Super Calc 3

SORCIM

Notice to SuperCalc3 Users

(Cat. No. 26-5302)

SuperCalc3 uses MS-DOS 02.00.03, a version of the operating system that includes a special BIOS function for SuperCalc3 and can be used only with SuperCalc3. When executing SuperCalc3, use the operating system on the SuperCalc3 diskette to boot the computer. If you are using a hard disk with either 02.00.01 or 02.00.02 version of the operating system and have moved the SuperCalc3 programs and/or data files to your hard disk, use the 02.00.03 version of the operating system by placing the SuperCalc3 diskette in Drive A and rebooting the computer.

When finished with your SuperCalc3 application, be sure to reboot your computer with a version of the operating system other than 02.00.03 before using another application.

All future versions of the operating system will incorporate the required BIOS function for SuperCalc3 and may be used with all 2000 application software and on the hard disk.

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SuperCalc³

User's Guide & Reference Manual

Documentation 1.0
January, 1984
Fifth Edition

Please print your disk Serial Number
here:_____

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SuperCalc³

Welcome to SuperCalc3

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1. Welcome to SuperCalc3

What is SuperCalc3?

The SuperCalc3 program turns your microcomputer into a powerful electronic spreadsheet with graphics. With SuperCalc3 you can:

• Lay out your spreadsheet in a convenient manner.

• Perform any type of spreadsheet calculation that you once did with paper and pencil.

• Use graphics to interpret and present your data.

• Perform a large number of calculations quickly.

• Supply headings and text material without affecting the calculations.

• Consolidate spreadsheets.

• Print professional-looking reports and graphs.

• Include the report information and graphs in other documents.

• Access or sort thousands of listed facts and figures.

The SuperCalc3 spreadsheet consists of a two-dimensional grid containing cells at the intersection of each row and column. With SuperCalc3 you can enter information into these cells and interrelate them using powerful but easy-to-use logical commands and built-in mathematical functions. Simple graphics are available with just a few keystrokes. If your Model 2000 has both a monochrome and color/graphics capability, you can even watch both your spreadsheet and graph update immediately as you change data in the spreadsheet.

Because many computations are performed swiftly, you can easily set up *what-if* modeling spreadsheets and graphics that help you improve your decision-making.

SuperCalc3 Applications

The uses for SuperCalc3 are limited only by your imagination. Some of the more common uses are:

- "Slide shows" of projected financial statements
- Balance sheets
- Cash flow analysis/forecasting
- General ledger
- Inventory records
- Job cost estimates
- Market share analysis and planning
- Patient records
- Profit projections
- Profit statements
- Project budgeting and control
- Salary records
- Sales projections and records
- Tax estimation
- List maintenance with Data Management
- Seven types of graphs to add visual impact to your data

SuperCalc3 is easy to use

With SuperCalc3 you manipulate data on your electronic spreadsheet instead of using paper and pencil. SuperCalc3 edits, formats, stores, calculates and prints at your command. You don't have to be a computer programmer to use SuperCalc3. You can easily and quickly produce graphs of your data on your computer console or on a plotter or graphics printer.

You don't need to remember a long list of commands. SuperCalc3 prompts you with the options for each command.

SuperCalc3 contains built-in AnswerScreens that provide immediate help on screen. Just press the AnswerKey ⑦ and SuperCalc3 explains your available options. You are always returned to the same place you left on your spreadsheet.

This book is your complete reference to SuperCalc3. It describes every aspect of the program and is organized to make that information readily available.

How to Use SuperCalc3

SuperCalc3 is a powerful tool for solving all types of financial, business or mathematical problems. SuperCalc3 acts as a simple means to tap the power of your computer to do time-consuming, repetitive calculations and graphic representation of data.

Solving any problem, from the simplest to the most complex, requires that you organize it in a logical manner. The designers of SuperCalc3 recognized the importance of logical, practical commands to make the spreadsheet easy to use.

SuperCalc3's simple, common-sense approach to commands helps you organize your problems. For example, if you want to change your spreadsheet, you can insert, delete or move-a column/row and SuperCalc3 adjusts your formulas automatically.

Once your problem has been clearly defined, data can be changed easily and numbers recalculated quickly. SuperCalc3 displays data in the format you select, thus aiding you in developing professional-looking reports. Once generated, spreadsheets and graph descriptions can be stored on disk for access, edit and print later.

Compatibility of Files

When SuperCalc, SuperCalc2, or SuperCalc3 saves a file on disk, it writes the name of the program as part of the .CAL file. This is checked when the program attempts to load the file.

Any .CAL file prepared by SuperCalc can be used by SuperCalc2 or SuperCalc3 with no changes. Any .CAL file prepared by SuperCalc2 can be used by SuperCalc3 with no changes.

SuperCalc can load a file created by SuperCalc2 or SuperCalc3 provided that none of the following features were ever used in the creation of that file.

    Calendar Functions
    Textual values
    User-defined display format
    Hide display format

If the data file does contain data pertaining to these features, SuperCalc will give an error message and not load the file.

The use of new SuperCalc3 financial functions or any function abbreviations will generally prevent successful loading into SuperCalc2 or SuperCalc. The mere addition of graph descriptions does not create a compatibility problem.

Getting Started

2

2. Getting Started

Here's the way to get started—and get productive—with SuperCalc3:

1. Perform these preliminary tasks:

    - Make a backup copy of the SuperCalc3 diskette.

    - Configure the SuperCalc3 program for your graphics printer or plotter.

    - Tailor the SuperCalc3 program for your video monitor(s).

    Refer to Appendix C for details.

2. Optionally, change selected settings in SuperCalc3 so you can utilize certain features of your printer, plotter, or monitor as program defaults.

    Refer to Appendix C for details.

3. Learn the basics of SuperCalc3. Get productive in a hurry.

    Use the starter booklet, *10 minutes to SuperCalc3*.

4. Now go beyond the basics. Practice the main features of SuperCalc3 at your own pace.

    Use the lessons for first-time users in Chapter 3.

5. For a quick reference summary of SuperCalc3 commands and functions, including how to begin, save, print and end your work:

   Refer to AnswerCard #1.

6. For a summary of graphics commands and graph components:

   Refer to AnswerCard #2.

7. When you begin developing spreadsheet, financial modeling, graphing, and data management applications, SuperCalc3 provides you with a lot of help. Use the many additional reference aids provided with SuperCalc3:

   • AnswerScreen help at the touch of the AnswerKey ⑦ or Ⓕ1. Also see a five screen mini-lesson on the new Data Management command: Type **//D**, then press ⑦.

   • Detailed reference chapters and a Slash Command Map in this manual.

   • Glossary, Error Messages, and other helpful information in the Appendices.

   • Comprehensive Index.

   • SuperData Interchange User's Guide, describes the capabilities of the SuperData Interchange program. Two SDI files are included on one of the original SuperCalc3 disks.

     SuperData Interchange converts certain data files from one file format to another, including VisiCalc .VC files into SuperCalc format.

Using This Manual

Here are some conventions used in the SuperCalc3 manual and other training and reference materials.

Keytop Graphics:

Many special-purpose keys are shown within simulated keytops, such as (ESC), (F2) and (↵). The (↵) symbol refers to the key labeled ENTER on the Tandy Model 2000 keyboard.

Boldface Characters:

Keys to be typed are printed in boldface. For example, "Enter **/QY**" or "Now enter **/W**indow,**H**orizontal." Variables, such as "row number," or "column range," are not printed in boldface.

Interpretive Prompting:

You are frequently asked to type a series of single-letter entries preceded by a "slash" (the "/" character on your keyboard). A command such as **/Q** is interpreted as /Quit. Typing a single letter instead of an entire word is a time-saving feature we call interpretive prompting.

As commands are executed, the display line prompts you for the next entry. When you are prompted for RETURN, press (ENTER) on the Model 2000.

Notes:

1 2 3 4
5 6 7 8
9 10 11 12
LESSONS

Learning To Use SuperCalc3

3

3. Learning To Use SuperCalc3

Before reading this chapter, you should go through the examples in *10 minutes to SuperCalc3*. Once this gives you a feeling for what SuperCalc3 can do, you can begin to explore the program's computing power in more detail.

The lessons concentrate on typical examples of tasks you can accomplish with SuperCalc3. You'll have plenty of opportunity to put SuperCalc3 to work. Each lesson serves as an introduction to a different set of tools, and demonstrates their flexibility via a series of *action steps*. The lessons provide an introduction to SuperCalc3 features—they do not explore every option. Consult the reference section (Chapters 4-8) for complete information about each SuperCalc3 feature.

This chapter assumes that you have made a backup of the SuperCalc3 distribution diskette, you have tailored the SuperCalc3 program for your hardware configuration, and you know how to load the SuperCalc3 program from your backup diskette. See Appendix C for backup and configuration instructions.

Lesson 1

Control and Display Characteristics

Sit down at your computer, and get set to learn about your new productivity tool: SuperCalc3.

These are some notations you will find in the lessons:

- Each action step you are asked to take is preceded with the symbol ▸.

- What you must type as an entry is shown in **bold**. The program accepts commands and data either upper or lower case. For example, if you are asked to type **A1**, you can type **a1**.

- A key that is not a letter or number appears within a key symbol. For example, the carriage return key appears as ⏎. This key is labeled ENTER on your keyboard.

Ready? Here are your first action steps:

▸ Put SuperCalc3 into your computer's *logged drive*. You can tell which is the logged drive by the prompt on your screen—for example A> or B>.

▸ Type **SC3** and press ⏎.

The SuperCalc3 copyright notice appears on your console display.

```
                    SuperCalc3(tm)
                      Version 01.00.00

                    Copyright 1984
                      SORCIM CORP.
                      All Rights Reserved
                      Licensed to Tandy Corporation


Enter "? " HELP or "return" to start.
F1 =Help; F2 = Erase Line/Return to Spreadsheet; F9 to Plot; F10 to View
```

Screen 3-1: SuperCalc3 Copyright

▶ Press ⏎.

An empty spreadsheet appears on your console display as in sample Screen 3-2.

Moving the Active Cell Around the Spreadsheet

The spreadsheet cursor designates the Active Cell, the location where you will send your current entry. In *10 minutes to SuperCalc3* you learned how to move the cursor with the arrow keys, and that you can also use *Control* Keys.

```
      |  A  ||  B  ||  C  ||  D  ||  E  ||  F  ||  G  ||  H  |
    1|
    2|
    3|
    4|
    5|
    6|
    7|
    8|
    9|
   10|
   11|
   12|
   13|
   14|
   15|
   16|
   17|
   18|
   19|
   20|
  > A1
  Width:  9  Memory: 75  Last Col/Row:A1    ? for HELP
    1>
```

Screen 3-2: Empty Spreadsheet

The GoTo Command

You also learned to use the *GoTo* command ⊡ to move the Active Cell by entering the column letter and the row number. Like coordinates on a map, this unique *address* identifies the desired location on your spreadsheet.

Illustration 3-1: Cursor Control Keys

Note that if you enter a letter without a number, the program assumes you want to go to row 1. For example, ⊜ **C** ⊕ would take you to C1. If you enter a number without a letter, the program assumes you want to go to column A. For example, ⊜ **4** ⊕ would take you to A4.

You can use the *GoTo* command in another way:

► Move the Active Cell to anywhere near the middle of the screen, say to E8.

► Enter ⊜ but specify no cell, just press ⊕.

  Notice how the Active Cell remains E8, and the display window repositions so that E8 appears at the top left corner.

Scrolling

The SuperCalc3 program uses your console display as a *window* through which you can view any area of your spreadsheet. When your spreadsheet is bigger than the screen, you can *scroll* to move the window to different parts of the spreadsheet.

Follow these steps to practice scrolling:

► Use the *GoTo* command to return to A1. Enter ⊜ **A** ⊕
  (Or you may press (HOME) on the numeric keypad to return to A1.)

► Move the cursor one column to the right beyond the edge of the screen. Notice that the columns change from A through H, to B through I.

► Try moving the cursor off the screen to the right again, but this time hold the key down. The screen continues to scroll.

▸ Continue to *scroll* the screen horizontally past column Z. Note in sample Screen 3-3 that the remaining columns are represented by two letters, AA, AB, and so on. They continue to AZ, then BA and as far as BK, the rightmost column.

```
      |  W   || X   ||  Y  ||  Z  ||  AA ||  AB ||  AC ||  AD  |
    1 |
    2 |
    3 |
    4 |
    5 |
    6 |
    7 |
    8 |
    9 |
   10 |
   11 |
   12 |
   13 |
   14 |
   15 |
   16 |
   17 |
   18 |
   19 |
   20 |
  > AD1
  Width:   9  Memory: 75  Last Col/Row:A1     ? for HELP
    1>
```

Screen 3-3: Scrolling Past Column Z

▸ Now scroll down. The bottom margin is row 254.

▸ Use the *GoTo* command to return to A1.

In *10 minutes to SuperCalc3* you learned how to enter some of the **/** commands and how to enter data into an Active Cell. Throughout the entry process three lines at the bottom of the screen kept you posted on your progress:

```
> A1
Width:  9  Memory: 75 Last Col/Row:A1    ? for HELP
1>
```

The Status Line

The top line indicates the Active Cell and Spreadsheet Cursor status. It contains three elements:

- The first character indicates the direction the spreadsheet cursor will move when you press ↵. To change the direction of the cursor, press an arrow key that points in the direction you want to move.

- The next piece of information on the status line is the *location* of the current Active Cell.

  The sample identifies the cursor location as column A and row 1.

- If the Active Cell is empty, nothing else appears on the status line.

  However, if the Active Cell contains data, the content of the cell is shown:

```
> A1          Text="Income Statement
Width:  9  Memory: 75 Last Col/Row:F6    ? for HELP
1>
```

To see how the Status Line works, do this:

- ► Move the spreadsheet cursor around, and watch the Active Cell address and the direction indicators change.

- ► Make an entry and press ↵.

This tells SuperCalc3 that you have completed a data entry.

- ► Try entering numbers in a row or column of cells.

After each entry, the spreadsheet cursor automatically advances to the next cell in the direction last used.

▶ Now change directions. Then use the *GoTo* command ⊜ to start at a new location. Note that the cursor movement remains in the direction set before you used the command.

▶ Continue entering data in different cells, using the arrow keys to change direction. Take a few minutes to practice until you are comfortable with it.

The Prompt Line

The second line at the bottom of the screen has two formats:

• When you are in the *data-entry* mode, this line gives you secondary status information like the following:

```
> A1           Text="Income Statement
Width:  9  Memory: 75 Last Col/Row:F6    ? for HELP
1>
```

The line displays the current cell width (9 characters) and available computer memory (75 K). It also indicates the bottom right corner of the spreadsheet (F6). This cell is at the intersection of the last row and the last column containing data, and does not necessarily contain data itself.

• When you are in *command-entry* mode this line becomes a prompt line. The prompt message lists your options at any given moment so you don't have to remember a long list of commands.

For a sample of how this works, try the following:

▶ Press ⊘. The command prompt appears:

```
> A1
Enter A,B,C,D,E,F,G,I,L,M,O,P,Q,R,S,T,U,V,W,X,Z,/,?
2>/
```

▶ Press ⑦ to display the AnswerScreen for this prompt. It helps you interpret the various available commands.

Anytime you need additional information, you can use either of the AnswerKeys: ⑦ or Ⓕ⁾.

▶ Once you have the information you need, return to the prompt line by pressing any key.

▶ At the prompt line enter /Zap,

When you enter a command that could have drastic effect on your work, SuperCalc3 gives you a chance to retreat. In this case, if you complete the Zap command, changes you have made since the last Save command will be gone, permanently. The program reminds you with this message:

```
> A1
Y(es), N(o) or C(ontents)
24>/Zap-ENTIRE-spreadsheet?
```

▶ Enter **Y** to erase the spreadsheet and start over with a fresh one.

The Entry Line

The last line of the three is the entry line:

```
> A1         Text="Income Statement
Width:  9  Memory: 75 Last Col/Row:F6      ? for HELP
1>
```

This line is where you communicate with SuperCalc3. While the spreadsheet cursor indicates your place on the spreadsheet, here the edit cursor takes over, indicating your place on the entry line. The entry line displays whatever you type. It lets you check and edit an entry before you commit it to the spreadsheet.

The entry line's function depends upon whether you are using the data entry or command entry mode.

LEARNING TO USE SUPERCALC3

Control and Display Characteristics

LESSON 1

Data Entry:

As you type, the entry line cursor moves to tell you where the next character will appear. At the left-hand margin, the character count initially set to 1> changes as the edit cursor moves. Watch this happen when you enter data.

What if you make a mistake? Just backspace with the (BACKSPACE) key or ⊖ and retype your entry.

You may cancel a command or data entry at any time using (CTRL Z). Hold the (CTRL) key down and then press the **Z** key. The (CTRL) key operates similarly to the (SHIFT) key. It does not send a character itself, rather it changes the meaning of the other keys on the keyboard. To show this sequence your manual uses the key symbol (CTRL Z).

Try cancelling an entry to see how it works:

▶   Type a few characters on the entry line without pressing the ⊙.

▶   Press (CTRL Z) or (CTRL C). Notice that the Entry line is erased. (F2) has the same effect.

Command Entry:

Do you remember entering a command sequence in *10 minutes to SuperCalc3*? Try it again.

▶   Type this sequence *without* pressing the ⊙:

/F
R
3,
TR

Now you see an example of *interpretative prompting.* You type the first letter of a command and the program displays the rest of the word on the entry line:

```
 ˙ A1
 Define Formats: (I,G,E,$,R,L,TR,TL,*,U(1-8),H,D)
 25>/Format,Row,3,TextRight,
```

The notation used throughout the manual for command sequences shows your actual keystrokes in boldface.

/**Format,Row,3,Text**Right,

- Notice that for the command sequence the first two and last commas are supplied by SuperCalc3 but that you are required to enter the third comma.

You may have noticed in the command mode that the ⊖ acts differently than when entering text or data.

▶ Tap ⊖ several times. Each ⊖ returns you to the previously entered keystroke deleting the word until you finally *back out* of the entire sequence.

This method is an alternative to the (CTRL Z) command. Either method may be used to delete the command line.

If you want to take a break before going on to Lesson 2, use the Quit command:

▶ Enter **/Q**uit. When the verification prompt appears, reply **Y**es to exit to the system.

What have you learned in this lesson?

You have reviewed cursor movement techniques using the arrow keys and *GoTo* ⊜ commands. You've also learned how to:

- Use the *GoTo* ⊜ command to reposition the spreadsheet.

- Use the arrow keys to *scroll* the display window.

- Set the direction in which the spreadsheet cursor moves.

- Read the status, prompt, and entry lines.

- *Back out* of an entry in a command sequence by using the ⊖.

- Cancel an operation by using (CTRL Z), (CTRL C) or (F2).

Lesson 2

Entering and Editing Data

Now that you have reviewed the control and display characteristics of
SuperCalc3, let's take a closer look at how to enter and edit data.

▶   Load the file you created and saved in *10 minutes to SuperCalc3.*

▶   Enter **/L**oad,**TEN,A**ll

Remember, you only have to type the boldface characters. You must supply
the comma after TEN to signal the end of the filename. However, notice that
when you enter **A**ll the program recognizes the completion of a command
sequence and automatically supplies the ⊙ for you.

Make sure the TEN file on your display matches sample Screen 3-4.

```
        |    A     ||   B    ||   C    ||   D    ||   E    ||   F    |
       1 |Income Statement
       2 |
       3 |              Q1         Q2         Q3         Q4        Year
       4 |          ------------------------------------------------------
       5 |Sales       25000      20000      35000      25000     105000
       6 |Costs       15000      12000      21000      15000      63000
       7 |
       8 |Profit      10000       8000      14000      10000      42000
       9 |
```

Screen 3-4: TEN Spreadsheet

The SuperCalc3 program recognizes three kinds of data entries: text,
repeating text, and formulas.

An entry preceded with a double quote ⊙ signals a *text* entry, such as
headings, labels, and explanatory notes. Mathematically, text entries have
a *value of zero.* Either you precede the text entry with ⊙ or SuperCalc3
automatically adds the ⊙ for you. Sample text entries in this manual will
always show the leading ⊙. For example, in the TEN file, Q1, Q2, Q3, and
Q4 could have been interpreted as cell reference formulas so you had to

enter the leading ⊙. However, you were not required to enter ⊙ before the titles in column A.

An entry preceded with a single quote ⊙ signals *repeating text*. You saw an example in *10 minutes to SuperCalc3* when your entry '- produced a line across your spreadsheet.

Formula entries are automatically checked for the proper format. If SuperCalc3 does not recognize your entry as a formula, it assumes the entry is text. The ⊙ will appear as the first character at the status line for the Active Cell content.

Let's proceed with text entry.

▸   At C1 enter your company name, followed by ⏎.

▸   Move the cursor down with the ⊙ key to see the entire name. If your company name is longer than 12 characters the name spills into D1.

A text or repeating text entry spills into the cell (s) to the right under two conditions:

(1)   The cell (s) to the right must be empty.

(2)   The display format for the original cell entered must be TextLeft. This left text alignment is the default display format the program uses when you first load a spreadsheet. If you change the format to TextRight—as you did for row 3 in *10 minutes to SuperCalc3*—the text won't spill over.

Try a repeating text entry by adding a "total" line:

▸   At B7 enter '-

▸   Cut off the line with a null or blank entry in G7. Enter ⊙ or ⊙.

Your display moves over like the sample Screen 3-5.

▸   *GoTo* A to redisplay your spreadsheet.

```
   |  C   ||   D   ||   E   ||   F   ||   G   ||   H   |
 1 |XYZ CORPORATION
 2 |
 3 |      Q2         Q3        Q4        Year
 4 | ---------------------------------------------------
 5 |    20000      35000     25000     105000
 6 |    12000      21000     15000      63000
 7 | ---------------------------------------------------
 8 |     8000      14000     10000      42000
 9 |
```

Screen 3-5: Stop Repeating Text

In-line Editing

You have seen how to use the ⊖ key to backspace and the ⊕ key to open a space for an insertion. Likewise, you can delete letters or spaces by tapping ⊕. You can use keys labeled Insert and Delete. The delete key works just like ⊕, while the insert key turns an insert mode on and off.

Now enter some additional titles to column A.

To allow more space, first increase the width of column A to 15.

▶ Enter **/Format,Column,A,15** ⊖

▶ Set the automatic advance to down using ⊙. Go to A11 and start adding the new titles according to sample Screen 3-6. Be sloppy with your typing. Make a few mistakes. Then practice using the arrow keys to make corrections, inserting and deleting characters.

Using The Edit Command

You have seen how to edit a data entry *before* actually sending to an Active Cell, but how do you edit an entry *after* you have already sent it to a cell? You can always enter the data again in its entirety, and the new entry will replace the old one. But there is another way, the *Edit* command.

Suppose you decide to change Gen & Admin Exp to General & Admin:

▶ Go to A12.

```
    |     A    ||    B    ||    C    ||    D    ||    E    ||    F    |
  1 |Income Statement       XYZ CORPORATION
  2 |
  3 |                       Q1        Q2        Q3        Q4       Year
  4 |                     -------------------------------------------------
  5 |Sales                25000     20000     35000     25000     105000
  6 |Costs                15000     12000     21000     15000      63000
  7 |                     -------------------------------------------------
  8 |Profit               10000      8000     14000     10000      42000
  9 |
 10 |
 11 |EXPENSES
 12 |Gen & Admin Exp
 13 |Consultant Fees
 14 |
 15 |Total Expenses
 16 |Net Before Tax
 17 |Income Tax
 18 |
```

Screen 3-6: Additional Text Entries

Note: This is always the first step—you must move the cursor to the cell that you want to hold the edited content.

▶ Enter **/E**dit,

The prompt line now says, *From? Enter cell.* It is asking where to find the material to be edited.

▶ When you press ⏎, the SuperCalc3 program brings the Active Cell's contents to the entry line.

▶ Make your changes, using the arrow keys. Backspace ⊖ to the space before the " & " and insert ⊕ four spaces and type **eral**. Now space over ⊖ to the *Exp* and delete ⊕ it. When your change is complete, press ⏎. Your modified entry replaces the old one in A12.

At times you may want to edit a cell's content and enter the edited version into another cell while leaving the original cell unchanged. Try this:

▶ Move the Active Cell to A19 (the destination cell). Enter **/E**dit,

▶ In response to the prompt, *From?*, enter **A17** (the source cell), and press ⏎. The contents of A17 are copied to the entry line.

▶ Edit *Income Tax* to read *Net Income*. Backspace to *Tax* and delete it. Backspace to the **I**, insert four spaces and type *Net*.

▶ Press ⏎ and watch the edited version of A17 jump into A19 as in sample Screen 3-7. Note that the source material remains unchanged in A17.

```
    |   A    ||   B    ||   C    ||   D    ||   E    ||   F    |
 1 |Income Statement        XYZ CORPORATION
 2 |
 3 |                  Q1        Q2        Q3        Q4      Year
 4 |           ------------------------------------------------
 5 |Sales          25000     20000     35000     25000    105000
 6 |Costs          15000     12000     21000     15000     63000
 7 |           ------------------------------------------------
 8 |Profit         10000      8000     14000     10000     42000
 9 |
10 |
11 |EXPENSES
12 |General & Admin
13 |Consultant Fees
14 |
15 |Total Expenses
16 |Net Before Tax
17 |Income Tax
18 |
19 |Net Income
20 |
```

Screen 3-7: Edit Command

Isn't it easier to type over a cell's content than to use *Edit*? In these examples, probably. But at other times, when you have a minor change to a long or complicated entry, the *Edit* command will come in handy.

Blanking a Cell

What if you want to completely erase the content of a cell? You could edit it and delete its content, but there's a faster way. With the *blank* command you can *blank out*, or erase, data that you have already entered.

▶ Go to A20 and enter any text entry or number.

▶ Enter **/B**lank,

The prompt line changes to *Enter range, or *graph-range*.

We'll look at how to specify an entire range or a *graph-range later. For now let's concentrate on *blanking* out a single cell. There are three ways to do this:

▶ Type **A20** and press ⏎.

OR

▶ Move the cursor to the cell you wish to blank (in this case A20), enter **/B**, and with no cell reference, press ⏎.

OR

▶ Enter **/B**lank, press (ESC), move the cursor to the cell and press ⏎.

All three methods give the same result. The content of A20 is *blanked*, that is erased. Use whichever method is most convenient for you.

Entering Formulas

Formulas can be simple or complex. Many times you will just enter a number which SuperCalc3 accepts as a formula. The complexity of a formula depends on your purpose. The program assists by checking each entry formula. If it doesn't meet proper mathematical form, the entry is interpreted as text, and a leading " appears at the status line for the Active Cell.

Note: If you enter a formula incorrectly, when you make the correction be sure to remove the leading ". Press the (TAB) key or backspace to the first letter and tap ⏀.

Displaying Formulas with the Global Command

Using *10 Minutes to SuperCalc3* you entered several formulas. You saw the program display the resulting values on the spreadsheet, yet you could view the formula in each cell at the status line only. You had to move the spreadsheet cursor to view each formula one at a time.

When you're working with formulas, you may want to see them all displayed all at one time. The *Global* command lets you make overall or *global* changes in the way you view your entire spreadsheet, rather than specific or local changes.

▶ Enter **/G**lobal,

The prompt line now reads:

G (raphics) ,F (orm.) ,N (ext) ,B (order) ,T (ab) ,R (ow) ,C (ol.) ,M (an.) ,A (uto) ?

▶ The concern here is with formulas, so enter **F**ormula and see your formulas displayed.

Your console display should now look like sample Screen 3-8.

```
    |    A    ||    B   ||    C   ||   D   ||   E   ||   F    |
 1|Income Statement         XYZ CORPORATION
 2|
 3|                    Q1          Q2          Q3          Q4         Year
 4|                ------------------------------------------------------
 5|Sales           25000       20000       35000       25000      SUM(B5:E5)
 6|Costs           60%B5       60%C5       60%D5       60%E5      60%F5
 7|                ------------------------------------------------------
 8|Profit          B5-B6       C5-C6       D5-D6       E5-E6      F5-F6
 9|
10|
11|EXPENSES
12|General & Admin
13|Consultant Fees
14|
15|Total Expenses
16|Net Before Tax
17|Income Tax
18|
19|Net Income
20|
```

Screen 3-8: Formula Display Mode

You can see examples of several different types of formulas:

• Numeric entries in cells B5 to E5.

• A SUM function in F5.

SUM (B5:E5) means total the values in cells B5 through E5.

- A % function in row 6.

    The formula in B6 means take 60 percent of the value of cell B5.

- Subtraction of one cell from another in row 8.

SUM and % are built-in functions. The SuperCalc3 program provides many other built-in functions, including SQRT (square root), AVERAGE (arithmetic mean), NPV (net present value), IRR (Internal Rate of Return), IF conditionals, trigonometric functions, and many more. See Chapter 8, *SuperCalc3 Formulas and Functions*, for a complete list.

▶ To return to a display of cell values, repeat the sequence:

   /Global,**F**ormula

Every time you enter this command sequence, the SuperCalc3 program alternates (toggles) between the two display modes—values and formulas.

Border On/Off

The Global command has another toggle option—Border.

A single command turns off the top and left border as in Screen 3-9.

▶ Enter: **/G**lobal,**B**order

The same command sequence turns the border back on.

The Border option is typically used when you want to print a final report without the borders.

▶ You may wish to try that now if you have a printer. With the border off, enter:

   /Output,**D**isplay,**All**,**P**rinter

```
Income Statement            XYZ CORPORATION

                    Q1          Q2          Q3          Q4        Year
                ---------------------------------------------------------
Sales               25000       20000       35000       25000     105000
Costs               15000       12000       21000       15000      63000
                ---------------------------------------------------------
Profit              10000        8000       14000       10000      42000


EXPENSES
General & Admin
Consultant Fees

Total Expenses
Net Before Tax
Income Tax

Net Income
```

Screen 3-9: Border Off

Automatic Advance On/Off

Now one last *Global* toggle command before you leave this lesson. You've seen how the spreadsheet cursor automatically advances when you press ⏎. At times you'll want the cursor to stay put after an entry. To turn the automatic cursor advance off enter:

/Global,Next

The cursor does not move when you press ⏎. Note also that the first character of the status line which indicates the cursor direction disappears.

Make sure the Automatic Advance is on before leaving this section.

Saving Your File

You have completed Lesson 2 and should save your spreadsheet on a disk file before going on. Lessons 3 through 6 will build on this same spreadsheet—at the beginning of each lesson you will be asked to load the file from the previous lesson. To keep the progression in separate files that you can refer to later, you should give each file its own name. And since this will take up increasing space on your SuperCalc3 program disk, now's a good time to begin the practice of keeping your spreadsheet files on a separate formatted disk in Drive B.

Note: If you have a hard disk, you can either save spreadsheets in the same disk directory as the SuperCalc3 program, or save them on a disk in your floppy disk drive.

▶ Type **/S**ave, to tell the system you want to save your file.

▶ Type **B:LESSON2,** as the name of the file, then **All**.

The B: tells the program to save the spreadsheet on the disk in Drive B.

If a file by that name already exists on the disk, you can use the Backup option.

If you want to quit now:

▶ Type **/Q**uit. After you verify that **Y**es you want to exit the program, the system prompt appears.

In this lesson you have learned how to:

• Enter data either as text with ⫌ or repeating text with ⫢.

• Enter formulas with simple numbers and with built-in functions.

• Do in-line editing, using ⊙ for delete and ⊙ for insert.

• *Edit* content already sent to a cell.

• *Edit* the content of one cell, and place it in another cell.

• Toggle between formula and value display using the /Global,Format command.

• Turn off the border before printing, or turn it back on using /Global,Border.

• Turn off the automatic cursor advance using /Global,Next.

Lesson 3

Copying and Replicating Data

To complete a typical financial spreadsheet, many more formulas must be entered. You could enter all the formulas one by one into the cells, but that would be tedious. To help you cut down on time and error, SuperCalc3 gives you the *Copy* and *Replicate* commands. Once you have the formulas the way you want them, the *Protect* command keeps them from being *edited* or *blanked*. For each of these commands you'll practice specifying ranges of rows, columns, and finally a block of cells.

The Disk File Directory

Let's continue using the spreadsheet you began to develop in Lesson 2. Start with a fresh spreadsheet—use **/Z**ap if continuing directly from Lesson 2. Retrieve the file you saved at the end of that lesson.

▸ Use the Load command to do this. Be sure to insert the disk with the file into your other disk drive. Enter:

/Load,

This prompt appears:

Enter File name, or <RETURN> for Directory

▸ Enter ⏎ to see a Directory Options display as in Screen 3-10.

▸ Enter **C** to Change the current logged data disk drive.

If you have a two-drive floppy disk system:

▸ Enter **B** as the New drive.

Drive B becomes the Current (logged) data drive and remains so until you change it again or *Quit* SuperCalc3. You no longer need to specify B: when you *Load* or *Save* a file, although this manual will continue to show it.

▶ Enter **S**ee to get a directory display of all spreadsheet files on the disk in drive B. LESSON2.CAL should be among them. If not, you have the wrong disk in the drive.

```
SuperCalc3 Directory Options
Program disk drive is A:
Current data disk drive is A:
Current spreadsheet file is : NONE

OPTIONS:
   C(hange) data disk drive
   D(isplay) all files
   S(ee) .CAL spreadsheet files only
   E(nter) filename
   G(raphs) - current spreadsheet

F2 to abort command.

Type C(hange), D(isplay), S(ee), E(nter), or G(raphs)
   7>/Load,
```

Screen 3-10: Directory Options

▶ Tap the Space bar to either display more files or return to the Directory Options screen.

▶ Enter **E** to exit the Directory Options screen and return to the Load command entry line.

▶ Enter: **B:LESSON2,A**ll

▶ Use **/G**lobal,**F**ormat to display formulas.

▶ Make sure the automatic cursor advance is off, using **/G**lobal,**N**ext

Having the auto advance off is recommended when entering formulas, especially in the formula display mode. This lets you verify that the leading " does not appear at the status line, and that the formula is correct.

Copy and Replicate commands also work better with auto advance off.

The Copy Command

The *copy* command is easy to use. You can copy a single cell, a partial row or partial column, or a block of cells. Or, you can copy a graph description to another graph. For complete information see the /Copy section of Chapter 7.

For now, let's concentrate on copying a single cell:

▶   Go to B12 and enter this formula: **15% B5** ⊙

This formula means take 15 percent of the value of B5.

Now you can use the *copy* command to copy the content of cell B12 to C12:

▶   Enter **/C**opy,

The prompt line responds with:

> From? Enter range or *graph-number

▶   In response, enter **B12,**—or since your cursor remains on B12, you can simply press ⊙.

The prompt changes to ask:

> To? (Enter Cell) ; then<RETURN> or <,> for Options

▶   Enter **C12** and press ⊙ for automatic adjustment.

> The Options are discussed with the *Replicate* command.

▶   Compare the contents of C12 with B12 and note that the formula is adjusted automatically to reflect the new cell location.

▶   To get the hang of it, use the *Copy* command to copy the contents of cell C12 to D12, D12 to E12, and E12 to F12. Your display should look like Screen 3-11.

Now just to see how copying a range of cells works, copy the formulas in row 12 to row 13:

```
      |   A    ||   B   ||   C   ||   D   ||   E   ||   F   |
 1 |Income Statement        XYZ CORPORATION
 2 |
 3 |                    Q1        Q2        Q3        Q4        Year
 4 |                  ------------------------------------------------
 5 |Sales              25000     20000     35000     25000     SUM(B5:E5)
 6 |Costs              60%B5     60%C5     60%D5     60%E5     60%F5
 7 |                  ------------------------------------------------
 8 |Profit             B5-B6     C5-C6     D5-D6     E5-E6     F5-F6
 9 |
10 |
11 |EXPENSES
12 |General & Admin 15%B5       15%C5     15%D5     15%E5     15%F5
13 |Consultant Fees
14 |
15 |Total Expenses
16 |Net Before Tax
17 |Income Tax
18 |
19 |Net Income
20 |
```

Screen 3-11: Copying a Cell

▶   Enter /Copy, **B12:F12,B13** ⏎

Note that you only need to enter the upper left corner of your destination.

However, this is not the formula you need in row 13, so *blank* it out and see how specifying a range can help with the blank command.

▶   Enter /Blank,

▶   For the range, specify **B13:F13** ⏎

The Escape Function

You've seen that in command mode you can often press ⏎ to enter the Active Cell. This works fine as long as the cursor is positioned at the cell you want. Since the cursor keys are used for in-line editing during command entry, it seems you can't use them to move the Active Cell. But you're not locked in after all.

The (ESC) key lets you temporarily free the arrow keys to move the Active Cell during command entry. This becomes particularly useful when specifying

ranges because you can move the cursor to the cell you want to specify then enter it with ⏎.

Try it, repeating the same exercise as before:

▶ Enter **/C**opy.

▶ When you see the *from range* press ESC.

Note that the Active Cell appears on the command entry line.

▶ Now use an arrow key or control key to move the active cell to B12 and press ⊙.

Pressing ⊙ locks in the Active Cell as the upper left corner cell of a range or block.

▶ Now use ⊖ to move to F12 and enter ⊙

The cursor movement returns to the Entry line.

▶ For the *to range* you can press ESC again. Then move the Active Cell to B13, the upper left corner of your destination, and press ⏎.

Note: If at any point you need to leave the Escape mode, touch ESC a second time. This will allow you to edit the command you are entering.

Now *blank* the range using the ESC function:

▶ Enter **/B**lank.

▶ Press ESC and move the Active Cell to B13. Enter ⊙

▶ Move the Active Cell to F13 and press ⏎

The ESC function can be very useful. It may take more keystrokes, but you can select cells visually rather than stopping to think about the cell coordinates, so often it's faster.

You may use ESC whenever you need to specify a range of cells with commands such as *Blank, Copy, Replicate,* and *View*. It does not work

with other commands such as *Move*, *Insert*, *Delete* since they use entire columns and rows only.

The Replicate Command

The *Copy* command makes a *one-to-one* copy of its source material into a destination of the same size. If you want to repeat a series of values and formulas many times, you can use another very powerful command, *Replicate*.

Replicate makes a *one-to-many* copy of a cell, a partial row, or a partial column, and distributes these copies over a destination range that is larger than the source range.

First, let's *Replicate* a single cell into a partial row:

▶   Go to B13 and type **12%B5** ⏎

▶   Enter **/R**eplicate.

```
      |   A      ||   B    ||   C    ||   D    ||   E    ||   F    |
 1 |Income Statement        XYZ CORPORATION
 2 |
 3 |               Q1         Q2         Q3         Q4         Year
 4 |          ------------------------------------------------------
 5 |Sales          25000      20000      35000      25000      SUM(B5:E5)
 6 |Costs          60%B5      60%C5      60%D5      60%E5      60%F5
 7 |          ------------------------------------------------------
 8 |Profit         B5-B6      C5-C6      D5-D6      E5-E6      F5-F6
 9 |
10 |
11 |EXPENSES
12 |General & Admin 15%B5      15%C5      15%D5      15%E5      15%F5
13 |Consultant Fees 12%B5     12%C5      12%D5      12%E5      12%F5
14 |
15 |Total Expenses SUM(B12:B13 SUM(C12:C13 SUM(D12:D13 SUM(E12:E13 SUM(F12:F13
16 |Net Before Tax B8-B15     C8-C15     D8-D15     E8-E15     F8-F15
17 |Income Tax     20%B16     20%C16     20%D16     20%E16     20%F16
18 |
19 |Net Income     B16-B17    C16-C17    D16-D17    E16-E17    F16-F17
20 |
> B19          Form=B16-B17
Width: 12  Memory: 73 Last Col/Row:G20    ? for HELP
 1>
```

Screen 3-12: Replicating a Cell

▸ For *From*, enter **B13,** or press ⊙ for the current cell.

▸ For *To?*, enter the range C13 through F13, by typing **C13:F13** and ⊙. Or use (ESC) then move to C13, enter ⊙ and move to F13 and press ⊙.

Note how the command performs, making automatic adjustments.

▸ Using the same procedure, continue entering the last three rows of formulas until your display looks like the sample Screen 3-12.

Try using the (ESC) key with Replicate. You can use it in combination with the standard method of entering cell coordinates. Experiment until you find the combination you like best. Some users find it easiest to enter the original data with the Automatic Cursor Advance turned off, using **/R**eplicate and ⊙ for the *From* cell, then (ESC) for the *To* range.

Formula Adjustment

So far in these *Copy* and *Replicate* exercises you have accepted the automatic adjustment. But now try something different. Add another row of figures that will show each quarter's percentage of the year's total Net Income:

▸ Go to A20 and enter **% of Total**.

▸ At B20, enter this formula: **B19/F19*100**.

When used in a formula the **/** is SuperCalc3's division sign. The * means multiply and is equivalent to the **x** sign in algebraic notation.

▸ Enter **/R**eplicate and use B20 as the From or Source cell.

This time we want to hold F19, the year's Net Income, constant. When this prompt appears:

To? (Enter Range) ; then <RETURN> or <,> for Options

▸ Enter **C20:E20** then ⊙ for the options.

This prompt appears:

N (o Adjust.) , A (sk for Adjust.) , V (alues) , +, -, *, /

Enter **A**sk for Adjust. This option allows you to specify adjustment or non-adjustment for each cell address that the formula contains.

The prompt changes to:

Source cell B20, Adjust B19 (Y or N) ?

and the first cell address, B19, is highlighted on the entry line.

▶   Respond with **Y**.

This time the reference to F19 is highlighted on the entry line.

▶   Respond with **N** for no adjustment.

Notice that the first variable of your formula in row 20 is adjusted while the F19 remains unchanged.

```
      |    A    ||   B   ||   C   ||   D   ||   E   ||   F   |
   1 |Income Statement        XYZ CORPORATION
   2 |
   3 |               Q1        Q2        Q3        Q4       Year
   4 |          -------------------------------------------------
   5 |Sales        25000     20000     35000     25000     105000
   6 |Costs        15000     12000     21000     15000      63000
   7 |          -------------------------------------------------
   8 |Profit       10000      8000     14000     10000      42000
   9 |
  10 |
  11 |EXPENSES
  12 |General & Admin  3750    3000      5250      3750      15750
  13 |Consultant Fees  3000    2400      4200      3000      12600
  14 |
  15 |Total Expenses   6750    5400      9450      6750      28350
  16 |Net Before Tax   3250    2600      4550      3250      13650
  17 |Income Tax        650     520       910       650       2730
  18 |
  19 |Net Income       2600    2080      3640      2600      10920
  20 |% of Total    23.80952381 19.04761905 33.33333333 23.80952381

 < B20          Form=B19/F19*100
 Width: 12   Memory: 74 Last Col/Row:G20    ? for HELP
    1>
```

Screen 3-13: Formula Adjustment

Let's see how the spreadsheet looks now in value display mode:

▶ Type: **/G**lobal,**F**ormula

Your display should look like sample Screen 3-13. To make the spreadsheet look more like a financial statement try using the Money ($) format to display all figures with two decimal places.

▶ Enter: **/F**ormat,**G**lobal,**$**,⏎

```
|      A    ||    B    ||    C    ||    D    ||    E    ||    F    |
 1 Income Statement         XYZ CORPORATION
 2
 3                        Q1         Q2         Q3         Q4         Year
 4  -----------------------------------------------------------------
 5 Sales          25000.00   20000.00   35000.00   25000.00   105000.00
 6 Costs          15000.00   12000.00   21000.00   15000.00    63000.00
 7  -----------------------------------------------------------------
 8 Profit         10000.00    8000.00   14000.00   10000.00    42000.00
 9
10
11 EXPENSES
12 General & Admin  3750.00    3000.00    5250.00    3750.00    15750.00
13 Consultant Fees  3000.00    2400.00    4200.00    3000.00    12600.00
14
15 Total Expenses   6750.00    5400.00    9450.00    6750.00    28350.00
16 Net Before Tax   3250.00    2600.00    4550.00    3250.00    13650.00
17 Income Tax        650.00     520.00     910.00     650.00     2730.00
18
19 Net Income       2600.00    2080.00    3640.00    2600.00    10920.00
20 % of Total        23.81      19.05      33.33      23.81
< B20         Form=B19/F19*100
Width: 12  Memory: 74  Last Col/Row:G20    ? for HELP
  1>
```

Screen 3-14: Money ($) Format

Look better? You'll learn more about display formatting in Lesson 5.

Since you're through using the *Replicate* command for now, go turn the automatic cursor advance back on:

▶ Enter **/G**lobal,**N**ext

Did the first character in the Status Line reappear? That tells you the cursor advance is back on and set in the direction of your most recent cursor movement.

Now save the spreadsheet before trying something else:

▶ Enter **/S**ave,**B:LESSON3,A**ll

The Protect Command

Once you get all your formulas the way you want them, it's a good idea to *Protect* them against unwanted entries or blanking.

First, protect a single cell.

▶ Enter **/P**rotect, then **F5**. Press ↵

▶ Move the cursor to F5 and note that a "P" now appears next to the *Form* display on the status line:

```
> F5       P Form=SUM(B5:E5)
Width: 12  Memory: 74 Last Col/Row:G20    ? for HELP
1>
```

This indicator tells you that the Active Cell is *protected*.

You will see protected cells at half intensity. On a machine equipped for color, protected cells appear in yellow.

Just as in the *Copy* and *Replicate* commands, you can specify a range for protection. We could specify by columns, or rows, but we actually have a block of cells that needs protection—rows 8 through 20, and columns B through F.

▶ Type **/P**rotect,**B8:F20** ↵

Notice that the block is specified using the top leftmost and the bottom cells. You could also reverse the order to F20:B8.

What is the significance of what you have done?

Remember that **/B**lank can *blank* out an entire block of cells.

▶ Enter **/B**lank,**B8:F20** ↵

Nothing was blanked. Rows 1 through 7, and Column A with the titles remain because they lie outside the range of the block-definition we used with the *blank* command. The rest remain because they were protected.

Now try some modeling in the unprotected cells:

▶ Change the sales figures in B5, and watch the rest of the values in columns B and F change.

▶ Go to B6 and edit the formula to read **45**%B5. Then *Replicate* it across the row.

▶ Now try the same thing with B8 or any other cell in your formula block. Because these cells have been protected, they cannot be changed or blanked out.

```
       |   A    ||   B   ||   C   ||   D   ||   E   ||   F   |
 1 |Income Statement      XYZ CORPORATION
 2 |
 3 |                  Q1       Q2       Q3       Q4      Year
 4 |                -------------------------------------------
 5 |Sales          25000.00 20000.00 35000.00 25000.00 105000.00
 6 |Costs          11250.00  9000.00 15750.00 11250.00  47250.00
 7 |                -------------------------------------------
 8 |Profit         13750.00 11000.00 19250.00 13750.00  57750.00
 9 |
10 |
11 |EXPENSES
12 |General & Admin  3750.00  3000.00  5250.00  3750.00  15750.00
13 |Consultant Fees  3000.00  2400.00  4200.00  3000.00  12600.00
14 |
15 |Total Expenses   6750.00  5400.00  9450.00  6750.00  28350.00
16 |Net Before Tax   7000.00  5600.00  9800.00  7000.00  29400.00
17 |Income Tax       1400.00  1120.00  1960.00  1400.00   5880.00
18 |
19 |Net Income       5600.00  4480.00  7840.00  5600.00  23520.00
20 |% of Total         23.81    19.05    33.33    23.81
 > B6           Form=45%F5
Width: 12  Memory: 74 Last Col/Row:G20    ? for HELP
   1>
```

Screen 3-15: Protected Cells

This feature provides you with a large measure of safety when you are working with information that has taken you time to develop, and which

you cannot afford to accidentally lose. Note, however, that empty cells within a protected range are not protected, like F20 in our sample. If you later enter data into these empty cells, you have to protect them then.

