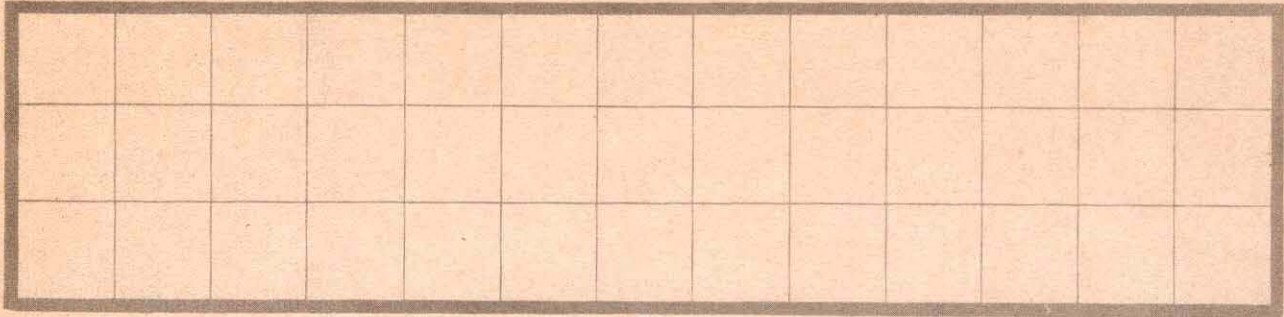
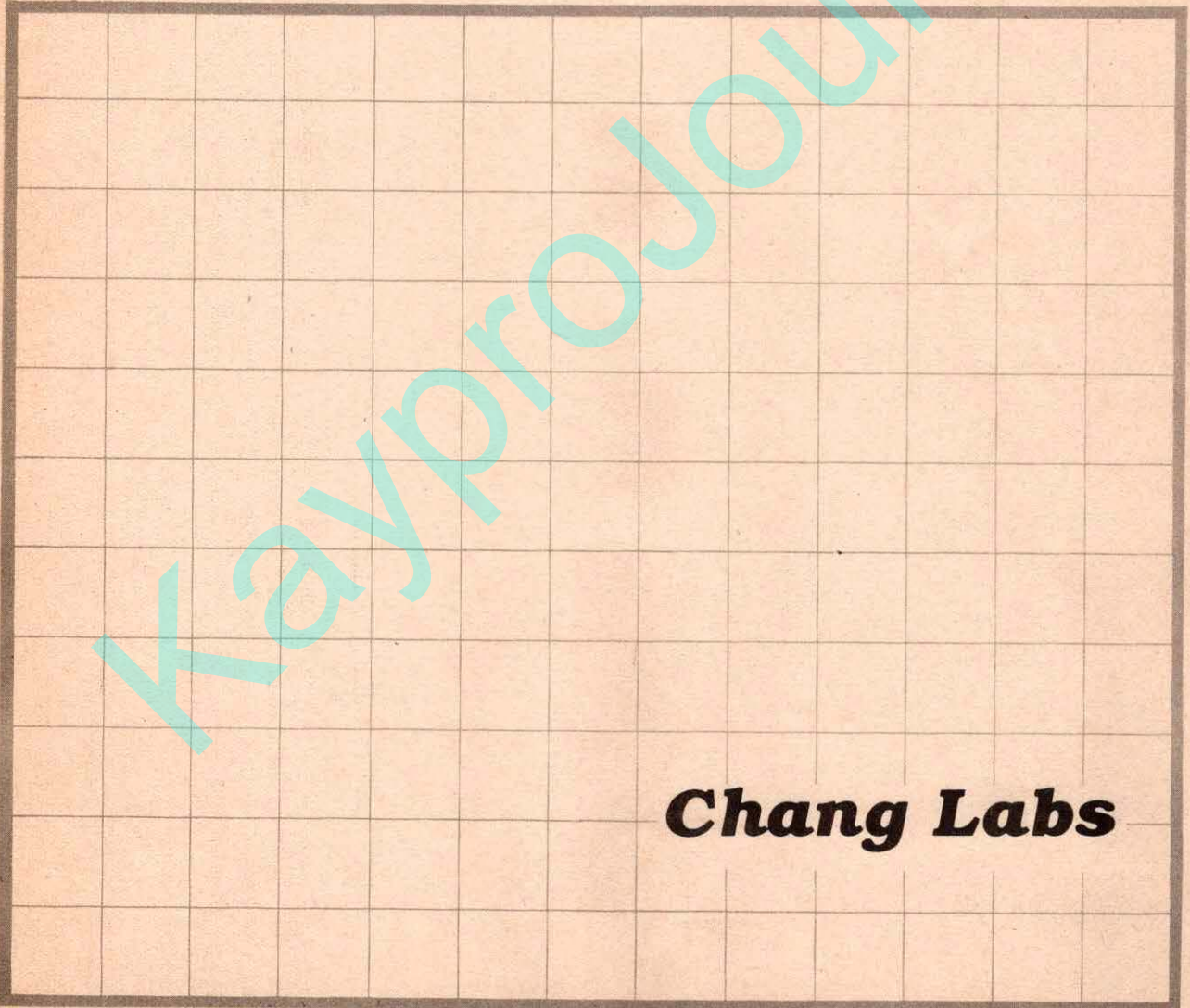




PROFITPLANTM

A CP/M[®] BUSINESS PLANNER



Chang Labs

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Introduction

Welcome. This manual will show you how to work with an electronic worksheet to do your planning and analysis work. If you already do computerized planning, you will appreciate the simplicity of solving problems in ProfitPlan. If you are a newcomer to planning on a computer, the step-by-step approach of this manual will guide you through your problems.

This manual is organized into two major sections. Section 1 gets you started with ProfitPlan. You will actually do a 5-year projection.

Sections 2, 3 and 4 describe working with ProfitPlan tables. You will learn to do computations, generate reports and use the advanced commands in ProfitPlan.

The appendices provide installation instructions and a reference guide.

You should start with ProfitPlan by doing the example in Section 1. Then, glance through the remaining sections to get a general picture of ProfitPlan features. The remaining sections can be used as a reference as you need the information.

If you have not already done so, please take a few minutes to complete and mail your End User Agreement Acknowledgement Card. This card will register you with Chang Labs, give you access to help with your problems, and allow you to receive newsletters telling you of updates to ProfitPlan. Please mail in the completed card.

getting started

SECTION 1

Getting Started

(What-if Analysis)

This first section will get you started using ProfitPlan. You will load ProfitPlan, produce a 5-year projection, and do what-if analysis.

LOADING PROFITPLAN

If you purchased the ProfitPlan diskette from an authorized ProfitPlan dealer, then they can help you set up the ProfitPlan diskette to match your microcomputer system. (Of course, a quick glance through Appendix A will also show you how to set up the ProfitPlan diskette.)

To load ProfitPlan:

1. Be sure your computer is turned on.
2. Insert the ProfitPlan diskette into the disk drive slot.
3. Type **PP** on the keyboard and press RETURN.

The screen will first show a display similar to the following:

```
ProfitPlan Version 1.0
Copyright (C), 1981 by Chang Laboratories, Inc.
```

```
Purchased from: CHANG LABS
```

```
Copy Number: DEMO 1/81
```

Of course, the dealer and copy number will vary with the individual licensed copy.

Next, ProfitPlan will show the following display:

MODE=NORMAL ORDER=R/C ROW=1-50 COL=1-20									
ROW 1 <-- ENTER COMMAND:									
ROW	1	2	3	4	5	1	2	3	4
1	0.0	0.0	0.0	0.0	0.0	1	FORMAT:		
2	0.0	0.0	0.0	0.0	0.0	2	DATA:		
3	0.0	0.0	0.0	0.0	0.0	3	MATH:		
4	0.0	0.0	0.0	0.0	0.0	4	PRINT:		
5	0.0	0.0	0.0	0.0	0.0	5	UTILITY:		
6	0.0	0.0	0.0	0.0	0.0	6	COMPUTE		
7	0.0	0.0	0.0	0.0	0.0	7	HELP		
8	0.0	0.0	0.0	0.0	0.0	8			
9	0.0	0.0	0.0	0.0	0.0	9	STOP		
10	0.0	0.0	0.0	0.0	0.0	10	ROW RANGE		
11	0.0	0.0	0.0	0.0	0.0	11	COL RANGE		
12	0.0	0.0	0.0	0.0	0.0	12	ORDER		
13	0.0	0.0	0.0	0.0	0.0	13	SET DRIVE		
14	0.0	0.0	0.0	0.0	0.0	14	SET UP		
15	0.0	0.0	0.0	0.0	0.0	15	SET CRT		
16	0.0	0.0	0.0	0.0	0.0	16			
17	0.0	0.0	0.0	0.0	0.0	17			
						18	FORMAT:		
						19	ROWS:		
						20	ROW TITLE		

Now, ProfitPlan is ready to solve your problems.

DOING A SIMPLE PROJECTION

Let's do a simple 5-year projection. Prepare the following report in ProfitPlan.

5-year projection						
		1	2	3	4	5
1	sales	\$1,000 growing at 10% per year				
2	cost of goods	45% of sales				
3	sales and admin	20% of sales				
4	research and dev	constant \$300 per year				
5	total costs	sum all costs				
6	gross profit	sales less total costs				

You will proceed through the following steps:

1. Enter titles for each row of the 5-year projection.
2. Enter or compute values for each row.
3. Make a change and watch ProfitPlan automatically do what-if analysis.
4. Print a report.

CORRECTING MISTAKES IN TYPING

Before starting, you need a few words on correcting typing errors. When you make a mistake in typing, several options are available.

1. Backspacing can be used to correct errors if you have not yet pressed the RETURN key. On different keyboards, this key may be labelled DEL, RUB, RUBOUT or another similar label. (For specific details, look in Appendix A.) For example:

ENTER COMMAND: 30 1 <RETURN>

The above sequence allows you to correct 30 and enter 31 instead.

2. You can cancel a command if the RETURN has been entered and you realize that you have entered an incorrect entry or command. On different keyboards, the cancel key may be labelled with HOME, CAN or another similar label. (For specific details, look in Appendix A.) Throughout this manual, this key will be the <CAN> key even though your terminal may use a different key.

ENTER COMMAND: 31 <RETURN>

VALUE: <CAN>

ENTER COMMAND: 32 <RETURN>

Cancel command 31 and enter 32 instead.

ENTERING DESCRIPTIONS

The following description takes you step by step through the 5 year projection. Follow along on the computer by entering all information in **BOLD TYPE**.

The first step is to enter titles for each row of the projection.

ENTER COMMAND: 20 <RETURN>

Command 20 allows you to enter titles for each row. The RETURN key is on the right side of the keyboard.

ROW-1 TITLE: SALES <RETURN>

ProfitPlan asks for the description for row 1. Type in sales. Notice that after you hit RETURN, the entry is moved to row 1 of the table.

ROW-2 TITLE: **COST OF GOODS <RETURN>**

ProfitPlan now asks for the description for row 2. Type in cost of goods.

