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Appendix A: Files in the "Programs" Subject

Appendix A gives a list of all the files, required and optional, under the "Programs" subject. With the information in this appendix, you can

- ❑ Isolate problems. Error conditions can arise if a "Programs" file needed to run an application is missing. The tables in this appendix indicate which files you need to perform particular functions.
- ❑ Eliminate unnecessary files from the "Programs" subject in order to create additional space in bubble memory, or hard or floppy disk. You can determine from the tables in this appendix the Program files you don't need, and then erase them.

Files Used During Start-Up This section explains the automatic sequence of events during start-up and the files that make start-up possible

When You Turn On Your Computer

1. If you have the "Screen.Init" file in "Programs," your computer uses it to display the GRiD logo on your screen. If you don't have "Screen.Init" (you may wish to delete it), the GRiD logo does not appear.
2. The operating system (CCOS) is automatically loaded into main memory (RAM).
3. The two small flags that blink in the lower-right corner of the screen indicate that the system is accessing a storage medium (bubble memory, or floppy or hard disk).
4. CCOS reads the "User" file, if present. The "User" file is created in GRiDManager, where you select certain options that are to apply to your computer system. The "User" file records these options, for example, the name of your start-up file, the typeface size to be displayed, and the like.
5. CCOS loads the "Common" file into main memory (RAM). Common is a required collection of program routines used by all of the GRiD management tools.
6. After Common is loaded, the system executes the commands in the file "System.Init", if present. The program that actually executes the commands is called "Do".

7. "Executive" is loaded. Executive prepares, in main memory, a list of the Kinds from the files in the "Programs" subject on each storage device attached to your computer. The list is displayed when you are prompted to select a Kind item for a File form, for example, when you use the Exchange for another file item in the Transfer menu.
8. Finally, Executive either displays the File form or makes available the start-up file you specified with the Set Start-Up File command in GRiDManager.

System Files System files provide general functions needed by most applications. These files are summarized in Table A-1.

- CAUTION:** The following files are always needed, regardless of the application you use:

CCOS

Common

Executive

The following additional files are needed for GRiD Central and external file server devices as noted.

GRiD Central: GRiDManager, PhoneLink, and Modem.

External file server device: GRiDManager and GRiDLink (when connected by a cable link) or GRiDManager, Modem and PhoneLink (when connected over telephone lines).

Although the other files shown in Table A-1 are optional, you should study the function of each carefully before erasing it. You might need the file for some auxiliary function important to you. For example, if you want to use a Diablo Model 630 printer, the Diablo630 file and the Serial file must be in Programs.

Table A-1. *System Files in the "Programs" Subject*

File Name	Function
SystemErrors	Contains text of system error messages displayed by GRiD-OS.
CCOS	Always required. Controls the operations of GRiD applications, input/output operations with storage devices, and other service functions. CCOS is also referred to as GRiD-OS.

File Name	Function
Common	Always required. Contains routines used by commands common to all the GRiD applications.
Diablo620	Translates Diablo Model 620 printer commands between GRiD-OS and the printer.
Diablo630	Translates Diablo Model 630 printer commands between GRiD-OS and the printer.
Epson FX100	Translates Epson Model FX100 printer commands between GRiD-OS and the printer.
EpsonFX80	Translates Epson Model FX80 printer commands between GRiD-OS and the printer.
EpsonMX100	Translates Epson Model MX100 printer commands between GRiD-OS and the printer.
EpsonMX82	Translates Epson Model MX82 printer commands between GRiD-OS and the printer.
Executive	Always required. Provides the list of Kind choices displayed with the File form. It also provides interchange services when transferring from one file to another with the Transfer command.
GenericGPIB	Provides interface services between GRiD-OS and printers (other than the Epson Models FX80, MX100, and MX82) connected through the GPIB connector on the back of the computer. Doesn't translate printer commands between GRiD-OS and the printer.
GenericSerial	Provides interface services between GRiD-OS and printers (other than the Diablo Models 620 and 630) connected through the Serial connector on the back of the computer. Doesn't translate printer commands between GRiD-OS and the printer.



File Name	Function
GRiD 53/ PC 53 ¹	Permits use of the GRiD 53 typeface selected on the Options form in GRiD applications. For details, see the section Options—CODE-O in the “Common Commands” chapter.
GRiD 64/ PC 64 ¹	Permits use of the GRiD 64 typeface selected on the Options form in GRiD applications. For details, see the section Options—CODE-O in the “Common Commands” chapter.
GRiD 80/ PC 80 ¹	Permits use of the GRiD 80 typeface selected on the Options form in GRiD applications. For details, see the section Options—CODE-O in the “Common Commands” chapter.
GRiDLink	Required for the GRiD Compass to communicate with GRiD Server when using the high speed cable.
GRiDManager	Allows connection to GRiD Central and, when using telephone lines, to an external file server device. Provides file management and other functions described in the “GRiDManager” chapter.
HP	Prints graphs on Hewlett-Packard® plotters using GPiB.
HPSerial	Prints graphs on Hewlett-Packard plotters using Serial port.
Modem	Provides an interface between GRiD-OS and a modem. The file is required when communicating over telephone lines with GRiD Central or an external file server device; it is also required when using the GRiDTerm, GRiDVT100, and GRiD3101 terminal emulators.
NEC3500R	Translates NEC Model 3500R printer commands between GRiD-OS and the printer.
PhoneLink	Contains line protocols that enable the computer to communicate with GRiD Central and other remote devices over a telephone line.
Screen.Init	Displays the GRiD logo on the screen during startup.

¹ GRiD 80, GRiD 64, and GRiD 53 are all optional font files. You need them only when you want to have different typeface sizes among the various applications.

File Name	Function
Serial	Allows printing on any printer (including the Diablo Models 620 and 630) connected through the Serial port on the back of the computer.
User	Performs preset functions during start-up. The Options (CODE-O), Set Time, and Select Start-Up File commands in GRiDManager creates the "User" file. The information in the file lets GRiD-OS set the time and date, select the start-up file, set the current type-face, etc.
User Sentry	Changes the password to GRiD Central or external file server device.

Application and Emulator Files Application files (Table A-2) provide the functions for the files you generally work with. (GRiDPlot is an example of an application file required when you work with files with Kind set to Graph.) The emulator files (also in Table A-2) let you connect to remote host systems.

Table A-2. *Application and Emulator Files in the "Programs" Subject*

File Name	Function
GRiD3101	Provides functions necessary to access host systems through terminal description files with Kind set to 3101.
GRiDFile	Provides functions necessary to create and work with files with Kind set to Database.
GRiDPlan	Provides functions necessary to create and work with files with Kind set to Worksheet.
GRiD-Playback	Executes keystrokes recorded earlier.
GRiDPlot	Provides functions necessary to create and work with files with Kind set to Graph.



File Name	Function
GRiDReformat	Provides functions necessary to convert data (usually printer copies) into a format suitable for GRiDFile, GRiDPlan, or GRiDPlot.
GRiDTerm	Provides functions necessary to access host systems through terminal description files with Kind set to Terminal.
GRiDVT100	Provides functions necessary to access host systems through terminal description files with Kind set to VT100.
GRiDRecord	Used in record function to save keystrokes in a playback file.
GRiDWrite	Provides functions necessary to create and work with files with Kind set to Text. In addition, it provides advanced facilities to format and print documents.

Application Utility Files Application utility files provide special functions, such as repairing media, initializing storage devices, repairing databases, etc. These files are summarized in Table A-3.

Table A-3. *Application Utility Files in the "Programs" Subject*

File Name	Function
Duplicate Media	Permits the copying of one floppy disk to another.
GRiDFileRepair	Provides functions necessary to repair damaged database files.
Initialize Media	Puts disk media into a format usable by GRiD-OS, the GRiD applications, and other GRiD programs.
MediaRepair	Provides functions necessary to run the Media Repair utility. See Appendix F.



File Name	Function
Playback	Executes keystrokes recorded earlier.
Record	Used in record function to save keystrokes in a playback file.
ScreenWatch	Prints screen images or puts them into a file.
User Sentry	Sets password for GRiD Central or external server device.

Appendix B: ASCII Characters

Most computers support the ASCII (American Standard Code for Information Interchange) character set (Table B-1). The column headings in the table are described below.