▶ Test F20 by entering data in it, then blanking it out.

The Unprotect Command

The *Unprotect* command cancels the protection. You can use it when you want to remove protection from a cell, partial row, partial column or block. For example, type **/U**nprotect,**F5** ⊙.

Now save the file again:

▶ First change your Sales figures in row 5 back to the ones in sample Screen 3-15.

▶ Type **/S**ave, then press (ESC) ⊙ to automatically enter the current file name on the command line.

Since you have already saved the file by this name, this message appears:

File already exists: C (hange name) , B (ackup) or O (verwrite) ?

You could enter "C" to change the name, then type in a new name.

Or you could enter "O" for overwrite. This would replace the old version of the file with the current one.

But because you have done a lot of work to your current spreadsheet, let's talk about the backup option for a moment.

Keeping Backup Copies of Your File

When you *Load* a file, you are actually sending a temporary working copy of it to the computer memory—the original file on disk remains unchanged while you are working with the spreadsheet. After you view or edit the working copy you may *Zap* it, which erases the copy from the memory. Or you may Save it.

The Backup option saves your current spreadsheet as LESSON3.CAL and renames the one you saved earlier to LESSON3.BAK. Then you have two copies—the earlier version one (LESSON3.BAK) and the current version two (LESSON3.CAL) .

```
┌─────────────┐
│ LESSON3.CAL │ ─────────────────────▶  ┌─────────────┐
│ VERSION 1   │                          │ LESSON3.BAK │
└─────────────┘                          │ VERSION 1   │
                                         └─────────────┘

                                         ┌─────────────┐
                                         │ LESSON3.CAL │
                                         │ VERSION 2   │
                                         └─────────────┘
```

Illustration 3-2: First Backup

The next time you use the backup option, current version two of the file becomes the backup copy and version one gets deleted.

```
┌─────────────┐
│ LESSON3.BAK │  DELETED
│ VERSION 1   │
└─────────────┘

┌─────────────┐
│ LESSON3.CAL │ ─────────────────────▶  ┌─────────────┐
│ VERSION 2   │                          │ LESSON3.BAK │
└─────────────┘                          │ VERSION 2   │
                                         └─────────────┘

                                         ┌─────────────┐
                                         │ LESSON3.CAL │
                                         │ VERSION 3   │
                                         └─────────────┘
```

Illustration 3-3: Second Backup

When you create a new backup copy every time you save a file, you always have your most recent work to fall back on. Then if you change your mind about a file you have just edited and saved, you can load the backup copy. Simply add the .BAK extension to the filename when you request it with the *Load* command.

If you want to set aside a third version of a file and maintain it on the disk, you can use the Change name option, and give the file a different name.

Try it now:

▶   Type **B**ackup,**A**ll

If you want to take a break before going on to Lesson 4:

▶   Type **/Q**uit,**Y**es

What have you learned in this lesson?

- How to use the *Copy* command to make a *one-to-one* copy of a cell or range of cells.

- How to use the *Replicate* command to make a *one-to-many* copy of a cell, a partial row, or a partial column and to distribute the copies over a range.

- That the SuperCalc3 program will adjust cell references in formulas automatically when data is moved to new locations—or let you leave part or all of a formula unchanged.

- That in an arithmetic expression, " * " means multiply and " / " means divide.

- How to *Protect* and *Unprotect* cells, and what protection does for a cell.

- How to specify a range of cells, by row, column, or block, in the *Copy*, *Replicate*, *Blank*, *Protect*, and *Unprotect* commands.

Lesson 4

Move, Insert, Delete

By now you have learned to use several important **/** commands. You can *Save*, *Load*, and *Zap* your spreadsheet. This lesson introduces commands and techniques that greatly simplify the development of a complex display.

▶ If you are not continuing directly from Lesson 3, *Load* the file B:LESSON3.

Remember you can use ⑦ if you want a refresher on how to use *Load*.

```
      |   A      ||   B    ||   C    ||   D    ||   E    ||   F    |
  1 |Income Statement      XYZ CORPORATION
  2 |
  3 |                  Q1        Q2        Q3        Q4      Year
  4 |                -----------------------------------------------
  5 |Sales         25000.00  20000.00  35000.00  25000.00  105000.00
  6 |Costs         11250.00   9000.00  15750.00  11250.00   47250.00
  7 |                -----------------------------------------------
  8 |Profit        13750.00  11000.00  19250.00  13750.00   57750.00
  9 |
 10 |
 11 |EXPENSES
 12 |General & Admin 3750.00   3000.00   5250.00   3750.00   15750.00
 13 |Consultant Fees 3000.00   2400.00   4200.00   3000.00   12600.00
 14 |
 15 |Total Expenses  6750.00   5400.00   9450.00   6750.00   28350.00
 16 |Net Before Tax  7000.00   5600.00   9800.00   7000.00   29400.00
 17 |Income Tax      1400.00   1120.00   1960.00   1400.00    5880.00
 18 |
 19 |Net Income      5600.00   4480.00   7840.00   5600.00   23520.00
 20 |% of Total        23.81     19.05     33.33     23.81
  > F6          Form=45%F5
Width: 12  Memory: 74 Last Col/Row:G20   ? for HELP
  1>
```

Screen 3-16: LESSON3 Spreadsheet

▶ Make sure your display matches Screen 3-16, including row 6 which uses the Costs percentage of 45%.

The Insert and Delete Commands

Two complementary commands can create or delete columns and rows.

Reposition the display window with the *GoTo* command:

▸ Move the cursor to C1.

▸ Enter ⊟ then ↵

▸ Use **/G**lobal,**F**ormula to display formulas.

Proceed with the Insert command. First for practice, insert a column between D and E.

▸ Enter **/I**nsert,

The prompt line reads:

R (ow) or C (olumn) ?

▸ Enter **C**olumn,

The next prompt reads:

Enter Column Range

▸ Respond by entering **E** ↵

A new column appears, and the data in columns E and F are shifted to the right as in Screen 3-17. Note the formulas in columns F and G are automatically adjusted for their new location.

▸ Insert a column between F and G.

Enter **/I**nsert,**C**olumn,**G** ↵

What happened this time? The new column appears, but the formula in H5 is not adjusted because you have inserted a column outside the specified range of B5:F5.

```
      |   C    ||   D    ||   E    ||   F    ||   G    ||   H    |
   1 |XYZ CORPORATION
   2 |
   3 |        Q2         Q3                    Q4         Year
   4 |------------------------------------------------------------
   5 | 20000      35000               25000      SUM(B5:F5)
   6 | 45%C5      45%D5               45%F5      45%G5
   7 |------------------------------------------------------------
   8 | C5-C6      D5-D6               F5-F6      G5-G6
   9 |
  10 |
  11 |
  12 | 15%C5      15%D5               15%F5      15%G5
  13 | 12%C5      12%D5               12%F5      12%G5
  14 |
  15 | SUM(C12:C13 SUM(D12:D13)       SUM(F12:F13 SUM(G12:G13)
  16 | C8-C15     D8-D15              F8-F15     G8-G15
  17 | 20%C16     20%D16              20%F16     20%G16
  18 |
  19 | C16-C17    D16-D17             F16-F17    G16-G17
  20 | C19/G19*100 D19/G19*100        F19/G19*100
 v C1              Text="XYZ CORPORATION
Width: 12  Memory: 73 Last Col/Row:H20    ? for HELP
   1>
```

Screen 3-17: Insert a Column

Now delete the two columns:

▶ Enter **/D**elete,**C**olumn,**G** ⏎

▶ Delete column E in the same way.

The formulas are adjusted back to their original state.

But what happens to a value that depends on one that you delete? You'll
Zap this screen in a minute, so feel free to experiment:

Before you can delete, you must unprotect the cells:

▶ Enter **/U**nprotect,**ALL**⏎

▶ Now *Edit* E12 to read 15%F5 + **C12**

▶ Delete column C.

Notice that the formulas are adjusted when you delete a column containing data *from the middle of* a range. The SUM formula in B5 now refers to ranges from columns B through D. But D12 displays this message:

15%D5+ERROR

to warn you that it has no value to use in the calculation.

▸ Notice that the formulas in cells D15 through D20 are dependent on the value in D12.

When a cell contains ERROR, any reference to it will also contain an ERROR. To see an example of this:

▸ *GoTo* column A.

▸ Change the spreadsheet to display cell values with **/G**lobal,**F**ormula.

```
    |    A      ||   B    ||    C    ||    D    ||    E    ||   F    |
 1 |Income Statement        XYZ CORPORATION
 2 |
 3 |                     Q1          Q3          Q4        Year
 4 |               ------------------------------------------------
 5 |Sales             25000.00    35000.00    25000.00    85000.00
 6 |Costs             11250.00    15750.00    11250.00    38250.00
 7 |               ------------------------------------------------
 8 |Profit            13750.00    19250.00    13750.00    46750.00
 9 |
10 |
11 |EXPENSES
12 |General & Admin    3750.00     5250.00       ERROR     12750.00
13 |Consultant Fees    3000.00     4200.00     3000.00     10200.00
14 |
15 |Total Expenses     6750.00     9450.00       ERROR     22950.00
16 |Net Before Tax     7000.00     9800.00       ERROR     23800.00
17 |Income Tax         1400.00     1960.00       ERROR      4760.00
18 |
19 |Net Income         5600.00     7840.00       ERROR     19040.00
20 |% of Total           29.41       33.33       ERROR
< A1           Form="Income Statement
Width: 12  Memory: 73 Last Col/Row:F20     ? for HELP
  1>
```

Screen 3-18: ERROR—Cell Reference

Your display should look like Screen 3-18. The ERROR warnings help you avoid inadvertently leaving references to nonexistent cells that can occur after a *Delete* command.

▶ Solve the problem. *Edit* D12 by either removing ERROR from the formula or by replacing ERROR with a value.

The errors are replaced by the recalculated values.

Now try something more drastic:

▶ Look at the formula in E5. It reads:

SUM (B5:D5)

▶ Delete column D.

```
          I    A   II   B    II   C    II   D   II   E   II   F    I
          1 Income Statement
          2 I
          3 I               Q1        Q3        Year
          4 I               ------------------------------------
          5 Sales        25000.00   35000.00    ERROR
          6 Costs        11250.00   15750.00    ERROR
          7 I               ------------------------------------
          8 Profit       13750.00   19250.00    ERROR
          9 I
         10 I
         11 EXPENSES
         12 General & Admin   3750.00    5250.00    ERROR
         13 Consultant Fees   3000.00    4200.00    ERROR
         14 I
         15 Total Expenses    6750.00    9450.00    ERROR
         16 Net Before Tax    7000.00    9800.00    ERROR
         17 Income Tax        1400.00    1960.00    ERROR
         18 I
         19 Net Income        5600.00    7840.00    ERROR
         20 % of Total         ERROR      ERROR
          v E5
       Width: 12  Memory: 73  Last Col/Row:E20    ? for HELP
          1>
```

Screen 3-19: ERROR—Deleted Range Boundary

The formula in D5—which used to be SUM (B5:D5) —now contains an ERROR, which impacts the entire column of values as in Screen 3-19. The general rule is not to delete either of the boundaries specified in a range. A possible recovery in this case is to blank the contents of column D, reenter a formula with the new range in D5 and replicate it down the column. But first, let's look at another possibility.

Avoiding Errors

As you have seen, doing insertions and deletions at the boundaries of specified ranges creates problems. To avoid this, here's a useful suggestion:

▸ Insert a column at D.

If you like, you may follow the recovery procedure we mentioned for this case:

▸ Blank the contents of column E.

▸ At E5 enter this new formula: **SUM(A5:D5)**.

▸ *Replicate* this formula down column E to row 19 and blank out the cells containing zeros.

Before, the range boundaries contained data—now they do not. The range specifications in column E include the title column A and the blank column D. This is harmless because, mathematically, *text* has the value of zero, therefore it has no effect on the calculation. You may insert or delete columns as you wish, adding or removing entries and SuperCalc3 will adjust the formulas accordingly.

Now that you've seen how inserting and deleting works, and how to avoid errors, let's apply it to rows in your Income Statement.

▸ *Zap* your current spreadsheet, and reload the B:LESSON3 file.

For this next experiment, put aside standard accounting conventions and suppose—for modeling purposes—that you want to break your General & Administrative Expense into three subcategories.

▸ Enter **/Insert,Row,13:15** ⏎ to open up three rows for your new entries.

▶ Using the SuperCalc3 commands you have learned thus far, create the data in rows 13, 14, and 15 of sample Screen 3-20.

```
11 EXPENSES
12 General & Admin  15%B5      15%C5      15%D5      15%E5      15%F5
13    Rent          75%B12     75%C12     75%D12     75%E12     75%F12
14    Utilities     10%B12     10%C12     10%D12     10%E12     10%F12
15    Telephone     15%B12     15%C12     15%D12     15%E12     15%F12
16 Consultant Fees  12%B5      12%C5      12%D5      12%E5      12%F5
17
18 Total Expenses   SUM(B12:B16 SUM(C12:C16 SUM(D12:D16 SUM(E12:E16 SUM(F12:F16
19 Net Before Tax   B8-B18     C8-C18     D8-D18     E8-E18     F8-F18
20 Income Tax       20%B19     20%C19     20%D19     20%E19     20%F19
21
22 Net Income       B19-B20    C19-C20    D19-D20    E19-E20    F19-F20
23 % of Total       B22/F22*100 C22/F22*100 D22/F22*100 E22/F22*100
```

Screen 3-20: General & Administrative Subcategories

Note that the formulas in row 18 and below are adjusted. But there's a problem. The SUM range in row 18 includes both the original General & Administrative figure and the General & Administrative subcategories in rows 13 through 15.

▶ Switch your spreadsheet to the value display, as in Screen 3-21, and take a look at the Net Income in row 22, and the formula in B18.

Not much income, is there? That's because the General & Administrative expenses are added twice into the Net Income totals. For the sake of experimentation, let's move the rows so that 13, 14, and 15 fall outside the SUM range.

The Move Command

You could use *Insert* and *Copy* to duplicate rows 16 and 17 and then use *Blank* to erase them from their former positions. Instead, try this:

▶ Enter **/M**ove, and read the prompt:

R (ow) or C (olumn) ?

▶ Enter **R**ow, and the prompt changes to:

From? Enter row range

	A			B			C			D			E			F	
4																	
5	Sales			25000.00			20000.00			35000.00			25000.00			105000.00	
6	Costs			11250.00			9000.00			15750.00			11250.00			47250.00	
7																	
8	Profit			13750.00			11000.00			19250.00			13750.00			57750.00	
9																	
10																	
11	EXPENSES																
12	General & Admin			3750.00			3000.00			5250.00			3750.00			15750.00	
13	Rent			2812.50			2250.00			3937.50			2812.50			11812.50	
14	Utilities			375.00			300.00			525.00			375.00			1575.00	
15	Telephone			562.50			450.00			787.50			562.50			2362.50	
16	Consultant Fees			3000.00			2400.00			4200.00			3000.00			12600.00	
17																	
18	Total Expenses			10500.00			8400.00			14700.00			10500.00			44100.00	
19	Net Before Tax			3250.00			2600.00			4550.00			3250.00			13650.00	
20	Income Tax			650.00			520.00			910.00			650.00			2730.00	
21																	
22	Net Income			2600.00			2080.00			3640.00			2600.00			10920.00	
23	% of Total			23.81			19.05			33.33			23.81				

`* B18        Form=SUM(B12:B16)`
`Width: 12   Memory:73 Last Col/Row:G23   ? for HELP`
`  1>`

Screen 3-21: Incorrect Row Insertion

▶ Enter **12:15**,

Now the prompt asks where you want the material to go:

To? Enter row number

▶ Enter **16** ⏎

Now the Income Statement looks more profitable, as in Screen 3-22.

The rows are moved and the gap, which you might have expected the three rows to leave behind, is filled.

SuperCalc3 adjusts all the formulas to reflect their new locations. For example, the SUM range in cell B18 now reads B13:B12. The range specification is reversed from what you might expect due to the move. Note that in SuperCalc3 a range specification may be either from top left to bottom right, or bottom right to top left.

```
        |  A    ||   B   ||   C   ||   D   ||   E   ||   F    |
   4 |                -----------------------------------------------------------
   5 |Sales          25000.00    20000.00    35000.00    25000.00    105000.00
   6 |Costs          11250.00     9000.00    15750.00    11250.00     47250.00
   7 |                -----------------------------------------------------------
   8 |Profit         13750.00    11000.00    19250.00    13750.00     57750.00
   9 |
  10 |
  11 |EXPENSES
  12 |Consultant Fees  3000.00     2400.00     4200.00     3000.00     12600.00
  13 |General & Admin  3750.00     3000.00     5250.00     3750.00     15750.00
  14 |  Rent           2812.50     2250.00     3937.50     2812.50     11812.50
  15 |  Utilities       375.00      300.00      525.00      375.00      1575.00
  16 |  Telephone       562.50      450.00      787.50      562.50      2362.50
  17 |
  18 |Total Expenses   6750.00     5400.00     9450.00     6750.00     28350.00
  19 |Net Before Tax   7000.00     5600.00     9800.00     7000.00     29400.00
  20 |Income Tax       1400.00     1120.00     1960.00     1400.00      5880.00
  21 |
  22 |Net Income       5600.00     4480.00     7840.00     5600.00     23520.00
  23 |% of Total         23.81       19.05       33.33       23.81
 > B23          Form=SUM(B13:B12)
Width: 12  Memory: 73 Last Col/Row:G23    ? for HELP
   1>
```

Screen 3-22: Inserted Rows Moved

The range in B18 will produce the desired results. Only the two major expense items will now be added. If you wish to insert another major expense, it should go between rows 12 and 13. For even more flexibility you could change SUM range to 11:13 or 13:11, so that you could also add expenses above row 12.

Now that the financial statement is correct, you should save it.

▶ *Save* your file as B:LESSON4,

Unavailable Data

Before you *Zap* your screen, one last point. Sometimes you may be working on a complex spreadsheet with many values that are functions of other values. Because your data may be incomplete, you may mistakenly view some totals or values as significant when in fact they are not.

LEARNING TO USE SUPERCALC3

Move, Insert, Delete

Here is what you can do in such cases. Suppose you wanted to use real values for your *Sales* figures and did not yet have the figure for your 4th Quarter:

▶ Enter **NA** ⊕ into cell E5.

This tells SuperCalc3 that you intend to have a value here at some future time so the value of the cell should be considered as *Not available.* Note that all the other cells that depend upon the value in E5 also contain N/A, as in Screen 3-23.

```
       |   A    ||   B    ||   C    ||   D    ||   E    ||   F    |
  1 |Income Statement       XYZ CORPORATION
  2 |
  3 |                      Q1        Q2        Q3        Q4      Year
  4 |                   ----------------------------------------------
  5 |Sales              25000.00  20000.00  35000.00     N/A       N/A
  6 |Costs              11250.00   9000.00  15750.00     N/A       N/A
  7 |                   ----------------------------------------------
  8 |Profit             13750.00  11000.00  19250.00     N/A       N/A
  9 |
 10 |
 11 |EXPENSES
 12 |Consultant Fees     3000.00   2400.00   4200.00     N/A       N/A
 13 |General & Admin     3750.00   3000.00   5250.00     N/A       N/A
 14 |  Rent             2812.50   2250.00   3937.50     N/A       N/A
 15 |  Utilities         375.00    300.00    525.00     N/A       N/A
 16 |  Telephone         562.50    450.00    787.50     N/A       N/A
 17 |
 18 |Total Expenses      6750.00   5400.00   9450.00     N/A       N/A
 19 |Net Before Tax      7000.00   5600.00   9800.00
 20 |
 >A1          Text="Income Statement
Width: 15  Memory: 73 Last Col/Row:G19    ? for HELP
  1>
```

Screen 3-23: Using a NA Value

NA and ERROR behave identically; the difference is the display: N/A or ERROR. By using NA, you inform yourself of the ramifications of any incompleteness or oversights.

You may either *Quit* here or *Zap* your screen and continue on to Lesson 5.

What have you learned in this lesson?

- How to use the *Insert*, *Delete*, and *Move* commands.

- That those commands automatically adjust your formulas to fit the new spreadsheet.

- That formulas do not adjust when you insert or delete at the boundaries of specified ranges.

- That when you delete a cell that is referred to by formulas elsewhere, you get an error message. You learned how to fix that error.

- How to use **NA** as a reminder to enter important information.

Lesson 5

Format

By this time you have many of the basics that you need. This lesson helps you add some finishing touches to a spreadsheet by demonstrating the various display format options available.

Load the Lesson 4 spreadsheet.

▶   **/Load,B:LESSON4,A**ll

▶   Make sure your display matches sample Screen 3-24.

```
     |   A    ||   B   ||   C   ||   D   ||   E   ||   F   |
 1 |Income Statement         XYZ CORPORATION
 2 |
 3 |                  Q1        Q2        Q3        Q4       Year
 4 |             ----------------------------------------------------
 5 |Sales         25000.00  20000.00  35000.00  25000.00  105000.00
 6 |Costs         11250.00   9000.00  15750.00  11250.00   47250.00
 7 |             ----------------------------------------------------
 8 |Profit        13750.00  11000.00  19250.00  13750.00   57750.00
 9 |
10 |
11 |EXPENSES
12 |Consultant Fees 3000.00   2400.00   4200.00   3000.00   12600.00
13 |General & Admin 3750.00   3000.00   5250.00   3750.00   15750.00
14 |  Rent         2812.50   2250.00   3937.50   2812.50   11812.50
15 |  Utilities     375.00    300.00    525.00    375.00    1575.00
16 |  Telephone     562.50    450.00    787.50    562.50    2362.50
17 |
18 |Total Expenses  6750.00   5400.00   9450.00   6750.00   28350.00
19 |Net Before Tax  7000.00   5600.00   9800.00   7000.00   29400.00
20 |Income Tax      1400.00   1120.00   1960.00   1400.00    5880.00
> A1        Text="Income Statement
Width: 12  Memory: 73 Last Col/Row:G23    ? for HELP
 1>
```

Screen 3-24: LESSON4 Spreadsheet

The display options are set with the *Format* command. When you enter **/F**ormat, the prompt line responds with:

   Enter Level: G (lobal) , C (olumn) , R (ow) , E (ntry) or D (efine)

Levels of Formatting

There are four levels of display formats. In order of precedence, they are: Entry, Row, Column, and Global. Although several format levels may be in operation on a spreadsheet, only one format level can operate for any one cell at a time.

A format characteristic you assign on the Global level, can be overwritten by one you assign on the Column, Row, or Entry levels. The *Entry* level takes the highest precedence.

Note that what you specify for a Row takes precedence over the Column level. If you want to affect an entire column, but you want it to take precedence over a row, you could use the Entry level command and define a column range.

As you go through the various exercises, watch for this order of precedence and how it affects your work.

The last option, *Define*, has nothing to do with the levels of precedence. Instead, it gives you an opportunity to establish additional display format characteristics through a User-defined format table.

Formatting Characteristics

After you select the level of format assignment, the prompt line displays:

Define Formats: (I,G,E,$,R,L,TR,TL,*,U (1-8) ,H,D,column width)

There are four format groups among these options. Only one option from each group is in effect at a time. If you enter more than one from the same format group, only the last one entered is recognized.

(1)   Numeric value display options (I,G,E,$,*,U (1-8) ,H) .

(2)   Numeric justification options (R and L) .

(3)   Text justification options (TR and TL) .

(4)   Column width (number of characters).
      (Available only at Global and Column Format levels.)

Let's review the formatting you've used on the Income Statement so far. These format characteristics are stored with the file on disk and are still in effect for the assigned levels.

In *10 minutes to SuperCalc3* you used two format commands:

    /Format,**G**lobal,**12** ⏎

This changed the display width of all the columns from the standard 9 characters to 12.

    /Format,**R**ow,**3**,**T**ext**R**ight, ⏎

This *right-justified* the column titles in row 3, aligning them along the right margin of each column.

In Lesson 2 you increased the width of column A with this command:

    /Format,**C**olumn,**A,15** ⏎

In Lesson 3 you set the money display format to display numeric values with 2 decimal places.

    /Format,**G**lobal,**$** ⏎

Now, take a look at the other formatting possibilities.

Justification

Left-justified text and right-justified numbers are standard or *default* display format values used when you start a fresh spreadsheet.

If you want to align your numbers along the left margin of a column, you can do so. Try it:

▶   Enter **/F**ormat,**C**olumn,**B,L**eft, ⏎

Notice this misaligns the decimal points.

▶   Now restore the column using the same command substituting **R**ight for **L**eft.

You can use the text justification option in the same way. The default of TextLeft allows the *spill over* feature for both text and repeating text entries.

Now is a good time to add some more lines to the Income Statement.

▶   At B9 enter '- ⏎

▶   Do the same thing for rows 17 and 21.

▶   Insert a row at 23 and at B23 enter '= ⏎

▶   Go to column G and cut off each of the four lines with another ⊙ ⏎

▶   Now enter:

   /Format,Global,TextRight ⏎

Notice that the repeating text doesn't work now.

▶   Restore the repeating text by entering:

   /Format,Global,TextLeft ⏎

▶   *GoTo* A1.

A good rule is to carefully assign TextRight justification only where you need it—by Rows, Columns, or at the Entry level.

User-Defined Formats

▶   To get to the User-defined format table in sample Screen 3-25 enter:

   /Format,Define

User-defined formats give you the flexibility to assign more than one characteristic. You have seven rows of characteristics from which to choose. You can combine them in up to 8 different format columns.

The default (pre-set) for all 8 formats automatically provides for three of the characteristics:

•   A *Floating $* sign appears as the leftmost digit of a value.

```
                    User-defined formats
                    1  2  3  4  5  6  7  8

Floating $          Y  Y  Y  Y  Y  Y  Y  Y

Embedded Commas     Y  Y  Y  Y  Y  Y  Y  Y

Minus in ( )        N  N  N  N  N  N  N  N

Zero as Blank       N  N  N  N  N  N  N  N

%                   N  N  N  N  N  N  N  N

Decimal Places      2  2  2  2  2  2  2  2

Scaling factor      0  0  0  0  0  0  0  0


F2 to return to spreadsheet.


> A1            Text = "Income Statement
Y(es) or N(o) ?
 15>/Format,Define
```

Screen 3-25: Default Format Table

• *Embedded Commas* appear every third place to the left of a decimal.

• The *Decimal Places* is set to two, which has the same effect as the Money ($) Format option.

Let's retain the default settings for User-defined format 1—don't make any changes to column 1. You can use it later to get a Floating $ for the first row of figures on your Income Statement.

Embedded Commas without the Floating $ might look good in all the other dollar figures on the statement. Let's use User-defined format 2 for this:

▶ Move the cursor to column 2 in the Floating $ row and change the Y to **N**.

• The *Percent* " % " option multiplies a cell value by 100 and displays it with a " % " appended.

3-50

You may recall the formula that gave you the *% of Total* figures in the last row of the Income Statement. You could omit the *100, and assign the " % " option to that row. Try it out.

▶   Move the cursor to column 3 in the Floating $ row of the table and change the "Y" to **N**.

▶   Now move down to the " % " row and change N to **Y**.

While you're about it, you can request a change for the percentage figures to show only one digit after the decimal:

▶   Move the cursor in column 3 down to Decimal Places and change the 2 to **1**.

Now take a moment to review your entries. They should match sample Screen 3-26.

```
                    User-defined formats
                    1  2  3  4  5  6  7  8

Floating $          Y  N  N  Y  Y  Y  Y  Y

Embedded Commas     Y  Y  Y  Y  Y  Y  Y  Y

Minus in ( )        N  N  N  N  N  N  N  N

Zero as Blank       N  N  N  N  N  N  N  N

%                   N  N  Y  N  N  N  N  N

Decimal Places      2  2  1  2  2  2  2  2

Scaling factor      0  0  0  0  0  0  0  0


F2 to return to spreadsheet.


> A1          Text = "Income Statement
Y(es) or N(o) ?
 15>/Format,Define
```

Screen 3-26: Format Table Redefined

5
LESSON

LEARNING TO USE SUPERCALC3
Format

You have a new percentage format for User-defined format 3, and the embedded commas without floating dollars for format 2. Format 1 is reserved for the default, but feel free to experiment with columns 4-8.

What other possibilities do you have?

- *Minus in ( )* places negative numbers in parentheses, rather than using the SuperCalc3 standard of preceding the number with a minus sign.

- *Zero as Blank* replaces zero value cells with blanks.

- *Scaling Factor* specifies the power of ten by which a cell value is divided. If you set the scaling factor to 3, for example, a cell value of $3000 appears as $3.

- ▸ When you're ready to return to your spreadsheet, enter (CTRL Z) or (F2).

Note that in this case (CTRL Z) returns you to the spreadsheet. It does not *zap* your entries on the table.

Assigning User-defined Format Characteristics

▸ First assign User-defined format 1 to row 5. Enter:

/Format,Row,5,User-defined**1** ⊖

Floating $ signs and Embedded Commas appear in row 5.

▸ Now assign User-defined format 2 at the Global level. Enter:

/Format,Global,**U**ser-defined**2** ⊖

The commas now appear throughout the spreadsheet, and the two decimal places are retained as in Screen 3-27.

Note that this global assignment did not overwrite the Floating $ in row 5 because row assignment has higher precedence than Global assignment.

Before you can display the new percentage format properly, you'll have to change the existing formula.

```
    |    A    ||    B    ||    C    ||    D    ||    E    ||    F    |
 5 |Sales        $25,000.00  $20,000.00  $35,000.00  $25,000.00 $105,000.00
 6 |Costs         11,250.00    9,000.00   15,750.00   11,250.00   47,250.00
 7 |              ------------------------------------------------------------
 8 |Profit        13,750.00   11,000.00   19,250.00   13,750.00   57,750.00
 9 |              ------------------------------------------------------------
10 |
11 |EXPENSES
12 |Consultant Fees  3,000.00    2,400.00    4,200.00    3,000.00   12,600.00
13 |General & Admin  3,750.00    3,000.00    5,250.00    3,750.00   15,750.00
14 |  Rent           2,812.50    2,250.00    3,937.50    2,812.50   11,812.50
15 |  Utilities        375.00      300.00      525.00      375.00    1,575.00
16 |  Telephone        562.50      450.00      787.50      562.50    2,362.50
17 |              ------------------------------------------------------------
18 |Total Expenses   6,750.00    5,400.00    9,450.00    6,750.00   28,350.00
19 |Net Before Tax   7,000.00    5,600.00    9,800.00    7,000.00   29,400.00
20 |Income Tax       1,400.00    1,120.00    1,960.00    1,400.00    5,880.00
21 |              ------------------------------------------------------------
22 |Net Income       5,600.00    4,480.00    7,840.00    5,600.00   23,520.00
23 |              ============================================================
24 |% of Total          23.81       19.05       33.33       23.81
```

Screen 3-27: Global Embedded Commas

Unprotect all protected cells.

▶ Enter **/U**nprotect,**ALL** ⏎

▶ Move the cursor to B24 and edit its content by deleting the · 100.

▶ *Replicate* the new formula in cell B24, using the manual adjust to hold F22 constant. Enter:

/Replicate,**B24,C24:E24,A**sk,**Yes,No** ⏎

▶ Now assign User-defined format 3 to the row, but specify it at the Entry level:

/Format,**E**ntry,**B24:E24,U**ser-defined3 ⏎

The new format of a single decimal digit followed by % appears in cells B24 through E24 as you see in Screen 3-28.

Move the cursor to B24 and note that a "3" appears in the status line, indicating an *Entry-level* User-defined format 3.

```
     |   A     ||    B    ||    C    ||    D    ||    E    ||    F     |
  5 |Sales        $25,000.00 $20,000.00 $35,000.00 $25,000.00 $105,000.00
  6 |Costs         11,250.00  9,000.00  15,750.00  11,250.00   47,250.00
  7 |           ---------------------------------------------------------
  8 |Profit        13,750.00 11,000.00  19,250.00  13,750.00   57,750.00
  9 |           ---------------------------------------------------------
 10 |
 11 |EXPENSES
 12 |Consultant Fees  3,000.00  2,400.00  4,200.00   3,000.00   12,600.00
 13 |General & Admin  3,750.00  3,000.00  5,250.00   3,750.00   15,750.00
 14 |  Rent           2,812.50  2,250.00  3,937.50   2,812.50   11,812.50
 15 |  Utilities        375.00    300.00    525.00     375.00    1,575.00
 16 |  Telephone        562.50    450.00    787.50     562.50    2,362.50
 17 |           ---------------------------------------------------------
 18 |Total Expenses   6,750.00  5,400.00  9,450.00   6,750.00   28,350.00
 19 |Net Before Tax   7,000.00  5,600.00  9,800.00   7,000.00   29,400.00
 20 |Income Tax       1,400.00  1,120.00  1,960.00   1,400.00    5,880.00
 21 |           ---------------------------------------------------------
 22 |Net Income       5,600.00  4,480.00  7,840.00   5,600.00   23,520.00
 23 |           =========================================================
 24 |% of Total         23.8%     19.0%     33.3%      23.8%
 v B24 ►3       Form=B22/F22
Width: 12  Memory: 73 Last Col/Row:G24    ? for HELP
   1>
```

Screen 3-28: Percent (%) Format With One Decimal Place

One advantage of using Entry level display format is that the current options appear on the Status line.

Your Income Statement looks quite professional, doesn't it? It's worthy of a printed copy.

▶   Use the *Global* command to turn the Border Off.

▶   Enter **/O**utput,**D**isplay,**ALL,P**rinter

▶   Turn the Border back on.

▶   *Save* your file as B:LESSON5 before moving on to some experimentation. The User-defined format table is saved as part of the file.

Hide Option

You know how to protect a cell from being modified, but what if you want to keep certain information confidential? The Hide option allows you to specify cells whose values you do not want displayed or printed.

Suppose you want to keep your Net Income confidential. Enter:

▶   **/F**ormat,**E**ntry,**B22:F22,H**ide ⏎

▶   Go to B22 and read the status line.

Note the "H" in the status line indicating an Entry-level Hide option.

You can still read the formulas for individual cells at the status line, but the value does not display.

Now take a look at a more complex issue, numeric representation, and some of its options.

General Display Format

Is your spreadsheet displaying values? For numeric representation you need to look at cell *values* not formulas.

▶   Use **/G**lobal,**F**ormulas, if you need to change the display.

▶   Enter **/F**ormat,**G**lobal. Look at the prompt line:

Define Formats: (I,G,E,$,R,L,TR,TL, *,U (1-8) ,H,D,column width)

This time the G stands for *General*, the standard display format for numeric values.

▶   Add the second G to complete the entry line:

/Format,**G**lobal,**G**eneral ⏎

The General display format replaces the Global User-defined format of embedded commas and two decimal places, as in Screen 3-29. But it does not replace the Row format in row 5, or the Entry-level format in row 24.

```
   |   A    ||   B    ||   C    ||   D    ||   E    ||   F    |
 5 |Sales        $25,000.00 $20,000.00 $35,000.00 $25,000.00 $105,000.00
 6 |Costs            11250       9000      15750      11250       47250
 7 |            ---------------------------------------------------------
 8 |Profit           13750      11000      19250      13750       57750
 9 |            ---------------------------------------------------------
10 |
11 |EXPENSES
12 |Consultant Fees   3000       2400       4200       3000       12600
13 |General & Admin    3750       3000       5250       3750       15750
14 |   Rent          2812.5      2250      3937.5     2812.5     11812.5
15 |   Utilities       375        300        525        375        1575
16 |   Telephone      562.5       450       787.5      562.5      2362.5
17 |            ---------------------------------------------------------
18 |Total Expenses    6750       5400       9450       6750       28350
19 |Net Before Tax    7000       5600       9800       7000       29400
20 |Income Tax        1400       1120       1960       1400        5880
21 |            ---------------------------------------------------------
22 |Net Income
23 |            =========================================================
24 |% of Total       23.8%      19.0%      33.3%      23.8%
^ B22 ►H       Form=B19-B20
Width: 12  Memory: 73 Last Col/Row:G24   ? for HELP
 1>
```

Screen 3-29: General Display Format

▶   At B5 add seven or more zeroes to the 25000.

Look at what happens in sample Screen 3-30.

In General format, SuperCalc3 tries to find the *best fit* to display a large value.

First the program tries to display the value as an integer (whole number).

When the value doesn't fit as an integer, the program trys to convert it to scientific or exponential notation—using an "e" to delineate the numeral from the order of magnitude (the exponent). It rounds off the value as necessary, even if it can only display one significant digit, the "e" and the exponent.

If a User-defined Floating $ or embedded comma is assigned the program uses >>>>> to tell you that the value is greater than the width can display.

```
       |   A    ||    B    ||    C    ||    D    ||    E    ||    F    |
 5 |Sales        >>>>>>>>>>> $20,000.00 $35,000.00 $25,000.00 >>>>>>>>>>
 6 |Costs          1.125e11      9000      15750      11250 1.125000e11
 7 |             -------------------------------------------------------
 8 |Profit         1.375e11     11000      19250      13750 1.375000e11
 9 |             -------------------------------------------------------
10 |
11 |EXPENSES
12 |Consultant Fees 30000000000   2400       4200       3000 30000009600
13 |General & Admin 37500000000   3000       5250       3750 37500012000
14 |   Rent         28125000000   2250      3937.5    2812.5 28125009000
15 |   Utilities     3750000000    300        525        375  3750001200
16 |   Telephone     5625000000    450       787.5     562.5  5625001800
17 |             -------------------------------------------------------
18 |Total Expenses 67500000000    5400       9450       6750 67500021600
19 |Net Before Tax 70000000000    5600       9800       7000 70000022400
20 |Income Tax     14000000000    1120       1960       1400 14000004480
21 |             -------------------------------------------------------
22 |Net Income
23 |             =======================================================
24 |% of Total       100.0%        .0         .0         .0
 * B5            Form=250000000000
Width: 12  Memory: 73 Last Col/Row:G24   ? for HELP
  1>
```

Screen 3-30: General Display Format Best Fit

In this case all three displays appear:

- The Sales figure you entered at B5 and the resulting Year's Income in F5 do not fit with the Floating $ and Embedded Commas, so the program resorts to the >>>>> display.

- The values in B6, B8, F6, and F8 are converted to exponential notation.

- The remaining values are small enough to fit as integers.

Finally, note that the User-defined formats assigned at row 5 and 24 take precedence over the Global format.

Integer Display Format

The Integer format displays all values rounded to the nearest whole number. Here's how it works:

▶ Enter **/F**ormat,**G**lobal,**I**nteger ⏎

```
     |    A      ||   B     ||   C    ||    D     ||   E     ||    F    |
  5 |Sales        >>>>>>>>>>  $20,000.00  $35,000.00  $25,000.00 >>>>>>>>>>
  6 |Costs        >>>>>>>>>>     9000       15750       11250 >>>>>>>>>>
  7 |            --------------------------------------------------------
  8 |Profit       >>>>>>>>>>    11000       19250       13750 >>>>>>>>>>
  9 |            --------------------------------------------------------
 10 |
 11 |EXPENSES
 12 |Consultant Fees 30000000000    2400       4200       3000 30000009600
 13 |General & Admin 37500000000    3000       5250       3750 37500012000
 14 |  Rent          28125000000    2250       3938      2813 28125009000
 15 |  Utilities      3750000000     300        525       375  3750001200
 16 |  Telephone      5625000000     450        788       563  5625001800
 17 |            --------------------------------------------------------
 18 |Total Expenses  67500000000    5400       9450       6750 67500021600
 19 |Net Before Tax  70000000000    5600       9800       7000 70000022400
 20 |Income Tax      14000000000    1120       1960       1400 14000004480
 21 |            --------------------------------------------------------
 22 |Net Income
 23 |            ========================================================
 24 |% of Total     100.0%          .0         .0         .0
  * B5            Form=250000000000
Width: 12  Memory: 73 Last Col/Row:G24    ? for HELP
    1>
```

Screen 3-31: Integer Display Format

Except for rows 5 and 24 whose Row display format takes precedence over this Global display format, only the integer portion of the values appear as in Screen 3-31.

Also note that the exponential notation in columns B and F has been replaced with $>>>>$ which means the integer value won't fit.

Note: There is a difference between the Integer format and the INT function used in formulas. The INT function drops the fraction and returns the value of the whole number only. The integer display format rounds off a fraction and displays the resulting whole number, but retains the original value in its entirety for calculation purposes.

When you look at numbers in Integer display format, and some of the calculation results appear to be inaccurate, remember

that the program may be using fractions in its calculation that you cannot see.

▸ Again enter **/F**ormat,**G**lobal,**G**eneral ⏎

The values in columns C and D appear again as decimals.

Exponential Display Format

You saw how in General display format SuperCalc3 displays a number too wide for a column using exponential notation, but does not convert a number small enough to fit. The Exponential display format option displays all numbers as powers of 10. See the Exponential Display Table.

▸ Enter **/F**ormat,**G**lobal,**E**xponent, ⏎

Your spreadsheet should look like sample Screen 3-32.

```
   |    A      ||    B    ||   C    ||    D    ||    E    ||    F    |
 5 |Sales            >>>>>>>>>>>> $20,000.00 $35,000.00 $25,000.00 >>>>>>>>>>>>
 6 |Costs            1.125e11        9e3     1.575e4    1.125e4 1.125000e11
 7 |             ------------------------------------------------------------
 8 |Profit           1.375e11        1.1e4   1.925e4    1.375e4 1.375000e11
 9 |             ------------------------------------------------------------
10 |
11 |EXPENSES
12 |Consultant Fees      3e10        2.4e3     4.2e3       3e3 3.000001e10
13 |General & Admin   3.75e10          3e3    5.25e3    3.75e3 3.750001e10
14 |   Rent         2.8125e10       2.25e3   3.9375e3  2.8125e3 2.812501e10
15 |   Utilities       3.75e9         3e2     5.25e2    3.75e2 3.7500012e9
16 |   Telephone      5.625e9        4.5e2    7.875e2   5.625e2 5.6250018e9
17 |             ------------------------------------------------------------
18 |Total Expenses    6.75e10        5.4e3     9.45e3    6.75e3 6.750002e10
19 |Net Before Tax       7e10        5.6e3      9.8e3       7e3 7.000002e10
20 |Income Tax         1.4e10       1.12e3     1.96e3     1.4e3 1.400000e10
21 |             ------------------------------------------------------------
22 |Net Income
23 |             ============================================================
24 |% of Total       100.0%          .0         .0        .0
 * B5            Form=250000000000
Width: 12  Memory: 73 Last Col/Row:G24    ? for HELP
  1>
```

Screen 3-32: Exponential Display Format

5

LEARNING TO USE SUPERCALC3

Format

Value	Represents	Displays as
1776	1.776×10^3	1.776e3
1,000,000	1.0×10^6	1.0e6
0.052	5.2×10^{-2}	5.2e-2
-430	-4.2×10^2	-4.3e2
-0.0007	-7×10^{-4}	-7e-4

Illustration 3-4: Exponential Display Table

SuperCalc3 converts all data to Exponential display format. The User-defined format with the Floating $ and Embedded Commas for the larger numbers in row 4 still must resort to the $>>>>$ notation.

Money ($) Display Format

By this time you may be wondering if your spreadsheet will ever look like a financial statement again. Perhaps it's time to restore it to the familiar money display format.

▸ Enter /Format,Global,$, ⏎

```
    |    A    ||    B    ||    C    ||    D    ||    E    ||    F    |
  5 |Sales          >>>>>>>>>>> $20,000.00 $35,000.00 $25,000.00 >>>>>>>>>>>
  6 |Costs          >>>>>>>>>>>   9000.00   15750.00   11250.00 >>>>>>>>>>>
  7 |               ------------------------------------------------------
  8 |Profit         >>>>>>>>>>>  11000.00   19250.00   13750.00 >>>>>>>>>>>
  9 |               ------------------------------------------------------
 10 |
 11 |EXPENSES
 12 |Consultant Fees >>>>>>>>>>>  2400.00    4200.00    3000.00 >>>>>>>>>>>
 13 |General & Admin >>>>>>>>>>>  3000.00    5250.00    3750.00 >>>>>>>>>>>
 14 |   Rent         >>>>>>>>>>>  2250.00    3937.50    2812.50 >>>>>>>>>>>
 15 |   Utilities    >>>>>>>>>>>   300.00     525.00     375.00 >>>>>>>>>>>
 16 |   Telephone    >>>>>>>>>>>   450.00     787.50     562.50 >>>>>>>>>>>
 17 |               ------------------------------------------------------
 18 |Total Expenses  >>>>>>>>>>>  5400.00    9450.00    6750.00 >>>>>>>>>>>
 19 |Net Before Tax  >>>>>>>>>>>  5600.00    9800.00    7000.00 >>>>>>>>>>>
 20 |Income Tax      >>>>>>>>>>>  1120.00    1960.00    1400.00 >>>>>>>>>>>
 21 |               ------------------------------------------------------
 22 |Net Income
 23 |               ======================================================
 24 |% of Total         100.0%       .0         .0         .0
 * B5           Form=250000000000
Width: 12  Memory: 73  Last Col/Row:G24    ? for HELP
   1>
```

Screen 3-33: Money ($) Display Format

Numbers are rounded to the nearest cent, as in Screen 3-33. Note that the SuperCalc3 program adds the ".00" to whole numbers. But the added decimals make the display in columns B and F too large to fit.

Default Format

The Default option is useful when you want to remove format options previously assigned.

To remove the Hide option you assigned earlier to your *Net Income* figures, enter:

▶ **/F**ormat,**E**ntry,**B22:F22,D**efault ⊡

This removes all format instructions for B22:F22 at the Entry level only. The global formats assigned to B22:F22 still apply.

Now try another experiment:

▶ Enter **/F**ormat,**C**olumn,**C,E**xponent, ⊡

The exponential notation appears in column C as in sample Screen 3-34. Notice how the Exponential format at the Column level takes precedence over the Money ($) format at the Global level but does not override the User-defined (Floating $ and Embedded Commas) at the Row level for row 5 or the Entry level formats in row 24.

▶ Enter **/F**ormat,**C**olumn,**C,D**efault, ⊡

This removes the exponential format entered for the Column, but leaves the Global, Row, and Entry formats in effect.

Now put the exponential notation back so you can try something else:

▶ Enter **/F**ormat,**C**olumn,**C,E**xponent, ⊡

5

LESSON

Your display looks like Screen 3-34.

```
    |   A    ||   B    ||   C    ||   D    ||   E    ||   F    |
  5 |Sales        >>>>>>>>>>   $20,000.00  $35,000.00  $25,000.00 >>>>>>>>>>
  6 |Costs        >>>>>>>>>>          9e3    15750.00    11250.00 >>>>>>>>>>
  7 |
  8 |Profit       >>>>>>>>>>        1.1e4    19250.00    13750.00 >>>>>>>>>>
  9 |
 10 |
 11 |EXPENSES
 12 |Consultant Fees >>>>>>>>>>      2.4e3     4200.00     3000.00 >>>>>>>>>>
 13 |General & Admin >>>>>>>>>>        3e3     5250.00     3750.00 >>>>>>>>>>
 14 | Rent        >>>>>>>>>>       2.25e3     3937.50    2812.50 >>>>>>>>>>
 15 |  Utilities  >>>>>>>>>>          3e2      525.00      375.00 >>>>>>>>>>
 16 |  Telephone  >>>>>>>>>>        4.5e2      787.50      562.50 >>>>>>>>>>
 17 |
 18 |Total Expenses >>>>>>>>>>       5.4e3     9450.00     6750.00 >>>>>>>>>>
 19 |Net Before Tax >>>>>>>>>>       5.6e3     9800.00     7000.00 >>>>>>>>>>
 20 |Income Tax   >>>>>>>>>>       1.12e3     1960.00     1400.00 >>>>>>>>>>
 21 |
 22 |Net Income   >>>>>>>>>>       4.48e3     7840.00     5600.00 >>>>>>>>>>
 23 |                          ===============================================
 24 |% of Total      100.0%         .0          .0          .0
  B5            Form=250000000000
Width: 12  Memory: 73 Last Col/Row:G24    ? for HELP
  1>
```

Screen 3-34: Exponential Format, Column C

Try this at the Global level:

▸   Enter **/F**ormat,**G**lobal,**D**efault, ⏎

Now your display should look like sample Screen 3-35.

