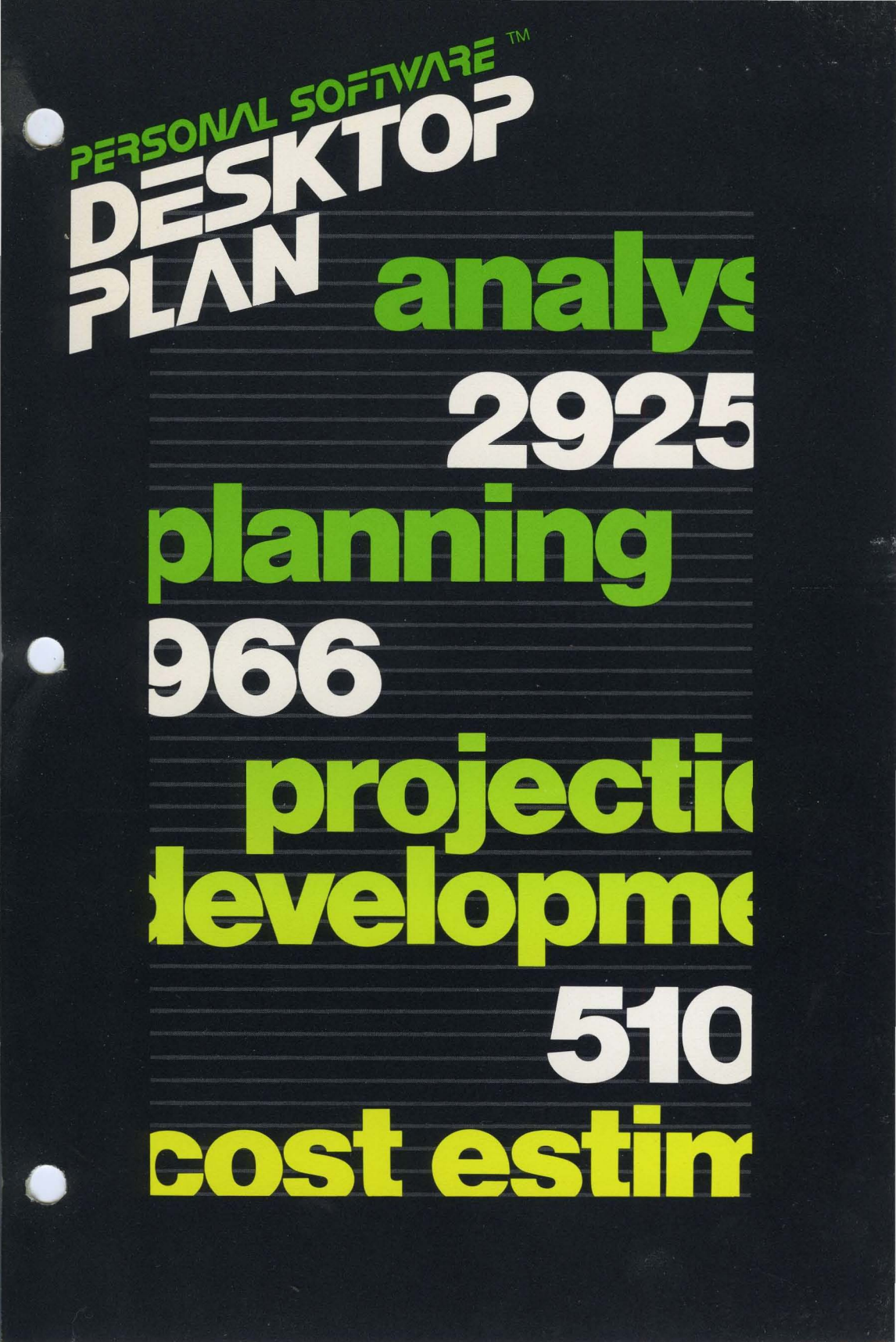
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DESKTOP PLAN

for

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REFERENCE MANUAL

Serial Number

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Section 1 - Introduction to DESKTOP/PLAN

DESKTOP/PLAN - What is it?

DESKTOP/PLAN is a software system which turns the Apple II into a "problem solving tool" aimed at a business problem of most middle and upper level managers and many top executives--

> --the development and analysis of business plans such as budgets, cost and price analysis, sales forecasts, cash flow planning, capital budgeting, profit and loss projections, and a myriad of similar types of analysis--

These analysis are being done now. Many are relatively simple and straight forward. But they are usually very time consuming and tedious to perform.

> Hours are spent with pencil, paper, eraser, and calculator.
>
> Secretaries type, and re-type, reports.
>
> And, the boss asks, after all the work,
>
> "What if.....?"

The cycle is repeated - - again, again, and again.

DESKTOP/PLAN solves this problem by allowing business persons to develop customized business planning and analysis systems. Little or no computer knowledge or training is required.

After a customized system has been developed, the analysis can be easily and quickly executed over, and over, analyzing many alternatives. By merely changing one or two data values, such as sales growth rate, selling price, or cost, DESKTOP/PLAN can quickly determine the likely effect of such a change on the enterprise.

DESKTOP/PLAN - GENERAL CAPABILITY

DESKTOP/PLAN provides the following functional capability to a user of the system:

With no computer programming knowledge or capability, a user describes to DESKTOP/PLAN, by interactively selecting functions desired from "menus" and answering questions displayed on the video display device:

> The format and descriptive contents of reports of a desired analysis.
>
> The values of assumptions and initial quantities to be analyzed.
>
> The calculations to be performed on the data to produce the desired analysis.

After entry, DESKTOP/PLAN stores the data, calculations specified, and report descriptions in files recorded on diskettes.

Collectively the data, specified calculations, and report descriptions are known as a "model."

After the model is developed, the user can execute the specified calculations, print reports, and display either the initial data or computed results on the video display.

DESKTOP/PLAN allows the user to change or modify the information in any of the files comprising the model and either replace the original files or create a new file with the modified information.

The model may be re-executed as many times as desired, testing different assumptions or initial planning values. "What if .....?" questions may be easily answered.

After execution of calculations, the results of calculations may be stored in a file on disk.

The user can display data on the video display, before or after calculations have been executed.

Files of data of computed values may be consolidated with like files into "summary" models. Data from unlike files may be "passed forward" to new models. For instance, identical sub-models of a chain of stores may be executed. After all stores have been modeled, the results can be summarized into a total of the entire enterprise.

Or, a large manufacturing organization could have sub-models of manufacturing, engineering, marketing, and administration. After

all sub-models have been executed, totals can be "passed forward" to a summary model of the entire organization and calculations performed on these totals.

DESKTOP/PLAN prints reports from specifications describing the desired report and values immediately after execution of computations or data files maintained by the system.

Report specifications are entered by the user responding to questions from DESKTOP/PLAN and are stored in files recorded on diskettes. A Report Description file contains the following information:

a. The maximum number of lines and columns for which a report may be printed.

b. Up to three lines of report heading/title information.

c. Up to two lines of column headings for each column specified.

d. Up to 30 characters of alphabetic description of the data in each line.

e. Codes to cause the printing of:

    1. "Underscores" of the columns of data

    2. "Double underscores" of the columns of data

    3. Sub-headings

    4. Blank lines

    5. The start of a new page with appropriate page headings

Numeric data, printed under the column headings, may be printed with zero, one, or two digits to the right of the decimal point.

In addition to the specifications contained in the Report Description file, additional flexibility in report formats is provided by responses to questions interactively posed immediately prior to reports being printed. These are:

a. An option to print the line numbers of each line on the report.

b. A selection of the line number from which to begin printing the report.

c. A selection of the line number through which to print the report.

d. A selection of the beginning and ending columns with

which to print the report.

e. The number of columns of the model to print on each sheet of the report.

f. A unique "run description," of up to 40 characters, to be printed on each page of the report.

After a report is printed, the user is given the option of printing an additional copy of the report.

After all copies of the report are printed, a different report, using the same data, but with different line and column specifications may be requested and printed.

DESKTOP/PLAN uses data arranged in lines and columns, much as information is arranged on an accountant's 13-column analysis pad.

In most applications, a "line" of data refers to a different type of information, such as "Gross Sales," "Returns & Allowances," and "Net Sales."

A "column" of data normally contains the data for all of the "lines" for a specific time period.

DESKTOP/PLAN allows a user to specify up to 300 lines of data and up to 18 columns of data for each line in any model.

The system will NOT accommodate a model where the maximum number of lines and columns are both specified.

(The constraint is the availability of memory after all files have been read into memory. There is no way to precisely determine the size of model which may be executed without knowing the total number of alphabetic characters comprising all line and column descriptions. However, models of over 200 lines by 18 columns have been executed on a 48k system).

DESKTOP/PLAN generates and maintains two types of value files:

> "Planning Values" contain data on which calculations have not yet been executed.
>
> "Computed Values" contain data on which calculations HAVE been executed.

CALCULATIONS

Calculations are performed on Planning Values by DESKTOP/PLAN as a result of DESKTOP/PLAN interpreting and executing "Calculations Rules." These Calculation Rules are determined by the user, arranged in the sequence to be executed, and entered into the system.

Rules are entered by selecting from a set of pre-written "standard planning calculation rules." These rules perform the types of arithmetic commonly used by planners and include the following:

A. Rules to do arithmetic on lines of values

B. Rules to do arithmetic on columns of values

C. Rules to "generate" data

In addition to standard rules, DESKTOP/PLAN provides the capability for the user to write a program in BASIC to execute computations not provided by the standard rules. These "Custom Rules" are easily incorporated into the EXECUTE function of DESKTOP/PLAN. Up to 20 Custom Rules may be incorporated into EXECUTE.

The standard "data generation" rules provided are:

1. Extend or fill the values in a line

2. Interpolate between the values in a beginning column to the values in an ending column

3. Compute the growth rate of a line of values

4. Grow a line with a beginning value by the growth rate in a second line

5. Fill a column with a specified value

6. Convert all the values in a line to zero

7. Copy a line of values and shift the values right a specified number of columns

The standard "line arithmetic" rules provided are:

1. Add one line to another

2. Add a group of lines

3. Subtract one line from another

4. Multiply one line by another

5. Divide one line by another

6. Compute the percent the values in a line represent of a specified value

7. Accumulate a line of values so that each column of the resulting line contains the sum of the current and all preceeding columns

The standard "column arithmetic" rules provided are:

1. Add a group of columns

2. Add one column to another

3. Subtract one column from another

4. Multiply one column by another

5. Divide one column by another

6. Compute the percent the values in a column represent of a specified value

Rules are entered in DESKTOP/PLAN by selecting each rule to be executed from a menu of available rules. Rules are entered in the sequence they are to be executed.

After selecting the rule to enter, the user is prompted for line and column numbers on which the calculation is to be performed.

In addition to entering a new rules file, the user may:

1. Add rules to an existing file

2. Insert rules between previously entered rules

3. Delete a previously entered rule

4. Display and or modify an existing rule

5. Print the rules file

6. Save the rules file to disk

Characteristics of Computer Assisted Planning Systems

Computer assisted planning systems have existed since the early 1960's. Probably the first was the Planning System Generator (PSG) developed at the IBM Corporation for use in documenting and evaluating their internal business plans. This is available today as a product of IBM for use on their large and intermediate scale systems and is licensed for use at approximately $200 per month.

In the late 60's time sharing was emerging. General Electric developed and still sells the Financial Analysis Language (FAL-II). Many FAL users spend several thousand dollars per month for computer time, disk space, and terminal rental.

In mid-1978 the Association of Time Sharing Users (ATSU) published a report describing 67 financial planning languages available on time sharing systems. Only a few of these are available to run on "in house systems." Of those that are, the software cost alone is $8,000 to $32,000.

Many of these systems offer functional capability nearly identical to DESKTOP/PLAN. The reason so many of the systems described in the ATSU report appear to be similar is that systems for building and executing models vary only in the comprehensiveness of features, ease of use, ease of learning, and cost to acquire and operate.

DESKTOP/PLAN may be operated on an Apple II Plus costing under $2,100 (exclusive of printer and video display.)

The software package sells for less than $100. It is, by far, the least expensive financial planning software system available.

DESKTOP/PLAN is one of the easiest, if not the easiest, system to use.

However, DESKTOP/PLAN offers two benefits unique to desktop computers:

SECURITY.

Planning information is the most sensitive information in any business. Security is absolutely vital. Security of planning information is inherent in DESKTOP/PLAN because of the media used for storing the model--floppy diskettes. These diskettes are removeable. As long as they remain in the possession of the planner, the planning information is secure.

Compare this to models run on batch systems where the results are available to data processing operators and those

who empty the waste baskets. If the model is maintained on a time sharing system, it is subject to all the violations of security frequently discussed in the public press.

UNLIMITED USE.

Because the Apple II has a one time cost, the planner is free to use the system for as long as and when desired. Thus, the planner can test as many variations of the "model" as desired without running up additional costs.

EASE OF MODEL DEVELOPMENT.

DESKTOP/PLAN requires no knowledge or skills in computer programming, computer languages, or mathematics other than knowledge of simple arithmetic. (As a matter of fact, programming knowledge may be a hinderance when building a model with DESKTOP/PLAN.) Therefore, the planner doesn't have to wait for the availability of data processing professionals to develop or help develop the model.

The planner is free to develop and execute the model at the PLANNER's own CONVENIENCE.

This Manual

This manual has been written with three major objectives:

1. To teach the use of DESKTOP/PLAN on the Apple II computer system.

2. To serve as a reference manual while using DESKTOP/PLAN, particularly when developing the first one or two models.

3. To serve as a guide for someone new at financial modeling to learn how to develop a computer based financial analysis or model.

A suggestion on how to learn DESKTOP/PLAN. First, quickly read through this manual. You won't remember many of the details.

Then follow the principle described by "Don Williams' old Chinese proverb":

...I hear and I forget...

...I see and I remember...

...I DO and I UNDERSTAND...

Sit down with your computer and this manual.

Build a simple model. As you develop each portion of the analysis, study that section of the manual.

Keep your first model simple. Perhaps a simple departmental budget. Or, a simple product cost analysis. Or, even your family budget.

But, develop and execute a model.

That's the only way you'll learn DESKTOP/PLAN.

Experience has proven that DESKTOP/PLAN extends the productive use of small computers. This is at least the 6th major version of the system since April 1978. The first three versions ran on PolyMorphic Systems' System 8813. The remainder run on the Apple II. When this version of the manual was written, approximately 1700 copies of the software had been shipped.

Each "rewrite" incorporated additional capability or made the system easier to operate. Many ideas were suggested by users.

Because of this, we would certainly appreciate a note with your comments regarding new functions and other changes you'd like to see. While we won't commit to necessarily including them in future revisions, if any, we will guarantee that your suggestions will be seriously reviewed and considered.

BUT, there is a problem.

One of the major problems of the small computer industry has been the availability of comprehensive and useful application software packages. There are several reasons for this.

Chief among them has been the reluctance of software developers to make applications in which they are proficient available for small computer systems. Their development effort and rights in the system often can't be protected.

> Protected from unauthorized duplication of the media on which the software is distributed.
>
> Protected from "pirates" making listings of the programs and re-coding the programs for other computers.

In other words, developers want to get paid for their efforts.

Several misconceptions are prevalent in the industry.

1. In many cases the only useful application software available for many desktop computers is from the hardware manufacturer.

2. Useful application software must be custom developed for each user. This has the net effect of eliminating most of the cost benefits to the user of the low cost hardware available today.

We don't believe these conceptions to be true. However, in order to overcome the problems several trends have started to develop:

1. Several applications have been published in book form with complete listings of the programs but with no

machine readable form. If these listings aren't for the specific computer of a user, the effort to convert such an application is tremenduous. In this form a user essentially purchases the "system design," not the programs.

2. Some software is recorded on the distribution media in such a manner as to prevent the programs from being electronically duplicated or listed. In this case, the user cannot make "backup" copies of the media or change the programs to accomodate unique needs.

We have chosen to experiment with a third technique to "protect" our efforts. It involves a number of elements:

You are free to list, change, or modify any of the programs in the system. (For your own use, please.)

We recommend that you make a "backup" copy of the programs in case your diskette is accidentally destroyed or misplaced. (For your own use, on the single system for which you bought it.)

However, we are taking several actions to protect the system:

1. VALUE. We want purchasers to feel they are getting a good value for the price of the software. DESKTOP/PLAN contains nearly 10,000 Applesoft BASIC program statements. At a total software development cost of $5 to $10 per statement for system design, coding, testing, debugging, and documentation, this represents a cost of $50,000 to $100,000.

The package is priced so low that, in an era when software costs are often greater than the cost of hardware, DESKTOP/PLAN sells for a fraction of the cost of the hardware it runs on. (Less than even the cost of an "add on" 16k block of RAM for an Apple II computer.)

2. SERIAL NUMBER. Each diskette and and the associated warranty card contain a matching serial number. The serial number is recorded both externally and electronically on the diskette. We are requesting that you write the serial number printed on the diskette into the space provided on the title page of the manual.

3. METHOD OF DISTRIBUTION. The method chosen to distribute the package to end users is through computer retailers. To become a dealer, the dealer's order must be for more than one copy. This has been done to discourage those few dealers who would be so inclined from buying a single copy and then reproducing it for resale.

4. AN APPEAL. Lastly, we are making this appeal to you the purchaser. You paid for your copy. Let the other guy buy his, too.

If your manual looks like a copy, isn't in a professional binder, and the Serial Number displayed on the screen when the system is first started does not match the Serial Number printed on the warranty card, and the label on your diskette isn't a professionally printed label, you can be pretty sure you have a copy of DESKTOP/PLAN that was not properly paid for.

We'd appreciate it if you'd let Personal Software Inc. know. You'll be free to keep your copy, at no cost of course. But, we'd like to trace and find the source of "bootleg" copies.

Computer hardware costs have dropped dramatically. The "computer on a chip" can be mass produced. It is starting to be mass marketed.

But, for the real expansion in computer usage to be achieved, a lot of low cost, comprehensive software is needed. That's only going to happen when application developers can be assured they are going to be paid for their efforts.

If this experiment in low cost but "unlocked" software from an independent application developer doesn't work, the ultimate loser is YOU, the computer user. Other developers will know there is no way to protect themselves.

Will you help us (and yourself)???

The Apple II Computer

The Apple II is a superb computer.

Unfortunately, small computers have gotten a reputation as "hobby" computers and "glorified game machines."

Yes, you can play some marvelous games on the Apple. And, yes, because of its low cost, many computer professionals now can have a computer at home to try out the things for which they couldn't get time on the "big machine" at the office.

But, please, recognize that the Apple II has the identical functional capability of any computer. Because of the system software, including a Disk Operating System and high level programming languages such as BASIC and PASCAL, the Apple II can perform more complex applications and is easier to use than most "batch" computers of the early 1960's.

The Apple has an "address space" of 65,535 bytes of main storage, far more than the 4,000 to 16,000 characters of storage available on the IBM 1401 which was so prevalent. It wasn't until the practical development of systems software which could control "concurrent multiple job execution" as well as "continuous job stream execution" that very many users had more than 32k of memory on the IBM System/360 Model 30's or 40's.

The Apple has direct access disk storage, changeable in seconds, for program and data storage. Because it is easily and rapidly changeable and diskette costs are so low, there is almost unlimited file storage available. DESKTOP/PLAN takes full advantage of this feature. DESKTOP/PLAN will execute on an Apple II with 32k of user RAM, yet the combined size of the application program, data storage, and system software exceeds 100k (yes, one hundred thousand bytes).

Internally, the microcomputer of today has extremely high performance when performing arithmetic for a single job. The sample problem used throughout this manual has the following calculations performed:

168 Additions
18 Subtractions
48 Multiplications
18 Divisions
85 Data Moves

These calculations are executed in less than 30 seconds, fast enough for most of us even though the program is written in BASIC and must be interpreted each time it is executed.

What then are the differences between the Apple and larger systems?

The differences fall into several categories.

First and foremost is cost. DESKTOP/PLAN will operate on an Apple II costing under $2100 and a TV set. That is not as much as many "intelligent terminals" on the market today. (This is a one disk drive Apple II Plus with 32k of memory. It will execute DESKTOP/PLAN, though may not be the best configuration for your requirements.)

Secondly, and most important, these are SINGLE USER systems. Only one job may be running at any one time.

While professional data processing people may feel that this is a limitation, combined with the Apple's low cost, this is one of the CHIEF BENEFITS. The Apple can be dedicated to a single application such as financial planning and used interactively at the convenience of the user, not the data processing department.

The Apple can be used anyplace there is a TV set. Since it weighs only 11 pounds and has a carrying case available, it can be taken anywhere the owner desires.

Thirdly, because of the "floppy diskettes" used, file access and reading is not as fast as on larger multi-user "mini's and maxi's" with "hard disk". In most single user applications this is not a limitation. The system is doing just one task. Only when reading complete files of information into arrays is there significantly perceptible "wait time" for the user.

