GRiDPlot
Graphs

Contents—GRiDPlot—Graphs

List of Figures and Tables

GRiDPlot—Graphs

This chapter contains an introduction to GRiDPlot and a description of each of its commands. If a command is used exclusively with GRiDPlot, the command is described in detail; if it can be used with one or more of the other GRiD Applications, you are referred to the "Common Commands" chapter for details.

About GRiDPlot

GRiDPlot is a business graphics tool for analyzing, reviewing, and presenting data in the form of graphs and pie charts. Printed graphs and charts can be made using a printer or a Hewlett-Packard pen plotter attached to your computer.

Topics in this chapter include

- Creating a graph—overview
- Creating a graph from a worksheet or database file
- Summary of commands
- The GRiDPlot displays

Creating a Graph—Overview

Follow these steps the first time you create a graph and use GRiDPlot to display or print it. For step-by-step instructions that introduce you to graphing functions such as selecting new data to graph or displaying a graph, see "Session 3: GRiDPlot Graphs," in the *Getting Started* tutorial.

To Use GRiDPlot

1. Create a file with Kind set to Graph. See the File Form section in the "System Basics" chapter for information on creating files. Once you confirm the File form, the screen shows the GRiDPlot display (explained later in this introduction).
2. Choose the graph format by filling out the following forms:
   - The Options form, to choose the kind of graph that best displays the data. See Options (Graph)—CODE-O, later in this chapter.
   - The Properties form, to assign to rows and columns attributes such as labels, numbers, patterns, and colors. See Properties (Graph)—CODE-P, later in this chapter.

- The Headings form, to label the graph. See Headings (Graph)—CODE-H, later in this chapter.
- The Axis forms, to change the characteristics of the horizontal, right, and left axes. See Axis Selection—CODE-?, later in this chapter.

Setting these forms is optional. The initial settings may suit the needs of your graph.

3. Enter the data you want to graph. If the data already exists in a worksheet, database, or other file, see the next section, Creating a Graph from a Worksheet or Database.

   To avoid losing data (through a power failure, for example), save your work frequently with the Save This File item of the Transfer command (CODE-T).

4. Issue the Graph command and select the data you want to graph. See Graph—CODE-G, later in this chapter.
5. To display the graph, confirm your selection (CODE-RETURN).
6. Edit your table of graph data with the following commands:
   - The Erase command (CODE-E), to erase data, or remove rows or columns.
   - The Move command (CODE-M), to move data, rows, or columns.
   - The Duplicate command (CODE-D), to duplicate data, rows, or columns.
   - The Insert command (CODE-I), to insert new rows or columns.
7. Use the Transfer command to print the graph or to display the graph on a plotter. See Transfer—CODE-T, later in this chapter.
8. When you complete work on your graph, several commands are available for you to exit GRiDPlot; the command you use depends on what you want to do next. These commands are summarized below; see the the Transfer—CODE-T section of this chapter and the "Common Commands" chapter for details on their use.
   - You can transfer data to and exchange your graph file for another graph file, or a database file, worksheet file, or a text file by using the Append to a File and Write to a File items of the Transfer command (CODE-T).
   - You can exchange your graph file for any other file without transferring data by using the Exchange for Another File item of the Transfer command (CODE-T).

- You can exit your graph file, save any changes you made to the file, and return to the File form by using the Quit command (CODE-Q).
- You can exit the current graph file without saving any changes and return to the File form by using the Cancel command (CODE-ESC). The data in the graph file is the same as it was when you last retrieved or saved it.

Creating a Graph from a Worksheet or Database

You may wish to graph data from a file you created with GRiDPlan, GRiD-File, or GRiDReformat. Here are the recommended steps for graphing such data.

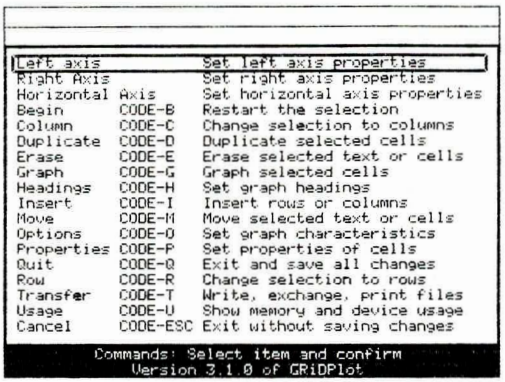
To Create a Graph from a Worksheet or Database

1. Create a file with Kind set to Graph and include the data you want to graph in the file. (For alternative methods of transferring the data, see the Transfer—CODE-T section in the "Common Commands" chapter.
2. Issue the Graph command and select the data you want to graph. See Graph—CODE-G, later in this chapter.
3. To display the graph, confirm your selection.
4. If the data doesn't graph successfully, make sure the Kind of Data item in the Properties form is set to Numbers. See the Properties (Graph)—CODE-P section in this chapter for information on how to change properties. See Kind of Data in the same section for the rules that determine whether data in your table is graphed.
5. Go back to step 3, above, and continue until the data is graphed satisfactorily.

The Commands

Once the GRiDPlot display appears (step 1, above), press CODE-? to display the commands and a summary of their functions (Figure 6-1).

Figure 6-1. *The Commands Menu*



The sections following this introduction describe the commands in alphabetical order.

The GRiDPlot Displays

GRiDPlot displays your data in a table and later as a graph on the screen, printer, or plotter. This section discusses the elements of the table and the graph.

The Table Figure 6-2 shows sample GRiDPlot tables. Whether a table displays lines between columns or rows depends on how you decide the data should be graphed.

Figure 6-2. *Table Displaying Rows*

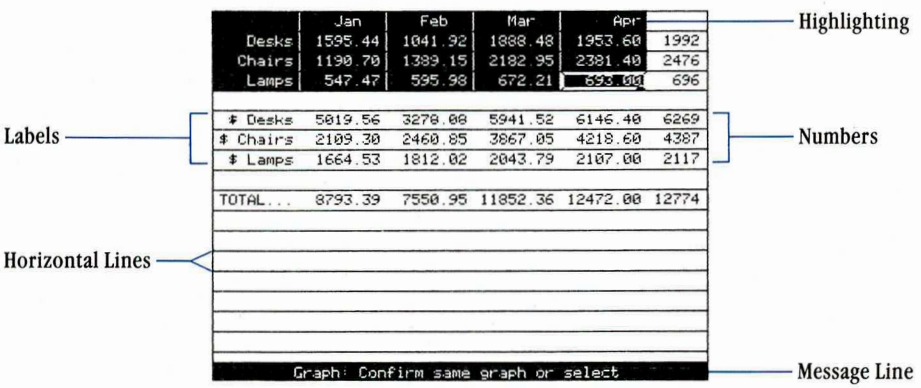
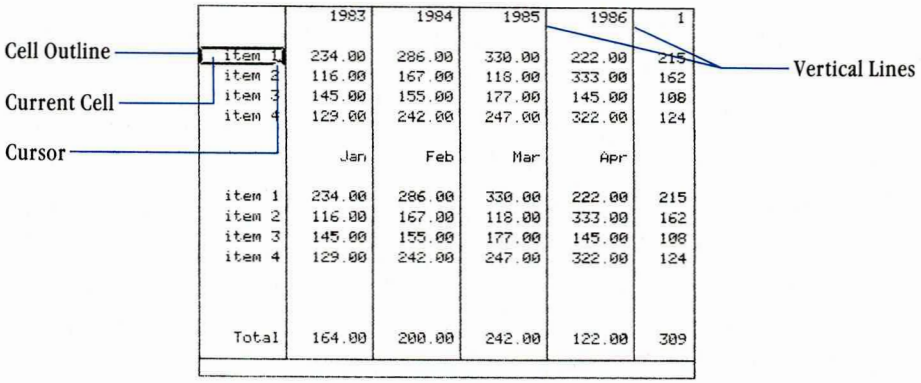


Figure 6-2 (continued). *Table Displaying Columns*



	1983	1984	1985	1986	1
item 1	234.00	286.00	330.00	222.00	215
item 2	116.00	167.00	118.00	333.00	162
item 3	145.00	155.00	177.00	145.00	108
item 4	129.00	242.00	247.00	322.00	124
	Jan	Feb	Mar	Apr	
item 1	234.00	286.00	330.00	222.00	215
item 2	116.00	167.00	118.00	333.00	162
item 3	145.00	155.00	177.00	145.00	108
item 4	129.00	242.00	247.00	322.00	124
Total	164.00	200.00	242.00	122.00	309

The basic elements of the GRiDPlot table are explained below.

Cell	A single unit of the GRiDPlot table where you enter labels or numbers that are to be plotted. A cell can contain characters, or it can be empty.
Cell Outline	A highlighted outline around the cell in which you position the cursor. The outline indicates the cell where you enter data or labels.
Highlighting	A display technique that reverses the color of the characters and the background.
Labels	The text used to name the graph components.
Numbers	The values used as graph components.

