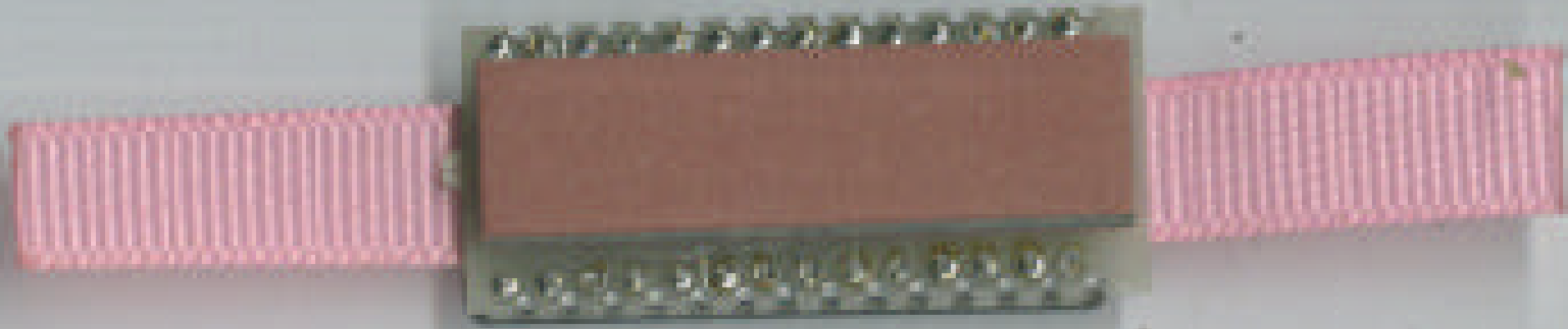
UNUSUAL TEXT PROCESSING PROGRAM

On Snap-in™ ROM for the TRS-80 Model 100

Portable Computer Support Group

214-351-0564



WriteROM® unusual text processing

for the TRS-80 Model 100

Quick Reference Guide

Installation–Turn off M-100. Pry off lid on back, press in ROM, printing on ROM label same direction as Model 100 serial #, tiny finger in slot. In BASIC type Call 63012, ENTER.

To print a document to default format settings – Press PRINT key then F1 (Go).

Printer not ready – Adjust paper, cable press any key.

Special Word Processing Features

Steps:

1. **Press F1 (Rplc) for "Search and Replace".**
   a. Type in search word or phrase. Press F8.
   b. Type in replacement word or phrase. Press F8.
   c. Screen says "Confirm (Y/N)". Type N to replace all occurrences automatically. Type Y if you want to confirm each replacement.
   d. Change (Y/N) lets you confirm each occurrence.
2. **Press F2 (Name)** to rename any file cursor is on.
3. **Press F3 (New)** to start a new file.
4. **Press F4 (Map)** to get an on screen "pixel" map of formatted document.
   a. Press ENTER after each page to see next page.
   b. Press ENTER after last page to see total (expanded) word count.
5. **Press F5 (Kill)** to kill any file cursor is on.
6. **Press PASTE.** Prompts for new file name. Copies a new file instantly.
7. **Type %D, %W, %T, or %P in header, footer or anywhere in document.**
   a. When you print, the date, day of the week, time or page number are inserted automatically.

Portable Computer Support Group
11035 Harry Hines Blvd., #207 Dallas, TX 75229
1-214-351-0564

Phone Feature – F6 (Phne)

Purpose: Enhanced autologon including sign on and sign off text in ADRS.DO file. Sends formatted copy even composing from INCLUDE files, MERGE and LIBRARY entries. Simplified transmission of computer letters and Telexes.

How it's done:

1. Prepare your ADRS.DO file.
   Name, number and autologon like with TELCOM. End with carriage return.
   Sign on and sign off text follows, each inside curly brackets { }, GRPH 9 and GRPH 0.
2. Make phone connection with direct connect cable. set left side switches to ORIG and DIR.
3. Check transmission conditions. Press F6 (Phne)
   a. F3 (Stat) MDM:7E1E for most services
   b. F5 (Caps) Sends in all uppercase
   c. F6 (CRLF) Sends a carriage return line feed
   d. F7 (Fmtd) Sends formatted (default)
4. Select the document to send – move wide bar cursor to filename.
5. Find phone number and send.
   a. Press F6 (Phne) if you haven't already.
   b. Press F1 (Find) Type in name, ENTER. Finds first occurrence.
   c. Press F1 (Scan) Finds next occurrence.
   d. Press F2 (Call) Makes call, sends document
      Prints out copy
      Acceptance message appears on screen and printer.

Function key formatting – F7 (Set)

Steps:

1. **Press F7 (Set) from WRITE ROM menu.**
   a. Press F1 (Pg#) to change page numbering.
      – Press F1 (Frst) changes first page number of file
      – Press F2 (Strt) begin printing at any page number
      – Press F3 (END) stop printing at any page number
   b. Press F2 (Load) or F3 (Save) with cassette player connected to automatically load or save WSPEC.DT file.

c. See Chapter 12, LIBRARY for F5 (Libr) discussion.
d. Press F5 (H/F) to store and turn on/off headers and footers.
   - Press F1 (Hdr) or F2 (Ftr). Gives you F1 (On), F2 (Off), F3 (Chng).
   - Press F3 (Chng = Change). Type in your own header or footer.
   - Type in %P,%D,%T, or %W. Page number, date, time or day of week appear here or anywhere in document.
   - Use printer codes (Chapter 7) or Library codes (Chapter 12) in header or footer.
e. Press F6 (Page) to control page layout.
   - Press F1 (Left), F2 (Rt), F3 (Top) or F4 (Botm) to change margins.
   - Press F5 (Size) to control paper size. Press F1 (L/P) to enter lines per page of your paper. Press F2 (PL/P) to enter printing lines per page. Difference between two gives a buffer zone in sheet perforation area.
   - Press F6 (Lnsp) to change linespacing. 2 = double, etc.
   - Press F7 (Xtra) to insert extra line on paragraphs.
f. Press F7 (Edge) for on/off switches to control edge.
   - F1 (Norm) is default, ragged right edge.
   - Press F2 (Just) for right hand justified.
   - Press F3 (Cntr) for every line centered.

Dot Commands–Special commands inside your document, invisible when you print. They cause parts of the document to be formatted differently from the function key settings.

1. **Begin with a period.**
   a. On line by themselves, flush left and preceded by a carriage return.
   b. End dot command with carriage return
   c. Precedes text you want effected

2. **Dot command summary**

.OL 0-250	Left margin
.OR 0-250	Right margin
.OJ ON or OFF	Justify
.OC ON or OFF	Center
.CP 1-250	Conditional page feed
.UP 1-20	Move page up
.PA	Start new page
.PN	New page no new page number
.FO ON or OFF	Footer this page
.HE ON or OFF	Header next page
.OSn	Line spacing OS2 = double space
.OX ON or OFF	Extra line on paragraph
.IN XXXXX	Includes or appends XXXXX file
.MG XXXXX	Merges entries like names and addresses from XXXXX file, printing multiple copies (Chapter 8)
.TI	Undent next line only to left margin 0
.TI – n	Undent next line n spaces
.TIn	Indent next line n spaces

Printing — Print

Steps:

1. Place widebar cursor on file to print
2. Press PRINT key
3. Check printing conditions
   a. F2 (Feed) feeds blank page at end
   b. F3 (Outp) LPT: is default, parallel printer
      XXXXX to RAM file
      Add:XXX appends to RAM file
      COM:57N1E typical serial printer
      CAS:XXX formatted to cassette
   c. F4 (Code) embeds printer codes (Chap 7)
   d. F5 (Qty) multiple copies
   e. F6 (CRLF) sends carriage return line feed to printer
   f. F7 (Paus) pause between pages
4. Press F1 (Go) to print

BREAK/PAUSE key to stop temporarily, again to restart.
SHIFT BREAK key to abort
"Printer not ready" message means check paper, printer on switch and connections. Press any key.

Special Print features – PRINT F4 (Code)

Purpose: Lets you do special features on your printer like underline, emphasized etc just by typing in an M-100 CODE character in your copy. For example, CODE u for underline turns the feature on and off. Hold down CODE key (to right of spacebar) and type u.

Steps:

1. Get your printer's codes
   a. Convert to decimal – look up in chart in M-100 manual appendix
   b. Make each code 3 digits (pad out with zeros)
   c. If several, write without commas like, 027045000
2. Enter in WRITE ROM PRINT F4 (Code)
   a. F1 (Setu) Global, like italic requires no document preparation
   b. F2 (UL) Underline examples
      Underline ON: 027045001
      Underline OFF: 027045000
      Underline [CODE] character: Type in M-100 CODE character you want. Best is CODE u for underline.
      Prior and after word to be underlined type CODE u. (Hold down CODE key to right of spacebar, and type u)
   c. F3 (Bold) Boldface
   d. F4 (Cor) Correspondence
   e. F5 (Alt) Alternate feature, your choice
3. Print the document
   a. Print to paper – PRINT F1 (Go) features are effected.
   b. If you print to RAM file – Strange characters appear (embedded codes). They effect the printer features. Print from inside file. Press F3 (Save), type LPT:, press ENTER.

Library

Lets you have library files of frequently used words, phrases, even whole paragraphs. Automatically insert any Library entry into a document by typing in a Library code.

Steps:

1. Create a Library file
   a. Format is

Graph symbol your code Colon Text Graph symbol
no spaces except in text

```
♠A1:Our terms are net 30.♠
```

   b. Library file can have as many entries as you like.
   c. You can have many different Library files.

2. Prepare your document
   a. Where you want a Library entry inserted type:

      Graph symbol Number/letter code Colon
      no spaces

```
♠A1:
```

   b. Type in as many Library codes as you like

3. Print the document
   a. Designate which file is the current Library file for this printing.
      Put cursor on file. Press F7 (Set), then F4 (Libr).
   b. Put cursor on the document name.
      Press PRINT then F1 (Go)

MERGE

Definition: Prints multiple copies of a master document inserting records like names and addresses from one file into the master letter.

Steps:

1. Create MERGE document–the record file
   a. ADRS.DO or any other
   b. Each record, like names and addresses must take up same number of lines.
   c. If some take fewer, pad out with carriage returns.
2. Create Master document (letter)

   On first line, by itself, type

   .mg xxx

   xxx stands for merge document (like ADRS) file name
3. Type Graph m's in Master document

   Put Graph m's wherever you want the record entries to appear

   Equal the number of Graph m's to number of lines each record takes in the MERGE document.
4. Print out the Master document–PRINT/F1 (Go)
   You get an individualized copy for each record.

FORM

Definition: Lets you create interactive forms with screen prompts that permit a user to type in answers. Completed records are stored in a RAM file or sent directly to the printer. Answers are formatted with the text from the original FORM document.

Steps:

1. Create FORM document any document file
   a. Type GRPH t followed by a colon, any place you want text to be entered later.
   b. Type up to a 30 character prompt prior to the colon.
   c. Limit answer field by number, up to 250, in parenthesis, after the colon.
2. Print the document – PRINT/F1 (Go)
   a. To a RAM file, change F3 (Outp) XXX
   b. Add to a RAM file, change F3 (Outp) Add:XXX Collect multiple sessions in same file
   c. To a printer (default)
3. Prompts appear on screen
   – no prompt in FORM file, default prompt: Type in text:

   ```
   What is your name?:(32)
   ```

4. User types in answer
   a. Presses F8 when each answer is complete
   b. Next prompt is displayed
5. Completed record file has answers formatted with any text from the original FORM document

MESSAGES

Bad command in file–Line beginning with period not a dot command.

Bad file name – Bad character (like digit), output to itself, copy to existing file.

Beep–End of FORM field or problem alert.

3 digit codes only–For decimal codes, pad out with zeros.

Graph only – Character needs ASCII code of 129 or more. Use different CODE or GRPH key.

IO error nnnn — Break in middle of output.

M100 error nmn–Call us with details.

Memory full–Kill some files.

Menu full–Kill some files.

Numeric only–You typed letters.

Printer not ready–Check if plugged in, "on", online, paper aligned and cabled.

Too large – Check other related settings. Like lines/page and printing lines/page along with top and bottom margin. Add them up and don't try an impossible entry.

Too small — Like above. Example is, if "beginning page" of document is 2, a setting of 1 for "start printing" would be "too small".

ESC — Bypasses F8 (Exit) when on function key tree sublevels, takes you directly to WRITE ROM main level. Also cancels out many operations.

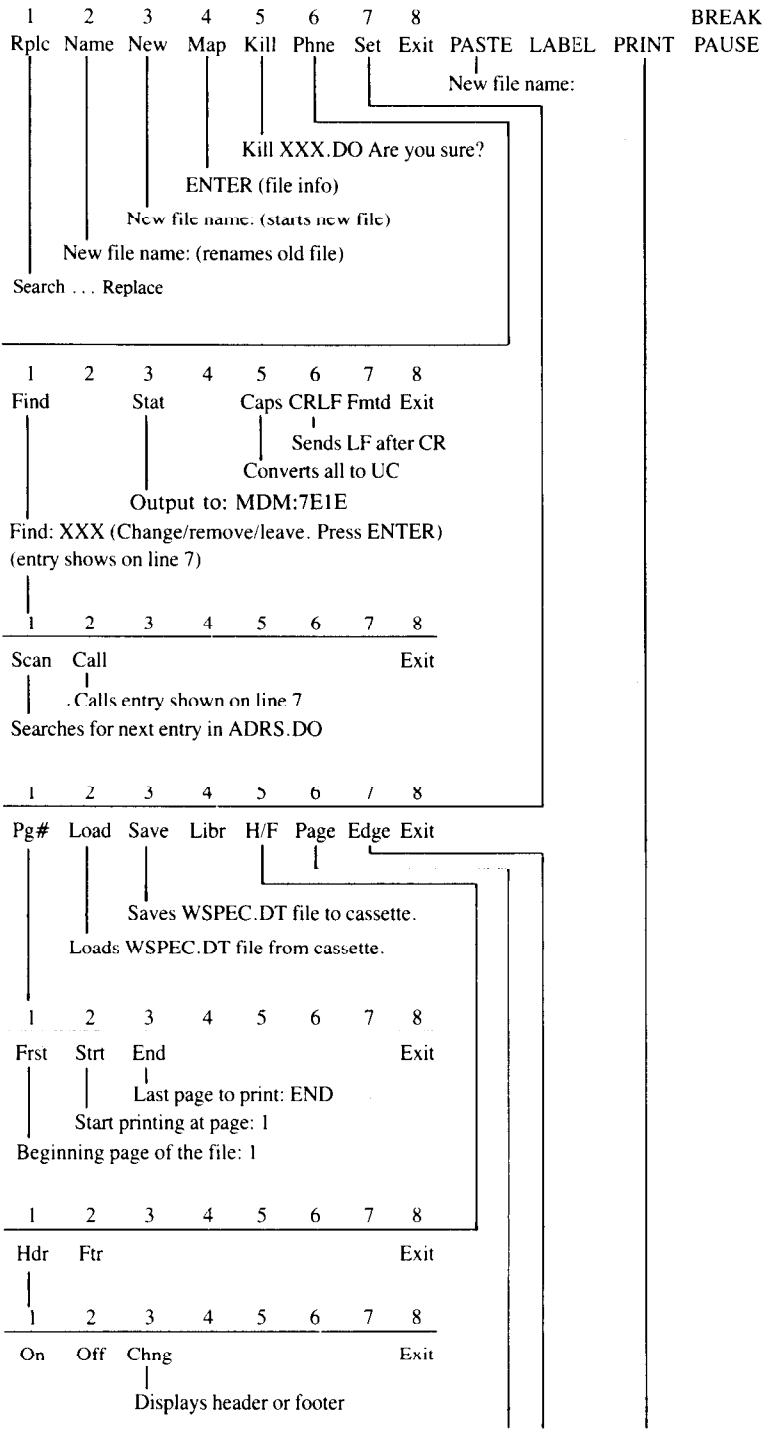
F8 (Exit) from WRITE ROM main level to main menu. From text file to WRITE ROM main level. From sublevels one level up.

Acts as ENTER key for search and replace and FORM prompts.

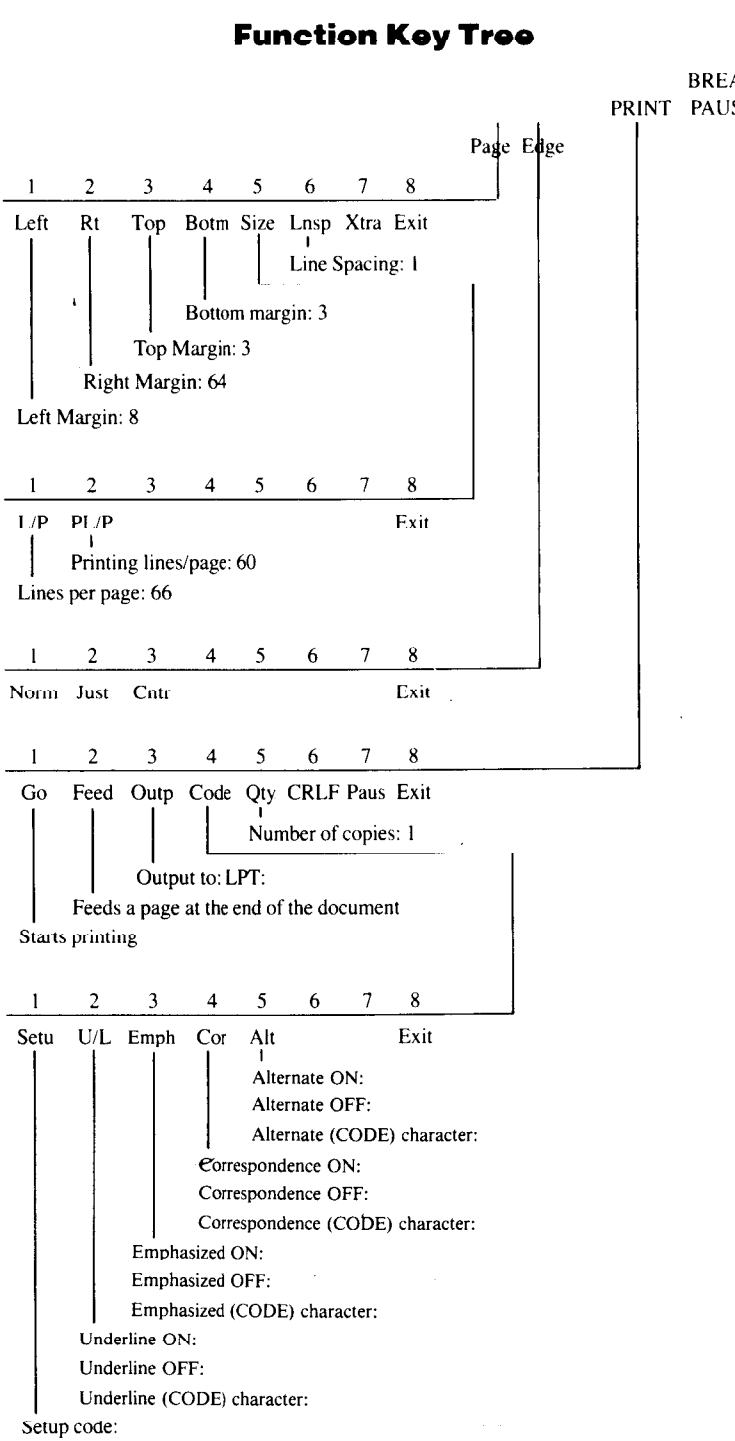
Favorite formats automatically? See page 200 of manual.

Additional "Alternate" printer features? See pages 200-201 of manual.

Function Key Tree



Function Key Tree



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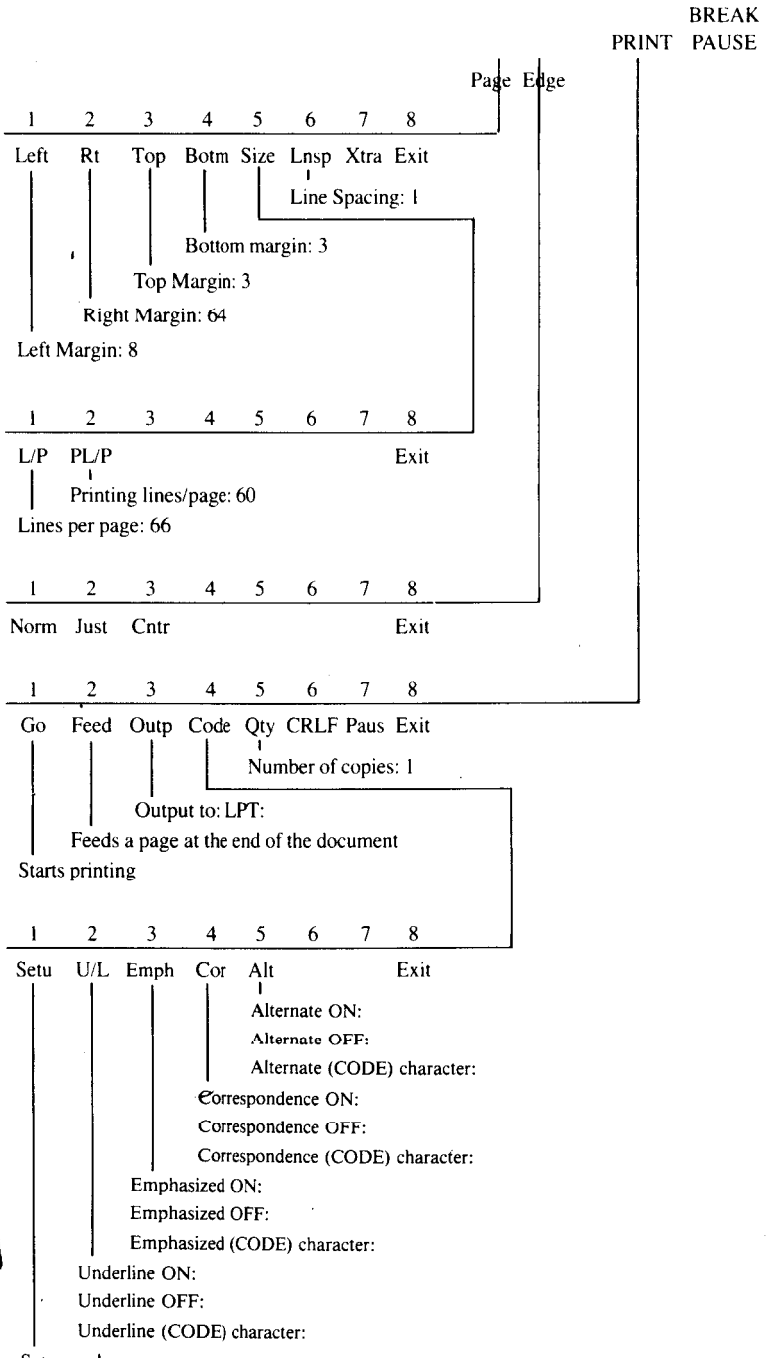

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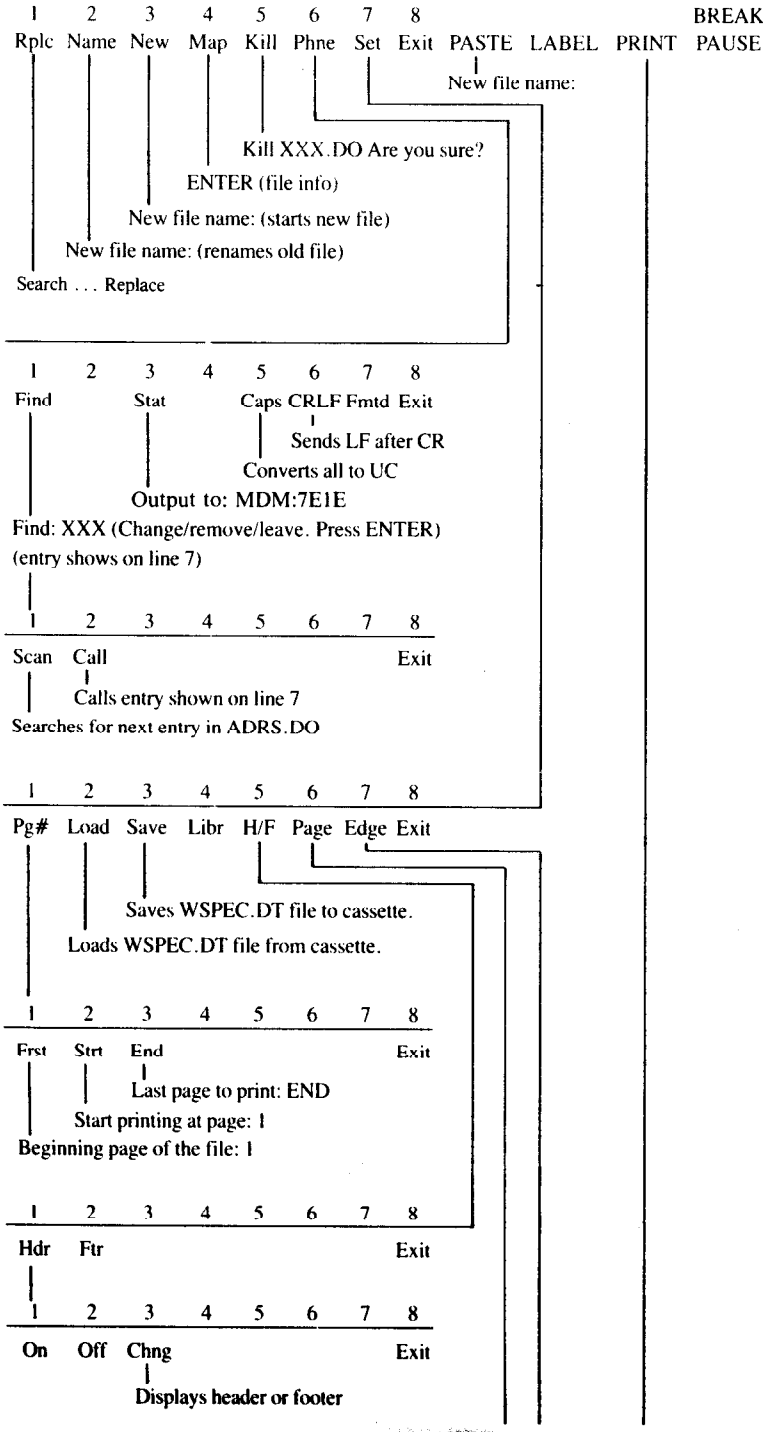
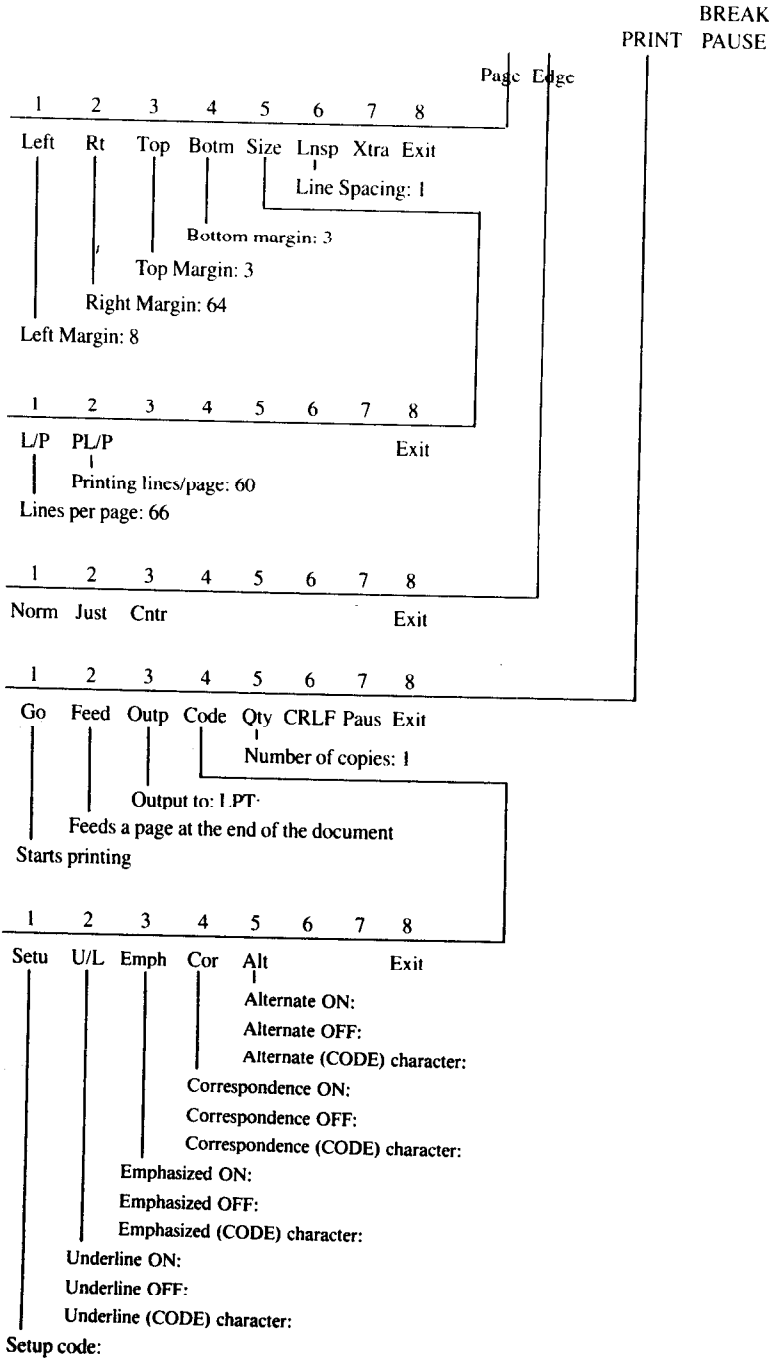
Function Key Tree



Function Key Tree



CONTENTS

CHAPTER I

INTRODUCTION

WRITE ROM ON SNAP-IN CARTRIDGE

WRITE ROM is the definitive word processing extension for the Model 100. Less than two months after the Model 100 was announced, Portable Computer Support Group introduced the very first text formatter for the Model 100. That program, called Write+, was licensed to Tandy and is now in Radio Shack Computer Centers as Scripsit-100. Write+ had many powerful features and most reviewers still say it is the best of the cassette-based text formatters. But now, eighteen months later, PCSG has introduced WRITE ROM. Those who have experienced it have said, "WRITE ROM literally doubles the text processing power of the Model 100."

WRITE ROM is what you would have expected PCSG, the software leader for the Model 100, to develop in the 18 months since Write+ was brought to the market.

First of all, WRITE ROM, as its name implies, is a snap-in ROM. You simply take a quarter, open the little compartment in the back of your Model 100 and press in the ROM cartridge. It is as easy as an Atari game cartridge and can be snapped in and out instantly so that you can use other ROM programs whenever you wish.

WRITE ROM appears on the main menu just like one of your built-in programs. It lets you do every formatting function you would expect like setting margins, centering, right justifying and having headers and footers. But it does them under function key control, with the clear and easy-to learn and use techniques for which PCSG has become famous.

WRITE ROM remembers your favorite format settings so that you can print a document without any set-up, but you can change any formatting or printing parameters instantly with a function key.

WRITE ROM's 'pixel mapping' feature shows you an instant picture on the screen of how your printout will look on paper. Incidentally, PCSG introduced this feature on the Olivetti M-10 version of Write+ over a year ago.

In all, there are over 50 separate features and functions that you can do with WRITE ROM, and some of these features are truly breakthroughs for the Model 100.

First, WRITE ROM lets you do search and replace, with function-key ease, of course. Any word or phrase in a document can be searched for and replaced with any other phrase where the search words appear.

Second, WRITE ROM lets you send any text (formatted or not) to any other computer over the phone with just a function key. What's more, it dials and handles sign-on protocol automatically. It has a special Telex key to send documents to Telex machines anywhere in the world using Action Telex or Western Union E-Z Link. It stores and automatically sends the signal sign-on and sign-off codes these services require for Telex transmission.

Third, WRITE ROM has a wonderful feature called 'Library' that gives your Model 100 power that you never thought it could have. Library lets you record favorite phrases, words, or commonly used expressions (sometimes called boilerplate). Any place you wish any library text to appear in your document, you just type in a code. WRITE ROM automatically inserts the text just like a Xerox Memory Writer.

The library phrase is inserted as your document is being printed rather than as it is being typed, so this feature conserves memory in documents where a long phrase is used repetitively, since each occurrence of a library phrase in your document is indicated by a single code character.

This Library feature is so powerful that this entire introduction could be devoted just to telling you about things it can do. For example, you can have names and addresses that you designate in one text file with a customer or supplier number. Or you can have inventory items with stock numbers.