DEC	The decimal code for the character.
HEX	The hexadecimal (base 16) code for the character.
GRPH	The graphic representation of the character on the screen display. Some of these graphic characters are not supported by printers.
ABBR	The ASCII abbreviation for the character's name.
NAME	The name of the character.
PRESS	The keys that you press to produce the character, if not obvious from the labeling of the keyboard.

Table B-1. ASCII Table

DEC	HEX	GRPH	ABBR	NAME	PRESS
00	00		NUL	null	CTRL-SHIFT-2
01	01		SOH	start of heading	CTRL-A
02	02		STX	start of text	CTRL-B
03	03		ETX	end of text	CTRL-C
04	04		EOT	end of transmission	CTRL-D
05	05		ENQ	enquiry	CTRL-E
06	06		ACK	acknowledge	CTRL-F
07	07		BEL	bell	CTRL-G
08	08		BS	backspace	CTRL-H
09	09		HT	horizontal tab	CTRL-I, TAB
10	0A		LF	linefeed	CTRL-J
11	0B		VT	vertical tab	CTRL-K
12	0C		FF	form feed	CTRL-L
13	0D		CR	carriage return	CTRL-M
14	0E		SO	shift out	CTRL-N
15	0F		SI	shift in	CTRL-O
16	10		DLE	data link escape	CTRL-P
17	11		DC1	device control 1(XON)	CTRL-Q



DEC	HEX	GRPH	ABBR	NAME	PRESS
18	12		DC2	device control 2	CTRL-R
19	13		DC3	device control 3(XOFF)	CTRL-S
20	14		DC4	device control 4	CTRL-T
21	15		NAK	negative ack	CTRL-U
22	16		SYN	synchronous idle	CTRL-V
23	17		ETB	end trans. block	CTRL-W
24	18		CAN	cancel	CTRL-X
25	19		EM	end medium	CTRL-Y
26	1A		SUB	substitute	CTRL-Z
27	1B		ESC	escape	CTRL-;
28	1C		FS	file separator	CTRL-SHIFT-,
29	1D		GS	group separator	CTRL- =
30	1E		RS	record separator	CTRL-SHIFT-,
31	1F		US	unit separator	CTRL-SHIFT-hyphen
32	20		SP	space	
33	21	!		exclamation	
34	22	"		quotation marks	
35	23	#		number sign	
36	24	\$		dollar sign	
37	25	%		percent sign	
38	26	&		ampersand	
39	27	'		apostrophe	
40	28	(		opening parenthesis	
41	29	)		closing parenthesis	
42	2A	*		asterisk	
43	2B	+		plus	
44	2C	,		comma	
45	2D	-		hyphen	
46	2E	.		period	
47	2F	/		slash	
48	30	0			
49	31	1			
50	32	2			
51	33	3			
52	34	4			



DEC	HEX	GRPH	ABBR	NAME	PRESS
53	35	5			
54	36	6			
55	37	7			
56	38	8			
57	39	9			
58	3A	:		colon	
59	3B	;		semicolon	
60	3C	<		less than	
61	3D	=		equal to	
62	3E	>		greater than	
63	3F	?			
64	40	@		commercial at sign	
65	41	A			
66	42	B			
67	43	C			
68	44	D			
69	45	E			
70	46	F			
71	47	G			
72	48	H			
73	49	I			
74	4A	J			
75	4B	K			
76	4C	L			
77	4D	M			
78	4E	N			
79	4F	O			
80	50	P			
81	51	Q			
82	52	R			
83	53	S			
84	54	T			
85	55	U			
86	56	V			
87	57	W			



DEC	HEX	GRPH	ABBR	NAME	PRESS
88	58	X			
89	59	Y			
90	5A	Z			
91	5B	[		opening bracket	CODE-,
92	5C	\		backslash	CODE-SHIFT-'
93	5D	]		closing bracket	CODE-.
94	5E	^		circumflex	
95	5F	_		underline	
96	60	'		back quote	CODE-'
97	61	a			
98	62	b			
99	63	c			
100	64	d			
101	65	e			
102	66	f			
103	67	g			
104	68	h			
105	69	i			
106	6A	j			
107	6B	k			
108	6C	l			
109	6D	m			
110	6E	n			
111	6F	o			
112	70	p			
113	71	q			
114	72	r			
115	73	s			
116	74	t			
117	75	u			
118	76	v			
119	77	w			
120	78	x			
121	79	y			
122	7A	z			



DEC	HEX	GRPH	ABBR	NAME	PRESS
123	7B	{		left curly bracket	CODE-SHIFT-,
124	7C			vertical line	CODE-SHIFT-;
125	7D	}		right curly bracket	CODE-SHIFT-.
126	7E	~		tilde	CODE-;
127	7F	■		delete	CODE-SHIFT-hyphen

Appendix C: Telephone Equipment

Appendix C provides the following information:

- A checklist to determine the suitability of your telephone and related equipment for GRiD Compass communications.
- Information on accessories you may find helpful when you communicate via your telephone connection.

Telephone Equipment Checklist Use this checklist the first time you send and receive data via your telephone equipment.

- The Federal Communications Commission (FCC) requires that you notify your local telephone company before using telephone lines to transmit data. For details, see the *GRiD Compass Owner's Guide*.
- Remember that you can't receive and make telephone calls on the line when you are using it to receive or transmit data.
- The telephone cord must have an RJ-11 modular plug, a transparent plastic apparatus with four delicate wires. If your telephone cord has a four-pronged round plug instead, obtain an RJ-11 adaptor for it.
- Your company's Private Branch Exchange (PBX) facilities may not be compatible with the GRiD Compass, even though the physical connectors (RJ-11) are identical. If in doubt, contact your GRiD dealer or representative for compatibility information.
- If you have a telephone handset (available from GRiD Systems), you can plug it into the slot marked AUDIO on the rear panel of the GRiD Compass. Regular telephone handsets don't work with the GRiD Compass. You need the handset only if you plan to talk to a telephone operator after dialing.
- If your telephone has a Call Waiting feature, you may want to disable it (by forwarding all your calls to another extension) or use your computer with a different extension. The Call Waiting signal can disrupt the telephone connection.

Telephone Communications with the GRiD Compass The GRiD Compass uses a built-in modem to transmit data and voice through the phone network. For the modem to operate properly, your phone must have an analog electrical connection and not pass through a digital telephone switching system.

Your GRiD Compass may be connected to either a single-line or multiple-line telephone connection. The most common type of connection, the

single-line, is discussed in the first section below. The multiple-line connection, encountered more often in office facilities, is discussed in the second section.

Modular Jacks for Single-Line Connection

At the back of your GRiD Compass under the label TELEPHONE are two small connector slots marked LINE and AUDIO. The AUDIO port is used for connection to the handset you may have purchased with your computer. The LINE slot is a standard phone-line RJ-11 modular jack connector. Most modern phone systems use these types of connectors and matching plugs to provide the link between single-line phones and wall-box covers.

The simplest way to connect your GRiD Compass to the phone system is to unplug the modular plug from the back of your single-line phone and plug it into the back of your GRiD Compass. This technique provides direct dial capabilities for both voice and data transmissions. The following sections discuss situations that require a different type of connection.

Modular Jack Accessories

If you want to provide parallel access to your normal phone along with the GRiD Compass, use a Y-connector. Unplug the line from the back of your phone and plug the Y-connector in its place. Now plug the phone line and a separate modular phone cord for your GRiD Compass in the back of the Y-connector.

You now have access to your regular phone for normal operations as well as GRiD Compass access to the same line for computer-related operations. Other useful accessories (usually available at local electronics stores) include:

- ☐ The 25-foot modular telephone extension cable can be used when you want to keep the GRiD Compass distant from your phone.
- ☐ The modular phone-cord connector (or inline coupler) can be used when you need an extra-long extension.
- ☐ The modular jack adapter with four prongs should be used for the four-prong phone connector.

Modular Jacks for Multiple-Line Connection

In many offices, phones have multiple lines attached to them through a single cord. You can tap into one of these lines for the modular connection into the GRiD Compass.

A pair of long metal connectors, joined together, are usually at the wall connection for a multi-line phone. You can insert an adapter between these connectors to provide access to up to four lines through individual modular jacks. Several models of these adapters, varying from single-line taps to multiple-line taps, are available at local electronics stores.

Once connected to the telephone system, your GRiD Compass is ready for voice and data communications with GRiD Central or other computer sources.

