KAYPRO

PROFITPLAN™

ProfitPlan

An Easy-to-Use Spreadsheet

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Preface

Spreadsheets are an integral part of every business. They help in recording, calculating, and analyzing data in a methodical way. With the introduction of the electronic spreadsheet, these tedious, time-consuming calculations have become a thing of the past.

ProfitPlan is an electronic spreadsheet designed to help you in making sound business decisions. ProfitPlan is set up as a matrix, or table, with numbers arranged in rows and columns. Data is entered and calculations performed according to the commands you give for each line. Instead of having to figure results item by item, ProfitPlan will calculate the entire table by rows and columns.

Having once created a table, you can make new assumptions by changing pieces of data. Recompute the results from the new data, and a "what-if" analysis is done, literally, in seconds.

ProfitPlan is easy to use. An on-screen menu representing all of ProfitPlan's commands is always available for fast, easy reference. On-screen help for every command is available at the push of a button for fast, easy access. With ProfitPlan's built-in commands you simply enter the desired command number--no typing skills are required. ProfitPlan will ask you for any information necessary to complete the command and then show your results on the screen.

In addition to built-in commands, ProfitPlan offers a sophisticated report generator with the flexibility to produce customized reports in minutes. ProfitPlan also provides you with excellent documentation of your table logic to help you keep track of your actions.

Business problems demand business solutions--easy solutions that put answers at your fingertips. In other words, business problems demand ProfitPlan to provide the solutions you need in today's business world.

Introduction

This ProfitPlan manual is intended as a guide not only to learning ProfitPlan, but also as a companion in using ProfitPlan. As such, the manual itself is divided into two sections. **Section I** is a tutorial on the ProfitPlan Fundamentals designed to teach you how to use ProfitPlan. **Section II** is a Command Reference section which will serve as a valuable reference no matter what your level of expertise.

The best way to learn ProfitPlan is in front of your computer. We suggest that you read through the first chapter, and then follow the step-by-step example in Chapter 2. Throughout the manual, examples are given to illustrate various concepts and to allow you to compare your results with ours. Below is an overview of the chapters included in the ProfitPlan manual.

Chapter 1 is an introduction to ProfitPlan. This chapter gives you information that you will need to set up, install, and load ProfitPlan on your microcomputer system. It also gives you an explanation of the ProfitPlan screen, the HELP command, and directions for moving your cursor while using ProfitPlan.

In **Chapter 2** you are immediately taken to a "hands-on" learning situation by going through an actual Five-Year Forecast step-by-step. You will learn the basic steps associated with building a ProfitPlan table and will print a simple report.

Chapter 3 teaches you how to build a ProfitPlan table to your specifications. You will learn how to vary the table size, how to enter row and column descriptions, and the different options available for data entry. You will also learn how to save and load your tables for future use.

Chapter 4 shows you ProfitPlan's built-in mathematical commands. You will see how easy it is to use these commands, or to write your own formulas. Chapter 4 also covers the computing commands that let you see calculated results instantaneously.

Chapter 5 takes you through the process of formatting and printing reports. In this chapter you will see the kinds of report options that make ProfitPlan's report generator unique.

Chapter 6 discusses additional ProfitPlan commands that will help you in your advanced usage of ProfitPlan, including how to interface ProfitPlan with a word processor.

Section II of the ProfitPlan manual is a Command Reference section that provides you with a detailed explanation of all ProfitPlan commands. The Command Reference section outlines the prompts and defaults for each command, and also references page numbers for related information in **Section I.**

The ProfitPlan manual will be a constant companion to you while you are learning the features and benefits of ProfitPlan. After you have become familiar with ProfitPlan you will want to refer back to this manual for help with a specific command or application. In any case, don't be afraid to experiment--the best way to learn ProfitPlan is to use it.

Chapter 1
Getting Started

Chapter 1 is an introduction to the fundamentals of ProfitPlan. Before you build your first spreadsheet there are things about the general operation of ProfitPlan that you need to know. This chapter will teach you how to install and load ProfitPlan on your computer system. You will learn the location and use of terminal control keys, as well as the importance of backing up your system and data diskettes.

Getting Started

To use ProfitPlan you will need the following:

1. Operating Systems:

   CP/M(version 2.2 or later)
   CP/M 86
   MP/M
   IBM-DOS
   (for the IBM Personal Computer)

2. Your computer should have 64 kilobytes (K) of random access memory (RAM). The minimum quantity depends on the size of the operating system (a minimum of 128K is required for the IBM Personal Computer). Under CP/M, ProfitPlan requires a full 48K for operation. You can also use ProfitPlan on MP/M, however, it can only be used with 48K user banks. Contact your dealer for additional help in installing ProfitPlan on MP/M.

3. Your system must have at least one floppy disk drive. Two drives are preferred. About 120 kilobytes (K) of storage capacity is required to handle ProfitPlan's system files on disk. For your own tables and storage, you will need additional room.

4. You will need a screen display that has at minimum, "cursor addressing" and "clear screen" features. Your display should also have a minimum of an 80 x 24 character screen. Consult your dealer or the terminal user manual about these features.

5. You will need a printer for printing reports.

Making A Working Copy of ProfitPlan

Copying ProfitPlan for any reason other than for your own back-up violates copyright laws. Each copy of ProfitPlan is serialized. Your copy number appears on the screen each time you use ProfitPlan. Only you have this registered copy of ProfitPlan. Each copy you make of ProfitPlan also shows this identification number, making it easy to identify the source of an unregistered copy.

You should keep the original diskette issued by Chang Labs as a back-up diskette. Make a copy of ProfitPlan for your daily work. Use this copy so that you will always have the master disk as a back-up in case your working disk fails due to wear or accidental erasure. The following procedure will help you make a working copy of your ProfitPlan diskette.

1. Follow the instructions that come with your operating system to format a diskette.

2. Place your master operating system diskette in drive "A" and your blank formatted diskette in drive "B". In response to the **A>** prompt, type **SYSGEN**. The SYSGEN command copies the operating system onto your blank diskette.

Please note that the instructions for creating a system disk may be different for your system. Verify this step by consulting your system manual.

3. On CP/M systems, make sure you have the copying PIP.COM on your newly formatted diskette. You can transfer the PIP.COM file by typing:

A>PIP B:=A:PIP.COM

4. Now insert your newly made system disk in drive A and the master ProfitPlan diskette in drive B. (For CP/M systems, type **^C** to clear the drive.) Type in the following command:

For CP/M systems: **A>PIP A:=B:*.*[V]**

For IBM DOS systems: **A>COPY B:*.* A:**

5. Put the ProfitPlan master diskette away for safe keeping. Label the new diskette as your ProfitPlan working diskette.

Loading ProfitPlan

If you purchased ProfitPlan from a local dealer, they will help you set up ProfitPlan to work with your microcomputer system.

To install ProfitPlan for your system:

1. Be sure your computer is turned on.

2. Insert your ProfitPlan system diskette in drive A.

3. The ProfitPlan CUSTOM routine customizes ProfitPlan for use with your specific terminal. It also gives you information about the location and use of certain terminal keys. For most systems with built-in screens, you can skip this step and go directly to step 4.

   During the CUSTOM procedure, be sure to WRITE DOWN these key assignments when they are displayed on the screen.

Type **CUSTOM** <Return>

BACKSPACE:_____
CANCEL:_____
MOVE CURSOR:_____

When you type CUSTOM, your screen will show the following:

```
MicroPlan installation procedure
(C) COPYRIGHT 1981 Chang Laboratories Inc.


      *** Terminal Menu ***

A ADDS (VIEWPOINT)                  B BEEHIVE 150/152
C BEEHIVE 157/160/162               D DEC VT100
E HAZELTINE 1420/1520               F HAZELTINE 1400/1410/1500
G HEWLETT PACKARD 2621A/P           H IBM 3101
I LEAR SIEGLER                      J SOROC 120/140
K TELEVIDEO 912                     L TELEVIDEO 920
M TELEVIDEO 925/950                 N TELEVIDEO 910
O WYSE                              P ZENTEC
Q OTHER                             R ADVANTAGE
S XEROX 820                         T ZENITH Z19
U VG MINDLESS TERMINAL              V VISUAL 200
W RADIO SHACK MODEL II

PLEASE ENTER SELECTION (1 LETTER):
```

Select the appropriate terminal and press the <Return> key. If your terminal is not on this terminal menu, consult your dealer for help.

4. Now you are ready to bring ProfitPlan up on your screen.

Type **PLAN** <Return>

Your screen will show the following:

```
                                MODE=NORMAL   ORDER=R/C  ROW=1-50  COL=1-20
     ROW 1  <--
ENTER COMMAND:

                                                                    1 format:
ROW                                                                 2 data:
--------------- ----1---- ----2---- ----3---- ----4---- ----5----   3 math:
1                    0.0       0.0       0.0       0.0       0.0   4 finance:
2                    0.0       0.0       0.0       0.0       0.0   5 print:
3                    0.0       0.0       0.0       0.0       0.0   6 status:
4                    0.0       0.0       0.0       0.0       0.0   7 HELP
5                    0.0       0.0       0.0       0.0       0.0   8
6                    0.0       0.0       0.0       0.0       0.0   9 STOP
7                    0.0       0.0       0.0       0.0       0.0   10 utility:
8                    0.0       0.0       0.0       0.0       0.0   11 program:
9                    0.0       0.0       0.0       0.0       0.0   12 stats:
10                   0.0       0.0       0.0       0.0       0.0   13
11                   0.0       0.0       0.0       0.0       0.0   14
12                   0.0       0.0       0.0       0.0       0.0   15
13                   0.0       0.0       0.0       0.0       0.0   16 format:
14                   0.0       0.0       0.0       0.0       0.0   17 INSERT
15                   0.0       0.0       0.0       0.0       0.0   18 DELETE
16                   0.0       0.0       0.0       0.0       0.0   19  rows:
17                   0.0       0.0       0.0       0.0       0.0   20 ROW TITLE
```

Customizing Reports For Printer

ProfitPlan works with all brands of printers. Technically, ProfitPlan prints all reports to the CP/M LST: device. Therefore, if you need to interface your system with a particular printer for printing ProfitPlan reports, you should check your system manuals for details, including baud rate settings and cable requirements.

You can print reports that are up to 99 columns wide, or up to 256 characters. The report width is limited by the printer and is controllable through ProfitPlan options.

To select the report width, use the row title width, column width, and number of columns options in the OPTIONS (81) command. The width of printed reports in ProfitPlan is simply calculated as follows:

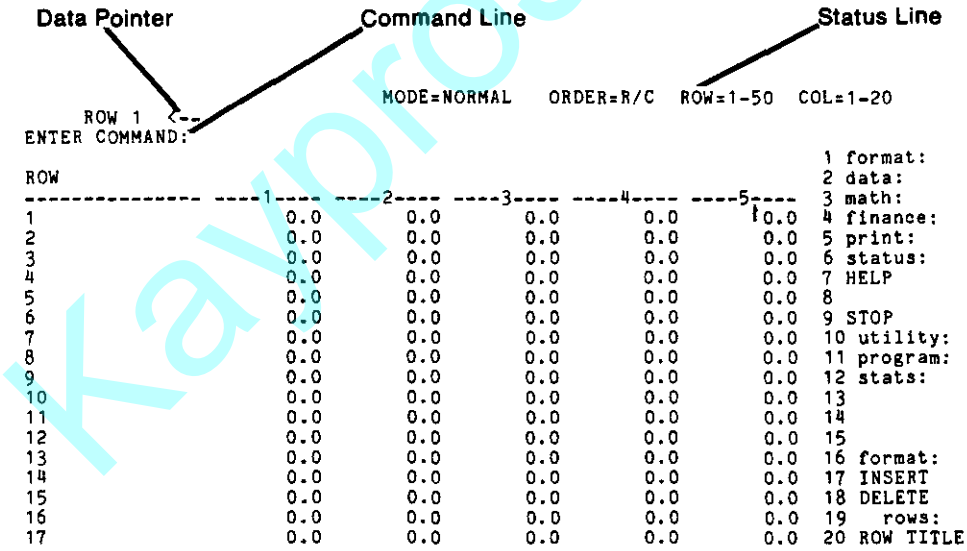
Report Width = Row Title Width + Column Width * Number of Columns

If you set the options to a width that is greater than can be handled by your printer, then the printed results would not be meaningful. Therefore, you should set options that are appropriate for your printer.

ProfitPlan is now ready to help you in solving your problems.

The ProfitPlan Screen

When ProfitPlan comes up on the screen you will notice that the screen is divided into several sections.



The major portion of the screen displays the **ProfitPlan Table.** Each row of the table has been labeled with row numbers on the left side of the screen. ProfitPlan has 12 blank spaces following each row number that are used to display row description. Row descriptions can be up to 40 characters in length. Each column of the table is also labeled with column numbers, with dashes on both sides. You can enter a two-line column description for each column that can vary from 4 to 20 characters for each column.

At the top of the ProfitPlan screen are the Status Line, the Data Pointer, and the Command Line. The **Status Line** gives you information about ProfitPlan's current mode, the current computing order, and the current row and column ranges. Unless you set it up otherwise, these options will default to the NORMAL mode; a computing order of rows before columns (R/C); and a range of 50 rows and 20 columns.

The **Data Pointer** tells you the row or column to be used to store the results of your next command. In this manual, the row or column that is shown by the data pointer is referred to as the **CURRENT** row or column.

The **Command Line** will prompt you for a command number. Simply enter the command number that you wish to use and press <Return>. The command will autometically be entered and will prompt you for any additional information that is needed to execute the command.

Manual Conventions

In this manual, you will notice the use of certain words and symbols to indicate actions to be used in ProfitPlan. These conventions are explained below:

<Return>	Carriage return
<CANCEL>	Use your cancel key to cancel a command after you have finished using the command. You can also use the cancel key to cancel a command if the <Return> has been entered and you realize that you have entered an incorrect command. The CANCEL key may be labeled with HOME, CAN, or a similar label depending on your keyboard.
BKSP	Use the backspace key to correct typing errors if you have not yet pressed the <Return> key. On different keyboards this key may be labeled DEL, RUB, RUBOUT or a similar label.

CURSOR KEYS	Indicates keys that direct the movement of the cursor. In most cases these keys are the up, down, left, and right arrow keys.

Choosing Commands

ProfitPlan works by responding to commands in the form of numbers. For every command that you need to execute, there is a corresponding built-in ProfitPlan command.

In addition to using the command numbers, ProfitPlan will also respond to alpha characters that are codes for the regular numeric commands. So, if it is easier for you, simply use the "+" for the ADD command, an "F" for the FORMULA command, or any other single keystroke codes. A complete list of the alpha mnemonics is shown in Appendix A.

The ProfitPlan MENU is always showing on the right hand side of your screen for easy reference. The main menu that you see when you bring ProfitPlan up on the screen is organized into several groups. You will notice that these groups follow the logical order used to build a ProfitPlan table. All commands followed by colons (:) have a related sub-menu.

```
                                MODE=NORMAL   ORDER=R/C  ROW=1-50  COL=1-20
     ROW 1  <--
ENTER COMMAND:                                                        1 format:
                                                                      2 data:
ROW                                                                   3 math:
-------------- ----1---- ----2---- ----3---- ----4---- ----5----      4 finance:
1                   0.0       0.0       0.0       0.0       0.0      5 print:
2                   0.0       0.0       0.0       0.0       0.0      6 status:
3                   0.0       0.0       0.0       0.0       0.0      7 HELP
4                   0.0       0.0       0.0       0.0       0.0      8
5                   0.0       0.0       0.0       0.0       0.0      9 STOP
6                   0.0       0.0       0.0       0.0       0.0      10 utility:
7                   0.0       0.0       0.0       0.0       0.0      11 program:
8                   0.0       0.0       0.0       0.0       0.0      12 stats:
9                   0.0       0.0       0.0       0.0       0.0      13
10                  0.0       0.0       0.0       0.0       0.0      14
11                  0.0       0.0       0.0       0.0       0.0      15
12                  0.0       0.0       0.0       0.0       0.0      16 format:
13                  0.0       0.0       0.0       0.0       0.0      17 INSERT
14                  0.0       0.0       0.0       0.0       0.0      18 DELETE
15                  0.0       0.0       0.0       0.0       0.0      19   rows:
16                  0.0       0.0       0.0       0.0       0.0      20 ROW TITLE
17                  0.0       0.0       0.0       0.0       0.0
```

If you wish to see the commands in any of the sub-menus, simply enter the number of the group for which you want to see a sub-menu and press <Return>. For example, if you want to see the available commands under the heading of math, simply enter **3** and press <Return>. A new set of commands will appear in the menu on the screen. To get back to the main menu, simply press <Return>. Try it.

ENTER COMMAND: 3 <Return>

Tell ProfitPlan to display the group of mathematical commands. ProfitPlan will respond with the menu shown below.

```
                                MODE=NORMAL   ORDER=R/C  ROW=1-50  COL=1-20
     ROW 1  <--
ENTER COMMAND:

                                                                      40  math:
ROW                                                                   41 ADD
--------------- ----1---- ----2---- ----3---- ----4---- ----5----     42 SUB
1                     0.0       0.0       0.0       0.0       0.0   43 MULT
2                     0.0       0.0       0.0       0.0       0.0   44 DIV
3                     0.0       0.0       0.0       0.0       0.0   45 NEGATE
4                     0.0       0.0       0.0       0.0       0.0   46 INVERSE
5                     0.0       0.0       0.0       0.0       0.0   47 INTEGER
6                     0.0       0.0       0.0       0.0       0.0   48 ROUND
7                     0.0       0.0       0.0       0.0       0.0   49 CUMULATE
8                     0.0       0.0       0.0       0.0       0.0   50 ABSOLUTE
9                     0.0       0.0       0.0       0.0       0.0   51 ADD K
10                    0.0       0.0       0.0       0.0       0.0   52 SUB K
11                    0.0       0.0       0.0       0.0       0.0   53 MULT K
12                    0.0       0.0       0.0       0.0       0.0   54 DIV K
13                    0.0       0.0       0.0       0.0       0.0   55 SUM
14                    0.0       0.0       0.0       0.0       0.0   56 GET
15                    0.0       0.0       0.0       0.0       0.0   57 FLOOR
16                    0.0       0.0       0.0       0.0       0.0   58 CEILING
17                    0.0       0.0       0.0       0.0       0.0   59
```

ENTER COMMAND: <Return>

When you press <Return> without a command, ProfitPlan will return to the original menu.

Moving The ProfitPlan Table

ProfitPlan usually displays 17 rows and 5 columns on the screen at a time--even though your actual table size can be much larger. Physical limitations of the screen allow only a portion of the table to be displayed at any one time.

ProfitPlan will automatically move the screen to show other parts of your worksheet. This means that the cursor is always showing on your screen. You can move one column, one row, or you can move to any section of your table that you need to view simply by using the cursor keys to position your display.

Use your cursor keys to switch from the row mode to the column mode and vice versa. The right or left cursor keys put you in the column mode, and the up or down keys switch you back to the row mode. In short, with the use of your cursor keys, you can move to any part of your worksheet with the push of a button.

You can also use the SELECT ROW (33) or SELECT COL (34) commands to quickly move to any part of the screen. The SELECT ROW command allows you to position your cursor on a specific row; SELECT COL lets you go to a specific column.

The GOTO (36) command can be used to position the screen at a specific portion of the table. For example, to see the results at row 40, column 10 of your table, use the GOTO command and specify row 40, column 10. ProfitPlan will position row 40, column 10 in the upper left corner of the screen.

The ProfitPlan HELP Command

If at any time you want on-screen help for one of the ProfitPlan commands, simply enter the HELP (7) command. The HELP command will prompt you for the number of the command for which you need help. Simply enter the command number or the corresponding mnemonic command and press <Return>.