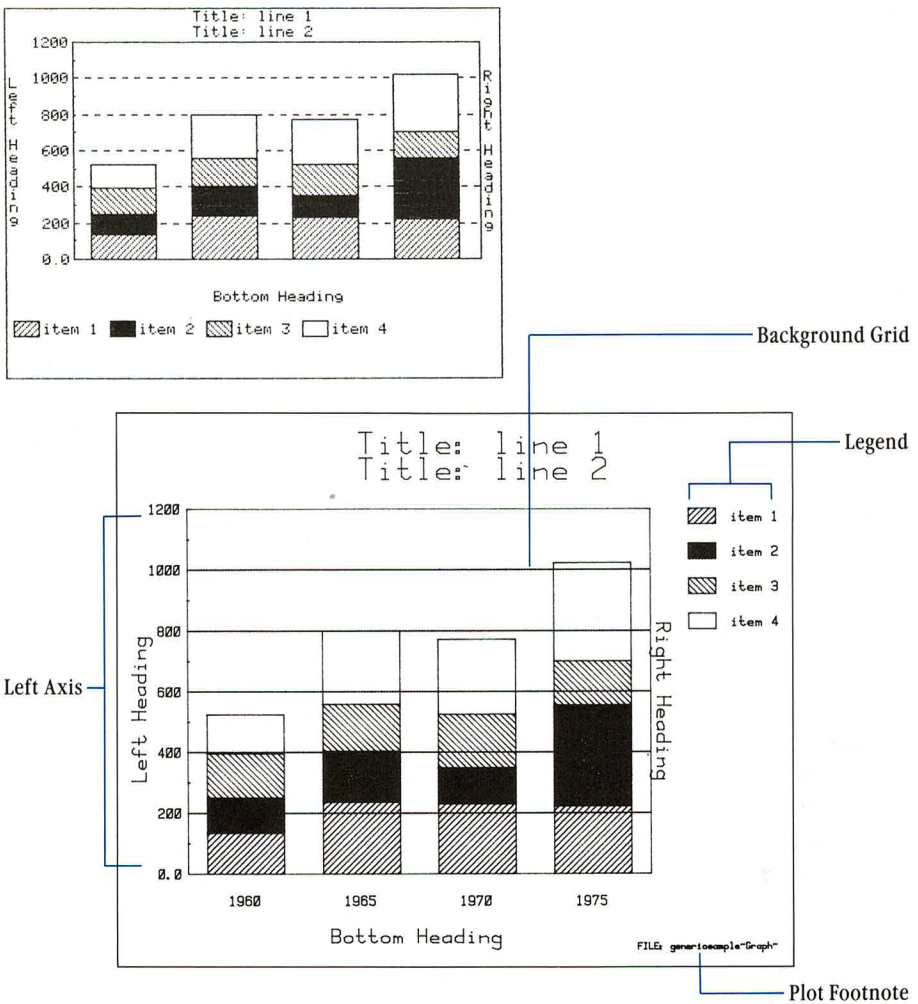
Moving About the Table Certain keys move the outline quickly to the cell where you want to enter or change data. For example, by pressing one or two keys, you can move to the adjacent row or cell, to the right- or left-most column, or to the top or bottom row of the display or entire file. For information on the keys, go to Appendix G and read the Selection section that describes the keys on your computer.

The Graph Figure 6-3 shows sample graphs displayed on the screen and on a plotter. As explained below, plotted graphs differ from the screen graphs. For graphs that are produced by a plotter

- The legend appears along the right side of the plotted graph instead of along the bottom.
- A footnote can be displayed.
- The lettering size can vary for different headings.

- The letters in the left and right headings are displayed differently.
- Color can be used.
- In bar graphs, more bars can be plotted than can be displayed on the screen.

Figure 6-3. *Sample Graphs Displayed on the Screen and on a Plotter*



The basic elements of a graph are summarized here. You can affect the appearance of many of these elements with the Options command (CODE-O). See the Options (Graph)—CODE-O section in this chapter for additional information.

Background Grid	Horizontal and/or vertical lines or marks that form the background of bar and line graphs. (Pie charts don't have background grids.) Background grids can help you interpret the value of the data on the graph.
Bottom Heading	A centered title below the graph. It is typically used to label the horizontal axis in bar and line graphs.
Component	A number or group of numbers represented by the bars, segments of bars, lines, or slices of a pie on the graph.
Horizontal Axis	The lower horizontal line on an axis graph. It is commonly used for labels such as dates, time periods, names, or places; it can also be used for numerical information on scatter graphs and horizontal bar graphs.
Left Axis	The left vertical line of an axis graph. It displays numerical information on the graph's scale. You can use the left and/or right axis to display such numerical information.
Left Heading	The title that appears on the left side of the graph on bar and line graphs. (Pie charts don't display left headings.) It can be used to label the vertical axis.
Legend	One or more boxes containing the pattern (and colors, in the case of a plotter) for each component of the graph. Each box has a corresponding label describing the component.
Plot Footnote	An optional annotation, preceded by the word *Footnote*, on plotted graphs only. It is commonly used as a reminder of the file title.
Right Axis	The right vertical line of an axis graph. It displays numerical information on the graph's scale. You can use the right and/or left axis to display such numerical information.
Right Heading	The title that appears on the right side of the graph on bar and line graphs. (Pie charts don't display right headings.) It is typically used to label the right vertical axis for line and clustered bar graphs that use this axis.
Scale	The range of numbers represented by the axes of a graph.
Title: line 1	The first line of the title. It is automatically centered over the data being graphed. On plotted graphs, the two title lines appear in the largest-size letters.
Title: line 2	The second line of the title. It is automatically centered under the first line.

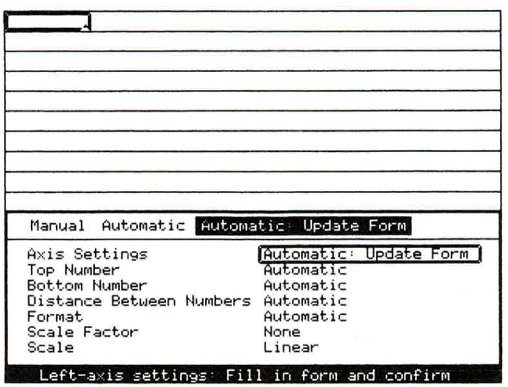
Axis Selection—CODE-? Based on the data you select to graph, GRiDPlot automatically determines a scale for the right, left, and horizontal axes. You can alter these automatic scales with the Set Horizontal Axis, Set Right Axis, and Set Left Axis commands. You can also use these commands to display the automatic scale set by GRiDPlot.

To issue an axis command, press CODE-?, select the desired axis command, and press CODE-RETURN. A form then appears for you to fill out to determine your new axis scale. Figure 6-4 shows the initial settings for each of these forms.

Once you have changed one or more of these settings and confirmed the form, the new settings remain in effect until you change them again. When you save the file, the current settings are also saved.

NOTE: Be sure to select Manual as the Axis Setting choice (described below) when you change the settings. Otherwise, your new settings are either ignored or lost.

Figure 6-4. *The Set Left Axis Form with Initial Settings*



The scale on the right axis appears only on line graphs or clustered bar graphs and only if you assign at least one row or column to it (using the Line-Graph Axis item on the Properties form).

The items on the Axis forms are described in alphabetical order in the following sections.

Axis Settings

This item determines where GRiDPlot obtains the Axis settings.

Initial setting is Update Form. Choices are described below.

Manual	Uses the settings on this form to determine the axis scale.
Automatic	Uses GRiDPlot's automatic scaling to determine the axis scale; ignores any settings on this form. The Automatic item lets you keep any manually set choices for a particular graph or graphs, while using automatic scaling for the same or other graphs.
Update Form	Displays the numbers used by GRiDPlot for automatic scaling. Confirming this choice erases all manually set numbers and replaces them with the numbers that GRiDPlot used for the graph's automatic scale.

Bottom Number

The number that appears at the bottom of the scale. It is always the lowest number on the scale.

Initial setting is Automatic. Choices are described below.

Number	The number you type in determines the bottom number.
Automatic	GRiDPlot selects the numbers automatically.

A number is not graphed if it is less than the bottom number or greater than the top number. If the bottom number is greater than the top number, an error message appears; you cannot confirm the form until you correct this mistake.

Any negative number and zero aren't graphed if you define the Scale item (described below) as logarithmic.

Distance Between Numbers

This item determines amount of space between numbers on the scale.

Initial setting is Automatic. Choices are described below.

Number	The number you type in becomes the distance between numbers on the scale
Automatic	GRiDPlot selects the distance automatically.

Format

The Format item determines how the numbers that label the axis are displayed.

Initial setting is Automatic. Choices are described below.

Decimal Places	Scale numbers contain the decimal places you type in.
$	Scale numbers have two decimal places on display.
Integer	Scale numbers appear as integers. They are rounded up, if necessary.
Automatic	Scale numbers use GRiDPlot's automatic format.
Standard	Scale numbers use the Standard setting defined in the Options form.

Scale Factor

This item is the factor by which the numbers on the scale are multiplied to arrive at an accurate representation of the data. The factor cannot be more than six orders of magnitude greater than the numbers in the table.

Initial setting is None. Choices are described below.

None	The number on the scale is an accurate representation of the data.
Hundreds Thousands Millions Billions Trillions	Multiply the numbers on the scale by the number you choose as the setting.

Scale

This item determines the scale factor used in the graph axes, which indicate the values of the data being graphed.

Initial setting is Linear. Choices are described below.

Linear	Numerical distance between each tick mark is the same.
Logarithmic	Displays numbers logarithmically. Logarithmic axes ignore the Distance Between Numbers setting described earlier.