ROW-3 TITLE: **SALES AND ADMIN <RETURN>**

ProfitPlan continues to ask for row descriptions. Notice this description is clipped in the middle of the word ADMIN. Don't worry, ProfitPlan will remember the full description, even though it only has room on the screen to display the first 12 letters.

ROW-4 TITLE: **RESEARCH AND DEVELOPMENT <RETURN>**

ROW-5 TITLE: **TOTAL COSTS <RETURN>**

ROW-6 TITLE: **GROSS PROFIT <RETURN>**

This is the last row description.

ROW-7 TITLE: **<CAN>**

Cancel tells ProfitPlan to stop prompting. (Notice that you do not need to press the RETURN key after the cancel command.)

ROW 1 (SALES) <--							MODE=NORMAL ORDER=R/C ROW=1-50 COL=1-20		
ENTER COMMAND:									
ROW							1	2	3
---	1	2	3	4	5		FORMAT:		
1 SALES	0.0	0.0	0.0	0.0	0.0	0.0	DATA:		
2 COST OF GOOD	0.0	0.0	0.0	0.0	0.0	0.0	MATH:		
3 SALES AND AD	0.0	0.0	0.0	0.0	0.0	0.0	PRINT:		
4 RESEARCH AND	0.0	0.0	0.0	0.0	0.0	0.0	UTILITY:		
5 TOTAL COSTS	0.0	0.0	0.0	0.0	0.0	0.0	COMPUTE		
6 GROSS PROFIT	0.0	0.0	0.0	0.0	0.0	0.0	HELP		
7	0.0	0.0	0.0	0.0	0.0	0.0			
							8		
							9 STOP		
							10 ROW RANGE		

ENTERING VALUES

Now, enter values for each row of the table. Notice that the 'data pointer' on the second line of the display has a left pointing arrow to the words 'ROW 1 (SALES) <--'. This means ProfitPlan is ready to accept data for row 1. Tell ProfitPlan that sales will start at \$1,000 and grow at 10% per year.

ENTER COMMAND: **31 <RETURN>**

Command 31 allows you to enter the sales assumptions into ProfitPlan.

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

ProfitPlan asks you to choose the type of input. Select the GROW option.

BASE VALUE: 1000 <RETURN>

ProfitPlan asks for the base value. Type in 1000. Notice that dollar signs and commas should not be typed in.

RATE: 10 <RETURN>

ProfitPlan asks for the percentage rate. Type in 10%. After you key RETURN, notice that row 1 contains the computed sales. The values start with 1,000 and grow by 10% per year.

MODE=NORMAL ORDER=R/C ROW=1-50 COL=1-20					
ROW 2 (COST OF GOODS) <--					
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 GOOD	0.0	0.0	0.0	0.0	0.0
3 SALES AND AD	0.0	0.0	0.0	0.0	0.0
4 RESEARCH AND	0.0	0.0	0.0	0.0	0.0
5 TOTAL COSTS	0.0	0.0	0.0	0.0	0.0
6 GROSS PROFIT	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0

1 FORMAT:
2 DATA:
3 MATH:
4 PRINT:
5 UTILITY:
6 COMPUTE
7 HELP
8
9 STOP
10 ROW RANGE

Notice that the 'data pointer' has been automatically increased to 'ROW 2 (COST OF GOODS) <--'. ProfitPlan is ready to accept data for row 2. Calculate cost of goods as 45% of sales.

ENTER COMMAND: 53 <RETURN>

Command 53 allows you to compute cost of goods as a constant (K) percentage of sales.

VALUE: 0.45 <RETURN>

ProfitPlan asks for a percentage. Enter as 0.45.

ROW (1-50): 1 <RETURN>

ProfitPlan asks for a row number. Tell ProfitPlan to use the sales figures in row 1. Check that the cost of goods results in row 2 is correct.

Again, notice that the 'data pointer' has automatically changed to 'ROW 3 (SALES AND ADMIN) <--'. Calculate sales and administrative costs as 20% of sales.

ENTER COMMAND: **53 <RETURN>**

Use command 53 again, to calculate sales and admin expenses as 20% of sales.

VALUE: **0.20 <RETURN>**

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

Now, enter research and development cost of \$300 per year.

ENTER COMMAND: **31 <RETURN>**

To enter R&D costs of \$300 per year, use command 31 again.

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

ProfitPlan asks you to choose the type of input. This time, select the CONSTANT option.

BASE VALUE: **300 <RETURN>**

ProfitPlan asks for the constant value. Type in 300. Notice that row 4 shows 300 in all columns.

The 'data pointer' now points to 'ROW 5 (TOTAL COSTS) <--'. To calculate total costs, add the cost of goods, sales & admin and R&D expenses in rows 2 through 4. The SUM command will do this computation.

ENTER COMMAND: **55 <RETURN>**

To compute total costs, use command 55 to sum several rows.

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

Tell ProfitPlan to start with row 2, cost of goods.

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

Tell ProfitPlan to end with row 4, R&D expenses. Notice that ProfitPlan computes the sum for each column of the table.

Finally, gross profit is sales less total costs. Use the SUBTRACT command to calculate gross profits.

ENTER COMMAND: **42 <RETURN>**

Command 42 allows you to subtract one row from another.

ROW (1-50): 1 <RETURN>

ProfitPlan asks for the first row number. Enter 1 for sales.

ROW (1-50): 5 <RETURN>

ProfitPlan asks for the second row. Enter 5 for total costs. After the RETURN, ProfitPlan calculates the gross profits.

Now, you are finished. The 5-year projection should look like the following :

MODE=NORMAL ORDER=R/C ROW=1-50 COL=1-20									
ROW 7 <--									
ENTER COMMAND:									
ROW	1	2	3	4	5	1	2	3	4
1 SALES	1,000.0	1,100.0	1,210.0	1,331.0	1,464.1	1	FORMAT:		
2 COST OF GOOD	450.0	495.0	544.5	599.0	658.8	2	DATA:		
3 SALES AND AD	200.0	220.0	242.0	266.2	292.8	3	MATH:		
4 RESEARCH AND	300.0	300.0	300.0	300.0	300.0	4	PRINT:		
5 TOTAL COSTS	950.0	1,015.0	1,086.5	1,165.2	1,251.7	5	UTILITY:		
6 GROSS PROFIT	50.0	85.0	123.5	165.9	212.4	6	COMPUTE		
7	0.0	0.0	0.0	0.0	0.0	7	HELP		
						8			
						9	STOP		
						10	ROW RANGE		

DOING WHAT-IF ANALYSIS

As you prepared the 5-year projection, ProfitPlan not only computes the figures, but memorizes the commands required to do the projection. Now, you can make changes and watch ProfitPlan automatically recalculate the entire 5-year projection.

Suppose that the first year R&D expenses will be \$500, not \$300. Change the value and ask ProfitPlan to do a new projection.

ENTER COMMAND: 32 <RETURN>

Command 32 allows you to change the value for any entry of the table.

ROW (1-50): 4 <RETURN>

ProfitPlan asks for a row number. Enter 4 for R&D expenses.

COL (1-20): 1 <RETURN>

ProfitPlan asks for a column number. Enter 1 for year 1.

VALUE: 500 <RETURN>

ProfitPlan asks for a new value. Enter 500. Notice that the 500 replaces the old value in column 1 of the R&D figures.

ENTER COMMAND: 6 <RETURN>

You tell ProfitPlan to compute using the new assumptions.

In a few seconds, the new 5-year projection should look like the following:

MODE=NORMAL ORDER=R/C ROW=1-50 COL=1-20						
ROW 1 (SALES) <--						
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 GOOD		450.0	495.0	544.5	599.0	658.8
3 SALES AND AD		200.0	220.0	242.0	266.2	292.8
4 RESEARCH AND		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
7		0.0	0.0	0.0	0.0	0.0
1 FORMAT:						
2 DATA:						
3 MATH:						
4 PRINT:						
5 UTILITY:						
6 COMPUTE						
7 HELP						
8						
9 STOP						
10 ROW RANGE						

END (1-20): 5 <RETURN>

TITLE 1: 5-YEAR PROJECTION <RETURN>

ProfitPlan asks for a title. Type in '5-year projection'.

TITLE 2: <RETURN>

ProfitPlan allows 3 lines of title information. Just use one line for now.

TITLE 3: <RETURN>

SET PAPER; HIT RETURN. <RETURN>

Make sure your printer is on and ready to print.

In a few seconds, you will get the following report on your printer.

5-YEAR PROJECTION						Page 1
---	---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	598.9	658.8	
3 SALES AND ADMIN	200.0	220.0	242.0	266.2	292.8	
4 RESEARCH AND DEV	500.0	300.0	300.0	300.0	300.0	
5 TOTAL COSTS	1,150.0	1,015.0	1,086.5	1,165.1	1,251.6	
6 GROSS PROFIT	-150.0	85.0	123.5	165.8	212.4	

Congratulations, you have just produced your first report in ProfitPlan.

If you want to stop now, type 9 <RETURN>.

working with tables

SECTION 2

Simple Usage

(Commands, Tables and the Data Pointer)

This section shows you the ProfitPlan commands, tables and the data pointer. You will learn to choose commands, move the display and make entries into ProfitPlan tables.

CHOOSING COMMANDS

ProfitPlan responds to commands that are numbers you type. You choose commands to tell ProfitPlan what you want to do.

The available commands are shown in the menu window on the right side of your screen. This menu allows you to remember commands without constantly consulting the manual.

The menu is organized into several groups. For example, all mathematical commands are organized under the label MATH:. If you choose command 3 for MATH:, ProfitPlan will display all the mathematical commands such as add and subtract. Try it.

```
1 FORMAT:
2 DATA:
3 MATH:
4 PRINT:
5 UTILITY:
6 COMPUTE
7 HELP
8
9 STOP
10 ROW RANGE
11 COL RANGE
12 ORDER
13 SET DRIVE
14 SET UP
15 SET CRT
16
17
18 FORMAT:
19 ROWS:
20 ROW TITLE
```

ENTER COMMAND: 3 <RETURN>

Tell ProfitPlan to display the group of mathematical commands. ProfitPlan will respond with the menu on the right.

ENTER COMMAND: <RETURN>

When you key RETURN without a command, ProfitPlan will return to the original menu.

```
40 MATH:
41 ADD
42 SUBTRACT
43 MULTIPLY
44 DIVIDE
45 NEGATE
46 INVERSE
47 INTEGER
48 ROUND
49 CUMULATE
50 ABSOLUTE
51 ADD K
52 SUB K
53 MULT K
54 DIV K
55 SUM
56 GET
57 FLOOR
58 CEILING
59
```

Examine each group of commands. These group commands are easy to identify because they all end with a colon (:).

USING HELP

ProfitPlan further aids you with the HELP command. The HELP command will give you a 3-line description of any command in the ProfitPlan menu. Try an example.

ENTER COMMAND: 7 <RETURN>

Choose the help command.

WHICH COMMAND (1-150): 31 <RETURN>

ProfitPlan asks which command you need help with. After keying RETURN, ProfitPlan displays the following description for command 31 on the bottom three lines of the screen.