For example, if you need help for the ROW TITLE (20) command, you would enter command 7, press <Return>, then enter 20, and <Return>. A brief explanation of command 20 will appear at the bottom of your screen as shown below.

```
                                MODE=NORMAL   ORDER=R/C  ROW=1-50  COL=1-20
     ROW 1  <--
ENTER COMMAND:

                                                                        1 format:
ROW                                                                     2 data:
--------------- ----1---- ----2---- ----3---- ----4---- ----5----       3 math:
1                     0.0       0.0       0.0       0.0       0.0     4 finance:
2                     0.0       0.0       0.0       0.0       0.0     5 print:
3                     0.0       0.0       0.0       0.0       0.0     6 status:
4                     0.0       0.0       0.0       0.0       0.0     7 HELP
5                     0.0       0.0       0.0       0.0       0.0     8
6                     0.0       0.0       0.0       0.0       0.0     9 STOP
7                     0.0       0.0       0.0       0.0       0.0     10 utility:
8                     0.0       0.0       0.0       0.0       0.0     11 program:
9                     0.0       0.0       0.0       0.0       0.0     12 stats:
10                    0.0       0.0       0.0       0.0       0.0     13
11                    0.0       0.0       0.0       0.0       0.0     14
12                    0.0       0.0       0.0       0.0       0.0     15
13                    0.0       0.0       0.0       0.0       0.0     16 format:
                                                                        17 INSERT
20 ROW TITLE  title ... CANCEL      (DOWN, UP, CANCEL)                  18 DELETE
Enter or change row titles. Each title entered is placed in             19   rows:
the current row. The cursor keys move the current row pointer.          20 ROW TITLE
```

Press any of your cursor keys to recover your screen display.

Of course, the HELP command only gives you a 3-line description of the commands. For a more comprehensive description, consult the Command Reference Section of this manual.

The Care & Feeding Of Your Diskettes

Floppy diskettes are not indestructable and should be handled with care. In most cases diskettes prove to be surprisingly sturdy and will give you dependable service if you treat them properly.

*PROTECT your diskettes by keeping them in their protective envelope when not in use.

*DO NOT BEND diskettes.

*INSERT DISKETTES CAREFULLY into your disk drives. Never force a diskette into the disk drive.

*NEVER TOUCH THE DISKETTE SURFACE. Fingerprints and dust can destroy data. Always handle diskettes by their protective covering.

*DO NOT STORE DISKETTES NEAR A HEAT SOURCE. Like phonograph records, diskettes will warp or crack if exposed to extreme temperatures. For best results, store diskettes in a moderate temperature range.

*DO NOT EXPOSE DISKETTES TO MAGNETS. Magnetic fields will damage data stored on your diskettes. Be aware of possible magnetic fields from sources such as X-rays and other electronic equipment.

The Importance Of Back-Up Copies

Accidents do happen. Just when you least expect it, a power failure or a defective diskette can cause you to lose your data. Unfortunately no one is immune to this aspect of working with computers, but you can soften the blow by making back-up copies of your diskettes.

Back-up copies are as important as your data. If the data is not essential, you might feel that making back-up copies is a waste of time. If, however, you have data on your diskettes that is critical to your work, we strongly recommend that you make frequent back-up copies of your data and store them separately in a safe place. Consult your operating system manual for instructions on making back-up copies of your data diskettes. THE RESPONSIBILITY FOR MAKING BACK-UP COPIES IS YOURS.

Exiting ProfitPlan

Whenever you are through using ProfitPlan and want to exit to the operating system, do the following:

1. Make sure you have saved any work you wish to keep.
2. ENTER COMMAND: **9** <Return>

   VERIFY (Y OR N): **Y** <Return>

   Exit ProfitPlan using the STOP command.

Chapter 2
Doing A Sample Report

In this chapter you will learn the basic steps associated with building a table. You will produce a Five-Year Sales Forecast, make a change in your data and do a "what-if" analysis, and print a report.

Five Year Sales Forecast

Let's assume you have a business and want to do a sales and gross profit forecast for the next five years. We will base the forecast on the following assumptions:

SALES:	Start with a base of $1,000 and grow 10% per period.
COST OF GOODS:	A constant 45% of sales figures.
SALES AND ADMINISTRATION:	A constant 20% of sales figures.
RESEARCH AND DEVELOPMENT:	A flat $300 per year.
TOTAL COSTS:	The sum of all costs (Cost of Goods, Sales and Administration, and Research and Development).
GROSS PROFIT:	Sales less total costs.

On your screen, the cursor on the command line will be prompting you to enter a command. Follow along on your computer by typing in all information in **BOLD TYPE.**

The first step in building the sample table is to enter titles for each row.

ENTER COMMAND: **20** <Return>

The ROW TITLE command (20) allows you to enter titles for each row.

ROW TITLE: **SALES** <Return>

Follow the prompts on your screen and type the description for row 1, SALES. Notice that after you press <Return>, the title goes into row 1 and the prompts continue asking for the next row title.

ROW TITLE: **COST OF GOODS** <Return>

The prompt on the command line is now asking for the description for row 3.

ROW TITLE: **SALES AND ADMINISTRATION** <Return>

The prompts continue to ask for row descriptions. Notice that this description is clipped in the middle of the word ADMINISTRATION. Don't worry. The screen is currently set to display only 15 characters for each title. The full description will be remembered for later use, as in printing. Later you will learn how you can adjust the screen to correspond to your individualized needs.

ROW TITLE: **RESEARCH AND DEVELOPMENT** <Return>

ROW TITLE: **TOTAL COSTS** <Return>

ROW TITLE: **GROSS PROFIT** <Return>

This is the last row title, so press the <CANCEL> key to cancel the ROW TITLE command. The screen should show the following:

```
                                MODE=NORMAL   ORDER=R/C  ROW=1-50  COL=1-20
     ROW 1 (SALES) <--
ENTER COMMAND:

ROW                                                                  1 format:
                                                                     2 data:
--------------- ----1---- ----2---- ----3---- ----4---- ----5----    3 math:
1 SALES              0.0       0.0       0.0       0.0       0.0    4 finance:
2 COST OF GOODS      0.0       0.0       0.0       0.0       0.0    5 print:
3 SALES AND ADM      0.0       0.0       0.0       0.0       0.0    6 status:
4 RESEARCH AND       0.0       0.0       0.0       0.0       0.0    7 HELP
5 TOTAL COSTS        0.0       0.0       0.0       0.0       0.0    8
6 GROSS PROFIT       0.0       0.0       0.0       0.0       0.0    9 STOP
7                    0.0       0.0       0.0       0.0       0.0    10 utility:
8                    0.0       0.0       0.0       0.0       0.0    11 program:
9                    0.0       0.0       0.0       0.0       0.0    12 stats:
10                   0.0       0.0       0.0       0.0       0.0    13
11                   0.0       0.0       0.0       0.0       0.0    14
12                   0.0       0.0       0.0       0.0       0.0    15
13                   0.0       0.0       0.0       0.0       0.0    16 format:
14                   0.0       0.0       0.0       0.0       0.0    17 INSERT
15                   0.0       0.0       0.0       0.0       0.0    18 DELETE
16                   0.0       0.0       0.0       0.0       0.0    19   rows:
17                   0.0       0.0       0.0       0.0       0.0    20 ROW TITLE
```

The data pointer and cursor are now back on row 1. The command line is prompting you for the next command. According to our assumptions, SALES will start at $1,000 and grow at 10% per year. Let's enter data to reflect this assumption.

ENTER COMMAND: **31** <Return> Enter data

CHOOSE (VALUE=0, CONSTANT=1, GROW=2, INCR=3): **2** <Return>

The ENTER command allows you to choose the method of data entry. You can enter data individually, value by value, by choosing "0". Choose "1" to enter a constant value for the entire line. The "2" option lets you enter a base value and have it grow by a certain percentage, and option "3" lets you enter a base value and have it increase by a constant amount. For our example, choose the GROW option (2).

BASE VALUE: **1000** <Return>

The command line prompts for the base value. Type in 1000. Notice that dollar signs and commas are not entered.

RATE: **10** <Return>

The prompt is now asking for the percentage rate. Type in 10. Notice that the percent signs are not entered. After you press <Return>, notice that row 1 contains the computed sales. The values start with 1,000 and grow by 10% per year.

The cursor and data pointer are now on row 2. According to our assumptions, the cost of goods is a constant 45% of sales, so we use the MULT K (53) command to multiply by a constant amount.

ENTER COMMAND: **53** <Return>

The MULT K (53) command allows you to compute the COST OF GOODS by multiplying a constnt amount by row 1, SALES.

VALUE: **.45** <Return>

The command line is prompting for a value. Type in .45 to indicate 45%.

ROW (1-50): **1** <Return>

The prompt now asks for a row number. Type in 1 to indicate that the sales figures in row 1 should be used in the calculation. Again notice that the cursor and data pointer have automatically moved to row 3, SALES AND ADMINISTRATION.

We are assuming that sales and administrative costs are a constant 20% of our sales. Again use the MULT K command.

ENTER COMMAND: **53** <Return>

Multiply by a constant.

VALUE: **.20** <Return>

ROW (1-50): **1** <Return>

For row 4, we assume that RESEARCH AND DEVELOPMENT is a constant cost of $300 each year.

ENTER COMMAND: **31** <Return>

To enter costs for RESEARCH AND DEVELOPMENT, use the ENTER command. This time, however, select the constant value option.

CHOOSE (VALUE=0, CONSTANT=1, GROW=2, INCR=3): **1** <Return>

BASE VALUE: **300** <Return>

The command line now prompts you for the constant base value. Type in 300. Notice that row 4 shows the value of 300 in all columns.

The data pointer and cursor are now pointing to row 5. To calculate the TOTAL COSTS in row 5, sum rows 2 through 4.

ENTER COMMAND: **55** <Return>

Use the SUM (55) command to sum several rows.

ROW BEGIN (1-50): **2** <Return>

Start summing with row 2, COST OF GOODS.

END (2-50): **4** <Return>

Finish summing with row 4, RESEARCH AND DEVELOPMENT. Notice that the sum for each column of the table is computed and the result is stored in row 5.

Finally, calculate the GROSS PROFIT in row 6 as SALES, row 1, minus TOTAL COSTS, row 5.

```
ENTER COMMAND:  42  <Return>                    Subtract

  ROW (1-50):  1  <Return>
```

The command line prompts for the first row number. Type in 1, for row 1, SALES.

```
  ROW (1-50):  5  <Return>
```

The prompt is now asking for the row number to subtract. Type in 5 for row 5, TOTAL COSTS. After you press <Return>, MicroPlan will calculate the GROSS PROFITS and put the results in row 6.

You have now completed your first Five-Year Forecast. The screen should look like the following:

```
                                MODE=NORMAL   ORDER=R/C   ROW=1-50   COL=1-20
     ROW 7  <--
ENTER COMMAND:
                                                                          1 format:
ROW                                                                       2 data:
-------------- ----1---- ----2---- ----3---- ----4---- ----5----          3 math:
1 SALES         1,000.0   1,100.0   1,210.0   1,331.0   1,464.1          4 finance:
2 COST OF GOODS   450.0     495.0     544.5     599.0     658.8          5 print:
3 SALES AND ADM   200.0     220.0     242.0     266.2     292.8          6 status:
4 RESEARCH AND    300.0     300.0     300.0     300.0     300.0          7 HELP
5 TOTAL COSTS     950.0   1,015.0   1,086.5   1,165.2   1,251.7          8
6 GROSS PROFIT     50.0      85.0     123.5     165.9     212.4          9 STOP
7                   0.0       0.0       0.0       0.0       0.0         10 utility:
8                   0.0       0.0       0.0       0.0       0.0         11 program:
9                   0.0       0.0       0.0       0.0       0.0         12 stats:
10                  0.0       0.0       0.0       0.0       0.0         13
11                  0.0       0.0       0.0       0.0       0.0         14
12                  0.0       0.0       0.0       0.0       0.0         15
13                  0.0       0.0       0.0       0.0       0.0         16 format:
14                  0.0       0.0       0.0       0.0       0.0         17 INSERT
15                  0.0       0.0       0.0       0.0       0.0         18 DELETE
16                  0.0       0.0       0.0       0.0       0.0         19   rows:
17                  0.0       0.0       0.0       0.0       0.0         20 ROW TITLE
```

As you prepared the Five-Year Forecast, not only were the figures computed, but the commands required to create the table were memorized. Let's take a look at the corresponding command logic:

ENTER COMMAND: **22** <Return>   Show rows

Your screen should show the following:

```
----------------------------------------------------------------
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -


  Press any cursor key to recover your display.
       ROW 7  <--
  ENTER COMMAND:
                    UNDER BLANK DEC FOR                              1 format:
  ROW          TYPE  LINE LINES SIZ MAT COMMAND   PARAMETERS         2 data:
  ------------ ----  ---- ----- --- --- --------- -------------      3 math:
  1 SALES      data              -   -   -                           4 finance:
  2 COST OF GOODS data           -   -   - MULT K    K=0.45 ROW=1    5 print:
  3 SALES AND ADM data           -   -   - MULT K    K=0.2 ROW=1     6 status:
  4 RESEARCH AND  data           -   -   -                           7 HELP
  5 TOTAL COSTS   data           -   -   - SUM       ROWS 2 - 4      8
  6 GROSS PROFIT  data           -   -   - SUB       ROW=1 ROW=5     9 STOP
  7               data           -   -   -                           10 utility:
  8               data           -   -   -                           11 program:
  9               data           -   -   -                           12 stats:
  10              data           -   -   -                           13
  11              data           -   -   -                           14
  12              data           -   -   -                           15
  13              data           -   -   -                           16 format:
  14              data           -   -   -                           17 INSERT
  15              data           -   -   -                           18 DELETE
  16              data           -   -   -                           19   rows:
  17              data           -   -   -                           20 ROW TITLE

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
----------------------------------------------------------------
```

To recover your display, press any cursor key.

What-If Analysis

Let's make changes to our data and watch the entire Five-Year Forecast recalculate based on the new assumptions.

Do a "what-if" analysis with the assumption that the first year of RESEARCH AND DEVELOPMENT expenses row 4, column 1 will be $500 instead of $300.

ENTER COMMAND: **32** <Return>   Change

ROW (1-50): **4** <Return>

COL (1-20): **1** <Return>

VALUE: **500** <Return>

Now that the change has been made, compute the entire report to see the effect of the new assumption.

ENTER COMMAND: **98** <Return> Compute

In just a second, the new Five-Year Forecast will show the following:

```
DONE.
     ROW 7  <--
ENTER COMMAND:

ROW                                                                  1 format:
                                                                     2 data:
--------------- ----1---- ----2---- ----3---- ----4---- ----5----   3 math:
1 SALES          1,000.0   1,100.0   1,210.0   1,331.0   1,464.1   4 finance:
2 COST OF GOODS    450.0     495.0     544.5     599.0     658.8   5 print:
3 SALES AND ADM    200.0     220.0     242.0     266.2     292.8   6 status:
4 RESEARCH AND     500.0     300.0     300.0     300.0     300.0   7 HELP
5 TOTAL COSTS    1,150.0   1,015.0   1,086.5   1,165.2   1,251.7   8
6 GROSS PROFIT    -150.0      85.0     123.5     165.9     212.4   9 STOP
7                    0.0       0.0       0.0       0.0       0.0   10 utility:
8                    0.0       0.0       0.0       0.0       0.0   11 program:
9                    0.0       0.0       0.0       0.0       0.0   12 stats:
10                   0.0       0.0       0.0       0.0       0.0   13
11                   0.0       0.0       0.0       0.0       0.0   14
12                   0.0       0.0       0.0       0.0       0.0   15
13                   0.0       0.0       0.0       0.0       0.0   16 format:
14                   0.0       0.0       0.0       0.0       0.0   17 INSERT
15                   0.0       0.0       0.0       0.0       0.0   18 DELETE
16                   0.0       0.0       0.0       0.0       0.0   19   rows:
17                   0.0       0.0       0.0       0.0       0.0   20 ROW TITLE
```

Generating A Report

Now that you have built your table, let's print the report. Be sure your printer is connected and turned on, and your paper adjusted.

ENTER COMMAND: **82** <Return> Titles

PAGE NUMBER (0-999): **1** <Return>

DATE (YEAR AS YY): **83** <Return>

MONTH (1-12): **1** <Return>

```
DAY (1-31): 1 <Return>

ROW-RANGE BEGIN (1-50): 1 <Return>

END (1-50): 6 <Return>

COL-RANGE BEGIN (1-20): 1 <Return>

END (1-20): 5 <Return>

TITLE 1: SAMPLE FIVE-YEAR FORECAST <Return>

TITLE 2: <Return>

TITLE 3: <Return>

Pressing the <Return> key by itself indicates that there are no
titles for the second and third lines.

SET PAPER; HIT RETURN <Return>
```

The TITLES (82) command sends your Five-Year Forecast table to the printer to generate the following report:

```
dir 1/1/83                                                    PAGE 1
                        SAMPLE 5-YEAR FORECAST

                    ----1---- ----2---- ----3---- ----4---- ----5----
 1 SALES            1,000.0   1,100.0   1,210.0   1,331.0   1,464.1
 2 COST OF GOODS      450.0     495.0     544.5     599.0     658.8
 3 SALES AND ADMINIS  200.0     220.0     242.0     266.2     292.8
 4 RESEARCH AND DEVE  500.0     300.0     300.0     300.0     300.0
 5 TOTAL COSTS      1,150.0   1,015.0   1,086.5   1,165.2   1,251.7
 6 GROSS PROFIT      -150.0      85.0     123.5     165.9     212.4
```

You should now save your table on disk for future use with the SAVE TBL (112) command.

```
ENTER COMMAND: 112 <Return>                    Save table

  TABLE NAME: FORECAST <Return>
```

Congratulations, you have just completed your first report. If you want to stop now and return to the operating system:

```
ENTER COMMAND:  9  <Return>                    Stop

  VERIFY (Y OR N):  Y  <Return>
```

Chapter 3
Building & Saving Tables

Chapter 3 shows you how to format a table to your own specifications. You will learn how to enter row and column descriptions and the different options available for data entry.

You can view the format commands on your screen by entering command **1** and a <Return>. To see the data entry commands, enter command **2** and then <Return>.

ENTERING A ROW OR COLUMN OF DATA

In Chapter 2, you used the ENTER (31) command to enter values for several rows in the Five-Year Forecast. The ENTER command can be used to enter a column of data as well.

When entering data with the ENTER command, you can choose the method of data entry from among four options. Choose the "0" option (VALUES) and you can enter data, value by value, one cell at a time. Choosing the "1" option (CONSTANT) will allow you to enter a constant value for the entire row or column. With the GROW option, "2", you can enter a value and have it grow by a certain percentage. Choose option "3" (INCR) and your base value will be increased or decreased by an amount specified by you.

