HEWLETT-PACKARD

Graphics Presentations Pac

HP-83/85

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Introduction

The Graphics Presentations Pac has been designed to provide you with a simple method for creating overhead transparencies, using your HP-83 or HP-85 Personal Computer, the Overhead Transparency Kit (Part No. 17056A), and either HP 7225 or HP 9872 Plotter. Using this pac, it is possible to create both text slides and charts. Charts include line graphs, bar graphs, and pie charts. You may also find the pac helpful when you want to organize text or data for plotting on standard plotter paper.

A knowledge of programming is not required to use the Graphics Presentations Pac. Everything you need to know about computer and plotter operation is included in this manual.

If you encounter problems not covered in this manual or your system develops a mechanical malfunction, consult the HP-83 or HP-85 Owner's Manual or the appropriate plotter manual.

This manual is divided into three sections, Getting Started, Slide Creation, and Special Function Key Definition, and an appendix. Getting Started includes a list of equipment needed, directions for plotter setup, tape initialization, and descriptions of lettering, line, and hatching styles and a discussion of line, bar, and pie charts. Slide Creation includes examples which create a text slide, a line graph, a bar graph and a pie chart. Special Function Key Definition contains a detailed description of each key's function when labeled with a certain label. For easy reference, a brief description of the various screen formats (called HELP #s), encountered during slide creation is found at the end of section three at the back of the manual.

We are confident you will find this pac to be a valuable tool to increase your effectiveness in graphically communicating facts and figures.

Contents

Getting Started

Equipment Needed

The Graphics Presentations Pac consists of two tapes, two discs, and a manual packaged in a binder. To use the pac with your HP-83/85, you need the following accessories.

Item	Part Number
HP-IB Interface	82937A
16K Memory Module	82903A
ROM Drawer	82936A
Plotter/Printer ROM	00085-15002
Plotter	HP 7225 or HP 9872
Disc Drive*	HP 82900 Series Flexible Disc Drive
Overhead Transparency Kit**	17055A

* Disc Drive is optional for use with HP-85, required for use with HP-83.

** This kit is optional, but contains the special pens and film used when creating overhead transparencies.

For information on attaching the various components, refer to Appendix A at the back of this manual.

Preparing Your Plotter

The following steps will prepare your plotter for use with the Graphics Presentations Pac:

1. Connect the plotter to the HP-83/85 as described in the appendix of this manual.
2. Turn the plotter on. The switch is located on the right side of the 7225 and on the lower front of the 9872 plotter.
3. Press the (CHART LOAD) button. The lamp in the button will light and the pen will move to the upper right corner of the platen.

Note: Transparency inks will not adhere over fingerprints on overhead transparency film. Handle film with the tissue still covering the plotting surface. Refer to the use suggestions inside the cover of the Overhead Transparency Kit for hints on storage of pens and transparencies.

4. Holding the transparency film, covered with tissue or paper by the edge, place it on the platen so that the longer side is along the base of the platen. Smooth out the paper with the back of your hand and remove the tissue from the top of the film.
5. Press the (CHART LOAD) button again on the 7225; on the 9872 plotter press (CHART HOLD). The lamp in (CHART LOAD) will go out and the electrostatic paper hold-down will be activated. On a 7225 plotter, no plotting can occur while the (CHART LOAD) button is lit.

6. If you have a 7225 plotter, do not install a pen until you are ready to plot and the program tells you to install one.

   If you have a 9872 plotter, you may install pens now or when prompted by the program to prepare the plotter. You may want to clean the boots of the pen stalls with a cotton swab and water and/or solvent to remove ink residue. Standard pen placement is black or brown in stall 1, red or orange in stall 2, green in stall 3 and blue or violet in stall 4.

Your plotter is now ready to use.

Checking For Paper

If you are using an HP-85, be sure it is loaded with paper. Directions for loading paper are found in the Owner's Manual and Programming Guide.

Creation of a Slide Storage Tape

The first time you use your Graphics Presentations Pac, or whenever you use a new or different tape for slide storage, the program must initialize the slide storage tape. Before inserting a tape for slide storage, be sure the RECORD slide tab is pushed all the way to the right in the record position as shown in the picture below.

Pushing the tab to the right removes the write-protect feature. The process of initializing a slide storage tape takes eight minutes. Once a tape has been initialized for slide storage, it does not go through this process again.

A maximum of 80 slides can be stored on a single tape. Each slide is on a separate "record." Slides with large amounts of text may require two records and thus the total number of slides storable may be less than 80.

All references to tape in this manual will be understood as references to the current mass storage medium, and therefore will apply to the disc version of the pac.

The same slide storage medium (tape or disc) should be used throughout any one program run, but more than one tape or disc can be used. The program holds slide directory information in memory. This information is updated before each slide store and load.

Note: Throughout this manual the phrase "current slide storage tape" will mean the media which was accessed most recently. In the disc version, the select code of the printer must be entered.

In the disc version only, you have the ability to choose the output device by selecting the proper output code. After loading the program and pressing [RUN], the printer prompt will ask you to specify the output device.

Enter: 1 [END LINE] will direct system output to the CRT

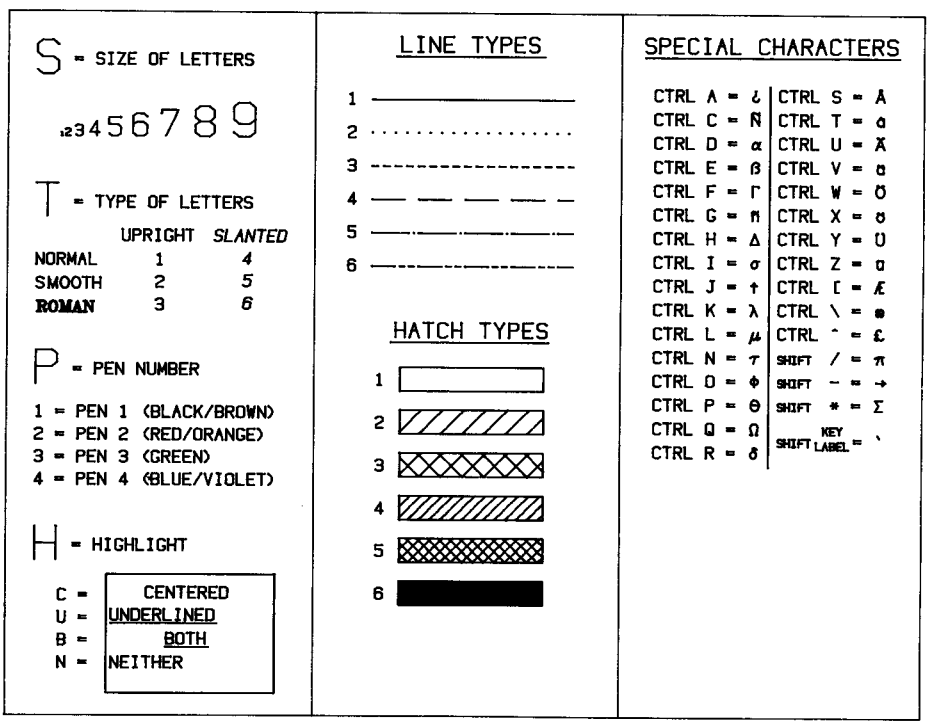
Enter: 2 [END LINE] will direct system output to the internal printer

other numbers of specific printers will direct system output to an external printer.

A system output test is included with the above entry which will advance the desired printer one line if the system is operating properly.

Lettering, Line, and Shading Styles

The Graphics Presentations Pac is capable of drawing letters, lines, and filled areas of several types. It is also possible to plot nearly all of the special characters implemented on the HP-83/85. Lettering, line and hatch types, and the special characters are all displayed on a menu. You have the option of obtaining a plot of this menu each time you run the program. The menu requires eight minutes to plot. The menu is reproduced here.

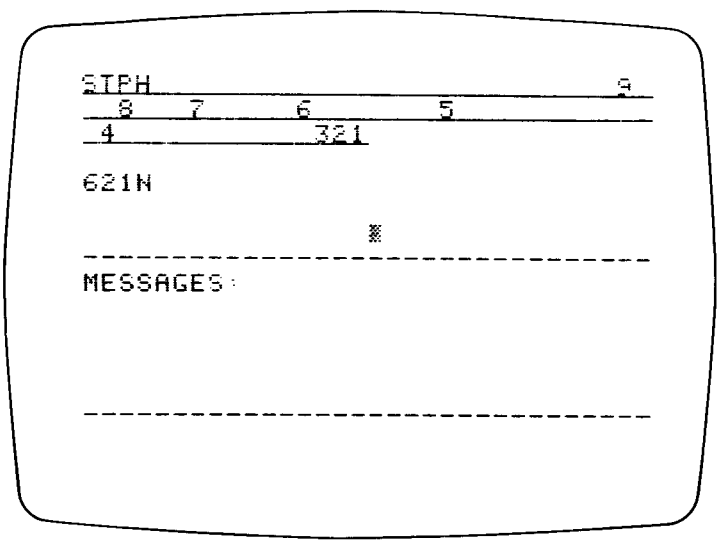


(Reduced Copy)

Lettering

Lettering on text slides can be done in nine sizes, using three character fonts in either upright or slanted style. Specifying pen numbers enables automatic pen selection on the 9872 plotter, or causes the appropriate pen-change message to be displayed on the screen when a 7225 plotter is being used. Text can be centered, underlined, both centered and underlined, or plotted without these enhancements. You, the user, specify all of these attributes in the four-character style code (STPH) which forms the first four characters of every line of entered text. The four characters of the style code, STPH, represent size (S), type (T), pen (P), and highlight (H). Use of the style code is explained in detail in the following paragraphs and summarized on the menu. This size and style of lettering on bar, pie, and line charts cannot be set by the user and always uses the built-in plotter character set.

As a new text slide is begun and on entry into edit text mode, the style code values default to 621N. They may be changed from these values by moving the cursor to the appropriate character and typing in a new value. Whenever the style code is changed, the new values become the default style code for successive lines of text entered while in that same module. A copy of the display when the program is ready to accept text follows.



When adding or editing text, an input guide appears in the first three lines of the screen (see above). This guide indicates the position of the style code in a text line and the maximum number of characters (in normal font) allowed for each size character. One or two extra characters may fit in either Smooth or Roman font because of proportional spacing. The program will not accept a line which is longer than the length indicated in this guide, as the plotted text would exceed the slide boundaries. These maximums are valid for centered text or text which begins at the left edge of the slide. Text beginning in the middle of the slide area will be limited to fewer characters depending on the position of the cursor when the line is added. Lines in character sizes 3, 2, or 1 are limited to 76 characters per line of text.

The actual line of text is input in a "window" in the middle of the screen directly below the input guide. Assume a style code of 711C is entered. The text could then extend across the screen plus seven more

characters on the next line, 39 characters in all, including the style code. This line would appear as a single line of text on the slide, regardless of the wrap-around during input necessitated by the screen width of 32 characters.

Size

The nine character sizes are numbered 1 through 9 and correspond to the approximate height in millimeters of an upper case character or numeral. Size 6 or larger is suitable for major headings and sizes 4 and 5 produce easily readable text. Size 1 should only be used with the narrow pens, as wide pens make this size difficult to read. Further suggestions on use of size parameters are given in the next section on character fonts.

Type (Character Fonts)

The three character fonts available with the text portion of the Graphics Presentations Pac are called Normal, Smooth, and Roman. Normal lettering is done with the built-in character set of the plotter and is the fastest to plot. It is chosen by placing the numeral 1 for upright lettering or 4 for slanted lettering in the second character, T, of the style code. Smooth lettering is the default style and is selected by placing the numeral 2 for upright lettering and 5 for slanted lettering in the style code location. Both Smooth and Roman lettering use character fonts stored in the program. There are two differences between Smooth and Normal lettering. First, characters written in Smooth font are more rounded as more individual vectors are used to form each letter than with Normal font. Secondly, spacing between characters in Smooth (and Roman) fonts is proportional. Notice the space occupied by the letter I in the following example.

SPACING IN NORMAL FONT
SPACING IN SMOOTH FONT

Roman characters are selected by placing the numeral 3 for upright characters and 6 for slanted lettering in the style code location T. Roman characters take longest to plot.

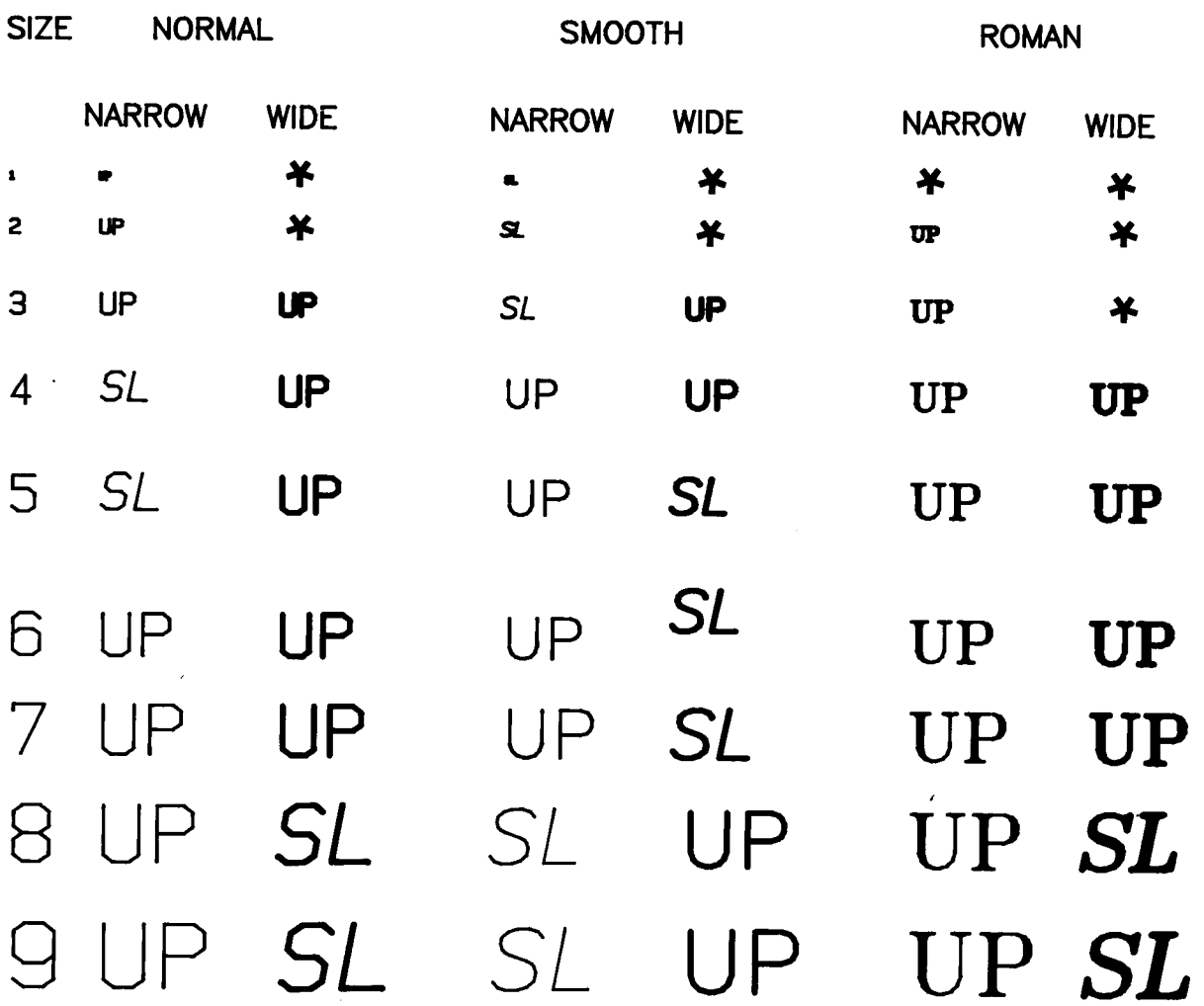
With Normal and Smooth lettering you can use the narrow pens for all sizes and the wide pens for size 3 and larger. With Roman lettering the wide pen may be used on size 4 and larger. Roman lettering created with the wide pen is considerably different in appearance from the same size Roman letter drawn with the narrow pen. Roman lettering with a narrow pen has a formal appearance while lettering with the wide pen is bold and effective for emphasis.

ROMAN WITH NARROW PEN
ROMAN WITH WIDE PEN

The following example shows upright and slanted lettering in various sizes and types with wide and narrow pens. An asterisk means the lettering size and/or style is unsuitable for that pen type.

SAMPLE CHARACTERS

NARROW & WIDE PENS



Pen Number

One of four pens must be specified as the third character, P, of the style code. When the 9872 plotter is used, this number is the stall from which the pen will be picked. To obtain colors as shown on the menu, the user must load pens to correspond with the pen number on the menu. When the 7225 plotter is used, the program pauses and issues a prompt which tells you to change to a different pen.

