view of the graph. 2D X Pos is found in DrawPrms of the Draw Manager.
[2D Y Pos]	sets the screen offset in pixels from the origin for the Y-axis for a 2-D view of the graph. 2D Y Pos is found in DrawPrms of the Draw Manager.
[3D X Pos]	sets the cube offset in pixels from the world origin for the X-axis in 3-D. 3D X Pos is found in DrawPrms of the Draw Manager.
[3D Y Pos]	sets the cube offset in pixels from the world origin for the Y-axis in 3-D. 3D Y Pos is found in DrawPrms of the Draw Manager.
[3D Z Pos]	sets the cube offset in pixels from the world origin for the Z-axis in 3-D. 3D Z Pos is found in DrawPrms of the Draw Manager.
[AutoDraw]	automatically draws the graph with the loaded data file and template, showing the current look of your graph. AutoDraw is found at the Main Level.

[AutoFill] sets automatic fill on/off for surface graphs. AutoFill is found under the Surface choice of SelGraph in the Draw Manager.

[Bars] selects a bar graph as the type of graph you wish to custom design. Bars is under SelGraph in the Draw Manager.

[Base] activates the base segment, allowing options to be specified. Base is the floor of the model. The default base design has row and column dividing lines only. Base is found in the Draw Manager.

[Black] is a solid fill, with the polygon fill mode set to 1. Black is one of the shades under Fill, which is found under Frame, Base, Grid X, Grid Y and Grid Z in the Draw Manager.

[Blk Line] sets the line mode to black color. Blk Line is found under Bars, Pies, Line, Surface, Outline, and Tops of SelGraph in the Draw Manager, as well as under Frame, Base, Grid X, Grid Y, and Grid Z in the Draw Manager. Blk Line is also found in LablPrms in the Label Manager.

[Boldness] sets the boldness for the text label fonts. Boldness is found under LablPrms in the Label Manager.

[Cancel] terminates the current set of options and returns to the previous set of labels. Cancel is found under Bars, Pies, Line, Surface, Ribbon, Outline and Tops of SelGraph in the Draw Manager; under SelGraph; under Fill in Frame, Base, Grid X, Grid Z and Grid Y of the Draw Manager; under Frame, Base, Grid X, Grid Y and Grid Z of the Draw Manager; and under Print at the Main Level.

[Clear] clears the framed area for a specified field or tag. Clear is in the Label Manager.

[Clr Cube] clears the cube of the graph. The cube is the actual area inside the frame itself. Clr Cube

is found in the Label Manager.

[ClrWndow] erases the current window. ClrWndow is found at the Main Level; under Position in the Draw Manager; under the Draw Manager; and under the Label Manager.

[Col View] shows a 2-D view of the graph, looking straight at the columns. Col View is found under Position in the Draw Manager.

[Cursor] activates the cursor movement keys to move the graph image in the window. Cursor is found under Position in the Draw Manager.

[Custom] selects a custom printer graphics driver. Custom is found under Print at the Main Level.

[DarkGrey] selects fill mode 2, Dark Grey, as the fill shade, with approximately 25% color. DarkGrey is found under Fill in Frame, Base, Grid X, Grid Y and Grid Z in the Draw Manager.

[Data Mgr] Selects the Data Manager set of labels. Data Mgr is at the Main Level.

[DataFile] selects a data file (ending with DT.TEXT) as the input file for Graph. DataFile is in the Data Manager.

[DataView] displays the graph looking directly at the data. DataView is under Position in the Draw Manager.

[Def Tag] activates the specified tag of a label field and defines its contents. Def Tag is found in the Label Manager.

[DefField] activates the specified field and defines the contents of the field. DefField is found in the Label Manager.

[Delete] deletes the specified row or column from the buffer data file that is used in the graph. Delete is under LogiCalc, TextFile, IPC File

and DataFile in the Data Manager.

[DelFile] deletes the specified file from the volume. DelFile is found in the Data Manager.

[Dimensns] sets the dimensions for the cube occupied by the graph in terms of pixels. The relationship among the width (X), height (Y), depth (Z) and base height determine the cube's proportions. Dimensns is under DrawPrms in the Draw Manager.