31 ENTER value ... CAN (up,down,right,left,can)
Enters values into table. Constant, grow, increase options
allow quick entry. Cursor keys allow individual data entry.

Of course, the HELP command only gives a 3-line description. For a comprehensive description, you can always consult this manual.

THE MICROPLAN TABLE

The major portion of the screen displays the ProfitPlan table. Each row of the table has been labelled with row numbers on the left side of the screen. Following each row number is 12 blank spaces that are used to display a row description. In Section 1, you already used the ROW TITLE (20) command to enter descriptions for the rows.

MODE=NORMAL ORDER=R/C ROW=1-50 COL=1-20					
ROW 1 <--					
ENTER COMMAND:					
ROW	1	2	3	4	5
1	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0
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 PRINT:
					5 UTILITY:
					6 COMPUTE
					7 HELP
					8
					9 STOP
					10 ROW RANGE
					11 COL RANGE
					12 ORDER
					13 SET DRIVE
					14 SET UP
					15 SET CRT
					16
					17
					18 FORMAT:
					19 ROWS:
					20 ROW TITLE

Each column of the table is also labelled with column numbers with dashes on both sides. You can use COL TITLE (25) command to enter a two line column description of 20 spaces each.

MOVING THE TABLE

ProfitPlan displays 17 rows and 5 columns. However, ProfitPlan allows up to 500 rows and 99 columns for each of your tables. Physical limitations of the screen allow only a portion of the table to be displayed at any time.

Escape commands allow you to see different parts of the table. For example:

- <ESC> 2 Displays the next 10 rows. (e.g., if the top line shows row 1, the new display shows row 11).
- <ESC> 8 Displays the previous 10 rows. (e.g., if the bottom line shows row 50, the new display shows row 40).
- <ESC> 6 Displays the next 4 columns. (e.g., if the first column shows 1, the new display shows column 5).
- <ESC> 4 Displays the previous 4 columns. (e.g., if the last column shows 20, the new display shows column 16).
- <ESC> 5 Displays the original screen with row 1, column 1 in the upper left corner.

For terminals with cursor keys (keys with arrows), the cursor keys replace the numbers. Try an example:

ENTER COMMAND: <ESC> 6

Notice that the ESC key does not appear on the screen after you press it. The 6 after the ESC causes the display to change.

MODE=NORMAL ORDER=R/C ROW=1-50 COL=1-20						
ROW 1 <--						
ENTER COMMAND:						
ROW	---	5	6	7	8	9
1		0.0	0.0	0.0	0.0	0.0
2		0.0	0.0	0.0	0.0	0.0
3		0.0	0.0	0.0	0.0	0.0
4		0.0	0.0	0.0	0.0	0.0
5		0.0	0.0	0.0	0.0	0.0
6		0.0	0.0	0.0	0.0	0.0
7		0.0	0.0	0.0	0.0	0.0
						1 FORMAT:
						2 DATA:
						3 MATH:
						4 PRINT:
						5 UTILITY:
						6 COMPUTE
						7 HELP
						8
						9 STOP
						10 ROW RANGE

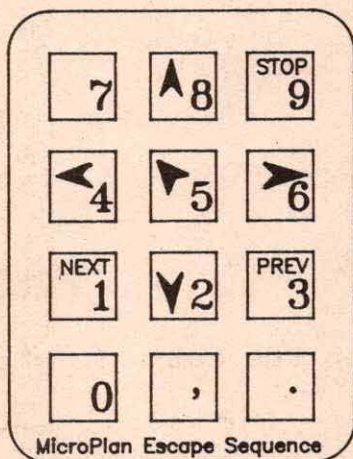
You can also use the GOTO (36) command to position the screen at a specific portion of the table. For example, to see the results

at row 40, column 10 of the table, you can use the GOTO command and specify row 40, column 10. ProfitPlan will position row 40, column 10 is the upper left corner of the screen.

ESCAPE SEQUENCE

Because these commands are always preceded by the escape key, they are called escape sequence commands.

For terminals without cursor keys, the choice of numbers is to accommodate a numeric keypad available with most keyboards. On the keypad, these keys would be organized as follows:



To use escape sequence.

1. Press the ESC key.
2. Select a numeric key.

A keypad card has been prepared for you to help you remember which keys to use.

Escape sequences can be used at any time. For example, when ProfitPlan prompts for a row number and the row you want is not on the screen, you can enter an escape sequence to move the display without affecting your work.

THE DATA POINTER

Most of ProfitPlan's commands allow you to enter or compute data for one row or column of the table at one time. The 'data pointer' is displayed on the second line of the display. It tells you the row or column to be used to store the results of your next computation. (In this manual, the row or column that is shown in the data pointer is referred to as the **current row or column**.) Note, the current row and column is also highlighted on the screen.

When you first start up in ProfitPlan, the pointer is set to row 1 as follows:

ROW 1 <--

Once you have entered the description for row 1, the description of the current row is also displayed.

CHANGING THE DATA POINTER

You can make changes to values in the table by moving the data pointer to the row or column you want to change. Several options make it easy for you to move the pointer.

1. The cursor keys (i.e. keys with directional arrows on the keytops) can be used to move the data pointer. For example, the up key moves the data pointer to the previous row and the down key moves the data pointer to the next row.
2. The command SELECT ROW (33), allows you to select a specific row.
3. The command SELECT COL (34), allows you to select a specific column.
4. After any command which changes the contents of your table, the pointer automatically changes to the next row or column of your table.

30	DATA:
31	ENTER
32	CHANGE
33	SELECT ROW
34	SELECT COL
35	FORMULA
36	GOTO
37	PLUG
38	FIX
39	NULLIFY
40	MATH:
41	ADD
42	SUBTRACT
43	MULTIPLY
44	DIVIDE
45	NEGATE
46	INVERSE
47	INTEGER
48	ROUND
49	CUMULATE

For example:

ENTER COMMAND: 33 <RETURN>	Select row 1.
ROW (1-50): 1 <RETURN>	
ENTER COMMAND: <↓>	Move to row 2.
ENTER COMMAND: <↓>	Move to row 3.
ENTER COMMAND: <↑>	Move back to row 2.
ENTER COMMAND: 34 <RETURN>	Select column 1.
COLUMN (1-20): 1 <RETURN>	
ENTER COMMAND: <→>	Move to column 2.

To change from row to column mode, you must use the SELECT COL command. The cursor keys will not allow you to change modes. Similarly, to switch from column to row mode, you must use the SELECT ROW command.

ENTERING A ROW OR COLUMN OF DATA

ProfitPlan allows you to work with a row or a column of data at a time. In Section 1, you used the ENTER command to enter values for several rows of the 5-year projection. The ENTER command can also be used to enter a column of data, as well.

For example, suppose you want to enter the values, 10, 20, 30, etc., into column 3 of the table. The following commands will do this:

ENTER COMMAND: 34 <RETURN>

Use the select column command to choose column 3.

COL (1-20): 3 <RETURN>

Notice that the data pointer now shows 'COL 3 <--'.

ENTER COMMAND: 31 <RETURN>

Use command 31 to enter values for column 3.

CHOOSE (VALUES=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. Also, notice that the data pointer has automatically changed to 'COL 4 <--'.

MODE=NORMAL ORDER=R/C ROW=1-50 COL=1-20						
COL 4 <--						
ENTER COMMAND:						
ROW	1	2	3	4	5	
1	0.0	0.0	10.0	0.0	0.0	30 DATA:
2	0.0	0.0	20.0	0.0	0.0	31 ENTER
3	0.0	0.0	30.0	0.0	0.0	32 CHANGE
4	0.0	0.0	40.0	0.0	0.0	33 SELECT ROW
5	0.0	0.0	50.0	0.0	0.0	34 SELECT COL
6	0.0	0.0	60.0	0.0	0.0	35 FORMULA
7	0.0	0.0	70.0	0.0	0.0	36 GOTO
8	0.0	0.0	80.0	0.0	0.0	37 PLUG
9	0.0	0.0	90.0	0.0	0.0	38 FIX
10	0.0	0.0	100.0	0.0	0.0	39 NULLIFY
11	0.0	0.0	110.0	0.0	0.0	40 MATH:
12	0.0	0.0	120.0	0.0	0.0	41 ADD
13	0.0	0.0	130.0	0.0	0.0	42 SUBTRACT
14	0.0	0.0	140.0	0.0	0.0	43 MULTIPLY
15	0.0	0.0	150.0	0.0	0.0	44 DIVIDE
16	0.0	0.0	160.0	0.0	0.0	45 NEGATE
17	0.0	0.0	170.0	0.0	0.0	46 INVERSE
						47 INTEGER
						48 ROUND
						49 CUMULATE

ENTERING INDIVIDUAL VALUES

You can also enter values one at a time into the table. The VALUES option of the ENTER command allows you to selectively enter values.

In this mode, the data pointer is set to one position of the table. This position is highlighted on your display. You can use the cursor keys (i.e. the keys with arrows on them) to position the data pointer to the value you wish to change. Any new value you enter will change the value in the current position.

ProfitPlan has an option to allow you to quickly enter a series of values into a row or column. For example, suppose you want to enter the following data into row 1.

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

The following commands will do this:

ENTER COMMAND: 33 <RETURN>

Select row 1.

ROW (1-50): 1 <RETURN>

ENTER COMMAND: 31 <RETURN>

Enter data command.

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

ROW 1, COL 1 VALUE: 100 <RETURN>

ROW 1, COL 2 VALUE: <RETURN>

By keying RETURN, the previous value is used.

ROW 1, COL 3 VALUE: <RETURN>

ROW 1, COL 4 VALUE: <→>

By keying →, the data pointer skips a column.

ROW 1, COL 5 VALUE: <RETURN>

A 100 is entered.

ROW 1, COL 6 VALUE: 300 <RETURN>

ROW 1, COL 7 VALUE: <RETURN>

The prior value, 300, is automatically used.

ROW 1, COL 8 VALUE: <CAN>

End entry mode.

Notice that while in the row mode, each RETURN key causes the data pointer to automatically move to the next column. In the column mode, each RETURN key moves the data pointer to the next row. Therefore, depending on your problem, you should select the

row or column mode prior to entering data in order to save time on data entry.

SETTING RANGES

You can limit your computations to a section of the table by using the RANGE commands for ROWS (92) and COLUMNS (93). These range settings are shown in the top line of the screen. When you start up in ProfitPlan, these range settings are set as:

ROW=1-50 COL=1-20

By setting ranges to a section of your table, you can control entries and computations to affect only a portion of the table.

For example, suppose row 10 is extraordinary income of your budget. For your purpose, you want to enter values of 100 for periods 3,4 and 5 and the value of 0 for all other periods.

ENTER COMMAND: 33 <RETURN>

Use command 33 to select row 10.

ROW (1-50): 10 <RETURN>

ENTER COMMAND: 11 <RETURN>

Set the column range using command 11 to columns 3 through 5.

BEGIN (1-20): 3 <RETURN>

END (3-20): 5 <RETURN>

After you key RETURN, notice that the column range has been changed to 'COL=3-5'.

ENTER COMMAND: 31 <RETURN>

Use the ENTER command to enter a constant value of 100.