Fourth, sizes of data files are limited by the maximum amount of information which can be contained on one diskette. For DESKTOP/PLAN the "mini disks" used by the Apple are almost ideal. A reasonable sized model uses less than 25% of the available space on a single diskette.

Other than the above differences, the Apple is no different from any computer. It has the same foibles, limitations, and frustrations. But, it can and does perform the same functions as any other computer, large or small.

The challenge is yours-- to increase your business and professional productivity with these tools-- DESKTOP/PLAN and your Apple II.

Section 2 -- SYSTEM OVERVIEW

DESKTOP/PLAN System Functions
Entering Information into DESKTOP/PLAN
The File System
The "MENU" Structure

DESKTOP/PLAN System Functions

DESKTOP/PLAN provides four major functional capabilities:

1. Building a model
2. Executing a model
3. Preparing reports of the results of execution
4. Modifying a model

Programs Encompassing DESKTOP/PLAN

The following programs make up the DESKTOP/PLAN software system:

START
MENU
DESCRIPTION
VALUES
RULES
EXECUTE
PRINT
CONSOLIDATE
BACKUP
SETPARM

START

START is the program which is automatically loaded when the Apple II is started. START's function is to display a copyright notice, serial number, and disclaimer of liability. After displaying the disclaimer, START loads and executes MENU.

MENU

Several functions are performed by MENU:

1. Displays a list of the functions which can be performed.

2. Prompts for a code for the function to be executed.

3. Reads the files necessary to perform the selected function.

4. Automatically loads the program to execute the selected function.

MENU is automatically re-started upon the completion of execution of the selected function.

If control is returned to Apple 3.2 DOS and the user has a "]" prompt, DESKTOP/PLAN can be restarted by typing:

```
RUN MENU
```

In fact, that is the only way the system should be restarted.

DESCRIPTION

DESCRIPTION prompts the user to simply describe the reports desired with the following information:

1. REPORT TITLE.

Up to three lines of a report title, which will be printed at the top of each page of a report.

2. MODEL SIZE.

The number of lines and columns to be used in the model.

The maximum number of lines is 300.

The maximum number of columns is 18

3. COLUMN HEADINGS.

Two lines of headings to appear on the report above each column of values.

4. LINE DESCRIPTIONS.

The user enters the description which is to appear immediately to the left of the first column of values on the printed report. This description may contain up to 30 alphabetic characters.

The specifications for printing the decimal points are entered when entering line and column descriptions.

In addition to line descriptions, the user enters codes to cause the printing of sub-headings, underscores, double underscores, blank lines, and heading up new pages.

When the user completes entering the report description information, DESKTOP/PLAN saves the description information in a file on a diskette.

DESCRIPTION may also be used to make modifications such as corrections or additions to an already existing description file.

VALUES

VALUES provides three functions:

1. Enter and create a file of Planning Values.

2. Modify a previously entered Planning Values file, optionally replace the original file, create a new, additional file, and optionally immediately execute calculations.

3. Display values from a Planning Values or Computed Values file.

RULES

RULES provides the capability of creating and maintaining a file of Calculation Rules for the EXECUTE program to interpret and execute on Planning Values.

The user can perform the following functions to enter and maintain a Calculation Rules file:

1. Enter rules for a new rules file or add additional rules to an existing file.

2. Insert a rule into the current file.

3. Delete a rule from the current file.

4. Display/Modify a rule in the current file.

5. Print a listing of the rules in the current file.

6. Write the current file to diskette.

EXECUTE

EXECUTE causes the Calculation Rules to be executed on the data in a Planning Values file.

After the rules have been executed, the user can perform any or all of the following:

1. Display the Computed Values.

2. Save the Computed Values in a file.

3. Print reports.

PRINT

PRINT prints reports according to specifications from three sources.

1. The Report Description file.

2. Specifications of the printer attachment to the Apple II, the page length, and page width from parameters stored in the Parameters file.

3. User responses to questions at the time of PRINT execution.

PRINT provides the user with the capability of printing as many copies of the report as desired.

Upon completion of printing, the user may specify additional reports with different lines and columns of data to be printed.

At the time the report is printed, the user can specify what lines of the report to print, which columns, the number of columns per printed page, whether to stop at the end of each page, and enter a unique "run identification."

CONSOLIDATE

CONSOLIDATE provides two capabilities:

1. The capability of summarizing identical sub-models into a consolidated model.

2. The capability of transferring individual lines of computed values from sub-models to a master model.

BACKUP

BACKUP is a "utility" to transfer Report Description, Planning Values, Computed Values, or Calculation Rules files from one diskette to another.

This "backup" may be done using either a one or two disk drive system.

SETPARM is a utility which allows the user to enter six factors describing the specific Apple II system on which DESKTOP/PLAN is being executed. These parameters are:

1. Type of printer attachment:

   High Speed Serial Interface.

   Parallel Interface.

   Communications Interface - printer has automatic line feed.

   Communications Interface - printer does not have automatic line feed.

2. "Slot" through which the printer is interfaced.

3. Printer "page width" in number of print positions.

4. Printed "page length" in number of printed lines.

5. Disk drive, 1 or 2, on which all DESKTOP/PLAN files are to be stored or retrieved from.

6. The date to be printed on all printed reports.

DESKTOP/PLAN is a "menu driven" system. That is, the user is presented with lists of functions that can be performed. The user is then "prompted" to enter a number corresponding to the function that is desired.

All program loading is done automatically by the system as a result of the functions selected by the user.

All other information entered by the user, such as file names, line and column descriptive information, and "model" values is checked for valid "range" if numeric information and maximum allowable characters if alphabetic information.

If invalid data is entered by the user, the Apple "beeps" and flashes a message at the bottom of the display indicating the error.

While programs are being loaded, files being read, or computations being performed, the Apple flashes a message advising the user what is happening. When the Apple has completed its work and requires input from the user, the Apple again "beeps" at the user.

Before describing the files used and maintained by DESKTOP/PLAN, a word about naming files for use in the system.

File names may be from 1 to 15 characters in length.

Any valid alphabetic character, except a comma (,) may appear in the name. (We suggest you don't use "spaces.")

The first letter of the name must be an alphabetic character.

DESKTOP/PLAN automatically adds a "file type" designation to the name of a file given by the user.

These are:

.D for a Report Description file
.I for a Planning Values input file
.R for a Calculation Rules file
.C for a Computed Values file

The file names for a model of "Topnotch Manufacturing Company" will appear in the file directory of Apple DOS 3.2 if the name TOPNOTCH is used as:

TOPNOTCH.D
TOPNOTCH.I
TOPNOTCH.R
TOPNOTCH.C

These "file type designators" are automatically added to the name given by the user.

The "file type designator" allows a user to refer to all files in a model by using an identical name.

However, when under control of Apple DOS, (when the user is prompted with the character "]"), the file designator must be included when typing the name. This would normally only be necessary when deleting files from a diskette or renaming a file.

Files created by DESKTOP/PLAN using the CONSOLIDATE function are automatically given the designation ".I". This allows additional Planning Values to be added to the file using the VALUES function as well as allowing Calculation Rules to be executed on these values.

DESKTOP/PLAN uses data files on the diskette in the disk drive specified by the Set Parameters function (Function Number 8 on the main menu).

Entering Information into DESKTOP/PLAN

When DESKTOP/PLAN is being operated, the user is asked to type information on the keyboard for one of several purposes:

1. To select the function to be performed.

2. To enter file names on which DESKTOP/PLAN is to operate.

3. To enter "data" into the Report Description, Planning Values, or Calculation Rules file.

4. To allow the user to verify that information previously typed is correct.

DESKTOP/PLAN "prompts" the user by displaying a message on the screen describing the information required, a row of dots or periods indicating the maximum number of characters of typed information that will be accepted, and a flashing cursor in the first position that information can be entered.

As the user types the characters, each character will appear on the screen replacing the "period" in the screen position. After printing the character entered, the cursor is moved to the next position for which a character will be accepted.

After typing the characters for the information requested, all responses should be terminated by pressing the 'RETURN' key.

After DESKTOP/PLAN senses the 'RETURN' key, a number of "validity" checks are performed. These are:

> If the data being "prompted" for is to be numeric only, all characters are checked to insure that only valid decimal digits, a decimal point, and a "minus sign" (-) (in the first position, only) have been typed.
>
> The information typed is checked to insure that no more than the maximum allowable number of characters are typed.
>
> To insure that only certain acceptable characters, such as "Y" for a "yes" answer or "N" for a "no" answer, have been entered.
>
> To insure that numeric data is within both a lower and upper limit for the value being entered.

In the event the information entered does not pass any of these checks, DESKTOP/PLAN takes the following action:

1. The Apple "beeps" at the user.

2. A message, "INVALID DATA/RE-ENTER" is flashed for 1 1/2 seconds at the bottom of the screen.

3. The invalid data previously typed is erased from the screen and the "periods" are redisplayed.

4. The "cursor" is re-displayed over the first data entry position.

The data should then be correctly re-typed.

There are two words which have special meaning to DESKTOP/PLAN:

END
NONE

'END' (typed without the quote marks) is the entry used to determine that the user has completed entering information on a currently displayed screen and signifying to the system that it should proceed to its next function.

'NONE' may be entered when the system "prompts" for the name of a file to be created as a result of entering or modifying a Report Description file or a Planning Values file. When NONE is entered by the user, the system will proceed to its next function without writing the file to disk.

DESKTOP/PLAN's "Menu Structure"

DESKTOP/PLAN is a "menu driven" system. That is, a list of options from which the user can select is presented on the video screen.

This list of options is called a "menu." Each option is numbered. The user is "prompted" to enter the number corresponding to the function desired.

When the user selects the option for the function desired by typing the number indicating the selection, DESKTOP/PLAN automatically proceeds to execute the function by prompting for required file names and loading the appropriate programs.

When the function has been completed, DESKTOP/PLAN automatically returns to the "main menu."

DESKTOP/PLAN has a number of menus which are presented to the user:

1. The "main menu" to select the major function to be performed by DESKTOP/PLAN.

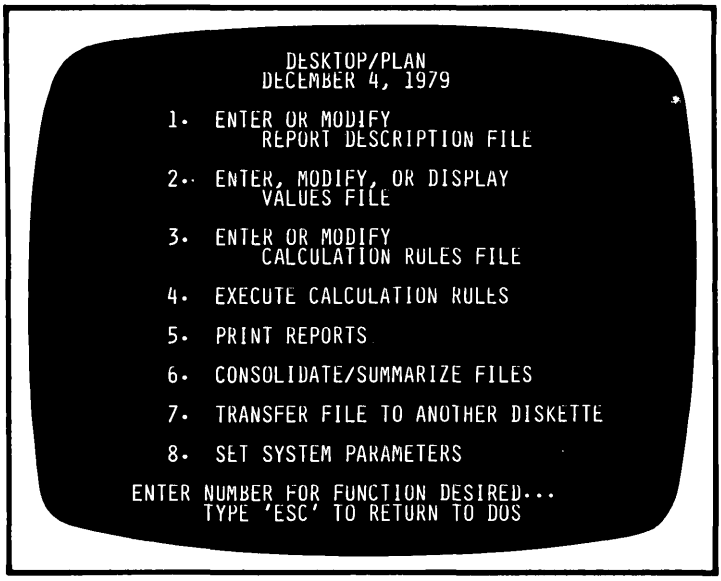
2. A "sub-menu" to select which function to perform when modifying a Report Description file.

3. A "sub-menu" to select which function to perform when entering or modifying calculation rules.

4. A "sub-menu" to select which of 21 calculation rules are to be entered for later execution.

Exhibit 2-a illustrates the "main menu." The remaining menus will be illustrated at the time their use is described.

Exhibit 2-a
MAIN MENU



Section 3 -- DESKTOP/PLAN Reports

Contents of a Report
Options

DESKTOP/PLAN Reports

Printing reports is usually thought as the last thing done in financial planning.

However, DESKTOP/PLAN's PRINT function can be used as a tool to help develop the model by using it to print worksheets for entering planning values and calculation rules.

Before learning how to develop Report Descriptions and cause reports to be printed,

> let's look at a sample of a report prepared by DESKTOP/PLAN,
>
> identify the various sections of the report,
>
> develop some terminology that will be used throughout this manual,
>
> and describe the options the user has for each of these sections as well as "constraints" for each option.

Exhibit 3-a is a quarterly budget of a mythical company, Topnotch Manufacturing Company. The report is comprised of the following sections:

1. The Report Heading
2. The Report Date and Page Number
3. A "Run Description"
4. Line Numbers
5. Computed or Planning Values
6. Column Headings
7. Line Descriptions
8. Line Descriptions-sub headings
9. Column Underscores
10. Blank Lines
11. A "Page Footer" message common to every page

TOPNOTCH MANUFACTURING COMPANY
QUARTERLY BUDGET
THIRD QUARTER-1979

JANUARY 27, 1980
PAGE 1

COMPUTED 'BASE CASE'		JULY	AUGUST	SEPTEMBER	QUARTER TOTAL
ASSUMPTIONS					
PRIOR QUARTER MONTHLY SALES	(5)	213000	218000	215000	-
COMPUTED MONTHLY GROWTH RATE-%	(6)	.47	.47	.47	-
RETURNS & ALLOWANCES -%	(7)	2.0	2.0	2.0	-
VARIABLE SELLING COST -%	(8)	7.0	7.0	7.0	-
MATERIAL COST -%	(9)	47.5	47.5	47.5	-
HOURLY LABOR RATE	(10)	7.25	7.25	7.25	-
NUMBER OF DIRECT LABOR PERS.	(11)	20	20	20	-
FACTORY BURDEN (% OF DIR LAB)	(12)	30.5	30.5	30.5	-
INCOME					
GROSS SALES	(22)	220000	221034	222073	663107
RETURNS & ALLOWANCES	(23)	4400	4421	4441	13262
NET SALES	(26)	215600	216613	217631	649845
COST OF GOODS SOLD					
MATERIAL COST	(32)	104500	104991	105485	314976
LABOR COST	(33)	25520	25520	25520	76560
FACTORY OVERHEAD-FIXED	(34)	3100	3100	3100	9300
FACTORY OVERHEAD-VARIABLE	(35)	7784	7784	7784	23351
TOTAL COST OF GOODS SOLD	(39)	140904	141395	141888	424187
GROSS MARGIN	(41)	74696	75219	75743	225658
OPERATING EXPENSES					
SELLING	(52)	19392	19463	19534	58389
MARKETING	(53)	7900	7900	7900	23700
GENERAL & ADMINISTRATIVE	(54)	12400	12400	12400	37200
ENGINEERING & DEVELOPMENT	(55)	9650	9650	9650	28950
RENT	(56)	3125	3125	3125	9375
UTILITIES & COMMUNICATION	(57)	1650	1650	1650	4950
TOTAL OPERATING EXPENSES	(59)	54117	54188	54259	162564
NET PROFIT BEFORE TAXES	(65)	20579	21031	21484	63094

1. The Report Heading

The Report Heading is printed from information in the Report Description file entered by the user. It can be from 1 to 3 lines, each line having up to 30 characters of information.

Notice that each line is proportionally centered.

2. The Date and Page Number

The date and page number are printed automatically by DESKTOP/PLAN. The date printed is entered using Set Parameters and Date function (Number 8) on the main menu.

3. "Run Description"

The "Run Description" affords the user the opportunity of printing a message on all pages of a report that is unique to a particular execution of the model or printed report. The description is entered by the user immediately prior to printing the report. It may be up to 30 characters in length.

4. Line Numbers

Line numbers are used by DESKTOP/PLAN to refer to a row of Computed or Planning Values or to the alphabetic description of a row of values.

A model may have up to a maximum of 300 lines of values. A line will be printed on the report only for those line numbers in the model which have been given line descriptions.

At the time reports are printed, the user can elect to print only a group of sequentially numbered lines, from a "starting" line thru an "ending" line number.

At the time reports are printed, the user is asked whether the line numbers are to be printed. If the response is "N," then the space in which they would have been printed is "blank." This option should be chosen when the reports generated by DESKTOP/PLAN are to be used by someone not familiar with the DESKTOP/PLAN system and their presence would distract from their understanding of the report contents.

5. Planning or Computed Values

Computed Values are what DESKTOP/PLAN is all about.

They are the symbolic representation of the results of operating a business according to the set of assumptions and initial values - the "Planning Values" - and Calculation Rules specified to and executed by, DESKTOP/PLAN. They are printed in the report on the lines immediately to the right of the line numbers and include the values under each of the columns.

Values may be printed on the report as either "whole numbers" or with one or two digits to the right of the decimal point. The determination of the number of places to the right of the decimal point to be printed is made by the user when entering Line Descriptions and Column Headings.

Whole numbers with no decimal places having a range of 99,999,999 to -9,999,999 or values with 2 decimal placings having a range of 999,999.99 to -99,999.99 will be printed (without the commas). Numbers outside those ranges will be replaced with "********."

At the time the user selects the PRINT function from the main menu and enters the names of the files to be used, there are two options which can be selected.

By entering the file name NONE for the Values File, DESKTOP/PLAN will print a report with no values. This is particularly useful for having the system generate Planning Values Worksheets and for reviewing the format of a report immediately after entering its specifications to insure that is was done correctly.

Secondly, if the user enters a file name other than NONE for the Values File, he will be asked if these are Computed Values. If the response is "N," DESKTOP/PLAN will use a Planning Values file rather than a Computed Values file.

6. Column Headings

Column headings briefly describe the meaning of the values appearing in each column of the report. The column headings are printed from information in the Report Description file.

In addition to the description to be printed above each column, the Report Description file contains information about the number of digits to be printed to the right of the decimal point for each number printed in each column. If this specification is not zero and is different than specification for a line, when the value is printed, the column specification will take precedence.

A model may have up to 18 columns of information. The maximum number columns in the model is entered by the user during the entry of the Report Description.

Prior to printing the report, DESKTOP/PLAN prompts the user for information about which columns to print:

1. The number of columns to be printed on each page of the report.

2. The first column of the model to be printed.

3. The last column of the model to be printed.

DESKTOP/PLAN will automatically format the report so that no more than the specified number of columns per page will be printed on any one sheet.

The maximum number of columns which may be printed on each page is determined by DESKTOP/PLAN based on the "page width" specified by the user in the Set Parameters function. (A maximum of 12 columns may be printed on any page if the report is being printed on a printer with 156 print positions.)

7. Line Descriptions

Line Descriptions describe the meaning of the values printed for each line of Planning or Computed Vaues on the report. Line descriptions are printed from the Report Description file. Each description may be up to 30 characters in length.

When line descriptions are entered, the user also enters the number of digits to be printed after a decimal point, either 0, 1, or 2. Based on this entry in the line description, all values printed on the line will have the same number of digits after the decimal point, unless the specification is overridden by the specification for one of the columns in the line.

Five "line descriptions" have special meaning to DESKTOP/PLAN. These are:

"#" The "#" (pound sign) causes a blank line to be "printed."

"-" The "-" (minus symbol) causes underscores to be printed completely across the width of each column. An underscore is printed when the user wants to indicate a line of values with totals or subtotals is to follow.

"=" The "=" (equal sign) causes double underscores to be printed completely across the width of each column. The "double underscore" is normally used to indicate the "end."

"©" The "©" ('hat' symbol) (Shift/N on the Apple keyboard) causes the the printer to not print a line number or values on a line when this is the last character entered in a line description. In addition, the line description is "centered" within the space for line descriptions.

This is normally used to print "sub-headings" indicating new major sections of the report.

"*" The "*" (asterisk) will cause DESKTOP/PLAN to print the page footer message, skip to the first line of a new page, print all the page and column headings, and

then continue printing values and line descriptions on this new sheet. (This is commonly called a "form feed.")

The blank line, underscore, and form feed codes are the only character entered in a line description for those functions.

11. The "Page Footer" message

The page footer message is generated automatically by DESKTOP/PLAN. The message on the diskette yoou received is as printed on all sample reports in this manual.

You may customize this message by changing a program statement in the PRINT program. To do so, follow the procedure described in Appendix E.

Section 4 - REPORT DESCRIPTION

Designing a Report
Entering Report Specifications
Printing a Report
"Print Time" Options

Developing Report Specifications

Developing Report Specifications is a simple process.

The desired format should first be layed out on paper, at least for the first one or two models, similarly to the way it would be done if the analysis were being done on the traditional spread sheet. As a user gains experience, the Report Description may be developed as it is entered into DESKTOP/PLAN.

Exhibit 4-a is an illustration of a worksheet for the Topnotch Manufacturing Company report that was illustrated in Section 3.

Developing Report Specifications is normally a four step process.

First, write the Report Heading in the upper left corner of the paper. A report may have 1, 2, or 3 lines in the heading, each with up to 30 characters of information.

Second, write in the heading (up to 2 lines) to be printed above each column of values. Each line of each heading may be up to 9 characters long.