During plotting, all lines drawn with pen 1 are plotted at one time, then all lines in pen 2, etc. Instead of standard pen placement, you may want to use both the wide and narrow pens in one color. For instance, you might substitute the wide red pen for pen 4 the blue or violet pen with standard placement.

Highlight

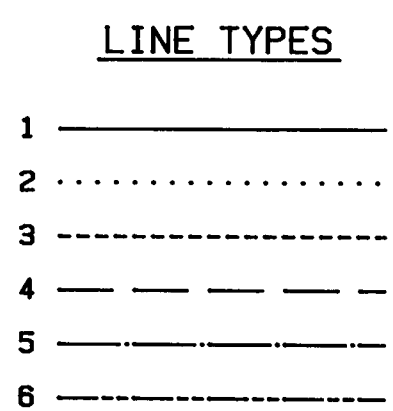
Text can be highlighted by underlining and/or centering. This attribute is specified by the fourth and last character, H, or the style code. Allowable values are C for centered text, U for underlined text, B for both centered and underlined text, and N for neither centered nor underlined text. When centered text is specified, text (including leading blanks immediately following the character code but preceding the actual text) is centered horizontally. In this case, the graphics cursor (+) position is only used to establish the vertical position of the text. It is not possible to use the highlight character of C to center text over several different columns. Centering text over just a column of text must be done by selecting the proper cursor position. The underline capability can only be used to underline an entire line of text; in order to underline a single word within a line, that word must be entered as a separate line of text.

Special Characters

The special characters which appear on the menu can only be plotted in Smooth or Roman fonts. All special characters available on the HP-83/85 are supported on slides except six: ¶, ×, ², ÷, ⊢, and ¬. You will not be allowed to enter text containing these unsupported characters, or any text specified as Normal but containing special characters. Special characters are obtained by pressing the control key and the keyboard key specified on the menu simultaneously. Special characters with umlauts (¨) are best written in size 4 or larger to raise the umlaut off the letter.

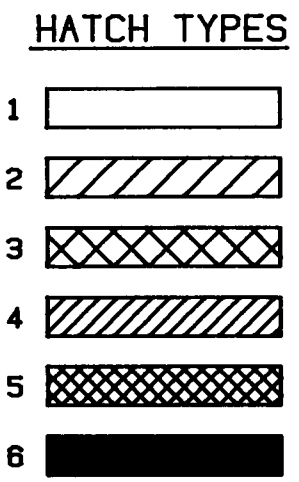
Line Types

Line types are used only in the line chart portion of this pac, and establish the line pattern used to draw lines connecting data points. The line type is specified by an integer one through six. The six values and the resulting lines are shown below. Lines are drawn with the pen specified. Remember pen placement in the stalls of the 9872 plotter must correspond to the pen number on the menu to give the color correlation shown there. Ordinarily you will want to use a wide pen to draw the data lines.



Hatch Types

Hatch types are used in the bar and pie chart portions of the pac to establish fill patterns used for bars and segments of pies. The fill type is specified as an integer value one through six. The values and the resulting fill patterns are shown below. It is best to use widely spaced hatching patterns on large areas. The solid fill type is slowest to plot. For plotting speed and ease of recognition, the smallest areas should be filled using solid fill. To avoid smeared ink, allow ample time (15 minutes) for filled areas to dry before stacking slides.



Line Graphs, Bar Graphs, and Pie Charts

Large amounts of information concerning numerical relationships can be conveyed quickly and effectively using graphs. The three common kinds of graphs are line graphs, bar graphs, and pie charts. Your Graphics Presentations Pac can produce all three kinds of graphs. The word chart is used to refer to these three kinds of graphs as opposed to a text slide. You need only input the titles, range of values, and the data when the program requests them. Brief descriptions of the graph types, their advantages and limitations are included here.

Line Graphs

The simplest graph is the line graph. It is used for both business and scientific applications. Each group of data points is connected by a single line. Each line may be differentiated by color and/or line type. Using the Graphics Presentations Pac, you can create line graphs with a single line or from two to six lines. The graph area of a single line graph is slightly larger than that on a multiple line graph because a single line graph has no legend on the left side of the graph. Each line may have from 2 to 25 data points.

There is a one-to-one correlation between the number of data points and the number of X-axis labels. All lines on the same graph must have the same number of data points. If there are a large number of data points, X-axis labels may overwrite one another. Twenty-five two-character labels will fit. For longer labels use the CRT version of the slide as a guide; there is slightly more room on an actual plot than on the

CRT version. If labels overwrite, you may correct them by editing the X-axis, recreating a graph with a scaled axis, or entering blanks for some labels. If you enter blank labels you will have to be very careful when entering data because no X-axis label will be displayed when you enter the corresponding Y-value.

When using the line graph program in this pac, you must enter a Y-value for every X-axis label. Each line will extend from one side of the graph to the other. You may not scale or label an axis for ten years and only fill in 5 years of data. Both positive and negative Y-axis values are acceptable and data points may be beyond the Y-axis limits. The line to a data point off the graph will be drawn to the graph limit in the direction of the off-scale point. If your data includes negative values, or values beyond the Y-axis limits, you will want to use the line graph portion of the pac.

The X-axis of a line graph may be scaled if its labels are numeric. That means you may pick an initial X-axis value, the number of data points, and the X-axis increment. The axis and all its labels will be generated by the program. You may not omit labels on a scaled graph.

Bar Graphs

Bar graphs are especially appropriate for comparing size or parts of a total. The length of each bar or bar segment is proportional to the quantity represented. There are three variations of the bar graph which can be created using the Graphics Presentations Pac. The first is the "normal" bar graph where there is one Y-value for each X-axis label. A bar or column is placed at and corresponds to each X-axis label location. The height of the bar corresponds to its Y-value. The second variation is called a clustered bar graph. Bars are "clustered" at each X-axis label. The bars in the cluster are usually differentiated by color and/or hatch pattern. The third variation is called a segmented or stacked bar graph. Here, one bar is drawn at each X-axis location and the bar is divided into colored or patterned portions which represent the Y-value for one component.

With this pac it is possible to draw a normal bar chart with 25 X-axis labels or data points. Likewise there can be 25 X-axis locations for clustered or stacked bars; each cluster or stacked bar may have from 2 to 6 parts. The more bars in a cluster, the less X-axis data points you should use, because it becomes difficult to visually separate a large number of clusters. In this pac bar graphs may not have negative data or Y-axis scale values.

Here are some tips for using the bar graph portion of the Graphics Presentations Pac. When planning your maximum Y-value for a stacked bar, be sure it is as large as the total of the values for any one X-axis point. A slight space between bars in the cluster and parts of the stack has been implemented to prevent overhead transparency ink bleed between sections. Be careful to allow graphs with solid fill (hatch 6) to dry thoroughly. Use solid fill on the smallest areas to save time. For easy identification, do not use large hatch patterns on small segments. You can enter a zero value for a bar or segment and nothing will be drawn. Therefore, it is possible to scale the X-axis for ten years and only plot five years by entering data values of zero for the last five years.

Pie Charts

The third kind of graph is the pie chart. Pie charts are best for showing parts of a whole. The slices of the pie are the component parts. Pie charts drawn with this pac may contain one or two pies. Both pies in the two pie version are the same physical size. One or more slices in a pie may be "exploded," that is offset slightly from the center as if partially removed from the pie plate. In the construction of a pie, the program examines all the data and each data value is converted to its appropriate segment of a full 360 degree circle. Sections are differentiated by color or hatching. Each segment is labeled; the label is placed outside the segment. While the program is capable of creating a pie chart with 25 segments, such a graph would confuse as opposed to enlighten. It is probably wise to think of six as an upper limit to the number of segments and no segment should be smaller than 3 degrees. An exception would be in a two-pie chart to enter a zero value for a segment which existed in one pie but not in the other. In this pac, growth or change in total size cannot be shown on a two-pie chart since both circles are the same size. Think of a pie chart as a good way to show percentages. It is excellent for non-technical audiences who might be wary of numeric scaling.

Running the Program

With the HP-85 turned off, place the program tape in the tape transport. Turn the HP-85 on, using the switch at the top of the back panel to your right. The program will load and run automatically. To load and run the disc version, insert the program disc in the disc drive, type LOAD"GP" (END LINE) and then press (RUN). When the program is loaded, the light below the tape transport will go out and a prompt will appear on the screen. If your plotter is off, you will be asked to turn it on; if it is on, you will be asked to input the model number. If you do not plan to use the plotter at this session (i.e., you are only creating slides for storage), you need not turn the plotter on. In this case, still press (CONT) and when the screen displays a message saying it cannot find the plotter, press (CONT) again and proceed with any program segment not requiring the plotter.

When prompted, enter the plotter model number and press (END LINE). At this point you may obtain a plotted menu of letter sizes, styles, line and hatch types, and special characters. Refer to the section titled Special Function Key Definitions if you need help choosing what to do next, or try one of the examples under Slide Creation.

The remainder of this manual is structured to assist you with particular aspects of making a slide. Each module is briefly described in the last section of the manual under HELP #'s. An alphabetical list of all special function key definitions, together with a detailed explanation of the corresponding action preceeds the HELP #'s section. The various steps in making slides are illustrated with examples in the Slide Creation section. You may want to try some of these examples before creating an original slide.

Creating Slides

This section contains samples of the four slide types you can create using the Graphics Presentations Pac. The screen formats shown are copies of what will appear on the screen if you follow the numbered steps exactly. Any of the slides could be created in a variety of ways. The steps shown here are one possible solution, designed to illustrate the most commonly-used features of the pac.

Note: In this section the word "input" means pressing the appropriate alphanumeric key(s) followed by (END LINE).

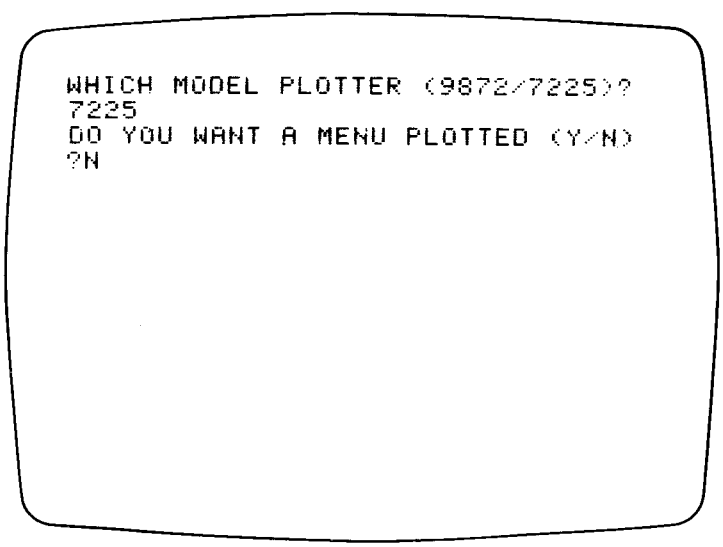
Making a Text Slide

Objective:

To create, save, and plot on an HP 7225 plotter one slide listing customer buying concerns. Slide will be used in a sales training seminar.

Method:

1. Place the Graphics Presentations Pac into the tape transport and turn on the HP-85 and the plotter. (For the disc version, type LOAD"GP" (END LINE) and press (RUN).)



2. Input the plotter model number, 7225.
3. Bypass plotting of menu by inputting N.

```
WILL YOU BE STORING AND/OR RE-
CALLING SLIDES IN THIS SESSION
(Y/N)?
Y
```

4. Enable slide storage capability by inputting Y.

```
PLEASE REMOVE PROGRAM TAPE, IN-
SERT A SLIDE STORAGE TAPE, AND
PRESS CONT.
```

5. Insert slide storage tape and press (CONT). In this example the slide storage tape had already been used and needed no initialization.

```
YOU MAY STORE 75 MORE SLIDES ON
THIS TAPE
WOULD YOU LIKE A PRINTED COPY OF
THE SLIDE DIRECTORY (Y/N)?
N
```

6. Bypass printing of the slide storage directory by inputting N.

```
CHOOSE AN Sfk (Special Function
Key)
(HELP #1)




--------------------------------
LIST SL!DEL SL.!PLOT SL!END PROG
MAKETXT! CHART !GET SL.!
```

7. Press (k1), currently labeled MAKETXT.

```
INSERT PROGRAM TAPE AND PRESS
CONT.
```

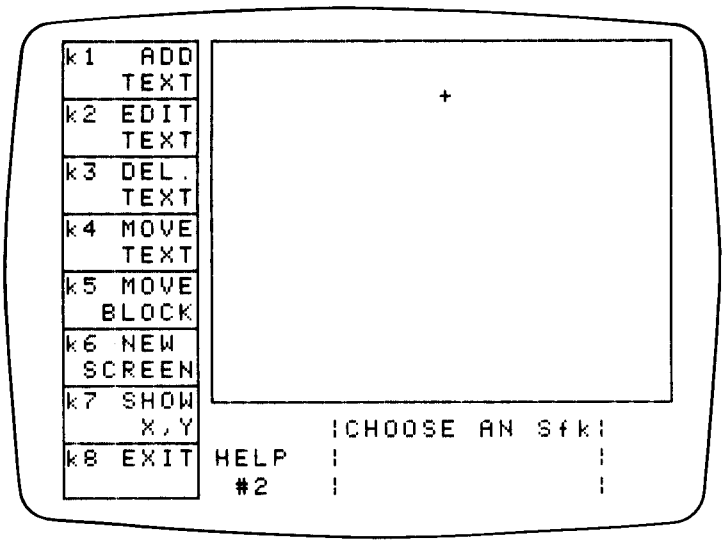
8. Insert program tape and press (CONT). (2 minute interval to read in new module.) Screen will display LOADING AND INITIALIZING ANOTHER PROGRAM MODULE.

```
SLIDE NAME (10 CHAR MAX)
----------
SALES TR 1
VERT OR HORIZ (V/H)
H
WOULD YOU LIKE DATA LISTED AS IT
IS ENTERED (Y/N)
Y
```

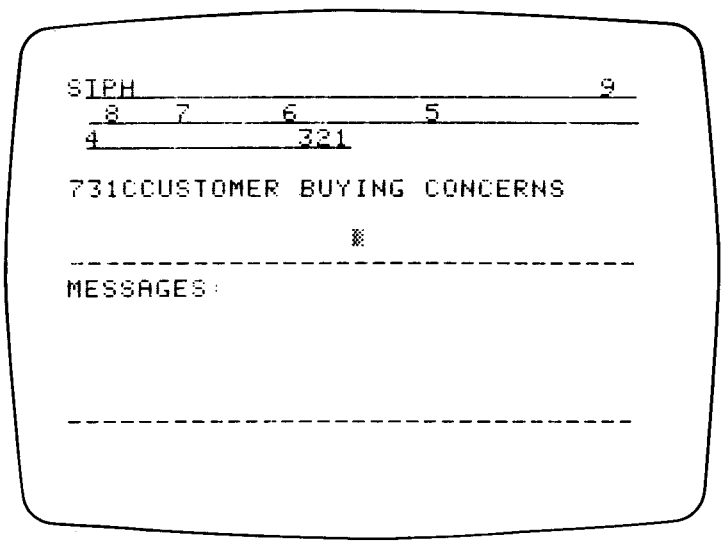
9. Input slide name SALES TR 1 and slide orientation, H (horizontal) and Y to have data listed as it is entered.

PRINTER OUTPUT

```
SLIDE NAME: SALES TR 1
SLIDE TYPE: HORIZONTAL
```

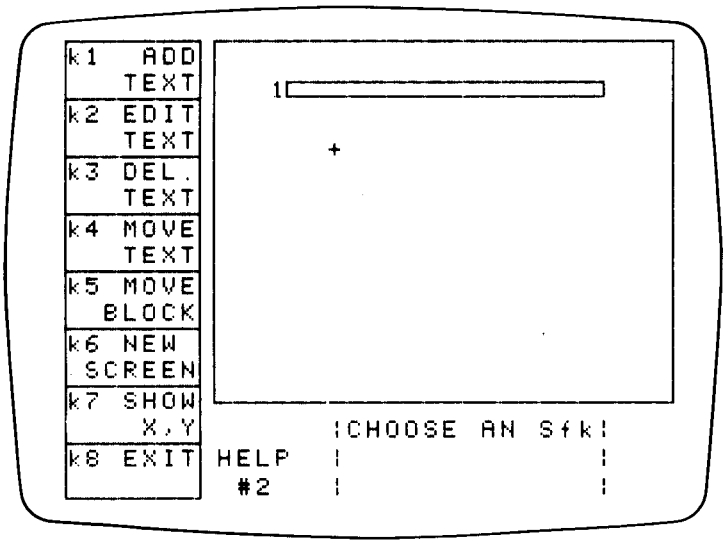


10. Move the graphics cursor (+) three lines down by pressing ↓ three times. Positioning text toward the top of the slide allows maximum visibility from the back of a room at presentation time. Press k1, currently labeled ADD TEXT.