Top Number
The number that appears at the top of the scale. It is always the highest number on the scale.

Initial setting is Automatic. Choices are described in the Bottom Number section above.

Begin Selection—CODE-B The Begin Selection command (CODE-B) lets you mark the start of data you want to select after the message line prompts you to `select` or `make a selection`. See Begin Selection—CODE-B in the "Common Commands" chapter for details.

Cancel—CODE-ESC The Cancel command (CODE-ESC) lets you exit from GRiDPlot without saving any changes to your file since you last saved it. See Cancel—CODE-ESC in the "Common Commands" chapter for details.

Column Selection—CODE-C The Column Selection command (CODE-B) lets you select an entire column of cells after the message line prompts you to `select` or `make a selection`. See Column Selection—CODE-C in the "Common Commands" chapter for details.

Duplicate—CODE-D The Duplicate command (CODE-D) lets you copy data within your file to any target area within the same file. See Duplicate Cells or Text—CODE-D in the "Common Commands" chapter for details.

Erase—CODE-E The Erase command (CODE-E) lets you erase data within your current file. See the Erase Cells or Text—CODE-E section in the "Common Commands" chapter for details.

Graph—CODE-G The Graph command (CODE-G) lets you display a graph on the screen. The Graph command is useful in designing and editing your graph before you send it to a plotter for a finished copy.

After you press CODE-G, you see the following message:

```
Graph: Confirm same graph or select
```

If you confirm immediately without selecting, the following actions can take place, depending on what you did previously.

- If you just entered GRiDPlot, a graph of the entire table appears.

- If you've confirmed a previous selection (as described below) since entering GRiDPlot, a graph of the data you selected appears on the table.

You may want only portions of the data in your graph to appear in the graph. In that case, select the data and confirm; the new graph appears on your display.

Several commands and function keys are available to aid you in selecting the data you want to graph. For information on the keys, go to Appendix G and read the Selection section that describes the keys on your computer. For information on the Selection commands, see these sections in the "Common Commands" chapter: Begin Selection—CODE-B, Column Selection—CODE-C, and Row Selection—CODE-R.

Headings—CODE-H

Use the Headings command (CODE-H) to display explanatory text on your graph. This text is in addition to the horizontal axis and the legend labels set by the Graph Orientation option; see Options (Graph)—CODE-O.

The initial settings for the Headings form are blank. Once you have filled in one or more of these settings and confirmed the form, the new settings become the current settings and remain in effect until you change them again. When you save this file, the current settings are also saved.

The figure below shows a filled-in Headings form.

Figure 6-5. *A Filled-In Headings Form*

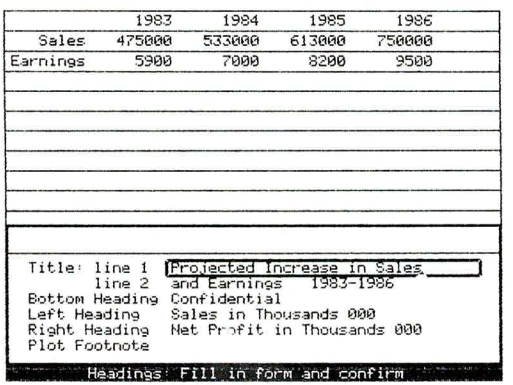


Figure 6-6 shows how the headings from the figure above look on a screen graph. For some tips on creating headings, see Appendix E.

Figure 6-6. *An Example of Headings in a Screen Graph*

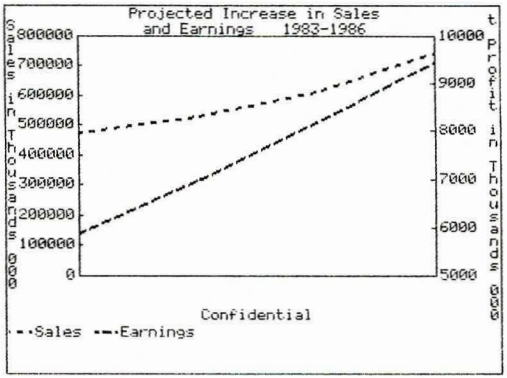


Table 6-1 explains the items on the Headings form. The maximum length of a heading is 80 characters. The number of characters that appear on your screen in the form depends on the Current Typeface setting in the Options form. See the Options—CODE-O section in the "Common Commands" chapter.

Table 6-1. *Items for the Headings Form*

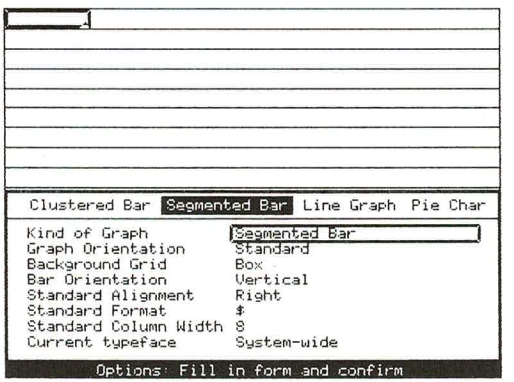
Item	Description
Title: line 1	The first line of the title is centered over the data being graphed. On a plotted graph, the two title lines appear in the largest-size letters.
Title: line 2	The second line of the title is centered under the first line.
Bottom Heading	This label is centered under the graph. On bar and line graphs, it usually labels the horizontal axis.
Left Heading	This puts labels on the left vertical axis on bar and line graphs; it does not appear on pie charts.
Right Heading	This labels the right vertical axis (if there is one) on bar and line graphs. It does not appear on pie charts.
Plot Footnote	The text you type in this item appears in the lower-right corner of a graph produced on a plotter, preceded by the word *Footnote*. Use this plot footnote as a reminder of the file title or for keeping track of different versions of data from the same file.

Insert—CODE-I The Insert command (CODE-I) lets you add new rows or columns to your current file. See the Insert—CODE-I section in the "Common Commands" chapter for details.

Move—CODE-M The Move command (CODE-M) lets you move data within your file to any target area within the same file. See Move Cells or Text—CODE-M in the "Common Commands" chapter for details.

Options (Graph)—CODE-O The Options command (CODE-O) displays the Options form (Figure 6-7). Use the form to define the basic structure of a graph.

Figure 6-7. *The Options Form with Initial Settings*



If you receive an error message after confirming an option, you can either change the option and try again, or press ESC and issue a new command.

The items in the Options form are described in the following sections.

Background Grid

Initial setting is Box. Choices are Box, Horizontal Lines, Graph Paper, Ticks, and X-Y Axis.

This option doesn't apply to pie charts.

Figure 6-8 shows samples of Horizontal Lines, Graph Paper, and Ticks settings for line graphs and segmented bar graphs. (All the background grids look the same on clustered bar and segmented bar graphs.)