Write the exact description to be printed on the report of the numerical contents of each line.

As these descriptions are written, blank lines should be left and underscores marked as they are to appear on the printed report.

If the line description is a sub-heading within the body of the report, that is, no numerical values are to be printed on the line, enter the "©" sysmbol as the last character in the line description.

Next, the codes for blank lines, column underscores, and form feeds are entered. These codes are entered as the first, and only, character in a line description. The codes are:

- # Pound sign for a blank line
- - Minus sign to cause column underscores to be printed
- = Equal sign to cause column double underscores to be printed
- * Asterisk to cause a "form feed"

TOPNOTCH MANUFACTURING CO.
QUARTERLY BUDGET
4th QUARTER

		OCTOBER	NOVEMBER	DECEMBER	QTR TOTAL
1	ASSUMPTIONS^				
5	PRIOR QTR MONTHLY SALES				
6	SALES GROWTH RATE (% MONTH)				
7	RETURNS & ALLOWANCES (%)				
8	SELLING COST (% SALES)				
9	MATERIAL COST (% SALES)				
10	AVE. HOURLY LABOR Rate				
11	Number OF DIRECT LABOR PERS.				
12	FACTORY BURDEN (% LABOR)				
19	==========^				
20	#				
21	INCOME^				
22	GROSS SALES				
23	LESS RETURNS & ALLOWANCES				
25	—				
26	NET SALES				
30	#				
31	COST OF GOODS SOLD^				
32	MATERIAL COST				
33	LABOR COST				
34	FACTORY OVERHEAD- FIXED				
35	FACTORY OVERHEAD-VARIABLE				
38	—				
39	TOTAL COST OF GOODS SOLD				
40	#				
41	GROSS MARGIN				
50	#				
51	OPERATING EXPENSES^				
52	SELLING				
53	MARKETING				
54	GENERAL & ADMINISTRATIVE				
55	ENGINEERING & DEVELOPMENT				
56	RENT				
57	TELEPHONE & UTILITIES				
58	—				
59	TOTAL OPERAITING EXPENSES				
60	#				
65	NET PROFIT BEFORE TAXES				
99	CONSTANT 176				
100	CONSTANT 100				

Line Numbers

Specific line and column numbers are used by DESKTOP/PLAN to refer to line descriptions and numeric values in the model. The "maximum number of lines" and the "maximum number of columns" in the model are entered as part of the Report Description.

DESKTOP/PLAN uses these values to reserve space for that many line descriptions, column headings, and numerical values. Effectively, DESKTOP/PLAN sets up a blank "electronic worksheet" with that many rows and columns.

The minimum number of lines that may be "reserved" is 10 and the maximum is 300. The "number of lines" must be entered in increments of 10.

The minimum number of columns which may be specified is 1 and the maximum is 18.

A line for which space has been reserved may be used for any numerical value even if the value is not to be printed. The only way a line of values will be printed is if a line description is entered for that line number. Thus, a line may be used for entering, saving, and using "constants" such as the numbers 100 or 176. Or, a line may be used during calculations to "save" the result of a calculation which is to be used in a later calculation, but not printed on a report.

A line of values might not be used at all but merely "reserved" for future expansion of the model. Lines are reserved for these purposes by specifying the maximum number of lines in the model to be greater than the sum of all the lines for which a line description is entered, including blank lines, underscores, form feeds, and sub-headings.

If very large models are being developed, it is suggested that the model be be constructed as a series of sub-models with values passed to a summary model using the CONSOLIDATE function of DESKTOP/PLAN.

DESKTOP/PLAN will accomodate model sizes of up to 300 lines and up to 18 columns on a 48k Apple. However, the system will not execute a model with both of these maximums specified. The absolute maximum size model which may be executed is impossible to determine because of the way Applesoft uses memory space for line descriptions. A model of 225 lines by 18 columns has been successfully executed on a 48k system and many models of 100 lines by 13 columns have been executed on 32k systems.

DESKTOP/PLAN prints line descriptions and their associated Planning or Computed Values in line number sequence. The lines do not have to be numbered consecutively but they must be numbered in the sequence they are to appear on the printed report. It will be easier to develop, enter, and modify models

in the future if the following practices are adhered to:

> Start numbering a group of lines, including the associated sub-heading, with a number ending in "1" (one), such as 1, 11, 21, or 91.
>
> End a group of lines under a sub-heading with a number ending in "0" (zero) such as 10, 20, 30, or 100. This will often be a blank line with a line description of "#" (pound sign).
>
> Leave a few blank unused line numbers within the major sections of the report for later expansion of the model.
>
> Put constants in the last block of 10 or 20 lines reserved in the model. Later, when printing a report using these specifications, print the report from line number 1 through the last line the users of the report need to see. Thus, the constants will not be printed.

Study the illustration. These practices have been followed in the illustration.

With this knowledge of what and how line numbers are used, the next step in developing a Report Description is to assign line numbers to the lines on the worksheet.

Once the Report Description has been developed, DESKTOP/PLAN and the Apple II are used for the first time.

Select Function 1 from the main menu.

You'll be asked if you want to "MODIFY AN OLD FILE ?" Your response should be "N" followed by a 'RETURN.'

Next, you'll be prompted for each line of the Report Heading. Enter it as it was written on the worksheet and/or as you want it to appear on all printed reports.

Enter the characters for each line by pressing the proper key for each character. If a character is mis-typed, press the "left arrow" key for each character to be "erased." The character will be removed from the screen and a period (.) will replace the deleted character.

When all the characters for the line are entered and displayed, press the 'RETURN' KEY.

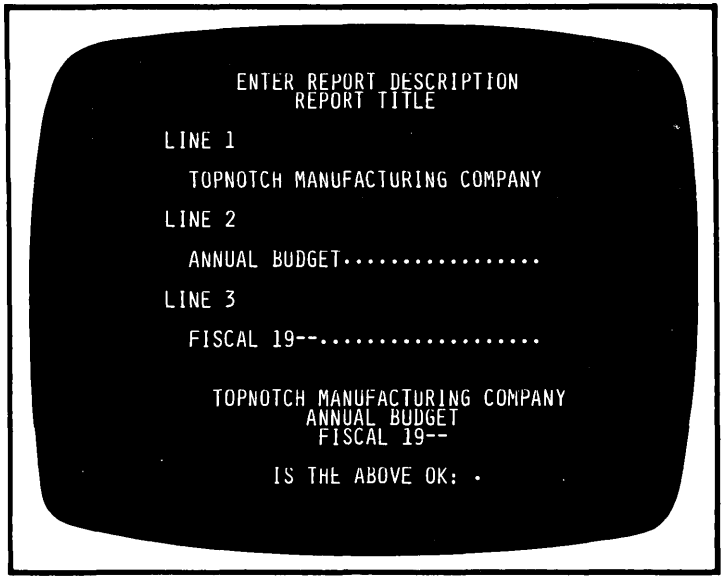
If more characters than DESKTOP/PLAN will allow for an entry are typed, as indicated by the periods (.) displayed during the prompt, all the characters that have been typed for that entry will automatically be erased, the Apple will "beep," and the message "INVALID DATA/PLEASE RE-REENTER" will be displayed for 1 1/2 seconds. The cursor will then be repositioned to the prompt position of the first character.

If you do not desire anything to be printed on the report for a line, merely press 'RETURN.'

NOTE: If no entry is required for a description, pressing the 'RETURN' key will cause DESKTOP/PLAN to proceed to its next entry or function. This may be done only for fields of descriptive information such as report or column headings. If this is done when numeric information is requested, such as for values or line numbers, DESKTOP/PLAN will not accept the entry and the user will not be able to proceed until a valid entry has been made.

If 'RETURN' is the only response to a request for a file name, an error will be generated at the time DESKTOP/PLAN tries to use the file. All processing for the function is then terminated and an error message to the user is displayed. Control is then returned to the main menu.

If what has been entered is correct, "Y" and 'RETURN' will cause DESKTOP/PLAN to proceed to its next function. If not correct, 'N' and 'RETURN' will cause DESKTOP/PLAN to prompt for the heading line number to be changed. Typing 'END' will then cause the system to again prompt for verification that the information entered is correct.


ENTER REPORT DESCRIPTION
REPORT TITLE
LINE 1
TOPNOTCH MANUFACTURING COMPANY
LINE 2
ANNUAL BUDGET.....
LINE 3
FISCAL 19--.....
TOPNOTCH MANUFACTURING COMPANY
ANNUAL BUDGET
FISCAL 19--
IS THE ABOVE OK: .

Enter Number of Lines & Columns

Exhibit 4-c illustrates the "prompts" for the entry of the number of lines and columns to be reserved in the model.

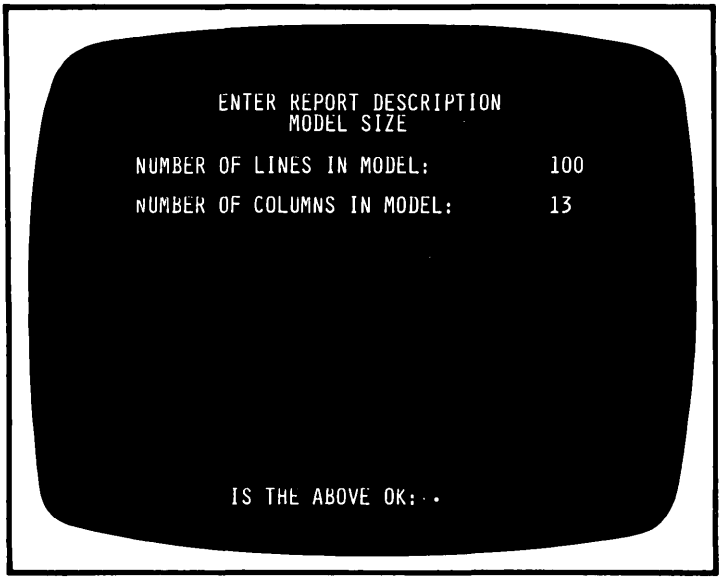
> IMPORTANT NOTE: The entries defining the size of the model cannot be changed for this model anytime after the "Y" response.

The "number of lines" can range from 10 to 300. The number entered must end with zero, i.e., be an even increment of 10.

The "number of columns" can range from 1 to 18.

All sub-models being used with the CONSOLIDATE function must have identical column and line specifications.

Exhibit 4-c


ENTER REPORT DESCRIPTION
MODEL SIZE
NUMBER OF LINES IN MODEL: 100
NUMBER OF COLUMNS IN MODEL: 13
IS THE ABOVE OK:

Entering Column Headings

When entering column headings, the "cursor" will move from line to line, sequentially on the screen. The system first prompts for the first line of the heading for column 1, then the second line of column 1, and then the decimal specification for the values to be printed under that column heading.

When the column headings and decimal specifications have been entered for the required number of columns, and the user responds "Y" to "...is the above OK", DESKTOP/PLAN will proceed to entering line descriptions.

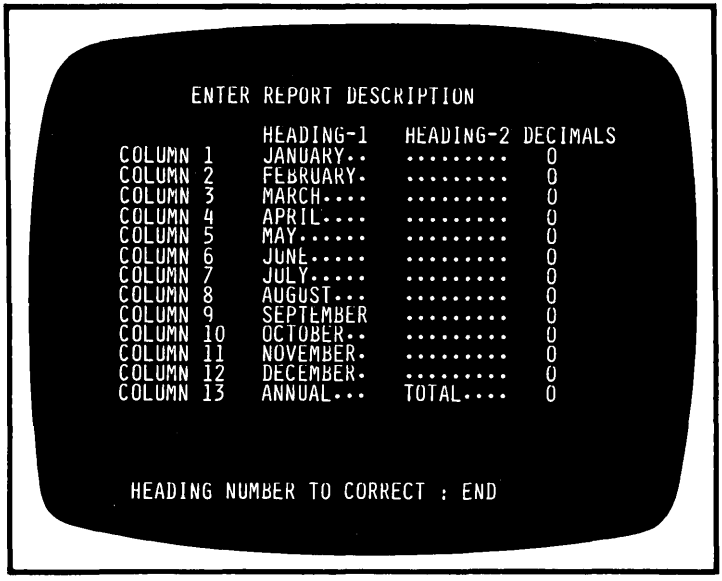
However, if the response is "N", the user is given an opportunity to selectively change as many column headings and decimal specifications as is necessary.

When all changes are complete, type "END". DESKTOP/PLAN will then proceed to the entry of line descriptions.

A note about the valid entries for DECIMALS. The value entered may be 0, 1, or 2.

If the value entered is other than 0, then the specification for decimals for the column will override the decimal specification for any line to be printed. This allows all the values in a column to be printed with an identical number of digits to the right of a decimal point. For instance, if the last column of a report is to be a percentage, it can be printed with one decimal place even though all other values printed are to be whole numbers.

Exhibit 4-d


ENTER REPORT DESCRIPTION
HEADING-1 HEADING-2 DECIMALS
COLUMN 1 JANUARY.. 0
COLUMN 2 FEBRUARY. 0
COLUMN 3 MARCH.... 0
COLUMN 4 APRIL.... 0
COLUMN 5 MAY..... 0
COLUMN 6 JUNE..... 0
COLUMN 7 JULY..... 0
COLUMN 8 AUGUST... 0
COLUMN 9 SEPTEMBER 0
COLUMN 10 OCTOBER.. 0
COLUMN 11 NOVEMBER. 0
COLUMN 12 DECEMBER. 0
COLUMN 13 ANNUAL... TOTAL.... 0
HEADING NUMBER TO CORRECT : END

Entering Line Descriptions

Line descriptions, and their associated decimal specifications, are entered when prompted for from a display as in Exhibit 4-e.

Descriptions are prompted for in "blocks" or groups of 10 lines each.

The first block, numbered "block 0," is always presented first. Thereafter, line descriptions may be entered in any sequence desired by changing "block numbers," and randomly selecting the line number to be entered.

To change "blocks," type 'END' when prompted for the line number. Then, enter the block number for the group of lines to be entered.

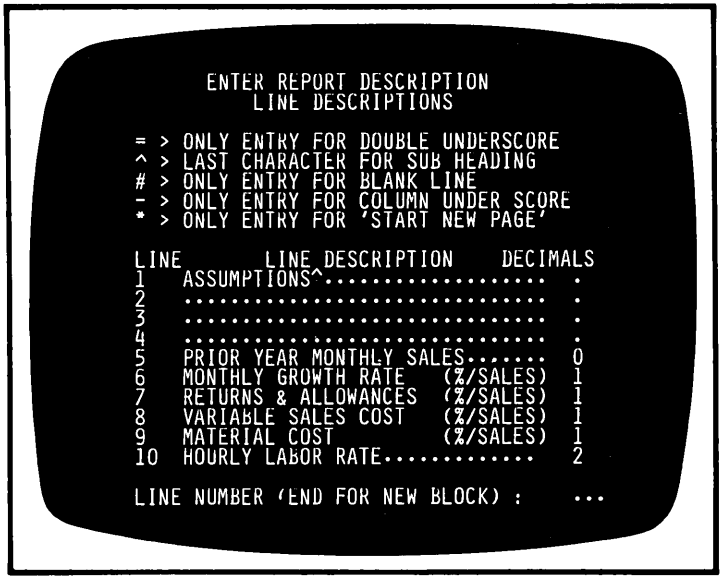
When all line descriptions have been entered, a response of 'END' to a prompt for a "NEW BLOCK NUMBER" will cause DESKTOP/PLAN to proceed to its next operation.

Saving the Report Description in a File

Upon completion of entry of all Report Description information, DESKTOP/PLAN will prompt the user for the name of a file in which to save the Report Description. This is the name which the user will enter whenever prompted for the name of a Report Description file and these specifications are to be used.

If the name 'TOPNOTCH' is entered, DESKTOP/PLAN will create a file on the diskette named 'TOPNOTCH.D' and record the previously entered information in that file. (The file type designator, '.D' must not be entered by the user. The '.D' is added automatically by DESKTOP/PLAN.)

If for some reason the user does not desire to save the description that has been entered, typing 'NONE' in lieu of a file name will cause DESKTOP/PLAN to return to the main menu without creating a Report Description file.


ENTER REPORT DESCRIPTION
LINE DESCRIPTIONS
= > ONLY ENTRY FOR DOUBLE UNDERSCORE
^ > LAST CHARACTER FOR SUB HEADING
# > ONLY ENTRY FOR BLANK LINE
- > ONLY ENTRY FOR COLUMN UNDER SCORE
* > ONLY ENTRY FOR 'START NEW PAGE'
LINE LINE DESCRIPTION DECIMALS
1 ASSUMPTIONS^..... .
2 ..... .
3 ..... .
4 ..... .
5 PRIOR YEAR MONTHLY SALES..... 0
6 MONTHLY GROWTH RATE (%/SALES) 1
7 RETURNS & ALLOWANCES (%/SALES) 1
8 VARIABLE SALES COST (%/SALES) 1
9 MATERIAL COST (%/SALES) 1
10 HOURLY LABOR RATE..... 2
LINE NUMBER (END FOR NEW BLOCK) : ...

Printing Reports

After a Report Description has been entered, the file may be used to print a report. This is done by selecting Function 5 from the main menu.

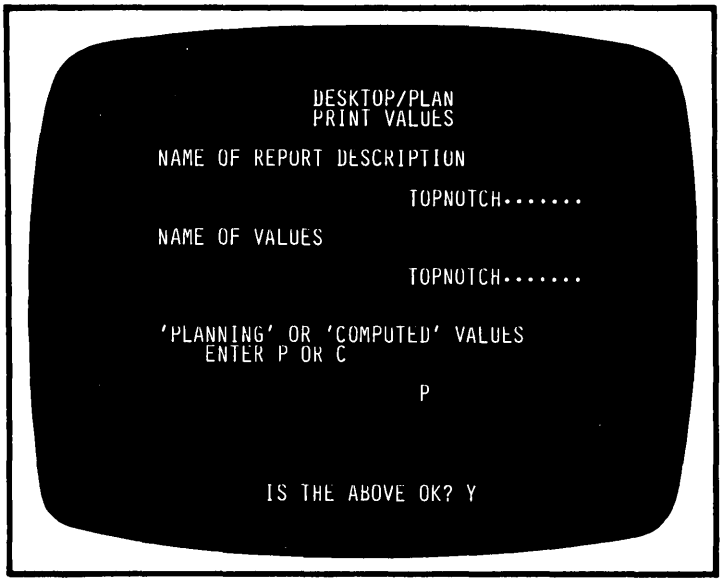
Reports are printed using a Report Description file and either Planning Values or Computed Values from files specified as illustrated in Exhibit 4-f.

If the response 'NONE' is entered for the name of a Values file, DESKTOP/PLAN will cause the report to be printed with no values. (This is useful for printing "blank" reports to be used as "input worksheets.")

It is useful to print a blank report immediately after entering a new Report Description to verify that the report will look as planned, particularly when entering the first one or two models developed.

After the user responds that the information is as desired, DESKTOP/PLAN will read the appropriate specified files and automatically load the PRINT program.

Exhibit 4-f


DESKTOP/PLAN
PRINT VALUES
NAME OF REPORT DESCRIPTION
TOPNOTCH.....
NAME OF VALUES
TOPNOTCH.....
'PLANNING' OR 'COMPUTED' VALUES
ENTER P OR C
P
IS THE ABOVE OK? Y

"Print Time" Options

After the files have been read and the program loaded, the screen will appear as in Exhibit 4-g.

There are a number of report format options entered immediately prior to printing:

1. An option to print or not print line numbers on the report.

2. The specification of a beginning and ending line number for the values from which to print the report. This allows selectively printing only portions of the model.

3. The specification of a beginning and ending column for the values from which to print the report. Again, this allows selectively printing only portions of the model.

4. A specification for the number of model columns to be printed on each page. The maximum number of columns the user may enter is determined by the number of characters in width the printer will print and this specification in the parameters file. (With 156 characters, a 12 column report may be printed, with 132 characters, 9 columns, and with 80 characters, up to 4 columns.)

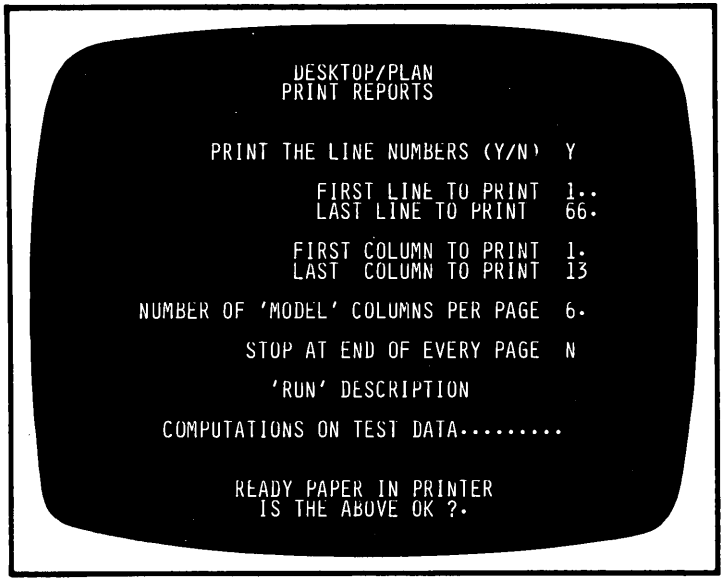
5. An option to stop at the end of each page. (This allows the user to use "single sheet" forms such as stationery.)

