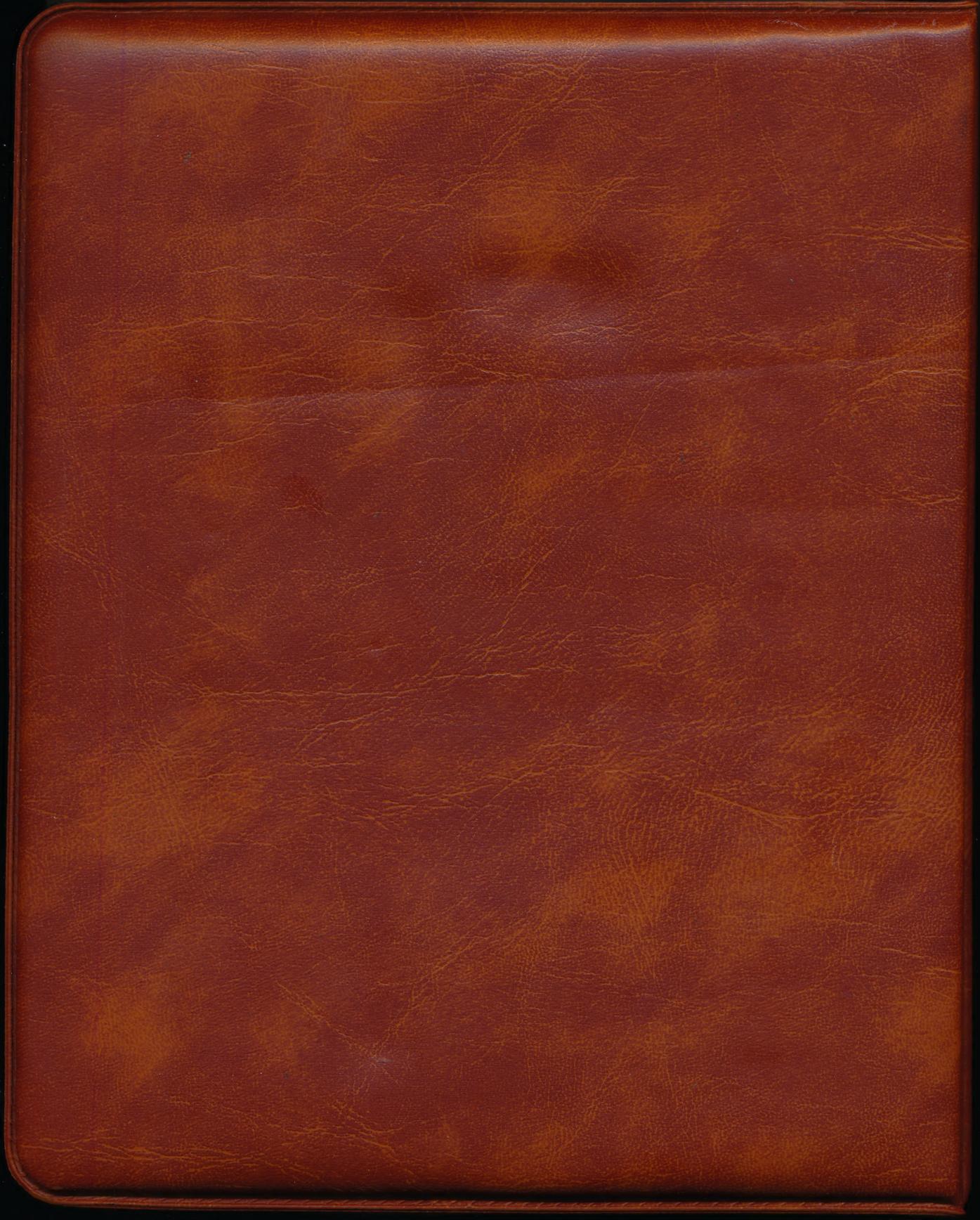


THE GENERAL MANAGER

A PROFESSIONAL DATA BASE
MANAGEMENT SYSTEM FOR
APPLE COMPUTERS



Sierra
ON-LINE INC





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ON-LINE INC**

SIERRA ON-LINE BUILDING COARSEGOLD CA 93614
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**THE
GENERAL MANAGER**

GML-013

TM

MASTER PROGRAM DISK SIDE ONE
SAMPLE DATA DISK SIDE TWO

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DISKETTE CARE AND HANDLING INFORMATION



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Protéger

Proteger
Schützen

保護



No
Non

No
Falsch

注意



Insert Carefully
Insérer avec soin

Insertar
Sorgfältig Einsetzen

插入注意



Never
Jamais

Nunca
Nie

絶対禁止



10°C - 52°C
50°F - 125°F



Never
Jamais

Nunca
Nie

絶対禁止



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GML-010

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HARD DISK RESIDENT

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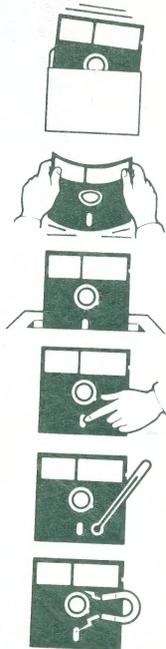
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 保護

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 Non Falsch
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 Insérer avec soin Sorgfältig Einsetzen
 插入注意

Never Nunca
 Jamais Nie
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**THE
GENERAL MANAGER™**

GML-011

WORKING PROGRAM/BLANK FORMS DISK

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注意	



Insert Carefully	Insertar
Inserer avec soin	Sorgfältig Einsetzen
挿入注意	



Never	Nunca
Jamais	Nie
絶対禁止	



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50°F - 125°F



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GML-009

THE GENERAL MANAGER™

BLANK FORMS DISK, HARD DISK VERSION

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No
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Falsch
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Sorgfältig Einsetzen
挿入注意



Never
Jamais
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Nie
絶対禁止



10°C - 52°C
50°F - 125°F



Never
Jamais
Nunca
Nie
絶対禁止

THE GENERAL MANAGER

<u>COMMAND</u>	<u>FUNCTION</u>
ANYTIME DURING DATA BASE ACCESS	
<CTRL K>	Delete remainder of field
<CTRL W>	Place date or time in the field
<CTRL Z>	Shift between upper and lower case input
<CTRL P>	Send display image to printer
<CTRL F>	Display HELP information
<ESC>	Enter screen change mode
DATA ENTRY	
<CTRL B>	Switch to BROWSE/UPDATE mode
<CTRL E>	End DATA ENTRY, saving data currently on screen
<CTRL G>	Save data and display new Blank Form for more data entry
<CTRL Q>	Quit DATA ENTRY
RECORD SELECTION	
<CTRL A>	'AND' this criteria screen with next
<CTRL B>	Set BROWSE to beginning of data base
<CTRL C>	Display first screen of criteria
<CTRL E>	Make this last screen of criteria
<CTRL G>	Initiate GLOBAL BROWSE operation
<CTRL I>	Switch to DATA ENTRY mode
<CTRL N>	Initiate NESTED BROWSE operation
<CTRL O>	'OR' this criteria screen with next
<CTRL Q>	Quit entering selection criteria
SELECTION CRITERIA	
=	Equal to
#	Not equal to
>	Greater than
<	Less than
/	Starting with
*	Containing
?	Wild Card

Null test: To test a field for null (no data) use '= <RETURN>' (i.e. no data).

AND/OR Screens

All criteria on one screen are ANDed together.

<CTRL A>	AND this criteria screen with the next
<CTRL O>	OR this criteria screen with the next
<CTRL E>	Make this the last screen of criteria

(See Chapter 8 for precedence rules.)

BROWSE/UPDATE

<CTRL B> Set browse to beginning of data base
<CTRL C> Display first screen of criteria
<CTRL D> Delete the currently displayed record
<CTRL G> Get next record in GLOBAL BROWSE mode
<CTRL I> Switch to DATA ENTRY mode
<CTRL N> Get next record in NESTED BROWSE mode
<CTRL Q> Quit BROWSE/UPDATE mode
<CTRL S> Save changes to the current record

FIELD SELECTION

<CTRL G> Go perform report
<CTRL Q> Quit FIELD SELECTION

FIELD SELECTION CODES

P Print the field
T Print and total the field
B Print field and use as break field
E Break field with page ejection

SCREEN CHANGE MODE

--> Forward one screen
<-- Back one screen
<RETURN> Select a screen

BLANK FORMS EDITING

<CTRL A> Next character entered is attribute
<CTRL B> Go to beginning of Blank Forms
<CTRL D> Delete this character
<CTRL E> Go to end of Blank Forms
<CTRL I> Switch to INSERT mode
<CTRL K> Delete remainder of line
<CTRL L> Go down one line
<CTRL O> Go up one line
<CTRL Q> Quit EDIT mode
<CTRL R> Switch to REPLACE mode
<CTRL S> Go to next /SCREEN or /SYSTEM
<CTRL T> Go up 12 lines
<CTRL V> Go down 12 lines
<CTRL W> Delete this word
-> Forward a space
<- Backspace

SCREEN DEFINITION ASSIGNMENT STATEMENTS

/SYSTEM NAME = xxx, STARTVOL = nnn, ENDVOL = nnn, TEXTVOL = nnn <RETURN>
/SCREEN NAME = xxx, PARENT = nn, KEY = n, DUPLICATES = xxx, FREQ = n <RETURN>

BEGINNING ATTRIBUTES

[V] Variable length field
[F] Fixed length field
[O] Output field
[G] Generated field
[E] Expansion field
[I] Insert field
[D] Delete field

ENDING ATTRIBUTES

Fixed or variable length fields:

[A] Alphabetic
[X] Accept any characters

&CHKPT
&READ,s,D\$(1),KQ\$(1),x (x = F, N, or C)
&FIND,s,K\$(1),KQ\$(1),x (x = F, N, or C)
&WRITE,s,D\$(1),x (x = W or T)
&DEL,s
&RECUPD,s,D\$(1)

Screen Commands

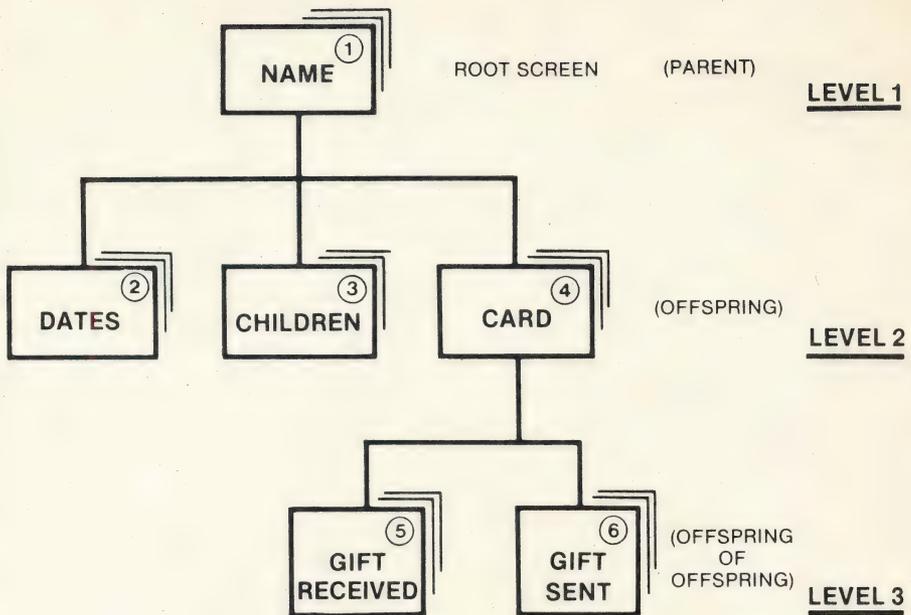
&POSYST
&POSCRN,s
&SCL,"parm",W \$
&POSFLD,s,f

Screen I/O Commands

&SCREEN,s
&INPUT,W\$
&PRINT,W\$
&PRTNAME,n (n = 0, 1, 2 or 3)
&SETCMD,C\$
&DUMP
&SEL
&SEL,0,Y,(W\$)
&SEL,n1,n2,n3
&WAIT

Other Commands

&INFO,s,L(s)
&NULL,s,D\$(1)
&PR#
©,D\$(ss),D\$(se),E\$(ts)
&STRADD,W\$
&OUTFLD,s,D\$(1)
&VER,n (n = 0, 1 or 2)
&MSG
 &MSG,M1\$ or &MSG,M2\$
 &MSG,w (w = 1 or 2)
 &MSG,M1\$,w
&DIR,n,W\$ (n = 1, 2, 3, or 4)



THE HIERARCHICAL ORGANIZATION OF THE 'ADDRESS' BLANK FORM

FIGURE 9-1.

ERRATA SHEET GENERAL MANAGER 2.0Y

Included on your Working Program/Blank Forms disk is a user program called DELETE BLANK FORMS. This program provides an easy way of deleting unwanted Blank Forms, User Programs, Text Files and Report Requests.

Characteristics of some printers require that the screen display be turned off before performing various printing functions. This can be done in the Printer Setup section of DEFINE ENVIRONMENT. A majority of printers use the sequence ◀CTRL I▶132N. Enter this when asked for Printer Setup Characters. Check your printer manual for the proper sequence.

When your data disk is full and you are prompted to format the next volume in your data base, be sure to insert a blank disk and create the next volume. Any other action at this time will result in a loss of data.

Please insert the following corrections, clarifications or additions on the appropriate pages of your General Manager manual.

Page 9

SEARCH:

Upper/Lower Case distinction

When entering criteria in BROWSE/UPDATE for a SEARCH, GM will no longer distinguish between upper and lower case (Jones = JONES = jones).

Page 89

CALCULATIONS

Integer and Absolute Value

In addition to the original five mathematical operations (+, -, *, /, ^), GM will now permit two more: the Integer function (I) and Absolute Value (A). Here are some sample calculations:

/CALC

C5 = I(S1.1/3)

C6 = A(S2.2-S2.3)

Calculation C5 will print the Integer value of one third of the contents of the first field in the first screen. If S1.1 = 8 then $S1.1/3 = 2.666...$ and the Integer is 2.

Equation C6 will produce the Absolute Value of the difference between the second and third fields of the second screen. If S2.2 = 10.5 and S2.3 = 15.25 then $S2.2 - S2.3 = -4.75$ and the Absolute Value is 4.75.

Page 105

UTILITIES

A 40 column display option is now available for IIe users using the User Program APPLE IIe 40/80 COLUMN SWITCH. Select RUN USER PROGRAM from the UTILITIES MENU; then choose the appropriate program.

Page 122

&FIND:

Format reads "and USR (1) = 0"
should read "and USR (0) = 0"

Page 123

&HOME:

New Screen Command Format: &HOME,n

This new command is used primarily for formatting menus. It clears the screen and tabs horizontally n spaces (in the 40 column mode) at the top of the screen. In the 80 column mode (Apple IIe only) the "&HOME,n" command tabs (n + 20) spaces across the top of the screen.

Page 124

&POSFLD:

Last line of values should read: USR(3) = the maximum length of the field.

Page 125

&INPUT:

Format reads "&INPUT,W\$"

should read "&INPUT,W\$,n"

(where n = 0 or 1; 0 = data or 1 = criteria)

Page 127

©:

Format: ©,D\$(ts),D\$(te)E\$(ss)

The sending array is cleared. The last element of the array is not copied.

Page 136

DATA DISK TYPE:

General Manager also supports the Vista 1200 and Percom disk drives.

Page 177

File Access Errors:

3,4,5,30,40,48,50,51,52,54,55,57,75

Internal I/O Error

This error is caused when there is a loss of power while your disk drive is running, or by hardware malfunction. In most cases reorganizing (see page 107) your disk will eliminate the error. When the REORGANIZE program encounters your File Access Error, simply press ◀RETURN▶ to continue.

In some cases REORGANIZE is unable to correct the problem without some criteria which will cause it to skip the faulty section. Go to BROWSE UPDATE and search until you come to the error. Set the criteria.

Example: If the key field contains numbers and the error occurs just after 1234, then the first criterion is <1235. This gives all the records before the error. For the records after the error a second criterion of >1235 is needed.

Then go to SAVE/LOAD/CLEAR REPORT REQUESTS to save the criteria. Since there are two separate criteria there will be two reorganizes. When the question "Add to an existing file?" is asked, type ◀Y▶ and the second will begin. In this way the two ranges of data are merged, and all but the bad record included.

We hope this information will enable you to utilize your new General Manager to its fullest extent, and we apologize for any inconvenience this may have caused you.

GME-004

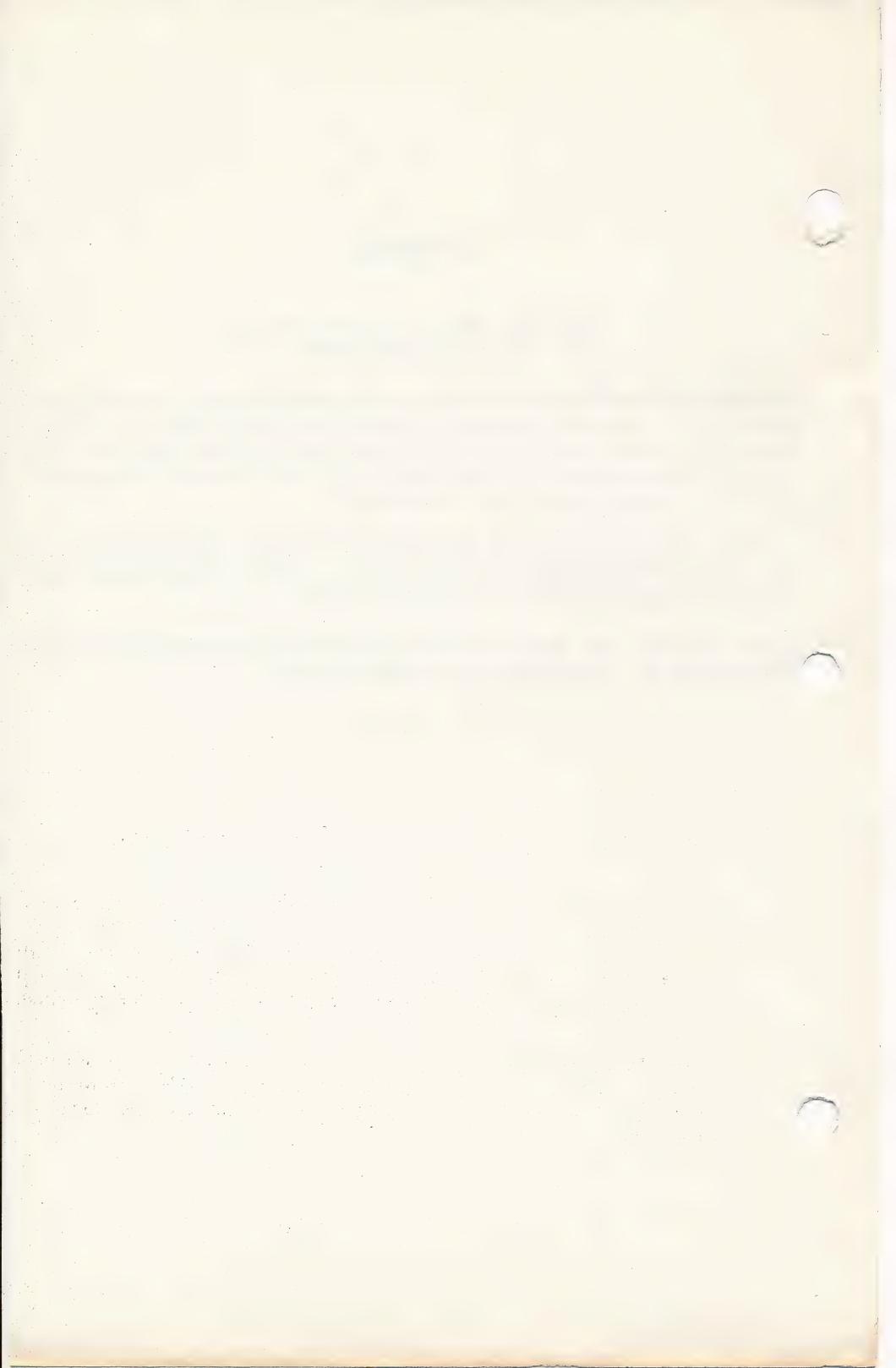
WARNING

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WARNING: Unauthorized copying of this product, both as to the program disk and the documentation hereof, may be a violation of Federal and Criminal Laws (Title 17 United States Code Section 506). Violation may carry a fine of as much as \$25,000 or imprisonment for not more than one year for a first offense.

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Sierra On-Line, Inc. does provide support and replacement service. Please refer to "Statement of Limited Warranty".



HARD DISK RESIDENT VERSION

Procedures For Start-Up

To get started using THE GENERAL MANAGER Hard Disk Resident version perform the following procedures:

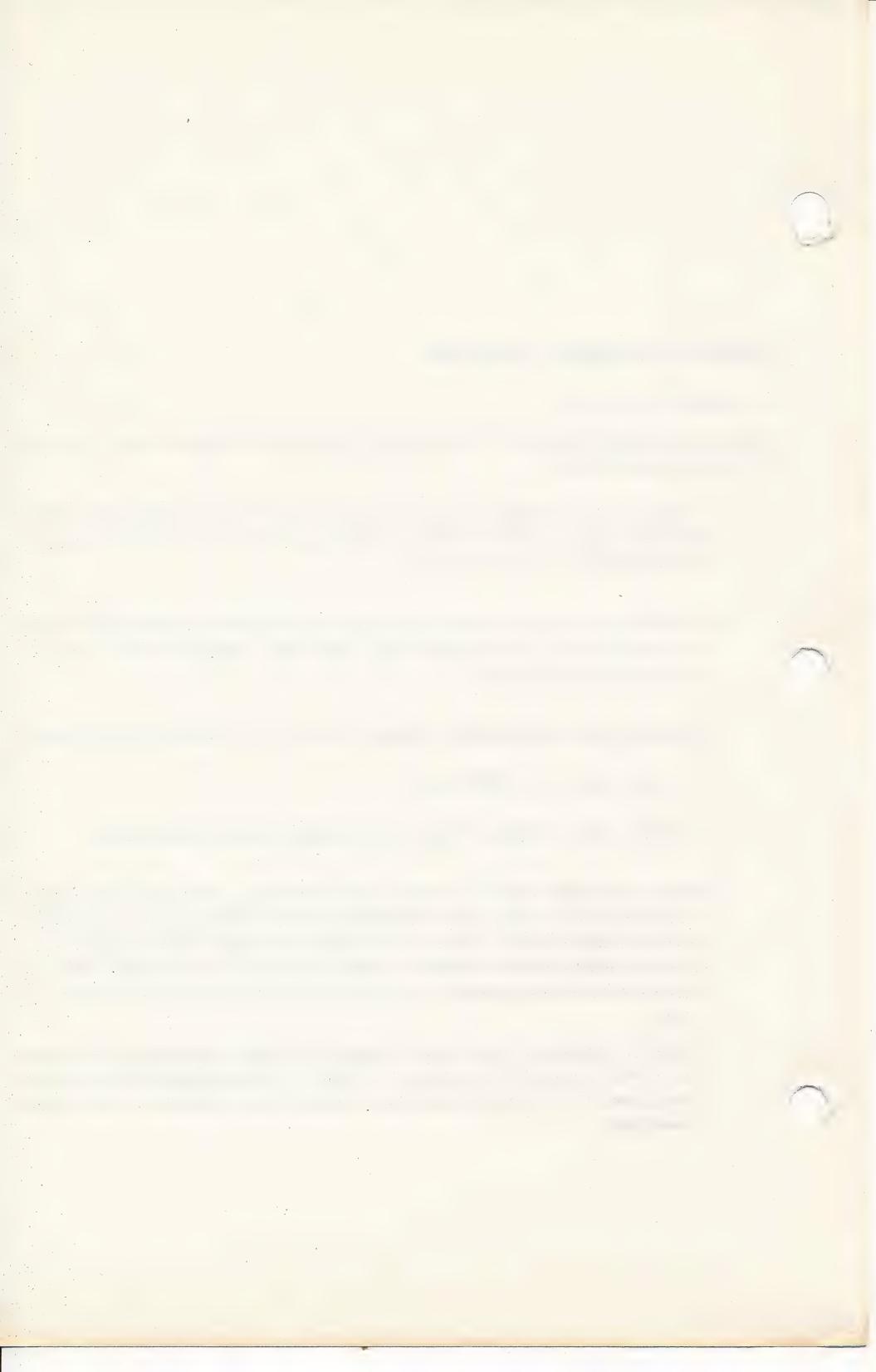
1. Use any available diskette copy program to copy THE GENERAL MANAGER Master Program Disk from the supplied floppy disk to the desired volume (or drive) number on your hard disk.
2. Use the same copy program to copy THE GENERAL MANAGER Blank Forms disk from the supplied floppy disk to the desired volume (or drive) number on your hard disk.
3. Boot from your hard disk and execute THE GENERAL MANAGER by typing:

```
RUN HELLO,Vv<RETURN>
```

where v is the volume number of your program disk on the hard disk.

4. When you reach the DATA BASE MASTER MENU, follow the instructions in Appendix A to define your environment. When defining your drives define the hard disk FIRST. Define the Program and Blank Forms disks as you have established them on the hard disk. When finished select RETURN and have the new environment data saved to your hard disk resident program disk.

Save the supplied floppy disks as backups for the information on the hard disk. From this point on, operation of THE GENERAL MANAGER will be as described in the manual except that it will be faster and there will be no disk swapping!



THE GENERAL MANAGER

by
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and
PAUL MALACHOWSKI
Brillig Systems, Inc.

Reference Manual
by
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Ellen T. Rice
Stephen C. Patton

August 1982

REGISTRATION # 652256

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Coarsegold, CA 93614
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THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 430

FORWARD

FORWARD

FOREWORD

DATA BASE MANAGEMENT WITH THE GENERAL MANAGER

As you begin to use your **General Manager** system, please take the time to familiarize yourself with the overall use of the product by reading and working through this manual.

We'd like to give you a brief overview of data base management using **The General Manager** with the Apple][Computer.

DISKS

People write information on index cards and in accounting ledgers for storage until future use. The computer uses magnetic disks for the same purpose.

DATA BASES

A data base is an organized collection of related information. It is comprised of two parts:

1. A structure in which to place your information. In **The General Manager**, we call such a structure a 'Blank Form'. All your Blank Forms are stored in one place, usually on your Working Program/Blank Forms Disk.
2. The data with which you wish to work. This information is stored on what we call a Data Disk. Each individual data base requires its own separate Data Disk. Further, a large data base may store information on several Data Disks at one time.

The General Manager is a 'hierarchical data base'. This is fancy language for a simple 'tree' structure, such as that illustrated in Figure 9-1. **The General Manager** allows

you to organize, control and print out all or selected portions of a collection of information. The combination of **The General Manager's** organization and control capabilities and your information is a very powerful Data Base Management System. You, as the user, must tell your computer how you want the data organized and stored. **The General Manager** saves these instructions as a 'Blank Form'. You may then enter your information into the data base, with the computer taking care of all the filing, saving, sorting and printing chores.

FILES, RECORDS AND FIELDS

The word file, or data base, is used to describe a collection of related information, similar to a box of organized index cards. A record is the equivalent of a single index card full of information. The term field refers to one item of information on that record or index card.

Screen: It should be noted that there are two definitions of the term screen, as used in this manual:

1. The physical display screen (monitor).
2. The record as displayed on the screen including the title, field names and appropriate data. These are created when you build a blank form.

ROOT PARENT, PARENT AND OFFSPRING

In a hierarchical tree structure, information is stored in 'families' of related records, all of which descend from a **root parent**. The **root parent** records could be considered analogous to the index card you clip to the top of a stack of related cards so that you can pull them all out together. We will discuss this more thoroughly in Chapter 9. For now, just keep in mind that information can only be stored in an offspring record when its **parent record** has been specified.

THE GENERAL MANAGER: THE PROGRAM

The General Manager is divided into several separate programs, which can be found on your Program Disk. Different programs are run as required, generally after you have selected a new data base function from one of the system menus.

The General Manager data structures, or Blank Forms, are kept on a Blank Forms Disk. A combination Working Program/Blank Forms Disk is included with **The General Manager**. This disk holds the sample forms for the data bases used as examples in this manual.

The General Manager stores your data on Data Disks. While you will normally use only one Blank Forms Disk to hold all your data structures, you will use a different data disk for each of your data management applications. A very large data base might require more than one disk; **The General Manager** will tell you when it's necessary to use additional Data Disks. A sample Data Disk, which contains data to use with the example Blank Form ADDRESS, is included with your **General Manager** system.

ORGANIZATION OF THE REFERENCE MANUAL

This manual is divided into five sections, supported by several appendices and a comprehensive index. The first section, **The Mini-Manager**, provides a brief introduction to **The General Manager's** primary functions. The second section, **Using the Data Base**, shows how to work with and maintain an existing data base. Particular emphasis has been placed on walking the new user through the intricacies of a hierarchical data base system, one step at a time.

The first two sections are enough to get you up and running with **The General Manager**, and will allow you to make effective use of an existing Data Base.

The third section, **Creating The Data Base**, shows the experienced user how to create and modify system data structures, which are called Blank Forms.

The fourth section, **Utilities**, describes the use of several programs which help the user to maintain and use his data base.

In the fifth section, **User Programs**, the sophisticated user is introduced to **The General Manager** Interface Command Set. These commands permit data base access by means of an Applesoft Basic program. Powerful data management systems of any desired complexity can be built with these tools.

Throughout Sections I and II of this manual, we have provided the information in a step-by-step manner. If you move along through all the steps, following the examples carefully, you will learn how to work with **The General Manager**.

FORMAT

We will follow this general format as we walk through each of the procedures of using the Data Base:

The title of the procedure, such as BROWSE/UPDATE.

A brief description of the procedure, including purpose and results. This will follow the Title.

Initial Status:

The condition or 'state' of the computer at the beginning of the procedure. Usually we find ourselves at the DATA BASE MASTER MENU or the DATE BASE ACCESS MENU.

Numbered steps, each one a single instruction.

Example:

Where appropriate, an illustration of each step in the procedure.

A comment about what is happening, special instructions, or other comments.

Status:

State of the program at the completion of the step.

BEFORE YOU DO ANYTHING

For your own protection, please take the time to follow these few simple steps to make a copy of the Working Program/Blank Forms Disk, and the Sample Data Base.

The Master Program Disk has been copy protected. However, you will only need to use the Master Program Disk when you first boot, or turn on, your computer to use **The General Manager**. During the rest of your work sessions, you will use a Working Program/Blank Forms Disk.

What you will need:

1. DOS 3.3 System Master Disk
2. General Manager Master Disk
3. General Manager Working Program/Blank Forms Disk
4. 2 blank disks

Procedure:

- A. Use the COPYA Program (on your DOS 3.3 System Master Disk) to make a backup copy of the General Manager Working Program/Blank Forms Disk and the Sample Data Disk.
- B. Boot your system using the General Manager Master Program Disk, select the DEFINE ENVIRONMENT function from the menu, and follow the instructions in Appendix A to configure your General Manager Master Program Disk for your system.
- C. We suggest that you read the information in Appendices B, C, E, F and G before you begin working with the General Manager.

We assume you have a basic understanding and familiarity with DOS 3.3. If you do not, or if you have difficulty with any of this, contact your dealer for assistance.

NOTE

If you are using an Integer Apple—an Apple][, rather than an Apple][Plus—you must have a language card in order to use **The General Manager**. Load Applesoft, then RUN HELLO on **The General Manager** Master Program Disk.

Keyboard Convention

Whenever we refer in this manual to a specially marked key, we will enclose its name in brackets. For example, <RETURN> refers to the key marked 'RETURN' on the Apple keyboard, and <SPACE> refers to the space bar.

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Special thanks to all who purchased Version 1.

Your support and suggestions made Version 2 possible.

**THE
MINI-MANAGER**

**THE
MINI-MANAGER**

SECTION I
THE MINI-MANAGER

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CHAPTER 1

THE MINI-MANAGER: USING THE DATA BASE

This section is designed to show the new user how **The General Manager** stores and retrieves the information in your Data Base. If you are an experienced user, you may wish to skim this section and proceed to Section II, USING THE DATA BASE.

We will give you step-by-step instructions to get started. As you follow these simple instructions, you will get a taste of how **The General Manager** works.

NOTE

This section is written primarily for the user with two or more disk drives. If you have only one drive, at each place where the symbol \blacklozenge appears, you will have to change the disk in the drive in accordance with the instructions on the screen.

GETTING READY

1. If you have not already done so, please follow the instructions in the 'BEFORE YOU DO ANYTHING' section on making copies of the Working Program/Blank Forms Disk and the Sample Data Disk, and configuring the Environment to your system.
2. Insert your Master Program Disk in Drive #1, insert your copy of the Sample Data Disk in Drive #2, carefully close the disk drive doors and turn on the power to your computer. The Drive #1 access light will come on as the computer reads information from the disk. After less than 20 seconds, you will see the DATA BASE MASTER MENU.
3. Remove the Master Program Disk from the drive and replace it with your copy of the Working Program/Blank Forms Disk.