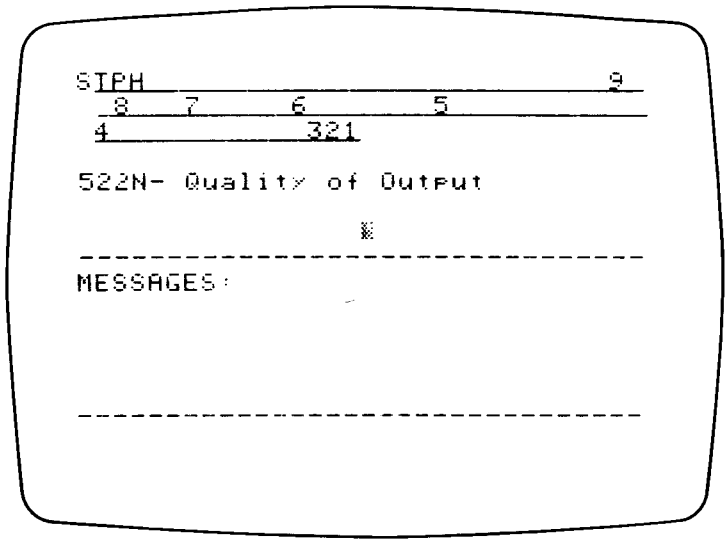


11. Enter the first text line. First change the style code to 731C, 7 for a large title, 3 for Roman upright lettering, 1 for pen 1, and C for centered text. We will use the wide brown pen to plot. Type in the actual text, CUSTOMER BUYING CONCERNS END LINE. Check the printer output to verify text is correct. Printout shows line number, followed by the text and the style code and X,Y coordinates in brackets.

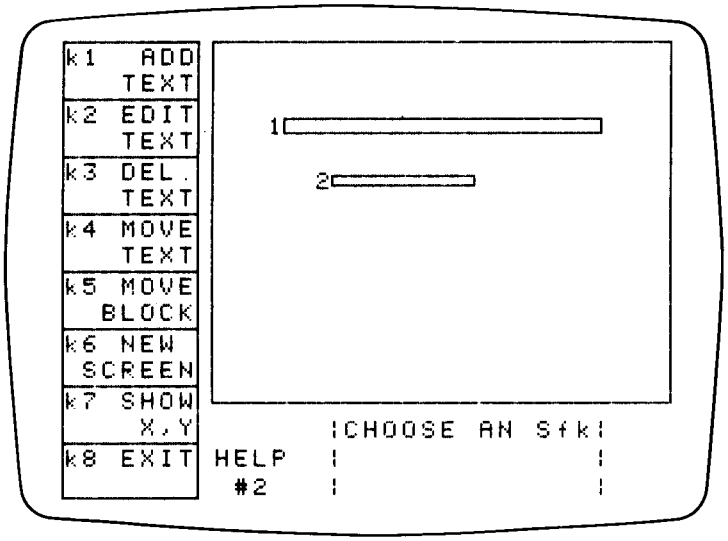
```
1. CUSTOMER BUYING CONCERNS
   [731C;(30,113)]
```



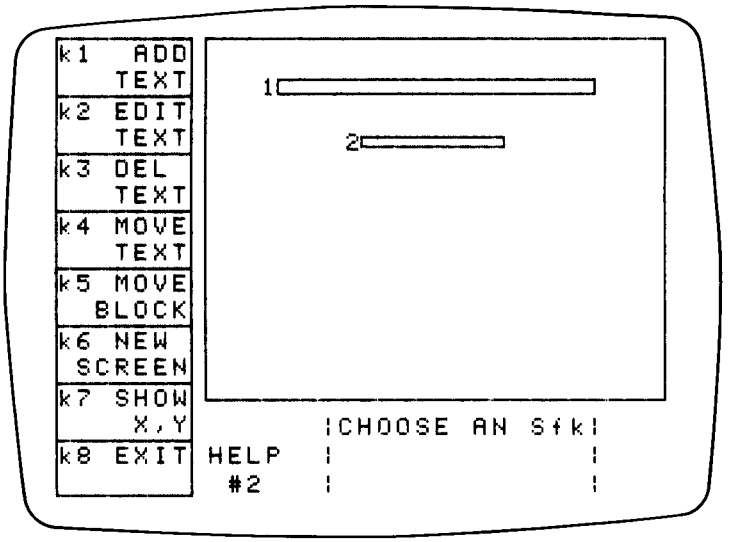
12. Move cursor four spaces to the right and one line down using the → and ↓ keys. Press k1, currently labeled ADD TEXT.



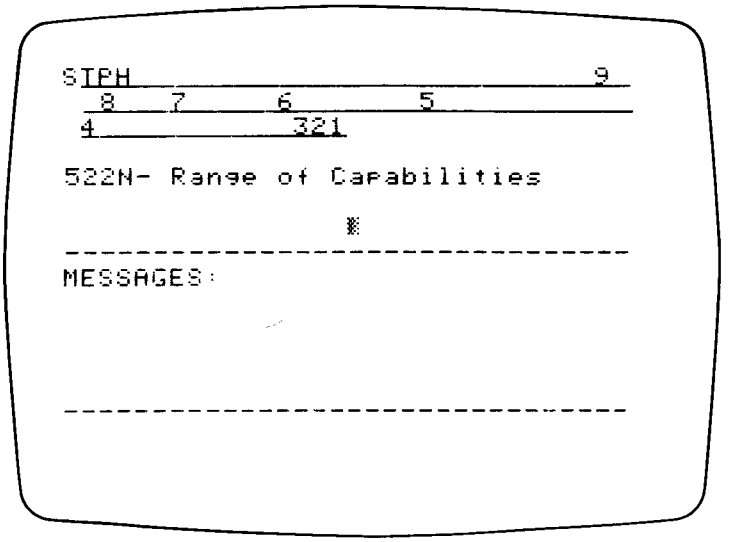
13. Change the size to 5, type to 2, pen to 2 and highlight to N, and enter the text, — Quality of Output. Use CAPS LOCK or SHIFT to get lower-case characters. We will use the wide orange pen to plot pen 2. Check printer output to verify text entry.



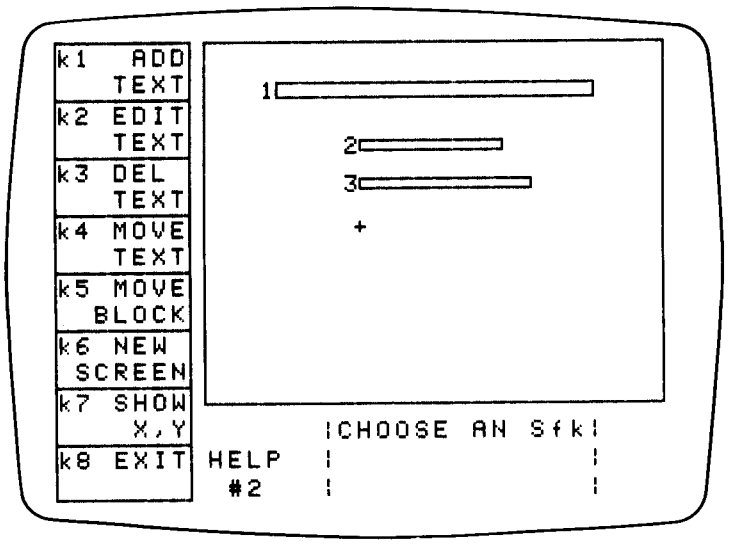
14. The text is placed too far to the left. Press k4, currently labeled MOVE TEXT. Roll select line 2 by pressing END LINE. Since the cursor was already at line 2, we did not need to use ROLL. Move cursor to the right three spaces by pressing →. Press END LINE to reposition text at this cursor location.



Slide with line 2 repositioned.

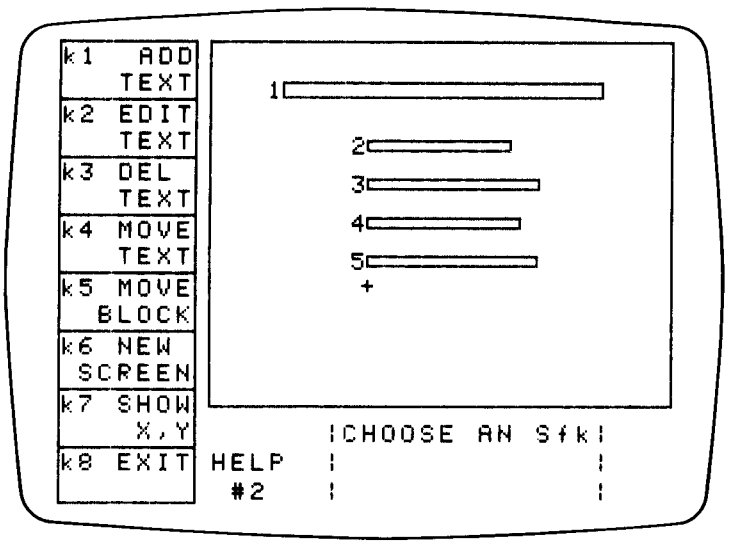


15. Press ↓ twice to move the cursor down two lines. Press k1, currently labeled ADD TEXT. Enter text, — Range of Capabilities, without changing the style code from its present value, 522N. Press END LINE. Verify text.

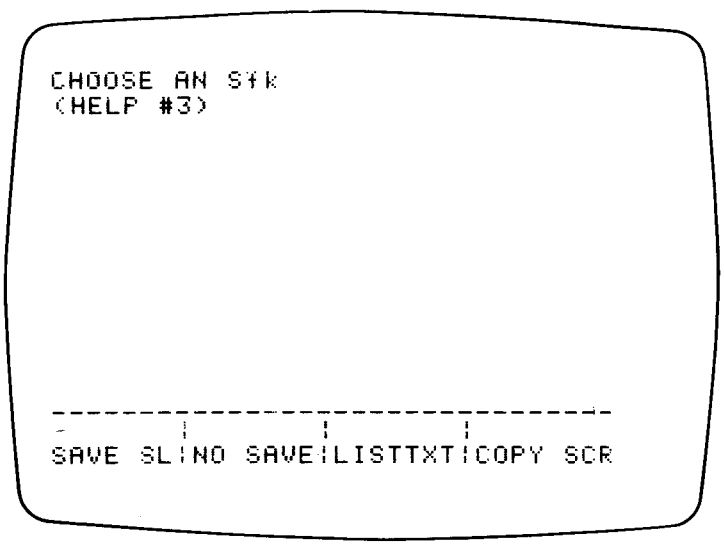


16. Move the graphics cursor (+) down one line. Press k1, currently labeled ADD TEXT. Enter the fourth line of text, — Cost of Ownership. Press END LINE. Move cursor down one line. Press k1, ADD TEXT, and enter final line of text, Ease of Implementation. Press END LINE. (I made a mistake here on purpose, no — followed by a space. You may

correct it now to save time by pressing k2, EDIT or later, when you can try using a different sfk.)



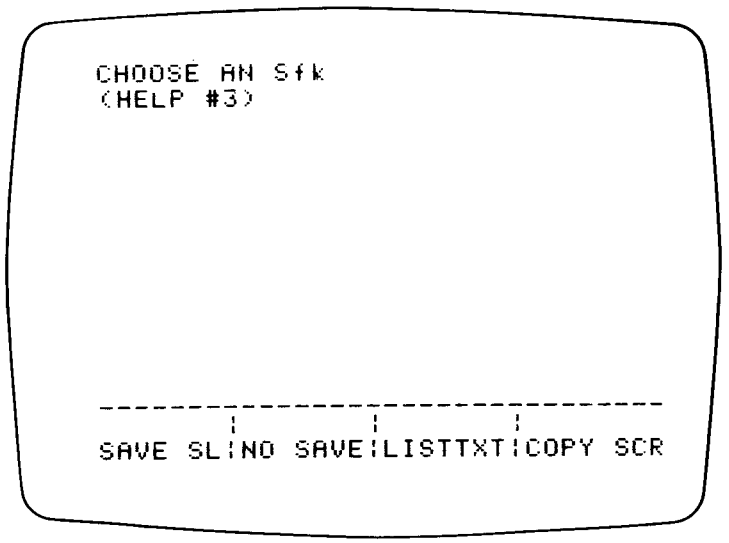
The completed slide layout, as it appears on the screen, is shown to your left. Press k8, currently labeled EXIT.



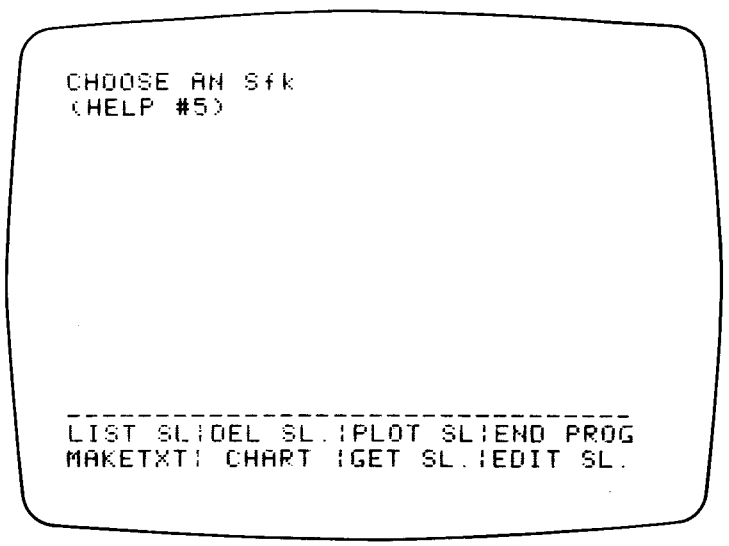
17. To verify text content of slide, check the printout output or press k3, currently labeled LISTTXT to obtain a new listing of the slide. Note the mistake on line 5; the — and space are missing at the beginning of the line. You can correct it now (it is still more efficient to do it now) or wait until after viewing a rough version of the plot. To correct it now press k2, labeled NO SAVE on HELP #3 followed by k4, labeled EDIT SL on HELP #5, and execute step 22 of this example.

PRINTER OUTPUT

```
SLIDE NAME: SALES TR 1
SLIDE TYPE: HORIZONTAL
1. CUSTOMER BUYING CONCERNS
   [731C;(30,113)]
2. - Quality of Output
   [522N;(65,91)]
3. - Range of Capabiblities
   [522N;(65,75)]
4. - Cost of Ownership
   [522N;(65,59)]
5. - Ease of Implementation
   [522N;(65,43)]
```



18. To save the slide, press (k1), currently labeled SAVE SL. Insert the current slide storage tape as instructed and press (CONT). To efficiently create more than one slide at a session, press (k1), labeled MAKETXT, after the first slide is saved. Then make and save other slides, and when all slides are created, go on to step 19.