[Draw] draws the specified or current active segment with the existing parameters. Draw is found in the Bars, Pies, Line, Surface, Ribbon, Outline and Tops options of SelGraph in the Draw Manager; under Frame, Base, Grid X, Grid Y, and Grid Z in the Draw Manager.

[Draw Mgr] calls the Draw Manager level of labels. Draw Mgr is at the Main Level.

[DrawPrms] calls the labels for setting draw parameters. DrawPrms is found in the Draw Manager.

[DrwLegnd] draws the Legend key for the graph at the specified location. The Legend arbitrarily uses the data file name as the text legend. DrwLegnd is found in the Label Manager.

[EpsFX80] loads the printer graphics driver for the Epson FX80 printer. EpsFX80 is found under Print at the Main Level.

[EpsFX100] loads the printer graphics driver for the Epson FX100 printer. EpsFX100 is found under Print at the Main Level.

[EpsMX80] loads the printer graphics driver for the Epson MX80 printer. EpsMX80 is found under Print at the Main Level.

[EpsMX100] loads the printer graphics driver for the Epson MX100 printer. EpsMX100 is found under Print at the Main Level.

[Eras All] erases all data from the graph. Eras All is found under Load Pix at the Main Level.

[EraseAll] erases all label fields from the screen. EraseAll is under LablPrms in the Label Manager.

[ErasWndw] erases the current window. ErasWndw is found under Load Pix at the Main Level.

[Ers Tag] erases the current active tag (text label). Ers Tag is found under LablPrms in the Label Manager.

[ErsField] erases the current active field of text labels. ErsField is found under LablPrms in the Label Manager.

[Exit] leaves the current set of labels and goes to the previous level. Exit is found at the Main Level, to terminate Graph; under LogiCalc, TextFile, IPC File and DataFile under the Data Manager; under DrawPrms and Position in the Draw Manager; under LablPrms in the Label Manager and under Load Pix at the Main Level. Exit is also found under the Data Manager, wher it terminates Graph and calls the ISYS labels.

[Explode] selects the specified pie segment to offset approximately 25% from the pie diameter. If 3-D has been chosen, segments cannot be exploded. Explode is found under the Pies option of SelGraph in the Draw Manager.

[Field] selects the field to be set active for label parameters. Field is under LablPrms in the Label Manager.

[Fill] turns automatic fill on, or calls the Fill labels to select the shade. Fill is found under Bars, Pies, Line, Surface, Ribbon, Outline and Tops under SelGraph in the Draw Manager; under Frame, Base, Grid X, Grid Y, and Grid Z in the Draw Manager.

[Fill Off] turns fill off for the active segment. Fill Off is found under Fill under Frame, Base, X Grid, Y Grid and Z Grid in the Draw Manager.

[Fine Up] thickens the graph lines one pixel each time it is pressed. Fine Up is found under Load Pix at the Main Level.

[FineDown] thins the graph lines one pixel each time it is pressed. Fine Down is found under Load Pix at the Main Level.

[Focus] adjusts the focusing distance by the amount set with StpFocus. Focus changes the distance you appear to be viewing the Graph from. Focus is found under Position in the Draw Manager.

[Font 1 B] selects the bold font to use to write the current active label field. Font 1 B is found under LablPrms in the Label Manager.

[Font 2 M] selects the medium font to use to write the current active label field. Font 2 M is found under LablPrms in the Label Manager.

[Font 3 F] selects the fancy font to use to write the current active label field. Font 3 F is found under LablPrms in the Label Manager.

[Font 4 O] selects the outline font to use to write the current active label field. Font 4 O is found under LablPrms in the Label Manager.

[Font 5 G] selects the gothy font to use to write the current active label field. Font 5 G is found under LablPrms in the Label Manager.

[Format] determines the row/column format of the graph, and re-scales Y-axis to fit data. Format is under DrawPrms in the Draw Manager.

[Frame] sets frame active. The frame is the X-Y-Z surfaces and the base. If no options are

selected, an outline frame is shown. Frame is found in the Draw Manager. Frame is also found in the Label Manager, where it displays an outline of the graph frame for positioning labels.