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

BASE VALUE: 100 <RETURN>

Columns 3 through 5 now contain the value 100.

ENTER COMMAND: 11 <RETURN>

BEGIN (1-20): <RETURN>

By entering a RETURN response to the range prompt, ProfitPlan will automatically reset the ranges to the maximum range. The column range will change to 'COL=1-20'.

DOING COMPUTATIONS ON ROWS OR COLUMNS

You tell ProfitPlan to perform computations on either rows or columns of your table. Simple mathematical commands are grouped under the MATH: (3) commands.

ADD, SUBTRACT, MULTIPLY, DIVIDE perform the computations as indicated by the command names. They work with two rows or two columns of values and store the results in the current row or column. Values are added, subtracted, multiplied or divided, value by value for the two columns or two rows that you select.

40 MATH:
41 ADD
42 SUBTRACT
43 MULTIPLY
44 DIVIDE
45 NEGATE
46 INVERSE
47 INTEGER
48 ROUND
49 CUMULATE
50 ABSOLUTE
51 ADD K
52 SUB K
53 MULT K
54 DIV K
55 SUM
56 GET
57 FLOOR
58 CEILING
59

In section 1, you used the subtraction command on two rows. Try an example for multiplication of two columns.

ENTER COMMAND: 34 <RETURN>

Select column 1.

COL (1-20): 1 <RETURN>

ENTER COMMAND: 31 <RETURN>

Enter values for col 1.

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

BASE VALUE: 1 <RETURN>

RATE: 1 <RETURN>

ENTER COMMAND: 31 <RETURN>

Enter values for column 2.

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

BASE VALUE: 100 <RETURN>

ENTER COMMAND: 43 <RETURN>

Multiply columns 1 and 2.

COL (1-20): 1 <RETURN>

COL (1-20): 2 <RETURN>

Your screen will show the following:

MODE=NORMAL ORDER=R/C ROW=1-50 COL=1-20							
COL 4 <--							
ENTER COMMAND:							
ROW	1	2	3	4	5		
1	1.0	100.0	100.0	0.0	0.0	40 MATH:	
2	2.0	100.0	200.0	0.0	0.0	41 ADD	
3	3.0	100.0	300.0	0.0	0.0	42 SUBTRACT	
4	4.0	100.0	400.0	0.0	0.0	43 MULTIPLY	
5	5.0	100.0	500.0	0.0	0.0	44 DIVIDE	
6	6.0	100.0	600.0	0.0	0.0	45 NEGATE	
7	7.0	100.0	700.0	0.0	0.0	46 INVERSE	
						47 INTEGER	
						48 ROUND	

ADD K, SUB K, MULT K, DIV K 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 number that you also supply.

For example, divide all of column 3 above by the value 100.

ENTER COMMAND: 54 <RETURN> Divide column 3 by 100.

VALUE: 100 <RETURN>

COL (1-20): 3 <RETURN>

Column 4 of the screen would have the same values as column 1 of the screen.

The command SUM computes the sum of values for a range of rows or columns. You have already used the summation command to calculate the sum for a group of rows. For exercise purposes, sum the first four columns of the above example.

ENTER COMMAND: 55 <RETURN> Sum 4 columns.

BEGIN COL (1-20): 1 <RETURN>

END (1-20): 4 <RETURN>

The remaining math commands do the following computations:

45 NEGATE Negates values. (i.e., negative values become positive and positive values become negative.)

46 INVERSE Computes inverse. (i.e., $1/x$)

47 INTEGER Drops any fractional portions of values and converts values to whole numbers.

48 ROUND Rounds values to the nearest whole number.

49 CUMULATE Computes cumulative totals of values.

50 ABSOLUTE Converts all negative values to positive values.

56 GET Gets values from another row or column.

57 FLOOR Sets a minimum value for a row or column.

58 CEILING Sets a maximum value for a row or column.

These commands work with one row or column of the table. Values are computed and stored in the current row or column. You might try examples on your own.

STORING COMMANDS FOR WHAT-IF ANALYSIS

As you enter data into your ProfitPlan table, ProfitPlan memorizes all the commands you used to calculate the values for a row or column. After you change a value, you simply use the COMPUTE (6) command to see the impact of that change on the remaining rows and columns of the table.

In Section 1, you used the CHANGE (32) command to ask what-if questions. In fact, you can ask many types of what-if questions including:

1. Change entire rows or columns of the table using the ENTER (31) command.
2. Change the commands 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 in that row or column. The new command used to compute the new values replaces the previous command.

MORE WHAT-IF

Doing what-if analysis is simple.

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 (6) command. In seconds, the table will be completely updated.

To illustrate more advanced use of ProfitPlan's what-if ability, take some time and enter the 5-year projection example from Section 1. A RESET (64) command will give you a clean table to work with.

5-year projection						
		1	2	3	4	5
1	sales	\$1,000 growing at 10% per year				
2	cost of goods	45% of sales				
3	sales and admin	20% of sales				
4	research and dev	constant \$300 per year				
5	total costs	sum all costs				
6	gross profit	sales less total costs				

Suppose cost of goods 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.

ENTER COMMAND: 33 <RETURN> Select row 2.

ROW (1-50): 2 <RETURN>

ENTER COMMAND: 53 <RETURN> Calculate cost of goods.

VALUE: 0.425 <RETURN>

ROW (1-50): 1 <RETURN>

ENTER COMMAND: 6 <RETURN> Compute.

In a few seconds, you would get the following:

MODE=NORMAL ORDER=R/C ROW=1-6 COL=1-5						
ROW 1 (SALES) <--						
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	1 FORMAT:
2 COST OF GOOD	425.0	467.5	514.3	565.7	622.2	2 DATA:
3 SALES AND AD	200.0	220.0	242.0	266.2	292.8	3 MATH:
4 RESEARCH AND	300.0	300.0	300.0	300.0	300.0	4 PRINT:
5 TOTAL COSTS	925.0	987.5	1,056.3	1,131.9	1,215.1	5 UTILITY:
6 GROSS PROFIT	75.0	112.5	153.8	199.1	249.0	6 COMPUTE
7	0.0	0.0	0.0	0.0	0.0	7 HELP
						8
						9 STOP
						10 ROW RANGE

As a second example, suppose cost of goods starts at 45% of sales and drops to 41% by year 5. To make this change, enter the cost of goods percentage as row 10 of the table and calculate cost of goods using the percentages in row 10.

ENTER COMMAND: 33 <RETURN>

Select row 10.

ROW (1-50): 10 <RETURN>

ENTER COMMAND: 31 <RETURN>

Enter percentages.

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

BASE VALUE: 0.45 <RETURN>

RATE: -0.01 <RETURN>

ENTER COMMAND: 33 <RETURN>

Select row 2.

ROW (1-50): 2 <RETURN>

ENTER COMMAND: 43 <RETURN>

Calculate percentage.

ROW (1-50): 10 <RETURN>

ROW (1-50): 1 <RETURN>

ENTER COMMAND: 6 <RETURN>

Compute new results.

The screen will show the following:

MODE=NORMAL ORDER=R/C ROW=1-6 COL=1-5							
ROW 1 (SALES) <--							
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	40 MATH:	
2 COST OF GOOD	450.0	484.0	520.3	559.0	600.3	41 ADD	
3 SALES AND AD	200.0	220.0	242.0	266.2	292.8	42 SUBTRACT	
4 RESEARCH AND	300.0	300.0	300.0	300.0	300.0	43 MULTIPLY	
5 TOTAL COSTS	950.0	1,004.0	1,062.3	1,125.2	1,193.1	44 DIVIDE	
6 GROSS PROFIT	50.0	96.0	147.7	205.8	271.0	45 NEGATE	
7	0.0	0.0	0.0	0.0	0.0	46 INVERSE	
						47 INTEGER	
						48 ROUND	
						49 CUMULATE	

COMPUTING ORDER

When the COMPUTE command is used, ProfitPlan will compute for all rows of the row range. You can also compute for all columns of the column range by setting the computing order using the ORDER (12) command.

ORDER 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.
4. COL/ROW Compute all columns; then all rows.

The ORDER command displays the current computing order on the top line of the screen. Initially, it is displayed as 'ORDER=R/C'. This is an abbreviation for option 3, rows then columns.

Suppose you have added a total column to the 5-year projection. You want ProfitPlan to compute this total everytime you use the COMPUTE command. By choosing option 3 of the ORDER command as follows:

ENTER COMMAND: 12 <RETURN> Set computing ORDER.

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

ProfitPlan will perform computations for all rows, then all columns for all future COMPUTE commands. Notice that the computing order in the top line of your screen has been set to 'ORDER=R/C'.

Section 3

Report Generator

(Formatting, Saving, Retrieving and Printing Tables)

This section shows you how to prepare tables for printing reports. You will learn to format tables, print tables and save and retrieve tables.

ProfitPlan has a sophisticated built-in report generator. This report generator allows you to customize your reports to suit most of your detailed requirements. Features include financial reporting of trillion dollar figures with penny accuracy, automatic page control for reports that are wider than can fit on your printer, and individual column widths.

Most of the features described in this section only affect the printed copy of reports. As you set the various row, column and global options, you will not see the impact of these settings on the copy of your table that is shown on the screen. However, when you use the REPORT command, all the details will be printed.

ENTERING DESCRIPTIONS

The commands to format the table are grouped under FORMAT: (1). By choosing the command 1, you get the menu on the right.

Formatting commands allow you to enter row and column descriptions, change individual row or column format options, and insert or delete new rows or columns by reordering.

18	FORMAT:
19	ROWS:
20	ROW TITLE
21	SET TYPE
22	SHOW ROWS
23	REORDER
24	COLS:
25	COL TITLE
26	SET TYPE
27	SHOW COLS
28	REORDER
29	

In Section 1, you used the ROW TITLE command to enter row descriptions. A similar command allows you to enter a 2-line column description of 20 spaces each. Each line of the column description is automatically right justified in the column. If only one line of description is supplied, it is always printed on the lower line of the two lines of title. If your descriptions are longer than the column width, your descriptions will be truncated to allow the description to fit the column space allotted.

To illustrate the formatting capabilities, let's prepare a simple inventory report.

Taking Inventory			
	Unit Cost	Quantity	Total Cost
1 Items:	heading line		
2. Desks	300.0	10	
3. Chairs	150.0	20	
4. Shelves	200.0	5	
	-----	-----	-----
5. Total			

Start by entering the column descriptions. Choose the COL TITLE (25) command from the formatting menu.

ENTER COMMAND: 25 <RETURN>

Enter column titles.

COL 1 TITLE 1: UNIT <RETURN>

COL 1 TITLE 2: COST <RETURN>

COL 2 TITLE 1: QUANTITY <RETURN>

COL 2 TITLE 2: <RETURN>

Skip second line.

COL 3 TITLE 1: TOTAL <RETURN>

COL 3 TITLE 2: AMOUNT <RETURN>

COL 4 TITLE 1: <CAN>

End title entry.