19. When the new screen format is displayed, press (k7), labeled PLOT SL.

```
WOULD YOU LIKE A PRINTED COPY OF
THE SLIDE DIRECTORY (Y/N)?
N
```

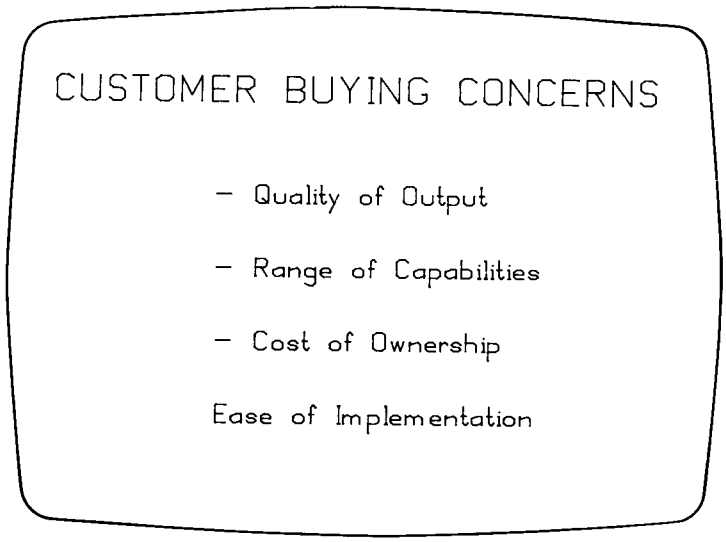
20. Bypass printed copy of slide directory by inputting N. If you are uncertain of slide names you may want to obtain a directory now. Insert program tape and press (CONT). (3 minute interval to read in new module.)

```
INSERT PROGRAM TAPE AND PRESS
CONT.
```

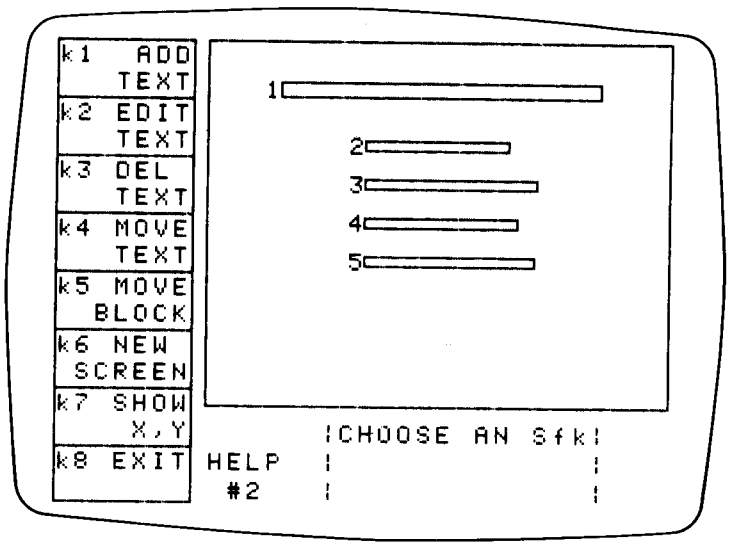
```
CHOOSE AN Sfk
(HELP #6)

---------------------------------
GET SL.|EDIT SL|SAVE SL|  EXIT
PLT FNL|PLTFAST|LISTTXT|COPY SCR
```

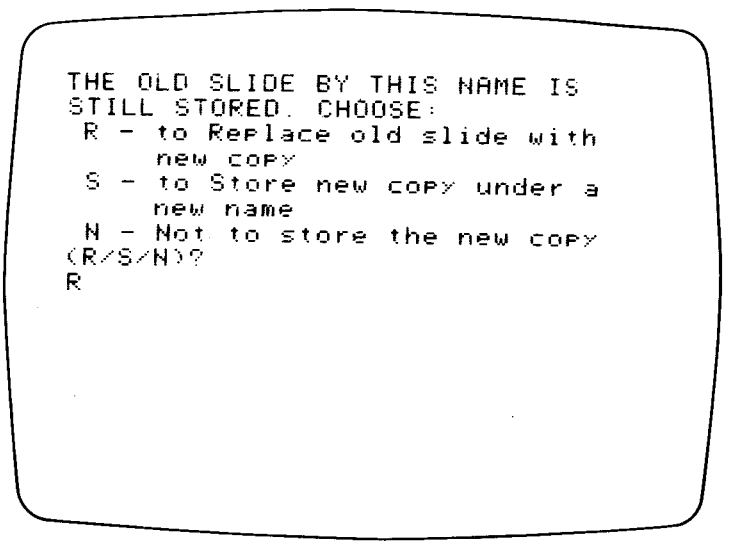
21. If you want to verify text placement and content of slide by plotting it all in Normal lettering with a single pen, press (k2), currently labeled PLTFAST. You may use paper and regular pens for this plot.



Now the previous mistake is obvious and we shall correct it. Press (k6), currently labeled EDIT SL. (2 minute interval to read in new module.)

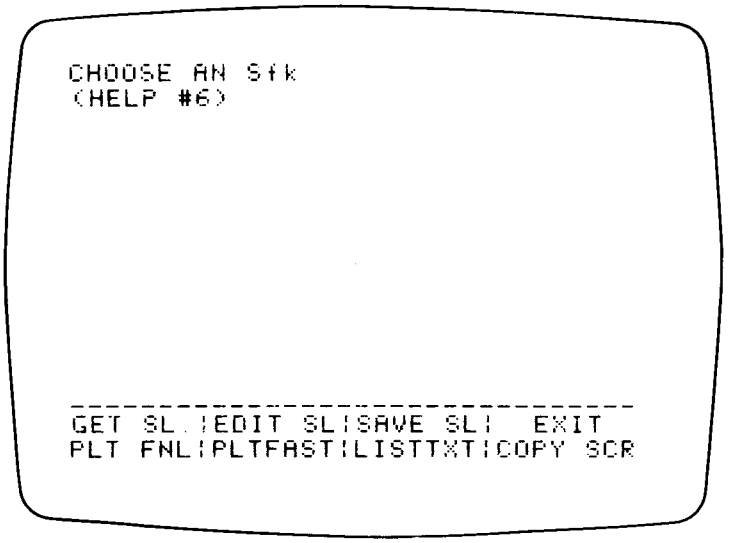


22. Press (k2), labeled EDIT TEXT. Press (END LINE) to select line 5. (The cursor should already be there.) Press (INS RPL) followed by — and a space to insert the missing characters. Press (END LINE) and (k8), currently labeled EXIT.

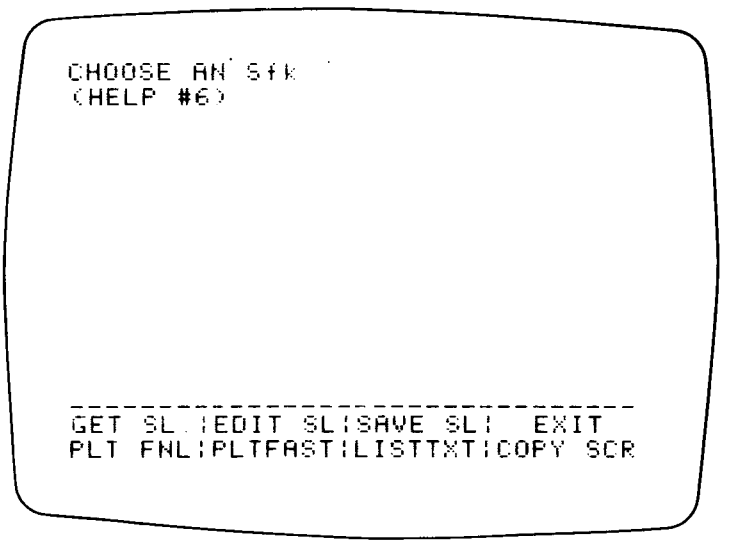


23. To save the slide, repeat step 18. When the message to the left appears, input R to replace the incorrect version of the slide with the new version.

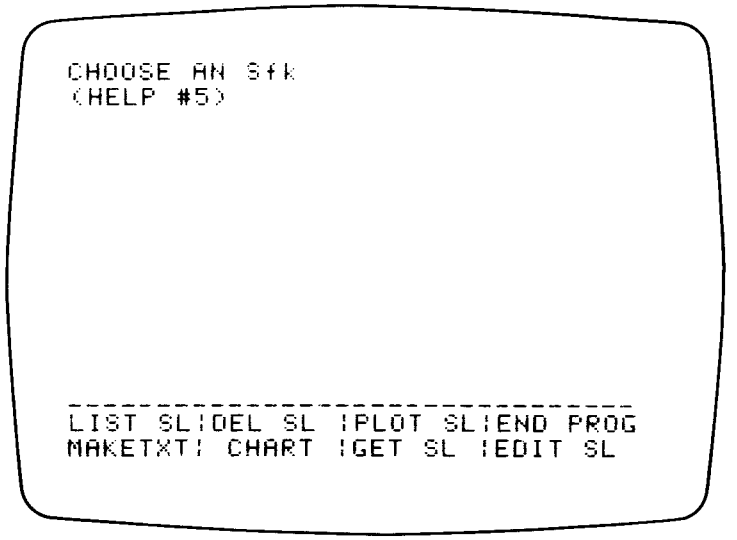
24. Repeat steps 19 and 20.



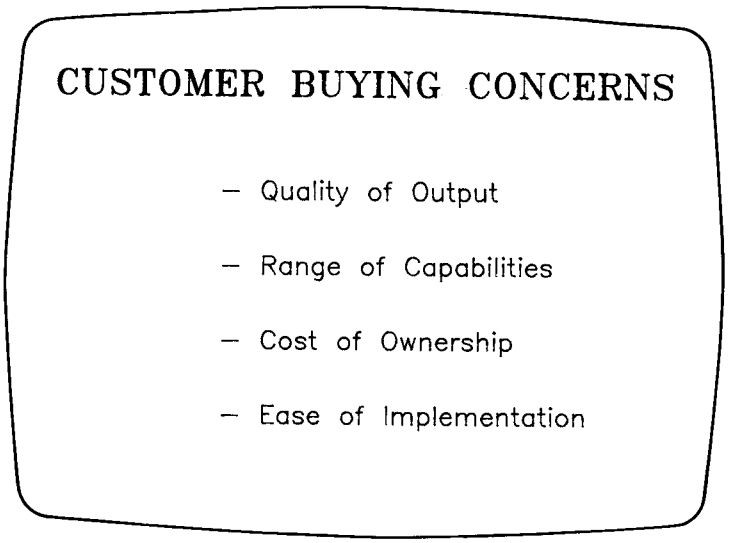
25. Press (k1), currently labeled PLT FNL. Place a sheet of transparency film covered with tissue on the plotter. Be sure to smooth the film with the tissue still covering it. Ink will not adhere over fingerprints. Remove the tissue. Place a wide brown pen in the penholder. Press (CONT). When instructed, place the wide orange pen in the pen holder and press (CONT) again.



26. When the plot is complete, press (k8), currently labeled EXIT.



27. To exit the program you can either turn the HP-83/85 off at this point, or wait until HELP #5 appears and press (k8), labeled END PROG.



A reduced copy of the finished slide appears to the left.

Creating a Clustered Bar Graph

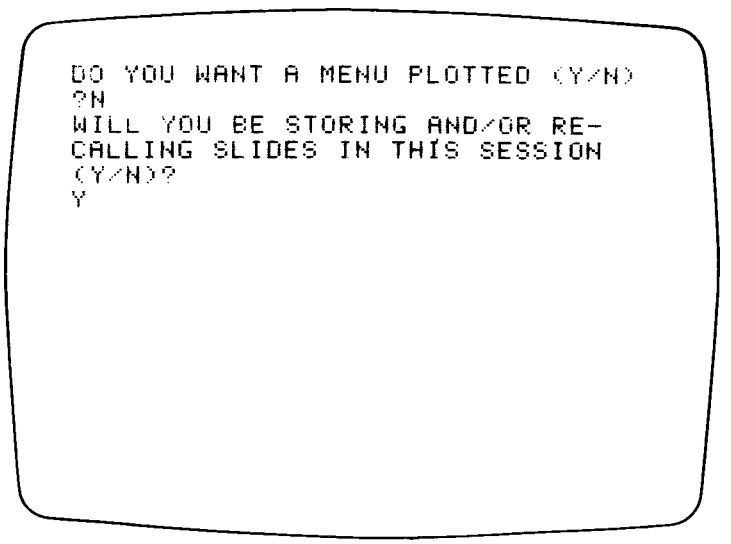
Objective:

To create, save, and plot on an HP 9872 plotter a clustered bar graph showing new orders, back orders, and shipments.

Method:

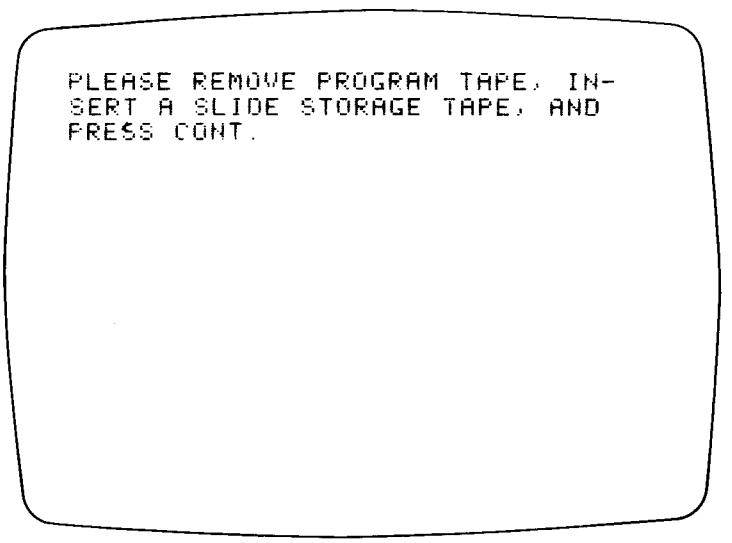
1. Insert the Graphic Presentations Pac into the HP-83/85 and turn on the computer. While the program is being read into the computer, the message READING IN DATA will periodically be visible on the CRT.

2. Turn on the plotter when requested to do so, and enter the model number 9872.

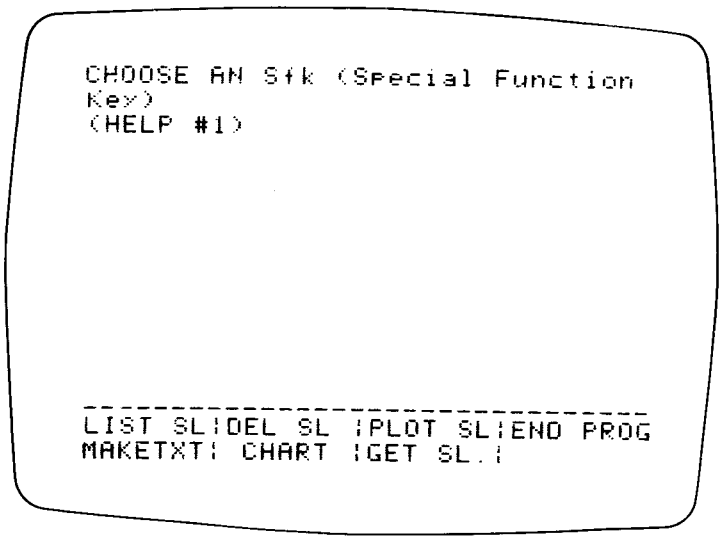


3. Bypass plotting the menu by entering N when asked DO YOU WANT A MENU PLOTTED?.

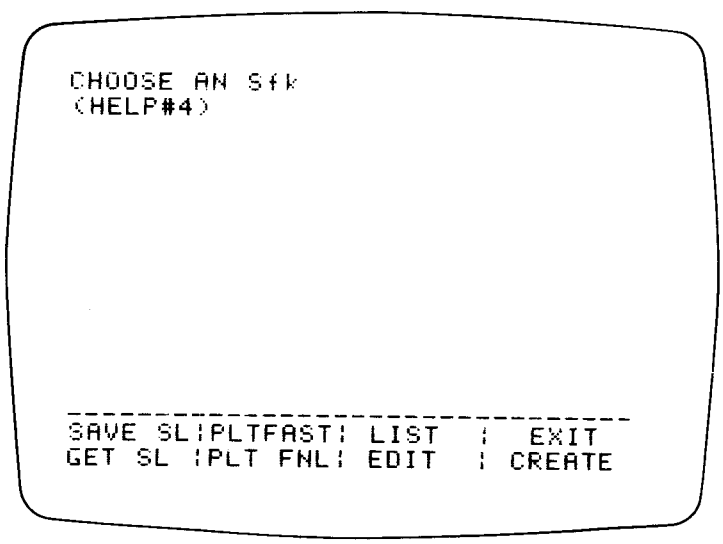
4. Since we will be saving this slide, enter Y in response to the question WILL YOU BE STORING OR RECALLING SLIDES THIS SESSION?.



5. Insert an initialized slide storage tape/disc or insert a tape/disc to be erased and initialized for slide storage into the tape/disc drive. Be sure the record slide in the tape is in the record position.



6. When HELP #1 appears on the screen press k2, currently labeled CHART.



7. When PIE, BAR OR LINE CHART (P/B/L)? is displayed enter B for bar graph.

8. Reinsert the program tape and press CONT. The bar chart portion of the program will be read in.

9. When HELP #4 appears on the screen press k4 currently labeled CREATE.

```
WOULD YOU LIKE DATA LISTED AS IT
IS BEING ENTERED (Y/N)? Y
```

10. Enter Y when the message WOULD YOU LIKE DATA LISTED AS IT IS BEING ENTERED. (Y/N)? appears.

11. Enter a name for your slide when requested. This slide will be called BAR CL.

12. When asked to select the type of bar chart enter C for clustered.

```
SLIDE NAME : BAR CL
SLIDE TYPE : BAR CHART

TYPE OF CHART : CLUSTERED

CHART TITLE :
ORDERS AND SHIPMENTS
CHART SUBTITLE : 1980
```

13. Enter the chart title ORDERS AND SHIPMENTS and the subtitle 1980 when requested. The titles entered will be printed on the printer since the list option has been chosen.