When you use Default at the Global level the program falls back on the standard default formats in effect when you first load SuperCalc3: General numeric representation, Right numeric justification, TextLeft justification and 9 character column width.

But notice that the Column and Entry level formats are still in effect. So is the format in row 5, but since the default resets the margins to 9, the values no longer fit with the Floating $ and Embedded Commas.

Fortunately you saved your file on Drive B as LESSON5. You can now *Zap* the screen before you go on or *Quit.*

```
         |    A      ||  B    ||  C    ||  D    ||  E    ||  F    || G    |
 4 |          ------------------------------------------------
 5 |Sales          >>>>>>>> >>>>>>>> >>>>>>>> >>>>>>>> >>>>>>>>
 6 |Costs          1.125e11      9e3    15750    11250 1.125e11
 7 |               ------------------------------------------------
 8 |Profit         1.375e11     1.1e4    19250    13750 1.375e11
 9 |               ------------------------------------------------
10 |
11 |EXPENSES
12 |Consultant Fees     3e10    2.4e3     4200     3000 3.000e10
13 |General & Admin  3.75e10      3e3     5250     3750 3.750e10
14 |   Rent         2.813e10    2.25e3   3937.5  2812.5 2.813e10
15 |   Utilities     3.75e9      3e2      525      375 3.7500e9
16 |   Telephone    5.625e9     4.5e2    787.5    562.5 5.6250e9
17 |               ------------------------------------------------
18 |Total Expenses  6.75e10     5.4e3     9450     6750 6.750e10
19 |Net Before Tax     7e10     5.6e3     9800     7000 7.000e10
20 |Income Tax       1.4e10    1.12e3     1960     1400 1.400e10
21 |               ------------------------------------------------
22 |Net Income       5.6e10    4.48e3     7840     5600 5.600e10
23 |
   ================================================================
v A23
Width: 15  Memory: 73 Last Col/Row:G24    ? for HELP
 1>
```

Screen 3-35: Global Default Display Format

One display format option remains—the "*" display, which represents values with asterisks. This option is best demonstrated with a split screen, so we'll take it up at the end of the next lesson.

This Lesson has covered the following:

- How to change justification for text or numbers.

- How to specify and assign the User-defined format characteristics.

- How formats can be entered at the Global, Column, Row or Entry-level.

- How to use the Integer, General, Exponential, and $ formats of numeric display.

- How to *default* formats.

Lesson 6

Title Lock and Window (Split Screen)

You now know enough about the many commands and format options, to put SuperCalc3 to practical use. This lesson adds two more commands to your store of tools.

One of them, *Title* lock, keeps a portion of the spreadsheet locked in place while you scroll the rest of the screen. It is called *title lock* because locking titles can be especially useful, but any part of the screen can be locked. The other command, *Window*, lets you *split* your screen to look at different parts of your spreadsheet at the same time.

Title Lock

▶ First *Load* the B:LESSON5 file and make sure it matches sample Screen 3-36.

```
   |   A    ||    B   ||   C   ||    D   ||    E   ||    F    |
 1 |Income Statement      XYZ CORPORATION
 2 |
 3 |                  Q1         Q2         Q3         Q4        Year
 4 |                  ------------------------------------------------
 5 |Sales         $25,000.00 $20,000.00 $35,000.00 $25,000.00 $105,000.00
 6 |Costs          11,250.00   9,000.00  15,750.00  11,250.00   47,250.00
 7 |                  ------------------------------------------------
 8 |Profit         13,750.00  11,000.00  19,250.00  13,750.00   57,750.00
 9 |                  ------------------------------------------------
10 |
11 |EXPENSES
12 |Consultant Fees 3,000.00   2,400.00   4,200.00   3,000.00   12,600.00
13 |General & Admin 3,750.00   3,000.00   5,250.00   3,750.00   15,750.00
14 |  Rent          2,812.50   2,250.00   3,937.50   2,812.50   11,812.50
15 |  Utilities       375.00     300.00     525.00     375.00    1,575.00
16 |  Telephone       562.50     450.00     787.50     562.50    2,362.50
17 |                  ------------------------------------------------
18 |Total Expenses  6,750.00   5,400.00   9,450.00   6,750.00   28,350.00
19 |Net Before Tax  7,000.00   5,600.00   9,800.00   7,000.00   29,400.00
20 |Income Tax      1,400.00   1,120.00   1,960.00   1,400.00    5,880.00
   A1          Text="Income Statement
Width: 15  Memory: 73  Last Col/Row:G24    ? for HELP
   1>
```

Screen 3-36: LESSON5 Spreadsheet

▶   Keep the Active Cell in A1. Enter **/T**itle,

The prompt line asks:

     H (oriz.) ,V (ert.) , B (oth) , or C (lear) ?

▶   Enter **V**ertical

▶   Now move the cursor off the screen to the right.

Notice that the titles in column A are *locked* in place, as in Screen 3-37, while the rest of the screen scrolls as usual. The position of the Active Cell when you enter the *Title* command determines how much of the screen will be locked in place.

▶   *GoTo* A using the ⊡ command.

▶   Use an arrow key to move the cursor to A4.

▶   This time enter **/T**itle,**H**orizontal to lock the top four rows in place.

```
    |    A    ||    E    ||    F    ||    G    ||    H    ||    I    |
 1|Income Statement
 2|
 3|                        Q4        Year
 4|                     ------------------------
 5|Sales               $25,000.00 $105,000.00
 6|Costs                11,250.00   47,250.00
 7|                     ------------------------
 8|Profit               13,750.00   57,750.00
 9|                     ------------------------
10|
11|EXPENSES
12|Consultant Fees       3,000.00   12,600.00
13|General & Admin       3,750.00   15,750.00
14|  Rent                2,812.50   11,812.50
15|  Utilities             375.00    1,575.00
16|  Telephone             562.50    2,362.50
17|                     ------------------------
18|Total Expenses        6,750.00   28,350.00
19|Net Before Tax        7,000.00   29,400.00
20|Income Tax            1,400.00    5,880.00
> I1
Width: 12  Memory: 73  Last Col/Row:G24    ? for HELP
  1>
```

Screen 3-37: Vertical Title Lock

LEARNING TO USE SUPERCALC3

6
LESSON

Title Lock and Window (Split Screen)

```
   |     A    ||    B    ||    C    ||    D    ||    E    ||    F    |
 1 |Income Statement       XYZ CORPORATION
 2 |
 3 |                    Q1         Q2         Q3         Q4       Year
 4 |  -------------------------------------------------------------------
10 |
11 |EXPENSES
12 |Consultant Fees   3,000.00   2,400.00   4,200.00   3,000.00  12,600.00
13 |General & Admin   3,750.00   3,000.00   5,250.00   3,750.00  15,750.00
14 |  Rent            2,812.50   2,250.00   3,937.50   2,812.50  11,812.50
15 |  Utilities         375.00     300.00     525.00     375.00   1,575.00
16 |  Telephone         562.50     450.00     787.50     562.50   2,362.50
17 |  -------------------------------------------------------------------
18 |Total Expenses    6,750.00   5,400.00   9,450.00   6,750.00  28,350.00
19 |Net Before Tax    7,000.00   5,600.00   9,800.00   7,000.00  29,400.00
20 |Income Tax        1,400.00   1,120.00   1,960.00   1,400.00   5,880.00
21 |  -------------------------------------------------------------------
22 |Net Income        5,600.00   4,480.00   7,840.00   5,600.00  23,520.00
23 |  ===================================================================
24 |% of Total          23.8%      19.0%      33.3%      23.8%
25 |
v A25
Width: 15  Memory: 73 Last Col/Row:G24   ? for HELP
  1>
```

Screen 3-38: Horizontal Title Lock

▸ Move the spreadsheet cursor down the screen, and watch the information scroll up while the row 1 titles stay in place, as in Screen 3-38.

Now clear the locked row:

▸ Enter **/T**itle,**C**lear

You are telling SuperCalc3 that you do not want anything locked.

This time lock both the Horizontal and Vertical titles with one command:

▸ Go to A1.

▸ Use an arrow key to move the cursor to A4.

▸ Enter **/T**itle,**B**oth. This locks column A, and rows 1 through 4.

3-66

▶ Move the cursor around the spreadsheet. Note that rows 1 through 4 stay in place when you scroll down and back up, and column A stays in place when you scroll left and then back.

Window—Split Screen

What if you want to view two widely separated areas of your spreadsheet at the same time?

▶ Scroll down until *% of Total* appears on line 24.

▶ Use an arrow key to move the cursor up to A18. This designates where to *split* the screen.

▶ Enter **/W**indow,

The prompt reads:

H (oriz.) , V (ert.) , C (lear) , S (ynch) , or U (nsynch)

▶ Enter **H**orizontal

Notice that starting at row 18 there is a second set of column letters as in Screen 3-39. This is the upper border of the lower display. The spreadsheet data has not been duplicated, only displayed twice through the two windows you have created. Either window may now be scrolled independently.

▶ Scroll in the lower window and notice that the top window remains stationary.

▶ Scroll back so that rows 18 through 23 are in view.

▶ Now press the ⊙ key.

This transfers you to the top window.

You can do *what ifs* on sales and expenses, and keep an eye on what happens to your totals at the same time!

```
     |    A    ||   B    ||   C    ||   D    ||   E    ||   F    |
  1 |Income Statement       XYZ CORPORATION
  2 |
  3 |                  Q1        Q2        Q3        Q4       Year
  4 |                  ------------------------------------------------
  9 |                  ------------------------------------------------
 10 |
 11 |EXPENSES
 12 |Consultant Fees   3,000.00   2,400.00   4,200.00   3,000.00   12,600.00
 13 |General & Admin   3,750.00   3,000.00   5,250.00   3,750.00   15,750.00
 14 |   Rent           2,812.50   2,250.00   3,937.50   2,812.50   11,812.50
 15 |   Utilities        375.00     300.00     525.00     375.00    1,575.00
 16 |   Telephone        562.50     450.00     787.50     562.50    2,362.50
 17 |                  ------------------------------------------------
     |    A    ||   B    ||   C    ||   D    ||   E    ||   F    |
 18 |Total Expenses    6,750.00   5,400.00   9,450.00   6,750.00   28,350.00
 19 |Net Before Tax    7,000.00   5,600.00   9,800.00   7,000.00   29,400.00
 20 |Income Tax        1,400.00   1,120.00   1,960.00   1,400.00    5,880.00
 21 |                  ------------------------------------------------
 22 |Net Income        5,600.00   4,480.00   7,840.00   5,600.00   23,520.00
 23 |                  ================================================
  B18          Form=SUM(B13:B12)
Width: 12   Memory: 73 Last Col/Row:G24    ? for HELP
  1>
```

Screen 3-39: Window Horizontal Split

Another feature of split screens is that each window has its own identity for the *Global* command. You could specify formula display in one window and cell value display in the other. Try it.

▸   Enter /**G**lobal,**F**ormula

The window in which your Active Cell is located changes to formula display, as in Screen 3-40.

Likewise, you could use *Format* command at the Global level to specify General format in one window and Integer in the other. This makes it possible to look at the same data in two different formats at once. Note, however, that Row, Column, or Entry level formats take precedence for both windows over the Global settings.

Instead of splitting the screen horizontally, you can also split it vertically. However, before you can split the display vertically you must return to a single window display.

```
    |    A    ||   B    ||   C    ||   D   ||   E   ||   F    |
  1 |Income Statement          XYZ CORPORATION
  2 |
  3 |                    Q1         Q2         Q3         Q4       Year
  4 |         -----------------------------------------------------------
  9 |         -----------------------------------------------------------
 10 |
 11 |EXPENSES
 12 |Consultant Fees 12%B5       12%C5       12%D5       12%E5       12%F5
 13 |General & Admin 15%B5       15%C5       15%D5       15%E5       15%F5
 14 | Rent          75%B13      75%C13      75%D13      75%E13      75%F13
 15 | Utilities     10%B13      10%C13      10%D13      10%E13      10%F13
 16 | Telephone     15%B13      15%C13      15%D13      15%E13      15%F13
 17 |         -----------------------------------------------------------
    |    A    ||   B    ||   C    ||   D   ||   E   ||   F    |
 18 |Total Expenses   6,750.00   5,400.00   9,450.00   6,750.00  28,350.00
 19 |Net Before Tax   7,000.00   5,600.00   9,800.00   7,000.00  29,400.00
 20 |Income Tax       1,400.00   1,120.00   1,960.00   1,400.00   5,880.00
 21 |
 22 |Net Income       5,600.00   4,480.00   7,840.00   5,600.00  23,520.00
 23 |         ===================================================================
  ` B17          Rtxt='-
Width: 12  Memory: 73 Last Col/Row:G24    ? for HELP
    1>
```

Screen 3-40: Horizontal Window—Value/Formula Display

▶   Enter /Window,Clear

▶   Enter /Global,Formula for value display.

Set the Active Cell in the column where you want to split the screen.

▶   Use an arrow key to move the cursor to column D.

▶   Enter/Window,Vertical

This produces a left-hand border for a second display like sample Screen 3-41.

The Synchronous option tells SuperCalc3 that you want to scroll both windows in a *synchronized* fashion. That is, you want them to scroll simultaneously:

▶   Enter /Window,Synchronous

```
         |    A      ||   B   ||   C    |    |   D    ||   E    |
    1 |Income Statement        XYZ CORPORAT  1|
    2 |                                      2|
    3 |                Q1         Q2         3|       Q3        Q4
    4 |            ---------------------     4|------------------------
    5 |Sales       $25,000.00  $20,000.00    5|  $35,000.00  $25,000.00
    6 |Costs        11,250.00    9,000.00    6|   15,750.00   11,250.00
    7 |            ---------------------     7|------------------------
    8 |Profit       13,750.00   11,000.00    8|   19,250.00   13,750.00
    9 |            ---------------------     9|------------------------
   10 |                                     10|
   11 |EXPENSES                             11|
   12 |Consultant Fees  3,000.00   2,400.00 12|    4,200.00    3,000.00
   13 |General & Admin  3,750.00   3,000.00 13|    5,250.00    3,750.00
   14 |   Rent          2,812.50   2,250.00 14|    3,937.50    2,812.50
   15 |   Utilities       375.00     300.00 15|      525.00      375.00
   16 |   Telephone       562.50     450.00 16|      787.50      562.50
   17 |            ---------------------     17|------------------------
   18 |Total Expenses   6,750.00   5,400.00 18|    9,450.00    6,750.00
   19 |Net Before Tax   7,000.00   5,600.00 19|    9,800.00    7,000.00
   20 |Income Tax       1,400.00   1,120.00 20|    1,960.00    1,400.00

  > D1
  Width: 12  Memory: 73 Last Col/Row:G24   ? for HELP
    1>
```

Screen 3-41: Window—Vertical Split

▶ Now scroll the displays together by moving the spreadsheet cursor up or down, parallel to the split.

Handy, isn't it? Yet when you move perpendicular to the split, only the one side scrolls.

▶ Scroll to show columns B and C on both sides of the display as in sample Screen 3-42.

▶ Change the display on one side of the screen to show formulas.

Now you can scroll down through the data in one window and compare it to the formulas as you go.

▶ Turn off the formula display and experiment with different format commands to view the values in different format displays at the same time.

```
    |   A    ||   B   ||   C    |      |   B   ||    C    |
 1 |Income Statement      XYZ CORPORAT   1|      XYZ CORPORAT
 2 |                                     2|
 3 |                 Q1         Q2       3|        Q1          Q2
 4 |                 ----------------    4|----------------------
 5 |Sales        $25,000.00 $20,000.00   5| 25000       20000
 6 |Costs         11,250.00   9,000.00   6| 45%B5       45%C5
 7 |                 ----------------    7|----------------------
 8 |Profit        13,750.00  11,000.00   8| B5-B6       C5-C6
 9 |                 ----------------    9|----------------------
10 |                                    10|
11 |EXPENSES                            11|
12 |Consultant Fees  3,000.00  2,400.00 12| 12%B5       12%C5
13 |General & Admin  3,750.00  3,000.00 13| 15%B5       15%C5
14 |   Rent          2,812.50  2,250.00 14| 75%B13      75%C13
15 |   Utilities       375.00    300.00 15| 10%B13      10%C13
16 |   Telephone       562.50    450.00 16| 15%B13      15%C13
17 |                 ----------------   17|----------------------
18 |Total Expenses   6,750.00  5,400.00 18| SUM(B13:B12 SUM(C12:C13
19 |Net Before Tax   7,000.00  5,600.00 19| B8-B18      C8-C18
20 |Income Tax       1,400.00  1,120.00 20| 20%B19      20%C19
 < B1
Width: 12  Memory: 73  Last Col/Row:G24   ? for HELP
 1>
```

Screen 3-42: Vertical Window—Value/Formula Display

To *unsynchronize* the displays so that only one window will scroll at
a time:

▶   Enter **/W**indow,**U**nsynchronous

Note that when you *save* your spreadsheet, any *title lock* or *split screen*
information is included. When you load your work again, it will look
exactly as it did before.

Asterisk Representation

We promised you a look at the * option of the *Format* command after
you had learned how to split screens. We'll keep it brief because this
feature—though maintained in SuperCalc3—has been surpassed by
SuperCalc3's graphic capabilities in the *View* command. Look at sample
Screen 3-43.

```
     |  A   ||                              B                         ||  C  |
  1|  45        (A1-MIN(A1:A10))*50/(MAX(A1:A10)-MIN(A1:A10))
  2|  3         (A2-MIN(A2:A11))*50/(MAX(A2:A11)-MIN(A2:A11))
  3|  12        (A3-MIN(A3:A12))*50/(MAX(A3:A12)-MIN(A3:A12))
  4|  50        (A4-MIN(A4:A13))*50/(MAX(A4:A13)-MIN(A4:A13))
  5|  22        (A5-MIN(A5:A14))*50/(MAX(A5:A14)-MIN(A5:A14))
  6|  31        (A6-MIN(A6:A15))*50/(MAX(A6:A15)-MIN(A6:A15))
  7|  9         (A7-MIN(A7:A16))*50/(MAX(A7:A16)-MIN(A7:A16))
  8|  27        (A8-MIN(A8:A17))*50/(MAX(A8:A17)-MIN(A8:A17))
  9|  19        (A9-MIN(A9:A18))*50/(MAX(A9:A18)-MIN(A9:A18))
 10|  39        (A10-MIN(A10:A19))*50/(MAX(A10:A19)-MIN(A10:A19))
     |  A   ||                              B                         ||  C  |
  1|         45 *****************************************
  2|         3
  3|         12 ***
  4|         50 *******************************************************
  5|         22 **********************
  6|         31 *************************************
  7|         9
  8|         27 ********************
  9|         19
  B1             Form=(A1-MIN(A1:A10))*50/(MAX(A1:A10)-MIN(A1:A10))
Width: 50  Memory: 73 Last Col/Row:B20     ? for HELP
  1>
```

Screen 3-43: Asterisk Representation

The formula displayed in the top window scales the * representation relative to the maximum value of data entered in rows 1 through 19 of column A. The command /Format,Column,B,50,* ⏎ was entered for the bottom window.

What have you learned in this lesson?

- How to lock rows or columns in place so that they will remain in place while the rest of the screen scrolls.

- How to split the screen, either horizontally or vertically, into two windows and how to move back and forth from one *window* to the other.

- How to *synchronize* the windows.

- How to specify different global display options (cell values or formulas) and format options for each window.

- How to use * Asterisk Representation.

Lesson 7

Output

You have worked with most of the SuperCalc3 commands and have seen the power and flexibility of the SuperCalc3 program and its electronic spreadsheets.

If you have a printer, you have probably already used the *Output* command to get a paper copy of your spreadsheet. This lesson helps you explore all the available options of Output.

Using the *Output* command, you can select part or all of the spreadsheet. You can send the output to one of three places:

- To the *printer* for a printed report.

- To the *console*, where the output will temporarily replace the current SuperCalc3 display to show you the way the report will look when printed.

- To a *disk drive*, where it will be stored in print format on your disk.

Try this command:

▶ First, be sure that you have a fresh spreadsheet. Start the SuperCalc3 program, or use *Zap* if necessary.

▶ *Load* any file you want to print, such as B:LESSON5.

▶ Enter **/O**utput. Now the prompt line reads:

D (isplay) or C (ontents)

Display Option

Display means that the output reproduces the print layout you request on the console. Try that first:

▶ Enter **D**isplay

The prompt line requests the range of the cells you wish to Output. If you want a portion of your spreadsheet, specify it the same way you would any block. But if you want all the cells that are filled do this:

▶ Enter **ALL,** for the entire spreadsheet. The prompt now says:

Enter Device: P (rinter) , S (etup) , C (onsole) , or D (isk) ?

Output to Console

At times you may want to check your output before sending it to the printer:

▶ Enter **C**onsole

The report appears on your screen. Notice that the borders remain on your display output.

If your report is more than one screenful, the SuperCalc3 program displays them one at a time. This message appears at the bottom of each screen:

More... ('return' to continue or CTRL Z to stop) .

▶ Press ⏎ to display the next page.

OR

▶ Enter (CTRL Z) to interrupt the displaying process and return to the original SuperCalc3 file.

Remember, if you want to exclude the borders from your output:

▶ Enter **/G**lobal,**B**order

To bring them back, enter the same command again.

Output to Printer

Now try sending output to the printer, printing only part of the spreadsheet:

▶ Be sure your printer is turned on. If you don't have a printer hooked up to your system, just skip to the the next example.

▶ Enter **/O**utput,**D**isplay,**A1:D8,P**rinter

Setup Printer Options

Suppose you want to utilize some of your printer features, such as compressed type or bold print. Or maybe you want to change the format of your printed page. SuperCalc3 adapts to various printers.

▶ Enter **/O**utput,**D**isplay,**ALL,S**etup

Your display changes to show you six options and their default values as in Screen 3-44.

```
        Setup PRINTER:

L = Change page length
    (Length = 0 for continuous form.)
    (now  66 lines)
W = Change page width
    (now 132 chars)
A = Change Auto Form Feed Setting
    (now OFF)
D = Change Double Space Report Setting
    (now OFF)
S = Manual setup codes
P = Print report
F2 to cancel /O command




> F5          Form=SUM(B5:E5)
L(ength), W(idth), S(etup), A(uto FF), D(ouble Space), or P(rint)?
 27>/Output,Display,all,Setup,
```

Screen 3-44: Setup Printer Options

For a complete explanation of the options on this screen, see the Output command in Chapter 7.

LEARNING TO USE SUPERCALC3

LESSON 7 — Output

For now, let's look at an example of a Manual *Setup* code sequence for a DMP 2100. To get compressed type (more characters per inch), you need to send a Control W to the printer before beginning to print. You would enter:

/Output,Display,**ALL,**Setup,Setup,(CTRL)(W)(↵)Width,**233,**(↵)Print

Note: The manual setup codes do not appear on your display when you enter them. Enter the actual control sequences, *not the decimal values* for those sequences. *Make sure your printer is turned on and on-line.*

Parameter changes that you make remain in effect for your printer until you either change them again or quit the SuperCalc3 program. The codes are not saved with your spreadsheet.

Once you have entered the codes, you can enter **P**rinter to go directly to the printer and get a copy of the report as you have formatted it.

Or you can enter (CTRL)(Z) to return to the original SuperCalc3 file without printing.

Setup codes may be reset by turning your printer off then on.

Content Option

Now that you have looked at the Display option, see what happens when you use the Contents option:

▶   Enter **/O**utput,**C**ontents,**A1:F7,P**rinter

If you don't have a printer enter **C**onsole instead.

The content report gives you a list of the actual contents of the specified cells, and any display format for a cell at the Entry level. The output is quite different from what you see on the spreadsheet. The output for each cell on the list looks the way the Active Cell contents do when displayed on the Status line.

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LESSON 7

Output to Disk

The Disk option can be very useful under certain circumstances. When you choose Disk output your report is transferred to a disk file, but the resulting disk file is different from the standard format of a SuperCalc3 file. The output file is an exact copy of what would be sent to a printer, in ASCII, or character format, with a .PRN extension rather than .CAL. The disk file contains any print format parameters you created in Setup and can be printed later. The printer Setup codes however, are not retained.

Once on disk, you can print or edit the .PRN files using other programs.

In this lesson you have learned:

- How to send *Output* to a printer, the console, or a disk file.

- How to *Setup* a report format and send *Manual Setup* codes to the printer.

- The difference between *Display* and *Contents* reports and how to specify them.

- How to turn off the border display.

Graphing   Lesson 8

In Lesson 8 you will learn how easy it is to build graphs with the /View command. Here are the six types of graphs you will build:

Illustration 3-5: Pie Graph

Illustration 3-6: Bar Graph

Illustration 3-7: Line Graph

Illustration 3-8: Stacked-Bar Graph

Illustration 3-9: Area Graph

Illustration 3-10: X-Y Graph

You will also learn how to do the following:

•   Change the components of your graphs.

•   Save up to nine graphs with any spreadsheet.

•   Print or plot your graphs.

Hi-Lo Graphs

The seventh type of graph you can build with the /View command is a Hi-Lo graph. A Hi-Lo graph is often used to plot data such as high, low, opening, and closing prices for securities or commodities:

Illustration 3-11: Hi-Lo Graph

The Hi-Lo graph, and each of the other types of graphs, are described in the /View section of Chapter 7.

Introduction to Graphing

- Once you learn to build one type of graph (or "chart" if you prefer) you will know how to build them all. You follow the same general procedures to build each graph.

- As with all other SuperCalc3 commands and options, whenever you have a question just ask the AnswerScreen.

- All the basic design decisions are built into the program. You don't have to be an experienced graphic artist or designer. Even so, SuperCalc3 gives you plenty of opportunity to add your own finishing touches.

- Some of the graphics options available in SuperCalc3 are shown in the bar graph below, including three of the eight selectable typestyles (fonts), horizontal grid lines, and user-defined plotting colors:

Illustration 3-12: Bar Graph With Enhanced Appearance Options

You Begin With a Spreadsheet

▸ To start this lesson, take a minute to produce the simple spreadsheet below. We'll expand it a bit as we go.

All the graphs you build with SuperCalc3 are based on data from a spreadsheet.

```
   |   A    ||   B   ||   C   ||   D   ||   E   ||
 1 |SALES
 2 |
 3 |          Jan      Feb      Mar
 4 |
 5 |SD        150      200      300
 6 |
```

Screen 3-45: Sales Report Spreadsheet

After you entered the text in row 3, did you change the format to Text Right, as shown. Remember how to make the entry?

▸ Enter **/F**ormat,**R**ow,**3**,Text**R**ight, ⏎

Building a Graph Description

As you type each entry, be sure to read the selections displayed on the prompt line. The meaning of each new selection will become clear as we go through the basic procedures.

Don't worry about making a mistake. You can make corrections with typeovers or deletions, the same way you make them with other spreadsheet commands. Even after you save a graph with its associated spreadsheet, you can use the /Blank command to erase the graph description.

The View Command

To begin, enter the /View command:

▸ Type **/V**iew,

You see a prompt that includes several abbreviations, such as "Labs" for Labels, and "Opts" for Options (a set of optional adjustments you can make to your graph descriptions).

```
#,?,D(ata),G(raph-Type),T(ime-Labs),V(ar-Labs),P(oint-Labs),H(eads) or O(pts)
```

Screen 3-46: The Main View Prompt

The "#" symbol on the prompt line is an abbreviation for graph number. You don't need to enter a graph number at this point. Graph number 1 will be entered by the program. You can save up to nine graphs, numbered from 1 to 9, with each spreadsheet. The "?" displays a summary of any current graph description.

The other selections in the main View prompt comprise the five components of a graph description: Data, Graph-Type, Labels, Headings, and Options. Three different kinds of labels are listed in the main View prompt, along with each of the other components.

Our first objective is to build a simple bar graph. You build a graph by selecting a component from the main View prompt, then defining that component as shown below. The components can be selected and defined in any order.

Data:

This entry defines the length of each bar as the values in B5:D5 (150, 200, 300).

▶ Enter **Data,B5:D5** ⏎

Data is the only component you need in order to view or plot the main features of a graph—in this case, the scale and the bars. A graph is generally not complete, however, until you add some headings and labels.

Headings:

For now, we'll just define the Main Heading. The text we will use is in cell A1 (SALES), although we could have used text in any cell on the spreadsheet. When you produce your own graphs you might want to make the Main Heading more specific. The Main Heading of the graph is used to identify that graph in the SuperCalc3 directory, and the text in cell A1 identifies the spreadsheet file.

▶ Enter **H**eadings,**M**ain,**A1** ⏎

▶ Press ⏎ again to return to the main View prompt.

Labels:

Time-Labels are the only labels we'll define for our first look at the graph. These are the labels that appear at the base of the bar graph. The range you enter defines the text for the Time-Labels (Jan, Feb, Mar).

▶ Enter **T**ime-Labels,**B3:D3** ⏎

Graph-type:

Bar graph is the default for SuperCalc3, but let's enter the graph-type for practice:

▶ Enter **G**raph,**B**ar

▶ Now press ⏎ and watch what happens.

Screen 3-47: Simple Bar Graph

You saw your bar graph as it was being drawn on your console screen.

That's All There Is To It

That covers the general procedures for building any type of graph. You just define the four basic components any way you wish. We told you it was easy.

Your graph will look different than our illustration if you have a monochrome monitor, of course, or if any of the default settings have been changed. For example, the default fill pattern for the bars can be changed from solid to crosshatched, or simply outlined for fastest viewing and plotting. These changes can be made with the /Global,Graphics command at the Options menu.

With SuperCalc3, even a computer without graphics capabilities (no graphics board) will produce graphs on your monitor, but with fewer options and less visual precision.

A Good Idea

Now that you've gone through the basics, you can probably figure out how to change the graph components and do just about everything else with the /View command. You'll pick up a few pointers, though, and learn about plotting and some of the advanced graphing features, if you take the time to complete this lesson.

Changing a Graph Description

We'll soon be adding more data to the spreadsheet. Then we'll add more headings and labels.

First, let's see how easy it is to see the same data in a different way.

▶   Press ⏎ or any other key to return to the spreadsheet.

▶   Enter **/V**   (for /View)
            G   (for Graph–Type)
            P   (for Pie graph)
            ⏎   (to view the pie graph)

Screen 3-48: Monthly Sales Pie Graph

There's your pie graph on-screen, looking something like our picture.

▸ Now press any key to return to the spreadsheet.

▸ Enter **/VG** (for /View and Graph-Type).

Take a close look at the prompt and entry lines.

```
P(ie),B(ar),S(tacked-Bar),L(ine),H(i-Lo),X(-Y) or A(rea)?
15>/View,1,Graph,
```

Screen 3-49: Graph-Type Prompt

The number "1" following /View on the entry line is the graph number entered by the program. The program is letting you know that graph #1 is the last accessed (current) graph. Any changes or additions you make at this point will modify the current graph description only.

▸ Now type **L** (for Line graph).

At this point the program knows you want to see a line graph of your data, but it's giving you an opportunity to add more Headings, Labels, or Options.

You can also change any component you've already defined, or you can clear the /View command and modify your spreadsheet.

▶   Press ⏎ to view your data as a line graph.

Screen 3-50: Monthly Sales Line Graph

Another way to view any current graph is to press the Ⓕ⑩ key. This key is handy when you are defining headings, for example, and want a quick check of your graph appearance without clearing the Headings selection. The Ⓕ⑩ key functions if the entry line is clear, or if the current entry is a command or a prompt line selection, but not if the current entry is text or numeric data.

Adding More Headings

Still looking at your line graph? Good. As you can see, the graph has a set of scale values, entered automatically by the program, but what do the numbers mean? The vertical scale, called a Y-axis, needs a heading. To add an appropriate Y-axis Heading, along with some other headings, you need to fill-out the spreadsheet.

▶   Press any key to return to the spreadsheet.

▶   Add more text and numeric values to the spreadsheet, as shown below.

```
  |   A   ||   B   ||   C   ||   D   ||   E   ||
1 |SALES    1st Quarter '83      Region 7
2 |
3 |              Jan      Feb      Mar
4 |
5 |SD           150      200      300
6 |LA           350      250      100
7 |SF           100      200       50
8 |          -----------------------------
9 |TOTAL        600      650      450
```

Screen 3-51: Expanded Sales Report

There's the spreadsheet, but suppose you want to define the scale with the word UNITS? Where can you put that word on the spreadsheet? No problem. Just use any cell below the Sales report.

▶ GoTo cell A15 and enter **UNITS**

Now define the Y-Axis Heading by telling the program to use the word in cell A15.

▶ Enter **/V**iew,**H**eadings,**Y**-axis,**A15** ⏎

While you're entering headings, add an X-axis Heading for the Time-Labels. The X-axis is the base line.

Your entry line already contains these entries: /View,1,Headings,

▶ To complete the entry, enter **X**-axis,**B1** ⏎

Cell B1 contains "1st Quarter '83," which spilled over into cell C1. That's okay. The text is considered to be in cell B1 where you entered it.

Let's look at your handiwork so far.

▶ Press ⌨(F10) (or press ⏎ to return to the main View prompt, then press ⏎ again).

On your own, if you wish, view your work as a pie graph, and then as a bar graph.

Screen 3-52: Sales Report Line Graph

To define a Sub-Head for the next graph you will view:

▶   Enter **/V**iew,**H**eadings, **S**ub,**D1** ⏎

Adding Data Variables

So far we have used the values in just one row for Data: the unit sales figures for San Diego (SD) in row 5 of our spreadsheet.

In graph-building jargon, each row range or column range you define is called a "Variable."

The first ten Variables are identified by the letters A through J. You can define each row or column range (for Variables A–J) individually, or you can define up to 254 Variables as a block range.

A pie, simple bar, or single line graph can be built with a single Variable, as you have seen. The other types of graphs in SuperCalc3 require two or more Variables.

To add more Variables to your graph description, you need to re-define the component called Data.

▶   Press ⏎ or ⏎ to clear the entry line.

▶   Enter **/V**iew, 1,**D**ata

Take a close look at the prompt line:

```
Var A: Enter range (now B5:D5), <space> to skip, <-> to clear
14>/View,1,Data,
```

Screen 3-53: Data Variable Prompt

There are two ways to add the unit sales figures for Los Angeles (LA) and San Francisco (SF) to the graph description. For practice, let's try both methods.

METHOD 1—Entering Variables by Column or Row:

▶   Press ⎵spacebar⎵ to skip Variable A, as indicated on the prompt line—you've already defined Variable A, as you can see.

Notice that the prompt line has changed to "Var B". The " <-> to clear" message means you can erase the Variable data by pressing the minus key.

▶   Enter **B6:D6** then press the comma key ⊙

Variable B, the LA sales data, is now entered into your graph description. The prompt line is ready for a definition of "Var C."

▶   Enter **B7:D7**, the SF sales data, then press ⊝ to end your Data Variable entries.

You should see the main View prompt, and "/View," on the entry line.

▶   Enter **G**raph,**B**ar ⊝

▶   Press ⊝ again to view the graph.

You see your expanded bar graph on the console screen. Each set of three bars represents the monthly unit sales in each of our three cities.

Screen 3-54: Sales Report Bar Graph

As you can see, there's something missing. Each bar is one element of a Data Variable representing a city, but there are no labels to identify each bar pattern or color. We'll add the missing labels in a minute. First, let's finish our lesson on Data Variables.

METHOD 2—Entering Variables as a Block:

Now that you know how to define Data Variables one range at a time, we'll show you how to define the same three Variables with a single command line.

▸   Press any key to return to the spreadsheet.

Because the numeric data in rows 5, 6, and 7 forms a block, you can enter the block range rather than entering each row range. Whenever the row or column ranges you intend to use for Variables form a block, you can enter the block range. This block method for entering Variables is a real time-saver.

▸   Enter **/V**iew, 1,**D**ata,**B5:D7** ⏎

Adding More Labels

Let's take another look at the main View prompt:

```
#,?,D(ata),G(raph-Type),T(ime-Labs),V(ar-Labs),P(oint-Labs),H(eads) or O(pts)
7>/View,
```

Screen 3-55: "Labs" Means Labels

We've defined a range for Time-Labels, now we need a label to identify the patterns or colors in each bar. As you know, each bar represents a Variable, so we'll use the Variable-Labels.

▶ Enter **/V**iew,1,**V**ariable-Labels,**A5:A7** ⏎

▶ Press ⏎ again to view the bar graph.

Screen 3-56: Bar Graph With Variable-Labels

The Variable-Labels tell you the meaning of the color or pattern in each bar. In a line graph the Variable-Labels define each line.

Now add some Point-Labels:

▶ Press ⏎ to return to the spreadsheet.

▶ Enter **/V**iew,1,**P**oint-Labels,**B5:D7** ⏎

The range B5:D7 is the same block range you entered to define the Data Variables (in Method 2).

▶ Press ⏎ to view the bar graph with Point-Labels.

Note that Point-Labels only appear on-screen if you have a graphics board in your computer.

The View ⑦ Help Screen

Let's say you were called away from your lesson for awhile, and now you can't recall which options you selected for the current graph. Here's an easy way to see what you entered:

▶ If the graph is still on-screen, press any key.

▶ Type /View,⑦

You see a summary of the current graph description. Press ⑦ again if you want to see the /View AnswerScreen. To see a summary of a different graph description, you would type /View, then the graph number, then ⑦. At this point, of course, you have only defined graph number 1.

The Completed Line and Stacked-Bar Graphs

Now view the completed graph description as a line graph, then a stacked-bar graph.

Here are your entries:

▸ Press (F2)

▸ Then at the main View prompt type **G**raph,**L**ine (↵)

The line graph shows the sales trend for each city from month-to-month.

▸ Press any key, then type **/V**iew,1,**G**raph,**S**tacked-Bar (↵)

Each section of each bar represents one element of one Variable (sales for one month in one city). An entire bar represents one element from three Variables (sales for one month in three cities). The elements are stacked, rather than side-by-side, as in a bar graph.

The Completed Area Graph

▸ On your own, view Graph Number 1 as an area graph.

An area graph conveys the same information as a stacked-bar graph, but presents it in the form of a stacked-line graph.

A Note About Pie Graphs and X-Y Graphs:

* A pie graph, at this point, would be defined by /View with the data in Variable A. You can select any Variable, or even one element from each Variable, with the Pie-Mode option in /View. We'll skip that feature for now, but we wanted you to know about it.

* An X-Y graph requires additional data. We'll add the data for an X-Y graph later in this lesson.

Plotting Your Graphs

▶ If you are still looking at the area graph, press any key to return to the spreadsheet.

Any of the plotters or graphics printers supported by SuperCalc3 can be used to plot your graphs.

Technical note: Device settings can be changed, if necessary, at the /Global,Graphics,Options menu. See Appendix C for information.

SuperCalc3 provides an easy way to plot a graph. You can direct the current graph description to your plotting device by pressing the Plot Key for your computer. The Plot Key for most computers is (F9). The Plot Key for many other computers is (CTRL Y).

You can plot a graph any time the entry line is clear, or when current entry is not text or numeric data, or a command displaying a filename prompt.

▶ To plot the current (last viewed or accessed) graph, press (F9) (or (CTRL Y)) .

If you have a graphics printer, plotting should begin immediately.

If you have a pen plotter, the program prompts you to insert the pen colors of your choice. Respond to each prompt during the plotting process. Change the pen colors as often as you wish, or plot without any pen changes by pressing any key. Pen color 0 is used for headings and some labels. Color 1 is used for Variable A, color 2 for Variable B, and so on through color 10 for Variable J.

You can change graph color settings at the /Global,Graphics,Colors menu (for example, you can specify pen color 2 for all Headings), and then you can save your changes as SuperCalc3 defaults.

Note: If you want to stop the plotter while plotting is in progress, press �F2 or CTRL Z. If you press your Plot Key after stopping the plotter, plotting will begin again at the starting point—it will not continue where the process was aborted.

Once you start using your plotter for graphing with /View, you will probably want to play with it awhile. We can't blame you. Come back when you are ready to learn about the last of our graphs for this lesson, the X-Y (or "scatter-plot") graph.

Building an X-Y Graph

We will build the simple X-Y graph pictured near the beginning of this lesson. Flip back and take a look at it.

The Time-Labels have been replaced by an X-axis scale. The purpose of an X-Y graph is to correlate one set of values with another. The Time-Labels appear inside the graph, defining the paired values.

Let's see what kind of correlation we have between sales per month and expenses. You'll have to add some expense figures to your spreadsheet, as well as some text entries for new headings:

▸ On row 11 of your Sales report, make these entries:

```
   |  A   ||   B   ||   C   ||   D   |
10 |
11 |Exp $000        50       30       25
```

Screen 3-57: Expanding the Report

For the Main Heading:

▸ In cell A16, enter **SALES VS. EXPENSES**

For the X-axis and Y-axis Headings:

▸ In cell A17, enter **EXPENSES (thousands)**

▸ In cell A18, enter **TOTAL SALES**

To build a separate graph description for the X-Y graph, enter the number 2 after the /V entry, as shown below. If you don't, the program will assume you're revising graph number 1.

▸ Enter **/V**iew,**2,G**raph,**X**-Y

▸ Enter **D**ata,**B11:D11** ⊙ for Variable A.

You are correlating, or pairing, the values in the sales "TOTAL" row with those in the "Exp $000" row. You now see the Data prompt for Variable B because you ended your last entry line with a comma, not a ⊙.

▸ Enter **B9:D9** ⊙

Now enter a Main Heading, and X-axis and Y-axis Headings:

▸ Enter **H**eadings,**M**ain,**A16** ⊙

▸ Enter **X**-axis,**A17** ⊙ then enter **Y**-axis,**A18** ⊙

To label each X-Y point marker, define the Point-Labels:

▸ Press ⊙, then enter **P**oint-Labels, and press (spacebar) for Variable B.

On an X-Y graph, Variables B through J can be used to define the Point-Labels. In our example, Variable B is the only assigned Variable for Point-Labels.

▶ Type **B3:D3** ⏎ for Variable B Point-Labels.

▶ Press ⏎ again to view the X-Y graph.

This X-Y graph is a very simple example because you don't have much data on the spreadsheet—but it illustrates the way paired values are correlated.

Here's another example of an X-Y graph showing the correlation among paired values for product turnover and profit margins.

Illustration 3-13: Margins Vs. Turnover X-Y Graph

The three-letter abbreviations defining each point on this graph are product codes. The product codes could just as easily have been numbers. Note that product codes LIG, VIL, NAD and WOH are positioned above an imaginary diagonal from the upper-left to the lower-right corners of the graph. Those are the products with the best combined turnover and profit margin: The star performers.

Saving Your Graphs

All the assigned /View graph descriptions are saved automatically when you save the associated spreadsheet. You may want to practice building and revising other graphs with the current spreadsheet, so save it on the disk in drive B (or whichever drive you normally use for saving .CAL files):

▶   **/Save,B:LESSON8,All** ⊙

View Options

There are a number of graph-enhancing features in the /View Options we haven't used in this lesson, such as label format changes and pie explosions. Try them on your own, referring to the AnswerScreen when you have a question. See Chapter 7 when you need more detailed information.

Related Commands

With SuperCalc3 you can copy a graph description with the /Copy command, and blank it with the /Blank command. You can even load graph descriptions from one spreadsheet into another with the /Load command. You can also change appearance features and select other graph-related options with the /Global command, and save the modifications as SuperCalc3 defaults.

As usual, the program prompts will guide you through each procedure. The AnswerScreens provide any extra help you might need, or you can refer to the sections on /Copy, /Blank, /Load, and /Global in Chapter 7 for more details.

What You Have Learned In This Lesson:

• How to build six types of graphs with /View—Pie, Line, Bar, Stacked-Bar, Area, and X-Y—to transform a spreadsheet into a dramatic visual format.

• How to change a graph description, and save up to nine graph descriptions with any spreadsheet.

• How to plot your graphs on a plotter or graphics printer.

• How to change /Global,Graphics settings and save the new settings as program defaults.

Lesson 9

Advanced Features

This lesson looks at some of the most powerful, advanced features of SuperCalc3:

- Recalculation options
- Calendar functions
- Lookup function
- Arrange command

Recalculation Options

You've seen that when you enter a new spreadsheet value, the program automatically recalculates all the formulas. Large spreadsheets containing many calculations may take a while.

You can save time by suspending the automatic recalculation:

- Enter **/G**lobal,**M**anual

- Enter new values. The time required for their entry is greatly reduced because only the cell is calculated.

- When you are ready to recalculate the entire spreadsheet press ⊙.

- When you want to reestablish automatic recalculation, enter **/G**lobal,**A**utomatic

The manual mode and the ⊙ command allow you to enter data rapidly and make periodic recalculations at your convenience.

Order of Recalculation

Initially SuperCalc3 recalculates cells by row. You can change that order to calculate down columns. Usually, the order of calculation does not affect the results on your spreadsheet, and you can ignore it. But there are times when it can make a difference. Let's explore this problem:

▶ First, use *Zap* to start a fresh spreadsheet.

LEARNING TO USE SUPERCALC3

Advanced Features

To best demonstrate the situation use a split screen:

▸ Move to D1 and enter:

/Window,**V**ertical

/Global,**F**ormula

▸ Scroll to display column A on the right side.

▸ Use ⊙ to jump to the value display window on the left.

▸ Enter the formulas in Screen 3-58.

Look over the values.

```
   |  A  ||  B  ||  C  |     |  A  ||  B  ||  C  ||  D  |
 1|     4      10          1| 4         A3
 2|     6                  2| 6
 3|    10                  3| SUM(A1:A2)
 4|                        4|
 5|                        5|
```

Screen 3-58: Calculation By Row

Everything seems fine. A3 and B1 both display 10.

▸ Now change the value in A1 to **3**

Observe that A3 has a value of 9 as expected, but B1 does not. Why? The program calculated by row—first row 1 from left to right, then row 2, then 3, and so forth. Obviously, A3 was still 10 when B1 referenced its value during calculation.

To change the order of recalculation to proceed down columns:

▸ Enter **/G**lobal,**C**olumn

▸ Enter **5** in A1 to test the effect.

Now everything seems to work, because the program proceeds down columns as it calculates. Both A3 and B1 display 11.

▶ Switch back to row calculation. Enter **/G**lobal,**R**ow

You can unwittingly create a situation where neither the column nor the row order of calculation can produce accurate values in all cells. Here is an example:

▶ First, erase the spreadsheet using the *Blank* command

▶ Enter the formulas in Screen 3-59.

```
    |  A   ||  B   ||  C   |       |  A   ||  B   ||  C   ||  D   |
 1|      5            5      1| 5                      A1
 2|              10           2|            C1+A3
 3|      5                    3| A1
 4|                           4|
 5|                           5|
```

Screen 3-59: Calculation By Column

Can you see a problem coming up?

▶ *GoTo* A1 and enter **4**

Cells C1 and A3 display 4, which is correct. But B2 displays 9. When B2 was calculated, cell C1 was 4, while A3 was 5.