If you use the Y-connector for a parallel connection to both your regular telephone and your GRiD Compass, and wish to dial with your regular telephone, use the following procedure:

- ☐ Activate your Sign-on or terminal description file by filling out the File form and confirming.
- ☐ Enter a period for the telephone number on the Sign-on or Access form.
- ☐ Dial GRiD Central or the source computer on your telephone.
- ☐ When you hear the GRiD Central or source computer signal on your receiver, gently (to avoid breaking the signal) hang up the telephone and confirm the Sign-on or Access form.

Appendix D: Pathname Syntax

Appendix D provides information on the following syntax of a pathname specified in the GRiDWrite text-formatting commands, Include File (^if) or Include Screen Image (^si).

Format The format of a pathname is as follows:

``Device`Subject`Title`Kind``

Device is where the file resides. Specify one of the following device names or abbreviations:

Name	Abbreviation
Bubble Memory	b
Floppy Disk	f
Hard Disk	w
Portable Floppy	c

Subject and *Title* are identifications you assigned to the file when you created it. For *Kind*, you would specify *Text* in the pathname associated with an Include File command (^if) and *ScreenImage* in the file associated with a graph or other screen image.

NOTE: If a Subject, Title, or Device name contains a blank, the name must be enclosed in single quotes (') as shown in the examples below.

Enclose the parts of the pathname within back quotes and tildes, as shown in the examples below.

``'hard disk`'`Audit`Report`text``

``f`'Audit`'1983 Sales`'ScreenImage``

The back quote (`) and tilde (^) are typed by pressing CODE-` and CODE-^, respectively. Use single quotes (') to delineate Subjects or Titles with blank spaces between words.

Appendix E: Graphing Techniques

This appendix provides some recommended techniques for labeling your graphs and controlling their final appearance.

Labels This section describes some techniques you can use to control the appearance and formatting of labels on your graphs. You define labels with the Kind of Data choice on the Properties form; see Properties (Graph)—CODE-P for detailed rules on specifying labels.

The labels on a graph printed by a plotter differ in appearance from those displayed on your screen or printer, as shown in Figure E-1. Thus, the techniques you'll use to control their appearance differs, as explained in the sections that follow.

Graphs on the Printer and Display

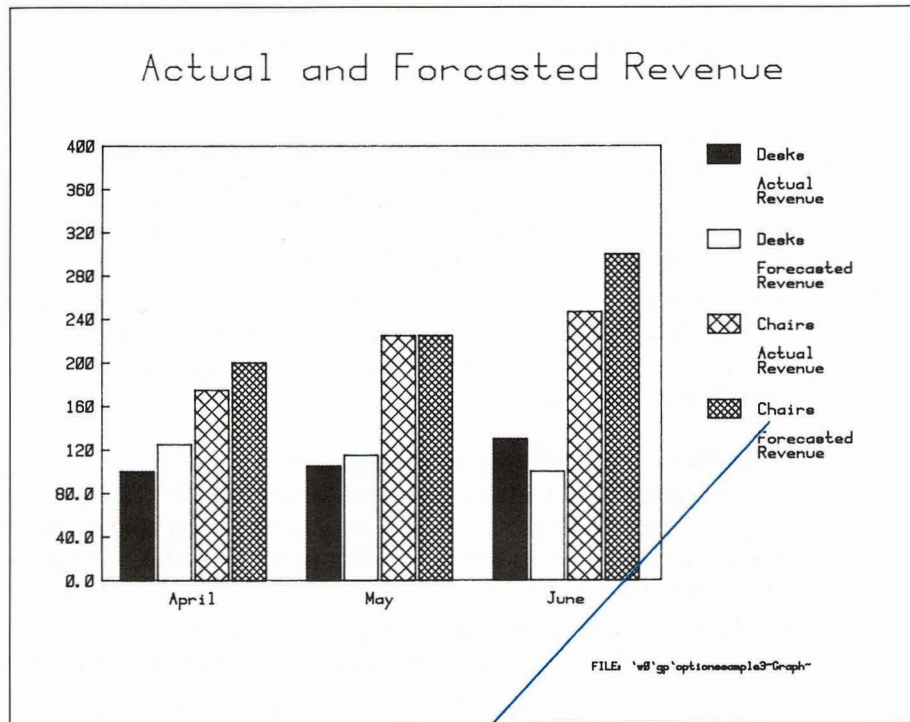
If you define more than one row or column as labels, GRiDPlot displays only the labels from the topmost row or farthest-left column defined as labels. To display labels from any other row or column, change the setting of the rows or columns containing the labels from Labels to Don't Graph.

Figure E-2 shows how GRiDPlot graphs labels when you define more than one row or column as labels. The following explains the labels in the figure.

Legend The top legend in Figure E-2 shows the maximum number of legend items with seven (or fewer) characters. The bottom legend shows how the legend format changes when an item exceeds seven characters.

The maximum number of legend items on a screen graph is 15, three lines of five units; no label can exceed seven characters. If a legend label exceeds seven characters, all of the characters are printed (unless they reach the end of the line where they are cut off) and the next legend unit is pushed forward to the next legend place until the legend area is full.

Longer labels use more space, so fewer legends fit. If your graph selection includes more legend items than can fit, some are omitted, although all the data is graphed. Note that you can reduce the size of the typeface, allowing longer legends—see “Typeface” in the Options—CODE-O section of the “Common Commands” chapter—but the maximum number is still 15.

Figure E-1. *Displaying Labels from More Than One Row or Column.*

Plotted graphs display labels from every row or column.

This empty column creates this space.

Screen graphs display only labels from the farthest left column or top-most row.

			April	May	June
Desks	Actual	Revenue	100	105	130
Desks	Forecasted	Revenue	125	115	100
Chairs	Actual	Revenue	175	225	247
Chairs	Forecasted	Revenue	200	225	300

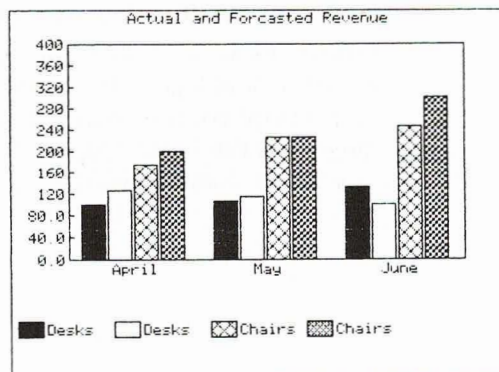
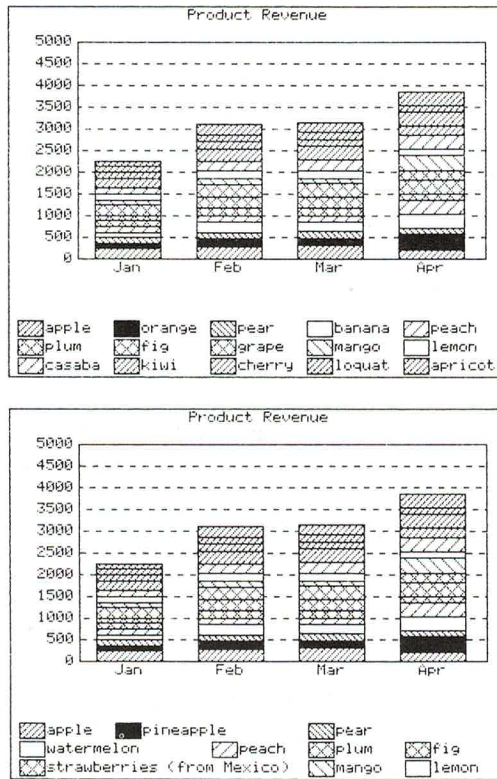
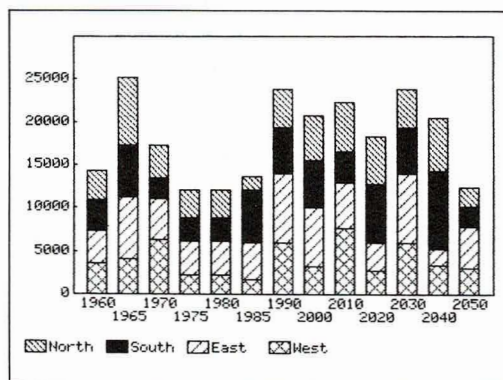


Figure E-2. How Legend Items Are Displayed on Screen Graphs



Horizontal Axis The maximum number of labels that can fit legibly on the horizontal axis depends on how long each item is. If the labels don't fit on one line, GRiDPlot staggers every other label on two lines. If they don't fit on two lines, they are still printed, but not legibly. Figure E-3 shows how GRiDPlot staggers the horizontal axis labels.