14. Enter the number of bars in each cluster, in this case three.

15. We must now choose the colors and hatch patterns to be used in this graph. For legend 1 we will use pen 1 so a 1 should be entered when the cursor is positioned under the PEN heading in line 1. In a similar manner enter a hatch pattern of 4, an N for no slant, for legend label, a blank line for the first half of legend label and the words NEW ORDERS for the second line. For the second legend enter pen 1 hatch 6, N, and the label BACK ORDERS on the second label line. Finally enter pen 1, hatch 1,

```
NO.  PEN  HATCH  SLANT    LEGEND
 1    1     4      N
                          NEW ORDERS
 2    2     6      N
                          BACK ORDERS
 3    3     1      N
                          SHIPMENTS


--------------------------------

ENTER 2nd HALF OF LEGEND LABEL
```

N, and SHIPMENTS, again on the second label line. Just before you press [END LINE] to enter the word SHIPMENT the CRT should appear like the screen to the left.

16. Enter the X-axis title CALENDAR MONTH and the Y-axis title, DOLLARS. Enter Y-minimum of 0 and Y-maximum of 2500. Enter 500 as the Y-axis increment. Since we have chosen the list option these entries will be printed.

17. Enter 12 for the number of X-axis labels and then enter all 12 labels. Each label is the first letter of that calendar month. All will be printed on the external printer because of the list option.

```
X-AXIS TITLE : CALENDER MONTH

Y-AXIS TITLE : DOLLARS
Y-MINIMUM = 0
Y-MAXIMUM = 2500
LABELING INCREMENT = 500

NO.   X-AXIS LABEL          SLANT

 1      J                    N
 2      F                    N
 3      M                    N
 4      A                    N
 5      M                    N
 6      J                    N
 7      J                    N
 8      A                    N
 9      S                    N
10      O                    N
11      N                    N
12      D                    N
```

```
LEGEND #1
     X-AXIS LABEL       Y-VALUE

 J                        720.00
 F                        823.00
 M                        843.00
 A                        912.00
 M                        878.00
 J                        875.00
 J                        912.00
 A                        944.00
 S                        976.00
 O                        892.00
 N                        851.00
 D                        900.00
```

18. Enter the 12 data points for legend #1 which are the new orders for each month of the year. They will be shown on the CRT and the printer. Note 12 values cannot be displayed on the CRT. The values first entered move off the screen.

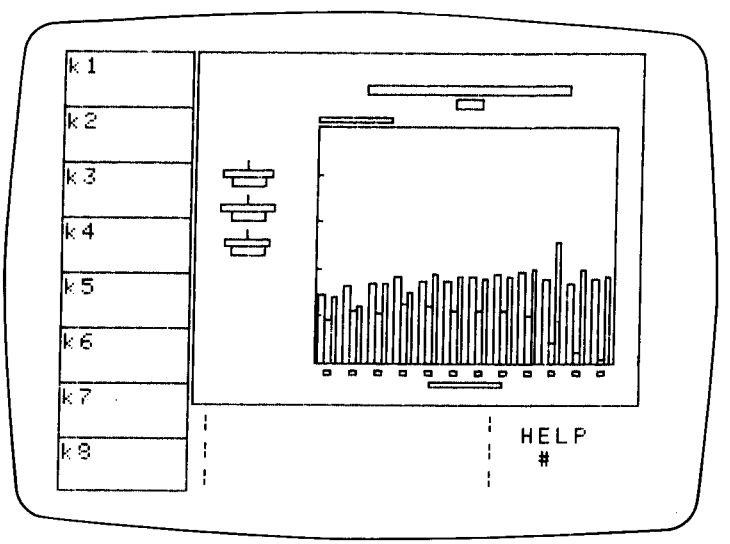
LEGEND #2

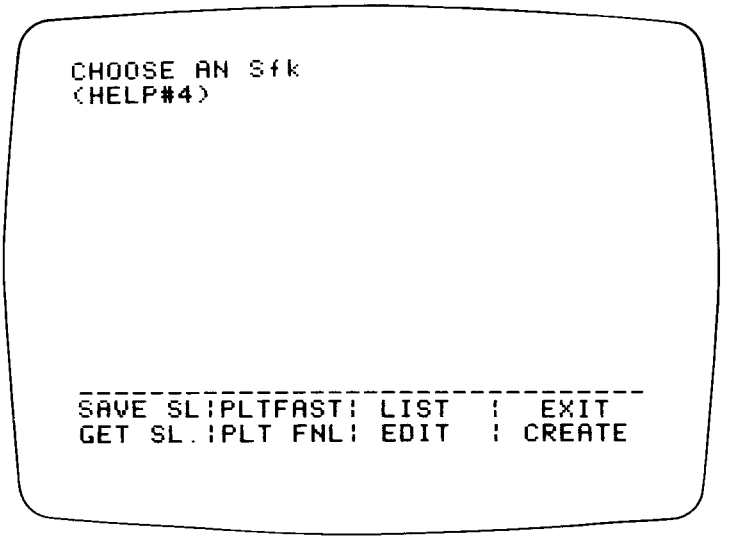
X-AXIS LABEL	Y-VALUE
J	456.00
F	561.00
M	534.00
A	623.00
M	600.00
J	567.00
J	555.00
A	550.00
S	512.00
O	212.00
N	116.00
D	53.00

LEGEND #3

X-AXIS LABEL	Y-VALUE
J	700.00
F	615.00
M	850.00
A	754.00
M	935.00
J	911.00
J	887.00
A	917.00
S	982.00
O	1276.00
N	983.00
D	920.00

19. For legends 2 and 3 respectively, enter all values of back orders and shipments. The graph will appear briefly on the screen. To view for a longer time, press GRAPH. When ready, press KEY LABEL to see the sfk labels for the next step.

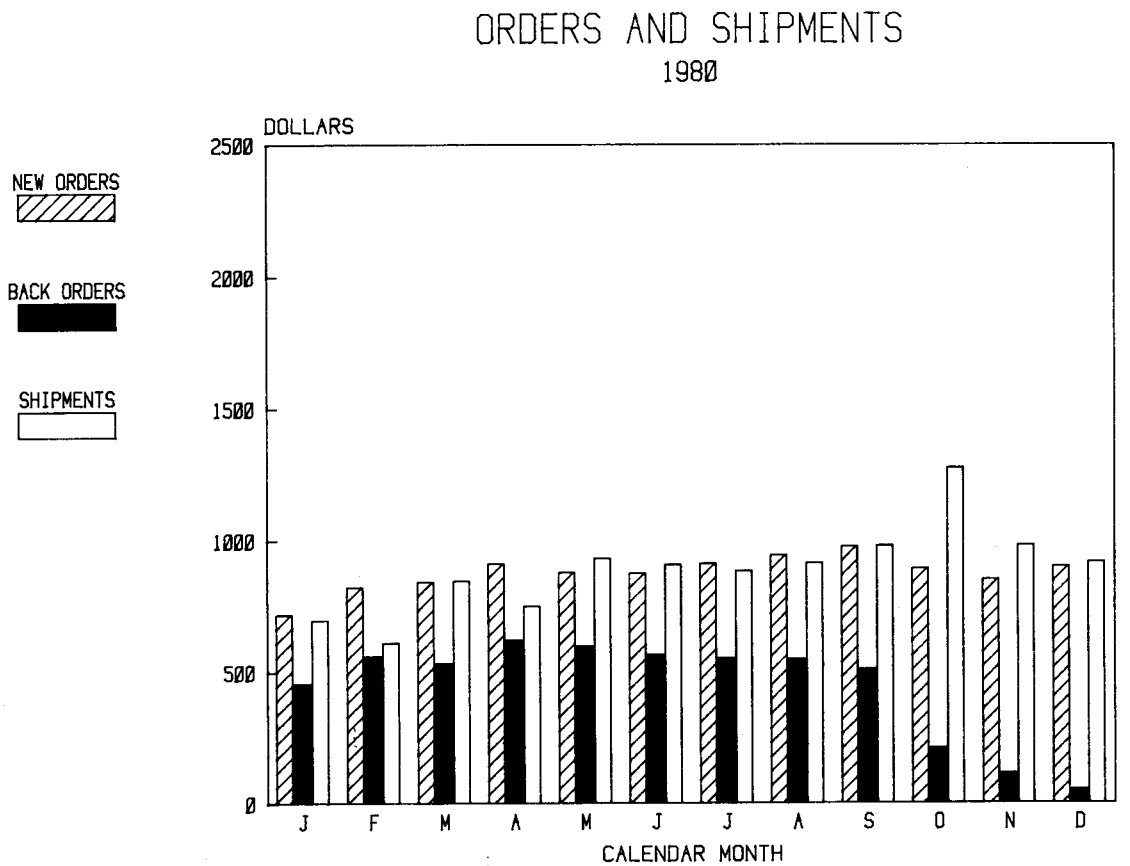




20. Press (k5), currently labeled SAVE SL. Insert the slide storage tape and the slide will be saved.

21. When HELP #4 is displayed again press (k2), currently labeled PLT FNL to plot the slide.

22. When requested to set up the plotter, place a sheet of transparency film on the platen of the plotter. Be sure narrow width overhead transparency pens are installed in any of the stalls 1 through 3, if the 9872 plotter is being used. Press continue and wait for the plot to be completed. Allow the plot to dry for at least 20 minutes so the filled areas do not smear.



A reduced copy of the clustered bar chart is shown above.

Making a Line Graph

Objective:

To create, save, and plot on an HP 7225 plotter one graph—a line chart showing new orders, back orders, and shipments for the current year.

Method:

1. Assuming the pac is already loaded and HELP #1 is displayed on the CRT, press (k2), currently labeled CHART. (If the pac is not already loaded, refer to the example on making a text slide to reach this point.)

2. Choose line charts by entering L when the message PIE, BAR OR LINE CHART [P/B/L]? appears.

3. When HELP #4 is displayed on the screen, press (k4), currently labeled CREATE.

4. If you wish to have the data listed as it is entered, enter Y when asked. Otherwise enter N.

5. Enter the slide name when requested. We shall call this slide ORDERS.

6. When requested, enter M for multiple line graph.

7. Enter the chart title, ORDERS AND SHIPMENTS.

8. Enter the chart subtitle, 1980.

9. Enter 3 for the number of lines.

10. The following heading will be displayed on the CRT.
    NO. PEN LTYPE SLANT LEGEND
    Enter the pen number (1-4), line type (1-6), slant parameter for the legend label (Y or N), and the legend label. We will use 1 for PEN, 1 for LTYPE, no slant (N), and the legend label NEW ORDERS. By entering a blank first line of the legend and the two words NEW ORDERS on the second line, the words will be plotted close to the corersponding line of the legend.

11. Enter 2 for PEN, 2 for LTYPE, Y as a slant parameter, and the words BACK ORDERS in the second line of the legend. The words BACK ORDERS will be slanted.

12. Enter 3 for PEN, 5 for LTYPE, N for SLANT, and SHIPMENTS as the second line of the legend.

13. Enter the X-axis title, CALENDAR MONTH.

14. Enter the Y-axis title, DOLLARS.

15. Enter the value 0 for minimum Y-value, 2500 for maximum Y-value, and 500 for the increment between Y-axis labels.

16. Enter L for labeling the X-axis. You cannot scale an X-axis when you plan to use letters, as opposed to numbers, to label the X-axis.

17. Enter 12 for the number of X-axis labels.

18. The heading

```
NO.____X-AXIS LABEL____SLANT____
```

will be printed. Enter J for the first X-axis label and press (END LINE) when the cursor appears under the N in the slant column. Your label will not be slanted. Continue to enter the first letter of each of the remaining months February through December. Press (END LINE) to enter N each time the cursor is positioned under N.

19. Begin entering your data. All values for legend #1, NEW ORDERS, will be entered first. The values to be entered are:

LEGEND #1

X-AXIS LABEL	Y-VALUE
J	720.00
F	823.00
M	843.00
A	912.00
M	878.00
J	875.00
J	912.00
A	944.00
S	976.00
O	892.00
N	851.00
D	900.00

20. Enter the values for legend #2, back orders. The values to be entered are:

LEGEND #2

X-AXIS LABEL	Y-VALUE
J	456.00
F	561.00
M	534.00
A	623.00
M	600.00
J	567.00
J	555 00
A	550.00
S	512.00
O	212.00
N	116.00
D	53.00

21. Enter the values for legend #3, shipments. The values to be entered are:

LEGEND #3

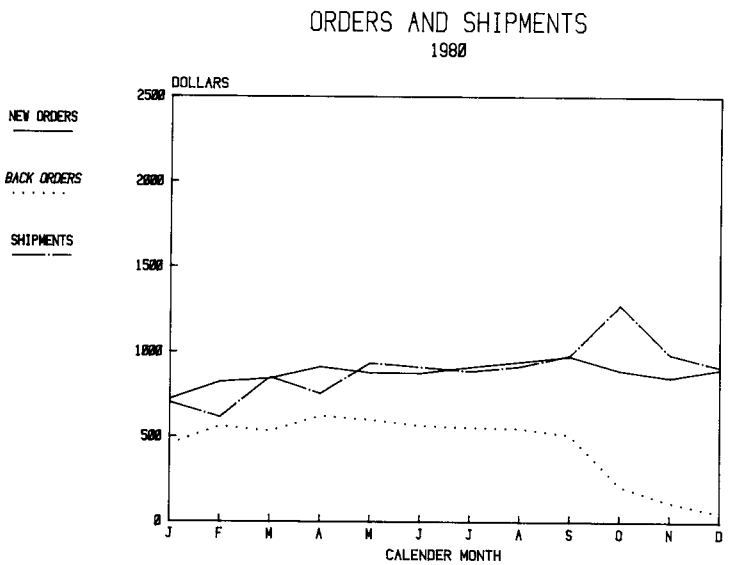
X-AXIS LABEL	Y-VALUE
J	700.00
F	615.00
M	850 00
A	754.00
M	935.00
J	911.00
J	887 00
A	917.00
S	982.00
O	1276.00
N	988.00
D	913.00

22. When the last value has been entered, the graph will be drawn on the CRT and remain there a few seconds. Then HELP #4 will appear on the screen. If you wish to look at the graph on the CRT again press (SHIFT) and (GRAPH) simultaneously. Press (KEY LABEL) to redisplay the sfk definitions.

23. Press (k5), currently labeled SAVE SL, insert the slide storage tape, and press (CONT).

24. When HELP #4 is displayed again, press (k2), currently labeled PLT FNL. (There is very little difference between the time required to plot fast and plot final on line graphs.) PLT FST uses only pen 1 and no varied line types on the plotted data points.

25. Load paper and press (CONT). Load pen 1 and press (CONT) again. We will use black for pen 1, red for pen 2, and brown for pen 3. Load pens 2 and 3 when directed. When plotting is complete, HELP #4 will be displayed. You may press any sfk or make another slide. (k4) currently labeled CREATE will only access line graphs at this point. To create a bar graph or pie chart you must EXIT by pressing (k8) and then enter the CHART module again.



Reduced copy of graph shown above.

Making a Pie Chart

Objective:

To create, save, and plot on an HP 7225 plotter one graph—a pie chart showing a breakdown of investments for a stock market analysis presentation.

Method:

1. Assuming the pac is already loaded and HELP #1 is displayed on the CRT, press (k2), currently labeled CHART. (If the pac is not already loaded, refer to the example on making a text slide to reach this point.)

2. Choose pie charts by entering P when the message PIE, BAR OR LINE CHART [P/B/L]? appears.

3. When HELP #4 is displayed on the screen, press (k4), currently labeled CREATE.

4. If you wish to have the data listed as it is entered, enter Y when asked; otherwise enter N.

5. Enter the slide name when requested. We shall call this slide INVEST.

6. Enter the chart title, INVESTMENT DISTRIBUTION.

7. When requested, enter 1 for the number of pies.

8. Enter UNITED STATES as the chart subtitle.

9. Enter 5 for the number of sections.

10. The following heading will be displayed on the CRT.
    NO. VALUE PEN HATCH EXP
    Enter the value, pen number (1-4), hatch pattern (1-6), and explosion parameter for the section (Y or N). We will use 12 for VALUE, 1 for PEN, 2 for HATCH and N for EXP.