ACCESS DATA BASE

1. Press the right arrow key (-->) and see how the selection arrow moves down the screen. If you press the left arrow key (<--), the selection arrow will move up the screen. Move the selection arrow so it points to 'ACCESS DATA BASE'.
2. Press <RETURN> to select 'ACCESS DATA BASE'. The computer will beep and you will see the message:

GOING TO ACCESS DATA BASE
<CTRL Q> TO QUIT, <RETURN> TO CONTINUE

This type of message you will soon recognize as an old friend. It lets you—assuming all is well—proceed normally by pressing the <RETURN> key, or go back to the previous menu by pressing the <CTRL> key and Q at the same time.

3. Press <RETURN>. The disk drive will whirr and the access light will come on as **The General Manager** loads information from the disk.
4. When you see the 'BLANK FORMS CATALOG SELECTION' menu, press the right arrow key until the selection arrow points to 'ADDRESS'. 'ADDRESS' is the sample data base we will use to illustrate how **The General Manager** works.
5. Press <RETURN>. Once more, the drive light will come on, as the information from the ADDRESS Blank Form is loaded into the computer. You will then see the DATA BASE ACCESS MENU.

▶ (one drive users swap to the Sample Data Disk here)

(If you press <RETURN> while the arrow points to 'RETURN' on the CATALOG SELECTION MENU, you will go back to the previous menu, the DATA BASE MASTER MENU, but **The General Manager** will not know which data base to use.)

BROWSE

1. Press the right arrow key twice so that the selection arrow points to BROWSE/UPDATE.
2. Press <RETURN>.

3. You will now see the BROWSE/UPDATE MENU. Press the right arrow key so that the selection arrow points to 'NAME', and press <RETURN>.
4. An empty form for the NAME screen is displayed. Hold down the <CTRL> key while you press the 'G' key.

NOTE

When we want you to hold down the <CTRL> key while you press another key (like using the shift key on a typewriter), we will put the two keys in the same set of brackets like this: <CTRL G>.

If you see the letter on your screen when you tried to type a <CTRL> letter, you weren't holding the <CTRL> key when you pressed the regular key. To remove the unwanted character, type <CTRL X>, then press the left arrow key and try again.

After your data disk whirrs a bit, you will see the first record of the Data Base. You will see that the first letter of some words is shown in inverse type (black on white). This means that they are stored in the Data Base as capital letters. Unless you have a lower case adapter chip, the Apple can't show you lower case letters on the screen. **The General Manager** will highlight upper case letters so you can tell the difference. The normal (white on black) letters are stored as lower case.

5. You may view other records of names and addresses by pressing <CTRL G> to see each one.
6. When you have seen enough records, press <CTRL Q> to return to the BROWSE/UPDATE MENU.

NOTE

From any screen in Browse/Update, you may return to the menu at any time by typing <CTRL Q>.

7. To return to the DATA BASE ACCESS MENU, make sure the arrow points to 'RETURN' and press <RETURN>.

DATA ENTRY

1. With the DATA BASE ACCESS MENU on the screen, press the right arrow key so the selection arrow points to DATA ENTRY, and press <RETURN>.

2. You will see the DATA ENTRY MENU. Press the right arrow key once so that the selection arrow points to 'NAME', then press <RETURN>.
3. You will see the screen format in which field names have been entered into the ADDRESS Data Base. The cursor is blinking at the beginning of the first 'input field', LAST.NAME. There are dots in the field to show you the maximum number of characters you may enter.

NOTE

You may return to the menu at any time by typing <CTRL Q>.

4. Enter 'Smith' and press <RETURN>.

NOTE

If you make a mistake, you can use the left arrow key to move the cursor back to type over the letter that was wrong. If you want to get rid of letters to the right of the cursor, type <CTRL K>. To eliminate the whole field, type <CTRL X>.

If you have a lower case adapter chip installed, you will see both upper and lower case letters displayed on the screen, and can use the shift key just as you would on a typewriter. (Proceed to step 5.)

If you have made the shift key modification, you type the capital 'S' by holding the shift key down while typing the letter 'S', just as on a typewriter.

If you have not made the shift key modification, and you accepted the 'FIRST LETTER DEFAULT TO CAPS' option when you defined the environment, you will notice that the 'S' was automatically entered in inverse type (black on white). This means that it is a capital letter. The 'mith' will appear in normal print, indicating lower case letters.

If you do not have the shift key modification, and you typed 'N' to 'FIRST LETTER DEFAULT TO CAPS', you can make the next letter appear in upper case by typing <CTRL Z>. To enter 'Smith', for example, you would type:

<CTRL Z>Smith

When generating reports, **The General Manager** will print all the letters which appear in inverse on the screen in Upper Case type, the others in Lower Case type. (See Appendix A.)

5. When you pressed <RETURN>, the cursor moved to the beginning of FIRST.NAME. Enter 'Samuel' <RETURN>.

6. Enter 'Susan' <RETURN> for SPOUSE.
7. Enter '123 Main Street' <RETURN> for STREET. Unless you have made the shift key modification, notice that you have to use <CTRL Z> to capitalize the 'S' in 'Street'. The FIRST LETTER DEFAULT TO CAPS option only applies to the first letter typed in a field. It does, however, wait to capitalize the first **letter** when the first character in the field is a number (e.g., '123 Main').
8. Enter 'Anytown' <RETURN> for CITY.
9. Now try pressing the left arrow. Notice that the left arrow will move the cursor back to the previous field if it was placed on the beginning of a field or was in the Prompt Area at the bottom of the screen.
10. Press <RETURN>. Notice that <RETURN> moves the cursor ahead to the beginning of the next field, without changing the field where it was originally placed.
11. At ST, enter 'FL'. Note that you cannot type <RETURN>, because your entry was exactly as long as the field, and the cursor jumped automatically to the next field.
12. Try to enter a letter into the ZIP field. Notice that you can't do it. (This field was set up to accept numbers only.) Now enter '55555'.
13. Enter '1234567890' into the PHONE field. Note how the numbers are automatically placed in the correct place.
14. Enter 'Mr. and Mrs.' as MAILING.TITLE. Remember, you can get a capital letter by pressing <CTRL Z> and then pressing the letter. After you have typed the capital letter, your input will return to lower case type.
15. Enter 'Friend' for 'RELATIONSHIP'.
16. You have prepared a record for the ADDRESS Data Base. To save the data to your disk, press <CTRL G>. The disk will whirr, after which you will see another blank form.
17. If you wish to make another record, repeat the process, starting at step 4, above.

18. Press <CTRL Q> to return to the DATA ENTRY MENU.
19. Press <RETURN> to return to the DATA BASE ACCESS MENU.

UPDATE

1. From the DATA BASE ACCESS MENU, select BROWSE/UPDATE.
2. At the BROWSE/UPDATE MENU, select NAME, then press <RETURN>.
3. Press <CTRL G> to view a record.
4. The cursor is blinking in the Prompt Area (called 'TO SCREEN:') at the bottom of the screen. Press the left arrow key.
5. Now the cursor is in the Work Area, at the beginning of the last field. To update a record, you simply type over the incorrect information. Type 'Cousin' <RETURN>.
6. Now type the left arrow twice, to move the cursor up to 'MAILING.TITLE'. Each time you press the left arrow, it will move up one more field. If you press <RETURN> the cursor will move down to the beginning of the next field.
7. Type over 'Mr. & Ms.' so that it reads 'M/M'. Then type <CTRL K> to get rid of the rest of the unwanted characters.
8. When you are satisfied with your updated record, you may save it to the disk by typing <CTRL S>. The computer will beep, and you will see the message:

READY TO 'SAVE' RECORD
<CTRL Q> TO QUIT, <RETURN> TO CONTINUE

9. Press <RETURN> to confirm your wish to save the record.
10. The next record to NAME is now displayed. If you wish to make changes to this record, do so. You may continue to BROWSE among the records as described above, making corrections wherever you like. (Don't worry, these fictional folks won't mind).
11. Return to the BROWSE/UPDATE MENU by pressing <CTRL Q>.

SEARCH

1. From the BROWSE/UPDATE MENU, select NAME.
2. You could start another browse, as before, by typing <CTRL G>. This time, however, we will search for a particular record. You will notice that at the bottom of the screen, the message 'ENTER CRITERIA:' appears, along with some symbols. This means that if we enter information, it will be considered search criteria, not data.
3. Enter '= Jones' as LAST.NAME. The General Manager will look for a record where the last name is exactly equal to 'Jones'. You must enter the upper and lower case letters the same way they appear in your file, because The General Manager thinks that 'JONES', 'jones' and 'Jones' are three different names. For more information on the use of criteria in searching, see Chapters 4 and 8.
4. Now type <CTRL G>. The General Manager is searching for a Jones family.
5. After the first Jones record has been retrieved, type <CTRL G> again. The General Manager will continue to retrieve only records which meet the criteria you set at the beginning.
6. When you have seen all the 'Jones' records, you will once more see the criteria screen. You will also see the words 'END OF DATA'. This means that all the records meeting the criteria have been displayed. You may either change the criteria—you could search for 'Smith'—or remove the old criteria by typing <CTRL X> when the cursor is in the field in which you have set criteria.
7. After you have removed your criteria, type <CTRL Q> to return to the BROWSE/UPDATE MENU.
8. Press <RETURN> to return to the DATA BASE ACCESS MENU.

REPORTING

1. From the DATA BASE ACCESS MENU, press the left arrow key to move the selection arrow to the bottom of the menu, and press <RETURN> to select 'REPORTING'. The computer beeps and displays the message:

GOING TO REPORTING

<CTRL Q> TO QUIT, <RETURN> TO CONTINUE

2. Press <RETURN>. The disk drive will whirr as it loads the program.

♦ (one drive users make two disk swaps here)

3. You now see the REPORTING MENU. Use the right arrow key to move the selection arrow to 'DEFINE REPORT', and press <RETURN>.

4. You see the DEFINE REPORT MENU. Use the the right arrow key to move the selection arrow to 'SELECT FIELDS' and press <RETURN>.

5. The familiar blank form appears on the screen, with the cursor at LAST.NAME. Enter 'P'. (This means we will print this field in the report.)

6. Enter 'P' for FIRST.NAME.

7. Skip all the fields (by pressing <RETURN>) until you get to PHONE. Enter 'P' here as well.

8. Type <CTRL Q> to return to the DEFINE REPORT MENU.

9. Select 'RUN REPORT'.

10. The report will now be displayed on your screen. (To have it sent to your printer, see Chapter 6, REPORTING.)

NOTE

Because your screen is only 40 characters wide, fields printed on one line in a printed report will often appear on different lines when you look at the report on the screen.

11. Press <RETURN> to return to the DEFINE REPORT MENU.

12. Press <RETURN> to return to the REPORTING MENU.

13. Press <RETURN> to return to the DATA BASE MASTER MENU.

♦ (one drive users swap disks here)

CHAPTER 2

THE MINI-MANAGER: CREATING A DATA BASE

This chapter will show how you can use the Blank Forms Editor to create your own customized Data Base. We will illustrate a simple, useful address and telephone list; the same tools can also be used to build a more sophisticated system.

CREATE BLANK FORMS

1. From the DATA BASE MASTER MENU press the right arrow key twice so that it points to 'BLANK FORMS EDITING'.

2. Press <RETURN>. The computer beeps, and you see the message:

GOING TO BLANK FORMS EDITING
<CTRL Q> TO QUIT, <RETURN> TO CONTINUE

3. Press <RETURN>. The drive whirrs, and you see the BLANK FORMS EDIT MENU.

4. Press the right arrow twice, to point to 'MAKE NEW BLANK FORMS'.

5. If you have been using **The General Manager** for some other function then press <RETURN>. The computer will beep, and you will see the question:

READY TO ERASE OLD BLANK FORMS
<CTRL Q> TO QUIT, <RETURN> TO CONTINUE

6. Press <RETURN>. You see the BLANK FORMS CATALOG SELECTION menu. The choices available to you are 'RETURN', '***ENTER NAME***' and the Blank Forms on your Working Program/Blank Forms Disk.

7. Press the right arrow key once, to move the selection arrow to *****ENTER NAME****.
8. Press <RETURN>. You see the message:

ENTER NAME OF BLANK FORMS
<CTRL Q> TO QUIT, <CTRL S> TO SELECT
9. Type 'MAIL'. (This will be the name of the Blank Form you are making.)
10. Press <RETURN>. You now see a totally blank screen, with the cursor blinking in the upper left hand corner.
11. Press the space bar 18 times, so that the cursor is near the center of the top line.
12. Type 'MAIL', and press <RETURN>. (This will be the title at the top of your Blank Form.)
13. Press <RETURN> twice to move the cursor down two more lines.
14. Now type 'NAME'. (This will be the field name.)
15. Type <CTRL A> and then type 'V'. An inverse 'V' appears on the screen.
16. Press the space bar 25 times, to move the cursor towards the right side of the screen.
17. Type <CTRL A> and then type 'X'. (The inverse 'X' appears.) You have just entered the first field on your screen.
18. Press <RETURN> twice, to skip a line.
19. Now type 'STREET'.
20. Type <CTRL A> and then type 'V'.
21. Press the space bar 25 times. Then type <CTRL A> and then 'X'.
22. Press <RETURN> twice, to skip a line.

23. Type 'CITY'.
24. Type <CTRL A> and then 'V'.
25. Press the space bar 25 times. Then type <CTRL A> and then 'X'.
26. Press <RETURN> twice.
27. Type 'STATE'.
28. Type <CTRL A> and then 'V'.
29. Press the space bar 25 times. Then type <CTRL A> and then 'X'. Now press <RETURN> twice.
30. Type 'ZIP CODE'.
31. Type <CTRL A> and then 'V'.
32. Press the space bar 6 times. Then type <CTRL A> and then 'X'. This was the last field of your screen.

CHECK FOR ERRORS

1. Type <CTRL Q>. You see the BLANK FORMS EDIT MENU once more.
2. Press the right arrow key three times so the selection arrow points to 'CHECK FOR ERRORS'.
3. Press <RETURN>. You see a menu labelled ERROR CHECK.
4. Press the right arrow key to move the selection arrow to 'DISPLAY'.
5. Press <RETURN>. **The General Manager** performs the error check. First you will see the system parameters.
6. Press <RETURN>. You will now see the information on your screen called 'MAIL'. Then you will see your screen just as it will look. If no errors are found, you will also see 'NO ERRORS FOUND'. If an error is found, press

<RETURN> to go back to the BLANK FORMS EDIT MENU. Alternatively, see Chapter 10 for a discussion of the BLANK FORMS EDITOR.

7. Assuming there were no errors, we may proceed. Press <RETURN>. Then you see the statistics of your data base. Press <RETURN> again. Once more you see the BLANK FORMS EDIT MENU.
8. Press the left arrow to move the selection arrow to 'SAVE BLANK FORMS'.
9. Press <RETURN>. You will see the question 'USE 'MAIL'(Y/N)?Y'. Press <RETURN>. This will accept the default answer, YES. The drive whirrs as your new Blank Form is saved. You now see the FORMAT/UPDATE DATA DISK menu.
10. Press the right arrow to move the selection arrow to 'FORMAT NEW DATA DISK'. Any time new blank forms are created, **The General Manager** will require you to format a data disk before using it for data entry.
11. Press <RETURN>. You will see the message:

```
FORMATING AS VOLUME 1
INSERT NEW DISK, SLOT 6 DRIVE 2, V1
WARNING, THIS WILL ERASE DISK
```

<CTRL Q> TO QUIT, <RETURN> TO CONTINUE

12. Insert an empty disk in the drive specified. Be careful because any data on this disk will be erased.
13. Press <RETURN>. The drive will whirr again as your new Data Disk is formatted. When this is finished, you will see the FORMAT/UPDATE DATA DISK menu again.
14. Press <RETURN>. Once more, you will see the BLANK FORMS EDIT MENU.
15. Press <RETURN>. The computer will beep and display the message:

```
GOING TO MASTER MENU
<CTRL Q> TO QUIT, <RETURN> TO CONTINUE
```
16. Press <RETURN> to return to the DATA BASE MASTER MENU.

◆ (One disk users swap to Working Program/Blank Forms Disk here.)

17. You may now go to ACCESS DATA BASE, using this Blank Form and your newly formatted Data Disk, to enter some data as you did in Chapter 1. You have just created your first data base with **The General Manager**

USING THE
DATA BASE

**USING THE
DATA BASE**

SECTION II
USING THE DATA BASE

THE UNIVERSITY OF CHICAGO

PHYSICS 311

PHYSICS 311: ELECTROMAGNETISM AND OPTICS

LECTURE 1: INTRODUCTION TO ELECTROSTATICS

LECTURE 2: GAUSS'S LAW AND ELECTRIC FIELDS

LECTURE 3: POTENTIALS AND CAPACITORS

CHAPTER 3

INTRODUCTION TO USING THE DATA BASE

PROGRAM ORGANIZATION

When you were following the steps of **The Mini-Manager**, you moved through some of the menus and programs of **The General Manager** to see the things you can do with this powerful tool.

Now let's look at the program organization and how best to work with it. As you saw, the primary functions are accessible from the DATA BASE MASTER MENU, which appears when you first boot your system.

The first menu option, RETURN TO BASIC, permits you to work in Applesoft Basic and return to the program without rebooting. This is useful for performing standard DOS commands.

The second option, DEFINE ENVIRONMENT allows you to configure **The General Manager** for your specific Apple Computer system. **The General Manager** has been set up for the most popular two drive configuration, but you may use up to four floppy drives or a hard disk system. Even though you have already been through the DEFINE ENVIRONMENT process once, you will probably wish to change the environment from time to time, for example to set the date for automatic record dating.

The General Manager offers four choices to take you into the data base management programs as well as a useful set of utilities.

BLANK FORMS EDITING allows you to make new, or change old, Blank Forms. This is analogous to drawing ruled lines and entering titles on a sheet of paper in a manual system.

ACCESS DATA BASE permits you to work directly with a data base. From the general ACCESS DATA BASE function, you may choose DATA ENTRY to enter information

onto a new record, or BROWSE/UPDATE to search through your data, changing and adding information as you go along.

The following three selections on the master menu will be discussed later in the manual:

The REPORTING function lets you select and print data according to various criteria. For example, you may prepare mailing labels for only those people in your Christmas Card List Data Base who have sent you cards for the last two years. (The Sample Data Base included with **The General Manager**, ADDRESS, is an example of a card and gift list.) For user convenience, REPORTING may be accessed either from the DATA BASE MASTER MENU or from the DATA BASE ACCESS MENU.

The SORT DATA BASE function arranges selected data in a particular order to be used for REPORTING. For example, you might want to arrange and print your mailing list in zip code order.

UTILITIES provides access to a number of useful support programs, which will be discussed in Chapter 13 of this manual.

USING THE MANUAL

We have provided numbered steps for each of the functions of **The General Manager**. In this section (Section II), we have also provided an example to accompany each step. In order to become familiar with the steps, we recommend that you first read the generalized instruction in the numbered step, and then perform the keystrokes as described in the example. Later, when you are working with your own data, you may use the numbered steps to guide you.

ACCESS DATA BASE

Initial Status:

You are at the DATA BASE MASTER MENU. The commands which are currently active are:

- | | |
|----------|--|
| --> | (Right arrow) Move the selection arrow down the screen |
| <-- | (Left arrow) Move the selection arrow up the screen |
| <RETURN> | Select item to which arrow currently points |

1. Move the selection arrow to 'ACCESS DATA BASE', and press <RETURN>.

Example:

Press the right arrow key until the inverse selection arrow points to 'ACCESS DATA BASE'. Press <RETURN>

Status:

The computer will beep, and print:

GOING TO ACCESS DATA BASE
<CTRL Q> TO QUIT, <RETURN> TO CONTINUE

2. Press <RETURN>, to continue.

Example:

Press <RETURN>.

The disk drive will whirr. If the blank forms disk is not in the correct drive, you will be prompted to insert it, and press <RETURN> to continue.

Status:

BLANK FORMS CATALOG SELECTION MENU appears on the screen. You see a list of the available blank forms, as well as 'RETURN' and '**ENTER NAME**'. As you are again in Menu Select Mode, the active commands are <--, -->, and <RETURN>.

3. Move the selection arrow so that it points to the appropriate blank form, and press <RETURN>.

Each Data Base has one Blank Form associated with it. The Blank Form describes the format of all the screens in the Data Base. It is kept on the Working Program/Blank Forms Disk, separate from the Data Disk.

Example:

The first time through, press the right arrow key until the selection arrow points to 'ADDRESS' and press <RETURN>. If you have only one drive, follow any instructions to change disks as they appear on the screen. We will no longer tell you when you must change disks.

Status:

The 'DATA BASE ACCESS MENU' appears on the screen. You are in menu selection mode; the currently active commands are the left and right arrows and <RETURN>. Your data disk is in the correct drive.

DATA BASE ACCESS MENU

=> RETURN TO MASTER MENU

DATA ENTRY

BROWSE/UPDATE

SAVE/LOAD/CLEAR

REPORT REQUESTS

ACCESS ALTERNATE

STARTING VOLUME

REPORTING

USE <-,>,<RETURN>:

DATA ENTRY is used to enter new records into your data base. BROWSE/UPDATE allows you to view the existing records, updating and adding information as you go along.

SAVE/LOAD/CLEAR REPORT REQUESTS allows you to save report formats, or criteria for searching in the data base for later use.

ACCESS ALTERNATE STARTING VOLUME allows you to specify a data disk starting volume different from the one **The General Manager** expected, with the exception of a sorted volume.

REPORTING gives you the opportunity to select, format and print information from your data base.

Now let's move on to examine the ADDRESS sample data base.

CHAPTER 4

BROWSE/UPDATE

Purpose: BROWSE/UPDATE has two distinct functions, which can be used at the same time. The BROWSE function allows you to view the data as it is stored in your Data Base. The UPDATE function allows you to change the data currently stored in your Data Base, or to add new data to existing records in your Data Base. DATA ENTRY, which is used to create new records in your Data Base, is discussed in Chapter 5.

Initial Status:

Start at the 'DATA BASE ACCESS MENU', in Menu Selection Mode. (We will continue to use ADDRESS, our sample data base.)

Procedure:

1. Select 'BROWSE/UPDATE' from the DATA BASE ACCESS MENU'.

Example:

Using the left and right arrow keys, move the selection arrow to 'BROWSE/UPDATE', and press <RETURN>.

Status:

The 'BROWSE/UPDATE MENU' appears on the screen, listing the names of all the screens in the data base you are currently accessing. You are still in Menu Selection Mode.

2. Select a screen from the menu.

Example:

Move the selection arrow so that it points to 'NAME' and press <RETURN>.

You have selected one screen from the data base. You will now be able to look at the data that has been entered for this particular screen.

Status:

The selected screen is displayed. You are in Browse/Update Record Selection Mode. You are already familiar with some of the record selection commands active in Browse/Update Mode:

<CTRL Q>	Return to the 'BROWSE/UPDATE MENU'
<RETURN>	(cursor in work area) Go to next field
<RETURN>	(cursor in prompt area) Get next record
<--	(left arrow) Go back one space or field
-->	(right arrow) Go forward one space or field
<CTRL K>	Delete line from cursor to end of field
<CTRL X>	Delete all information in this field

Other useful commands which are available throughout the browse function are:

<CTRL F>	Display list of currently active commands
<CTRL P>	Send display image to printer (print the current screen contents exactly as shown)
<CTRL B>	Start next search at beginning of Data Base

ON-SCREEN HELP

At any time you are browsing, entering selection criteria, or entering data on the screens of your data base, you may obtain a list of the currently active commands by typing <CTRL F>. This display tells you what each of the <CTRL> characters will do when **The General Manager** is in the current Mode. You may look at this display without losing your place as **The General Manager** will take you back to where you were when you typed <CTRL F>.

SCREEN DUMP

The General Manager has a powerful feature which allows you to make a printed copy of the information on your display. Any time you are browsing, entering data, or entering criteria on the screens of your Data Base, you may send a copy of the display from your screen to your printer by typing <CTRL P>. Your printer doesn't have to be turned on when you boot **The General Manager**; just turn it on before you type <CTRL P> for the screen dump.

GLOBAL BROWSE

A Global Browse allows you to look at all the records of a selected screen, without regard to the parent record.

Initial Status:

You are in Browse/Update Mode. A blank screen (the first screen of your data base) is displayed.

1. Press <CTRL G>. (**Do not** press <RETURN>.)

Example:

From the 'NAME' screen in Browse/Update Mode, press <CTRL G> to view these records in 'ADDRESS'.

Status:

The first active record of the selected screen is displayed. You may view subsequent screens by typing either <CTRL G> or <RETURN>. When you have seen all the active records, the criteria screen is displayed, and the message 'END OF DATA, ENTER CRITERIA:' appears near the bottom of the display.

SCREEN CHANGE MODE

You may move from one screen to another within the data base without returning to a menu by going to Screen Change Mode.

1. Press <ESC> to enter Screen Change Mode.

Example:

Press <ESC> to enter Screen Change Mode.

Status:

You are in Screen Change Mode. The cursor is in the Prompt Area of the screen, next to the name of the screen you are currently using. In Screen Change Mode, the following commands are active:

- | | |
|----------|---|
| --> | (Right arrow): cycle forward one screen |
| <-- | (Left arrow): cycle back one screen |
| <RETURN> | Go to the screen shown next to the 'TO SCREEN:' prompt. |
| <CTRL Q> | Exit screen change mode, and return to Browse/Update mode without leaving present screen. |

2. Use left and right arrows to change the screen name written next to 'TO SCREEN:' prompt until the desired screen name appears.

The screen names appear in the same order as on the Browse/Update Menu, which is the order in which they were originally defined.

Example:

Use the arrow keys until 'CHILDREN' is displayed after the 'TO SCREEN:' prompt.

3. Press <RETURN> to select desired new screen.

Example:

Press <RETURN> to go to CHILDREN.

Status:

You are now at the new screen, in Browse/Update Mode.

4. Type <CTRL G> to view a record of the new screen.

Example:

Type <CTRL G> to see the first record of CHILDREN.

5. Type <CTRL G> or <RETURN> to view each subsequent record.

Example:

Type <CTRL G> repeatedly to view each subsequent record.

Note:

To start the browse over at the beginning of the Data Base, (instead of looking at the next record) you may press <CTRL B>.

6. Type <CTRL Q> to exit and return to the BROWSE/UPDATE MENU.

Example:

Type <CTRL Q> to return to the BROWSE/UPDATE MENU.

RESTRICTED BROWSE

You may wish to view a limited number of the records in your data base. **The General Manager** allows you to enter criteria by which to choose the records to display.

You may enter selection criteria in any number of the fields on the screen. In order for a record to be displayed, all specified criteria must be met.

Status:

You are in Browse/Update mode. The following commands are active during record selection:

<CTRL E>	Make this the last screen of criteria
<CTRL Q>	Quit the screen and return to Browse/Update menu with criteria intact
<CTRL A>	AND this criteria screen with the next one
<CTRL O>	OR this criteria screen with the next one
<CTRL C>	Display the first screen of current criteria
<CTRL G>	Go to next eligible record
<CTRL N>	Start a nested browse
<CTRL B>	Go back to beginning of Data Base
<CTRL I>	Enter Data Entry Mode
<RETURN>	(when cursor is in Prompt Area) Get next eligible record

RECORD SELECTION CRITERIA

The following criteria may be used throughout **The General Manager's** browse, data entry, reporting and sorting functions:

= {text}	Select only records with this field equal to {text}
# {text}	Not equal to {text}
< {text}	Less than {text}
> {text}	Greater than {text}
/ {text}	Starting with {text}
* {text }	Containing {text}
?	Wild card: any character can be in this position of the field.

Examples:

Entering '<10000' in the ZIP field will limit selections to records with zip codes less than 10000.

Entering '<Jones' in the LAST.NAME field will limit selections to those records where the last name precedes 'Jones' in the alphabet. (**The General Manager** sorts by the Apple ASCII sequence—see Applesoft Manual page 138.)

Entering '*AR' in a field will select records where this field contains 'STAR' or 'ARTHUR' or 'SMART', assuming these records exist.

Entering '/SM?TH' will select 'SMITH', 'SMOTH' and 'SMATH', as well as 'SMITH-ERREEN', assuming these records exist.

The following editing commands help you to move the cursor around the screen and enter the criteria:

-->	Moves the cursor one space ahead over text written in a field
<--	Moves the cursor back one space, or up to the preceding field
<RETURN>	(with cursor in the Work Area) Advance cursor one field, without disturbing entry
<CTRL X>	Erase contents of the field containing the cursor
<CTRL K>	Kill the line from the cursor to the end of the field.

Procedure:

1. Choose the screen and field(s) for the selection criteria.

Example:

From the BROWSE/UPDATE MENU, select 'NAME'. To prepare to enter criteria into the FIRST.NAME field, press <RETURN> to move the cursor to the second field of 'NAME'.

2. Enter the criteria into the appropriate field(s).

Use the cursor control commands to place the cursor at the beginning of the field into which you are entering a criterion. The left arrow will move the cursor up one field at a time, <RETURN> will move it down one field.

Example:

To select those records of the ADDRESS data base in which the first name begins with a 'B', enter '/B' at the beginning of 'FIRST.NAME'.

3. Press <CTRL G> to initiate the browse.

Example:

Press <CTRL G> to initiate the browse.

Status:

You will now be able to view those records which match your criteria. At any time, you may view or change the criteria by using <CTRL C> to bring back the criteria

screen. <CTRL C> also has the effect of starting the next search at the first record of the current screen under the current parent, or if the current screen is the root segment, to the first record of the Data Base.

Press <RETURN> to view each additional eligible record.

Example:

4. Press <RETURN> to view each additional eligible record.

Status:

When you have seen all the screens which match the criteria you have set, you will see the criteria screen again, with the message 'END OF DATA, ENTER CRITERIA:'. You may now enter new criteria, for another browse through the data on the same screen.

Unless you wish to preserve the criteria for the next time you use data from this screen or any of its children, you must remove them. With the criteria displayed (type <CTRL C> if you wish to return to the criteria screen from within a Browse), move the cursor to each field with criteria set, and press < CTRL X> to remove the criteria.

5. Remove unwanted criteria by typing <CTRL C> to return to the criteria screen and removing them from the fields with <CTRL X> or <CTRL K>.

Example:

Type <CTRL C> to return to the criteria screen. Press <RETURN> to move the cursor to FIRST.NAME. Type <CTRL X>.

6. Press <CTRL Q> to return to BROWSE/UPDATE MENU.

Example:

Press <CTRL Q>.

If you wish to preserve your criteria for future use, return to the DATA BASE ACCESS MENU, and select SAVE/LOAD/CLEAR REPORT REQUESTS. Here you may save the criteria to your working program disk, under a file name which you will choose.

Another way to remove unwanted criteria is to go from the DATA BASE ACCESS MENU to the SAVE/LOAD/CLEAR REPORT REQUESTS menu, and select CLEAR. (See Chapter 8.)

UPDATE

The UPDATE function allows you to correct information on existing records, or to enter new information on existing records. To create new records, you must use the DATA ENTRY function (see next chapter).

Initial Status:

Start in Browse/Update mode, with the record to be corrected displayed on the screen.

Procedure:

When you wish to change an entry while browsing through your records, use the cursor control commands to move to the field which you wish to correct. Then enter the correct data.

1. Use the Browse function to select the record which you wish to update.

Example:

You have just discovered that Jennifer Jones is not an old lady after all! From BROWSE/UPDATE, select 'DATES'. Enter 'Jones' as LAST.NAME. (Notice that The General Manager enters the '=' for you.) Enter '/Jenni' in FIRST.NAME. Type <CTRL G>, so that The General Manager will select the record for you.

Status:

You are now in UPDATE mode. You may update the data in the record. Currently active commands are:

<CTRL Q>	Quit Browse/Update Mode, without saving current record
<CTRL S>	Save the current record
<CTRL D>	Delete the current record
<CTRL C>	Display first screen of criteria
<CTRL G>	Get next record in Global Browse
<CTRL N>	Get next record in Nested Browse
<CTRL B>	Set browse to beginning of data base
<CTRL I>	Enter Data Entry mode

2. Place cursor on field to be changed.

Use the left arrow to move the cursor up one field at a time until it rests on the first character of the field you wish to change. Then use the right arrow to move the cursor until it rests on the first character to be changed.

Example:

Press the left arrow until the cursor rests at the beginning of the BIRTHDAY field. Then press the right arrow until the cursor rests on the first digit of the year ('0')

3. Enter the correct data.

As you type over the existing field, the old characters are replaced with the new. New information may also be entered into a field which was previously

empty. If your new entry is shorter than the previous one, type <CTRL K> at the end of the new entry to kill the unwanted leftover characters.

If you merely wish to delete an entry, type <CTRL X> when the cursor is positioned anywhere in the field.