In addition, after a report has been printed, the user can specify additional reports be printed from the same values. Thus, a portion of the report may be specified to have three columns per page for one range of lines and columns and four columns per page for another range of lines and columns.

Based on the width of the paper, length of the paper, and print span of the paper, the user has complete flexibility in the format of reports printed by DESKTOP/PLAN.

The last entry, 'RUN' DESCRIPTION, allows each execution of the model to be uniquely identified.

Exhibit 4-g



After all entries have been made, the paper should be positioned in the printer as though printing were to begin on the very first line of the paper. Then, if all entries made previously are correct, a 'Y' response will cause DESKTOP/PLAN to print the report.

When printing is complete, the user is asked if another copy is desired. If the response is 'Y', another copy will be printed.

When no more copies are desired the user is given the opportunity to print another report with the same values but with different line and or column specifications.

If this option is not taken, DESKTOP/PLAN returns to the main menu.

Section 5 - PLANNING VALUES

Developing Planning Values
Entering Planning Values

Developing values for entry into DESKTOP/PLAN is a relatively simple process.

First, print a report with the previously entered Report Description, to be used as a "worksheet." (Remember, enter 'NONE' for the Planning Values file name to print a "blank" report.) (Many users find they only need to do this for the first one or two models.)

Then, before entering information on your worksheet, learn and understand four functions which can be performed by Calculation Rules and will save much time in developing and entering planning values. These four rules are:

1-EXTEND/FILL LINES
3-INTERPOLATE LINES
5-GROW A LINE
2-FILL A COLUMN

Essentially, these four rules can be viewed as "data generation" functions. That is, from one or two values entered by the user, the remaining values required for the entire line or column are automatically generated when the Calculation Rules are executed. Their detailed function and use are described in detail in Section 6 of this manual.

EXTEND/FILL LINES is an excellent illustration. Suppose that one part of a model is to compute estimated direct labor costs. Three factors are involved:

Number of direct labor employees
Average hourly labor rate
Number of work hours per month

For the calculation of work hours by number of employees by the average hourly labor rate to take place for each 12 months of the model, a value for each month for each variable must be entered.

This can be accomplished by entering a single value for each variable on its appropriate line in column 1. Then the EXTEND/FILL function can be used in Calculation Rules to duplicate the value from column 1 to each of the remaining 11 columns for each of the three variables.

If it is known that the average hourly rate is to be increased in the 5th month, the new hourly rate can be entered into column 5. EXTEND/FILL would then duplicate the rate entered in column 1 into columns 2, 3, and 4 and duplicate the value in column 5 into columns 6, 7, 8, 9, 10, 11, and 12.

TOPNOTCH MANUFACTURING COMPANY
QUARTERLY BUDGET
THIRD QUARTER-1979

JANUARY 27, 1980
PAGE 1

PLANNING VALUES WORKSHEET		JULY	AUGUST	SEPTEMBER	QUARTER TOTAL
ASSUMPTIONS					
PRIOR QUARTER MONTHLY SALES	(5)	213000	218000	215000	-
COMPUTED MONTHLY GROWTH RATE-%	(6)	-	-	-	-
RETURNS & ALLOWANCES -%	(7)	2.0	-	-	-
VARIABLE SELLING COST -%	(8)	7.0	-	-	-
MATERIAL COST -%	(9)	47.0	-	-	-
HOURLY LABOR RATE	(10)	7.25	-	-	-
NUMBER OF DIRECT LABOR PERS.	(11)	20	-	-	-
FACTORY BURDEN (% OF DIR LAB)	(12)	30.5	-	-	-
INCOME					
GROSS SALES	(22)	220000	-	-	-
RETURNS & ALLOWANCES	(23)	-	-	-	-
NET SALES	(26)	-	-	-	-
COST OF GOODS SOLD					
MATERIAL COST	(32)	-	-	-	-
LABOR COST	(33)	-	-	-	-
FACTORY OVERHEAD-FIXED	(34)	3100	-	-	-
FACTORY OVERHEAD-VARIABLE	(35)	-	-	-	-
TOTAL COST OF GOODS SOLD	(39)	-	-	-	-
GROSS MARGIN	(41)	-	-	-	-
OPERATING EXPENSES					
SELLING	(52)	4300	-	-	-
MARKETING	(53)	7900	-	-	-
GENERAL & ADMINISTRATIVE	(54)	17400	-	-	-
ENGINEERING & DEVELOPMENT	(55)	9650	-	-	-
RENT	(56)	3125	-	-	-
UTILITIES & COMMUNICATION	(57)	1650	-	-	-
TOTAL OPERATING EXPENSES	(59)	-	-	-	-
NET PROFIT BEFORE TAXES	(65)	-	-	-	-
CONSTANT 176	(99)	176	-	-	-
CONSTANT 100	(100)	100	-	-	-

Exhibit 5-b illustrates the diplay when entering the values for Line 5 of the TOPNOTCH model.

To get to this point, select Function 2 from the main menu and Function 1 from the ENTER, MODIFY, OR DISPLAY VALUES sub-menu. After entering the file names, the files and appropriate program are automatically loaded.

The user is then prompted for a line number in which values are to be entered.

The then current values for each column in the line are displayed and the cursor prompts the user for the entry of a value in column 1.

Certain keys have specific functions when entering Planning Values:

IF ENTERING VALUES UNDER A COLUMN HEADING:

"Right Arrow"--Copies the value in the previous column to the column with the cursor and moves the cursor to the next higher numbered column.

"Left Arrow"----Moves the cursor to the previous column without changing any values.

"Space Bar"-----Moves the cursor to the next column without changing any values.

"RETURN"--------If no value has been keyed, returns the cursor to the bottom of the screen to prompt for another line number.

If a value has been typed, the value is entered into the system and the cursor is moved to next higher numbered column.

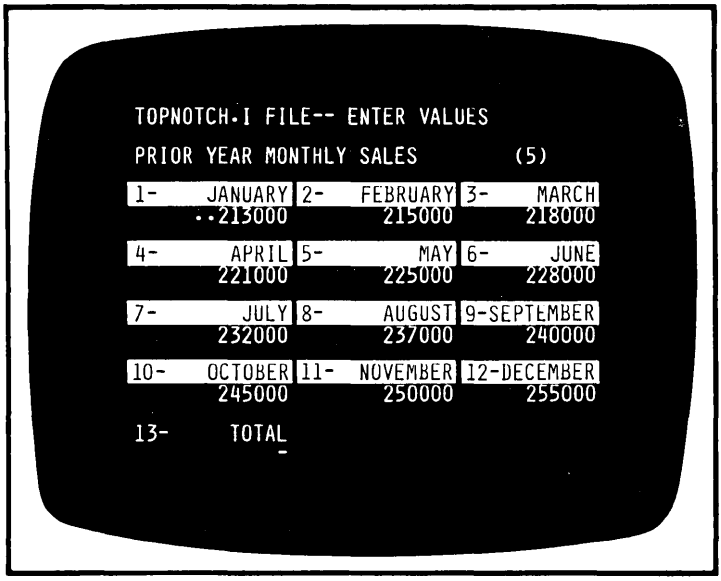
IF PROMPTING FOR A LINE NUMBER:

"Right Arrow"---Displays the current values of the next sequentially higher numbered line.

"Left Arrow"----Displays the current values of the next sequentially lower numbered line.

"RETURN"--------Displays the current values of the next sequentially numbered line if RETURN is pressed with no line number having been keyed. If a line numer is typed prior to pressing return, the current values in that line are displayed.

Exhibit 5-b



When all values have been entered, the response 'END' to a prompt for a line number will cause DESKTOP/PLAN to write the Planning Values file (a '.I' file type) with the file name as entered when the function was first selected.

After the file has been written to disk, control is returned to the main menu.

Section 6-CALCULATION RULES

Introduction to Calculation Rules
Developing Rules for an Analysis or Model
Entering Calculation Rules
Executing Calculation Rules
Standard Calculation Rules Available

INTRODUCTION TO CALCULATION RULES

"Calculation Rules" are the description to DESKTOP/PLAN of the calculations and other manipulation of Planning Values and intermediate results necessary to produce the desired analysis.

"Standard" Calculation Rules are pre-written sub-programs which are used by DESKTOP/PLAN. The user merely specifies the lines and columns on which the function of the rule is be executed. Twenty standard rules are provided which do the type of arithmetic and manipulation of values which are common to planning.

"Custom" Calculation Rules are Applesoft BASIC sub-programs written by the user and entered into DESKTOP/PLAN's EXECUTE function. Provisions exist for developing and using up to 20 "custom" Calculation Rules.

After the user determines what calculations are necessary to perform the analysis, the rules describing the calculations are entered into the system in the sequence they are to be executed. The user selects each desired rule from a menu. After selection, the user is prompted for the lines and columns of the values on which the rule is to be executed.

After entry, the rules are saved in a file on diskette.

Rules are executed on a file of Planning Values by selecting Function 4 from the "main menu" or upon the completion of "modifying values."

The remainder of Section 6 is comprised of a discussion of the following:

1. Determining the rules for a specific model or analysis.

2. Entering (or modifying) rules.

3. Executing Calculation Rules after they have been entered.

4. Detailed descriptions of available standard Calculation Rules are consolidated for easy reference on pages 84 to 125. Each description is comprised of a narrative of the function performed, an illustration of the results of its execution, a description of its use in TOPNOTCH, an exhibit illustrating how it is entered, and a description of the six possible parameters for the rule.

DEVELOPING RULES FOR AN ANALYSIS OR MODEL

After the functional capability of the available "standard" or "custom rules" have been studied and are understood, the next step is to prepare a "Calculation Rules worksheet" by printing a report using the Planning Values file on which the calculations are to be performed.

This report, illustrated in Exhibit 6-a, has printed on it only the "assumptions", "initial values", and "constants" which were entered by the user.

The remaining positions for values contain the "dash symbol" (-). The values for these spaces will be computed by executing the Calculation Rules. The report will serve as a "worksheet" for planning and entering the necessary Calculation Rules.

First, determine which lines of values on the worksheet contain one or two entries for the constants, assumptions, and initial values and on which the remaining required values can be derived by executing one of the "data generation" rules. Note these on the worksheet on the line of dashes where these values are to appear. Number each "note" in the sequence it is to be executed.

Next, determine the multiplication or division of constants or assumptions necessary to properly position the decimal points. (You may want to print an assumption as a percentage but when it is used in a computation it must used as a decimal fraction.) Note these rules and their sequence on the "worksheet."

Next, go through the report, line by line, determining the arithmetic to be done, making notes and sequence numbers.

Then do the same thing column by column if arithmetic needs to be done to compute columns of results.

Finally, at least for the first model, make a list, in sequence, of the rules to be executed. Indicate the line and column numbers on which each rule is to be executed. A sample is illustrated in Exhibit 6-b.

(After the first one or two models, many users may not need one or the other of the two worksheets. The "worksheet" illustrated in Exhibit 6-b is useful for entering the rules, particularly when you are unsure of yourself.)

That's all there is to it.

No formulas. No codes to remember. No programs to write (unless you have "Custom Rules").

The rules may now be entered into DESKTOP/PLAN by selecting Function 3 from the main menu.

Exhibit 6-a
Calculation Rules Worksheet

TOPNOTCH MANUFACTURING COMPANY
QUARTERLY BUDGET
THIRD QUARTER-1979

JANUARY 27, 1980
PAGE 1

CALCULATION RULES WORKSHEET		JULY	AUGUST	SEPTEMBER	QUARTER TOTAL
ASSUMPTIONS					
PRIOR QUARTER MONTHLY SALES	(5)	213000	218000	215000	-
COMPUTED MONTHLY GROWTH RATE-%	(6)	-	-	-	-
RETURNS & ALLOWANCES -%	(7)	2.0	-	-	-
VARIABLE SELLING COST -%	(8)	7.0	-	-	-
MATERIAL COST -%	(9)	47.5	-	-	-
HOURLY LABOR RATE	(10)	7.25	-	-	-
NUMBER OF DIRECT LABOR PERS.	(11)	20	-	-	-
FACTORY BURDEN (% OF DIR LAB)	(12)	30.5	-	-	-
INCOME					
GROSS SALES	(22)	220000	-	-	-
RETURNS & ALLOWANCES	(23)	-	-	-	-
NET SALES	(26)	-	-	-	-
COST OF GOODS SOLD					
MATERIAL COST	(32)	-	-	-	-
LABOR COST	(33)	-	-	-	-
FACTORY OVERHEAD-FIXED	(34)	3100	-	-	-
FACTORY OVERHEAD-VARIABLE	(35)	-	-	-	-
TOTAL COST OF GOODS SOLD	(39)	-	-	-	-
GROSS MARGIN	(41)	-	-	-	-
OPERATING EXPENSES					
SELLING	(52)	4300	-	-	-
MARKETING	(53)	7900	-	-	-
GENERAL & ADMINISTRATIVE	(54)	12400	-	-	-
ENGINEERING & DEVELOPMENT	(55)	9650	-	-	-
RENT	(56)	3125	-	-	-
UTILITIES & COMMUNICATION	(57)	1650	-	-	-
TOTAL OPERATING EXPENSES	(59)	-	-	-	-
NET PROFIT BEFORE TAXES	(65)	-	-	-	-
CONSTANT 176	(99)	176			-
CONSTANT 100	(100)	100			-

(2) Compute Growth Rate, Save in 6

3 EXTEND/FILL - LINES 6-12 - COLS 1-3

(4) EXTEND/FILL

(5) EXTEND/FILL LINES 52-57

(1) EXTEND/FILL

(6) DIVIDE 7/100 Save in 77

(7) DIVIDE 8/100 SAVE IN 78

(8) DIVIDE 9/100 SAVE IN 79

(9) MULTIPLY 10 x 99 SAVE IN 80

(10) DIVIDE 12/100 SAVE IN 82

11

(11) GROW by line 6

(12) MULT 22 by 78

(13) Subtract 23 from 22

(14) MULTIPLY 22 by 79

(15) MULTIPLY 11 by 80

(16) MULTIPLY 33 by 82

(17) ADD 32 thru 35

(18) Subtract 39 from 26

(19) Multiply 26 by 78-(Save in 78)

(20) ADD 78 TO 52 SAVE IN 52

(21) ADD 52 thru 57

(22) SUBTRACT 59 from 41

(23) Crossfoot
LINES 22-65
COLS 1-3, SAVE 4

Exhibit 6-b
List of Calculation Rules to Enter

Calculation Rules for Topnotch

1 Extend/Fill Lines 99-100, Cols 1-3
2 Compute Gro Rate From Line 5, Save in 6, Cols 1-3
3 Extend/Fill Lines 6-12, Cols 1-3
4 Extend/Fill Lines 34-34, Cols 1-3
5 Extend/Fill Lines 52-57, Cols 1-3
6 Divide Line 7 by 100 Save in 77, Cols 1-3
7 " " 8 " 100 " " 78, "
8 " " 9 " 100 " " 79, "
9 Multiply Line 10 by 99, Save in 80, Cols 1-3
10 Divide Line 12 by 100, Save in 82, Cols 1-3
11 Grow Line 22 by 6, Save in Cols 1-3
12 Multiply Line 22 by 77, Save in 23, Cols 1-3
13 Subtract Line 23 from 22, Save in 26, Cols 1-3
14 Multiply Line 22 by 39, Save in 32, Cols 1-3
15 Multiply Line 11 by 80, Save in 33, Cols 1-3
16 Multiply Line 33 by 82, Save in 35, Cols 1-3
17 Add Lines 32 thru 35, Save in 39, Cols 1-3
18 Subtract Line 39 from 26, Save in 41, Cols 1-3
19 Multiply Line 26 by 78, Save in 78, Cols 1-3
20 Add Line 78 to 52 Save in 52, Cols 1-3
21 Add Lines 52 thru 57, Save in 59, Cols 1-3
22 Subtract Line 59 from 41, Save in 65, Cols 1-3
23 Crossfoot (lines 22-65) Columns 1-3, Save in Col 4

ENTERING CALCULATION RULES

When ready to enter Calculation Rules, select Function 3 from the main menu. This function is used for adding to, deleting from, or making changes to an existing Calculation Rules file.

When DESKTOP/PLAN has loaded the appropriate program, the video display will appear as in Exhibit 6-c (without the responses). If this is to be the first entry of a new rules file, respond "Y" to the question. If you are modifying a previously entered Calculation Rules file, respond "N." DESKTOP/PLAN will then load an already existing file by the name you'll be prompted for.

Then, enter the name of the Report Description file which contains the number of lines and columns in your model. The number of lines and columns are used to insure that you don't ask DESKTOP/PLAN to execute calculations on lines or columns which don't exist.

Enter the name of the Calculation Rules file. This name will be used to find and load the Calculation Rules for an existing file if this is not a new rules file and to save the rules after entry or modification.

You'll then be presented with a menu of functions which can be performed while entering or modifying Calculation Rules. This menu is illustrated in Exhibit 6-d.

As can be seen from the exhibit, the ENTER, REVIEW, MODIFY RULES function is a complete "file maintenance sub-system." That is, you can enter rules, insert new rules between previously entered rules, delete rules, display for review and change a rule, print a listing of the rules, and save the rules.

Exhibit 6-c
Entering Calculation Rules File Names

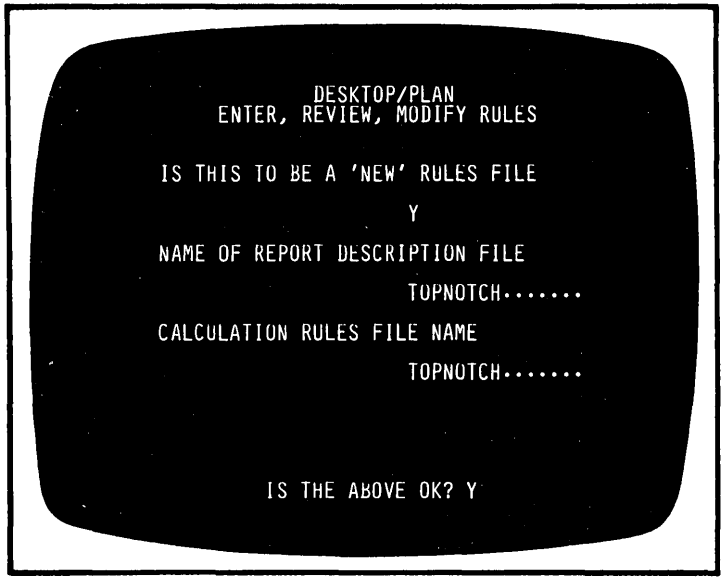
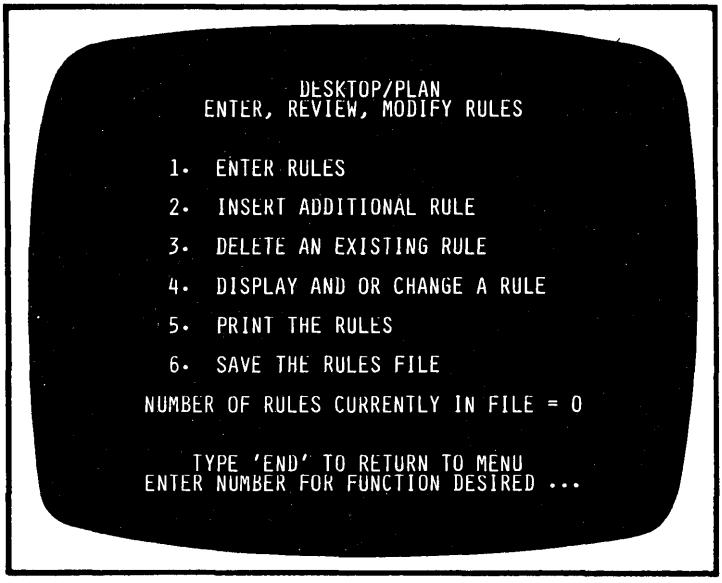


Exhibit 6-d
Menu of ENTER RULES Functions



1. ENTER RULES

Select this function when entering rules for the first time. The number of the rules currently in the file will be indicated as zero. When this function is selected, the menu of available Calculation Rules is presented as in Exhibit 6-e.

This function may also be selected whenever you desire to add rules after the highest numbered rule currently in the file. This may be desireable when modifying an existing Calculation Rules file by adding additional rules or when entering a rules file for the first time and have returned to the main ENTER RULES menu.