11. Enter 15 for VALUE, 1 for PEN, 3 for HATCH, and N for EXP.

12. Enter 22 for VALUE, 1 for PEN, 4 for HATCH, and N for EXP.

13. Enter 25 for VALUE, 2 for PEN, 6 for HATCH, and Y for EXP to highlight stocks and bonds.

14. Enter 26 for VALUE, 1 for PEN, 1 for HATCH, and N for EXP.

15. After viewing the pie on the CRT, press (END LINE) to enter the section labels.

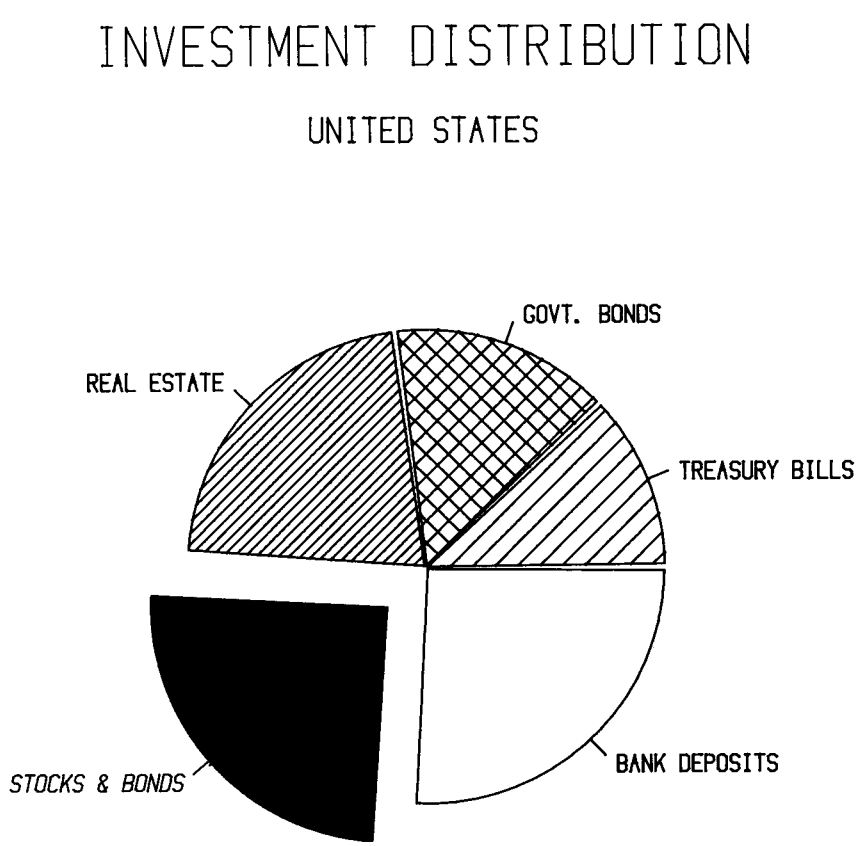
16. The following heading will be displayed on the CRT.
    NO. SLANT SECTION LABEL
    Enter the slant parameter for the section label (Y or N), and the section label. We will use N for the slant, and the section label TREASURY BILLS.

17. Press (END LINE) and then enter N for SLANT and the section label GOVT. BONDS.

18. Press (END LINE) and then enter N for SLANT and the section label REAL ESTATE.

19. Press (END LINE) and then enter Y for SLANT and the section label STOCKS & BONDS.

20. Press (END LINE) and then enter N for SLANT and the section label BANK DEPOSITS.



21. When the last value has been entered, the graph will be shown on the CRT and remain there a few seconds. Then HELP #4 will appear on the screen. If you wish to look at the graph on the CRT again press (SHIFT) and (GRAPH) simultaneously. Press (KEY LABEL) to redisplay the skf definitions.

22. Press (k5), currently labeled SAVE SL, insert the slide storage tape, and press (CONT).

23. When HELP #4 is displayed again, press (k2), currently labeled PLT FNL. PLT FST uses only pen 1 and no hatch types on the plotted sections.

24. When DO YOU WISH TO HAVE PERCENTAGES LABELED (Y/N)? is displayed, enter N (END LINE).

25. Load paper and press (CONT). Load pen 1 and press (CONT) again. We will use black for pen 1 and orange for pen 2. Load pen 2 when directed. When plotting is complete, HELP #4 will be displayed. You may press any sfk and make another slide. (k4) currently labeled CREATE will only access pie charts at this point. To create a bar graph or line graph you must EXIT by pressing (k8) and then enter the CHART module again.

Special Function Key Definition

Using the Special Function Keys

This section contains detailed instructions on using each special function key (sfk) as it is defined throughout the program. This section is designed to supplement the HELP #s section of this manual and should be used when the HELP #s section does not answer your questions. By referring to the alphabetized descriptions which follow, you can determine what action will be caused by depressing any sfk, no matter which HELP # is displayed on the screen. You should already be familiar with the material presented earlier in the Getting Started section. To see examples of the key usage and the sequence of operations necessary to create a slide, refer to the sample slides in the Slide Creation section of this manual.

ADD LEGEND

Add one legend to a multiple line chart or stacked or clustered bar chart. See DEL LEGEND for definition of legend. The key is inactive for normal bar and single line charts.

To add a line to a multiple line graph you will first enter the pen number, followed by the line type, slant parameter for the legend label and the legend label (2 lines). Then you will enter the Y-values for the number of X-axis values on the original graph. The new line and legend will be drawn on the graph and HELP #9 will be displayed on the screen. The same procedure is followed when adding a bar to a cluster or a segment to a stacked bar graph. However at the end of the procedure the whole graph must be redrawn on the CRT on a clustered bar graph so that the cluster is centered on the X-axis label.

ADD SLICE

Pressing this sfk enables you add a slice to the pie. When the message ROLL SELECT appears, use (ROLL) to locate the slice which will preceed the new slice when all slices are numbered in a counterclockwise direction. When the program is ready to accept data the section number Y.5 where Y is the number of the selected slice will appear. Enter the value, pen, hatch, and explode parameter. When the screen format changes enter Y or N for label slant and the section label. The graph is redrawn to include the new slice. The slices are renumbered to be sequential and HELP #9 is entered.

ADD TEXT

The sfk enables you to add one line of text to the slide currently in memory. The text is entered at the current position of the graphics cursor (blinking +). Therefore, move the cursor to the position at which you wish to enter text before pressing (k1), ADD TEXT.

Moving the Cursor

Moving the cursor is accomplished by pressing ↑, ↓, →, or ← in either shifted or unshifted mode. In shifted mode, the cursor moves vertically or horizontally one dot. In unshifted mode, the cursor moves horizontally 5 dots or vertically one line. A line varies in size with the lettering size last used. In either mode, if a key is held down, cursor motion is repeated until the cursor reaches the limits of the slide area.

Restrictions on Text

A slide is limited to 50 lines of text. The maximum number of characters in a text line is 76; depending on character size and cursor location characters allowed may be less. (See Lettering, Line and Shading Styles in the Getting Started section.) A line of text must be all the same size, of the same color, highlight, and font. If you must change one of these attributes in text which is to appear on the same horizontal line of the slide, you must enter contiguous like portions of the line as individual lines and position these like portions at the same vertical location on the screen (see horizontal alignment which follows). A text line which will not fit on one line of a slide, given the current cursor position and text size, will not be accepted. You must either delete some text, move the cursor to the left, or split the text into two separate lines.

Positioning Text

Centering Text

When a highlight parameter of C (centered) or B (both centered and underlined) is used as the fourth character of the style code, STPH, text will always be centered horizontally on the slide. So when B or C is used as the highlight value, the horizontal cursor position is unrelated to text placement.

Vertical Alignment

Text will automatically be left-justified if lines are added sequentially, *and* you are using a highlight parameter of U or N *and* you do not move the cursor manually before entering text. If lines are not added in this fashion, left-justification can be achieved by moving the cursor so that its vertical position is directly over the left end of the text block establishing the desired left margin. If the cursor is correctly positioned, it will eliminate part of the left side of the block surrounding the text area as it blinks. If the cursor is moved up or down from this location and text is entered, it will be left-justified. There is no way to left justify text with a highlight code of B or C.

Horizontal Alignment

To align text horizontally, position the horizontal bar of the cursor along the base of the text block. If the cursor is correctly positioned, part of the base line of the text block will be erased as the cursor blinks. Moving the cursor to the left or right and entering your text will cause the text to be aligned horizontally. If the cursor has been moved to the left, be careful not to write over the text previously entered. The finished text will not overlap if the blocks that define it do not overlap.

Overwriting Text

It is possible to overwrite existing text. If you shift to a larger character size, move the cursor down more than it was moved by the automatic line feed before entering a line of larger text. To correct a misplaced line or a line where text blocks overlap, use the DEL TEXT or MOVE TEXT sfk.

Recovering From an Error

Pressing the ADD TEXT key, immediately followed by (END LINE), returns the program to its previous location and no text is entered on the slide. Hence, if you press ADD TEXT by mistake you can press (END LINE) immediately and return to the section from which you came. To correct a mistake in text entry, you can edit your text line, using the edit features of the HP-83/85, any time before pressing (END LINE). Once the line has been added, you will need to use the EDIT TEXT sfk to correct an incorrect entry.

COPY SCR

When this sfk is pressed, the most recent contents of the graphics display are copied onto the internal printer of the HP-85, the sfk is ignored on the HP-83. The graphics display shows both the role of the sfk's and the slide layout.

Copying the Graphics Display Without COPY SCR

To copy the screen at a time when COPY SCR in not an active sfk, press (PAUSE), followed by (GRAPH) and (COPY). When copying is complete, press (CONT) to resume program operation.

DEL. LEGEND

Delete a legend of a multiple line, stacked or clustered bar graph. A legend is one complete line or one of the bars in each cluster, or one segment in each stacked bar. The key for the legends is redrawn to reflect the deletion of one legend before the deletion is made, you will be asked to verify that you indeed want to delete that legend. Thus if you hit that key by mistake, you need not lose data.

DEL SL.

Pressing this sfk enables you to delete a slide from the current slide storage tape. When a slide is deleted, renumbering of the directory occurs. The slide data is erased from the tape. Periodically, you may want to purge old slides from your slide storage tape so you have room to store current slides.

If the message SLIDE NOT FOUND appears on the line printer after you have pressed DEL SL., the slide was not in the directory currently in memory. Check the spelling of the slide name and try again. Obtain a copy of the directory by pressing the sfk labeled LIST SL. If the slide is not on the current slide storage tape, but instead on another tape, to delete the unwanted slide, insert the proper slide storage tape before entering the slide name.

DEL. SLICE

Pressing this sfk causes the message ROLL SELECT to appear on the screen. When a slice has been located using (ROLL) and selected by pressing (END LINE) you will be asked to confirm that you want to delete the specified slice. Entering N here will cause immediate return to HELP #8. Entering Y will cause the slice to be deleted and the pie chart redrawn with the size of all slices adjusted to reflect removal of the deleted slice.

DEL TEXT

This sfk enables you to delete one line of text from the slide currently in memory. Immediately after this sfk is pressed, the message ROLL SELECT appears on the screen. Using (ROLL), move the graphics cursor to the beginning of the line you want to delete. Pressing (ROLL) in unshifted mode moves the graphics cursor to the next higher line number and to line 1 after the highest numbered line. Pressing (ROLL) in shifted mode moves the cursor to the next lower line number and from 1 to the highest numbered line.

After the graphics cursor is positioned at the proper line, press (END LINE). The contents of that line will be displayed so you can be sure you want to delete it. You must next enter a Y or N. Entering a Y causes the line to be deleted. Entering an N returns the program to its location previous to pressing the DEL TEXT sfk.

Lines added after a line has been deleted will use the line number of the deleted line or lines. When EXIT is pressed after lines have been deleted but not replaced, lines will be renumbered starting with 1. Line numbering will then be sequential and represent the total number of lines presently on the slide.

EDIT DATA

Edit the data for one X-axis label chosen with the (ROLL) and (END LINE). Values for all legends of a multiple line chart, stacked or clustered bar chart are displayed. You may change any number of Y-values for the chosen X-label at one time.

EDIT LABEL

Pressing this sfk causes the message ROLL SELECT to appear on the screen and the section number, 1, to blink. Use (ROLL) to locate the section whose label you want to edit and press (END LINE). The cursor will then be positioned under the slant parameter of the label. You may change either or both parameters but only 15 characters including embedded blanks may be entered for a label.

EDIT LEGEND

Edit one legend of a line or bar chart. You may change the pen number, line or hatch type, slant parameter or the words in the legend label, on a multiple line chart or stacked or clustered bar chart. On a normal bar chart or single line graph, you may change the pen and/or line type or hatch type.

EDIT SL

Pressing this sfk draws the layout of the text slide currently in memory on the graphics display and places the program in the Text Module, HELP #2.

EDIT SLICE

Pressing this sfk causes the words ROLL SELECT to appear beneath the graphic representation of the pie chart, and the section number, 1, to blink. Use (ROLL) to locate the slice you want to edit. Select this slice by pressing (END LINE).

The section number, its current value, pen, hatch type, and a Y or N for an exploded segment will appear on the screen. The cursor will be positioned under the value. Pressing (END LINE) will enter the parameter at the cursor's position. You may edit any number of the displayed parameters before pressing (END LINE). Pen numbers greater than 4 or hatch numbers greater than six will not be accepted and a suitable message will appear on the screen.

EDIT TEXT

Pressing this sfk allows you to select, using (ROLL), the line to be edited, and then to display this line on the screen. When the line is displayed, the alpha cursor is positioned under the first character of the actual text, immediately following the four-character style code. The style code values representing the size, type, color and highlights of the text, may be changed by moving the cursor back under the character(s) to be changed, and pressing the desired key on the keyboard. To change the actual text, move the cursor to the right and, using the edit features of the HP-83/85, edit your text until it is correct. When editing is complete, press (END LINE).

Unacceptable Text

A line which, when edited, contains an invalid style code character, or too many characters, will not be accepted by the program. A message describing the error will appear on the message portion of the screen. Correct the error and reenter the text.

Exiting Edit Mode

Pressing (END LINE) without making changes causes the old line to be reentered. In all cases, after (END LINE) is pressed, the block signifying the old line of text is erased and a new block, signifying the edited line, is drawn on the graphics display.

Moving Text

The EDIT TEXT sfk is not used to move text other than to center it. No change in vertical text position can be effected using the EDIT TEXT sfk. Positional changes are accomplished by using the MOVE TEXT or MOVE BLOCK sfks.

EDIT TITLES

Edit the title and subtitle of a graph using the edit features of your HP-83/85. Select either the title or subtitle using [ROLL] and pressing [END LINE] when the cursor is positioned on the appropriate title. Edit the title and press [END LINE] to enter the new title. The title box will be redrawn on the CRT.

EDIT X-AXIS

Using the edit features of your HP-83/85 edit the title of any X-axis. Edit any one X-axis label of a labeled line graph or a bar graph. You cannot change labels of a scaled X-axis.

EDIT Y-AXIS

Change the Y-axis label and/or the minimum and maximum values and the Y-increment. No check is made to see if the old data values are out of range. The title is displayed first. If you do not wish to change it, simply press [END LINE]. The same holds for all other values.

END PROG

Pressing this sfk terminates running of the program. The program may be recovered by pressing [CONT].

EXIT

Pressing this sfk causes the program to exit from the current module and enter another module. Refer to the HELP #s section under the HELP # currently displayed for information on the next module.

GET SL

Pressing this sfk enables you to enter the name of the slide you want to retrieve from the slide storage tape.

LIST ALL

Pressing this sfk causes the title and subtitle and values for all sections of the pie(s) to be listed on the printer. The pen number hatch pattern and explosion parameter are also listed. The program then returns to HELP #8.

LIST SL

Pressing this sfk causes the names of the slides contained in the slide storage directory to be printed on the internal printer along with the first text line and the slide type (vertical, horizontal, pie chart, bar chart, or line chart).

LISTTXT

Pressing this sfk produces a listing of the slide currently in memory on the internal printer. The slide name and slide type (vertical, horizontal, pie chart, bar graph or line graph) are followed by a listing of the slide text, line by line where the four-character style code and X,Y position of the line is followed by the actual text. This LISTTXT key is accessible from either the Save Module (HELP #3) or the Plot Module (HELP #6).

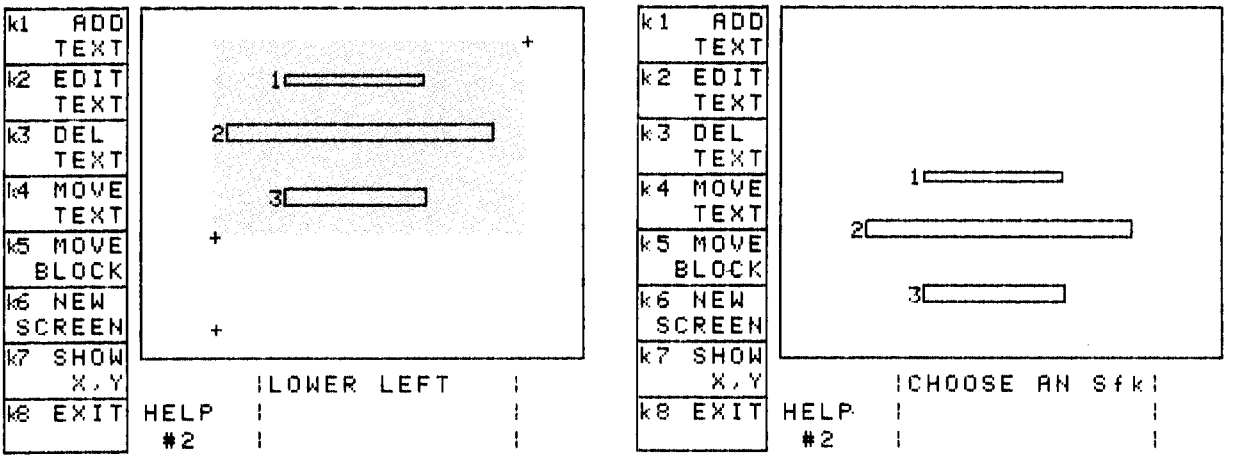
When a slide has been retrieved, its contents are listed on the line printer, line by line, with the style code, X,Y coordinates and text. The slide layout is displayed on the graphics raster. The program will enter Text or the appropriate chart module depending on the kind of slide retrieved.