Figure 6-8. *Sample Background Grids*

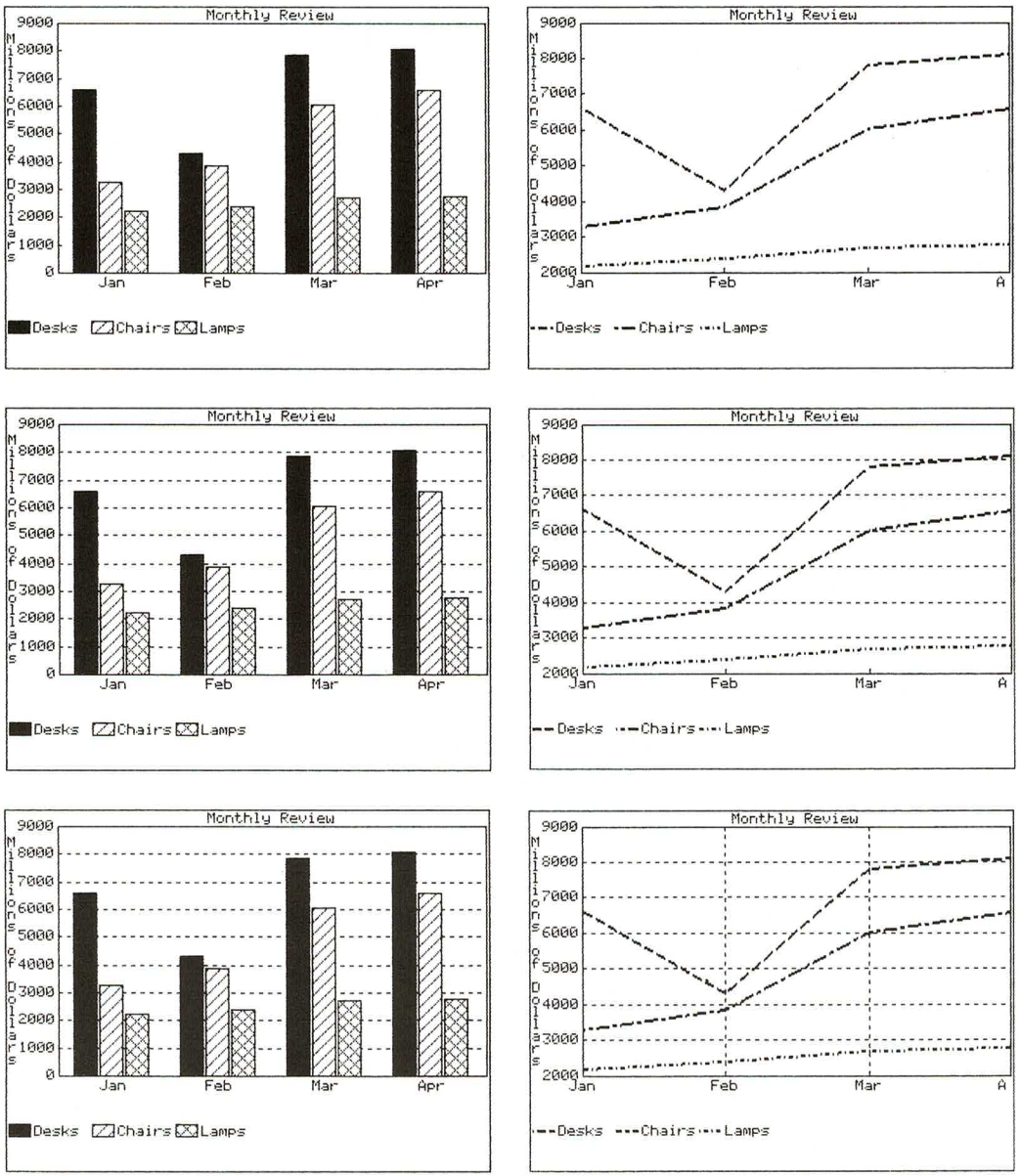
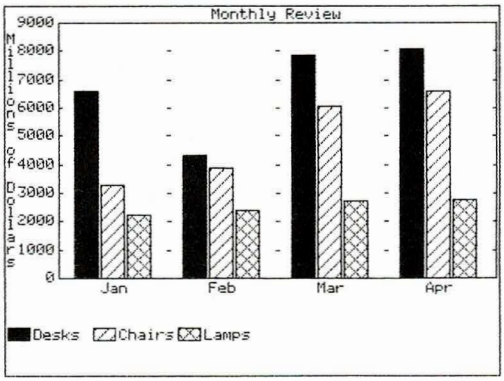
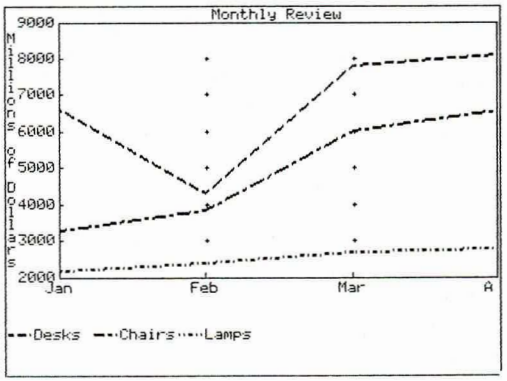


Figure 6-8 (continued). *Sample Background Grids*





Bar Orientation

Initial setting is Vertical. Choices are Vertical, Horizontal.

This option applies to bar graphs only. The Bar Orientation item determines whether a bar originates on the vertical axis or the horizontal axis.

Current Typeface

By changing the Current Typeface item, you can increase the amount of data displayed on your screen. See the Options—CODE-O section in the "Common Commands" chapter for details.

Graph Orientation

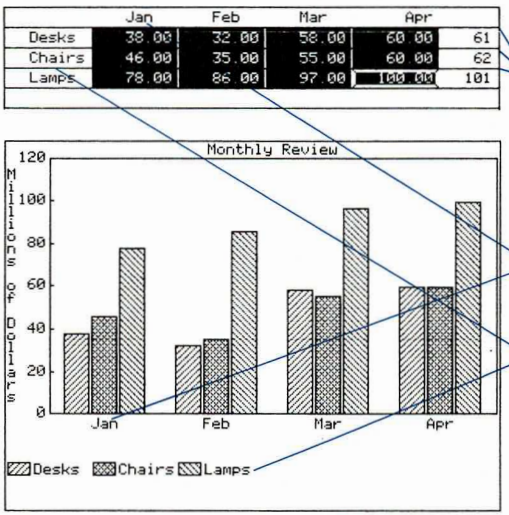
The Graph Orientation item determines which labels appear on the horizontal axis and in the legend.

Initial setting is Standard. Choices are Standard, Transposed.

If you choose Standard, the labels in rows become the labels on the horizontal axis, and the labels in columns become the labels for the legend items. If you choose Transposed, the reverse happens.

Figure 6-9 shows the differences resulting from choosing Standard and Transposed. The upper graph (Standard) makes it easy to compare trends over time. The lower graph (Transposed) helps you compare totals.

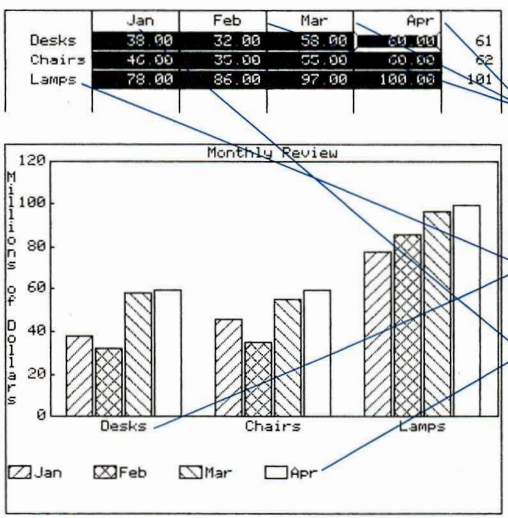
Figure 6-9. *Displaying the Same Selection from Two Different Perspectives: Standard and Transposed*



The lines in the table are drawn between rows of numbers.

Row labels appear on the horizontal axis.

Column labels appear on the legend.



GRAPH ORIENTATION: Transposed

The lines in the table are drawn between the columns of numbers.

Column labels appear on the horizontal axis.

Row labels appear on the legend.

The Graph Orientation option works differently for bar and line graphs than for pie charts.

Orientation in Bar and Line Graphs For bar and line graphs, GRiD-Plot always displays the scale of numbers of the selection along one of the vertical axes. The Graph Orientation option allows you to choose how the data is displayed along the horizontal axis.

Figure 6-9 shows how the Standard and Transposed settings work for bar and line graphs. These figures use clustered bar graphs, but the same principles hold for segmented bar and line graphs.

The top graph in Figure 6-9 shows a sample table and the resulting graph when you set Graph Orientation to Standard. Each legend item corresponds to the numbers in a row. These numbers are displayed as one component of each bar in a segmented bar graph, one bar of each cluster in a clustered bar graph, or one line in a line graph.

Transposed The bottom graph in Figure 6-9 shows a sample data table and the resulting graph when you set Graph Orientation to Transposed. Each legend item corresponds to the numbers in a column. These numbers are displayed as one component of each bar in a segmented bar graph, one bar of each cluster in a clustered bar graph, or one line in a line graph.

Orientation in Pie Charts Pie charts graph one-dimensional rather than two-dimensional data. You can graph numbers from only one column or one row. Since there is no horizontal axis on a pie chart, there can be no horizontal labels. However, the legend items are labeled in the same manner as in bar and line graphs: with Graph Orientation set to Standard, the legend labels derive from columns; set to Transposed, from rows.

Figures 6-10 and 6-11 show sample selections and the resulting pie charts when Graph Orientation is set to Standard or Transposed.

Figure 6-10. *Pie Chart: Standard Graph Orientation*

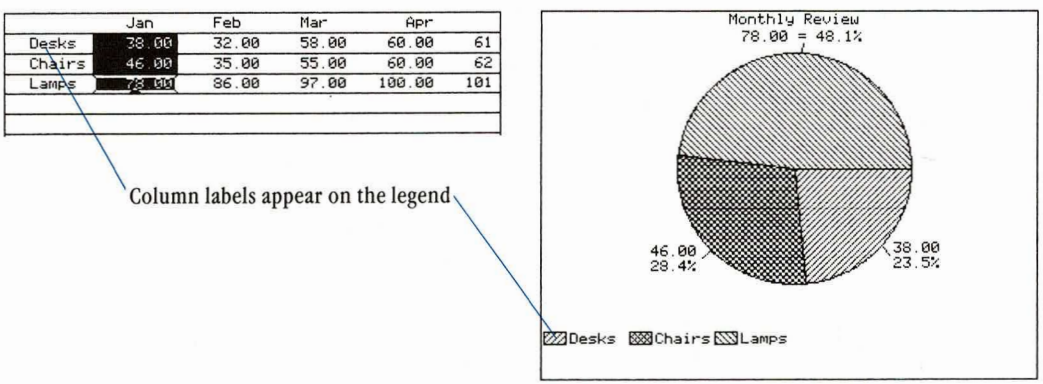
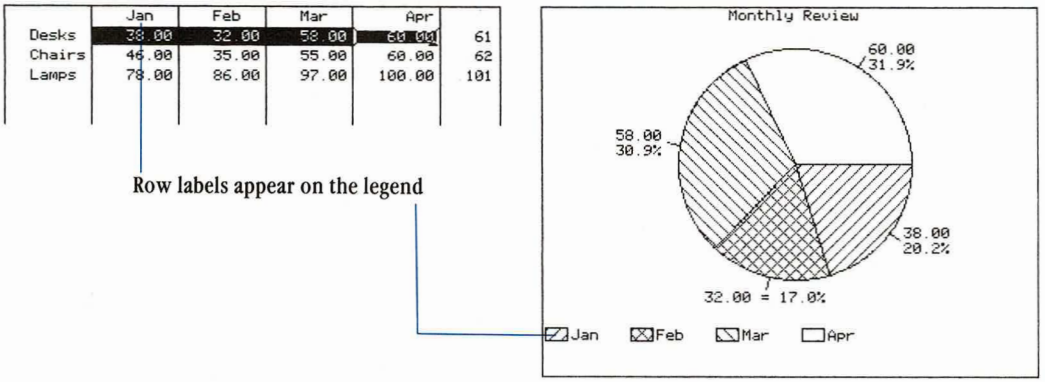


Figure 6-11. *Pie Chart: Transposed Graph Orientation*



Kind of Graph

Initial setting is Segmented Bar. Choices are Clustered Bar, Segmented Bar, Line Graph, Pie Chart, Scatter, and High-Low-Close. The graph you choose depends on how you want to interpret the data.