NOTE: When you select a large number of cells to be graphed, set the Properties form's Kind of Data item to Don't Graph. Then GRiDPlot graphs all the numbers without cluttering the horizontal axis. Another tip is to reduce the number of lines that are labeled until they eventually fit.

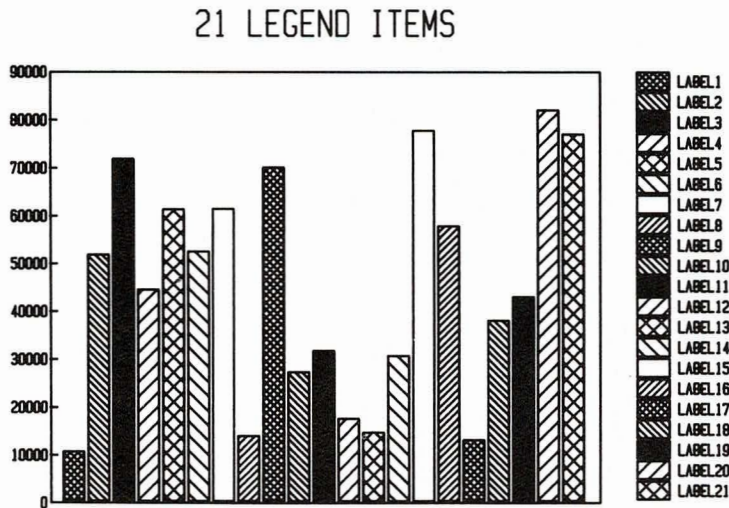
Figure E-3. *How Horizontal Axis Labels Are Staggered on Screen Graphs*

GRiDPlot displays labels from the topmost row or farthest-left column only. If you have more than one word in one row or column, it prints all the words until it runs out of space.

Graphs on the Plotter

GRiDPlot displays the labels from every row or column you define as Labels. If the row or column has more than one word, GRiDPlot prints all the words until it runs out of space.

If you don't want the labels to print, set the Kind of Data item on the Properties form to Don't Graph for that row or column. You can use empty rows or columns to space words in the legend as shown in the plotted graph in Figure 6-20. See "Don't Graph" in the Properties (Graph)—CODE-P section of the "GRiDPlot" chapter.

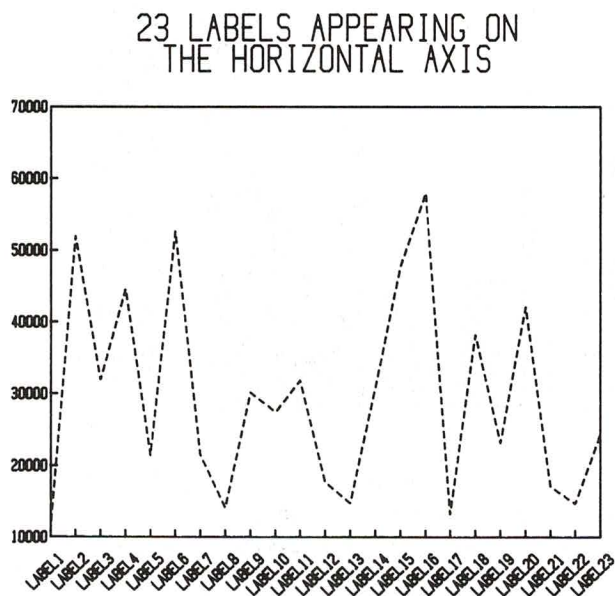
Figure E-4. *Twenty-One Legend Items on a Plotted Graph*

Legend GRiDPlot prints legend items on the right side of the graph until they run off the page. Figure E-4 shows that about 21 legend items with a single-line label can be displayed effectively on a plot. Each line can hold the pattern box plus 22 characters. If you have defined more than one row or column as labels, the plotter prints all the labels for the first legend item, then goes on to the second legend item, and so forth.

Horizontal Axis GRiDPlot tries to print these labels horizontally using first a larger then a smaller type size. If neither fits, it prints them diagonally.

The maximum number of horizontal labels is about 45. Figure E-5 shows a plot with 23 labels drawn diagonally.

Figure E-5. *Twenty-Three Horizontal Axis Labels on a Plotted Graph*



Graph Appearance This section describes how you can vary the pattern, color, and other properties in your graph to control more precisely its final appearance. For example, you might want to emphasize a specific trend shown in your graph by changing the pattern or color.

You control the properties of your graph with the Properties form—see the Properties (Graph)—CODE-P section in the “GRiDPlot” chapter for details. Don’t Change is the initial setting for all items on the Properties form when you change the properties of one or more rows or columns. Don’t Change lets you change one or more properties in a group of cells, leaving the other properties as they were.

For example, suppose you want to display a graph emphasizing the growth of Product D. You show its pattern Solid and the patterns of products A, B, and C as Empty, but you don't want to change any of the other properties.

Move the cursor to the row containing Product A.

	Jan	Feb	Mar	Apr
Product A	6615	4320	7830	8100
Product B	3300	3850	6050	6600
Product C	2212	2408	2716	2800
Product D	2981	4891	4566	8999

Press CODE-P to select properties. Then press CODE-R; the product A row is highlighted.

	Jan	Feb	Mar	Apr
Product A	6615	4320	7830	8100
Product B	3300	3850	6050	6600
Product C	2212	2408	2716	2800
Product D	2981	4891	4566	8999

Press the ↓ twice to select the product B and C rows also. All three rows are highlighted.

	Jan	Feb	Mar	Apr
Product A	6615	4320	7830	8100
Product B	3300	3850	6050	6600
Product C	2212	2408	2716	2800
Product D	2981	4891	4566	8999

Press CODE-RETURN. The Properties Form appears; because you've selected more than one row, all properties are set to Don't Change.

Numbers	Labels	Don't Graph	Don't Change
Kind of data	Don't Change		
Pattern	Don't Change		
Color	Don't Change		
Line & Bar axis	Don't Change		
Alignment	Don't Change		
Format	Don't Change		
Column width	Don't Change		

Properties Fill in form and confirm

Move the outline to the Pattern setting and choose Empty. Leave the Don't Change setting for all of the other properties, since you want each row to retain its other property settings.

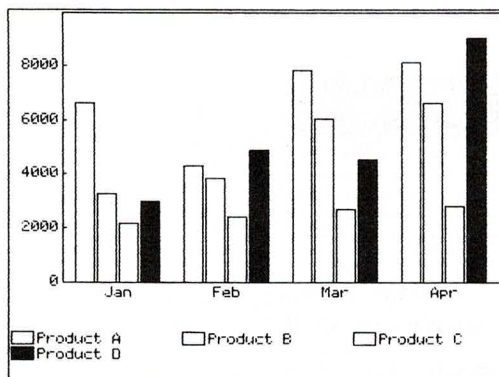
Solid	/ / /	X X X	\ \ \	Empty	Don't Change
Kind of data	Don't Change				
Pattern	Empty				
Color	Don't Change				
Line & Bar axis	Don't Change				
Alignment	Don't Change				
Format	Don't Change				
Column width	Don't Change				
Properties: Fill in form and confirm					

Change the pattern setting of the row containing product D to Solid (illustration not shown).

Press CODE-G. Select products A, B, C, and D for all four quarters.

	Jan	Feb	Mar	Apr
Product A	6615	4320	7830	8100
Product B	3300	3850	6050	6600
Product C	2212	2408	2715	2800
Product D	2981	4891	4566	8999

Press CODE-RETURN. The graph is displayed.



When you select the product A, B, or C rows individually, the pattern setting is Empty, but all of the other settings are those originally assigned to those rows.

Appendix F: Utilities

This Appendix describes the following utility programs:

- ☐ Duplicate Media, which copies a diskette to another diskette on the same device.
- ☐ Initialize Media, which formats new floppy disks and other media so that files can be created on them.
- ☐ ScreenWatch, which takes a picture of the screen that you can later print.
- ☐ User Sentry, which lets you change your GRiD Central or file server device password.

Duplicate Media The Duplicate Media utility lets you copy a diskette directly to another diskette on the same device.

To Duplicate a Diskette

1. Fill in the File form, specifying Duplicate Media in the Programs subject, and confirm.

After confirming the File form, the following message appears:

Confirm to read source diskette
Place Source diskette in Floppy Disk

2. Place the diskette to be copied in the device and confirm. The following message appears:

Reading source diskette in Floppy Disk.