Change the calculate order and try another example:

▶ **/G**lobal,**C**olumn

▶ Enter **6** in A1

C1 and A3 display 6, which is correct, but B2 displays 10. When B2 was calculated, A3 had 6 and C1 had the leftover 4.

▶ Press ⊙.

Now B2 displays 12, the correct value. You have forced a second calculation and have the correct value.

Cases of out-of-order references like these are called *forward* references, because the reference is *forward* to a value not yet calculated. Prudent spreadsheet design makes sparse use of forward references. One way to check for such cases is to press ⊙ to see if any value changes.

Note that you can use ⊙ in automatic mode as well as in manual mode. You'll need one ⊙ for each forward reference.

The *circular* reference is another out-of-order case and one that you will certainly want to avoid. Here is an example:

▶ First *Zap* the spreadsheet.

▶ In cell A1, enter **1+B1**

It shows as 1, since there is nothing in B1.

▶ In cell B1, enter **1+A1**

Suddenly you have 3 and 4. Got the idea?

▶ Press ⊙ a few times, and watch the values increase.

They will never stop changing, because there is no logical place to stop calculating.

Experiment further, by making up some forward or circular references of your own.

Cumulative Totals

Use of the ⊙ command saves time when you construct cumulative totals. Let's look at how this is done:

▶ *Zap* your screen and *Load* the sample file PAYROLL.

This spreadsheet can be used as a foundation for a payroll system and incorporates several interesting features. For now, let's focus on recalculation.

```
      I A II    B    IIcII   D    II   E   II   F   II    G    II
 1 I CONSOLIDATED MONTHLY PAYROLL:    OCTOBER
 2 I
 3 I Today's Date          10/17/1983          Deduction Percentages
 4 I Payroll Start Date    10/ 1/1983          Fica                6.700%
 5 I Days this period            17            State                 .8%
 6 I Recalculate YTD?  N
 7 I                           Gross     Total        Net           YTD
 8 I Emp # Employee    St     Salary    Deduct        Pay          Gross
 9 I ========================================================================
10 I 34    Adams       M   $1,100.00 ( $82.50) $1,017.50      $6,200.00
11 I 92    Jones       M     $750.00 ( $56.25)   $693.75      $5,250.00
12 I 84    Johnson     S   $1,200.00 ( $90.00) $1,110.00      $5,950.00
13 I 92    Jones       M     $900.00 ( $67.50)   $832.50      $6,300.00
14 I 12    Samson      S     $560.00 ( $42.00)   $518.00      $3,920.00
15 I 19    Santos      M     $650.00 ( $48.75)   $601.25      $4,550.00
16 I 45    Smith       S     $700.00 ( $52.50)   $647.50      $4,900.00
17 I ========================================================================
18 I Total # employees  7
19 I Totals in 100s:
20 I   Gross Salaries        $58.6
```

Screen 3-60: PAYROLL Spreadsheet

The spreadsheet design allows you to enter payroll figures once, then by using a formula containing a cumulative total, initiate a recalculation at the end of each pay period.

The formula appears in column G. To conveniently view it, follow these steps:

▶   Move the cursor to column E and enter:

   /Window,**V**ertical

   /Format,**C**olumn,**G,24** ⏎

   /Global,**F**ormula

▶   Now scroll the right window to display column G.

Your screen should look like the sample split screen.

```
     | A ||    B    ||C||   D    |    |  F   ||         G          |
  1 |CONSOLIDATED MONTHLY PAYROLL:   1 |NTH(D4),A25:A36)
  2 |                                2 |
  3 |Today's Date        10/17/1983  3 |Deduction Percentages
  4 |Payroll Start Date  10/ 1/1983  4 |Fica        0.0670
  5 |Days this period         17     5 |State       0.008
  6 |Recalculate YTD?  N             6 |
  7 |                     Gross      7 |    Net                 YTD
  8 | Emp# Employee  St   Salary     8 |    Pay               Gross
  9 |==============================  9 |================================
 10 | 34   Adams     M  $1,100.00   10 | D10+E10    IF(C6="Y",G10+D10,G10)
 11 | 92   Jones     M    $750.00   11 | D11+E11    IF(C6="Y",G11+D11,G11)
 12 | 84   Johnson   S  $1,200.00   12 | D12+E12    IF(C6="Y",G12+D12,G12)
 13 | 92   Jones     M    $900.00   13 | D13+E13    IF(C6="Y",G13+D13,G13)
 14 | 12   Samson    S    $560.00   14 | D14+E14    IF(C6="Y",G14+D14,G14)
 15 | 19   Santos    M    $650.00   15 | D15+E15    IF(C6="Y",G15+D15,G15)
 16 | 45   Smith     S    $700.00   16 | D16+E16    IF(C6="Y",G16+D16,G16)
 17 |==============================  17 |================================
 18 |Total # employees  7            18 |
 19 |Totals in 100s:                 19 |
 20 | Gross Salaries       $58.6     20 |
> G1
Width: 24  Memory: 73 Last Col/Row:H36    ? for HELP
  1>
```

Screen 3-61: PAYROLL—Split Screen

Recalculation Flag

A potential problem in using the ⊙ command with a cumulative total is that you might force a recalculation once too often when you don't want it. To prevent this and control the update process, you can create a *recalculation flag* just as the creator of this sample spreadsheet did.

Note the "Y" in the IF functions in column G. For example, the formula in G10 means if the content of C6 is "Y" then add the gross salary figure to the YTD Gross (D10), otherwise keep the current figure in G10 unchanged.

This formula lets you automatically update the YTD Gross at the end of each pay period. For example, if a salary changes, you can enter the change without updating the YTD Gross. When the next pay period ends, YTD Gross can be updated.

▶   Switch to the left window.

▸ Look at row 6 which reads "Recalculate YTD? N".

▸ Move to A6 and read the status line:

```
vA6          Text="Recalculate YTD?
```

The text entry is the title for the recalculation flag. The flag itself is in C6.

▸ Move to C6 and read the status line:

```
>C6          Form=( "N ")
```

Textual Values

The content of C6 is not regular text, rather is a *Textual Value*. Textual Values are enclosed in double quotes and parentheses.

An important use for a Textual Value is to reference it from another cell with an IF function like the one used in Column G. Another is in a Lookup table as explained later.

For now let's see how to work the recalculation flag containing the Textual Value.

▸ Enter **/W**indow,**C**lear

The Global command is currently set to Manual calculation. When you press ① nothing happens.

▸ Change one of the Gross Salary figures.

▸ Press ①.

The Total Deduct and Net Pay are automatically updated, but the YTD Gross remains unchanged.

▸ *Edit* the ("N") to a ("**Y**"). Make sure the "Y" is capitalized.

▸ To go to C6, type = C6⏎

▶ Press ⊙ and watch the YTD update in cells G10 to G16.

▶ Return to C6 and change the ("Y") back to ("**N**"). This protects the YTD total from further update.

Calendar Functions

Now let's look at how to use the SuperCalc3 Calendar. The program's calendar contains dates from March 1, 1900 to February 28, 2100. It numbers the days within this 200 year range from 1 through 73049. Once you enter a date in the proper format, SuperCalc3 can reference it in a formula from another cell, for example, to add or subtract from that date.

▶ Look at the formula in D5: D3-D4+1.

This formula references calendar dates in cells D3 and D4.

▶ Look at the formula in E1: LOOKUP (MONTH (D4) ,A25:A36)

MONTH (D4) looks at the Date in D4 and returns the number of the month, in this sample, 10.

LOOKUP looks for the value 10 in cell range A25:A36.

Lookup Tables

▶ Go to A25 to see the range specified in the Lookup function.

Here SuperCalc3 looks down the range A25 to A36 for the 10 which it finds in A34. The program then looks for the value in the adjacent cell to the right. There it finds the textual value ("OCTOBER"), which it returns to E1.

The information in the block from A25 to B36 was entered by the user. Such a table used as a reference for a LOOKUP function is called a Lookup table.

You might try an experiment by using DAY instead of MONTH in a formula, and build a Lookup table containing the days of the week.

```
    | A ||    B    ||c||   D   ||   E   ||  F   ||    G    |
  1|  CONSOLIDATED MONTHLY PAYROLL:  LOOKUP(MONTH(D4),A25:A36)
  2|
  3 |Today's Date          DATE(10,15,83)     Deduction Percentages
  4 |Payroll Start Date    DATE(10,1,83)      Fica      0.0670
  5 |Days this period      D3-D4+1            State     0.008
  6 |Recalculate YTD?   ("N")
  7 |                          Gross    Total      Net          YTD
  8 | Emp# Employee   St     Salary   Deduct      Pay        Gross
  9 |=================================================================
 25 | 1       ("JANUARY")
 26 | 2       ("FEBRUARY")
 27 | 3       ("MARCH")
 28 | 4       ("APRIL")
 29 | 5       ("MAY")
 30 | 6       ("JUNE")
 31 | 7       ("JULY")
 32 | 8       ("AUGUST")
 33 | 9       ("SEPTEMBER")
 34 | 10      ("OCTOBER")
 35 | 11      ("NOVEMBER")
< A25    R        Form=1
Width:   6  Memory: 73 Last Col/Row:H36    ? for HELP
  1>
```

Screen 3-62: Sample Lookup Table in Formula Mode

Note: Text Strings do not work in a Lookup table because a Text string has a value of zero. Use Textual Values instead. Textual values may contain 0-9 characters.

Now try the calendar functions yourself:

Go to D3 and enter the current date using one of these calendar functions:

▸ If your system maintains a system date, enter **TODAY** to automatically get the current system date.

<div align="center">OR</div>

▸ Enter the current date into D3 using the DATE function in the DATE (MM,DD,YY) format.

▸ Edit D4 to the first day of the current month using the DATE function.

▶ Press ☉ and watch two things happen: a new "Days this period" figure appears in D5 and the month name appears in E1.

Arrange Command

The **A**rrange function lets you rearrange a spreadsheet, sorting rows by a key column or columns by a key row. Try it now by arranging the employees by employee number.

▶ Enter this command:

/Arrange,**C**olumn,**A,10:16,A**scending,**Y**, ⏎

Note that for this spreadsheet you must specify the exact range of rows, and specify an automatic formula adjustment.

SuperCalc3 also provides a secondary sort. For example, you could sort first by status, then by employee.

▶ Enter: **/A**rrange,**C**olumn,**C,10:16,A**scending,**Y,B,D**escending

Now return to the original arrangement by employee.

▶ Enter: **/A**rrange,**C**olumn,**B,10:16,A**scending, ⏎

What have you learned in this lesson?

• The difference between the *Manual* calculation option and *Automatic* recalculation.

• That the ☉ key initiates a recalculation.

• What order of calculation means, and how to change it by using the *Global* options command.

• What a forward reference is, and how to use ☉ to get the correct value for such a case.

• What a circular reference is, and that there is no way to calculate a correct value for such a case.

LEARNING TO USE SUPERCALC3

Advanced Features

LESSON 9

- How to use a recalculation flag to protect a value from unwanted update with the ⊙ command.

- How to use the TODAY and DATE calendar functions for calculations.

- How to create a Lookup table using the MONTH calendar function.

- How a Textual Value can be used in a formula and Lookup table.

- How to use the *Arrange* command to sort a range of rows by a column, or a range of columns by a row.

Lesson 10

Data Management

The Data Management command provides the tools for a host of additional applications. Equally important, the Data Management capabilities are fully compatible with all the spreadsheet and graphing commands and functions in SuperCalc3.

This lesson shows you how to use SuperCalc3 to manage the lists of data typically maintained by businesses and individuals.

Data Management operations make it easy to search through long and detailed lists for specific information, and to extract that information quickly.

Thousands of Facts and Figures at Your Fingertips

Here are a few examples of the kinds of lists you can manage with SuperCalc3:

Price lists	Phone lists	Name & address lists
Personnel lists	Supplier lists	Customer/Client lists
Inventory lists	Parts lists	Rate tables
Job quote lists	Reference lists	Real Estate listings
Investment lists	Procurement lists	Advertising schedules
Prospect lists	Organization lists	Overtime schedules
Work schedules	Shipping schedules	Production schedules
Training schedules	Reservation lists	Daily/Weekly logs

The best way to learn to use the Data Management command is to try it. To begin, set up the simple database (a computer-accessible list) shown on the following page.

Creating a Database

For your database example, let's go into the auto rental business. You'll only need a small portion of what would typically be a much more extensive list of data.

▶ Using a blank spreadsheet, duplicate the entries shown in columns D through G on Screen 3-63 below. Although the next two format changes are not required, they improve the readability of the data.

▶ Format column G for two decimal places with this entry:

/Format,**C**olumn,**G,$** ⏎

▶ Change the global format to Left numeric justification:

/Format,**G**lobal,**L**eft ⏎

	A	B	C	D	E	F	G
1				RENTALS	YEAR	ON HAND	RATE/DAY
2				Civic	84	8	36.00
3				Civic	83	5	32.00
4				Colt	83	3	30.00
5				Corona	84	5	36.00

Screen 3-63: Auto Rentals Database

You now have a list of data, but it's not yet a functioning database.

▶ Type **//D**ata (with two **/** marks), and look at the Prompt Line:

I (nput) ,C (riterion) ,O (utput) ,F (ind) ,E (xtract) ,S (elect) ,R (emain) ?

To create a functioning database, you need to define one area of your spreadsheet as an Input block, and another as a Criterion block. You'll see why as you go through the practice exercises.

▶ Enter **I**nput

You are prompted for an Input range. The Input range is the block containing the list you just typed into the spreadsheet. The Input range can include more rows than the current database requires, but we'll confine the block to the number of rows you entered. You can enter a range using either of two methods:

▶ Press the (ESC) key, then use the **arrow keys** to return each cell address to the Entry Line. The range is **D1:G5** in our example. Remember to type a colon after the first address and press ⊙ after the second address. Or ...

▶ Type **D1:G5** ⊙ (This is the way we show the range entries in this lesson, but you can use the (ESC) function whenever it's more convenient than typing in the range designations.)

Note that the Input block can be placed anywhere on the spreadsheet, and the range can be redefined at any time. If you delete or insert any rows in an Input block, the Input block range adjusts automatically.

▶ //Data is still on the Entry Line, so enter **C**riterion

You are prompted for a Criterion range. You can redefine the range, or enter new criteria, at any time.

You'll need a block of four cells for the search criteria we will ask you to enter. We'll put the Criterion block in the upper-left corner of the spreadsheet, though we could have placed it anywhere.

▶ Type **A1:B2** ⊙

When //Data is on the Entry Line, you can clear the entry by pressing the ⊙ key, or (CTRL Z), or (F2).

▶ Press ⊙

Searching a Database

To prepare for a search of the database, enter your search criteria in the Criterion block. Remember that a database often contains hundreds or thousands of separate items of information.

▶ To search the database for Civics renting for $32 per day, enter the search criteria shown below (on Screen 3-64) in cells A1, A2, B1 and B2.

Here is the Criterion   Here is the Input block
block you defined.   (database) you defined.

	A	B	C	D	E	F	G
1	RENTALS	RATE/DAY		RENTALS	YEAR	ON HAND	RATE/DAY
2	Civic	32		Civic	84	8	36.00
3				Civic	83	5	32.00
4				Colt	83	3	30.00
5				Corona	84	5	36.00

Screen 3-64: Entering Search Criteria

We refer to the text entries in the top row of any defined block (such as the Criterion block and the Input block) as field names. Field names can be entered using capital or small letters.

Two things to remember about field names:

The top row of each defined block must be reserved for field names, even if a field name cell is left blank.

A field name in the Criterion block must be an exact copy of a matching field name in the Input block: For example, RENTALS (all capital letters) does not match rentals or Rentals.

▶ Type //Data,Find and watch what happens.

The Find operation highlights the row of data that passed your criteria tests. Note that the entire Civic 83 record—the complete row of data— is highlighted.

▶ Press the ⊙ key to see if any other record satisfies your criteria.

LEARNING TO USE SUPERCALC3

Data Management

The message on the right end of the Status Line says "No more matching records." That's true: There are no more Civics renting for $32.

Take a close look at the Prompt Line:

Next record: $\vee$ or $\wedge$; Next field: $\langle$-- or --$\rangle$; Cancel: $\langle$ RETURN $\rangle$

The prompt says you can use the up or down arrow key to move the highlight from record to record (that is, from row to row). It also says you can use the right or left arrow key to move from field to field. Each cell in a record is called a field.

▸ Press the ⊝ key three times. The spreadsheet cursor should now be in cell G3 (though the entire record is still highlighted).

▸ The prompt also says you can cancel the Find command by pressing the <RETURN> key (same as ⊡), so press ⊡

The spreadsheet cursor is still at cell G3, but if you cancel the Data command by pressing ⊡ again, the spreadsheet cursor returns to its former location (prior to entering the Data command). If you want the cursor to remain in cell G3—you might want to revise or delete the data in that cell—you can use the Remain option (not required, but Remain can be a real time-saver when you work with large databases).

▸ Type **R**emain to hold the cursor at its current field (cell) location, and to clear the Entry Line.

▸ To see how fast and easy it is to change your search criteria, Go To cell A2 and change Civic to **Colt**.

▸ Type **//D**ata,**F**ind to highlight any Colt record that satisfies your criteria.

You see the message, "No matching record found."

▸ Press ⊡ to clear the Entry Line, then blank cell B2 with the blank command: **/B**lank,**B2** ⊡

▶ Try another Find: **//D**ata,**F**ind

You see the Colt record highlighted.

By blanking the criteria under RATE/DAY, your search criteria for that field becomes non-selective. In effect, you say "any RATE/DAY will do."

So far you have used three types of search criteria:

• An exact word match: Civic matched Civic; Colt matched Colt.

• An exact number match: 32 matched 32.00 (the difference in cell format had no effect on the values matched).

• A non-selective match: A blank criteria matched any value in the fields specified by the field name.

Formula Search Criteria

You can also use any suitable formula as a search criteria.

▶ Clear the Entry Line (press ⌨, or press ↵ twice).

▶ At cell B2 enter this formula: **G2<34** (<34 means less than 34).

```
     |  A  ||  B  || C  ||  D   || E  || F  ||  G   |
  1 |RENTALS  RATE/DAY      RENTALS  YEAR   ON HAND RATE/DAY
  2 |Colt      0            Civic    84      8        36.00
  3 |                       Civic    83      5        32.00
  4 |                       Colt     83      3        30.00
  5 |                       Corona   84      5        36.00
```

Screen 3-65: Formula Criteria

You see a 0 displayed at cell B2 because the value at G2 is 36, not less than 34 (If the value at G2 had been less than 34 you'd see a 1 displayed at B2). Your search criterion is not the value displayed at cell B2. The criterion is the formula you entered.

The formula search criterion you entered means, "Test each value in column G, starting at cell G2, to see if it is less than 34."

▸ Type **//D**ata,**F**ind

The Colt record is highlighted because the RATE/DAY is indeed less than 34, and the word match you specified is Colt.

It is important to remember these distinguishing features of formula criteria:

• The cell address included in your formula defines the field values to be tested. In the formula criterion just entered, G2 defines the values in column G as the only field values to be tested. The RATE/DAY field name in your Criterion block was not required.

• A search operation, such as Find, automatically adjusts the formula cell address as it searches each record—assuming the formula refers to a cell in the Input block.

Enlarging a Criterion Block

▸ Clear the Entry Line, then at cell C1 enter **YEAR**

▸ At cell C2 enter **83**

▸ At cell A2, replace Colt with **C*** (that is, enter **C** and an asterisk). We'll explain what this entry means in a minute.

Your Criterion block should look like this:

RENTALS	RATE/DAY	YEAR
C*	0	83

▸   Type **//D**ata,**C**riterion, then look at the Prompt Line.

The prompt says "Criterion range (now A1:B2)." It also says " <-> to clear," but you don't need to clear the current range with the minus sign. The new range you enter will clear the current range.

▸   Type **A1:C2** ⏎ so your new criteria are included in the Criterion block.

▸   //Data is still on the Entry Line, so try a **F**ind.

The Civic 83 record is highlighted.

▸   Press the ⊙ for the next record that satisfies your criteria.

The Colt 83 record is highlighted.

The "C*" you entered at cell A2 means the capital letter C followed by any other characters. Any word in a RENTALS field beginning with the letter C would pass that test.

An asterisk (*) is a "wildcard" symbol you will probably use regularly to minimize keystrokes. For example, to search a name and address list database, you might enter the criterion "Th*" to find (or extract) the records for everyone whose last name begins with the letters "Th."

The other wildcard symbols you can use in text criteria entries are described in the section on //Data in Chapter 7.

Extracting and Selecting Data

To extract data from your database—that is, to copy data to another part of the spreadsheet—you need to enter field names indicating the data you want extracted, and you need to define an Output block to contain the extracted data.

▶   Clear the Entry Line, then at cell A6 enter **YEAR**. At cell B6 enter **RENTALS**. At cell C6 enter **ON HAND**.

Cells A6, B6, and C6 now comprise the top row of your intended Output block. The text you just entered are the field names indicating the kind of data you want to extract, and the order in which you want to extract it.

▶   Type **//D**ata,**O**utput

You are prompted for an Output range.

You know the Output block needs to be three cells wide, but how many rows should it have?

Your sample database contains a row of field names and five records, so the Output block range needs to be no more than six rows. Let's say we plan to increase the size of the database to at least 100 records (we won't actually do that), so we may as well define the Output block with 101 rows.

▶   Type **A6:C107** ⏎

Note that you can change the Output block size at any time, and place it anywhere on the spreadsheet—as long as it doesn't overlap the Input or Criterion blocks.

▶ Type **E**xtract

Your Output block should look like this:

```
YEAR   RENTALS   ON HAND ⎤── The field names you entered.
  83   Civic        5    ⎤  The data extracted by the
  83   Colt         3    ⎦  Extract operation.
```

Now let's see what Select does.

▶ Type **S**elect, then notice these changes on your screen:

The Output block is cleared and the Civic 83 record is highlighted, as with Find, but the prompt line says "Extract? Y (es) or N (o)." The prompt also says you can move the spreadsheet cursor with the right and left arrow keys (very handy if you want to scroll to offscreen data fields).

▶ Type **Y** (for Yes), and notice the data copied to the Output block. The Colt 83 record is highlighted, so type Y again.

The Select operation gives you a chance to extract specified data, or skip a highlighted record by typing N instead of Y.

Let's say you have the extracted list the way you want it. At this point you have several choices:

• You could print the extracted data with the / Output command.

• You could /Output to disk if you want to include the extracted data in a letter or report.

• You could save the extracted data in the Output block as a separate SuperCalc3 spreadsheet file.

Instead of doing any of those things, enter a different formula for more practice:

▶ Clear the Entry Line and Go To B2. Type **G2>=36** ⊙ (>=36 means greater than or equal to 36).

▶ At C2 enter **84**

▶ Type **//D**ata,**E**xtract

The only field data that passed your criteria tests were in the Civic 84 and the Corona records. The data extracted can now be seen in the Output block, as shown on Screen 3-66:

Criterion block   Input block (database)

	A	B	C	D	E	F	G
1	RENTALS	RATE/DAY	YEAR	RENTALS	YEAR	ON HAND	RATE/DAY
2	C*	1	84	Civic	84	8	36.00
3				Civic	83	5	32.00
4				Colt	83	3	30.00
5				Corona	84	5	36.00
6	YEAR	RENTALS	ON HAND				
7	84	Civic	8				
8	84	Corona	5				
9							

Output block

Screen 3-66: Extracting Data To Output Block

Before we recap what we've covered in this lesson, try these other criteria entries.

▶ Clear the Entry Line, then at cell B2 enter this formula:

AND(F2>1,G2<36)

▶ Go To cell C2 and blank it with this entry: **/Blank** ⊙

Any data in a YEAR field satisfies the non-selective (blank) criteria.

▶ Type **//D**ata,**E**xtract

In the Output block you should see specified data from the Civic 83 and the Colt records.

The formula you entered at cell B2 (a logical AND function) means this: If the first expression is true (F2>1, meaning if the data at cell F2—the quantity ON HAND—is greater than 1), and the second expression is true (G2<36, meaning if the data at cell G2—the RATE/DAY—is less than 36), then this record satisfies the criteria.

As stated earlier, the search operation you choose (Find, Extract, or Select) adjusts the formula cell addresses as it searches each record. For example, at the second record the formula is adjusted to AND (F3>1,G3<36).

▶ Now try the criteria entries in the cells shown below:

A	B	C	
1|RENTALS	RATE/DAY	YEAR	**Note:** Entries at B2 and B3
2|C*	G2>=31	83	actually display as 1.
3|	G2<=36	84	

Because you added a row to the Criterion block, you need to change the Criterion range. It only takes a second or two.

▶ Type **//D**ata,**C**riterion,**B1:C3** ⏎

Note that the criteria entries in column A do not need to be deleted. You excluded that column from the Criterion block when you changed the Criterion block range.

▶ Do an **E**xtract.

Data from the Civic 83 record was extracted to the Output block because it passed the tests in row 2 of the Criterion block (>=31 means greater than or equal to 31). Data from the Civic 84 and Corona records were extracted because they passed the tests in row 3 (<=36 means less than or equal to 36). You can enter as many independent criteria as you wish.

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LEARNING TO USE SUPERCALC3

Data Management

On your own, if you have a little more practice time, try some other test criteria, and repeat each type of search operation.

Remember to save your work in case you want to use it for future practice sessions. Save it as you would any other SuperCalc3 spreadsheet. Name the file LESSON 10.

Note that additional application ideas, and advanced Data Management techniques, are included in the //Data section of Chapter 7. Another database example is included on the //Data AnswerScreen.

Here's a recap of the Data Management basics we covered.

- Enter your list of data (the database) anywhere on a spreadsheet.

- Define a range for the Input block (large enough to contain the database, or even larger, but don't let it overlap the Criterion or Output blocks).

- Define a range for the Criterion block, before or after you enter the search criteria.

- Enter your search criteria in the Criterion block. A search criterion can be a text match (with or without a wildcard), a number match, a formula, or a non-selective (blank) match.

- Use Find to highlight records that satisfy your criteria.

- Optionally, use Remain (before you cancel the Data command) to hold the cursor in place.

- Define a range for an Output block if you want to extract any data from the database.

- Use Extract to copy all specified data to the Output block if field data in the Input block satisfies your criteria.

- Use Select to highlight each record, one at a time, if it satisfies your criteria. Then extract specified field data from any highlighted record you choose.

SuperCalc3 remembers the current ranges for the Input, Criterion, and Output blocks, even after you Save and Quit. You can review previous range settings at any time by typing //Data, followed by Input, Criterion, or Output.

```
  ¦  A  ¦¦  B  ¦¦  C  ¦¦  D
1¦
2¦
3¦
<C3
1>
```

The Spreadsheet and Cursors

4

4. The Spreadsheet and Cursors

The Spreadsheet

SuperCalc3 uses your computer's memory as a large spreadsheet. The spreadsheet consists of cells organized into a rectangular grid containing 63 columns and 254 rows. Columns are designated by letters (A...Z,AA...AZ,BA...BK) and rows by numbers (1...254). Graphs are stored in another segment of your computer's memory.

The location of a cell within the grid defines its *cell address*. You reference a cell by naming its coordinates, first the column letter, then the row number. For example, A1 is the upper left corner cell and BK254 is the lower right corner cell. Graphs are referenced by a graph number (1-9) in the /View command.

Illustration 4-1: The SuperCalc3 Spreadsheet

Display Window

The spreadsheet is far too large to be displayed on your terminal screen at one time. Your screen acts as a *display window* that moves over the spreadsheet showing you a portion at a time.

Illustration 4-2: The Display Window

You may split the screen to display two portions of the spreadsheet at a time.

Illustration 4-3: Split Screen

Border

The screen border identifies the currently displayed columns and rows. The top border contains column letters and the left border contains row numbers. You may turn the border on or off as desired. When the border is on, it displays on screen and prints on the printer. When it is off, it does not display on screen nor print on the printer.

	A	B	C	D	E	F	G	H
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

Illustration 4-4: Border

The Active Cell

The *Active Cell* is the cell affected by data entry at the current time. The *Spreadsheet Cursor* identifies the Active Cell. Only one cell is active at a time.

- The Active cell is called the *Current Cell.*

- The column containing the Active Cell is the *Current Column.*

- The row containing the Active Cell is the *Current Row.*

The spreadsheet cursor displays in inverse video.

The spreadsheet cursor can be set to either move automatically to an adjacent cell or to remain in the current cell after data entry. When set to move automatically, it moves in the direction of its previous move to the adjacent cell, which then becomes the Active Cell. When set to remain stationary, the cursor does not move upon data entry. (See /Global, Next).

Illustration 4-5: The Active Cell

THE SPREADSHEET AND CURSORS

The Current Status Lines:

The bottom three lines display the Current Status:

Active Cell Status
(or Status Line)

Global Status / Prompt
(or Prompt Line)

Data Entry / Command
(or Entry Line)

```
>A1  L$TR  P Text=              Formula Error
Width:   Memory:  Last Col/Row:  ? for HELP
   1>
```

Screen 4-1: The Current Status Line

You enter all data and commands on the Data Entry/Command line. This line contains the Edit Cursor.

The Active Cell Status and Global Status/Prompt lines display information only. You cannot move either the edit or spreadsheet cursors into the Active Cell Status or Global Status/Prompt lines.

The Global Status/Prompt and Data Entry/Command lines work together as a pair.

• When the Data Entry/Command line is in Data Entry mode, the Global Status/Prompt line displays the Global Status.

• When the Data Entry/Command line is in Command mode, the Global Status/Prompt line displays the current prompt.

The Active Cell Status Line

The Active Cell Status line (shortened to Status Line in some references) displays information about the Active Cell. A sample Active Cell Status Line looks like this:

```
>A1    L$TR    P Text="February
```

• >—Cursor direction. The first character indicates the current direction of motion of the spreadsheet cursor. When you press ⏎ to enter data into the Active Cell, the cursor moves to the adjacent cell in the direction indicated. This direction is always that of the previous cursor move. You may turn the *Next* option on and off. (See the **/G**lobal, **N**ext command.)

• A1—Active Cell Address. The coordinates of the active cell display here. Commands that reference current columns or current rows use the column/row containing this cell.

• L$TR—Cell Format Entry Options. Displays the options set with the **/F**ormat command at the **E**ntry level. (See the **/F**ormat command.)

• P—Protected Entry. A *P* indicates the Active Cell is protected. A blank space at this position indicates an unprotected cell. (See the **/P**rotect command.)

4-6

- Text =—Data Type. SuperCalc3 recognizes three types of data:

Text=	String Text
Rtxt=	Repeating Text
Form=	Formula Entry

- "February—Cell Content. Displays the literal content of the cell.

Global Status/Prompt Line

The Global Status/Prompt (sometimes shortened to Prompt Line) is the middle Status line.

> When the Data Entry/Command line is in Data Entry mode, the Global Status/Prompt line displays the Global Status.

> When the Data Entry/Command line is in Command mode, the Global Status/Prompt line displays the current prompt.

The Global Status line contains the following data:

- Width:

  > The column width of the Active cell. The default column width is 9.

- Memory:

  > The amount of unused computer memory available in *kilobytes*. A kilobyte is 1024 characters or *bytes*. The available memory decreases as you add to your spreadsheet.

- Last Col/Row:

  > The intersection of the last column and row that contains data. The cell named need not contain data. It is the composite of the last column and last row that have a non-blank cell.

• ? for Help:

> A reminder that typing ⑦ or ⒡ always gives an explanation of your current options.

Data Entry/Command Line

The Data Entry/Command line (sometimes shortened to Entry Line) contains the Edit Cursor. The number at the left indicates the current Edit Cursor position.

The Data Entry/Command line serves two functions. The character you enter into position #1 on the Data Entry/Command line determines its mode. A ⒞ᴛʀʟ ⒵ or ⒞ᴛʀʟ ⒞ or ⒡⒉ erases (or clears) the entire Data Entry/Command line.

• The Data Entry mode enters data directly into the Active cell. The first character indicates the type of data. Any character except those that begin text and commands result in a Formula Entry.

    "   Begins Text

    '   Begins Repeating Text

• The Command mode performs specific functions. Five keys access the command mode.

    =   The *GoTo* command moves the cursor directly to the designated cell.

    !   The *Recalculate* command forces a recalculation of the entire spreadsheet.

    :   The *Switch Window* command positions the spreadsheet cursor in the alternate window on a split screen.

    &   The eXecute *Resume* command returns control of the spreadsheet back to the current execute (.XQT) file.

    /   Selects the ⒵ commands. See Chapter 7 for a complete description of the ⒵ commands.

The SuperCalc3 Cursors

SuperCalc3 has two cursors, the spreadsheet cursor and the edit cursor. Both are always visible when the spreadsheet is on the screen (console). The spreadsheet cursor occupies the current Active Cell and moves to any cell on the spreadsheet. The Edit cursor resides on the Data Entry/Command Status line and moves along this line only.

Spreadsheet vs Edit Cursor

Only one cursor is active at a time. The spreadsheet cursor is active provided nothing has been entered on the Data Entry/Command line. The Edit Cursor becomes active when you begin to use the Data Entry/Command line for either Data Entry or a Command and remains active until you do one of the following:

1.   Enter data into the Active Cell.

2.   Execute a command.

3.   *Back out* of the Data Entry/Command line using a left cursor command.

4.   Use the (ESC) for current cell function.

5.   Clear the Data Entry/Command line with (CTRL Z) or (CTRL C) or (F2).

Cursor Commands

You control both cursors using two groups of cursor control keys. The groups are equivalent and may be used interchangeably.

•   The arrow keys move the cursor in the direction they point.

•   The Cursor Diamond keys work with the Control key. Press the Control Key and one of these keys simultaneously.

Illustration 4-7: Cursor Command Keys

Moving the Spreadsheet Cursor

The spreadsheet cursor moves to any cell on the spreadsheet, but not past the spreadsheet limits. When you move the cursor to a cell outside the display window, the spreadsheet scrolls to display the new location and the border adjusts to the new display window.

The cursor movement keys move the cursor one cell at a time. Use either the arrow keys or the Cursor Diamond Control Keys, whichever is more convenient.

The GoTo (= {cell address} ⏎) command moves the cursor directly to the designated cell.

- If the designated cell is on the display, the cursor moves directly to it.

- If not on the display, the window adjusts to position the designated cell in the upper left corner.

- If you enter GoTo without a cell address (= ⏎), (or specify the current cell) the Active Cell is positioned in the upper left corner.

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Moving the Edit Cursor

The Edit Cursor moves left and right along the Data Entry/Command line. When you enter a new character, it replaces the one directly beneath the cursor. The Interpretive Prompting of the Command mode supplies characters for commands. You only need to type the first letter of the command and SuperCalc3 fills in the rest for you.

The edit cursor keys are the same arrow or Cursor Diamond keys as the spreadsheet cursor keys, but they behave differently.

The Left and Right cursor keys move the cursor along the Data Entry/Command line without changing the line.

The Down Cursor key or DELETE key deletes the character at the cursor position and moves the remainder of the line one character to the left.

The Up Cursor key inserts a blank space at cursor position. You can enter a character into this space.

The INSERT key turns on and off the insert capability. Any characters typed when insert is on are inserted at the current cursor position and the remainder of the line is moved right.

The (TAB) key moves the Edit cursor to either the beginning or the end of the entry line.

- The (TAB) key works in Data Entry mode and with the **/E**dit command.

- If the cursor is at the beginning of the edit line, the (TAB) key places the cursor at the end of the line.

- If the cursor is anywhere else in the line the (TAB) key places the cursor at the beginning of the line.

The entire Data Entry/Command line is entered when you press ⏎ regardless of the position of the edit cursor.

	A	B	C	D
1				
2				
3				

<C3
1> ■

THE SPREADSHEET AND CURSORS

Notes:

Notes:

Cells

5

5. Cells

The cell is the basic unit of the SuperCalc3 spreadsheet. A cell coordinate is the location of the cell specified by column and row. Each cell has a unique coordinate. A cell contains three types of information: (1) The Cell Content, (2) the Cell Value, and (3) the Display format. The spreadsheet area displays either the cell contents or the cell values. You may designate the display format for the cell values. The format options are displayed on the Global Status line for cells formatted at the **E**ntry level. The format options for cells formatted at the global, row or column level do not display.

Cell Content

The Cell Content consists of the basic data that a cell contains. It is entered into the cell in one of two ways.

• Manually from the Data Entry line.

• Automatically from another cell using the **C**opy, **R**eplicate, **M**ove or **L**oad commands, possibly with formula adjustment.

A cell may be empty, contain text, repeating text or a formula.

Empty Cell

All cells are initially empty. A cell remains empty until you enter something into it.

Text String

A leading double quotation mark ⑩ designates a text string. A text string can contain a maximum of 115 characters.

You do not need to actually enter the leading double quote. SuperCalc3 checks each data entry. If the entry constitutes a valid formula, SuperCalc3 enters it as such. If not, SuperCalc3 puts the double quote in and considers the entry to be text. The message TEXT appears in the lower right of your screen. The double quote is required if the string is to contain = ! ; & / or ?. Throughout this manual, text entries are described with the leading double quote for improved readability and clarity.

The default format for text is left justification and can optionally be set to right justification. If the text is longer than the column width and is left justified, it will continue into adjoining cells. However, when you move the active cursor over those adjoining cells, the screen will not display any text in those cells, which indicates that they are indeed empty. If these cells are occupied, SuperCalc3 displays as much as it can. Consider the following example. Cells A1, A2, and A3 each contain the same text string. Cells C2 and B3 each contain a numerical entry.

```
    :  A  ::  B  ::  C  ::  D  :
    ----------------------------------------
  1: SuperCalc3 is a versatile electronic spreadsheet.

  2: SuperCalc3 is a versatil       250

  3: SuperCalc3    4/15/83
  <C3
  1>
```

Illustration 5-1: Text With Occupied Cells

Repeating Text

Repeating Text begins with a single quote ◯. Repeating text displays from the Active Cell onwards to the right until it reaches a non-empty cell or Column BK.

Repeating text displays through column BK if not interrupted. However, it does not affect the *Last Col/Row*. When printed, the repeating text extends or prints only through the boundary imposed by the *Last Col*. It will only repeat when the *cell in which the single quote appears* is formatted TextLeft. It can be a repeat of more than one character (for example '-+- +). You can stop the display by creating a blank cell (e.g. ") at the boundary you want to set.

Formula Entries

A formula is a mathematical expression that calculates a numerical value. It consists of numerical constants, cell references and function references, connected by operators. A formula may contain a maximum of 116 characters.

When a formula is entered into a cell, the value may be calculated and displayed. Calculation is controlled by the **/G**lobal,**M**anual or **/G**lobal,**A**uto

command. Cell contents (formula) or value display is controlled by the **/G**lobal,**F**ormula command.

Cell Value

The Value of a cell is the result obtained by evaluating the contents of the cell. All cells have a value. There are five types of values:

- Numeric

- Date

- Textual

- Not available

- Error

Each of the four types of cells may take on certain types of values.

- An *Empty* cell has a numeric value of zero.

- A *Text String* cell has a numeric value of zero.

- A *Repeating Text* cell has a numeric value of zero.

- A *Formula* cell can have a numeric, date, textual, not available, or error value. Note that a textual value is different than a text string.

Cell values and types propagate. This means that the cell value may be referenced by a formula in another cell. Such a reference is to the value of the original cell, not to its content (formula).

Note: Although the cell content cannot be referenced by other cells, it may be replicated or copied.

> **Example:** Suppose that cell A5 contained the formula 2*3 and the current cell contained the formula 2*PI*A5. The value of 6 will be used in the formula to evaluate the current cell.

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Cell Format

SuperCalc3 allows you to specify a wide array of display formats for the cell values. Altering the display format in no way alters the contents or the value, only the way it is displayed on the console or printed on the printer.

When you format a cell, you tell SuperCalc3 how you want the cell value to look on your screen. You can specify a format for an individual cell, a group of cells, rows, columns, or the entire spreadsheet.

The display format options are described in detail under the **/F**ormat command (Chapter 7).

Current-Cell Reference Key (ESC)

The current-cell key is the (ESC) key. The current-cell key is a great time saver and convenience. When you press it, the SuperCalc3 program puts the location of the Active Cell onto the entry line for you to use in a command or expression. After you press the current-cell key, the arrow and alternate diamond keys control the spreadsheet cursor. If you move the spreadsheet cursor, the Active Cell address on the entry line changes dynamically to reflect the new location, and the screen will read just rows or columns as necessary to return to the original display. When you press (ESC) again, the address stops changing, and the arrow and diamond keys can again be used for editing.

Pressing ⊙ after the Active Cell address is a special case. The SuperCalc3 program places another Active Cell address after the colon. The address before the ⊙ is fixed; the address after the ⊙ can still be dynamically changed. For an example of how to use this feature, see Lesson 3 in Chapter 3.

The new Active Cell location is temporary. When you press ⊕ to enter the command or expression, the spreadsheet cursor will return to the prior Active Cell location. If you are entering data into a cell, it will go into that prior location.

The Operation Modes

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6. The Operation Modes

SuperCalc3 operates in three distinct modes.

```
          ┌─────────────────┐
          │   Spreadsheet   │
          │      Mode       │
          └─────────────────┘
                   │
        ┌──────────┴──────────┐
┌───────────────┐     ┌───────────────┐
│  Data Entry   │     │   Command     │
│    Mode       │     │    Mode       │
└───────────────┘     └───────────────┘
```

Illustration 6-1: SuperCalc3 Operation Modes

When you first enter SuperCalc3, you are in Spreadsheet mode. You *can* move to Data Entry or Command mode. You *cannot* go directly between Data Entry and Command modes, rather you must return to Spreadsheet mode first.

Spreadsheet Mode

In Spreadsheet mode the spreadsheet cursor is active and the edit cursor is inactive. You can move the spreadsheet cursor around the spreadsheet to view cell contents and values.

The Status lines display the following:

Active Cell Status

Global Status Mode

Edit Cursor Position (The line is not used in this mode.)

```
  ¦ A ¦¦ B ¦¦ C ¦¦ D ¦
1¦·······························  Spreadsheet
2¦                                   Mode
3¦·······························
<C3
To?                              Command Mode
1>                                     or
                                 Data Entry Mode
```

Illustration 6-2: SuperCalc3 Display Layout

Data Entry Mode

Data Entry mode enters data directly into the Data Entry line. A ⏎ enters the data in the Data Entry line into the Active Cell. The Status lines display:

   Active Cell Status
   Global Status
   Data Entry mode

You enter Data Entry mode by typing a Text or Formula entry. Begin the entry with any letter, any of these characters ' " _ . (or any number. Use the ⏎ to enter the content of the Data Entry line into the Active Cell and returns SuperCalc3 to the Spreadsheet mode.

A Text entry begins with a double quote " character. Any printable character on the keyboard may be used in text. A text entry may be up to 115 characters.

Repeating text begins with a single quote ' . The text repeats toward the right until a non-blank cell or the right edge of the spreadsheet (column BK) is encountered. Repeating text may contain any keyboard character and be up to 115 characters. When the cell is formatted TL (Text Left) the text repeats. When formatted TR (Text Right) the text does not repeat.

SuperCalc3 checks that your entry constitutes a legitimate formula when you press ⏎, and displays a TEXT message if it is not. Formulas, then, may begin with any of the following:

   A numeric constant—The characters **0-9 (+—.** begin numeric constants.

   A cell reference—Cell coordinate.

A mathematical function.

A calendar function.

A special function.

A textual constant.

A formula can contain up to 116 characters. Numeric constants can have 16 significant digits plus a decimal point. Scientific, or exponential numbers can have 16 significant digits and a decimal point, all raised to a power of ten. The limit is the 63rd power of 10. If a number is greater than 16 digits, the right-most digits after the 16th are converted to zeros.

In-Line Editor

You edit data on the Data Entry line.

* The Left and Right arrows (or (CTRL S) and (CTRL D)) move the edit cursor non-destructively along the edit line.

* The ⊙ (or (CTRL X)) deletes the character immediately under the edit cursor.

* The ⊙ (or (CTRL E)) inserts a blank character between the previous character and the current cursor position.

* (ESC) enters the Active Cell coordinates at the edit cursor position.

* ⊙ enters the entire data line into the Active Cell.

* (TAB) moves the cursor to the end of the edit line if the cursor is at the beginning, or to the beginning of the edit line if the cursor is anyplace else.

* (CTRL Z) or (CTRL C) or (F2) deletes the entire Data Entry line and returns you to Spreadsheet Mode.

You can back out of the Data Entry line and into the spreadsheet mode by moving the cursor one character to the left of the beginning of the line.

Limits for Data Entry

Numbers can have up to 16 significant digits plus a decimal point and an optional sign. Exponential numbers (scientific notation) can have up to 16 significant digits, a decimal point and sign, and a signed exponent between -63 and +63. Numbers are rounded and displayed to a maximum of the 62nd power of 10 or to a minimum of the -64th power of ten.

Largest

number	9999999999999999
exponential number	9.999999999999999e62
negative number	-1.0e-64

Smallest

number	-9999999999999999
exponential number	-9.999999999999999e62
positive number	1.0e-64

Command Mode

Command mode directs SuperCalc3 to perform an action. You enter command mode with one of five command keys from the spreadsheet mode.

!	Recalculate
;	Switch Window
=	GoTo
&	Resume Execute
/	Slash Commands Access
? or (F1)	AnswerKey (Use from anywhere in SuperCalc3)

Recalculate ⊙

The ⊙ key forces recalculation of the entire spreadsheet. In /Global,Manual mode, this command is the only way to recalculate values. In /Global,Automatic mode, the command provides an additional recalculation. (See the /Global command.)

Window Cursor Jump ⊙

The ⊙ key switches the spreadsheet cursor between windows on a split screen. (See the **/W**indow command.)

GoTo ⊜

The ⊜ key moves the spreadsheet cursor directly to the cell specified. When you press ⊜, the bottom status line prompts for a cell address. A ↵ executes the command. The spreadsheet cursor moves to the cell specified if it is currently displayed. If not in the display window, the specified cell becomes the upper left cell of the display window. The command without a cell specified shifts the display window to put the Active Cell in the upper left.

Resume Execute ⊛

The ⊛ key returns control of the spreadsheet back to the current execute (.XQT) file. (See the **/X** eXecute command.)

The Slash Commands

The SuperCalc3 Slash Commands perform all other functions. You never have to remember a long list of commands. When you enter the ⊘ key, SuperCalc3 prompts with the first letter of each command. You enter the first letter and SuperCalc3 immediately fills in the rest of the word on the command line.

Chapter 7 describes the slash commands in detail. They are:

/Arrange	**/L**oad	**/T**itle
/Blank	**/M**ove	**/U**nprotect
/Copy	**/O**utput	**/V**iew
/Delete	**/P**rotect	**/W**indow
/Edit	**/Q**uit	**/X** (eXecute)
/Format	**/R**eplicate	**/Z**ap
/Global	**/S**ave	**//** (Double Slash Commands)
/Insert		

When you press the ⊘ key, three things immediately happen.

- The bottom status line enters Command mode. The position number of the edit cursor displays first, then the ⊘ character.

- The middle status line changes from Global Display mode to Prompt mode. The slash command prompt displays:

  Enter A,B,C,D,E,F,G,I,L,M,O,P,Q,R,S,T,U,V,W,X,Z,/,?

- The edit cursor becomes active and the spreadsheet cursor inactive.

Most commands have several entry levels. When you enter a command letter, the prompt line changes to the appropriate prompt. SuperCalc3 continues to prompt you through the sequence of options until you execute the command.

AnswerKey ⑦ *or* (F1)

Whenever you need help press the AnswerKey ⑦. SuperCalc3 explains on screen your current options, then with a touch of any key, returns you to where you were to continue your work.