MAKE TXT

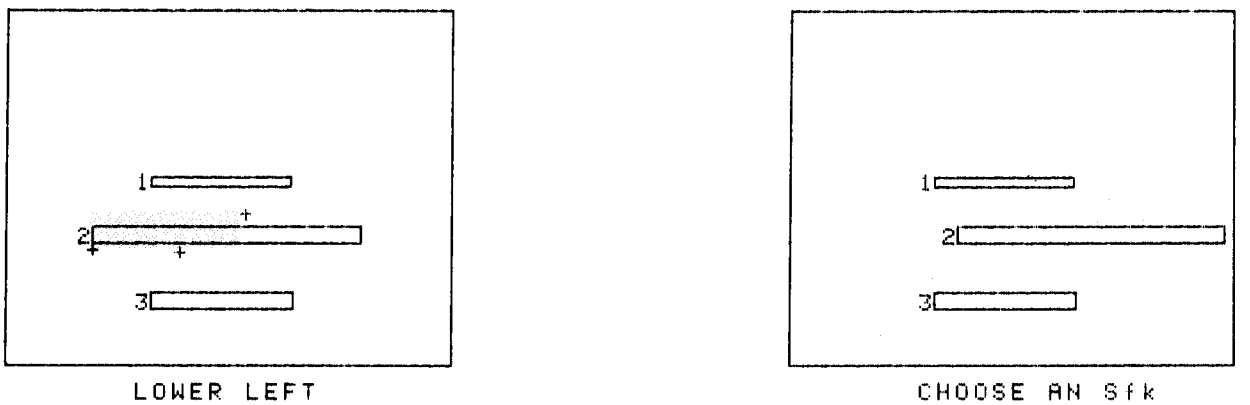
Pressing this sfk initiates creation of a new text slide. You must next enter a slide name of 10 characters or less. You may use blanks in the slide name i.e. SALES TIPS is acceptable. However embedded blanks count as characters. Names longer than 10 characters will not be accepted. After a slide name is entered, the program proceeds to the Text Module, HELP #2.

Pressing this sfk initiates steps to move a block of text on the slide currently in memory. This key is inactive unless the slide contains at least one line of text. After the MOVE BLOCK key is pressed, the words LOWER LEFT appear on the screen, meaning you should move the graphics cursor (+) to the lower left corner of the block you want to move. While any screen location below and to the left of the text will do, it is best to move the cursor close to the lower left corner of the bottom line of text to be moved. This avoids moving unwanted text and maximizes the distance available for moves. Press (END LINE). Now repeat the cursor positioning for UPPER RIGHT. Any upper right position to the right of and equal to or above the *start* of the upper right text line will do. The two positions, lower left and upper right, must form a rectangle where lower left is below and to the left of upper right. Otherwise no text movement is made. As the third and final step, move the cursor to the NEW LOWER LEFT. You cannot move part of a block off the slide area; if you try, you will be asked to enter a new NEW LOWER LEFT coordinate. Press (END LINE) a final time. The block of text will be erased, moved, and redrawn in the new location.

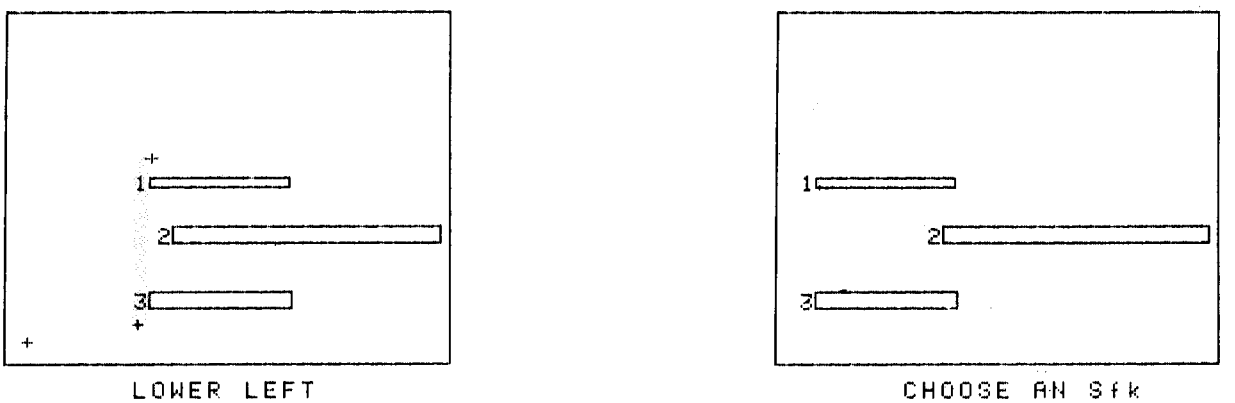
Some examples of block moves are shown below. Note that all lines of text which *began* inside the lower left, upper right rectangle defined by the shaded areas are moved.



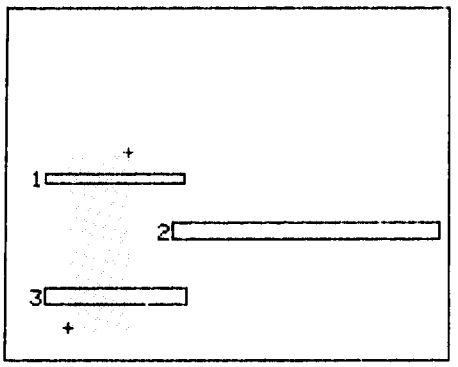
All Lines Moved

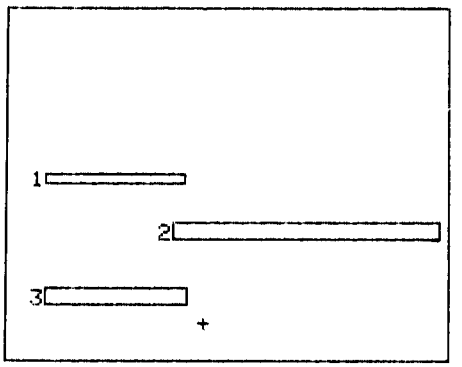


One Line Moved



Left Most Two Lines Moved





No Lines Moved

MOVE SLICE

Pressing this sfk causes the words ROLL SELECT to appear on the screen and the section number, 1, to blink. After using (ROLL) to locate the section you want to move and pressing (END LINE), the message ROLL SELECT will appear again. Now use (ROLL) to locate the section *after* which you want to place the moved section. Press (END LINE). The section is moved, the slide is redrawn with the section numbers changed to reflect the move. Section numbers are always sequential in a counterclockwise direction.

MOVE TEXT

Pressing this sfk initiates steps to move a single line of text on the slide currently in memory. The key is not active unless at least one line of text exists on the slide. After the sfk is pressed, the message ROLL SELECT appears on the screen. When this happens, move the graphics cursor (+), using (ROLL), to the line of text you want to move. Press (END LINE). Now move the cursor to the location at which you want the text to begin and press (END LINE) again. You will not be allowed to move text off the slide area. The cursor will stop at the slide boundaries, thus limiting the beginning of the line. After (END LINE) has been pressed, if the program determines that the whole line will not fit, a message telling you to try again will be printed on the internal promter. No move will be made.

NEW SCREEN

Pressing this sfk causes the slide area of the graphics display to be redrawn. When slide editing has resulted in line numbers and lines being partially erased, this key can be used to cause the complete slide layout to be displayed.

Determining X,Y Position

While positioning the cursor to establish the new text position, you may use SHOW X,Y (k7), to ascertain the current cursor position. This information is valuable if you are trying to align text or duplicate the format of a previously made slide.

NO SAVE

Pressing this sfk bypasses save mode. If you later change your mind, you can save a slide after plotting it. However, the most efficient use of the program is to create a slide, save it, create another slide, etc., and finally plot all slides. Once you have pressed CHART or MAKE TXT after NO SAVE, your old slide in memory is destroyed and cannot be recovered unless a copy has previously been saved.

PLTFAST

Pressing this sfk initiates plotting of a rough version of the slide currently in memory. All lettering is done using upright Normal font and only one pen is used. On bar and pie charts, no area fill is drawn. The positioning and size of text is always as specified in the text entry.

PLT FNL

Pressing this sfk initiates a final plot of the slide currently in memory. When instructed, prepare the plotter by loading paper and pens. Plotting commences when you press (CONT). Lettering is done in the specified font with the specified pen color (obtained either by automatic pen changes of the 9872 plotter or by prompting the user to change pens on the 7225 plotter).

PLOT SL

After pressing this sfk you choose whether or not to obtain a printed copy of the slide storage directory. The program then enters the Plot Module, HELP #6. There is a three minute wait while the program segment is read in.

SAVE SL

Pressing this sfk saves the slide currently in memory on the slide storage tape. When a group of slides is being created at one sitting, each slide should be saved immediately after its creation, and all slides plotted at once after they have been created and stored.

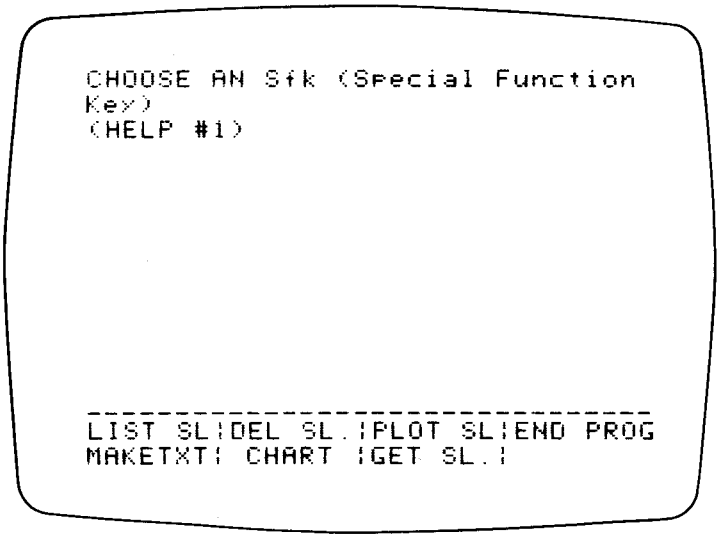
SHOW X,Y

Pressing this sfk prints the X,Y coordinates of the graphics cursor on the internal printer. The printed coordinates are the coordinates of the center of the graphics cursor (+). The range of possible values is $3 \leqslant X \text{ (or } Y) \leqslant 188$ and $3 \leqslant Y \text{ (or } X) \leqslant 148$ depending if the slide is horizontal (or vertical).

STOP PLOT

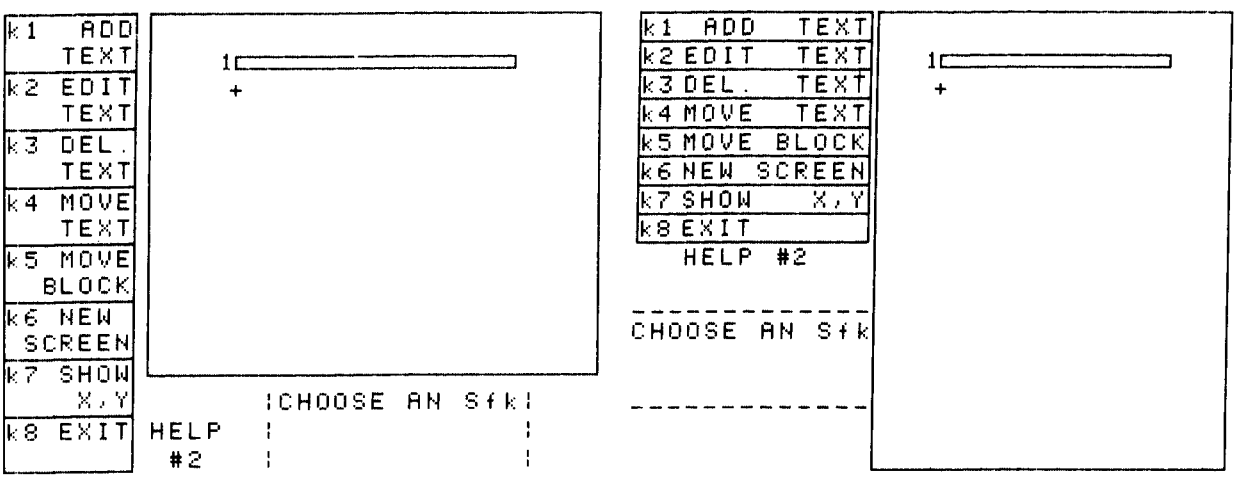
Pressing this sfk stops plotting and returns the program to the Plot Module HELP #6. It is not possible to stop a plot partway through and restart it at the same place.

HELP #1 Start-Up Module



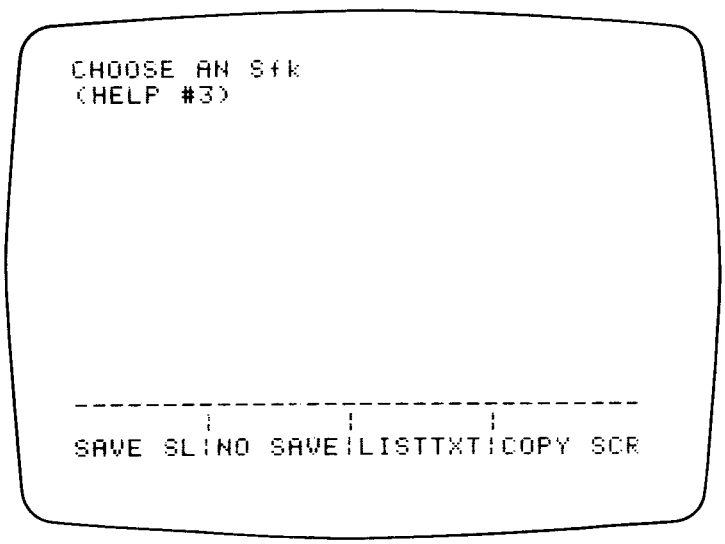
KEY #	Purpose
Unshifted keys	
(k1) MAKETXT	Start a new text slide, HELP #2.
(k2) CHART	Start a bar, line, or pie chart.
(k3) GET SL.	Retrieve a slide from the current slide storage tape.
(k4)	No action.
Shifted keys	
(k5) LIST SL	List slide directory of the current slide storage tape.
(k6) DEL SL.	Delete a slide from the current slide storage tape.
(k7) PLOT SL	Exit to plot module to get and/or plot a slide stored on the current slide storage tape. If slide needs to be edited, get slide in this module and edit it before entering plot module.
(k8) END PROG	Terminate running of program.

HELP #2 Text Module



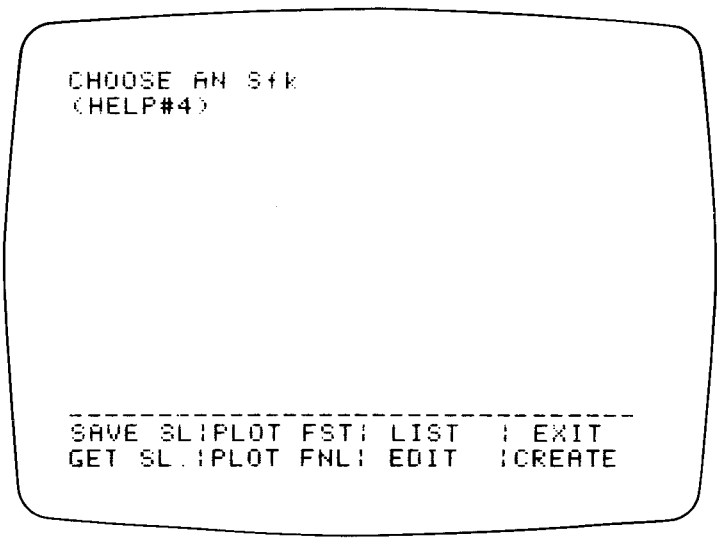
KEY #	Purpose
Unshifted keys	
(k1) ADD TEXT	Add a line of text at the current graphics cursor position.
(k2) EDIT TEXT	Edit a line of text which has been entered.
(k3) DEL. TEXT	Delete a line of text which has been entered.
(k4) MOVE TEXT	Move a line of text to a new location.
Shifted keys	
(k5) MOVE BLOCK	Move a block of text on the slide currently in memory.
(k6) NEW SCREEN	Redraw the slide area.
(k7) SHOW X,Y	Print the X,Y coordinates of the graphics cursor position.
(k8) EXIT	Exit to save module, HELP #3.