Example:

Type in the new data: in this case, '66'.

NOTE

You may enter the current date, as provided by your clock card or as specified in your Environment, into a date field by typing <CTRL W>. If you have a clock card, you may enter the current time into a non-date field by typing <CTRL W>. (See Appendix G for a discussion of automatic date/time.)

4. Press <CTRL S> to save the update and continue the browse.

The General Manager will ask for confirmation of the update. When this is completed, the next record of your browse will appear. If you don't want to continue your browse, <CTRL Q> at any time will save your updated records and return you to the 'BROWSE/UPDATE MENU'. You may repeat the process of browsing and updating records as long as you like. To return to the criteria screen, type <CTRL C>.

Example:

Type <CTRL S> to save the record with the correct birthdate on it. Type <RETURN> to confirm the 'SAVE'.

Status:

You now see the next record which meets your criteria. If there are no more, you are returned to the criteria screen. If you wish to update more records using these criteria, repeat the process for each as it is retrieved.

5. Remove unwanted Browse criteria.

Example:

Type <CTRL X> with the cursor in the first field to remove '=Jones'. Then type <CTRL X> with the cursor in the second field to remove '/Jenni'.

6. Type <CTRL Q> to return to 'BROWSE/UPDATE MENU'.

DELETE

An entire record may be deleted from the Data Base, by typing <CTRL D> when it is displayed. The record and all its children will be deleted.

Procedure:

1. Use Browse to locate the record which you wish to delete.

Example:

Select 'NAME' from the BROWSE/UPDATE menu. Enter '= Smith' on the criteria screen. Use <CTRL Q> to locate the Samuel Smith record which you entered earlier.

2. Type <CTRL D>.

Example:

With the Samuel Smith NAME record displayed, type <CTRL D>.

3. Press <RETURN> to confirm your wish to delete the record.

Example:

Press <RETURN>.

Status:

The record is deleted, as are any children it may have had. The General Manager will proceed to browse through the Data Base searching for the next record which meets any criteria you may have set. If none are found, you will be returned to the criteria screen.

4. Remove any unwanted criteria.

Example:

Type <CTRL C> to return to the criteria screen. With the cursor in LAST.NAME, type <CTRL X> to remove the criteria '= Smith'.

5. Type <CTRL Q> if you wish to return to the BROWSE/UPDATE MENU.

Example:

Type <CTRL Q>.

In Chapter 8 we will discuss more advanced techniques, such as combining different criteria by 'ANDing' and 'ORing' two criteria screens and by including criteria on a parent and a child screen at the same time.

Exercises:

1. Browse the 'CHILDREN' screen to find out how many children Jeff and Edith Eisenhower have.
2. You received a note from the John Joneses (dated December 26, 1981, but postmarked last week) graciously thanking you for the MacDonald's gift certificates. Update the 'GIFT SENT' record.



CHAPTER 5

DATA ENTRY

DATA ENTRY is used to enter new data into the Data Base. DATA ENTRY creates new records, whereas UPDATE enters new information on existing records, or corrects old information.

Information may be entered at any level of the tree. To enter data at a level below the Root Screen, you must first establish a direct line back to the top of the tree.

As an example, please refer to Figure 9-1, which shows the hierarchical structure for our sample data base, ADDRESS. Both the Blank Form and the data itself have been furnished with **The General Manager**.

If you are interested in entering data at GIFT RECEIVED, the system will prompt you for the KEY CRITERIA for both parents, NAME and CARD. KEY CRITERIA consist of the information in the key field which uniquely identifies the parent record. In this case the key fields are LAST.NAME and YEAR, respectively. Only after you have entered this information—'Smith' and '81', for example—will the program allow you to put data into GIFT RECEIVED. If **The General Manager** did not prompt you in this manner, there would be no way to tell where your gifts belonged in the data base.

Each Data record entered is associated with a specific screen in the hierarchy. Data entered must be the kind the screen expects. That is, a zip code field will not accept a name, and a state field won't take a telephone number.

Initial Status:

Start at the 'DATA BASE ACCESS MENU', in menu selection mode.

Procedure

1. Select 'DATA ENTRY' from the menu.

Example:

Select 'DATA ENTRY' from the DATA BASE ACCESS MENU.

ENTERING INFORMATION ON A SINGLE SCREEN

Select the screen on which you wish to enter the data. In a complex data base, there may be several screens for which you must enter key criteria. Once you have made your way down the tree to the proper location for data entry, you then fill in the data in each field. When one record is complete, the data can be saved, and another blank screen is provided to enter more data under the same parent.

1. Select the screen for data input.

Example:

Select 'CARD' from the menu.

Status:

First, the root screen of the data base is displayed. If you selected an **offspring**, you will see in the Prompt Area the words 'ENTER KEY CRITERIA:' and the list of available commands. If your selected screen was the root screen, you will see the words 'ENTER DATA'. The cursor is at the beginning of the first field.

2. Select the key criteria—the information entered in the key field—for the parent records. Type <CTRL G> after the key criteria have been entered to proceed.

Example:

Enter '= Posh' as LAST.NAME. Then type <CTRL G>.

If you do not enter criteria for a screen, the program will default to the **first** record of that screen which is an offspring of the current parent.

Status:

Your desired screen is displayed, along with all data carried forward from the previous screens. The words 'ENTER DATA' appear in the prompt area. You should already be familiar with the following active commands:

<CTRL F>	Display list of active commands
<CTRL P>	Print current display (don't forget to turn printer on first!)
<RETURN>	(cursor in work area) Go to next field, without altering contents of current field
-->	(right arrow) Move cursor forward a space

<--	(left arrow) Move cursor back a space, or back a field
<CTRL Z>	Change case of next letter
<CTRL K>	Kill from cursor to end of field
<CTRL X>	Delete contents of field
<CTRL G>	Save record and display new blank form

3. Enter the data.

Example:

Enter information for your card exchange with the Posh family. (It is 1982, and you received a card for May Day. No gifts were exchanged.)

NOTE

The program checks your data to be sure it is the correct kind for the field. Some fields will accept only letters, some only numbers, some will accept any printing character. Some fields must be a certain length. For example, if you put any data into a zip code field, you must enter all five digits. All fields have a maximum length which is shown by the dots as you enter the data. When you reach the end of the field, the cursor will automatically move to the beginning of the next field.

4. Type <CTRL G> to save your new record and proceed to enter another record.

Example:

Type <CTRL G>.

To save a record, you **must** have entered data for the field which has been defined as the 'key field'. If you leave this field blank, you will see the message 'NO RECORD TO BE WRITTEN' when you attempt to move on. The key field for CARD is YEAR. Try to make another CARD record for the Posh family, but leave YEAR blank. You can't do it!

You may or may not hear the disk whirr. Sometimes **The General Manager** will store data from several records in memory before it writes them all to the disk at one time. This depends on your choice during environment definition.

Status:

The screen will again be displayed, ready for data entry. If you are working on an **offspring** screen rather than the root screen, remember that all records will be entered

under the same parent you have already selected. You may quit and return to the DATA ENTRY MENU by typing <CTRL Q>, if you wish.

ENTERING INFORMATION ON A FAMILY OF SCREENS

It is possible to move around among a family of screens which share a parent, in order to enter additional data. To do this, enter Screen Change mode by pressing <ESC>. Next to the 'TO SCREEN:' prompt will now appear the name of one of the screens to which you may move. By pressing the left or right arrows, you may cycle through all the screens available to you at the present time. To move to a different screen, press <RETURN> when that screen's name is displayed next to the 'TO SCREEN:' prompt.

1. Select the screen in which you wish to begin data entry.

You will start data entry at one screen, and will then be able to enter data for all the screens which are descended from the same parent.

Example:

Select CHILDREN from the DATA ENTRY MENU.

2. Enter key criteria for all parent screens (if any), and type <CTRL G>.

Example:

Enter 'Chi' (to find the Childless family). Type <CTRL G>.

3. Enter the data, being sure to include the information in the key field.

Example:

Enter 1 as the number of children for the Childless family. (You may have noticed that they had no children.) Now enter their first child: Bobby. When you have positioned the cursor on the BIRTHDAY field for him, type <CTRL W>. **The General Manager** automatically enters the date which was entered when your environment was last defined. (Do not type <CTRL G>, as you will not be making another CHILDREN record for this family.)

4. If there will be another record of the same screen which has the same immediate parent, save the data by pressing <CTRL G> after the data has been entered into each field.

Example:

This step is not applicable for our example.

NOTE

You may leave a field blank by pressing <RETURN> when the cursor moves to that field. You may remove existing information from the field by pressing <CTRL X> with the cursor positioned on the field.

5. At the end of the last record of this screen under the present immediate parent, press <ESC> instead of <CTRL G>.

Example:

Press <ESC>.

Status:

The computer beeps as you enter Screen Change mode. You may now view the screens available to you by pressing the right and left arrows. The screens are shown next to the 'TO SCREEN:' prompt.

6. Select the screen to which you wish to move to by typing <RETURN> when its name appears next to the 'TO SCREEN:' prompt.

Example:

Select CARD by pressing the right arrow and then <RETURN>.

Status:

You are back in Data Entry mode, with the new screen displayed. The cursor is on the first input field of the new screen.

NOTE

If you wish to enter a new 'family' of data, simply type <ESC> to save your record and enter Screen Change Mode. Select the root screen. Entering new data there will create a new family.

7. Repeat steps 3–5 until you have no more data to enter under this parent record.

Example:

Enter a congratulatory card for Bobby's birth on CARD. Then move to GIFT SENT—by pressing <ESC> to enter Screen Change Mode as soon as you have entered the data, without typing <CTRL G>—to record the baby booties you sent.

8. Type <CTRL E> to end data entry, saving all records which haven't been already saved, and return to the 'DATA ENTRY MENU'.

Example:

Type <CTRL E>

SWITCHING BETWEEN DATA ENTRY AND BROWSE/UPDATE MODES

You may leave Data Entry Mode in order to Browse among existing records, or even Update them. In addition, Browse/Update Mode often provides the easiest way to establish the proper place to add a record. In the case of parents with duplicate key fields, it provides the ONLY way.

The <CTRL B> command from Data Entry Mode puts you into Browse/Update Mode. All the parents you had established in Data Entry remain valid, for use with the <CTRL N> Nested Browse command.

1. Type <CTRL B>

Status:

You are now in Browse/Update Mode, with all the capabilities of that Mode. You may move to other screens, browse, or update any of the information in the data base. Note that if you exit Browse/Update with a <CTRL Q> at this time, you will be returned to the DATA ENTRY MENU.

2. Type <CTRL I> to return to Data Entry Mode. This instructs **The General Manager** to add a record at the current screen under the current parent record.

Status:

You have now returned to Data Entry Mode, at the same screen and parent record that you had in Browse/Update.

Example:

To add a new CHILDREN record using this alternate technique:

1. In Data Entry mode, position yourself at the NAME screen.
2. Press <CTRL B>*. You are now able to select a record, using the Browse/Update record selection criteria.

*You may get the message 'NO RECORD WRITTEN'. Press <RETURN> to continue.

3. Enter '/Sm' at LAST.NAME to search for the Smith family.

4. When the Smith record is retrieved, press <ESC> to enter screen change mode.
5. Select CHILDREN.
6. Press <CTRL I>.
7. Enter the data.
8. Press <CTRL B>*. You are returned to Browse/Update Mode with the criteria screen for CHILDREN displayed. The Smith record is still the current parent.

*Because there is a current children record for the Smith family, you will get a 'DUPLICATE RECORD' message. Press <RETURN> to save this record.

EXERCISE

Here is a sample new family which you can enter into the ADDRESS Data Base:

NAME:	Moe and Madge McGillicuddy 49 Mohair Circle Madison, WI 66666 Mr. & Mrs. Friends
DATES:	Moe - 04/07/30 Madge - 06/14/34 Anniversary - 06/06/57
CHILDREN:	1 Matilda - 11/21/61
CARD:	Xmas 1981
GIFT SENT:	A bottle of champagne, note received
GIFT RECEIVED:	A bottle of rose wine, note sent.



CHAPTER 6

REPORTING

The REPORTING function allows you to format the output of data from your Data Base. Reports may be displayed on the screen, printed by your printer, or sent as a text file to your TEXTVOL disk, usually your Working Program/Blank Forms Disk. A report may contain information from a single screen or from many screens.

A report can include subtotals and totals, as well as record counts.

Initial Status:

Enter the Reporting function from the Master Menu.

1. Select 'REPORTING'.

Example:

Select 'REPORTING'.

Status:

The Blank Forms Catalog Selection menu is displayed. You are in Menu Selection Mode. The menu choices available to you consist of the Blank Forms currently on your disk, as well as 'RETURN' and '**ENTER NAME**'.

2. Select the Blank Form which describes the data base from which you wish to make reports.

Example:

Select ADDRESS.

3. Insert your data disk as prompted, unless you have a multi-drive system and it is already in place.

Example:

If prompted by the computer, insert your data disk into the drive specified on the top line of the prompt area. Otherwise, proceed to the next step.

Status:

You will now see the 'REPORTING MENU'.

```
REPORTING MENU
=>RETURN TO MASTER MENU
  DEFINE REPORT
  SAVE/LOAD/CLEAR
    REPORT REQUESTS
  ACCESS ALTERNATE
    STARTING VOLUME
  DATA BASE ACCESS
USE <-,>,<RETURN>
```

If you have saved a previously defined report request, you may load it now: Select SAVE/LOAD/CLEAR REPORT REQUESTS, and choose LOAD from the menu. Then go directly to RUN REPORT. Or, if you have saved a report format which needs only minor changes, you may load it and proceed to make whatever changes you wish as you go through the next steps.

We will assume that you are defining a new report format.

4. Select 'DEFINE REPORT'.

Example:

Select 'DEFINE REPORT'.

Status:

You now see the 'DEFINE REPORT MENU'.

```
DEFINE REPORT MENU
=>RETURN
  SELECT RECORDS
  SELECT FIELDS
  RUN REPORT
  SET REPORT PARAMETERS
  REARRANGE FIELDS
USE <-,>,<RETURN>:
```

NOTE

We will give an example of how to set up and run a report in the next few pages. The usual sequence is as follows:

SELECT RECORDS (optional): Set criteria by which to choose which records may be accessed by this report. If omitted, all records are eligible.

SELECT FIELDS: Select the fields (from the selected records) to be included in the report.

SET REPORT PARAMETERS (optional): Set such parameters as page length and width, margins, and whether to print headings. If omitted, the default parameter settings will be used (see below).

REARRANGE FIELDS (optional): Set the line number and sequence within the line for each field to be printed. If omitted, the fields will all be printed on line 1 in the order in which they appear in the Data Base. If the line is too long, it will "wrap around" onto the next line.

RUN REPORT: Create the report itself.

5. Choose 'SELECT RECORDS'. This step is optional. If no record selection is desired, go to step 8.

Example:

Choose 'SELECT RECORDS'.

Status:

The first screen of the data base is displayed. You will now enter criteria (as you did for a restricted browse, see Chapter 1). Records which fail to meet these criteria or whose parents fail to meet meet these criteria will not be selected for your final report.

6. Enter selection criteria.

Example:

We will create a sample mailing list, limited to people who live outside New England, to illustrate the power of the reporting function.

In the ZIP field, enter >09999.

7. Type <CTRL Q> to return to DEFINE REPORT MENU.

Example:

Type <CTRL Q> to return to the DEFINE REPORT MENU.

8. Choose 'SELECT FIELDS' from the menu.

Example:

Choose 'SELECT FIELDS'.

Status:

The first screen of the data base is displayed. The following commands are active in Field Selection Mode:

<CTRL G>	Execute report immediately
<RETURN>	(with cursor in Prompt Area) Execute report immediately
<RETURN>	(with cursor in Work Area) Move to next field
<CTRL P>	Print contents of screen (screen dump)
<CTRL F>	Display HELP information
<CTRL Q>	Quit field selection
<ESC>	Enter Screen Change Mode

The following field selection codes may be inserted to tell **The General Manager** how to format the report:

P	Print this field
T	Print and total this field
B	Break field: Print this field, and, whenever it changes, print subtotals (of all 'T' fields) after it.
E	Eject Field: Print this field, and, whenever it changes, print subtotals (of all 'T' fields) after it, and start a new page.

9. In each field you wish printed, enter the appropriate code. Leave the field blank if you don't want its contents printed.

Example:

To make a mailing list or mailing labels from ADDRESS enter 'P' in LAST.NAME, FIRST.NAME, STREET, CITY, ST, and ZIP.

Important: Unless you are finished defining your report (and do not wish to rearrange the fields or set any of the parameters) do **not** type <RETURN> with the cursor in

the Prompt Area, or <CTRL G> at any time. These commands will cause the report to be executed immediately.

10. If you wish fields from any other screens to be included in this report, type <ESC> to enter Screen Change Mode, and select the desired screen. Enter field selection codes. Repeat until you have selected all the fields you wish printed in the report.

Example:

In our example, we'll only be using information from 'NAME', so you may go on to the next step.

11. Type <CTRL Q> to exit Field Selection Mode.

Example:

Type <CTRL Q> to return to the DEFINE REPORT MENU.

Status:

You are in Menu Selection Mode, at the DEFINE REPORT MENU.

12. Select 'SET REPORT PARAMETERS'. (Optional: If skipped, go to item 14.)

Example:

Choose 'SET REPORT PARAMETERS' from the DEFINE REPORT MENU.

Status:

You are starting to answer the Report Parameter questions. Currently active commands:

<RETURN>	Accept default as printed
<--	(Left arrow) Backspace, or toggle Y/N
-->	(Right arrow) Forward a space, or toggle Y/N.

The defaults specified here are those you will see when you first enter SET REPORT PARAMETERS, unless you have already loaded a REPORT REQUEST. After you have set your parameters or loaded a report format, your selections will remain unchanged, and will appear as the defaults, until you specifically change each one, or leave the REPORTING function.

NOTE

You can't back up to a previous question. You must complete all of them and start again to correct an entry.

The following parameters may be set:

Output to: Output can be sent to your printer for a 'hard copy' report, to your display so that you can review the information, or to the disk in standard Apple DOS 3.3 text file form. Each record in the text file will be terminated by the delimiter specified when you defined the environment (Appendix A), so that you can use it with such products as Screen Writer][for form letters, invoices, etc.

Print Headings (Printer only): If 'Y', the program will print column titles. These may be the field labels from the Blank Form or alternate column headings specified in 'REAR-RANGE FIELDS'. (Default: Y)

Trailing Spaces (Printer only): If trailing spaces are not printed, the field as printed will only consist of the data in the data base. If trailing spaces are printed, the field will be filled with spaces up to its maximum length. (Default: Y) This parameter can only be set to 'N' if headings are not being printed.

Report Title (Printer only): Title for the whole report. (Default: Name of Blank Forms)

Starting Page Number (Printer only): Self-explanatory. If no page numbers desired, enter 0. (Default: 1)

Page Width (Printer only): Maximum print width desired, in spaces. (Default: 80)

Lines Per Page (Printer only): Physical size of the page, in lines. Standard paper is usually 66 lines long. (Default: as set in Define Environment)

Bottom Margin (Printer only): Absolute position of bottom margin on page, in lines. (On a standard page, values usually range between 55 and 62.) (Default: 6 less than number of lines per page)

Left Margin (Printer only): Absolute position of left margin, in spaces. (Default: 1)

Summary Only: If 'Y', will print Headings, Totals and Record Counts only, and will not print the body of the report. (Default: N)

Record Counts: If 'Y', will print the total number of records used in the report, as well as the number of records between break fields. (Default: Y)

NOTE

Not all parameters are requested for some report formats.

13. Go through the Report Parameter questions, answering each one or typing <RETURN> to accept the default as displayed.

Example:

For your mailing labels:

1. Select 'PRINTER' for 'OUTPUT TO'
2. Enter 'N' for 'PRINT HEADINGS?'
3. Enter 'N' for 'PRINT TRAILING SPACES?'
4. Enter '30' for 'ENTER PAGE WIDTH'.
5. Enter '6' for 'LINES PER PAGE'.
6. Enter '3' for 'BOTTOM MARGIN'.
7. Enter '1' for 'LEFT MARGIN'.
8. Enter 'N' for 'SUMMARY ONLY?'
9. Enter 'N' for 'PRINT RECORD COUNTS?'

Status:

You are at the DEFINE REPORT MENU in Menu Selection Mode.

14. Select 'REARRANGE FIELDS'.

Example:

Select 'REARRANGE FIELDS'.

Status:

The fields which you selected for the report are displayed on the screen, with a table showing how the page will be formatted. The following information is included in the table:

Heading:	Column Heading. (Default: the name of the field to be printed in this column.) You have the option of specifying an alternate column heading, if you do not wish the column to be headed by the field label. The column heading will be printed centered on the maximum length of the field as defined in the Blank Forms. This length corresponds to the number of dots which appear in the field during Data Entry.
Line:	Line number on which the item will be printed. (Default: line 1)
Pos:	Position of item on line (sequence). (Default: next position on line.)

LDSP: Number of leading spaces to print before this field (Default: 1).

Typ: Type of field: P=Print only, T=Print and total, B=Print and Break, E=Print, Break and start new page.

You are in Menu Selection Mode. If you wish to change any of the information in this table for any of your selected fields, you will select the appropriate field, and respond to the questions.

NOTE:

If there are more fields than will fit on the screen at one time, you may stop the scrolling and work on the currently displayed section of the menu by typing <CTRL Q>. Alternatively, you may stop or start the scrolling by typing <RETURN>. When the scrolling menu has been stopped, you may bring the arrow to the current section of the menu by typing <CTRL Q>.

15. Rearrange fields as desired.

NOTE:

The order of the fields as they are shown in the table will change as you rearrange them, so that they appear in the current printing order. If you supply an alternate column heading, that heading will replace the field name in the table.

Example:

To rearrange the fields for our ADDRESS mailing labels, select the LAST.NAME field, and set the line number to 1, the position to 2, and leading spaces to 1. Similarly, FIRST.NAME should be on line 1, at position 1, with 0 leading space. Rearrange the rest of the fields so that the table looks like this:

	LINE	POS	LDSP	TYP
=> RETURN				
FIRST.NAME	1	1	0	P
LAST.NAME	1	2	1	P
STREET	2	1	0	P
CITY	3	1	0	P
ST	3	2	1	P
ZIP	3	3	1	P

This will produce a mailing label like this:

Firstname Lastname
Street
City State Zip

16. Select 'RETURN' from the REARRANGE FIELDS screen.

Example:

Select 'RETURN'.

Status:

You are in Menu Selection Mode, at the DEFINE REPORT MENU.

17. Turn your printer on, and load the paper or mailing labels you will be using for the report. Set the paper so that the print head is at the position where you want the first printed line to appear.

Example:

Ready your printer for the report.

18. Select 'RUN REPORT' from the DEFINE REPORT MENU.

Example:

Select 'RUN REPORT'.

Status:

There will be a pause while **The General Manager** gets ready to write the report. The screen is blank (unless you have selected Output to DISPLAY), except for the message:

<CTRL Q> TO QUIT, <RETURN> TO STOP/START

NOTE

If you are sending your output to the display, and you see what appears to be total nonsense on the screen, it may mean that you have lower case letters in your data base, and answered 'NO' to 'ALLOW LOWER CASE LETTERS?' when you defined the Environment.

Do not press <RETURN> until the report is actually being written. Once **The General Manager** has started to write the report, you may stop it and start it again by pressing <RETURN>. <CTRL Q> will terminate the report and return you to the DEFINE

REPORT MENU. When the report is finished, you will be returned to the DEFINE REPORT MENU.

19. Press <RETURN> to return to the REPORTING MENU.

Example:

Press <RETURN>.

20. If you wish to save your report, or if you want to print another report with a different format, select 'SAVE/LOAD/CLEAR REPORT REQUESTS'. Otherwise, skip to step 24.

Example:

Select 'SAVE/LOAD/CLEAR REPORT REQUESTS'.

Status:

You are in Menu Selection Mode at the 'REPORT/QUERY REQUESTS' menu. You may choose to clear all the selection criteria, field selection data and report parameters, or you may save them on your Blank Forms disk for future reference. The same menu is also used for loading formats from disk.

21. Select 'SAVE', if you wish to save the format.

Example:

Select 'SAVE'. Select '**ENTER NAME**' from SELECTION FILE CATALOG SELECTION MENU. Type 'MAILING LIST' as the name for the report format.

Do not choose the name of an existing file unless you want to overwrite the old file. If you decide you wish to use one of the existing names after all, <CTRL S> will return you to the selection file menu.

Status:

Your format has been saved to your Blank Forms Disk.

22. Select 'CLEAR', if you wish to start a new report format.

NOTE

All selection criteria and report parameters will be automatically cleared when you return from the REPORTING MENU to the DATA BASE MASTER MENU.

23. Select 'RETURN' to go back to REPORTING MENU.

Example:

Select 'RETURN'.

24. Select 'RETURN TO MASTER MENU.'

Example:

Select 'RETURN TO MASTER MENU.'

EXERCISE

Run a report which will print out the gifts sent to each family by year, including subtotals by year and by family.

Hint: In SELECT RECORDS, go to CARD to enter 'Y' at GIFTS.EXCHANGED. Then in SELECT FIELDS, on the GIFT.SENT screen, enter 'B' in the field that contains the last name. 'B' for YEAR, 'P' for GIFT and 'T' for COST. When you SET REPORT PARAMETERS, accept all default values except set 'PRINT RECORD COUNTS' to 'N'.



CHAPTER 7

SORT DATA BASE

All reports will be sorted automatically, in the order of the keys which were defined when the Blank Form was created. However, if you want your report sorted in a different order it will be necessary to use the SORT DATA BASE function.

SORTING creates a file which cannot be updated or added to, except to append additional sorted data. It can only be used for **REPORTING**. Reports from this file will be printed in the new sorted order.

Initial Status:

Start at the **DATA BASE MASTER MENU** in Menu Selection Mode.

1. Select 'SORT DATA BASE' from the **DATA BASE MASTER MENU**.

Example:

Move the selection arrow to 'SORT DATA BASE' and press <RETURN>.

Status:

The General Manager asks you to select or confirm the name of the Data Base you wish to sort. If you have already selected a Blank Form during this session, the default is the Blank Form you have most recently selected. Otherwise, you will see the **CATALOG SELECTION** menu, from which you may select.

2. Select or confirm the Blank Form to use for this sorting operation.

Example:

If 'ADDRESS' is the default, press <RETURN>. Otherwise, select 'ADDRESS' from the menu.

Status:

You will be asked for the INPUT VOLUME NUMBER. This refers to the data disk you wish to sort. The default is the first volume of your chosen data base.

3. Type <RETURN> to accept the default INPUT VOLUME NUMBER, or change the input volume number if you wish to sort a different volume.

Example:

Press <RETURN> to accept the default Volume 1.

Status:

You are in Menu Selection Mode at the SORT DATA BASE MENU.

SORT DATA BASE

=>RETURN TO MASTER MENU

RUN SORT

LOAD CRITERIA

USE <-,>,<RETURN>:

NOTE

LOAD CRITERIA refers to loading a pre-defined report format (which you saved after using the REPORTING function) which may include selection criteria for those of the records in the data base to be included. If you LOAD CRITERIA, you may choose to limit the sort to those records and fields which were specified in the report format as fields to be printed.

The more fields selected for the sort, the longer the sort will take.

If you do not load any criteria, the sorted output file will include all the fields from all the records which contain fields selected as sort keys.

4. If desired, select 'LOAD CRITERIA'. If omitted, proceed to step 7.

Example:

For our example, let's not specify criteria. Proceed to step 7.

Status:

You are in Menu Selection Mode at the SELECTION FILE CATALOG SELECTION MENU. You will see a list of the report formats (if any) available to you, as well as 'RETURN' and '**ENTER NAME**'.

5. Select report format desired for sort criteria.

Status:

You are in Menu Selection Mode, responding to the question:

```
DO YOU WANT
=>ONLY THOSE SELECTED WITH 'P, B/E OR T'
ALL FIELDS
USE <-,>,<RETURN>
```

As you can only use the final sorted file to print a sorted report, you will usually select the first option.

6. Type <RETURN> to select the first option.

Status:

You are in Menu Selection Mode at the 'SORT DATA BASE MENU'. Your criteria have been loaded.

7. Select 'RUN SORT'.

Example:

Move the selection arrow to 'RUN SORT' and press <RETURN>.

Status:

You are asked whether you wish to add data to an already existing sorted file. This would allow you to append this data to previously sorted data.

8. Press <RETURN> to accept the default 'N', unless you wish to append the data from this sort to another sorted file.

Example:

Press <RETURN>.

Status:

You are at the Sort Key Selection Screen. You can now enter the keys on which to sort the data.

On the Sort Key Selection Screen you will enter the screen number, and the field number within the screen, of each key field, as well as an optional letter to say whether the items should be sorted in ascending order ('Smith' is listed after 'Jones'), or descending order ('Jones' follows 'Smith'). The default for ascending/descending is A: ascending.

Because of the hierarchical nature of the data base, all sort keys must be on screens lying on a direct line from the current screen back to the root screen.

The format for entering a key is S.FO where S=Screen Number, F=Field Number within screen S, and O is the optional Order ('A' or 'D'). A sample entry appears on the screen.

9. To specify the sort key, enter the screen number, field number and order (optional), for each of the fields you would like sorted.

Example:

Type '1.7' to select the ZIP field.

Status:

You are shown the label of the field you selected and asked to confirm your choice. You may type <RETURN> to accept the default 'Y', or enter 'N' and <RETURN> to re-enter the sort key information.

10. Press <RETURN> to accept the default 'Y'.

Example:

Press <RETURN>.

Status:

You may continue entering sort keys either until there are up to 15 sort keys, or until the sort key information occupies up to 100 bytes. You may type <CTRL B> to start over, <CTRL G> to do the sort, or <CTRL Q> to quit.

11. Repeat steps 9 and 10 until you have specified all the sort keys you wish.

NOTE

The more sort keys that are specified, the longer the sort will take. If the data base is large, this could take several minutes.

Example:

For this example we won't enter any more keys.

12. Enter <CTRL G> to exit the Key Selection Screen and proceed.

Example:

Type <CTRL G>.

Status:

You are asked for your desired starting volume number for output. You must select a different volume number from that of any of your original data disks.

13. Type <RETURN> to accept the default STARTING VOLUME NUMBER for your OUTPUT disk, or enter your desired starting output volume number (which must be different from any of your input volume numbers).

Example:

Press <RETURN>.

14. (Hard Disk users only): Type <RETURN> to accept the default ENDING VOLUME NUMBER for your output disk, or enter desired ending volume number.

Example:

(Hard Disk users only): Enter your ending volume number.

Status:

A review screen summarizes your choices. You can accept the choices as printed, or you can return to the SORT DATA BASE MENU to re-enter volume numbers and keys. 'Y' accepts, 'N' rejects. (<RETURN> enters whichever answer is displayed, the left and right arrows toggle the 'Y' and 'N'.)

15. If the information displayed is correct, enter 'Y'.

Example:

Press <RETURN> to accept the default, 'Y'.

Status:

If the specified output volume disk is not in the appropriate drive, you will be requested to place it in the drive, and given the option of formatting a new disk.

16. Follow disk handling instructions, if any, and type 'F' if you need to format a new data disk, and press <RETURN> to confirm. If your new data disk is already formatted, just type <RETURN>.

Example:

Follow the instructions on the first and second lines of the Prompt Area, to place your input and output disks in the correct drive(s). Remember that the first line tells you where to place the disk, and the second line tells you which disk to place there. Be sure you use a new (empty) disk for your output disk. Type 'F' to format the output disk, and <RETURN> to confirm your wish to format.

Status:

The sort will begin immediately (as soon as the formatting is done, if needed). Statistics of your sort will be displayed while it is in process. The sorted file is being written to the output disk.

While the sort is in process, you may stop and start it by pressing <RETURN>. If you type <CTRL Q>, the sort will end, and statistics of the partially completed sort will be displayed. The output file of an aborted sort will contain the selected records from the first part of the input file, in the sorted order.

You will notice that the statistics indicate that only the records which contain sort keys are included in the sorted file. In our example, only the records from the NAME screen were sorted and written to the new file.

17. When the sort is finished, type <RETURN>.

Example:

Press <RETURN>.

Status:

You will probably be prompted to insert your program disk. You will then see the DATA BASE MASTER MENU. You may now select 'REPORTING' to print out your sorted file.

18. Select 'REPORTING'.

Example:

Move the selection arrow to 'REPORTING' and press <RETURN>.

19. Select 'ACCESS ALTERNATE STARTING VOLUME'.

Example:

Move the selection arrow to 'ACCESS ALTERNATE STARTING VOLUME' and press <RETURN>.

Status:

This is necessary because your sorted file has a different volume number from your original Data Base.

20. Enter the volume number of your sorted file, and confirm your selection.

Example:

Type '2' and press <RETURN>. Then press <RETURN> again to confirm that your new starting volume is 2.