You edit commands, like data and formulas, with the in-line editor.

The Arrow keys or Cursor Diamond keys control the edit cursor.

- The ⊖ key moves the cursor to the right without erasing characters. When the cursor is at the right-most character of a command, the ⊖ key is inoperative.

- The ⊖ key moves the cursor to the left within a command option and erases the option if you go *too far*. Within a command specification, such as a filename or cell range designation, the ⊖ key does not erase characters.

- The ⊕ key or (DELETE) key deletes the current cursor character.

- The ⊕ key or (INSERT) key inserts a blank space at the cursor position.

- (ESC) enters the Active Cell into the current cursor position on the edit line.

- ⊕ executes a command. Everything on the line executes, not just the information to the left of the cursor.

- ⊙ specifies that the current option is complete and proceeds to the next option of the command. If the option is the last option, the command executes.

You can cancel Command Mode and return to Spreadsheet Mode by pressing (F2) or (CTRL Z) or (CTRL C).

You can *back out* of your current entry by using the Left Cursor key. In fact, you can back entirely out of a command without executing it by moving the cursor one position to the left of the slash ⊘ character.

Notes:

COMMANDS

The Slash Commands

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7. The Slash Commands

Introduction to the Slash ⑦ Commands

The slash commands are so named because they begin with the slash
⑦ key. When you type the first letter of a slash command, SuperCalc3's
interpretive prompting completes the rest of the word on the entry line. For
example, when you enter ⑧, the Command line reads **/B**lank. Notice that
the interpretive prompting also includes the comma separating command
options. When you enter the ⑦, the prompt line displays all the possible
one letter entries. Whenever you wish further information about your option
at any given moment, press the AnswerKey ⑦.

Most commands have several levels of entry. When you choose one of
these, the prompt line changes to show the choices available for that
particular command. You are prompted through the entire sequence
of options.

Commands, like data, can be edited with the in-line editor. Remember that
when you press ⏎, everything visible on the Command line is entered—
not just the part of the command to the left of the cursor.

This chapter describes each of the slash commands. The commands
are presented in alphabetical order, just as on the Prompt line. All
of the options are presented in the box at the beginning of each
command description. The options available at any particular point in
defining a command are presented vertically. You select one of them
and SuperCalc3 moves to the next set of options, listed in the column
adjacent to the right.

Slash Command Map

The SuperCalc3 Slash Commands Map on the next page shows the
route to every command. This overview shows the big picture of the
SuperCalc3 command structure. Use it to assist you in moving through
the program. Each command described in this chapter begins with its
portion of the command map.

SuperCalc³ Slash [/] Commands

Key: ⏎ might be labeled **RETURN, ENTER** or ⏎ on your keyboard

/ Arrange — Row — row number — ⏎ for entire row; ascending sort; no adjust
⏎ current row ⌐, — col. range , ⌐ **Ascend** — **Y**es adj. ⌐ ⏎ primary — row number ⌐ **Ascend**
Col. ⌐ col. letter ⌐, — row range , ⌐ **Descend** ⌐ **No** adj. ⌐, secondary — col. letter ⌐ **Descend**
⏎ current col. ⌐ ⏎ for entire column; ascending sort; no adjust

/ Blank — range ⏎
⏎ for current cell
✱ graph range

/ Copy — from range , — to upper/left cell — ⏎ adjust ⌐ **No** adjust
from ✱ graph number , – to (**1–9**) ⏎ ⌐, options — **A**sk for adjust
Values only
+ – ✱ /

/ Delete — Row —— row range ⏎
Column — column range ⏎
File — filename ⏎ ⌐ **C**hange drive
ESC for current filename **D**isplay all files
⏎ for directory ——— **S**ee .CAL files only
Enter filename
Graphs—current spreadsheet

/ Edit — any cell ⏎
⏎ for current cell

/ Format — Global ——————————— Integer for no decimals   **TR** text right justification
Column ——— column range , **G**eneral for numbers with best fit   **TL** text left justification
Row ————— row range , Exponential numbers only   ✱ for asterisk display
Entry ———— range , **$** for two decimal places   **U**ser-defined format table – (**1–8**)
Define format table Right numeric justification   **H**ide values
Left numeric justification   **D**efault settings (G, R, TL, 9)
(**0-127**) column width

/ Global — Graphics menus ——————— **C**olors menu
Formula display (on/off) **F**onts menu
Next move (on/off) **L**ayout menu
Border display (on/off) **O**ptions menu
Tab cursor lockout (on/off) **I**nstall menu—adjustments menu
Row or **C**olumn calc. order **D**evice selection menu
Manual or **A**uto recalculate **S**ave changes

Range Entries   Examples:

Top-left cell:	**A1**	Row:	**7**	Column:	**G**
Bottom-right cell:	**BK254**	Partial row:	**A5:H5**	Partial column:	**D2:D18**
Graph range:	**3 or 1:9**	Row range:	**2 or 2:10**	Column range:	**A or A:P**
Graph number:	**6**	Block range:	**C3:H20**	Entire spreadsheet:	**ALL**

/ Insert — Row —— row range ⏎
Column — column range ⏎

/ Load — filename , ———— All
ESC for current name , —— Part — from range , — to upper/left cell — ⏎ adjust ——— No adjust
, options ——— Ask for adjust
Consolidate   Values only
★ for graphs ——— from graph range , —— to (1-9)   + - ★ /

⏎ for directory ———— Change drive
Display all files
See CAL files only
Enter filename
Graphs – current spreadsheet

/ Move — Row —— from row range , —— to row number ⏎
Column — from column range , — to column letter ⏎

Length (lines)
Width (characters)
Auto feed (on/off)
/ Output —— Display —— range , — Printer — Double space (on/off)
Contents —— Setup —— Setup codes
Console   Print
Disk —— filename , ———————— Change name
ESC for current name , — Backup
Overwrite

⏎ for directory ———— Change drive
Display all files
See CAL files only
Enter filename
Graphs – current spreadsheet

/ Protect — range ⏎
⏎ for current cell

/ Quit ———— Yes to erase all not saved & exit
No to cancel this command
To erase all & run another program —— program filename ⏎

Range Entries Examples:

Top-left cell:	**A1**	Row:	**7**	Column:	**G**
Bottom-right cell:	**BK254**	Partial row:	**A5:H5**	Partial column:	**D2:D18**
Graph range:	**3 or 1:9**	Row range:	**2 or 2:10**	Column range:	**A or A:P**
Graph number:	**6**	Block range:	**C3:H20**	Entire spreadsheet:	**ALL**

/ Replicate ─┬─ from cell , ─── to cell/partial row/partial column ─┬─ (↵) adjust ─┬─ **No** adjust
            ├─ from partial row , ─── to left partial column ───┤ , options ──┤ **A**sk for adjust
            └─ from partial column , ─── to top partial row ───┘   ├─ **V**alues only
                                                                            └─ **+ – * /**

/ Save ─┬─ filename , ·············─┬─ **C**hange name ─┬─ **A**ll ──────────────┐
         │   **ESC** for current name , ─┤ **B**ackup ──────┤ **V**alues only ──┤ **A**ll ──┐
         │   └─ **O**verwrite ───┤ **P**art ─────────┤ **V**alues ─┤ range (↵)
         └─ (↵) for directory ───────┬─ **C**hange drive
                                      ├─ **D**isplay all files
                                      ├─ **S**ee .CAL files only
                                      ├─ **E**nter filename
                                      └─ **G**raphs – current spreadsheet

/ Title ──────┬─ **H**orizontal lock
             ├─ **V**ertical lock
             ├─ **B**oth
             └─ **C**lear

/ Unprotect ─┬─ range (↵)
              └─ (↵) for current cell

/ View ─┬─ (↵) to view current graph
         ├─ [?] for current graph description summary
         ├─ (**1 – 9**) graph ＊
         ├─ **Data** ────── Variable range or block, or (↵)
         ├─ **Graph-Type** ──┬─ **P**ie
         │   ├─ **B**ar
         │   ├─ **S**tacked-Bar
         │   ├─ **L**ine
         │   ├─ **H**i-Lo
         │   ├─ **X**-Y
         │   └─ **A**rea
         ├─ **Time-Labels** ───── Range (↵)
         ├─ **Variable-Labels** ── Variable range, or (↵)
         ├─ **Point-Labels** ──── Variable range or block, or (↵)
         ├─ **Headings** ──┬─ **M**ain ──┐
         │   ├─ **S**ub ───┤ Cell (↵)
         │   ├─ **X**-axis ─┤
         │   └─ **Y**-axis ─┘
         └─ **Options** ──┬─ **Format** ──┬─ **A**xis scale labels
                          │   ├─ **T**ime-Labels
                          │   ├─ **V**ariable-Labels
                          │   ├─ **P**oint-Labels
                          │   └─ **%** pie segment labels
                          ├─ **Explosion** ──┬─ **A**ll pie segments
                          │   ├─ **N**one
                          │   └─ (**1 – 8**) pie segment ＊
                          ├─ **Pie-Mode** ──┬─ **O**ne Variable
                          │   └─ **A**ll Variables
                          └─ **Scaling** ──┬─ **X**-axis
                                          └─ **Y**-axis

Range Entries   Examples

Top-left cell:	**A1**	Row:	**7**	Column:	**G**
Bottom-right cell:	**BK254**	Partial row:	**A5:H5**	Partial column:	**D2:D18**
Graph range:	**3 or 1:9**	Row range:	**2 or 2:10**	Column range:	**A or A:P**
Graph number:	**6**	Block range:	**C3:H20**	Entire spreadsheet:	**ALL**

/ Window ── Horizontal split
Vertical split
Clear to right or below split
Synchronize split-wise scroll
Unsynchronize split-wise scroll

/ X(eXecute) ── Filename for execute file (⏎)
ESC for current name (⏎)
(⏎) for directory ─────── Change drive
Display all files
See CAL files only
Enter filename
Graphs-- current spreadsheet

/ Zap ── Yes to erase all not saved
No to cancel this command
Contents to erase all but User-defined format table

// Data mgt. ── Input ──
Criterion ── range (⏎)
Output ──
Find ────────────
Extract records specified
Select records or veto ────
Remain at current location
↓ next record
↑ previous record
→ next field
← previous field
(⏎) to exit
Yes to accept
No to reject
→ next field
← previous field
(⏎) to exit

Range Entries   Examples:

Top-left cell:	**A1**	Row:	**7**	Column:	**G**
Bottom-right cell:	**BK254**	Partial row:	**A5:H5**	Partial column:	**D2:D18**
Graph range:	**3 or 1:9**	Row range:	**2 or 2:10**	Column range:	**A or A:P**
Graph number:	**6**	Block range:	**C3:H20**	Entire spreadsheet:	**ALL**

The Cell Range:

Many commands require you to specify a cell range. The term *Range* means that you can enter more than one cell at once. Some prompts specify a *Row Range* or *Column Range*. SuperCalc3 uses the following range designators.

Cell	A column followed by a row. Example: J10
Column	A letter (or pair of letters) from A through BK. Example: AF
Partial Column	Two cells in the same column, separated by a colon. Example: The range N2:N15 includes all cells in Column N from N2 through N15.
Column Range	Two columns separated by a colon. Example: The range A:BC includes all columns from A through BC.
Row	A number from 1 through 254.
Partial Row	Two cells in the same row, separated by a colon. Example: The range N2:T2 includes all cells in row 2 from N2 through T2.
Row Range	Two rows separated by a colon. Example: The range 6:88 includes all rows from 6 through 88.
Block	Two cells, separated by a colon. Example: The range D5:AP75 includes all cells in the block between D5 in the upper left and AP75 in the lower right.
Graph	A number from 1 through 9, preceded by an asterisk (in many cases, the asterisk is optional). Example: *1.
Graph Range	Two graph numbers, separated by a colon. Example: The range *1:3 includes graphs 1,2, and 3.

An empty range (entering just ⏎) means the current cell, row or column.

All means the range A1:<Last Col/Row>.

(ESC) allows the arrow keys or the (CTRL [S]), (CTRL [E]), (CTRL [D]), (CTRL [X]) keys to be used to point to a cell.

Note: A cell range may be specified in ascending or descending order. For example, D10:A6 is equivalent to A6:D10.

The SuperCalc3 File Directory

The following commands have an option that allows you to view the disk directory prior to selecting a filename.

> **/D**elete
>
> **/L**oad
>
> **/O**utput
>
> **/S**ave
>
> **/X** (eXecute)
>
> **/Q**uit,**T**o

When you select the <*RETURN*> *for file directory* option, your spreadsheet disappears and you see the *SuperCalc3 Directory Options* menu.

The information at the top of the menu tells you the disk drive from which SuperCalc3 was executed, your current work disk, and your current work file, if any.

> The **C** (hange) data disk drive option allows you to change the current work disk. Once changed, the data disk setting is retained until you re-change it or **/Q**uit.
>
> The **D** (isplay) all files option displays all files in the data disk drive only.

```
SuperCalc3 Directory Options
Program disk drive is A:
Current data disk drive is A:
Current spreadsheet file is : B:LS2     .cal

 OPTIONS:
    C(hange) data disk drive
    D(isplay) all files
    S(ee) .CAL spreadsheet files only
    E(nter) filename
    Graphs - current spreadsheet

 F2 to abort command.




Type C(hange), D(isplay), S(ee), E(nter) or G(raphs)
  7>/Load,
```

Screen 7-1: SuperCalc3 Directory Options Menu

The **S** (ee) .CAL spreadsheet files only option displays only SuperCalc3 on the data diskette. This option also shows the textual contents of cell A1 and the SuperCalc3 version used to create the file. See Chapter 1 for SuperCalc file compatibility.

The **E** (nter) filename option returns you to the command line to enter a filename.

Use a (CTRL Z) or (F2) to quit the current command and return to the spreadsheet.

Note: (CTRL Z) performs the same function as the **E**nter option in SuperCalc.

The **G** (raphs) option displays the Currently Active Graphs and their Graph-Types.

Arrange

Synopsis:

Sorts the spreadsheet by a column or row.

```
/ Arrange ─── Row ─┬─ row number ──┬─ ⏎ for entire row; ascending sort; no adjust
                   │   └─ ⏎ current row  └─ , ─ col. range , ─┬─ Ascend ─┬─ Yes adj ─┬─ ⏎ primary   ┌─ row number , ─┬─ Ascend
              └─ Col ─┬─ col. letter ──── , ─ row range , ─┴─ Descend ─┴─ No adj ─┴─ , secondary ─┴─ col. letter , ───┴─ Descend
                      └─ ⏎ current col. └─ ⏎ for entire column; ascending sort; no adjust
```

Command Description:

The **A**rrange command sorts your spreadsheet based on the cell values of one or two columns or rows. The **A**rrange options are:

- Row or Column Sort based on the values in either a row or column. When you sort by a row, the columns are arranged, when you sort by a column, the rows are arranged.

- Specify a partial column or row. You specify a partial column for a row sort or a partial row for a column sort.

- Specify the sort order, either ascending or descending.

- Specify whether to adjust or not adjust formulas.

- Specify a secondary column or row sort, independently selecting ascending or descending order, but using the cell range and adjust/no adjust selections established for the primary sort key.

Column Sort

A sort by **C**olumn rearranges the spreadsheet rows so that the *key* column is in ascending or descending order.

When you select a column sort, you first specify the key column letter. A ⏎ enters the current column and begins the sort. The following defaults apply:

All rows are sorted.

Ascending sort order.

No formula adjust.

Row Sort

A sort by **R**ow rearranges the spreadsheet columns so that the *key* row is in ascending or descending order.

For a row sort, you specify the key row. A ⏎ enters the current row and begins the sort. The following defaults apply:

All columns are sorted.

Ascending sort order.

No formula adjust.

To select non-default values, enter the row/column then a comma ⃝. SuperCalc3 prompts for all of the following options:

Enter the range of the row/column you want.

• If you are sorting by a column, specify the row range to be included in the sort.

• If you are sorting by a row, specify the column range to be included in the sort.

• You may enter *All* to specify the entire row/column range.

• While you may specify a partial sort using one row/column by a ⏎, such a sort results in no effective change in the order of your spreadsheet.

Select the sort order.

• You may select between **A**scending or **D**escending sort order. SuperCalc3 arranges data first according to the type of data a cell contains, then according to the cell value.

• Regardless of the sort order, cells are arranged in groups by contents and value types:

> Text Cells
> Textual Value Cells
> Date Value Cells
> Error Cells
> Not Available
> Numerical Value Cells
> Blank (Empty) Cells

• Within those groups, cells are arranged in ascending or descending order, with numerical and date values in order, and Text cells and textual values in the following order:

> Space

> Other characters in ASCII order

> Alpha characters, with lower case characters preceding their upper case counterparts (aAbBcC...zZ)

> Numeric characters

Adjust **Y**es or **N**o?

You may select whether to adjust cell formulas.

• If you select **Y**es, SuperCalc3 sorts your spreadsheet, then adjusts the formulas. If **G**lobal, **A**uto is in effect it also recalculates each formula as it sorts.

  When sorting records (rows) in a block of data, a **Y**es response will retain the integrity of the formulas only if all cell references in each row refer to that row only (for example, A1+B1 in row 1).

• If you select **N**o, SuperCalc3 does not alter the cell formulas or recalculate values. This is the default.

• When sorting records (rows), use the **N**o response if cell references within a row refer to cells *outside* that row (for example, A1+B2 in row 1). You are in fact declaring that the relationship among the cell formulas are no longer needed (at least temporarily), and that you prefer a new arrangement determined by the current values only.

The secondary row/column for sort is done just as is the primary sort. If the first sort is on a row, the secondary sort must also be on a row (the same is true for columns).

Examples:

To arrange all columns by the current row (default options are ascending sort order and no formula adjust):

/Arrange,Row ⏎

To arrange all rows by the current column (default options are ascending sort order and no formula adjust):

/Arrange,Column ⏎

To arrange all columns by a different row (default options):

/Arrange,Row,14 ⏎

To arrange all rows by a different column (default options):

/Arrange,Column,E ⏎

To arrange a row in ascending sort order with no formula adjust.

/Arrange,Row,7,C:G,Ascending,N ⏎

To arrange a range of rows by a column using descending sort order and to adjust formulas:

/Arrange,Column,D,7:19,Descending,Y ⏎

To arrange a range of rows first on column A (ascending), then on column B (descending) where, for example, column A has names, column B has salaries:

/Arrange,Column,A,5:20,Ascending,Yes,B,Descending

Sort Sequence:

The **A**rrange command uses a sort order that is different from the ASCII sort order. This sort order is unique to Sorcim products and more closely arranges the characters in dictionary order.

The order is:

> Space.
> Other non-numeric, non-alpha characters in ASCII order.
> Alpha characters, with lower case characters preceding their upper
> case counterparts.
> Numeric characters.
> Blank or empty cells.

Specifically, the order is:

space bar	(continued)	(continued)
!	.	'
"	:	;
#	<	{
$	=	~
%	>	aAbBcC...zZ
&	?	0
'	@	1
(	[	2
)	\	3
*	]	4
+		5
-	.	6
,	-.	7
.	..	8
/	{	9

Special Considerations:

1. If you think you may want to return your spreadsheet to its original entry order, use the **R**eplicate command to create a separate row or column containing sequential numbers prior to using **A**rrange. This may be particularly helpful when you are performing an **A**rrange with **N**o formula adjustment.

2. To protect yourself against changing your spreadsheet in ways that you do not anticipate, **S**ave the spreadsheet to a disk file prior to using **A**rrange.

Blank

Synopsis:

Erases the contents and resets the formatting of the cell range or graph range.

```
/ Blank ──┬─ range ⏎
          ├─ ⏎ for current cell
          └─ * graph range
```

The **B**lank command deletes the contents of all unprotected cells in the specified range. The display format is reset to the default settings for cells formatted at the **E**ntry level. **C**olumn, **R**ow, and **G**lobal display formats are unaffected.

Omit the Range to blank the Active Cell.

For graphs, the specified graph or graphs is deleted but the remaining graphs *are not* resequenced:

Examples:

Blank single cell:	**/B**lank,**C7** ⏎
Blank block of cells:	**/B**lank,**C7:H12** ⏎
Blank entire column:	**/B**lank,**C** ⏎
Blank all unprotected cells:	**/B**lank,**ALL** ⏎
Blank single graph:	**/B**lank,***1** ⏎
Blank range of graphs:	**/B**lank,***1:3** ⏎

Special Considerations:

1. **B**lank sets the default display format conditions for cells that are formatted at the **E**ntry Level only. **B**lank does not affect the cell format of cells formatted at the **R**ow, **C**olumn or **G**lobal levels.

2. **B**lank sets the default graph formats for deleted graphs. It does not resequence the graph numbers.

Copy

Synopsis:

Duplicates cells or graph descriptions into a new spreadsheet or graph description location. Options allow a choice of formula adjustment or consolidation arithmetic for cells.

```
/ Copy ─────┬─ from range , ── to upper/left cell ──┬─ ⏎ adjust     ┌ No adjust
            └─ from ★ graph number , - to (1-9)⏎ └, options ──┤ Ask for adjust
                                                                │ Values only
                                                                └ + - ★ /
```

Command Description:

The **C**opy command makes a one-to-one duplicate of the Source Range into the Destination Range. **C**opy duplicates the cell contents, cell values and display formats exactly. The Source Range remains intact.

The Destination Cell becomes the upper left corner of the Destination Range. The Destination Range takes on the same size and shape as the Source Range. When used to copy a graph, all graph settings and data ranges are duplicated.

For cells, the options allow you to specify Formula Adjustment or Consolidation arithmetic for the Destination Range. A ⏎ provides the default option, formula adjustment. To select another option, enter a comma ⊙ and specify the remaining options. There are no options when copying a graph.

⏎   Formula Adjust—The default selection copies and adjusts formulas to their new location.

N   **N**o Adjust—Copies cell contents literally with no formula adjustment.

A   **A**sk for Adjust—Prompts for formula adjustment for each cell copied. The Command line displays the formula and the Prompt line displays the source cells. SuperCalc3 prompts for each cell reference adjustment.

V   **V**alues—Copies cell values only as numeric constants. Formulas are evaluated and their values only (not the actual formulas) are copied. Dates change to their DVAL function value.

+   Adds each source cell value to the corresponding destination cell value and enters the sum into the destination cell as a numeric constant.

-   Subtracts each source cell value from the corresponding destination cell value and enters the difference into the destination cell as a numeric constant.

*   Multiplies each source cell value with the corresponding destination cell value and enters the product into the destination cell as a numeric constant.

/   Divides each destination cell value by the corresponding source cell value and enters the quotient into the destination cell as a numeric constant.

Examples:

Copy cell to cell:

     /Copy,**B9,C12** ⏎

Copy partial column to partial column:

     /Copy,**B9:B12,H9** ⏎

Copy partial row to partial row:

     /Copy,**B9:G9,H12** ⏎

Copy block to block:

     /Copy,**B9:G15,K20** ⏎

Copy without adjustments:

     /Copy,**B9,C12,N** ⏎

Copy, ask for individual choice of adjustments:

   /Copy,**B9:B15,E9,A** ⏎

Copy one graph description to a different graph description location:

   /Copy,***1,3** ⏎

Special Considerations:

1. The +, -, *, / options do not affect a cell that does not contain a *Form* (formula) entry with a numeric value.

2. The +, -, *, / options perform the indicated calculation between cells, and replaces the destination cell contents with the calculated value as a numeric constant.

3. The Left Cursor key *Backs Out* of the option list to let you select the default ⏎. See Chapter 4.

4. See The **L**oad command for more details on Consolidation.

5. Cells can be copied into themselves. This can be used for such things as freezing values, or for saving memory. For example, you can generate a series such as 1. . .20 without using computer memory for a formula with the following sequence.

   Step 1.   Enter **1** in cell A1.

   Step 2.   **/R**eplicate,**A1,A2:A20** ⏎

   Step 3.   **/C**opy,**A1:A19,A2,+**

Then, to generate a table of numeric squares.

   Step 4.   **/C**opy,**A1:A20,A1,***

Delete

Synopsis:

Erases a row range, column range or disk file.

```
/ Delete ──┬─ Row ──────── row range ↵
           ├─ Column ── column range ↵
           └─ File ──┬── filename ↵              ┌─ Change drive
                     ├── ESC for current filename├─ Display all files
                     └── ↵ for directory ────────┼─ See .CAL files only
                                                  ├─ Enter filename
                                                  └─ Graphs — current spreadsheet
```

Command Description:

The **D**elete command erases a row range or column range from your spreadsheet, or a file from your disk.

Delete erases the row range or column range, then moves the adjacent rows or columns to fill in the gap created. Formulas adjust to compensate.

The **D**elete,**F**ile option erases a file name from the disk directory of a disk. If the (ESC) key is pressed in response to the filename prompt, the name of the last file **L**oaded is placed on the entry line. If a ↵ is entered, SuperCalc3 allows you to examine the directory of files on your disk.

Examples:

To delete row 5:

   /Delete,**R**ow,**5** ↵

To delete column E:

   /Delete,**C**olumn,**E,** ↵

To delete file *WORK1.CAL* from drive B:

   /Delete,**F**ile,**B:WORK1** ↵

To delete multiple rows:

> **/D**elete,**R**ow,**5:10** ⏎

To delete multiple columns:

> **/D**elete,**C**olumn,**B:F** ⏎

Special Considerations:

1. Formulas adjusted into cells that no longer exist are considered an ERROR. See Chapter 8 for more information on ERROR.

2. There is no provision to not adjust formulas.

3. If a deleted row range or column range is within the block range specified by a function reference (such as SUM (A1:D10)), the formulas adjust. If a deleted row/column range includes one of the extreme rows/columns of the block range specified by a function reference (such as SUM (A1:D10)), an error message results. You can then use the in-line editor to modify the command.

4. If a deleted row or column contains a protected cell, an error message results.

5. Rows or columns containing data cannot be reaccessed once they are deleted.

6. Files are deleted permanently; they cannot be restored even with a disk-fixing utility.

THE SLASH COMMANDS

Edit

Edit

Synopsis:

Edits the contents of a cell and places it in the Active Cell.

```
/ Edit ———┌ any cell ⏎
          └ ⏎ for current cell
```

Command Description:

The **E**dit command is used to alter the contents of a source cell and place it into the Active Cell. **E**dit copies the source cell contents to the Edit line where it may be altered as any other data entry. A ⏎ places the data on the edit line into the Active Cell.

You may specify any cell as the source cell. If you do not specify a source cell, e.g., press the ⏎, the Active Cell becomes the source cell.

Edit uses the in-line editor. The editing commands are identical to Data Entry.

Example:

The Active Cell contains "Janaurry. **/E**dit and ⏎ brings this to the entry line. Use the ⏎ to move the cursor to the second *a* in Janaurry. Type *ua*. Move cursor right to one of the *r*s in Januarry. Press the ⊕ to delete it, and press ⏎. (Remember, pressing ⏎ puts the entire entry into the cell no matter where the cursor is positioned.) The Active Cell now contains "January.

Special Considerations:

1. See the section on Edit Cursor Control for a detailed description of the cursor commands available. (Chapter 4.)

2. You cannot edit into a protected Active Cell, but you may edit a protected source cell to another cell that is not protected.

3. The Current Cell (ESC) key may be used to specify a source cell. Press (ESC) to enter the current cell function, then move the spreadsheet cursor to the source cell and press (ESC) again to enter that cell. See the *ESC for Current Cell* section in Chapter 4.

4. The (TAB) key moves the cursor to the beginning of the edit line. If it is already at the beginning the cursor moves to the end of the line.

Format

Synopsis:

1. Sets the cell display format on four levels, global, column, row and entry.

2. Defines the User-defined formats.

```
/ Format ─┬─ Global ──────────────────┬─ Integer for no decimals          TR text right justification
          │  Column ──── column range ,─┤  General for numbers with best fit  TL text left justification
          │  Row ───────── row range ,──┤  Exponential numbers only          ★ for asterisk display
          │  Entry ──────── range ,─────┤  $ for two decimal places          User-defined format table ─ (1–8)
          └─ Define format table        │  Right numeric justification       Hide values
                                        └─ Left numeric justification        Default settings (G, R, TL, 9)
                                                                             (Ø-127) column width
```

Command Description:

The **F**ormat command specifies display format characteristics. To select the display format options you first select the level of format.

Format only affects the display of the cell value. It does not affect the cell value itself or the cell content. The display format controls both the screen image and the printed output.

Successive formatting commands may result in a conflict of formats for a given cell. For example, you may format an entire spreadsheet using **G**lobal and then specify a different format for a **R**ow. Or you may format a **R**ow and a **C**olumn differently. Where formats differ, SuperCalc3 uses the following order of precedence.

1. **E**ntry
2. **R**ow
3. **C**olumn
4. **G**lobal

Thus, if you specify options using the **G**lobal level, then later select different options for a **C**olumn, the **C**olumn options override the **G**lobal options for that column. Similarly, if you select options for a **R**ow, the cell that intersects the column takes on the row options. Finally, any cells specified using **E**ntry override all other specifications.

SuperCalc3 prompts with the format options:

(I,G,E,$,R,L,TR,TL,*,U (1-8) ,D,column width)

I	Integer—Displays numbers as integers, rounding as necessary to produce whole numbers. No decimal point displays.
G	General—Displays numbers as an integer if the number is an integral value, or in decimal format if the column width allows. Numbers larger than the column width display in Exponential format.
E	Exponential—Displays numbers in exponential form using conventional scientific notation. Numbers are expressed as a power of ten containing one significant figure to the left of the decimal point. The letter *e* delineates the numeral from the order of magnitude. For example, 1776 is 1.776e3.
$	Money—Displays numbers with two digits after the decimal point. The character $ does not display. To display the $, use the *Floating $* User-defined format option.
R	Right justifies formula values including dates and textual values.
L	Left justifies formula values including dates and textual values.
TR	Right justifies text entries.
TL	Left justifies text entries.
*	Linear Display—Displays asterisks to represent numbers. Use this format to create a simple graphic representation

of a range of values. For example the number 1 displays as 1 asterisk, the number 5 as five asterisks, etc. For an example, see Lesson 6, Chapter 3.

U(1-8) User-defined format—Displays the cell value according to the characteristics defined in the selected column of the User-defined format table.

H Hide causes the cell to display as blank. The value does not display on screen nor print on the printer. The Cell Content is not affected.

D Removes previously set format options at the level and for the range specified. At the Global level Default returns the display format to its initial settings:

G	General
TL	Text Left justification
R	Right numeric justification
9	Column width

(0-127) Enter a number (0-127) to set the column width between 0-127. Column width can be set for **G**lobal and Column formats only, not for **R**ow and **E**ntry formats.

User-Defined Formats

The **D**efine option specifies seven display properties for eight User-defined formats. Any of the eight User-defined formats may contain any combination of properties.

The User-Defined format has two aspects.

1. You specify the properties for each format using a built-in table of options.

2. You assign the formats to the cells that you want to contain those properties. To change the properties of a group of cells, all you

need to do is redefine the format in the format table. The displays are changed automatically.

The **D**efine option shows you the default User-defined format table. You can move the cursor to any location in the format table and your choices display in the prompt line.

```
                    User-defined formats
                    1  2  3  4  5  6  7  8

Floating $          Y  Y  Y  Y  Y  Y  Y  Y

Embedded Commas     Y  Y  Y  Y  Y  Y  Y  Y

Minus in ( )        N  N  N  N  N  N  N  N

Zero as Blank       N  N  N  N  N  N  N  N

%                   N  N  N  N  N  N  N  N

Decimal Places      2  2  2  2  2  2  2  2

Scaling Factor      0  0  0  0  0  0  0  0


CTRL Z to return to spreadsheet
```

The prompt line shows the valid choices, either Y/N or 0-7. Each property is described below.

Floating $

Y   Precedes numeric values with a Dollar Sign **$**.

N   A Dollar Sign is not used.

   Note:
   This property is not the same as the $ option from the **/F**ormat options list, which displays numbers using 2 decimal places, but without a dollar sign.

Embedded Commas

Y Enters a comma between every third place to the left of the decimal for a numeric value.

N No commas are entered into numeric data.

Minus in ( )

Y Encloses negative numeric values in parentheses. Positive numbers are shifted one place to the left to align the decimal point with negative numbers in the same column. Note that on some equipment negative numbers also display in red.

N Precedes negative numeric values with a minus sign -.

Zero as Blank

Y Displays a blank if the numeric value of the cell is zero.

N Displays a zero if the numeric value of the cell is zero.

%

Y Multiplies a numeric value by 100 and expresses it as a percent with a **%** appended.

N The numeric value is unaffected.

Decimal Places (Alignment)

0-7 Specifies the number of digits displayed after the decimal point. Internally, SuperCalc3 continues to work with 16 decimal places.

Note: Setting this value to 2 has the same effect as the **F**ormat,**$** option.

Scaling Factor

0-7 Specifies the power of ten by which the number displayed is scaled down. The cell value is divided by the power of 10 indicated. For example, a scaling factor of 3 displays the actual cell value divided by 1000 (in *thousands*).

Format Types

There are four types of display format characteristics. Each cell has one and only one format characteristic from each category in effect at any given time. When you assign a new display format option, it replaces the current one for that category.

1. Numeric representation (in value display mode)

I	Integer
G	General
E	Exponential
$	Money format
*	Graphic display
U(1-8)	User-defined format
H	Hide (Note: Also hides *Text* and *Rtxt* entries).

2. Formula justification, including numeric, date and textual value (in value or formula display mode).

R	Right numeric justification
L	Left numeric justification

3. Text justification

TR	Right text justification
TL	Left text justification

4. Column width

(0-127)	Set the column width to the designated number.

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Examples:

Format column E to be 12 characters wide:

/Format,**C**olumn,**E,12** ⏎

Format rows 7 to 12 to be TextRight:

/Format,**R**ow,**7:12,T**ext**R**ight, ⏎

Globally format spreadsheet for money format and 11 character column width:

/Format,**G**lobal,**$,11,** ⏎

Format block for exponential format:

/Format,**E**ntry,**A7:H8,E**xponential, ⏎

Special Considerations:

1. A cell takes on the format of the highest format option used to define it. The precedence order is:

    Entry
    Row
    Column
    Global

    When you select the **Format,D**efault option, the cell takes on the properties of the level under it.

2. You may specify as many options as you wish on the **Format** command line. However, only the last option you specify from each format type category will be in effect.

3. When SuperCalc3 first loads, without any resident spreadsheet, all cells display as if the **Format,G**lobal,**D**efault, command has been issued from the keyboard. This default sets the following:

G	General
R	Right numeric justification
TL	Text Left justification
9	Column width

4. To cope with *narrow* columns when displaying numeric values,
    SuperCalc3 has several tactics:

    a. Round off and drop the right most mantissa digits (the digits
        to the right of the decimal point) .

    b. Omit the decimal point, i.e. display in Integer format.

    c. Display >>>> characters when the integer will not fit in
        the column.

5. The number of decimal places displayed is affected by the
    display option and the column width selected. SuperCalc3 always
    uses a full 16 digits when calculating. This may result in displayed
    numbers not *adding up*, when, for example, the **Format,$** is used.
    The ROUND function (Chapter 8) may be used to force SuperCalc3
    to calculate to a certain limited precision (for example pennies) .

6. The User-defined format table is **S**aved with the spreadsheet on
    disk, and is reset to the default state (all Floating Dollar, Embedded
    Commas and two decimal places) by **Z**ap,**Y**es. **Z**ap,**C**ontents
    preserves the state of the table.

Global

Synopsis:

Sets the spreadsheet global options.

Command Description:

The **G**lobal command options specify the graphic format, spreadsheet format and calculation options. These options specify settings for the entire spreadsheet. When you enter **/G**lobal, the prompt line displays:

G (raphics) ,F (orm.) ,N (ext) ,B (order) ,T (ab) ,R (ow) ,C (ol.) ,M (an.) ,A (uto) ?

G   The **G**raphics option contains the settings to alter the way your graphs look and some SuperCalc3 Install options. All options under this command are relevant to each of the graphs. For example, if you select *ticks off*, all 9 graphs will be affected.

The **G**lobal,**G**raphics options are inherent to SuperCalc3, not an individual spreadsheet (as are the other **G**lobal options). They are *not* saved with a spreadsheet as part of a disk file. When you **Z**ap a spreadsheet, the **G**lobal,**G**raphics option remains intact. To retain any modifications made under **G**lobal,**G**raphics you must use **G**lobal,**G**raphics,**S**ave which modifies the SuperCalc3 program files.

When you have finished with any of these screens, press (F2) to return to the **/G**lobal,**G**raphics prompt. When you enter **G**raphics, the prompt lines display these options:

C (olors), F (onts), L (ayout), O (ptions), I (nstall-adjust.), D (evice), S (ave)

C   The **C**olors option displays a screen similar to this. The color numbers correspond to the pen numbers that the plotter uses. When plotting, SuperCalc3 prompts you to change pens when necessary. Notice that the Variable-Labels and Time-Labels may be set to a single color or each may correspond to the color of the variable setting = V. Any color may be assigned to any variable.

```
PLOTTER COLOR SELECTIONS

Variables:                    Labels:
A              1              Axis            0
B              2              Time            0
C              3              Vars            V
D              4              Point           V
E              5
F              6
G              7
H              8
I              9
J             10


Headings:                     Field:
Main           0              Axes and Box    0
Sub            0              Grids           0
X-Axis         0              Ticks           0
Y-Axis         0              Solid-Fill Outline 0

Color number <0-99> or N(one):
F1 = Help; F2 = Erase Line/Return to Spreadsheet; F9 = Plot; F10 = View
```

Screen 7-2: Color Selections For Plotter

Although you may enter any number from 0 to 99, SuperCalc3 supports only ten colors for Variable ranges. The large range of numbers let you develop your own personalized numbering scheme by using other colors for other parts of your graph. Also, you may find it useful to select different pen widths of the same color to do, for example, main headings (.7 mm black) and subheadings (.3 mm black). Even though the color is the same, you would use different color numbers so you could switch pens.

F   **F**onts allows you to select the typeface styles for your graphs. Move the cursor to the appropriate item and enter the number corresponding to your selection. These fonts apply to the plotter only. There is only one console font.

```
PLOTTER FONT SELECTION:

Headings:                        Labels:
Main          1                  Axis         1
Sub           1                  Time         1
X-Axis        1                  Vars         1
Y-Axis        1                  Point        1

1 = Block,  single-stroke
2 = Block,  double-stroke
3 = Roman,  double-stroke
4 = Roman,  triple-stroke
5 = Italic, double-stroke
6 = Italic, triple-stroke
7 = Script, single-stroke
8 = Script, double-stroke
```

Screen 7-3: Font Selections For Plotter

Appendix B contains examples of each font.

L   The **L**ayout option contains settings for the page layout of your plotted graph.

The *Page Size* options define the size of the paper for your graphics printer or plotter. The paper option selects the page width and length. The paper options available depend on the device you have installed with the /**G**lobal, **G**raphics, **D**evice command. The page width is the direction along which you normally write. Specify the plotting paper width and length using decimal fractions. For example, for an 8 1/2″ x 11″ page set:

    Width   8.50
    Length   11.00

Graph Size describes where, how large and in which direction the graph is drawn. Settings can be changed in Manual Mode. In the other modes, Graph size, Rotation and Offset are automatic.

```
        PLOTTER LAYOUT SELECTIONS:

        Page Size:                  Description of layout
        Paper        1              selections for page size
        Width     8.50              and graph size appear
        Length   11.00              here when this menu is
                                    displayed.
        Graph Size:
        Mode         F
        Rotation     V

        Width    10.00
        Length    7.22

        Graph/Page Offset:
        Top       0.50
        Left      0.64

  1=8.5" x 11"; 2=11" x 14":
  F1 = Help; F2 = Erase Line/Return to Worksheet; F9 to Plot; F10 to View
```

Screen 7-4: Layout Selections For Plotter

Graph Width is *always* horizontal and is parallel to *Page Width* when Rotation is Horizontal. Graph Width is usually about 1.3 times Graph Length. This "aspect ratio" may be changed in Manual Mode only. For example, If you alter the aspect ratio, your Pie graphs will look like watermelons. If you set either *Graph Width* or *Graph Length* to zero, and the other to the value you want, SuperCalc3 substitutes the appropriate value for zero to maintain the appropriate aspect ratio for your device.

The Graph Size Mode has the following options:

F (ull), M (anual), T (op), B (ottom) or quarter <1-4>:

F   **F**ull plots the graph on an entire page.

M   **M**anual uses the last four options (Width, Length, Top, Left) on this screen. These options are only in effect when you have Manual Graph Size Mode in effect.

T   **T**op draws the graph on the top half of the page.

B   **B**ottom draws the graph on the bottom half of the page.

1-4 Draws the graph in the quadrant that you select. The quadrant positions are:

1	2
3	4

Illustration 7-1: Plotter Quadrant Positions

R The **R**otation option lets you plot the graph either horizontally or vertically. SuperCalc3 scales the graph, making use of the full allowed page (full page, half page, or quarter page) both ways.

O The **O**ptions screen contains Graphic and Device output settings. Move the cursor using the up or down arrow keys (or the tab key to skip over fields) to the item that you want to change. The prompt line provides your selections for that item.

```
GRAPHICS AND DEVICE OPTIONS

For all graphs except Pie:          For graphics printers:
Grids           N(o)                Resolution        S(ingle)
Axes            Y(es)
Ticks           Y(es)               For pen plotters:
Graph Box       N(o)                Num. pens          1

For Pie, Bar and Stacked-Bar:
Fill Type       S(olid)             Plotter Interface:
                                    Use               P
For Line, Hi-Lo, Area and X-Y:
Point Markers   Y(es)               Parallel Options:
Lines           Y(es)               Printer number     1

                                    Serial Options:
                                    Com number         1
                                    Baud Rate       4800
                                    Parity             N
                                    Data bits          8
                                    Stop bits          1
```

Screen 7-5: Options: Graph Appearance and Device Settings

Note: If you have a monochrome monitor without the high resolution monochrome graphics board, grids and fill type are not selectable.

I Install allows you to specify settings for future use. None of these settings takes effect in the program until your next session with SuperCalc3. These changes are made to the disk program files only, not to the SuperCalc3 program currently in computer memory.

```
GRAPHICS INSTALL OPTIONS:

To change current settings for FUTURE work sessions:
  1. Select new settings for future sessions.
  2. Perform /Global,Graphics,Save  AND  /Quit

Note:   Current settings on this screen remain in effect for this session.

MEMORY:  Select M for fastest response; more of the program is read into memory.
Select D for more spreadsheet space; more of the program remains on disk.
  Current setting:     M     Setting will be:     M

MONITOR:  Select M if you have a monochrome monitor only. Select C if you
have a color monitor only. Select B if you have both a color and monochrome
monitor.
  Current setting:     M     Setting will be:     M

AUTO REGRAPH:  If you have two monitors, select A to automatically redisplay
the current graph each time a spreadsheet change is made.
Select M if you want manual redisplay.
  Current setting:     A     Setting will be:     A
```

Screen 7-6: Install - Adjustments

M The Memory setting lets you select whether SuperCalc3 uses computer memory to hold some program overlay files, or allocates that memory for spreadsheet data. The Memory setting causes SuperCalc3 to operate faster because the program does not have to read information from the disk. The default setting is Memory. The Disk setting allows you to construct the largest possible spreadsheet by keeping program information out of memory, only reading what it needs from the disk when necessary, then discarding it until it is needed again. On hard disk systems, you can gain spreadsheet size with very little performance loss. On a system with less than 320K, some overlays must remain on disk. If Memory is selected, SuperCalc3 will load into memory as many program overlays as can fit without causing less than 32K memory to be available for the spreadsheet. This means that on a 128K or

smaller system, no overlays will be loaded into memory. On a 320K or larger system, all overlays will be loaded into memory.

M   The Monitor settings let you determine which of your monitor and computer graphics capabilities are used. The *Monochrome* setting displays monochrome spreadsheets and graphs. Graphs are best displayed on a system with a high resolution monochrome graphics board, the graphs display in monochrome character graphics. With character graphics, point labels are available only on pie graphs. Grids and fill type are not selectable with character graphics.

If you have a color system (color monitor and a high resolution monochrome graphics board installed with the high resolution color graphics chip kit), the Monochrome setting also provides faster scrolling and screen display changes than the Color setting. The *Color* setting displays color spreadsheets and graphs on a single monitor if you have a color system. The *Both* setting allows simultaneous use of a color and monochrome monitor if you have a dual monitor setup on a color system. Graphs update automatically with each spreadsheet recalculation. If you have a color graphics computer, monochrome spreadsheets display on one monitor and color graphs display on the other.

Note: With dual monitors, a *Monochrome* setting results in the same monochrome display on both monitors; a *Color* setting results in color spreadsheet and graph displays on your color monitor only. You can change a *Color* setting to *Monochrome* for the current session by typing **SC3 /BW** (instead of **SC3**) at the system prompt.

Caution: With a single monitor, if you select the incorrect option for your system (and then enter the **G**raphics,**S**ave and **/Q**uit commands), your selection will either be ignored, or spreadsheets or graphs will not display on your monitor. If the result is a blank screen in place of spreadsheet, type **SC3 /BW** (instead of **SC3**) at the system prompt. This command forces a *Monochrome* setting for the current session. Your spreadsheet displays and you can correct your Monitor selection.

A   The Auto regraph setting lets you choose between updating the current graph automatically after each spreadsheet change (in

/Global,Automatic), and manual redisplay (using F10). When you are doing mostly spreadsheet operations, particularly on machines that require disk overlays, the Manual setting may be preferable, since it is faster (no disk overlay is necessary).

D Device Selection menu lists the graphics printers and plotters (plotting devices) supported by SuperCalc3. The presently selected device is highlighted. To select an alternate device, move the cursor using the TAB and arrow keys to highlight the appropriate device, then press ENTER. SuperCalc3 receives the necessary information about your printer or plotter.

Important: To make your device selection the program default for future work sessions, use the *IGlobal,Graphics,Save* command.

Note: The device settings at the *Global,Graphics,Options* menu are reset by SuperCalc3 to match the typical settings for the device you selected.

S Save replaces your present disk program file (SC3.COM) with one containing the current Global,Graphics settings. The original disk file is erased. You may have several versions of SuperCalc3 on the same disk provided they each have a different name. For example, your names could reflect different fonts such as SC3ROMAN.COM and SC3ITAL.COM. Each file uses the same SC3.OVL and SC3.HLP files.

F The Form. option alternates the spreadsheet between displaying the cell contents and the cell values. The cell contents is the literal data entered into the cell, such as a formula or a number. The cell value is the result of evaluating the cell content, such as the number produced by evaluating the formula.

- When F is off, Formula cells display the cell values.

- When F is on, Formula cells display the cell contents.

N   The **N**ext option turns off/on the spreadsheet cursor *auto-advance*. The default is *on*.

- When Next is on, the spreadsheet cursor advances in the current direction after an entry of data with a ⏎. The current direction displays in column one of the Active Cell Status line. It is determined by the direction of the prior cursor move.

- When Next is off, the spreadsheet cursor does not advance. The cursor direction indicator is absent from the Active Cell Status line.

B   The **B**order option turns on/off the display of the column/row borders. The border is the number column along the left side and the letter row along the top of the spreadsheet. The default is *on*.

- When the border is on, it is displayed on the console and printed with the report.

- When the border is off, it does not display on the console, nor print with the report.

T   The **T**ab option turns on/off the cursor lockout option. In the **T**ab mode, the cursor automatically jumps to only non-blank, non-protected cells. The **T**ab option is useful to speed data entry by skipping designated cells. The default is off.

- When the tab option is off, the spreadsheet cursor may be positioned in any cell.