MODE=NORMAL ORDER=R/C ROW=1-50 COL=1-20						
ROW 1 <--						
ENTER COMMAND:						
ROW	UNIT COST	QUANTITY	TOTAL AMOUNT			
---	-----1-----	-----2-----	-----3-----	-----4-----	-----5-----	
1	0.0	0.0	0.0	0.0	0.0	
2	0.0	0.0	0.0	0.0	0.0	
3	0.0	0.0	0.0	0.0	0.0	
4	0.0	0.0	0.0	0.0	0.0	
5	0.0	0.0	0.0	0.0	0.0	
6	0.0	0.0	0.0	0.0	0.0	
7	0.0	0.0	0.0	0.0	0.0	

18 FORMAT:
19 ROWS:
20 ROW TITLE
21 SET TYPE
22 SHOW ROWS
23 REORDER
24 COLS:
25 COL TITLE
26 SET TYPE
27 SHOW COLS

Since you have already used the ROW TITLE (20) command for rows, you might enter the row descriptions for the inventory problem now.

SETTING ROW OPTIONS

Using the SET TYPE (21) command, you can set many options for formatting individual rows of your report. You can specify headings, subtitles, and footnotes in addition to normal data rows. You can tell ProfitPlan to underline a row and/or leave trailing blanks and specify the number of decimal places for row values. You can also print values with the dollar sign or percentage sign formats.

In the inventory example, set the following formatting options.

1. Row 1 is a heading. (i.e. do no print values.)
2. Underline row 4.

ENTER COMMAND: 21 <RETURN>

Command 21 allows you to set options on each row. For each option, if you press the RETURN key without a response, ProfitPlan assumes the previous setting for an option should remain unchanged.

ROW (1-50): 1 <RETURN>

To change row 1 into a heading, select row 1.

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

Each row of the table may be several types. By selecting type 2, heading, you tell ProfitPlan that no numbers are to be printed with this row. (The other choices allow you to set centered subtitles (1), footnotes (3), or to omit a row when the report is printed (4).)

UNDERLINE (NONE=0,DASH=1,EQUAL=2,STARS=3): <RETURN>

Each row of ProfitPlan can be underlined with dashes, equal signs or stars.

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

Each row can have up to 8 trailing blank lines. A value of 9 tells ProfitPlan to skip to a new page following this row.

DECIMAL PLACES (0-3): <RETURN>

Each row of the report can have a special number of decimal places.

FORMAT (OFF=0,[%]=1,[\$]=2): <RETURN>

Each row can have its own special format. Rows can have the dollar sign format or the % sign format.

ROW (1-50): 4 <RETURN>

ProfitPlan continues to prompt for the next row number. Lets continue to set the underline option for row 4.

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

UNDERLINE (NONE=0,DASH=1,EQUAL=2,STARS=3): 1 <RETURN>

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

DECIMAL PLACES (0-3): <RETURN>

FORMAT (OFF=0,[%]=1,[\$]=2): <RETURN>

ROW (1-50): <CAN>

End option setting session.

LOOKING AT ROW SETTINGS

Notice that the display on the screen does not show underlines after you use the SET TYPE command. However, row 1 does show a blank line following the row description. The options generally affect only the printed copy of your reports. They do not show on the screen.

You can look at the option settings for each row using the SHOW ROWS (22) commands. Your display will look similar to the following:

MODE=NORMAL ORDER=R/C ROW=1-6 COL=1-3									
ROW 1 (ITEMS:) <--									
ENTER COMMAND:									
ROW	TYPE	UNDER	BLANK	DEC	FOR				
---	---	---	---	---	---	---	---	---	---
1 ITEMS:	head	-	-	-	-	ENTER			
2 DESKS	data	-	-	-	-				
3 SHELVES	data	dash	-	-	-				
4 TOTAL	data	-	-	-	-	SUM	ROWS 2 TO 4		
5	data	-	-	-	-				
6	data	-	-	-	-				
7	data	-	-	-	-				

18 FORMAT:
19 ROWS:
20 ROW TITLE
21 SET TYPE
22 SHOW ROWS
23 REORDER
24 COLS:
25 COL TITLE
26 SET TYPE
27 SHOW COLS

SHOW ROWS displays the option settings as well as the commands that have been memorized for each row. SHOW ROWS only displays those rows that are on your screen. To view other rows, you can move the table using the escape commands and then issue the SHOW ROWS command again.

To recover the display, use any escape sequence. (e.g. ESC ESC)

SETTING COLUMN OPTIONS

Using the SET TYPE command (26) for columns, you can set options for formatting individual columns. You can control individual column width, set decimal places, and specify column format.

In the inventory example, set column 2 to show zero decimal places. The following example allows you to set this column option.

ENTER COMMAND: 26 <RETURN>

Command 26 allows you to set options for each column. For each option, if you press the RETURN key without a response, ProfitPlan assumes the previous setting for an option should remain unchanged.

COLUMN (1-20): 2 <RETURN>

Select column 2.

COLUMN WIDTH (4-20): <RETURN>

Column width are generally 10 spaces wide. You can set each column to a different width.

DECIMAL PLACES (0-3): 0 <RETURN>

You set column 1's decimal place setting to zero decimals. Note that column setting always override row settings.

FORMAT (OFF=0,[%]=1,[\$]=2): <RETURN>

Each column can also have its own special format. Columns can have the dollar sign format or the % sign format.

COLUMN (1-20): <CAN>

Column options override row options. That is, if row 1 has been set to show 2 decimal places and column 1 has been set to show 0 decimal places, then the value in column 1, row 1 will show 0 decimal places.

LOOKING AT COLUMN SETTINGS

Notice that the display on the screen does not change after the SET TYPE command. The options only affect printed reports. You can look at the option settings for each column using the SHOW COLS (27) command.

ENTER COMMAND: 27 <RETURN>

Look at column option setting.

Your display will look similar to the following:

ROW 1 (ITEMS:) <--					MODE=NORMAL ORDER=R/C ROW=1-6 COL=1-3		
ENTER COMMAND:							
COLUMN	COLUMN DEC FOR	WIDTH	SIZ	MAT	COMMAND	PARAMETERS	18 FORMAT:
1 UNIT COST	10	1	-		ENTER		19 ROWS:
2 QUANTITY	10	0	-		ENTER		20 ROW TITLE
3 TOTAL AMOUNT	10	1	-		MULTIPLY	COL=1 COL=2	21 SET TYPE
4	10	1	-				22 SHOW ROWS
5	10	1	-				23 REORDER
6	10	1	-				24 COLS:
7	10	1	-				25 COL TITLE
							26 SET TYPE
							27 SHOW COLS

ENTERING DATA

Before showing you the report options, let's enter the data for the inventory problem.

ENTER COMMAND: 34 <RETURN> Select column 1.

COL (1-20): 1 <RETURN>

ENTER COMMAND: 31 <RETURN> Enter unit cost.

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

ROW 1, COL 1 VALUE: 0 <RETURN>

ROW 2, COL 1 VALUE: 300.0 <RETURN>

ROW 3, COL 1 VALUE: 150.0 <RETURN>

ROW 4, COL 1 VALUE: 200.0 <RETURN>

ROW 5, COL 1 VALUE: <CAN>

ENTER COMMAND: 31 <RETURN> Enter quantity.

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

ROW 1, COL 2 VALUE: 0 <RETURN>

ROW 2, COL 2 VALUE: 10 <RETURN>

ROW 3, COL 2 VALUE: 20 <RETURN>

ROW 4, COL 2 VALUE: 5 <RETURN>

ROW 5, COL 2 VALUE: <CAN>

ENTER COMMAND: 43 <RETURN>

Multiply quantity by unit cost.

COL (1-20): 1 <RETURN>

COL (1-20): 2 <RETURN>

ENTER COMMAND: 33 <RETURN>

Select row 5.

ROW (1-50): 5 <RETURN>

ENTER COMMAND: 11 <RETURN>

Set column range.

BEGIN (1-20): 3 <RETURN>

END (3-20): 3 <RETURN>

ENTER COMMAND: 55 <RETURN>

Compute sum by rows.

BEGIN (1-50): 2 <RETURN>

END (2-50): 4 <RETURN>

Your display will show the following:

MODE=NORMAL ORDER=R/C ROW=1-50 COL=1-20						
ROW 6 <--						
ENTER COMMAND:						
ROW	UNIT COST	QUANTITY	TOTAL AMOUNT			
1	----	----	----	----	----	----
2	----	----	----	----	----	----
3	----	----	----	----	----	----
4	----	----	----	----	----	----
5	----	----	----	----	----	----
6	----	----	----	----	----	----
7	----	----	----	----	----	----
1 ITEMS:						
2 DESKS	300.0	10.0	3,000.0	0.0	0.0	
3 CHAIRS	150.0	20.0	3,000.0	0.0	0.0	
4 SHELVES	200.0	5.0	1,000.0	0.0	0.0	
5 TOTAL	0.0	0.0	7,000.0	0.0	0.0	
6	0.0	0.0	0.0	0.0	0.0	
7	0.0	0.0	0.0	0.0	0.0	
18 FORMAT:						
19 ROWS:						
20 ROW TITLE						
21 SET TYPE						
22 SHOW ROWS						
23 REORDER						
24 COLS:						
25 COL TITLE						
26 SET TYPE						
27 SHOW COLS						

PRINTING REPORTS

ProfitPlan provides many bells and whistles for printed reports. In the previous descriptions, you learned to set options for individual rows and columns. There are additional options that control formatting of the overall report. Report options include row description width setting, column width, number of columns per page, decimal places, and other features.

The OPTIONS (71) command allows you to set options that control general table formatting. An example illustrates the features:

60 UTILITY:
61 LOAD TBL
62 SAVE TBL
63 CLR DATA
64 RESET
65 REDISPLAY
66 LIST TBLs
67 ERASE TBL
68 PRINT TBL
69
70 PRINT:
71 OPTIONS
72 TITLES
73 REPORT
74 SHOW OPTS
75 SAVE REP
76
77
78
79

ENTER COMMAND: 71 <RETURN>

Select options command. For each option, if you press the RETURN key without providing a response, ProfitPlan assumes the previous setting for an option should remain unchanged.

ROW DESCRIPTION WIDTH (4-30): 10 <RETURN>

Normally, the area saved for printing row description is 20 character positions. You can set the row description area to accommodate your specific report.

COLUMN WIDTH (4-20): <RETURN>

Usually, column widths are set to 10 character positions. You can use the SET TYPE (26) command for columns to set individual columns. The remaining columns will use the setting provided here.

NUMBER OF COLUMNS PER PAGE (1-20): <RETURN>

Ordinarily, ProfitPlan prints 10 columns per page. For example, if you need to print 15 columns for a report, then ProfitPlan prints the first 10 columns on page 1 and the next 5 columns on page 2. ProfitPlan automatically repeats the row titles, report titles and column titles for each page.

NUMBER OF DECIMAL PLACES (0-3): <RETURN>

Normally, all values are printed with 1 decimal place. You can control decimal places for individual rows and columns using the SET TYPE commands.

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

Sometimes, it is desirable to automatically skip the printing of any row that contains all zero values. Normally, this option is turned off.