21. Follow disk handling instructions (if any), and return to the REPORTING MENU.

Example:

Place the disk containing the sorted file in the drive indicated and press <RETURN>.

22. If you used a report format in making the sorted file, and you wish to use the same format in printing your report, you may select SAVE/LOAD/CLEAR REPORT REQUESTS, LOAD your format, and then go to DEFINE REPORT and select 'RUN REPORT', without any further report definition.

Example:

This step is not applicable for our example.

23. Follow the instructions in REPORTING to create your report.

Example:

Go to Chapter 6, step 4 to print the report. Your report will be printed in the new sorted order.

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CHAPTER 8

WRAP-UP

CRITERIA

Criteria Screens: There is a criteria screen associated with each screen in your Data Base. This is the screen displayed when you first enter Browse/Update Mode. Until you enter criteria on the screen, the screen is blank. Once you have entered criteria, **The General Manager** will only search for screens which meet those criteria. To view the first screen of criteria for any screen, type <CTRL C> when that screen is displayed.

These criteria are used to search for records in **The General Manager's** browse, sorting and reporting functions. Record selection is limited to those which meet the criteria.

The search criteria in **The General Manager** can be combined in very sophisticated ways to retrieve very specific information. There are two main ways to combine criteria:

Enter Criteria in More Than One Field

Criteria can be entered in more than one field—either on a single screen, or on more than one screen. All criteria must be met for a record to be selected, unless the criteria are on screens which have been 'ORed' together.

The fastest search will take place when each criterion is as close to the root screen as possible. This is because a search always starts at the root segment, and moves down the hierarchical structure to the target screen. If the data 'family' is rejected early in the process, **The General Manager** then can go on to the next root segment without examining any of the subsequent screens.

Example:

To find out which Joneses sent us Christmas cards before 1980:

1. Enter '= Jones' as a criterion on NAME, in LAST.NAME.

2. Press <ESC> to enter Screen Change Mode.
3. Select CARD, by using the right arrow and <RETURN>.
4. Press <RETURN> to move the cursor to the YEAR field. Enter '<80'. The cursor automatically moves to the next field. Type '/C' (begins with 'C').
5. Type <CTRL G> to initiate the search.

Example:

Let's find out whether we ever exchanged gifts with any of the Joneses.

1. Leave '= Jones' on the NAME screen.
2. Remove the YEAR and OCCASION criteria from CARD, using <CTRL X> to clear an entire line.
3. Enter '= Y' at GIFTS.EXCHANGED.
4. Type <CTRL G> to initiate the browse.

In the same manner, multiple search criteria from multiple screens can be applied simultaneously. Only those records which meet all the criteria will be selected.

All existing criteria can be removed by selecting SAVE/LOAD/CLEAR REPORT REQUESTS at the DATA BASE ACCESS MENU, and selecting the CLEAR function. The same criteria can be used for searches, sorts or reports, which is why they share this SAVE/LOAD/CLEAR menu. You may also save criteria for future use, by selecting SAVE. To enter previously saved criteria, select LOAD from this menu.

Combine Two or More Criteria from the Same Screen

Two or more criteria from the same field may be combined by 'ANDing' or 'ORing' criteria screens. This enables you to make such criteria as 'greater than 10 and less than or equal to 50'.

Example:

To find all the names in our ADDRESS data base which start with letters from J through R (inclusive):

1. Enter '>J' on the NAME screen in the LAST.NAME field. Press <CTRL A> to **AND** this criteria screen with the next.
2. Enter '<S' in the LAST.NAME field.
3. Type <CTRL G>.
4. To find the next eligible record, press <RETURN>. The criteria (however complicated) will remain in place until specifically removed, either at the field itself on the Criteria Screen, or by clearing from the SAVE/LOAD/CLEAR REPORT REQUESTS menu.

ANDed and **ORed** screens can be used simultaneously.

Example:

The above example only provided the names through 'R.' To include all the 'S' names through 'Smith', try the following:

1. Enter '<Smith' as a criterion for LAST.NAME. Press <CTRL O> to **OR** this screen with the next.
2. Enter '= Smith'. Press <CTRL A> to **AND** the combined criteria with the next screen.
3. Enter '>J'. (Don't forget to capitalize it.) Now start your browse with a <CTRL G>.

The total number of bytes in a logical **ANDing** and **ORing** combination cannot exceed 250 for each field.

These two logical combinations of criteria can be used simultaneously. You may not, however, enter Screen Change Mode to **OR** criteria from two different screens of your Data Base. The criteria from different screens are automatically **ANDed**, just as criteria in two fields of the same criteria screen are **ANDed**.

Example:

You could add criteria on other screens to be combined with the '>J' and '< = SMITH' criteria you developed above.

Without clearing the above criteria, press <ESC> to enter Screen Change Mode. Select CHILDREN. On the CHILDREN criteria screen, enter '>2' in NUMBER.OF.CHILDREN.

Press <CTRL G> to search for people after 'J' and <= 'Smith' in the alphabet who have more than two children.

Here is a list of the available criteria:

=	Equal to (this is the default if no other criterion is entered before the first letter or number)
#	Not equal to
<	Less than
>	Greater than
/	Starts with
*	Contains (anywhere in the field)
?	Any symbol valid in this position (wild card character)

To test a field for null (no data) use '='<RETURN> as the criterion in that field.

In entering complex **AND** and **OR** combinations, you should write out an equation to show how **The General Manager** will determine the order of logical operations. If you are familiar with the use of parentheses in constructing mathematical equations, this is a way to predict how **The General Manager** will interpret your sequence of criteria screens.

Write your criteria in equation form:

Start your equation with 'IF ('

An **OR** has no effect on parentheses

An **AND** closes one set of parentheses and opens the next

End your equation with ') **THEN SELECT THE RECORD**'

Example:

Screen A: LAST.NAME = Jones

Screen B: LAST.NAME <G

Screen C: PHONE /209

Screen D: ZIP <50000

1. Select the 'NAME' screen.
2. In record selection mode, enter 'Jones' at LAST.NAME.
3. Press <CTRL O> to **OR** this screen with the next. The criteria screen will appear again.
4. Enter '<G' in LAST.NAME field.
5. Press <CTRL A> to **AND** this screen with the next.
6. Now enter '/209' in the PHONE field.
7. Press <CTRL O> to **OR** this screen with the next.
8. Now enter '<50000' in the ZIP field.
9. Then press <CTRL G> to initiate the search.

Equation:

```
IF ([LAST.NAME = Jones] OR [LAST.NAME <G])
AND ([PHONE /209] OR [ZIP <50000])
THEN SELECT THE RECORD
```

This will select all records with last name = 'Jones' or last name before 'G' in the alphabet, which also have telephone area codes of 209 or zip code less than 50000.

Example:

Enter the same criteria screens with a different sequence of <CTRL O>'s and <CTRL A>'s:

Screen A: LAST.NAME = Jones
AND <CTRL A>
Screen B: LAST.NAME <G
OR <CTRL O>
Screen C: PHONE /209
AND <CTRL A>
Screen D: ZIP <50000
<CTRL G>

Equation:

IF ([LAST.NAME = Jones])
AND ([LAST.NAME <G] **OR** [PHONE /209])
AND ([ZIP <50000])
THEN SELECT THE RECORD

This will select records where the last name is 'Jones', **AND** the last name is before G **OR** the area code is 209, and the zip code is less than 50000. Since 'Jones' is not before G, this means it will only select Joneses with area code 209 **AND** zip code <50000.

Example:

Here's another group of criteria screens:

Screen A: ZIP = 10001
OR <CTRL O>
Screen B: ZIP = 93333
OR <CTRL O>
Screen C: ZIP = 97501
AND <CTRL A>
Screen D: RELATIONSHIP/Business
<CTRL G>

Equation:

IF ([ZIP = 10001] **OR** [ZIP = 93333] **OR** [ZIP = 97501])
AND ([RELATIONSHIP/Business])
THEN SELECT THE RECORD

This will select the records of those Business acquaintances whose zip codes are one of the three specified.

If you wish to view your sequence of criteria screens, type <CTRL C> as usual to see the first screen. You will then see either '**AND**' or '**OR**' in the TO SCREEN position. To see the next criteria screen, type either <CTRL A> or <CTRL O>, as appropriate. When the last criteria screen is displayed, there will be no '**AND**' or '**OR**' shown.

If you wish to 'truncate' your equation of criteria screens, type <CTRL E> when the last screen you wish to remain in the equation is displayed. This has the effect of removing any **AND**ed or **OR**ed screens which followed. Be sure to update your equation, too!

Command summary:

<CTRL O>	OR this criteria screen with the next
<CTRL A>	AND this criteria screen with the next
<CTRL E>	Remove any criteria screens AND ed or OR ed after this one

NESTED BROWSE

This is another way to restrict the data retrieved during a browse. A Nested Browse will retrieve only the data which is stored under the record currently displayed.

Initial Status:

Start in Browse/Update mode, with the desired parent record displayed. The Browse/Update commands listed above are still active, including the following:.

<CTRL I>	Go to Data Entry Mode to enter another record at this screen under this parent
<CTRL N>	Start a nested browse

Procedure:

1. Select the parent record.

Example:

Browse through the NAME screen of ADDRESS to find the record for the Eisenhower family. We will use a nested browse to explore the children of this parent record.

2. Type <ESC> to enter Screen Change Mode.

Example:

Press <ESC>.

The record which appears on the screen when you enter Screen Change Mode will be the parent for the subsequent nested browse.

3. Select the Screen to which you wish to move, by using arrows and <RETURN>.

Example:

Use the arrows and <RETURN> to select CARD.

4. Type <CTRL N> to begin a nested browse.

Example:

Press <CTRL N> to start a nested browse. You will see the first 'CARD' screen which is associated with the 'Eisenhower' NAME record. Press <CTRL N> again. Additional records of CARD will appear until the empty screen—accompanied by the words END OF DATA: ENTER CRITERIA—indicates that you have seen all the 'CARD' screens for this particular NAME record.

Status:

If there are any records for this screen which are children of the parent record, the one displayed on the screen when you typed <ESC>, the first such child record will now be displayed.

5. Type <CTRL N> to view each successive eligible record. Remember that only records which are children of the parent record will be retrieved.
6. The process may be repeated by using <ESC> to select a new screen, and then using one of the records retrieved by the nested browse as the new parent.

Example:

Use <CTRL N> repeatedly to select one of the records of CARD to explore more fully. Choose a year in which gifts were exchanged, which will have a 'Y' in the last field. Then press <ESC> again, and use the arrows to bring up GIFT SENT.

Now select GIFT SENT, by pressing <RETURN>, and type <CTRL N> to see the first screen of GIFT SENT. Because this is a nested browse, you will only see those gifts which were sent to the Eisenhower family in the year specified in the CARD record which was displayed when you pressed <ESC>.

Additional <CTRL N> commands will allow you to view the rest of the gifts sent to the Eisenhower family in this particular year.

When you have seen all the GIFT SENT screens, you may proceed to GIFT RECEIVED by typing <ESC> to enter Screen Change Mode and selecting GIFT RECEIVED.

<CTRL N> will now display the first screen of gifts received from the Eisenhowers in your chosen year.

When you have seen all the gifts, you may find out more about this family by selecting DATES or CHILDREN from Screen Change Mode.

You have now seen all the data available for the Eisenhowers. To move on to another family, you merely select NAME from Screen Change Mode. You can continue your global browse as before.

You don't have to view **all** the data in a nested browse; this was merely an illustration of how the hierarchical structure can work.

You may specify criteria for a Nested Browse, as for any other. Each time you select a new screen, and are shown the Criteria Screen, you may enter criteria. <CTRL C> will always display the first criteria screen of the current record.

VOLUME NUMBERS

The General Manager uses the Volume Number of each disk to make sure the correct one is in the drive. Each disk of a Data Base must be assigned a different volume number. You may specify the first volume number (STARTVOL) for the Data Base when you create the Blank Forms. **The General Manager** will provide default volume numbers when data disks are formatted, whether for a new Data Base, for expansion of an existing Data Base, or for the output of a sort or reorganize. For most floppy-disk users, the default volume numbers will be acceptable. You may create a data disk with a different volume number by selecting 'FORMAT DATA DISK' from the UTILITIES menu.

If you have specified ENDVOL (ENDDRIVE, for Santa Clara users) in the SYSTEM HEADER of the Blank Forms, **The General Manager** will warn you when you are getting near the end of the last volume. (The warning appears when you are writing to the last track of ENDVOL.)

If the volume number expected by **The General Manager** does not match the volume number of the data disk you wish to access, select 'ACCESS ALTERNATE STARTING VOLUME' from the DATA BASE ACCESS MENU.

The Working Program/Blank Forms Disk has a volume number of 253. If you wish to make a separate Blank Forms Disk, you should change the volume number for your Blank Forms Disk when you define the Environment. Then initialize a Blank Forms Disk using the new volume number.

UTILITIES

There are several utilities on your program disk which are valuable for maintaining your data base. The detailed instructions for using these programs can be found in Chapter 13, but we'll include a brief description of their use in your regular operations here.

There are two utility programs for disk preparation. One formats a new data disk, for starting a new data base. The other initializes a new blank forms disk. This could be useful if you have so many blank forms and report requests that your original Working Program/Blank Forms Disk has become filled up. You might wish to have a particular Blank Forms Disk which contains the Blank Forms and the Report Requests for each of your different data bases.

BACKUP/RESTORE DATA BASE allows you to copy your data disk very rapidly for backup purposes. If an accident happens, you can restore the data base by copying the data back from the backup disk. Frequent backups can avert major disasters.

The General Manager does not erase deleted records, nor does it correct updated records. Instead, the program writes new records with the new or updated information, and marks the old record as 'dead'. REORGANIZE removes all the dead records from your data base, thereby compacting the data. After reorganization, **The General Manager** can access data more rapidly.

The General Manager shows you the statistics describing your current data disk. You can see the number of dead records and how much space the whole file takes on your disk. When the number of dead records grows large, data access becomes inefficient and slow, and it is time to Reorganize.

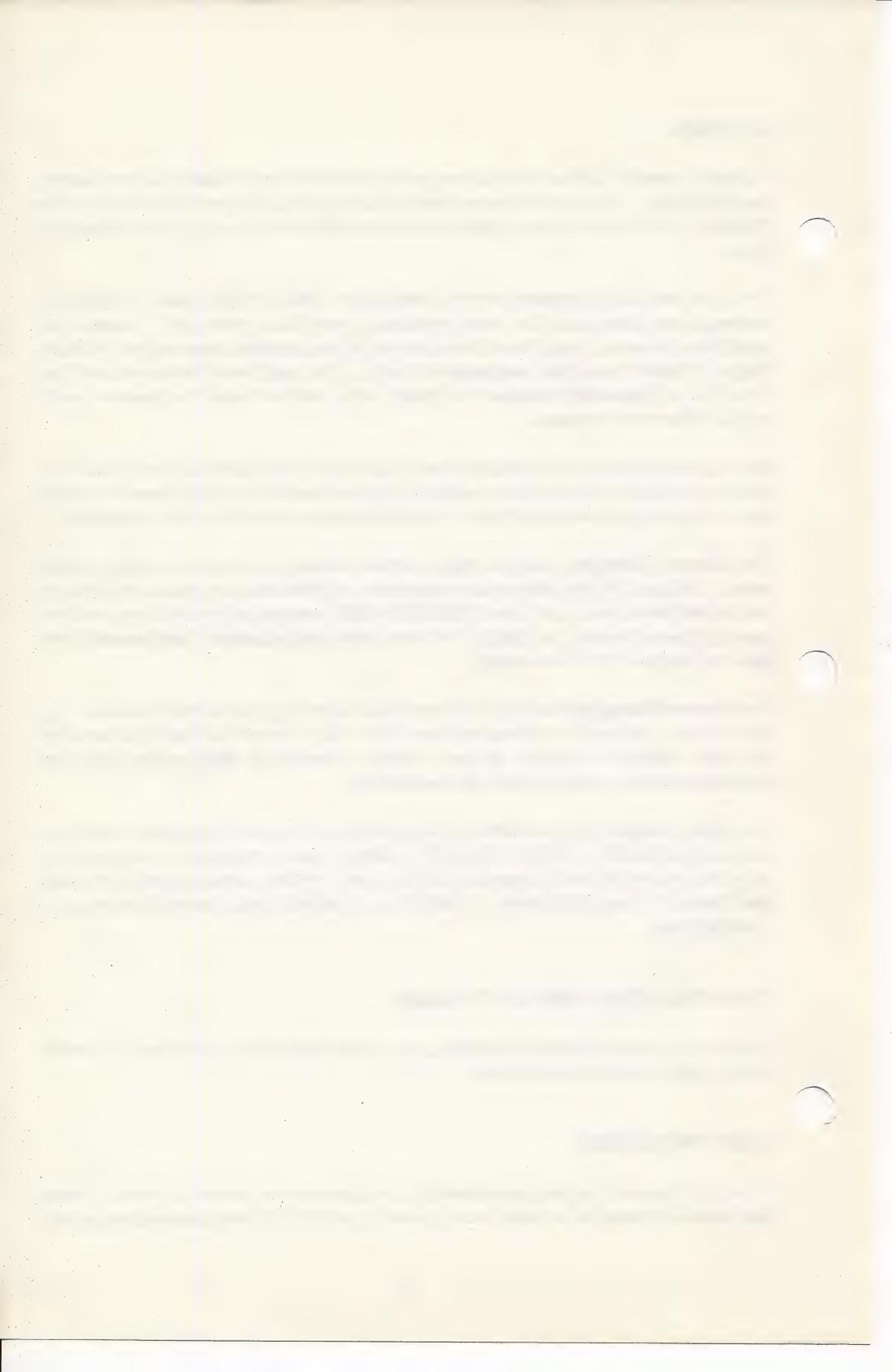
For global changes which will affect a large number of records in your data base, you can use the GLOBAL UPDATE/DELETE utility. If you keep data for one year, for example, you might wish to remove all the data from two years ago when the new year begins. Or you might wish to mark all accounts with balances outstanding as of a certain date.

CREATING YOUR OWN DATA BASE

In Section III, we will discuss designing your own data base, and show you how to make or edit your own blank forms.

USER PROGRAMS

In Section V we will discuss ways in which a programmer may write programs to make **The General Manager** an even more powerful tool for your data base management.



**CREATING THE
DATA BASE**

CREATING THE
DATA BASE

SECTION III
CREATING THE DATA BASE

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CHAPTER 9

HIERARCHICAL DATA STRUCTURES

In Section 2, you learned how to access an existing data base. We showed you how to put data in, change it, sort it, and take it out. In this section, we will teach you how to create and modify your own information system.

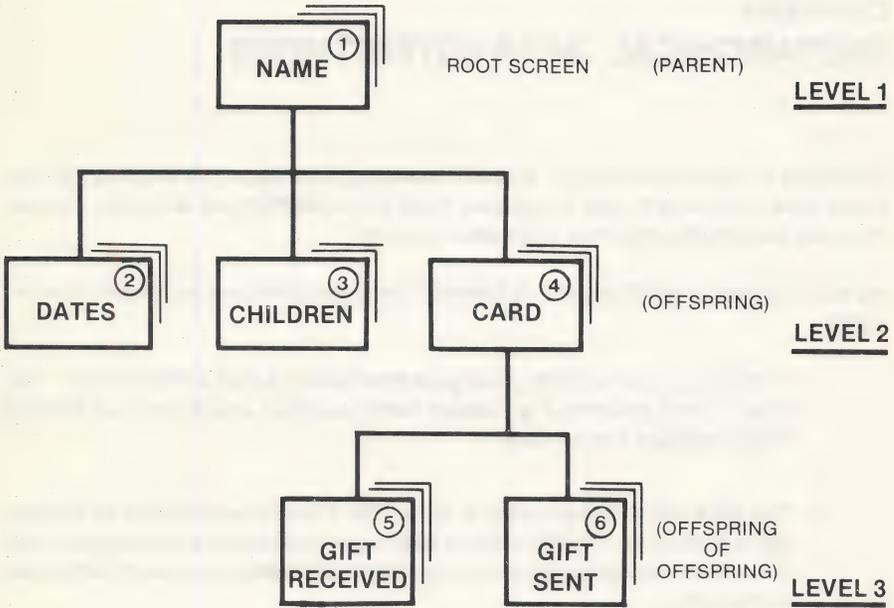
As we discussed in the Foreword, a **General Manager** data base is comprised of two parts:

1. A structure upon which to place your information, called a 'Blank Form'. Your Blank Forms are stored separately from your data, usually on your Working Program/Blank Forms Disk.
2. The data with which you wish to work. This information is stored on what we call a Data Disk. Each individual data base requires its own separate Data Disk. Further, a large data base may store information on several Data Disks at one time.

The General Manager is a 'hierarchical data base'. Figure 9-1 illustrates the 'tree' structure of our old friend from Section II, the data base ADDRESS. In fact, you might have already referred to this figure when studying earlier chapters of this manual. But before we get into the details of creating your own data base, a few general comments are in order.

A 'tree' structure is a natural one for many kinds of information. Consider, for example, ADDRESS. A family contained in NAME can have CHILDREN and DATES, as well as send and receive CARDS. However, a specific child can belong to only one family (at least here!).

To generalize, a **parent** screen—NAME—can have many **offspring** screens—DATES, CHILDREN, and CARD. In addition, an **offspring**—CARD—can itself be a **parent** with **offspring**—GIFT RECEIVED and GIFT SENT. At every level, though, each offspring can have only one parent in the tree.



THE HIERARCHICAL ORGANIZATION OF THE 'ADDRESS' BLANK FORM

FIGURE 9-1.

As you found while working with nested Browse/Update or Data Entry, you must specify the lineage in order to examine a particular offspring. For example, to enter a GIFT SENT, you must specify both the 'Root Parent' NAME (the topmost node of the tree) and the immediate parent, CARD.

Each screen is a self-contained entity. If you wish to add more fields than will comfortably fit on a screen record, you must add offspring to hold these fields. In the case of our example, we created both GIFT screens simply because the information wouldn't fit on the CARD screen!

One of the real strengths of the tree structure lies in handling large amounts of organized or related data, such as libraries, recipes, wine lists and family trees. These applications generally do not require a lot of cross referencing between screens in the tree. More complex inter-relationships can be handled with **The General Manager** by means of multiple data bases and the powerful User Commands discussed in Section 5.

DATA BASE DESIGN

The key to effective data base design is twofold:

1. Knowledge of your design tools. How to use the powerful data base development capability contained within **The General Manager** is covered in detail in Chapter 10.
2. Knowledge of your design requirements. We will briefly discuss this aspect of the development process here.

When we create a data base to store and maintain a collection of information, we must extract a model from the real world. We cannot write everything down, nor would we want to. For example, ADDRESS does not keep track of every family we know, just those with which we have frequent social contact. Similarly, we'd probably not try to keep track of our co-workers and their families. We'd more likely be concerned with relatives and close friends.

Similarly, the interactions described by this modest data base do not cover all possible relationships between ourselves and our friends. Surely we don't need our computer to keep track of dinners and other social engagements on a week to week basis!

The first step, therefore, is to draw up a simplified picture or list which describes our requirements. Initially, we would try to eliminate all the frills, asking only for information really necessary for the specific task at hand.

As an example, let's set up a simple magazine article index. Let's review some of the considerations we might weigh in designing such a system. Perhaps the physical

organization of a bookcase full of magazines can offer a clue. The magazines are probably sorted into stacks, each containing back issues of one particular magazine.

These stacks would probably not be sorted in monthly order, unless you are much neater than we are. More likely, the last one you happened to look through lies on top of each pile. As for article indexing, you might have a few strips of paper sticking out here and there, with some cryptic marks as reminders.

How could we use **The General Manager** to clean this up, so we can quickly and easily locate articles of interest? The two key pieces of information seem to be **MAGAZINE** and **ARTICLE**. As a start, let's consider a two screen system, with **MAGAZINE** as the parent and **ARTICLE** the offspring. This seems reasonable, since we would typically go to one stack of magazines to search for a particular article.

Assuming we assign a screen record to each of these, what are some items of interest that we might want to include in our small data base?

MAGAZINE	ARTICLE
Magazine Identification	Title
Subscription (Y/N)	Topic
Field of Interest	Language (If computer)
Publisher Identification	Author Identification
	Magazine Identification
	Issue and Page Number

Most of this information falls into the category of variable length text screens: names, addresses, topics, etc. There can also be several numeric fields: telephone numbers, dates, page references, and zip codes. But what is the best way to organize this material in a presentable manner?

Again, the secret is simplicity. Why not just write these fields onto two display screens, just as you might sketch out a couple of index cards?

Exercise:

Before continuing on to Chapter 10 for a detailed walkthrough of how to build data base screens in general, and this example in particular, take a few minutes to sketch out your own ideas.

How would you like to see this information organized? Did we leave something out that might be of interest to you? Or did we include too much information?

CHAPTER 10

CREATE NEW BLANK FORMS

This chapter will introduce you to the procedures used in **The General Manager** to create new Blank Forms. Before we begin to work our way through this material, let's make sure we're ready to build a new data base system.

First, do we have a design ready to go? For example, you should complete the exercise assigned at the end of Chapter 9, to get a taste of the thought processes which are an important part of any serious development effort.

Except for possibly the simplest one or two screen systems, having a paper design from which to work is essential. Entering detail screen information should be no more than a typing exercise, because the design should have been completed and checked by hand first. One of the quickest ways to get into trouble with this system is to try 'free hand' screen data entry. Working with **The General Manager** is not a trivial exercise, and you can't afford to be distracted by trying to design a data base on the fly.

INITIAL DESIGN

The first step in the design process is to write down what we're going to put into our screen records.

Example:

The hierarchical relationship between **MAGAZINE** and **ARTICLE** is a Root Parent screen with the designation '1'; and a second screen referred to as '2'.

Keeping track of your screen numbers and field numbers is important, for fields are often copied from one screen to another. In the case of **MAGAZINE**, for example, the title of the magazine appears on both screens, so that a cross reference is necessary to avoid having to enter the same information twice.

A summary of the information to be entered into the Blank Form setup is given at the end of this chapter.

While it may seem a bother to write out all of this by hand prior to entering your screens, your work will prove worthwhile in a practical situation. For example, having a hand sketch of the data base parameters will give you something against which to check your work.

BLANK FORMS EDITOR

Let's move to the Blank Forms Editor, starting at the Master Menu, using the following procedure:

1. From the DATA BASE MASTER MENU, select 'BLANK FORMS EDITING'.
2. From the BLANK FORMS EDIT MENU, select 'MAKE NEW BLANK FORMS'.
3. From the BLANK FORMS CATALOG SELECTION MENU, select '***ENTER NAME**'.
4. Enter the file name you will use for the new Blank Forms.

Example:

Since the Blank Form MAGAZINE is already present on your Working Program/Blank Forms Disk, let's choose another name for this exercise file, say 'ARTICLE'.

You are now in the Blank Forms Editor, ready to type in information concerning your new Data Base. In **The General Manager**, new screens are first created as text files, then checked for errors by the program. Only after the new Blank Form has passed the error check can it be saved to disk.

The active commands in the Blank Forms Editor are as follows:

- | | |
|----------|--|
| <CTRL F> | Display a list of the currently active commands. |
| <CTRL Q> | Quit Blank Forms Editor without losing the work in process. Returns you to BLANK FORMS EDIT MENU so that the new Blank Form can be checked for errors and saved to disk. |
| <CTRL I> | Go to INSERT mode, so that characters can be inserted into existing text. |
| <CTRL R> | Go to REPLACE mode, where typed characters write over the existing text. |
| --> | Move cursor forward one space. |

<--	Move cursor backward one space.
<CTRL L>	Move cursor down one line.
<CTRL O>	Move cursor up one line.
<CTRL V>	Move cursor down 12 lines.
<CTRL T>	Move cursor up 12 lines.
<CTRL E>	Advance cursor to end of Blank Form.
<CTRL S>	Advance cursor to next screen in numerical order. (If at last screen, move cursor to first screen.)
<CTRL D>	Delete one character at cursor position.
<CTRL W>	Delete one word at cursor position.
<CTRL K>	Delete from cursor to end of line.
<RETURN>	Insert carriage return into text, thus starting a new line.
<CTRL A>	Accept the next character typed as a Field Attribute Definition. This special character tells the program what kind of information is to be accepted by the field during data entry. Attributes are displayed on the text editor screen in inverse mode. We indicate the inverse display in this manual by enclosing the letter in square brackets. (e.g. [X])

CREATING A NEW BLANK FORM

Defining a new Blank Form is a straight-forward process, mostly entering information from your hand drawn design sketches.

Your Blank Form text file is made up of a series of screens, separated by lines called **SCREEN HEADERS**. In addition, you may use a **SYSTEM HEADER** at the beginning of the file to set up non-default system parameters. The SYSTEM HEADER is optional.

SYSTEM HEADER

The System Header line, when used, is the first line entered when building a Data Base. The entire line, or just individual items, may be omitted if the default values discussed below are acceptable to you.

Items included in the System Header line are:

NAME: Name of system.

Default: the name entered at the Blank Forms Catalog Selection Menu.

The next three items refer to disk volume number. This is a three digit identifier used by the program to distinguish between individual disks. For example, data disks for a particular data base may have volume numbers in the range 001 to 250, so long as they are in sequence.

STARTVOL: The volume number for the first system data disk. This parameter must be specified in 3-digit format. It's good practice to specify 'STARTVOL = 001', even though this is the default assignment, since this simplifies file maintenance procedures.

Default: 001.

ENDVOL: The volume number for the last data disk used by this system, also in 3-digit format. This enables you to limit the size of your data base, according to the resources available to you. If you use an ENDVOL designation, **The General Manager** will issue a warning when the size of your data base, that is, the amount of data stored, approaches the end of the last data disk volume.

Default: The sum of STARTVOL and the number of data drives defined in the environment, less 1. For a two disk drive system and STARTVOL = 001, ENDVOL would default to 002.

TEXTVOL: The volume number for text file destination. This is used to direct a file report to a specific text file disk, instead of printing out a report on paper.

Default: 253 (Working Program/Blank Forms Disk).

Example:

The System Header Line for our example should look like this:

```
/SYSTEM NAME = ARTICLE, STARTVOL = 001 <RETURN>
```

Note that this line must end with a <RETURN>. Otherwise, the program cannot keep proper count of the headers and will issue an error message.

The System Header line starts with a '/' character, and elements are separated by commas. Spaces are normally used to separate the header title and the individual assignments from one another. However, it's wise **not** to use spaces within an individual assignment, except a SYSTEM or SCREEN name, for example JOHN SMITH DATA BASE.

In particular, a space **following** the equals sign '=' or in the middle of a multiple KEY assignment will generate a syntax error.

SCREEN HEADER

The following parameters are included in the Screen Header line. Note that individual items may be omitted if the default values are acceptable. Parameters may be entered in any order. The Screen Header is optional for the first screen only.

NAME: Name of screen. This will be the name by which the screen is accessed from menus.

Default: In the absence of user assignments, the program will use 'Screen 1', 'Screen 2', . . . , 'Screen n', according to the screen's relative position in the Blank Forms Text File.

PARENT: The immediate parent of a screen in the hierarchical data structure. For example, in ARTICLE, Screen 2 has parent Screen 1. The first screen in a data base, called the Root Screen, has a mythical Screen 0 as its parent.

Because you can assign several Root Screens—Parent=0—in a single Blank Form, you may have several parallel data bases active at one time.

KEY: A field uniquely identified within the data base. The program generates an index for each key field you assign. The advantage of assigning keys is increased data retrieval speed during Data Access.

The key assignment specifies the relative priority of keys, as well as whether the sort order is ascending or descending. The default is ascending, that is 1 to 9 or A through Z. Here is an example:

$$\text{KEY} = 2 + 3D + 1A$$

The major key is field 2, which is ascending by default. Next in priority is field 3, whose contents would be sorted in descending order. Field 1 is the lowest priority or minor key, with ascending order assigned.

The first key field is the unique record identifier. In the absence of another user assignment, the first field on the screen is used as the key field. Each screen may have as many as sixteen keys, and the entire data base a maximum of 31 key fields.

If you set the Key assignment to zero, the screen is called an 'Unkeyed Screen'. This type of screen cannot be a parent in **The General Manager**.

FREQ: An estimate of the number of records, or screens of data, to be generated by the data base user. For example, in the ADDRESS Data Base, the frequency for the Root Parent NAME is 50 and that for the offspring CARD is 25. This means we anticipate a data base consisting of 50 family names, **each of which** could have up to 25 card records. That's a potential total of 1250 card records growing out of just two screens!

Default: Root Parent, 100; offspring, 2.

DUPLICATES Screen records with duplicate keys—such as two Smiths, Fred and Sam, in the NAME record of the ADDRESS data base—are placed either immediately before (FIRST) or after (LAST) the previously entered key fields.

Default: FIRST.