You can graph all positive or all negative numbers on any of the six graphs. You can graph a combination of negative and positive numbers on all but segmented bar graphs or pie charts.

In the sample graphs used in the sections that follow, a title and left heading have been specified using the Headings command (CODE-H).

Figure 6-12 shows the table used to generate the bar and line graphs in this section.

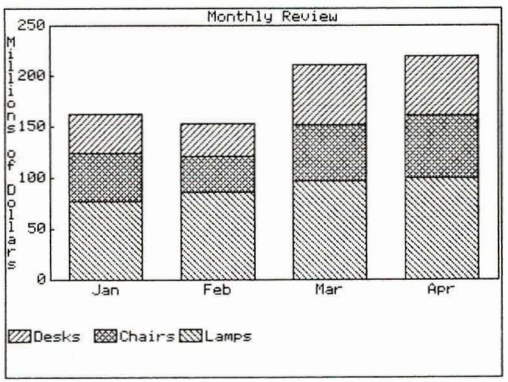
Figure 6-12. *Sample Table for Bar and Line Graphs*

	Jan	Feb	Mar	Apr	M
Desks	38.00	32.00	58.00	60.00	61.
Chairs	46.00	35.00	55.00	60.00	62.
Lamps	78.00	86.00	97.00	100.00	101.

Graph: Confirm same graph or select

Segmented Bar Graphs A *segmented bar graph* shows each cell from the table as a component of a vertical bar. The sum of these components equals the total height of the bar. Figure 6-13 shows a segmented bar graph generated by the table in Figure 6-12.

Figure 6-13. *Segmented Bar Graph*

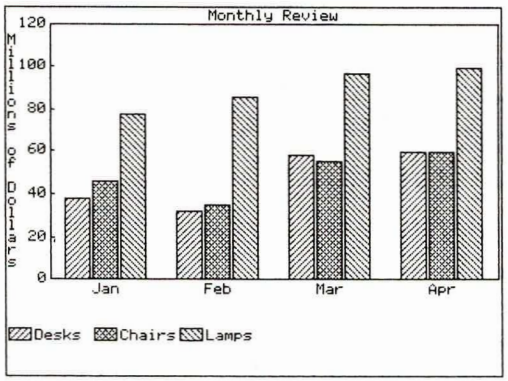


Use segmented bar graphs to compare totals and to show the relative size of each component in a total when there is more than one total. For example, the graph above makes it easy to compare the total monthly sales of the Office Products Division and gives us a general comparison of the sales of desks, chairs, and tables for each month.

Pie charts are most effective for showing relative sizes of components with only one total. Because the upper components of segmented bar graphs do not have common base lines, they are harder to compare. If you want to emphasize the comparison of each component without regard to the total, use a clustered bar graph.

Clustered Bar Graphs A *clustered bar graph* shows each cell from the table as a vertical bar in a cluster of vertical bars. The number of vertical bars in a cluster equals the number of cells selected to be graphed. Figure 6-14 shows a clustered bar graph generated by the table in Figure 6-12.

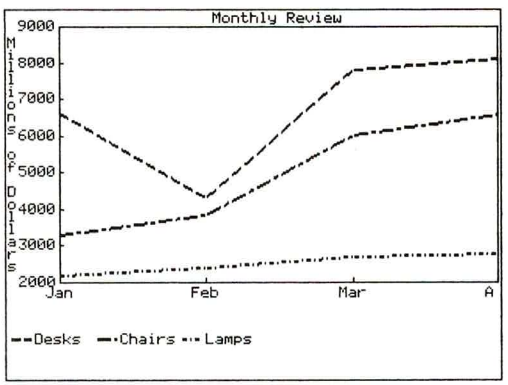
Figure 6-14. *Clustered Bar Graph*



Use clustered bar graphs to show the relative size of each component without regard to the total. In the graph above, it is easy to compare monthly sales of chairs, desks, and tables. It would be difficult to compare total sales of all items as with the segmented bar in Figure 6-13.

Line Graphs A *line graph* plots a point for each cell and connects the points with lines. The number of lines on the graph equals the number of rows or columns selected. Figure 6-15 shows a line graph generated by the table in Figure 6-12.

Figure 6-15. *Line Graph*



Use line graphs for depicting trends rather than actual amounts. They are most effective when illustrating several numbers from each row or column, or when comparing several rows or columns of data. A line graph produced on a plotter is clearer and easier to interpret than one produced on your display screen.

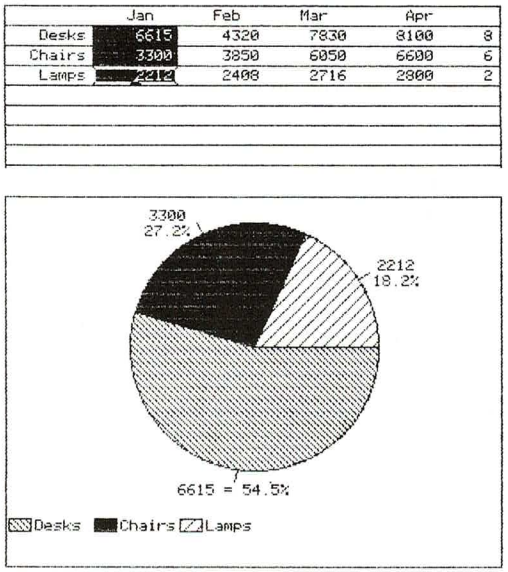
NOTE: To display a line graph, you must select at least two numbers from a row (if the Graph Orientation option is set to Standard) or two numbers from a column (if the option is set to Transposed).

Pie Charts A *pie chart* is a circle divided into slices, each of which represents one component's size relative to the whole. Each slice symbolizes the value of the selected portion of a row or column. Figure 6-16 shows a sample selection from a graph file and the resulting pie chart.

You can graph numbers from only one row or one column. If you select more than one row or column, GRiDPlot graphs the left column (if the Graph Orientation option is set to Standard) or top row (if the option is set to Transposed).

The data graphed in a pie chart corresponds to the data in the first segmented bar of a segmented bar chart.

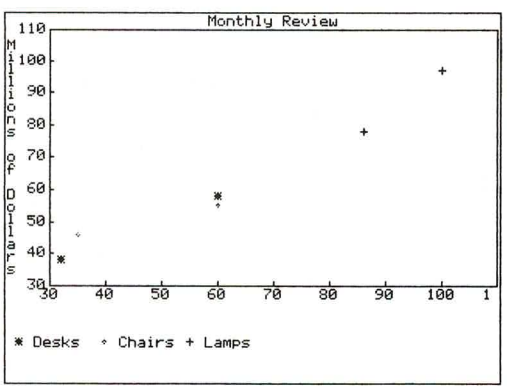
Figure 6-16. *Pie Chart*



Use pie charts to show the relative size of each component of a total, when there is only one total to display. A pie chart is most effective when you use as few components as necessary, generally no more than five.

Scatter Graphs Based on cells you select from the table, a *scatter graph* plots a series of individual points against the graph axes (Figure 6-17).

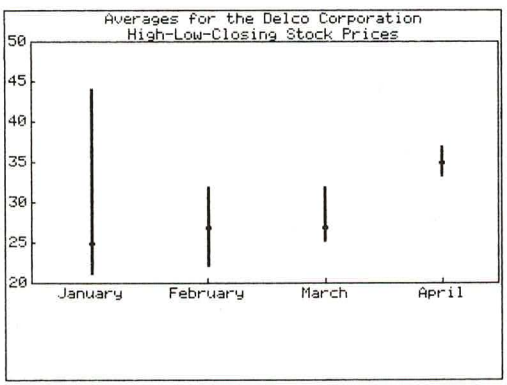
Figure 6-17. *Scatter Graph*



High-Low-Close Graphs The *High-Low-Close* graph (Figure 6-18) gets its name from the high, low, and close statistics that appear in newspaper and summary listings of stock market transactions.

Figure 6-18. *High-Low-Close Graph*

	January	February	March	April	
	44.00	32.00	32.00	37.00	49
	21.00	22.00	25.00	33.00	42
	25.00	27.00	27.00	35.00	48



The graph in the figure above shows a history of stock prices over a four-month period. The top-most point of each bar represents the maximum price the stock sold in any one month; the bottom point represents the low; and the "blip" in the middle represents the closing price.