The above message is followed by this message:

Confirm to write destination diskette.
Place destination diskette in Floppy Disk.

3. Place the diskette that is to contain the copy and confirm. The following message appears:

Writing to destination diskette in Floppy Disk.

This message is followed by one of the two messages described in the next two steps.



4. If there is more data on the source diskette to be copied, the following message appears:
Confirm to read source diskette.
Place source diskette in Floppy Disk
nnn of nnn pages read
In the message above, *nnn* is a number referring to the amount of data copied from the source diskette during the first pass of the duplication procedure.
Continue at Step 2 above.
5. When all the data has been copied, the following message appears:
Confirm to exit.
Floppy Disk duplication is complete.
If you wish to exit, confirm. Press ESC to duplicate another diskette.

Initialize Media You must format a new floppy disk before you can create a file on it. You may under certain circumstances need to initialize bubble memory or hard disk. The Initialize Media utility performs this function.

- ▣ **CAUTION:** Formatting any medium erases all information on it. For this reason, when you format a hard disk or bubble memory containing data, use extreme caution. Once the medium is formatted, any data stored previously is lost and irrecoverable.
- ▣ **CAUTION:** If Initialize Media is on the device you intend to format, move it to a different device.

NOTE: Before initializing a hard disk that was previously formatted exclusively for MS-DOS, you must first run the MediaPartition utility. See the *GRiD-OS/MS-DOS Utility Programs User's Guide* for information on this utility.

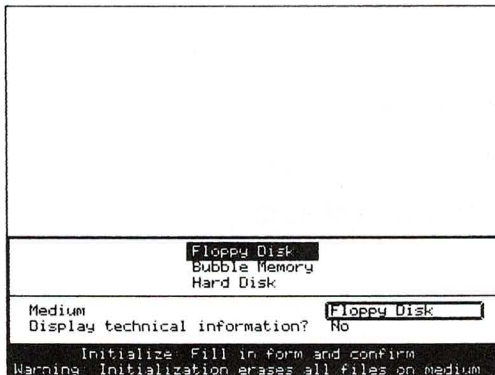
The following procedure shows you how to format a diskette. You can also use the same procedure to format either bubble memory or a hard disk.

To Format a Floppy Disk

1. Put an unformatted diskette into the floppy disk drive. You can also insert a previously formatted diskette, if you don't mind having its data erased by the formatting process.

After you confirm, the media selection menu appears (Figure F-3).

Figure F-3. *The Media Selection Menu*



Floppy Disk
Bubble Memory
Hard Disk

Medium

Display technical information?

Initialize Fill in form and confirm

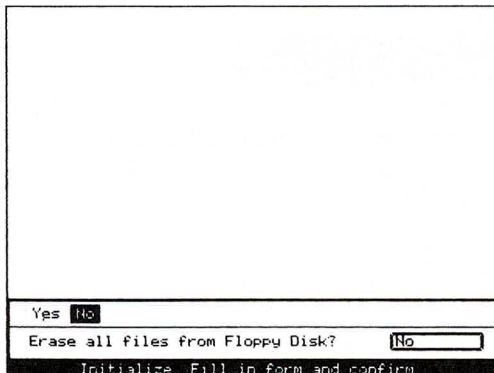
Warning: Initialization erases all files on medium

4. In the Media selection Menu, you specify the media (Floppy Disk, Hard Disk, or Bubble Memory) to be formatted, and if you want information about the reformatting processing displayed on your screen (you select Yes or No).

Confirm the Media Selection Menu after making your choices.

5. After confirming, the Initialize Confirmation form appears (Figure F-4). It serves as a warning that, if you choose to continue formatting, all files present on the medium are erased. If you select No, the formatting process stops and you return to the initial menu; if you select Yes, the formatting process begins.

Figure F-4. *Initialize Confirmation Form*



Yes

Erase all files from Floppy Disk?

Initialize Fill in form and confirm

The total formatting process takes roughly three minutes (for a diskette). The other media take quite a bit more time because of their greater storage capacities.

When formatting is complete, the drive will stop spinning and a message will appear at the bottom of the screen:

Confirm to exit. Floppy Disk has been initialized.

To return to the program, press ESC; if you confirm, you exit Initialize Media and the File form appears.

Media Repair A variety of incidents can corrupt a medium's data format and thereby lose or harm files. Examples are:

- ☐ A power failure during a file access.
- ☐ A physical flaw on a storage medium.
- ☐ Errors corresponding to error message numbers 102-105, 200, 201, or 232. (See the "Error Messages" chapter for the corresponding error messages.)
- ☐ Stopping the compiling process.

Additionally, some of the above items can create unlisted "trash" that takes up valuable storage space. Run the MediaRepair program in response to any of the phenomena listed above, or if you suspect any other trouble with a permanent storage medium.

The MediaRepair program searches out compromised storage areas, repairs them when possible, and writes a report describing its activities. MediaRepair provides the following services:

- ☐ Subject level repairs.
- ☐ Title level repairs.
- ☐ Collection of related, but lost, data into a file you can edit.
- ☐ Identification of physically defective areas to prevent the computer from attempting to store data in them.

NOTE: MediaRepair provides information useful to the GRiD Resource Center in analyzing storage-related difficulties. You should run MediaRepair before contacting the center about such difficulties.

Repairing a Medium

Make sure that the device containing the MediaRepair program is different from the device you plan to repair.

If necessary, duplicate (CODE-D) the MediaRepair program to another medium. Be sure to store the duplicate under the subject Programs.

To Run MediaRepair

1. Fill in the File form specifying MediaRepair. MediaRepair is under the "Programs" subject.
2. Confirm the Repair medium item. After confirming, the Repair form appears.
3. Choose the medium you want to repair.
4. If you want the report sent to a device in addition to the screen, move the outline to the Report item and select File or Printer.

NOTE: Longer reports cause text to scroll off the screen as the program adds new information to the report. Once a line scrolls off the screen, you cannot retrieve it. If you choose either of the other media, the report is sent both to the screen and the chosen medium.

If you decide to send the report to File, the File form appears, where you specify a destination file. Choosing Printer causes the report to go to the printer attached to your computer. Once you have selected a report device, confirm the Repair form.

Once you have made your repair and output selections, the following message appears at the bottom of the screen:

Repair: Confirm to start

Press CODE-RETURN and the program displays another message throughout the repair process:

Repair: In progress

5. The program prints its name, the date, and the time. It then begins to repair the file, issuing a report to the screen (and the printer or a file, if you so specified) during the process. A message informs you when the repair is completed.

If you want to repair another medium, press ESC. The initial screen appears. The Medium and Report selections remain at their previous settings.

Media Repair Report Messages

The following sections explain the message displayed by the MediaRepair utility.

MediaRepair date time

This header identifies the MediaRepair program. The date and time follow this message on the same line.

n physical error(s)

This message counts the number of physical errors (where n is a number). Media can suffer from either of two kinds of physical error. The first is a material problem with the medium, usually caused by wear or misuse, and sometimes by an innate flaw. You may also encounter flaws in the medium's controller device.

The second kind is a logical problem—a disruption in the “walls” that divide the medium into logical storage areas. MediaRepair cannot discern which problem (material or logical) it has encountered.

Cannot start operating system from this medium

This means that the portion of the medium that contains the start-up or “boot” code has been damaged, so that the computer cannot use the code.

Unrecoverable error condition
Repair process terminated

This message represents a defect in the medium that prevents MediaRepair from reading anything from that medium. Further repair is impossible. This error also produces the message:

Repair terminated: Confirm to exit

Once you have exited, choose from among three alternatives given in the section titled “Responding to Media Defects” later in this appendix.

Verifying subjects or
Verifying subject: subject name

MediaRepair checks whether the titles in the subject correctly correspond to the files stored on the medium.

Removed subject: subject name or
Removed title: title name, kind: kind

If a file's header (its access record) has an incorrect format, MediaRepair removes the title and corresponding entry from the subject. An entry is a unit of information about a file. It includes the file's name and address plus other data. This name and its address are saved just in case the file is found later.

Added subject: subject name or
Added title: title name, kind: kind

MediaRepair found a file that belongs in this subject. MediaRepair names the file, according to one of two naming procedures.