Example:

Let's assume we have a large library, say 50 magazines or so. The Screen Header would be entered as follows:

```
/SCREEN NAME = MAGAZINE,PARENT = 0,<RETURN>  
KEY = 1,FREQ = 50<RETURN>
```

Note the need for a <RETURN> after a Screen Header, as well as after the System Header. You can also break your header lines up by inserting a <RETURN> between parameters. You should adopt a consistent editing format, similar to the one illustrated here. This will make your work much easier to read in the future.

NOTE

Normally, at this point you would begin entering the fields associated with the first screen. For our example, however, we will proceed directly to the next screen header.

To continue the development of our example, let's assume we might have as many as 20 articles from a given stack of magazines. Here's what the second screen header would look like:

```
/SCREEN NAME = ARTICLE, PARENT = 1,<RETURN>  
KEY = 1,FREQ = 20<RETURN>
```

Do you understand each of these assignments? How many articles has the system been designed to keep track of? Would you choose different numbers for your application?

SCREEN FIELD DEFINITION

Up to 99 fields may be defined on a single screen, although the practical number is limited by the size of the Apple's display. As you define your fields, you will be laying out the actual appearance of your data input screen display. You will use the Blank Forms Editor commands extensively during this process.

There are two parts to each field definition: the **label** (the name of the field) and the **attributes**. The field label is the text that will be printed on the display to prompt the

user when entering data. Labels are in upper case text, either regular or inverse, depending upon your choice when you set up the System Environment. Label fields may contain spaces or other separating characters.

Should you wish to print an inverse space, say between two words in an inverse label, use <SHIFT N>. This will print a carat “^” in the setup field only. It will allow printing an unbroken line of inverse characters, including the spaces, in field labels. (This avoids such ugly labels as the ‘LAST.NAME’ of our Sample Data Base!)

Field attributes determine the type of data which will be accepted by each field. These are discussed in detail below.

The procedure for entering field information is as follows:

1. Position the cursor at the screen location where you wish the field label to appear. Type it in.
2. Position the cursor **one space to the left** of the beginning of the desired field. Enter the beginning attribute, using <CTRL A> and the appropriate character, as discussed in Data Field Types.
3. Enter the formatting characters, if any, in the field.
4. Position the cursor on the last space of the desired field. Enter the ending attribute, again using <CTRL A>.

DATA FIELD TYPES

There are four types of data fields: Input, Output, Generated, and Expansion. Each of these will be discussed below. Here are some general rules regarding all types of fields:

1. All fields must begin with a beginning attribute and end with an ending attribute.
2. A field must be contained on a single line. The field label may be on a separate line, in order to obtain the maximum data field length of 39 characters. Each screen is limited to a maximum of 21 lines.
3. The data field starts with the character just after the starting attribute and ends with the ending attribute. The starting attribute is not included in the field length. The maximum number of data items that can be accommodated is limited by internal editing characters, such as periods, slashes or dashes.

Example:

A field whose attributes are separated by one space will be a maximum of two characters in length.

INPUT FIELDS

1. Starting Attributes

The starting attribute specifies whether input field is of variable or fixed length.

A starting attribute [F] indicates a fixed length input field. This means that the input data must be a certain number of characters in length, such as a date or zip code field.

2. Variable Length Fields

A starting attribute [V] indicates a variable length input field. For example, different LAST.NAME entries in ADDRESS will generally have different lengths.

Only spaces may appear between the beginning and ending attributes of a variable length field.

The ending attribute of a variable length field specifies the type of data which may be entered into the field.

An ending attribute of [A] indicates an alphabetic field. Only characters 'A' through 'Z' will be accepted. An ending attribute of [X] indicates a field which will accept any printing character, whether alpha, numeric, spaces or punctuation.

An ending attribute of [n] on a variable length field, where 'n' is an integer from 0 to 9, indicates a numeric field which will be rounded to 'n' decimal places and right justified. Note that the field must be at least 'n + 1' spaces long. The General Manager will automatically generate decimal points, minus sign and commas where appropriate. You must be sure to allow for this in the field length. For example, if you specify an ending attribute of [2], a six digit number (100000) will require at least eight spaces (1,000.00).

3. Fixed Length Fields

Designating characters must be placed inside a fixed length field to identify the character type to be accepted at each field position. The character in the last field position also serves as the ending attribute. The designators used are as follows:

- A: Accept only letters in this position
- 9: Accept only numbers in this position
- X: Accept any character in this position

- MM: Accept only valid months (01–12) in these two positions
- DD: Accept only valid days (01–31) in these two positions
- DDD: Accept only valid Julian dates (001–366) in these three positions
- CC: Accept only valid centuries (00–99) in these two positions
- YY: Accept only valid years (00–99) in these two positions

Editing characters placed in a fixed field may be any printing character other than A, 9, X, M, D, C, or Y. Editing characters will be displayed on the data entry screen, to make data entry easier.

[F]MM/DD/Y[Y] is a fixed length date field. The editing character is "/". On the screen the input field would look like this: '. ./ ./. '

[F](999)999-999[9] is a fixed length telephone number field. It would appear on the data input screen thus: '(. .) . . - . . . '

When data is input to a fixed length field containing an edit character, the cursor will automatically skip over that character.

OUTPUT FIELDS

Output fields are fields which display information taken from other screens in the Data Base. The source for an output field must, naturally, be a screen which is on the direct path from the root parent to the current screen in the hierarchy. Output fields may either copy the information from a single screen, or they may print the result of a calculation involving one or more source screens. The data associated with output fields is not stored as data on the disk. An Output Field may **not** be used as a key.

1. The beginning attribute for an output field is always [O].
2. The ending attributes for an output field include the ending attributes for input fields. These attributes do not restrict the field data, but they do control how the data is formatted.

An ending attribute of [A] or [X] will cause the data in an output field to be left justified within the field.

An ending attribute of [n], where n is an integer from 0 to 9, will cause numeric data in an output field to be rounded to 'n' decimal places and right justified. Be sure to leave enough spaces for the decimal, minus sign and commas that the program inserts in numbers larger than 999.

An ending attribute of [] (inverse space) causes the attributes of the source field, including formatting characters, to be carried forward.

3. If an output field length is less than the source field length, the contents will be truncated to the output field length.

4. The source of an output field may be specified as either a screen or calculation reference.

Field references are made to a specific screen and field, in the format 'Ss.f'. The 's' is the reference screen number, and 'f' is the reference field number. For example, '[O]S1.2[]' will copy the first 5 characters (four characters plus the ending attribute) of the second field on screen 1 (in this example, the Root Parent) onto the output field. The result will be formatted in accordance with the ending attribute of the reference screen.

Calculation references print the results of mathematical and logical operations on numeric quantities and text strings from one or more screens onto the Output Field. For example, '[O]C2 [2]' will print the results of calculation 2, rounded to 2 decimal places, onto this output field. Remember that you must allow sufficient output field space for the results of your calculation, including the decimal, minus sign and commas for large numbers.

GENERATED FIELDS

Generated fields are similar to output fields, except that when a generated field is first referenced, the data in the field is stored just like ordinary input data. Like the output field, the source may be either an input screen or a calculation.

Should the source information change, the generated field will not be updated automatically. To alter the contents of a generated field, you must first use <CTRL X> to delete the field entry, then save the updated record. **The General Manager** will update the field, using current information in the source field as you save the record.

1. The beginning attribute for a Generated Field is [G].
2. Ending attributes for Generated Fields are the same as those for Output Fields.

EXPANSION FIELDS

Expansion fields are used as a provision for future growth of your data base. Entering one or more expansion fields on your screens will permit you to add functional fields at a future time without having to reformat and reorganize the data base.

1. The beginning attribute for an Expansion Field is [E].
2. The ending attribute for an Expansion Field is [].

CALCULATIONS

One of the more powerful functions offered by **The General Manager** is the calculation capability. Numeric quantities from one or more screens can be combined with a variety of mathematical and logical operations. The only restriction on the screens involved is that they all lie on one direct path to the Root Parent.

The results of these manipulations can then be used in both output and generated fields.

The calculations section of your Blank Form is placed at the end of the file, just after the last screen definition.

Here are some sample calculations:

/CALC

C1 = S1.6 - S2.5

C2 = S 1.3 * S1.4

C3 = S3.2 * (S1.5 < 3)

C4 = S2.6 * ("S2. 4" = "Y")

The first calculation, C1, takes the difference between the contents of the sixth field on Screen 1 and the fifth field on Screen 2. The second, C2, multiplies the contents of the third field of Screen 1 by the contents of the fourth field.

The third calculation, C3, is a little more subtle. C3 will print the contents of the second field of Screen 3, but only if the contents of the fifth field of Screen 1 are less than three. If the test is true, the logical comparison will return 1. If the test proves false, the logical comparison will return zero. Since zero multiplied by anything—such as the contents of S3.2—is zero, C3 equals zero.

The fourth calculation is similar to the third. If the text string found in S2.4 isn't 'Y', the test will return zero and C4 equals zero. Note the quote marks indicating the test for literals.

We see from these examples that the calculation section starts with '/CALC' and <RETURN>. Each calculation is given a unique number, C1, C2, etc., up to the maximum, C99. Each one is placed on a separate line. Spaces may not be used inside the definition of a calculation.

If a number in your data, or generated by a calculation, is too large, you will see an asterisk in the result field as an "out of range" indicator.

The General Manager permits five mathematical operations:

- + Addition
- Subtraction

- * Multiplication
- / Division
- ^ Exponentiation

Six logical relationships may be tested:

- > Greater than?
- < Less than?
- = Equal to?
- <> Not equal to?
- >= Greater than or equal to?
- <= Less than or equal to?

Parentheses are used to establish precedence within a calculation. Expressions are evaluated according to conventional Basic rules, in the following order:

1. Evaluation of expressions within parentheses
2. Negation (application of a minus sign to positive numbers)
3. Exponentiation, left to right
4. Multiplication and division, left to right
5. Addition and subtraction, left to right

There are many possible applications for these calculating and logical capabilities. For example, sales tax can be calculated and added to the total only if a customer lives in a specific state. Or a graduated discount schedule can be applied, per the volume of business transacted.

ERROR CHECKING

Before **The General Manager** will permit you to use your new Blank Form, you must go through the program's error checking procedures. However, you may always save your Blank Form to complete later.

1. Return to the BLANK FORMS EDIT MENU by typing <CTRL Q> when you are finished creating your screens.
2. Select CHECK FOR ERRORS from the menu.

3. Select DISPLAY from the ERROR CHECK menu. If you want a printed copy of your Blank Form setup and statistics, wait until you have completed a successful error check, using your display, prior to selecting the printer. The error check routine stops at every error and will not proceed until the problem has been fixed.
4. The Blank Form syntax is checked in the order you typed it in. First, the System Header is checked. Then, each screen is checked. Finally, the calculations are checked.
5. Each screen test produces two displays. The first is a useful summary of screen and field parameters.
6. The second display shows the screen as it will appear in actual use. Dummy data is placed in each of the fields to assist you in validating your calculations and source reference fields.

Here are some examples of what you can expect to see for input fields, where the identifier consists of screen number and field number:

- '11' could be screen 1, field 1
- '111' could be either screen 11, field 1 or screen 1, field 11
- '11' could be '11' or a truncated '111'.

Output and generated fields are treated a little differently. A direct source field reference will give the appropriate screen/field identification for the source field, subject to the limitations discussed above.

A calculated output or generated field displays the result of the specified calculation performed on the identifiers already placed in the referenced fields. For example, a calculation defined as $S1.1 * 5$ would produce '55' in the display, or $S2.1 + S1.3$ would produce '34'. Again, a short format can truncate the string.

Fixed length fields with embedded commands retain the internal formatting characters. The date format fills out with zeros, all other formats do not.

The calculations at the end of the text file are checked, and any problems are indicated by reference to the appropriate Applesoft Basic error message.

7. For a faster error check, choose SUMMARY, which does not display the field structures for your inspection.
8. When you have successfully completed your error check, choose PRINTER on the ERROR CHECK menu to obtain a printed copy of the Blank Form.

9. When you've completed your Error Check, use <RETURN> to return to the BLANK FORMS EDIT MENU and SAVE your Blank Form.
10. From the FORMAT/UPDATE DATA DISK menu, select FORMAT NEW DATA DISK. Insert a new disk into Data Drive #1, as prompted by the program, and press <RETURN> to proceed. Label this disk carefully, so you don't get it confused with your other data disks.

This concludes the procedures for creating a new Blank Form. In the next chapter, we will learn how to modify an existing Blank Form.

EXERCISE

Try filling in a pair of screens for your sample Blank Form ARTICLE. Use the editing and checking commands discussed above, and the information in the Sample Design Sketch below.

When you have printed out a successful error check, compare it with the MAGAZINE example on your Working Program/Blank Forms Disk. Which screen layout do you prefer, and why? What modifications can you make to better meet your personal or professional needs?

SAMPLE DESIGN SKETCH: ARTICLE BLANK FORM

SCREEN #1: MAGAZINE

MAGAZINE TITLE

SUBSCRIPTION (Y/N)

FIELD OF INTEREST

PUBLISHER: NAME
ADDRESS
CITY/STATE/ZIP/PHONE

SCREEN #2: ARTICLE

ARTICLE TITLE

ARTICLE TOPIC

LANGUAGE (BASIC, PASCAL, ETC.)

AUTHOR: NAME
ADDRESS
CITY/STATE/ZIP/PHONE

MAGAZINE (SAME AS FIRST FIELD IN SCREEN #1)
ISSUE/PAGE REFERENCE



CHAPTER 11

BLANK FORMS EDITING

In this chapter, we discuss the important topic of Blank Forms Editing. You should plan ahead for possible changes when designing your data base. **The General Manager** allows you to upgrade your data base at any time, even though you may have amassed a considerable body of data.

However, we strongly suggest that you use **The General Manager's** Expansion Field capabilities when setting up a new data base. A little thought can save a lot of work in the future.

WARNING!

Don't try to rearrange the order of data fields in a Blank Form for an existing Data Base. If you try to move fields around through a sequence of delete and insert operations you may lose data.

Two support functions are used frequently after saving changes to an existing Blank Form. The first is 'UPDATE OLD DATA DISK', which updates or corrects the System Sector on the first volume (STARTVOL) of your data base. The 'first volume' refers to the first disk in your data base. **The General Manager** writes information relating to the structure of the data base to the System Sector, a small file on the first data disk. Certain editing operations affect items stored in this file. The function UPDATE OLD DATA DISK, when used after saving edited Blank Forms, automatically updates these items.

The second support function is 'REORGANIZE DATA BASE.' This function is used routinely to clean out dead records after a lot of file maintenance activity, and is the same program that can be accessed from the Utilities Menu. It must also be used after certain kinds of Blank Forms editing, such as adding or deleting fields inside existing screens.

Common to all editing functions are the following steps:

1. From the DATA BASE MASTER MENU, select BLANK FORMS EDITING.
2. From the BLANK FORMS EDIT MENU, select CHANGE OLD BLANK FORMS.
3. From the BLANK FORMS CATALOG SELECTION MENU, select the Blank Form you wish to edit.
4. Use the Blank Forms Editor to make changes in your Blank Form layout.
5. CHECK FOR ERRORS.
6. SAVE the Blank Forms.
7. Depending on what items were changed, choose one of the following:

RETURN
FORMAT NEW DATA DISK
UPDATE OLD DATA DISK
REORGANIZE DATA BASE

In discussing the following procedures, we'll assume you have some familiarity with the screen creation process and terminology, as well as the menu selection sequence.

CHANGES REQUIRING NO REORGANIZATION OR UPDATING OF OLD DATA DISK

System and screen names may be changed without impacting your data. You may also reassign STARTVOL, ENDVOL, and TEXTVOL at any time.

There are several data field attributes and system characteristics that can be modified without affecting the data base or requiring Updating and/or Reorganization.

Beginning attributes of Generated and Input Fields may be changed, but not to Output [O]. Remember that nothing but spaces may appear inside a variable length [V] Input Field, while every character must be defined in a fixed length [F] Input Field.

You may also fill in all the new attributes for a field previously defined as an Expansion [E] Field.

You may also change the number of decimal places in any field, length of any, labels for any field, and calculations and calculation references.

After making any of these changes, it's only necessary to check for errors and save the new Blank Form on your Working Program/Blank Form Disk.

ADD OR DELETE FIELD AT END OF SCREEN

Adding fields to, or deleting fields from, the end of a screen is much simpler than inserting or deleting them somewhere in the body.

After adding or deleting a field at the end of a screen, you need to check for errors, save the new Blank Form, and select UPDATE OLD DATA DISK.

ADD OUTPUT FIELD

You may add or remove an Output Field anywhere on the screen without having to reorganize your data base, as this data is not stored. Check for errors, save the new Blank Form, and select UPDATE OLD DATA DISK.

ADD SCREEN AT END OF BLANK FORM

You may add a new screen at the end of your Blank Form at any time. Check for errors, save the Blank Form, and select UPDATE OLD DATA DISK.

ADD FIELD TO BODY OF SCREEN

If you wish to add anything other than an output field to the body of a screen, you should perform the following sequence of operations:

1. Add each new field with beginning attribute [I] and ending attribute []. This temporary assignment is called an Insert Field. You may enter a calculation number (Cn) or source reference (Ss.f). The fields are renumbered when you insert a field, so you must alter any existing field references which would be affected by the renumbering.
2. CHECK FOR ERRORS.
3. SAVE the Blank Form.
4. REORGANIZE the data base, using the new Blank Form as your structure reference. This will allow for the added field in the current data. Be sure to use the correct data disks when reorganizing a data base!

5. If you have previously saved any Report Requests for the modified data base, use the User Program REORGANIZE REPORT REQUEST. This program may be found on the Working Program/Blank Forms Disk.
6. Return to the BLANK FORMS EDITOR.
7. Change the beginning [I] and ending [] field attributes of the new fields and fill in the data descriptors and formatting characters as required.
8. CHECK FOR ERRORS.
9. SAVE the Blank Form.
10. UPDATE OLD DATA DISK.

DELETE FIELD FROM BODY OF SCREEN

If you wish to delete a field from the body of a screen, perform the following sequence of operations:

1. Change the beginning and ending attributes of each field to be deleted to [D][], with nothing between them. This temporary assignment is called a Delete Field.
2. CHECK FOR ERRORS.
3. SAVE the Blank Form.
4. REORGANIZE the data base, using the new Blank Form as your structure reference. Be sure to use the correct data disks when reorganizing a data base!
5. If you have previously saved any Report Requests for the modified data base, use the User Program REORGANIZE REPORT REQUEST. This program may be found on the Working Program/Blank Forms Disk.
6. Return to the BLANK FORMS EDITOR.
7. Delete the fields with beginning [D] and ending [] field attributes. Change any calculations or source reference fields which may be affected by the renumbering of the fields after the deletion.

8. CHECK FOR ERRORS.

9. SAVE the Blank Form.

10. Select UPDATE OLD DATA DISK.

This procedure may be used to delete an Input or Generated Field. Any data associated with a deleted field is, of course, lost.

NOTE

An alternate method would be to change the field to an Expansion Field [E]. This would have the effect of deleting it from the display, but reserving space for another field in the future.

FILL IN EXPANSION FIELD

If you wish to fill in a previously defined Expansion Field so that it becomes a working part of your data base, follow this sequence of operations:

1. Fill in the beginning and ending attributes, as well as other field parameters, in the Blank Forms Editor.
2. CHECK FOR ERRORS.
3. SAVE the Blank Form.

CHANGE FREQUENCY ESTIMATE

If you wish to change your estimate of record frequency, proceed as follows:

1. Change the frequency assignments in Screen Headers as required, in the Blank Forms Editor.
2. CHECK FOR ERRORS.
3. SAVE the Blank Form.
4. You may choose between UPDATE OLD DATA DISK and REORGANIZE DATA BASE:

UPDATE OLD DATA DISK will cause the new Frequency to be used for all new records.

REORGANIZE DATA BASE will use the new Frequency for all records.

CHANGE KEY ASSIGNMENT

If you wish to change key assignments or order of priority, you have two alternative procedures. If you have not yet saved data on a data disk, you only have to select UPDATE OLD DATA DISK after saving the revised Blank Form.

If, however, you have placed data in your data base, you must REORGANIZE the entire data base after saving the revised Blank Form.

CHANGE PARENT ASSIGNMENT

You may only change the parent assignment of a screen if no data has yet been entered for that screen. If you do so, you must then select UPDATE OLD DATA DISK.

CHAPTER 12

EFFECTIVE DATA BASE DESIGN

Now that you have become acquainted with the fundamentals of data base design with **The General Manager**, let's discuss how best to apply these powerful tools to solving practical problems.

A data base is like a large file cabinet. A very large file cabinet, with convenient access, fast sorting and powerful reporting capabilities—but a file cabinet nevertheless. Along with all this computer driven power comes opportunity for error. Careful planning and meticulous implementation are necessary to gain the maximum use from a product as sophisticated as **The General Manager**.

The two basic design requirements, first introduced in Chapter 9, are knowledge of your requirements and familiarity with your data base tools. It's unwise to attempt to design a personal filing system without a thorough understanding of your needs. What information do you use on a regular, daily basis that your computer would help you with? Is the planned data base strictly for personal needs, or are there some business applications you should meet as well?

The importance of becoming familiar with your data base development tools will become clear to you as you move from the simple examples offered in this manual to applications in the practical world. Nonetheless, these examples do give you a place to start and a base upon which to build your own designs.

KEEP IT SIMPLE

The essence of good data base design is simplicity. In organizing your design requirements, try to strip away as much unnecessary detail as possible. Using several simple data bases is almost always preferable to trying to work with one huge "general purpose" monster system.

Don't overlook the possibilities offered by the powerful User Commands, which are introduced in Section V. These commands, together with standard Applesoft Basic,

permit you to use data from several data bases or from unrelated portions of a single system.

Keep track of where you are in your data base. During the design phase, a numbered tree diagram is very useful. When using the system, such a road map can be of immense value to the person working with the data base.

DOCUMENTATION

Support documentation takes many forms. Your design notes will prove their true value when you decide to upgrade or extend your initial efforts. These notes should emphasize WHY you did what you did, instead of just summarizing WHAT you did.

Don't assume you are going to be the only person using your data base. After you complete your design, you'll go on to other things, and your familiarity with the system will fade. You'll forget the operating details much faster than you expect. In a couple of months, **you'll** be the new user!

Prepare for the new user by writing out a brief User's Manual. It's not necessary to prepare anything as elaborate as this Reference Manual. A simple functional description, a few block diagrams, and some examples will do the job.

We recommend that you prepare some test data, which you should store as a separate Test Data Base. Use 'easy' numbers, so you can predict the results of any calculations.

Your Test Data Base can also be used to verify proper performance of your data base system from time to time. Magnetic media have been known to fail, or at least develop "interesting" characteristics. Don't take chances with your real data; check to see that nothing has changed.

UTILITIES

UTILITIES

SECTION IV
UTILITIES



CHAPTER 13 UTILITIES

DISK PREPARATION

To Format a New Data Disk

While **The General Manager** will often allow you to format a new data disk at the time you are going to be using it, there are other times when you wish to format a data disk. To do so, select 'FORMAT DATA DISK' from the UTILITIES menu, or from the FORMAT/UPDATE DATA DISK menu in the Blank Forms Editing function.

To Initialize a New Blank Forms Disk

If you wish to initialize a new blank forms disk (perhaps the original Working Program/Blank Forms is getting full), select INITIALIZE BLANK FORMS DISK' from the UTILITIES menu.

BACKUP DATA DISK

How to make a backup copy of a Data Disk

1. Go to DATA BASE MASTER MENU.
2. Select 'UTILITIES'.
3. Select 'BACKUP/RESTORE DATA BASE'.
4. The computer will beep, and you will see the message 'GOING TO BACKUP/RESTORE'. Press <RETURN> to continue.

5. Either you will be offered a default Blank Form, or you will see the 'BLANK FORMS CATALOG SELECTION MENU'. Select the desired Blank Form.
6. Press <RETURN> to accept the default of your primary data drive slot in response to the prompt 'INPUT: SLOT: ', or enter the desired slot number.
7. Press <RETURN> to accept the default in response to the prompt 'DRIVE: ', or enter the desired input drive number.
8. Press <RETURN> to accept the default in response to the prompt 'VOLUME: ', or enter the desired Input Volume number.
9. Unless you have a hard disk system, press <RETURN> to accept the default 'FLOPPY'. If you do have a hard disk, select the correct type.
10. Repeat the procedure (steps 6, 7, 8, 9) for the Output disk.
11. You now see a review of the input and output disk parameters. Type <RETURN> if they are acceptable.
12. Insert the disk you wish to back up into the Input Drive, as shown on the screen.
13. Insert a new disk into the Output Drive, as shown on the screen. Be careful, any data on this disk will be erased.
14. Type 'F' to format the new data disk, as well as transfer the data to it.
15. Press <RETURN> to confirm that you wish to format the disk in the output drive.
16. **The General Manager** will backup the data disk in the input drive onto the disk in the output drive. When the process is finished, **The General Manager** will ask for the MASTER PROGRAM DISK to reboot the system.
17. If you wish to use **The General Manager** again, insert your Master Program Disk in the drive requested, and press <RETURN> to reboot the system. You will soon see the DATA BASE MASTER MENU.
18. Remove your Master Program Disk from the drive, and replace it with your Working Program/Blank Forms Disk.

REORGANIZE DATA BASE

The REORGANIZE DATA BASE utility has a number of different functions: to back up an existing Data Base while simultaneously eliminating all dead records; to merge information from two different Data Bases; to create a subset of a Data Base, and to rearrange the data in an existing Data Base so that it will be able to be used after you have made changes to your Blank Forms.

Procedure:

1. From the DATA BASE MASTER MENU, select REORGANIZE DATA BASE.
2. If you have been using **The General Manager**, you will be asked whether you wish to use the current Blank Form. Otherwise, you can select a Blank Form from the BLANK FORMS CATALOG SELECTION menu.
3. Accept the default INPUT STARTING VOLUME NUMBER by pressing <RETURN>, or enter another volume number. This is the volume number of the first data disk of the Data Base you are reorganizing.

Status:

You see the

```
MERGE/REORGANIZE MENU
=>RETURN TO MASTER MENU
RUN
LOAD CRITERIA
```

If you select RUN at this point, your entire data base will be reorganized, without eliminating any of the current data. If you LOAD CRITERIA (which must be done from an existing file) the criteria specified in the file will determine what data gets entered into the reorganized Data Base.

4. (Optional: if this step is omitted, proceed to step 7.) Select 'LOAD CRITERIA'.

Status:

You see the SELECTION FILE CATALOG SELECTION menu. All the selection criteria files currently available to you appear on this menu. If none appear, select RETURN and proceed to step 6.

You cannot enter the name of a new file.

5. Select a file from the SELECTION FILE CATALOG SELECTION menu.

Status:

The criteria in the file you have selected will determine which records will be written to your reorganized Data Base. You are now ready to RUN the REORGANIZE program.

6. Select 'RUN' from the MERGE/REORGANIZE MENU.

Status:

You may now choose whether to add the results of this reorganization to an already existing file. (Caution: if you add it onto a copy of your present Data Base, you may end up with duplicate data.)

7. Press <RETURN> to accept the default 'N', unless you are adding data onto an already existing file.

Status:

You will now enter the volume number for the OUTPUT STARTING VOLUME. This refers to the first volume number of your reorganized Data Base.

Caution: None of the volume numbers of the original Data Base can be the same as any of the volume numbers of the reorganized Data Base.

8. Press <RETURN> to accept the default OUTPUT STARTING VOLUME NUMBER, unless you wish to set it at some other number.
9. Press <RETURN> to accept the default ENDING VOLUME NUMBER, unless you wish to set a specific number.
10. Check the review of the answers you have given to the questions, and either press <RETURN> to accept everything, or type 'N' and press <RETURN> to go back to step 7 if you wish to make changes.

Status:

The General Manager starts to reorganize your Data Base. It will first look at the input disk, and then at your output disk. If your output disk isn't in the appropriate drive, or isn't formatted, you will see the message:

```
SLOT s, DRIVE d VOL v  
INSERT DATA DISK-VOL v  
(F) TO FORMAT, <RETURN> TO CONTINUE
```

11. Place the output disk—the one for your reorganized Data Base—into the drive specified in the first line of the instructions. The slot and drive numbers tell where **The General Manager** wants your output disk. The volume number printed on the first line tells what **The General Manager** found there. The volume number on the second line tells what it wants you to put there.

12. If your output disk has not yet been formatted, press 'F'. Be absolutely sure you have put the correct disk in the drive, as it will be erased when you go to the next step.
13. Press <RETURN>. **The General Manager** will now format your disk (if you pressed 'F') and will proceed to reorganize your data base.

Status:

As the reorganization progresses, you will see a count of how many records of each screen are being transferred to the output disk. If you have more than one data disk, you will be told when to insert the other volumes. When it is complete, you will see a complete set of statistics, and the computer will beep to attract your attention.

14. Press <RETURN>. If prompted to insert your program disk, do so and press <RETURN> again.

Status:

The General Manager will now update your Blank Forms to match your reorganized Data Base. If STARTVOL was not specified on the original Blank Form, you will see the message:

```
UNABLE TO UPDATE STARTVOL
STARTVOL NOT CODED ON /SYSTEM
USE BLANK FORMS EDITING TO UPDATE
```

If you see this message, and you wish to make a permanent change in the starting volume for your Data Base, you may go to Blank Forms Editing from the DATA BASE MASTER MENU to add the new STARTVOL to the /SYSTEM line. It is not necessary to do this, however (see Use Different Starting Volume).

15. Press <RETURN> to return to the DATA BASE MASTER MENU.

USE DIFFERENT STARTING VOLUME

When **The General Manager** finds the wrong data disk in the drive, you will see the message:

```
SLOT s DRIVE d VOL v
INSERT DATA DISK-VOL v
<CTRL Q> TO QUIT <RETURN> TO CONTINUE
```

The slot and drive numbers tell where **The General Manager** wants your data disk; the volume number printed on the first line tells what **The General Manager** found there. The volume number on the second line tells what it wants you to put there.

At this point, if the data disk you wish to use has a different volume number from the one requested, press <CTRL Q>. You can then enter a new volume number. Enter the volume number which corresponds to your data disk and press <RETURN>. Press <RETURN> again to confirm your choice. You will then be returned to the DATA BASE ACCESS MENU, and you may proceed normally.

STATISTICS

The General Manager will examine your data disk and display statistics on the number of active records and the number of dead records for each screen, the average frequency of records, and the space occupied by the entire file.

When the number of dead records—created each time you update or delete a record—starts to climb, disk access will slow down. Look at the statistics from time to time to determine whether you should reorganize the Data Base in order to speed up your operations.

GLOBAL UPDATE/DELETE

This utility is also reached from the UTILITIES menu.

A global update will perform an update on every record which meets the criteria you have set. Criteria and update information are set just as in Browse/Update.

You may load or save criteria for frequent use, by means of the SAVE/LOAD/CLEAR REPORT REQUEST function, so that frequently used updating functions can be made very simple.

You may choose an automatic update, which will display the record to be changed, perform the update, and display the updated record before moving automatically to the next record which meets the criteria. A manual global update performs the same functions, but allows you to confirm your wish to update each record as it is displayed.

Similarly, the global delete function will delete all those records which meet the criteria. An automatic global delete displays the record to be deleted, deletes it, and automatically goes on to find the next record to be deleted. A manual global delete allows you to view the record and confirm the delete before it takes place.

SECTION V
USER PROGRAMS

1954
MAY 1954

CHAPTER 14

A BRIEF INTRODUCTION TO USER PROGRAMS

Anybody with a good understanding of Applesoft Basic and the Apple DOS can write his own General Manager interface programs using the special commands listed in Chapter 16.

If you can understand the following BASIC program, you have sufficient understanding to be able to work with **The General Manager's** Interface Command Set.

Sample Applesoft Program:

```
10 D$ = CHR$(4)
20 PRINT D$;"OPEN FILENAME ,L30"
30 PRINT D$;"READ FILENAME ,R25"
40 FOR N = 1 TO 10
50 INPUT A$(N)
60 NEXT N
70 PRINT D$;"CLOSE FILENAME"
80 PRINT D$;"OPEN FILE2 ,L5"
90 FOR N = 1 TO 10
100 PRINT D$;"WRITE FILE2 ,R";N
110 PRINT A$(N)
120 NEXT N
130 PRINT D$;"CLOSE FILE2"
```

The purpose of User Programs is to perform manipulations of the data which are not possible within the hierarchical structure of the Data Base itself. For example, a User Program such as the sample Invoice program in the next chapter can sum information across all the records of a screen which are children of a specified parent. Another User Program could take this invoice information and post it to the Receivables screen.

User Programs operate in a special environment, supplementing Applesoft Basic with the powerful programs of **The General Manager**.

FILE ACCESS COMMANDS

Some of the User Commands are similar to the familiar DOS commands. &OPEN, &CLOSE, &READ and &WRITE all perform functions analagous to their DOS counterparts.