To enter a rule, type the number for the rule desired. You'll then be prompted for the required line and column numbers, as illustrated in the detailed description of each type of rule.

When you have entered all of your rules, type 'END' to return to the ENTER RULES menu.

When entering a new rules file it is a good idea to return to the main ENTER RULES menu after entering every 5 or 10 rules. Then, select Function 6, SAVE THE RULES FILE. This provides protection against power failure.

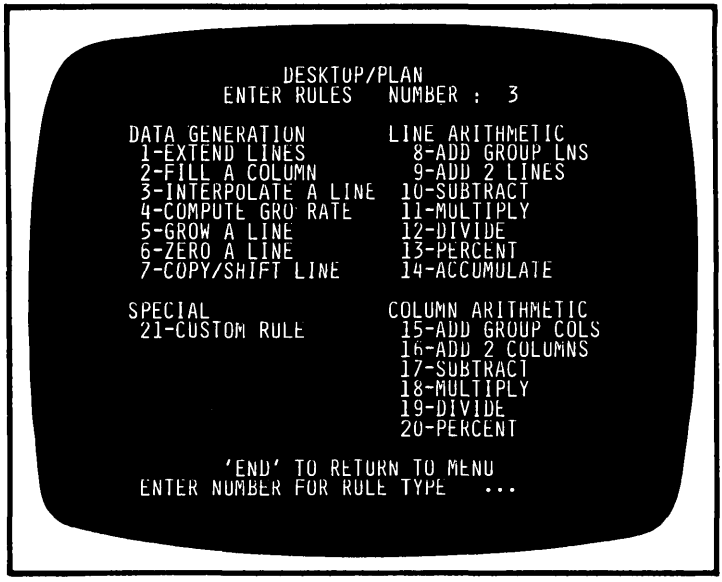
After the file is written to the diskette, select Function 1 again and you'll be returned to the menu of available Calculation Rules. The next rule you enter will be the next higher numbered rule.

2. INSERT ADDITIONAL RULE

The INSERT ADDITIONAL RULE function is provided because we as humans tend to make mistakes and/or don't understand the inter-relationships between the elements of our businesses as well as we thought we did. Seldom are we able to perfectly describe these relationships correctly the first time.

(You'll find as you "get into modeling," one of its major benefits is the learning process you'll go through trying to "build a model" the first time or refine it as you use it over a period of time. Please, don't give up if you think it isn't working. You've just begun to learn what you don't know about your business.)

Exhibit 6-e
Menu of Available Calculation Rules



INSERT ADDITIONAL RULE allows you to add a new rule between two previously entered rules. Select Function 2 from the main ENTER RULES menu. You'll then be prompted for the rule number of this newly inserted rule. This number should be the number for the sequence in which this new rule is to be executed. (The rule which previously had this number, and all successively higher numbered rules will automatically be incremented by one after a rule is inserted.)

After entering the number of the rule to be inserted, the menu of available rules will be displayed. Proceed as though entering an additional rule by selecting the rule type and entering the line and column numbers.

When you have completed inserting the rule, you'll be returned to the main ENTER RULES menu.

3. DELETE AN EXISTING RULE

This function is also provided because we are imperfect.

You may delete a rule currently in the file. When the function is completed, all rules which had been numbered higher than the rule just deleted are renumbered by one less than their previous number.

If, after selecting this function, but before pressing 'RETURN' after typing the rule number, you change your mind, you can "back out" of executing the function by entering zero ('0') as the rule number.

4. DISPLAY AND OR CHANGE A RULE

When this function is selected, the function and current parameters of the rule are displayed in the same format as when entered and you'll be asked "IS THE ABOVE OK ?"

If you respond "Y", you'll be returned to the main ENTER RULES menu.

If you respond "N", you'll be prompted to re-enter each of the line and column parameters for the rule.

You cannot change the function of a rule. You must DELETE AN EXISTING RULE and then INSERT ADDITIONAL RULE.

5. PRINT THE RULES

This function is provided so that you can make a listing of the rules currently in the Calculation Rules file. Exhibit 6-f is a listing of the TOPNOTCH model Calculation Rules.

The six rightmost columns of the report contain the line and column specifications as described in the detailed Calculation Rules descriptions.

If the report is printed with a printer of less than 80 columns, the line and column number specifications will be printed immediately below each rule description.

This function may be selected at any time and as frequently as the user desires while entering Calculation Rules.

After printing the listing, you will be returned to the main ENTER RULES menu.

A word of caution, MAKE SURE THE PRINTER IS TURNED ON ! !

Exhibit 6-f
Listing of TOPNOTCH Calculation Rules

CALCULATION RULES NAMED TOPNOTCH.R JANUARY 17, 1979

NUMBER	DESCRIPTION	LINE 1	LINE 2	LINE 3	COL 1	COL 2	COL 3
1	1-EXTEND & FILL LINES	99	100	0	1	3	0
2	4-COMPUTE A GROWTH RATE	5	0	6	1	3	0
3	1-EXTEND & FILL LINES	6	12	0	1	3	0
4	1-EXTEND & FILL LINES	34	34	0	1	3	0
5	1-EXTEND & FILL LINES	52	57	0	1	3	0
6	12-DIVIDE ONE LINE BY ANOTHER	7	100	77	1	3	0
7	12-DIVIDE ONE LINE BY ANOTHER	8	100	78	1	3	0
8	12-DIVIDE ONE LINE BY ANOTHER	9	100	79	1	3	0
9	11-MULTIPLY TWO LINES TOGETHER	10	99	80	1	3	0
10	12-DIVIDE ONE LINE BY ANOTHER	12	100	82	1	3	0
11	5-GROW A LINE	22	6	0	1	3	0
12	11-MULTIPLY TWO LINES TOGETHER	22	77	23	1	3	0
13	10-SUBTRACT A LINE FROM ANOTHER	23	22	26	1	3	0
14	11-MULTIPLY TWO LINES TOGETHER	22	79	32	1	3	0
15	11-MULTIPLY TWO LINES TOGETHER	11	80	33	1	3	0
16	11-MULTIPLY TWO LINES TOGETHER	33	82	35	1	3	0
17	8-ADD A GROUP OF LINES	32	35	39	1	3	0
18	10-SUBTRACT A LINE FROM ANOTHER	39	26	41	1	3	0
19	11-MULTIPLY TWO LINES TOGETHER	26	78	78	1	3	0
20	9-ADD TWO LINES	78	52	52	1	3	0
21	8-ADD A GROUP OF LINES	52	57	59	1	3	0
22	10-SUBTRACT A LINE FROM ANOTHER	59	41	65	1	3	0
23	15-ADD GROUP COLS/CROSSFOOT	22	65	0	1	3	4

6. SAVE THE RULES FILE

SAVE THE RULES FILE writes whatever Calculation Rules are currently in memory to diskette.

Before writing the file, any Calculation Rules file on the diskette with an identical name is deleted prior to writing the new file.

It is strongly recommended that SAVE THE RULES FILE be used frequently when entering a Calculation Rules file. If something is wrong, find it out early, before you have spent an hour entering rules. You'll also find that you get phone calls right in the middle of entering a file. When the phone rings, save the file immediately. (It's too easy to talk for 10 minutes, turn off the Apple, -- and lose a half hour's work.)

HOWEVER, if you have forgotten to save the rules you have one last chance.

When you type 'END' to return to the main DESKTOP/PLAN menu, you'll be asked if you want to save the Calculation Rules. It's usually a good idea to respond "Y".

EXECUTING CALCULATION RULES

When you have entered all your rules, printed a listing, and saved the rules to diskette, you're ready for the first test.

From the main menu select Function 4, EXECUTE CALCULATIONS.

The video display will appear as in Exhibit 6-g. If you respond "Y" that all model file names are the same you'll be prompted for that single name. If you respond "N", as in Exhibit 6-h, you'll be prompted for the name of each DESKTOP/PLAN file.

After the name(s) are entered, DESKTOP/PLAN will automatically load and execute the rules in the file. While the Calculation Rules are being executed, the sequence number of the rule currently being executed will be displayed at the bottom of the screen. (This will give you some idea of the progress the Apple II is making.)

Upon completion of execution of the rules, you'll be asked if you want to display the Computed Values. If you respond "Y", you can then display each line of Computed Values in the same format as when entering values. (However, you won't be able to change any of the Computed Values from the keyboard.)

When you are done reviewing Computed Values, type 'END.'

You'll then be asked if you want to save the Computed Values. Unless you are planning to print reports at a later time, or have another use for the Computed Values file, there is no need to save the Computed Values because you'll next be asked if you want to print reports. If you do, DESKTOP/PLAN will proceed directly to the printing of the reports, using the just Computed Values for printing.

Exhibit 6-g
Execute Calculations

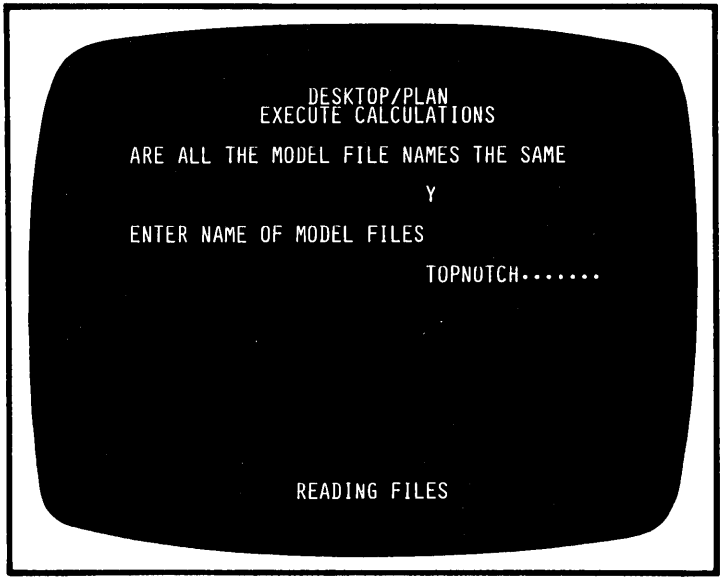
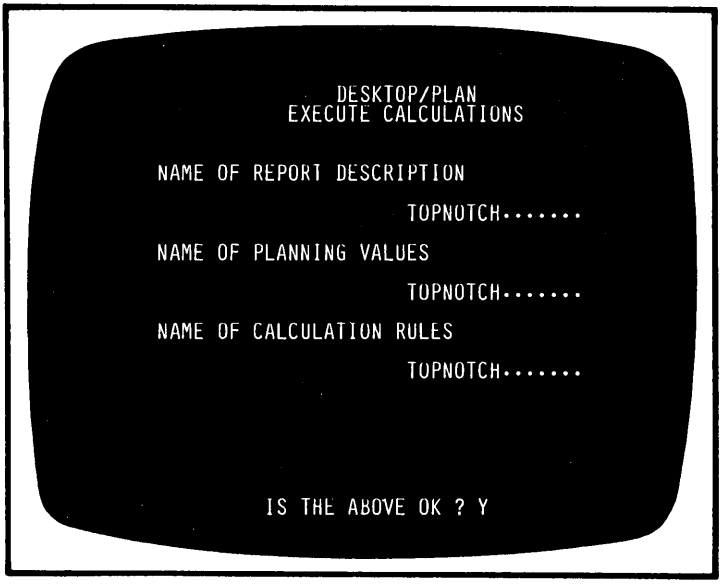


Exhibit 6-h
Execute Calculations



Description of Calculation Rules

Before developing, entering, and executing rules, it is necessary to understand the function performed by each of the available "standard" Calculation Rules. These "standard" rules can be categorized into several types. They are:

A. Rules which perform "data generation" functions.
   1-EXTEND & FILL LINES
   2-FILL A COLUMN
   3-INTERPOLATE A LINE
   4-COMPUTE A GROWTH RATE
   5-GROW A LINE
   6-ZERO LINES
   7-COPY LINE/SHIFT RIGHT

B. Rules which perform arithmetic on lines of values.
   8-ADD A GROUP OF LINES
   9-ADD TWO LINES
   10-SUBTRACT A LINE FROM ANOTHER
   11-MULTIPLY TWO LINES TOGETHER
   12-DIVIDE ONE LINE BY ANOTHER
   13-PERCENT/LINE OF A VALUE
   14-ACCUMULATE A LINE

C. Rules which perform arithmetic on columns of values.
   15-ADD GROUP COLUMNS/CROSSFOOT
   16-ADD TWO COLUMNS
   17-SUBTRACT COLUMNS
   18-MULTIPLY COLUMNS
   19-DIVIDE ONE COLUMN BY ANOTHER
   20-PERCENT/COLUMN OF A VALUE

D. Special Rules.
   21-EXECUTE A 'USER WRITTEN' RULE

The following pages contain detailed descriptions of each available "standard" Calculation Rule.

1-EXTEND & FILL LINES

TYPE OF RULE: Data Generation

DESCRIPTION:

The value from the "prior" column is placed into the "current" column unless there is a "non-zero value" already in the "current" column.

This rule may be specified to be executed on a group of sequentially (but not necessarily consecutive) numbered lines.

ILLUSTRATION:

Extend/Fill lines 1 through 2, column 1 through 6.

	COLUMNS						
	1	2	3	4	5	6	
Line 1.	50	-	-	55	-	-	(Before Execution)
Line 2.	2	-	-	-	-	-	(Before Execution)
Line 1.	50	50	50	55	55	55	(After Execution)
Line 2.	2	2	2	2	2	2	(After Execution)

USE IN TOPNOTCH:

EXTEND/FILL was used extensively in TOPNOTCH.

The "constants" in lines 99 and 100 were "extended."

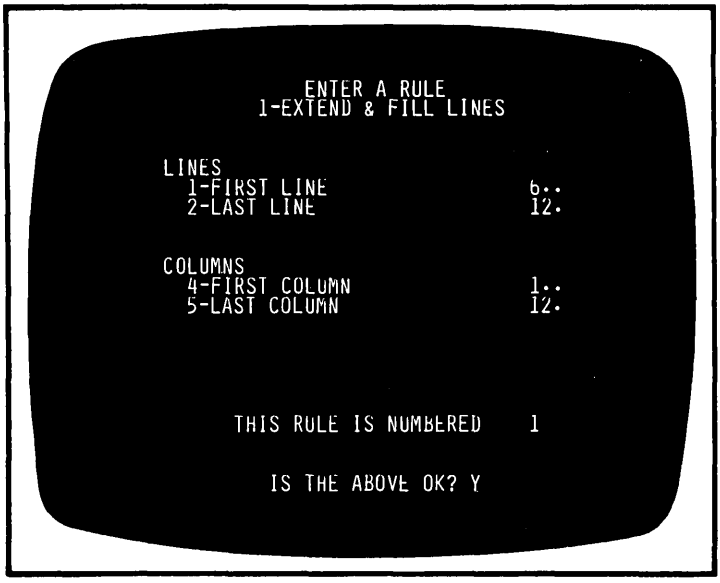
The "growth rate" of the historical date in line 5 was computed. This "growth rate" was saved in column 1, line 6 and then propogated into column 2 through 3 with EXTEND/FILL.

EXTEND/FILL was used to generate the "assumption" values in columns 2 through 3 for lines 7 through 12 (in addition to line 6.)

The Factory Overhead-Fixed in line 34 was generated for columns 2 and 3 from this rule from a single entry of an "assumption" in column 1.

The fixed portion of the Selling Expense in line 52 was generated for columns 2 and 3 from a single "initial value" in column 1, line 52.

Exhibit 6-i



Description of Fields in Rule

1. Line 1 : 1st Line to Extend/Fill
2. Line 2 : Last Line to Extend/Fill
3. Line 3 : Not Used
4. Column 1 : Extend/Fill from this Column
5. Column 2 : Extend/Fill to this Column
6. Column 3 : Not Used

2-FILL A COLUMN

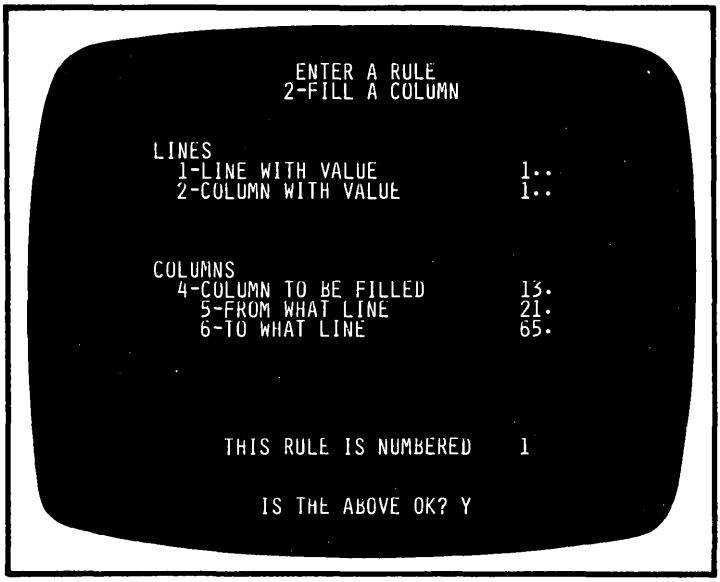
TYPE OF RULE: Data Generation

DESCRIPTION:

This rule places a single value, specified by line and column, into all of the specified lines of a single column.

USE IN TOPNOTCH:

This rule was not used in the TOPNOTCH model.



Description of Fields in Rule

1.	Line 1	: First line to "fill" with value
2.	Line 2	: Last line to "fill" with value
3.	Line 3	: Line with value to "fill"
4.	Column 1	: Column with value to "fill"
5.	Column 2	: Not used
6.	Column 3	: Column to be "filled"

3-INTERPOLATE A LINE

TYPE OF RULE: Data Generation

DESCRIPTION:

The function performed by this rule is best described by studying the results of the illustration.

As with the EXTEND/FILL rule, it may be specified to execute on a group of sequentially numbered lines of values.

ILLUSTRATION:

INTERPOLATE lines 1 through 7, column 1 through 6.

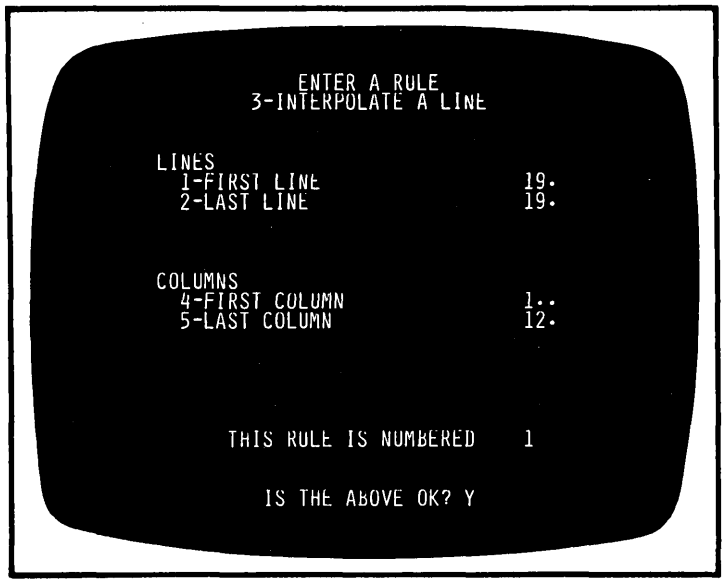
	COLUMNS						
	1	2	3	4	5	6	
Line 1.	100	-	-	-	-	600	(Before Execution)
Line 7.	300	-	-	-	-	800	(Before Execution)
Line 1.	100	200	300	400	500	600	(After Execution)
Line 7.	300	400	500	600	700	800	(After Execution)

USE IN TOPNOTCH:

This rule was not used in TOPNOTCH.

LIKELY USE:

The most likely use of INTERPOLATE will be to compute the values between a known beginning figure and a known (or desired) ending value. For instance, when sales are estimated for the first time period and an objective is established for the last time period, INTERPOLATE could be used to compute the intervening values.



Description of Fields in Rule

1.	Line 1	:	First line to interpolate
2.	Line 2	:	Last line to interpolate
3.	Line 3	:	Not used
4.	Column 1	:	Column with beginning value
5.	Column 2	:	Column with ending value
6.	Column 3	:	Not used

4-COMPUTE A GROWTH RATE

TYPE OF RULE: Data Generation

DESCRIPTION:

This function computes the "average growth rate" for the specified line of values and saves the resultant percentage growth rate in the first column of the second specified line.