HELP #3 Save Module



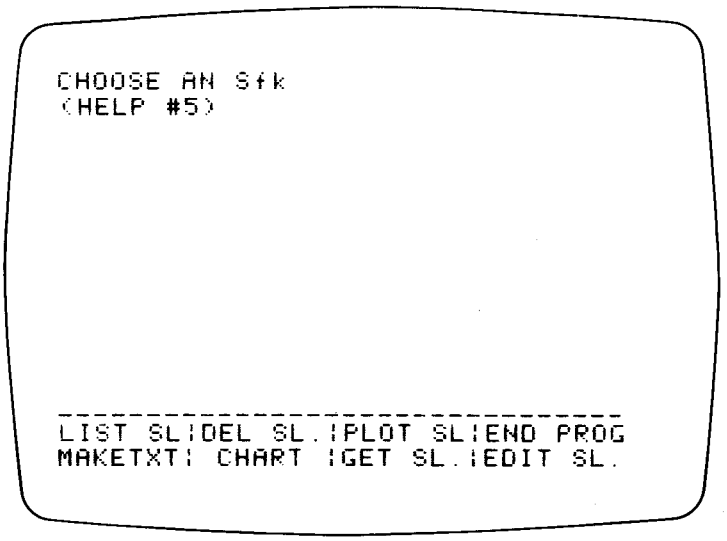
KEY #	Purpose
Unshifted keys	
(k1) SAVE SL	Save slide currently in memory on the slide storage tape.
(k2) NO SAVE	Slide not saved. Exit to restart module HELP #5.
(k3) LIST TXT	List text, character code, and X,Y coordinates of each text line of the slide currently in memory.
(k4) COPY SCR	Copy current graphics display contents onto internal printer to view text position on slide.
Shifted keys	
(k5) - (k8)	No action.

HELP #4 Chart Module



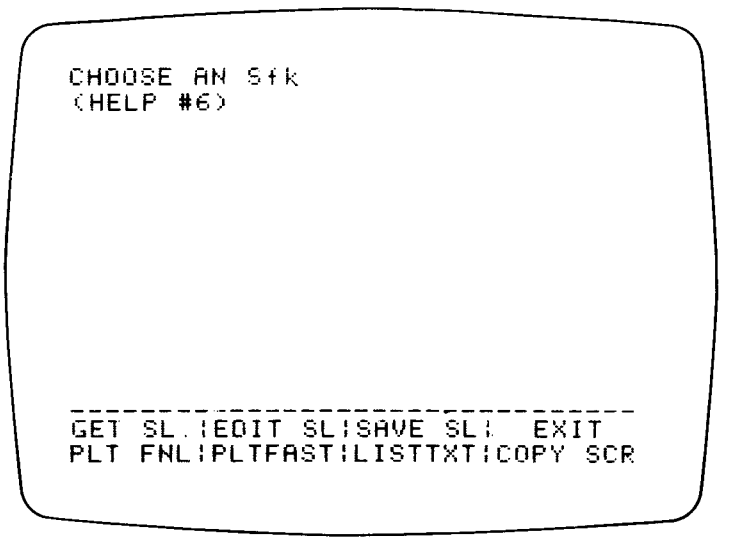
KEY #	Purpose
Unshifted keys	
k1 GET SL.	Retrieve a slide from current slide storage tape.
k2 PLOT FNL	Plot slide using hatch or line types as specified.
k3 EDIT	Exit to Pie Module, HELP #8, or Line and Bar Module, HELP #9, to edit slide currently in memory.
k4 CREATE	Begin a new bar, line, or pie chart as previously specified.
Shifted keys	
k5 SAVE SL.	Save slide currently in memory.
k6 PLTFAST	Plot representation of slide all line types solid and no hatching.
k7 LIST	List titles, labels and data for bar, line or pie chart currently in memory.
k8 EXIT	Exit to restart module, HELP #5.

HELP #5 Restart Module



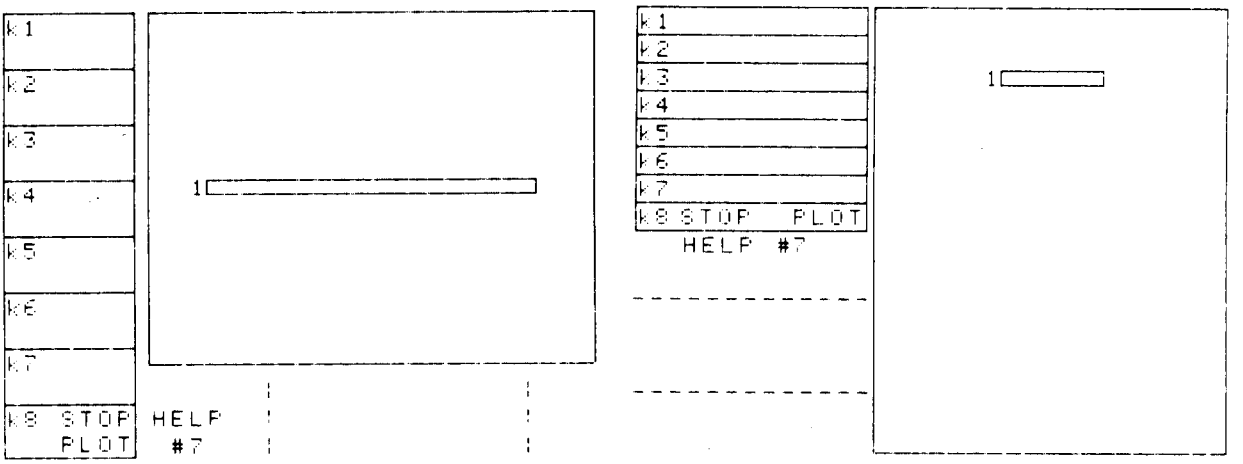
KEY #	Purpose
Unshifted keys	
k1 MAKETXT	Start a new text slide, HELP #2.
k2 CHART	Start a bar, line, or pie chart.
k3 GET SL.	Retrieve a slide from the current slide storage tape.
k4 EDIT SL	Exit to Text module HELP #2, to edit the slide currently in memory.
Shifted keys	
k5 LIST SL	List slide directory of slide storage tape.
k6 DEL SL.	Delete a slide from the current slide storage tape.
k7 PLOT SL	Exit to Plot Module (HELP #6) to plot slide currently in memory or slides stored on the current slide storage tape.
k8 END PROG	Terminate running of program.

HELP #6 Plot Module



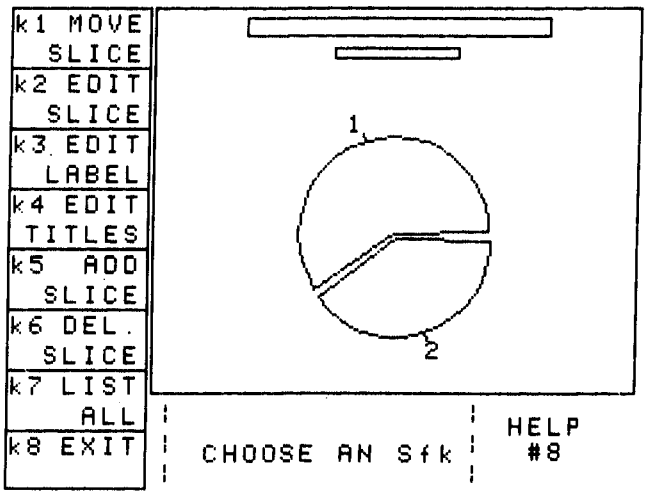
KEY #	Purpose
Unshifted keys	
(k1) PLT FNL	Plot slide using characters, fonts, and pens as specified.
(k2) PLTFAST	Representative plot of slide, all characters plotted in normal font in a single color. Enter Plotting Module and return to this Plot Module on completion of plot.
(k3) LISTTXT	List text, character code, and X,Y coordinates of each text line of the slide currently in memory.
(k4) COPY SCR	Copy current graphics display contents onto internal printer to view text position on slide.
Shifted keys	
(k5) GET SL.	Retrieve a slide from current slide storage tape.
(k6) EDIT SL	Exit to Text Module, HELP #2, to edit the slide currently in memory.
(k7) SAVE SL	Exit to Save Module, HELP #3 to save slide currently in memory.
(k8) EXIT	Exit to Restart Module, HELP #5.

HELP #7 Current Plotting Module



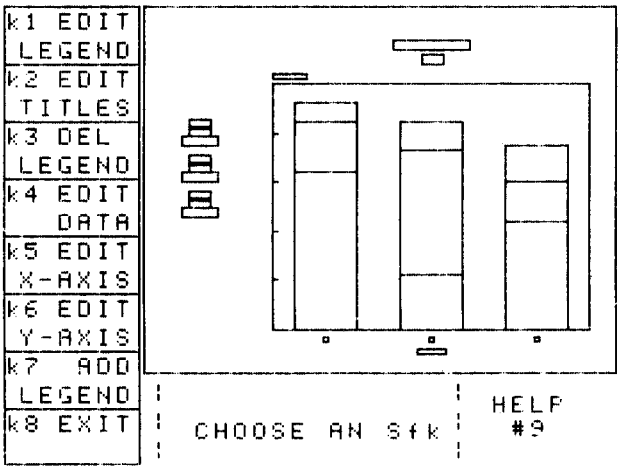
KEY #	Purpose
Unshifted keys	
k1 - k4	No action.
Shifted keys	
k5 - k7	No action.
k8 STOP PLOT	Stop plotter at end of plot instruction already sent to plotter.

HELP #8 Pie Module



KEY #	Purpose
Unshifted keys	
(k1) MOVE SLICE	Move a slice of the pie chart to a different location in the same pie.
(k2) EDIT SLICE	Change the value, pen, hatch, or explosion parameter of a selected slice of the pie chart.
(k3) EDIT LABEL	Change the slant parameter or text of the label for a selected slide of the pie chart.
(k4) EDIT TITLES	Edit the title and subtitle(s) of the pie chart.
Shifted keys	
(k5) ADD SLICE	Add a slice to the pie chart.
(k6) DEL. SLICE	Delete a selected slice of the pie chart.
(k7) LIST ALL	List all titles, values, parameters and labels for the pie chart.
(k8) EXIT	Exit to Chart Module, HELP #4.

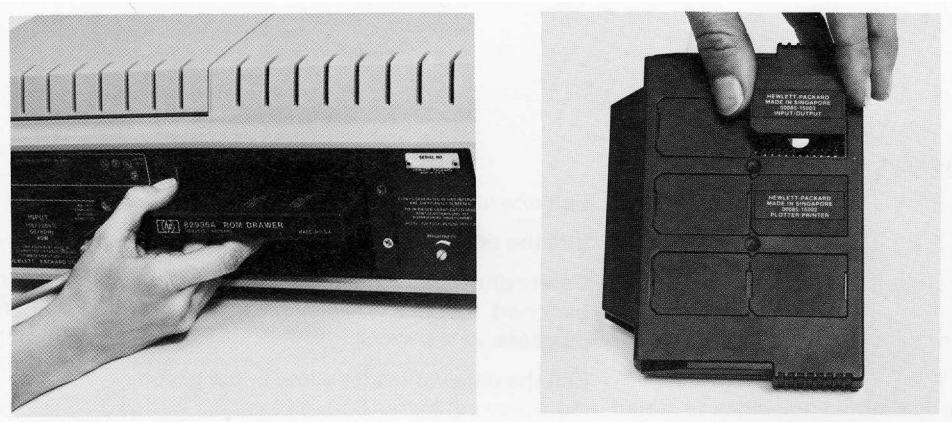
HELP #9 Line and Bar Module



KEY #	Purpose
Unshifted keys	
(k1) EDIT LEGEND	Edit one legend of a line or bar chart.
(k2) EDIT TITLES	Edit the title and subtitle of a graph.
(k3) DELETE LEGEND	Delete one legend of a multiple line graph, stacked or clustered bar chart. Inactive when single line or normal bar charts are in progress.
(k4) EDIT DATA	Edit the data values for a line or bar graph.
Shifted keys	
(k5) EDIT X-AXIS	Edit the X-axis title on all graphs. Edit an individual label on the X-axis of a labeled line graph (as opposed to scaled) or on a bar graph. The number of data points i.e. labels cannot be changed.
(k6) EDIT Y-AXIS	Edit the Y-axis title, minimum and maximum values and Y-increment.
(k7) ADD LEGEND	Add one legend to a multiple line graph, stacked or clustered bar. Inactive when single line or normal bar charts are in progress.
(k8) EXIT	Exit to Chart Module, HELP #4.

Appendix A
Assembling Your System

To use the Graphics Presentations Pac, a 16K Memory Module (Part No. 82903A), HP-IB Interface (82937A) and a ROM Drawer (82936A) must be installed in your HP-83/85. These accessories will be referred to as plug-in modules. In addition, a plug-in ROM, the Plotter/Printer ROM (00085-15002) must be inserted into one of the slots in the ROM drawer. The HP-83/85 is designed with four module ports on the rear panel. The ports are numbered 1 through 4 from the top. Before being shipped from the factory, each port is fitted with a removable protective cover. It is recommended that each port be kept covered when not in use. The module ports, ROM module, and the plotter/printer ROM are pictured below.



We will first discuss installation of the modules into the ports and then installation of the plotter/printer ROM into the ROM drawer. The HP-IB interface must be attached to an HP 7225 or 9872 Plotter.

WARNING

Do not place fingers, tools, or other foreign objects into the plug-in ports. Such actions may result in minor electrical shock hazard and interference with pacemaker devices worn by some persons. Damage to plug-in port contacts and the computer's internal circuitry may also result.

Plug-in Module Installation and Removal

The HP-83/85 plug-in modules may be installed or removed as often as your needs require. To install modules, observe the following procedures.

CAUTION

Always switch off the machine and any peripherals involved when inserting or removing modules. Use only the plug-in modules designed by Hewlett-Packard specifically for the HP-83/85. Failure to do either could damage equipment.

1. Turn off your HP-83/85 system. If an interface module is to be installed, or is already in use, switch off the plotter or any other peripheral devices involved.

CAUTION

If a module jams when inserted into a port, it may be upside down. Attempting to force it further may result in damage to the computer or the module.

2. Remove the protective cover from the plug-in port to be used.

3. With the label right-side-up, insert the contact end of the module into the port and push until the module seats firmly with its stops against the port's edge. A slight up and down motion may be necessary to start the module moving in the tracks of the port. The tracks are keyed to prevent upside-down module insertion.

4. To remove a plug-in module, first switch OFF your HP-83/85 system and any connected peripherals. Then firmly grasp and pull the module free of the port. Store the module where it will be safe from damage to the contacts. Replace the port cover.

Note: Up to four different modules can be installed in the HP-83/85 at any time. However, do not install duplicate 16K RAM memory modules or duplicate ROMs into the ROM drawer. Such duplication can create error conditions and will not increase memory or computing power.

Plug-in ROM Installation and Removal

The ROM drawer is a particular plug-in module that contains six rectangular slots for individual plug-in ROMs, each fitted with its own protective cap.

The plotter/printer ROM will fit in any of the six positions in the ROM drawer. To insert the ROM into the ROM drawer:

1. Remove the protective cap from one of the slots in the ROM drawer by inserting the eraser end of a pencil into the circular hole on the underside of the ROM drawer. Press with the pencil until the cap snaps off.

CAUTION

Do not touch the spring-finger connectors in the ROM drawer with your fingers or insert tools or other foreign objects. Static discharge could damage electrical components.

2. Inside each plug-in slot in the ROM drawer you can see two rows of spring-finger connectors. These connectors correspond to the two rows of holes on the underside of the ROM plug. ROMs can be inserted in only one direction. Insert the ROM plug into the slot with its label up and its beveled edge toward the connector side of the ROM drawer. Push the ROM into place so that the top of the plug is flush with the top of the ROM drawer.

Note: Leave the cap on any slot in the ROM drawer that is not in use.

3. When the plotter/printer ROM has been inserted into the ROM drawer, the module may be installed into a plug-in port on the rear panel of the HP-83/85 as described above under plug-in Module Installation and Removal.

Plotter-Computer Connection

To connect the plotter to the HP-83/85, plug the end of the cable of the HP-IB Interface module into the rear panel of the 9872 or 7225 Plotter and tighten the two screws on the connector. Be sure the switch to the left of the connector is set to the appropriate address. Plug the power cords of the HP-83/85 and the plotter into grounded receptacles. Turn on the plotter and the computer. You may want to test the plotter to be sure it is operating properly.

For additional information please contact the nearest authorized Series 80
HP-83/85 dealer or your local Hewlett-Packard sales office.

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