In your document you simply type in the customer or stock number and that entry from the other file is automatically inserted in the document. Picture what you can do with that kind of capability.

Because WRITE ROM is written in machine code, it is blindingly fast. No one can claim faster operation.

Because it is on a ROM, it uses virtually none of your precious RAM for its operation, and it does not interfere with other machine code programs in your RAM. It works with any printer, serial or

parallel. At the touch of a function key you can find the size of a RAM file in bytes and in words (ideal for journalists and other writers who need to know how many words are in a piece). You can make a duplicate copy of a document file under a new name. You can also rename or delete (kill) any RAM file with function-key ease.

This description only scratches the surface of this amazingly powerful piece of software. You can automatically insert the date or the time anywhere in your document; WRITE ROM senses when you are nearing the bottom of a page, and at your command will start a new paragraph on the next page.

Write+ was the Model 100 pioneer in the use of 'dot commands' to allow control of such things as margins, centering, line spacing and other appearance-related changes in the middle of a document. WRITE ROM goes a step further by making dot commands Wordstar compatible. This means that, if you wish, you can quite easily prepare a Wordstar-compatible document. Then you can use features of WRITE ROM (such as pixel mapping) that Wordstar lacks before uploading to your desktop.

A Mail Merge feature allows you to send the same document to every name on your mailing list, personalized for each recipient.

WRITE ROM enables you to do underlining, boldface and correspondence mode as well as any other font feature that your printer supports in a way that is so unique many users say, "It is worth the price of the program just to have this one feature."

Here's how it works: When you want to underline you don't have to remember some complicated printer code. You just type CODE U, CODE key is to the right of the spacebar; and to end underline you just type CODE U again. For boldface it's CODE B and to end boldface it's CODE B again. It's easy to remember and easy to do. WRITE ROM lets you record the codes from your printer's manual one time only and then just use these easy-to-remember signals any time you want to do a printer font feature.

WRITE ROM does so many things that other text formatters cannot do. For example, you can not only double space, but triple, quadruple or any other.

WRITE ROM allows you to use your TAB key in a document so that you can indent the first line of a paragraph easily, or space rapidly over many tab stops.

WRITE ROM has another nice feature. It allows you to undent. This means that you can have paragraphs that have a first line that projects to the left of the remainder of the paragraph.

WRITE ROM allows you to center a word, phrase or text.

WRITE ROM has a feature that is unique to any word processor on any computer. It is called FORM. FORM is an interactive mechanism that lets you create screen prompts so that you or someone else can answer them to fill out forms, or supply information as to a questionnaire, or answer correspondence rapidly, inserting personal answers into a form letter.

It works sort of backwards from Library or boilerplate. As you recall, with the Library feature you type a code into a document and, when you print, that phrase or word or paragraph is picked up from the Library file and inserted into the printed document. With FORM, when you print, the printer will stop anywhere you had previously typed in a Graph t in a document and you are shown a prompt on the screen. You can type in directly on the screen and, when you press F8, what you typed is sent to the printer, formatted like the rest of the document.

What is really great is that you created those prompts that appeared on the screen. By the way, the prompts won't appear in the printed document unless you want them to, and you don't have to be connected to a printer: you can write your completed forms to RAM files if you wish.

Think of how you can use FORM. A doctor or nurse could use it for a patient's history with each question appearing on the screen. An insurance salesman could have his entire questionnaire, or a police department could do a complete arrest report. You can construct a series of prompts to answer correspondence, automatically inserting the answers into a generalized letter format for a given type of correspondence, like customer service. This feature lets you answer letters in a rapid-fire fashion, each one with its personalized responses.

Before WRITE ROM, you had to be a programmer to create a series of prompts to answer questions or record information. Now it is as simple as typing Graph t.

There are many other examples of excellent programming evident in WRITE ROM. The line feed problem of the Model 100 is dealt

with by the simple use of a function key. Files are selected by moving the wide-bar cursor over the WRITE ROM menu.

PCSG makes the claim that WRITE ROM is the easiest, fastest and most feature-rich text formatter for the Model 100, as well as being the only one on a Snap-In ROM. You can do more with WRITE ROM than anyone thought possible for the Model 100. We at PCSG are happy to offer WRITE ROM because it expands the Model 100 to a dimension of text processing you cannot equal even on larger computers.

If you are already a PCSG customer, you know the impressive quality of PCSG craftsmanship. We brashly state that WRITE ROM is the best that you can buy. But don't take our word for it. It is sold on a thirty-day trial. If you aren't as excited about it as we are, return it within 30 days for a full refund.

QUICK VIEW GUIDE

Installation Chapter 2

Steps:

1. Turn Model 100 off
   a. Turn over
   b. Remove center compartment cover with quarter.
2. Press WRITE ROM into socket with thumbs.
   a. Tiny finger goes into single slot.
   b. Label reads same direction as M-100 serial number.
3. Cursor on BASIC, press ENTER.
   a. Type: call 63012 Press ENTER.
   b. You'll see WRITE ROM menu with document files.
   c. F8 to Main Menu. "Write" appears like a built in.
4. If no document files, screen says,
   New filename:
   a. Type in filename to create. Press ENTER.
   b. Creates new file ready for typing.
   c. Press F8 from document – exits back to WRITE ROM menu.
5. Removal
   a. Use ribbons.
   b. To remove name, before removing ROM go to BASIC: type call 63012,0,1

CHAPTER II
INSTALLATION

A. Make sure that you have a backup copy of all the important files in your machine. Normally you will not lose any data when installing your WRITE ROM, but it is best to be safe. Turn your Model 100 off (the switch on the side, NOT the memory power on the bottom) Turn it over on a flat surface, and pry off the cover in the center at the bottom. You can use a screwdriver or pocket knife, or a quarter will do.

B. There are two sockets under the cover. One is a long, flat one with two parallel sets of holes. This is the system bus. The other is nearer the edge of the computer. It is a raised black socket with a row of silver contacts down the inside of each edge. This is the option ROM socket. Note that at one end of the socket there are two notches, and at the other end there is only one in the center. It is important that the WRITE ROM is installed in the correct orientation.

C. Take the WRITE ROM and inspect it. You will notice that at one end there is a tiny little finger that projects, and that at the other end the circuit board overlaps slightly, and has PCSG etched on it. You install the ROM with the label facing toward you with the label reading in the same direction as the Model 100 serial label, and the little finger fitting into the single notch side of the socket. (This "finger and notch" will prevent you from installing it in the wrong direction.) Press the WRITE ROM into the socket firmly with both thumbs. Don't replace the cover yet, but turn the computer so you can see the screen.

D. Switch the computer on. If you don't see the main menu, switch the Model 100 off again, remove the WRITE ROM and reinstall it carefully following the instructions above.

E. STARTING WRITE ROM: When you see the Main Menu, place the widebar cursor on BASIC and press ENTER. When you see the OK prompt, type in the following:

```
call 63012
```

and press ENTER. After a moment you should see the copyright notice of WRITE ROM. If you don't, switch off the computer,

remove the WRITE ROM, and reinstall it carefully following the instructions above.

F. When you see the copyright notice and the WRITE ROM menu, press F8 to return to the main menu, where you will see WRITE appear just like the built-in programs.

G. If you have no document files present in your Model 100 at the time you install your WRITE ROM you will see the prompt:

New filename:

You need to start a text file, simply type a filename up to six characters and press ENTER. You will immediately so into the new file ready to type in text. Pressing F8 from the file will then show you the WRITE ROM copyright notice and menu as in F above.

NOTE: This CALL 63012 is only necessary once, just to tell your computer that there is a ROM present.

H. That's all there is to is. You can replace the cover on the little opening on the back of the Model 100.

SOME MORE HINTS

1. Make sure your Model 100 is turned off before installing the WRITE ROM. Turn off the power switch on the side, NOT the main memory power switch on the bottom.

2. Remove the door on the bottom of the Model 100 with a key or quarter.

3. The WRITE ROM comes to you in its correct form. Do not attempt to remove the spacer on the bottom of the WRITE ROM, as it is important. The ribbon is used to remove the ROM from the socket.

4. The WRITE ROM will only go in one way. The first time you install a WRITE ROM, you will have to press hard. Press on the two ends of the WRITE ROM with both thumbs.

Do not press on the center of the WRITE ROM, as there is a little window that could be broken if you press there.

5. Fold the two ends of the ribbon down if necessary when you replace the door.

OTHER ROMS

If you use other ROMs from PCSG (like LUCID spreadsheet or Disk + file transfer program), the WRITE ROM name on the menu will not change ROMs until you select the ROM program by pressing ENTER on the WRITE ROM name. Although the old ROM's name, in this case WRITE ROM, was on the menu, you will find yourself running the new ROM you just installed, and when you exit back to the main menu, the name will have changed to the correct one automatically.

WRITE ROM REMOVAL

The WRITE ROM removes easily using the ribbon. The ribbon is provided so that you can grasp it on each end and pull it out steadily and evenly. If you wish to remove the WRITE ROM and not replace it with another ROM, you will have to remove the name from the main menu before taking out the WRITE ROM. Go into BASIC, and type the following:

```
call 63012,0,1
```

This will remove the WRITE name from the menu, and you can now simply take out the WRITE ROM.

QUICK VIEW GUIDE

Getting Started Chapter 3

Printing a document—to default format settings

Steps:

1. Connect to printer
   a. Use parallel printer.
   b. Serial printer—See chapter 10
   c. Adjust paper, turn printer on, connect cable to printer port.
2. Access WRITE ROM menu
   a. Put widebar cursor over any text filename.
   b. Press PRINT key then F1 (Go).
   c. "Printer not ready" message means adjust paper, check cable, printer "on" switch, then press any key. Repeat step 2b.
3. Document prints to these default settings:
   a. Single spaced
   b. Left margin: 8
   c. Right margin: 64
   d. Ragged right edge
   e. Top margin: 3
   f. Bottom margin: 3
   g. Page size: 66 lines
   h. Printing lines per page: 60
   i. First page number of file: 1
   j. Start printing at page: 1
   k. Last page to print: end
   l. Single copy
   m. No pause between pages
   n. Blank line between pages: Off
   o. Header and footer turned off.
   p. No blank page fed at end.
4. Any of these conditions can be changed with function key settings (Chapter 4) for global effect and most with dot commands (Chapter 6) for effecting parts of a document.

CHAPTER III

GETTING STARTED

WRITE ROM is, in simplest terms, a text formatter. Of course, having read Chapter I, you know that WRITE ROM can do a whole lot more than just format text. That is why we refer to it as a text processor, because it gives you true word processing capability that you formerly could only get on a larger computer.

There are several different levels of complexity in the way you can put WRITE ROM to work for you. Obviously we will start with the simplest way and then take you on to more sophisticated variations you can perform with your document. However, what you will discover is that even the more exotic features of WRITE ROM are accomplished quite easily, and very little instruction is necessary.

PRINTING A DOCUMENT WITH TWO KEYSTROKES

The simplest thing you can do with WRITE ROM is to print out, with two keystrokes, a formatted document that is completely arranged on the paper according to "default" or preset values already in the ROM. It works like this:

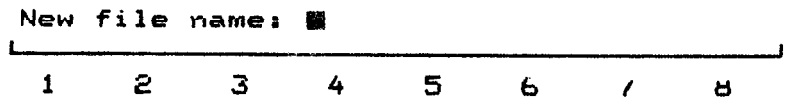
First, you prepare your document using the TEXT program incorporated in the Model 100. You have probably done this many times. If you are not familiar with how the TEXT program works, you should study your Model 100 manual to gain familiarity with its procedures.

WRITE ROM is accessed from the Main Menu by putting the widebar cursor over "Write" and pressing ENTER. Immediately you are shown a screen arranged like the Main Menu, but with function keys along the bottom like this:

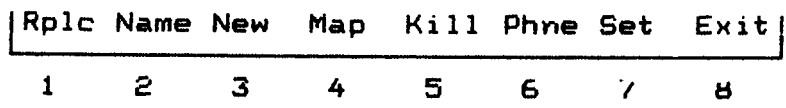
```
WRITE ROM V1.0 (c)PCSG 1985  20068 Free
[redacted]  EXAMPL.DO  LETTER.DO  MEMO.DO
 -.-        -.-        -.-        -.-
 -.-        -.-        -.-        -.-
 -.-        -.-        -.-        -.-
 -.-        -.-
File size:41    Words:8
Rplc Name New   Map  Kill Phne Set  Exit
 1    2    3    4    5    6    7    8
```

Observe that only ".DO" or document files are shown. This is because document files are the only kind of file that WRITE ROM will act upon.

If you have no document (.DO) files present you will see the prompt,

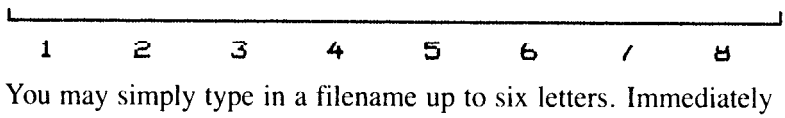


You won't see the WRITE ROM menu immediately. Simply type in a filename you wish to start using up to six characters. Press ENTER. You will go directly into the new file ready to type in text. Pressing F8 from the file takes you back to the WRITE ROM Main Menu as shown above with the function keys



Notice that one of the function keys, F5, says "New". You can use this function key to start a new TEXT file anytime you wish.

Although you are used to creating a TEXT file from your Main Menu by putting the widebar cursor on TEXT, now that you have WRITE ROM you should create new files by accessing WRITE ROM, and pressing function key F3. Try this for yourself at this time. Notice that the bottom line clears and the prompt appears:



You may simply type in a filename up to six letters. Immediately you are in TEXT, typing (editing) a new file.

YOU CAN EXIT FROM A DOCUMENT RIGHT BACK INTO WRITE ROM

If you did this procedure, now press F8 from your new TEXT file, and notice that you go back immediately into WRITE ROM.

Also notice that when you are in WRITE ROM you can access and work with any document file simply by putting the widebar cursor over the filename and pressing ENTER. In the same way as when you created a file from WRITE ROM, any document that you accessed directly from the WRITE ROM menu will exit you back to WRITE ROM when you press F8.

PRINTING A DOCUMENT

To print a document the simplest way, you will just put the widebar cursor over the filename on the WRITE ROM menu you wish to print, and press the PRINT command key on your Model 100. Of course, make sure that your printer is properly connected using the cable available from your Radio Shack store.

The bottom or label line will clear and a new set of function key labels will appear:

```
Go   Feed Outp Code Qty  CRLF Paus Exit
 1    2    3    4    5    6    7    8
```

Now just press function key F1 (Go).

If your printer isn't ready, you will get a screen message on the bottom line that says:

```
Printer not ready
 1    2    3    4    5    6    7    8
```

You may need to adjust your paper, connect your cable or turn the printer on.

When the printer is functional, your document will begin printing immediately and will appear formatted according to the default settings already set up in the ROM.

This means it will have a left margin of 8 spaces, and a right margin of 64, as well as top and bottom margins of 3 each, as well as other characteristics described later in this chapter.

While the document is printing, the bottom line will say:

```
WAIT
 1    2    3    4    5    6    7    8
```

Most likely you will not want to merely print out without having some control over the various parameters of your format, but at this time you should experiment with printing out documents this way. You will learn how to use WRITE ROM and in the process observe what the default settings produce.

SETTING FORMAT CHARACTERISTICS WITH FUNCTION KEYS

With WRITE ROM the function keys give you enormous control over your document. All of the function keys are global in their action. Global means that they will affect your entire document. In Chapter 4 you will learn about using the function keys for global formatting. In Chapter 6 you will learn about the use of "dot commands". These are used for making format variations inside your document.

Dot commands are generally used for non-global format characteristics. In other words, dot commands are used when you wish to make margin or justification changes or exercise other format controls that will only affect part of your document.

Also certain graph characters will affect text inside your document at the time you print, and we will be discussing these later as well.

In Chapter 4 your attention will be focused on the function keys whose settings will affect the entire document. Turn to the pages at the front of the manual that show the function key tree. Note also that the function key tree appears in your quick reference guide.

PRINTERS—PARALLEL AND SERIAL

When we printed the document just using the PRINT key and then pressing F1 (Go) this assumed that you were using a parallel printer. With a parallel printer you use the Model 100 cable and the Model 100's printer port. Also, the assumption is made that your printer has its "dipswitch" setting done in such a fashion that you do not need something called a "carriage return line feed."

If you are new to computers, these two concepts would be new to you as well. There are two types of printers, serial and parallel. Parallel is the most common, and that is the only kind that works from the printer port of the Model 100.

You can use a serial printer with your Model 100 quite easily using WRITE ROM, because it allows output to different kinds of printers. We cover that procedure in Chapter 10, PRINTING.

The whole concept of "dipswitches" and "carriage return line feeds" is a puzzle to you if you are just starting. The Model 100 is designed to work with Radio Shack printers. These printers automatically handle the problem that we talked about of "carriage return and line feed." If you are using another kind of printer, you would have to make a dipswitch setting, generally located on the back of the printer. Otherwise, when you print, everything will just pile up on one line. The dipswitch setting will make that device handle itself like a Radio Shack printer.

However, WRITE ROM makes it simple. With WRITE ROM you can use a switch (actually one of the function keys) that we will explain in Chapter 10, PRINTING, that does this for you automatically.

DEFAULT SETTINGS

For most users, the simple two-keystroke print demonstration will work beautifully. We wanted to show how simply and easily you can print using the settings already present in WRITE ROM.

The document that you printed with WRITE ROM's default settings (as it comes) will have the following format characteristics.

a. Document is single spaced. Single spacing, double spacing, etc., is known as line spacing. We would say that the default is a "line spacing of 1."

b. Left margin is 8 spaces. This means that the entire document is indented 8 spaces from the left edge of the paper depending, of course, on how your paper is positioned in your printer. Many printers allow you to move the paper to the left of the travel of the printhead. Therefore, how many spaces you move the paper would increase the margin on the left by that much.

c. Right margin of 64. The average width of paper is 85 spaces. This means that the right margin would be 21 spaces from the right edge of the paper.

d. Ragged right edge to the document. If it has a ragged right edge, that is what we refer to as a "normal" format. Other options are that it would be "right justified" or have right-edge justification or, thirdly, that the entire document would be centered so that every line would be centered equally.

e. Top margin is 3 lines. This means that the paper advances 3 lines before the print body of the text begins.

f. The bottom margin is 3 lines. This means that three line spaces are added after the body of the text is ended.

g. The lines per page are 66. This is because the average sheet of paper, which is 8½ x 11, is 66 lines. WRITE ROM assumes, unless you have indicated otherwise, that you are printing on a paper of standard length. Therefore, it will make page breaks at exactly that point.

h. The document is printed out with 60 printing lines per page. This is a difficult concept for many people to understand. "Printing lines per page" includes your top and bottom margins. Later we talk about headers and footers, but since those are off now, they are not included in this explanation.

If you have the top margin of 3 and the bottom margin of 3 and printing lines per page designated at 60 (the default), that means that you would have 54 actual lines to your page.

This means that you have an additional 6 lines (the difference between the 60 printing lines per page and the 66 lines per page) that create additional margin area. This allows you to be inexact when you are setting the printhead around the break of the page.

You will appreciate this margin of safety when you are printing a single sheet of paper. With WRITE ROM you don't have to be so careful to bring the top of the paper even with the printhead.

Later, when you change these defaults, as we will explain, you can experiment with different printing lines per page to find out what makes you most comfortable. However, 60 is what most people have found is a good default.

i. The beginning page of the document is set at 1. Sometimes you will be printing a file that is the second or third part of a report. The beginning of that document will actually be page 4 or 5. In that case you would have to change this setting, but the default assumes the document you are printing is to begin at page 1.

j. It starts to print at page 1. Later you will see how you can skip forward and start printing at any page in the document. You will be able to actually begin printing at whatever page you would like.

k. The last page to print is set for "End." In other words, WRITE ROM assumes you want to print your document all the way to the end. Later you will see how to change that in case you want to print only a few pages of your document.

l. The following global document defaults are stated in the negative. These are things that it doesn't do, that are turned off in the default settings.

For example:

1. When you print a multiple page document, you might want to pause between each page to change paper.
2. You might want to feed an extra page at the end of the document to get it out past the tractor feeds on your printer.
3. You might like to print an extra line between paragraphs.

All of these, as we explain later, are options you can easily turn on with function keys.

m. Your default document prints without a header or a footer. You will learn how you can have a personalized header as well as a personalized footer that you can turn on and off at will and change the text whenever you like.

Chapter 4 covers the use of function keys to format your document. The function keys will cause your document to be affected globally. The term global is somewhat computerese terminology, but it is quite descriptive in that it relates to any action or control that will affect the complete document you are printing.

In Chapter 6 we will talk about various commands called "dot commands" you can use inside your document that will not have a global effect. In other words, those dot commands will only act on a part of your document.

THE MANUAL STRUCTURE

The way we have organized this manual is to introduce you step by step to various levels of difficulty. Once you have read it all, you will certainly say that the entire program is quite simple. It is best to first learn to print a document just using the defaults as we have just done in this chapter. Second, learn to print a document, making global format changes with the function keys, Next, learn to make the specific changes inside the document, and finally, do special features like LIBRARY, MERGING or FORM.

QUICK VIEW GUIDE

Function key formatting—F4 (Set) Chapter 4

Scope: Make global changes in document format. Also cassette save or load WSPEC.DT file for favorite formats.

Steps:

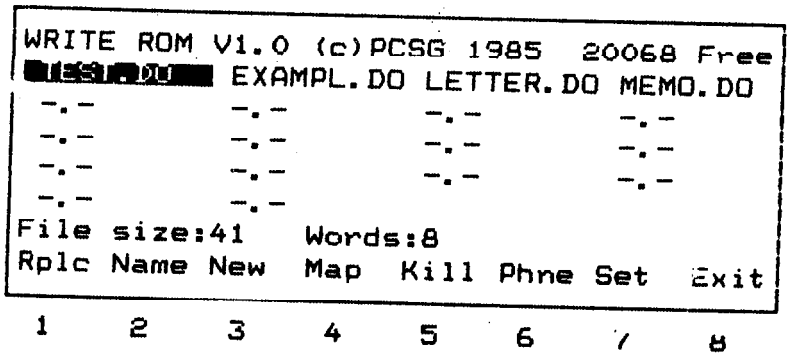
1. Access any of the format keys individually at random. Use just one or several as needed.
2. Very little procedure is involved.
   a. Most have editing capability. Backspace out default settings. Type in new values or change info.
   b. Some others are "on/off" switches. "On" is reverse video, "off" is regular print.
3. Press F7 (Set) from WRITE ROM menu.
   a. Press F1 (Pg#) to change page numbering.
      Press F1 (Frst) changes first page number of file
      – Press F2 (Strt) begin printing at any page number
      – Press F3 (END) stop printing at any page number
   b. Press F2 (Load) or F3 (Save) with cassette player connected to automatically load or save WSPEC.DT file. Preserves or recalls favorite format settings.
   c. See Chapter 12, LIBRARY for F5 (Libr) discussion.
   d. Press F5 (H/F) to store and turn on/off headers and footers.
      – Press F1 (Hdr) or F2 (Ftr). Gives you F1 (On), F2 (Off), F3 (Chng).
      – Press F3 (Chng = Change). Type in your own header or footer.
      – Type in %P,%D,%T, or %W. Page number, date, time or day of week appear here or anywhere in document.
      – Use printer codes (Chapter 7) or Library codes (Chapter 12) or FORM (Chapter 9) in header or footer.
   e. Press F6 (Page) to control page layout.
      – Press F1 (Left), F2 (Rt), F3 (Top) or F4 (Botm) to change margins.
      – Press F5 (Size) to control paper size. Press F1 (L/P) to enter lines per page of your paper. Press F2 (PL/P) to enter printing lines per page. Difference between two gives a buffer zone in sheet perforation area.
      – Press F6 (Lnsp) to change linespacing. 2 = double, etc.
      – Press F7 (Xtra) to insert extra line on paragraphs.
   f. Press F7 (Edge) for on/off switches to control edge.
      – F1 (Norm) is default, ragged right edge.
      – Press F2 (Just) for right hand justified.
      – Press F3 (Cntr) for every line centered.
4. These function keys affect the entire document. See Chapter 6, Dot Commands to learn how to make partial changes.
5. Favorite format spec? See page 200.

CHAPTER IV
FUNCTION KEY FORMATTING

F7 (SET)—ENTIRE DOCUMENT (GLOBAL) FORMATTING USING THE FUNCTION KEYS

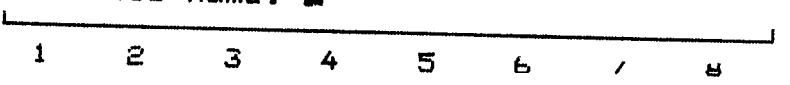
Periodically during this chapter, refer to the function key tree at the beginning of the manual so that you can have a general overview of how the function keys and their sublevels nest as they are explained in the paragraphs to follow.

Put the cursor over WRITE on the main menu and press ENTER. You now see the WRITE ROM menu which only shows document files.

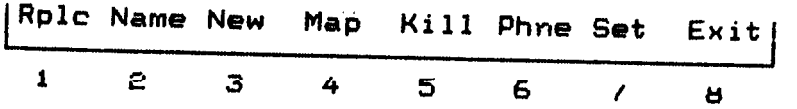


This primary screen has function keys which we refer to as the "main level."

NOTE: If you don't have any document files (".DO" files) in your computer you will see the prompt:



Simply type in the filename you want to start and press ENTER. Immediately you will be in the new file, ready to type in your text. Pressing F8 from that file shows you the WRITE ROM main level menu as above with the function keys:



WRITE ROM has several different sublevels of function keys depending on which main level key you press. They follow an orderly sequence. These function key labels, while performing different duties, actually act as help screens in case you forget exactly how to do something. They can take you through the various features just by following the labels on the keys.

In this chapter we will only be concerned with the function key F7 on the "main" WRITE ROM function key level. This key is designated F7 (Set). All of the global formatting that we will do is controlled from this one function key.

At this time press function key F7. The screen clears and a new set of function keys appears as follows:

```
Pg#  Load Save Libr H/F  Page Edge Exit
└──────────────────────────────────────┘
1    2    3    4    5    6    7    8
```

TUTORIAL VS GLOSSARY

This manual is organized in such a way that you can use it for different purposes. The early chapters are arranged in tutorial style. For example, this chapter will only concern itself with handling global formatting. The discussions are limited to format commands that can be done with the function keys that will affect your entire document. Therefore, we will be discussing several function keys on different levels while by-passing some of the others.

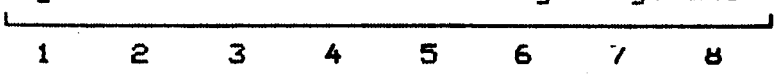
At the end of the book is a chapter which gives you a glossary. Each function key is arranged in the same order as it appears on the hierarchical tree with a definition of how it works. Other features and characteristics of WRITE ROM are explained in a brief definition style arranged like a dictionary.

You may find that the tutorial is too basic for you, and the glossary approach is more suited to your current level of expertise in using a text formatter. If that is the case, simply turn over to that section at this time and study the function keys and their definitions in the sequence that they are found on the tree, along with other features and procedures.

EXITING FROM FUNCTION KEY SUBLEVELS

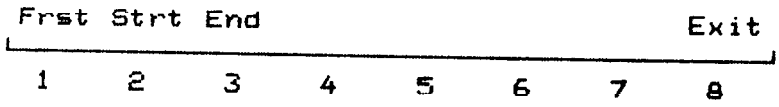
If you press function key F8 (Exit) you will be moved up to the previous function key level. If you wish to go all the way back to the main level of function keys, press ESC (escape). Each time you press F8 on any low level, you will always be taken up one level at a time.

If you are on the main level, press function key F7 (Set):



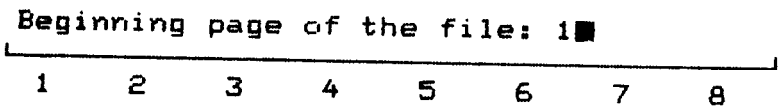
F1 (Pg#) CONTROLS THE PAGE NUMBERS

Press F1 (Pg#). The bottom line clears and these new function keys appear:



F1/F1 (Frst) Telling it Which Page is First

Press function key F1 (Frst). The bottom line clears and the following message appears on the screen:



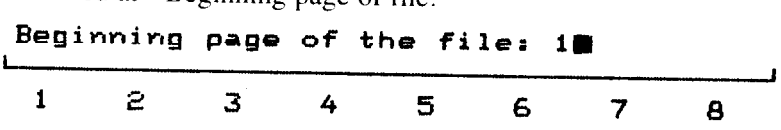
Although this seems to be a simple designation, people often get very confused about what this means.

Enter the starting page number of the file you are printing.

You have complete editing capability. You can backspace and type in whatever is to be the beginning page number of the file you want to print.

Where the confusion comes in is this:

When you are writing an article nearly always the very first page is page number 1. So most people think that they should always have a 1 entered at "Beginning page of file."



To clarify, ask yourself: "What is the beginning page number of the file I am printing?" If you have printed the earlier parts of the document, you will be able to see on what page the earlier part ended. If you have not printed, and you have the other parts of the document in your RAM, you could use the mapping feature described in the next chapter to find out how many pages those previous files took.

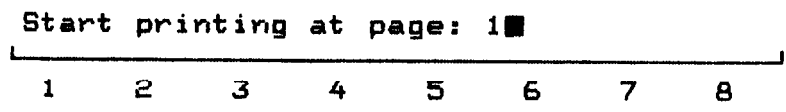
SUMMARY:

This spec refers only to the page number you need for the beginning of the file you are printing now.

F1/F2 (Strt) Telling it Where To Start Printing

Press function key F2 (Strt)

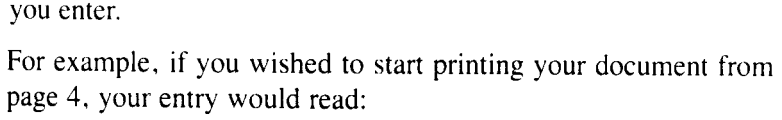
The bottom line clears and says:



This number will always be the same number as the "Beginning page of the file" unless you intend to ignore some of your document and begin printing at a page beyond the beginning of the document.

The page number you wish to skip forward to and print first is what you enter.

For example, if you wished to start printing your document from page 4, your entry would read:

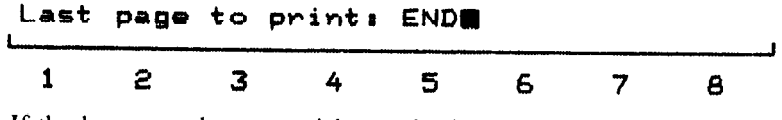


This feature is generally used when corrections or editing have been made in the document, and you only want to print out the corrected copy.

Press ENTER or F8 to record.

F1/F3 (End) Telling it Where To Stop Printing

Press function key F3 (End). The bottom line clears and the following message is shown:



If the last page that you wish to print is the end of the document, then just leave the word END in place.

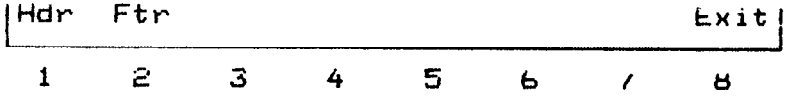
If you made a correction in the middle of the document and started printing at some point past the beginning, you probably will want to print to the end, because the additions in the middle might affect subsequent pages.

F4 (LIBR) DOES LIBRARY AND BOILERPLATE

This feature is discussed in Chapter 12, Library and Boilerplate. It is a wonderful WRITE ROM capacity that gives you the features of a memory typewriter.

F5 (H/F) HEADERS AND FOOTERS

At this time, press function key F5 (H/F). As you might imagine, H/F stands for "header and footer control." Immediately the bottom of the screen clears and these new function key labels appear.



These are the function keys that enable you to write in a header or a footer which will appear at the top or bottom of your document.

Headers and footers can be used for many different purposes. They can be used to create a letterhead look to your paper with your name, address, company name, phone number, and even advertising slogans. They can be utilized for chapter headings or a title of a book or a paper or any other tag that you wish to have appearing at the top or bottom (or both) of a page.

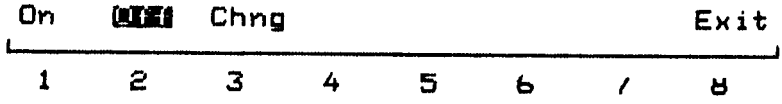
You can change your headers and footers any time you wish, but many people keep in place their own standard header or footer.