[Get Tplt] loads the specified template containing the graph parameters. You are asked to decide between a pre-set template or a custom one. Get Tplt is found at the Main Level, and also in the Data Manager.

[Grid X] sets the Grid X segment active, which is the wall that runs parallel to the rows. Grid X is in the Draw Manager.

[Grid Y] sets the Grid Y segment active, which is the floor of the model. Grid Y is in the Draw Manager.

[Grid Z] sets the Grid Z segment active, which is the wall that runs parallel to the columns. Grid Z is in the Draw Manager.

[Height] sets the height for the active field of text labels. Height is under LablPrms in the Label Manager.

[Hz Bars] fills active segments of the graph with horizontal bars (fill mode 9). Hz Bars is found under Fill in Frame, Base, Grid X, Grid Y and Grid Z in the Draw Manager.

[Hz Lines] fills active segments of the graph with horizontal lines (fill mode 11). Hz Lines is found under Fill in Frame, Base, Grid X, Grid Y, and Grid Z in the Draw Manager.

[Ignore] ignores the specified rows or columns of data in the loaded data file. The graph will be drawn without this data. Ignore is found under LogiCalc, TextFile, IPC File and DataFile in the Data Manager.

[Invert] reverses the background color of the active graph segment. Invert is found under Fill in

Frame, Base, Grid X, Grid Y and Grid Z in the Draw Manager.

[InvtWndw] inverts the screen for the current window. InvtWndw is found under Load Pix at the Main Level.

[IPC File] selects the specified IPC file as the data input for Graph. IPC File is found in the Data Manager.

[LabelMgr] calls the Label Manager set of labels. LabelMgr is found at the Main Level.

[LablPrms] calls the LablPrms set of labels, which define the parameters for the text labels. LablPrms is found in the Label Manager.

[LegendXY] defines the position of the legend in the window. LegendXY is found under LablPrms in the Label Manager.

[Line] selects Line as the graph type. Line is found under SelGraph in the Draw Manager.

[List Vol] lists all files or the selected type of data files for the specified volume. List Vol is found at the Main Level, and also in the Data Manager.

[LiteGrey] fills the active graph segments with light grey shading (fill mode 14). LiteGrey is found under Fill in Frame, Base, Grid X, Grid Y and Grid Z in the Draw Manager.

[Load Pix] loads the specified pixel bit map (.HPIC or .VPIC) into the current window. Load Pix is found at the Main Level.

[LogiCalc] selects the specified LogiCalc data file as the data input file used in the graph. LogiCalc is found in the Data Manager.

[M./Tally] loads the printer graphics driver for the Mannesman Tally printer. M./Tally is found under Printer at the Main Level.

[Main] calls the Main Level labels. Main is found in the Data Manager, in the Draw Manager and in the Label Manager.

[Manual] is used to input a data file directly into Graph, for a specified row-column size. Manual is found in the Data Manager.

[Med.Grey] fills the active graph segments with medium grey shading (fill mode 13). Med.Grey is found under Fill in Frame, Base, Grid X, Grid Y and Grid Z in the Draw Manager.

[MemAvail] displays the amount of Concept memory available for use by Graph. MemAvail is found at the Main Level.

[MntrOff] turns the Monitor off, so template modifications are not saved into a buffer. When the graph is drawn again, the original template is used. MntrOff is found in the Draw Manager.

[Monitor] turns the Monitor on, which records template modifications in a buffer. When the graph is drawn again, this modified template is used. Monitor is found at the Main Level, and in the Draw Manager.

[Move 2D] moves the graph in 2-dimension direction on the screen, using the cursor movement keys, with the increment set by StepMov2. Move 2D is found under Position in the Draw Manager.

[MoveXAbs] moves the graph along the X axis in absolute pixel units defined by StepMov3. MoveXAbs is found under Position in the Draw Manager.

[MoveXRel] moves the graph along the X axis in relative units defined by StepMov3. MoveXRel is found under Position in the Draw Manager.

[MoveYAbs] moves the graph along the Y axis in absolute pixel units defined by StepMov3. MoveYAbs is found under Position in the Draw Manager.

[MoveYRel] moves the graph along the Y axis in relative units defined by StepMov3. MoveYRel is found under Position in the Draw Manager.