GENERAL MANAGER POINTERS

Another set of commands deal with the pointers used by **The General Manager** to keep track of its place within the Data Base and within the Blank Forms.

GENERAL MANAGER ROUTINES

Most of the User Commands call routines which are part of **The General Manager's** programs.

USER PROGRAM ENVIRONMENT

To enter the User Program Environment:

1. From the DATA BASE MASTER MENU, select UTILITIES.
2. From UTILITIES menu, select RUN USER PROGRAM.

Status:

You now see a menu of the User Programs which are available for you to run. In addition to the User Programs stored on your Working Program/Blank Forms Disk, you will see 'RETURN' and 'ENTER NEW USER PROGRAM'.

3. To run an existing User Program, select its name from the menu.

Status:

The User Program will run in **The General Manager's** environment. It can access the many powerful routines described in Chapter 16.

4. To enter your own new User Program, select 'ENTER NEW USER PROGRAM'. You will then be in a programming environment suitable for entering a combination of Applesoft BASIC and '&' User Commands.
5. While you are in **The General Manager** User Program Development Environment, you may use any of the User Commands in the Immediate Mode to check short segments of code.

USER PROGRAMS

USER PROGRAMS

6. While in the User Program Development Environment, **do not** use the 'FP' command.

7. To return to **The General Manager** from the User Program Environment, you may RUN BOOT2 from your Working Program/Blank Forms Disk.



CHAPTER 15

SAMPLE USER PROGRAM

INVOICE

The following program, which is included on your Working Program/Blank Forms Disk, illustrates how a simple program can manipulate information in your General Manager Data Base.

The Invoice Program uses the Customers Data Base. The Blank Form for Customers is included on your Working Program/Blank Forms Disk. We recommend that you first type in a small amount of sample data to try out the program. You might also like to send the Blank Form ERROR CHECK to your printer so that you can follow how the program works.

Only two screens are used here: CUSTOMERS and ORDERS. Customers are identified in the Root Screen CUSTOMERS; orders are placed in the Offspring ORDERS. The Invoice Program prepares an invoice, based on orders placed.

1. The program reads the customer information from the first customer record.
2. Customer information is printed at the top of the invoice.
3. Column headings for detailed order information are printed next.
4. The program reads an 'orders' record for this customer. If there is no data, it prints out the totals and goes back to step 1 to find another customer.
5. Detailed order information is read and printed. Subtotals are computed.
6. The program goes back to step 4 to read another order for this customer.

7. When all customers have been read, the total of the day's invoices is printed on a fresh sheet of paper.

COMMENTED LISTING

```
5  &OPEN:IN = 0:TT = 0
```

The &OPEN command initiates access to **The General Manager Data Bases**.

IN (invoice number) is initialized to 0.

TT (grand total of all invoices) is initialized to 0.

```
10 SC = 3: DIM L(SC):W$ = "":KQ$ = ""
```

Here the dimensioning is set for the system. We will use only the first 3 screens of the CUSTOMERS data base. (SC=3). L(n) will contain the number of the last field on screen n.

W\$ (print string) and KQ\$ (key query criteria) are initialized to a null string.

```
20 FOR S = 1 TO SC: &INFO,S,L(S): NEXT S
```

This enters the number of the last field on each of 3 screens into the array L(S). Each field in the data base has a unique number, with the first field on Screen 2 immediately following the last field on Screen 1.

```
30 DIM DA$(L(SC)): &PR#
```

The data array is dimensioned to the total number of fields in the 3 screens we will use.

&PR# sends subsequent output to the printer as specified in DEFINE ENVIRONMENT.

```
40 &READ,1,DA$(1),KQ$
```

Here we input each of the fields from the first record of Screen 1, CUSTOMERS. There are no key criteria, as we accept KQ\$ as "". The information from these fields is stored in the data array, DA\$.

```
50 IF USR(0) THEN &CLOSE:W$ = STR$(
```

```
(TT):&POSFLD,2,7:
```

```
PRINT CHR$(12);"TOTAL OF INVOICES ";; &PRINT,W$:
```

```
PRINT :
```

```
PRINT CHR$(4);"PR#0": END
```

Whenever a record is found, USR(0) is set to zero, so the program moves on to the next line without performing the close and total printing operations.

If no Customers record is found, the Data Base is &CLOSED.

After the Data Base is closed, &POSFLD checks the attributes of field 7 on Screen 2 for formatting information; the grand total is printed, and the printer is turned off.

55 SB = 0:ST = 0

Individual invoice subtotal and sales tax are set to zero.

60 IN = IN + 1: PRINT CHR\$(12): PRINT "INVOICE# ";IN:
PRINT

Invoice number is incremented. Form feed (CHR\$(12)) starts a new sheet of paper; invoice number is printed at the top of the page.

70 PRINT "CUSTOMER# ";DA\$(2): PRINT

DA\$(2) contains the information in the second field of Screen 1: Customer #.

80 PRINT DA\$(1): PRINT DA\$(3): PRINT
DA\$(4);" ";DA\$(5): PRINT
DA\$(6)

Fields 1 and 3 contain the customer name and address; fields 4, 5 and 6 contain the city, state and zip.

90 PRINT : PRINT : PRINT

A space is inserted before the itemized invoice information.

100 FOR F = 2 TO 7: &POSFLD,2,F: &PRTNAME,0: PRINT
" "; NEXT F:
PRINT : PRINT

The program loops through the setup information on Screen 2. First the Blank Forms pointer is set to the appropriate field on Screen 2. Then we print the column headers, by using &PRTNAME. The &PRTNAME parameter 0 specifies that the headers should be centered.

110 &READ,2,DA\$(1),KQ\$: IF NOT USR(0) THEN 120

Read a record of screen 2 into the data array, without any key criteria. If a record is found, skip to line 120.

112 PRINT :W\$ = STR\$(SB): PRINT

"SUBTOTAL " ;:

&PRINT,W\$: PRINT :W\$ = STR\$(ST): PRINT "SALES

TAX " ;:

&PRINT,W\$: PRINT

No record was found. Print Subtotal; print Sales Tax (using the formatting information from the last field accessed).

113 W\$ = STR\$(SB + ST): PRINT "INVOICE TOTAL " ;:

&PRINT,W\$:

PRINT :TT = TT + SB + ST:SB = 0:ST = 0: GOTO 40

Compute and print the Invoice Total. Add Sales Tax and Subtotal to the Grand Total, and print total of this invoice.

Return to line 40 for a new customer.

```
120 FOR F = 2 TO 7: &POSFLD,2,F: &PRINT,DA$(L(1) + F):  
PRINT " ";  
NEXT F: PRINT
```

Now the program prints the detailed information from this order (on Screen 2) for this customer. Each item is contained in the data array: DA\$(L(1)+F) contains the information in field F of Screen 2.

```
125 SB = SB + VAL (DA$(L(1) + 6)) - VAL (DA$(L(1) +  
7)):ST = ST +  
VAL (DA$(L(1) + 8))
```

The subtotal is incremented by the amount in field 6 (extended cost); the Sales Tax is incremented by the amount in field 8.

```
130 GOTO 110
```

Now go back to read the next order for this customer.

EXERCISE

Write an extension of the program to take the total of each invoice and post it to the RECEIVABLES screen.

NOTE

You will notice that extra spaces appear when you list your program. This is normal—it is because many of the User Commands contain words which are Applesoft Tokens. Applesoft automatically inserts spaces before and after every token!

CHAPTER 16

INTERFACE COMMANDS

I/O COMMANDS

General

All I/O commands that access a record for a specific screen must be executed in the proper sequence according to the data base design. You cannot access a child screen before you have successfully accessed its parent. For example you must read a FAMILY record before reading its DATES, CHILDREN or CARD records.

When &READING a child screen, USR(0) is set to 1 if no more records are found for the current parent. (USR(0) = 1). To continue, the next parent must be &READ before continuing with the child screen.

&OPEN

Format: &OPEN

This command is used to initiate data base access. The following points are very important.

An &OPEN command must:

- Be executed BEFORE any General Manager Interface commands are executed.

- Be executed BEFORE any variables are defined.

- Be executed AFTER any change to HIMEM. This includes the DOS MAX-FILES command.

- Not be executed twice. (File access error 255)

After a General Manager file is &OPENed, any DOS or Applesoft command may be executed except FP, HIMEM or MAXFILES.

&CLOSE

Format: &CLOSE

This clears all active buffers, releases all buffer space and terminates processing of the data base. HIMEM is moved back up to the point where it was prior to &OPEN. This command may be executed more than once with no effect if the file is already &CLOSED.

&CHKPT

Format: &CHKPT

This functions as a temporary close in that all active buffers which must be written to the disk are written and the system sector is updated. This will make all changes permanent on the data base.

&READ

Format: &READ,s,D\$(1),KQ\$(1),x (x = F, N, or C)

This command READs a record for screen s. The data is positioned in the correct locations in the D\$ array. The record read is subject to the criteria in the KQ\$ array (Key Query). The first occurrence of KQ\$ (KQ\$(1)) contains the criteria for the PRIMARY key. (e.g. 'SMITH' or '>10001'). KQ\$(2) contains criteria for the second key, etc.

The options of F, N, C are:

- F – (First) Start from the beginning of the file (within parent) and find the First record that meets the criteria.
- N – (Next) Continue with the current position of the file and find the Next record that meets the criteria.
- C – (Current) Read (reread) the record currently positioned at.

After execution the value of USR(0) will be set to 0 if a record was read or 1 if no record was found. It will be set to 6 if the user types <CTRL Q> while **The General Manager** is reading the record.

&FIND

Format: &FIND,s,K\$(1),KQ\$(1),x (x = F, N, C)

This command is like &READ except that only the keys to the record will be read. The non-key fields on the record are not read.

When executed (and $USR(1) = 0$) K(1)$ will contain the value of the primary key, K(2)$ then second key etc.

After a successful &FIND you could execute &READ,s,D\$(1),KQ\$(1),C (current) to read the rest of the record. This may be of use in some complex data bases by not reading the entire record unless needed.

&WRITE

Format: &WRITE,s,D\$(1),x (x = W or T)

This command will write the data in the D\$ array corresponding to screen s, to the data base. If the W (Write) option is executed, the record is written unconditionally. If the T (Test) option is specified, the record is written only if it is NOT a duplicate (key) record. If it is a duplicate, then $USR(0) = 0$ (else 1). In this case to write the record anyway (usually after user confirmation) use &WRITE,s,D\$(1) without the W or T option.

&DEL

Format: &DEL,s

Deletes the most recently read record for screen S. When a screen with offsprings is deleted, the offsprings will be deleted as well. However this will not be reflected in the deleted record counts for the offspring screens.

&RECUPD

Format: &RECUPD,s,D\$(1)

Re-writes the updated data from D\$ array for the most recently read record from screen S. No I/O must be done for screen S between the &READ and the &RECUPD.

SCREEN COMMANDS

&POSYST

Format: &POSYST

Positions the internal Blank Forms pointers to the /SYSTEM. If there is no /SYSTEM, $USR(0)$ will be 0 on return.

&POSCRN

Format: &POSCRN,s

Positions the internal Blank Forms pointers to the /SCREEN for screen S.

&SCL

Format: &SCL,"parm",W\$

Used following a &POSYST or &POSCRN to obtain the value of "parm" on the /SYSTEM or /SCREEN. If "parm" is not present W\$ will not be altered. For example, to find the value of the NAME parameter on the /SCREEN you would code the following sequence:

```
&POSCRN,1
```

```
&SCL,"NAME",W$
```

&POSFLD

Format: &POSFLD,s,f

Positions the internal Blank Forms pointers to field f on screen s. This must be done prior to many functions (e.g., printing, inputting data, etc.) which determine how to handle the data based on the attributes of the field. Following &POSFLD, a number of USR values are set:

- USR(0) = 0 if screen s was found
- USR(0) > 0 if screen s was not found
- USR(1) = 0 if field f was found on screen s
- USR(1) > 0 if field f was not found on screen s
- USR(12) = the ending attribute character
- USR(13) = the beginning attribute character
- USR(18) = the maximum length of the field

SCREEN INPUT/OUTPUT COMMANDS

&SCREEN

Format: &SCREEN,s (where s is the screen number to be displayed)

This command causes the specified screen format to be displayed on the screen.

&INPUT

Format: `&INPUT,W$`

This command accepts input for a particular field from the keyboard. An `&POSFLD` must have been previously executed for the field that is being entered.

&PRINT

Format: `&PRINT,W$`

This command will print the value of the string `W$`. The format of the data will be that of the field previously positioned to (`&POSFLD`). It is important to realize that the field will be centered in an imaginary window produced by the larger of the field width and the length of the name of the field. Trailing spaces are printed when the name is longer than the field and variable length numeric fields are right justified in the field. This makes printing a report very easy. To eliminate the centering in the window, you may execute a `POKE 9,0` after the `&POSFLD` and prior to the `&PRINT` for the field.

&PRTNAME

Format: `&PRTNAME,n` (where `n` is the print option of 0, 1, 2 or 3)

This command prints the label given to a field defined in the screens. The print options are as follows:

- 0 – Print normal display with the name centered over the space the associated field would require to print.
- 1 – Print inverse display with the same spacing as 0.
- 2 – Print normal display with no centering. It will print starting where the cursor is currently.
- 3 – Print inverse display with the same spacing as 2.

&SETCMD

Format: `&SETCMD,C$` (where `C$` is a string variable containing allowable commands)

This command is used prior to `&INPUT` to specify which of the control commands may be used. The string representing the allowable commands is placed in `C$` prior to issuing this command. For example, if `<CTRL E>` and `<CTRL G>` are to be allowed the following sequence would prepare for this:

```
C$ = "EG":&SETCMD,C$
```

&DUMP

Format: &DUMP

When issued, this command causes the current screen display image to be reproduced by the printer. This function may be accomplished while using **The General Manager** by pressing <CTRL P> from any screen display function.

&SEL

Format: &SEL (waits for <CTRL Q> or <RETURN> to be pressed).
Returns with $USR(0)$ equal to 1 or 0 respectively.

&SEL,0,Y(W\$), waits for the response of either Y or N. The second parameter specifies the default to be displayed when the command is used. On return $USR(0)$ will be 0 for N, or 1 for Y.

A string variable may be used as a third option in which case the response will be placed into that variable. The left and right arrows may be used to switch between Y and N using <RETURN> to select the desired response.

&SEL,n1,n2,n3

This format of &SEL is designed for menu selection. $n1$ gives the VTAB location of the first item on the menu, $n2$ gives the number of blank lines between menu items and $n3$ gives the number of items on the menu. &SEL assumes there are $n3 + 1$ total number of items on the menu and that the 0th item is a return. A selection arrow will be placed at the left window on the first item. The left and right arrows are used to position to the item to be selected. The menu items should be printed 2 spaces beyond the left window. On return, $USR(0)$ will contain the index to the item selected. The first item will return a value of 0.

&WAIT

Format: &WAIT

This command checks for the pressing of <CTRL Q> and <RETURN>. When <RETURN> has been pressed it will wait until another <RETURN> has been pressed and then return with $USR(0)$ equal to 0. If <CTRL Q> is pressed it will return with $USR(0)$ set to 1.

OTHERS

&INFO

Format: &INFO,s,L(s)

&INFO loads the array L(s) with the number of the last field in the screen 's'. This number would be used as an index into the data string array. For example, D\$(L(1) + 1) would access the data for the first field on screen 2. Each screen contains one more than the number of user-defined fields. This is an internal screen field and is included in the value of L(s).

&NULL

Format: &NULL,s,D\$(1) (where s is the number of the screen to be nulled)

This command is used to null the fields in D\$(1) associated with screen 's' as well as the fields in D\$(1) associated with the immediate and all eventual children (descendents) of screen 's.'

&PR#

Format: &PR#

This command initiates output to the printer already defined in the environment definition. If present, the printer setup characters will be sent by this command.

©

Format: ©,D\$(ss),D\$(se),E\$(ts)

Copies a range of elements in a string array to another (or the same) string array. 'ss' is the element of the array to start copying from, 'se' is the element of the array to end copying from and 'ts' is the element of the target array to start copying to.

&STRADD

Format: &STRADD,W\$

Return the address of the pointer to the string descriptor at location \$1A. The string descriptor is also copied to location \$1C-\$1E.

&OUTFLD

Format: &OUTFLD,s,D\$(1)

The primary use of &OUTFLD is to fill in output and generated fields. This function is initially performed for each record by &READ. If some of the data used in a calculation is changed in the course of a user program, &OUTFLD may be performed in order to update the result of the calculation.

&VER

Format: &VER,n (where n = 0, 1 or 2)

This command is used to verify the presence of the specified disk on the appropriate drive. &VER,0 verifies the program disk, &VER,1 verifies the Blank-Forms disk and &VER,2 verifies the text file output disk. If the requested disk is present &VER returns with $USR(0)$ non-zero. If the requested disk is not present when &VER is invoked, it will issue a prompt to insert the requested disk in the appropriate drive and return with $USR(0)$ non-zero. If the user responds with <CTRL Q> to the prompt to insert the disk it returns with $USR(0) = 0$.

&MSG

Format: &MSG,M1\$ or &MSG,M1\$,M2\$

This format will print a one or two line message at the bottom of the screen. Line 1 will be the value of M1\$, line 2 will be M2\$.

Format: &MSG,w (where w = 1 or 2)

This format will print a message (depending on the value of w) at the bottom of the screen and then wait for the appropriate keyboard response.

w = 1: <CTRL Q> TO QUIT, <RETURN> TO CONTINUE

w = 2: <RETURN> TO CONTINUE

After the response is accepted, $USR(0) = 0$ for <RETURN>, 1 for <CTRL Q>.

Format: &MSG,M1\$,w (w = 1 or 2)

This format is a combination of the previous formats. The value of M1\$ is printed, then the correct message is printed for the number supplied, then the correct response is accepted.

&DIR

Format: **&DIR,n,W\$** (where n = 1, 2, 3 or 4, and W\$ is a string variable to receive the selected file name)

The **&DIR** is used to give a catalog selection list to access certain DOS files used by **The General Manager**. The possible values for n and their meanings are:

n=1 Look for 'BLANK-FORMS'.

n=2 Look for 'TEXT'.

n=3 Look for 'USER'.

n=4 Look for 'SELECT'.

Prior to listing the files for selection **&DIR** performs a **&VER** for the type of disk needed. A list of the files of the type requested are listed in a menu format. The user selects the desired file using <-, -> and <RETURN>. The name selected is returned in W\$. If the user chooses 'ENTER NAME,' W\$ is returned null. **USR(0)** will return a '0' if the user chooses to <RETURN> from this function. A choice of 'ENTER NAME' will return a '1.' A filename choice will return '2' or higher in **USR(0)**.

INTERNAL COMMANDS

The following commands are not intended for general use by applications users. They are listed here for information only.

&QUERY

This command evaluates the user-defined record selection criteria.

&POSPRT

This command determines the next field to be printed in REPORTING.

&UPDPRT

This command updates the line and column position and leading spaces for the field just positioned to by **&POSPRT**.

&PRTHEAD

Prints title, page number and column headings as specified by report parameters.

&PRTLIN

Prints a line group as specified by report parameters.

&DEFREQ

This command is used in SORT and REORGANIZE to copy a data base.

&SETREQ

This command, used with &DEFREQ, sets which data base is to be accessed by the subsequent commands.

&SYSSEC

This command will read in the data base system sector.

&INIT

This command performs certain initialization functions for a data base.

&CURSOR2

May be used following &POSFLD to position to the next field on the screen. The USR values for &POSFLD also apply to &CURSOR2.

&INPUT2

This command is a more general keyboard input than &INPUT.

&PRINT2

Internal command for printed output.

&CPYQ2D

Copy utility used in conjunction with &QUERY.

&CPYD2Q

Copy utility used in conjunction with &QUERY.

&CALC

Performs user-defined on-screen calculations.

&SEQUENCE

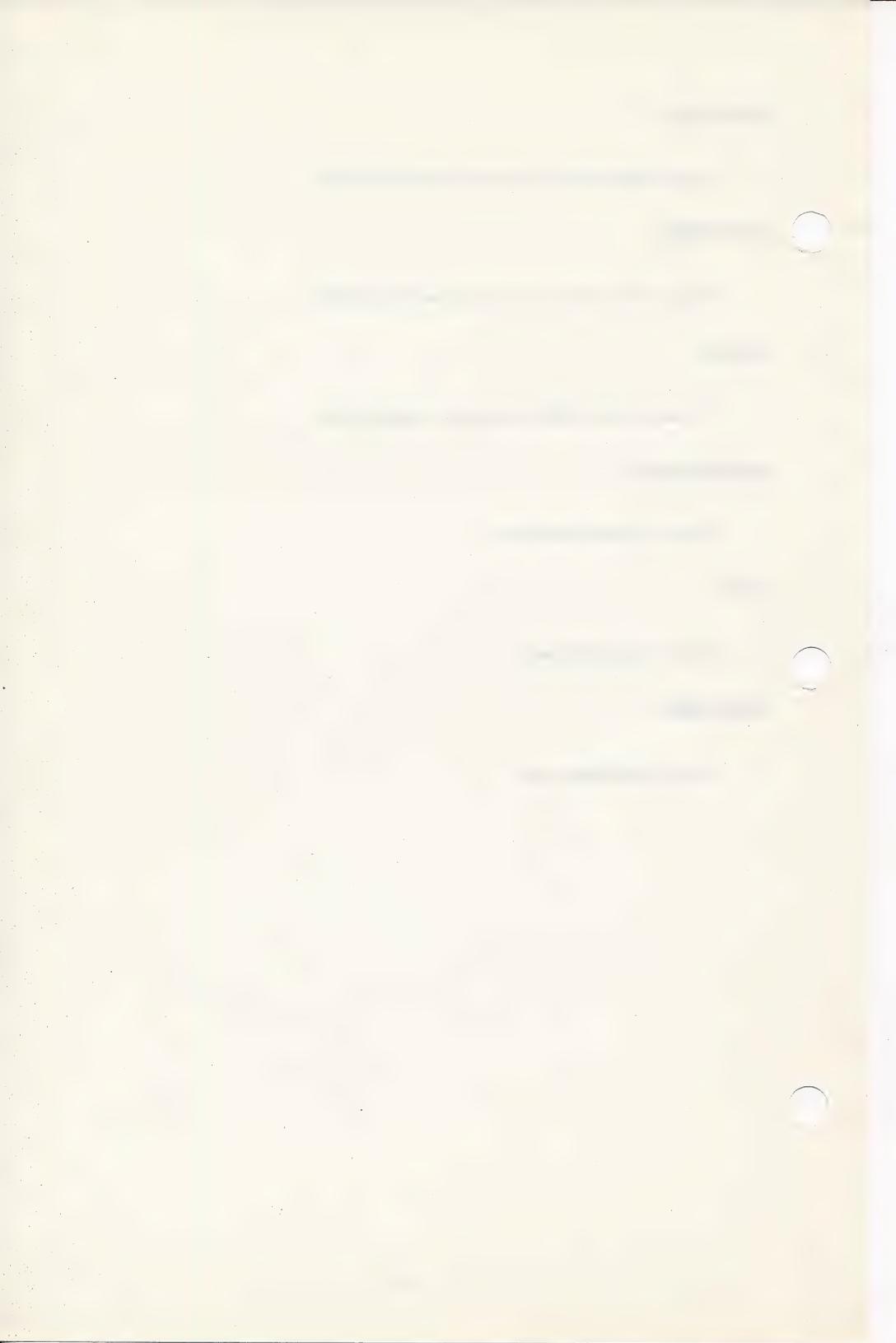
Writes a sorted file format.

&FIX

Used in error recovery.

&RESUME

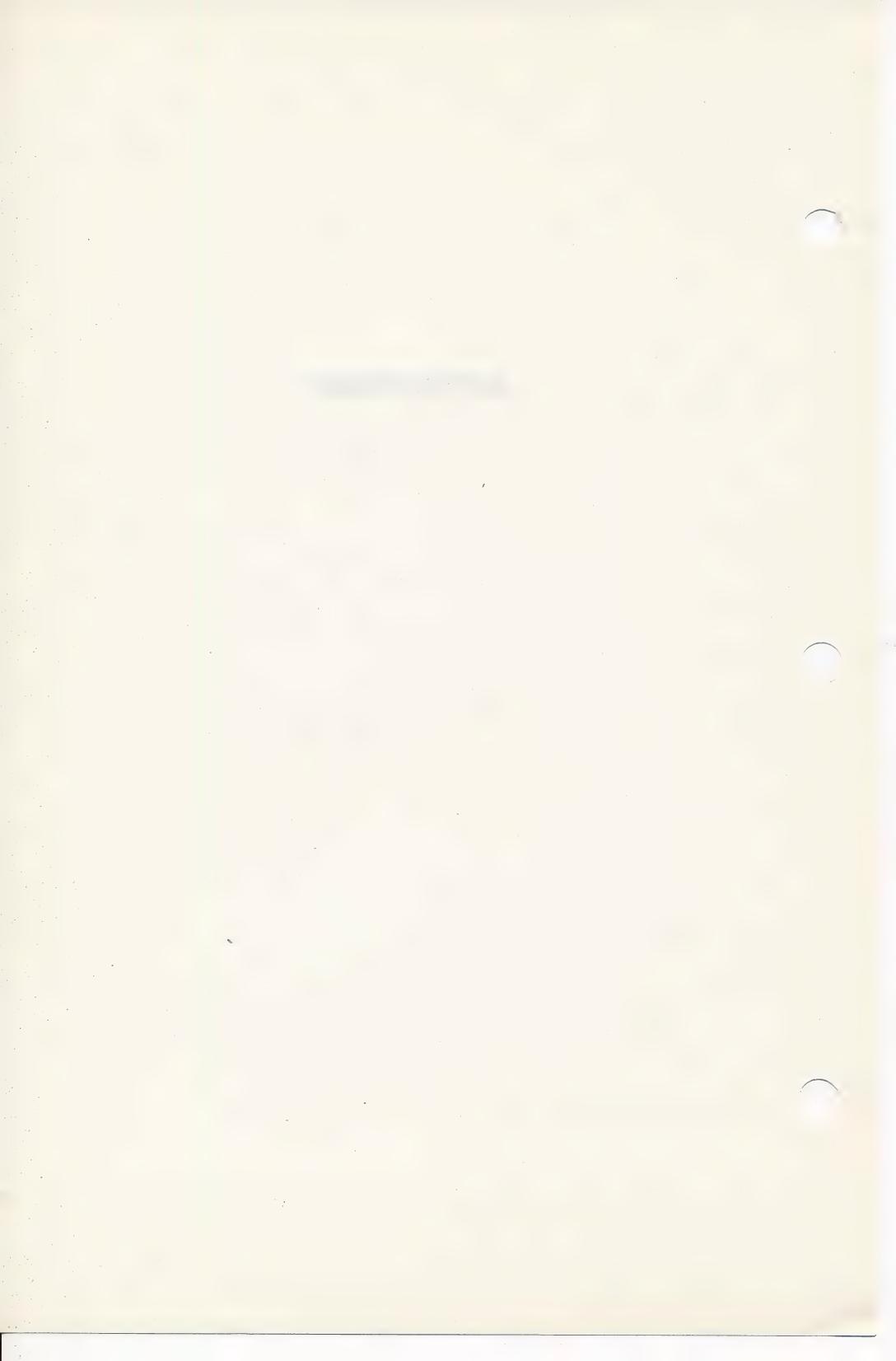
Used in error recovery.



APPENDICES

APPENDICES

APPENDICES



APPENDIX A

DEFINE ENVIRONMENT

Purpose:

The Define Environment function enables you to set up the internal parameters of **The General Manager** to work most efficiently with your particular Apple Computer system. You specify such things as the number (and type) of disk drives you have, what characters are needed to get your printer working properly, whether you have a clock card (or, if not, the current date) and how you wish to deal with upper and lower case letters.

TO CUSTOMIZE THE MASTER PROGRAM DISK FOR YOUR SYSTEM.

To select the DEFINE ENVIRONMENT function:

1. Turn off the power to your computer.
2. Insert the disk labelled ' Master Program Disk' into Slot 6, Drive #1.
3. Turn the power on again.
4. You will see the DATA BASE MASTER MENU, with an inverse arrow => pointing to ' RETURN TO BASIC'. Press the right arrow key (-->), and the arrow will move to ' DEFINE ENVIRONMENT'. Now press <RETURN>.

DISK DRIVE ASSIGNMENTS

1. If you have two disk drives and they both reside in Slot 6, you may wish to skip to the PRINTER SETUP section, thereby accepting all the default values in this section.

2. Look at the second line of the menu. If the number of drives specified is not correct for your system, press the right arrow once, to move the selection arrow to 'NUMBER OF DRIVES . . .' and press <RETURN>.
3. In response to 'ENTER NUMBER OF DRIVES:2,' enter the number of drives in your system, and press <RETURN>.

At any time you see a response to the question already displayed, you may accept that default by pressing <RETURN>, without entering an answer.

NOTE

You are about to define all of the drives that you have. You must define them in the sequence that you want **The General Manager** to use when storing DATA.

4. In response to 'ENTER SLOT# FOR DRIVE-1: ', type <RETURN> (to accept the default).

Default Drive Assignments

	1 Drive	2 Drives	3 Drives	4 Drives
Drive-1	S6,D1	S6,D2	S5,D1	S5,D2
Drive-2		S6,D1	S6,D2	S5,D1
Drive-3			S6,D1	S6,D2
Drive-4				S6,D1

These defaults must be changed if your system uses different Slot/Drive assignments. For most effective disk swapping, we recommend that the drive you wish to be used for the Program Disk be defined last.

5. In response to 'ENTER DRIVE# FOR DRIVE-1: ', type <RETURN>, to accept the default.
6. Repeat the slot and drive assignments until you have specified a slot and drive for each of your drives.
7. In response to ' DEFINE DATA DISK TYPE', type <RETURN>, to accept the default of ' FLOPPY', unless you have a hard disk. If you have a hard disk, type the right arrow until the selection arrow points to the correct type of hard disk, and press <RETURN>.

8. Type <RETURN> to accept the default of allowing all your drives to be data drives. You may, if you wish, limit your data drives, but there is seldom any advantage in doing so.
9. The next question will determine whether **The General Manager** will save your data to the disk at the end of each updated or new record. If you enter 'N', you may save a little time during the data entry process, but you run the risk of losing data in the event of a power failure. You must also be sure, if you have entered 'N' here, to exit any data entry procedure by an orderly climb back through the menus to the DATA BASE ACCESS MENU. We strongly recommend, at least at first, accepting the default of 'Y'.

PRINTER SETUP

(If you do not have a printer, skip to SET DATE AND TIME.)

1. Press the right arrow key 5 times, until the selection arrow points to 'PRINTER SETUP'.
2. Press <RETURN>.
3. Unless your printer interface card is in a slot other than #1, type <RETURN> to accept the default slot. If your printer is in another slot, enter that slot number. If your printer requires a special driver, enter the address of your special driver. Note that if you are replacing a hex address with a shorter slot number, you must remove the hex address by typing 4 spaces or <CTRL K> after entering the slot number and before pressing <RETURN>. There is more information on printer drivers in Appendix B.
4. If your printer requires setup characters, enter them in response to the next question. For example, for an Apple Parallel Card, <CTRL I>80N would be the correct characters. <CTRL> characters are printed in inverse here. If you do not know the correct setup characters, see Appendix B. After you have entered the setup characters, press <RETURN>.

You can't back up a field to correct errors. You can go through to the end of the section, select the PRINTER SETUP option again, and enter the correct characters.

5. Press <RETURN> to accept the default of 66 lines per page. Since you may change this parameter when defining individual reports, it is best to set the program default to the standard 11 inch page.

6. The computer will beep to remind you to turn on your printer for a printer test. When the printer is turned on, press <RETURN>. **The General Manager** will send some sample characters to your printer, using the parameters you have provided. If the test prints correctly at your printer, type <RETURN> to continue. Otherwise, type <CTRL Q> to go back to enter new parameters to be sure the printer will work.

SET DATE AND TIME.

1. Press the right arrow 6 times, so that the selection arrow points to ' SET DATE/TIME'. Press <RETURN>.
2. Unless you have a clock card installed in one of your Apple's slots, press <RETURN> to go on to the next question. If you do have a clock card, type ' Y' in response to ' DO YOU HAVE A CLOCK CARD?', and see Appendix G for Clock Identification.
3. Enter the current year, month and day (each in two digit format) as prompted. This date will be entered into the current field whenever you type <CTRL W> during data entry or update, or whenever an automatic dating field (see Appendix G) is encountered.

KEYBOARD DISPLAY OPTIONS

1. Now press the right arrow 7 times so that the selection arrow moves to ' SET KEYBOARD/DISPLAY OPTIONS', and press <RETURN>.
2. Press <RETURN> to accept the ' Y' response to ' ALLOW LOWER CASE IN DATA?'. **The General Manager** stores text in upper case and lower case, even though the Apple will not display lower case letters unless a lower-case chip is installed. Most printers will print lower case and upper case characters, so that your printed reports can include both upper and lower case if you use both in your Data Base.