In a subsequent chapter we will discuss how you can use dot commands that will allow headers or footers to be turned off on certain pages or perhaps to appear on only one page of a document. For the time being, we will study headers and footers used globally.

The header and footer controls work identically. We will examine F2 (Ftr) in more detail, but the same comments apply to F1 (Hdr).

F2 (Ftr) THE FOOTER

Press function key F2 (Ftr). The screen clears and you see the following function key labels:



F1 (On) and F2 (Off) are simply switches. If one of these keys is pressed it is thereby in effect, and it will be shown in reverse video.

The default (or the way the program comes) is the Off position. If you print with default settings as we did earlier in Chapter 3, you will not have a header showing.

CHANGING THE FOOTER

F3 (Chng) enables you to change the footer. Press F3 at this time, and the screen clears and the following display is shown.

```
Footer: Portable Computer Support Group,
  Inc.  Phone (214) 351-0564
```

If you will note there is already a footer in place. This footer shows the company name of Portable Computer Support Group. You will need to remove this at this time, and put one in of your own.

Now of course you can change footers periodically for any special purpose. Maybe you will want the title of a document or a paper you are writing. Most often people use them for creating a letterhead, and they put in their company name and address. A footer is a useful word processing tool and can be used for a number of purposes.

You need to remember these symbols and their equivalents:

%D	=	Date	%P	=	Page
%T	=	Time	%W	=	Day of Week

This means that any place where you type the codes %D, %T, %P or %W, it will display automatically either the date, time or the page numbers in your footer when it prints.

For example, if you wish to have the date in your footer, you would simply type %D. When it prints, it will print out the date that it gets from your Model 100. The symbol %D will not appear on you printed copy, but will show as

```
Jan 15, 1986
```

Remember that if the date is incorrect in your Model 100, it will not be correct in your document.

If for some reason the date in your Model 100 is not correct, you will need to go into BASIC and reset it.

Setting the date in your Model 100 is quite easy. From the Main Menu, put the cursor on BASIC and press ENTER. The screen says OK.

Type Date$ = "01/15/85 (final quotation marks not necessary)

```
date$="01/15/86
```

Press ENTER to set date as

Jan 15, 1986

Note that when you type in the month/day/year, each one must use two digits.

After you have set the date in BASIC, the new date will show in the upper left of your Main Menu. Now wherever you want the date in your document when you print with WRITE ROM, just type in a %D.

If you wish a page number in your footer and also the word "Page" to appear, type Page %P. Again %P will not show, only the page number itself.

Notice that the space allotted for your footer is limited. When you have exceeded that amount, a "beep" sounds indicating that you have gone too far. You can have up to 105 characters for your footer.

Observe that you have text editing capabilities in the footer storage section to type in whatever footer you choose. You don't have full text editing capability, but you do have the use of your arrow keys and BACKSPACE as well as DELETE/BACKSPACE.

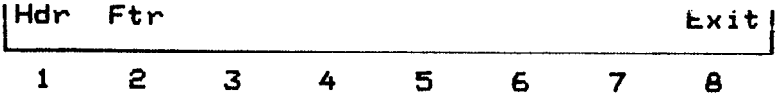
Any time you wish to change the footer, all you have to do is access it through the function keys, and make your corrections. It will be recorded and remembered for the next time. It becomes a permanent part of your word processing system unless you cold start your machine or change it as described.

When you have completed any change to your footer, you have two ways to exit.

a. You may simply press function key F8 and you are taken all the way back to the main level of WRITE ROM function keys.

b. If you want to go back to the function keys where the "On Off" switches for the header are located, press ENTER when you have completed typing in your new footer.

Then press function key F8 (Exit) to take you one level back up to the header, footer function keys:



F1 (Hdr) THE HEADER

The header is controlled exactly like the footer. When you press Function F1 (Hdr), the screen clears and you again see, just like with the footer, the following labels:

On	Off	Chng					Exit
1	2	3	4	5	6	7	8

All of the rules concerning changing your header are the same as for the footer including the printing of the date, time and page number by simply typing in %D, %T or %P.

The footer is generally where most users decide to put the page number, but either could be utilized for your name and address or perhaps your phone number.

Truly the only difference between the header and the footer is that the footer is at the bottom of the page and the header is at the top.

After you have completed making footer changes, press ENTER to take you back to the Hdr Ftr level, then F8 to take you one level up so that we can examine more global formatting commands.

The bottom line clears and the following function keys appear again:

Pg#	Load	Save	Libr	H/F		Page	Edge	Exit
1	2	3	4	5		6	7	8

F6 (PAGE) DOING PAGE LAYOUT CHANGES

Press function key F6 (Page). The bottom label line clears and a new set of function keys shows as follows:

```
|Left Rt   Top  Botm Size Lnsp Xtra Exit|
 1    2    3    4    5    6    7    8
```

Changing Margins:

Function keys 1 through 4 are very simple controls that allow you to type in the number of spaces you would like the margins to be. You have full editing capability to backspace and type in new values.

F1 (Left) Sets Left Margin.

At this time, press function key F1 (Left). The bottom line clears and this message appears:

```
Left margin: 8
 1    2    3    4    5    6    7    8
```

Type in the number of spaces that you would like your document to appear formatted from the left.

Keep in mind that sometimes your printer head alignment allows you to have the paper moved to the left, thereby creating an addition to the left margin. If this is the case, the number of spaces you enter here would be in addition to those to the left of the farthest travel of your printer head.

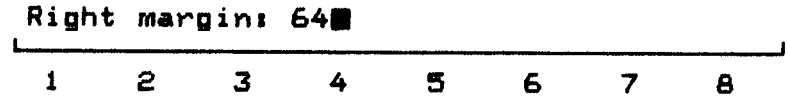
After making the change, simply press ENTER to record it.

This change is effective until you change it again, or cold start your Model 100.

When you press ENTER, you are moved back to the function key labels, so that you can control other margins.

F2 (Rt) Sets The Right Margin.

Press F2 (Rt). The bottom line clears and this message appears:

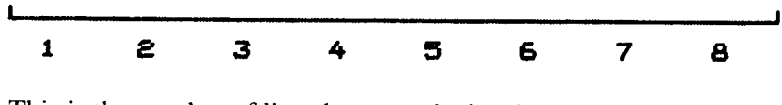


This is the number of spaces the right margin will appear from the left side of your document. Standard 8½ x 11 paper is 85 spaces wide. For most documents a right margin setting of 64 is good, but you can experiment to find what suits you best. Oftentimes you will want a larger or smaller margin depending on the situation. Margin control enables you to be able to fit your copy on a page and make it appear more attractive or achieve balance.

After you have made the change, press ENTER to record, and take you back to the page layout function key level.

F3 (Top) Sets Top Margin.

Press function key F3 (Top). The screen clears and the following message shows on the bottom line:

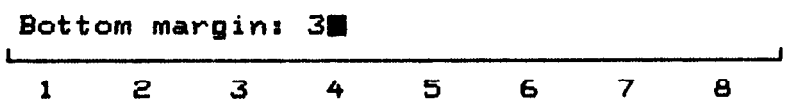


This is the number of lines between the header and the text of your file. If the header is switched off, then this is the number of lines from where the printing head is positioned on your paper to where it begins to print.

Take into consideration that WRITE ROM provides a few extra lines to allow for page break (the difference between the lines per page and the printing lines per page). Your margin lines will be added to whatever is allowed for a page break. After you have made your change, press ENTER to take you back to the page control function key labels.

F4 (Botm) Sets Bottom Margin.

Now press function key F4 (Botm). The bottom line of function key labels clears and says:

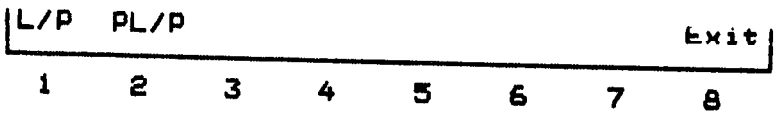


The bottom margin is just like the top margin. It is set the same way. This is the number of spaces between where the last printing occurs and the footer begins. If the footer is off, the bottom margin is followed by the space provided for the page break.

The next function key, F5 (Size), will explain the page break allowance. After you have made your bottom margin change, press ENTER to record the new setting and return to the page setting function key level.

F5 (Size) Controls The Size Of The Printed Page.

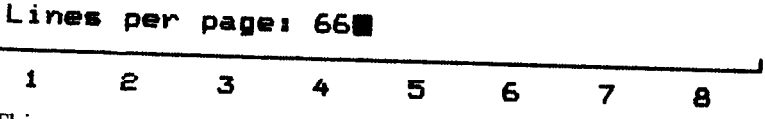
At this time, press F5 (Size). The bottom line clears and these new function key labels appear:



These are not designations that immediately tell you what they represent, but after you have gone through this explanation, they are easy to remember. L/P stands for lines per page and PL/P stands for printing lines per page. This is a concept perhaps new to you that represents a very nice feature.

F1 (L/P) Sets Lines Per Page.

Press function key F1 (L/P). The bottom line clears and the screen says:

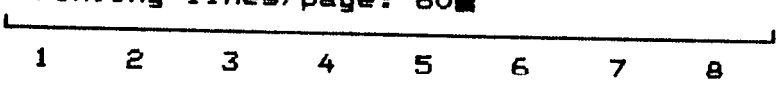


This represents merely the size of your paper. An 8½" x 11" sheet of paper is 66 lines long. "Lines per page" simply tells the program where to cause the page break to occur, especially important when you are using form feed paper. Observe the program feeding paper through your printer. Printing will begin at the same place every time after moving to a new page.

The only reason you would ever make a change on lines per page is if you were going to be utilizing a different size paper, such as printing on some sort of peel-and-stick labels or a smaller or larger sheet. Most persons will never have to make a change on "Lines per page" or "Printing lines per page" which follows. After you have examined your 66 lines setting, or made a change, press ENTER to take you back up to the function key level to look at "Printing lines per page."

F2 (PL/P) Sets Printing Lines Per Page.

Now press function key F2 (PL/P). The bottom line clears and the screen says:



When you line up your paper, if you could make a precision location of the print head exactly at the page break (the perforation where the two sheets join), you would not need the setting called "Printing lines per page." Experience has shown that a program that does not provide for less than precision alignment is not practical. Therefore the "Printing lines per page" provides a built-in fudge factor.

If you set "Printing lines per page" to be the same as "Lines per page," the header will appear on the line immediately following the footer. Apart from looking ridiculous, you would have to make a precision matchup of the page perforation to fall exactly between two lines.

These 60 lines represent the actual number of lines on your printed page including your top and bottom margins and header and footer. Here are a few facts that should help you understand the relationship between printing lines per page, lines per page, top and bottom margins and your header and footer.

A. "Lines per page" equals the size of your paper.

B. "Printing lines per page" is always less than "Lines per page" to allow you to position your paper close to the page perforation, but without having to be exact.

C. "Printing lines per page" is made up of all lines that are printed, including the top and bottom margins and the header and footer. If you have the top margin set at 3 and the bottom margin set at 3, and printing lines per page at 60 and a header and footer, this means you will have 52 lines of actual printed copy.

D. If the header and footer are switched off, you would have 54 lines of printed copy under the above conditions.

E. The primary reason to make a change on "Printing lines per page" is if you are working with a different size paper and you have changed "Lines per page."

   Another reason is if you feel you don't need 6 lines to play with, and you can line up your paper with greater precision. (But the header would be higher on the page, or the footer lower.)

F. The net result of a difference between "Printing lines per page" and "Lines per page" is additional space.

   That additional space is added to the end of the page after the footer. When you position the printing head at the top a few lines down from the perforations, you automatically split up that space between the top and bottom of the sheet.

This Is The Way Your Page Is Printed:

1. The header prints immediately where the print head is located.
2. Top margin is fed.
3. Your text prints.
4. The bottom margin is fed.
5. The footer is printed.
6. The difference between the "Lines/page" and "Printing lines/page" is fed.

The following illustration shows you how a page is laid out so that you can conceptualize what each of these settings means in controlling the printout.

```
Header Header Header Header Header Header

Top margin

Printed Copy Printed Copy Printed Copy
Printed Copy Printed Copy Printed Copy
Printed Copy Printed Copy Printed Copy
Printed Copy Printed Copy Printed Copy
Printed Copy Printed Copy Printed Copy
Printed Copy Printed Copy Printed Copy
Printed Copy Printed Copy Printed Copy

Bottom margin

Footer Footer Footer Footer Footer Footer

Padding lines ( difference between lines
  per page and printing lines per page)
```

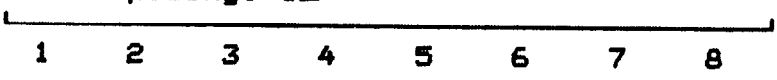
After you have made your change or completed your examination of the size specs, press ENTER to take you back to the page control function key level.

Screen says:

```
Left Rt   Top  Botm Size Lnsp Xtra Exit
 1    2    3    4    5    6    7    8
```

F6 (Lnsp) Changing Your Line Spacing

Press function key F6 (Lnsp); the bottom line clears, and the screen says:



This allows you to double, triple or quadruple (or whatever) space your printout. It is great to print out a double- or triple-spaced copy as a draft for you to make corrections or additions between the lines. Then you can quickly change "Line spacing" back to 1 for your single-spaced final copy.

Often printers will have double space switches, but you no longer need to use such a switch on your computer because you now have this simple mechanism in WRITE ROM.

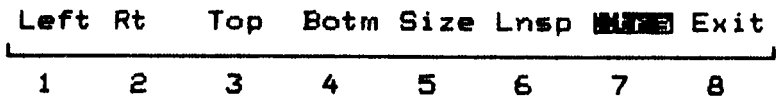
You have text editing capabilities to backspace and type in your new setting.

When you have completed your change, press ENTER to record it. You are immediately taken back to the page control function key *level.*

F7 (Xtra) Extra line on paragraph

Press function key F7 (Xtra).

Notice that it now shows in reverse video.



This means that this feature is turned on. This function key is like an "on-off" switch.

With F7 (Xtra) on, an extra line is automatically inserted between paragraphs. This creates an attractive look known as memo format.

Test this feature, printing out your document with the Xtra key in reverse video. Observe that an extra line is inserted after any carriage return. This looks great in the body of the text between paragraphs and in the "Subject, To/From" section of a memo.

For example, in the computer it will say

Your text looks like this:

```
Memo to: Bill Johnson◄
From:    Al Thompson◄
Subject: Inventory reports◄
I was reviewing the latest figures...
```

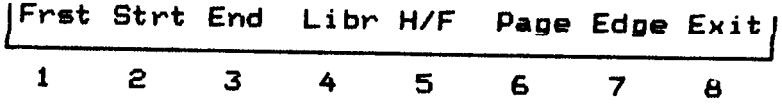
Here's how it looks on paper:

```
Memo to: Bill Johnson

From:    Al Thompson

Subject: Inventory reports

I was reviewing the latest figures...
```

This is a nice look for memos, but when you are printing a letter, *you will want to keep the lines closed in the address portion.* However, you might want to use the F7 (Xtra) switch with a standard letter so as to make your paragraphs have a nice separation without having to insert an extra line each time. If this is the case, you can use a special "dot command," explained in Chapter 6, that lets you turn off the extra line on short lines in the address section at the beginning, and then turn it back on again for the paragraphs.

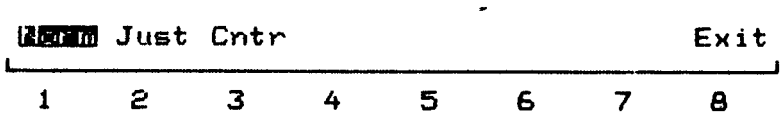
Those dot commands are put in your final copy just prior to and just following any copy where you don't want an extra line at the carriage return. The F7 (Xtra) switch will be temporarily ignored for that copy.

After you have completed your experiments with F7 (Xtra), press F8 to return you back to the previous function key level. The bottom line clears and you will see these function key labels again:



F7 (EDGE) CHANGING THE EDGE

Now press F7 (Edge). The bottom line clears and a new set of function key labels appears as follows:



These function keys allow you to control the format of the body of your text. These are on-off switches. Press them, and they go into reverse video to show when a key is "on." They appear in regular print to designate "off."

You have three choices:

F1 (Norm)

This is the default setting. It gives your document a ragged right edge. It automatically moves any word whose length would exceed the right margin setting to the next line.

F2 (Just)

This gives your document what is called "right hand justification." This means that the right edge will be even or straight, producing an effect somewhat like that found in typeset columns in many newspapers.

This justification, however, is accomplished by padding the space between some words with extra spaces to make the last word or words on the line be flush right.

Some people don't find the use of this type of right hand justification to be feasible, because it is not as attractive as the proportional spacing that is generally used by magazines. Others are quite happy with its appearance.

Experiment to see how it looks to you.

It produces a nice effect in the middle of a document for any special paragraph that you want to emphasize. You will learn in Chapter 6 how to do "dot commands" that let you turn on and off justification inside your article and produce that very attractive appearance. This is enhanced further when you also use "dot commands" to temporarily change the margins and heavily indent that paragraph as well.

F3 (Cntr)

This switch makes every line in your document centered. This might be appropriate for some types of artistic display, perhaps for menus or party invitations, but has little use otherwise. Generally, you will use "dot commands" for centering small sections or certain parts of your document.

Other global controls

Although this concludes our discussion of global formatting commands controlled by function keys, there are other function keys that provide global effect on your document. We will be discussing these in other chapters.

For example, when we study printing in Chapter 10, and the PRINT key, there is a function key that provides a global effect on your document.

This is called "Setup code." It allows you to enter a printer control code that will cause your document in its entirety to print in special type.

Global command vs. Dot commands

It is important for you to realize that almost every formatting control or feature described in Chapter 4 which has global impact on your document also can be controlled from inside your document with something called a dot command.

Chapter 6 covers dot commands. Some people choose never to use dot commands and only use the global format control. Dot commands are easy to understand and easy to learn. They will enable you to make formatting changes inside your document that will affect either a small portion of your text or the entire article.

All of the features we have described in this chapter are controlled like little switches. Some of these can be done with either a function key or a dot command.

At this time, press ESC (escape), which will take you back to the WRITE ROM main level.

QUICK VIEW GUIDE

Special Word Processing Features Chapter 5

Purpose: These special WRITE ROM features let you make changes or perform actions that improve your document processing.

Steps:

1. Press F1 (Rplc) for "Search and Replace".
   a. Type in search word or phrase. Press F8.
   b. Type in replacement word or phrase. Press F8.
   c. Screen says "Confirm (Y/N)". Type N to replace all occurrences automatically. Type Y if you want to confirm each replacement.
   d. Change (Y/N) lets you confirm each occurrence.
2. Press F2 (Name) to rename any file cursor is on.
3. Press F3 (New) to start a new file.
4. Press F4 (Map) to get an on screen "pixel" map of formatted document.
   a. Press ENTER after each page to see next page.
   b. Press ENTER after last page to see total (expanded) word count.
   c. Differs from word count on WRITE ROM menu because this counts Headers, Footers, Merge entries, LIBRARY entries and INCLUDE files minus dot commands and FORM prompts.
5. Press F5 (Kill) to kill any file cursor is on.
6. Press PASTE. Prompts for new file name. Copies a new file instantly.
7. Type %D, %W, %T, or %P in header, footer or anywhere in document.
   a. When you print, the date, day of the week, time or page number are inserted automatically.
   b. Also works when typed in as FORM answers (Chapter 9).
   c. Works when included in a LIBRARY entry (Chapter 12).

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   a. When you print, the date, day of the week, time or page number are inserted automatically.
   b. Also works when typed in as FORM answers (Chapter 9).
   c. Works when included in a LIBRARY entry (Chapter 12).

CHAPTER V

SPECIAL WORD PROCESSING FEATURES

WRITE ROM allows you to do some very special things that make word processing much easier. In this chapter we will explain how you can:

a. Search and replace with just a function key.

b. Rename a file.

c. Start a new file.

d. Get an on-screen map of your formatted pages.

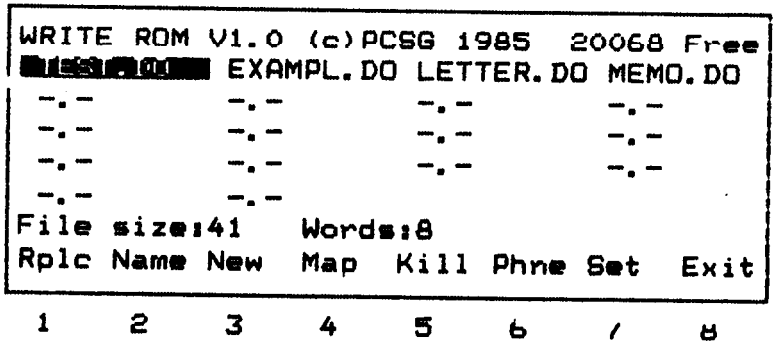
e. Get total or expanded word count.

f. Kill a file.

g. Copy an entire file instantly under a new filename, but without losing the original.

h. Have date, time, day of week, or page number automatically inserted anywhere in your document.

From the Main Menu on your Model 100, put the widebar cursor on Write and press ENTER. If you have document files in your machine, you immediately go to the WRITE ROM main level. The main level of function keys is displayed as follows:



ACCESSING A DOCUMENT

You can go into any document file on the WRITE ROM menu simply by moving the widebar cursor with the arrow keys to the filename and pressing ENTER. Immediately you are in that file with full text editing capabilities as though you entered it from the Main Menu or called it up through TEXT.

As with documents you originated from WRITE ROM, when you press F8 from a document merely entered through WRITE ROM, you are back to the main level as described earlier. This enables you to have easy access to the wonderful text processing functions. After you have used WRITE ROM for a few minutes, it will become second nature to you.

As you use it, you'll find you will always create and access your documents through WRITE ROM, because it gives you greater control over copy while you are preparing it.

At this time you should have a document prepared so that you can experiment with it to examine these various features.

Now position the widebar cursor over the filename that you wish to change or study.

F1 (Rplc) SEARCH AND REPLACE

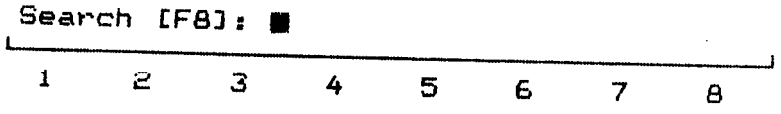
1. Choose a word or phrase to replace

   For this exercise, you need to know a word in the document that you would like to replace. If you have not looked for one, go into the document and see what word you would like to replace throughout to experiment with this feature.

   Often "search and replace" is used to change someone's name on a letter being sent to someone else, where the name was used several times or to change a company name or even a city. If you are new to "search and replace," you might think you wouldn't find it useful. With practice, it will certainly enhance your ability to prepare documents. Where you want to change terminology or a title or project name, it is so much easier with a few strokes of the function keys than have to search and retype all of those phrases.

2. After you have found a word or phrase to replace, put the cursor on the filename and press function key F1 (Rplc).

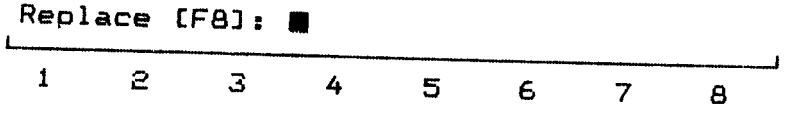
   Immediately the bottom line clears and the prompt appears:



   You can type in

   a. Nothing
   b. Spaces
   c. A new word or phrase up to 25 characters.
   d. TABS
   e. Carriage returns
   f. any combination

3. After typing in the search word or phrase, press F8. The bottom line clears and a new prompt is shown:



   Type in any replacement word, phase or other as above.

4. Press F8. The screen says,

   Confirm (Y/N):

   Y–means that you want to stop at each occurrence of the search word to confirm.

   N–means you want every occurrence of the search word to be replaced automatically.

5. If you type N:

   Replacement of every occurrence of the word or phrase is done automatically.

   The word "WAIT" will appear flashing on the lower left hand corner of the bottom line. If it is a small document, you probably will not notice that happening. Now go into your document. Notice that the word that you searched for has been replaced with the word or phrase that you typed in.

6. If you type Y:

   The second line from the bottom clears and immediately you see text from your document. The first occurrence of the search word will show at the far left of the screen. The prompt appears:

   Change (Y/N):

7. Type Y and the word is replaced. Type N and that occurrence is left unchanged.

   In either case more text streams across until the next occurrence of the search word or phrase appears at the left.

   Continue answering Y or N until all occurrences have been viewed.

WHY CONFIRM?

a. Upper and lower case

   When you search, all occurrences of a word, both upper and lower case will be found. However, the replacement word will be inserted exactly as typed. If you are replacing a word that has some upper case occurrences (such as at the beginning of a sentence), you will want to do two passes to cover both situations.

b. Different usages

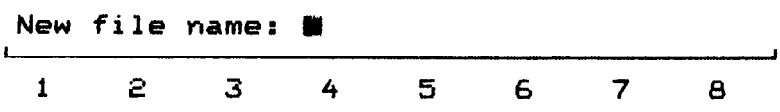
Sometimes a word will have different usages and you won't want all occurrences replaced. For example, you might be replacing the word "report" with "article," and have instances where "report" was used meaning a noise. You'll be surprised when you confirm, how often the replacement would have been quite comical.

F2 (NAME) GIVES A FILE A NEW NAME

Move the widebar cursor to a filename you wish to change.

Press function key F2 (Name).

The bottom line of labels disappears and this prompt appears:



Now simply type in the new filename up to 6 letters. Press ENTER.

Immediately you will observe that the filename is changed on the screen.

F3 (NEW). STARTS A NEW FILE.

In the past you have been used to initiating your new files from TEXT, but with WRITE ROM this is no longer necessary.

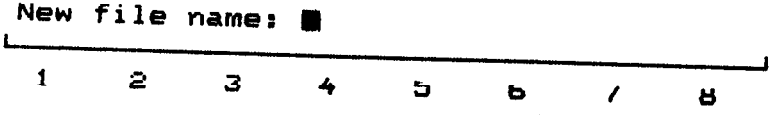
You might think, "What difference does it make?"

What is nice about starting or entering a file from WRITE ROM is that whenever you press F8 (Exit), you go immediately back to WRITE ROM. This makes it convenient to perform special functions with that file.

Perhaps you will be typing in your document and then want to do a search and replace. Maybe you will want to check out its map to see how it will look formatted, or maybe you will need to find out how many words it has.

Going directly back to WRITE ROM with F8 (Exit) is a wonderful feature.

Remember that if you put your cursor on WRITE ROM and you have no document files, you will not go immediately into the WRITE ROM main level of function keys. Instead this prompt is displayed on your screen:



You simply start your new document just like you did with function key F3 (New), by typing in a new filename up to six letters and pressing ENTER. Then you see the main level WRITE ROM screen as shown above.

F4 (MAP) DOING A PIXEL MAP OF YOUR DOCUMENT

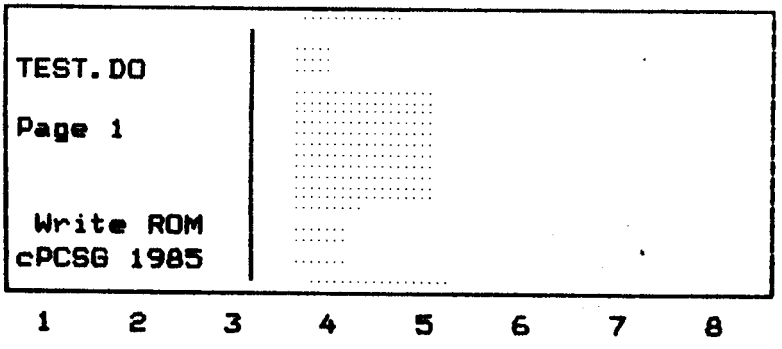
On the screen, anytime you wish, you can look at a map of your document. This map will show you what your document will look like when it is printed. Just put the cursor over any filename and press F4 (Map).

Pixel Mapping is a terrific feature of WRITE ROM. A pixel is one of the very tiny squares on the Model 100's LCD screen. Every place a character, even punctuation, appears in your document is represented on the screen by one of these dots being darkened. The result is a "picture" of your document the way it will look when printed. Pixel mapping allows you to preview the format of your document on the screen without wasting paper or valuable time. If you like how it looks, you can proceed to print it, but if you want to change something, you can change the margins or make other layout corrections before printing.

The end effect is similar to a photo-reduced copy of an entire page of your document, small enough to fit on your screen. Don't bother to get a magnifying glass to try and read it, though, because each letter is merely represented by a dot.

Simply put the widebar cursor over the filename that you wish to have mapped. Press function key F4 (Map). The screen clears. You are immediately shown the pixel map of the document. Notice that, for every character that was typed in the document, a dot appears on the screen. You will see each successive page as you press ENTER.

After pressing F4 (Map) the screen looks like this:



The name of the file being mapped is displayed on the left, and the page number below it. A line is drawn in the middle of the screen, representing the left edge of the paper.

Your document is now formatted on the screen. Your margins are proportionally correct; your header and footer appear as little dots on the top and bottom of the page. Everything is just as it would be if you were actually printing.

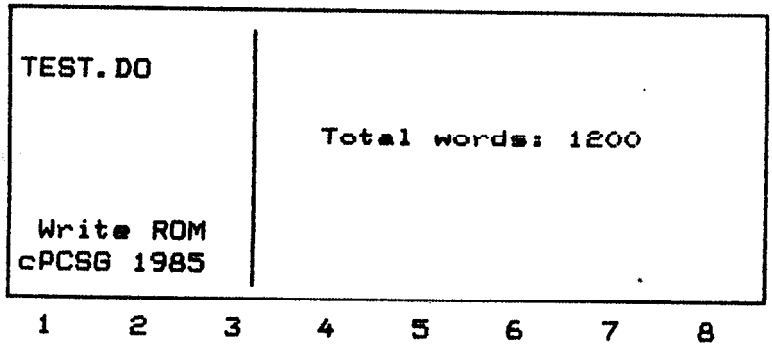
When you first map a document, you may have difficulty visualizing what the pixels represent. After a little practice, it will become a useful tool for you.

Many people have commented that pixel mapping is most useful with a one-page document, like a letter. You can then see what the margins and other format factors look like. If the letter is all "bunched up" on the top of the paper, you can insert a .UP command to bring it further down on the sheet. If there are only a few lines of print, you can increase the left and right margins.

With long documents, WRITE ROM stops automatically after every page to let you look at the result of the mapping. When you press ENTER, you resume mapping. Each time you press ENTER, you will see a new page with the page number shown to the left.

F4 (MAP) THEN ENTER SHOWS WORD COUNT

Press ENTER again and you suddenly see the expanded word count displayed as follows:



"Total word count" is extremely useful for people who are charged with the responsibility of having to fill a certain amount of space. A newspaper reporter will find this information invaluable. It is also helpful if you are preparing a document to be sent over a wire service where the number of words determines the cost.

The difference between the word count here and the one on the WRITE ROM menu is that the count here includes text that is not in your RAM file, but is in your document; merged text, library (boilerplate) text; INCLUDE files, headers and footers. Total word count is also minus any Graph t (FORM) prompts and dot commands, shown as words on the WRITE ROM menu count.

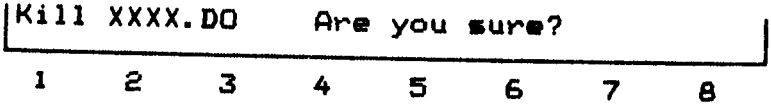
F5 (KILL) KILLS A DOCUMENT

No more do you have to go into BASIC to kill a document file.

From the WRITE ROM menu place the cursor over the name of the file you wish to kill.

Press function key F5 (Kill).

The bottom line clears and the message appears:



This safeguard is provided in case you accidentally pressed the F5 (Kill) key or if you change your mind.

Type Y to execute the kill. Any other key pressed will be regarded as a no. Immediately you will observe that the name of the file you have killed is removed from the WRITE ROM menu.

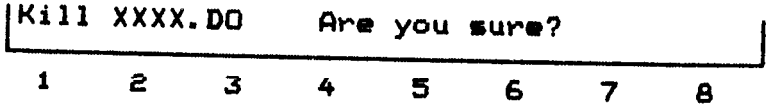
F5 (KILL) KILLS A DOCUMENT

No more do you have to go into BASIC to kill a document file.

From the WRITE ROM menu place the cursor over the name of the file you wish to kill.

Press function key F5 (Kill).

The bottom line clears and the message appears:



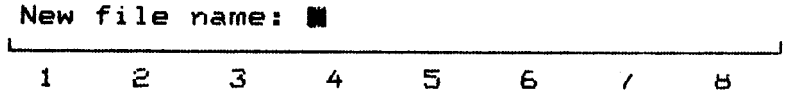
This safeguard is provided in case you accidentally pressed the F5 (Kill) key or if you change your mind.