- ☐ If a match occurs between a removed title and this file, MediaRepair gives the file the removed title's name.
- ☐ If no match occurs, MediaRepair names the file "?Unknown" and follows the name with a number indicating the serial order in which it was found. Thus typical names are "?Unknown2" and "?Unknown3". MediaRepair assigns these titles the kind Text so that you can read and edit them with GRiDWrite.

Rebuilding subjects or
Rebuilding subject

MediaRepair detected an error in the subject(s). MediaRepair searches the medium to find every title that belongs in this subject and then rebuilds the subject from the names it located.

Everything is OK

The subject structure is okay. Every title entry in the subject has a corresponding file on the medium.

Recreating lost subject
Named: new subject name
Added title: title name, kind: kind

MediaRepair found some files that were complete, but not entered in any subject (possibly the subject was lost or destroyed). Therefore, MediaRepair recreates the subject and places the found titles in it. "Named:" means that MediaRepair gives a name to the subject directory. "Added title:" means that MediaRepair added a title to the new subject.

Added title: kind: work

MediaRepair searched the medium and found a work file with no corresponding title in the subject. (A work file is a file created by a language translator or other system program.) In this special case, the work file was left over from a Pascal or PL/M compilation, or from another application that used work files.

Interrupting or resetting the computer during a compilation causes the abandonment of these work files. Though the computer does not display

the names of these files, the files themselves occupy disk space. Run MediaRepair whenever you've interrupted a compiler several times.

Repaired title: title name, kind: kind

[Missing n page(s)]

If the file has pages missing, the Missing n page(s) message (where *n* is the number of pages) appears. MediaRepair concatenates the remaining pages into their correct sequence. When you see this message, you should check the repaired file by following the steps given in the "Examining Repaired Files" section, below.

If the Missing n page(s) message does not appear, the file header pointed to a wrong page for its file. MediaRepair found the correct page somewhere else on the medium and replaced the improper page with the correct one.

Rebuilding orphan title

[Missing n page(s)]

Added title: title name, kind: kind

MediaRepair found a file of related data that lacks a name (technically, a *file access record*). MediaRepair reordered the remaining pages into a correct and complete sequence. If MediaRepair finds an orphan title, it creates a subject called "OrphanFiles" and stores this title under it. MediaRepair names the file, according to one of two naming procedures.

- ☐ If a match occurs between a removed title and an orphan title, MediaRepair gives the orphan file the removed title's name.
- ☐ If no match occurs, MediaRepair names the file "?Unknown" and follows the name with a number indicating the serial order in which it was found. Thus typical names are "?Unknown2" and "?Unknown3". MediaRepair assigns these titles the kind Text so that you can read and edit them with GRiDWrite.

These files contain "lost" data or garbage data. You should examine them to decide whether to keep or delete them. When you see this message, you should check the repaired title by following the steps in "Examining Repaired Files," below.

Note that Missing n page(s) is optional in the sense that the message won't appear if no pages are missing.

Repairing Complete

This message signals that MediaRepair has finished its work. If you interrupt the program before seeing this message, you should run MediaRepair again

—all the way to completion. Also, if this message does not appear, the medium remains in an unrepaired condition; run MediaRepair again.

A medium partially repaired can still be cluttered with files that don't appear in any subject. Storing any new files on the disk produces unpredictable results.

Examining Repaired Files

Always examine a repaired file, as shown below. Some pages may have been previously destroyed, leaving gaps in the file. Once you have studied a file, simply determine how to dispose of it. For example, you could append, include, rename, or erase it.

To Examine a Repaired File

1. See if you have any subjects titled “?Unknown[n]” or “OrphanFiles”.
2. See if you have any titles named “?Unknown[n]” and/or “OrphanFiles” and scroll each file that interests you.

Responding to Media Defects

When you get the Unrecoverable error condition message, try the steps below.

To Respond to Media Defects

1. Wait until MediaRepair finishes its work and do the following:
 - ☐ If the error message refers to a diskette, remove the diskette from the drive and recenter it inside its jacket to fix the problem of a possible incorrect mounting.
 - ☐ Run MediaRepair again. If the error recurs, follow step 2 or 3.
2. If step 1 fails, you have irrecoverably lost data. Transfer any usable title(s) to another medium with GRiDManager's Duplicate Files—CODE-D or Move Files—CODE-M commands.

If a diskette is not physically flawed, you can reuse it. However, you must first reformat it. See the Initialize Media section in Appendix F. Reformatting a medium will completely erase it. If the diskette is flawed, discard it.

3. If you have an unrecoverable error problem with bubble memory or hard disk, notify the GRiD Resource Center before formatting either of these media. Note that the Initialize Media utility can format hard disk and bubble memory, as well as diskettes.

ScreenWatch The ScreenWatch program lets you print the screen in front of you or duplicate it in a file for printing later. The following procedure describes how this is done.

To Print a Screen Image or Save It in a File

1. Select ScreenWatch from the "Programs" subject on the File form and confirm.

CAUTION: Once you select the Turn On ScreenWatch program you shouldn't select it again until you've turned the machine off then on again.

2. Display the data or graphics image you want to save and/or print.
3. Press CODE-SHIFT-= and the Filename form appears. To print the screen, enter the following as the Filename:

```
`printer
```

and confirm. To make the back quote, press CODE-'(apostrophe). When the printing ends, you may want to press the ON LINE button and then the FF button to bring the paper into alignment. Press the ON LINE button after the paper stops moving so you'll be ready to print again.

To save the screen image in a file, enter a pathname as the filename; for example,

```
`Hard Disk`memos`1stQuarterResults
```

and confirm. (The format for a pathname is described in Appendix D.) The program then stores the screen in the file you designate; it sets the Kind of the file to ScreenImage.

You can print the screen image file using the Include Screen Image (^si) command in GRiDWrite. This command lets you include a screen image in a document as you print it out. See Part II of the "GRiDWrite" chapter for details.

4. When you finish using the ScreenWatch utility program, press CODE-SHIFT-= and then CODE-ESC. This removes ScreenWatch from main memory, providing you more space to work with other files and applications.

User Sentry The User Sentry utility changes your password for GRiD Central or an external file server device.

To Change the Password for GRiD Central or File Server Device

1. Sign on to GRiD Central or external file server device.
2. Fill in the File form specifying User Sentry in the "Programs" subject, and confirm.
3. When the User Sentry menu appears, confirm the Change Password item.
4. Enter your new password in the form that appears and confirm. The new password is now in effect at GRiD Central or external file server device.
5. Press CODE-ESC or CODE-Q to exit User Sentry.

Appendix G: Special Hardware Considerations

This appendix provides supplementary information on using the GRiD Management Tools with specific computer, printer, and other unique hardware configurations.

GRiD Compass Computer The following section gives supplementary information for GRiD Compass computer users.

Selection—GRiD Compass Keyboard

This section describes the GRiD Compass keys that aid in moving the cursor or outline to different parts of your database, graph, worksheet, or text files. You use the same keys in selecting data, where certain commands prompt you with messages to *select* or *make a selection*. For example, after you issue the Duplicate Cells or Text command (CODE-D), you are prompted to select the text you want to duplicate.

You can use the Arrow keys alone or in combination with other keys in moving about your file and in selecting data. The valid keys and key combinations are shown in Figures G-1A and G-1B.

Figure G-1A. *Keys for Moving Cursor/Outline and Selecting Data—GRiD Compass Computer*

TO MOVE CURSOR	PRESS
One line or cell	 
One character	 
One word	  
To top or bottom of screen or text	  
To next or preceding screen	 

Figure G-1B. *Keys for Moving Cursor/Outline and Selecting Data—GRiD Compass Computer*

TO MOVE CURSOR	PRESS
One cell left or right	SHIFT ← →
One cell right	TAB
To top or bottom of table or file	CODE SHIFT ↑ ↓
To left or right edge of table or file	CODE SHIFT ← →
To left edge of next line or row	RETURN

When you press the keys described in Figure G-1B, the text or cells are highlighted. The selection process stops when you confirm. What you do next depends on the command you issued.

Commands to aid in selection are also available. See the Begin Selection—CODE-B, Column Selection—CODE-C and Row Selection—CODE-R sections in this chapter for information on the commands.

Bubble Memory Management

This section is a guide to managing your space requirements in bubble memory. You may at times have to make space for additional or oversized files. You can create the space you need in the following ways:

- ☐ Erase system and utility files you don't need from the "Programs" subject. You can always obtain these files again from an external storage device when you need them.
- ☐ Erase files you created and no longer need.
- ☐ Move your own files temporarily from bubble memory to hard disk, floppy disk, portable floppy, or GRiD Central.