ILLUSTRATION:

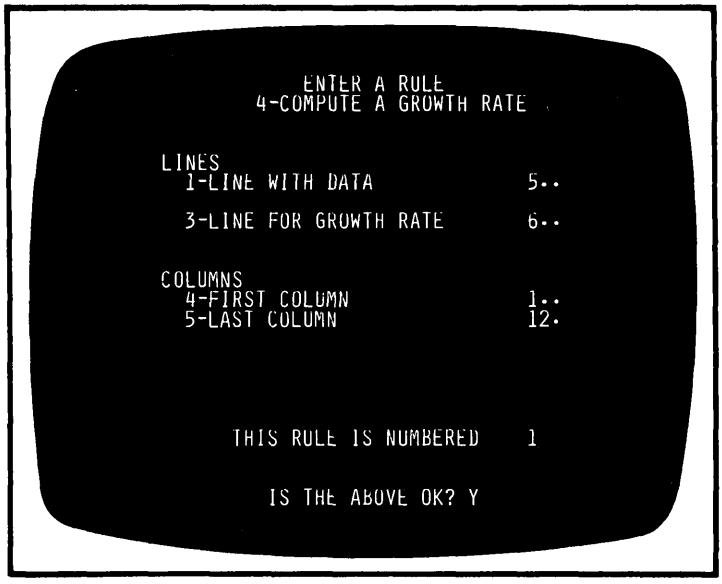
Compute the growth rate of the values in line 5, columns 1 through 3 and save the computed growth rate in line 6.

	COLUMNS 1	2	3	
Line 5.	213000	218000	215000	(Line of Values)
Line 6.	.47	-	-	(Computed Growth Rate (%)

USE IN TOPNOTCH:

This rule was used in TOPNOTCH to compute the growth rate of .47% appearing in column 1 of line 6. (The .47 appearing in columns 2 and 3 of the computed values of the report are the result of using EXTEND/FILL LINES on line 6.)

Exhibit 6-1



Description of Fields in Rule

1.	Line 1	:	Line of values
2.	Line 2	:	Not used
3.	Line 3	:	Computed Growth Rate
4.	Column 1	:	First column of values
5.	Column 2	:	Last column of values
6.	Column 3	:	Not used

5-GROW A LINE

TYPE OF RULE: Data Generation

DESCRIPTION:

The value in the first column of the line specified is "grown" by the percentage growth rate PLUS 100 in the immediately next higher numbered column. The process is repeated until all specified columns have a value computed.

ILLUSTRATION:

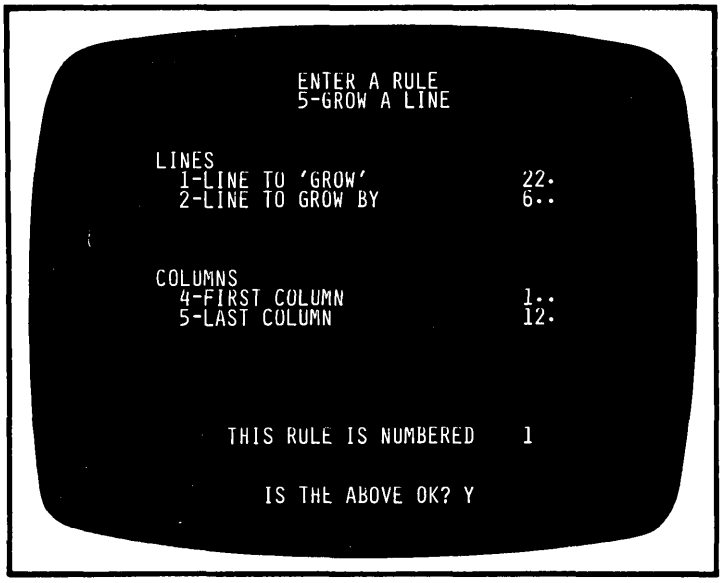
Grow line 22 by the growth rate in line 6, columns 1 through 3.

	COLUMNS 1	2	3	
Line 6	.47	.47	.47	(Before Execution)
Line 22	220000	-	-	(Before Execution)
Line 22	220000	221034	222073	(After Execution)

USE IN TOPNOTCH:

The above illustration was used in TOPNOTCH to compute the GROSS SALES in line 22. The .47% growth rate was automatically added to 100 before the multiplication by the "Gross Sales" for the prior month. Thus, each column of the Gross Sales is 100.47% of the Gross Sales in the prior column.

Exhibit 6-m



Description of Fields in Rule

1.	Line 1	:	The Line to be "grown"
2.	Line 2	:	The Line to "grow by"
3.	Line 3	:	Not used
4.	Column 1	:	Column to start "growing"
5.	Column 2	:	Grows line through this column
6.	Column 3	:	Not used

6-ZERO LINES

TYPE OF RULE: Data Generation

DESCRIPTION:

Sets the values in the specified lines to zero ('0'). The operation is performed on all columns in the model.

ILLUSTRATION:

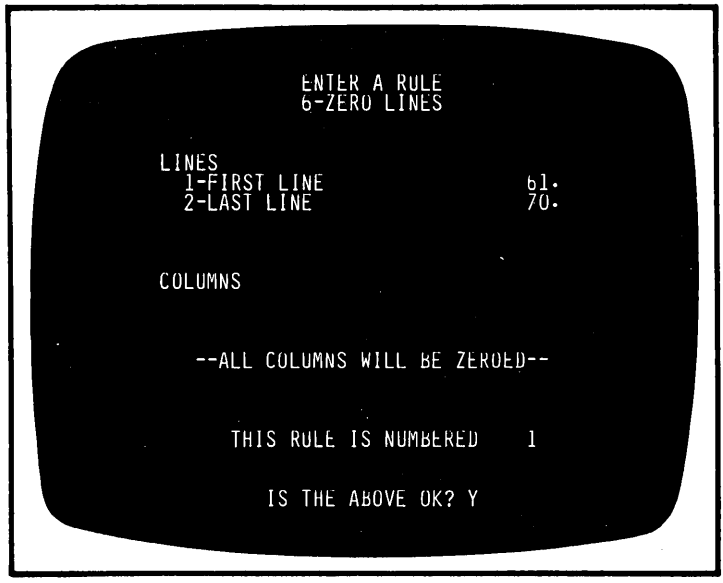
Zero line one.

Line 1	123	456	999	(Before Execution)
Line 1	-	-	-	(After Execution)

USE IN TOPNOTCH:

This rule was not used in TOPNOTCH.

Exhibit 6-n



Description of Fields in Rule

1.	Line 1	:	First line to zero
2.	Line 2	:	Last line to zero
3.	Line 3	:	Not used
4.	Column 1	:	Not used
5.	Column 2	:	Not used
6.	Column 3	:	Not used

7-COPY LINE/SHIFT RIGHT

TYPE OF RULE: Data Generation

DESCRIPTION:

Copies the values in the specified columns from one line to another. The values are shifted to the right by a specified number of columns.

ILLUSTRATION:

Copy Line 1 to Line 2, Columns 1 through 3, shift right one column.

	COLUMNS				
	1	2	3	4	
Line 1	4300	4400	4500	4600	(Before Execution)
Line 2	-	-	-	-	(Before Execution)
Line 2	-	4300	4400	4500	(After Execution)

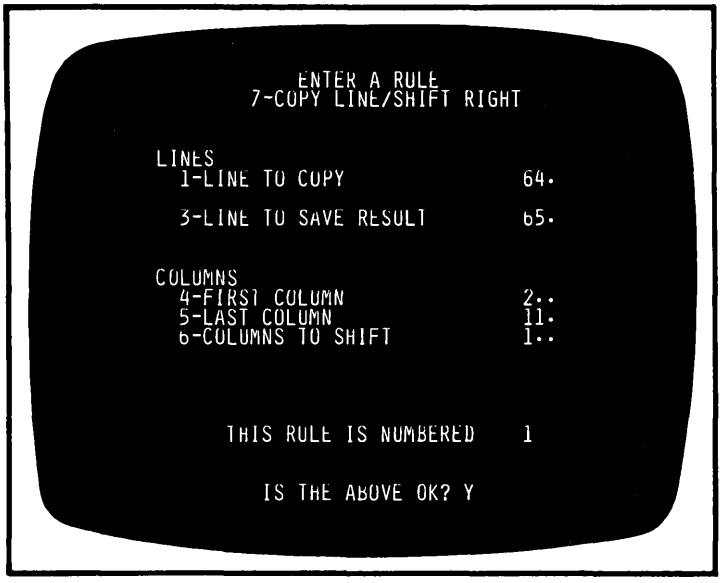
USE IN TOPNOTCH:

This rule was not used in TOPNOTCH.

LIKELY USE.

The most likely use of this rule will be in an analysis where the quantity of an activity, such as cash receipts, is dependent upon the quantity of a related activity in a prior time period, such as sales.

Exhibit 6-o



Description of Fields in Rule

1.	Line 1	:	Line to copy
2.	Line 2	:	Not used
3.	Line 3	:	Line to copy to
4.	Column 1	:	First column to copy
5.	Column 2	:	Last column to copy
6.	Column 3	:	Number of columns to shift right

8-ADD A GROUP OF LINES

TYPE OF RULE: Line Arithmetic

DESCRIPTION:

Adds the values in the specified columns for a group of sequentially numbered lines (not necessarily consecutive.) The results are saved in a third specified line.

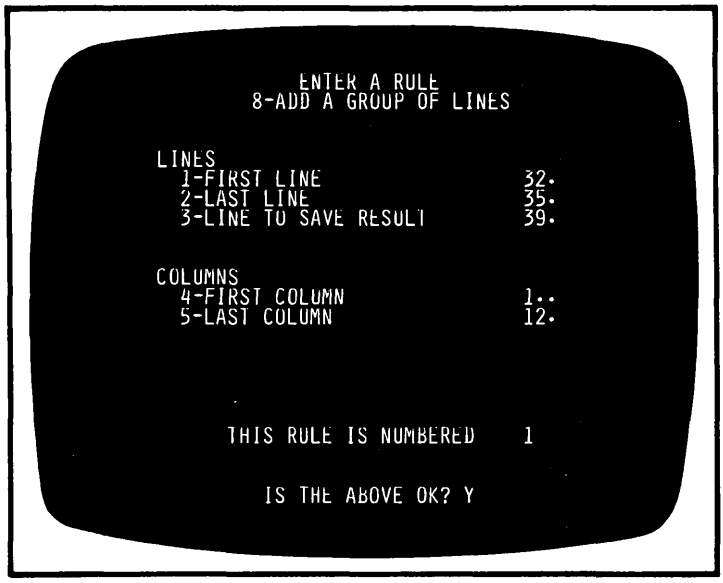
ILLUSTRATION:

Add the lines 32 through 35, save the results in line 39, for columns 1 through 3.

	COLUMNS 1	2	3	
Line 32	104500	104991	105485	
Line 33	25520	25520	25520	
Line 34	3100	3100	3100	
Line 35	7784	7784	7784	
Line 39	140904	141395	141888	(After Execution)

USE IN TOPNOTCH:

ADD GROUP OF LINES was used to compute Total Cost of Goods Sold in line 39.



Description of Fields in Rule

1.	Line 1	:	First line of group to be added
2.	Line 2	:	Last line of group to be added
3.	Line 3	:	Line in which to save results
4.	Column 1	:	First column to be added
5.	Column 2	:	Last column to be added
6.	Column 3	:	Not used

9-ADD TWO LINES

TYPE OF RULE: Line arithmetic

DESCRIPTION:

Adds the values in first line to the values in the second line. The results are saved in the 3rd line.

ILLUSTRATION:

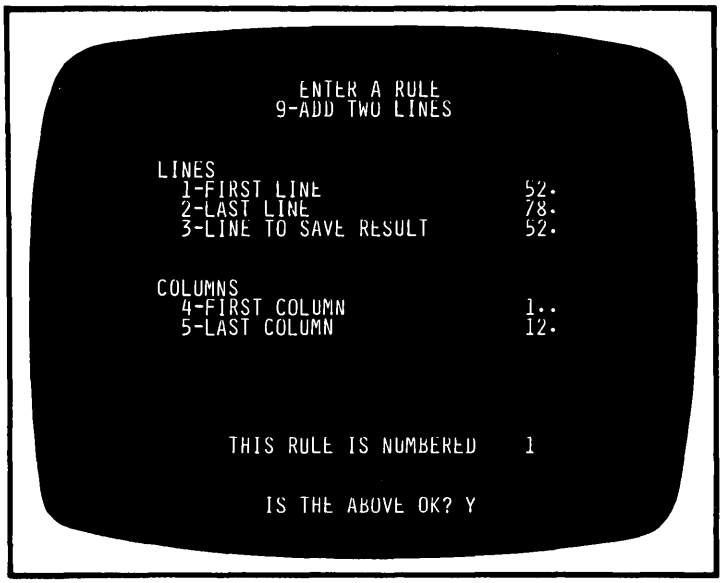
Add line 52 to line 78 and save in line 52 for columns 1 through 3

	COLUMNS			
	1	2	3	
Line 52	4300	4300	4300	
Line 78	15400	15472	15545	
Line 52	19780	19772	19845	(After Execution)

USE IN TOPNOTCH:

This rule was used in TOPNOTCH to add the previously calculated "variable sales cost," temporarily saved in line 78, to the Fixed Selling Cost in line 52. Fixed Selling Cost was an "initial" value and had been extended and filled in a previously executed rule.

Exhibit 6-q



Description of Fields in Rule

1.	Line 1	:	First line to be added
2.	Line 2	:	Second line to be added
3.	Line 3	:	Line in which to save result
4.	Column 1	:	First column to be added
5.	Column 2	:	Last column to be added
6.	Column 3	:	Not used

10-SUBTRACT A LINE FROM ANOTHER

TYPE OF RULE: Line Arithmetic

DESCRIPTION:

Subtracts the values in one line from the values in another line and saves the results in a third line. The arithmetic is done from the first specified column to the last specified column.

ILLUSTRATION:

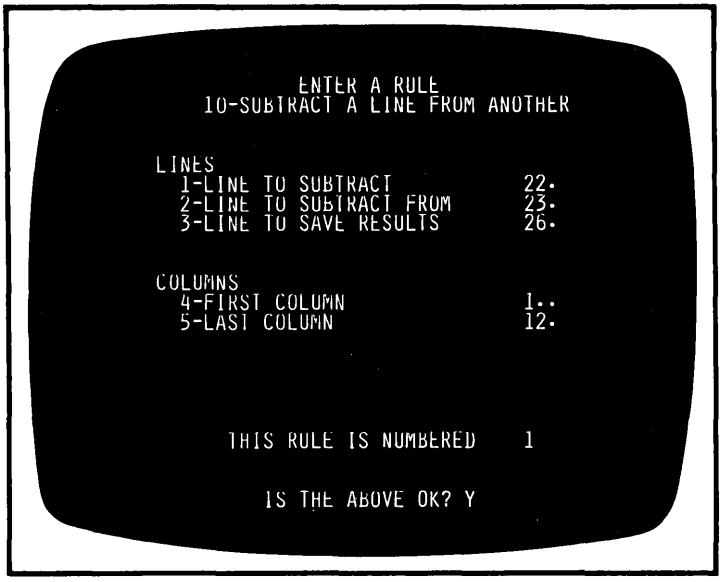
Subtract line 23 from line 22, save the results in line 26 for columns 1 through 3.

	COLUMNS			
	1	2	3	
Line 22	220000	221034	222073	
Line 23	4400	4421	4441	
Line 26	215600	216613	217631	(After Execution)

USE IN TOPNOTCH:

Returns & Allowances (line 23) are subtracted from Gross Sales (line 22) to compute Net Sales (line 26).

Exhibit 6-r



Description of Fields in Rule

1.	Line 1	:	Line to subtract
2.	Line 2	:	Line to subtract from
3.	Line 3	:	Line to save the results
4.	Column 1	:	First column with values
5.	Column 2	:	Last column with values
6.	Column 3	:	Not used

11-MULTIPLY TWO LINES TOGETHER

TYPE OF RULE: Line Arithmetic

DESCRIPTION:

Multiplies the values in one line by the values in another line and saves the results in a specified 3rd line (could be either of the first two lines.)

ILLUSTRATION:

Multiply line 10 by line 99 and save the results in line 80.

	COLUMNS		
	1	2	3
Line 10	7.25	7.25	7.25
Line 99	176.00	176.00	176.00
Line 80	1276.00	1276.00	1276.00

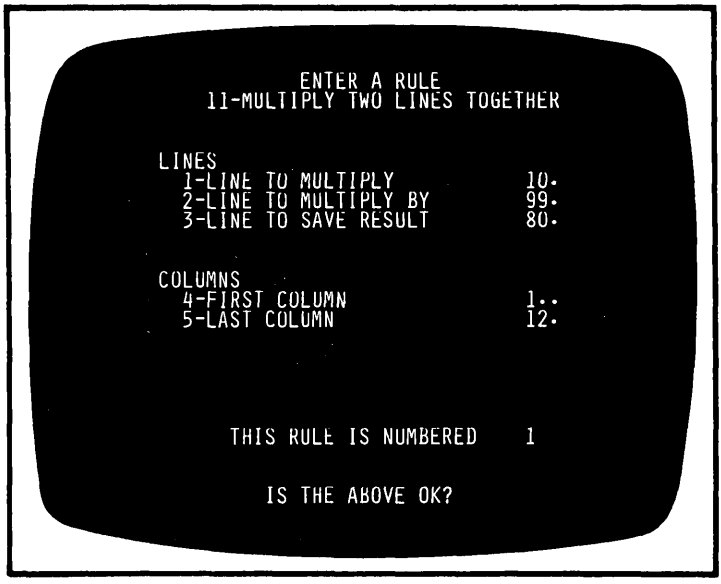
USE IN TOPNOTCH:

Line 10, Average Hourly Labor Rate, was multiplied by the "average" number of hours worked per month in a 40 hour week to arrive at monthly cost per direct labor employee. Hours worked per month is the "constant" 176 in Line 99. The result is saved in Line 80. (Because Line 80 has no line description, it will not be printed. This illustrates how lines which will not be printed may be used to save "intermediate results.")

The result in line 80 was multiplied, in a later rule, by the number of employees to develop total direct labor costs in line 33.

Entering each of the factors in the calculation as initial Planning Values, and using Calculation Rules to generate intermediate and final Computed Values allows the user to very simply test the effect of increasing the number of employees in any given future month. Or, the effect of changing labor rates in future months may be easily tested.

All that is necessary to make these tests is to enter a single value for the new labor rate in the months that it is to take effect or enter the new number of employees in the month that this change is to take effect. The Calculation Rules can then be simply and quickly (less than 40 seconds) re-executed.



Description of Fields in Rule

1.	Line 1	:	Line to multiply
2.	Line 2	:	Line to multiply by
3.	Line 3	:	Line to save product
4.	Column 1	:	First column to multiply
5.	Column 2	:	Last column to multiply
6.	Column 3	:	Not used

12-DIVIDE ONE LINE BY ANOTHER

TYPE OF RULE: Line Arithmetic

DESCRIPTION:

The values in the line specified to divide into are divided by the values in the line specified to divide by. The results are saved in the third specified line.

ILLUSTRATION:

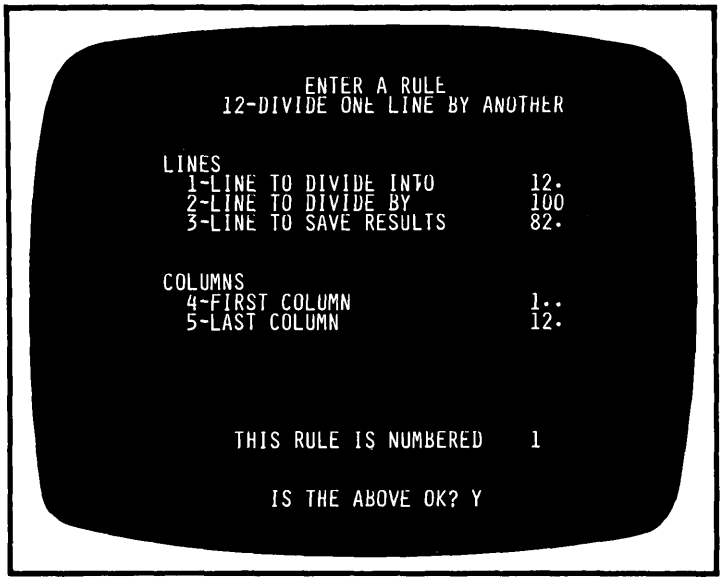
Divide line 7 by line 100 and save the results in line 77 for columns 1 through 3.

	COLUMNS 1	2	3	
Line 7	2.00	2.00	2.00	
Line 100	100.00	100.00	100.00	
Line 77	.02	.02	.02	(After Execution)

USE IN TOPNOTCH:

Line 7 is a "percentage of sales" for Returns & Allowances. It is divided by the constant 100 in line 100 and the result saved in line 77. (Line 77 is a line with no "line description." Therefore, it will not be printed.)

The 2% could have been entered as ".02" and the division step illustrated not performed. However, many people think in terms of percentages being expressed as they appear in line 7. So that the value will appear on the report in that format, it must be divided by 100 for proper positioning of the decimal point prior to multiplying by Gross Sales to arrive at the Returns & Allowances dollar value.