Type Y to execute the kill. Any other key pressed will be regarded as a no. Immediately you will observe that the name of the file you have killed is removed from the WRITE ROM menu.

PASTE KEY COPIES AN ENTIRE FILE INSTANTLY

WRITE ROM allows you to copy an entire file instantly. It is much faster than going over, copying and pasting a file using the COPY and PASTE function of TEXT.

The procedure is simple. Put the widebar cursor over the filename that you wish to copy. From the WRITE ROM main level, press the command key "PASTE". Immediately the bottom line clears and the following prompt appears:



Type in the new filename for the copy, up to six letters, and press ENTER. If it is a large file you will see "WAIT" flashing in the lower right hand corner of the screen while the file is copied. Then you will see the new filename appear on the WRITE ROM menu. Go over now and look at that file. You will see that it is exactly the same as the file you copied. It merely has a different filename.

In Chapter 10, PRINTING, you'll learn about another way to copy a file to a new location, using the PRINT function of WRITE ROM so you can print a formatted version into a RAM file. Which option you use depends on how you intend to use the document.

%T, %D, %P, %W, WORK ANYWHERE IN DOCUMENT.

Any place in your document, as well as in your header and footer you can have the time, date, page number or day of the week drawn from your Model 100 and automatically inserted. Simply type the code %T for time, %D for date, %P for page number or %W for day of the week. Remember that the time, date and day of the week are what is set in your Model 100 at the time so these need to be correct at the time of printing to be accurate in your document.

If for some reason the date in your Model 100 is not correct, you will need to go into BASIC and reset it.

Setting the date in your Model 100 is quite easy. From the Main Menu, put the cursor on BASIC and press ENTER. The screen says OK.

Type Date$ = "01/15/86 (final quotation marks not necessary)

```
date$="01/15/86
```

Press ENTER to set date as

```
Jan 15, 1986
```

When you type in the month/day/year, each one must use two digits.

After you have set the date in BASIC, the new date will show in the upper left of your Main Menu. Now whenever you want the date in your document when you print with WRITE ROM, just type in a %D.

Time is set in BASIC as

```
TIME$="11:45:00
```

meaning 11:45 A.M.

```
TIME$="13:45:00
```

meaning 1:45 P.M.

Day of week is set as

```
DAY$="Wed
```

QUICK VIEW GUIDE

Dot Commands Chapter 6

Purpose: You can type special commands inside your document, invisible when you print. They cause parts of the document to be formatted differently from the function key settings or other parts of the document previously changed with dot commands.

Steps:

1. Dot commands begin with a period.
   a. On line by themselves, flush left and preceded by a carriage return.
   b. End dot command with carriage return
   c. Precedes text you want effected
2. Some are Wordstar compatible
   a. Exclusive WRITE ROM dot commands are not – like INCLUDE, MERGE. Extra line on paragraph.
   b. When preparing Wordstar document don't use other exclusive WRITE ROM features like FORM, Library or Printer codes.
3. Dot commands are invisible when printing.
   a. "Bad dot command" message stops printer.
   b. Any key resumes printing, bad command doesn't print or affect document. Correct the command for next printing.
4. Dot command summary

.OL 0-250	Left margin
.OR 0-250	Right margin
.OJ ON or OFF	Justify
.OC ON or OFF	Center
.CP 1-250	Conditional page feed
.UP 1-20	Move page up
.PA	Start new page
.PN	New page no new page number
.FO ON or OFF	Footer this page
.HE ON or OFF	Header next page
.OSn	Line spacing OS2 = double space
.OX ON or OFF	Extra line on paragraph
.IN XXXXX	Includes or appends XXXXX file
.MG XXXXX	Merges entries like names and addresses from XXXXX file, printing multiple copies (Chapter 8).
.TI	Undent next line only to left margin 0
.TI – n	Undent next line n spaces
.TIn	Indent next line n spaces

5. Invisible comments in document
   a. Lets you have personal comments in your file that won't appear in printed document.
   b. Just precede with period flush left.
   c. While printing, screen says "Bad dot command". Press any key to continue.
6. Favorite format spec? See page 200.

CHAPTER VI
DOT COMMANDS

You have now gone through typical formatting sequences using first the defaults and second the function keys, and you have made some changes that created a format of your own design.

But there are many limitations to formatting using just these methods. With some persons those are the ways they will always format because they are the ultimate in simplicity.

If all you need is a way to set up your material on the printed page with the entire document being formatted the same way, then the default or the function keys are all you will ever need to learn.

HOW TO HAVE VARIETY

WRITE ROM has a wonderful device built into it that lets you change the way parts of the document are formatted so that they are different from the rest of the document or the way the function keys are set up.

> This device, called "dot commands," is a series of simple codes embedded by you in the article you are writing. These commands take over and change the margins, center or justify and make other changes on the next piece of text that follows until you embed other commands that change it back to the same settings as the function keys or some other way you want it.

This embedded command mechanism lets you do many things to your article. It lets you have the various features that we listed in the table of contents for this chapter available to you easily and simply. Notice the paragraph above. You could produce this same effect using dot commands. By using embedded commands, you can cause the right edge to be justified and change the left and right margins. Then for the next paragraph you can change it back again.

WORDSTAR COMPATIBILITY

If you are a Wordstar user, you may wish to prepare documents that are Wordstar compatible. Using PCSG's DISK + file transfer program on snap-in ROM, you can transfer any document file to your desktop computer and work it with Wordstar.

DISK + also allows you to use your other computer's disk drive as a drive for the Model 100. It works just like the Main Menu, and you can transfer and store machine code and BASIC files as well.

For those that have the need for Wordstar compatibility, we have made all WRITE ROM dot commands which have counterparts in Wordstar exactly the same as those Wordstar dot commands.

However, WRITE ROM has several features that are exclusive; some of these are controlled by dot commands and others are signaled by Graph characters, or CODE symbols.

Wordstar does not have these special features, and therefore there are no equivalent Wordstar commands for them. If you are wanting to prepare your document for later processing with Wordstar, simply don't use the special exclusive WRITE ROM features for those documents. In the following paragraphs where the dot commands are listed, we designate which are these exclusive WRITE ROM dot commands. In other chapters, we discuss features triggered by Graph symbols, such as FORM (Chapter 9) and LIBRARY (Chapter 12) and CODE invoked printer controls (Chapter 10 PRINTING). If you are preparing your document for Woodstar compatibility, you won't be able to use the Graph or CODE symbols associated with these features.

Following is a summary of all of the commands and later a description of how to use them.

WRITE ROM DOT COMMAND SUMMARY

.OL 0-250	Set left margin to n (n stands for any number of spaces)
.OR 0-250	Set right margin to n
.OJ ON	Justify right margin
.OJ OFF	Ragged right edge
.OC ON	Center all text
.OC OFF	Ragged right edge
.CP 1-250	Start a new page unless n more lines fit on the current page (CP stands for conditional page)
.UP 1-250	Move paper up n lines (skip lines)
.PA	Start a new page (Chapter end)
.PN	New page without incrementing page number
.OX ON	Extra line on paragraph ON
.OX OFF	Extra line on paragraph OFF
.TIn	Temporary indent or undent.
.FO ON	Footer on
.FO OFF	Footer off
.HE ON	Header on
.HE OFF	Header off
.OSn	Line spacing control 0 = no line feed except after carriage return. 1 = normal single spacing, 2 = double spacing, 3 = triple spacing
.IN XXXXXX	XXXXXX stands for other filename. Includes other file in printout (not Wordstar compatible)
.MG XXXXXX	XXXXXX stands for other filename. Merges this document with entries from other file (not Wordstar compatible). *Discussed in detail in Chapter 8.*

SOME RULES ON HOW TO USE THE COMMANDS

We will give you illustrations of how to use each of the commands to do specific formatting variations. But you need to understand some of the rules by which they work.

A. An embedded command will not show up in your completed printed article although it does appear on the screen.

B. Even though the command takes up character spaces and a line on the screen, no space is consumed in the printed article.

C. Each embedded command must be on its own line. In other words, any entries before the command must be ended with a carriage return, and the command must be followed by a carriage return (press ENTER).

D. Each command must have the . in front as part of the command.

E. Each embedded command must be all the way to the left of the screen. In other words, there is to be no space in front of the . that begins each command.

F. Study the examples of each variation on the pages that follow. There are special rules that apply concerning each situation.

HOW TO DO SPECIAL FORMATTING VARIATIONS

1. Centered headings

You can center a single word heading or a complete sentence. In the following illustration, note that the .OC ON command acts on the text that follows and the .OC OFF command returns the format to the ragged right edge.

REMEMBER THAT YOU:

A. Type your last paragraph and press ENTER (carriage return).

B. On the next line put a . and the command, then press ENTER (carriage return).

C. On the next line type the words that the command will be handling. End that by pressing ENTER (carriage return).

D. On the next line put a . followed by the command letters to restore the format that you want.

EXAMPLE

WHAT THE SCREEN LOOKS LIKE:

```
.oc on◄
A CENTERED HEADING◄
.oc off◄
```

HERE'S HOW IT LOOKS ON PAPER:

```
A CENTERED HEADING
```

2. Centered text

Centered text is set up exactly like a centered heading, there are just more words and sentences. It often creates an unusual look.

EXAMPLE:

WHAT THE SCREEN LOOKS LIKE:

```
.oc on◄
Centered text is used to create a
decorative pattern to the words.  It is
sometimes appropriate on dinner party
menus or on announcements.◄
.oc off◄
```

HERE'S HOW IT LOOKS ON PAPER:

```
   Centered text is used to create a decorative
pattern to the words.  It is sometimes appropriate
    on dinner party menus or on announcements.
```

3. Justified right margin

This produces a right margin in which every line is exactly the same length.

EXAMPLE

WHAT THE SCREEN LOOKS LIKE:

```
.oj on◄
The .OJ ON changes the format from
ragged right edge to justified.  Notice
that the margins are the same.  The .OJ
OFF at the end changes it back to ragged
edge.  Justified edges are useful for
preparing columns for newsletters, for
brochures or even manuals.◄
.oj off◄
```

HERE'S HOW IT LOOKS ON PAPER:

```
The .OJ ON changes the format from ragged right edge to
justified.  Notice that the margins are the same.  The
.OJ OFF at the end changes it back to ragged edge.
Justified edges are useful for preparing columns for
newsletters, for brochures or even manuals.
```

4. Set right and left margins

Dot commands allow you to set the margins differently than was called for by the function key settings in the middle of the letter or article that you are writing. This creates variety in the format.

EXAMPLE

WHAT THE SCREEN LOOKS LIKE:

```
.ol 16↵
.or 58↵
Setting the margins differently in the
body of your text has many
applications.  Some we illustrate
later under other headings.  It can
serve to offset an important passage
or to emphasize a paragraph.↵
.ol 8↵          (sets left margin back)
.or 64↵         (sets right margin back)
```

HERE'S HOW IT LOOKS ON PAPER:

```
Setting the margins differently in the
body of your text has many applications.
Some we illustrate later under other
headings.  It can serve to offset an
important passage or to emphasize a
paragraph.
```

5. Title page

A. There are two ways to do a title page. The first is to do a new and separate text file. This eliminates having to make special adjustments for page numbering.

Instructions:

1. Go to the WRITE ROM menu, and access the header switch. (F7/F5)
2. Change header switch to OFF. (Omit this step if you want the header on the title page.)
3. Start a new file. F3 (New) from the main level.
4. Set up like the example which follows.

EXAMPLE

WHAT THE SCREEN LOOKS LIKE:

```
.up 25◂
.oc on◂
WRITE ROM◂
AN EASY TO USE◂
WORD PROCESSING PROGRAM◂
FOR THE TRS-80 MODEL 100◂
.fo off◂ ( if you want the footer off)
.oc off◂
```

WHAT IT LOOKS LIKE ON PAPER:

```
(first 25 lines of blank space are fed)

                WRITE ROM
             AN EASY TO USE
        WORD PROCESSING PROGRAM
        FOR THE TRS-80 MODEL 100
```

B. The second way, the title is done at the beginning of the document you are titling.

Instructions:

1. Press F5 (H/F), then F1 (Hdr), then change "Header switch" to OFF.
2. Go to the beginning of your document.
3. Set up like the example following.

EXAMPLE

WHAT THE SCREEN LOOKS LIKE:

```
.up 25◂
.oc on◂
WRITE ROM◂
AN EASY TO USE◂
WORD PROCESSING PROGRAM◂
FOR THE TRS-80 MODEL 100◂
.fo off◂        (if you want the footer off on this page)
.oc off◂
.he on◂         (if you want a header on the next page)
.pn◂            (starts a new page without incrementing
                the page number)
.fo on◂         (if you want footers on subsequent pages)
```

The title example shown earlier would be reproduced using the command sequence shown above.

Note that the main difference is the use of the .PN dot command, which starts a new page without incrementing the page number, so the next page will be page 1 as well.

6. Title page in middle of document

Perhaps you might want a title page in the middle of a paper you are writing. If you are ending a chapter and want a title page to follow before the next text, you would set it up as follows:

EXAMPLE

WHAT THE SCREEN LOOKS LIKE:

```
.he off◄        (switch off header before
                 new page)
.pn◄            (new page without new
                 page number)
.up 25◄
.oc on◄
THE NEW CHAPTER◄
OF THIS STORY◄
.oc off◄
.fo off◄        (for this title page)
.pa◄            (new page with new
                page number)
```

7. Standard block letter format

The standard block letter has the address flush to the left and there are no skipped lines between each line of the address.

You can set up this copy two ways.

A. Access the function key setting, F7 (Set), then F6 (Frst), then F7 (Xtra) and make sure the "extra line on paragraph" signal is off. If you want an attractive skipped line between paragraphs, you must put in an extra carriage return between each paragraph.

B. Another way is turn "Extra line on paragraphs" signal ON using the .OX on command. Before the last line of the address embed a .OX ON. This way you turn off and then on again the automatic skipped line between paragraphs.

EXAMPLE of the second method. This would be for a long letter with many paragraphs that you want separated with an automatic skipped line like using F7 (Xtra).

WHAT THE SCREEN LOOKS LIKE:

```
.ox off◄
Mrs R.W. Smith◄
National Corn Starch Company◄
221 E. Fremont St.◄
.ox on◄
Dallas, Texas   75229◄
Dear Mrs Smith:◄
Thank you for your letter of....
```

HERE'S HOW IT LOOKS ON PAPER:

```
Mrs R.W. Smith
National Corn Starch Company
221 E. Fremont St.
Dallas, Texas   75229

Dear Mrs Smith:

Thank you for your letter of....
```

8. Indented paragraphs

To indent a paragraph you use only a left margin embedded command and leave the right to be controlled by the function key setting.

EXAMPLE

WHAT THE SCREEN LOOKS LIKE:

```
.ol 20◄
The indented paragraph is often
important in a letter or article to
draw attention to a special subject or
to create a distinction between a
certain paragraph and other material
in the article.◄
.ol 8◄
                              (restores margin)
```

HERE'S HOW IT LOOKS ON PAPER:

```
The indented paragraph is often important
in a letter or article to draw attention
to a special subject or to create a
distinction between a certain paragraph
and other material in the article.
```

9. Chapter end feature

This is a convenient mechanism that lets you end a topic. By embedding one command, the next entries start at the top of the next page. After the command the paper advances, prints the footer and begins at the top of a new page.

Instructions:

A. End your text for the page and press ENTER (carriage return).

B. On its own line at the extreme left type .PA, followed by a carriage return (press ENTER).

10. Document end feature (top of page)

WRITE ROM ends your document automatically without your having to embed any command to effect it. At the end of your document (even if it ends in the middle of the page), the paper will advance to the bottom of the page and print the footer. It then moves the paper to the top of the next page.

11. Justified and ragged in the same document

The use of embedded commands lets you have a variety of combinations. Justified text in the middle of a ragged edge document creates an emphasis on a paragraph that is outstanding.

WHAT THE SCREEN LOOKS LIKE:

```
.ol 24◄
.or 54◄
.oj on◄
Setting new right and left margins
combined with the command to justify
can create another interesting effect.
Note that at the end of this
paragraph we give the command to
return to the same margin as the
function key setting, along with a
ragged edge right command.◄
.ol 8◄
.or 62◄
.oj off◄
```

HERE'S HOW IT LOOKS ON PAPER:

> Setting new right and left margins combined with the command to justify can create another interesting effect. Note that at the end of this paragraph we give the command to return to the same margin as the function key setting, along with a ragged edge right command.

The .OJ OFF command causes the text to go back to ragged right edge. Notice that we had to call out the left and right margin values even though they are the same as in the function key settings. Once you change margin values you have to redefine them every time you want them to change again.

12. Skip lines feature

The .UP n (n means number) command lets you move the paper forward as many lines as you want. It lets you create a block of blank lines in the middle of your article if you need, for example, to paste in an illustration.

We also use .UP 20, or however many lines you want to skip, command when we do a title page to move the paper forward to where the title would be printed.

13. Double, triple or more space feature

If you want your entire document to be double spaced, go to the function key settings and change the signal for line spacing to 2. Change to 3 for triple spacing and 4, 5 or whatever for more.

If you want to double, triple or more space as part of a document that has other parts not spaced that way, you will use embedded commands.

Before any text that you want double spaced, enter .OS2 (on its own line).

For triple space enter .OS3 and so forth.

At the conclusion of the double or triple spaced text, enter .OS1 (on its own line) to restore to the normal line spacing.

EXAMPLE

WHAT THE SCREEN LOOKS LIKE:

```
.os 2↵
Double spacing or even triple spacing
in the middle of a single spaced
document is extremely useful when
doing drafts.  It is so practical when
you want to rework in the body of an
otherwise complete article.↵
.os 1↵
```

HERE'S HOW IT LOOKS ON PAPER

```
Double spacing or even triple spacing in the middle of
a single spaced document is extremely useful when
doing drafts.  It is so practical when you want to
rework in the body of an otherwise complete article.
```

14. Multiple margin settings in the same document

You can have as many margin settings as you like. Each place you would like to see new margins, simply put in new .OL and .OR commands, following the instructions as explained earlier.

15. Optional header or footer on certain pages in same document

On certain pages you may not want a header or footer. If you don't want either one or both in an entire document, go to the Hdr Ftr function keys and turn the header or footer switch off.

For selected pages of an article or paper to have the header omitted, you can easily enter a dot command that will do that task for you.

Different rules apply for different situations.

A. First page of a document

The way WRITE ROM works is that it prints the header on a page before it looks at that page.

Therefore, if we want to eliminate the header on the first page, you must go to the function key settings and press OFF for the header switch.

Then early in the document enter a .HE ON command. This turns on the header for page 2 and all the rest.

Instructions:

1. Turn the header function key OFF. From the main level go F7 (Set), F5 (H/F), F1 (Hdr), F2 (Off)

2. Somewhere in the document, close to the beginning, put in a .HE ON embedded command. (Remember to put it on its own line.)

B. To eliminate the header on any other pages than the first or to eliminate the footer on any page, you can leave the function key switches on.

Then you must enter .HE OFF somewhere on the page previous to the top of the page where you don't want the header to appear. You will generally know where to put it because you will know which subject matter you don't want started with a header. If you miscalculated on your first printout, adjust accordingly.

For eliminating the footer, the .FO OFF must appear on the same page where the footer is not wanted. Be sure to insert a .FO ON command after the text for that page so you will have a footer on the rest of the pages.

16. Outline technique

Often presentation of facts or ideas in an outline form is an excellent communication device. Outlines are very easily accomplished using the WRITE ROM's embedded commands.

Outlines are entirely set up using only the left margin embedded command .OL n (n means number of spaces).

EXAMPLE

WHAT THE SCREEN LOOKS LIKE:

```
.oc on◄
CURRENT CORPORATE CRISIS◄
◄
.oc off◄
I. Introduction.◄
.ol 14◄
A. Background◄
B. Need◄
.ol 20◄
1. Problems◄
.ol 25◄
a. Financial◄
b. Technical◄
.ol 20◄
2. Resources◄
.ol 8◄
◄
II. Solutions◄
.ol 14◄
A. In-house◄
B. Outside◄
.ol 20◄

1. Consultants◄
2. Contacts◄
◄
.ol 8◄
III. Conclusions◄
.ol 14◄
A. Consequences◄
B. Prognosis◄
.ol 8◄
```

HERE'S HOW IT LOOKS ON PAPER

```
                    CURRENT CORPORATE CRISIS

 I. Introduction.
        A. Background
        B. Need
              1. Problems
                    a. Financial
                    b. Technical
              2. Resources

II. Solutions
        A. In-house
        B. Outside
              1. Consultants
              2. Contacts

III. Conclusions
        A. Consequences
        B. Prognosis
```

17. Conditional page feed or suppress printing of "orphan lines"

Occasionally, in an article you are preparing, you may have a section that you don't want to appear on the bottom of a page alone "like an orphan." Most of the time it doesn't matter, but sometimes you have material that doesn't look good on the bottom of the page (for instance, the introduction line). The rest of the material on the next page needs that line or those first few lines to look right or make sense. Therefore, we have a "conditional" command.

The command is .CP n, where n is the minimum number of lines to appear from this point to the end of the page. If there is not enough space to fit these lines in, WRITE ROM will start a new page. If there is room, WRITE ROM will continue on the current page.

For example.

.CP 20

This .CP 20 command says, "If the next 20 lines can't fit on this page then start them off on the next page."

18. The INCLUDE command. Include or add additional files in your printout.

WRITE ROM enables you to use the dot command .IN to include other files from RAM at the beginning or in the middle of your document or to append files at the end. In other words, anywhere you wish in the document, you can insert other files.

This feature can also be used to perform "chaining," which lets you have your article divided into several parts, each located under a different filename.

When you print, if you have used the "INCLUDE" dot command, WRITE ROM prints the files together as if they were one.

The "INCLUDE" command also lets you do boilerplate, which means to insert standard openings, closes or answers to common questions. WRITE ROM has another powerful function called LIBRARY that also lets you do boilerplate. Read Chapter 12 for a full discussion of Library.

How to do INCLUDE:

Type the INCLUDE dot command into your document at the location where you want the other document to appear.

The command is:

.IN XXXXXX

Where XXXXXX is the filename of the document to append.

For example, if you wanted to add a file named COSTS.DO stored in RAM to your document when it is printed, you would type:

```
.in costs◄
```

This is typed into your document (flush left on its own line) at the place where you would want COSTS.DO included. Notice that you do not have to use the ".DO" extension in your dot command.

When you print the document, make sure the files you are including are in RAM. When WRITE ROM executes the INCLUDE command, it searches for the file in RAM and inserts it at the correct location, reformatting the added file to fit the margins and other specs as set up by the function key settings and whatever dot commands are still in effect in the primary document.

You can "chain" a number of documents while printing. To do this, type in the required ".IN" commands at the end or anywhere in the middle of the first document. Make sure they are listed in the order you want them printed and that each command is on a line by itself, ending with a carriage return.

19. Temporary Indent or Undent.

.TI is a very special dot command that allows a single line to temporarily have a different left margin than the current setting. This dot command only effects the line immediately following it, then the left margin returns to whatever you last set it to with a dot command or function key.

The command is .TI, and it works three different ways:

1. If you put just .TI on a line by itself followed by a carriage return the next line will be printed flush left, in other words with a left margin of 0. The second line following the .TI reverts to the former margin.
2. If you put a .TI-nn (nn stands for a number you type in) on a line by itself followed by a carriage return the next line will be 'undented' that many spaces to the left of the left margin setting currently in effect. For example if your current left margin is 8 and you put
   .TI-3 .
   The line immediately following will have a left margin of 8 — 3 or 5.

3. If you put a .TI nn (nn stands for a number you type in) on a line by itself followed by a carriage return the next line will be indented that many spaces to the right of the left margin setting currently in effect. For example if your current left margin is 8 and you put
   .TI 4
   The line immediately following will have a left margin of 8 + 4 or 12.

Notice the way we printed each of these three sections above. This is one effect you can achieve with temporary indent (.TI).

Summary:

Dot commands enable you to affect parts of your document and to create a more varied appearance than if you rely solely on function key settings.

Two special dot commands allow you to INCLUDE other files in your document and MERGE specific items, such as names and addresses, from another file into a document. The MERGE dot command is detailed in Chapter 8.

QUICK VIEW GUIDE

Special Print features – PRINT F4 (Code) Chapter 7

Purpose: Lets you do special features on your printer like underline, emphasized etc just by typing in an M-100 CODE character in your copy. For example, CODE u for underline turns the feature on and off. Hold down CODE key (to right of spacebar) and type u.

Steps:

1. Get your printer's codes
   a. Look up features in your printer manual
   b. Get the on and off codes – can be written different ways
      27, ESC, LPRINT CHR$(27), 027 All mean same thing
   c. Convert to decimal – look up in chart in M-100 manual appendix
      (If your manual shows a number from 1-9 experiment with the number as the decimal or look it up, eg 1 could be 001 or 049)
   d. Make each code 3 digits (pad out with zeros)
   e. If several, write without commas like, 027045000

2. Enter in WRITE ROM PRINT F4 (Code)
   a. F1 (Setu) Global, like italic
   b. F2 (UL) Underline
      Underline ON: 027045001 (type in your code, ENTER)
      Underline OFF: 027045000 (put in your code, ENTER)
      Underline [CODE] character: Type in M-100 CODE character you want. Best is CODE u for underline.
   c. F3 (Bold) Boldface
   d. F4 (Cor) Correspondence
   e. F5 (Alt) Alternate feature, your choice

3. Prepare your document – example is underline
   a. Prior and after word to be underlined type CODE u. (Hold down CODE key to right of spacebar, and type u)
   b. Example

      üwords to be underlinedü

   c. Setup-F1 (Setu) for global is automatic, requires no document preparation

4. Print the document
   a. Print to paper – PRINT F1 (Go) features are effected.
   b. If you print to RAM file – Strange characters appear (embedded codes). They effect the printer features. Print from inside file. Press F3 (Save), type LPT:, press ENTER.

5. Additional "Alternate" printer features, see page 200.

CHAPTER VII

SPECIAL PRINT FEATURES—LIKE EMPHASIZED, UNDERLINE AND OTHERS

With WRITE ROM, you can make your printer do special type effects like underline, emphasized, correspondence quality, expanded type and others easily and simply.

For example, all you do to underline is type a CODE u at the beginning of any text you want underlined and another CODE u at the end. Hold down CODE key (to right of space bar) and press u. When you print, that text will appear underlined. The other fonts are just as simple, like emphasized is CODE e. But before this feature will work, you have to set up WRITE ROM to be able to control your own particular printer.

HOW TO SET IT UP FOR YOUR PRINTER

Every modern printer has built into it the ability to do special fonts and features. In your printer's manual, you will see a listing that will generally include such things as underline, emphasized, correspondence quality, expanded type, even italic. There may be as many as 10 or 15 different type features that your printer is supposed to be able to do.

CODES FROM THE COMPUTER TO THE PRINTER

The way your printer turns on and off these special print fonts is by signals sent from the computer to the printer.

Printers that have these features are called "smart" machines. They have a small computer inside them that enables them to interpret these on-off signals and change the print characters accordingly. In your printer manual, you will find a listing of the control codes along with the features they control. All you have to do is look up the codes for "on" and "off" for each feature you will want to use. Later we will show you how to put these codes into WRITE ROM so that the simple CODE u and the like will work on your printer.

GETTING THE CODES OUT OF YOUR PRINTER MANUAL

The codes are not shown consistently from printer manual to printer manual, and sometimes you will have to convert what is given to another form.

When you do your "one time" typing of the printer control codes into WRITE ROM, they need to be in a 3-digit form. Often a signal will have several of these 3-digit codes. For example, a typical signal consisting of 2 codes is 014,069.

Your printer manual will often show these codes in different ways.

a. CTRL N, E

b. LPRINT CHR$(14); "E";

c. 0EH,45H

d. 014,069

e. 014069

All of these expressions mean exactly the same thing. To put the signals into WRITE ROM, they need to be written without commas to separate them like the last example: 014069, known as the decimal form.

Therefore, if your printer manual doesn't show the codes in decimal form, you will have to look up what they show on a conversion chart.

Fortunately, there is just such a conversion chart in the appendix in the back of the Model 100 manual. It is titled "ASCII Character Code Tables." You might think ASCII stands for American Society for Confusion and Ignorance, but take heart, we will make it simple.

Notice the headings in the ASCII table:

Decimal	Hex	Binary	Printed Characters	Keyboard Characters

PROCEDURE:

1. Look in the printer manual for printer control codes for the feature you want. Depending on the printer manual, the codes they use could appear in any column in the table. This is because a row in the table simply shows different ways of representing the same value (byte). WRITE ROM always uses the representation in the leftmost column. So if your printer manual shows, for example, i, you would find i in the table and look to the leftmost entry in that line, 105, and use that in the control code.
2. Look on the chart for the decimal equivalent. Pay close attention to whether letters are upper or lower case. Their values are different.
3. If a printer manual gives a number, they usually mean that is the decimal code. If the number is less than 3 digits, then just pad it out with zeros in front.
4. Sometimes the printer manual will show a number as CHR$(number). This is the same as a decimal number as shown in the column headed decimal. For example, if the printer manual says CHR$(14) the decimal equivalent is 014.

Here's the confusing exception. Often a printer manual gives a number as part of its code, along with other characters. Generally the number part is the decimal equivalent and not to be looked up. You will have to put zeros in front to make it a 3-digit number. Then the other parts are to be looked up. We give some examples of this.

EXAMPLES:

Printer Manual says	Decimal Form
A. ESC "-" 1	027045001
B. ESC "-" 0	027045000
C. CTRL N,E	014069
D. LPrint Chr$(14); "E";	014069
E. ESC G	027071
F. OEH,45H	014069

Here are some actual codes from The Epson MX 80, which also apply to most Epson Printers and the Riteman printer.

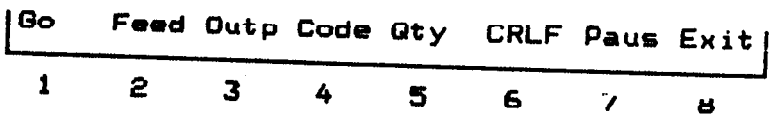
Underline on	027045001
Underline off	027045000
Emphasized on	027069
Emphasized off	027070
Expanded on	014
Expanded off	020
Compressed type on	015
Compressed type off	018

PRINT/F4 (Code) PUTTING YOUR CODES IN

In order to be able to use the CODE u on and off for underline and other similar codes, you need to get the decimal codes which you have looked up recorded into WRITE ROM.

To record these first press the PRINT key.

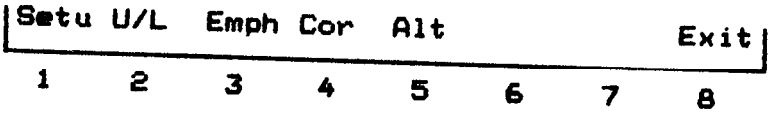
The bottom line clears and a new set of function key labels appears.



All other functions are explained in Chapter 10, PRINTING. In this chapter we deal only with F4 (Code).

Press F4 (Code).

The bottom line clears and new function key labels appear:



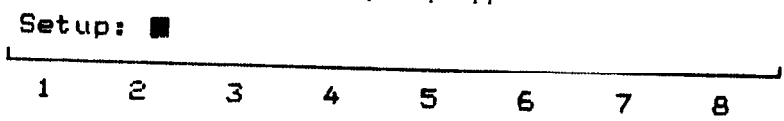
F1 (SETU) GLOBAL SETUPS

Function key F1 (Setu) is a global control. In other words, it is for a printer control code that would affect your entire document. It does not have an on and off position like the others we will study because it is for turning on only.

You would use the "Setup code" when you want to have your entire document print in "correspondence" quality or perhaps a particular font, like italic.

Press function key F1 (Setu).

The bottom line clears and the prompt appears:



Just type in the decimal form (from the leftmost column in the table at the back) of the code your printer requires for the global font you desire.

Example:

For doing double strike for the Epson MX 80 or Riteman type of printer, the control codes are ESC G. As explained earlier,

ESC is 027
G is 071

This is written 027071.

Therefore, it is entered as follows:

Setup: 027071

Press ENTER. The bottom line clears and you return to the code level function key labels. If you try to enter a code that is not a correct length of 3, you will get a beep, and the cursor will be positioned on the first digit.

This is because it would not be a multiple of 3 digits long–3, 6, 9, etc.