For example, suppose you want to enter the values, 10, 20, 30, 40, etc. into column 3 of your table. To do this, you would use the following commands. If you need to clear your screen of existing data use the RESET (114) command as shown below:

```
ENTER COMMAND:  114  <Return>

  VERIFY (Y OR N):  Y  <Return>

ENTER COMMAND:  34  <Return>                    Select column 3

  COL (1-20):  3  <Return>
```

Use the SELECT COL (34) command to choose column 3. Notice that instead of using SELECT COL to position your cursor on column 3, you can also use either the right or left cursor arrow keys (-->, <--). The data pointer now shows **COL 3** <--.

```
ENTER COMMAND:  31  <Return>

Use the ENTER command to enter values for column 3.

  CHOOSE (VALUE=0,CONSTANT=1,GROW=2,INCR=3):  3  <Return>

  Choose the increasing option.

  BASE VALUE:  10  <Return>

  RATE:  10  <Return>
```

Your display will show the following in column 3. Notice that the data pointer has automatically changed to **COL 4** <-- and is ready for your next entry.

```
                                MODE=NORMAL   ORDER=R/C  ROW=1-50  COL=1-20
     COL 4  <--
ENTER COMMAND:
                                                                    1 format:
ROW                                                                 2 data:
--------------- ----3---- ----4---- ----5---- ----6---- ----7----   3 math:
1                  10.0       0.0       0.0       0.0       0.0   4 finance:
2                  20.0       0.0       0.0       0.0       0.0   5 print:
3                  30.0       0.0       0.0       0.0       0.0   6 status:
4                  40.0       0.0       0.0       0.0       0.0   7 HELP
5                  50.0       0.0       0.0       0.0       0.0   8
6                  60.0       0.0       0.0       0.0       0.0   9 STOP
7                  70.0       0.0       0.0       0.0       0.0   10 utility:
8                  80.0       0.0       0.0       0.0       0.0   11 program:
9                  90.0       0.0       0.0       0.0       0.0   12 stats:
10                100.0       0.0       0.0       0.0       0.0   13
11                110.0       0.0       0.0       0.0       0.0   14
12                120.0       0.0       0.0       0.0       0.0   15
13                130.0       0.0       0.0       0.0       0.0   16 format:
14                140.0       0.0       0.0       0.0       0.0   17 INSERT
15                150.0       0.0       0.0       0.0       0.0   18 DELETE
16                160.0       0.0       0.0       0.0       0.0   19   rows:
17                170.0       0.0       0.0       0.0       0.0   20 ROW TITLE
```

Entering Individual Values

If you prefer, you can enter values one at a time by using the ENTRY (30) command. With this command, you can go directly to a data entry position without having to go through the options offered in the ENTER (31) command.

With the ENTRY command you can use the cursor keys to move to the cell position of the value you wish to enter. This position is highlighted on your display. For example, suppose you want to enter the following data into column 4.

	-1-	-2-	-3-	-4-	-5-	-6-	-7-
COLUMN 4:	100	100	100	0	100	300	300

The following commands will do this:

ENTER COMMAND: **30** <Return> Entry command

VALUE: **100** <Return>

Value for col 4, row 1.

VALUE: <Return>

Value for col 4, row 2. Notice that by pressing <Return>, the previous value is repeated.

VALUE: <Return>

Value for col 4, row 3.

VALUE: **0** <Return>

Value for col 4, row 4.

VALUE: **100** <Return>

Value for col 4, row 5.

VALUE: **300** <Return>

Value for col 4, row 6.

VALUE: <Return>

Value for col 4, row 7. The prior value, 300, is automatically used by pressing <Return>. This is the last value to be entered, so press the <CANCEL> key to cancel the ENTRY command.

Notice that while in the ENTRY mode, each <Return> causes the data pointer and the cursor to automatically move to the next row or column.

Because of the different methods available for entering data, you should determine the best way based on your particular application. In order to save time, you should also decide whether to use the row mode or the column mode before you begin entering your data.

Doing A Sample Inventory Table

To illustrate the formatting and data entry commands used in this chapter, let's prepare a sample Inventory table based on the chart below.

ITEM	UNIT COST	QUANTITY	TOTAL COST
DESKS	300	10	
CHAIRS	150	20	
SHELVES	200	5	
TOTAL			

Assume that you need an Inventory report to include three items: desks, chairs, and shelves. For each of these items, you want to show a unit cost, quantity, and total cost. You also want to show a grand total for all three items' cost. Let's start by setting up the table size for your Inventory example.

Setting Table Size

Your table sizes can be changed to accommodate a variety of applications. For example, by choosing a 5-column format, you can have up to about 200 available rows. This format could handle a full income statement, cash flow statement, and balance sheet in a single table. With 60 columns in your table, you can do a five-year, monthly projection of cash flows for a real estate development project.

The potential size of each table is determined by the RAM (Random Access Memory) capacity of your computer. Based on a system with 64K (kilobytes) of RAM, your table can be up to 99 columns, **OR** up to 250 rows, with a total of approximately 1000 data cells. The SET UP command will automatically calculate the maximum number of columns and rows to let you know how large your table can be.

The SET UP (109) command allows you to select table sizes. When you bring your program up on your terminal, the table that you see on the screen is 50 rows by 20 columns. The initial table size will always default to 50 rows by 20 columns unless you use the SET UP command to specify another size. Let's use the SET UP command to build a sample Inventory table that is 5 columns by 15 rows. Use the RESET (114) command to clear your screen, then use the following commands.

ENTER COMMAND: **109** <Return> Set up table size

VERIFY (Y OR N): **Y** <Return>

Notice that answering "yes" (Y) to the SET UP verification query will clear the data from your screen. If you do not want the data cleared, respond with an "N" for no.

NUMBER OF COLUMNS (1-99): **5** <Return>

We want to have 5 columns in our table. Notice that you have the option for up to 99 columns.

ROWS (1-136): **15** <Return>

Our table will have 15 rows. Notice that you could have up to about 136 rows depending on the computer system you are using. The number of rows is considerably larger if you have more than 64K of RAM.

VERIFY (Y OR N): **Y** <Return>

The size of the table on the screen, the CURRENT table size, is shown in the upper left corner of your screen (15 ROWS BY 5 COLUMNS). The screen will now be reset to show a table that is 5 columns by 15 rows.

Entering Row & Column Descriptions

Row and column titles are easy to enter. Using the ROW TITLE (20) command, you can enter titles of up to 40 alpha or numeric characters for each row. Each title entered is placed in the

current row as indicated by the data pointer and the highlighted block. You can use the cursor keys to position the data pointer to the row in which you want to enter a title. Let's enter row titles for the Inventory table.

```
ENTER COMMAND:  20 <Return>                    Row titles

  ROW TITLE:  ITEM <Return>
```

Notice that after you press <Return>, the entry is moved to row 1 of your table. The command line will now prompt you for the description for row 2.

```
  ROW TITLE:  DESKS <Return>

  ROW TITLE:  CHAIRS <Return>

  ROW TITLE:  SHELVES <Return>

  ROW TITLE:  TOTAL <Return>
```

This is the last row title to be entered, so use the <CANCEL> command to cancel the ROW TITLE command.

Now enter the column descriptions for your Inventory table. Columns are allowed 2-line descriptions of up to 20 characters. Each line of the title is automatically right justified in the column. If only one line of description is needed, simply press <Return> to indicate that a second line is not necessary.

```
ENTER COMMAND:  25 <Return>                    Column titles

  COL TITLE 1:  UNIT <Return>                  Column 1 first title

  COL TITLE 2:  COST <Return>                  Column 1 second title

  COL TITLE 1:  QUANTITY <Return>

  COL TITLE 2:  <Return>
```

Pressing the <Return> key by itself, indicates that there is no second line column description.

```
  COL TITLE 1:  TOTAL <Return>                 Column 3 first title

  COL TITLE 2:  COSTS <Return>                 Column 3 second title
```

This is the last column title to be entered, so press the <CANCEL> key to cancel the COL TITLE command.

Your screen should show the following:

```
                                MODE=NORMAL   ORDER=R/C  ROW=1-15  COL=1-5
     ROW 1 (ITEM) <--
ENTER COMMAND:
                      UNIT  QUANTITY     TOTAL                          1 format:
ROW                   COST               COSTS                          2 data:
--------------- ----1---- ----2---- ----3---- ----4---- ----5----       3 math:
1 ITEM                0.0       0.0       0.0       0.0       0.0      4 finance:
2 DESKS               0.0       0.0       0.0       0.0       0.0      5 print:
3 CHAIRS              0.0       0.0       0.0       0.0       0.0      6 status:
4 SHELVES             0.0       0.0       0.0       0.0       0.0      7 HELP
5 TOTAL               0.0       0.0       0.0       0.0       0.0      8
6                     0.0       0.0       0.0       0.0       0.0      9 STOP
7                     0.0       0.0       0.0       0.0       0.0      10 utility:
8                     0.0       0.0       0.0       0.0       0.0      11 program:
9                     0.0       0.0       0.0       0.0       0.0      12 stats:
10                    0.0       0.0       0.0       0.0       0.0      13
11                    0.0       0.0       0.0       0.0       0.0      14
12                    0.0       0.0       0.0       0.0       0.0      15
13                    0.0       0.0       0.0       0.0       0.0      16 format:
14                    0.0       0.0       0.0       0.0       0.0      17 INSERT
15                    0.0       0.0       0.0       0.0       0.0      18 DELETE
                                                                         19   rows:
                                                                         20 ROW TITLE
```

The ROW TITLE and COL TITLE commands can also be used to change row and column descriptions. They can be used to correct typing errors or to supply new titles. The new descriptions you supply simply replace the old descriptions in the table.

Entering Data

Using the data entry commands discussed earlier in this section, we will now enter data into the Inventory table. Use your cursor keys to position your cursor on column 1.

ENTER COMMAND: **3D** <Return> Data entry

VALUE: **0** <Return>

Row 1 is a heading and should have not values. The cursor will autometically go to column 1, row 2 ready for your next entry.

VALUE: **300** <Return>

Unit cost for desks (row 2) is $300.00.

VALUE: **150** <Return>

Unit cost for chairs (row 3) is $150.00.

VALUE: **200** <Return>

Unit cost for shelves (row 4) is $200.00. This is the last value to be entered here, so press the <CANCEL> key to cancel the ENTRY command.

The data pointer and the cursor automatically move to the next column ready for your next command. Let's use the ENTRY command again to enter data in column 2.

ENTER COMMAND: **30** <Return> Data entry

VALUE: **0** <Return>

Row 1 is a heading and has no value.

VALUE: **10** <Return>

The quantity of desks, row 2, is 10.

VALUE: **20** <Return>

The quantity of chairs, row 3, is 20.

VALUE: **5** <Return>

The quantity of shelves, row 4, is 5. This is the last value to be entered, so press the <CANCEL> key to cancel the ENTRY command.

To get the TOTAL costs of the Inventory table, use the MULT (43) command to multiply column 1 by column 2.

ENTER COMMAND: **43** <Return>

COL (1-5): **1** <Return>

COL (1-5): **2** <Return>

Your results will appear in column 3. Your screen should now show the following:

```
                                MODE=NORMAL   ORDER=R/C  ROW=1-15  COL=1-5
      COL 4  <--
ENTER COMMAND:
                         UNIT  QUANTITY     TOTAL                            1 format:
ROW                      COST               COSTS                            2 data:
--------------- ----1---- ----2---- ----3---- ----4---- ----5----            3 math:
1 ITEM                    0.0       0.0       0.0       0.0       0.0        4 finance:
2 DESKS                 300.0      10.0   3,000.0       0.0       0.0        5 print:
3 CHAIRS                150.0      20.0   3,000.0       0.0       0.0        6 status:
4 SHELVES               200.0       5.0   1,000.0       0.0       0.0        7 HELP
5 TOTAL                   0.0       0.0       0.0       0.0       0.0        8
6                         0.0       0.0       0.0       0.0       0.0        9 STOP
7                         0.0       0.0       0.0       0.0       0.0        10 utility:
8                         0.0       0.0       0.0       0.0       0.0        11 program:
9                         0.0       0.0       0.0       0.0       0.0        12 stats:
10                        0.0       0.0       0.0       0.0       0.0        13
11                        0.0       0.0       0.0       0.0       0.0        14
12                        0.0       0.0       0.0       0.0       0.0        15
13                        0.0       0.0       0.0       0.0       0.0        16 format:
14                        0.0       0.0       0.0       0.0       0.0        17 INSERT
15                        0.0       0.0       0.0       0.0       0.0        18 DELETE
                                                                             19   rows:
                                                                             20 ROW TITLE
```

Saving & Loading Tables

After you have created a table, you will probably want to save the table for future use. You will also need to know how to reload tables from your diskette into your computer so that you can change or update data. To see the commands associated with saving and loading tables, enter command 10 (utility) and press <Return>.

You can save tables on diskettes and load the tables again using the SAVE TBL (112) and LOAD TBL (111) commands. Each table is identified by an 8-character name. You can direct the tables to be saved or loaded from any of the disk drives of your computer. More information about file names, maintaining tables, and changing disk drives can be found in Chapter 6.

To illustrate the save and load commands, let's save the table on our screen as an Inventory table example named INVENT, reset the table, and then load the saved Inventory table back from the disk.

ENTER COMMAND: **112** <Return> Save table

TABLE NAME: **INVENT** <Return>

When your table has been saved, you will see a message, "SAVED" in the upper left corner of your screen.

Now clear your screen using the RESET (114) command and then reload the table using the LOAD TBL (111) command.

ENTER COMMAND: **114** <Return> Reset

VERIFY (Y OR N): **Y** <Return>

ENTER COMMAND: **111** <Return> Load table

A directory is kept of all the tables that you save. After entering a load or save command, a message at the top of the screen will direct you to "Hit RETURN to see available tables or programs." If you wish to see the names of the tables in the directory, simply press <Return>. Continue pressing <Return> to view additional tables.

TABLE NAME: **INVENT** <Return>

Each table will save the following information:

1. Report options and titles.
2. Range settings and compute order
3. Row descriptions, options, and commands.
4. Column descriptions, options, and commands.
5. Table values.

In general, all relevant parameters are saved so that you can continue from one session to another without worrying about losing table information.

Enlarging Tables

The SET UP command can also be used to enlarge a table--as long as you remain within the size limitations of your RAM. To enlarge a table, first set the current table to the new dimension. Then load the table to be enlarged, into the CURRENT table.

Let's enlarge our current table from 5 columns by 15 rows to 20 columns by 50 rows.

```
ENTER COMMAND:  109  <Return>                    Set up command

  VERIFY (Y OR NO):  Y  <Return>

  NUMBER OF COLUMNS (1-99):  20  <Return>

  ROWS (1-50):  50  <Return>

  VERIFY (Y OR N):  Y  <Return>
```

The current table will be set up to the new dimensions. The CURRENT table size is displayed in the upper left corner of your screen.

```
ENTER COMMAND:  111  <Return>                    Load table

  TABLE NAME:  INVENT  <Return>
```

MicroPlan will give you a message on the screen as follows:

New table is smaller than current table dimensions. Enlarge?

NEW 15x5 CURRENT 50x20

```
  CHOOSE (NEW=0, CURRENT=1):  1  <Return>
```

Your Inventory table will be loaded into the enlarged matrix. If for some reason you decide not to enlarge the table, simply choose "0" in the above prompt, signifying that you wish your new table to remain the same size. Let's save the enlarged Inventory table using the SAVE TBL (112) command.

```
ENTER COMMAND  112  <Return>
```

TABLE NAME: **INVENT** <Return>

You will receive a message from saying:

Your file already exists. Continue with save?

VERIFY (Y OR N): **Y** <Return>

By answering "yes" to the verification, you have indicated that you want to write over the existing file called INVENT. Because you now have an updated version of INVENT, you will want to save the new version instead of the old.

Inserting & Deleting Lines

You can insert a new row or column using the INSERT (17) command. For example, let's insert a new row into the Inventory table. Put your cursor on row 5, then:

ENTER COMMAND: **17** <Return> Insert

An empty row or column will automatically be inserted on the line indicated by your cursor. In reality, the row being inserted is the last row or column of your current table. Data in that row or column will be carried to the new location.

To delete a row or column, simply put your cursor on the row or column you wish to delete and use the DELETE (18) command. The command line will issue a prompt asking you to verify the deletion. A "Y" response to the prompt will clear the data from the deleted line and insert the line at the outer limits of your matrix. Any commands that referenced the deleted command will now reference the last row or column of your table.

For example, delete the line we just inserted into the Inventory table above. Use your cursor keys to move the cursor to row 5 and then follow the steps below.

ENTER COMMAND: **18** <Return> Delete

VERIFY (Y OR N): **Y** <Return>

Row 5 has been deleted and your table adjusted.

Reordering Rows And Columns

You can change the order of your rows using the REORDER [23] command. In the same way, the REORDER [28] command will let you reorder columns. Using these commands, you can change the order of rows and columns in already existing tables. For example, let's switch the order of columns 2 and 3 in our Inventory table.

```
ENTER COMMAND:  28  <Return>                    Reorder columns

  OLD NUMBER [1-20]:  3  <Return>

  NEW NUMBER [1-20]:  2  <Return>
```

Your screen should show the following.

```
INVENT                          MODE=NORMAL   ORDER=R/C  ROW=1-50  COL=1-20
     ROW 5 (TOTAL) <--
ENTER COMMAND:
                      UNIT      TOTAL  QUANTITY                        1 format:
ROW                   COST      COSTS                                  2 data:
--------------- ----1---- ----2---- ----3---- ----4---- ----5----      3 math:
1 ITEM                0.0       0.0       0.0       0.0       0.0     4 finance:
2 DESKS             300.0   3,000.0      10.0       0.0       0.0     5 print:
3 CHAIRS            150.0   3,000.0      20.0       0.0       0.0     6 status:
4 SHELVES           200.0   1,000.0       5.0       0.0       0.0     7 HELP
5 TOTAL               0.0       0.0       0.0       0.0       0.0     8
6                     0.0       0.0       0.0       0.0       0.0     9 STOP
7                     0.0       0.0       0.0       0.0       0.0     10 utility:
8                     0.0       0.0       0.0       0.0       0.0     11 program:
9                     0.0       0.0       0.0       0.0       0.0     12 stats:
10                    0.0       0.0       0.0       0.0       0.0     13
11                    0.0       0.0       0.0       0.0       0.0     14
12                    0.0       0.0       0.0       0.0       0.0     15
13                    0.0       0.0       0.0       0.0       0.0     16 format:
14                    0.0       0.0       0.0       0.0       0.0     17 INSERT
15                    0.0       0.0       0.0       0.0       0.0     18 DELETE
16                    0.0       0.0       0.0       0.0       0.0     19   rows:
17                    0.0       0.0       0.0       0.0       0.0     20 ROW TITLE
```

By using the REORDER command you can make adjustments to your table without having to re-enter data. Of course, when you insert or reorder a line, command references for existing rows and columns are automatically retained.

Chapter 4
Math & Formulas

Chapter 4 explains how to use the built-in mathematical commands. In addition, you will learn how to write and use formulas, how to use the handy PLUG command, and how to calculate and recalculate your results with surprising speed. To see the mathematical commands on your screen, enter command 3 and then <Return>.

Simple Math Functions

Mathematical computations are performed on entire rows and columns of your table. Let's go through some of the more common commands. Make sure your screen is cleared. If not:

```
ENTER COMMAND:  114  <Return>

  VERIFY (Y OR N):  Y  <Return>
```

The RESET command clears the entire screen and redisplays the table.

For our purposes here we will be doing the commands from a row mode. If you prefer, you can also enter the mathematical commands in columns. Let's enter some sample data into row 1 and row 2 for working purposes.

```
ENTER COMMAND:  31  <Return>                    Enter data

  CHOOSE (VALUE=0, CONSTANT=1, GROW=2, INCR=3):  1  <Return>

  BASE VALUE:  20  <Return>

ENTER COMMAND:  31  <Return>

  CHOOSE (VALUE=0, CONSTANT=1, GROW=2, INCR=3): 1  <Return>

  BASE VALUE:  10  <Return>
```

Now you are ready to use the math commands. The cursor and data pointer are on row 3 and the command line is ready to receive a command to enter data or put results on that row. Let's start with the ADD (41) command and add rows 1 and 2. Make sure your data pointer is pointing to row 3, then:

```
ENTER COMMAND:  41  <Return>                    Add

  ROW (1-50):  1  <Return>

  ROW (1-50):  2  <Return>
```

The ADD command will add any two rows or columns in a table and put the results in the row or column indicated by the cursor and data pointer. For example:

Row 1 + Row 2 = Row 3

Now let's subtract row 2 from row 1 and put the difference in row 4 using the SUB (42) command. Make sure your cursor is on row 4, then:

```
ENTER COMMAND:  42  <Return>                    Subtract

  ROW (1-50):  1  <Return>

  ROW (1-50):  2  <Return>
```

The SUB command will subtract any two rows or columns of values and put the results in the row or column indicated by the cursor and data pointer. The first prompt asks for the row or column to subtract from; the second prompt asks for the row or column to subtract. For example:

Row 1 - Row 2 = Row 4

Using the MULT (43) command, multiply row 1 by row 2 and put the results in row 5.

```
ENTER COMMAND:  43  <Return>                    Multiply

  ROW (1-50):  1  <Return>

  ROW (1-50):  2  <Return>
```

The MULT command will multiply any two rows or columns of values in a table and put the results in the row or column indicated by the cursor and data pointer. For example:

Row 1 x Row 2 = Row 5

Use the DIV (44) command to divide row 1 by row 2 and put the results in row 6.

```
ENTER COMMAND:  44  <Return>                    Divide

  ROW (1-50):  1  <Return>

  ROW (1-50):  2  <Return>
```

The DIV command will divide any two row or columns of values and put the quotient in the row or column indicated by the cursor and date pointer. For example:

Row 1 / Row 2 = Row 6

The ADD K (51), SUB K (52), MULT K (53), and DIV K (54) commands perform similar computations. Instead of working with two rows or columns, these commands work with one row or column and a constant. The constant that you supply for these commands will be added to, subtracted from, multiplied by, and divided into each value of the row or column that you indicate.