The setting of the Graph Orientation option determines how you enter high-low-close statistics in the graph table. If Graph Orientation is set to Standard, you enter the high statistics in the first row of numbers, the low statistics in the second row, and the close statistics in the third row.

If Graph Orientation is set to Transposed, you enter the high statistics in the first column of numbers, the low statistics in the second column, and the close statistics in the third column.

Standard Alignment

The Standard Aligment item lets you either center your data in a cell, or align it with the left or right margin. See Standard Alignment under the Options—CODE-O section in the "Common Commands" chapter for details.

Standard Column Width

The Standard Column Width item lets you either increase or decrease the width of a column. See Standard Column Width under the Options—CODE-O section in the "Common Commands" chapter for details.

Standard Format

The Standard Format item lets you determine where decimal points are to appear in your numeric data. See Standard Format under the Options—CODE-O section in the "Common Commands" chapter for details.

Properties (Graph)—CODE-P

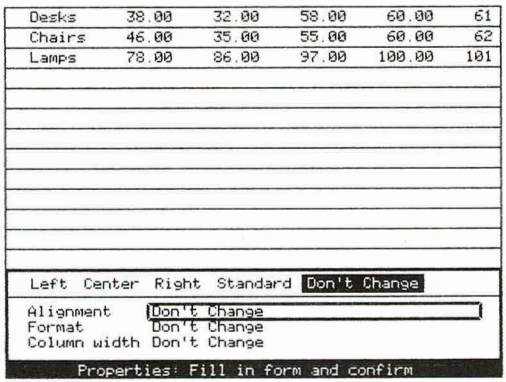
The Properties command (CODE-P) allows you to assign attributes to one or more cells in a graph table. The properties in a new graph file are already set, but you can change them when required. Follow the procedure below to set cell properties in a graph table.

To Set Cell Properties in a Graph Table

1. Move the cursor to any of the cells you wish to change.
2. Press CODE-P; the cell containing the cursor is highlighted.
3. You can now select one of the following combination of cells:
   a. One cell. Press CODE-RETURN, and the highlighted cell is selected.
   b. Two or more adjacent cells. With the Arrow keys, select the desired cells. Press CODE-RETURN to confirm.
   c. One or more entire columns of cells. Press CODE-C and an Arrow key for each additional column, then CODE-RETURN.
   d. One or more entire rows of cells. Press CODE-R and an Arrow key for each additional row, then CODE-RETURN.

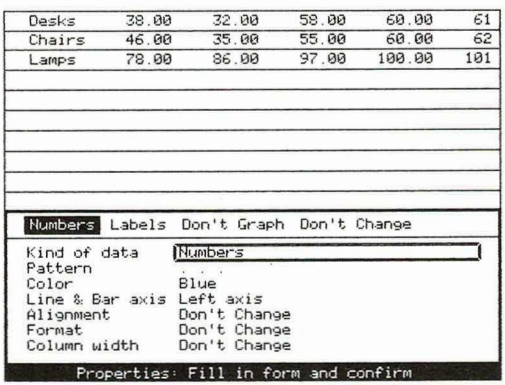
4. One of two forms appears after pressing CODE-RETURN. If you select one cell or a group of adjacent cells (3a or 3b), the following form appears:

Figure 6-19. *Properties Form for Individual Cells*



If you select one or more columns or rows of cells (3c or 3d), the following form appears:

Figure 6-19 (continued). *Properties Form for Rows or Columns of Cells*



5. A list of choices appears for each item on the form. Move the highlighted strip to your choice; or, if the blinking cursor appears in the outline, type in a setting.

   Some items show Standard or Don't Change for a choice. If you choose Standard, the corresponding setting in the Options form applies to the cell(s).

For examples of how the Don't Change setting can be used, see the Graph Appearance section in Appendix E.

6. Press CODE-RETURN when the property settings are the way you want them.

The sections that follow discuss various items in the Properties form in alphabetical order.

Alignment

The Alignment item lets you either center your data in a cell, or align it with the left or right margin. The new setting overrides the setting in the Standard Alignment item of the Options form. See Alignment under the Properties—CODE-P section in the "Common Commands" chapter for details.

Color

The Color item on the Properties form lets you change the colors GRiDPlot assigns to the components of your graphs.

The Color item applies only when you use a plotter with colored pens, and it is independent of the Pattern item. When you actually plot the graph, you also select a Background Color on the Plotter Settings form. See Plot Graph on a Plotter under Transfer—CODE-T later in this chapter.

Choices are Black, Blue, Red, Green, Burnt Orange, Gold, Turquoise, Violet, Don't Change.

Column Width

The Column Width item lets you either increase or decrease the width of a column. The new setting overrides the setting in the Standard Column Width item of the Options form. See Column Width under the Properties—CODE-P section in the "Common Commands" chapter for details.

Format

The Format item lets you determine where decimal points are to appear in your numeric data. The new setting overrides the setting in the Standard Format item of the Options form. See Format under the Properties—CODE-P section in the "Common Commands" chapter for details.

Kind of Data

The Kind of Data item tells GRiDPlot to graph or not graph a cell, and whether to consider the contents of a cell as a number to be graphed or as a label to appear on the graph as explanatory information.

Initial setting is numbers. Choices are described below.

Numbers	Rows and columns with numbers to be graphed.
Labels	Rows and columns with text or spacing to be used in labeling the legend or horizontal axis.
Don't Graph	Any row or column that is empty or that you don't want to graph. If a row or column is empty, GRiDPlot ignores it regardless of the setting.
Don't Change	This setting is applicable only when you set properties of more than one row or column at a time. For an example of the use of Don't Change, see the Labels section in Appendix E.

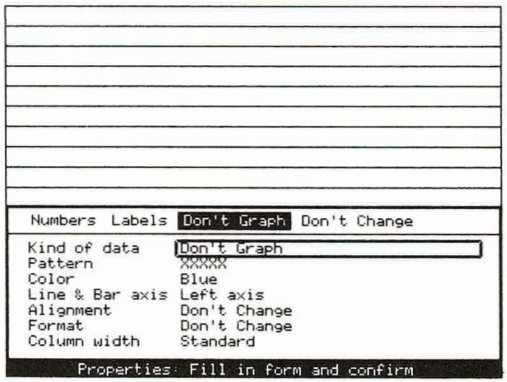
Kind of Data Rules The following rules describe how GRiDPlot treats cells when plotting a graph.

- For data in a cell to be plotted, (a) both the column and the row containing the cell must be defined as numbers, and (b) the cell must contain a number.
- Any cell containing one or more non-numeric characters in a row or column defined as Numbers is graphed as 0, except for line graphs. For line graphs, no connecting lines are drawn to the non-numeric value.

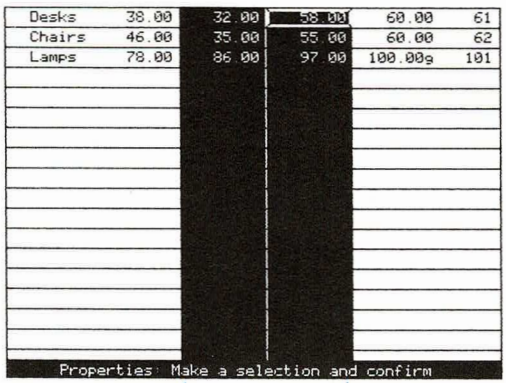
Don't Graph The Don't Graph setting lets you graph numbers whose locations are not adjacent in the table. For example, for the table shown at the top of Figure 6-20, to show the total sales for 1970 and 1975 only, you assign Don't Graph to the 1971, 1972, 1973, and 1974 columns. (To set the properties for multiple rows or columns, see the Graph Appearance section in Appendix E.)

Having set the properties correctly, you can select the necessary block of data, but nothing from the Don't Graph columns appears in the graph or the legend. Figure 6-20 shows the Properties form on which you select Don't Graph (6-20A), the columns you select *not* to be graphed (6-20B), and the resulting clustered bar graph (6-20D).

Figure 6-20. *Using the Don't Graph Choice*

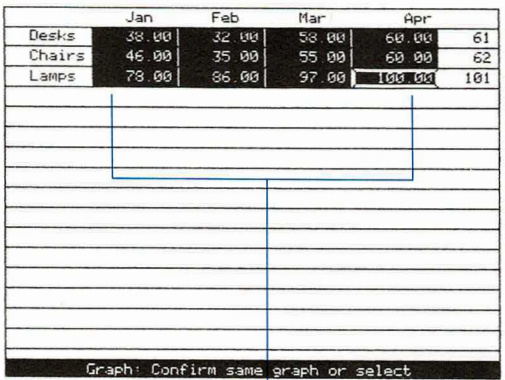


A



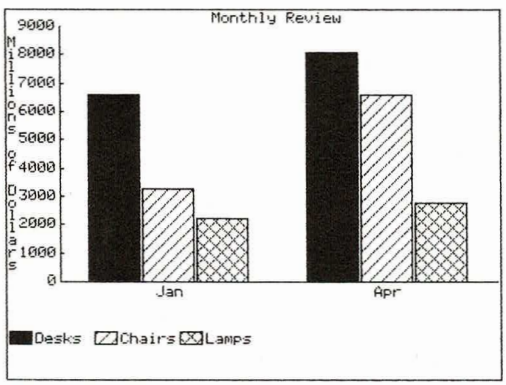
B

Don't Graph



C

Only these two columns are graphed.