That setup code is now recorded. When you print as discussed in Chapter 10, the document will be in the font you specified. The setup code will remain in place unless you cold start your Model 100 or remove or replace the code as we have just demonstrated.

F2 (U/L) UNDERLINING

Press function key F2.

The bottom line clears and the prompt appears:

```
Underline ON: ■
└──────────────────────────────────────┘
 1   2   3   4   5   6   7   8
```

Type in the decimal code for starting Underline for your printer.

Example: The control code for start underline from the Epson MX-80 printer manual is

ESC "–" 1

Using the charts and following the guidelines of our earlier discussions, this code translates to a desired code of

027045001

NOTE: Printer manuals are often confusing and not consistent with any standard. Sometimes a number like the 1 is given in a code, and they don't mean 001 – they mean the keyboard 1. You would look this up on the chart and find it has a decimal form of 049. Experiment if numbers 1-9 are part of the code. If treating them as decimals doesn't work, then look them up for their keyboard character decimal values and try again.

The code shown above would be typed in as follows:

```
Underline ON: 027045001■
└──────────────────────────────────────┘
 1   2   3   4   5   6   7   8
```

Now press ENTER to record.

Immediately the bottom line clears and says:

```
Underline OFF: ■
└──────────────────────────────────────────┘
 1   2   3   4   5   6   7   8
```

NOTE: Some printers have the same code for off as on. If this is the case with your printer, then just type in the same decimal code as you did for on.

Example: The control code for underline stop for the Epson MX-80 printer is

ESC "–" 0

From the charts we get the decimal equivalents. We assume the 0 is already a decimal. The code would be typed in as follows:

```
Underline OFF: 027045000■
└──────────────────────────────────────────┘
 1   2   3   4   5   6   7   8
```

Press ENTER to record. The bottom line clears, and the screen says:

```
Underline CODE character: ■
└──────────────────────────────────────────┘
 1   2   3   4   5   6   7   8
```

Our recommendation is to use CODE u for underlining, because it is such a natural choice.

If you want to change to a new CODE character, just backspace and type in the character you want. Remember when typing a character to hold down the CODE key (to the right of the space bar) and tap the letter key while the CODE key is still depressed. When you have completed your change or if you don't need to make a change, press ENTER. You are taken back to the code level of function keys:

```
|Setu U/L  Emph Cor  Alt                Exit|
└──────────────────────────────────────────┘
 1   2   3   4   5   6   7   8
```

You have now recorded your printer control codes into WRITE ROM. Assuming you entered CODE u for the underline symbol, you can now turn "Underline" on and then off inside your document by typing a CODE u before and after any words that you want to have underlined.

You should test your codes to see if they are the correct ones for your printer.

A. Create a text file and type several lines of text.

B. Select some words you want to underline.

C. Prior to the words, type CODE u. Remember to hold down the CODE key and press the letter simultaneously.

D. Move the cursor to the end of the words to underline or type them now if you haven't already.

E. Type CODE u again. Your words to be underlined should look like this:

üwords to be underlinedü

There shouldn't be a space between the CODE u and the words you want underlined unless you want the space underlined.

F. Refer to Chapter 10, PRINTING, and print your document.

G. If the printed copy isn't underlined where you indicated, you need to go back and review the control codes in your printer manual and then the conversion chart for the decimal equivalents. Review the Special Notes at the end of this chapter for those unusual circumstances. Revise and test again.

H. Remember to turn off your printer before trying a new code. This step clears the printer's memory from the last code.

When you are printing your underlines satisfactorily, press the PRINT command key again and press F4 (Code) to examine the other code options. These function key labels reappear:

Setu	U/L	Emph	Cor	Alt			Exit
1	2	3	4	5	6	7	8

F3 (Emph) EMPHASIZED PRINT

F3 (Emph) is executed exactly like the underlining sequence but with different codes, of course. Refer back to these steps if you have any difficulty. Also consult the special notes at the end of this chapter for information about odd situations that can occur with some printers.

On a dot matrix printer. Bold is sometimes called "Emphasized" print. On daisy wheel printers this is called double strike printing. In either case, you

1. Determine the correct codes.
2. Type the decimal value in the WRITE ROM file.
3. Type CODE e in your document to send the code.

F4 (Cor) CORRESPONDENCE QUALITY PRINT

F4 (Cor) is performed exactly like the underlining sequence but with different codes of course. Refer back to those steps if you have any difficulty. Also consult the special notes at the end of this chapter for information about odd situations that can occur with some printers.

F5 (Alt) ALTERNATE PRINT FEATURE

F5 (Alt) is just an extra place for you to use control codes of your choice. These might be italics, condensed print, expanded print or whatever you like. They work exactly like the others. Use CODE a to activate the codes in your document.

F5 (Alt) is exactly like the underlining sequence. Refer back to those steps if you have any difficulty. Also consult the special notes at the end of this chapter for information about odd situations that can occur with some printers.

When you print your file with expanded type, it will appear like this:

THIS IS AN EXAMPLE
OF EXPANDED TYPE

Since Expanded (double width) print takes up 2 spaces on the paper for every character, using Expanded print throws off the margins with WRITE ROM. In that case, modify the margin values with dot commands before using double width print. A general rule is to cut the left and right margins in half.

Some printers use "auto-deactivating" expanded print, where the expanded print stops automatically at the end of every line. In that case, you must put a CODE a at the end of a line anyway, so that when you use Expanded print again, you will get the Expanded start codes. You can also repeat the start codes so they appear twice when you record them and never send stop codes. The first method is usually better.

SPECIAL NOTES ABOUT PRINTER CONTROL CODES

1. When you are experimenting and change a code, do not forget to turn your printer off, then on again, after every attempt. A code that gets left behind can throw off the succeeding tries and be frustrating.

2. A CODE character is typed by holding the CODE key and pressing another key simultaneously. Try holding the CODE key and pressing the letter key at the same time. (Make sure you use lower case letters. Be sure to release the SHIFT LOCK key on your Model 100.) Notice the funny-looking character? This is the character you will type in your document to start or stop your printer feature.

3. All values that you enter into WRITE ROM must have 3 digits, so pad the value with zeros. 27 becomes 027, 65 would be 065.

4. If the first try didn't produce the desired results, don't feel discouraged. We all have the same problem. The first correct code sequence is always the most difficult.

5. Occasionally, you want to send certain codes to your printer every time you print. These codes would be "Printer Setup Codes," or simply a Setup String (of control codes.) They are to effect the entire document and are sometimes called GLOBAL control codes. (They need no M-100 CODE character; they will be sent automatically whenever you start to print a document.)

6. You should ALWAYS write in your manual codes that you find work right. In case you cold start your machine, you will have the codes and will not have to figure them out again. A good idea is to use the space provided at the end of this section to record them.

7. Number codes like 1 can be either an ASCII 1 (001) or a character "1," (ASCII 049). Usually the printer manual gives you the ASCII code, so that 1 would be 001. If in doubt, try the other.

8. If the printer manual gives examples, you can be sure like this:

   LPRINT CHR$(1) is the ASCII code (like 001), above.

   LPRINT "1" is the same as LPRINT CHR$(49);

   Often the examples are what will help you figure out the codes. The tables in print manuals are often too ambiguous to be of any use.

9. Odd Codes. On the MX-80, the code for bold print ON is shown as SO (SO stands for Shift Out). The codes for Bold stop is DC 4 (Device Control 4).

   Designations like these are not found on most tables. Look for the code table at the end of this chapter for these odd codes and their decimal values.

   These were translated as:

   SO = 014
   DC4 = 020

10. If all else fails, give us a call. We have had a lot of practice at this sort of thing. BE SURE to have your printer manual handy, so we can ask you questions.

DECIMAL EQUIV.	CONTROL CHARACTER	ODD CODE
000	CTRL-@	NUL
001	CTRL-A	SOH
002	CTRL-B	STX
003	CTRL-C	ETX
004	CTRL-D	EOT
005	CTRL-E	ENQ
006	CTRL-F	ACK
007	CTRL-G	BEL
008	CTRL-H	BS
009	CTRL-I	HT
010	CTRL-J	LF
011	CTRL-K	VT
012	CTRL-L	FF
013	CTRL-M	CR
014	CTRL-N	SO
015	CTRL-O	SI
016	CTRL-P	DLE
017	CTRL-Q	DC1
018	CTRL-R	DC2
019	CTRL-S	DC3
020	CTRL-T	DC4
021	CTRL-U	NAK
022	CTRL-V	SYN
023	CTRL-W	ETB
024	CTRL-X	CAN
025	CTRL-Y	EM
026	CTRL-Z	SUB
027	ESC	ESC
028		FS
029		GS
030		RS
031		US

QUICK VIEW GUIDE

MERGE Chapter 8

Definition: Prints multiple copies of a master document inserting records like names and addresses from one file into the master letter.

Steps:

1. Create MERGE document – the record file
   a. ADRS.DO or any other
   b. Each record, like names and addresses must take up same number of lines.
   c. If some take fewer, pad out with carriage returns.
2. Create Master document (letter)

   On first line, by itself, type

   .mg xxx

   xxx stands for merge document (like ADRS) file name
3. Type Graph m's in Master document

   Put Graph m's wherever you want the record entries to appear

   Equal the number of Graph m's to number of lines each record takes in the MERGE document.
4. Print out the Master document – PRINT/F1 (Go)
   You get an individualized copy for each record.

CHAPTER VIII

MERGE

WRITE ROM has the wonderful capacity to allow you to merge names and addresses into a letter and print multiple copies of that letter, each one with a different name and address.

Merge works very simply. In order to do a merge you must first create a text file (for example. a letter) as a master document. You also create a file with your address or inventory items or other listed information. Then when it's printed WRITE ROM will know to go to the address file to get its names and addresses or whatever you want it to insert into the document.

Merge works with three simple steps:

A. Step 1: Prepare your name and address document.

Of course, you could have other facts or information instead of names and addresses. We refer to this document as your merge document.

You could use ADRS.DO for this purpose if you want, or you can use any document filename.

B. Step 2: Designate a document as a master document.

On the first line of your master document (the letter you will be using as the master), type:

```
.mg XXX
```

XXX stands for the filename of the name and address file.

For example, if you were using the ADRS.DO file as your merge document, it would be written as:

```
.mg adrs
```

Remember from chapter 6, rules for a dot command.

1. It must be on its own line.
2. It must have a carriage return after the filename as

```
.mg adrs
```

3. Unlike other dot commands, it must be the first line of your master document.

C. Step 3: Designate where the names and addresses are to be inserted.

Into your master document simply type graph m on each line where the name and address will appear. If you have four line names and addresses, you will have four graph m's, each on separate lines. If you have three line names and addresses, you will have three graph m's.

Here are some rules to remember.

1. When you create your address file (for example, ADRS.DO) you have to be sure that each line ends with a carriage return. That line represents how you want it to appear on your document when it is printing.

2. You need to keep your entries consistent in the number of lines that they take up. You can have a one line entry, four lines, or any number of lines you choose, but when subsequent entries appear, they need to take up the same number of lines as the first.

   For example, a name and address is generally a four line entry. The name is on one line, the Company name and street address on the next two, city, state and zip on the final line. You could make it five lines by putting, for example, zip on the last line. Say you type the first address and it would take up four lines. The second and subsequent addresses would also have to take up four lines for the file to work properly with your master document.

3. Simply pad out with carriage returns those entries that don't take up as many lines as the largest ones. Some might have a company name or an extra address line. Just make those that don't need those extra lines the same as the others by padding with carriage returns at the beginning of each entry.

4. Type your Graph m's into your master document on each line to represent the lines that your entries require. If you have three line entries in your address file you will have three lines with a graph m on each one of them. If you have four line entries, you will have four graph m's in four lines in your master document.

Example

The following is an example of an address file prepared to work with the merge feature of WRITE ROM:

```
◂
Ralph Smith◂
221 Freemont◂
Dallas,  Texas  75229◂
◂
Bill Johnson◂
445 E. Ridge◂
Fort Worth, Texas 76113◂
Marcus Newman◂
Sanderson Engineering◂
1543 Diamond Ave.◂
Port Charles, Ct.  78937◂
◂
Sara Prescott◂
7889 Middle Cove◂
Dallas, Texas  75219◂
Danny Colby◂
Southwestern Plumbing◂
7800 Columbia◂
Phoenix, Az.  99989◂
```

Observe that these are four line entries. Those with a company name take up four lines, but the others have been padded out with a carriage return.

The following is an example of what your master letter containing the text that is to be repeated in every copy, will look like:

```
.mg adrs◂
%d◂
◂
■◂
■◂
■◂
■◂
◂
Dear Friend:◂
```

How It Works

Printing out a document that has the merge message incorporated into it is very easy. You simply follow the instructions for printing as described in Chapter 10, Printing.

Be sure that both the master document and the address file are in your RAM at the same time. When it prints out, it will continue to print as many copies of the letter as you have addresses in your file. Therefore, you will have the same letter to each of the addresses. The names and addresses will have been merged in so that they appear at the top of the document or wherever you have put in the Graph m symbols.

Making it say "Dear Mr. Smith"

Simply make the last line of your address say "Mr. or Mrs. (or whatever the person's last name)" as the last line.

Also, when you put the Graph m's in, be sure the salutary line Graph m is positioned away from the address ones, separated by a carriage return.

For example:

```
.mg adrs◄
%d◄
◄
⌂◄
⌂◄
⌂◄
⌂◄
◄
Dear ⌂:◄
```

An example of entries in your address file would be as follows:

```
◄
Jim Johnson◄
221 West Fremont◄
Frontage, Ca  72114◄
Jim◄
Tom Edwards◄
Edwards Industrial Supply◄
111 44th St.◄
New York, NY  10011◄
Mr Edwards◄
```

Remember that you must type in the salutory line as "Mr. Edwards" into your address file.

MAILING LABELS

You can print out peel and stick mailing labels quite easily with WRITE ROM. You are limited to only one vertical column of labels. With three-across label stock you can adjust left margin and refeed the paper.

The MERGE feature is not needed for mailing labels. You can print from the address file directly. We include this discussion in this chapter, because it is relevent to sending out merged letters to multiple addresses and you will be using the same mail list you use for MERGE.

Procedure:

A. Step one – Prepare your address file.

The same rules apply here as for your merge address file as described earlier in this chapter. Your entries must be consistent in the number of lines for each. Pad out with carriage returns any entries with fewer lines than others.

B. Step two – Use F7 (Set) to format to the label size.

Study Chapter 4 on function key formatting. You will need to experiment with your label stock, but most standard mailing labels print with these settings.

Top margin: 0
Bottom margin: 0
Lines per page: 6
Printing lines per page: 4 (depends on lines each entry takes in address file)
Left margin: 8 (depends on position of labels in printer)
Right margin: 40

C. Step three – Printing

Print following the print instructions in Chapter 10, PRINTING

SOME POINTS TO CONSIDER:

1. Experiment with your label stock and adjust the lines per page and other settings according to your label stock.
2. If you are printing on large size labels you can use your header or footer for your return address or advertising slogan.

QUICK VIEW GUIDE

FORM Chapter 9

Definition: Lets you create interactive forms with screen prompts that permit a user to type in answers. Completed records are stored in a RAM file or sent directly to the printer. Answers are formatted with the text from the original FORM document.

Example: a doctor could have a patient type in his history answering screen prompts. The printed copy could have all prompts plus other text and comments not seen by the patient.

Steps:

1. Create FORM document – any document file
   a. Type GRPH f followed by a colon, any place you want text to be entered later.
   b. Type up to a 30 character prompt prior to the colon.
   c. Optional: Limit answer field by number, up to 250, in parenthesis, after the colon.

```
▯What is your name?:(32)
```

2. Print the document – PRINT/F1 (Go)
   a. To a RAM file, change F3 (Outp) XXX
   b. Add to a RAM file, change F3 (Outp) Add:XXX Collect multiple sessions in same file
   c. To a printer (default)

3. Prompts appear on screen
   – no prompt in FORM file, default prompt: Type in text:

4. User types in answer
   a. Presses F8 when each answer is complete
   b. Next prompt is displayed

5. Completed record file has answers formatted with any text from the original FORM document

CHAPTER IX

MAKING INTERACTIVE QUESTIONNAIRES-WITH FORM

This is one of the most innovative features of WRITE ROM. With this feature you can create screen prompts. These can be answered by the user from the keyboard and automatically sent to the printer or written to a RAM file.

FORM is useful for anyone who needs to create any kind of interactive questionnaire to be filled out; either by the author of the form or someone who might be providing information. It can be useful for insurance sales people for filling in historical information regarding a prospective client, or for doctors or nurses doing patient histories. It is great for anyone who needs to have questions or prompts flashed on the screen, along with the ability for answers to be typed in and recorded.

Another application is to create a master letter with prompts concerning customer inquiries, and in a rapid fire manner answer a stack of correspondence with professionally composed and structured letters.

FORM not only allows you to create screen prompts and have someone fill in the answers, but it provides complete formatting of answers as if they had been typed into the original file. The answers and the prompts, if you wish, can be printed out exactly in the way you desire. In other words, it can fill out a form that's pre-printed or it prints out its own form with the answers in the proper places.

WHAT IS FORM?

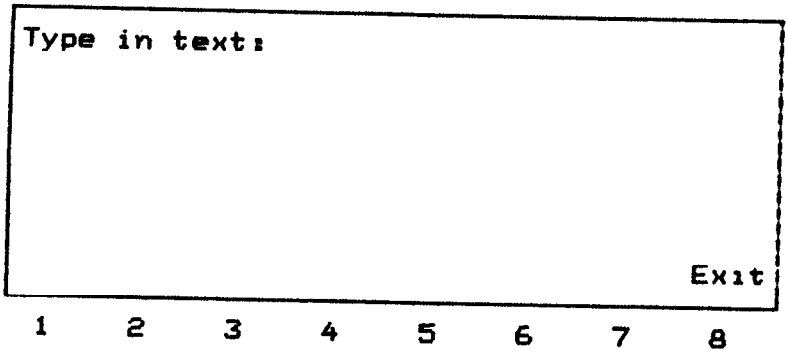
Stated most simply it works like this:

Any place in a document where you type GRPH t, when the document is printed, the printer will stop to allow you to type in text. The screen will show a prompt.

After answering the prompt, pressing F8 (Exit) sends whatever was typed, automatically to the printer or a RAM file, formatted like the rest of the document.

It has these other wonderful characteristics:

Any word or phrase that you insert up to thirty characters, after you type GRPH t will appear on the screen as the prompt. If you haven't designated a prompt, a default prompt appears which says:



Plus you can specify the size of the answer field, in other words, the number of spaces that you allot for an answer.

Here's how this works.

In your master document at the end of your prompt, you'll just put a number inside parentheses. That number represents the number of spaces that you would like allotted for the answer. Examples follow later.

When the prompt comes up on the screen, the user simply begins typing. When the maximum number of spaces allotted are filled, a beep sounds. It is the computer telling the user, "That is all the room you have for your answer."

PREPARING YOUR FORM DOCUMENT

A. Start a new text file and begin typing in any words or phrases you wish to have appear on the printed copy.

B. Any place that you wish to have material entered from the keyboard, in other words where information will be different from time to time, you will simply type in a GRPH t followed by a colon. GRPH t is done by holding down the GRPH key and typing the letter t.

C. There are no restrictions on where you type in your GRPH t's. For example, the GRPH t does not have to be flush left or on a line by itself as with dot commands.

Instead, it can be located anywhere in the document. The answers that are put in later from the screen will appear exactly where you want them to be in relation to other text.

D. There are no restrictions on how many GRPH t's you can have in a document.

E. If you do not need a special prompt or don't need to control the size of the answer, simply put a colon immediately following the GRPH t. Such an entry would look like this:

```
■:
```

F. When you use a GRPH t with just the colon behind it, the prompt that appears on the screen will read:

```
Type in text:■
```

G. If you wish to have an original prompt appear on the screen, just type that prompt immediately following the GRPH t, but prior to the colon. You can have up to 30 characters for your prompt.

This is how a prompt is written in your document:

```
■What is your name?:
```

When you print, either to a printer or a RAM file, the printer will stop and on the screen will appear:

```
What is your name?: ■
```

H. To limit the amount of space an answer can take, type the number of spaces you are allowing in parentheses following the colon. You can have a field ranging from 1 to 250 spaces.

If you don't put in a field limitation the response can be up to 250 letters long.

A GRPH t, prompt and field limitation would be done like this:

```
■What is your name?:(32)
```

PRINTING OUT YOUR FORM DOCUMENT

A. You can write your form document directly to a printer or to a new RAM file.

There are times when writing directly to the printer makes sense, but the disadvantage is that you do not retain any computer record of the answers, merely hard (printed) copies. Hard copy is a computer term for printed sheets.

A more realistic way to keep data is to write to a RAM file.

You have two choices:

a. You can write to a new Ram file each time.

b. You can add or append to the same file.

This is a wonderful feature of WRITE ROM, to write different responses to the same FORM into the same file. In other words if you were an insurance agent you could have a single RAM file called CLIENTS.DO, and you could fill out an information form for each client and collect them all in the same CLIENTS.DO file.

Another example is that you could even do a FORM document that prompts for Name, Address, City, State and Zip. You could automatically write them each time you answered the prompts into the ADRS.DO or other document file creating your name and address data base. Then you could merge these names into a letter using the MERGE function described in Chapter 8.

Chapter 10, PRINTING gives a more detailed discussion on printing to the same RAM file, but briefly, when you press the PRINT command key you can change the "Output" by pressing F3 (Outp).

When you press F3 (Outp) the screen says:

Output to: LPT:

Backspace out the LPT: and type in the Add: and the filename you wish to collect entries into. For example, if you wanted to add into a file called TEST you would type:

Output to: Add:TEST

Generally when adding for merging it is best to send it unformatted. Just set left, top and bottom margins at 0 and right margin at 40. Set your "Printing lines per page" and finally "Lines per page" to match the number of lines you are using for each record. For the name and address example we mentioned both "Printing lines per page" and "Lines per page" are best set at 4. Then your data is filed just like it was typed from the keyboard, but of course inserted and spaced in the proper places.

After you have prepared your FORM document, and are ready to use it, simply put the cursor over that document's filename on the WRITE ROM main level menu and press the PRINT key.

B. The bottom line clears and a new set of function keys appears as follows:

```
Go    Feed Outp Code Qty  CRLF Paus Exit
1     2    3    4    5    6    7    8
```

You have two choices. You can print directly to a printer or you can write to a RAM file.

For now, practice writing to a RAM file as is explained in the paragraphs which follow.

Printing is discussed in detail in Chapter 10, PRINTING. Study that chapter before using your printer to work with the FORM feature.

C. Writing to a new RAM file each time.

First you need to designate a filename to output to. It is easily accomplished with a function key.

Press function key F3 (Outp). The bottom line clears and the prompt appears:

```
Output to: LPT: ■
1     2    3    4    5    6    7    8
```

The "LPT:" stands for "line printer". This is the default setting, because that is where most other printing is done. To print to a RAM file, just backspace out the LPT:, and type in the name of the RAM file where you would like to store your completed document which will include both your document text and the answers.

D. Adding or appending to the same RAM File.

Press function key F3 (outp). Screen says,

```
Output to: LPT: ■
1    2    3    4    5    6    7    8
```

Backspace out the LPT: and type in ADD:XXX. The XXX stands for a filename. You do not need a ".DO" extension. You do not even need the file to exist at the time. It will be created automatically if it isn't present already.

For example, if you were going to collect a series of completed FORM answers in a file called CREDIT, after pressing F3 (Outp), type,

```
Output to: ADD:CREDIT■
1    2    3    4    5    6    7    8
```

Each time you set a new person up to answer the prompts just press PRINT, then F1 (Go).

E. Pressing F1 (Go).

Immediately, you will see on the screen the first prompt you typed earlier following a GRPH t. If no prompt was specified you will be shown the default prompt "Type in text:".

If you had put in an original prompt it will appear like this:

```
What is your name?: ■
```

Whoever is working with the form simply just types in the answer, and presses F8 (Exit) when they are through.

F. It beeps to signal end of field.

When you prepared your form, if you had put in a field limitation, the computer will beep when the answer starts to exceed the allotted space.

When the computer beeps you cannot type any further.

G. Mapping a FORM

You can map out your form, and see how it will look by doing a pixel map. Wherever you indicated answer limiting spaces, or field limitations, it will show those padded out as spaces on the map.

H. Spaces are added when you print.

If the answer being typed in does not take up as many spaces as have been allotted, those unused spaces will be padded in automatically when you print.

This means that you can perfectly plan your document to fit into a pre-printed form, or pre-arranged format. Spaces will be inserted, in place of any answer left blank or shorter than the space provided.

I. You are printing to your RAM file in formatted fashion.

Later when you wish to print that completed form out on the printer, you can go into the document directly from the Main Menu or the WRITE ROM and print it using SHIFT/PRINT. This is because it is already formatted copy.

J. Prompts in the final printed form.

If you wish to have any prompt you have written to appear in the document in its final printed form, simply type that prompt in the master document just before you do the GRPH t. Then in the final printout, the prompt will appear followed by the appropriate answer.

Example:

If you wanted to have the prompt,

```
Number of dependents: ■
```

to appear in your document as well as on the screen, you would type into your document:

```
Number of dependents:■Number of dependents: (2
```

The next text can follow immediately. Notice on the example we show a field limitation for the answer as 2 spaces.

K. Instructional Prompts

If you like, you can have a nice instructional message for your user appear at the end or anywhere in your form.

Here is an example,

```
Thank you. Give unit to clerk: ■
```

Limit the field to one space. This way if they try to type in something it will beep.

Here is an example of some instructions for the beginning of a Form;

```
Press the F8 key to start: ■
```

```
Type answers then press F8: ■
```

L. When the person using the FORM finishes his answer.

When he or she presses F8 as is indicated on the screen, that answer is sent directly to the printer or the RAM file as the case may be.

Immediately the next prompt comes up on the screen. If it is not answered the user merely presses F8, and the next prompt is shown.

When all the prompts have been brought up on the screen, and the last F8 has been pressed, the file finishes printing or writing to a RAM file. Then the user is immediately returned to the main level WRITE ROM menu.

AN EXAMPLE APPLICATION OF FORM

The example is a letter frame. This is a device that can be utilized in a business' customer service department to answer correspondence in a rapid fire manner.

This is similar to boilerplate, but with boilerplate a letter is typed with codes inserted which will cause standard phrases or salutations to be filled in when the document is printed.

In Chapter 12, LIBRARY, you'll learn how WRITE ROM provides you with the useful boilerplate feature as well. You may find that Library is suitable for many of your business letter applications.

The "Frame" concept which follows permits a user to sit at the computer with a stack of customer inquiries and letters, and answer them one after another just by answering the screen prompts. When he prints he will have complete, well constructed letters that give the look of individually composed correspondence.

The Frame:

```
%d◂
◂
▮To Name:(45)◂
▮To Company:(45)◂
▮To Street address:◂
▮To City, State and Zip:◂
◂
Dear ▮Dear:(20)◂
Thank you for your letter of ▮Date of
customer's letter:.  I want you to know
That we here at United Industrial
Products welcome your suggestions and
comments.◂
In your letter you made the following
points:◂
▮Customer topics (a,b,c etc.):◂
I believe that the following comments
and information will provide the
answers you are looking for.◂
▮Answers (a,b,c etc.):◂
Please write again or call us at 1-816-
521-0634 if you need to know more.  I
am enclosing our latest product
literature.  We look forward to hearing
from you again.◂
Sincerely,◂
United Industrial Products◂
▮Your name:◂
▮Your title:◂
```

The secret of using the frame letter is to make up different master letters for the major types of customer correspondence. You could have separate masters for,

1. Technical questions about products
2. Procedural problems on how to use products
3. Invoice or statement questions
4. Requests for quotations
5. Complaints
6. Any other categories specific to your business

In any company, you would probably end up with a maximum of 10 or so master letters. You keep these on diskette and using PCSG's DISK + or the Holmes/PCSG portable disk quickly recall the appropriate master FORM letter into your Model 100 when you see reason to handle a group of that type of correspondence.

The secret is to sit down with a stack of customer letters and, with a red pen, circle every question or comment that needs a response. You will be surprised how much of every letter is merely made up of the amenities and formality of salutation and background information that requires no comment, and how little of each letter requires an answer or response by you. You will also be surprised at how few words you have to circle to summarize what is being asked in the letter.

The next thing is to be sure in your response that you repeat back each point or question that was raised. Every business letter must always recall and restate the subject of the first correspondence. Be sure that your answers respond to the customer's comments or inquiries in the order you have mentioned them prior in the letter. Work with this a while, and you will be surprised how cogent your letters will be.

You'll find in a situation where you must answer many customer letters that this type of response will make your customers very happy. You'll be amazed at how productive you and your staff will be in getting answers out with a tremendous reduction in manpower requirements.

FILLING OUT A FORM

Physician's offices, insurance sales people, employment offices, police departments and others have forms to fill out. WRITE ROM lets you set up the prompts for each box or line and fill out the form automatically. You can set up your format easily so that form completion is really simple.

QUICK VIEW GUIDE

Printing Chapter 10

Steps:

1. Place widebar cursor on file to print
2. Press PRINT key
3. Check printing conditions
   a. F2 (Feed) feeds blank page at end
   b. F3 (Outp) LPT: is default, parallel printer
      XXXXX to RAM file
      Add:XXX appends to RAM file
      COM:57N1E typical serial printer
      CAS:XXX formatted to cassette
   c. F4 (Code) embeds printer codes (Chap 7)
   d. F5 (Qty) multiple copies
   e. F6 (CRLF) sends carriage return line feed to printer
   f. F7 (Paus) pause between pages
4. Press F1 (Go) to print

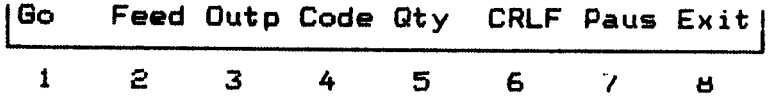
   BREAK/PAUSE key to stop temporarily, again to restart.
   SHIFT BREAK key to abort
   "Printer not ready" message means check paper, printer on switch and connections. Press any key.
5. Favorite format spec? See page 200.

CHAPTER X

PRINTING

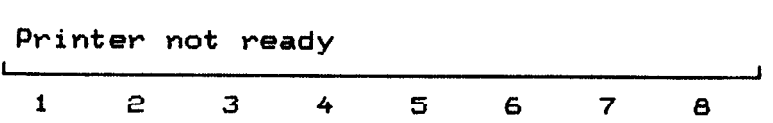
Printing with WRITE ROM is easy. It fits the way your Model 100 is designed. To print, put the widebar cursor over the filename to print on the WRITE ROM menu.

Press the PRINT command key (between the LABEL and PAUSE/BREAK keys). These function keys appear:



F1 (GO) INITIATES PRINTING

As was explained in chapter 3, there are instances where you can print just by pressing F1 (Go). Other times you will need to use the other keys first to control print out conditions. Read the rest of this chapter for those occasions. If you see the message:



Press any key; make sure your printer is properly connected and on and that the paper is correctly positioned.

F2 (FEED) LETS YOU FEED A BLANK PAGE AT THE END.

Press F2 (Feed). "Feed" now shows in reverse video.

This function is a switch. ON is reverse video. OFF is in regular lettering. When Feed is on, a blank page is fed at the end.

The purpose of this extra page is when you are using form-fed paper. The last printed page is pushed out past the tractor feed mechanism. This way you can tear off your printed copy without disturbing the feeding sprockets or your paper alignment.

F3 (OUTP) WRITE ROM ALLOWS YOU FLEXIBLE OUTPUT.

Press F3 (Outp).

The bottom line clears, and the screen says:

```
Output to: LPT: ■
```

```
1    2    3    4    5    6    7    8
```

WRITE ROM has fully redirectable output. "LPT:" is the symbol for parallel line printer. This is the default setting.

You have the following output choices with WRITE ROM:

a. LPT: (Colon must follow)

   For parallel printer. This is any printer that uses the printer cable port on the back of your Model 100. For this you don't need to press F3.

b. COM: (Colon must follow)

   This is to the serial port. The serial port is also called the RS232. Type in, following the colon, the transmission configuration for the device you are sending to.

   Refer to Chapter 11, PHONE which explains phone transmissions with WRITE ROM. In that chapter there is a detailed discussion on parameter stats that will make the concept of transmission configurations much clearer.

   If you will be printing to a serial printer, you need to consult the printer manual to get the proper transmission configuration. Typical ones are 57N1E or 58E1E.