- When the tab option is on, the spreadsheet cursor keys can position the cursor in non-blank, non-protected cells only.

See the **X** (eXecute) section for details on how to construct a *black box* or *canned* application using **G**lobal, **T**ab and **X** (eXecute).

Note: The *GoTo* ⊖ command can position the cursor at any cell, even when the **T**ab option is on.

R,C   Specifying **R**ow or **C**olumn determines the order that SuperCalc3 calculates your spreadsheet. All calculations begin with cell A1. The default is Row-wise calculation.

R   **R**ow calculates cells across a row from left to right before moving down to the next row.

C   **C**olumn calculates cells down a column from top to bottom before moving right to the next column.

M,A Specifying **M**anual or **A**uto determines when SuperCalc3 recalculates your spreadsheet and graph (if you have two monitors on your computer) . The default is Auto.

A   **A**uto automatically recalculates the entire spreadsheet each time new data are entered or after an **A**rrange, **B**lank, **C**opy, **D**elete, **L**oad, **M**ove or **R**eplicate command is executed.

M   **M**anual requires you to use the ⊙ command to force recalculation.

Notice that since the **M**anual/**A**uto status is saved with the spreadsheet on disk, the calculation after a **L**oad, **A**ll depends on the state in which the spreadsheet was saved.

Special Considerations:

1.   The **M**anual option is especially helpful when you have a large spreadsheet and are entering a significant amount of data as you do not have to wait for recalculation each time. On the other hand, **A**uto recalculation always keeps your spreadsheet up-to-date.

2.   When both the **T**ab option and **N**ext option are on, the cursor moves automatically to the next unprotected, non-blank cell after data entry.

3.   See the **X** (eXecute) command.

Insert

Synopsis:

Inserts an empty row range or column range and adjusts formulas.

```
/ Insert ──────┌─ Row ────── row range ⏎
               └─ Column ── column range ⏎
```

Command Description:

The Insert command adds a row range or column range and adjusts the formulas for the remainder of the spreadsheet. Columns move to the right of the inserted columns and rows move down from the inserted rows. If there are cells in any row that would be pushed past 254 or column past BK, SuperCalc3 won't allow the insert. You must first delete an appropriate number of rows/columns, then retry the insert.

Examples:

Insert a row between rows 4 & 5:

/Insert,Row,5 ⏎

Insert 3 columns between columns D & E:

/Insert,Column,E:G ⏎

Special Considerations:

1. There is no provision to not adjust formulas.

Load

Synopsis:

Load the spreadsheet contents, values and format settings from a disk file. You may load all or part of the spreadsheet at a location you specify. Options give a choice of formula adjustment or values only or consolidation arithmetic. You may also load graph descriptions from another SuperCalc3 file into the current spreadsheet.

```
/ Load ──── filename ,              All                                          ↵ adjust       No adjust
            ESC for current name ,  Part ── from range , ── to upper/left cell ─, options        Ask for adjust
                                    Consolidate                                                  Values only
                                    ★ for graphs ──── from graph range , ──── to (1-9)           + - ★ /

            ↵ for directory          Change drive
                                     Display all files
                                     See .CAL files only
                                     Enter filename
                                     Graphs – current spreadsheet
```

Command Description:

The **L**oad command reads the cell contents, cell values and format settings from a disk file into the current spreadsheet. You may load **A**ll or **P**art of a spreadsheet. You may also load the graph descriptions (formats, appearance, etc.) from another spreadsheet file into the current spreadsheet.

Enter the name of the file you wish to load preceded by the disk drive designation, if necessary. SuperCalc3 looks for a file with the .CAL extension unless you specify otherwise.

If the (ESC) key is pressed in response to the filename prompt, the name of the last file **L**oaded is placed on the entry line. If a ↵ is entered, SuperCalc3 allows you to examine the directory of files on your disk.

When you load **A**ll of the spreadsheet it loads exactly in the form that it was saved.

Consolidation of Spreadsheets

The **C**onsolidate option sums the contents of corresponding cells of a disk file with the contents of the spreadsheet file. When you select the consolidate option, corresponding cells of the disk file are added to the

THE SLASH COMMANDS

Load

value of the spreadsheet file and the sum replaces the contents of the spreadsheet cell.

Graphs from the second and subsequent consolidated files are not loaded unless you specifically load them with another **/L**oad,filename,* graph number command.

To load a partial spreadsheet, first specify **P**art, then specify the source cell range. The destination cell becomes the upper left corner of the region to be loaded. SuperCalc3 assumes that the range of the destination will be the same size as the source range. **C**olumn, **R**ow, **G**lobal, **U**ser-defined formats and settings such as **G**lobal,**M**anual, Active Cell position, Current cursor direction and **W**indow and **T**itle information are not loaded with a partial load. Cell **E**ntry formats are loaded.

The options allow you to specify Formula Adjustment or Consolidation arithmetic for the Destination Range. A ⊡ provides the default option, formula adjustment. To select another option, enter a comma ⊙ followed by the option.

Formula Adjustment Options

⊡   Formula Adjust—The default selection copies and adjusts formulas to their new location.

N   **N**o Adjust—Copies cell contents literally with no formula adjustment.

A   **A**sk for Adjust—Prompts for formula adjustment for each cell copied. The Command line displays the formula and the Prompt line displays the source cells. SuperCalc3 prompts for each cell reference adjustment.

V   **V**alues—Copies cell values only as numeric constants. Formulas do not copy. Dates change to their DVAL function value.

Consolidation Arithmetic Options

+   Adds each source cell value to the corresponding destination cell value and enters the sum into the destination cell as a numeric constant. This is a good way to do currency conversion.

- Subtracts each source cell value from the corresponding destination cell value and enters the difference into the destination cell as a numeric constant.

* Multiplies each source cell value with the corresponding destination cell value and enters the product into the destination cell as a numeric constant. This is a good way to do currency conversion.

/ Divides each destination cell value by the corresponding source cell value and enters the quotient into the destination cell as a numeric constant.

The effect of a consolidation arithmetic operation depends upon the contents of the corresponding spreadsheet and disk file cells. There are four cases to consider.

- A blank spreadsheet cell and a blank disk file cell result in a consolidated blank cell.

- A blank spreadsheet cell and a non-blank disk file cell result in a consolidated blank cell.

- A non-blank spreadsheet cell and a blank disk file cell result in a consolidated cell that is unchanged from the formula spreadsheet cell.

- A numeric spreadsheet cell and a numeric disk file cell result in a consolidated cell that is the result of performing the selected operation.

Note: The following types of cells are not affected:

Text String cells
Protected Formula cells
Date cells
Textual Value cells
N/A cells
ERROR cells

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Load

The following table summarizes:

		DISK	
		Blank	Formula*
S P R E A D S H E E T	Blank	Blank	Blank
	Formula*	Spreadsheet Content	Spreadsheet + Disk File Value

You can *Load* a disk file on top of a spreadsheet file. Corresponding cells of the disk file replace those of the current spreadsheet file. There are four cases to consider.

- A blank spreadsheet cell and a blank disk file cell result in a blank cell.

- A blank spreadsheet cell and a non-blank disk file cell result in the contents of the disk file cell.

- A non-blank spreadsheet cell and a blank disk file cell result in the contents of the non-blank spreadsheet cell.

- A non-blank spreadsheet cell and a non-blank disk file cell result in the contents of the non-blank disk file cell.

The following diagram illustrates each case:

		DISK FILE	
		Blank	Non-Blank
S P R E A D S H E E T	Blank	Blank	Disk File Content
	Non-Blank	Spreadsheet Content	Disk File Content

Examples:

To load graph descriptions 1 through 4 from a disk file to the current spreadsheet, starting in graph description number 5:

/Load,QUARTER,*1:4,5

To load an entire file from the system drive:

/Load,QUARTER,All

To load part of a file on drive B:

/Load,B:INCOME,Part,**F4:F25,A4,V**alues

To replace a section of the current contents of the spreadsheet with that of a disk file:

/Load,filename,Part,**C3:F20,C3** ⏎

To sum the values of the current spreadsheet with those of a disk file:

/Load,filename,Consolidate

To sum the values of a section of the current spreadsheet with those of a disk file:

/Load,filename,Part,**C3:F20,C3,+**

Note: This method is a good way to link spreadsheets together if one large spreadsheet is too large to fit in memory. For example, load the first spreadsheet, then delete everything but its *bottom line*. Then load the next spreadsheet, which references the first bottom line for its calculations.

Special Considerations:

1. If there are protected cells in the destination area, they will remain unchanged.

2. See the SuperCalc3 File Directory section at the beginning of this chapter.

3. The following two commands options produce identical results:

    /Load,filename,Consolidate

    /Load,filename,Part,A1:BK254,A1,+

4. Loading of graph descriptions will not be attempted if you try to load too many descriptions. Maximum is (9—"To" position). Example:

    /Load,filename,*2:4,7 will succeed.

    /Load,filename,*4:6,8 will fail, with nothing being loaded.

5. Loading a graph description will overwrite, without notification, the existing description in the "To" position.

Move

Synopsis:

Moves a row range or column range to a new location and adjusts the formulas.

```
/ Move ──┌─ Row ──── from row range , ──── to row number ⏎
         └─ Column ─ from column range , ─ to column letter ⏎
```

Command Description:

The Move command transfers the column range or row range to a new location. The formulas adjust without destroying any data or formatting. You move a column range left or right. The columns between the old and new locations move in the opposite direction to fill in the space. You move a row range up or down. The rows between the new and old location move in the opposite direction to fill in the space.

Formulas on the spreadsheet adjust as necessary to preserve references to cell contents at the new locations.

Examples:

Move row 5 between rows 11 and 12:

/Move,Row,5,12 ⏎

Move columns C to E between columns I and J:

/Move,Column,C:E,J ⏎

Special Considerations:

1. There is no provision to move without formula adjustment.

2. See the Delete and Insert commands.

Output

Synopsis:

Writes all or part of the spreadsheet to the printer, the terminal or a disk file. Options allow writing the displayed information or the cell contents listing.

```
                                              ┌ Length (lines)
                                              │ Width (characters)
                                              │ Auto feed (on/off)
  / Output ──┬─ Display ─┬─ range , ─┬─ Printer │ Double space (on/off)
             └─ Contents ─┘          │─ Setup ──┤ Setup codes
                                     │─ Console │ Print
                                     └─ Disk ───┬─ filename , ·········· ┬─ Change name
                                                │  ESC for current name , ─┤ Backup
                                                │                          └ Overwrite
                                                └─ ↵ for directory ──────┬─ Change drive
                                                                         │ Display all files
                                                                         │ See .CAL files only
                                                                         │ Enter filename
                                                                         └ Graphs – current spreadsheet
```

Command Description:

The **O**utput command writes all or part of the spreadsheet to the printer, the terminal, or a text file on disk. If you write your report to a disk file, you can use a word processing program to edit or reformat your report before printing. You can include SuperCalc3 reports in other documents as you wish.

Your first option selects the mode of the output.

D The **D**isplay option outputs the spreadsheet as it displays on the terminal. You may display the cell values in any display format or display the cell content.

C The **C**ontent option lists the cell contents one per line. The information includes the display format (entry level only), the protection status, and the cell content.

Your next option selects the range to output. Specify a cell, partial row, partial column, block or *All* for the entire spreadsheet.

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Your third option selects the output device.

P **P**rinter sends your report to the printer. The default line length is 132 and the page length is 66. If your spreadsheet exceeds the line length, SuperCalc3 prints as many columns as it can on one page and prints the excess columns on another page. Use **S**etup to alter the defaults before printing.

S **S**etup allows you to change the default printing specifications. You may change any or all of these specifications. Use this option before printing to change such things as print 80 columns and compressed format.

    L **L**ength specifies the number of lines per page. The default is 66. You may select from 0-255 lines. If you specify zero, the report prints continuously with no top or bottom margins.

    W **W**idth specifies the number of characters per line. The default is 132. You may select from 0-255 characters. Width does not change the terminal display width. You can alter the display width on a file written to disk. See Special Consideration 4.

    A **A**uto Form Feed. When Auto Form Feed is off, you must press the space bar after each page to continue printing. When auto form feed is on, the printer does not stop after printing each page. The default is off.

    D **D**ouble Space Report Setting. When Double Space is off, you get a single spaced report. When Double Space is on, you get a double spaced report. The default is off.

    S **S**etup specifies any initialization string to send to your printer to initiate special functions, such as compressed type or bold face type. These specifications remain in effect until you either change them or quit SuperCalc3, in which case the defaults are reset. They are not stored on disk with the file. When entering manual setup codes, enter the actual control sequences, not the Hex values for those sequences. The proper sequences are in your printer operator manual. Make sure your printer is turned on and on line before setting these options. For example, to put an Epson MX80 printer into compressed print mode, enter a (CTRL O). The screen does not display anything, but the (CTRL O) is sent to

the printer. You may send a string of any length, terminated with a ⏎.

P **P**rint sends your report to the printer using the specifications you have set.

C The **C**onsole option displays the output on your terminal or *console*. This option is useful for checking your report before printing.

D **D**isk sends your report to a disk file. The report is saved on the disk in the same form as it appears on your console or prints on the printer. SuperCalc3 gives the filename the .PRN extension unless you specify otherwise in the filename. If the file already exists, SuperCalc3 gives you the following options.

If the (ESC) key is pressed in response to the filename prompt, the name of the last file **L**oaded is placed on the entry line. If a ⏎ is entered, SuperCalc3 allows you to examine the directory of files on your disk.

If you specify the name of an existing file, SuperCalc3 gives you the following options.

C **C**hange Name. You may edit or change the name of the file here.

B **B**ackup changes the extension of the existing file to .BAK and then writes your spreadsheet onto the disk using the .CAL extension. Your old file remains unchanged and is available as a backup. If a .BAK file already exists, it is deleted permanently from the disk prior to the renaming.

O **O**verwrite erases the old file from the disk and creates a new file of the same name containing your current spreadsheet.

A .PRN text file may be used in conjunction with other programs such as a text editor. You can enhance the report, include it in your documents and/or otherwise use the full range of editing capability of your text editor.

Note: The .PRN file produced is not the same as the .CAL file produced by the **S**ave command. The .PRN file is an ASCII file that can be edited using a text editor. SuperCalc3 cannot *load* a .PRN file. A .CAL file is a binary file and cannot be edited with a text editor.

Examples:

Output display report to the printer:

/Output,**D**isplay,**ALL,P**rinter

Output content report of row B to printer, changing to print on continuous forms:

/Output,**C**ontents,**B,S**etup,**L**ength,**O**,⏎,**P**rint

Remove borders and output to a disk file:

/Global,**B**orders

/Output,**D**isplay,**A1:J23,D**isk,**B:WORK1** ⏎

To send an initialization string to your printer to perform special functions: (In this case ⌜CTRL⌐O⌝)

/Output,**D**isplay,**ALL,S**etup,**S**etup,⌜CTRL⌐O⌝ ⏎,**W**idth,**233,P**rint

This command line sets some printers to print compressed type, increases the number of characters per line (if you want to print more than 132 characters), and prints. These parameters are in use until you change them or quit the SuperCalc3 program. When entering manual setup codes, enter the actual control sequences, not the decimal values for those sequences. You will find these in the manual for your particular printer. Make sure your printer is turned on and on line.

Special Considerations:

1. See **X** (e**X**ecute) for .XQT files that can be created on a spreadsheet, then saved using the **/O**utput command.

2.   See **L**oad and **S**ave for .CAL files.

3.   See the SuperCalc3 File Directory section at the beginning of this chapter.

4.   You can alter the width on a file written to disk. Select the Setup Option, and specify the width. There is no disk file option here, so use (CTRL Z) to go back to the spreadsheet. The width setting still is in effect, so now use **/O**utput again and select the Disk write option.

5.   The Automatic Carriage Return/Line Feed may be configured using the INSTALL program. This sets the default setting of the Auto Form Feed Setup Option.

6.   Text cell entries that extend past the last column specified (or the last column that contains an entry if **A**ll is specified) are *clipped* to the end of the last column.

Protect

Synopsis:

Protects the cell contents and formatting of a cell range from change.

```
/ Protect ──┬─ range ⏎
            └─ ⏎ for current cell
```

Command Description:

The **P**rotect command prevents the cell contents and display formats of non-blank cells in a cell range from change. Data may not be entered, edited or the format changed for cells that are protected. Graph descriptions may not be protected.

Omit the range to protect the Active Cell singularly.

Examples:

Protect a specified cell:

/Protect,**C3** ⏎

Protect a partial column:

/Protect,**C3:C9** ⏎

Protect a partial row:

/Protect,**C3:G3** ⏎

Protect a block:

/Protect,**C3:G9** ⏎

Protect the Active Cell:

/Protect ⏎

Special Considerations:

1. **B**lank, **C**opy, **R**eplicate and **L**oad all bypass protected cells. The commands operate normally on surrounding cells but leave the protected cells unchanged.

2. **D**elete does not work on rows or columns containing a protected cell.

3. **Z**ap overrides protected cells to delete the entire spreadsheet. **P**rotect has no effect on **Z**ap.

4. There is no error if you attempt to **P**rotect cells that are already protected.

5. See the **U**nprotect command which is used to reverse the protect.

6. Protected cells display with a different attribute (intensity, color) from non-protected cells on some computers.

Quit

Synopsis:

Exits from SuperCalc3 to the operating system.

```
/ Quit ——————— Yes to erase all not saved & exit
               No to cancel this command
               To erase all & run another program — program filename ⏎
```

Command Description:

The **Q**uit command exits SuperCalc3, returning you to the operating system.

> **Y**es returns you to the operating system. The spreadsheet is erased from the computer's memory. **S**ave it before **Q**uit if you want to keep it.
>
> **N**o cancels the **Q**uit command and returns you to SuperCalc3.
>
> **T**o allows you to go directly from SuperCalc3 to any other program. Specify the name of the file you want to run (precede the name with a disk drive if necessary). SuperCalc3 exits and the program you name begins. If a ⏎ is entered, SuperCalc3 allows you to examine the directory of files on your disk.

Special Considerations:

1. You can also cancel the **Q**uit command using [CTRL][C] or [F2] or [CTRL][Z]. Both have the same result as a **N**o reply.

Replicate

Synopsis:

Makes a one-to-many copy of a cell to a group of cells, a partial column to a group of partial columns, or a partial row to a group of partial rows. Options give a choice of formula adjustment, values only, or consolidation arithmetic.

```
                 ┌ from cell , — to cell/partial row/partial column ─┐ ⏎ adjust    ┌ No adjust
 / Replicate ────┤ from partial row , — to left partial column ──────┤ , options ─┤ Ask for adjust
                 └ from partial column , — to top partial row ────────┘            │ Values only
                                                                                   └ + – * /
```

Command Description:

The **R**eplicate command duplicates a one-to-many copy of the source into a destination that is equal to or larger than the source. The source may be a cell, partial row or partial column but not a block. **R**eplicate can make the following duplications:

- A single cell into a partial column or partial row.

Illustration 7-1: Replicate a single cell

- A partial column into a group of partial columns. Specify the destination range by the left and right cells on the top row of the destination group.

Illustration 7-2: Replicate a partial column

- A partial row into a group of partial rows. Specify the destination range by the upper and lower cells for the left column of the destination group.

Illustration 7-3: Replicate a partial row

The options allow you to specify Formula Adjustment or Consolidation Arithmetic for the Destination Range. A ⏎ provides the default option, formula adjustment. To select another option, enter a comma ⊙ and the desired option.

⊕   Formula Adjust—The default selection copies and adjusts
formulas to their new location.

N   No Adjust—Copies cell contents literally with no formula
adjustment.

A   Ask for Adjust—Prompts for formula adjustment for each
cell copied. The Command line displays the formula and the
Prompt line displays the source cells. SuperCalc3 prompts for
each cell reference adjustment.

V   Values—Copies cell values only as numeric constants. Formulas
are evaluated and their values only (not the actual formulas)
are copied. Dates change to their DVAL function value.

+   Adds each source cell value to the corresponding destination
cell value and enters the sum into the destination cell as a
numeric constant.

-   Subtracts each source cell value from the corresponding
destination cell value and enters the difference into the
destination cell as a numeric constant.

*   Multiplies each source cell value with the corresponding
destination cell value and enters the product into the
destination cell as a numeric constant.

/   Divides each destination cell value by the corresponding source
cell value and enters the quotient into the destination cell as a
numeric constant.

Examples:

Replicate a cell into a partial column:

/Replicate,**B12,E3:E8** ⊕

Replicate a cell into a partial row:

/Replicate,**B12,E3:J3** ⊕

Replicate a partial column into a group of partial columns:

/Replicate,B3:B7,D3:J3 ⊙

In this example, the partial column is five cells deep. The result will be a block of cells repeating that partial column seven times. The top of that block is on row 3.

Replicate a partial row into a group of partial rows:

/Replicate,B3:F3,G3:G5 ⊙

The partial row here is five cells across. The result will be a block of cells repeating the partial row three times. The left side of that block is column G.

Replicate without adjustment:

/Replicate,B12,E3:E8,N

Replicate, ask for individual choice of adjustment:

/Replicate,B12,E3:J3,A

Special Considerations:

1. Using **R**eplicate to make a one-to-one copy provides results identical to the **C**opy command.

2. **R**eplicate can make multiple copies of a cell, row or column. **C**opy makes only single copies of a cell, row, column or block. **C**opy can do one thing **R**eplicate cannot do. **C**opy can duplicate a block.

Save

Synopsis:

Writes the spreadsheet on a disk file. Options give a choice of saving the entire spreadsheet or values only.

```
                                        Change name ─┬ All
                    ┌ filename , ················┐   Backup ────── Values only ─┬ All ───┐
    / Save ─────┤ ESC for current name , ···┤   Overwrite ───── Part ────────┤ Values ┴ range ⏎
                    └ ⏎ for directory ─────────┤   Change drive
                                        Display all files
                                        See CAL files only
                                        Enter filename
                                        Graphs – current spreadsheet
```

Command Description:

The **S**ave command writes the spreadsheet, including graph descriptions, onto a disk file while retaining it in computer memory. You may write the entire spreadsheet or only a portion of it. You may save the cell contents or only the values. You *may not* save graph descriptions separate from the associated spreadsheet.

Enter the name for your file. SuperCalc3 appends the file extension .CAL to the file unless you specify another. SuperCalc3 saves the file on the disk on which SuperCalc3 resides unless you specify another. If the (ESC) key is pressed in response to the filename prompt, the name of the last file **L**oaded is placed on the entry line. If a ⏎ is entered, SuperCalc3 allows you to examine the directory of files on your disk.

If you specify the name of an existing file, the program gives you the following options:

C   **C**hange Name. You may edit or change the name of the file here.

B   **B**ackup changes the extension of the existing file to .BAK and then writes your spreadsheet onto the disk using the .CAL extension. Your old file remains unchanged and is available as a backup. If a .BAK file already exists, it is deleted permanently from the disk prior to the renaming.

Note: To load a .BAK file, you must specify the .BAK extension.

O   **O**verwrite erases the old file from the disk and creates a new file of the same name containing your current spreadsheet. Use with caution!

You then specify the part of the file to save.

A   **A**ll saves the entire file on disk. The cell contents, cell values and display formats are saved. Also, the global options, title locking, window splitting and Active Cell location are saved.

V   **V**alues—The Cell Values are saved as numeric constants. Display formats are also saved. The Cell Contents are not saved.

P   **P**art saves the portion of the spreadsheet you specify.

    A   **A**ll saves all the cell data for the partial spreadsheet.

    V   **V**alues saves only the values for the partial spreadsheet. Dates are stored as their DVAL value.

    SuperCalc3 then prompts for the Cell Range.

Examples:

Save the entire file:

/Save,**WORK5,A**ll

Save the values of the spreadsheet on drive B:

/Save,**B:WORK5,V**alues

Special Considerations:

1.   See the SuperCalc3 File Directory section at the beginning of this chapter.

2.   For the **B**ackup and **O**verwrite options, SuperCalc3 deletes an existing file permanently from the disk, not just from the disk directory. Recovery is not possible, even with a disk utility program.

3.   **S**ave writes the file in binary format on the disk. That is, the file is readable by SuperCalc, SuperCalc2 or SuperCalc3 but not by the SuperWriter program (or by other word processing programs). Please see Chapter 1 for a discussion of spreadsheet compatibility between the three spreadsheet programs.

4.   Use the *Super Data Interchange* program to convert a .CAL file to a CSV file. The .CSV file can be edited with a text editor. It can also be used for any other applications program that uses comma separated values, such as a BASIC program.

5.   See the **O**utput and **X** (eXecute) commands.

Title

Synopsis:

Locks columns, rows, or both into place on the display window.

```
/ Title ─────┌─ Horizontal lock
             │  Vertical lock
             │  Both
             └─ Clear
```

Command Description:

The **T**itle command locks columns/rows on the display window.

- A locked column scrolls vertically but not horizontally.

- A locked row scrolls horizontally but not vertically.

- A combination column/row lock does not scroll.

The **T**itle options are:

      H   **H**orizontal locks the current row and all rows above it.

      V   **V**ertical locks the current column and all columns to the left of it.

      B   **B**oth locks the current row and column, and all rows above and columns to the left.

      C   **C**lears the title lock.

Specifying a new title lock replaces a prior one.

The cursor commands cannot move the spreadsheet cursor into a title lock area. Use the *GoTo* ⊜ command to do this.

Special Considerations:

1. Any subsequent command that makes a title lock impossible to display, such as a **/F**ormat or **/W**indow command causes SuperCalc3 to clear the title lock. A message displays on the Active Cell Status line.

2. The title lock display is stored on a disk file. It does not transfer to the output such as to the printer or to a .PRN file. To print titles on other than the first page, you must move (or copy) the title column/rows to the desired location prior to printing. You will most likely need to print a rough draft to determine the proper column/row.

3. An alternate method to print titles for other than the adjacent column to the title lock is to format *intervening* columns to a column width of zero, then print the spreadsheet.

Unprotect

Synopsis:

Removes protection from a cell range.

```
/ Unprotect ┬ range ⏎
            └ ⏎ for current cell
```

Command Description:

The **U**nprotect command removes protection from a range. There is no error if you attempt to unprotect cells that are not protected.

Examples:

To remove protection from a cell:

/Unprotect,**C3** ⏎

To remove protection from a partial column:

/Unprotect,**C3:C9** ⏎

To remove protection from a partial row:

/Unprotect,**C3:G3** ⏎

To remove protection from a block of cells:

/Unprotect,**C3:G9** ⏎

Special Considerations:

1. See the **P**rotect command.

View

Synopsis:

The **V**iew command lets you see your spreadsheet data in graphic form using Pie, Bar, Stacked-Bar, Line, Hi-Lo, X-Y, or Area graphs. SuperCalc3 has defaults for most **V**iew options—you are only required to specify a Data Variable range.

You may specify up to 10 different Data Variable ranges for a graph and then view the graph on your console. Up to 9 graphs can be described and saved with each spreadsheet. Through the **L**oad command, you can also include graphs saved with other SuperCalc3 spreadsheets into the current spreadsheet. You can specify up to eight different typefaces (fonts) for headings and labels to make your graph presentation quality. Once you have arranged all of the information on the screen properly, you can produce a graph on either a plotter or graphics printer.

SuperCalc3 sizes the various parts of your graph to optimize the presentation for both your screen and plotting device. For example, some headings print vertically while others print horizontally depending on their length. The graph itself changes in size depending on the amount of textual material.

Pie Example, Explosion (1,4)

Illustration 7-5: One-dimensional graph

Illustration 7-6: Two-dimensional graph

Illustration 7-7: Three-dimensional graph

SuperCalc3 produces three categories of graphs:

- One-dimension graph — Pie.

- Two-dimension graph — Bar, Stacked-Bar, Line, Hi-Lo and Area.

- Three-dimension graph — X-Y.

Components of a graph:

Main Heading

The first and largest title, centered at the top of your graph. Main headings do not appear larger than other text on the console.

Sub-Heading

The second title of your graph is centered directly below the main heading, and is smaller than the main heading.

X-Axis Heading

Text at the bottom of your graph, below the Time-Labels.

Y-Axis Heading

Text along the left side of your graph.

Y-Axis Labels

Numeric labels that identify each *tick* along the Y-axis. They are included by default unless you turn them off. For maximum flexibility, these labels can be scaled through the normal SuperCalc3 format options (for example, to show 43,000 or 43).

Time-Labels

Numbers or text as labels along the X-axis of a *Bar,Stacked-Bar, Line, Area,* or *Hi-Lo* graph. They appear as a legend on the side of a pie graph. Because the X-axis commonly represents time (for

example months or quarters) in bar graphs, line graphs, and area graphs, and because it is non-numeric (except in *X-Y* graphs), we refer to these as Time-Labels.

Variable-Labels

Labels that identify the Variables in a graph through matching color or hatch patterns. In all but pie graphs, these labels are often thought of as a legend, and they appear along the right side of a graph—one for each Variable defined.

Point-Labels

Numbers or text that identify the value of each variable plotted: point, line, bar, "stack" of a stacked-bar, or segment of a pie. (Point-Labels make it unnecessary to use a ruler or a grid line to see where a bar aligns with the Y-axis). Point-Labels may be assigned to Variables (B-J) for X-Y graphs.

Ticks

Small lines that indicate units of values of the Y-axis (and of the X-axis in an X-Y graph), and points (for example, time periods) along the X-axis. Ticks do not apply to Pie graphs.

Command Description

SuperCalc3 makes producing a graph easy. The **V**iew command produces a graph on the console, plotter or printer. For a simple graph, you only need to specify the Data Variable range (the cells containing the numeric data you want to graph). All of the other graph descriptions have default values, and are optional. You can use the defaults to quickly visualize your data as a *Bar* graph that has no textual components. Labels (Variable, Time, or Point) and Headings are options you can add to the graph.

The **V**iew command differs from most other slash commands in that once you have entered /**V**iew, selecting and finishing any other option returns you to the /**V**iew prompt rather than the idle prompt (1>). This allows you to keep adding to the description of the graph without having to re-type /**V**iew. When you have finished the graph definition and want to see your

graph, press ⏎ at the **/V**iew prompt. All of the **/V**iew options are saved with the spreadsheet disk file.

If you want to see a graph that is completely described (for example, if you have changed some spreadsheet data in a *what if*), you can simply type **/V**iew ⏎ (or just press F10). At any point in the **/V**iew process, you can return back to **/V**iew, and produce a graph with one or more ⏎s. As with all other SuperCalc3 commands, you can cancel the **/V**iew command with (CTRL Z) (or F2), and you can use the in-line editor to correct typing mistakes. To plot your graph, just press F9.

Note: You can press F10 to view current graph description anytime *except* when entering text, data, or a filename.

When you type **/V**iew, the prompt line displays:

```
# ,?,D(ata),G(raph-Type),T(ime-Labs),V(ar-Labs),P(oint-Labs),H(eads) or O(pts)
```

Choosing a Graph number

The first option lets you choose a graph number from 1 through 9. If you omit the graph number by selecting one of the other options from the prompt line, SuperCalc3 assumes that you want to use the last accessed graph (or graph #1 if none has yet been defined). When you change the graph number, SuperCalc3 remembers that for you. So, you are always working with the most recently used graph number. When you select a graph number, the entry line displays it, and the prompt changes to:

```
D(ata),G(raph-Type),T(ime-Labs),V(ar-Labs),P(oint-Labs),H(eads) or Opts?
```

A graph description contains all of the information necessary to produce a graph. Items such as Graph-type, Headings, and Data ranges that are to be represented are included and can be used again or changed without re-entering the information.

? The Current Graph Status

Press ⑦ from the /View prompt to view the current graph definition settings. The Current Graph Screen shows a sample of an empty graph #2, and tells you the program was configured for a Hewlett-Packard HP 7470A Plotter.

```
Current Graph (#2) --> Bar

HEADINGS:                      SCALING:
Main:    (empty)               Y-Axis: Auto
Sub:     (empty)               X-Axis: Auto
X-Axis: (empty)
Y-Axis: (empty)

TIME LABELS: (empty)

    Data        Pt-Labels      Var-Labels     FORMATS:
A: (empty)      (empty)        (empty)        Axis:
B: (empty)      (empty)        (empty)        Time:
C: (empty)      (empty)        (empty)        Var:
D: (empty)      (empty)        (empty)        Point:
E: (empty)      (empty)        (empty)        % :
F: (empty)      (empty)        (empty)
G: (empty)      (empty)        (empty)
H: (empty)      (empty)        (empty)
I: (empty)      (empty)        (empty)
J: (empty)      (empty)        (empty)

PIE EXPLOSION: None                 MODE: One Variable (A)
```

Screen 7-7: Current Graph

D Assigning data

The **D**ata graph description allows you to specify the cell range to be used for the graph. When you select **D**ata, the prompt and command lines read:

```
Var A: Enter range (now empty), <space> to skip, <-> to clear
14>/View,1,Data,
```

Data can be assigned for up to ten Data Variable ranges, identified as A through J. You can also define data in a block. Each row in the block becomes a Data Variable range, which gives you up to 254 Variables. The block assigns the lowest number of Variables

possible. For example, A1:B5 yields VAR A = A1:A5 and VAR B = B1:B5, while A1:E3 yields Var A=A1:E1, Var B=A2:E2, and Var C=A3:E3. When you use a block definition that is ambiguous, SuperCalc3 asks whether the block is to be assigned by row or column.

The Data Variable range is initially empty as indicated in this prompt. You must define at least one Data Variable Range for SuperCalc3 to produce a graph. If you attempt to produce a graph without this definition, the error message *No Variable Defined* results.

Each individual (that is, non-block) Data Variable range may contain cells in a single row or column only. When you enter the Data description, you are initially defining Variable A. The current Variable letter is the first item on the prompt line. The <space> to skip option allows you to rotate through the ten Data Variable ranges without changing their values. For example, if you press the space bar once, the prompt line changes to Variable B as below, and you may define the cell range for Variable B. After you define Var A, SuperCalc3 cycles to Var B automatically. After Variable J, you are returned to the /View prompt.

When you enter a Data Variable range and close with a ⏎, SuperCalc3 returns to the /View prompt. You may alternately close a Data Variable range specification with a comma, in preparation for the next range:

```
Var B: Enter range (now empty), <space> to skip, <-> to clear
14>/View,1,Data,
```

Note: As with other SuperCalc3 commands you can (backspace) out of a command or use (CTRL Z) (or (F2)) to cancel the entire command line.

Var A is the first defined Data Variable range. You must have a Var A, even if you have just one Data range.

The <-> to clear option sets the current Data Variable range to empty, and returns to /View.

ERROR, NA, text, repeating text, or blank cells are non-graphic data types. If all cells across a set of variables are non-graphic, those cells are skipped. In this way, you can define block data ranges that include underlines and text, and your graphs will not have "missing" bars, lines, etc. for the non-numeric data.

All of the remaining commands in **/V**iew are optional. To define a simple Bar graph, all you need to do is define a Data Variable range.

If you want to add appearance options—headings or labels or change the graph type, you can do so with the commands described in the remainder of this section.

G   Selecting the type of graph

To select the type of graph, enter **G**raph-Type. The prompt line changes to:

```
P(ie), B(ar), S(tacked-Bar), L(ine), H(i-Lo), X(-Y) or A(rea)?
```

P   Presents your data as a *Pie* graph. A Pie graph can represent only one Data Variable range. Variable A is the default. If you have defined several Variable ranges , you may elect to plot the pie as all cells of one variable or as all Variables for one row or column (usually a time period) . Use **/V**iew,**#**,**O**ptions,**P**ie-mode, **A**ll or **O**ne to toggle between these options. Negative values are not plotted.

The percentage of the total pie that each data point (spreadsheet cell) represents is placed along side its segment of the pie unless you suppress printing with **/V**iew,**O**ptions,**F**ormat,**%**,**H**ide.

B   Presents your data as a *Bar* graph. *Bar* is the default Graph-Type. Use this option when you want to change a Graph-Type back to *Bar*. A Bar graph has two axes. The horizontal axis represents the number of data points (columns or rows of the Data Variable range) , and the vertical axis represents the magnitude of each variable in each cell. The number of bars per cluster is equal to the number of variables

plotted (which corresponds to the number of Variable ranges from A-J). There can be one Time-Label for each data point, and one Point-Label for each item in the row or column.

Illustration 7-8: Sample Pie Graph

Illustration 7-9: Sample Bar Graph

S   Presents your data as a *Stacked-Bar* graph. A *Stacked-Bar* uses all of the Variable ranges associated with the current graph, and accumulates them (Var A + Var B + . . . + Var J) for each time period. A stacked-bar graph has two axes. The horizontal axis represents the number of data points (columns or rows of the Variable Range), and the vertical axis represents the magnitude of the sum of all Variables in that stacked-bar. The number of "stacks" is equal to the number of *Variables* and the number of bars is equal to the number cells for each Variable. Negative values are not plotted.

Illustration 7-10: Sample Stacked-Bar Graph

L Presents your data as a *Line* graph. All of the Variable ranges associated with the current graph are used to produce this graph. The horizontal axis represents the number of data points (columns or rows of the Variable range), and the vertical axis represents the magnitude of the Variable in each cell. The number of lines is equal to the number of Variables selected. The data points of a line graph can be indicated with symbols and connected with lines if you wish (or you may use both). It is even possible to have a line graph with neither lines nor symbols. In this type of graph, you would normally indicate the data points using Point-Labels.

Illustration 7-11: Sample Line Graph

A Presents your data as an *Area* (Stacked Line) graph. The *Area* graph is to the *Line* graph as the *Stacked-Bars* is to

the *Bar* graph. Area uses all of the Data Variable Ranges associated with the current graph, and accumulates them (Var A + Var B + . . . + Var J) for each period. The horizontal axis represents the number of data points (columns or rows in the Data Variable range), and the vertical axis represents the cumulative magnitude of all of the Variables in each row or column. The number of lines is equal to the number of variables selected, and the number of symbols for each line is equal to the number of data points (cells) for each Variable. Negative values are treated as zero.

Illustration 7-12: Sample Area Graph

H   Presents your data as a *Hi-Lo* graph. This graph shows the spread between a *high* Variable—the first defined variable (usually Variable A), and the *low* Variable—the second defined Variable (usually Variable B). Each Hi-Lo data-pair is shown connected by a vertical line. All other Variables (usually Variables C-J) are shown as points on the Hi-Lo line. Data-points that fall outside this Hi-Lo range are not plotted.

Illustration 7-13: Sample Hi-Lo Graph

X   Presents your data as an **X-Y** (Scatter Plot) graph. All of
the Variable-Ranges (minimum 2) associated with the
current graph are graphed—each variable plotted against
Variable A. An X-Y graph may be thought of as three-
dimensional. Both the X-axis and the Y-axis are numeric.
The third dimension is represented by the order in which
the points are plotted. There is no explicit time element in
an X-Y graph, so Time-Labels do not apply. Variable-Labels
also do not apply, since each point represents two Variables.
Point-Labels may be assigned for Variables (B-J) An
example of an X-Y graph is shown below:

Illustration 7-14: Sample X-Y (Scatter Plot) Graph

Note that the X-axis represents sales per employee, and
the Y-axis represents each employee's earnings. The third
dimension in this graph is time. Each point on the graph
represents a different month. Notice that there is no linear
representation of data, since the point for February is to
the right of the point for March. If you were to connect the
points, the graph would look like there is no correlation of the
points—no trend.

X-Y graphs are often used to look at the *relationships* of data.
If you plot a large number of data points, you can sometimes
see a correlation or a trend in the data. In the example above,

if there were enough time periods graphed, you might be able to spot some seasonal pattern to sales, or see if sales were on a predictable upward (or downward) trend. To do this, you would let SuperCalc3 connect the points (by default).

You can scale both the X- and Y-axis of this graph manually.

Illustration 7-15: X-Y Graph (No Trend)

T The **T**ime-Labs option allows you to specify the numbers or words from the spreadsheet that mark the X-axis ticks on all but X-Y graphs, and the segments of a pie graph.

When you select the **T**ime-Labs option the prompt and command lines read:

```
Enter Time-Label range (now empty) or <-> to clear
 21>/View, 1,Time-Labels,
```

Initially, the Time-Label range is empty—you must define it. Enter the appropriate cell range, for example, A5:F5. If all of the Time-Labels are on the same row, and that row is otherwise empty, you can enter only the row number, such as 5, rather than a partial row range. This also applies to a column letter rather than a partial column range. If you respond with ⏎ the current entry remains unchanged. To produce a graph with fewer Time-Labels than data points, make some cells in the Time-Label range blank.

The $<->$ *to clear* option erases the current Time-Label range and replaces it with the prompt (now empty). There is only one Time-Label range for each graph. You are not required to define Time-Labels to produce a graph.

V The **V**ariable-Labels option lets you specify cells from the spreadsheet that display the names of the Variables. Typically these labels are words, though they may be numbers.

When you select the V (ar-Labs) option the prompt and command lines read:

```
Var A: Var-Label cell or range (now empty), <space> to skip, <-> to clear
  25>/View,1,Variable-Labels,
```

Enter the cell range desired. You are not required to have Variable-Labels to produce a graph. You may define a range of Variable-Labels for each of ten Variables (A-J). Press the (space bar) to skip to the next variable, and the ⊖ key to clear the current variable and rotate to the next variable.

P The **P**oint-Labels option allows you to assign a label to individual plotted points.

Note: If you have a monochrome monitor without a high resolution monochrome graphics board, point labels appear only on pie graphs.

When you select the Point-Labels option the prompt and command lines read:

```
Var A: Enter Point-Label range (now empty), <space> to skip, <-> to clear
  22>/View,1,Point-Labels,
```

Enter the cell range desired. You are not required to have Point-Labels to produce a graph. You may define a range of Point-Labels for each of the ten Variables (A-J).

Press the (space bar) to rotate to the next variable, and the ⊖ key to clear the current variable and rotate to the next variable.

H   The **H**eadings option allows you to include a title, and subtitle for your graph and a title for each axis. You may specify four types of headings:

      M   **M**ain heading—The Main heading prints at the top center of your graph.

      S   **S**ub-heading—The Sub-heading option centers the indicated text directly below the Main heading.

      X   **X-**axis heading places the indicated text beneath the X-axis of a graph.

      Y   **Y-**axis heading places the indicated text along the Y-axis of a graph.

      When you select the **H**eadings option the prompt and command lines read:

```
M(ain),S(ub),X(-axis) or Y(-axis)?
 18>/View,1,Headings,
```

Each of the options has a similar prompt. For example, when you select the **M**ain option, the prompt line reads:

```
Enter title cell (now empty) or <-> to clear
 23>/View,1,Headings,Main,
```

Enter the cell that contains the heading or ⊝ to clear the current heading. Specify each of the four types of heading in a similar manner.

Note that each heading can be only one cell in the spreadsheet—ranges are not acceptable for this command. However, if the heading is longer than the width of the graph SuperCalc3 truncates it.

O   The **O**ptions command lets you determine additional formatting, where it will go and, the quality of the final output. When you select O (ptions) the prompt and command lines read:

THE SLASH COMMANDS

View

```
F(ormat), E(xplosion), P(ie-mode) or S(caling)?
 17>/View,1,Options,
```

F The **F**ormat option allows you to specify the display characteristics of labels—**A**xis, **T**ime, **V**ariable, **P**oint, or **%** labels. When you select F (ormat), the prompt and command lines read:

```
A(xis), T(ime), V(ar), P(oint) or % Labels?
 24>/View,1,Options,Format,
```

A (xis), **T** (ime), **V** (ar), **P** (oint)

The first four choices present the same formatting options. These options are identical to the **/F**ormat command spreadsheet display format options except that column width is changed to label width, and the "*" option is deleted. When you select any of the first four items, the prompt and command lines read:

```
Enter: (I,G,E,$,R,L,TR,TL,U(1-8),H,D or label width)
 29>/View,1,Options,Format,Axis,
```

See the **/F**ormat command for a detailed description of each option.

% When you select the **%** option the prompt and command lines read:

```
Enter <0-9> as width for (xx%) field in Pie, or D(efault)
 26>/View,1,Options,Format,%,
```

This option is for Pie graphs only. The default is sufficient in most cases, but this adjustment option is provided. The size of the pie drawn on your console varies with the amount of text included, so you might want to hide (or set Label width of 0) % labels to maximize the size of the pie on your screen.

THE SLASH COMMANDS

View

Select the number of characters for the % labels for your pie graphs. The % width includes the total number of characters in the % label, including the parentheses. Thus, a value of zero, 1 or 2 results in no label being displayed. SuperCalc3 will try to optimize the display, given the width of the label you provide. For example, a width of 5 will produce (32%), while a width of 3 will produce 32%.

E   **E**xplosion lets you select which segments of a pie graph you want exploded, or highlighted. When you select this choice, the prompt and command lines read:

```
Highlight Pie Segments?  A(ll), N(one) or <1-8> (segment #)
27.>/View,1,Options,Explosions
```

Up to 8 pie segments may be exploded. Segments 1-8 refer to the first 8 cells in the Data-Variable Range.

P   **P**ie-Mode allows you to choose whether a Pie graph plots all points of a single variable or the corresponding point of all variables. In many cases, this means all time periods of one variable or all variables in one time period.

Time-Labels and Variable-Labels are automatically switched to represent the Variable Range plotted, and the X-axis is labeled with the appropriate members of either the Time-Label or Variable-Label. When you select **P**ie Mode, the prompt and command line display:

```
O(ne Variable) or A(ll variables)?
26.View,1,Options,Pie-Mode
```

One Variable lets you specify a single variable to plot (A-J). The segments have Time-Labels legends.

All Variables lets you specify which point of each variable is plotted. Enter a number (1-254). The segments have Variable-Labels legends.

Pie Graph —— One Variable

Illustration 7-16: Pie Mode Example

S   **S**caling allows you to select manual scaling for the Y-axis (and also for the X-axis in X-Y graphs). Scaling does not apply to Pie graphs. You may want to use scaling to make all of a series of graphs be drawn to the same scale, for easy comparison of results. SuperCalc3 automatically tries to scale your graph to make it meaningful to you. For example, if data point M is 850 and data point N is 900, it is typically easier to read a scale that does not start at 0 (on non-cumulative graphs). If you are not satisfied with the automatic scaling that SuperCalc3 provides, you can manually scale with this option. When you select this choice, the prompt and command lines read:

```
X(-axis) or Y(-axis)?
 25>/View,1,Options,Scaling,
```

Note that scaling for X-axis is ignored in all but X-Y, and that both are ignored for Pie graphs (however both are retained if you change your graph to a type for which the scaling is supported).

Enter the appropriate cell in response to the next three prompts.

```
Enter Cell containing Minimum, or <space> for Auto-Scaling.
 32>/View,1,Options,Scaling,Y-axis,


Cell containing Maximum?
 35>/View,1,Options,Scaling,Y-axis,a1,


Number of divisions for Axis? (1-9)
 38>/View,1,Options,Scaling,Y-axis,a1,b1,
```

You can tell SuperCalc3 how to divide the axis (this corresponds to the number of tick marks).

Special Considerations:

1. SuperCalc3 requires the HP17255B cable (17255A will not work) for HP plotters.

2. Switch settings are:

   • HP7470

   • HP7475

     8½" × 11"

     11" × 17"

   Note: Reset the plotter by depressing ENTER and VIEW on the plotter simultaneously, after changing the switch setting.

3. For execute files, F9 and F10 should be replaced with CTRL Y and CTRL T, respectively.

Window

Synopsis:

Split the display window into two portions, horizontally or vertically.

```
/ Window ─── Horizontal split
             Vertical split
             Clear to right or below split
             Synchronize split-wise scroll
             Unsynchronize split-wise scroll
```

Command Description:

The **W**indow command splits the display window into two separate parts. Each portion can have separate **F**ormat and **G**lobal options. **W**indow uses the current row or column to determine where to split the display.