The other mathematical commands are used in the same manner as the commands described above. Some of the more frequently used commands are explained in the section below. Try experimenting with some of the commands on your own. For more information about a specific command, consult the Command Reference Section of this manual.

Special Math Functions

The CUMULATE (49) command is helpful in situations where you need a cumulative total over a period of time. Let's use the CUMULATE command to calculate the cumulative total for the date in row 5 and put the results in row 7. Make sure your cursor is on row 7.

```
ENTER COMMAND:  49  <Return>                    Cumulate

  VALUE:  100  <Return>

  ROW (1-50):  5  <Return>
```

The CUMULATE command computes cumulative totals for a row or column of a table. After entering the command, the first prompt will ask for an initial or base value. This is especially useful for balance-forward types of calculations that have an ending balance to be carried forward. There must always be a base value entered when using the CUMULATE command. If you have no previous balance value, a "0" must be entered.

The SUM (55) command is one of the most frequently used of the mathematical commands. Use the SUM command to total the data from row 1 through row 7 and put the results in row 8. Make sure your cursor is on row 8, then:

```
ENTER COMMAND:  55  <Return>                    Sum

  ROW BEGIN (1-50):  1  <Return>

  Number of row to begin summing.

  END (1-50):  7  <Return>

  Last row to be included in the sum.
```

The SUM command lets you add any number of consecutive rows or columns. Like the other mathematical commands, you can position your results wherever you need to have them appear. The results will appear in the row or column indicated by your data pointer and cursor.

The GET (56) command will copy data from one row or column to another. Use the GET command to put the values from row 5 into row 9. Make sure your cursor is on row 9,then:

```
ENTER COMMAND:  56  <Return>                    Get command

  ROW (1-50):  5  <Return>
```

The GET command allows you to retrieve data from any row and put it anywhere in your current table. Of course, the same thing can be done with columns in the column mode. You should note, however, that you cannot put data from a row into a column or data from a column into a row.

Floor & Ceiling

The FLOOR (57) and CEILING (58) commands can be used to answer basic "if-then" questions about an existing row or column of values. Let's use the FLOOR command to analyze the data in row 7 and put the results in row 10. Your data pointer should be pointing to row 10.

```
ENTER COMMAND:  57  <Return>                    Floor

  VALUE:  800  <Return>                         Minimum value

  ROW (1-50):  7  <Return>

  Row to compare to the minimum value.
```

When using the FLOOR command, you set a minimum value, or floor and then compare each value in your row or column. If a value in that line is greater than the minimum value you have specified, then that value will remain unchanged. If a value is less than or equal to the minimum value, then the minimum value will be entered. In our example, every value in row 7 that was less than 800 became 800. Values greater than 800 remained unchanged.

Now use the CEILING command to compare row 7 with a maximum value of 575. Put the results in row 11.

```
ENTER COMMAND:  58  <Return>                    Ceiling

  VALUE:  575  <Return>                         Maximum value

  ROW (1-50):  7 <Return>

  Row to compare to maximum value.
```

The CEILING command works the same way as the FLOOR command, only in reverse. With the CEILING command, you set a maximum value or ceiling. When you compare a line with your maximum value, anything greater than or equal to the ceiling value will become that value; anything less than that maximum value will stay the same. In our example, all values in row 7 that were greater than 575 were changed to 575; other values were not changed.

Your screen showing the examples used above should look like the following:

```
                                   MODE=NORMAL   ORDER=R/C  ROW=1-50  COL=1-20
     ROW 12 (  ) <--
ENTER COMMAND:

ROW                                                                    1 format:
                                                                       2 data:
-------------- ----1---- ----2---- ----3---- ----4---- ----5----      3 math:
1 SAMPLE DATA       20.0      20.0      20.0      20.0      20.0      4 finance:
2 SAMPLE DATA       10.0      10.0      10.0      10.0      10.0      5 print:
3 ADD               30.0      30.0      30.0      30.0      30.0      6 status:
4 SUB               10.0      10.0      10.0      10.0      10.0      7 HELP
5 MULT             200.0     200.0     200.0     200.0     200.0      8
6 DIV                2.0       2.0       2.0       2.0       2.0      9 STOP
7 CUMULATE         300.0     500.0     700.0     900.0   1,100.0     10 utility:
8 SUM              572.0     772.0     972.0   1,172.0   1,372.0     11 program:
9 GET              200.0     200.0     200.0     200.0     200.0     12 stats:
10 FLOOR           800.0     800.0     800.0     900.0   1,100.0     13
11 CEILING         300.0     500.0     575.0     575.0     575.0     14
12                   0.0       0.0       0.0       0.0       0.0     15
13                   0.0       0.0       0.0       0.0       0.0     16 format:
14                   0.0       0.0       0.0       0.0       0.0     17 INSERT
15                   0.0       0.0       0.0       0.0       0.0     18 DELETE
16                   0.0       0.0       0.0       0.0       0.0     19   rows:
17                   0.0       0.0       0.0       0.0       0.0     20 ROW TITLE
```

Displaying Command Logic

The SHOW ROWS (22) command provides you with excellent documentation for every part of your worksheet. The SHOW ROWS command displays the commands that have been memorized for each row. All formulas, base values, parameters , and print options for each command will be shown on the display on your screen. The SHOW COLS (27) command will display corresponding information about columns.

If you want to change the command for a particular row or column, you can overwrite the original command by entering a new command. The new logic will be reflected when you use the SHOW ROWS or SHOW COLS commands. Use the SHOW ROWS command to see the table logic for each of the mathematical commands that you have just used.

ENTER COMMAND: **22** <Return> Show row logic

Your screen will show the following:

```
Press any cursor key to recover your display.
     ROW 12 (   ) <--
ENTER COMMAND:
                    UNDER BLANK DEC FOR                                    1 format:
ROW              TYPE  LINE LINES SIZ MAT COMMAND    PARAMETERS            2 data:
---------------- ----  ---- ----- --- --- ---------- ----------------      3 math:
1 SAMPLE DATA    data           -   -   -                                  4 finance:
2 SAMPLE DATA    data           -   -   -                                  5 print:
3 ADD            data           -   -   - ADD        ROW=1 ROW=2           6 status:
4 SUB            data           -   -   - SUB        ROW=1 ROW=2           7 HELP
5 MULT           data           -   -   - MULT       ROW=1 ROW=2           8
6 DIV            data           -   -   - DIV        ROW=1 ROW=2           9 STOP
7 CUMULATE       data           -   -   - CUMULATE   K=100 ROW=5           10 utility:
8 SUM            data           -   -   - SUM        ROWS 1 - 7            11 program:
9 GET            data           -   -   - GET        ROW=5                 12 stats:
10 FLOOR         data           -   -   - FLOOR      K=800 ROW=7           13
11 CEILING       data           -   -   - CEILING    K=575 ROW=7           14
12               data           -   -   -                                  15
13               data           -   -   -                                  16 format:
14               data           -   -   -                                  17 INSERT
15               data           -   -   -                                  18 DELETE
16               data           -   -   -                                  19   rows:
17               data           -   -   -                                  20 ROW TITLE
```

The NULLIFY Command

If you want to delete a command from your table entirely, you must use the NULLIFY (39) command to nullify the command logic. NULLIFY will issue a prompt to verify that the current row or column should be nullified. The NULLIFY command will not affect the data currently in your table.

Using Formulas

Although all commands have built-in formulas, it may be necessary for you to enter your own formulas for specialized computations. There are two commands that let you enter formulas into your tables. The FORMULA (35) command applies your formula to an entire row or column. The PLUG (37) command lets you put a formula in a single location, or cell. With these two commands you can do calculations on an entire row or column OR cell-by-cell calculations, as needed.

With the PLUG and FORMULA commands you can combine table references and constants with mathematical operators to make formulas. The valid operations consist of addition (+), subtraction (-), multiplication (*), and division (/). You can use up to 40 characters in each formula.

When using the PLUG and FORMULA commands, you will also probably want to reference data already in your table. You can reference any row or column by preceding the row or column number with the letter "L". For example, you would reference row 7 as L7 or column 19 as L19. Row and column references are automatically distinguished according to the data pointer. If the data pointer is pointing to a row, then all line references are to rows. If the data pointer points to a column, then all line references are to columns.

Your formula can also reference single values in your table. Single value references are formed by preceding the row and column number with the letter "V". For example, to reference the value in row 1, column 1, enter V1,1 as part of your formula. To reference row 8, column 19, you would enter V8,19 as your reference. Notice that in a single value reference, the row number must precede the column number. Also, you must use a comma to separate the two values.

Of course, you can always use constants in your formulas. Constants are numbers such as .45 and 300. Notice that negative numbers such as -1.0 cannot be used. To use negative numbers, enter them as an expression such as (0-1).

L	reference a row or column	L7
V	reference a single value	V1,2
+	add two values	L1+L3
-	subtract two values	V3,4-V5,6
*	multiply two values	L4*L16
/	divide two values	V4,4/10

In a complex formula, multiplication and division are performed before addition and subtraction. For example, in the formula **L3 + 2 * L1**, line 1 will be multiplied by 2 before adding the values from line 3.

If your intent is to add 2 to every value of L3 before multiplying by the values in line 1, you can use parentheses. The following example would clearly specify your intent:

(L3 + 2) * L1

The easiest way to learn is by doing. Clear your screen using the RESET (114) command, enter some sample data, and enter the sample formulas below using the FORMULA (35) command.

L1	equivalent to the GET command
L1-L2-L3	subtract lines 2 and 3 from line 1
L3/L2*100	equivalent to the RATIO command
V1,1	set current row or column to the value in row 1, column 1
L3/V3,1*100	calculate line 3 as a percent of the value in the first column of row 3-- same as the % OF TOT command

Using The FORMULA Command

Let's experiment using the FORMULA command in the following example. Suppose that your cost of goods has a fixed and variable component. Cost of goods is 45% of sales plus a $300 constant expense. Assume that row 1 of your sample data contains sales data. You can then enter the formula **.45 * L1 + 300** to calculate the desired results. To produce the above example, put your cursor on an empty row, then

ENTER COMMAND: **35** <Return> Formula

FORMULA: **.45*L1+300** <Return>

Check your results against the following:

```
                                MODE=NORMAL   ORDER=R/C  ROW=1-50  COL=1-20
     ROW 9 (.45*L1+300) <--
ENTER COMMAND:

ROW                                                                  1 format:
--------------- ----1---- ----2---- ----3---- ----4---- ----5----   2 data:
1 SAMPLE DATA     1,000.0   1,250.0   1,562.5   1,953.1   2,441.4   3 math:
2 SAMPLE DATA       575.0     575.0     575.0     575.0     575.0   4 finance:
3 L1              1,000.0   1,250.0   1,562.5   1,953.1   2,441.4   5 print:
4 L1-L2-L3         -575.0    -575.0    -575.0    -575.0    -575.0   6 status:
5 L3/L2*100         173.9     217.4     271.7     339.7     424.6   7 HELP
6 V1,1            1,000.0   1,000.0   1,000.0   1,000.0   1,000.0   8
7 L3/V3,1*100       100.0     125.0     156.3     195.3     244.1   9 STOP
8                     0.0       0.0       0.0       0.0       0.0   10 utility:
9 .45*L1+300        750.0     862.5   1,003.1   1,178.9   1,398.6   11 program:
10                    0.0       0.0       0.0       0.0       0.0   12 stats:
11                    0.0       0.0       0.0       0.0       0.0   13
12                    0.0       0.0       0.0       0.0       0.0   14
13                    0.0       0.0       0.0       0.0       0.0   15
14                    0.0       0.0       0.0       0.0       0.0   16 format:
15                    0.0       0.0       0.0       0.0       0.0   17 INSERT
16                    0.0       0.0       0.0       0.0       0.0   18 DELETE
17                    0.0       0.0       0.0       0.0       0.0   19   rows:
                                                                     20 ROW TITLE
```

Now use the **SHOW ROWS (22)** command to display your table logic as shown on the screen below.

```
Press any cursor key to recover your display.
     ROW 9 (.45*L1+300) <--
ENTER COMMAND:
                        UNDER BLANK DEC FOR                                  1 format:
ROW              TYPE   LINE LINES SIZ MAT COMMAND   PARAMETERS           2 data:
---------------- ----   ---- ----- --- --- --------- --------------       3 math:
1 SAMPLE DATA    data          -   -   -                                    4 finance:
2 SAMPLE DATA    data          -   -   -                                    5 print:
3 L1             data          -   -   - L1                               6 status:
4 L1-L2-L3       data          -   -   - L1-L2-L3                         7 HELP
5 L3/L2*100      data          -   -   - L3/L2*100                         8
6 V1,1           data          -   -   - V1,1                             9 STOP
7 L3/V3,1*100    data          -   -   - L3/V3,1*100                      10 utility:
8                data          -   -   -                                  11 program:
9 .45*L1+300     data          -   -   - .45*L1+300                       12 stats:
10               data          -   -   -                                  13
11               data          -   -   -                                  14
12               data          -   -   -                                  15
13               data          -   -   -                                  16 format:
14               data          -   -   -                                  17 INSERT
15               data          -   -   -                                  18 DELETE
16               data          -   -   -                                  19   rows:
17               data          -   -   -                                  20 ROW TITLE

Press any of your cursor keys to recover your display.
```

Using The PLUG Command

Sometimes it is useful to relate various entries of your table in a formula and store the single value result in a specific cell location on your table.

PLUG formulas are similar to the regular formulas described above, however, these formulas cannot have references to an entire row or column. In other words, you cannot use line references (L1 or L19) in the PLUG formulas. The PLUG formulas can only reference individual table values (V1,1 or V2,19) or constants.

The results from the PLUG command can be placed anywhere on your table. It is not necessary to enter the PLUG command on the same row or column that you want your results to go. The PLUG command formula will be stored in the row or column indicated by your cursor and date pointer. The results from that formula will be placed in the location specified with the PLUG command prompts.

For example, you can enter the PLUG command on an unused row or column, say row 50, and have it place its calculated results in any cell, for example row 2, column 1.

To illustrate the use of PLUG, suppose you want to do a special weighted profit margin on your Five-Year Forecast table. The formula is the sum of profits for the first three years divided by the sales for the first three years. The following commands show how to do this calculation.

```
ENTER COMMAND:  111  <Return>                    Load table

  TABLE NAME:  FORECAST  <Return>

ENTER COMMAND:  33  <Return>

Select an unused row to store the PLUG command logic.

  Row (1-50):  50  <Return>

ENTER COMMAND:  37  <Return>                     Plug

  Row (1-50):  8  <Return>

  Column (1-20):  1  <Return>

  Plug result in row 8, column 1.

  FORMULA:  (V6,1+V6,2+V6,3)/(V1,1+V1,2+v1,3)*100  <Return>

  The calculated results will be displayed in row 8, column 1.
```

Notice that you can put only one command per row or column. If you enter one command over another, the second command will override the initial command. For example, if you enter your PLUG command on the same row as a SUM command, the PLUG command will override the SUM command. You can use the SHOW ROWS (22) command to check the logic for your table.

Using The COMPUTE Command

As you enter data in your table, all the commands you used to calculate the values for a row or column are memorized. When all your commands have been entered, issue the COMPUTE (98) command. In seconds, the table will be updated to reflect your results.

In Chapter 2, you used the CHANGE (32) command to ask a "what-if" question. In fact, you can do many types of "what-if" analysis including:

1. Change entire rows or columns of the table using the ENTER (31) command.

2. Change the command used to compute a row or column.

3. Change the values associated with commands.

4. Extend the model with more rows or columns.

Each command you enter replaces any command that was previously entered in that row or column. The new commands are used to compute new values, replacing the previous command.

Doing a "what-if" analysis is simple. The following steps outline the procedures you need to perform a "what-if" analysis on any of your tables.

1. Select the row or column you want to change by moving the data pointer.

2. Issue the commands to perform the desired calculation or to enter the new data values.

3. When all changes have been completed, issue the COMPUTE command to instantly update your table.

To illustrate some uses of the "what-if" cabilities, load the Five-Year Forecast example that you did in Chapter 2 by using the following steps:

ENTER COMMAND: **111** <Return> Load table

TABLE NAME: **FORECAST** <Return>

Suppose your COST OF GOODS in line 2 should be 42.5% of SALES instead of 45%. To ask this "what-if" question, use the MULT K (53) command again--but this time, use the new percentage. Position your cursor on row 2, then:

```
ENTER COMMAND:  53  <Return>

Multiply by a constant.

  VALUE:  .425  <Return>

  Enter new value of 42.5%.

  ROW [1-50]:  1  <Return>

ENTER COMMAND: 98  <Return>
```

Use the COMPUTE command to update your table. Your results will be rounded to one decimal place unless you specify otherwise.

In a few seconds, you would get the following on your screen:

```
DONE.
      ROW 3 (SALES AND ADMINISTRATION) <--
ENTER COMMAND:
```

ROW	1	2	3	4	5	
						1 format:
						2 data:
						3 math:
1 SALES	1,000.0	1,100.0	1,210.0	1,331.0	1,464.1	4 finance:
2 COST OF GOODS	425.0	467.5	514.3	565.7	622.2	5 print:
3 SALES AND ADM	200.0	220.0	242.0	266.2	292.8	6 status:
4 RESEARCH AND	500.0	300.0	300.0	300.0	300.0	7 HELP
5 TOTAL COSTS	1,125.0	987.5	1,056.3	1,131.9	1,215.1	8
6 GROSS PROFIT	-125.0	112.5	153.8	199.1	249.0	9 STOP
7	0.0	0.0	0.0	0.0	0.0	10 utility:
8	0.0	0.0	0.0	0.0	0.0	11 program:
9	0.0	0.0	0.0	0.0	0.0	12 stats:
10	0.0	0.0	0.0	0.0	0.0	13
11	0.0	0.0	0.0	0.0	0.0	14
12	0.0	0.0	0.0	0.0	0.0	15
13	0.0	0.0	0.0	0.0	0.0	16 format:
14	0.0	0.0	0.0	0.0	0.0	17 INSERT
15	0.0	0.0	0.0	0.0	0.0	18 DELETE
16	0.0	0.0	0.0	0.0	0.0	19 rows:
17	0.0	0.0	0.0	0.0	0.0	20 ROW TITLE

As a second example of "what-if" analysis, suppose RESEARCH AND DEVELOPMENT costs start at $700 and drop to $300 by year five. To make this change, enter the new figures using the ENTER command.

ENTER COMMAND: **31** <Return>

Enter the new RESEARCH AND DEVELOPMENT figures.

CHOOSE (VALUES=0,CONSTANT=1,GROW=2,INCR=3): **3** <Return>

BASE VALUE: **700** <Return>

RATE: **-100** <Return>

ENTER COMMAND: **98** <Return>

Now compute your new results.