If you are outputting to a serial printer with a configuration of 57N1E it would be written in WRITE ROM as:

```
Output to: COM:57N1E■
```

```
1    2    3    4    5    6    7    8
```

The "'COM:" designation also allows you to "print" or transmit files through WRITE ROM directly to another computer using an RS232 to RS232 connection. To do this, you would have to have some sort of terminal program in your other computer. These terminal programs require many steps of user protocol in order to make file transfers.

A BETTER WAY

The DISK + file transfer ROM from PCSG is a better way to transfer files. It lets you use your other computer's disk drive as a drive for the Model 100. It uses the Main Menu approach, and you transfer files with the ENTER key.

c. MDM: (Colon must follow)

This is to the modem. It takes a transmission configuration like "COM:" above.

You simply do not ever need to use this "MDM:" output for the print function because WRITE ROM has built into it an automatic phone transmission mechanism that works with just function keys. It is accessed through F6 (Phne) from the main level of function keys and is explained in detail in Chapter 11.

d. CAS: (Colon must follow)

This sends the formatted copy to a cassette recorder. Type in a filename up to 6 letters following the colon.

e. XXXXXX (No colon required)

Writes to a RAM file. The X's stand for a filename of up to six letters. This will create a new file or erase and write over an existing RAM file.

If you are writing to or creating a RAM file named TEST-.DO. you would type it in as follows:

```
Output to: TEST ■
1    2    3    4    5    6    7    8
```

Press ENTER. You will print to this file until output is changed. Remember, if you print to a file again with just the filename, you will write over the previous copy. Change to a new filename or use the "ADD:" which follows.

f. ADD:XXX (Colon follows ADD but not filename)

Appends or adds formatted document to a file without erasing the existing copy. This will also start a file automatically

if the file you designate does not exist.

Example:

If you want to add to an existing file named EXAMPL you would type it in as follows:

```
Output to: ADD:EXAMPL
1   2   3   4   5   6   7   8
```

F4 (CODE) LETS YOU DO PRINTER FEATURES

Allows you to record your printer codes for special features, like underline, bold face, correspondence quality and others into WRITE ROM. Then you can make your printer do those features by typing in simple GRAPH codes like GRPH U for underline or GRPH B for Bold.

F4 (Code) is explained in its own chapter, Chapter 7, PRINTER FEATURES.

F5 (QTY) LETS YOU PRINT MULTIPLE COPIES.

Press function key F5 (Qty).

The screen clears, and the following message appears:

```
Number of copies: 1
1   2   3   4   5   6   7   8
```

You can have WRITE ROM print any number of copies of your article that you wish.

Backspace out the 1. Type in the number of copies you would like to have printed. WRITE ROM will simply print out as many copies as you desire.

F6 (CRLF) SENDS OUT A CARRIAGE RETURN LINE FEED.

Press F6 (CRLF)

The CRLF label now shows in reverse video, indicating that the feature is ON.

A quirk of the Model 100 is that at the end of a line being sent to the printer, it sends only a carriage return or CR. This is great for all

Radio Shack printers because they are designed to work this way, and they automatically cause a line feed or LF to occur.

Most other printers require both a CR plus an LF to be sent at the end of each line in order to work properly.

The way you know you need it is if you start to print and you observe that all printing is just piled up on one line.

For the Model 100 to work with printers other than Radio Shack, you can set a DIP switch on the printer to produce the LF automatically–in other words, make it perform like a Radio Shack printer. Dip switches are often hard to reach and are so very tiny, they are inconvenient as on and off switches.

If you use another computer with your printer, other than one made by Radio Shack, you will find that after you use your Model 100, the DIP switch will have to be set back the way it was for that other computer to print properly.

WRITE ROM comes to the rescue.

With the WRITE ROM CRLF switch, you can send the CR plus the LF to the printer by just pressing f6 (CRLF). No need to fool around any more with the dip switch.

THE DISTINCTION BETWEEN PRINT F6 (CRLF) AND F6 (PHNE)/F6 (CRLF)

It is interesting to observe that there are two different function keys with CRLF designations, one for printing and the other for phone transmissions.

The Model 100 normally strips out line feeds both when outputting through the parallel (LPT:) port and through the serial (COM: or MDM:) ports. WRITE ROM allows you to switch either of these independently to pass the line feed character through to the receiving device. This means that if for example you have an electronic mail service that doesn't need the line feed and a printer that does need it, you can accommodate a telex transmission that automatically prints out as it is being sent. Contrariwise if your printer doesn't need a line feed after each carriage return but your electronic mail service does, WRITE ROM can accommodate that too, by means of this remarkably powerful feature.

F7 (PAUS) PAUSE BETWEEN PAGES

Press F7 (Paus).

This is an on/off switch. "Paus" is now shown in reverse video, which means it is on. Regular lettering means the feature is off.

Pause between pages allows you to use single sheets of paper in your printer. When F7 (Paus) is on, the printer will stop automatically between each printed page to allow you to handfeed in the next sheet.

The bottom line clears, and this message appears:

```
Press any key to continue
1    2    3    4    5    6    7    8
```

This gives you time to roll another sheet of paper into your printer and see that it is properly aligned.

After your paper is ready, just press the spacebar (or any key), and the printer will begin again to print the next page.

CANCELLING THE PRINTING FUNCTION

To temporarily stop printing at any time, press the PAUSE command key. This is not the F6 (Paus) key but the BREAK PAUSE command key right beside the PRINT command key. The printer will stop immediately or at the end of the current line.

You can then adjust your paper or study what has been printed. When you are ready to resume printing, press the PAUSE key again. The printer will continue exactly where it left off without any loss of characters.

If you need to abort the printing, you can do that by doing SHIFT/BREAK. Hold down the SHIFT key and press the BREAK PAUSE command key at the same time.

The printer will stop, and you will be returned to the WRITE ROM menu and main level of function keys.

OTHER PRINTING OPTIONS

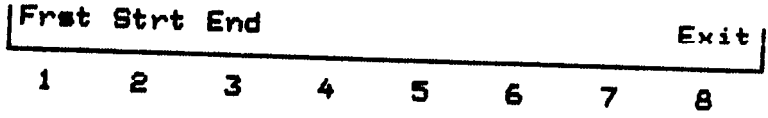
The following functions are described in more detail in Chapter 4 on global formatting.

PRINTING A SINGLE PAGE

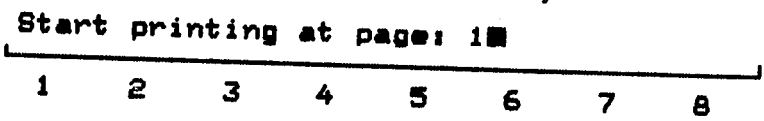
If you only want to print a single page of a multiple-page document, enter that page number under "Start printing at:".

Here is a review:

Press function key F7 (Set) from the main level, then F1 (Pg#), and these function keys appear.

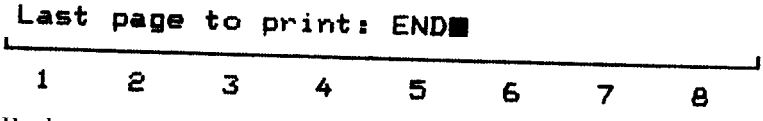


Press function key F2 (Strt), and the screen says:



Backspace and type in the page number you wish to print. Press ENTER. You will see the function keys as above.

Press function key F3 (End), and the screen says:



Backspace out END, and type in the page number you wish to print. Press ENTER.

For instance, if you want to print just page 6 from a 10 page document, enter 6 for both "Start printing at:" and "Last page to print:"

PRINTING ONLY SELECTED PAGES

To print a range of pages from a multiple page document, you will:

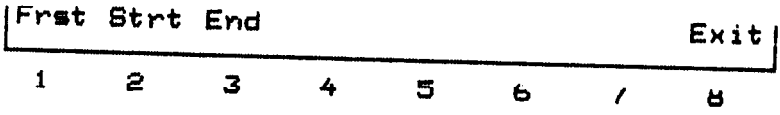
1. Enter the first page you want to print at "Start printing at:"
2. Enter the final page of the range you want to print at "Last page to print."
3. Remember to change "Beginning page of the file:" if the starting page number of the file you are printing is different than 1. See the next section.

NUMBERING PAGES

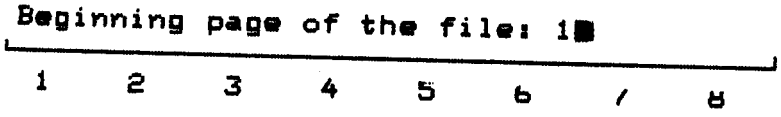
The default setting for WRITE ROM is to begin numbering a document at page 1 and print to the end, numbering sequential pages accordingly. Although a brief discussion is included here you should study the detailed explanation in Chapter 4.

If the file you are printing needs to have its first page other than page 1, change it as follows:

1. From the WRITE ROM main level, press function key F7 (Set), then F1 (Pg#).
2. Screen shows the new function keys



3. Press function key F1 (Frst). Screen says:



Backspace and then type in the number you would like to be the first page of the file. Put the %P page signal in your Header or Footer discussed in Chapter 4. You also must have either your header or footer switch turned on.

Read in Chapter 4 the full explanation of page number signals in your header and footer, as well as how to prepare your headers and footers.

Briefly:

a. Edit or change your header or footer by pressing F7 (Set) from the main level.

Screen says:

```
Pg#  Load Save Libr H/F  Page Edge Exit
1    2    3    4    5    6    7    8
```

b. Press F5 (H/F), then F1 (Hdr) or F2 (Ftr), then F3 (Chng).

c. Where you want the page number to appear in the header or footer, type %P. If you want the word "Page" to appear in front of the page number, type Page %P leaving spaces to reserve room for the numbers.

d. Be sure to signal the header or footer to be "on" for the pages you want numbered. Use either with the global function key setting explained in Chapter 4 or the header or footer dot command settings as explained in Chapter 6.

QUICK VIEW GUIDE

Phone Feature – F6 (Phne) Chapter 11

Purpose: Enhanced autologon including sign on and sign off text in ADRS.DO file. Sends formatted copy even composing from INCLUDE files, MERGE and LIBRARY entries. Simplified transmission of computer letters and Telexes.

How it's done:

1. Prepare your ADRS.DO file.
   Name, number and autologon like with TELCOM. End with carriage return.
   Sign on and sign off text follows, each inside curly brackets { }, GRPH 9 and GRPH 0.
2. Make phone connection with direct connect cable, set left side switches to ORIG and DIR.
3. Check transmission conditions. Press F6 (Phne)
   a. F3 (Stat) MDM:7E1E for most services
   b. F5 (Caps) Sends in all uppercase
   c. F6 (CRLF) Sends a carriage return line feed
   d. F7 (Fmtd) Sends formatted (default)
4. Select the document to send–move wide bar cursor to filename.
5. Find phone number and send.
   a. Press F6 (Phne) if you haven't already.
   b. Press F1 (Find) Type in name, ENTER. Finds first occurrence.
   c. Press F1 (Scan) Finds next occurrence.
   d. Press F2 (Call) Makes call, sends document
      Prints out copy
      Acceptance message appears on screen and printer.

CHAPTER XI

PHONE TRANSMISSIONS

AUTO Logon That's Better

WRITE ROM allows you to send your formatted copy over the telephone with function key ease. It allows more complete auto-logon than the built-in TELCOM because the sign-on and sign-off text most computer services require is automatically inserted for you. Plus it lets you send a carriage return-line feed or in all caps for computer services that need these.

Uses:

a. People who send Telexes and computer letters by store and forward services like Western Union's EZLINK.

b. Newspaper reporters who must file from the field.

c. Anyone needing to send frequent documents over the phone to another computer.

FIVE STEPS TO USING THE PHONE FEATURE

Each step is discussed in detail later in the chapter.

1. Step one – Prepare your ADRS.DO file

This is where you record your distant computer's phone number and auto-logon sequence. If you aren't familiar with auto-logon for TELCOM you should study the M-100 manual to learn how it is done. Also we have an auto-logon explanation immediately following this overview.

A typical entry in the ADRS.DO file with auto-logon looks like this:

```
EZLINK:9390452(^M^M?IO1 EIC605748
AM. PCSG^M?P62286753+):◀
```

In addition to the conventional auto-logon WRITE ROM allows you to include in ADRS.DO sign-on text (even the recipient's address) and sign-off text that some services require. When you send, it is inserted at the beginning and end of your document.

A typical ADRS.DO entry with both auto-logon and sign-on and sign-off text looks like this:

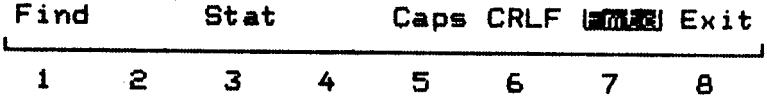
```
EZLINK:9390452(^M^M?IO1 EIC605748
AM. PCSG^M?P62286753+):◀
{/CLS◀
}◀
{/END◀
MMMM◀
}◀
```

2. Step two – Make a phone connection to your Model 100

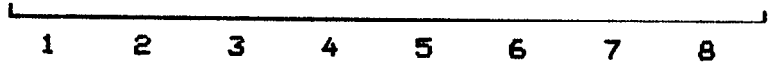
Study your Model 100 manual if you don't know how to make a proper connection. You must "plug-in" to a telephone line with the Direct Connect Modem Cable (Radio Shack catalog #26-1410). Be sure the two little switches on the left side of your Model 100 are set to "ORIG" for originate and "DIR" for direct connect.

3. Step three–Check or change transmission conditions

From the WRITE ROM main level press F6 (Phne). Screen shows:



a. Press F3 (Stat). Change or verify the transmission specs.



If you don't understand transmission stats or specs, study your Model 100 manual for a full explanation. Also we have included instructions later in this chapter for your reference.

b. If you want your document sent in all uppercase press F5 (Caps). It shows in reverse video when in effect.

c. If your computer service requres a carriage return line feed, (CRLF) at the end of each line, press F6 (CRLF). Shows in reverse when "On".

The Model 100 strips these out. Many receiving computers won't accept properly unless CRLF is sent.

d. If you don't want your document sent formatted press F7 (Fmtd). The default is "on", so Fmtd is showing in reverse normally.

If you send formatted it will be with the conditions as set with the function keys and dot commands explained in earlier chapters. Right margin is usually critical. Most services require a line length of 68 or less.

4. Step four–Select the document you wish to send.

Just put the widebar cursor over the file you wish to send.

This is perhaps the essence of the WRITE ROM phone feature. You can send any document casually prepared without regard to special conditions required by your computer service. All the special requirements are done external to the document and frequent sending is simplified.

5. Step five – Find the phone number and send the document

a. Press F1 (Find) from the same function key level as in step three above. Screen says:

```
Find:
```

Type in a name or part of a name to look for. Press ENTER. Searches for the first occurrence in the ADRS.DO file. Then screen says:

```
Gotham:561-0434()
Scan Call                                    Exit
 1    2    3    4    5    6    7    8
```

b. Press F1 (Scan) if the name and phone number on the screen is not the one you are looking for. You'll see the next occurrence of what you searched for.

c. Press F2 (Call) when you see the correct name and number on the screen. The screen says:

```
Sending EXAMPL 4294681
Scan Call                                    Exit
 1    2    3    4    5    6    7    8
```

The file name being sent is shown and the number as dialed appears digit by digit on the screen.

d. When connection is made the document is automatically transmitted. While it is sending

WAIT

appears flashing on the screen.

e. If you have a printer connected to your Model 100 printer port you will get a printed copy of your transmission.

f. When complete you'll get an acceptance message on the screen if your service sends these. Sometimes you have to wait a few moments. This message will also be added to your printed copy.

Press any key to return you to the WRITE ROM main level.

DETAILED REFERENCE FOR THE FIVE PHONE STEPS

1. Step one – Preparing your ADRS.DO file

Study the Model 100 manual to become familiar with auto-logon entries in the ADRS.DO file for TELCOM.

Like Telcom, WRITE ROM obtains the number you are calling from the ADRS.DO file, but WRITE ROM does a lot more.

Like Telcom, the number that you are dialing can be followed by signals called "auto logon" that tell your Model 100 to do certain functions that make connection with another computer more automatic.

However, TELCOM does not handle "sign on" and "sign off". Some computers from some services do not permit auto-logon beyond the point where you dial them up and make the connection. Their protocol is designed only to receive text sent after that point and they require such things as ID codes to be a part of the text transmission.

Other services will allow an auto-logon sequence bringing you to a "transmit your document" point, but then require further special text before and after the text you are transmitting.

When you access one of the services that require sign-on and sign-off text you could just enter that special text at the beginning and end of your document. WRITE ROM though allows you by a procedure explained following to have these texts to be stored in your ADRS.DO file as well as and automatically transmitted with your document inserted appropriately.

A REVIEW OF AUTO-LOGON

For the computers that are communicative with your Model 100's auto-logon mechanism you can record in your ADRS.DO file rather involved signals. These signals make the Model 100 recognize codes from the computer you are accessing, and in turn send letters and characters back in multiple series to complete the host computer's unique requirements to get on the system. This is called an "auto-logon" procedure.

A review of auto-logon signals:

Symbol	
:	Goes before and after auto-logon to separate.
<	Tells the Model 100 you are communicating with another computer. If you don't have an auto logon sequence, it is followed by a >. Otherwise, the auto-logon goes between them.
>	Tells the other computer that the auto-logon has ended and that you are prepared to transmit.
=	Pause for 2 seconds
!	Regard the following symbol, not as symbol, but as its real character.
?	Wait for the character that follows.
^	Send the character that follows as a "control" character.

We will explain each of these symbols in an actual use situation.

AUTO-LOGON ON A HYPOTHETICAL COMPUTER

Create an ADRS.DO file if you don't already have one. Type into your file your computer service's phone number and auto-logon sequence following this format:

```
Newsroom:824-3354<==^M?DNEWS
^7U47S0^M?Bouquet^M>:
```

Explanation:

<	Tells M-100 you are communicating with another computer
==	Each = means pause 2 seconds. The reason for pausing is that once you connect, it is a good practice to pause a little before sending the other computer signals because it has to have time to get ready. Experiment with pauses. They can make a real difference in whether you make a connection or not.
^M	This is the same as pressing ENTER. Again, this is something for experimentation. Sometimes several ENTERs are necessary with some host computers to get them to acknowledge.
^C	Some computers require a CTRL C to be sent at the beginning of your logon. CTRL C is sent by typing in caret, ^, or Shift 6 C in your auto logon sequence. Do not type the CTRL key. That will not give the correct signal. This is yet another tool, sometimes needed and sometimes not, but it will generally get the other computer's attention. It's like sending a "break" command.
?	Signals the Model 100 to wait to receive the next character in the sequence before transmitting more of the auto-logon sequence.

D	The next character that the Model 100 is to wait for. For example if your company's computer sends a "Department name?" prompt, the Model 100 waits for that D, and only then sends the next characters. The next characters would of course answer that question.
NEWS	The answer to the question the distant computer asked.
^M	Same as pressing ENTER.
?	Tells the Model 100 to wait to receive the next character in the sequence before transmitting anything else.
U	Next character to wait for. When "User ID:" is sent, the U is seen, and then the next characters are sent by the Model 100.
47S0	The User ID number, which is sent by the Model 100.
^M	Same as ENTER.
?	Wait for the character which follows to come from the host computer.
P	Character to wait for. Host sends "Password:". Model 100 sees P, and then sends the next characters.
Bouquet	Password sent.
^M	Same as ENTER.
>	Signals the end of auto logon.
:	Follows the auto logon >.

1. The sequence above did not illustrate how to use the symbol !. As we said earlier, this tells the Model 100 to send, or regard, the symbol that follows the !, (might be either the >, =, ?, ^ or even a !), as the real character instead of one of these auto-logon symbols.

   For example, if your password had been Bouquet?, you would have written it Bouquet!? so that the ? that followed the ! would be regarded as an ?, and not as a "wait for" signal.

2. Be careful to honor upper or lower case when you are typing in the auto-logon sequence. The Model 100 will look for or send exactly what you put in, and the host computer will often only accept the correct case. So be careful how you type in the sequence so that it matches, not just spelling and numbers, but case as well.

SIGN-ON AND SIGN-OFF TEXT

Used when you send documents by either:

a. Computer letter services
b. Telex services

You can quickly send documents by Telex services such as Action Telex or Western Union's EZ LINK.

These services allow you to send documents to any Telex machine in the world.

Also you can send electronic mail to any post office address for next-day delivery by local mail service.

These services are set up to receive transmissions from your personal computer. Often they require sign-on and sign-off text and codes that identify you and your account #. Sometimes this sign-on text cannot be put into your logon sequence as explained earlier in the auto-logon discussion.

After the signal to begin transmission, the sign-on information usually must be sent as your first text, and, in effect, becomes part of your document. The sign-off text is sent at the end of your document. WRITE ROM allows you to easily enter sign-on and sign-off text and codes into your ADRS.DO file for the various transmissions you will make.

WRITE ROM allow you to type in the sign-on and sign-off text exactly as it is shown to you in the information literature given to you when you subscribe to one of these services.

Here is how it is done:

1. In your ADRS.DO file you can type the sign on and sign off text following any computer phone number entry.
   a. After the :> sign and colon press ENTER (carriage return)
   b. Enclose the sign on text inside curly brackets, produced by typing GRPH 9 and GRPH 0.
   c. Put in whatever carriage returns (press ENTER) are called for by the computer service you are sending to.
   d. After the sign on text's closing curly bracket (GRPH 0) press ENTER.
   e. Next enclose the sign off text inside curly brackets (GRPH 9 & GRPH 0). End with a carriage return.

2. Following are examples of two typed ADRS.DO entries showing sign-on and sign-off text.

```
Action Telex:18002436634():◂
{(BEDBD:EZL)◂
:◂
TLX 203842,◂
.◂
}◂
{REPLY VIA USA TLX 203842 ACTDFG◂
*◂
(END)◂
}◂
EZLINK:9390452(^M^M?I01 EIC605748
AM.PCSG^M?P62286753+):◂
{/CLS◂
}◂
{/END◂
MMMM◂
}◂
```

2. Step two – Making a phone connection

Like TELCOM, when WRITE ROM communicates with another computer over the telephone line, it utilizes what is known as a built-in modem. The modem is simply a computer mechanism that enables the computer to transmit over telephone wires by translating the computer signals into telephone signals. Further, the modem acts to receive telephone transmissions and translate them into computer codes.

The first thing you need to do is to get your Model 100 connected to the telephone. WRITE ROM only works with a direct-connect modem cable. The modem cable is nice because it allows you to connect directly to the phone lines for a better chance of error-free transmission of data. Acoustical couplers are impractical for this application. They transmit and receive sound impulses as opposed to being purely electronic. Sometimes when using acoustical couplers, something is lost in the translation, and data can be lost.

We feel that your Model 100 Manual on page 76 through 79 gives a very excellent explanation of connecting to the telephone lines. You should refer to that section at this time. One thing that they do not describe, however, is how to make a connection to a multi-line telephone. The phones that connect with little plugs are often called modular phones, and the little plug is called a modular phone jack.

For connecting to a multi-line phone, such as a 6-button phone, we found that there are two options, both available at your Radio Shack Store or Computer Center. One of these is called the one-line tap, and the other is called the multi-line controller. The one-line tap allows you only to have access to your first line, and that can sometimes be very inconvenient, because the first line is nearly always in use.

The second item is made by Duofone especially for Radio Shack and is sold under the catalog number 43-233. It has buttons which allow you to access any of the six phone lines of your multi-line phone. If you have more than a 6-line phone, you should contact your Radio Shack Store to see if a tap exists for these.

Both of these tap devices have a connector that fits in between the plug and socket of the cable that comes from your telephone. You will have to utilize a small screwdriver in order to separate the two cables where they join. The cable connector fits nicely in between, and is designed to remain there permanently. To connect you will use only the beige cable of your modem coupler cable. Just let the silver cord hang free, or, if you don't plan to use it on the road, you can simply cut off the silver cable. You will simply press the button on the multi-line connector for the line that you wish your computer to be transmitting over.

You must now "plug-in" to the telephone line with the Direct Connect Modem Cable (Radio Shack #26-1410).

DIRECT CONNECT CABLE CONNECTION

A. Plug the round computer connector into your phone port, on the back of your Model 100. Make sure that one of the switches on the right hand side of your Model 100 is set to DIR, for direct connect, and the other is set to ORIG, for originate.

B. Plug the BEIGE cable into the telephone wall outlet. If you have a multi-line telephone, you can get a multi-line controller (RS Catalog Number 43-233) and plug into it.

C. You can plug the SILVER cable into your phone, and use your phone normally. You cannot use a long distance service, like MCI, USTEL or SPRINT which use touch-tone dialing, because the Model 100 uses a pulse-tone dialer.

D. You can still use WRITE ROM if you are dialing up the distant computer manually, although WRITE ROM is set up for auto-dialing.

   You enter a single digit (it doesn't matter which) under F2 (Nmbr). After you manually dial and hear the other's computer's tone, then press F1 (Call).

E. If you have a telephone, such as in a hotel room, where you don't have a modular jack, you can still make a direct connect. There is an attachment that you screw on the phone receiver in place of the mouthpiece. It has its own jack receptacle in the center of what would have been the part you speak into. You just unscrew the phone's mouthpiece. Replace it temporarily with this unit and plug in your Direct Connect Modem Cable to make the call. It is called the Black Jack. It is priced at $49.95. Contact PCSG for more information about this product.

3. Step three — Changing the transmission conditions

This involves functions F3 (Stat), F5 (Caps), F6 (CRLF) and F7 (Fmtd)

F3 (STAT) ALLOWS YOU TO SET THE COMMUNICATION STATS THAT THE OTHER COMPUTER NEEDS.

Press F3(Stat).

The bottom line says:

```
Output to: MDM:7E1E
1  2  3  4  5  6  7  8
```

You will need to find out "the stats" the other computer modem needs to be able to receive your document.

Telecom Stats

In order for two computers to communicate, they both have to "talk the same language." They must both transmit at the same speed with the same characters (ASCII characters), and use other conventions.

These conventions are called Communications Parameters (or sometimes Protocol). You don't really need to know what these parameters mean, but some familiarity is helpful. As long as the two computers use the same parameters, communication is possible. Following is a description of the parameter options on the Model 100.

Baud Rate

The first parameter is Baud Rate. This simply means the speed at which you transmit and receive data. For instance, 300 baud means 300 bits per second (bps). This is roughly 300 characters per second. When you use your built-in modem, you transmit at 300 baud. Therefore, when you use the MDM: command, you are sending at 300 baud.

The baud rates available in your Model 100 for the RS232 port follow. You would have to be connected to an external modem for these to be of use, since the internal modem becomes disabled.

STAT SIGNAL	BAUD RATE
1	75 baud
2	110 baud
3	300 baud
4	600 baud
5	1,200 baud
6	2,400 baud
7	4,800 baud
8	9,600 baud
9	19,200 baud

Word Length

The second parameter is Word Length. This simply means the length of each computer "word" or character. Normally you would use a 7 bit word, because ASCII characters are 7 bit characters.

In order to transmit graph characters, you need an 8 bit word. Some computers ignore this 8th bit.

The allowable word sizes are:

6	:	6 bit word
7	:	7 bit word
8	:	8 bit word

Parity

The third parameter is Parity. Parity is a computer's way of insuring that a character hasn't been garbled or somehow altered during transmission. Different computers use different types of parity; the only thing you need to know is that both computers must use the same parity in order to communicate properly. The available kinds of parity are:

E	—	Even Parity
O	—	(O, not zero) Odd Parity
I	—	Ignore Parity
N	—	No Parity

Stop Bit

The fourth parameter is Stop Bit. You can have either 1 or 2 Stop Bits (per character of data sent). As before, you only need to know that both computers' Stop Bit parameters must match.

Line Control

The last parameter is called Line Control. What this means is that each computer must be able to tell the other, in effect, "Hold on a second" while it processes the current line, then, "OK go ahead" (and send the next line). Otherwise one computer might not be able to get all the data that is sent.

These "wait" and "go" signals are called in computer parlance, XON/XOFF. You can enable, E, or disable, D, this feature. You almost always want to enable XON/XOFF. You would then type "E" as the fifth stat parameter. To disable type D.

A typical example:

Now, let's suppose we know all the parameters we need to access a particular computer. You would get this information from the people with whom you are establishing communication.

For Example:

MDM:	—	Modem Enable
7	—	7 Bit Word
E	—	Even Parity
1	—	1 Stop Bit
E	—	Enable XON/XOFF

Incidentally, most of the letter and Telex services work from the stat shown above.

Set the Output stats like this:

```
Output to: MDM:7E1E
1   2   3   4   5   6   7   8
```

When you are going to transmit to another computer, ask them what are their communications parameters. Explain that you can only transmit at 300 baud. If they have a preference, they will tell you:

a. Word Length
b. Parity
c. Stop Bit
d. Line Status (they might say XON/XOFF)

Just refer back to this section in the manual, and make your output spec read accordingly.

F5 (CAPS) SENDS DOCUMENT IN UPPER CASE

Press F5 (Caps)

The function key label Caps now shows in regular print, meaning it is "Off".

When F5 (Caps) is "on" or in reverse, your document will be sent in all upper case even though it was typed in lower case. Some services require all upper case, especially for Telex transmission. Others such as electronic mail will take both upper and lower case. Be sure if you are sending a Telex to have F5 (Caps) "on" (in reverse video).

F6 (CRLF) SENDS A CARRIAGE RETURN LINE FEED.

Press F6 (CRLF). Notice that it now shows in reverse video. This is a switch, and when CRLF is in reverse, it is on. Regular lettering is off.

When CRLF is on, WRITE ROM inserts a carriage return line feed pair at the end of every line. You will need this to transmit to many computers, because they are not set up to handle the way the Model 100 transmits normally. The Model 100 strips out all the line feed or LF characters before they are sent, and, unless the other computer can put them in on the receiving end, all your text will just pile up on the same line. Without this CRLF switch, you would require some way of inserting LF into the text file.

If the other computer is having this particular reception problem, just switch CRLF to the "on" position to send your document.

THE DISTINCTION BETWEEN PRINT/F6 (CRLF) AND F6 (PHNE)/F6 (CRLF)

It is interesting to observe that there are two different function keys with CRLF designations, one for printing and the other for phone transmissions.

The Model 100 normally strips out line feeds both when outputting through the parallel (LPT:) port and through the serial (COM: or MDM:) ports. WRITE ROM allows you to switch either of these independently to pass the line feed character through to the receiving device. This means that if for example you have an electronic mail service that doesn't need the line feed and a printer that does need it, you can accommodate a telex transmission that automatically prints out as it is being sent. Contrariwise if your printer doesn't need a line feed after each carriage return but your electronic mail service does, WRITE ROM can accommodate that too, by means of this remarkably powerful feature.

F7 (FMTD) SENDS YOUR DOCUMENT FORMATTED

Press F7 (Fmtd).

"Fmtd" shows in reverse video. This is a switch. In reverse is on, regular print is "off".

When Fmtd is on, your document is sent formatted according to the specifications you have indicated by the function key settings and your dot commands.

When Fmtd is off, your document is sent as it appears in the text file.

Normally you will need to send a documented formatted, even though you are not concerned with your document's appearance. Some computers will have specific width requirements, and you can use your margin settings to meet the requirements.

Most of these systems cannot accept lines longer than 68 characters. For this reason you will normally need the F6/F7 (Fmtd) switch on to send a Telex. Remember to specify a right margin of 68.

Like TELCOM, when WRITE ROM communicates with another computer over the telephone line, it utilizes what is known as a built-in modem. The modem is simply a computer mechanism that enables the computer to transmit over telephone wires by translating the computer signals into telephone signals. Further, the modem acts to receive telephone transmissions and translate them into computer codes.

The first thing you need to do is to get your Model 100 connected to the telephone. WRITE ROM works with a direct-connect modem cable. The modem cable is nice because it allows you to connect directly to the phone lines for a better chance of error-free transmission of data. Acoustical couplers are impractical for this application. They transmit and receive sound impulses as opposed to being purely electronic. Sometimes when using acoustical couplers, something is lost in the translation, and data can be lost.

4. Step 4–Selecting the document you are sending

This step requires no detailed explanation. Just place the widebar cursor over the filename you wish to send.

You can send any TEXT file in any form as long as you have satisfied the conditions in the previous steps regarding the computer services transmission requirements.

5. Step 5–Finding the number and making the call

F1 (FIND) SEARCHES AND MAKES THE CALL

A. When you press F1 (Find) the screen clears and says:

```
Find:
```

Here you can type in a name and press ENTER. The entry will be searched for in the ADRS.DO file and the first occurrence will appear on the line above the function key labels, and two new function key labels will appear.