Description of Fields in Rule

1.	Line 1	:	Line to divide into
2.	Line 2	:	Line to divide by
3.	Line 3	:	Line to save results
4.	Column 1	:	First column to divide
5.	Column 2	:	Last column to divide
6.	Column 3	:	Not used

13-PERCENT/LINE OF A VALUE

TYPE OF RULE: Line arithmetic

DESCRIPTION:

Computes the percentage that each value in a line, from a beginning through an ending column, represents of a single value specified by its line and column number.

ILLUSTRATION:

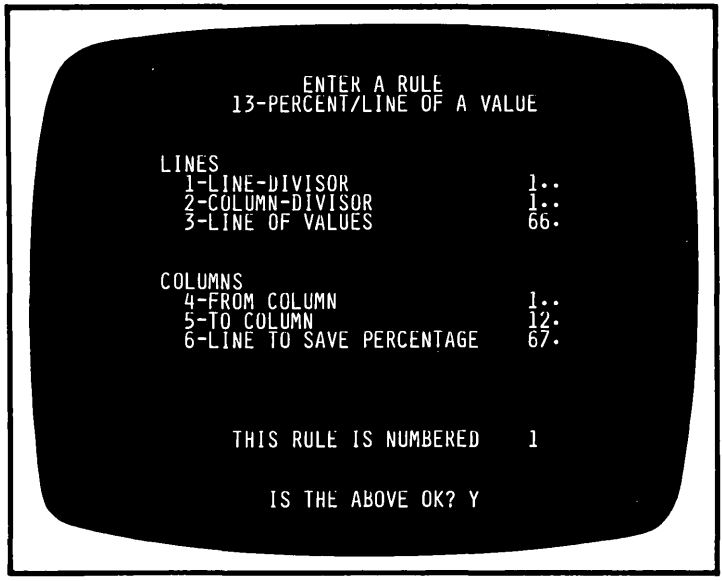
Compute the percentage that the values in line 2, columns 1 through 3 represent of the value in line 1, column 3.

	COLUMNS			
	1	2	3	
Line 1	-	-	1000	
Line 2	100	200	300	
Line 3	10	20	30	(After Execution)

USE IN TOPNOTCH:

Not used in TOPNOTCH.

Exhibit 6-u



Description of Fields in Rule

1. Line 1 : Line of value of divisor
2. Line 2 : Column of value of divisor
3. Line 3 : Line of values to take percent of
4. Column 1 : Percent from column
5. Column 2 : Percent to column
6. Column 3 : Line to save percentages

14-ACCUMULATE A LINE

TYPE OF RULE: Line arithmetic

DESCRIPTION:

ACCUMULATE A LINE computes the "cumulative" value for each column. This cumulative value is the sum of the all lower numbered and the "current" column.

The results are saved in a separately specified line.

ILLUSTRATION:

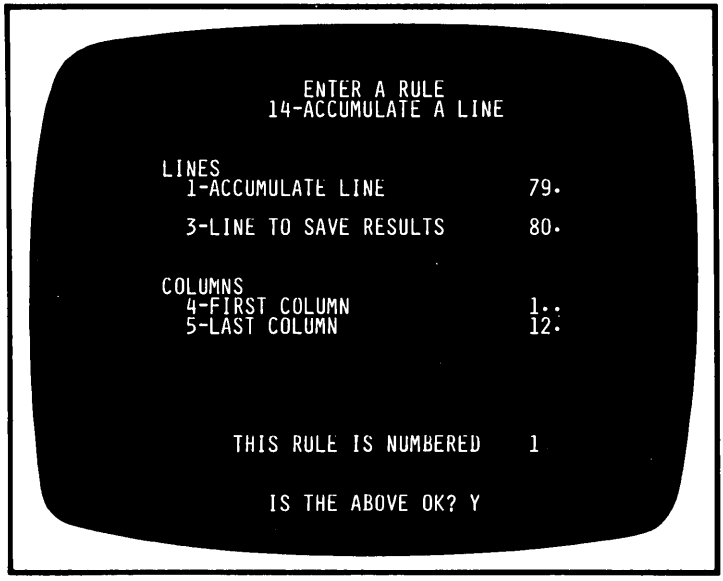
Accumulate the values in line one, save in line 2, for column 1 through 3.

	COLUMNS				
	1	2	3	4	
Line 1	100	200	300	400	(Line to accumulate)
Line 2	100	300	600	1000	(Line with results)

USE IN TOPNOTCH:

Not used in TOPNOTCH.

Exhibit 6-v



Description of Fields in Rule

1.	Line 1	:	Line to be accumulated
2.	Line 2	:	Not used
3.	Line 3	:	Line to save results
4.	Column 1	:	First column to accumulate
5.	Column 2	:	Last column to accumulate
6.	Column 3	:	Not used

15-ADD GROUP OF COLUMNS (CROSSFOOT)

TYPE OF RULE: Column arithmetic

DESCRIPTION:

Adds the values in each of the columns from the first specified column through the last specified column for each line specified and places the results in the third specified column.

This is commonly called "crossfooting."

This rule may be executed on a group of sequentially numbered lines.

ILLUSTRATION:

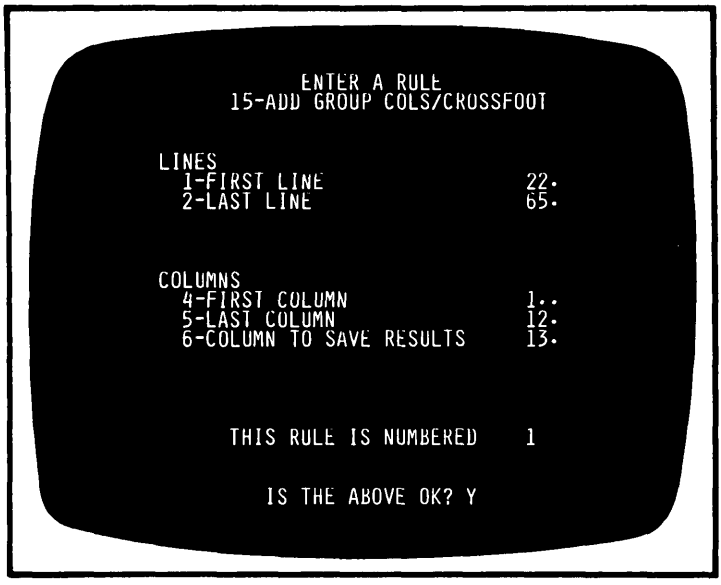
Crossfoot columns 1 through 3 and save in column 4 for lines 32 through 35.

	COLUMNS				
	1	2	3	4	
Line 32	104500	104991	105485	-	(Before Execution)
Line 33	25520	25520	25520	-	
Line 34	3100	3100	3100	-	
Line 35	7784	7784	7784	-	
Line 32	104500	104991	105485	314976	(After Execution)
Line 33	25520	25520	25520	76560	
Line 34	3100	3100	3100	9300	
Line 35	7784	7784	7784	23352	

USE IN TOPNOTCH:

This is the final Calculation Rule executed in the TOPNOTCH model. All lines, from line 21 through line 65, are crossfooted to sum up the values for each month and save them in column 4, the Quarterly Total.

Exhibit 6-w



Description of Fields in Rule

1.	Line 1	:	First line to crossfoot
2.	Line 2	:	Last line to crossfoot
3.	Line 3	:	Not used
4.	Column 1	:	First column to crossfoot
5.	Column 2	:	Last column to crossfoot
6.	Column 3	:	Column to save the results

16-ADD TWO COLUMNS

TYPE OF RULE: Column arithmetic

DESCRIPTION:

Adds the values in 1st specified column to the values in the 2nd specified column and save the results in a 3rd specified column.

The column in which the results are saved may be either of the first two columns. The rule may be specified to be executed on a range of sequentially numbered lines.

ILLUSTRATION:

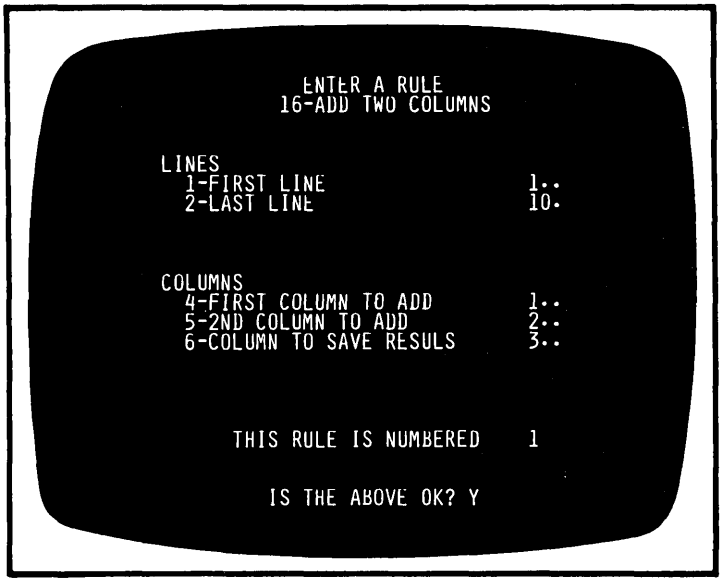
Add column 1 to column 2 and save the results in column 3 for lines 1 through 2.

	COLUMNS			
	1	2	3	
Line 1	500	400	-	(Before Execution)
Line 2	750	150	-	
Line 1	500	400	900	(After Execution)
Line 2	750	150	900	

USE IN TOPNOTCH:

Not used in TOPNOTCH.

Exhibit 6-x



Description of Fields in Rule

1.	Line 1	:	First line to be added
2.	Line 2	:	Last line to be added
3.	Line 3	:	Not used
4.	Column 1	:	First column to add
5.	Column 2	:	Second column to add
6.	Column 3	:	Column to save results

17-SUBTRACT COLUMNS

TYPE OF RULE: Column arithmetic

DESCRIPTION:

The values in one column are subtracted from the values in another column and the results are saved in a third column for a range of sequentially numbered lines.

ILLUSTRATION:

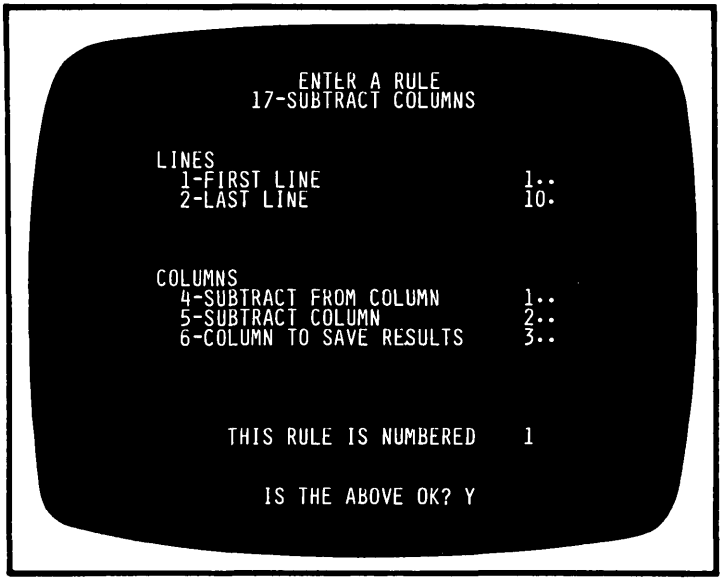
Subtract the values in column 2 from the values in column 1 and save the results in column 3 for lines 1 through 3.

	COLUMNS 1	2	3	
Line 1	500	300	-	(Before Execution)
Line 3	1000	700	-	
Line 1	500	300	200	(After execution)
Line 3	1000	700	300	

USE IN TOPNOTCH:

Not used in TOPNOTCH.

Exhibit 6-y



Description of Fields in Rule

1.	Line 1	:	First line to subtract
2.	Line 2	:	Last line to subtract
3.	Line 3	:	Not used
4.	Column 1	:	Column to subtract from
5.	Column 2	:	Column to subtract
6.	Column 3	:	Column to save results

18-MULTIPLY COLUMNS

TYPE OF RULE: Column arithmetic

DESCRIPTION:

The values in one column are multiplied by the values in a second column and the results are saved in a third specified column.

The rule may be executed on a group of sequentially numbered lines.

ILLUSTRATION:

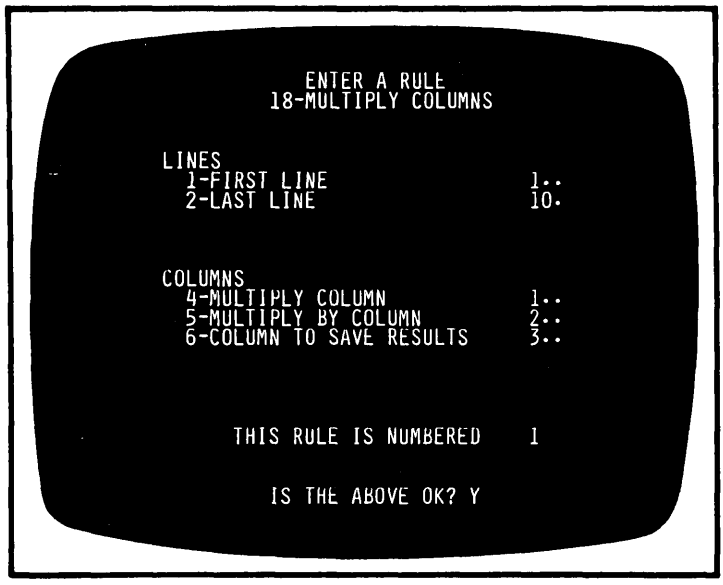
Multiply the values in column 1 by the values in column 2 and save the results in column 3.

	COLUMNS 1	2	3	
Line 20	25	30	-	(Before execution)
Line 25	300	15	-	
Line 20	25	30	750	(Before execution)
Line 25	300	15	4500	

USE IN TOPNOTCH:

Not used in TOPNOTCH.

Exhibit 6-z



Description of Fields in Rule

1.	Line 1	:	First line to multiply
2.	Line 2	:	Last line to multiply
3.	Line 3	:	Not used
4.	Column 1	:	Column to be multiplied
5.	Column 2	:	Column to multiply by
6.	Column 3	:	Column to save results

19-DIVIDE ONE COLUMN BY ANOTHER

TYPE OF RULE: Column arithmetic

DESCRIPTION:

The values in one column are divided by the values in another column and the results are saved in a third specified column.

The rule may be specified to execute on a range of sequentially numbered columns.

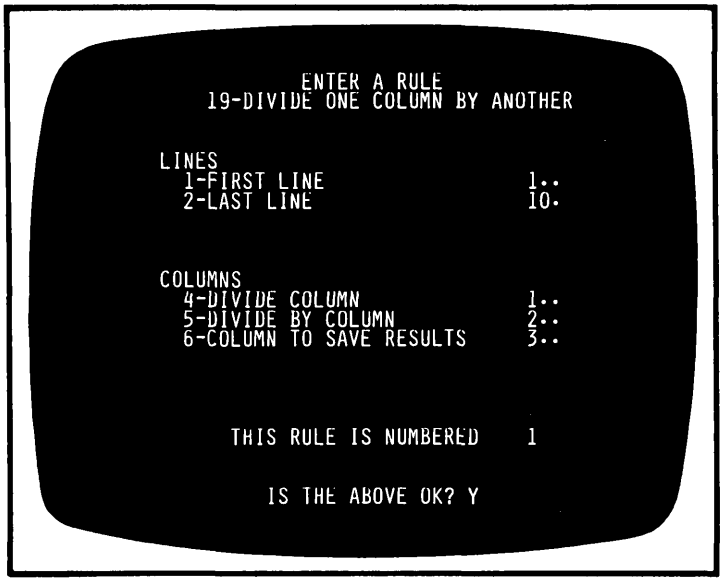
ILLUSTRATION:

Divide column 1 by column 2 and save in column 3 for lines 1 through 3.

	COLUMNS 1	2	3	
Line 1	750.00	1500.00	-	(Before Execution)
Line 3	375.00	1500.00	-	
Line 1	750.00	1500.00	.50	(After Execution)
Line 3	375.00	1500.00	.25	

USE IN TOPNOTCH:

Not used in TOPNOTCH.



Description of Fields in Rule

1.	Line 1	:	First line to divide
2.	Line 2	:	Last line to divide
3.	Line 3	:	Not used
4.	Column 1	:	Column to divide (dividend)
5.	Column 2	:	Column to divide by (divisor)
6.	Column 3	:	Column to save results (quotient)

20-PERCENT/COLUMN OF A VALUE

TYPE OF RULE: Column arithmetic

DESCRIPTION:

The percentage that each value in a column, from a beginning line through an ending line, represents of a single value specified by its line and column number. The results are saved in a specified column.

ILLUSTRATION:

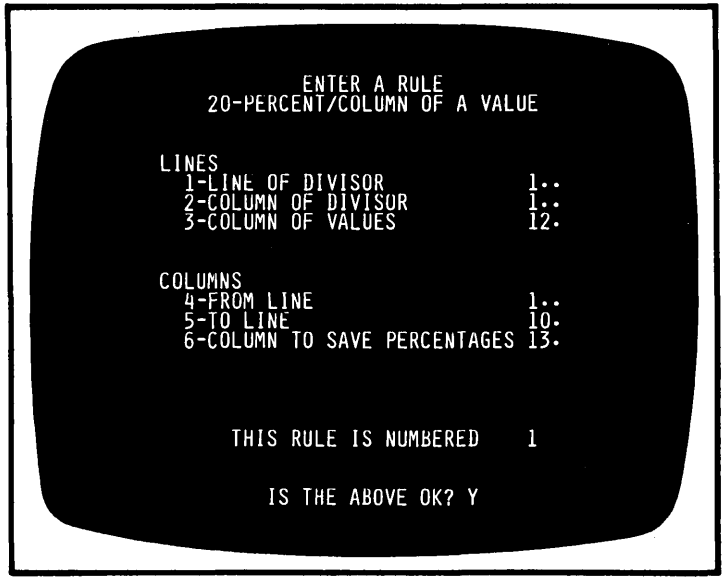
Compute the percentage that each value in column 13, line 32 through line 35 represent of the value in line 26, column 13. Save the percentage in column 14.

	COLUMN 13 (Before Execution)	COLUMN 13 (After Execution)
Line 26	4807663	4807663
Line 32	2330245	48.5
Line 33	535920	11.1
Line 34	67900	1.4
Line 35	163456	3.4

USE IN TOPNOTCH:

Not used in TOPNOTCH.

Exhibit 6-ab



Description of Fields in Rule

1.	Line 1	:	Line of value of divisor
2.	Line 2	:	Column of value of divisor
3.	Line 3	:	Column of values
4.	Column 1	:	From line
5.	Column 2	:	To line
6.	Column 3	:	Column to save percentages

21-EXECUTE 'USER WRITTEN' RULE

EXECUTE 'USER WRITTEN' RULE causes the execution of a "user written" Applesoft BASIC sub-program inserted by the user into the EXECUTE function of DESKTOP/PLAN.

This ability to execute a "Custom Rule" is one of the most powerful features of DESKTOP/PLAN. It allows any computations or any logic that can be programmed to be incorporated into a model.

The following discussion assumes the reader is knowledgeable about Applesoft BASIC.

Up to 20 "Custom Rules" may be incorporated into the EXECUTE function. (A limitation may be the availability of available RAM memory. With a 32k system, approximately 5k of memory is available when executing calculations on a 13 column by 100 line model.)

The BASIC statements of the "Custom Rules" must be numbered from 11000 to 11999 for "Custom Rule Number 1", 12000 to 12999 for "Custom Rule Number 2", etc., through 30000 to 30999 for "Custom Rule Number 20."

The EXECUTE function has REM statements indicating where to place each "Custom Rule" by number beginning at statement number 11000. Each rule must end with the GOTO statement after the REM statement.

"Custom Rules" may be used anywhere in the user's sequence of Calculation Rules by referencing the appropriate "Custom Rule Number" from the ENTER RULES function. To place a "Custom Rule" into EXECUTE, use the following procedure:

User types:

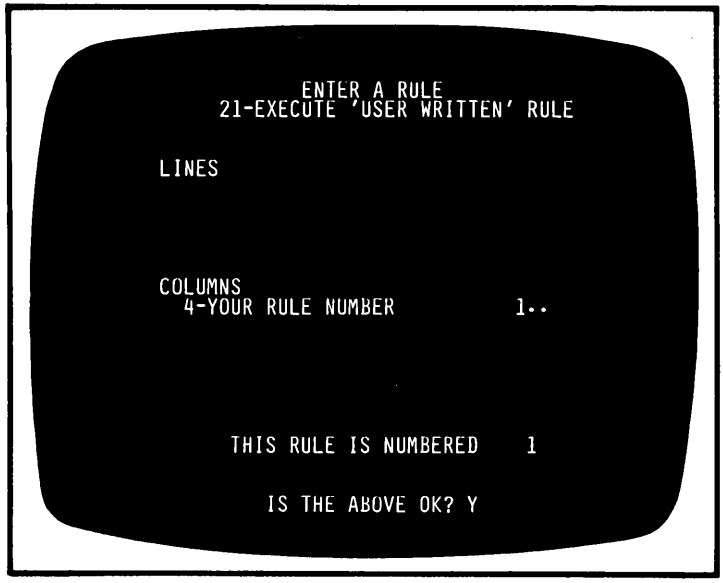
```
]LOAD EXECUTE
]SAVE ORIGINAL-EXECUTE
]LIST 11000,11999
11000 REM RULE #1
11999 GOTO 1310

] "User types his sub-program beginning with 11010"

]UNLOCK EXECUTE
]SAVE EXECUTE
]LOCK EXECUTE
```

"Custom Rule #1" will then have been added to the EXECUTE function. Thereafter, when EXECUTE encounters EXECUTE 'USER WRITTEN' RULE and the rule number to be executed is "Custom Rule #1", the user's sub-program will be executed.