The following sections provide guidelines and technical information on achieving the above items.

Determining Space Requirements for Files Before moving a file to bubble memory from hard disk, floppy disk, portable floppy, or some other device, use the following procedure to check to see if your file will fit into the space remaining.

To Determine Space for Files in Bubble Memory

1. Retrieve GRiDManager.
2. Press CODE-T, select Show File Characteristics, and confirm. The File form appears.
3. Fill in the File form, specifying the file you intend to move into bubble memory, and confirm.
4. The File Characteristics Report appears. (An example of the report is shown in Figure 2-14 in the "GRiDManager" chapter.) Make a note of the Length item from the report.
5. Press CODE-U; the Usage report appears. (An example of the report is shown in Figure 3-11 in the "Common Commands" chapter.) Make a note of the Free item for bubble memory. Free space is given in thousands of characters, so add three zeros to this figure before comparing it to the length of the file determined in step 4.
6. If the available space in bubble memory (step 5) is less than the length of the file (step 4), you must create space in bubble memory. Procedures and techniques for creating this space are given in the remainder of this Compass computer section.

Deleting Unnecessary Program Files You can remove certain files from the "Programs" subject to free up space. These files fall into two categories.

- ☐ GRiDPlan, GRiDPlot, or any other GRiD application you don't intend to use.
- ☐ System files (described in Appendix A) that aren't necessary for your work at hand.

You can erase the GRiD applications you don't need and later duplicate them from GRiD Central or an external disk device when you need them again.

The remainder of this section provides information on system files you might want to remove and how they affect your system when removed.

Minimum Requirements The following files are always required under “Programs” regardless of what you intend to do:

- ☐ CCOS (GRiD-OS)
- ☐ Common
- ☐ Executive

Other “Programs” files—a complete list is given in Appendix A—can be erased, but you should consider the implications carefully before removing them. The optional files, and what happens when you delete them, are described below.

- ☐ “@SystemErrors.” When this is deleted, error numbers instead of error messages are displayed (e.g., `System error: 33` instead of `File does not exist`). You can print out the error messages and numbers by selecting the “@SystemError” file, pressing CODE-T, and selecting the Print item. This can be helpful if you delete @SystemErrors from your bubble memory to save space.
- ☐ “Activate” and “Modem.” When these are deleted, GRiD Central or the GRiD Terminal Emulator products (GRiDTerm, GRID3101, etc.) can’t be accessed. If you try to activate GRiD Central, for example, you’ll get the error message, `Modem not active`.
- ☐ “Screen.Init.” When this is deleted, the GRiD logo is not displayed during start-up.
- ☐ “User.” You select characteristics that apply to your system with the Options (CODE-O), Set Time, and Select Start-Up File commands in GRiD-Manager. The “User” file gives GRiD-OS the information necessary to put these characteristics in effect during start-up. If you erase the “User” file, the following things occur after the next start-up:
 - The creation and last-modified times that appear in catalogs and the time displayed on the Subjects and Titles screens are Greenwich Mean Time (GMT) instead of the time set with the Set Time command in GRiDManager.
 - Your start-up file isn’t activated during start-up.
 - The initial settings are used for the Current Typeface, System-Wide Typeface, Current Printer, Current Plotter, Screen Frame, and Stop for Errors options in the GRiDManager Options form. For the initial settings, see Options—CODE-O in the “GRiDManager” chapter.

Using One Application for Two Functions Another way of creating additional space in bubble memory is to use one GRiD application to perform functions normally done by two or more applications.

For example, you want to use GRiDFile to create a database and GRiDWrite to write memos, but you don't have enough space in bubble memory for both applications. Because the GRiD applications share a common file format, you might be able to get by with just GRiDWrite. For database entries, you could create a text file, and, under GRiDWrite, type in the database entries, separating each column with a tab character.

Later, when GRiDFile is available, transfer the text file over to a database file.

Or you may want to transfer part of a database file into a text file to get additional space in bubble memory. Using the Find command (CODE-F), you could then locate the data you want to view one record at a time.

When transferring a database file into a text file, use the Write to a File item on the Transfer menu while in GRiDFile. If you use the Include a File item while in GRiDWrite, the associated text file will contain GRiDFile's internal control characters interspersed among the database data.

Space Management Commands The following GRiDManager commands are available for managing your files:

- ☐ The Duplicate File command (CODE-D), which duplicates a file and leaves the original intact.
- ☐ The Move File command (CODE-M), which moves a file and erases the original copy
- ☐ The Erase Subjects or Files command (CODE-E), which permanently deletes a file.

To use these commands, activate GRiDManager. For further information, see the "GRiDManager" chapter of this manual.

IBM® Personal Computer The following section gives supplementary information for IBM® Personal Computer computers users.

Selection—IBM Personal Computer Keyboard

GRiD software has been enhanced for optimal use on the IBM Personal Computer. For your convenience, you can issue a command the regular way—by pressing two keys—or by pressing one of the special keys on the IBM Personal Computer keyboard. These special keys have been programmed as alternative keys for issuing commands to your computer. See the illustration of the IBM Personal Computer keyboard in *GRiD Management Tools for the IBM Personal Computer Reference Card*.

This section describes the IBM Personal Computer keys that aid in moving the cursor or outline to different parts of your database, graph, worksheet,

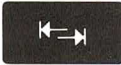
or text files. You use the same keys in selecting data, where certain commands prompt you with messages to **select** or **make a selection**. For example, after you issue the Duplicate Cells or Text command (CODE-D), you are prompted to select the text you want to duplicate.

You can use the Arrow keys alone or in combination with other keys in moving about your file and in selecting data. The valid keys and key combinations are shown in Figures G-2A and G-2B.

Figure G-2A. *Keys for Moving Cursor/Outline and Selecting Data—IBM Personal Computer*

TO MOVE CURSOR	PRESS	OR PRESS
One line or cell	 	
One character	 	
One word	 or   	
To top or bottom of screen or text	 or   	 To top  To bottom
To next or preceding screen		

Figure G-2B. *Keys for Moving Cursor/Outline and Selecting Data—IBM Personal Computer*

TO MOVE CURSOR	PRESS	OR PRESS
One cell left or right	  	
One cell right		
To top or bottom of table or file	 or   	 To top  To bottom
To left or right edge of table or file	 or    	 To left edge  To right edge
To left edge of next line or row		

When you press the keys described in Figure G-2B, the text or cells are highlighted. The selection process stops when you confirm. What you do next depends on the command you issued.

Commands to aid in selection are also available. See the Begin Selection—CODE-B, Column Selection—CODE-C, and Row Selection—CODE-R sections in this chapter for information on the commands.

Optimum Use of Dual Floppy Disk Drives

If you have a dual floppy disk drive, you should use one drive for the GRiD-OS diskette (used during start-up) and, in the same drive, the diskette containing the GRiD Management Tools. You should keep the diskette with your files on the other drive.

However, you may find it more convenient to keep a copy of a particular Management Tool with the files it creates. For example, you may wish to

keep a copy of GRiDWrite on the diskette with your memo and other text files, GRiDPlan with your worksheet files, GRiDPlot with your graphs files, and GRiDFile with your database files.

NOTE: If you have a very large worksheet or database (over 270 kilobytes), then it would be more practical to keep GRiDFile or GRiDPlan on a separate diskette.

Copying Diskette to Diskette

You can copy or write files onto a floppy diskette only after it has been initialized for use with GRiD software. See Appendix A of *Getting Started: GRiD Software for the IBM Personal Computer* or the Initialize Media Utility in Appendix F of the *GRiD Management Tools Reference* manual for instructions on initializing a diskette.

To Copy a Management Tool onto a Diskette

1. Insert the GRiD-OS diskette into your main floppy drive and a blank initialized diskette into the second drive. Turn on your computer.
2. Retrieve GRiDManager, then replace the Operating System diskette with the Management Tools diskette.
3. Duplicate the Management Tool you need onto the blank diskette in the second drive.
4. Take out the Management Tools diskette and put back the Operating System diskette.
5. Exit GRiDManager.

Copying GRiD-OS to Another Diskette

When you copy the Operating System diskette onto another diskette, you must initialize it on the computer on which you will run it; e.g., if you are going to run the Operating System on the IBM Personal Computer, your new diskette must be initialized on the IBM Personal Computer.