The screen will show the following:

```
DONE.
     ROW 5 (TOTAL COSTS) <--
ENTER COMMAND:
```

ROW	----1----	----2----	----3----	----4----	----5----
1 SALES	1,000.0	1,100.0	1,210.0	1,331.0	1,464.1
2 COST OF GOODS	425.0	467.5	514.3	565.7	622.2
3 SALES AND ADM	200.0	220.0	242.0	266.2	292.8
4 RESEARCH AND	700.0	600.0	500.0	400.0	300.0
5 TOTAL COSTS	1,325.0	1,287.5	1,256.3	1,231.9	1,215.1
6 GROSS PROFIT	-325.0	-187.5	-46.3	99.1	249.0
7	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0

```
1 format:
2 data:
3 math:
4 finance:
5 print:
6 status:
7 HELP
8
9 STOP
10 utility:
11 program:
12 stats:
13
14
15
16 format:
17 INSERT
18 DELETE
19   rows:
20 ROW TITLE
```

Chapter 5
Formatting & Printing Reports

Chapter 5 explains how to design presentation-quality reports. You will learn how to set printing options for individual rows and columns as well as how to set global options for your entire report.

Setting Print Options

There are three different commands that let you set options for a printed report: the OPTIONS (81) command, the SET TYPE (21) command for rows, and the SET TYPE (26) command for columns. These commands set options only for printed reports. They will not show up on your screen.

The OPTIONS (81) command sets global or overall print options that apply to your entire report. Some of the options you can set with this command include overall row title widths, column widths, number of columns per page, and page controls. The OPTIONS command also provides top and left margin options to support printers with automatic paper feeds. The global print options are the lowest level of print options in the options hierarchy, and will be overridden by both the row and column SET TYPE commands.

The row SET TYPE command (21) sets print options for individual rows. Options include setting row types, underlining, and the number of decimal places for each row. The row SET TYPE options will override the global options, but will be overridden by the column SET TYPE command.

The column SET TYPE command (26) sets print options for individual columns. Options under this command include columns widths and number of decimal places for each column. The column SET TYPE options are the highest in the options hierarchy, and will override both the global and row SET TYPE option settings. Once set, the column options cannot be changed.

To illustrate the formatting and printing capabilities, let's use the Inventory table that we created in Chapter 3.

```
ENTER COMMAND:  111  <Return>                    Load table

  TABLE:  INVENT  <Return>
```

Setting Row Options

You can specify a row as a heading, subtitle, footnote, or as a normal data row. You can also underline a row, insert trailing blank lines, specify the number of decimal places for row values, and specify if you want "$" or "%" signs with your values. For the Inventory report, let's assume that we want to designate rows 1, 4, and 5 as follows:

Row 1 ITEM:	Heading only; no data assigned to row.
Row 4 SHELVES:	Last item before TOTAL; need single underline.
Row 5 TOTAL:	Total figures; need double underline.

To specify these row print options, use the SET TYPE (21) command.

ENTER COMMAND: **21** <Return>

The SET TYPE command allows you to set options on each row. For each option, if you press <Return> without a response, the previous setting for an option will remain unchanged.

ROW: **1** <Return>

Specify options for row 1.

TYPE (DATA=0, SUBT=1, HEADING=2, NOTE=3, OMIT=4): **2** <Return>

Each row can be identified as a row of numeric data; a subtitle that centers the corresponding row title in your report; a heading that leaves the area to the right of the row title blank; or a footnote that puts the row title at the the bottom of the page. If you prefer, the entire row can be omitted on the printed report.

Select option "2" to designate row 1 as a heading for the Inventory report. If you had pressed the <Return> key by itself, the option would have defaulted to the current setting of "0", meaning a data row. When you designate a row as a heading, subtitle, or footnote, the entire row title text--up to 40 characters--will be displayed on your screen. Once options have been selected, they will be remembered and will be saved as part of your table until they are changed.

```
UNDERLINE (NO=0, [-]=1, [=]=2, [_]=3):  <Return>
```

Each row can be underlined with dashes, double underlined using equal signs, or underlined with a true single underline. By pressing the <Return> key by itself, the option setting defaults to the current setting of "0", no underline. If you had selected option "3" at an earlier date, then the current setting in the upper right corner would say CURRENT=3. A single <Return> would leave the "3" setting intact.

```
TRAILING BLANK LINES (NEW PAGE=9):  <Return>
```

Each row can have up to 8 blank lines trailing a particular row. A value of "9" indicates that a new page will be started following this row. This option must be set to indicate the position of page breaks in multi-page reports. By pressing the <Return> key by itself, the option defaults to "0" trailing blank lines.

```
DECIMAL PLACES (0-3 OFF=4):  <Return>
```

Each row can have from 0 to 3 decimal places. By pressing the <Return> key by itself, the option defaults to 1 decimal place.

```
FORMAT (NO=0, [%]=1, [$]=2, NO,=3):  <Return>
```

Each row can have "%" or "$" signs with each value. You can also choose to have no commas in a particular row by choosing option 3 (NO,). By pressing the <Return> key by itself, the option setting defaults to "0" where no signs are placed with the values.

The sign format option is the last prompt for row 1. The SET TYPE command autometically prompts you to set the options for another row if you desire. Let's continue to set the print options for row 4 and 5 with the following commands.

```
ROW (1-50):  4  <Return>

Specify options for row 4.

TYPE (DATA=0, SUBT=1, HEAD=2, NOTE=3, OMIT=4):  <Return>

Leave option at current setting.

UNDERLINE (NO=0, [-]=1, [=]=2, [_]=3):  1  <Return>

Underline row 4 with dashes.
```

```
TRAILING BLANK LINES (New Page=9):  <Return>

Leave option at current setting.

DECIMAL PLACES (0-3 OFF=4):  <Return>

Leave option at current setting.

FORMAT (NO=0, [%]=1, [$]=2, NO,=3):  <Return>

Leave option at current setting.

ROW (1-50):  5  <Return>

Specify options for row 5.

TYPE (DATA=0, SUBT=1, HEAD=2, NOTE=3, OMIT=4):  <Return>

UNDERLINE (NO=0, [-]=1, [=]=2, [_]=3):  2  <Return>

Specify a double underline.

TRAILING BLANK LINES (NEW PAGE=9):  <Return>

DECIMAL PLACES (0-3 OFF=4):  <Return>

FORMAT (NO=0, [%]=1, [$]=2, NO,=3):  <Return>
```

Press the <CANCEL> key to cancel the SET TYPE command. You can display a summary of the row options that you have just set with the SHOW ROWS (22) command.

```
ENTER COMMAND:  22 <Return>                    Show row options
```

The SHOW ROWS command displays the option settings as well as the commands that have been specified for each row. Notice that if you want to see options for rows that are not currently visible on your screen, you must first show the other portion of the table on screen and then use the SHOW ROWS command. Your screen will show the following:

```
--------------------------------------------------------------------------
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 Press any cursor key to recover your display.
      COL 1 (UNIT COST) <--
 ENTER COMMAND:
                           UNDER BLANK DEC FOR                              1 format:
 ROW              TYPE     LINE  LINES SIZ MAT COMMAND    PARAMETERS        2 data:
 ---------------  ----     ----  ----- --- --- ---------  -------------     3 math:
 1 ITEM           head               -   -   -                              4 finance:
 2 DESKS          data               -   -   -                              5 print:
 3 CHAIRS         data               -   -   -                              6 status:
 4 SHELVES        data     ----      -   -   -                              7 HELP
 5 TOTAL          data     ====      -   -   -                              8
 6                data               -   -   -                              9 STOP
 7                data               -   -   -                              10 utility:
 8                data               -   -   -                              11 program:
 9                data               -   -   -                              12 stats:
 10               data               -   -   -                              13
 11               data               -   -   -                              14
 12               data               -   -   -                              15
 13               data               -   -   -                              16 format:
 14               data               -   -   -                              17 INSERT
 15               data               -   -   -                              18 DELETE
 16               data               -   -   -                              19   rows:
 17               data               -   -   -                              20 ROW TITLE

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
--------------------------------------------------------------------------
```

To recover your display, press any of the cursor keys.

Setting Column Options

You can format each column by using the column SET TYPE [26] command. With this command you can control individual column widths, specify the number of decimal places, and indicate whether or not you want "$" or "%" signs with your values. Note that column options will always override previously set row options.

Let's format column 2 [QUANTITY] of the Inventory table so that it has no decimal places.

ENTER COMMAND: **26** <Return>

Set type options for columns.

COLUMN [1-20]: **2** <Return>

Specify options for column 2.

COLUMN WIDTH (4-20): <Return>

Each column can have a different width, ranging from 4 to 20 characters (including commas and decimals). By pressing the <Return> key by itself, the column width defaults to the current setting of 10 spaces.

DECIMAL PLACES (0-3 OFF=4): 0 <Return>

Each column can have from 0 to 3 decimal places. By pressing the <Return> key by itself, the number of decimal places defaults to the current setting of 1 decimal place. For the Inventory report, set the number of decimal places in column 2 to "0".

FORMAT (NO=0, [%]=1, [$]=2, NO,=3): <Return>

Each column can have "%" or "$" signs with each value. By pressing the <Return> by itself, the option defaults to the current setting of "0", and no signs are placed with the values.

Press the <CANCEL> key to cancel the SET TYPE command. You can see a summary of the column options that you have just set with the SHOW COLS (27) command.

ENTER COMMAND: 27 <Return>

The SHOW COLS command displays the option settings as well as the commands that have been specified for each column. Notice that if you want to see options for columns that are not currently visible on your screen, you must first show the other portion of the table on screen and then use the SHOW COLS command. Your screen will display the following.

```
Press any cursor key to recover your display.
     COL 1 (UNIT COST) <--
ENTER COMMAND:
                      COLUMN DEC FOR                                    1 format:
COL                    WIDTH SIZ MAT       COMMAND   PARAMETERS       2 data:
---------------       ----- --- ---       --------- --------------   3 math:
1 UNIT COST              10   1   -                                    4 finance:
2 QUANTITY               10   0   -                                    5 print:
3 TOTAL COSTS            10   1   -       MULT      COL=1 COL=2        6 status:
4                        10   1   -                                    7 HELP
5                        10   1   -                                    8
6                        10   1   -                                    9 STOP
7                        10   1   -                                    10 utility:
8                        10   1   -                                    11 program:
9                        10   1   -                                    12 stats:
10                       10   1   -                                    13
11                       10   1   -                                    14
12                       10   1   -                                    15
13                       10   1   -                                    16 format:
14                       10   1   -                                    17 INSERT
15                       10   1   -                                    18 DELETE
16                       10   1   -                                    19   rows:
17                       10   1   -                                    20 ROW TITLE
```

To recover your display, press any of the cursor keys.

Printing Reports

After setting print options for individual row and column formats, you will want to finish your report design by setting options for the overall report. These global report options include row description width, column width settings, number of columns per page, number of decimal places, and other features that affect the overall report. These options will not show on screen--only on the printed report. Let's set the global print options for the Inventory report using the OPTIONS (B1) command.

```
ENTER COMMAND:  B1  <Return>                    Printing options

  TOP MARGIN (0-50):  <Return>

  LEFT MARGIN (0-50):  <Return>
```

The two options above support printers with automatic paper feeds. If your printer does not have an automatic paper feeder simply press <Return>. The options will default to the current settings.

ENHANCEMENT (0-3): <Return>

This option gives you the ability to take advantage of special printer features such as bold print, expanded print, and compressed print. Your dealer can assist you in accessing these options with your printer.

ROW TITLE WIDTH (4-40): **10** <Return>

Row descriptions can have from 4 to 40 alpha-numeric characters. By pressing the <Return> key by itself, the row title width option will default to the current setting of 20 characters. For the Inventory report, set the row title width to 10 characters.

COLUMN WIDTH (4-20): <Return>

Columns can have from 4 to 20 numeric characters. By pressing the <Return> key by itself, the column width will default to the current setting of 10 characters.

COLUMNS PER PAGE (1-20): <Return>

The maximum number of columns that you can print on a page will vary, depending on your table size and your printer. Because current table is 20 columns wide, you have the option to print up to 20 columns. By pressing the <Return> key by itself, the number of columns per page will default to the current setting of 10 columns per page. If you have more than 10 columns in your table to print, the first 10 columns will be printed on page 1 and the second 10 columns on page 2. Row titles, column titles, and report titles will automatically be repeated on each page.

DECIMAL PLACES (0-3): <Return>

Each value in your table can have from 0-3 decimal places in the printed report. By pressing the <Return> key by itself, the number of decimal places will default to the current setting of 1 decimal place.

OMIT ZERO ROWS (NO=0, YES=1): <Return>

Any rows that have all zero values can be eliminated from the printed report. By pressing the <Return> key by itself, the omit zero rows option will default to the current setting of "0" which will print zero rows.

SUPRESS ZERO VALUES (NO=0, DASH=1, BLANK=2): 2 <Return>

Zero values in rows and columns can be printed with zeros, identified with a dash, or left blank. By pressing the <Return> key by itself, the suppress zero values option will default to the current setting of printing zero values as zeros.

PRINT ROW TITLE AFTER WHICH COLUMN (0-9): <Return>

Row titles can be printed between any two columns up through the middle of the table. By pressing the <Return> key by itself, the option will default to "0", printing the row titles on the left side of the report, in front of column 1.

NEGATIVE NUMBERS (-N=0, N-=1, (N)=2): <Return>

Negative numbers can be displayed with a negative sign proceeding the number, or, for accounting purposes, they may be shown with a trailing negative sign, or in parenthesis. By pressing the <Return> key by itself, the option will default to the current option of "0", printing negative signs in front of the numbers.

PAGE CONTROL (OFF=0, FEED=1, PAUSE=2): <Return>

For reports longer than a page, the printer can be set to the desired page control. The form feed option issues a page break command so that each page appears on a new sheet of paper. The pause option will instruct the printer to break between pages to allow a new sheet of paper to be inserted into the printer. By pressing the <Return> key by itself, the page control option defaults to a continuous print without intervention. Three blank lines will automatically be skipped between pages.

Before using the feed and pause page control options, you must use the trailing blank line option in the SET TYPE (21) for rows command to identify page breaks.

OMIT COMMAS (NO=0, YES=1): <Return>

To accommodate wide reports, the comma option can be turned off to save space. By pressing the <Return> key by itself, the omit commas option defaults to printing all numbers with commas separating every three digits of large numbers.

DOUBLE SPACE (NO=0, YES=1): <Return>

Data rows can be single or double spaced. By pressing the <Return> key by itself, the double space option defaults to the current setting of "0" indicating single spacing.

OMIT LINE NUMBERS (NO=0, YES=1): <Return>

Row and column numbers can be printed or eliminated on your final report. By pressing the <Return> key by itself, the omit line numbers option defaults to "0", printing the row and column numbers.

After completing the global options for your report, you will want to set the title information, report ranges, and print a final report using the TITLES (82) command. Each TITLE option will identify the default settings. However, if the TITLE option has been set before, the CURRENT setting will reflect the previous setting. The TITLES command will send your report to the printer, so make sure your printer is on and connected, and your paper adjusted.

ENTER COMMAND: **82** <Return> Report titles

PAGE NUMBER (0-999): <Return>

A page number can be printed in the upper right corner of the report if you desire. By pressing the <Return> key by itself, the page number defaults to the "OFF" position and the report pages will not be numbered.

DATE (YEAR AS YY): **83** <Return>

Date information can be printed in the upper left corner of the report. By pressing the <Return> key by itself, the date defaults to the "OFF" position, and no date will be printed. If you enter a value for the year option and <Return>, the command line will prompt you for the month and day as follows. If no year number is entered, then the month and day options will be skipped.

MONTH (1-12): **1** <Return>

Months January through December are identified by corresponding numbers 1 through 12. By pressing the <Return> key by itself, the month option will default to the "OFF" position, and no month will be printed.

DAY (1-31): **1** <Return>

Days of the month are identified by the numbers 1-31. By pressing the <Return> key by itself, the day option will defaults to the "OFF" position and no day will be printed.

ROW-RANGE BEGIN (1-50): **1** <Return>

END (1-50): **5** <Return>

You can decide to print only a few rows of your table by using the row ranges print option. By pressing the <Return> key by itself, the row range defaults to printing all of the rows in the table.

COL-RANGE BEGIN (1-20): **1** <Return>

END (1-20): **3** <Return>

Indicate the columns to print in your report by using the column range option. By pressing the <Return> key by itself, the column range defaults to printing all of the columns in the table.

Setting row and column ranges with the TITLES command will set the row and column ranges for the entire table. To change the row and column ranges back to their original settings after printing, use the ROW RANGE (92) and COL RANGE (93) commands.

TITLE 1: **TAKING INVENTORY** <Return>

TITLE 2: **SAMPLE PROBLEM** <Return>

TITLE 3: <Return>

Reports are allowed up to three title lines, with a maximum of 40 alpha-numeric characters each. The quote (") character is an illegal character and should not be used in report titles. Report titles are centered at the top of each page of the report. Pressing the <Return> key by itself, indicates that there is no title for that line.

If you do not want to print your report at this time, hit the <CANCEL> key to cancel the report. If you do want to print your report, check to see that the printer is connected and turned on, and your paper adjusted.

SET PAPER; HIT RETURN: <Return>

Your printed Inventory report will look like the following:

```
-----------------------------------------------------------------
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -


           1/1/83
                     TAKING INVENTORY
                      SAMPLE PROBLEM

                          UNIT   QUANTITY      TOTAL
                          COST                 COSTS
              ------- ----1---- ----2---- ----3----

            1 ITEM
            2 DESKS      300.0        10    3,000.0
            3 CHAIRS     175.0        20    3,500.0
            4 SHELVES    200.0         5    1,000.0
                      --------- --------- ---------
            5 TOTAL
                      ========= ========= =========

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
-----------------------------------------------------------------
```

To show the overall report options for your Inventory report on screen, use the SHOW OPTIONS (84) command.

ENTER COMMAND: **84** <Return>

Show global print options and title information for Inventory report. Your screen should show the following:

```
Press any cursor key to recover your display.

ENTER COMMAND:
                      UNIT  QUANTITY     TOTAL                          1 format:
ROW                   COST               COSTS                          2 data:
--------------- ----1---- ----2---- ----3---- ----4---- ----5----       3 math:
     REPORT OPTIONS                                                     4 finance:
DATE: 83/1/1                      PAGE NUMBER: 0                       5 print:
TITLE 1: TAKING INVENTORY                                              6 status:
TITLE 2: SAMPLE PROBLEM                                                7 HELP
TITLE 3:                                                               8
                                                                       9 STOP
TOP MARGIN: 0  LEFT MARGIN: 0                                          10 utility:
ROW TITLE WIDTH: 10                                                    11 program:
COLUMN WIDTH: 10                        OMIT COMMAS: NO                12 stats:
COLUMNS PER PAGE: 10                    DOUBLE SPACE: NO               13
DECIMAL PLACES: 1                       OMIT LINE NUMBERS: NO          14
OMIT ZERO ROWS (NO=0,YES=1): 0                                         15
SUPPRESS ZERO VALUES (NO=0,[-]=1,[ ]=2): 2                             16 format:
PRINT ROW TITLE AFTER WHICH COLUMN: 0                                  17 INSERT
NEGATIVE NUMBERS (-N=0,N-=1,(N)=2): 0                                  18 DELETE
PAGE CONTROL (OFF=0,FEED=1,PAUSE=2): 0                                 19   rows:
                                                                       20 ROW TITLE
```

Press any of the cursor keys to recover the table.

Printing Tables & Reports

To get a printed copy of your table, complete with row settings, row commands, column settings, column commands, report options, and title information use the PRINT TBL (118) command.

Reports can be printed without going through the TITLES (82) command. After you have set the report OPTIONS with command 81, you can send the report straight to the printer with the REPORT (83) command. You can also use the REPORT command to print tables that have already been saved on disk.