SUPPRESS ZEROS (NO=0,DASH=1,BLANK=2): 2 <RETURN>

Sometimes, instead of printing values in your table as 0.0, the report would be more readable if all zeros in your table would be replaced by a blank or a dashed line. Normally, all values are printed.

PRINT ROW DESC AFTER WHICH COLUMN (0-9): <RETURN>

Instead of printing the row descriptions on the far left side of the report, clarity may be enhanced by printing the row descriptions in the middle of the report. For example, for financial balance sheets, the prior year end balances are printed to the left of row descriptions while quarterly projections are printed to the right. Another example would be variance reporting where monthly variances appear on the

left while year-to-date variances are printed on the right. Normally, row descriptions are printed on the far left.

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

Negative numbers are normally displayed with a negative sign proceeding the number. For accounting purposes, it may be desirable to show negative values either with a trailing negative sign or in parenthesis.

PAGE CONTROL (OFF=0,FF=1,PAUSE=2): **<RETURN>**

If a report extends over several pages, ProfitPlan normally skips three blank lines between pages and continues to print the next page without intervention. You can request ProfitPlan to issue a page eject (FF) between pages, so that each page appears on a new sheet of paper, or to pause between pages to allow a new sheet of paper to be inserted into the printer.

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

Normally, ProfitPlan prints all numbers with commas to separate every three digits of large numbers. To accomodate wide reports, the comma option can be turned off to save space.

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

ProfitPlan reports are normally single spaced. You can request that all data rows be double spaced.

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

Line numbers are printed on reports so that you can reference between printed reports and the table. On final presentations, it may be desirable to omit both row and column numbers in the printed report.

The TITLES command (72) allows you to set title information and report ranges prior to printing a report.

ENTER COMMAND: **72 <RETURN>**

Select titles command. This command will accept title information and print your report. For each option, if you press the RETURN key without providing a response, ProfitPlan assumes the previous setting for an option should remain unchanged.

PAGE NUMBER (0-999): **<RETURN>**

ProfitPlan will print a page number on the upper right corner of your report. A 0 response tells ProfitPlan that no page number should be printed.

DATE (YEAR AS YY): 81 <RETURN>

ProfitPlan will print date information on the upper left corner of your report. A 0 response would tell ProfitPlan to skip the date information.

MONTH (1-12): 1 <RETURN>

DAY (1-31): 15 <RETURN>

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

ProfitPlan asks for the row range for this report. For the inventory problem, you want to print rows 1 to 6.

END (1-50): 6 <RETURN>

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

ProfitPlan asks for the column range. Print columns 1 to 3.

END (1-20): 3 <RETURN>

TITLE 1: Taking Inventory <RETURN>

ProfitPlan allows a 3-line title. Each line is automatically centered at the top of each page of your report.

TITLE 2: Sample Problem <RETURN>

TITLE 3: <RETURN>

SET PAPER; HIT RETURN. <RETURN>

Check to see that your printer is on and ready to print. To cancel the report, key CAN.

The following report will now be printed.

1/15/81			
Taking Inventory			
Sample Problem			
(\$000)			
	UNIT		TOTAL
	COST	QUANTITY	AMOUNT
	-----	-----	-----
ITEMS:			
DESKS	300.0	10	3,000.0
CHAIRS	150.0	20	3,000.0
SHELVES	200.0	5	1,000.0
	-----	-----	-----
TOTAL			7,000.0

You can also use the REPORT (73) command to get printed copies of your table without having to provide the title information.

LOOKING AT REPORT OPTIONS

Report options and titles do not affect the screen. These settings control the appearance of printed output. You can review your current options using the command SHOW OPTS (74).

ENTER COMMAND: 74 <RETURN>

Look at report options.

MODE=NORMAL ORDER=R/C ROW=1-6 COL=1-3				
ROW 1 (ITEMS:) <--				
ENTER COMMAND:				
ROW	UNIT	QUANTITY	TOTAL	
---	COST		AMOUNT	
---	1	2	3	4 5
REPORT OPTIONS:				
DATE: 1/15/81		PAGE: 0		
TITLE 1: Taking Inventory				
TITLE 2: Sample Problem				
TITLE 3: (\$000)				
ROW DESCRIPTION WIDTH: 10				
COLUMN WIDTH: 10				
NUMBER OF COLUMNS PER PAGE: 5				
NUMBER OF DECIMAL PLACES: 1				
OMIT ZERO ROWS (NO=0,YES=1): 0				
SUPPRESS ZERO VALUES (NO=0,DASH=1,BLANK=2): 2				
PRINT ROW DESCRIPTION AFTER WHICH COLUMN: 0				
NEGATIVE NUMBERS (-N=0,N=1,(N)=2): 0				
PAGE CONTROL (OFF=0,FF=1,PAUSE=2): 0				
(NO=0,YES=1)				
OMIT COMMAS: 0				
DOUBLE SPACE: 0				
OMIT LINE NUMBERS 1				
18 FORMAT:				
19 ROWS:				
20 ROW TITLE				
21 SET TYPE				
22 SHOW ROWS				
23 REORDER				
24 COLS:				
25 COL TITLE				
26 SET TYPE				
27 SHOW COLS				
28 REORDER				
29				
30 DATA:				
31 ENTER				
32 CHANGE				
33 SELECT ROW				
34 SELECT COL				
35 FORMULA				
36 GOTO				
37 PLUG				

CUSTOMIZING REPORTS FOR PRINTERS

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. (This include baud rate settings and cable requirements.)

You can print reports that are 80 columns wide or even reports that are 256 columns wide. The report width is limited by the printer and controllable through ProfitPlan options.

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

Report Width = Row Title Width + Column Width x # 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 appropriately for your printer.

PRINTING TABLE DESCRIPTIONS

You can print a copy of your table, complete with row settings, row commands, column settings, column commands, report options and title information. These reports help you to remember the structure of your models.

The PRINT TBL command produces a copy of your table. The sample report for the inventory example is shown below.

```

MicroPlan Version 3.00      Table:  50 x 20

TABLE NAME=demo2

  TITLE SECTION:
  -----

DATE:  1/15/ 81                      PAGE:  0

ROW RANGE:  1 TO  5      COL RANGE:  1 TO  3

TITLE 1: Taking Inventory
TITLE 2: MicroPlan sample problem
TITLE 3: X

  ROW SECTION:
  -----

ROW      TYPE      UNDER LINE  BLANK LINES  DEC SIZ  FOR MAT  COMMAND  PARAMETERS
-----
1 Items:  head      -          -          -      -
2 Desks   data      -          -          -      -
3 Chairs  data      -          -          -      -
4 Shelves data      -          -          -      -
5 Total   data      dash       -          -      - SUM      ROWS 2 TO 4

  COLUMN SECTION:
  -----

COLUMN      COLUMN WIDTH  DEC  FOR
              SIZ      MAT
-----
1 unit cost      10      1      -
2 quantity       10      0      -
3 total amount   10      1      -

COMMAND  PARAMETERS
-----
MULTIPLY COL=1  COL=2

  REPORT OPTIONS SECTION:
  -----

ROW DESCRIPTION WIDTH: 10
COLUMN WIDTH: 10
NUMBER OF COLUMNS PER PAGE: 10
NUMBER OF DECIMAL PLACES: 1
OMIT ZERO ROWS (NO=0,YES=1): 0
SUPPRESS ZERO VALUES (NO=0,DASH=1,BLANK=2): 2
PRINT ROW DESCRIPTION AFTER WHICH COLUMN: 0
NEGATIVE NUMBERS (-N=0,N=1,(N)=2): 0
PAGE CONTROL (OFF=0,FF=1,PAUSE=2): 0
OMIT COMMAS (NO=0, YES=1): 0
DOUBLE SPACE (NO=0, YES=1): 0
OMIT LINE NUMBERS (NO=0,YES=1): 0

```

CANCELLING REPORTS

Once the report starts printing, you may want to cancel the report because you immediately notice an error in the option setting or in the reported values. You can cancel reports by using the CAN key. After pressing the CAN key, your report will stop printing and ProfitPlan will print a message that the report has been cancelled.

CHANGING DESCRIPTIONS

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

You can insert a new row (23) or column (28) using the REORDER commands. Insertions require two steps:

1. Enter the new row description in any not used row or column.
2. Use the REORDER command to position the new row or column in its proper position.

For example, lets insert a new row into the inventory example for cabinets. You want row 4 to show cabinets at a unit cost of 225.0 and quantity of 15. The following commands does this:

ENTER COMMAND: 23 <RETURN> Reorder rows.

OLD NUMBER (1-50): 10 <RETURN>

NEW NUMBER (1-50): 4 <RETURN>

Row 4 now shows a line of zeros. You can select row 4, enter the title 'cabinets', enter the data and recalculate your results.

When you add new lines to your table, ProfitPlan automatically maintains the command references for existing rows and columns. For example, if the command for row 4 is to add row 2 and row 3 and you have inserted a new row 1, ProfitPlan will automatically change the command logic for the new row 5 to add the new row 3 and row 4.

In the previous inventory example, ProfitPlan automatically includes the new row when a new total is calculated for the items in the inventory list.

You can also remove rows or columns using the REORDER commands. By positioning the row you wish to delete outside of the row

range, you can effectively remove rows. However, any other rows that reference a deleted row will continue to retrieve values from that row. Of course, the same applies to columns.

SAVING AND LOADING TABLES

You can save tables on diskettes and load the tables again using the LOAD TBL and SAVE TBL 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.

To illustrate the save and load commands, save the inventory example, reset the table and load the saved inventory table from disk.

```
60 UTILITY:
61 LOAD TBL
62 SAVE TBL
63 CLR DATA
64 RESET
65 REDISPLAY
66 LIST TBLs
67 ERASE TBL
68 PRINT TBL
69
70 PRINT:
71 OPTIONS
72 TITLES
73 REPORT
74 SHOW OPTS
75 SAVE REP
76
77
78
79
```

ENTER COMMAND: **62** **<RETURN>** Save table command.

TABLE NAME: **ASSETS** **<RETURN>**

ENTER COMMAND: **64** **<RETURN>** Reset ProfitPlan.

VERIFY (NO=0,YES=1): **1** **<RETURN>**

ENTER COMMAND: **61** **<RETURN>** Load table command.

TABLE NAME: **ASSETS** **<RETURN>**

The following information is saved for each table:

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.

Generally, all relevant parameters are saved so that you can continue from one session to another without fear of loss of data.

MAINTAINING TABLES

ProfitPlan automatically keeps track of all the tables you create. You can use the LIST TBLs command to print a list of all your tables on your printer. You can also use the ERASE TBL command to erase a table from your diskettes.

Whenever you use a load or save command, you have the option to examine the contents of a diskette by hitting the RETURN key in response to the ProfitPlan request for a filename. By issuing a series of RETURN keys, you can examine the contents of a diskette one table at a time.

ProfitPlan will display the names of available tables, the report title information and the table size information on line 2 of your screen. This helps you to keep track of your tables.

CHANGING DISK DRIVES

To save tables on a specified disk drive, use the command SET DRIVE (13) to specify the drive name. ProfitPlan will use that drive as the data drive for all subsequent load and save operations.