Exhibit 6-ac



Guidelines for Writing a "Custom Rule"

DESKTOP/PLAN values are stored in the "V array" dimensioned to the number of columns and lines of the model being executed. A "Custom Rule" may address any element of the array as V(K,L) where:

> K is the column in the V array in which the data element is located.
>
> L is the line in the V array in which the data element is located.

Thus, the names K and V should be used as the "loop control variable" in FOR/NEXT statements.

Be extremely cautious if using ANY other variable names.

Needless to say, writing and inserting a "Custom Rule" is not a task to be lightly undertaken by the beginning programmer.

Section 7 Consolidating Sub-Models

Summarizing Entire "Sub-Models"
Transfering Lines from "Sub-Models"

CONSOLIDATING THE RESULTS OF SUB-MODELS

The capability of consolidating the results from sub-models into master models gives the user of DESKTOP/PLAN the ability to develop financial models of literally unlimited size and complexity.

Two options are provided, SUMMARIZE or TRANSFER LINES.

The first summarizes the results of multiple identical sub-models into a master model containing the totals of each line of each sub-model.

SUMMARIZE is normally used when each sub-model represents one of several nearly identical operating entities. The line descriptions and calculation rules for each sub-model are identical. The Planning Values for each sub-model vary.

Execution of the SUMMARIZE option of CONSOLIDATE adds the values in each column of each line in each sub-model into the identical columns and lines in a "master model."

Exhibit 7-a illustrates the display presented to select the SUMMARIZE or TRANSFER LINES options.

Exhibit 7-b illustrates the display presented to execute the SUMMARIZE option.

After entering a name for a file in which the summarized values are to be saved, DESKTOP/PLAN prompts the user for the names of sub-model files which are to be summarized.

When the names of all the files to be summarized have been entered, type "END" in lieu of a file name.

DESKTOP/PLAN then automatically reads the files specified and adds the values to the master model.

DESKTOP/PLAN then writes the master model to disk and returns to the main menu. The file type designator, ".I" is automatically added to the master model file name. This allows additional calculation rules to be executed on the summarized values.

A Word of Caution

When planning your model, consider that each sub-model and the master model must have identical numbers of lines and columns.

Exhibit 7-a
Illustration of Selecting SUMMARIZE or TRANSFER

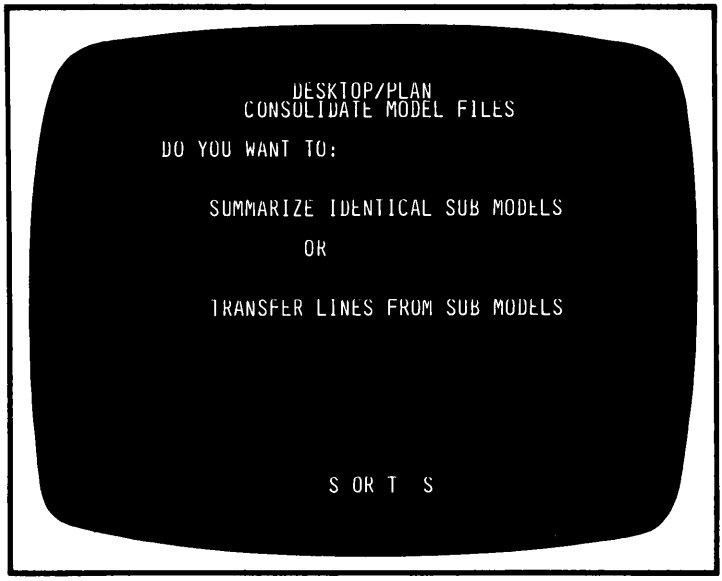
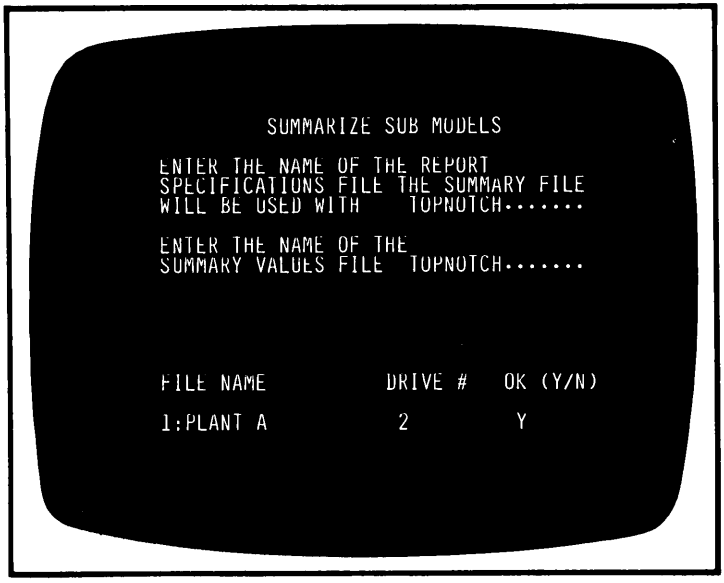


Exhibit 7-b
Illustration of Executing SUMMARIZE



The second option of CONSOLIDATE, TRANSFER LINES, provides the capability of transfering selected lines of Computed Values from sub-models to selected lines, with different line numbers, in a master model.

TRANSFER LINES would be used when only "total lines" from each of several different operating entities are to be "passed forward" into a summary of an entire organization. The values in each line of each sub-model normally would have different meaning. This likely would be the case for departmental budgets being passed forward to a company budget summary.

The operation of TRANSFER LINES is different from SUMMARIZE. Exhibit 7-c illustrates the operation of TRANSFER LINES.

After the user enters the sub-model name of a file from which lines are to be transfered, DESKTOP/PLAN reads the file with the values to be transfered. DESKTOP/PLAN then prompts for a line number to be transfered. The values from the specified line are transfered to the specified line in the master model. After each prompt, the transfer takes place immediately. The user is then prompted for another line to be transfered.

When the user completes the transfer from all the lines in a sub-model, entering the word "END" for line number will cause DESKTOP/PLAN to stop transfering lines.

DESKTOP/PLAN then prompts the user for the name of the next sub-model file from which lines are to be transfered.

Typing the word "END" for file name will cause DESKTOP/PLAN to write the file of transfered values to the disk and return to the main menu.

The file name of the "transfered to" file has the file type designator ".I" automatically added by DESKTOP/PLAN.

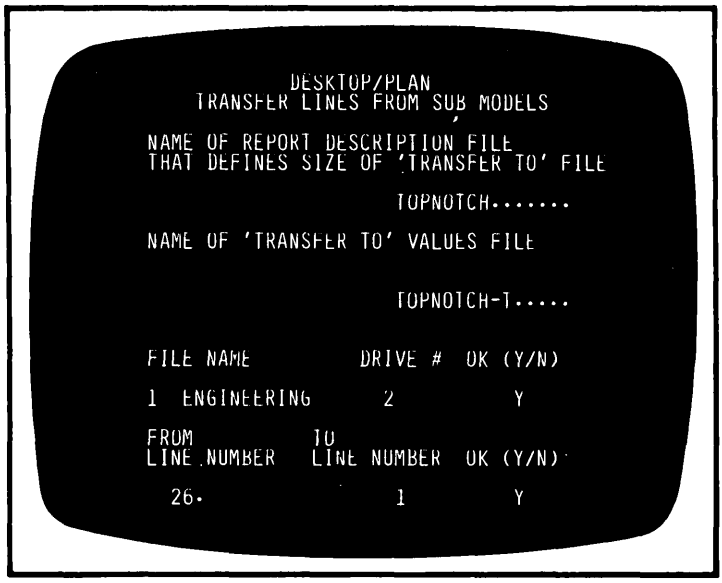
A Word of Caution

Each sub-model and the master model must have the same dimensions of columns and lines.

A Suggestion

As you gain experience with the system, particularly the CONSOLIDATE function, you will want to consider the use of Apple DOS 3.2 EXEC file capability. This will allow you to automate the SUMMARIZE or TRANSFER LINES functions.

Exhibit 7-c
Illustration of Executing TRANSFER



Section 8 Modifying Models

MODIFYING MODELS

DESKTOP/PLAN was developed with the certain knowledge that every "model builder" continually adds to and improves his model.

Each of the "model development sub-systems," ENTER REPORT DESCRIPTION, ENTER VALUES, and ENTER CALCULATION RULES, has incorporated into it the capability of originally creating the file as well as facilities for loading a previously created file, making changes, and then saving the modified file.

When any of these three functions are selected, the user is given the opportunity of either entering a new file or modifying an old file. All three operate identically with the exception of ENTER REPORT DESCRIPTION.

When modifying an existing file, ENTER REPORT DESCRIPTION has a sub-menu to select which of the components, Report Headings, Column Headings, or Line Descriptions, are to be changed.

When modifying Report Descriptions or Planning Values is completed, the user is given the opportunity of replacing the original file with the newly modified file or of creating an additional file with a new file name. This may be useful if an additional model is to contain much the same information as an already existing model.

Section 9 System Utilities

Set Parameters
Transfer Files to Another Diskette

SYSTEM UTILITIES

DESKTOP/PLAN has built into it two "utilities."

One, function 8 on the main menu, SET SYSTEM PARAMETERS, illustrated in Exhibit 9-a allows the user to:

1. Describe the characteristics of a printer and the slot in the Apple II in which its controller has been placed.

2. Specify whether the files used by DESKTOP/PLAN are on disk drive number one or drive number two.

3. Set the date which appears on the main menu and printed reports.

It is suggested that the first time the system is used, Function 8 be immediately selected and the parameters be set.

The second utility, function 7 on the main menu, illustrated in Exhibit 9-b, allows the user to transfer DESKTOP/PLAN files from one diskette to another. This function is specifically included for users of single drive Apple II's.

Additionally, the diskette received with this manual contains a copy of the disk COPY program provided by Apple Computer Inc. Its use is not described here. The user should consult the appropriate Apple manual. If the user has at least two disk drives, it is strongly suggested that a "backup" copy of the DESKTOP/PLAN system be made immediately.

SET PARAMETERS
Printers

Five different methods of printer attachment are supported. The appropriate one should be selected by making the appropriate entry when executing SET PARAMETERS.

Four of these methods are:

Apple High Speed Serial Interface.

Apple Communications Interface card for an "RS-232" printer that has an "automatic line feed."

Apple Communications Interface card for an "RS-232" printer that DOES NOT have an "automatic line feed."

Apple Parallel Interface.

These four types of "printer support" are listed above the six parameter settings which may be entered on the SET PARAMETERS

video display.

When the user enters a 1 for the parameter to change, a number corresponding to one of these four types of printer attachment should be entered. Thereafter, whenever DESKTOP/PLAN is printing reports, the appropriate programs to support that type of printer will automatically be used.

In addition to the four supported types of printers, Set Parameters will accept a Type 5 printer attachment. On the diskette received with this manual, this will cause the "printed reports" to appear on the video display device. In addition, if the user has a printer requiring a unique "printer on" and "printer off" procedure, the code to accomplish this may be inserted in the PRINT function at line number 850 of the program on the DESKTOP/PLAN diskette named PRINT. If a Type 5 printer attachment has been specified in Set Parameters, this 'user written' code will be used. The user is "on his own" when attempting this, however.

Parameter 2 "tells" DESKTOP/PLAN in which slot the printer controller is located.

Parameter 3 describes the print width of the printer and the paper. This may be set from 40 to 156. (If using a system with a Communications Interface or High Speed Serial Card with Apple's P8-02 PROMS and a printer with a print span of 156 characters, the user may specify a report to be printed with 12 columns.

Parameter 4 describes the length of the paper being used in the printer in number of lines. The "normal" entry is 66.

However, there are some "odd" sized forms available. In addition, the user may choose, if using DESKTOP/PLAN with a printer that can use "cut forms," such as stationery, to print on the paper with the "length" being 8 1/2" and the width being 11" or 14". If so, the paper length should be specified as 51.

SET PARAMETERS
DRIVE NUMBER FOR DESKTOP/PLAN FILES

DESKTOP/PLAN will operate on an Apple II with a single drive. However, because the programs of DESKTOP/PLAN occupy over 70% of the available space on a diskette, more than a single medium sized model will require the use of a second disk drive. Additionally, good operating practice may require a second drive so that diskettes may be easily duplicated for "backup." Thus, the user can specify which drive, 1 or 2, on which the files are to be kept by DESKTOP/PLAN. Both drives MUST be attached through the same disk controller card.

SET PARAMETERS
DATE

The date printed on all DESKTOP/PLAN reports is entered using the Set Parameters function.

The date may be entered "free form," that is in any form the user desires such as:

21 AUG 79
08/21/79
August 21, 1979

If the user has a Mountain Hardware Apple Clock, entering the date is superfluous. DESKTOP/PLAN will automatically "find" the clock and use its month and day. At the beginning of each calendar year, type the correct date, including year. Thereafter, the year will be as entered with the month and day coming from the clock.

If the clock board is installed in the Apple's slot number 4, the time of day in hours, minutes, and seconds will be displayed and printed with the date.

Exhibit 9-a
Illustration of SET PARAMETERS Display

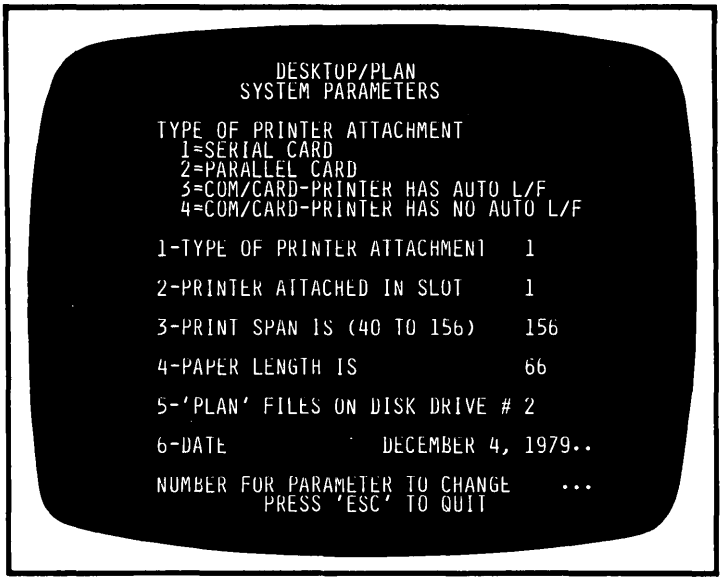
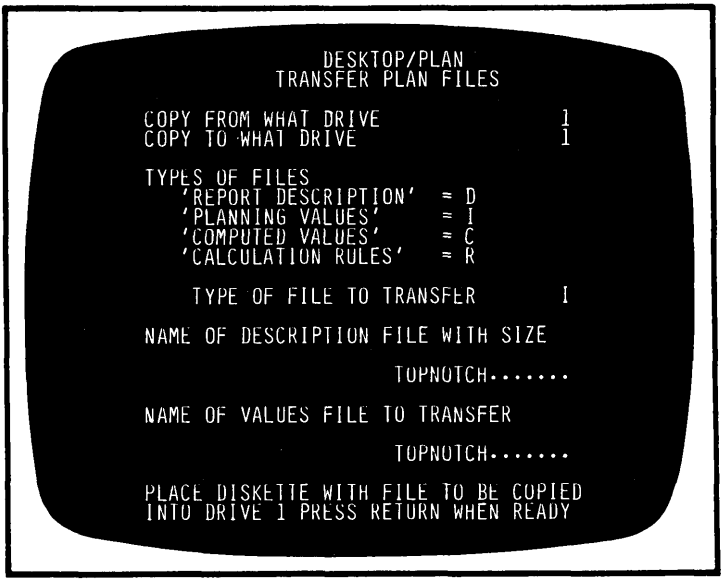


Exhibit 9-b
Illustration of File Transfer



TRANSFER FILE TO ANOTHER DISKETTE

Provision has been made in DESKTOP/PLAN to create duplicates of all four types of "model" files on seperate diskettes. In fact, it is very strongly suggested that this be done shortly after a model has been developed.

The system provides that this may be done either from disk drive to disk drive or between diskettes exchanged in the same disk drive on either a one or two disk drive system.

The diskette that the files are copied TO must have been initialized prior to executing the TRANSFER function. Follow the procedures described in the Apple II DOS manual.

The difference between copying from diskette to diskette on the same disk drive and copying from one drive to another is that the after the file being copied has been read, the user is prompted to change diskettes before the file is written to diskette.

Exhibit 9-b illustrates this function.

Appendices

A. Equipment Requirements
B. Operating Notes
C. Aborting Execution
D. Space on the Program Diskette
E. Customizing the Page Footer Message

Appendix A - Equipment Required to Operate DESKTOP/PLAN

The following equipment is required to operate DESKTOP/PLAN:

1. Apple II or Apple II Plus.

2. 32k of RAM.

3. 1 or 2 Disk II's.

4. A video display device.

The following equipment is desirable when executing DESKTOP/PLAN:

1. 48k of RAM allows the development of larger models.

2. A printer with a minimum of 40 print positions. A printer with at least 80 print positions will produce multiple column reports.

3. An appropriate printer controller device such as the Apple High Speed Interface, Communications Interface, or Parallel interface. (The system has not been tested with any other interfaces.)

4. A second Disk II.

Appendix B - Operating Notes

If you have read the manual to this point, you have probably noticed that there has not been much said about operating the Apple. Instructions for operating the equipment are well documented in the manuals provided by Apple Computer Inc., as are instructions for operating COPY and Apple DOS. Therefore, we haven't wasted your time with this information.

DESKTOP/PLAN has been used by a large number of persons. Since June of 1979 we have received a number of calls with "problems" operating DESKTOP/PLAN. These calls tend to fall into several categories:

1. From users who are getting "file not present" errors. These calls are usually from users with "single drive" systems who have not removed the four TOPNOTCH model files from the program diskette and are trying to enter an additional model onto the program diskette.

2. From users who are using printer interfaces other than the three "cards" available from Apple. What has been a little frustrating is that this does not "come out" until about five minutes into the phone call. We have carefully tested the software with these printer interfaces. But, we can't offer any help with other interfaces we haven't seen or used. We suggest you discuss the problem with the dealer you purchased the equipment from.

3. From users who have encountered program "bugs." We really appreciate these calls as they have helped us eliminate problems with the system. A suggestion and a request. If you have a "bug," please write us a note describing the problem, and include a program diskette with the model files with which you are having the problem. As soon as practical, we'll get back to you with a "fix" or a suggestion on how to work around the problem.

Appendix C - Aborting Execution

The user can abort execution of any function in the following manner:

If printing a report, "Control C", (hold down "CTRL" key and type "C") will abort printing.

If executing the "main menu," pressing "ESC" will clear the screen and DOS will display the "]" prompt.

If executing any other function, pressing "ESC" will immediately return to the "main menu."

Appendix D - Space on the Program Diskette

If you are operating DESKTOP/PLAN on a single drive Apple, you may get additional additional space for model storage by removing any of the following files you do not need:

TIME. TIME may be removed if you do not have a Mountain Hardware Apple Clock.

DRIVER. DRIVER may be removed if you are not using an Apple Communications I Interface card to interface your printer.

COPY. The Applesoft COPY program may be removed as it is not useful on a single drive system.

TOPNOTCH. The four TOPNOTCH files, which are "13 column" versions of the model illustrated in this manual, MUST be removed if DESKTOP/PLAN is to be executed on a single drive system.

Follow the Apple DOS procedure for DELETEing a file.

Appendix E - Customizing the "Page Footer" Message

If you desire to customize the page footer message you may do so by following a procedure whereby your screen will look as follows:

```
]LOAD PRINT
]LIST 3800
3800  PRINT  "PREPARED  WITH  DESKTOP/PLAN--COMPANY
CONFIDENTIAL"
]3800 PRINT "  --your new message between the quote
marks--  "
]UNLOCK PRINT
]SAVE PRINT
]LOCK PRINT
```

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