Initializing Hard Disks

Initialize your Hard Disk for use with GRiD software. If you are using the Hard Disk exclusively with GRiD software, see Appendix A of *Getting Started: GRiD Software for the IBM Personal Computer* or the Initialize Media Utility in Appendix F for instructions.

If you wish to partition the Hard Disk, so that you can use it with more than one operating system, consult the *GRiD-OS/MS-DOS Utility Programs User's Guide*.

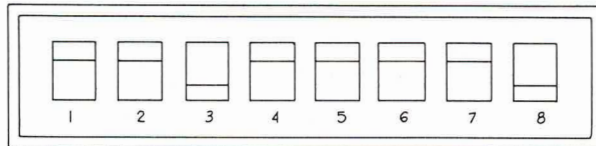
Other Storage Devices

You may find references to other storage devices such as Bubble Memory and Portable Floppy in this manual. These are the other devices supported by GRiD software. To understand how references to these devices may apply to your particular storage device, note that for most dual floppy systems, Bubble Memory corresponds to Floppy Disk and Portable Floppy to Extra Floppy Disk.

Modem Switch Settings

To use your computer as a terminal to communicate with other computers, you need a modem. If you have the Hayes SmartModem, use the switch settings illustrated below:

Figure G-3. Switch Settings for Hayes SmartModem with the IBM Personal Computer



If you have another type of modem, consult the manual that accompanies the modem for correct switch settings.

Printer Interface Commands Table G-1 shows the Universal printer interface commands recognized by the EpsonFX80, EpsonMX82, Diablo620, and Diablo630 device handlers in the "Programs" subject. This information is provided for the following reasons:

- Text-formatting commands in GRiDWrite provide special typefaces (bold, for example), but they can be printed out only by specifying the Format option in the Transfer menu. You can use the typeface commands in Table G-1 in any file that can be printed using the Print option in the Transfer menu.
- If you want to write an application that uses a printer and a printer device file supplied by GRiD Systems, you may need the information in the table to perform the indicated functions.

Table G-1. *Universal Printer Interface Language*

Command	Turn on/off
Pass an ESC thru	ESC ESC
Boldface	ESC 'B'
Underline	ESC 'U'
Italics	ESC 'I'
Superscript	ESC ' + '
Subscript	ESC ' - '
Enlarged	ESC 'E'
Condensed	ESC 'C'
Line spacing	ESC 'L' n ($n = 1/8$ th of a line)

Appendix H: GRiDFile Repair

The GRiDFile Repair program lets you repair or restore database files that have been damaged by inadvertently erasing records or re-initializing the system while working with GRiDFile. You'd probably want to use the repair program after receiving one of the following messages:

Illegal data record
Invalid index file
Record doesn't exist
Record not found
Record has been deleted
Invalid desc file

GRiDFile Repair can't always restore a database to its original condition. Therefore, you should always keep a backup copy of your database in case your current version becomes damaged.

You activate GRiDFile Repair on the File form from the "Programs" subject. When active, the program displays the following commands menu (Figure H-1) on your screen.

Figure H-1. *The GRiDFile Repair Menu*

The screenshot shows a window titled "GRiDFile Repair". Inside, there are two sections with input fields:

- Damaged Database:** A box containing labels for "Device", "Subject", "Title", and "Kind".
- Repair to Database:** A box containing labels for "Device", "Subject", "Title", and "Kind".

Below these fields is a list of commands:

- Select (highlighted)
- Repair
- Quit CODE-Q
- Cancel CODE-ESC
- Select damaged database
- Select repair to database
- Repair damaged database
- Exit
- Exit

At the bottom, a status bar reads: "Commands: Select item and confirm" and "Version 3.0.0 of GRiDFileRepair".

Select Damaged Database When you select this command, you're prompted to specify the name of the database to be repaired.

Select Repaired Database When you select this command, you're prompted to specify in the File form the name of the new, repaired database. Ensure that sufficient space exists on the storage medium you specify for Device;

you must have twice the space used by the old database. See the Compress—CODE-? section of the “GRiDFile” chapter for information on how to determine space availability.

Repair The Repair item starts the process to rebuild your database. Ensure that you have a backup copy of the database before starting this process.

When you select Repair, you're prompted to specify if you want to restore deleted records (each individual row that appears on your screen is considered a record). If you specify Yes, all records deleted since you last compressed the database are restored.

Restoring deleted records is most useful when you unintentionally erase a large number of records and don't have backup copies of them.

You should consider the following when you repair a database:

- When you restore deleted records, you'll receive copies of all records you deleted either intentionally or unintentionally. In addition, you'll receive records deleted by GRiDFile. Often, when you change or edit a record, GRiDFile creates a new record and deletes the old one.
- If the repair program finds an invalid entry in an indexed column set as Unique Entry, it changes the column property to Non-unique Entry.
- If the property settings are damaged in the database being repaired, the repair programs sets the properties to the initial values in the Options and Property forms. See the Options (Database)—CODE-O and the Properties (Database)—CODE-P sections of the “GRiDFile” chapter.
- When the old database is repaired and placed in the file you specified for it, you'll receive a status report showing the number of records converted. Here's some information to help you interpret the report.
 - The total number of records in the repaired database is the sum of “good records,” “bad records restored,” and “deleted records restored.” Note that your database may be successfully restored even though you received the message 0 bad records restored.
 - “Index columns” is a list of columns in which indexes have been created.

Appendix I: Handling Oversize Worksheets

This appendix provides information on breaking up large worksheets, what you do after receiving the medium full and out of memory error messages.

Maximum Worksheet Size The largest worksheet GRiDPlan can create is 255 rows and 255 columns. However, if you attempt to create a worksheet this size, you'll run out of RAM memory.

The maximum size of a worksheet depends upon its contents. For example, cell definitions increase the size of the worksheet. As a rule of thumb, typical worksheets, in which 80% of the cells have short definitions, can contain about 2,500 cells before you run out of memory. Worksheets with fewer definitions can be much larger.

-
- Guidelines** The most important point to remember as you create or edit a large worksheet is to save it often as you work (use the Save This File item of the Transfer command—CODE-T). Here are some other guidelines.
- ☐ Break up the number of cells you intend to duplicate or move, rather than duplicating or moving a large block of cells. The more cells you duplicate or move in a single command, the more memory is temporarily used.
 - ☐ Erase blank columns and rows from the worksheet; remove or shorten labels. Cells containing intermediate results can sometimes be eliminated by altering other cell definitions.
 - ☐ Reduce the number of property settings by specifying the Properties form's settings as Standard. See the Properties (Worksheet)—CODE-P section of the "GRiDPlan" chapter for details. Reducing the number of settings increases the space available in main memory.
 - ☐ Split the worksheet into several files. Most large worksheets can be broken into separate files. For example, a business plan for a company can be separated into one worksheet for each division plus a master worksheet. One or two rows of summary data from each division worksheet can be written to a temporary file and then included into the master worksheet at the appropriate location. This kind of manual consolidation is easily done with GRiDPlan.
 - ☐ Lower the setting for the Precision item in the Options form. See the Option (Worksheet)—CODE-O section of the "GRiDPlan" chapter. The lower the precision, the greater your worksheet size can be. Make a copy of your worksheet with the current precision setting before changing to a

lower precision. Then, to ensure accuracy, compare the calculated results of the lower precision to the results in the old worksheet.

- **CAUTION:** Once precision is lowered, higher precision cannot be regained. Therefore, always make a backup copy of your worksheet before lowering the precision.
- ☐ Create a new worksheet file and, using CODE-T, include the old worksheet file in the new file. Because no properties are copied, the numbers and cell definitions may now fit in the new file.

Medium Full Message You may receive the medium full message when you try to save a worksheet; the message indicates that bubble memory (or another medium) is full. Here are some guidelines for handling this situation.

- ☐ Delete other files using the Erase a File item of the Transfer command (CODE-T).
- ☐ If you have access to a disk, connect it to your computer. Then, using the Transfer command, write the worksheet to a file on hard disk or floppy disk.
- ☐ If you're signed on to an external file server device or GRiD Central, write the worksheet to the appropriate server Device.
- ☐ If the first two steps don't work, reduce the size of the worksheet as described in the previous section. In addition, strip the worksheet of labels and cells that could easily be recreated.

Out of Memory Message Use the following guidelines when trying to retrieve a worksheet file and receive the out of memory message.

- ☐ Make a backup copy of the worksheet in case of damage during the next steps.
- ☐ Try retrieving the worksheet at least two times. Confirm each time the out of memory message appears.