[MoveZAbs] moves the graph along the Z axis in absolute pixel units defined by StepMov3. MoveZAbs is found under Position in the Draw Manager.

[MoveZRel] moves the graph along the Z axis in relative units defined by StepMov3. MoveZRel is found under Position in the Draw Manager.

[NoLabels] erases the labels so just the graph is displayed. NoLabels is found under Load Pix at the Main Level.

[Origin] determines the location of text label fields 5 through 12 (2-D labels), in terms of pixel units from the center of the window. Origin is found under LablPrms in the Label Manager.

[Outline] selects outline as the graph type for which a custom template is created. Outline is found under SelGraph in the Draw Manager.

[Pick Col] selects the specified column(s) in the data file that will be ignored, deleted, or zeroed. Pick Col is found under LogiCalc, TextFile, IPC File and DataFile in the Data Manager.

[Pick Row] selects the specified row(s) in the data file that will be ignored, deleted, or zeroed. Pick Row is found under LogiCalc, TextFile, IPC File and DataFile in the Data Manager.

[Pies] selects pies as the graph type for which a custom template is created. Pies is found under SelGraph in the Draw Manager.

[Position] calls the labels used to position the graph as viewed on the screen. Position is in the Draw Manager.

[Print] calls the labels for loading printer graphics drivers and printing a graph picture. Print

is found under the Main Level.

[Put Over] positions a copy of the current graph over the displayed graph. Put Over is found under Load Pix at the Main Level.

[Put XOR] positions an exclusive-or image of the graph over the displayed graph. PutXOR is found under Load Pix at the Main Level.

[PutSmear] activates the smear feature which smears the picture, using the cursor movement keys. PutSmear is found under Load Pix at the Main Level.

[Redraw] draws the graph using the template stored in the Monitor, showing the graph as it currently looks. Redraw is found at the Main Level, and in the Draw Manager.

[Rev Cube] inverts the cube image formed by the X, Y and Z axis. Rev Cube is found in the Draw Manager.

[RevBkGnd] reverses the screen. RevBkGnd is found at the Main Level, and in the Draw Manager. RevBkGnd is also found in the Label Manager.

[Reverse] reverses the active text label field or tag. Reverse is used together with ErsField or ErsTag. Reverse is found in the Label Manager.

[Ribbon] selects ribon as the graph type used to design a custom template. Ribbon is found under SelGraph in the Draw Manager.

[RotaXAbs] rotates the graph around the X-axis in absolute units, using the left or right cursor keys. RotaXAbs is found under Position in the Draw Manager.

[RotaXRel] rotates the graph around the X-axis in relative units, using the left or right cursor keys. RotaXRel is found under Position in the Draw Manager.

[RotaYAbs] rotates the graph around the Y-axis in absolute units, using the left or right cursor keys. RotaYAbs is found under Position in the Draw Manaer.

[RotaYRel] rotates the graph around the Y-axis in relative units, using the left or right cursor keys. RotaYRel is found under Position in the Draw Manager.

[RotaZAbs] rotates the graph around the Z-axis in absolute units, using the left or right cursor keys. RotaZAbs is found under Position in the Draw Manager.

[RotaZRel] rotates the graph around the Z-axis in relative units, using the left or right cursor keys. RotaZRel is found under Position in the Draw Manager.

[Row View] rotates cube into a preset position so the cube is viewed down the z-axis. Row View is found under Position in the Draw Manager.

[Save Pix] saves a bit map image of the bounded area of the window, to the specified .HPIC or .VPIC file. This picture can be loaded with Load Pix. Save Pix is found at the Main Level.

[SaveTplt] saves a copy of the current template under the specified name, which is loaded under the Custom option of GetTplt. SaveTplt is found at the Main Level.

[SavWndow] saves the current window to a .HPIC or .VPIC file, which can be loaded later using Load Pic. SavWndow is found at the Main Level.

[Scale] selects the scaling proportion option used: Absolute, Proportional or Unproportional. Graph automatically scales the graph image to fit the current window. Scale is found at the Main Level.

[SelGraph] calls the labels for selecting and defining

graph type for designing custom graphs. SelGraph is found in the Draw Manager.