If lower case is allowed, **The General Manager** will display lower case letters in normal print on the screen, and will display upper case letters as inverse (black on white). If lower case is not allowed, reports containing lower case letters will appear like nonsense if sent to the display.

If you answer ' N', then skip to step 6.
3. Unless you have a lower case chip, press <RETURN> in response to the next question, ' DO YOU HAVE A LOWER CASE CHIP?'.

4. Unless you have made the shift key modification (see Appendix D), type <RETURN> to accept the ' N' response to the next question. If you have made the shift key modification you will be able to obtain capital letters by holding down the shift key while typing the letter, so enter ' Y' <RETURN>.
5. 'FIRST LETTER DEFAULT TO CAPS?': The General Manager allows you to enter either lower case or upper case letters. To change the case of the next letter, type <CTRL Z>. If you plan to have the first word of each field begin with a capital letter, you may wish to select this option, which causes **The General Manager** to put you into upper case mode for the first letter of each field only.
6. The default ' Y' to the question ' DISPLAY SCREEN LABELS AS INVERSE?' causes the field labels to appear in inverse type, while the data input by the user appears in normal type. Some people do not like the inverse printing on the screen. To have the entire screen display in normal type, enter ' N'.

TEXT FILE RECORD DELIMITER

This is an option useful for interfacing **The General Manager** reports with Screen Writer][or other form letter programs. The character you select will be placed at the end of each record in a report sent to a text file. To change the character, simply select the option and enter the new character.

SAVING ENVIRONMENT DATA.

1. Look over the table as displayed in the menu. If you are satisfied, select <RETURN>. The computer will beep and display the message:

SAVING ENVIRONMENT DATA ON PROGRAM DISK
REMOVE WRITE PROTECT TAB

2. Remove the write protect tab from your Master Program Disk, put it back into the drive, and type <RETURN> again to save this information so that **The General Manager** can use it.
3. Place a new write protect tab on the Master Program Disk. Be sure and save environment on MASTER PROGRAM DISK (not on working disk).
4. Put the Master Program Disk in its envelope, and put it aside until the next time you need to boot your system. Except for booting, all of the processing will be done using the Working Program/Blank Forms Disk.

You may reconfigure the system as often as you like. If you wish to experiment with different environments, you needn't save the environment each time you define it. If you have defined an environment and exit with a <CTRL Q> rather than a <RETURN>, **The General Manager** will continue to use the parameters you have just set until the next time you boot the system. If you are using AUTOMATIC DATING (see Appendix G), you may wish to go to DEFINE ENVIRONMENT every day just to change the date. You needn't change any of the other information; it will all remain as it was defined when you most recently SAVED it.

APPENDIX B

PRINTER TEST AND PRINTER DRIVERS

PRINTER TEST

A good way to test for proper printer operation is to follow this procedure:

1. Boot your computer using your DOS 3.3 Master Diskette. Remember, **The General Manager** requires DOS 3.3, the 16 sector version.
2. Turn on your printer. You'd be surprised how often people forget this part!
3. Type:

```
PR#1 <RETURN>  
CATALOG <RETURN>
```

You may see the catalog simultaneously appear on your monitor screen and the sheet of paper in the printer. If the system hangs—does nothing—you might have a problem with the cable between the printer and the computer. Generally, the computer “waits” for the printer to “tell” it that everything is ready. Lacking this message, the computer will patiently look for the message, ignoring almost all other entreaties. The only way out is to hit <RESET> (or <CTRL RESET> on the newer Apple computers) to interrupt the printer connection.

Many printers have a self checking or test print feature. Consult your manual or call your dealer to find out how to run this utility.

If the printer checks out, the next step is to check the interface card. Simple cards like the Apple Parallel Card respond directly to:

```
PR#1 <RETURN>
```

Other, more complicated cards, such as multi-function cards, may require additional characters to tell them what to do next. Again, consult your manual, or call your dealer for help if you can't figure out what to do.

Let's assume you've managed to coax a DOS 3.3 Catalog listing out of your printer. The next step is to print over the full page width, usually 80 characters. Most printer interface cards require a string of characters to tell them how long a line to print before issuing a <RETURN>. A typical character sequence is:

<CTRL I>80N

which works with the Apple parallel card. Consult your printer and interface manuals for the appropriate character sequences for your equipment.

Some printers, such as the more flexible dot matrix units, offer lots of different type styles and sizes. They also require extra code sequences to set up these different characters.

If figuring out the combination of printer and interface card character sequences seems confusing, we suggest that you use the simplest printer/interface setup that will meet your requirements. Your dealer is the best place to start, should you need some help. If at all possible, get him to set up the equipment for you and demonstrate it before you buy.

PRINTER DRIVERS

Printer Drivers may reside at the beginning of page 3 (\$300-\$3CF). The **General Manager** has left this area available for such purposes.

To have your Printer Driver loaded for you during boot, perform the following steps:

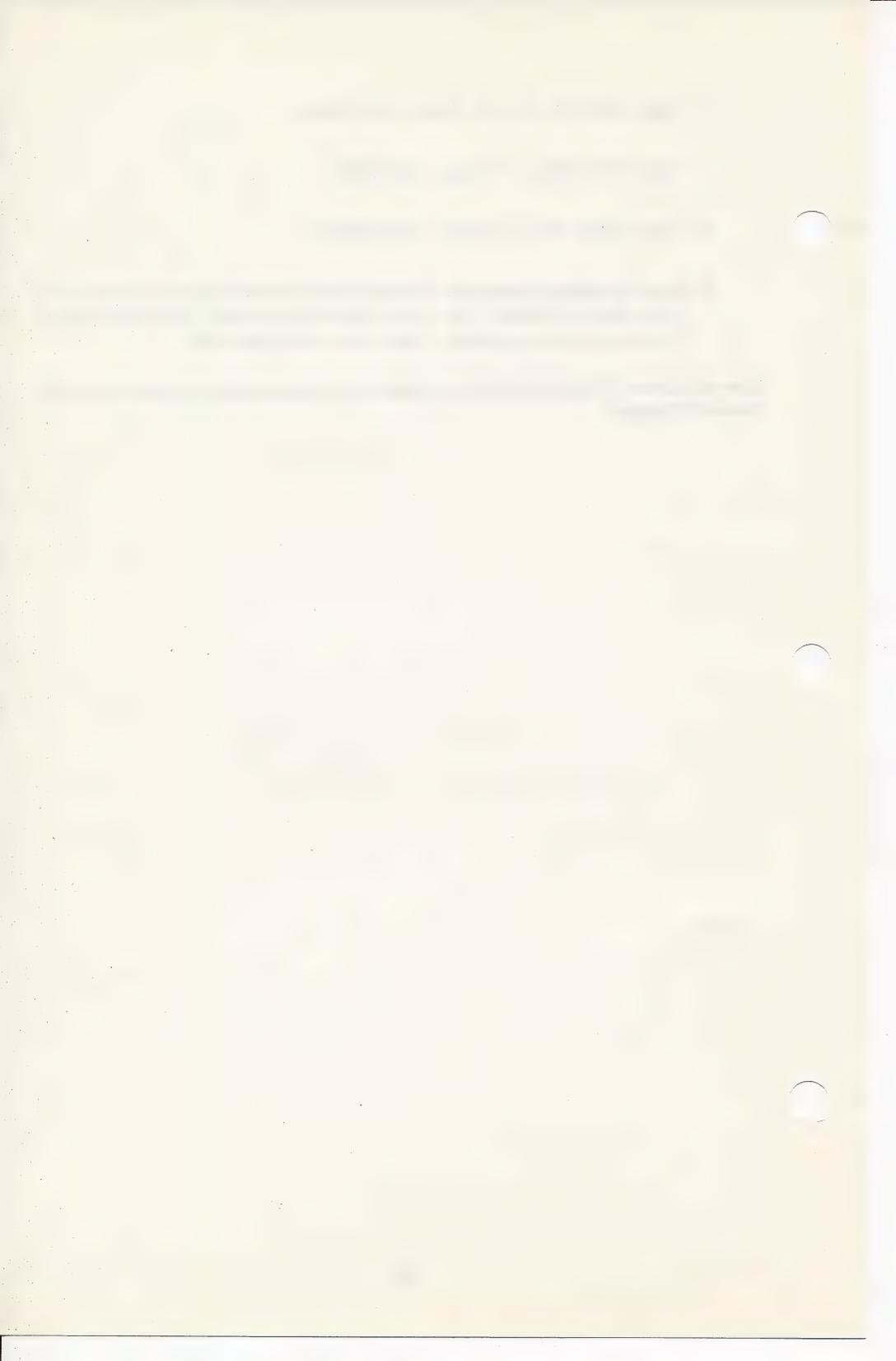
1. Place a copy of your printer driver program on the General Manager Master Program Disk, using the FID utility from your DOS 3.3 Master Disk.
2. If you have exited from the General Manager DATA BASE MASTER MENU, type FP before proceeding. With your computer up in Applesoft, place the Master Program Disk in the disk drive.
3. Type 'LOAD HELLO'. Press <RETURN>.
4. When the whirring stops, enter the following line:

```
2 PRINT:PRINT CHR$(4)"BLOAD {your driver's name},A$300"
```

5. Press <RETURN>.

6. Type 'UNLOCK HELLO'. Press <RETURN>.
7. Type 'SAVE HELLO'. Press <RETURN>.
8. Type 'LOCK HELLO'. Press <RETURN>.
9. Boot **The General Manager**. Select DEFINE ENVIRONMENT from the DATA BASE MASTER MENU. Go to the Printer Setup section, and enter \$300 or 768 as your printer address. Save your environment data.

Now your driver will automatically be loaded each time you boot your system with **The General Manager**



APPENDIX C

NOTICE TO VERSION 1.0/1.5 USERS

Prior to using Version 2.0 for the first time, please read the following:

Care was taken to insure that any data bases created and used in Version 1.0/1.5 would be useable with Version 2.0. However, Version 1.0/1.5 Data Structures and stored Report Requests will require slight modifications prior to using them in Version 2.0.

Data Structures are being called BLANK FORMS in Version 2.0. Prior to using your existing Data Structures with Version 2.0 you must rename them and check them for errors. For example, if you currently have a Data Structure named:SCREENS.BOOK LIBRARY the following DOS command will rename it for proper Version 2.0 use:

```
RENAME SCREENS.BOOK LIBRARY,BLANK-FORMS.BOOK LIBRARY
```

You must rename all existing Data Structures in a similar fashion. They must be then error checked through the BLANK FORMS EDITING utility prior to use with Version 2.0.

All Version 1.0/1.5 stored Report Requests must also be renamed and converted for use with Version 2.0. A filename prefix of 'SELECT.' must be added to each stored report request file. For example, if you have a stored Report Request named REPORT1 the following DOS command will rename it for proper Version 2.0 use:

```
RENAME REPORT1,SELECT.REPORT1
```

NOTE

To rename a large number of files, you may use the FID file utility to copy the files to the same disk they are currently on. FID will tell you that the file exists already, and ask you for a new name. This has the added advantage of preserving the original file.

Following the renaming of all stored Blank Forms and Report Requests, the user program USER.CONVERT REPORT REQUESTS must be run to convert each Report Request for all existing data bases you wish to use with Version 2.0.

WARNING

Once you have converted your Blank Forms and Report Requests and used your Data Base with Version 2.0 you may not go back and use them with Version 1.0/1.5.

CORVUS USERS: Before using your Data Base(s) with version 2.0, follow this procedure for all data on the Corvus:

1. Select BACKUP/RESTORE DATA BASE from the UTILITIES menu. Backup the Data Base from the Corvus to floppy, defining the Corvus as a floppy.
2. When the backup is complete, use BACKUP/RESTORE DATA BASE to copy the Data Base back to the Corvus, defining the input as floppy, and the output as Corvus.

SUMMARY OF ENHANCEMENTS

- When in Data Entry mode, you may go directly to Browse/Update by pressing <CTRL B>.
- When in Browse/Update you may go directly to Data Entry by pressing <CTRL I>.
- SCREEN DUMP When in any function which is displaying a screen (data entry, browse/update, field selection in reporting, etc), the user may press <CTRL P> to get an exact screen image sent to his printer.
- GLOBAL UPDATE/DELETE This is a utility which allows the user to perform update and delete functions on the entire data base with a minimum of interaction.
- When defining a blank form you can have up to 16 keys per screen with a maximum of 31 keys per data base.
- When defining blank forms, /SYSTEM may be omitted.
- When defining blank forms, /SCREEN, for the first screen, may be omitted.
- A new parameter, ENDEVOL/ENDDRIVE, has been added to /SYSTEM. This allows the user to limit the size of his data base.
- A new parameter, DUPLICATES, has been added to /SCREEN specifying the placement of records with duplicate keys.

- The user can now sort on up to 16 keys of any field type. Ascending or descending sequence can also be defined for each key.
- Version 2 reporting allows:
 1. Assignment of line and column positioning for each field selected for print.
 2. Assignment of an alternate column heading for any field selected for print.
 3. Assignment of a number of spaces to be printed prior to printing the field. This allows flexibility in columnar spacing. The default is 1.
 4. Control totals may be taken for up to 4 intermediate break fields plus a final total.
 5. Up to 15 quantitative numeric fields may be totalled.
 6. A new print parameter allows the suppression of titles and headings.
 7. A new print parameter allows the user to suppress the printing of trailing spaces.
 8. A new print parameter allows the user to set the bottom page margin value.
- Support has been provided for popular clock cards for the inclusion of current date/time in data base records.
- The ability to update the key field(s) is provided in Browse/Update.

USEABILITY ENHANCEMENTS

1. New menu selection technique.
2. Instead of getting 'DISK ERROR-x', the text of each error message is displayed.
3. A volume number may be specified for data base statistics. In addition, the statistics may optionally be sent to the printer.
4. A new command, <CTRL S>, has been added to screen editing. This command positions the next '/SCREEN' at the top of the display.

5. All references to 'DATA STRUCTURES DISK' have been changed to 'BLANK FORMS DISK' or 'WORKING PROGRAM/BLANK FORMS DISK'.
 6. Whenever the user is requested to supply a filename—BLANK FORMS, REPORT REQUESTS, USER PROGRAMS, TEXT FILES—<CTRL S> may be used to select from the catalog. Only those filenames which apply to the function being performed will be shown.
 7. Because of the lower case facility, the 'prefixed by' search criteria of version 1 ' ' has been changed to a '/'.
 8. <CTRL X> in the Blank Forms Editor has been changed to <CTRL K> (KILL rest of line) <CTRL T> in the DATA ENTRY/BROWSE portion of the system has also been changed to <CTRL K>.
 9. <CTRL F> will display help information from the Blank Forms Editor and from any function which uses or displays the user Blank Forms (data entry, browse, etc.). <RETURN> will go back to the function being performed prior to invoking <CTRL F>.
- The ability to have upper/lower case characters in the data base records is provided with no additional hardware. If present, the shift key modification is supported for upper/lower case, as are lower case chips.
 - A BACKUP/RESTORE utility has been provided for data disks.
 - In order to provide intelligent recognition of various disks, the program disk will have a volume number of 253. The Blank Forms disk may also be numbered 253, and may be combined with the working program disk to form the Working Program/Blank Forms Disk. Data volumes will only be allowed to have volume numbers 1-250.

APPENDIX E

STARTUP

This appendix will guide you through selecting and setting up the Apple computer system you'll use with **The General Manager**. However, these instructions are not intended to take the place of the excellent material in the Apple manuals which came with your computer.

If you have not used your computer before, we strongly suggest that you go through the introductory exercises found in

The Applesoft Tutorial.

The installation and startup of the Disk Operating System is covered in Chapters 1 and 2 of

DOS Version 3.3 Manual.

If this is all new—and a bit overwhelming—you'd probably find it helpful to watch your dealer or an experienced friend go through the startup sequence.

WHAT YOU NEED—MINIMUM REQUIREMENTS

- * Apple][Computer with 48K memory and Applesoft. (This may be an Apple][with an Applesoft card or a language card, or an Apple][Plus.)
- * One (and preferably two) Apple][Disk Drives with DOS 3.3 Controller Card installed in Slot 6.
- * A TV set (with modulator) or (preferably) a wide-bandwidth video monitor. A model with a green or amber display is less tiring on your eyes than the conventional black and white display.

- * The DOS 3.3 Master Disk.
- * **The General Manager** Master Program Disk, protected by a write protect tab covering the small notch on the side of the disk cover.
- * Some blank 5¼" disks. Don't skimp on quality here; get the best you can afford.

We also suggest that you carefully read Appendix F, Proper Care of Disks. A little extra care in front can save you the agony of hours of lost work because of dirt on the sensitive recording surface of your magnetic disks.

PRINTER SELECTION

Careful examination of your hard copy needs is important before investing in a printer. Whether you purchase an inexpensive dot-matrix unit, or a professional letter-quality thimble or daisy wheel printer, get the best you can afford.

If you are looking at matrix printers, make sure you—as well as your intended audience—can read the printout.

Find out whether there is local service for your choice of printer, since all printers can be expected to break down or require service from time to time.

Be cautious in the selection of your printer interface card. Generally speaking, the simpler the card, the easier job you will have getting your system up and running quickly. We emphasize this, because the vast majority of user problems reported to date have been concerned with unusual printer and interface card combinations. Check with your dealer; if possible, see it all work before you buy.

HOW TO START

We're going to assume that you've gotten everything hooked up and running with your DOS 3.3 Master Disk. If you have any doubts, run one of the games as a quick system check. If you have trouble getting this far, call your dealer or get help from a friend who has been through this already.

With power to the computer turned off, put your **The General Manager** Master Disk (with the write protect tab) into Drive #1—the "boot" or startup drive. If you haven't done this before, look at the picture on page 7 of your DOS 3.3 manual.

Turn on your monitor.

Turn on your computer, using the small switch in the rear. The system should "boot" automatically. That is, the disk drive should start to whirr and the little red light should

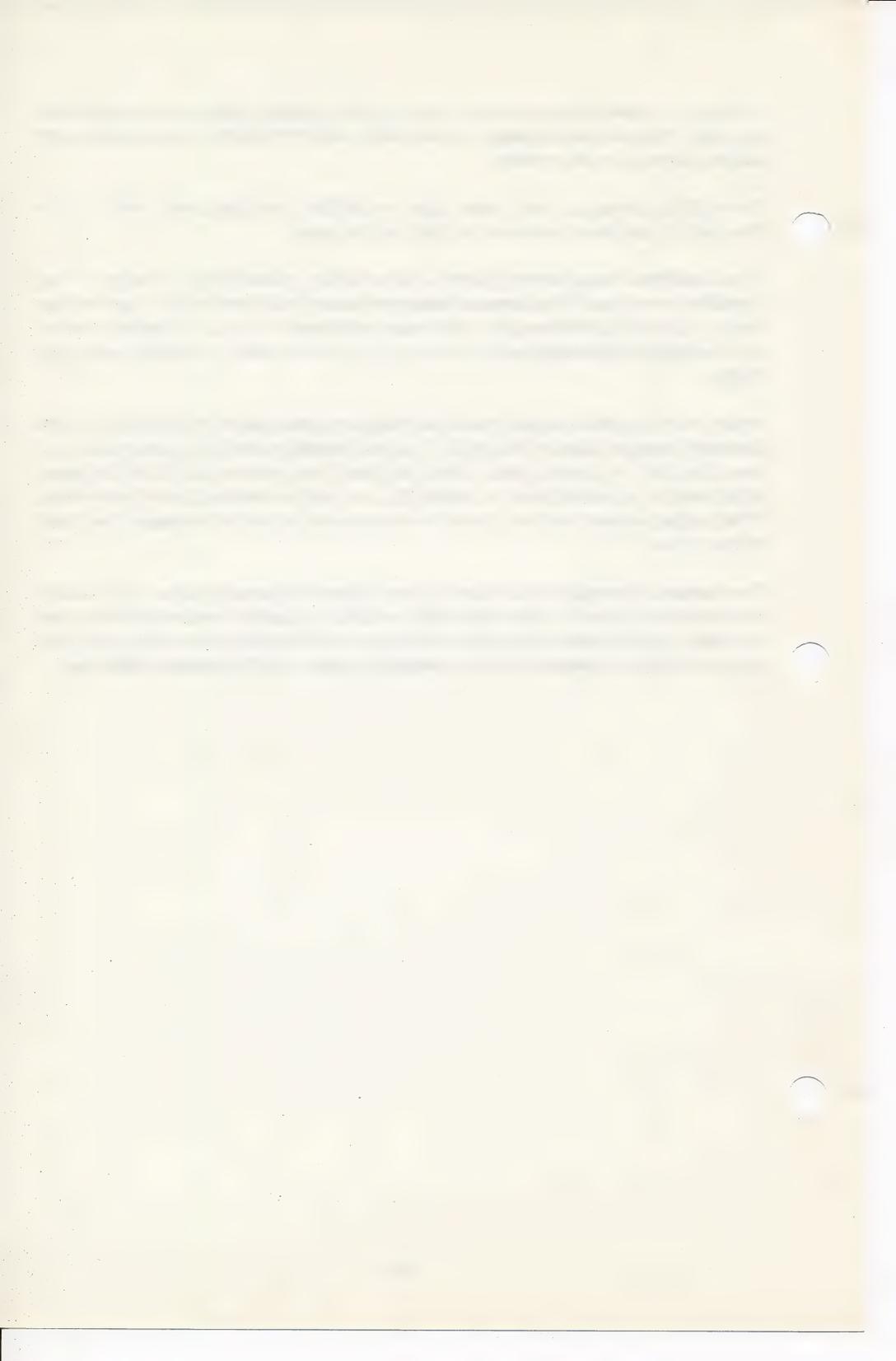
come on. In a few seconds, you will see an initial message. After more loading from the disk, **The General Manager** DATA BASE MASTER MENU should replace the earlier message on the screen.

If everything hangs up, don't panic. Just turn off the computer, open and close the drive door a few times to center the disk, and try again.

If the disk drive keeps whirring with no other action, press RESET to stop it. Then carefully remove your **The General Manager** Master Disk from the drive, and replace it with your DOS 3.3 Master Disk. Make sure you have the 3.3 (or 16 sector) version, for **The General Manager** will not boot or run on the earlier (13 sector) versions of DOS.

When you're satisfied that you have a working computer system, try booting your **The General Manager** Master Disk again. If you still experience difficulty, even after centering the disk by opening and closing the door, the problem may lie in the speed adjustment of your disk drive. As a quick fix, you can try reversing two of your drives. If the trouble persists, ask your dealer to measure and adjust, if necessary, the speed of your drives.

The General Manager should boot on any normally operating Apple II or Apple II Plus computer system. If you are having trouble, or you don't understand what you are doing, get help from your dealer. He has a continuing interest in your getting the most out of your investment in your computer system and **The General Manager**.



APPENDIX F

DISK USE AND CARE CHECKLIST

This appendix consists of a checklist of important disk use and care considerations. Many computer users seem to get away with abusing, or at least not taking particularly good care of, their magnetic disks. Then, one day—without reason or clue—a disk crashes or a file can no longer be read.

A problem with magnetic disks is the vast amount of material that can be stored on a single piece of plastic. Damage sustained in one small area—whether dirt or mechanical damage—won't show up until that particular area is accessed, perhaps months from the time the damage occurred.

We'd like to make some suggestions concerning use and care of disks, since all of your General Manager data will be stored on these delicate plastic discs. Treat them with respect, and they will return it.

Mess them up, and watch out!

DISK CARE CHECKLIST

1. Back up all your data and your Working Program/Blank Forms Disk. Never trust a single disk with important data or files. (This is why you have been given a backup copy of your protected Master Program Disk.)
2. Don't write on the disk envelope with a ball point pen. No matter how "lightly" you try, you will probably damage the thin plastic disc with the concentrated pressure created by small pen ball. It's best to write on a label prior to affixing it to the disk. Failing that, use a felt tip pen—and be careful.
3. Store disks vertically, like records. Don't lie them flat or at an angle; they will bend and warp.

4. Don't touch the disk surface with fingers, tissue or solvents. Note that the bottom surface is the one with data, so if you put an unprotected disk on a dusty table you could very easily contaminate the data surface.
5. Be careful about temperature. Allow disks to stabilize after a severe thermal shock, or you risk loss of data.
6. Don't bend or crease disks. If mailed, take special care to pack carefully with one of the plastic protector devices.
7. Be especially careful when inserting a disk into the disk drive. It's very easy to catch something on a piece of internal machinery and crease the fragile disk. If this should happen, back up the disk at once! Don't take any chances with your text files!
8. Close the disk drive door gently; don't let it snap shut. It's important that the disk center itself as the door closes. Snapping the door can catch the disk off center and pinch the fragile plastic, causing permanent damage.
9. Don't leave the disks in the drives with the doors closed, because the plastic can warp permanently, causing unreliable performance.
10. Use center reinforcing rings (Inmac #7955EA, or equal) to strengthen frequently used disks.
11. Keep the disks away from magnetic fields, such as magnets, monitors and TV sets, and telephones.
12. Don't expose disks to temperature extremes: direct sunlight, top of a radiator, trunk of a car, next to a cold window, etc.
13. Be careful about static electricity, especially in winter. When you start getting sparks walking across rugs, ground yourself on something metallic before handling your disks.
14. Use lots of common sense in dealing with fragile disks. Careless handling can—and will—wipe out hours of work in an instant.

DISK USE CHECKLIST

1. Back up everything! The BACKUP utility is very fast, and can prevent real disasters.

2. Label each disk clearly and accurately, so you don't lose track of where things are kept. The best work in the world is useless, if you don't know where it is.
3. Develop and maintain a rational method of choosing data base names and volume numbers.
4. Dispose of old or suspect disks promptly.
5. Maintain Data Base security. Assign one person the responsibility for the operation of the system, including all data entry and record updating operations, and regular backup of all data disks. Anyone accessing the Data Base should log in and out.
6. Again, use lots of common sense.



APPENDIX G

AUTOMATIC DATING AND CLOCK CARDS

When a clock card is installed in your computer, **The General Manager** can use it to keep track of the date and the time. If you do not have a clock card, you may still have automatic date fields, using the date set by DEFINE ENVIRONMENT.

CLOCK CARDS SUPPORTED

When defining the ENVIRONMENT, the user may specify that he has a clock card. If he does, he is asked for the type. The following cards are currently defined:

CCS (in Mountain Hardware mode)	0
Mountain Hardware	1
Superclock II (in Mountain Hardware mode)	1
Thunderclock	8

INPUT FIELDS

Whenever you are entering or updating data, entering <CTRL W> will automatically insert either the date or the time, depending upon the type of field.

In a date field (coded with the letters M, D, Y or C) **The General Manager** will insert the appropriate date or portions of a date, as supplied by the clock card.

In any other type of input field, **The General Manager** will insert the time. If the field is defined as a fixed length field, formatting characters may be included to have the time entered in standard 24 hour format (e.g., 13:20:05, for twenty minutes and five seconds past 1 p.m.).

OUTPUT FIELDS OR GENERATED FIELDS

Output or Generated Fields may be defined to default to the current date or time. Inserting the definition into an output field will cause **The General Manager** to insert the current date or time whenever the record is accessed; inserting the definition into a generated field will cause **The General Manager** to insert the current date or time when that record is first accessed, or the first time the record is accessed after the field's contents have been deleted.

Definition	Format Produced
------------	-----------------

Date:

D or D0	MM/DD/YY
D1	DD/MM/YY
D2	MM/DD
D3	MM/YY

Time:

T	HH:MM:SS
---	----------

Example: [O]D [] will define an output field which will automatically enter the date (in form MM/DD/YY) every time the record is accessed.

AUTOMATIC DATING—NO CLOCK CARD

The same date formats can be used without a clock card. **The General Manager** will automatically fill these fields (as above) with the current date as defined in the ENVIRONMENT.

APPENDIX H TROUBLE?

CLUES AS TO YOUR WHEREABOUTS

During the many operations when your Blank Forms are displayed on the screen for data entry, record selection, and report formatting, the subtle differences in the instructions displayed on the bottom three lines of the screen can tell you where you are.

BROWSE/UPDATE

When first entering criteria for record selection:

Line 1: TO SCREEN
Line 2: ENTER CRITERIA:<>/=#* ?
Line 3: CTRL: E Q A O C G N B I ;<-,<RET>,<ESC>

When entering criteria after completion of a browse:

Line 1: TO SCREEN
Line 2: END OF DATA, ENTER CRITERIA: <>/=#* ?
Line 3: CTRL: E Q A O C G N B I ;<-,<RET>,<ESC>

When viewing/updating records:

Line 1: TO SCREEN
Line 2: UPDATE DATA
Line 3: CTRL: Q S D C G N B I ;<-,<RET>,<ESC>

DATA ENTRY MODE

When entering information on parent records:

Line 1: TO SCREEN
Line 2: ENTER KEY CRITERIA:<>/=#* ?
Line 3: CTRL: E Q A O C G ;<-,<RET>,<ESC>

When entering new data:

Line 1: TO SCREEN
Line 2: ENTER DATA
Line 3: CTRL: E Q G B ;<-,<RET>,<ESC>

SCREEN CHANGE MODE

Line 1: TO SCREEN:{screen name}
Line 2: USE <-,> AND <RETURN> TO SELECT
Line 3: <CTRL Q> TO ENTER OTHER COMMANDS

REPORTING

When entering criteria for record selection:

Line 1: TO SCREEN
Line 2: ENTER CRITERIA:<>/=#* ?
Line 3: CTRL: E Q A O C ;<-,<RET>,<ESC>

When entering codes for field selection:

Line 1: TO SCREEN
Line 2: SELECT FOR:(P)RINT,(B)REAK/(E)JECT,(T)OTAL
Line 3: CTRL: Q G ;<-,<RET>,<ESC>

RETURN TO A FAMILIAR STARTING PLACE

If you wish to 'bail out', here are a few simple procedures:

1. From BROWSE/UPDATE Mode or DATA ENTRY Mode, perform each of the following steps:

You can always return to the menu by typing <CTRL Q>.

You should then return to the DATA BASE ACCESS MENU by typing <RETURN>.

Use the right arrow key to move the selection arrow to SAVE/LOAD/CLEAR QUERY REQUESTS. Press <RETURN>.

Use the right arrow key to move the selection arrow to CLEAR. Press <RETURN>. This will clear all the criteria from all of the screens. Then press <RETURN> again to go back to the DATA BASE ACCESS MENU.

You may now start again. If you wish to leave DATA BASE ACCESS, you may type <RETURN>. Otherwise, select the mode you wish.

2. From CREATE NEW BLANK FORMS or CHANGE OLD BLANK FORMS you may type <CTRL Q> to return to the BLANK FORMS EDITING MENU. If you do not wish to save your work, you may press <RETURN> to return to the MASTER MENU. You will have to confirm your wish to exit without saving the forms by typing <RETURN> again.

3. To exit from the REPORTING function select 'RETURN'.

To get to the REPORTING MENU from the DEFINE REPORT MENU, select 'RETURN'.

To reach the DEFINE REPORT MENU from SELECT RECORDS or SELECT FIELDS, type <CTRL Q>.

To reach the DEFINE REPORT MENU from SET REPORT PARAMETERS, you must type <RETURN> for each of the questions until you are automatically returned to the menu.

To reach the DEFINE REPORT MENU from REARRANGE FIELDS, you must select 'RETURN'.

To reach the DEFINE REPORT MENU from RUN REPORT, you must type <CTRL Q> and then press <RETURN> as prompted.