Cancelling Reports

Reports that have started printing can be stopped by pressing the <CANCEL> key. Printing will stop and a message on the screen will indicate that the report has been cancelled.

Chapter 6
Additional ProfitPlan Commmands

Chapter 6 covers additional ProfitPlan commands that will help you in more advanced usage of ProfitPlan.

ProfitPlan Modes

In Chapter 1, we discussed the mode indicator on ProfitPlan's status line. In the course of using ProfitPlan, you will be using several different modes, or states of operation. For example, when you use the COMPUTE (98) command, ProfitPlan goes in and out of the Compute Mode automatically. You can see the change in mode reflected on the status line at the top of your screen.

When you are through with your computations, ProfitPlan will return automatically to the Normal Mode. The various ProfitPlan modes are explained below.

NORMAL--The Normal Mode is the ProfitPlan default mode. It is the mode used when formatting tables, doing data entry and printing reports. When the Compute, and Protect Modes are used, ProfitPlan will automatically return to the Normal Mode.

COMPUTE--The COMPUTE (98) command starts computing rows and columns using the math and formula commands you have entered into your table. The Compute Mode reverts back to the Normal Mode automatically after computations are completed.

PROTECT--The PROTECT (101) command turns the Protect Mode on and off. When the Protect Mode is on, a "P" is displayed in the top right corner of your screen. When the Protect Mode is on, all formulas and row and column relationship you have established in your table are protected from tampering. With ProfitPlan in the Protect Mode, you can make changes to data in your table without the fear of disturbing the underlying logic. This is useful in keeping unsophisticated users from disrupting your table.

Setting Row & Column Ranges

You can limit your data entry and your computations to a particular section of your table by using the ROW RANGE (92) and COL RANGE (93) commands. The right top corner of the screen shows the current row and column ranges. Unless otherwise specified, the range settings will default to the size of your current table. The default table size and range settings are 50 rows by 20 columns.

In Chapter 3, you saw how the SET UP (109) command is used to enlarge a table. This command should not be confused with the ROW RANGE and COLUMN RANGE commands. The SET UP command effects the physical size of the entire table. The ROW and COLUMN RANGE commands are temporary "working" range limitations that give you flexibility in your data entry, computations, and printing.

There are many ways to use the row and column range settings. For example, consider a table with budget columns and actual columns. In the budget columns you may have set up COST OF SALES as a percentage of SALES, or FRINGE BENEFITS as a percentage of SALARY EXPENSES. When the actual numbers are inserted in place of budget numbers to do rolling forecasts, you do not want to tamper with the actual COST OF SALES and FRINGE BENEFITS because of their mathematical relationship to SALES and SALARY EXPENSES respectively.

By setting the row and column ranges, you can limit your calculations to affect only the budget columns, leaving the actual columns intact.

Computing Order

When the COMPUTE (98) command is used, ProfitPlan will do computations for all rows within the row range and then for all columns within the column range, depending on the current computing order displayed on the ProfitPlan status line. Initially, the computing order is displayed as "ORDER=R/C" signifying that ProfitPlan will compute rows and then columns.

Suppose you have added a total column to the Five-Year Forecast table from Chapter 2. You want ProfitPlan to compute this total every time you use the COMPUTE command. ProfitPlan will let you change the computational order by using the ORDER (102) command.

The ORDER command allows you to choose among four options:

1. ROW/ONLY — Compute only rows.
2. COL/ONLY — Compute only columns.
3. ROW/COL — Compute all rows; then all columns. This is the default computing order.
4. COL/ROW — Compute all columns; then all rows.

Let's use the Inventory table from Chapter 3 to illustrate the ORDER command.

```
ENTER COMMAND:  111  <Return>                    Load table

  TABLE NAME:  INVENT  <Return>
```

Now position your cursor on row 5 and use the SUM command to get a total for each of your three columns.

```
ENTER COMMAND:  55  <Return>                     Sum

  ROW BEGIN (1-50):  2  <Return>

  END (1-50):  4  <Return>
```

Use the ORDER (102) command to change the computing order to compute columns first and then rows.

```
ENTER COMMAND:  102  <Return>

  (ROW/ONLY=1, COL/ONLY=2, ROW/COL=3, COL/ROW=4):  4  <Return>
```

After choosing option "4" above, ProfitPlan will perform computations for all columns and then for all rows. Notice that the computing order on the status line at the top of your screen is now set to "ORDER=C/R".

Now make a change in your data, and compute your table according to the new computing order.

ENTER COMMAND: **32** <Return>

ROW (1-50): **3** <Return>

COL (1-20): **1** <Return>

VALUE: **175** <Return>

ENTER COMMAND: **98** <Return>

Your screen should show the following:

```
INVENT                          MODE=NORMAL   ORDER=C/R  ROW=1-50  COL=1-20
     ROW 6  <--
ENTER COMMAND:
                      UNIT  QUANTITY      TOTAL                          1 format:
ROW                   COST                COSTS                          2 data:
--------------- ----1---- ----2---- ----3---- ----4---- ----5----        3 math:
1 ITEM               0.0       0.0       0.0       0.0       0.0        4 finance:
2 DESKS            300.0      10.0   3,000.0       0.0       0.0        5 print:
3 CHAIRS           175.0      20.0   3,500.0       0.0       0.0        6 status:
4 SHELVES          200.0       5.0   1,000.0       0.0       0.0        7 HELP
5 TOTAL            675.0      35.0   7,500.0       0.0       0.0        8
6                    0.0       0.0       0.0       0.0       0.0        9 STOP
7                    0.0       0.0       0.0       0.0       0.0        10 utility:
8                    0.0       0.0       0.0       0.0       0.0        11 program:
9                    0.0       0.0       0.0       0.0       0.0        12 stats:
10                   0.0       0.0       0.0       0.0       0.0        13
11                   0.0       0.0       0.0       0.0       0.0        14
12                   0.0       0.0       0.0       0.0       0.0        15
13                   0.0       0.0       0.0       0.0       0.0        16 format:
14                   0.0       0.0       0.0       0.0       0.0        17 INSERT
15                   0.0       0.0       0.0       0.0       0.0        18 DELETE
16                   0.0       0.0       0.0       0.0       0.0        19   rows:
17                   0.0       0.0       0.0       0.0       0.0        20 ROW TITLE
```

Save your new Inventory table using the SAVE TBL (112) command.

ENTER COMMAND: **112** <Return>

TABLE NAME: **INVENT** <Return>

A message will appear telling you that the table INVENT already exists and asking if you want to continue with the save. Enter a "Y" to indicate that you do want to overwrite the existing INVENT table with the new INVENT table.

For example, if you also add a PERCENTAGE PROFIT row to the Five-Year Forecast example, then none of the compute ORDER options correctly calculate the percentage profit for the total column. Let's try it.

ENTER COMMAND: **111** <Return> Load table

TABLE NAME: **FORECAST** <Return>

ENTER COMMAND: **20** <Return> Row title

Use the cursor keys to position your cursor on row 7.

ROW TITLE: **PROFIT RATIO** <Return>

Press <CANCEL> to cancel the ROW TITLE command. Make sure your cursor is back on row 7.

ENTER COMMAND: **35** <Return>

Use the FORMULA command to calculate the percentage of GROSS PROFIT to SALES.

Formula: **L6 *100/L1** <Return>

This calculates the ratio of GROSS PROFIT to SALES and places the percentage in Row 7.

Row 7 now contains the ratio of the five years' GROSS PROFITS to SALES.

Now let's put a TOTAL column in column 5 to get the total for each of the four quarters. Enter the new column title and then recompute your results using the following commands:

ENTER COMMAND: **25** <Return>

Add new column title. Position your cursor on column 5.

COL TITLE 1: **TOTAL** <Return>

COL TITLE 2: <Return>

ENTER COMMAND: **25** <Return>

Add new column title. Position your cursor on column 5.

COL TITLE 1: **TOTAL** <Return>

COL TITLE 2: **<Return>**

The second <Return> indicates that there is no second title for this column. Since this is the only column title we want to enter, press the <CANCEL> key to cancel the COL TITLE command.

ENTER COMMAND: **55** <Return> Sum

BEGIN COL (1-20): **1** <Return>

END (1-20): **4** <Return>

ENTER COMMAND: **98** <Return> Compute

Your screen should show the following. Unfortunately, it is not what we wanted to do.

```
FORECAST                    MODE=NORMAL   ORDER=R/C  ROW=1-50  COL=1-20
     ROW 1 (SALES) <--
ENTER COMMAND:
                                                                  1 format:
ROW                                                        TOTAL  2 data:
--------------- ----1---- ----2---- ----3---- ----4---- ----5----  3 math:
1 SALES          1,000.0   1,100.0   1,210.0   1,331.0   4,641.0  4 finance:
2 COST OF GOODS    450.0     495.0     544.5     599.0   2,088.5  5 print:
3 SALES AND ADM    200.0     220.0     242.0     266.2     928.2  6 status:
4 RESEARCH AND     500.0     300.0     300.0     300.0   1,400.0  7 HELP
5 TOTAL COSTS    1,150.0   1,015.0   1,086.5   1,165.2   4,416.7  8
6 GROSS PROFIT    -150.0      85.0     123.5     165.9     224.4  9 STOP
7 PROFIT RATIO     -15.0       7.7      10.2      12.5      15.4  10 utility:
8                    0.0       0.0       0.0       0.0       0.0  11 program:
9                    0.0       0.0       0.0       0.0       0.0  12 stats:
10                   0.0       0.0       0.0       0.0       0.0  13
11                   0.0       0.0       0.0       0.0       0.0  14
12                   0.0       0.0       0.0       0.0       0.0  15
13                   0.0       0.0       0.0       0.0       0.0  16 format:
14                   0.0       0.0       0.0       0.0       0.0  17 INSERT
15                   0.0       0.0       0.0       0.0       0.0  18 DELETE
16                   0.0       0.0       0.0       0.0       0.0  19   rows:
17                   0.0       0.0       0.0       0.0       0.0  20 ROW TITLE
```

What we want to do is to calculate the combined ratio of the four quarters and the total, not the total of ratios for the four quarters. The correct order is to do rows first, then columns--including the TOTAL column--and finally, the row of profit margins. To do this, use the steps outlined below.

1. Position the data pointer to the PROFIT RATIO row.

2. Use the FIX [38] command to recalculate the profit margins.

Your new screen should show:

```
FORECAST                      MODE=NORMAL   ORDER=R/C  ROW=1-50  COL=1-20
     ROW 7 (PROFIT RATIO) <--
ENTER COMMAND:
                                                                1 format:
ROW                                                     TOTAL   2 data:
--------------- ----1---- ----2---- ----3---- ----4---- ----5----  3 math:
1 SALES          1,000.0   1,100.0   1,210.0   1,331.0   4,641.0   4 finance:
2 COST OF GOODS    450.0     495.0     544.5     599.0   2,088.5   5 print:
3 SALES AND ADM    200.0     220.0     242.0     266.2     928.2   6 status:
4 RESEARCH AND     500.0     300.0     300.0     300.0   1,400.0   7 HELP
5 TOTAL COSTS    1,150.0   1,015.0   1,086.5   1,165.2   4,416.7   8
6 GROSS PROFIT    -150.0      85.0     123.5     165.9     224.4   9 STOP
7 PROFIT RATIO     -15.0       7.7      10.2      12.5       4.8   10 utility:
8                    0.0       0.0       0.0       0.0       0.0   11 program:
9                    0.0       0.0       0.0       0.0       0.0   12 stats:
10                   0.0       0.0       0.0       0.0       0.0   13
11                   0.0       0.0       0.0       0.0       0.0   14
12                   0.0       0.0       0.0       0.0       0.0   15
13                   0.0       0.0       0.0       0.0       0.0   16 format:
14                   0.0       0.0       0.0       0.0       0.0   17 INSERT
15                   0.0       0.0       0.0       0.0       0.0   18 DELETE
16                   0.0       0.0       0.0       0.0       0.0   19   rows:
17                   0.0       0.0       0.0       0.0       0.0   20 ROW TITLE
```

Save your new Inventory table using the SAVE TBL [112] command.

ENTER COMMAND: **112** <Return>

TABLE NAME: **FORECAST** <Return>

A message will appear telling you that the table FORECAST already exists and asking if you want to continue with the save. Enter a "Y" to indicate that you do want to overwrite the existing FORECAST table with the new FORECAST table.

Maintaining Tables

As you have seen, all tables you save are automatically put into a ProfitPlan directory. Whenever you use a load or save command, you have the option to examine the contents of a diskette by pressing the <Return> key in response to the request for a filename.

By issuing a series of <Return> keys, you can see the names of the tables on disk, one table at a time. The ProfitPlan directory will display the names of available tables, the report title information, and the table size information on line two of your screen. This helps you keep track of your tables.

You can use the LIST TBLS (116) command to print a list of all the tables on a particular disk. If you want to erase a table from your diskette, simply use the ERASE TBL (117) command. A prompt on the command line will ask you for the filename of the table to be erased. The table will then be deleted from your disk and the ProfitPlan directory.

ProfitPlan table names can be up to eight alpha-numeric characters. All table names must start with an alpha character and may not include the following characters: . ? " / or a space. Lower case characters are automatically converted to upper case.

All CP/M file names are constructed from three parts:

D:FILENAME.TYP

1. An optional disk drive identification character, followed by a colon.

2. A file name of up to 8 characters.

3. An optional type identification of up to 3 characters preceeded by a period.

CP/M disk drives are assigned names such as disk drive A:, B:, C: and so on. If you supply a drive name, than you need to enter the colon character as well. In most cases, CP/M files should be saved on your B drive. You can change drives in ProfitPlan using the SET DRIVE (108) command.

Changing Disk Drives

To save tables on a specific disk drive, use the SET DRIVE (108) command to specify the drive name. That drive will be used as the data drive for all subsequent load and save operations until you change the drive with the SET DRIVE command or until you exit ProfitPlan.

The SET DRIVE command will also allow you to change diskettes during a working session. Whenever you change diskettes, you should always issue a SET DRIVE command to initialize your new diskette.

Interfacing With Word Processors

You can save ProfitPlan reports in a file for combining with text produced on your word processing software. The SAVE REP (85) command allows you to print reports into a file instead of to a printer.

The SAVE REP command is similar to the REPORT (83) command in that all options and titles will be included in the report. By saving the report in a file, you can include ProfitPlan reports in the body of text from a word processor, enhance reports using a word processor editor, or spool reports to printers.

The SAVE REP command will not save your table in ProfitPlan. To save a table for future use in ProfitPlan, use the SAVE TBL (112) command.

Designing On-Screen Formats

Your screen will normally show 5 columns and 17 rows. Each cell has one decimal place, each column is 10 spaces wide, and each row title uses 15 spaces. Zero values are displayed on the screen.

The SET CRT (86) command allows you to change the display parameters for on-screen viewing. These changes are not reflected on the printed copy. For example, let's change the screen to show columns, each 20 spaces wide, with 3 decimal places, and with 15 spaces for row titles.

ENTER COMMAND: **86** <Return> Set CRT

DECIMAL PLACES (0-3): **3** <Return>

ROW TITLE WIDTH (5-30): **15** <Return>

COLUMN WIDTH (4-20): **20** <Return>

DISPLAY ZERO VALUES (NO=0, YES=1): <Return>

Pressing <Return> after an option will cause it to default to the current setting.

Your screen should show the following:

```
FORECAST                    MODE=NORMAL   ORDER=R/C  ROW=1-50  COL=1-20
     ROW 7 (PROFIT RATIO) <--
ENTER COMMAND:

                                                                1 format:
ROW                                                             2 data:
------------------------ ---------1--------- ---------2---------  3 math:
1 SALES                          1,000.000           1,100.000  4 finance:
2 COST OF GOODS                    450.000             495.000  5 print:
3 SALES AND ADMINISTRATIO          200.000             220.000  6 status:
4 RESEARCH AND DEVELOPMEN          500.000             300.000  7 HELP
5 TOTAL COSTS                    1,150.000           1,015.000  8
6 GROSS PROFIT                    -150.000              85.000  9 STOP
7 PROFIT RATIO                    -15.000                7.727  10 utility:
8                                   0.000               0.000  11 program:
9                                   0.000               0.000  12 stats:
10                                  0.000               0.000  13
11                                  0.000               0.000  14
12                                  0.000               0.000  15
13                                  0.000               0.000  16 format:
14                                  0.000               0.000  17 INSERT
15                                  0.000               0.000  18 DELETE
16                                  0.000               0.000  19   rows:
17                                  0.000               0.000  20 ROW TITLE
```

You can change the on-screen parameters to allow financial reports that show up to trillion dollar figures with penny accuracy. Computations are accurate to 14 precision digits.

You can also design your screen display to show columns that are only 4 characters wide. This displays more columns, but numbers in each column will have to be less than four digits wide. Numbers that require more space than that allowed by your current column width will be displayed as three asterisks (***).

For an 80 column screen, 65 spaces are available for the table area. After subtracting the space required for the row title, the number of columns shown on-screen is calculated depending on the size of the columns. Note that although all columns will be the same size on the screen, your printed report can have different widths for each column.

The SET CRT command does not change any of the values in the table. Therefore, feel free to experiment with this command to design screens to suit your needs.

Your Screen Display

ProfitPlan has several commands that allow you to clear your screen. These commands are explained below.

The CLR DATA (113) command allows you to clear the data from your current table within the current row or column ranges. It does not disturb the table logic, row or column titles, or print options. This command lets you use master tables, complete with logic and print options to make duplicate tables.

The RESET (114) command clears all data, logic, and options information from memory.

The REDISPLAY (115) command will redisplay your screen should it be distorted for any reason. No changes are made to your data.

Section II
Command Reference

The Command Reference Section is a convenient, quick reference that provides you with a detailed explanation for each ProfitPlan command. The reference section outlines the prompts and defaults associated with each command. In addition, the command reference section will help you locate related information in the preceeding tutorial sections.

How To Use This Reference

The ProfitPlan commands are organized by their menu grouping. The command number, command name, screen prompts, defaults, and a description are given for each command.

ProfitPlan memorizes your commands for "what-if" analysis. In the NORMAL mode, commands are stored in your table logic for recalculation.

Throughout the following section, the notation below is used to describe how ProfitPlan handles each command:

T Means this command can be stored in your tables.

If no letter is given, ProfitPlan does not store that command in the table logic.

Main Menu

1 format:

Display format commands: enter row and column titles, set row and column print options, look at options, insert and delete rows and columns, and reorder rows and columns. (Page 3.1)

2 data:

Display data entry commands: enter data, select row and column modes, fix, nullify, and go to commands. (Page 2.1)

3 math:

Display math commands: arithmetic functions, formula, plug, cumulate, negate, get, ceiling, floor, and row and column summation commands. (Pages 1.8, 4.1)

5 print:

Display print commands: set report titles and options, and print reports, models, list table directories, and send reports to printer or disk files.

6 status:

Display status commands: range settings, mode selection, and computing order.

7 HELP

WHICH COMMAND (1-200):

Gives brief on-screen description for each command by entering command number or command alpha code. Description will appear at the bottom of the screen. (Page 1.9)

9 STOP

OK TO ERASE CURRENT DATA?
VERIFY (Y OR N):

Exit to operating system. The current table logic if any, is **NOT** automatically saved. (Pages 1.11, 2.9)

10 utility:

Display utility commands: save and load tables, enlarge table size, select drive, reset, and redisplay screen. (Page 3.9)

Format Commands

16 format:

Display format commands: enter row and column titles, set row and column print options, look at options, insert and delete rows and columns, and reorder rows and columns. (Page 3.1)

17 INSERT

Insert row or column by moving last row/column of the current table to the row or column indicated by the data pointer. Any logic reference is automatically maintained. (Page 3.12)

18 DELETE

VERIFY (Y OR N):

Delete row or column indicated by the data pointer by moving it to the last row or column of the current table. Requires positive verification before deleting. Any logic reference is automatically maintained. (Page 3.12)

19 rows:

Row section of format commands.