[Slant] sets the slant of the font. The slant value is a percentage of the character's height, the minimum value -1000 and the maximum value 1000. Slant is under LablPrms in the Label Manager.

[Spacing] sets the spacing of the bar or pie within its field as a percent of the field. The default value is usually 50, and can be set to any value between 1 and 100. Spacing is found under DrawPrms in the Draw Manager. Spacing also sets the spacing between letters in text labels, and is found under LablPrms in the Label Manager.

[StepAngl] sets the number of degrees by which the cube is rotated with other Position commands. StepAngl can have any integer value between 1 and 90. StepAngl is found under Position in the Draw Manager.

[StepMov2] sets the number of pixels the cube is moved with the 2-D commands under Position. Integer values between 1 and 100 can be used. StepMov2 is found under Position in the Draw Manager.

[StepMov3] sets the number of pixels the cube is moved with the 3-D commands under Position. Integer values between 1 and 100 can be used. StepMov3 is found under Position in the Draw Manager.

[StepZoom] sets the zoom factor used by Zoom. This value can be between 1 and 100, and corresponds to a percentage of the cube's size.

[StpFocus] sets the focus factor used by Focus. This value can be an integer between 1 and 100. StpFocus is found under Position in the Draw Manager.

[Surface] selects surface as the graph type used to

in the custom template. Surface is found under SelGraph in the Draw Manager.

[Suspend] calls the Suspend labels of ISYS, to run another program. Suspend is found at the Main Level.

[TextFile] selects the specified text data file to use as the data input file for the graph. TextFile is found in the Data Manager.

[Top View] selects a pre-set view of the graph looking directly down on it. Top View is found under Position in the Draw Manager.

[Tops] selects tops as the graph type used in the custom template. Tops is found under SelGraph in the Draw Manager.

[Toshiba] loads the printer graphics driver for the Toshiba P-1350 printer. Toshiba is found under Printer at the Main Level.

[ViewDist] sets the distance between the origin of the cube and the screen view. Integer values between 1 and 1000 can be used, with larger values moving the graph away from viewer, making it appear smaller. ViewDist is found under DrawPrms in the Draw Manager.

[Vt Bars] fills active segments of the graph with vertical bars (fill mode 10). Vt Bars is found under Fill in Frame, Base, Grid X, Grid Y and Grid Z in the Draw Manager.

[Vt Lines] fills active segments of the graph with vertical lines (fill mode 12). Vt Lines is found under Fill in Frame, Base, Grid X, Grid Y and Grid Z in the Draw Manager.

[White] is a solid fill, with the polygon fill mode set to 15. White is one of the shades under Fill, which is found under Frame, Base, Grid X, Grid Y and Grid Z in the Draw Manager.

[Wht Line] sets the line mode to white color. Wht Line

is found under Bars, Pies, Line, Surface, Outline, and Tops of SelGraph in the Draw Manager, as well as under Frame, Base, Grid X, Grid Y, and Grid Z in the Draw Manager. Blk Line is also found in LablPrms in the Label Manager.

[WriteAll] writes all text label fields using current attributes. WriteAll is found in the Label Manager.

[Wrt Tag] writes the active label tag using its current parameters. Wrt Tag is found in the Label Manager.

[WrtField] writes the text labels for the active field using their current parameters. WrtField is found in the Label Manager.

[X-Hatch] selects fill mode 2, which is a cross-hatch pattern. X-Hatch is found under Fill in Frame, Base, Grid X, Grid Y, and Grid Z in the Draw Manager.

[Xor Line] sets the line mode to exclusive or, which appears as a broken line. Xor Line is found under Bars, Pies, Line, Surface, Outline and and Tops of Selgraph in the Draw Manager, as well as under Frame, Base, Grid X, Grid Y, and Grid Z in the Draw Manager. Xor Line is also found under LablPrms in the Label Manager.

[Zero] sets all values in the specified columns or rows of the data file to zero when graphed. Zero is found under LogiCalc, TextFile, IPC File and DataFile in the Data Manager.

[Zoom] changes the picture size of the graph by moving it in 3-D space. The amount of change is computed from the variable set with StepZoom. Zoom is found under Position in the Draw Manager, and under DrawPrms in the Draw Manager.