For example, if you typed in EZ Link as the name to find and press ENTER the screen would say:

```
EZ Link:929-4714()
Scan Call                                Exit
 1    2    3    4    5    6    7    8
```

This would be the telephone number of the EZ Link computer that was retrieved from the ADRS.DO file. The number will appear this way even though you had a logon sequence typed into the ADRS.DO file in addition to the phone number. Like Telcom, WRITE ROM accesses the ADRS.DO file and permits you to record what are called "auto-logon" sequences. A discussion of automatic logon signals follows for those that are new to this concept. Unlike Telcom, WRITE ROM allows you to store "sign-on" and "sign-off" text in your ADRS.DO file following the "auto-logon" sequence. This is also discussed later in this chapter. Briefly, this permits you to record the special sequences of text required by most services to be prior to and following the document you are transmitting.

Your last transmission's computer service name and phone number will appear after "Find:". When you first use WRITE ROM that space will be blank. If you are not sending to the same as before back space out that entry and type in the name to search for.

B. You can access the name and computer number you want to call three ways:

1. You can type in the name as shown in the ADRS.DO file and get the specific entry.
2. You can type in part of the name, even just a letter, and get all entries one by one of occurrences of that letter or segment.
3. You can scan for all entries in your ADRS.DO file.

Here is an explanation of each.

1. Typing in the exact name

When the screen says,
Find:
Type in the name you want to find and call. (First, back space out the last entry if it is not what you want.) Press ENTER.

Example:

```
Find:Gotham
```

Press ENTER

The screen clears and says:

```
Gotham:561-0434 ()
Scan Call                    Exit
1    2    3    4    5    6    7    8
```

Even though you had an auto-logon sequence in your ADRS.DO file between the ⟨ ⟩ signs, when you see the entry here on the screen it will just show the ⟨ ⟩ signs. If you don't see these it is a reminder that you need them in your address file so that the distant computer will be able to receive and transmit.

If it is not found the screen says,

```
Not found
1    2    3    4    5    6    7    8
```

If this is the correct name and number you are ready to press F2 (Call) to make the call as discussed later.

2. **F1 (Scan) Searching for several occurrences**

   When the screen says,

```
Find:
```

   Type in a single letter or part of the name you wish to search for and press ENTER.

   The first occurrence in the ADRS.DO file will appear on the screen. If correct, you are ready to press F2 (Call).

   If not correct, press F1 (Scan) to see the next occurrence. You can continue to scan until all occurrences have appeared and "Not found" shows on the screen.

3. **Scanning for all entries**

   When the screen says

```
Find:
```

   Backspace out the last entry and just press ENTER. You will be shown the first entry in the ADRS.DO file. Press F1 (Scan) to see the next entry. Keep pressing F1 (Scan) to see each entry one by one. When you read the name and number you are seeking, you are ready to press F-2 (Call).

F1 (Find)/F2 (Call) makes the call and sends the document.

After all conditions are correct such as F3 (Stat) or F6 (CRLF) or F7 (Fmtd) and you have pressed F1 (Find) as discussed above and the name and number displayed are to your satisfaction, you are ready to press F2 (Call).

Pressing F2 (Call) automatically dials the number you have found and transmits the document according to the transmission specs set under the F3 (Stat) key.

Immediately the number is dialed and the document is transmitted.

While the number is being dialed the message,

```
New file name: ■
1   2   3   4   5   6   7   8
```

appears at the bottom of the screen, each digit being displayed as it is dialed along with the name of the file being sent. Then when communication is established with the other computer

```
WAIT
1   2   3   4   5   6   7   8
```

appears blinking at the bottom of the screen until transmission is completed.

> NOTE:
> Most computer letter or Telex services require transmitted lines to be shorter than 68 characters. This can best be assured by always transmitting letters or Telexes with the F6 (Phne)/F7 (Fmtd) key active. You will have to make sure that your right margin is less than 68.

4. At the end of your transmission, your screen will clear, and a verification or recap message will appear, if your computer service sends these.

When the screen clears, a message will appear like this:

```
RECAP REPORT 03/21 12:51 EST
AEBDD 01221508 ACCEPTED
```

or perhaps

```
UNABLE TO VERIFY ORIGINATING CODE AEBDD
CALL LOCAL ACTION TELEX OFFICE
```

Some services don't send the "accepted" or "recap" message immediately so you'll have to wait for a while until it comes over if you want to see it. If your computer does not send a message you will see a clear screen with EXIT appearing over F8. In either event press F8 (Exit) to return to the WRITE ROM main level.

5. If you have a parallel printer connected and on at the time you send your document, you will get a hard (printed) copy exactly like the document being sent.

   The verification message will also print on the bottom of the copy.

PHONE NOTES:

EZ LINK NEEDS /COMMANDS FLUSH LEFT.

If you are sending computer letters or Telexes by Western Union EZ Link, EZ Link requires after the address of the recipient a command /TEXT prior to the body of the letter you are sending. This /TEXT command (and all other slash commands) must be flush left, in other words with a left margin of 0.

EZ Link requires other /commands, but these should be put either into your logon text or your sign on and sign off text.

You will need to send your phone transmission via EZ Link formatted because they have a line length restriction of 68 characters. When sending by EZ Link you have at least five ways you can accomplish a correct transmission.

Option 1.
Use .TI prior to the /TEXT command. Example:

Ron Biggs
10, Sleepy Hollow
Paris, TX 78787
.TI
/TEXT
Well, Ron, it's been a long time since I wrote, and this is a wonderful opportunity to test a new program . . .

Option 2.
Use .OL0 on the first line of the document you are sending. The entire document will be sent with a left margin of 0. Example:

.OL0
Ron Biggs
10, Sleepy Hollow
Paris, TX 78787
/TEXT
Well, Ron, it's been a long time since I wrote, and this is a wonderful opportunity to test a new program . . .

Option 3.
Use your function key setting F7(Set)/F6(Page)/F1(Left) to set the left margin to 0 prior to sending the document.

Option 4.
Put the entire address of the recipient into the ADRS.DO file with the sign on string inside the curly brackets as explained in Chapter 9, Phone transmission. Be sure to make this ADRS.DO entry include the EZ Link number, auto logon and sign on and sign off with a name other than EZ Link or you will be sending all your computer mail to the same person.

Option 5.
Put the recipient's address along with the /TEXT command, into a LIBRARY file. Prior to the /TEXT command in the LIBRARY file put a .TI dot command.

Whenever you type the letter to the recipient just type on the first line the LIBRARY GRAPH character (and code or abbreviation if you used one) followed by a colon. When the letter is transmitted the address will be inserted automatically and the /TEXT command will appear flush left.

Choose which option suits you best and use it every time you send EZLINK.

By the way the EZ Link system allows you to send computer letters to any mailing address in the world in a Western Union telegram like envelope. The charge for domestic (US) delivery is currently only $1.50 per letter. WRITE ROM makes it easy to send a computer letter. It is just a matter of pushing a few buttons.

SENDING FORMATTED COPY BY TELCOM

Purpose: If you are sending to a service where total autologon is not practical, such as MCI, but you still want to send formatted copy or use other features of WRITE ROM such as MERGE, INCLUDE and LIBRARY.

Steps:

1. First, print to a RAM file.
   a. Make sure your formatting is the way you want, using F7 (Set). Be certain right margin doesn't exceed the acceptable sending width for the distant computer.
   b. Press the PRINT key then F3 (Outp).
   Backspace out the "LPT:" and type in a new filename (no colon).
   c. Press F1 (Go). New file is created with completed document.
2. Now use TELCOM as usual
   a. Access manually to where text can be transmitted.
   b. Upload the newly created file. Width must equal right margin to preserve format.

QUICK VIEW GUIDE

Library Chapter 12

Definition: Lets you have library files of frequently used words, phrases, even whole paragraphs. Automatically insert any Library entry into a document by typing in a Library code.

Steps:

1. Create a Library file
   a. Format is

Graph symbol your code Colon Text Graph symbol
no spaces except in text

▣A1:Our terms are net 30.▣

To make Graph character hold down GRPH key and type letter. Examples shows GRPH h.

The number or letter personal code can be any original combination. The number or letter code is optional, but you would need a different graph symbol for each entry.

   b. Library file can have as many entries as you like.
   c. You can have many different Library files.
   d. Some GRPH characters don't work for library (any with ASCII value less than 128, or if used for other WRITE ROM features.) See the manual Chapter 12 for explanation.

2. Prepare your document
   a. Where you want a Library entry inserted type:

Graph symbol Number/letter code Colon
no spaces

▣A1:

   b. Type in as many Library codes as you like

3. Print the document
   a. Designate which file is the current Library file for this printing.
   Put cursor on file. Press F7 (Set), then F4 (Libr).
   b. Put cursor on the document name.
   Press PRINT then F1 (Go)

4. Completed document will have library entries inserted and formatted as though typed in from the keyboard.

CHAPTER XII

LIBRARY AND BOILERPLATE

This capability of WRITE ROM is so significant, it could be sold as a program by itself.

With WRITE ROM you can prepare documents that require a minimum amount of effort in typing because you can automatically insert, anywhere you choose, previously prepared words, phrases, paragraphs or entire multiple page addendums.

A. You can insert names and addresses, inventory items, etc.

   Library lets you assign identifying numbers to your customers names and addresses, stock numbers to your inventory items, or short "tag" names or abbreviations for any entry. Instead of typing in the entire listing, each time, the identifier number or name will bring it into the document.

B. You can do boilerplate.

   When a standard opening for a letter can be written, such as a "Thank you for your order" letter, that standard can be used again and again. Standard closes and official answers to certain questions can also be prepared. These standard blocks of text that can be merged with personalized copy to quickly produce correspondence are known as "boilerplate." In effect, boilerplates of text can be bolted together to produce a document. You can assign a code to a given "boilerplate" and insert it anywhere in your document by typing in that code.

   WRITE ROM accomplishes this feat by your choice of two techniques.

   1. First is a function called Library. With this feature you can prepare "Library" files which contain special words, phrases, or paragraphs that you would like to recall.

      Each item for recall is coded by you when it is put into the file.

      Anyplace you designate the code in a document for a particular word, phrase, or paragraph, that item is automatically inserted when the document is printed.

Although you can only access one Library file at a time for a single printing, you can set up as many Library files as you need for different purposes.

2. The second technique is a dot command called INCLUDE. This easy to use command allows you to cause any other RAM file to be inserted anywhere in your document. Although this is described in the chapter on dot commands, it has significance here because it is also used for boilerplate. A standard opening for a collection letter can be in one RAM file and a closing in another.

   The INCLUDE command allows you to insert as many RAM files as you want into a single document. If you like you can construct business letters with as many previously prepared statements or presentations as you need from different RAM Files and then use a Library file for other items.

USING LIBRARY

Using the Library function consists of three phases.

1. First, you will create a Library file. You may have as many different Library files as you would like.

   The format of a Library entry is:

   A Graph symbol followed by Your own Code or Number followed by a Colon followed by any text including spaces followed by a Graph symbol.

   or

   You can leave out the code or number if you wish.

   Any Entry can have a code (like a stock # etc.) that follows the Graph symbol, but a colon must follow.

   Entry examples in a Library file:

```
:Please write us again if you need any
further information.◂
Jones:Mr Tom Jones◂
224 Main Street◂
Dallas, TX 75434◂
#14:We have examined your account
records and find that we have not
received your payment.  As of the date
of this letter, to bring your account
current we must have a check in the
amount of◂
146178B:Screw, stainless steel plate◂
#1401 finish, 16 pitch, 2 inch◂
Flathead, 1/4"◂
```

2. Second, you will prepare your document. Your document will contain codes that refer to items in one of your Library files.

3. Last, you will print your document using a function key called "Library" to link the Library file with the document.

HERE IS HOW TO DO EACH PHASE.

1. Setting up a LIBRARY file:

You may enter any information you would like in a Library file. It can be a single word, paragraphs, numbers. Any amount of text can be a single unit or entry in Library.

A Library entry is always:

A Graph character, followed by a code (if you like) followed by a text to recall later, followed by a Graph character.

a. From the WRITE ROM menu, press F3(New). At the prompt New filename: type in the name you wish for this Library file, up to six characters. Try to come up with a name that will be easy to associate with the kind of information that will be in the file.

b. You must start any entry in your Library with a Graph character. A Graph character is produced by holding down the GRPH key and pressing any letter key, number or punctuation key, except for D, G, J, U, or Z or any other letters or characters that don't produce GRPH characters. Some GRPH characters aren't true GRPH characters and you can't use those for Library. Look them up in the appendix of your Model 100 manual under ASCII code tables. Any GRPH keyboard character that has a decimal value of less than 128 cannot be used for library. For your information, these include: [,], 0, 9, -, _ .

Also you can't use GRPH t for Library because it is used for creating interactive forms. Use of GRPH t is explained in Chapter 9, FORM.

You can't use GRPH m because it is special for merge files.

c. Example: Hold down the GRPH key and press c. The screen says

Or hold down the GRPH key and press the letter a

The screen says

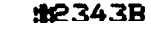
a. Throughout our discussions, we describe using only one GRPH character. WRITE ROM, however, permits you to use any Graph character except for those mentioned earlier.

b. The reason we recommend using only one Graph character for all your work is because it is so simple. You do not limit yourself in any way in the number of different entries or applications. Using many different Graph characters makes it difficult.

c. If for some reason in spite of our recommendation you wish to use different Graph characters to identify various entries in your Library files, you can. Some individuals might use a different Graph character for each different library file. You could even have as many different Graph symbols in one file as you would want. In our opinion that would make it awfully complicated, but you do have the capacity if you want.

d. You have 2 ways you can enter your items in your Library File:

1. After the Graph Symbol you can have a descriptive code or name, followed by a colon as



2. You can have the Graph symbol alone followed by a colon, as

e. Here is an example of some typical entries in a Library file using codes.

```
#10:Mr Edward Smith◂
221 E Fremont Street◂
Dallas, Texas  75225◂
#◂
#15:Thank you for your prompt attention
to this matter.  If you have already
sent payment, please excuse this
letter.  We appreciate you as a
continued customer.#◂
◂
#24:Sincerely,◂
Ajax Industrial Products◂
◂
◂
Ed Phillips◂
Accounting Manager#
```

The code can:

1. Be up to 30 characters.
2. Include spaces.
3. Be numbers, letters, or words. Any descriptive tag.

Note: A space immediately after the Graph character blocks the code. All that will be recognized is the Graph character.

Ideas for codes are:

1. Stock numbers.
2. Customer numbers.
3. Inventory numbers.
4. Sequential numbers or letters.
5. Words or names that remind you of the entry.
6. Abbreviations.

f. Here is an entry without a code:

```
#:Our terms are 2% 10 days net 30#
```

You would use the Graph symbol without a code only when you are using different Graph symbols for your various entries.

g. You can have as many carriage returns as you like in your library entry.

h. Your library entry can be as long as you like. It could be an entire file. Remember, you terminate your library phrase with a second graph character. Any graph character will do.

2. Preparing your document.

After you have prepared your Library files, you need to have a printout of your memory items and their codes so that you can easily refer to them when you are composing the document where you will use them.

This is another reason for using only one Graph symbol for all your Library entries. If you use many Graph symbols, not only do you have lots of different Graph abstractions, but Graph symbols don't print out on every printer.

There is truly no advantage to using different Graph symbols. You can code every entry you will ever need with letters or numbers.

After you have printed out a Library file, post it in a notebook or on your desk so that you can quickly refer to it while you are typing in your document.

Remember, only one Library file can be referred to in a single document, though you can have as many INCLUDE files as you wish.

Here are some facts about document preparation.

a. Prepare your letter, article or report the way you would any document file.

b. Wherever in your document you wish to have an entry from the Library file inserted, you just type in the graph symbol/followed by a code, then a colon eg.

#2343B:

c. Continue typing in your text. You can be completely unconcerned about whether an entry will fit when it is printed.

Your insert from the Library file will be formatted along with the entire document as though you had typed it in directly from the keyboard.

d. Here are two examples of typical documents using the Library feature:

Example 1

```
                                                    %D◄
◄
#JONES:◄
◄
Dear Mr. Jones◄
Thank you for your letter...
```

Example 2

```
                                                    %D◄
◄
◄
Tom Smith◄
222 Main Street◄
Dallas, TX 72229◄
◄
Dear Mr. Smith:◄
#14: $385.15.◄
#15:◄
#24:◄
```

Document File:

```
                                                    %D◂
◂
Mr. David Maxwell◂
Universal Products◂
13556 Sycamore◂
White Plains, NY 10550◂
◂
Dear Mr. Maxwell:◂
◂
#28:◂
◂
#40:◂
◂
#CLOSE:◂
◂
#ENDMD:◂
```

The final print out:

January 10, 1984

Mr. David Maxwell
Universal Products
13556 Sycamore
White Plains, NY 10550

Dear Mr. Maxwell

Thank you for your interest in our new product, Lubrisil and its application for your business.

In response to your question about to price performance ratio, following information should provide you with facts that can help you in your buying decision.

Lubrisil is priced at $400/ metric ton which will provide the equivalent internal lubricant properties as 18 tons of multi-stearate products which are priced at $60/ metric ton. These figures are based on comparison studies of Acrylonitrile butadiene compounds using the standard Grinwald rheology test series.

Please feel free to call me if you have other questions or need more information we look forward to receiving your order.

Sincerely
International Chemical Products

Martin Daniels
Sales Engineer.

CHAPTER XIII

GLOSSARY–FUNCTION KEYS AND FEATURES

Main Level–When you put the widebar cursor on WRITE on the Main Menu of your Model 100 and press ENTER, you see the WRITE ROM menu. It contains only document files. We refer to the function keys on the WRITE ROM menu as the main level.

The WRITE ROM Menu is as follows:

```
WRITE ROM V1.0 (c)PCSG 1985  20068 Free
[redacted]  EXAMPL.DO LETTER.DO MEMO.DO
 -.-          -.-          -.-          -.-
 -.-          -.-          -.-          -.-
 -.-          -.-          -.-          -.--
 -.-          -.-
File size:41    Words:8
Rplc Name New   Map  Kill Phne Set   Exit
 1    2    3    4    5    6    7    8
```

F1 (Rplc)–Activates the Search and Replace feature. When you press the F1 function key you are shown the prompt, Search [F8]: Type in the word or phrase you want to search for and then remove from your document. Press F8.

Now you see the prompt, Replace [F8]: Type in the word or phrase you wish to substitute and press F8. If you wish a space just press the spacebar. If you want nothing in place of the word or phrase you removed, press F8.

The message Confirm (Y/N) lets you verify whether to replace or not. Search words show on seventh line at left of screen. The message Change (Y/N) appears for each occurrence.

F2 (Name)–Renames any file instantly. Place the cursor over the name of a file you wish changed. When you press F2 you are shown the prompt, New filename:. Simply type in any new name up to 6 characters. Press ENTER. The new name appears in place of the old immediately.

F3 (New)–Creates new TEXT file. It is the same as a file created from the built-in TEXT program. When you press F3 you are shown the prompt, New filename:. Simply type in the name you want for the new file you are creating, up to six characters. When you press ENTER you are in that file immediately ready to type in

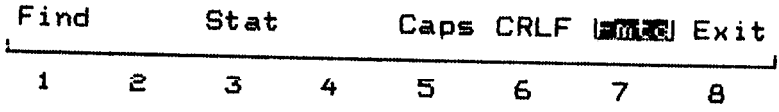
text. The new name appears on the WRITE ROM menu. You can enter that file or any file on the WRITE ROM menu just by putting the widebar cursor on the filename and pressing ENTER.

F4 (Map)—Plots a Pixel Map of your document on the screen. A Pixel is one of the tiny dots that darken on your screen to make up the characters. The Map shows each character, even punctuation marks, as a dot on the screen. This way you can see your document in the layout it will take when formatted. To see a map put the widebar cursor over the document name you wish plotted. Press F4. Immediately you will see the pixel map on the screen. Press ENTER to see subsequent pages.

Info—Press ENTER to see the expanded word count of the file after the last page has mapped with F4 as above. Total word-count includes those from Library entries, INCLUDE files, merge entries and headers and footers minus any Graph t (FORM) prompts and DOT commands.

F5 (Kill)—Kills any file with two key strokes. Put the cursor over the filename of the document you wish to kill. When you press F5 you are shown the safeguard warning. Kill XXX.DO Are you sure?. The XXX stands for a document file name. If you type Y the file is instantly killed and the name is deleted from the WRITE ROM menu. If you type any other key the operation is cancelled, and you return to the main WRITE ROM menu.

F6 (Phne)—Accesses the unique telephone file transmission features of WRITE ROM. This "program in itself" allows you to send any document instantly to another computer dialing a prestored number automatically. It also allows you to send computer letters or Telexes with automatically inserted sign on and sign off codes by means of services like EZ LINK or ACTION TELEX. When you press F6 you see these new function keys:



Each of these is discussed later in this section.

F7 (Set)—Accesses the function keys by which you control page numbers, page format headers and footers and designate whether a file is to be a Library file. When you press F7 you see these new function keys:

```
Pg#  Load Save Libr H/F  Page Edge Exit
 1    2    3    4    5    6    7    8
```

F8 (Exit)–From the main level of WRITE ROM, pressing F8 will take you immediately back to the Model 100 Main Menu. To get back into WRITE ROM you put the widebar cursor on the name Write on the Main Menu and press ENTER.

From any other function key level than the WRITE ROM main level, when you press F8 you will be taken back one level higher.

From inside any text file that you accessed from the WRITE ROM menu (by putting the widebar cursor over the filename and pressing ENTER), you will exit back to the WRITE ROM menu when you press F8.

ESC (Escape)–Takes you back all the way to the main level from any function key level.

Cancels out any editing operation where you are changing a value or setting a spec in response to a function key prompt.

F6 (Phne) – Sublevels

When you press F6 these new function keys appear:

```
Find      Stat      Caps CRLF [redacted] Exit
 1    2    3    4    5    6    7    8
```

F6/**F1 (Find)**

Lets you search the ADRS.DO file and find computer names and phone numbers. When you press F1 (Find) the screen says:

```
Find:
```

"Find" shows last search. Backspace out if not correct and type in name or part of a name to look for. Press ENTER. Searches for first occurrence of a letter or part of the name.

First occurrence appears on line above bottom line. New function keys say:

```
EZ Link:929-4714()
Scan Call                    Exit
 1    2    3    4    5    6    7    8
```

F6/F1/**F1 (Scan)**

Searches for next occurrence in ADRS.DO file. You can search for all entries by starting with a blank after "Find:"

F6/F1/**F2 (Call)**

Actuates the call, automatically sending the document according to the settings of the other function keys on this level. Actually dials the number and sends the document. Also prints out a copy if a printer is hooked up.

While document is being transmitted the screen says WAIT, blinking in the lower left of the screen. When transmission is completed, if your service sends an acceptance answer or a "RECAP" message it will appear on the screen. F8 (Exit) returns you to the WRITE ROM main level.

F6/**F3 (Outp)**

Permits you to type in communication stats. When you PRESS F3 you are shown this prompt, Output to: MDM:71E, or whatever are your stats. You can type in any parameters.

Auto Logon

WRITE ROM uses the ADRS.DO file for logon text to permit complete ID and password exchange. You use these logon signals to create your auto-logon sequence based on what the other computer sends and requires back:

: Goes before phone number and after > .
< Auto logon to follow
? Wait for character that follows
= Pause for 2 seconds
! Regard the symbol that follows as a character, not a symbol
^ Regard character that follows as a control character, eg. ^A is a control A.
> Auto logon ended

WRITE ROM gives you Telex and computer letter sending capability by means of store and forward services such as Action TELEX and EZ Link or other services.

WRITE ROM permits the entry and storage in the ADRS.DO file of sign on and sign off text for Telex and computer letter transmissions.

After an auto logon sequence or in any event after the > sign, press ENTER (carriage return). On the next line type a curly bracket (GRPH 9). Next you simply type in whatever initial text you were given by your Telex or letter service such as Action Telex, including the number of the Telex machine you are sending to. You can have carriage returns not ^M's in your sign on text. End your sign on text with an ending curly bracket (GRPH 0) and press ENTER (carriage return). When the Telex or computer letter is sent all your sign on text will appear at the beginning of your document.

Example of curly brackets:

{ }

The entry and storage of sign off text works exactly like sign on explained above. The correct "sign off" text is provided to you by your service when you subscribe. In the ADRS.DO file on the next line after the sign on text, enclose your sign off text in curly brackets (GRPH 9) & (GRPH 0). Put carriage returns where indicated by your service and put a carriage return after the ending curly bracket (GRPH 0). Sign off text is automatically added to the end of your document when transmitted.

F6/**F5 (Caps)**

Shows in reverse when on, regular print when off. Causes your document to be sent in all upper case. Important when sending Telexes, because most services require Telexes to be sent in all caps.

F6/**F6 (CRLF)**

Causes your phone transmissions to be sent with a carriage return line feed pair. The Model 100 strips out these upon transmission. If the receiving computer is not set up to automatically add line feeds at the end of each line received, then everything sent will pile up on one line. When the F6 (CRLF) label shows in reverse video it indicates that the function is on. Press again for off.

F6/**F7 (Fmtd)**

Causes your phone transmissions to be sent formatted in the way you have your function keys or dot commands set to control the document.

This is a switch and shows in reverse video when "on". When "off" Fmtd shows in regular print, and the document is sent

unformatted, ie, as it appears in your Model 100.

F6/**F8 (Exit)**

Returns you to the main level from the phone transmission functions.

F7 (Set) Sublevels

When you press F7 at the WRITE ROM Main Menu these new function keys appear:

```
Pg#  Load Save Libr H/F  Page Edge Exit
 1    2    3    4    5    6    7    8
```

F7/**F1 (Pg#)**

Accesses the function keys to set page numbers. When you press F1 (Pg#) these new function key labels appear:

```
Frst Strt End                      Exit
 1    2    3    4    5    6    7    8
```

F7/F1/**F1 (Frst)**

Sets the page number for the first page in the document file you are printing. When you press F1, this prompt appears, Beginning page of the file:1. You have text editing capabilities to backspace and type in a new number.

F7/F1/**F2 (Strt)**

Used when you want to print a single page or a few pages from your document. Tells WRITE ROM which page you want to print first. When you press F2, this prompt appears, Start printing at page: 1. Backspace out the default setting and type in the first page to print.

F7/F1/**F3 (End)**

Used when printing only one or several pages of your document. The default setting prints to the end of your document. When you press F3 you are shown the prompt, Last page to print: End. Backspace out "End" and type in the number of last page you want to print. If you are printing a single page this setting will be the same as you put for F2 (Strt). Press ENTER to record.

F7/**F3 (Load)**

When a cassette recorder is connected which has a rewound tape with a WSPEC.DT file and F2 (Load) is pressed, the file will automatically be loaded into the Model 100.

F7/**F3 (Save)**

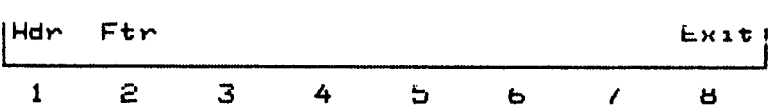
When a cassette recorder is connected to the Model 100 and F2 (Save) is pressed the WSPEC.DT file is automatically saved on cassette. Recorder automatically starts. Screen says WAIT until complete.

F7/**F4 (Libr)**

Locks in a file as a Library file. Library file must be prepared using Graph symbols and format described in Chapter 12, LIBRARY. To lock in a file as a library document put the cursor on the filename on the WRITE ROM main level, press F7 (Set) then F4 (Libr). That file is the library file until you designate another one. The label "Libr" is shown in reverse video when file is locked in. When "Libr" shows in regular print there is no designated Library file.

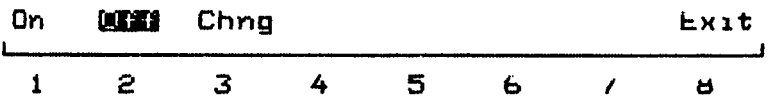
F7/**F5 (H/F)**

Accesses lower function levels for entering and storing header and footer text, and to turn on and off the header and footer for the entire document you are printing. When you press F4 (H/F) you see these new function keys:



F7/F5/**F1 (Hdr) or F2 (Ftr)**

Accesses on and off switches and the storage area for your header (F1) or footer (F2). When you press F1 you see these new function keys:



F7/F5/F1 or F2/**F1 (On) or F2 (Off)**

Turns Header or Footer on and off. When pressed, the activated button shows in reverse video. Affects entire document (global).

Use dot commands embedded in your document to turn header and footer off on selected pages.

F7/F5/F1 or F2/**F3 (Chng)**

Used when you are typing in a new header or changing an old one. Accesses the storage area for typing in header or footer text. You are allowed 105 characters for header and the same for footer. When you press F3 you see this prompt:

```
Header: ■
```

or

```
Footer: ■
```

Just type in your header or footer text. These will appear on the top and bottom of your document if you have them switched on. The codes %D, %T, %W, or %P allow you to automatically have the date, time, day of the week, or page number automatically inserted in the header and footer. Pressing ENTER records the text and returns you to the on/off function level.

%D

When this code is typed into your header or footer text or anywhere in your document the date is automatically inserted. Date is drawn from the Model 100 so the date must be accurately set. See chapter 4. The code %D does not appear in the printed document.

%T

When this code is typed into your header or footer, the time is automatically inserted from the setting in your Model 100. %T is useful when you are printing different drafts or revisions of a document during the day to keep track of which is the latest.

%P

When this code is typed into your header or footer consecutive page numbers are automatically inserted on each page when you print. Numbers only appear on pages where header and footer are turned on. Immediately following the %P you need spaces to reserve room for the page numbers to appear. For instance, if you have a 3 digit page number you need to put 3 spaces following %P.

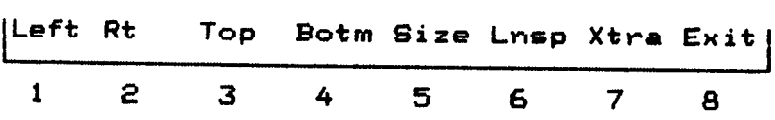
If you wish the word "Page" to appear before each number then type as Page %P.

%W

When this code is typed into your header or footer, the day of the week is drawn from your Model 100 and inserted in your printout.

F7/**F6 Page**

Accesses the lower function key level which controls the document margins, line spacing (like single, double, etc.), and inserting an optional extra line between paragraphs. When F6 is pressed you see these new function keys:



F7/F6/**F1 (Left)**

Sets left margin. When you press F1 the screen says: Left margin: 8. This is the default. Backspace out the 8, and type in the new number of spaces you want the left margin to be from the edge of your paper. Note: On some printers the paper can be positioned to the left of the farthest travel of the printhead. In these instances you need to take that "extra" left margin into consideration when deciding your left margin setting.

F7/F6/**F2 (Rt)**

Sets right margin. When you press F2 the screen says, Right margin: 64. This is the default. This is the number of spaces counting from the left edge of the paper (or farthest travel of the printhead). Backspace out the 64 and type in the new setting.

F7/F6/**F3 (Top)**

Sets top margin. When you press F2 the screen says, Top Margin: 3. This is the default. Top margin is the number of line spaces from the printhead location to where the body of the document starts to print. If you have a header the top margin is the number of line spaces between the header and the body of the document.

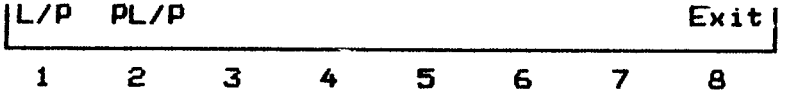
F7/F6/**F4 (Botm)**

Sets bottom margin. When you press F4 the screen says: Bottom margin: 3. This is the default. Bottom margin is the number of line spaces added after the print body of text tops. If you have a footer

then the bottom margin is the number of line spaces between the bottom of the print body and the footer.

F7/F6/**F5 (Size)**

Accesses lower function key level to control page length. When you press F5 you see these new function key labels:



F7/F6/F5/**F1 (L/P)**

Sets the lines per page. When you press F1 the screen says: Lines per page: 66. An 8½" x 11" paper is 66 lines long. If you are printing on a different length paper change the setting accordingly. One inch equals 6 lines.

F7/F6/F5/**F2 (PL/P)**

Creates a buffer zone to allow for easier positioning of printhead around the page break. When you press F2, the screen says, Printing lines per page: 60. The numerical difference between "printing lines per page" and "lines per page" creates an additional spacing which is added at the bottom after the footer. This creates a safety area that permits you to be less careful in positioning the paper and printhead when you start.

F7/F6/**F6 (Lnsp)**

Sets the line spacing as single, double, etc. When you press F6 the bottom line clears and the screen says, Line spacing: 1. Backspace out the 1. Type in the number of the spacing you want, 2 for double space, 3 for triple. You can have as many as you want.