D

Line- and Bar-Graph Axis

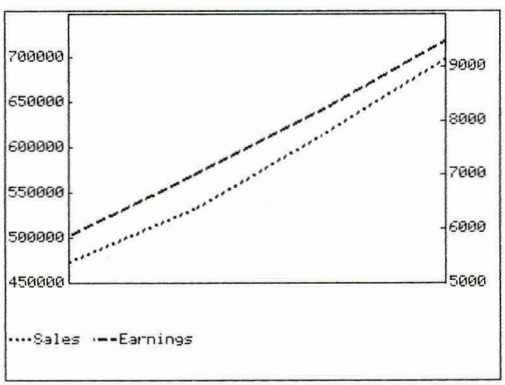
This property applies only when you choose Line Graph or Clustered Bar Graph on the Options form. It permits a scale on both the left and right axes, or on the right axis only. You select the rows or columns that use the right-axis scale.

Initial setting is Left Axis. Choices are described below.

Left Axis	The left vertical axis applies to the graph.
Right Axis	The right vertical axis applies to the rows or columns whose property you set to Right Axis. If you assign the Right Axis property to all cells in the graph, no scale appears on the left axis.
Don't Change	This setting is applicable only when you set properties of more than one row or column at a time. For an example of the use of Don't Change, see the Labels section in Appendix E.

Figure 6-21 shows a line graph with one line assigned to the right axis.

Figure 6-21. *Line Graph with One Line Assigned to the Right Axis*

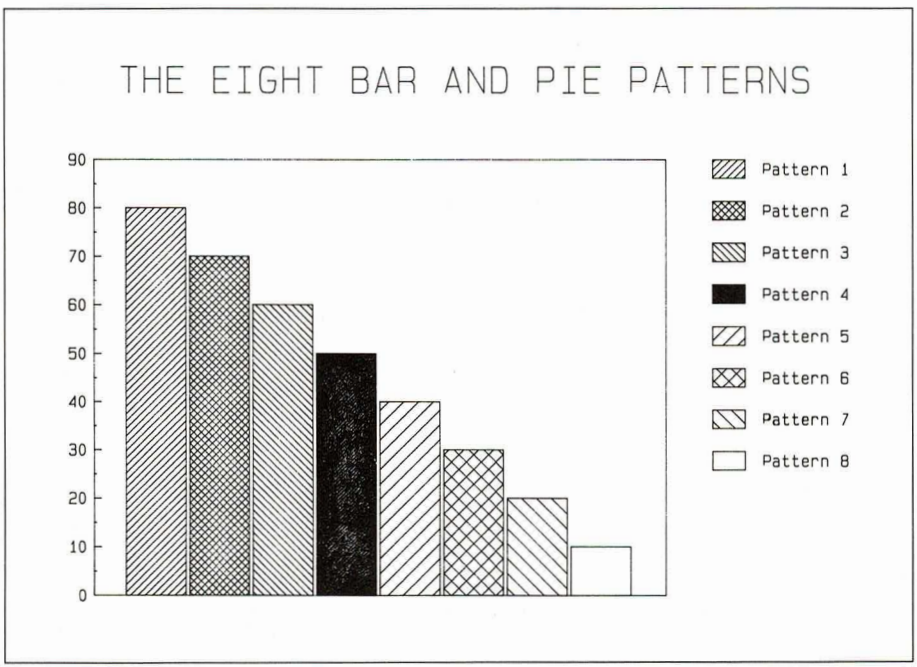


Pattern

The Pattern item on the Properties form lets you change the way GRiDPlot designs the components of your graph.

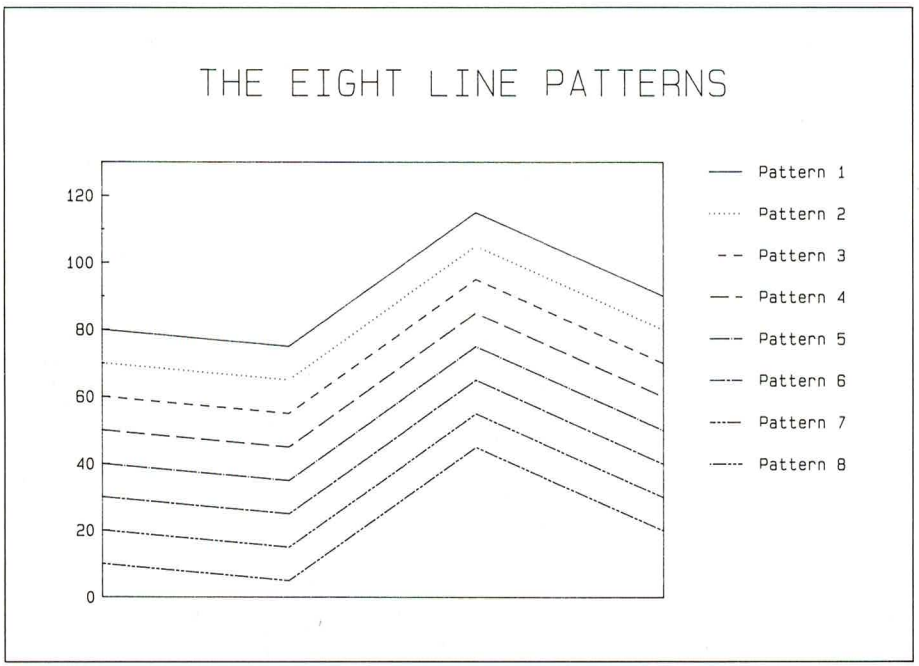
The list of choices of the Properties form in Figure 6-22 shows the Pattern settings for bar graphs and how the patterns look when plotted. Pie charts use the same patterns.

Figure 6-22. *Pattern Choices for Bar Graphs and Pie Charts*



If you choose Line Graph on the Options form, the Pattern item on the Properties form displays a list of choices for line patterns. Figure 6-23 shows the patterns in the list of choices and how they look on a plotter.

Figure 6-23. *Pattern Choices for Line Graphs*



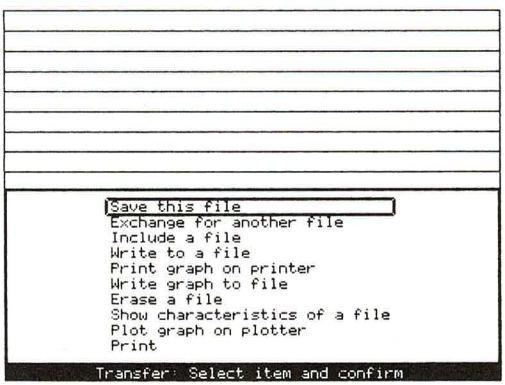
Quit—CODE-Q The Quit command (CODE-Q) lets you exit from your GRiDPlot file; any changes you've made to the file since you last saved it are saved automatically when you exit. See Quit—CODE-Q in the "Common Commands" chapter for details.

Row Selection—CODE-R Row Selection (CODE-R) lets you select an entire row of cells after the message line prompts you to `select` or `make a selection`. See Row Selection—CODE-R in the "Common Commands" chapter for details.

Transfer—CODE-T

The Transfer command (CODE-T) provides a variety of functions to help you manage a graph file. When you press CODE-T, the Transfer menu appears (Figure 6-24).

Figure 6-24. *The Transfer Menu*



The following sections explain the items on the Transfer menu in alphabetical order.

Erase a File

See the Transfer—CODE-T section in the "Common Commands" chapter.

Exchange for Another File

With the Exchange For Another File item, you can both exit your current file and enter a new file and application . See the Transfer—CODE-T section in the "Common Commands" chapter for details.

Include a File

The Include a File item lets you bring a file of data into your current file. See the Transfer—CODE-T section in the "Common Commands" chapter for details.

Plot Graph on Plotter

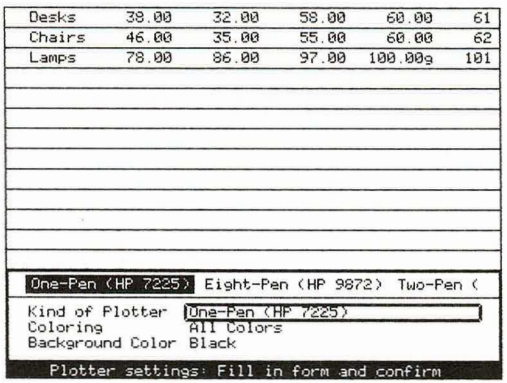
CAUTION: Before trying to plot a graph, ensure that the plotter is connected and that the address switches are set as required. See the documentation that came either with your computer or plotter for more information. An incorrect setting of the address switches prevents GRiDPlot from access-

ing the plotter and can produce unpredictable results, making your system temporarily inoperable. If you suspect problems caused by the address switch setting, consult your GRiD representative or the GRiD Resource Center.

To print the graph on the plotter, press CODE-T, select Plot Graph on Plotter, and confirm. You are then prompted (a) to select the portion of your graph you want to plot and (b) to fill in the Plotter Settings form (Figure 6-25). See the section How To Use a Plotter later in this chapter for detailed instructions in plotting a graph.

You can stop plotting and cancel the Transfer command by pressing ESC.