The SET DRIVE command will also allow you to change diskettes during a ProfitPlan session. Whenever you change diskettes, you should always issue a SET DRIVE command.

INTERFACING WITH WORD PROCESSORS

ProfitPlan reports can be saved in a file for insertion into text produced on your word processing software. The SAVE REP (75) command allows you to print reports into a file instead of a printer.

The SAVE REP command is identical to the REPORT command. This means 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.

Since the saved reports are normal CP/M files, ProfitPlan will work with any word processing software.

SECTION 4

Advanced Usage

This section will show you the advanced commands of ProfitPlan. You will learn to enter formulas into ProfitPlan, to use the PLUG, NULLIFY and FIX commands and to set up ProfitPlan for different size tables and for different display formatting.

USING FORMULAS

Although ProfitPlan supplies many built-in formulas, it may be necessary for you to enter your own formulas for specialized computations.

The ProfitPlan FORMULA (35) command accepts formulas and performs computation using your formulas. You can enter formulas that add (+), subtract (-), multiply (*), and divide (/). You can reference rows, columns or single values of the table in formulas.

30 DATA:
31 ENTER
32 CHANGE
33 SELECT ROW
34 SELECT COL
35 FORMULA
36 GOTO
37 PLUG
38 FIX
39 NULLIFY

As an example, suppose that cost of goods has a fixed and a variable component. Cost of goods is 45% of sales plus a \$300 constant expense. If row 1 contains sales data, you can enter the formula:

$.45 * L1 + 300$

to calculate the desired results.

Lets use ProfitPlan to produce the above example. First, enter some sales data into row 1 of the table.

ENTER COMMAND: 33 <RETURN>

Select row 1.

ROW (1-50): 1 <RETURN>

ENTER COMMAND: 31 <RETURN>

Enter sales data.

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

BASE VALUE: 1000 <RETURN>

RATE: 100 <RETURN>

ENTER COMMAND: 35 <RETURN>

Use the formula command.

FORMULA: .45*L1+300 <RETURN>

Check your results against the following:

MODE=NORMAL ORDER=R/C ROW=1-50 COL=1-20					
ROW 3 <--					
ENTER COMMAND:					
ROW	1	2	3	4	5
1	1,000.0	1,100.0	1,200.0	1,300.0	1,400.0
2	750.0	795.0	840.0	885.0	930.0
3	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0

30 DATA:
31 ENTER
32 CHANGE
33 SELECT ROW
34 SELECT COL
35 FORMULA
36 GOTO
37 PLUG
38 FIX
39 NULLIFY

REFERENCING TABLE VALUES

You can reference any row or column of the table by preceeding the row or column number by the letter L. For example, you would reference row 7 as L7 or column 19 as L19.

ProfitPlan automatically distinguishes between row and column references by looking at the data pointer. If the data pointer points 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.

You can also reference single values in the table. Single value references are formed by preceeding 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 of the table, enter V8,19 as the reference. (Note that the comma between the row and column number is also a part of the formula.)

Of course, you can always use constants in your formulas. Constants are numbers such as .45 and 300 in the previous example. (Negative numbers such as -1.0, cannot be used in ProfitPlan. To enter negative numbers, you can enter it as an expression such as (0-1.0).)

WRITING FORMULAS

You combine table references and constants with mathematical operators to form formulas. The valid operations consist of addition (+), subtraction (-), multiplication (*) and division (/).

Sample formulas include:

L1	Equivalent to GET command.
L1-L2-L3	Subtract line 2 and 3 from line 1.
L3/L2 * 100	Equivalent to the RATIO command.
L3/V3,1 * 100	Calculate line 3 as a percent of the value in the 1st column of row 3.
V1,1	Set current row or column to the value in row 1, column 1.

In a complex formula, multiplication and division is performed prior to 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. For example:

$(L3 + 2) * L1$

would clearly specify your intent.

TRYING FORMULAS

The easiest way to learn is by doing. Try the examples above in ProfitPlan. After entering all the formulas, the table should look similar to the following:

MODE=NORMAL ORDER=R/C ROW=1-50 COL=1-20						
ROW 8 <-- ENTER COMMAND:						
ROW	1	2	3	4	5	
1 ENTERED	1,000.0	1,100.0	1,200.0	1,300.0	1,400.0	30 DATA:
2 .45*L1+300	750.0	795.0	840.0	885.0	930.0	31 ENTER
3 L1	1,000.0	1,100.0	1,200.0	1,300.0	1,400.0	32 CHANGE
4 L1-L2-L3	-750.0	-795.0	-840.0	-885.0	-930.0	33 SELECT ROW
5 L3/L2*100	133.3	138.4	142.9	146.9	150.5	34 SELECT COL
6 L3/V3,1*100	100.0	110.0	120.0	130.0	140.0	35 FORMULA
7 V1,1	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	36 GOTO
						37 PLUG
						38 FIX
						39 NULLIFY

USING THE PLUG COMMAND

Sometimes, it is useful to relate various entries of your table in a formula and store the single valued result in a specific entry of your table. For example, you might calculate summaries at the bottom of your report.

The PLUG command allows you to specify a formula, evaluates the formula and stores the result in any cell of your table. PLUG is different from normal ProfitPlan commands in that it works with individual cells as opposed to a row or a column at a time.

PLUG formulas are similar to formulas as described above; however, these formulas cannot have references to an entire row or column (i.e. no Ln references). PLUG formulas can only reference individual table values (i.e. Vr,c) or constants.

The results from PLUG commands can be placed anywhere on your table. Note that the PLUG command will also be saved in the current row or column of your table. Therefore, before using the PLUG command, position the data pointer to a row or column that is not being used. After the PLUG command, the PLUG command will be memorized as part of that row or column.

When you update a table, PLUG commands stored in tables will behave just like normal ProfitPlan commands. PLUG calculations will also be automatically updated.

To illustrate the use of PLUG, suppose you want to do a special weighted profit margin. The formula is the sum of profits for the first three years divided by the sales for the first three year. The following commands illustrate this calculation:

```
ENTER COMMAND: 33 <RETURN>          Select empty row.
                ROW (1-50): 50 <RETURN>
ENTER COMMAND: 38 <RETURN>          Plug result in row 50, col 1.
                ROW (1-50): 50 <RETURN>
                COL (1-20): 1 <RETURN>
                FORMULA: (V6,1+V6,2+V6,3)/(V1,1+V1,2+V1,3)*100 <RETURN>
```

The calculated result would be displayed in row 50, column 1.

USING THE FIX COMMAND

The FIX command will recalculate the current row or column. It allows you to manually recalculate a row or column.

Sometimes, the calculation order required to correctly update values is more complex than the simple row/column order that is permitted by the ORDER command. FIX can be used to manually supplement these calculations.

For example, if you add a total column and a percentage profit row to the 5-year projection example from Section 1, then none of the compute ORDER options correctly calculates the percentage profit for the total column. The correct order is to do rows, then the total column, and finally the row of profit margins.

The FIX command can quickly remedy these situations. After using COMPUTE for updating the rows and columns, you use FIX as follows to perform an extra calculation on the profit margins:

1. Position the data pointer to the profit margin row.
2. Use the FIX command to recalculate the profit margins.

USING NULLIFY

ProfitPlan automatically memorizes commands as part of your table. Sometimes, you need to eliminate the command without changing the data associated with a row or column. The NULLIFY command does this. NULLIFY will prompt to verify that the current row or column should be nullified. In effect, NULLIFY will cancel the automatic update feature of ProfitPlan for a specific row or column.

WORKING WITH DIFFERENT SIZE TABLES

ProfitPlan table sizes can be changed to accomodate a variety of problems. For example, by choosing a 5 column format, you can have up to 200 rows available. This format could handle a full income statement, cashflow and balance sheet in a single table. With 60 columns in your table, you can do a 5 year, monthly projection of cashflows for a real estate development project.

The SETUP (14) command allows you to select table sizes. After specifying the number of columns you need, ProfitPlan automatically calculates the maximum number of rows for the table. ProfitPlan also resets all options to permit you to proceed with a new problem.

The size of ProfitPlan tables depends on the memory available. Generally, you can store 1,000 to 1,200 data values in a single table. Of course, SETUP automatically calculates the limits.

When you load a ProfitPlan table, if the new table has different dimensions compared to the current table, ProfitPlan allows two options:

1. Use the dimensions of the new table.
2. Use the dimensions of the current table.

In the latter case, ProfitPlan only loads those rows and columns that are in common. This option, in effect, changes the dimensions of the new table. For example, you can use this option to add extra rows and columns to an existing table. Of course, the total space available in any table is still limited by memory.

When you try to squeeze a larger table into a smaller table, the results may be unpredictable. In particular, if you have changed rows or columns using the REORDER command, the new table will have problems.

DESIGNING DISPLAY FORMATS

Normally, ProfitPlan shows 5 columns and 17 rows on your screen. Each number has 1 decimal position, each column is 10 spaces and the row title uses 15 spaces.

The SET CRT (15) command changes the display parameters. For example, you can have 2 columns each 10 spaces wide with 25 spaces for the row title. This allows financial reports to show up to trillion dollar figures with penny accuracy. ProfitPlan numbers are accurate to 14 digits.

You can also design the display to show 10 columns 5 characters wide. This displays more columns, but each number must be pretty small. (Large numbers that require more space will be displayed as 3 stars. ***)

For an 80 column screen, 65 spaces are available for the table area. After subtracting the space required for the row title, ProfitPlan calculates the number of columns depending on the size of the columns. Note that all columns will be the same size. Of course, the printed report can have individually set column widths.

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

APPENDIX A

Installation

To use ProfitPlan, you will need the following type of computer system:

1. The operating system is CP/M* or compatible with CP/M. Version 2.0 or later is required. CP/M Version 1.4 will not support ProfitPlan correctly.
2. Your system must have at least one floppy disk drive. Two drives would be preferred. They can be either 8" or the small 5" drives. About 120 kilobytes of storage capacity is required to handle ProfitPlan's system files. For your own table and program storage, you will need additional capacity.
3. Your computer should have 64 kilobytes of memory (RAM). The minimum quantity depends on the size of the operating system. At least 48 kilobytes is necessary. ProfitPlan can also be used in MP/M; however, ProfitPlan can only be used in 48 kilobyte user banks.
4. You will need a display that has at minimum, 'cursor addressing' and 'clear screen' features. Consult your dealer or the terminal user manual for these features. (Optimally, your terminal should have 'cursor keys', 'function keys' and a numeric keypad.)
5. You need a printer for printing reports.

INSTALLATION

You should keep the original diskette issued by CHANG LABS as a backup diskette. The following procedure will help you set up a ProfitPlan diskette.

1. Follow the instructions that come with your computer and create a system diskette. You will need the system utilities as well.
2. Insert the ProfitPlan disk in the B drive.
3. Copy all ProfitPlan files to your diskette using the following command:

CP/M Systems: PIP A:=B:*. *[V]

4. Issue the command **CUSTOM <RETURN>**. The customization program allows you to tailor ProfitPlan to the terminal you are using.