F7/F6/**F7 (Xtra)**

Inserts an extra line between paragraphs. Actually inserted whenever a carriage return appears in your original text. Provides for attractive spacing between paragraphs. F7 is an on/off switch. When on the label "Xtra" shows in reverse.

F7/**F7 (Edge)**

Accesses lower level of function keys which control document's edge format. Default is ragged right edge, but you can have the entire document centered or with right hand justification. When F7 is pressed these new function keys appear.

F7/F7/**F1 (Norm)**

The default setting of ragged right edge. Shows in reverse video when on.

F1/F7/**F2 (Just)**

Makes entire document right hand justified. Shows in reverse when on. Use dot commands inside document for mixtures of ragged and justified within a single file.

F1/F7/**F3 (Cntr)**

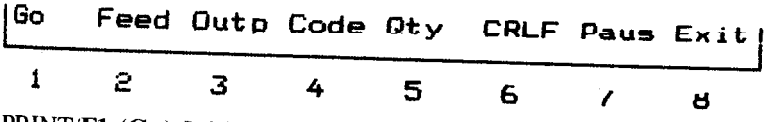
Causes entire document to have each line centered. Not useful except for special effects like party invitations or menus. Shows in reverse video when on. Use dot commands inside document for less than global effect.

COMMAND KEYS – From the WRITE ROM main level.

PASTE – Copies an entire file instantly.

Put the widebar cursor over the name of the file you want copied. When you press PASTE from the WRITE ROM main level the bottom line clears and this prompt appears, New Filename:. Type in a filename different from any on the menu (up to 6 characters). Press ENTER. The new filename appears on the menu. It is an exact copy of the original file.

PRINT – Accesses the keys which actuate the printing functions. From the WRITE ROM main level when you press PRINT you see the new function key labels:



PRINT/**F1 (Go)** Initiates printing. Printer must be properly connected and on. Other settings must be satisfactory in default or changed to meet conditions such as printer type.

PRINT/**F2 (Feed)** Feeds extra blank page at end of printing. Purpose is to get printed copy out past tractor feed assembly when using form feed paper. Shows in reverse when in effect.

PRINT/**F3 (Outp)** Allows redirectable output. When F3 is pressed

the screen says, Output to: LPT:. Parallel line printer is the default. Backspace out the LPT: and type in output device name. Refer to Chapter 10 for an explanation of output possibilities.

PRINT/**F4 (Code)** Accesses a lower function key level for storing printer control codes to enable printer features such as Bold, Underline, Correspondence quality, and others to be activated in your document by simple signals such as CODE u for underline on and off. Hold down CODE key (to the right of spacebar) and type u. When you press F4 you see new function key labels:

```
Setu U/L  Emph Cor  Alt                Exit
 1    2    3    4    5    6    7    8
```

PRINT/F4/**F1 (Sctu)**

Stores and effects a setup code or a printer control code that effects the printed document globally. When F1 is pressed the bottom line clears and the screen says,

```
Setup: ■
 1    2    3    4    5    6    7    8
```

Type in decimal equivalents for code as found in printer manual. Decimal codes must be presented as 3 digit numerals. If the equivalency chart shows less than three numerals, pad out with zeros such as 027 or 065 or 001. If you are not familiar with decimal codes or printer control codes in general study Chapter 7, PRINTER FEATURES carefully before attempting to work with these entries.

PRINT/F4/**F2 (U/L)**

Stores the underline on and off codes for your printer and enables the use of a simple CODE character in your document to turn this feature on and off. When you press F2 (U/L) you see the following prompt: Underline ON:. From your printer manual type in the control code for "underline on". It must be presented in decimal format. If there is more than one code they must be shown together without commas as follows:

```
Underline ON: 027045001■
 1    2    3    4    5    6    7    8
```

Your printer manual will often not show printer codes in decimal format. If you are unfamiliar with how to convert them using

equivalency charts read Chapter 7, PRINTER FEATURES for a full explanation.

After typing in the code for "underline on" press ENTER. The code is immediately recorded into WRITE ROM. You then see the prompt Underline OFF:. Type in the decimal code for "underline off" from your printer manual as converted using the charts as explained in Chapter 7. Press ENTER.

Immediately you see the prompt,

```
Underline CODE character: ■
1   2   3   4   5   6   7   8
```

The underline CODE Character that we recommend is CODE u. You may use a different CODE character if you choose, although it is not recommended because CODE u is so easy to remember.

If you wish to change the CODE character just backspace out the one that is shown and type in any CODE character that you want.

PRINT/F4/**F3 (Emph)**

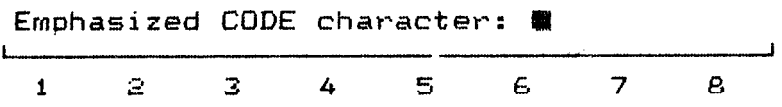
Stores the Emphasized on and off codes for your printer and enables the use of a simple CODE character in your document to turn this feature on and off. When you press F3 (Emph) you see the following prompt: Emphasized ON:. From your printer manual type in the control code for "emphasized on". It must be presented in decimal format. If there is more than one code they must be shown together without commas as follows:

```
Emphasized ON: 027065001■
1   2   3   4   5   6   7   8
```

Your printer manual will often not show printer codes in decimal format. If you are unfamiliar with how to convert them using equivalency charts read Chapter 7, PRINTER FEATURES for a full explanation.

After typing in the code for "emphasized on" press ENTER. The code is immediately recorded into WRITE ROM. You then see the prompt Emphasized OFF:. Type in the decimal code for "Emphasized off" from your printer manual as converted using the charts as explained in Chapter 7. Press ENTER.

Immediately you see the prompt,

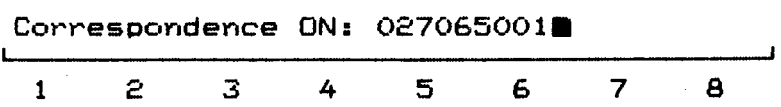


The emphasized CODE character that we recommend is CODE e. You may use a different CODE character if you choose, although it is not recommended because CODE e is so easy to remember.

If you wish to change the CODE e character just backspace out the one that is shown and type in any CODE character that you want.

.PRINT/F4/F4 (Cor)

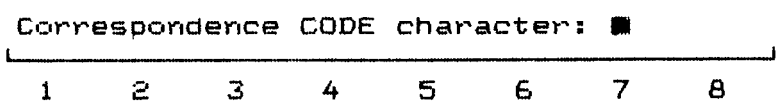
Stores the correspondence quality on and off codes for your printer and enables the use of a simple CODE character in your document to turn this feature on and off. When you press F4 (Cor) you see the following prompt: Correspondence ON:. From your printer manual type in the control code for "correspondence on". It must be presented in decimal format. If there is more than one code they must be shown together without commas as follows:



Your printer manual will often not show printer codes in decimal format. If you are unfamiliar with how to convert them using equivalency charts read Chapter 7, PRINTER FEATURES for a full explanation.

After typing in the code for "correspondence on" press ENTER. The code is immediately recorded into WRITE ROM. You then see the prompt Correspondence OFF:. Type in the decimal code for "correspondence off" from your printer manual as converted using the charts as explained in Chapter 7. Press ENTER.

Immediately you see the prompt,



The correspondence CODE character that we recommend is CODE c. You may use a different CODE character if you choose, although it is not recommended because CODE c is so easy to remember.

If you wish to change the CODE character just backspace out the one that is shown and type in any CODE character that you want.

PRINT/F4/**F5 (Alt)**

Stores an alternate code for your printer and enables the use of a simple CODE character in your document to turn any feature of your choice on and off. When you press F5 (Alt) you see the following prompt: Alternate ON:. From your printer manual type in the control code for turning on the printer feature you have chosen to be recorded here. It must be presented in decimal format. If there is more than one code they must be shown together without commas as follows:

```
Alternate ON: 027065001■
1    2    3    4    5    6    7    8
```

Your printer manual will often not show printer codes in decimal format. If you are unfamiliar with how to convert them using equivalency charts read Chapter 7, PRINTER FEATURES for a full explanation.

After typing in the code for "Alternate on" press ENTER. The code is immediately recorded into WRITE ROM. You then see the prompt, Alternate OFF:. Type in the decimal code for turning off the printer feature that you have chosen as your alternate, from your printer manual as converted using the charts as explained in Chapter 7. Press ENTER.

Immediately you see the prompt,

```
Alternate CODE character: ■
1    2    3    4    5    6    7    8
```

The Alternate CODE character that we recommend is CODE a. You may change the CODE character if you choose. Sometimes it makes sense to change the alternate CODE character to one that reminds you of the feature and is easier to remember.

If you wish to change the CODE character just backspace out the one that is shown and type in any CODE character that you want.

PRINT/**F5 (Qty)**

Permits you to print as many copies as you desire. When you press F5 (Qty) the following prompt appears, Number of copies: 1. The

default is 1. If you wish to have more copies printed, just backspace out the 1 and type in any number you choose. When you print by pressing F1 (Go) the printer will continuously run until all the copies have been printed that you have indicated. Note that if you have the F2 (Feed) function key "on", or in reverse video, it will feed a blank sheet of paper between each one of your copies. It is probably best if you are interested in conserving paper to have the F2 (Feed) switch off when doing multiple copies.

PRINT/**F6 (CRLF)**

F6 (CRLF) is a switch, reverse video when on, that sends a line feed following each carriage return character to the printer eliminating the need for a dipswitch setting. The distinction between CRLF in the PRINT section and CRLF in phone transmission is discussed in the following section.

THE DISTINCTION BETWEEN PRINT F6 (CRLF) AND F6 (PHNE)/F6 (CRLF)

It is interesting to observe that there are two different function keys with CRLF designations, one for printing and the other for phone transmissions.

The Model 100 normally strips out line feeds both when outputting through the parallel (LPT:) port and through the serial (COM: or MDM:) ports. WRITE ROM allows you to switch either of these independently to pass the line feed character through to the receiving device. This means that if for example you have an electronic mail service that doesn't need the line feed and a printer that does need it, you can accommodate a telex transmission that automatically prints out as it is being sent. Contrariwise if your printer doesn't need a line feed after each carriage return but your electronic mail service does, WRITE ROM can accommodate that too, by means of this remarkably powerful feature.

PRINT/F7 (Paus)

Enables you to print on single sheets of paper. Causes the printer to pause between pages. This lets you take the completed sheet all the way out and feed in another sheet and properly align it with the printhead in the place where you want it to start printing. When you press F7 the label "Paus" shows in reverse video indicating that this feature is active. When it is pressed again it shows regular print indicating that it is off.

DOT COMMANDS

Dot commands enable control of your document from the inside. They allow you to format parts of your document or to change the formatting controls that you have set up with your function key so that a document can start with one set of formatting parameters and then be switched to another later in the document and then again switched back if you desire.

Dot commands have several rules.

1. They always begin with a period.
2. They always appear on a line by themselves in your document.
3. They must be preceded by a carriage return.
4. They always are ended with a carriage return.
5. A dot command is like a switch which once you have turned it on will stay in effect until you turn it off again with another dot command.

Wordstar Compatibility

WRITE ROM's dot commands for the most part have Wordstar compatibility. There are two dot commands, ".IN", INCLUDE and ".MG", MERGE that are exclusive to WRITE ROM and therefore cannot be used if you are preparing your document to be transferred and worked on another computer with Wordstar. If you wish to make your article solely Wordstar simply utilize the commands that are indicated as Wordstar Compatible.

Also WRITE ROM has some other exclusive features that are activated by means of Graph or CODE characters such as

♣ or ii

a. The printer control codes for special print features.

b. The unique FORM feature which is activated by GRPH t.

c. The LIBRARY feature in which various Graph symbols are used inside the document to recall text from another file, designated as the LIBRARY file, where words, phrases, paragraphs, even entire sections of text are coded with Graph characters.

WRITE ROM DOT COMMANDS

.OX ON	Extra line on paragraph — ON
.OX OFF	Extra line on paragraph — OFF
.OL 0-250	Set left margin to n (n stands for any number of spaces)
.OR 0-250	Set right margin to n
.OJ ON	Justify right margin
.OJ OFF	Ragged right edge
.OC ON	Center all text
.OC OFF	Ragged right edge
.CP 1-250	Start a new page unless n more lines fit on the current page (CP stands for conditional page)
.UP 1-250	Move paper up n lines (skip lines)
.PA	Start a new page (Chapter end)
.FO ON	Footer on
.FO OFF	Footer off
.HE ON	Header on
.HE OFF	Header off
.OSn	Line spacing Control 0 = no line feed except after carriage return. 1 = normal single spacing. 2 = double spacing, 3 = triple spacing.
.TIn	Temporary undent or indent
.PN	Starts a new page without incrementing page number

.IN XXXXXX

XXXXXX stands for other filename. Includes other file in printout (not Wordstar compatible). Inserts a copy of another file currently in RAM wherever the .IN command is placed.

The INCLUDE command not only allows you to simply append or chain other files together to make small files into a large single printout, but it also has application as a "boilerplate" or memory typewriter function.

In other places in the manual we discuss the LIBRARY feature of WRITE ROM which also allows you to do "boilerplate". "Boilerplate" is defined as the ability to type brief or simple codes into a document, which will cause other sections of text to be retrieved from another file and inserted in the document at the location where the code was typed.

The purpose of "boilerplate" is so that you can have filed away favorite words, standard openings, closes or answers to common questions and instead of having to retype these each time to simply type the simple code that will bring them into the document.

Although our primary discussion of memory writer capabilities or "boilerplate" is done concerning the LIBRARY feature, it is significant that the dot command ".IN" for the INCLUDE feature might also be regarded in this light.

The limitation with INCLUDE, of course, is that you can only have one block of text that you wish to insert stored in a single file. You might choose to have a standard opening in one file or a standard close in another file or even standard answers to common questions located in several different files. Simply use the ".IN" command to bring the particular block of text into your document where you wish to have it inserted.

.MG XXXXXX

XXXXXX stands for other filename. Merges this document with all the entries from other file. Not Wordstar compatible. Used primarily to send copies of a document to multiple addresses with each address inserted into the letter so that each copy appears personalized.

Although the ".MG" is a dot command it is different than other dot commands in that it is merely a signal at the beginning of a document that designates that file as a document to be merged with another file.

In other words, what it does is to turn on a feature of WRITE ROM which enables all of the names and addresses or other factual information that you have stored in another file to be inserted into your letter or article wherever you designate by means of a GRPH m.

There are three steps to effecting MERGE.

1. You must create a merge file such as the ADRS.DO file where the items you wish to merge are stored. Generally used for names and addresses, it could be used for inventory items or any other similar information that you would like to have inserted into copies of your document.

2. The name and address document must have each line ended with a carriage return. The "records" must always be exactly the same number of lines, for example, if a name and address is five lines and others in the same file are only four lines, you must insert an additional carriage return in the ones with four lines so that all records come out as the same length.

3. In the master document itself simply type a GRPH m wherever you wish lines from your merge file or address file to be inserted. If your entries are five line entries you will need five GRPH m's. They do not need to be together.

4. When printing out make sure that both the master document and the merge file you are accessing are in the RAM at the same time.

5. When you print, every record will be merged, each name and address into its own copy of the master document. In other words you will get a different copy for each name that you have in your address file and that copy will differ from the others only in that it will be personalized with a different name and address.

LIBRARY

Library is a feature of WRITE ROM that turns your Model 100 into a memory writer like a XEROX memory typewriter. It allows you to simply type in a GRPH character plus any sort of code that you come up with to recall standard phrases, openings, closes, answers to commonly asked questions or any other information that you would like to have inserted into a document.

These standard openings, closes and other phrases are often known as "boilerplate".

Library is effected in 3 steps.

Step one

You must prepare a Library file. You can have any number of library files, but only one can be accessed at a time when printing a document.

Library entries can be done two different ways.

First, an entry can be a Graph character followed by a colon, followed by the text that you wish to recall followed by another Graph character.

Second, it can be a Graph character followed by some sort of a code or abbreviation to help you remember it, followed by a colon followed by the text followed by another Graph character.

All Library entries must be ended by another Graph character.

An example of each would be as follows:

```
#:Thank you for your correspondence.
We are always pleased to hear from our
customers.#◄
#114:Our number 114 mineral oil can be
described as having an opacity rating
of 0.24 with a viscosity of 16,000
centipoises and a particulate count of
less than .0001%.#◄
```

Step two

Preparing your document. Wherever you wish an item to be retrieved from a Library file and inserted, simply type in the Graph symbol and the code, if you have used one, followed by a colon. Example,

```
#114:
```

It can be positioned any place in the document. It does not have to be on a line by itself or flush left as with a dot command.

Step three

Printing your document. Prior to printing a document with Library references you must designate which file is your library file.

You do this by putting the widebar cursor from the WRITE ROM menu over that filename and pressing F7 (set), and then F4 (Libr). "Libr" will show in reverse video indicating that you have locked in that file as a library file.

Now print as usual. When you press PRINT/F1 (Go) WRITE ROM will automatically go over to the Library file and get out any references that you called for in your document where you inserted the appropriate Graph symbols and code followed by a colon. They will appear in the printed document as though they were typed in from the keyboard.

FORM

Lets you create interactive forms in which information is typed in from the keyboard by a user in response to prompts which appear on the screen.

FORM works like this. Any place in a document where you type a

```
.G                    (this is a graph t)
```

when you print, the printer will stop and the user is able to type in information from the keyboard. When he presses ESC that information just entered will be printed along with the rest of the file.

Features of FORM

a. You can "print" either to a printer or to a RAM file.

b. You can "print" each time to the same RAM file adding the new information to previous entries. This is accomplished by just typing in ADD: just prior to the filename after you press F3 (Outp) under the PRINT command key. This lets you collect your data from multiple usages all under the same filename.

c. If you only type a GRPH t:, a standard prompt

```
Type in text:
```

will appear on the screen. The user types in his answer, then presses F8 which causes what was typed to go to the printer or to a RAM file.

d. If you wish you can have custom prompts. Just type in whatever prompt you want, up to thirty characters, after the GRPH T, but prior to the colon.

```
.GWhat is your name?:
```

e. You can limit the answer field. Simply put the number of spaces you want the field limited to from 1 to 250 in parenthesis following the colon. When the user gets to the end of the field a beep will sound.

```
.GWhat is your name?:(45)
```

f. If you wish the prompt to appear in the final printout along with the user's answers, you need to type the prompt in the document prior to the GRPH t. Example,

```
What is your name: ■What is your name?:
```

g. If you specify a length in parentheses, eg. (45), the answers that come from the keyboard in response to the prompts are formatted into the document in such a way that they fit exactly the way you placed them. If the user does not take as many spaces as you allotted for his answer, WRITE ROM will pad out that answer with spaces. An entire answer would be padded out with spaces in the event that someone just pressed F8 at any prompt where a field limitation had been specified.

h. To get a hard copy printout of any file that you have "printed" to another RAM file in a formatted fashion you access the document (go inside the document) and print using SHIFT PRINT. Also you could use WRITE ROM and adjust your left margin to 0 and your Right margin to 85. And use PRINT/F1 (Go).

Be sure to study all of these features in detail in the chapters which cover them. This appendix is only meant as a reference and review after you have become thoroughly familiar with all of them and all of their steps and procedures.

APPENDIX

A. WRITE ROM DIAGNOSTIC MESSAGES

Bad Command in file	A line beginning with a period was not recognized as a dot command. Look at your printout for a missing line then go back to your document file and change it. Sometimes caused by an impossible request, such as a left margin of 20 while the right margin is 10.
Bad file name	A file name had a bad character in it (e.g. it began with a digit), or you tried to output a file to itself or you tried to copy into an existing file.
BEEP	If it happens while you are trying to type stuff into a form, it indicates you have typed in the maximum number of characters you specified in parentheses after the GRPH-T prompt. It may occur at other times to draw your attention to some other problem.
3 Digit codes only	The decimal codes you enter for the printer must consist of 3 digits per character. See page 65.
Graph only	The code character you wish to use is not one with an ASCII code of 129 or greater. Try a different GRPH or CODE key.
IO Error nnnn	Usually caused by pressing BREAK in the middle of some output. Make a note of the 'nnnn' (number shown in case you need to ask us about it.
M100 Error nnnn	Not your mistake. Call us with details.
Memory full	Kill some files to make more room.
Menu full	Kill some files to make more room.
Numeric only	You are trying to type letters in to answer a question that requires a number.

Printer not ready	Check it is plugged in, switched on, on line, has paper in it and is connected to your M100. Try switching the printer off then on again.
Too large	*Some other setting in your specs* is preventing you from doing what you want. For example you are trying to set your lines per page to 20 when your printing lines per page is 30. Change printing lines first. Sometimes caused by trying to put in a number that is bigger than WRITE ROM will accept. Eg a page length greater than 250 lines or a line length greater than 132 characters.
Too small	Usually caused by similar problems to the 'Too large' message above.

B. COMMON PRINTER CONTROL CODES

Example printer command sequences: Radio Shack, Epson, Okidata

Epson MX80

	ON	OFF
Setup (CAN)	024	
Underline	027045001	027045000
Bold	027071	027072
Correspondence	027088001	027088000
Expanded (Non Cancelling)	027087001	027087000
Condensed	015	018

Okidata ML 92/93

	ON	OFF
Setup (CAN)	024	
Underline	027067	027068
Bold	027072	027073
Correspondence	027049	027048
Expanded	031	030
Condensed	029	030

Radio Shack DMP120

	ON	OFF
Underline	015	014
Expanded	027014	027015
Condensed	027020	027019

C. EMBEDDED COMMAND REFERENCE

%D	Date in text
%P	Page number in text
%T	Time of day in text
%W	Day of week in text
.FO ON/OFF	Footer
.HE ON/OFF	Header
.IN name	Include a file
.MG name	Designate merge file
.OC ON/OFF	Centering
.OJ ON/OFF	Right justification
.OL nn	Left margin
.OR nn	Right margin
.OS nn	Line spacing
.UP nn	Feed nn lines
.CP nn	Conditional page feed
.PA	Unconditional page feed
.PN	Page feed without number increment
.OX ON/OFF	Extra line on paragraph
.TI nn	Temporary indent
Grph t	FORM
Grph m	MERGE

Library graph characters

Printer control codes

D. OTHER PRODUCTS FROM PCSG.

After experiencing WRITE ROM, most users ask "What else do you have". PCSG is the foremost developer of software for the Model 100. You should have received some literature describing some of our other excellent packages, but if you did not please call or write for an information packet.

One of the difficulties of buying software that you haven't seen is that often is simply is not as advertised. Many amateur programmers will offer their wares with professional advertising that states claims of functionality and ease of use that simply are not true. At PCSG you can be assured that the programs are well designed, well documented and they really perform the way you would expect them to.

At your Radio Shack Store you will find that a number of the programs for the Model 100 are by PCSG.

We are the authors of

Lucid. Exceptional spreadsheet program on Snap in ROM. Given an 'excellent' performance rating by Info World, as well as outstanding reviews in PCM, Pico and Portable 100 magazines, Lucid is amazingly powerful software for the Model 100.
Lucid is a spreadsheet that performs on the Model 100 with the class of Lotus 123 on a desktop. Thousands of satisified users say that Lucid makes the Model 100 into a real computer.

Disk+ File transfer program on Snap in ROM that turns your other computer into a disk storage device for the Model 100. TEXT, programs and LUCID files transferred instantly with a function key. You look at disk directory directly on Model 100 screen, looks just like main menu. All text files compatible on other computer or from other computer to Model 100. Works by cable or over the phone lines.

TENKY+ Business financial analyst program. Gives you very powerful analytical tools to make business decisions based on breakeven analysis, return on investment, interest costs, IRR, NPV, FV, modified IRR and many other financial functions available at the touch of a function key. It also prints out detailed amortization schedules for any time period.

TUTOR+ Typing instruction program. Feeds through your Model 100 screen a comprehensive course as detailed as any high school typing curriculum. Has a unique way of presenting graded typing drills to you on the screen. Has a super game as a bonus, that also hones your touch typing abilities.

TYPE+ Interesting program for those who need a typewriter. Actually turns Model 100 plus any printer into a memory typewriter. Shows last line you typed on the screen as a virtual window 80 columns or more. Prints immediately to printer as you type (last character, word or line) and saves formatted or unformatted copy to RAM at the same time.

Replaces TEXT as a way to generate a text file. An interesting compliment to WRITE ROM.

RESTORE a program everyone needs. Restores lost text files anytime you ever cold start your Model 100.

E. MODEL 100 BOOK FROM MCGRAW HILL

McGraw Hill has just published a new book for the Model 100 written by the founders of PCSG, Sam Redman and Michael Stanford (listed alphabetically). The book is titled "User Friendly Guide to Lap Portables" and is priced at $16.95. It features the Model 100 and the Olivetti M10, which is virtually identical to the Model 100.

This book is the book to have if you are not a computer professional, but a user. It takes the reader step-by-step through the operations of the Model 100. It is instructional but without being condescending. All the built in programs we described in a way that the Model 100 manual does not so that the user can follow along and be taught completely how to use them. All of the PCSG programs sold at the Radio Shack stores are also covered with easy to understand instructions. The manuals that accompany programs in the store are brief and the user really gains from having the good documentation that the McGraw Hill book provides. If you can't find the User Friendly Guide to Lap Portables in your bookstore you can contact PCSG for your copy.

F. HARDWARE PRODUCTS FROM PCSG.

96K RAM Expansion. This is the answer to the commonest request of Model 100 users. More memory. On a single tiny board is packed an amazing 64K of additional memory for your Model 100, which when combined with the 32K you already have, gives you three banks of 32K each. The ROM socket is left free and available so you can run WRITE ROM in any of the banks. Additionally a program is provided with the RAM expansion called RAM+. It comes on a Snap in ROM and provides menu file management in any bank, and enables you to copy files from bank to bank. The RAM module was designed and is manufactured by Cryptronics Inc., utilizing space age techniques and components, notably a multi layer PC board of a density conventionally supposed to be impossible. It is marketed exclusively by Portable Computer Support Group Inc., who also created the RAM+ software.

Portable Disk Drive–this is the Holmes Engineering Chipmunk. The result of a joint developmental effort by Holmes and PCSG. PCSG developed the operating software and Holmes Engineering the hardware. This unit is marketed exclusively by PCSG. Works like an extension of the Model 100's main menu. It is lightweight and comes with 6 powerful programs that provide random access and disk storage of data and programs. Programs include 1. PBASE – powerful data base manager. 2. INVOICE/PO – generates invoices and purchase orders. 3. CALENDAR – a calendar that lets you recall any date or entry to the screen and prints out a ten day schedule of all your appointments in attractive boxed format. 4. TELCOM uploads or downloads to and from disk, for files larger than memory. 5. SORT – lets you sort any records whether generated by one of these programs or not. 6. FINANCE– excellent personal and business finance manager that lets you track any number of accounts giving history, activity and balances.
The disk drive uses state of the art 3.5 inch diskettes, available at any store that sells the Apple Macintosh. Each diskette can store a massive 358K of data, and they fit in a shirt pocket.

ROM Bank. When you have Lucid, WRITE ROM, DISK + and other ROM programs, the idea of being able to turn a switch to access any of them instantly was formerly just a dream. ROM Bank makes that dream a reality, but more so. Not only can you plug up to 6 ROMS into the Model 100 at the same time, but you also have massive battery backup, rechargeable thousands of times, so you will never suffer low power problems again. A single 6 hour charge gives 30 hours of continuous use, four times the average life of a set of AA cells. If you plug it in to your Model 100 power supply, it charges while you are using your computer. ROM Bank fits under the back of the Model 100, and props it up, similar to the popular legs available from Radio Shack stores. Lugs on the ROM bank engage in the screw recesses at the back of the computer. Assembly is simplicity itself. Just snap off the option ROM door and plug in the cable. Plug your ROMS into the sockets in the ROM bank, and plug the ROM bank into the back of your Model 100. No disassembly is needed. The ROM bank is the result of a joint development by Portable Computer Support Group Inc. and Cryptronics, Inc., and is marketed exclusively by us.

G. WRITE ROM VERSATILITY

By now you should have discovered all of the features of WRITE ROM. What you may not know (unless you read it in magazine reviews of the product or deduced it on your own) is that WRITE ROM has amazing versatility that allows you to creatively combine features for a whole host of applications other than those described in the chapters.

Following are but a few. Use your imagination to make combinations to meet your needs. You will find some machinations that are impossible, but keep experimenting. This list is merely to stimulate you to consider the possibilities.

Some of these are outlandish and some impractical, but they are provided here for your consideration, because one might solve a problem you are facing.

1. FORM prompt in header or footer.
2. Library codes as answers to FORM prompts. Combine Library answers with the letter frame described in the FORM chapter for automated letter answering.
3. FORM document as the MERGE master letter which you merge with your mailing list for personalized comments.
4. Print to printer and RAM simultaneously. Use F6 (Phne), but not to send by phone. Just output, with F3 (Stat) to a RAM file. Find, F1 (Find), any ADRS.DO entry and press F2 (Call).
5. Combine #1 with #4 and create footnotes.
6. Library entry with FORM prompts.
7. Database entry. Automatically repeating FORM adding each record to a RAM file or writing to a printer. File A contains only a .IN for file B which is the FORM. File B has .IN for file A at end. Adjust page length, printing lines and margins to record size. Use SHIFT/BREAK to return to WRITE ROM menu.
8. Use Library to create a multiline letterhead or opening for a document in expanded type if you wish. This is for the first page or following a page advance command.

9. Send a FORM document over the phone and answer FORM prompts to create personalized computer letters with the frame concept while transmitting.

10. Have FORM prompts in MERGE document (mailing list) records so that when certain records are printed you can make notations.

11. INCLUDE or append a FORM file.

12. Put a %D, %T, %W, or %P in a Library entry or in a FORM prompt or as a FORM answer.

13. Print a document with a page length of 1 and printing lines of 1, with top and bottom margins of zero. Gives you a formatted document with no page breaks. Creates data base records with FORM that are exactly the same with no extra carriage returns. Also great for phone transmissions because the sign off text immediately follows the end of the document and you don't feed to the bottom of the page. Combine this idea with #7 and be unconcerned about record length.

14. Make a RAM or printed copy of a file in all caps. Use #4 with F5 (Caps) on.

15. Remove carriage returns from a file downloaded from TEL-COM. Use search and replace.

16. Here's a complicated one. Type a document and see it as you type it a line at a time on the screen. Then immediately as you type it send that line to the printer. At the same time it is being sent to a RAM file. Use #4, #7 and #13 and do a field limitation for FORM entry of one less than printer line length. You can play with hundreds of variations on this one.

17. Change a formatted RAM file to unformatted. Use search and replace. Example: look for eight spaces if left margin is 8 and replace with nothing.

18. Make continuously repeating screen messages. Use same idea as in #7, but with a regular document instead of a FORM and output to LCD:. Space your lines and adjust margins for maximum readability when you print.

19. Have favorite format specs.

Certain correspondence or special printouts require their own unique formats. It can be tiresome to have to reset all the relevent function keys each time. You can create favorite global specs that will automatically set left margin, right margin, ragged right edge, justified, centered text, extra line on paragraph, line spacing (like double etc), header on/off, footer on/off and move paper up.

You can have as many favorite format specs as you like. Here's how: In a Library file, as a single Library entry, just put in the dot commands to effect all or whichever of these conditions you want. The only requirement is that you will need to put a carriage return prior to the first dot command after the Library GRPH character (and ID code if you used one) and colon.

To effect, just type the appropriate Library code on the first line (or anywhere else) of any document you want formatted to those specs. Whatever text follows that Library code will be formatted to those settings just as if you had set them with function keys.

If you have 3 or 4 favorite specs, you can just copy and paste those specs into all your Library files if you have more than one, so that you are covered no matter which format you choose or which file you designated as the current Library.

Another approach is to create an entire file just for one set of specs and use the INCLUDE command at the beginning of any document you want formatted to those specs.

20. Have additional "Alternate" printer features.

    Similar to the previous discussion, into all your Library files have Library entries for all printer features that you couldn't put into the function key locations (Chapter 7).

    For a Library entry merely embed the "on" keyboard characters (from the printer manual) for the feature. Embed the "off" characters for another Library entry. Remember to type a CTRL p prior to typing each of the characters called for.

    To effect a printer feature:

    Anywhere in a document just type the Library code you designated for "on", and where you want it stopped type the one for "off". Global or "setup" Library codes would be typed at the beginning of a document, but a better idea is to make global printer feature controls a part of the "favorite format spec" Library entry described in the preceding discussion.

21. Come up with your own unique application and let us hear about it. We will share it with other users.

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