20 ROW TITLE

Use cursor keys to select a row (UP, DOWN, CANCEL)

Enter or change row titles. Each title entered is placed in the row indicated by the data pointer. Continues prompting for sequential titles until command is cancelled. Use cursor keys to select the desired row.

Can enter up to 40 characters for each row title. The quote mark (") is an illegal character and should not be used in row title descriptions. Notice that if you have more than 15 characters, in your row title, the description will be truncated on the screen to the 15 character default. Use the SET CRT (86) command to adjust the screen format. The entire row description will be remembered for use in printing. (Pages 1.9, 2.1, 2.2, 3.6)

21 SET TYPE

```
ROW (1-50):

TYPE (DATA=0, SUBT=1, HEADING=2, NOTE=3, OMIT=4):
 Default 0

UNDERLINE (NO=0, [-]=1, [=]=2, [_]=3):
 Default 0

TRAILING BLANK LINES (NEW PAGE=9):
Use this option to indicate page breaks in printed report
 Default 0

DECIMAL PLACES (0-3, OFF=4):
 Default global setting (see OPTIONS (81) command)

FORMAT (NO=0, [%]=1, [$]=2, NO,=3):
Option 3 indicates no commas to be used in values.
 Default 0
```

Sets print specifications for designated row. Continues prompting for row numbers until command is cancelled. A <Return> response to any prompt allows the current setting for that option to remain unchanged. The current or default setting is displayed in the upper right corner of the screen. (Pages 5.1-5.4)

22 SHOW ROWS

Display the current print options and commands for each row shown on the screen. To display settings for rows not shown on the screen, move the screen to the desired location and re-enter SHOW ROWS (22) command. To recover original display, press any cursor key. To print these options and command logic, use the PRINT TBL (118) command. (Pages 2.6, 4.6, 5.4)

23 REORDER

```
OLD NUMBER (1-50):      NEW NUMBER (1-50):
```

Move old row into position of new row and vice versa. Other rows will be adjusted as necessary. Used to swap, insert, or delete rows. Can also use INSERT (17) command or DELETE (18) command to insert or delete rows. Any logic reference is automatically maintained. (Page 3.13)

24 cols:

Column section of format commands.

25 COL TITLE

```
1:
2:

Use cursor keys to select a column (RIGHT, LEFT, CANCEL)
```

Enter or change column titles. Each title entered is placed in the column indicated by the data pointer. Continues prompting for sequential titles until command is cancelled. Use the cursor keys to select a column.

Can enter up to 20 characters for each column title. Each line of the column title is automatically right justified in the column. The quote mark (") is an illegal character and should not be used in column titles. Notice that if you have more than 10 characters, in your column title, the description will be truncated on the screen to the 10 character default. Use the SET CRT (86) command to adjust the screen format if desired. The entire column description will be remembered for use in printing. (Pages 3.6, 3.7)

26 SET TYPE

```
COLUMN (1-20):

COLUMN WIDTH (4-20):
 Default global setting (see OPTIONS (81) command)

DECIMAL PLACES (0-3, OFF=4):
 Default global setting (see OPTIONS (81) command)

FORMAT (NO=0,[%]=1, [$]=2, NO,=3):
 Default 0
```

Set print specifications for designated column. Continues prompting for column numbers until command is cancelled. A <Return> response to any prompt allows the current setting for that option to remain unchanged. The current or default setting is displayed in the upper right corner of the screen. (Pages 5.1, 5.5, 5.6)

27 SHOW COLS

Display the current print options and commands for each column shown on the screen. To display settings for columns not shown on the screen, scroll the screen to the desired location and re-enter SHOW COL (27) command. To recover original display, press any cursor key. To print these options and command logic, use the PRINT TBL (118) command. (Pages 4.6, 5.6)

28 REORDER

OLD NUMBER (1-20): NEW NUMBER (1-20):

Move old column into position of new column and vice versa. Other columns will be adjusted as necessary. Use to swap, insert, or delete rows. Can also use INSERT (17) command and DELETE (18) command to insert or delete columns. Any logic reference is automatically maintained. (Page 3.13)

Data Commands

29 data:

Display data entry commands: enter data, select row and column modes, fix, nullify, and go to commands. (Page 2.1)

30 ENTRY (T)

VALUE:

One step data entry for entering individual values, cell by cell. Use the cursor keys to select location of entry. Data can only be entered within current row and column ranges. Pressing <Return> instead of a specific value will repeat the last value entered. Action is the same as the VALUE ("0") option in the ENTER (31) command. (Pages 3.2-3.4, 3.7)

31 ENTER (T)

CHOOSE (VALUE=0, CONSTANT=1, GROW=2, INCR=3):0

VALUE:
Continues prompting for individual values within current row and column ranges until command is cancelled. Pressing <Return> will repeat last value entered. Same action as ENTRY (30) command.

or
CHOOSE (VALUE=0, CONSTANT=1, GROW=2, INCR=3): 1

BASE VALUE:
Prompts for a base value. Same value will be entered for entire row or column within row and column ranges.

or
CHOOSE (VALUE=0, CONSTANT=1, GROW=2, INCR=3): 2

BASE VALUE:

RATE:
Prompts for a base value and growth rate. Value will grow by percentage specified, within current row and column ranges.

or
CHOOSE (VALUE=0, CONSTANT=1, GROW=2, INCR=3): 3

BASE VALUE:

RATE:
Prompts for a base value and amount of increase. Value will increase by rate specified for row or column within current row and column ranges.

Enter row or column values in table within current row and column ranges. Constant, grow, and increase options allow quick entry. Cursor keys allow individual data entry. Default value is the 0 option (VALUES). (Pages 2.3, 2.4, 3.1, 3.2, 4.13)

32 CHANGE

ROW (1-50) : COLUMN (1-20) :

VALUE:

Change a single value in the table. (Pages 2.6, 4.13)

33 SELECT ROW

ROW (1-50) :

Move the data pointer to a new row of the table and put ProfitPlan into the row mode. You may also use the up and down arrow cursor keys to move the data pointer. If you are in the column mode, the down cursor arrow will put you in the row mode. (Page 1.9)

34 SELECT COL

COLUMN (1-20):

Move the data pointer to a new column of the table and put ProfitPlan into the column mode. You may also use the left and right arrow cursor keys to move the data pointer. If you are in the row mode, the right cursor arrow will put you in the column mode. (Pages 1.9, 3.1)

35 FORMULA (T)

Use a formula to calculate the results for a row or column. Depending on whether ProfitPlan is in the row or column mode, formulas may reference a row or column (L), values (Vr,c) or positive constants. Negative numbers are not allowed in ProfitPlan formulas except as an expression, (0-1=-1). Formulas may contain arithmetic functions +, -, *, and /, and may be up to 40 characters long. Results are stored in the row or column indicated by the data pointer. (Pages 4.7-4.10)

36 GOTO

ROW (1-50): COLUMN (1-20):

Position the screen with designated row and column in the upper left corner of the display. ProfitPlan will always display a full screen. Thus GOTO may also be used to display the last screenfull of the top right, bottom left, or bottom right of the table. For example, if you GOTO the first row number and the last column number of the table , ProfitPlan displays the last full screen of the top right corner of the table. Cursor keys can also be used to move around the table. (Page 1.9)

37 PLUG (T)

ROW (1-50): COLUMN (1-20):

Use a formula to calculate results for a particular cell. Differs from the FORMULA command in that results are stored in the cell designated by the above prompts. PLUG formulas may reference table values (Vr,c) or positive constants. Negative numbers are not allowed except as an expression, (0-1=-1). PLUG formulas may contain arithmetic functions +, -, *, and /, and may be up to 40 characters long. PLUG formulas cannot reference a row or column.

Like other ProfitPlan commands, the actual PLUG formula is stored in the row or column indicated by the data pointer and replaces any previous command associated with that row or column. You may elect to move the data pointer to an unused row or column before issuing the PLUG command. (Pages 4.7-4.9, 4.11, 4.12)

38 FIX R/C

Recompute only the current row or column, without computing other rows and columns. Use cursor keys or SELECT ROW or SELECT COL commands to move the data pointer to the row or column to be computed before using the FIX command. Similar to COMPUTE [98] command except it applies to a single row or column. [Pages 6.5-6.7]

39 NULLIFY [T]

VERIFY [Y OR N]:

Nullify a command associated with a row or column without affecting the data. Applies to the current row or column, designated by the data pointer. Use cursor keys or SELECT ROW or SELECT COL commands to move the data pointer to the right row or column before using NULLIFY. [Page 4.7]

Math Commands

40 math:

Display math commands: arithmetic, formulas, plug, negate, get, floor, ceiling, and row and column summation commands. (Pages 1.8, 4.1)

41 ADD (T)

ROW (1-50): ROW (1-50):

or
COLUMN (1-20): COLUMN (1-20):

Add one row or column of values to another row or column, and store the results in the row or column indicated by the data pointer. RESULT <-- row/col 1 + row/col 2. (Pages 4.1, 4.2)

42 SUB (T)

ROW (1-50): ROW (1-50):

or
COLUMN (1-20): COLUMN (1-20):

Subtract one row or column of values from another row or column. First prompt is for the row or column to subtract from. Second prompt asks for the row or column to subtract. In other words, row/col 1 (first prompt) minus row/col 2 (second prompt) equals the result. Store the results in the row or column indicated by the data pointer. RESULT <-- row/col 1 - row/col 2. (Pages 2.5, 4.2)

43 MULT (T)

ROW (1-50): ROW (1-50):

or
COLUMN (1-20): COLUMN (1-20):

Multiply one row or column of values by another row or column, and store the results in the row or column indicated by the data pointer. RESULT<-- row/col 1 * row/col 2. (Page 4.2)

44 DIV (T)

ROW (1-50): ROW (1-50):

or
COLUMN (1-20): COLUMN (1-20):

Divide one row or column of values by a second row or column, and store the results in the row or column indicated by the cursor and data pointer. RESULT <-- row/col 1 / row/col 2. (Page 4.3)

45 NEGATE (T)

ROW (1-50):

or
COLUMN (1-20):

Negate a row or column of values and store the results in the row or column indicated by the data pointer. Positive values become negative and negative values become positive. Negative values are preceeded by minus signs. RESULT <-- -(row/col). (Page 4.3)

46 INVERSE (T)

ROW (1-50):

or
COLUMN (1-20):

Compute the inverse for a row or column of values and store the results in the row or column indicated by the cursor and data pointer. Values will be rounded to one decimal place on the screen unless otherwise set with the SET CRT (86). RESULT <-- 1/(row/col). (Page 4.3)

47 INTEGER (T)

ROW (1-50):

or
COLUMN (1-20):

Compute the integer part of a row or column of values by dropping the fractional portion of values and converting values to whole numbers. Results are stored in the row or column indicated by the data pointer. RESULT <-- INT(row/col). (Page 4.3)

48 ROUND (T)

ROW (1-50):

or
COLUMN (1-20):

Round a row or column of values to the nearest whole number and store the results in the row or column indicated by the cursor and data pointer. Number of decimal places can be changed on the screen using the SET CRT (86) command and can be changed on printed reports using the OPTIONS (81) or SET TYPE (21, 26) commands. RESULT <-- INT (row/col + 0.5). (Page 4.3)

49 CUMULATE (T)

VALUE: ROW (1-50):

or
VALUE: COLUMN (1-20):

Compute cumulative sums for a row or column and store the results in the row or column indicated by the data pointer. Cumulate prompts for beginning value to accommodate a beginning balance. If there is no beginning value, enter "0" in response to the VALUE prompt. Use CUMULATE for ending balance calculations. $RESULT_t$ <-- $RESULT_{t-1}$ + row/col_t. (Pages 4.3, 4.4)

50 ABSOLUTE (T)

ROW (1-50):

or
COLUMN (1-20):

Compute the absolute value of a row or column and store the results in the row or column indicated by the cursor and data pointer. If a value is negative, the result is positive. If the value is positive the result is positive. RESULT <-- ABS (row/col). (Page 4.3)

51 ADD K (T)

VALUE: ROW (1-50):

or
VALUE: COLUMN (1-20):

Add a constant value to a row or column and store the results in the row or column indicated by the cursor and data pointer. RESULT <-- row/col + value. (Page 4.3)

52 SUB K (T)

VALUE: ROW (1-50):

or
VALUE: COLUMN (1-20):

Subtract a constant value from a row or column and store the results in the row or column indicated by the cursor and data pointer. RESULT <-- row/col - value. (Page 4.3)

53 MULT K (T)

VALUE: ROW (1-50):

or
VALUE: COLUMN (1-20) :

Multiply a row or column by a constant value and store the results in the row or column indicated by the data pointer. RESULT <-- row/col * value. (Pages 2.3-2.4, 4.3, 4.13-4.14)

54 DIV K (T)

VALUE: ROW (1-50):

or
VALUE: COLUMN (1-20):

Divide a row or column by a constant value and store the results in the row or column indicated by the data pointer. RESULT <-- row/col / value. (Page 4.3)

55 SUM (T)

```
ROW BEGIN (1-50):              END (1-50):

or
COLUMN BEGIN (1-20) :          END  (1-20):
```

Sum a consecutive series of rows or columns and store the results in the row or column indicated by the data pointer. RESULT <-- SUM (row/col 1 THROUGH row/col 2). (Pages 2.4, 4.4)

56 GET (T)

```
ROW (1-50):

or
COLUMN (1-20):
```

Get values from a row or column in the current table and store the results in the row or column indicated by the data pointer. RESULT <-- row/col. (Page 4.4)

57 FLOOR (T)

```
VALUE :                        ROW (1-50):

or
VALUE :                        COLUMN (1-20):
```

Compare row or column values to a designated value. If any row or column value is less than the designated value, then the result is the new value. Otherwise, result is row or column value. Store the results in the row or column indicated by the data pointer. Use for simple if/then calculations. RESULT <-- MAX (row/col, value). (Page 4.5)

58 CEILING (T)

VALUE: ROW (1-50):

or
VALUE: COLUMN (1-20):

Compare row or column values to a designated value. If row or column value is greater than designated value, then the result is the new value. Otherwise result is row or column value. Store the results in the row or column indicated by the cursor and data pointer. Use for simple "if/then" calculations. RESULT <-- MIN (row/col, value). (Page 4.5)

Print Commands

80 print:

Display print commands: set report and title options, print reports, table logic, list table directories, send reports to printer or disk files.

81 OPTIONS

```
TOP MARGIN (0-50):
 Default 0

LEFT MARGIN (0-50):
 Default 0
Paper adjustment options for printers with automatic paper
feed.

ENHANCEMENT (0-3):
 Default 0

ROW TITLE WIDTH (4-40):
 Default 20

COLUMN WIDTH (4-20):
 Default 10

COLUMNS PER PAGE (1-30):
 Default 10

DECIMAL PLACES (0-3):
 Default 1

OMIT ZERO ROWS (NO=0, YES=1):
 Default 0

SUPRESS ZERO VALUES (NO=0, DASH=1, BLANK=2):
 Default 0

PRINT ROW TITLE AFTER WHICH COLUMN (0-9):
 Default 0

NEGATIVE NUMBERS (-N=0,N-=1,(N)=2):
 Default 0

PAGE CONTROL (OFF=0, FEED=1, PAUSE=2):
 Default 0
```

```
OMIT COMMAS (NO=0, YES=1):
 Default 0

DOUBLE SPACE (NO=0, YES=1):
 Default 0

OMIT LINE NUMBERS (NO=0, YES=1):
 Default 0
```

Set global report options. A <Return> response to any prompt allows the current setting for that option to remain unchanged. The current or default setting is displayed in the upper right corner of the screen. Option settings are saved with the SAVE TBL (112) command. To print these options use command 126 PRINT TBL. (Pages 1.5, 5.1, 5.7-5.10, 5.13)

82 TITLES

```
PAGE NUMBER (0-999):
 Default 0

DATE (YEAR AS YY):
 Default 0

   MONTH (1-12):
    Default 0

   DAY (1-31):
    Default 0

ROW-RANGE BEGIN (1-50):        END (1-50):
 Default 50

COL-RANGE BEGIN (1-20):        END (1-20):
 Default 20
```

Setting row and column ranges will set the ranges for the entire table. If, after you print, you wish to continue working with the whole table, change the row and column ranges to their original settings using the ROW RANGE (92) and COL RANGE (93) commands.

```
TITLE 1:
TITLE 2:
TITLE 3:

SET PAPER; HIT RETURN
```

Set global title options. A <Return> response to any prompt allows the current setting for that option to remain unchanged. The current or default setting is displayed in the upper right corner of the screen. To print these options use the PRINT TBL (118) command. These options are saved with the SAVE TBL (112) command. The three title lines are stored in the ProfitPlan directory for reference in subsequent LOAD TBL (111) commands.

Each report title can be up to 40 characters. The quote mark (") is an illegal character and should not be used in titles. To set titles without immediately printing out the report, cancel this command once the title options have been entered. To print a report check to see that printer is connected and turned on, and paper adjusted before you press <Return>. (Pages 2.7-2.8, 5.10-5.11, 5.13)

83 REPORT

SET PAPER; HIT RETURN

Send report to printer. Report options and titles should be set before printing report. Check to see that printer is connected and turned on, and paper adjusted before you press <Return>. (Pages 5.13, 6.9)

84 SHOW OPTS

Display report options and title information on screen. To print these options use command 118 PRINT TBL. (Page 5.12)

85 SAVE REP

OUTPUT NAME:
Hit RETURN to see the available tables.

Save ProfitPlan table with options and titles to a disk file. Can interface with word processors, or spool output to printer. The files are standard ASCII carriage-return-delineated files. Can press <Return> to see available tables on current disk. If you choose a file name that already exists, ProfitPlan will write over the existing file. Files saved under this command cannot be read by the LOAD TBL (111) command. (Page 6.9)

86 SET CRT

```
DECIMAL PLACES (0-3):
 Default 1

ROW TITLE WIDTH (5-30):
 Default 15

COLUMN WIDTH (4-20):
 Default 10

DISPLAY ZERO VALUES (NO=0, YES=1):
 Default 1
```

Set CRT display options that will be shown on the screen. Row titles may be up to 40 characters on a printed report, however, only a maximum of 30 characters will be shown on the screen. SET CRT settings do **NOT** effect the printed report. Current settings for the SET CRT options are displayed in the upper right corner of the screen. (Pages 6.9-6.11)

Status Commands

90 status:

Display status commands: range settings, mode selection, and computing order.

91 range:

Range selection commands for rows and columns.

92 ROW RANGE

ROW BEGIN (1-50): END(1-50):
Default 50

Set row range to restrict computations and data entry to affect only a portion of the table. Impacts calculations, printed reports, and general data manipulation. Change of row range is reflected on the status line. (Pages 5.11, 6.2)

93 COL RANGE

COL BEGIN (1-20): END (1-20):
Default 20

Set column range to restrict computations and data entry to affect only a portion of the table. Impacts calculations, printed reports and general manipulation. Change of column range is reflected on the status line. (Pages 5.11, 6.2)

95 mode:

Mode selection commands.