ProfitPlan installation procedure
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*** 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 950	N TELEVIDEO 910
O WYSE	P ZENTEC
Q OTHER	

PLEASE ENTER SELECTION (1 LETTER): a

ADDS VIEWPOINT

1. Backspace: Use BACK SPACE key.
2. Cancel: Use HOME key.
3. Scrolling: Use ESC followed by numeric key.
4. Cursor: Use ARROW keys.

DONE.

Now, you are ready to use ProfitPlan. If you have any problems, consult your dealer for instructions.

PROTECTION AGAINST DISTRIBUTION

You can make a copy of ProfitPlan for your own use in case your disk fails due to wear. Copies of ProfitPlan for distribution even to your friends violate copyright laws.

Each copy of ProfitPlan is serialized. Your copy number appears on the display each time you use ProfitPlan. Only you have this registered copy of ProfitPlan. Each copy of your ProfitPlan diskette would also show your copy identification. Therefore, it would be easy to identify the source of an un-registered copy of ProfitPlan.

CONFIGURATION ISSUES

Each computer system has its own peculiar features. The following notes provide you with some aids in case you have problems using ProfitPlan on your system.

1. Instead of displaying the proper table, if your screen is completely unreadable, this is caused by selecting the wrong terminal specifications. Run the CUSTOM program again and make sure the proper equipment has been specified.
2. Each terminal manufacturer supplies special keys that perform specialized tasks independent of the computer. These may include reset, clear screen and other keys. While using ProfitPlan, you should avoid these keys. The effect of these keys on ProfitPlan is unpredictable. If by chance you do hit these keys and your table has been distorted, the command REDISPLAY (115) will clear the screen and redisplay the ProfitPlan table.
3. If you have an unusual brand of terminal, you may not find your terminal on the CUSTOM menu. In such cases, contact your dealer for help. Authorized dealers should have the ProfitPlan 'Customization Notes'.
4. ProfitPlan supports Function Keys. ProfitPlan can be programmed to recognize function keys as frequently used commands. Contact your dealer for support.
5. ProfitPlan can be used under MP/M, the multi-user operating system. Contact your dealer or write to Chang Labs for our document, "Using ProfitPlan on MP/M".

POSSIBLE ERRORS

When using ProfitPlan on diskette based systems, you may encounter some errors. The following list will help you to recognize the problem and to rectify common errors:

1. **ME ERROR.** Diskette directory is full. This means you cannot store any more files on this diskette.
2. **DW ERROR.** No diskette space left. This means there is space left on the diskette for more files.
3. **OM ERROR.** Insufficient memory error. Restart ProfitPlan and specify smaller size tables.
4. **BDOS ERROR.** Problem with the diskette. Consult your CP/M manual for assistance.
5. **OF ERROR.** Arithmetic overflow. Some number was too large.

APPENDIX B

Command Reference

This command reference provides a short description for every command.

HOW TO USE REFERENCE

Each command is organized by its menu grouping. You get the command number, command name, argument structure and a description.

ProfitPlan memorizes your commands for what-if analysis. Commands are automatically memorized in your tables.

In the sections below, the following notation is used to describe how ProfitPlan treats each command:

T means this command can be stored in your tables.

Of course, if no letter is given, ProfitPlan will not memorize that command in tables.

1 FORMAT:

Display format commands. Enter row & column titles, set row or column print options, look at options and move rows or columns.

2 DATA:

Display data entry commands. Enter data, move the data pointer fix, nullify and goto commands.

3 MATH:

Display math commands. Arithmetic, cumulate, negate, get, ceiling, floor, and row and column summations.

4 PRINT:

Display print commands. Set report options, titles and print reports. Reports can be sent to disk files.

5 UTILITY:

Display utility commands. Save/load tables, re-dimension table size, select drive, reset and redisplay screen.

6 COMPUTE

Set mode to compute. Re-compute your table to update for any changes in the data.

7 HELP command

Explains each command. Describes the commands and explains usage.

9 STOP verify

Clears the display and exits to CP/M. The current table is not automatically saved.

10 ROW RANGE row1 TO row2

Set row range on status line (top line). Impacts calculations, printed reports, and general data manipulation.

11 COL RANGE col1 TO col2

Set column range on status line (top line). Impacts calculations, printed reports and general data manipulation.

12 ORDER order

Set the computing order for your table. Select ROW/ONLY, COL/ONLY, ROW/COL or COL/ROW.

13 SET DRIVE drive

Select drive for saving and loading your files. Normally, the current drive is used for saving and loading files.

14 SET UP number-of-columns number-of-rows

Redimension tables to a different number of rows and columns. Generally, each table can have up to about 1000 entries.

15 SET CRT decimal-places row-width col-width

Set display parameters. You can control the row title area, the column widths, and the number of decimal places.

FORMAT COMMANDS

18 FORMAT:

Display format commands. Enter row & column titles, set row or column print options, look at options and move row or columns.

19 ROWS:

Row section of format commands.

20 ROW TITLE title ... CANCEL (DOWN, UP, CANCEL)

Enter or change row titles. Each title entered is placed in the current row. The cursor keys move the current row pointer.

21 SET TYPE row option ... CANCEL

Allows you to specify the type of row, underlining, decimal places, spacing and special formatting for each row.

22 SHOW ROWS

Display the current options for each row. Also shows the commands stored for each row.

23 REORDER old-row new-row

Move old-row into the position new-row. Use this command to insert new rows or delete rows from your table.

24 COLS:

Column section of format commands.

25 COL TITLE title1 title2 ... CAN (RIGHT, LEFT, CANCEL)

Enter or change col titles. Each title entered is placed in the current col. The cursor keys move the current col pointer.

26 SET TYPE column option ... CANCEL

Allows you to specify the column width, decimal places and special column formatting for each column.

27 SHOW COLS

Display the current options for each column. Also shows the commands stored for each column.

28 REORDER old-column new-column

Move old-column into the position new-column. Use this command to insert new columns or delete columns from your table.

DATA ENTRY COMMANDS

30 DATA:

Display data entry commands. Enter data, move the data pointer fix, nullify and goto commands.

31 ENTER (T) value ... CAN (UP, DOWN, RIGHT, LEFT, CANCEL)
Enter values into table. Constant, grow and increase options allow quick entry. Cursor keys allow individual data entry.

32 CHANGE row, column <-- value
Change one value in your table.

33 SELECT ROW row
Move the data pointer to a new row of the table. Also, use the up and down cursor keys to move the data pointer.

34 SELECT COL column
Move the data pointer to a new column of the table. Also, use the right and left cursor keys to move the data pointer.

35 FORMULA (T) RESULT <-- formula
Use a formula. Formulas may reference a row or column (Ln), values (Vr,c) or positive constants in the formula.

36 GOTO row column
Position the display screen with row,column in the upper left corner of your terminal.

37 PLUG (T) row, column <-- formula
Use a formula to calculate results for a particular cell. The formula may reference table values (Vr,c) or constants.

38 FIX
Re-computes the current row or column. Use cursor keys to move the data pointer to the right row or column before using FIX.

39 NULLIFY (T) row/col
Nullify command associated with a row or column. The data in the table is not affected.

MATHEMATICAL COMMANDS

40 MATH:

Display math commands. Arithmetic, cumulate, negate, get, floor, ceiling and row and column summations.

41 ADD (T) RESULT $\leftarrow$ row/col1 + row/col2

Add two rows or columns of values.

42 SUBTRACT (T) RESULT $\leftarrow$ row/col1 - row/col2

Subtract the second row/col from the first row/col.

43 MULTIPLY (T) RESULT $\leftarrow$ row/col1 * row/col2

Multiply two rows or columns of values.

44 DIVIDE (T) RESULT $\leftarrow$ row/col1 / row/col2

Divide the first row/col by the second row/col.

45 NEGATE (T) RESULT $\leftarrow$ - (row/col)

Negate a row or column of values.

46 INVERSE (T) RESULT $\leftarrow$ 1 / (row/col)

Compute the inverse for a row or column of values.

47 INTEGER (T) RESULT $\leftarrow$ INT(row/col)

Compute the integer part of a row or column of values by dropping the fractional portion of a number.

48 ROUND (T) RESULT $\leftarrow$ INT(row/col + 0.5)

Round a row or column of values to the nearest whole number.

49 CUMULATE (T) RESULT(t) $\leftarrow$ RESULT(t-1) + row/col(t)

Compute cumulative sums for a row or column. Cumulate prompts for year zero value. Use for ending balance calculations.

50 ABSOLUTE (T) RESULT $\leftarrow$ ABS(row/col)

If a value is negative, the result is positive. If the value is positive, the result is positive.

51 ADD K (T) RESULT $\leftarrow$ row/col + value

Add a constant amount to a row or column.

52 SUB K (T) RESULT $\leftarrow$ row/col - value

Subtract a constant amount from a row or column.

53 MULT K (T) RESULT $\leftarrow$ row/col * value

Multiply a row or column by a constant amount.

54 DIV K (T) RESULT $\leftarrow$ row/col / value

Divide a row or column by a constant amount.

55 SUM (T) RESULT $\leftarrow$ SUM(row/col1 THROUGH row/col2)

Sum a group of rows or a group of columns.

MATHEMATICAL COMMANDS ... continued

56 GET (T) RESULT <-- row/col
Get the values from a row or column.

57 FLOOR (T) RESULT <-- MAX(row/col, value)
If row/col is less than value, then the RESULT is value.
Otherwise RESULT is row/col.

58 CEILING (T) RESULT <-- MIN(row/col, value)
If row/col is greater than value, then the RESULT is value.
Otherwise RESULT is row/col.

UTILITY COMMANDS

60 UTILITY:
Display utility commands. Load, save, list, print, erase,
clear and reset tables. Also redisplay screen.

61 LOAD TBL filename
Load your table from your diskettes. On prompting for file-
names, the available files will be shown.

62 SAVE TBL filename
Save your table on diskettes. The descriptions, data, logic,
and all print options will be saved as part of the file.

63 CLR DATA verify
Clear all data from your table. Row and column titles, and
table logic will be maintained.

64 RESET verify
Reset table values, row and column titles, table logic,
program steps.

65 REDISPLAY
Clear the screen and redisplay your table, menu and status
information. No data will be changed.

66 LIST TBLS
Print a list of the tables you have on your current diskette.
Listing will go to the printer.

67 ERASE TBL filename
Erase a table from your current diskette.

68 PRINT TBL
Print a description of your model. Listing will include row
tables, options, table commands and global options.

PRINT COMMANDS

70 PRINT:

Display print commands. Set report options, titles and print reports. Reports can be sent to disk files.

71 OPTIONS option ...

Global report options. Row title width, column width, number of columns, negative numbers, commas, line numbers, zeros, etc

72 TITLES page date row-range col-range 3-line-title

Set page number, dates, row and column ranges and a 3 line title. A report will follow.

73 REPORT

Print report on your printer. Report options, title should be set prior to printing report.

74 SHOW OPTS

Display report options and title information.

75 SAVE REP filename

Print report to a disk file. Interface with word processors, or spool output to printer.