Figure 6-25. *The Plotter Settings Form with Initial Settings*

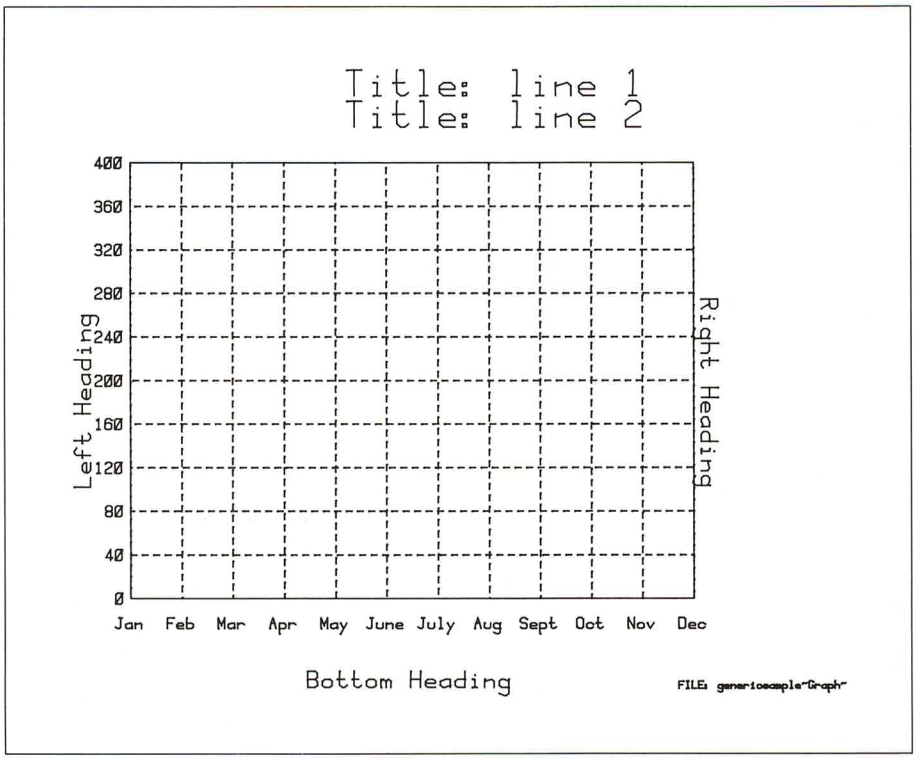


The items in the Plotter Settings form are described in alphabetical order in the following section.

Background Color This item sets the color of the text headings, horizontal labels, background grid, file name, and the axes on an axis graph, as shown in Figure 6-26. The choices are the same as those on the color item of the Properties form: Black (initial setting), Blue, Red, Green, Burnt Orange, Gold, Turquoise, and Violet.

NOTE: When both Two-Pen Plotter and Two Color are chosen, if the background color you choose is odd (Black, Red, Burnt Orange, or Turquoise), GRiDPlot uses the left pen. If it is even (Blue, Green, Gold, or Violet) GRiDPlot uses the right pen.

Figure 6-26. *Parts of an Axis Graph Plotted in the Background Color*



Follow the procedure below when using a plotter.

Coloring The Coloring item determines the GRiDPlot message that prompts you for color choices.

Initial setting is One-Color. Choices are the described below. The GRiDPlot message depends on the next section.

One Color	One-Pen: Asks for background color, then plots everything. Two-Pen: Same as One-Color, One-Pen. Eight-Pen: Same as One Color, One-Pen, but doesn't ask for pens.
Two Colors	One-Pen: Asks for each color just before using it, including background color. Two-Pen: Plots in two colors. Does not ask for pens. Eight-Pen: Plots in all colors. Does not ask for pens.

All Colors	One-Pen: Same as Two Colors, One-Pen. Two-Pen: Asks for colors initially, then ask for pens only when new color is required. Eight-Pen: Same as Two Colors, Eight-Pen.

When you set Coloring to One Color, the graph is plotted in one color, overriding the Color settings on the Properties form. The selection is useful in the following instances:

- ☐ When you use a one- or two-pen plotter, but don't want to stay at the plotter to change pens. The Patterns and Color settings in the Property form remain, so you can later plot the graph in the desired colors.
- ☐ When you want to copy the graph on a copying machine that doesn't produce color. You can set Coloring to Single and plot the graph in a color that reproduces well.

Kind of Plotter This item determines the GRiDPlot message that gives instructions about inserting pens in the plotter. The choice corresponds to the model of the HP plotter which is going to print the graph.

Initial setting is One-Pen. Choices are the described below.

One-Pen (HP 7225)	GRiDPlot assumes there are no pens in this plotter; it always asks you to put in the colored pen next used by the plotter.
Two-Pen (HP 7470)	The same as for One-Pen, except GRiDPlot asks for two colored pens. It remembers the slot each colored pen occupies and doesn't ask for another pen until a new color is required.
Eight-Pen (HP 9872)	GRiDPlot assumes that eight pens are arranged from left to right in the following order: Black, Blue, Red, Green, Burnt Orange, Gold, Turquoise, and Violet.

How to Use a Plotter The following procedure describes the steps to follow in printing graphs on a plotter.

To Use a Plotter

1. Make sure the plotter is ready by following these steps.
   - ☐ Put paper in the plotter.
   - ☐ Connect the plotter to your computer and turn the plotter on. See the manual that accompanies your plotter to learn how to connect the computer to the plotter.

- Make sure the address switches are set correctly. The correct settings should be documented in the owner's guide or other manual that came with your computer.

2. Press CODE-T, select Plot Graph on Plotter, and confirm. The following message appears:

   ```
   Plot: Confirm same graph or make a selection
   ```

3. Confirm, or make a selection and confirm.
4. Fill out the Plotter Settings form.
5. If you choose Eight-Pen in the Plotter Settings form, the graph plots. If you choose One-Pen, you receive the following message:

   ```
   Put in Black pen and confirm
   ```

   If you choose Two-Pen, you receive the following message:

   ```
   Put Black pen in right (or left) slot and confirm
   ```

   The above messages assume that the Background Color item on the Plotter Settings form is black.

   Some plotters turn on the OUT OF LIMIT light at the same time that you see the messages above.

6. Put in the requested pen and confirm. The plotter prints all of the background grid. As new colors are required, you see messages requesting pens.

   NOTE: All plotted graphs have a 1/2-inch margin around the paper. If a label isn't within the margin, the pen doesn't plot that label; the OUT-OF-LIMIT light on the plotter comes on during the time it would take to draw the label that doesn't fit, and then the graph continues to plot normally.

7. Continue putting in the requested pens until the plot is finished.

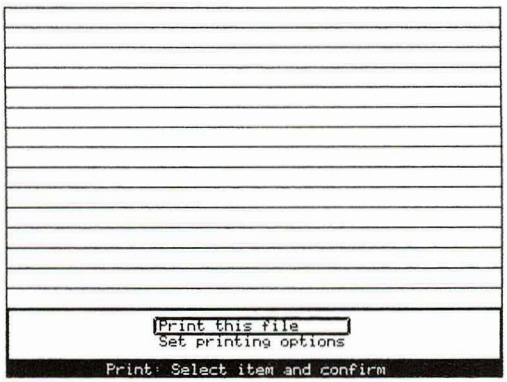
   If the ERROR light comes on, but the plotter seems to be drawing the plot correctly, ignore it. Also ignore the OUT-OF-LIMIT light while axes are being drawn.

8. On a one-pen plotter, leave the last pen in the stylus until you exit GRiD-Plot or until you've finished your last plot.
9. To cancel a plot in process, press ESC. The plotter stops, and the command that you issued is in effect. To resume plotting, press ESC again, or move the highlighted box to No, and press CODE-RETURN.

Print

When you select Print and confirm, the Print menu (Figure 6-27) appears.

Figure 6-27. *The Print Menu*



The items in Figure 6-27 are described in alphabetical order in the Transfer (Print)—CODE-T section in the "Common Commands" chapter.

Print Graph on Printer

Print Graph on Printer lets you print a graph directly on the Epson printer. To print a graph, press CODE-T, select Print Graph on Printer, and confirm. You are then prompted to select the entire table or individual cells in the table.

After you select and confirm, the graph appears on the screen and is printed. To stop the printer, press ESC.

Save This File

The Save This File item lets you save data as you work. You should use the item frequently as you enter new data or while making a large number of changes to existing data. See the Transfer—CODE-T section in the "Common Commands" chapter for details.

Show Characteristics of File

The Show Characteristics of File item lets you find out the size of a file, the dates the file was created and last modified, and other information. See the Transfer—CODE-T section in the "Common Commands" chapter details.

Write Graph to File

The Write Graph to File item lets you save an image of a graph in a file. You can then print out the graph, either alone or as part of a document, using the GRiDWrite Screen Image (^si) command. See the section on Including Files in Part II of the "GRiDWrite" chapter.

To save the graph, press CODE-T, select Write Graph to File, and confirm. You are then prompted (a) to type in a target file in the File form, and (b) to select the portion of the graph you want to save. The target file must have Kind set to Screenimage. After you confirm, the image of the graph is written to the file.

Write to a File

The Write To a File item lets you copy all or a part of your data to another file. See the Transfer—CODE-T section in the "Common Commands" chapter for details.

Usage—CODE-U The Usage command provides information on the amount of free memory and storage available to your programs and files. See Usage—CODE-U in the "Common Commands" chapter for details.