You move the cursor between windows with the ⊙ command from the spreadsheet mode.

The **W**indow options are:

H   **H**orizontally splits the screen. The current row moves down and the new border replaces it. The Active Cell moves down into the newly created screen.

V   **V**ertically splits the screen. The current column moves right and the new border replaces it. The Active Cell moves right into the newly created screen.

C   **C**lears the split screen. The window that is above or on the left displays in full. The global display options for that window remain in effect.

S   **S**ynchronizes scrolling in display windows when the cursor moves parallel to the split.

U   **U**nsynchronizes scrolling. The display windows scroll independently.

Some global options can be set independently in each display window.

Special Considerations:

1. Each portion has separate **T**itle lock and global display options, i.e. (**F**ormulas, **N**ext, **B**order, and **T**ab) .

2. Your spreadsheet can be **S**aved with the windows set, but cannot be **O**utput showing both windows.

   Note: You can print any or all of the spreadsheet regardless of which window contains the Active Cell. However, the window containing the spreadsheet cursor controls the print display format.

3. SuperCalc3 can display the same cell in each window using different display **F**ormats or **G**lobal display options, thus the same region of the spreadsheet may be viewed as formulas and values simultaneously.

4. Each **W**indow of a split-screen display has its own **T**itle lock specification. Any lock that is meaningful is retained in both windows after a screen is split.

eXecute

Synopsis:

Reads and executes commands from a disk file.

```
                                              ┌ Change drive
                                              │ Display all files
/ X(eXecute) ┬ Filename for execute file ⏎    │ See CAL files only
             │ ESC for current name ⏎          │ Enter filename
             └ ⏎ for directory ────────────────┴ Graphs − current spreadsheet
```

Command Description:

The **X** (eXecute) command enables you to create a disk file with commands and data that perform SuperCalc3 operations automatically, without any keyboard entry. It has a suspend and resume feature that lets you pass control back and forth between the execute file and the keyboard (for example, to *black box* applications). By using **X** (eXecute) with suspend and resume, you can automate parts of the spreadsheet process such as loading and printing a pre-built file, while retaining the ability to accept keyboard entry, perhaps for data to be entered by an untrained user.

An execute file contains the exact characters you would type at your keyboard. Each line of the file contains exactly the characters you would press to execute a specific command. Characters that SuperCalc3 supplies through its interpretive prompting must NOT be in the file. For example, for the **Z**ap command, enter **/Z** into the execute file, not **/Z**ap or / Z (ap) . Every SuperCalc3 operation is available, except editing functions on the command/ data entry line, but including cursor movement (represented by the keys ^, v, <, > for up, down, left, and right) and data entry.

To start an **X** (eXecute) file, enter **/X** (eXecute) on the command line and then at the prompt specify the filename that you are using for your **X** (eXecute) file. The commands in the file will be carried out. You need only specify the name of the file since SuperCalc3 will automatically seek that name in combination with the filename extension .XQT.

You can also specify an execute filename directly when you load SuperCalc3 from your operating system. For example, to execute the

file SAMPLE.XQT from the command line enter the following at your system prompt.

SC3 SAMPLE

SuperCalc3 loads and executes the instructions located in the .XQT file. To stop execution, press CTRL C.

Execute Suspend/Resume

To suspend automatic operation of an execute file and *unlock* the keyboard for data entry, include an ampersand (&) in the execute file. When the message *Awaiting keyboard entry* appears, the keyboard unlocks, and you can type in data or any SuperCalc3 command.

There are two ways to resume automatic operation at the next character of the execute file:

1. Type an ampersand ⓐ command. The ampersand is recognized when the SuperCalc3 program is in Spreadsheet mode (i.e. such as when a ⊘ command would be recognized.)

2. When the last unprotected cell of the spreadsheet is entered, with **G**lobal **T**abs and **N**ext on (See the **G**lobal command), the execute file automatically resumes.

Creating An Execute File

Execute files may be created directly from SuperCalc3, or you may use a word processing program. You may create *libraries* of execute files, and *call* them with the eXecute command.

To create an execute file from SuperCalc3, enter the command key strokes as text in column A, one command per cell. **O**utput the file to disk giving it the .XQT extension. If you don't specify an extension, SuperCalc3 automatically gives it the .PRN extension.

When you write an **X** (eXecute) command file to a disk, remember the following:

• The Border must be off. Use the **/G**lobal,**B**order command.

- The column width of Column A must be greater than the largest command string or commands will be truncated.

- **S**ave the file as a .CAL file before outputting it in case you want to edit it later. Use the **/S**ave command.

- **O**utput the file to disk giving it the .XQT extension. Use the **/O**utput command.

Examples:

This example shows an XQT command file that consolidates twelve monthly statements into a yearly summary. First enter **/G**lobal,**B**order and **/F**ormat,**G**lobal,**20** ⏎. Then enter the following data into column A as text. When using SuperCalc3 to create an XQT file, remember to type a quote mark in front of each non-text entry to make it a text entry (for example, enter /zy as " /zy) .

Using SuperCalc3	—— OR ——	Using a Word Processing Program
" /zy		/zy
" /FG$TR		/FG$TR
" /FR51,TL		/FR51,TL
" /FCI,12		/FCI,12
" =A1		=A1
JANUARY		JANUARY
FEBRUARY		FEBRUARY
MARCH		MARCH
APRIL		APRIL
MAY		MAY
JUNE		JUNE
JULY		JULY
AUGUST		AUGUST
SEPTEMBER		SEPTEMBER
OCTOBER		OCTOBER
NOVEMBER		NOVEMBER
DECEMBER		DECEMBER
TOTALS		TOTALS
" =A1		=A1
" /LJAN,PK2:K50,A2,V		/LJAN,PK2:K50,A2,V
" /LFEB,PK2:K50,B2,V		/LFEB,PK2:K50,B2,V
" /LMAR,PK2:K50,C2,V		/LMAR,PK2:K50,C2,V
" /LAPR,PK2:K50,D2,V		/LAPR,PK2:K50,D2,V
" /LMAY,PK2:K50,E2,V		/LMAY,PK2:K50,E2,V
" /LJUN,PK2:K50,F2,V		/LJUN,PK2:K50,F2,V

Using SuperCalc3	-- OR --	Using a Word Processing Program
" /LJUL,PK2:K50,G2,V		/LJUL,PK2:K50,G2,V
" /LAUG,PK2:K50,H2,V		/LAUG,PK2:K50,H2,V
" /LSEP,PK2:K50,I2,V		/LSEP,PK2:K50,I2,V
" /LOCT,PK2:K50,J2,V		/LOCT,PK2:K50,J2,V
" /LNOV,PK2:K50,K2,V		/LNOV,PK2:K50,K2,V
" /LDEC,PK2:K50,L2,V		/LDEC,PK2:K50,L2,V
" =M2		=M2
"SUM (A2:L2)		SUM (A2:L2)
" /RM2,M3:M50		/RM2,M3:M50
" =A51		=A51
"'_		'_
" /FCL,12		/FCL,12
" =L52		=L52
GRAND TOTAL		GRAND TOTAL
"SUM (M2:M50)		SUM (M2:M50)
" /SYEAR1,A		/SYEAR1,A

Notice that at the end of our command file, we have saved the summary
with the filename of YEAR1.

The second example is a spreadsheet application that uses an execute
file to load the model, await keyboard entry for sales and cost of sales
figures, then print the calculated results and exit from SuperCalc3.

```
/LAUTOFILE,A
/GB &
/ODALL,P
/QY
```

Spreadsheet before executing, with formulas displayed (**/G,F**):

```
 |/     A     ||     B     ||    C     ||    D     ||    E     |
1|
2|                            Sample   'black    boxed'    file
3|                            to   be  used  with  .xqt    file
4|                                         .
5|                            jan          feb          mar          qtr
6|                            ---          ---          ---
7|sales                         0            0            0   SUM(B7:D7)
8|cost percent                  0            0            0          N/A
9|cost of sales            B7*B8        C7*C8        D7*D8   SUM(B9:D9)
```

Spreadsheet after executing:

```
    |   A     ||    B    ||    C    ||    D    ||    E    |
 1 |
 2 |                    Sample  'black   boxed'   file
 3 |                    to   be  used  with  .xqt  file
 4 |
 5 |                     jan        feb        mar        qtr
 6 |                     ---        ---        ---        ---
 7 |sales            $5,555     $6,666     $7,777    $19,998
 8 |cost percent        45%        45%        45%        N/A
 9 |cost of sales    $2,500     $3,000     $3,500     $8,999
```

Notice that:

1. Global Next is set on, as is Global,Tab.

2. The entire spreadsheet is Protected except for the cells for which data are to be entered (cells B7, C7, D7 and B8). These cells require an initial value of zero for the Global Tabs to make the cursor stop in them.

3. User-defined formats are used to translate the initial zeros to blank, and the subsequent numbers to their proper format. In this example, the following User-defined settings were in effect:

   - U1—floating dollars, commas, zeros as blanks, and 0 decimal places is used for Rows 7 and 9.

   - U2—zeros as blank, 0 decimals is used for Row 8.

Special Considerations:

1. See the SuperCalc3 File Directory section at the beginning of this chapter.

2. See Output and Save.

3. An execute file must be an ASCII file. A binary file such as the .CAL files produced by the Save command cannot be executed.

4. $\boxed{\text{CTRL D}}$ in an execute file results in a 1/2 second delay in processing. You can use consecutive $\boxed{\text{CTRL D}}$s to produce the delay time you want.

    Note: SuperCalc3 cannot enter a $\boxed{\text{CTRL D}}$ into an .XQT file. You can enter the $\boxed{\text{CTRL D}}$ using your text editor.

5. When the execute file operation is suspended, any SuperCalc3 command can be typed from the keyboard; however, many will make no sense, or may even be destructive (for example, you could **Z**ap the current spreadsheet, or **Q**uit the program).

6. The ampersand can never be placed into a cell from the execute file. It is always interpreted as suspending operation and can never be used as a literal.

7. The ampersand can appear:

    •   As many times as you want in the execute file.

    •   At any place on any line in the execute file (in fact, if you put it on a separate line in the execute file, it will be interpreted as & ↵.

8. An ampersand entered into a cell as text does not pass control back to the execute file.

9. When **G**lobal Tabs are on, you can use combinations of & s and GoTos to set up interactive prompting for data values by insuring that each GoTo expands the size of the spreadsheet. For example, the command file might look like this:

    ```
    " = A2
    " &
    " = B3
    " &
    ```

    If cells A1 and B2 contained prompts (such as enter sales—or cost of sales—now), after each prompt, the user would be allowed to type data, which would be in the last current open cell, and which would resume operation of the execute file at the next line, thus moving the cursor to the next prompt and data entry cell, and so forth.

10. To terminate the execution of an .XQT file, and return control to the keyboard, enter a (CTRL C) from the keyboard.

Data Management

Synopsis:

Makes it possible to locate specific data from a spreadsheet in three steps. First, you define a block on a spreadsheet as the Input block for a search operation. Each row in the block becomes a record, and each column designates a field. Next, you specify the criteria for locating the data you want. Finally, you choose the method of displaying the requested information. You can find and highlight each record that meets the criteria at its current position in the Input block. You can also extract all or selected records that meet the criteria to an Output block on the spreadsheet. You can then print the Output block, write it to disk, or save it as a separate spreadsheet.

When combined with SuperCalc3's powerful two-key dictionary sort (/Arrange), the data management commands help you organize and find your data with great ease and accuracy. Other SuperCalc3 commands like Copy, Move, Insert, and Delete give you added advantages because they let you change the organization of a file, even when it is full of data.

```
// Data mgt. ─┌ Input ──────┌        ┌ ↓ next record
             │ Criterion ┤ range ⏎   │ ↑ previous record
             │ Output ───┘            │ → next field
             │ Find ──────────────── │ ← previous field
             │ Extract records specified │ ⏎ to exit
             │ Select records or veto ──┬ Yes to accept
             └ Remain at current location │ No to reject
                                          │ → next field
                                          │ ← previous field
                                          └ ⏎ to exit
```

Command Description:

To access the Data Management commands, enter **//D**ata

The prompt line displays your Data Management options:

```
I(nput),C(riterion),O(utput),F(ind),E(xtract),S(elect),R(emain)?
  8>//Data,
```

Note that the Data Management command differs from most other slash commands in that once you have entered //Data, selecting and finishing an option returns you to the //Data prompt, rather than to the idle prompt (1>). This allows you to perform additional Data Management tasks without having to retype //Data. When you have finished an option, you can exit back to the //Data prompt by pressing the ⊙ key; you can then exit from //Data with either another ⊙ or by pressing the (F2) or (CTRL Z) key.

I   Input specifies the range of cells that contains the records and fields for the Data Management functions. When you select Input, the current Input cell range appears:

```
Input range (now A6:C21), <> to clear
14>//Data,Input,
```

The first row of the Input range must contain the field names, which must be text. If you omit the field names in the Input range, you *must* leave a blank first row and any field names later used in the Criterion block will be ignored. The program begins searching for the data in the second row of the Input range.

For example, an Input block might look like this:

```
                            Fields
                    ┌──────────┴──────────┐
              ┌──  Name    Level    Billings  } Field names
Input Range  ┤   Dean    Senr     1000     } Records
              └──  deLuca  Staff     750
```

Illustration 7-17: Sample Data Management Area

The Input range must be defined before you use Find, Extract, or Select.

C   Criterion specifies the range of cells where the criteria instructions are stored. When you select Criterion, the following prompt appears:

```
Criterion range (now E6:F8), <> to clear
18>//Data,Criterion,
```

The Criterion range may be specified either before or after you enter the criteria. The range must indicate the exact number of rows in the Criterion block. If one of the rows specified is blank, the program will highlight or extract data from *all* the records in the input block. However, you may specify more columns as long as they are blank—this gives you more flexibility in adding or removing fields when you change your criteria.

Refer to the end of this section for information on how to enter criteria.

A Criterion range must be defined, and your criteria entered in the designated block before you use the Extract, Select, or Find options.

O   **O**utput specifies the range of cells in which the requested data (from either Extract or Select) will be placed. This range must allow enough rows for all the requested data or an error message will be displayed.

When you select the Output option, the following prompt appears:

```
Output range (now A25:C40), <-> to clear
  15>//Data,Output,
```

If you define an Output range that overlaps an Input range, an error message appears.

The first row specified in the Output range is reserved for field names. You must type field names in the first row of the Output block when you want to control which fields will appear and their order. If you leave the first row blank, the fields of each record will be copied from the Input block column by column (field by field) until the Output block has been filled. If the Output range is wide enough and the first row is blank, the entire record will appear.

The Output range may not overlap the Input range, and it must be defined before using Extract or Select.

THE SLASH COMMANDS

Data Management

F   **F**ind searches the Input block for data that match the criteria you specified in the Criterion block. For example, you might tell SuperCalc3 to search for all products with sales of more than $100,000. As the matching data is located, its record is highlighted on your console display. You may then either go on to the next record by pressing the ⊙ key or scroll left and right to see other fields by pressing the ⊝ and ⊝ keys. As each field in the record is examined, its contents are shown on the Active Cell Status line of the console display:

```
  v C10        Form=750
Next record: V or Λ ; Next field: <-- or -->; Cancel: <RETURN>
  12>//Data,Find
```

You must specify **I**nput and **C**riterion ranges before using **F**ind.

E   **E**xtract allows you to copy the requested data from the Input block to the Output block on the spreadsheet, leaving the original records intact. Only the displayed text or values (not the formulas) of the cells are copied. If the Output area already contains data it will be blanked before the new data is copied.

You must specify **I**nput, **O**utput, and **C**riterion ranges before using **E**xtract.

S   **S**elect is a variant of **E**xtract that allows you to flip through the records that meet your criteria and select data that you want to copy to the Output block. As matching records are located, each is highlighted on the console display, and you are given the option of accepting or rejecting the data in that record. As with **F**ind, you may move among fields in the record with the ⊝ and ⊝ keys.

```
Extract ?   Y(es) or N(o), Next field: <-- or -->
  14>//Data,Select
```

Only the displayed text or values (not the formulas) of the cells are copied.

You must specify **I**nput, **O**utput, and **C**riterion ranges before using **S**elect.

R   Remain lets you leave the spreadsheet cursor in its current position, terminate the //Data command and return to the idle prompt. This makes it easy to leave the cursor on a record you have requested so you can edit it.

If you terminate //Data without Remain, the cursor returns to the spreadsheet location used before you entered the //Data command. While you are using the //Data options, the cursor moves to the upper left corner of each range you request—the Input range for Input, the Criterion range for Criterion, or the Output range for Select, Extract, or Output. Remain thus provides a fast way to move to the Input, Output, or Criterion block of the spreadsheet.

Remain clears any existing title locks.

Notes:

1.   Automatic Range Adjustment

Since the Insert and Delete commands automatically adjust the Data Management Input, Output, and Criterion range definitions, you may add or delete records or fields in the middle of an Input, Output, or Criterion block.

2.   Using the Arrange Command

With the Data command you identify records that meet the criteria you specify by field and distinguish these records from the rest of the Input block. With the Arrange command you sort an entire Input block in alphabetical or numerical order by one or two fields. For example, you can arrange the records first by state, and then by zip codes within that state. However, you can always combine

the two approaches by first extracting records that meet the criteria and then arranging them in a new order.

Note that Arrange sorts entire rows. If you are going to be using the Arrange command don't put a criteria block, for example, in the same rows used for your Input or Output blocks.

3. Splitting a Database

    An Input block can contain up to 253 records (one less than the number of rows on a spreadsheet). If you want to maintain more than 253 records for a single database you have two choices:

    • You can split the database into separate spreadsheets. For example you could put customers A-K in one, and L-Z in another.

    • If you do not intend to use the Arrange command, you can define another Input range on the same spreadsheet. Type in the same field names in empty columns next to the current Input block.

Entering the Criteria:

SuperCalc3 provides much flexibility in specifying criteria to apply against your database.

First Row—Field Names

The first row of your Criterion block is reserved for the names of the fields you want to search through. You may omit the field names, leaving the first row blank, to perform a "global search" (SuperCalc3 searches the entire input block for matches). This is a quick way to search for one or more occurrences of a data value or name, date, or textual function, regardless of its position in the spreadsheet.

The Search Criteria

The criteria you enter under each field name can match numbers or text. In either case, the match can be exact, non-selective or selective.

An exact text match entry would be any word: East matches East. An exact formula match would be any number, date, or textual value: 2000 matches 2000.

A non-selective match leaves the cell under a Criterion field name blank and accepts any value for that field. This is handy when you are changing criteria—you don't have to remove the field name but can leave it there for future use.

A selective formula used to match values can be a relational operator such as $B2> =2000$, or a logical function such as AND $(B2<500,B2>1000)$, or any other suitable formula.

Refer to the end of this section for more information on using formulas.

A selective text match can use "wildcards":

?   in one or more character positions means "accept any single character in this position" (J?ne matches Jane or June).

Note: Remember to use a double quote mark (") in front of any word in which a question mark is used. Otherwise, SuperCalc3 will display an AnswerScreen when you type the ?.

*   at the end of a text entry means "accept all characters that follow it" (Jo* matches Jones, John, Jorgensen, but not Jane).

~   (tilde) means "accept anything except the letters following the tilde" (~Jones matches anything but Jones, and ~J* matches all field data except those starting with a J).

The different types of matching criteria are summarized in the following table:

Criterion Match Types	Specific Field Search		Entire Database Search	
Exact Text Match Entries	Sales Reps Smith, B.	Region East	Smith, B.	East
Exact Formula Match Entries	Bonus 2000		2000	
Selective Text Match Entries	Sales Reps Sm*	Region W*	Sm*	W*
Selective Formula Match Entries (Field Name Entry is optional)	Bonus B2>=1500		Not applicable: Cell name defines a Field.	

Illustration 7-18: Criterion Match Types

When you enter two rows of criteria under a field name, SuperCalc3 accepts a record if either criteria is true. When you enter two columns of criteria, SuperCalc3 accepts a record only if both criteria are true. Here's an example:

```
             Name          Billings
OR    ┌─Smith            C7>1000
      └─Willensky        C7>1000
      └──────────┘
          AND
```

Illustration 7-19: Multiple Match Criteria

This means accept any Smith or Willensky with billings of more than 1,000.

Notes:

1. When you specify text criteria you must be precise. This includes the use of blank spaces created with the spacebar as well as use of upper/lower case:

    "SmithA" will not match "Smith A" and
    "Smith" will not match " Smith" or "Smith ".

    "Smith" will not match "smith" or "SMITH".

2. Whenever you request a Find, Extract or Select operation and SuperCalc3 cannot find any records with data that match your criteria, this message appears:

    No matching record found

    If you think a matching record should be found, check that both the Input and Criterion ranges are correct. Then double check the criteria you specified.

3. In text matches, if the field names of the Criterion block do not match any of the Input block field names, no records will be found.

Cell References in Formulas:

The search operation always begins in the second row of the Input block (the first row below the field names). The cell you specify in the formula tells the program which cell to reference for the first test operation.

Current cell reference

Normally you want to test the current record during the search (i.e. evaluate a record based on its own data). To do this, your formula must reference a cell in the second row of the Input block (the row below the field name), even if it does not contain a record. The cell reference is automatically adjusted as the search operation moves on to the next row. See Example A on the next page.

Forward cell reference

You may have occasion to make use of a forward cell reference in a criteria formula. If, for example, your formula references a cell in the third row of the Input block the program evaluates each current record based on the data in the record below it. See the Example B screen and the associated discussion for a complete explanation.

Absolute cell reference

When you want to test each record based on an absolute value you may refer to a cell outside the Input block. For example, you can use an absolute cell reference to set a "flag" to take some action. Suppose you set a flag in a cell outside the Input block, such as cell A2, to switch between 1 and 0. You could then enter a formula test criterion such as this:

IF (A2,E2=83,E2=84)

If the value at A2 is 1, then any record with 83 in column E passes this test. If the value at A2 is 0, then any record with 84 in column E passes this test.

Here's another way an absolute cell reference can come in handy. Suppose you wanted to include as part of a Criterion range a formula that must be recalculated, such as a DATE function. SuperCalc3 would have to recalculate that formula for each record in the range. You could greatly improve the speed of the search by putting the function in a cell outside the Criterion range and referencing that cell in your formula. That way the function only needs to be calculated once.

Examples:

Example A shows the proper use of cell references in criteria formula.

Suppose you have a pile of checks back from the bank. First you enter the checks in the order you receive them, followed by your deposits. You may use the /Arrange command to sort the checks first by number, then by date. Since the check number for deposits is blank, the deposits fall at the end of the sort in order by date. To balance your checks you enter the beginning balance and watch SuperCalc3 calculate the totals, net activity, and ending balance.

```
    |  A  ||  B  ||       C       ||  D  ||  E  ||   F    |
 1Check Balancing                                 1/ 6/1984
 2
 3    Check                        Check
 4    Number   Date      Description   Amount   Deposit    Balance
 5==========================================================
 6     2000  12/10/83 Phone Company     930.00
 7     2001  12/12/83 Cleaners          140.00
 8     2002  12/12/83 Department Store  100.00
 9     2004  12/28/83 Pharmacy           65.00
10     2005  1/ 5/84 Water               80.00
11     2008  1/ 5/84 Electric Company   250.00
12           12/13/83                            250.00
13            1/ 6/84                            950.00
14==========================================================
15                   Beginning Balance                    $1,150.00
16                   Totals             1,565.00  1,200.00
17                   Net Activity                           -365.00
18                   Ending Balance                         $785.00
19Criteria:   Amount
20             0
   B20         Form=D5>200
I(nput), C(riterion), O(utput), F(ind), E(xtract), S(elect), R(emain)?
   8>//Data,
```

Screen 7-8: Cell Reference, Example A

7-104

Now you want to use the Criterion option to find all checks written for over $200. The Input range is A4:D14. The Criterion range is B19:B20. The cell B19 contains the Field name you want to search: Amount. The formula for B20 is displayed as the cell contents on the status line. Note that the results of criteria formulas are evaluated as true (1) or false (0) for the first cell after the field name. In this case D5 does not pass the test, so a 0 is displayed. You will not see this value change as the records in the Input range are examined.

With this formula, SuperCalc3 locates the check entry for $930.00 and the check for $250.00. The formula refers to D5 even though it is not the first record. Note that if you had entered D6>200 as the formula, SuperCalc3 would have looked ahead one row and would have highlighted or extracted each check immediately preceding a check greater than $200. Whenever you have trouble getting the records you are anticipating, check your cell references.

Now suppose you want to change the criteria to look for missing checks. You change the Field Name to "Number" and enter the formula in Example B.

```
19Criteria:   Number
20                 0
  B20           Form=AND(A5<>0,A6-A5<>1)
I(nput), C(riterion), O(utput), F(ind), E(xtract), S(elect), R(emain)?
  8>//Data,
```

Screen 7-9: Cell Reference, Example B

This formula can be interpreted as follows. The AND tells you there are two parts to this formula. The first part is: A5<>0. Separated by a comma, the second part is: A6-A5<>1. The entire formula means "if the value in A5 is not zero, then look forward to A6, subtract the value in A5 from it and if the answer is not 1, then A5 passes the test." Whenever the current row passes the test, it will be highlighted during the Find operation or copied to the Output block during the Extract or Select operation.

The first part of the formula allows you to skip the underline. If you did not care whether the underline is highlighted or extracted, or if you deleted the underline you could remove all of the formula except A6-A5<>1.

In some cases, the evaluated cell may show as ERROR (for example with the formula AND (B5>DATE (12,17,83) ,B5<DATE (12,31,83)) where cell B5 is an underline). This is not a problem, since the second record (cell B6) will not result in an error when it is analyzed if it contains a valid date. But if you wish to avoid such a message you could add a formula similar to the first part of the one in the Check Balancing sample.

Using Data Converted with SDI

You can use Super Data Interchange to convert a file built with another list management program to the SuperCalc3 structure. Suppose, for example, you have converted a database with a name and address list in standard mailing label format. You could then extract any name and address using a unique identifying "key" number, letter, or symbol for each label in the database. For example, to extract the label below, your criterion would be "1" under the Criterion block field name "KEY":

Col. H	Col. I
KEY	LABEL
1	Mr. Arthur Amble, Purchasing Mgr.
1	Hagen & Duarte Construction
1	2334 Baystone Rd.
1	San Francisco, CA 94117

A+B>10

SuperCalc3 Formulas

8

8. Formulas and Functions

SuperCalc3 Formulas

SuperCalc3 formulas specify mathematical calculations and relationships. They consist of operands and operators combined in such a way as to produce a value. When entered into a cell, a formula becomes the cell content.

A maximum of 116 characters can be entered into any one cell. You can construct a longer formula by entering parts of it into separate cells, then referencing those cells.

Formula Values

The value of a cell containing a formula is the result obtained by evaluating the content in the cell. A formula may take on five types of values.

- Numeric

- Date

- Textual

- Not Available

- Error

The type of value that a formula may compute is not fixed when the formula is entered. This is in contrast to the cell type that is fixed to the formula when the cell content is non-empty and does not begin with a ⑦ or ☉ character.

To illuminate this difference, consider the following example. This formula defines a formula cell (Form=), but the dynamic value type is determined by the value of cell A1 and may be any of the five possible types of values.

IF (A1=1,NA,IF (A1=2,ERROR,IF (A1=3,PI, IF (A1=4, ("Textual") ,TODAY))))

This expression evaluates:

If A1 = 1, the value is the Not Available value.

If A1 = 2, the value is the Error value.

If A1 = 3, the value is the numeric value 3.14159265358979

If A1 = 4, the value is Textual.

If A1 = 5, the value is the Date value representing today.

Operators

SuperCalc3 uses three types of mathematical operators.

Arithmetic Operator

An arithmetic operator defines the arithmetic operation performed between two numeric operands. The SuperCalc3 operators are described below.

+	Addition
–	Subtraction
*	Multiplication
/	Division
%	PerCent
^ or **	Exponent

The arithmetic operators are evaluated according to algebraic precedence. The exponent operator is evaluated first. The multiplication, division and percent operators are evaluated next. The addition and subtraction operators are evaluated last.

Examples:

1)   4 + 5 * 2 ^ 2 is the same as

4 + (5* (2^2)) or

24

2)   -2^2 is the same as

      - (2^2) or

      +4

Relational Operators

A relational operator compares two operands and returns a value of true or false. A true comparison has a numerical value of 1, false a numerical value of 0.

The following sample compares terms *a* and *b* using the relational operators:

a = b   Equal: The relation is true (1) if, and only if, *a* is equal to *b*. All other cases are false (0).

a <> b   Not Equal: The relation is true (1) if *a* does not equal *b*. All other cases are false (0).

a < b   Less Than: The relation is true (1) if the value of *a* is less than the value of *b*. It is false (0) if the value of *a* is greater than or equal to *b*.

a > b   Greater Than: The relation is true (1) if the value of *a* is greater than the value of *b*. It is false (0) if the value of *a* is less than or equal to *b*.

a<= b   Less Than or Equal To: The relation is true (1) if the value of *a* is less than or equal to the value of *b*. It is false (0) if the value of *a* is greater than the value of *b*.

a>= b   Greater Than or Equal To: The relation is true (1) if the value of *a* is greater than or equal to the value of *b*. It is false (0) if the value of *a* is less than the value of *b*.

The relational operators = and <> can be used to compare any of the 5 types of values. The other relational operators <, >, <=, >= can be used to compare numeric and date values only.

Parentheses Operators

Parentheses operators define the precedence order of calculation within a mathematical formula. Operations enclosed within parentheses are calculated first. The use of parentheses overrides the algebraic precedence order of arithmetic operators. Parentheses can be nested.

Operands

An operand is a numerical value. It may be obtained as the result of a constant, a cell reference, the evaluation of a formula, or function.

Constants

There are two types of constants: numeric and textual.

Numeric Constant (Value)

A numeric constant is any number such as an integer or decimal number or an exponential number. SuperCalc3 accepts a maximum 16 decimal places for a numeric constant.

Textual Constant (Value)

SuperCalc3 allows you to enter text (non-numeric characters) into a cell and subsequently reference the cell content in a formula expression. Enter the text as a textual value by enclosing it in double quotes and parentheses. For example, to enter the word Debit as a textual value, enter **("Debit")**.

This is quite different from text entered as a Text Cell. Such text has a value of zero when referenced in a SuperCalc3 formula.

Text entered as a textual value may be referenced by other cells either singly or used to construct certain expressions. Such references may be used in the construction of lookup tables and conditional expressions.

A textual value has the following characteristics:

*   A maximum of nine characters are accepted. If you attempt to exceed this limit, a Formula ERROR results.

- A textual value may contain any character including punctuation characters and numbers. Numbers in a textual value do not have any mathematical significance.

- Use the double quote character twice to enter it once into a Text Function. For example:

    (""""SELL"""") produces "SELL"

- A textual value is similar to a standard text entry except that a textual value can be propagated. That is, the value may be referenced by other cells. Because of this, SuperCalc3 considers them to be FORMulas.

Cell References

The value of a cell may be used as an operand by naming the coordinates of that cell in a formula.

SuperCalc3 Functions

A SuperCalc3 function returns the value of a calculation. There are five types of SuperCalc3 functions:

- Arithmetic

- Logical

- Calendar

- Financial

- Special

To use one of these functions, you enter its name, possibly followed by arguments. The arguments specify the values that you want to apply to the function.

Arithmetic Functions

The following functions are the SuperCalc3 arithmetic functions. An argument may consist of a value, a range or a list.

* Value—An expression evaluating to a numeric value.

* Range—A group of cells specified by naming the top left-most cell and the bottom right-most cell, separated by a colon.

* List—One or more ranges and values separated by commas.

ABS(Value)

Returns the absolute value of the Value given.

* Equivalent to the value itself if positive.

* Equivalent to the value without its negative sign if negative. This is the additive inverse.

* Equivalent to Zero if the expression is zero.

    Example: **ABS(-237)** = 237

ACOS(Value)

Returns the radian angle of the cosine value given.

    Example: **ACOS(1)** = 0

ASIN(Value)

Returns the radian angle of the sine value given.

    Example: **ASIN(.2)** = .2013579207903337

ATAN(Value)

Returns the radian angle of the tangent value given.

    Example: **ATAN(2)** = 1.107148717794091

AVERAGE or AV(List)

Returns the average (mean) of the range given. This function is equivalent to the SUM of the list divided by the COUNT of the list.

Example: **AVERAGE(H2:H20)**

COS(Value)

Returns the cosine of the radian angle value given.

Example: **COS(PI)** = -1

COUNT (List)

Returns the number of non-blank non-text cells described by the range.

Example: **COUNT(H2:H20)** = 18 if the list is full.

EXP(Value)

This function raises the number e exponentially to the *value*. The value of e is 2.718281828459045.

Example: **EXP(2)** = e˘2 or 7.38905609893069

INT(Value)

Returns the integer of the value given, the value is not rounded.

Example: **INT(2.5832)** = 2

LN(Value)

Returns the natural log, log base e, of the value given.

Example: **LN(5)** = 1.609437912431

LOG10 or LOG(Value)

Returns the common log, log base 10 of the value given.

Example: **LOG10(12)** = 1.079181246047594

MAX(List)

Returns the maximum value of the range. Non-numeric cells are ignored.

Example: **MAX(A1:A20)**

MIN(List)

Returns the minimum value of the range. Non-numeric cells are ignored.

MOD(Value1,Value2)

The MOD function produces the remainder that results from the division of 'value1' by 'value2'.

MOD(10,7) produces 3

The remainder when dividing 10 by 7 is 3.

PI

Returns the value of Pi to 16 significant digits.

Example: **PI** $= 3.141592653589793$

ROUND(Value,Places-Value)

Use ROUND to round a value to a specified number of places. First specify the value to be rounded, then the place holder where the rounding is to occur. Use − to designate positions to the left of the decimal and + to designate positions to the right of the decimal. The + sign is optional; if it is omitted, a positive number is assumed. For example:

ROUND(1234.5678,2) $= 1234.57$

ROUND(1234.5678,-2) $= 1200.00$

SIN(Value)

Returns the sine of the radian angle value given.

Example: **SIN(PI/2)** = 1

SQRT(Value)

Returns the square root of the value.

Example: **SQRT(4)** = 2

SUM(List)

Returns the sum of the values in the range. Non-numeric cells are ignored.

Example: **SUM(A4,B15,C15:C20)**

TAN(Value)

Returns the tangent of the radian angle value given.

Example: **TAN(.75*PI)** = -1

Special Considerations:

- A formula may be used to produce a value. SuperCalc3 evaluates the formula and uses the value for the argument to the function.

- Specify a range of cells for Range.

Logical Functions

A logical function consists of a relational comparison connected by a logical operator. Complex logical expressions may be formed by using parentheses.

IF(Expression1,Value2,Value3)

If expression 1 is true, enter value 2 into the cell. If expression 1 is false, enter value 3.

If an expression is entered into an IF function, the expression must evaluate properly to a value in order for the IF function to be valid. That is, the expression must not result in a Formula ERROR.

Value 3 may be omitted. In that case, the value of the expression is zero if value 1 is false.

AND(Value1,Value2)

A logical *AND* function has a value of true (numerical value of 1) if both value 1 and value 2 are true. If either value is false, the AND function is false (numerical value of 0).

AND (True,True)	True
AND (True,False)	False
AND (False,True)	False
AND (False,False)	False

Example: **AND(H6=5,B3<>8)**

Returns the value of 1 if both conditions are true. Returns the value of 0 if either condition is false.

OR(Value1,Value 2)

A logical *OR* function has a value of true (numerical value of 1) if either value 1 or value 2 is true. If both values are false, the OR function is false (numerical value of 0).

OR (True,True)	True
OR (True,False)	True
OR (False,True)	True
OR (False,False)	False

Example: **OR(B1>=74.2,C3=3)**

Returns the value of 1 if one or both values are true. Returns the value of 0 if both values are false.

NOT(Value)

The NOT function returns the opposite truth value as the stated value.

NOT (True)	False
NOT (False)	True

Example: **NOT(B5>=5.9)**

Returns the value of 1 if the value is false. Returns the value of 0 if the value is true.

Additional Examples:

IF functions are easy to work with when you remember these few simple pointers.

1. IF Functions look like this:

   IF(Expression A,Expression B,Expression C)

2. They read as follows:

   If Expression A is true, then use Expression B.

   If Expression A is false, then use Expression C.

3. In other words:

   If Expression A, then Expression B, otherwise, Expression C.

   Consider the IF function:

   IF(A1>=5000,10,5)

If the cell A1 contained the value 455, the cell this formula resided in would show the value 5.

Now, suppose that you need to evaluate two IF functions at the same time. Consider this example:

   IF(A1=5000,5,IF(A1=4000,25,0))

Notice that the IF function still reads *If Expression A, then Expression B, otherwise Expression C*. It just happens that Expression C is another IF function.

Expression B or Expression C can be a formula or another IF function. You can continue to build your formula up to 116 characters.

Note: There must always be as many closed parentheses as there are open. This is important.

Let's look at two more analogies that may also be useful.

IF-AND Combinations

1. IF-AND combinations look like this:

    IF(AND(Exp Aa,Exp Ab),Exp B,Exp C)

2. They read as follows:

    If Aa and Ab are both true, then use Expression B. If either Aa or Ab is false, then use Expression C.

3. In other words:

    If Expression Aa and Ab are both true, then Expression B, otherwise Expression C.

    Example:

    IF(AND(A1>500,A1<1000),5,0)

    Both functions in Expression Aa and Ab must be true in order to evaluate Expression B.

IF-OR Combinations

1. IF-OR combinations look like this:

    IF(OR(Exp Aa,Exp Ab),Exp B,Exp C)

2.   They read as follows:

> If either Aa or Ab is true, then use Expression B. If Aa and Ab are both false, then use Expression C.

> Example:

> **IF(OR(A1>5000,B1<100),5,0)**

> Only one of the functions, Expression Aa or Ab has to be true in order to use Expression B.

The SuperCalc3 Calendar Functions:

SuperCalc3 features a calendar that allows you to enter a date into your spreadsheet, then reference that date in calculations for other cells.

SuperCalc3 uses a Modified Julian Calendar that ranges from March 1, 1900 to February 28, 2100. Days in this 200 year range are numbered sequentially from 1 through 73049.

The SuperCalc3 calendar functions fall into two categories: (1) Date Entry functions and (2) Date Reference functions.

SuperCalc3 displays a date according to the conventional format MM/DD/YY. Although expressed using numbers, it does not constitute a numeric entry. A date value is a special value and can only be referenced by the Date Reference functions. The other functions of SuperCalc3 treat the Date as a text entry; i.e., it has a numerical value of 0.

Date values can be used with some arithmetic operations.

1.   You can add a number to a date with the result being a date value.

> Example: If Cell A1 has the date value 3/13/83, the formula **A1 + 45** produces the date value 4/27/83.

2.   You can subtract a number from a date with the result being a date value.

Date Entry Functions:

You enter a Date into your spreadsheet using one of the following three Date Entry Functions.

DATE or *DAT(MM,DD,YY)*

DATE or *DAT(MM,DD,YYYY)*

Enter the month, day and year in that order separated by commas. The year may be entered either as a two digit or four digit number. SuperCalc3 assumes two digit years are 20th Century and adds 1900 to the entry. You must enter a 21st Century date using 4 digits.

You may enter single digit values without a leading 0. For example, the date for February 8, 1905 could be entered as:

DATE(2,8,5)

For the default column width (9), SuperCalc3 will display the date showing only the last 2 digits of the year, even if you enter a 4 digit value. There is no distinction on screen between centuries, even though SuperCalc3 keeps track of them internally. The column width must be at least 11 to see all four digits. Then, you will see a 4 digit year, even if you enter it as a 2 digit number.

Only those dates within the 200 year range of the SuperCalc3 calendar are accepted. If you attempt to enter a date that is not valid, a Formula ERROR will result.

TODAY

The TODAY function reads the system date into the Active Cell.

• For MS-DOS or PC-DOS use the DOS system DATE command.

A disk file containing a TODAY cell looks for the current system date when loaded into your spreadsheet. Of course, any other cells that reference a TODAY cell will be evaluated based on the current date. If you don't want the date to be dependent on the system date, use the DATE function.

DVAL(Value)

The DVAL function returns the date of the value specified. The value must be an integer between 1-73049. DVAL is the inverse of JDATE.

Date Reference Functions

SuperCalc3 contains six Date Cell Reference functions. You specify the function first followed by the address of the reference cell. SuperCalc3 places the formula in the Active Cell and returns the value. The referenced cell must contain a valid DATE or an ERROR will be indicated. This value can be used as any other value in SuperCalc3.

Note: The Date reference functions return normal numeric values as distinguished from the Date Entry functions which return special date values.

MONTH or MON(Date Value)

The MONTH function returns the number of the month of the date value (1 for January, 12 for December).

DAY(Date Value)

The DAY function returns the number of the day of the month of the date value.

YEAR(Date Value)

The YEAR function returns the number of the year of the date value.

WDAY(Date Value)

The WDAY function returns the Julian number of the day of the week of the date value (1 for Sunday, 7 for Saturday).

JDATE(Date Value)

The JDATE function returns the Modified Julian Date of the date value. This number ranges from 1 (March 1, 1900) through 73049 (February 28, 2100).

Special Considerations

1. Lookup tables may be used to *convert* the numeric value of the Date Cell Reference functions to their corresponding names. Be sure to specify the names using the Text Function format. For example, to convert WDAY functions to the day of the week, set up a lookup table as follows:

1	("Sunday")
2	("Monday")
. . .	
7	("Saturday")

    Then, using the WDAY function, you can print the weekday for the date. For example: Lookup (WDAY(B1),Z1:Z7), where B1= Today, and Z1-Z7 is the range of day numbers shown above.

2. You can perform two types of calculations using Date values.

    A. You may add (or subtract) a numeric value to a date. The number is assumed to represent days and the result produces a new date. For example:

        12/25/82 + 7 produces 1/ 1/83

        2/25/86—365 produces 2/25/85

    B. You may subtract one date from another. The result is expressed as a numeral representing the number of days separating the two dates.

        10/31/83—7/4/83 produces 119

    Note: A number minus a date produces an ERROR.

3. SuperCalc3 accepts numbers outside the legitimate range of dates. Such dates are converted to their legal counterparts if possible. If this is not possible, a Formula ERROR results.

    Example: DATE (6,60,83) is converted to 7/30/83

    Example: DATE (15,01,82) is converted to 3/1/83

    This feature allows you to conveniently create dates that span logical new months or years using the **R**eplicate command.

Financial Functions

The SuperCalc3 program includes five financial functions.

NPV(Discount,Col/Row Range)

Returns the present value of a group of cash returns at the given rate of discount (for example, a discount rate of 10% would be entered as .10) The cash amounts are assumed to be projected for equal time periods, such as yearly, and the discount rate is for that interval. The first cash entry is discounted once, the second twice and so forth and added to the total value. Net Present Value is the present value of future cash flows, discounted at the appropriate cost of capital, minus the cost of the investment. To calculate the NPV, the negative initial investment must be added to the above Financial Function (e.g. "+A1")

For example, with an initial investment of ($) – 10,000 (Cell A1) and returns of 2000, 2400, 2800, 3450 and 2800 in cells B1 through F1 and a discount rate of 8%, calculate net present value in cell A2 as A2 = NPV (.08,B1:F1) + A1. The negative initial investment must be added as A1. The NPV yields 573.68 in this example.

$$ NPV = \sum_{j=1}^{k} A_j(1 + r)^{-j} - I $$

    j = Period number (from 1 to k)
    Aj = Cash flow at period
    r = Rate of interest (discount rate)
    I = Initial cost of the investment

IRR(Guess,Row/Col Range)

The Internal Rate of Return is the discount rate such that the Net Present Value of the cash flow is zero.

Guess   Is the initial value to use as the discount rate. This is an optional parameter which can be specified either as a cell address or as a value. If you do not specify an initial value for the discount rate, the program assumes a default value of 0.1.

Row/Col
Range   A row or column range where the first element of the range is the initial investment and the remaining entries are the cash flows at regular intervals.

Note: Usually, an initial value between 0.0 and 1.0 will yield a result.

An iterative technique is used to compute the IRR. This function returns ERROR if convergence to within 0.0000001 does not occur within 20 iterations. In this case, repeating this computation with a different value for the guess may produce a valid result.

Example: With an initial investment of ($)-10000 and returns of 2000, 2400, 2800, 3450, and 2800 in cells A1:A6, and an initial guess of .01, in cell B1, the IRR is computed as follows:

IRR (B1,A1:A6) = .1000113 (10.00113%)

or

IRR (.01,A1:A6) = .1000113

Notes: In some cases IRR may have a multiple valued solution. In general, only one interest rate exists for any series of cash flows where the zero period cash flow is the ONLY negative payment or where the negative cash flows are in sequence beginning with period zero.

Where cash flows have multiple negative payments not in sequence, multiple interest rates may exist. In such cases, different initial guesses may result in different answers.

PMT(Principal,Interest rate,Periods)

This function calculates the Payment per period for an ordinary annuity given the Principal, Interest Rate per period and the number of Periods. The formula used for an ordinary annuity is:

$$PMT = PV * \frac{i}{1 - (1 + i)^{-n}}$$

where

i = interest rate per compounding period
n = number of periods
PV = principal or present value at the beginning of period

and

PMT = payment made at the end of each period

Example: The monthly payment on a $50,000 mortgage at 9% annual (.0075 monthly) interest for a 30 year (360 months) term is calculated in the following screen:

```
   |   A   ||   B   ||   C   ||
 1|
 2| Principal  50000.00
 3| Interest      .0075
 4| Periods        360
 5|
```

PMT (50000,.0075,360) = 402.31

or

PMT (B2,B3,B4) = 402.31

FV(Payment,Interest rate,Periods)

This function calculates the Future Value of equal payments involved in a simple ordinary annuity, given the interest rate per period and the number of periods.

The formula used is:

$$FV = PMT * \frac{(1 + i)^n - 1}{i}$$

where

i = interest rate per compounding period
n = number of periods
PMT = constant cash payment each period

and

FV = amount at the end of "n" periods

Example: The value at the end of the third year of $100 invested at the end of each year for 3 years at a 10% annual interest rate is computed in the following screen:

```
    |   A    ||   B   ||   C   ||
`1|
2| Payment     100.00
3| Interest       .10
4| Periods          3
5|
```

FV (100,.1,3) = 331

or

FV (B2,B3,B4) = 331

PV(Payment,Interest rate,Periods)

This function calculates the Present Value of equal payments involved in a simple ordinary annuity, given the interest rate per period and the number of periods.

The formula used is:

$$PV = PMT * \frac{1 - (1 + i)^{-n}}{i}$$

where

$\quad i$ = interest rate per compounding period
$\quad n$ = number of periods
$\quad PMT$ = payment made at the end of each period

and

$\quad PV$ = present value at the beginning of period 1

Example: The present value of $100 received at the end of each year for 3 years if the payments are discounted at an annual rate of 10% is computed as follows:

```
      |   A    ||   B   ||   C    ||
  1|
  2| Payment    100.00
  3| Interest      .10
  4| Periods        3
  5|
```

PV (100,.10,3) = 248.68

or

PV (B2,B3,B4) = 248.68

Special Functions

The SuperCalc3 program has five Special Functions.

ERROR or ERR

Displays *ERROR* in a cell that returns a value that cannot be calculated. You can enter the term ERROR into a cell by typing it on the data entry line.

LOOKUP or LU(Value, Col/Row Range)

Searches for the last value in the range of numbers that is less than or equal to the search value given and returns the adjacent value to the right of the search column or below the search row. This function assumes that the search range is in ascending order of values.