98 COMPUTE

Set mode to compute. Recompute table according to the order specified on the ProfitPlan status line to see the impact of any changes. Computations are done only within the range limit as specified on the status line. (Pages 2.7, 4.12-4.14, 6.1-6.2, 6.4)

101 PROTECT

Turns protect mode on and off. A "P" will be displayed in the upper right corner to indicate that the protect mode is on. While in the protect mode, changes can be made to the data without effecting the underlying table logic. (Pages 6.1)

102 ORDER

(ROW/ONLY=1, COL/ONLY=2, ROW/COL=3, COL/ROW=4):
Default 3

Select the order in which the COMPUTE (98) command performs calculations. Current computing order is displayed on the ProfitPlan status line. For example, ROW ONLY performs calculations only on those commands associated with rows; ROW/COL computes row commands and then column commands. (Pages 6.2-6.4)

Utility Commands

105 utility:

Display utility commands: load, save, list, print, erase, redisplay screen, and clear and reset tables. (Page 3.9)

108 SET DRIVE

```
DRIVE (A-P):
 Default A
```

Select disk drive for saving and loading tables. Current drive is used for saving and loading files unless otherwise specified. Current drive is displayed on the ProfitPlan status line when loading or saving tables. (Pages 6.9)

109 SET UP

```
OK TO ERASE CURRENT DATA?
VERIFY (Y OR N)

NUMBER OF COLUMNS (1-99):    ROWS (1-200):
VERIFY (Y OR N):
```

Enlarge current ProfitPlan table to a greater number of rows or columns. With 64K of RAM, each table can have approximately 1000 entries; 16-bit machines generally permit larger tables. (Pages 3.5, 3.11, 6.2)

111 LOAD TBL

```
TABLE NAME:
Hit RETURN to see available tables.
```

Load table from disk. Press <Return> to see the names of available tables on the current disk. Keep pressing <Return> to see more table names. Enter the name of table to load. ProfitPlan will clear the screen and display the specified table.

If the dimensions of a new table are smaller than the dimensions of current table, the following message is displayed:

```
New table is smaller than current table dimensions. Enlarge?
CHOOSE (NEW=0, CURRENT=1):
```

ProfitPlan will clear the screen and display the specified table. (Pages 3.9-3.11)

112 SAVE TBL

```
TABLE NAME:
Hit RETURN to see the available tables.
```

Save table onto disk for future use. Row and column descriptions, data, logic, and all print options will be saved as part of the table. Press <Return> to see the names of available tables on the current disk. If the name of a table already on the disk is specified, ProfitPlan will display the following message:

```
Your file already exists. Continue with save?
VERIFY (Y OR N):
```

Choose "Y" to overwrite existing table, and "N" to give the current table another name. If you choose a file name that already exists, ProfitPlan will write over the existing file. (Pages 2.8, 3.9-3.11, 6.9)

113 CLR DATA

```
OK TO ERASE CURRENT DATA ?
VERIFY (Y OR N):
```

Clear all data from current table within row and column ranges. Row and column titles, printing options, table logic remain intact; only values in the table are replaced with zeros. (Page 6.11)

114 RESET

```
OK TO ERASE CURRENT DATA?
VERIFY (Y OR N):
```

Delete all current information in table. Reset table values to zero, row and column titles to blanks. Erase table logic. (Pages 3.1, 6.11)

115 REDISPLAY

Clear screen and redisplay table, menu, and status information. No changes are made to data. (Page 6.11)

116 LIST TBLS

SET PAPER; HIT RETURN

Provide a printed listing of names, titles, and sizes of tables currently on disk. Make sure printer is connected and turned on, and paper adjusted before pressing <Return>. (Page 6.8)

117 ERASE TBL

TABLE NAME:
Hit RETURN to see the available tables.

Delete a saved table from disk permanently. Can press <Return> to see available tables on current disk. (Page 6.8)

118 PRINT TBL

SET PAPER; HIT RETURN

Print a description of current table. Listing will include row titles, options, table commands, and global options. The PRINT TBL command will always start with row 1, column 1 regardless of the current range settings. Make sure printer is connected and turned on, and peper adjusted before pressing <Return>. (Page 5.13)

Appendix A
Alternate Command Keys

ProfitPlan will respond to alpha characters that are codes for the regular numeric commands. So, if it is easier for you, simply use a "+" for the ADD (41) command, a "F" for the FORMULA (35) command, or any of the other single keystroke codes. Of course, the regular ProfitPlan menu will still be available to provide you with a constant reference.

+ ADD	E ENTRY
- SUBTRACT	F FORMULA
* MULTIPLY	G GOTO
/ DIVIDE	I INVERSE
= GET	N NULLIFY
$ CUMULATE	P PLUG
A ADD K	Q CHANGE
B SUB K	R RATIO
C MULT K	S SUM
D DIV K	X FIX

Appendix B
ProfitPlan Customization Notes

This memo assists dealers in customizing ProfitPlan version 4 to specific systems. Features supported include:

1. Display attributes, table sizes, and identification.
2. CRT feature control.
3. Keyboard customization.
4. Function key customization.

PPSETUP.FIL

PPSETUP.FIL is a CP/M file used to store customized parameters for ProfitPlan. The PPSETUP.FIL is one of the files on the ProfitPlan system diskette. It contains numbers that allow you to customize ProfitPlan to your microcomputer system and terminal.

Normally, PPSETUP.FIL is created by the ProfitPlan CUSTOM program. If your system is listed on the CUSTOM menu, you simply select that system to get started. Otherwise, you need to change the contents of the PPSETUP.FIL to match your system. These numbers can be changed using any CP/M editor or word processor.

Technically, the contents of PPSETUP.FIL are a series of numbers. These numbers must be separated by commas or placed on individual lines of the PPSETUP.FIL. These numbers are used to tell ProfitPlan what specific features are available on the hardware and how to use them.

The following is a sample printout of the PPSETUP.FIL.

Sample PPSETUP.FIL

```
"ProfitPlan"
50,20
15,10,1,""
0,0,0
"Televideo/Soroq/WYSE"
9,80,24
2,27,0,0,0,61,32
0,0,0,0,0,0
27,41,0
27,40,0
27,41,0
27,40,0
0
27,40,0
0
27,40,0
27,41,32,0
27,41,0
27,40,32,0
27,40,0
27,40,0
27,89,0
27,84,0
11,10,12,8,30
27,127,13
"COMMAND KEY"
37
65,51, 66,52, 67,53, 68,54, 69,30, 70,35, 71,36, 72,79, 73,46, 74,79
75,71, 76,138,77,135,78,39, 79,79, 80,37, 81,32, 82,67, 83,55, 84,68
85,79, 86,137,87,79, 88,38, 89,79, 90,79, 43,41, 45,42, 42,43, 47,44
36,49, 37,70, 60,72, 61,56, 62,73, 94,139,64,74
"FUNCTION KEY SECTION"
1,-1,16
64,111,65,31,66,98,67,83,68,33,69,20,70,21,71,9
72,112,73,32,74,96,75,81,76,34,77,25,78,26,79,108
```

SETUP PARAMETERS

This section controls the initial ProfitPlan table size, the row title display area, the column sizes, the number of decimal places, handling of zeroes and print page margins.

```
"ProfitPlan"
ROW.N, COL.N
ROW.SIZE, COL.SIZE, DEC.SIZE, DATA.DRIVE
OMIT.ZERO, TOP.MARGIN, LEFT.MARGIN
```

Example:

```
"ProfitPlan"
50, 20
15, 10, 1, "A:"
0, 0, 0
```

ROW.N and COL.N are the initial table size for ProfitPlan. Normally, these are set at 50 rows and 20 columns. They can be set to smaller values for small machines or larger values for 16-bit machines with larger memory capacity. In 8-bit CP/M systems, ProfitPlan can normally accomodate approximately 1000 entries (i.e. 50 times 20 equals 1000) per table. Of course, the ProfitPlan SETUP command allows the user to dynamically set the table sizes.

ROW.SIZE is the row title display area. Normally, 15 spaces are used. You can set it to any value from 5 to 40.

COL.SIZE is the size for each column. 10 is the default.

DEC.SIZE is the number of decimal places. 1 is the default.

DATA.DRIVE is the name of the drive for storing ProfitPlan tables. If this value is set to select drive "B:", then ProfitPlan will automatically store and retrieve ProfitPlan tables from drive B.

OMIT.ZERO is treatment of zero values on the screen. A value of -1 says to display zeroes as blanks. 0 is the default.

TOP.MARGIN is the number of lines to skip at the top of a page.

LEFT.MARGIN is the number of columns to skip at the left side of a page. (Top and left margins support printers with single page sheet feeders.)

CRT CONTROL FEATURES

This section describes the CRT interface for ProfitPlan. Specific features include cursor control, highlighting, screen clear and line clear.

Normally, for an application like ProfitPlan to instruct the CRT to clear the screen, a special command is sent by ProfitPlan to the CRT. This command might be the number 5 or a string of numbers starting with a 27 followed by an 89. Unfortunately, this command varies for each system and terminal. However, you can look up the appropriate commands in your system or terminal CRT interface section and enter the command sequence into PPSETUP.FIL.

Screen Size

```
"Terminal/System name"
CRT.TYPE, CRT.WIDTH, CRT.LENGTH
```

Example:

```
"DEC VT/100"
0, 80, 24
```

CRT.TYPE is used to identify specific terminals that may require special adjustments. Use 1 for Hazeltine terminals. Otherwise, any value is OK.

CRT.WIDTH and CRT.LENGTH control the screen size. Most terminals display 80 columns by 24 rows. 132 column screens are fully supported.

Cursor Addressing

```
FORMAT, LEAD.IN, LEAD.IN-2, LEAD.IN-3, DELIMITER
ADDR.CURSOR, ADDR.OFFSET
```

Example:

```
1, 27, 38, 97, 121
67, 0
```

These numbers control positioning of the cursor at specific locations on the screen. ProfitPlan supports 3 techniques for cursor addressing. They are:

0. Hazeltine x, y format
1. ANSI standard
2. y, x format (most popular)

The Hazeltine format uses the following command structure for cursor addressing:

ESC ADDR.CURSOR x-value y-value

In PPSETUP.FIL, the numbers would be set as follows:

settings	description
FORMAT = 0	select Hazeltine format.
LEAD.IN = 27	use ESC for lead-in.
LEAD.IN-2 = 0	2nd lead-in set to null.
LEAD.IN-3 = 0	
DELIMITER = 0	set to null.
ADDR.CURSOR = 17	address cursor command.
ADDR.OFFSET = 96	address offset.

You can use the Hazeltine format for any terminal that closely matches the Hazeltine format by substituting the correct values. For example, if your terminal uses the x,y format, but uses a different command for cursor addressing, the correct value may be entered into PPSETUP.FIL in place of the original value.

The ANSI standard uses the following command structure:

LEAD.IN LEAD.IN-2 LEAD.IN-3 y-value DELIMITER x-value ADDR.CURSOR

For example, the HP-2621A would use the following settings:

settings	descriptions
FORMAT = 1	select ANSI standard.
LEAD.IN = 27	use ESC for lead-in.
LEAD.IN-2 = 38	2nd lead-in character.
LEAD.IN-3 = 97	3rd lead-in character.
DELIMITER = 121	delimiter.
ADDR.CURSOR = 67	address cursor command.
ADDR.OFFSET = 0	address offset.

If your terminal follows the ANSI standards, you can use this format by changing selected values to suit your terminal. If your terminal uses less than 3 lead-in characters, then the remaining values should be set to zero.

The most popular format is the abbreviated y,x format:

ESC ADDR.CURSOR y-value x-value

For example, the Televideo terminal would use the following values:

settings	descriptions
FORMAT = 2	select y, x format.
LEAD.IN = 27	use ESC for lead-in.
LEAD.IN-2 = 0	2nd lead-in character.
LEAD.IN-3 = 0	3rd lead-in character.
DELIMITER = 0	delimiter.
ADDR.CURSOR = 61	address cursor command.
ADDR.OFFSET = 32	address offset.

As with all 3 methods for cursor addressing, you can set the individual values to suit your system or terminal.

Printer Features

Printer features are supported. There are an initialization, termination and 4 enhancements that you may implement for any printer. These features can be used to select compressed, expanded or alternate fonts, to issue paper feed messages and for other printer control uses.

PRINTER.INIT	0	Initilization string.
PRINTER.END	0	Termination string.
ENHANCE.0	0	Zeroth enhancement.
ENHANCE.1	0	First enhancement.
ENHANCE.2	0	Second enhancement.
ENHANCE.3	0	Third enhancement.

Each line can contain as many numbers as necessary and must be terminated by a zero. At minimum, each line must contain a zero.

The initialization sequence and one of the enhancement choices are sent to the printer at the beginning of every command that uses the printer. The end sequence is sent to the printer at the end of every command that uses the printer. The choice of enhancement is set in the OPTIONS command.

Initialization is used to send special Paper Load instructions or LPI commands. Each enhancement generally controls various CPI choices. The end sequence resets the printer to its original state.

Highlighting

You can highlight each portion of the ProfitPlan display screen using features available in your system. For example, you can display the titles and the ProfitPlan menu in reverse video and blink the status line.

	Example - Adds	
INITIAL.SET	27, 91, 48, 0	CRT initialization.
END.SET	0	CRT ending set.
DEF.SET	14, 0	Default setting.
PROMPT.ON	0	Not used.
STATUS.ON	15, 0	ProfitPlan status line.
MESSAGE.ON	15, 0	Message line.
ROW.ON	0	Not used.
TBL.ON	15, 0	Row and column title area.
POINTER.ON	14, 32, 0	Row/column pointer.
DATA.ON	0	Data area.
DPOINTER.ON	15, 32, 0	Data pointer.
NEGATIVE.ON	0	Negative values.
MENU.ON	15, 0	Menu area.

Each line can contain as many numbers as necessary and must be terminated by a zero. At minimum, each line must contain a zero.

The numbers are commands that are sent to the CRT to select specific features such as reverse, blink, underline, color or other highlighting activities.

The INIT.SET sequence is sent to the CRT at the beginning of every ProfitPlan session. The END.SET sequence is sent to the CRT at the end of every ProfitPlan session. Other sequences are sent to the CRT prior to displaying that section of the ProfitPlan screen. The DEF.SET sequence is sent to the CRT at the completion of any display on the CRT.

For example, whenever a message is printed on line 1 of the CRT, ProfitPlan will send the MESSAGE.ON sequence to the CRT, followed by the message and the DEF.SET sequence.

For POINTER.ON and DPOINTER.ON, a space (32 decimal or 20H) needs to be inserted. If the highlighting feature used to distinguish the data pointer already occupies a space on the CRT, then the space should be omitted.

Clear screen and line

CLEAR.SCREEN	27, 84, 0
CLEAR.LINE	27, 89, 0

The clear screen and clear to end of line sequence is handled the same way as highlighting. A sequence of numbers is sent to the CRT to clear the screen or to clear the line. These sequences must be terminated by a zero value.

KEYBOARD CUSTOMIZATION

ProfitPlan allows single keystroke cursor control. In addition, you can customize the alphabetic portion of the keyboard to generate specific ProfitPlan commands. You can match specific keys to functions in ProfitPlan by looking up the values generated by a key and entering the values into PPSETUP.FIL as follows.

Cursor control

UP.KEY, DOWN.KEY, RIGHT.KEY, LEFT.KEY, CANCEL.KEY

Example:

5, 24, 4, 19, 1

Cursor control allows the user to move the ProfitPlan data pointer. Most keyboards have a set of keys with arrows on them that point in the up, down, right, left and home positions. You can customize ProfitPlan to respond to these arrow keys by entering the values generated by these keys into PPSETUP.FIL.

The above example allows the user to use CTRL-E, CTRL-X, CTRL-D, CTRL-S and CTRL-A for the above actions.

Backspacing

ESC.KEY, BACKSPACE, CR.KEY

Example:

27, 127, 9

Backspacing is used to correct typing errors. Different keys are used on different systems to handle backspacing. For example, you can choose the BACK key, the DEL key , or the RUBOUT key depending on your keyboard. (If not defined for other uses, 8H is always used as the backspace key. In the current example, both 8H and the DEL key would perform backspacing.)

ESC.KEY can be used to capture a two character cursor key. In other words, if the cursor keys generate 2 ASCII characters, ESC.KEY should be set to the value of the first key.

The CR.KEY is an alternate carriage return key. 0CH by default, is always the carriage return key. CR.KEY defines an alternate key (TAB in the above example.)

Command Key Synonyms

This section allows you to map any alphabetic keystoke into specific ProfitPlan commands. This provides each ProfitPlan with an alphabetical synonym. For example, the S key can be trained to map into the SUM command (55) in ProfitPlan. Normally, the S key generates a decimal 83 (or 53H). In the example below, it has been mapped into a 55 for SUM.

```
"Command key section"
COUNT
KEY1, COMMAND1
      .
      :
KEYN, COMMANDN
```

Example:

```
"Command key section"
3                              3 keys.
43, 41                         + key, ProfitPlan ADD (41)
45, 42                         - key, ProfitPlan SUB (42)
83, 55                         S key, ProfitPlan SUM (55)
```

You can specify as many keys as you wish. Note, only alphabetic keys can be used since numeric keys interfere with normal ProfitPlan command entry conventions.

FUNCTION KEY SECTION

Please set as follows:

```
"Function key section"
0,0,0


FUNCTION.INIT
FUNCTION.END          (true=-1 or false=0)
#-OF-KEYS
```

Appendix C

Error Messages

CP/M ERROR MESSAGES		
ERROR MESSAGE	**CAUSE**	**CORRECTION**
BDOS ERROR on d*: BAD SECTOR * d = drive name	Operating system cannot get information from diskette because disk being accessed is not correctly formatted.	Format disk correctly according to operating system manual.
	Operating system cannot get information from diskette because disk has physical defect (dust, finger prints, manufacturer's defect).	Press "R" to re-try command. If error persists, reboot system and re-try command. If error persists and is on data diskette, format new diskette and re-try command. If error is on systems disk make new working disk from master and re-try command. If error still occurs check disk drive for malfunction.
BDOS ERROR on d: SELECT	Drive does not exist.	Reboot system and designate correct disk drive. Check to make sure that disk drive cables are properly connected.

CP/M ERROR MESSAGES		
ERROR MESSAGE	**CAUSE**	**CORRECTION**
BDOS ERROR on d: READ ONLY (R/O)	Newly inserted diskette was accessed without ^C command being issued to clear the drive.	Press any key to recover. Press ^C and then re-try command.
	Operating system is trying to write to a disk that has been designated as "read only."	Press any key to recover from error. Check diskette for write protect tab: For 5 1/4" diskettes remove tab to make diskette read/write. For 8" diskettes install tab to make diskette read/write.
	Operating system is trying to write to disk that has been designated as "read only" with the CP/M STAT command.	Change disk designation with STAT command.
DISK WRITE ERROR	Operating system is trying to write to a disk that is full. Operating system can read disk, but has no room to write.	Check available diskette space. Most likely an additional diskette will be needed to provide more storage space.

EXECUTION ERROR MESSAGES		
ERROR MESSAGE	CAUSE	CORRECTION
CM ERROR	The program file specified in a chaining statement could not be found in the directory.	Problem with system disk. Use master diskette to make new system disk. If error persists, contact your dealer.
DW ERROR	Disk full. No diskette space left.	Check available diskette space. Most likely an additional diskette will be needed to provide more storage space.
DZ ERROR	A division by zero was attempted.	Check logic and correct.
ME ERROR	Diskette directory is full causing an error while attempting to save a file.	Check available diskette directory space. Most likely an additional diskette will be needed to provide more storage space.
OE ERROR	Open file errror. Has no effect on program.	Enter next command to clear error message on screen.
OF ERROR	Arithmetic overflow. A number used in a calculation was too large.	Locate number causing overflow and correct. Re-try calculation.
OM ERROR	System has insufficient memory to complete action.	Break up action causing problem (table size, program, calculation) into smaller pieces.

ProfitPlan **ERROR MESSAGES**		
ERROR MESSAGE	**CAUSE**	**CORRECTION**
"The contents of this file are incorrect. (e.g. old version)"	Table was not saved properly due to full or defective diskette.	Re-save table. Check operating system directory to confirm save. Use new data diskette if necessary.
"New table is smaller than current table dimensions. Enlarge?" 0=New, 1=Current	Table being loaded (new table) has smaller matrix than table shown on the screen (current table).	Decide which table size is desired, then answer MicroPlan query with an "0" for new table or "1" for the current table.
"No help files available."	Due to limited disk space on this machine format, help files have been deleted.	Informative error message--no corrective action necessary.

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