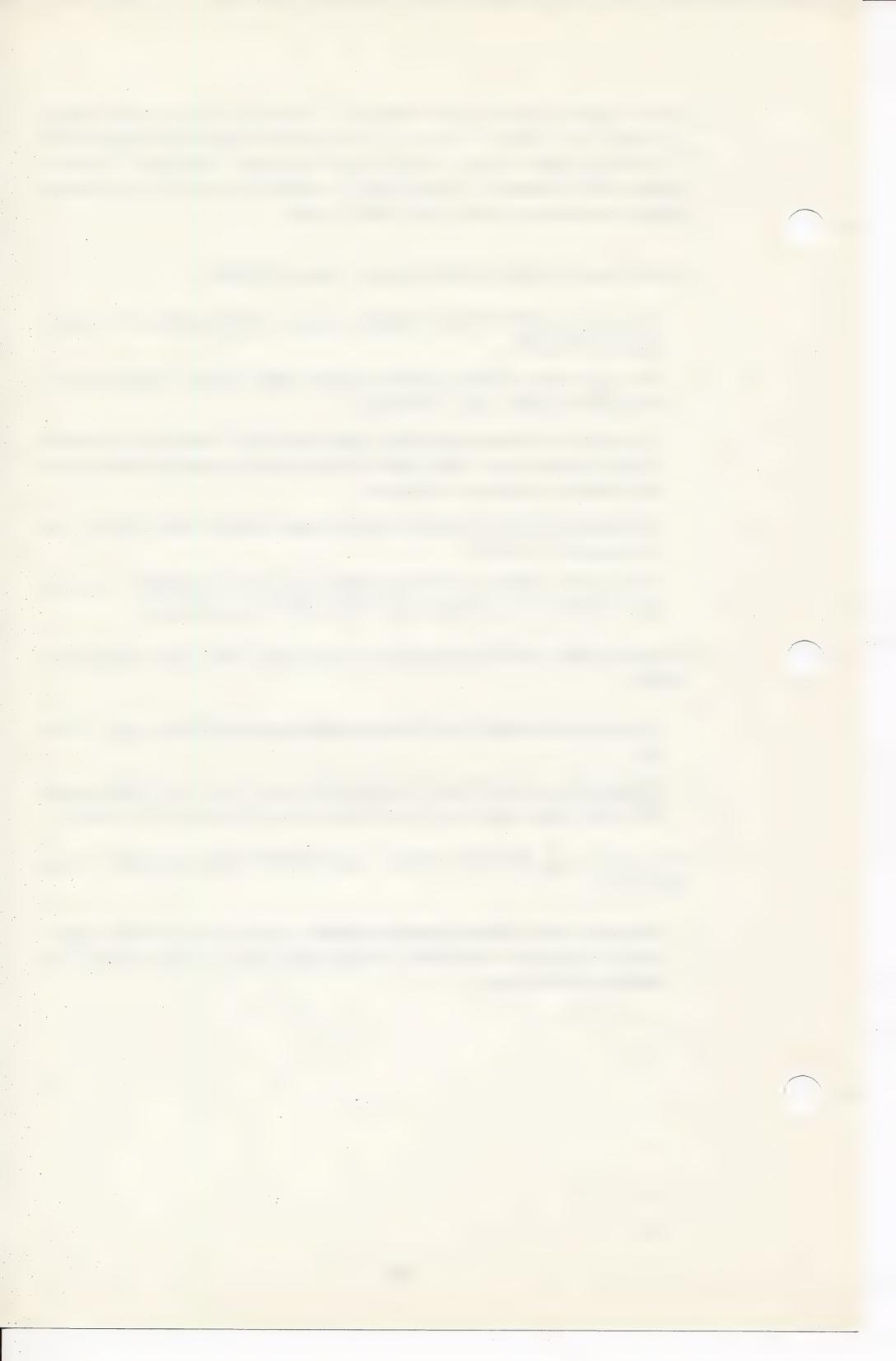
4. From the SORT DATA BASE MENU you may select 'RETURN TO MASTER MENU'.

To return to the SORT DATA BASE MENU from RUN SORT, type <CTRL Q>.

To return to the SORT DATA BASE MENU from LOAD CRITERIA, select 'RETURN' from the SELECTION FILE CATALOG SELECTION MENU.

5. To return to the MASTER MENU from DEFINE ENVIRONMENT, select 'RETURN'.

To return to the DEFINE ENVIRONMENT menu from any of the subsections, simply type <RETURN> in response to each question until you are returned to the menu.



APPENDIX I

OPERATING AND ERROR MESSAGES

DATA ENTRY AND BROWSE/UPDATE MESSAGES

END OF DATA

Either you have seen all the records which meet the criteria you have set, or you used <CTRL Q> to exit a search.

DUPLICATE RECORD

There is a record on the data base whose key exactly matches the key for the record being currently written. <RETURN> will cause the record to be written as a duplicate, <CTRL Q> will re-display the record and give you the opportunity to re-enter the key in order to make it unique.

NO RECORD TO BE WRITTEN

This message is warning you that there is no data in the primary key field. If you intended to enter a new record then this is important. <CTRL Q> will give you the opportunity to place data in the key field. Otherwise, <RETURN> will continue with the requested function.

CHANGES MADE, DO YOU WANT TO 'SAVE'?

Self-explanatory.

<CTRL Q> TO SKIP, <RETURN> TO SAVE

Self-explanatory.

READY TO SAVE RECORD

Self-explanatory.

READY TO DELETE RECORD

Self-explanatory.

KEY NOT FOUND

You are in Data Entry. **The General Manager** was unable to find a record with the key you specified.

MUST BE ALPHABETIC

Only letters acceptable in this field.

FIXED LENGTH FIELD

You must fill in all the spaces in a fixed length field.

MUST BE NUMERIC

Only the digits from 0-9 and decimal point are acceptable in this field.

INVALID DATE

Self-explanatory.

TURN PRINTER ON

If you press <CTRL P>, or try to print a report without turning the printer on the system will 'hang'.

DISK ACCESS ERRORS

BLANK FORMS DO NOT MATCH DATA BASE

Your Data Base's system sector does not agree with your Blank Forms. You may have put in the wrong data disk, or you may have forgotten to UPDATE the system sector or reorganize the data base after changing the Blank Forms. If you have forgotten to UPDATE the system sector, then you must return to the Blank Forms Editor, SAVE the Blank Forms, and choose UPDATE OLD DATA BASE.

END OF VOLUME IS NEAR

You are getting near the end of the last volume of your Data Base. You should consider reorganizing your Data Base to consolidate the data. (See Chapter 13.)

**FORMATING AS:VOLUME vvv
INSERT NEW DISK, SLOT s DRIVE d,Vvvv
WARNING, THIS WILL ERASE DISK**

Self-explanatory.

(Note: if you have a Santa Clara Drive, the message will specify 'DRIVE' rather than 'VOLUME'.)

**UPDATING VOLUME vvv
INSERT DATA DISK, SLOT s DRIVE d,Vvvv
WARNING, THIS WILL ERASE DISK**

Preparing to update the system sector on the data disk of volume vvv to match the Blank Forms. Put the correct data disk into the slot and drive specified.

Disk access error messages all occur in the same general format:

SLOT s DRIVE d VOL vvv
msg text
<CTRL Q> TO QUIT, <RETURN> TO CONTINUE

or

<RETURN> TO CONTINUE

or

(F) TO FORMAT, <RETURN> TO CONTINUE

The first line tells what disk the program found in the named slot and drive.

The second line tells what the program would like you to do about the problem.

The third line gives you your options after you either have or haven't followed the instructions.

The following are messages you may expect to see on the second line of a disk handling message:

**INSERT TEXT FILE DISK
INSERT PROGRAM DISK
INSERT BLANK FORMS DISK
WRITE PROTECTED
DRIVE ERROR, INSERT DATA DISK-VOL vvv
FORMATING ERROR
READY TO FORMAT AS VOL vvv**

SORTING AND REORGANIZING ERRORS

ERROR, EXISTING FILE IS A SORTED FILE

You may not use a sorted file for any purpose other than REPORTING. You may not append data from a REORGANIZE to a sorted file.

ERROR, EXISTING FILE IS NOT A SORTED FILE

You may only append sorted data to a sorted file.

INVALID SCREEN.FIELD COMBINATION

The screen and field combination which you have selected does not exist on your Blank Forms, or you are specifying a screen and field which are not in the direct lineage between this screen and the root screen.

INVALID SORT PATH

Sort keys must all be located on a direct path from the current screen to the root parent.

KEY LENGTH TOO BIG

Combined key length cannot exceed 100 characters.

INVALID FILENAME

Self-explanatory.

MUST BE CONVERTED FOR VERSION 2

See Appendix C.

OUT OF MEMORY

Reboot and start over.

FILE ACCESS ERROR-nnn

See Appendix J

SORT DISK NOT ALLOWED

Cannot use sorted file here.

MOVING TO ANOTHER FUNCTION

USE 'blank forms name' (Y/N)?

You have to specify the name of a Blank Form before you can go any further.

GOING TO RUN USER PROGRAM

Self-explanatory.

GOING TO ACCESS DATA BASE

Self-explanatory.

GOING TO REPORTING

Self-explanatory.

GOING TO BLANK FORMS EDITING

Self-explanatory.

GOING TO REORGANIZE

Self-explanatory.

GOING TO SORT

Self-explanatory.

GOING TO GLOBAL UPDATE

Self-explanatory.

GOING TO BACKUP/RESTORE

Self-explanatory.

GOING TO MASTER MENU

Self-explanatory.

DEFINING ENVIRONMENT

DRIVE# MUST BE >= 1

Self-explanatory.

DRIVE NUMBER >2 ASSUMING NON STANDARD DRIVE

Since you entered a drive # greater than 2, a non-standard drive is assumed.

DATA DRIVE ASSUMED HARD DISK

Your response indicates that you have a hard disk drive for your data.

NUMBER MUST BE >0 AND $\leq n$

The number of data drives must be greater than zero and less than or equal to the total number of drives defined, i.e., n.

INVALID SLOT

Self-explanatory.

INVALID INTERFACE ADDRESS

Self-explanatory.

BLANK FORMS EDITING

USE 'blank forms name' (Y/N)?

You have to specify the name of a Blank Form before you can go any further. <RETURN> will use the current Blank Forms.

READY TO ERASE CURRENT BLANK FORMS?

Self-explanatory.

NO BLANK FORMS HAVE BEEN LOADED

You can't proceed without Blank Forms.

BLANK FORMS HAVE NOT PASSED ERROR CHECK

You can't use Blank Forms until you check them for errors.

ERROR=>'STARTVOL' INVALID

This may signify a non-numeric character, or a negative number. STARTVOL must also be ≤ 250 .

ERROR=>'STARTVOL' MUST BE 3 DIGITS

Self-explanatory.

ERROR=>'ENDVOL' INVALID

This may signify a non-numeric character, or a negative number. Must be ≤ 250 .

ERROR => 'ENDVOL' MUST BE 3 DIGITS

Self-explanatory.

ERROR => 'TEXTVOL' INVALID

This may signify a non-numeric character, or a negative number. Must be <= 254.

ERROR => '/SCREEN' INVALID

You have attempted to define a screen with nothing on it.

**TOO MANY SCREENS DEFINED
MAXIMUM OF 10/16 ALLOWED**

No more than 10 screens may be defined in a Data Base for a computer with 48 K of RAM. For systems with a RAM card, 16 screens may be defined.

**KEY LENGTH TOO BIG
CANNOT EXCEED 100 CHARACTERS**

Total length cannot exceed 100 characters.

**TOO MANY KEYS DEFINED
MAX OF 16 KEYS PER SCREEN**

Self-explanatory.

**TOO MANY KEYS DEFINED
MAX OF 31 KEYS PER DATA BASE**

Self-explanatory

ERROR => 'DUPLICATE' OPTION IS INVALID

Must be either 'FIRST' (the default) or 'LAST'.

ERROR => 'PARENT' INVALID

All screens except for the root screen must have a non-zero parent specified.

ERROR => 'PARENT' CANNOT BE UNKEYED

Only a screen which is **not** a parent to other screens may have KEY = 0.

ERROR => 'FREQ' INVALID

You may have included a non-numeric character in the FREQ assignment. More likely, you omitted a <RETURN> at the end of the assignment line.

ERROR => 'KEY' INVALID

Must be numeric.

ERROR => 'KEY' SPECIFIED IS NOT ON SCREEN

Self-explanatory.

OUTPUT FIELD CANNOT BE A KEY FIELD

Self-explanatory.

ERROR => 'NO FIELDS DEFINED'

Self-explanatory.

INVALID ATTRIBUTE FOR:name

This may mean exactly what it says, or it may signify a problem with the field before the one flagged.

INVALID ATTRIBUTE DATA FOR:name

This may mean exactly what it says, or it may signify a problem with the field before the one flagged.

DECIMAL PLACES > FIELD LENGTH FOR:name

The number of decimal places, as specified in the ending attribute, must not be greater than the field length.

INVALID ENDING ATTRIBUTE FOR:name

Self-explanatory.

**ERROR => TOO MANY LINES FOUND
ONLY 21 ALLOWED**

Only 21 lines allowed on each screen.

ERROR => 'INVALID DATE/TIME FORMAT'

See Chapter 10.

ERRORS IN GENERATED OR OUTPUT FIELDS

**ERROR:nnn IN CALCULATION:cc
FIELD:f-name**

The error number refers to Applesoft errors. (See Applesoft manual, page 136.)

SYNTAX ERROR

Self-explanatory.

RESULT OF CALCULATION IS A STRING VALUE

Self-explanatory.

CALCULATION NOT FOUND

Self-explanatory.

INVALID SCREEN FIELD (S?.?) REFERENCE

Self-explanatory.

TYPE MISMATCH

See Applesoft Manual, page 117.

OVERFLOW OR DIVISION BY ZERO

Illegal calculation.

FORMULA TOO COMPLEX

More than two statements of the form IF "XX" THEN were executed.

INVALID CALC NUMBER FOUND IN /CALC

Calculations must be numbered consecutively from 1 to ≤ 99 .

ILLEGAL QUANTITY

See Applesoft Manual, page 115.

INVALID SCREEN FIELD REFERENCE

FIELD:f-name

Reference can only be made to screens in the direct path to the root screen.
May indicate reference to a non-existent screen or field.

NO ERROR FOUND

The Error Checking program has passed this set of Blank Forms.

BLANK FORMS HAVE NOT BEEN SAVED

Self-explanatory.

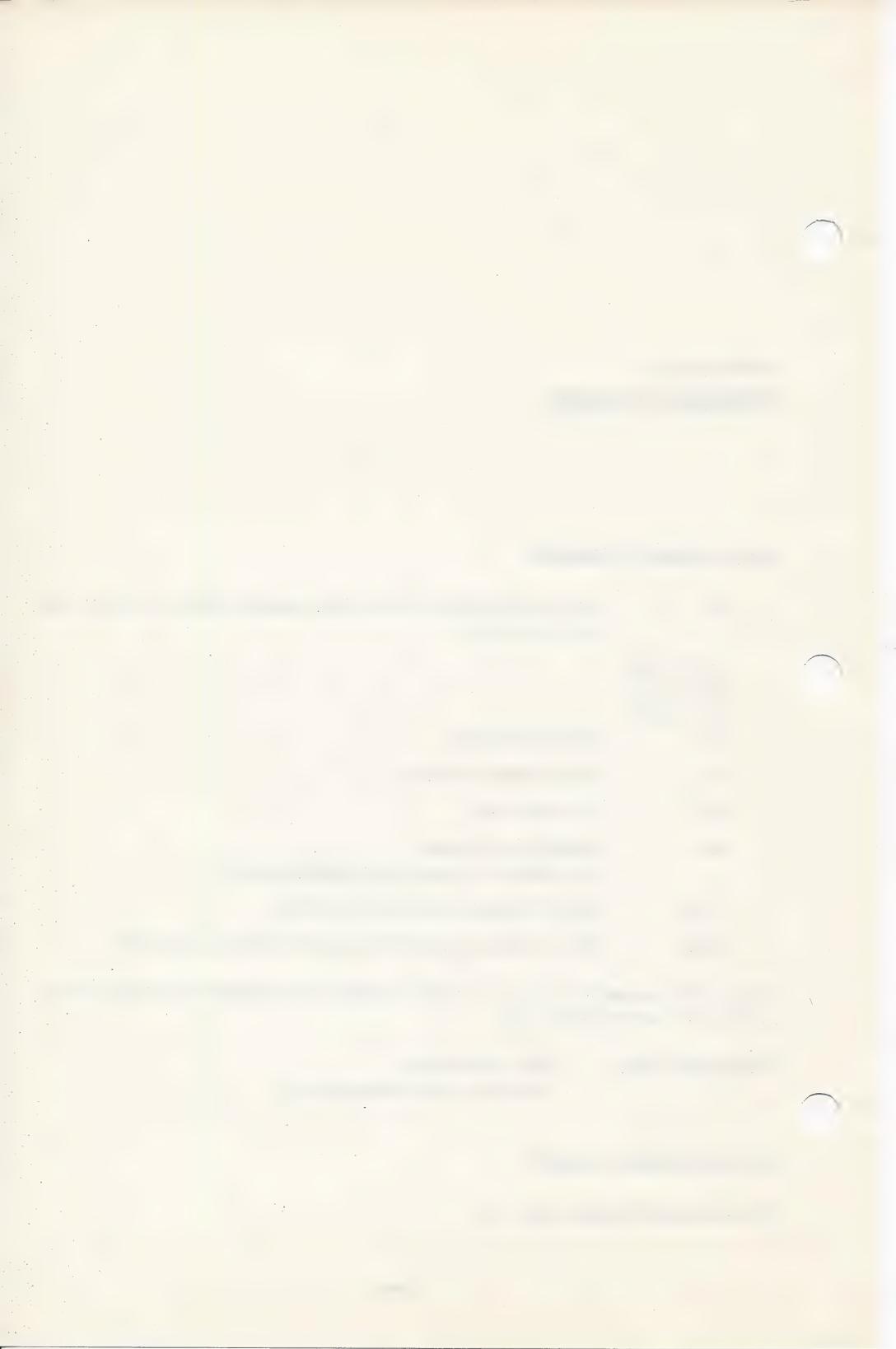
ERROR=>'MAXIMUM OF 99 FIELDS EXCEEDED'

No one screen can contain more than 99 fields.

FATAL ERRORS

FATAL ERROR-*nnn* AT LINE-*nnn*

This signifies a real problem with the program. If it recurs, please contact On-Line Systems to report the circumstances.



APPENDIX K

HARD DISKS AND NON-STANDARD FLOPPIES

HARD DISKS

When you are using a hard disk, you must allocate only one data drive in DEFINE ENVIRONMENT.

CORVUS, CORONA (or any volume-controlled hard disk system): You may allocate the space on your hard disk by means of the STARTVOL, ENDVOL and TEXTVOL parameters in the /SYSTEM assignment. Allow sufficient room for your data base to expand, and protect other data on your disk by using the ENDVOL parameter. This allows you to store many data bases on the same unit with other programs. TEXTVOL tells **The General Manager** where to store and retrieve any text files.

SANTA CLARA: For the Santa Clara disk, three different parameters are used in the /SYSTEM assignment (see Chapter 10). STARTDRIVE, ENDDRIVE and TEXTDRIVE are the equivalents of STARTVOL, ENDVOL and TEXTVOL. They specify the logical drive numbers on the hard disk unit, instead of the volume numbers for the floppies. You must specify TEXTDRIVE, so that **The General Manager** will know which drive number to use for text file storage and retrieval.

NON-STANDARD FLOPPY DISKS

The General Manager should be able to use most DOS 3.3 compatible floppy disk drives for Data Base Storage. They must have 256 byte sectors, and 16 sectors per track.

To define them:

Define your disks as in Appendix A. When you get to DEFINE DATA DISK (step 7):

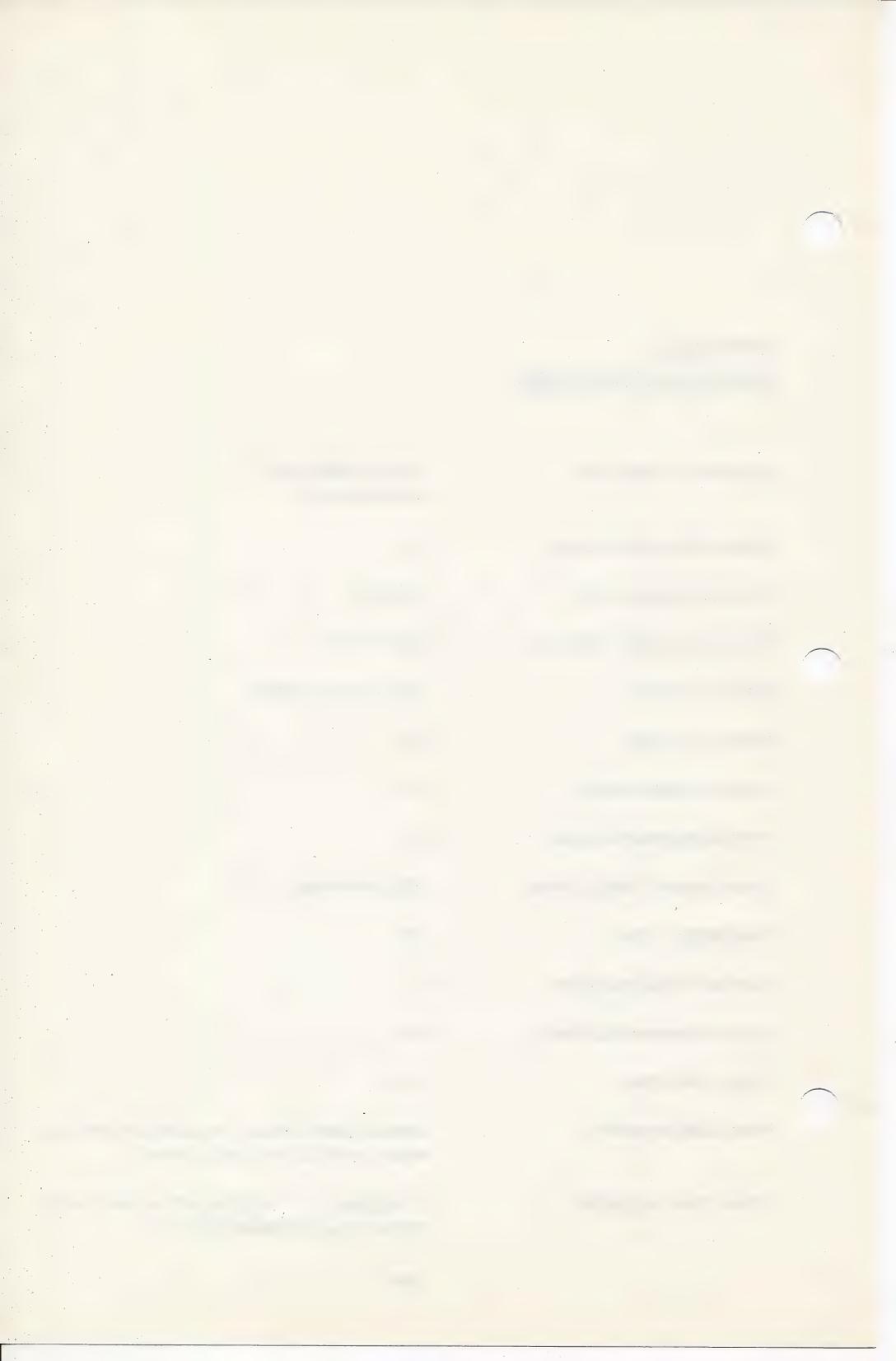
1. Choose 'OTHER'.
2. Enter '0' for disk type.
3. Enter the number of tracks per disk.

Use these same parameters for 'DATA DISK TYPE' when setting up for BACKUP/RESTORE.

APPENDIX L

SPECIFICATIONS

Screens per data base	10 (non-RAM card) 16 (RAM card)
Data disks per data base	117
Bytes storage per disk	143,360
Bytes storage per data base	16,777,216
Bytes per screen	819, including labels
Fields per screen	99
Index keys per screen	16
Index keys per data base	31
Index key field length, bytes	100, combined
Field length, bytes	39
Number of decimal digits	9
Calculations per data base	99
Floppy disk drives	1 to 4
Hard disks supported	Corvus, Santa Clara, Corona or any other volume-controlled hard disk system
Other drives supported	8" floppies, 5 1/4" floppies with other than 35 tracks (if supported by DOS 3.3)



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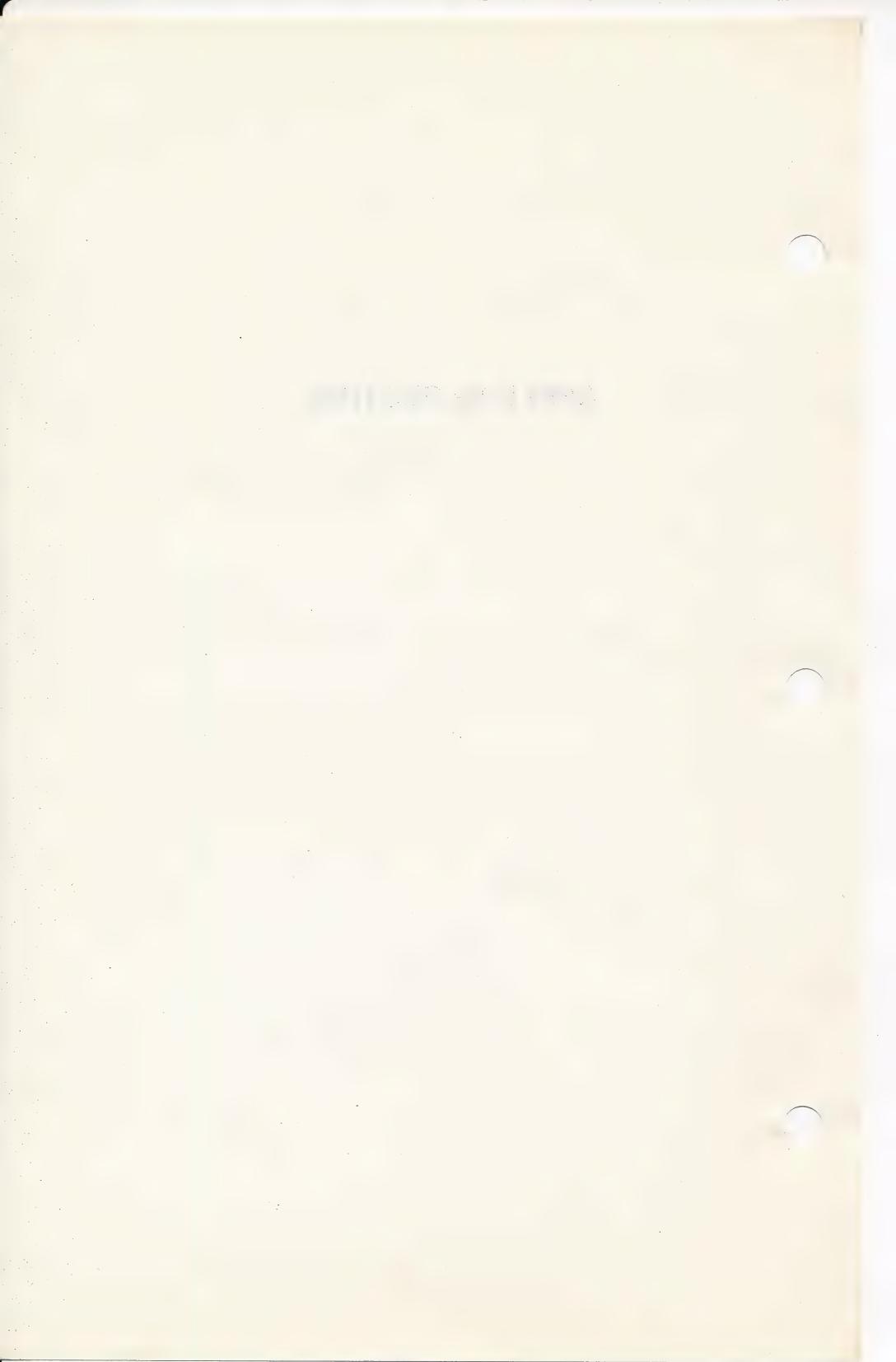
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APPLE IIe

APPLE IIe SECTION



THE GENERAL MANAGER **APPLE IIe SECTION**

The Apple IIe computer has many features that the previous Apple II/II+ did not have, and this version of **The General Manager** takes full advantage of these features. However, because of the time required to change the entire manual, these changes will be documented solely in this section.

The differences are minor, and you should have no difficulty in using them. You will find that these changes will allow you to take full advantage of your new computer.

The differences are discussed as follows:

- Keyboard Changes
- Display Changes
- Memory Size

You should pay particular attention to the sections on the ◀DELETE▶ key, Lower Case Data, and the ◀SHIFT▶ key.

KEYBOARD CHANGES

The Delete Key

This key is located in the upper right-hand corner of the keyboard. It performs the same function that the ◀CTRL K▶ previously performed. Whenever the documentation refers to or instructs you to type ◀CTRL K▶, press the ◀DELETE▶ key instead.

This key is similar to the ◀RETURN▶ key in that it will move the cursor down to the next line, but it will also truncate the data from the current cursor position to the end of the line.

Lower Case Data

The General Manager will automatically assume that you want to allow lower case characters in the data. If you do not want to enter lower case data, then set the keyboard to CAPS ONLY mode with the ◀CAPS LOCK▶ key. This is no longer an option in the definition of "KEYBOARD /DISPLAY OPTIONS."

SHIFT Key

All references in the manual to ◀CTRL Z▶ to enter upper case data should be ignored. Use the ◀SHIFT▶ key to enter upper case data.

UP and DOWN ARROW Keys

When in the EDITOR, these keys will move the cursor up and down one line at a time. This was previously done by the ◀CTRL O▶ (up) and ◀CTRL L▶ (down) keys.

For a MENU, these keys will move the menu selection arrow up and down just as the ◀LEFT ARROW▶ and ◀RIGHT ARROW▶ keys do.

When on a screen, (DATA ENTRY, BROWSE, etc.), these arrows will move the cursor to the previous field (up) or the next field (down). They work the same as the ◀LEFT ARROW▶ and ◀RETURN▶ keys except:

They work even when the cursor is in the middle of a field.

When the cursor is on the "TO SCREEN:" line, the ◀DOWN ARROW▶ will move the cursor to the top of the screen on to the first field. This is very helpful when you are editing a screen with many fields.

APPLE Keys

On the Apple IIe keyboard, there are two keys with a figure of an apple on them. (The one on the left is the ◀OPEN APPLE▶ and the one on the right is the ◀SOLID APPLE▶.) These keys can be defined by you to be any **General Manager** command.

To define them, go to "DEFINE ENVIRONMENT" from THE MASTER MENU and choose "SET KEYBOARD/DISPLAY OPTIONS." After you are asked whether you want screen labels in Inverse, **The General Manager** will ask you to enter the key to be used for the left (◀OPEN APPLE▶) and the right (◀SOLID APPLE▶) keys.

The system is shipped with the ◀OPEN APPLE▶ as the HELP command, ◀CTRL F▶, and the ◀SOLID APPLE▶ as the ◀CTRL G▶ command.

If you wish to incorporate these commands in a user program, you can do so by testing USR(194) for a 1, (◀OPEN APPLE▶) or 2, (◀SOLID APPLE▶).

The TAB Key

Another new key on the Apple IIe keyboard is the ◀TAB▶ key. This key is not directly used, however, since this key is the same as typing ◀CTRL I▶, it can be used whenever ◀CTRL I▶ is used. Thus, you could use this key to enter Insert Mode in the EDITOR, or to enter Data Entry Mode from BROWSE/UPDATE.

First Character Caps Option

All references to the FIRST LETTER DEFAULT TO CAPS mode in other sections of this manual should be ignored. This option is not available in the IIe version of **The General Manager**.

DISPLAY CHANGES

80 Column Card Use

If **The General Manager** finds the 80 column card in the auxiliary slot, it will automatically use it; the entire system will then be in 80 column mode throughout.

This will allow you to have fields of up to 79 characters in length instead of 39.

Lower Case Display

You now have the option for an upper and lower case display. The system also gives you the capability of using lower case characters when you create your screen.

MEMORY SIZE

The standard Apple IIe has 64K RAM available. **The General Manager** takes full advantage of this expanded core memory. The capability of **The General Manager** is now equal to that of the standard Apple with a 16K language card; therefore, this version was not designed for any additional RAM-card memory.

Using this version of **The General Manager** with the IIe's 64K available RAM, you will find that:

You may have up to 16 screens per data base.

The SORT and REORGANIZE functions will operate significantly faster.

We feel strongly that these changes will increase the power of **The General Manager** with your Apple IIe computer. We are confident that they will be very useful to you.

If you wish to incorporate these commands in a user program, you can do so by using the following commands: (SOLD) (APPLY)

The TAB key

Another new key on the Apple II keyboard is the <TAB> key. This key is not directly used, however, since this key is the same as using <CTRL>, it can be used whenever <CTRL> is used. Thus you could use this key to enter Insert Mode in the EDITOR, or to enter Data Entry Mode from BROWSE/UPDATE.

First Character Case Option

All references to the FIRST LETTER DEFAULT TO CAPS mode in other sections of this manual should be changed. This option is not available in the II version of the General Manager.

DISPLAY CHANGES

80 Column Card Use

If the General Manager finds the 80 column card in the auxiliary slot, it will automatically use it. The entire system will then be in 80 column mode throughout.

This will allow you to have fields of up to 78 characters in length instead of 38.

Lower Case Display

You now have the option for an upper and lower case display. The system will use the capability of using lower case characters when you create your system.

MEMORY SIZE

The standard size of the RAM available in the General Manager is 64K. The capability of this expanded configuration. The capability of the General Manager will be equal to that of the standard II with a 64K expansion card. The error in this version was not detected for the expansion of the card memory.

Using the option of the General Manager with the II RAM expansion card will find that:

RAM size will find that:

RAM size will find that:

We feel strongly that these changes will increase the power of the General Manager with your Apple II computer. We are confident that they will be very useful to you.

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