A lookup table consists of two adjacent rows or columns containing data. A lookup table can be either horizontal or vertical. SuperCalc3 searches the left column of a vertical lookup table and returns the adjacent value in the right column. SuperCalc3 searches the top row of a horizontal lookup table and returns the adjacent value in the bottom row.

Note: Text strings cannot be *looked up* in a lookup table. Only values can be looked up. To look up text, enter it as a textual value, for example, **("Monday")**.

NA

Displays N/A in a cell for which data are not available. You can enter the value N/A into a cell using **NA**.

Note: You enter **NA** (without a slash) and SuperCalc3 displays N/A (with a slash).

The following five functions test for value type. They return true (1) or false (0).

ISNUM (Value)

Tests for a numeric value type. Note that text and repeating text have a numeric value of zero, thus evaluate as true.

ISDATE (Value)

Tests for a date value type.

ISTEXT (Value)

Tests for a textual value type. Note that this is not a test for a text or repeating text cell.

ISNA(Value)

Tests for a Not Available value type.

ISERROR or ISERR(Value)

Tests for an Error value type.

Examples:

IF(ISERROR(A14),Expression2,Expression3)

If the contents of A14 are ERROR, then use expression 2, otherwise use expression 3.

IF(ISDATE(C33),Expression2,Expression3)

If the contents of C33 are a Date Value, then use expression 2, otherwise use expression 3.

TRUE

True evaluates to the numeric value 1.

FALSE

False evaluates to the numeric value 0.

Special Considerations

Textual Values in Formulas and Functions

A textual value is used like other operands in the construction of expressions for lookup tables (the LOOKUP function) and logical functions. Due to the nature of a textual value however, it may not be used in some situations where a numeric expression would be appropriate. The rules for operators with textual values are as follows:

Arithmetic operators (+, -, *, /, ^ or **)

Textual values may not be used with arithmetic operators.

Relational operators (=, <>, <, >, <=, >=)

Textual values may be used to create expressions using the relational operators equal and not equal (=,<>).

Textual values may not be used with the remaining relational operators (<, >, <=, >=).

Valid relational expressions involving textual operands may appear in more complex expressions, such as logical function references.

The IF function may contain expressions with textual values as the second (*true case*) or third (*false case*) parameters.

Lookup tables may be constructed using expressions containing textual values.

IF Functions

- **("Text")** — A textual value may be used in a comparison expression.

   IF(A1 = ("Debit"),Expression2,Expression3)

   If the value of A1 is the textual value Debit, use expression 2, otherwise, use expression 3.

- Calendar functions—The value of a calendar function may be used in the comparison expression.

   IF(B20=DATE(02,25,47),Expression2,Expression3)

   If the value of B20 is the date 2/25/47, use expression 2, otherwise use expression 3.

lu·ous • su'per·het'er·o·dyne' • man • su'per·im·pose' • su'p i'cial • su'per·in·duce' • su'per in·tend'ent • su·pe'ri·or • su·p e'ri·or'i·ty • su·per'la·tive • su per·man • su'per·mar'ket • su per·nu'mer·ar'y • su'per·scrib 'per·script' • su'per·scrip'tion

APPENDICES
Glossary

A

A. Glossary

Active Cell: The cell in which the cursor is currently positioned.

Active Cell Status Line: The first of three lines in the Status Area. Displays the status of the Active Cell.

Argument: Instructions that a function needs to be evaluated.

Arithmetic Operator: A symbol that represents one of the calculations possible with SuperCalc3: +, -, *, /, %, ^, or **.

Arrow Keys: The four arrow keys. One of two sets of cursor movement keys for SuperCalc3. See the Cursor Diamond keys.

Aspect Ratio: The relationship between the height and width of a plotting device. This number determines the proportions of graphs and text.

Axis: A line drawn on a graph to define points of reference in Line, X-Y and Bar graphs.

Backup: The process of duplicating a file to protect against possible loss. It is a good practice to backup all work onto a separate disk. Always backup a program distribution disk before using the program. Store the original in a safe place and use the copy.

Blank Cell: A cell without contents, but formatted at the Entry level. A blank cell requires a small amount of computer memory for the format data. See Empty Cell.

Block: A rectangle of cells specified by naming the upper left and lower right corner cells, separated by a colon.

Byte: Storage space for one character.

Cell: The unit on the spreadsheet into which you can enter a text string, repeating text or a formula. A cell is identified by its coordinates on the spreadsheet.

Cell Address: The coordinates that identify a cell. For example: A1 and AS187.

Cell Contents: The data that a cell contains. A cell may contain a text string, repeating text or a formula.

Cell Display Format: The format that determines how the cell value displays on the screen and prints on reports.

Cell Location: The cell coordinates.

lu·ous · su'per·het'er·o·dyne' ·
man · su'per·im·pose' · su'p
i'cial · su'per·in·duce' · su'per
in·tend'ent · su·pe'ri·or · su·p
e'ri·or'i·ty · su·per'la·tive · su
per·man · su'per·mar'ket · su
per·nu'mer·ar'y · su'per·scrib
per·script' · su'per·scrip'tion

APPENDIX A

Glossary

Cell Range: A rectangular group of cells consisting of a partial row, partial column or a block. A range is specified by naming the upper-left most and lower-right most cells, separated by a colon :.

Cell Reference: The instruction to substitute the cell value of another cell for the cell reference. A cell reference is made by naming the cell coordinate.

Cell Value: The value of the cell contents. A text string and a repeating text cell have a numerical value of zero. A formula cell has a numerical value obtained by evaluating the formula in the cell. A formula may have a numerical value, date value or textual value.

Column: All cells in a vertical line, including empty cells. Columns are designated with the letters A-BK for a total of 63 columns. See Row.

Command: An instruction to SuperCalc3. Commands begin with !, :, =, &, or /.

Command Mode: The mode in which you enter commands to SuperCalc3.

Consolidate: The process of combining data from different spreadsheets or from different parts of the same spreadsheet.

Contents: See Cell Contents.

Coordinate: The intersection of a column and a row on the spreadsheet, identified by the column letter and row number.

Copy: A command to copy the contents of one cell range into another. See Replicate.

Criterion Range or Block: A block of cells on a spreadsheet in which search criteria are entered for finding or extracting data from a database. The first (top) row of cells is reserved for field names.

Current Cell: The cell in which the cursor is currently positioned.

Current Cell Key: The (ESC) key places the current cell address on the Data Entry line. At the same time the (ESC) key activates the cursor movement keys for moving the spreadsheet cursor. The current cell address on the Data Entry line changes as the spreadsheet cursor is moved. Press the (ESC) key again to leave this mode.

Current Column: The column containing the current or Active Cell.

Current Direction: The direction in which the spreadsheet cursor is set to move. The direction is set by the last movement of the cursor movement keys and can be turned on/off with /Global,Next.

Current Row: The row containing the current or Active Cell.

lu·ous · su'per·het'er·o·dyne · man · su'per·im·pose · su'p r·cial · su'per·in·duce · su'per in·tend'ent · su·pe'ri·or · su p e'ri·or·i·ty · su·per·la·tive · su per·man · su'per·mar'ket · su per·nu'mer·ar'y · su'per·scrib per·script' · su'per·scrip'tion

Cursor Diamond Keys: The Set of cursor movement keys (CTRL S , CTRL E , CTRL X , CTRL D). The cursor diamond keys are equivalent to the arrow keys.

Data: A string of meaningful text, numeric, or symbolic characters.

Database: A list of data contained on a spreadsheet and defined by a //Data,Input range. The database can be searched, and data can be extracted to another part of the spreadsheet, based on the search criteria you enter. Also, external lists of data in various forms, accessed through phone lines or local networks.

Data Entry/Command Line: The third of three lines in the Status Area.

Data Entry Mode: The mode in which you enter data directly into the Data Entry line.

Data Management: The process of creating a database, then finding or extracting specified data. The data management functions are accessed through the //Data command.

Date Value: A value obtained by evaluating one of the date functions. A date value displays in the form MM/DD/YY.

Default: The setting that the SuperCalc3 program assumes unless you change it. The default settings are in effect when SuperCalc3 is first started. For example, the default display format settings are: General, Text left, Right, column width 9.

Destination Range: The range of cells in which to put data.

Directory: The list of filenames kept on a disk by the operating system.

Disk: A magnetically-coated storage medium for data and programs. Disks are either flexible (also called diskettes or floppies) or rigid (also called fixed or hard).

Diskette: See Disk.

Display Format: The Cell Display Format that controls how the value is displayed on screen and how it will be printed on paper.

Display Window: That portion of the spreadsheet that is currently displayed on the screen. The window may be split to display two portions of the spreadsheet at the same time.

Drive (or Disk Drive): The device used to write data to and read data from a disk.

APPENDIX A

Glossary

Drive Name (or Drive Specifier): Usually a single letter and colon, such as A: or B:, or a user area number followed by a letter and colon, such as 0A: or 3F: (See file ID).

Edit: To modify or alter the contents of a cell or command.

Edit Cursor: The cursor on the Data Entry/Command line. Indicates where the next character will be entered.

Empty Cell: A cell that has nothing in it, either contents or formatting at the Entry level. All cells are empty when SuperCalc3 is first started. No computer memory is used for empty cells. See Blank Cell.

Entry: Format settings of highest priority that cannot be overridden by lower level global, row or column formatting.

Error Value: A value obtained when a formula cannot be calculated. An error value may be entered directly into a cell as ERROR and be used to construct logical functions.

Exponential Display: Displays a numerical value in scientific notation. Numbers are displayed with one digit to the left of the decimal point raised to a power of 10. The letter e separates the significant figures from the power of 10. Example: 3.15e3 is the exponential display format for 3,150.

Field: Each column in a database, or each cell in a database record. For example, a column defined by the field name CITY is the CITY field in the database. Each row in that database (called a record) contains a CITY field cell.

Field Name: The first (top) row in a database Input block, Output block, and Criterion block is reserved for field names. A field name can be a text entry, or a field name cell can be left blank.

File (or Disk File): Data or program stored on a disk under a unique filename.

File ID (or Filespec): The three parts to a complete file identification: Drive name, filename, and filename extension. Examples include B:BUDGET.CAL or A:SC3.COM. Type the file ID when entering an operating system command, or type the filename and extension only if reading from or writing to the current logged drive.

Filename: The one to eight character name defining a disk file. The characters can be capital or lower-case letters, numbers, or valid keyboard symbols, such as -, or &. Valid symbols vary from one operating system to another. Valid filenames include: SC3 or BUDGET or MEMO-8 (See File ID).

A-4

Filename Extension (or Filetype): An optional period (.) and one to three character extension to a filename. Use any valid filename character. SuperCalc3 assigns a .CAL extension to any filename specified at the time a spreadsheet is saved. Abbreviations typically used to describe extensions are ".ext" or ".typ" (See File ID).

Fonts: The alternate typefaces (character sets) used to print/plot text and graphs. Fonts can be used to alter the presentation of Graph-headings, Graph-subheadings, X- and Y- axis headings and all other text.

Format A Disk: A procedure used to prepare a blank disk to receive data. Used disks can be re-formatted, but all programs or data on the disk will be erased in the process.

Format Precedence: The order of precedence that controls how a cell is formatted. The order of precedence from lowest to highest is: Global, Column, Row, Entry.

Format: See Display Format.

Formula: A mathematical statement that calculates a number. It can consist of numbers, arithmetic operators, coordinates, or functions.

Function: A built-in mathematical calculation. SuperCalc3 has three types of functions: Arithmetic, Date and Special functions.

Global Filename Character (or Wildcard): The asterisk (*) or question mark (?) used in place of filename or extension characters to define more than one file. Used in operating system commands. See Wildcard.

Global Status/Prompt Line: The second of three screen lines in the Status Area. This line displays the global status and prompts.

Graph Description: A device- and data-independent definition of all selected attributes and options of a graph. A .CAL file may contain as many as nine (9) graph descriptions. A graph description includes graph-type, variable definitions, headings, (actually text in spreadsheet cells), label and legend scaling and other formatting options. Each graph description has an implicit comment that serves as a graph name (source: main heading), used to identify the graph description for the graph description directory.

Grid: A set of horizontal and/or vertical lines drawn through the whole of a graph at all of the points of coordinate intersection. A grid may be used with X-Y, Bar, and Line graphs only.

Hard Disk: See Disk.

lu·ous · su'per·het'er·o·dyne' ·
man · su'per·im·pose' · su'p
i'cial · su'per·in·duce' · su'per
in·tend'ent · su·pe'ri·or · su·p
e'ri·or'i·ty · super·la·tive · su
per·man · su'per·mar'ket · su
per·nu'mer·ar'y · su'per·scrib
per·script' · su'per·scrip'tion

APPENDIX A

Glossary

Headings (Titles): There are four types of headings in a graph: Main, Sub, X, and Y.

Help: Press the SuperCalc3 AnswerKey ⑦ at any time for onscreen information about your current options. Press any key to return to the spreadsheet.

Input Range or Block: A block of cells on a spreadsheet in which data for a database is entered. The first (top) row of cells is reserved for field names. Each of the other rows is a record.

Interpretive Prompting: You only need to type enough of a command to uniquely identify it and SuperCalc3 immediately fills in the rest of the command.

Kilobyte: Storage space for 1024 characters.

Load: To read a program or data into the computer memory.

Logged Drive (or Default Drive): The current drive identified by the operating system prompt displayed on the monitor screen. For example, A> means drive A is the current logged drive. Some systems also include the user area in the operating system prompt such as 0A>.

Model: The application of arranging a problem onto a spreadsheet to manipulate data. See Template.

Nesting: One function used as an argument to another function.

Not Available Value: A value obtained when data are not available. This value may be entered directly into a cell and be used to construct logical functions. Enter the not available value as NA. It displays as N/A.

Numerical Constant: A formula entry consisting of a decimal number only.

Numerical Value: A value that can be expressed as a decimal number. A numerical value can be a numeric constant or the result of evaluating a formula.

Operating System: A collection of commands and programs used to start ("boot") the system and display the system prompt (such as A>); manage disk files; perform additional internal and external functions, including resource management.

Output Range or Block: A block of cells on a spreadsheet used as a destination for data extracted from a database. The first (top) row of cells is reserved for field names.

Partial Column: An adjacent group of cells within a column.

Partial Row: An adjacent group of cells within a row.

Pie Explosions: The separation of one or more sections of a Pie graph for purposes of visual emphasis. When plotting a Pie graph, this feature allows the use of different colored inks without a "drying" time between the plotting of each of the sections.

Point-Label: Alpha or numeric annotations placed next to segments (Pie radial "legends"), above data bars (Bar), or on points (Line) within a graph.

Range: See Cell Range.

Record: Each row of data in a database. Each cell, or field, in a record contains a separate data item, such as Last Name, First Name, or Telephone Number.

Replicate: To copy an entry or range of entries to another part of the spreadsheet. See Copy.

Row: All cells in a horizontal line, including empty cells. Rows are designated with the numbers 1-254. See Column.

Scale-Label: Provides annotations for Y-axis (Line or Bar) or X- and Y-axes (X-Y). Y-labels are automatically inserted by SuperCalc3. X-labels (called Time-labels) can be supplied by the user.

Scroll: The apparent movement of the display window over the spreadsheet to display a different part of the spreadsheet. See Display Window.

Search Criteria: Entries in a Criterion block pinpointing the data to be found in a database, or data to be extracted from a database. Examples of search criteria: Thompson (exact text match); 155 (exact numeric match); <3000 (formula); J* (text match with wildcard).

Search Operations: Find (highlights database records, one at a time, if data satisfies your criteria); Extract (copies data to Output block if it satisfies your criteria); Select (lets you extract or reject specified data from each record that satisfies your criteria).

Source Range: The range of cells from which to get data.

Spreadsheet Cursor: The Active Cell contains the spreadsheet cursor. Data entered into the Data Entry line will go into this cell when ⏎ is pressed.

Spreadsheet: A grid containing cells arranged in columns and rows on which data are entered.

Status Area: The bottom three lines of the screen containing the Active Cell Status, Global Status/Prompt, and Data Entry/Command lines.

lu·ous · su'per·het'er·o·dyne' ·
man · su'per·im·pose' · su'p
i'cial · su'per·in·duce' · su'per
in·tend'ent · su·pe·ri·or · su·p
e'ri·or·i·ty · su·per·la·tive · su
per·man · su'per·mar'ket · su
per·nu'mer·ar'y · su'per·scrib
per·script' · su'per·scrip'tion

APPENDIX A

Glossary

Target Range: The range of cells in which to put data. See Destination Range.

Template: A structured spreadsheet containing formulas and formatting instructions used for entering and/or displaying data. See Model.

Textual Value: The value obtained by enclosing text in double quotes and parentheses. A text value displays as text.

Ticks: Short lines drawn to the outside of the X- and Y- axes at the points of unit specification. Ticks may be used with Line, X-Y and Bar graphs only.

Time-Label: A series of text or numeric annotations to label X-axis (Line or Bar), segments (Pie), points (X-Y) or to annotate Pie Legends. A Time-label may be a range.

Value: See Cell Value.

Variable: A variable defines a range of data to be expressed graphically. Ten data series, or variables, (named A through J) may be specified for any graph description. Each has an optional Point-label range. Multiple variables are permissible for all graph types except Pie.

Variable-Label: A series of descriptive text annotations, used to explain line/symbol (Line) or color/hatching (Bar) combinations.

Wildcard: Three keyboard characters used in text match criteria to find or extract data from a database. Valid wildcards: * (Br* matches Brea or Brussels, but not brake); ? (b??ch matches bench or beach, but not benches); ~ (~Ford matches anything except Ford). See Global Filename Character.

Window: See Display Window.

FONTS
FONTS

APPENDICES
Plotter Fonts

B

1. Block, single—stroke
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
|+−*/.,<>;:"[]'=`~\()&^%$_#{}@!?
1234567890

2. Block, double—stroke
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
|+−*/.,<>;:"[]'=`~\()&^%$_#{}@!?
1234567890

3. Roman, double—stroke
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
|+−*/.,<>;:"[]'=`~\()&^%$_#{}@!?
1234567890

4. Roman, triple—stroke
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
|+−*/.,<>;:"[]'=`~\()&^%$_#{}@!?
1234567890

SuperCalc3 Plotter Fonts conform to the National Bureau of Standards.

B-1

5. *Italic, double-stroke*
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
¦+−/.,<>;:"[]'=`~\()&^%$_#{}@!?*
1234567890

6. *Italic, triple-stroke*
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
¦+−/.,<>;:"[]'=`~\()&^%$_#{}@!?*
1234567890

7. *Script, single-stroke*
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
¦+−/.,<>;:"[]'=`~\()&^%$_#{}@!?*
1234567890

8. *Script, double-stroke*
abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
¦+−/.,<>;:"[]'=`~\()&^%$_#{}@!?*
1234567890

SuperCalc3 Plotter Fonts conform to the National Bureau of Standards.

APPENDICES
Setting Up, Changing Defaults, and Storing Information

C. Setting Up, Changing Defaults, and Storing Information

Part 1 of this Appendix covers a required, one-time procedure to tailor (configure) the SuperCalc3 program for your graphics printer or plotter, and to copy the disk files you need. Instructions for starting SuperCalc3, and information about SuperCalc3 disk files are also included.

Part 2 tells you how to change some SuperCalc3 default settings. Changing defaults is generally not required, but you may want to make some changes to adjust the program for certain features of your printer, plotter, or monitor.

PART 1   Setting Up

To guard against the accidental loss or damage of your program diskette, you should maintain a working copy of the program and keep the original diskette in a safe place.

Making a Working Copy of the SuperCalc3 Program Diskette

The following instructions describe how to make a working copy of your SuperCalc3 diskette.

1. Turn on any peripheral equipment, such as a printer. Then turn on the Model 2000.

2. Place the SuperCalc3 program diskette in Drive A and close the drive latch or door.

3. Press the RESET switch. The MS-DOS operating system distributed on the SuperCalc3 program diskette loads into memory.

4. The Enter new date: prompt appears. Type the date in the mm-dd-yyyy format. For example, for March 1, 1984, type:

    3-1-1984 (ENTER)

5. Press (ENTER) to the Enter new time: prompt.

6. The A> system prompt is displayed.

7a. Floppy diskette system users:

    Place a blank diskette into Drive B. (Be sure that the write-protect notch is not covered by a foil tab.) Type:

    FORMAT B: /V (ENTER)

7b. Hard disk system users:

    Place a blank diskette into Drive A. Type:

    FORMAT A: /V (ENTER)

8. FORMAT displays this message:

    Insert new diskette for drive B:
    and strike any key when ready

9. Press the space bar. The screen shows:

    Formatting tracks
    ----

10. When FORMAT is finished, you may give your new diskette a label of up to 11 characters or press (ENTER) if you don't want to label the diskette.

11. At the Format another (Y/N)? prompt, press (N). the A> system prompt returns to the screen.

    The blank diskette is now formatted. You can copy the files from the SuperCalc3 diskette to the newly formatted diskette by completing the following steps.

12a. Floppy diskette system users:

    Type the following:

    DISKCOPY A: B: (ENTER)

The screen shows:

Insert source diskette into drive A:

Insert formatted target diskette into drive B:

Press any key when ready

Be sure the SuperCalc 3 program diskette is in Drive A and the formatted diskette is in Drive B. Press the space bar, and the copy process begins.

12b. Hard disk system users:

Type the following:

DISKCOPY (ENTER)

MS-DOS prompts you to insert the "Drive A" disk. Insert the SuperCalc3 program diskette into Drive A. It then prompts you for the "Drive B" diskette. Remove the SuperCalc3 diskette from Drive A and insert the blank formatted diskette. Press the space bar. MS-DOS continues to prompt you, as necessary.

13. When DISKCOPY is finished, the screen shows:

Copy complete

Copy another (Y/N)?

Press (N). The system prompt returns to the screen.

14. To check that all of the program information was copied to the new diskette, enter **DIR** and the drive designation followed by a colon (:). The directory should show the same information as the master program diskette.

15. Remove the original program diskette from Drive A and store it in a safe place. Never use the original except to make copies. Label the backup as your working diskette and use it for your day-to-day activities.

Transferring SuperCalc3 to the Hard Disk

The following instructions assume that the hard disk is formatted and the operating system files are installed on the hard disk according to the instructions in your **Introduction to the Model 2000** manual. You need to follow this procedure only once. After the SuperCalc3 program has been transferred to the hard disk, place the original diskette in a safe place.

1. Turn on all peripherals and then the Model 2000.

2. Press the reset button.

3. MS-DOS loads into memory. At the Enter new date: prompt, type the date in the mm-dd-yyyy format. For example, for March 1, 1984, type:

    3-1-1984 (ENTER)

4. Skip the new time prompt by pressing (ENTER).

5. The screen shows the C> system prompt which indicates that your system is under hard disk control. To select drive A, type:

    A: (ENTER)

    The screen shows the A> prompt.

6. Place the SuperCalc3 master program diskette in drive A and type:

    SETUP (the hard disk drive number): (ENTER)

    For example, if your hard disk is drive C, you type:

    SETUP C: (ENTER)

7. After the files are copied, the C> prompt returns. You are now ready to run SuperCalc3 under hard disk control.

Starting Up SuperCalc3

The following steps describe how to start up the SuperCalc3 program and tailor the program to your specific plotter or printer.

STARTUP AND CHANGING DEFAULTS

PART 1 Startup

1. Place the working copy of SuperCalc3 in Drive A. At the A> prompt, type:

    SC3 (ENTER)

    If you have the SuperCalc3 program on your hard disk, at the C> prompt, type:

    SC3 (ENTER)

2. At the SuperCalc3 sign-on screen, press (ENTER) to display a blank spreadsheet.

    Note: A "(RETURN)" on the SuperCalc3 screen indicates (ENTER) on the Model 2000.

3. Type the boldface characters only:

    /**G**lobal,**G**raphics,**D**evice

4. At the Device Selection Menu, use (↑) or (↓) to highlight the name of your plotter or graphics printer, and then press (ENTER).

    You can now use the graphics device to plot graphs during this work session. If you wish to use the same device for future work sessions, you can *Save* the selection as shown below.

5. Press (F2) to clear the menu screen.

6. If you have a Model 2000 with a monochrome monitor continue with step 10. If you have a color system (color monitor and a high resolution monochrome graphics board installed with the high resolution color graphics chip kit) or one color monitor and one monochrome monitor, you may configure the program to display in color. Press (I) for the Graphics Install-adjust option.

7. Press (TAB) or (ENTER) to move the cursor to the **M**onitor option.

8. To select color, press (C). To use the both option, press (B).

9. Press (F2) to clear the menu screen.

10. Press ⓢ for the Graphics Save option, and then press ⓨ for Yes.

11. To leave the SuperCalc3 program, type:

    /Quit,**Y**es

Special Considerations

If your graphs do not plot correctly on your graphics device, check the *Global,Graphics,Options* menu in SuperCalc3. Settings at the menu must match the switch settings at your plotter or graphics printer.

You may obtain a cable for your Radio Shack printer or plotter at any Radio Shack Computer Center. If you do not use a Radio Shack printer or plotter, consult with your dealer to find a compatible cable.

SuperCalc3 Disk Files

Files provided on the SuperCalc3 disk:

Program files

SC3.COM	SG2.OVL	SG6.OVL	FONT.DAT
SC3.OVL	SG3.OVL	SG7.OVL	PLOTTERS.DRV
SC3.HLP	SG4.OVL	SG8.OVL	BWPRINT.DRV
SG1.OVL	SG5.OVL	SG9.OVL	

Sample spreadsheet files

    TENMIN.CAL   SCREENS.CAL   PAYROLL.CAL   BUDGET.CAL

TENMIN is used with the *10 Minutes to SuperCalc3* booklet. SCREENS is used to preview nine different graphs, and the status screens showing how each graph was built. PAYROLL is used with a lesson in this manual. BUDGET is used with the SuperData Interchange manual.

Other Files

    INSTALLS.COM   MAINTAIN.COM   SDI.COM   SDI.OVL

INSTALLS can be used to change some screen or printer settings. These changes are not required to use the SuperCalc3 program. See the Changing Defaults section for more details.

MAINTAIN can be used to determine if the SuperCalc3 program is damaged. This procedure is normally not required. See Appendix D for more details.

SDI.COM and SDI.OVL are the SuperData Interchange files. This program converts files prepared with other programs to the SuperCalc3 format, or vice versa. You do not need to convert SuperCalc or SuperCalc2 spreadsheet files for use by SuperCalc3. SuperCalc products are upward compatible. See the SuperData Interchange manual for details.

PART 2 Changing Defaults

SuperCalc3 can be used as is. Optionally, you can change some default settings in the program to utilize certain features of your printer, plotter, or monitor, or to adjust the program to match the requirements of your equipment.

Here are the types of settings you can change:

*   Monitor screen or printer settings (with the INSTALLS.COM program).

*   Monitor screen or printer settings, current session only. (with the SuperCalc3 Output command Setup options).

*   A wide range of graphics and graphic device settings (at the various menus accessed through the SuperCalc3 Global,Graphics command).

The settings you can change at the Global,Graphics menus are listed on AnswerCard #2 and are described in the /Global,Graphics section of Chapter 7.

The monitor screen and printer settings you can change with the INSTALLS program, or with the /Output Setup options, are described below.

Default settings you can change are printed in boldface:

*   Screen dimensions

    24   lines.   **80**   characters per line.

• Printer page dimensions *

   66 lines.   **132** characters per line.

• Printer status:

Auto form feed *

NO means printer pauses between pages till you press the space bar.

YES feeds paper without pausing between pages.

Double spacing *

NO single spaces printed lines.

YES double spaces printed lines.

Send carriage return & line feed

YES sends both control codes to printer.

NO sends a carriage return control code only (a few printers will double space if they receive the line feed code).

• Border character

7C (hex value)

On most screens and many printers, 7C (hex) is the "|" character. If you see a different character defining the top or left border of your spreadsheet you can change this setting. For example, 3A (hex) sets the border character to ":".

Refer to the last Appendix in this manual for a table of keyboard (ASCII) characters and corresponding hex values.

• Printer initialization string *

Unconfigured or **0** means no control codes are sent at the start of a /Output (to printer) command. Control codes turn selected printer features on or off.

Example: For the DMP 2100 and some other dot matrix printers, the hex value for compressed print is OF (zero F). The hex value for normal print is 12.

See your printer manual for control codes and hex values for printer capabilities such as compressed print, double strike, italics, etc.

* The settings marked with an asterisk (*) can be changed at any SuperCalc3 session with the Setup options when you enter the /Output command. These settings are not retained as program defaults unless you change them with the INSTALLS program.

Note that you can change a modified setting back to the way it was at any time.

The INSTALLS Procedure

If you have a two-drive floppy disk system:

1. Put your SuperCalc 3 program disk in drive A.

2. Log onto drive B by typing **B:** ⊕.

3. Type: **INSTALLS** ⊕

4. Respond to program prompts until you see the MODIFICATIONS screen.

5. At the MODIFICATIONS screen, select the option corresponding to the screen or printer setting you want to change. Then respond to program prompts.

6. To save your changes from the MODIFICATIONS screen:

   Select the Save option, then respond to program prompts. Your changes will be sent to SuperCalc3, and you will exit from the installation program.

   Optionally, you can exit from the INSTALLS program without saving your changes.

Note: INSTALLS modifies the SuperCalc3 program in Drive A. If
         you have transferred your SuperCalc3 files to the hard
         disk before executing INSTALLS, you must recopy the
         SuperCalc3 files to the hard disk.

If you have a hard disk system:

1.   Put your copy of the SuperCalc3 disk in drive A. (Substitute your own
     floppy disk drive name if it's not drive A.)

2.   Log onto drive A by typing **A:** ⏎

3.   Follow steps 3 through 6 for floppy disk systems (see above).

PART 3   Storing Information

To allow your program to run more efficiently, you may want to store your
data on separate diskettes. The following section describes how to
prepare and make a backup of a data diskette. Also included is
information on how to back up and restore your hard disk.

Floppy Disk System Users

Preparing Data Diskettes

You may wish to prepare several diskettes designed specifically for holding
data. These diskettes do not contain an operating system or system files
and must be used with a program diskette.

To create a data diskette, follow steps 1 through 11 in *Making a Working
Copy of the SuperCalc3 Program Diskette.* You do not use the DISKCOPY
function.

Copying Data Diskettes.

If something happens to a data diskette and you don't have a copy of it,
you might spend hours re-entering information. To avoid this, copy your
data diskettes periodically, following the steps below.

1.   Turn on all peripherals and then the Model 2000.

2.   Place the working program diskette in Drive A and start up MS-DOS.
     At the A> prompt, type:

DISKCOPY A: B: (ENTER)

The screen shows:

Insert source diskette into drive A:

Insert formatted target diskette into drive B:

Press any key when ready

3.   When the drive light goes out, remove the system diskette from Drive A and insert the data diskette to be copied (the source diskette). Place a blank, formatted diskette in Drive B and press the space bar.

4.   When DISKCOPY is complete, the screen shows:

Copy complete

Copy another (Y/N)?

5.   If you do not wish to make another copy, press (N). If you do wish to copy another diskette, press (Y), and MS-DOS performs another copy in the same drives.

Hard Disk System Users

Preparing Data Diskettes

You may wish to copy your hard disk files to diskette for safekeeping. The diskette you use should be a data diskette. The following information describes how to format a data diskette.

1.   Turn on your Model 2000 and start up MS-DOS under hard disk control.

2.   At the C> system prompt, insert a blank diskette into Drive A. Be sure that the write-protect notch is not covered by a foil tab. Type:

FORMAT A:/V (ENTER)

FORMAT displays this message:

Insert new diskette for drive A:
and strike any key when ready

3. Press the space bar. FORMAT begins formatting the Drive A diskette.
    The screen shows:

    Formatting tracks

    ----

4. When FORMAT is finished, the screen shows:

    Volume label (11 characters, ENTER for none)?

    You can type a label of up to 11 characters, such as DATADISK1
    (ENTER), or press (ENTER) if you don't want to label the diskette.

5. At the Format another (Y/N)? prompt, press (N). The system prompt
    returns to the screen. The data diskette contains no files and is
    ready for use.

Backing up Hard Disk Files

Loss of information stored on hard disk, although not likely, can be
disastrous. Therefore, you should always keep and update floppy disk
copies of all hard disk information.

To make copies, first format several data diskettes, as described in the last
section. Then use either of the following versions of the BACKUP command
to copy files from hard disk.

Backing Up All Files. To copy all files from the hard disk to the diskette in
Drive A, follow these steps:

1. Turn on your Model 2000 and start up MS-DOS under hard disk
    control.

2. At the system prompt, insert a data diskette into Drive A. Type:

    BACKUP C: A:/S (ENTER)

    The BACKUP command begins copying the files from hard disk.
    Whenever it fills a diskette, it prompts you to insert another. Follow the
    prompts until BACKUP is finished.

Backing Up Modified Files

Often you may want to copy only those files modified since the last backup. To do so, follow these steps:

1. Turn on your Model 2000 and start up MS-DOS under hard disk control.

2. At the system prompt, insert the diskette containing your backup files into Drive A. Type:

   BACKUP C:*.* A:/M (ENTER)

   MS-DOS copies to the diskette all files that are in the current directory and that have been modified since the last backup.

Restoring Files to Hard Disk

If you keep a complete set of backup diskettes, restoring your hard disk system is straightforward. Simply follow these steps:

1. Turn on your Model 2000 and start up MS-DOS under hard disk control.

2. At the system prompt, insert a backup diskette into Drive A and type:

   RESTORE A: C: /S (ENTER)

RESTORE copies all files from the diskette to Drive C. The RESTORE command works only with diskettes that have been created using the BACKUP command.

Notes:

revise R
verify V

APPENDICES
Software Maintenance for
SuperCalc3

D

D. Software Maintenance for SuperCalc3

MAINTAIN is a Sorcim program that:

* *Verifies* that the SuperCalc3 program is correct (has not been modified improperly) and has not been damaged in any way.

* Allows you to *Revise* SuperCalc3 with Sorcim authorized program updates.

You should only use the MAINTAIN program when you suspect that your copy of SuperCalc3 is damaged in some way, or when advised by Sorcim, either directly or through your dealer.

Caution: If you make any unauthorized modification to SuperCalc3, the REVISE option of MAINTAIN cannot be used.

Identifying A Program Problem

When a program does not function properly, the most common reason is damage to the disk. The VERIFY option gives you a reliable way of determining whether the copy of SuperCalc3 is damaged. If VERIFY determines that the program copy has not been damaged, the problem could be in the computer hardware.

The VERIFY Option

The VERIFY option determines whether a SuperCalc3 program has been damaged.

To start the MAINTAIN program, type the word MAINTAIN (when the program MAINTAIN.COM is on the currently logged drive and no other program is currently running).

MAINTAIN runs a test of RAM (main memory) in the Transient Program Area. If a bad memory location is found, MAINTAIN prints its address.

Select the VERIFY option by typing the letter V.

Type the name of the program file you want to verify. MAINTAIN works with SC3.COM and SC3.OVL only. Do not use MAINTAIN with other files.

When you give VERIFY the name of the program to check, the error checking procedure begins. MAINTAIN determines during verification if any authorized revisions have been made to the program file. When a file is verified, the program lists the Revision Reference Number for any revision made to the original program in the same order as the revisions were made.

Then as each section of the program is read, the computer types an asterisk. This lets you follow MAINTAIN's progress. When VERIFY finishes checking for errors, it tells you if the program on disk is free of errors.

If the VERIFY does not find any errors, the program returns to the list of options on the MAINTAIN Master Menu when you press a key. You may then VERIFY another program by pressing the V key again, or may return to the system by pressing the X key.

If errors are found, the VERIFY prints possible causes of these problems, and things you might do to correct them.

These instructions can be seen by pressing the S key to select the Menu's SHOW option.

The REVISE Option

The REVISE option allows you to modify SuperCalc3 using a special code supplied by Sorcim.

If it becomes necessary to make revisions to SuperCalc3, Sorcim will send each registered SuperCalc3 owner a code sheet containing the necessary modifications and documentation on the REVISE function.

Caution: The REVISE function is not for the casual user. It is vitally important that REVISE only be used with Sorcim Hard Copy Revision Sheets, and that the instructions be carefully followed.

error
message

APPENDICES
Error Messages

E

E. Error Messages

The following is an alphabetical list of messages that might appear in the bottom right corner of your screen display during your work. Some messages indicate an error condition, some are merely informative or reminders of action to be performed. After reading the message, press any key (or the key indicated) to proceed with your work.

Cannot delete file
> The file is write-protected. Use your operating system command to delete the write-protection.

Cannot obtain all of worksheet memory, SuperCalc3 aborted.
> Spreadsheet is too large for memory available in computer. For more spreadsheet workspace, select D as the Memory option at the Global, Graphics,Install menu.

CLEAR current split
> You MUST clear current window before creating another one.

Column BK contains data
> You cannot insert a column because column BK contains data. Delete or move the data in column BK to another location, then retry the insert.

Column ERROR
> Indicates that a single Column entry is required.

Column Range ERROR
> The Column range is not specified properly. Correct the error and reenter the range.

Command aborted due to disk error
> Indicates a problem with the disk or disk drive (possibly no disk or wrong disk in drive).

Copy won't fit
> There is not enough room on the spreadsheet for the Copy. Correct the error and retry the command.

Criterion range undefined
> Must specify Criterion range before using Find, Extract or Select.

Disk FULL, command aborted.
> There is not enough room on the disk to write the file. Replace the disk with one that has room.

Filename ERROR
> The file name is not in proper format.

APPENDIX E

Error Messages

File not loadable
The file is not in SuperCalc3 format.

File NOT on Disk
The file is not on the disk specified.

File SC3.HLP not installed
Indicates that the help file SC3.HLP does not contain its original content.

First defined variable must be HI, second LO
For Hi-Lo graphs, first data variable values define the Hi data points, and second variable defines the LO data points. Redefine the data variables.

FONT.DAT must be on SuperCalc3 disk for font other than 1
The FONT file was not found when needed for plotting font related text. Please put font file on diskette where SuperCalc3 is operating and attempt plot again.

"FROM" can't be block
The source cannot be a block.

Graph range error
Either a negative number was encountered in a PIE graph request, or an NA cell or an ERROR cell was encountered during a Graph request. Please examine the range specified and correct the data or respecify the range.

Input range undefined
Must specify Input range before using Find, Extract, or Select.

Insert color n in stall n and press any key
Appears during plotting when you have requested a pen color that is not currently installed. Insert the desired pen color in the specified stall (slot) and strike any key to continue plotting. On a two-pen plotter, stall 2 is on the right side.

Insert pens 0-n and press any key
Appears as you begin plotting to remind you to install the color pens. Insert the desired pen colors and strike any key to start the plotting. (Pen 0 goes in slot 1, pen 1 in slot 2, etc.).

Insufficient memory to operate SuperCalc3
SuperCalc3 requires a minimum of 96K for MS-DOS.

Labels too large to graph
Label length exceeds space available. Shorten or abbreviate label.

Manual scaling: Min greater than Max
Maximum must be greater than Minimum.

Memory FULL
>The computer memory is full. You cannot add anything to the spreadsheet. Save the spreadsheet on a disk file, or delete portions of it to continue.

Negative numbers treated as zero
>Negative numbers are plotted as though their value is zero in Stacked-Bar or Area graphs only. Negative numbers are ignored in Pie graphs.

No graph size
>Redefine plotter layout selections. The graph size or offset you entered in Manual mode does not fit page size, or cannot be plotted.

No matching record found
>Indicates that no data in the current input block matches the criteria you have specified.

No more matching records
>Indicates that the Find or Select operation has ended.

Non-positive numbers ignored
>In pie graphs, negative numbers are not plotted.

No points to plot
>Data range must be defined.

No Room (at edge) to display window
>Error is the result of attempting a /Window,Vertical at the left-most or right-most column of display or /Window,Horizontal at the first or last row of the display.

No variable defined
>A variable range for the current graph number has not been defined. One or more Data variables must be defined to produce a graph.

Output area full
>There are more records that meet the current criteria than will fit into the block specified by the output range.

Output & Criterion range overlap
>The ranges you have specified for Output and input use some of the same cells. Make a correction to one or the other and try again.

Output & Input range overlap
>The ranges you have specified for Output and Input use some of the same cells. Make a correction to one or the other and try again.

Output range undefined
>Must specify Output range before using Find, Extract or Select.

Protected Entry

The cell is protected. Unprotect the cell to alter the contents.

Range cannot be single row

Range must include field names in first row, and at least one other row.

Range ERROR

The cell range is not specified properly. Correct the error and reenter the range.

Row ERROR

Indicates that a single Row entry is required.

Row Range ERROR

The Row range is not specified properly. Correct the error and reenter the range.

Row 254 contains data

You cannot insert a row because row 254 contains data. Delete or move the data in row 254 to another location, then retry the insert.

Some numbers offscale due to manual scaling

Redefine scale to include all values in data range, or use automatic scaling rather than manual.

SuperCalc3 program diskette MUST remain on disk drive

Indicates an error in loading one of the SuperCalc3 overlay files. Make sure that the disk containing the SuperCalc3 files are on the program disk.

Target is within move range

You have specified a move that is inside the source range.

TEXT

Indicates that your entry is not a formula.

This graph type needs two variables

One Variable is sufficient for pie, bar, or line graphs; other graphs require two or more variables.

Title Cleared
  The program must clear the title lock in order to execute your current
  request.

To begin SuperCalc3, log onto the disk drive
containing the SuperCalc3 program before
typing SC3.

For example, to log onto drive B, type
B :<RETURN>.

If you are already logged onto the correct
drive, then SuperCalc3 may not be properly
installed for your computer. See the "Getting
Started" chapter in the SuperCalc3 manual.
  Occurs whenever the SC3.COM, SC3.OVL, or SC3.HLP file is missing
  from your logged on disk drive.

"TO" must be cell
  The destination must be a cell. Correct the entry.

"TO" must be partial column
  The destination must be a partial column.

"TO" must be partial row
  The destination must be a partial row.

Too Many Graphs
  There is a limit of nine graph descriptions per spreadsheet, numbered
  1 through 9. The graph number entered at the "To?" prompt specifies the
  first number in the destination range. CAUTION: A source graph descrip-
  tion overwrites a destination graph description with the same graph
  number.

User abort
  Indicates that execution of an .XQT file has been interrupted with
  CTRL C .

Notes:

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ASCII Table

F

ASCII Codes

CONTROL		NUMBERS SYMBOLS		UPPER CASE		LOWER CASE	
NUL **CTRL @** 00 / 0	DLE **CTRL P** 10 / 16	**SP** 20 / 32	**0** 30 / 48	**@** 40 / 64	**P** 50 / 80	**`** 60 / 96	**p** 70 / 112
SOH **CTRL A** 01 / 1	DC1 **CTRL Q** 11 / 17	**!** 21 / 33	**1** 31 / 49	**A** 41 / 65	**Q** 51 / 81	**a** 61 / 97	**q** 71 / 113
STX **CTRL B** 02 / 2	DC2 **CTRL R** 12 / 18	**"** 22 / 34	**2** 32 / 50	**B** 42 / 66	**R** 52 / 82	**b** 62 / 98	**r** 72 / 114
ETX **CTRL C** 03 / 3	DC3 **CTRL S** 13 / 19	**#** 23 / 35	**3** 33 / 51	**C** 43 / 67	**S** 53 / 83	**c** 63 / 99	**s** 73 / 115
EOT **CTRL D** 04 / 4	DC4 **CTRL T** 14 / 20	**$** 24 / 36	**4** 34 / 52	**D** 44 / 68	**T** 54 / 84	**d** 64 / 100	**t** 74 / 116
ENQ **CTRL E** 05 / 5	NAK **CTRL U** 15 / 21	**%** 25 / 37	**5** 35 / 53	**E** 45 / 69	**U** 55 / 85	**e** 65 / 101	**u** 75 / 117
ACK **CTRL F** 06 / 6	SYN **CTRL V** 16 / 22	**&** 26 / 38	**6** 36 / 54	**F** 46 / 70	**V** 56 / 86	**f** 66 / 102	**v** 76 / 118
BEL **CTRL G** 07 / 7	ETB **CTRL W** 17 / 23	**'** 27 / 39	**7** 37 / 55	**G** 47 / 71	**W** 57 / 87	**g** 67 / 103	**w** 77 / 119
BS **CTRL H** 08 / 8	CAN **CTRL X** 18 / 24	**(** 28 / 40	**8** 38 / 56	**H** 48 / 72	**X** 58 / 88	**h** 68 / 104	**x** 78 / 120
HT **CTRL I** 09 / 9	EM **CTRL Y** 19 / 25	**)** 29 / 41	**9** 39 / 57	**I** 49 / 73	**Y** 59 / 89	**i** 69 / 105	**y** 79 / 121
LF **CTRL J** 0A / 10	SUB **CTRL Z** 1A / 26	***** 2A / 42	**:** 3A / 58	**J** 4A / 74	**Z** 5A / 90	**j** 6A / 106	**z** 7A / 122
VT **CTRL K** 0B / 11	ESC **CTRL [** 1B / 27	**+** 2B / 43	**;** 3B / 59	**K** 4B / 75	**[** 5B / 91	**k** 6B / 107	**{** 7B / 123
FF **CTRL L** 0C / 12	FS **CTRL ** 1C / 28	**,** 2C / 44	**<** 3C / 60	**L** 4C / 76	**** 5C / 92	**l** 6C / 108	**¦** 7C / 124
CR **CTRL M** 0D / 13	GS **CTRL]** 1D / 29	**-** 2D / 45	**=** 3D / 61	**M** 4D / 77	**]** 5D / 93	**m** 6D / 109	**}** 7D / 125
SO **CTRL N** 0E / 14	RS **CTRL ^** 1E / 30	**.** 2E / 46	**>** 3E / 62	**N** 4E / 78	**∧** 5E / 94	**n** 6E / 110	**~** 7E / 126
SI **CTRL O** 0F / 15	US **CTRL _** 1F / 31	**/** 2F / 47	**?** 3F / 63	**O** 4F / 79	**—** 5F / 95	**o** 6F / 111	**DEL (RUBOUT)** 7F / 127

KEY

	CR **ASCII Name**
	CTRL M
hex 0D / 13 decimal	

SORCIM

TABLE

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Notes:

APPENDICES
Summary of Key Commands

G

G. Summary of Key Commands

Cursor Movement Keys:

⊙ or (CTRL)(D)	Cursor right
⊙ or (CTRL)(S)	Cursor left
⊙ or (CTRL)(E)	Cursor down
⊙ or (CTRL)(X)	Cursor up
(HOME) or = A1	Moves cursor to upper left cell
(ESC)	Enables cursor movement in command mode

Edit Keys:

⊙	Cursor left
⊙	Cursor right
(INSERT) ⊙	Insert spaces
(DELETE) ⊙	Delete characters
(TAB)	Moves cursor to beginning or end of edit line

Special Purpose Keys:

(F1) or (?)	For AnswerScreen help
(F2) or (CTRL)(Z) or (CTRL)(C)	Cancels last entry at entryline, or returns program to spreadsheet mode from a menu
(F9) or (CTRL)(Y)	To plot a graph
(F10) or (CTRL)(T)	To view a graph

Command Keys:

(")	Begins text
(')	Begins repeating text
(=)	Moves the cursor directly to the designated cell
(!)	Forces a recalculation of the entire spreadsheet
(;)	Positions the spreadsheet cursor in the alternate window on a split screen
(&)	Returns control of the spreadsheet to the current execute (.XQT) file
(/)	Selects the slash commands. See Chapter 7 for more information.

Notes:

HOW TO ??

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